CITY OF CAMBRIDGE

BOARD OF ZONING APPEAL

831 Massachusetts Avenue, Cambridge MA 02139

617-349-6100

2023 FEB -8 AM 11:48

OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

BZA Application Form

BZA Number: 209384

General Information

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

Special Permit: ___X___ Variance: _____ Appeal: _____

PETITIONER: Norshire LLC C/O TerraSearch

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

LOCATION OF PROPERTY: **284-288 Norfolk Street , Cambridge, MA**

TYPE OF OCCUPANCY: Telecommunications Facility **ZONING DISTRICT:** Residence C-1 Zone

REASON FOR PETITION:

/Telecommunication Facility (antenna)/

DESCRIPTION OF PETITIONER'S PROPOSAL:

Addition of 3 antennas and upgrade of equipment at existing telecommunications facility located on site

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 Act of 2012

Original Signature(s):

(Petitioner (s) / Owner)

Timothy Greene

(Print Name)

Address: 157 Riverside Drive, Norwell, MA 02061

Tel. No. 617-877-2950

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 Norshire LLC
(OWNER)

Address: 288 Norfolk Street, Cambridge, MA 02139

State that I/We own the property located at 288 Norfolk Street, Cambridge, MA, which is the subject of this zoning application.

The record title of this property is in the name of Norshire LLC

*Pursuant to a deed of duly recorded in the date 11/4/2008, Middlesex South County Registry of Deeds at Book 51897, Page 321; 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 Neal Heffron personally appeared before me, this 23rd of January, 2023, and made oath that the above statement is true.

_____ Notary

My commission expires 7/6/23 (Notary Seal)

TIMOTHY W. GREENE
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS
MY COMMISSION EXPIRES JULY 6, 2023

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

January 24, 2023

Diane P. LeBlanc, City Clerk City of Cambridge City Hall 795 Massachusetts Avenue Cambridge, MA 02139	Brendan Sullivan, Chair Board of Zoning Appeal City Hall 795 Massachusetts Avenue Cambridge, MA 02139

Applicant:	New Cingular Wireless PCS, LLC ("AT&T")
Property Address:	284 Norfolk Street. Assessor's Map 85, Lot 76 (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. LeBlanc, Mr. Sullivan 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 284 Norfolk 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-1 zoning district satisfy the requirements for the grant of a special permit pursuant to Section 10.43 of the Ordinance.

I. APPLICATION PACKAGE

1. The following completed and signed application forms:

    a. BZA Application Form – Electronically submitted;

2. AT&T's relevant FCC License information;

3. Drawings by Dewberry consisting of 12 pages dated 1/23/23;

4. Photographs of the existing building and photosimulations of the proposed modifications Facility by Dewberry., dated 1/24/24;

5. Radio Frequency Coverage Report, demonstrating the public need for the proposed modifications to the Facility, radio frequency coverage maps showing coverage with the proposed Facility;

6. Structural Analysis by Dewberry dated 7/15/22;

7. Letter of Authorization from Owner of Subject Property;

8. Deed to subject property

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 adjacent to the existing antennas 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 and concealed with fake chimneys on the roof. 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 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 C bands which is 5G coverage.

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

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[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.

> 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.

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."

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

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)." *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 antennas and associated equipment, on the building's façade and within stealth chimneys, minimizes the visual impact of the proposed Facility. This is because the antennas and equipment on the exterior façade surfaces will be painted or wrapped 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 of Norfolk Street. 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 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 or within fake chimneys. 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). 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-1 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 the existing building, some of the equipment of which is hidden from view within fake chimneys, 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 include[9]**
>
> **(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, 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")

E-Mail Address: tgreene@terrasearchllc.com

Date: _____

BZA Application Form

DIMENSIONAL INFORMATION

Applicant: Norshire LLC
Location: 284-288 Norfolk Street , Cambridge, MA
Phone: 617-877-2950

Present Use/Occupancy: Telecommunications Facility
Zone: Residence C-1 Zone
Requested Use/Occupancy: Telecommunications Facility

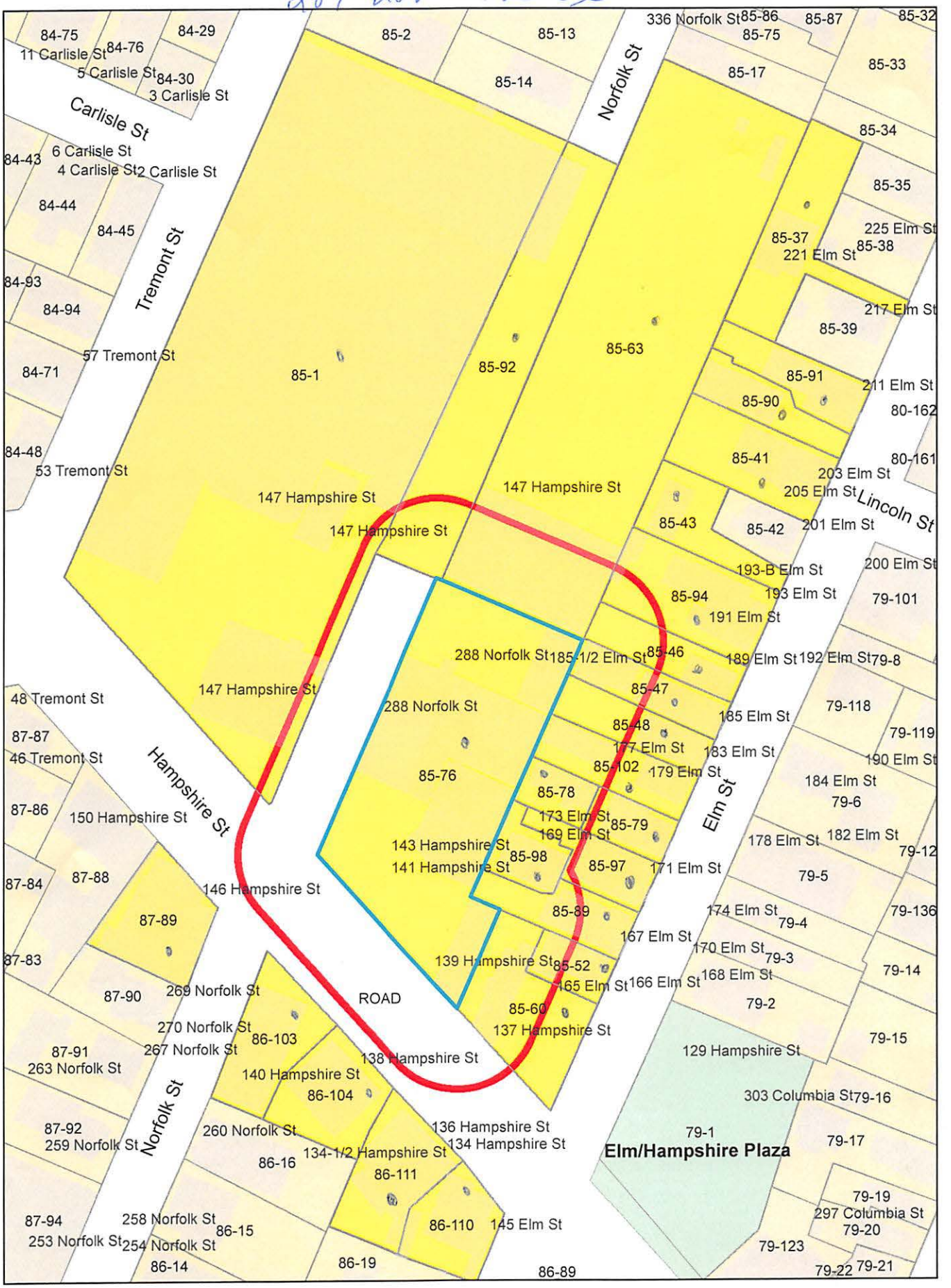
		Existing Conditions		Requested Conditions		Ordinance Requirements	
TOTAL GROSS FLOOR AREA:		0		0		0	(max.)
LOT AREA:		0		0		0	(min.)
RATIO OF GROSS FLOOR AREA TO LOT AREA: [2]		0		0		0	
LOT AREA OF EACH DWELLING UNIT		0		0		0	
SIZE OF LOT:	WIDTH	0		0		0	
	DEPTH	0		0		0	
SETBACKS IN FEET:	FRONT	0		0		0	
	REAR	0		0		0	
	LEFT SIDE	0		0		0	
	RIGHT SIDE	0		0		0	
SIZE OF BUILDING:	HEIGHT	0		0		0	
	WIDTH	0		0		0	
	LENGTH	0		0		0	
RATIO OF USABLE OPEN SPACE TO LOT AREA:		0		0		0	
NO. OF DWELLING UNITS:		0		0		0	
NO. OF PARKING SPACES:		0		0		0	
NO. OF LOADING AREAS:		0		0		0	
DISTANCE TO NEAREST BLDG. ON SAME LOT		0		0		0	

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

Telecommunications equipment on roof

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.

284-288 Norfolk St.



284-288 Norfolk St.

Petitioner
TIMOTHY GREENE
157 RIVERSIDE DRIVE
NORWELL, MA 02061

86-111
JEFFRIES, BENJAMIN E.,
TR OF HAMPSHIRE STREET REALTY TRUST
S.B. JEFFRIES CONSULTANTS
121 MT. VERNON ST
BOSTON, MA 02108-1104

85-43
PEREZ, FELIX & CARMEN PEREZ
197 ELM ST.
CAMBRIDGE, MA 02139

85-60-76
NORSHIRE LLC,
288 NORFOLK ST
CAMBRIDGE, MA 02139

85-78
SYTCHOV, MIKHAIL
173R ELM ST
CAMBRIDGE, MA 02139

87-89
MASS AVE BAPTIST CHURCH INC
146 HAMPSHIRE
CAMBRIDGE, MA 02139

85-1-92-63
CAMBRIDGE CITY OF PUBLIC WORKS DEPT
147 HAMPSHIRE ST
CAMBRIDGE, MA 02139

85-98
THAMES, JAMES NATHAN &
ELIZABETH WILLARD THAMES
169R ELM ST.
CAMBRIDGE, MA 02139

86-104-103
ROWLEY, JAMES J. & JOANNE K. ROWLEY,
TRS THE ROWLEY FAMILY REALTY TRUST
29 RUSKIN ST.
WEST ROXBURY, MA 02132

85-1-92-63
CITY OF CAMBRIDGE
C/O NANCY GLOWA
CITY SOLICITOR

85-1-92-63
CITY OF CAMBRIDGE
C/O YI-AN HUANG
CITY MANAGER

85-41
DE ALOK M & MAYA DE
203 ELM ST - UNIT 1
CAMBRIDGE, MA 02139

86-110
HENRY, SHAWN R. & LAETITIA M. HENRY
145 ELM ST
CAMBRIDGE, MA 02139

85-52
ELMSHIRE LLC
288 NORFOLK ST
CAMBRIDGE, MA 02139

85-41
HOSS JENNIFER L & ANDREW GUZIOR
TRS THE HOSS FAMILY TRUST
203-205 ELM ST UNIT 3
CAMBRIDGE, MA 02139

85-90
MALAMUD, NORBERT S. & LINDA NGUYEN
209 ELM ST
CAMBRIDGE, MA 02139

85-94
PIRES, FRANCISCA
193 ELM ST
CAMBRIDGE, MA 02139

85-91
LACOURT FOUNDATION, LLC
30 COLLEGE AVE
SOMERVILLE, MA 02144

85-37
219-221 ELM STREET LLC
38-40 GRANVILLE ROAD
CAMBRIDGE, MA 02138

85-47
CAZEAU, ANDRE & MATANIE CAZEAU,
TRS. THE CAZEAU REALTY TRUST
P.O. BOX 400844
CAMBRIDGE, MA 02140

85-41
SELIGER, VERENA INGEBORG
203-205 ELM ST., #2
CAMBRIDGE, MA 02139

85-97
PEDRELLI, PAOLA
171 ELM ST., UNIT #1
CAMBRIDGE, MA 02139

85-97
KHANGURA, NAVTEJ
180 FRONT ST APT 16H
BROOKLYN, NY 11201

85-97
MARTYN, RAJEEVE & MELISSA DUGGAN
171 ELM ST., #2
CAMBRIDGE, MA 02139

85-79
WONG, ON YI
394 NORFOLK ST.
CAMBRIDGE, MA 02139

85-79
SEWELL, ELI A. & JILL W. SEWELL
175 ELM ST., #175/1
CAMBRIDGE, MA 02139

85-48
SUZUKI, YUJI , KEIKO SUZUKI & SARA SUZUKI
183 ELM ST., #1
CAMBRIDGE, MA 02139

85-79
YIP, ARTHUR HONG CHUN
175 ELM ST., #175/3
CAMBRIDGE, MA 02139

85-89
SCOTT,LEONARD GREGORY &PAMELA KAY OTSTOT
TRUSTEES OF THE LG& PK SCOTT 2013 TRUST
2434 JACKSON ST.
SAN FRANCISCO, CA 94118

85-48
LEE, BRITTANY L.
183 ELM ST., #2
CAMBRIDGE, MA 02140

284-288 Norfolk St.

85-89
YANG, YU-SANG
167 ELM ST., #2
CAMBRIDGE, MA 02139

85-89
PETERSON, HILLARY FITZPATRICK &
BENJAMIN J. PETERSON
167 ELM ST., #1
CAMBRIDGE, MA 02139

85-102
DASILVA, NAZIDIR RODRIGUES
179 ELM STREET
CAMBRIDGE, MA 02139

85-102
BERRY JESSICA AVILA JOSE MANUEL
177 ELM ST
CAMBRIDGE, MA 02141

85-46
CHERNEY, CHARLES & CANDACE BOTT
189 ELM ST
CAMBRIDGE, MA 02139

January 11, 2023

Norshire LLC.
288 Norfolk Street
Cambridge, MA 02139
ATTN: Neal Heffron

RE: AT&T Wireless Equipment at: 288 Norfolk Street
Site #: MA2312
Site Name: Cambridge Hampshire Street

Dear Mr. Heffron:

SAI Communications is a contractor for New Cingular Wireless PCS, LLC ("AT&T"). In order to maintain AT&T's commitment to the highest standards of service and technology, AT&T will need to make modifications to the equipment at the above referenced wireless communications facility.

Pursuant to the Lease Agreement between New Cingular Wireless PCS, LLC and Norshire LLC, as assigned and amended, your consent is required for this modification. These modifications are described in the enclosed plans by Dewberry Engineers, Revision 1, Dated December 7 2022, Structural Analysis dated July 15, 2022, and RF Safety plan dated November 14, 2022. By this letter, the Norshire LLC grants AT&T and it's contractors and authorized agents permission to file and sign any governmental approvals (i.e Zoning and/or building permit applications) required to complete construction of these upgrades.

If you have any questions please don't hesitate to contact me at (617) 877-2950 or tgreene@terrasearchllc.com. Please indicate your consent by signing below and returning the letter via e.mail or to the following address:

SAI Communications
Attn: Timothy Greene
157 Riverside Drive
Norwell, MA 02061

Thank you for your attention to this matter.

Sincerely,

Timothy W. Greene

Timothy W. Greene

Enclosure

Consent

Name: Norshire LLC

Signature: [signature]

Phone: 617-547-4005

Date: 1/11/23

PROJECT INFORMATION

SCOPE OF WORK: ROOFTOP – REMOVE (6) EXISTING ANTENNAS & (6) RRU'S. LEAVE P1 EMPTY FOR FUTURE SCOPE. INSTALL (3) 4' CCI 12–PORT ANTENNAS, (3) 6' 8–PORT ANTENNAS & (3) AIR6449 ANTENNAS STACKED ABOVE PROPOSED 12–PORT ANTENNAS. PROPOSED ALPHA SECTOR ANTENNAS MOUNTED TO EXISTING PENTHOUSE WALL ON PROPOSED 2.5" STD MAST PIPES. PROPOSED BETA SECTOR ANTENNAS MOUNTED WITHIN PROPOSED FIBERGLASS CHIMNEYS. PROPOSED GAMMA SECTOR ANTENNAS TO BE MOUNTED ON EXISTING STEEL FRAME WITHIN PROPOSED FIBERGLASS CHIMNEYS. RELOCATE (3) RRUS–32 B2, (3) RRUS–32 B66A TO 12–PORT ANTENNA & (3) RRUS–32 B30 TO 8 PORT ANTENNA. INSTALL (3) 4478 B14, (3) 4449 B5/B12, (3) Y–CABLES & ADD (1) 6648. SWAP (6) EXISTING DC TRUNK FOR (6) AWG DC TRUNK.

EQUIPMENT ROOM – INSTALL 6601, 5216, XMU03, 6630 + IDLe, 6648 + IDLe Xcede. ADD (4) RECTIFIERS.

SITE ADDRESS: 288 NORFOLK STREET
CAMBRIDGE, MA 02139

LATITUDE: 42° 22' 16.65" (NAD 83)*
LONGITUDE: 71° 5' 49.45" (NAD 83)*
* PER RFDS

NAME OF APPLICANT: AT&T MOBILITY
550 COCHITUATE ROAD
SUITES 13&14
FRAMINGHAM, MA 01701

AT&T

SITE NAME: CAMBRIDGE NORFOLK STREET 5G/NR
SITE NUMBER: MAL02312
PACE NO.: MRCTB051512 (5G NR CBAND), MRCTB050948 (5G NR UPGRADE) MRCTB051062
(SITE OVERLAY LTE 6TH CARRIER)
FA NO.: 12575286

DRAWING INDEX

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

CONTACT INFORMATION

CONTACT	CONTACT	COMPANY	PHONE NO.
ENGINEERING:	DAMIAN SCHMALZ, P.E.	DEWBERRY	(617) 531–0823
SAC:	TARAH NOLAN	SAI COMMUNICATIONS	(603) 212–5049

VICINITY MAP

DIRECTIONS: TAKE I–90 TOWARDS BOSTON. TAKE EXIT 131 ON THE LEFT TOWARD CAMBRIDGE. TAKE RIVER ST AND PROSPECT ST TO NORFOLK ST IN CAMBRIDGE. MERGE ONTO CAMBRIDGE ST. CONTINUE ONTO RIVER ST. CONTINUE ONTO PROSPECT ST. TURN RIGHT ONTO BROADWAY. TURN LEFTONTO NORFOLK ST. DESTINATION WILL BE ON THE RIGHT.

APPLICABLE BUILDING CODES AND STANDARDS

CONTRACTOR'S WORK SHALL COMPLY WITH PROJECT STANDARD NOTES, SYMBOLS AND DETAILS (SEE DRAWING INDEX FOR STANDARD NOTES AND DETAILS INCLUDED WITH TYPICAL DRAWING PACKAGE). CONTRACTOR 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:
MASSACHUSETTS STATE BUILDING CODE (780 CMR)

ELECTRICAL CODE:
NATIONAL ELECTRICAL CODE
MASSACHUSETTS ELECTRICAL CODE (527 CMR 12.00)

CONTRACTOR'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, NINTH EDITION
TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–H, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE")

TELCORDIA GR–1503, COAXIAL CABLE CONNECTIONS

ANSI T1.311, FOR TELECOM – DC POWER SYSTEMS – TELECOM, ENVIRONMENTAL PROTECTION

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.

Dewberry®
Dewberry Engineers Inc.
99 SUMMER STREET
SUITE 700
BOSTON, MA 02110
PHONE: 617.695.3400
FAX: 617.695.3310

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

CAMBRIDGE NORFOLK STREET
5G/NR
SITE NO. MAL02312
288 NORFOLK STREET
CAMBRIDGE, MA 02139

at&t Mobility
550 COCHITUATE ROAD
SUITES 13 & 14
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	01/23/23	ISSUED FOR SUBMITTAL	JIM	AB	DAS
0	12/07/22	ISSUED FOR SUBMITTAL	JIM	AB	DAS
B	10/25/22	ISSUED FOR REVIEW	JIM	AB	DAS
A	08/04/22	ISSUED FOR REVIEW	JIM	AB	DAS

SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

COMMONWEALTH OF MASSACHUSETTS
DAMIAN ALEXANDER SCHMALZ
CIVIL
NO. 52655
REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY
FRAMINGHAM, MA 01701

TITLE SHEET

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	T01	1

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   PROJECT MANAGEMENT – SAI
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 PROJECT MANAGEMENT.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR 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.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR 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 CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR 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. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
16. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR 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.
17. 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.

SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:
   A) FALL PROTECTION
   B) CONFINED SPACE
   C) ELECTRICAL SAFETY
   D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
11. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000 PSI) MAY BE USED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE (UNO). SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC 1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TESTS PERFORMED AT THE SUPPLIER'S PLANT,
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
   FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
4. COMPACTED SUBBASE SHALL BE UNIFORM & LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.
5. AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
   CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
3. CABLE LADDER RACK:
   CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
11. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL.) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
13. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
15. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
16. ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
17. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
19. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
20. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
21. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
22. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
23. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
24. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
25. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
29. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
30. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
31. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
32. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

COMMONWEALTH OF MASSACHUSETTS
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SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

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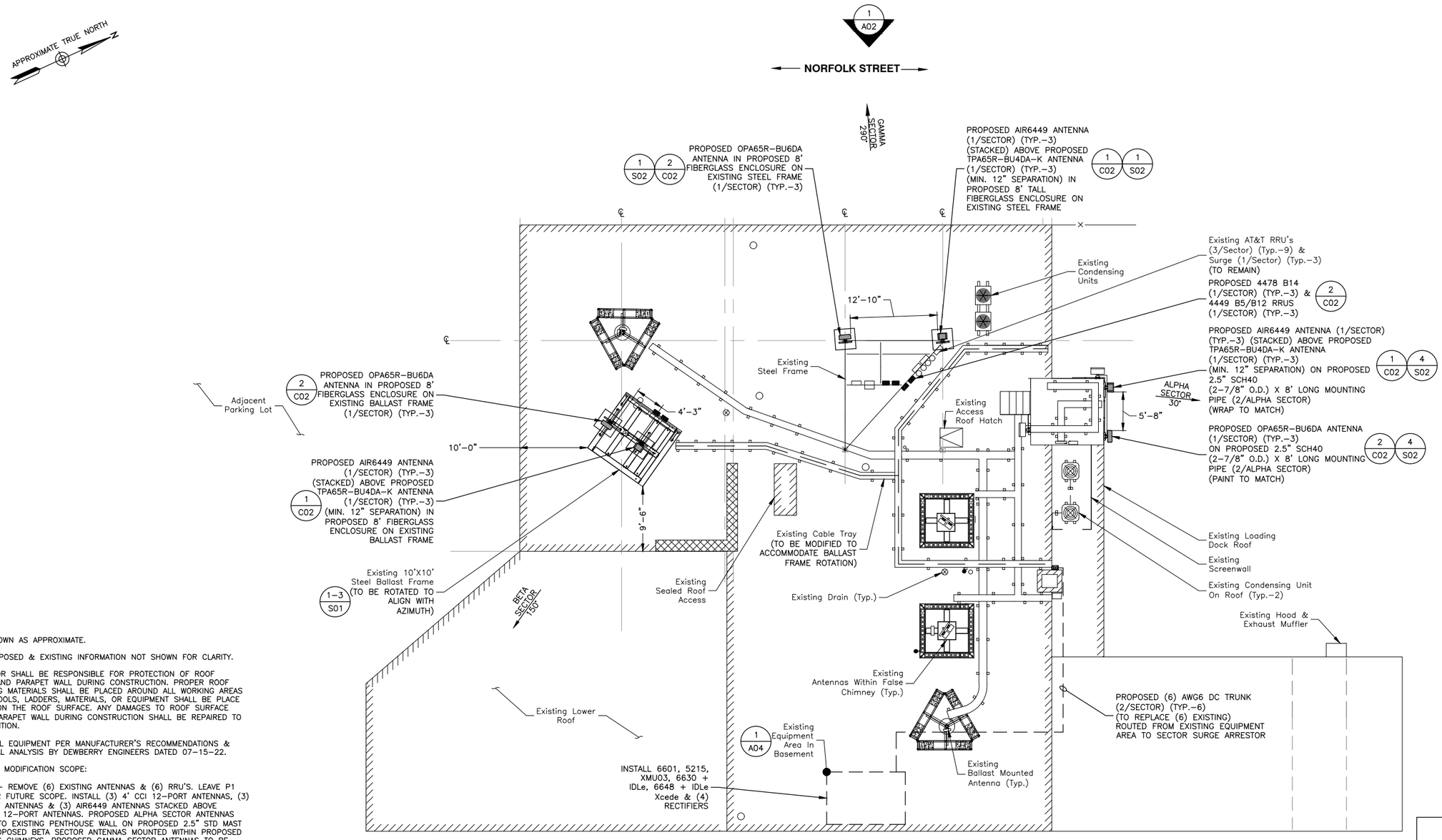
GENERAL NOTES

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	G01	1



PROPOSED ROOF PLAN

1

SCALE: 1/16"=1' FOR 11"x17"
1/8"=1' FOR 22"x34"

0' 4' 8' 16'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. SOME PROPOSED & EXISTING INFORMATION NOT SHOWN FOR CLARITY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACE DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO NEW CONDITION.
4. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS & STRUCTURAL ANALYSIS BY DEWBERRY ENGINEERS DATED 07-15-22.
5. EQUIPMENT MODIFICATION SCOPE:

   ROOFTOP - REMOVE (6) EXISTING ANTENNAS & (6) RRU'S. LEAVE P1 EMPTY FOR FUTURE SCOPE. INSTALL (3) 4' CCI 12-PORT ANTENNAS, (3) 6' 8-PORT ANTENNAS & (3) AIR6449 ANTENNAS STACKED ABOVE PROPOSED 12-PORT ANTENNAS. PROPOSED ALPHA SECTOR ANTENNAS MOUNTED TO EXISTING PENTHOUSE WALL ON PROPOSED 2.5" STD MAST PIPES. PROPOSED BETA SECTOR ANTENNAS MOUNTED WITHIN PROPOSED FIBERGLASS CHIMNEYS. PROPOSED GAMMA SECTOR ANTENNAS TO BE MOUNTED ON EXISTING STEEL FRAME WITHIN PROPOSED FIBERGLASS CHIMNEYS. RELOCATE (3) RRUS-32 B2, (3) RRUS-32 B66A TO 12-PORT ANTENNA & (3) RRUS-32 B30 TO 8 PORT ANTENNA. INSTALL (3) 4478 B14, (3) 4449 B5/B12, (3) Y-CABLES & ADD (1) 6648. SWAP (6) EXISTING DC TRUNK FOR (6) AWG DC TRUNK.

   EQUIPMENT ROOM - INSTALL 6601, 5216, XMU03, 6630 + IDLe, 6648 + IDLe Xcede. ADD (4) RECTIFIERS.

6. ANTENNA SPACING:
   - 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
   - 6' MINIMUM SEPARATION BETWEEN 700BC & 700DE.
   - 12" VERTICAL SEPARATION BETWEEN DoD & C BAND ANTENNAS.

