

## **PUBLIC INFORMATION MEETING NOTICE**

**Cellco Partnership d/b/a Verizon Wireless (“Cellco”) will host a Public Information Meeting (“PIM”) regarding its plans to construct a wireless telecommunications facility in the southeast portion of a 8.17-acre parcel of land off Mason Hill Road in Litchfield, Connecticut.**

**Cellco proposes to construct a 110-foot monopole tower and install associated equipment and a propane-fueled backup generator within a 50' x 50' fenced compound. A propane fuel tank will also be located within the facility compound. Cellco's antennas and remote radio heads would be located at the top of the tower. The tower and compound would be available to be shared by other wireless carriers and the Town's emergency service providers, if a need exists. The telecommunications facility described above is under the exclusive jurisdiction of the Connecticut Siting Council pursuant to the provisions of Section 16-50g et seq. of the General Statutes.**

**The PIM will be held as a part of the Litchfield Board of Selectman's regular meeting on Tuesday, December 6, 2022, at 5:30 p.m. at the Litchfield Fire House, 258 West Street, Litchfield, CT. The Meeting will held in person, via Remote Meeting by Live Internet Video Stream and by telephone.**

**Technical information regarding the proposed telecommunications facility is available for review in the Litchfield First Selectman's Office at Town Hall, 74 West Street, Litchfield, CT. Because the proposed facility is within 2,500 feet of the Town of Thomaston, copies of the technical information are also available at Thomaston Town Hall.**

**If you would like to receive technical information about the proposal and/or participate in the December 6, 2022 PIM meeting, please contact Kenneth C. Baldwin, Esq., Robinson & Cole LLP, 280 Trumbull Street, Hartford, CT 06103 at (860) 275-8345 or [kbaldwin@rc.com](mailto:kbaldwin@rc.com).**

KENNETH C. BALDWIN

280 Trumbull Street  
Hartford, CT 06103-3597  
Main (860) 275-8200  
Fax (860) 275-8299  
kbaldwin@rc.com  
Direct (860) 275-8345

Also admitted in Massachusetts  
and New York

November 18, 2022

«Name\_and\_Address»

**Re: PUBLIC INFORMATION MEETING NOTICE  
Cellco Partnership d/b/a Verizon Wireless – Proposed Telecommunications Facility  
off Mason Hill Road, Litchfield, Connecticut**

Dear «Salutation»:

During the Litchfield Board of Selectman's ("BOS") regular business meeting on Tuesday, December 6, 2022, Cellco Partnership d/b/a Verizon Wireless ("Cellco") will host a Public Information Session to discuss its plans to construct a new wireless telecommunications facility on property off Mason Hill Road in Litchfield (the "Property").

The BOS meeting will commence at 5:30 P.M. and will be held in-person at the Litchfield Fire House, 258 West Street, Litchfield, CT. The meeting will also be available via Zoom Live Internet Video Stream. Zoom Live Internet Video Stream is available here:

Join Zoom Meeting

<https://us02web.zoom.us/j/88198466950?pwd=UG9hOGExU0NnRmVRdi91RWlrVHM5dz09>

Meeting ID: 881 9846 6950

Passcode: 986469

The proposed telecommunications facility would be located in the southeast portion of the Property. At this site, Cellco proposes to construct a 110-foot monopole tower within a fenced compound. Cellco's antennas, remote radio heads and related equipment will be located at the top of the new tower. Additional equipment, a propane-fueled backup generator and a 500-gallon propane fuel tank will all be located near the base of the tower. A set of Project Plans for the proposed telecommunications facility are attached to this letter for your review.

# Robinson+Cole

November 18, 2022

Page 2

The proposed telecommunications facility is under the exclusive jurisdiction of the Connecticut Siting Council ("Council") pursuant to the provisions of the Public Utilities and Environmental Standards Act, Conn. Gen. Stat. § 16-50g et seq. During the BOS meeting, Cellco will provide the general public with information about the proposal prior to Cellco's filing of an application with the Council.

Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin", written in a cursive style.

Kenneth C. Baldwin

Attachments

**CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS**

**MASON HILL ROAD, LITCHFIELD, CT**

|     | <u>Property Address</u> | <u>Owner and Mailing Address</u>                                                    |
|-----|-------------------------|-------------------------------------------------------------------------------------|
| 1.  | 471 Mason Hill Road     | Richard J. Latouf<br>471 Mason Hill Road<br>Northfield, CT 06778                    |
| 2.  | 445 Mason Hill Road     | Frank and Lisa Simone<br>445 Mason Hill Road<br>Northfield, CT 06778                |
| 3.  | 408 Mason Hill Road     | Martha J. Soliday<br>408 Mason Hill Road<br>Northfield, CT 06778                    |
| 4.  | 352 Mason Hill Road     | Mark Voluckas<br>352 Mason Hill Road<br>Northfield, CT 06778                        |
| 5.  | 282 Mason Hill Road     | Donald and Dianne Voluckas<br>282 Mason Hill Road<br>Northfield, CT 06778           |
| 6.  | 170 Mason Hill Road     | Joseph D. Masi and Margaret Raymond<br>33 Pleasantview Street<br>Oakville, CT 06779 |
| 7.  | 76 Mason Hill Road      | Joyce S. Williams<br>420 Michelle Lane South<br>Thomaston, CT 06787                 |
| 8.  | 125 Atwood Heights      | Ronda M. Hannon<br>125 Atwood Heights<br>Thomaston, CT 06787                        |
| 9.  | 115 Atwood Heights      | Marcus Waters and Shannon McClary<br>115 Atwood Heights<br>Thomaston, CT 06787      |
| 10. | 103 Atwood Heights      | Michael Hults<br>103 Atwood Heights<br>Thomaston, CT 06787                          |

|     | <u>Property Address</u> | <u>Owner and Mailing Address</u>                                                                              |
|-----|-------------------------|---------------------------------------------------------------------------------------------------------------|
| 11. | 95 Atwood Heights       | Marcia R. Curtis<br>95 Atwood Heights<br>Thomaston, CT 06787                                                  |
| 12. | 85 Atwood Heights       | Angelino Distasi<br>85 Atwood Heights<br>Thomaston, CT 06787                                                  |
| 13. | 75 Atwood Heights       | Joseph and Brian Tyrian<br>75 Atwood Heights<br>Thomaston, CT 06787                                           |
| 14. | 65 Atwood Heights       | Robert T. Savoy<br>65 Atwood Heights<br>Thomaston, CT 06787                                                   |
| 15. | 57 Atwood Heights       | James F. Grenier<br>57 Atwood Heights<br>Thomaston, CT 06787                                                  |
| 16. | 47 Atwood Heights       | David H. and Cynthia B. Baldwin<br>Baldwin Family Revocable Trust<br>47 Atwood Heights<br>Thomaston, CT 06787 |
| 17. | 35 Atwood Heights       | David and Lise Levesque<br>35 Atwood Heights<br>Thomaston, CT 06787                                           |
| 18. | 195 Atwood Road         | Ruth P. Hopkins<br>195 Atwood Road<br>Thomaston, CT 06787                                                     |
| 19. | 511 Litchfield Street   | United States of America<br>350 Branch Road<br>Thomaston, CT 06787                                            |
| 20. | 52 Penfield Drive       | Gregory and Elizabeth Dobos<br>52 Penfield Drive<br>Thomaston, CT 06787                                       |
| 21. | 49 Penfield Drive       | Ronald Verdosci, Jr.<br>49 Penfield Drive<br>Thomaston, CT 06787                                              |

