THE CONNECTICUT LIGHT AND POWER COMPANY
Doing Business As
EVERSOURCE ENERGY

REQUEST FOR TOWER SHARING ON
AN EXISTING TELECOMMUNICATIONS FACILITY
IN THE TOWN OF COVENTRY, CONNECTICUT

A. Introduction

Pursuant to Connecticut General Statutes ("CGS") §16-50aa[1], The Connecticut Light and Power Company, doing business as Eversource Energy ("Eversource" or the "Company"), hereby requests approval of the Connecticut Siting Council ("Council") for shared use on an existing wireless telecommunications facility ("Existing Facility") located at 400 Riley Mountain Road, Coventry, Connecticut ("Site"). Eversource proposes to collocate radio communication equipment at the Existing Facility, which is owned and maintained by Crown Castle ("Crown") and located at a latitude and longitude of 41° 47' 56.21" N and -72° 19' 55.88" W, respectively. The Existing Facility is situated in the eastern portion of a ±28.58-acre wooded lot owned by the Trustee of James L. and Concetta M. Wallbeoff. See Figure 1, *Site Location Map*.

Eversource requests that the Council find that the proposed shared use of the Crown facility satisfies the criteria of CGS §16-50aa and issue an order approving the shared use.

B. Background

Eversource is in the process of expanding its 900 megahertz ("MHz") Distribution Supervisory Control and Data Acquisition ("DSCADA") system throughout Connecticut. This system enhances the reliability of the electrical distribution system and public safety by remotely operating line disconnect equipment where wireless operated power switching equipment has been installed. Furthermore, Eversource is currently adding base stations throughout its service territory to improve land mobile radio voice communications with electrical workers when performing maintenance work on or repairs to the electric system infrastructure.

[1] Regulations of Connecticut State Agencies ("RCSA") §§16-50j-88 to 16-50j-90 also applies.

Legend

- Site
- Municipal Boundary

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Coventry, CT (1983)
Map Scale: 1:24,000
Map Date: September 2017

1,000 500 0 1,000 Feet

Figure 1
Site Location Map

Proposed Wireless Telecommunications Facility
N. Coventry/Wallbeoff
Riley Mountain Road
Coventry, Connecticut

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Crown currently owns and operates the Existing Facility, commonly referred to as the "Riley Mountain Road Facility"[2], located in an area that allows Eversource an opportunity to enhance its current communications system. The Existing Facility consists of an irregularly shaped, fence enclosed equipment compound, several equipment shelters and a ±152-foot steel monopole containing multiple commercial telecommunication service providers' antennas and appurtenances. The total height of the existing tower with top-mounted antennas is ±154.5 feet above ground level ("AGL").

Access to the Site is from the north, off Riley Mountain Road. The property on which the Site lies (identified in Coventry Assessor records as Parcel 011 0029A 0003) has frontage to Boston Turnpike; however nearly 400 feet of mature forest separates the Site from this road.

C. Description of the Project

Eversource proposes to install one (1) ±20-foot tall[3], dual pole omnidirectional whip antenna with a tower top amplifier on the Existing Facility mounted at an elevation of ±152 feet AGL. An irregular shaped gravel-based compound and fence expansion (±736 square feet) is proposed in the northern portion of the existing compound to provide space for a new ±10-foot by ±20-foot by ±10-foot tall concrete equipment shelter and a 1,000-gallon above ground propane tank. A short (±6-foot) extension off the existing compound's northeast corner would accommodate a 20-kW propane-fueled, emergency back-up power generator. Collectively, these proposed modifications are referred to herein as the "Project". The existing Site's ground elevation is approximately 707.75 feet above mean sea level. The height of the new whip antenna would extend a maximum of ±20 feet above the top of the tower, raising the total height to approximately 172 feet AGL. See Attachment 1, *Project Plans* (completed by the All Points Technology Corporation ["APT"]; dated June 6, 2018). Eversource would continue to own and maintain its equipment after the Project is completed.

[2] This existing telecommunications facility is identified in the Council's Statewide Comprehensive Tower Database (October 11, 2017).

[3] This is an approximate dimension. The proposed antenna model for installation (DB Spectra DS9A09F36D-N) is 19.2 feet.

Table 1, *Antenna Schedule*, summarizes the proposed antenna type and vertical center line location as proposed. Specifications for the Company's new antennas, emergency back-up power generator and 1,000-gallon above ground propane tank are included in Attachment 2, *Antenna & Emergency Back-Up Power Generator Specifications.*

Table 1: Antenna Schedule

Antenna Type	Antenna Make/Model	Antenna Center Line Elevation (ft. AGL)	Comments	Frequency
20-ft. Tall Dual Omni	DB Spectra DS9A09F36D-N	±162.0	DSCADA	900 MHz & 935 MHz

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

D. Technical Feasibility

The existing Crown monopole is structurally capable of supporting Eversource's proposed improvements making the proposed shared use technically feasible. A structural loading analysis has been performed to ensure that the tower would be structurally capable of supporting the loading from the new antenna and appurtenances. A review of the design and structural analysis for the Project is included in Attachment 3, *Structural Analysis Report*, which was provided by Crown in August 2017.

E. Legal Feasibility

Under CGS §16-50aa[4], the Council has authority to issue orders approving the shared use of an existing tower such as the monopole at the Existing Facility. An order by the Council approving the requested shared use would permit Eversource to obtain a building permit, if required by the Town of Coventry, for the proposed Project.

F. Environmental Feasibility

The Project would not have a substantial adverse environmental effect because Eversource would use the Existing Facility, thus eliminating the need to construct a new tower. Additionally, the proposed modifications to the existing equipment compound requires minimal earthwork in areas adjacent to where prior ground disturbances have occurred.

[4] Regulations of Connecticut State Agencies ("RCSA") §§16-50j-88 to 16-50j-90 also applies.

1) Wetlands and Watercourses

The Project would not have a significant adverse effect on wetlands resources or watercourses as its scope is limited to areas within or immediately beyond the Existing Facility footprint. Two wetland resources were identified by APT during a field inspection on September 21, 2017[5].

Wetland 1

The closest wetland resource, Wetland 1, is located ±54 feet east of the access road and ±226 feet north of the proposed modifications to the Existing Facility. Wetland 1 consists of a small forested hillside seep system that drains west to east. This wetland is generally located on a topographic plateau and transitions to moderately drained uplands farther to the east as the slope steepens. The wetland is dominated by mature, closed-canopy forest with a sparse understory. Micro-topography within this area generally consists of shallow hummock/hollows. No evidence was observed of seasonal flooding within Wetland 1.

Wetland 2

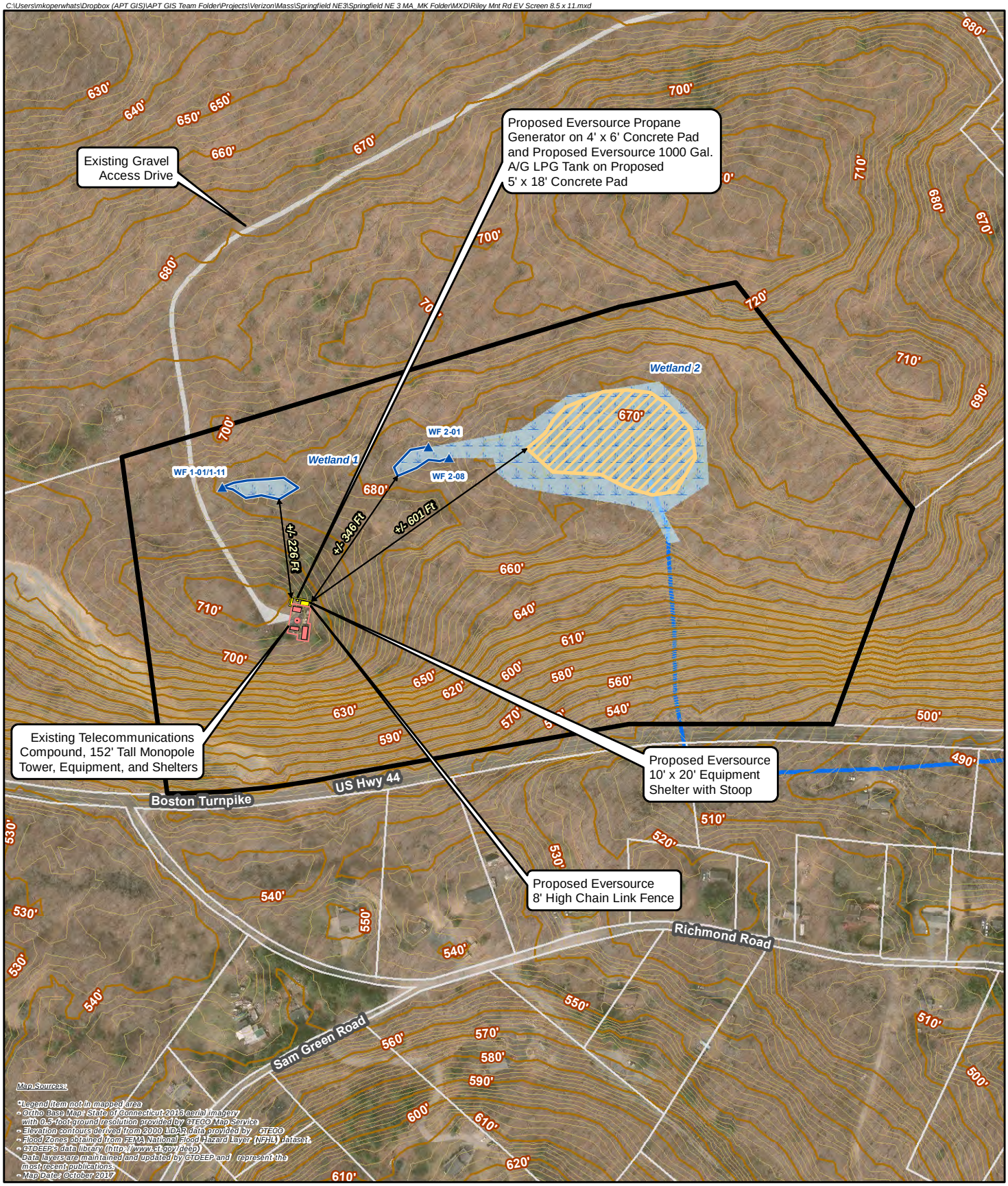
Wetland 2, located approximately 346 feet north of the proposed compound expansion at its closest point, consists of a complex hillside seep system that drains west to east. Hillside seep portions of the wetland consist of very stony soils. Western extents of the wetland are dominated by closed-canopy mature forest. As the wetland drains east into a vernal pool habitat, the dominant cover type transitions to scrub/shrub.

Vernal Pool Habitat

The vernal pool habitat within Wetland 2 is located approximately 601 feet to the northeast of the Existing Facility. This resource was given a conservative priority rating of Tier 1[6] since the inspection was conducted during non-breeding vernal pool season. The topography consists of hummock/hollow with evidence of seasonal flooding exceeding eight (8) inches. The Existing Facility and proposed compound expansion are located within the Critical Terrestrial Habitat conservation zone ("CTH"; 100'-750' from the edge of a vernal pool breeding habitat). See Figure 2, *Environmental Resources Map*.

[5] The wetland inspection was conducted by a registered soil scientist. Wetlands and watercourses were delineated in accordance with applicable local, state and federal statutes, regulations and guidance.

[6] A Tier I rating is considered to have relatively high breeding activity and relatively intact terrestrial habitat. Vernal Pool Assessment Sheet (source: Calhoun and Klemens 2002).



Legend

- Existing Monopole Tower
- Proposed Eversource Equipment
- Proposed Eversource Fence
- Existing Equipment
- Existing Telecommunications Compound
- Existing Gravel Access Drive
- Subject Property
- Approximate Parcel Boundary (CTDEEP)
- Natural Diversity Database Area (June 2017)*
- Critical Habitat (CTDEEP; July 2009)*
- Vernal Pool
- Wetland Flag
- Delineated Wetland Boundary
- Approximate Wetland Area
- Watercourse (CTDEEP)
- Open Water (CTDEEP)*
- 10-foot Contour Line
- 2-foot Contour Line
- 100-Year Flood Zone
- 500-Year Flood Zone
- Floodway
- Final Adopted Aquifer Protection
- Final Aquifer Protection
- Preliminary Aquifer Protection

N W E S

Map Scale: 1 inch equals 300 feet

300 150 0 300 Feet

Figure 2
Environmental Resources Map

Proposed Wireless Telecommunications Facility
N. Coventry/Wallbeoff
Riley Mountain Road
Coventry, Connecticut

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The proposed modifications will not alter existing surface or subsurface flow conditions or directions. Site clearing and grading activities will not de-water the nearby wetland resources or vernal pool. Further, no alterations to surface water drainage patterns associated with these resources would occur since any new impervious surfaces would be minimized through the use of gravel surfaces that promote infiltration. Therefore, the proposed modifications will not alter the hydrology of the nearby wetlands or vernal pool. See Attachment 4, *Wetland Inspection Report & Vernal Pool Analysis* for more detailed information.

2) Soil Erosion, Sediment Control, and Soil Remediation

Minor ground disturbances would be associated with the modifications to the existing equipment compound and installation of the equipment shelter and excavations would not exceed ±4 feet below grade. Groundwork associated with the Project would include regrading/leveling of the Site where the compound expansion is proposed and trenching for the installation of new coax cables, concrete pads and fence posts. No modifications to the existing access road are required. Erosion and sedimentation controls would be installed and maintained in the required areas during construction in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control*; therefore, no adverse impacts to any of the wetland or vernal pool resources are anticipated from the Project.

3) Wildlife and Vegetation

Ground disturbance associated with the Project would be minor and take place within an area that has been previously disturbed as a result of the Exiting Facility's development and does not support any significant wildlife habitat. Therefore, the Project would not have an adverse impact to wildlife or vegetation.

According to the available Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division Natural Diversity Data Base ("NDDB") maps, the Project is not located within NDDB buffer area. The nearest buffer area is located ±0.85 mile to the west. APT submitted a NDDB 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. The CTDEEP responded on October 23, 2017 stating that populations of one known species of special concern, Spotted Turtle (*Clemmys gutta*), are known to occur within the vicinity of the Project area and best management practices will need to be implemented. A recommended list of Spotted Turtle protection measures was included in the CTDEEP response. Eversource will adhere to DEEP's recommended turtle

protection measures during construction to avoid potential impact to this State-listed species.

A copy of the CTDEEP response letter and recommended Spotted Turtle protection measures are included in Attachment 5, *Agency Correspondence.*

One federally-listed threatened species, the northern long-eared bat ("NLEB"; *Myotis septentrionalis*), is known to occur in the vicinity of the Site. The NLEB'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 Project is a hibernaculum located in East Granby ±44 miles to the northwest of the Project. Based on this information, the Company believes that the Project is not likely to adversely affect NLEB.[7]

The proposed location for the compound expansion consists of bordering gravel and edge mature forest. The dominant cover type within this edge forest is red oak and Eastern white pine. Based upon the extent of the proposed compound expansion area and the surrounding vegetation, it does not appear that mature trees[8] will need to be removed. However, a 20-inch DBH Eastern white pine that is located approximately 10 feet to the north of the proposed compound expansion, could potentially be affected during construction if the root zone were compromised by earthwork activities. Eversource and its contractor will take precautions to protect this tree during construction. Two existing deceased trees will need to be removed to accommodate the proposed compound expansion. No other trees are anticipated to be affected by the proposed compound expansion[9].

4) Safety and Health

The Project would not create any safety or health hazards to persons or property. Eversource does not anticipate the need for any traffic control measures during construction on the Site

[7] A NLEB streamlined consultation form was submitted to the United States Fish and Wildlife Service ("USFWS") on October 16, 2017. 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. The USFWS did not respond to the submission within the 30-day time frame so it is presumed that no adverse effect would occur to NLEB from the Project. A USFWS NLEP Compliance Statement is included in Attachment 5, *Agency Correspondence*.

[8] Trees measuring greater than 6" Diameter at Breast Height ("DBH").

[9] Some existing trees near the proposed compound expansion may need minor pruning to allow for construction equipment to operate safely.

or equipment and materials delivery. After completion of construction, the Project would not generate any additional traffic to the area other than routine, 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 Project 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 Project would increase current levels by 0.11% to a total of 8.99% of the FCC Standard for public exposure to RF emissions. Please refer to Attachment 6, *Calculated Radio Frequency Emissions Report*, dated November 22, 2017.

5) Visual

The Project would not result in a substantial change to existing conditions nor would it alter the current viewshed footprint of the Existing Facility. The Existing Facility is a ±152-foot monopole that includes several wireless communications antennas[10] for multiple carriers. Due to its remote location and the topography and dense mature tree canopy in the surrounding area, the monopole is not highly visible today. The proposed Eversource antenna would be installed at the top of the monopole and would extend approximately 20 feet above the tower. The outer diameter of the whip antenna would be 1.5 inches and as such, would not be easily visible beyond the immediate area of the Site. The Project would also include a small expansion of the existing equipment compound and the installation of a new equipment shelter, emergency back-up generator and propane tank. Views of the proposed modifications to the equipment area would be limited to the Site itself as the compound would be surrounded by undeveloped wooded areas. As a result, the Project would not have an adverse visual impact on the environment or character of the community.

For a visual comparison of the Existing Facility and the proposed modifications, please refer to the *Photo-Simulations* in Attachment 7.

[10] The overall height of the Existing Facility with appurtenances is ±154.5 feet AGL.

6) 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.

No Historic Properties[11] 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 or Visual Effects. A review of cultural resources on file with the Connecticut State Historic Preservation Office ("SHPO") 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.

This information was documented in a Preliminary Archaeological Assessment report prepared by Heritage Consultants, LLC and submitted with a Project Review Request to the SHPO. The SHPO responded to the Company's submission on October 25, 2017 with the determination that "no historic properties will be affected". A copy of the SHPO's response is included in Attachment 8.

7) Forests and Parks

The Site contains no publicly accessible areas of recreation or public interest administered by any federal, state, local, or private agencies.

8) Noise

A Noise Evaluation Report was prepared for the Project by HMB Acoustics LLC of Avon, Connecticut. Based on sound measurements obtained at the Site and adjacent locations, the average levels range from 26 to 38 dBA[12]. A copy of the Noise Evaluation Report is included in Attachment 9, *Noise Evaluation Report*.

[11] The Nationwide Programmatic Agreement defines a "Historic Property" as "Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or NHO that meet the National Register criteria."

[12] Sound measurements obtained on July 28, 2017 by HMB Acoustics LLC, of Avon, Connecticut. The Town of Coventry does not currently have a noise ordinance or guidelines but the results of the Noise Evaluation are below standards set forth by the Connecticut Department of Energy & the Environment for a Class A Noise Zone (§ 22a-69-3.5(c) Noise Zone Standards Residential – 55 dBA day – 45 dBA night).

G. Municipal Outreach

The Coventry Town Manager was briefed and provided a copy of the tower share application for the shared use on an existing wireless telecommunications facility (located at Riley Mountain Road, Coventry, Connecticut). Eversource also provided a copy of the tower share application to the underlying property owner as required per the Tower Share Application Guide.

H. Colocation Feasibility

Eversource has entered into a tower share lease agreement with Crown Castle for the shared use of the existing facility. See Attachment 10, *Tower Share Lease Agreement.*

I. Schedule

The Project would begin as soon as practical after issuance of the requested approval by the Council and construction would be less than two months in duration. Eversource anticipates that construction would be completed by the end of the fourth quarter of 2018.

J. Conclusion

CGS Section §16-50aa[13] indicates that no Certificate of Environmental Compatibility and Public Need is needed for proposed sharing of an existing telecommunications facility. Based on the information provided herein, the proposed shared use of the Existing Facility satisfies the criteria stated in CGS §16-50aa. Eversource respectfully submits that the proposed installation of the whip antenna and ground equipment at this existing telecommunications facility would be technically, legally, environmentally, and economically feasible while preventing the unnecessary addition of towers in Connecticut. Therefore, Eversource respectfully requests that the Council issues an order approving the proposed shared use.

[13] Regulations of Connecticut State Agencies ("RCSA") §§16-50j-88 to 16-50j-90 also apply.

K. Communications with Company

Communications regarding this request for a tower share application 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:

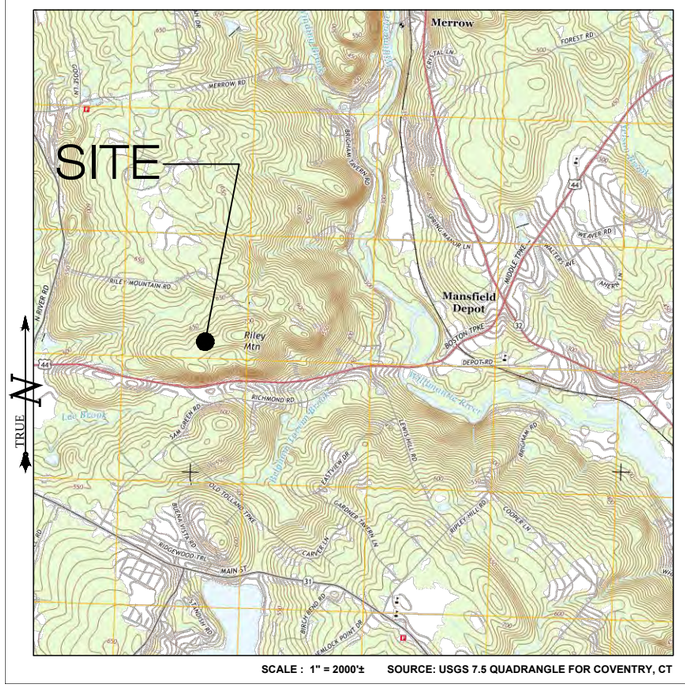
Kathleen M. Shanley
Manager – Transmission Siting

Attachment 1 – Project Plans

LOCATION MAP

SCALE : NTS SOURCE: GOOGLE MAPS

USGS TOPOGRAPHIC MAP



SCALE : 1" = 2000'± SOURCE: USGS 7.5 QUADRANGLE FOR COVENTRY, CT

EVERSOURCE ENERGY

107 SELDEN STREET
BERLIN, CT 06037
(800) 286-2000

DRAWING INDEX

*SITE INFORMATION:

-SITE NAME:..... N. COVENTRY/WALLBEOFF
-SITE ID NUMBER:..... CC-876385

-SITE ADDRESS:..... BOSTON TPK.
COVENTRY, CT 06283

-MAP:..... 011
-BLOCK:..... 29A
-LOT:..... 003

-ZONE:..... GENERAL RESIDENTIAL ZONE - 80
-LATITUDE - ..... 41° 47' 56.21" N
-LONGITUDE - ..... 72° 19' 55.88" W
-ELEVATION - ..... 707.8'± AMSL

-FEMA/FIRM
DESIGNATION:..... PANEL#090110 0010 D - ZONE C
-ACREAGE:..... 28.58± Ac (BOOK: 770, PAGE 286)

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 28025
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PROFESSIONAL ENGINEER

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3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
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CONTACT PERSONNEL

APPLICANTS:
EVERSOURCE ENERGY
107 SELDEN STREET
BERLIN, CT 06037

PROPERTY OWNER:
JAMES L. WALLBEOFF, JR. & CONCETTA M. TRUSTEE
C/O AMI BETH DEGREY
PO BOX 99
DEERFIELD, VA 24432

TOWER OWNER:
CROWN CASTLE
PM: BILL GATES

EVERSOUCE ENERGY PROJECT MANAGER:
STEVE FLORIO
(860) 655-7943

POWER PROVIDER:
EVERSOURCE ENERGY
800-286-2000

TELCO PROVIDER:
FRONTIER
(800) 921-8102

CALL BEFORE YOU DIG:
(800) 922-4455

GOVERNING CODES:
2016 CONNECTICUT STATE BUILDING CODE
2017 NATIONAL ELECTRIC CODE
EIA/TIA 222G

SITE INFORMATION

N. COVENTRY / WALLBEOFF
RILEY MTN. RD.
COVENTRY, CT 06238

PERMITTING DOCUMENTS

N. COVENTRY/WALLBEOFF
RILEY MTN. RD.
COVENTRY,CT 06283

DESIGN TYPE:
CO-LOCATION
ON EXIST. MONOPOLE

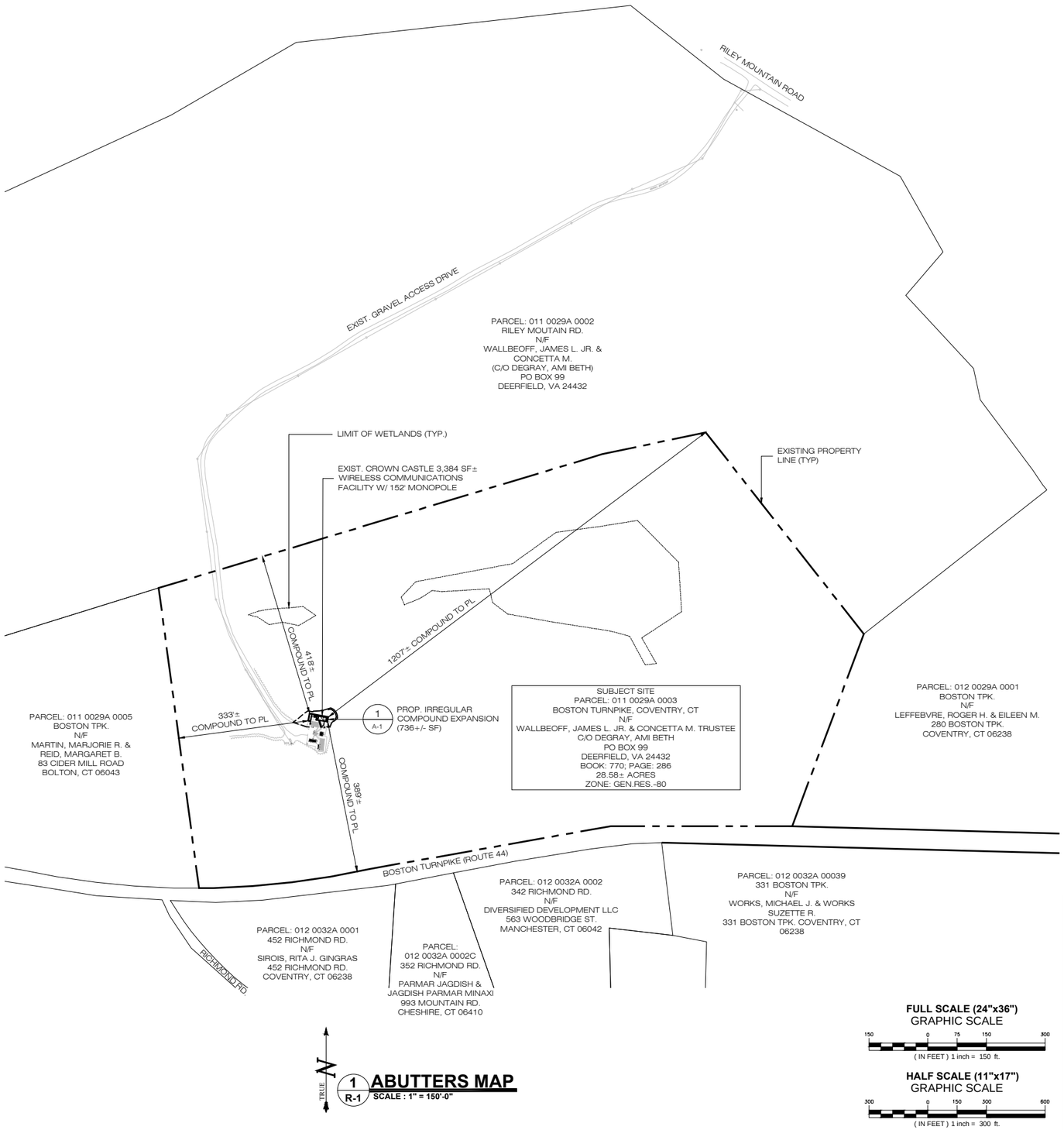
REVISIONS:

REV.0: 10/06/17: FOR REVIEW: BJP
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

TITLE SHEET & INDEX

APT FILING NUMBER: CT259620
APT DRAWING NUMBER:- T-1
DRAWN BY: ELZ
CHECKED BY: BJP
SCALE: AS NOTED
DATE: 10/06/17

SHEET NUMBER:
T-1



FULL SCALE (24"x36")
GRAPHIC SCALE

150 0 75 150 300

(IN FEET) 1 inch = 150 ft.

HALF SCALE (11"x17")
GRAPHIC SCALE

300 0 150 300 600

(IN FEET) 1 inch = 300 ft.

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 25025
LICENSED
PROFESSIONAL ENGINEER

BASE MAPPING FOR SHEETS R-1 AND A-1 FROM:

1. PLANS ENTITLED "TOPOGRAPHIC SURVEY - PROPERTY OF JAMES L. WALLBEOFF JR. CONETTA M. WALLBEOFF TRUSTEE, RILEY MOUNTAIN ROAD, COVENTRY, CONNECTICUT" "PREPARED BY MARTIN SURVEYING ASSOCIATES, LLC, 201 CHRISTIAN LANE BERLIN, CT 06037" DATED: 7/31/2017.

2. TOWN OF COVENTRY ASSESSORS MAPS 11 AND 12

3. TOWN OF COVENTRY GIS DATABASE

4. WETLANDS WERE DELINEATED AND SURVEYED BY MATTHEW GUSTAFSON, REGISTERED SOIL SCIENTIST AT ALL-POINTS TECHNOLOGY CORP., P.C. ON SEPTEMBER 21, 2017.

SITE NUMBER:
CC-876385

APT FILING NUMBER:
CT259620

EVERSOURCE ENERGY

107 SELDEN STREET
BERLIN, CT 06037

ALL-POINTS TECHNOLOGY CORPORATION

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KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

PERMITTING DOCUMENTS

N. COVENTRY/WALLBEOFF
RILEY MTN. RD.
COVENTRY,CT 06283

DESIGN TYPE:
CO-LOCATION
ON EXIST. MONOPOLE

REVISIONS:

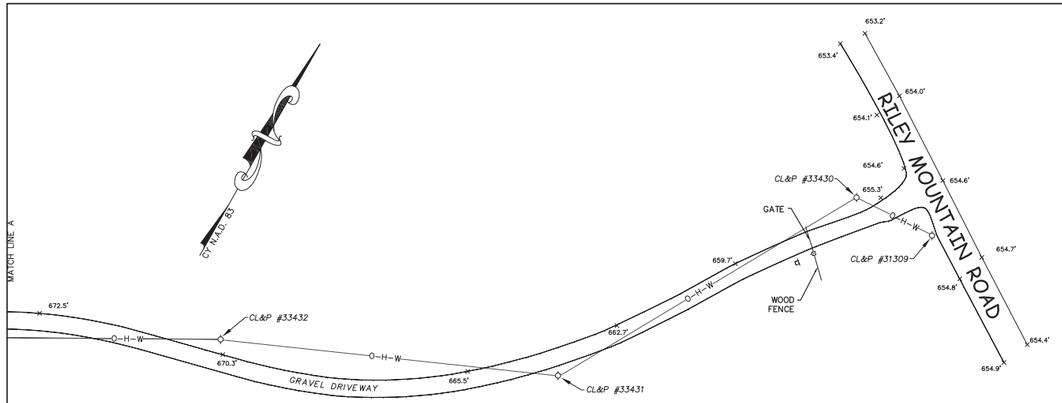
REV.0: 10/06/17: FOR REVIEW: BJP
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

ABUTTERS MAP

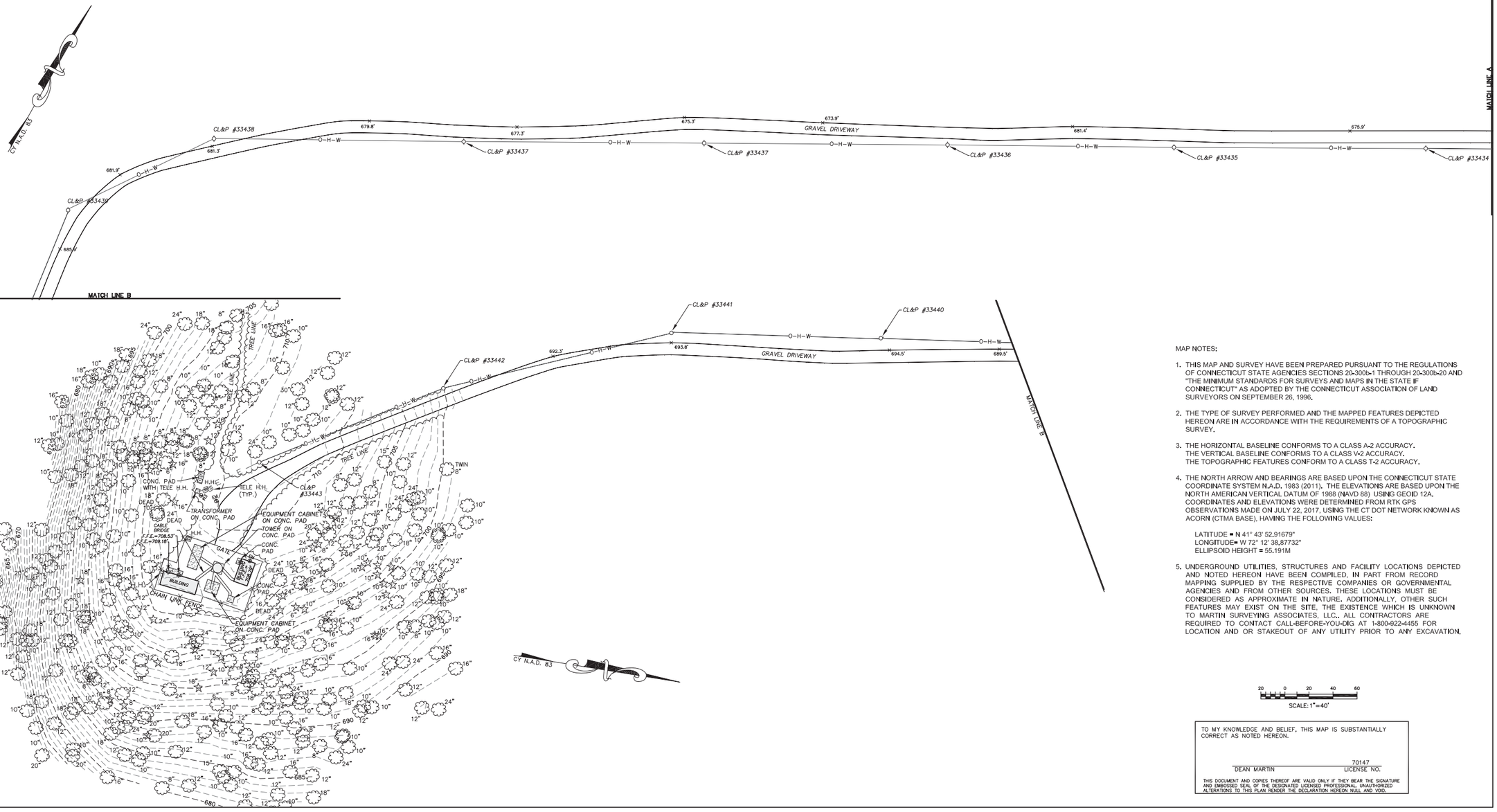
APT FILING NUMBER: CT259620
APT DRAWING NUMBER:- A-1
DRAWN BY:ELZ | **SCALE: AS NOTED**
CHECKED BY:BJP | **DATE: 10/06/17**

SHEET NUMBER:

R-1



SITE LOCATION MAP (NOT TO SCALE)



LEGEND:

IRON PIN (FOUND)	LIGHT POLE
Rebar/Drill Hole (To Be Set)	GUY ANCHOR
MONUMENT (FOUND)	UTILITY POLE
SIGN	WATER GATE
MANHOLE	WATER METER
"C" CATCH BASIN	GAS VALVE
"C-L" CATCH BASIN	GAS METER
SHRUB/BUSH	TRANSFORMER
DECIDUOUS TREES	ELEC. METER
EVERGREEN TREES	MAIL BOX
FLAG POLE	HAND HOLE
POST	BUTTON BOX
TRAFFIC CONTROL BOX	A.C. UNIT
	TRAFFIC LIGHT POLE

BOUNDARY LINE
GUARD RAIL
UNDERGROUND PIPING (San.,Stm.)
G U/G GAS LINE
E U/G ELEC. LINE
W WATER LINE
O-H-W OVERHEAD UTILITIES
T U/G TELE. LINE
CHAIN LINK FENCE
TREE LINE

MAP NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND "THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE IF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS ON SEPTEMBER 26, 1996.
2. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF A TOPOGRAPHIC SURVEY.
3. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY. THE VERTICAL BASELINE CONFORMS TO A CLASS V-2 ACCURACY. THE TOPOGRAPHIC FEATURES CONFORM TO A CLASS T-2 ACCURACY.
4. THE NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM N.A.D. 1983 (2011). THE ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) USING GEOID 12A. COORDINATES AND ELEVATIONS WERE DETERMINED FROM RTK GPS OBSERVATIONS MADE ON JULY 22, 2017, USING THE CT DOT NETWORK KNOWN AS ACORN (CTMA BASE), HAVING THE FOLLOWING VALUES:

   LATITUDE = N 41° 43' 52.91679"
   LONGITUDE= W 72° 12' 38.87732"
   ELLIPSOID HEIGHT = 55.191M

5. UNDERGROUND UTILITIES, STRUCTURES AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE COMPANIES OR GOVERNMENTAL AGENCIES AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE EXISTENCE WHICH IS UNKNOWN TO MARTIN SURVEYING ASSOCIATES, LLC., ALL CONTRACTORS ARE REQUIRED TO CONTACT CALL-BEFORE-YOU-DIG AT 1-800-922-4455 FOR LOCATION AND OR STAKEOUT OF ANY UTILITY PRIOR TO ANY EXCAVATION.

20 0 20 40 60
SCALE: 1"=40'

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

DEAN MARTIN — 70147 LICENSE NO.

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED LICENSED PROFESSIONAL. UNAUTHORIZED ALTERATIONS TO THIS PLAN RENDER THE DECLARATION HEREON NULL AND VOID.

martin
Surveying Associates, LLC
201 CHRISTIAN LANE BERLIN, CT 06037
860-832-9328 860-357-4604 (FAX)

REVISIONS:

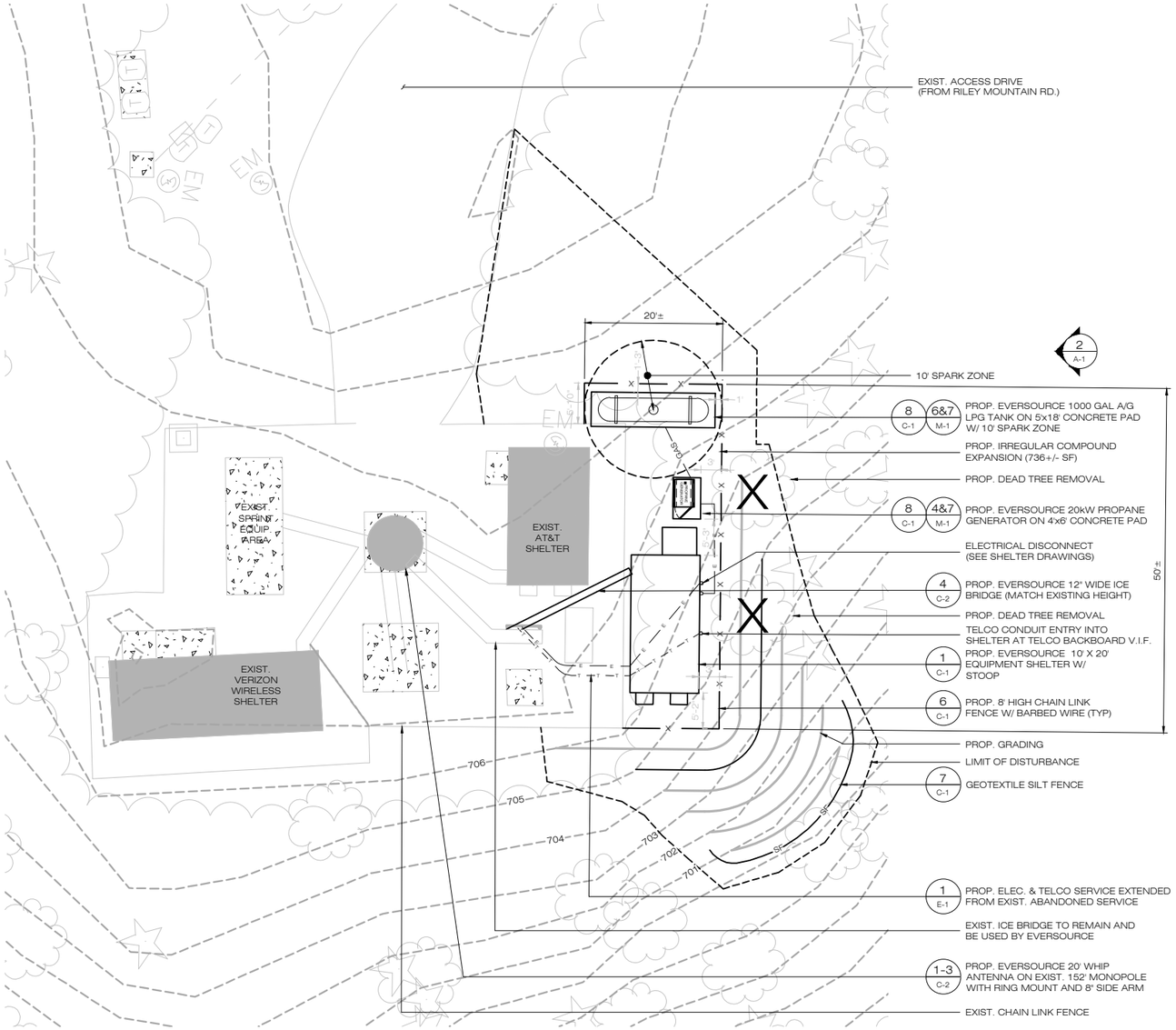
TOPOGRAPHIC SURVEY
PROPERTY OF
JAMES L. WALLBEOFF JR
&
CONETTA M. WALLBEOFF TRUSTEE
RILEY MOUNTAIN ROAD
COVENTRY, CONNECTICUT

MSA PROJECT NO: 17-087

SCALE: 1"=40' | DRAWN BY: G.S.D.

DATE: 7/31/2017 | CHECKED BY: D.G.M.

SHEET: 1 OF 1



1 A-1 COMPOUND PLAN

SCALE : 1" = 10'-0"

TRUE N

FULL SCALE (24"x36")
GRAPHIC SCALE

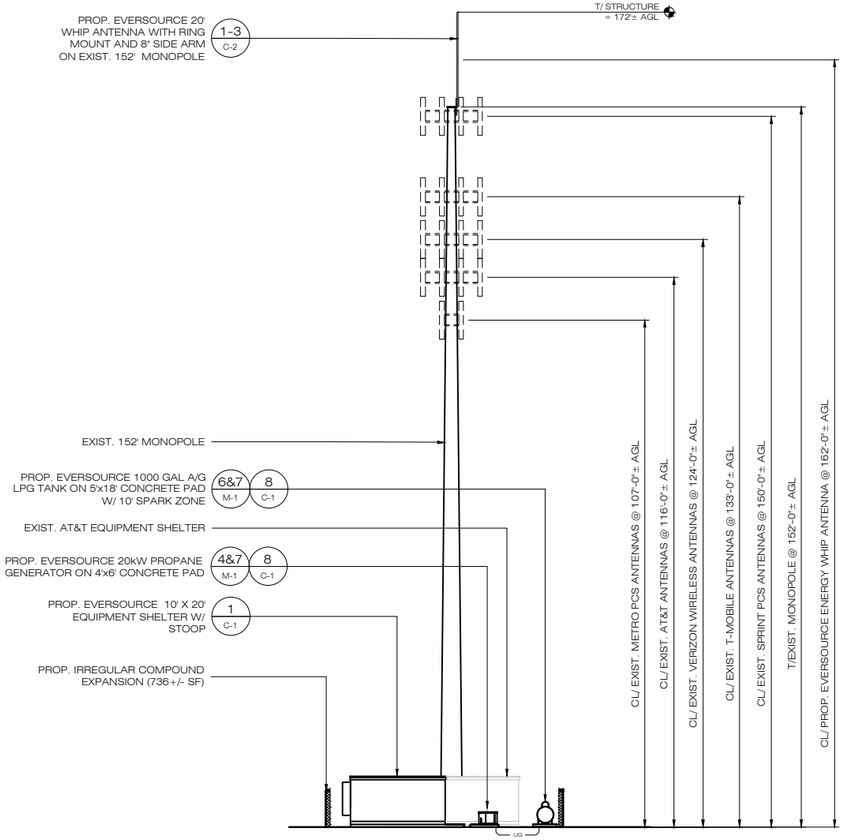
10 0 5 10 20

(IN FEET) 1 inch = 10 ft.

HALF SCALE (11"x17")
GRAPHIC SCALE

20 0 10 20 40

(IN FEET) 1 inch = 20 ft.