CABLE SCHEDULE*

SECTOR	HYBRID CABLE LENGTH	CABLE SIZE
ALPHA	210'±	AWG 6 DC
BETA	240'±	AWG 6 DC
GAMMA	215'±	AWG 6 DC

*CONTRACTOR TO FIELD VERIFY CABLE LENGTHS PRIOR TO CONSTRUCTION

CALCULATION BY: AJB

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PROPOSED ROOF PLAN

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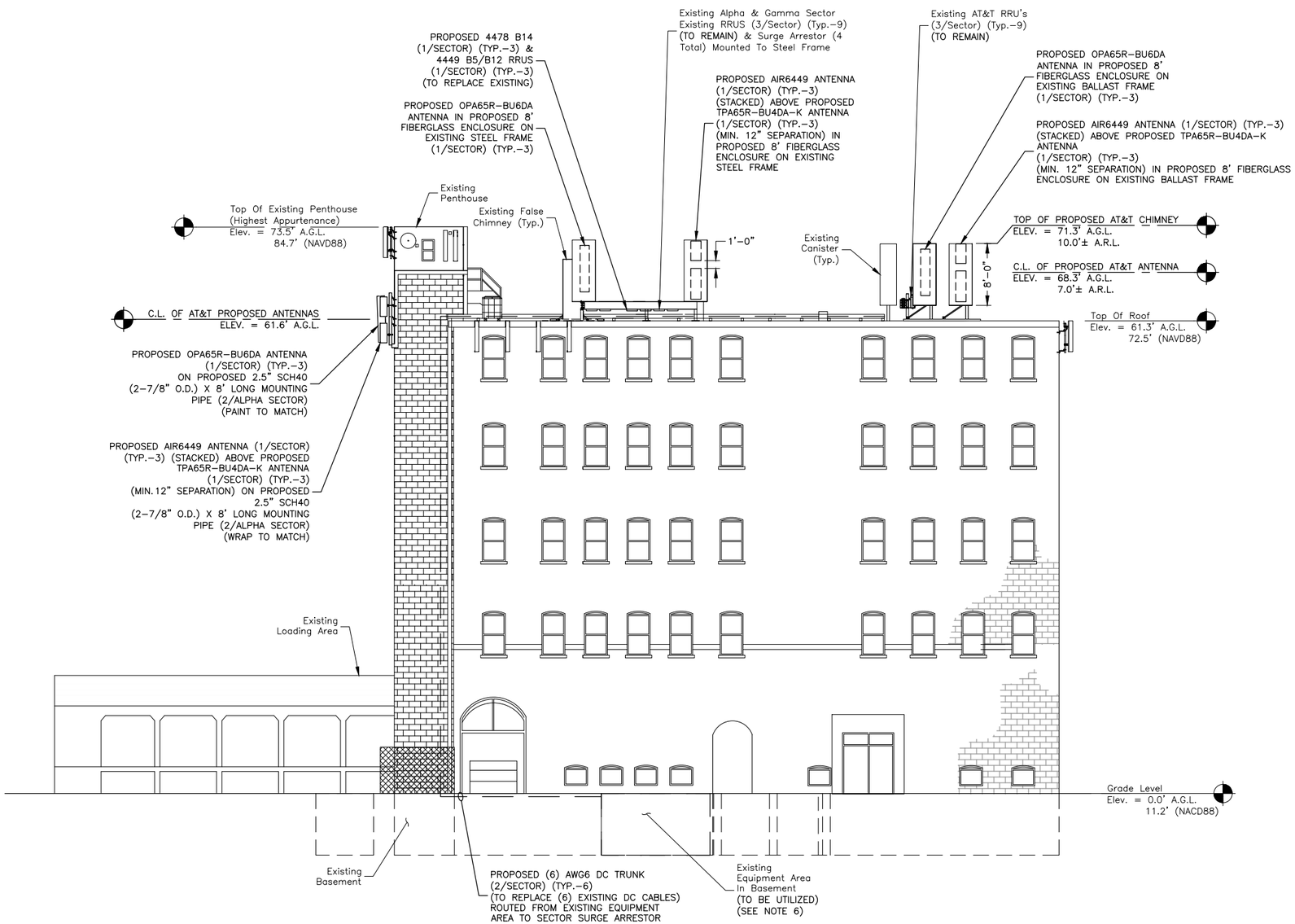

WEST ELEVATION

1

SCALE: 1/16"=1' FOR 11"x17"
1/8"=1' FOR 22"x34"

0' 4' 8' 16'

LEGEND:

A.R.L.	ABOVE ROOF LINE
A.G.L.	ABOVE GROUND LEVEL
C.L.	CENTER LINE

NOTES:

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PROPOSED NORTH ELEVATION

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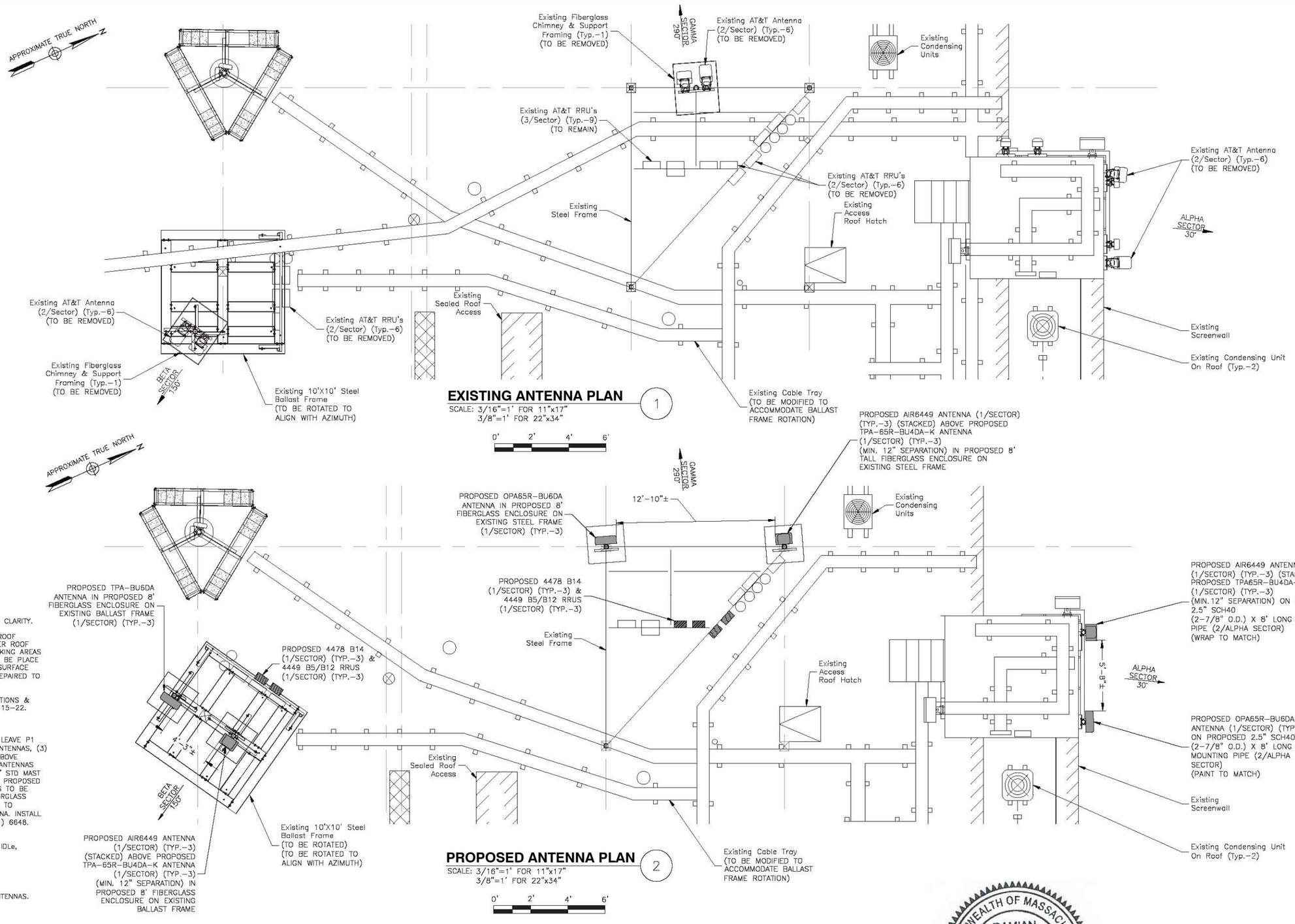

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4. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS & STRUCTURAL ANALYSIS BY DEWBERRY ENGINEERS DATED 07–15–22.
5. EQUIPMENT MODIFICATION SCOPE:

   ROOFTOP – REMOVE (6) EXISTING ANTENNAS & (6) RRU'S. LEAVE P1 EMPTY FOR FUTURE SCOPE. INSTALL (3) 4' CCI 12–PORT ANTENNAS, (3) 6' 8–PORT ANTENNAS & (3) AIR6449 ANTENNAS STACKED ABOVE PROPOSED 12–PORT ANTENNAS. PROPOSED ALPHA SECTOR ANTENNAS MOUNTED TO EXISTING PENTHOUSE WALL ON PROPOSED 2.5" STD MAST PIPES. PROPOSED BETA SECTOR ANTENNAS MOUNTED WITHIN PROPOSED FIBERGLASS CHIMNEYS. PROPOSED GAMMA SECTOR ANTENNAS TO BE MOUNTED ON EXISTING STEEL FRAME WITHIN PROPOSED FIBERGLASS CHIMNEYS. RELOCATE (3) RRUS–32 B2, (3) RRUS–32 B66A TO 12–PORT ANTENNA & (3) RRUS–32 B30 TO 8 PORT ANTENNA. INSTALL (3) 4478 B14, (3) 4449 B5/B12, (3) Y–CABLES & ADD (1) 6648. SWAP (6) EXISTING DC TRUNK FOR (6) AWG DC TRUNK.

   EQUIPMENT ROOM – INSTALL 6601, 5216, XMU03, 6630 + IDLe, 6648 + IDLe Xcede. ADD (4) RECTIFIERS.
6. ANTENNA SPACING:
   - 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
   - 6' MINIMUM SEPARATION BETWEEN 700BC & 700DE.
   - 12" VERTICAL SEPARATION BETWEEN DoD & C BAND ANTENNAS.

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B	10/25/22	ISSUED FOR REVIEW	JIM	AB	DAS
A	08/04/22	ISSUED FOR REVIEW	JIM	AB	DAS

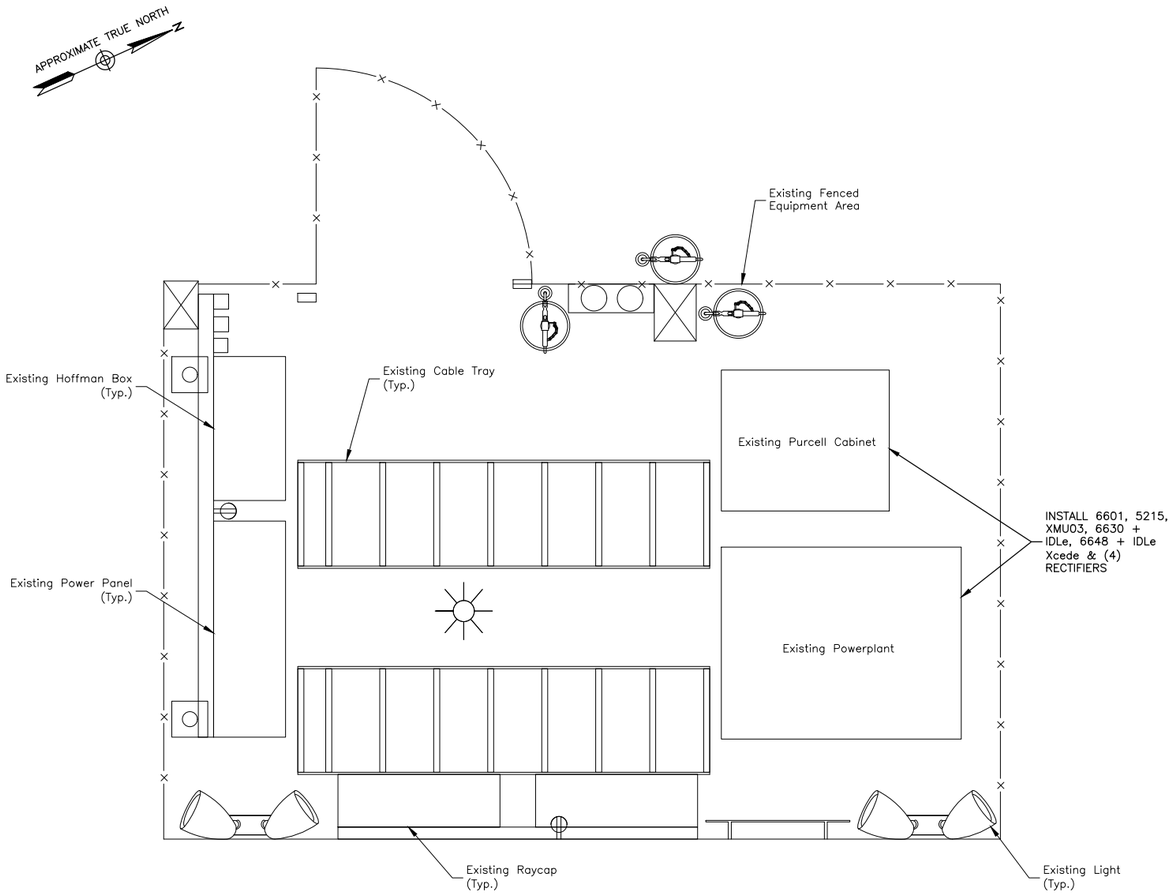
SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

COMMONWEALTH OF MASSACHUSETTS
DAMIAN ALEXANDER SCHMALZ
CIVIL
NO. 52655
REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY
FRAMINGHAM, MA 01701

EXISTING & PROPOSED ANTENNA CONDIGURATIONS

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	A03	1



EQUIPMENT PLAN 1

SCALE: N.T.S.

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. SOME PROPOSED & EXISTING INFORMATION NOT SHOWN FOR CLARITY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ROOF SURFACE AND PARAPET WALL DURING CONSTRUCTION. PROPER ROOF PROTECTING MATERIALS SHALL BE PLACED AROUND ALL WORKING AREAS AND NO TOOLS, LADDERS, MATERIALS, OR EQUIPMENT SHALL BE PLACE DIRECTLY ON THE ROOF SURFACE. ANY DAMAGES TO ROOF SURFACE AND/OR PARAPET WALL DURING CONSTRUCTION SHALL BE REPAIRED TO NEW CONDITION.
4. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS & STRUCTURAL ANALYSIS BY DEWBERRY ENGINEERS DATED 07-15-22.
5. EQUIPMENT MODIFICATION SCOPE:

   ROOFTOP - REMOVE (6) EXISTING ANTENNAS & (6) RRU'S. LEAVE P1 EMPTY FOR FUTURE SCOPE. INSTALL (3) 4' CCI 12-PORT ANTENNAS, (3) 6' 8-PORT ANTENNAS & (3) AIR6449 ANTENNAS STACKED ABOVE PROPOSED 12-PORT ANTENNAS. PROPOSED ALPHA SECTOR ANTENNAS MOUNTED TO EXISTING PENTHOUSE WALL ON PROPOSED 2.5" STD MAST PIPES. PROPOSED BETA SECTOR ANTENNAS MOUNTED WITHIN PROPOSED FIBERGLASS CHIMNEYS. PROPOSED GAMMA SECTOR ANTENNAS TO BE MOUNTED ON EXISTING STEEL FRAME WITHIN PROPOSED FIBERGLASS CHIMNEYS. RELOCATE (3) RRUS-32 B2, (3) RRUS-32 B66A TO 12-PORT ANTENNA & (3) RRUS-32 B30 TO 8 PORT ANTENNA. INSTALL (3) 4478 B14, (3) 4449 B5/B12, (3) Y-CABLES & ADD (1) 6648. SWAP (6) EXISTING DC TRUNK FOR (6) AWG DC TRUNK.

   EQUIPMENT ROOM - INSTALL 6601, 5216, XMU03, 6630 + IDLe, 6648 + IDLe Xcede. ADD (4) RECTIFIERS.
6. ANTENNA SPACING:
   - 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
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EQUIPMENT AREA PLAN

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	A04	1

FINAL EQUIPMENT CONFIGURATION

SECTOR	BAND	ANTENNA	SIZE (INCHES) (LxWxD)	RAD. CENTER	AZIMUTH	TMA	RRU	SIZE (INCHES) (LxWxD)	SURGE ARRESTOR	FEEDER
ALPHA	–	–	–	–	–	–	–	–	–	–
	LTE 700/1900/AWS/ 5G 1900/5G AWS	(P) TPA-65R-BU4DA-K (STACKED)	48x20.7x7.7	63'-0"	30°	–	(P) 4478 B14 (E) RRUS-32 B2 (E) RRUS-32 B66A	15.0 x 13.2 x 7.4 27.2 x 12.1 x 7.0 27.2 x 12.1 x 7.0	–	–
	DoD/C BAND	(P) AIR6449 B77D (STACKED)	30.6x15.9x10.1	63'-0"	30°	–	INTEGRATED WITHIN ANTENNAS	–	–	(P) (2) DC TRUNKS
	LTE 700/WCS/5G B50	(P) OPA65R-BU6DA	71.2x20.7x7.7	63'-0"	30°	–	(P) 4449 B5/B12 (E) RRUS-32 B30	17.9 x 13.2 x 9.4 27.2 x 12.1 x 7.0	(E) (1) DC/FIBER	(P) Y-CABLE
BETA	–	–	–	–	–	–	–	–	–	–
	LTE 700/1900/AWS/ 5G 1900/5G AWS	(P) TPA-65R-BU4DA-K (STACKED)	48x20.7x7.7	69'-0"	150°	–	(P) 4478 B14 (E) RRUS-32 B2 (E) RRUS-332 B66A	15.0 x 13.2 x 7.4 27.2 x 12.1 x 7.0 27.2 x 12.1 x 7.0	–	–
	DoD/C BAND	(P) AIR6449 B77D (STACKED)	30.6x15.9x10.1	69'-0"	150°	–	INTEGRATED WITHIN ANTENNAS	–	–	(P) (2) DC TRUNKS
	LTE 700/WCS/5G B50	(P) OPA65R-BU6DA	71.2x20.7x7.7	69'-0"	150°	–	(E) 4449 B5/B12 (E) RRUS-32 B30	17.9 x 13.2 x 9.4 27.2 x 12.1 x 7.0	(E) (1) DC/FIBER	(P) Y-CABLE
GAMMA	–	–	–	–	–	–	–	–	–	–
	LTE 700/1900/AWS/ 5G 1900/5G AWS	(P) TPA-65R-BU4DA-K (STACKED)	48x20.7x7.7	67'-0"	290°	–	(P) 4478 B14 (E) RRUS-32 B2 (E) RRUS-332 B66A	15.0 x 13.2 x 7.4 27.2 x 12.1 x 7.0 27.2 x 12.1 x 7.0	–	–
	DoD/C BAND	(P) AIR6449 B77D (STACKED)	30.6x15.9x10.1	67'-0"	290°	–	INTEGRATED WITHIN ANTENNAS	–	–	(P) (2) DC TRUNKS
	LTE 700/WCS/5G B50	(P) OPA65R-BU6DA	71.2x20.7x7.7	67'-0"	290°	–	(E) 4449 B5/B12 (E) RRUS-32 B30	17.9 x 13.2 x 9.4 27.2 x 12.1 x 7.0	(E) (1) DC/FIBER	(P) Y-CABLE

FINAL EQUIPMENT CONFIGURATION (1)
SCALE: N.T.S.

NOTES:

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS & LATEST V2.00 RFDS DATED 05/12/22.
2. EQUIPMENT MODIFICATION SCOPE:

   ROOFTOP – REMOVE (6) EXISTING ANTENNAS & (6) RRU'S. LEAVE P1 EMPTY FOR FUTURE SCOPE. INSTALL (3) 4' CCI 12-PORT ANTENNAS, (3) 6' 8-PORT ANTENNAS & (3) AIR6449 ANTENNAS STACKED ABOVE PROPOSED 12-PORT ANTENNAS. PROPOSED ALPHA SECTOR ANTENNAS MOUNTED TO EXISTING PENTHOUSE WALL ON PROPOSED 2.5" STD MAST PIPES. PROPOSED BETA SECTOR ANTENNAS MOUNTED WITHIN PROPOSED FIBERGLASS CHIMNEYS. PROPOSED GAMMA SECTOR ANTENNAS TO BE MOUNTED ON EXISTING STEEL FRAME WITHIN PROPOSED FIBERGLASS CHIMNEYS. RELOCATE (3) RRUS-32 B2, (3) RRUS-32 B66A TO 12-PORT ANTENNA & (3) RRUS-32 B30 TO 8 PORT ANTENNA. INSTALL (3) 4478 B14, (3) 4449 B5/B12, (3) Y-CABLES & ADD (1) 6648. SWAP (6) EXISTING DC TRUNK FOR (6) AWG DC TRUNK.

   EQUIPMENT ROOM – INSTALL 6601, 5216, XMU03, 6630 + IDLe, 6648 + IDLe Xcede. ADD (4) RECTIFIERS..
3. ANTENNA SPACING:
   - 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
   - 6' MINIMUM SEPARATION BETWEEN 700BC & 700DE.
   - 12" VERTICAL SEPARATION BETWEEN DoD & C BAND ANTENNAS.

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A	08/04/22	ISSUED FOR REVIEW	JIM	AB	DAS

SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

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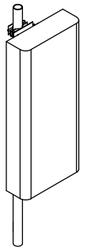
FRAMINGHAM, MA 01701

EQUIPMENT CONFIGURATION TABLE

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	C01	1

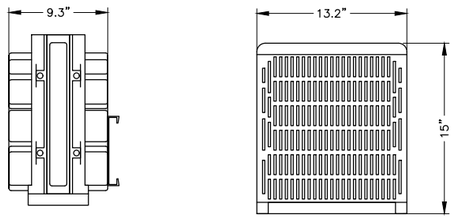


ISO VIEW

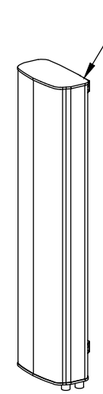
MANUFACTURER:	ERICSSON
PART NUMBER:	AIR6449 B77D
DIMENSIONS:	30.6"H X 15.9"W X 10.6"D
WEIGHT W/ BRACKET:	106 LBS

AIR ANTENNA DETAILS (1)

SCALE: N.T.S.



RRH SPECIFICATIONS	
MANUFACTURER	ERICCSON
MODEL NUMBER	4449 B5/12
DIMENSIONS (HxWxD)	15"Hx13.2"Wx9.3"D
WEIGHT	70 LBS

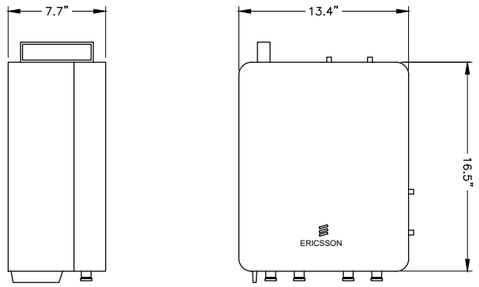


MANUFACTURER:	CCI
PART NUMBER:	TPA-65R-BU4DA-K
DIMENSIONS:	48"H X 20.7"W X 7.7"D
WEIGHT:	52.6 LBS

MANUFACTURER:	CCI
PART NUMBER:	OPA65R-BU6DA
DIMENSIONS:	71.2"H X 21"W X 7.8"D
WEIGHT:	60.2 LBS

PANEL ANTENNA DETAIL (2)

SCALE: N.T.S



RRH SPECIFICATIONS	
MANUFACTURER	ERICCSON
MODEL NUMBER	4478 B14
DIMENSIONS (HxWxD)	16.5"Hx13.4"Wx7.7"D
WEIGHT	60 LBS

NOTES:

1. INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
2. EQUIPMENT MODIFICATION SCOPE:

   ROOFTOP – REMOVE (6) EXISTING ANTENNAS & (6) RRU'S. LEAVE P1 EMPTY FOR FUTURE SCOPE. INSTALL (3) 4' CCI 12-PORT ANTENNAS, (3) 6' 8-PORT ANTENNAS & (3) AIR6449 ANTENNAS STACKED ABOVE PROPOSED 12-PORT ANTENNAS. PROPOSED ALPHA SECTOR ANTENNAS MOUNTED TO EXISTING PENTHOUSE WALL ON PROPOSED 2.5" STD MAST PIPES. PROPOSED BETA SECTOR ANTENNAS MOUNTED WITHIN PROPOSED FIBERGLASS CHIMNEYS. PROPOSED GAMMA SECTOR ANTENNAS TO BE MOUNTED ON EXISTING STEEL FRAME WITHIN PROPOSED FIBERGLASS CHIMNEYS. RELOCATE (3) RRUS-32 B2, (3) RRUS-32 B66A TO 12-PORT ANTENNA & (3) RRUS-32 B30 TO 8 PORT ANTENNA. INSTALL (3) 4478 B14, (3) 4449 B5/B12, (3) Y-CABLES & ADD (1) 6648. SWAP (6) EXISTING DC TRUNK FOR (6) AWG DC TRUNK.

   EQUIPMENT ROOM – INSTALL 6601, 5216, XMU03, 6630 + IDLe, 6648 + IDLe Xcede. ADD (4) RECTIFIERS..

3. ANTENNA SPACING:
   - 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
   - 6' MINIMUM SEPARATION BETWEEN 700BC & 700DE.
   - 12" VERTICAL SEPARATION BETWEEN DoD & C BAND ANTENNAS.

NOTES:

1. MOUNT REMOTE RADIO HEAD PER MANUFACTURER'S RECOMMENDATIONS.
2. SIZES INCLUDE SOLAR SHIELD.

RRH SPECIFICATIONS (3)

SCALE: N.T.S.

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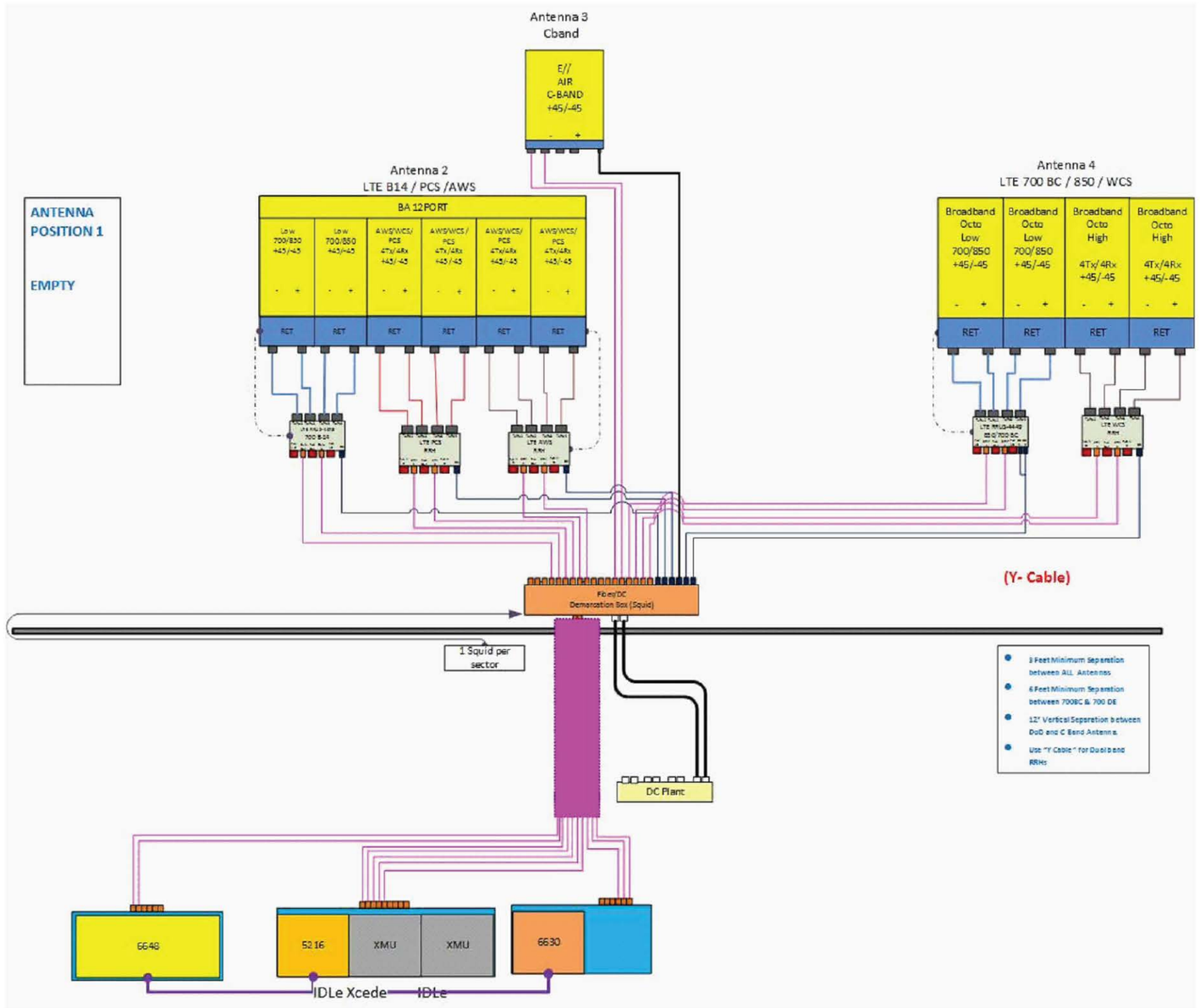
CONSTRUCTION DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	C02	1



NOTES:

1. EQUIPMENT PLUMBING DIAGRAM PER RFDS V3.00 DATED 09/23/22.
2. CONTRACTOR TO VERIFY FINAL EQUIPMENT CONFIGURATION & SEPARATIONS WITH AT&T TO CONSTRUCTION.

PLUMBING DIAGRAM - TYPICAL

SCALE: N.T.S.

