ATC 417306
OAA761574

Redwood County Environmental Office -- PO Box 130, Redwood Falls, MN 56283 Phone: (507) 637-4023

Redwood County
www.co.redwood.mn.us

Application for Conditional Use Permit

Permit #: 11-21 **Date:** 6/3/21

Location of Proposed Use:

Address: 677 Carleton Ave. **City:** Morgan **State:** MN **Zip:** 56266
House # *Street Name*

Parcel #: 59-015-2060 **Township:** Morgan **Section:** 15 **Twp #** 111 **Range:** 34

Legal Description:

7.27A TR IN SW1/4 NW1/4, 7.27A

Information about the Site:

Zoning District: UE

General description of the building(s) and proposed use:

Site is Agricultural, Homestead and contains an existing Telecommunications tower.

Building Size: (Please enter dimensions in feet)

Width: 6'10" **Length:** 6'10" **Diameter:** N/A **Total Height:** Tower height extension to 275'

Setbacks: (Please enter in feet)

Side Yard Setback: _____ **Direction:** _____

Side Yard Setback: _____ **Direction:** _____

Rear Yard Setback: _____ **Direction:** _____

Road Type: _____ **Setback from the Right-of-Way:** _____

Right-of-Way Width from Centerline _____ ft

Type of Sewer System:

☐ Unoccupied structure / no water or sewer required.

Drainage Plan:

☐ N/A

ATC 417306
OAA761574

Other Information:

ATT wishes to collocate telecom eqpt. on an existing American Tower owned guyed tower at 275'. The existing tower is 250' and a 25' extension will be added to height. A 15' x 20' lease area will be added to the compound to house a 6'10" x 6'10" equipment shelter and diesel generator.

Applicant Information:

First Name: David **Last Name:** Trost

Business Name: Qualtek Wireless

Address: 6100 110th St. **City:** Bloomington **State:** MN **Zip:** 55425

Home Phone: _____ **Cell Phone:** 779-777-3149 **Email:** dtrost@qualtekwireless.com

Operator Information: (Complete only if different from Applicant)

First Name: Peter **Last Name** McEnery

Business Name ATT Mobility / New Cingular Wireless PCS LLC

Address: 7900 Xerxes Ave S. **City:** Bloomington **State:** MN **Zip:** 55431

Home Phone: 952-258-9629 **Cell Phone:** _____ **Email:** pm753t@att.com

Land Owner Information: (Complete only if different from applicant)**

First Name: Midwest Wireless c/o Verizon Wireless

Address PO Box 2549 **City:** Addison **State:** TX **Zip:** 75001

HomePhone: _____ **CellPhone:** _____ **Email:** _____

I affirm that the forgoing information is true and accurate. I understand that if any portion of this information is false or materially misleading, any conditional use permit issued in reliance upon this information is voidable at the election of Redwood County.

Land Owner Signature By: Margaret Robinson, Senior Counsel, ATC Sequoia LLC as atttorney in fact for Midwest Wireless dba Verizon Wireless **Date:** 5-25-21

Office Use Only: * The section below is to be filled out by the Environmental Office Staff

Permit Fee: $700.00 **Receipt #:** 573445 **Date Approved:** _____

Application Received: 6/3/21

Commission Action:

Approved: _____ **Date:** _____

Disapproved: _____ **Date:** _____

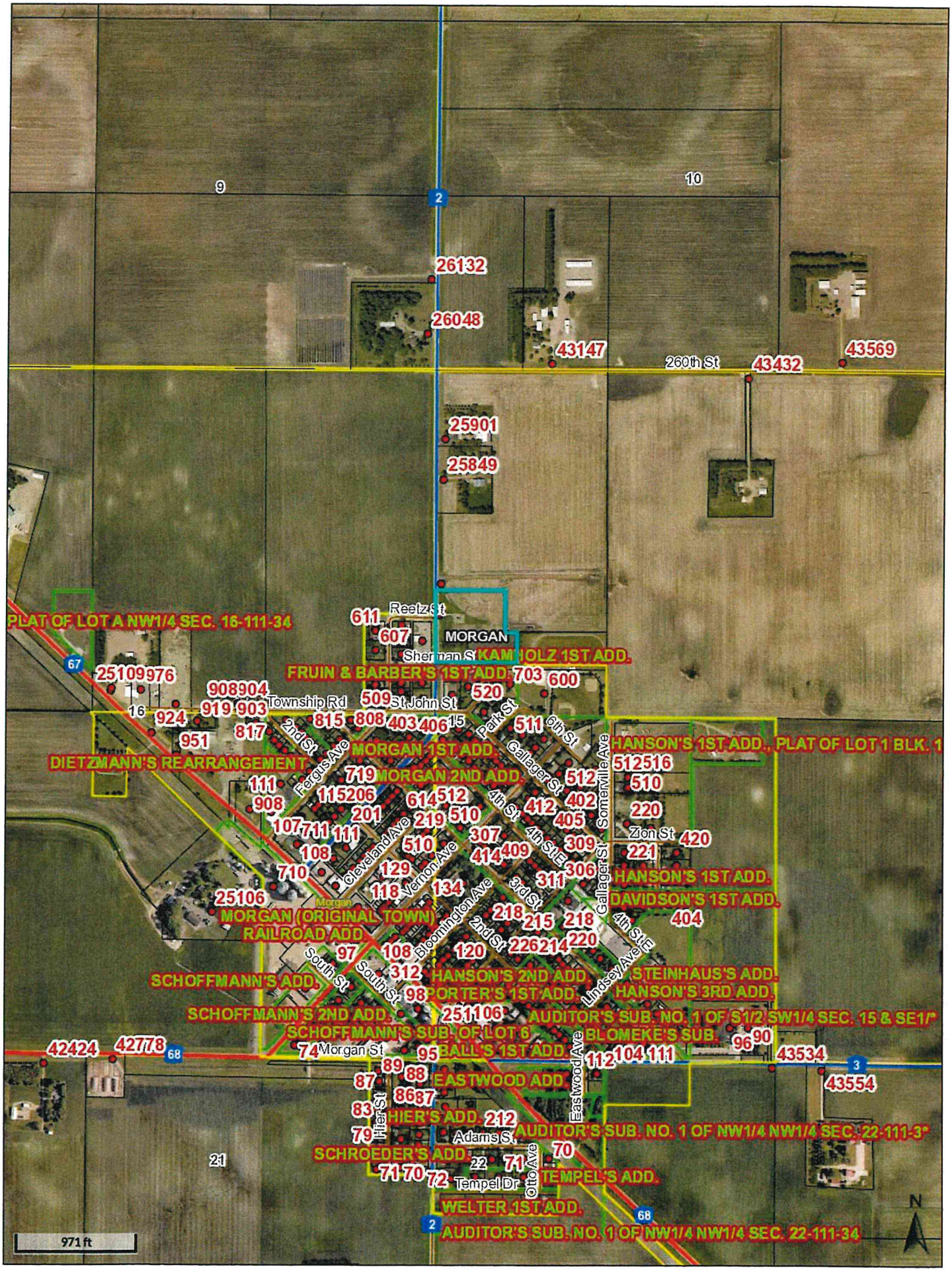
County Board Action:

Approved: _____ **Date:** _____

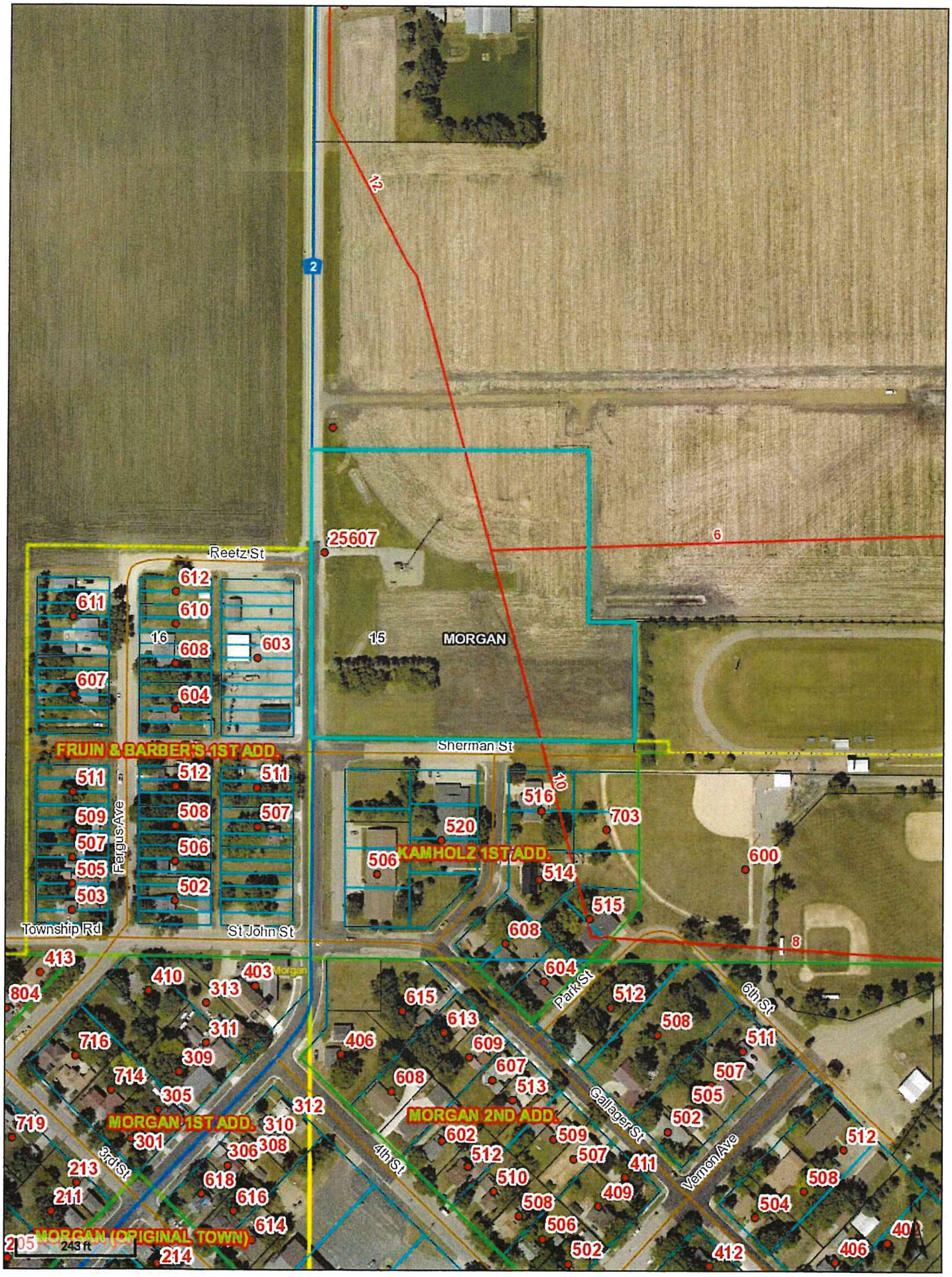
Disapproved: _____ **Date:** _____

**For Authority, see Memorandum of Lease attached herewith

CELL TOWER OVERVIEW MAP



CELL TOWER MAP (TILE)



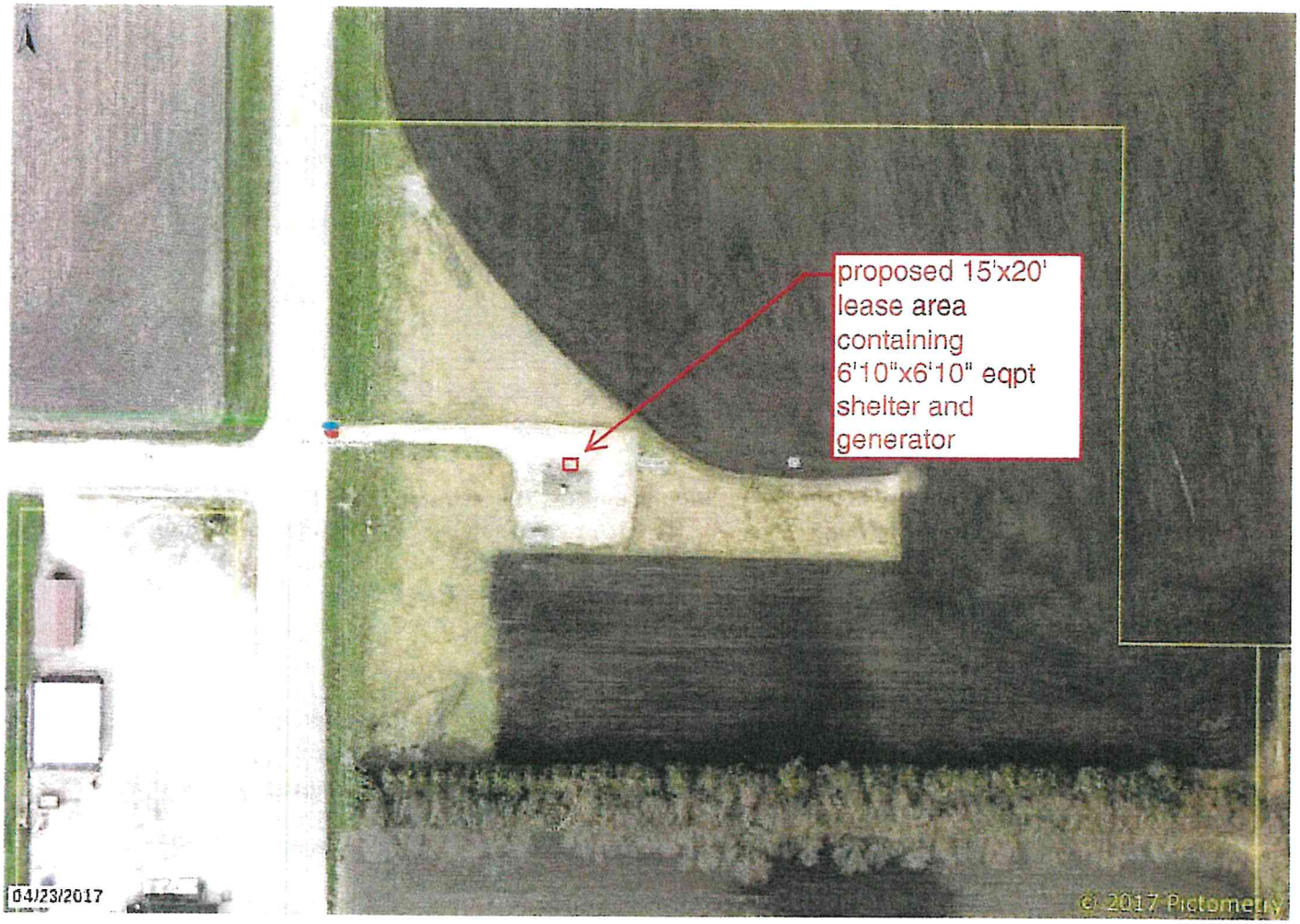
ATC 417306
OAA761574

Permit # _____

Please add the following items to the map:

1. New Structure(s) 2. Septic System 3. Well

New structure is a 6'10" x 6'10" shelter and generator. This is an unoccupied structure and has no Septic or Water requirements.



I affirm that the forgoing information is true and accurate. I understand that if any portion of this information is false or misleading, any zoning or land use permit issued in reliance upon this information is voidable at the election of the Redwood County Zoning Administrator.

Landowner Signature: By: _____ Margaret Robinson, Senior Counsel, ATC Sequoia LLC as attorney in fact for Midwest Wireless dba Verizon Wireless** Date: 5/25/21

Administrator Signature: _____ Date: _____

Redwood County Zoning Administrator

NO DELINQUENT TAXES AND TRANSFER ENTERED
CERTIFICATE OF REAL ESTATE VALUE ( ) FILED
(X)NOT REQUIRED; CERTIFICATE OF REAL ESTATE VALUE NO.
ON THIS 14th DAY OF July 2015
Jean Prew/jm
REDWOOD COUNTY AUDITOR-TREASURER
BY:
DEPUTY

DOC# A 351574
Certified, Filed, and/or Recorded on:
July 14, 2015 11:00 AM

JOYCE ANDERSON
COUNTY RECORDER
REDWOOD FALLS MN 56283
Fee Amount: $46.00
Total Pages: 17

IMAGED

Linear #103330

Space Above Line Reserved For Recorder's Use

After recording return to:
Linear Title & Closing
127 John Clarke Road, 1st Floor
Middletown, RI 02842
401-608-1284

MEMORANDUM OF LEASE

This document was drafted by & Return to:
Anthony Rosa, Esq./ Land Management
ATC Sequoia LLC
10 Presidential Way
Woburn, MA 01801

Parcel # 59-015-2060

This Memorandum of Lease (this "***Memorandum***") is entered into on this 2nd day of July, 2015 by and between Alltel Communications, LLC, a Delaware limited liability company d/b/a Verizon Wireless, with an office at c/o Verizon Wireless, 180 Washington Valley Road, Bedminster, New Jersey (hereinafter referred to as "***LESSOR***"), and ATC Sequoia LLC, a Delaware limited liability company, with an office at 10 Presidential Way, Woburn, MA (hereinafter referred to as "***LESSEE***").

1. LESSOR, LESSEE, Verizon Communications Inc., a Delaware corporation, as guarantor, and the other Verizon Lessors entered into a Master Prepaid Lease ("***MPL***") with an effective date of March 27, 2015, for the purpose of LESSEE managing, operating and maintaining the site legally described in Attachment 1 annexed hereto (the "***Site***"). All of the foregoing is set forth in the MPL.

2. The term of the MPL as to the Site commences on March 27, 2015 and ends on March 26, 2042, unless earlier terminated in accordance with the MPL.

3. LESSOR has granted LESSEE a limited power of attorney (the "***Limited Power of Attorney***"), to, among other things, prepare, negotiate, execute, deliver, record and/or file documents on behalf of LESSOR, all as more particularly described in the Limited Power of Attorney, a copy of which is attached hereto as **Attachment 2** and incorporated herein by this reference.

Capitalized terms used and not defined herein have the respective meanings ascribed to them in the MPL.

This Memorandum may be executed in any number of counterparts, each such counterpart being deemed to be an original instrument, and all such counterparts shall together constitute the same agreement.

The duplicate original copies of the MPL are held at LESSOR'S and LESSEE'S addresses set forth above.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Parties have executed this Memorandum of Lease as of the day and year first above written.

LESSOR:	**LESSEE**:
By ATC Sequoia LLC As Attorney in Fact for Alltel Communications, LLC d/b/a Verizon Wireless	ATC Sequoia LLC
By: _____	By: _____
Shawn Lanier	Edward P. Maggio, Jr.
Title: Vice President, Legal, US Tower	Title: Senior Counsel, US Tower
Date: 7-2-2015	Date: 7/2/15
WITNESSES:	**WITNESSES**:
By: _____ (Signature)	By: _____ (Signature)
MONTSERRAT MORENO (Print)	MONTSERRAT MORENO (Print)
By: _____ (Signature)	By: _____ (Signature)
Michelle Doherty (Print)	Michelle Doherty (Print)

ATC Site Number: 417306
VZW Site Number: 196694

COMMONWEALTH OF MASSACHUSETTS)
) ss.
COUNTY OF MIDDLESEX)

On this 2nd of July, 2015 before me, April Itano the undersigned notary public, personally appeared Shawn Lanier, Vice President, Legal of ATC Sequoia LLC as attorney in fact for Alltel Communications, LLC proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it as voluntarily for its stated purpose.

Dated: 7-2-15

APRIL ITANO
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 30, 2019

April Itano
Notary Public
Print Name April Itano
My commission expires 5-30-19

(Use this space for notary stamp/seal)

ATC Site Number: 417306
VZW Site Number: 196694

COMMONWEALTH OF MASSACHUSETTS)
) ss.
COUNTY OF MIDDLESEX)

On this 2nd of July, 2015 before me, April Itano the undersigned notary public, personally appeared Edward P. Maggio, Jr., Senior Counsel of ATC Sequoia LLC proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it as voluntarily for its stated purpose.

Dated: 7-2-15

APRIL ITANO
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 30, 2019

April Itano
Notary Public
Print Name April Itano
My commission expires 5-30-19

(Use this space for notary stamp/seal)

ATC Site Number: 417306
VZW Site Number: 196694

ATC Site Number: 417306
VZW Site Number: 196694

MEMORANDUM OF LEASE
ATTACHMENT 1
LEGAL DESCRIPTION OF LAND

The Lease Area is approximately 7.27 acres, more or less, and described as follows:

✓ **Part of the West Half of the Northwest Quarter of Section 15, Township 111 North, Range 34 West, Redwood County, Minnesota, described as: Commencing at the Southeast corner of the West Half of the Northwest Quarter of said Section 15; thence North 00 degrees 13 minutes 25 seconds West (assumed bearing), on the East line of said West Half, 651.76 feet; thence South 89 degrees 46 minutes 35 seconds West 693.30 feet to the point of beginning; thence South 00 degrees 13 minutes 25 seconds East, 229.72 feet to the North right of way line of Sherman Street, as dedicated in KAMHOLZ FIRST ADDITION VILLAGE OF MORGAN; thence North 89 degrees 34 minutes 25 seconds West, along said North right of way line, 627.02 feet to the West line of said Northwest Quarter; thence North 00 degrees 14 minutes 11 seconds West on said West line, 549.62 feet; thence North 89 degrees 45 minutes 49 seconds East 533.00 feet to a set iron pipe monument; thence South 00 degrees 56 minutes 34 seconds East, 327.16 feet to a set iron pipe monument; thence North 89 degrees 46 minutes 35 seconds East, 90.00 feet to the point of beginning.**

Parcel #: 59-015-2060

For reference see that certain Warranty Deed filed for record on December 2, 2004 as Document No. A315259.

MEMORANDUM OF LEASE
ATTACHMENT 2
LIMITED POWER OF ATTORNEY

[Limited Power of Attorney to follow]

LIMITED POWER OF ATTORNEY

March 27, 2015

KNOW ALL PERSONS BY THESE PRESENTS THAT each of the Persons identified on Schedule A attached hereto as a Verizon Company (collectively, the "***Companies***" and each, a "***Company***"), does hereby grant ATC Sequoia LLC, a Delaware limited liability company ("***Tower Operator***"), this Limited Power of Attorney and does hereby make, constitute and appoint Tower Operator, acting through any of its designated officers and agents, as its true and lawful attorney-in-fact, for it and in its name, place and stead

(i) to prepare, review, negotiate, execute, purchase, take assignment of, deliver, record, and/or file:

- any waiver, amendment, extension or renewal of and/or to any Ground Lease, any new Ground Lease, any non-disturbance agreement and any other agreement reasonably required to effectuate the extension of the term of possession of any Ground Lease (which may include adding or modifying other terms and provisions of such agreements that Tower Operator, in its reasonable business judgment, determines are desirable or necessary) or any other document relating to or evidencing any Ground Lease or new Ground Lease required for Tower Operator's operation of a Site, that (A) Tower Operator determines in good faith is on commercially reasonable terms, (B) is of a nature and on terms to which Tower Operator would agree (in light of the circumstances and conditions that exist at such time) in the normal course of business if it were the direct lessee under the related Ground Lease rather than a sublessee thereof pursuant to this Agreement, and (C) does not reduce the rights of any Company or Affiliate thereof with respect to the Site or its use of the Site or impose additional obligations on any Company or Affiliate thereof;

- any waiver, amendment, modification, extension or renewal of any Collocation Agreement, any new site supplement or site sublease or any other document relating to any Collocation Agreement; or

- any other document contemplated and permitted by the Master Prepaid Lease or the Management Agreement or necessary to give effect to the intent of the Master Prepaid Lease or the Management Agreement or the transactions contemplated by the Master Prepaid Lease, the Management Agreement or the other Transaction Documents referred to in the Master Prepaid Lease.

(ii) to prepare, negotiate, execute, deliver and/or submit any applications or requests for Governmental Approvals, including, without limitation with respect to Zoning Laws, related to operating the site or to support the needs of a Tower Subtenant.

All parties dealing with Tower Operator, in its capacity as attorney-in-fact hereunder, in connection with the undersigned parties' affairs as described herein, may fully rely upon the power and authority of Tower Operator, in its capacity as attorney-in-fact hereunder, to act for

the undersigned and on the undersigned parties' behalf and in the undersigned parties' names, and may accept and rely upon the documents and agreements entered into, executed, sent, delivered, recorded, and/or filed by Tower Operator, in its capacity as attorney-in-fact hereunder.

For purposes of this Limited Power of Attorney, the following capitalized terms shall have the following meanings:

"*Available Space*" means, as to any wireless communications site, the portion of the communications towers or other support structures on the wireless communications sites from time to time and the tracts, pieces or parcels of land constituting such wireless communications site, together with all easements, rights of way and other rights appurtenant thereto not constituting certain space occupied by the Companies that is available for lease to or collocation by any Tower Subtenant and all rights appurtenant to such portion, space or area.

"*Collocation Agreement*" shall mean an agreement, including master leases, between any Company or Tower Operator, on the one hand, and a third party, on the other hand, pursuant to which such Company or Tower Operator, as applicable, rents or licenses to such third party space at any wireless communications site (including space on a communications tower), including all amendments, modifications, supplements, assignments, guaranties, side letters and other documents related thereto.

"*Governmental Approvals*" means all licenses, permits, franchises, certifications, waivers, variances, registrations, consents, approvals, qualifications, determinations and other authorizations to, from or with any Governmental Authority.

"*Governmental Authority*" means, with respect to the Companies or any wireless communications site, any foreign, domestic, federal, territorial, state, tribal or local governmental authority, administrative body, quasi-governmental authority, court, government or self-regulatory organization, commission, board, administrative hearing body, arbitration panel, tribunal or any regulatory, administrative or other agency, or any political or other subdivision, department or branch of any of the foregoing, in each case having jurisdiction over the Companies or any in any wireless communications site.

"*Ground Lease*" shall mean the ground lease, sublease, easement, license or other agreement or document pursuant to which any Company holds a leasehold or subleasehold interest, leasehold or subleasehold estate, easement, license, sublicense or other interest in any wireless communications site, together with any extensions of the term thereof (whether by exercise of any right or option contained therein or by execution of a new ground lease or other instrument providing for the use of such wireless communications site), and including all amendments, modifications, supplements, assignments, guarantees, side letters and other documents related thereto.

"*Law*" means any federal, state or local law, statute, common law, rule, code, regulation, ordinance or administrative, judicial, or regulatory injunction, order, decree, judgment, sanction, award or writ of any nature of, or issued by, any Governmental Authority.

"***Management Agreement***" shall mean the Management Agreement dated as of March 27, 2015, among Tower Operator, the Companies party thereto and the other parties thereto.

