

Elevated Consulting

US ARMY CORPS OF ENGINEERS

DISTRICT, NEW ENGLAND

**WACHUSETT MOUNTAIN RADIO TOWER
PRINCETON, MASSACHUSSETS**

LATTICE TOWER INSPECTION

November, 2024

Field Observation by: Daniel Senecal

Report by: Nathalia Arcaro

Project No. USACE.101.2024

November, 23rd 2024

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

TABLE OF CONTENTS

1. SITE LOCATION AND INFORMATION	3
2. SUMMARY	4
3. TOWER INFORMATION	4
4. TOWER CONDITIONS	5
<i>Members</i>	<i>5</i>
<i>Finishing</i>	<i>5</i>
<i>Lighting – Hughey & Phillips</i>	<i>5</i>
<i>Grounding</i>	<i>6</i>
<i>Tower Base Foundation</i>	<i>6</i>
5. ANTENNAS AND FEEDLINES	6
<i>Antenna Mounts and Antennas</i>	<i>6</i>
<i>Feed Lines (waveguide, coax, etc)</i>	<i>7</i>
6. COMMENTS AND RECOMMENDATIONS	8
7. PHOTO LOG	9

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

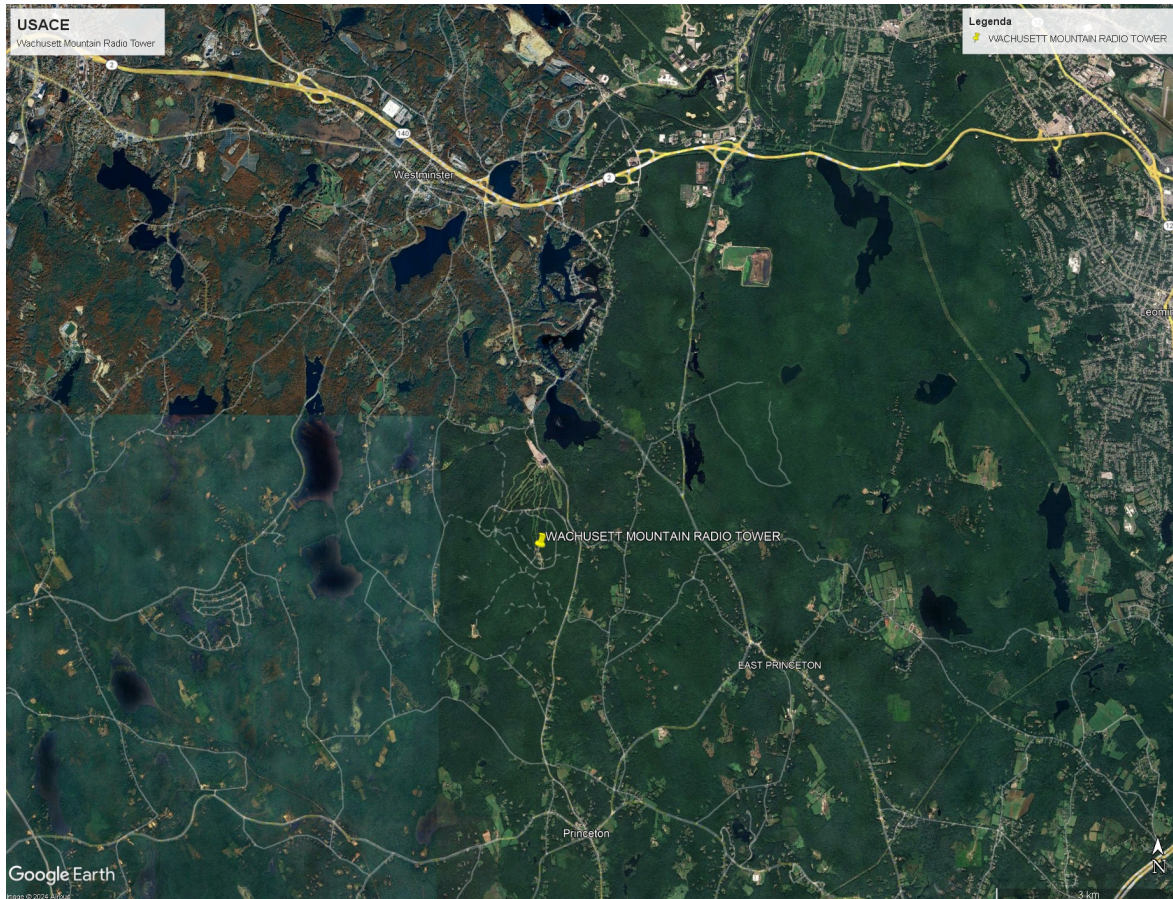
Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

