



CITY OF CAMBRIDGE
MASSACHUSETTS
BOARD OF ZONING APPEAL
831 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139
617 349-6100

BZA APPLICATION FORM

Plan No: BZA-017085-2019

GENERAL INFORMATION

The undersigned hereby petitions the Board of Zoning Appeal for the following:

Special Permit: ✓ Variance: _____ Appeal: _____

PETITIONER: New Cingular Wireless PCS LLC dba AT&T Mobility - C/O Timothy Greene, TerraS

PETITIONER'S ADDRESS: 157 Riverside Drive Norwell, MA 02061

LOCATION OF PROPERTY: 60 Vassar St Cambridge, MA

TYPE OF OCCUPANCY: _____ ZONING DISTRICT: Residence C-3 Zone

REASON FOR PETITION:

Other: Telecommunications Upgrade

DESCRIPTION OF PETITIONER'S PROPOSAL:

This application is a Eligible Facilities request pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 or in the alternative, for a special permit under the zoning ordinance as cited above. AT&T will be adding 3 panel antenna to its existing installation on site. AT&T will also be adding and upgrading equipment as part of nationwide network upgrades

SECTIONS OF ZONING ORDINANCE CITED:

Article 4.000	Section 4.32.G.1 (Telecommunications Facility).
Article 4.000	Section 4.40 (Footnote 49 (Telecommunications Facility)).
Article 10.000	Section 10.40 (Special Permit).
Article 6409	Section Middle Class Tax Relief and Job Creation Act

Original Signature(s):

[Signature]
(Petitioner(s) / Owner)

✓ TerraSearch
— Timothy W. Greene
157 Riverside Drive
Norwell, MA 02061

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Address: _____

Tel. No.: 617-877-2950

E-Mail Address: tgreene@terrasearchllc.com

Date: 3/15/19

BZA APPLICATION FORM - OWNERSHIP INFORMATION

To be completed by OWNER, signed before a notary and returned to The Secretary of the Board of Zoning Appeals.

I/We Massachusetts Institute of Technology
(OWNER)

Address: 77 Mass. Ave., W92-196, Cambridge MA 02139

State that I/We own the property located at 60 Vassar St., Cambridge MA
which is the subject of this zoning application. MIT Bldg. 16 / Dorrance Bldg.

The record title of this property is in the name of Massachusetts
Institute of Technology

*Pursuant to a deed of duly recorded in the date 3/22/1912, Middlesex South
County Registry of Deeds at Book 3678, Page 190; or
Middlesex Registry District of Land Court, Certificate No. _____
Book _____ Page _____

SIGNATURE BY LAND OWNER OR
AUTHORIZED TRUSTEE, OFFICER OR AGENT*

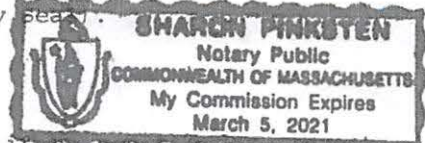
*Written evidence of Agent's standing to represent petitioner may be requested.

Commonwealth of Massachusetts, County of MIDDLESEX

The above-name Anthony P. Sharon personally appeared before me,
this 8 of April, 2016, and made oath that the above statement is true.

Sharon Pinksten Notary

My commission expires _____ (Notary Seal)



- If ownership is not shown in recorded deed, e.g. if by court order, recent deed, or inheritance, please include documentation.



at&t

February 28, 2019

Donna P. Lopez, City Clerk City of Cambridge City Hall 795 Massachusetts Avenue Cambridge, MA 02139	Constantine Alexander, Chair Board of Zoning Appeal City Hall 795 Massachusetts Avenue Cambridge, MA 02139
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Applicant: New Cingular Wireless PCS, LLC ("AT&T")
Property Address: 60 Vassar Street.
Assessor's Map 52A, Lot 21 (the "Property")
Re: Application for:
(i) Eligible Facilities Request pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. § 1455; or, in the alternative,
(ii) Special Permit under Cambridge Zoning Ordinance Section 4.32(g)(1) and M.G.L. c. 40A, Section 9; and
(iii) Any other zoning relief required.
(All relief if and to the extent necessary, all rights reserved)

Dear Ms. Lopez, Mr. Alexander and Members of the Board of Zoning Appeal:

Pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 (a/k/a the "Spectrum Act" or "Section 6409"), 47 U.S.C. § 1455, as further implemented by the Federal Communications Commission's Report and Order *In re Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies*, FCC Docket No. 13-238, Report and Order No. 14-153 (October 17, 2014) (the "FCC Order"), New Cingular Wireless PCS, LLC ("AT&T") hereby submits this Eligible Facilities Request ("Request"); and, in the alternative, applies for a special permit from the City of Cambridge Board of Zoning Appeal (the "Board") under Section 432(g)(1) of the Cambridge Zoning Ordinance (the "Ordinance") to modify its existing "Telephone Exchange including Transmission Facilities to serve a Mobile Communication System" (the "Facility") on and within the existing building located at 60 Vassar Street (the "Special Permit Application").²

² AT&T submits this Request, Special Permit application and supporting materials subject to a full and complete reservation of AT&T's rights under the Spectrum Act and the FCC Order including without limitation its rights with respect to (i) any submittal requirements or approval criteria that are inconsistent with the prohibitions established by the FCC Order, (ii) any delay beyond the deadlines established in the FCC Order, (iii) the imposition of conditions on any approval that are inconsistent with the FCC Order, and (iv) referral or requirement to a discretionary review process such as a special permit.

Under Section 6409, AT&T's proposed modification of its existing transmission equipment on and within the existing building, previously approved by the Board for use as a wireless communication base station, does "not substantially change the physical dimensions" of the existing building. Therefore, AT&T's Request must be approved administratively, including the issuance of a building permit, to enable AT&T to make the proposed modifications to its transmission equipment.

In the alternative, as demonstrated in this application letter, the AT&T's proposed modifications to its existing Facility on the Property located in the C-3 zoning district satisfy the requirements for the grant of a special permit pursuant to Section 10.43 of the Ordinance.

I. APPLICATION PACKAGE

Enclosed with this application is a check payable to the City of Cambridge in the amount of \$500.00. In addition to the signed original of this letter are copies of the letter and the following materials:

1. The following completed and signed application forms:
 - a. BZA Application Form – General Information;
 - b. BZA Application Form – Ownership Information;
 - c. BZA Application Form – Dimensional Requirements;
 - d. BZA Application Form – Supporting Statement for a Special Permit; and
 - e. BZA Application Form – Check List;
2. AT&T's relevant FCC License information;
3. Drawings by Hudson Design Group consisting of 8 pages dated 4/3/18;
4. Manufacturer's specification sheets for AT&T's proposed antennas and other featured equipment;
5. Photographs of the existing building and photosimulations of the proposed modifications Facility by Hudson Design Group., dated 2/28/19;
6. Radio Frequency Coverage Report, demonstrating the public need for the proposed modifications to the Facility, radio frequency coverage maps showing (a) existing or predicted coverage from neighboring facilities; and (b) coverage with the proposed Facility;
7. Structural Analysis by Hudson Design Group LLC dated 2/8/18;
8. Maximum Permissible Exposure Study, Theoretical Report, by SAI Communications, dated April 1, 2016;
9. Letter of Authorization from Owner of Subject Property;

10. Deed to subject property

In addition to the supporting materials identified above, submitted simultaneously herewith is a completed building permit application package including:

1. Completed Building Permit Application;
2. Certificate of Liability Insurance;
3. Worker's Compensation Insurance Affidavit;
4. Construction Supervisor License for Keith F Barnard; and
5. 1 copy of the Plans.

II. PROPOSED FACILITY DESIGN

AT&T seeks to modify the existing Facility on and within the building located at the Property. The existing Facility consists of nine (9) panel antennas (Alpha Sector: 3 antennas, Beta Sector: 3 antennas, and Gamma Sector: 3 antennas) that are mounted in three (3) locations. The proposed modifications include the addition of one (1) antenna per sector. The additional antennas will be mounted to the existing antenna mounts consistent with the current Facility's design. Six (6) remote radio-head units (RRUs) (two per sector) will be added in close proximity to the antennas. Consistent with the concealment elements of the existing Facility's design, the proposed replacement antennas will be painted to match the color and texture of the existing façade. The proposed RRUs will match the color of the existing RRUs.

The Facility's design is shown in detail in the Zoning Drawings attached as Exhibit 3 to this application letter and featured equipment is described in the manufacturers' specification sheets attached as Exhibit 4. The photographs and photosimulations (Exhibit 5) show the existing Facility from various locations in the neighborhood around the Property and as simulated with proposed modifications. A structural analysis for the Facility demonstrates that the building is capable of supporting AT&T's proposed equipment at or near the locations shown on the Zoning Drawings (*see* Exhibit 7).

The Facility will continue to bring advanced wireless voice, text and data communications services to the surrounding areas. It will allow residents, professionals, government, businesses and students to communicate locally, nationally and internationally from virtually any location within the coverage area. In the event of an emergency, the improved Facility will allow immediate contact with fire, rescue and other emergency personnel. The improved Facility will thus enhance public health, safety and welfare both in ordinary daily living and in the event of fire, accident, medical emergency, natural disaster or other dangers.

III. BACKGROUND

AT&T is licensed by the Federal Communications Commission to construct and operate a wireless telecommunications network in various markets throughout the country, including the Commonwealth of Massachusetts and the City of Cambridge. A copy of the AT&T's FCC license that covers the area of the proposed Facility is included with this application (*see* Exhibit 2). AT&T is in the process of designing and constructing additional wireless facilities to its existing telecommunications system to serve Massachusetts. One of the key design objectives of its systems is to provide adequate and reliable coverage. Such a system requires a grid of radio transmitting and receiving links located approximately .5 to 2 miles apart, depending on the location of existing and proposed installations in the surrounding area, the extent of use of AT&T's wireless services within the network, and the existing topography and obstructions. The radio transmitting and receiving facilities operate on a line-of-sight basis, requiring a clear path from the facility to the user on the ground. In urban settings, this dynamic requires the antennas to be located on buildings at heights and in locations where the signal is not obstructed or degraded by other buildings or by topographical features such as hills.

IV. RF COVERAGE DETERMINATION

AT&T has performed a study of radio frequency coverage for the City of Cambridge and from the Property, the results of which are described in the Radio Frequency Report submitted with this application (*see* Exhibit 6). Without the proposed modifications to its existing Facility, AT&T has a substantial coverage gap in this area of Cambridge. AT&T has determined that the proposed modifications to the existing Facility located on the building at the Property will provide needed coverage to the targeted sections of the City and the immediately surrounding area if AT&T's antennas are located on the building at the height and in the configuration requested. The importance of a facility at this location is underscored by AT&T's interest in enhancing its ability to provide its most up-to-date wireless technology, known as long-term evolution technology ("LTE"), in this area to satisfy its customers' ever-increasing needs for high-speed data services. Radio frequency coverage maps included in the report are provided to pictorially and vividly show the differences in existing and proposed wireless coverage at the various bands authorized for AT&T's service. The maps show dramatic improvements to wireless coverage at all three (3) bands with the inclusion of the proposed Facility, namely, at 700, 1900, and 2100 MHz.

V. THE FEDERAL SPECTRUM ACT AND THE FCC ORDER

As set forth below, the proposed modifications constitute an Eligible Facilities Request pursuant to the federal Spectrum Act,³ as further implemented by the FCC Order.⁴

Under the Spectrum Act, as further clarified by the FCC Order, the streamlined process for this Eligible Facilities Request is limited to non-discretionary review. Specifically, the FCC Order “adopt[s] an objective standard for determining when a proposed modification will ‘substantially change the physical dimensions’ of an existing tower or base station.” *FCC Order*, ¶ 87. As stated in the FCC Order, Section 6409 “states without equivocation that the reviewing authority ‘may not deny, and shall approve’ any qualifying application. This directive leaves no room for a lengthy and discretionary approach to reviewing an application that meets the statutory criteria.” *FCC Order*, ¶ 116.

In issuing the FCC Order and eliminating discretionary review for eligible facilities requests, the FCC’s goal was to “adopt a test that is defined by specific, objective factors rather than the contextual and entirely subjective standard advocated by the IAC and municipalities.” The FCC intentionally sought to reduce “flexibility” and “open ended context-specific approach” engendered by the discretionary review process:

While we acknowledge that the IAC approach would provide municipalities with maximum flexibility to consider potential effects, we are concerned that it would invite lengthy review processes that conflict with Congress’s intent. Indeed, some municipal commenters anticipate their review of covered requests under a subjective, case-by-case approach could take even longer than their review of collocations absent Section 6409(a). We also anticipate that disputes arising from a subjective approach would tend to require longer and more costly litigation to resolve given the more fact-intensive nature of the IAC’s open-ended and context-specific approach. We find that an objective definition, by contrast, will provide an appropriate balance between municipal flexibility and the rapid deployment of covered facilities. We find further support for this approach in State statutes that have implemented Section 6409(a), all of which establish objective standards.

FCC Order, ¶ 88.

³ Pursuant to Section 6409(a)(2) an “eligible facilities request” means any request for modification of an existing wireless tower or base station that involves—

- (A) collocation of new transmission equipment;
- (B) removal of transmission equipment; or
- (C) replacement of transmission equipment.

47 U.S.C. § 1455(a)(2).

⁴ The Order was effective on February 9, 2015, except for § 1.40001, which became effective on April 8, 2015, except for §§ 1.40001(c)(3)(i), 1.40001(c)(3)(iii), 1.140001(c)(4), and 17.4(c)(1)(vii), which became effective on May 18, 2015, after approval by the Office of Management and Budget. The FCC Order makes clear that under the Spectrum Act discretionary review is not required or permitted for an Eligible Facilities Request.

As a result, the FCC Order implementing Section 6409 establishes clear and objective criteria for determining eligibility, limits the types of information that a municipality may require when processing an application for an eligible facilities request, and imposes a “deemed granted” remedy for failure to timely process and eligible facilities request.⁵ The FCC Order also establishes significant limits on the information that can be required to be provided with an eligible facilities request and limits it to only that information “reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation”. 47 CFR 1.40001(c)(1).

Both before and after the FCC Order was issued, the Massachusetts Attorney General’s Office provided clear guidance that an eligible request cannot be subjected to a discretionary special permit process. *See* Attorney General’s letters to (i) Town of Mount Washington, dated June 12, 2014, p. 3 (ii) Town of Lynnfield, dated February 10, 2015, p. 3 (the “AG Lynnfield Letter”) and (iii) Town of Montague, dated February 23, 2015, p. 2 (all attached hereto). As set forth in each letter [t]he Act’s requirement that a local government ‘may not deny, and shall approve, any eligible facilities request’ means that a request for modification to an existing facility that does not substantially change the physical dimensions of the tower or base station must be approved. ***Such qualifying requests also cannot be subject to a discretionary special permit.***”(Emphasis added). In providing these opinions, the Attorney General’s Office specifically opined that provisions in zoning ordinances that specifically required a special permit for modifications to existing facilities could not be applied to eligible facilities requests. While approving the Town of Lynnfield’s Zoning Bylaw, the Attorney General stated that “Section 8.7.5.1 requires that PWSF may only be erected upon the grant of a special permit. The Town cannot apply this requirement to eligible facilities requests for modification to existing facilities that qualify for required approval under Section 6409 of the Act.” *AG Lynnfield Letter*, p. 3.

Therefore, as set forth in the FCC Order and Attorney General’s opinion letters, the City cannot impose a requirement that AT&T obtain a special permit, or an amendment to an existing special permit utilizing the same discretionary review process, in connection with its eligible facilities request. To the extent that the City of Cambridge’s Zoning Ordinance and any prior decisions by the Board include provisions seeking to further regulate the modification of wireless communication facilities, federal law overrules those requirements. *See Sprint Spectrum L.P. v. Town of Swansea*, 574 F.Supp.2d 227, 236 (2008) (Board is obligated to consider whether its actions would violate federal law even if a different outcome would be permitted under state law). The standard of review for an application to modify an existing wireless communication facility on an existing tower or base station is governed by the Spectrum Act and the FCC Order which require eligible facilities requests to be permitted “by right.”

In addition, the FCC Order establishes a 60-day period for approval from the time of AT&T’s submission. 47 CFR §1.40001(c)(2). Within the context of the Spectrum Act and FCC Order, approval means all necessary approvals to permit the proposed modifications, including the issuance of a building permit, if required. The FCC found that this 60-day period is appropriate due to “the more restricted scope of review applicable to applications under section 6409(a).”

⁵ *See* 47 CFR §§1.40001(c)(1) - (c)(4).

FCC Order, ¶ 108. If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4).

As set forth below, the proposed modifications constitute an eligible facilities request. Therefore, AT&T respectfully requests the Board to find that Section 4.32(g)(1) of the Ordinance does not apply to its Request.

VI. THE PROPOSED MODIFICATIONS ARE AN ELIGIBLE FACILITIES REQUEST

Under Section 6409 and the FCC Order, a “base station” means “[a] structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). A Base Station includes “any structure other than a tower” that supports or houses “authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). Therefore, the existing building that is currently used for FCC-licensed transmissions for personal wireless services is a “base station” for purposes of Section 6409.

AT&T proposes to modify its existing Facility as described above and depicted on the Plans submitted herewith.

The proposed modifications will not require the installation of any part of the facility on the ground outside of the building.

As a result, AT&T’s proposed modifications involving the removal and replacement of the existing transmission equipment constitute an “eligible facilities request” under Section 6409. The proposed eligible facilities request is not a “substantial modification” under Section 6409 and the FCC Order because it does not:

- (i) Result in an increase in “the height of the structure by more than 10% or more than ten feet, whichever is greater” because the proposed replacement antennas will be façade mounted and located below the roofline and therefore will not exceed 10 feet above the existing building and the proposed roof mounted RRUs and surge arrestors will also not exceed 10 feet above the existing building;
- (ii) Protrude from the edge of the edge of the building by more than six feet because AT&T’s proposed antennas will not protrude more than six feet from building façade;
- (iii) Involve the installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets because no new radio communications equipment cabinets will be installed;
- (iv) Require any excavation or deployment outside the current site of the tower or base station because all antennas, equipment cabinets and related equipment will be installed entirely on and within the existing building; or
- (v) Otherwise defeat the existing concealment elements of the tower or base station because the proposed replacement antennas will be painted and textured to match the façade of the existing building on which the existing and proposed antennas will be located and will continue to integrate the Facility into the existing architecture of the building. Further, the proposed and surge arrestors will be mounted in a manner and color consistent with the existing RRUs and surge arrestors. Therefore, AT&T’s proposed Facility will remain aesthetically consistent with the exterior finish of the building as well as maintain the concealment elements of the original design.

See FCC Order, §1.40001(b)(7)(i)-(v).

VII. COMPLIANCE WITH THE CAMBRIDGE ZONING ORDINANCE

In the alternative, AT&T respectfully requests the Board to grant a special permit for the proposed modifications to the existing Facility.⁶

A. AT&T complies with the Wireless Communications provisions set forth in Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance.

AT&T's proposed modifications comply with Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance as follows:⁷

Section 4.32(g)(1): Section 4.32(g)(1) of the Ordinance allows for the use of a “[t]elephone exchange (including switching, relay, and transmission facilities serving mobile communications systems) and any towers or antennas accessory thereto.” Under the Table of Use Regulations beginning at Section 4.30, AT&T's proposed use of the Facility as a transmission facility serving a mobile communications system is permitted by special permit in the C-3 zoning district (see the table at Section 4.32(g)(1)).

Section 4.40, Footnote 49: Section 4.32(g)(1) includes a reference to Section 4.40, Footnote 49 which sets out the standards for granting the special permit. AT&T's proposed Facility complies with Footnote 49's standards as noted below:

- 1. The Board of Zoning Appeal shall consider “[t]he scope of or limitations imposed by any license secured from any state or federal agency having jurisdiction over such matters.”**

AT&T's Response: AT&T's FCC license is included with this application and the license information included shows that AT&T is authorized to provide wireless service in the area served by the Facility (see Exhibit 2).

- 2. The Board of Zoning Appeal shall consider “[t]he extent to which the visual impact of the various elements of the proposed facility is minimized: (1) through the use of existing mechanical elements on the building's roof or other features of the building as support and background, (2) through the use in materials that in texture and color**

⁶ AT&T's request is made, if and to the extent necessary, all rights reserved. As discussed above, the FCC Order establishes a 60-day period for receipt of all necessary approvals from the time of AT&T's submission, including a building permit, if required. 47 CFR §1.40001(c)(2). If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4). Therefore, AT&T expressly reserves its rights under 47 CFR §1.40001(c)(2) and (4).

⁷ To the extent that Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance purport to require the submission of information that is beyond the scope permitted by the FCC Order or Spectrum Act, AT&T expressly reserves, and does not waive, its right to assert that such information is not required under the Spectrum Act and the submission of such information shall not constitute a waiver of AT&T's rights pursuant thereto.

blend with the materials to which the facilities are attached, or (3) other effective means to reduce the visual impact of the facility on the site.”

AT&T’s Response: The design of the overall Facility, including the choice and placement of replacement antennas and associated equipment, on the building’s façade, minimizes the visual impact of the proposed Facility. This is because the antennas and equipment on the exterior façade surfaces will be painted to match the color and texture of the building so as to be minimally visible and consistent with the concealment elements of the existing Facility. The minimal visual impact of the Facility is shown in the photographs of the existing Facility and the photosimulations that superimpose the proposed modifications to the existing Facility (*see*, Exhibit 5).

- 3. The Board of Zoning Appeal shall consider “[w]here it is proposed to erect such a facility in any residential zoning district, the extent to which there is a demonstrated public need for the facility at the proposed locations, the existence of alternative, functionally suitable sites in nonresidential locations, the character of the prevailing uses in the area, and the prevalence of other existing mechanical systems and equipment carried on or above the roof of nearby structures. The Board of Zoning Appeal shall grant a special permit to erect such a facility in a residential zoning district only upon finding that nonresidential uses predominate in the vicinity of the proposed facility’s location and that the telecommunications facility is not inconsistent with the character that does prevail in the surrounding neighborhood.**

In granting a special permit the Board of Zoning Appeal shall set forth in its decision under which circumstances or procedures, if any, the permittee shall be allowed to replace and upgrade its equipment without the necessity of seeking a new special permit.”

AT&T’s Response: As demonstrated by the Radio Frequency Report and the associated coverage maps, AT&T has demonstrated an immediate and compelling need for the proposed modifications to its existing Facility located at the Property in order to provide substantially improved indoor coverage to residents, businesses, students and faculty, and the general public in that area.⁸ AT&T also seeks to substantially improve its ability to satisfy the ever-increasing need of its customers for data accessibility, navigation and use. This is especially critical in and around the area Vassar Street, Massachusetts Avenue and the surrounding MIT campus. AT&T proposes to satisfy its RF coverage needs in the area by adding to the existing Facility the antennas and equipment necessary to provide the latest LTE wireless communications service technology. By modifying its existing Facility, AT&T obviates the need to construct an entirely new facility within this area of Cambridge in order to meet its wireless network coverage needs.

As provided in Footnote 49, AT&T requests that once permission is received from the City to site the Facility at the Property, the Board permit AT&T to replace and upgrade the equipment at this Facility in the future without further zoning proceedings or a new special permit, provided that such equipment shall meet the eligible facilities request criteria set forth in 47 CFR § 1.40001.

⁸ AT&T must generate a signal strength of at least -74 dBm to provide serviceable voice and data coverage on its mobile wireless devices in indoor environments. AT&T also seeks to substantially improve its data navigation service coverage in the area by including antennas and equipment that will provide LTE service.

B. AT&T complies with the Special Permit Criteria set forth in Section 10.43 of the Ordinance.

Section 10.43 of the Ordinance specifies the following criteria for issuance of a special permit: “Special permits will normally be granted where specific provisions of this Ordinance are met, except when particulars of the location or use, not generally true of the district or of the uses permitted in it, would cause granting of such permit to be to the detriment of the public interest because:

(a) The requirements of this Ordinance cannot or will not be met, or

AT&T's Response: As provided above, AT&T's proposed modifications comply with the requirements set forth in Section 4.32(g), Footnote 49 of the Ordinance, the Spectrum Act and the eligible facilities request criteria set forth in 47 CFR § 1.40001. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(b) Traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character for the following reasons, or

AT&T's Response: The proposed modifications to AT&T's existing Facility will not result in any change to the existing traffic on or near the Property. The Facility will continue to be unmanned and only require infrequent visits by a technician (typically two times per month for routine diagnostics and/or maintenance, except in cases of emergency), there will be no material increase in traffic or disruption to patterns of access or egress that will cause congestion, hazards or a substantial change in the established neighborhood character. AT&T's maintenance personnel will make use of the existing access roads and parking at the building. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(c) The continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would be adversely affected by the nature of the proposed use, or

AT&T's Response: As described above and illustrated on the attached photographs and photosimulations (*see* Exhibit 5) the proposed modifications to the existing Facility will result in a *de minimis* change in the appearance of the building because the equipment will be located on building exterior surfaces. As a result, the Facility as a whole either will be hidden from view or will visually blend with existing characteristics of the building and the surrounding neighborhood. Because the proposed installation will not generate any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, it will not adversely affect residential uses on neighboring streets. Conversely, the surrounding properties and general public will benefit from the potential to enjoy improved wireless communications services. Granting the special permit

would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(d) Nuisance or hazard would be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City, or

AT&T's Response: Because the proposed modifications to the existing Facility will not cause the Facility to generate any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, no nuisance or hazard will be created to the detriment of the health, safety, or welfare of the occupants of the building or the residents of the City of Cambridge. To the contrary, the proposed Facility will benefit the City and promote the safety and welfare of its residents, businesses and drivers by providing reliable state-of-the-art digital wireless voice and data services that will improve the reliability of emergency communications with the police and fire departments by eliminating dropped or blocked calls due to inadequate signal strength or insufficient network capacity to handle call volume, particularly important during emergency situations. The Facility, as modified, will continue to comply with all federal, state and local safety requirements including the standards established by the FCC and Federal Aviation Administration (FAA). (See Exhibit 8 Maximum Permissible Exposure Study, Theoretical Report). Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(e) For other reasons, the proposed installation would impair the integrity of the district or adjoining district or otherwise derogate from the intent or purpose of this Ordinance, or

AT&T's Response: The purpose of the Ordinance is multifaceted, the relevant aspects of which relating to wireless telecommunications facilities include the lessening of congestion in the streets, conserving health, securing safety from fire, flood, panic and other danger, conserving the value of land and buildings and natural resources, preventing blight and pollution, encouraging the most rational use of land throughout the city, including encouraging appropriate economic development, and protecting residential neighborhoods from incompatible activities.

As noted above, the proposed modifications to the existing Facility directly accord with the purposes of the Ordinance because the modifications will not result in any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater. As the Facility will improve the ability of residents, businesses, travelers and drivers in the area to access state-of-the-art wireless technology, the City's ability to provide emergency services will be improved, as will the economic development of the City as more people will be able to conduct commerce by virtue of a mobile platform. Because the proposed modifications to the existing Facility will be installed on an existing building that includes the Facility, and the proposed modifications are consistent with the existing concealment elements, the proposed modifications to the existing Facility are in consistent with the building's character and will not affect the value of the building or the natural resources of the City. Because the proposed modifications to the existing Facility are designed to be consistent with the existing concealment elements of the Facility and characteristics of the

Property, the visual impact on the underlying and adjacent zoning districts will be *de minimis*. As a result, the proposed modifications to the existing Facility are consistent with the Ordinance's purpose to allow for less intrusive wireless telecommunications facilities in all districts (other than Open Space) including the applicable overlay districts, and the underlying C-3 district. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(f) The new use or building construction is inconsistent with the Urban Design Objectives set forth in Section 19.30

AT&T's Response: As stated in the Section 19.30, the Citywide Urban Design Objectives ("Objectives") "are intended to provide guidance to property owners and the general public as to the city's policies with regard to the form and character desirable for new development in the city. It is understood that application of these principles can vary with the context of specific building proposals in ways that, nevertheless, fully respect the policies' intent. It is intended that proponents of projects, and city staff, the Planning Board and the general public, where public review or approval is required, should be open to creative variations from the detailed provisions presented in this Section as long as the core values expressed are being served. *A project need not meet all the objectives of this Section 19.30 where this Section serves as the basis for issuance of a special permit. Rather the permit granting authority shall find that on balance the objectives of the city are being served.* Nor shall a project subject to special permit review be required to conform to the Required Building and Site Plan Requirements set forth in Section 11.50." [emphasis added]. For the reasons stated in AT&T's response to this Section 10.43(f) of the Zoning Ordinance and in its application generally, "on balance, the objectives of the city are being served" by the installation of the Facility at the Property so that granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

The following are the Objectives' headings as appearing in the Ordinance:

19.31: New projects should be responsive to the existing or anticipated pattern of development.

AT&T's Response: The existing Facility is located on n the existing building, some of the equipment of which is hidden from view behind the screen wall on the existing building, or otherwise obstructed from view, and the remaining equipment blends with the structures and colors of the building. The proposed modifications to the existing Facility are consistent with the previously approved design and concealment elements of the existing Facility. Therefore, the proposed modifications are responsive to the existing pattern of development in the Property's applicable zoning and overlay districts.

