STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION OF CELLCO PARTNERSHIP	:	PETITION NO. ____
D/B/A VERIZON WIRELESS FOR A	:	
DECLARATORY RULING ON THE NEED TO	:	
OBTAIN A SITING COUNCIL CERTIFICATE	:	
FOR THE INSTALLATION OF A WIRELESS	:	
TELECOMMUNICATIONS FACILITY AND	:	
CENTRALIZED RADIO ACCESS NETWORK	:	
HUB FACILITY AT 951 BANK STREET,	:	
NEW LONDON, CONNECTICUT	:	DECEMBER 3, 2019

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the establishment of a new wireless telecommunications facility and the installation of a Centralized Radio Access Network ("C-RAN") hub facility at 951 Bank Street in New London, Connecticut (the "Property"). The new Cellco wireless facility at the Property ("New London Relo Facility") would replace Cellco's existing wireless facility at 59 Westwood Drive in New London.

II. Factual Background

The Property is a 3.71-acre parcel in New London's General Commercial (C-1) zone district. The Property is surrounded by commercial and light industrial uses along Bank Street

and Westwood Avenue. *See* Attachment 1 – Site Vicinity and Site Schematic Maps (Aerial Photograph). The Property is home to Mike's Famous Harley Davidson dealership. The building currently supports an 80-foot narrow-profile lattice tower in the easterly portion of the roof.[1]

III. Proposed Construction Activity

A. New London Relo Facility

Cellco is licensed to provide wireless telecommunications services in the 700 MHz, 850 MHz, 1900 MHz and 2100 MHz frequency ranges in New London and throughout the State of Connecticut. The proposed New London Relo Facility will transmit in all of Cellco's frequency ranges.

The proposed New London Relo Facility will consist of a 50-foot monopole tower attached to a steel dunnage frame in the westerly portion of the roof of the building at the Property.[2] Cellco will install nine (9) panel-type antennas and nine (9) remote radio heads ("RRHs") at the top of the tower. Equipment associated with the New London Relo Facility will be located inside a portion of an existing building to the north of the tower location. Power and telephone service to the New London Relo Facility will extend from existing service inside the building. (*See* Cellco's Project Plans included in Attachment 2).

B. New London C-RAN Hub Facility

In addition to the existing New London Relo Facility, Cellco intends to install a C-RAN hub facility at the Property. The purpose of a C-RAN is to allow several existing cell sites in the

[1] The existing roof-top tower at the Property was previously used for radio dispatch services by the prior occupant of the building, the Coca-Cola Company. The existing tower is no longer in use.

[2] The overall height of the New London Relo tower, on a lower portion of the building's roof, will be 72.5' above ground level.

New London area (traditional macro cell sites and small cells), to connect to a centralized hub. By doing so, Cellco can deploy less cell site hardware at each individual facility location, giving it more flexibility in the selection of new cell site locations. This approach also allows Cellco to realize some cost savings by not having to deploy fiber connections, for example, from each individual cell site location back to the mobile telephone switching office (MTSO). C-RAN hub facilities can be established at existing cell sites or at other locations not currently used for telecommunications purposes.

Cellco will install its C-RAN hub equipment inside the same equipment room that will house the New London Relo Facility equipment. Cellco will also install a 100 kW natural gas-fueled backup generator on a concrete pad adjacent to Cellco's equipment space inside the building. The generator will provide backup power to both the New London Relo Facility and the C-RAN. Power, telephone and fiber optic service to the New London Relo and C-RAN facility will extend from existing service along Bank Street. Specifications for Cellco's antennas, RRHs and backup generator are included in Attachment 3.

IV. Discussion

A. The Proposed Installation of a Roof-Top Telecommunications Facility and C-RAN Will Not Have A Substantial Adverse Environmental Effect

The Public Utility Environmental Standards Act (the "Act"), C.G.S. § 16-50g et seq., provides for the orderly and environmentally compatible development of telecommunications towers in the state to avoid "a significant impact on the environment and ecology of the State of Connecticut." C.G.S. § 16-50g. To achieve these goals, the Act established the Council, and requires a Certificate of Environmental Compatibility and Public Need for the construction of cellular telecommunication towers "that may, as determined by the council, have a substantial adverse environmental effect". C.G.S. § 16-50k(a).

1. Physical Environmental Effects

Cellco respectfully submits that the installation of a roof-top tower supporting antennas and RRHs will not involve a significant alteration in the physical and environmental characteristics of the Property. All equipment associated with both the New London Relo Facility and C-RAN facility will be located inside a portion of the existing building.

2. Visual Effects

Portions of the New London Relo Facility tower may be visible from the Property and from developed portions of the surrounding commercial and industrial properties. Many of these areas will have year-round views of the tower. Views of the tower may expand beyond the immediate neighboring parcels during winter months when leaves are off the trees. A full Visual Assessment & Photo-Simulations ("Visual Assessment") is included in Attachment 4.

3. FCC Compliance

Radio frequency ("RF") emissions from the proposed installation will be well below the standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 5 are far field approximation tables that demonstrate that Cellco's New London Relo Facility will operate well within the FCC safety standards.

4. FAA Notification Not Required

Cellco has run a Federal Airways & Airspace Summary Report ("FAA Report") for the proposed New London Relo tower. (*See* Attachment 6). According to the FAA Report, notice of the FAA is required because the tower height exceeds the Notice Slope Criteria in FAR 77.9(b). A copy of the final FAA Determination will be provided to the Council upon receipt.

B. Notice to the City, Property Owner and Abutting Landowners

On December 3, 2019, a copy of this Petition was sent to New London's Mayor, Michael

Passero; Sybil Tetteh, New London's City Planner; and RL New London LLC, the owner of the Property. Copies of the letters sent to Mayor Passero, Ms. Tetteh and RL New London LLC are included in Attachment 7.

A copy of this Petition was also sent to the owners of land that abut the Property. A sample abutter's letter and the list of those abutting landowners to whom notice was sent is included in Attachment 8.

V. Conclusion

Based on the information provided above, Cellco respectfully requests that the Council issue a determination, in the form of a declaratory ruling, that the installation of a roof-top tower, supporting panel antennas and RRHs and related equipment and the installation of a C-RAN hub, described above, will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

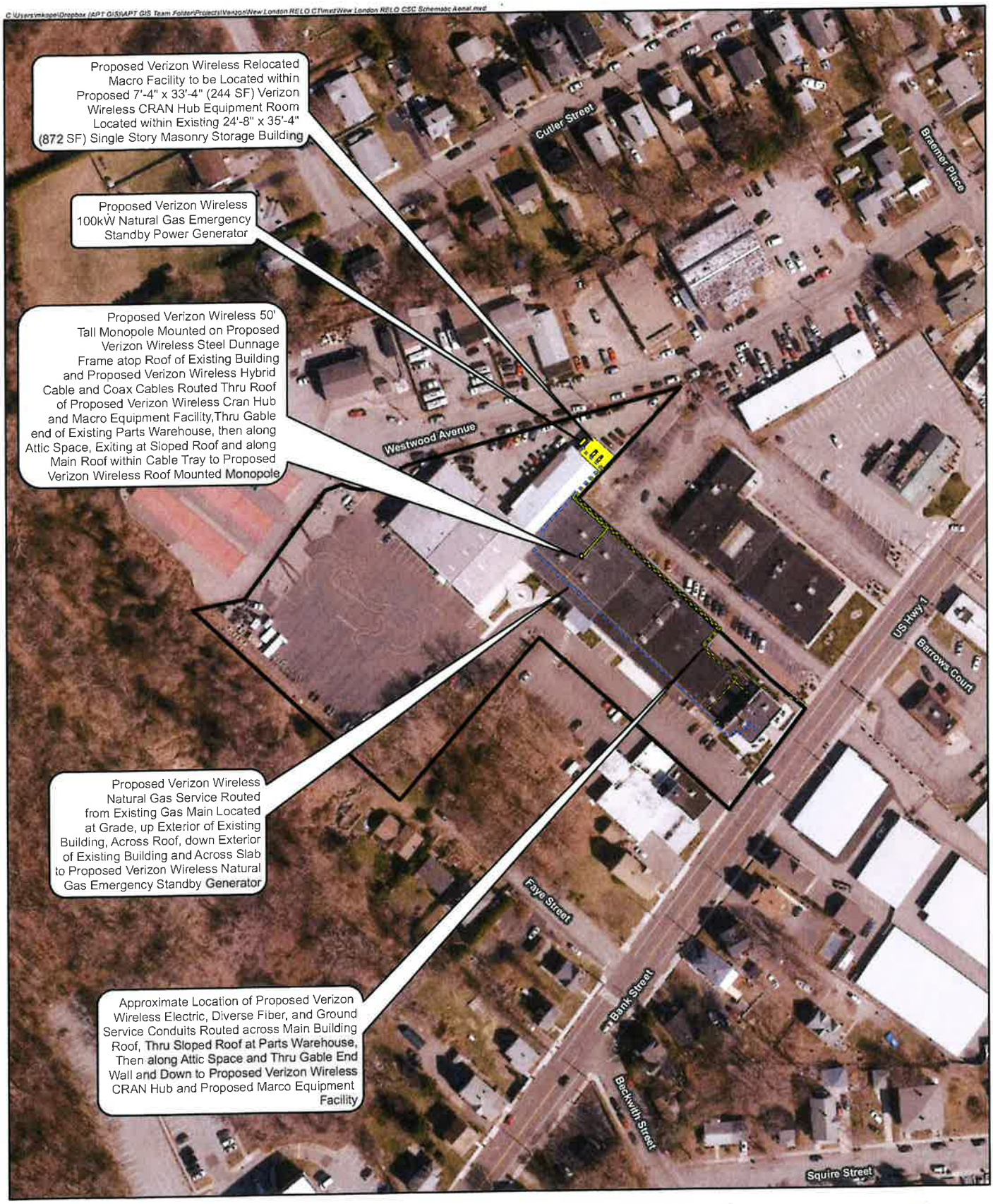
Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS

By _____

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200
Its Attorneys

ATTACHMENT 1



Legend

- Proposed Verizon Wireless Equipment
- Proposed Verizon Wireless Conduits
- Proposed Verizon Wireless Hybrid Cable
- Proposed Verizon Wireless Gas Line
- Subject Property
- Approximate Parcel Boundary

Map Notes:
Base Map Source: 2016 CT ECO Imagery
Map Scale: 1 inch = 150 feet
Map Date: November 2019

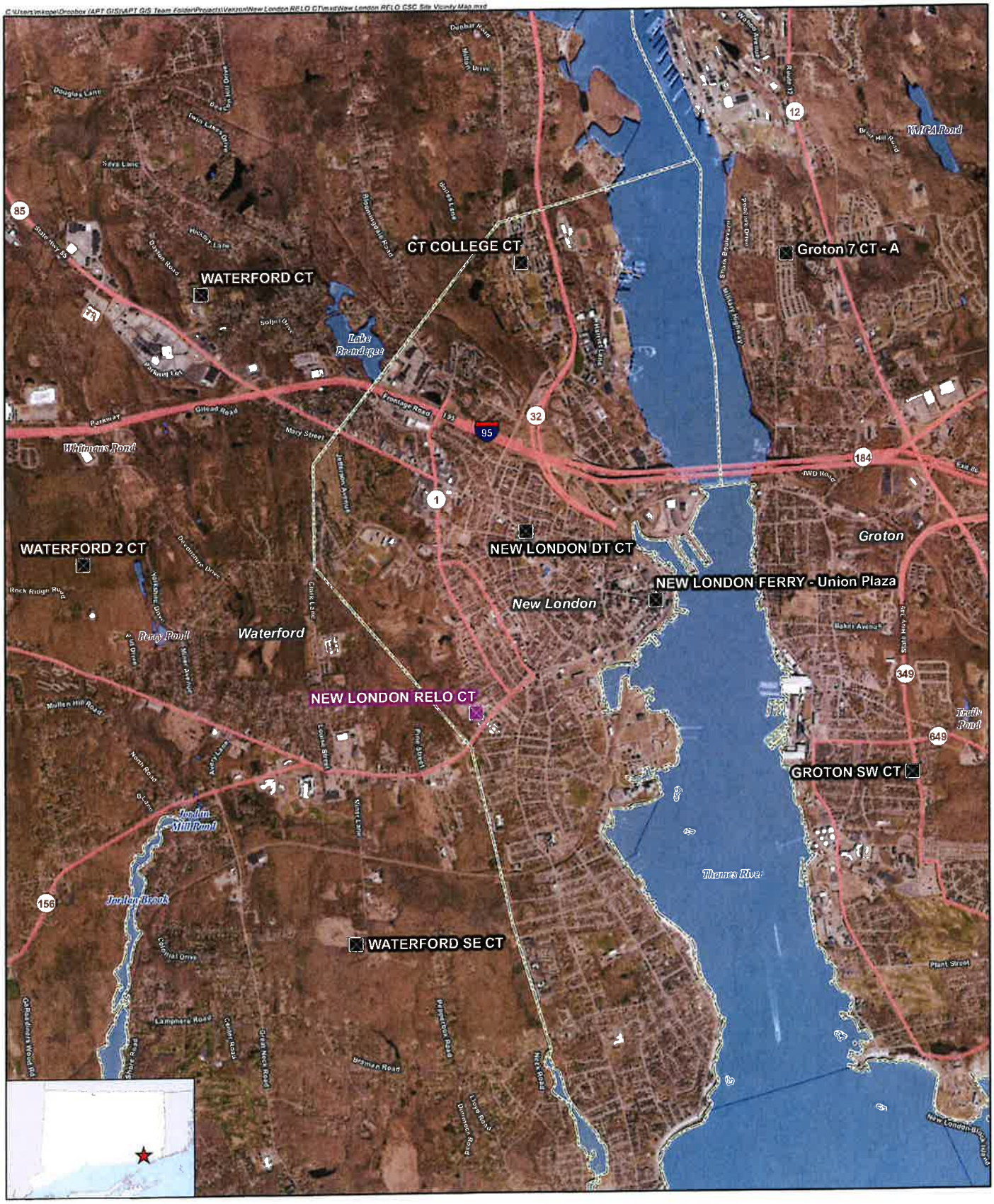
150 75 0 150 Feet

Site Schematic

Proposed Wireless Telecommunications Facility
New London Relo CT
951 Bank Street
New London, Connecticut

verizon

ALL-POINTS TECHNOLOGY CORPORATION



Site Vicinity Map

Proposed Wireless
Telecommunications Facility
New London Relo CT
951 Bank Street
New London, Connecticut

verizon

ALL-POINTS TECHNOLOGY CORPORATION

Base Map Source: ESRI World Imagery
Map Scale: 1 inch = 3,500 feet
Map Date: November 2019

ATTACHMENT 2

verizon

WIRELESS COMMUNICATIONS FACILITY

NEW LONDON RELO CT
951 BANK STREET
NEW LONDON, CT 06320

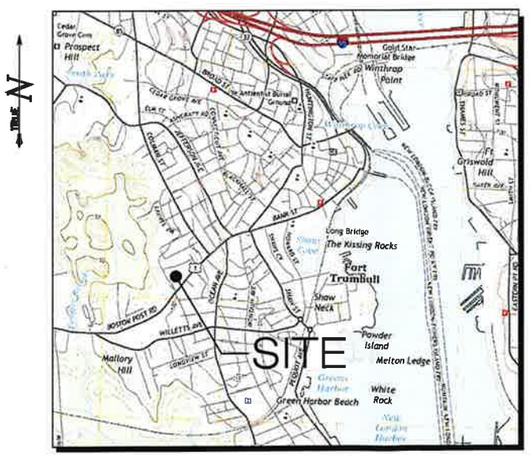
DRAWING INDEX

SITE DIRECTIONS

START: 20 ALEXANDER DRIVE
WALLINGFORD, CONNECTICUT 06492

END: 951 BANK STREET
NEW LONDON, CT 06320

1.	HEAD NORTH ON ALEXANDER DRIVE	0.2 MI
2.	TURN RIGHT ONTO BARNES INDUSTRIAL ROAD S	0.1 MI
3.	TURN RIGHT ONTO CT-68 E	2.7 MI
4.	TURN LEFT TO STAY ON CT-68 E	4.2 MI
5.	TURN LEFT ONTO CT-17 N / MAIN STREET	4.0 MI
6.	TURN RIGHT ONTO RANDOLPH ROAD	2.1 MI
7.	TURN RIGHT TO MERGE ONTO CT-9 S	20.8 MI
8.	USE LEFT TWO LANES TO MERGE ONTO I-95 N	10.6 MI
9.	KEEP RIGHT AT FORK TO STAY ON I-95 N	3.3 MI
10.	TAKE EXIT 82 FOR BROAD STREET / CT-85 TOWARD WATERFORD	0.2 MI
11.	TURN RIGHT ONTO CT-85 S / BROAD STREET	0.4 MI
12.	TURN RIGHT ONTO JEFFERSON AVENUE	1.0 MI
13.	TURN RIGHT ONTO COLMAN STREET	0.8 MI
14.	TURN RIGHT ONTO BANK STREET, DESTINATION WILL BE ON RIGHT	0.2 MI



LOCATION MAP
SCALE : 1" = 1000'-0"

SITE INFORMATION

VZ SITE NAME: NEW LONDON RELO CT
VZ PROJ. FUZE I.D.: 2539811
VZ LOCATION CODE: 469376
VZ PROJECT CODE: 20171656462

LOCATION: 951 BANK STREET
NEW LONDON, CT 06320

PROJECT SCOPE: PROPOSED INSTALLATION CONSISTS OF SIX (6) PANEL ANTENNAS, NINE (9) REMOTE RADIO HEADS (RRHs) & TWO (2) MAIN DISTRIBUTION BOXES (MDBs/OVP) MOUNTED TO NEW 50' TALL MONOPOLE ON A NEW STEEL DUNNAGE FRAME LOCATED AT ROOF LEVEL.

