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Application for Certificate of Appropriateness

112 Revere Street
Boston, MA

Tab Item

Submitted by:

Christopher Swiniarski
McLane Middleton, Professional Association
900 Elm Street
Manchester, NH 03101

APPLICATION
CERTIFICATE of APPROPRIATENESS-or-
DESIGN APPROVAL-or-EXEMPTION

Deliver or mail to:
Environment Department
Boston City Hall, Rm 709
Boston, MA 02201

For Office Use Only

APPLICATION #_____

RECEIVED_____

FEE_____

HEARING DATE_____

DO NOT RETURN THIS FORM BY FAX OR EMAIL **DO NOT STAMP THIS BOX**

I. PROPERTY ADDRESS 112 Revere Street, Beacon Hill District

NAME of BUSINESS/PROPERTY A/K/A 122-126 Charles Street

The names, telephone numbers, postal and e-mail addresses requested below will be used for all subsequent communications relating to this application. Environment Department personnel cannot be responsible for illegible, incomplete or inaccurate contact information provided by applicants.

II. APPLICANT Cellco Partnership, d/b/a Verizon Wireless, Lessee

CONTACT NAME Christopher Swiniarski, Esq. RELATIONSHIP TO PROPERTY Lessee

MAILING ADDRESS McLane Middleton, 45 School Street, 6th Floor, Boston, MA ZIP 02108

PHONE 617.515.4184 EMAIL chris.swiniarski@mclane.com

PROPERTY OWNER Green Nominee Trust c/o Street &Co CONTACT NAME Brooks Porter

MAILING ADDRESS 78 Charles Street Boston, Ma. ZIP 02114

PHONE 617-742-3787 EMAIL Brooks@StreetandCompany.com

ARCHITECT Hudson Design Group, LLC CONTACT NAME Jose F. Xavier

MAILING ADDRESS 1600 Osgood St., Building 20 N, S3090, N. Reading Ma ZIP 01845

PHONE 978 557 5553 EMAIL Jose.Xavier@hudsondesigngroupllc.com

CONTRACTOR TBD CONTACT NAME_____

MAILING ADDRESS_____ ZIP_____

PHONE_____ EMAIL_____

III. DESCRIPTION OF PROPOSED WORK

A BRIEF OUTLINE OF THE PROPOSED WORK *MUST* BE GIVEN IN THE SPACE PROVIDED BELOW, OR THE APPLICATION WILL *NOT* BE ACCEPTED. This description provides the basis for the official notice and subsequent decision, and it must clearly represent the entirety of the project. Additional pages may be attached, if necessary, to provide more detailed information.

The applicant proposes to install equipment to be used to provide "personal wireless services" as defined in 47 U.S. Code § 332. It is important to note for the purposes of this application that federal law specifically preempts state and local law with respect to the provision of personal wireless services if the state or local law, as applied by the local governing body, has "the effect of prohibiting the provision of personal wireless services." 47 U.S. Code § 332 (c)(7)(B)(i)(II). Put simply, local authority should (indeed must) apply their own criteria in rendering a decision on an application for personal wireless service equipment. **Industrial Tower and Wireless LLC v. Haddad, 109 F.Supp.3d 284 (2015).**

Nevertheless, denial of an application under local criteria will not stand, and will be reversed, if the applicant demonstrates that the denial is an effective prohibition of personal wireless service in violation of federal law. Green Mountain Realty Corp. v. Leonard, 750 F.3d 30, 38 (1st Cir.2014). An effective prohibition results when an applicant has shown (1) that a significant coverage gap exists, and (2) that the proposal is the only or most viable alternative to address the gap. See Industrial Tower at 297. In these instances, the proposal is significantly delayed, but the end result is a facility which bears no input or conditions from the local authority.

Verizon Wireless prefers a more collaborative approach with the Beacon Hill Architectural Commission, where the Commission retains its authority and works with Verizon Wireless to arrive at a design that suits the needs of both parties. Indeed, the federal law cited above is a "deliberate compromise between two competing aims — to facilitate nationally the growth of wireless telephone service and to maintain substantial local control over siting of towers." Town of Amherst, N.H. v. Omnipoint Communications Enterprises, Inc., 173 F.3d 9, 13 (1st Cir.1999). These are both vitally important objectives of the Beacon Hill community and all others, and we therefore present you with the following proposal to achieve this important compromise. ***Continued on attached pages.***

The Verizon Wireless proposal consists of constructing fiberglass rooftop appurtenances specifically designed to be have the appearance of attractive and period correct architecture. The material used for these appurtenances must be fiberglass in order for radio frequencies to be transmitted through the material. Actual brick, wood, or other conventional building materials would render the installation ineffective, because radio frequencies cannot transmit through these conventional materials. Specifically, the installation consists of the following all as shown in greater detail on the plans submitted herewith:

(1) 4' x 4' brick enclosure to match the existing facade (fiberglass textured, painted and finished to appear as brick), located 13.5' from the nearest street (Charles Street). The placement of this structure makes it virtually indistinguishable from any public right of way or the surrounding community, as shown on the photo simulations included herewith. This enclosure houses 2 antennae which provide wireless service to residents of Beacon Hill located to the south, southeast, south west, and west of the facility.

(2) 3' x 3' brick enclosure to match the existing facade (fiberglass textured, painted and finished to appear as brick), located 13.5' from the nearest street (Charles Street). The placement of this structure also makes it virtually indistinguishable from any public right of way or the surrounding community, as shown on the photo simulations included herewith. This enclosure houses 1 antenna which provides wireless service to residents of Beacon Hill located to the east and northeast of the facility.

(3) Replacement flashing constructed of fiberglass to replace existing flashing while maintaining the existing appearance thereof.

(4) Appurtenant radio heads, cabling, and electrical equipment not visible.

Th proposed facility represents the least intrusive means for Verizon Wireless to address a significant gap in coverage, as shown in the proposed coverage maps included herewith. Specifically, the area of Beacon Hill is currently served by facilities on Newbury and Cambridge Street, and those facilities are now overloaded due to the proliferation of increased demand for advanced wireless service. Put simply, residents of Beacon Hill are entitled to demand the best possible wireless service available under existing technology, but current wireless facilities are now overloaded to a point where they are not able to provide that optimal service. The proposed facility remedies that gap in optimal service in a way that has no adverse impact on the aesthetic quality of the surrounding community, which it makes it the best way to provide the service that Beacon Hill residents demand.

Nevertheless, Verizon Wireless is sensitive to the commission's goals of preserving the aesthetic integrity of Beacon Hill. We therefore look forward to working with you to evaluate any modifications to the above-referenced design that the commission feels may be appropriate. We have only one objective in this process, which is providing the wireless service that so many residents of Beacon Hill depend upon as a valuable (perhaps the most valuable) utility. We are confident that we can work with this commission to achieve that objective while maintaining the integrity of the community that this commission is entrusted with protecting.

REQUIRED DOCUMENTATION: Please include all required documentation with this application; review instructions carefully for details.

ESTIMATED COST OF PROPOSED WORK: $120,000

IV. DULY AUTHORIZED SIGNATURES **(both required)**

The facts set forth above in this application and accompanying documents are a true statement made under penalty of perjury.

APPLICANT_____ OWNER*_____

***(If building is a condominium or cooperative, the chairman must sign.)**

PRINT By its Attorney, Christopher Swiniarski PRINT Brooks Porter

Environment Department personnel cannot be responsible for verifying the authority of the above individuals to sign this application. Misrepresentation of signatory authority may result in the invalidation of the application.
UNSIGNED OR PARTIALLY SIGNED FORMS WILL BE REJECTED

THIS APPLICATION IS NOT COMPLETE WITHOUT SIGNATURES, FEES AND REQUIRED DOCUMENTATION.
The checklist below is for reference only: Please refer to the detailed application instructions for deadlines, fee schedule and required documentation specific to your proposal.

☑ COMPLETED APPLICATION FORM

☑ APPLICATION FEE (Check or money order made payable to City of Boston; see fee schedule in Instructions)

☑ DESCRIPTION OF WORK (A brief description must be included on the front page; additional pages of detailed information may be attached. **Applications that only note "see attached" will not be accepted.**)

☑ PHOTOS OF EXISTING CONDITIONS

☑ DRAWINGS AND SPECIFICATIONS AS REQUIRED (See "documentation requirements" in instructions)

Prepared For:
VERIZON WIRELESS
Site Name:
BEACON HILL MA

122-126 CHARLES STREET
BOSTON, MA 02114

SITE NAME: BEACON HILL MA

ADDRESS: 122-126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

Hudson Design Group LLC

75 SUMMIT STREET
PHILMONT, NY 12565

1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845

TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 10/31/2016 | REV: 5

DRAWN BY: FM

SCALE: N.T.S.

THIS STUDY DOES NOT CLAIM IN ANY WAY TO SHOW THE ONLY AREAS OF VISIBILITY. IT IS MEANT TO SHOW A BROAD REPRESENTATION OF AREAS WHERE THE PROPOSED INSTALLATION MAY BE VISIBLE BASED UPON THE BEST INFORMATION FOR TOPOGRAPHY AND VEGETATION LOCATIONS AVAILABLE TO DATE.

LOCUS MAP

TAKEN FROM GOOGLE.COM ON 03/11/16

THIS VISIBILITY STUDY CLAIMS IN NO WAY TO SHOW THE ONLY AREA WHERE THE PROPOSED INSTALLATION WILL BE SEEN. IT IS MEANT FOR A VISUAL REFERENCE ONLY. THE LOCATIONS OF EQUIPMENT ARE SUBJECT TO CHANGE PENDING A STRUCTURAL EVALUATION OF THE EXISTING STRUCTURE.

14°48'

TRUE NORTH

MAGNETIC NORTH

(#) PHOTO LOCATION

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

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VISIBILITY MAP

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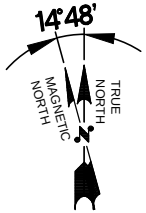

AREA OF VISIBILITY

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

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EXISTING/PROPOSED CONDITIONS LOCATION # 1 DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW SOUTHEAST FROM REVERE STREET
(EQUIPMENT NOT VISIBLE)

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
BOSTON, MA 02114

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verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

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EXISTING/PROPOSED CONDITIONS LOCATION # 2 DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW SOUTH FROM 125 CHARLES STREET
(EQUIPMENT NOT VISIBLE)

SITE NAME: BEACON HILL MA

ADDRESS: 122-126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

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SITE TYPE: ROOFTOP

DATE: 10/31/2016 | REV: 5

DRAWN BY: FM

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EXISTING/PROPOSED CONDITIONS LOCATION # 3 DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW SOUTHWEST FROM 101 REVERE STREET
(EQUIPMENT NOT VISIBLE)

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
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SITE TYPE: ROOFTOP

DATE: 10/31/2016 | REV: 5

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EXISTING/PROPOSED CONDITIONS LOCATION # 4 DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW NORTHWEST FROM 99 CHARLES STREET
(EQUIPMENT NOT VISIBLE)

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
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verizon

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DATE: 10/31/2016 | REV: 5

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EXISTING/PROPOSED CONDITIONS LOCATION # 5 DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW NORTH FROM INTERSECTION OF PINCKNEY STREET AND CHARLES STREET (EQUIPMENT NOT VISIBLE)

SITE NAME: BEACON HILL MA

ADDRESS: 122-126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

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1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845

TEL: (978) 557-5553
FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 10/31/2016 REV: 5

DRAWN BY: FM

SCALE: N.T.S.