CELLCO PARTNERSHIP D/B/A  
VERIZON WIRELESS  
LITCHFIELD SE  
PUBLIC INFORMATION MEETING

Litchfield Board of Selectmen

December 6, 2022





**Site Location Map**

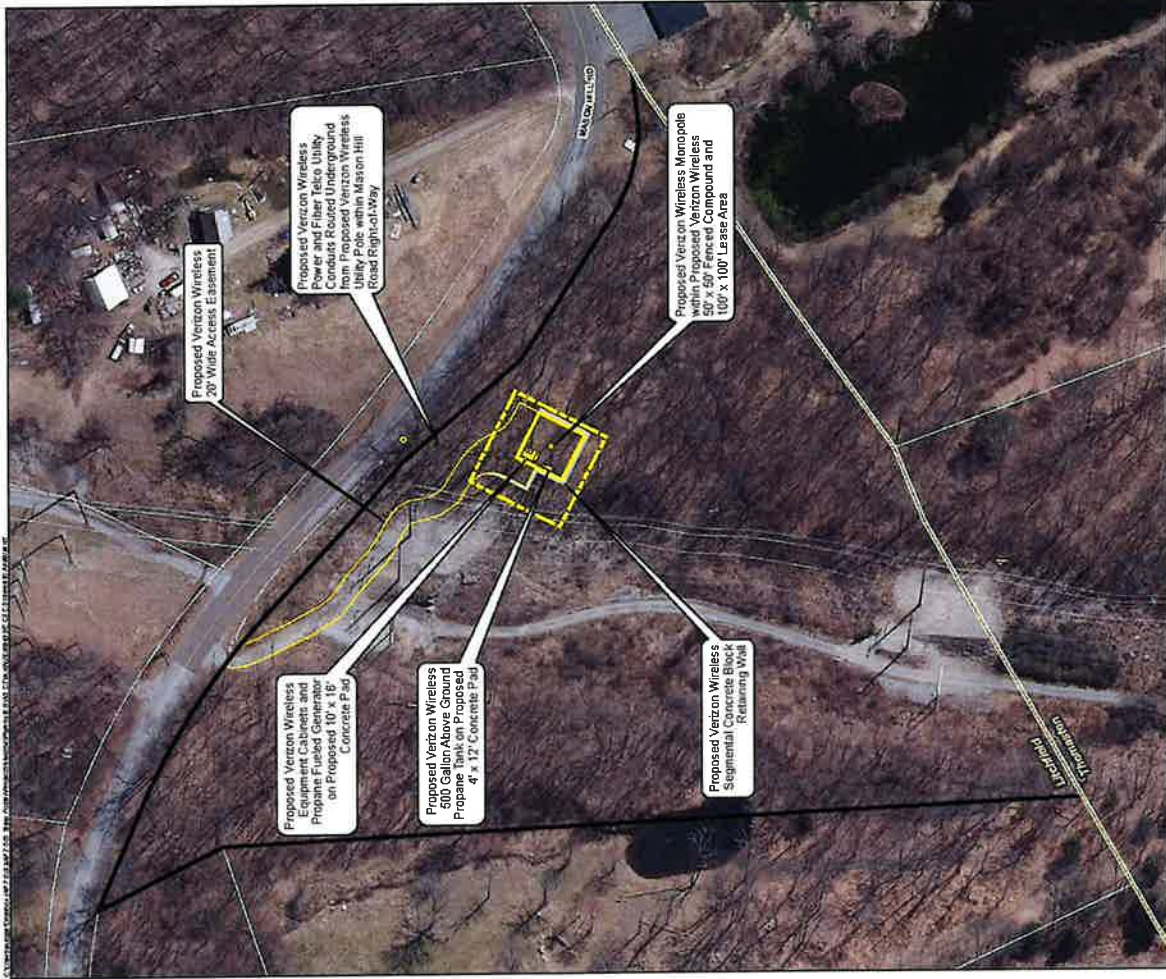
Proposed Wireless  
Telecommunications Facility  
Litchfield SE CT  
Mason Hill Road  
Northfield, Connecticut



- Legend**
- Site
  - Subject Property
  - Municipal Boundary
  - Approximate Parcel Boundary



Aerial Imagery  
Aerial Imagery Source: CT GEO 2015 Imagery  
Map Data: November 2022



**Site Schematic**  
**Proposed Wireless**  
**Telecommunications Facility**  
**Litchfield SE CT**  
**Mason Hill Road**  
**Northfield, Connecticut**

**Legend**

- Proposed Verizon Wireless Lease Area
- Proposed Verizon Wireless Compound
- Proposed Verizon Wireless Access Easement
- Proposed Verizon Wireless Equipment
- Proposed Verizon Wireless Retaining Wall
- Proposed Verizon Wireless Contour
- Proposed Verizon Wireless Utility Pole
- Subject Property
- Approximate Parcel Boundary
- Municipal Boundary

North Arrow

Scale: 0 50 100 Feet

**verizon**  
 KILL POINTE  
 THE WIRELESS CONNECTION





Verizon  
Regional Center Bldg.  
10000 Woodland Ave  
Northfield, CT 06778

Calico Partnership d/b/a Verizon Wireless  
CENTEX  
10000 Woodland Ave  
Northfield, CT 06778

Mapon Hill Road  
Northfield, CT 06778  
LITCHFIELD SE CT

DATE: 07/1/20  
SCALE: AS SHOWN  
JOB NO: 2006017  
ABUTTERS MAP AND LIST

### ABUTTERS LIST

| PANEL ID    | ADDRESS            | OWNER                          | OWNER ADDRESS                            |
|-------------|--------------------|--------------------------------|------------------------------------------|
| 206-10-003  | 471 MADON HILL RD  | LATOUF RICHARD J               | 471 MADON HILL RD, NORTHFIELD, CT 06778  |
| 206-10-008  | 440 MADON HILL RD  | SHARON FRANK J & LISA M        | 440 MADON HILL RD, NORTHFIELD, CT 06778  |
| 206-10-012  | 408 MADON HILL RD  | TELLAMY MARTIN J               | 408 MADON HILL RD, NORTHFIELD, CT 06778  |
| 206-10-013A | 380 MADON HILL RD  | VALERIAN MARK                  | 380 MADON HILL RD, NORTHFIELD, CT 06778  |
| 206-10-013  | 350 MADON HILL RD  | VALERIAN MARK                  | 350 MADON HILL RD, NORTHFIELD, CT 06778  |
| 206-10-014  | 170 MADON HILL RD  | VALERIAN MARK                  | 170 MADON HILL RD, NORTHFIELD, CT 06778  |
| 08-01-21    | 78 MADON HILL RD   | JOSEPH D. WARD & MARGARET WARD | 33 PELUSIAPUR STREET, GARVILLE, CT 06778 |
| 08-01-22    | 128 ATWOOD HEDGERS | WILLIAM JAYE S                 | 405 MIDDLE LAKE DR, THOMASTON, CT 06787  |
| 08-01-21    | 118 ATWOOD HEDGERS | HARRIS ROBERT                  | 118 ATWOOD HEDGERS, THOMASTON, CT 06787  |
| 08-01-20    | 100 ATWOOD HEDGERS | WATERS MARJORIE & MICHAEL      | 100 ATWOOD HEDGERS, THOMASTON, CT 06787  |
| 08-01-18    | 88 ATWOOD HEDGERS  | CLAYTON MARCO                  | 88 ATWOOD HEDGERS, THOMASTON, CT 06787   |
| 08-01-17    | 70 ATWOOD HEDGERS  | CECILIA ANDRINO                | 70 ATWOOD HEDGERS, THOMASTON, CT 06787   |
| 08-01-16    | 60 ATWOOD HEDGERS  | TRACY JOSEPH & BIANCA          | 60 ATWOOD HEDGERS, THOMASTON, CT 06787   |
| 08-01-15    | 47 ATWOOD HEDGERS  | ROBERT J                       | 47 ATWOOD HEDGERS, THOMASTON, CT 06787   |
| 08-01-14    | 37 ATWOOD HEDGERS  | ROBERT J                       | 37 ATWOOD HEDGERS, THOMASTON, CT 06787   |
| 08-01-13    | 24 ATWOOD HEDGERS  | ROBERT J                       | 24 ATWOOD HEDGERS, THOMASTON, CT 06787   |
| 08-01-08    | 100 ATWOOD RD      | ROBERT J                       | 100 ATWOOD RD, THOMASTON, CT 06787       |
| 08-01-01    | 611 HEDGERS ST     | UNITED STATES OF AMERICA       | 611 HEDGERS ST, THOMASTON, CT 06787      |
| 08-01-02    | 52 HEDGERS DR      | DOUG BERRY J & EUGENIE         | 52 HEDGERS DR, THOMASTON, CT 06787       |
| 08-01-01    | 48 HEDGERS DR      | VERONICA RONALD JR             | 48 HEDGERS DR, THOMASTON, CT 06787       |



**ABUTTERS MAP REFERENCE NOTE**  
PROPERTY LINES ARE BASED ON RECORDS FROM THE TOWN OF NORTHFIELD, CT AND THE TOWN OF THOMASTON, CT ON THE DATE OF THE DRAWING.