"***Master Prepaid Lease***" shall mean the Master Prepaid Lease dated as of March 27, 2015, among the Companies party thereto, Verizon Communications Inc., a Delaware corporation, as guarantor, and Tower Operator and the other parties thereto.

"***Tower Subtenant***" means, as to any wireless communications site, any individual, corporation, limited liability company, partnership, association, trust or any other entity or organization (other than the Companies) that (i) is a "sublessee", "licensee" or "sublicensee" under any Collocation Agreement affecting the right to use the Available Space at such wireless communications site (prior to the effective date of the Master Prepaid Lease); or (ii) subleases, licenses, sublicenses or otherwise acquires from Tower Operator the right to use Available Space at such wireless communications site (from and after the effective date of the Master Prepaid Lease).

"***Transaction Documents***" means, Memorandum of Agreements, the Master Agreement, the Master Lease Agreement, the Sale Site MLA, the Collateral Agreements and all other documents to be executed by the parties in connection with the consummation of transactions contemplated by the Master Agreement, the Master Lease Agreement, the Sale Site MLA and this Agreement.

"***Zoning Laws***" means any zoning, land use or similar Laws, including Laws relating to the use or occupancy of any communications towers or property, building codes, development orders, zoning ordinances, historic preservation laws and land use regulations.

Tower Operator hereby agrees to use this Limited Power of Attorney in accordance with and subject to the terms and conditions of the Master Prepaid Lease and the Management Agreement, acknowledges that this Limited Power of Attorney only applies to those wireless communications sites subject to such agreements, agrees that this Limited Power of Attorney is subject to the indemnification provisions of Section 4(b)(v) of the Master Prepaid Lease, and understands and agrees that this Limited Power of Attorney may be revoked and terminated in accordance with Sections 4(b)(iv), 5(d) or 6(c) of the Master Prepaid Lease. The parties acknowledge and agree that, unless earlier revoked and terminated in accordance with such provisions of the Master Prepaid Lease, this Limited Power of Attorney with respect to any particular site shall expire at the end of the term for the applicable wireless communications site as set forth in Section 9(a) of the Master Prepaid Lease.

Each of the Companies hereby acknowledges and agrees that Tower Operator may derive benefit, either directly or indirectly, tangible or intangible, or for full or nominal consideration, from or in connection with the amendments and the closing of the same and hereby expressly agrees that nothing contained in this Limited Power of Attorney instrument shall prohibit or be construed or deemed to prohibit the derivation of such benefit by Tower Operator.

This Limited Power of Attorney may not be used by Tower Operator to execute on behalf of any Company any of the following:

- any document that provides for the acquisition of a fee simple interest in real property or the purchase of assets by Tower Operator in the name of such Company or any of its affiliates;

- any document that provides for the incurrence of indebtedness for borrowed money in the name of, of any guarantee by, such Company or any of its affiliates, or purports to grant any mortgage, pledge or other security interest on the interest of such Company or any of its affiliates;

- any document that is between or among Tower Operator or any of its affiliates, on the one hand, and such Company or any of its affiliates, on the other hand; provided that powers of attorney used for recording, in each County and State, all memoranda of lease, sublease and management agreements contemplated by the Master Prepaid Lease or any other Transaction Document referred to in the Master Prepaid Lease shall be excluded from this exception;

- any document that would permit a party to (i) interfere with any Company's or any Company's affiliates' operations or communications equipment at a Site or (ii) interfere with or cause a cessation of any Company's or any Company's affiliates' services at a Site;

- any document the execution or entering in of which is not expressly authorized by the terms of this Limited Power of Attorney; or

- any document that settles or compromises any dispute unrelated to a Ground Lease or any dispute between Tower Operator and any Company or its affiliates related to a Ground Lease.

Each of the Companies and Tower Operator hereby acknowledge and agree that this Limited Power of Attorney may be executed in several counterparts, each of which when so executed and delivered, shall be deemed an original and all of which, when taken together, shall constitute one and the same instrument, even though Companies and Tower Operator are not signatories to the original or the same counterpart. Companies and Tower Operator agree that a photocopy or otherwise electronically reproduction of this Limited Power of Attorney may be relied upon by a third party as an original.

[Signature Page Follows]

IN WITNESS WHEREOF, each party has caused its name to be subscribed hereto by its duly authorized officer this 17 day of April, 2015.

WITNESSES:

Name: Margaret Salemi

Name: CAROL A TODD

COMPANIES:

ON BEHALF OF EACH OF THE COMPANIES LISTED ON SCHEDULE A

By:

Name: Michael Haberman
Title: Authorized Signatory

STATE OF NEW JERSEY)
) ss.:
COUNTY OF SOMERSET)

Be it remembered that on the 17th day of April, 2015, before me, the undersigned Notary Public, personally appeared Michael Haberman personally known to me (or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument) and this person acknowledged under oath, to my satisfaction that:

(a) he is the Authorized Signatory of the entities named as Companies in the attached instrument, as set forth on Schedule A to said instrument;

(b) he is authorized to execute the attached instrument on behalf of the Companies;

(c) he executed the attached instrument on behalf of and as the act of the Companies; and

(d) the attached instrument was signed and made by the Companies as each of their duly authorized and voluntary act.

Witness my hand and official seal.

Notary

[NOTARIAL SEAL]

LUANNE DE ROSE
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 4/12/2016

My Commission Expires:

[Signature Page to Power of Attorney]

IN WITNESS WHEREOF, each party has caused its name to be subscribed hereto by its duly authorized officer this 22 day of April, 2015.

WITNESSES:

Name: Anthony V Rosa

Name: Rachel Murray

TOWER OPERATOR:

By:

Name: Edmund DiSanto

Title: Executive Vice President, General Counsel & Chief Administrative Officer

COMMONWEALTH OF MASSACHUSETTS)
) ss.:
COUNTY OF SUFFOLK)

Be it remembered that on the 22 day of April, 2015, before me, the undersigned Notary Public, personally appeared Edmund DiSanto, personally known to me (or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and this person acknowledged under oath, to my satisfaction that:

(a) he is the Executive Vice President, General Counsel & Chief Administrative Officer of the entity authorized to sign on behalf of the entity named as Tower Operator in the attached instrument;

(b) he is authorized to execute the attached instrument on behalf of the Tower Operator;

(c) he executed the attached instrument on behalf of and as the act of the Tower Operator; and

(d) the attached instrument was signed and made by Tower Operator a duly authorized and voluntary act.

Witness my hand and official seal.

Notary

[NOTARIAL SEAL]

CHRISTINE M. BRENNAN
Notary Public
Commonwealth of Massachusetts
My Commission Expires July 10, 2020

My Commission Expires: July 10, 2020

[Signature Page to Power of Attorney]

Schedule A

COMPANIES

Allentown SMSA Limited Partnership
Alltel Central Arkansas Cellular Limited Partnership
Alltel Communications of Arkansas RSA #12 Cellular Limited Partnership
Alltel Communications of LaCrosse Limited Partnership
Alltel Communications of Mississippi RSA #2, Inc.
Alltel Communications of North Carolina Limited Partnership
Alltel Communications of Nebraska LLC
Alltel Communications of Saginaw MSA Limited Partnership
Alltel Communications Southwest Holdings, Inc.
Alltel Communications Wireless of Louisiana, Inc.
Alltel Communications Wireless, Inc.
Alltel Communications, LLC
Alltel Northern Arkansas RSA Limited Partnership
Anderson CellTelCo
Athens Cellular, Inc.
Bell Atlantic Mobile of Massachusetts Corporation, Ltd.
Bell Atlantic Mobile of Rochester, L.P.
Binghamton MSA Limited Partnership
Bismarck MSA Limited Partnership
California RSA No. 4 Limited Partnership
California RSA No. 3 Limited Partnership
Cellco Partnership
Cellular Inc. Network Corporation
Charleston-North Charleston MSA Limited Partnership
Chicago SMSA Limited Partnership
Colorado 7-Saguache Limited Partnership
Colorado RSA No. 3 Limited Partnership
Dallas MTA, L.P.
Danville Cellular Telephone Company Limited Partnership
Dubuque MSA Limited Partnership
Duluth MSA Limited Partnership

Fayetteville MSA Limited Partnership
Fresno MSA Limited Partnership
Gadsden CellTelCo Partnership
Gila River Cellular General Partnership
Gold Creek Cellular of Montana Limited Partnership
GTE Mobilnet of California Limited Partnership
GTE Mobilnet of Fort Wayne Limited Partnership
GTE Mobilnet of Indiana Limited Partnership
GTE Mobilnet of Indiana RSA #3 Limited Partnership
GTE Mobilnet of Santa Barbara Limited Partnership
GTE Mobilnet of South Texas Limited Partnership
GTE Mobilnet of Terre Haute Limited Partnership
GTE Mobilnet of Texas RSA #17 Limited Partnership
GTE Wireless of the Midwest Incorporated
GTE Mobilnet of Florence, Alabama Incorporated
Idaho 6-Clark Limited Partnership
Idaho RSA No. 2 Limited Partnership
Idaho RSA 3 Limited Partnership
Illinois RSA 1 Limited Partnership
Illinois RSA 6 and 7 Limited Partnership
Illinois SMSA Limited Partnership
Indiana RSA 2 Limited Partnership
Iowa 8-Monona Limited Partnership
Iowa RSA No. 4 Limited Partnership
Iowa RSA 5 Limited Partnership
Jackson Cellular Telephone Co., Inc.
Kentucky RSA No. 1 Partnership
Lafayette Cellular Telephone Company
Los Angeles SMSA Limited Partnership
Michigan RSA #9 Limited Partnership
Missouri RSA #15 Limited Partnership
Missouri RSA 2 Limited Partnership
Missouri RSA 4 Limited Partnership
Modoc RSA Limited Partnership
Muskegon Cellular Partnership
North Central RSA 2 of North Dakota Limited Partnership

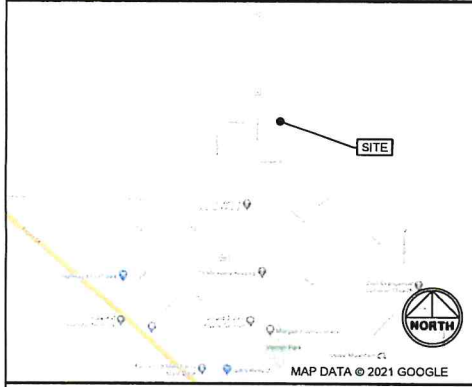
New Hampshire RSA 2 Partnership
New Mexico RSA 3 Limited Partnership
New Mexico RSA No. 5 Limited Partnership
New Mexico RSA 6-I Partnership
New Par
New York RSA No. 3 Cellular Partnership
New York SMSA Limited Partnership
North Dakota RSA No. 3 Limited Partnership
North Dakota 5-Kidder Limited Partnership
Northeast Pennsylvania SMSA Limited Partnership
Northern New Mexico Limited Partnership
Northwest Arkansas RSA Limited Partnership
Northwest Dakota Cellular of North Dakota Limited Partnership
NYNEX Mobile Limited Partnership 1
NYNEX Mobile Limited Partnership 2
NYNEX Mobile of New York, L.P.
Oklahoma RSA No. 4 South Partnership
Omaha Cellular Telephone Company
Orange County-Poughkeepsie Limited Partnership
Pascagoula Cellular Partnership
Pennsylvania RSA 1 Limited Partnership
Pennsylvania 3 Sector 2 Limited Partnership
Pennsylvania 4 Sector 2 Limited Partnership
Pennsylvania RSA No. 6 (I) Limited Partnership
Pennsylvania RSA No. 6 (II) Limited Partnership
Petersburg Cellular Partnership
Pittsburgh SMSA Limited Partnership
Pittsfield Cellular Telephone Company
Portland Cellular Partnership
Redding MSA Limited Partnership
Rockford MSA Limited Partnership
RSA 7 Limited Partnership
Rural Cellular Corporation
Sacramento-Valley Limited Partnership
San Antonio MTA, L.P.
San Isabel Cellular of Colorado Limited Partnership
Seattle SMSA Limited Partnership
Sioux City MSA Limited Partnership
Southern Indiana RSA Limited Partnership
Southwestco Wireless, L.P.

Springfield Cellular Telephone Company
St. Joseph CellTelCo
Syracuse SMSA Limited Partnership
Texas RSA 7B2 Limited Partnership
Texas RSA #11B Limited Partnership
Topeka Cellular Telephone Company, Inc.
Tuscaloosa Cellular Partnership
Tyler/Longview/Marshall MSA Limited Partnership
Upstate Cellular Network
Verizon Wireless (VAW) LLC
Verizon Wireless of the East LP
Vermont RSA Limited Partnership
Virginia 10 RSA Limited Partnership
Virginia RSA 2 Limited Partnership
Virginia RSA 5 Limited Partnership
Verizon Wireless Personal Communications LP
Verizon Wireless Tennessee Partnership
Wasatch Utah RSA No. 2 Limited Partnership
Waterloo MSA Limited Partnership
Wisconsin RSA #1 Limited Partnership
Wisconsin RSA #2 Partnership
Wisconsin RSA #6 Partnership, LLP
Wisconsin RSA No. 8 Limited Partnership
WWC Texas RSA LLC
Wyoming 1-Park Limited Partnership

AT&T

SITE NAME:	MORGAN
PROJECT TYPE:	NEW SITE BUILD (COLLOCATION) LTE 1C-6C, 5G NR, BWE
SITE NUMBER:	MNL03247
ATC NUMBER:	417306
FA CODE:	15339594
PACE ID:	MRUMW043177, MRUMW045236, MRUMW045208, MRUMW045222, MRUMW045245, MRUMW045219, MRUMW045203, MRUMW045205
ADDRESS:	677 CARLETON AVENUE MORGAN, MN 56266

VICINITY MAP



DRIVING DIRECTIONS

DIRECTIONS FROM 7900 XERXES AVE S, MINNEAPOLIS, MN:
TURN RIGHT TOWARD AMERICAN BLVD W, TURN RIGHT AT THE 1ST CROSS STREET ONTO AMERICAN BLVD W, TURN RIGHT ONTO FRANCE AVE S, USE THE RIGHT LANE TO TAKE THE RAMP ONTO I-494 W , MERGE ONTO I-494 W , TAKE EXIT 11C TO MERGE ONTO MN-5 W/US-212 W , KEEP LEFT TO CONTINUE ON US-212 W , TURN LEFT ONTO MN-15 S ,TURN LEFT ONTO MN-4 S , TURN RIGHT ONTO 310TH ST , CONTINUE ONTO COUNTY RD 3 , TURN RIGHT ONTO FRONT ST , TURN RIGHT ONTO CARLETON AVE , DESTINATION WILL BE ON THE RIGHT.

811 NOTE:
48 HOURS PRIOR TO DIGGING, CONTRACTOR TO NOTIFY ALL UTILITY COMPANIES TO LOCATE ALL UNDERGROUND UTILITIES.

ALWAYS CALL BEFORE YOU DIG

APPLICANT / LESSEE

NAME:	AT&T MOBILITY
ADDRESS:	7900 XERXES AVE S., 3RD FLOOR MINNEAPOLIS, MN 55431
AT&T SAC PM:	PETER MCENERY PM753T@ATT.COM (952) 258-9629
AT&T C&E PM:	SARAH LANGE (952) 229-9725 SL7988@ATT.COM

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST, CONTRACTORS SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED MATERIALS TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING, INSTALLATION OF:

(1) NEW 6'-10" X 6'-10" SHELTER WITH OUTDOOR GENERATOR
(6) ANTENNAS (NNH4-65C-R6-V3) AT 271'-0" ON EXISTING 250'-0" TOWER W/ PROPOSED 25'-0" EXTENSION
(15) RRH'S ((3) 4T4R B12/14/29, (3) 4T4R B30, (3) 4T4R B5, (6) 4T4R B25/66)
(2) RAYCAPS (DC9-48-60-24-8C-EV) RESERVED FOR (4)
(3) 1.13" DC TRUNKS
(2) 0.92" DC TRUNKS
(2) 0.40" FIBER

PROJECT SUMMARY

USID:	294310
ADDRESS:	677 CARLETON AVENUE MORGAN, MN 56266
PROPERTY COORDINATES:	LATITUDE: 44° 25' 18.89388" (44.421915°) - SOURCE: SURVEY LONGITUDE: -94° 55' 33.165192" (-94.926014°) BY BOLTON & MENK INC. :09/16/04
GROUND ELEVATION:	1034.8' (NAVD88)
PARCEL NUMBER:	59-015-2060
PARCEL OWNER:	MIDWEST WIRELESS COMMUNICATIONS, LLC. (VERIZON WIRELESS)
PARCEL ADDRESS:	25607 CO HWY 2, MORGAN, MN 56266
TOWER OWNER :	AMERICAN TOWER CORPORATION
ATC TOWER NUMBER :	417306
ACCESS CONTACT:	AMERICAN TOWER CORPORATION DANIEL FLATLEY 617-922-0004 DANIEL.FLATLEY@AMERICANTOWER.COM
POWER COMPANY:	XCEL ENERGY PH: (800) 895-4999
TELEPHONE/ FIBER COMPANY:	ARVIG PH: (888) 828-4988
BUILDING CODES:	2020 MINNESOTA BUILDING CODE (2018 IBC) 2020 MINNESOTA ELECTRICAL CODE (2017 NEC)
COUNTY:	REDWOOD COUNTY
JURISDICTION:	REDWOOD COUNTY

SITE ACQUISITION

NAME:	QUALTEK WIRELESS
ADDRESS:	6100 110TH ST W BLOOMINGTON, MN 55425 PH: (952)-944-1658, FAX: (925) 944-1506
SITE ACQUISITION PM:	JACQUELINE CASTRICHINI JCASTRICHINI@QUALTEKWIRELESS.COM (612) 358-3193
CONSTRUCTION PM:	NEXIUS - DARVONTE GREEN DARVONTE.GREEN@VELEX.COM (618) 447-0775
SITE ACQUISITION REPRESENTATIVE:	DAVE TROST DTROST@QUALTEKWIRELESS.COM

APPROVALS

AT&T CONSTRUCTION MGR.	DATE	ENGINEER	DATE
CONSTRUCTION MGR.	DATE	CONTRACTOR	DATE
PROPERTY OWNER	DATE	CONTRACTOR	DATE
REAL ESTATE	DATE	OPERATION	DATE
RF	DATE		

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FOR REFERENCE		
G-002 THRU Z-503	AMERICAN TOWER TOWER MODIFICATION DRAWINGS	

DESIGN TEAM

ARCHITECT/ENGINEER:	THE W-T GROUP, LLC 2675 PRATUM AVE HOFFMAN ESTATES, IL 60192 TEL: (224) 293-6333 FAX: (224) 293-6444
PROJECT MANAGER:	DAVID VAN LIESHOUT (847) 287-2165 David.VanLieshout@wtengineering.com

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PROFESSIONAL ENGINEER
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Print Name: Jeff Gutowsky
Signature:
Date: License # 43030

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T-1
TITLE SHEET

GENERAL REQUIREMENTS

A. PURPOSE AND INTENT

1. THE DRAWING AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED ON BOTH. SHOULD THERE BE ANY DISCREPANCIES BETWEEN REQUIREMENTS SHOWN IN BOTH, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

2. THE INTENTION OF THIS DOCUMENT IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.

B. CONFLICTS

1. VERIFY ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIAL OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS SHOWN ON PLANS. SUBMIT NOTICE OF ANY DISCREPANCY OR OTHERWISE TO AT&T FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

2. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS GOVERNING THE WORK.

C. CLEANING

1. KEEP THE SITE CLEAN OF ACCUMULATION OF WASTE AND RUBBISH CAUSED BY EMPLOYEES. AT THE COMPLETION OF THE WORK, REMOVE ALL WASTE AND NON-CONSTRUCTION MATERIAL, INCLUDING ALL CONTRACTOR TOOLS, SCAFFOLDING, AND SURPLUS MATERIAL AND LEAVE SITE CLEAN AND READY FOR USE.

D. CODES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING ALL LAWS, REGULATIONS, AND RULES PROMULGATED BY FEDERAL, STATE, AND LOCAL AUTHORITIES WITH JURISDICTION OVER THE SITES. THIS RESPONSIBILITY IS IN EFFECT REGARDLESS OF WHETHER THE LAW, ORDINANCE, REGULATION, OR RULE IS MENTIONED IN THESE SPECIFICATIONS.

E. LICENSING

1. CONTRACTOR SHALL HAVE AND MAINTAIN A VALID CONTRACTOR'S LICENSE FOR THE LOCATION IN WHICH THE WORK IS TO BE PERFORMED. FOR JURISDICTIONS THAT LICENSE INDIVIDUAL TRADES, THE TRADESMAN OR SUBCONTRACTOR PERFORMING THOSE TRADES SHALL BE LICENSED . RESEARCH AND COMPLY WITH THE LICENSING LAWS, PAY LICENSING FEES, AND SELECT AND INFORM SUBCONTRACTORS REGARDING THESE LAWS.

F. OSHA

1. FOLLOW ALL APPLICABLE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIONS AND STATE LAWS BASED IN THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT. THESE REGULATIONS INCLUDE, BUT ARE NOT LIMITED TO, REGULATIONS DEALING WITH TOWER CONSTRUCTION AND SAFETY, EXCAVATIONS AND TRENCHING, AND WORK IN CONFINED SPACES. ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES DURING CONSTRUCTION.

G. PHOTOS

1. PROVIDE PHOTOGRAPHIC EVIDENCE OF ALL FOUNDATION INSTALLATION, GROUNDING, AND TRENCHING AFTER PLACEMENT OF UTILITIES PRIOR TO BACKFILL.

H. BUILDING PERMITS

1. CONTRACTOR WILL SUBMIT CONSTRUCTION DOCUMENTS TO THE JURISDICTIONAL AUTHORITY FOR PLAN CHECK AND REVIEW. CONTRACTOR WILL SUBMIT LICENSING AND WORKMAN'S COMPENSATION INFORMATION TO THE JURISDICTION AS REQUIRED TO OBTAIN THE BUILDING PERMIT. CONTRACTOR SHALL COORDINATE AND SCHEDULE REQUIRED INSPECTIONS AND POST REQUIRED PERMITS AT THE JOB SITE. COMPLY WITH SPECIFIC PROJECT RELATED REQUESTS AND SUGGESTIONS MADE BY BUILDING INSPECTOR AND INFORM CONSTRUCTION MANAGER OF ANY SUCH WORK THAT MAY BE BEYOND THE SCOPE OF THE CONTRACT OR DEVIATE FROM THE CONSTRUCTION DOCUMENTS. AT&T WILL REIMBURSE THE CONTRACTOR FOR FEES, FOR PLAN REVIEW, BUILDING PERMIT, CONNECTIONS, AND INSPECTION. (INCLUDED IN THE BASE PROPOSAL.)

I. ZONING REGULATIONS AND CONDITIONAL USE PERMITS

1. CONTRACTOR WILL SUBMIT FOR AND OBTAIN ALL ZONING AND CONDITIONAL USE PERMITS. SOME USE PERMITS MAY HAVE SPECIFIC REQUIREMENTS FOR THE SITE RELATED TO CONSTRUCTION, SUCH AS NOISE REGULATIONS, HOURS OF WORK, ACCESS LIMITATIONS, ETC. THE CONSTRUCTION MANAGER WILL INFORM THE CONTRACTOR OF THESE REQUIREMENTS IN THE PRE-BID MEETING OR AS SHOWN IN THE CONSTRUCTION DOCUMENTS.

J. FAA PERMIT AND TOWER LIGHTING

1. REFER TO CONSTRUCTION DOCUMENTS AND CONSTRUCTION MANAGER FOR FAA AND STATE LIGHTING REQUIREMENTS. CONTRACTOR SHALL PROVIDE TEMPORARY FM APPROVED LIGHTING UNTIL PERMANENT LIGHTING IS OPERATIONAL.

K. TOWER SECURITY

1. IF REQUIRED, TOWER MUST BE FENCED, TEMPORARILY OR PERMANENTLY WITHIN 24 HOURS OF ERECTION. DO NOT ALLOW THE GATE ACCESSING THE TOWER AREA TO REMAIN OPEN OR UNATTENDED ANY TIME FOR ANY REASON. KEEP THE GATE CLOSED AND LOCKED WHEN NOT IN USE.

L. SITE CONTROL

1. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR CONTAINMENT OF SEDIMENT AND CONTROL OF EROSION AT THE SITE. ANY DAMAGE TO ADJACENT OR DOWNSTREAM PROPERTIES WILL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO AT&T.

2. THE CONTRACTOR IS TO MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES. DO NOT ALLOW WATER TO STAND OR POND. ANY DAMAGE TO SITE OR WORK ON THE SITE CAUSED BE INADEQUATE MAINTENANCE OF DRAINAGE PROVISIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND ANY COST ASSOCIATED WITH ANY REPAIRS FOR SUCH DAMAGE WILL BE AT THE CONTRACTORS EXPENSE.

3. ALL WASTE MATERIAL SHALL BE PROPERLY DISPOSED OF OFF-SITE OR AS DIRECTED BY THE CONSTRUCTION MANAGER AND IN ACCORDANCE WITH JURISDICTIONAL AUTHORITIES.

GENERAL NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND SPECIFICATIONS AND COORDINATE HIS WORK WITH THE WORK OF ALL OTHER CONTRACTORS TO ENSURE THAT WORK PROGRESSION IS NOT INTERRUPTED.

2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A NEAT AND ORDERLY SITE, YARD, AND GROUNDS. CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF-SITE ALL RUBBISH, WASTE MATERIALS, LITTER AND ALL FOREIGN SUBSTANCES. REMOVE PETROCHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS TO A SMOOTH EVEN-TEXTURED SURFACE.

3. THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE GROUND STRUCTURES AND/OR UTILITIES BELIEVED TO EXIST IN THE WORKING AREA. EXACT LOCATION OF WHICH MAY VARY FROM THE LOCATION INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATION OF SUCH PIPELINES, SUBSURFACE STRUCTURES, AND/OR UTILITIES IN THE AREA MAY BE SHOWN OR MAY NOT BE SHOWN AND IT SHALL BE HIS RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXCAVATION WORK. 48 HOURS BEFORE YOU DIG, DRILL OR BLAST, CALL LOCAL UTILITY LOCATOR COMPANY.

4. THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE OWNER OR THE OWNER'S REPRESENTATIVE.

5. THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.

6. THE CONTRACTOR SHALL RESTORE ALL DAMAGED, PUBLIC OR PRIVATE, PROPERTY TO AT LEAST AS GOOD OF CONDITION AS BEFORE DISTURBED AS DETERMINED BY THE OWNER OR OWNER'S REPRESENTATIVE.

7. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS.

8. THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE OWNER OR OWNER'S REPRESENTATIVE.

9. ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH OSHA REGULATIONS FOR CONSTRUCTION.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF THE WORK.

11. ALL UTILITY WORK INVOLVING CONNECTIONS TO EXISTING SYSTEMS SHALL BE COORDINATED WITH THE OWNER OR OWNER'S REPRESENTATIVE AND THE UTILITY OWNER BEFORE EACH AND EVERY CONNECTION TO EXISTING SYSTEMS IS MADE.

12. MAINTAIN FLOW FOR ALL EXISTING UTILITIES.

13. ALL SITE FILL SHALL MEET SELECTED FILL STANDARDS AS DEFINED BY THE OWNER OR OWNER'S REPRESENTATIVE ON THE DRAWINGS OR THE GEOTECHNICAL REPORT RECOMMENDATIONS.

14. CONTRACTOR TO GRADE ALL AREAS OF THE SITE TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING OR EQUIPMENT PAD AND THE TOWER.

15. IF NECESSARY THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING AND REGRADING ROADWAY AND ANY DISTURBED AREAS FOLLOWING INSTALLATION OF NEW UTILITIES.

16. NO COMMERCIAL MESSAGES TO BE DISPLAYED ON TOWER.

17. WATER AND SEWER SERVICES ARE NOT REQUIRED FOR THIS DEVELOPMENT.

18. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS UNLESS NOTED.

QUALTEK WIRELESS

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PROFESSIONAL ENGINEER

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Print Name: Jeff Gulowsky
Signature:
Date: License # 43030

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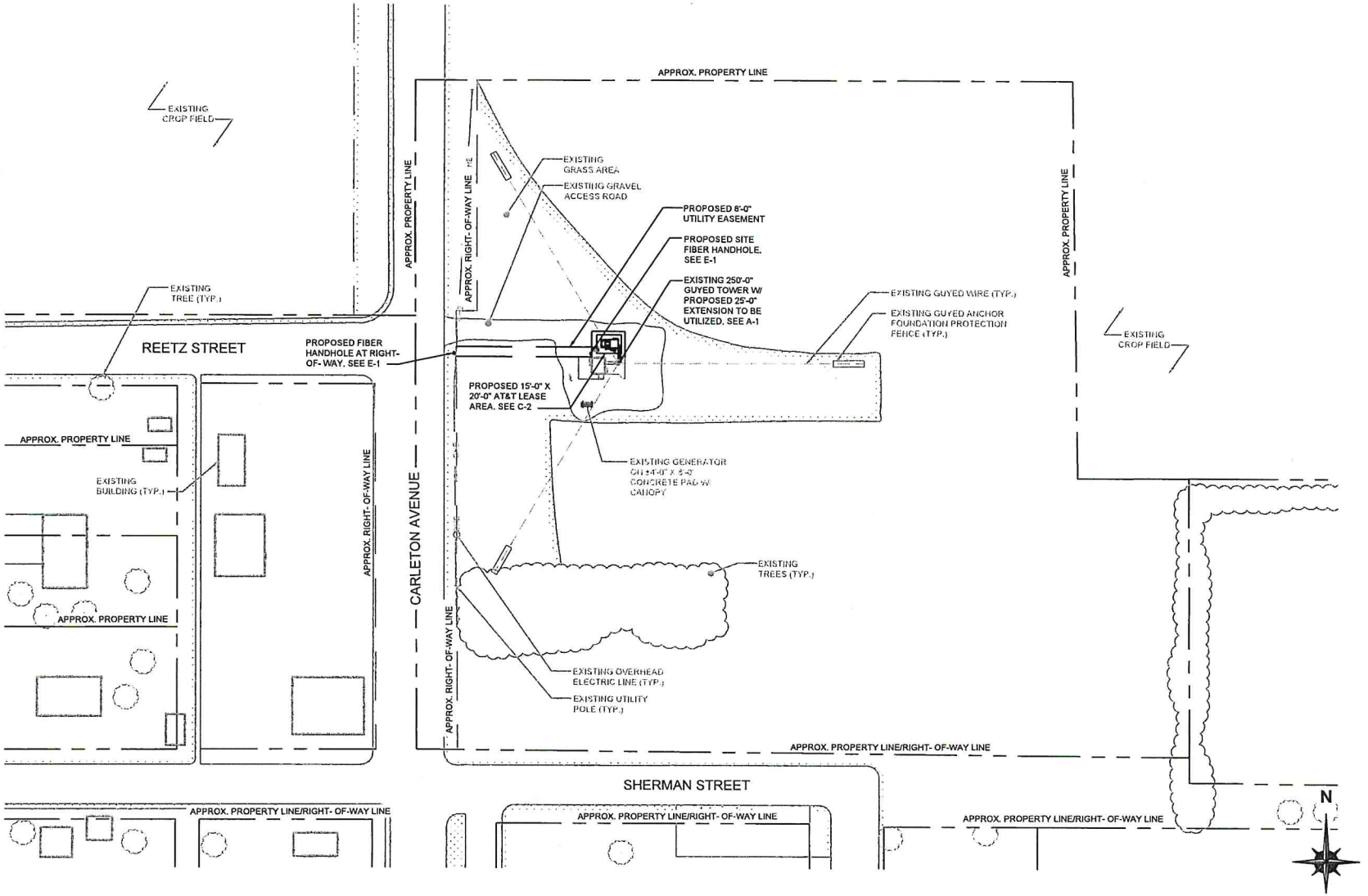
JOB:2002101T

N-1
GENERAL NOTES



OVERALL SITE PLAN

SCALE: 1" = 80'-0"

1

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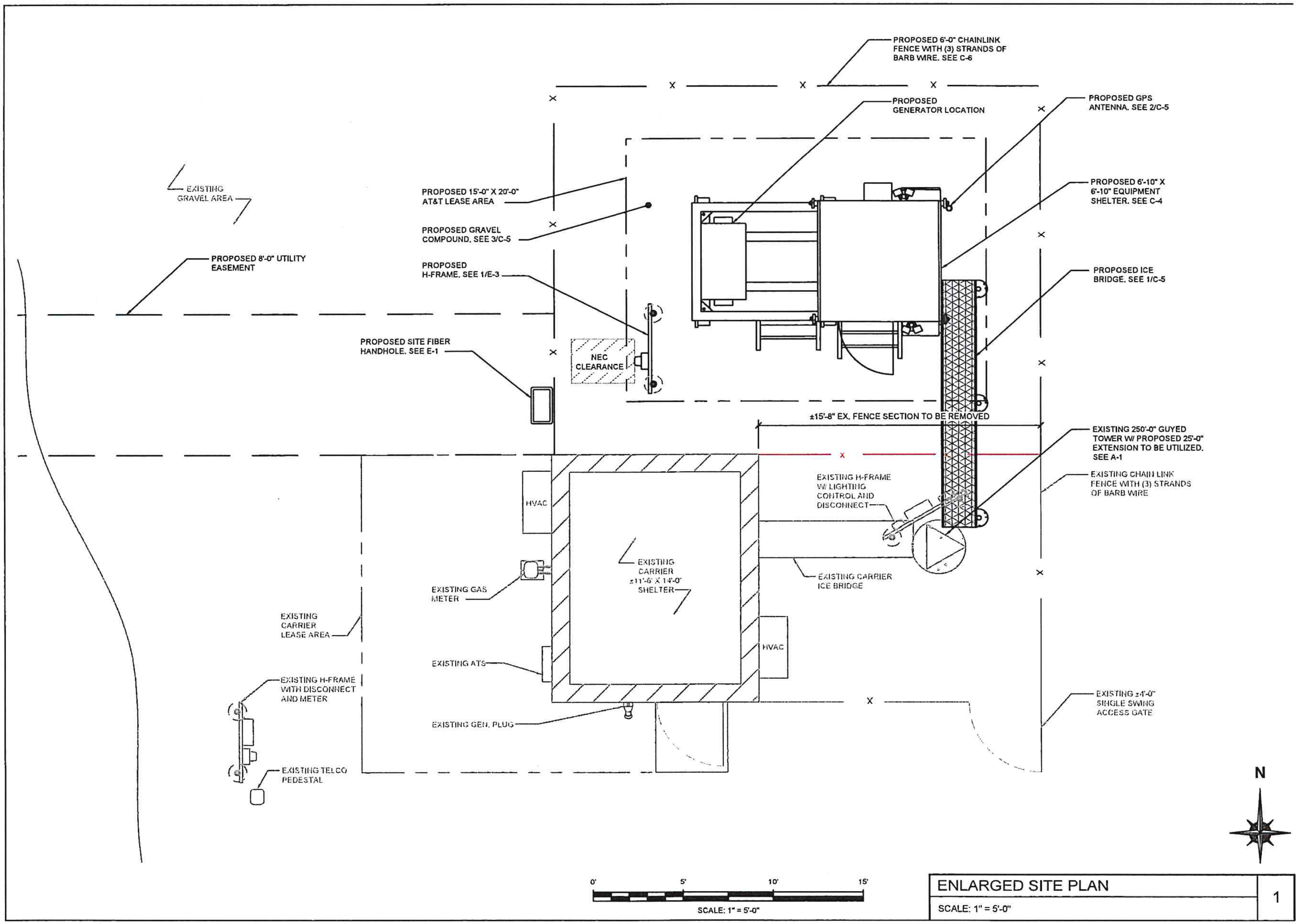
C-1
OVERALL SITE PLAN


PROPOSED 6'-0" CHAINLINK FENCE WITH (3) STRANDS OF BARB WIRE. SEE C-6
PROPOSED GENERATOR LOCATION
PROPOSED GPS ANTENNA. SEE 2/C-5
EXISTING GRAVEL AREA
PROPOSED 15'-0" X 20'-0" AT&T LEASE AREA
PROPOSED GRAVEL COMPOUND. SEE 3/C-5
PROPOSED 6'-10" X 6'-10" EQUIPMENT SHELTER. SEE C-4
PROPOSED 8'-0" UTILITY EASEMENT
PROPOSED H-FRAME. SEE 1/E-3
PROPOSED ICE BRIDGE. SEE 1/C-5
PROPOSED SITE FIBER HANDHOLE. SEE E-1
NEC CLEARANCE
±15'-8" EX. FENCE SECTION TO BE REMOVED
EXISTING 250'-0" GUYED TOWER W/ PROPOSED 25'-0" EXTENSION TO BE UTILIZED. SEE A-1
EXISTING H-FRAME W/ LIGHTING CONTROL AND DISCONNECT
EXISTING CHAIN LINK FENCE WITH (3) STRANDS OF BARB WIRE
HVAC
EXISTING CARRIER ±11'-6" X 14'-0" SHELTER
EXISTING GAS METER
EXISTING CARRIER ICE BRIDGE
EXISTING CARRIER LEASE AREA
HVAC
EXISTING ATS
EXISTING H-FRAME WITH DISCONNECT AND METER
EXISTING ±4'-0" SINGLE SWING ACCESS GATE
EXISTING GEN. PLUG
EXISTING TELCO PEDESTAL
N
0' 5' 10' 15'
SCALE: 1" = 5'-0"

ENLARGED SITE PLAN | 1

SCALE: 1" = 5'-0"

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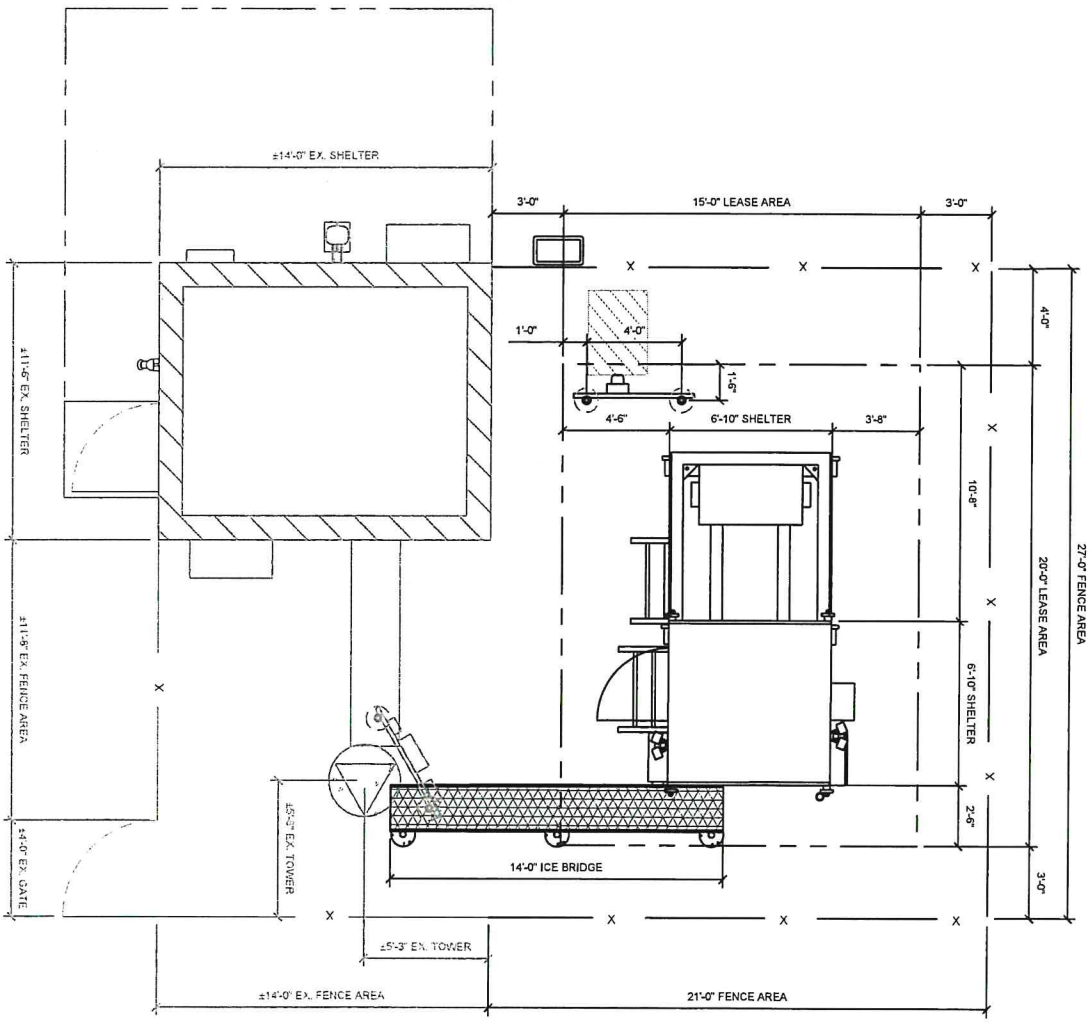
C-2
ENLARGED SITE PLAN



GEOMETRIC PLAN

SCALE: 1" = 5'-0"

1

N

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C-3
GEOMETRIC PLAN

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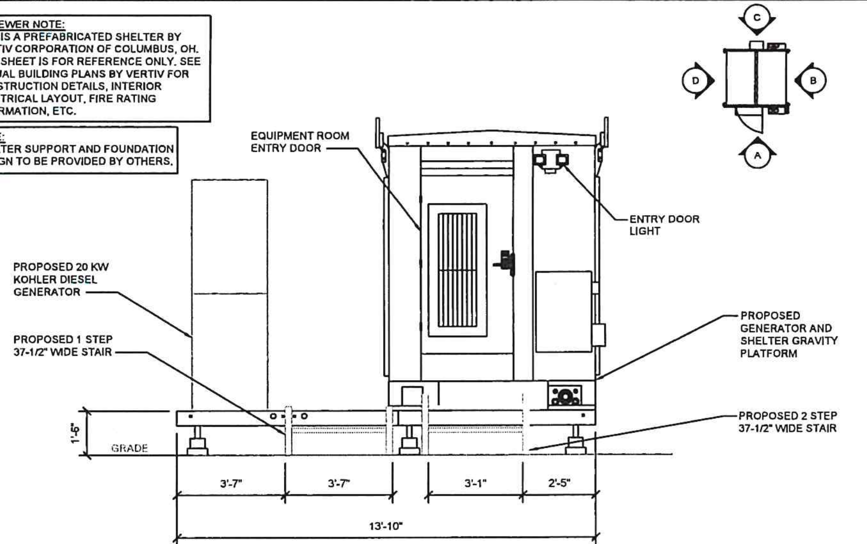
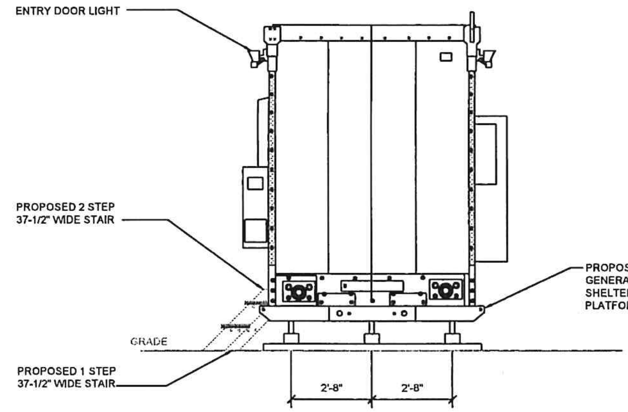
REVIEWER NOTE:
THIS IS A PREFABRICATED SHELTER BY VERTIV CORPORATION OF COLUMBUS, OH. THIS SHEET IS FOR REFERENCE ONLY. SEE ACTUAL BUILDING PLANS BY VERTIV FOR CONSTRUCTION DETAILS, INTERIOR ELECTRICAL LAYOUT, FIRE RATING INFORMATION, ETC.

NOTE:
SHELTER SUPPORT AND FOUNDATION DESIGN TO BE PROVIDED BY OTHERS.



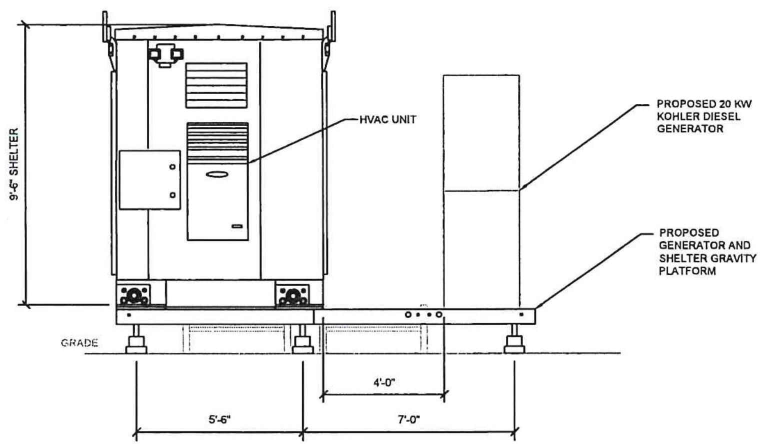
"A" SHELTER ELEVATION | 1

SCALE: 1/4" = 1'-0"



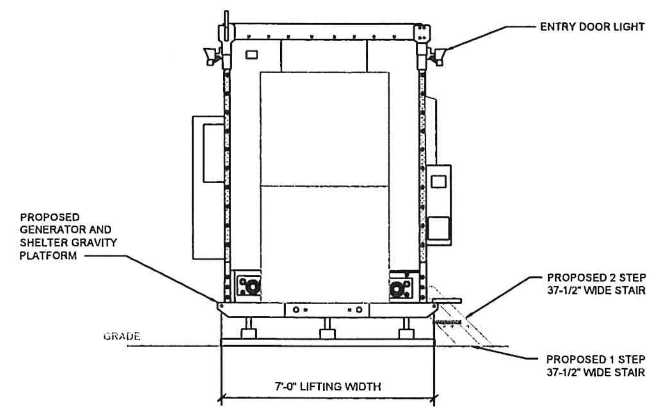
"B" SHELTER ELEVATION | 2

SCALE: 1/4" = 1'-0"



"C" SHELTER ELEVATION | 3

SCALE: 1/4" = 1'-0"



"D" SHELTER ELEVATION | 4

SCALE: 1/4" = 1'-0"

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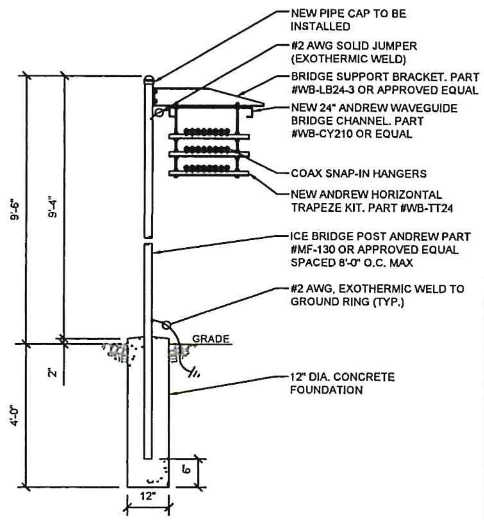
C-4
SHELTER ELEVATIONS

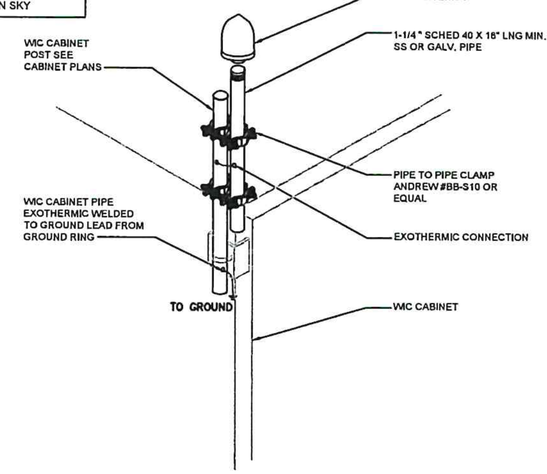


NEW PIPE CAP TO BE INSTALLED
#2 AWG SOLID JUMPER (EXOTHERMIC WELD)
BRIDGE SUPPORT BRACKET. PART #WB-LB24-3 OR APPROVED EQUAL
NEW 24" ANDREW WAVEGUIDE BRIDGE CHANNEL. PART #WB-CY210 OR EQUAL
COAX SNAP-IN HANGERS
NEW ANDREW HORIZONTAL TRAPEZE KIT. PART #WB-TT24
ICE BRIDGE POST ANDREW PART #MF-130 OR APPROVED EQUAL SPACED 8'-0" O.C. MAX
#2 AWG, EXOTHERMIC WELD TO GROUND RING (TYP.)
GRADE
12" DIA. CONCRETE FOUNDATION
9'-6"
9'-4"
2'
4'-0"
6"
12"

ICE BRIDGE DETAIL

SCALE: NONE

1

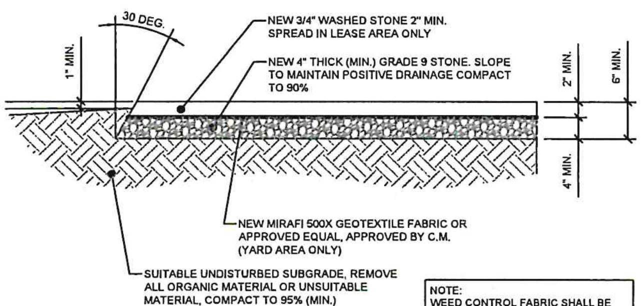


NOTE:
CONTRACTOR TO ENSURE GPS ANTENNA HAS AN UNOBSTRUCTED VIEW OF THE SOUTHERN SKY
GPS ANTENNA
1-1/4" SCHED 40 X 18" LNG MIN. SS OR GALV. PIPE
W/C CABINET POST SEE CABINET PLANS
PIPE TO PIPE CLAMP ANDREW #BB-S10 OR EQUAL
W/C CABINET PIPE EXOTHERMIC WELDED TO GROUND LEAD FROM GROUND RING
EXOTHERMIC CONNECTION
TO GROUND
W/C CABINET

GPS ANTENNA DETAIL

SCALE: NONE

2



30 DEG.
1" MIN.
NEW 3/4" WASHED STONE 2" MIN. SPREAD IN LEASE AREA ONLY
NEW 4" THICK (MIN.) GRADE 9 STONE. SLOPE TO MAINTAIN POSITIVE DRAINAGE COMPACT TO 90%
2" MIN.
6" MIN.
4" MIN.
NEW MIRAFI 500X GEOTEXTILE FABRIC OR APPROVED EQUAL, APPROVED BY C.M. (YARD AREA ONLY)
SUITABLE UNDISTURBED SUBGRADE, REMOVE ALL ORGANIC MATERIAL OR UNSUITABLE MATERIAL, COMPACT TO 95% (MIN.)

NOTE:
WEED CONTROL FABRIC SHALL BE USED UNDER ALL AREAS OF THE YARD.