19.32: Development should be pedestrian and bicycle-friendly, with a positive relationship to its surroundings.

AT&T's Response: The existing Facility is located on and within the existing building. The Facility is only accessed by authorized AT&T personnel for routine maintenance one to two times per month and is not accessed by the general public. The proposed modifications to the existing

Facility will not result in any increase in routine visits nor otherwise result in a change in traffic patterns in the vicinity of the Property that would affect pedestrian flow or cyclists' access to the building or surrounding areas within the Property's applicable zoning districts.

19.33 The building and site design should mitigate adverse environmental impacts of a development upon its neighbors. Indicators include⁹

(1) Mechanical equipment that is carefully designed, well organized or visually screened from its surroundings and is acoustically buffered from neighbors. Consideration is given to the size, complexity and appearance of the equipment, its proximity to residential areas, and its impact on the existing streetscape and skyline. The extent to which screening can bring order, lessen negative visual impacts, and enhance the overall appearance of the equipment should be taken into account. More specifically:

(a) Reasonable attempts have been made to avoid exposing rooftop mechanical equipment to public view from city streets. Among the techniques that might be considered are the inclusion of screens or a parapet around the roof of the building to shield low ducts and other equipment on the roof from view.

(b) Treatment of the mechanical equipment (including design and massing of screening devices as well as exposed mechanical elements) that relates well to the overall design, massing, scale and character of the building.

(c) Placement of mechanical equipment at locations on the site other than on the rooftop (such as in the basement), which reduces the bulk of elements located on the roof; however, at-grade locations external to the building should not be viewed as desirable alternatives.

(d) Tall elements, such as chimneys and air exhaust stacks, which are typically carried above screening devices for functioning reasons, are carefully designed as features of the building, thus creating interest on the skyline.

(e) All aspects of the mechanical equipment have been designed with attention to their visual impact on adjacent areas, particularly with regard to residential neighborhoods and views and vistas.

AT&T's Response: As shown in the photosimulations (*see* Exhibit 5), the existing Facility, as proposed to be modified herein, will continue to be visually consistent with the color and texture of the building and the concealment elements of the design of the Facility. As a result, AT&T's Facility is in keeping with the building's existing features without adversely affecting the building's overall design, massing, scale or character.

⁹ Inasmuch as Section 19.33 is most relevant to the Facility, it is stated here in full.

(2) Trash that is handled to avoid impacts (noise, odor, and visual quality) on neighbors, e.g. the use of trash compactors or containment of all trash storage and handling within a building is encouraged.

AT&T's Response: The Facility does not generate trash, therefore this design objective is inapplicable.

(3) Loading docks that are located and designed to minimize impacts (visual and operational) on neighbors.

AT&T's Response: The Facility does not utilize any loading dock, therefore this design objective is inapplicable.

(4) Stormwater Best Management Practices and other measures to minimize runoff and improve water quality are implemented.

AT&T's Response: The existing Facility, and the proposed modifications, are located entirely on and within the existing Building on the Property and have no effect on stormwater runoff, therefore this design objective is inapplicable.

(5) Landscaped areas and required Green Area Open Space, in addition to serving as visual amenities, are employed to reduce the rate and volume of stormwater runoff compared to pre-development conditions.

AT&T's Response: The existing Facility and proposed modifications have no effect any landscaped or Green Area Open Space, therefore this design objective is inapplicable.

(6) The structure is designed and sited to minimize shadow impacts on neighboring lots, especially shadows that would have a significant impact on the use and enjoyment of adjacent open space and shadows that might impact the operation of a Registered Solar Energy System as defined in Section 22.60 of this Zoning Ordinance.

AT&T's Response: The existing Facility and proposed modifications are designed so as not to cause shadows on neighboring lots.

(7) Changes in grade across the lot are designed in ways that minimize the need for structural retaining walls close to property lines.

AT&T's Response: The existing Facility and proposed modifications are located entirely on the existing building and have no impact on the grade of the Property, therefore this design objective is inapplicable.

(8) Building scale and wall treatment, including the provision of windows, are sensitive to existing residential uses on adjacent lots.

AT&T's Response: The proposed modifications to the existing Facility will not change the building's scale because antennas and equipment will blend with the color and

textures of the building (*see* Exhibit 3). The existing Facility and proposed modifications are consistent with characteristics of the existing building design, maintain the existing concealment elements of the Facility and therefore minimize any visual impact from the Facility.

(9) Outdoor lighting is designed to provide minimum lighting and necessary to ensure adequate safety, night vision, and comfort, while minimizing light pollution.

AT&T's Response: The existing Facility does not use any outdoor lighting. The proposed modifications to the Facility do not include any additional lighting of the Facility or building. As a result, this design objective is inapplicable.

(10) The creation of a Tree Protection Plan that identifies important trees on the site, encourages their protection, or provides for adequate replacement of trees lost to development on the site.

AT&T's Response: The existing Facility and proposed modifications are located entirely on the existing building and have no effect on any trees on the Property, therefore this design objective is inapplicable.

19.34: Projects should not overburden the City infrastructure services, including neighborhood roads, city water supply system, and sewer system.

AT&T's Response: The existing Facility, including the proposed modifications, is a passive use and will not generate trash, odor, excess noise, or utilize water or wastewater services. As such, it will not burden the City's infrastructure services.

19.35: New construction should reinforce and enhance the complex urban aspects of Cambridge as it has developed historically.

AT&T's Response: The proposed modification of the existing Facility located on the existing building, will obviate the need for AT&T to construct an additional Facility to address its wireless network coverage need in this area of Cambridge. The existing Facility and the proposed modifications blend the equipment with the building texture and color, and are consistent with the concealment elements of the Facility's design. As a result, the Facility will reinforce the existing Cambridge landscape as it currently is manifested at the Property.

19.36: Expansion of the inventory of housing in the city is encouraged.

AT&T's Response: The Facility and proposed modifications provide wireless services and will not adversely impact the City's housing inventory.

19.37. Enhancement and expansion of open space amenities in the city should be incorporated into new development in the city.

February 28, 2019

AT&T's Response: The Facility and proposed modifications are located on the existing building. The Facility and proposed modifications will not adversely impact or otherwise reduce open space amenities within the City.

VIII. SUMMARY

For the foregoing reasons AT&T respectfully requests that the Board to determine that pursuant to the Spectrum Act and the FCC Order, the Request constitutes an eligible facilities request and therefore AT&T's Request must be approved administratively, including the issuance of a building permit, without the need for further relief from the Board. In the alternative, without waiving its rights, AT&T requests the Board grant the foregoing zoning relief in the form of a Special Permit and such other relief as the Board deems necessary to allow the modification and operation of AT&T's proposed Facility.

Best Regards,

Timothy W. Greene

Authorized Agent to New Cingular Wireless PCS, LLC ("AT&T")

BZA APPLICATION FORM**DIMENSIONAL INFORMATION**

APPLICANT: TerraSearch **PRESENT USE/OCCUPANCY:** _____
LOCATION: 60 Vassar St Cambridge, MA **ZONE:** Residence C-3 Zone
PHONE: _____ **REQUESTED USE/OCCUPANCY:** _____

	<u>EXISTING</u> <u>CONDITIONS</u>	<u>REQUESTED</u> <u>CONDITIONS</u>	<u>ORDINANCE</u> <u>REQUIREMENTS</u> ¹
<u>TOTAL GROSS FLOOR AREA:</u>	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>LOT AREA:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>RATIO OF GROSS FLOOR AREA</u> <u>TO LOT AREA:</u> ²	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>LOT AREA FOR EACH DWELLING UNIT:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>SIZE OF LOT:</u> <u>WIDTH</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>DEPTH</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>SETBACKS IN FEET:</u> <u>FRONT</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>REAR</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>LEFT SIDE</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>RIGHT SIDE</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>SIZE OF BLDG.:</u> <u>HEIGHT</u>	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>LENGTH</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>WIDTH</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>RATIO OF USABLE OPEN SPACE</u> <u>TO LOT AREA:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>NO. OF DWELLING UNITS:</u>	<u>0</u>	<u>0</u>	<u>0</u> (max.)
<u>NO. OF PARKING SPACES:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min./max)
<u>NO. OF LOADING AREAS:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)
<u>DISTANCE TO NEAREST BLDG.</u> <u>ON SAME LOT:</u>	<u>0</u>	<u>0</u>	<u>0</u> (min.)

Describe where applicable, other occupancies on same lot, the size of adjacent buildings on same lot, and type of construction proposed, e.g.; wood frame, concrete, brick, steel, etc.

1. SEE CAMBRIDGE ZONING ORDINANCE ARTICLE 5.000, SECTION 5.30 (DISTRICT OF DIMENSIONAL REGULATIONS).
2. TOTAL GROSS FLOOR AREA (INCLUDING BASEMENT 7'-0" IN HEIGHT AND ATTIC AREAS GREATER THAN 5') DIVIDED BY LOT AREA.
3. OPEN SPACE SHALL NOT INCLUDE PARKING AREAS, WALKWAYS OR DRIVEWAYS AND SHALL HAVE A MINIMUM DIMENSION OF 15'.



CITY OF CAMBRIDGE
MASSACHUSETTS
BOARD OF ZONING APPEAL
831 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139
617 349-6100

2019 MAR 20 PM 3:23

BZA APPLICATION FORM

GENERAL INFORMATION

Plan No: BZA-017085-2019
OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

The undersigned hereby petitions the Board of Zoning Appeal for the following:

Special Permit : ✓ Variance : _____ Appeal : _____

PETITIONER : New Cingular Wireless PCS LLC dba AT&T Mobility - C/O Timothy Greene, TerraS

PETITIONER'S ADDRESS : 157 Riverside Drive Norwell, MA 02061

LOCATION OF PROPERTY : 60 Vassar St Cambridge, MA

TYPE OF OCCUPANCY : _____ ZONING DISTRICT : Residence C-3 Zone

REASON FOR PETITION :

Other: Telecommunications Upgrade

DESCRIPTION OF PETITIONER'S PROPOSAL :

This application is a Eligible Facilities request pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 or in the alternative, for a special permit under the zoning ordinance as cited above. AT&T will be adding 3 panel antenna to its existing installation on site. AT&T will also be adding and upgrading equipment as part of nationwide network upgrades

SECTIONS OF ZONING ORDINANCE CITED :

Article 4.000 Section 4.32.G.1 (Telecommunications Facility).

Article 4.000 Section 4.40 (Footnote 49 (Telecommunications Facility)).

Article 10.000 Section 10.40 (Special Permit).

Article 6409 Section Middle Class Tax Relief and Job Creation Act

Original Signature(s) :

[Signature]
(Petitioner(s) / Owner)

Address : TerraSearch
Timothy W. Greene
157 Riverside Drive
Norwell, MA 02061

Tel. No. :

617-877-2950

E-Mail Address :

tgroove@terrasearchllc.com

Date : _____

60 Vassar St.



60 Vassar St.

Petitioner

43-63
WHITEHEAD INSTITUTE FOR BIOMEDICAL
RESEARCH
9 CAMBRIDGE CENTER
CAMBRIDGE, MA 02142

48-129 / 53-60 / 56-4 / 57-169-170-173 / 58-74-161-162-
165 / 274-1E / 52A-19-21-22-31-32
MASSACHUSETTS INSTITUTE OF TECHNOLOGY C/O
MIT INVESTMENTS MANAGEMENT CO
ONE BROADWAY, SUITE 09-200
CAMBRIDGE, MA 02142

TIMOTHY W. GREENE
157 RIVERSIDE DRIVE
NORWELL, MA 02061

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CAMBRIDGE, MA 02142

43A-16
MIT REAL ESTATE, LLC, C/O ARE- TECH SQ,
LLC/MIT REAL ESTATE LL
P.O. BOX 847
CARLSBAD, CA 92018

43A-29
CAMBRIDGE REDEVELOPMENT AUTHORITY
255 MAIN ST., 4TH FLOOR
CAMBRIDGE, MA 02142

DEPARTMENT OF CONSERVATION &
RECREATION
251 CAUSEWAY STREET – SUITE 600
BOSTON, MA 02114-2119



February 28, 2019

Donna P. Lopez, City Clerk City of Cambridge City Hall 795 Massachusetts Avenue Cambridge, MA 02139	Constantine Alexander, Chair Board of Zoning Appeal City Hall 795 Massachusetts Avenue Cambridge, MA 02139
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Applicant: New Cingular Wireless PCS, LLC ("AT&T")
Property Address: 60 Vassar Street.
Assessor's Map 52A, Lot 21 (the "Property")
Re: Application for:
(i) Eligible Facilities Request pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. § 1455; or, in the alternative,
(ii) Special Permit under Cambridge Zoning Ordinance Section 4.32(g)(1) and M.G.L. c. 40A, Section 9; and
(iii) Any other zoning relief required.
(All relief if and to the extent necessary, all rights reserved)

Dear Ms. Lopez, Mr. Alexander and Members of the Board of Zoning Appeal:

Pursuant to Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012 (a/k/a the "Spectrum Act" or "Section 6409"), 47 U.S.C. § 1455, as further implemented by the Federal Communications Commission's Report and Order *In re Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies*, FCC Docket No. 13-238, Report and Order No. 14-153 (October 17, 2014) (the "FCC Order"), New Cingular Wireless PCS, LLC ("AT&T") hereby submits this Eligible Facilities Request ("Request"); and, in the alternative, applies for a special permit from the City of Cambridge Board of Zoning Appeal (the "Board") under Section 432(g)(1) of the Cambridge Zoning Ordinance (the "Ordinance") to modify its existing "Telephone Exchange including Transmission Facilities to serve a Mobile Communication System" (the "Facility") on and within the existing building located at 60 Vassar Street (the "Special Permit Application").²

² AT&T submits this Request, Special Permit application and supporting materials subject to a full and complete reservation of AT&T's rights under the Spectrum Act and the FCC Order including without limitation its rights with respect to (i) any submittal requirements or approval criteria that are inconsistent with the prohibitions established by the FCC Order, (ii) any delay beyond the deadlines established in the FCC Order, (iii) the imposition of conditions on any approval that are inconsistent with the FCC Order, and (iv) referral or requirement to a discretionary review process such as a special permit.

Under Section 6409, AT&T's proposed modification of its existing transmission equipment on and within the existing building, previously approved by the Board for use as a wireless communication base station, does "not substantially change the physical dimensions" of the existing building. Therefore, AT&T's Request must be approved administratively, including the issuance of a building permit, to enable AT&T to make the proposed modifications to its transmission equipment.

In the alternative, as demonstrated in this application letter, the AT&T's proposed modifications to its existing Facility on the Property located in the C-3 zoning district satisfy the requirements for the grant of a special permit pursuant to Section 10.43 of the Ordinance.

I. APPLICATION PACKAGE

Enclosed with this application is a check payable to the City of Cambridge in the amount of \$500.00. In addition to the signed original of this letter are copies of the letter and the following materials:

1. The following completed and signed application forms:
 - a. BZA Application Form – General Information;
 - b. BZA Application Form – Ownership Information;
 - c. BZA Application Form – Dimensional Requirements;
 - d. BZA Application Form – Supporting Statement for a Special Permit; and
 - e. BZA Application Form – Check List;
2. AT&T's relevant FCC License information;
3. Drawings by Hudson Design Group consisting of 8 pages dated 4/3/18;
4. Manufacturer's specification sheets for AT&T's proposed antennas and other featured equipment;
5. Photographs of the existing building and photosimulations of the proposed modifications Facility by Hudson Design Group., dated 2/28/19;
6. Radio Frequency Coverage Report, demonstrating the public need for the proposed modifications to the Facility, radio frequency coverage maps showing (a) existing or predicted coverage from neighboring facilities; and (b) coverage with the proposed Facility;
7. Structural Analysis by Hudson Design Group LLC dated 2/8/18;
8. Maximum Permissible Exposure Study, Theoretical Report, by SAI Communications, dated April 1, 2016;
9. Letter of Authorization from Owner of Subject Property;

10. Deed to subject property

In addition to the supporting materials identified above, submitted simultaneously herewith is a completed building permit application package including:

1. Completed Building Permit Application;
2. Certificate of Liability Insurance;
3. Worker's Compensation Insurance Affidavit;
4. Construction Supervisor License for Keith F Barnard; and
5. 1 copy of the Plans.

II. PROPOSED FACILITY DESIGN

AT&T seeks to modify the existing Facility on and within the building located at the Property. The existing Facility consists of nine (9) panel antennas (Alpha Sector: 3 antennas, Beta Sector: 3 antennas, and Gamma Sector: 3 antennas) that are mounted in three (3) locations. The proposed modifications include the addition of one (1) antenna per sector. The additional antennas will be mounted to the existing antenna mounts consistent with the current Facility's design. Six (6) remote radio-head units (RRUs) (two per sector will be added in close proximity to the antennas. Consistent with the concealment elements of the existing Facility's design, the proposed replacement antennas will be painted to match the color and texture of the existing façade. The proposed RRUs will match the color of the existing RRUs.

The Facility's design is shown in detail in the Zoning Drawings attached as Exhibit 3 to this application letter and featured equipment is described in the manufacturers' specification sheets attached as Exhibit 4. The photographs and photosimulations (Exhibit 5) show the existing Facility from various locations in the neighborhood around the Property and as simulated with proposed modifications. A structural analysis for the Facility demonstrates that the building is capable of supporting AT&T's proposed equipment at or near the locations shown on the Zoning Drawings (*see* Exhibit 7).

The Facility will continue to bring advanced wireless voice, text and data communications services to the surrounding areas. It will allow residents, professionals, government, businesses and students to communicate locally, nationally and internationally from virtually any location within the coverage area. In the event of an emergency, the improved Facility will allow immediate contact with fire, rescue and other emergency personnel. The improved Facility will thus enhance public health, safety and welfare both in ordinary daily living and in the event of fire, accident, medical emergency, natural disaster or other dangers.

III. BACKGROUND

AT&T is licensed by the Federal Communications Commission to construct and operate a wireless telecommunications network in various markets throughout the country, including the Commonwealth of Massachusetts and the City of Cambridge. A copy of the AT&T's FCC license that covers the area of the proposed Facility is included with this application (*see* Exhibit 2). AT&T is in the process of designing and constructing additional wireless facilities to its existing telecommunications system to serve Massachusetts. One of the key design objectives of its systems is to provide adequate and reliable coverage. Such a system requires a grid of radio transmitting and receiving links located approximately .5 to 2 miles apart, depending on the location of existing and proposed installations in the surrounding area, the extent of use of AT&T's wireless services within the network, and the existing topography and obstructions. The radio transmitting and receiving facilities operate on a line-of-sight basis, requiring a clear path from the facility to the user on the ground. In urban settings, this dynamic requires the antennas to be located on buildings at heights and in locations where the signal is not obstructed or degraded by other buildings or by topographical features such as hills.

IV. RF COVERAGE DETERMINATION

AT&T has performed a study of radio frequency coverage for the City of Cambridge and from the Property, the results of which are described in the Radio Frequency Report submitted with this application (*see* Exhibit 6). Without the proposed modifications to its existing Facility, AT&T has a substantial coverage gap in this area of Cambridge. AT&T has determined that the proposed modifications to the existing Facility located on the building at the Property will provide needed coverage to the targeted sections of the City and the immediately surrounding area if AT&T's antennas are located on the building at the height and in the configuration requested. The importance of a facility at this location is underscored by AT&T's interest in enhancing its ability to provide its most up-to-date wireless technology, known as long-term evolution technology ("LTE"), in this area to satisfy its customers' ever-increasing needs for high-speed data services. Radio frequency coverage maps included in the report are provided to pictorially and vividly show the differences in existing and proposed wireless coverage at the various bands authorized for AT&T's service. The maps show dramatic improvements to wireless coverage at all three (3) bands with the inclusion of the proposed Facility, namely, at 700, 1900, and 2100 MHz.

V. THE FEDERAL SPECTRUM ACT AND THE FCC ORDER

As set forth below, the proposed modifications constitute an Eligible Facilities Request pursuant to the federal Spectrum Act,³ as further implemented by the FCC Order.⁴

Under the Spectrum Act, as further clarified by the FCC Order, the streamlined process for this Eligible Facilities Request is limited to non-discretionary review. Specifically, the FCC Order “adopt[s] an objective standard for determining when a proposed modification will ‘substantially change the physical dimensions’ of an existing tower or base station.” *FCC Order*, ¶ 87. As stated in the FCC Order, Section 6409 “states without equivocation that the reviewing authority ‘may not deny, and shall approve’ any qualifying application. This directive leaves no room for a lengthy and discretionary approach to reviewing an application that meets the statutory criteria.” *FCC Order*, ¶ 116.

In issuing the FCC Order and eliminating discretionary review for eligible facilities requests, the FCC’s goal was to “adopt a test that is defined by specific, objective factors rather than the contextual and entirely subjective standard advocated by the IAC and municipalities.” The FCC intentionally sought to reduce “flexibility” and “open ended context-specific approach” engendered by the discretionary review process:

While we acknowledge that the IAC approach would provide municipalities with maximum flexibility to consider potential effects, we are concerned that it would invite lengthy review processes that conflict with Congress’s intent. Indeed, some municipal commenters anticipate their review of covered requests under a subjective, case-by-case approach could take even longer than their review of collocations absent Section 6409(a). We also anticipate that disputes arising from a subjective approach would tend to require longer and more costly litigation to resolve given the more fact-intensive nature of the IAC’s open-ended and context-specific approach. We find that an objective definition, by contrast, will provide an appropriate balance between municipal flexibility and the rapid deployment of covered facilities. We find further support for this approach in State statutes that have implemented Section 6409(a), all of which establish objective standards.

FCC Order, ¶ 88.

³ Pursuant to Section 6409(a)(2) an “eligible facilities request” means any request for modification of an existing wireless tower or base station that involves—

- (A) collocation of new transmission equipment;
- (B) removal of transmission equipment; or
- (C) replacement of transmission equipment.

47 U.S.C. § 1455(a)(2).

⁴ The Order was effective on February 9, 2015, except for § 1.40001, which became effective on April 8, 2015, except for §§ 1.40001(c)(3)(i), 1.40001(c)(3)(iii), 1.140001(c)(4), and 17.4(c)(1)(vii), which became effective on May 18, 2015, after approval by the Office of Management and Budget. The FCC Order makes clear that under the Spectrum Act discretionary review is not required or permitted for an Eligible Facilities Request.

As a result, the FCC Order implementing Section 6409 establishes clear and objective criteria for determining eligibility, limits the types of information that a municipality may require when processing an application for an eligible facilities request, and imposes a “deemed granted” remedy for failure to timely process and eligible facilities request.⁵ The FCC Order also establishes significant limits on the information that can be required to be provided with an eligible facilities request and limits it to only that information “reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation”. 47 CFR 1.40001(c)(1).

Both before and after the FCC Order was issued, the Massachusetts Attorney General’s Office provided clear guidance that an eligible request cannot be subjected to a discretionary special permit process. *See* Attorney General’s letters to (i) Town of Mount Washington, dated June 12, 2014, p. 3 (ii) Town of Lynnfield, dated February 10, 2015, p. 3 (the “AG Lynnfield Letter”) and (iii) Town of Montague, dated February 23, 2015, p. 2 (all attached hereto). As set forth in each letter [t]he Act’s requirement that a local government ‘may not deny, and shall approve, any eligible facilities request’ means that a request for modification to an existing facility that does not substantially change the physical dimensions of the tower or base station must be approved. ***Such qualifying requests also cannot be subject to a discretionary special permit.***”(Emphasis added). In providing these opinions, the Attorney General’s Office specifically opined that provisions in zoning ordinances that specifically required a special permit for modifications to existing facilities could not be applied to eligible facilities requests. While approving the Town of Lynnfield’s Zoning Bylaw, the Attorney General stated that “Section 8.7.5.1 requires that PWSF may only be erected upon the grant of a special permit. The Town cannot apply this requirement to eligible facilities requests for modification to existing facilities that qualify for required approval under Section 6409 of the Act.” *AG Lynnfield Letter*, p. 3.

Therefore, as set forth in the FCC Order and Attorney General’s opinion letters, the City cannot impose a requirement that AT&T obtain a special permit, or an amendment to an existing special permit utilizing the same discretionary review process, in connection with its eligible facilities request. To the extent that the City of Cambridge’s Zoning Ordinance and any prior decisions by the Board include provisions seeking to further regulate the modification of wireless communication facilities, federal law overrules those requirements. *See Sprint Spectrum L.P. v. Town of Swansea*, 574 F.Supp.2d 227, 236 (2008) (Board is obligated to consider whether its actions would violate federal law even if a different outcome would be permitted under state law). The standard of review for an application to modify an existing wireless communication facility on an existing tower or base station is governed by the Spectrum Act and the FCC Order which require eligible facilities requests to be permitted “by right.”

In addition, the FCC Order establishes a 60-day period for approval from the time of AT&T’s submission. 47 CFR §1.40001(c)(2). Within the context of the Spectrum Act and FCC Order, approval means all necessary approvals to permit the proposed modifications, including the issuance of a building permit, if required. The FCC found that this 60-day period is appropriate due to “the more restricted scope of review applicable to applications under section 6409(a).”

⁵ *See* 47 CFR §§1.40001(c)(1) - (c)(4).

FCC Order, ¶ 108. If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4).

As set forth below, the proposed modifications constitute an eligible facilities request. Therefore, AT&T respectfully requests the Board to find that Section 4.32(g)(1) of the Ordinance does not apply to its Request.

VI. THE PROPOSED MODIFICATIONS ARE AN ELIGIBLE FACILITIES REQUEST

Under Section 6409 and the FCC Order, a “base station” means “[a] structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). A Base Station includes “any structure other than a tower” that supports or houses “authorized wireless communications between user equipment and a communications network.” 47 C.F.R §1.40001(b)(1). Therefore, the existing building that is currently used for FCC-licensed transmissions for personal wireless services is a “base station” for purposes of Section 6409.

AT&T proposes to modify its existing Facility as described above and depicted on the Plans submitted herewith.

The proposed modifications will not require the installation of any part of the facility on the ground outside of the building.

As a result, AT&T’s proposed modifications involving the removal and replacement of the existing transmission equipment constitute an “eligible facilities request” under Section 6409. The proposed eligible facilities request is not a “substantial modification” under Section 6409 and the FCC Order because it does not:

- (i) Result in an increase in “the height of the structure by more than 10% or more than ten feet, whichever is greater” because the proposed replacement antennas will be façade mounted and located below the roofline and therefore will not exceed 10 feet above the existing building and the proposed roof mounted RRUs and surge arrestors will also not exceed 10 feet above the existing building;
- (ii) Protrude from the edge of the edge of the building by more than six feet because AT&T’s proposed antennas will not protrude more than six feet from building façade;
- (iii) Involve the installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets because no new radio communications equipment cabinets will be installed;
- (iv) Require any excavation or deployment outside the current site of the tower or base station because all antennas, equipment cabinets and related equipment will be installed entirely on and within the existing building; or
- (v) Otherwise defeat the existing concealment elements of the tower or base station because the proposed replacement antennas will be painted and textured to match the façade of the existing building on which the existing and proposed antennas will be located and will continue to integrate the Facility into the existing architecture of the building. Further, the proposed and surge arrestors will be mounted in a manner and color consistent with the existing RRUs and surge arrestors. Therefore, AT&T’s proposed Facility will remain aesthetically consistent with the exterior finish of the building as well as maintain the concealment elements of the original design.

See FCC Order, §1.40001(b)(7)(i)-(v).

VII. COMPLIANCE WITH THE CAMBRIDGE ZONING ORDINANCE

In the alternative, AT&T respectfully requests the Board to grant a special permit for the proposed modifications to the existing Facility.⁶

A. **AT&T complies with the Wireless Communications provisions set forth in Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance.**

AT&T's proposed modifications comply with Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance as follows:⁷

Section 4.32(g)(1): Section 4.32(g)(1) of the Ordinance allows for the use of a “[t]elephone exchange (including switching, relay, and transmission facilities serving mobile communications systems) and any towers or antennas accessory thereto.” Under the Table of Use Regulations beginning at Section 4.30, AT&T's proposed use of the Facility as a transmission facility serving a mobile communications system is permitted by special permit in the C-3 zoning district (see the table at Section 4.32(g)(1)).

Section 4.40, Footnote 49: Section 4.32(g)(1) includes a reference to Section 4.40, Footnote 49 which sets out the standards for granting the special permit. AT&T's proposed Facility complies with Footnote 49's standards as noted below:

- 1. The Board of Zoning Appeal shall consider “[t]he scope of or limitations imposed by any license secured from any state or federal agency having jurisdiction over such matters.”**

AT&T's Response: AT&T's FCC license is included with this application and the license information included shows that AT&T is authorized to provide wireless service in the area served by the Facility (see Exhibit 2).

- 2. The Board of Zoning Appeal shall consider “[t]he extent to which the visual impact of the various elements of the proposed facility is minimized: (1) through the use of existing mechanical elements on the building's roof or other features of the building as support and background, (2) through the use in materials that in texture and color**

⁶ AT&T's request is made, if and to the extent necessary, all rights reserved. As discussed above, the FCC Order establishes a 60-day period for receipt of all necessary approvals from the time of AT&T's submission, including a building permit, if required. 47 CFR §1.40001(c)(2). If the Request is not acted upon within the 60-day period, it is deemed granted. 47 CFR §1.40001(c)(4). Therefore, AT&T expressly reserves its rights under 47 CFR §1.40001(c)(2) and (4).