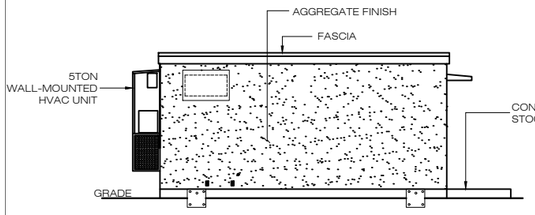


2 A-1 EAST ELEVATION

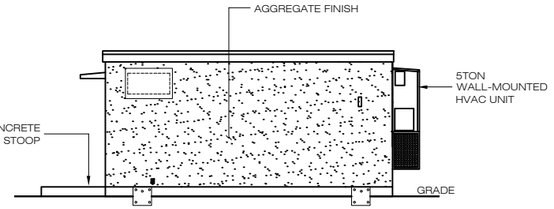
SCALE : 1/16" = 1'-0"

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 26025
LICENSED
PROFESSIONAL ENGINEER

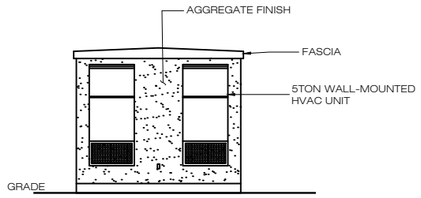
SITE NUMBER: CC-876385 **APT FILING NUMBER:** CT259620 EVERSOURCE ENERGY 107 SELDEN STREET BERLIN, CT 06037	**PERMITTING DOCUMENTS** **N. COVENTRY/WALLBEOFF** **RILEY MTN. RD.** **COVENTRY,CT 06283** **DESIGN TYPE:** **CO-LOCATION ON EXIST. MONOPOLE**	**COMPOUND PLAN AND EASTERN ELEVATION**
	REVISIONS: REV.0: 10/06/17: FOR REVIEW: BJP REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP REV.2: 11/13/17: CSC SUBMISSION: BJP REV.3: 06/06/18: FOR CONSTRUCTION: BJP	APT FILING NUMBER: CT259620 APT DRAWING NUMBER:- SP-1 DRAWN BY: ELZ SCALE: AS NOTED CHECKED BY: BJP DATE: 10/06/17
ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM PHONE: (860)-663-1697 FAX: (860)-663-0935		SHEET NUMBER: **A-1**



EAST ELEVATION

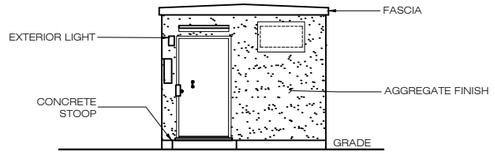


WEST ELEVATION



SOUTH ELEVATION

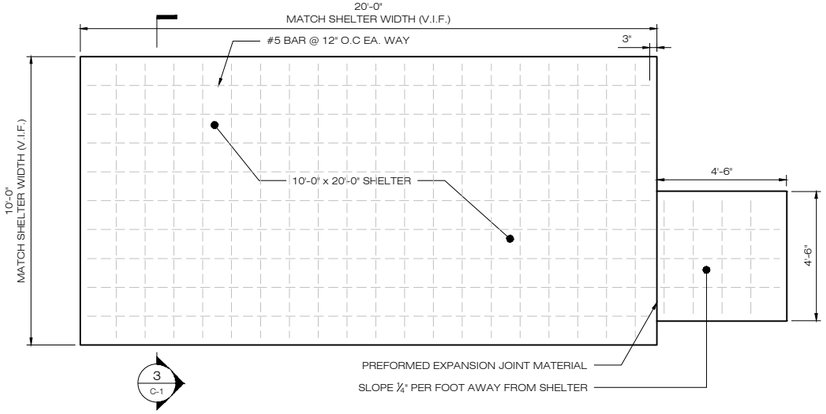
ANDREW CORPORATION SHELTER
MODEL # RCS10201-00100-015
(RELOCATED FROM AN EXISTING SITE)



NORTH ELEVATION

1 C-1 EQUIPMENT SHELTER ELEVATIONS

SCALE : 3/16" = 1'-0"

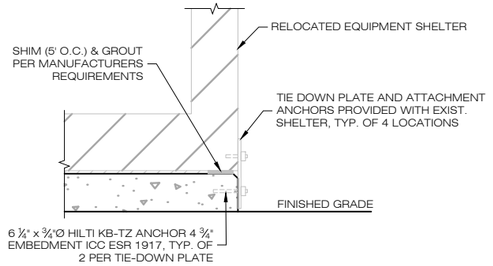


2 C-1 TYPICAL FOUNDATION PLAN

SCALE : N.T.S.

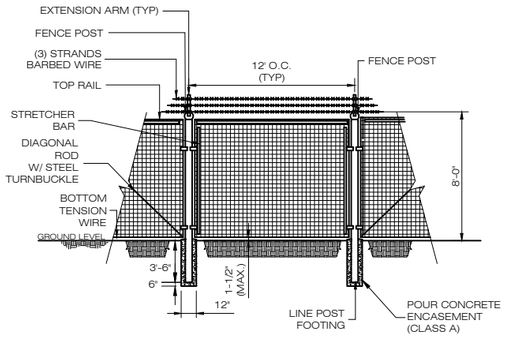
CONCRETE FOUNDATION NOTES:

1. SLAB ON GRADE FOUNDATION DESIGN CONFORMS TO THE REQUIRMENTS OF THE 2012 INTERNATIONAL BUILDING CODE AS AMENDED BY THE 2016 CONNECTICUT STATE BUILDING CODE SUPPLEMENT SECTION 1809.5 'FROST PROTECTION AND SEI/ASCE STANDARD 32-01 SECTION 7.1 'SLAB ON GRADE CONSTRUCTION'.
2. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
3. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
4. BEARING SHIMS, TIE-DOWN PLATES AND ASSOCIATED INSTALLATION ANCHORS PROVIDED WITH EXISTING SHELTER. CONTRACTOR SHALL VERIFY ALL SHIM & TIE DOWN QUANTITIES AND LOCATIONS WITH THE OWNER PRIOR TO PERFORMING FOUNDATION WORK.
5. ALL REINFORCING TO HAVE 2" MINIMUM CONCRETE COVER.
6. BAR REINFORCING TO BE ASTM A615 GRADE 60.
7. PER NEC REQUIRMENTS, THE REBAR IN FOUNDATION AMND FOOTING SHALL BE BONDED TO GROUND RING WITH A #2 AWG SOLID CONDUCTOR USING LISTED AND APPROVED METHODS.
8. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=3000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%).
9. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 BUILDING CODE, AND IBC 2009.
10. SLAB TO BE LEVEL 1/4"±.
11. TOP 8" OF FOUNDATION SIDES MUST BE FORMED FLAT TO ACCEPT TIE-DOWN PLATES.
12. CONTRACTOR TO VERIFY FINAL SHELTER DIMENSIONS PRIOR TO CONSTRUCTION OF FOUNDATION.
13. GRADE SHALL SLOPE AWAY FROM THE CONCRETE PAD TO ALLOW FOR PROPER WATER RUN OFF.
14. ANCHOR SHELTER TO FOUNDATION PER SHELTER MANUFACTURER'S RECOMMENDATIONS.



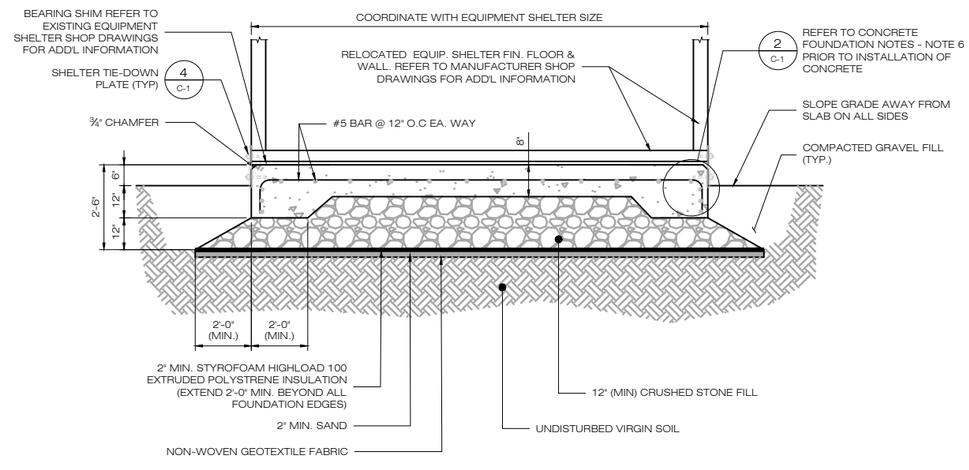
4 C-1 TIE - DOWN DETAIL

SCALE : NTS



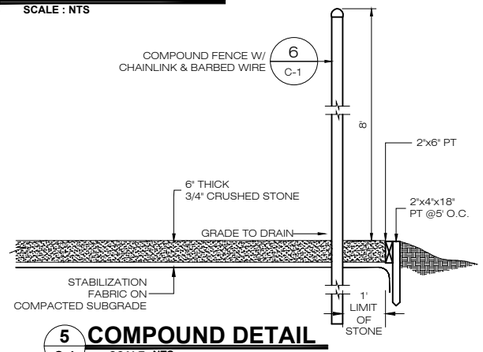
6 C-1 CHAIN-LINK FENCING DETAIL

SCALE : NTS



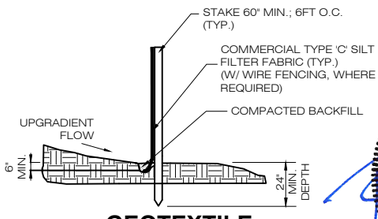
3 C-1 FOUNDATION SLAB ON GRADE

SCALE : NTS



5 C-1 COMPOUND DETAIL

SCALE : NTS



7 C-1 GEOTEXTILE SILT FENCE DETAIL

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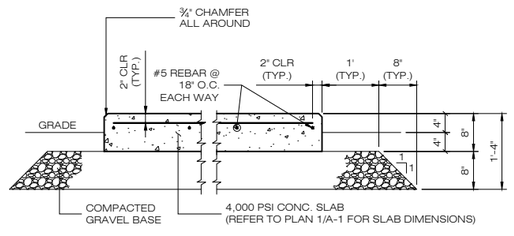


8 C-1 EQUIPMENT CONCRETE PAD

SCALE : N.T.S.

SITE NUMBER: CC-876385

APT FILING NUMBER: CT259620

EVERSOURCE ENERGY

107 SELDEN STREET
BERLIN, CT 06037

ALL-POINTS TECHNOLOGY CORPORATION

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

PERMITTING DOCUMENTS

N. COVENTRY/WALLBEOFF RILEY MTN. RD. COVENTRY,CT 06283

DESIGN TYPE:
CO-LOCATION ON EXIST. MONOPOLE

REVISIONS:

REV.0: 10/06/17: FOR REVIEW: BJP
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

SITE DETAILS

APT FILING NUMBER: CT259620
APT DRAWING NUMBER: - C-1
DRAWN BY: ELZ
CHECKED BY: BJP
SCALE: AS NOTED
DATE: 10/06/17

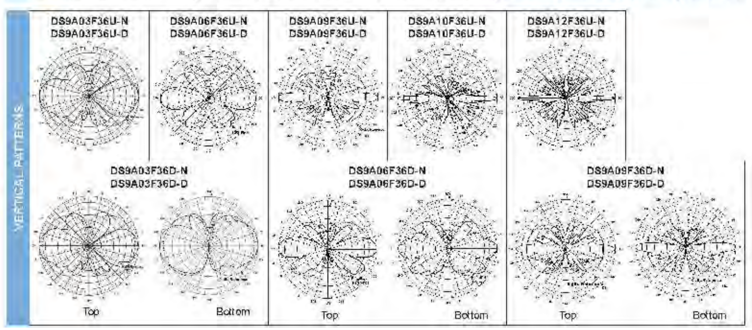
SHEET NUMBER:

C-1

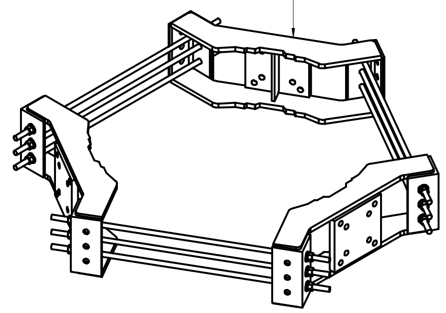
900 MHz Omni Antennas (890-960 MHz)

dbSpectra

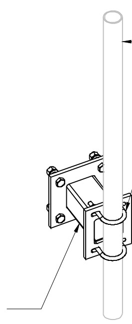
890-960 MHz	DS9A03F36U-N / DS9A03F36U-D	DS9A06F36U-N / DS9A06F36U-D	DS9A09F36U-N / DS9A09F36U-D	DS9A10F36U-N / DS9A10F36U-D	DS9A12F36U-N / DS9A12F36U-D	DS9A03F36D-N / DS9A03F36D-D	DS9A06F36D-N / DS9A06F36D-D	DS9A09F36D-N / DS9A09F36D-D	DS9A06F36T-N / DS9A06F36T-D
Input Connector	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN	N(F) / 7/16 DIN
Type	Single	Single	Single	Single	Single	Dual	Dual	Dual	Triple
ELECTRICAL									
Bandwidth, MHz	70	70	70	70	70	70	70	70	70
Power, Watts	500	500	500	500	500	350	350	350	250
Gain, dBd	3	6	9	10	12	3	6	9	6
Horizontal Beamwidth, degrees	360	360	360	360	360	360	360	360	360
Vertical Beamwidth, degrees	30	16	8	6	3	30	16	8	16
Beam Tilt, degrees	0	0	0	0	0	0	0	0	0
Isolation (minimum), dB	N/A	N/A	N/A	N/A	N/A	40	40	45	40
MECHANICAL									
Number of Connectors	1	1	1	1	1	2	2	2	3
Flat Plate Area, ft²(m²)	0.24 (0.02)	1.28 (0.12)	2.26 (0.21)	3.25 (0.3)	4.33 (0.4)	1.38 (0.13)	2.27 (0.21)	3.83 (0.36)	3.47 (032)
Lateral Windload Thrust, lbf(N)	11 (48)	48 (214)	85 (377)	122 (543)	163 (723)	31 (139)	85 (374)	144 (641)	87 (385)
Survival Wind Speed without Ice, mph(kph)	437 (703)	250 (402)	150 (241)	105 (169)	75 (121)	379 (610)	150 (241)	90 (145)	136 (219)
with 0.5" radial ice, mph(kph)	319 (513)	225 (362)	127 (204)	88 (142)	60 (97)	294 (473)	125 (201)	75 (121)	106 (171)
Mounting Hardware included	DSH2V3R	DSH2V3R	DSH3V3R	DSH3V3N	DSH3V3N	DSH2V3R	DSH3V3R	DSH3V3N	DSH3V3N
DIMENSIONS									
Length, ft(m)	2.9 (0.9)	6.7 (2)	11.4 (3.5)	16.3 (5)	21.8 (6.6)	8 (2.4)	11.4 (3.5)	19.2 (5.9)	15.3 (4.7)
Radome O.D., in(cm)	2 (5.1)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)
Mast O.D., in(cm)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	3.2 (8.13)
Net Weight w/o bracket, lb(kg)	5.5 (2.5)	18 (8.2)	30 (13.6)	45 (20.4)	52 (23.6)	21 (9.5)	31 (14.1)	50 (22.7)	40 (18.1)
Shipping Weight, lb(kg)	9.6 (4.4)	28 (12.7)	60 (27.2)	75 (34)	82 (37.2)	51 (23.1)	61 (27.7)	80 (36.3)	50 (22.7)



1 C-2 dbSpectra DS9A06F36D-N WHIP ANTENNA
SCALE : NTS

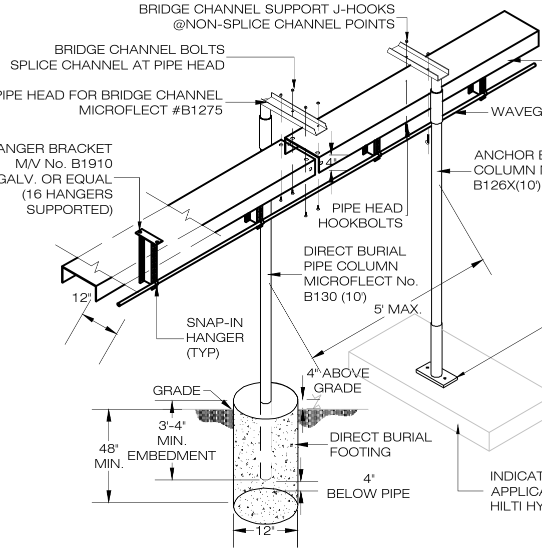


2 C-2 MONOPOLE RING MOUNT ASSEMBLY
SCALE : NTS

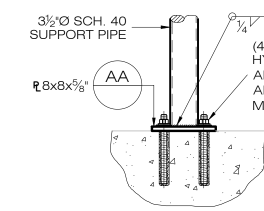


NOTE:
CONTRACTOR TO COORDINATE WITH ANTENNA MANUFACTURERS FOR PROPER ANTENNA MOUNTING PROCEDURES.

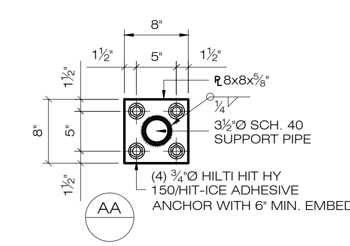
3 C-2 8" SIDEARM ANTENNA MOUNT
SCALE : NTS



4 C-2 CABLE BRIDGE & COAX HANGER DETAIL
SCALE : NTS



BASE PLATE DETAIL ON CONCRETE PAD



5 C-2 PIPE BASE PLATE
SCALE : N.T.S.

STATE OF CONNECTICUT BRADLEY J. PARSONS No. 26025 LICENSED PROFESSIONAL ENGINEER

ANTENNA / CABLE DATA

NEW ANTENNA / CABLE SPECIFICATIONS

ANTENNA TYPE / MODEL	QTY	ANTENNA STATUS	CABLE TYPE	CABLE LENGTH
WHIP: dbSPECTRA DS9A06f36d-N	1	NEW	(2) RFS / CELWAVE LCF158-50A (1) RFS / CELWAVE LCF12-50J	210'±

(1) CONTRACTOR TO FIELD VERIFY ALL CABLE LENGTHS PRIOR TO ORDERING NEW CABLE.
(2) VERIFY CABLE TYPE WITH EVERSOURCE PRIOR TO ORDERING
(3) CABLE LENGTH FROM SHELTER WALL TO ANTENNA.

(*) CONFIRM WITH EVERSOURCE REPRESENTATIVE

SITE NUMBER:
CC-876385

APT FILING NUMBER:
CT259620

EVERSOURCE ENERGY
107 SELDEN STREET
BERLIN, CT 06037

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)-663-1697
FAX: (860)-663-0935

PERMITTING DOCUMENTS

N. COVENTRY/WALLBEOFF
RILEY MTN. RD.
COVENTRY,CT 06283

DESIGN TYPE:
CO-LOCATION ON EXIST. MONOPOLE

REVISIONS:
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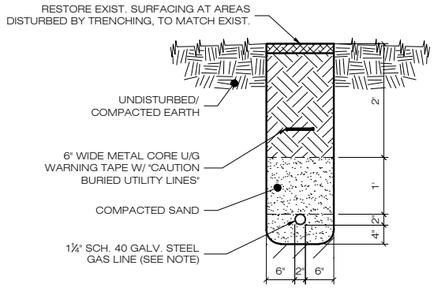
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

ANTENNA & CABLE DETAILS

APT FILING NUMBER: CT259620
APT DRAWING NUMBER: - C-2
DRAWN BY: ELZ | SCALE: AS NOTED
CHECKED BY: BJP | DATE: 10/06/17

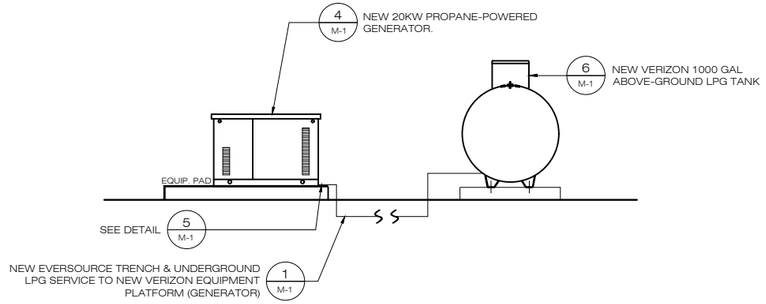
SHEET NUMBER:
C-2



NOTES:
STEEL PIPE INSTALLED UNDERGROUND SHALL BE INSTALLED IN ACCORDANCE WITH NFPA54.
UNDERGROUND PIPING SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING:
1. THE PIPING SHALL BE MADE OF CORROSION RESISTANT MATERIAL THAT IS SUITABLE FOR BURIAL
2. PIPE SHALL HAVE A FACTORY APPLIED ELECTRICALLY INSULATING COATING. FITTINGS AND JOINTS BETWEEN SECTIONS OF COATED PIPE SHALL BE COATED IN ACCORDANCE WITH COATING MANUFACTURERS INSTRUCTIONS
3. THE PIPING SHALL HAVE A CATHODIC PROTECTION SYSTEM INSTALLED AND THE SYSTEM BE MAINTAINED.

1 M-1 PROPANE GAS TRENCH

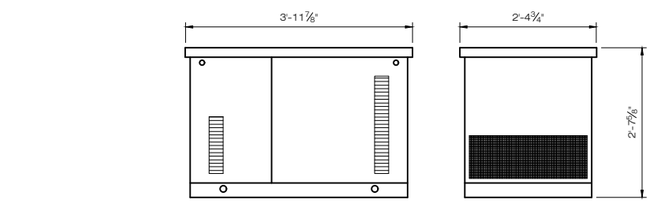
SCALE : NTS



NOTES:
1. ALL VALVES USED IN METALLIC PIPING SYSTEMS MUST HAVE PRESSURE CONTAINING PARTS OF STEEL, DUCTILE (NODULAR) IRON, MALLEABLE IRON OR BRASS.
2. ALL MATERIALS USED, INCLUDING VALVE SEAT DISCS, PACKING, SEALS AND DIAPHRAGMS MUST BE RESISTANT TO THE ACTION OF LP GAS UNDER SERVICE CONDITIONS. MANY VALVES ARE LISTED BY INDEPENDENT TESTING LABORATORIES FOR USE IN LP GAS SERVICE. THESE CAN BE USED AS RECOMMENDED BY THE MANUFACTURER. OTHER VALVES CAN BE USED, BUT MUST COMPLY WITH THE REQUIREMENTS OF NFPA 58 AND SHOULD BE RECOMMENDED BY THE MANUFACTURER FOR LP GAS SERVICE TO BE SURE THAT ALL THE COMPONENT PARTS OF THE VALVE ARE APPROVED FOR LP GAS SERVICE.
3. VALVES USED WITH POLYETHYLENE PIPE AND TUBING MUST MEET THE REQUIREMENTS OF ASTM D2513 AND BE SO MARKED

2 M-1 PROPANE CONNECTION DIAGRAM

SCALE : N.T.S.

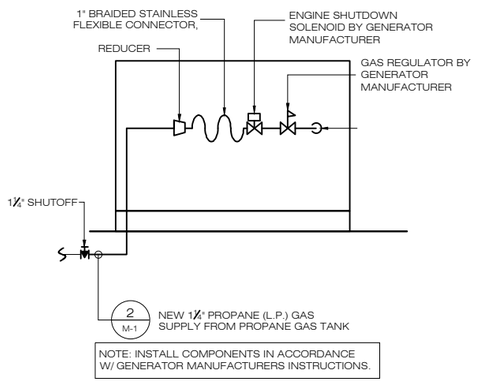


SIDE VIEW FRONT VIEW

KOHLER POWER SYSTEMS
20kW PROPANE-POWERED GENERATOR
MODEL # 20RESD,
120/240V, 1Ø, 60 Hz

4 M-1 PROPANE GENERATOR SCHEMATICS

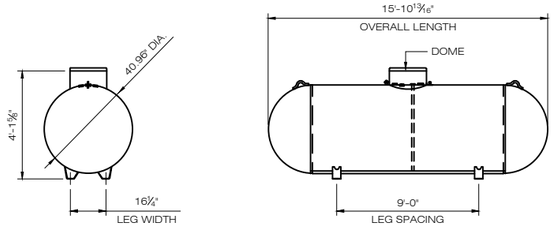
SCALE : 3/4" = 1'-0"



NOTE: INSTALL COMPONENTS IN ACCORDANCE W/ GENERATOR MANUFACTURERS INSTRUCTIONS.

5 M-1 GENERATOR CONNECTION

N.T.S.



FRONT VIEW SIDE VIEW

1. 1000 USWG AMSE VIII, DIV. 1 ABOVE GROUND LPG TANK AS MANUFACTURED BY TRINITY CONTAINERS, LLC:-
   - WWW.TRINITYCONTAINERS.COM
   - PH: 1-888-558-8265
   - WEIGHT (EMPTY) = 1729 lbs
2. LPG TANK TO BE BOLTED TO CONCRETE SLAB PER SUPPLIERS REQUIREMENTS.

NOTE:
PROVIDE TANK MANUFACTURER SHOP DRAWING FOR REVIEW BY ENGINEER OF RECORD PRIOR TO PURCHASE

6 M-1 ABOVE GROUND PROPANE TANK

SCALE : N.T.S.

STATE OF CONNECTICUT
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DESIGN TYPE:
CO-LOCATION
ON EXIST. MONOPOLE

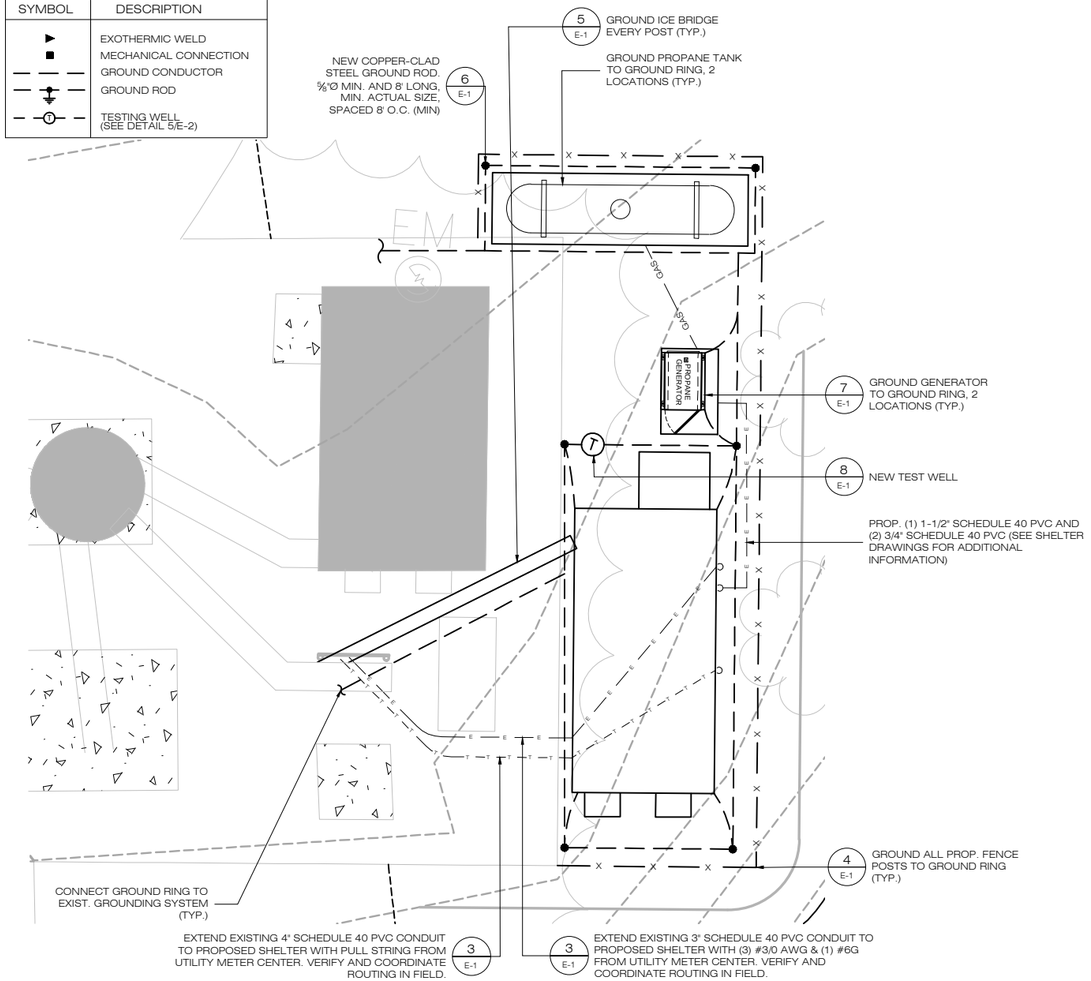
REVISIONS:
REV.0: 10/06/17: FOR REVIEW: BJP
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

GENERATOR & LPG TANK DETAILS

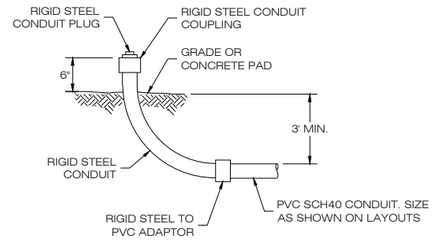
APT FILING NUMBER: CT259620
APT DRAWING NUMBER:- M-1
DRAWN BY:ELZ
CHECKED BY:BJP
SCALE:AS NOTED
DATE: 10/06/17

SHEET NUMBER:
M-1

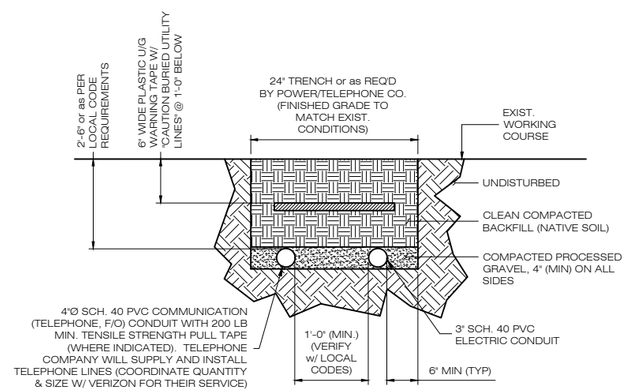
GROUNDING LEGEND	
SYMBOL	DESCRIPTION
▶	EXOTHERMIC WELD
■	MECHANICAL CONNECTION
— — —	GROUND CONDUCTOR
— — —	GROUND ROD
— — —	TESTING WELL (SEE DETAIL 5/E-2)



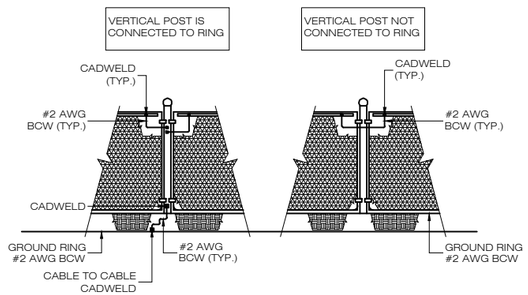
1 E-1 ELECTRICAL & GROUNDING PLAN
SCALE : 3/16" =1'- 0"



2 E-1 STUB-UP CONDUIT DETAIL
SCALE : NTS

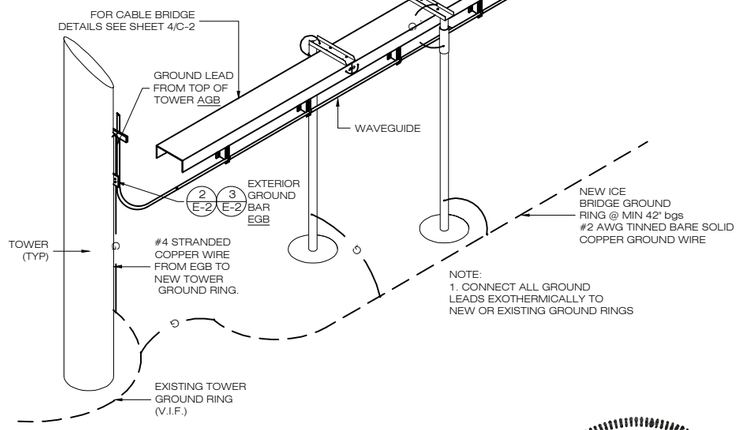


3 E-1 SECONDARY TRENCH
SCALE : N.T.S.



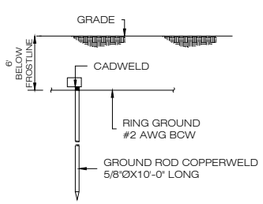
NOTES:
1) VERTICAL POST SHALL BE BONDED TO THE RING @ EACH CORNER & @ EACH GATE POST. AS A MINIMUM ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100'-0" STRAIGHT RUN OF FENCE.
2) HORIZONTAL POLES SHALL BE BONDED TO EACH OTHER.
3) BOND EACH HORIZONTAL POLE / BRACE TO EACH OTHER & TO EACH VERTICAL POST THAT IS BONDED TO THE EXTERIOR GROUND RING.

4 E-1 FENCE GROUNDING DETAIL
SCALE : NTS



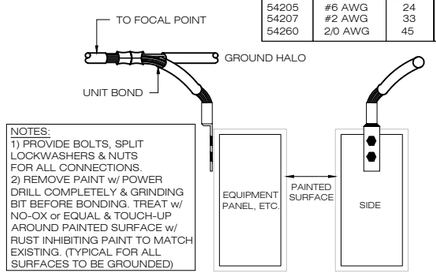
NOTE:
1. CONNECT ALL GROUND LEADS EXOTHERMICALLY TO NEW OR EXISTING GROUND RINGS

5 E-1 ICE BRIDGE GROUNDING DETAIL
SCALE : NTS



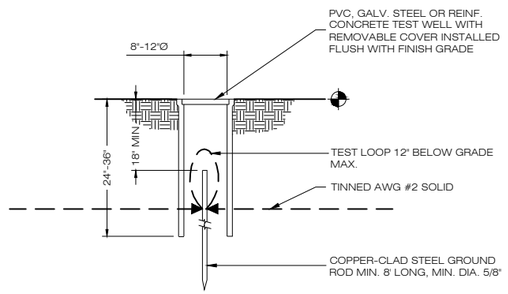
6 E-1 GROUND ROD DETAIL
SCALE : NTS

BASED ON THOMAS & BETTS			
CAT. #:	WIRE SIZE:	DIE #:	BOLT SIZE:
54205	#6 AWG	24	1/4"
54207	#2 AWG	33	1/4"
54260	2/0 AWG	45	1/2"



NOTES:
1) PROVIDE BOLTS, SPLIT LOCKWASHERS & NUTS FOR ALL CONNECTIONS.
2) REMOVE PAINT w/ POWER DRILL COMPLETELY & GRINDING BIT BEFORE BONDING. TREAT w/ NO-OX or EQUAL & TOUCH-UP AROUND PAINTED SURFACE w/ RUST INHIBITING PAINT TO MATCH EXISTING. (TYPICAL FOR ALL SURFACES TO BE GROUNDED)

7 E-1 (2) HOLE LUG BONDS
SCALE : NTS



8 E-1 GROUND SYSTEM TESTING WELL
SCALE : NTS

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 28025
LICENSED
PROFESSIONAL ENGINEER

SITE NUMBER: CC-876385
APT FILING NUMBER: CT259620

EVERSOURCE ENERGY
107 SELDEN STREET
BERLIN, CT 06037

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM
PHONE: (860)-663-1697
FAX: (860)-663-0935

PERMITTING DOCUMENTS
N. COVENTRY/WALLBEOFF
RILEY MTN. RD.
COVENTRY,CT 06283

DESIGN TYPE:
CO-LOCATION
ON EXIST. MONOPOLE

REVISIONS:
REV.0: 10/06/17: FOR REVIEW: BJP
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

ELECTRICAL & GROUNDING PLAN AND DETAILS

APT FILING NUMBER: CT259620
APT DRAWING NUMBER: - E-2
DRAWN BY: ELZ
CHECKED BY: BJP
SCALE: AS NOTED
DATE: 10/06/17

SHEET NUMBER:
E-1

GENERAL CONDITIONS

CODES:
2016 CONNECTICUT STATE BUILDING CODE, EIA/TIA 222G, et al, AS APPLICABLE.

IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES, PERMIT CONDITIONS AND SAFETY CODES DURING CONSTRUCTION.

THE ENGINEER IS NOT: A GUARANTOR OF THE INSTALLING CONTRACTOR'S WORK; RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE WORK SITE; IN CONTROL OF THE SAFETY OR ADEQUACY OF ANY BUILDING COMPONENT, SCAFFOLDING, OR OTHER RELATED WORK AIDS; OR RESPONSIBLE FOR SUPERINTENDING THE WORK.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL PERMITS, INSPECTIONS, TESTING AND CERTIFICATES NEEDED FOR LEGAL OCCUPANCY OF THE FINISHED PROJECT.

THE CONTRACTOR IS RESPONSIBLE TO REVIEW THIS COMPLETE PLAN SET AND VERIFY THE EXIST. CONDITIONS SHOWN IN THESE PLANS AS THEY RELATE TO HIS WORK PRIOR TO SUBMITTING PRICE. SIGNIFICANT DEVIATIONS FROM WHAT IS SHOWN AFFECTING THE WORK SHALL BE REPORTED IMMEDIATELY TO THE CONSTRUCTION MANAGER.

DETAILS INCLUDED IN THIS PLAN SET ARE TYPICAL AND APPLY TO SIMILAR CONDITIONS.

EXIST. ELECTRICAL AND MECHANICAL FIXTURES, PIPING, WIRING AND EQUIPMENT OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. TEMPORARY SERVICE INTERRUPTIONS MUST BE COORDINATED WITH OWNER.

THE CONTRACTOR SHALL DILIGENTLY PROTECT THE EXIST. BUILDING/SITE CONDITIONS AND THOSE OF ANY ADJOINING BUILDINGS/SITES AND RESTORE ANY DAMAGE CAUSED BY HIS ACTIVITIES TO THE PRECONSTRUCTION CONDITION.

THE CONTRACTOR SHALL SAFEGUARD AGAINST: CREATING A FIRE HAZARD, AFFECTING TENANT EGRESS OR COMPROMISING BUILDING/SITE SECURITY MEASURES.

THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND CONSTRUCTION WASTE FROM THE SITE EACH DAY. WORK AREAS SHALL BE SWEPT AND MADE CLEAN AT THE END OF EACH WORK DAY.

ALL MATERIALS LEFT ON A ROOF SHALL BE ADEQUATELY TIED DOWN SO AS NOT TO CREATE A SAFETY HAZARD CAUSED BY WIND.

THE CONTRACTOR'S HOURS OF WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND BE APPROVED BY OWNER.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER IF ASBESTOS IS ENCOUNTERED DURING THE EXECUTION OF HIS WORK. THE CONTRACTOR SHALL CEASE ALL ACTIVITIES WHERE THE ASBESTOS MATERIAL IS FOUND UNTIL NOTIFIED BY THE CONSTRUCTION MANAGER TO RESUME HIS OPERATIONS.

THERMAL & MOISTURE PROTECTION

FIRESTOP

ALL PENETRATIONS FOR ELECTRICAL CONDUITS OR WAVEGUIDE CABLING THROUGH BUILDING WALLS, FLOORS AND CEILINGS SHALL BE FIRESTOPPED WITH ACCEPTED MATERIALS TO MAINTAIN THE FIRE RATING OF THE EXIST. ASSEMBLY. ALL FILL MATERIAL SHALL BE SHAPED, FITTED AND PERMANENTLY SECURED IN PLACE. FIRESTOPPING SHALL BE INSTALLED IN ACCORD WITH ASTM E814.

HILTI CP620 FIRE FOAM or 3M FIRE BARRIER FILL, VOID OR CAVITY MATERIAL OR ACCEPTED EQUAL SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ASSOCIATED UNDERWRITERS LABORATORIES (UL) SYSTEM NUMBER.

FIRESTOPPING SHALL BE APPLIED AS SOON AS PRACTICABLE AFTER PENETRATIONS ARE MADE AND EQUIPMENT INSTALLED.

FIRESTOPPED PENETRATIONS SHALL BE LEFT EXPOSED AND MADE AVAILABLE FOR INSPECTION BEFORE APPLYING FINISHES CONCEALING SUCH PENETRATION. FIRESTOPPING MATERIAL CERTIFICATES SHALL BE MADE AVAILABLE AT THE TIME OF INSPECTION.

MOISTURE PROTECTION

ANY BUILDING ROOF PENETRATION AND/OR RESTORATION SHALL BE PERFORMED SO THAT ROOF WARRANTY IN PLACE IS NOT COMPROMISED. CONTRACTOR SHALL ARRANGE FOR OWNER'S ROOFING CONTRACTOR TO PERFORM ANY AND ALL ROOFING WORK IF SO REQUIRED BY EXIST. ROOF WARRANTY. OTHERWISE, ROOF SHALL BE MADE WATERTIGHT WITH LIKE CONSTRUCTION AS SOON AS PRACTICABLE AND AT COMPLETION OF CONSTRUCTION.

ALL PENETRATIONS INTO AND/OR THROUGH BUILDING EXTERIOR WALLS SHALL BE SEALED WITH SILICONE SEALER

CONCRETE

ALL CONCRETE CONSTRUCTION SHALL BE DONE IN ACCORD WITH AMERICAN CONCRETE INSTITUTE (ACI) CODES 301 & 318, LATEST REVISION.

TOWER FOUNDATION WORK SHALL BE IN ACCORDANCE WITH TOWER MANUFACTURER'S DESIGNS AND SPECIFICATIONS.

ALL CONCRETE USED SHALL BE 4000 PSI (28 DAY COMP STRENGTH). THE CONCRETE MIX SHALL BE BASED ON USING THE FOLLOWING MATERIALS AND PARAMETERS:
PORTLAND CEMENT: ASTM C150, T1
AGGREGATE: ASTM C33, 1 INCH MAX
WATER: POTABLE
ADMIXTURE: NON-CHLORIDE
AIR: 6%*
SLUMP: 4 INCH
UNLESS NOTED OTHERWISE
*ALL CONCRETE EXPOSED TO FREEZING WEATHER SHALL CONTAIN ENTRAINED AIR PER ACI 211 TABLE 4.2.1 OF ACI 318-95.

ALL REINFORCING STEEL SHALL BE ASTM A615, GR 60 (DEFORMED) UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS 'B' AND ALL HOOKS SHALL BE ACI STANDARD UNO. REINFORCING BARS SHALL BE COLD BENT WHERE REQUIRED AND TIED (NOT WELDED).

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
- CONCRETE CAST AGAINST EARTH = 3 IN.
- CONCRETE EXPOSED TO EARTH OR WEATHER:
  - #6 AND LARGER = 2 IN.
  - #5 AND SMALLER = 1 1/2 IN.
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
  - SLAB AND WALL = 3/4 IN.
  - BEAMS AND COLUMNS = 1 1/2 IN.

A 3/4 IN. CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OR CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

CONCRETE SHALL BE PLACED IN A UNIFORM MANNER AND CONSOLIDATED IN PLACE.

CONCRETE FOOTINGS SHALL BE CAST AGAINST LEVEL, COMPACTED, NON-FROZEN BASE SOIL FREE OF STANDING WATER.

STEEL

MATERIALS:

WIDE FLANGE	ASTM A992
TUBING	ASTM A500, GR B
PIPE	ASTM A53, GR B
BOLTS	ASTM A325
GRATING	TYPE GW (1-1/4"x3/16" BARS)
MISC. METALS	ASTM A36

ALL STEEL SHAPES SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 WITH A COATING WEIGHT OF 2 OZ/SF.

DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO CURRENT AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATIONS.

THE STEEL STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER COMPLETION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION.

SHOP DRAWINGS ARE TO BE CHECKED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

ALL STEEL ELEMENTS SHALL BE INSTALLED PLUMB AND LEVEL.

TOWER MANUFACTURER'S DESIGNS SHALL PREVAIL FOR TOWER.

CONNECTIONS:

CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION UNLESS OTHERWISE DETAILED.

DESIGN CONNECTIONS AT BEAM ENDS FOR 10 KIPS (MIN).

CONNECTIONS SHALL BE MADE USING 3/4" ASTM A325 BOLTS (SNUG TIGHT OR SLIP CRITICAL) OR WELDS. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

USE THE LARGER OF 1/4" FILLET WELDS OR MINIMUM SIZE PER AISC REQUIREMENTS WHERE NO WELD SIZE IS SHOWN ON THE DRAWINGS.

ALL ARC AND GAS WELDING SHALL BE DONE BY A LICENSED AND CERTIFIED WELDER IN ACCORDANCE WITH AMERICAN WELDING SOCIETY.

ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AWS D1.1. UPON THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.

USE PRECAUTIONS AND PROCEDURES PER AWS D1.1 WHEN WELDING GALVANIZED METALS.

TOUCH-UP ALL DAMAGED GALVANIZED STEEL WITH COLD-ZINC, "GALVANOX™", "DRY GALV™". "ZINC-IT™" OR APPROVED EQUAL, IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. TOUCH-UP DAMAGED NON-GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

ANCHORS:

EXPANSION ANCHORS SHALL BE USED WHERE ATTACHING TO CONCRETE. MASONRY MOUNTS SHALL HAVE INJECTION ADHESIVE ANCHORING.

EXPANSION BOLTS SHALL BE HILTI KWIK BOLT III OR APPROVED EQUAL. MINIMUM EMBEDMENT 4 INCHES.

