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

BZA APPLICATION FORM

Plan No: BZA-017074-2019

GENERAL INFORMATION

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

Special Permit : √ **Variance :** _____ **Appeal :** _____

PETITIONER : Clear Wireless LLC d/b/a Sprint - C/O Simon J. Brighenti, Jr.

PETITIONER'S ADDRESS : Centerline Communications LLC 750 W Center St W Bridgewater, MA 02379

LOCATION OF PROPERTY : 402 Rindge Ave Cambridge, MA

TYPE OF OCCUPANCY : Telecommunications **ZONING DISTRICT :** Residence C-2 Zone/ POD

REASON FOR PETITION :

Other: Replace/Add Rooftop Antennas

DESCRIPTION OF PETITIONER'S PROPOSAL :

Remove / Replace existing facade mount rooftop antennas; replace with upgraded and additional antennas. Applicant submits that the existing builidng constitutes a host structure and the existing equipment consititutes an eligble facility pursuant to 47 USC 1445 (a) 6409

SECTIONS OF ZONING ORDINANCE CITED :

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

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

Article 6409 Section 47 USC 1455 (a)

Original Signature(s) : Simon Brighenti
(Petitioner(s) / Owner)

Simon Brighenti
(Print Name)

Address : 750 W. Center St. Suite 301
W. Bridgewater, MA 02379

Tel. No. : 413-237-1550

E-Mail Address : SBrighenti@clinellc.com

Date : 3/8/19

OWNERSHIP CERTIFICATE

Project Address: 402 Rindge Avenue **Application Date:**

This form is to be completed by the property owner, signed, and submitted with the Special Permit Application:

I hereby authorize the following Applicant: Sprint, by its Agent Centerline Communications LLC

at the following address: 750 West Center Street Fl. 3,West Bridgewater, MA 02379

to apply for a special permit for: Sprint proposed modifications to its existing cell site

on premises located at: 402 Rindge Avenue

for which the record title stands in the name of: Rindge Towers Apartments LLC

whose address is: 1035 CAMBRIDGE ST., #12 CAMBRIDGE, MA 02141

by a deed duly recorded in the:

Registry of Deeds of County: Middlesex Book: 66573 Page: 239

OR Registry District of the Land Court, Certificate No.: Book: Page:

Jesene Godfrey, Agent Sr. Prop Mgr
Jesene Godfrey, Agent, Sr. Property Mgr

Signature of Land Owner (If authorized Trustee, Officer or Agent, so identify)

To be completed by Notary Public:

Commonwealth of Massachusetts, County of Middlesex

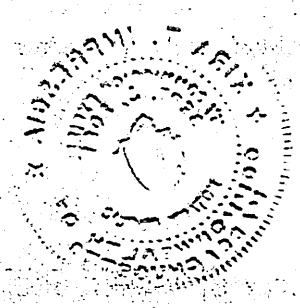
The above named Jesene Godfrey personally appeared before me,

on the month, day and year 2-6-2019 and made oath that the above statement is true.

Notary: Kira Impresciа

My Commission expires: Sept 03, 2021

KIRA T IMPRESCIA
Notary Public
Commonwealth of Massachusetts
My Commission Expires Sept. 03, 2021



CENTERLINE
COMMUNICATIONS

February 13, 2019

City of Cambridge
Board of Zoning Appeals
831 Massachusetts Avenue
Cambridge, MA 02139

RE: Clear Wireless, LLC dba Sprint Special Permit Application –
402 Rindge Avenue, Cambridge, MA

Dear Chair and Members:

Please accept the accompanying material in application for a Special Permit to remove existing telecommunications equipment on the rooftop of the property known locally as 402 Rindge Avenue and to replace it with upgraded equipment, including some additional equipment. This structure has hosted telecommunications equipment for several years. As disclosed in the accompanying plans and the photographic simulations, this proposed removal and replacement will have a very minimal aesthetic or visual impact as there will be very minor noticeable change to the current conditions should this requested zoning relief be granted and the new equipment installed. There will be, however, an enhanced service available to individuals both inside and outside of the surrounding buildings as well as the vehicles passing through the general area, in both emergency and non-emergency situations.

The Applicant submits that the accompanying application materials meet the requirements of the City of Cambridge Zoning Ordinance and respectfully requests that the requested relief be granted by the Board of Zoning Appeal.

Simon J. Brighenti, Jr.

Simon J. Brighenti, Jr., JD
Senior Site Acquisition Consultant
750 W. Center Street – Floor 3 |
W. Bridgewater, MA 02379
Phone : (413) 237-1550
sbrighenti@clinellc.com |
www.centerlinecommunications.com

CENTERLINE COMMUNICATIONS

February 14, 2019

City of Cambridge
Board of Zoning Appeals
831 Massachusetts Avenue
Cambridge, MA 02139

RE: Clear Wireless, LLC dba Sprint
Special Permit Application
402 Rindge Avenue, Cambridge, MA
Supporting Statement

Dear Chair and Members:

I am a network development consultant to Clear Wireless, LLC dba Sprint ("Sprint"). Sprint is an FCC-licensed provider of wireless telecommunications services to the general public in the City of Cambridge and throughout the Commonwealth of Massachusetts. The purpose of this supplement is to provide support to the within application seeking approval to modify the existing *base station*[1] or *eligible support structure* previously installed at the building at 402 Rindge Avenue. The building is located in a multi-residential use and structure in a residential district and has hosted at least one wireless facility for several years. The existing Sprint *base station* consists of antennas secured by mounts to the roof of the building and attached to the existing penthouse. The within application seeks to replace existing antennas with a new generation and number of antennas which will provide more robust service to the students and visitors to the building and surrounding properties and roads.

Applicant submits that this application constitutes an *eligible facilities request* in that the request for modification does not substantially change the physical dimensions of the *base station.* There is no increase in height of the *support stricture,* nor does the proposed modification defeat the *concealment elements* of the *support structure.* i.e. the existing penthouse.

Approval of the within Application will result in minimal visible change to the existing facility. There will be no increase in vehicular or pedestrian traffic subsequent to installation, no increased impact on municipal resources, and Sprint will continue to monitor and maintain the facility pursuant to current practice.
402 Rindge Avenue

[1] Certain italicized terms in context shall be defined as set forth in Section 6409 of the Middle-Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. 1455 Section 6409.

The Applicant submits that the accompanying application materials meet the requirements of the City of Cambridge Zoning Ordinance and respectfully request that the requested relief be granted by the Board of Zoning Appeal.

Simon J. Brighenti, Jr

Simon J. Brighenti, Jr. JD
Site Acquisition Consultant
750 W. Center Street – Floor 3
W. Bridgewater, MA 02379
Phone: (413) 237.1550
sbrighenti@clinellc.com
www.centerlinecommunications.com

BZA APPLICATION FORM

SUPPORTING STATEMENT FOR A SPECIAL PERMIT

Please describe in complete detail how you meet each of the following criteria referring to the property and proposed changes or uses which are requested in your application. Attach sheets with additional information for special permits which have additional criteria, e.g.; fast food permits, comprehensive permits, etc., which must be met.

Granting the Special Permit requested for 402 Rindge Ave Cambridge, MA (location) would not be a detriment to the public interest because:

A) Requirements of the Ordinance can or will be met for the following reasons:

Existing structure currently hosts telecommunications equipment permitted and installed pursuant to the applicable portions of the Ordinance. There will be no deviation from the applicable portions of the Ordinance.

B) Traffic generated or patterns of access or egress would not cause congestion hazard, or substantial change in established neighborhood character for the following reasons:

The propsoed facility is essentially a passive construct. Subsequent to the minor traffic impact due to installation, there will be no additional traffic or change in the neighborhood character.

C) The continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would not be adversely affected by the nature of the proposed use for the following reasons:

There will be no impact on the cited resources as the proposed installation will engender only a minimal change to existing conditions entrely within the subject premises.

D) Nuisance or hazard would not 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 for the following reasons:

There will be no hazard created as the installation produces no noise, fumes or effluent of any nature. To the contrary, the installation will enhance the ability of the occupants and citizens of the City to make and receive calls and data in both emergency and non-emergency situations.

E) For other reasons, the proposed use would not impair the integrity of the district or adjoining district or otherwise derogate from the intent or purpose of this ordinance for the following reasons:

The proposed use is common to the district and is within the intent and purpse of the applicable telecommunications regulations, both at the City and Federal level

BZA APPLICATION FORM

DIMENSIONAL INFORMATION

APPLICANT: Centerline Communications, LLC **PRESENT USE/OCCUPANCY:** Multi Family

LOCATION: 402 Rindge Ave Cambridge, MA **ZONE:** Residence C-2 Zone/ POD

PHONE: _____ **REQUESTED USE/OCCUPANCY:** Multi Family

		EXISTING CONDITIONS	*REQUESTED CONDITIONS*	*ORDINANCE REQUIREMENTS* [1]	
TOTAL GROSS FLOOR AREA:		NA	NA	NA	(max.)
LOT AREA:		NA	NA	NA	(min.)
RATIO OF GROSS FLOOR AREA TO LOT AREA: [2]		NA	NA	NA	(max.)
LOT AREA FOR EACH DWELLING UNIT:		NA	NA	NA	(min.)
SIZE OF LOT:	WIDTH	NA	NA	NA	(min.)
	DEPTH	NA	NA	NA	
SETBACKS IN FEET:	FRONT	NA	NA	NA	(min.)
	REAR	NA	NA	NA	(min.)
	LEFT SIDE	NA	NA	NA	(min.)
	RIGHT SIDE	NA	NA	NA	(min.)
SIZE OF BLDG.:	HEIGHT	216	216	NA	(max.)
	LENGTH	NA	NA	NA	
	WIDTH	NA	NA	NA	
RATIO OF USABLE OPEN SPACE TO LOT AREA: [3]		NA	NA	NA	(min.)
NO. OF DWELLING UNITS:		NA	NA	NA	(max.)
NO. OF PARKING SPACES:		NA	NA	NA	(min./max)
NO. OF LOADING AREAS:		NA	NA	NA	(min.)
DISTANCE TO NEAREST BLDG. ON SAME LOT:		NA	NA	NA	(min.)

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

Construction proposed as indicated on accompanying plans.

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

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

2019 MAR 11 PM 12:33
OFFICE OF THE CITY CLERK
CAMBRIDGE, MASSACHUSETTS

BZA APPLICATION FORM

Plan No: BZA-017074-2019

GENERAL INFORMATION

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

Special Permit : √ **Variance :** _____ **Appeal :** _____

PETITIONER : Clear Wireless LLC d/b/a Sprint - C/O Simon J. Brighenti, Jr.

PETITIONER'S ADDRESS : Centerline Communications LLC 750 W Center St W Bridgewater, MA 02379

LOCATION OF PROPERTY : 402 Rindge Ave Cambridge, MA

TYPE OF OCCUPANCY : Telecommunications **ZONING DISTRICT :** Residence C-2 Zone/ POD

REASON FOR PETITION :

Other: Replace/Add Rooftop Antennas

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

Article 6409 Section 47 USC 1455 (a)

Original Signature(s) : Simon Brighenti
(Petitioner(s) / Owner)

Simon Brighenti
(Print Name)

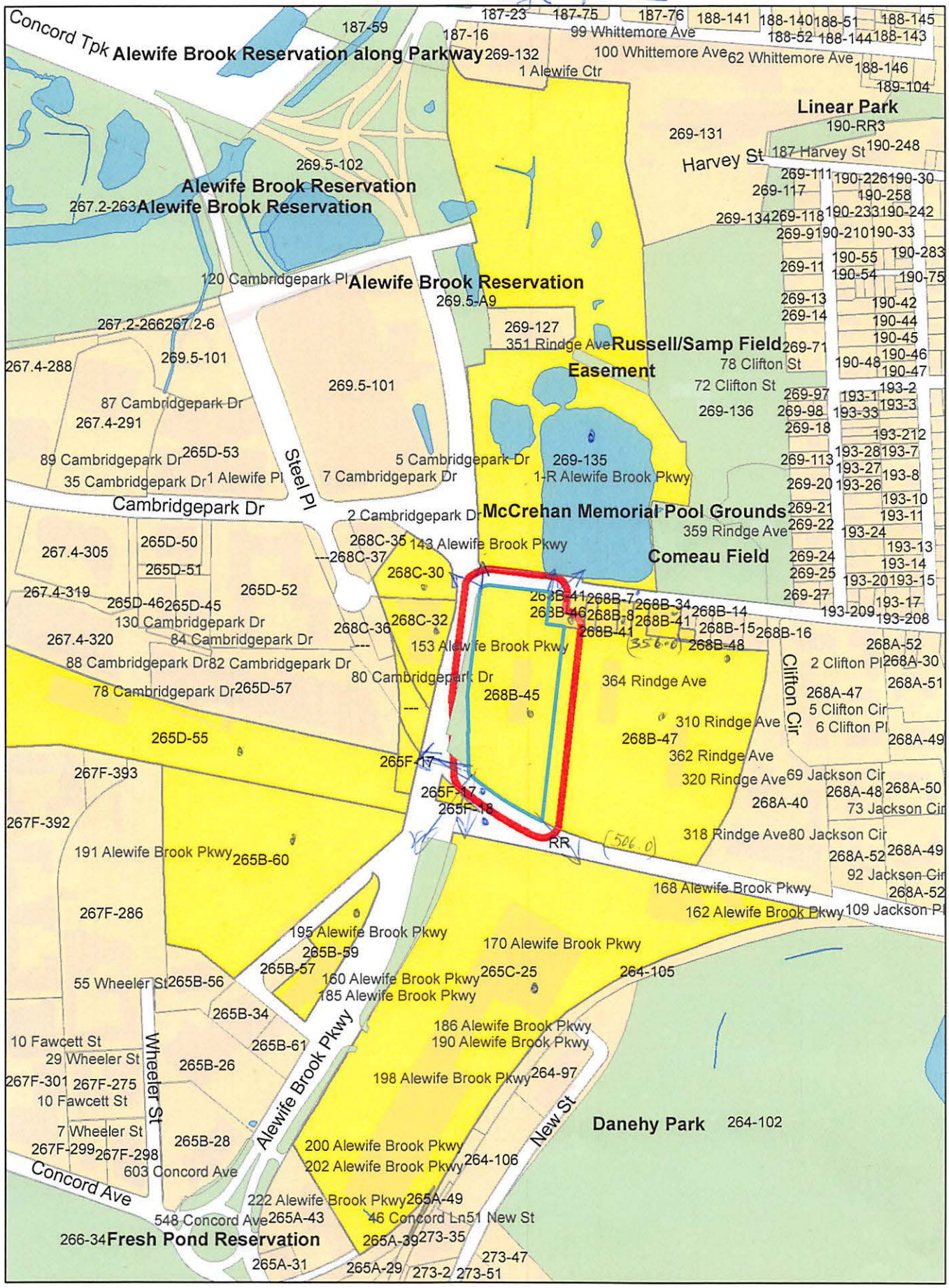
Address : 750 W. Center St. Suite 301
W. Bridgewater, MA 02379

Tel. No. : 413-237-1550

E-Mail Address : SBrighenti@clinellc.com

Date : 3/8/19

402 Rindge Ave



402 Rindge Ave

Petitioner

CENTERLINE COMMUNICATIONS LLC
C/O SIMON J. BRIGHENTI, JR.
750 W CENTER STREET
W. BRIDGEWATER, MA 02379

269-135
GCP APPLIED TECHNOLOGIES INC
62 WHITTEMORE AVE
CAMBRIDGE, MA 02140

265B-59
ALEWIFE PROPERTIES, LLC
545 CONCORD AVENUE
CAMBRIDGE, MA 02138

265C-25
THE FRESH POND MALL LIMITED PARTNERSHIP
545 CONCORD AVE. SUITE 400
CAMBRIDGE, MA 02138

265D-55 /265F-18
MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY
10 PARK PLAZA
BOSTON, MA 02116

265F-17
MASSACHUSETTS COMMONWEALTH OF
STATE HOUSE
BOSTON, MA 02133

265B-60
BOSTON EDISON COMPANY
C/O NSTAR ELECTRIC COMPANY
P.O. BOX 270, PROPERTY TAX DEPT
HARTFORD, CT 06141

268B-8
MUSTASCIO, GEORGE C.
LORENZO CASAMASSIMA
372 RINDGE AVE
CAMBRIDGE, MA 02140

268B-35
FERRO, JOSEPH A.,
TR. 344 & 350-350R RINDGE REALTY TRUST
10 WILLIAM ST
BEDFORD, MA 01730

268B-41
MANNING, BENADETTE
356 RINDGE AVE
CAMBRIDGE, MA 02138

268B-41
BARRY, ABRAHAM & OUMOU BARRY
358 RINDGE AVE
CAMBRIDGE, MA 02138

268B-41
KEBEDE, ROMAN & TSEGAYE WOLDU
366 RINDGE AVE
CAMBRIDGE, MA 02138

268B-41
NAPOLI, MECKY & FATMA JIDDAWI
368 RINDGE AVE
CAMBRIDGE, MA 02139

268B-41
ALAM, MOHAMMED
370 RINDGE AVE.
CAMBRIDGE, MA 02140

268B-41
SITHAR, DICKEY
354-388 RINDGE AVE., #386
CAMBRIDGE, MA 02140

268B-41
REZAEI-KAMALABAD &
MARIANNE REZAEI-KAMALABAD
388 RINDGE AVE
CAMBRIDGE, MA 02139

268B-41
NAHEED, SITARA & ASIA RAHMAN
354-390 RINDGE AVE
CAMBRIDGE, MA 02138

268B-41
RAJAO, ELIANA M. PEREIRA &
CARLOS RICARDO RAJAO
354 RINDGE AVE . UNIT#2
CAMBRIDGE, MA 02138

268B-41
BROWN, MARIE BARBARA &
OWEN OSBOURNE BROWN
354 RINDGE AVE. UNIT#3
CAMBRIDGE, MA 02138

268B-41
MASNY-SOKOLOWSKI, URSZULA
C/O URSZULA MASNY-LATOS
354 RINDGE AVE. UNIT#4
CAMBRIDGE, MA 02138

268B-41
DUGGAN, MARY D.
354 RINDGE AVE., UNIT #5
CAMBRIDGE, MA 02138

268B-47
RINDGE ASSOCIATES
C/O FEDERAL MANAGEMENT CO., INC.
536 GRANITE STREET #301
BRAINTREE, MA 02184

268B-45
RINDGE TOWERS APARTMENTS LLC
1035 CAMBRIDGE ST., #12
CAMBRIDGE, MA 02141

268C-30
APPLETREEWOOD, LLC.
C/O MCCARTHY LEGAL SERVICES LLC,
1188 CENTRE ST
NEWTON CENTER, MA 02459

268C-32
SWEETWOOD, LLC.
C/O MCCARTHY LEGAL SERVICES LLC,
1188 CENTRE ST.
NEWTON CENTER, MA 02459

268B-7
AL-AMIN, INC.
380 RINDGE AVE., UNIT #2
CAMBRIDGE, MA 02140

268B-46
BROWN, MELISSA
396 RINDGE AVENUE
CAMBRIDGE, MA 02140

268B-46
YOHANNES, EFREM T. &
MEAZA T. TEWELDEMEDHIN
390 RINDGE AVE.
CAMBRIDGE, MA 02140

268B-46
MCLEOD, LORNA
392 RINDGE AVE. UNIT#7
CAMBRIDGE, MA 02140

402 Rindge Ave

268B-46
ARADOM, HAILE G. & GENET W. ARADOM
394 RINDGE AVENUE.
CAMBRIDGE, MA 02140

268B-46
NERE, SOLOMON K. & HIWOT H. GEBREMARIAM
400 RINDGE AVE.
CAMBRIDGE, MA 02140

268B-46
TALUKDAR, ASRAF U. & SAYEDA Z. PERVEEN
398 RINDGE AVENUE, UNIT # 3
CAMBRIDGE, MA 02140

268B-46
JIFARA, TEREFE R & ELIZABETH HAILESILASE
398 RINDGE AVENUE, UNIT # 2
CAMBRIDGE, MA 02140

268B-46
RIMAL, MANOJ & NIRJA RIMAL
398 RINDGE AVENUE, UNIT #1
CAMBRIDGE, MA 02140

268B-48
RINDGE ASSOCIATES
C/O FEDERAL MANAGEMENT CO.
536 GRANITE ST., #301
BRAINTREE, MA 02184

CAMBRIDGE HISTORICAL COMMISSION

831 Massachusetts Avenue, 2nd Floor, Cambridge, Massachusetts 02139
Telephone: 617 349 4683 TTY: 617 349 6112
E-mail: histcomm@cambridgema.gov URL: http://www.cambridgema.gov/Historic

Jurisdiction Advice

To the Owner of Property at **402 Rindge Avenue**

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

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

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

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

CHC staff initials SLB Date March 13, 2019

Received by Uploaded to Energov Date March 13, 2019
Relationship to project BZA 017074-2019

cc: Applicant
Inspectional Services Commissioner

Demolition Delay Ordinance and Application Information

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

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

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

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

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

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

July 2003

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

BLOCK 268B

269

Rindge Ave

Alewife Brook Pkwy

Clifton Cir

268C

268B

268A

265B

265C

65D

55D

36
10700

32
43226
149-153 Ale

45
155591
402 Rin

42
400000
364 Rin
362 Rin

46
8448
394-400 Rin

41
3052
386-388 Rin

7
3342
378-380 Rin

8
6512
372 Rin

41
4490
368-370 Rin

366 Rin

41
10000
354 Rin
356-358 Rin

34
3325
350 Rin

35
1675
350-R Rin

14
4825
344 Rin

15
12059
336 Rin

16
8058
326 Rin
326-330 Rin

48
2359

27
6650
315-317 Rin

308 Rin

3 Cli

5 Cli

310 Rin

40
64566
312 Rin

314 Rin

320 Rin

316 Rin

318 Rin

17
20000

18
945

FY 2019

City of Cambridge
Assessing Department

795 Massachusetts Ave.
Cambridge, MA 02139

Buildings
Lot Line
Block Line
City Boundary
Water
Sub-Parcel Line
Easement
Railway

10 Lot Number
268B Block Number
10 Cam Street Number
(125.0) Deed Dimension
100 Parcel size in Sq. Ft.
44.0LC Land Court Dimension
65.0 Survey Dimensions

N

0 15 30 60 Feet

1 inch = 41 feet

Parcel Block Map

268B

Photographic Simulation Package

Proposed Wireless Telecommunications Facility:

BS52XC006 Arlington
402 Rindge Avenue
Cambridge, MA 02139

- Site Photographs taken 2/1/19

Package prepared by:

Virtual Site Simulations, LLC
28 Caswell Street
Suite 100
Narragansett, Rhode Island 02882

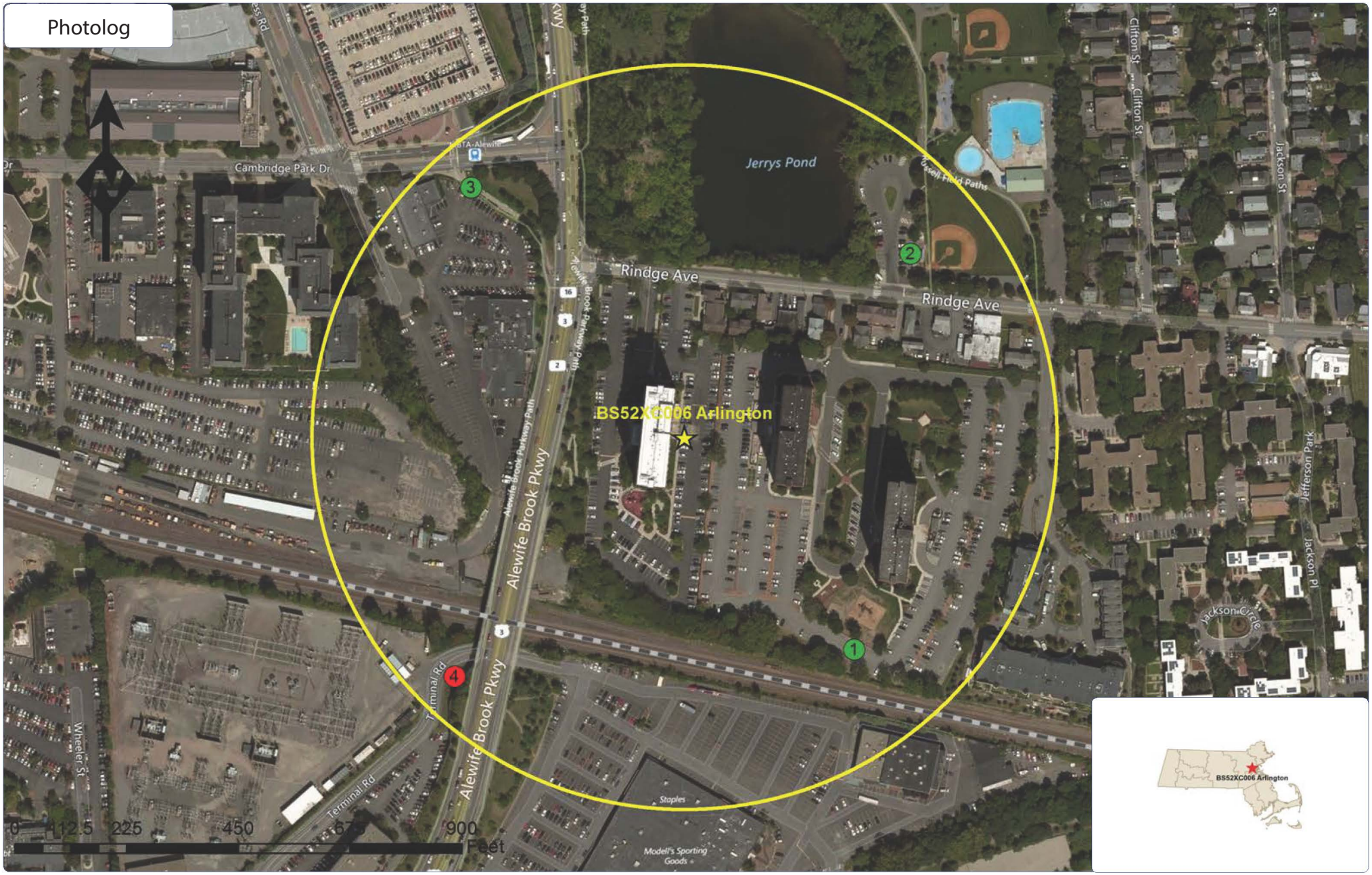
www.VirtualSiteSimulations.com
www.ThinkVSSFirst.com

VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Photolog



Wireless Telecommunications Facility:

BS52XC006 Arlington

402 Rindge Avenue

Cambridge, MA 02139

Legend:

Facility Location

750 Ft Radius

Photo location - Year Round Visibility

Photo location- Obscured Visibility

Photo location - NOT visible

Photo Simulations are for demonstration purposes only. It should not be used in any other fashion or with any other intent. The accuracy of the resulting data is not guaranteed and is not for redistribution

VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Existing

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
1	Rindge Ave	42.34146	-71.138464	620 Feet	South-East	320	Year Round

Site: BS52XC006 Arlington

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VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Simulation

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
1	Rindge Ave	42.34146	-71.138464	620 Feet	South-East	320	Year Round

Site: BS52XC006 Arlington

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VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Existing

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
2	Rindge Ave	42.394097	-71.137997	590 Feet	North-East	230	Year Round

Site: BS52XC006 Arlington

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VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Simulation

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
2	Rindge Ave	42.394097	-71.137997	590 Feet	North-East	230	Year Round

Site: BS52XC006 Arlington

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Sprint

Existing

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
3	Cambridge Park Drive	42.394514	-71.24295	657 Feet	North-West	140	Year Round

Site: BS52XC006 Arlington

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VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Simulation

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
3	Cambridge Park Drive	42.394514	-71.24295	657 Feet	North-West	140	Year Round

Site: BS52XC006 Arlington

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VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

Existing

Changes not visible from this location

Photo #	Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
4	Alewife Brook Parkway	42.391811	-71.141447	462 Feet	South-West	35	Not Visible

Site: BS52XC006 Arlington

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VSS
Your Visual Data Partner

CENTERLINE COMMUNICATIONS

Sprint

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER OR A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

Sprint® VISION ™

NOTE:
OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

PROJECT: DO MACRO UPGRADE

SITE NAME: ARLINGTON

SITE CASCADE: BS52XC006

SITE ADDRESS: 402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SITE TYPE: ROOFTOP

SITE INFORMATION

PROPERTY OWNER:
402 RINDGE CORP.
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

LATITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
N 42° 23' 35.16"
42.393100°

LONGITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
W 71° 08' 22.92"
71.139700°

COUNTY:
MIDDLESEX

ZONING JURISDICTION:
CITY OF CAMBRIDGE

ZONING DISTRICT:
C-2 (RESIDENTIAL C-2)
POD (PARKWAY OVERLAY DISTRICT)

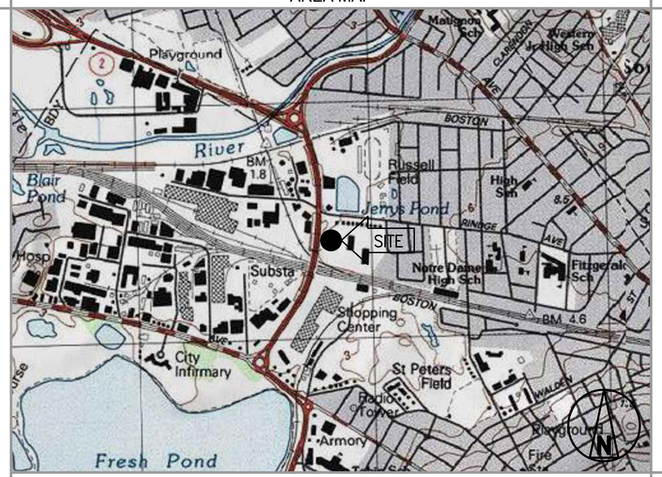
POWER COMPANY:
NSTAR ELECTRIC (CAMBRIDGE)
PHONE: 1-888-633-3797

AAV PROVIDER:
COMCAST
PHONE: 1-800-COMCAST

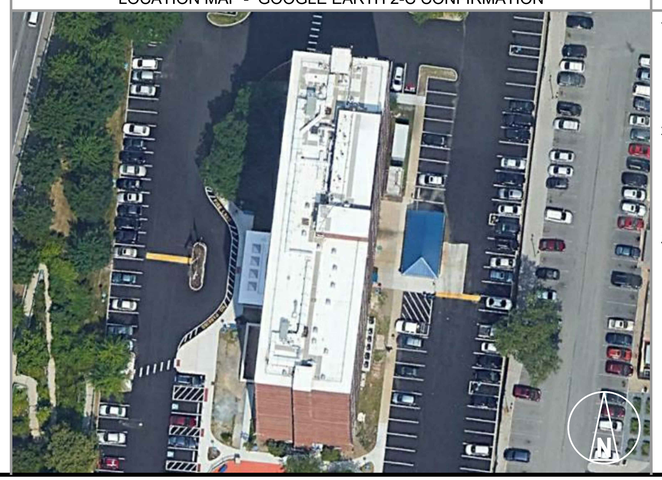
SPRINT CM:
RON FARIAS
PHONE: 617-247-4303
Ronald.Farias@sprint.com

EQUIPMENT SUPPLIER:
ALCATEL-LUCENT
600 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974
(908) 508-8080

AREA MAP



LOCATION MAP - GOOGLE EARTH 2-C CONFIRMATION



PROJECT DESCRIPTION

SPRINT EQUIPMENT MODIFICATIONS REQUIRED TO SUPPORT MODERNIZATION OF AN EXISTING WIRELESS COMMUNICATIONS FACILITY AND UTILIZATION OF FCC BROADBAND SPECTRUM LICENSE FOR 2.5GHz FREQUENCY, INCLUDING INSTALLATION OF:

GROUND-LEVEL RAN EQUIPMENT, CONSISTING OF
- (1) ELTEK ECAB, ICAB & BCAB TO REPLACE EXISTING CLEARWIRE EQUIPMENT CABINET
- (1) GPS ANTENNA & ASSOCIATED ½" COAX CABLE TO REPLACE EXIST. GPS

TOWER-TOP EQUIPMENT, INCLUDING INSTALLATION OF:
- (6) PANEL ANTENNAS TO REPLACE EXIST. (3) ANTENNAS
- (9) REMOTE RADIO HEADS (RRH) TO REPLACE EXIST. (3) REMOTE RADIO HEADS
- (6) HYBRID (FIBER & POWER) CABLES (AND ASSOCIATED FIBER, DC POWER, COAXIAL CABLE JUMPERS AND ANTENNA REMOTE ELECTRICAL-TILT (RET) CABLE) TO REPLACE EXIST. CABLES

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDE BY SPRINT REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AND ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, ADMINISTRATIVE REVIEW).