⁷ To the extent that Section 4.32(g)(1), and Section 4.40, Footnote 49 of the Ordinance purport to require the submission of information that is beyond the scope permitted by the FCC Order or Spectrum Act, AT&T expressly reserves, and does not waive, its right to assert that such information is not required under the Spectrum Act and the submission of such information shall not constitute a waiver of AT&T's rights pursuant thereto.

blend with the materials to which the facilities are attached, or (3) other effective means to reduce the visual impact of the facility on the site.”

AT&T’s Response: The design of the overall Facility, including the choice and placement of replacement antennas and associated equipment, on the building’s façade, minimizes the visual impact of the proposed Facility. This is because the antennas and equipment on the exterior façade surfaces will be painted to match the color and texture of the building so as to be minimally visible and consistent with the concealment elements of the existing Facility. The minimal visual impact of the Facility is shown in the photographs of the existing Facility and the photosimulations that superimpose the proposed modifications to the existing Facility (*see*, Exhibit 5).

3. The Board of Zoning Appeal shall consider “[w]here it is proposed to erect such a facility in any residential zoning district, the extent to which there is a demonstrated public need for the facility at the proposed locations, the existence of alternative, functionally suitable sites in nonresidential locations, the character of the prevailing uses in the area, and the prevalence of other existing mechanical systems and equipment carried on or above the roof of nearby structures. The Board of Zoning Appeal shall grant a special permit to erect such a facility in a residential zoning district only upon finding that nonresidential uses predominate in the vicinity of the proposed facility’s location and that the telecommunications facility is not inconsistent with the character that does prevail in the surrounding neighborhood.

In granting a special permit the Board of Zoning Appeal shall set forth in its decision under which circumstances or procedures, if any, the permittee shall be allowed to replace and upgrade its equipment without the necessity of seeking a new special permit.”

AT&T’s Response: As demonstrated by the Radio Frequency Report and the associated coverage maps, AT&T has demonstrated an immediate and compelling need for the proposed modifications to its existing Facility located at the Property in order to provide substantially improved indoor coverage to residents, businesses, students and faculty, and the general public in that area.⁸ AT&T also seeks to substantially improve its ability to satisfy the ever-increasing need of its customers for data accessibility, navigation and use. This is especially critical in and around the area Vassar Street, Massachusetts Avenue and the surrounding MIT campus. AT&T proposes to satisfy its RF coverage needs in the area by adding to the existing Facility the antennas and equipment necessary to provide the latest LTE wireless communications service technology. By modifying its existing Facility, AT&T obviates the need to construct an entirely new facility within this area of Cambridge in order to meet its wireless network coverage needs.

As provided in Footnote 49, AT&T requests that once permission is received from the City to site the Facility at the Property, the Board permit AT&T to replace and upgrade the equipment at this Facility in the future without further zoning proceedings or a new special permit, provided that such equipment shall meet the eligible facilities request criteria set forth in 47 CFR § 1.40001.

⁸ AT&T must generate a signal strength of at least -74 dBm to provide serviceable voice and data coverage on its mobile wireless devices in indoor environments. AT&T also seeks to substantially improve its data navigation service coverage in the area by including antennas and equipment that will provide LTE service.

B. AT&T complies with the Special Permit Criteria set forth in Section 10.43 of the Ordinance.

Section 10.43 of the Ordinance specifies the following criteria for issuance of a special permit: “Special permits will normally be granted where specific provisions of this Ordinance are met, except when particulars of the location or use, not generally true of the district or of the uses permitted in it, would cause granting of such permit to be to the detriment of the public interest because:

(a) The requirements of this Ordinance cannot or will not be met, or

AT&T’s Response: As provided above, AT&T’s proposed modifications comply with the requirements set forth in Section 4.32(g), Footnote 49 of the Ordinance, the Spectrum Act and the eligible facilities request criteria set forth in 47 CFR § 1.40001. Granting the special permit would not be a detriment to the public interest and is consistent with the Board’s obligations pursuant to the Spectrum Act and FCC Order.

(b) Traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character for the following reasons, or

AT&T’s Response: The proposed modifications to AT&T’s existing Facility will not result in any change to the existing traffic on or near the Property. The Facility will continue to be unmanned and only require infrequent visits by a technician (typically two times per month for routine diagnostics and/or maintenance, except in cases of emergency), there will be no material increase in traffic or disruption to patterns of access or egress that will cause congestion, hazards or a substantial change in the established neighborhood character. AT&T’s maintenance personnel will make use of the existing access roads and parking at the building. Granting the special permit would not be a detriment to the public interest and is consistent with the Board’s obligations pursuant to the Spectrum Act and FCC Order.

(c) The continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would be adversely affected by the nature of the proposed use, or

AT&T’s Response: As described above and illustrated on the attached photographs and photosimulations (*see* Exhibit 5) the proposed modifications to the existing Facility will result in a *de minimis* change in the appearance of the building because the equipment will be located on building exterior surfaces. As a result, the Facility as a whole either will be hidden from view or will visually blend with existing characteristics of the building and the surrounding neighborhood. Because the proposed installation will not generate any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, it will not adversely affect residential uses on neighboring streets. Conversely, the surrounding properties and general public will benefit from the potential to enjoy improved wireless communications services. Granting the special permit

would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(d) Nuisance or hazard would be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City, or

AT&T's Response: Because the proposed modifications to the existing Facility will not cause the Facility to generate any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater, no nuisance or hazard will be created to the detriment of the health, safety, or welfare of the occupants of the building or the residents of the City of Cambridge. To the contrary, the proposed Facility will benefit the City and promote the safety and welfare of its residents, businesses and drivers by providing reliable state-of-the-art digital wireless voice and data services that will improve the reliability of emergency communications with the police and fire departments by eliminating dropped or blocked calls due to inadequate signal strength or insufficient network capacity to handle call volume, particularly important during emergency situations. The Facility, as modified, will continue to comply with all federal, state and local safety requirements including the standards established by the FCC and Federal Aviation Administration (FAA). (See Exhibit 8 Maximum Permissible Exposure Study, Theoretical Report). Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(e) For other reasons, the proposed installation would impair the integrity of the district or adjoining district or otherwise derogate from the intent or purpose of this Ordinance, or

AT&T's Response: The purpose of the Ordinance is multifaceted, the relevant aspects of which relating to wireless telecommunications facilities include the lessening of congestion in the streets, conserving health, securing safety from fire, flood, panic and other danger, conserving the value of land and buildings and natural resources, preventing blight and pollution, encouraging the most rational use of land throughout the city, including encouraging appropriate economic development, and protecting residential neighborhoods from incompatible activities.

As noted above, the proposed modifications to the existing Facility directly accord with the purposes of the Ordinance because the modifications will not result in any traffic, smoke, dust, heat or glare, discharge noxious substances, nor pollute waterways or groundwater. As the Facility will improve the ability of residents, businesses, travelers and drivers in the area to access state-of-the-art wireless technology, the City's ability to provide emergency services will be improved, as will the economic development of the City as more people will be able to conduct commerce by virtue of a mobile platform. Because the proposed modifications to the existing Facility will be installed on an existing building that includes the Facility, and the proposed modifications are consistent with the existing concealment elements, the proposed modifications to the existing Facility are in consistent with the building's character and will not affect the value of the building or the natural resources of the City. Because the proposed modifications to the existing Facility are designed to be consistent with the existing concealment elements of the Facility and characteristics of the

Property, the visual impact on the underlying and adjacent zoning districts will be *de minimis*. As a result, the proposed modifications to the existing Facility are consistent with the Ordinance's purpose to allow for less intrusive wireless telecommunications facilities in all districts (other than Open Space) including the applicable overlay districts, and the underlying C-3 district. Granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

(f) The new use or building construction is inconsistent with the Urban Design Objectives set forth in Section 19.30

AT&T's Response: As stated in the Section 19.30, the Citywide Urban Design Objectives ("Objectives") "are intended to provide guidance to property owners and the general public as to the city's policies with regard to the form and character desirable for new development in the city. It is understood that application of these principles can vary with the context of specific building proposals in ways that, nevertheless, fully respect the policies' intent. It is intended that proponents of projects, and city staff, the Planning Board and the general public, where public review or approval is required, should be open to creative variations from the detailed provisions presented in this Section as long as the core values expressed are being served. *A project need not meet all the objectives of this Section 19.30 where this Section serves as the basis for issuance of a special permit. Rather the permit granting authority shall find that on balance the objectives of the city are being served.* Nor shall a project subject to special permit review be required to conform to the Required Building and Site Plan Requirements set forth in Section 11.50." [emphasis added]. For the reasons stated in AT&T's response to this Section 10.43(f) of the Zoning Ordinance and in its application generally, "on balance, the objectives of the city are being served" by the installation of the Facility at the Property so that granting the special permit would not be a detriment to the public interest and is consistent with the Board's obligations pursuant to the Spectrum Act and FCC Order.

The following are the Objectives' headings as appearing in the Ordinance:

19.31: New projects should be responsive to the existing or anticipated pattern of development.

AT&T's Response: The existing Facility is located on n the existing building, some of the equipment of which is hidden from view behind the screen wall on the existing building, or otherwise obstructed from view, and the remaining equipment blends with the structures and colors of the building. The proposed modifications to the existing Facility are consistent with the previously approved design and concealment elements of the existing Facility. Therefore, the proposed modifications are responsive to the existing pattern of development in the Property's applicable zoning and overlay districts.

19.32: Development should be pedestrian and bicycle-friendly, with a positive relationship to its surroundings.

AT&T's Response: The existing Facility is located on and within the existing building. The Facility is only accessed by authorized AT&T personnel for routine maintenance one to two times per month and is not accessed by the general public. The proposed modifications to the existing

Facility will not result in any increase in routine visits nor otherwise result in a change in traffic patterns in the vicinity of the Property that would affect pedestrian flow or cyclists' access to the building or surrounding areas within the Property's applicable zoning districts.

19.33 The building and site design should mitigate adverse environmental impacts of a development upon its neighbors. Indicators include⁹

(1) Mechanical equipment that is carefully designed, well organized or visually screened from its surroundings and is acoustically buffered from neighbors. Consideration is given to the size, complexity and appearance of the equipment, its proximity to residential areas, and its impact on the existing streetscape and skyline. The extent to which screening can bring order, lessen negative visual impacts, and enhance the overall appearance of the equipment should be taken into account. More specifically:

(a) Reasonable attempts have been made to avoid exposing rooftop mechanical equipment to public view from city streets. Among the techniques that might be considered are the inclusion of screens or a parapet around the roof of the building to shield low ducts and other equipment on the roof from view.

(b) Treatment of the mechanical equipment (including design and massing of screening devices as well as exposed mechanical elements) that relates well to the overall design, massing, scale and character of the building.

(c) Placement of mechanical equipment at locations on the site other than on the rooftop (such as in the basement), which reduces the bulk of elements located on the roof; however, at-grade locations external to the building should not be viewed as desirable alternatives.

(d) Tall elements, such as chimneys and air exhaust stacks, which are typically carried above screening devices for functioning reasons, are carefully designed as features of the building, thus creating interest on the skyline.

(e) All aspects of the mechanical equipment have been designed with attention to their visual impact on adjacent areas, particularly with regard to residential neighborhoods and views and vistas.

AT&T's Response: As shown in the photosimulations (*see* Exhibit 5), the existing Facility, as proposed to be modified herein, will continue to be visually consistent with the color and texture of the building and the concealment elements of the design of the Facility. As a result, AT&T's Facility is in keeping with the building's existing features without adversely affecting the building's overall design, massing, scale or character.

⁹ Inasmuch as Section 19.33 is most relevant to the Facility, it is stated here in full.

(2) Trash that is handled to avoid impacts (noise, odor, and visual quality) on neighbors, e.g. the use of trash compactors or containment of all trash storage and handling within a building is encouraged.

AT&T's Response: The Facility does not generate trash, therefore this design objective is inapplicable.

(3) Loading docks that are located and designed to minimize impacts (visual and operational) on neighbors.

AT&T's Response: The Facility does not utilize any loading dock, therefore this design objective is inapplicable.

(4) Stormwater Best Management Practices and other measures to minimize runoff and improve water quality are implemented.

AT&T's Response: The existing Facility, and the proposed modifications, are located entirely on and within the existing Building on the Property and have no effect on stormwater runoff, therefore this design objective is inapplicable.

(5) Landscaped areas and required Green Area Open Space, in addition to serving as visual amenities, are employed to reduce the rate and volume of stormwater runoff compared to pre-development conditions.

AT&T's Response: The existing Facility and proposed modifications have no effect any landscaped or Green Area Open Space, therefore this design objective is inapplicable.

(6) The structure is designed and sited to minimize shadow impacts on neighboring lots, especially shadows that would have a significant impact on the use and enjoyment of adjacent open space and shadows that might impact the operation of a Registered Solar Energy System as defined in Section 22.60 of this Zoning Ordinance.

AT&T's Response: The existing Facility and proposed modifications are designed so as not to cause shadows on neighboring lots.

(7) Changes in grade across the lot are designed in ways that minimize the need for structural retaining walls close to property lines.

AT&T's Response: The existing Facility and proposed modifications are located entirely on the existing building and have no impact on the grade of the Property, therefore this design objective is inapplicable.

(8) Building scale and wall treatment, including the provision of windows, are sensitive to existing residential uses on adjacent lots.

AT&T's Response: The proposed modifications to the existing Facility will not change the building's scale because antennas and equipment will blend with the color and

textures of the building (*see* Exhibit 3). The existing Facility and proposed modifications are consistent with characteristics of the existing building design, maintain the existing concealment elements of the Facility and therefore minimize any visual impact from the Facility.

(9) Outdoor lighting is designed to provide minimum lighting and necessary to ensure adequate safety, night vision, and comfort, while minimizing light pollution.

AT&T's Response: The existing Facility does not use any outdoor lighting. The proposed modifications to the Facility do not include any additional lighting of the Facility or building. As a result, this design objective is inapplicable.

(10) The creation of a Tree Protection Plan that identifies important trees on the site, encourages their protection, or provides for adequate replacement of trees lost to development on the site.

AT&T's Response: The existing Facility and proposed modifications are located entirely on the existing building and have no effect on any trees on the Property, therefore this design objective is inapplicable.

19.34: Projects should not overburden the City infrastructure services, including neighborhood roads, city water supply system, and sewer system.

AT&T's Response: The existing Facility, including the proposed modifications, is a passive use and will not generate trash, odor, excess noise, or utilize water or wastewater services. As such, it will not burden the City's infrastructure services.

19.35: New construction should reinforce and enhance the complex urban aspects of Cambridge as it has developed historically.

AT&T's Response: The proposed modification of the existing Facility located on the existing building, will obviate the need for AT&T to construct an additional Facility to address its wireless network coverage need in this area of Cambridge. The existing Facility and the proposed modifications blend the equipment with the building texture and color, and are consistent with the concealment elements of the Facility's design. As a result, the Facility will reinforce the existing Cambridge landscape as it currently is manifested at the Property.

19.36: Expansion of the inventory of housing in the city is encouraged.

AT&T's Response: The Facility and proposed modifications provide wireless services and will not adversely impact the City's housing inventory.

19.37. Enhancement and expansion of open space amenities in the city should be incorporated into new development in the city.

AT&T's Response: The Facility and proposed modifications are located on the existing building. The Facility and proposed modifications will not adversely impact or otherwise reduce open space amenities within the City.

VIII. SUMMARY

For the foregoing reasons AT&T respectfully requests that the Board to determine that pursuant to the Spectrum Act and the FCC Order, the Request constitutes and eligible facilities request and therefore AT&T's Request must be approved administratively, including the issuance of a building permit, without the need for further relief from the Board. In the alternative, without waiving its rights, AT&T requests the Board grant the foregoing zoning relief in the form of a Special Permit and such other relief as the Board deems necessary to allow the modification and operation of AT&T's proposed Facility.

Best Regards,

Timothy W. Greene

Authorized Agent to New Cingular Wireless PCS, LLC ("AT&T")

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM LLC

ATTN: REGINALD YOUNGBLOOD
 AT&T MOBILITY SPECTRUM LLC
 3300 E. RENNER ROAD, B3132
 RICHARDSON, TX 75082

Call Sign WQJU427	File Number
Radio Service WY - 700 MHz Lower Band (Blocks A, B & E)	

FCC Registration Number (FRN): 0014980726

Grant Date 01-06-2009	Effective Date 02-12-2014	Expiration Date 06-13-2019	Print Date
Market Number CMA006	Channel Block B	Sub-Market Designator 0	
Market Name Boston-Lowell-Brockton-Lawrenc			
1st Build-out Date 12-13-2016	2nd Build-out Date 06-13-2019	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

This license is subject to compliance with the conditions set forth in the Commission's Order of Modification, WT Docket No. 12-69, DA 14-43, released January 16, 2014.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

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**Federal Communications Commission
Wireless Telecommunications Bureau**

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: REGINALD YOUNGBLOOD
NEW CINGULAR WIRELESS PCS, LLC
3300 E. RENNER ROAD, B3132
RICHARDSON, TX 75082

Call Sign KNKA226	File Number
Radio Service CL - Cellular	
Market Numer CMA006	Channel Block A
Sub-Market Designator 0	

FCC Registration Number (FRN): 0003291192

Market Name Boston-Lowell-Brockton-Lawrenc				
Grant Date 10-05-2004	Effective Date 02-13-2014	Expiration Date 10-01-2014	Five Yr Build-Out Date	Print Date

Site Information:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
15	42-37-42.3 N	070-39-16.8 W	45.7	58.8	

Address: 40 DORY ROAD

City: GLOUCESTER **County:** ESSEX **State:** MA **Construction Deadline:**

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.100	97.500	101.800	101.800	100.800	88.700	85.700	101.800
Transmitting ERP (watts)	158.853	205.617	68.628	9.427	0.642	0.431	2.268	29.488
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.100	97.500	101.800	101.800	100.800	88.700	85.700	101.800
Transmitting ERP (watts)	0.459	5.462	56.429	198.529	168.403	38.276	3.953	0.786
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	93.100	97.500	101.800	101.800	100.800	88.700	85.700	101.800
Transmitting ERP (watts)	12.078	0.668	0.599	1.024	10.050	68.014	123.413	62.132

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

File Number:

Print Date:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
20	43-03-11.8 N	071-16-02.1 W	179.2	59.4	

Address: 80 Diamond Hill Road

City: Candia County: ROCKINGHAM State: NH Construction Deadline:

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	73.200	111.000	159.400	159.000	98.400	148.300	88.600	75.600
Transmitting ERP (watts)	52.325	70.778	16.988	1.425	0.187	0.144	0.491	7.084
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	73.200	111.000	159.400	159.000	98.400	148.300	88.600	75.600
Transmitting ERP (watts)	0.343	3.851	33.085	100.313	84.855	19.494	2.061	0.299
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	73.200	111.000	159.400	159.000	98.400	148.300	88.600	75.600
Transmitting ERP (watts)	6.845	0.890	0.107	1.038	6.652	7.633	3.304	6.905

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
24	42-54-55.1 N	071-21-37.4 W	100.9	46.3	1011624

Address: 15 INDEPENDENCE DRIVE

City: LONDONDERRY County: ROCKINGHAM State: NH Construction Deadline:

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	30.000	44.800	52.100	54.500	72.000	68.000	66.500
Transmitting ERP (watts)	161.221	224.756	47.602	3.692	0.510	0.437	1.233	19.454
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	30.000	44.800	52.100	54.500	72.000	68.000	66.500
Transmitting ERP (watts)	0.510	3.172	43.604	213.248	156.639	22.374	1.350	0.496
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	35.900	30.000	44.800	52.100	54.500	72.000	68.000	66.500
Transmitting ERP (watts)	11.168	0.691	0.533	0.586	7.854	87.092	266.329	94.294

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

File Number:

Print Date:

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
25	42-00-32.6 N	071-19-15.2 W	90.5	51.8	

Address: 75 WASHINGTON SST

City: PLAINVILLE County: NORFOLK State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.500	61.200	95.600	96.100	94.300	64.100	46.000	48.800
Transmitting ERP (watts)	84.752	97.052	31.772	5.158	0.550	0.224	2.803	20.645
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.500	61.200	95.600	96.100	94.300	64.100	46.000	48.800
Transmitting ERP (watts)	0.380	5.181	37.013	100.829	79.042	20.699	2.118	0.824
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	64.500	61.200	95.600	96.100	94.300	64.100	46.000	48.800
Transmitting ERP (watts)	24.577	1.736	0.715	2.292	18.444	139.378	281.180	142.336

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
26	41-46-57.1 N	070-44-06.5 W	12.5	58.8	

Address: KENDRICK ROAD

City: WAREHAM County: PLYMOUTH State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	46.500	56.700	59.800	50.600	39.100	32.800
Transmitting ERP (watts)	186.898	242.551	75.777	10.617	0.738	0.508	2.730	35.860
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	46.500	56.700	59.800	50.600	39.100	32.800
Transmitting ERP (watts)	0.361	5.818	47.861	150.309	121.062	28.493	2.933	0.991
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	46.500	56.700	59.800	50.600	39.100	32.800
Transmitting ERP (watts)	18.390	1.111	0.538	1.628	13.482	98.897	203.625	103.938

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
27	41-53-35.2 N	070-56-35.0 W	17.7	106.1	1210211

Address: 326 W GROVE ST

City: Middleboro County: PLYMOUTH State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.500	46.300	30.000	37.000	40.900	39.500	51.600	42.300
Transmitting ERP (watts)	125.283	153.432	54.208	6.550	0.674	0.363	2.675	27.340
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.500	46.300	30.000	37.000	40.900	39.500	51.600	42.300
Transmitting ERP (watts)	0.351	5.901	52.455	151.828	120.612	27.887	2.679	0.991
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	47.500	46.300	30.000	37.000	40.900	39.500	51.600	42.300
Transmitting ERP (watts)	14.428	1.006	0.875	1.215	13.317	87.541	159.641	85.795

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
28	42-14-21.9 N	070-51-09.3 W	54.9	55.8	

Address: 168 Turkey Hill Lane

City: Cohasset County: NORFOLK State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	99.800	98.300	97.600	71.700	64.800	62.900	86.700	99.100
Transmitting ERP (watts)	185.522	243.217	80.727	11.598	0.756	0.499	2.589	34.953
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	99.800	98.300	97.600	71.700	64.800	62.900	86.700	99.100
Transmitting ERP (watts)	0.521	6.371	65.693	238.024	196.107	43.191	4.256	0.906
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	99.800	98.300	97.600	71.700	64.800	62.900	86.700	99.100
Transmitting ERP (watts)	9.488	0.543	0.538	1.234	8.977	53.553	85.290	45.661

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
29	41-56-02.0 N	070-35-08.0 W	82.9	128.0	1007828

Address: 265 STATE ROAD

City: PLYMOUTH County: PLYMOUTH State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	128.000	128.000	128.000	123.500	92.200	86.600	84.900	120.500
Transmitting ERP (watts)	23.222	24.154	10.475	1.931	0.466	0.109	1.398	6.965
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	128.000	128.000	128.000	123.500	92.200	86.600	84.900	120.500
Transmitting ERP (watts)	0.346	4.427	33.055	88.168	72.485	17.790	1.831	0.701
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	128.000	128.000	128.000	123.500	92.200	86.600	84.900	120.500
Transmitting ERP (watts)	9.680	0.561	0.550	1.216	9.292	54.685	90.439	45.409

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
30	42-12-47.6 N	071-32-33.4 W	128.0	58.5	

Address: 26 LUMBER STREET

City: HOPKINTON County: MIDDLESEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	68.900	93.200	99.800	91.500	55.300	59.600	35.700	76.400
Transmitting ERP (watts)	158.662	188.312	64.228	8.830	0.704	0.395	4.080	30.535
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	68.900	93.200	99.800	91.500	55.300	59.600	35.700	76.400
Transmitting ERP (watts)	0.432	6.612	61.028	195.296	166.263	35.500	3.748	0.703
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	68.900	93.200	99.800	91.500	55.300	59.600	35.700	76.400
Transmitting ERP (watts)	18.831	1.074	0.590	1.783	15.144	103.799	219.501	97.060

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
31	42-38-27.0 N	070-36-24.8 W	36.6	38.7	

Address: 38 Thatcher Rd

City: ROCKLAND County: ESSEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.500	69.500	69.500	69.500	69.500	66.700	58.400	60.100
Transmitting ERP (watts)	170.519	227.554	76.127	10.393	0.706	0.470	2.520	32.796
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.500	69.500	69.500	69.500	69.500	66.700	58.400	60.100
Transmitting ERP (watts)	0.462	5.689	58.840	206.264	174.760	39.385	4.197	0.837
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	69.500	69.500	69.500	69.500	69.500	66.700	58.400	60.100
Transmitting ERP (watts)	20.761	1.510	0.812	1.238	15.269	110.467	237.338	124.965

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
32	42-36-37.9 N	071-33-28.9 W	148.4	46.3	

Address: 142 LOWELL RD

City: GROTON County: MIDDLESEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	129.600	133.000	121.700	118.300	83.000	99.300	81.700	86.000
Transmitting ERP (watts)	209.658	291.175	91.511	11.206	1.156	0.596	4.998	40.617
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	129.600	133.000	121.700	118.300	83.000	99.300	81.700	86.000
Transmitting ERP (watts)	0.597	10.042	80.421	284.569	246.599	46.898	5.186	0.906
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	129.600	133.000	121.700	118.300	83.000	99.300	81.700	86.000
Transmitting ERP (watts)	18.748	1.375	0.781	1.196	15.487	106.791	230.014	118.184

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
33	42-08-01.1 N	070-43-57.5 W	68.3	80.5	1017973

Address: 178 EAMES WAY

City: Marshfield County: PLYMOUTH State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	125.300	128.600	128.200	125.800	107.800	113.100	97.600	105.400
Transmitting ERP (watts)	156.993	202.510	73.503	10.210	0.666	0.415	2.429	32.615
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	125.300	128.600	128.200	125.800	107.800	113.100	97.600	105.400
Transmitting ERP (watts)	0.482	5.988	62.083	217.536	187.313	40.576	4.382	0.869
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	125.300	128.600	128.200	125.800	107.800	113.100	97.600	105.400
Transmitting ERP (watts)	21.007	1.466	0.829	1.219	15.907	109.305	228.002	122.541

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
34	41-42-11.1 N	070-46-47.1 W	14.3	59.4	

Address: 55 BENSONBROOK ROAD

City: MARION County: PLYMOUTH State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	51.300	62.700	66.200	68.700	66.600	60.600	47.100	51.900
Transmitting ERP (watts)	161.079	196.082	67.519	9.213	0.702	0.419	4.077	32.479
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	51.300	62.700	66.200	68.700	66.600	60.600	47.100	51.900
Transmitting ERP (watts)	0.446	6.712	62.074	197.767	163.770	38.273	3.886	0.801
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	51.300	62.700	66.200	68.700	66.600	60.600	47.100	51.900
Transmitting ERP (watts)	3.819	0.784	0.433	6.729	64.256	202.261	164.916	37.606

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
35	42-21-20.1 N	071-33-16.6 W	156.1	26.5	

Address: 157 UNION STREET

City: MARLBOROUGH County: MIDDLESEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	97.800	119.900	113.500	108.400	76.200	73.000	51.900	77.300
Transmitting ERP (watts)	280.304	377.489	119.970	14.810	1.525	0.802	6.660	52.209
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	97.800	119.900	113.500	108.400	76.200	73.000	51.900	77.300
Transmitting ERP (watts)	0.801	13.105	105.660	375.949	325.389	63.339	6.978	1.142
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	97.800	119.900	113.500	108.400	76.200	73.000	51.900	77.300
Transmitting ERP (watts)	30.606	2.831	1.046	2.632	27.909	187.774	419.392	197.441

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
36	42-39-54.6 N	070-38-19.9 W	59.4	44.5	

Address: 68 JOHNSON ROAD

City: ROCKPORT County: ESSEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	103.000	103.000	103.000	100.400	95.400	85.100	98.100	103.000
Transmitting ERP (watts)	126.741	159.124	54.189	7.443	0.564	0.334	3.098	25.685
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	103.000	103.000	103.000	100.400	95.400	85.100	98.100	103.000
Transmitting ERP (watts)	0.353	5.360	49.103	157.255	130.117	30.639	2.895	0.641
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	103.000	103.000	103.000	100.400	95.400	85.100	98.100	103.000
Transmitting ERP (watts)	15.787	0.974	0.495	1.442	11.730	84.942	168.331	87.120

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
37	42-41-29.8 N	071-47-30.8 W	233.8	47.9	

Address: 1140 Greenville Rd

City: ASHBY County: MIDDLESEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	138.200	163.500	145.000	68.800	30.000	30.000	30.000
Transmitting ERP (watts)	301.383	343.844	123.915	17.212	1.267	0.862	4.339	57.968
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	138.200	163.500	145.000	68.800	30.000	30.000	30.000
Transmitting ERP (watts)	0.559	6.546	72.077	254.800	226.824	50.359	4.678	0.979
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	138.200	163.500	145.000	68.800	30.000	30.000	30.000
Transmitting ERP (watts)	35.557	2.084	1.375	2.194	29.159	209.483	410.600	215.057