INJECTION ADHESIVE ANCHORING IN MASONRY WITH VOIDS SHALL BE HILTI HIT HY-20 OR EQUAL WITH THREADED ROD AND SCREEN TUBES TO THE FOLLOWING BASE MATERIALS.

BRICK WITH HOLES:
- SPACE ANCHORS 2 COMPLETE BRICKS APART MINIMUM.
- MAINTAIN 2 COMPLETE BRICKS OR 16 INCHES FROM FREE EDGES (WHICHEVER IS LESS).
- EMBEDMENT: 3-1/2 INCHES MINIMUM

HOLLOW CONCRETE BLOCK:
- USE 50% MORE ANCHORS THAN SHOWN IN DETAIL
- SPACING: ONE ANCHOR MAXIMUM PER BLOCK CELL.
- MAINTAIN 12" SPACING FROM FREE EDGES
- EMBEDMENT: THROUGH FACE

INJECTION ADHESIVE ANCHORING IN SOLID MASONRY AND GROUT FILLED BLOCK SHALL BE HILTI HIT HY-200 OR EQUAL WITH THREADED ROD. MAINTAIN 12 INCHES BETWEEN ANCHORS AND ALL FREE EDGES. MINIMUM SPACING BETWEEN ANCHORS IS 8 INCHES.

ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE INSTALLED IN MORTAR JOINTS

GRATING SHALL BE ATTACHED USING FOUR GRATING CLAMPS OR 1/4" FILLET WELDS PER SECTION.

SITE GENERAL

CONTRACTOR SHALL FOLLOW CONDITIONS OF ALL APPLICABLE PERMITS AND WORK IN ACCORD WITH OSHA REGULATIONS.

THESE PLANS DEPICT KNOWN UNDERGROUND STRUCTURES, CONDUITS AND/OR PIPELINES. THE LOCATIONS FOR THESE ELEMENTS ARE BASED UPON VARIOUS RECORD DRAWINGS AVAILABLE. THE CONTRACTOR IS HEREBY ADVISED THAT THESE DRAWINGS MAY NOT ACCURATELY DEPICT AS-BUILT LOCATIONS AND OTHER UNKNOWN STRUCTURES. THE CONTRACTOR SHALL THEREFORE DETERMINE THE EXACT LOCATION OF EXIST. UNDERGROUND ELEMENTS AND EXCAVATE WITH CARE AFTER CALLING MARKOUT SERVICE AT 1-800-272-4480 48 HOURS BEFORE DIGGING, DRILLING OR BLASTING.

ALL EXIST. ACTIVE SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE, BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE ENTRY, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.

IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

ALL EXIST. INACTIVE SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, OR OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE CONSTRUCTION MANAGER.

CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING STRUCTURES OR UTILITIES DAMAGED BY HIS OPERATIONS.

CONTRACTOR SHALL PROTECT EXIST. PAVED AND GRAVEL SURFACES, CURBS, LANDSCAPE AND STRUCTURES AND RESTORE SITE TO PRECONSTRUCTION CONDITION WITH AS GOOD, OR BETTER, MATERIALS. NEW MATERIALS SHALL MATCH EXIST. THICKNESS AND TYPE.

THE CONTRACTOR SHALL SHORE ALL TRENCH EXCAVATION GREATER THAN 5 FEET IN DEPTH OR LESS WHERE SOIL CONDITIONS ARE DEEMED UNSTABLE. ALL SHEETING AND/OR SHORING METHODS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.

THE CONTRACTOR IS RESPONSIBLE FOR MANAGING GROUNDWATER LEVELS IN THE VICINITY OF EXCAVATIONS TO PROTECT ADJACENT PROPERTIES AND NEW WORK. GROUNDWATER SHALL BE DRAINED IN ACCORDANCE WITH LOCAL SEDIMENTATION & EROSION CONTROL GUIDELINES.

EXCAVATION

CONTRACTOR SHALL GRADE ONLY AREAS SHOWN TO BE MODIFIED HEREIN AND ONLY TO THE EXTENT REQUIRED TO SHED OVERLAND WATER FLOW AWAY FROM SITE. ALL MADE SLOPES SHALL NOT BE STEEPER THAN 3:1 (HORIZ:VERTICAL), UNO. SEDIMENTATION AND EROSION CONTROLS SHOWN AND SPECIFIED SHALL BE ESTABLISHED BEFORE STRIPPING EXIST. VEGETATION.

ORGANIC MATERIAL AND DEBRIS SHALL BE STRIPPED AND STOCKPILED BEFORE ADDING FILL MATERIAL.

NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

ALL FILL SHALL BE PLACED IN ONE FOOT LIFTS AND COMPACTED IN PLACE. STRUCTURAL FILL SHALL BE COMPACTED TO 95% OF ITS MAXIMUM DRY UNIT WEIGHT TESTED IN ACCORDANCE WITH ASTM D1557.

EXCAVATIONS FOR FOOTINGS SHALL BE CUT LEVEL TO THE REQUIRED DEPTH AND TO UNDISTURBED SOIL. REPORT UNSUITABLE SOIL CONDITIONS TO THE CONSTRUCTION MANAGER.

TRENCH EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH DAY.

SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE.

TOWER FOUNDATION EXCAVATION, BACKFILL AND COMPACTION SHALL BE IN ACCORD WITH TOWER MANUFACTURER'S DESIGNS AND SPECIFICATIONS.

MATERIAL

NATIVE GRAVEL MATERIAL MAY BE USED FOR TRENCH BACKFILL WHERE SELECT MATERIAL IS NOT SPECIFIED. GRAVEL MATERIAL FOR CONDUIT TRENCH BACKFILL SHALL NOT CONTAIN ROCK GREATER THAN 2 INCHES IN DIAMETER.

BANK OR CRUSHED GRAVEL SHALL CONSIST OF TOUGH, DURABLE PARTICLES OF CRUSHED OR UNCRUSHED GRAVEL FREE OF SOFT, THIN, ELONGATED OR LAMINATED PIECES AND MEET THE GRADATION.

PROCESSED AGGREGATE BASE SHALL CONSIST OF COURSE AND FINE AGGREGATES COMBINED AND MIXED SO THAT THE RESULTING MATERIAL CONFORMS TO THE GRADATION. COURSE AGGREGATE SHALL BE EITHER GRAVEL OR BROKEN STONE AND FINE AGGREGATE SHALL CONSIST OF SAND.

SQUARE MESH SIEVES	PERCENT PASSING BY WEIGHT BANK GRAVEL FILL	BANK GRAVEL BASE	PROCESSED AGG BASE
PASS 5"		100	
PASS 3-1/2"		100	90-100
PASS 2-1/4"		100	
PASS 2"		95-100	
PASS 1-1/2"		55-100	55-95
PASS 1"			
PASS 3/4"			50-75
PASS 1/4"	25-60	25-60	25-45
PASS #10	15-45	15-45	
PASS #40	2-25	5-25	5-20
PASS #100	0-10	0-10	2-12
PASS #200	0-5	0-5	

FILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, ICE, TRASH AND DEBRIS.

SEDIMENTATION & EROSION CONTROL

CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXIST. SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENTATION CONTROL.

LIMITS OF CLEARING AND GRUBBING SHALL BE CLEARLY MARKED BEFORE COMMENCING WITH SUCH WORK.

SEDIMENTATION AND EROSION CONTROL (SEC) MEASURES SHOWN SHALL BE INSTALLED PRIOR TO LAND CLEARING, EXCAVATION OR GRADING OPERATIONS. REQUIREMENTS OF LOCAL WETLAND AGENCY SHALL BE MET PRIOR TO EARTHWORK OPERATIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SEC MEASURES THROUGHOUT DURATION OF PROJECT UNTIL DISTURBED LAND IS THOROUGHLY VEGETATED.

FAILURE OF THE SEC SYSTEMS SHALL BE CORRECTED IMMEDIATELY AND SUPPLEMENTED WITH ADDITIONAL MEASURES AS NEEDED.

TOPSOIL SHALL BE SPREAD TO FINISH GRADES AND SEEDED AS SOON AS FINISHED GRADES ARE ESTABLISHED. STRAW MULCH, JUTE NETTING OR MATS SHALL BE USED WHERE THE NEW SEED IS PLACED.

VEGETATIVE SEEDING -
AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF 3". TOPSOIL SHALL BE LOOSENED BY RAKING OR DISKING BEFORE SEEDING. APPLY 50 Lbs. OF DOLOMITIC LIMESTONE AND 25 Lbs. OF 10-10-10 FERTILIZER PER 1000 SF. HARROW LIME AND FERTILIZER INTO LOOSE SOIL.
APPLY COMMON BERMUDA AND RYE GRASS AT 50 Lbs/ACRE.
USE CYCLONE SEED DRILL CULTIPACKER SEEDER OR HYDROSEEDER (SEED & FERTILIZER SLURRY) FOR STEEP SLOPES.
IRRIGATE UNTIL VEGETATION IS COMPLETELY ESTABLISHED.

HVAC GENERAL NOTES AND SPECIFICATIONS:

ALL WORK SHALL COMPLY WITH AND BE INSTALLED IN ACCORDANCE WITH ALL CODES HAVING JURISDICTION OVER THE WORK.

CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL EXIST. EQUIPMENT AND PIPING IN FIELD PRIOR TO BID, FABRICATION AND INSTALLATION OF ANY WORK.

PIPING SHOWN ON PLANS IS DIAGRAMMATIC. EXACT ROUTING OF NEW PIPING SHALL BE DETERMINE IN THE FIELD.

THE WORDS PROVIDE OR INSTALL, SHALL MEAN FURNISH AND INSTALL.

THE GENERAL CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF HIS WORK.

THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF HIS WORK AND NEWLY INSTALLED OR EXIST. WORK, INCLUDING PROTECTION OF THE BUILDING OCCUPANTS, PUBLIC AND PERSONNEL, PROVIDE APPROPRIATE BARRIERS, AND SAFETY GUARDS AS REQUIRED.

LIMIT THE SPREAD OF DUST WHEN CUTTING BY INSTALLING BARRIERS TO CONTAIN AIRBORNE MATERIALS.

ANY DISRUPTION IN BUILDING SERVICES SHALL BE KEPT TO A MINIMUM AND SHALL NOT BE IMPLEMENTED WITHOUT RECEIVING PRIOR WRITTEN APPROVAL OF THE FACILITIES DIRECTOR.

ALL WORK SHALL BE COORDINATED WITH ALL TRADES AND WITH THE FACILITIES DIRECTOR RELATED TO THE INSTALLATION OF THIS PROJECT.

THE CONTRACTOR SHALL TURN OVER TO THE OWNER AT THE TIME OF COMPLETION OF ALL WORK, THREE COPIES OF THE OPERATING, MAINTENANCE AND INSTRUCTION MANUALS WHICH SHALL INCLUDE ALL EQUIPMENT BROCHURES, PIPING AND WIRING DIAGRAMS, DRAWINGS, TEMPERATURE CONTROLS, AND START-UP AND SHUTDOWN PROCEDURES OF ALL NEW EQUIPMENT INSTALLED.

THE CONTRACTOR SHALL FILE FOR ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE INSTALLATION OF HIS WORK.

THE CONTRACTOR SHALL GUARANTEE ALL MATERIAL AND WORK INSTALLED BY HIM TO BE FREE OF DEFECTS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR, AFTER ACCEPTANCE OF THE INSTALLATION BY THE ENGINEER AND OWNER.

THE CONTRACTOR SHALL PROVIDE ALL RIGGINGS, HOISTING AND SCAFFOLDING AS REQUIRED FOR THE INSTALLATION OF HIS WORK.

ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS IN THE TRADE HAVING JURISDICTION.

ANY DEVIATION OR CHANGE IN DESIGN SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE ENGINEER OR OWNER.

PATCHING OF WALLS SHALL MATCH EXIST. SURROUNDING AREA IN ALL RESPECTS. ALL REMOVED MATERIAL AND RUBBISH SHALL BE REMOVED FROM THE PREMISES DAILY IN AN APPROVED SAFE MANNER.

THIS CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS INCLUDING CONTROL WIRING DIAGRAMS TO THE ENGINEER FOR APPROVAL PRIOR TO THE FABRICATIONS AND INSTALLATION OF WALLS, FLOORS, DUCTWORK, ETC. WITH ELEVATIONS AT WHICH NEW WORK IS TO BE INSTALLED. ANY DEVIATION IN DESIGN SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE ENGINEER OR OWNER.

THE CONTRACTOR SHALL MAINTAIN ON THE JOB SITE A SET OF SHOP DRAWINGS IN WHICH ANY DEVIATIONS FROM THE ORIGINAL DESIGN SHALL BE NOTED.

PROVIDE SLEEVES FOR AND PIPING PASSING THROUGH PARTITIONS, FLOOR OR MASONRY WALL PACK SLEEVE AROUND DUCT WITH APPROVED FIRE RATED MATERIAL. SLEEVES SHALL BE 18 GAGE GALVANIZED SHEET STEEL. SEAL ALL SLEEVES WEATHERTIGHT THROUGH EXTERIOR WALLS.

SUSPEND AND SUPPORT ALL NEW DUCTWORK AND PIPING FROM BUILDING STRUCTURE ONLY.

DUCTWORK SHALL BE FABRICATED AND INSTALLED ACCORDING TO NEW STATE CODES AND SMACNA LOW PRESSURE FLEXIBLE AND METAL DUCT STANDARDS LATEST EDITION. PROVIDE VOLUME DAMPERS WITH LOCKING QUADRANT AS INDICATED ON THE PLANS. DUCTWORK SHALL BE GALV. SHEET METAL.

PROVIDE SUPPORT STEEL AS REQUIRED FOR DUCTWORK.

ALL WIRING OF FANS, ALARMS, ETC. SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNDER SUPERVISION OF THE HVAC CONTRACTOR.

COAT ALL SUPPORT STEEL EXPOSED TO WEATHER WITH 2 COATS OF RUST INHIBITING PAINT.

ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ALL SUPPLY DUCTWORK SHALL BE INSULATED WITH FIBERGLASS INSULATION WITH FOIL FACE VAPOR BARRIER JACKET.

THE CONTRACTOR SHALL CAP ALL DUCTWORK AS SHOWN ON PLANS AND REMOVE ALL BRANCH DUCTWORK AND FLEXIBLE DUCTWORK AS SHOWN ON PLAN.

REMOVE ALL DUCTWORK AS SHOWN ON MECHANICAL REMOVAL PLAN INCLUDING, EGG CRATE GRILLES AND OTHER ASSOCIATED DEVICES.

THE FITOUT OF EXIST. BUILDING SPACE REQUIRES THE INSTALLATION OF AN AIR HANDLER WITHIN THE EQUIPMENT ROOM AND CONDENSER UNIT LOCATED ELSEWHERE AS SHOWN.

AIR HANDLER AND CONDENSER SHALL BE INSTALLED WITH VIBRATION ISOLATORS.

THE HVAC SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS

ALUMINUM SUPPLY (ADJUSTABLE) AND RETURN GRILLES SHALL BE INSTALLED ON AIR HANDLER AS SHOWN

HVAC SYSTEM SHALL BE INTERFACED WITH SMOKE ALARM SHUTTING DOWN HVAC SYSTEM OPERATION IN THE EVENT OF ALARM

GROUNDING

MATERIALS:

#6 THWN SHALL BE STRANDED #6 COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET INSTALLATIONS.

#2 THWN SHALL BE STRANDED #2 COPPER WITH THWN INSULATION SUITABLE FOR WET INSTALLATIONS.

#2 BARE TINNED SHALL BE SOLID COPPER TINNED. ALL BURIED WIRE SHALL MEET THIS CRITERIA.

FENCE GATE BONDING JUMPER SHALL BE 4/0 WELDING CABLE THAT HAS BEEN CRIMPED ON EACH END WITH A CAP FOR THE CADWELD™ PROCESS.

ALL LUGS SHALL BE 2-HOLE, LONG BARREL, TINNED SOLID COPPER UNLESS OTHERWISE SPECIFIED. LUGS SHALL BE THOMAS AND BETTS SERIES 548##be OR EQUIVALENT (I.E., #2 THWN - 54856BE; #2 SOLID - 54856BE; AND #6 THWN - 54852BE).

ALL HARDWARE, BOLTS, NUTS, WASHERS, AND BELLEVILLE WASHERS SHALL BE 18-8 STAINLESS STEEL. EVERY CONNECTION SHALL BE BOLT-FLAT WASHER-BUSS-LUG-FLAT WASHER-BELLEVILLE WASHER-NUT IN THAT EXACT ORDER. BACK-TO-BACK LUGGING, BOLT-FLAT WASHER- LUG- BUSS- LUG- FLAT WASHER- BELLEVILLE WASHER-NUT, IN THAT EXACT ORDER, IS ACCEPTED WHERE NECESSARY TO CONNECT MANY LUGS TO A BUSS BAR. STACKING OF LUGS, BUSS-LUG-LUG, IS NOT ACCEPTABLE.

WHERE CONNECTIONS ARE MADE TO STEEL OR DISSIMILAR METALS, A THOMAS AND BETTS DRAGON TOOTH WASHER MODEL DTW### SHALL BE USED BETWEEN THE LUG AND THE STEEL, BOLT-FLAT WASHER-STEEL-DRAGON TOOTH WASHER-LUG - FLAT WASHER- BELLEVILLE WASHER-NUT.

WATER PIPE CLAMPS SHALL BE CUSTOM MADE FROM BRASS. THE CLAMP SHALL COME IN CONTACT WITH A MINIMUM OF 4 LINEAR INCHES OF PIPE ON THE SERVICE SIDE OF THE MAIN. DRILL CLAMP TO ACCEPT A 2-HOLE 1/2 INCH HARDWARE 750 MCM LUG.

ALL CONNECTIONS, INTERIOR AND EXTERIOR, SHALL BE MADE WITH THOMAS AND BETTS KPOR-SHIELD™. COAT ALL WIRES BEFORE LUGGING AND COAT ALL SURFACES BEFORE CONNECTING.

THE MINIMUM BEND RADIUS SHALL BE 8 INCHES FOR #6 WIRE AND SMALLER AND 12 INCHES FOR WIRE LARGER THAN #6.

GROUND RODS SHALL BE 5/8 IN STEEL, CLAD WITH A PURE COPPER JACKET OF NOT LESS THAN 0.0012 INCHES THICK, 10 FEET LONG. THE TOP OF GROUND RODS SHALL BE INSTALLED AT THE SAME DEPTH AS THE GROUND RING.

BELOW-GRADE GROUND RINGS SHALL BE BARE TINNED #2 SOLID COPPER WIRE, AS SPECIFIED. FOR ABOVE-GRADE INSTALLATIONS, THE USE OF THWN-INSULATED, CONTINUOUS GREEN COLOR, SOLID COPPER WIRE OR THWN, CONTINUOUS GREEN COLOR, STRANDED COPPER WIRE IS ACCEPTABLE.

ALL CONNECTIONS TO THE GROUND RING SHALL BE CADWELD™

THE GROUND RING SHALL BE WITHIN 12 TO 36 INCHES OF A PREFABRICATED EQUIPMENT SHELTER.

FOR A LAND SITE, THE GROUND RING SHALL BE BURIED AT LEAST 18 INCHES BELOW FINAL GRADE OR TO THE MINIMUM DEPTH REQUIRED BY LOCALLY ENFORCED CODES, REGULATIONS, AND ORDINANCES, WHICHEVER IS GREATER. THE TRENCH SHALL BE DUG WITH A BACK HOE WITH A MINIMUM 8 INCH BUCKET. USE OF A TRENCHER IS NOT ALLOWED. THE TRENCH SHALL BE DUG 6 INCHES BELOW THE REQUIRED WIRE DEPTH. THE BACK FILL SHALL BE POWER TAMPED BACK IN PLACE WITH A MAXIMUM OF 12 INCHES OF FILL BETWEEN LIFTS.

A GROUND ROD SHALL BE DRIVEN AT A MINIMUM OF EVERY 10 LINEAR WIRE FOOT INTERVAL (OR 1X THE LENGTH OF THE ROD) OF THE GROUND RING. THE RING SHALL BE CADWELD™ TO THE ROD.

BOND THE FENCE TO THE GROUND RING AT EACH CORNER, AND AT EACH GATE POST WITH #2 SOLID TINNED WIRE. CADWELD™ BOTH ENDS.

BOND EACH GATE TO THE GATE POST AT THE HINGED END WITH A GATE JUMPER AS SPECIFIED.

BOND EACH HORIZONTAL POLE/BRACE TO EACH OTHER AND TO EACH VERTICAL POLE THAT IS BONDED TO THE EXTERIOR GROUND RING.

GROUND KITS SHALL BE SOLID COPPER STRAP WITH #6 WIRE AND 2-HOLE COMPRESSION CRIMPED LUGS.

BOND THE SUPPORTING STRUCTURE FOR THE WAVEGUIDE BRIDGE TO THE EXTERIOR RING AT EACH END OF THE BRIDGE. EACH SECTION OF BRIDGE CANOPY SHALL BE BONDED TO ONE ANOTHER VIA CADWELD™ CONNECTION OF #2 TINNED WIRE.

FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.

GROUND BARS SHALL BE FURNISHED AND INSTALLED WITH PRE-DRILLED HOLE DIAMETERS AND SPACINGS. GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED. GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR. HARDWARE DIAMETER SHALL BE MINIMUM 3/8 INCH.

GROUNDING SOURCE RESISTANCE IS NOT TO EXCEED 5 OHMS. NOTIFY CONSTRUCTION MANAGER IF GROUNDING RESISTANCE LEVEL CAN NOT BE MET.

FOR ROOF TOP SHELTER SITES - A GROUND BAR SHALL BE LOCATED AT EACH ANTENNA SECTOR (AGB), AT END OF CABLE TRAY AT SHELTER (AGB), UNDER WAVEGUIDE PORT EXTERIOR (EGB) AND INTERIOR (MGB). BOTH THE AGB AT CABLE TRAY AND EGB ON SHELTER SHALL BE CONNECTED TO A GROUND RING LAID ON THE ROOF AROUND THE SHELTER. THE GROUND RING IS TO BE GROUNDED TO BUILDING STEEL.

FOR FIT OUT EQUIPMENT SPACES - A GROUND BAR SHALL BE LOCATED AT EACH ANTENNA SECTOR (AGB), AT END OF CABLE TRAY AT PARAPET (AGB), THE GROUND SHALL NOT SWEEP VERTICALLY UP WITH COAXIAL CABLES, BUT RATHER RUN THROUGH PARAPET IN PVC SLEEVE. THE SINGLE GROUND FROM ROOF TOP SHALL BE GROUNDED DIRECTLY TO WATER MAIN. EQUIPMENT ROOM GROUND BAR (MGB & EGB) SHALL BE MOUNTED AT RELATIVELY EQUAL HEIGHT AND TO THE SIDE OF POLYPHASER/WAVEGUIDE PORT. GROUND MGB TO EGB AND TO BUILDING STEEL.

FOR LAND SITE - A GROUND BAR SHALL BE LOCATED ON MOUNTING STRUCTURE BETWEEN ANTENNA SECTORS (AGB). EACH SECTOR SHALL GROUND TO THE SINGLE AGB AND THE AGB SHALL BE GROUNDED TO THE STRUCTURE GROUND RING AND TIED INTO IN-SITU GROUNDING SYSTEM. SEE GROUNDING PLAN.

ALL CABLE TRAY AND/OR PLATFORM STEEL SHALL BE BONDED TOGETHER WITH JUMPERS (#6 IN EQUIPMENT ROOM, #2 ELSEWHERE AND HOMERUN).

ALL POLYPHASER GROUND BARS SHALL BE GROUNDED TO MGB WITH #6 WIRE (2 PER EACH POLYPHASER BAR)

THE EQUIPMENT ROOM SHALL HAVE A #2 INTERNAL GROUND RING ON WALLS INSTALLED BETWEEN CEILING AND TOP ELEVATION CABLE TRAY - CLOSED LOOP.

DEMOLITION SPECIFICATION AND NOTES:

REMOVE AND LEGALLY DISPOSE OF ITEMS EXCEPT THOSE INDICATED TO BE REINSTALLED, SALVAGED, OR TO REMAIN THE OWNER'S PROPERTY.

PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING DEMOLITION. WHEN PERMITTED, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE AREA DURING DEMOLITION AND THEN CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS.

DEMOLISHED MATERIALS SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE SITE WITH FURTHER DISPOSITION AT THE CONTRACTOR'S OPTION.

COMPLY WITH GOVERNING LOCAL, STATE AND FEDERAL NOTIFICATION REGULATIONS BEFORE STARTING DEMOLITION.

COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION

BUILDING COMPONENTS TO BE DEMOLISHED SHALL BE VACATED AND THEIR USE DISCONTINUED BEFORE START OF DEMOLITION.

STORAGE OR SALE OF REMOVED ITEMS OR MATERIALS ON-SITE WILL NOT BE PERMITTED.

ARRANGE DEMOLITION ACTIVITIES SO AS NOT TO INTERFERE WITH THE OWNER'S ON-SITE OPERATIONS.

VERIFY THAT ALL UTILITIES HAVE BEEN DISCONNECTED AND CAPPED.

PERFORM INSPECTIONS AS THE DEMOLITION PROGRESSES TO DETECT HAZARDS RESULTING FROM SAID ACTIVITIES.

MAINTAIN EXIST. UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION OPERATIONS.

DO NOT INTERRUPT EXIST. UTILITIES SERVING OCCUPIED OR OPERATING FACILITIES EXCEPT WHEN AUTHORIZED IN WRITING BY THE OWNER. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXIST. UTILITIES, AS ACCEPTABLE TO THE OWNER.

PROVIDE NOT LESS THAN 72 HOURS NOTICE TO OWNER IF SHUTDOWN OF SERVICE IS REQUIRED DURING CHANGEOVER.

LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF INDICATED UTILITIES SERVICES SERVING STRUCTURES TO BE DEMOLISHED.

ARRANGE TO SHUT OFF INDICATED UTILITIES WITH THE OWNER AND UTILITY COMPANIES.

DO NOT START DEMOLITION WORK UNTIL UTILITY DISCONNECTING AND SEALING HAVE BEEN COMPLETED.

CONDUCT DEMOLITION OPERATIONS AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ADJACENT AREAS, OTHER OCCUPIED AREAS, COMMON AREAS THROUGHOUT BUILDING,
WALKWAYS, PARKING LOTS, AND ROADWAYS.

DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER ADJACENT OCCUPIED OR USED AREAS WITHOUT PERMISSION FROM OWNER. IF REQUIRED, PROVIDE FOR ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS.

CONDUCT DEMOLITION OPERATIONS TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT AREAS, BUILDINGS, AND/OR FACILITIES TO REMAIN. ENSURE SAFE PASSAGE OF PEOPLE AROUND DEMOLITION AREAS.

PROVIDE AND MAINTAIN INTERIOR AND EXTERIOR SHORING, BRACING, OR STRUCTURAL SUPPORT TO PRESERVE STABILITY AND PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF PERIPHERAL STRUCTURES AND/OR AREAS.

USE WATER MIST, TEMPORARY ENCLOSURES, AND OTHER SUITABLE METHODS TO LIMIT THE SPREAD OF DUST AND DIRT. COMPLY WITH GOVERNING ENVIRONMENTAL PROTECTION REGULATIONS.

DO NOT CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING, AND POLLUTION, WHEN USING WATER.

REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.

CLEAN ADJACENT AREAS AND IMPROVEMENTS OF DUST, DIRT AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXIST. BEFORE START OF DEMOLITION.

USE METHODS REQUIRED TO COMPLETE DEMOLITION WITHIN LIMITATIONS OF GOVERNING REGULATIONS.

LOCATE DEMOLITION EQUIPMENT THROUGHOUT THE BUILDING AND REMOVE DEBRIS & MATERIALS SO AS NOT TO IMPOSE EXCESSIVE LOADS ON SUPPORTING WALLS, FLOORS, OR FRAMING.

DISPOSE OF DEMOLISHED ITEMS AND MATERIALS PROMPTLY. ON-SITE STORAGE OR SALE OF REMOVED ITEMS IS PROHIBITED.

DEMOLISH CONCRETE AND MASONRY IN SMALL SECTIONS.

REMOVE AIR-CONDITIONING EQUIPMENT WITHOUT RELEASING REFRIGERANTS.

BREAKUP AND REMOVE CONCRETE SLABS ON GRADE, UNLESS OTHERWISE NOTED.

REMOVE BELOW-GRADE CONSTRUCTION, INCLUDING FOUNDATION WALLS, TO AT LEAST 24 INCHES BELOW GRADE.

BREAK UP BELOW-GRADE CONCRETE SLABS IN SECTIONS NO LARGER THAN 24 INCHES SQUARE.33. PROMPTLY REPAIR DAMAGES TO ADJACENT FACILITIES CAUSED BY DEMOLITION.

PATCH TO PRODUCE SUITABLE SURFACES FOR NEW MATERIALS WHEN REPAIRING EXIST. SURFACES.

EXTEND RESTORED, EXPOSED FINISHES OF PATCH SURFACES INTO ADJOINING CONSTRUCTION IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND RESURFACING.

DO NOT BURN DEMOLISHED MATERIALS.

TRANSPORT DEMOLISHED MATERIALS OFF OWNER'S PROPERTY AND LEGALLY DISPOSE OF THEM.

PROMPTLY SUBMIT A WRITTEN REPORT TO THE ENGINEER SHOULD UNANTICIPATED STRUCTURAL, ELECTRICAL, OR MECHANICAL CONDITIONS ARE ENCOUNTERED. THE SUBMITTED REPORT SHALL INCLUDE SUFFICIENT DETAIL REGARDING THE EXTENT AND NATURE OF THE CONDITION.

DEMOLITION/CONSTRUCTION WORK SHALL BE LIMITED TO THE NORMAL HOURS OF 8AM TO 6PM.

MAINTAIN BUILDING SECURITY TO ADJACENT AND COMMON AREAS DURING DEMOLITION ACTIVITIES TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING THE SITE.

DUE CARE SHALL BE TAKEN SO THAT THE EQUIPMENT AND ITS INSTALLATION ARE HANDLED IN A MANNER THAT WILL NOT AFFECT FIRE SAFETYOR CREATE A FIRE HAZARD.

FINISHES

FIRE SEPARATION ASSEMBLIES SHALL BE 1 HOUR FIRE RATED, UNLESS OTHERWISE NOTED, AND SHALL CONSIST OF 3-5/8" 25 GA. GALVANIZED STEEL STUDS AND CHANNELS (ASTM C645) INSTALLED AT 16" O.C.. CHANNELS SHALL BE ATTACHED TO FLOOR AND CEILING AT 24" O.C. (MAX). STUDS SHALL BE ATTACHED TO TRACK USING SELF-TAPPING STEEL SCREWS TO EACH SIDE. MINERAL WOOL BATTS SHALL BE FIT BETWEEN STUDS AND STAPLED IN PLACE (THERMAFIBER SAFB OR EQUAL-MEA). ONE LAYER OF 5/8" GYPSUM WALLBOARD (ASTM C36, TYPE X) SHALL BE INSTALLED FROM FLOOR TO CEILING EACH SIDE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. VINYL JOINT COMPOUND AND TAPE SHALL BE APPLIED TO ALL JOINTS AND TOP AND BOTTOM SEAMS SEALED. ALL PENETRATIONS THROUGH ASSEMBLY SHALL COMPLY WITH FIRE STOPPING SPECIFICATION.

EXIST. CONCRETE CEILINGS SHALL BE PATCHED AND PAINTED. OTHER EXIST. CEILING TYPES SHALL RECEIVE ONE LAYER OF 5/8" GYPSUM WALLBOARD (ASTM C36-TYPE X) INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND BE FINISHED IN ACCORDANCE WITH FIRE SEPARATION ASSEMBLY SPECIFICATION, UNO. FIRRED SPACES SHALL BE FIRESTOPPED.

ALL NEW WALLS & DOORS SHALL BE PAINTED USING BENJAMIN MOORE PAINT - ACRYLIC SEMI-GLOSS.

PAINT COLOR SHALL BE SELECTED BY CONSTRUCTION MANAGER.

ALL SURFACES TO BE PAINTED SHALL BE PREPARED IN ACCORD WITH PAINT MANUFACTURER'S RECOMMENDATIONS, PRIMED AND RECEIVE 2 FINISH COATS OF PAINT.

ALL PAINTS SHALL BE IN COMPLIANCE WITH ALL STATE, FEDERAL AND LOCAL VOLATILE ORGANIC COMPOUND REQUIREMENTS

PAINT COLOR SHALL MATCH EXIST. ABUTTING SURFACES WHERE APPLICABLE

NEW EQUIPMENT ROOMS SHALL HAVE VCT FLOORING AND VINYL BASE. INSTALL VINYL BASE TO BOTH SIDES OF NEW WALLS. COLORS AND PATTERNS TO BE SELECTED BY CONSTRUCTION MANAGER

CABLE TRAY

CABLE TRAY SHALL BE MADE OF EITHER CORROSION RESISTANT METAL OR WITH A CORROSION RESISTANT FINISH.

CABLE TRAY SHALL BE OF LADDER TRAY TYPE WITH FLAT COVER CLAMPED TO SIDE RAILS.

CABLE LADDER SHALL BE SIZED TO FIT ALL CABLES IN ACCORD WITH NEC AND NEMA 11-15-84.

CABLE LADDER TRAYS SHALL BE NEMA CLASS 12A BY PW INDUSTRIES, INC. OR EQUAL.

CABLE LADDER TRAY SHALL BE SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

ALL WORKMANSHIP SHALL CONFORM TO THESE REQUIREMENTS AND ALL LOCAL CODES AND STANDARDS TO ENSURE SAFE AND ADEQUATE GROUNDING SYSTEM.

TYPICAL WOVEN WIRE FENCING NOTES

(INSTALL FENCING PER ASTM F-567, SWING GATES PER ASTM F- 900)

GATE POST, CORNER, TERMINAL OR PULL POST 2 1/2"Ø SCHEDULE 40 FOR GATE WIDTHS UP through 6 FEET OR 12 FEET FOR DOUBLE SWING GATE PER ASTM-F1083.

LINE POST: 2"Ø SCHEDULE 40 PIPE PER ASTM-F1083.

GATE FRAME: 1 1/2"Ø SCHEDULE 40 PIPE PER ASTM-F1083.

TOP RAIL & BRACE RAIL: 1 1/2"Ø SCHEDULE 40 PIPE PER ASTM-F1083.

FABRIC: 12 GA. CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A392.

TIE WIRE: MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS. A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX 24" INTERVALS.

TENSION WIRE: 7 GA. GALVANIZED STEEL.

BARBED WIRE: DOUBLE STRAND 12-1/2" O.D. TWISTED WIRE TO MATCH W/ FABRIC 14 GA., 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.

GATE LATCH: DROP DOWN LOCKABLE FORK LATCH AND LOCK, KEYED ALIKE FOR ALL SITES.

LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED IF REQUIRED.

HEIGHT = 6' VERTICAL + 1' BARBED WIRE VERTICAL DIMENSION (UON).

ELECTRICAL

CONTRACTOR SHALL VERIFY EXIST. ELECTRIC SERVICE TYPE AND CAPACITY AND ORDER NEW ELECTRIC SERVICE FROM LOCAL ELECTRIC UTILITY, WHERE APPLICABLE.

ALL ELECTRICAL WORK SHALL BE IN ACCORD WITH ALL APPLICABLE CODES, AND SHALL BE ACCEPTABLE TO ALL AUTHORITIES HAVING JURISDICTION. WHERE A CONFLICT EXISTS BETWEEN CODES, PLAN AND SPECIFICATIONS, OR AUTHORITIES HAVING JURISDICTION, THE MORE STRINGENT AUTHORITIES SHALL APPLY.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN AND/OR OTHERWISE REQUIRED.

ALL ELECTRICAL CONDUCTORS SHALL BE 100% COPPER AND SHALL HAVE TYPE THHN INSULATION UNLESS INDICATED OTHERWISE.

CONDUIT SHALL BE THREADED RIGID GALVANIZED STEEL OR EMT WITH ONLY COMPRESSION TYPE COUPLINGS AND CONNECTORS, ALL MADE UP WRENCH TIGHT.

PROVIDE FLEXIBLE STEEL CONDUIT OR LIQUIDTIGHT FLEXIBLE STEEL CONDUIT CONDUIT TO ALL VIBRATING EQUIPMENT, INCLUDING HVAC UNITS, TRANSFORMERS, MOTORS, ETC., OR WHERE IS EQUIPMENT IS PLACED UPON A SLAB ON GRADE.

ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR BONDED TO ALL ENCLOSURES, PULLBOXES, ETC.

CONDUIT AND CABLE WITHIN CORRIDORS SHALL BE CONCEALED AND EXPOSED ELSEWHERE.

VERIFY LOCATION OF ALL OUTLETS IN THE FIELD.

ELECTRICAL MATERIALS INSTALLED ON ROOFTOP SHALL BE LISTED FOR NEMA 3R USE. - AND ALL WIRING WITHIN A VENTILATION DUCT SHALL BE LISTED FOR SUCH USE. IN GENERAL WIRING METHODS WITHIN A DUCT SHALL BE AN MC CABLE WITH SMOOTH OT CORRUGATED METAL JACKET AND HAVE NO OUTER COVERING OVER THE METAL JACKET. INTERLOCKED ARMOR TYPE OF MC CABLE IS NOT ACCEPTABLE FOR THIS APPLICATION. CONTRACTOR CAN ALSO USE TYPE MI CABLE IN THE VENTILATION DUCT PROVIDED IT DOES NOT HAVE ANY OUTER COVERING OVER THE METAL EXTERIOR.)

WIRING DEVICES SHALL BE SPECIFICATION GRADE, AND WIRING DEVICE COVER PLATES SHALL BE PLASTIC WITH ENGRAVING AS SPECIFIED.

GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUES IS EXCEEDED, NOTIFY CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION.

WHERE CONDUIT AND CABLES PENETRATES FIRE RATED WALLS AND FLOORS, FIRE GROUT ALL PENETRATIONS IN ORDER TO MAINTAIN THE FIRE RATING USING A LISTED FIRE SEALING DEVICE OR GROUT.

EXIST. CONDUITS OR CABLES ENTERING OR PASSING THROUGH THE EQUIPMENT SPACE SHALL BE REMOVED. INSTALL SPLICE BOXES IN ADJACENT CEILING SPACES AND RECONNECT FEEDER/BRANCH CIRCUIT USING CONDUIT OR CABLE ROUTED THROUGH THE CORRIDOR CEILING. EXIST. RECEPTACLE OUTLETS INSTALLED FLUSH IN THE WALLS SHALL WHERE POSSIBLE BE DISCONNECTED AND ABANDONED. WHERE THIS IS NOT POSSIBLE, INSTALL OUTLET BOX EXTENDERS - REMOVE RECEPTACLE - RECONNECT BRANCH CIRCUIT - AND USE A STAINLESS STEEL BLANK COVER PLATE ON THE FINISHED WALL.

COORDINATE WITH BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK INVOLVING EXIST. SYSTEMS OR EQUIPMENT IN ORDER TO DETERMINE THE EFFECT, IF ANY, ON OTHER TENANTS WITHIN THE BUILDING, AND TO DETERMINE THE APPROPRIATE TIME FOR PERFORMING THIS WORK.

VERIFY BRANCH CIRCUIT REQUIREMENTS FOR ALL HVAC EQUIPMENT, AND PROVIDE BRANCH CIRCUITS, OVERCURRENT PROTECTION, ETC., IN STRICT ACCORDANCE WITH ACTUAL NAMEPLATE DATA.

PROVIDE ENGRAVED NAME PLATES ON: DISCONNECT IN THE EXIST. ELECTRICAL ROOM; DISCONNECT WITHIN THE EQUIPMENT SPACE; PANELBOARD; ROOF UNIT DISCONNECT, ETC., NAME PLATE TO IDENTIFY THE EQUIPMENT SERVED AND/OR THE BRANCH CIRCUIT OR FEEDER SOURCE, AND SHALL ALSO IDENTIFY THE VOLTAGES WITHIN.

THE CONTRACTOR SHALL BE REQUIRED TO VISIT THE SITE PRIOR TO SUBMITTING BID IN ORDER TO DETERMINE THE EXTENT OF THE OF THE EXIST. CONDITIONS.

METERS AND SOCKETS SHALL BE SQUARE D OR EQUAL AND APPROVED FOR USE BY LOCAL UTILITY, WHERE APPLICABLE.

ALL CONDUCTOR ENDS SHALL BE TAGGED AND ELECTRICAL EQUIPMENT LABELED WITH ENGRAVED IDENTIFICATION PLATES.

CONTRACTOR IS RESPONSIBLE FOR ALL CONTROLS WIRING AND ALARM TIE-INS.