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EXISTING CONDITIONS

LOCATION # 6

DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW NORTHWEST FROM 91 CHARLES STREET

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
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FAX: (978) 336-5586

SITE TYPE: ROOFTOP

DATE: 10/31/2016 | REV: 5

DRAWN BY: FM

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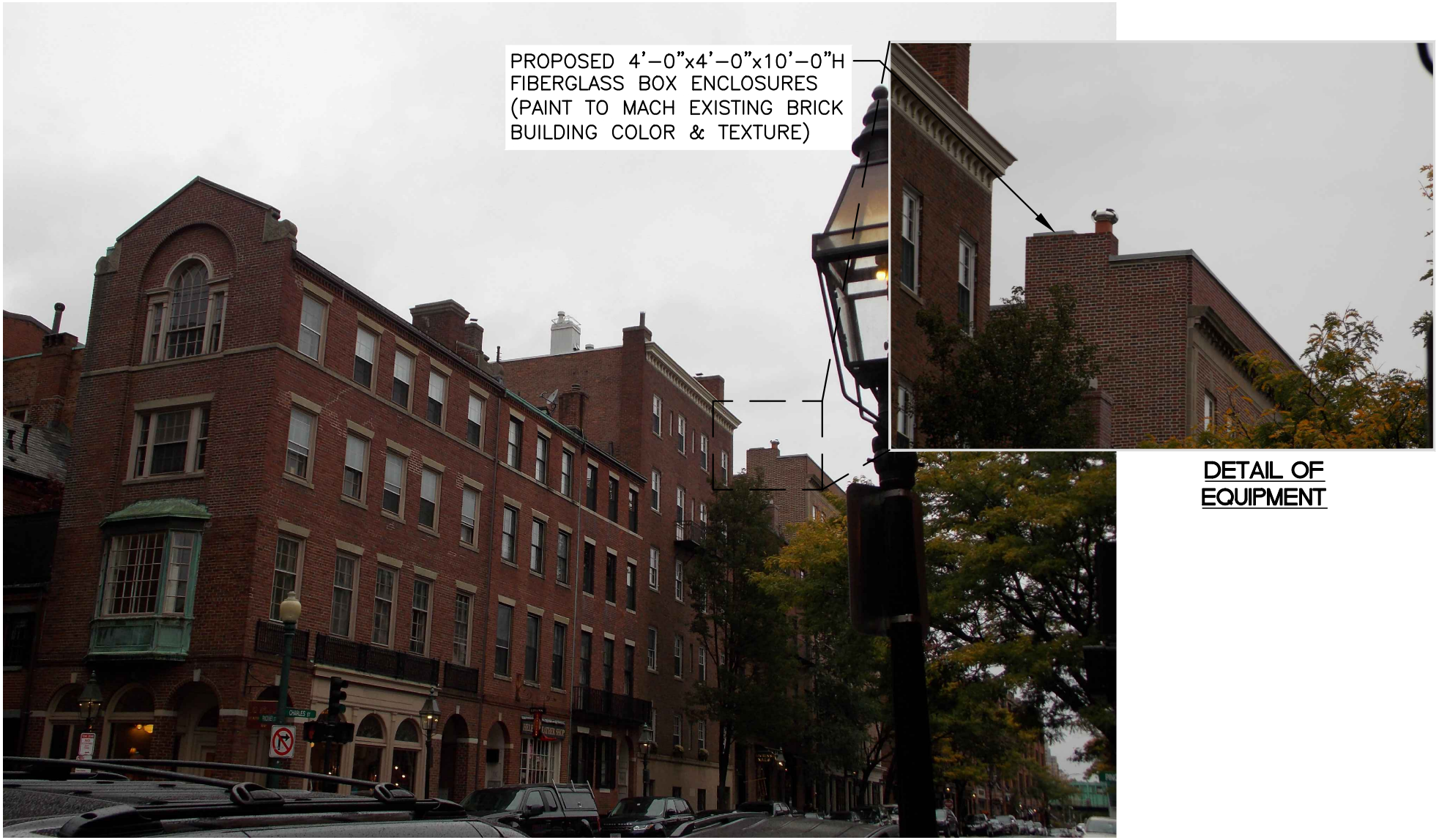
PROPOSED CONDITIONS: OPTION A LOCATION # 6

DATE OF PHOTO: 10/27/2016



DETAIL OF EQUIPMENT

VIEW NORTHWEST FROM 91 CHARLES STREET

SITE NAME: BEACON HILL MA

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PROPOSED CONDITIONS: OPTION B LOCATION # 6

DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW NORTHWEST FROM 91 CHARLES STREET

SITE NAME: BEACON HILL MA

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verizon

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EXISTING/PROPOSED CONDITIONS LOCATION # 7 DATE OF PHOTO: 10/27/2016

VIEW WEST FROM 60A REVERE STREET
(EQUIPMENT NOT VISIBLE)

SITE NAME: BEACON HILL MA

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EXISTING CONDITIONS

LOCATION # 8

DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW WEST FROM INTERSECTION OF W. CEDAR STREET AND REVERE STREET

SITE NAME: BEACON HILL MA

ADDRESS: 122-126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

118 FLANDERS ROAD
WESTBOROUGH, MA 01581

Hudson Design Group LLC

75 SUMMIT STREET
PHILMONT, NY 12565

1600 OSGOOD STREET
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SITE TYPE: ROOFTOP

DATE: 10/31/2016 | REV: 5

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SCALE: N.T.S.

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PROPOSED CONDITIONS: OPTION A LOCATION # 8 DATE OF PHOTO: 10/27/2016

DETAIL OF EQUIPMENT

VIEW WEST FROM INTERSECTION OF W. CEDAR STREET AND REVERE STREET

SITE NAME: BEACON HILL MA

ADDRESS: 122-126 CHARLES STREET
BOSTON, MA 02114

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verizon

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SITE TYPE: ROOFTOP

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DRAWN BY: FM

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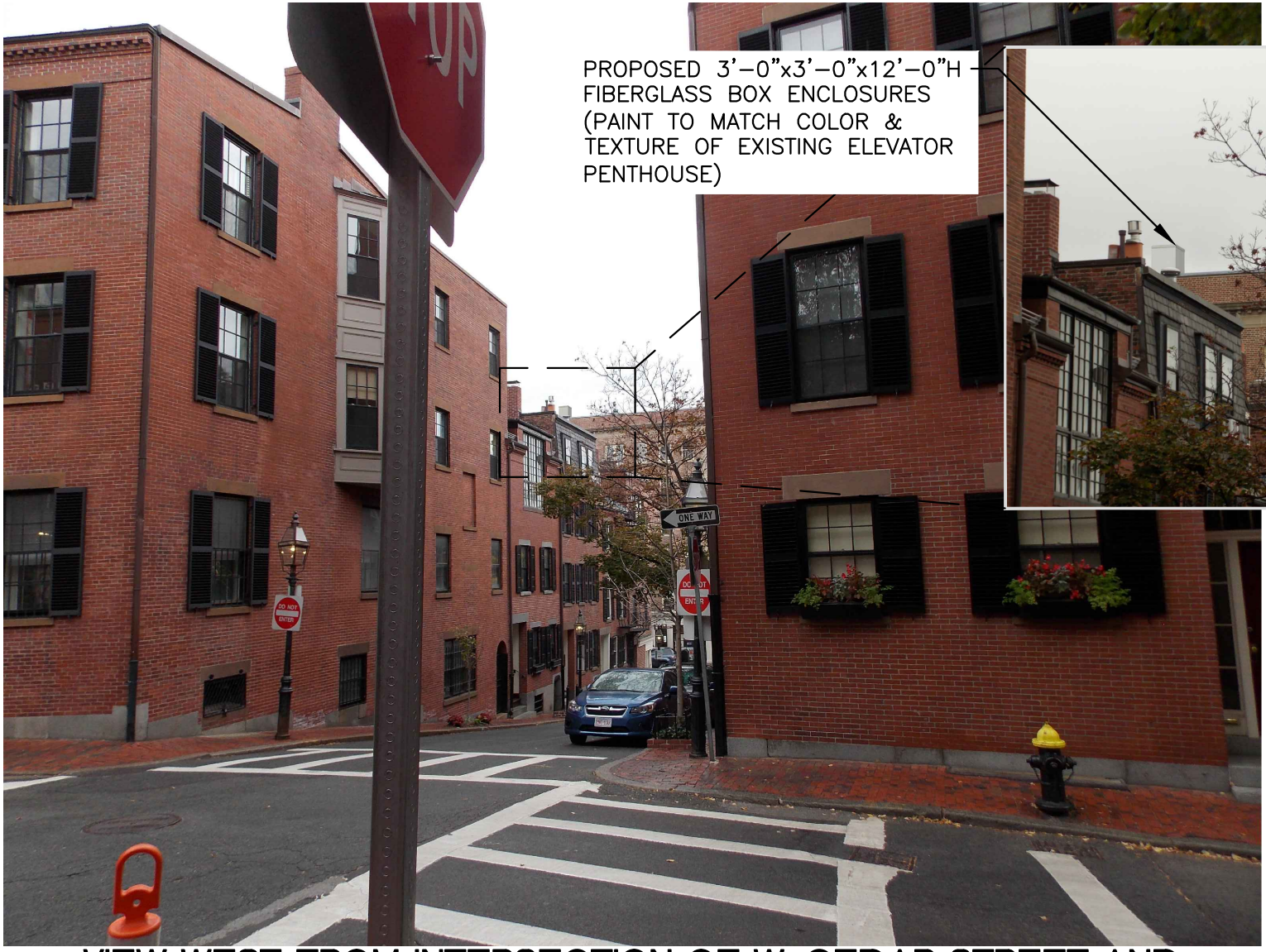
PROPOSED CONDITIONS: OPTION B LOCATION # 8 DATE OF PHOTO: 10/27/2016



DETAIL OF EQUIPMENT

VIEW WEST FROM INTERSECTION OF W. CEDAR STREET AND REVERE STREET

SITE NAME: BEACON HILL MA

ADDRESS: 122–126 CHARLES STREET
BOSTON, MA 02114

PREPARED FOR:

verizon

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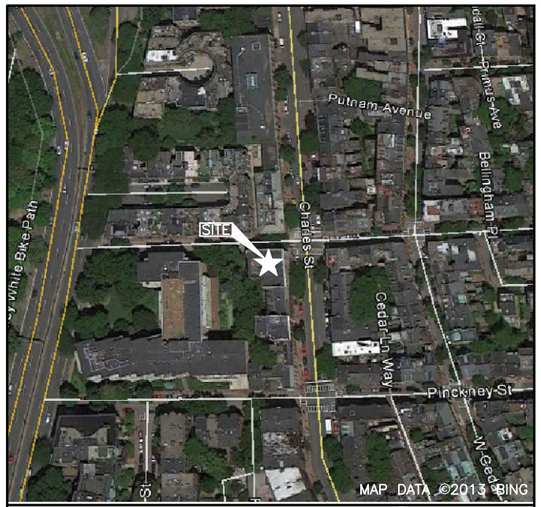
verizon

FOR ZONING

BEACON HILL MA

112 REVERE STREET (A/K/A 122-126 CHARLES STREET)
BOSTON, MA 02114



VICINITY MAP — SCALE: N.T.S.

DIRECTIONS TO SITE:

START OUT GOING SOUTHWEST ON FLANDERS RD. TURN LEFT ONTO WASHINGTON ST. TURN RIGHT ONTO RT-9 E. 5.5 MI. MERGE ONTO I-90 E/MASSACHUSETTS TURNPIKE/MASS PIKE TOWARD BOSTON/I-95 (PORTIONS TOLL).19.9 MI. TAKE EXIT 18 ON THE LEFT TOWARD CAMBRIDGE/SOMERVILLE. 0.5 MI. MERGE ONTO CAMBRIDGE ST. 0.02 MI. TURN RIGHT ONTO SOLDIERS FIELD RD. 0.9 MI. SOLDIERS FIELD RD BECOMES STORROW DR. 2.2 MI. TURN RIGHT ONTO REVERE ST. 0.06 MI. 112 REVERE ST IS ON THE RIGHT

CONSULTANT TEAM

PROJECT ENGINEER

HUDSON DESIGN GROUP, LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

MEP ENGINEER

HUDSON DESIGN GROUP, LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

SURVEYOR

NORTHEAST SURVEY CONSULTANTS
116 PLEASANT ST., SUITE 302
EASTHAMPTON, MA 01027
TEL: 1-(413)-203-5144

PROJECT SUMMARY

SITE NAME:	BEACON HILL MA
SITE ADDRESS:	112 REVERE STREET (A/K/A 122-126 CHARLES STREET) BOSTON, MA 02114
APPLICANT:	VERIZON WIRELESS 118 FLANDERS ROAD WESTBOROUGH, MA 01581
ZONING DISTRICT:	RESIDENTIAL/COMMERCIAL
ZONING JURISDICTION:	CITY OF BOSTON
LATITUDE:	N42° 21' 33.7"
LONGITUDE:	W71° 04' 15.5"
PARCEL ID:	0502434000
PROPERTY OWNER:	DORIS J. KEATING 78 CHARLES STREET BOSTON, MA 02114

SHEET INDEX

DIG SAFE
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UNDERGROUND SERVICE ALERT