GENERAL NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - PORTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: MASSACHUSETTS STATE BUILDING CODE 780 CRM-8TH EDITION
   - ELECTRICAL CODE: 2005 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

811 DigSafe MA,ME,NH,RI,VT

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.	CHK.	BY.
T-1	TITLE SHEET	1	JMT	CMC
SP-1	OUTLINE SPECIFICATIONS	1	JMT	CMC
SP-2	OUTLINE SPECIFICATIONS	1	JMT	CMC
SP-3	OUTLINE SPECIFICATIONS	1	JMT	CMC
A-1	ROOF & EQUIPMENT PLAN	1	JMT	CMC
A-2	ELEVATIONS	1	JMT	CMC
A-3	ANTENNA PLANS	1	JMT	CMC
A-4	RF DATA SHEET	1	JMT	CMC
A-5	RAN WIRING DIAGRAMS	1	JMT	CMC
A-6	EQUIPMENT DETAILS	1	JMT	CMC
A-7	EQUIPMENT DETAILS	1	JMT	CMC
S-1	STRUCTURAL DETAILS	1	JMT	CMC
S-2	STRUCTURAL DETAILS	1	JMT	CMC
E-1	ONE-LINE DIAGRAM & PPC DETAILS	1	JMT	CMC
E-2	GROUNDING DETAILS & NOTES	1	JMT	CMC

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

SPRINT: _____ DATE: _____

CONSTRUCTION MANAGER: _____ DATE: _____

LEASING/ SITE ACQUISITION: _____ DATE: _____

RF ENGINEER: _____ DATE: _____

LANDLORD/ TOWER OWNER: _____ DATE: _____

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
(800) 357-7641

CENTERLINE COMMUNICATIONS
95 RYAN DRIVE, SUITE 1
RAYNHAM, MA 02767
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www.centerlinecommunications.com

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Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

COMMONWEALTH OF MASSACHUSETTS
DAVID J. CHAPPELL
CIVIL
No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006
SITE NAME:
ARLINGTON
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1725.057

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 - SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
2. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
3. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
4. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
5. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
6. AMERICAN CONCRETE INSTITUTE (ACI)
7. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
8. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
9. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
10. PORTLAND CEMENT ASSOCIATION (PCA)
11. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
12. BRICK INDUSTRY ASSOCIATION (BIA)
13. AMERICAN WELDING SOCIETY (AWS)
14. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
15. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
16. DOOR AND HARDWARE INSTITUTE (DHI)
17. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
18. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: SPRINT CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.
C . DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

A. TOP HAT
B. HOW TO INSTALL A NEW CABINET
C. BASE BAND UNIT IN EXISTING UNIT
D. INSTALLATION OF BATTERIES
E. INSTALLATION OF HYBRID CABLE
F. INSTALLATION OF RRH'S
G. CABLING
H. TS-0200 REV 4 – ANTENNA LINE ACCEPTANCE STANDARDS
I. SPRINT CELL SITE ENGINEERING NOTICE – EN 2012-001, REV 1.
J. COMMISSIONING MOPS
K. SPRINT CELL SITE ENGINEERING NOTICE – EN-2013-002
L. SPRINT ENGINEERING LETTER – EL-0504
M. SPRINT ENGINEERING LETTER – EL-0568
N. SPRINT TECHNICAL SPECIFICATION – TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

A. CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 - CELL SITE CONSTRUCTION

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED:

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. TOWER OWNER NOTIFICATION: ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, THE CONTRACTOR WILL CONTACT THE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED TO NOTIFY THE CARRIER NOC WORK HAS BEGUN.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

CONTINUE SHEET SP-2

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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-1

1725.057

CONTINUED FROM SP-1:

12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 - SUBMITTALS, TESTS, AND INSPECTIONS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
1. CONCRETE MIX–DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN.

C. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. COAX SWEEPS AND FIBER TESTS PER SPRINT TS–0200 CURRENT VERSION ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE–FOR–THE–PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS–BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS–BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY: WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
1. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
2. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS:

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE– AND POST–CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)
7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN–ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

F. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING––TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS; PRE–CONSTRUCTION AND POST–CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE–UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE–UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE–UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 500 - PROJECT REPORTING

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION––FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL–BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL–BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING–TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

SECTION 07 500 - ROOF CUTTING, PATCHING AND REPAIR

SUMMARY:
THIS SECTION SPECIFIES CUTTING AND PATCHING EXISTING ROOFING SYSTEMS WHERE CONDUIT OR CABLES EXIT THE BUILDING ONTO THE ROOF OR BUILDING–MOUNTED ANTENNAS, AND AS REQUIRED FOR WATERTIGHT PERFORMANCE. ROOFTOP ENTRY OPENINGS IN MEMBRANE ROOFTOPS SHALL BE CONSTRUCTED TO COMPLY WITH LANDLORD, ANY EXISTING WARRANTY, AND LOCAL JURISDICTIONAL STANDARDS.

1.4 SUBMITTALS:

A. PRE–CONSTRUCTION ROOF PHOTOS: COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.

B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)

C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

CONTINUE SHEET SP-3

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CIVIL
No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-2

1725.057

CONTINUED FROM SP-2:

SECTION 09 900 - PAINTING

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS.

MATERIALS:

A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED EQUAL. PROVIDE PREMIUM GRADE, PROFESSIONAL–QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON–METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTIONS WHENEVER POSSIBLE.

B. ROOF TOP CONSTRUCTION: TOUCH UP – PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

1. INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS.
3. MATCH APPROVED MOCK–UPS FOR COLOR, TEXTURE, AND PATTERN. RE–COAT OR REMOVE AND REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
4. CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

1. GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX," "DRY GALV," OR "ZINC–IT."
2. FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO HEADS AND CABLE INSTALLATION

SUMMARY:
THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRH'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRH'S:
THE NUMBER AND TYPE OF ANTENNAS AND RRH'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:
HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

JUMPERS AND CONNECTORS:
FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRH'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12–50, CR 540, OR FXL 540. SUPER–FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRH'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE. DO NOT USE SUPERFLEX OUTDOORS. JUMPERS SHALL BE FACTORY FABRICATED IN APPROPRIATE LENGTHS WITH A MAXIMUM OF 4 FEET EXCESS PER JUMPER AND HAVE CONNECTORS AT EACH END, MANUFACTURED BY SUPPLIER. IF JUMPERS ARE FIELD FABRICATED, FOLLOW MANUFACTURER'S REQUIREMENTS FOR INSTALLATION OF CONNECTORS

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:
INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:
THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.

B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLES INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.

1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'–0" OC USING NON–MAGNETIC STAINLESS STEEL CLIPS.
2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBTS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
   a. FIBER: SUPPORT FIBER BUNDLES USING ½" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
   b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
4. CABLE INSTALLATION:
   a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
   b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
   c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURES RECOMMENDED MAXIMUM BEND RADIUS.
5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED PER SPRINT TS–0200 CURRENT VERSION.
7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA–NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.

1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
2. SELF–AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF–AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF–AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF–AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START–UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV 1.

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE TRANSCEIVER STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START–UP REQUIREMENTS

SUPPORTING DEVICES:

A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:

1. ALLIED TUBE AND CONDUIT
2. B–LINE SYSTEM
3. UNISTRUT DIVERSIFIED PRODUCTS
4. THOMAS & BETTS

B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:

1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
2. POWER–DRIVEN THREADED STUDS: HEAT–TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING–TENSION CLAMPS ON STEEL.
7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

SUPPORTING DEVICES:

A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.

B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.

C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:

D. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

E. USE VIBRATION AND SHOCK–RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT:

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR ENCASED RUNS IN CONCRETE. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW–C–581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED – SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.

B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.

D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO–GALVANIZED OR HOT–DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW–C–563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6–FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRE BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O–RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.

B. CABLE TERMINATION FITTINGS FOR CONDUIT
1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O–Z/GEDNEY OR EQUAL.
2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO – CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE–HINDS WAB SERIES OR EQUAL.

D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKETED COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE–HINDS FORM 8 OR EQUAL.

E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE–HINDS, COOPER, ADALET, APPLETON, O–Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM

A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON–MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS AS INDICATED.

B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO OX.

C. STOLEN GROUND–BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE–ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

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COMMONWEALTH OF MASSACHUSETTS
DAVID J. CHAPPELL
CIVIL
No. 34706
REGISTERED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

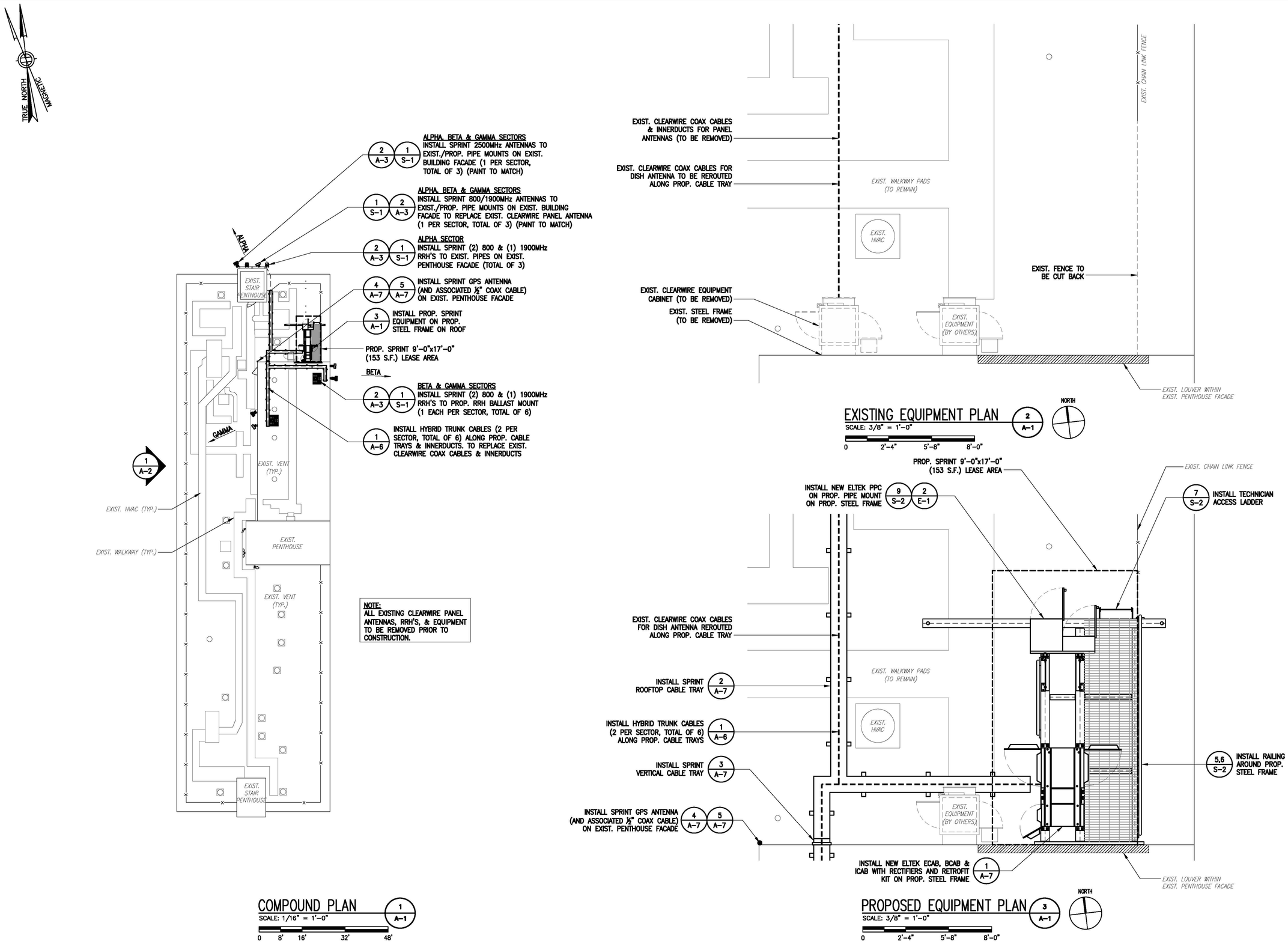
SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-3

1725.057



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CAMBRIDGE, MA 02139

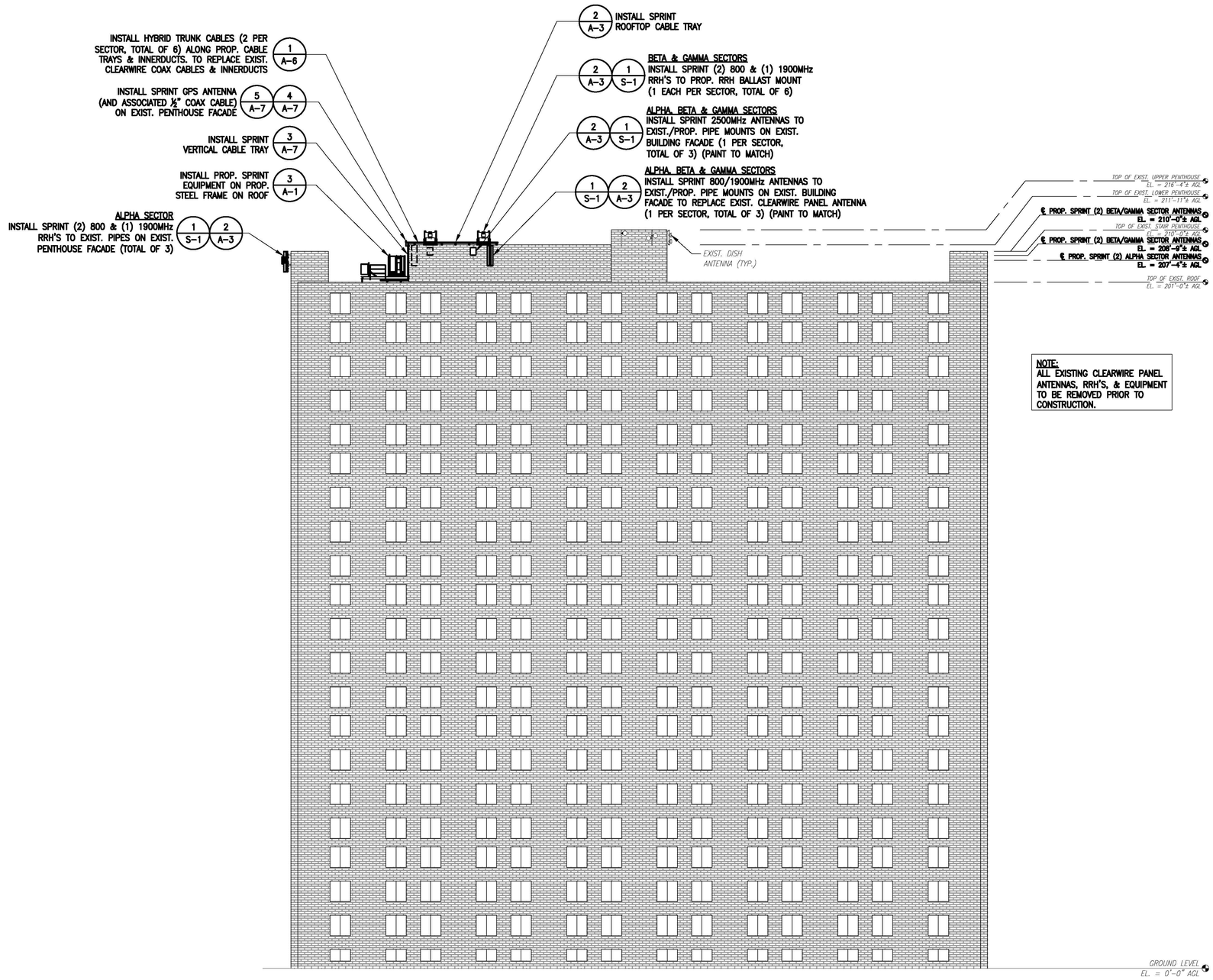
SHEET TITLE
ROOF & EQUIPMENT PLANS

SHEET NUMBER
A-1

1725.057

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER OR A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

STRUCTURAL NOTE:
ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.



NOTE:
ALL EXISTING CLEARWIRE PANEL ANTENNAS, RRH'S, & EQUIPMENT TO BE REMOVED PRIOR TO CONSTRUCTION.

SOUTH ELEVATION
1 / A-2
SCALE: 1" = 16'-0"
0 16' 32' 48'

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CAMBRIDGE, MA 02139

SHEET TITLE
ELEVATION

SHEET NUMBER
A-2

1725.057

SPECIAL CONSTRUCTION NOTE:
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* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

STRUCTURAL NOTE:
ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.

ANTENNA STATUS LEGEND:

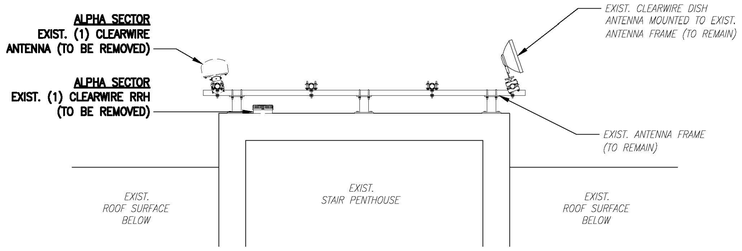
EMPTY – EMPTY PIPE

(E) – EXISTING

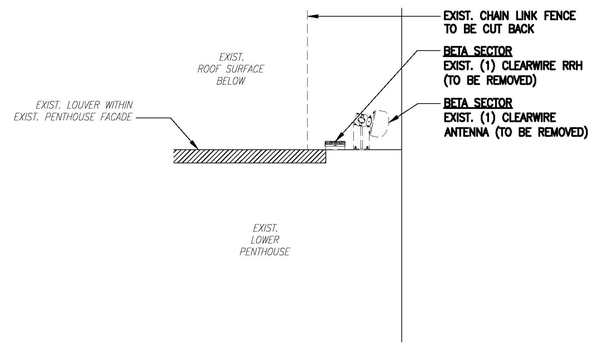
(P) – INSTALL

NV – SPRINT ANTENNA

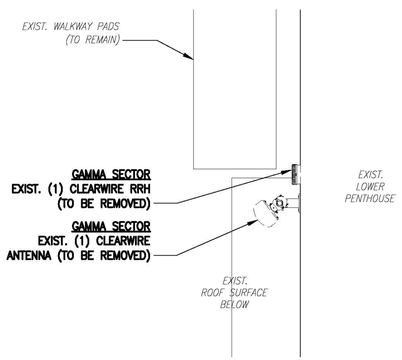
2.5 – SPRINT ANTENNA



ALPHA SECTOR



BETA SECTOR



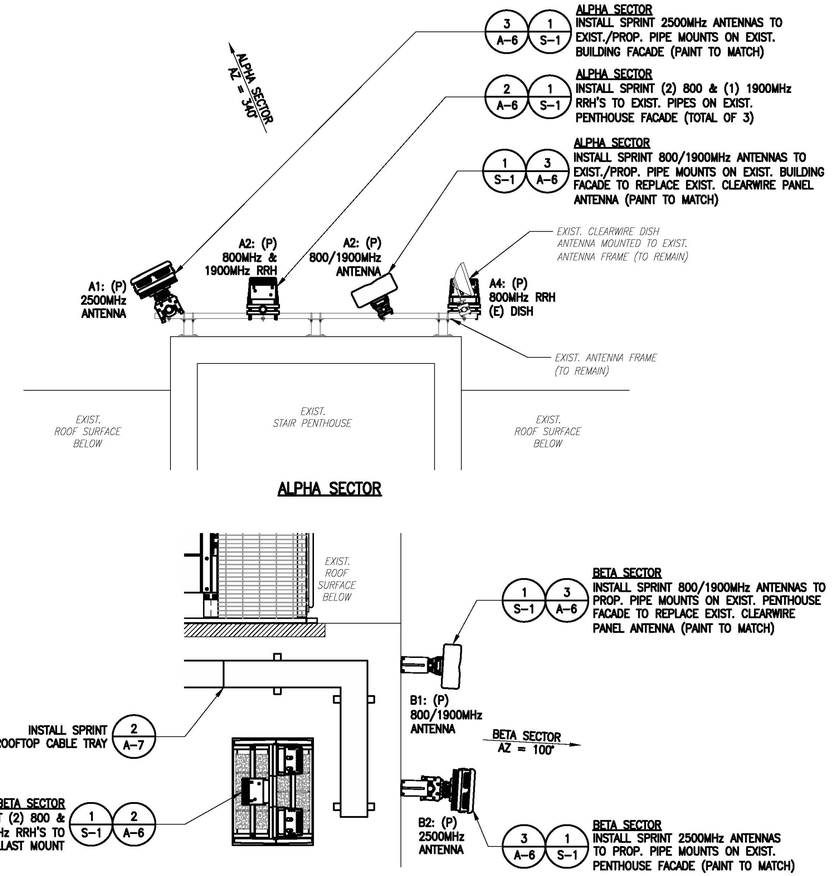
GAMMA SECTOR

NOTE:
ALL EXISTING CLEARWIRE PANEL ANTENNAS, RRH'S, & EQUIPMENT TO BE REMOVED PRIOR TO CONSTRUCTION.

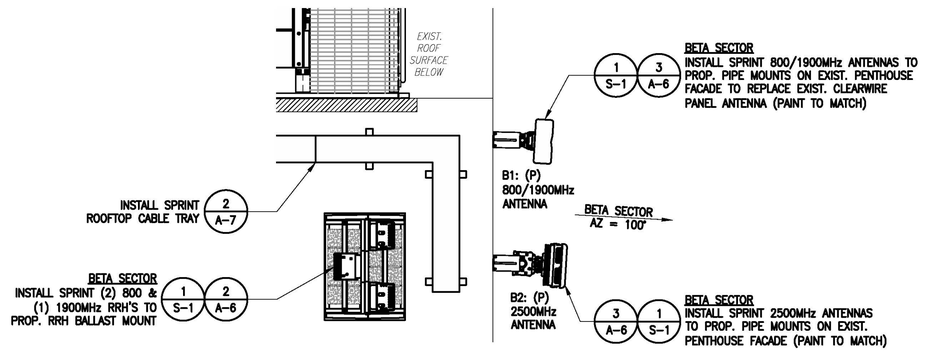
EXISTING ANTENNA PLAN (1/A-3) NORTH

SCALE: N.T.S.

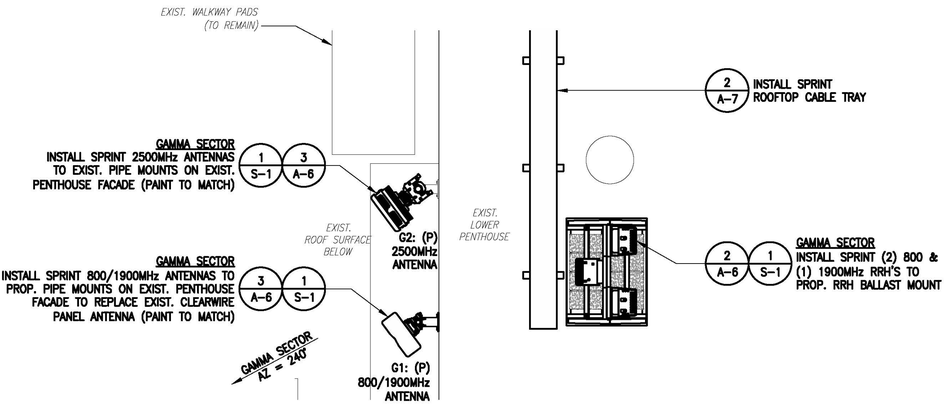
NOTE:
EXISTING AZIMUTHS FROM CEA SITE VISIT, DATED 03/27/2018.