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
38	42-38-54.9 N	071-47-40.6 W	240.8	47.2	

Address: 601-603 FITCHBURG STATE ROAD

City: ASHBY County: MIDDLESEX State: MA Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	31.100	159.800	170.800	147.700	56.300	30.000	30.000	30.000
Transmitting ERP (watts)	204.865	233.420	85.530	11.768	0.897	0.575	2.961	39.554
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	31.100	159.800	170.800	147.700	56.300	30.000	30.000	30.000
Transmitting ERP (watts)	0.570	6.676	74.271	261.076	238.587	50.169	4.787	1.001
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	31.100	159.800	170.800	147.700	56.300	30.000	30.000	30.000
Transmitting ERP (watts)	24.123	1.410	0.948	1.499	20.272	140.599	280.157	146.756

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
40	43-05-58.2 N	070-47-28.6 W	7.6	67.4	

Address: 165 GOSLING RD

City: NEWINGTON County: ROCKINGHAM State: NH Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	34.000	45.500	68.500	72.400	58.800	51.900	57.200	52.000
Transmitting ERP (watts)	205.727	278.300	62.928	5.059	0.711	0.597	1.577	25.136
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	34.000	45.500	68.500	72.400	58.800	51.900	57.200	52.000
Transmitting ERP (watts)	0.559	3.335	47.419	236.351	181.187	26.867	1.510	0.563
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	34.000	45.500	68.500	72.400	58.800	51.900	57.200	52.000
Transmitting ERP (watts)	10.525	0.618	0.497	0.555	7.391	82.592	243.998	90.540

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
41	43-04-39.1 N	071-07-30.3 W	107.0	60.7	1231475

Address: 150 Raymond Road

City: Nottingham County: ROCKINGHAM State: NH Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	54.900	95.800	122.100	119.300	102.200	66.300	44.100	30.000
Transmitting ERP (watts)	160.334	230.049	54.265	4.271	0.586	0.522	1.415	21.993
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	54.900	95.800	122.100	119.300	102.200	66.300	44.100	30.000
Transmitting ERP (watts)	0.493	3.289	48.427	238.724	177.920	27.618	1.619	0.581
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	54.900	95.800	122.100	119.300	102.200	66.300	44.100	30.000
Transmitting ERP (watts)	10.353	0.693	0.601	0.662	8.753	100.864	305.315	110.743

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

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Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
42	43-13-24.3 N	071-14-23.2 W	189.0	38.7	

Address: 50 OLD CANTERBURY RD

City: NORTHWOOD County: ROCKINGHAM State: NH Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	43.800	80.800	68.900	30.000	53.500	30.000
Transmitting ERP (watts)	114.248	162.456	37.049	2.808	0.392	0.366	0.961	16.015
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	43.800	80.800	68.900	30.000	53.500	30.000
Transmitting ERP (watts)	0.544	3.573	49.915	233.638	184.420	30.453	1.413	0.618
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	30.000	30.000	43.800	80.800	68.900	30.000	53.500	30.000
Transmitting ERP (watts)	8.132	0.494	0.387	0.467	6.390	72.302	182.164	77.916

Location	Latitude	Longitude	Ground Elevation (meters)	Structure Hgt to Tip (meters)	Antenna Structure Registration No.
43	42-59-40.7 N	070-46-58.5 W	12.5	59.4	

Address: 96 GROVE RD

City: RYE County: ROCKINGHAM State: NH Construction Deadline: 03-29-2013

Antenna: 1 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	49.700	62.100	64.000	64.300	63.700	45.100	38.900	54.200
Transmitting ERP (watts)	146.515	206.846	49.164	3.766	0.505	0.452	1.193	17.877
Antenna: 2 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	49.700	62.100	64.000	64.300	63.700	45.100	38.900	54.200
Transmitting ERP (watts)	0.464	2.913	42.460	206.462	152.606	24.148	1.373	0.460
Antenna: 3 Azimuth (from true north)	0	45	90	135	180	225	270	315
Antenna Height AAT (meters)	49.700	62.100	64.000	64.300	63.700	45.100	38.900	54.200
Transmitting ERP (watts)	10.168	0.644	0.536	0.576	7.457	86.483	257.603	87.494

Control Points:

Control Pt. No. 2

Address: 100 LOWDER BROOK DR

City: WESTWOOD County: NORFOLK State: MA Telephone Number: (617)462-7094

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: KNKA226

File Number:

Print Date:

Waivers/Conditions:

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM LLC

ATTN: REGINALD YOUNGBLOOD
 AT&T MOBILITY SPECTRUM LLC
 3300 E. RENNER ROAD, B3132
 RICHARDSON, TX 75082

Call Sign KNLB200	File Number
Radio Service WS - Wireless Communications Service	

FCC Registration Number (FRN): 0014980726

Grant Date 09-27-2010	Effective Date 02-12-2014	Expiration Date 07-21-2017	Print Date
Market Number MEA001	Channel Block B	Sub-Market Designator 0	
Market Name Boston			
1st Build-out Date 03-13-2017	2nd Build-out Date 09-13-2019	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/Mexico), future coordination of any base station transmitters shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: AT&T MOBILITY SPECTRUM LLC

Call Sign: KNLB200

File Number:

Print Date:

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Spectrum Lease associated with this license. See Spectrum Leasing Arrangement Letter dated 04/01/2005 and File No. 0001999501.

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for that license area at the 3/13/2017 construction deadline.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM LLC

ATTN: REGINALD YOUNGBLOOD
 AT&T MOBILITY SPECTRUM LLC
 3300 E. RENNER ROAD, B3132
 RICHARDSON, TX 75082

Call Sign KNLB210	File Number
Radio Service WS - Wireless Communications Service	

FCC Registration Number (FRN): 0014980726

Grant Date 09-27-2010	Effective Date 02-12-2014	Expiration Date 07-21-2017	Print Date
Market Number MEA001	Channel Block A	Sub-Market Designator 0	
Market Name Boston			
1st Build-out Date 03-13-2017	2nd Build-out Date 09-13-2019	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/Mexico), future coordination of any base station transmitters shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: AT&T MOBILITY SPECTRUM LLC

Call Sign: KNLB210

File Number:

Print Date:

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for that license area at the 3/13/2017 construction deadline.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM LLC

ATTN: REGINALD YOUNGBLOOD
 AT&T MOBILITY SPECTRUM LLC
 3300 E. RENNER ROAD, B3132
 RICHARDSON, TX 75082

Call Sign KNLB297	File Number
Radio Service WS - Wireless Communications Service	

FCC Registration Number (FRN): 0014980726

Grant Date 09-27-2010	Effective Date 02-12-2014	Expiration Date 07-21-2017	Print Date
Market Number REA001	Channel Block D	Sub-Market Designator 0	
Market Name Northeast			
1st Build-out Date 03-13-2017	2nd Build-out Date 09-13-2019	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

License renewal is granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Pursuant to WCS Order on Reconsideration, FCC 12-130, in order to obtain a renewal expectancy at the 7/21/17 renewal deadline, a licensee must, for each license area, certify that it has maintained, or exceeded, the level of coverage demonstrated for that license area at the 3/13/2017 construction deadline.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: REGINALD YOUNGBLOOD
 NEW CINGULAR WIRELESS PCS, LLC
 2200 N. GREENVILLE AVE, 1W
 RICHARDSON, TX 75082

Call Sign KNLF216	File Number
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0003291192

Grant Date 07-07-2005	Effective Date 11-24-2012	Expiration Date 06-23-2015	Print Date
Market Number MTA008	Channel Block A	Sub-Market Designator 17	
Market Name Boston-Providence			
1st Build-out Date 06-23-2000	2nd Build-out Date 06-23-2005	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This license is conditioned upon compliance with the provisions of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order, FCC 04-255 (rel. Oct. 26, 2004).

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: REGINALD YOUNGBLOOD
NEW CINGULAR WIRELESS PCS, LLC
2200 N. GREENVILLE AVE, 1W
RICHARDSON, TX 75082

Call Sign WPOI214	File Number
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0003291192

Grant Date 07-07-2005	Effective Date 11-24-2012	Expiration Date 06-23-2015	Print Date
Market Number MTA008	Channel Block A	Sub-Market Designator 7	
Market Name Boston-Providence			
1st Build-out Date 06-23-2000	2nd Build-out Date 06-23-2005	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: WPOI214

File Number:

Print Date:

This license is conditioned upon compliance with the provisions of Applications of AT&T Wireless Services, Inc. and Cingular Wireless Corporation For Consent to Transfer Control of Licenses and Authorizations, Memorandum Opinion and Order, FCC 04-255 (rel. Oct. 26, 2004).

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY II LLC

ATTN: REGINALD YOUNGBLOOD
 AT&T MOBILITY II LLC
 3300 E. RENNER ROAD, B3132
 RICHARDSON, TX 75082

Call Sign WPWU950	File Number
Radio Service WZ - 700 MHz Lower Band (Blocks C, D)	

FCC Registration Number (FRN): 0016982233

Grant Date 01-24-2003	Effective Date 02-11-2014	Expiration Date 06-13-2019	Print Date
Market Number CMA006	Channel Block C	Sub-Market Designator 0	
Market Name Boston-Lowell-Brockton-Lawrenc			
1st Build-out Date 06-13-2019	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

Operation of the facilities authorized herein, are subject to the condition that harmful interference may not be caused to, but must be accepted from UHF TV transmitters in Canada and Mexico as identified in existing and any future agreements with those countries.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: AT&T MOBILITY II LLC

Call Sign: WPWU950

File Number:

Print Date:

This license is subject to compliance with the conditions set forth in the Commission's Order of Modification, WT Docket No. 12-69, DA 14-43, released January 16, 2014.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: NEW CINGULAR WIRELESS PCS, LLC

ATTN: REGINALD YOUNGBLOOD
 NEW CINGULAR WIRELESS PCS, LLC
 3300 E. RENNER ROAD, B3132
 RICHARDSON, TX 75082

Call Sign WPZY689	File Number
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0003291192

Grant Date 02-28-2007	Effective Date 02-13-2014	Expiration Date 01-03-2017	Print Date
Market Number BTA051	Channel Block C	Sub-Market Designator 2	
Market Name Boston, MA			
1st Build-out Date 12-07-2003	2nd Build-out Date 01-03-2007	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is conditioned upon the full and timely payment of all monies due pursuant to Sections 1.2110 and 24.711 of the Commission's Rules and the terms of the Commission's installment plan as set forth in the Note and Security Agreement executed by the licensee. Failure to comply with this condition will result in the automatic cancellation of this authorization.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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Licensee Name: NEW CINGULAR WIRELESS PCS, LLC

Call Sign: WPZY689

File Number:

Print Date:

Pursuant to Order DA 03-617 (rel. March 3, 2003), the designated entity holding period for this license is extended by 703 days, or until the licensee meets its five-year construction requirement, whichever is sooner.

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

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Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AT&T MOBILITY SPECTRUM LLC

ATTN: REGINALD YOUNGBLOOD
AT&T MOBILITY SPECTRUM LLC
2200 N. GREENVILLE AVE, 1W
RICHARDSON, TX 75082

Call Sign WQGA763	File Number
Radio Service AW - AWS, 1710-1755/2110-2155 MHz bands	

FCC Registration Number (FRN): 0014980726

Grant Date 11-29-2006	Effective Date 11-29-2012	Expiration Date 11-29-2021	Print Date
Market Number BEA003	Channel Block C	Sub-Market Designator 3	
Market Name Boston-Worcester-Lawrence-Lowe			
1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations. See, e.g., FCC and NTIA Coordination Procedures in the 1710-1755 MHz Band, Public Notice, FCC 06-50, WTB Docket No. 02-353, rel. April 20, 2006.

Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

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Licensee Name: AT&T MOBILITY SPECTRUM LLC








Call Sign: WQGA763

File Number:

Print Date:

AWS operations must not cause harmful interference across the Canadian or Mexican Border. The authority granted herein is subject to future international agreements with Canada or Mexico, as applicable.

Commission approval of this application and the licenses contained therein are subject to the conditions set forth in the Memorandum Opinion and Order, adopted on December 29, 2006 and released on March 26, 2007, and revised in the Order on Reconsideration, adopted and released on March 26, 2007. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, WC Docket No. 06-74, Memorandum Opinion and Order, FCC 06-189 (rel. Mar. 26, 2007); AT&T Inc. and BellSouth Corporation, WC Docket No. 06-74, Order on Reconsideration, FCC 07-44 (rel. Mar. 26, 2007).

<div>PROJECT INFORMATION</div> <div>SCOPE OF WORK:<div>ITEMS TO BE MOUNTED ON THE EXISTING ROOFTOP:<ul style="list-style-type: none">NEW AT&T ANTENNAS: (80010964) MOUNTED @ POSITION 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).NEW AT&T RRUS: RRUS 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)NEW AT&T RRUS: RRUS 4426 B66 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)PROPOSED AT&T (6) DC POWER & (3) FIBER CABLES.</div><div>ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:<ul style="list-style-type: none">PROPOSED (2) 5216 TO REPLACE EXISTING (2) DUS & ADD 2ND XMU AND REPLACE IDL2 WITH IDLE CABLE IN EXISTING LTE PURCELLPROPOSED PURCELL ON TOP OF EXISTING.</div><div>ITEMS TO REMAIN:<ul style="list-style-type: none">(9) ANTENNAS, (18) RRU'S, (3) SURGE ARRESTOR (12) COAX CABLES, (6) DC POWER & (3) FIBER.</div></div> <div>SITE ADDRESS:<div>77 MASSACHUSETTS AVENUE CAMBRIDGE, MA 02139</div></div> <div>LATITUDE:<div>42.360444° N 42° 21' 37.59" N</div></div> <div>LONGITUDE:<div>71.090686° W 71° 05' 26.46" W</div></div> <div>TYPE OF SITE:<div>ROOF TOP / OUTDOOR EQUIPMENT</div></div> <div>STRUCTURE HEIGHT:<div>123'-0"±</div></div> <div>RAD CENTER:<div>120'-10"±</div></div> <div>CURRENT USE:<div>TELECOMMUNICATIONS FACILITY</div></div> <div>PROPOSED USE:<div>TELECOMMUNICATIONS FACILITY</div></div>			<div><div></div><div>SITE NUMBER: MA2267</div><div>SITE NAME: MIT DORRANCE BLDG #16</div><div>PROJECT: LTE 6C_7C 2018 UPGRADE</div></div>																																
<div>DRAWING INDEX</div> <table><tr><th>SHEET NO.</th><th>DESCRIPTION</th><th>REV.</th></tr><tr><td>T-1</td><td>TITLE SHEET</td><td>1</td></tr><tr><td>GN-1</td><td>GENERAL NOTES</td><td>1</td></tr><tr><td>A-1</td><td>ROOF TOP & EQUIPMENT PLANS</td><td>1</td></tr><tr><td>A-2</td><td>ANTENNA LAYOUTS</td><td>1</td></tr><tr><td>A-3</td><td>ELEVATION</td><td>1</td></tr><tr><td>A-4</td><td>DETAILS</td><td>1</td></tr><tr><td>RF-1</td><td>RF-PLUMBING DIAGRAM</td><td>1</td></tr><tr><td>G-1</td><td>GROUNDING DETAILS</td><td>1</td></tr></table>			SHEET NO.	DESCRIPTION	REV.	T-1	TITLE SHEET	1	GN-1	GENERAL NOTES	1	A-1	ROOF TOP & EQUIPMENT PLANS	1	A-2	ANTENNA LAYOUTS	1	A-3	ELEVATION	1	A-4	DETAILS	1	RF-1	RF-PLUMBING DIAGRAM	1	G-1	GROUNDING DETAILS	1	<div>VICINITY MAP</div> <div><div>DIRECTIONS TO SITE:</div><div>TAKE THE RAMP TO I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON. TOLL ROAD. 0.6 MILES. KEEP RIGHT AT THE FORK TO CONTINUE TOWARD I-90 E AND MERGE ONTO I-90 E. PARTIAL TOLL ROAD. 14.0 MILES. TAKE EXIT 18 ON THE LEFT TOWARD BRIGHTON/CAMBRIDGE. TOLL ROAD. 0.4 MILES. KEEP RIGHT AT THE FORK TO CONTINUE TOWARD CAMBRIDGE ST AND MERGE ONTO CAMBRIDGE ST. PARTIAL TOLL ROAD. 0.3 MILES. CONTINUE ONTO RIVER ST. 0.7 MILES. TURN RIGHT AT MASSACHUSETTS AVE/MASSACHUSETTS 2A E. 0.7 MILES. END AT 77 MASSACHUSETTS AVE, CAMBRIDGE.</div><div></div></div>				<div>GENERAL NOTES</div> <div><div>1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.</div><div>2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.</div><div>3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.</div><div>4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.</div></div>	
SHEET NO.	DESCRIPTION	REV.																																	
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			<div>UNDERGROUND SERVICE ALERT</div> <div><div><div>MA·ME·NH·RI·VT</div></div><div>WWW.DIGSAFE.COM 72 HOURS PRIOR</div><div></div></div>				<div>AT&T</div> <div>TITLE SHEET (LTE 6C/7C)</div> <table><tr><th>SITE NUMBER</th><th>DRAWING NUMBER</th><th>REV</th></tr><tr><td>MA2267</td><td>T-1</td><td>1</td></tr></table>		SITE NUMBER	DRAWING NUMBER	REV	MA2267	T-1	1																					
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<div><div><div>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845</div><div>TEL: (978) 557-5553 FAX: (978) 336-5586</div></div><div><div>12 INDUSTRIAL WAY SALEM, NH 03079</div></div></div>		<div>SITE NUMBER: MA2267 SITE NAME: MIT DORRANCE BLDG #16 77 MASSACHUSETTS AVENUE CAMBRIDGE, MA 02139 MIDDLESEX COUNTY</div>		<div><div>550 COCHITUATE ROAD FRAMINGHAM, MA 01701</div></div>		<table><tr><td>1</td><td>04/03/18</td><td>ISSUED FOR CONSTRUCTION</td><td>MR</td><td>AT</td><td>DJC</td></tr><tr><td>A</td><td>02/06/18</td><td>ISSUED FOR REVIEW</td><td>EB</td><td>AT</td><td>DJC</td></tr><tr><td>NO.</td><td>DATE</td><td>REVISIONS</td><td>BY</td><td>CHK</td><td>APP'D</td></tr><tr><td colspan="2">SCALE: AS SHOWN</td><td>DESIGNED BY: AT</td><td colspan="3">DRAWN BY: EB</td></tr></table>		1	04/03/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC	A	02/06/18	ISSUED FOR REVIEW	EB	AT	DJC	NO.	DATE	REVISIONS	BY	CHK	APP'D	SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: EB						
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GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

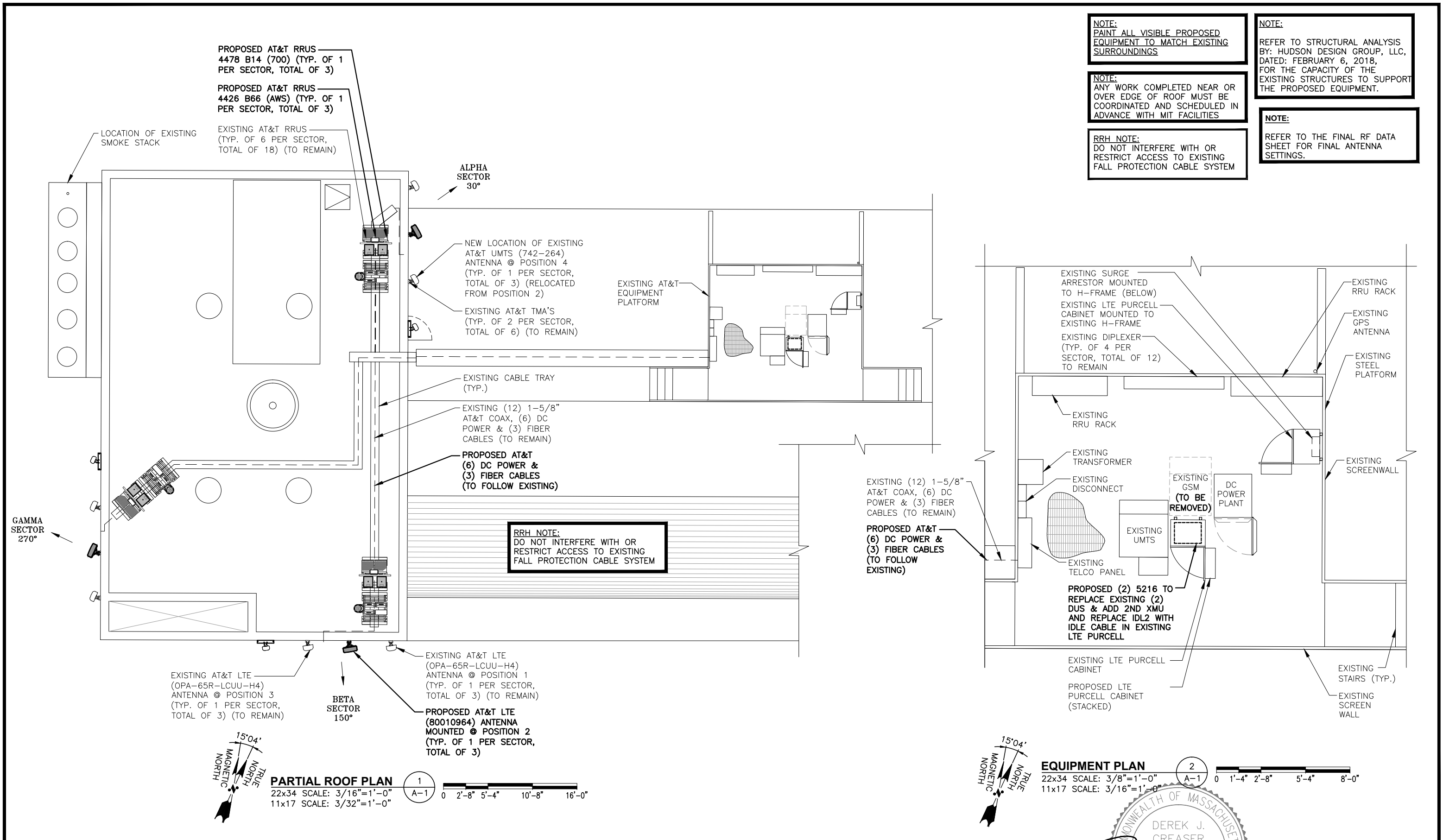
GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
- CONTRACTOR – SAI
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH LTE SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
BUILDING CODE: MA STATE BUILDING CODE 780 CMR 9TH EDITION
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS
- SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
- AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
- MANUAL OF STEEL CONSTRUCTION, ASD, FIFTEENTH EDITION;
- TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL
- EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.
- FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		



NOTE:
REFER TO STRUCTURAL ANALYSIS
BY: HUDSON DESIGN GROUP, LLC,
DATED: FEBRUARY 6, 2018,
FOR THE CAPACITY OF THE
EXISTING STRUCTURES TO SUPPORT
THE PROPOSED EQUIPMENT.

NOTE:
REFER TO THE FINAL RF DATA
SHEET FOR FINAL ANTENNA
SETTINGS.

EXISTING AT&T UMTS
(742-264) ANTENNA @
POSITION 2 (TYP. OF 1
PER SECTOR, TOTAL OF 3)
(TO BE RELOCATED TO
NEW POSITION 4)

EXISTING AT&T TMA'S
(TYP. OF 2 PER SECTOR,
TOTAL OF 6) (TO REMAIN)
(TO BE RELOCATED TO NEW
POSITION 4)

NOTE:
PAINT ALL VISIBLE PROPOSED
EQUIPMENT TO MATCH EXISTING
SURROUNDINGS

NOTE:
ANY WORK COMPLETED NEAR OR
OVER EDGE OF ROOF MUST BE
COORDINATED AND SCHEDULED IN
ADVANCE WITH MIT FACILITIES

RRH NOTE:
DO NOT INTERFERE WITH OR
RESTRICT ACCESS TO EXISTING
FALL PROTECTION CABLE SYSTEM

EXISTING LOCATION
OF SMOKESTACK

GAMMA
SECTOR
(LTE WCS/
700 DE)
270°

GAMMA
SECTOR
(UMTS 850)
270°

GAMMA
SECTOR
(LTE 700
BC/PCS/850)
270°

ALPHA
SECTOR
(LTE 700
BC/PCS/850)
30°

ALPHA
SECTOR
(UMTS 850)
30°

ALPHA
SECTOR
(LTE WCS/
700 DE)
30°

EXISTING (12) 1-5/8"
AT&T COAX, (6) DC
POWER & (3) FIBER
CABLES (TO REMAIN)

EXISTING AT&T RRUS
(TYP. OF 6 PER SECTOR,
TOTAL OF 18) (TO REMAIN)

EXISTING SURGE SUPPRESSOR
(TYP. OF 1 PER SECTOR,
TOTAL OF 3) (TO REMAIN)

EXISTING AT&T LTE
(OPA-65R-LCUU-H4) ANTENNA
@ POSITION 3
(TYP. OF 1 PER SECTOR, TOTAL
OF 3) (TO BE RELOCATED AS
REQUIRED TO ACCOMMODATE
NEW LTE ANTENNA)

BETA
SECTOR
(LTE WCS/
700 DE)
150°

BETA
SECTOR
(UMTS 850)
150°

BETA
SECTOR
(LTE 700
BC/PCS/850)
150°

EXISTING AT&T LTE
(OPA-65R-LCUU-H4)
ANTENNA @ POSITION 1
(TYP. OF 1 PER SECTOR,
TOTAL OF 3) (TO REMAIN)

EXISTING ANTENNA LAYOUT
SCALE: N.T.S.

1
A-2

PROPOSED AT&T LTE
(80010964) ANTENNA
MOUNTED @ POSITION 2
(TYP. OF 1 PER SECTOR,
TOTAL OF 3)

PROPOSED SURGE ARRESTOR
(TYP. OF 1 PER SECTOR,
TOTAL OF 3)

ALPHA
SECTOR
(LTE 700
BC/PCS/850)
30°

ALPHA
SECTOR
(LTE 700
B14/AWS)
30°

ALPHA
SECTOR
(LTE WCS/
700 DE)
30°

ALPHA
SECTOR
(UMTS 850)
30°

NEW LOCATION OF EXISTING
AT&T UMTS (742-264)
ANTENNA @ POSITION 4
(TYP. OF 1 PER SECTOR,
TOTAL OF 3) (RELOCATED
FROM POSITION 2)

EXISTING AT&T TMA'S @ POS 4
(TYP. OF 2 PER SECTOR,
TOTAL OF 6)

PROPOSED AT&T
(6) DC POWER &
(3) FIBER CABLES
(TO FOLLOW EXISTING)

EXISTING (12) 1-5/8"
AT&T COAX, (6) DC
POWER & (3) FIBER
CABLES (TO REMAIN)

PROPOSED AT&T RRUS
4478 B14 (700) (TYP. OF 1
PER SECTOR, TOTAL OF 3)

PROPOSED AT&T RRUS
4426 B66 (AWS) (TYP. OF 1
PER SECTOR, TOTAL OF 3)

EXISTING AT&T RRUS
(TYP. OF 6 PER SECTOR,
TOTAL OF 18) (TO REMAIN)

EXISTING SURGE SUPPRESSOR
(TYP. OF 1 PER SECTOR,
TOTAL OF 3) (TO REMAIN)

EXISTING AT&T LTE
(OPA-65R-LCUU-H4)
ANTENNA @ POSITION 1
(TYP. OF 1 PER SECTOR,
TOTAL OF 3) (TO REMAIN)

BETA
SECTOR
(UMTS 850)
150°

BETA
SECTOR
(LTE WCS/
700 DE)
150°

BETA
SECTOR
(LTE 700
B14/AWS)
150°

BETA
SECTOR
(LTE 700
BC/PCS/850)
150°

EXISTING AT&T LTE
(OPA-65R-LCUU-H4)
ANTENNA @ POSITION 3
(TYP. OF 1 PER SECTOR,
TOTAL OF 3)

PROPOSED ANTENNA LAYOUT
SCALE: N.T.S.