MAP/BLOCK/LOT: D15-118-133

LATITUDE: 41° 20' 46.51" N (41.346252° N)

LONGITUDE: 72° 06' 44.46" W (72.112351° W)

GROUND ELEVATION: 110.6'± AMSL

PROPERTY OWNER: RL NEW LONDON LLC
211 N MARKET STREET
WILMINGTON, DE 19801

APPLICANT: CELLCO PARTNERSHIP
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

LEGAL/REGULATORY COUNSEL: ROBINSON & COLE, LLP
KENNETH C. BALDWIN, ESQ.
280 TRUMBULL STREET
HARTFORD, CT 06103

ENGINEER CONTACT: ALL-POINTS TECHNOLOGY CORP.
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
(860) 663-1697

COORDINATES & GROUND ELEVATION INDICATED HEREIN WERE ESTABLISHED FROM AN FAA 1-A SURVEY CERTIFICATION, AS PREPARED BY MARTIN SURVEYING ASSOCIATES, LLC., DATED NOVEMBER 07, 2019.

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

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

PERMITTING DOCUMENTS

NO	DATE	REVISION
0	09/25/19	FOR REVIEW: JRM
1	11/07/19	FOR FILING: JRM
2	11/26/19	REVISED FOR FILING: JRM
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419

OWNER: RL NEW LONDON LLC
ADDRESS: 211 N MARKET STREET
WILMINGTON, DE 19801

NEW LONDON RELO CT

SITE ADDRESS: 951 BANK STREET
NEW LONDON, CT 06320

APT FILING NUMBER: CT141NB0730

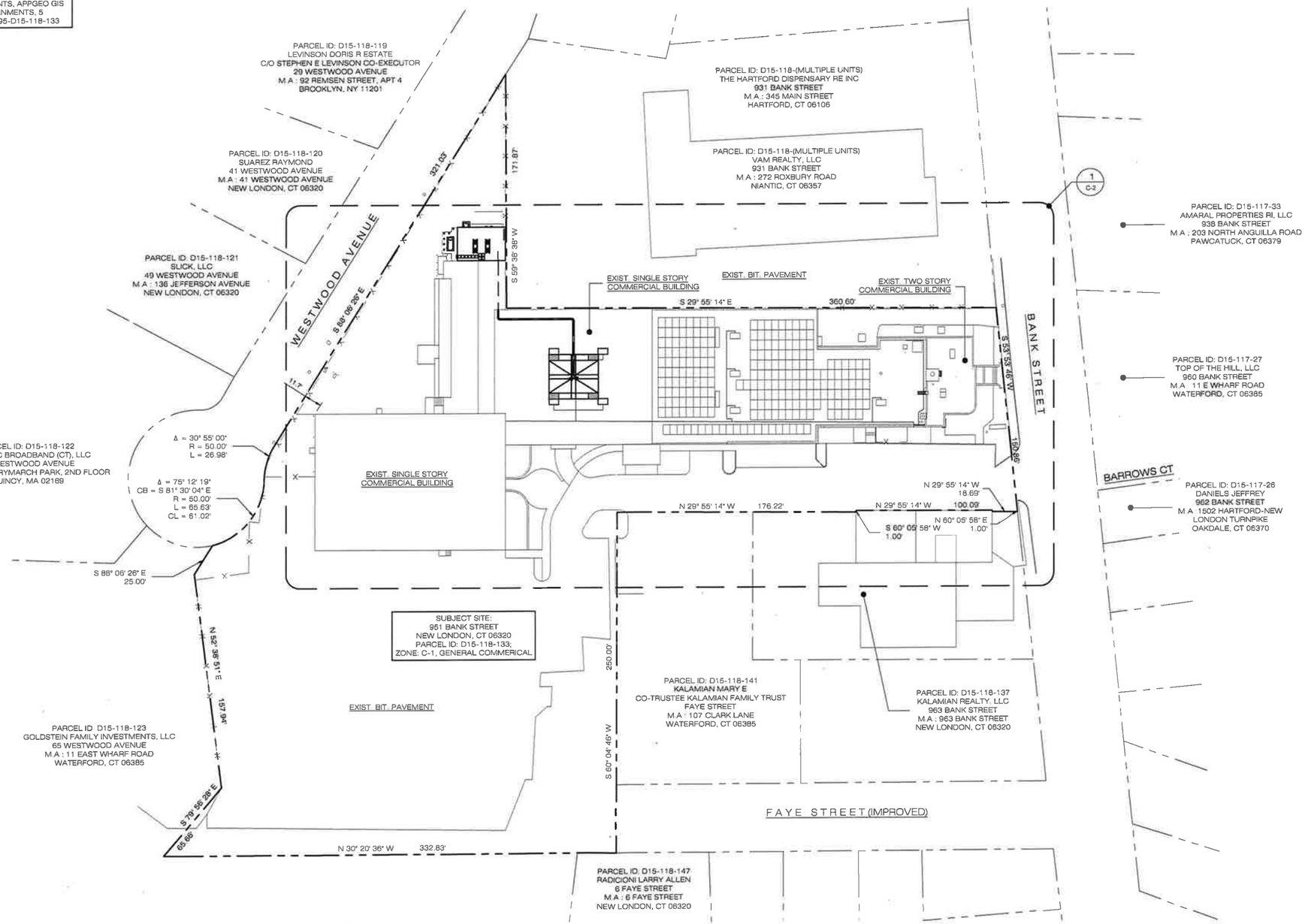
DRAWN BY: THK/JM
DATE: 09/25/19
CHECKED BY: JRM

SHEET TITLE:
TITLE SHEET & INDEX

SHEET NUMBER:
T-1

ABUTTERS MAP REFERENCE:

1. "ALTA/ACSM LAND TITLE SURVEY, PROPERTY OF COCA-COLA BOTTLING COMPANY OF SOUTHEASTERN NEW ENGLAND, INC., 951 BANK STREET (WESTWOOD AVENUE AND FAYE STREET), NEW LONDON, CONNECTICUT," PREPARED BY DICESARE - BENTLEY ENGINEERS, INC., 100 FORT HILL ROAD, GROTON, CT 06340, DATED: AUGUST 16, 2006, SCALE: 1"=30'.
2. "SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS, APPGEO GIS MAP," SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS, 5 CONNECTICUT AVENUE, NORWICH, CT 06360; PARCEL ID: 95-D15-118-133



1 C-1 **ABUTTERS MAP**
SCALE: 1" = 40'-0"

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

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

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4		
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6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

OWNER: RL NEW LONDON LLC
ADDRESS: 211 N MARKET STREET WILMINGTON, DE 19801

NEW LONDON RELO CT

SITE ADDRESS: 951 BANK STREET NEW LONDON, CT 06320

APT FILING NUMBER: CT141NB9730

DRAWN BY: THK/JM
DATE: 09/25/19
CHECKED BY: JRM

SHEET TITLE:
ABUTTERS MAP

SHEET NUMBER:
C-1

PROP. CELLCO PARTNERSHIP 100kW NATURAL GAS FIRED EMERGENCY STANDBY POWER GENERATOR (SHARED BETWEEN PROP. CRAN HUB & PROP. MACRO EQUIPMENT FACILITY).

PROP. CELLCO PARTNERSHIP ROOF MOUNTED CONDENSING UNITS.

PROP. CELLCO PARTNERSHIP RELOCATED MACRO FACILITY TO BE LOCATED WITHIN PROP. 7'-4"=X33'-4"= (244= SF) CELLCO PARTNERSHIP CRAN HUB EQUIPMENT ROOM LOCATED WITHIN EXIST. 24'-8"x35'-4" (872=S.F.) SINGLE STORY MASONRY STORAGE BUILDING.

PROP. CELLCO PARTNERSHIP (1) HYBRID CABLE & (6) 1⅝" COAX CABLES ROUTED THRU ROOF OF PROP. CELLCO PARTNERSHIP CRAN HUB & PROP. MACRO EQUIPMENT FACILITY, THRU GABLE END OF EXIST. PARTS WAREHOUSE, THEN ALONG ATTIC SPACE, EXITING AT SLOPED ROOF AND ALONG MAIN ROOF WITHIN CABLE TRAY TO PROP. CELLCO PARTNERSHIP ROOF MOUNTED MONOPOLE TOWER.

NOTES:

1. POWER, TELCO AND GROUNDING SHALL BE ROUTED FROM EXISTING DEMARCS WITHIN OR ADJACENT TO THE SUBJECT BUILDING. FINAL UTILITY DEMARC LOCATIONS AND ROUTING TO BE DETERMINED DURING CONSTRUCTION DOCUMENT PHASE OF THE PROJECT AND WILL BE COORDINATED WITH BUILDING OWNER AND LOCAL UTILITY COMPANY REQUIREMENTS. CONDUITS TO BE PAINTED TO MATCH EXIST. BUILDING (WHERE APPLICABLE)
2. REFER TO STRUCTURAL FEASIBILITY LETTER, PREPARED BY BL COMPANIES ON BEHALF OF ALL-POINTS TECHNOLOGY CORPORATION, P.C. & VERIZON WIRELESS, DATED DECEMBER 11, 2017. THE SUBJECT BUILDING SHALL REQUIRE STRUCTURAL REINFORCEMENT PRIOR TO THE INSTALLATION OF THE PROPOSED ROOFTOP DUNNAGE FRAME AND MONOPOLE TOWER (TO BE PROVIDED UNDER SEPARATE COVER).

ABBREVIATION LIST:
AGL = ABOVE GROUND LEVEL;
AMSL = ABOVE MEAN SEA LEVEL;
ARL = ABOVE ROOF LEVEL;
OVP = OVER VOLTAGE PROTECTION;
RRH = REMOTE RADIO HEAD;
BCLC = BITUMINOUS CONC. LIP CURB.

APPROX. LOCATION OF PROP. CELLCO PARTNERSHIP ELECTRIC, DIVERSE FIBER AND GROUND SERVICE CONDUITS ROUTED ACROSS MAIN BUILDING ROOF, THRU SLOPED ROOF AT PARTS WAREHOUSE, THEN ALONG ATTIC SPACE AND THRU GABLE END WALL AND DOWN TO PROP. CELLCO PARTNERSHIP CRAN HUB & PROP. MACRO EQUIPMENT FACILITY.

EXIST. UTILITY POLE CL&P #62

EXIST. ROOFTOP SOLAR PANEL ARRAY (TYP.)

EXIST. ELECTRICAL EQUIP. AT GRADE, TYP.

EXIST. BIT. ACCESS DRIVE

WESTWOOD AVENUE

BANK STREET

EXIST. SINGLE STORY COMMERCIAL BUILDING

EXIST. TWO STORY COMMERCIAL BUILDING

α = 0°±

α = 30°±

β = 160°±

γ = 260°±

PROP. CELLCO PARTNERSHIP ROOFTOP MOUNTED STEEL DUNNAGE FRAME

EXIST. ROOFTOP MOUNTED RTU TO BE RELOCATED TO PROP. CELLCO PARTNERSHIP DUNNAGE FRAME ,TYP (4PL)

PROP. CELLCO PARTNERSHIP 50' STEEL MONOPOLE TOWER MOUNTED ON PROP. STEEL DUNNAGE FRAME ATOP ROOF OF EXIST. SINGLE STORY BLDG. (T/ STEEL @ 3.33'± ARL) w/ (9) PROP. CELLCO PARTNERSHIP PANEL ANTENNAS (0°, 30°,160°, 260°), IN ADDITION TO (6) RRHs, (3) QUADPLEXERS & (1) 12 OVP MOUNTED ON LOW PROFILE PIPE MOUNTS.

PROP. CELLCO PARTNERSHIP NATURAL GAS SERVICE ROUTED FROM EXIST. GAS MAIN LOCATED AT GRADE, UP EXTERIOR OF EXIST. BUILDING, ACROSS ROOF, DOWN EXTERIOR OF EXIST. BUILDING AND ACROSS SLAB TO PROP. CELLCO PARTNERSHIP NATURAL GAS FIRED EMERGENCY STANDBY POWER GENERATOR.

EXIST. BUILDING SHOWROOM ENTRANCE

EXIST. BIT. ACCESS DRIVE

1 C-3

2 C-2

1 C-2 PARTIAL SITE PLAN
SCALE : 1/16" = 1'-0"

(IN FEET) 1 inch = 16 ft.

PROP. CELLCO PARTNERSHIP (9) PANEL ANTENNAS (0°, 30°,160°, 260°), MOUNTED TO PROP. MONOPOLE TOWER w/ LOW PROFILE PIPE MOUNTS.

T/ PROP. MONOPOLE @ 72.5'± AGL (183.1'± AMSL)

℄ PROP. CELLCO PARTNERSHIP PANEL ANTENNAS @ 69.5'± AGL (180.1'± AMSL)

℄ PROP. CELLCO PARTNERSHIP RRH & OVP MOUNT @ 62.0'± AGL (172.6'± AMSL)

PROP. CELLCO PARTNERSHIP (6) RRHs, (3) QUADPLEXERS & (1) 12 OVP MOUNTED TO PROP. MONOPOLE TOWER w/ LOW PROFILE PIPE MOUNTS

PROP. CELLCO PARTNERSHIP (1) HYBRID CABLE & (6) 1⅝" COAX CABLES ROUTED WITHIN PROP. MONOPOLE TOWER.

PROP. CELLCO PARTNERSHIP 50' STEEL MONOPOLE TOWER MOUNTED ON PROP. STEEL DUNNAGE FRAME (T/ STEEL -3.33'± ARL)

PROP. CELLCO PARTNERSHIP RELOCATED MACRO FACILITY TO BE LOCATED WITHIN PROP. 7'-4"=X33'-4"= (244± SF) CELLCO PARTNERSHIP CRAN HUB EQUIPMENT ROOM LOCATED WITHIN EXIST. 24'-8"x35'-4" (872±S.F.) SINGLE STORY MASONRY STORAGE BUILDING (BEYOND).

EXIST. INTERIOR STEEL SUPERSTRUCTURE BELOW PROP. DUNNAGE FRAME TO BE REINFORCED, TYP.

EXIST. RTUs TO BE RELOCATED TO PROP. DUNNAGE FRAME, TYP (4PL)

EXIST. WORKSHOP

T/ PROP. STEEL @ -23.0'± AGL

T/ EXIST. ROOF @ -18.8'± AGL (LOW PT)

T/ EXIST. TOWER @ 80.3'± AGL (188.5'± AMSL)

EXIST. ROOFTOP MOUNTED TOWER TO REMAIN.

T/ EXIST. PENTHOUSE = 41.8'± AGL (150.0'± AMSL)

T/ EXIST. COPING = 31.7'± AGL (139.9'± AMSL)

60.30'±

31.70'±

41.80'±

PROP. CELLCO PARTNERSHIP 100kW NATURAL GAS FIRED EMERGENCY STANDBY POWER GENERATOR (SHARED BETWEEN PROP. CRAN HUB & PROP. MACRO EQUIPMENT FACILITY).