PREPARED FOR:
verizon
118 FLANDERS ROAD
WESTBOROUGH, MA 01581

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

COMMONWEALTH OF MASSACHUSETTS
DANIEL P. HAMM
CIVIL
No.40720
REGISTERED PROFESSIONAL ENGINEER

Daniel P. Hamm

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

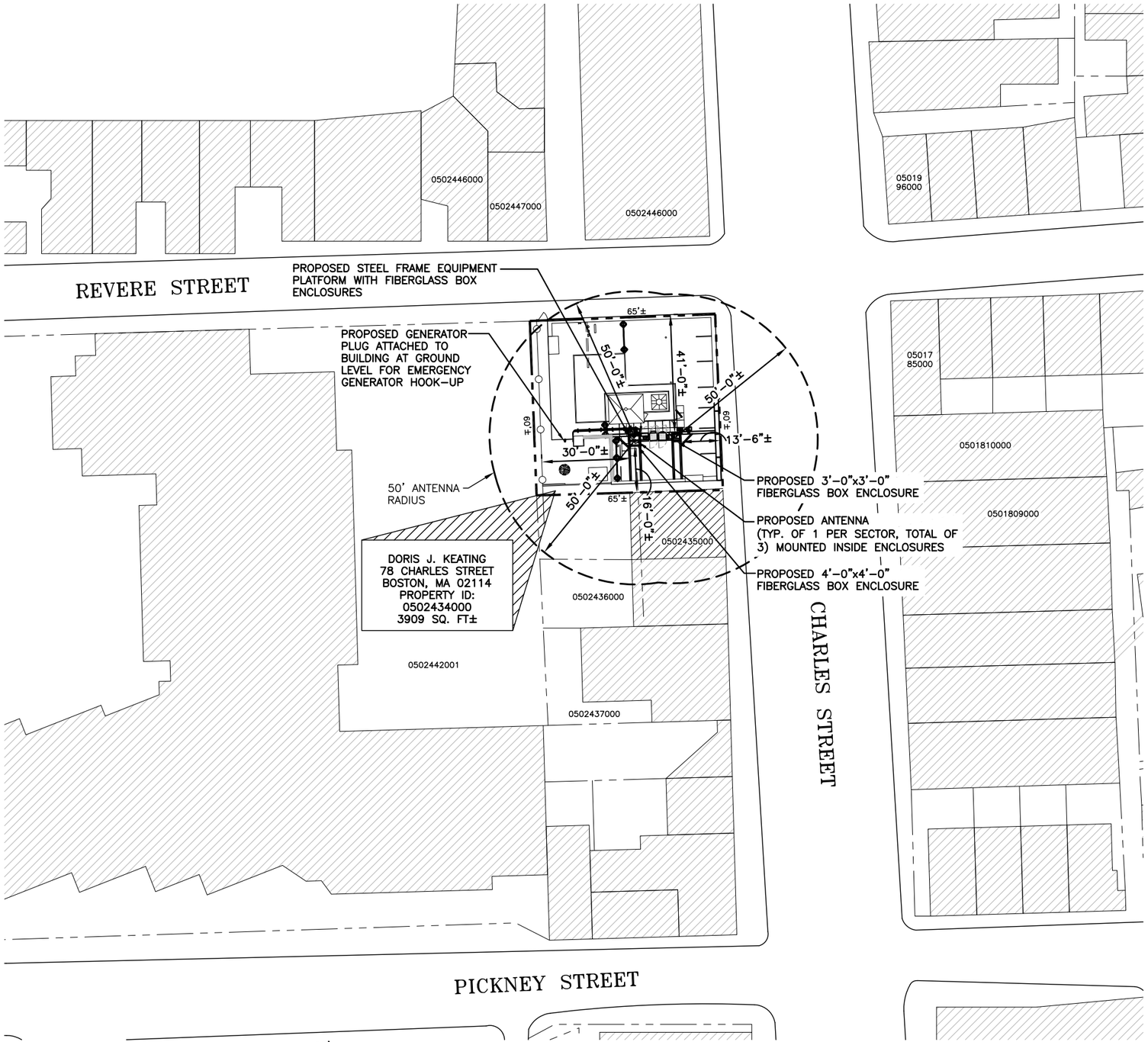
REV.	DATE	DESCRIPTION	BY
1	10/14/16	FOR ZONING	JH
0	08/06/13	FOR REVIEW	SG

SITE NAME:
BEACON HILL MA

SITE ADDRESS:
112 REVERE STREET (A/K/A 122-126 CHARLES STREET)
BOSTON, MA 02114

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



RADIUS PLAN
22x34 SCALE: 1"=20'-0"
11x17 SCALE: 1"=40'-0"

1 / C-1

GRAPHIC SCALE
0 10 20 40 60 FEET

PROFESSIONAL LAND SURVEYOR APPROVAL

COMMONWEALTH OF MASSACHUSETTS
DANIEL F. STASZ No.47160 REGISTERED PROFESSIONAL LAND SURVEYOR

DANIEL F. STASZ PLS #47160

FOR ZONING

SOURCE:

CITY OF BOSTON TAX MAP AND GIS ONLINE MAPS

SITE SPECIFIC NOTES:

1. SITE SURVEY HAS NOT BEEN CONDUCTED BY HUDSON DESIGN GROUP, LLC FOR THIS PROJECT. ALL SETBACKS SHOWN ON THIS PLAN ARE TAKEN FROM TIP OF PROPOSED ANTENNAS TO PROPERTY LINES AND ARE APPROXIMATE.
2. VERIFY AZIMUTHS W/ RF ENGINEER.
3. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.

ZONES:

H-2-65	BOSTON PROPER – RESIDENTIAL/COMMERCIAL

LEGEND:

- PROPERTY LINE – SUBJECT PARCEL
- RADIUS LINE
- PROPERTY LINE – ABUTTERS
- ZONING BOUNDARY LINE
- EXISTING BUILDING

ZONING INFORMATION:

JURISDICTION: CITY OF BOSTON

ZONING DISTRICT TYPE: RESIDENTIAL/COMMERCIAL

DIMENSION REQUIREMENTS:	REQUIRED	PROP.±
FRONT YARD SETBACK:	N/A	13'-6"
SIDE YARD SETBACK:	N/A	16'-0" & 41'-0"
REAR YARD SETBACK:	NA	30'
MAXIMUM BUILDING HEIGHT:	20' ABOVE ROOF HEIGHT	12'-6" A.R.L.

(ALL MEASUREMENTS ARE IN FEET ± UNLESS OTHERWISE NOTED)

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SUBMITTALS

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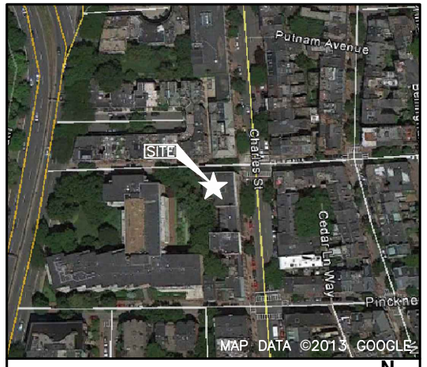
SHEET TITLE
RADIUS PLAN

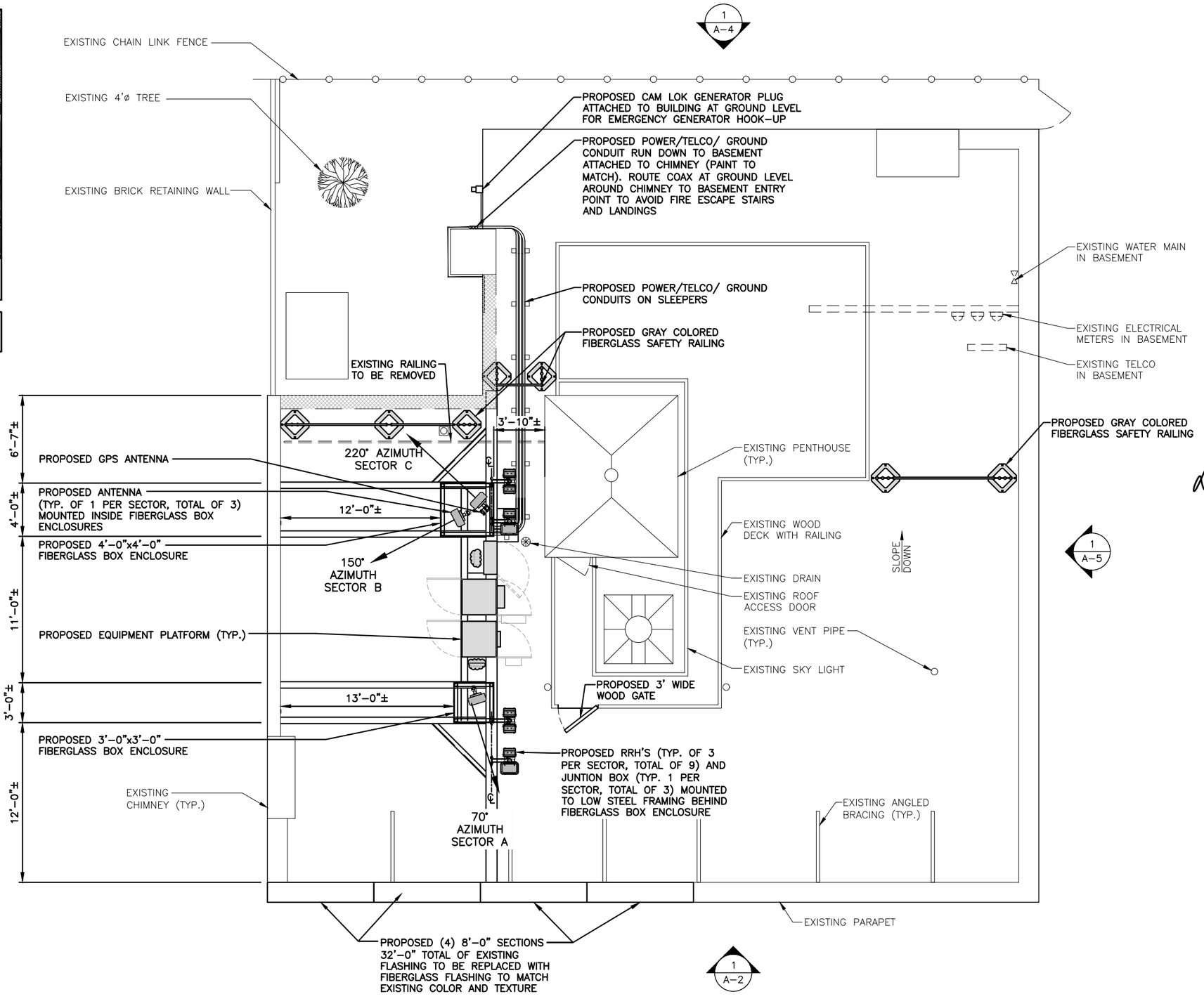
SHEET NUMBER
C-1

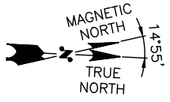


VICINITY MAP **SCALE: N.T.S.**

APPROXIMATE COORDINATES:	LAT:	N42° 21' 33.7"
	LONG:	W71° 04' 15.5"

NOTE:
AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS NOT BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF A STRUCTURAL ANALYSIS.





ROOF PLAN 1 A-1
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

GRAPHIC SCALE
0 2 4 8 12 FEET

FOR ZONING

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Daniel P. Hamm

CHECKED BY: JX

APPROVED BY: DPH

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0	08/06/13	FOR REVIEW	SG

SITE NAME:
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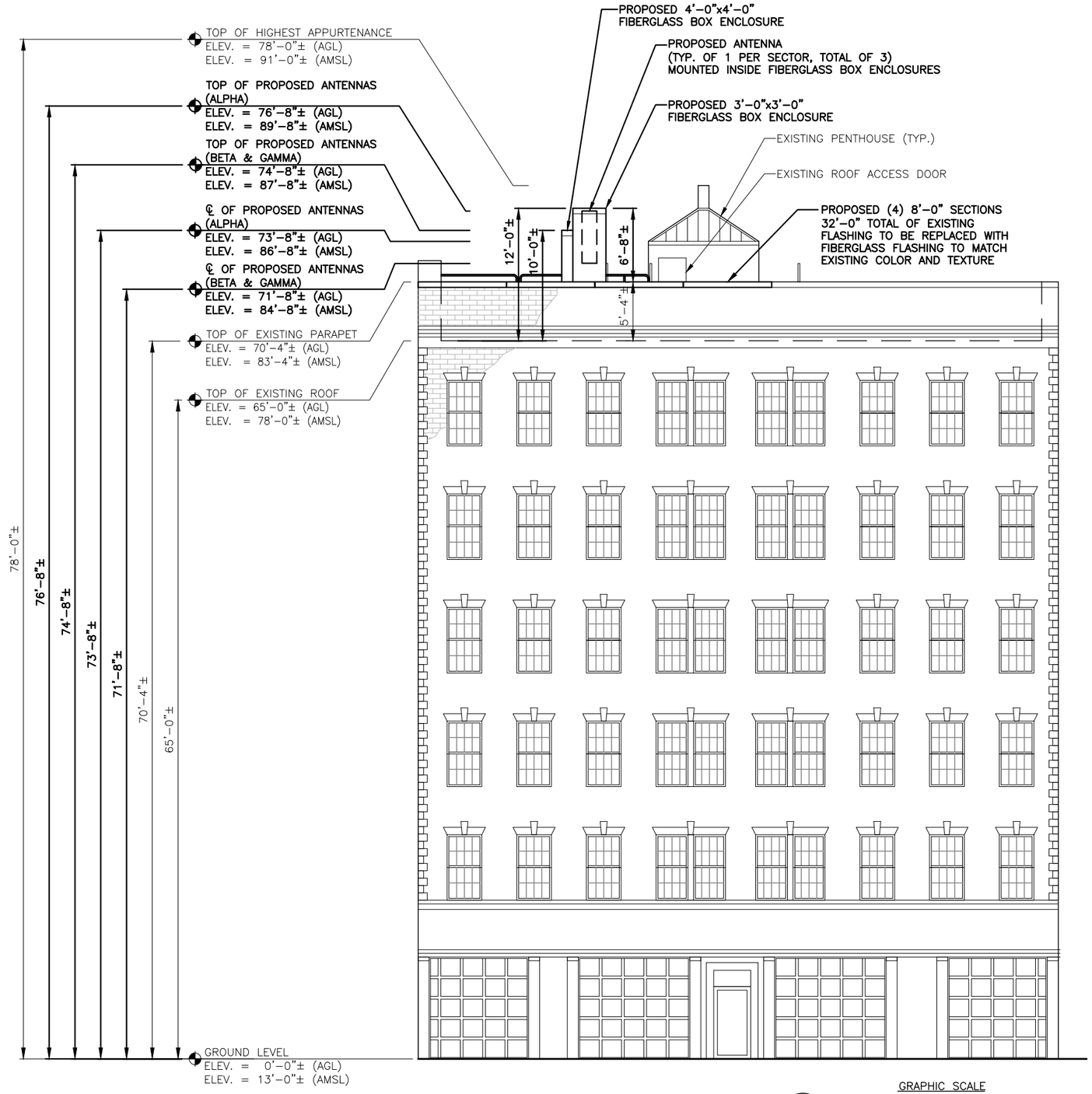
SHEET TITLE
ROOF PLAN