1

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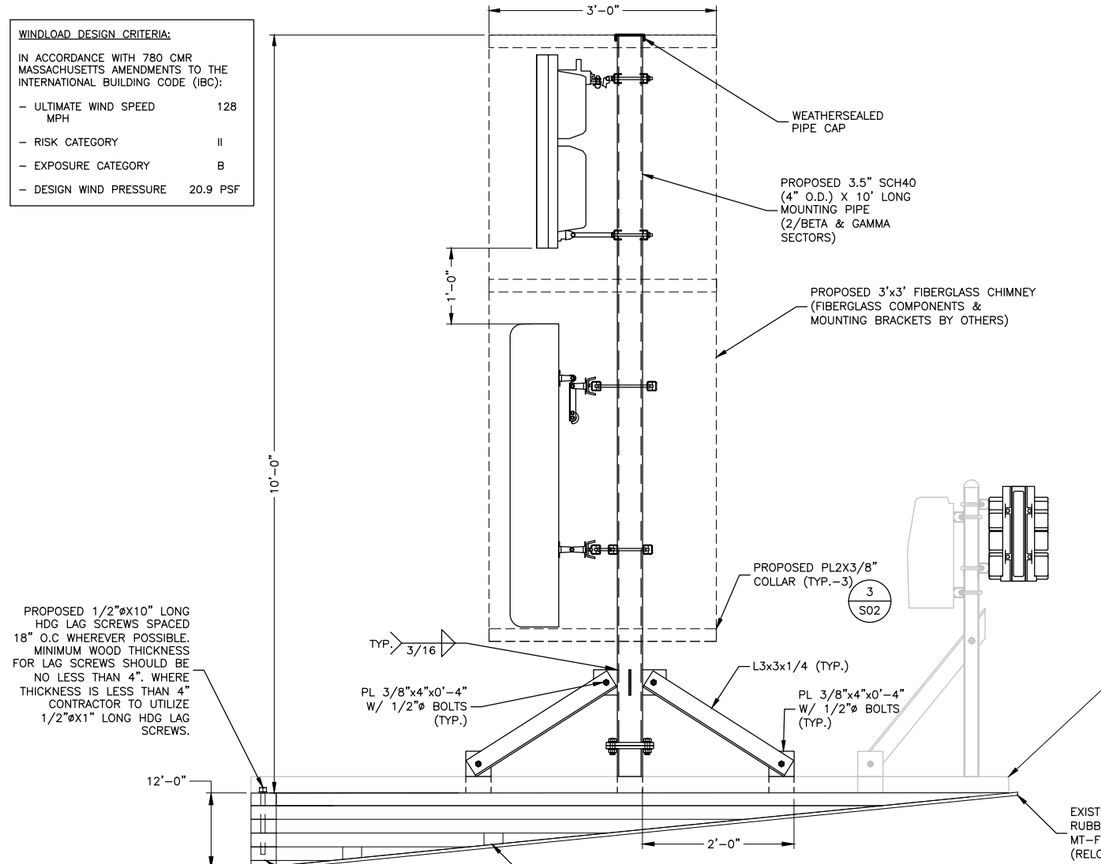
PLUMBING DIAGRAM – TYPICAL

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	C03	1

WINDLOAD DESIGN CRITERIA:

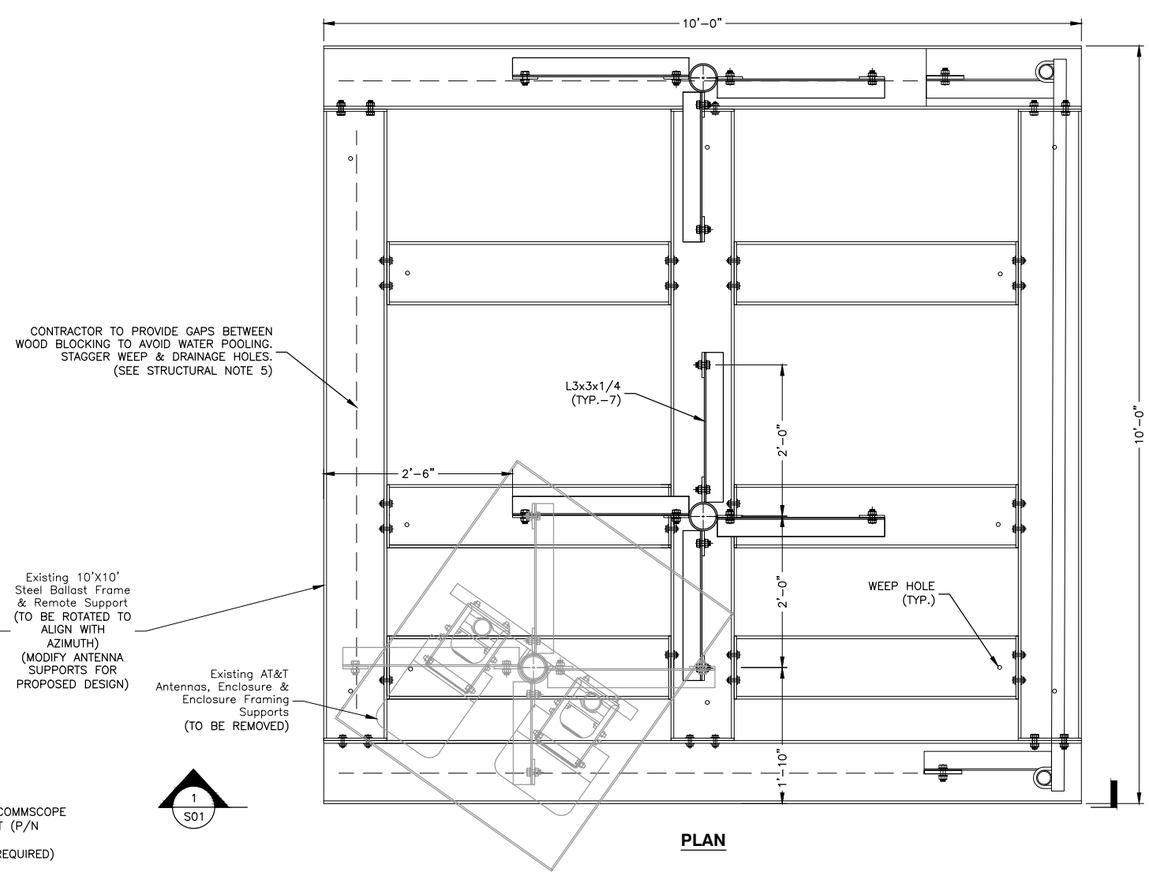
IN ACCORDANCE WITH 780 CMR MASSACHUSETTS AMENDMENTS TO THE INTERNATIONAL BUILDING CODE (IBC):

- ULTIMATE WIND SPEED 128 MPH
- RISK CATEGORY II
- EXPOSURE CATEGORY B
- DESIGN WIND PRESSURE 20.9 PSF



10'-0" x 10'-0" FRAME DETAIL-ELEVATION 1

SCALE: 1/2"=1'-0" FOR 11"x17"
1"=1'-0" FOR 22"x34"
0' 1' 2'



PLAN

NOTES:

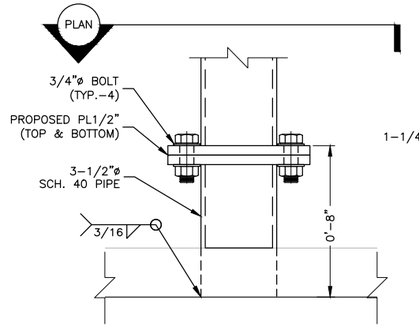
1. ANTENNAS & ASSOCIATED EQUIPMENT NOT SHOWN FOR CLARITY.

EXISTING 10'-0" x 10'-0" BASE FRAME 2

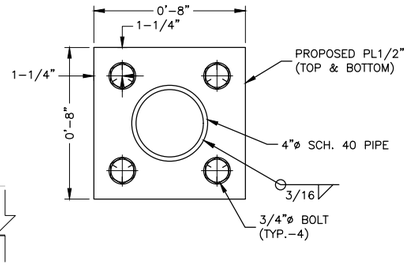
SCALE: 1/2"=1' FOR 11"x17"
1"=1' FOR 22"x34"
0' 1' 2'

FIBERGLASS NOTES:

1. EXTERIOR FIBERGLASS PANELS SHALL BE PAINTED TO MATCH RANGE OF COLORS OF THE BUILDING FACADE UNLESS OTHERWISE NOTED. SUBMIT SAMPLES TO LANDLORD FOR APPROVAL.
2. FRP (FIBERGLASS REINFORCED POLYMER) STRUCTURAL SHAPES SHALL BE MANUFACTURED USING THE PULTRUSION PROCESS.
3. IF PRE-FABRICATED MEMBERS DO NOT ASSEMBLE ACCORDING TO PLAN, CONTACT FIBERGLASS MANUFACTURER BEFORE CUTTING OR ALTERING FABRICATED MEMBERS.
4. FRP MEMBERS SHALL BE FABRICATED & ASSEMBLED AS INDICATED ON THE DRAWINGS.
5. THE CONTRACTOR SHALL PROTECT THE FRP STRUCTURAL MEMBERS FROM ABUSE TO PREVENT BREAKAGE, NICKS, GOUGES, ETC. DURING FABRICATION, HANDLING, & INSTALLATION.
6. FRP BOLTS SHOULD BE TIGHTENED 1/2 TURN PAST SNUG & LOCKED WITH EPOXY.
7. FIBERGLASS TO MEET ALL AT&T STANDARDS FOR RF PROPAGATION. PROVIDE TEST REPORTS TO AT&T FOR REVIEW & APPROVAL.
8. STRUCTURAL FRP SHALL HAVE THE MINIMUM MECHANICAL PROPERTIES:
   E=2800KSI
   TENSILE STRENGTH(LW): 33KSI
   COMPRESSIVE STRENGTH(LW): 33 KSI
   FLEXURAL STRENGTH(LW): 33KSI
   DENSITY: 104PCF
9. FRP MANUFACTURER RESPONSIBLE FOR FIBERGLASS PANEL & CONNECTION DESIGN TO BASE STRUCTURE.
10. CONTRACTOR TO ALIGN ANTENNA SUPPORT PIPES TO MINIMIZE ANTENNA SHADOWING.



ELEVATION



PLAN

SPLICE PLATE DETAIL 3

SCALE: 1 1/2"=1' FOR 11"x17"
3"=1' FOR 22"x34"
0' 3" 6" 9"

STRUCTURAL NOTES:

1. REFER TO STRUCTURAL ANALYSIS REPORT BY DEWBERRY ENGINEERS INC. DATED 07/15/22.
2. NO ADDITIONAL BALLAST WEIGHT REQUIRED.
3. FINAL FIBERGLASS CANISTER SPECIFICATIONS AND ATTACHMENT TO BE MADE BY FIBERGLASS MANUFACTURER.
4. FALSE CHIMNEYS ARE TO BE PAINTED BRICK TO MATCH BUILDING.
5. INSTALL PRESSURE TREATED WOOD BLOCKING AS REQUIRED TO LEVEL BALLAST MOUNT ON ROOF. CONTRACTOR TO PROVIDE GAPS IN SHIMS AS REQUIRED TO ALLOW WATER FLOW & AVOID POOLING. LOCATE GAPS AT WEEPHOLE LOCATIONS OR DRILL THROUGH BLOCKING AT WEEPHOLE LOCATIONS AS REQUIRED.

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5G/NR
SITE NO. MAL02312
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CAMBRIDGE, MA 02139

at&t Mobility
550 COCHITUATE ROAD
SUITES 13 & 14
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	01/23/23	ISSUED FOR SUBMITTAL	JIM	AB	DAS
0	12/07/22	ISSUED FOR SUBMITTAL	JIM	AB	DAS
B	10/25/22	ISSUED FOR REVIEW	JIM	AB	DAS
A	08/04/22	ISSUED FOR REVIEW	JIM	AB	DAS

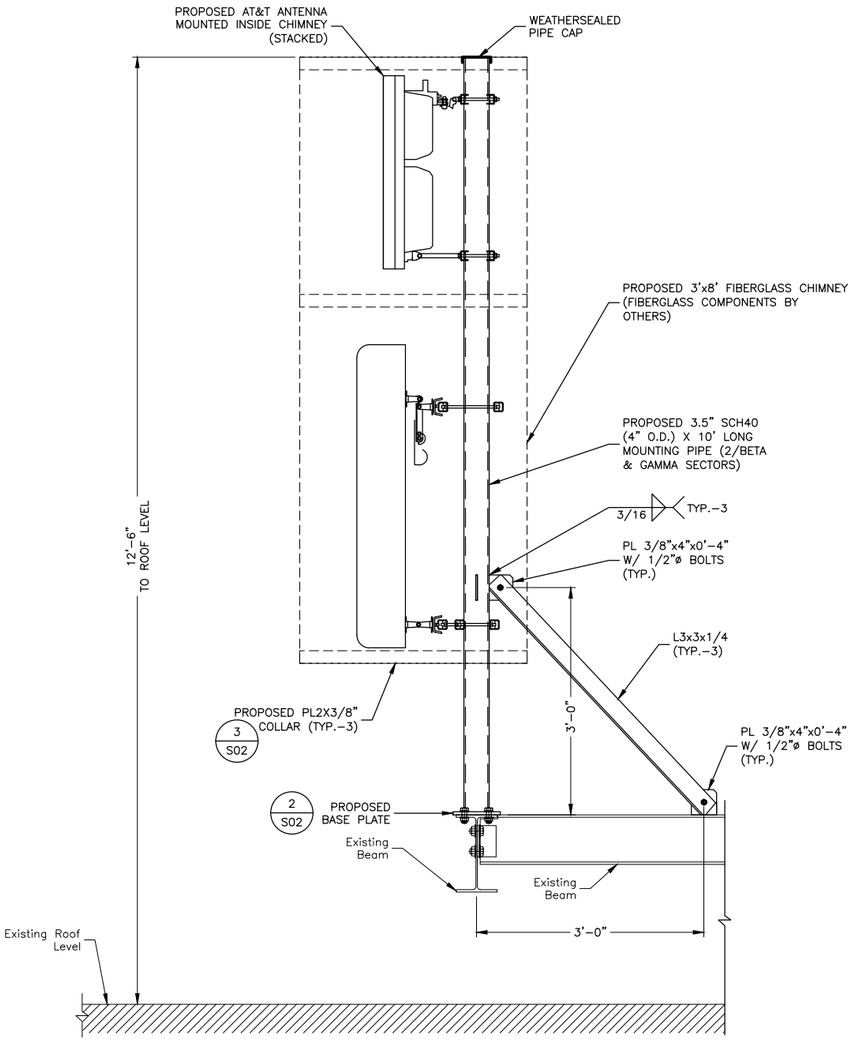
SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

COMMONWEALTH OF MASSACHUSETTS
DAMIAN ALEXANDER SCHMALZ
CIVIL
NO. 52655
REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY
FRAMINGHAM, MA 01701

STRUCTURAL DETAILS – I

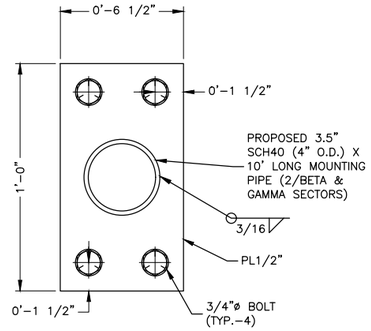
DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	S01	1



CHIMNEY-FRAME SECTION DETAIL 1

SCALE: 1/2"=1'-0" FOR 11"x17"
1"=1'-0" FOR 22"x34"

0' 1' 2'



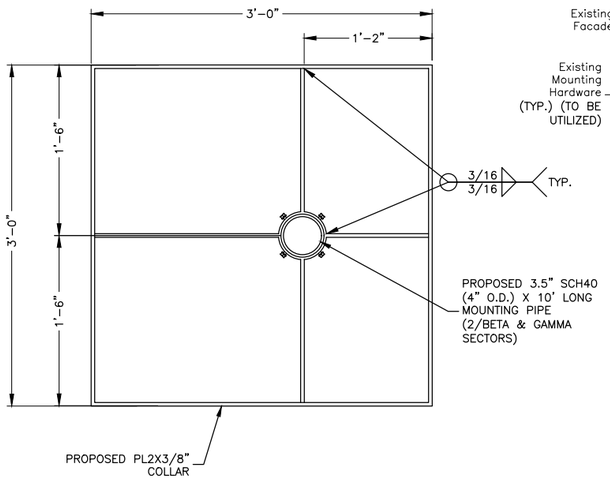
NOTE:

1. CAP & WEATHERSEAL MOUNTING PIPE.

ANTENNA BASE PLATE 2

SCALE: 1 1/2"=1' FOR 11"x17"
3"=1' FOR 22"x34"

0' 3" 6" 9"



MOUNTING COLLAR DETAIL 3

SCALE: 3/4"=1' FOR 11"x17"
1 1/2"=1' FOR 22"x34"

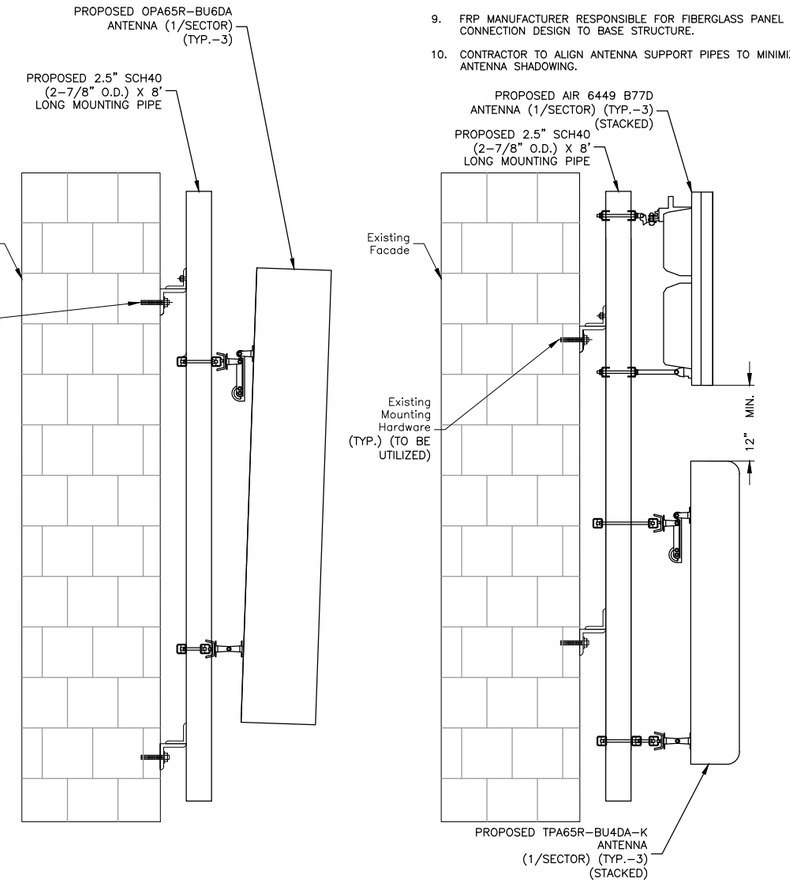
0' 1/2' 1' 1 1/2'

STRUCTURAL NOTES:

1. REFER TO STRUCTURAL ANALYSIS REPORT BY DEWBERRY ENGINEERS INC. DATED 07/15/22.
2. NO ADDITIONAL BALLAST WEIGHT REQUIRED.
3. FINAL FIBERGLASS CANISTER SPECIFICATIONS AND ATTACHMENT TO BE MADE BY FIBERGLASS MANUFACTURER.
4. FALSE CHIMNEYS ARE TO BE PAINTED BRICK TO MATCH BUILDING.
5. INSTALL PRESSURE TREATED WOOD BLOCKING AS REQUIRED TO LEVEL BALLAST MOUNT ON ROOF. CONTRACTOR TO PROVIDE GAPS IN SHIMS AS REQUIRED TO ALLOW WATER FLOW & AVOID POOLING. LOCATE GAPS AT WEEPHOLE LOCATIONS OR DRILL THROUGH BLOCKING AT WEEPHOLE LOCATIONS AS REQUIRED.

FIBERGLASS NOTES:

1. EXTERIOR FIBERGLASS PANELS SHALL BE PAINTED TO MATCH RANGE OF COLORS OF THE BUILDING FACADE UNLESS OTHERWISE NOTED. SUBMIT SAMPLES TO LANDLORD FOR APPROVAL.
2. FRP (FIBERGLASS REINFORCED POLYMER) STRUCTURAL SHAPES SHALL BE MANUFACTURED USING THE PULTRUSION PROCESS.
3. IF PRE-FABRICATED MEMBERS DO NOT ASSEMBLE ACCORDING TO PLAN, CONTACT FIBERGLASS MANUFACTURER BEFORE CUTTING OR ALTERING FABRICATED MEMBERS.
4. FRP MEMBERS SHALL BE FABRICATED & ASSEMBLED AS INDICATED ON THE DRAWINGS.
5. THE CONTRACTOR SHALL PROTECT THE FRP STRUCTURAL MEMBERS FROM ABUSE TO PREVENT BREAKAGE, NICKS, GOUGES, ETC. DURING FABRICATION, HANDLING, & INSTALLATION.
6. FRP BOLTS SHOULD BE TIGHTENED 1/2 TURN PAST SNUG & LOCKED WITH EPOXY.
7. FIBERGLASS TO MEET ALL AT&T STANDARDS FOR RF PROPAGATION. PROVIDE TEST REPORTS TO AT&T FOR REVIEW & APPROVAL.
8. STRUCTURAL FRP SHALL HAVE THE MINIMUM MECHANICAL PROPERTIES:
   E=2800KSI
   TENSILE STRENGTH(LW): 33KSI
   COMPRESSIVE STRENGTH(LW): 33 KSI
   FLEXURAL STRENGTH(LW): 33KSI
   DENSITY: 104PCF
9. FRP MANUFACTURER RESPONSIBLE FOR FIBERGLASS PANEL & CONNECTION DESIGN TO BASE STRUCTURE.
10. CONTRACTOR TO ALIGN ANTENNA SUPPORT PIPES TO MINIMIZE ANTENNA SHADOWING.



ALPHA SECTOR MOUNTING DETAIL 4

SCALE: 1/2"=1' FOR 11"x17"
1"=1' FOR 22"x34"

0' 2'

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A	08/04/22	ISSUED FOR REVIEW	JIM	AB	DAS

SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

COMMONWEALTH OF MASSACHUSETTS
DAMIAN ALEXANDER SCHMALZ
CIVIL
NO. 52655
REGISTERED PROFESSIONAL ENGINEER

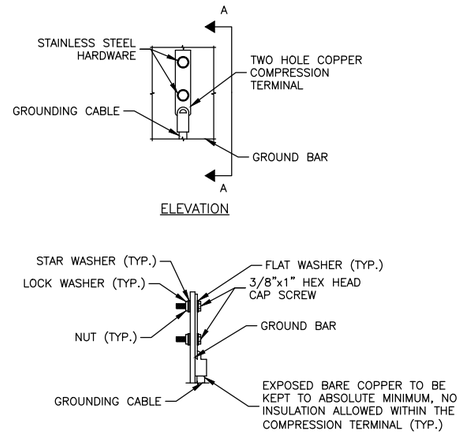
AT&T MOBILITY
FRAMINGHAM, MA 01701

STRUCTURAL DETAILS – II

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	S02	1

GROUNDING NOTES:

1. THE CONTRACTOR 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 CONTRACTOR 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. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY CONTRACTOR IN WRITING.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
6. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
7. 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 TRANSMISSION EQUIPMENT.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF 8 INCHES.
11. EACH INTERIOR TRANSMISSION CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH 6 AWG STRANDED, GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRE UNLESS NOTED OTHERWISE IN THE DETAILS. EACH OUTDOOR CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE. CONNECTIONS TO ABOVE GRADE UNITS SHALL BE MADE WITH EXOTHERMIC WELDS WHERE PRACTICAL OR WITH 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM SAI COMMUNICATIONS MARKET REPRESENTATIVE.
13. ALL WIRE TO WIRE GROUND CONNECTIONS TO THE INTERIOR GROUND RING SHALL BE FORMED USING HIGH PRESS CRIMPS OR SPLIT BOLT CONNECTORS WHERE INDICATED IN THE DETAILS.
14. ON ROOFTOP SITES WHERE EXOTHERMIC WELDS ARE A FIRE HAZARD COPPER COMPRESSION CAP CONNECTORS MAY BE USED FOR WIRE TO WIRE CONNECTORS. 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
15. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT WITH LISTED BONDING FITTINGS.

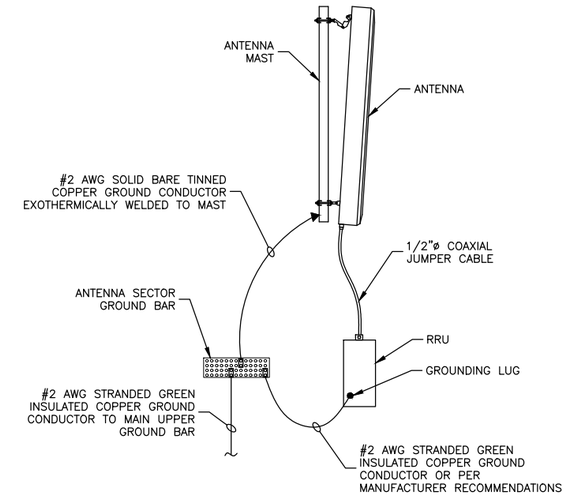


NOTES:

1. DOUBLING UP OR STACKING OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 1

SCALE: N.T.S.



NOTES:

1. VERIFY EXISTING GROUNDING SYSTEM IS INSTALLED PER AT&T STANDARDS.
2. BOND NEW EQUIPMENT INTO EXISTING GROUND SYSTEM IN ACCORDANCE WITH AT&T STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.

TYPICAL ANTENNA/RRU GROUNDING DETAIL 2

SCALE: N.T.S

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SCALE: AS SHOWN | DESIGNED BY: AB | DRAWN BY: JIM

COMMONWEALTH OF MASSACHUSETTS
DAMIAN ALEXANDER SCHMALZ
CIVIL
NO. 52655
REGISTERED PROFESSIONAL ENGINEER

AT&T MOBILITY
FRAMINGHAM, MA 01701

GROUNDING DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50122947/50122974	E01	1


Prepared for:
AT&T MOBILITY
Site No.: MAL02312
Site Name:
Cambridge Norfolk Street 5G/NR
288 Norfolk Street
Cambridge, MA 02139
ONE WAY
STOP
FITNESS
8ATP90
Photos taken on: 01-17-23
Simulations Based On Rev-0 Construction Drawings Dated 12/07/22.

at&t SAI

Cambridge Norfolk Street 5G/NR
288 Norfolk Street
Cambridge, MA 02139
(Page 2 of 20)

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Cambridge Norfolk Street 5G/NR

View Facing Northeast From Norfolk Street

PHOTO 1A

at&t Mobility

SAI

Cambridge Norfolk Street 5G/NR

View Facing Northeast From Norfolk Street

PHOTO 1B

Dewberry

at&t Mobility

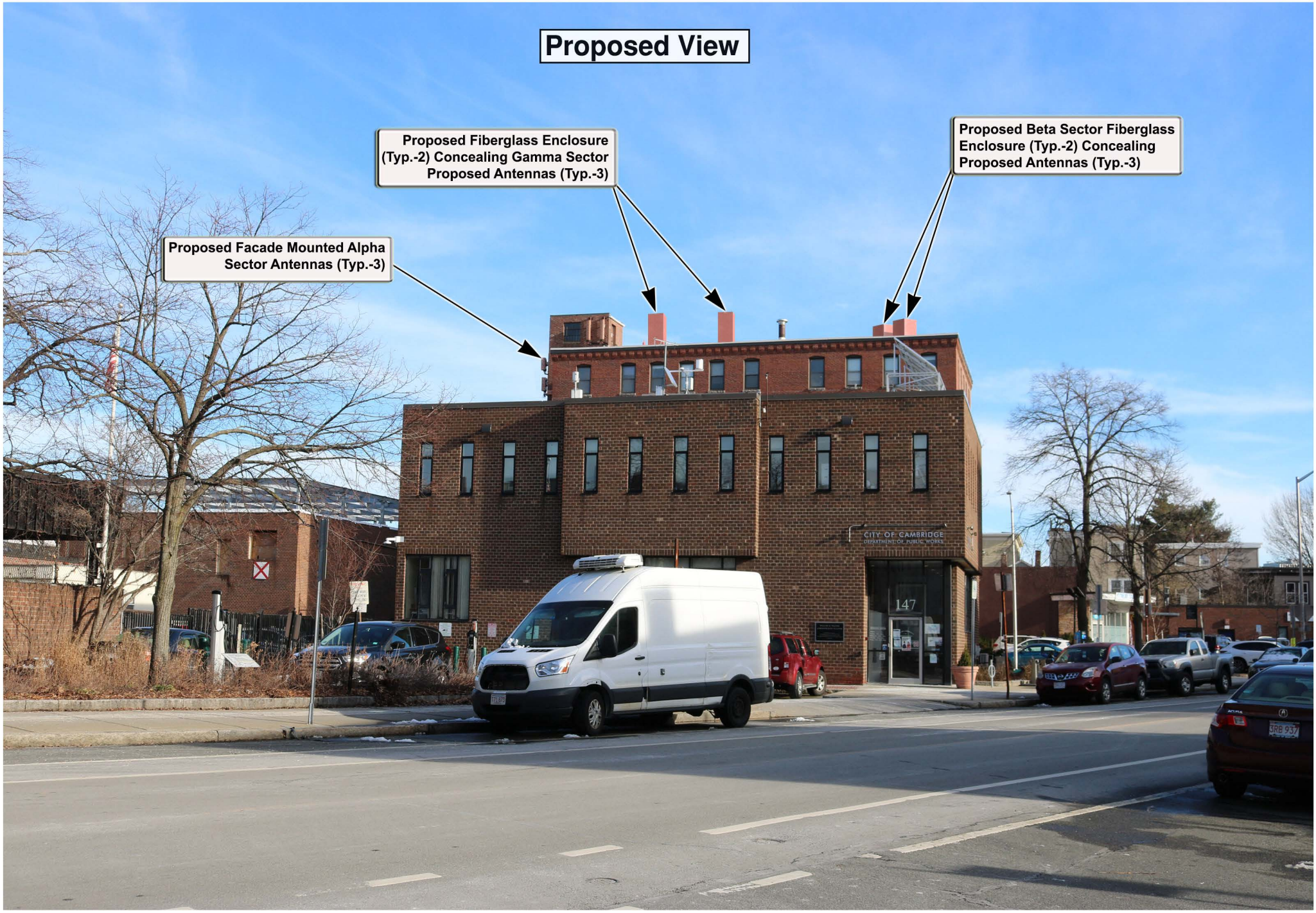
SAI

Cambridge Norfolk Street 5G/NR

View Facing East From Hampshire Street

PHOTO 2A

Dewberry



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Cambridge Norfolk Street 5G/NR

View Facing East From Hampshire Street

PHOTO 2B

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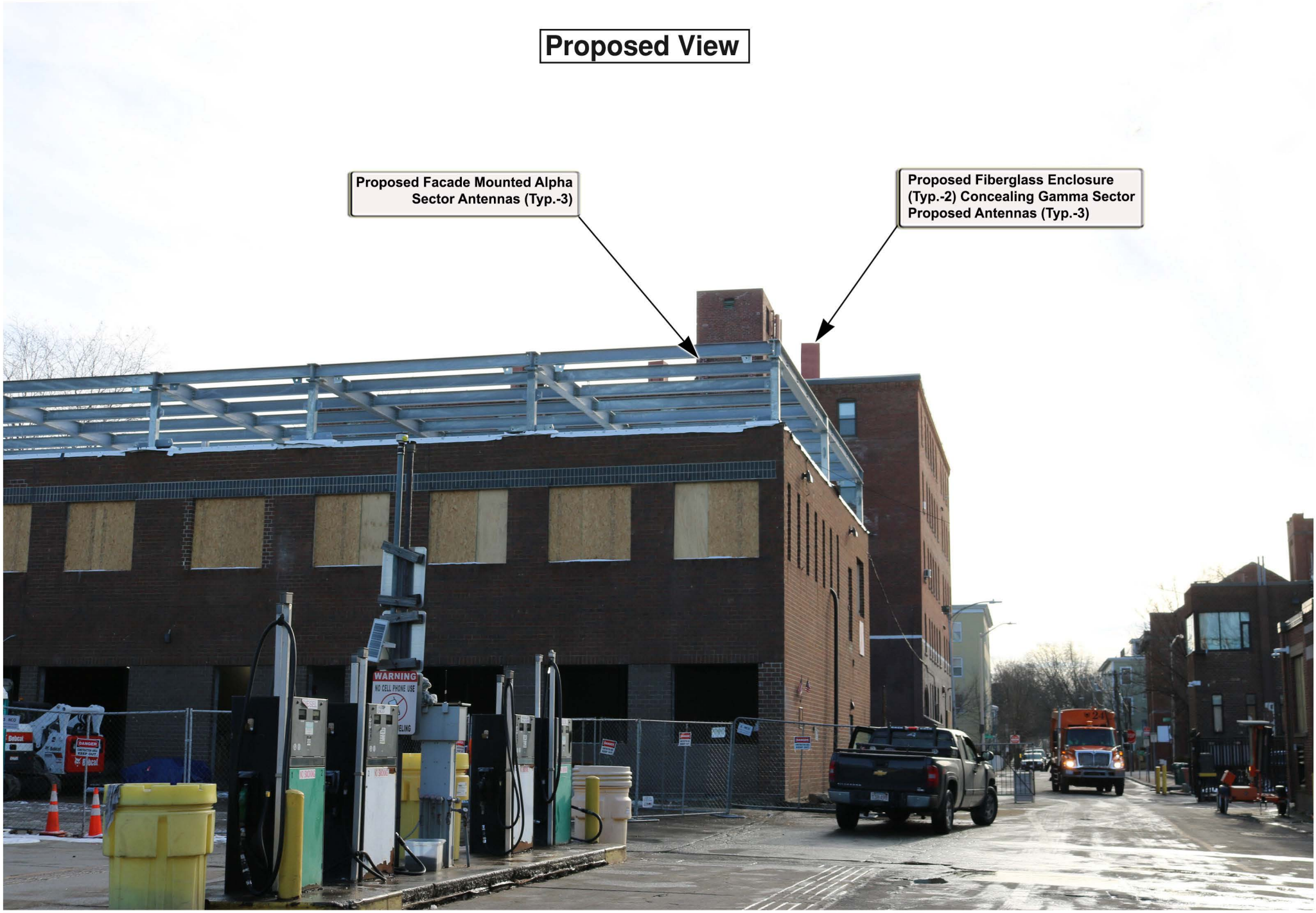
Existing View