STATE OF CONNECTICUT
BRADLEY J. PARSONS
No. 28025
LICENSED PROFESSIONAL ENGINEER

SITE NUMBER:
CC-876385

APT FILING NUMBER:
CT259620

EVERSOURCE ENERGY
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BERLIN, CT 06037

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PERMITTING DOCUMENTS

N. COVENTRY/WALLBEOFF
RILEY MTN. RD.
COVENTRY,CT 06283

DESIGN TYPE:
CO-LOCATION
ON EXIST. MONOPOLE

REVISIONS:
REV.0: 10/06/17: FOR REVIEW: BJP
REV.1: 10/20/17: CSC SUBMISSION REVIEW: BJP
REV.2: 11/13/17: CSC SUBMISSION: BJP
REV.3: 06/06/18: FOR CONSTRUCTION: BJP

NOTES & SPECIFICATIONS

APT FILING NUMBER: CT259620
APT DRAWING NUMBER: - N-1
DRAWN BY: ELZ
SCALE: AS NOTED
CHECKED BY: BJP
DATE: 10/06/17

SHEET NUMBER:
N-1

Attachment 2 – Antenna & Emergency Back-Up Power Generator Specifications

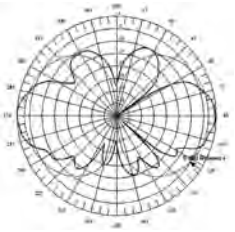
dbSpectra

900 MHz Omni Antennas (890-960 MHz)

		890-960 MHz																	
	Model Number	**DS9A03F36U-N**	**DS9A03F36U-D**	**DS9A06F36U-N**	**DS9A06F36U-D**	**DS9A09F36U-N**	**DS9A09F36U-D**	**DS9A10F36U-N**	**DS9A10F36U-D**	**DS9A12F36U-N**	**DS9A12F36U-D**	**DS9A03F36D-N**	**DS9A03F36D-D**	**DS9A06F36D-N**	**DS9A06F36D-D**	**DS9A09F36D-N**	**DS9A09F36D-D**	**DS9A06F36T-N**	**DS9A06F36T-D**
	Input Connector	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN
	Type	Single		Single		Single		Single		Single		Dual		Dual		Dual		Triple	
ELECTRICAL	**Bandwidth**, MHz	70		70		70		70		70		70		70		70		70	
ELECTRICAL	**Power**, Watts	500		500		500		500		500		350		350		350		250	
ELECTRICAL	**Gain**, dBd	3		6		9		10		12		3		6		9		6	
ELECTRICAL	**Horizontal Beamwidth**, degrees	360		360		360		360		360		360		360		360		360	
ELECTRICAL	**Vertical Beamwidth**, degrees	30		16		8		6		3		30		16		8		16	
ELECTRICAL	**Beam Tilt**, degrees	0		0		0		0		0		0		0		0		0	
ELECTRICAL	**Isolation (minimum)**, dB	N/A		N/A		N/A		N/A		N/A		40		40		45		40	
MECHANICAL	**Number of Connectors**	1		1		1		1		1		2		2		2		3	
MECHANICAL	**Flat Plate Area**, $ft^2(m^2)$	0.24 (0.02)		1.28 (0.12)		2.26 (0.21)		3.25 (0.3)		4.33 (0.4)		1.38 (0.13)		2.27 (0.21)		3.83 (0.36)		3.47 (032)	
MECHANICAL	**Lateral Windload Thrust**, lbf(N)	11 (48)		48 (214)		85 (377)		122 (543)		163 (723)		31 (139)		85 (374)		144 (641)		87 (385)	
MECHANICAL	**Survival Wind Speed**																		
MECHANICAL	**without ice**, mph(kph)	437 (703)		250 (402)		150 (241)		105 (169)		75 (121)		379 (610)		150 (241)		90 (145)		136 (219)	
MECHANICAL	**with 0.5" radial ice**, mph(kph)	319 (513)		225 (362)		127 (204)		88 (142)		60 (97)		294 (473)		125 (201)		75 (121)		106 (171)	
MECHANICAL	**Mounting Hardware** included	DSH2V3R		DSH2V3R		DSH3V3R		DSH3V3N		DSH3V3N		DSH2V3R		DSH3V3R		DSH3V3N		DSH3V3N	
DIMENSIONS	**Length**, ft(m)	2.9 (0.9)		6.7 (2)		11.4 (3.5)		16.3 (5)		21.8 (6.6)		8 (2.4)		11.4 (3.5)		19.2 (5.9)		15.3 (4.7)	
DIMENSIONS	**Radome O.D.**, in(cm)	2 (5.1)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)		3 (7.6)	
DIMENSIONS	**Mast O.D.**, in(cm)	2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		2.5 (6.4)		3.2 (8.13)	
DIMENSIONS	**Net Weight** w/o bracket, lb(kg)	5.5 (2.5)		18 (8.2)		30 (13.6)		45 (20.4)		52 (23.6)		21 (9.5)		31 (14.1)		50 (22.7)		40 (18.1)	
DIMENSIONS	**Shipping Weight**, lb(kg)	9.6 (4.4)		28 (12.7)		60 (27.2)		75 (34)		82 (37.2)		51 (23.1)		61 (27.7)		80 (36.3)		50 (22.7)	

VERTICAL PATTERNS

DS9A03F36U-N
DS9A03F36U-D



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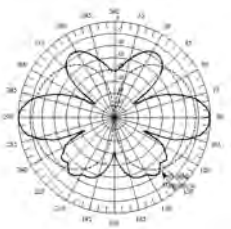

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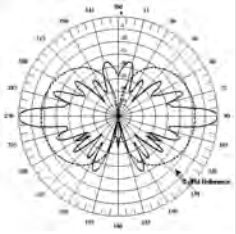

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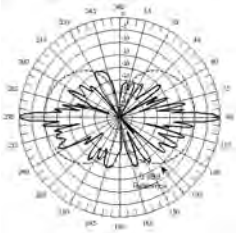
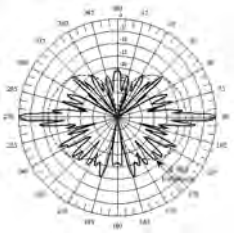
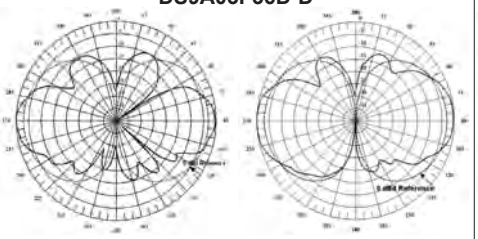
DS9A10F36U-D



DS9A12F36U-N
DS9A12F36U-D

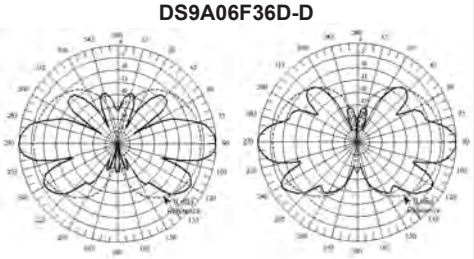


DS9A03F36D-N
DS9A03F36D-D



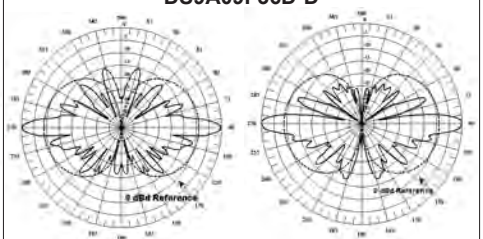
Top Bottom

DS9A06F36D-N
DS9A06F36D-D



Top Bottom

DS9A09F36D-N
DS9A09F36D-D



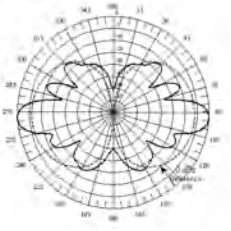
Top Bottom

900 MHz Omni Antennas (890-960 MHz)

		890-960 MHz					
	Model Number	**DS9A06F36U3N**	**DS9A06F36U3D**	**DS9A06F36U6N**	**DS9A06F36U6D**	**DS9A10F36U3N**	**DS9A10F36U3D**
	Input Connector	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN
	Type	Beamtilt		Beamtilt		Beamtilt	
ELECTRICAL	**Bandwidth**, MHz	70		70		70	
	Power, Watts	500		500		500	
	Gain, dBd	6		6		10	
	Horizontal Beamwidth, degrees	360		360		360	
	Vertical Beamwidth, degrees	16		16		6	
	Beam Tilt, degrees	3 Down		6 Down		3 Down	
	Isolation (minimum), dB	N/A		N/A		N/A	
MECHANICAL	**Number of Connectors**	1		1		1	
	Flat Plate Area, $ft^2(m^2)$	1.28 (0.12)		1.28 (0.12)		2.5 (0.23)	
	Lateral Windload Thrust, lbf(N)	48 (214)		48 (214)		122 (543)	
	Survival Wind Speed **without ice**, mph(kph) **with 0.5" radial ice**, mph(kph)	 250 (402) 225 (362)		 250 (402) 225 (362)		 105 (169) 88 (142)	
	Mounting Hardware included	DSH2V3R		DSH2V3R		DSH3V3N	
DIMENSIONS	**Length**, ft(m)	6.7 (2)		6.7 (2)		16.3 (5)	
	Radome O.D., in(cm)	3 (7.6)		3 (7.6)		3 (7.6)	
	Mast O.D., in(cm)	2.5 (6.4)		2.5 (6.4)		2.5 (6.4)	
	Net Weight w/o bracket, lb(kg)	18 (8.2)		18 (8.2)		45 (20.4)	
	Shipping Weight, lb(kg)	28 (12.7)		28 (12.7)		75 (34)	

VERTICAL PATTERNS

DS9A06F36U3N
DS9A06F36U3D



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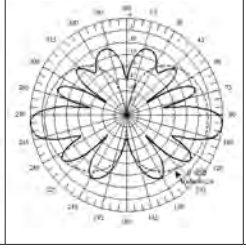
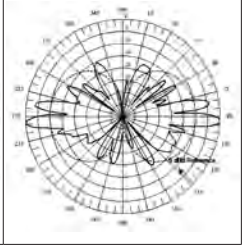
DS9A06F36U6D



DS9A10F36U3N
DS9A10F36U3D



Models: 20RESD

KOHLER Power Systems

Multi-Fuel
LPG/Natural Gas

The Kohler® Advantage

- **High Quality Power**
  Kohler home generators provide advanced voltage and frequency regulation along with ultra-low levels of harmonic distortion for excellent generator power quality to protect your valuable electronics.
- **Extraordinary Reliability**
  Kohler is known for extraordinary reliability and performance and backs that up with a premium 5-year or 2000 hour limited warranty.
- **Perfect for Tight Lot Lines**
  Can be placed as close as 18 inches from your home or small business, providing installation flexibility even on smaller lots. *
- **Powerful Performance**
  Exclusive PowerBoost™ technology provides excellent starting power.*
- **Fast Response**
  Kohler generators restore power to your home quickly and reliably.
- **Quiet Operation**
  Kohler home generators provide quiet, neighborhood-friendly performance.

Standard Features

- **RDC2 Controller**
  - One digital controller manages both the generator set and transfer switch functions (with optional Model RXT transfer switch)
  - Designed for today's most sophisticated electronics
  - Electronic speed control responds quickly to varying household demand
  - Digital voltage regulation protects your sensitive electronics from harmonic distortion and unstable power quality
  - Two-line, backlit LCD display with adjustable contrast is easy to read, even in direct sunlight or low light
- **Kohler Command PRO Engine Features**
  - Kohler Command PRO® OHV engine with hydraulic valve lifters for reliable performance without routine valve adjustment or lengthy break-in requirements
  - Powerful, reliable air-cooled performance
  - Simple field conversion between natural gas and LPG fuels while maintaining emission certification
- **Aluminum Sound Enclosure and Skid**
  - Wind rated up to 181 mph
  - Weather-resistant cashmere textured finish
- **Designed for Easy Installation**
  - Hinged, locking roof
  - Fuel and electrical connections through the enclosure wall eliminate the need for stub-ups through the bottom
  - Load connection terminal block allows easy field wiring
  - Designed for outdoor installation only
- **Certifications**
  - Meets emission regulations for U.S. Environmental Protection Agency (EPA) with both natural gas and LPG **Note:** CARB does not regulate emergency standby generators with outputs less than 50 HP. Only the EPA standards apply.
  - UL 2200/cUL listed (60 Hz model)
  - CSA certification available (60 Hz model)
  - Accepted by the Massachusetts Board of Registration of Plumbers and Gas Fitters
- Approved for stationary standby applications in locations served by a reliable utility source.
- **Warranty**
  - 5-year/2000 hour warranty for on-grid (standby) applications in locations served by a reliable utility source

Generator Ratings

					Standby Ratings			
					Natural Gas		LPG	
Model	Voltage	Phase	Hz	Alternator	kW/kVA	Amps	kW/kVA	Amps
20RESD	120/240	1	60	2F7	18/18	75.0	20/20	83.3
	115/230	1	50	2F7	14/14	60.8	15/15	65.2

RATINGS: Standby ratings apply to installations served by a reliable utility source. All single-phase units are rated at 1.0 power factor. The standby rating is applicable to variable loads with an average load factor of 80% for the duration of the power outage. No overload capacity is specified at this rating. Ratings are in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. GENERAL GUIDELINES FOR DERATING: *ALTITUDE*: Derate 4% per 305 m (1000 ft.) elevation above 153 m (500 ft.). *TEMPERATURE*: Derate 2% per 5.5°C (10°F) temperature increase above 16°C (60°F). Availability is subject to change without notice. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler Co. generator distributor for availability.

* The required distance from a structure is dependent on state and local codes. Generator must be located away from doors, windows, and fresh air intakes. See the installation manual for guidelines.

Alternator Specifications

Alternator Specifications

Specifications	PowerBoost™ Generator 1-Phase
Manufacturer	Kohler
Output reconnectable	120/240
Type	2-Pole, Rotating Field
Leads, quantity	4
Voltage regulator	Digital
Insulation:	NEMA MG1-1.66
Material	Class H
Temperature rise	Class H
Bearing: quantity, type	1, Sealed Ball
Coupling	Direct
Amortisseur windings	Full
Voltage regulation, no-load to full-load RMS	±1.0%
One-step load acceptance	100% of Rating
Peak motor starting kVA @ 240 V:	
20RESD	40.5

Alternator Features

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise
- Self-ventilated and drip-proof construction
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform and minimum harmonic distortion from skewed alternator construction
- Digital voltage regulator with ±1.0% no-load to full-load RMS regulation
- Rotating-field alternator with static exciter for excellent load response
- Total harmonic distortion (THD) from no load to full load with a linear load is less than 5%

Application Data

Engine

Engine Specifications	
Manufacturer	Kohler
Engine: model, type	CH1000 4-Cycle
Cylinder arrangement	V-2
Displacement, cm^3 (cu. in.)	999 (61)
Bore and stroke, mm (in.)	90 x 78.5 (3.54 x 3.1)
Compression ratio	8.8:1
Main bearings: quantity, type	2, Parent Material
Rated RPM	
60 Hz	3600
50 Hz	3000
Max. engine power at rated rpm, kW (HP)	
LPG, 60 Hz	23.0 (30.9)
LPG, 50 Hz	20.0 (26.8)
Natural gas, 60 Hz	20.2 (27.1)
Natural gas, 50 Hz	16.8 (22.5)
Cylinder head material	Aluminum
Valve material	Steel/Stellite®
Piston type and material	Aluminum Alloy
Crankshaft material	Heat Treated, Ductile Iron
Governor: type	Electronic
Frequency regulation, no load to full load	Isochronous
Frequency regulation, steady state	±0.5%
Air cleaner type	Dry

Exhaust

Exhaust System	
Exhaust temperature exiting the enclosure at rated kW, dry, °C (°F)	260 (500)

Engine Electrical

Engine Electrical System	
Ignition system	Electronic, Capacitive Discharge
Starter motor rated voltage (DC)	12
Battery (purchased separately):	
Ground	Negative
Volts (DC)	12
Battery quantity	1
Recommended cold cranking amps:	
(CCA) rating for −18°C (0°F)	500
Group size	26

Lubrication

Lubricating System	
Type	Full Pressure
Oil capacity (with filter), L (qt.)	1.9 (2.0)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Integral

Fuel Pipe Size

Minimum Gas Pipe Size Recommendation, in. NPT

Pipe Length, m (ft.)	Natural Gas 281,000 Btu/hr.	LPG 340,000 Btu/hr.
8 (25)	1	3/4
15 (50)	1	1
30 (100)	1 1/4	1
46 (150)	1 1/4	1 1/4
61 (200)	1 1/4	1 1/4

Fuel Requirements

Fuel System	20RESD
Fuel types	Natural Gas or LPG
Fuel supply inlet	1/2 NPT
Fuel supply pressure, kPa (in. H_2O):	
Natural gas	0.9–2.7 (3.5-11)
LP	1.7–2.7 (7-11)

Fuel Composition Limits *	Nat. Gas	LPG
Methane, % by volume (minimum)	90 min.	—
Ethane, % by volume (maximum)	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume (maximum)	0.1 max.	5.0 max.
C_4 and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass (maximum)	25 max.	
Lower heating value, MJ/m^3 (Btu/ft^3), (minimum)	33.2 (890)	84.2 (2260)

* Contact your local distributor for suitability and rating derates based on fuel compositions outside these limits.

Operation Requirements

Fuel Consumption

Model	Fuel Type	% Load	Fuel Consumption, m^3/hr. (cfh) 60 Hz		50 Hz	
20RESD	Natural Gas	100	8.0	(281)	6.4	(225)
		75	6.9	(243)	5.4	(189)
		50	4.6	(161)	3.9	(139)
		25	3.6	(127)	2.9	(103)
		Exercise	2.0	(71)	2.0	(71)
	LPG	100	3.9	(136)	2.9	(102)
		75	3.1	(109)	2.4	(85)
		50	2.3	(82)	1.8	(63)
		25	1.7	(59)	1.3	(47)
		Exercise	1.0	(35)	1.0	(35)

Nominal fuel rating: Natural gas: 37 MJ/m^3 (1000 $Btu/ft.^3$)
LPG: 93 MJ/m^3 (2500 $Btu/ft.^3$)

LPG conversion factors: 8.58 $ft.^3$ = 1 lb.
0.535 m^3 = 1 kg
36.39 $ft.^3$ = 1 gal.

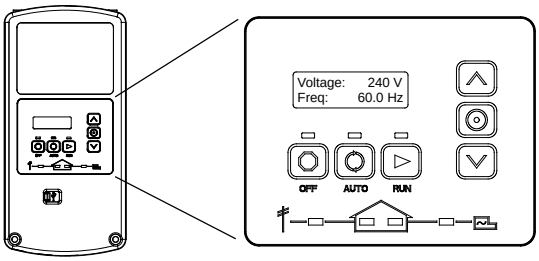
Sound Data

Model 20RESD 8 point logarithmic average sound levels are 64 dB(A) during weekly engine exercise and 69 dB(A) during full-speed generator diagnostics and normal operation. For comparison to competitor ratings, the lowest sound levels are 62 dB(A) and 67 dB(A) respectively.*

All sound levels are measured at 7 meters with no load.

* Lowest of 8 points measured around the generator. Sound levels at other points around generator may vary depending on installation parameters.

RDC2 Controller



The RDC2 controller provides integrated control for the generator set, Kohler® Model RXT transfer switch, programmable interface module (PIM), and load shed kit.

The RDC2 controller's 2-line LCD screen displays status messages and system settings that are clear and easy to read, even in direct sunlight or low light.

RDC2 Controller Features

- Membrane keypad
  - OFF, AUTO, and RUN push buttons
  - Select and arrow buttons for access to system configuration and adjustment menus
- LED indicators for OFF, AUTO, and RUN modes
- LED indicators for utility power and generator set source availability and ATS position (Model RXT transfer switch required)
- LCD display
  - Two lines x 16 characters per line
  - Backlit display with adjustable contrast for excellent visibility in all lighting conditions
- Scrolling system status display
  - Generator set status
  - Voltage and frequency
  - Engine temperature
  - Oil pressure
  - Battery voltage
  - Engine runtime hours
- Date and time displays
- Smart engine cooldown senses engine temperature
- Digital isochronous governor to maintain steady-state speed at all loads
- Digital voltage regulation: ±1.0% RMS no-load to full-load
- Automatic start with programmed cranking cycle
- Programmable exerciser can be set to start automatically on any future day and time, and run every week or every two weeks
- Exercise modes
  - Unloaded weekly exercise with complete system diagnostics
  - Unloaded full-speed exercise
  - Loaded full-speed exercise (Model RXT ATS required)
- Front-access mini USB connector for SiteTech™ or USB Utility connection
- Integral Ethernet connector for Kohler® OnCue® Plus
- Built-in 2.5 amp battery charger
- Remote two-wire start/stop capability for optional connection of a Model RDT transfer switch

See additional controller features on the next page.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the
US and Canada, phone 1-800-544-2444
KOHLERPower.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Additional RDC2 Controller Features

- Diagnostic messages
  - Displays diagnostic messages for the engine, generator, Model RXT transfer switch, programmable interface module (PIM), and load shed kit
  - Over 70 diagnostic messages can be displayed
- Maintenance reminders
- System settings
  - System voltage, frequency, and phase
  - Voltage adjustment
  - Measurement system, English or metric
- ATS status (Model RXT ATS required)
  - Source availability
  - ATS position (normal/utility or emergency/generator)
  - Source voltage and frequency
- ATS control (Model RXT ATS required)
  - Source voltage and frequency settings
  - Engine start time delay
  - Transfer time delays
  - Voltage calibration
  - Fixed pickup and dropout settings
- Programmable Interface Module (PIM) status displays
  - Input status (active/inactive)
  - Output status (active/inactive)
- Load control menus
  - Load status
  - Test function

Generator Set Standard Features

- Battery cables
- EPA certified fuel system
- Aluminum sound enclosure
- Critical silencer
- Field-connection terminal block
- Fuel solenoid valve and secondary regulator
- Line circuit breaker, 100 amps
- Multi-fuel system, LPG/natural gas, field-convertible
- Oil drain extension with shutoff valve
- Premium 5-year/2000 hour limited warranty
- RDC2 generator set/ATS controller
- Rodent-resistant construction
- Sound-deadening, flame-retardant foam per UL 94, class HF-1

Available Options

Approvals and Listings

❑ CSA Approval

Communication Accessories

❑ OnCue® Plus Generator Management System
❑ OnCue® Plus Wireless Generator Management System

Electrical System

❑ Battery
❑ Battery heater
❑ Emergency stop kit

Available Options, Continued

Controller Accessories

❑ Programmable Interface Module (PIM) (provides 2 digital inputs and 6 relay outputs)
❑ PowerSync® Automatic Paralleling Module (APM) (single phase only)

Fuel System

❑ Flexible fuel line

Literature

❑ General maintenance literature kit
❑ Overhaul literature kit
❑ Production literature kit

Starting Aids

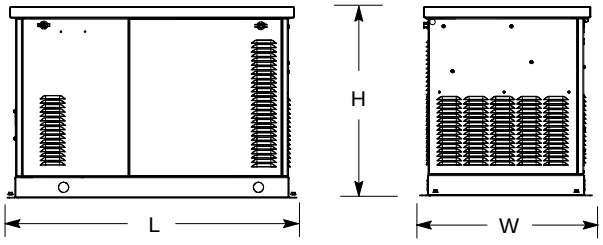
❑ Carburetor heater (recommended for reliable starting at temperatures below 0°C [32°F])
❑ Fuel regulator heater pad (recommended for reliable starting at temperatures below −18°C [0°F])

Automatic Transfer Switches and Accessories

❑ Model RDT ATS
❑ Model RXT ATS
❑ Model RXT ATS with combined interface/load management board
❑ Load shed kit for RXT or RDT
❑ Power relay modules (use up to 4 relay modules for each load management device)
❑ Other Kohler® ATS

Generator Set Dimensions and Weights

Overall Size, L x W x H:	1215 x 733 x 802 mm (47.9 x 28.8 x 31.6 in.)
Shipping Weight (with aluminum enclosure)	240 kg (530 lb.)



NOTE: Dimensions are provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

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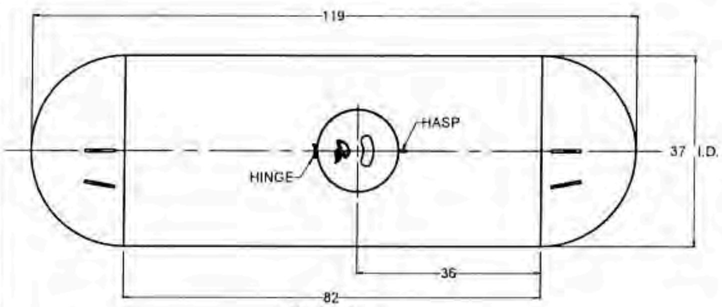
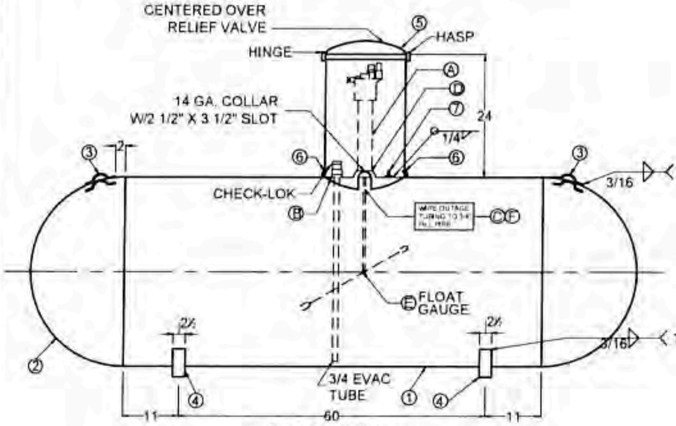
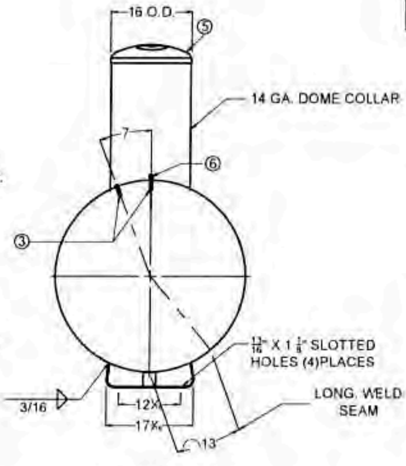
THIS VESSEL IS DESIGNED FOR THE STORAGE OF LIQUEFIED PETROLEUM GAS ONLY



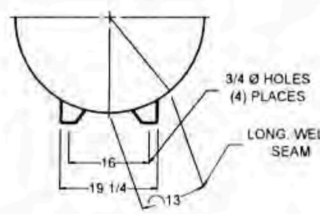
TOP VIEW



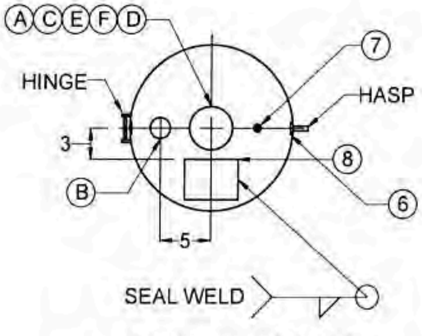
SIDE ELEVATION



END VIEW



OPTIONAL TWO PEICE LEGS



FITTING LAYOUT

TANKS SOLD WITH COMPOSITE DOME MUST HAVE UL MARK REMOVED AND DATA REPORT CORRECTED

SER. NO.

CERTIFIED BY: AMERICAN WELDING &TANK LLC

FREMONT, OHIO AND WEST JORDAN, UTAH

MAX. ALLOW. WORKING PRESS. 250 PSI AT 400 °F

MDMT -20 °F AT 250 PSI PLANT NO.

SERIAL NO. D — YEAR BUILT 20

LENGTH 119 IN. — OUTSIDE DIA. 37.4 IN.

HEAD THK. .185 IN. — SHELL THK. .218 IN.

UNDER GROUND TYPE AWT-UG — SURFACE AREA 97.5 SQ. FT.

LISTED CONTAINER ASSEMBLY FOR LP GAS 695A — HEAD D.R. HEMI

WATER CAPACITY 500 GALS.

THIS CONTAINER SHALL NOT CONTAIN A PRODUCT HAVING A VAPOR PRESSURE IN EXCESS OF 215 PSI AT 100°F.

DIP TUBE LENGTH-89% FULL @ 50 DEG. F. D.T.= 7.5 IN.

DATA PLATE DETAIL

GENERAL NOTES:

1. LIFTING LUGS DESIGNED FOR TOTAL LIFTING WEIGHT OF 1500#
2. TOTAL EMPTY WEIGHT IS 976#
3. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
4. COMPLETE TANK DRIED TO REMOVE ALL MOISTURE.
5. ALL WEIGHTS AND CAPACITIES ARE APPROXIMATE
6. EXTERIOR OF TANK TO BE GRIT BLASTED
7. PAINT PER SHOP ORDER
8. VACUUM PURGE TANK
9. DIMENSIONS ARE SUBJECT TO CHANGE WITH OUT NOTICE. (NON-PRESSURE RETAINING COMPONENTS ONLY)
10. 10. THREADS OF ALL FITTINGS TO BE COATED WITH COMPOUND SUITABLE FOR USE WITH LP GAS.
11. FLOAT GAUGE TO BE INSTALLED WITH FLOAT ARM 45° OFF LONGITUDINAL CENTERLINE OF TANK.
12. DOUBLE LIFTING LUGS ON LONG RISER TANKS ONLY

GENERAL SPECIFICATIONS	
WATER CAPACITY (GALLONS)	500
ALLOWABLE WORKING PRESSURE (PSIG)	250
JOINT EFFICIENCY: ASME UW-51 LONG SEAM	100 %
ASME UW-52 HEAD TO SHELL	80 %
HYDROSTATIC TEST PRESSURE (PSIG)	325
SURFACE AREA (SQ. FT.)	97.5
RELIEF VALVE SETTING (PSIG)	250
RELIEF DISCHARGE RATE - (CFM REQ'D.)	684
CODE: ASME SECTION VIII DIV. I	
STANDARDS: UNDERWRITERS LABORATORIES INC.	MH-5127
N.F.P.A. 58 LP GAS CODE	
MATERIAL SPECS.:	
COUPLINGS SA-105	
TANK FLANGES SA-105 OR SA-181	
ADAPTOR SA-105	
PIPE - SA53B OR SA106B	

PART NUMBER: 0105004x LONG RISER
0105003x SHORT RISER

MARK	QTY	SIZE	TYPE	FITTINGS REGO	FITTINGS SHERWOOD	SERVICE
A	1	2 1/2	SCHED. 40 PIPE T.O.E. X 78 1/8" LG & DOME HT. =24"	G8475RV	PV2098P	MULTIVALVE
A (ALT.)	1	2 1/2	SCHED. 40 PIPE T.O.E. X 8 1/8" LG & DOME HT. = 14"	G8475RV	PV2098P	MULTIVALVE
B	1	3/4	XHFLG. W/EVAC TUBE	7590U	PV5136	CHEK-LOK
C	1	3/4	SCH. 40 PIPE (T.O.E.)			FILL PIPING
D	1	2 1/2	XH SOCKET WELD FLG			RISER PIPE ATTACHMENT
E	1	1 1/4	4 - BOLTS	Sherwood F3?281-007 or Rochester 8628?-483 or Squibb Taylor 32?7?F		FLOAT GAUGE (Long Riser)
E(Alt.)	1	1 1/4	4 - BOLTS	Sherwood F3128?-003 or Rochester 8628?-494 or Squibb Taylor 3?296A		FLOAT GAUGE (Short Riser)
F	1	1/8	BRASS TUBE			OUTAGE TUBE

MARK	QTY	DESCRIPTION	DWG. NO.
1	1	SHELL- 0.218" X 81 1/2" X 116 13/16" - SA414G	
2	2	HEADS - 37" I.D. X 0.185" - HEMI SA414C	
3	4	LIFTING LUGS	D - 2
4	2	TANK LEGS (SINGLE PIECE LEGS)	D - 3
4 OPT	4	TANK LEGS, 1/4" X 2/12"	D - 2
5	1	DOME, 2 PIECE, HINGED	D - 5
6	2	SNAP-LOCK CLIPS	D-29&D-30
7	1	ANODE ATTACHMENT	D-7&D-17
8	1	DATA PLATE 1000 GAL. U/G	

REV.	BY	DESCRIPTION	DATE
14	wlo	CHANGED GROUNDING METHOD	4/12/01
15	CDH	NEW NAMEPLATE & CHEK-LOK	10/19/01
16	CDH	REVISED LEGS & MOVED "B"	10/22/01
17	CDH	REVISED FILL PIPE LENGTHS	12/13/01
18	CDH	ADDED FLOAT GA. DESCRIPTIONS CHANGED MDMT PRESSURE TO 250 PSI	5/21/02
19	CDH	REMOVED DOME CLIPS, ADDED SNAP LOCKS	8/28/02
20	CDH	REPOSITIONED SNAP LOCKS & REMOVED DETAIL	10/21/02
21	SEA	ADD SA-181 AS OPTION FOR FLANGES	6/28/05
22	RGA	REVISED COMPANY NAME	12/08/07
23	wlo	STANDARDIZE DRAWINGS	06/30/11

500 W.G. UNDERGROUND PROPANE TANK-TYPE-AWT-UG

AMERICAN WELDING & TANK LLC

DATE	DRAWN BY	APPROVED BY	REVISION	DRAWING No.
01 / 03 / 00	RAC	CDH	23	R-500MW

UG STANDARD

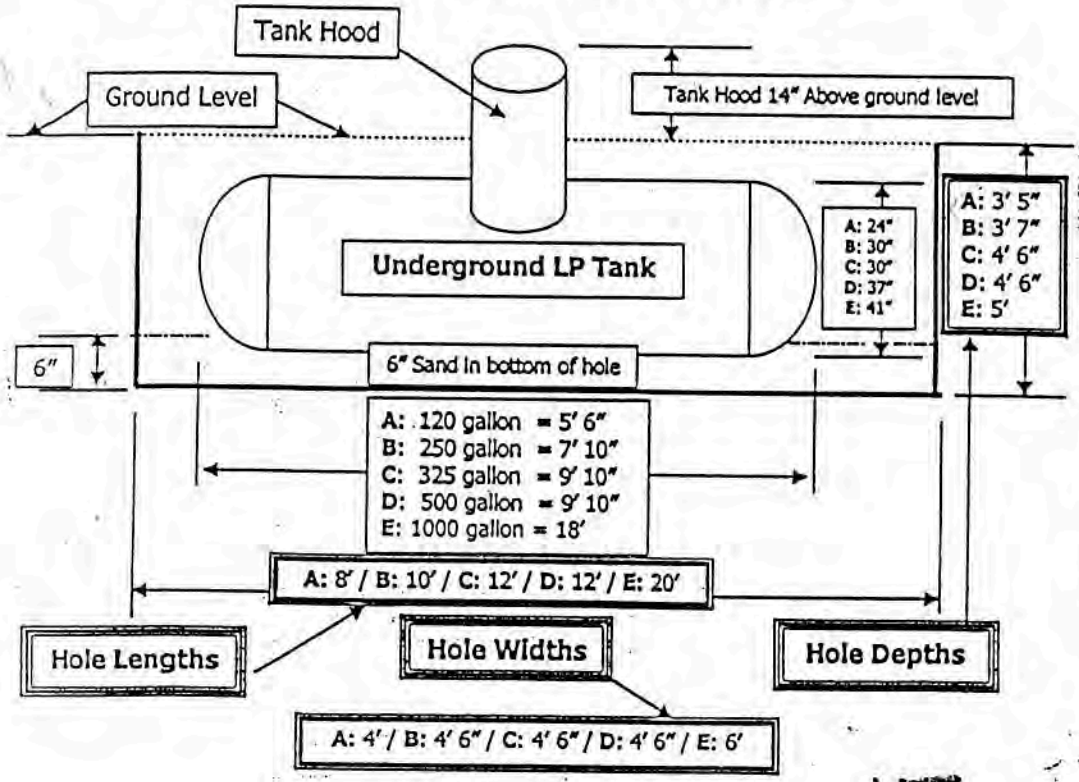
Suburban Propane

Hole Specs for Underground Propane Tanks

Hole & Sand to be provided by Customer for Suburban Propane

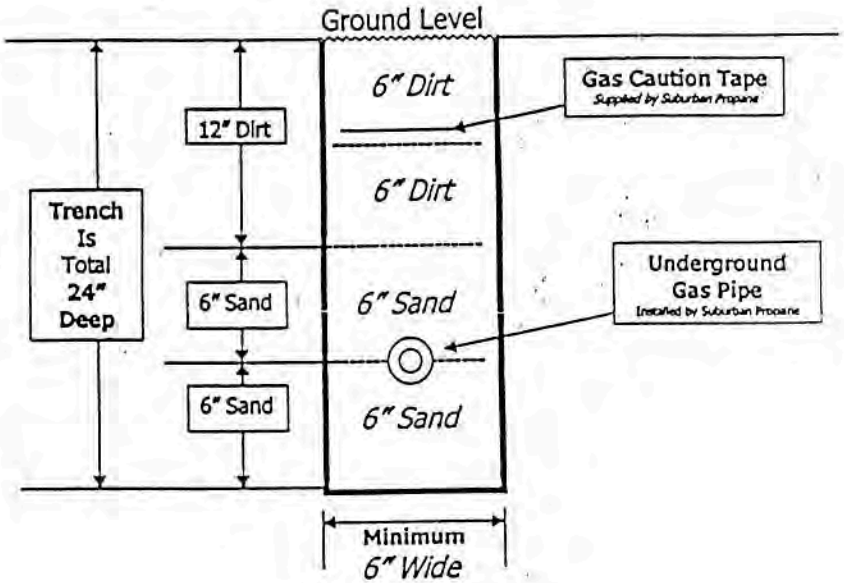
KEY:	Tank Size	Propane Capacity	Weight Empty	Weight Full	Length	Width	Hole Specifications Depth	Width	Length
A:	120	100	288	420	5' 6"	24"	3' 5"	4'	8'
B:	250	200	542	840	7' 10"	30"	3' 7"	4' 6"	10'
C:	325	260	672	1092	9' 10"	30"	4' 6"	4' 6"	12'
D:	500	400	1062	1680	9' 10"	37"	4' 6"	4' 6"	12'
E:	1000	800	1983	3360	18'	41"	5'	6'	20'

1) All tanks must be within 100' of driveway so tank can be refilled
2) All tanks must be at least 10' away from any:
   Enclosed Structure, Property Line or Source of Ignition
3) Excavation Specifications for hole see chart above
4) Hole needs 6" Sand in bottom & Hood heeds to be 14" above ground



Trench Specs for Underground Propane Line

Trench and Sand to be provided by Customer for Suburban Propane



[redacted]
Account Manager
2544 Carmel Avenue, Brewster, NY 10512
Office: 845.279.6650 Fax: 845.279.7916
Cell: 914.804.0554 Pager: 914.545.0649

Attachment 3 – Structural Analysis of Transmission Pole

Date: **August 04, 2017**

Charles Trask
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Eversource Energy* Co-Locate**	
	Carrier Site Number:	
	Carrier Site Name:	Coventry
Crown Castle Designation:	**Crown Castle BU Number:**	876385
	Crown Castle Site Name:	N. COVENTRY / WALLBEOFF
	Crown Castle JDE Job Number:	433567
	Crown Castle Work Order Number:	1389303
	Crown Castle Application Number:	386809 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1389303
Site Data:	**Reilly Mtn. Rd., Coventry, Tolland County, CT**	
	Latitude *41° 47' 56.21"*, Longitude *-72° 19' 55.88"*	
	152 Foot - Monopole Tower	

Dear Charles Trask,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1389303, in accordance with application 386809, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Mishka Stueber / SM

Respectfully submitted by:

Maham Barimani, P.E.
Sr. Project Engineer

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

tnxTower Report - version 7.0.5.1

08-07-2017

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 152 ft Monopole tower designed by Engineered Endeavors, Inc. in September of 2000. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. The tower was designed to be extendable to a height of 194 ft.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category B.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
152.0	162.0	1	dbspectra	DS9A09F36D-N	2 1	1-5/8 1/2	-
	152.0	1	bird technologies group	430-94C-09168-M-110/48			
		1	tower mounts	Pipe Mount [PM 601-1]			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
150.0	152.0	6	decibel	DB980F90T2E-M w/ Mount Pipe	6	1-5/8	1
	150.0	1	tower mounts	Platform Mount [LP 601-1]			
133.0	136.0	6	ericsson	KRY 112 71/2	12	1-5/8	1
		3	commscope	LNX-6515DS-VTM w/ Mount Pipe			
		3	ems wireless	RR90-17-02DP w/ Mount Pipe			
		3	commscope	ATBT-BOTTOM-24V			
		1	tower mounts	Platform Mount [LP 304-1]			
124.0	126.0	6	andrew	SBNHH-1D65B w/ Mount Pipe	2	1-5/8	2
		3	alcatel lucent	RRH2X60-PCS			
		3	alcatel lucent	RRH2x60-700			
		3	alcatel lucent	RRH4X45-AWS4 B66			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
		6	antel	LPA-80080/6CF w/ Mount Pipe	18	1-5/8	1
		3	antel	LPA-171080-12CF-EDIN-2 w/ Mount Pipe			
	124.0	1	tower mounts	Platform Mount [LP 304-1]			
116.0	120.0	6	powerwave technologies	7770.00 w/ Mount Pipe	12 2	1-1/4 3/4	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		2	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	1 1	3/8 2" Conduit	
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
	116.0	3	ericsson	RRUS-11			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21903			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 1201-1]			
107.0	107.0	3	kathrein	742 213	6	1-5/8	1
		1	tower mounts	Pipe Mount [PM 601-3]			
74.0	75.0	1	lucent	KS24019-L112A	1	1/2	1
	74.0	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
191.5	191.5	12	dapa	48000	-	-
181.5	181.5	12	dapa	48000	-	-
171.5	171.5	12	dapa	48000	-	-
161.5	161.5	12	dapa	48000	-	-
150.0	150.0	12	dapa	48000	-	-
140.0	140.0	12	dapa	48000	-	-
130.0	130.0	12	dapa	48000	-	-
120.0	120.0	12	dapa	48000	-	-
110.0	110.0	12	dapa	48000	-	-
100.0	100.0	12	dapa	48000	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Goodkind & O'Dea, Inc.	1531969	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors, Inc.	1441268	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	1614566	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	152 - 137.42	Pole	TP37.31x33.03x0.313	1	-3.101	2526.220	2.0	Pass
L2	137.42 - 91.09	Pole	TP50.15x35.167x0.375	2	-24.057	3935.810	18.2	Pass
L3	91.09 - 44.79	Pole	TP62.86x47.413x0.438	3	-42.032	5613.010	26.6	Pass
L4	44.79 - 0	Pole	TP75x59.537x0.5	4	-71.462	7706.060	29.7	Pass
							Summary	
						Pole (L4)	29.7	Pass
						Rating =	29.7	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	28.3	Pass
1	Base Plate	0	37.4	Pass
1	Base Foundation (Structural)	0	34.3	Pass
1	Base Foundation (Soil Interaction)	0	27.1	Pass

Structure Rating (max from all components) =	**37.4%**

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

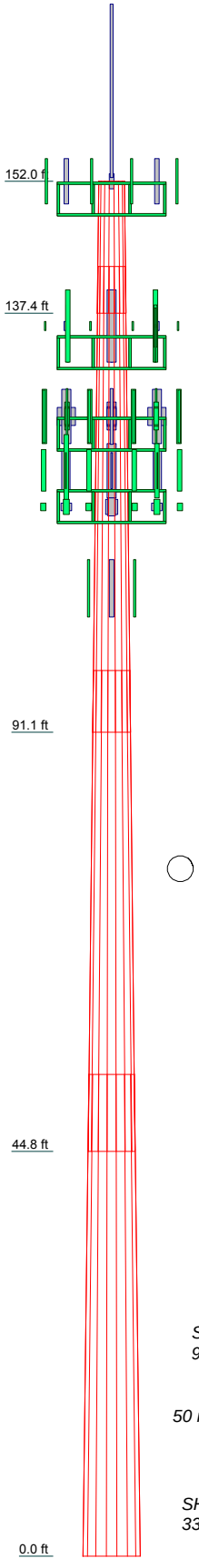
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	14.580	18	0.313	5.170	33.030	37.310		1.7
2	51.500	18	0.375	6.830	35.167	50.150		8.8
3	53.130	18	0.438	8.420	47.413	62.860		13.7
4	53.210	18	0.500		59.537	75.000		19.2
							A572-65	43.5



ALL REACTIONS ARE FACTORED

AXIAL 126 K

SHEAR 9 K *MOMENT 989 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 71 K

SHEAR 33 K *MOMENT 3403 kip-ft*

TORQUE 2 kip-ft
REACTIONS - 101 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DS9A09F36D-N	152	(2) LPA-80080/6CF w/ Mount Pipe	124
430-94C-09168-M-110/48	152	(2) LPA-80080/6CF w/ Mount Pipe	124
Pipe Mount [PM 601-1]	152	(2) LPA-80080/6CF w/ Mount Pipe	124
(2) DB980F90T2E-M w/ Mount Pipe	150	LPA-171080-12CF-EDIN-2 w/ Mount Pipe	124
(2) DB980F90T2E-M w/ Mount Pipe	150		
(2) DB980F90T2E-M w/ Mount Pipe	150	LPA-171080-12CF-EDIN-2 w/ Mount Pipe	124
8' x 2" Pipe Mount	150		
8' x 2" Pipe Mount	150	LPA-171080-12CF-EDIN-2 w/ Mount Pipe	124
8' x 2" Pipe Mount	150		
Platform Mount [LP 601-1]	150	Platform Mount [LP 304-1]	124
RR90-17-02DP w/ Mount Pipe	133	AM-X-CD-16-65-00T-RET w/ Mount Pipe	116
RR90-17-02DP w/ Mount Pipe	133		
RR90-17-02DP w/ Mount Pipe	133	AM-X-CD-16-65-00T-RET w/ Mount Pipe	116
LNX-6515DS-VTM w/ Mount Pipe	133	P65-17-XLH-RR w/ Mount Pipe	116
LNX-6515DS-VTM w/ Mount Pipe	133	(2) 7770.00 w/ Mount Pipe	116
LNX-6515DS-VTM w/ Mount Pipe	133	(2) 7770.00 w/ Mount Pipe	116
(2) KRY 112 71/2	133	(2) 7770.00 w/ Mount Pipe	116
(2) KRY 112 71/2	133	RRUS-11	116
(2) KRY 112 71/2	133	RRUS-11	116
ATBT-BOTTOM-24V	133	RRUS-11	116
ATBT-BOTTOM-24V	133	(2) LGP21903	116
ATBT-BOTTOM-24V	133	(2) LGP21903	116
6' x 2" Mount Pipe	133	(2) LGP21903	116
6' x 2" Mount Pipe	133	DC6-48-60-18-8F	116
6' x 2" Mount Pipe	133	(2) LGP21401	116
Platform Mount [LP 304-1]	133	(2) LGP21401	116
(2) SBNHH-1D65B w/ Mount Pipe	124	(2) LGP21401	116
(2) SBNHH-1D65B w/ Mount Pipe	124	4' x 2" Pipe Mount	116
(2) SBNHH-1D65B w/ Mount Pipe	124	4' x 2" Pipe Mount	116
RRH2x60-700	124	4' x 2" Pipe Mount	116
RRH2x60-700	124	Side Arm Mount [SO 701-3]	116
RRH2x60-700	124	Platform Mount [LP 1201-1]	116
RRH4X45-AWS4 B66	124	742 213	107
RRH4X45-AWS4 B66	124	742 213	107
RRH4X45-AWS4 B66	124	742 213	107
(2) DB-T1-6Z-8AB-0Z	124	Pipe Mount [PM 601-3]	107
RRH2X60-PCS	124	KS24019-L112A	74
RRH2X60-PCS	124	Side Arm Mount [SO 701-1]	74
RRH2X60-PCS	124		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 29.7%

CROWN CASTLE
The foundation for a Wireless World

Crown Castle
2000 Corporate Drive
Canonburg, PA 15317
Phone: 724-416-2000
FAX:

Job: ***BU 876385***			
Project: ***WO 1389303***			
Client: Crown Castle	Drawn by: SMandal		App'd:
Code: TIA-222-G	Date: 08/04/17		Scale: NTS
Path: R:\SA Models - Letters\Work Area\MStueber\2. WIP\876385 WO 1389303\QA-SM\876385.eri			Dwg No. E-1

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

1) Tower is located in Tolland County, Connecticut.
2) Basic wind speed of 101 mph.
3) Structure Class II.
4) Exposure Category B.
5) Topographic Category 1.
6) Crest Height 0.000 ft.
7) Nominal ice thickness of 1.000 in.
8) Ice thickness is considered to increase with height.
9) Ice density of 56.000 pcf.
10) A wind speed of 50 mph is used in combination with ice.
11) Temperature drop of 50.000 °F.
12) Deflections calculated using a wind speed of 60 mph.
13) A non-linear (P-delta) analysis was used.
14) Pressures are calculated at each section.
15) Stress ratio used in pole design is 1.
16) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	152.000-137.420	14.580	5.170	18	33.030	37.310	0.313	1.250	A572-65 (65 ksi)
L2	137.420-91.090	51.500	6.830	18	35.167	50.150	0.375	1.500	A572-65 (65 ksi)
L3	91.090-44.790	53.130	8.420	18	47.413	62.860	0.438	1.750	A572-65 (65 ksi)
L4	44.790-0.000	53.210		18	59.537	75.000	0.500	2.000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	33.540	32.452	4388.688	11.615	16.779	261.555	8783.151	16.229	5.263	16.842
	37.886	36.697	6346.168	13.134	18.953	334.829	12700.685	18.352	6.017	19.253
L2	37.237	41.412	6333.245	12.351	17.865	354.506	12674.822	20.710	5.529	14.745
	50.924	59.245	18544.257	17.670	25.476	727.905	37112.916	29.628	8.166	21.777
L3	50.161	65.231	18185.953	16.676	24.086	755.049	36395.835	32.622	7.575	17.314
	63.830	86.681	42672.286	22.160	31.933	1336.312	85400.720	43.349	10.293	23.528
L4	62.940	93.692	41255.943	20.958	30.245	1364.068	82566.172	46.855	9.599	19.197
	76.157	118.232	82905.472	26.448	38.100	2175.997	165920.033	59.127	12.320	24.64