SHEET NUMBER
A-1



EAST ELEVATION
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

1 / A-2

GRAPHIC SCALE
0 2'-8" 5'-4" 10'-8" 16'-0"

PROPOSED ANTENNA INFORMATION

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
1	PROPOSED	70°	45'
2	PROPOSED	150°	35'
3	PROPOSED	220°	45'

NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

NOTE:
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FOR ZONING

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0	08/06/13	FOR REVIEW	SG

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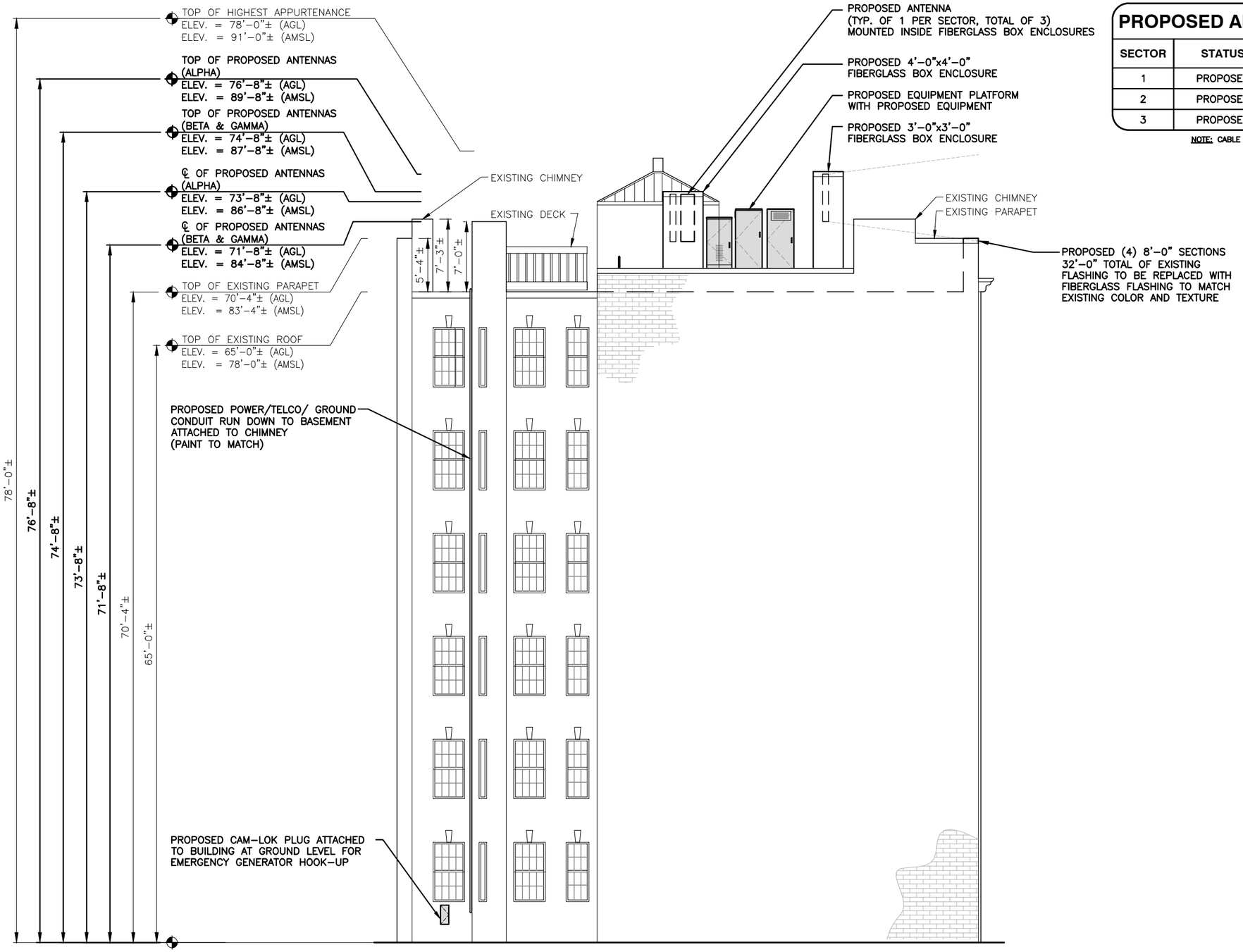
SHEET TITLE
EAST ELEVATION

SHEET NUMBER
A-2



PROPOSED ANTENNA INFORMATION

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
1	PROPOSED	70°	45'
2	PROPOSED	150°	35'
3	PROPOSED	220°	45'

NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

SOUTH ELEVATION
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

1
A-3

GRAPHIC SCALE
0 2'-8" 5'-4" 10'-8" 16'-0"

NOTE:
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FOR ZONING

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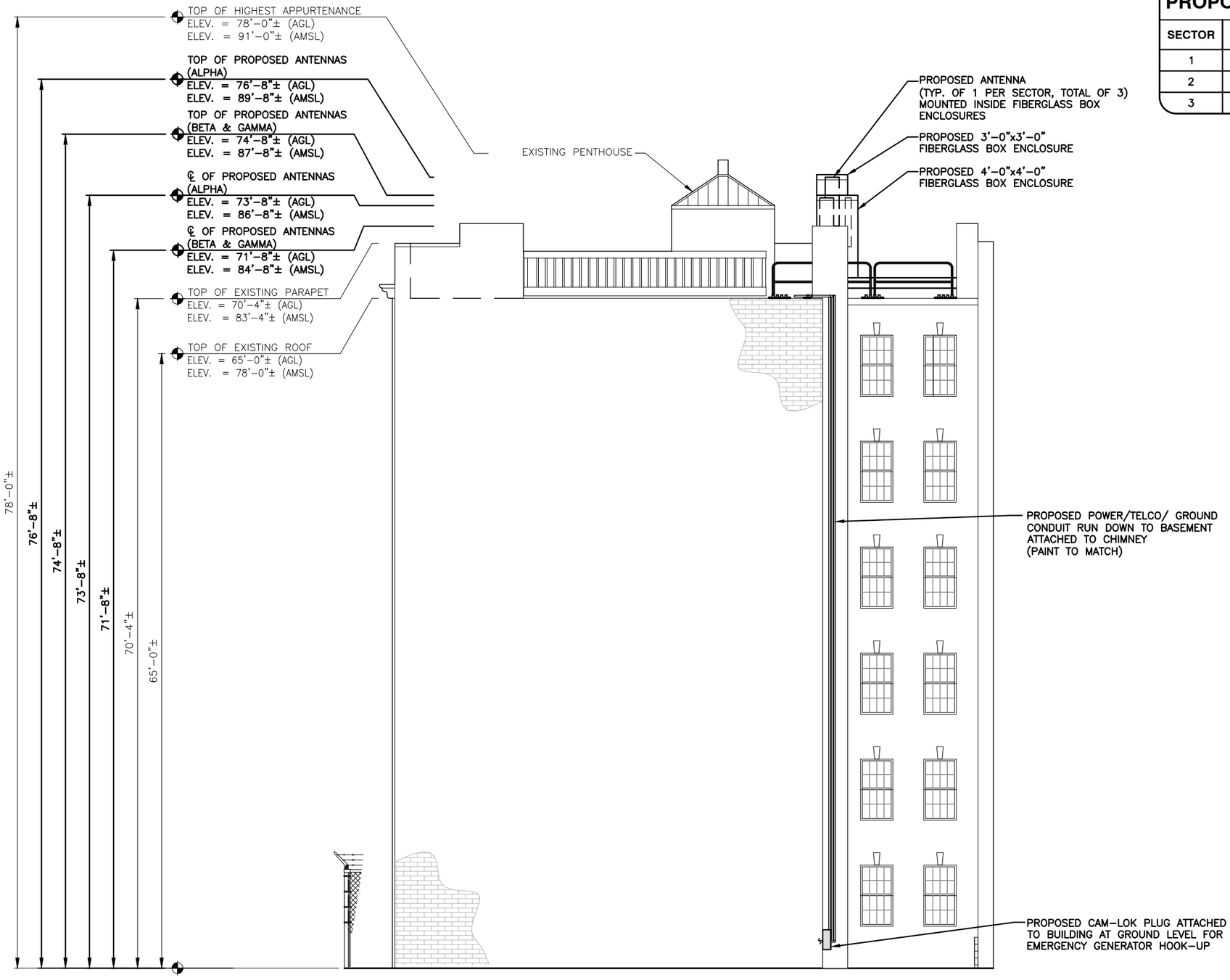
SHEET TITLE
SOUTH ELEVATION

SHEET NUMBER
A-3



PROPOSED ANTENNA INFORMATION

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
1	PROPOSED	70°	45'
2	PROPOSED	150°	35'
3	PROPOSED	220°	45'

NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

WEST ELEVATION
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

1 / A-4

GRAPHIC SCALE
0 2'-8" 5'-4" 10'-8" 16'-0"

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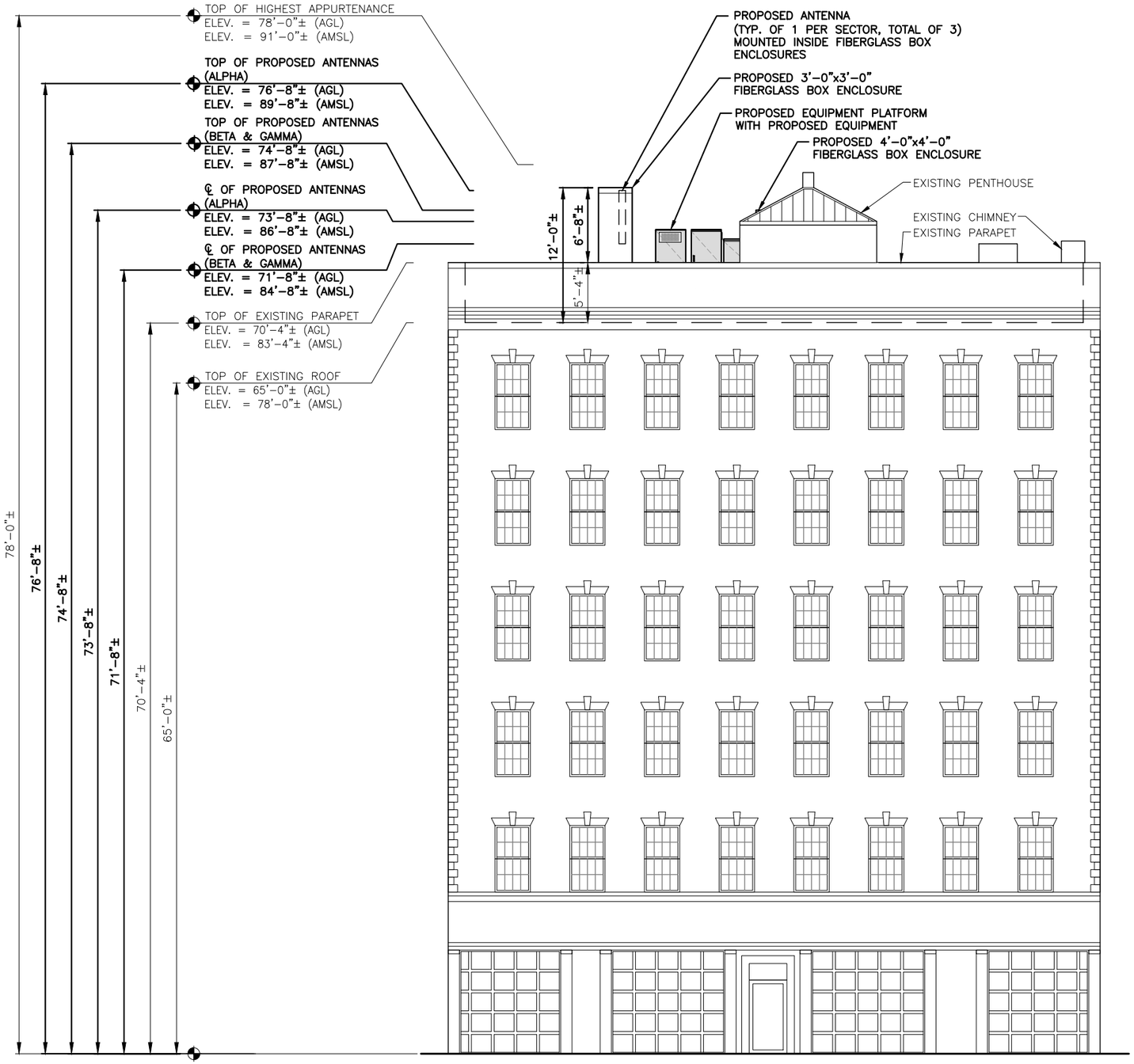
BOSTON, MA 02114

SHEET TITLE
WEST ELEVATION

SHEET NUMBER
A-4



PROPOSED ANTENNA INFORMATION

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
1	PROPOSED	70°	45'
2	PROPOSED	150°	35'
3	PROPOSED	220°	45'

NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

NORTH ELEVATION
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

1
A-5

GRAPHIC SCALE
0 2'-8" 5'-4" 10'-8" 16'-0"

NOTE:
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1	10/14/16	FOR ZONING	JH
0	08/06/13	FOR REVIEW	SG

SITE NAME:
BEACON HILL MA

SITE ADDRESS:
112 REVERE STREET (A/K/A 122-126 CHARLES STREET)
BOSTON, MA 02114

SHEET TITLE
NORTH ELEVATION

SHEET NUMBER
A-5

verizon

AFFIDAVIT OF RADIO FREQUENCY ENGINEER

The undersigned, in support of the application to install a wireless communications facility consisting of three panel antennas within fiberglass box enclosures, remote radio heads, and equipment cabinets on the rooftop of the building located at 112 Revere Street (A/K/A 122-126 Charles Street) in the City of Boston, Massachusetts, states the following:

1. My name is Keith Vellante. I have a Bachelor of Science degree in Electrical Engineering from the University of New Hampshire and I am employed as a Radio Frequency (RF) Engineer for C Squared Systems, LLC. C Squared Systems has entered into a contract with Verizon Wireless to provide RF consulting services on behalf of Verizon Wireless. I have reviewed the proposed site with the Radio Frequency Engineer responsible for the Verizon Wireless network design in the area of Massachusetts that includes the City of Boston, MA.
2. Verizon Wireless is a federally licensed provider of wireless communications services with a national footprint.
3. The proposed facility is located within an area where Verizon Wireless has identified a need to install a wireless telecommunications facility in order to provide reliable wireless service. The search area for the proposed facility was determined by the fact that wireless service needs significant improvement in this area of Boston. Furthermore, it was determined that the area served by the facility would interact well with those of existing and planned facilities in the surrounding area.