Cambridge Norfolk Street 5G/NR

View Facing South From Norfolk Street

PHOTO 3A

Proposed View



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Cambridge Norfolk Street 5G/NR

View Facing South From Norfolk Street

PHOTO 3B

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SAI

Cambridge Norfolk Street 5G/NR

View Facing Northwest From Elm Street

PHOTO 4A

(Page 9 of 20)

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SAI

Cambridge Norfolk Street 5G/NR

View Facing Northwest From Elm Street

PHOTO 4B

Dewberry

at&t Mobility

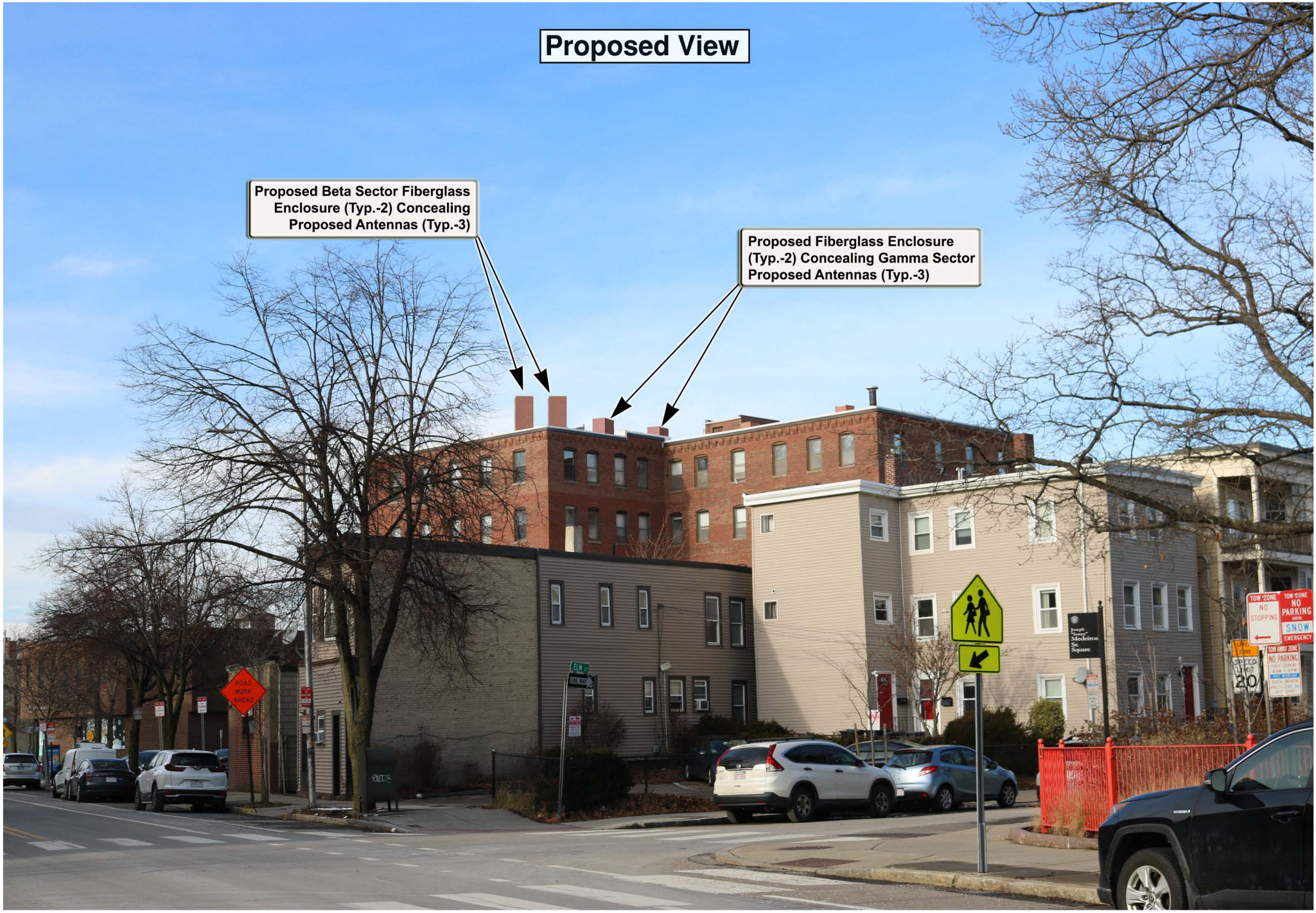
SAI

Cambridge Norfolk Street 5G/NR

View Facing Northwest From Hampshire Street

PHOTO 5A

Dewberry



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SAI

Cambridge Norfolk Street 5G/NR

View Facing Northwest From Hampshire Street

PHOTO 5B

Dewberry

Cambridge Norfolk Street 5G/NR

View Facing East From Hampshire Street

PHOTO 6A

at&t Mobility

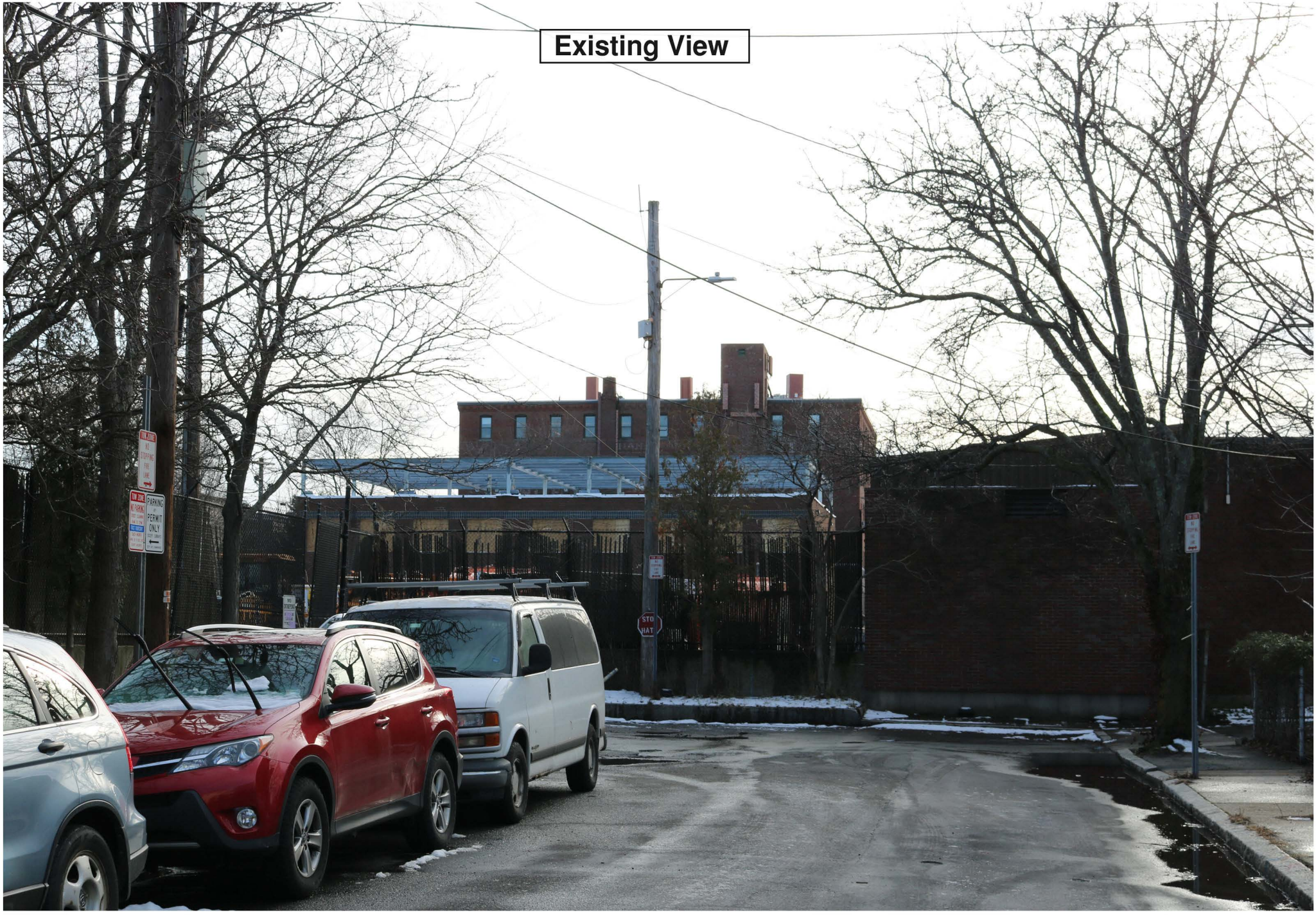
SAI

Cambridge Norfolk Street 5G/NR

View Facing East From Hampshire Street

PHOTO 6B

Dewberry



at&t Mobility

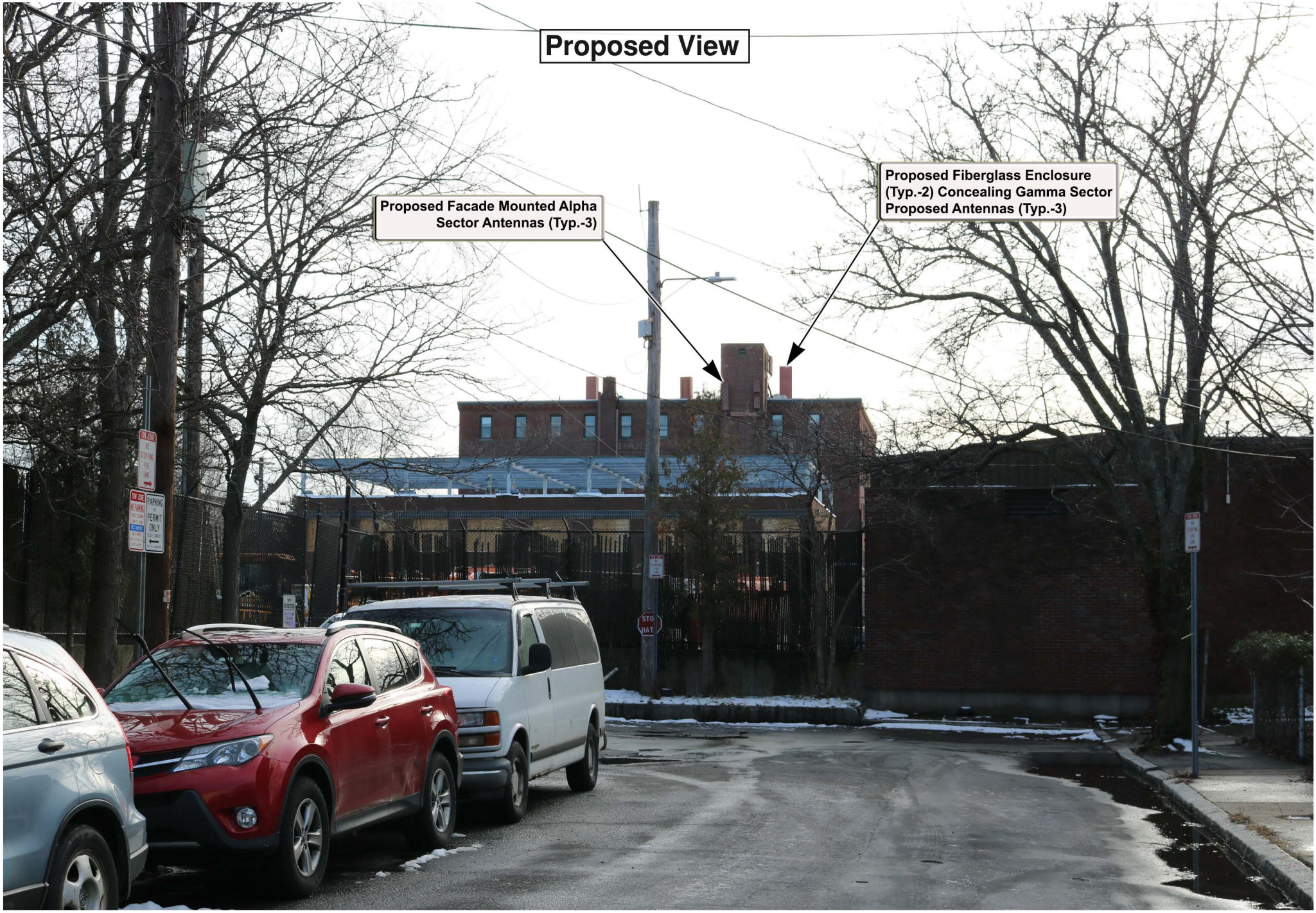
SAI

Cambridge Norfolk Street 5G/NR

View Facing South From Norfolk Street

PHOTO 7A

Dewberry



at&t Mobility

SAI

Cambridge Norfolk Street 5G/NR

View Facing South From Norfolk Street

PHOTO 7B

Dewberry

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SAI

Cambridge Norfolk Street 5G/NR

View Facing Northeast From Norfolk Street

PHOTO 8A

(Page 17 of 20)

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at&t Mobility

SAI

Cambridge Norfolk Street 5G/NR

View Facing Northeast From Norfolk Street

PHOTO 8B

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Cambridge Norfolk Street 5G/NR

View Facing Northeast From Tremont Street

PHOTO 9A

Cambridge Norfolk Street 5G/NR

View Facing Northeast From Tremont Street

PHOTO 9B

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July 15, 2022

SAI Communications
12 Industrial Way
Salem, NH 03079

Re: MA2312 Cambridge Hampshire St
Site ID: MA2312
238 Norfolk Street
Cambridge, MA 02139

To Whom It May Concern:

AT&T has proposed to replace six (6) antennas and six (6) RRHs with three (3) TPA-65R-BU4DA-K antennas, three (3) AIR6449 B77D antennas, three (3) OPA65R-BU6DA antennas, three (3) 4449 B5/B12 RRHs and three (3) 4478 B14 RRHs on the rooftop at the above referenced site. AT&T also has nine (9) RRHs that are to remain. The proposed antennas will be façade mounted to the existing penthouse wall (Alpha), mounted on an existing 10'x10' ballast frame within (2) proposed 3'Lx3'Wx8'H square fiberglass chimneys (Beta), and mounted on an existing steel frame within (2) proposed 3'Lx3'Wx8'H square fiberglass chimneys (Gamma). The existing ballast frame in Alpha sector will require **0 lb total** of ballast. Contractor to remove existing ballast.

Dewberry Engineers Inc. (Dewberry) has reviewed the antenna design sheets (dated 05/12/22) provided by AT&T and has determined, based on an ultimate wind speed of 128 mph and minimum flat snow roof load of 30 psf per Massachusetts State Building Code – 780 CMR 9th Edition, that the existing ballast frame, existing steel frame, proposed façade mounts and existing building have adequate capacity to support the proposed equipment configuration. Dewberry assumes that the new antennas and associated equipment are installed per the latest Construction Drawings by Dewberry.

This assessment is based on our visual inspection that the existing structure is in good condition and were constructed in conformance with all applicable state and local building codes. If, during construction, any damage, deterioration, and/or discrepancies are noticed, Dewberry is to be notified to assess any deviation from the assumed condition. Any alteration in equipment loading described above and on the associated plans will void any conclusions expressed herein and will require further analysis and design. No structural qualification is made or implied by this structural letter for existing structural members not supporting the proposed installation.

If you have any questions, please do not hesitate to call me at 617-531-0744.

Sincerely,
Dewberry Engineers Inc.

Brandon Kelsey, P.E.
Structural Project Engineer

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617.695.3310 fax
www.dewberry.com

Structural Analysis Summary Sheet

Job No.:	50122947/50122974	**By:**	CY	**Date:**	7/11/22
Job Name:	MA2312 Cambridge Hampshire St	**Checked:**	SA	**Date:**	7/12/22

Location: 238 Norfolk St, Cambridge, MA 02139
Client: SAI

Scope of Work:

- Proposed replacement of (6) antennas and (6) RRHs with (3) TPA-65R-BU4DA-K antennas, (3) AIR6449 B77D antennas, (3) OPA65R-BU6DA antennas, (3) 4449 B5/B12 RRHs and (3) 4478 B14 RRHs
- Alpha sector:
  - Proposed antennas façade mounted on existing penthouse wall
  - Proposed RRHs mounted on Gamma sector's existing steel frame
  - Proposed installation of (1) AIR6449 B77D antenna stacked on (1) TPA-65R-BU4DA-K antenna mounted on (1) proposed 8' long 2-7/8" OD Sch 40 pipe
  - Proposed installation of (1) OPA65R-BU6DA antenna on (1) proposed 8' long 2-7/8" OD Sch 40 pipe
- Beta sector:
  - Proposed antennas and RRHs mounted on (1) existing 10'x10' ballast frame
  - Proposed installation of (1) AIR6449 B77D antenna stacked on (1) TPA-65R-BU4DA-K antenna mounted within (1) proposed 3'LX3'WX8'H square fiberglass chimney
  - Proposed installation of (1) OPA65R-BU6DA antenna mounted within (1) proposed 3'WX8'H fiberglass chimney
- Gamma sector:
  - Proposed antennas and RRHs mounted on (1) existing steel frame
  - Proposed installation of (1) AIR6449 B77D antenna stacked on (1) TPA-65R-BU4DA-K antenna mounted within (1) proposed 3'LX3'WX8'H square fiberglass chimney
  - Proposed installation of (1) OPA65R-BU6DA antenna mounted within (1) proposed 3'LX3'WX8'H square fiberglass chimney

Codes / Standards / References:

- IBC 2015
- Massachusetts State Building Code – 780 CMR 9th edition
- TIA-222-G
- ASCE 7-10
- AISC 14th Ed.
- NDS 2018
- RFDS dated 05/12/22
- Previous structural analysis by Dewberry Engineers on 11/15/17
- Site visit by Dewberry Engineers on 6/9/22
- Latest Construction Drawings by Dewberry Engineers

Design & Analysis Assumptions:

- Design and analysis are based on dead and wind loads. The analysis checks for normal bending and shear stresses.

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- The analysis checks for overturning based on a minimum factor of safety of 1.5 and sliding based on a minimum factor of safety of 1.2.
- Analysis assumes equipment are installed per latest Construction Drawings by Dewberry Engineers.
- Contractor to remove all additional ballast on the existing steel ballast frame.
- Analysis assumes existing penthouse wall in Alpha sector is multi-wythe solid brick.

Conclusion / Recommendations:

- The existing structure has sufficient capacity to support the proposed installation.
- The proposed façade mounts, existing ballast frame and existing steel frame have sufficient capacity to support the proposed installation.
- The existing ballast frame in Beta sector to have **0 lb total** of ballast. Contractor to remove existing ballast.

Dewberry®

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Design Wind Load

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Wind Load Design Criteria

Site Name: MA2312 Cambridge Hampshire St

Proposed façade mount check (Alpha)

Wind Loading General Information & Design Input from ASCE 7-10

Item	Value	Description	Reference
V_{Ult} =	128.00	Design Wind Speed (mph)	*780 CMR 9th Edition Mass. Bldg. Code*
K_d =	0.85	Wind Directionality Factor	*Table 26.6-1*
Risk Cat.	II	Risk Category	*Table 1.5-1*
I =	1.00	Importance Factor (Without Ice)	*Table 1.5-2*
z = h =	63.00	ft. (A.G.L.)	*Max. Center of Appurtenance*
Exp. Cat.	B	Exposure Category	*Sect. 26.7.3*
z_g =	1200.00	Terrain Exposure Constant	*Table 26.9-1*
α =	7.00	Terrain Exposure Constant	*Table 26.9-2*
K_z =	0.87	Velocity Pressure Coefficient	*Table 29.3-1*
Topo. Cat.	1	Topographic Feature	*Sect. 26.8.1*
e =	2.72	Natural Logarithmic base	
γ =	N/A	Height attenuation Factor	
L_h =	N/A	Distace upwind of crest	
H =	N/A	ft. Height of crest above surrounding terrain	
K_1 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_2 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_3 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_{zt} =	1.00	$= (1+K_1K_2K_3)^2$	*Sect. 26.8.2*
G =	0.85	Gust Effect Factor	*Sect. 26.9.1*
$q_{z\ design}$ =	30.9 psf	$= 0.00256(K_z)(K_{zt})(K_d)(V^2)$	*Sect.29.3.2*

Design Wind Forces:

Section 29.5

$F_A = q_{z\ design} G C_f A_f$ *(where A_f = $(EPA)_A$ = effective projected area of the appurtenance)*

$F_{ai} = q_{z\ ice} G_h (EPA)_{ai}$

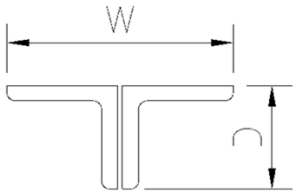
(see calculation tables on following pages)

Element Definition

Description	Dimensions (in.)			Weight	Length /
	W	D	H	(lb)	# Supports
AIR6449 B77D	15.90	10.60	30.60	83.80	1.00
TPA-65R-BU4DA-K	20.70	7.70	48.00	52.60	1.00
STRUCTURAL MEMBERS					
(2x) 18" long L4X4X3/8	4.00	4.00	12.00	29.40	*Angle*
8' long 2-7/8" OD pipe	2.88	2.88	12.00	46.4	*Pipe*

Note:

1) For Double Angles assume the following:



Dewberry®

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Design Wind Load

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Design Wind Load

Members	Dimensions (ft.)			Area $(A_a)_n$	Area $(A_a)_t$	Aspect Ratio	Aspect Ratio	C_{an}	C_{at}
	Width *(Normal)*	Depth *(Tangent)*	Height *(or span)*	*(normal)* *(sf)*	*(tangent)* *(sf)*	*(normal)*	*(tangent)*	*(normal)* *Table 2-8*	*(tangent)* *Table 2-8*
AIR6449 B77D	1.33	0.88	2.55	3.39	2.24	1.92	2.90	1.20	1.22
TPA-65R-BU4DA-K	1.73	0.64	4.00	6.92	2.56	2.31	6.25	1.20	1.37
STRUCTURAL MEMBERS									
(2x) 18" long L4X4X3/8	0.33	0.33	1.00	0.33	0.33	3.03	3.03	1.22	1.22
8' long 2-7/8" OD pipe	0.24	0.24	1.00	0.24	0.24	4.17	4.17	0.74	0.74

Design Effective Projected Area & Wind Loads

Members	EPA_a @ 0.0° *(sf)*	EPA_a @ 30.0° *(sf)*	EPA_a @ 60.0° *(sf)*	EPA_a @ 90.0° *(sf)*	F_a @ 0.0° *(lb)*	F_a @ 30.0° *(lb)*	F_a @ 60.0° *(lb)*	F_a @ 90.0° *(lb)*	Gravity Load @ Support *(lb)*
AIR6449 B77D	4.07	3.73	3.07	2.73	106.8	98.1	80.5	71.8	83.8
TPA-65R-BU4DA-K	8.30	7.10	4.71	3.51	218.1	186.6	123.6	92.1	52.6
STRUCTURAL MEMBERS									
(2x) 18" long L4X4X3/8	0.40	-	-	-	10.6	-	-	-	29.4
8' long 2-7/8" OD pipe	0.18	-	-	-	4.7	-	-	-	46.4

Dewberry®

Job Number	50122974
Made by:	CY
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(MA2312 Cambridge Hampshire St) - HY270 Masonry Anchorage Calc

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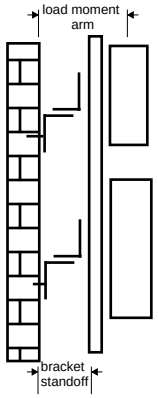
Top & Bottom Mounting Bracket Anchroage Check (ASD)

- 1.0DL + 0.6WL
- Use Front wind load on side of antennas
- Existing penthouse wall is assumed to be mlulti-wythe solid brick
- Anchor bolts will be 1/2" dia. Hilti HIT-HY 270 w/ threaded rods



Sketch N.T.S.

1.0DL = 212 lb 0.6WL = 195 lb

1.0DL Global Moment =	212 lb	X	1.5 ft load moment arm =	318 lb-ft
0.6WL Global Moment =	195 lb	X	1.5 ft load moment arm =	292 lb-ft
1.0DL Local Moment =	212 lb	X	0.4 ft bracket standoff =	85 lb-ft

Bolt Shear & Tension Forces

DL Global Shear Per Bolt =	212 lb				/	4 bolts =	53.0 lb
WL Global Shear Per Bolt =	195 lb				/	4 bolts =	48.7 lb
						Total Shear Per Bolt =	**101.7 lb**
DL Global Ten.per Bolt =	318 lb-ft	/	4.0 ft mount spacing =	79.5 lb	/	2 bolts =	39.8 lb
DL Local Ten. per Bolt =	85 lb-ft	/	2.0 in bolt moment arm =	508.8 lb	/	4 bolts =	127.2 lb
WL Global Ten. per Bolt =	292 lb-ft	/	17.0 in bolt moment arm =	206.4 lb	/	4 bolts =	51.6 lb
						Total Tension Per Bolt =	**218.6 lb**

Masonry Anchorage Capacity

Allowable Shear Per Bolt:

Design Shear =	1075 lb	(from table below)
Spacing adjustment factor =	1.00	(16")
Edge adjustment factor =	1.00	(16" min)
Allowable Shear Per Bolt =	**1075 lb**	

Allowable Tension Per Bolt:

Design tension =	895 lb	(from table below)
Spacing adjustment factor =	1.00	(16")
Edge adjustment factor =	1.00	(16" min)
Allowable Tension Per Bolt =	**895 lb**	

Combined Unity check = **33.9%** **< 100%, OK** $(T_{applied}/T_{allowable})+(V_{applied}/V_{applied})$

Table 14 - Hilti HIT-HY 270 allowable adhesive bond loads for threaded rods in multi-wythe solid brick wall[1,2,3,4,5,6,8]

Nominal anchor diameter in.	Effective embedment[7] in. (mm)	Tension lb	Tension (kN)	Shear lb	Shear (kN)	Minimum spacing s_{min} in. (mm)	Edge distance: Critical c_{cr} in. (mm)	Edge distance: Minimum c_{min} in. (mm)	Edge distance: Load reduction factor@ c_{min}
3/8	6 (152)	895	(4.0)	680	(3.0)	16 (406)	16 (406)	8 (203)	0.50
	10 (254)	1,325	(5.9)	795	(3.5)				
1/2	6 (152)	895	(4.0)	1,075	(4.8)				
	10 (254)	1,455	(6.5)	1,115	(5.0)				
5/8	6 (152)	1,025	(4.6)	1,405	(6.3)				
	10 (254)	1,955	(8.7)	1,445	(6.4)				
3/4	8 (203)	1,575	(7.0)	1,985	(8.8)				
	13 (330)	2,135	(9.5)	1,985	(8.8)				

1 All values are based on mortar shear strength of 45 psi or greater. Allowable loads are calculated using a safety factor of 5.
2 Anchors must be installed in the face of the multi-wythe URM wall. The wall must have a minimum thickness of 13 inches made up of 3 wythes of brick.
3 Tabulated values are for maximum one anchor installed in the center of the brick of the multi-wythe URM wall.
4 Edge distance, c_{min}, and spacing, s_{min}, are the minimum distances for which values are available and installation is recommended. Edge distance is measured from the center of the anchor to each edge. Spacing is measured from the center of one anchor to the center of an adjacent anchor.
5 Allowable loads must be the lesser of the adjusted bond tabulated values and the steel values given in table 3.
6 Allowable loads shall be adjusted for increased base material temperature in accordance with Figure13.
7 Tabulated embedment depth is limited by the length of the plastic HIT-SC screens.
8 For combined loading: $(T_{applied} / T_{allowable}) + (V_{applied} / V_{allowable}) \leq 1$

Dewberry®

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Design Wind Load

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Wind Load Design Criteria

Site Name: MA2312 Cambridge Hampshire St **Existing ballast frame calcs (Beta)**

General Information & Design Input ASCE 7-10

Item	Value	Description	Reference
V_{ult} =	128.00	Ultimate Design Wind Speed	*780 CMR 9th Edition Mass. Bldg. Code*
V_{asd} =	99.20	$(\sqrt{0.6}) * V_{ult}$	*Adjustment for ASD Load Combo. 1.0D+0.6W*
K_d =	0.90	Wind Direction Probability Factor	*Table 26.6-1*
Class	II	Structure Classification	*Table 1.5-1*
I =	1.00	Importance Factor (Without Ice)	*Table 1.5-2*
z = h =	69.00	ft. (A.G.L.)	*Max. Center of Appurtenance*
Exp. Cat.	B	Exposure Category	*Sect. 26.7.3*
z_g =	1200.00	Terrain Exposure Constant	*Table 26.9-1*
α =	7.00	Terrain Exposure Constant	*Table 26.9-2*
K_z =	0.89	Velocity Pressure Coefficient	*Table 29.3-1*
Topo. Cat.	1.00	Topographic Category (1-5)	*Sect. 26.8.1*
e =	2.72	Natural Logarithmic base	
γ =	N/A	Height attenuation Factor	
L_h =	N/A	Distace upwind of crest	
H =	N/A	ft. Height of crest above surrounding terrain	
K_1 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_2 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_3 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_{zt} =	1.00	$= (1+K_1K_2K_3)^2$	*Sect. 26.8.2*
G_h =	0.85	Gust Effect Factor	*Sect. 26.9.1*
$q_{z\ design}$ =	20.2 psf	$= 0.00256(K_z)(K_{zt})(K_d)(V_{asd}^2)(I)$	*Sect.29.3.2*