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 152.000-137.420				1	1	1			
L2 137.420-91.090				1	1	1			
L3 91.090-44.790				1	1	1			
L4 44.790-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*** 152 ***									
FLC 12-50J(1/2)	A	Surface Ar (CaAa)	152.000 - 0.000	1	1	-0.080 -0.075	0.640		0.000
FLC 158-50J(1-5/8)	A	Surface Ar (CaAa)	152.000 - 0.000	2	2	-0.100 -0.040	2.015		0.001
*** 124 ***									
HB158-1-08U8-S8J18(1-5/8)	A	Surface Ar (CaAa)	124.000 - 0.000	2	2	-0.210 -0.190	1.980		0.001
*****									
***									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
*** 150 ***								
LDF7-50A(1-5/8)	A	No	Inside Pole	150.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
*** 133 ***								
AVA7-50(1-5/8)	C	No	Inside Pole	133.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF7-50A(1-5/8)	C	No	Inside Pole	133.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF7-50A(1-5/8)	A	No	Inside Pole	124.000 - 0.000	18	No Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
*** 116 ***								
LCF114-50J(1-1/4)	A	No	Inside Pole	116.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
FB-L98B-002-75000(3/8)	A	No	Inside Pole	116.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4)	A	No	Inside Pole	116.000 - 0.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
2" Rigid Conduit	A	No	Inside Pole	116.000 - 0.000	1	No Ice	0.000	0.003
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.003
*** 107 ***								
AVA7-50(1-5/8)	B	No	Inside Pole	107.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
*** 74 ***								
LDF4-50A(1/2)	A	No	Inside Pole	74.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
***** ***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	152.000-137.420	A	0.000	0.000	6.809	0.000	0.091
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	137.420-91.090	A	0.000	0.000	34.668	0.000	1.202
		B	0.000	0.000	0.000	0.000	0.067
		C	0.000	0.000	0.000	0.000	0.382
L3	91.090-44.790	A	0.000	0.000	39.957	0.000	1.704
		B	0.000	0.000	0.000	0.000	0.194
		C	0.000	0.000	0.000	0.000	0.422
L4	44.790-0.000	A	0.000	0.000	38.654	0.000	1.651
		B	0.000	0.000	0.000	0.000	0.188
		C	0.000	0.000	0.000	0.000	0.408

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	152.000-137.420	A	2.318	0.000	0.000	23.489	0.000	0.450
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	137.420-91.090	A	2.263	0.000	0.000	110.003	0.000	2.872
		B		0.000	0.000	0.000	0.000	0.067
		C		0.000	0.000	0.000	0.000	0.382
L3	91.090-44.790	A	2.149	0.000	0.000	122.541	0.000	3.523
		B		0.000	0.000	0.000	0.000	0.194
		C		0.000	0.000	0.000	0.000	0.422
L4	44.790-0.000	A	1.919	0.000	0.000	114.967	0.000	3.283
		B		0.000	0.000	0.000	0.000	0.188
		C		0.000	0.000	0.000	0.000	0.408

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	152.000-137.420	-0.584	-0.230	-1.187	-0.463
L2	137.420-91.090	-0.930	-0.258	-1.646	-0.479
L3	91.090-44.790	-1.071	-0.274	-1.948	-0.528
L4	44.790-0.000	-1.095	-0.280	-2.095	-0.567

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	FLC 12-50J(1/2)	137.42 - 152.00	1.0000	1.0000
L1	3	FLC 158-50J(1-5/8)	137.42 - 152.00	1.0000	1.0000
L1	10	HB158-1-08U8-S8J18(1-5/8)	137.42 - 124.00	1.0000	1.0000
L2	2	FLC 12-50J(1/2)	91.09 - 137.42	1.0000	1.0000
L2	3	FLC 158-50J(1-5/8)	91.09 - 137.42	1.0000	1.0000
L2	10	HB158-1-08U8-S8J18(1-5/8)	91.09 - 124.00	1.0000	1.0000
L3	2	FLC 12-50J(1/2)	44.79 - 91.09	1.0000	1.0000
L3	3	FLC 158-50J(1-5/8)	44.79 - 91.09	1.0000	1.0000
L3	10	HB158-1-08U8-S8J18(1-5/8)	44.79 - 91.09	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*** 152 P ***									
DS9A09F36D-N	A	From Leg	1.000 0.000 10.000	0.000	152.000	No Ice 1/2" Ice 1" Ice	5.760 7.713 9.683	5.760 7.713 9.683	0.047 0.088 0.142
430-94C-09168-M-110/48	A	From Leg	1.000 0.000 0.000	0.000	152.000	No Ice 1/2" Ice 1" Ice	1.031 1.174 1.323	1.031 1.174 1.323	0.020 0.030 0.042
Pipe Mount [PM 601-1]	A	From Leg	0.500 0.000 0.000	0.000	152.000	No Ice 1/2" Ice 1" Ice	3.000 3.740 4.480	0.900 1.120 1.340	0.065 0.079 0.093
*** 150 I ***									
(2) DB980F90T2E-M w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	3.988 4.450 4.897	3.717 4.579 5.318	0.031 0.068 0.110
(2) DB980F90T2E-M w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	150.000	No Ice 1/2"	3.988 4.450	3.717 4.579	0.031 0.068

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.000			Ice	4.897	5.318	0.110
						1" Ice			
(2) DB980F90T2E-M w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	3.988 4.450 4.897	3.717 4.579 5.318	0.031 0.068 0.110
8' x 2" Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
8' x 2" Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
8' x 2" Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
Platform Mount [LP 601-1]	C	None		0.000	150.000	No Ice 1/2" Ice 1" Ice	28.470 33.590 38.710	28.470 33.590 38.710	1.122 1.514 1.905
*** 133 I ***									
RR90-17-02DP w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	4.593 5.018 5.436	3.319 4.089 4.784	0.034 0.072 0.115
RR90-17-02DP w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	4.593 5.018 5.436	3.319 4.089 4.784	0.034 0.072 0.115
RR90-17-02DP w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	4.593 5.018 5.436	3.319 4.089 4.784	0.034 0.072 0.115
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.083 0.173 0.273
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.083 0.173 0.273
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	11.683 12.404 13.135	9.842 11.366 12.914	0.083 0.173 0.273
(2) KRY 112 71/2	A	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	0.583 0.688 0.799	0.398 0.488 0.586	0.013 0.018 0.025
(2) KRY 112 71/2	B	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	0.583 0.688 0.799	0.398 0.488 0.586	0.013 0.018 0.025
(2) KRY 112 71/2	C	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	0.583 0.688 0.799	0.398 0.488 0.586	0.013 0.018 0.025
ATBT-BOTTOM-24V	A	From Leg	4.000 0.000 3.000	0.000	133.000	No Ice 1/2" Ice 1" Ice	0.104 0.148 0.199	0.065 0.102 0.147	0.003 0.004 0.006
ATBT-BOTTOM-24V	B	From Leg	4.000 0.000	0.000	133.000	No Ice 1/2"	0.104 0.148	0.065 0.102	0.003 0.004

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.000			Ice	0.199	0.147	0.006
						1" Ice			
ATBT-BOTTOM-24V	C	From Leg	4.000	0.000	133.000	No Ice	0.104	0.065	0.003
			0.000			1/2"	0.148	0.102	0.004
			3.000			Ice	0.199	0.147	0.006
						1" Ice			
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	133.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			2.000			Ice	2.294	2.294	0.048
						1" Ice			
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	133.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			2.000			Ice	2.294	2.294	0.048
						1" Ice			
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	133.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			2.000			Ice	2.294	2.294	0.048
						1" Ice			
Platform Mount [LP 304-1]	C	None		0.000	133.000	No Ice	17.460	17.460	1.349
						1/2"	22.440	22.440	1.625
						Ice	27.420	27.420	1.900
						1" Ice			
*** 124 R ***									
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	8.386	7.084	0.076
			0.000			1/2"	8.950	8.275	0.146
			2.000			Ice	9.480	9.188	0.223
						1" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	124.000	No Ice	8.386	7.084	0.076
			0.000			1/2"	8.950	8.275	0.146
			2.000			Ice	9.480	9.188	0.223
						1" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000	0.000	124.000	No Ice	8.386	7.084	0.076
			0.000			1/2"	8.950	8.275	0.146
			2.000			Ice	9.480	9.188	0.223
						1" Ice			
RRH2x60-700	A	From Leg	4.000	0.000	124.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			2.000			Ice	4.029	2.289	0.109
						1" Ice			
RRH2x60-700	B	From Leg	4.000	0.000	124.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			2.000			Ice	4.029	2.289	0.109
						1" Ice			
RRH2x60-700	C	From Leg	4.000	0.000	124.000	No Ice	3.500	1.816	0.060
			0.000			1/2"	3.761	2.052	0.083
			2.000			Ice	4.029	2.289	0.109
						1" Ice			
RRH4X45-AWS4 B66	A	From Leg	4.000	0.000	124.000	No Ice	2.660	1.586	0.064
			0.000			1/2"	2.878	1.769	0.084
			2.000			Ice	3.104	1.959	0.108
						1" Ice			
RRH4X45-AWS4 B66	B	From Leg	4.000	0.000	124.000	No Ice	2.660	1.586	0.064
			0.000			1/2"	2.878	1.769	0.084
			2.000			Ice	3.104	1.959	0.108
						1" Ice			
RRH4X45-AWS4 B66	C	From Leg	4.000	0.000	124.000	No Ice	2.660	1.586	0.064
			0.000			1/2"	2.878	1.769	0.084
			2.000			Ice	3.104	1.959	0.108
						1" Ice			
(2) DB-T1-6Z-8AB-0Z	A	From Leg	4.000	0.000	124.000	No Ice	4.800	2.000	0.044
			0.000			1/2"	5.070	2.193	0.080
			2.000			Ice	5.348	2.393	0.120
						1" Ice			
RRH2X60-PCS	A	From Leg	4.000	0.000	124.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.000			Ice	2.593	2.087	0.099
						1" Ice			
RRH2X60-PCS	B	From Leg	4.000	0.000	124.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			2.000			Ice	2.593	2.087	0.099
						1" Ice			
RRH2X60-PCS	C	From Leg	4.000	0.000	124.000	No Ice	2.200	1.723	0.055
			0.000			1/2"	2.393	1.901	0.075
			2.000			Ice	2.593	2.087	0.099
						1" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	4.564	10.259	0.046
			0.000			1/2"	5.105	11.427	0.113
			2.000			Ice	5.612	12.312	0.187
						1" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	4.000	0.000	124.000	No Ice	4.564	10.259	0.046
			0.000			1/2"	5.105	11.427	0.113
			2.000			Ice	5.612	12.312	0.187
						1" Ice			
(2) LPA-80080/6CF w/ Mount Pipe	C	From Leg	4.000	0.000	124.000	No Ice	4.564	10.259	0.046
			0.000			1/2"	5.105	11.427	0.113
			2.000			Ice	5.612	12.312	0.187
						1" Ice			
LPA-171080-12CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.000	0.000	124.000	No Ice	3.956	7.095	0.037
			0.000			1/2"	4.508	8.302	0.086
			2.000			Ice	5.029	9.242	0.143
						1" Ice			
LPA-171080-12CF-EDIN-2 w/ Mount Pipe	B	From Leg	4.000	0.000	124.000	No Ice	3.956	7.095	0.037
			0.000			1/2"	4.508	8.302	0.086
			2.000			Ice	5.029	9.242	0.143
						1" Ice			
LPA-171080-12CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.000	0.000	124.000	No Ice	3.956	7.095	0.037
			0.000			1/2"	4.508	8.302	0.086
			2.000			Ice	5.029	9.242	0.143
						1" Ice			
Platform Mount [LP 304-1]	C	None		0.000	124.000	No Ice	17.460	17.460	1.349
						1/2"	22.440	22.440	1.625
						Ice	27.420	27.420	1.900
						1" Ice			
*** 116 I ***									
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.000	0.000	116.000	No Ice	8.262	6.304	0.074
			0.000			1/2"	8.822	7.479	0.139
			4.000			Ice	9.346	8.368	0.212
						1" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.000	0.000	116.000	No Ice	8.262	6.304	0.074
			0.000			1/2"	8.822	7.479	0.139
			4.000			Ice	9.346	8.368	0.212
						1" Ice			
P65-17-XLH-RR w/ Mount Pipe	C	From Leg	4.000	0.000	116.000	No Ice	11.704	8.938	0.092
			0.000			1/2"	12.424	10.450	0.178
			4.000			Ice	13.153	11.986	0.273
						1" Ice			
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	116.000	No Ice	5.746	4.254	0.055
			0.000			1/2"	6.179	5.014	0.103
			4.000			Ice	6.607	5.711	0.157
						1" Ice			
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	116.000	No Ice	5.746	4.254	0.055
			0.000			1/2"	6.179	5.014	0.103
			4.000			Ice	6.607	5.711	0.157
						1" Ice			
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	116.000	No Ice	5.746	4.254	0.055
			0.000			1/2"	6.179	5.014	0.103
			4.000			Ice	6.607	5.711	0.157
						1" Ice			
RRUS-11	A	From Leg	4.000	0.000	116.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			Ice	3.207	1.490	0.092
						1" Ice			
RRUS-11	B	From Leg	4.000	0.000	116.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			0.000			Ice	3.207	1.490	0.092
						1" Ice			
RRUS-11	C	From Leg	4.000	0.000	116.000	No Ice	2.784	1.187	0.048
			0.000			1/2"	2.992	1.334	0.068
			0.000			Ice	3.207	1.490	0.092
						1" Ice			
(2) LGP21903	A	From Leg	4.000	0.000	116.000	No Ice	0.231	0.158	0.011
			0.000			1/2"	0.294	0.213	0.013
			0.000			Ice	0.365	0.276	0.017
						1" Ice			
(2) LGP21903	B	From Leg	4.000	0.000	116.000	No Ice	0.231	0.158	0.011
			0.000			1/2"	0.294	0.213	0.013
			0.000			Ice	0.365	0.276	0.017
						1" Ice			
(2) LGP21903	C	From Leg	4.000	0.000	116.000	No Ice	0.231	0.158	0.011
			0.000			1/2"	0.294	0.213	0.013
			0.000			Ice	0.365	0.276	0.017
						1" Ice			
DC6-48-60-18-8F	A	From Leg	2.000	0.000	116.000	No Ice	0.791	0.791	0.020
			0.000			1/2"	1.274	1.274	0.035
			0.000			Ice	1.450	1.450	0.053
						1" Ice			
(2) LGP21401	A	From Leg	4.000	0.000	116.000	No Ice	1.104	0.207	0.014
			0.000			1/2"	1.239	0.274	0.021
			0.000			Ice	1.381	0.348	0.030
						1" Ice			
(2) LGP21401	B	From Leg	4.000	0.000	116.000	No Ice	1.104	0.207	0.014
			0.000			1/2"	1.239	0.274	0.021
			0.000			Ice	1.381	0.348	0.030
						1" Ice			
(2) LGP21401	C	From Leg	4.000	0.000	116.000	No Ice	1.104	0.207	0.014
			0.000			1/2"	1.239	0.274	0.021
			0.000			Ice	1.381	0.348	0.030
						1" Ice			
4' x 2" Pipe Mount	A	From Leg	4.000	0.000	116.000	No Ice	0.785	0.785	0.029
			0.000			1/2"	1.028	1.028	0.035
			4.000			Ice	1.281	1.281	0.044
						1" Ice			
4' x 2" Pipe Mount	B	From Leg	4.000	0.000	116.000	No Ice	0.785	0.785	0.029
			0.000			1/2"	1.028	1.028	0.035
			4.000			Ice	1.281	1.281	0.044
						1" Ice			
4' x 2" Pipe Mount	C	From Leg	4.000	0.000	116.000	No Ice	0.785	0.785	0.029
			0.000			1/2"	1.028	1.028	0.035
			4.000			Ice	1.281	1.281	0.044
						1" Ice			
Side Arm Mount [SO 701-3]	C	None		0.000	116.000	No Ice	2.830	2.830	0.195
						1/2"	3.920	3.920	0.237
						Ice	5.010	5.010	0.279
						1" Ice			
Platform Mount [LP 1201-1]	C	None		0.000	116.000	No Ice	23.100	23.100	2.100
						1/2"	26.800	26.800	2.500
						Ice	30.500	30.500	2.900
						1" Ice			
*** 107 l ***									
742 213	A	From Leg	1.000	0.000	107.000	No Ice	5.135	2.869	0.022
			0.000			1/2"	5.609	3.483	0.047
			0.000			Ice	6.090	3.946	0.078
						1" Ice			
742 213	B	From Leg	1.000	0.000	107.000	No Ice	5.135	2.869	0.022
			0.000			1/2"	5.609	3.483	0.047

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			Ice 1" Ice	6.090	3.946	0.078
742 213	C	From Leg	1.000 0.000 0.000	0.000	107.000	No Ice 1/2" Ice 1" Ice	5.135 5.609 6.090	2.869 3.483 3.946	0.022 0.047 0.078
Pipe Mount [PM 601-3]	C	None		0.000	107.000	No Ice 1/2" Ice 1" Ice	4.390 5.480 6.570	4.390 5.480 6.570	0.195 0.237 0.280
*** 74 I *** KS24019-L112A	A	From Leg	3.000 0.000 1.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.100 0.180 0.260	0.100 0.180 0.260	0.005 0.006 0.008
Side Arm Mount [SO 701-1] ****** ***	A	From Leg	1.500 0.000 0.000	0.000	74.000	No Ice 1/2" Ice 1" Ice	0.850 1.140 1.430	1.670 2.340 3.010	0.065 0.079 0.093

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	152 - 137.42	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-8.523	0.371	1.523
			Max. Mx	20	-3.105	33.742	0.331
			Max. My	2	-3.101	0.033	35.028
			Max. Vy	20	-4.089	33.742	0.331
			Max. Vx	2	-4.192	0.033	35.028
			Max. Torque	20			-0.887
L2	137.42 - 91.09	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.880	4.352	5.572
			Max. Mx	20	-24.069	667.702	0.785
			Max. My	2	-24.057	0.215	679.472
			Max. Vy	20	-21.844	667.702	0.785
			Max. Vx	2	-22.144	0.215	679.472
			Max. Torque	20			-1.731
L3	91.09 - 44.79	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.294	8.889	7.441
			Max. Mx	20	-42.038	1763.548	0.683
			Max. My	2	-42.032	0.200	1787.976
			Max. Vy	20	-27.131	1763.548	0.683
			Max. Vx	2	-27.398	0.200	1787.976
			Max. Torque	20			-1.834
L4	44.79 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-125.582	15.030	9.074
			Max. Mx	20	-71.462	3364.964	0.192
			Max. My	2	-71.462	0.336	3402.860
			Max. Vy	20	-32.976	3364.964	0.192
			Max. Vx	2	-33.237	0.336	3402.860
			Max. Torque	20			-1.833

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	125.582	0.000	0.000
	Max. H_x	20	71.470	32.959	-0.013
	Max. H_z	2	71.470	-0.013	33.220
	Max. M_x	2	3402.860	-0.013	33.220
	Max. M_z	8	3361.186	-32.959	0.013
	Max. Torsion	8	1.833	-32.959	0.013
	Min. Vert	11	53.602	-28.537	-16.599

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. H_x	8	71.470	-32.959	0.013
	Min. H_z	14	71.470	0.013	-33.220
	Min. M_x	14	-3399.367	0.013	-33.220
	Min. M_z	20	-3364.964	32.959	-0.013
	Min. Torsion	20	-1.833	32.959	-0.013

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	59.558	0.000	0.000	-1.421	1.549	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	71.470	0.013	-33.220	-3402.860	0.336	-0.479
0.9 Dead+1.6 Wind 0 deg - No Ice	53.602	0.013	-33.220	-3389.019	-0.136	-0.480
1.2 Dead+1.6 Wind 30 deg - No Ice	71.470	16.490	-28.776	-2947.975	-1680.990	-1.331
0.9 Dead+1.6 Wind 30 deg - No Ice	53.602	16.490	-28.776	-2935.926	-1674.851	-1.329
1.2 Dead+1.6 Wind 60 deg - No Ice	71.470	28.549	-16.621	-1703.650	-2911.394	-1.826
0.9 Dead+1.6 Wind 60 deg - No Ice	53.602	28.549	-16.621	-1696.503	-2900.416	-1.823
1.2 Dead+1.6 Wind 90 deg - No Ice	71.470	32.959	-0.013	-3.298	-3361.186	-1.833
0.9 Dead+1.6 Wind 90 deg - No Ice	53.602	32.959	-0.013	-2.848	-3348.440	-1.829
1.2 Dead+1.6 Wind 120 deg - No Ice	71.470	28.537	16.599	1697.470	-2909.841	-1.348
0.9 Dead+1.6 Wind 120 deg - No Ice	53.602	28.537	16.599	1691.221	-2898.869	-1.345
1.2 Dead+1.6 Wind 150 deg - No Ice	71.470	16.468	28.763	2942.930	-1678.300	-0.502
0.9 Dead+1.6 Wind 150 deg - No Ice	53.602	16.468	28.763	2931.777	-1672.171	-0.500
1.2 Dead+1.6 Wind 180 deg - No Ice	71.470	-0.013	33.220	3399.367	3.442	0.479
0.9 Dead+1.6 Wind 180 deg - No Ice	53.602	-0.013	33.220	3386.416	2.958	0.479
1.2 Dead+1.6 Wind 210 deg - No Ice	71.470	-16.490	28.776	2944.483	1684.768	1.332
0.9 Dead+1.6 Wind 210 deg - No Ice	53.602	-16.490	28.776	2933.323	1677.672	1.330
1.2 Dead+1.6 Wind 240 deg - No Ice	71.470	-28.549	16.621	1700.159	2915.172	1.828
0.9 Dead+1.6 Wind 240 deg - No Ice	53.602	-28.549	16.621	1693.900	2903.238	1.824
1.2 Dead+1.6 Wind 270 deg - No Ice	71.470	-32.959	0.013	-0.192	3364.964	1.833
0.9 Dead+1.6 Wind 270 deg - No Ice	53.602	-32.959	0.013	0.246	3351.261	1.829
1.2 Dead+1.6 Wind 300 deg - No Ice	71.470	-28.537	-16.599	-1700.961	2913.620	1.347
0.9 Dead+1.6 Wind 300 deg - No Ice	53.602	-28.537	-16.599	-1693.824	2901.692	1.344
1.2 Dead+1.6 Wind 330 deg - No Ice	71.470	-16.468	-28.763	-2946.422	1682.079	0.501
0.9 Dead+1.6 Wind 330 deg - No Ice	53.602	-16.468	-28.763	-2934.380	1674.994	0.499
1.2 Dead+1.0 Ice+1.0 Temp	125.582	-0.000	-0.000	-9.074	15.030	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	125.582	-0.000	-9.492	-984.892	15.324	-0.118
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	125.582	4.718	-8.220	-854.166	-468.050	-0.413

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	125.582	8.173	-4.746	-497.049	-821.912	-0.598
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	125.582	9.437	0.000	-9.228	-951.446	-0.622
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	125.582	8.173	4.746	478.585	-821.942	-0.480
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	125.582	4.719	8.220	835.680	-468.102	-0.209
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	125.582	0.000	9.492	966.375	15.263	0.119
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	125.582	-4.718	8.220	835.649	498.636	0.414
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	125.582	-8.173	4.746	478.532	852.498	0.599
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	125.582	-9.437	-0.000	-9.289	982.032	0.623
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	125.582	-8.173	-4.746	-497.101	852.529	0.480
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	125.582	-4.719	-8.220	-854.197	498.689	0.209
Dead+Wind 0 deg - Service	59.558	0.003	-6.556	-670.947	1.265	-0.095
Dead+Wind 30 deg - Service	59.558	3.254	-5.679	-581.404	-329.699	-0.263
Dead+Wind 60 deg - Service	59.558	5.634	-3.280	-336.463	-571.900	-0.360
Dead+Wind 90 deg - Service	59.558	6.504	-0.003	-1.756	-660.440	-0.361
Dead+Wind 120 deg - Service	59.558	5.632	3.276	333.034	-571.594	-0.266
Dead+Wind 150 deg - Service	59.558	3.250	5.676	578.199	-329.170	-0.099
Dead+Wind 180 deg - Service	59.558	-0.003	6.556	668.047	1.876	0.095
Dead+Wind 210 deg - Service	59.558	-3.254	5.679	578.504	332.840	0.263
Dead+Wind 240 deg - Service	59.558	-5.634	3.280	333.563	575.041	0.360
Dead+Wind 270 deg - Service	59.558	-6.504	0.003	-1.144	663.581	0.361
Dead+Wind 300 deg - Service	59.558	-5.632	-3.276	-335.934	574.735	0.266
Dead+Wind 330 deg - Service	59.558	-3.250	-5.676	-581.098	332.311	0.099

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-59.558	0.000	0.000	59.558	0.000	0.000%
2	0.013	-71.470	-33.220	-0.013	71.470	33.220	0.000%
3	0.013	-53.602	-33.220	-0.013	53.602	33.220	0.000%
4	16.490	-71.470	-28.776	-16.490	71.470	28.776	0.000%
5	16.490	-53.602	-28.776	-16.490	53.602	28.776	0.000%
6	28.549	-71.470	-16.621	-28.549	71.470	16.621	0.000%
7	28.549	-53.602	-16.621	-28.549	53.602	16.621	0.000%
8	32.959	-71.470	-0.013	-32.959	71.470	0.013	0.000%
9	32.959	-53.602	-0.013	-32.959	53.602	0.013	0.000%
10	28.537	-71.470	16.599	-28.537	71.470	-16.599	0.000%
11	28.537	-53.602	16.599	-28.537	53.602	-16.599	0.000%
12	16.468	-71.470	28.763	-16.468	71.470	-28.763	0.000%
13	16.468	-53.602	28.763	-16.468	53.602	-28.763	0.000%
14	-0.013	-71.470	33.220	0.013	71.470	-33.220	0.000%
15	-0.013	-53.602	33.220	0.013	53.602	-33.220	0.000%
16	-16.490	-71.470	28.776	16.490	71.470	-28.776	0.000%
17	-16.490	-53.602	28.776	16.490	53.602	-28.776	0.000%
18	-28.549	-71.470	16.621	28.549	71.470	-16.621	0.000%
19	-28.549	-53.602	16.621	28.549	53.602	-16.621	0.000%
20	-32.959	-71.470	0.013	32.959	71.470	-0.013	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
21	-32.959	-53.602	0.013	32.959	53.602	-0.013	0.000%
22	-28.537	-71.470	-16.599	28.537	71.470	16.599	0.000%
23	-28.537	-53.602	-16.599	28.537	53.602	16.599	0.000%
24	-16.468	-71.470	-28.763	16.468	71.470	28.763	0.000%
25	-16.468	-53.602	-28.763	16.468	53.602	28.763	0.000%
26	0.000	-125.582	0.000	0.000	125.582	0.000	0.000%
27	-0.000	-125.582	-9.492	0.000	125.582	9.492	0.000%
28	4.718	-125.582	-8.220	-4.718	125.582	8.220	0.000%
29	8.173	-125.582	-4.746	-8.173	125.582	4.746	0.000%
30	9.437	-125.582	0.000	-9.437	125.582	-0.000	0.000%
31	8.173	-125.582	4.746	-8.173	125.582	-4.746	0.000%
32	4.719	-125.582	8.220	-4.719	125.582	-8.220	0.000%
33	0.000	-125.582	9.492	-0.000	125.582	-9.492	0.000%
34	-4.718	-125.582	8.220	4.718	125.582	-8.220	0.000%
35	-8.173	-125.582	4.746	8.173	125.582	-4.746	0.000%
36	-9.437	-125.582	-0.000	9.437	125.582	0.000	0.000%
37	-8.173	-125.582	-4.746	8.173	125.582	4.746	0.000%
38	-4.719	-125.582	-8.220	4.719	125.582	8.220	0.000%
39	0.003	-59.558	-6.556	-0.003	59.558	6.556	0.000%
40	3.254	-59.558	-5.679	-3.254	59.558	5.679	0.000%
41	5.634	-59.558	-3.280	-5.634	59.558	3.280	0.000%
42	6.504	-59.558	-0.003	-6.504	59.558	0.003	0.000%
43	5.632	-59.558	3.276	-5.632	59.558	-3.276	0.000%
44	3.250	-59.558	5.676	-3.250	59.558	-5.676	0.000%
45	-0.003	-59.558	6.556	0.003	59.558	-6.556	0.000%
46	-3.254	-59.558	5.679	3.254	59.558	-5.679	0.000%
47	-5.634	-59.558	3.280	5.634	59.558	-3.280	0.000%
48	-6.504	-59.558	0.003	6.504	59.558	-0.003	0.000%
49	-5.632	-59.558	-3.276	5.632	59.558	3.276	0.000%
50	-3.250	-59.558	-5.676	3.250	59.558	5.676	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00001985
3	Yes	4	0.00000001	0.00001152
4	Yes	4	0.00000001	0.00024790
5	Yes	4	0.00000001	0.00016567
6	Yes	4	0.00000001	0.00029578
7	Yes	4	0.00000001	0.00019887
8	Yes	4	0.00000001	0.00006234
9	Yes	4	0.00000001	0.00004193
10	Yes	4	0.00000001	0.00024372
11	Yes	4	0.00000001	0.00016317
12	Yes	4	0.00000001	0.00027397
13	Yes	4	0.00000001	0.00018388
14	Yes	4	0.00000001	0.00002016
15	Yes	4	0.00000001	0.00001177
16	Yes	4	0.00000001	0.00028728
17	Yes	4	0.00000001	0.00019292
18	Yes	4	0.00000001	0.00024139
19	Yes	4	0.00000001	0.00016145
20	Yes	4	0.00000001	0.00006189
21	Yes	4	0.00000001	0.00004161
22	Yes	4	0.00000001	0.00028866
23	Yes	4	0.00000001	0.00019382
24	Yes	4	0.00000001	0.00025644
25	Yes	4	0.00000001	0.00017143
26	Yes	4	0.00000001	0.00001028
27	Yes	4	0.00000001	0.00042222
28	Yes	4	0.00000001	0.00042960
29	Yes	4	0.00000001	0.00042391
30	Yes	4	0.00000001	0.00040399

31	Yes	4	0.00000001	0.00041505
32	Yes	4	0.00000001	0.00041790
33	Yes	4	0.00000001	0.00040931
34	Yes	4	0.00000001	0.00042721
35	Yes	4	0.00000001	0.00042862
36	Yes	4	0.00000001	0.00041881
37	Yes	4	0.00000001	0.00043737
38	Yes	4	0.00000001	0.00043872
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000373
41	Yes	4	0.00000001	0.00000483
42	Yes	4	0.00000001	0.00000339
43	Yes	4	0.00000001	0.00000374
44	Yes	4	0.00000001	0.00000404
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000446
47	Yes	4	0.00000001	0.00000388
48	Yes	4	0.00000001	0.00000341
49	Yes	4	0.00000001	0.00000459
50	Yes	4	0.00000001	0.00000373

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	152 - 137.42	5.280	39	0.278	0.001
L2	142.59 - 91.09	4.732	39	0.276	0.001
L3	97.92 - 44.79	2.325	39	0.221	0.000
L4	53.21 - 0	0.694	39	0.117	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.000	DS9A09F36D-N	39	5.280	0.278	0.001	343942
150.000	(2) DB980F90T2E-M w/ Mount Pipe	39	5.163	0.278	0.001	343942
133.000	RR90-17-02DP w/ Mount Pipe	39	4.181	0.271	0.001	85655
124.000	(2) SBNHH-1D65B w/ Mount Pipe	39	3.675	0.262	0.000	57156
116.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	39	3.239	0.252	0.000	44110
107.000	742 213	39	2.770	0.238	0.000	35097
74.000	KS24019-L112A	39	1.323	0.168	0.000	22835

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	152 - 137.42	26.754	2	1.409	0.004
L2	142.59 - 91.09	23.984	2	1.400	0.003
L3	97.92 - 44.79	11.788	2	1.120	0.002
L4	53.21 - 0	3.520	2	0.596	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.000	DS9A09F36D-N	2	26.754	1.409	0.004	70287
150.000	(2) DB980F90T2E-M w/ Mount Pipe	2	26.164	1.407	0.004	70287
133.000	RR90-17-02DP w/ Mount Pipe	2	21.192	1.373	0.003	17156
124.000	(2) SBNHH-1D65B w/ Mount Pipe	2	18.629	1.330	0.002	11381
116.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	2	16.422	1.278	0.002	8759
107.000	742 213	2	14.045	1.206	0.002	6956
74.000	KS24019-L112A	2	6.709	0.850	0.001	4509

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	152 - 137.42 (1)	TP37.31x33.03x0.313	14.580	0.000	0.0	35.192	-3.101	2526.220	0.001
L2	137.42 - 91.09 (2)	TP50.15x35.167x0.375	51.500	0.000	0.0	56.880	-24.057	3935.810	0.006
L3	91.09 - 44.79 (3)	TP62.86x47.413x0.438	53.130	0.000	0.0	83.282	-42.032	5613.010	0.007
L4	44.79 - 0 (4)	TP75x59.537x0.5	53.210	0.000	0.0	118.231	-71.462	7706.060	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	152 - 137.42 (1)	TP37.31x33.03x0.313	35.028	1841.350	0.019	0.000	1841.350	0.000
L2	137.42 - 91.09 (2)	TP50.15x35.167x0.375	679.472	3867.683	0.176	0.000	3867.683	0.000
L3	91.09 - 44.79 (3)	TP62.86x47.413x0.438	1787.975	6926.250	0.258	0.000	6926.250	0.000
L4	44.79 - 0 (4)	TP75x59.537x0.5	3402.858	11818.916	0.288	0.000	11818.916	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	152 - 137.42 (1)	TP37.31x33.03x0.313	4.192	1263.110	0.003	0.000	3687.208	0.000
L2	137.42 - 91.09 (2)	TP50.15x35.167x0.375	22.144	1950.520	0.011	0.480	7744.825	0.000
L3	91.09 - 44.79 (3)	TP62.86x47.413x0.438	27.398	2788.610	0.010	0.479	13869.416	0.000
L4	44.79 - 0 (4)	TP75x59.537x0.5	33.237	3832.550	0.009	0.479	23666.667	0.000

Pole Interaction Design Data

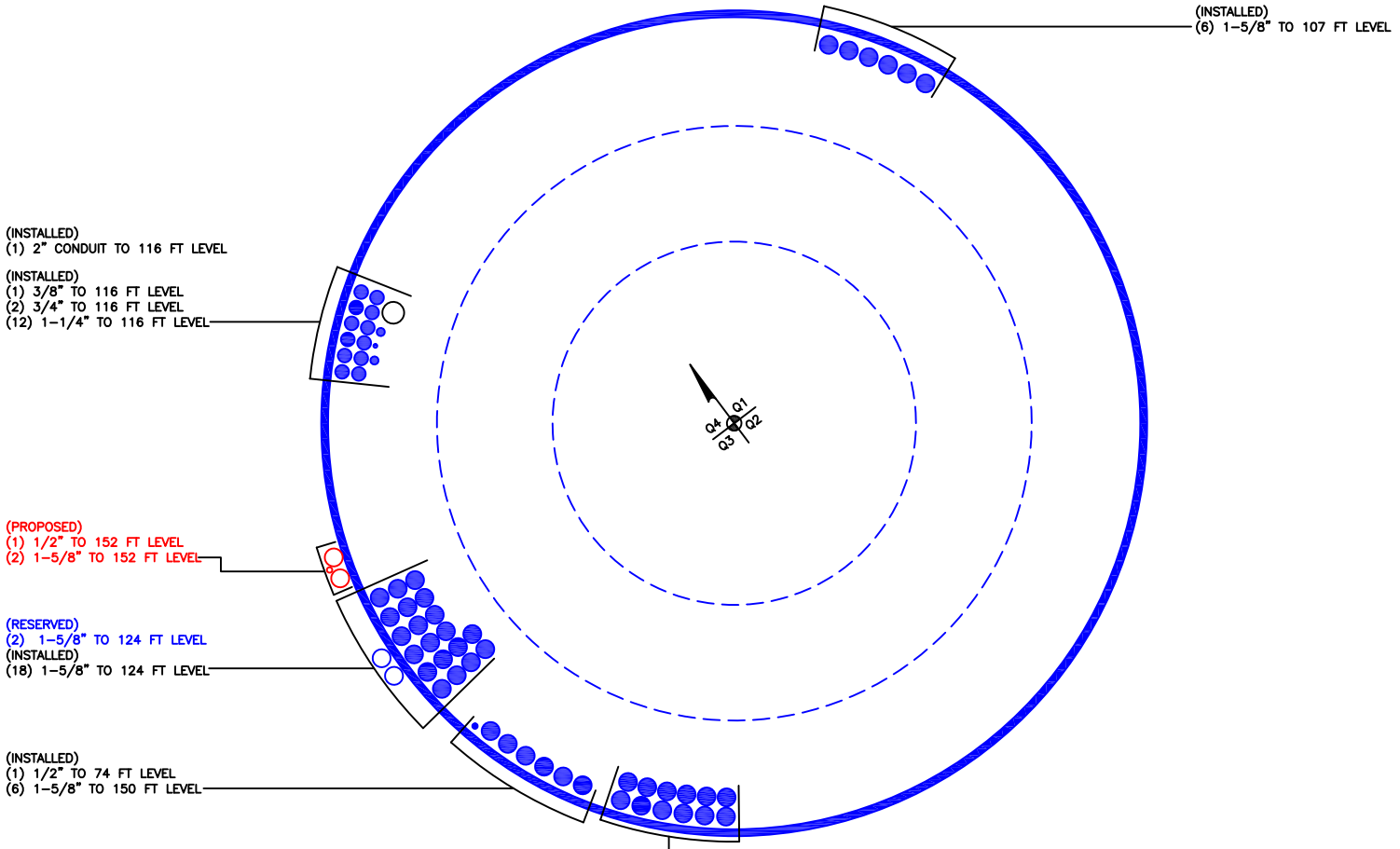
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	152 - 137.42 (1)	0.001	0.019	0.000	0.003	0.000	0.020	1.000	4.8.2
L2	137.42 - 91.09 (2)	0.006	0.176	0.000	0.011	0.000	0.182	1.000	4.8.2
L3	91.09 - 44.79 (3)	0.007	0.258	0.000	0.010	0.000	0.266	1.000	4.8.2
L4	44.79 - 0 (4)	0.009	0.288	0.000	0.009	0.000	0.297	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	152 - 137.42	Pole	TP37.31x33.03x0.313	1	-3.101	2526.220	2.0	Pass
L2	137.42 - 91.09	Pole	TP50.15x35.167x0.375	2	-24.057	3935.810	18.2	Pass
L3	91.09 - 44.79	Pole	TP62.86x47.413x0.438	3	-42.032	5613.010	26.6	Pass
L4	44.79 - 0	Pole	TP75x59.537x0.5	4	-71.462	7706.060	29.7	Pass
							Summary	
						Pole (L4)	29.7	Pass
						RATING =	**29.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876385 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data	
BU#:	*876385*
Site Name:	*N. COVENTRY / WALLBEOFF*
App #:	*386809 Rev. 1*
Pole Manufacturer:	*Other*

Reactions		
Mu:	3403	ft-kips
Axial, Pu:	71	kips
Shear, Vu:	33	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	28	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	85	in

Plate Data		
Diam:	91	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.50	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	75	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Anchor Rod Results

Max Rod (Cu+ Vu/ń):	73.6 Kips	Rigid
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	AISC LRFD
Anchor Rod Stress Ratio:	28.3% **Pass**	φ*Tn

Base Plate Results Flexural Check

Base Plate Stress:	20.2 ksi	Rigid
Allowable Plate Stress:	54.0 ksi	AISC LRFD
Base Plate Stress Ratio:	37.4% **Pass**	φ*Fy
		Y.L. Length: 40.00

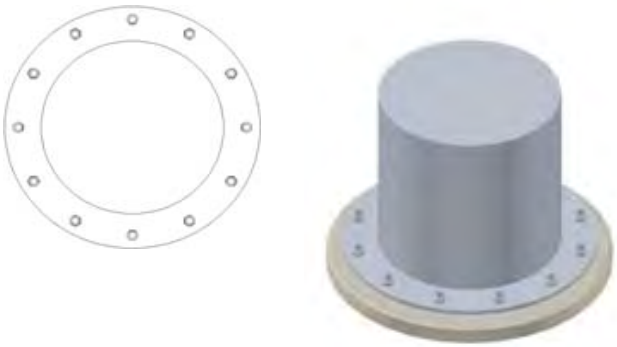
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check:	n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Pier and Pad Foundation

BU # :	876385
Site Name:	N. COVENTRY / W
App. Number:	386809 Rev. 1

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?: ☐

Superstructure Analysis Reactions

Compression, P_{comp}:	71	kips
Base Shear, Vu_comp:	33	kips
Moment, M_u:	3403	ft-kips
Tower Height, **H**:	152	ft
BP Dist. Above Fdn, bp_{dist}:	2.75	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	9.0	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	62	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	20	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	8.0	ft
Pad Width, **W**:	29.0	ft
Pad Thickness, **T**:	3.0	ft
Pad Rebar Size, **Sp**:	9	
Pad Rebar Quantity, **mp**:	25	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	4000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	130	pcf
Ultimate Gross Bearing, Qult:	16.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	40	degrees
SPT Blow Count, N_{blows}:	98	
Base Friction, μ:	0.55	
Neglected Depth, **N**:	4.5	ft
Groundwater Depth, **gw**:	None	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	636.08	33.00	**5.2%**	**Pass**
Bearing Pressure (ksf)	12.00	2.03	**16.9%**	**Pass**
*Overturning (kip*ft)*	13702.59	3707.56	**27.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	10495.26	3601.00	**34.3%**	**Pass**
Pier Compression (kip)	51554.88	158.48	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	3450.84	1140.93	**33.1%**	**Pass**
Pad Shear - 1-way (kips)	1033.61	163.77	**15.8%**	**Pass**
Pad Shear - 2-way (kips)	3310.11	158.48	**4.8%**	**Pass**

Soil Rating:	**27.1%**
Structural Rating:	**34.3%**

Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: *876385*
Site Name: *N. COVENTRY / WALLBEOFF*
App #: *386809 Rev. 1*

Loads Already Factored	
For M (WL):	1.00
For P (DL):	1.00

Pier Properties

Concrete:

Pier Diameter =	9.0	ft
Concrete Area =	9160.9	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	4	
Vert. Cage Diameter =	8.33	ft
Vert. Cage Diameter =	100.00	in
Vertical Bar Size =	8	
Bar Diameter =	1.00	in
Bar Area =	0.79	in^2
Number of Bars =	62	
As Total=	48.98	in^2
A s/ Aconc, Rho:	0.0053	0.53%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:

(3)*(Sqrt(f'c)/Fy:	0.0032
200 / Fy:	0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.53%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	17638.02	kips
at Mu=(ϕ=0.65)Mn=	13949.47	ft-kips
Max Tu, (φ=0.9) Tn =	2644.92	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	G	
Max. Factored Shaft Mu:	3601	ft-kips **(* Note)**
Max. Factored Shaft Pu:	71	kips
Max Axial Force Type:	Comp.	

(*) Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

Load Factor	Shaft Factored Loads		
1.00	Mu:	3601	ft-kips
1.00	Pu:	71	kips

Material Properties

Concrete Comp. strength, f'c =	4000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

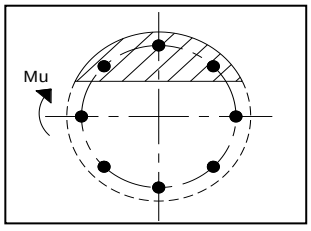
ACI 318 Code

Select Analysis ACI Code=	2005	

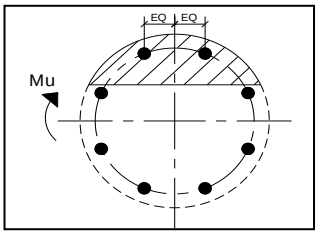
Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: **2**



Case 1



Case 2

Dist. From Edge to Neutral Axis:	**14.10**	in
Extreme Steel Strain, ϵt:	**0.0191**	
ϵt > 0.0050, Tension Controlled		
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	63.90	kips
Drilled Shaft Moment Capacity, φMn:	**10495.26**	ft-kips
Drilled Shaft Superimposed Mu:	**3601.00**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**34.3%**

CCISeismic - Design Category

Per *2012/2015 IBC*

Site BU:	876385
Work Order:	1389303
Application:	386809 Rev. 1

	Degrees	Minutes	Seconds		
Site Latitude =	41	47	56.20	41.7989	degrees
Site Longitude =	-72	19	55.88	-72.3322	degrees
Ground Supported Structure =	Yes				
Structure Class =	II			*(Table 2-1)*	
Site Class =	D - Stiff Soil			*(Table 2-11)*	

Spectral response acceleration short periods, S_S =	0.176
Spectral response acceleration 1 s period, S_1 =	0.063

Importance Factor, I =	1.0	*(Table 2-3)*
Acceleration-based site coefficient, F_a =	1.6	*(Table 2-12)*
Velocity-based site coefficient, F_v =	2.4	*(Table 2-13)*

Design spectral response acceleration short period, S_{DS} =	0.188	*(2.7.6)*
Design spectral response acceleration 1 s period, S_{D1} =	0.101	*(2.7.6)*

Seismic Design Category - Short Period Response =	B	*ASCE 7-05 Table 11.6-1*
Seismic Design Category - 1s Period Response =	B	*ASCE 7-05 Table 11.6-2*

Worst Case Seismic Design Category =	B	*ASCE 7-05 Tables 11.6-1 and 6-2*

Attachment 4 – Wetlands Inspection Report & Vernal Pool Analysis

WETLAND INSPECTION

October 16, 2017 **APT Project No.: CT259620**

Prepared For: Eversource Energy
56 Prospect Street
Hartford, CT 06103
Attn: Steven Florio

Eversource Wireless Site Name: North Coventry/Wallbeoff

Site Address: Crown Castle Telecommunications Facility
Riley Mountain Road, Coventry, Connecticut

Date(s) of Investigation: 9/21/2017

Field Conditions: **Weather:** partly cloudy**,** low 70'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: 75 feet
Watercourses: 75 feet

The wetlands inspection was performed by†:

Matthew Gustafson, Registered Soil Scientist

Enclosures: Wetland Delineation Field Forms & 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.