APPROX. EXIST. GRADE AT PROP. TOWER +0'-0"AGL (110.6'± AMSL)

PENDING CELLCO PARTNERSHIP GAS SERVICE ROUTED FROM EXIST. GAS MAIN LOCATED AT GRADE, UP EXTERIOR OF EXIST. BUILDING, ACROSS ROOF TOP, DOWN EXTERIOR OF EXIST. BUILDING AND ACROSS SLAB TO PENDING CELLCO PARTNERSHIP NATURAL GAS FIRED EMERGENCY STANDBY POWER GENERATOR (BY OTHERS).

APPROX. EXIST. GRADE AT BANK STREET (108.2' AMSL)

2 C-2 PARTIAL NORTH ELEVATION
SCALE : 1/16" = 1'-0"

(IN FEET) 1 inch = 16 ft.

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE PHONE: (860)-663-1697
KILLINGWORTH, CT 06419 FAX: (860)-663-0935
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DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

OWNER: RL NEW LONDON LLC
ADDRESS: 211 N MARKET STREET WILMINGTON, DE 19801

NEW LONDON RELO CT

SITE ADDRESS: 951 BANK STREET NEW LONDON, CT 06320

APT FILING NUMBER: CT141NB9730

DRAWN BY: THK/JM

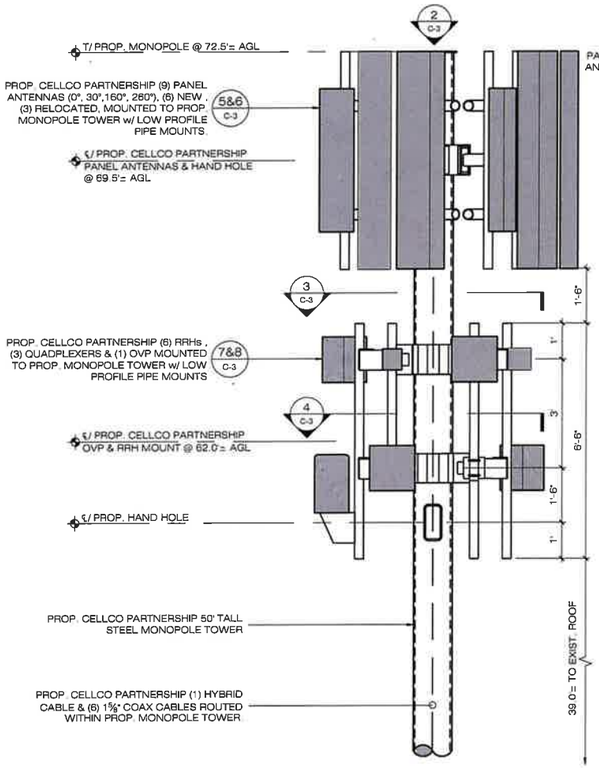
DATE: 09/25/19 CHECKED BY: JRM

SHEET TITLE:

PARTIAL SITE PLAN & SOUTH ELEVATION

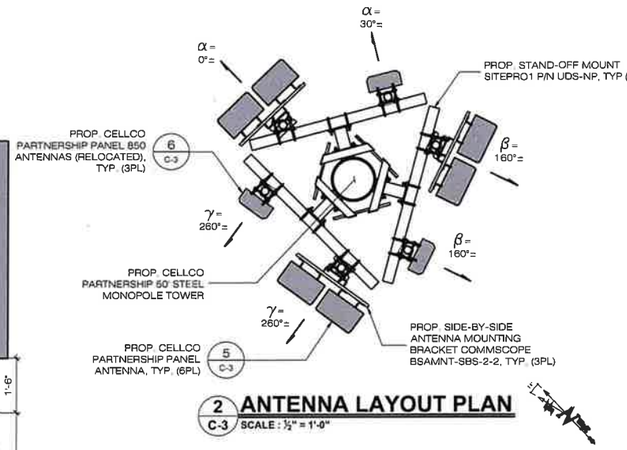
SHEET NUMBER:

C-2



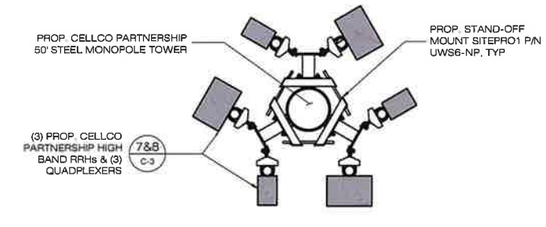
1 C-3 ANTENNA AND EQUIP. MOUNTING ELEVATION

SCALE : ½" = 1'-0"



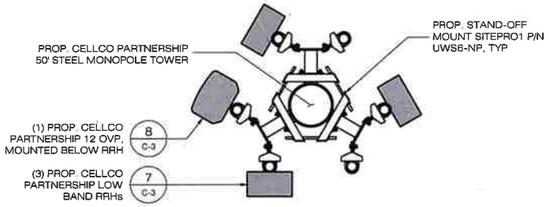
2 C-3 ANTENNA LAYOUT PLAN

SCALE : ½" = 1'-0"



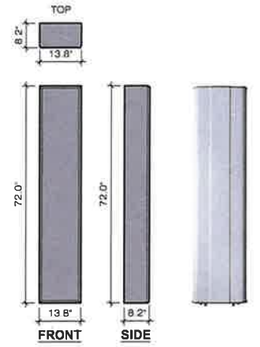
3 C-3 EQUIP. LAYOUT PLAN (UPPER)

SCALE : ½" = 1'-0"



4 C-3 EQUIP. LAYOUT PLAN (LOWER)

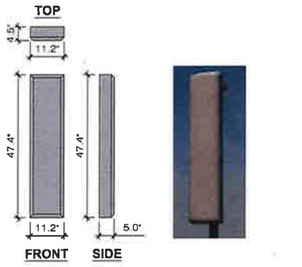
SCALE : ½" = 1'-0"



COMMSCOPE
JAHH-65B-R3B
6.90 SF (FRONT)
WT.= 55.1 LBS

5 C-3 ANTENNA DETAILS (x6 NO. PROP)

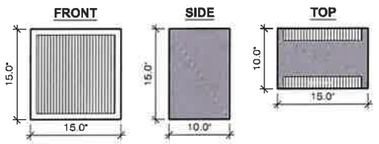
SCALE : ½" = 1'-0"



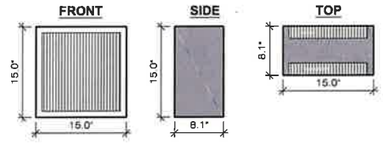
AMPHENOL ANTEL
BXA-80063/4CF
3.9 SF (FRONT)
WT. = 9.9 LBS

6 C-3 ANTENNA DETAILS (x3 NO. RELOCATED)

SCALE : ½" = 1'-0"



SAMSUNG DUAL HIGH BAND B2/B66a RRH (OR EQUAL)
RRH 4x60W (2x90W) AWS/PCS
REMOTE RADIO HEAD (RRH)
WxDxH=15.0"x15.0"x10.0" (64.4 Lbs)

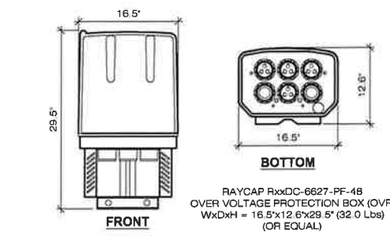


SAMSUNG DUAL LOW BAND B5/B13 RRH (OR EQUAL)
RRH 4x40W (2x60W) 700/850
REMOTE RADIO HEAD (RRH)
WxDxH=15.0"x15.0"x8.1" (70.3 Lbs)

COMMSCOPE CBC78T-DS-43-2X
QUAD DIPLEXER
HxWxD=6.4"x6.9"x9.6" (21.8 Lbs)

7 C-3 RRH & QUADPLEXER EQUIPMENT

SCALE : 1" = 1'-0"



RAYCAP RxxDC-6627-PF-48
OVER VOLTAGE PROTECTION BOX (OVP)
WxDxH = 16.5"x12.6"x29.5" (32.0 Lbs)
(OR EQUAL)

8 C-3 OVER VOLTAGE PROTECTION BOX (OVP)

SCALE: 1" = 1'-0"

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

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

PERMITTING DOCUMENTS

NO	DATE	REVISION
0	09/25/19	FOR REVIEW: JRM
1	11/07/19	FOR FILING: JRM
2	11/26/19	REVISED FOR FILING: JRM
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

OWNER: RL NEW LONDON LLC
ADDRESS: 211 N MARKET STREET WILMINGTON, DE 19801

NEW LONDON RELO CT

SITE ADDRESS: 951 BANK STREET NEW LONDON, CT 06320

APT FILING NUMBER: CT141NB0730

DRAWN BY: THK/JM
DATE: 09/25/19
CHECKED BY: JRM

SHEET TITLE:
ANTENNA & APPURTENANCE DETAILS

SHEET NUMBER:
C-3

ATTACHMENT 3

JAHH-65B-R3B

8-port sector antenna, 2x 698–787, 2x 824–894 and 4x 1695–2360 MHz, 65° HPBW, 3x RET and low bands have diplexers. Internal SBT's on first LB (Port 1) and first HB(Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

Electrical Specifications

Frequency Band, MHz	**698–787**	**824–894**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	200	200	300	300	300	250
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

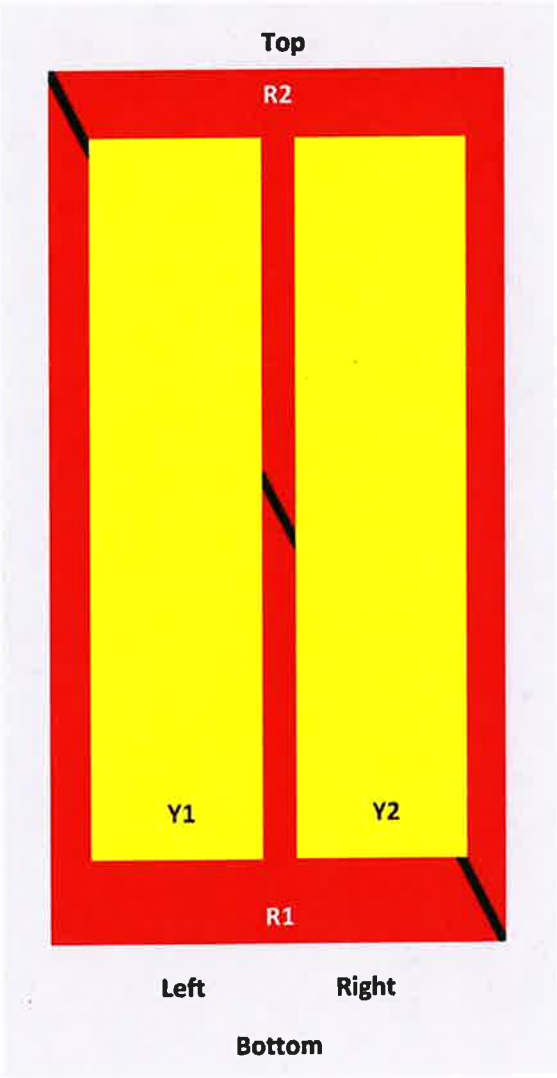
Frequency Band, MHz	**698–787**	**824–894**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2 ° | 14.3 8 ° | 14.3 14 ° | 14.3	2 ° | 15.0 8 ° | 14.9 14 ° | 15.4	0 ° | 17.2 5 ° | 17.6 10 ° | 17.6	0 ° | 17.6 5 ° | 18.2 10 ° | 18.2	0 ° | 17.7 5 ° | 18.3 10 ° | 18.3	0 ° | 17.9 5 ° | 18.7 10 ° | 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

COMMSCOPE®

Array Layout

JAHH-65A-R3B JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band 1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz

JAHH-65B-R3B

Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage | Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	301.0 N @ 150 km/h | 67.7 lbf @ 150 km/h
Wind Loading, lateral	254.0 N @ 150 km/h | 57.1 lbf @ 150 km/h
Wind Loading, maximum	143.4 lbf @ 150 km/h | 638.0 N @ 150 km/h
Effective Projected Area (EPA), frontal	0.28 m^2 | 3.01 ft^2
Effective Projected Area (EPA), lateral	0.24 m^2 | 2.58 ft^2
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1828.0 mm | 72.0 in
Width	350.0 mm | 13.8 in
Depth	208.0 mm | 8.2 in
Net Weight, without mounting kit	29.2 kg | 64.4 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

JAHH-65B-R3B

Packed Dimensions

Length	1975.0 mm | 77.8 in
Width	456.0 mm | 18.0 in
Depth	357.0 mm | 14.1 in
Shipping Weight	42.5 kg | 93.7 lb

Regulatory Compliance/Certifications

Agency	**Classification**
RoHS 2011/65/EU	Compliant by Exemption
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
China RoHS SJ/T 11364-2014	Above Maximum Concentration Value (MCV)

Included Products

BSAMNT-3 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Slant +/- 45° Dual Polarized, Panel 63° / 13 dBd

BXA-80063/4CF __

When ordering replace "__" with connector type.

Mechanical specifications

	Length	1205 mm	47.4 in
	Width	285 mm	11.2 in
	Depth	126 mm	5.0 in
	Depth with z-bracket	166 mm	6.5 in
4)	Weight	4.5 kg	9.9 lbs
	Wind Area		
	Fore/Aft	0.36 m^2	3.9 ft^2
	Side	0.15 m^2	1.7 ft^2
	Rated Wind Velocity (Safety factor 2.0)	>653 km/hr	>406 mph
	Wind Load @ 100 mph (161 km/hr)		
	Fore/Aft	522 N	117 lbs
	Side	244 N	54.5 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36210002
Downtilt bracket kit #36114003

Electrical specifications

	Frequency Range	806-900 MHz*
	Impedance	50Ω
3)	Connector(s)	NE or E-DIN 2 ports / center
1)	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
1)	Isolation Between Ports	< -30 dB
1)	Gain	13 dBd
2)	Power Rating	500 W
1)	Half Power Angle	
	H-Plane	63°
	E-Plane	15°
1)	Electrical Downtilt	0°
1)	Null Fill	5%
	Lightning Protection	Direct Ground

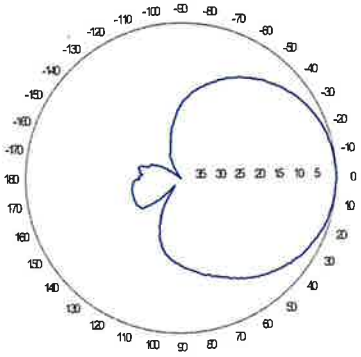
*Also available for 870-960 MHz. Refer to model BXA-87063/4CF _.

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

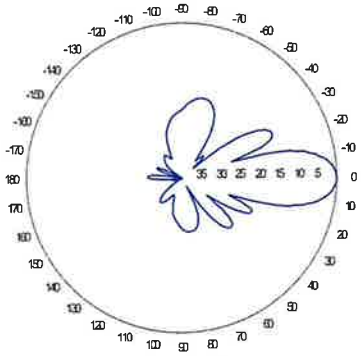
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1)]



Horizontal



Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

806-900 MHz

Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

Amphenol Antel, Inc.
The Antenna Technology Company

Revision Date: 7/3/07

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

SAMSUNG

Dual-Band Radio Unit
700/850MHz (B13/B5)
RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B13: DL(746-756MHz)/UL(777-787MHz)
B5: DL(869-894MHz)/UL(824-849MHz)
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 207mm (29.9L)
Weight: 31.9kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit
AWS/PCS (B66/B2)
RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)
B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)
Instantaneous Bandwidth:
70MHz(B66) + 60MHz(B2)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 255mm (36.8L)
Weight: 38.3kg
Input Power: -48V DC
Operating Temp.: -40 ~ 55°(w/o solar load)
Cooling: Natural convection

SG100 | 9.0L | 100 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

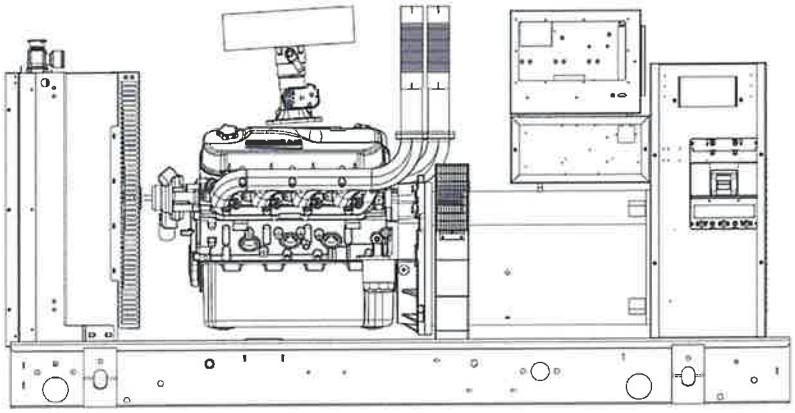
GENERAC | INDUSTRIAL POWER

STANDBY POWER RATING

100 kW, 125 kVA, 60 Hz

PRIME POWER RATING*

90 kW, 113 kVA, 60 Hz



*Built in the USA using domestic and foreign parts

*EPA Certified Prime ratings are not available in the U.S. or its Territories.