Design Wind Forces:

Section 2.6.9.2

$F_a = q_{z\ design} G_h (EPA)_a$ *(where $(EPA)_a$ = effective projected area of the appurtenance = $C_a A_a$)*

(see calculation tables on following pages)

Dewberry

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Design Wind Load

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Element Definition

Description	Dimensions (in.)			Weight	Length /
	W	D	H	(lb)	# Supports
TPA-65R-BU4DA-K	20.70	7.70	48.00	52.60	1.00
AIR 6449 B77D	15.90	10.60	30.60	83.80	1.00
OPA65R-BU6DA	21.00	7.80	71.20	60.20	1.00
4478 B14 RRH	13.40	8.26	18.10	60.00	1.00
4449 B5/B12 RRH	13.20	9.44	18.00	71.00	1.00
RRUS-32	11.50	6.30	23.00	53.00	1.00
FRP Chimney	36.00	36.00	96.00	356.00	1.00

Design Wind Load

Members	Dimensions (ft.)			Area $(A_a)_n$	Area $(A_a)_t$	Aspect	Aspect	C_{an}	C_{at}
	Width	Depth	Height	*(normal)*	*(tangent)*	Ratio	Ratio	*(normal)*	*(tangent)*
	(Normal)	*(Tangent)*	*(or span)*	*(sf)*	*(sf)*	*(normal)*	*(tangent)*	*Table 2-8*	*Table 2-8*
TPA-65R-BU4DA-K	1.73	0.64	4.00	6.92	2.56	2.31	6.25	1.20	1.37
AIR 6449 B77D	1.33	0.88	2.55	3.39	2.24	1.92	2.90	1.20	1.22
OPA65R-BU6DA	1.75	0.65	5.93	10.38	3.85	3.39	9.12	1.24	1.47
4478 B14 RRH	1.12	0.69	1.51	1.69	1.04	1.35	2.19	1.20	1.20
4449 B5/B12 RRH	1.10	0.79	1.50	1.65	1.19	1.36	1.90	1.20	1.20
RRUS-32	0.96	0.53	1.92	1.84	1.02	2.00	3.62	1.20	1.25
FRP Chimney	3.00	3.00	8.00	24.00	24.00	2.67	2.67	1.21	1.21

Design Effective Projected Area & Wind Loads

Members	EPA_a @ 0.0°	EPA_a @ 30.0°	EPA_a @ 60.0°	EPA_a @ 90.0°	F_a @ 0.0°	F_a @ 30.0°	F_a @ 60.0°	F_a @ 90.0°	Gravity Load @ Support
	(sf)	*(sf)*	*(sf)*	*(sf)*	*(lb)*	*(lb)*	*(lb)*	*(lb)*	*(lb)*
TPA-65R-BU4DA-K	8.30	7.10	4.71	3.51	142.6	122.0	80.8	60.2	52.6
AIR 6449 B77D	4.07	3.73	3.07	2.73	69.8	64.1	52.7	46.9	83.8
OPA65R-BU6DA	12.87	11.07	7.46	5.66	221.0	190.0	128.1	97.2	60.2
4478 B14 RRH	2.03	1.83	1.44	1.25	34.8	31.5	24.8	21.4	60.0
4449 B5/B12 RRH	1.98	1.84	1.57	1.43	34.0	31.6	26.9	24.5	71.0
RRUS-32	2.21	1.97	1.51	1.28	37.9	33.9	25.9	21.9	53.0
FRP Chimney	29.04	29.04	29.04	29.04	498.6	498.6	498.6	498.6	356.0

Dewberry

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Existing 10'x10' Ballast Load Calculation

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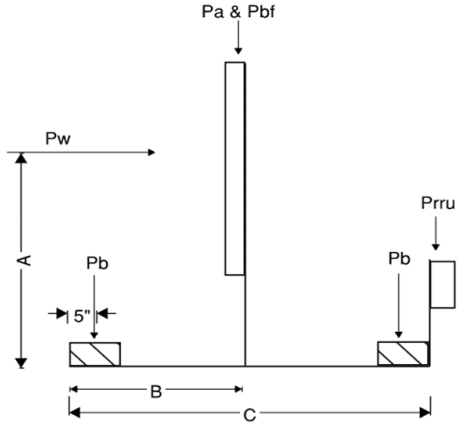
Dead Load

- Existing 10'x10' ballast frame

Item	Quantity	Dimensions (ft.)			Weight		Total Weight (lb)
		L	W	H			
Antenna equipment							
TPA-65R-BU4DA-K	1	-	-	-	52.60	lb. ea.	52.60
AIR 6449 B77D	1	-	-	-	83.80	lb. ea.	83.80
OPA65R-BU6DA	1	-	-	-	60.20	lb. ea.	60.20
FRP Chimney	2	3.00	3.00	8.00	356.00	lb. ea.	712.00
3-1/2" OD Pipe	2	10.00	-	-	7.60	lb/ft	152.00
						P_A =	1060.60
RRH equipment							
4478 B14 RRH	1	-	-	-	60.00	lb. ea.	60.00
4449 B5/B12 RRH	1	-	-	-	71.00	lb. ea.	71.00
RRUS-32	3	-	-	-	53.00	lb. ea.	159.00
2-7/8" OD pipe	3	-	-	4.00	5.80	lb/ft	69.60
P1000 unistrut	2	10.00	-	-	1.89	lb/ft	37.80
	1	5.00	-	-	2.89	lb/ft	14.45
						P_{RRU} =	411.85
Ballast frame							
C10x15.3	2	10.00	-	-	15.30	lb/ft	306.00
	3	8.33	-	-	15.30	lb/ft	382.35
	6	3.75	-	-	15.30	lb/ft	344.25
L3x3x1/4	9	4.24			4.90	lb/ft	186.98
Steel Conn. Plates	18	0.17	0.17	0.02	490.00	lb/ft³	5.22
	18	0.33	0.33	0.03	490.00	lb/ft³	30.02
	4	0.67	0.67	0.04	490.00	lb/ft^3	35.19
						P_{BF} =	1290.01
						Σ Total Weight =	2762 lb
						P_{DL} =	**2.76 k**

Calculate Required Ballast for Mount



P_B = ?

P_W = 1.11 k *(Σ Wind Loads of chinneys & (3) RRHs)*

P_{DL} = 2.76 k *(Total Dead Load)*

Dimensions:

A = 6.00 ft. C = 12.00 ft.

B = 6.00 ft.

Check sled for overturning:

Req'd = $M_R/M_{OT} \geq 1.5$ (F.S.)

$M_R = P_{BF}(B) + P_A(B) + P_{RRU}(C) + P_B(C)$

= 19.0 k-ft + $P_B(C)$

$M_{OT} = P_W(A)$

= 6.7 k-ft

Solve for P_B: $1.5 \leq \frac{19.0 \text{ k-ft} + P_B(C)}{6.7 \text{ k-ft}}$ → P_B = -0.750 k *(per tray)*

Check sled for sliding (steel over rubber roofing mats):

Req'd = $F_R/F_W \geq 1.2$ (F.S.)

$F_R = \mu * (P_{DL} + 4P_B)$ = 0.6 * (P_{DL} + 4P_B) $F_W = P_w$ = 1.11 k

Dewberry

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Existing 10'x10' Ballast Load Calculation

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Solve for P_B: $1.2 \leq \frac{0.60 \quad * (P_{DL} + 4P_B)}{1.11\ k}$ → P_B = -0.130 k (per side)

Total Ballast Weight = **0.00 lb** ***(4x sides total)***

Rubber Roofing Mat = **256 lb** ***(16 mats, 2.6 psf)***

Total Dead Load for Exist. Roof Check

Total Dead Load = (P_{DL} + Total Ballast+ Roofing Mats)

= (2762 lb + (0 lb) + (256 lb) = **3018 lb** or **24.9 psf over a 10'x10' area**

Dewberry®

Job Number	50122974
Made by:	CY
Date:	7/7/22
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Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Design Wind Load

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Wind Load Design Criteria **Existing steel frame (Gamma)**

Site Name: MA2312 Cambridge Hampshire St

General Information & Design Input from ASCE 7-10

Item	Value	Description	Reference
V =	128.00	Design Wind Speed (mph)	*780 CMR 9th Edition Mass. Bldg. Code*
K_d =	0.90	Wind Directionality Factor	*Table 26.6-1*
Risk Cat.	II	Risk Category	*Table 1.5-1*
I =	1.00	Importance Factor (Without Ice)	*Table 1.5-2*
z = h =	69.00	ft. (A.G.L.)	*Max. Center of Appurtenance*
Exp. Cat.	B	Exposure Category	*Sect. 26.7.3*
z_g =	1200.00	Terrain Exposure Constant	*Table 26.9-1*
α =	7.00	Terrain Exposure Constant	*Table 26.9-2*
K_z =	0.89	Velocity Pressure Coefficient	*Table 29.3-1*
Topo. Cat.	1	Topographic Feature	*Sect. 26.8.1*
e =	2.72	Natural Logarithmic base	
γ =	N/A	Height attenuation Factor	
L_h =	N/A	Distace upwind of crest	
H =	N/A	ft. Height of crest above surrounding terrain	
K_1 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_2 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_3 =	N/A	Topographic Multiplier	*Figure 26.8-1*
K_{zt} =	1.00	$= (1+K_1K_2K_3)^2$	*Sect. 26.8.2*
G =	0.85	Gust Effect Factor	*Sect. 26.9.1*
$q_{z\ design}$ =	33.6 psf	$= 0.00256(K_z)(K_{zt})(K_d)(V^2)$	*Sect.29.3.2*

Design Wind Forces:

Section 29.5

$F_A = q_{z\ design} G C_f A_f$

(see calculation tables on following pages)

(where $A_f = (EPA)_A$ = effective projected area of the appurtenance)

Dewberry®

Job Number	50122974
Made by:	CY
Date:	7/7/22
Checked by:	SA
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Design Wind Load

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Element Definition

Description	Dimensions (in.)			Weight	Length /
	W	D	H	(lb)	# Supports
TPA-65R-BU4DA-K	20.70	7.70	48.00	52.60	1.00
AIR6449 B77D	15.90	10.60	30.60	83.80	1.00
OPA65R-BU6DA	21.00	7.80	71.20	60.20	1.00
Generic RRH	15.00	10.00	24.00	65.00	1.00
3'Wx8'H FRP chimney	36.00	36.00	96.00	356.00	2.00

Design Wind Load

Members	Dimensions (ft.)			Area $(A_a)_n$	Area $(A_a)_t$	Aspect Ratio	Aspect Ratio	C_{an}	C_{at}
	Width	Depth	Height	*(normal)*	*(tangent)*	(normal)	(tangent)	*(normal)*	*(tangent)*
	(Normal)	*(Tangent)*	*(or span)*	*(sf)*	*(sf)*			*Table 2-8*	*Table 2-8*
TPA-65R-BU4DA-K	1.73	0.64	4.00	6.92	2.56	2.31	6.25	1.20	1.37
AIR6449 B77D	1.33	0.88	2.55	3.39	2.24	1.92	2.90	1.20	1.22
OPA65R-BU6DA	1.75	0.65	5.93	10.38	3.85	3.39	9.12	1.24	1.47
Generic RRH	1.25	0.83	2.00	2.50	1.66	1.60	2.41	1.20	1.20
3'Wx8'H FRP chimney	3.00	3.00	8.00	24.00	24.00	2.67	2.67	1.21	1.21

Design Effective Projected Area & Wind Loads

Members	EPA_a @ 0.0°	EPA_a @ 30.0°	EPA_a @ 60.0°	EPA_a @ 90.0°	F_a @ 0.0°	F_a @ 30.0°	F_a @ 60.0°	F_a @ 90.0°	Gravity Load @ Support
	(sf)	*(sf)*	*(sf)*	*(sf)*	*(lb)*	*(lb)*	*(lb)*	*(lb)*	*(lb)*
TPA-65R-BU4DA-K	8.30	7.10	4.71	3.51	237.2	202.9	134.4	100.2	52.6
AIR6449 B77D	4.07	3.73	3.07	2.73	116.2	106.6	87.6	78.0	83.8
OPA65R-BU6DA	12.87	11.07	7.46	5.66	367.6	316.1	213.1	161.6	60.2
Generic RRH	3.00	2.75	2.24	1.99	85.7	78.5	64.1	56.9	65.0
3'Wx8'H FRP chimney	29.04	29.04	29.04	29.04	414.7	414.7	414.7	414.7	178.0

Job Information

	Engineer	Checked	Approved
Name:	CY	SA	
Date:	7/8/2022	7/10/2022	

Project ID	
Project Name	

Structure Type	SPACE FRAME

Number of Nodes	41	Highest Node	54
Number of Elements	55	Highest Beam	75

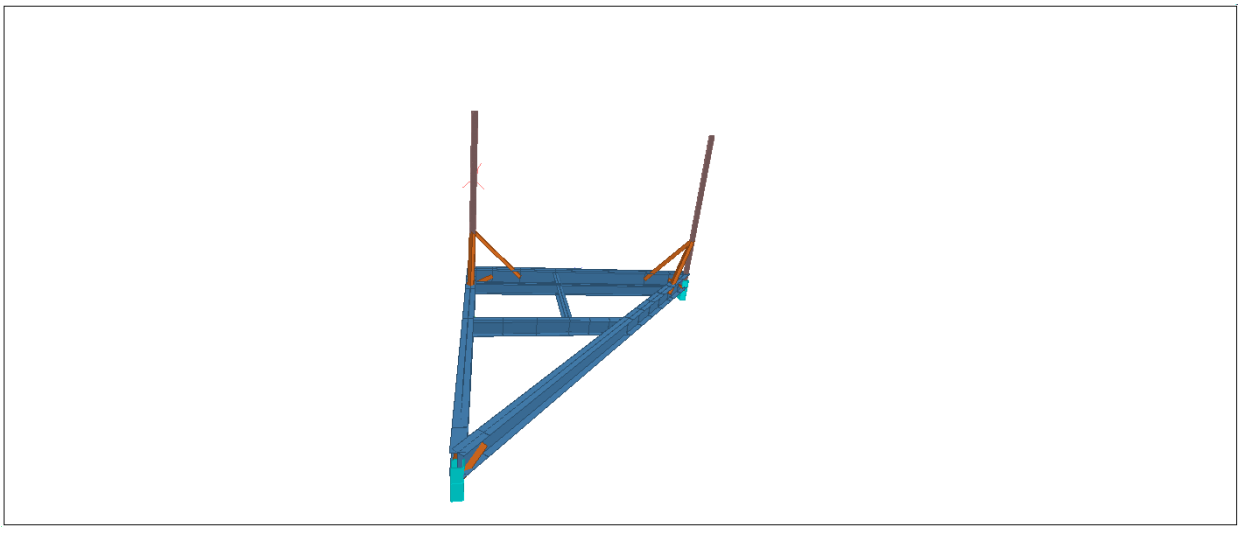
Number of Basic Load Cases	3
Number of Combination Load Cases	4

Included in this printout are data for:

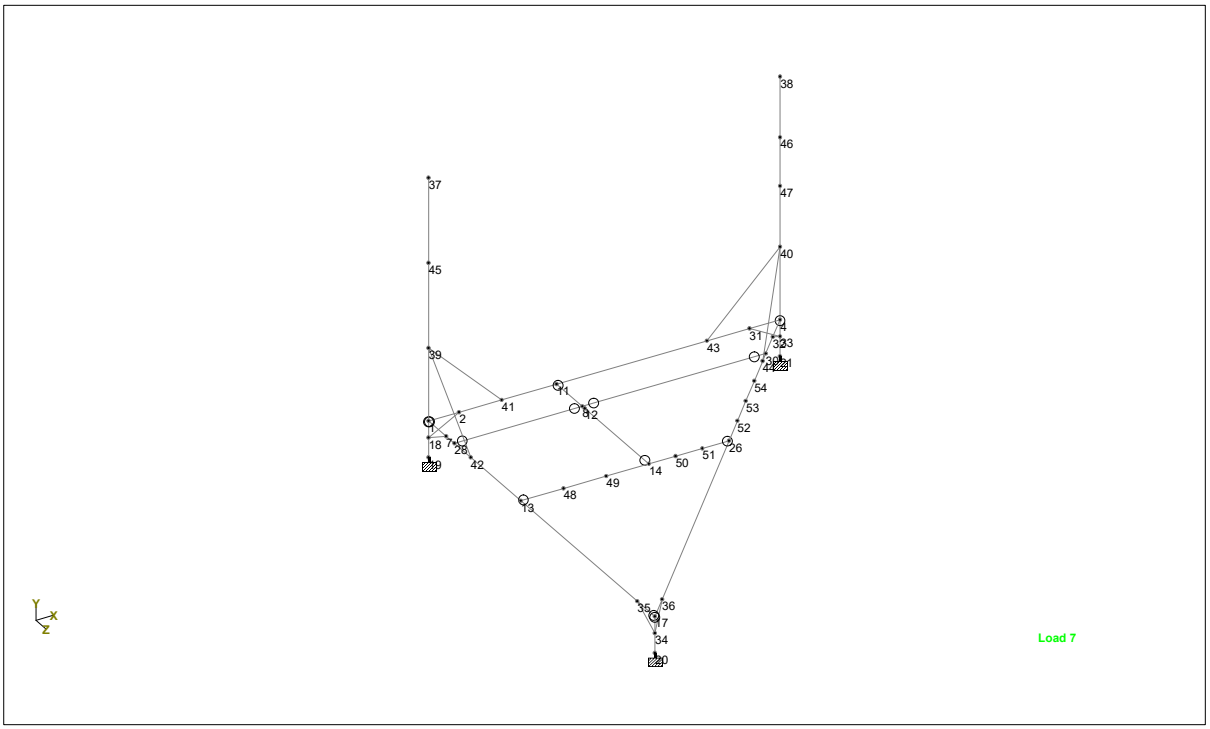
All	The Whole Structure

Included in this printout are results for load cases:

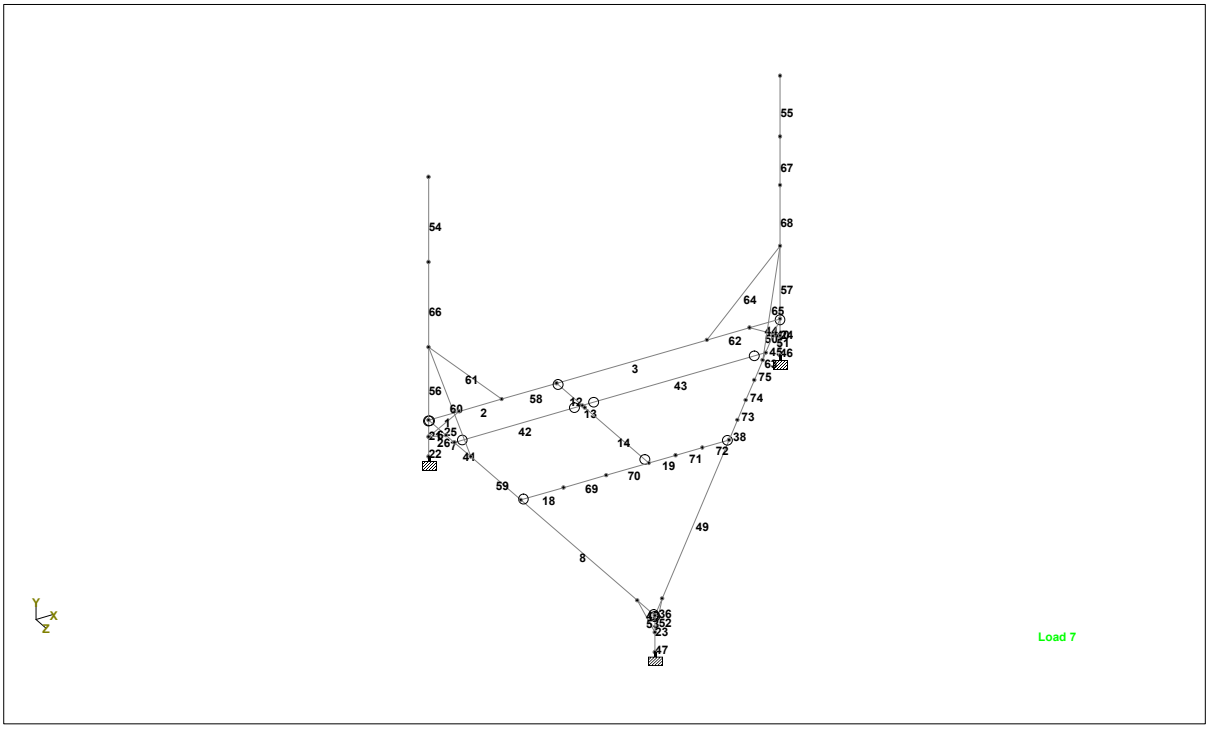
Type	L/C	Name
Primary	1	DEAD
Primary	2	WIND LOAD (X)
Primary	3	WIND LOAD (Z)
Combination	4	DL + 0.6WL (X)
Combination	5	DL - 0.6WL(X)
Combination	6	DL + 0.6WL (Z)
Combination	7	DL - 0.6WL(Z)



3D Rendered View



Node Layout



Beam Layout

Section Properties

Prop	Section	Area (in^2)	I_{yy} (in^4)	I_{zz} (in^4)	J (in^4)	Material
1	W12X26	7.650	17.300	204.000	0.300	STEEL
2	W8X13	3.840	2.730	39.600	0.0871	STEEL
3	HSST5X5X0.25	4.300	16.000	16.000	25.240	STEEL
4	L30305	1.780	2.406	0.618	0.060	STEEL
5	PIPS35	2.500	4.520	4.520	9.043	STEEL
6	W10X26	7.610	14.100	144.000	0.402	STEEL
7	L30304	1.440	1.982	0.506	0.030599	STEEL

Materials

Mat	Name	E (kip/in^2)	ν	Density (kip/in^3)	α (/°F)
1	STEEL	29E+3	0.300	0.000283	6.5E -6
2	CONCRETE	3.15E+3	0.170	8.68e-05	5.5E -6
3	ALUMINUM	10E+3	0.330	9.8e-05	12.8E -6
4	STAINLESSSTEEL	28E+3	0.300	0.000283	9.9E -6
5	STEEL_36_KSI	29E+3	0.300	0.000283	6.5E -6
6	STEEL_50_KSI	29E+3	0.300	0.000283	6.5E -6
7	STEEL_275_NMM2	29.7E+3	0.300	0.000	6.67E -6
8	STEEL_355_NMM2	29.7E+3	0.300	0.000	6.67E -6

Supports

Node	X (kip/in)	Y (kip/in)	Z (kip/in)	rX (kip-ft/deg)	rY (kip-ft/deg)	rZ (kip-ft/deg)
19	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
20	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
21	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

Releases

Beam ends not shown in this table are fixed in all directions.

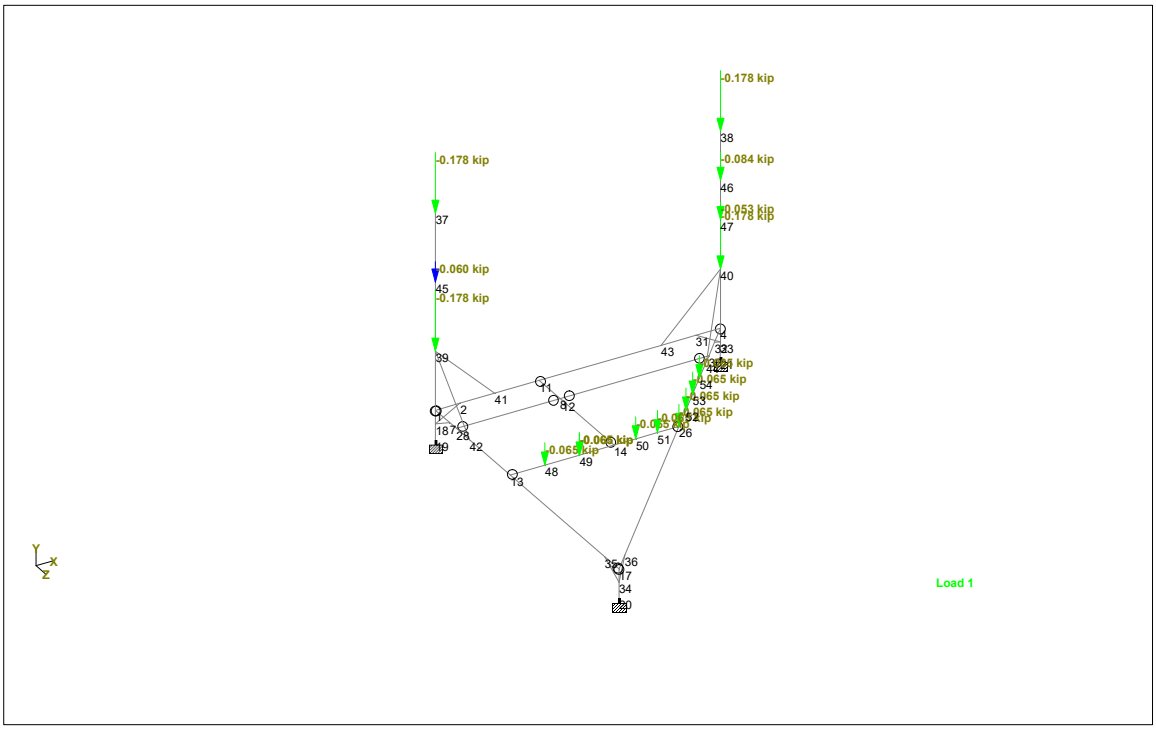
Beam	Node	x	y	z	rx	ry	rz
6	1	Fixed	Fixed	Fixed	Fixed	Pin	Pin
12	11	Fixed	Fixed	Fixed	Fixed	Pin	Pin
14	14	Fixed	Fixed	Fixed	Fixed	Pin	Pin
18	13	Fixed	Fixed	Fixed	Fixed	Pin	Pin
36	17	Fixed	Fixed	Fixed	Fixed	Pin	Pin
40	4	Fixed	Fixed	Fixed	Fixed	Pin	Pin
42	28	Fixed	Fixed	Fixed	Fixed	Pin	Pin
42	8	Fixed	Fixed	Fixed	Fixed	Pin	Pin
43	8	Fixed	Fixed	Fixed	Fixed	Pin	Pin
43	30	Fixed	Fixed	Fixed	Fixed	Pin	Pin
72	26	Fixed	Fixed	Fixed	Fixed	Pin	Pin

Primary Load Cases

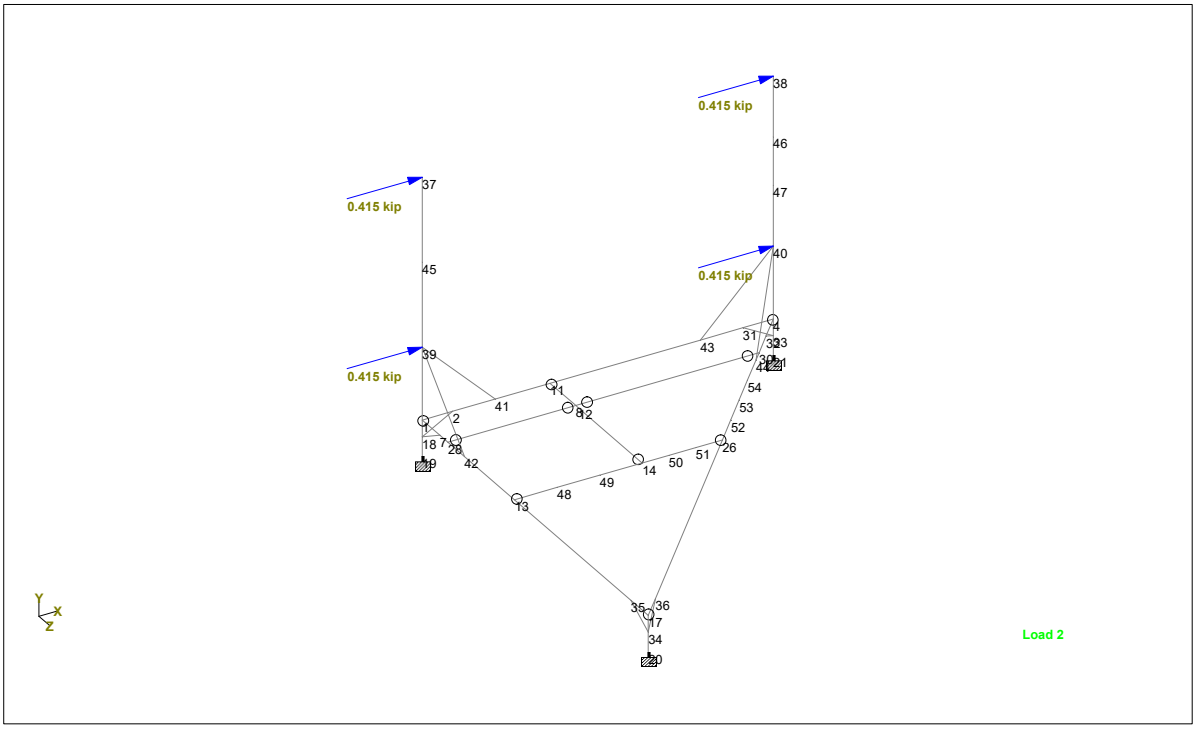
Number	Name	Type
1	DEAD	Dead
2	WIND LOAD (X)	Wind
3	WIND LOAD (Z)	Wind