YARD PAVEMENT DETAIL

SCALE: NONE

3

NOT USED

SCALE: NONE

4

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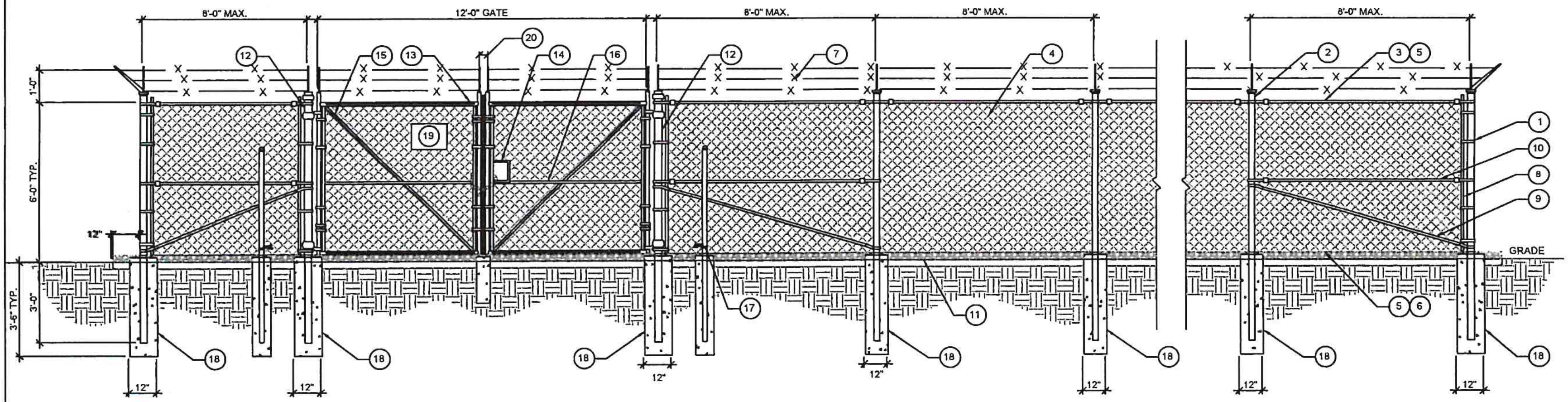
CHECK: DVL
DRAWN: APK
JOB: 2002101T

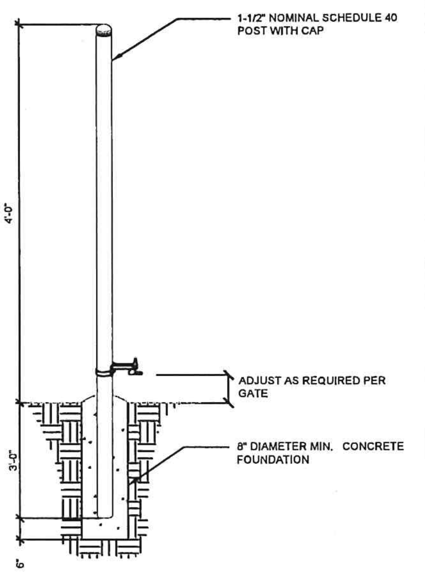
C-5
ICE BRIDGE & YARD DETAILS



FENCE DETAIL

SCALE: NONE

1



DUCKBILL GATE STOP

SCALE: NONE

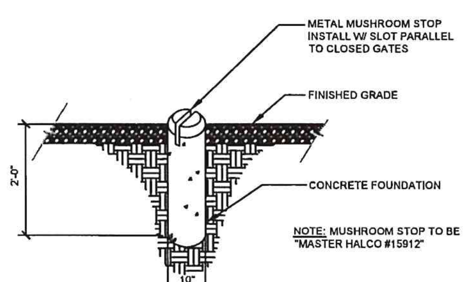
2

REFERENCE NOTES:

1. CORNER, END OR PULL POST: 3" NOMINAL SCHEDULE 40 PIPE.
2. LINE POST: 2-1/2" NOMINAL SCHEDULE 40 PIPE, PER ASTM F1083. LINE POSTS SHALL BE EQUALLY SPACED AT MAXIMUM 8'-0" O.C. (2-7/8" O.D.)
3. TOP RAIL & BRACE RAIL: 1-1/2" NOMINAL PIPE, PER ASTM F1083.
4. FABRIC: 9 GAUGE CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM A392. GROUND CLEARANCE TO BE 2" MAX.
5. TIE WIRE: MINIMUM 11 GAUGE GALVANIZED STEEL. A SINGLE WRAP OF FABRIC TIE AT POSTS AND RAILS. BY HOG RINGS SPACED MAXIMUM 24" INTERVALS AT TENSION WIRE .
6. TENSION WIRE: 9 GAUGE GALVANIZED STEEL.
7. BARBED WIRE: DOUBLE STRAND 12 GAUGE TWISTED WIRE TO MATCH WITH FABRIC. 14 GAUGE 4 POINT BARBS SPACED APPROXIMATELY 5" ON CENTER. 45 DEGREE ARM ANGLED OUTWARD.
8. STRETCHER BAR: 3/16" X 3/4" X HEIGHT OF FENCE.
9. 3/8" DIAGONAL ROD WITH GALVANIZED STEEL TURNBUCKLE OR DIAGONAL THREADED ROD.
10. CORNER POST BRACE: 1-1/4" NOMINAL PIPE EACH CORNER EACH WAY.
11. FINISH GRADE SHALL BE UNIFORM, LEVEL AND EXTEND 12" BEYOND FENCE BOUNDARY.
12. GATE POST: 3-1/2" NOMINAL SCHEDULE 40 PIPE, FOR GATE WIDTHS UP THRU 10 FEET OR 20 FEET FOR DOUBLE SWING GATE, PER ASTM F1083.
13. GATE FRAME: 1-1/2" NOMINAL PIPE, PER ASTM F1083.
14. 4" X 6" HANDHOLD WITH 3/4" CHAIN AND LOCKS, WELD CHAIN TO THE GATE LEAF WITHOUT THE HANDHOLD.
15. GATE DIAGONAL: GALVANIZED STEEL 1-1/2" NOMINAL PIPE.
16. GATE FRAME BRACE: 1-5/8" NOMINAL PIPE.
17. DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD PRIOR TO INSTALLATION.
18. POST CONCRETE FOUNDATION (2000 PSI).
19. SIGNAGE PROVIDED BY OWNER.
20. GAP BETWEEN GATES: 1" MIN. / 3" MAX.

GENERAL NOTES:

1. INSTALL FENCING PER ASTM F567.
2. INSTALL SWING GATES PER ASTM F900.
3. COMPLY WITH LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT, IF REQUIRED.
4. POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. ALL PIPE TO BE 1-1/4" NOMINAL SCHEDULE 40 GALVANIZED MINIMUM (HOT DIP, ASTM F1083 GRADE "A" STEEL). ALL GATE FRAMES SHALL BE WELDED. ALL WELDING SHALL BE COATED WITH (3) COATS OF COLD GALVANIZING (OR EQUAL).
5. ALL OPEN POSTS SHALL HAVE END-CAPS.
6. USE GALVANIZED HOG-RING WIRE TO MOUNT ALL SIGNS.
7. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE FABRIC.



NOTE: MUSHROOM STOP TO BE "MASTER HALCO #15912"

MUSHROOM GATE STOP

SCALE: NONE

3

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Signature:

Date: License # 43030

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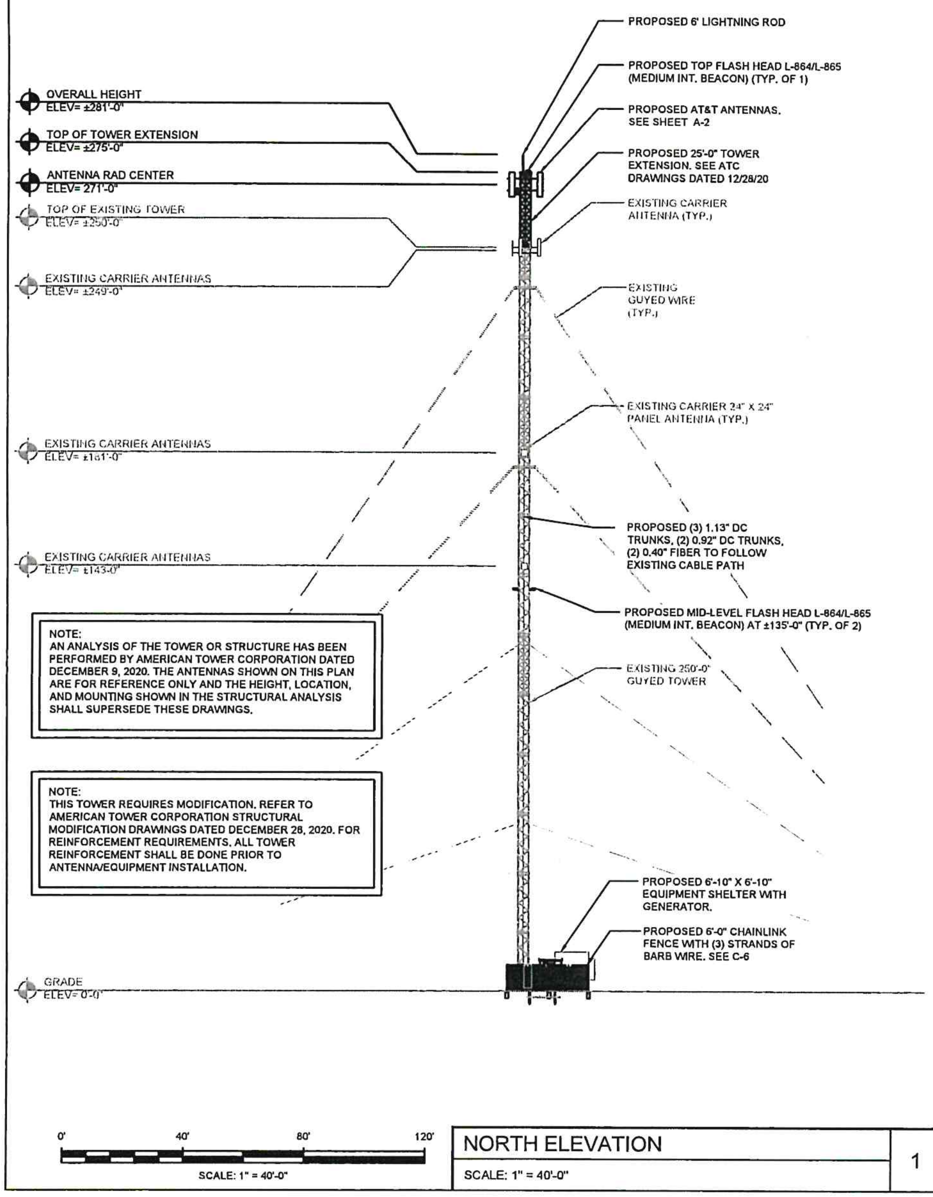
CHECK:DVL
DRAWN:APK
JOB:2002101T

C-6
FENCE DETAILS

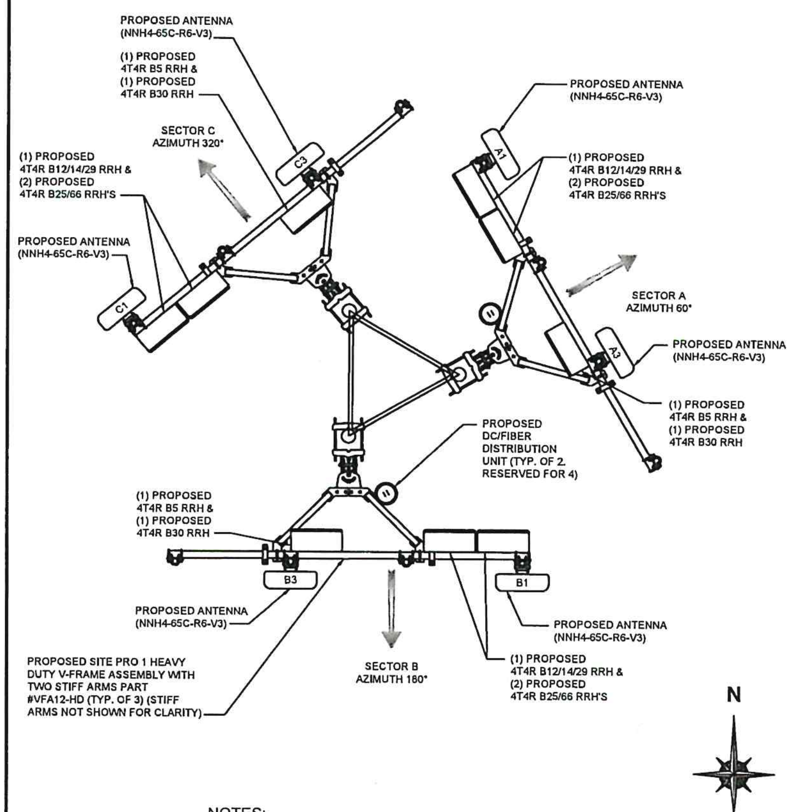

PROPOSED 6' LIGHTNING ROD
PROPOSED TOP FLASH HEAD L-864/L-865 (MEDIUM INT. BEACON) (TYP. OF 1)
PROPOSED AT&T ANTENNAS. SEE SHEET A-2
PROPOSED 25'-0" TOWER EXTENSION. SEE ATC DRAWINGS DATED 12/28/20
EXISTING CARRIER ANTENNA (TYP.)
EXISTING GUYED WIRE (TYP.)
EXISTING CARRIER 24" X 24" PANEL ANTENNA (TYP.)
PROPOSED (3) 1.13" DC TRUNKS, (2) 0.92" DC TRUNKS, (2) 0.40" FIBER TO FOLLOW EXISTING CABLE PATH
PROPOSED MID-LEVEL FLASH HEAD L-864/L-865 (MEDIUM INT. BEACON) AT ±135'-0" (TYP. OF 2)
EXISTING 250'-0" GUYED TOWER
PROPOSED 6'-10" X 6'-10" EQUIPMENT SHELTER WITH GENERATOR.
PROPOSED 6'-0" CHAINLINK FENCE WITH (3) STRANDS OF BARB WIRE. SEE C-6
OVERALL HEIGHT ELEV= ±281'-0"
TOP OF TOWER EXTENSION ELEV= ±275'-0"
ANTENNA RAD CENTER ELEV= 271'-0"
TOP OF EXISTING TOWER ELEV= ±250'-0"
EXISTING CARRIER ANTENNAS ELEV= ±249'-0"
EXISTING CARRIER ANTENNAS ELEV= ±161'-0"
EXISTING CARRIER ANTENNAS ELEV= ±143'-0"
GRADE ELEV= 0'-0"
0' 40' 80' 120'
SCALE: 1" = 40'-0"

NOTE:
AN ANALYSIS OF THE TOWER OR STRUCTURE HAS BEEN PERFORMED BY AMERICAN TOWER CORPORATION DATED DECEMBER 9, 2020. THE ANTENNAS SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND THE HEIGHT, LOCATION, AND MOUNTING SHOWN IN THE STRUCTURAL ANALYSIS SHALL SUPERSEDE THESE DRAWINGS.

NOTE:
THIS TOWER REQUIRES MODIFICATION. REFER TO AMERICAN TOWER CORPORATION STRUCTURAL MODIFICATION DRAWINGS DATED DECEMBER 28, 2020. FOR REINFORCEMENT REQUIREMENTS. ALL TOWER REINFORCEMENT SHALL BE DONE PRIOR TO ANTENNA/EQUIPMENT INSTALLATION.

NORTH ELEVATION 1

SCALE: 1" = 40'-0"


PROPOSED ANTENNA (NNH4-65C-R6-V3)
(1) PROPOSED 4T4R B5 RRH & (1) PROPOSED 4T4R B30 RRH
SECTOR C AZIMUTH 320°
(1) PROPOSED 4T4R B12/14/29 RRH & (2) PROPOSED 4T4R B25/66 RRH'S
PROPOSED ANTENNA (NNH4-65C-R6-V3)
C3
C1
PROPOSED ANTENNA (NNH4-65C-R6-V3)
A1
(1) PROPOSED 4T4R B12/14/29 RRH & (2) PROPOSED 4T4R B25/66 RRH'S
SECTOR A AZIMUTH 60°
PROPOSED ANTENNA (NNH4-65C-R6-V3)
A3
(1) PROPOSED 4T4R B5 RRH & (1) PROPOSED 4T4R B30 RRH
PROPOSED DC/FIBER DISTRIBUTION UNIT (TYP. OF 2. RESERVED FOR 4)
(1) PROPOSED 4T4R B5 RRH & (1) PROPOSED 4T4R B30 RRH
B3
B1
PROPOSED ANTENNA (NNH4-65C-R6-V3)
PROPOSED ANTENNA (NNH4-65C-R6-V3)
PROPOSED SITE PRO 1 HEAVY DUTY V-FRAME ASSEMBLY WITH TWO STIFF ARMS PART #VFA12-HD (TYP. OF 3) (STIFF ARMS NOT SHOWN FOR CLARITY)
SECTOR B AZIMUTH 180°
(1) PROPOSED 4T4R B12/14/29 RRH & (2) PROPOSED 4T4R B25/66 RRH'S
N

NOTES:

1. ALL RF CABLE JUMPERS SHALL USE PRE-MADE JUMPERS WITH PRE-INSTALLED CONNECTORS ON BOTH ENDS.
2. ALL RF JUMPERS SHALL BE LDF4 OR JUMPERS FROM APPROVED RF JUMPER CABLE MANUFACTURERS.
3. RF JUMPER CONNECTORS SHALL BE INSTALLED WITH PROPER TORQUE AND WEATHERPROOFING.
4. JUMPERS SHALL HAVE RF SWEEP PERFORMED.
5. ALL FIBER CABLES SHALL BE OF THE SAME LENGTH FROM THE FIBER/DC SURGE PROTECTION BOX TO EACH RRH. ANY EXCESS FIBER SHOULD BE SPOOLED IN THE FIBER/DC SURGE PROTECTIONS BOX.
6. JUMPERS SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING 3 FEET.
7. DRAWING IS FOR REFERENCE ONLY. ROUTING IS DIAGRAMMATIC.

ANTENNA PLAN 2

SCALE: NONE

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DRAWN:APK
JOB:2002101T

A-1
TOWER ELEVATION & ANTENNA PLAN

COLOR CODE NOTES:

1. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) WRAPS OF TAPE

2. ALL COLOR BANDS INSTALLED AT THE TOWER TOP SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACING BETWEEN EACH COLOR

3. ALL COLOR BANDS INSTALLED AT OR NEAR THE GROUND MAY BE ONLY 3/4" WIDE. EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS

4. EACH MAIN COAX SHALL COLOR CODED WITH (1) SET OF 3" BANDS EAR THE TOP-JUMPER CONNECTION AND WITH 3/4" COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING

5. ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" BANDS ON EACH AND OF THE BOTTOM JUMPER

6. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE

7. EACH COLOR BAND SHALL HAVE A MINIMUM OF (3) WRAPS AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING

8. X-POLE ANTENNAS SHOULD USE "XX-1" FOR THE "+45" PORT, "XX-2: FOR THE "-45" PORT

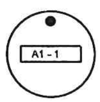
9. COLORBAND #4 REFERS TO THE FREQUENCY BAND: ORANGE=850, VIOLET=1900, USED ON JUMPERS ONLY

10. RF FEEDLINE SHALL BE IDENTIFIED WITH A METAL TAG (STAINLESS OR BRASS) AND STAMPED WITH THE SECTOR, ANTENNA POSITION AND CABLE NUMBER.

11. ANTENNAS MUST BE IDENTIFIED USING THE SECTOR LETTER AND ANTENNA NUMBER, WITH A BLACK MARKER PRIOR TO INSTALLATION

TAPE	TAG	CABLE MARKING LOCATIONS TABLE
X		LOCATION
X		EACH TOP JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS
X		EACH MAIN COAX SHALL BE COLOR CODED (1) SET OF 3" WIDE BANDS NEAR THE TOP JUMPER CONNECTION AND WITH THE (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING ENTERING THE BTS OR TRANSMITTER BUILDING
	X	MARKING TAGS SHALL BE ATTACHED AT CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER
X		ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

FIGURE 1: CABLE MARKING TAGS



TO PROVIDE ADDITIONAL IDENTIFICATION RF CABLES SHALL BE IDENTIFIED WITH A METAL TAG MADE OF STAINLESS STEEL OR BRASS AND STAMPED WITH THE SECTOR, ANTENNA POSITION, AND CABLE NUMBER. THE ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE

THESE DRAWINGS ARE PREPARED BASED ON RFDS DATED: 02/17/21
REVISION: 1.00
GENERAL CONTRACTOR TO VERIFY AND INCORPORATE MOST RECENT VERSION OF RFDS WITH AT&T PRIOR TO CONSTRUCTION.

SECTOR	ANTENNA NUMBER	TECHNOLOGY	TOP & BOTTOM JUMPER COLOR	COAX ID	RRH MODEL	ANTENNA VENDOR	ANTENNA MODEL	AZIMUTH	ELECTRICAL DOWNTILT	MECHANICAL DOWNTILT	ANTENNA RAD	ANTENNA TIP HEIGHT	FEEDER TYPE	FEEDER LENGTH
A	A1	LTE 700 LTE AWS LTE 1900	RED-WHITE-SLATE RED-WHITE-BROWN	A1-1 A1-2	4T4R B12/14/29 370W AHLBBA 4T4R B25/66 320W AHFIB 4T4R B25/66 320W AHFIB	COMMSCOPE	NNH4-65C-R6-V3	60°	2°, 2° 2°, 2°	0	271'-0"	275'-0"	FIBER & DC	±325'-0"
	A2	- -	- -	- -	-	-	-	-	- -	-				
	A3	LTE 850/5G 850 LTE WCS	RED-VIOLET-SLATE RED-VIOLET-BROWN	A4-1 A4-2	4T4R B5 160W AHCA 4T4R B30 100W AHNA	COMMSCOPE	NNH4-65C-R6-V3	60°	2°, 2° 2°, 2°	0				
	A4	- -	- -	- -	-	-	-	-	- -	-				
B	B1	LTE 700 LTE AWS LTE 1900	BLUE-WHITE-SLATE BLUE-WHITE-BROWN	B1-1 B1-2	4T4R B12/14/29 370W AHLBBA 4T4R B25/66 320W AHFIB 4T4R B25/66 320W AHFIB	COMMSCOPE	NNH4-65C-R6-V3	180°	2°, 2° 2°, 2°	0				
	B2	- -	- -	- -	-	-	-	-	- -	-				
	B3	LTE 850/5G 850 LTE WCS	BLUE-VIOLET-SLATE BLUE-VIOLET-BROWN	B4-1 B4-2	4T4R B5 160W AHCA 4T4R B30 100W AHNA	COMMSCOPE	NNH4-65C-R6-V3	180°	2°, 2° 2°, 2°	0				
	B4	- -	- -	- -	-	-	-	-	- -	-				
C	C1	LTE 700 LTE AWS LTE 1900	GREEN-WHITE-SLATE GREEN-WHITE-BROWN	C1-1 C1-2	4T4R B12/14/29 370W AHLBBA 4T4R B25/66 320W AHFIB 4T4R B25/66 320W AHFIB	COMMSCOPE	NNH4-65C-R6-V3	320°	2°, 2° 2°, 2°	0				
	C2	- -	- -	- -	-	-	-	-	- -	-				
	C3	LTE 850/5G 850 LTE WCS	GREEN-VIOLET-SLATE GREEN-VIOLET-BROWN	C4-1 C4-2	4T4R B5 160W AHCA 4T4R B30 100W AHNA	COMMSCOPE	NNH4-65C-R6-V3	320°	2°, 2° 2°, 2°	0				
	C4	- -	- -	- -	-	-	-	-	- -	-				

ANTENNA INFORMATION CHART

SCALE: NONE

1

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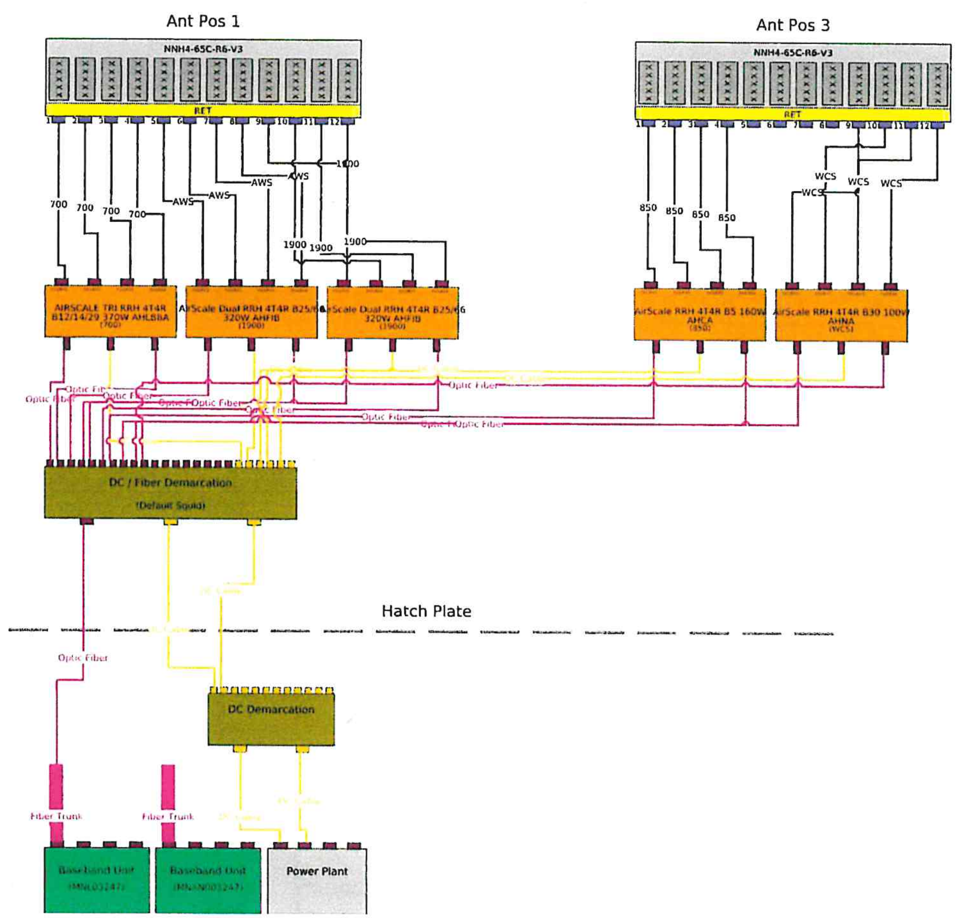
A-2
ANTENNA INFORMATION CHART



PLUMBING DIAGRAM	1
SCALE: NONE	

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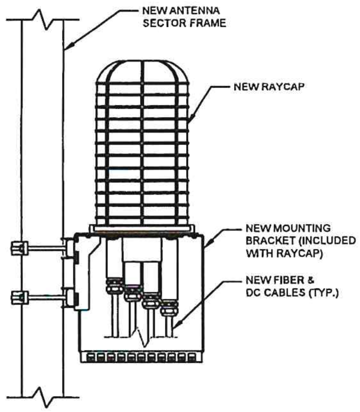
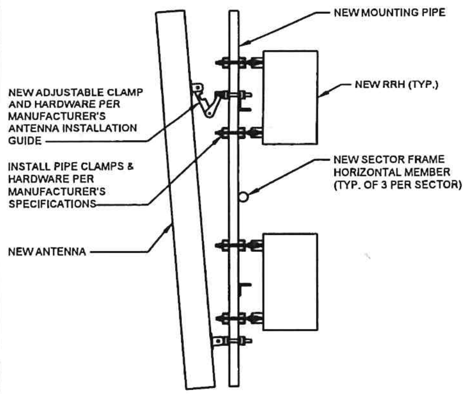
A-3
ANTENNA PLUMBING DIAGRAM