Image used for illustration purposes only

CODES AND STANDARDS

Generac products are designed to the following standards:

UL2200, UL508, UL142, UL498

NFPA70, 99, 110, 37

NEC700, 701, 702, 708

ISO9001, 8528, 3046, 7637, Pluses #2b, 4

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

POWERING AHEAD

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial application under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SG100 | 9.0L | 100 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

ENGINE SYSTEM

General

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel flexible exhaust connection
- Factory Filled Oil & Coolant
- Radiator Duct Adapter (open set only)
- Critical Exhaust Silencer (enclosed only)

Fuel System

- Flexible fuel line - NPT Connection
- Primary and secondary fuel shutoff

Cooling System

- Closed Coolant Recovery System
- UV/Ozone resistant hoses
- Factory-Installed Radiator
- 50/50 Ethylene glycol antifreeze
- Radiator drain extension

Engine Electrical System

- Battery charging alternator
- Battery cables
- Battery tray
- Rubber-booted engine electrical connections
- Solenoid activated starter motor

ALTERNATOR SYSTEM

- UL2200 Genprotect ™
- Class H insulation material
- 2/3 Pitch
- Skewed Stator
- Brushless Excitation
- Sealed Bearings
- Amortisseur winding
- Full load capacity alternator

GENERATOR SET

- Internal Genset Vibration Isolation
- Separation of circuits - high/low voltage
- Separation of circuits - multiple breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby rated Units)
- 1 Year Warranty (Prime rated units)
- Silencer mounted in the discharge hood (enclosed only)

ENCLOSURE (IF SELECTED)

- Rust-proof fasteners with nylon washers to protect finish
- High performance sound-absorbing material (L1 & L2)
- Gasketed doors
- Stamped air-intake louvers
- Air discharge hoods for radiator-upward pointing
- Stainless steel lift off door hinges
- Stainless steel lockable handles
- Rhino Coat™ - Textured polyester powder coat

CONTROL SYSTEM

Control Panel

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- Low Fuel Pressure Indication
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance algorithm
- Sealed Boards
- Password parameter adjustment protection
- Single point ground
- 15 channel data logging
- 0.2 msec high speed data logging
- Alarm information automatically comes up on the display

Alarms

- Oil Pressure (Pre-programmable Low Pressure Shutdown)
- Coolant Temperature (Pre-programmed High Temp Shutdown)
- Coolant Level (Pre-programmed Low Level Shutdown)
- Low Fuel Pressure Alarm
- Engine Speed (Pre-programmed Over speed Shutdown)
- Battery Voltage Warning
- Alarms & warnings time and date stamped
- Alarms & warnings for transient and steady state conditions
- Snap shots of key operation parameters during alarms & warnings
- Alarms and warnings spelled out (no alarm codes)

SG100 | 9.0L | 100 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

CONFIGURABLE OPTIONS

ENGINE SYSTEM

General

- O Engine Block Heater
- O Oil Heater
- O Air Filter Restriction
- O Stone Guad (Open Set Only)

Engine Electrical System

- O 10A & 2.5A UL battery charger
- O Battery Warmer

ALTERNATOR SYSTEM

- O Alternator Upsizing
- O Anti-Condensation Heater
- O Tropical Coating
- O Permanent Magnet Excitation

CIRCUIT BREAKER OPTIONS

- O Main Line Circuit Breaker
- O 2nd Main Line Circuit Breaker
- O Shunt Trip and Auxiliary Contact
- O Electronic Trip Breaker

GENERATOR SET

- O Gen-Link Communications Software (English Only)
- O Extended Factory Testing (3 Phase Only)
- O IBC Seismic Certification
- O 8 Position Load Center
- O 2 Year Extended Warranty
- O 5 Year Warranty
- O 5 Year Extended Warranty

ENCLOSURE

- O Standard Enclosure
- O Level 1 Sound Attenuation
- O Level 2 Sound Attenuation
- O Steel Enclosure
- O Aluminum Enclosure
- O 150 MPH Wind Kit
- O 12 VDC Enclosure Lighting Kit
- O 120 VAC Enclosure Lighting Kit
- O AC/DC Enclosure Lighting Kit
- O Door Alarm Switch

CONTROL SYSTEM

- O NFPA 110 Compliant
- O Remote Relay Board (8 or 16)
- O Oil Temperature Sender with Indication Alarm
- O Remote E-Stop (Break Glass-Type, Surface Mount)
- O Remote E-Stop (Red Mushroom-Type, Surface Mount)
- O Remote E-Stop (Red Mushroom-Type, Flush Mount)
- O Remote Communication - Bridge
- O Remote Communication - Ethernet
- O 10A Run Relay
- O Ground Fault Indication and Protection Functions

ENGINEERED OPTIONS

ENGINE SYSTEM

- O Coolant heater ball valves
- O Fluid containment pans

ALTERNATOR SYSTEM

- O 3rd Breaker Systems

CONTROL SYSTEM

- O Spare inputs (x4) / outputs (x4) - H Panel Only
- O Battery Disconnect Switch

GENERATOR SET

- O Special Testing
- O Battery Box

ENCLOSURE

- O Motorized Dampers
- O Intrusion Alert Door Switch
- O Ambient Heaters

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

Prime - Applicable for supplying power to a varying load in lieu of utility for an unlimited amount of running time. A 10% overload capacity is available for 1 out of every 12 hours. The Prime Power option is only available on International applications. Power ratings in accordance with ISO 8528-1, Second Edition

SG100 | 9.0L | 100 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	8
Type	V
Displacement - L (cu In)	8.9L (540)
Bore - mm (in)	114.23 (4.49)
Stroke - mm (in)	107.15 (4.25)
Compression Ratio	10.5:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged
Cylinder Head	Cast Iron
Cylinder Liners	No
Ignition	High Energy
Piston Type	Aluminum Alloy
Crankshaft Type	Forged Steel
Lifter Type	Hydraulic Roller
Intake Valve Material	Steel Alloy
Exhaust Valve Material	Stainless Steel
Hardened Valve Seats	Yes

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-flow sping-on cartridge
Crankcase Capacity - L (qts)	8.5 (8.0)

Cooling System

Cooling System Type	Pressurized Closed
Water Pump Flow -gal/min (l/min)	26 (98)
Fan Type	Pusher
Fan Speed (rpm)	2330
Fan Diameter mm (in)	558 (22)
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120 V

Fuel System

Fuel Type	Natural Gas, Propane Vapor
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Regulator	Standard
Operating Fuel Pressure (Standard)	11" - 14" H_2O
Operating Fuel Pressure (Optional)	7" - 14" H_2O

Engine Electrical System

System Voltage	12 VDC
Battery Charging Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390mm
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Standard Excitation	Brushless
Bearings	Sealed Ball
Coupling	Direct Drive
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SG100 | 9.0L | 100 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

OPERATING DATA

POWER RATINGS

		Natural Gas	Propane Vapor
Single-Phase 120/240 VAC @1.0pf	100 kW	Amps: 417	Amps: 417
Three-Phase 120/208 VAC @0.8pf	100 kW	Amps: 347	Amps: 347
Three-Phase 120/240 VAC @0.8pf	100 kW	Amps: 301	Amps: 301
Three-Phase 277/480 VAC @0.8pf	100 kW	Amps: 150	Amps: 150
Three-Phase 347/600 VAC @0.8pf	100 kW	Amps: 120	Amps: 120

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

		480 VAC						208/240 VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	100	79	118	157	197	236	275	59	89	118	148	177	206
Upsize 1	130	116	174	232	290	348	406	87	131	174	218	261	305

FUEL CONSUMPTION RATES*

Natural Gas - ft³/hr (m³/hr)	
Percent Load	Standby
25%	391 (11.1)
50%	669 (19.0)
75%	904 (25.6)
100%	1116 (31.6)

Propane Vapor - ft³/hr (m³/hr)	
Percent Load	Standby
25%	157.4 (4.5)
50%	269.9 (7.6)
75%	364.4 (10.3)
100%	449.8 (12.7)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Air Flow (inlet air combustion and radiator)	ft³/min(m³/min)	5797 (164.2)
Coolant Flow per Minute	gal/min (l/min)	26 (98)
Coolant System Capacity	gal (l)	6.0 (22.7)
Heat Rejection to Coolant	BTU/hr	390,000
Max. Operating Ambient Temperature (before derate)	°F (°C)	122 (50)
Maximum Radiator Backpressure	in H_2O	0.5

COMBUSTION AIR REQUIREMENT

	Standby
Flow at Rated Power cfm (m³/min)	282 (7.9)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	149
Piston Speed	ft/min	1275
BMEP	psi	125

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	866 (24.5)
Max. Backpressure (Post Turbo)	inHg (Kpa)	1.5 (5.1)
Exhaust Temp (Rated Output - post silencer)	°F (°C)	1230 (666)
Exhaust Outlet Size (Open Set)	mm (in)	63.5 (2.5)

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

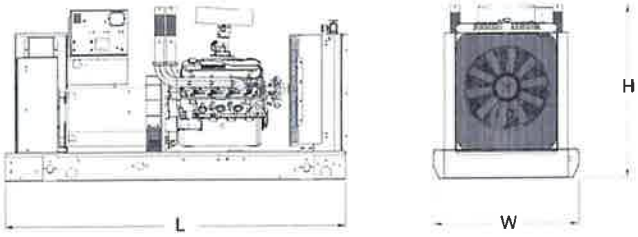
SG100 | 9.0L | 100 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency

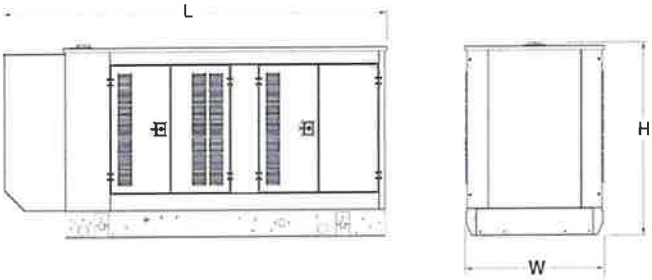
GENERAC | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*



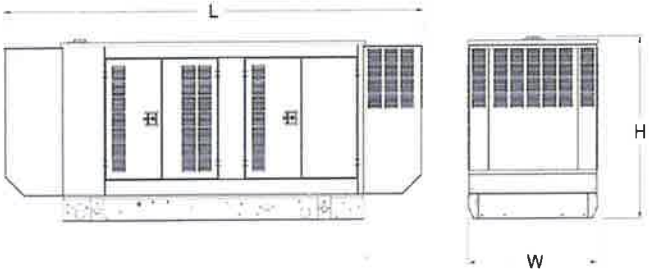
OPEN SET (Includes Exhaust Flex)

L x W x H in (mm)	94.2 (2394) x 40 (1016) x 47.5 (1206)
Weight lbs (kg)	2064 (936.2)



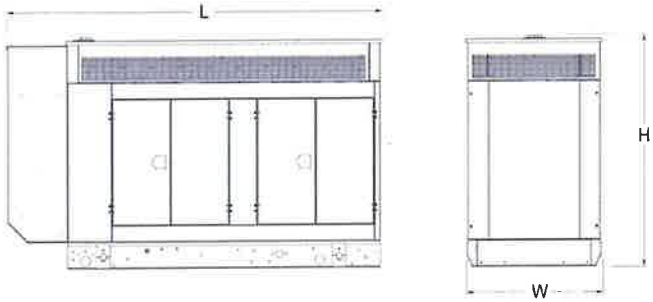
STANDARD ENCLOSURE

L x W x H in (mm)	111.79 (2839.5) x 40.46 (1027.8) x 56.18 (1427)
Weight lbs (kg)	Steel: 2708 (1228) Aluminum: 2413 (1094)



LEVEL 1 ACOUSTIC ENCLOSURE

L x W x H in (mm)	129.42 (3287.2) x 40.46 (1027.8) x 56.18 (1427)
Weight lbs (kg)	Steel: 2798 (1269.2) Aluminum: 2355 (1068)



LEVEL 2 ACOUSTIC ENCLOSURE

L x W x H in (mm)	111.81 (2840) x 40.46 (1027.8) x 68.61 (1742.8)
Weight lbs (kg)	Steel: 3022 (1370.8) Aluminum: 2431 (1103)

*All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

SPEC SHEET

6 OF 6

Specification characteristics may change without notice. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53187
P: (262) 544-4811

Part No 0K4291
Rev. D 07/27/15

ATTACHMENT 4

Visual Assessment & Photo-Simulations

NEW LONDON
951 BANK STREET
NEW LONDON, CT 06320

Prepared in November 2019 by:
All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06419

Prepared for Verizon Wireless

ALL-POINTS
TECHNOLOGY CORPORATION

VISUAL ASSESSMENT & PHOTO-SIMULATIONS

Cellco Partnership d/b/a Verizon Wireless is seeking a Certificate of Environmental Compatibility and Public Need from the Connecticut Siting Council (the "Council") for the development of a new wireless communications facility (the "Facility") at 951 Bank Street (Route 1) in New London, Connecticut (the "Site"). At the request of Verizon Wireless, All-Points Technology Corporation, P.C. ("APT") completed this assessment to evaluate the potential visual effects of the proposed Facility from within a two-mile radius (the "Study Area"). The western portion of the Study Area includes the neighboring municipality of Waterford and the eastern portion of the Study Area includes the municipality of Groton, east of the Thames River.

Project Undertaking

Verizon Wireless proposes to install the Facility in the central portion of the Site on the rooftop at the rear of the existing building. The Facility would include a ±50-foot tall monopole located on the building rooftop.[1] Verizon Wireless proposes to install panel antennas at a centerline height of approximately 69.5' above ground level ("AGL"); additional appurtenances will be placed on low profile mounts below the antennas. The top of the proposed monopole would extend to an approximate height of 72.5' AGL. Ground mounted equipment would be located inside an existing single-story storage building on the northeastern portion of the Site. A proposed natural gas-fueled, emergency standby generator would be located at grade adjacent to the northwestern side of the storage building.

Project Setting

The Site is located along the north side of Bank Street in a highly-developed urban setting. The Site is privately-owned and is developed with a motorcycle dealership ("Mike's Famous Harley-Davidson"). Commercially-developed and light industrial properties are located north of the Site along Westwood Avenue, with dense residential development farther to the north. Northeast and southwest along Bank Street (Route 1), development is a mix of commercial and multi-family residential properties. Densely-spaced multi-family residential development also extends farther to the south, east, and southeast from the Site. A wooded area extends to the west and northwest of the Site.

The topography within the Study Area consists of gently rolling terrain. Ground elevations range from sea level (in New London Harbor and the Thames River) in the eastern portion of the Study Area to approximately 222 feet AMSL, with the highest point found in the western portion of the Study Area. The Thames River occupies approximately 1,212 acres (±15.1%) of the 8,042-acre Study Area. Tree cover within the Study Area (consisting of predominantly mixed deciduous hardwoods) occupies approximately 1,969 acres (±24.5%) of the 8,042-acre Study Area.

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[1] At the proposed monopole location, the building rooftop height is ±18.5' AGL. The 50' tall monopole would be mounted to steel framework that will be elevated ±4' above the roof, bringing the top height of the monopole to ±72.5' AGL.

Methodology

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

Preliminary Computer Modeling

To conduct this assessment, a predictive computer model was developed specifically for this project using ESRI's ArcMap GIS[2] software and available GIS data. The predictive model incorporates Project and Study Area-specific data, including the site location, its ground elevation and the proposed Facility height, as well as the surrounding topography, existing vegetation, and structures (the primary features that can block direct lines of sight).

A digital surface model ("DSM"), capturing both the natural and built features on the Earth's surface, was generated for the extent of the Study Area utilizing State of Connecticut 2016 LiDAR[3]LAS [4] data points. LiDAR is a remote-sensing technology that develops elevation data by measuring the time it takes for laser light to return from the surface to the instrument's sensors. The varying reflectivity of objects also means that the "returns" can be classified based on the characteristics of the reflected light, normally into categories such as "bare earth," "vegetation," "road," or "building." Derived from the 2016 LiDAR data, the LAS datasets contain the corresponding elevation point data and return classification values. The Study Area DSM incorporates the first return LAS dataset values that are associated with the highest feature in the landscape, typically a treetop, top of a building, and/or the highest point of other tall structures.