Combination Load Cases

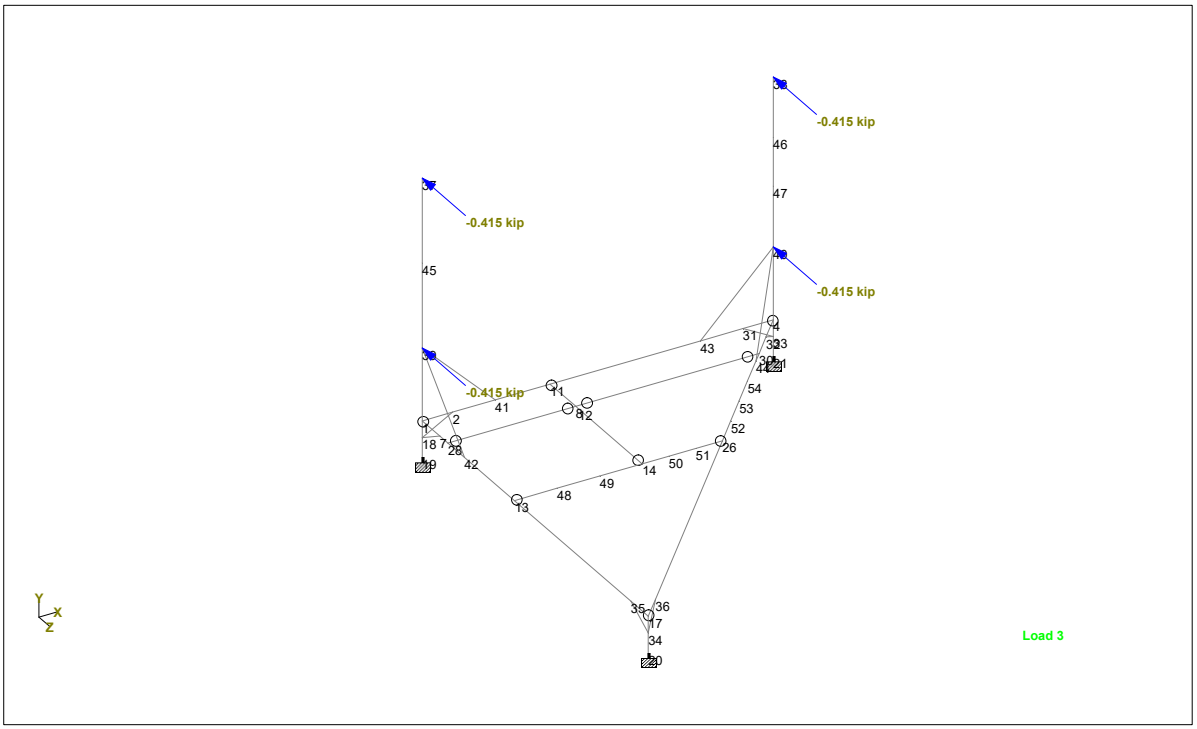
Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
4	DL + 0.6WL (X)	1	DEAD	1.00
		2	WIND LOAD (X)	0.60
5	DL - 0.6WL(X)	1	DEAD	1.00
		2	WIND LOAD (X)	-0.60
6	DL + 0.6WL (Z)	1	DEAD	1.00
		3	WIND LOAD (Z)	0.60
7	DL - 0.6WL(Z)	1	DEAD	1.00
		3	WIND LOAD (Z)	-0.60



Dead Load



Wind Load (X)



Wind Load (Z)

Utilization Ratio

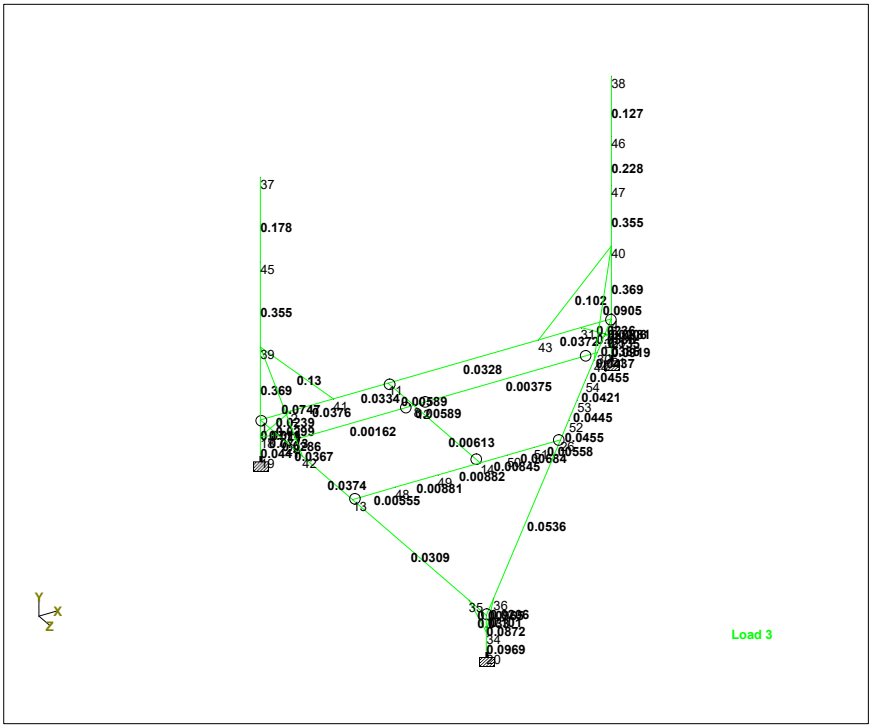
Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (in^2)	Iz (in^4)	Iy (in^4)	Ix (in^4)
1	W12X26	W12X26	0.024	1.000	0.024	Sec. G2.1(a)	2	7.650	204.000	17.300	0.300
2	W12X26	W12X26	0.038	1.000	0.038	Eq. H1-1b	2	7.650	204.000	17.300	0.300
3	W12X26	W12X26	0.033	1.000	0.033	Eq. H1-1b	2	7.650	204.000	17.300	0.300
6	W12X26	W12X26	0.014	1.000	0.014	Sec. E1	3	7.650	204.000	17.300	0.300
7	W12X26	W12X26	0.029	1.000	0.029	Sec. G2.1(a)	3	7.650	204.000	17.300	0.300
8	W12X26	W12X26	0.031	1.000	0.031	Eq. H1-1b	7	7.650	204.000	17.300	0.300
12	W8X13	W8X13	0.006	1.000	0.006	Eq. H1-1b	4	3.840	39.600	2.730	0.0871
13	W8X13	W8X13	0.006	1.000	0.006	Eq. H1-1b	4	3.840	39.600	2.730	0.0871
14	W8X13	W8X13	0.006	1.000	0.006	Eq. H1-1b	4	3.840	39.600	2.730	0.0871
18	W10X26	W10X26	0.006	1.000	0.006	Eq. H1-1b	6	7.610	144.000	14.100	0.402
19	W10X26	W10X26	0.008	1.000	0.008	Eq. H1-1b	6	7.610	144.000	14.100	0.402
21	HSST5X5X0	HSST5X5X0	0.071	1.000	0.071	Eq. H1-1b	3	4.300	16.000	16.000	25.800
22	HSST5X5X0	HSST5X5X0	0.044	1.000	0.044	Eq. H1-1b	3	4.300	16.000	16.000	25.800
23	HSST5X5X0	HSST5X5X0	0.087	1.000	0.087	Eq. H1-1b	7	4.300	16.000	16.000	25.800
24	HSST5X5X0	HSST5X5X0	0.088	1.000	0.088	Eq. H1-1b	7	4.300	16.000	16.000	25.800
25	L30305	L30305	0.030	1.000	0.030	Eq. H2-1	6	1.780	0.605	2.419	0.058
26	L30305	L30305	0.071	1.000	0.071	Eq. H2-1	7	1.780	0.605	2.419	0.058
36	W12X26	W12X26	0.021	1.000	0.021	Sec. G2.1(a)	7	7.650	204.000	17.300	0.300
38	W12X26	W12X26	0.046	1.000	0.046	Eq. H1-1b	7	7.650	204.000	17.300	0.300
40	W12X26	W12X26	0.021	1.000	0.021	Sec. E1	3	7.650	204.000	17.300	0.300

Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (in^2)	Iz (in^4)	Iy (in^4)	Ix (in^4)
41	W12X26	W12X26	0.037	1.000	0.037	Eq. H1-1b	3	7.650	204.000	17.300	0.300
42	W8X13	W8X13	0.002	1.000	0.002	Eq. H1-1b	6	3.840	39.600	2.730	0.0871
43	W8X13	W8X13	0.004	1.000	0.004	Eq. H1-1b	4	3.840	39.600	2.730	0.0871
44	W12X26	W12X26	0.024	1.000	0.024	Sec. G2.1(a)	2	7.650	204.000	17.300	0.300
45	W12X26	W12X26	0.039	1.000	0.039	Sec. G2.1(a)	3	7.650	204.000	17.300	0.300
46	HSST5X5X0	HSST5X5X0	0.092	1.000	0.092	Eq. H1-1b	7	4.300	16.000	16.000	25.800
47	HSST5X5X0	HSST5X5X0	0.097	1.000	0.097	Eq. H1-1b	7	4.300	16.000	16.000	25.800
48	W12X26	W12X26	0.010	1.000	0.010	Eq. H1-1b	3	7.650	204.000	17.300	0.300
49	W12X26	W12X26	0.054	1.000	0.054	Eq. H1-1b	7	7.650	204.000	17.300	0.300
50	L30305	L30305	0.054	1.000	0.054	Eq. H2-1	3	1.780	0.605	2.419	0.058
51	L30305	L30305	0.135	1.000	0.135	Eq. H2-1	7	1.780	0.605	2.419	0.058
52	L30305	L30305	0.101	1.000	0.101	Sec. E1	7	1.780	0.605	2.419	0.058
53	L30305	L30305	32965	1.000	0.032965	Eq. H2-1	7	1.780	0.605	2.419	0.058
54	PIPS35	PIPS35	0.178	1.000	0.178	Eq. H1-1b	2	2.500	4.520	4.520	9.040
55	PIPS35	PIPS35	0.127	1.000	0.127	Eq. H1-1b	2	2.500	4.520	4.520	9.040
56	PIPS35	PIPS35	0.369	1.000	0.369	Eq. H1-1b	3	2.500	4.520	4.520	9.040
57	PIPS35	PIPS35	0.369	1.000	0.369	Eq. H1-1b	2	2.500	4.520	4.520	9.040
58	W12X26	W12X26	0.033	1.000	0.033	Eq. H1-1b	2	7.650	204.000	17.300	0.300
59	W12X26	W12X26	0.037	1.000	0.037	Eq. H1-1b	3	7.650	204.000	17.300	0.300
60	L30304	L30304	0.075	1.000	0.075	Eq. H2-1	7	1.440	0.493	1.996	0.03
61	L30304	L30304	0.130	1.000	0.130	Eq. H2-1	2	1.440	0.493	1.996	0.03
62	W12X26	W12X26	0.037	1.000	0.037	Eq. H1-1b	2	7.650	204.000	17.300	0.300
63	W12X26	W12X26	0.044	1.000	0.044	Eq. H1-1b	3	7.650	204.000	17.300	0.300
64	L30304	L30304	0.102	1.000	0.102	Sec. E1	3	1.440	0.493	1.996	0.03
65	L30304	L30304	0.091	1.000	0.091	Eq. H2-1	7	1.440	0.493	1.996	0.03
66	PIPS35	PIPS35	0.355	1.000	0.355	Eq. H1-1b	2	2.500	4.520	4.520	9.040
67	PIPS35	PIPS35	0.228	1.000	0.228	Eq. H1-1b	2	2.500	4.520	4.520	9.040
68	PIPS35	PIPS35	0.355	1.000	0.355	Eq. H1-1b	2	2.500	4.520	4.520	9.040
69	W10X26	W10X26	0.009	1.000	0.009	Eq. H1-1b	6	7.610	144.000	14.100	0.402
70	W10X26	W10X26	0.009	1.000	0.009	Eq. H1-1b	6	7.610	144.000	14.100	0.402
71	W10X26	W10X26	0.007	1.000	0.007	Eq. H1-1b	6	7.610	144.000	14.100	0.402
72	W10X26	W10X26	0.006	1.000	0.006	Sec. G2.1(a)	6	7.610	144.000	14.100	0.402
73	W12X26	W12X26	0.045	1.000	0.045	Eq. H1-1b	7	7.650	204.000	17.300	0.300
74	W12X26	W12X26	0.042	1.000	0.042	Eq. H1-1b	7	7.650	204.000	17.300	0.300
75	W12X26	W12X26	45513	1.000	0.045513	Eq. H1-1b	3	7.650	204.000	17.300	0.300

Failed Members

There is no data of this type.



Utilization Ratio

Reaction Summary

Reactions for lag screw check

	Node	L/C	Horizontal FX (kip)	Vertical FY (kip)	Horizontal FZ (kip)	Moment MX (kip-in)	Moment MY (kip-in)	Moment MZ (kip-in)
Max FX	20	7:DL - 0.6WL(Z	**1.489**	1.260	-2.940	-14.957	0.039	-7.816
Min FX	21	4:DL + 0.6WL (	**-1.600**	2.046	0.782	-2.264	0.088	11.117
Max FY	21	4:DL + 0.6WL (	-1.600	**2.046**	0.782	-2.264	0.088	11.117
Min FY	20	6:DL + 0.6WL (	0.080	**0.435**	0.093	2.266	-0.024	2.177
Max FZ	21	7:DL - 0.6WL(Z	-1.184	1.562	**1.164**	-5.637	0.129	7.251
Min FZ	20	7:DL - 0.6WL(Z	1.489	1.260	**-2.940**	-14.957	0.039	-7.816
Max MX	21	6:DL + 0.6WL (	-1.078	1.571	0.586	**6.486**	-0.039	3.248
Min MX	20	7:DL - 0.6WL(Z	1.489	1.260	-2.940	**-14.957**	0.039	-7.816
Max MY	19	7:DL - 0.6WL(Z	-0.305	0.868	0.780	0.095	**0.131**	3.025
Min MY	19	6:DL + 0.6WL (	0.999	1.683	0.317	2.779	**-0.055**	-4.551
Max MZ	21	4:DL + 0.6WL (	-1.600	2.046	0.782	-2.264	0.088	**11.117**
Min MZ	20	7:DL - 0.6WL(Z	1.489	1.260	-2.940	-14.957	0.039	**-7.816**

Dewberry

Job Number	50122974
Made by:	CY
Date:	7/7/2022
Checked by:	SA
Date:	7/11/2022

(MA2312 Cambridge Hampshire St) - Lag Screw Calcs

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Check lag screws on steel frame post downs (GAMMA)

- Existing steel frame posts down directly over existing 9"x9" columns into existing 9"x12" timber beams
- Existing 8 lag screws per post down
- Loading is taken from STAAD

Design Loading

Fz =	368 lb	*STAAD Max Tension Load*		
Moment =	1870 lb-in	*STAAD Max Moment - Prying*		
F_y =	256 lb	*STAAD Max Vertical Load*		
Fx =	200 lb	*STAAD Max Shear Load*		
z =	325 lb	*Max Combined Shear Load*	θ =	38.0
w =	1115 lb	*Withdrawal Load*		
zα =	1162 lb	*Combined Lateral and Withdrawal*	α =	73.8

Lag Screw Dimensions: *(Table L2, NDS 2015)*

Dia. (D) =	0.75 in.	T =	5 in.	T-E =	4.5 in.
Length =	9 in.	S =	4 in.		

Adjusted Design Values (per lag screw)

$W' = (1800G^{3/2}D^{3/4})C_d$ where: C_d = 0.9 *(duration factor, permanent)*

$= 533$ lb G = 0.55 *(spec. grav. southern pine)*

$Z' = Z_\theta C_d C_g$ where: C_d = 0.9 *(duration factor, permanent)*

$= 1258$ lb C_g = 1 *(group factor, calc'd)*

Z_θ = 1396.9 *(Yield Mode III_m)*

Combined Lateral and Withdrawal Loads

$$Z'\alpha = \frac{(W'p)\,Z'}{(W'p)\cos^2\alpha + Z'\sin^2\alpha}$$

$Z'\alpha$ = 2240 lb

Unity Checks

$$\frac{z\alpha}{Z'\alpha} = \frac{1162\text{ lb}}{2240\text{ lb}} = 51.9\%$$

Reactions

Reactions for roof check

Node	L/C	Horizontal FX (kip)	Vertical FY (kip)	Horizontal FZ (kip)	Moment MX (kip-in)	MY (kip-in)	MZ (kip-in)
19	1:DEAD	0.347	1.276	0.548	1.437	0.038	-0.763
	2:WIND LOAD	-0.739	-0.782	0.036	0.336	0.065716	9.762
	3:WIND LOAD	1.086	0.680	-0.386	2.237	-0.155	-6.313
20	1:DEAD	0.784	0.848	-1.423	-6.345	0.007	-2.819
	2:WIND LOAD	-0.140	-0.017	0.119	0.811	0.067	1.556
	3:WIND LOAD	-1.174	-0.687	2.527	14.352	-0.053	8.328
21	1:DEAD	-1.131	1.567	0.875	0.424	0.045	5.250
	2:WIND LOAD	-0.781	0.799	-0.155	-4.480	0.072	9.779
	3:WIND LOAD	0.088	0.008	-0.482	10.103	-0.140	-3.336

Dewberry

Job Number	50122974
Made by:	CY
Date:	7/8/22
Checked by:	BGK
Date:	7/11/22

(MA2312 Cambridge Hampshire St) - Structure Loading

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Site Name: MA2312 Cambridge Hampshire St

Existing Building Information

- Timber framed roof
- Existing roof floor layout from previous structural analysis by Dewberry Engineers on 11/15/17
- Assume Southern Pine timber species
- Massachusetts 780 CMR 9th Edition for wind and snow load

Existing Dead Load

- Estimated roof dead load:

T&G Decking =	5.00 psf	*(Assume 2" Fir, ASCE 7-10)*
3" Rigid Insulation =	4.50 psf	*(0.75 psf per 1/2")*
Roofing membrane =	1.50 psf	*(Bituminous, smooth surface)*
Misc loading =	5.00 psf	
Total Exist. Dead Load =	16.0 psf	

Existing Roof Live Load 30 psf *(assumed)*

Snow Load (ASCE 7-10)

General Design Criteria

Exposure Factor, C_e =	1.0	*(ASCE 7-10, Table 7-2)*
Thermal Factor, C_t =	1.0	*(ASCE 7-10, Table 7-3)*
Importance Factor, I_s =	1.0	*(ASCE 7-10, Table 1.5-2)*
Min. Flat Roof Snow Load, $p_{f\,min}$ =	30 psf	*(780 CMR - MA Amendments to the IBC)*
Ground Snow Load, p_g =	40 psf	*(780 CMR - MA Amendments to the IBC)*

Design Snow Load, $p_f = 0.7C_eC_tI_sp_g$ *(ASCE 7-10, Eqn. 7.3-1)*

= 28.0 psf ***(Use 30 psf)***

BETA SECTOR

- Proposed equipment load:

10'x10' Ballast mount = 24.9 psf *(See attached calcs)*

= 2490 lb over 10'x10' area

Existing 12"Dx9"W Timber Beam Loading

Ballast mount to be relocated and centered over existing column. Analysis applies full load over (2) timber beams spanning over the column.

L1 = 14.08 ft L2 = 15.25 ft Trib width = 15.15 ft

Ballast load = 249 plf *(PDL from 9.08 ft to 14.08 ft on B1 and 0 ft to 5 ft on B2)*

GAMMA SECTOR

- Loading is taken from STAAD

Existing 12"Dx 9"W Timber Beam Loading L = 14.75 ft Trib width = 15.2 ft

Place node 19 @ 0' on beam:	DL = 1.276 k	WL = 0.782k	M = 0.814 k-ft
Place node 21 @ 14.75' on beam:	DL = 1.567 k	WL = 0.799 k	M = 0.842 k-ft

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

File: roof check.ec6

Lic. # : KW-06009005 DEWBERRY

DESCRIPTION: Existing 9"Wx12"D timber beam roof check (BETA)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-10

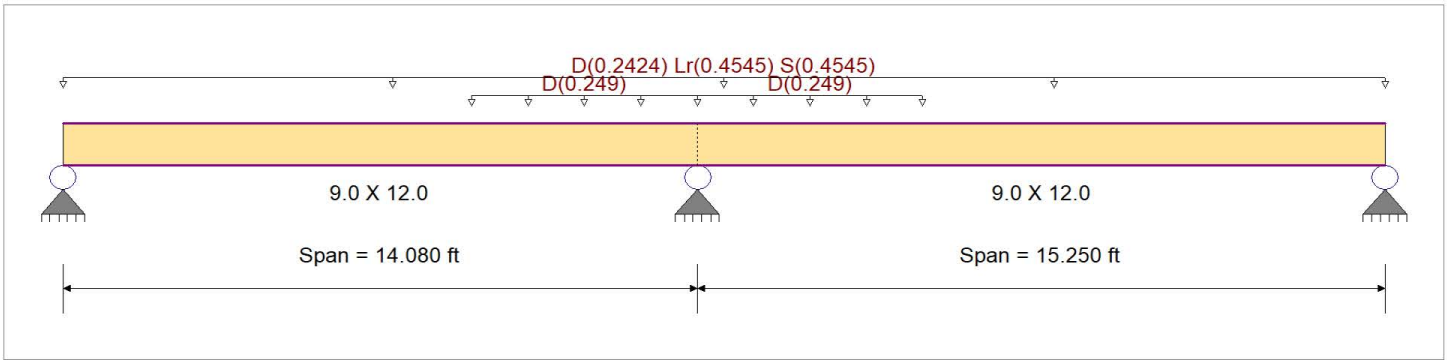
Wood Species : Southern Pine
Wood Grade : Select Structural

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,500.0 psi
Fb -	1,500.0 psi
Fc - Prll	950.0 psi
Fc - Perp	375.0 psi
Fv	165.0 psi
Ft	1,000.0 psi

E : Modulus of Elasticity

Ebend- xx	1,500.0 ksi
Eminbend - xx	550.0 ksi
Density	34.330 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0160, Lr = 0.030, S = 0.030 ksf, Tributary Width = 15.150 ft
Load for Span Number 1
Uniform Load : D = 0.2490 k/ft, Extent = 9.080 -->> 14.080 ft, Tributary Width = 1.0 ft, (Ex. ballast frame load)
Load for Span Number 2
Uniform Load : D = 0.2490 k/ft, Extent = 0.0 -->> 5.0 ft, Tributary Width = 1.0 ft, (Existing ballast frame load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.821 : 1	Maximum Shear Stress Ratio	=	0.533 : 1
Section used for this span		9.0 X 12.0	Section used for this span		9.0 X 12.0
	=	1,203.41 psi		=	98.07 psi
	=	1,466.25 psi		=	184.06 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	14.080 ft	Location of maximum on span	=	14.080 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.144 in	Ratio =	1269 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.240 in	Ratio =	763 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.080 ft	1	0.454	0.310	0.90	1.000	1.00	1.00	0.85	1.00	1.00	9.38	521.38	1147.50	3.22	44.67	144.05
Length = 15.250 ft	2	0.454	0.310	0.90	1.000	1.00	1.00	0.85	1.00	1.00	9.38	521.38	1147.50	3.22	44.67	144.05
+D+Lr					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.080 ft	1	0.755	0.490	1.25	1.000	1.00	1.00	0.85	1.00	1.00	21.66	1,203.41	1593.75	7.06	98.07	200.06
Length = 15.250 ft	2	0.755	0.490	1.25	1.000	1.00	1.00	0.85	1.00	1.00	21.66	1,203.41	1593.75	7.06	98.07	200.06
+D+S					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.080 ft	1	0.821	0.533	1.15	1.000	1.00	1.00	0.85	1.00	1.00	21.66	1,203.41	1466.25	7.06	98.07	184.06

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

File: roof check.ec6

Lic. # : KW-06009005 DEWBERRY

DESCRIPTION: Existing 9"Wx12"D timber beam roof check (BETA)

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 15.250 ft	2	0.821	0.533	1.15	1.000	1.00	1.00	0.85	1.00	1.00	21.66	1,203.41	1466.25	7.06	98.07	184.06
+D+0.750Lr					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.080 ft	1	0.648	0.423	1.25	1.000	1.00	1.00	0.85	1.00	1.00	18.59	1,032.90	1593.75	6.10	84.72	200.06
Length = 15.250 ft	2	0.648	0.423	1.25	1.000	1.00	1.00	0.85	1.00	1.00	18.59	1,032.90	1593.75	6.10	84.72	200.06
+D+0.750S					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.080 ft	1	0.704	0.460	1.15	1.000	1.00	1.00	0.85	1.00	1.00	18.59	1,032.90	1466.25	6.10	84.72	184.06
Length = 15.250 ft	2	0.704	0.460	1.15	1.000	1.00	1.00	0.85	1.00	1.00	18.59	1,032.90	1466.25	6.10	84.72	184.06
+0.60D					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.080 ft	1	0.153	0.105	1.60	1.000	1.00	1.00	0.85	1.00	1.00	5.63	312.83	2040.00	1.93	26.80	256.08
Length = 15.250 ft	2	0.153	0.105	1.60	1.000	1.00	1.00	0.85	1.00	1.00	5.63	312.83	2040.00	1.93	26.80	256.08

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.1436	5.821		0.0000	0.000
+D+S	2	0.2396	8.690		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	3.770	15.621	4.294
Overall MINimum	2.328	8.342	2.661
D Only	1.442	7.279	1.633
+D+Lr	3.770	15.621	4.294
+D+S	3.770	15.621	4.294
+D+0.750Lr	3.188	13.536	3.629
+D+0.750S	3.188	13.536	3.629
+0.60D	0.865	4.367	0.980
Lr Only	2.328	8.342	2.661
S Only	2.328	8.342	2.661

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

File: roof check.ec6

Lic. # : KW-06009005 DEWBERRY

DESCRIPTION: Existing 9"Wx12"D timber beam roof check (GAMMA)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-10

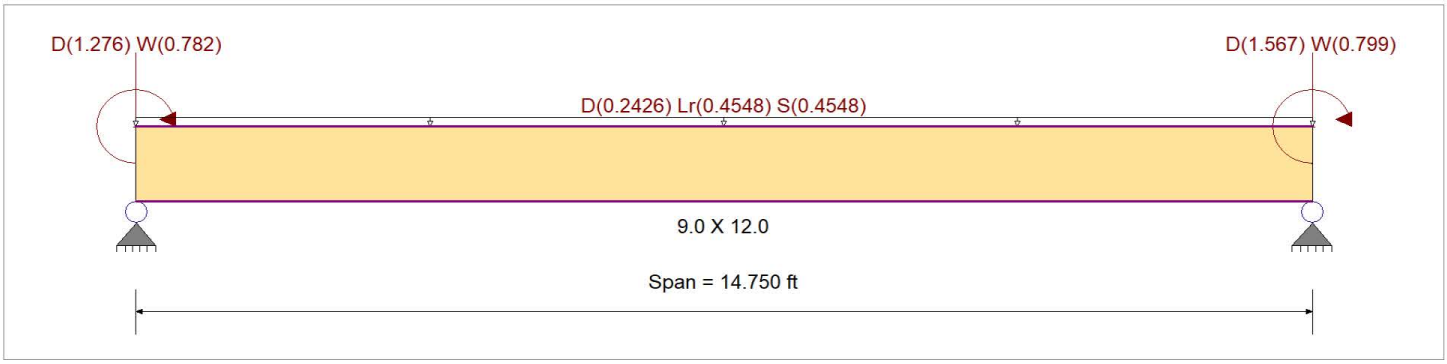
Wood Species : Southern Pine
Wood Grade : Select Structural

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,500.0 psi
Fb -	1,500.0 psi
Fc - Prll	950.0 psi
Fc - Perp	375.0 psi
Fv	165.0 psi
Ft	1,000.0 psi

E : Modulus of Elasticity

Ebend- xx	1,500.0 ksi
Eminbend - xx	550.0 ksi
Density	34.330 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0160, Lr = 0.030, S = 0.030 ksf, Tributary Width = 15.160 ft
Point Load : D = 1.276, W = 0.7820 k @ 0.0 ft, (Ex. Platform post down (node 19))
Point Load : D = 1.567, W = 0.7990 k @ 14.750 ft, (Ex. platform post down (node 21))
Moment : W = 0.8140 k-ft, Location = 0.0 ft from left end of this span, (Ex. platform post down (node 19))
Moment : W = 0.8420 k-ft, Location = 14.750 ft from left end of this span, (Ex. platform post down (node 21))

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.745 : 1	Maximum Shear Stress Ratio	=	0.350 : 1
Section used for this span		9.0 X 12.0	Section used for this span		9.0 X 12.0
	=	1,092.51 psi		=	64.34 psi
	=	1,466.25 psi		=	184.06 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	7.375 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.278 in	Ratio =	635 >=360
Max Upward Transient Deflection	-0.003 in	Ratio =	57917 >=360
Max Downward Total Deflection	0.443 in	Ratio =	399 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.353	0.166	0.90	1.000	1.00	1.00	0.85	1.00	1.00	7.30	405.37	1147.50	1.72	23.87	144.05
+D+Lr					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.685	0.322	1.25	1.000	1.00	1.00	0.85	1.00	1.00	19.67	1,092.51	1593.75	4.63	64.34	200.06
+D+S					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.745	0.350	1.15	1.000	1.00	1.00	0.85	1.00	1.00	19.67	1,092.51	1466.25	4.63	64.34	184.06
+D+0.750Lr					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.578	0.271	1.25	1.000	1.00	1.00	0.85	1.00	1.00	16.57	920.72	1593.75	3.90	54.22	200.06

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

File: roof check.ec6

Lic. # : KW-06009005 DEWBERRY

DESCRIPTION: Existing 9"Wx12"D timber beam roof check (GAMMA)

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750S					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.628	0.295	1.15	1.000	1.00	1.00	0.85	1.00	1.00	16.57	920.72	1466.25	3.90	54.22	184.06
+D+0.60W					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.199	0.097	1.60	1.000	1.00	1.00	0.85	1.00	1.00	7.30	405.37	2040.00	1.79	24.81	256.08
+D+0.750Lr+0.450W					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.451	0.214	1.60	1.000	1.00	1.00	0.85	1.00	1.00	16.57	920.48	2040.00	3.95	54.92	256.08
+D+0.750S+0.450W					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.451	0.214	1.60	1.000	1.00	1.00	0.85	1.00	1.00	16.57	920.48	2040.00	3.95	54.92	256.08
+0.60D+0.60W					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.119	0.060	1.60	1.000	1.00	1.00	0.85	1.00	1.00	4.38	243.54	2040.00	1.10	15.26	256.08
+0.60D					1.000	1.00	1.00	0.85	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.119	0.056	1.60	1.000	1.00	1.00	0.85	1.00	1.00	4.38	243.22	2040.00	1.03	14.32	256.08

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.4427	7.429		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.609	6.900
Overall MINimum	0.670	0.911
D Only	3.255	3.546
+D+Lr	6.609	6.900
+D+S	6.609	6.900
+D+0.750Lr	5.770	6.061
+D+0.750S	5.770	6.061
+D+0.60W	3.657	4.093
+D+0.750Lr+0.450W	6.072	6.471
+D+0.750S+0.450W	6.072	6.471
+0.60D+0.60W	2.355	2.674
+0.60D	1.953	2.127
Lr Only	3.354	3.354
S Only	3.354	3.354
W Only	0.670	0.911

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	MAL02312	DATE:	3/9/2021	RF DESIGN ENG:	Mateen Mohammed	RF PERF ENG:		RFDS PROGRAM TYPE:	2021 5G NR Radio
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	5107767382	RF PERF PHONE:		RFDS TECHNOLOGY:	5G NR 1SR CBAND
REVISION:	Preliminary	RF MANAGER:	John Benendetto	RF DESIGN EMAIL:	mm093a@att.com	RF PERF EMAIL:		STATE/STATUS:	Final/Approved
						ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:	4399612
						RFDS VERSION	2.00	Created By:	sp656b / Updated By: dr701e
						UMTS FREQUENCY:		Created:	3/5/2021 / Updated: 5/12/2022
						LTE FREQUENCY:	700,850,1900,AWS,WCS	Estimated SQIN:	15,153 / Expiration:
						5G FREQUENCY:	850,1900,AWS,CBAND	RER Initiative:	/ Calculation ID: 20220510104529052 9
						IPLAN JOB # 1:	ER_-RCTB-21-07299	PRD || SUB GRP #1	5G NR Software Radio || 5G NR Activation
						IPLAN JOB # 2:	ER_-RCTB-21-07298	PRD || SUB GRP #2	5G NR Software Radio || 5G NR Activation
						IPLAN JOB # 3:	ER_-RCTB-21-01078	PRD || SUB GRP #3	Antenna Modifications || 4TX4RX Software Retrofit
						IPLAN JOB # 4:	ER_-RCTB-21-01186	PRD || SUB GRP #4	Cell Site RF Modifications || 5G NR Upgrade
						IPLAN JOB # 5:	ER_-RCTB-21-00916	PRD || SUB GRP #5	5G NR Radio || 5G NR 1SR CBand
						IPLAN JOB # 6:	ER_-RCTB-21-00463	PRD || SUB GRP #6	LTE Next Carrier || LTE 6C
						IPLAN JOB # 7:		PRD || SUB GRP #7	
						IPLAN JOB # 8:		PRD || SUB GRP #8	
						IPLAN JOB # 9:		PRD || SUB GRP #9	
						IPLAN JOB #10:		PRD || SUB GRP #10	
						IPLAN JOB # 11:		PRD || SUB GRP #11	
						IPLAN JOB # 12:		PRD || SUB GRP #12	
						IPLAN JOB # 13:		PRD || SUB GRP #13	
						IPLAN JOB # 14:		PRD || SUB GRP #14	
						IPLAN JOB # 15:		PRD || SUB GRP #15	
						IPLAN JOB # 16:		PRD || SUB GRP #16	

INITIATIVE PROJECT	C-band only, Existing 2 Ant 12 port and 8port., No space in faux chimney on Rooftop,. Propose more Faux Chimney's. DoD Project will cancelled.