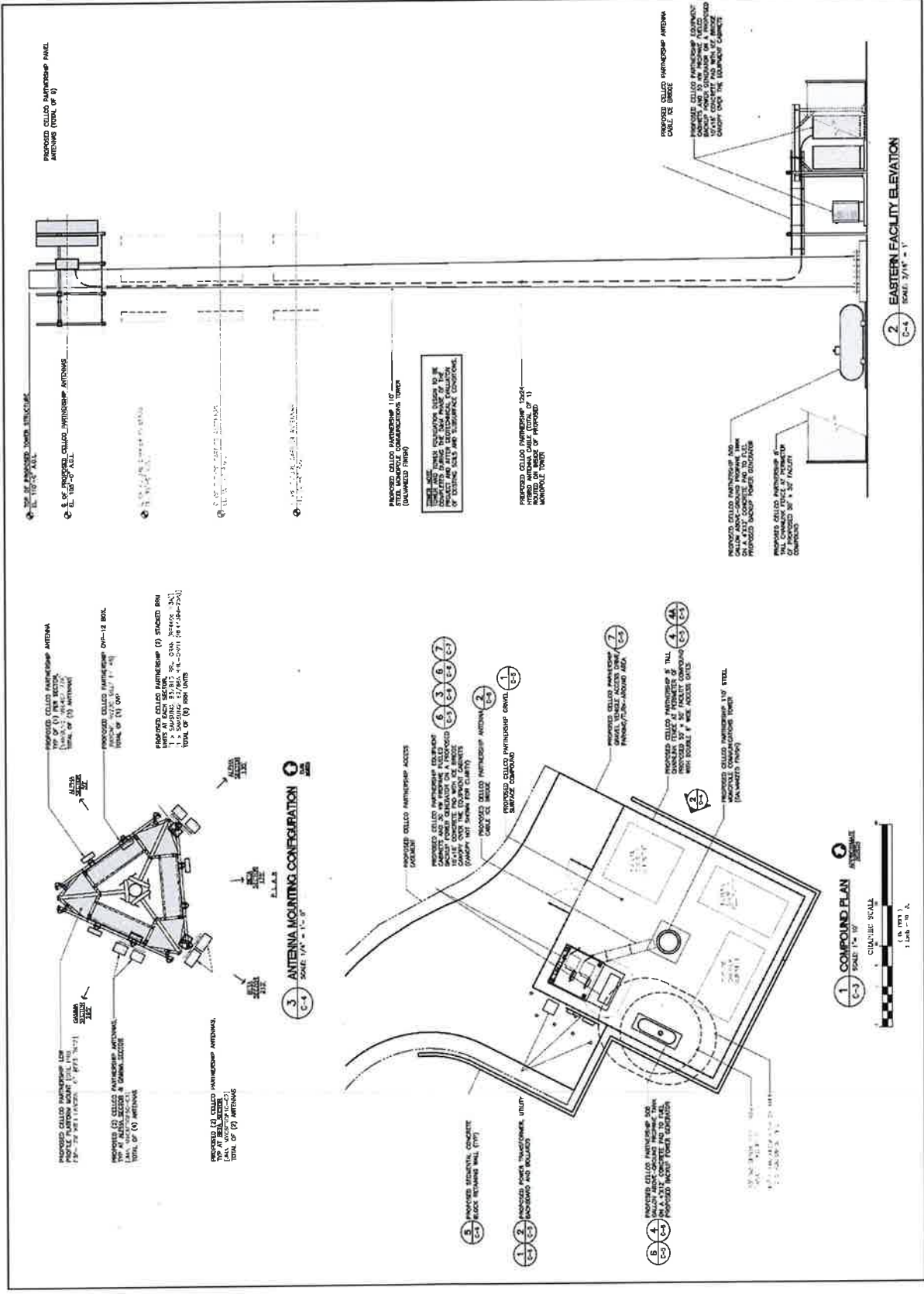


**1 ABUTTERS MAP**  
DATE: 07/1/20  
SCALE: 1"=100'

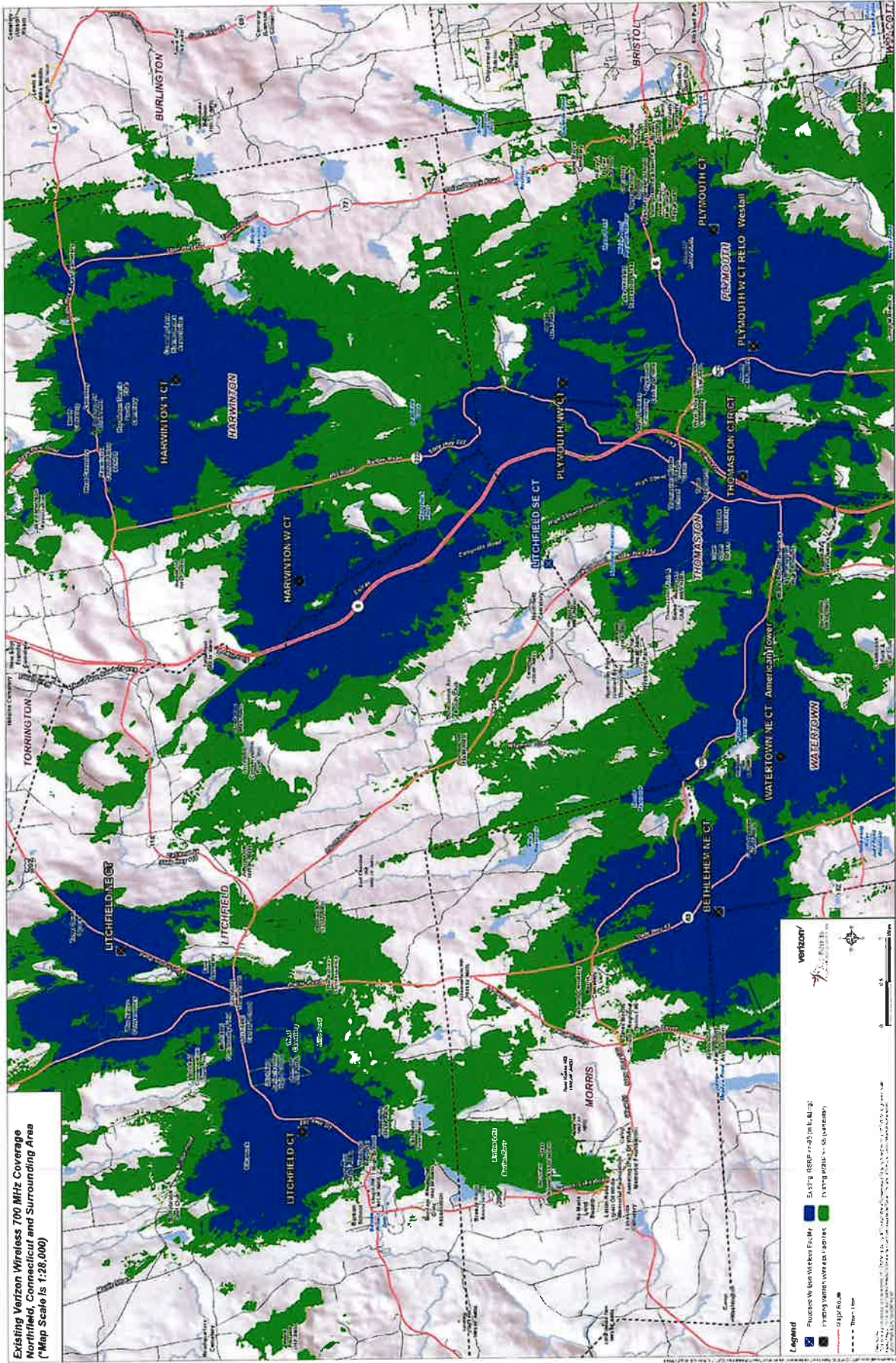
GRAPHIC SCALE  
1" = 100'  
0 10 20 30 FEET