2
A-2

HDG HUDSON
Design Group LLC

45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: MA2267
SITE NAME: MIT DORRANCE BLDG #16

77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139
MIDDLESEX COUNTY

at&t

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

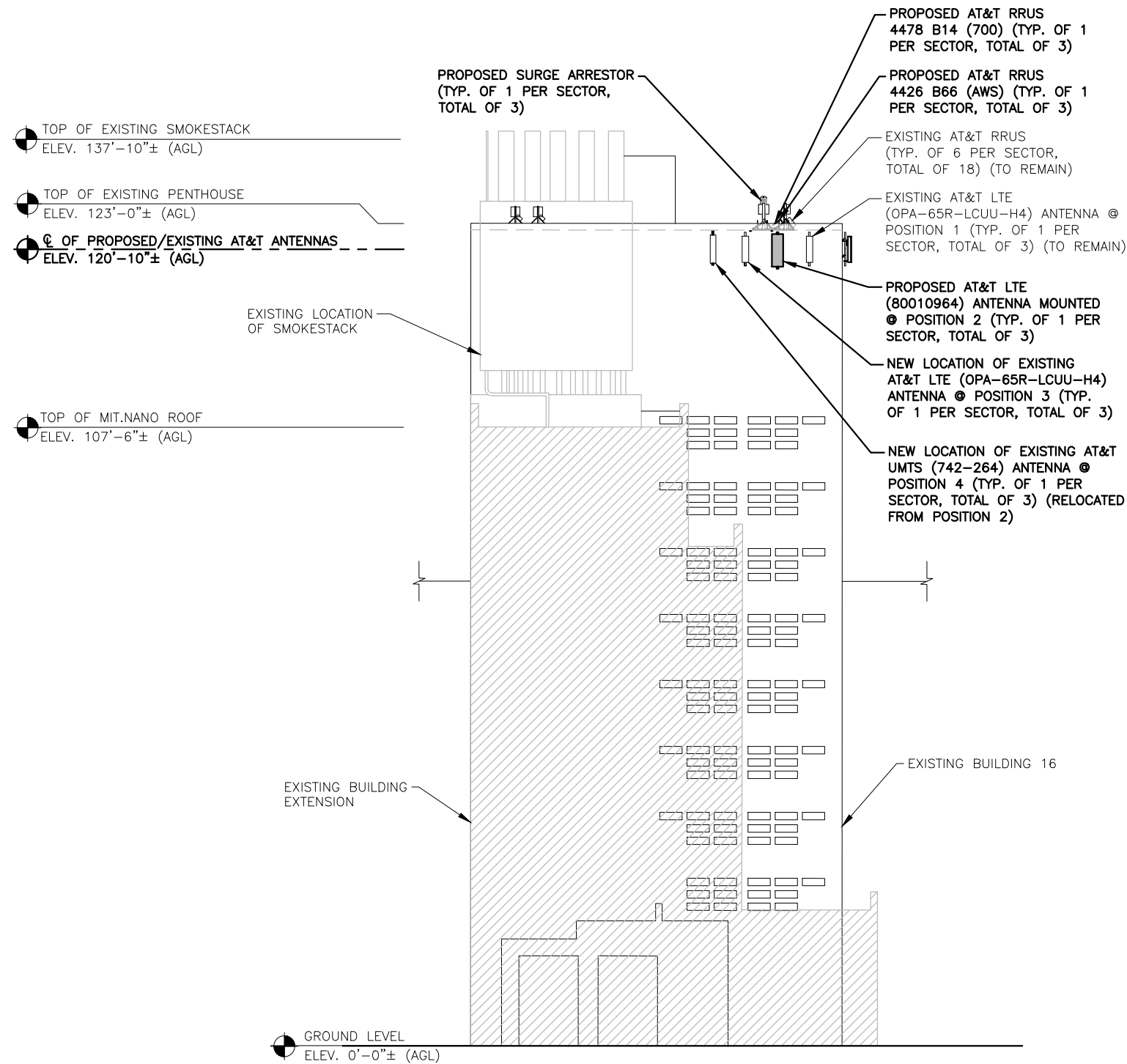
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/03/18	ISSUED FOR CONSTRUCTION	MR	AT	DJS
A	02/06/18	ISSUED FOR REVIEW	EB	AT	DJC
SCALE: AS SHOWN					
DESIGNED BY: AT					
DRAWN BY: EB					

MASSACHUSETTS
Derek J. Creaser
CIVIL
No. 9195
REGISTERED
PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS
(LTE 6C/7C)

SITE NUMBER	DRAWING NUMBER	REV
MA2267	A-2	1



NOTE:
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS

NOTE:
ANY WORK COMPLETED NEAR OR OVER EDGE OF ROOF MUST BE COORDINATED AND SCHEDULED IN ADVANCE WITH MIT FACILITIES

RRH NOTE:
DO NOT INTERFERE WITH OR RESTRICT ACCESS TO EXISTING FALL PROTECTION CABLE SYSTEM

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: FEBRUARY 6, 2018, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

ELEVATION

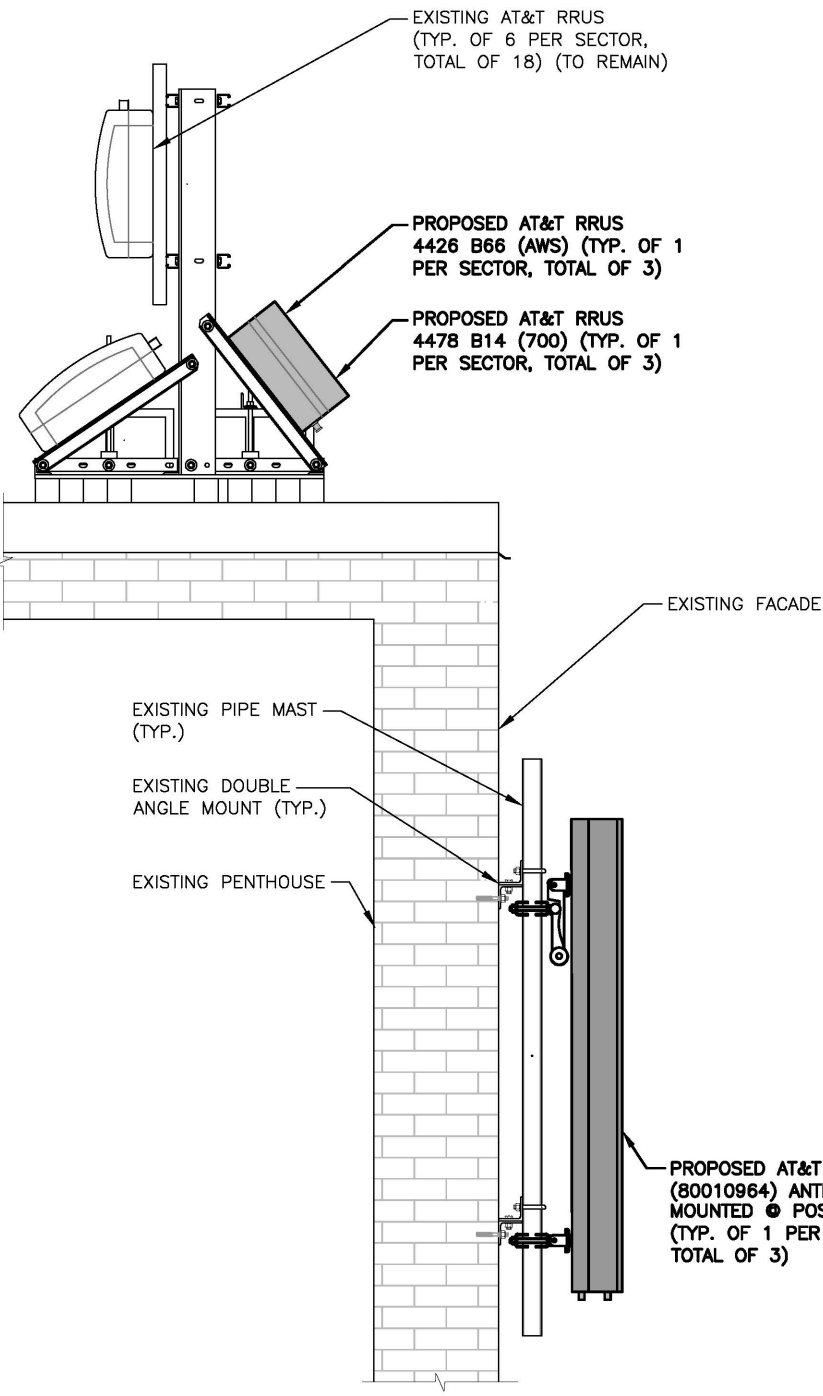
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"



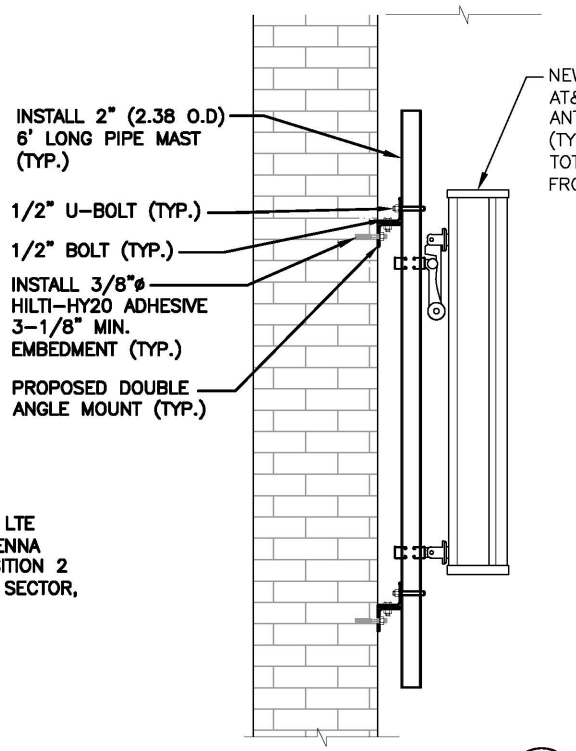
0 5'-4" 10'-8" 21'-4" 32'-0"

FINAL ANTENNA SCHEDULE														
SECTOR	BAND	ANTENNA		SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	TMA'S		RRU'S		SIZE (INCHES) (L X W X D)	DC JUMPERS	FIBER JUMPERS	COAX
ALPHA	LTE 700BC/PCS/850	EXISTING	OPA-65R-LCUU-H4	48X14.4X7.3	120'-10"±	30°	-	-	EXISTING EXISTING EXISTING EXISTING	RRUS-11 (700) RRUS-11 (850) RRUS-12 (PCS) RRUS-12 (PCS)	-	-	-	-
	LTE 700 B14/AWS	PROPOSED	80010964	59X20X6.9	120'-10"±	30°	-	-	PROPOSED PROPOSED	B14 4478 (700) B66 4426 (AWS)	15X13.2X7.4 15X13.2X7.4	1* 1*	1** 2**	-
	LTE WCS/700 DE	EXISTING	OPA-65R-LCUU-H4	48X14.4X7.3	120'-10"±	30°	-	-	EXISTING EXISTING	RRUS-32 (WCS) RRUS-E2 (700)	-	-	-	(2)1-5/8"
	UMTS 850	EXISTING	742-264	51.8X10.3X5.5	120'-10"±	30°	EXISTING EXISTING	LGP 21401 LGP 21401	-	-	-	-	-	(2)1-5/8"
BETA	LTE 700BC/PCS/850	EXISTING	OPA-65R-LCUU-H4	48X14.4X7.3	120'-10"±	150°	-	-	EXISTING EXISTING EXISTING EXISTING	RRUS-11 (700) RRUS-11 (850) RRUS-12 (PCS) RRUS-12 (PCS)	-	-	-	-
	LTE 700 B14/AWS	PROPOSED	80010964	59X20X6.9	120'-10"±	150°	-	-	PROPOSED PROPOSED	B14 4478 (700) B66 4426 (AWS)	15X13.2X7.4 15X13.2X7.4	1* 1*	1** 2**	-
	LTE WCS/700 DE	EXISTING	OPA-65R-LCUU-H4	48X14.4X7.3	120'-10"±	150°	-	-	EXISTING EXISTING	RRUS-32 (WCS) RRUS-E2 (700)	-	-	-	(2)1-5/8"
	UMTS 850	EXISTING	742-264	51.8X10.3X5.5	120'-10"±	150°	EXISTING EXISTING	LGP 21401 LGP 21401	-	-	-	-	-	(2)1-5/8"
GAMMA	LTE 700BC/PCS/850	EXISTING	OPA-65R-LCUU-H4	48X14.4X7.3	120'-10"±	270°	-	-	EXISTING EXISTING EXISTING EXISTING	RRUS-11 (700) RRUS-11 (850) RRUS-12 (PCS) RRUS-12 (PCS)	-	-	-	-
	LTE 700 B14/AWS	PROPOSED	80010964	59X20X6.9	120'-10"±	270°	-	-	PROPOSED PROPOSED	B14 4478 (700) B66 4426 (AWS)	15X13.2X7.4 15X13.2X7.4	1* 1*	1** 2**	-
	LTE WCS/700 DE	EXISTING	OPA-65R-LCUU-H4	48X14.4X7.3	120'-10"±	270°	-	-	EXISTING EXISTING	RRUS-32 (WCS) RRUS-E2 (700)	-	-	-	(2)1-5/8"
	UMTS 850	EXISTING	742-264	51.8X10.3X5.5	120'-10"±	270°	EXISTING EXISTING	LGP 21401 LGP 21401	-	-	-	-	-	(2)1-5/8"

FINAL ANTENNA CONFIGURATION TABLE 4 A-4



PROPOSED ANTENNA & RRU MOUNTING DETAIL 1 A-4
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



PROPOSED MOUNTING DETAIL 2 A-4
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

RRU CHART				
QUANTITY	MODEL	L	W	D
6 (E)	RRUS-12	20.4"	18.5"	7.5"
6 (E)	RRUS-11	19.7"	17.0"	7.2"
3 (E)	RRUS-32	27.2"	12.1"	7.0"
3 (E)	RRUS-E2	20.4"	18.5"	7.5"
3 (P)	B66.4426	15.0"	13.2"	7.4"
3 (P)	B14.4478	15.0"	13.2"	7.4"

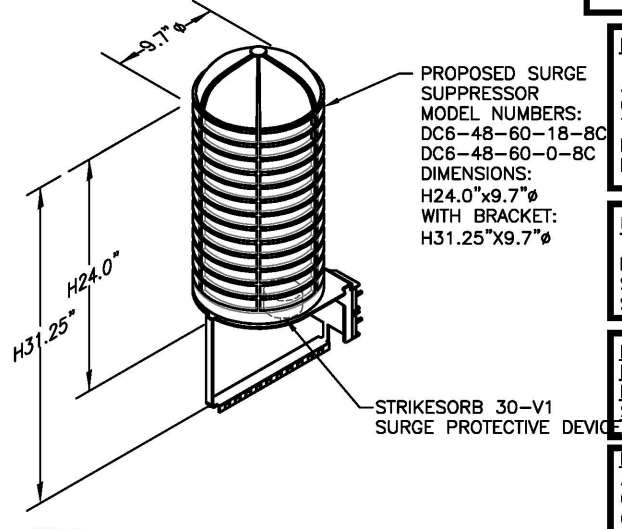
NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS

PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE: SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL 3 A-4
SCALE: N.T.S



DC SURGE SUPPRESSOR DETAIL 4 A-4
SCALE: N.T.S

*DC JUMPER NOTE:
DC JUMPERS (2) PER SECTOR,
FROM EACH RRU (TOTAL OF 6).

**FIBER JUMPER NOTE:
FIBER JUMPERS (3) PER SECTOR,
FROM THE SQUID TO EACH RRU
(TOTAL OF 9).

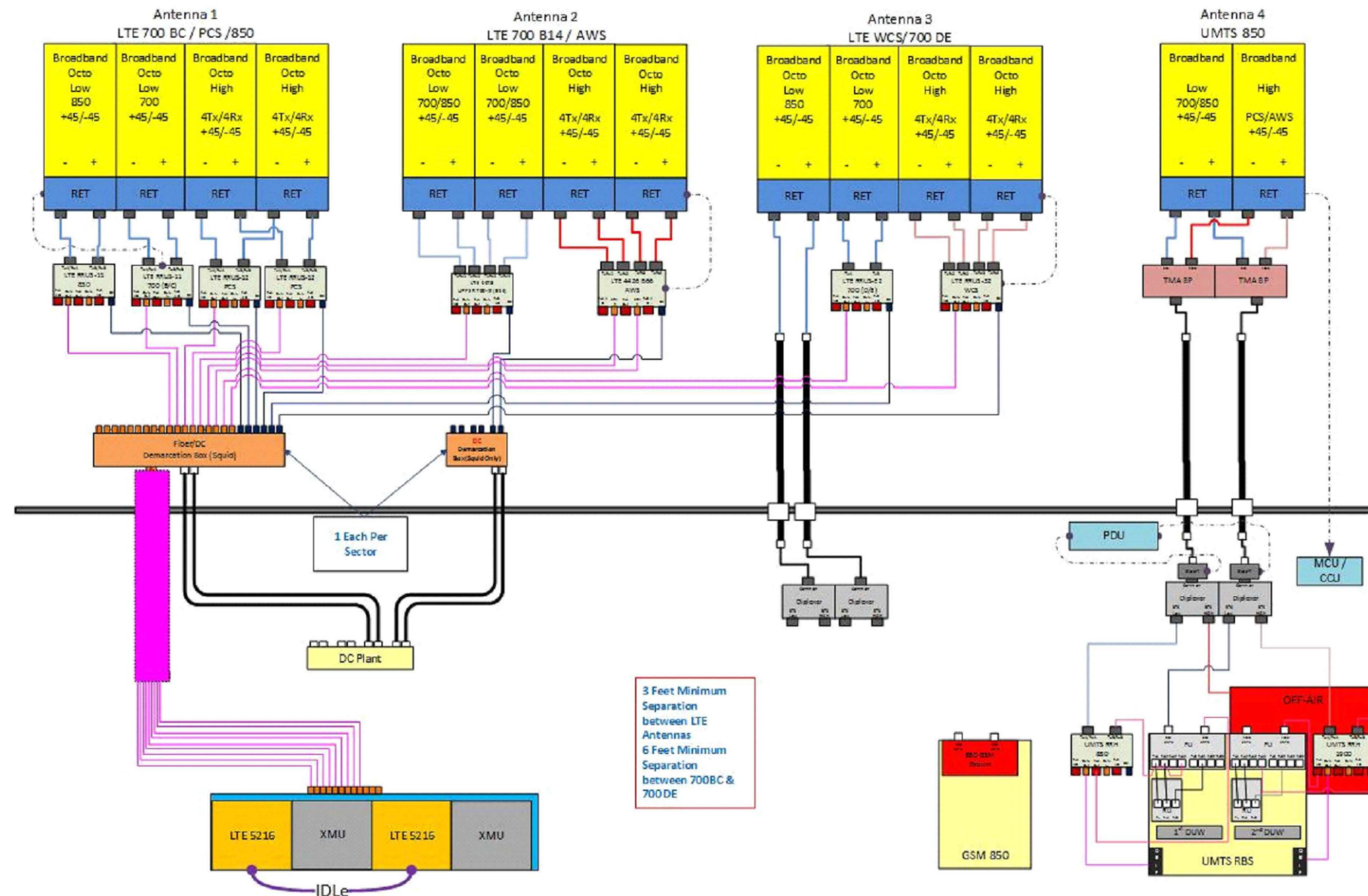
NOTE:
AN ANALYSIS FOR THE CAPACITY
OF THE EXISTING STRUCTURES
TO SUPPORT THE PROPOSED
EQUIPMENT SHALL BE DETERMINED
PRIOR TO CONSTRUCTION.

NOTE:
REFER TO THE FINAL RF DATA
SHEET FOR FINAL ANTENNA
SETTINGS.

NOTE:
PAINT ALL VISIBLE PROPOSED
EQUIPMENT TO MATCH EXISTING
SURROUNDINGS

NOTE:
ANY WORK COMPLETED NEAR OR
OVER EDGE OF ROOF MUST BE
COORDINATED AND SCHEDULED IN
ADVANCE WITH MIT FACILITIES

RRH NOTE:
DO NOT INTERFERE WITH OR
RESTRICT ACCESS TO EXISTING
FALL PROTECTION CABLE SYSTEM

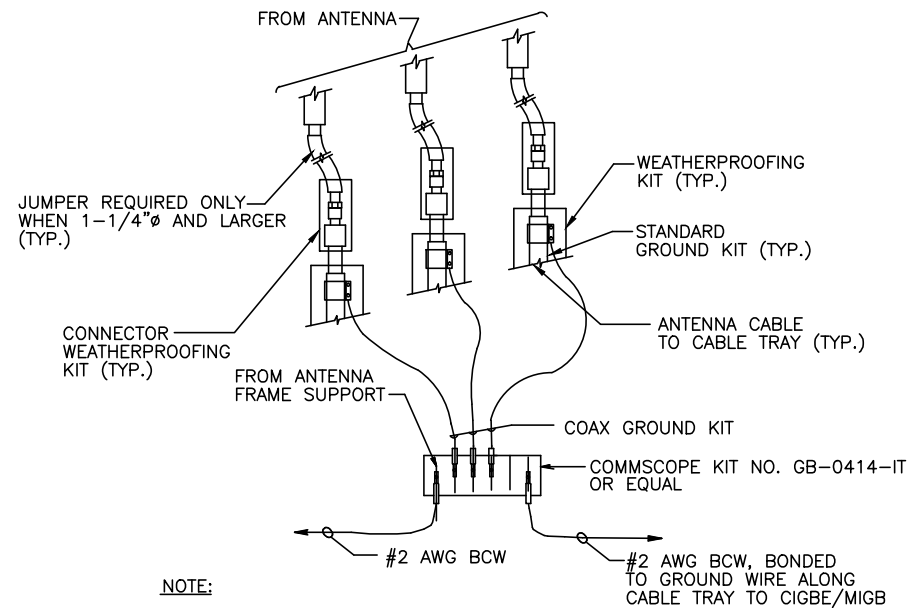


RF PLUMBING DIAGRAM
SCALE: N.T.S.

1
RF-1

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

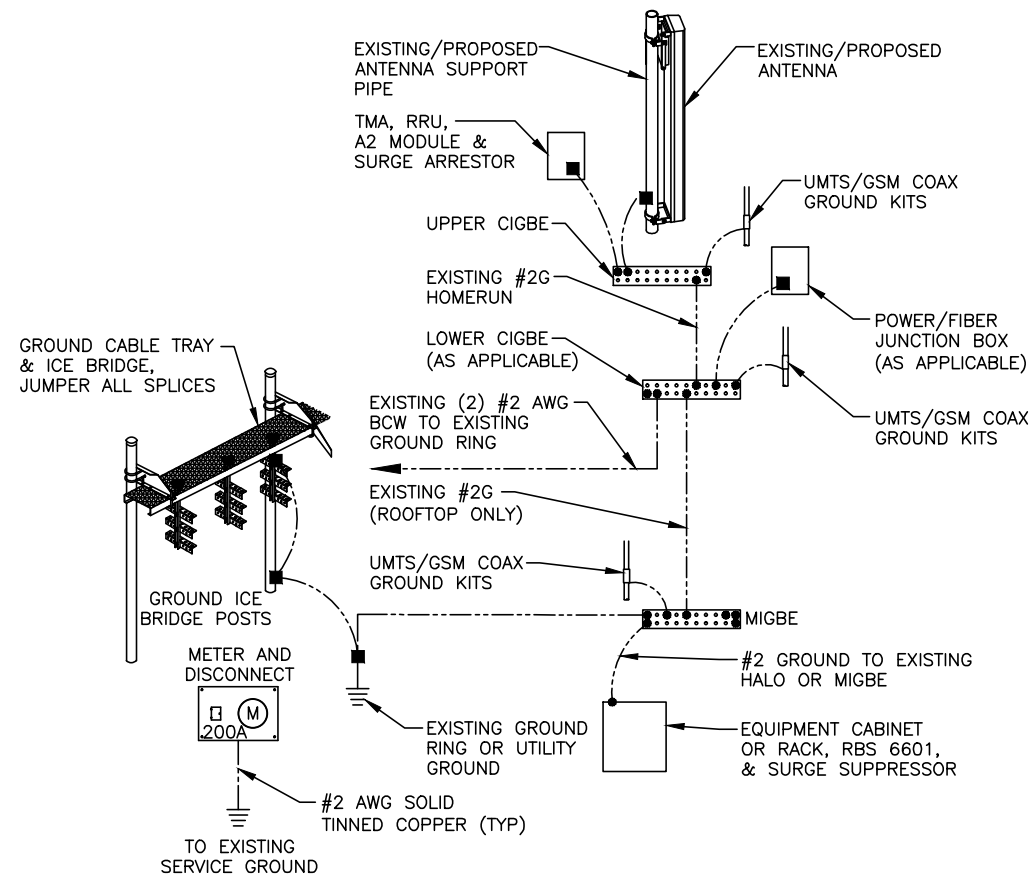
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

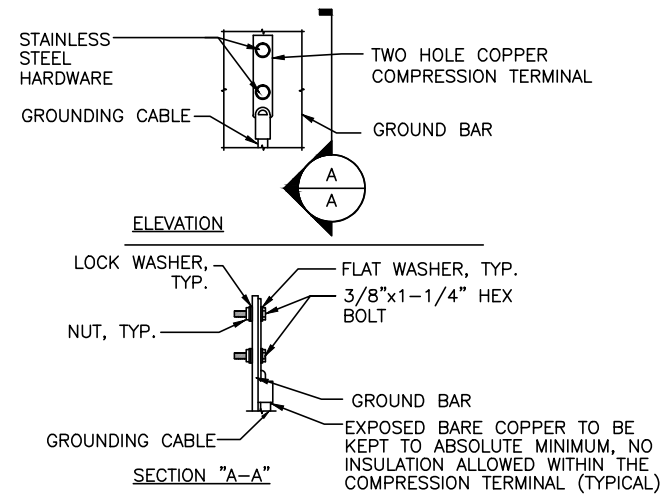
1
G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2
G-1



NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3
G-1

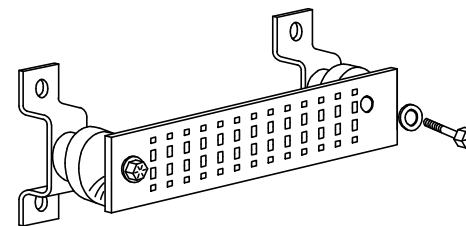
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

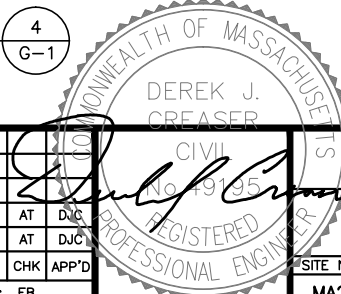
SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



GROUND BAR - DETAIL

SCALE: N.T.S



8-Port Antenna	R1	R2	Y1	Y2
Frequency Range	698–960	698–960	1695–2690	1695–2690
Dual Polarization	X	X	X	X
HPBW	65°	65°	65°	65°
Adjust. Electr. DT	2°–16°	2°–16°	2.5°–12°	2.5°–12°
set by FlexRET				

KATHREIN



8-Port Antenna 698–960/698–960/1695–2690/1695–2690 65°/65°/65°/65° 14/14/17.5/17.5dBi
2°–16°/2°–16°/2.5°–12°/2.5°–12°T

Type No.		80010964			
Left side, lowband		R1, connector 1–2			
		698–960			
Frequency Range	MHz	698 – 806	791 – 862	824 – 894	880 – 960
Gain at mid Tilt	dBi	13.6	14.2	14.3	14.6
Gain over all Tilts	dBi	13.6 ± 0.6	14.2 ± 0.3	14.3 ± 0.3	14.5 ± 0.4
Horizontal Pattern:					
Azimuth Beamwidth	°	64.6 ± 4.2	62.5 ± 2.4	62.0 ± 2.4	59.3 ± 3.6
Front-to-Back Ratio, Total Power, ± 30°	dB	> 21.5	> 22.5	> 25.2	> 25.3
Vertical Pattern:					
Elevation Beamwidth	°	17.8 ± 1.8	16.2 ± 1.0	15.8 ± 0.8	14.7 ± 1.1
Electrical Downtilt continuously adjustable	°	2.0 – 16.0			
Tilt Accuracy	°	< 0.7	< 0.7	< 0.8	< 0.8
First Upper Side Lobe Suppression	dB	> 17.3	> 15.8	> 15.2	> 14.6
Cross Polar Isolation	dB	> 28			
Port to Port Isolation	dB	> 27 (R1 // R2) > 30 (R1 // Y1, Y2)			
Max. Effective Power per Port	W	300 (at 50 °C ambient temperature)			
Max. Effective Power Port 1–2	W	600 (at 50 °C ambient temperature)			

Values based on NGMN-P-BASTA (version 9.6) requirements.



936.5553.1 ngmn Subject to alteration.

All specifications are subject to change without notice.
The latest specifications are available at www.kathreinusa.com

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Kathrein USA Greenway Plaza II, 2400 Lakeside Blvd., Suite 650, Richardson TX 75082
Phone: 214.238.8800 Fax: 214.238.8801 Email: info@kathrein.com

Right side, lowband		R2, connector 3–4			
		698–960			
Frequency Range	MHz	698 – 806	791 – 862	824 – 894	880 – 960
Gain at mid Tilt	dBi	13.4	14.1	14.3	14.3
Gain over all Tilts	dBi	13.4 ± 0.5	14.0 ± 0.5	14.2 ± 0.3	14.3 ± 0.4
Horizontal Pattern:					
Azimuth Beamwidth	°	64.1 ± 5.6	61.8 ± 2.9	61.5 ± 2.9	59.5 ± 3.6
Front-to-Back Ratio, Total Power, ± 30°	dB	> 20.6	> 23.6	> 26.1	> 25.5
Vertical Pattern:					
Elevation Beamwidth	°	17.6 ± 1.5	16.1 ± 1.3	15.5 ± 0.7	14.6 ± 0.9
Electrical Downtilt continuously adjustable	°	2.0 – 16.0			
Tilt Accuracy	°	< 1.1	< 0.8	< 0.8	< 1.1
First Upper Side Lobe Suppression	dB	> 17.9	> 14.9	> 14.6	> 15.6
Cross Polar Isolation	dB	> 28			
Port to Port Isolation	dB	> 27 (R2 // R1) > 30 (R2 // Y1, Y2)			
Max. Effective Power per Port	W	300 (at 50 °C ambient temperature)			
Max. Effective Power Port 3–4	W	600 (at 50 °C ambient temperature)			

Values based on NGMN-P-BASTA (version 9.6) requirements.