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

PROPOSED ANTENNA PLAN (2/A-3) NORTH

SCALE: N.T.S.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

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CHECKED BY:	JMT
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SUBMITTALS

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SITE NAME:
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SITE ADDRESS:
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CAMBRIDGE, MA 02139

SHEET TITLE
ANTENNA PLANS

SHEET NUMBER
A-3

1725.057

Site Data				
	Region: Northeast **Market**	**#N/A**	Revision 2.8	Rev Date: 21-Feb-2018
	Cascade ID	**BS52XC006**	BTS OEM: ALU, Nokia	RFDS Type: Preliminary
	Augment Import Code: SPDOMU01_DO_Macro_Upgrade	Augment: DO Macro Upgrade	Structure Type:	Rooftop
	#N/A	Sprint Eng. Name: Bill Hastings	Bill.M.Hastings@sprint.com	Eng. Phone: 978-590-9700
	Latitude: 42.393333 | Longitude: -71.139883	Manager Name: Jonathan Hull	Jonathan.B.Hull@sprint.com	Manager Phone: 617-233-2920
	Detailed RFDS Description:	RFE: Praveen Meesarapu	Praveen.Meesarapu@sprint.com	RFE Phone: 301-728-0006
	Triband final config swap existing antenna to 8-port 800/1900 antenna. Add 2x 800 RRHs, 1900 RRH and 2.5 Massive Mimo Antenna System. CW Site to Full Upgrade	Filter Analysis Complete: YES	Border Analysis Complete: YES	Channel Plan Complete: YES

		Alpha	Beta	Gamma
1900	1900MHz_Azimuth	340	100	240
	1900MHz_No_of_Antennas	1	1	1
	1900MHz_RADCenter(ft)	200	200	200
	1900MHz_Antenna Make	Commscope	Commscope	Commscope
	1900MHz_Antenna Model	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4
	1900MHz_Horizontal_Beamwidth	60	60	60
	1900MHz_Vertical_Beamwidth	6.4	6.4	6.4
	1900MHz_Antenna Dimensions (in) & Weight (lbs)	72 x 19.6 x 7.8 | 77.4 (lbs)	72 x 19.6 x 7.8 | 77.4 (lbs)	72 x 19.6 x 7.8 | 77.4 (lbs)
	1900MHz_AntennaGain(dBi)	17.7	17.7	17.7
	1900MHz_E_Tilt	0	0	0
	1900MHz _M_Tilt	0	0	0
	1900_Effective_Tilt	0	0	0
	1900MHz_Carrier_Forecast_Year_2017			
	1900MHz_RRH Manufacturer	ALU	ALU	ALU
	1900MHz_RRH Model	RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz
	1900MHz_RRH Count	1	1	1
	1900MHz_RRH Specs	25 x 11.1 x 11.4 (60 lbs)	25 x 11.1 x 11.4 (60 lbs)	25 x 11.1 x 11.4 (60 lbs)
	1900MHz_RRH Location	Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower
	1900MHz Combiner Model	No Combiner Required	No Combiner Required	No Combiner Required
	1900MHz Power Split Ratio (Main/Split)			
	1900MHz Splitter Manufacturer			
	1900MHz Splitter Model	No Splitter Required	ok	No Splitter Required
	1900MHz Number of Splitters	0	0	0
	1900MHz_Top_Jumper #1_Length (RRH or Combiner-to-Antenna for TT or Main Coax to Antenna for Ground Mount, ft)	8	8	8
	1900MHz_Top_Jumper #1_Cable_Model (RRH or Combiner-to-Antenna for TT or Main Coax to Antenna for Ground Mount)	LCF12-50J	LCF12-50J	LCF12-50J
	1900MHz_Top_Jumper #2_Length (RRH to Combiner for TT if applicable, ft)			
	1900MHz_Top_Jumper #2_Cable_Model (RRH to Combiner for TT if applicable)			
	1900MHz_Main_Cable_Length (ft)	225	225	225
	1900MHz_Main_Cable_Model	HB114-1-0813U4-M5J	HB114-1-0813U4-M5J	HB114-1-0813U4-M5J
	1900MHz_Bottom_Jumper #1_Length (Ground based RRH to Combiner-OR-Main Coax, ft)			
	1900MHz_Bottom_Jumper #1_Cable_Model (Ground based RRH to Combiner-OR-Main Coax)			
	1900MHz_Bottom_Jumper #2_Length (Ground based-Combiner to Main Coax, ft)			
	1900MHz_Bottom_Jumper #2_Cable_Model (Ground based-Combiner to Main Coax)			

800	800MHz_Azimuth	340	100	240
	800MHz_No_of_Antennas	1	1	1
	800MHz_RADCenter(ft)	200	200	200
	800MHz_AntennaMake	NA	NA	NA
	800MHz_AntennaModel	Antenna assigned on a different band	Antenna assigned on a different band	Antenna assigned on a different band
	800MHz_Horizontal_Beamwidth	NA	NA	NA
	800MHz_Vertical_Beamwidth	NA	NA	NA
	800MHz_Antenna Dimensions (in) & Weight (lbs)	NA | NA	NA | NA	NA | NA
	800MHz_AntennaGain (dBi)	NA	NA	NA
	800MHz_E_Tilt	0	0	0
	800MHz_M_Tilt	0	0	0
	800 MHz_Effective Tilt (degrees)	0	0	0
	800MHz_RRH Manufacturer	ALU	ALU	ALU
	800_Combiner_Model	No Combiner Required	No Combiner Required	No Combiner Required
	800MHz_RRH Model	RRH 800 MHz 2x50W	RRH 800 MHz 2x50W	RRH 800 MHz 2x50W
	800MHz_RRH Specs	15.8 x 13.0 x 14.0 (64 lbs)	15.8 x 13.0 x 14.0 (64 lbs)	15.8 x 13.0 x 14.0 (64 lbs)
	800MHz_RRH Count	2	2	2
	800MHz_RRH Location	Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower
	800MHz BILT Border Filter	na	na	na
	800MHz Splitter Manufacturer			
	800MHz Splitter Model			
	800MHz Number of Splitters	0	0	0
	800_Top_Jumper #1_Length (RRH to Antenna for TT or Main Coax to Antenna for GM)	8	8	8
	800_Top_Jumper_Cable_Model (RRH to Antenna for TT or Main Coax to Antenna for GM)	LCF12-50J	LCF12-50J	LCF12-50J
	800MHz_Main_Coax_Cable_Length (ft)	NA	NA	NA
	800MHz_Main_Coax_Cable_Model	NA	NA	NA
	800_Bottom_Jumper #1_Length (Ground based RRH to Main Coax)			
	800_Bottom_Jumper #1_Cable_Model (Ground based RRH to Main Coax)			
2500	2500MHz_Azimuth	340	100	240
	2500MHz_No_of_Antennas	1	1	1
	2500MHz_RADCenter(ft)	200	200	200
	2500MHz_AntennaMake	Nokia	Nokia	Nokia
	2500MHz_AntennaModel	AAHC	AAHC	AAHC
	2500MHz_Horizontal_Beamwidth	0	0	0
	2500MHz_Vertical_Beamwidth	0	0	0
	2500MHz_AntennaHeight (in)	25.6 x 19.7 x 9.9 | 99.2 (lbs)	25.6 x 19.7 x 9.9 | 99.2 (lbs)	25.6 x 19.7 x 9.9 | 99.2 (lbs)
	2500MHz_AntennaGain (dBi)	0	0	0
	2500MHz_E_Tilt	0	0	0
	2500MHz_M_Tilt	0	0	0
	2500 MHz_Effective Tilt (degrees)	0	0	0
	2500MHz_RRH Manufacturer	Nokia	Nokia	Nokia
	2500_Combiner_Model	comb model	comb model	comb model
	2500MHz_RRH Model	AAHC	AAHC	AAHC
	2500MHz_RRH Count	1	1	1
	2500MHz_RRH Location	Built into Antenna	Built into Antenna	Built into Antenna
	2500MHz Power Split Ratio (Main/Split)			
	2500MHz Splitter Manufacturer			
	2500MHz Splitter Model			
	2500MHz Number of Splitters	0	0	0
	2500_Top_Jumper #1_Length (RRH to Antenna for TT or Main Coax to Antenna for GM)	8	8	8
	2500_Top_Jumper_Cable_Model (RRH to Antenna for TT or Main Coax to Antenna for GM)	LCF12-50J	LCF12-50J	LCF12-50J
	2500MHz_Main_Cable_Length (ft)	225		225
	2500MHz_Main_Cable_Model	HB114-13U3M12-xxxF		HB114-13U3M12-xxxF
	2500_Bottom_Jumper #1_Length (Ground based RRH to Main Coax)			
	2500_Bottom_Jumper #1_Cable_Model (Ground based RRH to Main Coax)			

NOTES:
1. COMMENTS IN RED TEXT PROVIDED BY A&E VENDOR.
2. ANTENNA RAD CENTER BASED ON EQUIPMENT DATABASE AND STRUCTURAL ANALYSIS.
3. SPRINT CM SHALL CONFIRM HYBRID CABLE LENGTH, COAX JUMPER LENGTH AND AISG CABLE LENGTH BEFORE PREPARING BOM. A&E RECOMMENDED HYBRID CABLE LENGTH BASED ON NV 2.5 EQUIPMENT AUDIT PLUS 20 FEET FOR (2) 10-FOOT COILS AT EACH END OF THE FIBER TRUNK.

NOTE:

GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT THE LATEST RF DATA SHEET IS USED FOR EQUIPMENT INSTALLATION.

RF DATA SHEET
N.T.S.

1
A-4

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
(800) 357-7641

CENTERLINE COMMUNICATIONS
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COMMONWEALTH OF MASSACHUSETTS
DAVID M. CHAPPELL
CIVIL
No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

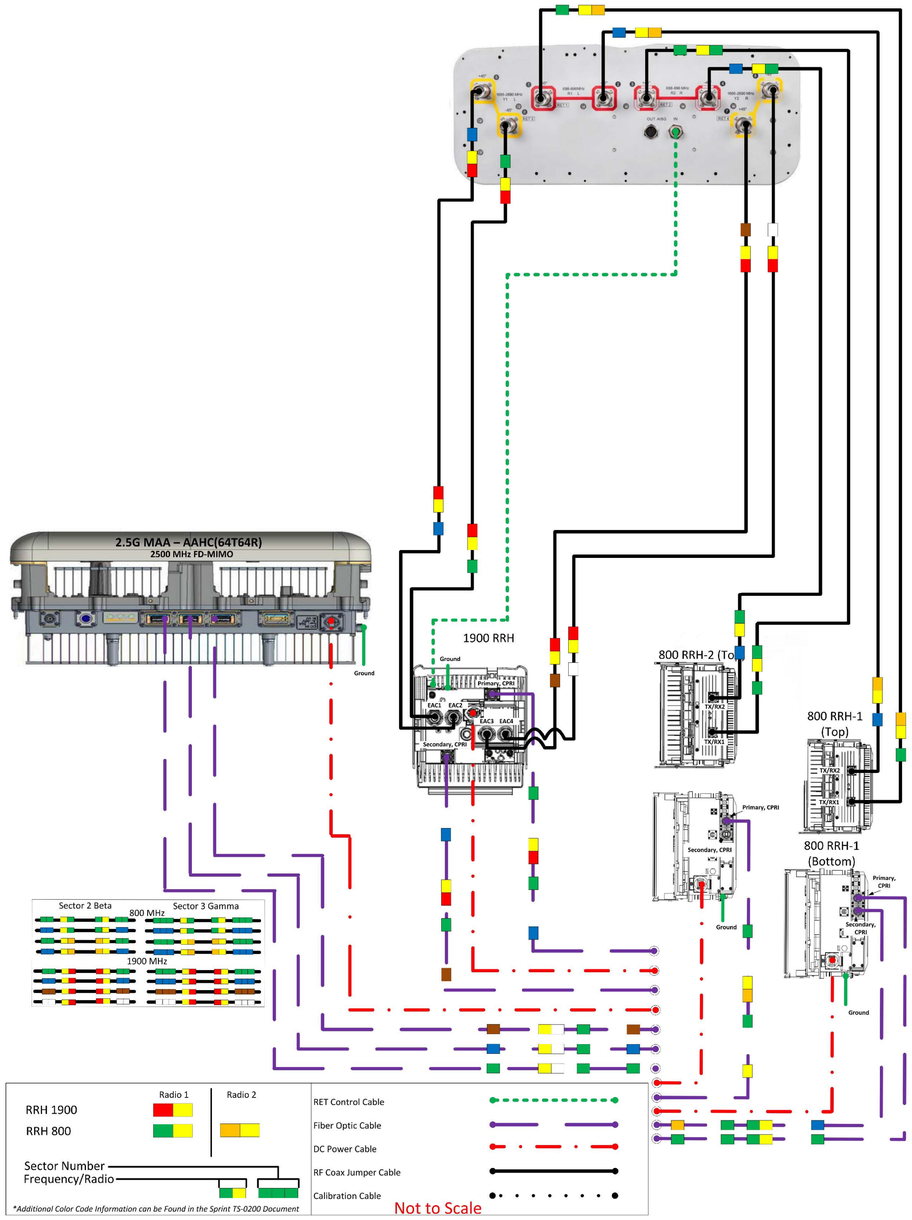
SITE NUMBER:
BS52XC006
SITE NAME:
ARLINGTON
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
RF DATA SHEET

SHEET NUMBER
A-4

1725.057

COMMSCOPE NNVV-65B-R4



PLUMBING DIAGRAM
SCALE: N.T.S.

1
A-4

SPRINT CONSTRUCTION STANDARDS:

GENERAL CONTRACTOR SHALL ADHERE TO THE FOLLOWING SPRINT CONSTRUCTION STANDARDS.

- CONSTRUCTION STANDARDS: INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES – (CURRENT VERSION), INCLUDING EXHIBITS A–M.
- CONSTRUCTION SPECIFICATIONS: CONSTRUCTION STANDARDS EXHIBIT A – STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES (CURRENT VERSION).
- GROUNDING STANDARDS: EXTERIOR GROUNDING SYSTEM DESIGN. GROUNDING STANDARDS (SUPPLEMENT): ANTI–THEFT UPDATE TO SPRINT GROUNDING 082412 AND SPRINT ENGINEERING LETTER EL–0504 DATED 04.20.12.
- WEATHER PROOFING STANDARDS: EXCERPT FROM CONSTRUCTION STANDARDS EXHIBIT A, SECTION 3.6 WEATHERPROOFING CONNECTORS AND GROUND KITS.
- COLOR CODING: SPRINT NEXTEL ANT AND LINE COLOR CODING PER SPRINT TS–0200 CURRENT VERSION.
- GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT IN RFDS, HALT ANTENNA WORK FOR WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING SPRINT–PROVIDED CONTACT INFORMATION FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5GHz ANTENNA AT SAME CL AS 1.9GHz ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS–BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900MHz AND 800MHz ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
- AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHz, 1.9GHz, AND 2.5GHz. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
- GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5GHz ANTENNA IS NOT TO THE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON–SPRINT ANTENNAS.
- GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL(LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS–BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS–BUILTS SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA–ALIGNMENT–TOOL/.

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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
RAN WIRING DIAGRAMS

SHEET NUMBER
A-5

1725.057

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE MANUF: RFS			
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
FIBER ONLY	VARIES	USE NV HYBRIFLEX	5/8"
HYBRIFLEX	<200'	8 AWG	1-1/4"
(*) HYBRIFLEX	225-300'	6 AWG	1-1/4" (6)
HYBRIFLEX	325-375'	4 AWG	1-1/4"

ALPHA = 225' BETA = 225' GAMMA = 225'

RFS HYBRIFLEX RISER CABLE SCHEDULE

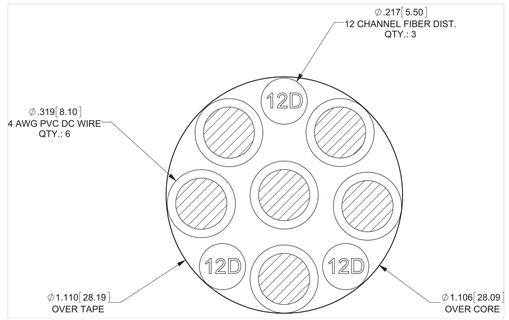
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	(*) **Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft (3)
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

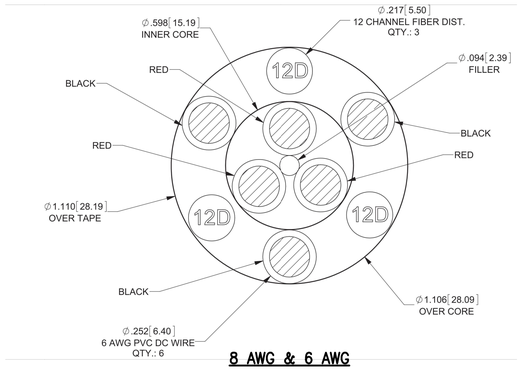
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
(*)	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

* NOTE: SPRINT CM TO CONFIRM HYBRID RISER CABLE AND HYBRID JUMPER CABLE MODEL NUMBERS BEFORE PREPARING BOM.

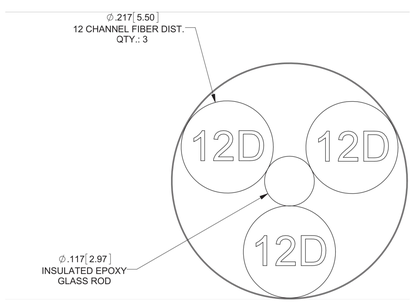
2500MHz HYBRID CABLE X-SECTION & DATA (1 / A-6)
SCALE: NTS



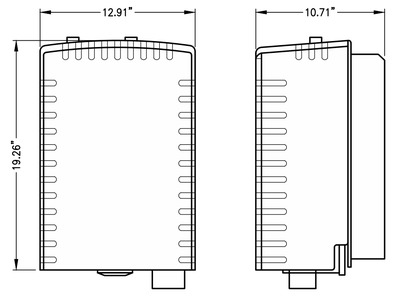
4 AWG



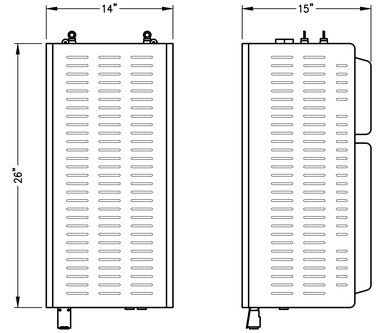
8 AWG & 6 AWG



FIBER ONLY

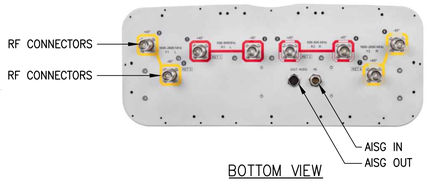


800MHz RRH

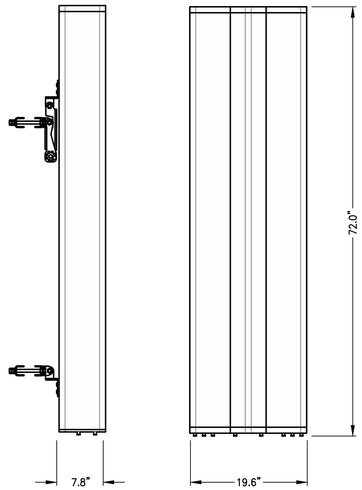


1900MHz RRH

RRH DETAILS (2 / A-6)
N.T.S.



BOTTOM VIEW



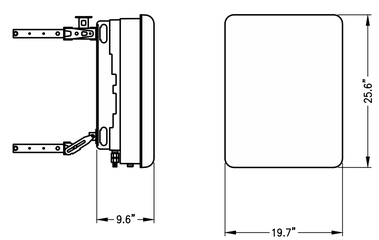
SIDE VIEW FRONT VIEW

800/1900MHz ANTENNA

COMMSCOPE NNVV-65B-R4 PANEL ANTENNA

DIMENSIONS: 72.0"x19.6"x7.8"
WEIGHT: 77.4 LBS W/ HARDWARE
FREQUENCY RANGE: 694-896 MHz
1695-2690 MHz

BOTTOM VIEW



SIDE VIEW FRONT VIEW

2500MHz RRH

NOKIA AAHC PANEL ANTENNA

DIMENSIONS: 25.6"x19.7"x9.6"
WEIGHT: 103.6 LBS W/ HARDWARE
FREQUENCY RANGE: 2496-2690 MHZ

ANTENNA DETAILS (3 / A-6)
N.T.S.

Sprint VISION
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0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

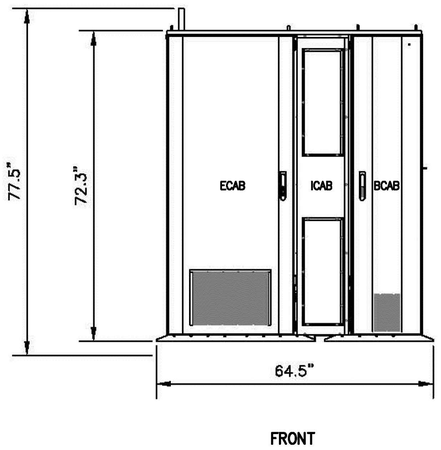
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
EQUIPMENT DETAILS

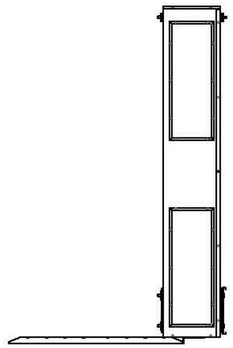
SHEET NUMBER
A-6

1725.057

EQUIPMENT CABINET INSTALLATION NOTE:
GENERAL CONTRACTOR SHALL INSTALL EQUIPMENT CABINET FLOOR-MOUNT KIT AND SHALL FURNISH AND INSTALL ALL FASTENERS/ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES.



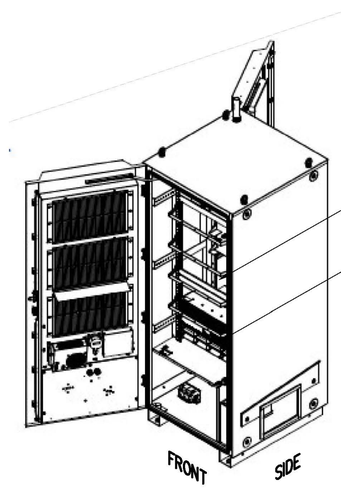
EQUIPMENT ASSEMBLY



ELTEK ICAB

MANUF:	ELTEK ICAB
MODEL:	N/A
HEIGHT:	71.4
WIDTH:	12.1
DEPTH:	28.1
WEIGHT:	N/A

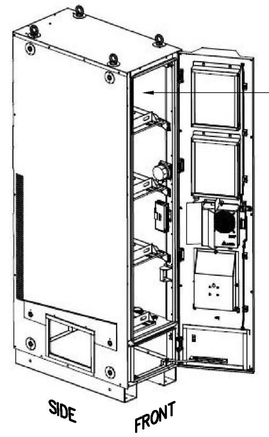
NOTE:
ANCHOR INTERCONNECT CABINET TO PROPOSED CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.



ELTEK ECAB ESOA220-SCA02

MANUF:	ELTEK ECAB
MODEL:	ESOA220-SCA02
HEIGHT:	73.5
WIDTH:	30.0
DEPTH:	38.0
WEIGHT:	505 LBS

NOTE:
ANCHOR EQUIPMENT CABINET TO PROPOSED CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.

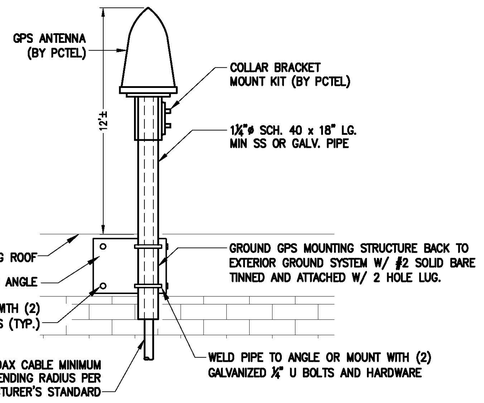


ELTEK BCAB ESOF020-ECV02

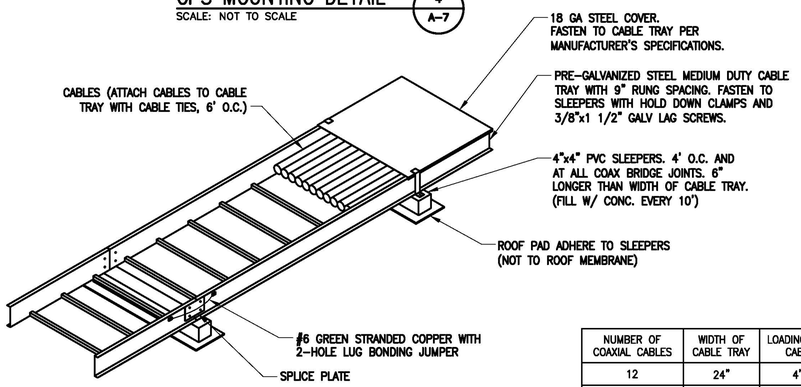
MANUF:	ELTEK BCAB
MODEL:	ESOF020-ECV02
HEIGHT:	73.5
WIDTH:	16.5
DEPTH:	34.7
WEIGHT:	330 LBS

NOTE:
ANCHOR BATTERY CABINET TO PROPOSED CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.

EQUIPMENT DETAILS (1 / A-7)
SCALE: NTS

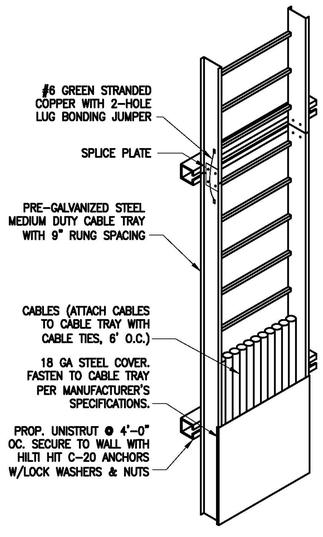


GPS MOUNTING DETAIL (4 / A-7)
SCALE: NOT TO SCALE

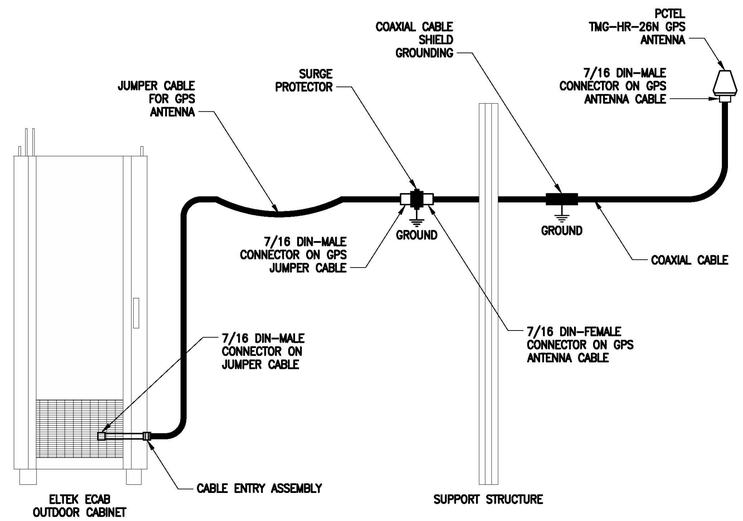


NUMBER OF COAXIAL CABLES	WIDTH OF CABLE TRAY	LOADING DEPTH OF CABLE TRAY
12	24"	4"
8	18"	4"
4	12"	4"

CABLE TRAY DETAIL (2 / A-7)
SCALE: NOT TO SCALE



VERTICAL CABLE TRAY DETAIL (3 / A-7)
SCALE: NOT TO SCALE



THE GPS SURGE NEEDS TO BE INSTALLED AWAY FROM AND SEPARATE FROM THE MM-BTS CABINET. (PER THE SITE PREP GUIDE)

- THE JUMPERS ARE DESIGNED TO BE INSTALLED BEFORE/AFTER THE GPS SURGE.
- THE GPS SURGE NEEDS TO BE CONNECTED TO THE GROUND SYSTEM VIA A GROUND LEAD.

GPS DETAIL (5 / A-7)
SCALE: N.T.S.

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No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY:	JMT
APPROVED BY:	JMT

SUBMITTALS

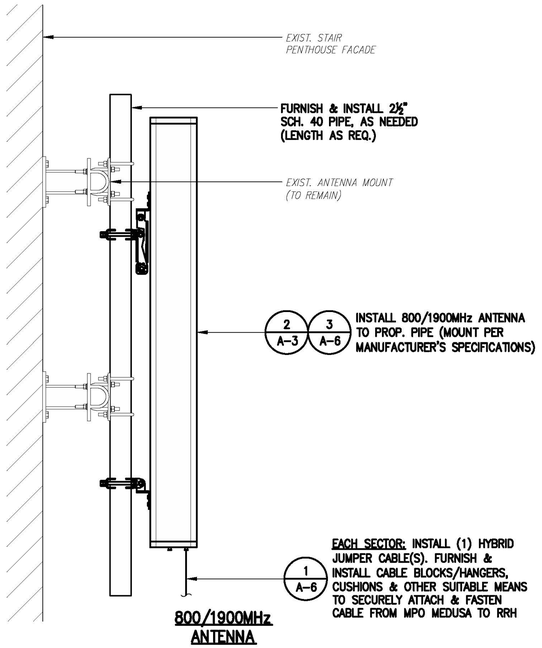
REV.	DATE	DESCRIPTION	BY
1	06/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006
SITE NAME:
ARLINGTON
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

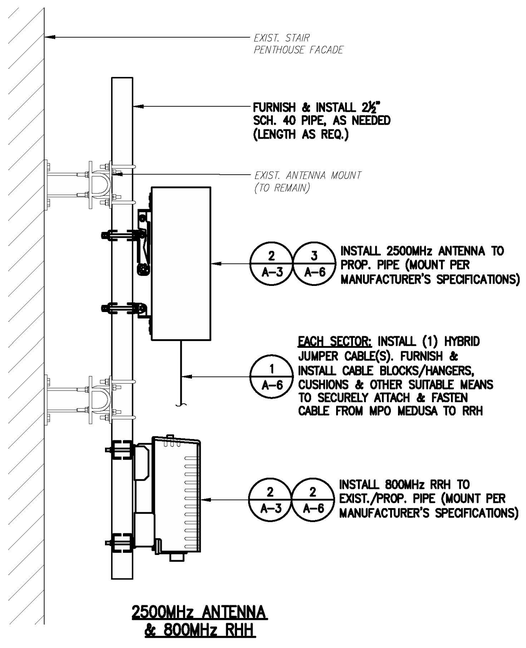
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-7

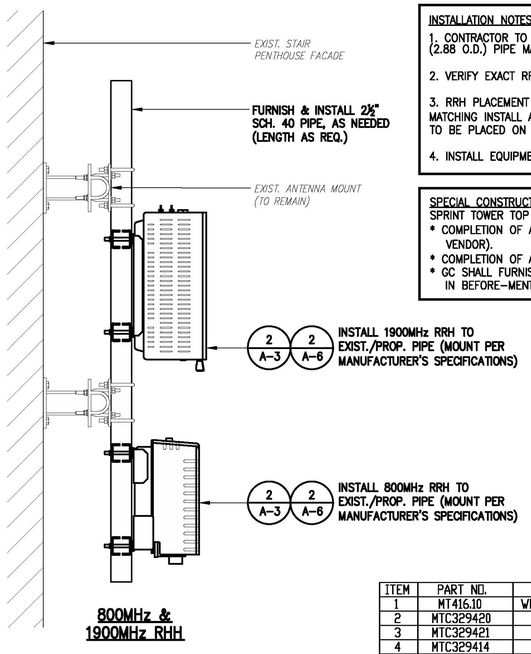
1725.057



800/1900MHz ANTENNA



2500MHz ANTENNA & 800MHz RHH



800MHz & 1900MHz RHH

ALPHA SECTOR

INSTALLATION NOTES:

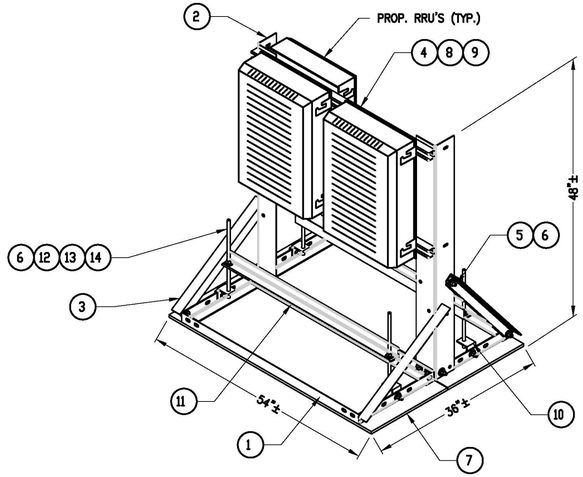
1. CONTRACTOR TO VERIFY IN FIELD SIZE OF EXISTING MOUNTING PIPE TO BE 2½" STD (2.88 O.D.) PIPE MAST (6'-0" LONG).
2. VERIFY EXACT RRH AND ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.
3. RRH PLACEMENT FOR REFERENCE ONLY. CONTRACTOR SHALL PLACE RRH IN CORRECT ORDER MATCHING INSTALL ANTENNA PLACEMENT AND ENSURE THAT THERE IS ENOUGH CLEARANCE FOR RRH'S TO BE PLACED ON THE INSIDE ON THE ANTENNA FRAME.
4. INSTALL EQUIPMENT TO BE MOUNTED PER MANUFACTURERS SPECIFICATIONS.