   The following table provides details of the proposed facility:

Site Name:	Site Address:	Latitude:	Longitude:	Elevation (AMSL):	Antenna Height (AGL):
Beacon Hill	112 Revere Street (A/K/A 122-126 Charles Street)	42.3594	-71.0710	13’	71.7’/73.7’

4. The purpose of the proposed facility is to provide adequate service capacity and coverage improvement to areas in the Beacon Hill neighborhood, where Verizon Wireless does not currently provide acceptable LTE service. This area includes Charles Street, Storrow Drive, Beacon Street, Mount Vernon Street, Pinckney Street, Revere Street, and the surrounding roads and business/retail areas.
5. To find a site that provides acceptable capacity and coverage improvement, the Verizon Wireless RF Design Group utilizes computer modeling to define a search area. The search area is designed such that a site located within the area and at a given height would have a high probability of completing the capacity and coverage objectives in the target areas. The RF Design Group develops the network by working off existing sites from which to build out the network.
6. Once the search ring is designed, the Verizon Wireless Real Estate Group searches the proximity of the defined area for existing buildings, towers, and other structures of sufficient height that might fill the capacity and coverage gaps in the network. In this instance, Verizon Wireless’ search of the area and subsequent analysis determined that installing the proposed facility on the existing building rooftop located at 112 Revere Street (A/K/A 122-126 Charles Street) is the most appropriate solution to meet its network capacity and coverage objectives.

7. I have reviewed the proposed installation to be placed on the subject rooftop as well as the other existing and planned antenna site locations used in Verizon Wireless' system in and around the surrounding areas. I have analyzed the potential benefits this site would represent to Verizon Wireless' network and its users. I employ computer simulations, which incorporate the results of field tests of existing facilities, to determine existing radio frequency (RF) coverage for Verizon Wireless' system. These simulations model characteristics such as antenna types, antenna height, output power, terrain, ground elevations and RF propagation effects of the frequency utilized.

8. The following table provides details of the surrounding Verizon Wireless telecommunications facilities used to generate the RF maps attached hereto as an exhibit to Verizon Wireless' application.

Site Name:	Latitude:	Longitude:	Street Address:	City:	Antenna Height (ft AGL):	Status:
Back Bay	42.3487	-71.0869	341-347 Newbury Street	Boston	85	On-Air
Back Bay 2	42.3518	-71.0753	90-101 Newbury Street	Boston	90	On-Air
Boylston St	42.3521	-71.0654	100 Boylston Street	Boston	131.6/136/143.5	On-Air
Cambridge	42.3715	-71.0678	500 Front Street	Cambridge	75/83	On-Air
Cambridge Street	42.3609	-71.0675	250 Cambridge Street	Boston	89/93.5	On-Air
Charles Rvr Prk	42.3617	-71.0653	165 Cambridge Street	Boston	156	On-Air
Charlestown	42.3784	-71.0513	199 13th Street	Charlestown	120	On-Air
Copley Square	42.3500	-71.0786	655 Boylston Street	Boston	70.7	On-Air
DT Crossing SC	42.3563	-71.0589	350 Washington Street	Boston	66	On-Air
Fleet Center	42.3665	-71.0620	150 Causeway Street	Boston	120/130	On-Air
Government Ctr	42.3596	-71.0588	100 City Hall Plaza	Boston	85	On-Air
Haymarket Sq	42.3608	-71.0544	20 Clinton Street	Boston	54/64/72	On-Air
Kendall Square	42.3626	-71.0833	1 Broadway	Cambridge	52.5/60.3/73.3	On-Air
Kingston St	42.3524	-71.0596	125 Kingston Street	Boston	75	On-Air
MIT	42.3654	-71.0923	141 Portland Street	Cambridge	155	On-Air
North End	42.3631	-71.0531	201 North Street	Boston	114	On-Air
North End 2	42.3673	-71.0552	64 Charter Street	Boston	62	On-Air
Po Square	42.3566	-71.0563	79 Milk Street	Boston	140/149	On-Air
Prudential Ctr	42.3491	-71.0821	801 Boylston Street	Boston	83	On-Air
Somerville South	42.3747	-71.0830	35 McGrath Highway	Somerville	47.5	On-Air
Theater District W	42.3510	-71.0682	201 Stuart Street	Boston	55	Approved
Theatre District	42.3492	-71.0706	162 Columbus Avenue	Boston	72.2/73/78	On-Air
Tremont St	42.3554	-71.0628	141 Tremont Street	Boston	150.5	On-Air
Ywca	42.3479	-71.0745	140 Clarendon Street	Boston	191	On-Air

9. The signal propagation plots included as attachments were produced using deciBel Planner™, a Windows-based RF propagation computer modeling program and network planning tool. The software considers the topographical features of an area, land cover, antenna models, antenna heights, RF transmitting power and receiver thresholds to predict coverage and other related RF parameters used in site design and network expansion.

10. The RF map titled "Beacon Hill – Existing/Approved 2100 MHz LTE Sector Footprints" attached hereto depicts the areas primarily served by the sectors (a.k.a. signal "footprints") of the "On-Air" and "Approved" Verizon Wireless macro sites in the area, which are shown by a unique color for each particular sector of interest. "On-Air" sites are existing Verizon Wireless facilities, and "Approved" sites are defined as those that are in the final stages of permitting or construction and are expected to be turned on-air soon. For clarity, all other sectors of less interest with respect to the proposed site are shown in grey. As demand for wireless voice and data services continues to grow, Verizon Wireless manages the footprint of each sector so that it can support the demand within the area it is primarily serving. In addition to improving coverage to the immediate area, the proposed site is also needed to serve existing and anticipated demand in the vicinity and thereby offload some of the burden experienced by the surrounding sites. In that way, those sites will be able to more adequately serve the demand

for service in the areas nearer to those surrounding sites. Please note that the outer parts of each sector footprint may include areas that presently have signal strength below the targeted value required for reliable service to Verizon Wireless' customers. The fact that low-level signal may reach these areas does not mean that these areas experience adequate coverage. These unreliable areas of low signal level impose a significant capacity burden on the sites primarily serving the area.

11. The RF map titled "Beacon Hill – 2100 MHz LTE Sector Footprints with Proposed Site" attached hereto shows the composite coverage with the overall footprint of the proposed facility in dark green. As shown in this map, the proposed "Beacon Hill" facility is an effective solution to provide capacity relief to area and lessen the demand currently experienced by the surrounding sectors, particularly the "Cambridge Street" beta (yellow) and gamma (orange) sectors, and the "Ywca" alpha (red) sector. The proposed facility is centrally located in the area of deficient coverage making it particularly suited to distribute the traffic load across multiple sectors, and provide a dominant server to this pocket of heavy usage.

12. The RF map titled "Beacon Hill – Existing/Approved 700 MHz & 2100 MHz LTE Coverage" depicts the coverage provided from the "On-Air" and "Approved" Verizon Wireless macro sites in the area. The green and yellow shaded areas represent the minimum desired level of coverage for this urban area for the 700 MHz and 2100 MHz network layers, respectively. Because of the superior propagation characteristics of 700 MHz relative to 2100 MHz frequencies, the 2100 MHz coverage areas (yellow) are generally contained within the 700 MHz coverage areas (green). As such, the deficient areas of 700 MHz coverage are defined by the unshaded or "white" areas, whereas the deficient areas of 2100 MHz coverage consist of both the green and white areas. As shown in this plot, the surrounding Verizon Wireless macro sites are unable to provide adequate coverage to the targeted Beacon Hill area, particularly at the 2100 MHz frequencies.

13. The RF map titled "Beacon Hill - 700 MHz & 2100 MHz LTE Coverage with Proposed Site" shows the composite coverage with the proposed "Beacon Hill" facility. As shown by the additional areas of 700 MHz and 2100 MHz coverage, the proposed facility will provide coverage improvement along Charles Street, Storrow Drive, Beacon Street, Chestnut Street, Mount Vernon Street, Pinckney Street, Revere Street, and the surrounding roads and business/retail areas.

14. Based on radio frequency propagation modeling, I have concluded that the proposed facility will satisfy the present capacity and coverage needs that motivated Verizon Wireless to establish a search ring in this vicinity. Any reduction in the proposed antenna configuration and/or equipment would limit optimal performance of this site, which would substantially limit the site's effectiveness.

15. Verizon Wireless certifies that the proposed facilities will not cause interference to any lawfully operating emergency communication system, television, telephone, or radio in the surrounding area. The FCC has licensed Verizon Wireless to transmit and receive in the Upper C Block of the 700 MHz band, B Block of the Cellular (850 MHz) band, the F, C3, and C4 Blocks of the PCS (1900 MHz) band, and the A and B Blocks of the AWS (2100 MHz) band of the RF spectrum. As a condition of the FCC licenses, Verizon Wireless is prohibited from interfering with other licensed devices that are being operated in a lawful manner. Furthermore, no emergency communication system, television, telephone, or radio is licensed to operate on these frequencies, and therefore interference is highly unlikely.

16. Pursuant to its Federal Communications Commission (FCC) licenses, Verizon Wireless is required to ensure that all radio equipment operating at the proposed communications facilities and the resulting radio frequency exposure levels are compliant with FCC requirements as well as federal and state health and safety standards.

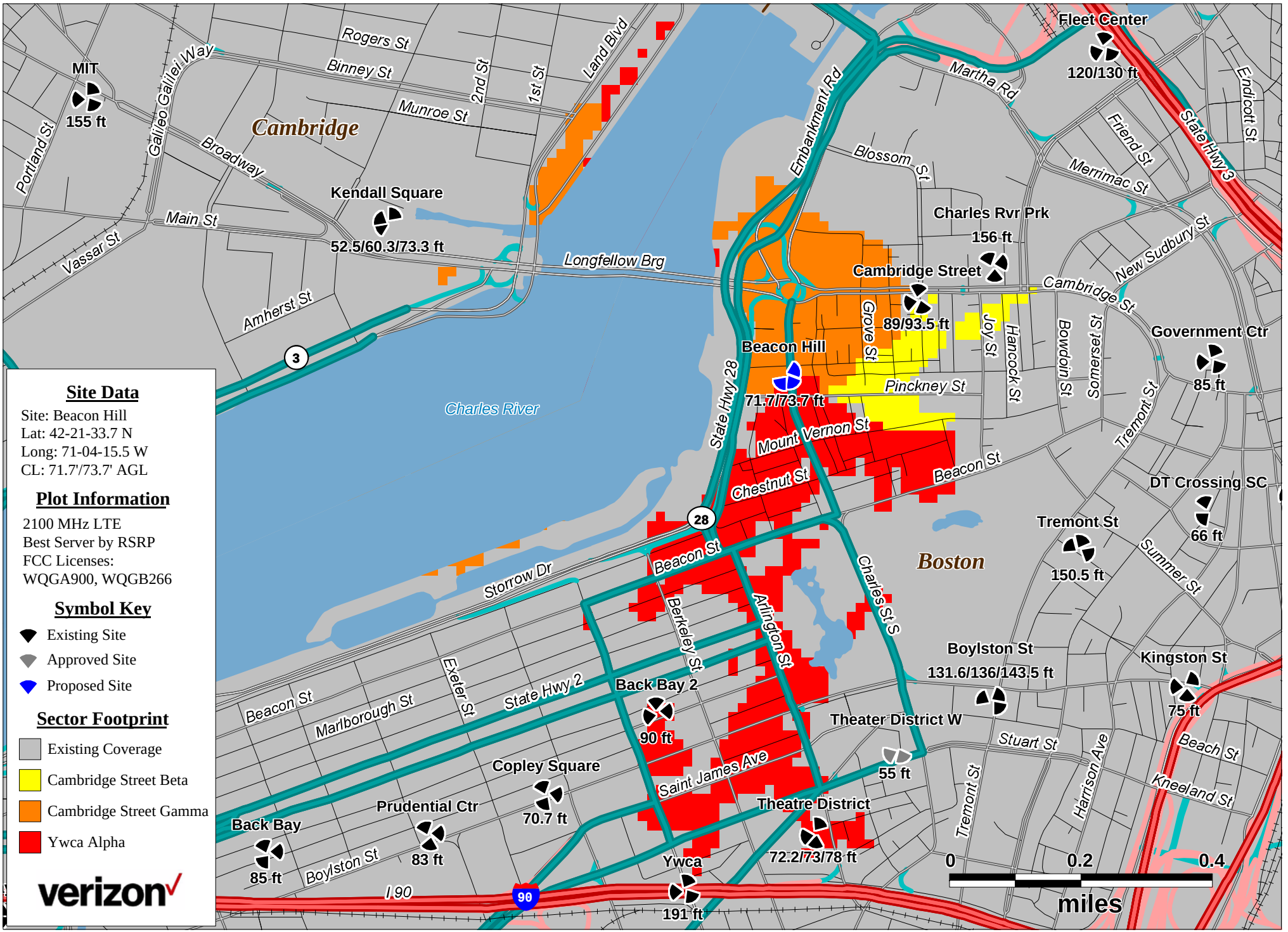
17. Providing wireless communication services is a benefit to the residents of the City of Boston, as well as to mobile customers traveling throughout the area. The proposed facility is well suited to meet Verizon Wireless' network requirements for the intended area. The absence of a wireless telecommunications facility at or near this immediate location will result in the continued existence of inadequate network capacity and coverage gaps in this area. Without the proposed facility, Verizon Wireless will be unable to provide reliable wireless communication services in this area of Boston; therefore, Verizon Wireless respectfully requests that the City of Boston act favorably upon the proposed facility.