Once the DSM was generated, ESRI's Viewshed Tool was utilized to identify locations within the Study Area where the proposed Facility may be visible. ESRI's Viewshed Tool predicts visibility by identifying those cells[5] within the DSM that can be seen from an observer location. Cells where visibility was indicated were extracted and converted from a raster dataset to a polygon feature which was then overlaid onto an aerial photograph and topographic base map. Since the DSM includes the highest relative feature in the landscape, isolated "visible" cells are often indicated within heavily forested areas (e.g., from the top of the highest tree) or on building rooftops during the initial processing. It is recognized that these areas do not represent typical viewer locations and overstate visibility. As such, the resulting polygon feature is further refined by extracting those areas. The viewshed results are also cross-checked against the most current aerial photographs to

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[2] ArcMap is a Geographic Information System desktop application developed by the Environmental Systems Research Institute for creating maps, performing spatial analysis, and managing geographic data.

[3] Light Detection and Ranging

[4] An LAS file is an industry-standard binary format for storing airborne LiDAR data.

[5] Each DSM cell size is 1 square meter.

assess whether significant changes (a new housing development, for example) have occurred since the time the LiDAR-based LAS datasets were captured.

The results of the preliminary analysis are intended to provide a representation of those areas where portions of the Facility *may* potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of five (5) feet above the ground and the combination of intervening topography, trees and other vegetation, and structures. However, the Facility may not necessarily be visible from all locations within those areas identified by the predictive model, which has limitations. For instance, it is important to note that the computer model cannot account for mass density, tree diameters and branching variability of trees, or the degradation of views that occur with distance. As a result, some areas depicted on the viewshed maps as theoretically offering potential visibility of the Facility may be over-predicted because the quality of those views is not sufficient for the human eye to recognize the Facility or discriminate it from other surrounding or intervening objects.

Seasonal Visibility

Visibility also varies seasonally with increased, albeit obstructed, views occurring during "leaf-off" conditions. Beyond the variabilities associated with density of woodland stands found within any given Study Area, each individual tree also has its own unique trunk, pole timber and branching patterns that provide varying degrees of screening in leafless conditions which, as introduced above, cannot be precisely modeled. Seasonal visibility is therefore estimated based on a combination of factors including the type, size, and density of trees within a given area; topographic constraints; and other visual obstructions that may be present. Taking into account these considerations, areas depicting seasonal visibility on the viewshed maps are intended to represent locations from where there is a potential for views through intervening trees, as opposed to indicating that leaf-off views will exist from within an entire seasonally-shaded area.

Balloon Float and Field Reconnaissance

To supplement and refine the results of the computer modeling efforts, APT completed in-field verification activities consisting of a balloon float, vehicular and pedestrian reconnaissance, and photo-documentation. The balloon float and field review were completed on September 17, 2019. The balloon float consisted of raising a tethered brightly-colored, approximately four-foot diameter, helium-filled, balloon such that the top of the balloon was located at an approximate height of 72.5' AGL to depict the total height of the proposed monopole at the Site. Weather conditions were generally favorable for the field reconnaissance, with light winds and a sunny sky.

Once the balloon was secured, APT conducted a Study Area reconnaissance by driving along local and State roads and other publicly accessible locations to document and inventory where the balloon could be seen above and through the tree canopy and other visual obstructions. Visual observations from the reconnaissance were also used to evaluate the results of the preliminary visibility mapping and identify any discrepancies in the initial modeling.

Photographic Documentation and Simulations

During the Study Area reconnaissance, APT obtained photo-documentation of representative locations where the balloon was visible. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body[6] and Canon EF 24 to 105 millimeter ("mm") zoom lens. APT typically uses a standard focal length of 50mm to present a consistent field of view. On occasion, photos are taken at lower focal lengths to provide a greater depth of field and to provide context to the scene by including surrounding features within the photograph. During this evaluation, two (2) photographs were taken at a 35mm focal length and three (3) photographs were taken at a 24mm focal length as noted in the table (Table 1 – Photo Locations) on the following pages.

Photographic simulations were generated to portray scaled renderings of the proposed Facility from thirteen (13) locations presented herein where the Facility may be recognizable above or through the trees. Using field data, site plan information and 3-dimensional (3D) modeling software, spatially referenced models of the site and Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo-simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, which were ultimately composited and merged with the existing conditions photographs (using Photoshop image editing software). The scale of the subjects in the photograph (the balloon) and the corresponding simulation (the Facility) is proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When reproducing the images in this format size, we believe it is important to present the largest view while providing key contextual landscape elements (existing developments, street signs, utility poles, etc.) so that the viewer can determine the proportionate scale of each object within the scene. Photo-documentation of the field reconnaissance and photo-simulations of the proposed Facility are presented in the attachment at the end of this report. The field reconnaissance photos that include the balloon in the view provide visual reference points for the approximate height and location of[7] the proposed Facility relative to the scene.

All simulations were created to represent the proposed monopole height of 72.5' AGL. The photo-simulations are intended to provide the reader with a general understanding of the different view characteristics associated with the Facility from various locations. Photographs were taken from publicly-accessible areas and unobstructed view lines were chosen wherever possible.

The following table summarizes the photographs and simulations presented in the attachment to this report, and includes a description of each location, view orientation, distance from where the photo was taken

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[6] The Canon EOS 6D is a full-framed camera which includes a lens receptor of the same size as the film used in 35mm cameras. As such, the images produced are comparable to those taken with a conventional 35mm camera.

[7] A significant portion of the area of predicted visibility along the eastern bank of the Thames River (along the west side of Eastern Point Road southward from Allen Street to the Study Area limit) is subject to restricted access due to security for General Dynamics - Electric Boat and a petroleum bulk storage terminal.

relative to the proposed Facility, and the general characteristics of the view. The photo locations are depicted on the photolog and viewshed maps provided as attachments to this report.

Table 1 – Photo Locations

View	Location	Orientation	Distance to Site	Visibility
1	Bank Street	North	±0.13 Mile	Not Visible
2	Beckwith Street at Bank Street	North	±0.13 Mile	Visible
3	Faye Street at Bank Street	North	±475 Feet	Visible
4	Bank Street	Northwest	±470 Feet	Visible
5	Bank Street*	Northwest	±388 Feet	Visible
6	Bank Street*	Northwest	±355 Feet	Visible
7	Bank Street at Carroll Court	Southwest	±0.10 Mile	Visible
8	Braemer Place**	Southwest	±0.12 Mile	Not Visible
9	Braemer Place	Southwest	±0.11 Mile	Visible
10	Westwood Avenue	Southwest	±414 Feet	Visible
11	Westwood Avenue	Southeast	±255 Feet	Visible
12	Roseway Street	Southeast	±0.14 Mile	Not Visible
13	Lee Avenue	Southwest	±0.18 Mile	Not Visible
14	Lee Avenue	Southwest	±0.18 Mile	Visible
15	Lee Avenue	Southwest	±0.18 Mile	Not Visible
16	Squire Street	Northwest	±0.19 Mile	Not Visible
17	Gorton Street**	Northwest	±0.26 Mile	Not Visible
18	Stop & Shop Parking Lot – 155 Boston Post Road, Waterford	Northeast	±0.64 Mile	Not Visible
19	Clark Lane at Stenger Farm Park, Waterford	Southeast	±0.92 Mile	Not Visible
20	Bank Street	Southwest	±0.72 Mile	Visible
21	Bank Street	Southwest	±0.80 Mile	Not Visible
22	East Street	West	±0.91 Mile	Not Visible
23	Crescent Street	Northwest	±0.77 Mile	Not Visible
24	National Submarine Memorial – Thames Street, Groton	Southwest	±1.90 Miles	Not Visible
25	19 Thames Street, Groton	Southwest	±1.79 Miles	Not Visible
26	Broad Street, Groton	Southwest	±1.82 Miles	Not Visible
27	Ramsdell Street at School Street, Groton**	Southwest	±1.74 Miles	Not Visible
28	Thames Inn & Marina – 193 Thames Street, Groton	Southwest	±1.62 Miles	Visible
29	Thames Street, Groton	Southwest	±1.58 Miles	Visible
30	Bayview Avenue at Eastern Point Road, Groton	Northwest	±2.15 Miles	Not Visible

**Photograph was taken at 35 mm focal length.*
***Photograph was taken at 24 mm focal length.*

Final Visibility Mapping

Information obtained during the field reconnaissance was incorporated into the mapping data layers, including observations of the field reconnaissance, the photograph locations, areas that experienced recent land use changes and those places where the initial model was found to over or under-predict visibility. Once the additional data was integrated into the model, APT recalculated the visibility of the proposed Facility within the Study Area.

Conclusions

As presented on the attached viewshed maps, the most prominent views of the Facility would be from highly-developed locations in close proximity to the Site along Bank Street and immediately surrounding areas. Year-round views would extend approximately 350 feet north of the Site and include the commercially-developed and light industrial properties along Westwood Avenue (Photos 10 and 11). To the south, the year-round views would extend westward along Bank Street for approximately 600 feet to near the intersection of Bank Street and Beckwith Street (Photo 2).

To the east, year-round views would extend northeast along Bank Street approximately 530 feet nearly to its intersection with Carroll Court (Photo 7). Select areas of year-round visibility also extend onto Lee Avenue (Photo 14) approximately 950' east of the Site. Moving eastward, year-round visibility is obstructed by buildings until reaching a distance of approximately 3,400 feet from the Site along Bank Street where the Facility would be visible for ±600 feet (Photo 20). Additional year-round visibility is predicted in Groton to the east, across the Thames River. Those views from Groton are over 1.5 miles from the Site and in many cases indiscernible to the naked eye. At these distances, the Facility would not be readily recognizable from intervening natural and man-made features. Two locations where the balloon was distinguishable on the horizon are represented in Photos 28and 29. The balloon was visible (with binoculars) from Fort Griswold Battlefield State Park. However, at nearly 1.75 miles from the Site, it would not be readily apparent and thus, its visual impact would be negligible.

Seasonally, when the leaves are off the deciduous trees, visibility would extend approximately 1,000 feet north of the Site. Areas of predicted seasonal visibility include the residential neighborhoods along Cutler Street, Roseway Street, and Warren Street. Those views would be partially obstructed by intervening trees and infrastructure. Bank Street is largely devoid of a tree canopy within 1,000 feet east of the Site. As such, seasonal visibility moving eastward along Bank Street would not be significantly different from year-round visibility. Southward, seasonal visibility may extend along Squire Street to a distance of approximately 900 feet from the Site. To the west, seasonal visibility would be restricted by the undeveloped, heavily wooded adjacent property.

Proximity to Schools And Commercial Child Day Care Centers

There are no schools or commercial child day care centers within 250 feet of the Site. The nearest school to the Site (St. Joseph School, a private Catholic school) is located at 25 Squire Street in New London, approximately 1,700 feet east-southeast from the Site. The proposed Facility would not be visible from the school. There are no commercial child day care centers within 250 feet of the Site. The nearest commercial child day care center is Triune Learning Center, located approximately 1,750 feet north of the Site at 122 Colman Street in New London. No views of the Facility are anticipated from Triune Learning Center.

Limitations

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

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

ATTACHMENTS

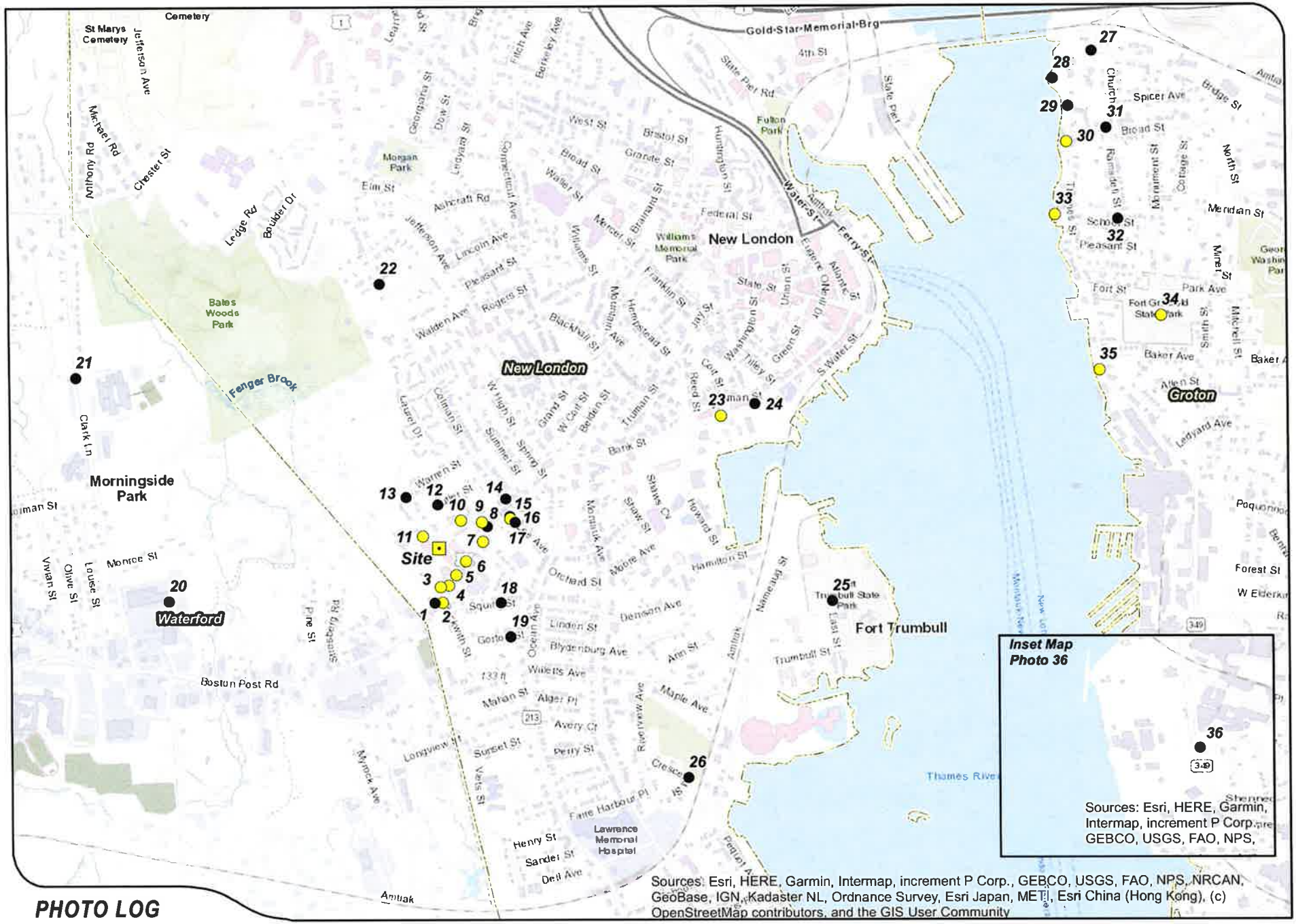


PHOTO LOG

Legend

Site | Visible | Not Visible | Municipal Boundary

1 inch = 1;500 feet

1,500 750 0 1,500 Feet

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED 09/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	BANK STREET	NORTH	+/- 0.13 MILE	NOT VISIBLE

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**BECKWITH STREET AT BANK STREET**	**NORTH**	**+/- 0.13 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