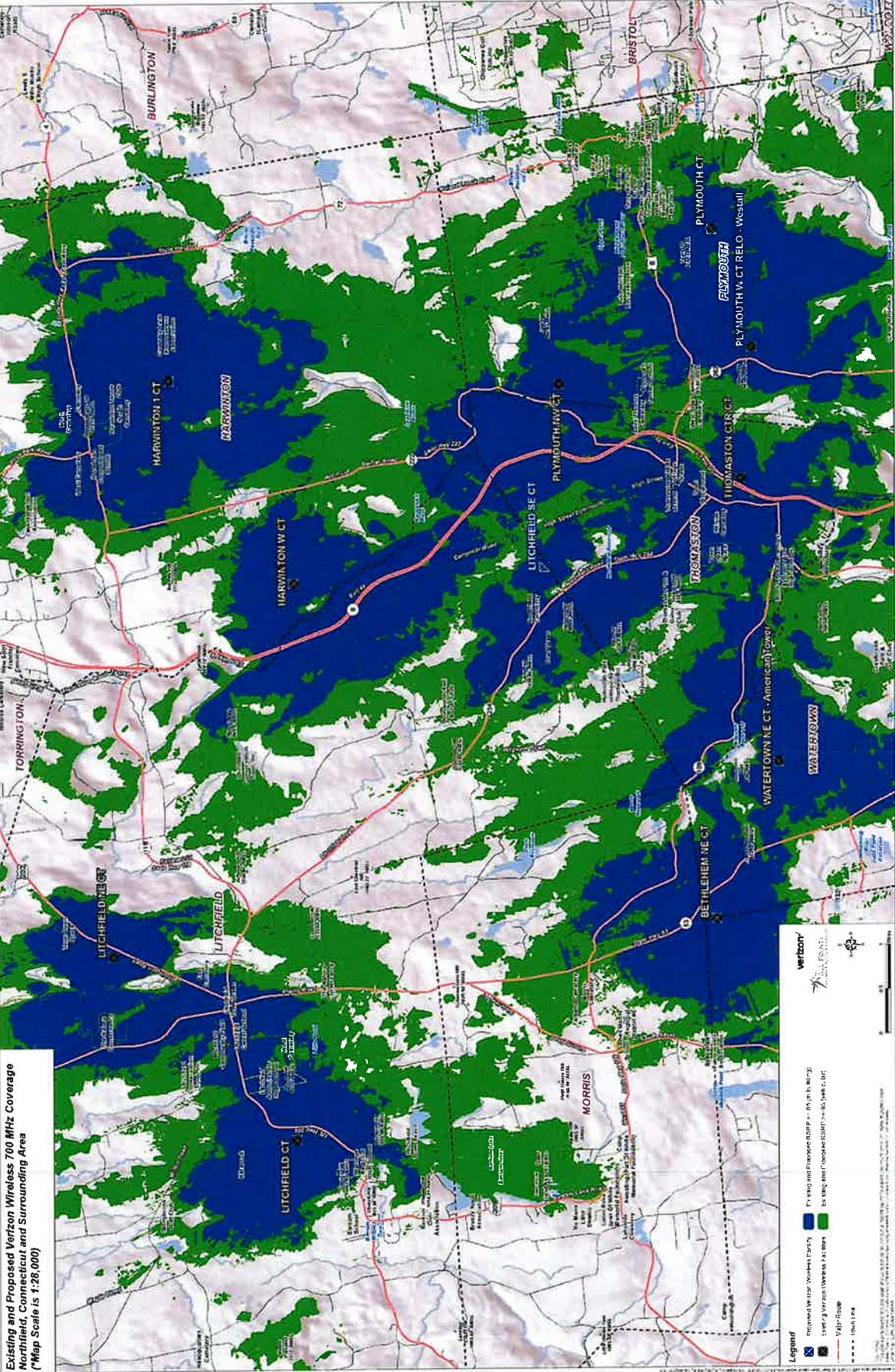


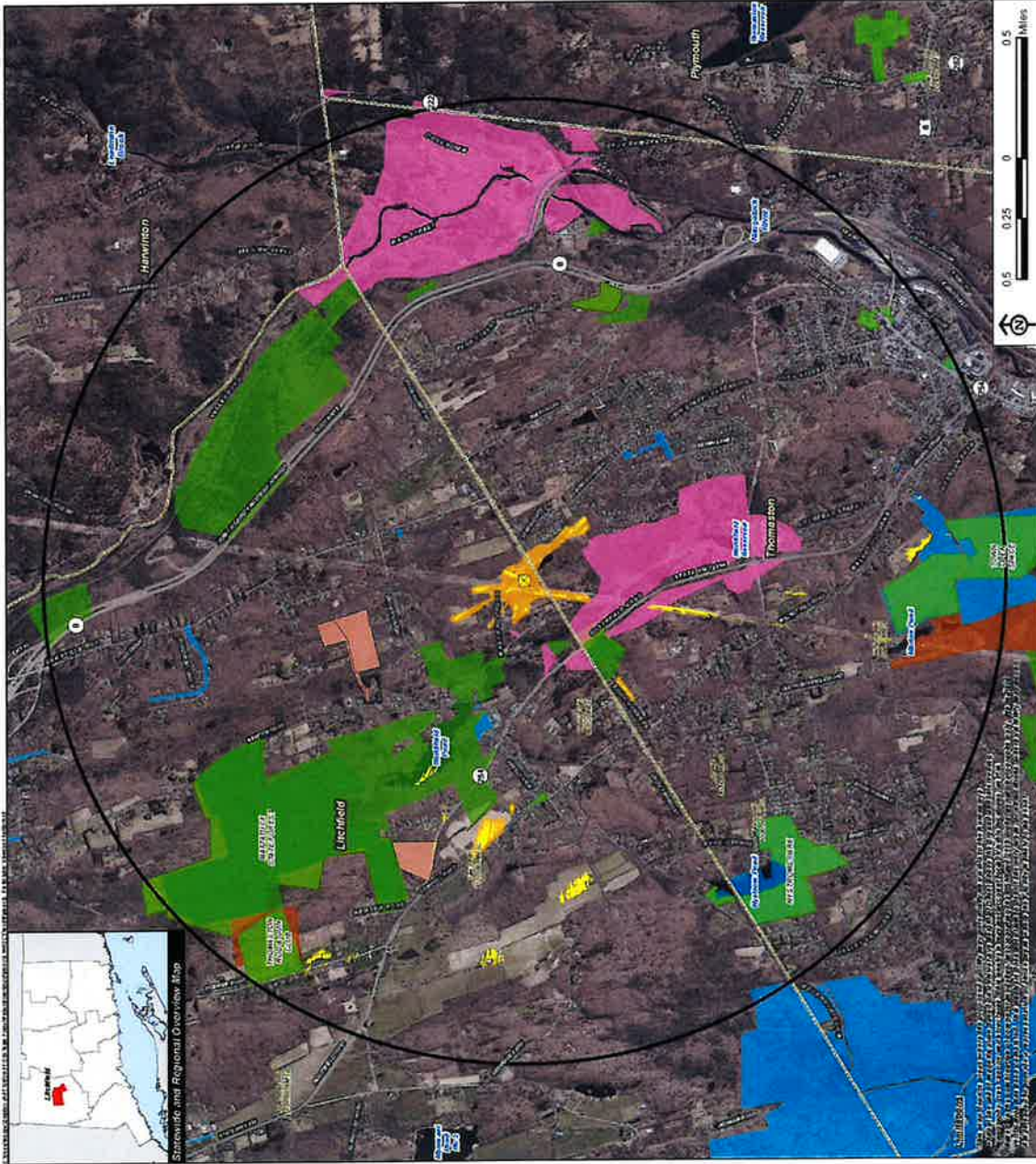
|                                                             |  |                                                                               |  |
|-------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|
|                                                             |  |                                                                               |  |
| Verizon<br>NETWORKS ENGINEER R.L.                           |  | CENTEK<br>PROJECT MANAGER                                                     |  |
| DATE: 07/17/2013<br>TIME: 10:00 AM<br>DRAWING NO.: 10000001 |  | PROJECT: LITCHFIELD SE CT<br>NORTHFIELD, CT 06778                             |  |
| SHEET: 1 OF 1<br>SCALE: AS SHOWN                            |  | CLIENT: Verizon Wireless<br>PROJECT: LITCHFIELD SE CT<br>NORTHFIELD, CT 06778 |  |
| FACILITY ELEVATION AND ANTENNA MOUNTING CONFIG              |  | C-4<br>DRAWING NO. 1 OF 1                                                     |  |



Existing Verizon Wireless 700 MHz Coverage  
 Northfield, Connecticut and Surrounding Area  
 (\*Map Scale is 1:25,000)







Statewide and Regional Overview Map



## Preliminary Viewshed Analysis Map

Mason Hill Road  
Northfield, Connecticut

Proposed facility height is 110 feet AGL  
Forest canopy height is derived from LiDAR data  
Study area encompasses a two-mile radius and includes 6,042 acres  
Information provided on this map has not been field verified  
Base Map Source: 2019 Aerial Photograph (CTECCO)  
Map Date: October, 2022

- Legend**
- Proposed Site
  - Study Area (2 Mile Radius)
  - Prescribed Fire-based Visibility (11 Acres)
  - Areas of Potential Seasonal Visibility (44 Acres)
  - Municipal Boundary
  - Trail
  - State Highway
  - DEEP Boat Launches
  - Municipal and Private Open Space Property
  - State Forestland
  - Protected Open Space Property
  - Federal
  - Land Trust
  - Municipal
  - Private
  - State