SPECIAL CONSTRUCTION NOTE:

SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:

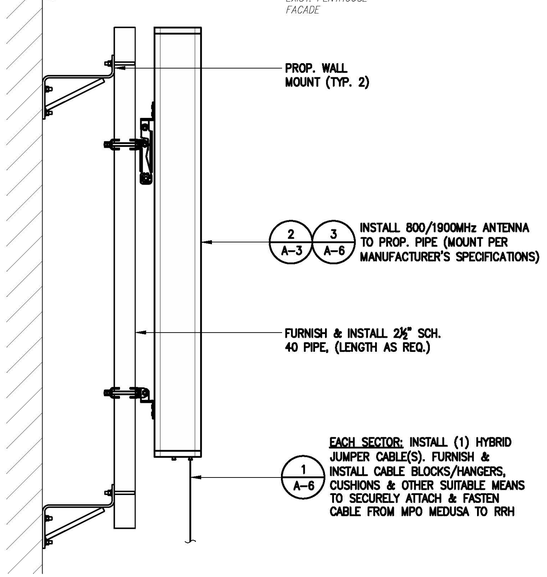
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER OR A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MT416.10	WELDMNT BALLAST SLED FRAME	2	22.40 LBS
2	MTC329420	VERTICAL ANGLE	2	13.93 LBS
3	MTC329421	BRACE ANGLE	4	4.71 LBS
4	MTC329414	1 5/8" UNISTRUT	2	6.25 LBS
5	GB-04145	1/2" X 1-1/2" GALV BOLT KIT	18	0.13 LBS
6	GWF-04	1/2" GALV FLAT WASHER	28	0.06 LBS
7	MT-F1637	RUBBER MAT .5" X 18" X 48"	2	15.61 LBS
8	GWF-03	3/8" GALV FLAT WASHER	8	0.01 LBS
9	GB-03145	3/8" X 1-1/2" GALV BOLT KIT	4	0.07 LBS
10	MTC8326.01	CLIP ANGLE	4	0.478 LBS
11	MTC329422	BRACE ANGLE	2	7.92 LBS
12	GWL-04	1/2" GALV LOCK WASHER	8	0.09 LBS
13	GN-04	1/2" GALV HEX NUT	8	0.04 LBS
14	MT-379-16	1/2" X 16" GALV THREADED ROD	4	0.88 LBS

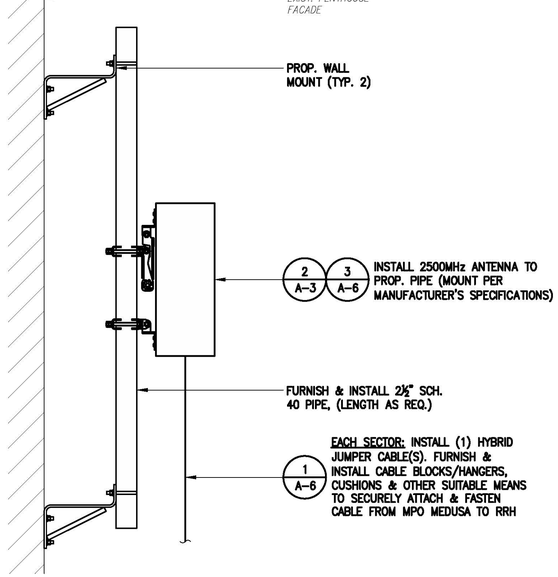


BETA & GAMMA SECTOR RRH MOUNTING DETAILS 2/S-1

SCALE: N.T.S.



800/1900MHz ANTENNA



2500MHz ANTENNA

BETA & GAMMA SECTOR

TYPICAL ANTENNA MOUNTING DETAILS 1/S-1

SCALE: N.T.S.

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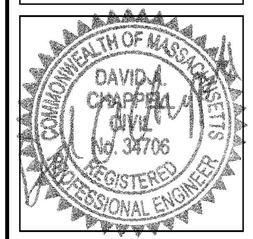

CHECKED BY: JMT

APPROVED BY: JMT

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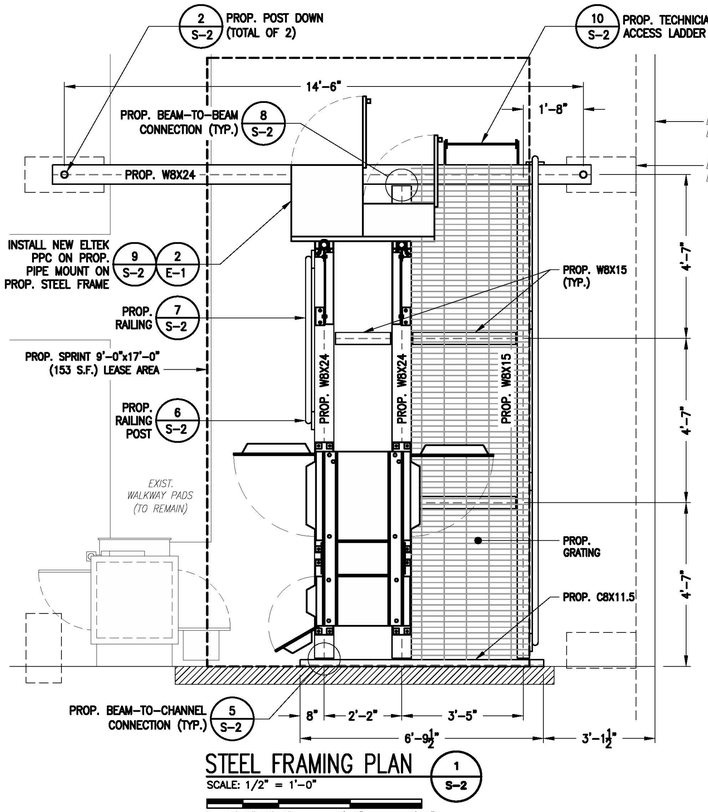
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-1

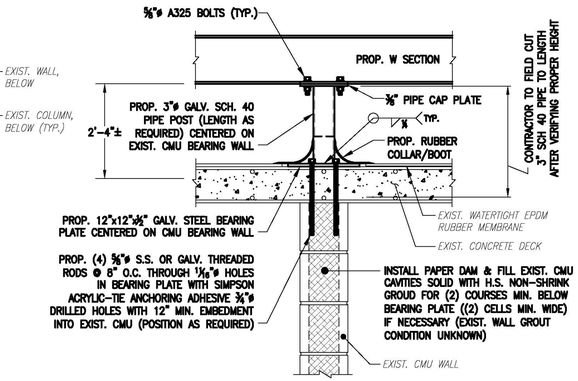
1725.057



STEEL FRAMING PLAN 1 S-2

SCALE: 1/2" = 1'-0"

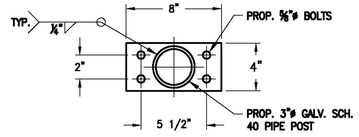
0 1'-0" 2'-0" 4'-0" 6'-0"



NOTE:
PROP. STEEL FRAME & PENETRATION DETAIL SET TO CHANGE PENDING STRUCTURAL ANALYSIS

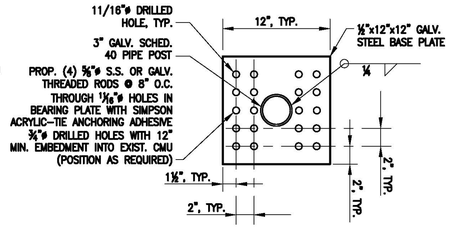
PENETRATION DETAIL 2 S-2

SCALE: NOT TO SCALE



CAP PLATE

NOTE:
UTILIZE HOLES NEAREST CORNERS OF BASE PLATE FOR ANCHOR RODS SPECIFIED. IF REINFORCING BAR IS ENCOUNTERED AT THESE LOCATIONS, OFFSET ANCHORS TO EITHER ADJACENT HOLE. IF REINFORCING BAR IS ENCOUNTERED AT EACH ADJACENT HOLE SHOWN, NOTIFY ENGINEER IMMEDIATELY FOR FURTHER INSTRUCTIONS.

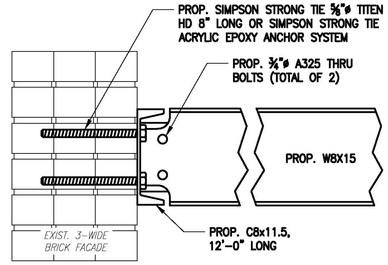


BEARING PLATE

POST PLATE DETAILS 3 S-2

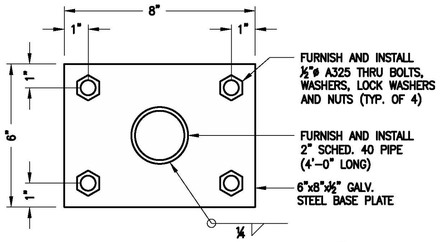
SCALE: 2" = 1'-0"

NOTE:
PROP. CHANNEL TO BE INSTALLED ABOVE EXIST. PENTHOUSE FLASHING. EXIST. CLEARWIRE CONDUIT & CABLING TO BE CUT BACK AS REQ'D PRIOR TO CONSTRICTION.



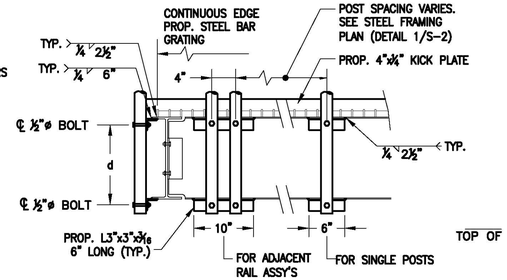
CHANNEL CONNECTION DETAIL 5 S-2

SCALE: NOT TO SCALE



PPC BASE PLATE DETAIL 11 S-2

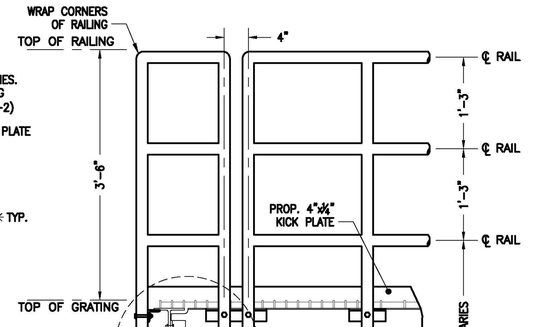
SCALE: N.T.S.



NOTE: WHERE ADJACENT RAILING ASSEMBLIES MOUNT TO STEEL PLATFORM, ATTACHMENT TO PROPOSED BEAMS SHALL UTILIZE A SINGLE 10" L (AS SHOWN ABOVE). SINGLE POST ATTACHMENT TO STEEL PLATFORM SHALL UTILIZE A SINGLE 6" L (AS SHOWN ABOVE)

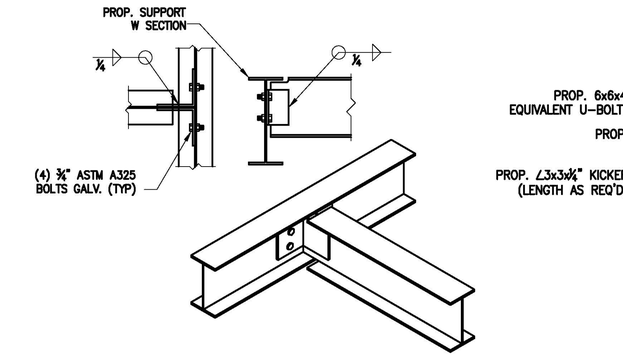
HANDRAIL ATTACHMENT DETAIL 6 S-2

SCALE: NOT TO SCALE



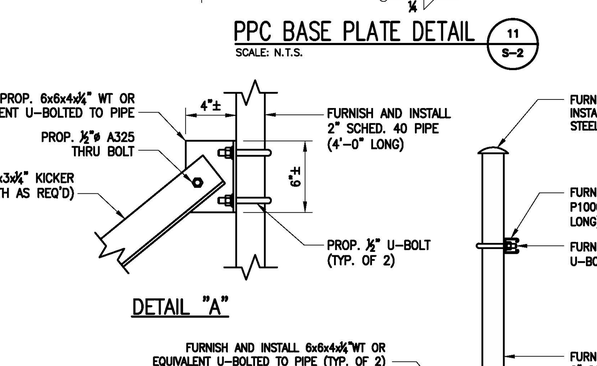
RAILING ELEVATION DETAIL 7 S-2

SCALE: NOT TO SCALE

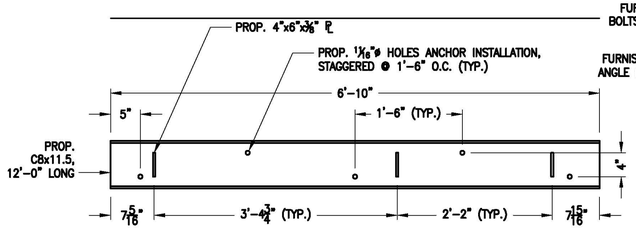


TYPICAL BEAM TO BEAM CONN. 8 S-2

SCALE: NOT TO SCALE

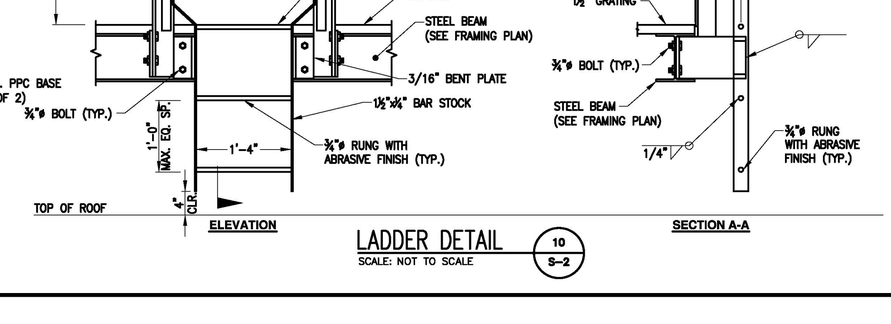


DETAIL "A"



CHANNEL DETAIL 4 S-2

SCALE: NOT TO SCALE



PPC H-FRAME DETAIL 9 S-2

SCALE: N.T.S.

LADDER DETAIL 10 S-2

SCALE: NOT TO SCALE

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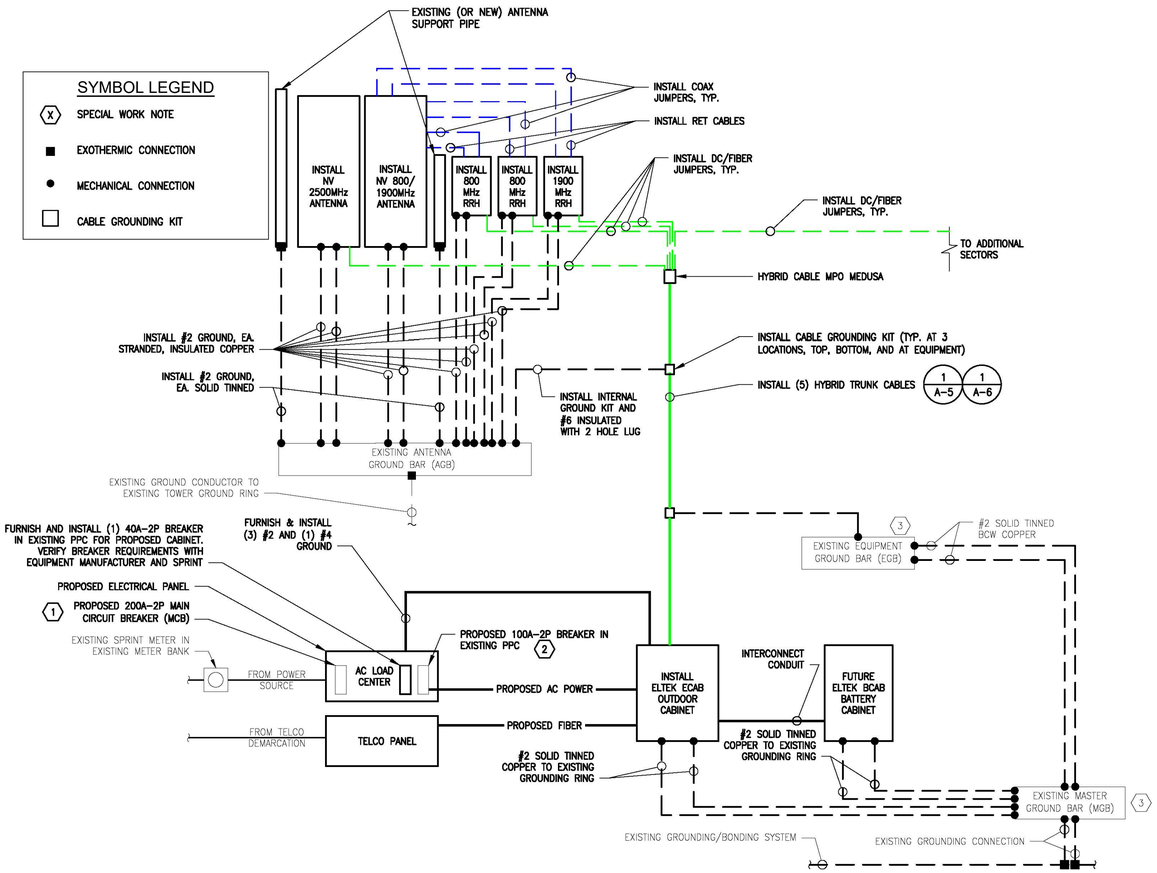
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-2

1725.057



TYPICAL POWER & GROUNDING ONE-LINE

1 / E-1

SCALE: NTS

SPECIAL WORK NOTE:

1. G.C. TO FURNISH AND INSTALL ALL COMPONENTS TO UPGRADE EXISTING ELECTRICAL SERVICE, CONDUIT, CONDUCTOR, PPC AND MCB IN ACCORDANCE WITH SPRINT CONSTRUCTION STANDARDS NV 2.5 ADDENDUM "ENGINEERING NOTICE 2013-002 (POWER UPGRADES) REV.0" (OR CURRENT VERSION)
2. G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING FOR A 100-AMP, 240V CIRCUIT.
3. FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
   - -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
   - -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

ELECTRICAL NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.

2) THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.

3) ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.

4) ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.

5) GENERAL CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.

6) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.

7) THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.

8) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.

9) ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.

10) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.

11) ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.

12) RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.

13) RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.

14) FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 770-OPTICAL FIBER CABLES AND RACEWAYS.

15) COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.

PROPOSED ELTEK POWER PROTECTION CABINET

2 / E-1

SCALE: NTS

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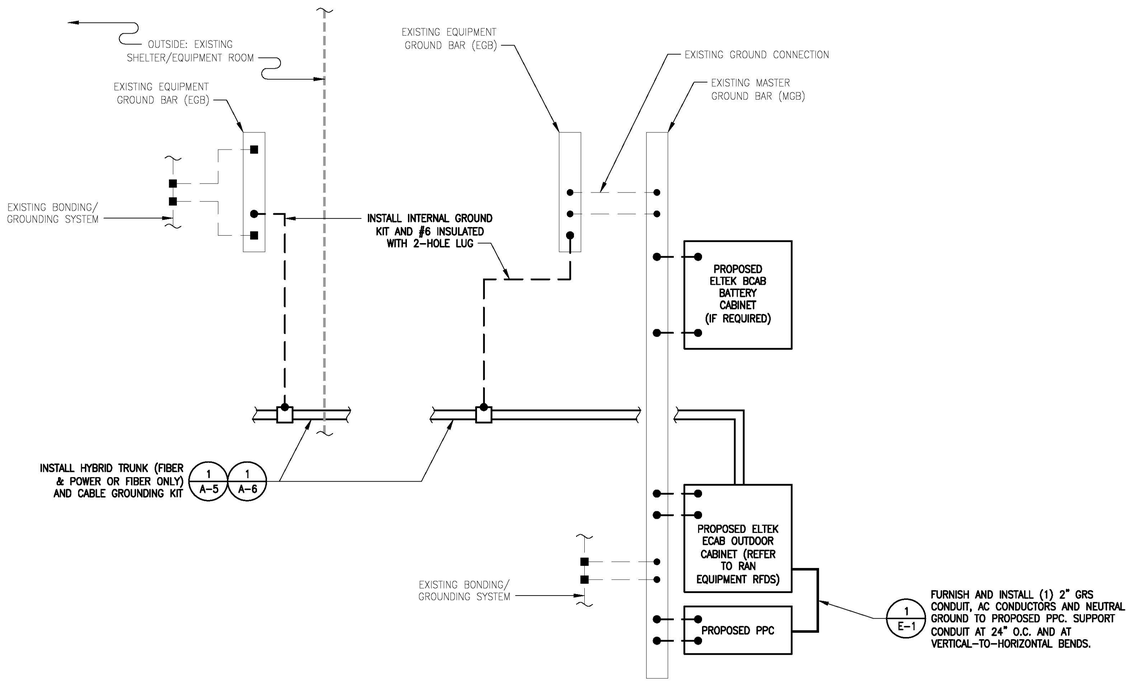
SHEET TITLE
ONE-LINE DIAGRAM & PPC DETAILS

SHEET NUMBER
E-1

1725.057

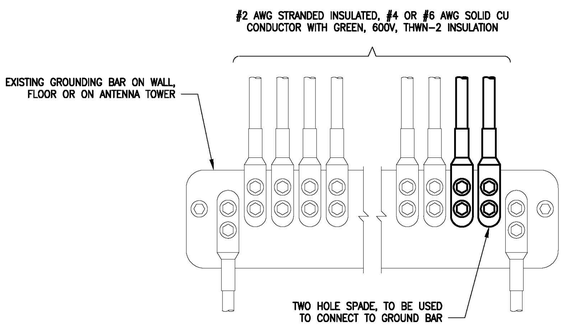


NOTE: HYBRIFLEX (FIBER & POWER) AND HYBRIFLEX (FIBER-ONLY) SHOWN. REFER TO RAN EQUIPMENT RFDS FOR SITE-SPECIFIC SCENARIO.

EQUIPMENT GROUNDING SCHEMATIC

1 E-2

SCALE: N.T.S.



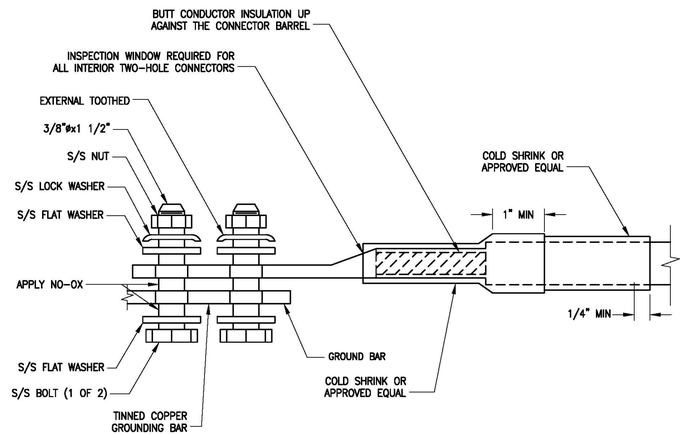
NOTES

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

2 E-2

SCALE: N.T.S.



TWO HOLE LUG

3 E-2

SCALE: N.T.S.

SYMBOL LEGEND

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- CABLE GROUNDING KIT
- GROUNDING/BONDING
- CONDUIT

UNLESS NOTED OTHERWISE, ALL BONDING CONDUCTORS ARE 2# SOLID TINNED BCW.

NOTE:
EXISTING NV EQUIPMENT CONDUITS NOT SHOWN FOR CLARITY. REFER TO RECORD AS-BUILT NV PHOTOS AND NV AS-BUILT DRAWINGS.

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
    -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
(800) 357-7641

CENTERLINE COMMUNICATIONS
95 RYAN DRIVE, SUITE 1
RAYNHAM, MA 02767
(844) 748-8878
www.centerlinecommunications.com

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
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MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

COMMONWEALTH OF MASSACHUSETTS
DAVID A. CHAPPELL
CIVIL
No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
GROUNDING DETAILS & NOTES

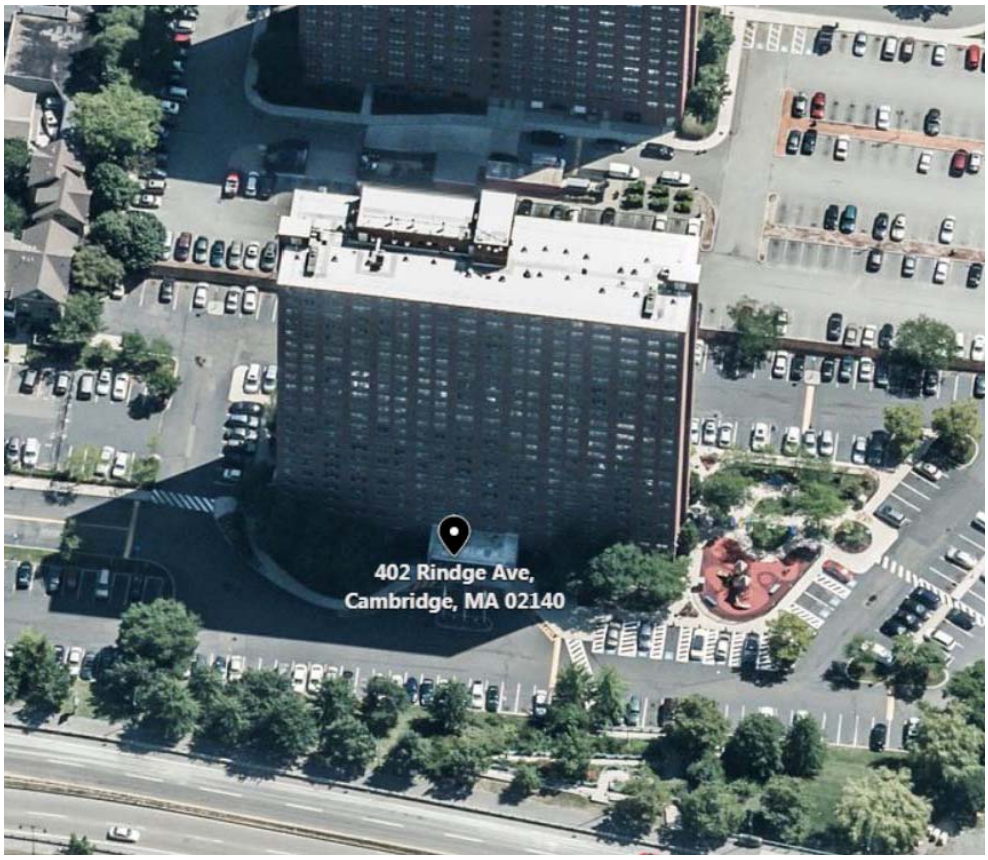
SHEET NUMBER
E-2

1725.057

Sprint

1 International Blvd
Suite 800
Mahwah, NJ 07495

STRUCTURAL ANALYSIS
BS52XC006 – ARLINGTON



Address:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

COMMONWEALTH OF MASSACHUSETTS
CLEMENT J. SALEK
CIVIL
No. 47382
REGISTERED PROFESSIONAL ENGINEER

Date:
AUGUST 15, 2018

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752
t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

August 15, 2018

Sprint
1 International Blvd
Suite 800
Mahwah, NJ 07495

RE:

Site Number	BS52XC006
Site Name	Arlington
Site Address	402 Rindge Avenue, Cambridge, MA 02139

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the proposed installation of the Sprint telecommunications facility at the above-referenced location. The existing building is a 22 story residential structure with poured concrete 2-way slab/column structural system on which Sprint proposes to locate an elevated steel equipment frame to support telecommunications equipment.

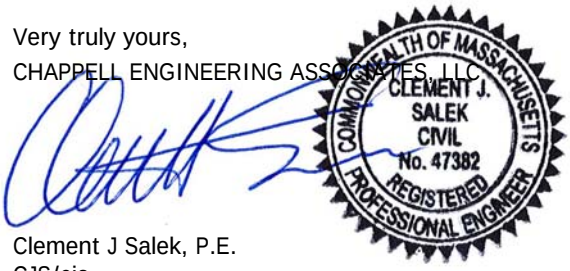
The proposed equipment frame will be located on the existing penthouse wall and columns. Two (2) 4in schedule 40 pipes will support the proposed equipment frame and will be secured to the top of the existing columns and penthouse wall. A copy of our elevated steel frame analysis is included in this report. The details for the construction of the equipment frame and supports are detailed within our construction drawings, also included for your reference.

The proposed *alpha*, sector antennas will be located on the face of the existing stairwell penthouse. The proposed *beta* and *gamma* sector antennas will be located on the face of the existing easterly and westerly faces of the mechanical penthouse. The proposed *beta/gamma* sector remote radio units (RRU's) will be located on ballast frames mount on the existing penthouse roof, adjacent to the proposed antennas and accessible at the upper penthouse roof level. The proposed *alpha* sector remote radio units (RRU's) will be located on existing facade mounts on the existing stairwell penthouse, adjacent to the proposed antennas and accessible by man-lift or climber. The existing Clearwire panel antennas will be removed and replaced with the proposed Sprint panel antennas. The existing Clearwire micro dish antennas will remain. All proposed antenna mounts will be industry-standard issue, and the RRU's will be mounted to the building face using galvanized Uni-strut channels.

Based upon our analysis of the proposed Sprint installation, the information obtained in the existing building drawings, and the magnitude of the anticipated loads, **we consider the existing structure adequate to support the proposed Sprint installation as shown on our construction drawings**.

If you have any questions regarding this matter, please do not hesitate to call.