Signed and sworn under the pains and penalties of perjury June 14, 2017.

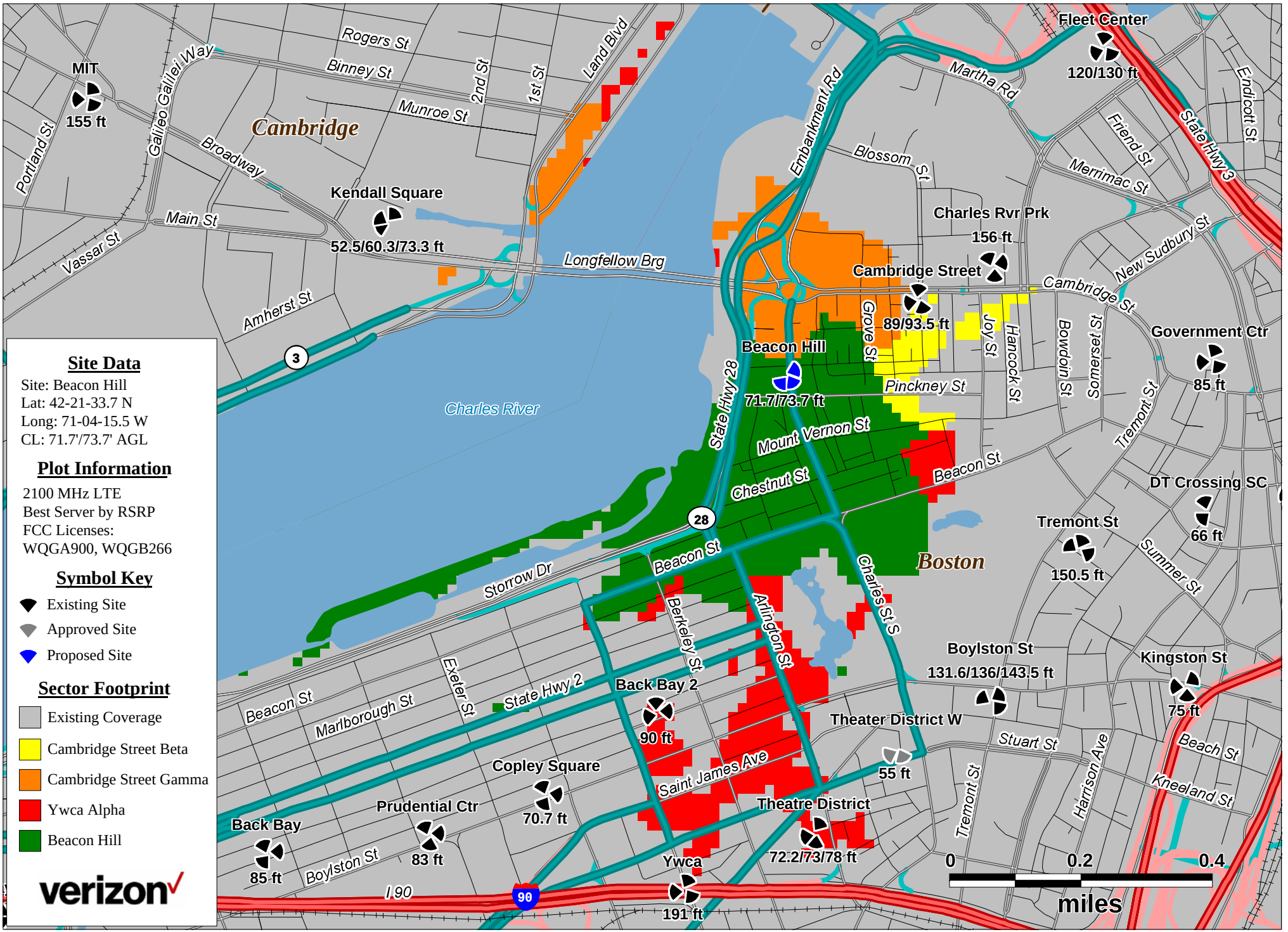
Keith Vellante

Keith Vellante
Radio Frequency (RF) Engineer
C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032

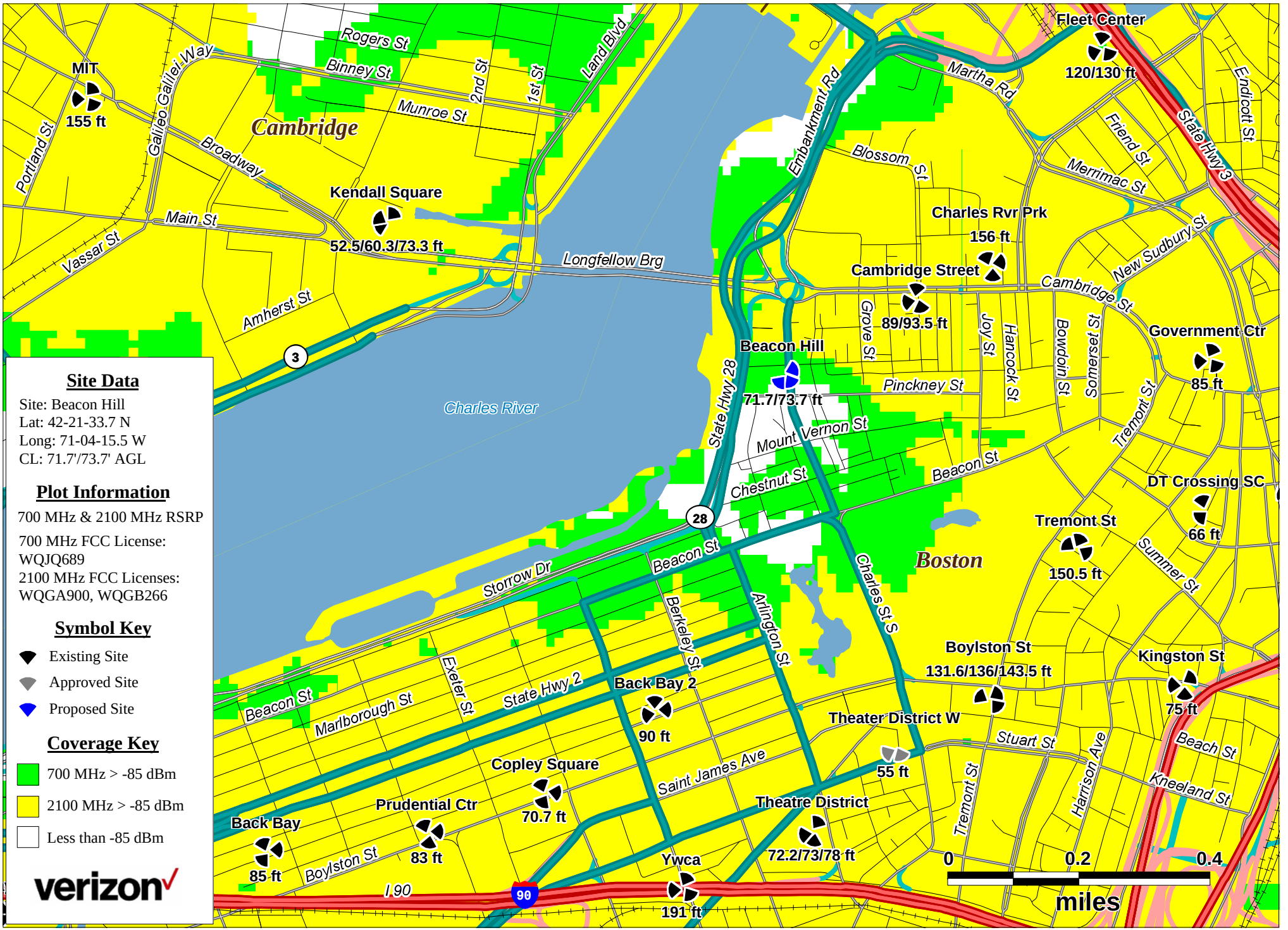
Beacon Hill - Existing/Approved 2100 MHz LTE Sector Footprints



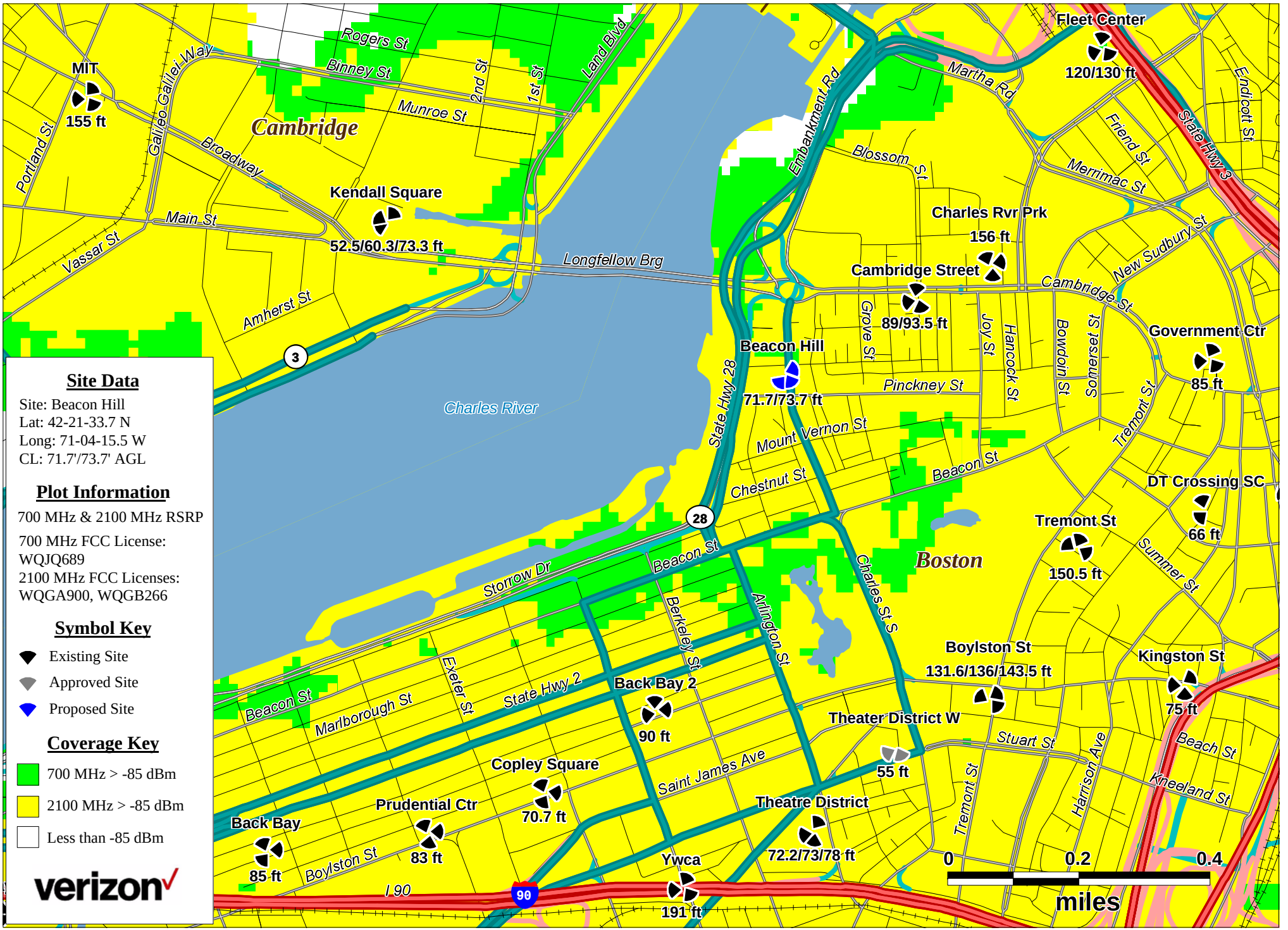
Beacon Hill - 2100 MHz LTE Sector Footprints with Proposed Site