**Data Sources:**

**Physical Geography / Land Use Data**  
A digital surface model (DSM) was created from the data of Connecticut 2016 LiDAR LAS data. The DSM updates the national and state features on the Earth's surface.  
**Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP.**  
**Scenic Forests: CT DOT State Scenic Highways (SSH), Municipal Scenic Forests (MSF), and State Scenic Forests (SSF).**  
**Protected Open Space Property**  
Connecticut Department of Energy and Environmental Protection (DEEP) Open Space Property (May 2017). Forest Open Space (FOS), Municipal and Private Open Space (MPOS), DEEP Boat Launches (DLB).  
**Connecticut Forest & Park Management, Connecticut Open Space Inventory**

**DEEP:** Connecticut Department of Energy and Environmental Protection

**CTDOT:** Connecticut Department of Transportation

**MSF:** Municipal Scenic Forests

**SSH:** State Scenic Highways

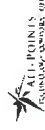
**SSF:** State Scenic Forests

**DLB:** DEEP Boat Launches

**FOS:** Forest Open Space

**MPOS:** Municipal and Private Open Space

**verizon**

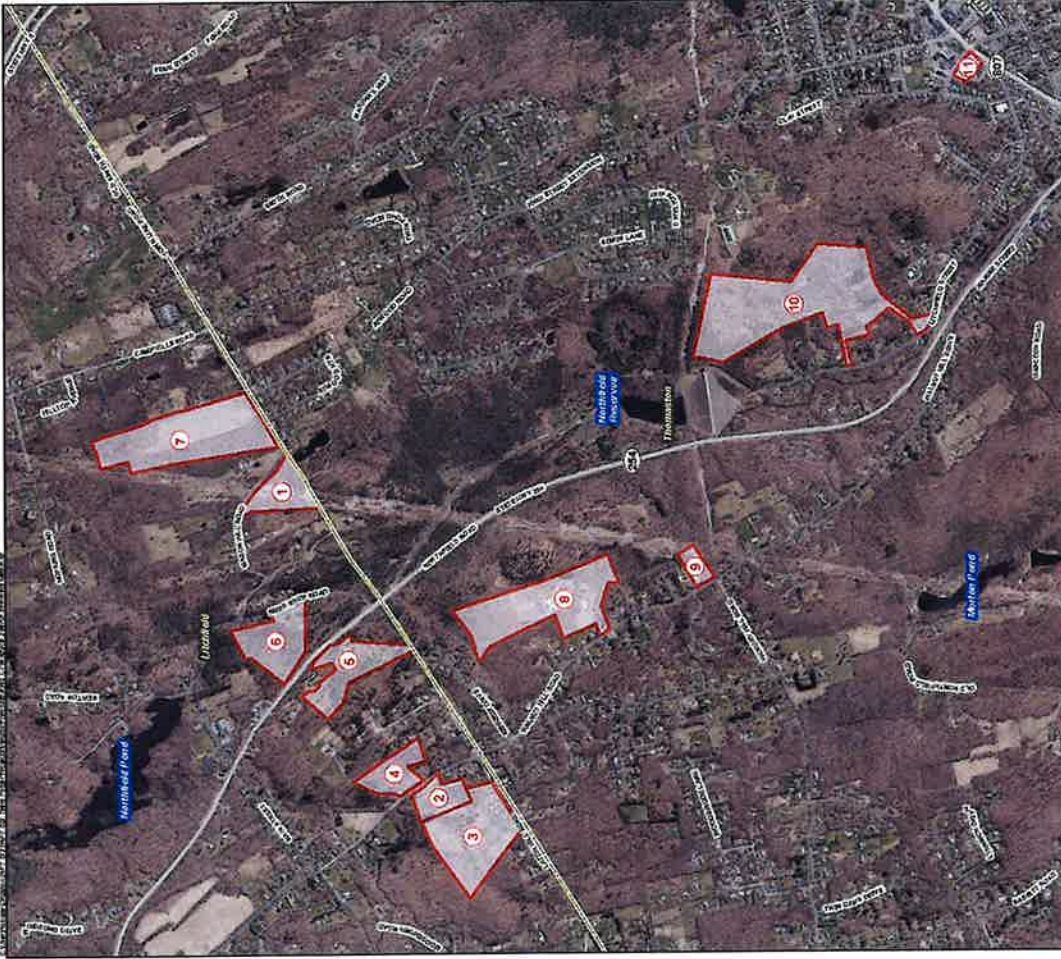


## **CT Siting Council Process**

- Exclusive Jurisdiction over certain “Facilities”, including Telecommunications Towers
- Council to Balance Need with the Environmental Effects of a project
- 90-day municipal consultation process
- 4 to 6-month application review process
- Completeness Review, Schedule, Requests for additional information
- Public Hearing Required
- Findings of Fact, Opinion and Decision and Order
- Post approval D&M Plan submission
- All Application information available at <https://portal.ct.gov/CSC>

Questions?





**Site Search Summary Map**

Proposed Wireless Telecommunications Facility  
 Litchfield, SE CT  
 Mason Hill Road  
 Northfield, Connecticut

- Sites Investigated:**
- 1 Mason Hill Road, Litchfield, CT (Parcel ID 258-10C-001)
  - 2 59 Old Northfield Road, Litchfield, CT (Parcel ID 256-033-006)
  - 3 12 Latin Hill Road, Litchfield, CT (Parcel ID 256-033-001)
  - 4 Old Northfield Road, Litchfield, CT (Parcel ID 256-017-025)
  - 5 728 Northfield Road, Litchfield, CT (Parcel ID 256-017-002)
  - 6 74 North Shop Road, Litchfield, CT (Parcel ID 256-016-004)
  - 7 170 Mason Hill Road, Litchfield, CT (Parcel ID 258-010-014)
  - 8 Old Northfield Hill, Thomaston, CT (Parcel ID 14-04-011)
  - 9 528 Walnut Hill, Thomaston, CT (Parcel ID 21-02-027)
  - 10 230 Litchfield Street, Thomaston, CT (Parcel ID 30-04-011)
  - 11 158 Main Street, Thomaston, CT (Parcel ID 48-19-007)

**Legend**

- Site Investigated
- Municipal Boundary

Scale: 1 inch = 1,000 feet  
 Map Date: February 2012



January 26, 2023

***Via First Class Mail***

Carol Bramley, Chairman  
Litchfield Planning & Building Commission  
P.O. Box 488  
Litchfield, CT 06759

**Re: Cellco Partnership d/b/a Verizon Wireless Proposed Telecommunication Facility off  
Mason Hill Road, Litchfield, Connecticut**

Dear Ms. Bramley:

This is in response to your January 3, 2023 letter regarding the proposed telecommunication facility off Mason Hill Road in the Northfield section of Litchfield.

For the most reliable information on radio frequency (“RF”) emissions including information on concerns for health effects, I would direct you and your commissioners to the FCC’s website. <https://www.fcc.gov/> This website maintains a robust database of information, reports and articles related to the wireless industry and RF emissions, safety standards and concerns for health effects.

As indicated on the far field analysis submitted with Cellco’s October 25, 2022 Technical Report, the RF power density levels and the corresponding percentage of general population maximum permissible exposure standards will vary at locations around the tower site based primarily on the distance an individual is from the base of the tower and the angle below the horizon for the antennas proposed at a center-line height of 105 feet. As indicated in the table on the first page of the Far Field Analysis, the maximum MPE percentage anywhere around the proposed tower site would be 10.2% of the FCC maximum permissible levels (approximately 10 times below the FCC safety standard). This maximum MPE percentage is reached at a distance of more than 372 feet from the base of the tower. At all other locations around the tower, the MPE percentage is less than 10.2%. The calculation of RF exposure at a point 6 feet above ground level at each of these distances is a requirement imposed by the Connecticut Siting Council and is consistent with the formula published by the FCC.

26458809-v1

# Robinson+Cole

Carol Bramley, Chairman.


January 26, 2023

Page 2

Finally, attached are the antenna specifications for the proposed Mason Hill Road facility which includes the horizontal and vertical antenna patterns for each.

Please feel free to contact me if you have any additional questions.