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* *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 Eversource Energy regarding proposed project activity locations for identifying wetlands and watercourses within the study area.*

Attachments

- Wetland Delineation Field Forms
- Wetland Inspection Map

Wetland Delineation Field Form

Wetland I.D.:	Wetland 1	
Flag #'s:	WF 1-01 to 1-11 (loop)	
Flag Location Method:	Site Sketch ☒	GPS (sub-meter) located ☒

WETLAND HYDROLOGY:

NONTIDAL ☒

Intermittently Flooded ☐	Artificially Flooded ☐	Permanently Flooded ☐
Semipermanently Flooded ☐	Seasonally Flooded ☐	Temporarily Flooded ☐
Permanently Saturated ☐	Seasonally Saturated – seepage ☒	Seasonally Saturated - perched ☐
Comments:		

TIDAL ☐

Subtidal ☐	Regularly Flooded ☐	Irregularly Flooded ☐
Irregularly Flooded ☐		
Comments: None		

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: None		
Comments: None		

Wetland Delineation Field Form (Cont.)

SPECIAL AQUATIC HABITAT:

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

SOILS:

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

DOMINANT PLANTS:

Red Maple (Acer rubrum)	Winterberry (Ilex verticillata)
Spicebush (Lindera benzoin)	Green Ash (Fraxinus pennsylvanica)
Maple-Leaved Viburnum (Vibernum acerifolium)	

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

Eversource Energy is proposing to expand an existing telecommunications facility compound. The existing chain-link fenced compound is opposed to be expanded by ±20' by ±50' along the north side of the compound. The expansion would include the addition of a 10' by 20' equipment shelter, propane-fired generator on a 4' by 6' concrete pad, and 1,000-gallon propane tank on a 5' by 18' concrete pad. Access and utility routing would be via the existing gravel/dirt road off Riley Mountain Road requiring no additional improvements. Two wetland resources occur in proximity to the proposed compound expansion activities.

Wetland 1 consists of a small forested hillside seep system that drains west to east. This wetland is generally located on a topographic plateau and transitions to moderately drained uplands farther to the east as the slope steepens. The wetland is dominated by mature, closed-canopy forest with a sparse understory. Micro-topography generally consists of shallow hummock/hollows. No evidence was observed of seasonal flooding within Wetland 1.

Wetland 1 is located approximately 54' east of the existing access road and 226' north of the proposed compound expansion. Provided erosion and sedimentation controls are installed and maintained during construction in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control, no likely adverse impact to Wetland 1 would be anticipated from the proposed Eversource Energy project due to the distance to this nearby wetland area.

Wetland Delineation Field Form

Wetland I.D.:	Wetland 2	
Flag #'s:	WF 2-01 to 2-08	
Flag Location Method:	Site Sketch ☒	GPS (sub-meter) located ☒

WETLAND HYDROLOGY:

NONTIDAL ☒

Intermittently Flooded ☐	Artificially Flooded ☐	Permanently Flooded ☐
Semipermanently Flooded ☐	Seasonally Flooded ☒	Temporarily Flooded ☐
Permanently Saturated ☐	Seasonally Saturated – seepage ☒	Seasonally Saturated - perched ☐
Comments: None		

TIDAL ☐

Subtidal ☐	Regularly Flooded ☐	Irregularly Flooded ☐
Irregularly Flooded ☐		
Comments: None		

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: None		
Comments: None		

Wetland Delineation Field Form (Cont.)

SPECIAL AQUATIC HABITAT:

Vernal Pool Yes ☒ No ☐ Potential ☐	Other ☐
Vernal Pool Habitat Type: 'Cryptic'	
Comments: A large scrub/shrub 'cryptic' style vernal pool habitat is located in the eastern end of this large wetland system. Three wood frog metamorphs were observed in close proximity to Wetland 2 confirming that, although not currently in the breeding season, this wetland does appear to vernal pool breeding habitat.	

SOILS:

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

DOMINANT PLANTS:

Highbush Blueberry (Vaccinium corymbosum)	Sensitive Fern (Onoclea sensibilis)
Sweet Pepperbush (Clethera alnifolia)	

* denotes Connecticut Invasive Species Council invasive plant species

GENERAL COMMENTS:

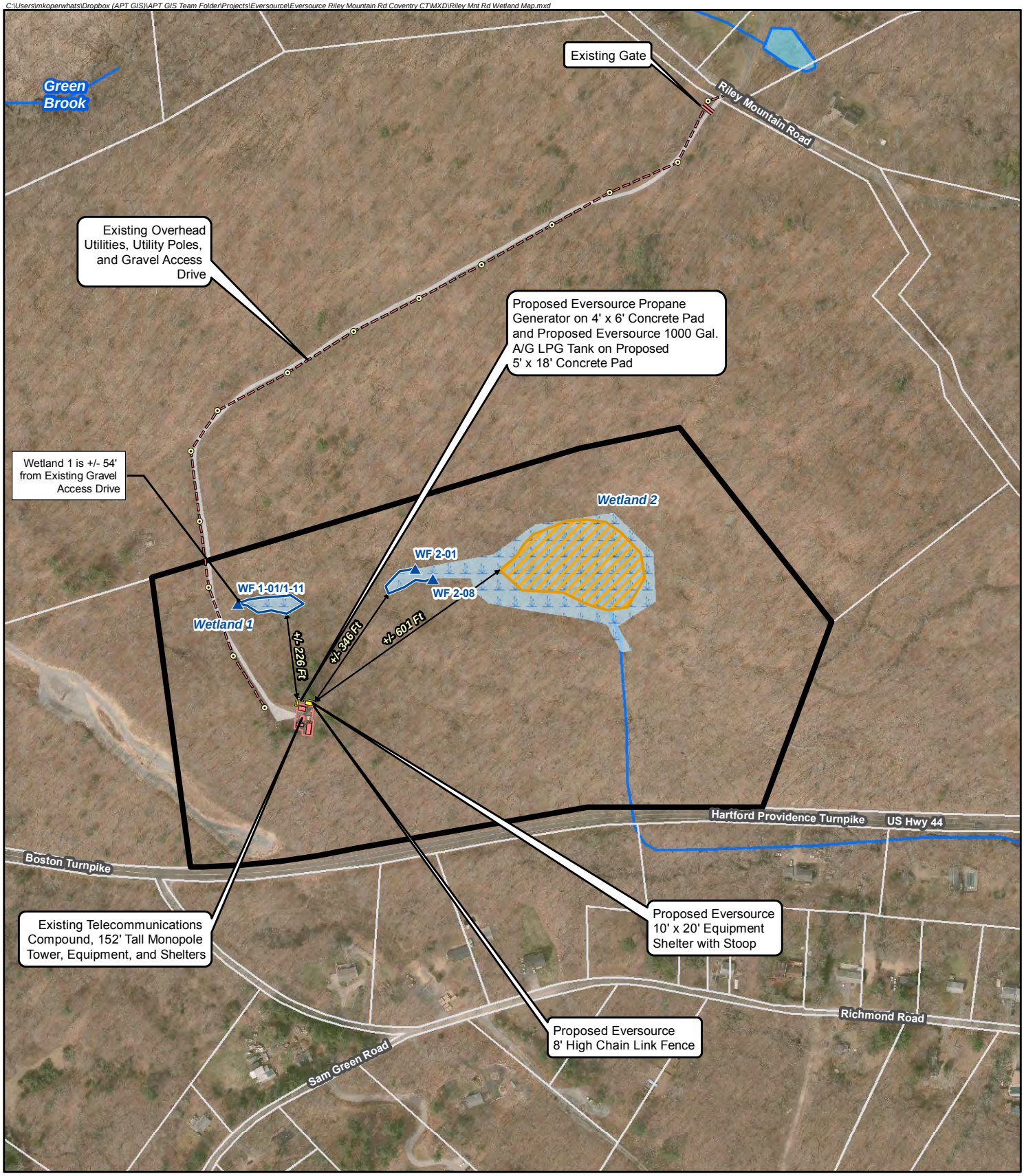
Eversource Energy is proposing to expand an existing telecommunications facility compound. The existing chain-link fenced compound is opposed to be expanded by ±20' by ±50' along the north side of the compound. The expansion would include the addition of a 10' by 20' equipment shelter, propane-fired generator on a 4' by 6' concrete pad, and 1,000-gallon propane tank on a 5' by 18' concrete pad. Access and utility routing would be via the existing gravel/dirt road off Riley Mountain Road requiring no additional improvements. Two wetland resources occur in proximity to the proposed compound expansion activities.

Wetland 2 consists of a complex hillside seep system that drains west to east. Western extents of the wetland are dominated by closed-canopy mature forest. As the wetland drains east into the vernal pool habitat the dominant cover type transitions to scrub/shrub. Hillside seep portions of the wetland consist of very stony soils. The vernal pool habitat consists of hummock/hollow topography with evidence of seasonal flooding exceeding 8 inches.

Wetland 2 is located approximately 346' north of the proposed facility expansion at its closest point. Provided erosion and sedimentation controls are installed and maintained during construction in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control, no likely adverse impact to Wetland 2 would be anticipated from the proposed Eversource Energy project due to the distance to this nearby wetland area.

However, the proposed activity would occur within ±601' of the vernal pool habitat, located within the Critical Terrestrial Habitat conservation zone ("CTH"; 100'-750' from the edge of a vernal pool breeding habitat). An evaluation of the proposed activity's impact on this vernal pool resource and its CTH will be provided under separate cover.

C:\Users\mkoperwhats\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Eversource\Eversource Riley Mountain Rd Coventry CT\MXD\Riley Mnt Rd Wetland Map.mxd



Legend

- Existing Monopole Tower (By Others)
- Proposed Eversource Equipment
- Proposed Eversource Fence
- Existing Telecommunications Compound (By
- Existing Equipment (By Others)
- Existing Gravel Access Drive (By
- Existing Gate (By Others)
- Existing Utility Pole (By Others)
- Existing Overhead Utilities (By Others)
- Wetland Flag
- Delineated Wetland Boundary
- Approximate Wetland Area
- Vernal Pool
- Watercourse (CTDEEP)
- Open Water (CTDEEP)
- Subject Property
- Approximate Parcel Boundary (CTDEEP)

N, W, E, S

350 175 0 350 Feet

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale:1 inch = 350 feet
Map Date: October 2017

Wetland Inspection Map

Proposed Wireless Telecommunications Facility
N. Coventry/Wallbeoff
Riley Mountain Road
Coventry, Connecticut

EVERSOURCE ENERGY

ALL-POINTS TECHNOLOGY CORPORATION

Vernal Pool Analysis

Physical Impact to Vernal Pool and Surrounding Terrestrial Habitat

This section details a recognized scientific method for analyzing the potential impact a project may have on a particular vernal pool and its surrounding upland habitat.

Construction and operation of the modified Facility would not result in direct physical impact to the vernal pool located ±600 feet to the northeast. It is widely documented that vernal pool dependent amphibians are not solely dependent upon the actual vernal pool habitat for breeding and egg and juvenile development but also require surrounding upland habitat for most of their adult lives. Various recognized scientific studies recommend protection of adjacent habitat up to 750 feet from the vernal pool edge for obligate pool-breeding amphibians.[1]

In order to evaluate potential impacts to this vernal pool and its surrounding upland habitat, the nearby vernal pool habitat was assessed using methodology developed by Calhoun and Klemens (2002). This methodology assesses vernal pool ecological significance based on two parameters: 1) biological value of the vernal pool, and 2) conditions of the critical terrestrial habitat. The biological rating is based on the presence of federal or state-listed species and abundance and diversity of vernal pool indicator species. The terrestrial habitat is assessed based on the integrity of the vernal pool envelope (within 100 feet of the pool's edge; "VPE") and the critical terrestrial habitat (within 100-750 feet of the pool's edge; "CTH"). Since the wetland investigation was performed on September 21, 2017 during the non-breeding vernal pool season, a conservative priority rating of Tier I was assigned since less than 75% of the VPE is developed (0% is developed), less than 50% of the CTH is developed (3% is developed) and it is assumed that either two or more vernal pool indicator species breed in the pool or 25 or more egg masses would be present in the pool by the conclusion of the breeding season. A Tier I rating is considered to have relatively high breeding activity and relatively intact terrestrial habitat[2] (Tier II and III pools represent lower amphibian productivity and fragmented terrestrial habitat). Pools with 25% or less developed areas in the CTH are identified as having high priority for maintaining less than 25% development within this terrestrial habitat, including site clearing, grading and construction[1]. The vernal pool's CTH has 3% development under existing conditions and therefore would qualify for this conservation priority.

The vernal pool evaluated in this assessment was rated based on these criteria for both the existing condition and the future developed condition to determine if the modified Facility would result in a reduction in the tier rating system. The results of this analysis demonstrate that the proposed development will not result in further degradation of the existing conservation priority Tier I rating or terrestrial habitat integrity of the vernal pool due to the small amount of disturbance associated with the proposed expansion. The VPE would not be impacted as the new development area is located approximately ±600 feet southwest of the nearest vernal pool edge. Currently, the total CTH development area of ±1.5 acres are mainly associated with Hartford Providence Turnpike (U.S. Highway 44) along with the existing telecommunications compound and portions of the access road. Please refer to the enclosed Vernal Pool Analysis Map.

The Facility is located within the CTH and the proposed expansion would result in ±0.07 acre of additional development, an increase of only ±0.13% of the developed CTH associated with the vernal pool. Therefore, the

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[1] Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices (BDPs): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5.

[2] Vernal Pool Assessment Sheet (source: Calhoun and Klemens 2002)

proposed expansion represents a de minimis increase in development of the vernal pool's CTH. Since the 75% non-development criterion tipping point would not be exceeded (97.11% remains non-developed), the proposed expansion would not result in a likely adverse impact to existing amphibian productivity nor will it result in long-term adverse impact to the terrestrial habitat. The modified Facility would occupy a relatively small area of development and create minimal impact to the vegetated buffer separating the vernal pool from the proposed expansion.

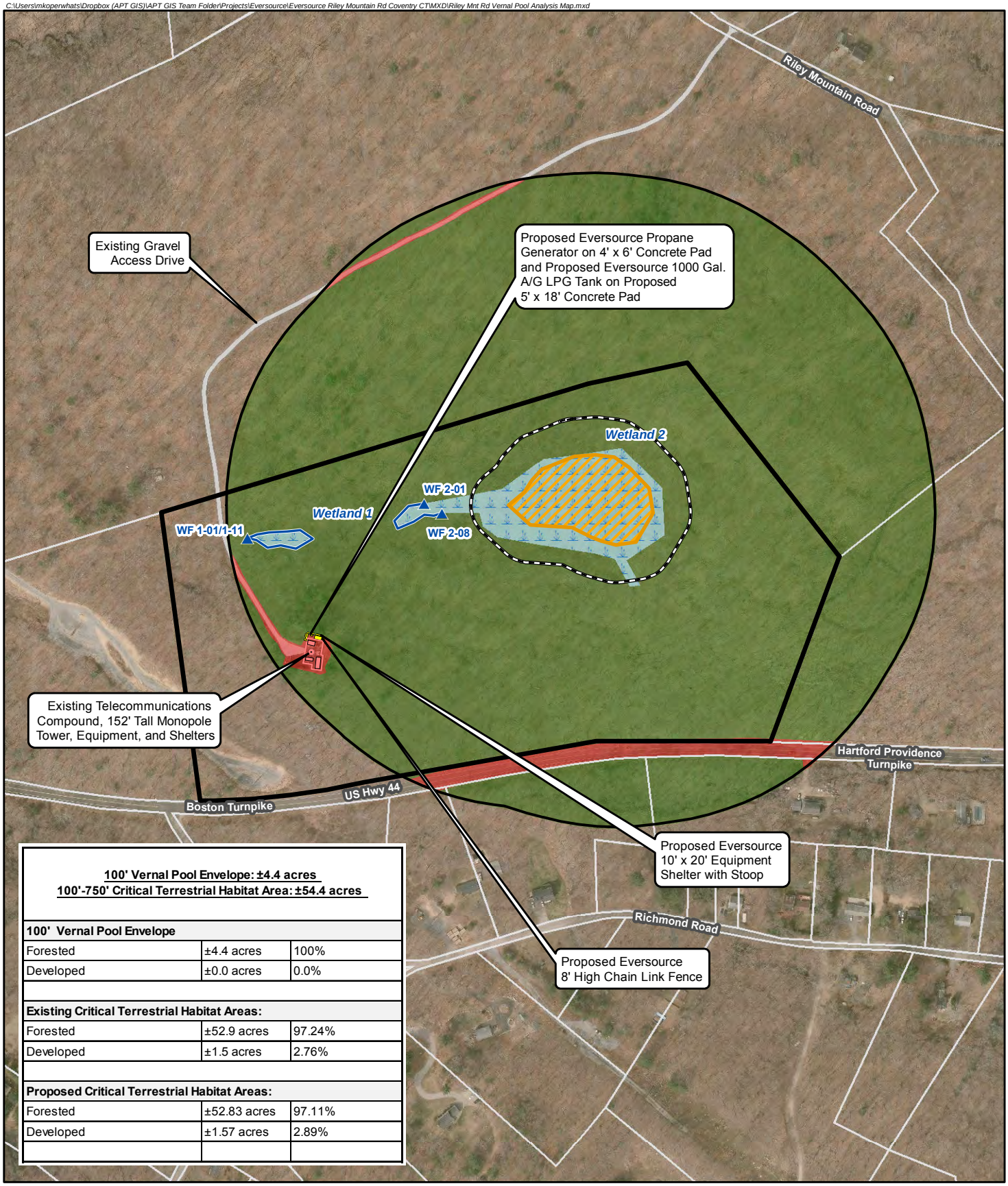
The potential exists for possible short-term impact to herpetofauna associated with the nearby vernal pool habitat due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint should construction occur during their active season. Short-term construction-related impacts associated with the proposed expansion within the vernal pool CTH would be minimized by the proper installation and maintenance of protection measures in accordance with *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. Since a significant buffer of ±600 feet exists between the proposed expansion area and the vernal pool, additional protective measures (e.g., contractor awareness training, third-party monitoring, etc.) does not appear warranted in this case.

Hydraulic Alterations

Land-use changes (i.e., clearing, increases in impervious surface) can increase surface runoff in the watershed of a vernal pool. Direct inputs of stormwater flows into a pool may produce sudden water level increases in a short period of time and may lengthen the duration of flooding (hydroperiod). Diversion of stormwater flows past a pool may have the opposite effect of decreasing water levels and shortening the pool's hydroperiod. In addition, stormwater features that create temporary pools of water can result in a biological "sink" as breeding amphibians deposit eggs into a water body without the necessary hydraulic period to allow for successful development of the eggs into juveniles.

The proposed expansion will not alter existing surface or subsurface flow conditions or directions. Site clearing and grading activities will not de-water the nearby vernal pool. Further, no alterations to surface water drainage patterns associated with the pool would occur since any new impervious surfaces would be minimized with the use of gravel surfaces that promote infiltration. Therefore, the proposed expansion will not alter the hydrology of the nearby vernal pool. No stormwater management features are proposed that would result in creation of a temporary "decoy" pool and "sink" features. In addition, final grading activities will be carefully performed to avoid creating artificial shallow depressions that could also serve as decoy features.

C:\Users\mkoperwhats\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Eversource\Eversource Riley Mountain Rd Coventry CT\MXD\Riley Mnt Rd Vernal Pool Analysis Map.mxd



100' Vernal Pool Envelope: ±4.4 acres
100'-750' Critical Terrestrial Habitat Area: ±54.4 acres

100' Vernal Pool Envelope		
Forested	±4.4 acres	100%
Developed	±0.0 acres	0.0%
Existing Critical Terrestrial Habitat Areas:		
Forested	±52.9 acres	97.24%
Developed	±1.5 acres	2.76%
Proposed Critical Terrestrial Habitat Areas:		
Forested	±52.83 acres	97.11%
Developed	±1.57 acres	2.89%

Vernal Pool Analysis Map

Proposed Wireless Telecommunications Facility
N. Coventry/Wallbeoff
Riley Mountain Road
Coventry, Connecticut

Legend

- Existing Monopole Tower
- Proposed Eversource Equipment
- Proposed Eversource Fence
- Existing Equipment
- Existing Telecommunications Compound
- Existing Gravel Access
- Vernal Pool
- 100' Vernal Pool Envelope
- 100'-750' Critical Terrestial Habitat
- Wetland Flag
- Delineated Wetland Boundary
- Approximate Wetland
- CTDEEP Waterbody

Habitat Type

- Developed
- Forested
- Subject Property
- Approximate Parcel Boundary (CTDEEP)

N
W E
S

350 175 0 350
Feet

Map Notes:
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale:1 inch equals 350 feet
Map Date: October 2017

EVERSOURCE ENERGY
ALL-POINTS TECHNOLOGY CORPORATION

Attachment 5 – Agency Correspondence

Connecticut Department of

ENERGY & ENVIRONMENTAL PROTECTION

October 23, 2017

Mr. Dean Gustafson
All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06419
dgustafson@allpointstech.com

Project: Eversource Energy Service Company North Coventry Wallbeoff, Site I.D. # CC-876385; Collocation on Existing Telecommunication Tower with Minor Expansion of Existing Fenced Compound, Riley Mountain Rd, Coventry, Connecticut
NDDB Determination No.: 20178850

Dear Dean Gustafson,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed Eversource Energy Service Company North Coventry Wallbeoff, SIte I.D. # CC-876385; Collocation on Existing Telecommunication Tower with Minor Expansion of Existing Fenced Compound, Riley Mountain Rd, Coventry, Connecticut.

State Listed Turtles

There are extant know populations of state special concern and *Clemmys guttata* (spotted turtle) that occur within the project area and best management practices will need to be implemented.

Spotted Turtle:
Spotted turtles are semi-aquatic in nature, which means they live both on terrestrial land and water. This species lives in several types of habitats including bogs, swamps, fens, woodland streams, wet pastures and marshes. They sometimes also inhabit brackish streams influenced by tides. These reptiles always live in areas with slow moving water and soft soil. Spotted turtles are active hunters and they mainly hunt underwater they sometimes move onto terrestrial lands for hunting. Habitat destruction, degradation or alteration and fragmentation all threaten spotted turtle populations. Turtles are also particularly vulnerable to any activity that consistently reduces adult survivorship. The greatest concern during projects occurring in spotted turtle habitat are turtles being run over and crushed by mechanized equipment. Reducing the frequency that motorized vehicles enter spotted turtle habit**a**t would be beneficial in minimizing direct mortality of adults.

Protection for Turtles during Inactive Period (October 1st through March 30th):

- Keeping heavy equipment in the open ROW to the greatest extent possible and hand-felling trees to the greatest extent possible will minimize the potential for heavy machinery to crush hibernating turtles located in wetland edges along the ROW
- Avoid and limit any equipment use within 50 feet of wetlands
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to notify the appropriate authorities to relocate any observed turtle.

- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

Protection for Turtles during Active Period (April 1st through September30th):

- Hiring a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and prevent turtles from being run over when moving heavy equipment. This is especially important in the month of June when turtles are selecting nesting sites. All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals. The Contractor and consulting herpetologist must search the work area each morning prior to any work being done. If a turtle is discovered later in the day after the initial search

work should stop until the turtle can be relocated by the qualified herpetologist or educated construction worker. Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and any exclusionary fencing should be inspected to identify and remove access point. The goal is to keep turtles from being unintentionally killed during this project.

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.

- Avoid and limit any equipment use within 50 feet of wetlands.
- If mowing during the active season is required, vegetation will be mowed to no lower than 7". Flail type mowers will not be used for mowing in the active season.
- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

This determination is good for two years. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by October 23, 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. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division

CPPU USE ONLY
App #:_____
Doc #:_____
Check #: No fee required
Program: Natural Diversity Database Endangered Species
Hardcopy _____ Electronic _____

Request for Natural Diversity Data Base (NDDB) State Listed Species Review

Please complete this form in accordance with the instructions (DEEP-INST-007) to ensure proper handling of your request.
There are no fees associated with NDDB Reviews.

Part I: Preliminary Screening & Request Type

Before submitting this request, you must review the most current Natural Diversity Data Base "State and Federal Listed Species and Significant Natural Communities Maps" found on the DEEP website. These maps are updated twice a year, usually in June and December.

Does your site, including all affected areas, fall in an NDDB Area according to the map instructions:

☐ Yes ☒ No **Enter the date** of the map reviewed for pre-screening: **June 2017**

This form is being submitted for a :

☒ *New* NDDB request ☐ *Renewal/Extension* of a NDDB Request, ***without*** *modifications and within* ***one year*** *of issued NDDB determination* (no attachments required) [*CPPU Use Only - NDDB-Listed Species Determination* # 1736]	☐ *New* **Safe Harbor Determination** (optional) must be associated with an application for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ☐ *Renewal/Extension* of an existing Safe Harbor Determination ☐ With modifications ☐ Without modifications (no attachments required) [*CPPU Use Only - NDDB-Safe Harbor Determination* # 1736]
Enter NDDB Determination Number for Renewal/Extension:	Enter Safe Harbor Determination Number for Renewal/Extension:

Part II: Requester Information

If the requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the name shall be stated **exactly as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of the State's database CONCORD.* (www.concord-sots.ct.gov/CONCORD/index.jsp)

If the requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change company/Individual Information to the address indicated on the form.

1. Requester*

Company Name: **Eversource Energy Service Company**

Contact Name: **Robert Deptula**

Address: **107 Selden Street**

City/Town: **Berlin** State: **CT** Zip Code: **06037**

Business Phone: **860-665-3695** ext.

E-mail: **robert.deptula@eversource.com

**By providing this email address you are agreeing to receive official correspondence from the department, at this electronic address, concerning this request. Please remember to check your security settings to be sure you can receive emails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes

a) Requester can best be described as:

☐ Individual ☐ Federal Agency ☐ State agency ☐ Municipality ☐ Tribal

☒ *business entity (* if a business entity complete i through iii):

i) Check type ☐ corporation ☐ limited liability company ☐ limited partnership ☐ limited liability partnership ☐ statutory trust ☐ Other:

ii) Provide Secretary of the State Business ID #: 0033981 This information can be accessed at the Secretary of the State's database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)

iii) ☐ Check here if your business is **NOT** registered with the Secretary of State's office.

b) Acting as (Affiliation), pick one:

☐ Property owner ☒ Consultant ☐ Engineer ☐ Facility owner ☐ Applicant

☐ Biologist ☐ Pesticide Applicator ☐ Other representative:

2. List Primary Contact to receive Natural Diversity Data Base correspondence and inquiries, if different from requester.

Company Name: **All-Points Technology Corporation, P.C.**

Contact Person: **Dean Gustafson** Title: **Senior Environmental Scientist**

Mailing Address: **3 Saddlebrook Drive**

City/Town: **Killingworth** State: **CT** Zip Code: **06419**

Business Phone: **860-663-1697** ext. **201**

E-mail: **dgustafson@allpointstech.com

Part III: Site Information

This request can only be completed for one site. A separate request must be filed for each additional site.

1. SITE NAME AND LOCATION

Site Name or Project Name: **N. Coventry/Wallbeoff, Site I.D. # CC-876385**

Town(s): **Coventry**

Street Address or Location Description:
Riley Mountain Road

Size in acres, or site dimensions: **±28.58 acres**

Latitude and longitude of the center of the site in decimal degrees (e.g., 41.23456 -71.68574):

Latitude: **41° 47 56.21" N** Longitude: **72° 19' 55.88" W**

Method of coordinate determination (check one):

☐ GPS ☐ Photo interpolation using CTECO map viewer ☒ Other (specify): **survey**

2a. Describe the current land use and land cover of the site.

The subject property consists of a predominantly forested parcel that contains an existing wireless telecommunications facility in the central-western portion of the property. An Eversource Energy electrical transmission right-of-way is located in the southwestern corner of the property. A small forested wetland is located just east of an existing gravel road that provides access to the tower facility from Riley Mountain Road. A large forested wetland, which contains a large cryptic style vernal pool habitat in the interior of the wetland, is located in the northern-central portion of the property.

b. Check all that apply and enter the size in acres or % of area in the space after each checked category.

☐ Industrial/Commercial _____	☐ Residential _____	☒ Forest 95%
☒ Wetland 10%	☐ Field/grassland _____	☐ Agricultural _____
☐ Water _____	☒ Utility Right-of-way 5%	
☐ Transportation Right-of-way _____	☐ Other (specify): _____	

Part IV: Project Information

1. PROJECT TYPE:

Choose Project Type: Cellular/Communications tower installation/maint. , If other describe: _____

2. Is the subject activity limited to the maintenance, repair, or improvement of an existing structure within the existing footprint? ☒ Yes ☐ No If yes, explain.

The Project would consist of collocation on an existing telecommunications tower and a minor expansion of an existing fenced compound.

Part IV: Project Information (continued)

3. Give a detailed description of the activity which is the subject of this request and describe the methods and equipment that will be used. Include a description of steps that will be taken to minimize impacts to any known listed species.

   Eversource proposes to collocate on an existing 152-foot tall telecommunications monopole tower ("Existing Facility") that is owned and maintained by Crown Castle ("Crown"). The Existing Facility is situated in the eastern portion of a ±28.58 acre wooded lot. Eversource proposes to install one (1) ±20-foot tall, dual pole omnidirectional whip antenna ("Project") with a tower top amplifier, on the Existing Facility. An irregular proposed compound expansion (±736 SF), surrounded by an 8-foot high chain link fence, is proposed along the northern side corner of the existing fenced compound to provide space for an ±10-foot by ±20-foot equipment shelter, a 20kW propane-fueled, back-up power generator and a 1,000-gallon aboveground propane tank.

   Typical equipment used to construct this facility include excavator, crane, various sized trucks and support vehicles. Typical methods include excavation/forming/pouring of concrete foundations for shelter, generator and propane tank, installation of antennas and equipment on existing tower, construction of compound and installation of equipment shelter, generator and supporting electrial equipment. Erosion control measures will follow the CTDEEP 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. No significant stormwater would be generated by the proposed compound expansion, which will be underlain with gravel to promote infiltration.

4. If this is a renewal or extension of an existing Safe Harbor request *with* modifications, explain what about the project has changed.

5. Provide a contact for questions about the project details if different from Part II primary contact.

   Name:

   Phone:

   E-mail:

Part V: Request Requirements and Associated Application Types

Check *one* box from either Group 1, Group 2 *or* Group 3, indicating the appropriate category for this request.

Group 1. If you check one of these boxes, complete Parts I – VII of this form and submit the required attachments A and B.

- ☒ Preliminary screening was negative but an NDDB review is still requested
- ☐ Request regards a municipally regulated or unregulated activity (no state permit/certificate needed)
- ☐ Request regards a preliminary site assessment or project feasibility study
- ☐ Request relates to land acquisition or protection
- ☐ Request is associated with a *renewal* of an existing permit, with no modifications

Group 2. If you check one of these boxes, complete Parts I – VII of this form and submit required attachments A, B, *and* C.

- ☒ Request is associated with a *new* state or federal permit application
- ☐ Request is associated with modification of an existing permit
- ☐ Request is associated with a permit enforcement action
- ☐ Request regards site management or planning, requiring detailed species recommendations
- ☐ Request regards a state funded project, state agency activity, or CEPA request

☐ **Group 3.** If you are requesting a **Safe Harbor Determination**, complete Parts I-VII and submit required attachments A, B, and D. Safe Harbor determinations can only be requested if you are applying for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

If you are filing this request as part of a state or federal permit application(s) enter the application information below.

Permitting Agency and Application Name(s):
FCC rules implemeting the National Environmental Policy Act ("NEPA") & Connecticut Siting Council, Petition for Declaratory Ruling

State DEEP Application Number(s), if known: **N/A**

State DEEP Enforcement Action Number, if known: **N/A**

State DEEP Permit Analyst(s)/Engineer(s), if known: **N/A**

Is this request related to a previously submitted NDDB request? ☐ Yes ☒ No

If yes, provide the previous NDDB Determination Number(s), if known: _____

Part VI: Supporting Documents

Check each attachment submitted as verification that *all* applicable attachments have been supplied with this request form. Label each attachment as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name, site name and the date. **Please note that Attachments A and B are required for all new requests and Safe Harbor renewals/extensions with modifications.** Renewals/Extensions with no modifications do not need to submit any attachments. Attachments C and D are supplied at the end of this form.

☒ Attachment A:	**Overview Map:** an 8 1/2" X 11" print/copy of the relevant portion of a USGS Topographic Quadrangle Map clearly indicating the exact location of the site.
☒ Attachment B:	**Detailed Site Map:** fine scaled map showing site boundary and area of work details on aerial imagery with relevant landmarks labeled. (Site and work boundaries in GIS [ESRI ArcView shapefile, in NAD83, State Plane, feet] format can be substituted for detailed maps, see instruction document)
☒ Attachment C:	**Supplemental Information, Group 2 requirement (attached, DEEP-APP-007C)** ☒ Section i: Supplemental Site Information and supporting documents ☒ Section ii: Supplemental Project Information and supporting documents
☐ Attachment D:	**Safe Harbor Report Requirements, Group 3 (attached, DEEP-APP-007D)**

Part VII: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief."

Signature of Requester (a typed name will substitute for a handwritten signature)	Date: 10/10/17
Robert Deptula, Eversource Energy Service Company Name of Requester (print or type)	**Supv. Licensing and Permitting** Title (if applicable)
Signature of Preparer (if different than above)	Date: October 9, 2017
Dean Gustafson, All-Points Technology Corp. Name of Preparer (print or type)	**Sr. Environmental Scientist** Title (if applicable)

Note: Please submit the completed Request Form and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Or email request to: **deep.nddbrequest@ct.gov**

Attachment C: Supplemental Information, Group 2 requirement

Section i: Supplemental Site Information

1. Existing Conditions

Describe all natural and man-made features including wetlands, watercourses, fish and wildlife habitat, floodplains and any existing structures potentially affected by the subject activity. Such features should be depicted and labeled on the site plan that must be submitted. Photographs of current site conditions may be helpful to reviewers.

Expansion of the existing telecommunications facility compound would occur within a partially cleared upland area that would require removal of two snags; no live trees 6 inches DBH or greater would be impacted by the proposed expansion. In addition, no wetlands or watercourses would be impacted by the proposed activity. The nearest wetlands are located ±252 feet north of the existing telecommunications facility. The large wetland with associated vernal pool habitat is located over 300 feet northeast of the facility. Therefore, no wildlife habitat would be adversely affected by the proposed activity.

☒ **Site Photographs (optional) attached**

☒ **Site Plan/sketch of existing conditions attached**

2. Biological Surveys

Has a biologist visited the site and conducted a biological survey to determine the presence of any endangered, threatened or special concern species ☐ Yes ☒ No

If yes, complete the following questions and submit any reports of biological surveys, documentation of the biologist's qualifications, and any NDDB survey forms.

Biologist(s) name: _____

Habitat and/or species targeted by survey: _____

Dates when surveys were conducted: _____

☐ **Reports of biological surveys attached**

☐ **Documentation of biologist's qualifications attached**

☐ **NDDB Survey forms for any listed species observations attached**

Section ii: Supplemental Project Information

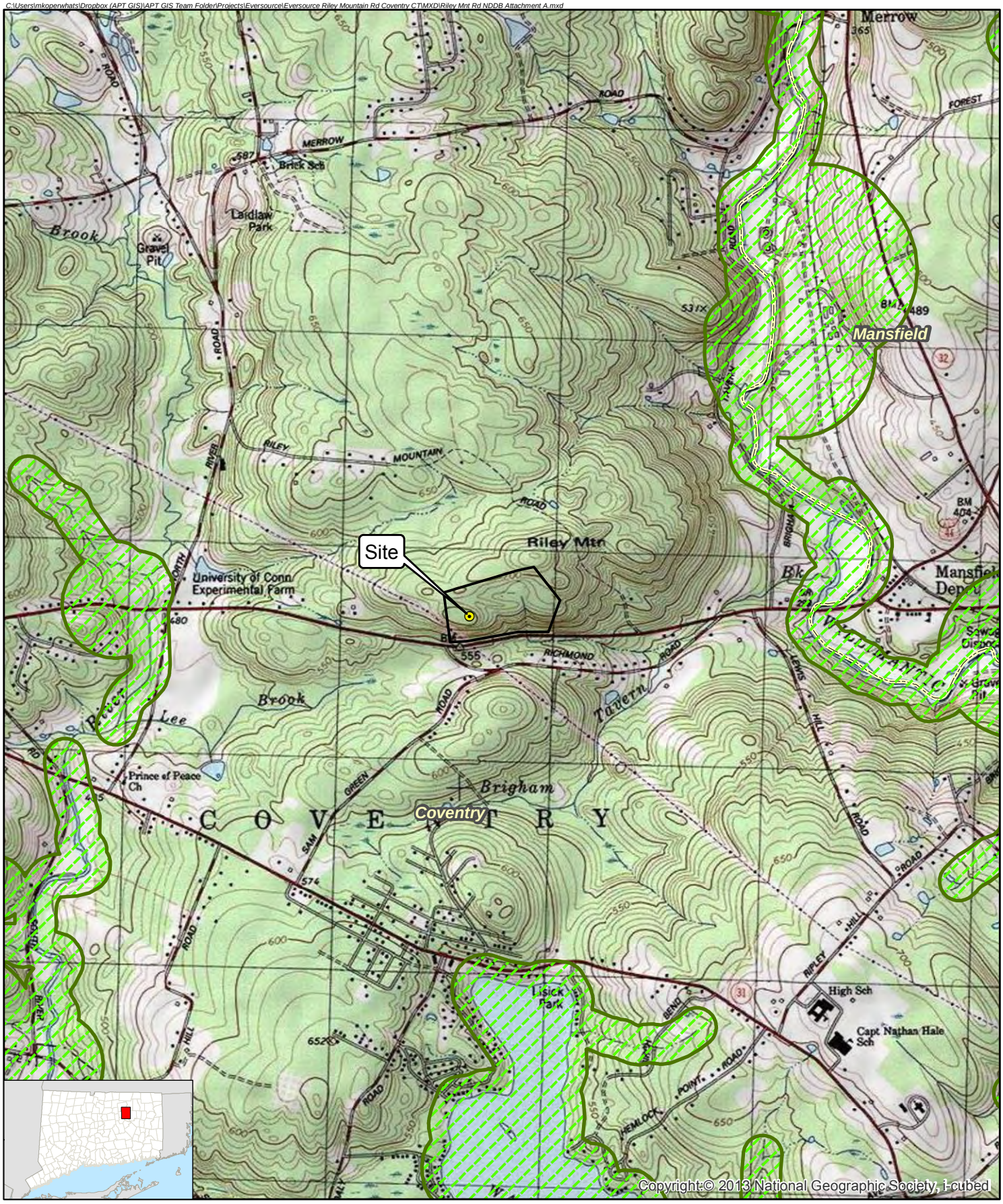
1. Provide a schedule for all phases of the project including the year, the month and/or season that the proposed activity will be initiated and the duration of the activity.

   The proposed construction project is anticipated to extend over a period of 2 to 3 months. The schedule for construction will be developed pending approval from the Connecticut Siting Council.

2. Describe and quantify the proposed changes to existing conditions and describe any on-site or off-site impacts. In addition, provide an annotated site plan detailing the areas of impact and proposed changes to existing conditions.

   The proposed ±736 SF compound exansion of the existing telecommunications facility would be located within a partially cleared area associated with the facility and would only result in the removal of two snags, saplings and shrubs within an upland area. No significant impact to wildlife habitat would result from the proposed activity.

C:\Users\mkoperwhats\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Eversource\Eversource Riley Mountain Rd Coventry CT\MXD\Riley Mnt Rd NDDB Attachment A.mxd



Legend

- Site Location
- Subject Property
- Natural Diversity Database (updated June 2017)
- Municipal Boundary

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Coventry, CT (1983)
Map Scale: 1:24,000
Map Date: September 2017

N
W E
S

1,000 500 0 1,000
Feet

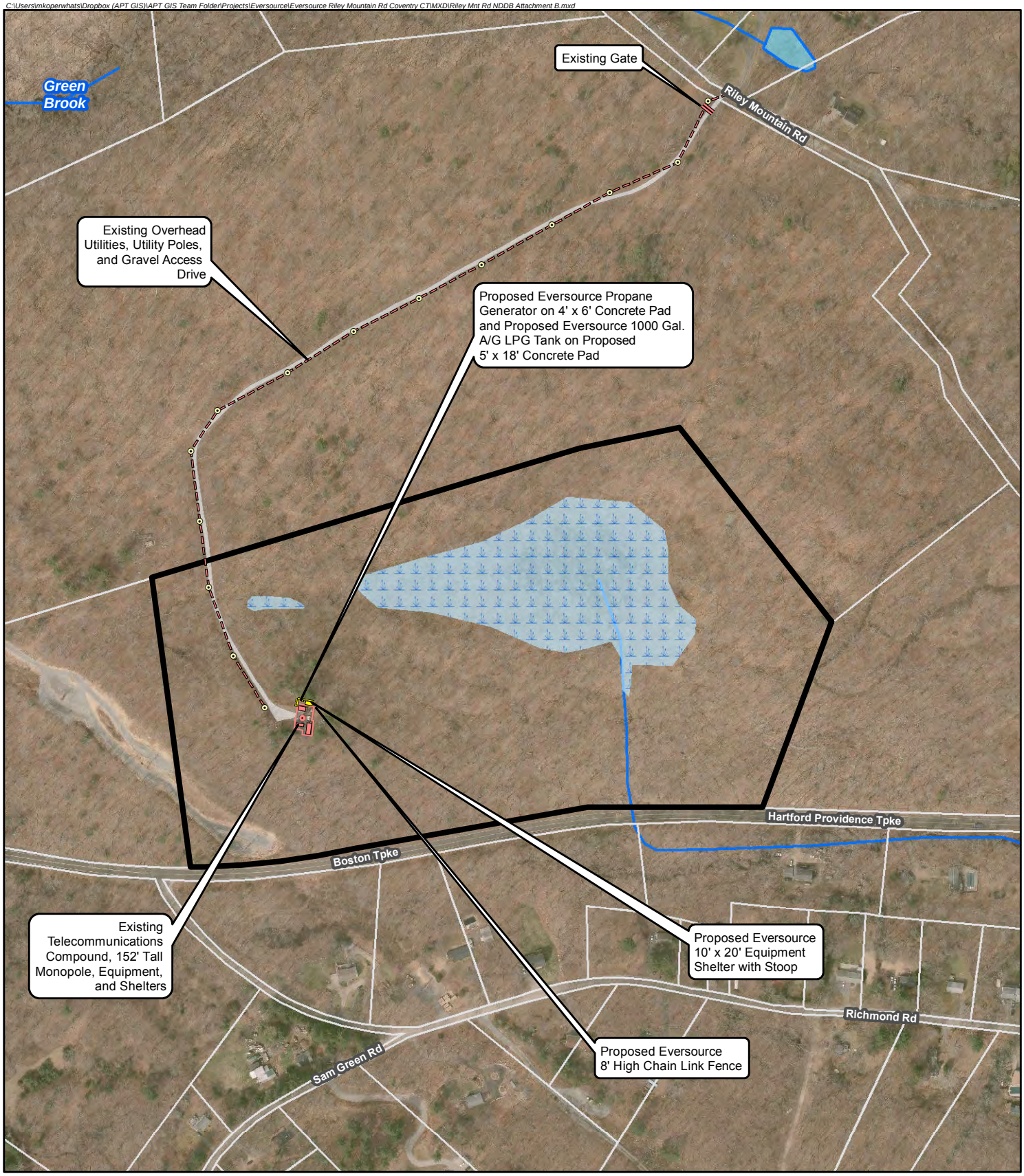
Attachment A: Overview Map

Proposed Wireless Telecommunications Facility
N. Coventry/Wallbeoff
Riley Mountain Road
Coventry, Connecticut

EVERSOURCE ENERGY

ALL-POINTS TECHNOLOGY CORPORATION

C:\Users\mkoperwhats\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Eversource\Eversource Riley Mountain Rd Coventry CT\MXD\Riley Mnt Rd NDDB Attachment B.mxd



Legend

- Proposed Eversource Fence
- Proposed Eversource Equipment
- Existing Monopole Tower (By Others)
- Existing Utility Pole (By Others)
- Existing Telecommunications Compound (By Others)
- Existing Equipment (By Others)
- Existing Gravel Access Drive (By Others)
- Existing Gate (By Others)
- Existing Overhead Utilities (By Others)
- Approximate Wetland Area (APT)
- Natural Diversity Database (updated June 2017)*
- Watercourse (CTDEEP)
- Open Water (CTDEEP)
- Subject Property
- Approximate Parcel Boundary (CTDEEP)

N W E S

350 175 0 350 Feet

Map Notes:
** Item Not Located within Mapped Area*
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Scale:1 inch = 350 feet
Map Date: September 2017

Attachment B: Detailed Site Map

Proposed Wireless Telecommunications Facility
N. Coventry/Wallbeoff
Riley Mountain Road
Coventry, Connecticut

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Environmental Resources
Proposed Riley Mountain Road Wireless Telecommunications Facility
Riley Mountain Road
Coventry, Connecticut

EVERSOURCE ENERGY

Legend

- Site
- Subject Property
- 10-foot Contour Line
- 2-foot Contour Line
- Natural Diversity Database Area (June 2017)*
- Critical Habitat (CTDEEP; July 2009)*
- Open Water (CTDEEP)*
- Watercourse (CTDEEP)
- Approximate Parcel Boundary (CTDEEP)
- Approximate Wetland Area (APT 07/19/2017)
- Municipal Boundary

FEMA Flood Zones*

- 100-Year Flood Zone
- 500-Year Flood Zone
- Floodway

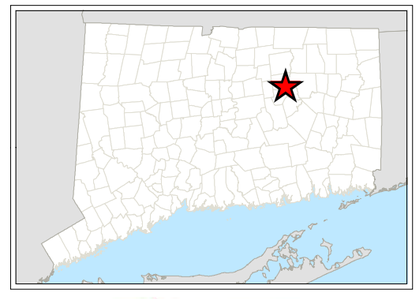
Aquifer Protection Area (CTDEEP, Oct. 2016)*

- Final Adopted Aquifer Protection Area
- Final Aquifer Protection Area
- Preliminary Aquifer Protection Area

N W E S

200 100 0 200 Feet

1 in = 200 ft



ALL-POINTS TECHNOLOGY CORPORATION

Map Sources:

*Legend item not in mapped area

Ortho Base Map: State of Connecticut 2016 aerial imagery with 0.5-foot ground resolution provided by CTECO Map Service

Elevation contours derived from 2000 LiDAR data provided by CTECO

Flood Zones obtained from FEMA National Flood Hazard Layer(NFHL) dataset.