Very truly yours,
CHAPPELL ENGINEERING ASSOCIATES, LLC

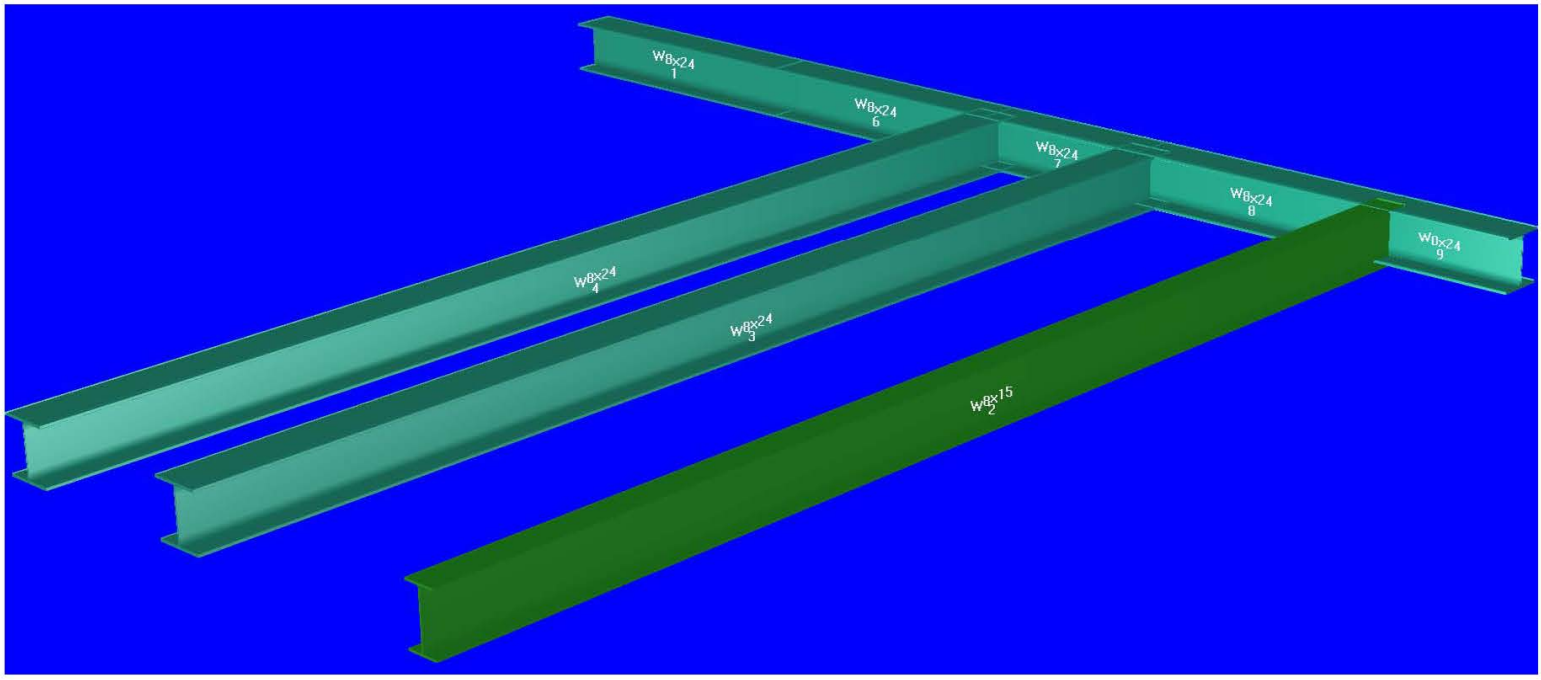


Clement J Salek, P.E.
CJS/cjs

BS52XC006 Rindge Ave, Cambridge

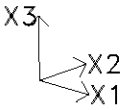
Geometry

DATE: 8/15/18



BS52XC006 Rindge Ave, Cambridge

Load 1: Self Weight



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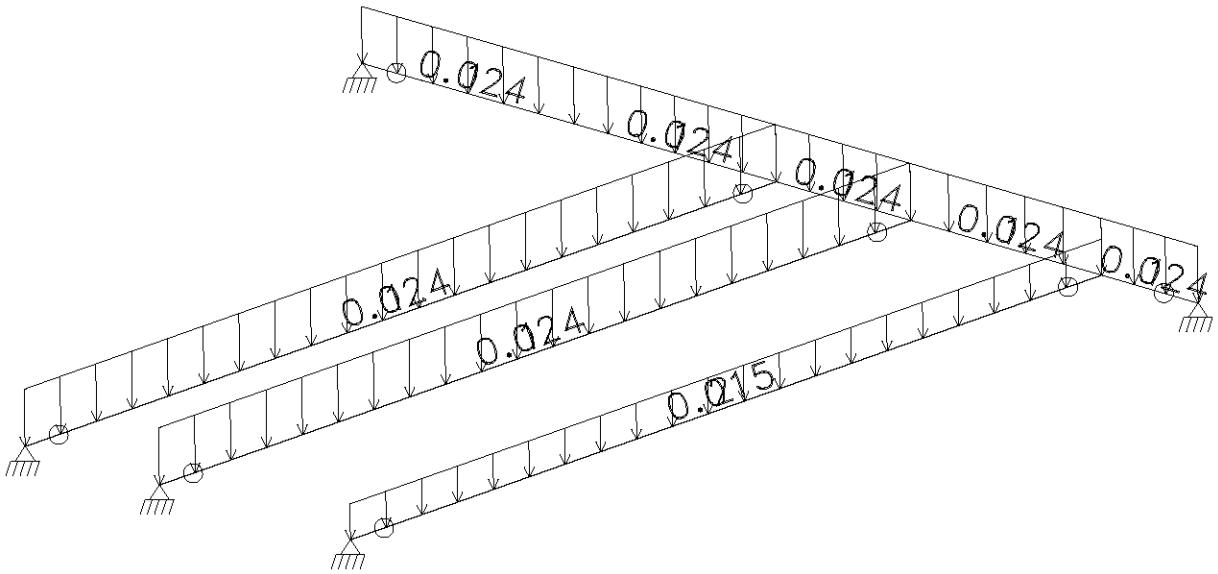
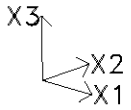


BS52XC006 Rindge Ave, Cambridge

Load 2: Live Load



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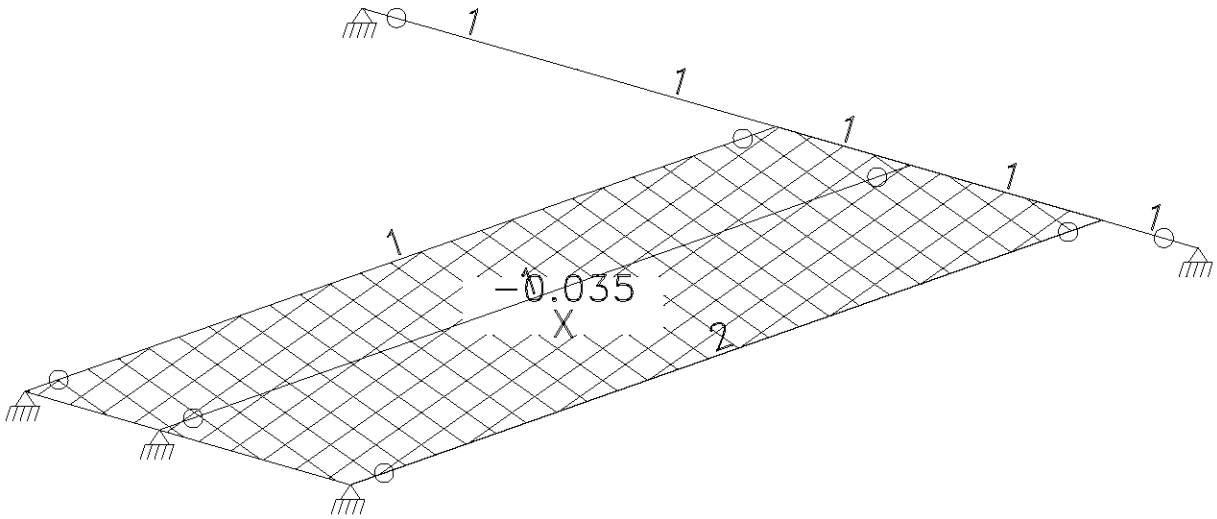
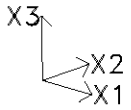
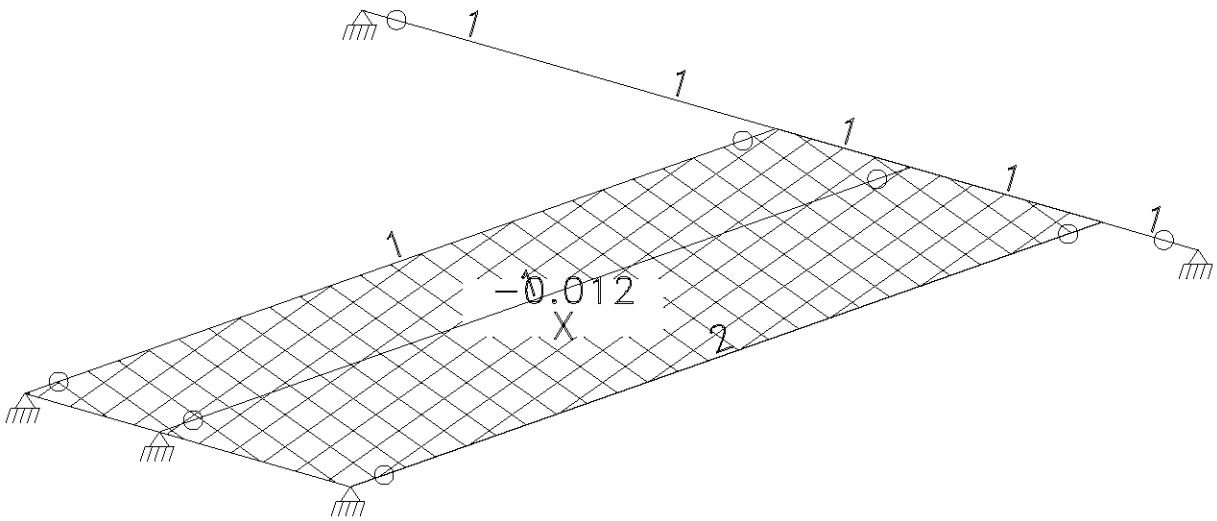


BS52XC006 Rindge Ave, Cambridge

Load 3: Dead Load Grating



SCALE = 1:29 | UNITS: kip ft | DATE: 8/15/18



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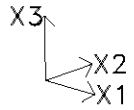
Load 4: Dead Load (Cabinets)



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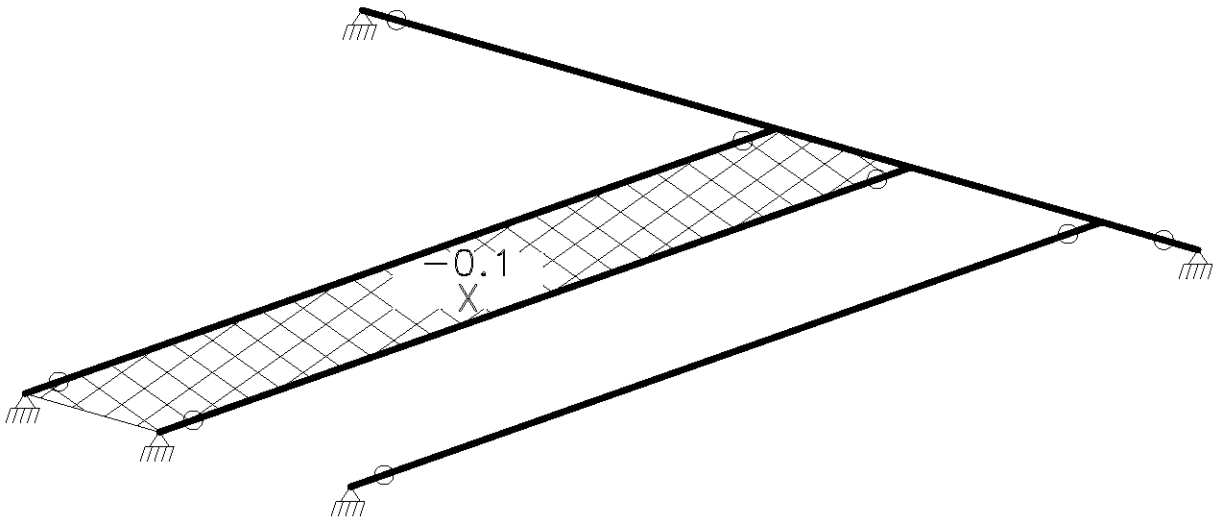
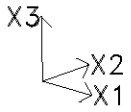


BS52XC006 Rindge Ave, Cambridge

Moment Diagram



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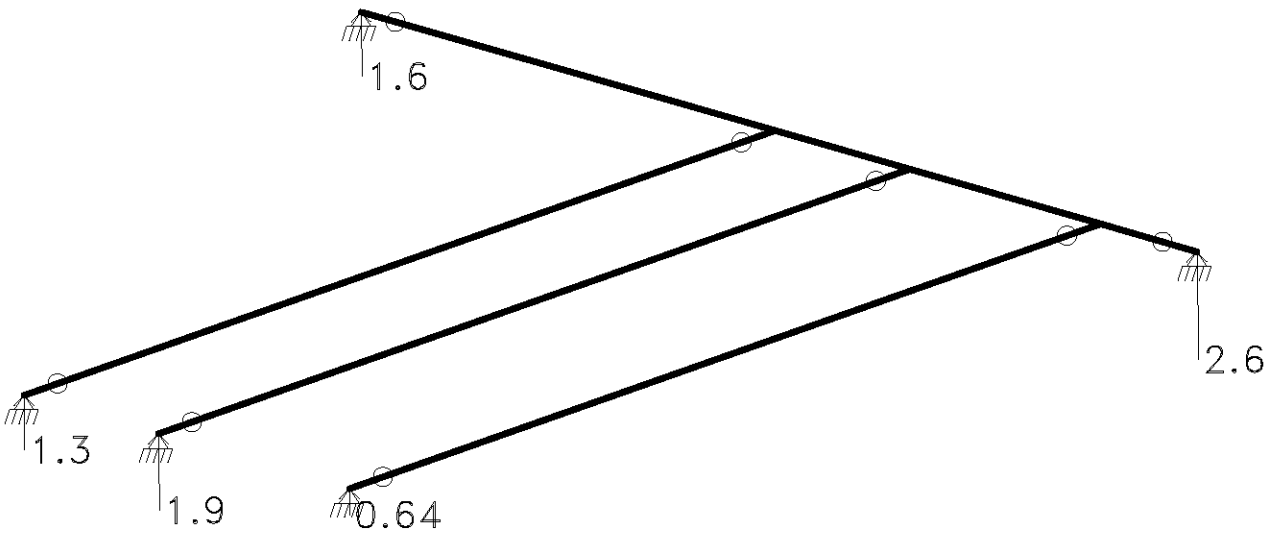


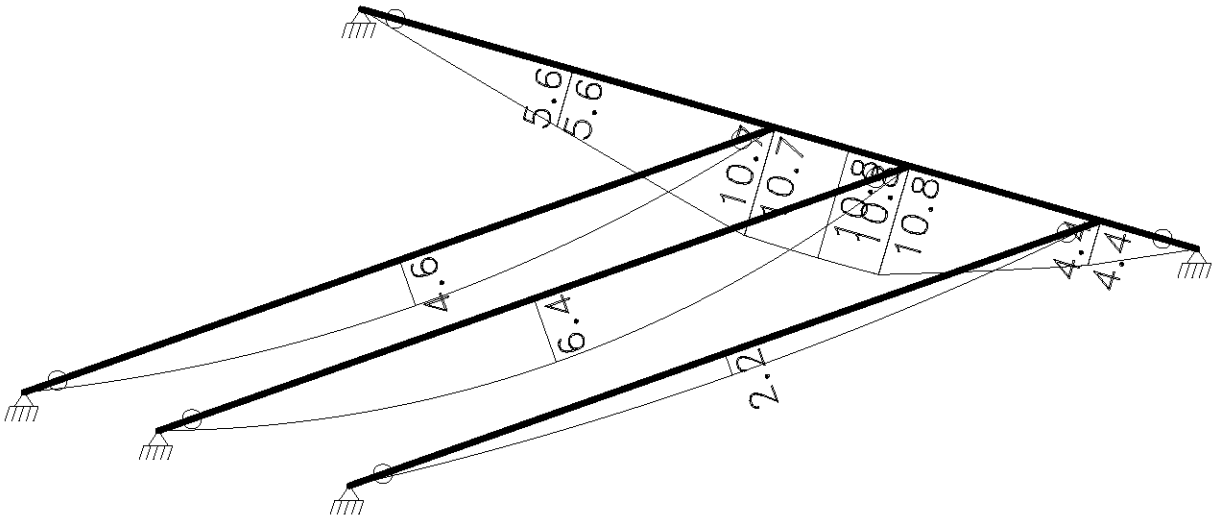
REACTIONS COMB. NO. 1 ASD

BS52XC006 Rindge Ave, Cambridge

Moment Diagram

X3
X2
X1

SCALE = 1:29	UNITS: kip*ft	DATE: 8/15/18



M2 MOMENT COMB. NO. 1 ASD

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Chappell Engineering Associates, LLC **Strap 2015.00**

BS52XC006 Rindge Ave, Cambridge ***Code:*** AISC-ASD

Prepared by: ***Date:*** 8/15/18

Results Summary Table

					CAPACITY						
Beam	Section	Com	Defl L/	Slen	Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom	
1	W 8x24	1	815	108	0.00	MJ	0.11	0.34	0.34	0.34	
2	W 8x15	1	3105	188	0.00	MJ	0.02	0.09	0.14	0.14	
3	W 8x24	1	1816	103	0.00	MJ	0.07	0.15	0.16	0.16	
4	W 8x24	1	1787	103	0.00	MJ	0.07	0.16	0.16	0.16	

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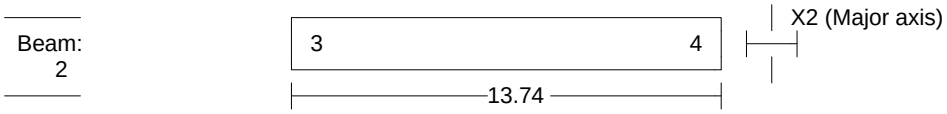
Prepared by: *Date:* 8/15/18

Detailed Results Table

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

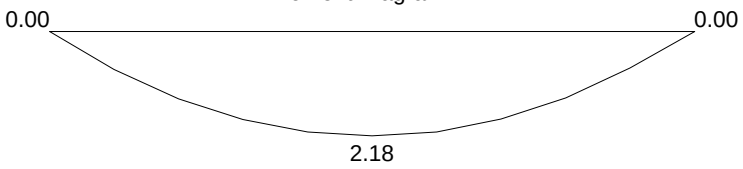
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: W 8x15

Ix = 48.00 Iy = 3.41in4 Zx = 13.60 Zy = 2.67in3 Area = 4.43
hw = 8.11 bf = 4.02in tw = 0.24 tf = 0.31in
J = 0.14 Cw = 48.41in6

DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 0.64

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:	Compact		Non-Compact	Slender -axial	
d/t= 28.21	<	106.7	161.8	42.3	(Fy= 36.0 R = 0.000)
b/t= 6.38	<	10.8	28.4	15.9	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (G2.1.a)	Vu/Vn/1.5<1.00 Vn=0.6*Fy*Aw	Aw = 1.98	Vu = 0.64 Vn = 42.81	0.02
M2 Moment (F2-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 13.60	M = 2.18 Mn = 40.85	0.09
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.05311	0.08
Lateral Torsional Buckling (F2-3)	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 0.00 to 13.74 on +z flange Segment End Moments: 0.00 and 0.00	Lb = 13.74 Lp = 3.65 Lr = 12.69 Cb = 1.14	M = 2.18 Mn = 25.96 Mr = 24.89 Fcr = 26.34	0.14

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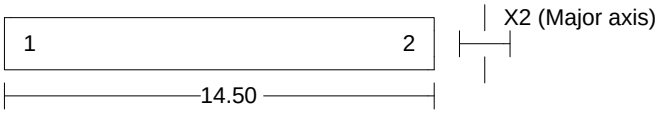
Prepared by: *Date:* 8/15/18

Detailed Results Table

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 1, 6, 7, 8, 9



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

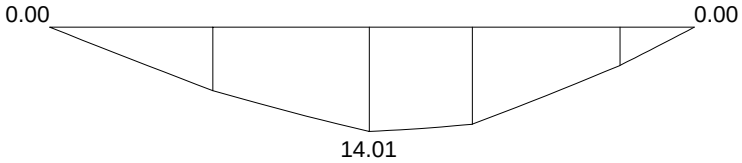
L =	3.67	7.17	9.50	12.83
Lat.-Tors.	+	+	+	+
Compress.	X	X	X	X

Section: W 8x24

Ix = 82.80 Iy = 18.30in4 Zx = 23.20 Zy = 8.57in3 Area = 7.08
hw = 7.93 bf = 6.50in tw = 0.24 tf = 0.40in
J = 0.35 Cw = 256.95in6

DESIGN COMBINATION = 1

M2 Moment Diagram



Moments at Intermediate Supports:
8.52 14.00 13.04 5.14

Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 3.10

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:	Compact		Non-Compact	Slender -axial	
d/t= 25.90	<	106.7	161.8	42.3	(Fy= 36.0 R = 0.000)
b/t= 8.09	<	10.8	28.4	15.9	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (G2.1.a)	Vu/Vn/1.5<1.00 Vn=0.6*Fy*Aw	Aw = 1.94	Vu = 3.10 Vn = 41.86	0.11
M2 Moment (F2-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 23.20	M = 14.01 Mn = 69.69	0.34

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Civil • Structural • Land Surveying

Chappell Engineering Associates, LLC **Strap 2015.00**

BS52XC006 Rindge Ave, Cambridge ***Code:*** AISC-ASD

Prepared by: ***Date:*** 8/15/18

Detailed Results Table

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Deflection	$\frac{\text{defl.}}{L/240} < 1.00$		defl = 0.21347	0.29
Lateral Torsional Buckling	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 7.17 to 9.50 on +z flange Segment End Moments: 14.00 and 13.04	Lb = 2.33 Lp = 6.69	M = 14.01 Mn = 69.55	0.34

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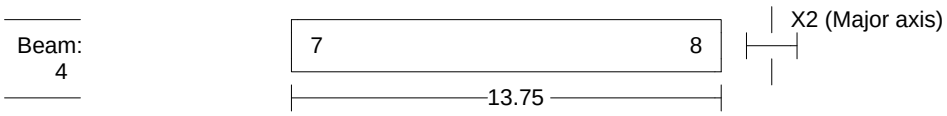
BS52XC006 Rindge Ave, Cambridge *Code:* AISC-ASD

Prepared by: *Date:* 8/15/18

Detailed Results Table

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

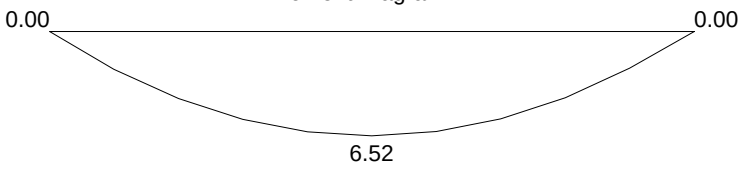
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: W 8x24

Ix = 82.80 Iy = 18.30in4 Zx = 23.20 Zy = 8.57in3 Area = 7.08
hw = 7.93 bf = 6.50in tw = 0.24 tf = 0.40in
J = 0.35 Cw = 256.95in6

DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 1.90

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:	Compact		Non-Compact	Slender -axial	
d/t= 25.90	<	106.7	161.8	42.3	(Fy= 36.0 R = 0.000)
b/t= 8.09	<	10.8	28.4	15.9	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (G2.1.a)	Vu/Vn/1.5<1.00 Vn=0.6*Fy*Aw	Aw = 1.94	Vu = 1.90 Vn = 41.86	0.07
M2 Moment (F2-1) without LTB	$\frac{M}{0.6Mn} < 1.00$	Z = 23.20	M = 6.52 Mn = 69.69	0.16
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.09230	0.13
Lateral Torsional Buckling (F2-2)	$\frac{M}{0.6Mn} < 1.00$ Critical Segment from 0.00 to 13.75 on +z flange Segment End Moments: 0.00 and 0.00	Lb = 13.75 Lp = 6.69 Lr = 24.90 Cb = 1.14	M = 6.52 Mn = 68.13 Mr = 43.91 Mp = 69.69	0.16

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER OR A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

Sprint® VISION ™

NOTE:
OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

PROJECT: DO MACRO UPGRADE

SITE NAME: ARLINGTON

SITE CASCADE: BS52XC006

SITE ADDRESS: 402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SITE TYPE: ROOFTOP

SITE INFORMATION

PROPERTY OWNER:
402 RINDGE CORP.
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

LATITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
N 42° 23' 35.16"
42.393100°

LONGITUDE (NAD83):
GOOGLE EARTH 2-C CONFIRMATION
W 71° 08' 22.92"
71.139700°

COUNTY:
MIDDLESEX

ZONING JURISDICTION:
CITY OF CAMBRIDGE

ZONING DISTRICT:
C-2 (RESIDENTIAL C-2)
POD (PARKWAY OVERLAY DISTRICT)

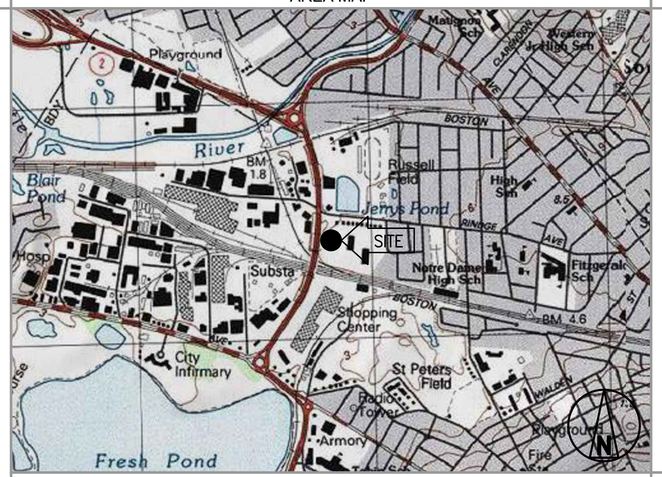
POWER COMPANY:
NSTAR ELECTRIC (CAMBRIDGE)
PHONE: 1-888-633-3797

AAV PROVIDER:
COMCAST
PHONE: 1-800-COMCAST

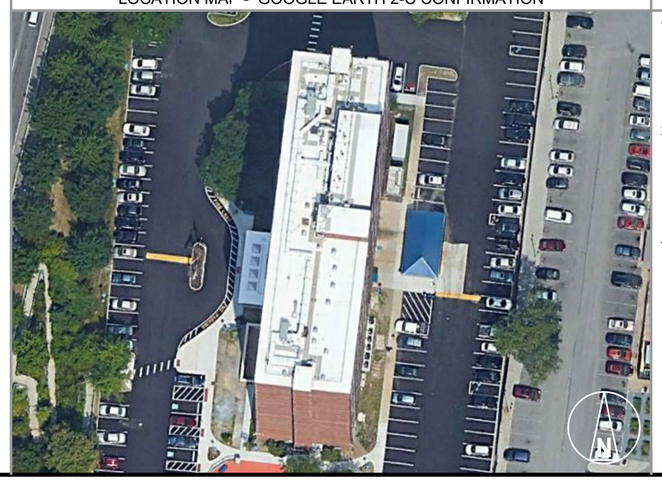
SPRINT CM:
RON FARIAS
PHONE: 617-247-4303
Ronald.Farias@sprint.com

EQUIPMENT SUPPLIER:
ALCATEL-LUCENT
600 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974
(908) 508-8080

AREA MAP



LOCATION MAP - GOOGLE EARTH 2-C CONFIRMATION



PROJECT DESCRIPTION

SPRINT EQUIPMENT MODIFICATIONS REQUIRED TO SUPPORT MODERNIZATION OF AN EXISTING WIRELESS COMMUNICATIONS FACILITY AND UTILIZATION OF FCC BROADBAND SPECTRUM LICENSE FOR 2.5GHz FREQUENCY, INCLUDING INSTALLATION OF:

GROUND-LEVEL RAN EQUIPMENT, CONSISTING OF
- (1) ELTEK ECAB, ICAB & BCAB TO REPLACE EXISTING CLEARWIRE EQUIPMENT CABINET
- (1) GPS ANTENNA & ASSOCIATED ½" COAX CABLE TO REPLACE EXIST. GPS

TOWER-TOP EQUIPMENT, INCLUDING INSTALLATION OF:
- (6) PANEL ANTENNAS TO REPLACE EXIST. (3) ANTENNAS
- (9) REMOTE RADIO HEADS (RRH) TO REPLACE EXIST. (3) REMOTE RADIO HEADS
- (6) HYBRID (FIBER & POWER) CABLES (AND ASSOCIATED FIBER, DC POWER, COAXIAL CABLE JUMPERS AND ANTENNA REMOTE ELECTRICAL-TILT (RET) CABLE) TO REPLACE EXIST. CABLES

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDE BY SPRINT REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AND ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, ADMINISTRATIVE REVIEW).