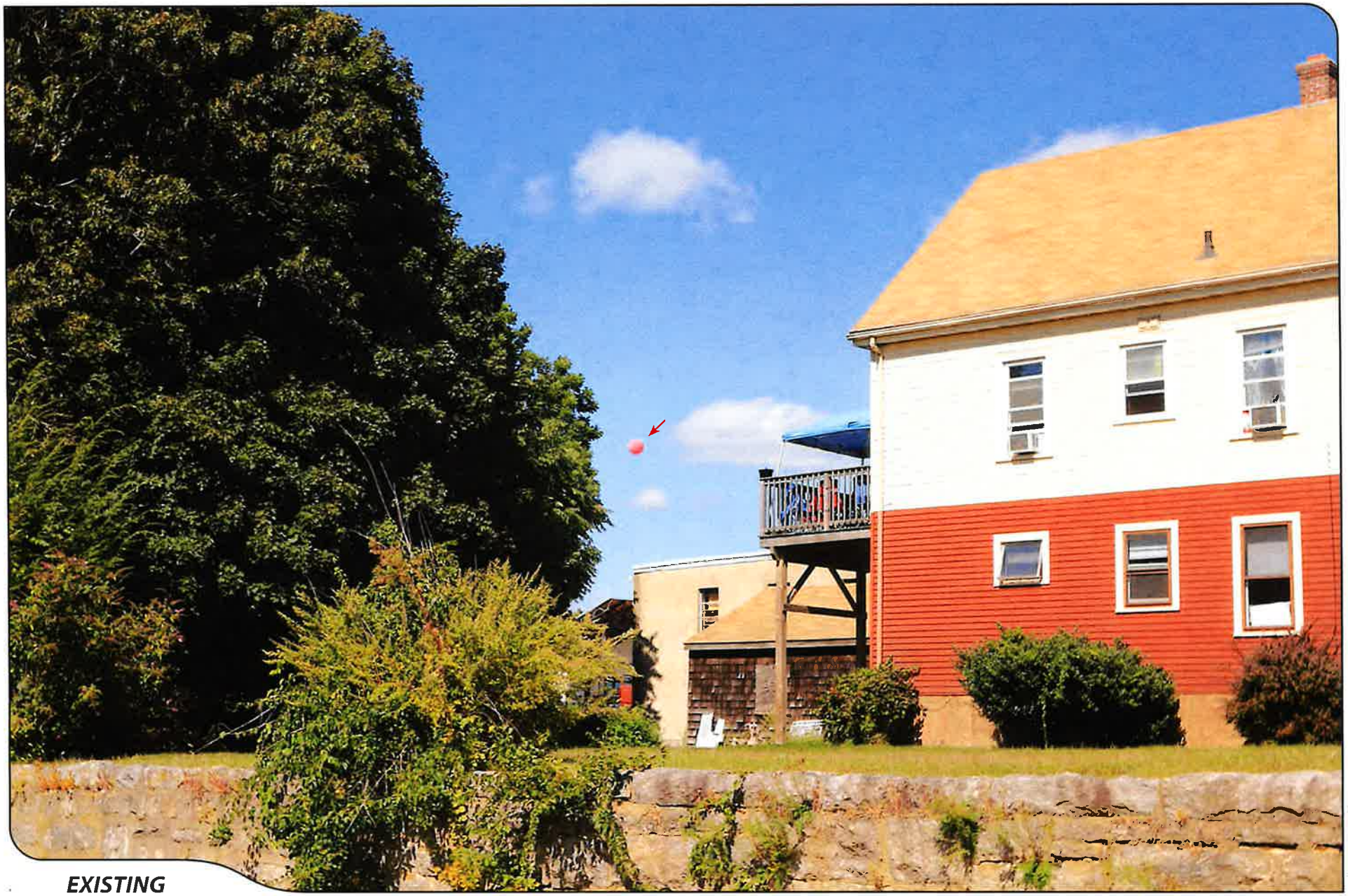
verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	**BECKWITH STREET AT BANK STREET**	**NORTH**	**+/- 0.13 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



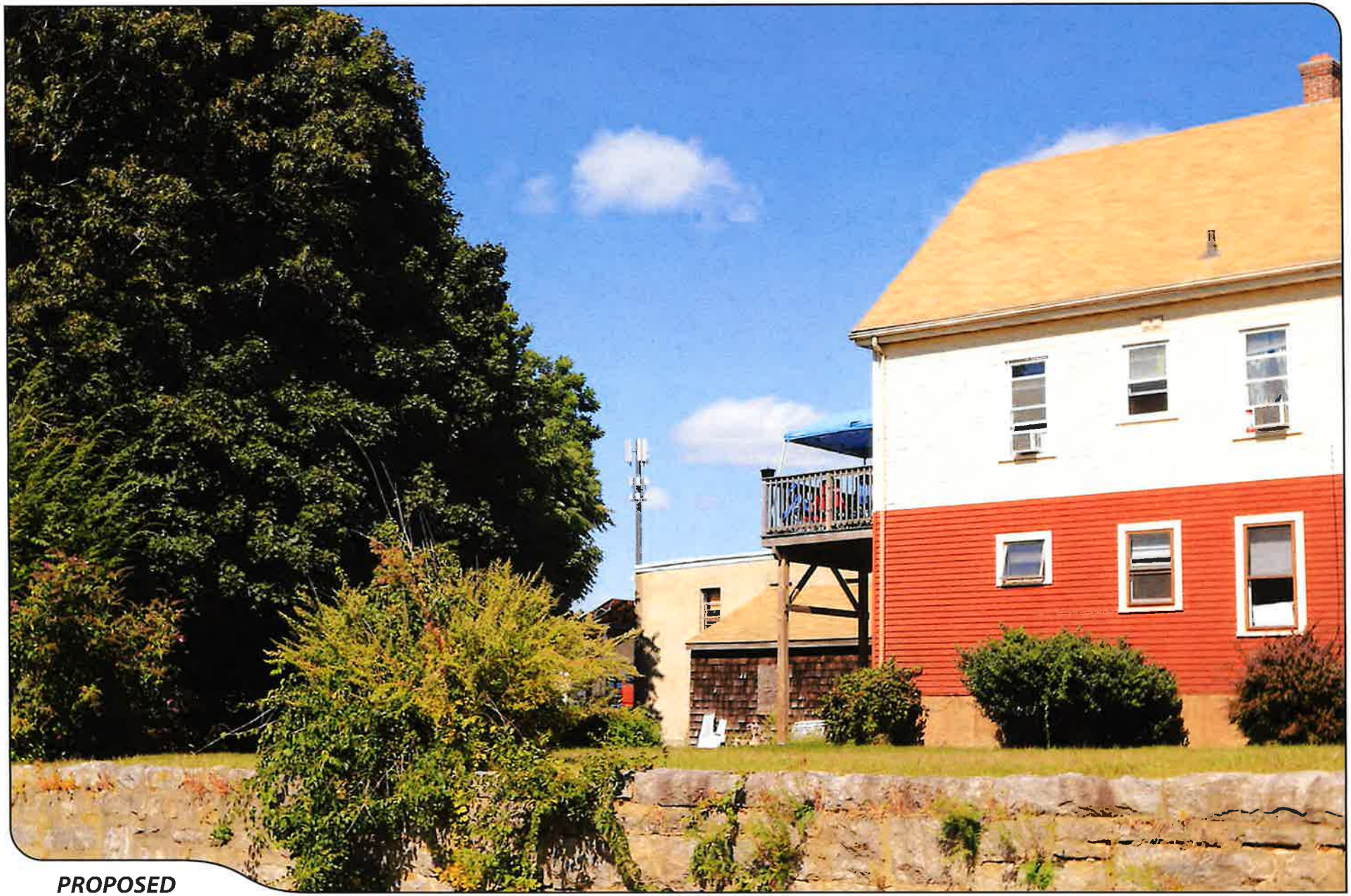
PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**FAYE STREET AT BANK STREET**	**NORTH**	**+/- 475 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**FAYE STREET AT BANK STREET**	**NORTH**	**+/- 475 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**BANK STREET**	**NORTHWEST**	**+/- 470 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	**BANK STREET**	**NORTHWEST**	**+/- 470 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	**BANK STREET**	**NORTHWEST**	**+/- 388 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	BANK STREET	NORTHWEST	+/- 388 FEET	VISIBLE

ALL-POINTS TECHNOLOGY CORPORATION

verizon

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**BANK STREET**	**NORTHWEST**	**+/- 355 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**BANK STREET**	**NORTHWEST**	**+/- 355 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**BANK STREET AT CARROLL COURT**	**SOUTHWEST**	**+/- 0.10 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	**BANK STREET AT CARROLL COURT**	**SOUTHWEST**	**+/- 0.10 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

24mm Focal Length

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	**BRAEMER PLACE**	**SOUTHWEST**	**+/- 0.12 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**BRAEMER PLACE**	**SOUTHWEST**	**+/- 0.11 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	**BRAEMER PLACE**	**SOUTHWEST**	**+/- 0.11 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**WESTWOOD AVENUE**	**SOUTHWEST**	**+/- 414 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	**WESTWOOD AVENUE**	**SOUTHWEST**	**+/- 414 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**WESTWOOD AVENUE**	**SOUTHEAST**	**+/- 255 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

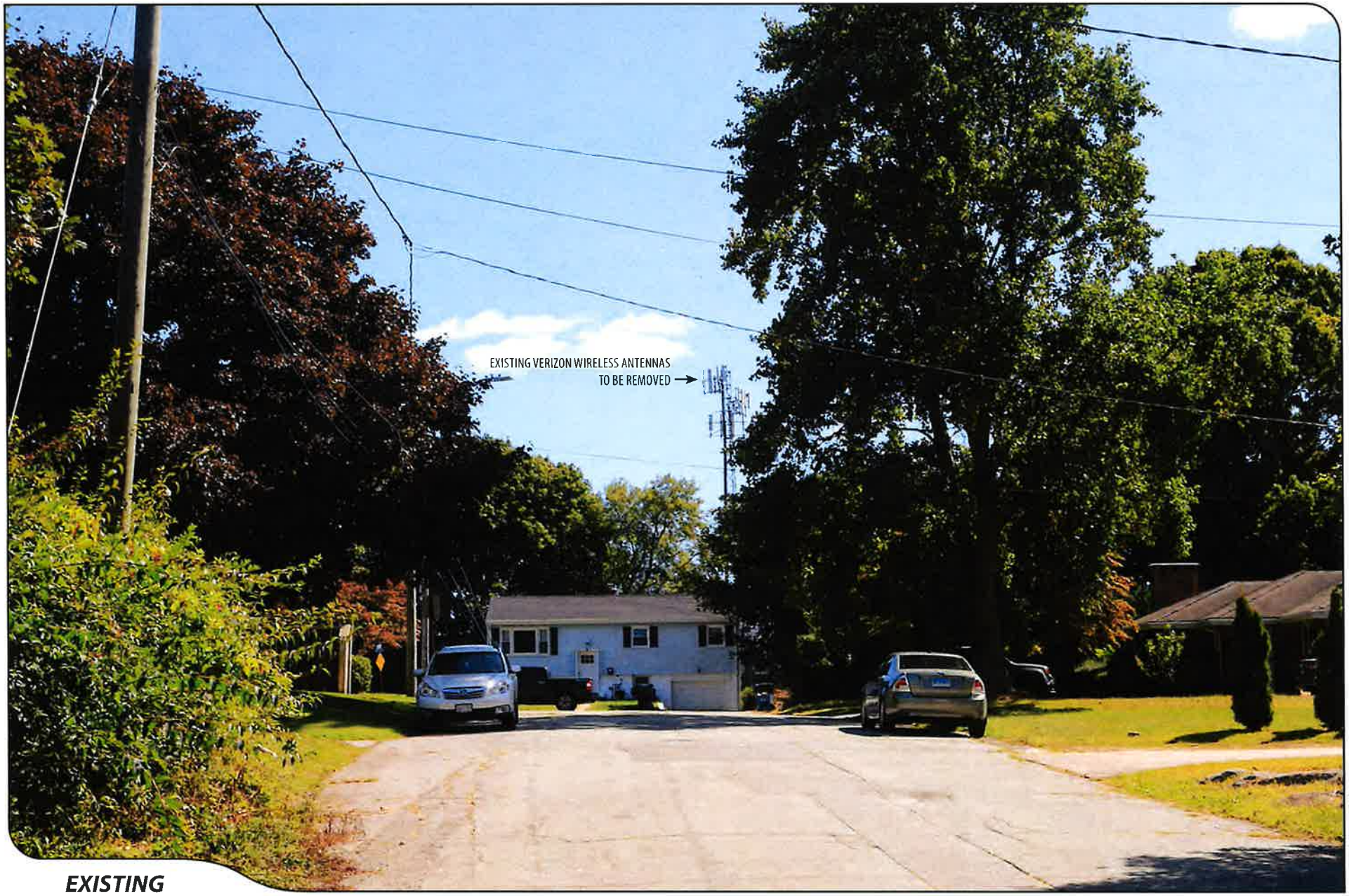
verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	**WESTWOOD AVENUE**	**SOUTHEAST**	**+/- 255 FEET**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**ROSEWAY STREET**	**SOUTHEAST**	**+/- 0.14 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	**ROSEWAY STREET**	**SOUTHEAST**	**+/- 0.14 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	**LEE AVENUE**	**SOUTHWEST**	**+/- 0.18 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**LEE AVENUE**	**SOUTHWEST**	**+/- 0.18 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	**LEE AVENUE**	**SOUTHWEST**	**+/- 0.18 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	**LEE AVENUE**	**SOUTHWEST**	**+/- 0.18 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	**SQUIRE STREET**	**NORTHWEST**	**+/- 0.19 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	**GORTON STREET**	**NORTHWEST**	**+/- 0.26 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	**STOP & SHOP PARKING LOT - 155 BOSTON POST ROAD, WATERFORD**	**NORTHEAST**	**+/- 0.64 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
19	**CLARK LANE AT FARM PARK, WATERFORD**	**SOUTHEAST**	**+/- 0.92 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**BANK STREET**	**SOUTHWEST**	**+/- 0.72 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
20	**BANK STREET**	**SOUTHWEST**	**+/- 0.72 MILE**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
21	**BANK STREET**	**SOUTHWEST**	**+/- 0.80 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
22	**EAST STREET**	**WEST**	**+/- 0.91 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
23	**CRESCENT STREET**	**NORTHWEST**	**+/- 0.77 MILE**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
24	NATIONAL SUBMARINE MEMORIAL - THAMES STREET, GROTON	SOUTHWEST	+/- 1.90 MILES	NOT VISIBLE

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
25	**19 THAMES STREET, GROTON**	**SOUTHWEST**	**+/- 1.79 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
26	**BROAD STREET, GROTON**	**SOUTHWEST**	**+/- 1.82 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

24mm Focal Length

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
27	**RAMSDELL STREET AT SCHOOL STREET, GROTON**	**SOUTHWEST**	**+/- 1.74 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	**THAMES INN & MARINA - 193 THAMES STREET, GROTON**	**SOUTHWEST**	**+/- 1.62 MILES**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

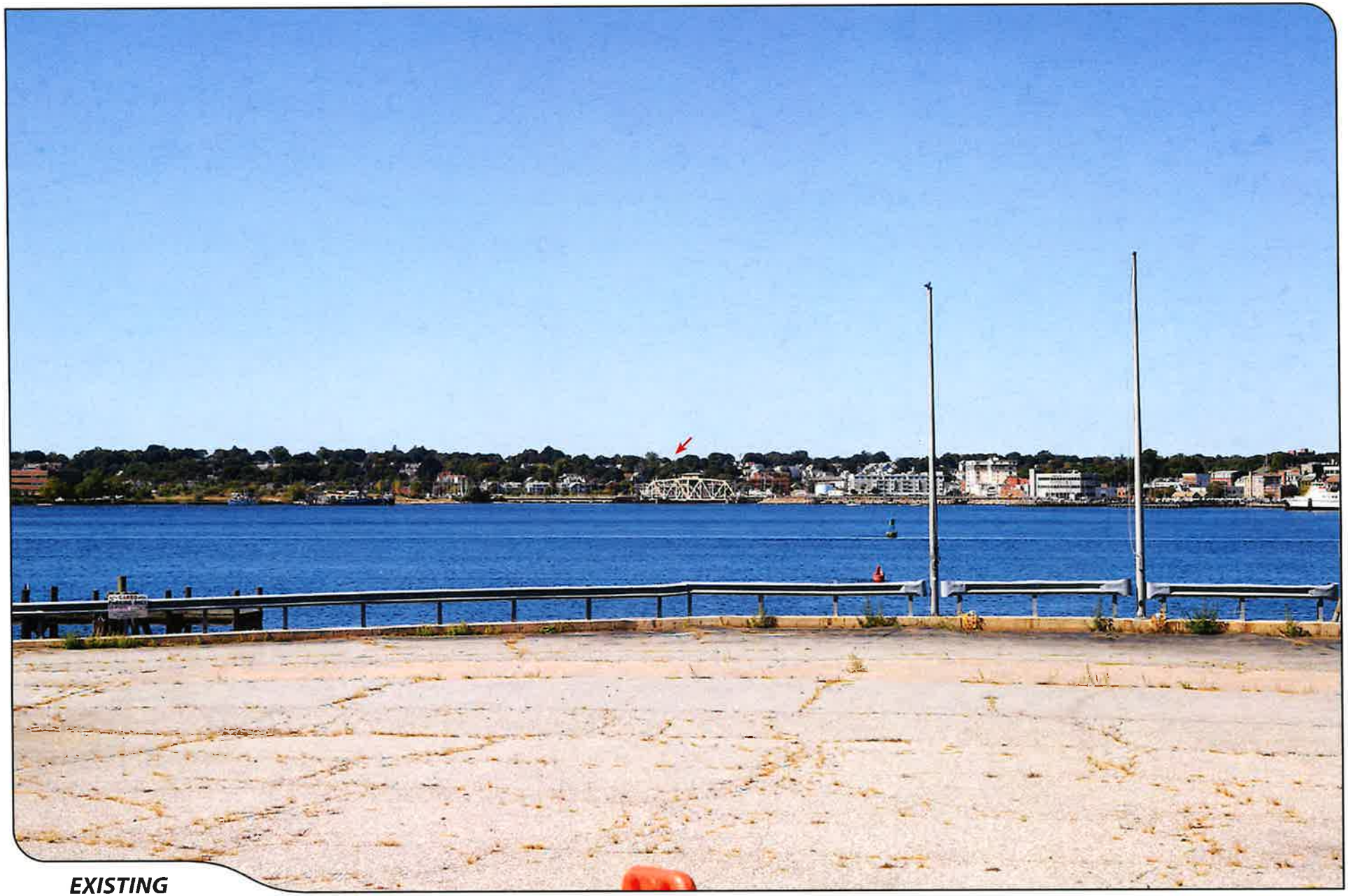
verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
28	**THAMES INN & MARINA - 193 THAMES STREET, GROTON**	**SOUTHWEST**	**+/- 1.62 MILES**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