Left side, highband		Y1, connector 5–6				
		1695–2690				
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2170	2300 – 2400	2500 – 2690
Gain at mid Tilt	dBi	16.9	17.3	17.5	17.7	17.2
Gain over all Tilts	dBi	16.9 ± 0.3	17.3 ± 0.4	17.4 ± 0.4	17.7 ± 0.8	17.1 ± 0.9
Horizontal Pattern:						
Azimuth Beamwidth	°	64.4 ± 4.0	62.7 ± 4.9	60.3 ± 4.5	53.6 ± 4.5	55.6 ± 8.3
Front-to-Back Ratio, Total Power, ± 30°	dB	> 23.8	> 25.3	> 25.2	> 27.2	> 23.2
Vertical Pattern:						
Elevation Beamwidth	°	6.8 ± 0.3	6.4 ± 0.2	6.0 ± 0.5	5.2 ± 0.3	4.7 ± 0.3
Electrical Downtilt continuously adjustable	°	2.5 – 12.0				
Tilt Accuracy	°	< 0.4	< 0.4	< 0.3	< 0.4	< 0.4
First Upper Side Lobe Suppression	dB	> 15.6	> 16.5	> 15.7	> 14.6	> 14.2
Cross Polar Isolation	dB	> 26, typically > 30 dB				
Port to Port Isolation	dB	> 30 (Y1 // R1, R2, Y2)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				
Max. Effective Power Port 5–6	W	400 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 9.6) requirements.

936.5553.1 ngmn Subject to alteration.

Right side, highband		Y2, connector 7-8				
		1695-2690				
Frequency Range	MHz	1695 – 1880	1850 – 1990	1920 – 2170	2300 – 2400	2500 – 2690
Gain at mid Tilt	dBi	16.8	17.2	17.3	17.6	17.0
Gain over all Tilts	dBi	16.8 ± 0.4	17.2 ± 0.5	17.2 ± 0.6	17.6 ± 0.9	17.0 ± 1.0
Horizontal Pattern:						
Azimuth Beamwidth	°	67.0 ± 4.7	63.7 ± 6.7	60.7 ± 6.8	54.6 ± 6.0	53.9 ± 9.8
Front-to-Back Ratio, Total Power, ± 30°	dB	> 24.2	> 25.3	> 25.1	> 26.2	> 22.0
Vertical Pattern:						
Elevation Beamwidth	°	6.8 ± 0.3	6.4 ± 0.3	6.0 ± 0.5	5.3 ± 0.3	4.7 ± 0.3
Electrical Downtilt continuously adjustable	°	2.5 – 12.0				
Tilt Accuracy	°	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
First Upper Side Lobe Suppression	dB	> 16.1	> 16.3	> 15.2	> 15.8	> 13.8
Cross Polar Isolation	dB	> 26, typically > 30 dB				
Port to Port Isolation	dB	> 30 (Y2 // R1, R2, Y1)				
Max. Effective Power per Port	W	200 (at 50 °C ambient temperature)				
Max. Effective Power Port 7-8	W	400 (at 50 °C ambient temperature)				

Values based on NGMN-P-BASTA (version 9.6) requirements.

Electrical specifications, all systems		
Impedance	Ω	50
VSWR		< 1.5
Return Loss	dB	> 14
Interband Isolation	dB	> 27
Passive Intermodulation	dBc	< -153 (2 x 43 dBm carrier)
Polarization	°	+45, -45
Max. Effective Power for the Antenna	W	1200 (at 50 °C ambient temperature)

Values based on NGMN-P-BASTA (version 9.6) requirements.

Mechanical specifications			
Input		8 x 4.3-10 female	
Connector Position		bottom	
Adjustment Mechanism		FlexRET, continuously adjustable	
Wind load (at Rated Wind Speed: 150 km/h) (93 mph)	N lbf	Frontal: Maximal: Lateral:	835 188 840 189 145 33
EPA (m² ft²)		Front: 0.767 8.26 Lateral: .132 1.42	
Max. Wind Velocity	km/h mph	241 / 145 150 / 33	
Height / Width / Depth	mm inches	1499 / 508 / 175 59.0 / 20.0 / 6.9	
Category of Mounting Hardware		XH (X-Heavy)	
Weight	kg lb	38.0 / 43.0 (clamps incl.) 83.8 / 94.8 (clamps incl.)	
Packing Size	mm inches	1700 / 542 / 268 66.9 / 21.3 / 10.6	
Scope of Supply		Panel, FlexRET and clamps for 55–115 mm 2.2–4.5 inches diameter	

Accessories (order separately if required)

Type No.	Description	Remarks mm inches	Weight approx. kg lb	Units per antenna
85010097	2 clamps	Mast diameter: 110 – 220 4.3 – 8.7	9.4 20.7	1
85010099	1 downtilt kit	Downtilt angle: 0° – 18°	10.6 23.4	1
86010154	Site Sharing Adapter	3-way (see figure below)	0.7 1.5	
86010155	Site Sharing Adapter	6-way (see figure below)	1.4 3.1	
86010162	Gender Adapter	Solely to be used in combination with the FlexRET module 86010153v01	0.045 0.099	1
86010163	Port Extender		0.16 0.35	1

Accessories (included in the scope of supply)

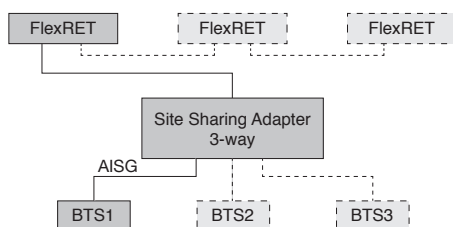
85010096	2 clamps	Mast diameter: 55 – 115 2.2 – 4.5	5.0 11.0	1
86010153v01	FlexRET			1

For downtilt mounting use the clamps for an appropriate mast diameter together with the downtilt kit.
Wall mounting: No additional mounting kit needed.

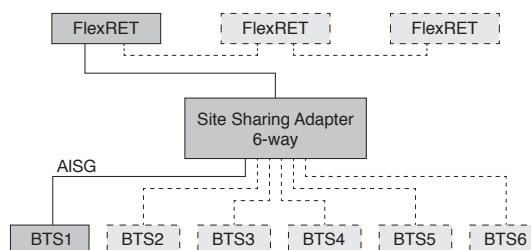
Material: **Reflector screen:** Aluminum.
Fiberglass housing: It covers totally the internal antenna components. The special design reduces the sealing areas to a minimum and guarantees the best weather protection. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance and painting. The color of the radome is light grey.
All nuts and bolts: Stainless steel or hot-dip galvanized steel.

Grounding: The metal parts of the antenna including the mounting kit and the inner conductors are DC grounded.

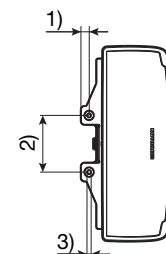
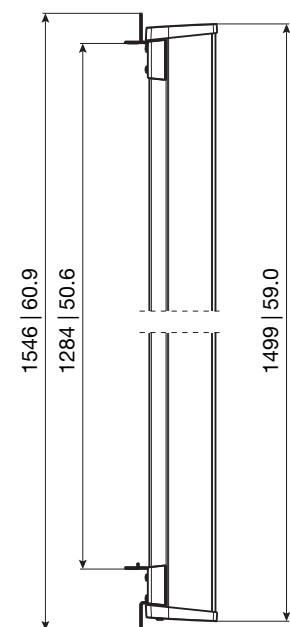
Configuration example with Site Sharing Adapter 86010154



Configuration example with Site Sharing Adapter 86010155



For more information please refer to the respective data sheets.



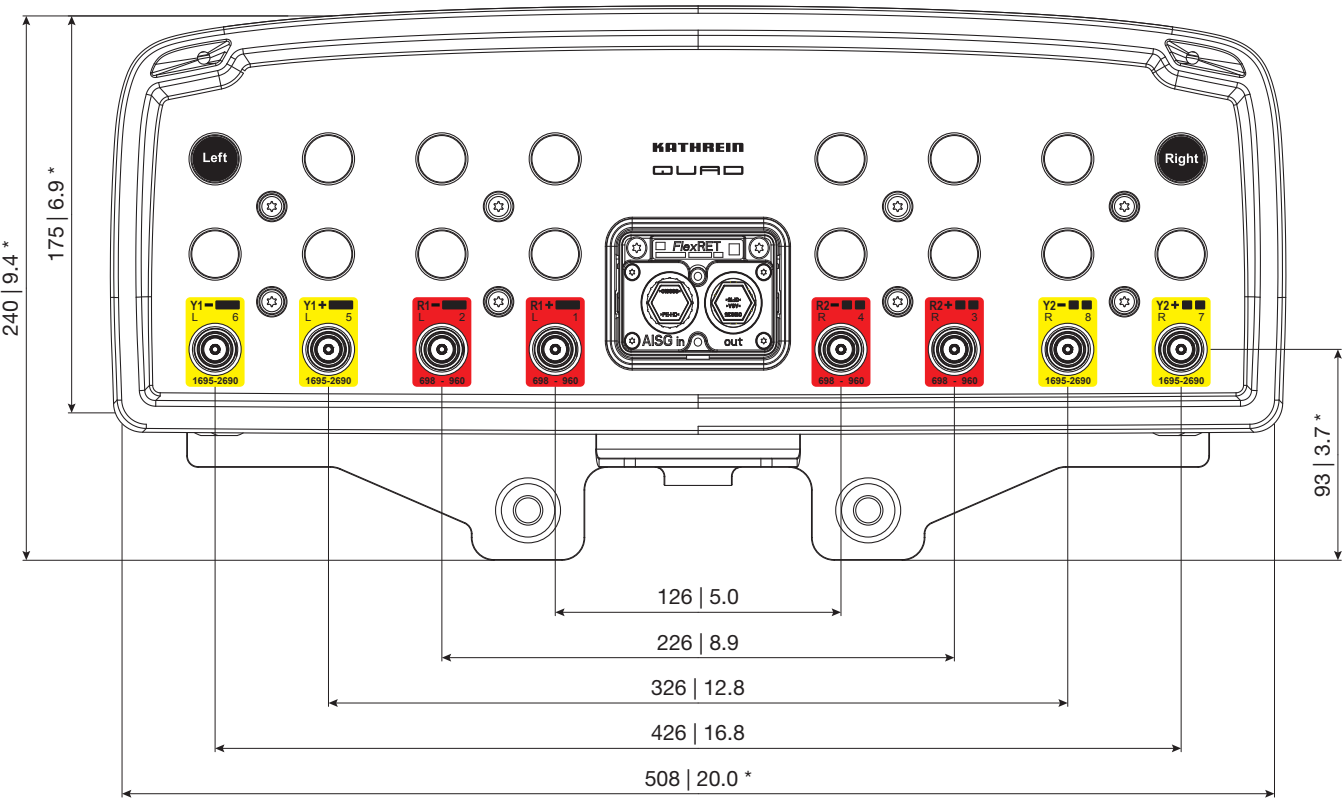
1) 22 | 0.9
2) 150 | 5.9
3) \varnothing 11 | 0.4

All dimensions in mm | inches

All specifications are subject to change without notice.
The latest specifications are available at www.kathreinusa.com

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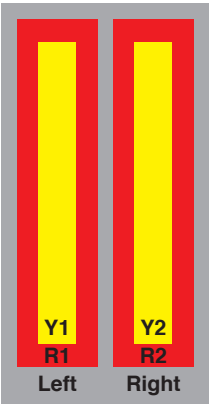
Layout of interface:



Bottom view
* Dimensions refer to radome
All dimensions in mm | inches

Correlation Table

Frequency range	Array	Connector
698-960 MHz	R1	1-2
698-960 MHz	R2	3-4
1695-2690 MHz	Y1	5-6
1695-2690 MHz	Y2	7-8



Order Information

Model	Description
80010964	8-Port antenna with mounting bracket
80010964K	8-Port antenna with mounting bracket and mechanical tilt bracket

Any previous data sheet issues have now become invalid.

All specifications are subject to change without notice.
The latest specifications are available at www.kathreinusa.com



Prepared For:
SAI-ATT
Site Number:
MA2267

77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139



SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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 BING.COM ON 07-27-15

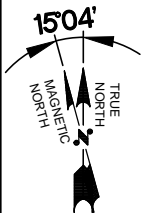
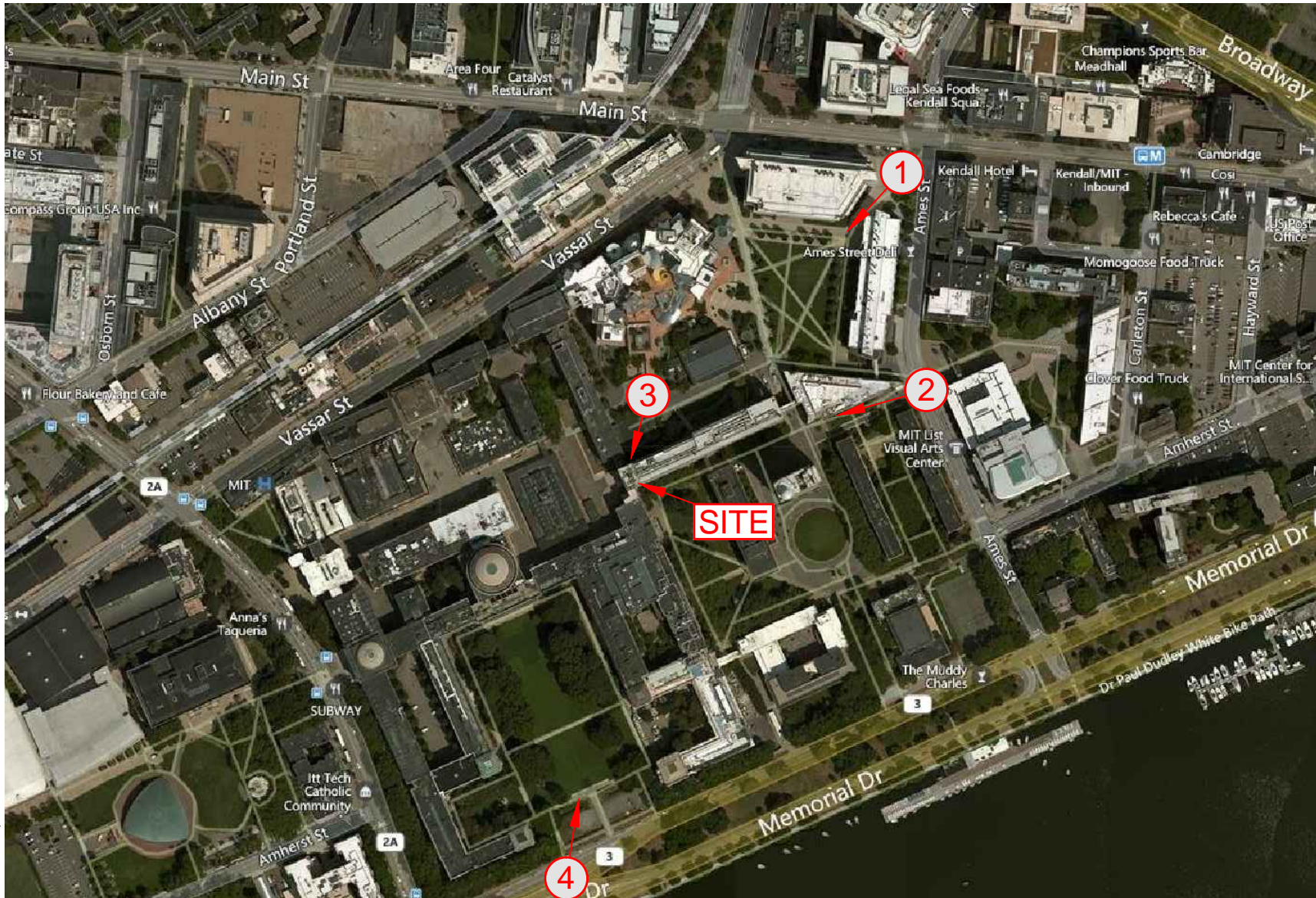


PHOTO LOCATION

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02139



SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
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DETAIL OF EQUIPMENT

VIEW SOUTHWEST FROM INTERSECTION OF MAIN STREET AND AMES STREET

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02139



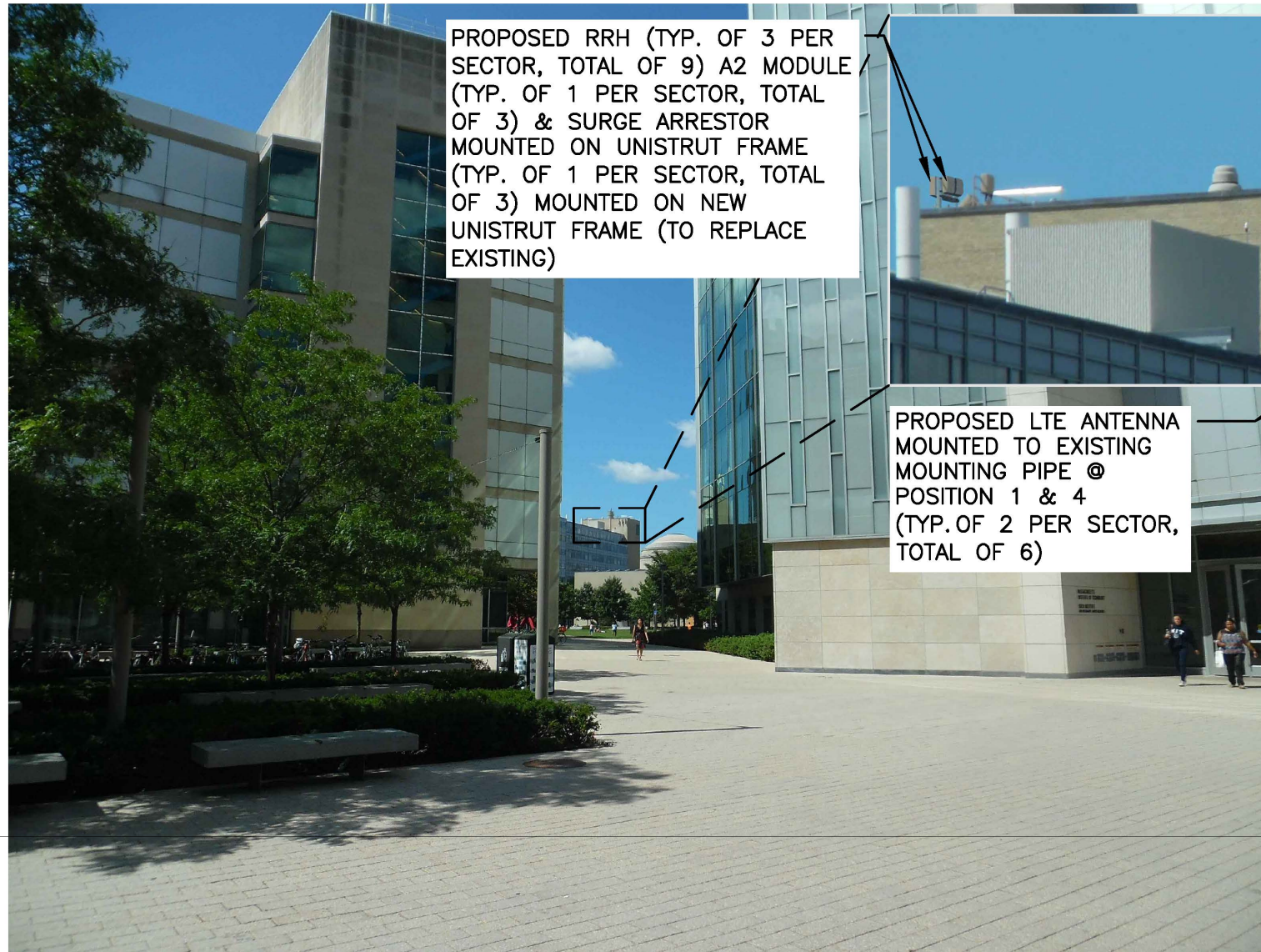
SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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PROPOSED CONDITIONS

LOCATION # 1

DATE OF PHOTO: 07-23-15



PROPOSED RRH (TYP. OF 3 PER SECTOR, TOTAL OF 9) A2 MODULE (TYP. OF 1 PER SECTOR, TOTAL OF 3) & SURGE ARRESTOR MOUNTED ON UNISTRUT FRAME (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED ON NEW UNISTRUT FRAME (TO REPLACE EXISTING)

PROPOSED LTE ANTENNA MOUNTED TO EXISTING MOUNTING PIPE @ POSITION 1 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)

DETAIL OF EQUIPMENT

VIEW SOUTHWEST FROM INTERSECTION OF MAIN STREET AND AMES STREET

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139



27 NORTHWESTERN DR
SALEM, NH 03079



SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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.



DETAIL OF EQUIPMENT

VIEW SOUTHWEST FROM AMES STREET

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02139



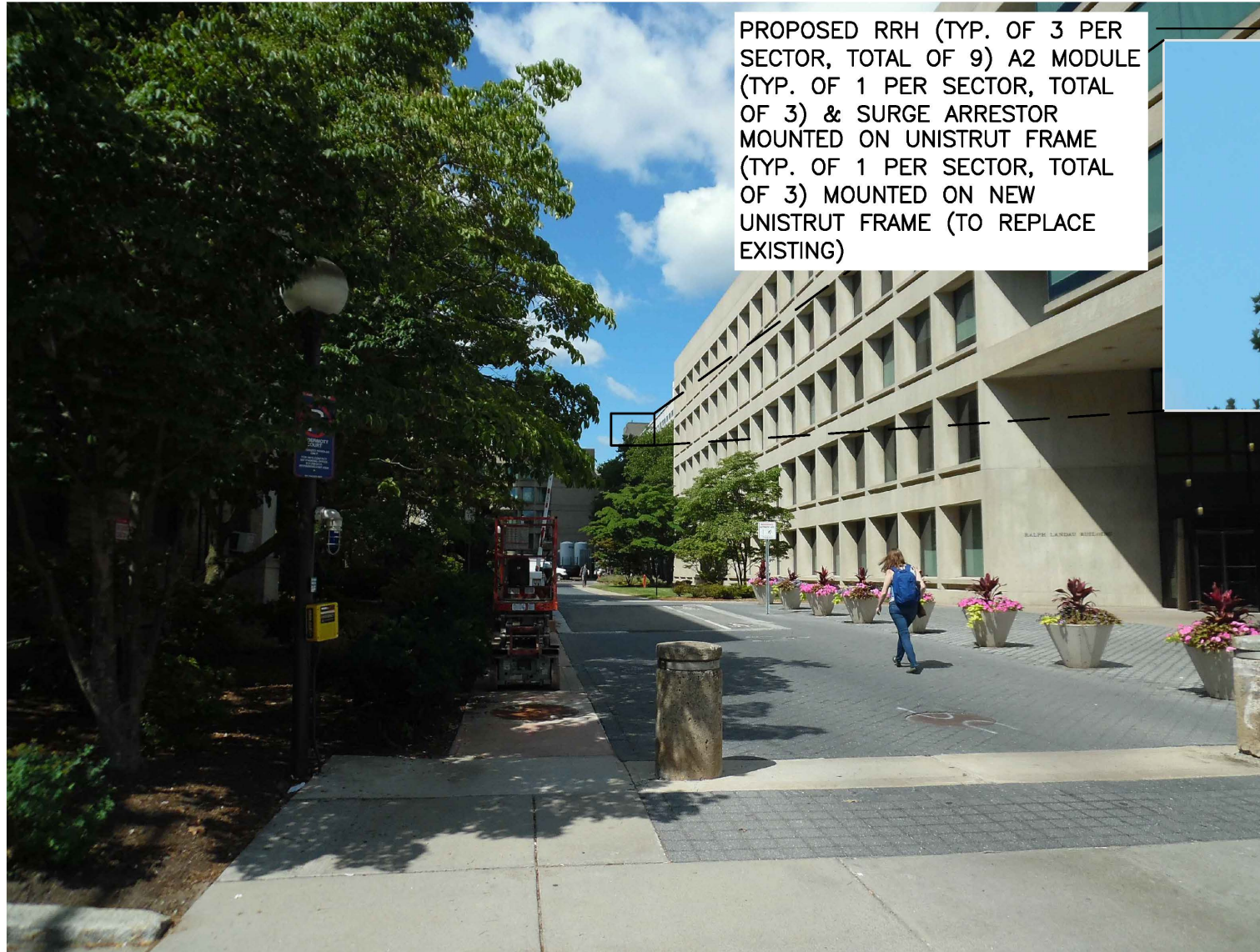
SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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PROPOSED CONDITIONS

LOCATION # 2

DATE OF PHOTO: 07-23-15



DETAIL OF EQUIPMENT

PROPOSED LTE ANTENNA MOUNTED TO EXISTING MOUNTING PIPE @ POSITION 1 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)

VIEW SOUTHWEST FROM AMES STREET

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139



27 NORTHWESTERN DR
SALEM, NH 03079



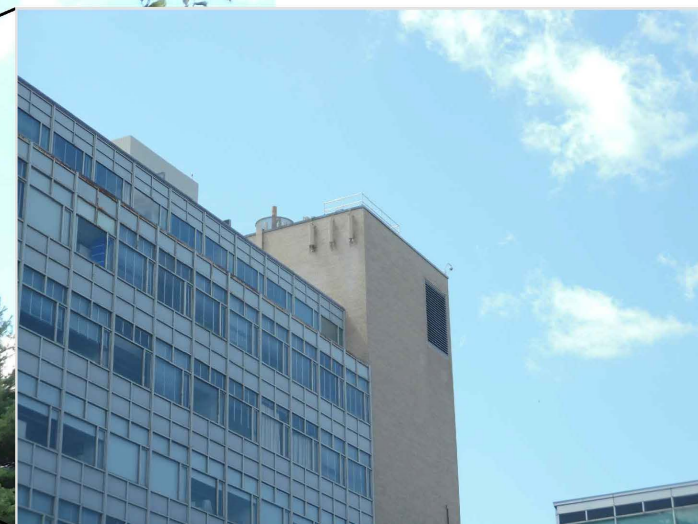
SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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EXISTING CONDITIONS

LOCATION # 3

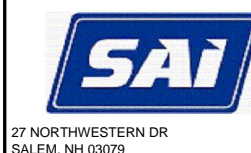
DATE OF PHOTO: 07-23-15



**DETAIL OF
EQUIPMENT**

VIEW SOUTH FROM IN FRONT OF DORRANCE BUILDING

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139



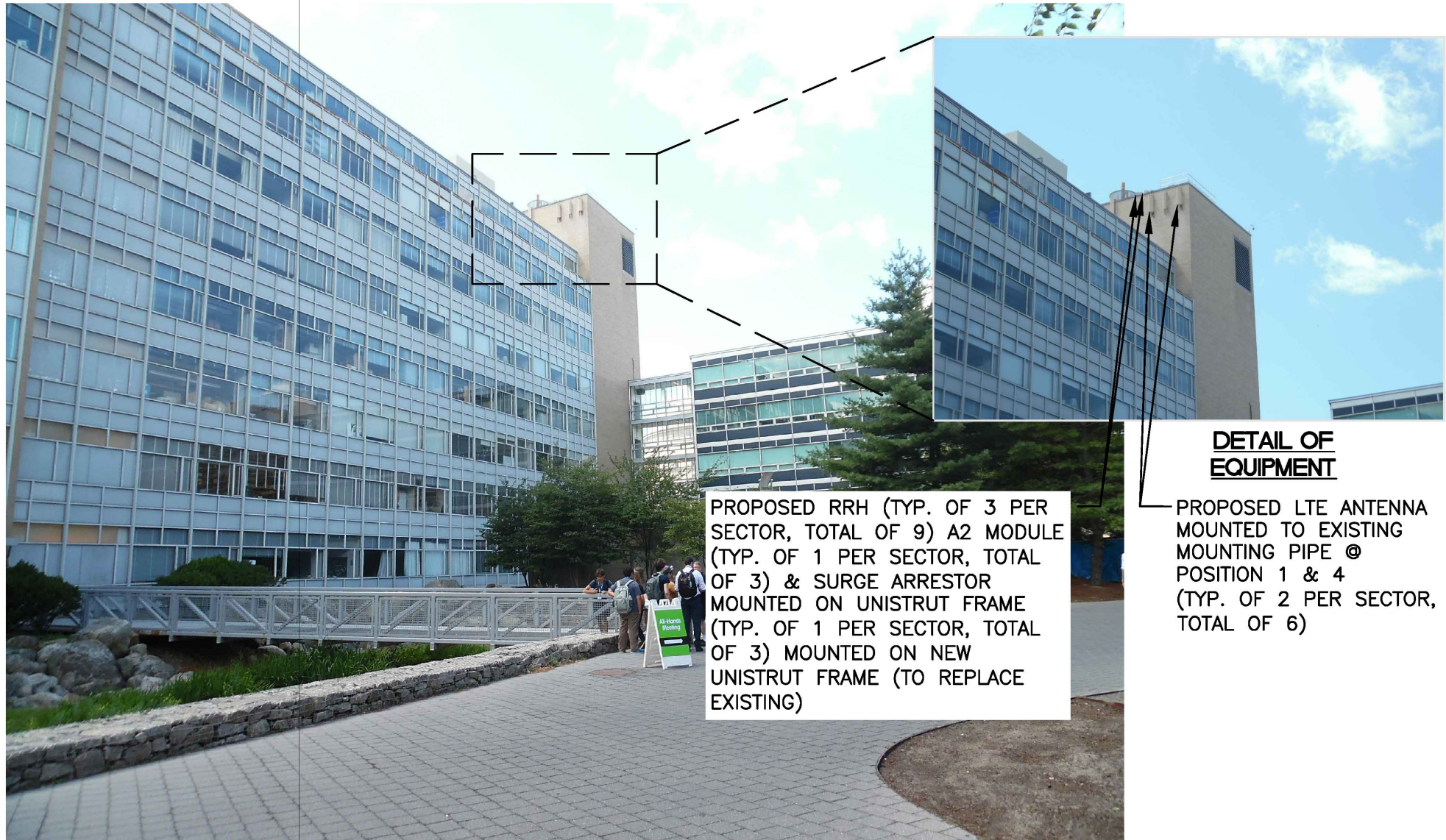
SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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PROPOSED CONDITIONS

LOCATION # 3

DATE OF PHOTO: 07-23-15



DETAIL OF EQUIPMENT

PROPOSED LTE ANTENNA MOUNTED TO EXISTING MOUNTING PIPE @ POSITION 1 & 4 (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED RRH (TYP. OF 3 PER SECTOR, TOTAL OF 9) A2 MODULE (TYP. OF 1 PER SECTOR, TOTAL OF 3) & SURGE ARRESTOR MOUNTED ON UNISTRUT FRAME (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED ON NEW UNISTRUT FRAME (TO REPLACE EXISTING)

VIEW SOUTH FROM IN FRONT OF DORRANCE BUILDING

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02139



SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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.