GENERAL NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - PORTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: MASSACHUSETTS STATE BUILDING CODE 780 CRM-8TH EDITION
   - ELECTRICAL CODE: 2005 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

811 DigSafe MA,ME,NH,RI,VT

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.	CHK.	BY.
T-1	TITLE SHEET	1	JMT	CMC
SP-1	OUTLINE SPECIFICATIONS	1	JMT	CMC
SP-2	OUTLINE SPECIFICATIONS	1	JMT	CMC
SP-3	OUTLINE SPECIFICATIONS	1	JMT	CMC
A-1	ROOF & EQUIPMENT PLAN	1	JMT	CMC
A-2	ELEVATIONS	1	JMT	CMC
A-3	ANTENNA PLANS	1	JMT	CMC
A-4	RF DATA SHEET	1	JMT	CMC
A-5	RAN WIRING DIAGRAMS	1	JMT	CMC
A-6	EQUIPMENT DETAILS	1	JMT	CMC
A-7	EQUIPMENT DETAILS	1	JMT	CMC
S-1	STRUCTURAL DETAILS	1	JMT	CMC
S-2	STRUCTURAL DETAILS	1	JMT	CMC
E-1	ONE-LINE DIAGRAM & PPC DETAILS	1	JMT	CMC
E-2	GROUNDING DETAILS & NOTES	1	JMT	CMC

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

SPRINT: _____ DATE: _____

CONSTRUCTION MANAGER: _____ DATE: _____

LEASING/ SITE ACQUISITION: _____ DATE: _____

RF ENGINEER: _____ DATE: _____

LANDLORD/ TOWER OWNER: _____ DATE: _____

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
(800) 357-7641

CENTERLINE COMMUNICATIONS
95 RYAN DRIVE, SUITE 1
RAYNHAM, MA 02767
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CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

COMMONWEALTH OF MASSACHUSETTS
DAVID J. CHAPPELL
CIVIL
No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006
SITE NAME:
ARLINGTON
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1725.057

THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

SECTION 01 100 - SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
2. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
3. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
4. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
5. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
6. AMERICAN CONCRETE INSTITUTE (ACI)
7. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
8. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
9. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
10. PORTLAND CEMENT ASSOCIATION (PCA)
11. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
12. BRICK INDUSTRY ASSOCIATION (BIA)
13. AMERICAN WELDING SOCIETY (AWS)
14. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
15. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
16. DOOR AND HARDWARE INSTITUTE (DHI)
17. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
18. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B. COMPANY: SPRINT CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.
C . DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

A. TOP HAT
B. HOW TO INSTALL A NEW CABINET
C. BASE BAND UNIT IN EXISTING UNIT
D. INSTALLATION OF BATTERIES
E. INSTALLATION OF HYBRID CABLE
F. INSTALLATION OF RRH'S
G. CABLING
H. TS-0200 REV 4 – ANTENNA LINE ACCEPTANCE STANDARDS
I. SPRINT CELL SITE ENGINEERING NOTICE – EN 2012-001, REV 1.
J. COMMISSIONING MOPS
K. SPRINT CELL SITE ENGINEERING NOTICE – EN-2013-002
L. SPRINT ENGINEERING LETTER – EL-0504
M. SPRINT ENGINEERING LETTER – EL-0568
N. SPRINT TECHNICAL SPECIFICATION – TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

A. CONTRACTOR WILL UTILIZE ITS BEST EFFORTS TO WORK WITH SPRINT ELECTRONIC PROJECT MANAGEMENT SYSTEMS. CONTRACTOR UNDERSTANDS THAT SUFFICIENT INTERNET ACCESS, EQUIVALENT TO "BROADBAND" OR BETTER, IS REQUIRED TO TIMELY AND EFFECTIVELY UTILIZE SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS AND AGREES TO MAINTAIN APPROPRIATE CONNECTIONS FOR CONTRACTOR'S STAFF AND OFFICES THAT ARE COMPATIBLE WITH SPRINT DATA AND DOCUMENT MANAGEMENT SYSTEMS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

A. COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 - CELL SITE CONSTRUCTION

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED:

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. TOWER OWNER NOTIFICATION: ONCE THE CONTRACTOR HAS RECEIVED AND ACCEPTED THE NOTICE TO PROCEED, THE CONTRACTOR WILL CONTACT THE CONSTRUCTION MANAGER OF RECORD (NOTED ON THE FIRST PAGE ON THIS CONSTRUCTION DRAWING) A MINIMUM OF 48 HOURS PRIOR TO WORK START. UPON ARRIVAL TO THE JOB SITE, CONTRACTOR CREW IS REQUIRED TO NOTIFY THE CARRIER NOC WORK HAS BEGUN.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNAL AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
2. PROJECT PROGRESS REPORTS.
3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

CONTINUE SHEET SP-2

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APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-1

1725.057

CONTINUED FROM SP-1:

12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 - SUBMITTALS, TESTS, AND INSPECTIONS

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
1. CONCRETE MIX–DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN.

C. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. COAX SWEEPS AND FIBER TESTS PER SPRINT TS–0200 CURRENT VERSION ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE–FOR–THE–PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS–BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS–BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY: WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
1. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
2. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

3.3 REQUIRED INSPECTIONS:

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE– AND POST–CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)
7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN–ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

F. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING––TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS; PRE–CONSTRUCTION AND POST–CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE–UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE–UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE–UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 500 - PROJECT REPORTING

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION––FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL–BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL–BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND–RING TRENCH WITH GROUND–WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING–TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING –TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

SECTION 07 500 - ROOF CUTTING, PATCHING AND REPAIR

SUMMARY:
THIS SECTION SPECIFIES CUTTING AND PATCHING EXISTING ROOFING SYSTEMS WHERE CONDUIT OR CABLES EXIT THE BUILDING ONTO THE ROOF OR BUILDING–MOUNTED ANTENNAS, AND AS REQUIRED FOR WATERTIGHT PERFORMANCE. ROOFTOP ENTRY OPENINGS IN MEMBRANE ROOFTOPS SHALL BE CONSTRUCTED TO COMPLY WITH LANDLORD, ANY EXISTING WARRANTY, AND LOCAL JURISDICTIONAL STANDARDS.

1.4 SUBMITTALS:

A. PRE–CONSTRUCTION ROOF PHOTOS: COMPLETE A ROOF INSPECTION PRIOR TO THE INSTALLATION OF SPRINT EQUIPMENT ON ANY ROOFTOP BUILD. AT A MINIMUM INSPECT AND PHOTOGRAPH (MINIMUM 3 EA.) ALL AREAS IMPACTED BY THE ADDITION OF THE SPRINT EQUIPMENT.

B. PROVIDE SIMILAR PHOTOGRAPHS SHOWING ROOF CONDITIONS AFTER CONSTRUCTION (MINIMUM 3 EA.)

C. ROOF INSPECTION PHOTOGRAPHS SHOULD BE UPLOADED WITH CLOSEOUT PHOTOGRAPHS.

CONTINUE SHEET SP-3

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CIVIL
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REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-2

1725.057

CONTINUED FROM SP-2:

SECTION 09 900 - PAINTING

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS.

MATERIALS:

A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED EQUAL. PROVIDE PREMIUM GRADE, PROFESSIONAL–QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON–METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTIONS WHENEVER POSSIBLE.

B. ROOF TOP CONSTRUCTION: TOUCH UP – PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

1. INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS.
3. MATCH APPROVED MOCK–UPS FOR COLOR, TEXTURE, AND PATTERN. RE–COAT OR REMOVE AND REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
4. CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

1. GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX," "DRY GALV," OR "ZINC–IT."
2. FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS.

SECTION 11 700 - ANTENNA ASSEMBLY, REMOTE RADIO HEADS AND CABLE INSTALLATION

SUMMARY:
THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRH'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRH'S:
THE NUMBER AND TYPE OF ANTENNAS AND RRH'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

HYBRID CABLE:
HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

JUMPERS AND CONNECTORS:
FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRH'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12–50, CR 540, OR FXL 540. SUPER–FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRH'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE. DO NOT USE SUPERFLEX OUTDOORS. JUMPERS SHALL BE FACTORY FABRICATED IN APPROPRIATE LENGTHS WITH A MAXIMUM OF 4 FEET EXCESS PER JUMPER AND HAVE CONNECTORS AT EACH END, MANUFACTURED BY SUPPLIER. IF JUMPERS ARE FIELD FABRICATED, FOLLOW MANUFACTURER'S REQUIREMENTS FOR INSTALLATION OF CONNECTORS

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:
INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

ANTENNA INSTALLATION:
THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.

B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

HYBRID CABLES INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.

1. FASTENING MAIN HYBRID CABLES: ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'–0" OC USING NON–MAGNETIC STAINLESS STEEL CLIPS.
2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBTS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
   a. FIBER: SUPPORT FIBER BUNDLES USING ½" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
   b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
4. CABLE INSTALLATION:
   a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
   b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.
   c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURES RECOMMENDED MAXIMUM BEND RADIUS.
5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED PER SPRINT TS–0200 CURRENT VERSION.
7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA–NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.

1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
2. SELF–AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF–AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF–AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF–AMALGAMATING TAPE.
3. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START–UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE – EN 2012–001, REV 1.

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE TRANSCEIVER STATIONS (MMBTS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBTS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

C. COMPLY WITH MANUFACTURERS INSTALLATION AND START–UP REQUIREMENTS

SUPPORTING DEVICES:

A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:

1. ALLIED TUBE AND CONDUIT
2. B–LINE SYSTEM
3. UNISTRUT DIVERSIFIED PRODUCTS
4. THOMAS & BETTS

B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:

1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
2. POWER–DRIVEN THREADED STUDS: HEAT–TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING–TENSION CLAMPS ON STEEL.
7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

SUPPORTING DEVICES:

A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.

B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.

C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:

D. ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

E. USE VIBRATION AND SHOCK–RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT:

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR ENCASED RUNS IN CONCRETE. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW–C–581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED – SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.

B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.

D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO–GALVANIZED OR HOT–DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW–C–563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6–FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRE BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

HUBS AND BOXES:

A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O–RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.

B. CABLE TERMINATION FITTINGS FOR CONDUIT
1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O–Z/GEDNEY OR EQUAL.
2. CABLE TERMINATORS FOR LFMC SHALL BE ETCO – CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE–HINDS WAB SERIES OR EQUAL.

D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKETED COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE–HINDS FORM 8 OR EQUAL.

E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE–HINDS, COOPER, ADALET, APPLETON, O–Z GEDNEY, RACO, OR APPROVED EQUAL.

SUPPLEMENTAL GROUNDING SYSTEM

A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON–MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS AS INDICATED.

B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO OX.

C. STOLEN GROUND–BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE–ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

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COMMONWEALTH OF MASSACHUSETTS
DAVID J. CHAPPELL
CIVIL
No. 34706
REGISTERED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

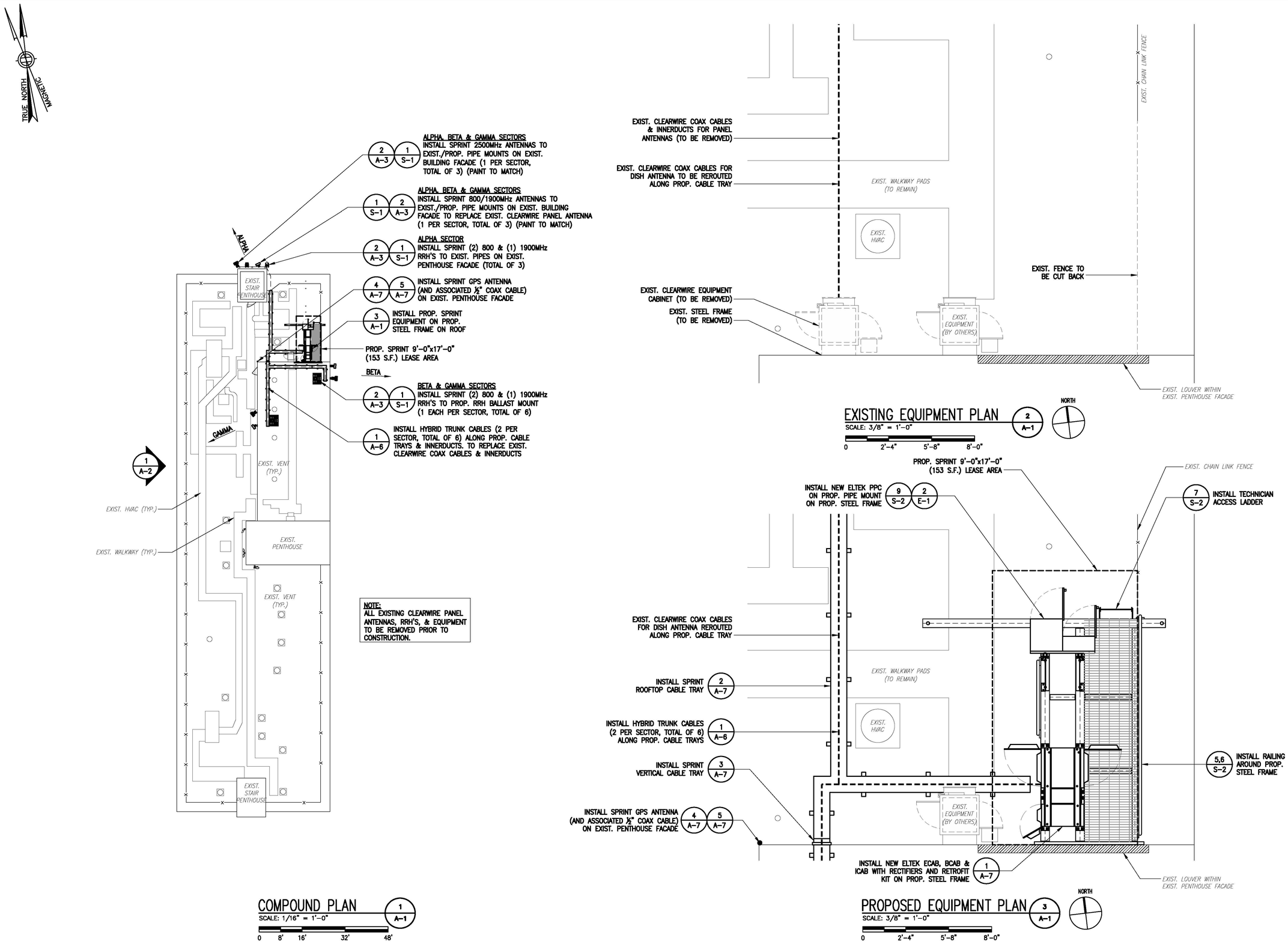
SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
OUTLINE SPECIFICATIONS

SHEET NUMBER
SP-3

1725.057



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CAMBRIDGE, MA 02139

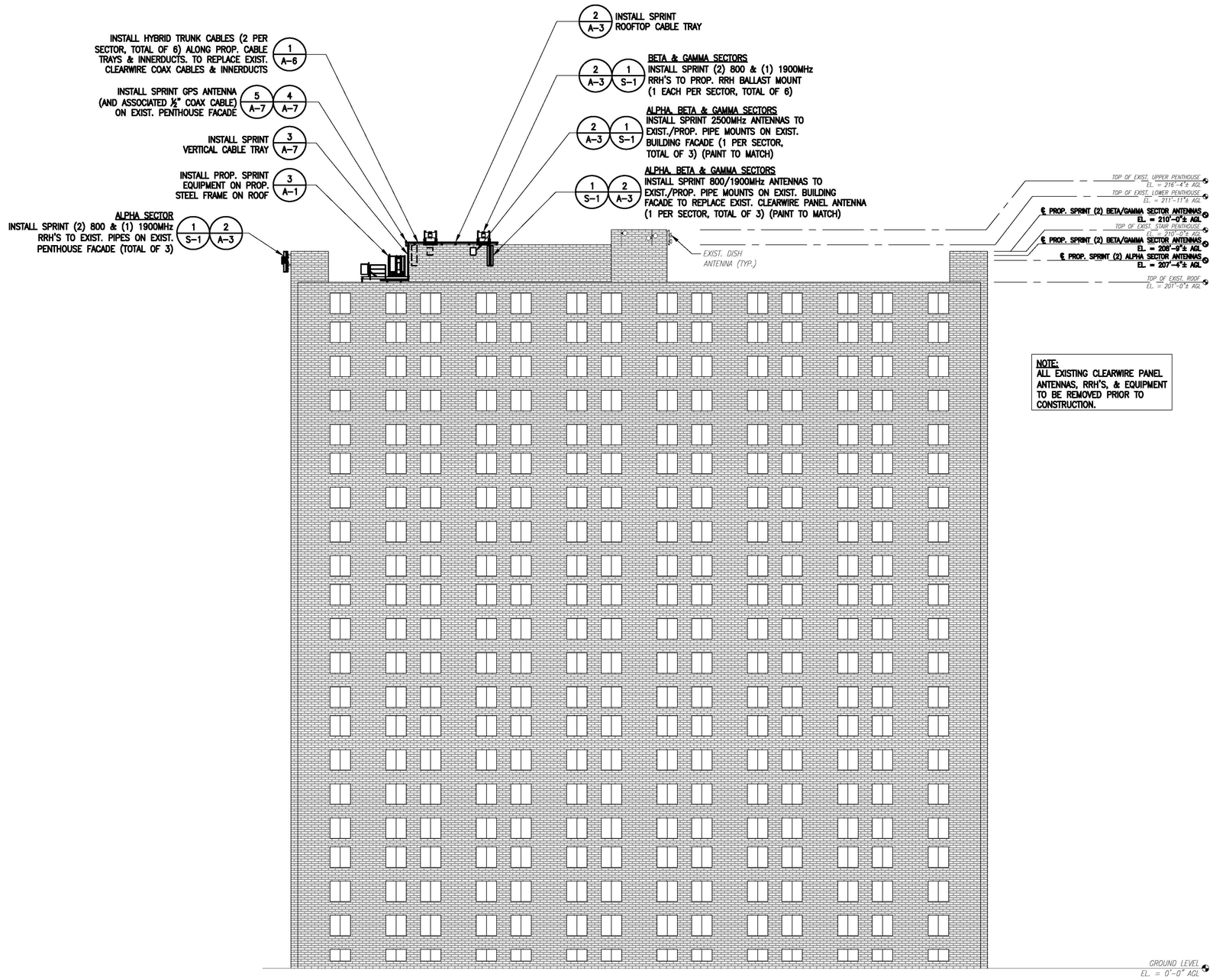
SHEET TITLE
ROOF & EQUIPMENT PLANS

SHEET NUMBER
A-1

1725.057

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER OR A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

STRUCTURAL NOTE:
ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.



NOTE:
ALL EXISTING CLEARWIRE PANEL ANTENNAS, RRH'S, & EQUIPMENT TO BE REMOVED PRIOR TO CONSTRUCTION.

SOUTH ELEVATION
1 / A-2
SCALE: 1" = 16'-0"
0 16' 32' 48'

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CAMBRIDGE, MA 02139

SHEET TITLE
ELEVATION

SHEET NUMBER
A-2

1725.057

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* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

STRUCTURAL NOTE:
ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.

ANTENNA STATUS LEGEND:

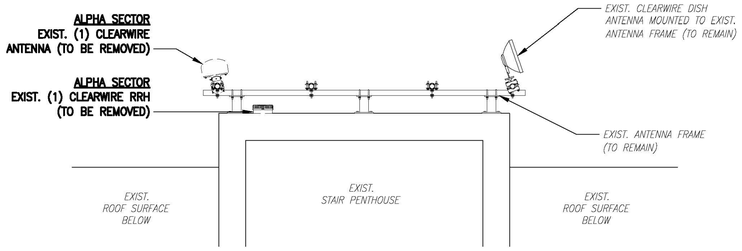
EMPTY – EMPTY PIPE

(E) – EXISTING

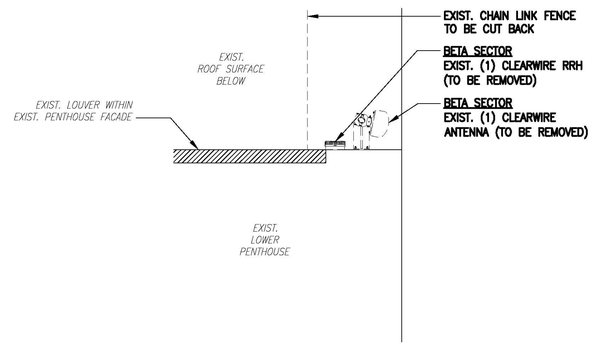
(P) – INSTALL

NV – SPRINT ANTENNA

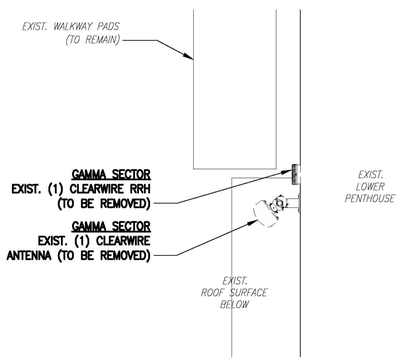
2.5 – SPRINT ANTENNA



ALPHA SECTOR



BETA SECTOR



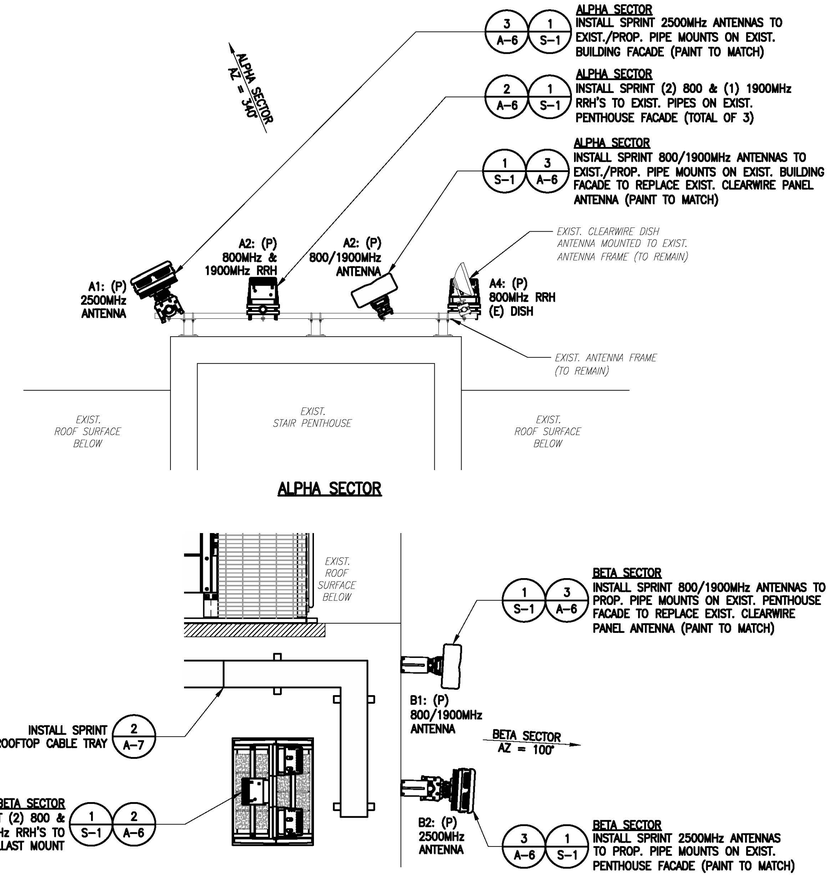
GAMMA SECTOR

NOTE:
ALL EXISTING CLEARWIRE PANEL ANTENNAS, RRH'S, & EQUIPMENT TO BE REMOVED PRIOR TO CONSTRUCTION.

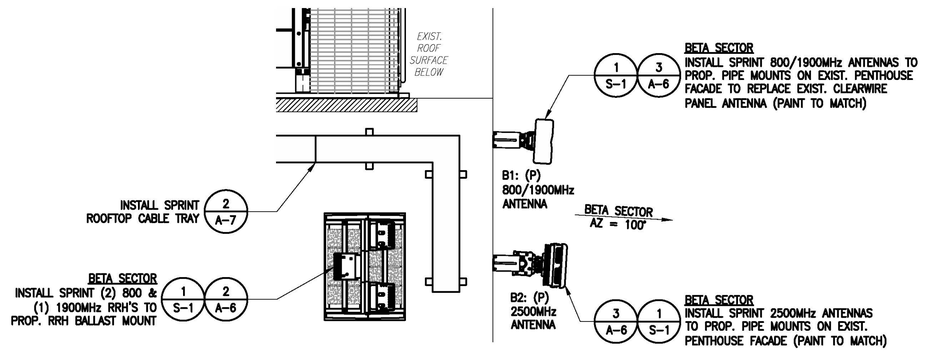
EXISTING ANTENNA PLAN (1/A-3) NORTH

SCALE: N.T.S.

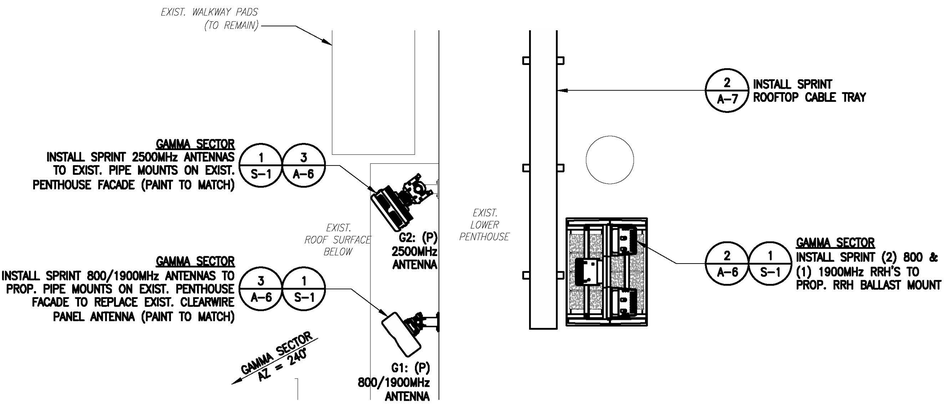
NOTE:
EXISTING AZIMUTHS FROM CEA SITE VISIT, DATED 03/27/2018.



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

PROPOSED ANTENNA PLAN (2/A-3) NORTH

SCALE: N.T.S.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

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CHECKED BY:	JMT
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BS52XC006

SITE NAME:
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402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
ANTENNA PLANS

SHEET NUMBER
A-3

1725.057

Site Data				
	Region: Northeast **Market**	**#N/A**	Revision 2.8	Rev Date: 21-Feb-2018
	Cascade ID	**BS52XC006**	BTS OEM: ALU, Nokia	RFDS Type: Preliminary
	Augment Import Code: SPDOMU01_DO_Macro_Upgrade	Augment: DO Macro Upgrade	Structure Type:	Rooftop
	#N/A	Sprint Eng. Name: Bill Hastings	Bill.M.Hastings@sprint.com	Eng. Phone: 978-590-9700
	Latitude: 42.393333 | Longitude: -71.139883	Manager Name: Jonathan Hull	Jonathan.B.Hull@sprint.com	Manager Phone: 617-233-2920
	Detailed RFDS Description:	RFE: Praveen Meesarapu	Praveen.Meesarapu@sprint.com	RFE Phone: 301-728-0006
	Triband final config swap existing antenna to 8-port 800/1900 antenna. Add 2x 800 RRHs, 1900 RRH and 2.5 Massive Mimo Antenna System. CW Site to Full Upgrade	Filter Analysis Complete: YES	Border Analysis Complete: YES	Channel Plan Complete: YES

		Alpha	Beta	Gamma
1900	1900MHz_Azimuth	340	100	240
	1900MHz_No_of_Antennas	1	1	1
	1900MHz_RADCenter(ft)	200	200	200
	1900MHz_Antenna Make	Commscope	Commscope	Commscope
	1900MHz_Antenna Model	NNVV-65B-R4	NNVV-65B-R4	NNVV-65B-R4
	1900MHz_Horizontal_Beamwidth	60	60	60
	1900MHz_Vertical_Beamwidth	6.4	6.4	6.4
	1900MHz_Antenna Dimensions (in) & Weight (lbs)	72 x 19.6 x 7.8 | 77.4 (lbs)	72 x 19.6 x 7.8 | 77.4 (lbs)	72 x 19.6 x 7.8 | 77.4 (lbs)
	1900MHz_AntennaGain(dBi)	17.7	17.7	17.7
	1900MHz_E_Tilt	0	0	0
	1900MHz _M_Tilt	0	0	0
	1900_Effective_Tilt	0	0	0
	1900MHz_Carrier_Forecast_Year_2017			
	1900MHz_RRH Manufacturer	ALU	ALU	ALU
	1900MHz_RRH Model	RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz	RRH 1900 4X45 65MHz
	1900MHz_RRH Count	1	1	1
	1900MHz_RRH Specs	25 x 11.1 x 11.4 (60 lbs)	25 x 11.1 x 11.4 (60 lbs)	25 x 11.1 x 11.4 (60 lbs)
	1900MHz_RRH Location	Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower
	1900MHz Combiner Model	No Combiner Required	No Combiner Required	No Combiner Required
	1900MHz Power Split Ratio (Main/Split)			
	1900MHz Splitter Manufacturer			
	1900MHz Splitter Model	No Splitter Required	ok	No Splitter Required
	1900MHz Number of Splitters	0	0	0
	1900MHz_Top_Jumper #1_Length (RRH or Combiner-to-Antenna for TT or Main Coax to Antenna for Ground Mount, ft)	8	8	8
	1900MHz_Top_Jumper #1_Cable_Model (RRH or Combiner-to-Antenna for TT or Main Coax to Antenna for Ground Mount)	LCF12-50J	LCF12-50J	LCF12-50J
	1900MHz_Top_Jumper #2_Length (RRH to Combiner for TT if applicable, ft)			
	1900MHz_Top_Jumper #2_Cable_Model (RRH to Combiner for TT if applicable)			
	1900MHz_Main_Cable_Length (ft)	225	225	225
	1900MHz_Main_Cable_Model	HB114-1-0813U4-M5J	HB114-1-0813U4-M5J	HB114-1-0813U4-M5J
	1900MHz_Bottom_Jumper #1_Length (Ground based RRH to Combiner-OR-Main Coax, ft)			
	1900MHz_Bottom_Jumper #1_Cable_Model (Ground based RRH to Combiner-OR-Main Coax)			
	1900MHz_Bottom_Jumper #2_Length (Ground based-Combiner to Main Coax, ft)			
	1900MHz_Bottom_Jumper #2_Cable_Model (Ground based-Combiner to Main Coax)			

800	800MHz_Azimuth	340	100	240
	800MHz_No_of_Antennas	1	1	1
	800MHz_RADCenter(ft)	200	200	200
	800MHz_AntennaMake	NA	NA	NA
	800MHz_AntennaModel	Antenna assigned on a different band	Antenna assigned on a different band	Antenna assigned on a different band
	800MHz_Horizontal_Beamwidth	NA	NA	NA
	800MHz_Vertical_Beamwidth	NA	NA	NA
	800MHz_Antenna Dimensions (in) & Weight (lbs)	NA | NA	NA | NA	NA | NA
	800MHz_AntennaGain (dBi)	NA	NA	NA
	800MHz_E_Tilt	0	0	0
	800MHz_M_Tilt	0	0	0
	800 MHz_Effective Tilt (degrees)	0	0	0
	800MHz_RRH Manufacturer	ALU	ALU	ALU
	800_Combiner_Model	No Combiner Required	No Combiner Required	No Combiner Required
	800MHz_RRH Model	RRH 800 MHz 2x50W	RRH 800 MHz 2x50W	RRH 800 MHz 2x50W
	800MHz_RRH Specs	15.8 x 13.0 x 14.0 (64 lbs)	15.8 x 13.0 x 14.0 (64 lbs)	15.8 x 13.0 x 14.0 (64 lbs)
	800MHz_RRH Count	2	2	2
	800MHz_RRH Location	Top of the Pole/Tower	Top of the Pole/Tower	Top of the Pole/Tower
	800MHz BILT Border Filter	na	na	na
	800MHz Splitter Manufacturer			
	800MHz Splitter Model			
	800MHz Number of Splitters	0	0	0
	800_Top_Jumper #1_Length (RRH to Antenna for TT or Main Coax to Antenna for GM)	8	8	8
	800_Top_Jumper_Cable_Model (RRH to Antenna for TT or Main Coax to Antenna for GM)	LCF12-50J	LCF12-50J	LCF12-50J
	800MHz_Main_Coax_Cable_Length (ft)	NA	NA	NA
	800MHz_Main_Coax_Cable_Model	NA	NA	NA
	800_Bottom_Jumper #1_Length (Ground based RRH to Main Coax)			
	800_Bottom_Jumper #1_Cable_Model (Ground based RRH to Main Coax)			
2500	2500MHz_Azimuth	340	100	240
	2500MHz_No_of_Antennas	1	1	1
	2500MHz_RADCenter(ft)	200	200	200
	2500MHz_AntennaMake	Nokia	Nokia	Nokia
	2500MHz_AntennaModel	AAHC	AAHC	AAHC
	2500MHz_Horizontal_Beamwidth	0	0	0
	2500MHz_Vertical_Beamwidth	0	0	0
	2500MHz_AntennaHeight (in)	25.6 x 19.7 x 9.9 | 99.2 (lbs)	25.6 x 19.7 x 9.9 | 99.2 (lbs)	25.6 x 19.7 x 9.9 | 99.2 (lbs)
	2500MHz_AntennaGain (dBi)	0	0	0
	2500MHz_E_Tilt	0	0	0
	2500MHz_M_Tilt	0	0	0
	2500 MHz_Effective Tilt (degrees)	0	0	0
	2500MHz_RRH Manufacturer	Nokia	Nokia	Nokia
	2500_Combiner_Model	comb model	comb model	comb model
	2500MHz_RRH Model	AAHC	AAHC	AAHC
	2500MHz_RRH Count	1	1	1
	2500MHz_RRH Location	Built into Antenna	Built into Antenna	Built into Antenna
	2500MHz Power Split Ratio (Main/Split)			
	2500MHz Splitter Manufacturer			
	2500MHz Splitter Model			
	2500MHz Number of Splitters	0	0	0
	2500_Top_Jumper #1_Length (RRH to Antenna for TT or Main Coax to Antenna for GM)	8	8	8
	2500_Top_Jumper_Cable_Model (RRH to Antenna for TT or Main Coax to Antenna for GM)	LCF12-50J	LCF12-50J	LCF12-50J
	2500MHz_Main_Cable_Length (ft)	225		225
	2500MHz_Main_Cable_Model	HB114-13U3M12-xxxF		HB114-13U3M12-xxxF
	2500_Bottom_Jumper #1_Length (Ground based RRH to Main Coax)			
	2500_Bottom_Jumper #1_Cable_Model (Ground based RRH to Main Coax)			

NOTES:
1. COMMENTS IN RED TEXT PROVIDED BY A&E VENDOR.
2. ANTENNA RAD CENTER BASED ON EQUIPMENT DATABASE AND STRUCTURAL ANALYSIS.
3. SPRINT CM SHALL CONFIRM HYBRID CABLE LENGTH, COAX JUMPER LENGTH AND AISG CABLE LENGTH BEFORE PREPARING BOM. A&E RECOMMENDED HYBRID CABLE LENGTH BASED ON NV 2.5 EQUIPMENT AUDIT PLUS 20 FEET FOR (2) 10-FOOT COILS AT EACH END OF THE FIBER TRUNK.