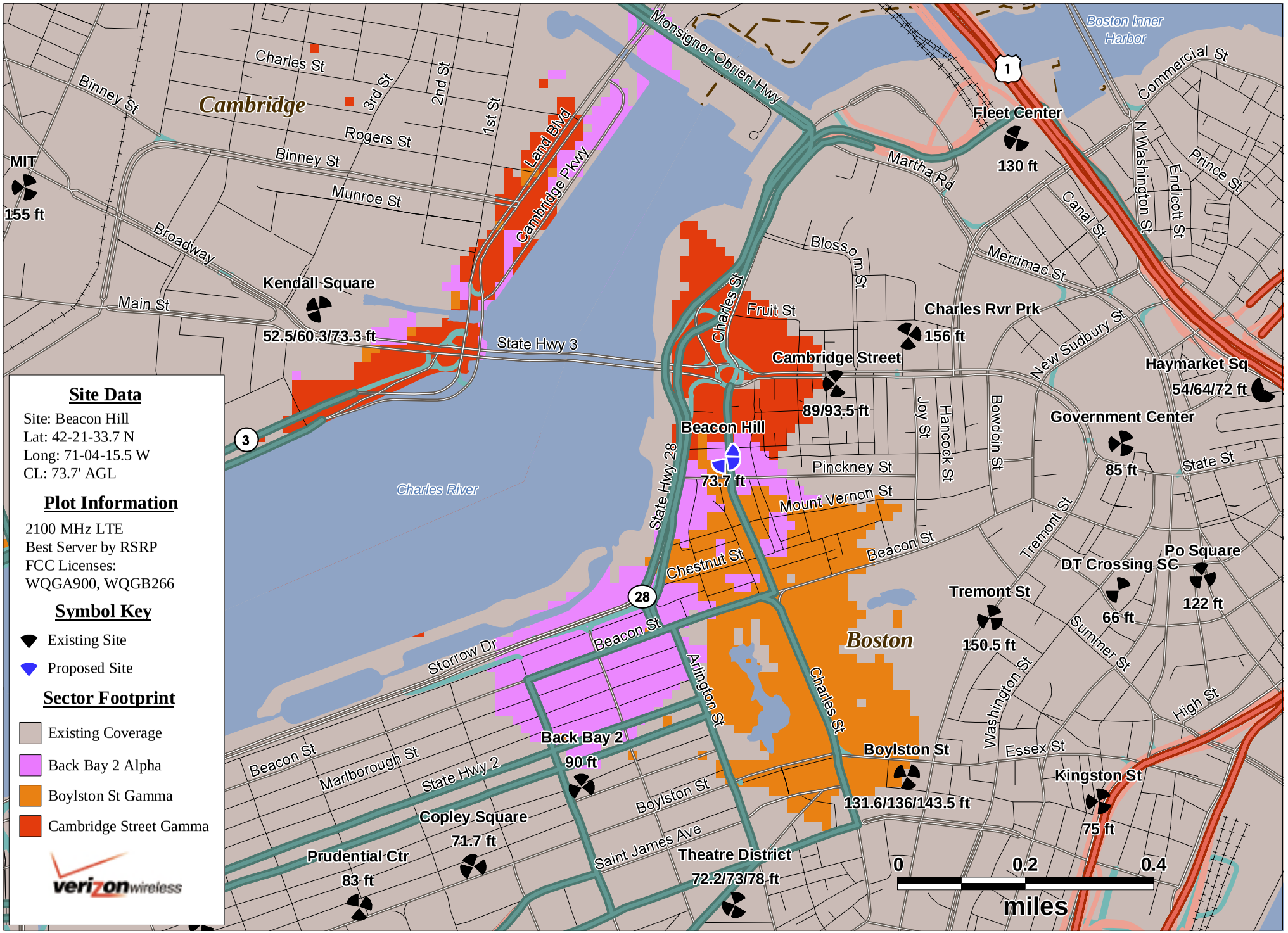
Beacon Hill - Existing/Approved 700 MHz & 2100 MHz LTE Coverage



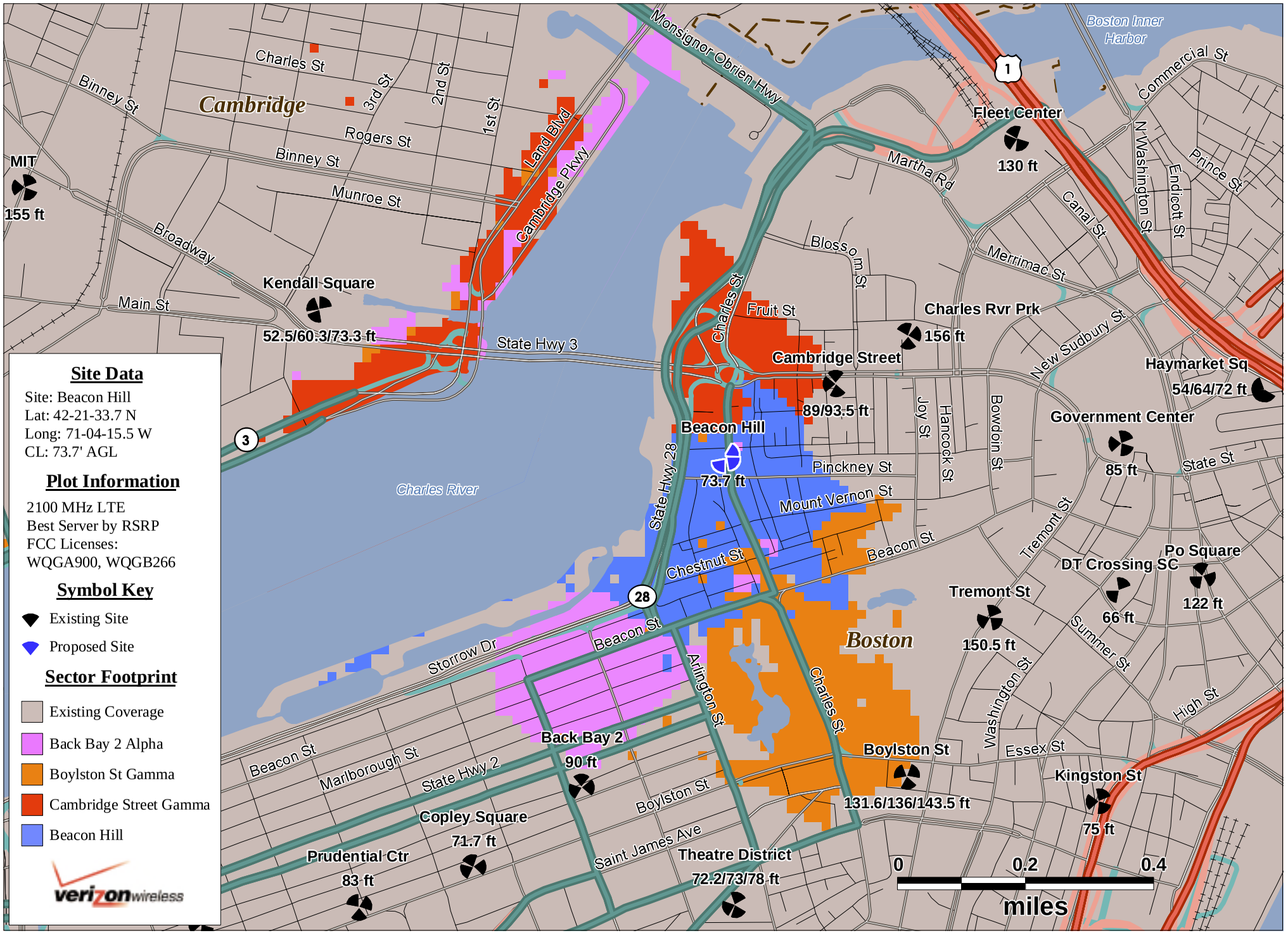
Beacon Hill - 700 MHz & 2100 MHz LTE Coverage with Proposed Site



Beacon Hill - Existing 2100 MHz LTE Coverage (Overloaded Sectors)



Beacon Hill - 2100 MHz LTE Coverage Offload with Proposed Site



DONALD L. HAES, JR., PH.D., CHP

Radiation Safety Specialist

MA Radiation Control Program Health Physics Services Provider Registration #65-0017

PO Box 368, Hudson, NH 03051 603-303-9959 Email: donald_haes_chp@myfairpoint.net

June 7, 2016

RE: Installation of radio base station antennas and associated equipment for the Verizon Wireless Personal Wireless Services facility to be located on the existing Building at 112 Revere Street, Boston, MA.

PURPOSE

I have reviewed the information pertinent to the proposed installation at the above location. To determine regulatory compliance, theoretical calculations of maximal radio-frequency (RF) fields have been prepared. The physical conditions are that Verizon Wireless proposes to install personal wireless services (PWS) directional panel antennas (one panel in three "sectors" aimed about 120° apart) on the existing building (See Figure 1). The mounting centerline height of the antennas is proposed to be 73'8" above ground level (AGL). The proposed installation will allow Verizon Wireless to continue deployment of their long term evolution ("LTE" a.k.a. "4G") and Advanced Wireless Services (AWS) systems.

This report considers the contributions of the proposed Verizon Wireless PWS transmitters operating at their FCC-licensed capacity. The calculated values of RF fields are presented as a percent of current Maximum Permissible Exposures (%MPE) as adopted by the Federal Communications Commission (FCC),[i,ii] and those established by the Massachusetts Department of Public Health (MDPH).[iii]

SUMMARY

Theoretical RF field calculations data indicate the summation of the proposed Verizon Wireless PWS RF contributions would be well-within the established RF exposure guidelines; see Figure 3. These results mean there could be many more similar installations at this location, and still be within Federal and State guidelines for RF exposure. Access to the areas in front of the proposed PWS antennas on the rooftop should be restricted according to RF safety guidelines.

Based on the theoretical RF fields I have calculated, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure to members of the public with the proposed Verizon Wireless personal wireless services antennas.

EXPOSURE LIMITS AND GUIDELINES

RF exposure guidelines enforced by the FCC were established by the American National Standards Institute (ANSI)[iv] and the National Council on Radiation Protection and Measurement (NCRP).[v] The RF exposure guidelines are listed for RF workers and members of the public. The applicable FCC RF exposure guidelines for the public are listed in Table 1, and depicted in Figure 1. All listed values are intended to be averaged over any contiguous 30 minute period.

Table 1: Maximum Permissible Exposure (MPE) Values in Public Areas

Frequency Bands	Maximum Permissible Exposure (MPE)		
	Electric Fields	Magnetic Fields	Equivalent Power Density
0.3 – 1.34 MHz	614 (V/m)	1.63 (A/m)	(100) mW/cm^2
1.34 - 30 MHz	824/*f* (V/m)	2.19/*f* (A/m)	(100) mW/cm^2
30 - 300 MHz	27.5 (V/m)	0.073 (A/m)	0.2 mW/cm^2
300 - 1500 MHz	--	--	*f*/1500 mW/cm^2
1500 - 100,000	--	--	1.0 mW/cm^2

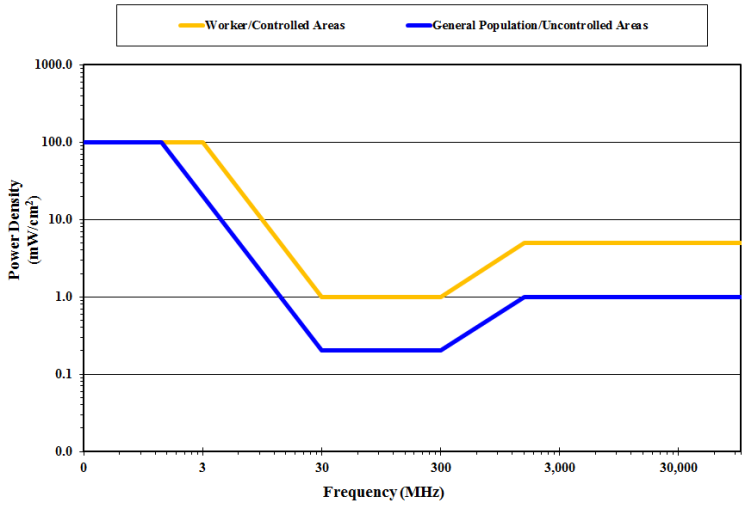


Figure 1: FCC Limits for Maximum Permissible Exposure (MPE)

NOTE: FCC 5% Rule – At multiple transmitter sites, actions necessary to bring the area into compliance with the RF exposure guidelines are the shared responsibility of all licensees whose transmitters produce RF field levels in excess of 5% of the applicable FCC MPEs.

Figure 2: Building, 112 Revere Street, Boston, MA
(Pictures Courtesy Google Maps©2016 and may not represent current conditions)

THEORETICAL RF FIELD CALCULATIONS - GROUND LEVELS

METHODOLOGY

These calculations are based on what are called "worst-case" estimates. That is, the estimates assume 100% use of all transmitters simultaneously. Additionally, the calculations make the assumption that the surrounding area is a flat plane. The resultant values are thus conservative in that they over predict actual resultant power densities.