1. SITE LOCATION AND INFORMATION

Figure 1 - Site Location



Site Address

Wachusett Mountain Radio Tower
41 Mile Hill Road, Westminster, MA 01473

GPS Location (UTM, Zone 19T)

Latitude: 262731.67 m E
Longitude: 4708160.63 m N

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

Tower information

Tower Manufacturer: Unknown

Year of manufacture: Unknown

Model: Unknown

Tower finish: Galvanized/Painted coated (white/orange)

Point of Contact

Dylan M. Dickson

Natural Resource Management Specialist

Phone: (978) 318-8477

Tower Print and Documentation

Complete, current tower prints and structural documentation are required as a basis of comparison for plumb and tension measurements made on the tower and as a basis for any structural analysis. Current prints should include copies of all original prints and records of any subsequent modifications to the tower structure or load.

Tower prints made available? YES ____ NO _x_

2. SUMMARY

Elevated Consulting was retained by Client to inspect, identify deficiencies and evaluate the tower located at Wachusett Mountain.

According to Mr. Dickson, the last section of the tower was collapsed and USACE needed a report evaluating the actual condition of the tower, and future possible modifications to remedy the identified problems.

3. TOWER INFORMATION

- Tower Type – Self Supported
- Tower Shape – Tri-Leg

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

- Tower Material – Galvanized / Paint Coated
- Tower Height – 90 ft
- Leg Type - Pipe
- Solid steel rung bar ladder on side of tower
- Ladder Safety System (LSS) – Not identified

4. TOWER CONDITIONS

Members

1. Bent members (legs and lacing) – Entire last section is bent (10 ft)
2. Loose members - None observed
3. Missing members - None observed
4. Climbing facilities - Good
5. Loose and/or missing bolts - None observed

Finishing

1. Paint and/or galvanizing condition - Paint occasionally peeling, galvanizing in good condition
2. Rust and/or corrosion conditions - Not significant, surface rust
3. FAA or ICAO color marking conditions - Good
4. Water collection in members – None observed

Lighting – Hughey & Phillips

1. Conduit, junction boxes, fasteners weather tight and secure - Good condition
2. Drains and vents open - Yes
3. Wiring condition - Good condition
4. Controllers functioning - Functioning
5. Light lenses – N/A – Top beacon not inspected. Located on bent section.
6. Bulb condition – N/A - Top beacon not inspected. Located on bent section.

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

NOTE: Lighting system needs to be reinstalled after top section removal.

Grounding

1. Connections checked and secure - Yes, compression.
2. Corrosion observed and remedied - None observed
3. Lightning protection secure – N/A. There was a lightning rod located on bent section. Not possible to inspect. Necessary to reinstall after section removal.

Tower Base Foundation

1. Ground conditions
 - a. Settlements or movements - None observed, no ponding
 - b. Erosion - None observed
 - c. Site condition (standing water, drainage, trees, etc.) – None observed.
2. Base condition
 - a. Nuts and lock nuts tight - Yes
 - b. Grout condition - Good
3. Concrete condition
 - a. Cracking, spalling or splitting - None observed
 - b. Chipped or broken concrete - None observed
 - c. Honeycombing - None observed
 - d. Low spots to collect moisture - None observed

5. ANTENNAS AND FEEDLINES

Antenna Mounts and Antennas

1. Members (mounting and stabilizing)
 - a. Bent, broken, or cracked - None observed
 - b. Loose - None observed
 - c. Missing - None observed

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

- d. Loose and/or missing bolts - None observed
- 2. Adjustments secure and locked - Yes
- 3. Elements
 - a. Bent, broken, cracked or damaged - None observed
 - b. Loose - None observed
 - c. Missing - None observed
 - d. Loose and/or missing fasteners - None observed
- 4. Corrosion condition - None observed
- 5. Radomes and/or cover conditions - NA