CTDEEP's data library (http://www.ct.gov/deep)
Data layers are maintained and updated by CTDEEP and represent the most recent publications.

Map Date: July 2017

PHOTO DOCUMENTATION
Eversource N. Coventry/Wallbeoff, Site I.D. #CC-876385
Riley Mountain Road, Coventry, CT
Photos taken on September 21, 2017

Photo 1: View of existing tower facility and compound, looking northeast.

Photo 2: View of proposed compound expansion area, looking northeast.

Photo 3: View of two snags to be removed with proposed compound expansion, looking northeast.

Photo 4: View of small wetland near existing access to tower facility, looking east.

Photo 5: View of western end of large wetland, looking north.

Photo 6: View of cryptic style vernal pool habitat located interior to large wetland, looking north.

ALL-POINTS TECHNOLOGY CORPORATION

NLEB Streamlined Consultation

via Facsimile
(603) 223-0104

October 16, 2017

APT Project No.: CT259620

U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087

Attn: Thomas R. Chapman

Re: Proposed Eversource Energy
N. Coventry / Wallbeoff CT Facility
Riley Mountain Road
Coventry, Tolland County, CT
Lat: 41° 47 56.21" N
Long: 72° 19' 55.88" W
Overall Height: 172-feet AGL

Dear Mr. Chapman,

On behalf of Eversource Energy Service Company ("Eversource"), All-Points Technology Corporation, P.C. ("APT") performed an evaluation with respect to possible federally-listed, threatened or endangered species to determine if proposed collocation on the referenced existing communications facility ("Facility") would result in a potential adverse effect to federally-listed species. This consultation was completed in accordance with the Federal Communications Commission ("FCC") rules implementing the National Environmental Policy Act ("NEPA") and Section 7 of the Endangered Species Act through the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC")[1] for a proposed Facility at the referenced subject property.

Northern Long-eared Bat

One federally-listed[2] threatened species is known to occur in the vicinity of the subject property documented as the northern long-eared bat ("NLEB"; *Myotis septentrionalis*). Northern long-eared bat's range encompasses the entire State of Connecticut. As a result of this preliminary finding, APT performed an evaluation to determine if the proposed collocation on the referenced Facility would result in a likely adverse effect to NLEB. This consultation framework allows federal agencies to rely upon the USFWS January 5, 2016, intra-Service Programmatic Biological Opinion ("BO") on the Final 4(d) Rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

The ±736 SF compound expansion proposed by Eversource to accommodate its ground equipment adjacent to the Facility's fenced compound would be located within a partially cleared area and would only result in the removal of two snags, saplings (less than 3 inches DBH) and shrubs within an upland area. In addition,

[1] IPaC Consultation Tracking Number: 05E1NE00-2017-SLI-2651, dated September 11, 2017

[2] Listing under the federal Endangered Species Act

the project is not located near known NLEB hibernacula or maternity roost trees. Consultation with the Connecticut Department of Energy & Environmental Protection ("CTDEEP") Wildlife Division Natural Diversity Data Base ("NDDB") revealed that the Facility 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 located in Granby ±22.8 miles to the northwest. Therefore, the proposed project is not likely to adversely affect NLEB. Please find enclosed the completed USFWS's NLEB final 4(d) rule Streamlined Consultation Form. In accordance with USFWS NLEB Streamlined Consultation review policy, no other attachments (site plans, map and/or site photos) are required.[3]

Eversource understands that if the USFWS does not respond within 30 days from submittal of this form, we may presume that USFWS determination is informed by the best available information and that Eversource's project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO.

Eversource would consider following additional voluntary measures for NLEB conservation, noted below and as the project schedule allows.

- Conduct tree removal activities outside of the NLEB pup season (June 1-July 31) and active season (April 1-October 31) to minimize impacts to pups at roosts not yet identified.
- Avoid clearing suitable spring staging and fall swarming habitat within a five-mile radius of known or assumed NLEB hibernacula during the staging and swarming seasons (April 1-May 15 and August 15-November 14, respectively). NOT APPLICABLE.
- Maintain dead trees and large trees when possible.
- Use herbicides and pesticides only if unavoidable.
- Minimize exterior lighting, opting for down-shielded, motion-sensor security lights or other light minimization measures.

Migratory Bird Treaty Act

In August 2016, the USFWS prepared its *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning*. These suggested best practices were developed to assist tower companies in developing their communication systems in a way which minimizes the risk to migratory birds and threatened and endangered species. The Facility would comply with the USFWS' recommended guidelines for reducing impacts to migratory birds as follows. The Facility would consist of installation of a 20-foot whip antenna at the top of the existing 152-foot tall monopole structure which requires neither guy wires nor lighting and is therefore consistent with USFWS' suggested tower design criteria: tower height is less than 200 feet above ground level; no guy wires; no tower lighting and on-ground security lighting will be down-shielded and motion-sensored. In addition, expansion of the existing compound avoids wetlands, known bird concentration areas (closest Important Bird Area is ±7 miles away – Meshomasic State Forest Block), rare species habitat (site is not located within or near a DEEP NDDB buffer area) and ridgelines, thereby minimizing environmental impacts that could affect migratory birds.

[3] Personal communication with Maria Tur, USFWS New England Field Office, May 23, 2017.

Eversource would consider following the USFWS' construction recommendations, noted below, as the project schedule allows.

- If construction activities should occur during the peak nesting period of April 15 through July 15[4], efforts would be taken to complete tree clearing work prior to April 15.
- If tree clearing has not been completed by April 15, an avian survey may be conducted to determine if breeding birds would be disturbed.
- If the avian survey concludes that breeding birds would be disturbed, tree clearing activities may be restricted from the April 15 through July 15 peak nesting period (or a modified time frame based on the specific findings of the survey).

Therefore, the proposed construction activities are not anticipated to result in significant disturbance to breeding birds protected by the Migratory Bird Treaty Act ("MBTA").

Please feel free to contact me with any questions or requests for additional information by phone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

Sincerely,

Dean Gustafson
Senior Environmental Scientist

Enclosure

[4] USFWS identifies the peak avian nesting season as April 15 through July 15 and recommends clearing activities be performed before this period in order to comply with the Migratory Bird Treaty Act, personal communication with Maria Tur, USFWS New England Field Office, February 27, 2014.

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiating of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:	**YES**	**NO**
1. Does the project occur wholly outside of the WNS Zone[1]?	☐	☒
2. Have you contacted the appropriate agency[2] to determine if your project is near known hibernacula or maternity roost trees?	☒	☐
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	☐	☒
4. Could the project alter the entrance or interior environment of a known hibernaculum?	☐	☒
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	☐	☒
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	☐	☒

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency and Applicant[3] Eversource Energy Service Company, 107 Selden Street, Berlin, CT 06037

Project Name: N. Coventry/Wallbeoff

Project Location: Riley Mountain Road, Coventry, CT (Lat: 41° 47 56.21" N Long: 72° 19' 55.88" W)

Project IPaC SLI#: 05E1NE00-2017-SLI-2651

Basic Project Description: Eversource proposes to collocate on an existing 152-foot telecommunications monopole tower that is owned and maintained by Crown Castle. Eversource proposes to install one (1) ±20-foot tall, dual pole omnidirectional whip antenna with a tower top amplifier, on the existing tower. An irregularly shaped compound expansion (736 +/- SF) is proposed, surrounded by an 8-foot high chain link fence, to accommodate a ±10-foot by ±20-foot equipment shelter, a 20kW propane-fueled, back-up power generator and a 1,000-gallon above ground propane tank.

[1] http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf
[2] See http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html
[3] If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	☐	☒
Does the project occur within 150 feet of a known maternity roost tree?	☐	☒
Does the project include forest conversion[4]? (if yes, report acreage below)	☒	☐
Estimated total acres of forest conversion	±0.1 ac.	
If known, estimated acres[5] of forest conversion from April 1 to October 31	±0.1 ac.	
If known, estimated acres of forest conversion from June 1 to July 31[6]	±0.1 ac.	
Does the project include timber harvest? (if yes, report acreage below)	☐	☒
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	☐	☒
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	☐	☒
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: Robert D Deptula Date Submitted: 10/16/17

Robert Deptula, Supervisor Licensing and Permitting, Eversource Energy Service Company

[4] Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).
[5] If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.
[6] If the activity includes tree clearing in June and July, also include those acreage in April to October.

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419

NLEB COMPLIANCE

Date: December 1, 2017

Subject: Eversource Energy N. Coventry/Walbeoff CT Facility
Tower Collocation/Mod
172-foot Monopole Communications Tower Site
Riley Mountain Road, Coventry, Tolland County, Connecticut

To Whom It May Concern,

The U.S. Fish and Wildlife Service ("USFWS") did not respond within 30 days to All-Points Technology Corporation's ("APT") determination, received by USFWS on October 16, 2017, that the proposed project is not likely to adversely affect northern long-eared bat ("NLEB"; *Myotis septentrionalis*). If the USFWS does not respond within 30 days from our submittal of the NLEB 4(d) Rule Streamlined Consultation Form, it is presumed that the USFWS concurs with the consultant's determination of no adverse effect to NLEB. Therefore, the project responsibilities under Section 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").

To minimize adverse effects on the NLEB, the Federal Communications Commission encourages the industry to follow these USFWS recommendations:

- Conduct tree removal activities outside of the NLEB pup season (June 1-July 31) and active season (April 1-October 31) to minimize impacts to pups at roosts not yet identified.
- Avoid clearing suitable spring staging and fall swarming habitat within a five-mile radius of known or assumed NLEB hibernacula during the staging and swarming seasons (April 1-May 15 and August 15-November 14, respectively). *Not applicable: site is located > 5 miles from the nearest hibernacula.*
- Maintain dead trees and large trees when possible.
- Use herbicides and pesticides only if unavoidable.
- Minimize exterior lighting, opting for down-shielded, motion-sensor security lights under towers instead of constant illumination.

Sincerely,

Dean Gustafson
Senior Biologist

Attachment 6 – 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

400 Riley Mountain Road, Coventry, CT 06238

July 5, 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 addition of an Eversource antenna on the existing monopole tower located at 400 Riley Mountain Road in Coventry, CT. The coordinates of the tower are 41° 47' 56.21" N, 72° 19' 55.88" W.

Eversource is proposing to install the following:

1) Install one 935 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 = $\sqrt{\left(H^2 + V^2\right)}$

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 antenna has 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 antenna relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed Eversource antenna. The calculated results in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antenna.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
AT&T	120	880	2	565	0.0313	0.5867	0.53%
AT&T	120	1900	2	875	0.0484	1.0000	0.48%
AT&T	120	880	1	283	0.0078	0.5867	0.13%
AT&T	120	1900	4	525	0.0581	1.0000	0.58%
AT&T	120	734	1	1615	0.0447	0.4893	0.91%
Pocket (now MetroPCS)	107	2130	3	631	0.0668	1.0000	0.67%
Sprint	147	1962.5	11	384	0.0764	1.0000	0.76%
T-Mobile	136	1900	6	1102	0.1408	1.0000	1.41%
T-Mobile	136	700	1	865	0.0184	0.4667	0.39%
Verizon	126	1970	11	194	0.0533	1.0000	0.53%
Verizon	126	869	9	378	0.0850	0.5793	1.47%
Verizon	126	2145	1	2302	0.0575	1.0000	0.57%
Verizon	126	746	1	850	0.0212	0.4973	0.43%
Eversource	162	935	1	240	0.0035	0.6233	0.06%
						Total	**8.94%**

Table 1: Carrier Information[1] [2]

[1] The power density information for all other operators at this location was taken directly from the CSC database dated 6/1/2017.

[2] The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

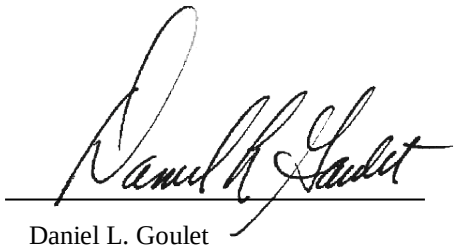
5. Conclusion

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 **8.94% 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

July 5, 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[3]

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[4]

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)

[3] 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.

[4] 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.

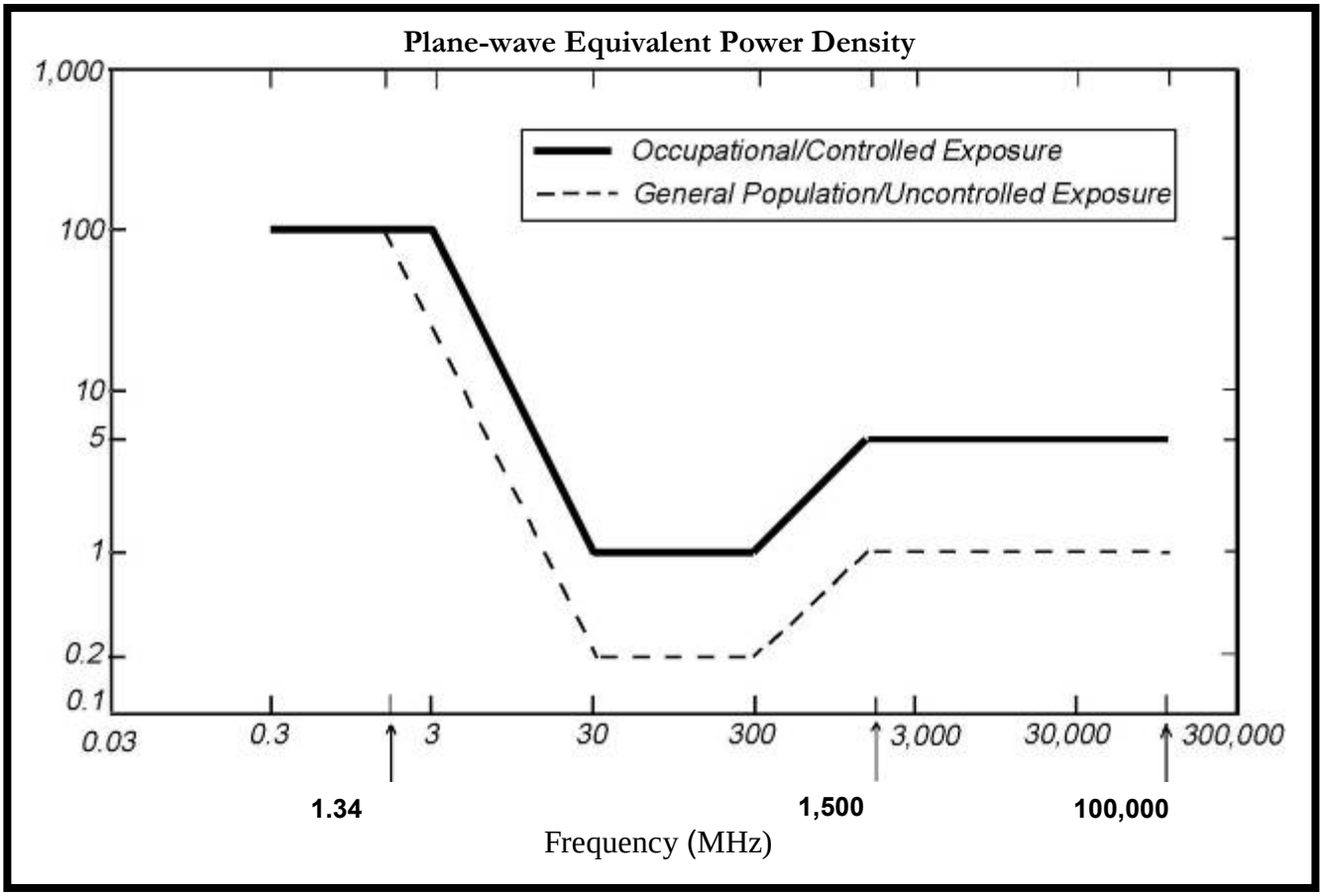
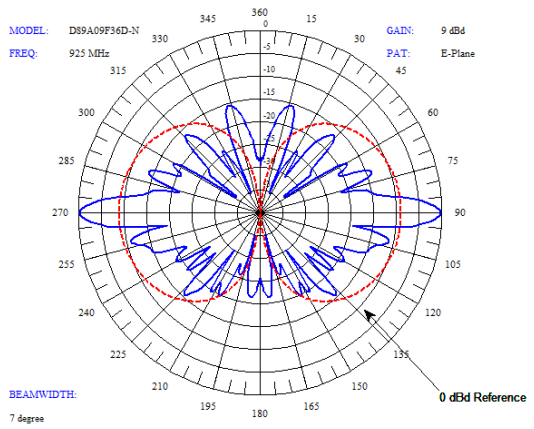


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Antenna Data Sheet and Electrical Pattern

935 MHz

Manufacturer:	dbSpectra
Model #:	DS9A09F36D-N
Frequency Band:	890-960 MHz
Gain:	9.0 dBd
Vertical Beamwidth:	8°
Horizontal Beamwidth:	360°
Polarization:	Vertical
Length:	230.4”



Attachment 7 – Photo-Simulations

PHOTOGRAPHED ON 9/22/2017

EXISTING

PHOTO	LOCATION	ORIENTATION
1	**HOST PROPERTY**	**EAST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION
1	**HOST PROPERTY**	**EAST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PHOTOGRAPHED ON 9/22/2017

EXISTING

PHOTO	LOCATION	ORIENTATION
2	**HOST PROPERTY**	**EAST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

PROPOSED

PHOTO	LOCATION	ORIENTATION
2	**HOST PROPERTY**	**EAST**

ALL-POINTS TECHNOLOGY CORPORATION

EVERSOURCE ENERGY

Attachment 8 – SHPO Correspondence

Department of Economic and Community Development

Connecticut
still revolutionary

October 25, 2017

Mr. Brian Parker
Project Manager
All Points Technology Corp.
3 Saddlebrook Drive
Killingworth, CT 06419

Subject: Proposed Telecommunications Facility Upgrades
Riley Mountain Road at Boston Turnpike
Parcel 011 0029A 0003
Coventry, CT

Dear Mr. Parker:

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 proposed undertaking includes the expansion of the existing telecommunications facility compound to the north, installation of a propane tank, equipment shelter and generator, and the installation of a 20-foot whip antenna on the top of an existing 152-foot tall monopole, for a total height of 172-feet above ground level (AGL).

Though the project area is characterized by well-drained soil on low-sloping terrain, which would normally indicate a moderate level of archeological sensitivity, all work will be undertaken in areas previously disturbed by the construction of the telecommunications facility, and it is unlikely that the subject property would contain intact archaeological deposits. The SHPO concurs with All Point's determination that the work proposed will not impact historic resources. Based on the information provided to this office, no historic properties will be affected.

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 Marena Wisniewski, Environmental Reviewer, at (860) 500-2357 or marena.wisniewski@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

Attachment 9 – Noise Evaluation Report

HMB

HMB Acoustics LLC 3 Cherry Tree Lane, Avon, CT 06001 860-677-5955

Noise Evaluation Report

Eversource
Wireless Telecommunications Facility
Riley Mountain Road
Coventry, CT

July 28, 2017

Prepared For:
All-Points Technology Corporation
3 Saddlebrook Drive
Killingworth, CT

Prepared By:
Allan Smardin
HMB Acoustics LLC
3 Cherry Tree Lane
Avon, CT

Introduction

A new “Eversource” telecommunications facility is being proposed, and will be located between Riley Mountain Road and US Hwy 44 (Boston Tpke), in Coventry, CT. The facility will include a Kohler 20 kw emergency stand-by generator in a sound enclosure at grade level; and an equipment shelter that will have two (2) wall mounted air-conditioning units. These units are used to cool the radio equipment inside the shelter. The purpose of the noise evaluation is to determine whether the generator and wall mounted air-conditioners, operating simultaneously, will comply with the State of CT Noise Regulations.

On July 22, 2017, background noise levels were taken in residential areas around the proposed site. These levels measured, on average, 50-55 dBA. The major source of background noise was vehicular traffic. The surrounding neighborhood is residential in nature.

It is important to note that the generator operates approximately 15-20 minutes each week for testing. All testing is carried out during the daytime hours. Other than these testing periods, the generator runs only in times of emergency when commercial power to the facility is interrupted. This report and the noise regulations utilize a dBA scale. This scale is used because it closely approximates the response characteristic of the human ear to loudness, and is the scale most commonly used in the measurement of community noise.

Noise Regulations

The State of CT has enacted regulations which limit the amount of noise which may be transferred from one property to another. In pertinent part, the Regulations provide as follows:

Daytime hours are between 7 a.m. and 10 p.m. local time.

Nighttime hours are between 10 p.m. and 7 a.m. local time.
(Sec. 22a-69-1.1 (h) & (n)).
It shall be unlawful for any person to emit or cause to be emitted any noise beyond the property lines of his / her premises in excess of 55 dBA daytime; or 45 dBA nighttime when the Emitter borders a Receptor's Residential property line.
(Sec. 22a-69-3.5 (c)).

Noise Evaluation Results

Calculated Noise Levels (dBA)
Projected To The Nearest Residential Property Lines

Combined Generator & Two Air-Conditioners Operating Simultaneously

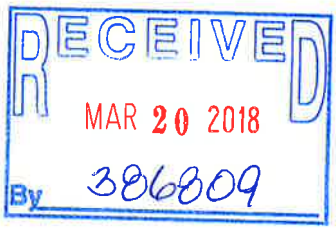
Property Line	dBA Level
North	35 dBA
South	38 dBA
East	26 dBA
West	38 dBA

The noise levels (dBA) take into account the effect of acoustical shielding provided by other structures on the premises. The calculated noise data demonstrates that the noise levels meet the conditions for compliance as set forth in the State of CT Noise Regulations when projected to the nearest residential property lines.

Attachment 10 – Tower Share Lease Agreement

EVERSOURCE ENERGY

107 Selden Street
Berlin, CT 06037
(860) 665-6715
Barbara.charest@eversource.com



March 14, 2018

Crown Castle
ATTN: LICENSING DOCUMENT EXECUTION TEAM
2000 Corporate Drive
Canonsburg, PA 15317

RE: Crown Castle Tower License Agreement to The Connecticut Light and Power Company d/b/a Eversource Energy - Coventry, CT; JDE Business Unit No. 876385

To Whom It May Concern:

Enclosed are two original documents for the above-mentioned site signed by Salvatore Giuliano, Manager – Real Estate and Land Management.

Please have both executed and notarized and return one original to me for our records. If you have any questions, please call me at 860-665-6715.

Very truly yours,

Barbara L. Charest

Barbara L. Charest
Senior Specialist – Real Estate

Enclosures: 2 Licenses

CROWN CASTLE

Licensee Site Name: Coventry
Licensee Site Number: N/A

Licensor Site Name: N. COVENTRY / WALLBEOFF
JDE Business Unit: 876385
License Identifier: 590906

SHORT FORM TOWER LICENSE AGREEMENT

THIS SHORT FORM TOWER LICENSE AGREEMENT (this "Agreement") is entered into as of this 20th day of March, 2018 (the "Effective Date"), between Global Signal Acquisitions II LLC, a Delaware limited liability company, with a place of business at 2000 Corporate Drive, Canonsburg, Washington County, Pennsylvania 15317 ("Licensor"), and The Connecticut Light and Power Company d/b/a Eversource Energy, a Connecticut corporation, with a place of business at 107 Selden Street, Berlin, Connecticut 06037 ("Licensee").

In consideration of the mutual covenants contained herein and intending to be legally bound hereby, the parties hereto agree as follows:

1. DEFINITIONS

The following terms as used in this Agreement are defined as follows:

"Acquiring Party" Any person acquiring title to Licensor's interest in the real property of which the Site forms a part through a Conveyance.

"Adjustment Date" The date on which the Basic Payment shall be adjusted as set forth in Section 5.2 below.

"AM Detuning Study" A study to determine whether measures must be taken to avoid disturbance of an AM radio station signal pattern, as described in Section 2.3 below.

"Base Fee" The then-current Basic Payment, as described in Section 5.2 below.

"Basic Payment" The consideration paid by Licensee for the right to use the Licensed Space as described in Section 5.1 below and subject to adjustment as described in Section 5.2 below.

"Closeout Documentation" As-built drawings and other installation documentation required by Licensor, as described in Section 2.6 below.

"Conveyance" Including, without limitation, any exercise by a Lender of its rights under the Security Instrument, including a foreclosure, sheriff's or trustee's sale under the power of sale contained in the Security Instrument, the termination of any superior lease of the Site and any other transfer, sale or conveyance of the Licensor's interest in the property of which the Site forms a part under peril of foreclosure or similar remedy, including, without limitation to the generality of the foregoing, an assignment or sale in lieu of foreclosure or similar remedy.

"Equipment" Licensee's communications equipment including, but not limited to Licensee's antennas, cables, connectors, wires, radios, radio shelter or cabinet, and related transmission and reception hardware and software, and other personal property.

"FCC" The Federal Communications Commission.

"Government Entity" Any federal, state or local governmental unit or agency thereof with jurisdiction applicable to the Site.

"Intermodulation Study" A study to determine whether an RF interference problem may arise, as described in Section 2.3 below.

"Intermodulation Study Fee" The fee payable by Licensee to Licensor to defray Licensor's costs incurred in preparing or obtaining an Intermodulation Study. The amount of the Fee shall be reasonably commensurate with the scope and complexity of the subject Intermodulation Study.

"Lender" Any and all lenders, creditors, indenture trustees and similar parties.

"Licensed Space" That portion of the Site which is licensed to Licensee hereunder.

"Licensee" The party named as "Licensee" in the first paragraph hereof and its successors in interest.

"Licensor" The party named as "Licensor" in the first paragraph hereof and its successors in interest.

"Modification" (i) Any modification to the Equipment as specified herein or an approved Site Engineering Application; (ii) any alterations in the frequency ranges or FCC licensed allocation or power levels specified in the approved Site Engineering Application; (iii) any change in Licensee's technology protocol (e.g., GSM, CDMA, TDMA, iDEN, etc.); (iv) any addition of Equipment or occupation of additional space, or relocation of Equipment on the tower or on the ground, or relocation of ground space or equipment shelter space; or (v) any repair to the Equipment that affects tower loading capacity.

"Modification Application Fee" The fee payable by Licensee to Licensor in the amount of Five Hundred and 00/100 Dollars ($500.00) to defray Licensor's costs incurred in evaluating a Site Engineering Application.

"Prime Lease" The lease(s), sublease(s) or other prior agreement(s) or instrument(s) (e.g., deed) from which Licensor derives its rights in the Site and/or which contain(s) restrictions on use of the Site, as described in Article 18 below.

"Pro Rata Share" The fraction or decimal equivalent determined by dividing one (1) by the total number of then-existing users of the Site. In no event shall the Pro Rata Share exceed fifty percent (50%).

"Regulatory Compliance Costs" The reasonable costs, including reasonable attorneys' fees, incurred by Licensor at the Site after the Effective Date in order to comply with any applicable law, regulation, rule, guideline, directive or requirement promulgated by a Government Entity.

"RF" Radio frequency.

"Security Instrument" Any and all mortgages, deeds of trust or other deeds, and any similar security agreements that encumber the Site to secure the debt of Licensor.

"Site" The property referred to in Section 2.1 below, which is owned, leased, or otherwise controlled by Licensor and which contains the Licensed Space.

"Site Application Fee" The fee paid by Licensee to Licensor to evaluate a Site Engineering Application to determine whether the tower and Site have sufficient capacity to accommodate the Equipment.

"Site Engineering Application" The application form (as may be amended by Licensor from time to time), which shall be submitted to Licensor by Licensee when Licensee desires to apply for a license to install or make a Modification to Equipment. The approved Site Engineering Application is attached to, and incorporated into, this Agreement as part of **Exhibit B**.

"Site Plan" The site plan referred to in Section 2.2 below, a copy of which is attached hereto as **Exhibit C**.

"Site Rules" The "Site Rules" or its successor, issued by Licensor from time to time, as described in Section 2.2 below.

"Structural Analysis" An engineering analysis performed to determine whether the physical and structural capacity of the tower are sufficient to accommodate the proposed Equipment, which analysis takes into consideration factors such as weight, wind loading and physical space requirements.

"Structural Analysis Fee" The fee payable by Licensee to Licensor in the amount of [redacted] to defray Licensor's costs incurred with respect to its performance of a Structural Analysis.

"Subsequent Use" Any installation or modification to Licensor's or another user's equipment subsequent to the installation or modification of the Equipment as described in Section 6.1 below.

"Term" The term of this Agreement, as set forth in Article 4 below.

"Term Commencement Date" The earlier of: i) the first (1st) day of the month in which Licensor's issuance of written notice to proceed with the installation of Licensee's Equipment at the Site occurs, or ii) April 1, 2018.

"Tower Level Drawing" The tower level drawing referred to in Section 2.2 below, a copy of which is attached hereto as part of **Exhibit B**.

"Work" The installation of Equipment or construction of an approved Modification to Equipment at the Site, as set forth in Section 2.5 below.

2. SITE, LICENSE, EQUIPMENT, LICENSED SPACE, APPLICATION FOR MODIFICATIONS, CONDITIONS PRECEDENT

2.1 **The Site.** The Site consists of that certain parcel of property, located in the Town of Coventry, the County of Tolland, and the State of Connecticut, which is described in **Exhibit A** hereto.

2.2 **License to Install, Operate and Maintain the Equipment**. Licensor hereby grants a license to Licensee to install, operate and maintain the Equipment at the Site within the Licensed Space, as such Equipment and Licensed Space is described in, and subject to, the approved Site Engineering Application and Tower Level Drawing attached hereto as **Exhibit B** and as shown in the Site Plan attached hereto as **Exhibit C**. Such license is subject to the Site Rules and is restricted exclusively to the installation, operation and maintenance of antennas and equipment consistent with the specifications and in the locations identified in **Exhibit B** and **Exhibit C**. If Licensee fails to install the total number of permitted antennas and transmission lines as described in **Exhibit B** and **Exhibit C** within one hundred eighty (180) days of commencement of its initial installation of Equipment, the right to install any such antennas and lines not installed shall be deemed waived, with no reduction of the Basic Payment. No capacity or rights will be reserved for future installation of such Equipment after such one hundred eighty (180) day period.

2.3 **Application for Modifications**. Licensee shall apply to make Modifications by submitting a Site Engineering Application to Licensor together with payment of the Modification Application Fee. A Structural Analysis, AM Detuning Study or an Intermodulation Study may be required by Licensor in connection with a proposed Modification, and Licensee will be liable for the cost thereof. Any approved Modification shall be evidenced by an amendment to this Agreement, and the Site Engineering Application approved by Licensor describing the Modification shall be an exhibit to said amendment.

2.4 **Conditions Precedent to Installation of Equipment or Modification**. Notwithstanding anything to the contrary herein, the parties agree that Licensee's right to install Equipment or make a Modification to Equipment at the Site shall not commence until the following conditions are satisfied: (i) Licensor has received any written consent required under the Prime Lease to allow Licensor to license the Licensed Space to Licensee; (ii) a Site Engineering Application has been approved by Licensor; (iii) the Site Application Fee, Structural Analysis Fee, Intermodulation Study Fee and fee for AM Detuning Study (if any) have been paid; (iv) Licensee has received all required permits (if any) for its installation of, or Modification to, the Equipment and all required regulatory or governmental approvals of Licensee's proposed use of the Site, and Licensor has received, reviewed, and accepted copies of such required permits (if any) and such required regulatory or governmental approvals; and (v) Licensor has received a waiver of any applicable rights of first refusal in and to the space or Licensed Space that Licensee identifies in the Site Engineering Application. With respect to Licensee's initial installation of Equipment at the Site, if any applicable conditions precedent are not satisfied within one hundred eighty (180) days of the date of full execution of this Agreement, either party shall have the right to terminate this Agreement upon written notice to the other party, unless and until all applicable conditions precedent are thereafter satisfied. Upon satisfaction of all conditions precedent, Licensor shall provide written notice to Licensee to confirm said satisfaction. In the event that Licensee breaches this Agreement by installing Equipment or making a Modification other than as permitted hereunder, then in addition to all other remedies available to Licensor, Licensor shall be entitled to receive, and Licensee shall pay to Licensor, upon notice from Licensor, an administrative fee equal to six (6) times the Basic Payment, if payable monthly, or one-half (1/2) the Basic Payment, if payable annually, based on the amount of the Basic Payment at the time of said notice.

2.5 **Performance of Work.** Licensee may engage Licensor to install Licensee's Equipment, and to make approved Modifications to Licensee's Equipment pursuant to this Article 2 (the "Work"), upon terms mutually agreed upon by the parties in writing; provided, however, in the event that Licensee does not engage Licensor to perform the Work, Licensee shall (i) only engage a vendor approved by Licensor to perform the Work and (ii) pay to Licensor [redacted] upon completion of the Work for the purpose of defraying the cost associated with Licensor's inspection of the Work. Notwithstanding Licensor's inspection of any Work not performed by Licensor, Licensor shall in no way be liable for any defect in the Work or any of the materials used, and Licensee shall not rely on Licensor's inspection of the Work as confirmation that no defects exist. All Work shall be performed in accordance with the standards set forth in the Site Rules.

2.6 **Closeout Documentation.** In the event that Licensee engages Licensor to perform any Work for Licensee, Licensor shall provide to Licensee all Closeout Documentation within forty-five (45) days of completion of the Work. In the event that Licensee does not engage Licensor to perform any Work for Licensee and Licensee engages a vendor approved by Licensor to perform the Work in accordance with Section 2.5, Licensee shall provide to Licensor all Closeout Documentation within forty-five (45) days of completion of the Work; provided, however, in the event that Licensee fails to provide to Licensor said Closeout Documentation within said forty-five (45) day period, Licensee shall pay to Licensor [redacted] for the purpose of defraying Licensor's costs associated with preparation of the Closeout Documentation required hereunder.

3. ACCESS, USE OF SITE

3.1 **Access to Site**. Licensor hereby grants to Licensee a non-exclusive license for pedestrian and vehicular ingress to and egress from the Site over the designated access area to the Site as described in **Exhibit A**, on a 24 hour per day, 7 day per week basis, subject, however, to any restrictions in the Prime Lease or any underlying easement, for the purposes of maintaining, operating and repairing the Equipment, together with license to maintain, operate and repair utility lines, wires, cables, pipes, lines, or any other means of providing utility service, including electric and telephone service, to the Licensed Space. Licensor shall have no duty to remove snow or otherwise maintain the access area.

3.2 **Authorized Persons; Safety of Personnel**. Licensee's right of access shall be limited to authorized employees, contractors or subcontractors of Licensee, or persons under their direct supervision. Licensee shall not allow any person to climb a tower without ensuring that such person works for a vendor approved by Licensor for the subject work.

3.3 **Notice to Licensor**. Licensee agrees to provide prior notice of any access to be made by Licensee or its contractors or subcontractors to the Site by calling Licensor's Network Operations Center at (800) 788-7011 (or by providing notice as otherwise directed by Licensor). For safety reasons, access to the Site is restricted to times when elevated work is not being performed on any tower at the Site by any other person

3.4 **Licensee's Use of the Site**. Licensee shall use the Licensed Space at the Site to install, operate and maintain only the Equipment and shall transmit and receive only within the FCC licensed frequency ranges and at the power levels specified herein.

3.5 **Permits, Authorizations and Licenses**. Licensee shall be solely responsible for obtaining, at its own expense, all permits, authorizations and licenses associated with its occupancy of Licensed Space at the Site and utilization of Equipment thereon and shall promptly provide copies thereof to Licensor.

3.6 **Zoning Approval.** Licensee must provide Licensor with copies of any zoning application or amendment that Licensee submits to the applicable zoning authority in relation to its installation or modification of Equipment at the Site, at least seventy-two (72) hours prior to submission to the applicable zoning authority. Licensor reserves the right to (i) require that it be named as co-applicant on any such zoning application or amendment and/or (ii) require revisions to any such zoning application or amendment. Licensor also reserves the right, prior to any decision by the applicable zoning authority, to approve or reject any conditions of approval, limitations or other obligations that would apply to the owner of the Site or property, or any existing or future Site licensee, as a condition of such zoning authority's approval; provided, however, Licensor shall not unreasonably withhold or delay approval of any such conditions of approval, limitations or other obligations. Licensee agrees that any Modification, or change in use of the Licensed Space, as approved herein, requires an amendment hereto which may entitle Licensor to additional compensation. Licensee shall be solely responsible for all costs

and expenses associated with (i) any zoning application or amendment submitted by Licensee, (ii) making any improvements or performing any other obligations required as a condition of approval with respect to same and (iii) any other related expenses.

3.7 **Utilities**. Licensee shall pay for all electricity and other utilities it uses. If separate metering is unavailable, Licensee shall pay a share of such costs as allocated by Licensor.

4. TERM

4.1 **Term of Agreement.** The term of this Agreement shall commence on the Term Commencement Date and continue for a period of Five (5) year(s), ending on the day immediately prior to the Fifth (5th) anniversary of the Term Commencement Date at twelve o'clock (12:00 p.m.) EST (the "Term").

4.2 **Automatic Term Renewal.** The Term shall automatically extend for Four (4) renewal period(s) of Five (5) year(s) each unless either party provides written notice to the other of its election not to renew the Term, at least One Hundred Twenty (120) days prior to the end of the current Term.

4.3 **Term Subject to Prime Lease**. Notwithstanding the foregoing, if Licensor's rights in the Site are derived from a Prime Lease, then the Term shall continue and remain in effect only as long as Licensor retains its interest under said Prime Lease.

5. CONSIDERATION

5.1 **Basic Payment.** Licensee shall pay to Licensor [redacted] per month (the "Basic Payment") for its license and use of the Licensed Space. The Basic Payment shall be paid in advance and without demand, in equal monthly payments payable on the Term Commencement Date, and on the first day of each month thereafter continuing for the Term, subject to extensions as provided for herein. Payments shall be made by check payable to Global Signal Acquisitions II LLC, PO Box 403551 Atlanta, GA 30384-3551. Licensee shall include the JDE Business Unit No. 876385 on or with each payment.

5.2 **Adjustments to Basic Payment**. The Basic Payment shall be increased on the first anniversary of the Term Commencement Date and every anniversary of such date thereafter (the "Adjustment Date") by three percent (3%). Licensor's failure to demand any such increase shall not be construed as a waiver of any right thereto and Licensee shall be obligated to remit all increases notwithstanding any lack of notice or demand thereof. The adjustment to the Basic Payment shall be calculated by the following formula:

The adjusted Basic Payment = Base Fee + (Base Fee x 3%)

"Base Fee" shall mean the then-current Basic Payment.

5.3 **Regulatory Compliance Costs**. In the event that Licensor incurs Regulatory Compliance Costs at the Site during the Term, Licensee shall pay to Licensor its Pro Rata Share of such Regulatory Compliance Costs within thirty (30) days of receipt of Licensor's invoice for same.

5.4 **Taxes, Fees and Assessments**. Licensee shall pay directly to the applicable Government Entity or to Licensor if Licensor is invoiced by such Government Entity, all taxes, fees, assessments or other charges assessed by any Government Entity against the Equipment and/or Licensee's use of the Site or the Licensed Space. Licensee shall pay to Licensor or the appropriate taxing authority, if and when due, any sales, use, ad valorem or other taxes or assessments which are assessed or due by reason of this Agreement or Licensee's use of the Site or the Licensed Space. Licensee shall also pay to Licensor its Pro Rata Share of all taxes, fees, assessments or charges assessed by any Government Entity against the Site or against Licensor's improvements thereon. Licensor shall provide notice of any assessments to be paid by Licensee promptly upon receipt. Licensor shall invoice Licensee annually, indicating the amount of the assessment, its Pro Rata Share and the amount due. Said invoices shall be paid within thirty (30) days of Licensee's receipt.

5.5 **Reimbursement Payment.** Beginning on the date of the commencement of the recurring rent, lease payment, license fee or other similar fee payable under the Agreement as set forth herein, Licensee shall pay to Licensor [redacted] per month (the "Reimbursement Payment") in addition to and concurrently with the recurring rent, lease payment, license fee or other similar fee payable under the Agreement. Said Reimbursement Payment is to reimburse Licensor for certain payments ("Additional Lease Payments") that it is required to pay pursuant to the real property lease or other instrument from which its rights in the site are derived (the "Real Property Lease"), as a result of the rights granted to Licensee herein. Said Reimbursement Payment shall be adjusted in the same manner as, and simultaneously with, the periodic adjustments to the recurring rent, lease payment, license fee or other similar fee payable under the Agreement.

6. INTERFERENCE

6.1 **Interference to Licensee's Operations**. Licensor agrees that neither Licensor nor Licensor's other users of the Site or property adjacent to the Site controlled or owned by Licensor, whose equipment is installed or modified subsequently to Licensee's Equipment ("Subsequent Use"), shall permit their equipment to interfere with Licensee's permitted transmissions or reception. In the event that Licensee experiences RF interference caused by such Subsequent Use, Licensee shall notify Licensor in writing of such RF interference and Licensor shall cause the party whose Subsequent Use is causing said RF interference to reduce power and/or cease operations in order to correct and eliminate such RF interference within seventy-two (72) hours after Licensor's receipt of such notice. In the event Licensor is notified of any RF interference experienced by Licensee alleged to be caused by a Subsequent Use, the entity responsible for the Subsequent Use shall be obligated to perform (or cause to be performed) whatever actions are commercially reasonable and necessary at no cost or expense to Licensee to eliminate such RF interference. Licensor further agrees that any licenses or other agreements with third parties for a Subsequent Use will contain provisions that similarly require such users to correct or

eliminate RF interference with Licensee's operation of its Equipment following receipt of a notice of such interference.

6.2 **Interference by Licensee**. Notwithstanding any prior approval by Licensor of Licensee's Equipment, Licensee agrees that it will not allow its Equipment to cause RF interference to Licensor and/or other pre-existing uses of users of the Site in excess of levels permitted by the FCC. If Licensee is notified in writing that its operations are causing such RF interference, Licensee will immediately take all necessary steps to determine the cause of and eliminate such RF interference. If the interference continues for a period in excess of seventy-two (72) hours following such notification, Licensor shall have the right to require Licensee to reduce power and/or cease operations until such time as Licensee can make repairs to the interfering Equipment. In the event that Licensee fails to promptly take such action as agreed, then Licensor shall have the right to terminate the operation of the Equipment causing such RF interference, at Licensee's cost, and without liability to Licensor for any inconvenience, disturbance, loss of business or other damage to Licensee as the result of such actions. Licensee shall indemnify and hold Licensor and its subsidiaries and affiliates harmless from all costs, expenses, damages, claims and liability that result from RF interference caused by Licensee's Equipment.

7. RELOCATION OF EQUIPMENT BY LICENSOR

7.1 **Relocation of Equipment at Licensor's Option**. Licensor shall have the right to change the location of the Equipment (including re-location of Equipment on the tower to an elevation used by other licensees) upon sixty (60) days written notice to Licensee, provided that said change does not, when complete, materially alter the signal pattern of the Equipment existing prior to the change. Any such relocation shall be performed at Licensor's expense and with reasonably minimal disruption to Licensee's operations and shall be evidenced by an amendment to this Agreement.