VIEW NORTHEAST FROM MEMORIAL DRIVE
(EQUIPMENT NOT VISIBLE)

SITE NO: MA2267
SITE NAME: DORRANCE BLDG #16
ADDRESS: 77 MASSACHUSETTS AVENUE
 CAMBRIDGE, MA 02139



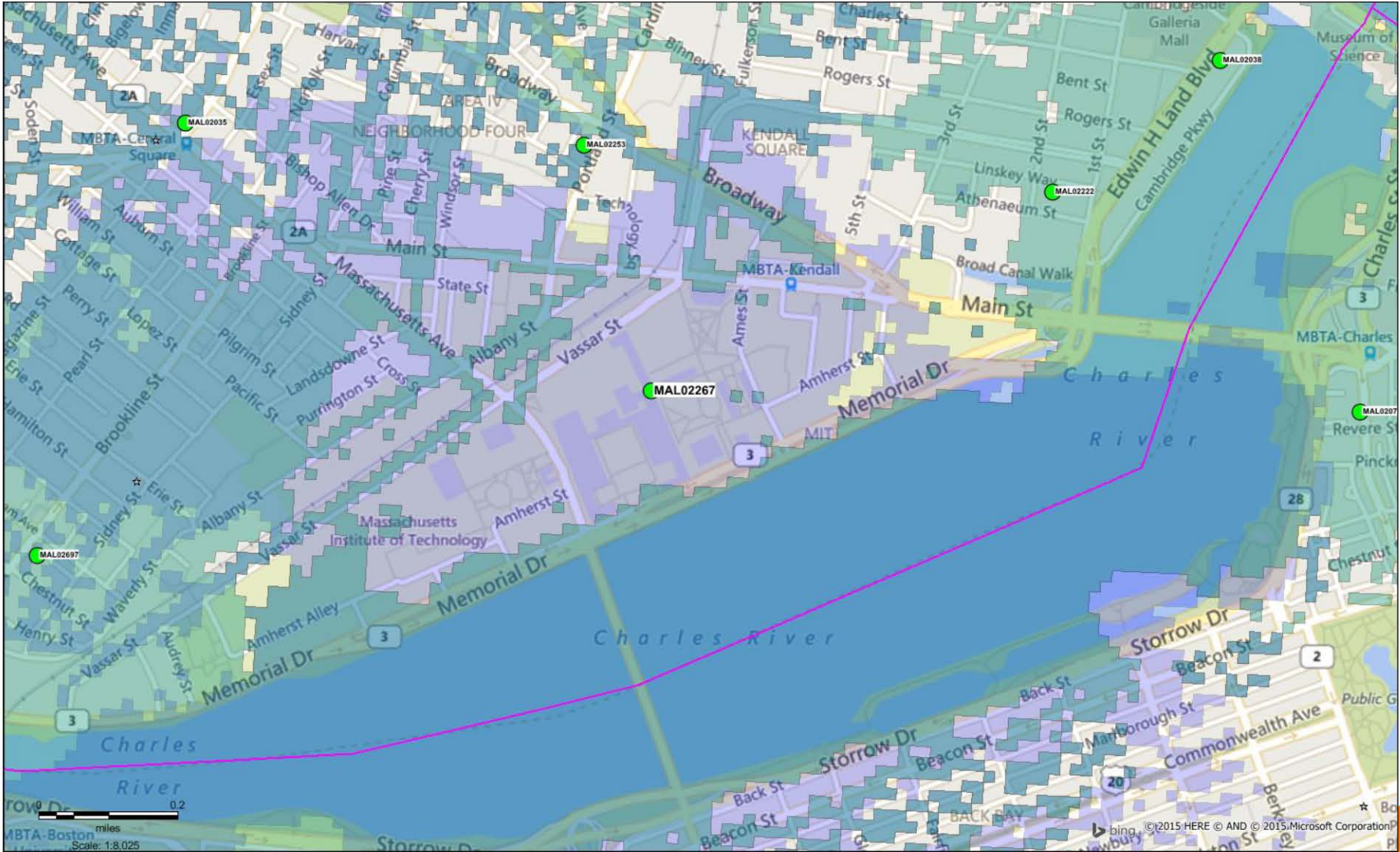
SITE TYPE: ROOFTOP
DATE: 04/01/16
DRAWN BY: FM
SCALE: N.T.S.
REV: 1

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.

This map shows a section of Cambridge, Massachusetts, centered around the Charles River and the Massachusetts Institute of Technology (MIT). Key features include:

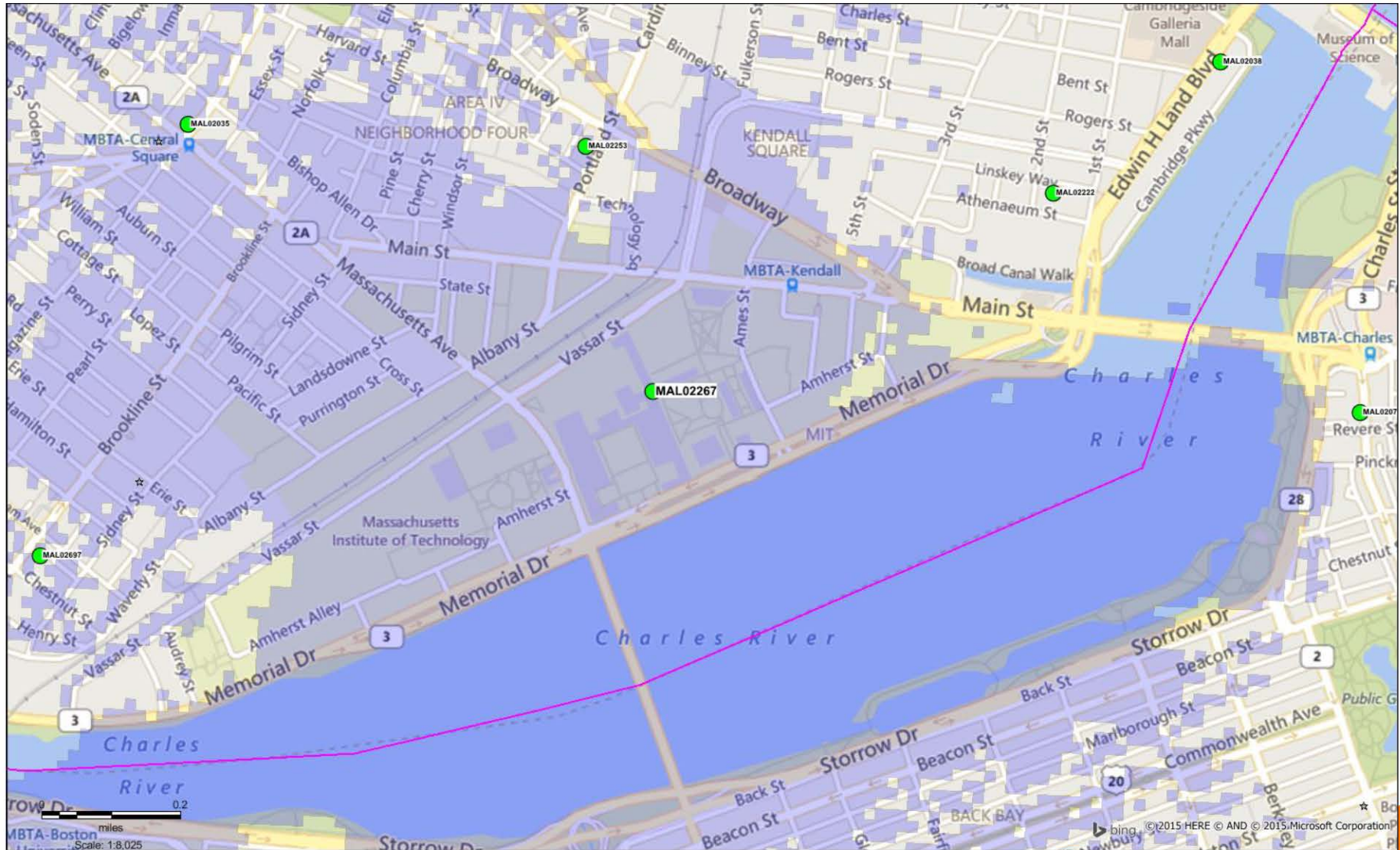
- Streets:** Major roads like Broadway, Main St, Memorial Dr, and Massachusetts Ave are clearly marked. Other streets shown include Harvard St, Porter St, Vassar St, Amherst St, and Storrow Dr.
- Landmarks:** MIT is prominently displayed in the center. Kendall Square is located to the north of MIT. The Charles River flows along the southern and eastern edges of the map.
- Transportation:** MBTA stations are indicated, including Central Square and Kendall. Highway shields for 2A, 3, 28, and 20 are visible.
- Geographic Features:** The Charles River is shown in blue, with several bridges crossing it. Green areas represent parks and open spaces.
- Map Details:** A scale bar at the bottom left indicates a distance of 0.2 miles. The map is credited to Bing, HERE, and Microsoft.

Cambridge Coverage Plot With MAL02267



Cambridge Coverage Plot Individual MAL02267

- On Air sites
- Proposed sites
- Current coverage
- Proposed coverage



STRUCTURAL ANALYSIS REPORT

For

MA2267 (LTE 6C/7C)
MIT DORRANCE BLDG #16
77 Massachusetts Avenue
Cambridge, MA 02139

Antennas Mounted to Building Façade
Equipment on Steel Platform on Roof



Prepared for:



Dated: February 6, 2018

Prepared by:



45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
www.hudsondesigngroupllc.com





SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the structure supporting the proposed AT&T equipment located in the areas depicted in the latest HDG construction drawings.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's proposed equipment.

CONCLUSION SUMMARY:

Building plans prepared by Ellenzweig Associates, Inc. dated August 16, 1996 were available and were obtained for our use. A limited visual survey of the structure was completed in or near the areas of the proposed work. The following documents were used for our reference:

- Previous HDG Structural Analysis Report dated October 21, 2016.

Based on our evaluation, we have determined that the existing structure **IS CAPABLE** of supporting the proposed equipment loading.

HDG did not perform a condition assessment of the entire roof, but did perform an inspection of the existing roof members and structural columns below the area where the proposed equipment is located.

APPURTENANCE/EQUIPMENT CONFIGURATION:

(6) OPA-65R-LCUU-H4 Antennas (48.0"x14.4"x7.3" – Wt. = 57 lbs. /each)

(3) 742-264 Antenna (51.8"x10.3"x5.5" – Wt. = 37 lbs. /each)

(6) RRUS-11 RRH's (19.7"x17.0"x7.2" Wt. = 51 lbs. /each)

(6) RRUS-12 RRH's (20.4"x18.5"x7.5" Wt. = 58 lbs. /each)

(3) RRUS-E2 RRH's (20.4"x18.5"x7.5" Wt. = 53 lbs. /each)

(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)

(6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)

(3) Surge Arrestors (24.0"x24.0"x8.0" – Wt. = 57 lbs. /each)

(3) 80010964 Antennas (59.0"x20.0"x6.9" – Wt. = 84 lbs. /each)

(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)

(3) B66 4426 RRH's (15.0"x13.2"x5.8" – Wt. = 49 lbs. /each)

(3) Squid Surge Arrestors (24.0"x9.7"Φ – Wt. = 33 lbs. /each)

**Proposed Loading Shown in Bold.*



DESIGN CRITERIA:

1. Massachusetts State Building code 9th edition and ASCE 7-10, Minimum Design Loads for Buildings and Other Structures.

Wind Analysis:

Reference Wind Speed:	128 mph	(780 CMR 1604.11)
Category:	C	(ASCE 7-10 Section 26.7.3)

Roof:

Ground Snow, P_g :	40 psf	(780 CMR 1604.11)
Occupancy Category:	II	(ASCE 7-10 Table 1.5-1)
Importance Factor (I):	1.0	(ASCE 7-10 Table 1.5-2)
Exposure Factor (C_e):	0.9	(Fully Exposed, Table 7-2)
Thermal Factor (C_t):	1.0	(ASCE 7-10 Table 7-3)

Calculated Flat Roof Snow Load:

$P_f = 0.7 * C_e * C_t * I * P_g$:	30 psf (min.)	(ASCE 7-10 Equation 7.3-1)
-------------------------------------	---------------	----------------------------

2. EIA/TIA -222- G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

City/Town:	Cambridge
County:	Middlesex
Wind Load:	105 mph
Nominal Ice Thickness:	1 inch

3. Approximate height above grade to the centerline of the proposed antennas:

120'-10" +/-



EXISTING ROOF CONSTRUCTION:

The existing roof construction consists of a roofing membrane over rigid insulation over a reinforced concrete slab supported by a system of reinforced concrete beams and columns.

ANTENNA SUPPORT RECOMMENDATIONS:

The new antennas are proposed to be mounted on an existing pipe mast installed on existing mounts secured to the existing building façade with epoxy anchors.

RRH SUPPORT RECOMMENDATIONS:

The new RRH's are proposed to be mounted on existing non-penetrating ballast mounts located on the roof.

Reference the chart below for the minimum ballast requirements for the RRH non-penetrating ballast mounts.

MINIMUM BALLAST REQUIREMENTS	
NUMBER OF PROPOSED BLOCKS PER SIDE	4
SIZE OF PROPOSED BLOCKS	4"x8"x16" Solid
WEIGHT OF PROPOSED BLOCKS	38 lbs. /each
TOTAL BALLAST WEIGHT	304 lbs.

Limitations and assumptions:

1. Reference the latest HDG construction drawings for all the equipment locations details.
2. Mount all equipment per manufacturer's specifications.
3. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
4. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
5. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
6. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

FIELD PHOTOS:

Photo 1: Sample photo illustrating the existing antennas.



Photo 2: Sample photo illustrating the existing RRH ballast mount.

FIELD PHOTOS (CONT.):



Photo 3: Sample photo illustrating the existing equipment cabinets.



HUDSON
Design Group LLC

Wind and Ice Calculations

Date: 2/6/2018

Project Name: MIT DORRANCE BLDG #16

Project Number: MA2267

Designed By: JN Checked By: MSC



HUDSON
Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$$z = 120 \text{ (ft)}$$

$$z_g = 900 \text{ (ft)}$$

$$\alpha = 9.5$$

$$K_z = 1.315$$

$$K_{zmin} \leq K_z \leq 2.01$$

Table 2-4

Exposure	z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_e K_t / K_h)]^2$$

$$K_h = e^{(f * z / H)}$$

$$K_{zt} = \#DIV/0!$$

$$K_h = \#DIV/0!$$

$$K_e = 0 \text{ (from Table 2-4)}$$

$$K_t = 0 \text{ (from Table 2-5)}$$

$$f = 0 \text{ (from Table 2-5)}$$

$$z = 120$$

$$H = 0 \text{ (Ht. of the crest above surrounding terrain)}$$

$$K_{zt} = 1.00$$

(If Category 1 then $K_{zt} = 1.0$)

Category= 1

Date: 2/6/2018
 Project Name: MIT DORRANCE BLDG #16
 Project Number: MA2267
 Designed By: JN Checked By: MSC



2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0]

h= ht. of structure

h= 120.83

Gh= 0.85

2.6.7.2 Guyed Masts

Gh= 0.85

2.6.7.3 Pole Structures

Gh= 1.1

2.6.9 Appurtenances

Gh= 1.0

2.6.7.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh= 1.35

Gh= 1.35

2.6.9.2 Design Wind Force on Appurtenances

$$F = q_z * Gh * (EPA)_A$$

$$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$$

K_z= 1.315

K_{zt}= 1.0

K_d= 0.95

V_{max}= 105

V_{max (ice)}= 40

I= 1.0

q_z= 35.26

q_{z (ice)}= 5.12

Table 2-2

Structure Type	Wind Direction Probability Factor, K _d
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

Date: 2/6/2018

Project Name: MIT DORRANCE BLDG #16

Project Number: MA2267

Designed By: JN Checked By: MSC



HUDSON
Design Group LLC

Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 \leq C \leq 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance, and the section length considered to have uniform wind load).

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.00 in

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (1" Ice)
OPA-65R-LCUU-H4 Antenna	48.0	14.4	7.3	4.80	3.33	1.24	283	49
742-264 Antenna	51.8	10.3	5.5	3.71	5.03	1.31	231	42
80010964 Antenna	59.0	20.0	6.9	8.19	2.95	1.22	476	79
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	133	24
RRUS-12 RRH	20.4	18.5	7.5	2.62	1.10	1.20	150	26
RRUS-E2 RRH	20.4	18.5	7.5	2.62	1.10	1.20	150	26
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	131	24
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	96	18
B66 4426 RRH	15.0	13.2	5.8	1.38	1.14	1.20	79	15
LGP21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	51	10
Surge Arrestor	24.0	24.0	8.0	4.00	1.00	1.20	229	39
Squid Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	54	10

Date: 2/6/2018

Project Name: MIT DORRANCE BLDG #16

Project Number: MA2267

Designed By: JN Checked By: MSC



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Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice (in): 1.00

* Density of ice used = 56 PCF

OPA-65R-LCUU-H4 Antenna

Weight of ice based on total radial SF area:

Height (in): 48.0

Width (in): 14.4

Depth (in): 7.3

Total weight of ice on object: 74 lbs

Weight of object: 57 lbs

Combined weight of ice and object: 131 lbs

80010964 Antenna

Weight of ice based on total radial SF area:

Height (in): 59.0

Width (in): 20.0

Depth (in): 6.9

Total weight of ice on object: 112 lbs

Weight of object: 84 lbs

Combined weight of ice and object: 196 lbs

RRUS-12 RRH

Weight of ice based on total radial SF area:

Height (in): 20.4

Width (in): 18.5

Depth (in): 7.5

Total weight of ice on object: 43 lbs

Weight of object: 58 lbs

Combined weight of ice and object: 101 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in): 27.2

Width (in): 12.1

Depth (in): 7.0

Total weight of ice on object: 39 lbs

Weight of object: 60 lbs

Combined weight of ice and object: 99 lbs

B66 4426 RRH

Weight of ice based on total radial SF area:

Height (in): 15.0

Width (in): 13.2

Depth (in): 5.8

Total weight of ice on object: 23 lbs

Weight of object: 49 lbs

Combined weight of ice and object: 72 lbs

Surge Arrestor

Weight of ice based on total radial SF area:

Height (in): 24.0

Width (in): 24.0

Depth (in): 8.0

Total weight of ice on object: 62 lbs

Weight of object: 57 lbs

Combined weight of ice and object: 119 lbs

2" pipe

Per foot weight of ice:

diameter (in): 2.38

Per foot weight of ice on object: 4 lbs/ft

742-264 Antenna

Weight of ice based on total radial SF area:

Height (in): 51.8

Width (in): 10.3

Depth (in): 5.5

Total weight of ice on object: 57 lbs

Weight of object: 37 lbs

Combined weight of ice and object: 94 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in): 19.7

Width (in): 17.0

Depth (in): 7.2

Total weight of ice on object: 39 lbs

Weight of object: 51 lbs

Combined weight of ice and object: 90 lbs

RRUS-E2 RRH

Weight of ice based on total radial SF area:

Height (in): 20.4

Width (in): 18.5

Depth (in): 7.5

Total weight of ice on object: 43 lbs

Weight of object: 53 lbs

Combined weight of ice and object: 96 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in): 18.1

Width (in): 13.4

Depth (in): 8.3

Total weight of ice on object: 33 lbs

Weight of object: 60 lbs

Combined weight of ice and object: 93 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:

Height (in): 14.4

Width (in): 9.0

Depth (in): 2.7

Total weight of ice on object: 13 lbs

Weight of object: 19 lbs

Combined weight of ice and object: 32 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in): 24.0

Diameter(in): 9.7

Total weight of ice on object: 35 lbs

Weight of object: 33 lbs

Combined weight of ice and object: 68 lbs



HUDSON
Design Group LLC

Antenna Mount Calculations

Date: 2/6/2018

Project Name: MIT DORRANCE BLDG #16

Project Number: MA2267

Designed By: JN Checked By: MSC



HUDSON
Design Group LLC

CHECK CONNECTION CAPACITY

Reference: Hilti Volume 2: Anchor Fastening Technical Guide

Epoxy Type = HIT-HY20
Anchor Diameter = 3/8 in.
Embedment Depth = 2 in. (Min.)

Allowable Tensile Load =

$F_{Tall} =$ 525 lbs.

Allowable Shear Load =

$F_{Vall} =$ 790 lbs.

WIND FORCES

Reaction $F =$ 476 lbs.

GRAVITY LOADS

Ice and Equipment 242 lbs.

No. of Supports = 2

No. of Anchors / Support = 2

Tension Design Load / Anchor =

$f_t =$ 119.00 lbs. $<$ 525 lbs. Therefore, OK !

Shear Design Load / Anchor =

$f_v =$ 60.50 lbs. $<$ 790 lbs. Therefore, OK !

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	\leq	1.0	
0.227	+	0.077	=	0.303	$<$ 1.0 Therefore, OK !



HUDSON
Design Group LLC

RRH Ballast Mount Calculations

Date: 2/6/2018

Project Name: MIT DORRANCE BLDG #16

Project Number: MA2267

Designed By: JN Checked By: MSC



HUDSON
Design Group LLC

Calculate Total Ballast Required for Ballast Mount

Assume (3) RRH's as projected area

Force (F) = 306 lbs.

Height (H) = 2.75 ft

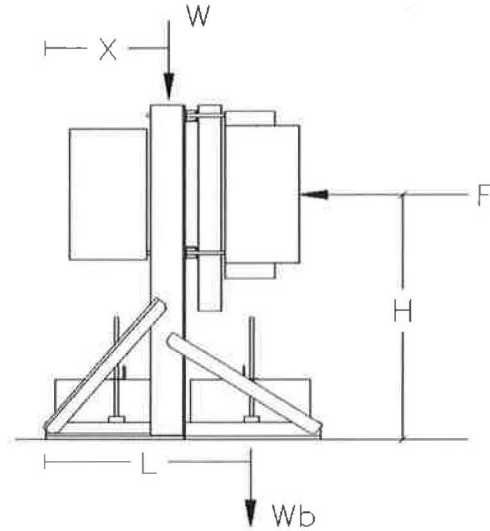
Weight of Appurtenances (W) = 285 lbs.

Frame Width/2 (X) = 1.3 ft

Length (L) = 2.2 ft

Ballast (Wb) = TBD

Safety Factor (SF) = 1.5



Overturning at Ballast

$$\Sigma M = 0 = (F * H) - (W * X) - (Wb * L) \rightarrow Wb = [(F * H * SF - W * X) / L] = 299 \text{ lbs.}$$

Determine Number of Blocks Required

(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required = **4 BLOCKS PER SIDE**

-Total Weight of Fully Loaded Frame = 769 lbs.

-Footprint Area Under Ballast Frame = 10.5 sqft.

-Distributed Load Under Ballast Frame = 73 psf



MAXIMUM PERMISSIBLE EXPOSURE STUDY

THEORETICAL REPORT



Site Number: MA2267
Site Name: MIT Dorrance Building #16
Latitude: 42.36044444
Longitude: -71.09068611
Address: 77 Massachusetts Avenue,
Cambridge, MA

Conclusion: *AT&T's existing + proposed antenna installation is calculated to be within the FCC Standard for Uncontrolled/General Public and Controlled/Occupational Maximum Permissible Exposure (MPE).*

Prepared by: **SAI Communications**
260 Cedar Hill Street
Marlborough, MA 01752
(603) 421-0470

Date of Report: April 1, 2016

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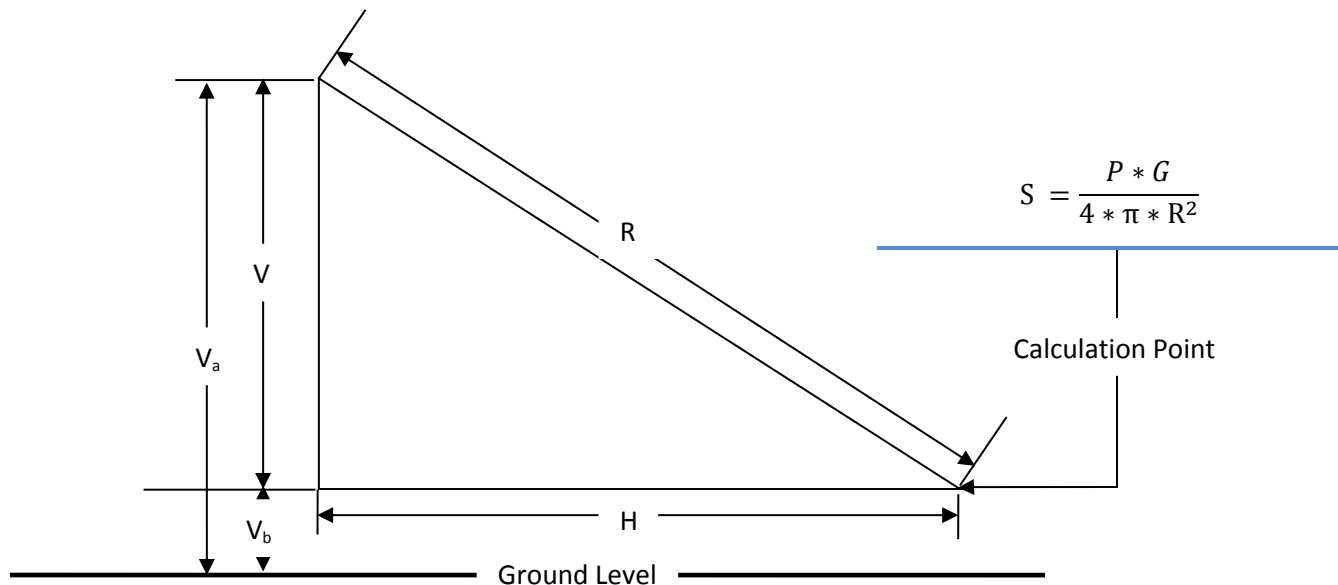
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Introduction

SAI Communications has conducted this theoretical analysis for AT&T, to ensure that the existing radio facility complies with Federal Communications Commission (FCC) regulations after carrier additions. This report will show that, through the use of FCC suggested prediction methods, the radio facility in question will be in compliance with all appropriate Federal regulations in regards to Radio Frequency (RF) Exposure.