RAYCAP MOUNTING DETAIL

SCALE: NONE

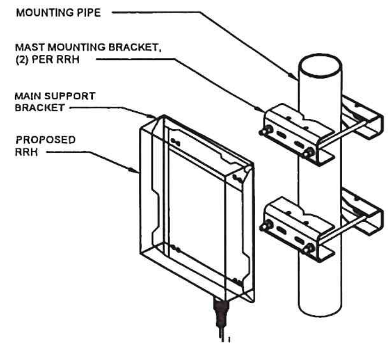
1



ANTENNA MOUNT

SCALE: NONE

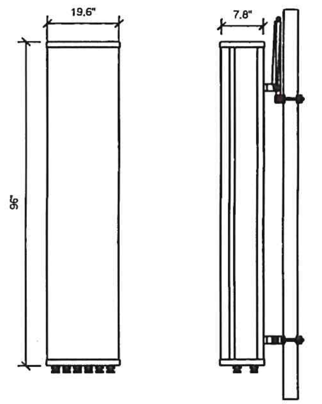
2



RRH MOUNTING DETAIL

SCALE: NONE

3



FRONT VIEW | SIDE VIEW

MAKE:	COMMSCOPE
MODEL:	NNH4-65C-R6-V3
DIMENSIONS, HxWxD:	96"x19.6"x7.8"
ANTENNA WEIGHT:	102.1 lbs

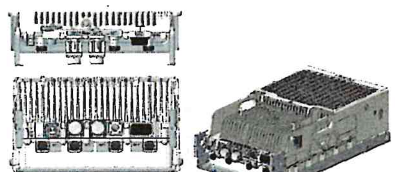
ANTENNA DETAIL

SCALE: NONE

4

	Downlink EARFCN	Downlink Frequency (MHz)	LTE Channel Bandwidth 5 MHz	10 MHz
Band 12 (Ant 1, 2, 3, 4)	5010	729.0	Band Edge	Band Edge
	......			
	5035	731.5	Bottom Ch	
	 5060	734.0		Bottom Ch
	......			
	5085	736.5	Middle Ch	Middle Ch
	......			
	5110	739.0		Top Channel
	5135	741.5	Top Channel	
	......			
	5160	744.0	Band Edge	Band Edge

	Downlink EARFCN	Downlink Frequency (MHz)	LTE Channel Bandwidth 5 MHz	10 MHz
Band 14 (Ant 1, 2, 3, 4)	5280	758.0	Band Edge	Band Edge
	 5305	760.5	Bottom Ch	
	 5330	763.0	Middle Ch	Bottom Ch Middle Ch Top Channel
	......			
	5355	765.5	Top Channel	
	...			
	5380	768.0	Band Edge	Band Edge

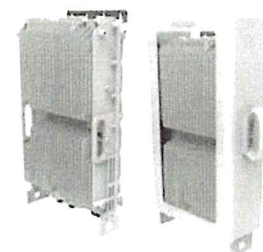


	Downlink EARFCN	Downlink Frequency (MHz)	LTE Channel Bandwidth 5 MHz	10 MHz
AHLBBA Band 29 (Ant 1, 4)	9670	716.0	Band Edge	Band Edge
	 9695	720.5	Bottom Channel	
	......			
	9720	723.0	Middle Channel	Bottom Ch Middle Ch Top Channel
	9745	725.5	Top Channel	
	......			
	9770	728.0	Band Edge	Band Edge

B14/12/29 RRH

SCALE: NONE

5



AHFIB Airscale Dual RRH 4T4R B25/B66 320W

[illegible]

B25/B66 RRH

SCALE: NONE

6

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Print Name: Jeff Gulowsky
Signature:
Date: License #49330

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1	REVISIONS	05/12/21	APK

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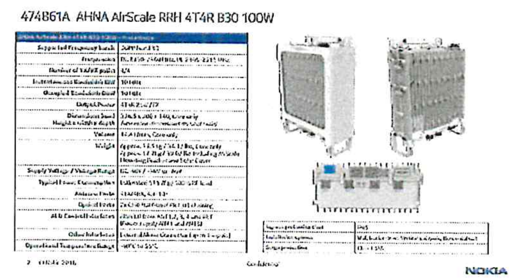
ACCESSIBILITY CONSULTING \ STRUCTURAL

CHECK:DVL
DRAWN:APK
JOB:2002101T

A-4
EQUIPMENT INFORMATION

B5 RRH	1
SCALE: NONE	



B30 RRH	2
SCALE: NONE	

NOT USED	3
SCALE: NONE	

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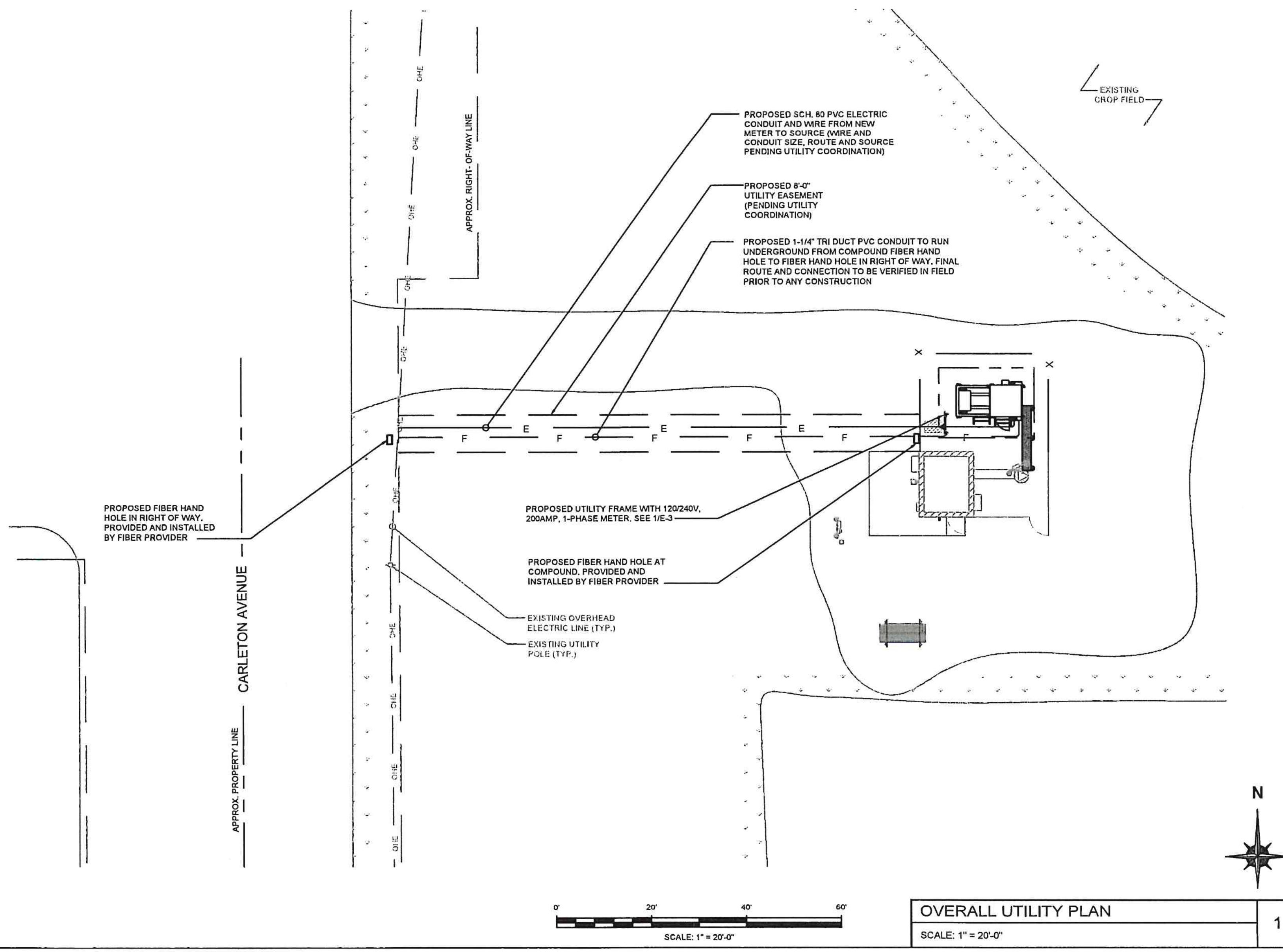
A-5
EQUIPMENT INFORMATION



PROPOSED SCH. 80 PVC ELECTRIC CONDUIT AND WIRE FROM NEW METER TO SOURCE (WIRE AND CONDUIT SIZE, ROUTE AND SOURCE PENDING UTILITY COORDINATION)
PROPOSED 8'-0" UTILITY EASEMENT (PENDING UTILITY COORDINATION)
PROPOSED 1-1/4" TRI DUCT PVC CONDUIT TO RUN UNDERGROUND FROM COMPOUND FIBER HAND HOLE TO FIBER HAND HOLE IN RIGHT OF WAY. FINAL ROUTE AND CONNECTION TO BE VERIFIED IN FIELD PRIOR TO ANY CONSTRUCTION
EXISTING CROP FIELD
APPROX. RIGHT- OF-WAY LINE
PROPOSED FIBER HAND HOLE IN RIGHT OF WAY. PROVIDED AND INSTALLED BY FIBER PROVIDER
PROPOSED UTILITY FRAME WITH 120/240V, 200AMP, 1-PHASE METER. SEE 1/E-3
PROPOSED FIBER HAND HOLE AT COMPOUND. PROVIDED AND INSTALLED BY FIBER PROVIDER
EXISTING OVERHEAD ELECTRIC LINE (TYP.)
EXISTING UTILITY POLE (TYP.)
CARLETON AVENUE
APPROX. PROPERTY LINE
OHE
E
F
N
0'
20'
40'
60'
SCALE: 1" = 20'-0"

OVERALL UTILITY PLAN

SCALE: 1" = 20'-0"

1

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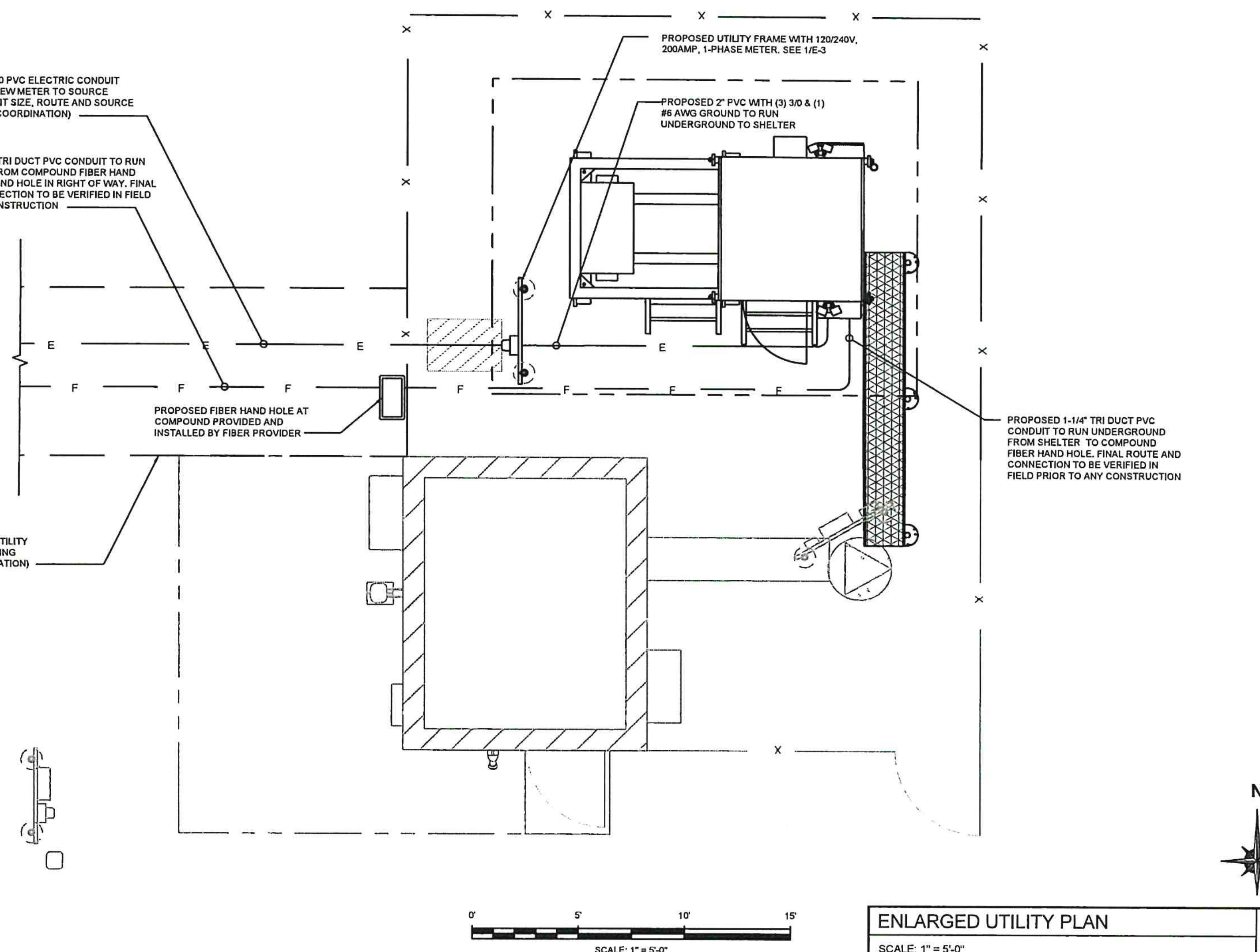
E-1
OVERALL UTILITY PLAN

VOLTAGE DROP			
FROM METER TO SHELTER			
LENGTH OF RUN	WIRE SIZE	VOLTAGE DROP (VOLTS)	PERCENTAGE OF VOLTAGE
25'-0"	(1) RUN OF (3) 3/0 AWG	0.85V	0.36%



PROPOSED SCH. 80 PVC ELECTRIC CONDUIT AND WIRE FROM NEW METER TO SOURCE (WIRE AND CONDUIT SIZE, ROUTE AND SOURCE PENDING UTILITY COORDINATION)
PROPOSED 1-1/4" TRI DUCT PVC CONDUIT TO RUN UNDERGROUND FROM COMPOUND FIBER HAND HOLE TO FIBER HAND HOLE IN RIGHT OF WAY. FINAL ROUTE AND CONNECTION TO BE VERIFIED IN FIELD PRIOR TO ANY CONSTRUCTION
PROPOSED FIBER HAND HOLE AT COMPOUND PROVIDED AND INSTALLED BY FIBER PROVIDER
PROPOSED 8'-0" UTILITY EASEMENT (PENDING UTILITY COORDINATION)
PROPOSED UTILITY FRAME WITH 120/240V, 200AMP, 1-PHASE METER. SEE 1/E-3
PROPOSED 2" PVC WITH (3) 3/0 & (1) #6 AWG GROUND TO RUN UNDERGROUND TO SHELTER
PROPOSED 1-1/4" TRI DUCT PVC CONDUIT TO RUN UNDERGROUND FROM SHELTER TO COMPOUND FIBER HAND HOLE. FINAL ROUTE AND CONNECTION TO BE VERIFIED IN FIELD PRIOR TO ANY CONSTRUCTION
E
F
X
N
0'
5'
10'
15'
SCALE: 1" = 5'-0"

ENLARGED UTILITY PLAN

SCALE: 1" = 5'-0"

1

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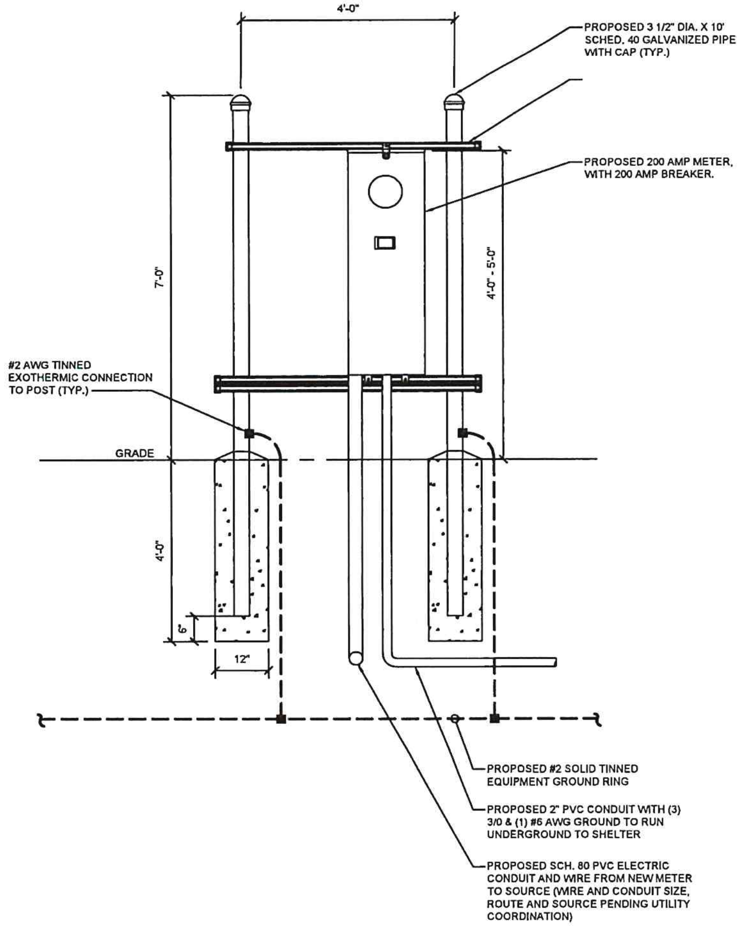
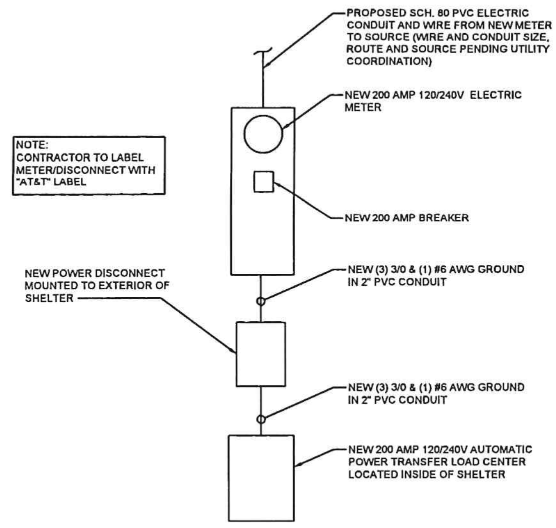
E-2

ENLARGED UTILITY PLAN


4'-0"
PROPOSED 3 1/2" DIA. X 10' SCHED. 40 GALVANIZED PIPE WITH CAP (TYP.)
PROPOSED 200 AMP METER, WITH 200 AMP BREAKER.
7'-0"
4'-0" - 5'-0"
#2 AWG TINNED EXOTHERMIC CONNECTION TO POST (TYP.)
GRADE
4'-0"
6"
12"
PROPOSED #2 SOLID TINNED EQUIPMENT GROUND RING
PROPOSED 2" PVC CONDUIT WITH (3) 3/0 & (1) #6 AWG GROUND TO RUN UNDERGROUND TO SHELTER
PROPOSED SCH. 80 PVC ELECTRIC CONDUIT AND WIRE FROM NEW METER TO SOURCE (WIRE AND CONDUIT SIZE, ROUTE AND SOURCE PENDING UTILITY COORDINATION)

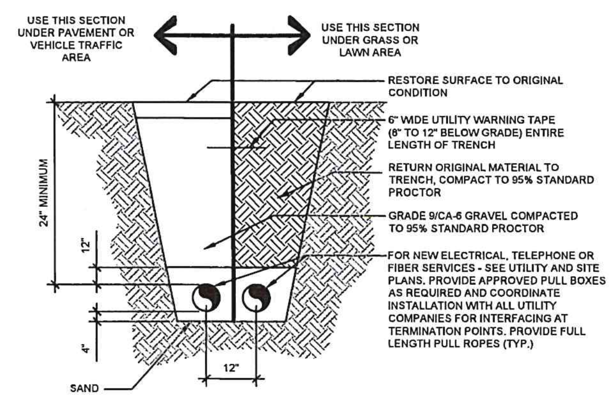
H-FRAME DETAIL | 1

SCALE: NONE


PROPOSED SCH. 80 PVC ELECTRIC CONDUIT AND WIRE FROM NEW METER TO SOURCE (WIRE AND CONDUIT SIZE, ROUTE AND SOURCE PENDING UTILITY COORDINATION)
NOTE:
CONTRACTOR TO LABEL METER/DISCONNECT WITH "AT&T" LABEL
NEW 200 AMP 120/240V ELECTRIC METER
NEW 200 AMP BREAKER
NEW POWER DISCONNECT MOUNTED TO EXTERIOR OF SHELTER
NEW (3) 3/0 & (1) #6 AWG GROUND IN 2" PVC CONDUIT
NEW (3) 3/0 & (1) #6 AWG GROUND IN 2" PVC CONDUIT
NEW 200 AMP 120/240V AUTOMATIC POWER TRANSFER LOAD CENTER LOCATED INSIDE OF SHELTER

ONE-LINE DIAGRAM | 2

SCALE: NONE


USE THIS SECTION UNDER PAVEMENT OR VEHICLE TRAFFIC AREA
USE THIS SECTION UNDER GRASS OR LAWN AREA
RESTORE SURFACE TO ORIGINAL CONDITION
6" WIDE UTILITY WARNING TAPE (6" TO 12" BELOW GRADE) ENTIRE LENGTH OF TRENCH
RETURN ORIGINAL MATERIAL TO TRENCH, COMPACT TO 95% STANDARD PROCTOR
GRADE 9/CA-6 GRAVEL COMPACTED TO 95% STANDARD PROCTOR
FOR NEW ELECTRICAL, TELEPHONE OR FIBER SERVICES - SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED AND COORDINATE INSTALLATION WITH ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.)
24" MINIMUM
12"
4"
12"
SAND

UTILITY TRENCH DETAIL | 3

SCALE: NONE

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E-3

UTILITY DETAILS

ELECTRICAL INSTALLATION NOTES

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE NATIONAL ELECTRICAL CODE.
2. CONDUIT ROUTING ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT EQUIPMENT IS NOT BLOCKED.
3. WIRING, RACEWAY, SUPPORT METHODS, AND MATERIAL SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLE SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, CURRENT CARRYING CONDUCTORS, GROUNDING, T1 CONDUCTORS, AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA REQUIREMENTS.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATIONS, AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E. PANELBOARD AND CIRCUIT IDs).
8. PANELBOARDS (ID NUMBER) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND CONDUCTOR IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600V, OIL RESISTANT, THHN OR THWN-2, CLASS B STRANDED COPPER CONDUCTOR RATED FOR 90°C (WET AND DRY) OPERATION: LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED
11. SUPPLEMENTAL EQUIPMENT GROUND WIRE LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT, THHN OR THWN-2, CLASS B STRANDED COPPER CONDUCTOR RATED FOR 90°C (WET AND DRY) OPERATION: LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER) 600V, OIL RESISTANT, THHN OR THWN-2, CLASS B STRANDED COPPER CONDUCTOR RATED FOR 90°C (WET AND DRY) OPERATION: WITH OUTER JACKET: LISTED OR LABELED FOR THE LOCATION USED, U UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION MIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC REQUIREMENTS.
15. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC CONDUIT (RIGID PVC SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GROUND.
18. RIGID NON METALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND: DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY TRAFFIC.
19. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT (SEAL TITE) SHALL BE USED IN INDOORS AND OUTDOORS, AND WHEN VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
20. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED, SETSCREW FITTINGS ARE NOT ACCEPTABLE.
21. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC REQUIREMENTS.
22. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD. WIREWAYS SHALL BE PANDUIT TYPE E (OR EQUAL) AND BE NEMA 1 RATED (OR BETTER).
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET METAL, AND SHALL MEET OR EXCEED UL 50, AND BE NEMA 1 RATED (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL514A AND NEMA OS1: AND BE NEMA 1 RATED (OR BETTER) INDOORS, AND WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLES, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS2: AND BE NEMA 1 RATED (OR BETTER) INDOORS, AND WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANEL.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES, AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFE GUARD LIFE AND PROPERTY.

NOTE:
1. THE CONTRACTOR HAS MADE THIS INSERT. ANY QUESTIONS, CONTACT A CONTRACTOR REPRESENTATIVE.
2. POSITION 33 TO 50 ON THE 66 BLOCK IS FOR FUTURE USE.
3. CONTRACTOR SHALL RUN CAT5 CABLE FROM EQUIPMENT TO ASTERISK(*) TERMINAL ON 66 BLOCK FOR AT&T TO TERMINATE.