Sincerely,



Kenneth C. Baldwin

## Attachments

Copy to:

Spencer Musselman, Land Use Administrator

Shiva Gadasu, RF Engineer



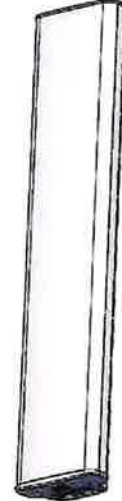
# MX06FRO840-02

## NWAV™ X-Pol Hex-Port Antenna

X-Pol Hex-Port 8 ft 40° Fast Roll Off:

2 ports 698-894 MHz and 4 ports 1695-2180 MHz

- Fast Roll Off (FRO™) azimuth beam pattern improves Intra- and Inter-cell SINR
- Excellent passive intermodulation (PIM) performance reduces harmful interference.
- Fully integrated (iRETs) with independent RET control for low and high bands for ease of network optimization
- SON-Ready array spacing supports beamforming capabilities
- Suitable for LTE/CDMA/PCS/UMTS/GSM air interface technologies
- Integrated Smart Bias-Ts reduce leasing costs



NWAV

### Fast Roll-Off antennas increase data throughput without compromising coverage

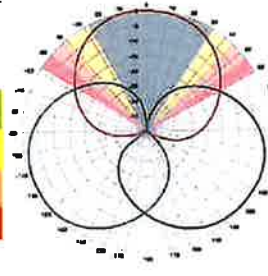
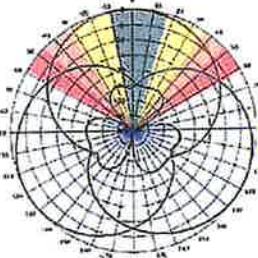
The horizontal beam produced by Fast Roll-Off (FRO) technology increases the Signal to Interference & Noise Ratio (SINR) by eliminating overlap between sectors

#### Non-FRO antenna

Large traditional antenna pattern overlap creates harmful interference.

JMA's FRO antenna pattern minimizes overlap, thereby minimizing interference.

#### JMA FRO antenna



| LTE throughput | SINR  | Speed (bps/Hz) | Speed Increase | CQI  |
|----------------|-------|----------------|----------------|------|
| Excellent      | >18   | >4.5           | 333+%          | 8-10 |
| Good           | 15-18 | 3.3-4.5        | 277%           | 6-7  |
| Fair           | 10-15 | 2-3.3          | 188%           | 4-6  |
| Poor           | <10   | <2             | 0%             | 1-3  |

The LTE radio automatically selects the best throughput based on measured SINR.

| Electrical specification (minimum/maximum)                | Ports 1, 2    |         | Ports 3, 4, 5, 6 |           |           |
|-----------------------------------------------------------|---------------|---------|------------------|-----------|-----------|
|                                                           | 698-798       | 824-894 | 1695-1880        | 1850-1990 | 1920-2180 |
| Frequency bands, MHz                                      |               |         |                  |           |           |
| Polarization                                              | ± 45°         |         | ± 45°            |           |           |
| Average gain over all tilts, dBi                          | 17.6          | 18.0    | 19.9             | 20.4      | 20.8      |
| Horizontal beamwidth (HBW), degrees                       | 42            | 37      | 39               | 36        | 34        |
| Front-to-back ratio, co-polar power @180°± 30°, dB        | >22.0         | >22.0   | >25.0            | >25.0     | >25.0     |
| X-Pol discrimination (CPR) at boresight, dB               | >18.0         | >15.0   | >18              | >18       | >15       |
| Sector power ratio, percent                               | <4.5          | <3.5    | <3.7             | <3.8      | <3.6      |
| Vertical beamwidth (VBW), degrees <sup>1</sup>            | 9.0           | 8.3     | 6.0              | 5.7       | 5.3       |
| Electrical downtilt (EDT) range, degrees                  | 2-12          | 2-12    | 0-9              |           |           |
| First upper side lobe (USLS) suppression, dB <sup>1</sup> | ≤-15.0        | ≤-15.0  | ≤-16.0           | ≤-16.0    | ≤-16.0    |
| Cross-polar isolation, port-to-port, dB <sup>1</sup>      | 25            | 25      | 25               | 25        | 25        |
| Max VSWR / return loss, dB                                | 1.5:1 / -14.0 |         | 1.5:1 / -14.0    |           |           |
| Max passive intermodulation (PIM), 2x20W carrier, dBc     | -153          |         | -153             |           |           |
| Max input power per any port, watts                       | 300           |         | 250              |           |           |
| Total composite power all ports, watts                    | 1500          |         |                  |           |           |

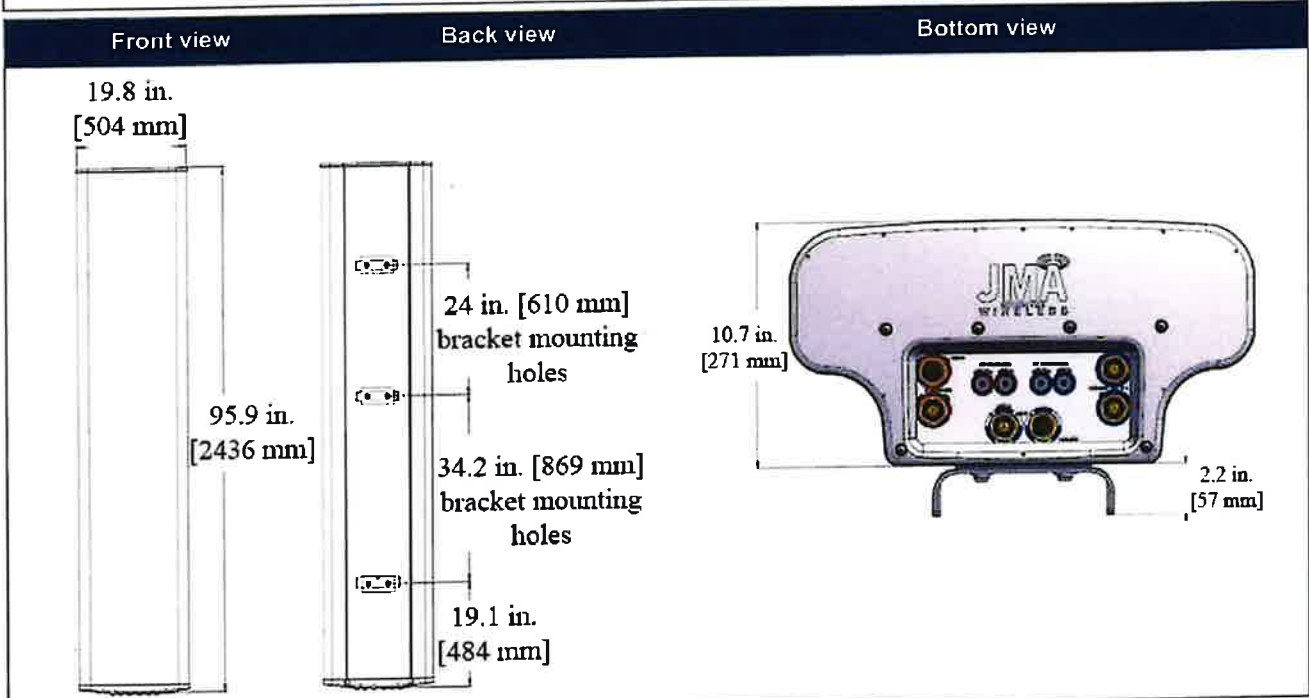
<sup>1</sup> Typical value over frequency and tilt



# MX06FRO840-02

## NWAV™ X-Pol Hex-Port Antenna

| Mechanical specifications                               |                                     |
|---------------------------------------------------------|-------------------------------------|
| Dimensions height/width/depth, inches (mm)              | 95.9/ 19.8/ 10.7 (2436/ 504/ 271)   |
| Shipping dimensions length/width/height, inches (mm)    | 106/ 26/ 15 (2692/ 660/ 381)        |
| No. of RF input ports, connector type, and location     | 6 x 4.3-10 female, bottom           |
| RF connector torque                                     | 96 lbf-in (10.85 N-m or 8 lbf-ft)   |
| Net antenna weight, lb (kg)                             | 98 (44.55)                          |
| Shipping weight, lb (kg)                                | 147 (66.82)                         |
| Antenna mounting and downtilt kit included with antenna | 91900318, 91900319 (middle bracket) |
| Net weight of the mounting and downtilt kit, lb (kg)    | 26 (11.82)                          |
| Range of mechanical up/down tilt                        | -2° to 12°                          |
| Rated wind survival speed, mph (km/h)                   | 150 (241)                           |
| Frontal and lateral wind loading @ 150 km/h, lbf (N)    | 213.4 (949.3), 105.4 (468.8)        |
| Equivalent flat plate @ 100 mph and Cd=2, sq ft         | 6.32                                |
| EPA frontal and lateral, ft², (m²)                      | 9.6 (0.89), 3.6 (0.33)              |