RF Exposure Prediction Method

Power Density is calculated in accordance with FCC OET Bulletin 65 formula (3):



Where:

S = Power Density

P = Power input to the antenna

G = Gain of an antenna

R = Radial distance $= \sqrt{H^2 + V^2}$

H = Horizontal distance from antenna

V = Vertical distance from antenna $= V_a - V_b$

V_a = Antenna height above ground

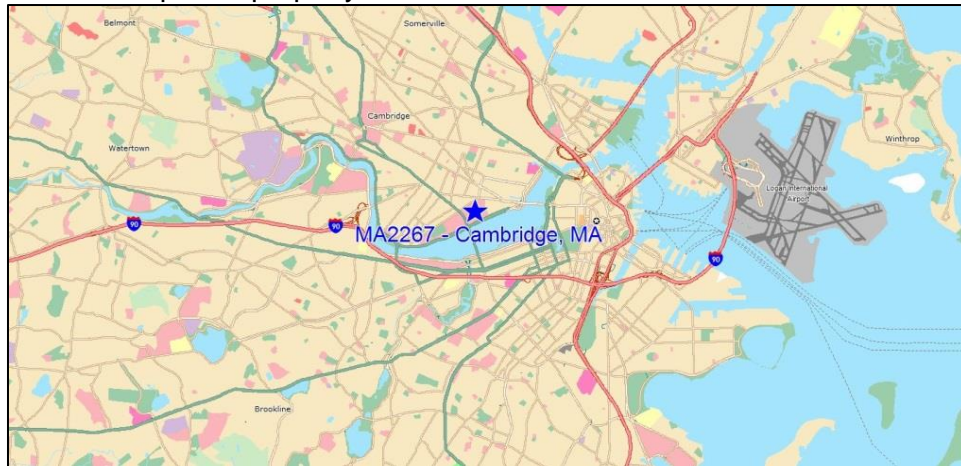
V_b = Calculation height above ground = 6ft

Case Summary

The existing radio facility has a radiation center of 120ft located at the following geographic coordinates:

Latitude: 42.36044444
Longitude: -71.09068611

See sketch below for specific property location.



RF Design Specifications

AT&T Mobility is planning to install 6 panel antennas, 2 per sector for LTE Technologies (3C+4C+5C) with azimuths of 30-150-270 for alpha-beta-gamma sectors. Table below shows the technical data used for the calculation.

	GSM850	UMTS850	UMTS1900	LTE700BC
Antenna Type:	CCI OPA-65R-LCUU-H4	Kathrein 742-264		CCI OPA-65R-LCUU-H4
Antenna Gain (dBd)	11.25	11.85	14.85	10.35
Rad Center, AGL (ft)	120	120	120	120
ERP (dBm)	55.75	56.85	59.85	55.35
No of Radios	1	2	2	1

	LTE700DE	LTE850	LTE1900	LTEWCS
Antenna Type:	CCI OPA-65R-LCUU-H4			
Antenna Gain (dBd)	10.35	11.25	13.65	14.95
Rad Center, AGL (ft)	120	120	120	120
ERP (dBm)	55.35	56.25	58.65	59.95
No of Radios	1	1	1	1

FCC Guidelines

Table 1. MPE Limits for General Population/ Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time for E ² , H ² , or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--	--	1.0	30
f = frequency in MHz		* = Plane wave equivalent power density		

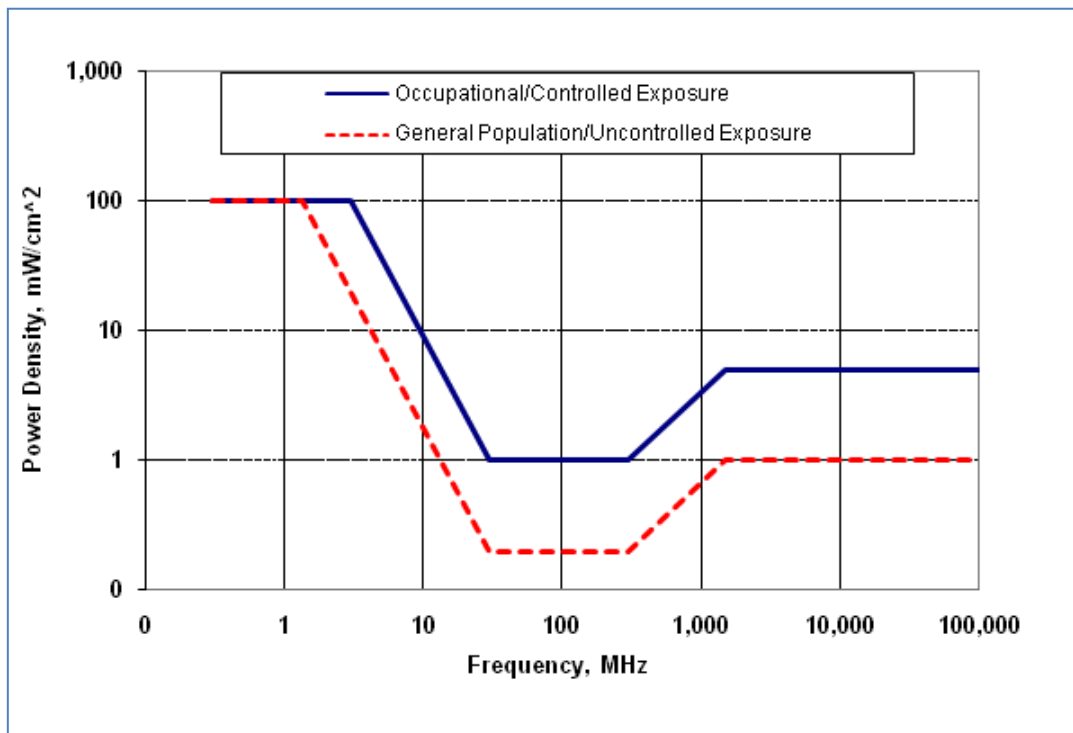
General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can't exercise control over their exposure.

Table 2. MPE Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time for E ² , H ² , or S (Minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	f/300	6
1500– 100,000	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where such occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

FCC RF Exposure Limits

FCC MPE LIMITS (mW/cm ²)		
EXPOSURE ENVIRONMENT	AT&T FREQUENCY BANDS	
	Cellular	PCS
General Public (Uncontrolled)	0.59	1.0
Occupational (Controlled)	2.93	5.0

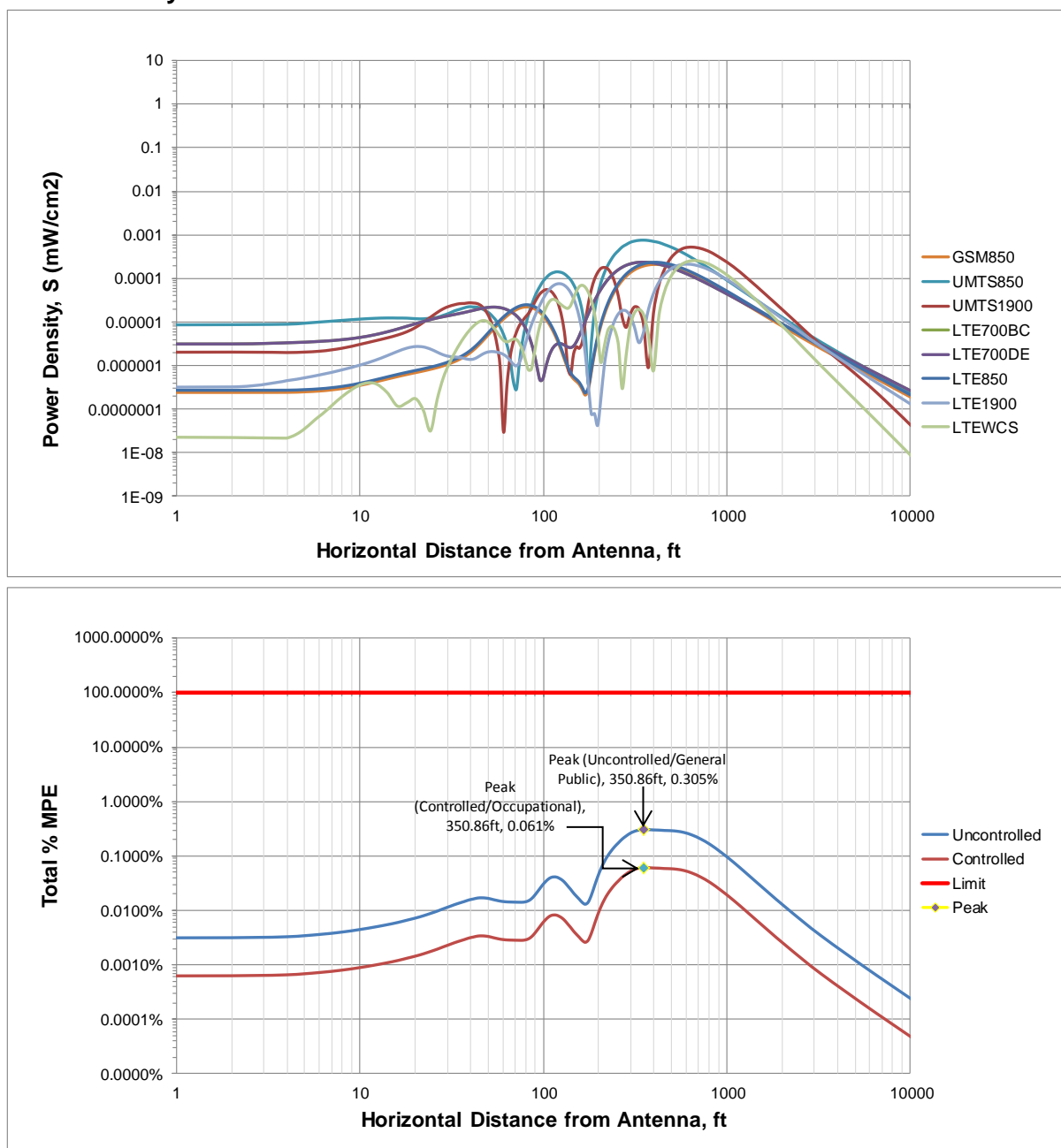


Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPE's are functions of frequency.

Calculation Results (6ft AGL)

The following charts show the graphical representation of the calculated AT&T contribution on power density levels and % MPE at 6ft above ground, as horizontal distance from antenna increases. The calculations take into account the vertical pattern of the antennas and represent the immediate direction of each sector azimuth within the antenna horizontal beamwidth. The calculations also assume line of site to the antennas and the result will be lower if measured indoor due to in-building penetration loss.

Power Density and %MPE



Statement of Certification

I certify to the best of my knowledge that the statements contained in this report are true and accurate. The theoretical computations contained are based on FCC recommended methods, with industry standard assumptions & formulas, and complies with FCC mandated Maximum Permissible RF Exposure requirements.

A comprehensive field survey was not performed prior to the generation of this report. If questions arise regarding the calculations herein, SAI Communications recommends that a comprehensive field survey be performed to resolve any disputes.



Michael Doiron
Director, RF Engineering
SAI Communications

April 1, 2016
Date

BZA APPLICATION FORM - OWNERSHIP INFORMATION

To be completed by OWNER, signed before a notary and returned to The Secretary of the Board of Zoning Appeals.

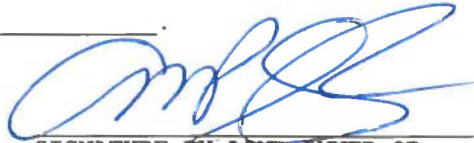
I/We Massachusetts Institute of Technology
(OWNER)

Address: 77 Mass. Ave., W92-196, Cambridge MA 02139

State that I/We own the property located at 60 Vassar St., Cambridge MA
which is the subject of this zoning application. MIT Bldg. 16 / Dorrance Bldg.

The record title of this property is in the name of Massachusetts
Institute of Technology

*Pursuant to a deed of duly recorded in the date 3/22/1912, Middlesex South
County Registry of Deeds at Book 3678, Page 190; or
Middlesex Registry District of Land Court, Certificate No. _____
Book _____ Page _____.



SIGNATURE BY LAND OWNER OR
AUTHORIZED TRUSTEE, OFFICER OR AGENT*

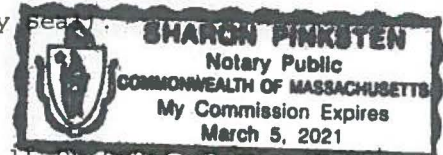
*Written evidence of Agent's standing to represent petitioner may be requested.

Commonwealth of Massachusetts, County of MIDDLESEX

The above-name Anthony P. Sharon personally appeared before me,
this 8 of April, 2016, and made oath that the above statement is true.

Sharon Pinksten Notary

My commission expires _____ (Notary Seal)



- If ownership is not shown in recorded deed, e.g. 11 by court order, recent deed, or inheritance, please include documentation.

Know all men by these Presents.

190

Witnessed In presence of us Oliver Ames, Samuel Carr and Oliver W. Minns as we
to are the Trustees under the will of Frederick L. Ames late of
Mass. Institute of Technology in the County of Bristol in the Commonwealth of
Massachusetts deceased, acting by virtue of the power and au-
thority given us in and by said will and of every other
power and authority us hereto enabling in consideration
of one dollar and other valuable considerations paid by the
Massachusetts Institute of Technology a corporation duly es-
tablished under the laws of said Commonwealth the receipt
whereof is hereby acknowledged, do hereby, grant, bargain, sell
and convey unto the said Massachusetts Institute of Technology
and its successors and assigns the following described
lots or parcels of land situate in Cambridge in the County
of Middlesex in said Commonwealth and shown on a plan
by Aspinwall and Lincoln dated February 14, 1912 to be record-
ed herewith namely: First: A certain parcel of land mark-
ed on said plan 13499 $\frac{5}{10}$ sq. ft. and bounded southwesterly
on Massachusetts Avenue one hundred sixteen and $\frac{32}{100}$ feet,
northwesterly on Amherst Street one hundred twelve and $\frac{9}{100}$ feet,
northeasterly on a passageway sixteen feet wide shown on said
plan one hundred sixteen feet, and southeasterly on land now
or formerly of Marcy one hundred twenty and $\frac{69}{100}$ feet. This
parcel is also shown as lots numbered 22 to 25 both inclusive
on another plan by Aspinwall and Lincoln dated December 2,
1897 and recorded with Middlesex South District Deeds plan book
107 plan 31. Second: A certain parcel of land marked 15000 sq.
ft. on said plan dated February 14, 1912 and bounded south-
easterly on the Esplanade or Charles River Road one hundred
twenty feet; southwesterly on land now or formerly of Susan
W. Carr one hundred twenty five feet; northwesterly on a pas-
sageway sixteen feet wide one hundred twenty feet; and north-
easterly on land now or formerly of Braman one hundred
twenty five feet. This parcel is also shown as lots numbered
11 to 14 both inclusive and part of lot numbered 10 on said
plan dated December 2, 1897. Third: A certain parcel of land
marked 53000 sq. ft. on said plan dated February 14, 1912. Bound-
ed northwesterly on Amherst Street five hundred thirty feet
southwesterly on Claflin Street one hundred feet; southeast-
erly on a passageway sixteen feet wide five hundred thirty
feet and northeasterly on Bradford Street one hundred feet.
Fourth: A certain parcel of land marked 113128 $\frac{2}{10}$ sq. ft. on
said plan dated February 14, 1912, bounded southwesterly

See Book of Deeds A. 201 9th 24

on said Massachusetts Avenue two hundred twenty six and $\frac{3}{100}$ feet, northwesterly on Princeton Avenue four hundred ninety seven and $\frac{6}{100}$ feet, northeasterly on Claflin Street two hundred twenty six feet and southeasterly on Amherst Street five hundred seven and $\frac{9}{100}$ feet. **Fifth:** A certain parcel of land marked 5500 sq. ft. on said plan dated February 14, 1912 bounded northwesterly on Princeton Avenue fifty feet; northeasterly on land now or formerly of Foster one hundred ten feet; southeasterly on a passageway sixteen feet wide fifty feet; southwesterly on land now or formerly of Shepley one hundred ten feet. This parcel is also shown as lots numbered 117 and 118 on said plan dated December 2, 1897. **Sixth:** A certain parcel of land marked 2500 sq. ft. on said plan dated February 14, 1912, bounded northwesterly on Wellerley Street twenty five feet; northeasterly on Claflin Street one hundred feet; southeasterly on a passageway sixteen feet wide twenty-five feet and southwesterly on land now or formerly of Upton one hundred feet. This parcel is also shown as lot numbered 82 on said plan dated December 2, 1897. **Seventh:** A certain parcel of land marked 119780 sq. ft. on said plan dated February 14, 1912, bounded northwesterly on said Wellerley Street five hundred thirty feet; northeasterly on said Bradford Street two hundred twenty six feet; southeasterly on said Princeton Avenue five hundred thirty feet and southwesterly on said Claflin Street two hundred twenty six feet. **Eighth:** A certain triangular parcel of land marked 228 $\frac{8}{100}$ sq. ft. on said plan dated February 14, 1912, bounded northwesterly on said Wellerley Street four and $\frac{1}{100}$ feet; easterly on land now or formerly of Marcy eighteen and $\frac{6}{100}$ feet and southwesterly on said Bradford Street seventeen and $\frac{75}{100}$ feet. **Ninth:** A certain small triangular parcel of land marked 115 $\frac{6}{100}$ sq. ft. on said plan dated February 14, 1912, bounded northwesterly on said Wellerley Street twenty-three and $\frac{9}{100}$ feet; easterly on land of the grantors, being the parcel next herein described eleven and $\frac{58}{100}$ feet and southerly on land now or formerly of Marcy nineteen and $\frac{97}{100}$ feet. **Tenth:** A certain triangular parcel of land marked 3813 $\frac{9}{100}$ sq. ft. on said plan dated February 14, 1912, bounded westerly in part on the end of said Wellerley Street and in part on the parcel last herein described and in part on land now or formerly of Marcy seventy five and $\frac{15}{100}$ feet; southerly on said land now or formerly of Marcy one hundred one and $\frac{50}{100}$ feet and northeasterly on other land of the grantors one hundred twenty six and $\frac{29}{100}$ feet. **Eleventh:** A certain

parcel of land marked $10128\frac{4}{10}$ sq. ft. on said plan dated February 14, 1912, bounded southeasterly on said Wellesley Street one hundred thirty eight and $7\frac{1}{100}$ feet, westerly on land now or formerly of Charles H. Souther one hundred forty six and $19\frac{1}{100}$ feet, northeasterly on land now or formerly of John A. Stewart one hundred thirty one and $59\frac{1}{100}$ feet and easterly on other land of the grantors twenty-two and $62\frac{1}{100}$ feet. Twelfth: A certain parcel of land marked $4562\frac{4}{10}$ sq. ft. on said plan dated February 14, 1912 bounded northwesterly on Radcliffe Street seventy four and $6\frac{1}{100}$ feet, northeasterly on a parcel of land eighteenthly herein described one hundred fifteen and $59\frac{1}{100}$ feet, southeasterly on a passageway sixteen feet wide sixteen and $6\frac{4}{100}$ feet and southwesterly on land now or formerly of Baker one hundred feet. This parcel is also shown as lots G and F on another plan by Aspinwall and Lincoln dated January 18, 1898 recorded with Middlesex South District Deeds plan book 109 plan 11. Thirteenth: A certain parcel of land marked 96.00 sq. ft. on said plan dated February 14, 1912, bounded northwesterly on said Radcliffe Street ninety six feet, northeasterly on land now or formerly of Samuel Carr one hundred feet, southeasterly on a passageway sixteen feet wide ninety six feet, and southwesterly on land now or formerly of Gunniff one hundred feet. This parcel is also shown as lots numbered 147 to 150 both inclusive on said plan dated December 2, 1897. Fourteenth: A certain parcel of land marked 129784 sq. ft. on said plan dated February 14, 1912 bounded southwesterly on said Massachusetts Avenue two hundred twenty six and $95\frac{1}{100}$ feet, northwesterly on Vassar Street thirty eight and $26\frac{1}{100}$ feet, more northwesterly on Radcliffe Street six hundred eight and $63\frac{1}{100}$ feet northeasterly on said Claplin Street two hundred sixteen feet and southeasterly on said Wellesley Street five hundred sixty and $52\frac{1}{100}$ feet. Fifteenth: A certain parcel of land marked $89978\frac{8}{10}$ sq. ft. on said plan dated February 14, 1912, bounded southeasterly on said Vassar Street one thousand eighteen and $77\frac{1}{100}$ feet, southwesterly on land now or formerly of Keller ninety feet, northwesterly on the Boston and Albany Railroad nine hundred eighty and $7\frac{1}{100}$ feet and northeasterly on land now or formerly of Rogers ninety seven and $7\frac{1}{100}$ feet. Sixteenth: A certain parcel of land being lots marked $6737\frac{5}{10}$ sq. ft. and $4374\frac{1}{10}$ sq. ft. on said plan dated February 14, 1912, bounded northwesterly on said Vassar Street one hundred twenty five and $526\frac{1}{1000}$ feet, easterly on the parcel eighteenthly herein described one hundred eighty three and $9\frac{1}{100}$ feet, southeasterly

on said Radcliffe Street thirty one and $\frac{6}{10}$ feet, and southwesterly on land now or formerly of Crane one hundred thirty eight and $\frac{80}{100}$ feet. Seventeenth: A certain parcel of land marked 9724 sq. ft. on said plan dated February 14, 1912 bounded northerly on Main Street thirty one and $\frac{82}{100}$ feet, easterly on the parcel next herein described ninety three and $\frac{7}{100}$ feet, southeasterly on said Vassar Street one hundred eleven and $\frac{2}{100}$ feet, westerly on land now or formerly of Rogers one hundred sixteen and $\frac{46}{100}$ feet and northwesterly on the Boston and Albany Railroad twenty two and $\frac{7}{100}$ feet. Eighteenth: A certain parcel of land marked 55825 sq. ft. on said plan dated February 14, 1912, bounded northerly on said Main Street one hundred one and $\frac{50}{100}$ feet, easterly on land now or formerly of Charles H. Souther five hundred fifty feet, southerly on other land now or formerly of said Souther one hundred one and $\frac{50}{100}$ feet, westerly in part on said land now or formerly of Souther, in part on the end of a passageway sixteen feet wide in part on the parcel twelfthly herein described, in part on the end of said Radcliffe Street in part on the parcel sixteenthly herein described in part on the end of said Vassar Street and in part on the parcel last above described five hundred fifty feet. This parcel comprises the lot marked G on a plan by William H. Jackson dated December 5, 1876 recorded with Middlesex South District Deeds plan book 31 plan 4, and also the fee of the west half of a street forty feet wide shown on said plan but never opened for use. Also all our interest as such trustees in the fee and soil and the use of all streets and passageways adjoining the above described parcels or any of them. Or however otherwise said parcels or either of them may be bounded or described and be all or any of said measurements more or less. The premises are conveyed subject to such restrictions affecting the same as appear of record so far as now in force and applicable. To have and to hold the granted premises with all the rights, easements, privileges and appurtenances thereto belonging unto the said Massachusetts Institute of Technology and its successors and assigns to their own use and behoof forever. In witness whereof we the said Oliver Ames, Samuel Carr and Oliver W. Mink as trustees as aforesaid hereunto set our hands and seals this twenty ninth day of February in the year one thousand nine hundred and twelve. Oliver Ames seal Samuel Carr seal Oliver W. Mink seal Trustees as aforesaid. Commonwealth of Massachusetts. Suffolk ss. Feby. 29th. 1912. Then personally appeared the

above named Oliver Ames and acknowledged the foregoing instrument to be his free act and deed, before me, Chas. M. Hayden Justice of the Peace. Middlesex March 22, 1912. 4 P. 30 m. P. M. Recd. & Recorded
~~One word stricken out.~~

Angell
to
Mass. Institute
of Technology

Know all men by these Presents that I Martha B. Angell of Boston in the County of Suffolk in the Commonwealth of Massachusetts, widow in consideration of one dollar and other valuable considerations paid by the Massachusetts Institute of Technology a corporation duly established under the law of said Commonwealth the receipt whereof is hereby acknowledged do hereby grant, remise, release and forever quitclaim unto the said Massachusetts Institute of Technology and its successors and assigns a certain parcel of land situate in Cambridge in the County of Middlesex in said Commonwealth, being lot numbered 35 on a plan by Aspinwall and Lincoln dated December 2, 1897, recorded with Middlesex So. Dist. Deeds plan book 107 plan 31, and bounded and described as follows: northwesterly on Amherst Street twenty four feet, northeasterly on lot numbered 36 on said plan one hundred feet, southeasterly on a passageway sixteen feet wide shown on said plan twenty four feet and southwesterly on lot numbered 34 on said plan one hundred feet. Containing twenty four hundred square feet. Also all my interest in the fee and soil and the use of all adjoining streets and passageways. Or however otherwise said premises may be bounded or described and be all or any of said measurements more or less. Being the premises conveyed by Oliver Ames to Susan W. Farwell by deed dated December 22, 1897 recorded with Middlesex So. Dist. Deeds lib. 2622 page 398 and devised to me in and by the will of said Susan W. Farwell duly probated in the County of Norfolk June 4, 1902. The premises are conveyed with the benefit of and subject to the rights, easements, agreements and restrictions therein referred to so far as now in force and applicable. To have and to hold the above described premises with all the rights easements, privileges and appurtenances thereto belonging to the said Massachusetts Institute of Technology and its successors and assigns to their own use and behoof forever. And I the said grantor for myself and my heirs executors and administrators do covenant with the said grantee and its successors and assigns that the above described premises are free from all incumbrances made



CAMBRIDGE HISTORICAL COMMISSION

831 Massachusetts Avenue, 2nd Floor, Cambridge, Massachusetts 02139

Telephone: 617 349 4683 TTY: 617 349 6112

E-mail: histcomm@cambridgema.gov URL: <http://www.cambridgema.gov/Historic>

Bruce A. Irving, *Chair*; Susannah Barton Tobin, *Vice Chair*; Charles M. Sullivan, *Executive Director*
William G. Barry, Jr., Robert G. Crocker, Joseph V. Ferrara, Chandra Harrington, Jo M. Solet, *Members*
Gavin W. Kleespies, Paula A. Paris, Kyle Sheffield, *Alternates*

Jurisdiction Advice

To the Owner of Property at **60 Vassar St (aka 27r Ames/Dorrance MIT #16)**

The above-referenced property is subject to the jurisdiction of the Cambridge Historical Commission (CHC) by reason of the status referenced below:

- ☐ Old Cambridge Historic District
- ☐ Fort Washington Historic District
(M.G.L. Ch. 40C, City Code §2.78.050)
- ☐ Avon Hill Neighborhood Conservation District
- ☐ Half Crown – Marsh Neighborhood Conservation District
- ☐ Harvard Square Conservation District
- ☐ Mid Cambridge Neighborhood Conservation District
- ☐ Designated Landmark
- ☐ Property is being studied for designation: _____
(City Code, Ch. 2.78., Article III, and various City Council Orders)
- ☐ Preservation Restriction or Easement (as recorded)
- ☒ **X** Structure is fifty years or more old and therefore subject to CHC review of any application for a demolition permit, if one is required by ISD. (City Code, Ch. 2.78, Article II). See the back of this page for definition of demolition.
No demolition permit application anticipated.
- ☐ No jurisdiction: not a designated historic property and the structure is less than fifty years old.
- ☐ No local jurisdiction, but the property is listed on the National Register of Historic Places; CHC staff is available for consultation, upon request.
Staff comments: _____

The Board of Zoning Appeal advises applicants to complete Historical Commission or Neighborhood Conservation District Commission reviews before appearing before the Board.

If a line indicating possible jurisdiction is checked, the owner needs to consult with the staff of the Historical Commission to determine whether a hearing will be required.

CHC staff initials SLB

Date March 14, 2019

Received by Uploaded to Energov

Date March 14, 2019

Relationship to project BZA 017085-2019

cc: Applicant
Inspectional Services Commissioner

Demolition Delay Ordinance and Application Information

The Demolition Delay Ordinance (Chapter 2.78, Article II of the Cambridge Municipal Code) was adopted by the City Council in 1979 to afford public review of demolition permit applications for potentially significant buildings. When the Historical Commission determines that a building is significant and should be preserved, demolition will be delayed for up to six months so that solutions can be sought to preserve the building indefinitely. The Ordinance covers all buildings over 50 years old, city-wide. The Historical Commission archives provide dates of construction for all properties in the City.

Demolition is defined in the ordinance as "the act of pulling down, destroying, removing or razing a building or commencing the work of total or substantial destruction with the intent of completing the same." The Inspectional Services Commissioner has provided further guidelines to outline what actions require a demolition permit. **In addition to complete demolition of a building, the following actions may require a demolition permit,**

- **removal of a roof,**
- **removal of one side of a building,**
- **gutting of a building's interior to the point where exterior features (windows, etc.) are impacted, and**
- **removal of more than 25% of a structure.**

Please contact the building inspector or a staff member of the Historical Commission if you have questions about whether a demolition permit is required for a particular project.

Demolition permit applications can be obtained from the Inspectional Services Department. The completed application should be submitted to the Historical Commission, where the staff will review the application. If the Executive Director of the Historical Commission makes an initial determination that the building is significant, a public hearing will be scheduled with Historical Commission. If the staff makes an initial determination that the building is not significant, the application is released for further review by the Building Commissioner.

More information about the demolition permit application procedures is available on the Historical Commission's web site or by calling or dropping by the Historical Commission office.

July 2003

Cambridge Historical Commission
831 Massachusetts Ave., 2nd Fl.
Cambridge, MA 02139
Ph: 617/349-4683 or TTY: 617/349-6112
<http://www.cambridgema.gov/Historic>