7.2 **Third Party Offers for Licensed Space.** In the event that Licensor receives a proposal from a third party to license the Licensed Space for a fee in excess of [redacted] per month, then, unless Licensee agrees to amend the Basic Payment to equal the amount offered by said third party (within thirty (30) days of the date of said notice from Licensor), Licensor shall have the right to either (i) relocate the Equipment, or (ii) if Licensor determines, in its sole judgment, that such relocation is not feasible, terminate this Agreement on thirty (30) days written notice.

8. RF EXPOSURE

Licensee agrees to reduce power or suspend operation of its Equipment if necessary and upon reasonable notice to prevent exposure of workers or the public to RF radiation in excess of the then-existing regulatory standards.

9. LIENS

Licensee shall keep the Licensed Space, the Site and any interest it or Licensor has therein free from any liens arising from any work performed, materials furnished or obligations incurred by or at the request of Licensee, including any mortgages or other financing obligations, and shall discharge any such lien filed, in a manner satisfactory to Licensor, within thirty (30) days after Licensee receives written notice from any party that the lien has been filed.

10. INDEMNIFICATION

Licensee shall indemnify, defend and hold Licensor, and Licensor's affiliates, subsidiaries, directors, officers, managers, employees and contractors, harmless from and against any claim, action, damages, liability, loss, cost or expense (including reasonable attorney's fees), resulting from or arising out of Licensee's or any of Licensee's contractors', subcontractors', servants', agents' or invitees' use or occupancy of the Site.

11. INSURANCE

Licensee shall carry commercial general liability insurance on a form providing coverage at least as broad as the ISO CG 0001 10 01 policy form covering its occupancy and use of the Site. Licensee shall ensure that its policy, and that its independent contractors' policies, be endorsed to cover Licensor as an additional insured on a primary and non-contributory basis with Licensor's policies on a form that does not exclude the concurrent negligence of the additional insured. At a minimum, Licensee and all parties accessing the Site for or on behalf of Licensee (other than independent contractors of Licensee, which must provide coverage as separately specified by Licensor) shall obtain the following insurance coverage: (i) statutory workers' compensation including employer's liability with the following limits: $1,000,000 per accident; $1,000,000 disease, each employee; and $1,000,000 disease policy limit; (ii) commercial general liability covering bodily injury, death and property damage including, but not limited to, coverage for explosion, collapse and underground exposures (XCU) and products/completed operations with limits not less than $1,000,000 per occurrence, combined single limit with a $2,000,000 general policy aggregate and a separate products/completed operations aggregate of $2,000,000; (iii) automobile liability covering all owned, hired and non-owned vehicles with combined single limits not less than $1,000,000 per accident; (iv) umbrella liability insurance of $5,000,000; and (v) commercial all risk of loss fire with extended coverage insurance covering all of Licensee's equipment and improvements at the Site. The commercial general liability limits identified above shall be increased on every tenth (10^{th}) anniversary of this Agreement by twenty-five percent (25%) over the limit of insurance for the immediately preceding ten (10) year period. All insurers will carry a minimum A.M. Best A-(FSC VIII) or equivalent rating and must be licensed to do business in the state where the Site is located. All policies required to be provided pursuant to this section shall contain a waiver of subrogation in favor of Licensor. The insurance requirements in this Agreement shall not be construed to limit or otherwise affect the liability of the Licensee. Licensee shall provide certificates of insurance evidencing said coverage to Licensor upon execution of this agreement and at least annually as the policies renew. Any failure on the part of

Licensor to request the required certificates of insurance shall not in any way be construed as a waiver of any of the aforesaid insurance requirements. Licensee shall agree to provide a copy of said policies upon receipt of written request by Licensor. Licensee agrees to provide notice to Licensor within two (2) business days of receipt of any cancellation notice of any of the required insurance policies.

12. CASUALTY OR CONDEMNATION

12.1 **Casualty**. In the event that the Site, or any part thereof, is damaged by fire or other casualty not caused by Licensee, Licensor shall have ninety (90) days from the date of damage, if the damage is less than total destruction of the Site, in which to make repairs, and one hundred and eighty (180) days from date of destruction, if the Site (including the tower structure) is destroyed, in which to replace the destroyed portion of the Site. If Licensor fails for any reason to make such repair or restoration within the stipulated period and the damage or destruction effectively precludes Licensee's use of the Site as authorized under this Agreement, then either party may, at its option, terminate this Agreement without further liability of the parties, as of the date of partial or complete destruction. If, for any reason whatsoever, Licensee's use of the Site is interrupted due to casualty, Licensee's sole remedy shall be abatement of the Basic Payment for the period during which Licensee's use of the Site is interrupted. Except with regard to repair of the Site as stated in this Section 12.1, Licensor shall not be responsible for any damage caused by vandalism or acts of God. In no event shall Licensor be liable to Licensee for damage to the Equipment or interruption or termination of Licensee's operations caused by forces majeure or acts of God.

12.2 **Condemnation**. If any part of the Site shall be taken under the power of eminent domain, Licensor and Licensee shall be entitled to assert their respective claims in accordance with applicable state law.

13. DEFAULT, REMEDIES, WAIVER OF CONSEQUENTIAL DAMAGES

Either of the following shall constitute an event of default hereunder: (i) Licensee's failure to either pay any amount due hereunder within ten (10) days of written notice from Licensor that said payment is delinquent; or (ii) either party's failure to cure any breach of any covenant of such party (not related to timeliness of payments) herein within thirty (30) days of written notice from the non-breaching party of said breach; provided, however, such thirty (30) day cure period shall be extended upon the breaching party's request if deemed by the non-breaching party to be reasonably necessary to permit the breaching party to complete the cure, and further provided that the breaching party shall commence any cure within the thirty (30) day period and thereafter continuously and diligently pursue and complete such cure. In the event of default by Licensee, Licensee shall immediately make full payment of all amounts that Licensor would have been entitled to receive hereunder for the remainder of the then-current Term and Licensor shall have the right to accelerate and collect said payments. All delinquent amounts shall bear interest at the lesser of one and one-half percent (1 ½%) per month, or the maximum amount permitted by law. Except as otherwise provided in this Agreement, neither party shall be liable to the other for consequential, indirect, special, punitive or exemplary damages for any cause of action whether in contract, tort or otherwise, hereunder.

14. USE OF HAZARDOUS CHEMICALS

Licensee must inform Licensor if it will house batteries or fuel tanks at the Site. The use of any other hazardous chemicals at the Site requires Licensor's prior written approval. Licensee agrees to provide to Licensor no later than each January 15th, an annual inventory of its hazardous chemicals at the Site.

15. GOVERNING LAW, VENUE

The laws of the state where the Site is located, regardless of conflict of law principles, shall govern this Agreement, and any dispute related to this Agreement shall be resolved by arbitration or litigation in said state.

16. ASSIGNMENT, SUBLEASE, SHARING

This Agreement may not be sold, assigned or transferred, in whole or in part, by Licensee without the prior written approval or consent of Licensor, which consent may not be unreasonably withheld. Any such assignment shall be evidenced by a form provided by Licensor and executed by Licensor, Licensee and the assignee. Notwithstanding the foregoing, Licensee shall have the right to assign its interest hereunder to any entity that owns or acquires all or substantially all of Licensee's assets or shares of ownership without the consent of Licensor, upon one hundred eighty (180) days prior written notice. Licensee shall not sublease or license its interest in this Agreement, either directly or through subsidiaries or affiliated entities. Licensee shall not share the use of its Equipment with any third party.

17. NOTICES

Except for notices of access which are to be provided as set forth in Section 3.3 above, all notices hereunder shall be in writing and shall be given by (i) established express delivery service which maintains delivery records, (ii) hand delivery or (iii) certified or registered mail, postage prepaid, return receipt requested. Notices are effective upon receipt, or upon attempted delivery if delivery is refused or if delivery is impossible. The notices shall be sent to the parties at the following addresses:

As to Licensee:

The Connecticut Light and Power Company
d/b/a Eversource Energy
Attn: Salvatore Giuliano, Manager
Real Estate and Land Management
107 Selden Street
Berlin, Connecticut 06037
Telephone Number: (860) 665-6173

As to Licensor: Global Signal Acquisitions II LLC
2000 Corporate Drive
Canonsburg, PA 15317
Attention: Legal Department
Telephone Number: (724) 416-2000

Licensor or Licensee may from time to time designate any other address for this purpose by giving written notice to the other party.

18. PRIME LEASE AGREEMENT

Licensor and Licensee acknowledge that Licensee's use of the Site is subject and subordinate to the Prime Lease. A redacted copy of the Prime Lease is attached as **Exhibit D** hereto. Licensee agrees to be bound by and to perform all of the duties and responsibilities required of the lessee, grantee or licensee as set forth in the Prime Lease to the extent they are applicable to the access to and use of the Site.

19. TERMINATION

19.1 **Withdrawal or Termination of Approval or Permit**. In the event any previously approved zoning or other permit of a Government Entity affecting the use of the Site as a communications facility is withdrawn or terminated, this Agreement shall be deemed to have been terminated effective as of the date of the termination of the permit or approval.

19.2 **Termination of Prime Lease**. In the event that the Prime Lease terminates for any reason, this Agreement shall be deemed to have terminated effective as of the date of the termination of the Prime Lease.

20. NO WAIVER

No provision of this Agreement will be deemed to have been waived by either party unless the waiver is in writing and signed by the party against whom enforcement is attempted.

21. NON-DISCLOSURE

The parties agree that without the express written consent of the other party, neither party shall reveal, disclose or publish to any party the terms of this Agreement or any portion thereof, except to such party's auditor, accountant, lender or attorney or to a Government Entity if required by regulation, subpoena or government order to do so. Notwithstanding the foregoing, either party may disclose the terms of this Agreement to any of its affiliated entities, and Licensor may disclose the terms of this Agreement to any of its lenders or creditors or to third parties that are existing or potential lessees or licensees of space at the Site as may be reasonably necessary with respect to the operation, leasing, licensing and marketing of the Site, including, without limitation, terms relating to Licensee's permitted

frequencies for the purposes of RF compliance tests and terms relating to Licensee's Equipment installed, or to be installed, on the tower for the purposes of structural analysis.

22. SUBORDINATION, NON-DISTURBANCE, ATTORNMENT

22.1 **Subordination**. Subject to Section 22.2, this Agreement and Licensee's rights hereunder are and will be subject and subordinate in all respects to: (i) the Security Instrument from Licensor in favor of Lender insofar as the Security Instrument affects the property of which the Site forms a part; (ii) any and all advances to be made thereunder; and (iii) any and all renewals, extensions, modifications, consolidations and replacements thereof. Said subordination is made with the same force and effect as if the Security Instrument had been executed prior to the execution of this Agreement.

22.2 **Non-Disturbance**. The subordination described in Section 22.1 is conditioned upon the agreement by Lender that, so long as this Agreement is in full force and effect and Licensee is not in material default (beyond applicable notice and cure periods) hereunder, Lender, for itself and on behalf of its successors in interest, and for any Acquiring Party, agrees that the right of possession of the Site and all other rights of Licensee pursuant to the terms of this Agreement shall remain in full force and effect and shall not be affected or disturbed by Lender in the exercise of its rights under the Security Instrument.

22.3 **Liability of Parties**. Licensee and Licensor agree (i) that any Conveyance shall be made subject to this Agreement and the rights of Licensee hereunder and (ii) that the parties shall be bound to one another and have the same remedies against one another for any breach of this Agreement as Licensee and Licensor had before such Conveyance; provided, however, that Lender or any Acquiring Party shall not be liable for any act or omission of Licensor or any other predecessor-in-interest to Lender or any Acquiring Party. Licensee agrees that Lender may join Licensee as a party in any action or proceeding to foreclose, provided that such joinder is necessary to foreclose on the Security Instrument and not for the purpose of terminating this Agreement.

22.4 **Attornment**. Licensee agrees that, upon receipt by Licensee of notice to attorn from Lender or any Acquiring Party, along with reasonable supporting documentation, (i) Licensee shall not seek to terminate this Agreement and shall remain bound under this Agreement, and (ii) Licensee shall attorn to, accept and recognize Lender or any Acquiring Party as the licensor or lessor hereunder pursuant to the provisions expressly set forth herein for the then remaining balance of the Term of this Agreement and any extensions or expansions thereof as made pursuant hereto. Licensee agrees, however, to execute and deliver, at any time and from time to time, upon the request of Lender or any Acquiring Party any reasonable instrument which may be necessary or appropriate to evidence such attornment.

23. PRIOR AGREEMENT SUPERSEDED

The parties hereby agree that, as of the Effective Date, (i) this Agreement shall be deemed to have revoked and superseded any active prior oral or written agreements (as may have been amended and/or assigned) between Licensor and Licensee to the extent applicable to the Site and the subject matter

described herein, and (ii) the terms of this Agreement (together with applicable laws) shall control with respect to all matters hereunder occurring on or after the said date.

24. HOLDOVER FEE

Licensee shall remove its Equipment from the Site prior to the expiration or termination of this Agreement. Should Licensee's Equipment remain at the Site after the expiration or termination of this Agreement, no tenancy or interest in the Site shall result, but this "holding over" shall be an unlawful detainer and all such Equipment shall be subject to immediate removal. Licensee shall, upon demand, pay to Licensor, as a holdover fee, a sum equal to one and one-half (1 ½) times the Basic Payment, if payable monthly, or one-eighth (1/8) the Basic Payment, if payable annually (based on the amount of the Basic Payment at the time of said expiration or termination), for each month or partial month during which Licensee shall "hold over" at the Site after the expiration or termination of this Agreement.

25. COUNTERPARTS AND ELECTRONIC SIGNATURE

This Agreement may be executed by original, facsimile, or electronic signatures (complying with the U.S. Federal ESIGN Act of 2000, 15 U.S.C. 96) and in any number of counterparts which shall be considered one instrument. Counterparts, signed facsimile and electronic copies of this Agreement shall legally bind the parties to the same extent as original documents.

[Remainder of Page Intentionally Left Blank]

CROWN CASTLE

Licensee Site Name: Coventry
Licensee Site Number: N/A

Licensor Site Name: N. COVENTRY / WALLBEOFF
JDE Business Unit: 876385
License Identifier: 590906

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their respective seals the day and year first above written.

Licensor

Global Signal Acquisitions II LLC,
a Delaware limited liability company

By: _____
Print Name: ~~Kelly Stoner~~
Title: Manager, ~~Contract Development~~
Area: _____
Date: 3/20/18

Witness

By: _____
Print Name: Sean Dove
By: _____
Print Name: Katherine Wittberger

Licensee

The Connecticut Light and Power Company d/b/a Eversource Energy,
a Connecticut corporation

By: _____
Print Name: Salvatore Giuliano
Title: Manager, Real Estate and Land Management
Date: 3/14/2018

CROWN CASTLE

Licensee Site Name: Coventry
Licensee Site Number: N/A

Licensor Site Name: N. COVENTRY / WALLBEOFF
JDE Business Unit: 876385
License Identifier: 590906

STATE OF Pennsylvania :
: SS
COUNTY OF Washington :

ACKNOWLEDGMENT OF LICENSOR

On this 20th day of March, 2018, before me, personally appeared Kelly Stoner, to me personally known, who, being by me duly sworn, did say that he/she is manager, Contract Development of Global Signal Acquisitions II LLC, a Delaware limited liability company and that said instrument was signed on behalf of said company and said Kelly Stoner acknowledged said instrument to be his/her free act and deed.

In witness whereof, I have hereunto set my hand and affixed my seal at my office in said County and State on the day and year first above written.

Sworn to and subscribed before me this 20th day of March 2018.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Katherine Witzberger Notary Public
Cecil Twp., Washington County
My Commission Expires March 30, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Katherine W. Witzberger
Notary Public

My Commission Expires: 3.30.2018

TT: E 859082
Prepared by: P. Morgan
Prepared on: 11/14/2017
Revised on: 3/5/2018
CROWN CASTLE STANDARD FORM TLA 2-12-07

App Rev #: 12
LRF Rev #: 6

CROWN CASTLE

Licensee Site Name: Coventry
Licensee Site Number: N/A

Licensor Site Name: N. COVENTRY / WALLBEOFF
JDE Business Unit: 876385
License Identifier: 590906

STATE OF Connecticut :
: SS Berlin
COUNTY OF Hartford :

ACKNOWLEDGMENT OF LICENSEE

On this 14 day of March, 2018 before me, personally appeared Salvatore Giuliano, to me personally known, who, being by me duly sworn, did say that he/she is Manager, Real Estate of The Connecticut Light and Power Company d/b/a Eversource Energy, a Connecticut corporation, and that said instrument was signed on behalf of said company and said Salvatore Giuliano acknowledged said instrument to be his/her free act and deed.

In witness whereof, I have hereunto set my hand and affixed my seal at my office in said County and State on the day and year first above written.

Sworn to and subscribed before me this 14 day of March 2018

Notary Public

My Commission Expires: June 30, 2020

TT: E 859082
Prepared by: P. Morgan
Prepared on: 11/14/2017
Revised on: 3/5/2018
CROWN CASTLE STANDARD FORM TLA 2-12-07

App Rev #: 12
LRF Rev #: 6

EXHIBIT A to Short Form Tower License Agreement

SITE AND ACCESS AREA LEGAL DESCRIPTIONS

See attached

SURVEY NOTES:

1 THIS SURVEY AND MAP HAVE BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES- "MINIMUM STANDARDS FOR SURVEY AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS INC ON SEPT 26 1996

IT IS A ZONING LOCATION SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND INTENDED TO BE USED FOR THE PURPOSE OF DEPICTING ZONING COMPLIANCE.

2 HORIZONTAL COORDINATE SYSTEM IS THE NORTH AMERICAN DATUM OF 1927 (NAD 27)

3 ELEVATIONS ARE NATIONAL GEODEDIC VERTICAL DATUM OF 1929 (NGVD 29)

4 WETLAND FLAGGING COMPLETED ON MARCH 23, 2000 BY VANASSE HANGEN BRUSTLIN, INC., BY CERTIFIED SOIL SCIENTIST DEAN GUSTAFSON. WETLANDS MAPPING IS THE RESULT OF ACTUAL FIELD SURVEY COMPLETED ON MARCH 31, 2000 BY GOODKIND & O'DEA, INC.

REFERENCES:

1) "CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP TOWN OF COVENTRY, COVENTRY-MANSFIELD DEPOT ROAD, FROM THE MANSFIELD TOWN LINE WESTERLY ABOUT 7,300 FEET, ROUTE NO. 109" SCALE 1"=40' DATED 7-31-29, NUMBER 189, SHEETS 1&2 OF 3

2) "FEMA FIRM MAP, TOWN OF COVENTRY, CONNECTICUT, TOLLAND COUNTY" PANEL 10 OF 15 COMMUNITY PANEL NUMBER 090110 0010D, MAP REVISED JUNE 11, 1982

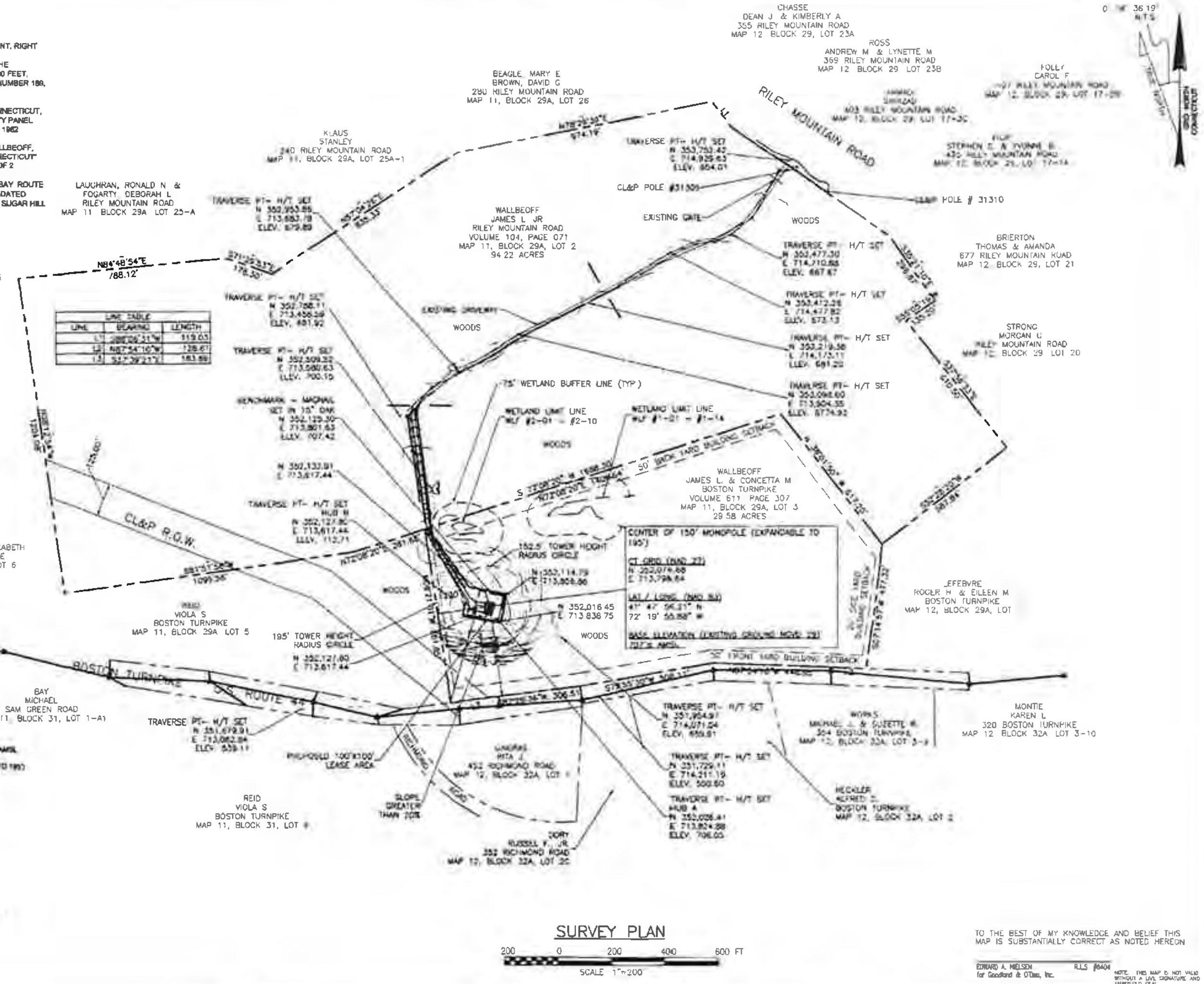
3) "MAP SHOWING PROPERTY OF JAMES L. WALLBEOFF, JR., RILEY MOUNTAIN ROAD, COVENTRY CONNECTICUT" SCALE 1"=100', DATED MAY 1979 SHEETS 1&2 OF 2

4) "PROPERTY OF THE ESTATE OF EUGENE C BAY ROUTE 44, COVENTRY, CONNECTICUT" SCALE 1"=100', DATED APRIL 20, 1998 BY EDWARD K. BEALE, L.S. 480 SUGAR HILL ROAD, TOLLAND, CONNECTICUT, SHEET 1 OF 1

LEGEND

DATUM IS MEAN SEA LEVEL

- EXISTING HIGHWAY LINE/PROPERTY LINE
- PROPOSED LEASE AREA
- BUILDING SETBACKS
- WETLAND BOUNDARY
- TREE HEDGE EDGE OF WOODS
- 130 EXISTING CONTOUR
- 130 PROPOSED CONTOUR
- X 132 EXISTING SPOT ELEVATION @ X
- X 132 PROPOSED SPOT ELEVATION @ X
- BARBED WIRE, FARM AND CHAIN LINK FENCE
- EXISTING UTILITY POLE AND OVERHEAD UTILITIES
- PROPOSED UTILITY POLE AND OVERHEAD UTILITIES
- CHD BOUNDARY MONUMENT
- CLEARING LINE



LINE	BEARING	LENGTH
L1	S88°06'41"W	115.03
L2	N87°44'10"W	128.61
L3	S37°39'21"E	183.89

SURVEY PLAN

SCALE 1"=200'

TOWER INFORMATION

1. LOCATION

NAD 27-CT

N 352,074.88
E 713,798.64

GEOD LAT/LONG NAD 83

LAT. 41° 47' 58.21" N
LONG 72° 19' 55.58" W

2. TOP OF MONOPOLE FOUNDATION: 707± AMSL

3. MONOPOLE HEIGHT: 150' (EXPANDABLE TO 195')

PROPERTY INFORMATION

1 OWNER:

JAMES L. & CONCETTA M. WALLBEOFF
679 OLD HUNT WAY
HERNDON VA 20178
(703) 709-0970

LOCATION

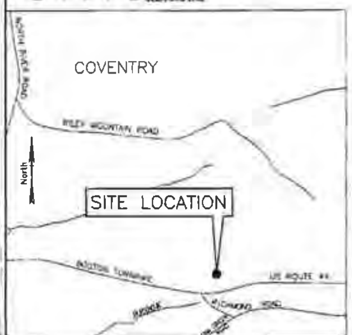
BOSTON TURNPIKE (U.S. ROUTE 44)
COVENTRY, CONNECTICUT

2. ASSESSOR'S MAP 11, BLOCK 29A, LOT 3

3 ZONE: RU-40

4. FEMA FIRM MAP: ZONED "C"

5. LOT AREA 24.22 ACRES



SCALE 1000 0 1000 2000 3000 FEET

LOCATION MAP

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON

EDWARD A. NIELSEN L.L.S. #9404
for Goodkind & O'Dea, Inc.

NOTE: THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND EMBOSSED SEAL.

Goodkind & O'Dea, Inc.
Consulting Engineers and Planners
59 ELM STREET SUITE 101
NEW HAVEN, CONNECTICUT 06510
(203) 776-2277

COVENTRY NORTH
RILEY MOUNTAIN ROAD
COVENTRY, CONNECTICUT
CT33XC551

Sprint Spectrum LP
HARTFORD MTA

5	ISSUED FOR AS BUILT
4	MONOPOLE DIMENSIONS REVISED
3	ISSUED FOR ZONING
2	PRELIMINARY ISSUE WITH WETLANDS
1	PRELIMINARY ISSUE FOR ZONING

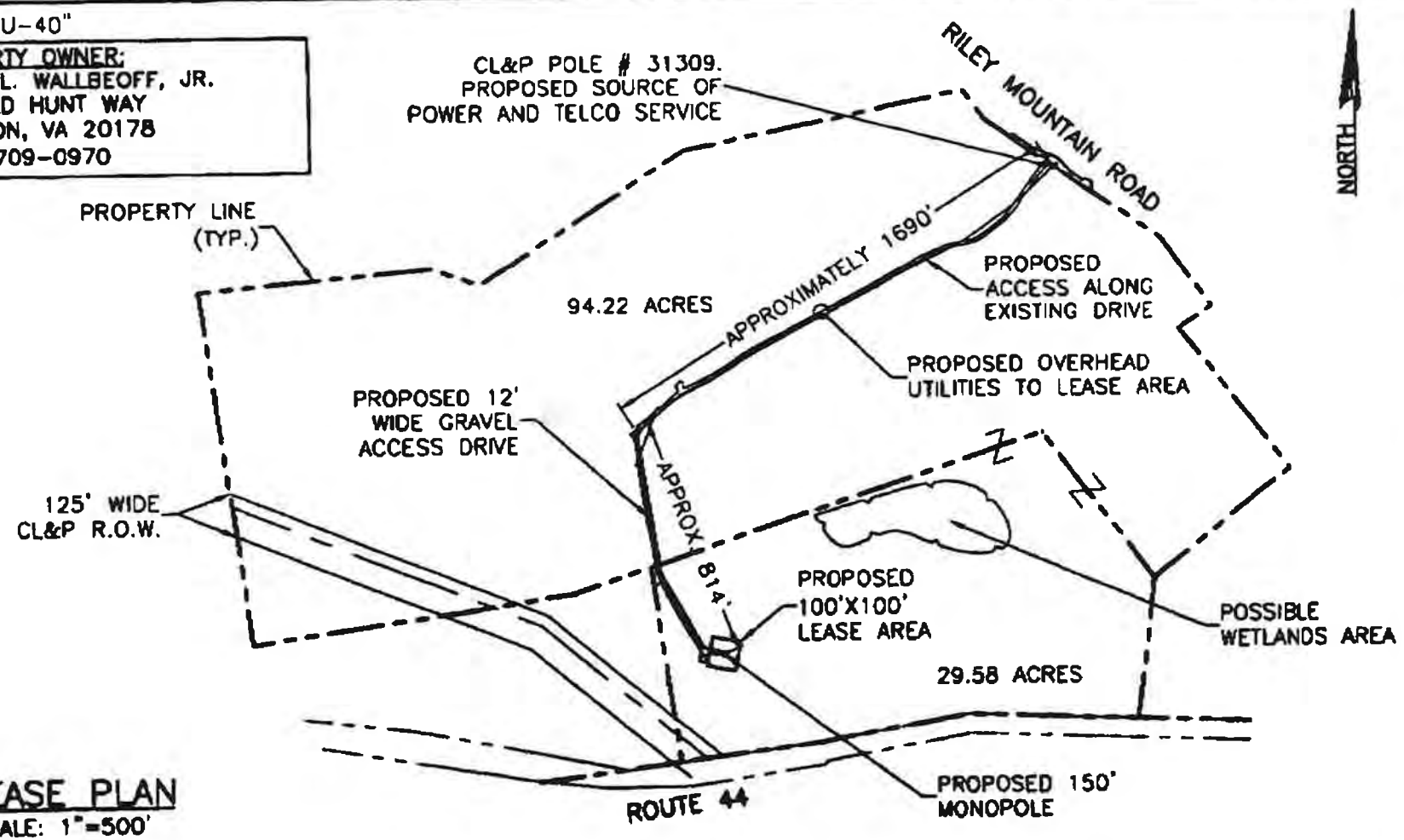
SCALE AS NOTED DRAWN EWC

Sprint PCS
WALLBEOFF SITE
EXISTING CONDITIONS SURVEY
YT055151

ClibPDF - www.fastio.com

ZONE:"RU-40"

PROPERTY OWNER:
JAMES L. WALLBEOFF, JR.
679 OLD HUNT WAY
HERNDON, VA 20178
(703) 709-0970



LEASE PLAN
SCALE: 1"=500'

OWNER'S INITIALS:	NOTE: OWNER AND SSLP MAY, AT SSLP'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL CHARACTERISTICS OF THE PROPERTY ON WHICH THE SITE IS LOCATED AND/OR AN AS-BUILT DRAWINGS DEPICTING THE SITE.	Sprint Spectrum LP Sprint PCS PCS INSTALLATION PROJECT	SITE NAME: NORTH COVENTRY WALLBEOFF SITE RILEY MOUNTAIN ROAD COVENTRY, CONNECTICUT	SITE NO.: CT33XC551	DRAWING NO.: YT0551L1
SSLP INITIALS: DATE:			Goodkind & O'Dea, Inc. Consulting Engineers and Planners	LEASING PLAN VIEW SCALE: AS SHOWN DATE: 03/15/00	SHEET 1 OF 3

EXHIBIT B to Short Form Tower License Agreement

APPROVED SITE ENGINEERING APPLICATION AND TOWER LEVEL DRAWING

See attached

CROWN CASTLE

Customer Approved: Nov 03 2017

Application ID: 386809 **Revision # 12 Submitted: Mar 30 2017**

Submitted By:	Rhonda Deas		
Original Submit Date:	Mar 30 2017	**Desired Install Date:**	Sep 28 2017
Reason for Application:	First time antenna installation at this site	**JDE Job Number**	433567

Applications are subject to applicable Crown Castle engineering, regulatory, zoning/planning, and priority property-owner approval. Approval conditions may result in alternative requirements for type and/or placement of equipment. Approval conditions may also lead to additional or revised engineering analysis at Crown Castle discretion and upon consent of the customer.

Company Information

MLA:	Stand Alone Agreement - TLA
Company:	Connecticut Light and Power Company
Address:	107 SELDEN STREET
City/Town:	BERLIN
State:	CT **Postal Code:** 06037
Customer Job Number:	N/A
Customer Payment Reference:	N/A
Customer Site Name:	Coventry
Customer Site Number :	N/A

Site Information

Crown Castle Site Name:	N. COVENTRY / WALLBEOFF		
Crown Castle Site ID:	876385		
Crown Castle District:	New England / Upstate NY		
Address:	Reilly Mtn. Rd.		
City/Town:	COVENTRY		
State:	CT	**Postal Code:**	6238
County:	Tolland		
Latitude:	41° 47' 56.21"	**Longitude:**	-72° 19' 55.88"
Structure Type:	MONOPOLE	**Structure Height:**	152 ft

Legal Entity Information

Operating Legal Entity: The Connecticut Light and Power Company d/b/a Eversource Energy

Primary Contact:	STEVEN FLORIO	**Phone:**	8606557943
E-mail:	steven.florio@eversource.com	**Fax:**	N/A
Address:	107 Selden Street		
City/Town:	Berlin	**State:**	CT **Postal Code:** 06037
RF Contact:	N/A	**Phone:**	N/A
E-mail:	N/A		

Project Management Vendor

Project Management Vendor: Crown Castle - PMV

Service Information

	Frequencies	
	Transmit	**Receive**

Svc	Technology	EIRP (WATTS)	Std Frequency	Start	Stop	Start	Stop	MHZ/GHZ
1	Other - With RF	255.0	ESMR-900	935.0	940.0	896.0	901.0	MHZ

Antenna Information

Pos.	Cust Mount Class / CAD Mount	C Line Elev	Mount Level	Azimuth	Mfg. / Model	Svc	Transmit Start	Transmit Stop	Receive Start	Receive Stop	Use	Orient	Status
A	PIPE MOUNT PIPE MOUNT [PM 601-1]	162	152.0 FT	90	DBSPECTRA DS9A09F36D-N	1	935.0	940.0	896.0	901.0	TX/RX	Upright	Proposed

f

Feedline Information

Pos.	Customer Mount Class	Qty	Mfg.	Model	Length	Location	Ladder Type	Status
A	PIPE MOUNT	2	Primary: RFS/CELWAVE	FLC 158-50J	152.0	EXQ3	Banded	Proposed
		1	Secondary: RFS/CELWAVE	FLC 12-50J	152.0	EXQ3	Banded	Proposed

Optional Component Information

Pos.	Customer Mount Class	Qty.	Mfg.	Tower Mounted Equipment Model	Type	Elevation	Status
A	PIPE MOUNT	1	BIRD TECHNOLOGIES GROUP	430-94C-09168-M-110/48	AMPLIFIER	152.0 ft	Proposed

Power Requirements

VAC	Need Crown Power	Phase	Amps
120/240	No	Single Phase	0

Lease, Pad, and Building Requirements

Building
Building Id #: N/A
Building Type: BLDG

	Length	Width	Height	SQ. Footage	Irregular SQ. Footage	Status
Lease	20ft 0in	10ft 0in	N/A N/A	200.0	N/A	PRPSD
Pad	N/A N/A	N/A N/A	N/A N/A	N/A	N/A	N/A
Building	20ft 0in	10ft 0in	10ft 0in	200.0	N/A	PRPSD

Building
Building Id #: N/A
Building Type: N/A

	Length	Width	Height	SQ. Footage	Irregular SQ. Footage	Status
Lease	N/A N/A	N/A N/A	N/A N/A	N/A	N/A	N/A
Pad	N/A N/A	N/A N/A	N/A N/A	N/A	N/A	N/A
Building	N/A N/A	N/A N/A	N/A N/A	N/A	N/A	N/A

Other Pad Requirements

No cabinets, dishes or other pads exist for this application
Number of Existing Cabinets: 0
Number of Proposed Cabinets: 0
Generator Requirements

Diesel Generator

Generator Status:	Location:	Manufacturer:	Model:	Generator Size (KW):	Tank Size (GAL):	Crown or Customer Generator:
PRPSD	INADDAR	UNKNOWN	UNKNOWN	20	500	CUSTOMER

	Length	Width	Height	SQ. Footage	Status
Lease	N/A N/A	N/A N/A	N/A N/A	N/A	N/A
Pad	4ft 0in	6ft 0in	N/A N/A	24.0	PRPSD

Propane Generator

Generator Status:	Location:	Manufacturer:	Model:	Generator Size (KW):	Tank Size (GAL):	Crown or Customer Generator:
PRPSD	INEXAR	KOHLER	20	20	1000	CUSTOMER

	Length	Width	Height	SQ. Footage	Status
Lease	N/A N/A	N/A N/A	N/A N/A	N/A	N/A
Pad	N/A N/A	N/A N/A	N/A N/A	N/A	N/A
Propane Lease	N/A N/A	N/A N/A	N/A N/A	N/A	N/A
Propane Pad	18ft 0in	5ft 0in	N/A N/A	90.0	PRPSD

Battery Requirements **Is Battery Backup Required?** Yes

Type	Qty.	Mfg.	Model
INSTLLD	0	N/A	N/A
PRPSD	12	SBS	SBS112F

Scope of Work/Additional Information

Scope of Work:
Eversource Energy is proposing to install (1) 10' x 20' concrete shelter (purchased from Crown Castle site in Middletown CT. and moved to Coventry by Eversource). Install Eversource 20 KW propane generator with 1000 gallon propane tank.... Pad / Area for generator is 4' x 6' ... Connect to existing utility backboard for electric and telco. Install (1) 20' dual pole omni antenna @ 162' rad center and (1) TTA mounted @ 152'. Fed with (2) 1-5/8" and (1) 1/2" coaxial cables..... There will be a 10' radius safety clearance for the 1,000 gallon propane tank

****Indicates where Cut Sheet data has been entered.**

NOTICE: Structural Analysis shall be performed in accordance with the current revision of the TIA/EIA 222 standard and applicable local building permit codes and standards. EME analysis shall be consistent with current revision of FCC/OSHA standard OETB 65. AM detuning, when required, will be performed to 47 CFR22.371. The customer is responsible for all analysis expenses. All construction drawings are subject to Crown Castle engineering approval prior to commencement of tower attachments and compound installations. Installation of equipment not conforming to approved drawings may violate the terms of the occupancy agreement and will be corrected at the customer's expense. Crown Castle requires drawings for pre-construction approval and as built drawings for physical configuration validation to be submitted as unlocked AutoCAD files (Version 2000i preferred).

Appendix A - Antenna, Feedline, TME Specifications

Antenna Specifications

Quantity	Manufacturer	Model	Type	Height	Width	Depth	Weight	Flat Plate Area
1	DBSPECTRA	DS9A09F36D-N	DIPOLE	230.4 IN	3.0 IN	3.0 IN	47.0 LBS	505.44 IN2

Feedline Specifications

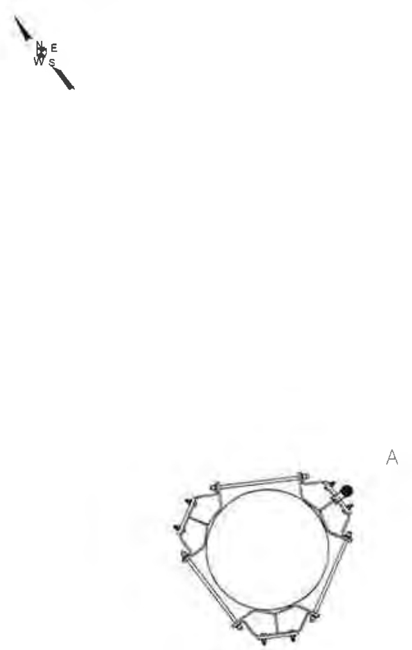
Quantity	Manufacturer	Model	Nominal Size	Nominal O.D.
2	RFS/CELWAVE	FLC 158-50J	1-5/8	2.015 IN
1	RFS/CELWAVE	FLC 12-50J	1/2	0.64 IN

Tower Mounted Equipment Specifications

Quantity	Manufacturer	Model	Type	Dimensions				Frequency		Sail Area
				Height	Width	Depth	Weight	Low	High	
1			AMPLIFIER	20.0 IN	6.0 IN	6.0 IN	20.0 LBS	896.0 MHZ	901.0 MHZ	N/A

BIRD TECHNOLOGIES GROUP	430-94C-09168-M-110/48

			ANTENNA					FEEDLINE		TME			
ORIENT	CUSTOMER	℄	STATUS	MFG	MODEL	AZ	TECH	QTY	SIZE	QTY	TME TYPE	MFG	MODEL
A UP	EVERSOURCE ENERGY	162	PROPOSED	DBSPECTRA	DS9A09F36D-N	90	Other-W/RF	1	1/2	1	TMA	BIRD TECH GROUP	430-94C-09168-W-110/48
	EVERSOURCE ENERGY		PROPOSED					2	1-5/8	0			



BUSINESS UNIT: 876385 TOWER ID: A LEVEL: 152

LEVEL DRAWING

PLOT DATE 10/3/2017 FILE NAME 876385_A_152_P.dwg (PM 601-1)

CROWN CASTLE

CROWN REGION ADDRESS

USA

SPACE RESERVED FOR PROFESSIONAL SEALS

REVISIONS NO.	DATE	DESCRIPTION	BY

DRAWN/CHECKED BY: EZCAD
DRAWING DATE 4/5/2017

SITE NUMBER:
SITE NAME:

SITE NAME
N. COVENTRY / WALLBEOFF

BUSINESS UNIT NUMBER
876385

SITE ADDRESS
REILLY MTN. RD
COVENTRY, CT 6238
TOLLAND COUNTY
US

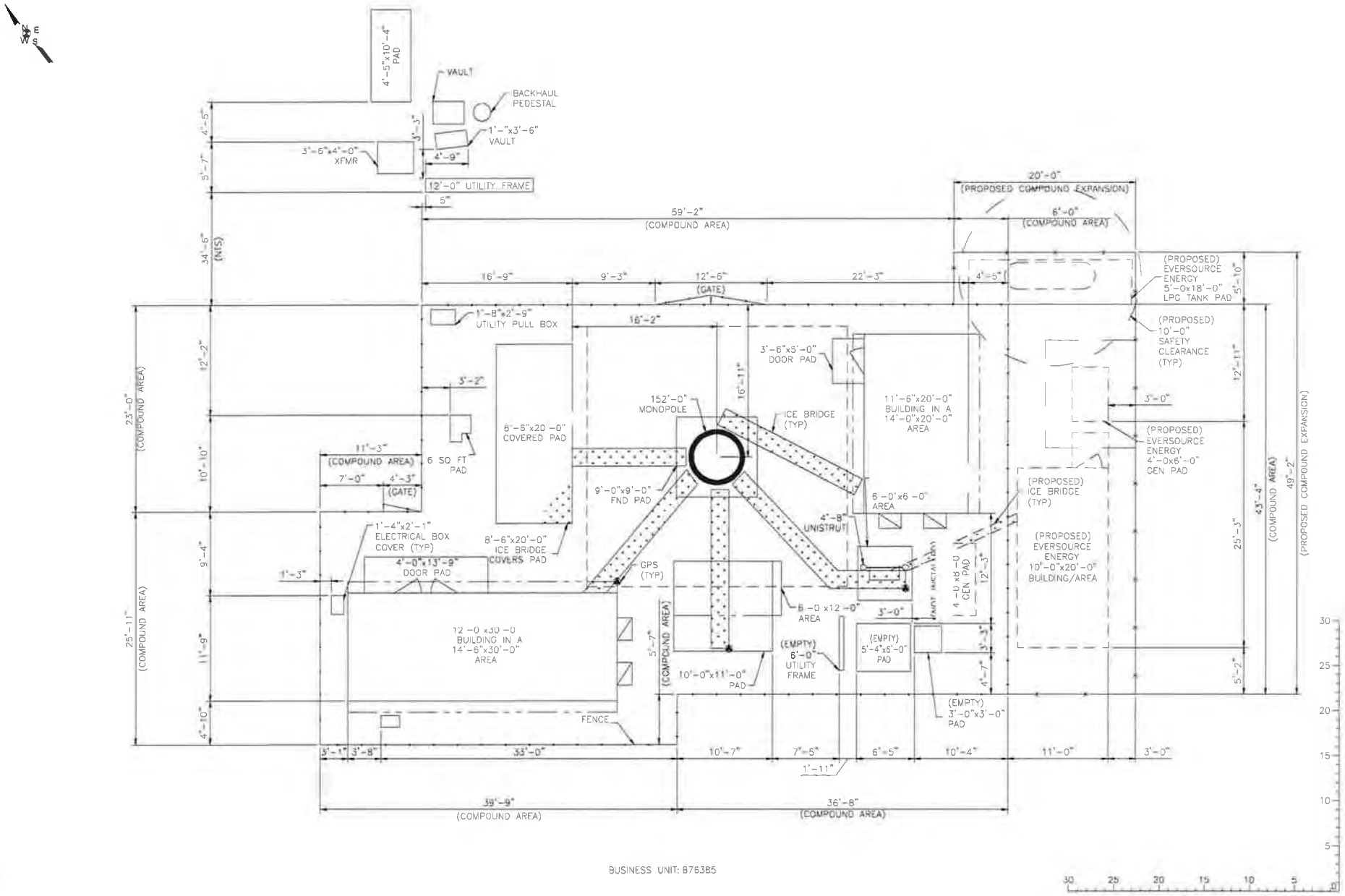
SHEET TITLE
152 FT PROPOSED LEVEL

SHEET NUMBER
A1-X

EXHIBIT C to Short Form Tower License Agreement

SITE PLAN; LOCATION AND DIMENSIONS (LENGTH, WIDTH, HEIGHT)
OF EQUIPMENT BUILDING/FLOOR SPACE
AND ANY OTHER INSTALLATION AT THE SITE

See attached



BUSINESS UNIT: B763B5