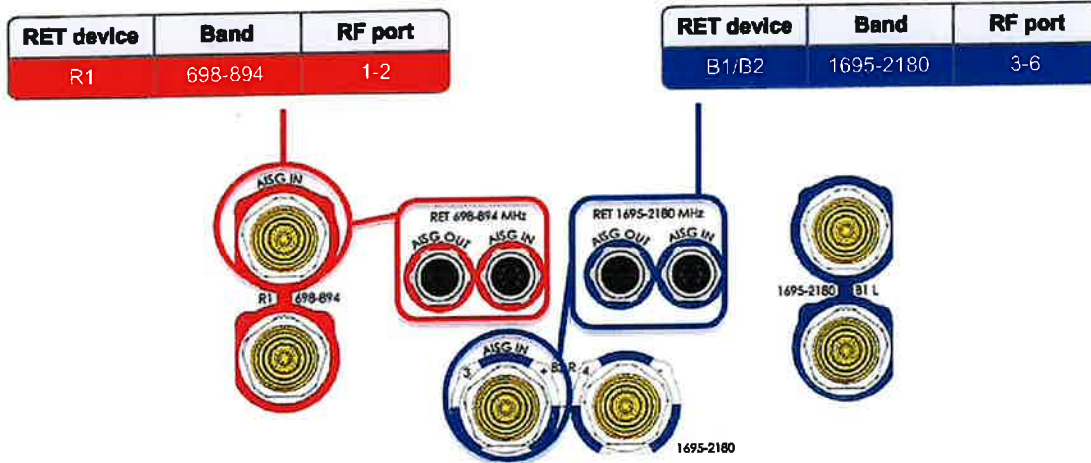


| Ordering information        |                                                           |
|-----------------------------|-----------------------------------------------------------|
| <b>Antenna model</b>        | <b>Description</b>                                        |
| MX06FRO840-02               | 8F X-Pol HEX FRO 40°, 2-12° / 0-9° RET, 4.3-10 & SBT      |
| <b>Optional accessories</b> |                                                           |
| AISG cables                 | M/F cables for AISG connections                           |
| PCU-1000 RET controller     | Stand-alone controller for RET control and configurations |

| Remote electrical tilt (RET 1000) information             |                                                           |
|-----------------------------------------------------------|-----------------------------------------------------------|
| RET location                                              | Integrated into antenna                                   |
| RET interface connector type                              | 8-pin AISG connector per IEC 60130-9                      |
| RET connector torque                                      | Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight) |
| RET interface connector quantity                          | 2 pairs of AISG male/female connectors                    |
| RET interface connector location                          | Bottom of the antenna                                     |
| Total no. of internal RETs (low bands)                    | 1                                                         |
| Total no. of internal RETs (high bands)                   | 1                                                         |
| RET input operating voltage, vdc                          | 10-30                                                     |
| RET max power consumption, idle state, W                  | ≤ 2.0                                                     |
| RET max power consumption, normal operating conditions, W | ≤ 13.0                                                    |
| RET communication protocol                                | AISG 2.0 / 3GPP                                           |

### RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF port as shown below:



### Array topology

| 3 sets of radiating arrays<br>R1: 698-894 MHz<br>B1: 1695-2180 MHz<br>B2: 1695-2180 MHz | <table border="1"> <thead> <tr> <th>Band</th> <th>RF port</th> </tr> </thead> <tbody> <tr> <td>1695-2180</td> <td>3-4</td> </tr> <tr> <td>698-894</td> <td>1-2</td> </tr> <tr> <td>1695-2180</td> <td>5-6</td> </tr> </tbody> </table> | Band    | RF port | 1695-2180 | 3-4 | 698-894 | 1-2 | 1695-2180 | 5-6 |  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|-----------|-----|---------|-----|-----------|-----|--|
|                                                                                         | Band                                                                                                                                                                                                                                   | RF port |         |           |     |         |     |           |     |  |
| 1695-2180                                                                               | 3-4                                                                                                                                                                                                                                    |         |         |           |     |         |     |           |     |  |
| 698-894                                                                                 | 1-2                                                                                                                                                                                                                                    |         |         |           |     |         |     |           |     |  |
| 1695-2180                                                                               | 5-6                                                                                                                                                                                                                                    |         |         |           |     |         |     |           |     |  |
|                                                                                         |                                                                                                                                                                                                                                        |         |         |           |     |         |     |           |     |  |



# MX06FRO860-03

## NWAV™ X-Pol Hex-Port Antenna

X-Pol Hex-Port 8 ft 60° Fast Roll Off antenna with independent tilt on 700 & 850 MHz:

2 ports 698-798, 824-894 MHz and 4 ports 1695-2180 MHz

- Fast Roll Off (FRO™) azimuth beam pattern improves Intra- and Inter-cell SINR
- Compatible with dual band 700/850 MHz radios with independent low band EDT without external diplexers
- Fully integrated (iRETs) with independent RET control for low and high bands for ease of network optimization
- SON-Ready array spacing supports beamforming capabilities
- Suitable for LTE/CDMA/PCS/UMTS/GSM air interface technologies
- Integrated Smart Bias-Ts reduce leasing costs

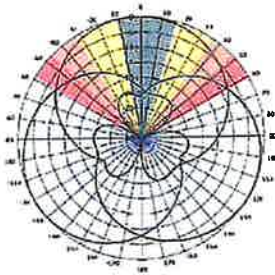


NWAV

### Fast Roll-Off antennas increase data throughput without compromising coverage

The horizontal beam produced by Fast Roll-Off (FRO) technology increases the Signal to Interference & Noise Ratio (SINR) by eliminating overlap between sectors.

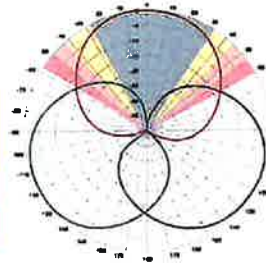
#### Non-FRO antenna



Large traditional antenna pattern overlap creates harmful interference.

JMA's FRO antenna pattern minimizes overlap, thereby minimizing interference.

#### JMA FRO antenna



| LTE throughput | SINR  | Speed (bps/Hz) | Speed Increase | CQI  |
|----------------|-------|----------------|----------------|------|
| Excellent      | >18   | >4.5           | 333+%          | 8-10 |
| Good           | 15-18 | 3.3-4.5        | 277%           | 6-7  |
| Fair           | 10-15 | 2-3.3          | 100%           | 4-6  |
| Poor           | <10   | <2             | 0%             | 1-3  |

The LTE radio automatically selects the best throughput based on measured SINR.

| Electrical specification (minimum/maximum)                | Ports 1, 2    |         | Ports 3, 4, 5, 6 |           |           |
|-----------------------------------------------------------|---------------|---------|------------------|-----------|-----------|
|                                                           | 698-798       | 824-894 | 1695-1880        | 1850-1990 | 1920-2180 |
| Frequency bands, MHz                                      |               |         |                  |           |           |
| Polarization                                              | ± 45°         |         | ± 45°            |           |           |
| Average gain over all tilts, dBi                          | 15.3          | 14.5    | 17.6             | 17.9      | 18.2      |
| Horizontal beamwidth (HBW), degrees                       | 60.0          | 53.5    | 55.0             | 55.0      | 55.5      |
| Front-to-back ratio, co-polar power @180°± 30°, dB        | >22.0         | >21.0   | >25.0            | >25.0     | >25.0     |
| X-Pol discrimination (CPR) at boresight, dB               | >18.0         | >15.0   | >18              | >18       | >15       |
| Sector power ratio, percent                               | <4.5          | <3.5    | <3.7             | <3.8      | <3.6      |
| Vertical beamwidth (VBW), degrees <sup>1</sup>            | 9.0           | 8.3     | 6.0              | 5.5       | 5.5       |
| Electrical downtilt (EDT) range, degrees                  | 2-12          | 2-12    | 0-9              |           |           |
| First upper side lobe (USLS) suppression, dB <sup>1</sup> | ≤-15.0        | ≤-15.0  | ≤-16.0           | ≤-16.0    | ≤-16.0    |
| Cross-polar isolation, port-to-port, dB <sup>1</sup>      | 25            | 25      | 25               | 25        | 25        |
| Max VSWR / return loss, dB                                | 1.5:1 / -14.0 |         | 1.5:1 / -14.0    |           |           |
| Max passive intermodulation (PIM), 2x20W carrier, dBc     | -153          |         | -153             |           |           |
| Max input power per any port, watts                       | 300           |         | 250              |           |           |
| Total composite power all ports, watts                    | 1500          |         |                  |           |           |