Feed Lines (waveguide, coax, etc)

- 1. Hangers and supports
 - a. Condition - Good
 - b. Quality - Good
 - c. Corrosion condition - None observed
- 2. Flanges and seals - Visually checked
- 3. Line condition
 - a. Dents - None observed
 - b. Abrasions - None observed
 - c. Holes - None observed
 - d. Leaks - None observed
 - e. Jacket condition - Good
- 4. Grounds
 - a. Top ground strap bonded both ends - None
 - b. Bottom ground strap bonded both ends – None

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

6. COMMENTS AND RECOMMENDATIONS

- Overall the tower appears to be in good condition.
- The last section of the tower is bent (80 - 90ft). According to visual inspection, one of the legs broke and the weight of the top beacon bent the top section over in 90 degrees as showed on photo log, item 7 of this report.
- The bottom section of the structure, ranging from 70 to 80 feet, appears to be structurally sound. This presents an opportunity to potentially salvage the tower by removing the damaged top section and reinstalling the lighting system and lightning rod at an 80-foot height.
- We recommend performing a tower analysis after the removal of top section and reinstallation of lighting system to guarantee that the tower is not overloaded.
- A tower analysis is a critical step to ensure the structural integrity of the tower after the modifications. This analysis will help determine if the tower can safely accommodate the changes and identify any potential issues that need to be addressed. By conducting a thorough tower analysis, you can ensure the safety and reliability of the tower after the modifications.

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024

7. PHOTO LOG



Tower Base

45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



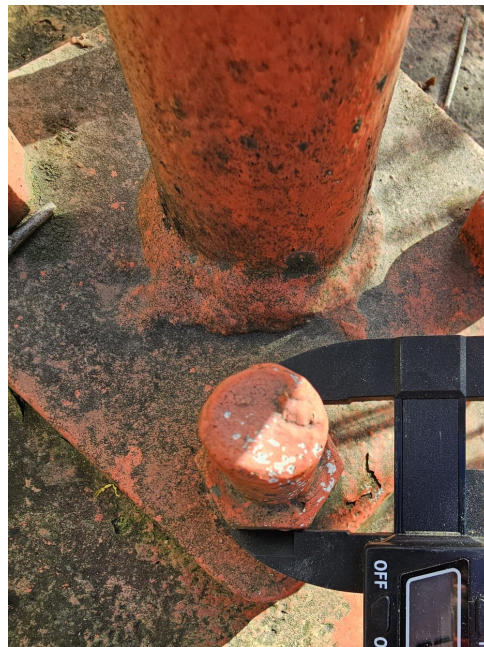
Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



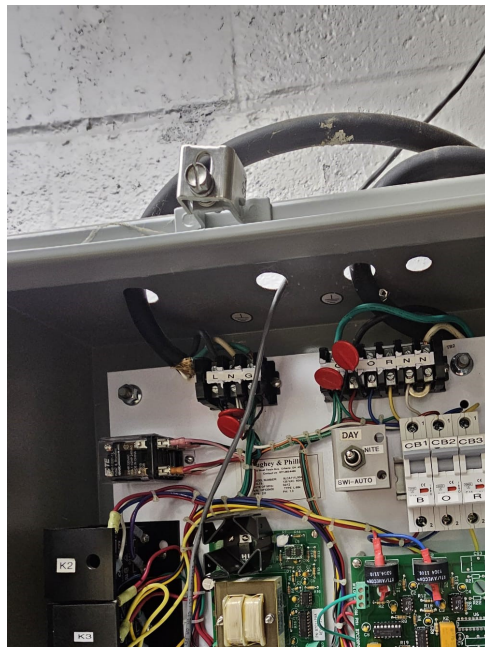
Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com



Elevated Consulting

Project No. USACE.101.2024

Client: US Army Corps of Engineers

Site: Wachusett Mountain Radio Tower

Date: 11/23/2024



45 Morningside Drive
Cortland – NY
13045

PO BOX 314
Homer – NY
13077

Phone: (315) 317-6074
www.elevatedcoconsultingusa.com