LEGEND:

* DENOTES CONTRACTOR PUNCHDOWN RESPONSIBILITY

POS.	CABLE FROM BTS	ALARM DEFINITION	LEVEL/ID	STATE	ALARM SIDE	DEVICE
1	WHITE/BLUE	SITE DOOR OPEN	1/0	BREAKING	FACTORY INSTALLED	FACTORY INSTALLED
2	BLUE/WHITE					
3	WHITE/ORANGE	HIGH TEMP RADIO ROOM	1/1	BREAKING	FACTORY INSTALLED	FACTORY INSTALLED
4	ORANGE/WHITE					
5	WHITE/GREEN	AC SURGE ARRESTOR FAIL	1/2	BREAKING	FACTORY INSTALLED	FACTORY INSTALLED
6	GREEN/WHITE					
7	WHITE/BROWN	SMOKE DETECTOR	1/3	BREAKING	FACTORY INSTALLED	FACTORY INSTALLED
8	BROWN/WHITE					
9	RED/BLUE	AC DISTRIBUTION FAIL	1/4	BREAKING	FACTORY INSTALLED	FACTORY INSTALLED
10	BLUE/RED					
11	RED/ORANGE	LO TEMP RADIO ROOM	1/5	BREAKING	FACTORY INSTALLED	FACTORY INSTALLED
12	ORANGE/RED					
13	RED/GREEN	24V BAT. DISCONNECT FUSE FAIL	1/6	BREAKING	WHITE/BLUE	NC COMMON
14	GREEN/RED				BLUE/WHITE	
15	RED/BROWN	RECT. SYSTEM A1 ALARM PECO	1/7	BREAKING	VIOLET/GREEN	MODULAR PLUG
16	BROWN/RED				VIOLET/ORANGE	
17	BLACK/BLUE	RECT. SYSTEM A2 ALARM PECO	1/8	BREAKING	YELLOW/BROWN	MODULAR PLUG
18	BLUE/BLACK				YELLOW/SLATE	
19	BLACK/ORANGE	OVER VOLTAGE PECO	1/9	BREAKING	WHITE/BROWN	MODULAR PLUG
20	ORANGE/BLACK				WHITE/SLATE	
21	BLACK/GREEN	BATTERY ON DISCHARGE PECO	1/A	BREAKING	RED/ORANGE	MODULAR PLUG
22	GREEN/BLACK				RED/GREEN	
23	BLACK/BROWN	SITE DOOR OPEN	1/B	BREAKING	WHITE/BLUE	MODULAR PLUG
24	BROWN/BLACK				BLUE/WHITE	
25	YELLOW/BLUE	TMA TROUBLE	1/C	BREAKING	WHITE	MODULAR PLUG
26	BLUE/YELLOW				BLUE	
27	YELLOW/ORANGE	WHITE STROBE FAIL	1/D	BREAKING	WHITE/BLUE	NC COMMON *
28	ORANGE/YELLOW				BLUE/WHITE	
29	YELLOW/GREEN	RED STROBE FAIL	1/E	BREAKING	WHITE/ORANGE	NC COMMON *
30	GREEN/YELLOW				ORANGE/WHITE	
31	YELLOW/BROWN	SIDE LIGHT FAILURE	1/F	BREAKING	WHITE/GREEN	NC COMMON *
32	BROWN/YELLOW				GREEN/WHITE	

ALARM TERMINATION DIAGRAM | 1

SCALE: NONE

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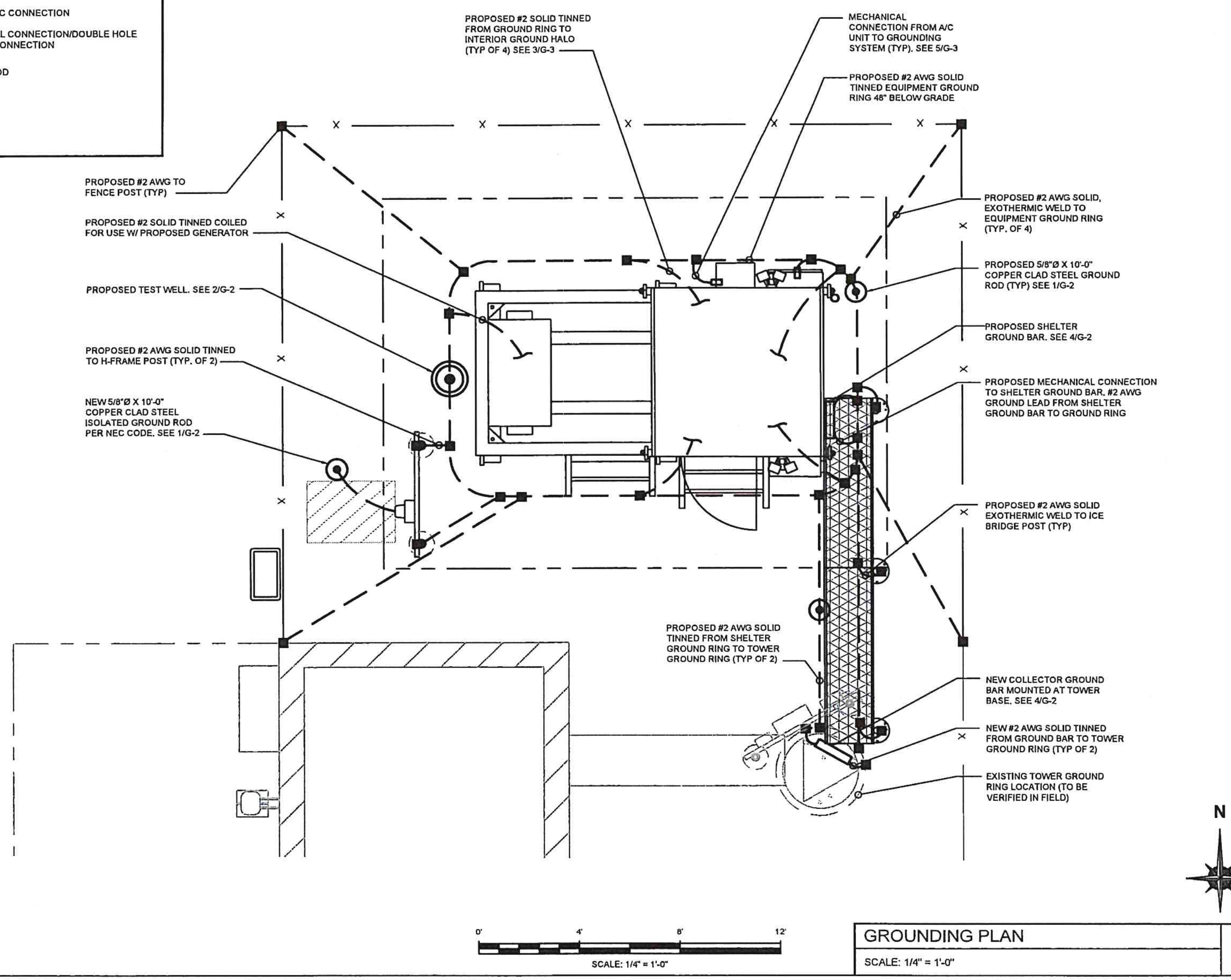
E-4
ALARM TERMINATION DIAGRAM & NOTES

LEGEND

- GROUNDING WIRE
- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION/DOUBLE HOLE LUG TYPE CONNECTION
- GROUND ROD
- TEST WELL



PROPOSED #2 SOLID TINNED FROM GROUND RING TO INTERIOR GROUND HALO (TYP OF 4) SEE 3/G-3
MECHANICAL CONNECTION FROM A/C UNIT TO GROUNDING SYSTEM (TYP), SEE 5/G-3
PROPOSED #2 AWG SOLID TINNED EQUIPMENT GROUND RING 48" BELOW GRADE
PROPOSED #2 AWG TO FENCE POST (TYP)
PROPOSED #2 SOLID TINNED COILED FOR USE W/ PROPOSED GENERATOR
PROPOSED TEST WELL. SEE 2/G-2
PROPOSED #2 AWG SOLID TINNED TO H-FRAME POST (TYP. OF 2)
NEW 5/8"Ø X 10'-0" COPPER CLAD STEEL ISOLATED GROUND ROD PER NEC CODE. SEE 1/G-2
PROPOSED #2 AWG SOLID, EXOTHERMIC WELD TO EQUIPMENT GROUND RING (TYP. OF 4)
PROPOSED 5/8"Ø X 10'-0" COPPER CLAD STEEL GROUND ROD (TYP) SEE 1/G-2
PROPOSED SHELTER GROUND BAR. SEE 4/G-2
PROPOSED MECHANICAL CONNECTION TO SHELTER GROUND BAR, #2 AWG GROUND LEAD FROM SHELTER GROUND BAR TO GROUND RING
PROPOSED #2 AWG SOLID EXOTHERMIC WELD TO ICE BRIDGE POST (TYP)
PROPOSED #2 AWG SOLID TINNED FROM SHELTER GROUND RING TO TOWER GROUND RING (TYP OF 2)
NEW COLLECTOR GROUND BAR MOUNTED AT TOWER BASE. SEE 4/G-2
NEW #2 AWG SOLID TINNED FROM GROUND BAR TO TOWER GROUND RING (TYP OF 2)
EXISTING TOWER GROUND RING LOCATION (TO BE VERIFIED IN FIELD)
N
0' 4' 8' 12'
SCALE: 1/4" = 1'-0"

GROUNDING PLAN

SCALE: 1/4" = 1'-0"

1

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MORGAN, MN 56266

PROFESSIONAL ENGINEER

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: Jeff Gutowsky

Signature:

Date: ________ License # 43030

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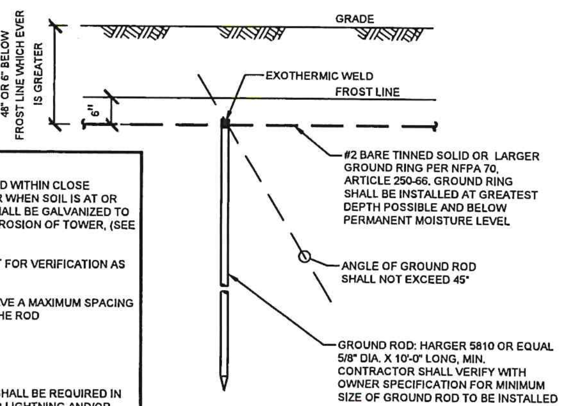
G-1

GROUNDING PLAN

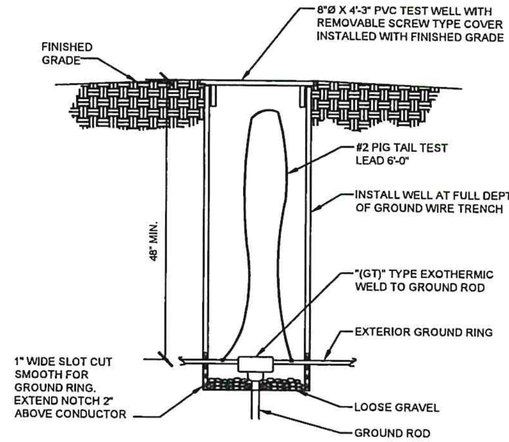


NOTES:

1. GROUND RODS INSTALLED WITHIN CLOSE PROXIMITY TO TOWER OR WHEN SOIL IS AT OR BELOW 2,000 OHM-CM, SHALL BE GALVANIZED TO PREVENT GALVANIC CORROSION OF TOWER, (SEE ANSI/TIA-222)
2. SEE RESISTIVITY REPORT FOR VERIFICATION AS AVAILABLE
3. GROUND RODS SHALL HAVE A MAXIMUM SPACING TWICE THE LENGTH OF THE ROD
4. GROUND RODS MAY BE:
 -COPPER CLAD STEEL
 -SOLID COPPER
5. A LARGER CONDUCTOR SHALL BE REQUIRED IN AREAS HIGHLY PRONE TO LIGHTNING AND/OR AREAS WITH HIGHLY ACIDIC SOIL
6. GROUND RING SHALL BE INSTALLED AT GREATEST DEPTH POSSIBLE AND BELOW PERMANENT MOISTURE LEVEL

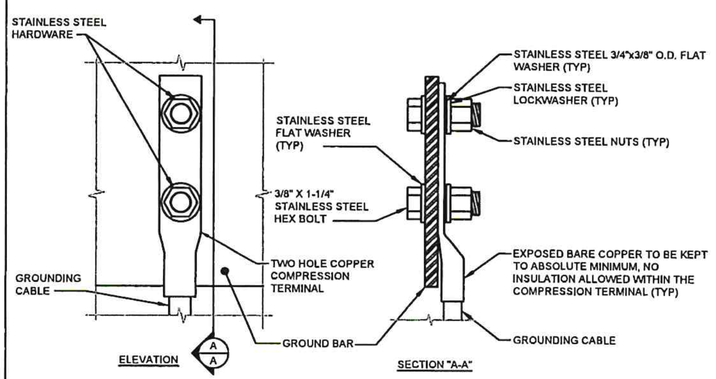
GROUND ROD DETAIL 1

SCALE: NONE



TEST WELL DETAIL 2

SCALE: NONE



1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS
2. NO CRIMPING OF SOLID #2. USE EXOTHERMIC WELD ONLY

GROUND BAR CONNECTION DETAIL 3

SCALE: NONE

KEY NOTES:

1.	1/4" THK ELECTRICAL TINNED GROUND BAR HARGER OR APPROVED EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2.	INSULATORS (UNLESS NOTED OTHERWISE)
3.	3/8" STAINLESS STEEL LOCKWASHERS
4.	WALL MOUNTING BRACKET
5.	3/8" STAINLESS STEEL BNLF BOLTS
6.	EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD
7.	CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P" "A", "N", "I") WITH 1" HIGH LETTERS

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

SECTION "P" - SURGE PRODUCERS

- COLLECTOR GROUND BAR
- GENERATOR FRAMEWORK (IF AVAILABLE)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND
- FIBER GROUND BAR
- EQUIPMENT ROOM COLLECTOR GROUND BAR
- HVAC
- RECTIFIER FRAMES

SECTION "A" - SURGE ABSORBERS

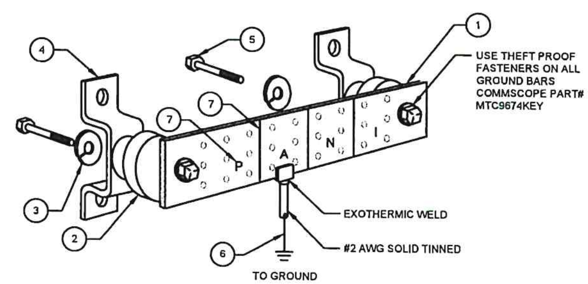
- INTERIOR GROUND RING
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING)
- METALLIC COLD WATER PIPE (IF AVAILABLE)
- BUILDING STEEL (IF AVAILABLE)
- AC POWER

SECTION "N" - NON-ISOLATED GROUND ZONE EQUIPMENT

- MISCELLANEOUS NON-ISOLATED GROUND ZONE EQUIPMENT
- CABLE TRAY SYSTEM
- EQUIPMENT FRAMES
- BATTERY RACKS
- DC POWER

SECTION "I" - ISOLATED GROUND ZONE

- ISOLATED EQUIPMENT FRAMES
- ISOLATED GROUND BAR - IGB



NOTES:
-EXTERIOR GROUND BARS TO BE TIN PLATED
-HARDWARE SHALL BE STAINLESS STEEL
-CONTRACTOR SHALL GROUP INCOMING WIRES
-CONTRACTOR TO APPLY 'KOPR-SHIELD' TO ALL CONNECTIONS

GROUND BAR DETAIL 4

SCALE: NONE

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Signature:
Date: License # 43030

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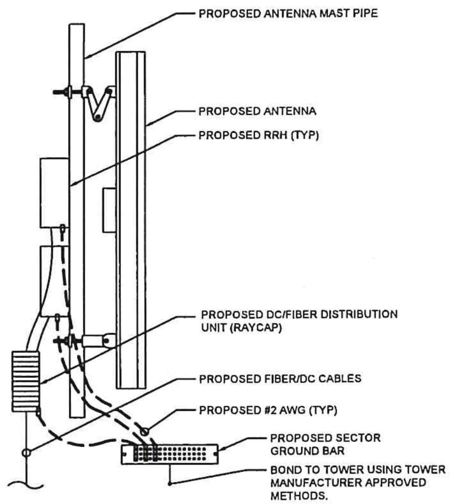
G-2
GROUNDING DETAILS

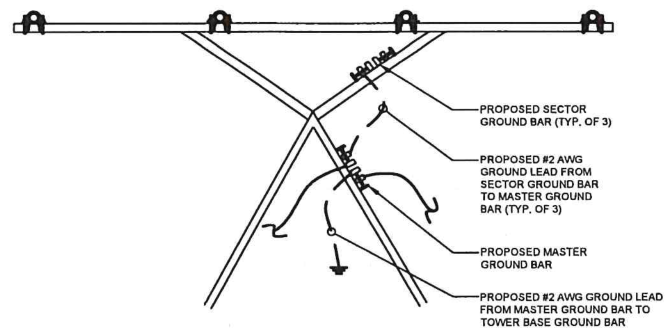
LEGEND

- ■ EXOTHERMIC CONNECTION
- ▯ MECHANICAL CONNECTION
- ▲ COMPRESSION FITTING



ANTENNA GROUNDING SCHEMATIC — 1

SCALE: NONE

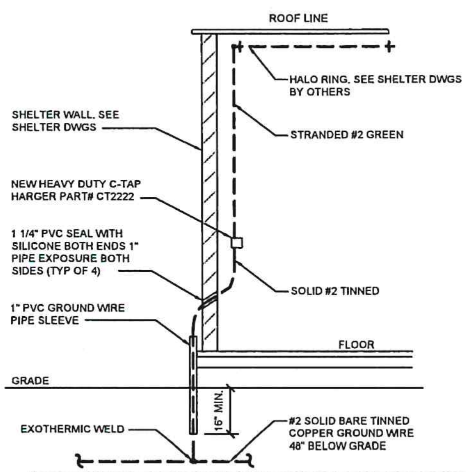


ANTENNA FRAME GROUNDING (TYP) — 2

SCALE: NONE

NOTE:
NEW STRANDED GREEN GROUND LEAD WITHIN SHELTER MUST TRANSITION TO #2 SOLID PRIOR TO LEAVING SHELTER.

NOTE:
NEW GROUND TO BE RUN IN 1" FLEX WITH SILICONE ON TOP SIDE.

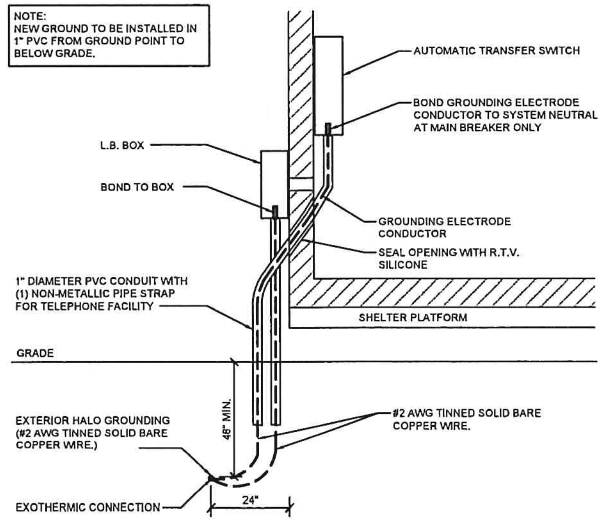


ROOF LINE
HALO RING. SEE SHELTER DWGS BY OTHERS
SHELTER WALL. SEE SHELTER DWGS
STRANDED #2 GREEN
NEW HEAVY DUTY C-TAP HARGER PART# CT2222
1 1/4" PVC SEAL WITH SILICONE BOTH ENDS 1" PIPE EXPOSURE BOTH SIDES (TYP OF 4)
SOLID #2 TINNED
1" PVC GROUND WIRE PIPE SLEEVE
FLOOR
GRADE
16" MIN.
EXOTHERMIC WELD
#2 SOLID BARE TINNED COPPER GROUND WIRE 48" BELOW GRADE

SHELTER TIE-IN — 3

SCALE: NONE

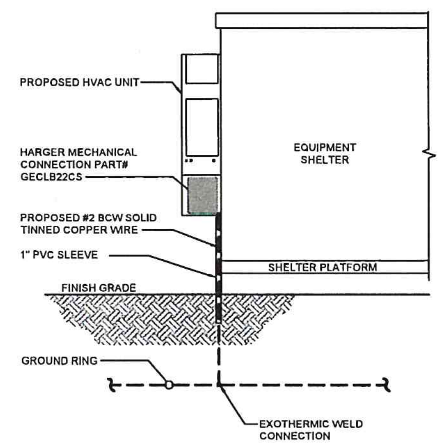
NOTE:
NEW GROUND TO BE INSTALLED IN 1" PVC FROM GROUND POINT TO BELOW GRADE.



AUTOMATIC TRANSFER SWITCH
BOND GROUNDING ELECTRODE CONDUCTOR TO SYSTEM NEUTRAL AT MAIN BREAKER ONLY
L.B. BOX
BOND TO BOX
GROUNDING ELECTRODE CONDUCTOR
SEAL OPENING WITH R.T.V. SILICONE
1" DIAMETER PVC CONDUIT WITH (1) NON-METALLIC PIPE STRAP FOR TELEPHONE FACILITY
SHELTER PLATFORM
GRADE
48" MIN.
EXTERIOR HALO GROUNDING (#2 AWG TINNED SOLID BARE COPPER WIRE.)
#2 AWG TINNED SOLID BARE COPPER WIRE.
EXOTHERMIC CONNECTION
24"

ELECTRIC GROUND DETAIL — 4

SCALE: NONE



HVAC GROUNDING — 5

SCALE: NONE

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Signature:
Date: License # 43030

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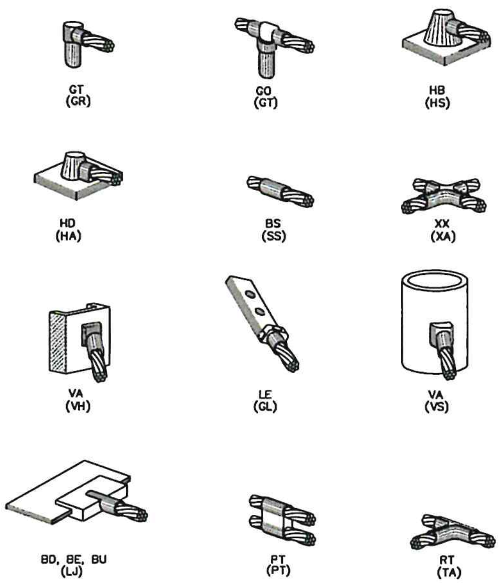
JOB: 2002101T

G-3
GROUNDING DETAILS

NOTE:
THE FOLLOWING SYMBOLS SHOWN ARE HARGER ULTRAWELD EXOTHERMIC CONNECTIONS WITH PART NUMBERS BELOW. THESE CONNECTIONS MAY BE CROSS-REFERENCED WITH EXOTHERMIC CONNECTIONS WHICH ARE SHOWN IN PARENTHESIS.



EXOTHERMIC WELD TYPES | 1
SCALE: NONE

GROUNDING NOTES

1. ALL GROUNDING ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER) SHALL BE BONDED TOGETHER BELOW GRADE BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH PART III OF NEC SECTION 250.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUNDING ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 Ohms OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TEST RESULTS.
4. ALL METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED CODING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH A #6 AWG COPPER WIRE UL LISTED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUNDING CONDUCTOR. STRANDED COPPER CONDUCTOR WITH GREEN INSULATION, SIZED PER SECTION 250.122 OF THE NEC, EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED WITH THE BRANCH CIRCUIT TO THE EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND CONDUCTORS, #6 AWG COPPER OR LARGER FOR INDOOR EQUIPMENT, AND #2 AWG STRANDED COPPER FOR OUTDOOR EQUIPMENT.
7. CONNECTIONS TO THE GROUND BAR SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS TO THE GROUND BAR ON OPPOSITE SIDES OF THE GROUND BAR ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL SHALL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTOR SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND SYSTEM.
15. APPROVED ANTIOXIDANT COATING (I.E CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES, AND SUPPORTS, SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH PART III OF SECTION 250 OF THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF ANY MAIN GROUND CONDUCTOR WITH (1) #2 AWG COPPER TINNED GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS, OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (I.E. NON-METALLIC CONDUIT IS PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

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G-4
GROUNDING DETAILS & NOTES


Morgan 3 mile radius
Write a description for your map.
Legend
44.421915, -94.926014
56266
44.421915, -94.926014
67
Morgan
Morgan
2
3
30
310th St
Front St
68
13
Google Earth
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N
2 mi

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This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**250 ft Guyed Tower with Proposed 25 ft Extension**
ATC Site Name	:	**Morgan (MWW) MN, MN**
ATC Asset Number	:	**417306**
Engineering Number	:	**OAA761574_C3_05**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**Morgan**
Carrier Site Number	:	**MNL03247**
Site Location	:	**677 CARLETON AVE** **Morgan, MN 56266-9773** **44.421900,-94.926000**
County	:	**Redwood**
Date	:	**April 8, 2021**
Max Usage	:	**104%**
Result	:	**Pass – Pending Extension**

Prepared By:
Michael Dugan
TEP

Michael Dugan

Reviewed By:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: JORDAN W. SHELLEY

Signature: Jordan Shelley

Date: 04/08/2021 License # 55288

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 250 ft guyed tower with proposed 25 ft extension to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Sabre Job #05-11032, dated October 29, 2004
Foundation Drawing	Sabre Job #05-11032, dated October 29, 2004
Geotechnical Report	AET Project #08-05956, dated October 14, 2004

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	111 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-H / 2018 IBC / 2020 Minnesota State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.06, S_1 = 0.03
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

The design of the extension will be done in a future service.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
250.0	1	VZW Unused Reserve (12313.54 sqin)	Sector Frames	(10) 1 5/8" Coax (2) 1.55" (39.5mm) Hybrid	ALLTEL COMMUNICATIONS, LLC
249.0	3	Ericsson RRUS 32 B66A			
	3	Ericsson RRUS B13 w/ RRUS A2 (74 lbs)			
	2	Allgon 7834 /A-800-90-14I			
	4	Allgon 7272.04 / U-800-65-17I-4-D			
	2	Raycap RxxDC-3315-PF-48			
	6	Commscope SBNHH-1D65C			
181.0	3	Generic 24" x 24" Panel	Leg	(3) 1/4" (0.25"-6.4mm) Synflex 1300 (3) 3/8" Coax	
179.0	3	Generic 12" x 9" x 6" TMA	Leg		
143.0	3	Generic 24" x 24" Panel	Leg	(3) 1/4" (0.25"-6.4mm) Synflex 1300 (3) 3/8" Coax	
142.0	3	Generic 12" x 9" x 6" TMA			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
271.0	3	Nokia AirScale RRH 4T4R B5 160W AHCA	Sector Frames	(2) 0.92" (23.4mm) Cable (3) 1.13" (28.7mm) Cable (2) 7/8" (0.88"-22.2mm) Fiber	AT&T MOBILITY
	3	Nokia RRH 4T4R B30 100W AHNA (34.2 lbs)			
	6	Nokia AirScale Dual RRH 4T4R B25/66 320W AHFIB (66.1lbs)			
	3	Nokia AHLBBA			
	2	Raycap DC9-48-60-24-8C-EV			
	6	Commscope NNH4-65C-R6-V3 (102.5 lbs)			

[1]Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax double stacked on any empty face.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	104%	Pass
Diagonals	58%	Pass
Horizontals	43%	Pass
Guys	76%	Pass
Leg Bolts	58%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Base Axial (kips)	129.7	38%
A1 Uplift (kips)	34.5	25%
A1 Shear (kips)	37.9	37%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
271.0	Nokia AirScale RRH 4T4R B5 160W AHCA	AT&T MOBILITY	0.562	0.014	0.537
	Nokia RRH 4T4R B30 100W AHNA (34.2 lbs)				
	Nokia AirScale Dual RRH 4T4R B25/66 320W AHFIB (66.1lbs)				
	Nokia AHLBBA				
	Raycap DC9-48-60-24-8C-EV				
	Commscope NNH4-65C-R6-V3 (102.5 lbs)				

***Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

Standard Conditions

All engineering services performed by ATC Tower Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