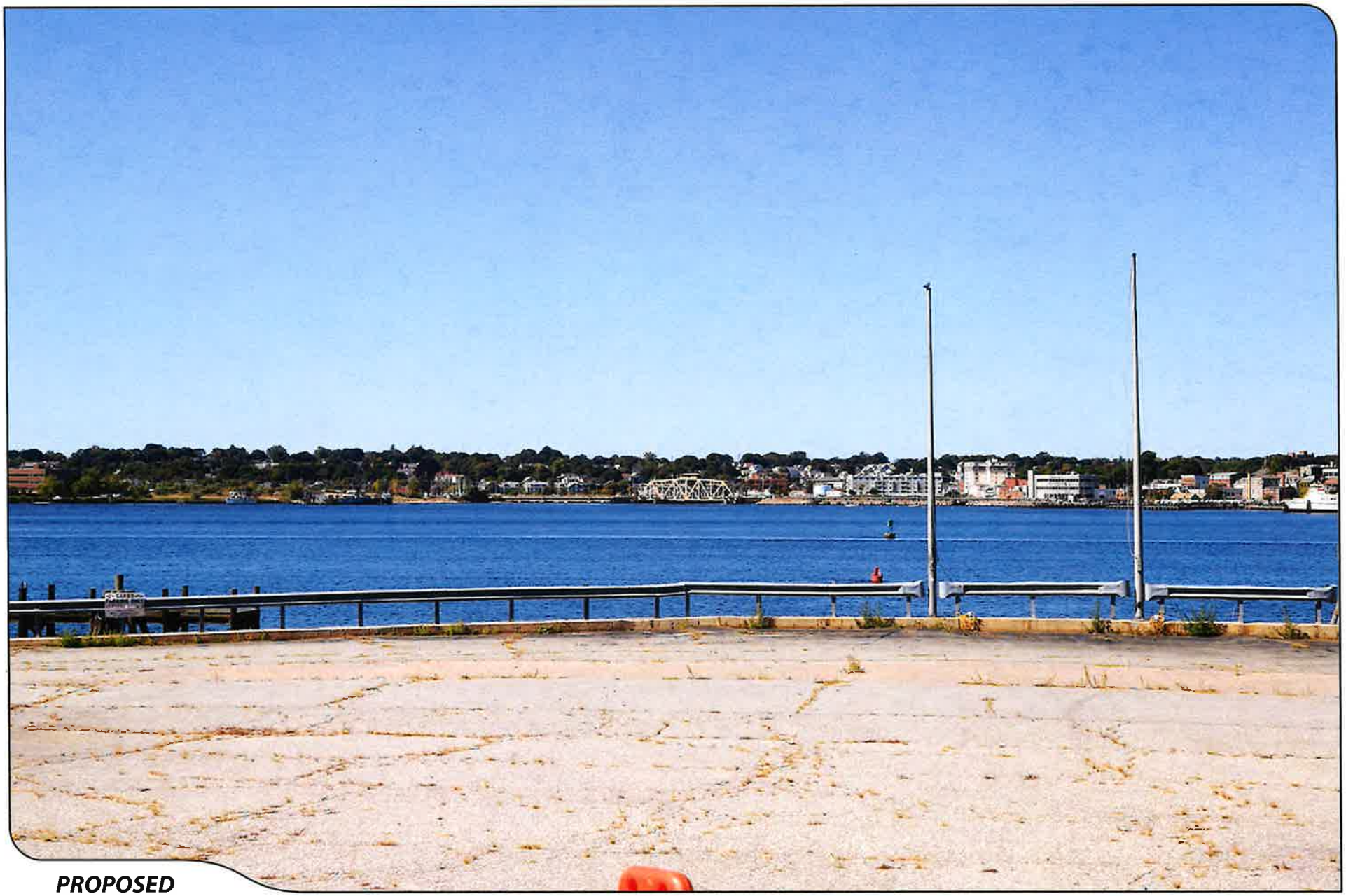
PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
29	**THAMES STREET, GROTON**	**SOUTHWEST**	**+/- 1.58 MILES**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon



PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
29	**THAMES STREET, GROTON**	**SOUTHWEST**	**+/- 1.58 MILES**	**VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

PHOTOGRAPHED ON 9/17/2019

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
30	**BAYVIEW AVENUE AT EASTERN POINT ROAD, GROTON**	**NORTHWEST**	**+/- 2.15 MILES**	**NOT VISIBLE**

ALL-POINTS TECHNOLOGY CORPORATION

verizon

C:\Users\mkopel\Dropbox (APT GIS)\APT GIS Team Folder\Projects\Verizon\New London RELO CT\mxd\New London RELO Viewshed Aerial REVISED.mxd

Viewshed Analysis Map

Proposed Wireless Telecommunications Facility
New London Relo CT
951 Bank Street
New London, Connecticut

Proposed facility height is 72.5 feet AGL (50' Tall Monopole on Rooftop).
Forest canopy height is derived from LiDAR data.
Area depicted on this map represents approximately 1,950 acres
Map information field verified by APT on September 17, 2019
Base Map Source: 2016 Aerial Photograph (CTECO)
Map Date: November 2019

Legend

- Proposed Site
- **Photo Locations (September 17, 2019)**
  - Not Visible
  - Year-Round Visibility
  - Predicted Year-Round Visibility
  - Areas of Potential Seasonal Visibility
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park
- **Protected Open Space Property**
  - Federal
  - Land Trust
  - Municipal
  - Private
  - State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The DSM captures the natural and built 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 Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

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

Limitations

This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 6 feet above the ground and intervening topography, tree canopy and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating the DSM, 2016 digital aerial photographs, and in-field observations from publicly-accessible locations. No access to private properties beyond the Host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

0 500 1,000 2,000 Feet

verizon

ALL-POINTS TECHNOLOGY CORPORATION

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Statewide and Regional Overview Map

Detail Area Inset Map
Base Map: 2016 Aerial Photograph (CTECO)

Viewshed Analysis Map

Proposed Wireless Telecommunications Facility
New London Relo CT
951 Bank Street
New London, Connecticut

Proposed facility height is 72.5 feet AGL (50' Tall Monopole on Rooftop).
Forest canopy height is derived from LiDAR data.
Study area encompasses a two-mile radius and includes 8,042 acres of land.
Map information field verified by APT on September 17, 2019
Base Map Source:USGS 7.5 Minute Topographic Quadrangle Maps, Montville, CT (1983), New London, CT (1984), Niantic, CT (1983), and Uncasville, CT (1984)
Map Date: November 2019

Legend

- Proposed Site
- Study Area (2-Mile Radius)

Photo Locations (September 17, 2019)

- Not Visible
- Year-Round Visibility
- Predicted Year-Round Visibility (255 Acres; +/- 180 Acres occurs over open water on the Thames River)
- Areas of Potential Seasonal Visibility (26 Acres)
- Municipal Boundary
- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The DSM captures the natural and built 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 Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

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

Limitations

This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of 5 feet above the ground and intervening topography, tree canopy, and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating the DSM, 2016 digital aerial photographs, and in-field observations from publicly accessible locations. No access to private properties beyond the Host Property was provided to APT personnel. This analysis does not claim to depict the only areas, or all locations, where visibility may occur, but is intended to provide a representation of those areas where the Facility is likely to be seen.

0 0.25 0.5 1 Miles

verizon

ALL-POINTS TECHNOLOGY CORPORATION

ATTACHMENT 5

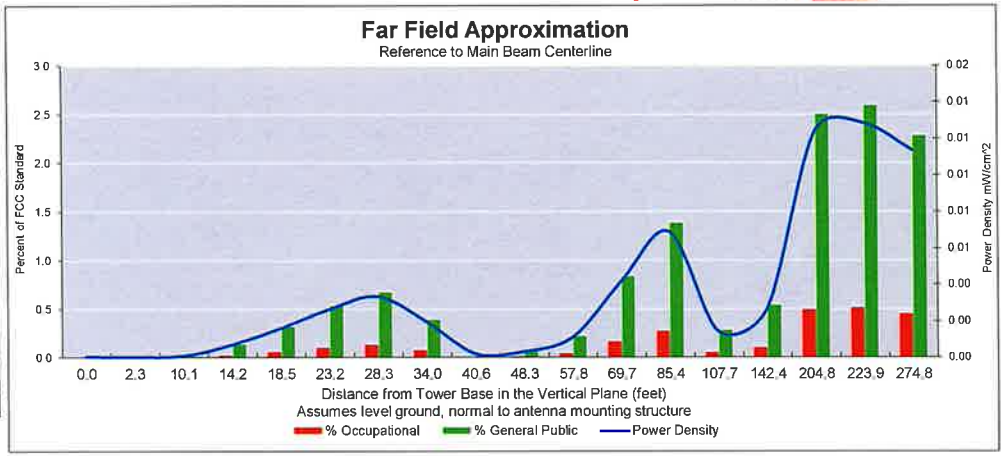
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	**New London CT**
Site #:	2-0133
Date:	11/11/19
Name:	Wesley Stevens
File Name:	New London CT - FF POWER (LTE-700)

Operating Freq. (MHz):	**746.0**
Antenna Height (ft):	**46.5**
Antenna Gain (dBi):	**14.5**
Antenna Size (in.):	**72.0**
Downtilt (degrees):	**7.0**
Feedline Loss (dB):	**0.0**
Tx Power (W):	**160.0**
No. of Channels:	**1**



Calc Angle	90.0	87.0	77.0	72.0	67.0	62.0	57.0	52.0	47.0	42.0	37.0	32.0	27.0	22.0	17.0	12.0	11.0	9.0
Solve for r, dx to antenna	43.5	43.6	44.7	45.7	47.3	49.3	51.9	55.2	59.5	65.0	72.3	82.1	95.9	116.2	148.9	209.3	228.1	278.2
Distance from Antenna Structure Base in Horizontal plane	0.0	2.3	10.1	14.2	18.5	23.2	28.3	34.0	40.6	48.3	57.8	69.7	85.4	107.7	142.4	204.8	223.9	274.8
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	39.26	41.9	36.86	28.19	24.35	21.81	20.37	22.16	31.11	28.33	22.25	15.45	11.93	17.07	12.18	2.58	1.69	0.51
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.3	0.1	0.1	0.5	0.5	0.5
Percent of General Population Standard	0.0	0.0	0.0	0.1	0.3	0.5	0.7	0.4	0.0	0.1	0.2	0.8	1.4	0.3	0.5	2.5	2.6	2.3

Antenna Type: **JAHH-65B-R3B**

Max%: **2.59%**

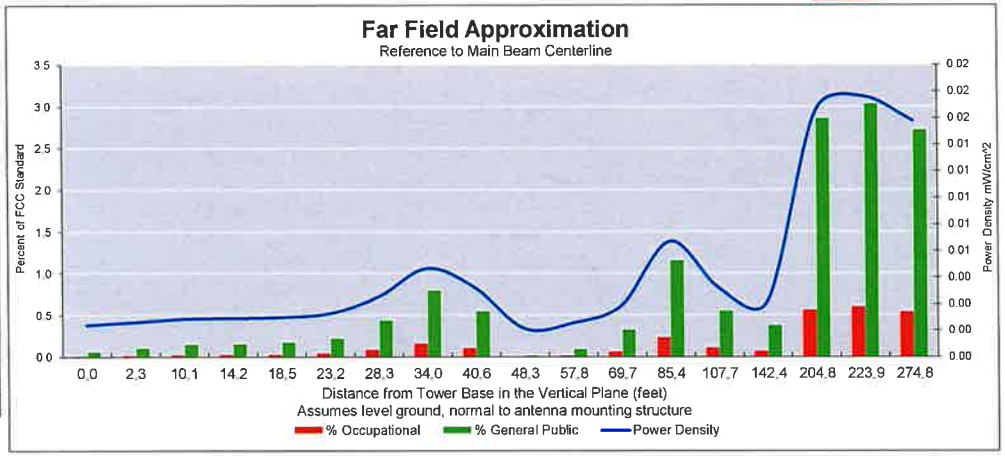
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	New London CT
Site #:	2-0133
Date:	11/11/19
Name:	Wesley Stevens
File Name:	New London CT - FF POWER (LTE-850)

Operating Freq. (MHz):	869.0
Antenna Height (ft):	46.5
Antenna Gain (dBi):	15.8
Antenna Size (in.):	72.0
Downtilt (degrees):	7.0
Feedline Loss (dB):	0.0
Tx Power (W):	160.0
No. of Channels:	1



Calc Angle	90.0	87.0	77.0	72.0	67.0	62.0	57.0	52.0	47.0	42.0	37.0	32.0	27.0	22.0	17.0	12.0	11.0	9.0
Solve for r, dx to antenna	43.5	43.6	44.7	45.7	47.3	49.3	51.9	55.2	59.5	65.0	72.3	82.1	95.9	116.2	148.9	209.3	228.1	278.2
Distance from Antenna Structure Base in Horizontal plane	0.0	2.3	10.1	14.2	18.5	23.2	28.3	34.0	40.6	48.3	57.8	69.7	85.4	107.7	142.4	204.8	223.9	274.8
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	32.49	30.54	28.77	28.39	27.71	26.3	22.85	19.71	20.71	33.81	26.58	20.16	13.33	14.86	14.34	2.64	1.63	0.38
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.02	0.02
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.6	0.6	0.5
Percent of General Population Standard	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.8	0.6	0.0	0.1	0.3	1.2	0.6	0.4	2.9	3.0	2.7

Antenna Type: **JAHH-65B-R3B**

Max%: **3.04%**

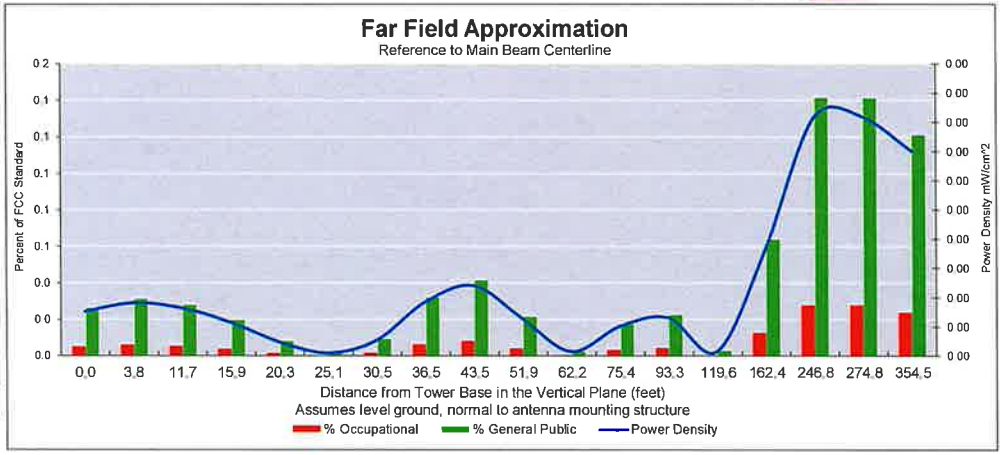
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	New London CT
Site #:	2-0133
Date:	11/11/19
Name:	Wesley Stevens
File Name:	New London CT - FF POWER (CDMA-850)