Section 2 - LOCATION INFORMATION

USID:	134883	FA LOCATION CODE:	12575286	LOCATION NAME:	CAMBRIDGE NORFOLK STREET	ORACLE PRJT # 1:		PACE JOB #1:	MRCTB057843
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	BOSTON	ORACLE PRJT # 2:		PACE JOB #2:	MRCTB057841
ADDRESS:	288 NORFOLK STREET	CITY:	CAMBRIDGE	STATE:	MA	ORACLE PRJT # 3:	2101A0Z7J6	PACE JOB #3:	MRCTB050764
ZIP CODE:	02139	COUNTY:	MIDDLESEX	LONG (DEC. DEG.):	-71.0970720	ORACLE PRJT # 4:	2101A0Z7EZ	PACE JOB #4:	MRCTB050948
LATITUDE (D-M-S):	42d 22m 16.6512s	LONGITUDE (D-M-S):	-71d -5m -49.4592s	LAT (DEC. DEG.):	42.3712920	ORACLE PRJT # 5:	2101A0Z7L7	PACE JOB #5:	MRCTB051512
						ORACLE PRJT # 6:	2101A0Z718	PACE JOB #6:	MRCTB051062
						ORACLE PRJT # 7:		PACE JOB #7:	
						ORACLE PRJT # 8:		PACE JOB #8:	
						ORACLE PRJT # 9:		PACE JOB #9:	
						ORACLE PRJT # 10:		PACE JOB #10:	
						ORACLE PRJT # 11:		PACE JOB #11:	
						ORACLE PRJT # 12:		PACE JOB #12:	
						ORACLE PRJT # 13:		PACE JOB #13:	
						ORACLE PRJT # 14:		PACE JOB #14:	
						ORACLE PRJT # 15:		PACE JOB #15:	
						ORACLE PRJT # 16:		PACE JOB #16:	
						BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:	CAMBRIDGE HAMPSHIRE ST
						AM STUDY REQ'D (Y/N):	No	SEARCH RING ID:	MA2312S
						FREQ COORD:		BTA: 051	MSA / RSA:
								LAC(UMTS):	
						RF DISTRICT:	TBD		
						RF ZONE:	TBD	RNC(UMTS):	
								MME POOL ID(LTE):	FF01
						PARENT NAME(UMTS):			

DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	TAKE 190 E TAKE EXIT 18 ON THE LEFT TOWARD CAMBRIDGE MAKE A SLIGHT LEFT ONTO CAMBRIDGE ST CONTINUE ONTO RIVER ST CONTINUE ONTO PROSPECT ST TURN RIGHT ONTO HAMPSHIRE ST TURN LEFT ONTO NORFOLK ST THE SITE WILL BE ON THE RIGHT STREET PARKING ONLY THEY TICKET COMMERCIAL PLATES ACCESS: ENTER FRONT DOOR TAKE FIRST DOOR ON RIGHT GO STRAIGHT TO BACK ROOM GO THRU DOOR INTO BASEMENT/STORAGE AREA MAKE RIGHT ATT LEASE SPACE TOWARDS BACK AREA0419

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:			
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:					

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	ROOFTOP	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):		FCC ASR NUMBER:		MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	74.00			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911				INTRADO		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		0		
SECTOR D								
SECTOR E								

SECTOR F								
OMNI								

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911				INTRADO		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		0		
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 6/7 - BBU INFORMATION - existing

	BBU 1
BBU ID:	568853
TECHNOLOGY:	LTE
BBU NAME:	MAL02312
BBU USID:	134883
CELL ID / BCF:	MAL02312
BTA/TID:	051L
4-9 DIGIT SITE ID:	2312
COW OR TOY?:	No
CELL SITE TYPE:	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL
BASE STATION TYPE:	OVERLAY
EQUIPMENT NAME:	CAMBRIDGE HAMPSHIRE ST LTE
DISASTER PRIORITY:	0
EQUIPMENT VENDOR:	ERICSSON
EQUIPMENT TYPE (Model):	6601 INDOOR MU
BASEBAND CONFIGURATION :	
MARKET STATE CODE:	MA
NODE B NUMBER:	2312
SIDEHAUL SWITCH VENDOR:	
SIDEHAUL SWITCH MODEL:	
SIDEHAUL SWITCH NAME:	
CSS - CTS COMMON ID:	MAL02312
CSS - SECONDARY FUNCTION ID:	

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3
BBU ID:	568853	0	0
TECHNOLOGY:	LTE	5G	LTE,5G
BBU NAME:	MAL02312	MAMN032312	MAL06312R,MAMN002312
BBU USID:	134883	134883	134883
CELL ID / BCF:	MAL02312	MAMN032312	MAMN002312
BTA/TID:	051L		051L
4-9 DIGIT SITE ID:	2312	14132312	2312
COW OR TOY?:	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	OVERLAY	OVERLAY	OVERLAY
EQUIPMENT NAME:	CAMBRIDGE HAMPSHIRE ST LTE	MAMN032312	CAMBRIDGE HAMPSHIRE ST LTE
DISASTER PRIORITY:	0	0	0
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	6601 RADIONODE 5216	BASEBAND 6648	BASEBAND 6630
BASEBAND CONFIGURATION :	1x6601 / 1x5216 / 1xXMU03	xxxxx / 1x6648 / xxxxx	xxxxx / 1x6630 Mixed-Mode / xxxxx + IDL
MARKET STATE CODE:	MA	MAM	MA,MAM
NODE B NUMBER:	2312	32312	6312,2312
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
CSS - CTS COMMON ID:	MAL02312		
CSS - SECONDARY FUNCTION ID:			

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1
CTS Common ID	MAL02312
Soft Sector IDs	MAL02312_2A_2
	MAL02312_2B_2
	MAL02312_2C_2
	MAL02312_3A_1
	MAL02312_3B_1
	MAL02312_3C_1
	MAL02312_7A_1
	MAL02312_7B_1
	MAL02312_7C_1
	MAL02312_8A_1
	MAL02312_8B_1
	MAL02312_8C_1
	MAL02312_9A_1
	MAL02312_9B_1
	MAL02312_9C_1

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	MAL02312	MAMN032312	MAL06312R,MAMN002312
Soft Sector IDs	MAL02312_3A_1	MAMN032312_N077A_1	MAL06312_2A_2
	MAL02312_3B_1	MAMN032312_N077B_1	MAL06312_2B_2
	MAL02312_3C_1	MAMN032312_N077C_1	MAL06312_2C_2
	MAL02312_7A_1		MAL06312_9A_1
	MAL02312_7A_3_F		MAL06312_9B_1
	MAL02312_7B_1		MAL06312_9C_1
	MAL02312_7B_3_F		MAMN002312_N002A_1
	MAL02312_7C_1		MAMN002312_N002B_1
	MAL02312_7C_3_F		MAMN002312_N002C_1
			MAMN002312_N005A_1
			MAMN002312_N005B_1
			MAMN002312_N005C_1
			MAMN002312_N066A_1
			MAMN002312_N066B_1
			MAMN002312_N066C_1

Section 9 - SOFT SECTOR ID - existing

	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 4TH AWS	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)											
SECTOR A SOFT SECTOR ID	MAL02312_7A_1	MAL02312_8A_1	MAL02312_9A_1	MAL02312_2A_2	MAL02312_3A_1						
SECTOR B	MAL02312_7B_1	MAL02312_8B_1	MAL02312_9B_1	MAL02312_2B_2	MAL02312_3B_1						
SECTOR C	MAL02312_7C_1	MAL02312_8C_1	MAL02312_9C_1	MAL02312_2C_2	MAL02312_3C_1						
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 9 - SOFT SECTOR ID - final

	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 4TH AWS	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)											
SECTOR A SOFT SECTOR ID	MAL02312_7A_1		MAL06312_9A_1		MAL02312_3A_1	MAL02312_7A_3_F	MAL06312_2A_2	MAMN002312_N00	MAMN002312_N00	MAMN002312_N06	MAMN032312_N077A_1
SECTOR B	MAL02312_7B_1		MAL06312_9B_1		MAL02312_3B_1	MAL02312_7B_3_F	MAL06312_2B_2	MAMN002312_N00	MAMN002312_N00	MAMN002312_N06	MAMN032312_N077B_1
SECTOR C	MAL02312_7C_1		MAL06312_9C_1		MAL02312_3C_1	MAL02312_7C_3_F	MAL06312_2C_2	MAMN002312_N00	MAMN002312_N00	MAMN002312_N06	MAMN032312_N077C_1
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 9 - Cell Number - existing

	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 4TH AWS	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)											
SECTOR A CELL NUMBER	15	1	8	192	149						
SECTOR B	16	2	9	193	150						
SECTOR C	17	3	10	194	151						
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 9 - Cell Number - final

	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 4TH AWS	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND
USEID (excluding Hard Sector)											
SECTOR A CELL NUMBER	15		8		149	171	192	25	26	27	36
SECTOR B	16		9		150	172	193	49	50	51	60
SECTOR C	17		10		151	173	194	73	74	75	84
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 10 - CID/SAC - existing																								
	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 4TH AWS	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND													
SECTOR A CID/SAC																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 10 - CID/SAC - final																								
	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 4TH AWS	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND													
SECTOR A CID/SAC																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 11 - CURRENT RADIO COUNTS existing																										
	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS																					
SECTOR A RADIO COUNTS	1	1	1	1	1																					
SECTOR B	1	1	1	1	1																					
SECTOR C	1	1	1	1	1																					
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 12 - CURRENT T1 COUNTS existing																					
	LTE 1ST Cabinet																				
# T1s																					
LINK PROFILE																					
RF COMBINING																					
FIBER or ETHERNET?	ETHERNET																				
Tx Board Model																					
Tx Board QTY																					
RAX/ECU Board Model																					
RAX/ECU Board QTY																					
BBU Board Model																					
BBU Board QTY																					
RRU - location	TOP																				
FIBER JUMPER	FIBER																				
DC CABLE	DC																				
DC/Fiber Dem. Box	RAYCAP																				
Bundled Fiber Cable	YES																				
Bundled DC Cable	YES																				

Section 13 - NEW/PROPOSED RADIO COUNTS																										
	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS																					
SECTOR A RADIO COUNTS	1	1	1	1	1																					
SECTOR B	1	1	1	1	1																					
SECTOR C	1	1	1	1	1																					
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 14 - NEW/PROPOSED T1 COUNTS																					
	LTE 1ST Cabinet																				
# T1s																					
LINK PROFILE																					
RF COMBINING																					
FIBER or ETHERNET?	ETHERNET																				
Tx Board Model																					
Tx Board QTY																					
RAX/ECU Board Model																					
RAX/ECU Board QTY																					
BBU Board Model																					
BBU Board QTY																					
RRU - location	TOP																				
FIBER JUMPER	FIBER																				
DC CABLE	DC																				
DC/Fiber Dem. Box	RAYCAP																				
Bundled Fiber Cable	YES																				
Bundled DC Cable	YES																				

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	TPA65RLCUUUUH6		OPA-65R-LCUU-H6											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	72.1X11.8X11.6		72.1X14.8X7.4											
ANTENNA WEIGHT	71.2		73											
AZIMUTH	30		30											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	61		61											
ANTENNA TIP HEIGHT	64		64											
MECHANICAL DOWNTILT	2		2											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED										
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)	1	DC6-48-60-18-8F	2	DC6-48-60-08F										
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	RRUS-11 B12												
RRH - 850 band (QTY/MODEL)	1	RRUS-12 B5												
RRH - 1900 band (QTY/MODEL)	1	RRUS-32 B2												
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1			MAL02312_7A_1	MAL02312_7A_1		LTE 700	LCUUUU-H6_725MHz_05D	13.9	30	5	Top	Fiber										
	PORT 3			MAL02312_8A_1	MAL02312_8A_1		LTE 850	LCUUUU-H6_849MHz_05D	14.4	30	5	Top	Fiber										
	PORT 5			MAL02312_3A_1	MAL02312_3A_1		LTE WCS	LCUUUU-H6_2350MHz_06	15.5	30	6	Top	Fiber										
	PORT 7			MAL02312_9A_1	MAL02312_9A_1		LTE 1900	LCUUUU-H6_1930MHz_06	15.5	30	6	Top	Fiber										
ANTENNA POSITION 2	PORT 5			MAL02312_2A_2	MAL02312_2A_2		LTE AWS	H6_2133MHz_06 OT	17.2	30	6	Top	Fiber										

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	TPA65RLCUUUUH6		OPA-65R-LCUU-H6											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	72.1X11.8X11.6		72.1X14.8X7.4											
ANTENNA WEIGHT	71.2		73											
AZIMUTH	150		150											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	67		67											
ANTENNA TIP HEIGHT	70		70											
MECHANICAL DOWNTILT	2		2											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED										
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)	1	DC6-48-60-18-8F	2	DC6-48-60-08F										
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	RRUS-11 B12												
RRH - 850 band (QTY/MODEL)	1	RRUS-12 B5												
RRH - 1900 band (QTY/MODEL)	1	RRUS-32 B2												
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1			MAL02312_7B_1	MAL02312_7B_1		LTE 700	LCUUUU-H6_725MHz_04D	13.9	150	4	Top	Fiber										
	PORT 3			MAL02312_8B_1	MAL02312_8B_1		LTE 850	LCUUUU-H6_849MHz_04D	14.4	150	4	Top	Fiber										
	PORT 5			MAL02312_3B_1	MAL02312_3B_1		LTE WCS	LCUUUU-H6_2350MHz_05	15.5	150	5	Top	Fiber										
	PORT 7			MAL02312_9B_1	MAL02312_9B_1		LTE 1900	LCUUUU-H6_1930MHz_05	15.5	150	5	Top	Fiber										
ANTENNA POSITION 2	PORT 5			MAL02312_2B_2	MAL02312_2B_2		LTE AWS	H6_2133MHz_05 DT	17.3	150	5	Top	Fiber										

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	TPA65RLCUUUUH6		OPA-65R-LCUU-H6											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	72.1X11.8X11.6		72.1X14.8X7.4											
ANTENNA WEIGHT	71.2		73											
AZIMUTH	290		290											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	67		67											
ANTENNA TIP HEIGHT	70		70											
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED										
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)	1	DC6-48-60-18-8F	2	DC6-48-60-08F										
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	RRUS-11 B12												
RRH - 850 band (QTY/MODEL)	1	RRUS-12 B5												
RRH - 1900 band (QTY/MODEL)	1	RRUS-32 B2												
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30												
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1			MAL02312_7C_1	MAL02312_7C_1		LTE 700	LCUUUU-H6_725MHz_05D	13.9	290	5	Top	Fiber										
	PORT 3			MAL02312_8C_1	MAL02312_8C_1		LTE 850	LCUUUU-H6_849MHz_05D	14.4	290	5	Top	Fiber										
	PORT 5			MAL02312_3C_1	MAL02312_3C_1		LTE WCS	LCUUUU-H6_2350MHz_06	15.5	290	6	Top	Fiber										
	PORT 7			MAL02312_9C_1	MAL02312_9C_1		LTE 1900	LCUUUU-H6_1930MHz_06	15.5	290	6	Top	Fiber										
ANTENNA POSITION 2	PORT 5			MAL02312_2C_2	MAL02312_2C_2		LTE AWS	H6_2133MHz_06 DT	17.2	290	6	Top	Fiber										

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		TPA-65R-BU4DA-K	AIR6449 B77D	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		48X20.7X7.7	30.6X15.9X10.6	71.2X21X7.8			
ANTENNA WEIGHT		52.6	83.8	60.2			
AZIMUTH		30	30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		61	63	61			
ANTENNA TIP HEIGHT		64	64	64			
MECHANICAL DOWNTILT		2	2	2			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In				
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				RRH is shared with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cables			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)			1 6648				
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	DoD project cancelled.						
Local Market Note 3	1x6601 / 1x5216 / 1xXMU03 / 1x6630 + IDLe/6648+IDLe Xcede.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1			MAL02312_7A_3_F	MAL02312_7A_3_F		LTE 700	TPA-65R-BU4DA-K	17.2	30	6	TOP	FIBER	0									
	PORT 3			MAL06312_9A_1	MAL06312_9A_1		LTE 1900	TPA-65R-BU4DA-K	17.2	30	6	TOP	FIBER	0									
	PORT 4			MAL06312_2A_2	MAL06312_2A_2		LTE AWS	TPA-65R-BU4DA-K	17.2	30	6	TOP	FIBER	0									
	PORT 11			MAMN002312_N002A_1	MAMN002312_N002A_1		5G 1900	TPA-65R-BU4DA-K			0	TOP	FIBER	0									
	PORT 12			MAMN002312_N066A_1	MAMN002312_N066A_1		5G AWS	TPA-65R-BU4DA-K			0	TOP	FIBER	0									

ANTENNA POSITION 3	**PORT 1**			MAMN032312_N077A_1	MAMN032312_N077A_1		5G CBAND	AIR6449 B77D			0	Integrated	FIBER	0									
ANTENNA POSITION 4	**PORT 6**			MAMN002312_N005A_1	MAMN002312_N005A_1		5G 850	BU6D_1950MHz_06DT	15.5	30	6	TOP	FIBER	0									

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		TPA-65R-BU4DA-K	AIR6449 B77D	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		48X20.7X7.7	30.6X15.9X10.6	71.2X21X7.8			
ANTENNA WEIGHT		52.6	83.8	60.2			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		67	69	67			
ANTENNA TIP HEIGHT		70	70	70			
MECHANICAL DOWNTILT		2	2	2			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In				
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				RRH is shared with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cables			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	DoD project cancelled.						
Local Market Note 3	1x6601 / 1x5216 / 1xXMU03 / 1x6630 + IDLe/6648+IDLe Xcede.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1			MAL02312_7B_3_F	MAL02312_7B_3_F		LTE 700	TPA-65R-BU4DA-K	17.3	150	5	TOP	FIBER	0									
	PORT 3			MAL06312_9B_1	MAL06312_9B_1		LTE 1900	TPA-65R-BU4DA-K	17.3	150	5	TOP	FIBER	0									
	PORT 4			MAL06312_2B_2	MAL06312_2B_2		LTE AWS	TPA-65R-BU4DA-K	17.3	150	5	TOP	FIBER	0									
	PORT 11			MAMN002312_N002B_1	MAMN002312_N002B_1		5G 1900	TPA-65R-BU4DA-K			0	TOP	FIBER	0									
	PORT 12			MAMN002312_N066B_1	MAMN002312_N066B_1		5G AWS	TPA-65R-BU4DA-K			0	TOP	FIBER	0									

ANTENNA POSITION 3	**PORT 1**			MAMN032312_N077B_1	MAMN032312_N077B_1		5G CBAND	AIR6449 B77D			0	Integrated	FIBER	0									
ANTENNA POSITION 4	**PORT 6**			MAMN002312_N005B_1	MAMN002312_N005B_1		5G 850	BU6D_1950MHz_05DT	15.5	150	5	TOP	FIBER	0									

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		TPA-65R-BU4DA-K	AIR6449 B77D	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		48X20.7X7.7	30.6X15.9X10.6	71.2X21X7.8			
ANTENNA WEIGHT		52.6	83.8	60.2			
AZIMUTH		290	290	290			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		67	69	67			
ANTENNA TIP HEIGHT		70	70	70			
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In				
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				RRH is shared with another band			
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1 Y-Cables			
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	DoD project cancelled.						
Local Market Note 3	1x6601 / 1x5216 / 1xXMU03 / 1x6630 + IDLe/6648+IDLe Xcede.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1			MAL02312_7C_3_F	MAL02312_7C_3_F		LTE 700	TPA-65R-BU4DA-K	17.2	290	6	TOP	FIBER	0									
	PORT 3			MAL06312_9C_1	MAL06312_9C_1		LTE 1900	TPA-65R-BU4DA-K	17.2	290	6	TOP	FIBER	0									
	PORT 4			MAL06312_2C_2	MAL06312_2C_2		LTE AWS	TPA-65R-BU4DA-K	17.2	290	6	TOP	FIBER	0									
	PORT 11			MAMN002312_N002C_1	MAMN002312_N002C_1		5G 1900	TPA-65R-BU4DA-K			0	TOP	FIBER	0									
	PORT 12			MAMN002312_N066C_1	MAMN002312_N066C_1		5G AWS	TPA-65R-BU4DA-K			0	TOP	FIBER	0									

ANTENNA POSITION 3	**PORT 1**			MAMN032312_N077C_1	MAMN032312_N077C_1		5G CBAND	AIR6449 B77D			0	Integrated	FIBER	0									
ANTENNA POSITION 4	**PORT 6**			MAMN002312_N005C_1	MAMN002312_N005C_1		5G 850	BU6D_1950MHz_06DT	15.5	290	6	TOP	FIBER	0									

Section 16.5A - SCOPING TOWER CONFIGURATION - SECTOR A (OR OMNI)

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL			TPA-65R-BU4DA-K		AIR6449 B77D		OPA65R-BU6DA							
ANTENNA VENDOR			CCI		Ericsson		CCI							
ANTENNA SIZE (H x W x D)			48X20.7X7.7		30.6X15.9X10.6		71.2X21X7.8							
ANTENNA WEIGHT			52.6		83.8		60.2							
AZIMUTH			30		30		30							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)			61		63		61							
ANTENNA TIP HEIGHT			64		64		64							
MECHANICAL DOWNTILT			2		2		2							
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)				Internal		Built-In		Internal						
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)				RRH CONTROLLED				RRH CONTROLLED						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)			1	DC6-48-60-18-8F										
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	4478 B14			1	4449 B5/B12						
RRH - 850 band (QTY/MODEL)								RRH is shared with another band						
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2										
RRH - AWS band (QTY/MODEL)			1	RRUS-32 B66A										
RRH - WCS band (QTY/MODEL)							1	RRUS-32 B30						
Additional RRH #1 - any band (QTY/MODEL)					1	integrated within: AIR6449 B77D								
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)							1	Y-Cables						
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)					1	6648								
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.													
Local Market Note 2	DoD project cancelled.													
Local Market Note 3	1x6601 / 1x5216 / 1xXMU03 / 1x6630 + IDLe/6648+IDLe Xcede.													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	134883.A.700.4G Imp2		MAL02312_7A_3_F	MAL02312_7A_3_F		LTE 700	BU4D_725MHz_06DT_	17.2	30	6	TOP	FIBER	0									
	PORT 3	134883.A.1900.4 G.Imp1		MAL06312_9A_1	MAL06312_9A_1		LTE 1900	BU4D_1930MHz_06DT_	17.2	30	6	TOP	FIBER	0									
	PORT 4	134883.A.AWS.4 G.Imp4		MAL06312_2A_2	MAL06312_2A_2		LTE AWS	BU4D_2130MHz_06DT_	17.2	30	6	TOP	FIBER	0									
	PORT 11	134883.A.1900.5 G.Imp1		MAMN002312_N002A_1	MAMN002312_N002A_1		5G 1900	BU4D_1930MHz_06DT_			0	TOP	FIBER	0									
	PORT 12	134883.A.AWS.5 G.Imp1		MAMN002312_N066A_1	MAMN002312_N066A_1		5G AWS	BU4D_2130MHz_06DT			0	TOP	FIBER	0									

ANTENNA POSITION 3	**PORT 1**	134883.A.CBAND5G.tmp1		MAMN032312_N077A_1	MAMN032312_N077A_1		5G CBAND	AIR6449 B77D			0	Integrated	FIBER	0									
ANTENNA POSITION 4	**PORT 1**	134883.A.700.4G.1		MAL02312_7A_1	MAL02312_7A_1		LTE 700	BU6D_725MHz_05DT	13.9	30	5	TOP	FIBER	0									
	PORT 3	134883.A.WCS.4G.1		MAL02312_3A_1	MAL02312_3A_1		LTE WCS	BU6D_2355MHz_05DT	14.4	30	5	TOP	FIBER	0									
	PORT 6	134883.A.850.5G.tmp1		MAMN002312_N005A_1	MAMN002312_N005A_1		5G 850	BU6D_1950MHz_06DT	15.5	30	6	TOP	FIBER	0									

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		TPA-65R-BU4DA-K	AIR6449 B77D	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		48X20.7X7.7	30.6X15.9X10.6	71.2X21X7.8			
ANTENNA WEIGHT		52.6	83.8	60.2			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		67	69	67			
ANTENNA TIP HEIGHT		70	70	70			
MECHANICAL DOWNTILT		2	2	2			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)	1	DC6-48-60-18-8F					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4478 B14		1	4449 B5/B12		
RRH - 850 band (QTY/MODEL)					RRH is shared with another band		
RRH - 1900 band (QTY/MODEL)	1	RRUS-32 B2					
RRH - AWS band (QTY/MODEL)	1	RRUS-32 B66A					
RRH - WCS band (QTY/MODEL)				1	RRUS-32 B30		
Additional RRH #1 - any band (QTY/MODEL)			1	integrated within: AIR6449 B77D			
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1	Y-Cables		
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	DoD project cancelled.						
Local Market Note 3	1x6601 / 1x5216 / 1xXMU03 / 1x6630 + IDLe/6648+IDLe Xcede.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	134883.B.700.4G.tmp2		MAL02312_7B_3_F	MAL02312_7B_3_F		LTE 700	BU4D_725MHz_05DT	17.3	150	5	TOP	FIBER	0									
	PORT 3	134883.B.1900.4G.tmp1		MAL06312_9B_1	MAL06312_9B_1		LTE 1900	BU4D_1930MHz_05DT	17.3	150	5	TOP	FIBER	0									
	PORT 4	134883.B.AWS.4G.tmp4		MAL06312_2B_2	MAL06312_2B_2		LTE AWS	BU4D_2130MHz_05DT	17.3	150	5	TOP	FIBER	0									
	PORT 11	134883.B.1900.5G.tmp1		MAMN002312_N002B_1	MAMN002312_N002B_1		5G 1900	BU4D_1930MHz_05DT			0	TOP	FIBER	0									
	PORT 12	134883.B.AWS.5G.tmp1		MAMN002312_N066B_1	MAMN002312_N066B_1		5G AWS	BU4D_2130MHz_05DT			0	TOP	FIBER	0									

ANTENNA POSITION 3	**PORT 1**	134883.B.CBAND5G.tmp1		MAMN032312_N077B_1	MAMN032312_N077B_1		5G CBAND	AIR6449 B77D			0	Integrated	FIBER	0									
ANTENNA POSITION 4	**PORT 1**	134883.B.700.4G.1		MAL02312_7B_1	MAL02312_7B_1		LTE 700	BU6D_725MHz_04DT	13.9	150	4	TOP	FIBER	0									
	PORT 3	134883.B.WCS.4G.1		MAL02312_3B_1	MAL02312_3B_1		LTE WCS	BU6D_2355MHz_04DT	14.4	150	4	TOP	FIBER	0									
	PORT 6	134883.B.850.5G.tmp1		MAMN002312_N005B_1	MAMN002312_N005B_1		5G 850	BU6D_1950MHz_05DT	15.5	150	5	TOP	FIBER	0									