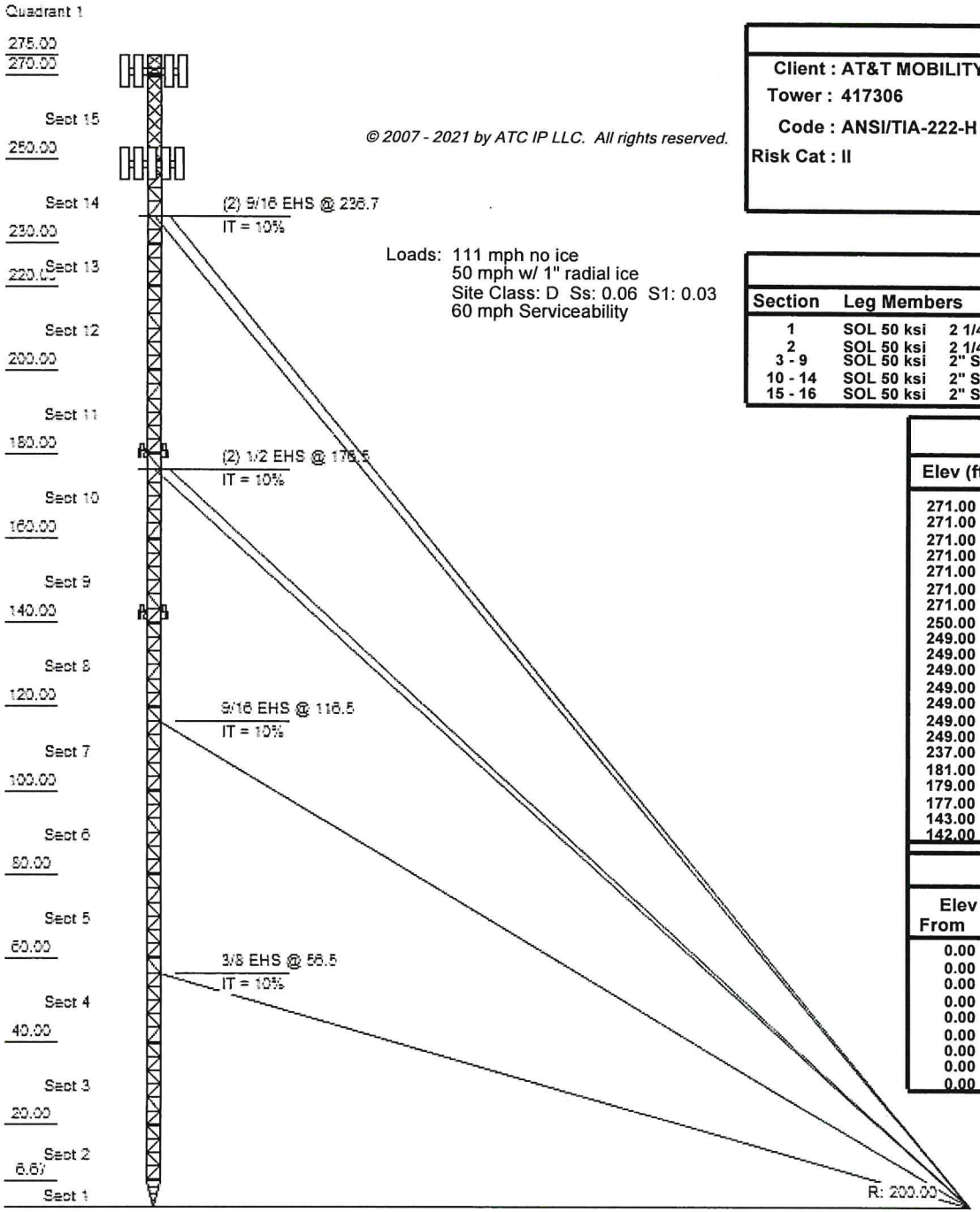
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ATC Tower Services LLC

It is the responsibility of the client to ensure that the information provided to ATC Tower Services LLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and ATC Tower Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Loads: 111 mph no ice
50 mph w/ 1" radial ice
Site Class: D Ss: 0.06 S1: 0.03
60 mph Serviceability

Job Information

Client : AT&T MOBILITY		
Tower : 417306	Location : Morgan (MWW)	Base Width : 3.00 ft
Code : ANSI/TIA-222-H	Topo Method: Method 1	
Risk Cat : II	Topo: 1	Tower Ht : 275.00 ft
	Exposure : C	Shape : Triangle

Sections Properties

Section	Leg Members		Diagonal Members	Horizontal Members
1	SOL 50 ksi	2 1/4" SOLID		PL 36 ksi PL 9 x 0.375"
2	SOL 50 ksi	2 1/4" SOLID	SOL 36 ksi 1 1/4" SOLID	SOL 36 ksi 7/8" SOLID
3 - 9	SOL 50 ksi	2" SOLID	SOL 36 ksi 1" SOLID	SOL 36 ksi 7/8" SOLID
10 - 14	SOL 50 ksi	2" SOLID	SOL 36 ksi 1 1/4" SOLID	SOL 36 ksi 7/8" SOLID
15 - 16	SOL 50 ksi	2" SOLID	SAE 36 ksi 1.75X1.75X0.25	SAE 36 ksi 1.75X1.75X0.25

Discrete Appurtenance

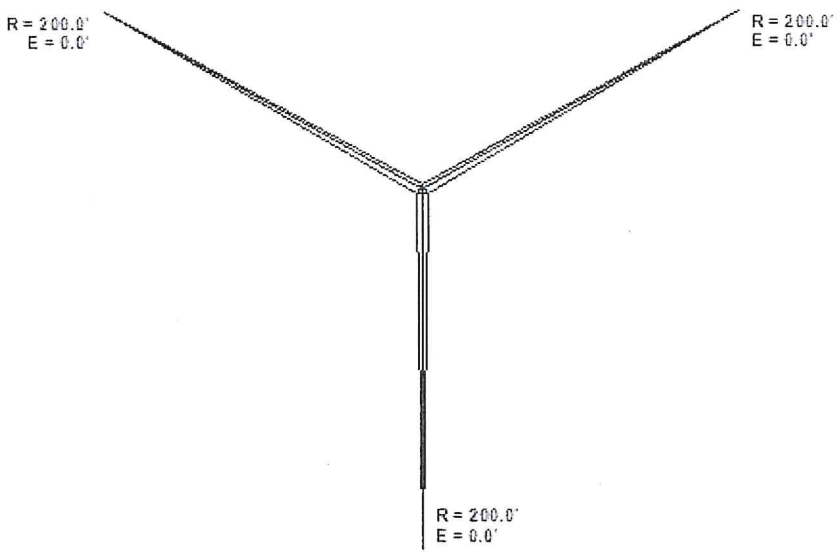
Elev (ft)	Type	Qty	Description
271.00	Mounting Frame	3	Generic Flat Light Sector Fram
271.00	Panel	6	Commscope NNH4-65C-R6-V3
271.00		2	Raycap DC9-48-60-24-8C-EV
271.00		3	Nokia AHLBBA
271.00		6	Nokia AirScale Dual RRH 4T4R B
271.00		3	Nokia RRH 4T4R B30 100W AHNA (
271.00		3	Nokia AirScale RRH 4T4R B5 160
250.00	Other	1	VZW Unused Reserve (12313.54 s
249.00	Mounting Frame	3	Generic Flat Light Sector Fram
249.00	Panel	6	Commscope SBNHH-1D65C
249.00	Panel	4	Allgon 7272.04 / U-800-65-17I-
249.00	Panel	2	Allgon 7834 /A-800-90-14I
249.00		3	Ericsson RRUS B13 w/ RRUS A2 (
249.00		3	Ericsson RRUS 32 B66A
249.00		2	Raycap RxxDC-3315-PF-48
237.00	Other	1	Torque Arms
181.00	Panel	3	Generic 24" x 24" Panel
179.00		3	Generic 12" x 9" x 6" TMA
177.00	Other	1	Torque Arms
143.00	Panel	3	Generic 24" x 24" Panel
142.00		3	Generic 12" x 9" x 6" TMA

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.00	271.00	2	7/8" (0.88"- 22.2mm)
0.00	271.00	3	1.13" (28.7mm) Cable
0.00	271.00	2	0.92" (23.4mm) Cable
0.00	249.00	2	1.55" (39.5mm) Hybri
0.00	249.00	10	1 5/8" Coax
0.00	181.00	3	1/4" (0.25"- 6.4mm)
0.00	180.00	3	3/8" Coax
0.00	143.00	3	3/8" Coax
0.00	143.00	3	1/4" (0.25"- 6.4mm)

Job Information

Client : AT&T MOBILITY			
Tower : 417306	Location :	Morgan (MWW)	Base Width : 3.00 ft
Code : ANSI/TIA-222-H	Topo Method:	Method 1	
Risk Cat : II	Topo:	1	Tower Ht : 275.00 ft
	Exposure :	C	Shape : Triangle



Guy Anchor Design Loads

Radius (ft)	Drop (ft)	Azimuth (°)	Uplift (kip)	Shear (kip)
200.00	0.00	0	34.47	37.93
200.00	0.00	240	34.47	37.93
200.00	0.00	120	34.47	37.93

Global Base Foundation Design Loads

Vertical (kip)	Horizontal (kip)
129.67	1.46

Site Number:	417306	Code:	ANSI/TIA-222-H	
Site Name:	Morgan (MWW) MN, MN	Engineering Number:	OAA761574_C3_05	4/8/2021 10:36:10 AM
Customer:	AT&T MOBILITY			

Analysis Parameters

Location:	Redwood County, MN	Height (ft):	275
Code:	ANSI/TIA-222-H	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	3.00
Tower Manufacturer:	Sabre	Top Face Width (ft):	3.00
Tower Type:	Guyed		
Kd:	0.85		
Ke:	0.96		

Ice & Wind Parameters

Exposure Category:	C	Design Windspeed Without Ice:	111 mph
Risk Category:	II	Design Windspeed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	1035.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.46				
T_L (sec):	12	p:	1.3	C_S:	0.030
S_S:	0.059	S_1:	0.031	C_S, Max:	0.030
F_a:	1.600	F_V:	2.400	C_S, Min:	0.030
S_{ds}:	0.063	S_{d1}:	0.050		

Load Cases

1.2D + 1.0W Normal	111 mph Normal with No Ice
1.2D + 1.0W 60 deg	111 mph 60 degree with No Ice
1.2D + 1.0W 90 deg	111 mph 90 degree with No Ice
1.2D + 1.0W 120 deg	111 mph 120 degree with No Ice
1.2D + 1.0W 180 deg	111 mph 180 degree with No Ice
1.2D + 1.0W 210 deg	111 mph 210 degree with No Ice
1.2D + 1.0W 240 deg	111 mph 240 degree with No Ice
1.2D + 1.0W 300 deg	111 mph 300 degree with No Ice
1.2D + 1.0W 330 deg	111 mph 330 degree with No Ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 120 deg	50 mph 120 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 180 deg	50 mph 180 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 210 deg	50 mph 210 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 240 deg	50 mph 240 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 300 deg	50 mph 300 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 330 deg	50 mph 330 deg with 1.00 in Radial Ice

Analysis Parameters

1.2D + 1.0Ev + 1.0Eh Normal	Seismic Normal
1.2D + 1.0Ev + 1.0Eh 60 deg	Seismic 60 deg
1.2D + 1.0Ev + 1.0Eh 90 deg	Seismic 90 deg
1.2D + 1.0Ev + 1.0Eh 120 deg	Seismic 120 deg
1.2D + 1.0Ev + 1.0Eh 180 deg	Seismic 180 deg
1.2D + 1.0Ev + 1.0Eh 210 deg	Seismic 210 deg
1.2D + 1.0Ev + 1.0Eh 240 deg	Seismic 240 deg
1.2D + 1.0Ev + 1.0Eh 300 deg	Seismic 300 deg
1.2D + 1.0Ev + 1.0Eh 330 deg	Seismic 330 deg
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL) Normal
0.9D - 1.0Ev + 1.0Eh 60 deg	Seismic (Reduced DL) 60 deg
0.9D - 1.0Ev + 1.0Eh 90 deg	Seismic (Reduced DL) 90 deg
0.9D - 1.0Ev + 1.0Eh 120 deg	Seismic (Reduced DL) 120 deg
0.9D - 1.0Ev + 1.0Eh 180 deg	Seismic (Reduced DL) 180 deg
0.9D - 1.0Ev + 1.0Eh 210 deg	Seismic (Reduced DL) 210 deg
0.9D - 1.0Ev + 1.0Eh 240 deg	Seismic (Reduced DL) 240 deg
0.9D - 1.0Ev + 1.0Eh 300 deg	Seismic (Reduced DL) 300 deg
0.9D - 1.0Ev + 1.0Eh 330 deg	Seismic (Reduced DL) 330 deg
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 deg
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 deg
1.0D + 1.0W Service 120 deg	Serviceability - 60 mph Wind 120 deg
1.0D + 1.0W Service 180 deg	Serviceability - 60 mph Wind 180 deg
1.0D + 1.0W Service 210 deg	Serviceability - 60 mph Wind 210 deg
1.0D + 1.0W Service 240 deg	Serviceability - 60 mph Wind 240 deg
1.0D + 1.0W Service 300 deg	Serviceability - 60 mph Wind 300 deg
1.0D + 1.0W Service 330 deg	Serviceability - 60 mph Wind 330 deg

Site Number: 417306 | Code: ANSI/TIA-222-H |

Site Name: Morgan (MWW) MN, MN | Engineering Number: OAA761574_C3_05 | 4/8/2021 10:36:11 AM

Customer: AT&T MOBILITY

Tower Loading

Discrete Appurtenance Properties 1.2D + 1.0W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
271.0	Nokia AirScale RRH	3	35	1.3	1.1	11.6	6.5	0.80	0.50	0.0	0.0	40.32	53	127
271.0	Nokia RRH 4T4R B30	3	34	1.3	1.1	12.1	5.5	0.80	0.50	0.0	0.0	40.32	55	123
271.0	Nokia AirScale Dual	6	66	2.2	1.8	12.1	5.9	0.80	0.50	0.0	0.0	40.32	182	476
271.0	Nokia AHLBBA	3	95	2.8	2.0	14.1	7.8	0.80	0.50	0.0	0.0	40.32	116	341
271.0	Raycap DC9-48-60-	2	16	4.8	2.6	18.3	10.2	0.80	0.50	0.0	0.0	40.32	131	38
271.0	Commscope NNH4-	6	103	17.1	8.0	19.6	7.8	0.80	0.64	0.0	0.0	40.32	1797	738
271.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	40.32	925	1440
250.0	VZW Unused	1	1059	85.5	0.0	0.0	0.0	0.80	0.90	0.0	0.0	39.64	2074	1271
249.0	Raycap RxxDC-3315-	2	21	2.5	1.6	15.7	10.3	0.80	0.50	0.0	0.0	39.60	68	51
249.0	Ericsson RRUS 32	3	51	2.7	2.3	12.0	7.0	0.80	0.50	0.0	0.0	39.60	110	183
249.0	Ericsson RRUS B13	3	74	2.8	1.6	17.0	10.5	0.80	0.50	0.0	0.0	39.60	113	266
249.0	Allgon 7834 /A-800-	2	15	4.8	4.2	7.6	10.6	0.80	0.78	0.0	0.0	39.60	204	36
249.0	Allgon 7272.04 / U-	4	24	7.5	6.3	10.0	2.0	0.80	0.58	0.0	0.0	39.60	468	115
249.0	Commscope SBNHH-	6	50	11.4	8.0	11.9	7.1	0.80	0.70	0.0	0.0	39.60	1294	357
249.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	39.60	908	1440
237.0	Torque Arms	1	500	15.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	39.19	500	600
181.0	Generic 24" x 24"	3	30	4.8	2.0	24.0	6.0	1.00	0.58	0.0	0.0	37.03	263	108
179.0	Generic 12" x 9" x	3	20	0.9	1.0	9.0	6.0	1.00	0.50	0.0	0.0	36.95	42	72
177.0	Torque Arms	1	500	15.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	36.86	470	600
143.0	Generic 24" x 24"	3	30	4.8	2.0	24.0	6.0	1.00	0.58	0.0	0.0	35.24	250	108
142.0	Generic 12" x 9" x	3	20	0.9	1.0	9.0	6.0	1.00	0.50	0.0	0.0	35.19	40	72
	Totals	64	7136	528.6									10064	8564

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
271.0	Nokia AirScale RRH	3	63	1.8	1.1	11.6	6.5	0.80	0.50	0.0	0.0	8.18	15	211
271.0	Nokia RRH 4T4R B30	3	61	1.9	1.1	12.1	5.5	0.80	0.50	0.0	0.0	8.18	16	203
271.0	Nokia AirScale Dual	6	107	2.9	1.8	12.1	5.9	0.80	0.50	0.0	0.0	8.18	49	722
271.0	Nokia AHLBBA	3	150	3.6	2.0	14.1	7.8	0.80	0.50	0.0	0.0	8.18	30	506
271.0	Raycap DC9-48-60-	2	108	5.8	2.6	18.3	10.2	0.80	0.50	0.0	0.0	8.18	32	221
271.0	Commscope NNH4-	6	335	19.7	8.0	19.6	7.8	0.80	0.64	0.0	0.0	8.18	421	2135
271.0	Generic Flat Light	3	613	28.6	0.0	0.0	0.0	0.75	0.67	0.0	0.0	8.18	300	2080
250.0	VZW Unused	1	1576	127.2	0.0	0.0	0.0	0.80	0.90	0.0	0.0	8.04	626	1788
249.0	Raycap RxxDC-3315-	2	77	3.2	1.6	15.7	10.3	0.80	0.50	0.0	0.0	8.04	18	163
249.0	Ericsson RRUS 32	3	102	3.5	2.3	12.0	7.0	0.80	0.50	0.0	0.0	8.04	29	336
249.0	Ericsson RRUS B13	3	135	3.6	1.6	17.0	10.5	0.80	0.50	0.0	0.0	8.04	29	449
249.0	Allgon 7834 /A-800-	2	108	4.3	4.2	7.6	10.6	0.80	0.78	0.0	0.0	8.04	37	222
249.0	Allgon 7272.04 / U-	4	115	8.4	6.3	10.0	2.0	0.80	0.58	0.0	0.0	8.04	107	480
249.0	Commscope SBNHH-	6	210	13.7	8.0	11.9	7.1	0.80	0.70	0.0	0.0	8.04	315	1321
249.0	Generic Flat Light	3	611	28.5	0.0	0.0	0.0	0.75	0.67	0.0	0.0	8.04	293	2072
237.0	Torque Arms	1	744	22.3	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.95	151	844
181.0	Generic 24" x 24"	3	101	5.8	2.0	24.0	6.0	1.00	0.58	0.0	0.0	7.51	64	321
179.0	Generic 12" x 9" x	3	40	1.3	1.0	9.0	6.0	1.00	0.50	0.0	0.0	7.50	13	132
177.0	Torque Arms	1	736	22.1	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.48	140	836
143.0	Generic 24" x 24"	3	99	5.7	2.0	24.0	6.0	1.00	0.58	0.0	0.0	7.15	61	316
142.0	Generic 12" x 9" x	3	40	1.3	1.0	9.0	6.0	1.00	0.50	0.0	0.0	7.14	12	131
	Totals	64	14061	707.0									2757	15488

Site Number: 417306 | Code: ANSI/TIA-222-H |

Site Name: Morgan (MWW) MN, MN | Engineering Number: OAA761574_C3_05 | 4/8/2021 10:36:11 AM

Customer: AT&T MOBILITY

Tower Loading

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient. Factor	Vert. Ecc.(ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
271.0	Nokia AirScale RRH	3	35	1.3	1.1	11.6	6.5	0.80	0.50	0.0	0.0	11.78	15	106
271.0	Nokia RRH 4T4R B30	3	34	1.3	1.1	12.1	5.5	0.80	0.50	0.0	0.0	11.78	16	103
271.0	Nokia AirScale Dual	6	66	2.2	1.8	12.1	5.9	0.80	0.50	0.0	0.0	11.78	53	397
271.0	Nokia AHLBBA	3	95	2.8	2.0	14.1	7.8	0.80	0.50	0.0	0.0	11.78	34	284
271.0	Raycap DC9-48-60-	2	16	4.8	2.6	18.3	10.2	0.80	0.50	0.0	0.0	11.78	38	32
271.0	Commscope NNH4-	6	103	17.1	8.0	19.6	7.8	0.80	0.64	0.0	0.0	11.78	525	615
271.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	11.78	270	1200
250.0	VZW Unused	1	1059	85.5	0.0	0.0	0.0	0.80	0.90	0.0	0.0	11.58	606	1059
249.0	Raycap RxxDC-3315-	2	21	2.5	1.6	15.7	10.3	0.80	0.50	0.0	0.0	11.57	20	43
249.0	Ericsson RRUS 32	3	51	2.7	2.3	12.0	7.0	0.80	0.50	0.0	0.0	11.57	32	152
249.0	Ericsson RRUS B13	3	74	2.8	1.6	17.0	10.5	0.80	0.50	0.0	0.0	11.57	33	222
249.0	Allgon 7834 /A-800-	2	15	4.8	4.2	7.6	10.6	0.80	0.78	0.0	0.0	11.57	59	30
249.0	Allgon 7272.04 / U-	4	24	7.5	6.3	10.0	2.0	0.80	0.58	0.0	0.0	11.57	137	96
249.0	Commscope SBNHH-	6	50	11.4	8.0	11.9	7.1	0.80	0.70	0.0	0.0	11.57	378	298
249.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.67	0.0	0.0	11.57	265	1200
237.0	Torque Arms	1	500	15.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	11.45	146	500
181.0	Generic 24" x 24"	3	30	4.8	2.0	24.0	6.0	1.00	0.58	0.0	0.0	10.82	77	90
179.0	Generic 12" x 9" x	3	20	0.9	1.0	9.0	6.0	1.00	0.50	0.0	0.0	10.80	12	60
177.0	Torque Arms	1	500	15.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	10.77	137	500
143.0	Generic 24" x 24"	3	30	4.8	2.0	24.0	6.0	1.00	0.58	0.0	0.0	10.30	73	90
142.0	Generic 12" x 9" x	3	20	0.9	1.0	9.0	6.0	1.00	0.50	0.0	0.0	10.28	12	60
	Totals	64	7136	528.6									2941	7136

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
Engineering Number: OAA761574_C3_05

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Tower Loading

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	271.0	0.92" (23.4mm)	2	0.92	0.89	100	1	Individual	0.00	N	1.00	1.00	0.57
0.00	271.0	1.13" (28.7mm)	3	1.13	1.26	67	1	Block	0.00	N	1.00	1.00	0.24
0.00	271.0	7/8" (0.88"-	2	0.88	0.70	100	1	Individual	0.00	N	1.00	1.00	0.01
0.00	249.0	1 5/8" Coax	10	1.98	0.82	90	3	Block	0.00	N	1.00	1.00	0.37
0.00	249.0	1.55" (39.5mm)	2	1.55	0.55	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	181.0	1/4" (0.25"-	3	0.25	0.02	100	3	Individual	0.00	N	1.00	1.00	0.01
0.00	180.0	3/8" Coax	3	0.44	0.08	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	143.0	1/4" (0.25"-	3	0.25	0.02	100	3	Individual	0.00	N	1.00	1.00	0.01
0.00	143.0	3/8" Coax	3	0.44	0.08	100	3	Individual	0.00	N	1.00	1.00	0.00

Site Number: 417306 Code: ANSI/TIA-222-H

Site Name: Morgan (MWW) MN, MN Engineering Number: OAA761574_C3_05

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Customer: AT&T MOBILITY

Equivalent Lateral Force Method

Spectral Response Acceleration for Short Period (S_s):	0.06
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.03
Long-Period Transition Period (T_L - Seconds):	12
Importance Factor (I_e):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v:	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.06
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.05
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s:	0.03
Lower Limit C_s:	0.03
Period based on Rayleigh Method (sec):	1.46
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.48
Total Unfactored Dead Load:	26.22 k
Seismic Base Shear (E):	1.02 k

LoadCase 1.2D + 1.0Ev + 1.0Eh Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
16	272.50	342	1,381,07	0.024	25	414
15	260.00	1,272	4,792,28	0.085	87	1,542
14	240.00	1,420	4,753,07	0.084	86	1,722
13	225.00	722	2,196,83	0.039	40	876
12	210.00	1,429	3,925,83	0.070	71	1,733
11	190.00	1,429	3,385,19	0.060	61	1,733
10	170.00	1,435	2,883,05	0.051	52	1,740
9	150.00	1,316	2,196,37	0.039	40	1,596
8	130.00	1,321	1,783,83	0.032	32	1,602
7	110.00	1,354	1,427,94	0.025	26	1,642
6	90.00	1,321	1,034,81	0.018	19	1,602
5	70.00	1,321	713,238	0.013	13	1,602
4	50.00	1,354	444,257	0.008	8	1,642
3	30.00	1,321	203,383	0.004	4	1,602
2	13.33	1,079	50,014	0.001	1	1,309
1	3.33	644	3,830	0.000	0	781
Nokia AirScale RRH 4T4R B5 160W AHCA	271.00	106	424,391	0.008	8	128
Nokia RRH 4T4R B30 100W AHNA (34.2	271.00	103	411,166	0.007	7	124
Nokia AirScale Dual RRH 4T4R B25/66	271.00	397	1,589,36	0.028	29	481
Nokia AHLBBA	271.00	284	1,139,72	0.020	21	345
Raycap DC9-48-60-24-8C-EV	271.00	32	128,239	0.002	2	39
Commscope NNH4-65C-R6-V3 (102.5	271.00	615	2,464,59	0.044	45	746
Generic Flat Light Sector Frame	271.00	1,200	4,808,95	0.085	87	1,455
VZW Unused Reserve (12313.54 sqin)	250.00	1,059	3,766,46	0.067	68	1,284

Site Number: 417306 Code: ANSI/TIA-222-H

Site Name: Morgan (MWW) MN, MN Engineering Number: OAA761574_C3_05 4/8/2021 10:36:12 AM

Customer: AT&T MOBILITY

Equivalent Lateral Force Method

Raycap RxxDC-3315-PF-48	249.00	43	151,308	0.003	3	52
Ericsson RRUS 32 B66A	249.00	152	537,710	0.010	10	184
Ericsson RRUS B13 w/ RRUS A2 (74 lbs)	249.00	222	784,823	0.014	14	269
Allgon 7834 /A-800-90-14I	249.00	30	107,471	0.002	2	37
Allgon 7272.04 / U-800-65-17I-4-D	249.00	96	339,383	0.006	6	116
Commscope SBNHH-1D65C	249.00	298	1,052,08	0.019	19	361
Generic Flat Light Sector Frame	249.00	1,200	4,242,28	0.075	77	1,455
Torque Arms	237.00	500	1,642,94	0.029	30	606
Generic 24" x 24" Panel	181.00	90	198,396	0.004	4	109
Generic 12" x 9" x 6" TMA	179.00	60	130,105	0.002	2	73
Torque Arms	177.00	500	1,066,32	0.019	19	606
Generic 24" x 24" Panel	143.00	90	139,952	0.002	3	109
Generic 12" x 9" x 6" TMA	142.00	60	92,337	0.002	2	73
		26,217	56,393,069	1.000	1,022	31,791