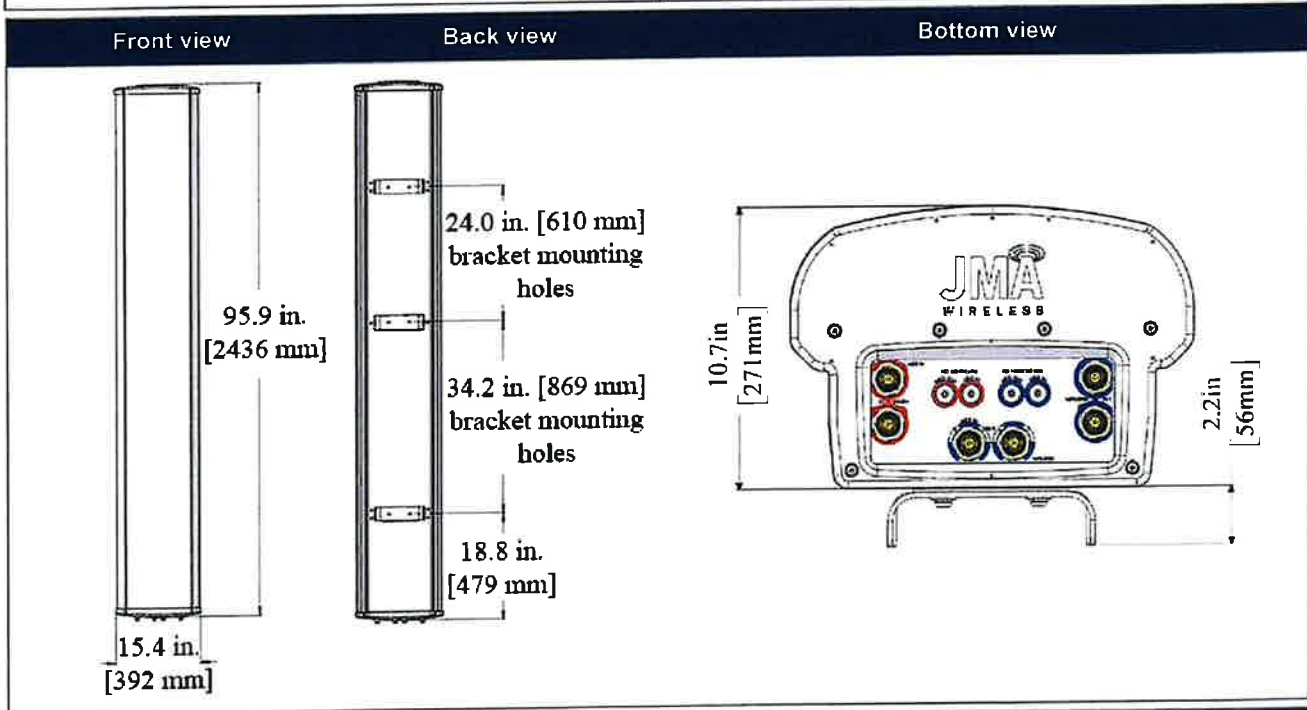
<sup>1</sup> Typical value over frequency and tilt



# MX06FRO860-03

## NWAV™ X-Pol Hex-Port Antenna

| Mechanical specifications                                    |                                     |
|--------------------------------------------------------------|-------------------------------------|
| Dimensions height/width/depth, inches (mm)                   | 95.9/ 15.4/ 10.7 (2436/ 392/ 273)   |
| Shipping dimensions length/width/height, inches (mm)         | 106/ 20/ 15 (2692/ 508/ 381)        |
| No. of RF input ports, connector type, and location          | 6 x 4.3-10 female, bottom           |
| RF connector torque                                          | 96 lbf-in (10.85 N·m or 8 lbf-ft)   |
| Net antenna weight, lb (kg)                                  | 65 (29.5)                           |
| Shipping weight, lb (kg)                                     | 95 (43.1)                           |
| Antenna mounting and downtilt kit included with antenna      | 91900318, 91900319 (middle bracket) |
| Net weight of the mounting and downtilt kit, lb (kg)         | 26 (11.82)                          |
| Range of mechanical up/down tilt                             | -2° to 12°                          |
| Rated wind survival speed, mph (km/h)                        | 150 (241)                           |
| Frontal and lateral wind loading @ 150 km/h, lbf (N)         | 141.4 (629.0), 105.8 (470.6)        |
| Equivalent flat plate @ 100 mph and Cd=2, sq ft              | 3.46                                |
| EPA frontal and lateral, ft <sup>2</sup> , (m <sup>2</sup> ) | 6.4 (0.59), 3.2 (0.30)              |



| Ordering information    |                                                                 |
|-------------------------|-----------------------------------------------------------------|
| Antenna model           | Description                                                     |
| MX06FRO860-03           | 8F X-Pol HEX FRO 60° independent tilt 700/850 RET, 4.3-10 & SBT |
| Optional accessories    |                                                                 |
| AISG cables             | M/F cables for AISG connections                                 |
| PCU-1000 RET controller | Stand-alone controller for RET control and configurations       |





# MX06FRO860-03

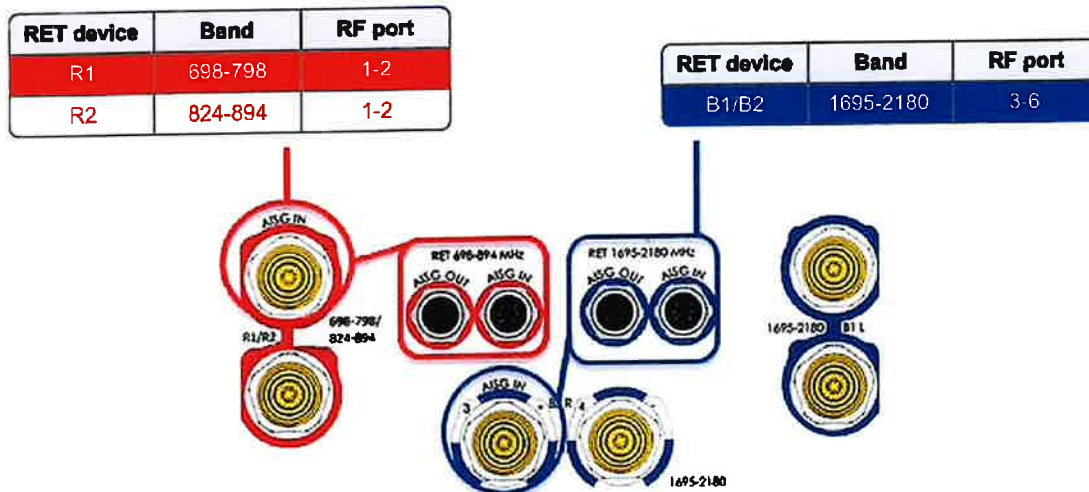
## NWAV™ X-Pol Hex-Port Antenna

### Remote electrical tilt (RET 1000) information

|                                                                  |                                                           |
|------------------------------------------------------------------|-----------------------------------------------------------|
| <b>RET location</b>                                              | Integrated into antenna                                   |
| <b>RET interface connector type</b>                              | 8-pin AISG connector per IEC 60130-9                      |
| <b>RET connector torque</b>                                      | Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight) |
| <b>RET interface connector quantity</b>                          | 2 pairs of AISG male/female connectors                    |
| <b>RET interface connector location</b>                          | Bottom of the antenna                                     |
| <b>Total no. of internal RETs (low bands)</b>                    | 2                                                         |
| <b>Total no. of internal RETs (high bands)</b>                   | 1                                                         |
| <b>RET input operating voltage, vdc</b>                          | 10-30                                                     |
| <b>RET max power consumption, idle state, W</b>                  | ≤ 2.0                                                     |
| <b>RET max power consumption, normal operating conditions, W</b> | ≤ 13.0                                                    |
| <b>RET communication protocol</b>                                | AISG 2.0 / 3GPP                                           |

### RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF port as shown below:



### Array topology

| <p>3 sets of radiating arrays</p> <p>R1/R2: 698-894 MHz<br/>B1: 1695-2180 MHz<br/>B2: 1695-2180 MHz</p> | <table border="1"> <thead> <tr> <th>Band</th> <th>RF port</th> </tr> </thead> <tbody> <tr> <td>1695-2180</td> <td>3-4</td> </tr> <tr> <td>698-894</td> <td>1-2</td> </tr> <tr> <td>1695-2180</td> <td>5-6</td> </tr> </tbody> </table> | Band | RF port | 1695-2180 | 3-4 | 698-894 | 1-2 | 1695-2180 | 5-6 |  |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|-----------|-----|---------|-----|-----------|-----|--|
| Band                                                                                                    | RF port                                                                                                                                                                                                                                |      |         |           |     |         |     |           |     |  |
| 1695-2180                                                                                               | 3-4                                                                                                                                                                                                                                    |      |         |           |     |         |     |           |     |  |
| 698-894                                                                                                 | 1-2                                                                                                                                                                                                                                    |      |         |           |     |         |     |           |     |  |
| 1695-2180                                                                                               | 5-6                                                                                                                                                                                                                                    |      |         |           |     |         |     |           |     |  |