NOTE:

GENERAL CONTRACTOR/TOWER CREW SHALL VERIFY THAT THE LATEST RF DATA SHEET IS USED FOR EQUIPMENT INSTALLATION.

RF DATA SHEET
N.T.S.

1
A-4

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
(800) 357-7641

CENTERLINE COMMUNICATIONS
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COMMONWEALTH OF MASSACHUSETTS
DAVID M. CHAPPELL
CIVIL
No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

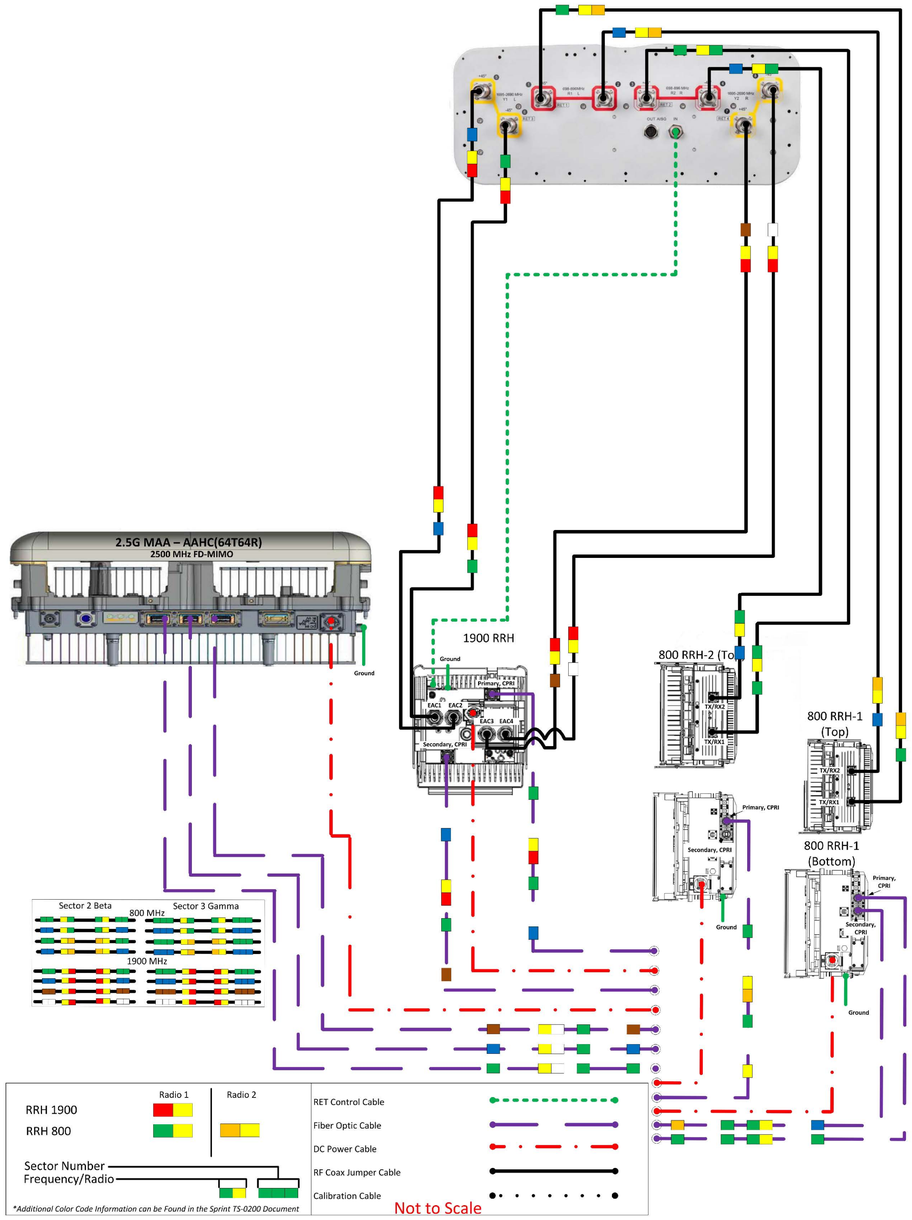
SITE NUMBER:
BS52XC006
SITE NAME:
ARLINGTON
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
RF DATA SHEET

SHEET NUMBER
A-4

1725.057

COMMSCOPE NNVV-65B-R4



PLUMBING DIAGRAM
SCALE: N.T.S.

1
A-4

SPRINT CONSTRUCTION STANDARDS:

GENERAL CONTRACTOR SHALL ADHERE TO THE FOLLOWING SPRINT CONSTRUCTION STANDARDS.

- CONSTRUCTION STANDARDS: INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES – (CURRENT VERSION), INCLUDING EXHIBITS A–M.
- CONSTRUCTION SPECIFICATIONS: CONSTRUCTION STANDARDS EXHIBIT A – STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES (CURRENT VERSION).
- GROUNDING STANDARDS: EXTERIOR GROUNDING SYSTEM DESIGN. GROUNDING STANDARDS (SUPPLEMENT): ANTI–THEFT UPDATE TO SPRINT GROUNDING 082412 AND SPRINT ENGINEERING LETTER EL–0504 DATED 04.20.12.
- WEATHER PROOFING STANDARDS: EXCERPT FROM CONSTRUCTION STANDARDS EXHIBIT A, SECTION 3.6 WEATHERPROOFING CONNECTORS AND GROUND KITS.
- COLOR CODING: SPRINT NEXTEL ANT AND LINE COLOR CODING PER SPRINT TS–0200 CURRENT VERSION.
- GENERAL CONTRACTOR TO FIELD VERIFY AZIMUTH AND CL HEIGHT AND MECHANICAL DOWNTILT. IF DIFFERENT THAN CALLED OUT IN RFDS, HALT ANTENNA WORK FOR WORK FOR ONE HOUR, CALL SPRINT RF ENGINEER (OR MANAGER IF RF ENGINEER DOES NOT ANSWER, BUT STILL LEAVE A MESSAGE TO RF ENGINEER) USING SPRINT–PROVIDED CONTACT INFORMATION FOR FURTHER INSTRUCTIONS. IF SPRINT DOES NOT RESPOND WITHIN ONE HOUR, PLACE 2.5GHz ANTENNA AT SAME CL AS 1.9GHz ANTENNA AND EMAIL CORRECT CL HEIGHT AND AZIMUTH TO SPRINT RF ENGINEER. UPDATE AS–BUILD DRAWING WITH CORRECT CL HEIGHT. ALSO EMAIL CORRECT 1900MHz AND 800MHz ANTENNA CL HEIGHT, AZIMUTH AND MECHANICAL DOWNTILT TO RF ENGINEER.
- AISG TESTS TO VERIFY OPERATION IS TO BE PERFORMED AFTER FINAL INSTALLATION OF ANTENNAS AND AISG CABLES HAVE BEEN CONNECTED. VERIFY OPERATION OF ALL EXISTING SPRINT AISG EQUIPMENT INCLUDING 800MHz, 1.9GHz, AND 2.5GHz. TEST INCLUDE COMPLETE DOWNTILT, AZIMUTH (IF APPLICABLE) AND BEAMWIDTH SWINGS (IF APPLICABLE). DOCUMENT AISG TEST RESULTS IN COAX SWEEP TEST SPREADSHEET.
- GENERAL CONTRACTOR MUST INSURE THAT NO OBJECT IS LOCATED IN FRONT OF ANTENNA. THIS MEANS NO OBJECT IS TO BE LOCATED 45 DEGREES LEFT AND RIGHT OF FRONT OF ANTENNA OR 7 DEGREES UP AND DOWN FROM CENTER OF ANTENNA. IF THIS IS NOT POSSIBLE, CONTACT RF ENGINEER FOR FURTHER INSTRUCTION. IN ADDITION, 2.5GHz ANTENNA IS NOT TO THE PLACED IN FRONT OF ANY OTHER ANTENNA USING THE SAME 45 DEGREE RULE. THIS INCLUDES SPRINT AND NON–SPRINT ANTENNAS.
- GENERAL CONTRACT IS REQUIRED TO USE A DIGITAL ALIGNMENT TOOL TO SET AZIMUTH, ROLL AND DOWNTILT. AZIMUTH ACCURACY IS TO BE WITHIN 1 DEGREES. DOWNTILT AND ROLL(LEFT TO RIGHT TILT) IS TO BE WITHIN 0.1 DEGREES. IF FOR SOME REASON THIS ACCURACY CANNOT BE ACHIEVED, UPDATE AS–BUILT DRAWINGS AND EMAIL SPRINT RF ENGINEER WITH AS–BUILTS SETTINGS. USE 3Z RF ALIGNMENT TOOL OR EQUIVALENT TOOL. HTTP://WWW.3ZTELECOM.COM/ANTENNA–ALIGNMENT–TOOL/.

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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
RAN WIRING DIAGRAMS

SHEET NUMBER
A-5

1725.057

HYBRID CABLE DC CONDUCTOR SIZE GUIDELINE MANUF: RFS			
CABLE	LENGTH	DC CONDUCTOR	CABLE DIAMETER
FIBER ONLY	VARIES	USE NV HYBRIFLEX	5/8"
HYBRIFLEX	<200'	8 AWG	1-1/4"
(*) HYBRIFLEX	225-300'	6 AWG	1-1/4" (6)
HYBRIFLEX	325-375'	4 AWG	1-1/4"

ALPHA = 225' BETA = 225' GAMMA = 225'

RFS HYBRIFLEX RISER CABLE SCHEDULE

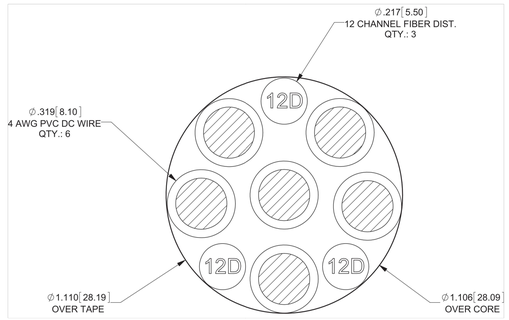
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft
6 AWG Power	(*) **Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft (3)
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

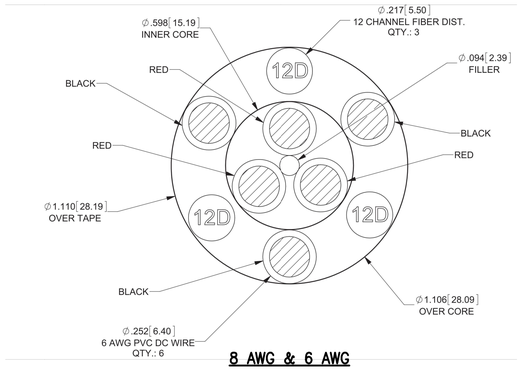
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
(*)	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft
	MN: HBF078-21U1M3-30F1	30 ft

* NOTE: SPRINT CM TO CONFIRM HYBRID RISER CABLE AND HYBRID JUMPER CABLE MODEL NUMBERS BEFORE PREPARING BOM.

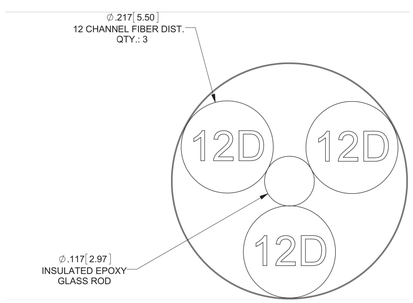
2500MHz HYBRID CABLE X-SECTION & DATA (1 / A-6)
SCALE: NTS



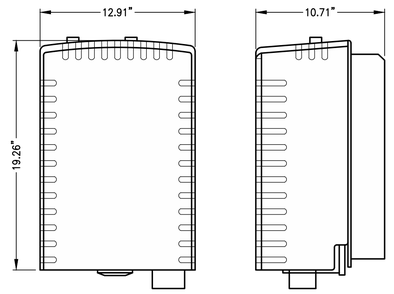
4 AWG



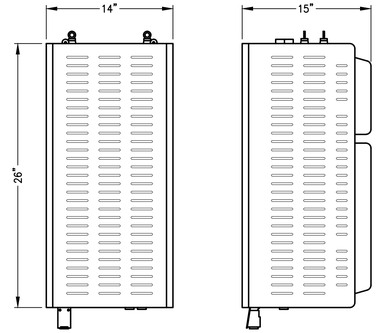
8 AWG & 6 AWG



FIBER ONLY

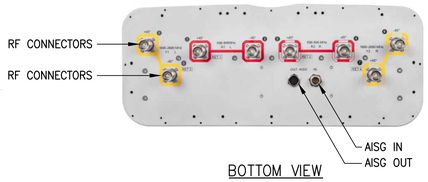


800MHz RRH

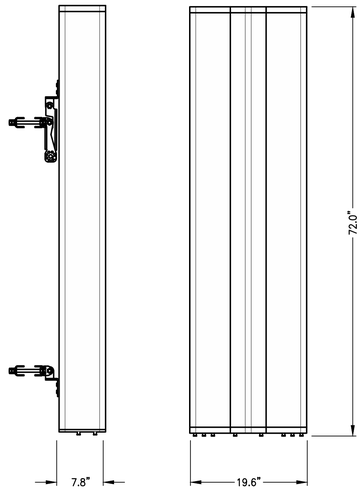


1900MHz RRH

RRH DETAILS (2 / A-6)
N.T.S.



BOTTOM VIEW



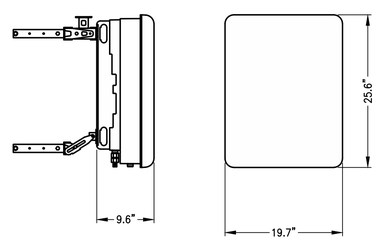
SIDE VIEW FRONT VIEW

800/1900MHz ANTENNA

COMMSCOPE NNVV-65B-R4 PANEL ANTENNA

DIMENSIONS: 72.0"x19.6"x7.8"
WEIGHT: 77.4 LBS W/ HARDWARE
FREQUENCY RANGE: 694-896 MHz
1695-2690 MHz

BOTTOM VIEW



SIDE VIEW FRONT VIEW

2500MHz RRH

NOKIA AAHC PANEL ANTENNA

DIMENSIONS: 25.6"x19.7"x9.6"
WEIGHT: 103.6 LBS W/ HARDWARE
FREQUENCY RANGE: 2496-2690 MHZ

ANTENNA DETAILS (3 / A-6)
N.T.S.

Sprint VISION
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REV.	DATE	DESCRIPTION	BY
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0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

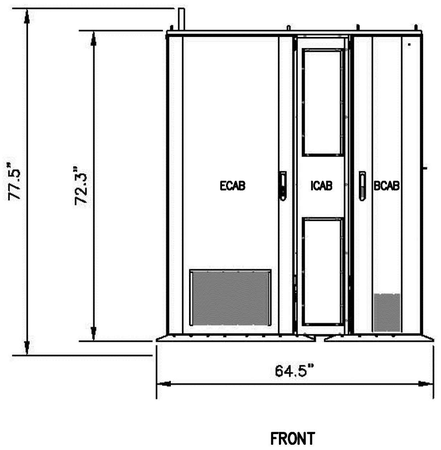
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
EQUIPMENT DETAILS

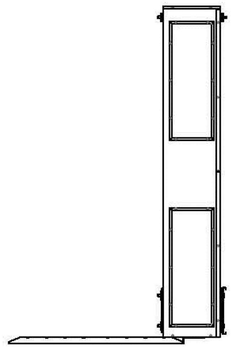
SHEET NUMBER
A-6

1725.057

EQUIPMENT CABINET INSTALLATION NOTE:
GENERAL CONTRACTOR SHALL INSTALL EQUIPMENT CABINET FLOOR-MOUNT KIT AND SHALL FURNISH AND INSTALL ALL FASTENERS/ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES.



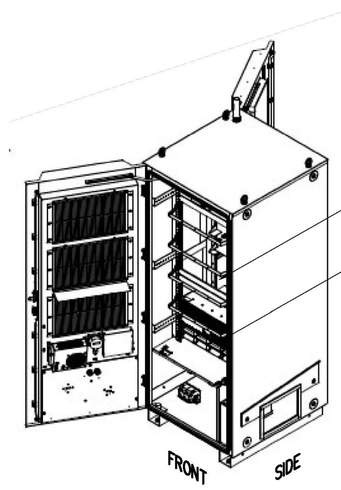
EQUIPMENT ASSEMBLY



ELTEK ICAB

MANUF:	ELTEK ICAB
MODEL:	N/A
HEIGHT:	71.4
WIDTH:	12.1
DEPTH:	28.1
WEIGHT:	N/A

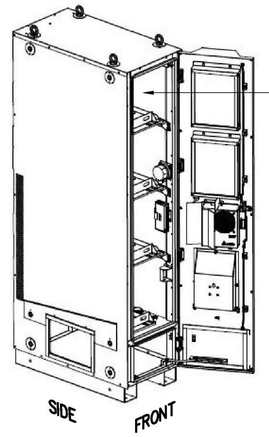
NOTE:
ANCHOR INTERCONNECT CABINET TO PROPOSED CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.



ELTEK ECAB ESOA220-SCA02

MANUF:	ELTEK ECAB
MODEL:	ESOA220-SCA02
HEIGHT:	73.5
WIDTH:	30.0
DEPTH:	38.0
WEIGHT:	505 LBS

NOTE:
ANCHOR EQUIPMENT CABINET TO PROPOSED CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.

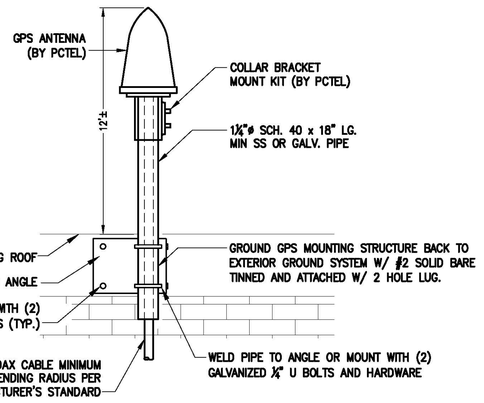


ELTEK BCAB ESOF020-ECV02

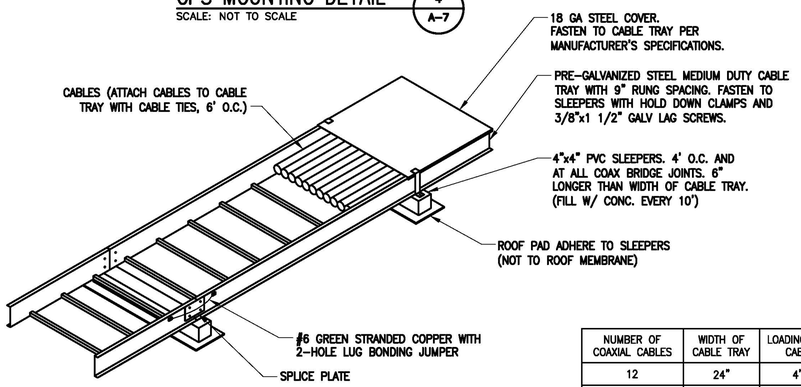
MANUF:	ELTEK BCAB
MODEL:	ESOF020-ECV02
HEIGHT:	73.5
WIDTH:	16.5
DEPTH:	34.7
WEIGHT:	330 LBS

NOTE:
ANCHOR BATTERY CABINET TO PROPOSED CONCRETE PAD PER MANUFACTURER'S REQUIREMENTS.

EQUIPMENT DETAILS (1 / A-7)
SCALE: NTS

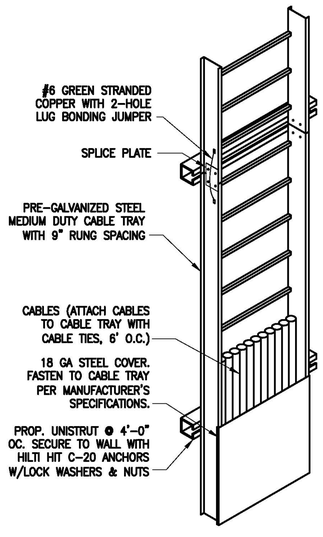


GPS MOUNTING DETAIL (4 / A-7)
SCALE: NOT TO SCALE

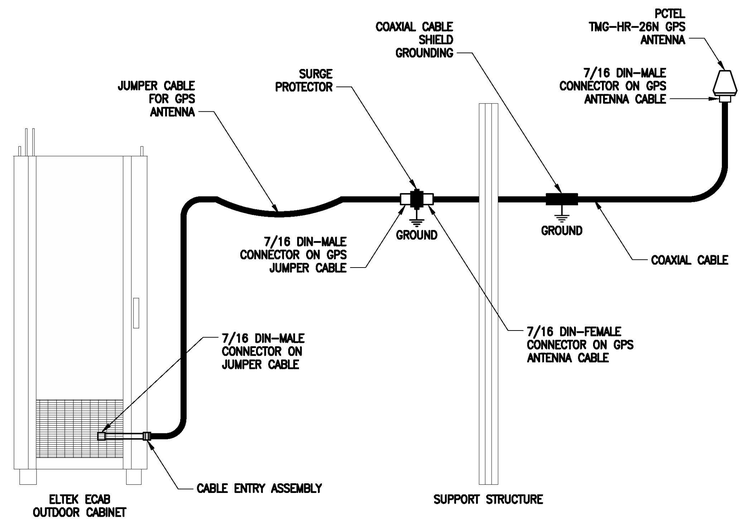


NUMBER OF COAXIAL CABLES	WIDTH OF CABLE TRAY	LOADING DEPTH OF CABLE TRAY
12	24"	4"
8	18"	4"
4	12"	4"

CABLE TRAY DETAIL (2 / A-7)
SCALE: NOT TO SCALE



VERTICAL CABLE TRAY DETAIL (3 / A-7)
SCALE: NOT TO SCALE



THE GPS SURGE NEEDS TO BE INSTALLED AWAY FROM AND SEPARATE FROM THE MM-BTS CABINET. (PER THE SITE PREP GUIDE)

- THE JUMPERS ARE DESIGNED TO BE INSTALLED BEFORE/AFTER THE GPS SURGE.
- THE GPS SURGE NEEDS TO BE CONNECTED TO THE GROUND SYSTEM VIA A GROUND LEAD.

GPS DETAIL (5 / A-7)
SCALE: N.T.S.

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DAVID A. CHAPPELL
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No. 34706
REGISTERED PROFESSIONAL ENGINEER

CHECKED BY:	JMT
APPROVED BY:	JMT

SUBMITTALS

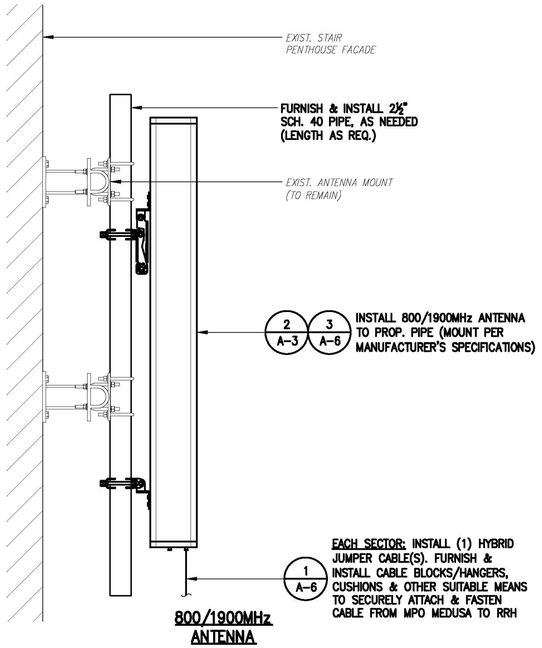
REV.	DATE	DESCRIPTION	BY
1	06/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006
SITE NAME:
ARLINGTON
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

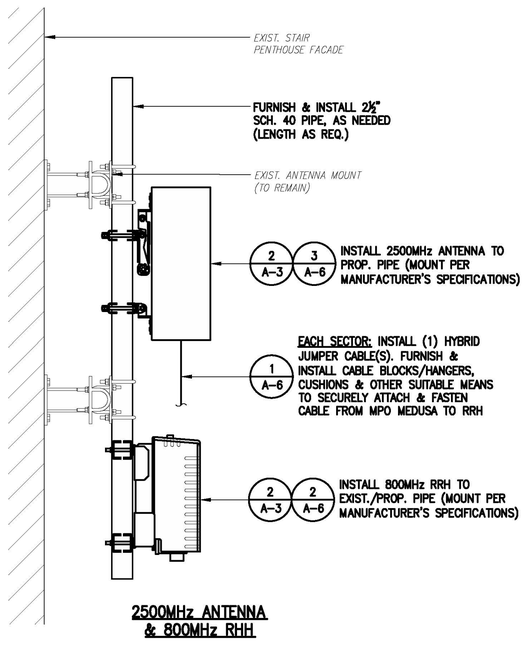
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-7

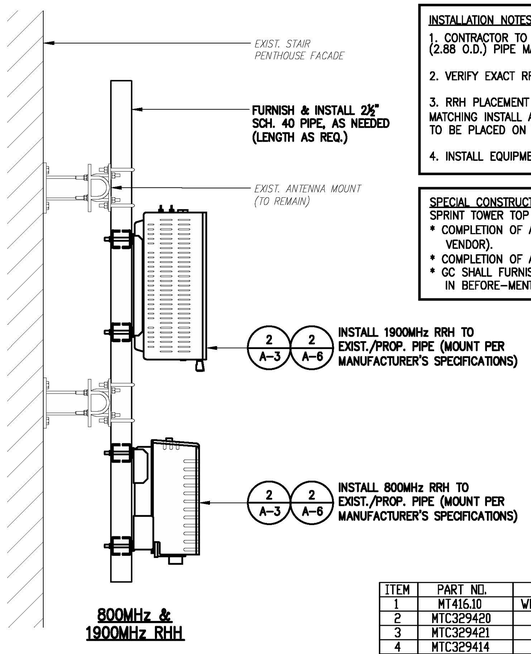
1725.057



800/1900MHz ANTENNA



2500MHz ANTENNA & 800MHz RHH



800MHz & 1900MHz RHH

ALPHA SECTOR

INSTALLATION NOTES:

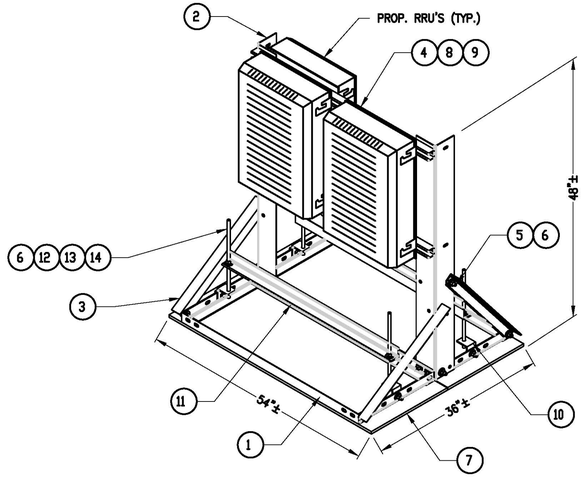
1. CONTRACTOR TO VERIFY IN FIELD SIZE OF EXISTING MOUNTING PIPE TO BE 2½" STD (2.88 O.D.) PIPE MAST (6'-0" LONG).
2. VERIFY EXACT RRH AND ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.
3. RRH PLACEMENT FOR REFERENCE ONLY. CONTRACTOR SHALL PLACE RRH IN CORRECT ORDER MATCHING INSTALL ANTENNA PLACEMENT AND ENSURE THAT THERE IS ENOUGH CLEARANCE FOR RRH'S TO BE PLACED ON THE INSIDE ON THE ANTENNA FRAME.
4. INSTALL EQUIPMENT TO BE MOUNTED PER MANUFACTURERS SPECIFICATIONS.