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		TPA-65R-BU4DA-K	AIR6449 B77D	OPA65R-BU6DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		48X20.7X7.7	30.6X15.9X10.6	71.2X21X7.8			
ANTENNA WEIGHT		52.6	83.8	60.2			
AZIMUTH		290	290	290			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		67	69	67			
ANTENNA TIP HEIGHT		70	70	70			
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built-In	Internal			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		RRH CONTROLLED		RRH CONTROLLED			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)	1	DC6-48-60-18-8F					
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4478 B14		1	4449 B5/B12		
RRH - 850 band (QTY/MODEL)					RRH is shared with another band		
RRH - 1900 band (QTY/MODEL)	1	RRUS-32 B2					
RRH - AWS band (QTY/MODEL)	1	RRUS-32 B66A					
RRH - WCS band (QTY/MODEL)				1	RRUS-32 B30		
Additional RRH #1 - any band (QTY/MODEL)			1	integrated within: AIR6449 B77D			
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1	Y-Cables		
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Keep Pos-1 Empty for future SOW. -Replace antennas.						
Local Market Note 2	DoD project cancelled.						
Local Market Note 3	1x6601 / 1x5216 / 1xXMU03 / 1x6630 + IDLe/6648+IDLe Xcede.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 1	134883.C.700.4G.tmp2		MAL02312_7C_3_F	MAL02312_7C_3_F		LTE 700	BU4D_725MHz_06DT_	17.2	290	6	TOP	FIBER	0									
	PORT 3	134883.C.1900.4G.tmp1		MAL06312_9C_1	MAL06312_9C_1		LTE 1900	BU4D_1930MHz_06DT_	17.2	290	6	TOP	FIBER	0									
	PORT 4	134883.C.AWS.4G.tmp4		MAL06312_2C_2	MAL06312_2C_2		LTE AWS	BU4D_2130MHz_06DT_	17.2	290	6	TOP	FIBER	0									
	PORT 11	134883.C.1900.5G.tmp1		MAMN002312_N002C_1	MAMN002312_N002C_1		5G 1900	BU4D_1930MHz_06DT_			0	TOP	FIBER	0									
	PORT 12	134883.C.AWS.5G.tmp1		MAMN002312_N066C_1	MAMN002312_N066C_1		5G AWS	BU4D_2130MHz_06DT_			0	TOP	FIBER	0									

ANTENNA POSITION 3	**PORT 1**	134883.C.CBAND.5G.tmp1		MAMN032312_N077C_1	MAMN032312_N077C_1		5G CBAND	AIR6449 B77D			0	Integrated	FIBER	0									
ANTENNA POSITION 4	**PORT 1**	134883.C.700.4G.1		MAL02312_7C_1	MAL02312_7C_1		LTE 700	BU6D_725MHz_05DT	13.9	290	5	TOP	FIBER	0									
	PORT 3	134883.C.WCS.4G.1		MAL02312_3C_1	MAL02312_3C_1		LTE WCS	BU6D_2355MHz_05DT	14.4	290	5	TOP	FIBER	0									
	PORT 6	134883.C.850.5G.tmp1		MAMN002312_N005C_1	MAMN002312_N005C_1		5G 850	BU6D_1950MHz_06DT	15.5	290	6	TOP	FIBER	0									

ULS License

PCS Broadband License - KNLF216 - New Cingular Wireless PCS, LLC

Call Sign	KNLF216	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	MTA008 - Boston-Providence	Channel Block	A
Submarket	27	Associated Frequencies (MHz)	001850.00000000-001865.00000000 001930.00000000-001945.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/02/2015	Expiration	06/23/2025
Effective	08/31/2018	Cancellation	

Buildout Deadlines

1st	06/23/2000	2nd	06/23/2005

Discontinuance Dates

1st		2nd	

Notification Dates

1st	06/28/2000	2nd	03/08/2005

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

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Contact

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ATTN FCC GROUP

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Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

Cellular License - KNKA226 - AT&T Mobility Spectrum LLC

Call Sign	KNKA226	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular

Market

Market	CMA006 - Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH	Channel Block	A
Submarket	0	Phase	2

Dates

Grant	09/09/2014	Expiration	10/01/2024
Effective	08/29/2018	Cancellation	

Five Year Buildout Date

06/28/1999

Control Points

2	100 LOWDER BROOK DR, NORFOLK, WESTWOOD, MA P: (617)462-7094

Licensee

FRN	0014980726	Type	Limited Liability Company

Licensee

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Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Demographics

Race

Ethnicity Gender

ULS License

Wireless Communications Service License - KNLB200 - New Cingular Wireless PCS, LLC

Call Sign	KNLB200	Radio Service	WS - Wireless Communications Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	MEA001 - Boston	Channel Block	B
Submarket	0	Associated Frequencies (MHz)	002310.00000000-002315.00000000 002355.00000000-002360.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	02/07/2020	Expiration	07/21/2027
Effective	02/07/2020	Cancellation	

Buildout Deadlines

1st	03/13/2017	2nd	09/13/2019

Discontinuance Dates

1st		2nd	

Notification Dates

1st	03/03/2017	2nd	09/04/2019

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

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E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

Wireless Communications Service License - KNLB210 - New Cingular Wireless PCS, LLC

Call Sign	KNLB210	Radio Service	WS - Wireless Communications Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	MEA001 - Boston	Channel Block	A
Submarket	0	Associated Frequencies (MHz)	002305.00000000-002310.00000000 002350.00000000-002355.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	02/07/2020	Expiration	07/21/2027
Effective	02/07/2020	Cancellation	

Buildout Deadlines

1st	03/13/2017	2nd	09/13/2019

Discontinuance Dates

1st		2nd	

Notification Dates

1st	03/03/2017	2nd	09/04/2019

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

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Ownership and Qualifications

Radio Service
Type

Regulatory Status Interconnected

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Wireless Communications Service License - KNLB297 - New Cingular Wireless PCS, LLC

This license has pending applications: 0009220775

Call Sign	KNLB297	Radio Service	WS - Wireless Communications Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	REA001 - Northeast	Channel Block	D
Submarket	0	Associated Frequencies (MHz)	002345.00000000-002350.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	02/28/2020	Expiration	07/21/2027
Effective	02/28/2020	Cancellation	

Buildout Deadlines

1st		2nd	09/13/2021

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

PCS Broadband License - KNLF954 - AT&T Mobility Spectrum LLC

Call Sign	KNLF954	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BTA051 - Boston, MA	Channel Block	D
Submarket	0	Associated Frequencies (MHz)	001865.00000000-001870.00000000 001945.00000000-001950.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/29/2017	Expiration	06/27/2027
Effective	09/21/2018	Cancellation	

Buildout Deadlines

1st	06/27/2002	2nd	

Discontinuance Dates

1st		2nd	

Notification Dates

1st	04/01/1999	2nd	

Licensee

FRN	0014980726	Type	Limited Liability Company

Licensee

AT&T Mobility Spectrum LLC
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Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

PCS Broadband License - WPOI214 - AT&T Mobility Spectrum LLC

Call Sign	WPOI214	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	MTA008 - Boston-Providence	Channel Block	A
Submarket	7	Associated Frequencies (MHz)	001850.00000000-001865.00000000 001930.00000000-001945.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/10/2015	Expiration	06/23/2025
Effective	08/29/2018	Cancellation	

Buildout Deadlines

1st	06/23/2000	2nd	06/23/2005

Discontinuance Dates

1st		2nd	

Notification Dates

1st	07/06/2000	2nd	03/08/2005

Licensee

FRN	0014980726	Type	Limited Liability Company

Licensee

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ATTN Michael P. Goggin

Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Wireless Communications Service License - WPQL634 - New Cingular Wireless Services, Inc.

This license has pending applications: 0009220802

Call Sign	WPQL634	Radio Service	WS - Wireless Communications Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	REA001 - Northeast	Channel Block	C
Submarket	7	Associated Frequencies (MHz)	002315.00000000-002320.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	02/04/2020	Expiration	07/21/2027
Effective	02/04/2020	Cancellation	

Buildout Deadlines

1st		2nd	09/13/2021

Discontinuance Dates

1st		2nd	

Notification Dates

1st		2nd	

Licensee

FRN	0004122032	Type	Corporation

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

700 MHz Lower Band (Blocks C, D) License - WPWU950 - AT&T Mobility Spectrum LLC

Call Sign	WPWU950	Radio Service	WZ - 700 MHz Lower Band (Blocks C, D)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	CMA006 - Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	000710.00000000-000716.00000000 000740.00000000-000746.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	07/23/2019	Expiration	06/13/2029
Effective	07/23/2019	Cancellation	

Buildout Deadlines

1st	06/13/2019	2nd	

Discontinuance Dates

1st		2nd	

Notification Dates

1st	04/06/2018	2nd	04/06/2018

Licensee

FRN	0014980726	Type	Limited Liability Company

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile, Radio Location		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

700 MHz Lower Band (Blocks C, D) License - WPZA235 - New Cingular Wireless PCS, LLC

Call Sign	WPZA235	Radio Service	WZ - 700 MHz Lower Band (Blocks C, D)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	EAG701 - Northeast	Channel Block	D
Submarket	0	Associated Frequencies (MHz)	000716.00000000-000722.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	11/05/2019	Expiration	06/13/2029
Effective	11/05/2019	Cancellation	

Buildout Deadlines

1st	06/13/2019	2nd	

Discontinuance Dates

1st		2nd	

Notification Dates

1st	06/10/2019	2nd	06/10/2019

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

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Dallas, TX 75202
ATTN FCC GROUP

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier	Interconnected	No

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

700 MHz Lower Band (Blocks A, B & E) License - WQIZ616 - New Cingular Wireless PCS, LLC

Call Sign	WQIZ616	Radio Service	WY - 700 MHz Lower Band (Blocks A, B & E)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BEA003 - Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH-RI-VT	Channel Block	E
Submarket	0	Associated Frequencies (MHz)	000722.00000000-000728.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	02/09/2021	Expiration	03/07/2031
Effective	02/09/2021	Cancellation	

Buildout Deadlines

1st	03/07/2017	2nd	03/07/2021

Discontinuance Dates

1st		2nd	

Notification Dates

1st	03/16/2017	2nd	06/17/2020

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

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Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier	Interconnected	No

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

700 MHz Lower Band (Blocks A, B & E) License - WQJU427 - AT&T Mobility Spectrum LLC

Call Sign	WQJU427	Radio Service	WY - 700 MHz Lower Band (Blocks A, B & E)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	CMA006 - Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH	Channel Block	B
Submarket	0	Associated Frequencies (MHz)	000704.00000000-000710.00000000 000734.00000000-000740.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	07/24/2019	Expiration	06/13/2029
Effective	07/24/2019	Cancellation	

Buildout Deadlines

1st	12/13/2016	2nd	06/13/2019

Discontinuance Dates

1st		2nd	

Notification Dates

1st	10/30/2012	2nd	10/30/2012

Licensee

FRN	0014980726	Type	Limited Liability Company

Licensee

AT&T Mobility Spectrum LLC
208 S. Akard St.
Dallas, TX 75202
ATTN Cecil J Mathew

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T Mobility LLC
Cecil J Mathew
208 S Akard St.
Dallas, TX 75202

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

700 MHz Public Safety Broadband Nationwide License License - WQQE234 - First Responder Network Authority

Call Sign	WQQE234	Radio Service	SP - 700 MHz Public Safety Broadband Nationwide License
Status	Active	Auth Type	Regular

Dates

Grant	11/15/2012	Expiration	11/15/2022
Effective	12/29/2017	Cancellation	

Area of Operation: N

Nationwide

Frequency Bands

000758.00000000-000769.00000000
000788.00000000-000799.00000000

Licensee

FRN	0025487950	Type	Other - Independent Authority

Licensee

First Responder Network Authority
12201 Sunrise Valley Drive
Reston, VA 20192
ATTN Uzoma Onyeije

P:(571)665-6142
E:Uzoma.Onyeije@firstnet.gov

Contact

Ownership and Qualifications

Radio Service Type: Mobile

Regulatory Status: Interconnected

Alien Ownership

Is the applicant a foreign government or the representative of any foreign government?

Is the applicant an alien or the representative of an alien?

Is the applicant a corporation organized under the laws of any foreign government?

Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?

Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by

a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country?

The Alien Ruling question is not answered.

Basic Qualifications

Has the applicant or any party to this application had any FCC station authorization, license or construction permit revoked or had any application for an initial, modification or renewal of FCC station authorization, license or construction permit denied by the Commission?

Has the applicant or any party to this application, or any party directly or indirectly controlling the applicant, ever been convicted of a felony by any state or federal court?

Has any court finally adjudged the applicant or any party directly or indirectly controlling the applicant guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement, or any other means or unfair methods of competition?

Demographics

Race

Ethnicity Gender

ULS License

AWS-3 (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz) License - WQVN675 - AT&T Wireless Services 3 LLC

PA **This license has pending applications:** 0009324053

Call Sign	WQVN675	Radio Service	AT - AWS-3 (1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BEA003 - Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH-RI-VT	Channel Block	J
Submarket	0	Associated Frequencies (MHz)	001770.00000000-001780.00000000 002170.00000000-002180.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	04/08/2015	Expiration	04/08/2027
Effective	08/29/2018	Cancellation	

Buildout Deadlines

1st	04/08/2021	2nd	04/08/2027

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0023910920	Type	Limited Liability Company

Licensee

AT&T Wireless Services 3 LLC
208 S. Akard St., RM 1015
Dallas, TX 75202
ATTN Cecil J Mathew

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
Cecil J Mathew
208 S Akard St., RM 1015
Dallas, TX 75202
ATTN Michael P. Goggin

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F:(214)746-6410
E:FCCMW@att.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

Upper Microwave Flexible Use Service License - WREU580 - AT&T Spectrum Frontiers LLC

Call Sign	WREU580	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	E
Submarket	0	Associated Frequencies (MHz)	024950.00000000-025050.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	12/11/2019	Expiration	12/11/2029
Effective	12/11/2019	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0027840180	Type	Limited Liability Company

Licensee

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Dallas, TX 75202
ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WREU662 - AT&T Spectrum Frontiers LLC

Call Sign	WREU662	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	F
Submarket	0	Associated Frequencies (MHz)	025050.00000000-025150.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	12/11/2019	Expiration	12/11/2029
Effective	12/11/2019	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0027840180	Type	Limited Liability Company

Licensee

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ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WREU948 - AT&T Spectrum Frontiers LLC

Call Sign	WREU948	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	G
Submarket	0	Associated Frequencies (MHz)	025150.00000000-025250.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	12/11/2019	Expiration	12/11/2029
Effective	12/11/2019	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0027840180	Type	Limited Liability Company

Licensee

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Dallas, TX 75202
ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ589 - FiberTower Spectrum Holdings LLC

Call Sign	WRFZ589	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N10
Submarket	0	Associated Frequencies (MHz)	039500.00000000-039600.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895	Type	Limited Liability Company

Licensee

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ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ590 - FiberTower Spectrum Holdings LLC

Call Sign	WRFZ590	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N11
Submarket	0	Associated Frequencies (MHz)	039600.00000000-039700.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895	Type	Limited Liability Company

Licensee

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ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ591 - FiberTower Spectrum Holdings LLC

Call Sign	WRFZ591	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N12
Submarket	0	Associated Frequencies (MHz)	039700.00000000-039800.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895	Type	Limited Liability Company

Licensee

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Dallas, TX 75202
ATTN Cecil J. Mathew

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F:(214)746-6410
E:FCCMW@att.com

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P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Dallas, TX 75202
ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ592 - FiberTower Spectrum Holdings LLC

HELP

Call Sign	WRFZ592	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N13
Submarket	0	Associated Frequencies (MHz)	039800.00000000-039900.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895 (View Ownership Filing)	Type	Limited Liability Company

Licensee

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F:(214)746-6410
E:FCCMW@att.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ593 - FiberTower Spectrum Holdings LLC

Call Sign	WRFZ593	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N14
Submarket	0	Associated Frequencies (MHz)	039900.00000000-040000.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895	Type	Limited Liability Company

Licensee

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E:FCCMW@att.com

Dallas, TX 75202
ATTN Cecil J. Mathew

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ594 - FiberTower Spectrum Holdings LLC

HELP

Call Sign	WRFZ594	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N7
Submarket	0	Associated Frequencies (MHz)	039200.00000000-039300.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895 (View Ownership Filing)	Type	Limited Liability Company

Licensee

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E:FCCMW@att.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity Gender

ULS License

Upper Microwave Flexible Use Service License - WRFZ595 - FiberTower Spectrum Holdings LLC

HELP

Call Sign	WRFZ595	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N8
Submarket	0	Associated Frequencies (MHz)	039300.00000000-039400.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895 (View Ownership Filing)	Type	Limited Liability Company

Licensee

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Contact

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F:(214)746-6410
E:FCCMW@att.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier, Non-Common Carrier, Private Comm	Interconnected	Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS Help ULS Glossary - FAQ - Online Help - Technical Support - Licensing Support

ULS Online Systems CORES - ULS Online Filing - License Search - Application Search - Archive License Search

About ULS Privacy Statement - About ULS - ULS Home

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Help | Tech Support

Federal Communications Commission
45 L Street NE
Washington, DC 20554

Phone: 1-877-480-3201
TTY: 1-717-338-2824
Submit Help Request

ULS License

Upper Microwave Flexible Use Service License - WRFZ596 - FiberTower Spectrum Holdings LLC

Call Sign	WRFZ596	Radio Service	UU - Upper Microwave Flexible Use Service
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?	No

Reserved Spectrum

Reserved Spectrum

Market

Market	PEA007 - Boston, MA	Channel Block	N9
Submarket	0	Associated Frequencies (MHz)	039400.00000000-039500.00000000
3.7 GHz License Type		3.7 GHz Linked License	

Dates

Grant	06/04/2020	Expiration	06/04/2030
Effective	06/04/2020	Cancellation	

Buildout Deadlines

1st	2nd

Discontinuance Dates

1st	2nd

Notification Dates

1st	2nd

Licensee

FRN	0019211895	Type	Limited Liability Company

Licensee

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Page: 1 of 4 07/07/2014 02:49 PM

City of Cambridge

MASSACHUSETTS

BOARD OF ZONING APPEAL

831 Mass Avenue, Cambridge, MA
(617) 349-6100

2014 JUN 6 AM 10 35

OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

CASE NO: 10477

LOCATION: 288 Norfolk Street Residence C-1 Zone
Cambridge, MA
owner - Northshire LLC

PETITIONER: AT&T – C/o David Ford, Centerline Communications

PETITION: Special Permit: To install 11 panels antennas, 8 will be installed within faux canisters and ballast mounted to the roof, 3 will be façade mounted to the building's elevator shaft and painted to match the brick.

VIOLATION: Art. 4.000, Sec. 4.32.G.1 (Footnote 49) (Telecommunication Facility).
Art. 10.000, Sec. 10.40 (Special Permit).

DATE OF PUBLIC NOTICE: July 11 & 18, 2013

DATE OF PUBLIC HEARING: July 25, 2013, August 29, 2013, September 26, 2013
November 14, 2013, December 5, 2013,
February 27, 2014 & April 24, 2014.

MEMBERS OF THE BOARD:

CONSTANTINE ALEXANDER – CHAIR	
TIMOTHY HUGHES – VICE-CHAIR	✓
BRENDAN SULLIVAN	✓
THOMAS SCOTT	
JANET O. GREEN	✓

ASSOCIATE MEMBERS:

DOUGLAS MYERS	✓
SLATER W. ANDERSON	
LINDSEY T. THORNE-BINGHAM	
ANDREA A. HICKEY	✓
ARCH HORST	

Members of the Board of Zoning Appeal heard testimony and viewed materials submitted regarding the above request for relief from the requirements of the Cambridge Zoning Ordinance. The Board is familiar with the location of the petitioner's property, the layout and other characteristics as well as the surrounding district.

Bk 51897 Pg 321

Case No. 10477
Location: 288 Norfolk Street
Petitioner: AT&T – c/o David Ford, Centerline Communications

On April 24, 2014, Petitioner's attorney Susan Roberts appeared before the Board of Zoning Appeal requesting a special permit in order to install 11 panel antennas, with eight inside faux canisters and ballast mounted to the roof, and three façade mounted to the building's elevator shaft and painted to match the brick. The Petitioner requested relief under Article 4, Section 4.32.G.1 of the Cambridge Zoning Ordinance ("Ordinance"). The Petitioner submitted application materials including information about the project, plans, and photographs.

Ms. Roberts stated that the proposed site already contained other telecommunication facilities. She stated that the design had been adjusted with the use of the faux chimney design in order to reduce visual impacts.

The Chair asked if anyone wished to be heard on the matter, no one indicated such. The Chair read a letter of support from the Planning Board

After discussion, the Petitioner removed two of the four proposed faux chimneys, containing two antennas each, in order to further reduce visual impacts.

After discussion, the Chair moved that the Board grant the special permit for relief in order to install telecommunications antennas based on the finding that the Petitioner had the proper FCC licensing. The Chair moved that the Board find that the proposed wireless communication facility complied with all applicable Special Permit criteria stated in the Article 10, Section 10.43 of the Ordinance. The Chair moved that the Board find that traffic generated or patterns of access or egress would not cause congestion, hazard, or substantial change in the established neighborhood character, because the proposed facility would be unmanned with only routine maintenance visits of once or twice a month. The Chair moved that the Board find that the continued operation or development of adjacent uses as permitted in the Ordinance would not be adversely affected by the nature of the proposed use because telecommunication facilities already existed on site with no demonstrated effect on the adjacent uses over the years. The Chair moved that the Board find that nuisance or hazard would not be created to the detriment of the health, safety, and welfare of the occupant of the proposed use or the citizens of the city, because telecommunication facilities already existed on site with no demonstrated hazard or detriment to the occupants of the building or the citizens. The Chair moved that the Board find that the proposed use would not impair on the integrity of the district or adjoining district or otherwise derogate from the intent and purpose of the Ordinance. The Chair moved that the Board find that the proposed facility was in a residential district, but that it adjoined a lot of

nonresidential activities, and that residential uses did not predominate in the district. The Chair moved that the Board grant the special permit on the following conditions:

1. that the work proceed in accordance with the plans marked Z-2 with a final date of 4/16/14 as initialed by the Chair, showing that the two faux chimneys with red X's through them will be eliminated, and
2. that if any of these facilities are to be found not necessary, they be removed and the building be restored as much as possible to its original character.

The five member Board voted four in favor of granting the special permit (Hughes, Green, Myers, and Hickey) with the above condition and one opposed (Sullivan). Therefore, the special permit is granted.

The Board based its decision upon all the information presented, the above findings and upon the following:

1) The meeting of the requirements of the Ordinance;
2) Traffic generated or patterns of access or egress would not cause congestion, hazard, or substantial change in the established neighborhood character;
3) The continued operation of or the development of adjacent uses as permitted in the Ordinance would not be adversely affected by the nature of the proposed uses;
4) Nuisance or hazard would not be created to the detriment of the health, safety and /or welfare of the occupants of the proposed use;
5) The proposed use would not impair the integrity of the district or adjoining district or otherwise derogate from the Ordinance, and in fact would be a significant improvement to the structure and benefit the neighborhood, and;
6) The new use or building construction is not inconsistent with the Urban Design Objectives set forth in Section 19.30 of the Cambridge Zoning Ordinance.

The Board of Zoning Appeal is empowered to waive local zoning regulations only. This decision therefore does not relieve the petitioner in any way from the duty to comply with local ordinances and regulations of the other local agencies, including, but not limited to the Historical Commission, License Commission and/or compliance with requirements pursuant to the Building Code and other applicable codes.

Timothy Hughes, Chair

Attest: A true and correct copy of decision filed with the offices of the City Clerk and Planning Board on 6/6/14 by Maria Pacheco, Clerk.

Twenty days have elapsed since the filing of this decision.

No appeal has been filed ✓.

Appeal has been filed and dismissed or denied.

Date: July 1, 2014 Donna P. Lopez City Clerk.

January 24, 2023

Diane P. LeBlanc, City Clerk City of Cambridge City Hall 795 Massachusetts Avenue Cambridge, MA 02139	Brendan Sullivan, Chair Board of Zoning Appeal City Hall 795 Massachusetts Avenue Cambridge, MA 02139

Applicant:	New Cingular Wireless PCS, LLC ("AT&T")
Property Address:	284 Norfolk Street. Assessor's Map 85, Lot 76 (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. LeBlanc, Mr. Sullivan 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 284 Norfolk 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-1 zoning district satisfy the requirements for the grant of a special permit pursuant to Section 10.43 of the Ordinance.

I. APPLICATION PACKAGE

1. The following completed and signed application forms:

   a. BZA Application Form – Electronically submitted;

2. AT&T's relevant FCC License information;

3. Drawings by Dewberry consisting of 12 pages dated 1/23/23;

4. Photographs of the existing building and photosimulations of the proposed modifications Facility by Dewberry., dated 1/24/24;

5. Radio Frequency Coverage Report, demonstrating the public need for the proposed modifications to the Facility, radio frequency coverage maps showing coverage with the proposed Facility;

6. Structural Analysis by Dewberry dated 7/15/22;

7. Letter of Authorization from Owner of Subject Property;

8. Deed to subject property

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 adjacent to the existing antennas 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 and concealed with fake chimneys on the roof. 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 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 C bands which is 5G coverage.

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

[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.

> 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.

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."

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

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)." *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 antennas and associated equipment, on the building's façade and within stealth chimneys, minimizes the visual impact of the proposed Facility. This is because the antennas and equipment on the exterior façade surfaces will be painted or wrapped 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 of Norfolk Street. 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 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. <u>AT&T complies with the Special Permit Criteria set forth in Section 10.43 of the Ordinance</u>.

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

<u>AT&T's Response</u>: 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

<u>AT&T's Response</u>: 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

<u>AT&T's Response</u>: 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 or within fake chimneys. 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). 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-1 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 the existing building, some of the equipment of which is hidden from view within fake chimneys, 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 include[9]**
>
> **(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, 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.

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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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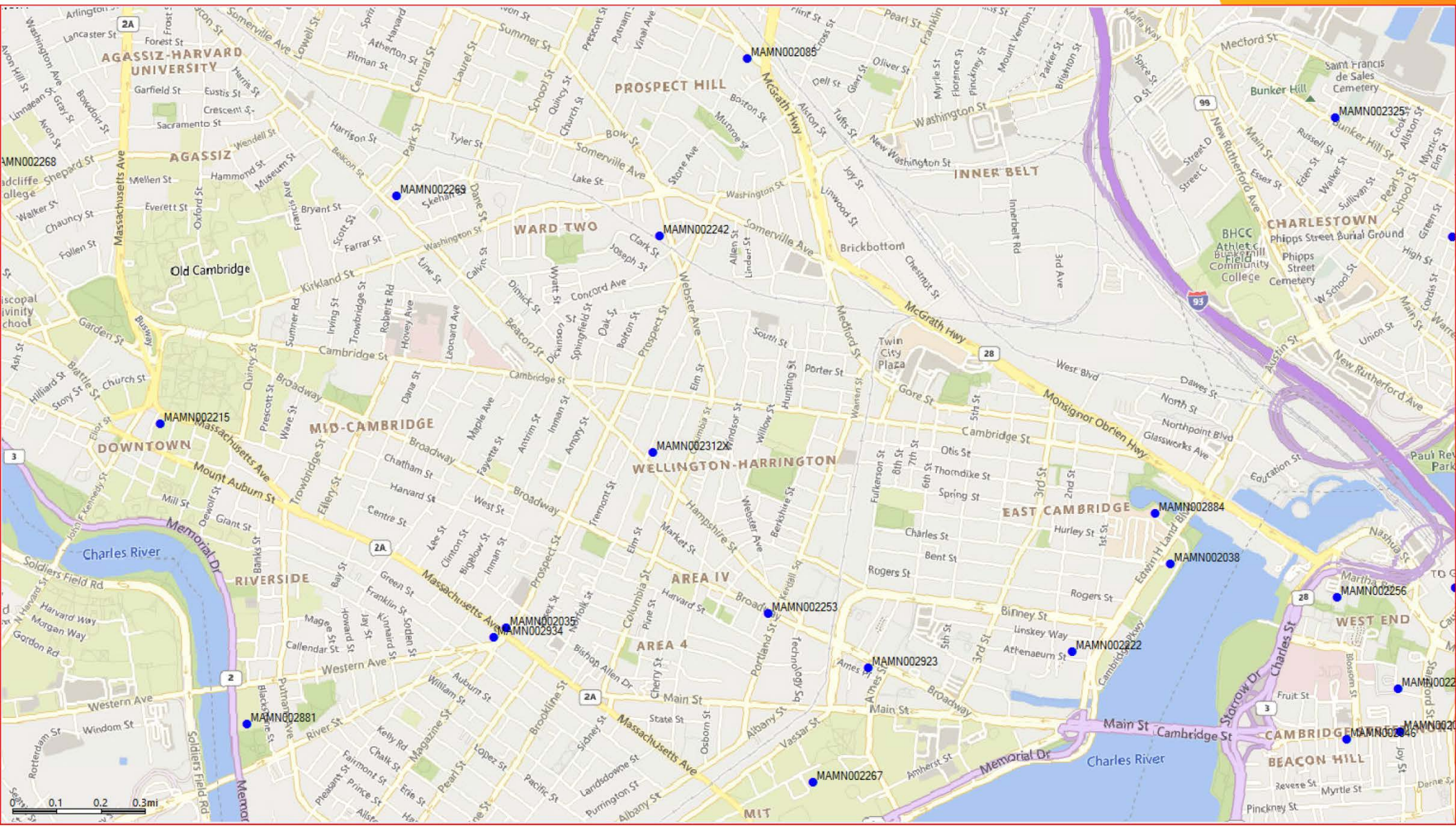
Rethink Possible

MAMN002312 5G C-Band NR Plots

- Zoning Proposed C Band Band Plots

Without 5G MAMN002312 C-Band Coverage



With Proposed MAMN002312 C Band Coverage