Operating Freq. (MHz):	869.0
Antenna Height (ft):	46.5
Antenna Gain (dBi):	15.2
Antenna Size (in.):	47.4
Downtilt (degrees):	5.0
Feedline Loss (dB):	0.0
Tx Power (W):	20.0
No. of Channels:	2



Calc Angle	90.0	85.0	75.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	9.0	7.0
Solve for r, dx to antenna	43.5	43.7	45.0	46.3	48.0	50.2	53.1	56.8	61.5	67.7	75.9	87.0	103.0	127.2	168.2	250.6	278.2	357.1
Distance from Antenna Structure Base in Horizontal plane	0.0	3.8	11.7	15.9	20.3	25.1	30.5	36.5	43.5	51.9	62.2	75.4	93.3	119.6	162.4	246.8	274.8	354.5
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	27	26.2	26.4	27.7	31.2	37.6	29.7	23.8	22	24	32.2	22.7	20.2	27.2	11.4	4.5	3.6	2.1
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Antenna Type: **BXA-80063-4CF**

Max%: **0.14%**

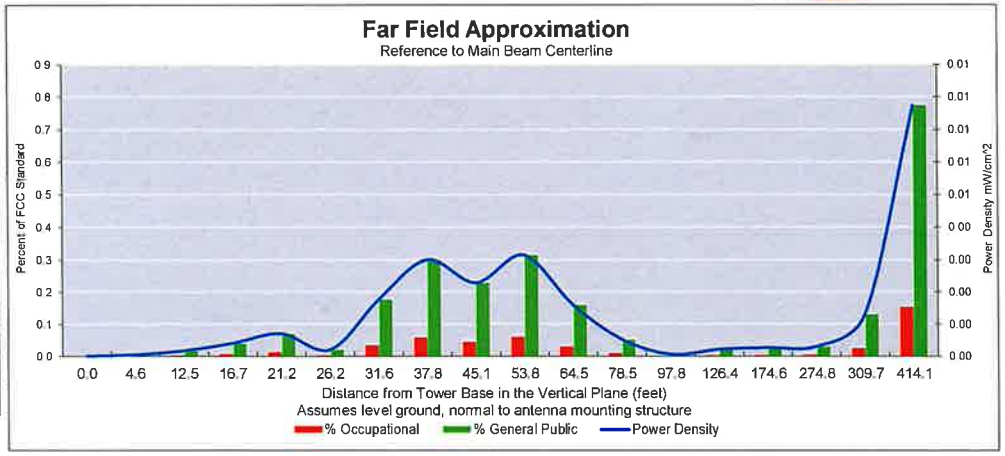
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	New London CT
Site #:	2-0133
Date:	11/11/19
Name:	Wesley Stevens
File Name:	New London CT - FF POWER (LTE-AWS)

Operating Freq. (MHz):	2145.0
Antenna Height (ft):	46.5
Antenna Gain (dBi):	18.5
Antenna Size (in.):	72.0
Downtilt (degrees):	4.0
Feedline Loss (dB):	0.0
Tx Power (W):	160.0
No. of Channels:	1



Calc Angle	90.0	84.0	74.0	69.0	64.0	59.0	54.0	49.0	44.0	39.0	34.0	29.0	24.0	19.0	14.0	9.0	8.0	6.0
Solve for r, dx to antenna	43.5	43.7	45.3	46.6	48.4	50.8	53.8	57.7	62.6	69.2	77.8	89.8	107.0	133.7	179.9	278.2	312.7	416.4
Distance from Antenna Structure Base in Horizontal plane	0.0	4.6	12.5	16.7	21.2	26.2	31.6	37.8	45.1	53.8	64.5	78.5	97.8	126.4	174.6	274.8	309.7	414.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	50.27	44.18	38.23	34.4	31.7	36.57	26.84	23.94	24.4	22.17	24.07	27.56	35.08	27.92	24.33	20	12.85	2.67
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.8

Antenna Type: **JAHH-65B-R3B**

Max%: **0.78%**

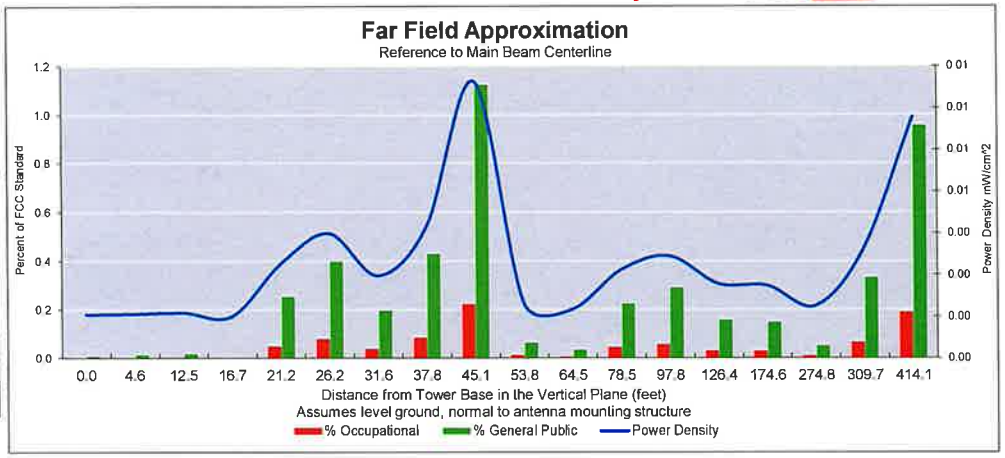
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	New London CT
Site #:	2-0133
Date:	11/11/19
Name:	Wesley Stevens
File Name:	New London CT - FF POWER (LTE-PCS)

Operating Freq. (MHz):	1970.0
Antenna Height (ft):	46.5
Antenna Gain (dBi):	18.5
Antenna Size (in.):	72.0
Downtilt (degrees):	4.0
Feedline Loss (dB):	0.0
Tx Power (W):	160.0
No. of Channels:	1



Calc Angle	90.0	84.0	74.0	69.0	64.0	59.0	54.0	49.0	44.0	39.0	34.0	29.0	24.0	19.0	14.0	9.0	8.0	6.0
Solve for r, dx to antenna	43.5	43.7	45.3	46.6	48.4	50.8	53.8	57.7	62.6	69.2	77.8	89.8	107.0	133.7	179.9	278.2	312.7	416.4
Distance from Antenna Structure Base in Horizontal plane	0.0	4.6	12.5	16.7	21.2	26.2	31.6	37.8	45.1	53.8	64.5	78.5	97.8	126.4	174.6	274.8	309.7	414.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	40.95	39.81	38	47.86	26.2	23.82	26.39	22.37	17.5	29.09	30.61	21.35	18.71	19.44	17.09	17.83	8.81	1.75
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.3	0.4	0.2	0.4	1.1	0.1	0.0	0.2	0.3	0.2	0.2	0.1	0.3	1.0

Antenna Type: **JAHH-65B-R3B**

Max%: **1.13%**

ATTACHMENT 6

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**************************************************
                    *            Federal Airways & Airspace
*
                    *         Summary Report: New Construction
*
                    *                Antenna Structure
*
**************************************************

                    Airspace User: Not Identified

                    File: NEW_LONDON_RELO_CT

                    Location:  New London, CT

                    Latitude:  41°-20'-46.51"         Longitude: 72°-
06'-44.46"

                    SITE ELEVATION AMSL......110.6 ft.
                    STRUCTURE HEIGHT.........73 ft.
                    OVERALL HEIGHT AMSL......184 ft.

     NOTICE CRITERIA
       FAR 77.9(a): NNR (DNE 200 ft AGL)
       FAR 77.9(b): NR  (Exceeds Notice Slope, Maximum: 178 ft.)
       FAR 77.9(c): NNR (Not a Traverse Way)
       FAR 77.9:    NNR FAR 77.9 IFR Straight-In Notice Criteria for
GON
       FAR 77.9:    NNR FAR 77.9 IFR Straight-In Notice Criteria for
0B8
       FAR 77.9(d): NNR (Off Airport Construction)

       NR  = Notice Required
       NNR = Notice Not Required
       PNR = Possible Notice Required (depends upon actual IFR
procedure)
             For new construction review Air Navigation Facilities at
bottom
             of this report.

       Notice to the FAA is required because height exceeds Notice
Slope criteria.
       The maximum height to avoid notice is 178 ft AMSL.

     OBSTRUCTION STANDARDS
       FAR 77.17(a)(1): DNE 499 ft AGL
       FAR 77.17(a)(2): DNE - Airport Surface
       FAR 77.19(a):    DNE - Horizontal Surface
       FAR 77.19(b):    DNE - Conical Surface
       FAR 77.19(c):    DNE - Primary Surface
```

FAR 77.19(d): DNE - Approach Surface
FAR 77.19(e): DNE - Approach Transitional Surface
FAR 77.19(e): DNE - Abeam Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: GON: GROTON-NEW LONDON
Type: A RD: 16983.21 RE: 8.7
FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Height No Greater Than 200 feet AGL.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

The structure is within VFR - Traffic Pattern Airspace Climb/Descent Area.
Structures exceeding the greater of 350' AAE, 77.17(a)(2), or VFR horizontal
and conical surfaces will receive a hazard determination from the FAA.
Maximum AMSL of Climb/Descent Area is 359 feet.

VFR TRAFFIC PATTERN AIRSPACE FOR: 0B8: ELIZABETH FIELD
Type: A RD: 39930.33 RE: 7
FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): Does Not Apply.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)
FAR 77.17(a)(3) Departure Surface Criteria (40:1)
DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)
FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
The Maximum Height Permitted is 1000 ft AMSL

PRIVATE LANDING FACILITIES

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
69CT	HEL	THE SHORE	106.31	5.62	+172	

No Impact to Private Landing Facility
Structure is beyond notice limit by 29148 feet.

AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRND APCH ANGLE	BEAR
GON	VOR/DME	R	110.8	109.24	17559	+175	CT	GROTON	.57	
GON	ATCT	Y	A/G	106.17	19040	+97	CT	GROTON-NEW LONDON	.29	
GON	LOCALIZER	U	111.3	98.29	21063	+177	CT	RWY 05 GROTON-NEW	.48	48
ORW	VOR/DME	I	110.0	21.99	82599	-126	CT	NORWICH	-.09	
MAD	VOR/DME	R	110.4	265.57	159696	-32	CT	MADISON	-.01	
HFD	VOR/DME	R	114.9	312.17	160463	-665	CT	HARTFORD	-.24	
SEY	VOR/DME	R	117.8	114.02	161210	+84	RI	SANDY POINT	.03	
HTO	VORTAC	R	113.6	199.81	165545	+162	NY	HAMPTON	.06	
PVD	RADAR	Y	2735.	45.71	196034	-382	RI	THEODORE FRANCIS	-.11	
QVH	RADAR ARSR	Y	1326.9	222.73	232635	-167	NY	RIVERHEAD	-.04	

CFR Title 47, §1.30000-§1.30004

AM STUDY NOT REQUIRED: Structure is not near a FCC licensed AM station.

Movement Method Proof as specified in §73.151(c) is not required.

Please review 'AM Station Report' for details.

Nearest AM Station: WXLM @ 5565 meters.

Airspace® Summary Version 19.11.545

11-27-2019
09:47:51

ATTACHMENT 7

Robinson + Cole

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

December 3, 2019

Via Certificate of Mailing

Michael Passero, Mayor
City of New London
181 State Street
New London, CT 06320

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications and Centralized Radio Access Network ("C-RAN") Facility at 951 Bank Street, New London, Connecticut**

Dear Mayor Passero:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Petition for Declaratory Ruling ("Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a wireless telecommunications facility and C-RAN hub facility at 951 Bank Street in New London (the "Property").

The wireless telecommunications facility will consist of a tower located on the westerly portion of the roof of the building. The 50-foot tower will support nine (9) panel antennas and nine (9) remote radio heads ("RRHs"). Equipment associated with the antennas and C-RAN will be located inside an existing portion of the building.

A copy of the full Petition is attached for your review. Landowners whose parcels abut the Property were also sent notice of this filing along with a copy of the Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment

20048672-v1

Robinson + Cole

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

December 3, 2019

Via Certificate of Mailing

Sybil Tetteh, City Planner
City of New London
181 State Street
New London, CT 06320

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications and Centralized Radio Access Network ("C-RAN") Facility at 951 Bank Street, New London, Connecticut**

Dear Ms. Tetteh:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Petition for Declaratory Ruling ("Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a wireless telecommunications facility and C-RAN hub facility at 951 Bank Street in New London (the "Property").

The wireless telecommunications facility will consist of a tower located on the westerly portion of the roof of the building. The 50-foot tower will support nine (9) panel antennas and nine (9) remote radio heads ("RRHs"). Equipment associated with the antennas and C-RAN will be located inside an existing portion of the building.

A copy of the full Petition is attached for your review. Landowners whose parcels abut the Property were also sent notice of this filing along with a copy of the Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment

20048823-v1

Robinson + Cole

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

December 3, 2019

Via Certificate of Mailing

RL New London, LLC
211 N Market Street
Wilmington, DE 19801

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications and Centralized Radio Access Network ("C-RAN") Facility at 951 Bank Street, New London, Connecticut**

Dear Sir or Madam:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Petition for Declaratory Ruling ("Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a wireless telecommunications facility and C-RAN hub facility at 951 Bank Street in New London (the "Property").

The wireless telecommunications facility will consist of a tower located on the westerly portion of the roof of the building. The 50-foot tower will support nine (9) panel antennas and nine (9) remote radio heads ("RRHs"). Equipment associated with the antennas and C-RAN will be located inside an existing portion of the building.

A copy of the full Petition is attached for your review. Landowners whose parcels abut the Property were also sent notice of this filing along with a copy of the Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

Kenneth C. Baldwin

Attachment

20048837-v1

ATTACHMENT 8

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

December 3, 2019

Via Certificate of Mailing

«Name_and_Address»

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications and Centralized Radio Access Network ("C-RAN") Facility at 951 Bank Street, New London, Connecticut**

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Petition for Declaratory Ruling ("Petition") with the Connecticut Siting Council ("Council") seeking approval to establish a wireless telecommunications facility and C-RAN hub facility at 951 Bank Street in New London (the "Property").

The wireless telecommunications facility will consist of a tower located on the westerly portion of the roof of the building. The 50-foot tower will support nine (9) panel antennas and nine (9) remote radio heads ("RRHs"). Equipment associated with the antennas and C-RAN will be located inside an existing portion of the building. A copy of the full Petition is attached for your review.

This notice is being sent to you because you are listed on the City Assessor's records as an owner of land that abuts the Property. If you have any questions regarding the Petition, the Council's process for reviewing the Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

Sincerely,

Kenneth C. Baldwin

Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTING PROPERTY OWNERS

951 BANK STREET
NEW LONDON, CONNECTICUT

	Property Address	Owner and Mailing Address
1.	931 Bank Street (Condominiums)	VAM Realty LLC 272 Roxbury Road Niantic, CT 06357 The Hartford Dispensary 345 Main Street Hartford, CT 06106
2.	29 Westwood Avenue	Doris R. Levinson Estate c/o Stephen E. Levinson, Co-Executor 92 Remsen Street, Apt. 4 Brooklyn, NY 11201
3.	41 Westwood Avenue	Raymond Suarez 41 Westwood Avenue New London, CT 06320
4.	49 Westwood Avenue	Slick LLC 136 Jefferson Avenue New London, CT 06320
5.	59 Westwood Avenue	Atlantic Broadcasting (CT) LLC 2 Batterymarch Park, 2nd Floor Quincy, MA 02169
6.	65 Westwood Avenue	Goldstein Family Investments LLC 11 East Wharf Road Waterford, CT 06385
7.	6 Faye Street	Larry Allen Radicioni 6 Faye Street New London, CT 06320
8.	Faye Street	Mary E. Kalamian, Co-Trustee Kalamian Family Trust 107 Clark Lane Waterford, CT 06385

	Property Address	Owner and Mailing Address
9.	963 Bank Street	Kalamian Realty LLC 963 Bank Street New London, CT 06320
10.	962 Bank Street	Jeffrey Daniels 1502 Hartford-New London Turnpike Oakdale, CT 06370
11.	960 Bank Street	Top of the Hill LLC 11 E Wharf Road Waterford, CT 06385