The calculations are based on the following information (See Table 2 data):

1. Effective Radiated Power (ERP)
2. Antenna height (centerline, above ground level (AGL))
3. Antenna vertical radiation patterns; the source of the negative gain (G) values.

"Directional" antennas are designed to focus the RF signal, resulting in "patterns" of signal loss and gain. Antenna vertical radiation patterns display the loss of signal strength relative to the direction of propagation due to elevation angle changes. The gain is expressed as "G^{E}".

Note: G is a unitless factor usually expressed in decibels (dB); where $G = 10^{(dB/10)}$

For example: for an antenna *gain* of 3 dB, the net factor $(G) = 10^{(3/10)} = 2$

For an antenna *loss* of -3 dB, the net factor $(G) = 10^{(-3/10)} = 0.5$

To determine the magnitude of the RF field, the power density (S) from an isotropic RF source is calculated, making use of the power density formula as outlined in FCC's OET Bulletin 65, Edition 97-01: [vi]

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where:

P → Power to antenna (watts)

G → Gain of antenna

R → Distance (range) from antenna source to point of intersection with the ground (feet)

$R^2 = (\text{Height})^2 + (\text{Horizontal distance})^2$

Since: P · G = EIRP (Effective Isotropic Radiated Power) for broadcast antennas, the equation can be presented in the following form:

$$\mathbf{S = \frac{EIRP}{4 \cdot \pi \cdot R^2}}$$

In the situation of off-axis power density calculations, apply the negative elevation gain (G^E) value from the vertical radiation patterns with the following formula:

$$\mathbf{S = \frac{EIRP \cdot G^E}{4 \cdot \pi \cdot R^2}}$$

Ground reflections may add in-phase with the direct wave, and essentially double the electric field intensity. Because power density is proportional to the *square* of the electric field, the power density may quadruple, that is, increase by a factor of four (4). Since ERP is routinely used, it is necessary to convert ERP into EIRP; this is done by multiplying the ERP by the factor of 1.64, which is the gain of a half-wave dipole relative to an isotropic radiator. Therefore, downrange power density estimates can be calculated by using the formula:

$$\mathbf{S = \frac{4 \cdot (ERP \cdot 1.64) \cdot G^E}{4 \cdot \pi \cdot R^2} = \frac{ERP \cdot 1.64 \cdot G^E}{\pi \cdot R^2} = \frac{0.522 \cdot ERP \cdot G^E}{R^2}}$$

To calculate the % MPE, use the formula:

$$\mathbf{\%\ MPE = \frac{S}{MPE} \cdot 100}$$

The results of the percent Maximum Permissible Exposure (% MPE) calculations for the **summation** of the *proposed* Verizon Wireless PWS RF emissions are depicted in Figure 3 as plotted against linear distance from the base of the building. The values have been calculated for a height of six feet above ground level in accordance with regulatory rationale. A logarithmic scale was used to plot the calculated theoretical %MPE values in order to compare with the MPE of 100%, which is so much larger that it would be off the page in a linear plot.

ANTENNA INVENTORY

Table 2: Proposed Verizon Wireless Antenna Inventory Building at 112 Revere Street, Boston, MA			
Antenna Centerline (AGL)	Typical Antenna Type	Typical Parameters: ERP & Tx Frequencies	Typical Use
73'8"	Panel Antenna "Arrays" Three Sectors Of One Panel Each	2500 watts @ 1865-1870, 1970-1975 MHz	PCS-LTE
		938 watts @ 746-757, 776-787 MHz	LTE
		3600 watts @ 1710-1720, 2110-2120 MHz	AWS
Information relevant to the antennas proposed by Verizon Wireless on file.			
Table Notes: AWS: Advanced Wireless Services LTE: Long Term Evolution PCS: Personal Communication System			

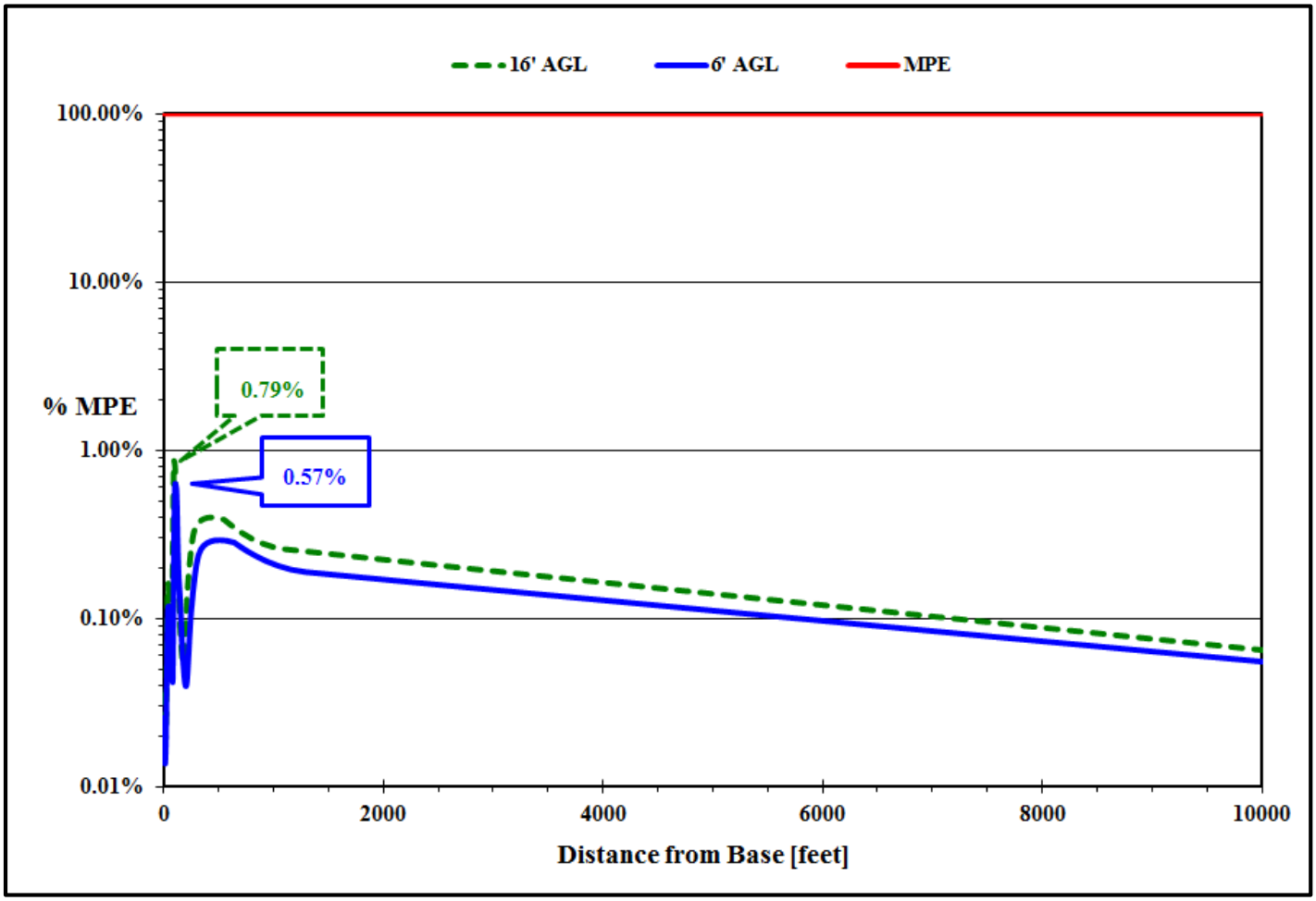


Figure 3: Theoretical Cumulative Maximum Percent MPE - vs. – Distance
(Summation of the *Proposed* Verizon Wireless PWS RF Emissions)

OBSERVATIONS IN CONSIDERATION WITH FCC RULES §1.1307(B) & §1.1310

Is it physically possible to stand in front of any directional antenna? Yes, however access to the area in front of the ballast mount antennas will be restricted, and the landlord will adhere to RF safety guidelines regarding potential access to the proposed PWS antennas.

THEORETICAL RF FIELD CALCULATIONS - WITHIN THE BUILDING

METHODOLOGY

In addition to intensity losses at angles away from the main beam (90° down), there are losses due to attenuation by building materials. A good approximation of these losses is -10 dB, or a factor of 1/10 ($10^{(-10/10)} = 0.1$). Thus, a modified equation to use for the area below the antennas is as follows:

$$S = \frac{4 \cdot [ERP \cdot 1.64] \cdot G^{(\text{antenna loss})} \cdot G^{(\text{building materials loss})}}{4 \cdot \pi \cdot R^2}$$

For the Verizon Wireless "PCS-LTE" antennas:
1865-1870, 1970-1975 MHz

$$S = \frac{4 \cdot 1.64 \cdot [2500 \text{ watts} \cdot 10^{(-42.99/10)}] \cdot 10^6 \text{ µW/W}) \cdot 10^{(-10/10)}}{4 \cdot \pi \cdot [(15 \text{ ft}) \cdot (30.48 \text{ cm/ft})]^2}$$

For the Verizon Wireless "LTE" antennas:
746-757, 776-787 MHz

$$S = \frac{4 \cdot 1.64 \cdot [938 \text{ watts} \cdot 10^{(-57.45/10)}] \cdot 10^6 \text{ µW/W}) \cdot 10^{(-10/10)}}{4 \cdot \pi \cdot [(15 \text{ ft}) \cdot (30.48 \text{ cm/ft})]^2}$$

For the Verizon Wireless "AWS" antennas:
1710-1720, 2110-2120 MHz

$$S = \frac{4 \cdot 1.64 \cdot [3600 \text{ watts} \cdot 10^{(-42.99/10)}] \cdot 10^6 \text{ µW/W}) \cdot 10^{(-10/10)}}{4 \cdot \pi \cdot [(15 \text{ ft}) \cdot (30.48 \text{ cm/ft})]^2}$$

The total is 0.11% MPE or about 900 times below the FCC exposure guidelines.

CONCLUSION

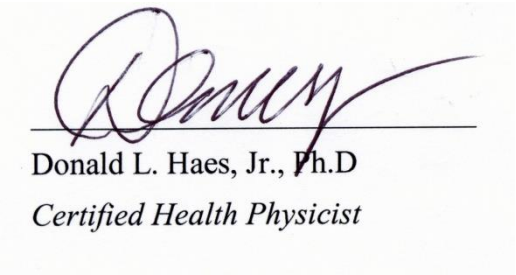
Theoretical RF field calculations data indicate the summation of the proposed Verizon Wireless PWS RF contributions would be well-within the established RF exposure guidelines; see Figure 3. These results mean there could be many more similar installations at this location, and still be within Federal and State guidelines for RF exposure. Access to the areas in front of the proposed PWS antennas on the rooftop should be restricted according to RF safety guidelines.

The number and duration of calls passing through PWS facilities cannot be accurately predicted. Thus, in order to estimate the highest RF fields possible from operation of these installations, the maximal amount of usage was considered. Even in this so-called "worst-case," the resultant increase in RF field levels are far below established levels considered safe.

Based on the theoretical RF fields I have calculated, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure to members of the public with the proposed Verizon Wireless personal wireless services antennas.

Feel free to contact me if you have any questions.

Sincerely,



Donald L. Haes, Jr., Ph.D
Certified Health Physicist

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **Building at 112 Revere Street, Boston, MA**. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

DONALD L. HAES, JR., PH.D., CHP

Radiation Safety Specialist

MA Radiation Control Program Health Physics Services Provider Registration #65-0017

PO Box 368, Hudson, NH 03051 603-303-9959 Email: donald_haes_chp@myfairpoint.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and belief, the statements of fact contained in this report are true and correct.

2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.

3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.

4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

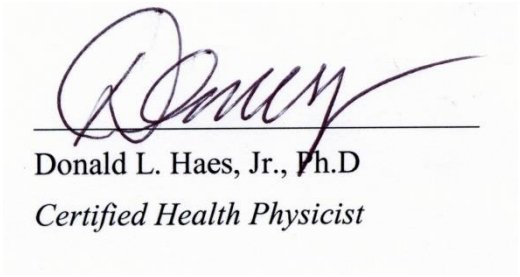
5. This assignment was not based on a requested minimum environmental energy level or specific power density.

6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.

7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.

8. My analyses, opinions, and conclusions were developed and this report has been prepared in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: June 7, 2016



ENDNOTES

[i]. Federal Register, Federal Communications Commission Rules; *Radiofrequency radiation; environmental effects evaluation guidelines* Volume 1, No. 153, 41006-41199, August 7, 1996. (47 CFR Part 1; Federal Communications Commission).

[ii]. Telecommunications Act of 1996, 47 USC; Second Session of the 104th Congress of the United States of America, January 3, 1996.

[iii]. 105 CMR 122.000: Massachusetts Department of Public Health, *Non-Ionizing Radiation Limits for: The General Public from Non-Occupational Exposure to Electromagnetic Fields, Employees from Occupational Exposure to Electromagnetic Fields, and Exposure from Microwave Ovens*.

[iv]. ANSI/IEEE C95.1-1999: American National Standard, *Safety levels with respect to human exposure to radio frequency electromagnetic fields, from 3 KHz to 300 GHz* **(Updated in 2010)**.

[v]. National Council on Radiation Protection and Measurements (NCRP); *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report 86, 1986.

[vi]. OET Bulletin 65: Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*; Edition 97-01, August 1999.