SPECIAL CONSTRUCTION NOTE:

SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:

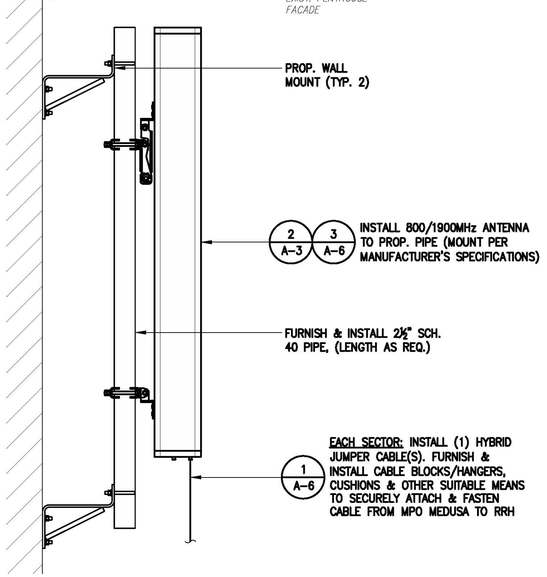
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER OR A&E VENDOR).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
1	MT416.10	WELDMNT BALLAST SLED FRAME	2	22.40 LBS
2	MTC329420	VERTICAL ANGLE	2	13.93 LBS
3	MTC329421	BRACE ANGLE	4	4.71 LBS
4	MTC329414	1 5/8" UNISTRUT	2	6.25 LBS
5	GB-04145	1/2" X 1-1/2" GALV BOLT KIT	18	0.13 LBS
6	GWF-04	1/2" GALV FLAT WASHER	28	0.06 LBS
7	MT-F1637	RUBBER MAT .5" X 18" X 48"	2	15.61 LBS
8	GWF-03	3/8" GALV FLAT WASHER	8	0.01 LBS
9	GB-03145	3/8" X 1-1/2" GALV BOLT KIT	4	0.07 LBS
10	MTC8326.01	CLIP ANGLE	4	0.478 LBS
11	MTC329422	BRACE ANGLE	2	7.92 LBS
12	GWL-04	1/2" GALV LOCK WASHER	8	0.09 LBS
13	GN-04	1/2" GALV HEX NUT	8	0.04 LBS
14	MT-379-16	1/2" X 16" GALV THREADED ROD	4	0.88 LBS

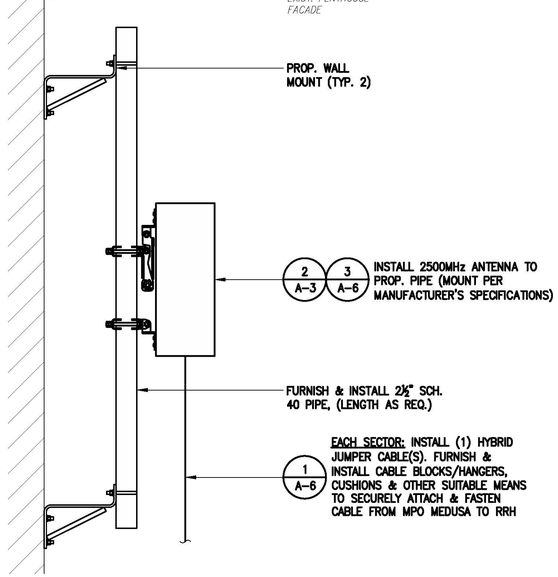


BETA & GAMMA SECTOR RRH MOUNTING DETAILS 2/S-1

SCALE: N.T.S.



800/1900MHz ANTENNA



2500MHz ANTENNA

BETA & GAMMA SECTOR

TYPICAL ANTENNA MOUNTING DETAILS 1/S-1

SCALE: N.T.S.

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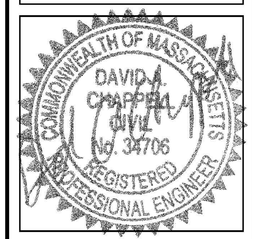

CHECKED BY: JMT

APPROVED BY: JMT

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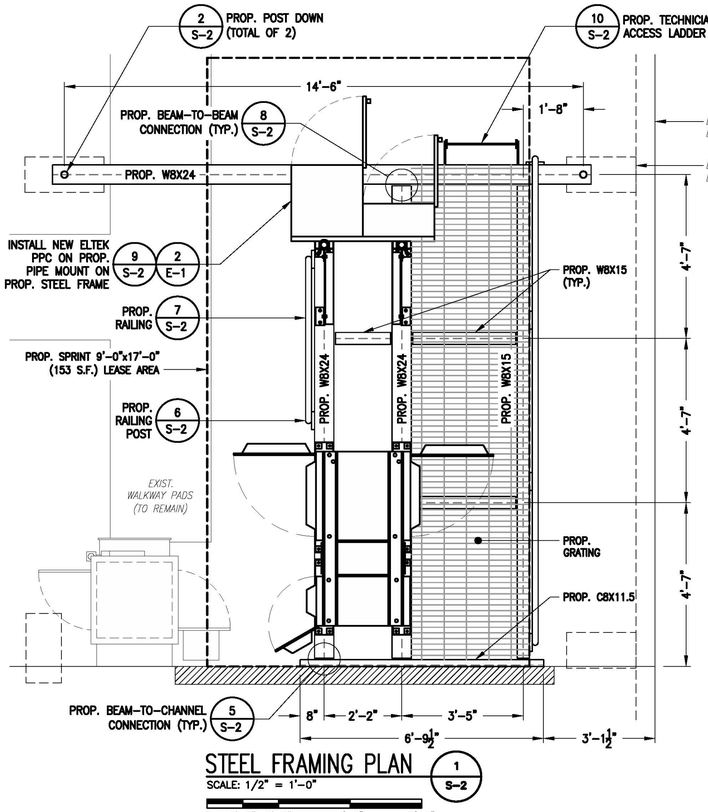
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-1

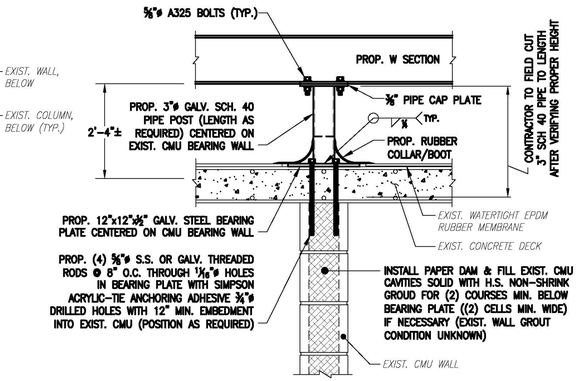
1725.057



STEEL FRAMING PLAN 1 S-2

SCALE: 1/2" = 1'-0"

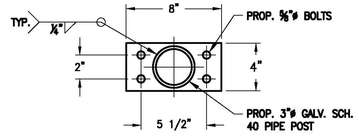
0 1'-0" 2'-0" 4'-0" 6'-0"



NOTE:
PROP. STEEL FRAME & PENETRATION DETAIL SET TO CHANGE PENDING STRUCTURAL ANALYSIS

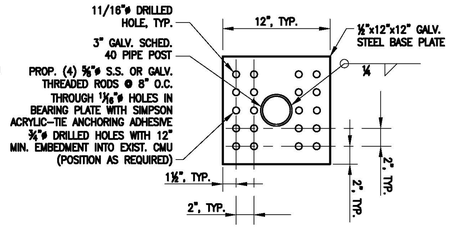
PENETRATION DETAIL 2 S-2

SCALE: NOT TO SCALE



CAP PLATE

NOTE:
UTILIZE HOLES NEAREST CORNERS OF BASE PLATE FOR ANCHOR RODS SPECIFIED. IF REINFORCING BAR IS ENCOUNTERED AT THESE LOCATIONS, OFFSET ANCHORS TO EITHER ADJACENT HOLE. IF REINFORCING BAR IS ENCOUNTERED AT EACH ADJACENT HOLE SHOWN, NOTIFY ENGINEER IMMEDIATELY FOR FURTHER INSTRUCTIONS.

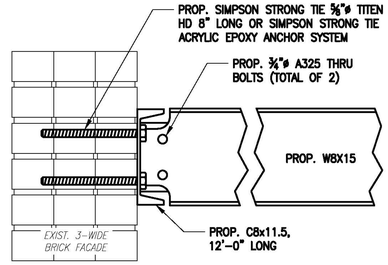


BEARING PLATE

POST PLATE DETAILS 3 S-2

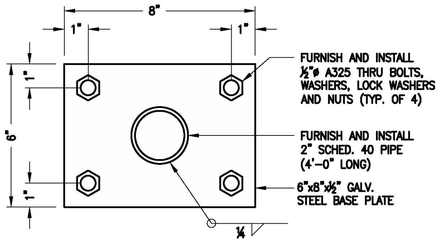
SCALE: 2" = 1'-0"

NOTE:
PROP. CHANNEL TO BE INSTALLED ABOVE EXIST. PENTHOUSE FLASHING. EXIST. CLEARWIRE CONDUIT & CABLING TO BE CUT BACK AS REQ'D PRIOR TO CONSTRICTION.



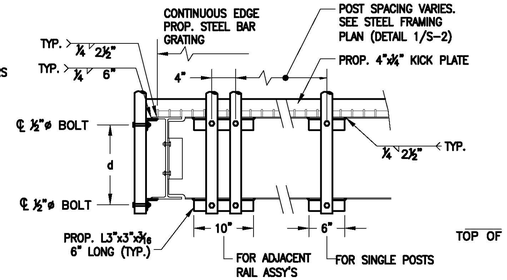
CHANNEL CONNECTION DETAIL 5 S-2

SCALE: NOT TO SCALE



PPC BASE PLATE DETAIL 11 S-2

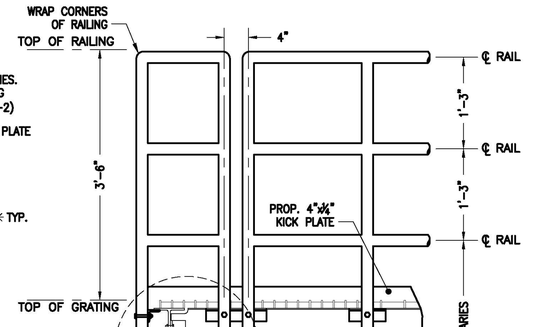
SCALE: N.T.S.



NOTE: WHERE ADJACENT RAILING ASSEMBLIES MOUNT TO STEEL PLATFORM, ATTACHMENT TO PROPOSED BEAMS SHALL UTILIZE A SINGLE 10" L (AS SHOWN ABOVE). SINGLE POST ATTACHMENT TO STEEL PLATFORM SHALL UTILIZE A SINGLE 6" L (AS SHOWN ABOVE)

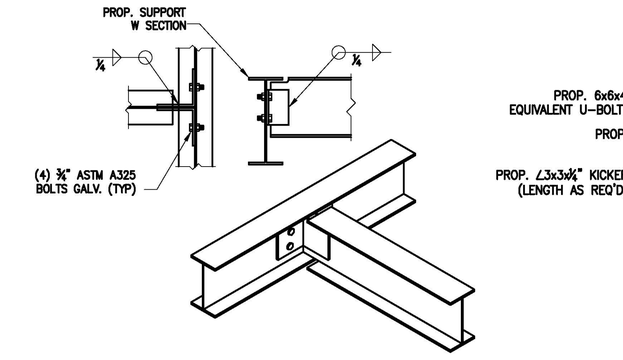
HANDRAIL ATTACHMENT DETAIL 6 S-2

SCALE: NOT TO SCALE



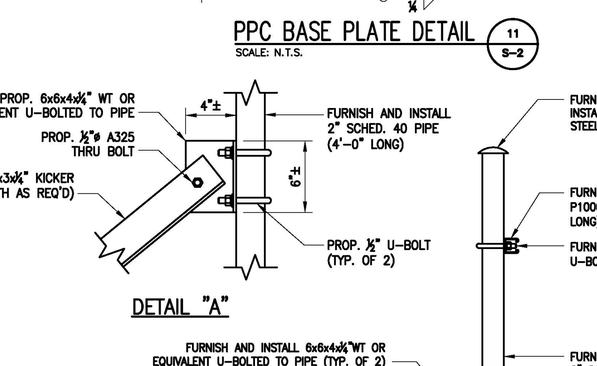
RAILING ELEVATION DETAIL 7 S-2

SCALE: NOT TO SCALE

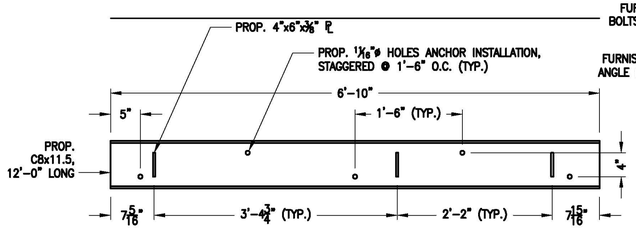


TYPICAL BEAM TO BEAM CONN. 8 S-2

SCALE: NOT TO SCALE

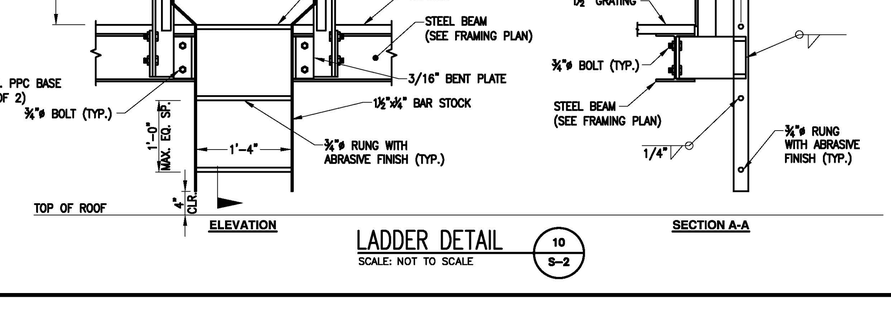


DETAIL "A"



CHANNEL DETAIL 4 S-2

SCALE: NOT TO SCALE



PPC H-FRAME DETAIL 9 S-2

SCALE: N.T.S.

LADDER DETAIL 10 S-2

SCALE: NOT TO SCALE

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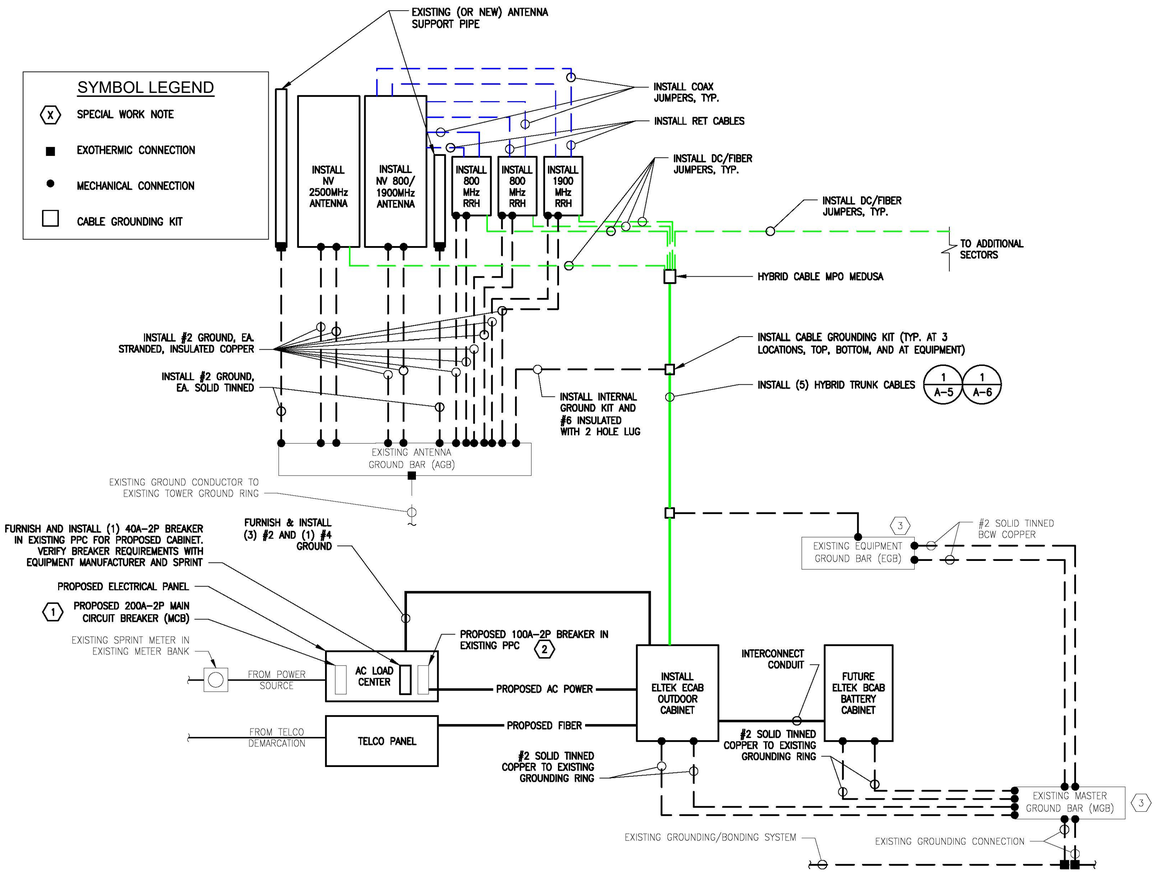
SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-2

1725.057



TYPICAL POWER & GROUNDING ONE-LINE

1 / E-1

SCALE: NTS

SPECIAL WORK NOTE:

1. G.C. TO FURNISH AND INSTALL ALL COMPONENTS TO UPGRADE EXISTING ELECTRICAL SERVICE, CONDUIT, CONDUCTOR, PPC AND MCB IN ACCORDANCE WITH SPRINT CONSTRUCTION STANDARDS NV 2.5 ADDENDUM "ENGINEERING NOTICE 2013-002 (POWER UPGRADES) REV.0" (OR CURRENT VERSION)
2. G.C. TO FURNISH AND INSTALL UPGRADE THE EXISTING MMBTS BREAKER, CONDUCTOR, AND CONDUIT TO A MINIMUM NEC RATING FOR A 100-AMP, 240V CIRCUIT.
3. FOR NEW OR REPAIRED GROUNDING EQUIPMENT, REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
   - -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
   - -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

ELECTRICAL NOTES

1) ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.

2) THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANIES AND SPRINT CONSTRUCTION MANAGER.

3) ALL CONDUITS ROUTED BELOW GRADE SHALL TRANSITION TO RIGID GALVANIZED ELBOWS WITH RIGID GALVANIZED STEEL CONDUIT ABOVE GRADE.

4) ALL METAL CONDUITS SHALL BE PROVIDED WITH GROUNDING BUSHINGS.

5) GENERAL CONTRACTOR SHALL PROVIDE ALL DIRECT BURIED CONDUITS WITH PLASTIC WARNING TAPE IDENTIFYING CONTENTS. TAPE COLORS SHALL BE ORANGE FOR TELEPHONE AND RED FOR ELECTRIC.

6) ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.

7) THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIALS DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.

8) GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.

9) ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.

10) BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.

11) ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.

12) RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.

13) RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.

14) FIBER OPTIC CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 770-OPTICAL FIBER CABLES AND RACEWAYS.

15) COMMUNICATIONS CIRCUITS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 800-COMMUNICATIONS SYSTEMS.

PROPOSED ELTEK POWER PROTECTION CABINET

2 / E-1

SCALE: NTS

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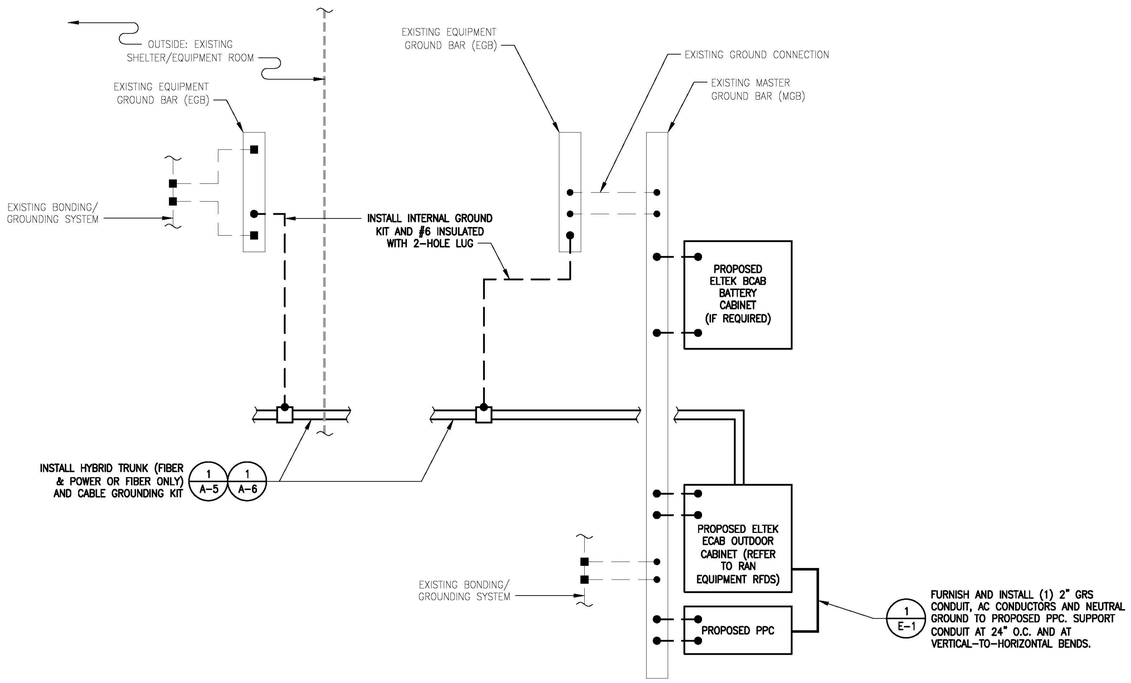
CAMBRIDGE, MA 02139

SHEET TITLE
ONE-LINE DIAGRAM & PPC DETAILS

SHEET NUMBER
E-1

1725.057

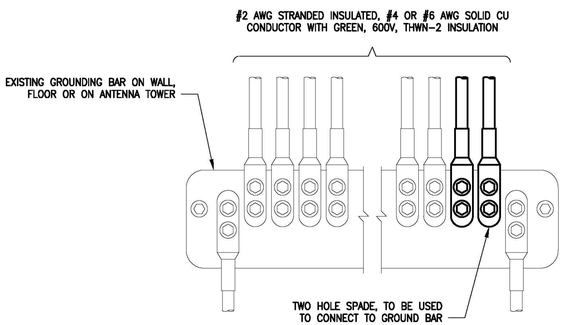


NOTE: HYBRIFLEX (FIBER & POWER) AND HYBRIFLEX (FIBER-ONLY) SHOWN. REFER TO RAN EQUIPMENT RFDS FOR SITE-SPECIFIC SCENARIO.

EQUIPMENT GROUNDING SCHEMATIC

1 E-2

SCALE: N.T.S.



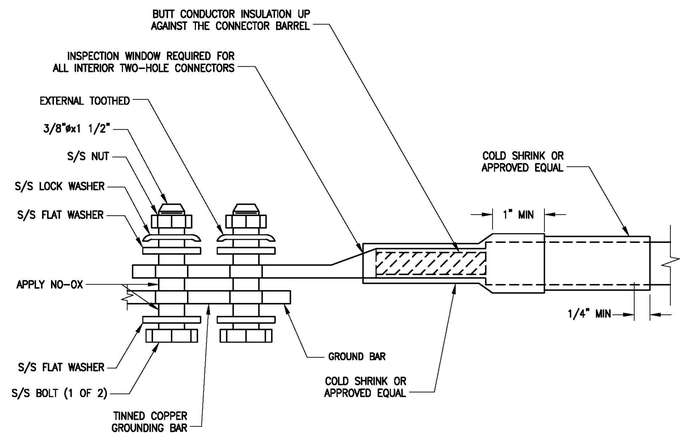
NOTES

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

2 E-2

SCALE: N.T.S.



TWO HOLE LUG

3 E-2

SCALE: N.T.S.

SYMBOL LEGEND

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- CABLE GROUNDING KIT
- GROUNDING/BONDING
- CONDUIT

UNLESS NOTED OTHERWISE, ALL BONDING CONDUCTORS ARE 2# SOLID TINNED BCW.

NOTE:
EXISTING NV EQUIPMENT CONDUITS NOT SHOWN FOR CLARITY. REFER TO RECORD AS-BUILT NV PHOTOS AND NV AS-BUILT DRAWINGS.

PROTECTIVE GROUNDING SYSTEMS GENERAL NOTES:

1. GROUNDING SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250-GROUNDING AND BONDING.
2. GROUNDING SHALL BE IN ACCORDANCE WITH SPRINT SSEO DOCUMENTS 3.018.02.004 "BONDING, GROUNDING AND TRANSIENT PROTECTION FOR CELL SITES" AND 3.018.10.002 "SITE RESISTANCE TO EARTH TESTING".
3. PROVIDE GROUND CONNECTIONS FOR ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS AND OTHER CONDUCTIVE ITEMS ASSOCIATED WITH THE INSTALLATION OF CARRIER'S EQUIPMENT.
4. GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, REMOVE THE COATING, APPLY A NON-CORROSIVE APPROVED COMPOUND TO CLEAN SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX" OR EQUAL.
5. ALL GROUNDING WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
7. ALL GROUND WIRES SHALL BE #2 SOLID TINNED BCW UNLESS NOTED OTHERWISE.
8. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE.
9. GROUND ANTENNA BASES, FRAMES, CABLE RACKS, AND OTHER METALLIC COMPONENTS WITH #2 INSULATED TINNED STRANDED COPPER GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
10. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MGB) WITH #2 SOLID TINNED BCW EQUIPMENT CABINETS WALL HAVE (2) CONNECTIONS.
11. GROUND HYBRIFLEX SHIELD AT TOP, BOTTOM AND AT TRANSITION TO HYBRIFLEX JUMPER CABLES AT EQUIPMENT CABINET ENTRANCE USING MANUFACTURER'S GUIDELINES. WHEN HYBRIFLEX CABLE EXCEEDS 200', GROUND AT INTERVALS NOT EXCEEDING 100'.
12. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING GROUND BARS HAVE ENOUGH SPACE/HOLES FOR ADDITIONAL TWO HOLE LUGS.
13. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL OTHERWISE. THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH AN ANTI-OXIDANT (THOMAS BETTS KOPR-SHILD) BEFORE MAKING THE CRIMP CONNECTIONS THE CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDED TORQUES ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS.
14. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANEL, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING. CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE LUGS WITH STAINLESS STEEL SELF-TAPPING SCREWS.
15. THE MASTER GROUND BAR (MGB) SHALL BE MADE OF BARE 1/4"x2" COPPER (FOR OUTDOOR APPLICATIONS IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICAL INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
16. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
17. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH SPRINT CONSTRUCTION MANAGER.
18. FOR NEW OR REPAIRED GROUNDING EQUIPMENT. REFER TO SPRINT GROUNDING STANDARDS AND FOLLOWING (SUPPLEMENTS):
    -ANTI-THEFT UPDATE TO SPRINT GROUNDING DATED 08-24-12 (OR CURRENT VERSION)
    -SPRINT ENGINEERING LETTER EL-0504 DATED 04-20-12 (OR CURRENT VERSION)

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CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	08/16/18	ISSUED FOR CONSTRUCTION	CMC
0	07/27/18	ISSUED FOR REVIEW	JRV

SITE NUMBER:
BS52XC006

SITE NAME:
ARLINGTON

SITE ADDRESS:
402 RINDGE AVENUE
CAMBRIDGE, MA 02139

SHEET TITLE
GROUNDING DETAILS & NOTES

SHEET NUMBER
E-2

1725.057