LoadCase 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
16	272.50	342	1,381,07	0.024	25	303
15	260.00	1,272	4,792,28	0.085	87	1,128
14	240.00	1,420	4,753,07	0.084	86	1,260
13	225.00	722	2,196,83	0.039	40	641
12	210.00	1,429	3,925,83	0.070	71	1,268
11	190.00	1,429	3,385,19	0.060	61	1,268
10	170.00	1,435	2,883,05	0.051	52	1,274
9	150.00	1,316	2,196,37	0.039	40	1,168
8	130.00	1,321	1,783,83	0.032	32	1,172
7	110.00	1,354	1,427,94	0.025	26	1,202
6	90.00	1,321	1,034,81	0.018	19	1,172
5	70.00	1,321	713,238	0.013	13	1,172
4	50.00	1,354	444,257	0.008	8	1,202
3	30.00	1,321	203,383	0.004	4	1,172
2	13.33	1,079	50,014	0.001	1	958
1	3.33	644	3,830	0.000	0	571
Nokia AirScale RRH 4T4R B5 160W AHCA	271.00	106	424,391	0.008	8	94
Nokia RRH 4T4R B30 100W AHNA (34.2	271.00	103	411,166	0.007	7	91
Nokia AirScale Dual RRH 4T4R B25/66	271.00	397	1,589,36	0.028	29	352
Nokia AHLBBA	271.00	284	1,139,72	0.020	21	252
Raycap DC9-48-60-24-8C-EV	271.00	32	128,239	0.002	2	28
Commscope NNH4-65C-R6-V3 (102.5	271.00	615	2,464,59	0.044	45	546
Generic Flat Light Sector Frame	271.00	1,200	4,808,95	0.085	87	1,065
VZW Unused Reserve (12313.54 sqin)	250.00	1,059	3,766,46	0.067	68	940
Raycap RxxDC-3315-PF-48	249.00	43	151,308	0.003	3	38
Ericsson RRUS 32 B66A	249.00	152	537,710	0.010	10	135
Ericsson RRUS B13 w/ RRUS A2 (74 lbs)	249.00	222	784,823	0.014	14	197
Allgon 7834 /A-800-90-14I	249.00	30	107,471	0.002	2	27
Allgon 7272.04 / U-800-65-17I-4-D	249.00	96	339,383	0.006	6	85
Commscope SBNHH-1D65C	249.00	298	1,052,08	0.019	19	264
Generic Flat Light Sector Frame	249.00	1,200	4,242,28	0.075	77	1,065
Torque Arms	237.00	500	1,642,94	0.029	30	444
Generic 24" x 24" Panel	181.00	90	198,396	0.004	4	80
Generic 12" x 9" x 6" TMA	179.00	60	130,105	0.002	2	53
Torque Arms	177.00	500	1,066,32	0.019	19	444

Equivalent Lateral Force Method

Generic 24" x 24" Panel	143.00	90	139,952	0.002	3	80
Generic 12" x 9" x 6" TMA	142.00	60	92,337	0.002	2	53
		26,217	56,393,070	1.000	1,022	23,265

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
Engineering Number: OAA761574_C3_05

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Force/Stress Summary

Section: 1 - Bot Elev (ft): 0.00 Height (ft): 6.667

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2 1/4" SOLID	-45.62	1.2D + 1.0Di + 1.0Wi	1.68	100	100	100	35.8	50.0	162.90	0	0	0.00	0.00	28	Member X
HORIZ PL - PL 9 x 0.375"	-0.06	1.2D + 1.0W Normal	0.731	100	100	100	52.8	16.5	53.52	0	0	0.00	0.00	0	Member Y
DIAG	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00		

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ PL - PL 9 x 0.375"	3.33	1.2D + 1.0W Normal	36	58	109.35	0	0	0.00	0.00	0.00	3	Member
DIAG	0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	45.05	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Section: 2 - Bot Elev (ft): 6.67 Height (ft): 13.333

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2 1/4" SOLID	-46.87	1.2D + 1.0Di + 1.0Wi	3.24	100	100	100	69.2	50.0	126.04	0	0	0.00	0.00	37	Member X
HORIZ SOL - 7/8" SOLID	-0.18	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	1	Member X
DIAG SOL - 1 1/4" SOLID	-1.54	1.2D + 1.0W 90 deg	4.419	100	100	100	118.8	36.0	18.93	0	0	0.00	0.00	8	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	2.59	1.2D + 1.0Di + 1.0Wi	36	58	19.48	0	0	0.00	0.00	0.00	13	Member
DIAG SOL - 1 1/4" SOLID	0.88	1.2D + 1.0W Normal	36	58	39.76	0	0	0.00	0.00	0.00	2	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	48.26	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Site Number: 417306 | Code: ANSI/TIA-222-H |

Site Name: Morgan (MWW) MN, MN | Engineering Number: OAA761574_C3_05 | 4/8/2021 10:36:12 AM

Customer: AT&T MOBILITY

Force/Stress Summary

Section: 3 - Bot Elev (ft): 20.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-48.82	1.2D + 1.0Di + 1.0Wi	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	54	Member X
HORIZ SOL - 7/8" SOLID	-0.07	1.2D + 1.0W 60 deg	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	0	Member X
DIAG SOL - 1" SOLID	-0.94	1.2D + 1.0W Normal	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	11	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	0.24	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	1	Member
DIAG SOL - 1" SOLID	0.42	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	1	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	49.48	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Section: 4 - Bot Elev (ft): 40.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-48.90	1.2D + 1.0Di + 1.0Wi	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	54	Member X
HORIZ SOL - 7/8" SOLID	-0.03	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	0	Member X
DIAG SOL - 1" SOLID	-1.21	1.2D + 1.0W 90 deg	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	15	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	0.22	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	1	Member
DIAG SOL - 1" SOLID	0.55	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	2	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	46.09	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
Engineering Number: OAA761574_C3_05

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Force/Stress Summary

Section: 5 - Bot Elev (ft): 60.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-45.74	1.2D + 1.0Di + 1.0Wi	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	50	Member X
HORIZ SOL - 7/8" SOLID	-0.05	1.2D + 1.0W 60 deg	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	0	Member X
DIAG SOL - 1" SOLID	-0.83	1.2D + 1.0W Normal	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	10	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	0.21	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	1	Member
DIAG SOL - 1" SOLID	0.36	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	1	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	45.16	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Section: 6 - Bot Elev (ft): 80.00 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-44.36	1.2D + 1.0Di + 1.0Wi	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	49	Member X
HORIZ SOL - 7/8" SOLID	-0.23	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	2	Member X
DIAG SOL - 1" SOLID	-1.90	1.2D + 1.0W Normal	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	23	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	0.53	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	2	Member
DIAG SOL - 1" SOLID	1.43	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	5	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	39.20	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Force/Stress Summary

Section: 7 - Bot Elev (ft): 100.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-45.98	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	51	Member X
HORIZ SOL - 7/8" SOLID	-0.54	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	5	Member X
DIAG SOL - 1" SOLID	-2.77	1.2D + 1.0W 90 deg	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	34	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	0.60	1.2D + 1.0W 60 deg	36	58	19.48	0	0	0.00	0.00	0.00	3	Member
DIAG SOL - 1" SOLID	2.08	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	8	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	46.56	1.2D + 1.0W Normal	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Section: 8 - Bot Elev (ft): 120.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-55.47	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	61	Member X
HORIZ SOL - 7/8" SOLID	-0.24	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	2	Member X
DIAG SOL - 1" SOLID	-1.77	1.2D + 1.0W Normal	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	22	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ SOL - 7/8" SOLID	0.50	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	2	Member
DIAG SOL - 1" SOLID	1.32	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	5	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	56.71	1.2D + 1.0W Normal	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
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Force/Stress Summary

Section: 9 - Bot Elev (ft): 140.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-73.71	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	81	Member X
HORIZ SOL - 7/8" SOLID	-0.51	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	4	Member X
DIAG SOL - 1" SOLID	-2.82	1.2D + 1.0W Normal	4.438	100	100	100	149.1	36.0	7.98	0	0	0.00	0.00	35	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 2" SOLID	3.33	1.2D + 1.0W 90 deg	50	65	141.37	0	0	0.00	0.00		2	Member
HORIZ SOL - 7/8" SOLID	0.83	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	4	Member
DIAG SOL - 1" SOLID	2.36	1.2D + 1.0W Normal	36	58	25.45	0	0	0.00	0.00	0.00	9	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	3.33	1.2D + 1.0W 210 deg	0.00	0	0	
Top Compression	75.72	1.2D + 1.0W Normal	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Section: 10 - Bot Elev (ft): 160.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-94.31	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	104	Member X
HORIZ SOL - 7/8" SOLID	-0.84	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	7	Member X
DIAG SOL - 1 1/4" SOLID	-3.63	1.2D + 1.0W Normal	4.438	100	100	100	119.3	36.0	18.80	0	0	0.00	0.00	19	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 2" SOLID	26.91	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0.00	0.00		19	Member
HORIZ SOL - 7/8" SOLID	1.89	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	9	Member
DIAG SOL - 1 1/4" SOLID	3.11	1.2D + 1.0W Normal	36	58	39.76	0	0	0.00	0.00	0.00	7	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	26.84	1.2D + 1.0W 60 deg	0.00	0	0	
Top Compression	93.79	1.2D + 1.0W Normal	0.00	0		
Bot Tension	3.33	1.2D + 1.0W 210 deg	90.30	4	3	0.75" A325
Bot Compression	0.00		0.00	0		

Force/Stress Summary

Section: 11 - Bot Elev (ft): 180.0 Height (ft): 20.000

Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 2" SOLID	-92.73	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	102	Member X
HORIZ	SOL - 7/8" SOLID	-0.87	1.2D + 1.0Di + 1.0Wi	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	8	Member X
DIAG	SOL - 1 1/4" SOLID	-1.20	1.2D + 1.0W Normal	4.438	100	100	100	119.3	36.0	18.80	0	0	0.00	0.00	6	Member X

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 2" SOLID	31.32	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0.00	0.00		22	Member
HORIZ	SOL - 7/8" SOLID	0.08	1.2D + 1.0W Normal	36	58	19.48	0	0	0.00	0.00	0.00	0	Member
DIAG	SOL - 1 1/4" SOLID	0.73	1.2D + 1.0W Normal	36	58	39.76	0	0	0.00	0.00	0.00	1	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	31.32	1.2D + 1.0W 60 deg	0.00	0	0	
Top Compression	87.53	1.2D + 1.0W Normal	0.00	0		
Bot Tension	26.84	1.2D + 1.0W 60 deg	90.30	30	3	0.75" A325
Bot Compression	0.00		0.00	0		

Section: 12 - Bot Elev (ft): 200.0 Height (ft): 20.000

Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 2" SOLID	-87.43	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	97	Member X
HORIZ	SOL - 7/8" SOLID	-0.42	1.2D + 1.0W 60 deg	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	3	Member X
DIAG	SOL - 1 1/4" SOLID	-1.51	1.2D + 1.0W 60 deg	4.438	100	100	100	119.3	36.0	18.80	0	0	0.00	0.00	8	Member X

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 2" SOLID	43.58	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0.00	0.00		30	Member
HORIZ	SOL - 7/8" SOLID	0.38	1.2D + 1.0W 60 deg	36	58	19.48	0	0	0.00	0.00	0.00	1	Member
DIAG	SOL - 1 1/4" SOLID	1.64	1.2D + 1.0W 60 deg	36	58	39.76	0	0	0.00	0.00	0.00	4	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	43.58	1.2D + 1.0W 60 deg	0.00	0	0	
Top Compression	87.68	1.2D + 1.0W Normal	0.00	0		
Bot Tension	31.32	1.2D + 1.0W 60 deg	90.30	35	3	0.75" A325
Bot Compression	0.00		0.00	0		

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
Engineering Number: OAA761574_C3_05

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Force/Stress Summary

Section: 13 - Bot Elev (ft): 220.0 Height (ft): 10.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-89.79	1.2D + 1.0W Normal	3.21	100	100	100	77.0	50.0	91.64	0	0	0.00	0.00	97	Member X
HORIZ SOL - 7/8" SOLID	-1.21	1.2D + 1.0W 60 deg	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	11	Member X
DIAG SOL - 1 1/4" SOLID	-2.25	1.2D + 1.0W 60 deg	4.392	100	100	100	118.0	36.0	19.10	0	0	0.00	0.00	11	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 2" SOLID	52.74	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0.00	0.00		37	Member
HORIZ SOL - 7/8" SOLID	0.61	1.2D + 1.0W 60 deg	36	58	19.48	0	0	0.00	0.00	0.00	3	Member
DIAG SOL - 1 1/4" SOLID	2.19	1.2D + 1.0W 60 deg	36	58	39.76	0	0	0.00	0.00	0.00	5	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	52.74	1.2D + 1.0W 60 deg	0.00	0	0	
Top Compression	90.38	1.2D + 1.0W Normal	0.00	0		
Bot Tension	43.58	1.2D + 1.0W 60 deg	90.30	48	3	0.75" A325
Bot Compression	0.00		0.00	0		

Section: 14 - Bot Elev (ft): 230.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-92.99	1.2D + 1.0W Normal	3.27	100	100	100	78.5	50.0	90.09	0	0	0.00	0.00	103	Member X
HORIZ SOL - 7/8" SOLID	-3.70	1.2D + 1.0W Normal	3.000	100	100	100	107.0	36.0	10.67	0	0	0.00	0.00	34	Member X
DIAG SOL - 1 1/4" SOLID	-11.08	1.2D + 1.0W 90 deg	4.438	100	100	100	119.3	36.0	18.80	0	0	0.00	0.00	58	Member X

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 2" SOLID	76.56	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0.00	0.00		54	Member
HORIZ SOL - 7/8" SOLID	8.43	1.2D + 1.0W 90 deg	36	58	19.48	0	0	0.00	0.00	0.00	43	Member
DIAG SOL - 1 1/4" SOLID	10.31	1.2D + 1.0W 90 deg	36	58	39.76	0	0	0.00	0.00	0.00	25	Member

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	31.25	1.2D + 1.0W 60 deg	0.00	0	0	
Top Compression	37.08	1.2D + 1.0W Normal	0.00	0		
Bot Tension	52.74	1.2D + 1.0W 60 deg	90.30	58	3	0.75" A325
Bot Compression	0.00		0.00	0		

Site Number: 417306 Code: ANSI/TIA-222-H

Site Name: Morgan (MWW) MN, MN Engineering Number: OAA761574_C3_05 4/8/2021 10:36:12 AM

Customer: AT&T MOBILITY

Force/Stress Summary

Section: 15 extension Bot Elev (ft): 250.0 Height (ft): 20.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-32.88	1.2D + 1.0W Normal	3.25	100	100	100	78.0	50.0	90.61	0	0	0.00	0.00	36	Member X
HORIZ SAE - 1.75X1.75X0.25	-1.01	1.2D + 1.0W 90 deg	3.000	100	100	100	112.8	36.0	17.50	1	1	11.04	13.92	9	Bolt Shear
DIAG SAE - 1.75X1.75X0.25	-2.61	1.2D + 1.0W 90 deg	4.423	50	50	50	88.4	36.0	22.00	1	1	11.04	13.92	23	Bolt Shear

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 2" SOLID	31.72	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0.00	0.00		22	Member
HORIZ SAE - 1.75X1.75X0.25	1.06	1.2D + 1.0W Normal	36	58	21.84	1	1	11.04	8.27	7.61	13	Blk Shear
DIAG SAE - 1.75X1.75X0.25	2.48	1.2D + 1.0W 90 deg	36	58	21.84	1	1	11.04	8.27	7.61	32	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	2.67	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension	31.25	1.2D + 1.0W 60 deg	90.30	35	3	0.75" A325
Bot Compression	0.00		0.00	0		

Section: 16 extension Bot Elev (ft): 270.0 Height (ft): 5.000

Max Compression Member	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 2" SOLID	-1.97	1.2D + 1.0W Normal	0.25	100	100	100	6.0	50.0	141.00	0	0	0.00	0.00	1	Member X
HORIZ SAE - 1.75X1.75X0.25	-0.08	1.2D + 1.0W Normal	3.000	100	100	100	112.8	36.0	17.50	1	1	11.04	13.92	0	Bolt Shear
DIAG SAE - 1.75X1.75X0.25	-0.36	1.2D + 1.0W Normal	3.750	50	50	50	79.5	36.0	23.37	1	1	11.04	13.92	3	Bolt Shear

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 2" SOLID	0.09	1.2D + 1.0W Normal	50	65	141.37	0	0	0.00	0.00		0	Member
HORIZ SAE - 1.75X1.75X0.25	0.04	1.2D + 1.0W Normal	36	58	21.84	1	1	11.04	8.27	7.61	0	Blk Shear
DIAG SAE - 1.75X1.75X0.25	0.33	1.2D + 1.0W 60 deg	36	58	21.84	1	1	11.04	8.27	7.61	4	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	0.00		0.00	0	0	
Top Compression	0.31	1.2D + 1.0Ev + 1.0Eh	0.00	0		
Bot Tension	0.00		0.00	0		
Bot Compression	0.00		0.00	0		

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
Engineering Number: OAA761574_C3_05

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Detailed Reactions

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
1.2D + 1.0W Normal	0.00	00.00		1	0.00	94.17	-1.46	
	200.00	00.00	0	A1	0.00	-2.71	3.28	
	200.00	00.00	240	A1a	-25.88	-28.58	-16.26	
	200.00	00.00	120	A1b	25.88	-28.58	-16.26	
1.2D + 1.0W 60 deg	0.00	00.00		1	-1.15	86.03	-0.67	
	200.00	00.00	0	A1	-1.02	-8.93	10.56	
	200.00	00.00	240	A1a	-32.84	-34.47	-18.96	
	200.00	00.00	120	A1b	8.64	-8.93	-6.16	
1.2D + 1.0W 90 deg	0.00	00.00		1	-1.36	91.60	0.03	
	200.00	00.00	0	A1	-1.33	-19.22	20.91	
	200.00	00.00	240	A1a	-32.17	-33.99	-17.88	
	200.00	00.00	120	A1b	4.35	-4.39	-3.06	
1.2D + 1.0W 120 deg	0.00	00.00		1	-1.26	94.17	0.73	
	200.00	00.00	0	A1	-1.14	-28.58	30.54	
	200.00	00.00	240	A1a	-27.02	-28.58	-14.28	
	200.00	00.00	120	A1b	2.84	-2.71	-1.64	
1.2D + 1.0W 180 deg	0.00	00.00		1	0.00	86.03	1.33	
	200.00	00.00	0	A1	0.00	-34.47	37.93	
	200.00	00.00	240	A1a	-9.65	-8.93	-4.40	
	200.00	00.00	120	A1b	9.65	-8.93	-4.40	
1.2D + 1.0W 210 deg	0.00	00.00		1	0.71	91.60	1.16	
	200.00	00.00	0	A1	0.59	-33.99	36.80	
	200.00	00.00	240	A1a	-4.82	-4.39	-2.24	
	200.00	00.00	120	A1b	18.77	-19.22	-9.30	
1.2D + 1.0W 240 deg	0.00	00.00		1	1.26	94.17	0.73	
	200.00	00.00	0	A1	1.14	-28.58	30.54	
	200.00	00.00	240	A1a	-2.84	-2.71	-1.64	
	200.00	00.00	120	A1b	27.02	-28.58	-14.28	
1.2D + 1.0W 300 deg	0.00	00.00		1	1.16	86.03	-0.67	
	200.00	00.00	0	A1	1.02	-8.93	10.56	
	200.00	00.00	240	A1a	-8.64	-8.93	-6.16	
	200.00	00.00	120	A1b	32.84	-34.47	-18.96	
1.2D + 1.0W 330 deg	0.00	00.00		1	0.65	91.60	-1.19	
	200.00	00.00	0	A1	0.47	-4.39	5.30	
	200.00	00.00	240	A1a	-17.44	-19.22	-11.60	
	200.00	00.00	120	A1b	31.57	-33.99	-18.91	
1.2D + 1.0Di + 1.0Wi Normal	0.00	00.00		1	0.00	128.73	-0.58	
	200.00	00.00	0	A1	0.00	-9.16	13.56	
	200.00	00.00	240	A1a	-22.14	-19.54	-13.99	
	200.00	00.00	120	A1b	22.14	-19.54	-13.99	
1.2D + 1.0Di + 1.0Wi 60 deg	0.00	00.00		1	-0.45	129.67	-0.26	
	200.00	00.00	0	A1	-1.05	-13.14	17.93	
	200.00	00.00	240	A1a	-26.47	-23.55	-15.28	
	200.00	00.00	120	A1b	15.00	-13.14	-9.87	
1.2D + 1.0Di + 1.0Wi 90 deg	0.00	00.00		1	-0.55	129.17	0.03	
	200.00	00.00	0	A1	-1.31	-16.31	22.01	
	200.00	00.00	240	A1a	-25.64	-22.33	-14.23	
	200.00	00.00	120	A1b	12.53	-10.36	-7.81	

1.2D + 1.0Di + 1.0Wi 120 deg	0.00	00.00		1	-0.50	128.73	0.29
	200.00	00.00	0	A1	-1.05	-19.54	26.17
	200.00	00.00	240	A1a	-23.19	-19.54	-12.17
	200.00	00.00	120	A1b	11.74	-9.16	-6.78
1.2D + 1.0Di + 1.0Wi 180 deg	0.00	00.00		1	0.00	129.67	0.53
	200.00	00.00	0	A1	0.00	-23.55	30.56
	200.00	00.00	240	A1a	-16.05	-13.14	-8.05
	200.00	00.00	120	A1b	16.05	-13.14	-8.06
1.2D + 1.0Di + 1.0Wi 210 deg	0.00	00.00		1	0.30	129.17	0.47
	200.00	00.00	0	A1	0.49	-22.33	29.33
	200.00	00.00	240	A1a	-13.03	-10.36	-6.95
	200.00	00.00	120	A1b	19.72	-16.31	-9.87
1.2D + 1.0Di + 1.0Wi 240 deg	0.00	00.00		1	0.50	128.73	0.29
	200.00	00.00	0	A1	1.05	-19.54	26.17
	200.00	00.00	240	A1a	-11.74	-9.16	-6.78
	200.00	00.00	120	A1b	23.19	-19.54	-12.17
1.2D + 1.0Di + 1.0Wi 300 deg	0.00	00.00		1	0.46	129.67	-0.26
	200.00	00.00	0	A1	1.05	-13.14	17.93
	200.00	00.00	240	A1a	-15.00	-13.14	-9.87
	200.00	00.00	120	A1b	26.47	-23.55	-15.28
1.2D + 1.0Di + 1.0Wi 330 deg	0.00	00.00		1	0.25	129.17	-0.49
	200.00	00.00	0	A1	0.49	-10.36	14.76
	200.00	00.00	240	A1a	-18.41	-16.31	-12.14
	200.00	00.00	120	A1b	25.15	-22.33	-15.09
1.2D + 1.0Ev + 1.0Eh Normal M1	0.00	00.00		1	0.00	61.75	0.00
	200.00	00.00	0	A1	0.00	-8.39	10.77
	200.00	00.00	240	A1a	-10.19	-9.51	-5.89
	200.00	00.00	120	A1b	10.19	-9.51	-5.89
1.2D + 1.0Ev + 1.0Eh 60 deg M1	0.00	00.00		1	0.00	61.74	0.00
	200.00	00.00	0	A1	0.00	-8.76	11.10
	200.00	00.00	240	A1a	-10.48	-9.88	-6.05
	200.00	00.00	120	A1b	9.61	-8.76	-5.55
1.2D + 1.0Ev + 1.0Eh 90 deg M1	0.00	00.00		1	0.00	61.75	0.00
	200.00	00.00	0	A1	0.00	-9.14	11.43
	200.00	00.00	240	A1a	-10.41	-9.79	-6.01
	200.00	00.00	120	A1b	9.40	-8.49	-5.43
1.2D + 1.0Ev + 1.0Eh 120 deg M1	0.00	00.00		1	0.00	61.75	0.00
	200.00	00.00	0	A1	0.00	-9.51	11.77
	200.00	00.00	240	A1a	-10.20	-9.51	-5.89
	200.00	00.00	120	A1b	9.32	-8.39	-5.38
1.2D + 1.0Ev + 1.0Eh 180 deg M1	0.00	00.00		1	0.00	61.74	0.00
	200.00	00.00	0	A1	0.00	-9.88	12.11
	200.00	00.00	240	A1a	-9.61	-8.76	-5.55
	200.00	00.00	120	A1b	9.61	-8.76	-5.55
1.2D + 1.0Ev + 1.0Eh 210 deg M1	0.00	00.00		1	0.00	61.75	0.00
	200.00	00.00	0	A1	0.00	-9.79	12.02
	200.00	00.00	240	A1a	-9.40	-8.49	-5.43
	200.00	00.00	120	A1b	9.90	-9.14	-5.72
1.2D + 1.0Ev + 1.0Eh 240 deg M1	0.00	00.00		1	0.00	61.75	0.00
	200.00	00.00	0	A1	0.00	-9.51	11.77
	200.00	00.00	240	A1a	-9.32	-8.39	-5.38
	200.00	00.00	120	A1b	10.19	-9.51	-5.89

1.2D + 1.0Ev + 1.0Eh 300 deg M1	0.00	00.00		1	0.00	61.74	0.00
	200.00	00.00	0	A1	0.00	-8.76	11.10
	200.00	00.00	240	A1a	-9.61	-8.76	-5.55
	200.00	00.00	120	A1b	10.48	-9.88	-6.05
1.2D + 1.0Ev + 1.0Eh 330 deg M1	0.00	00.00		1	0.00	61.75	0.00
	200.00	00.00	0	A1	0.00	-8.49	10.86
	200.00	00.00	240	A1a	-9.90	-9.14	-5.72
	200.00	00.00	120	A1b	10.41	-9.79	-6.01
0.9D - 1.0Ev + 1.0Eh Normal M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-8.51	10.89
	200.00	00.00	240	A1a	-10.30	-9.63	-5.95
	200.00	00.00	120	A1b	10.30	-9.63	-5.95
0.9D - 1.0Ev + 1.0Eh 60 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-8.88	11.22
	200.00	00.00	240	A1a	-10.59	-10.00	-6.11
	200.00	00.00	120	A1b	9.72	-8.88	-5.61
0.9D - 1.0Ev + 1.0Eh 90 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-9.25	11.56
	200.00	00.00	240	A1a	-10.51	-9.90	-6.07
	200.00	00.00	120	A1b	9.51	-8.61	-5.49
0.9D - 1.0Ev + 1.0Eh 120 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-9.63	11.89
	200.00	00.00	240	A1a	-10.30	-9.63	-5.95
	200.00	00.00	120	A1b	9.43	-8.51	-5.44
0.9D - 1.0Ev + 1.0Eh 180 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-10.00	12.23
	200.00	00.00	240	A1a	-9.72	-8.88	-5.61
	200.00	00.00	120	A1b	9.72	-8.88	-5.61
0.9D - 1.0Ev + 1.0Eh 210 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-9.90	12.14
	200.00	00.00	240	A1a	-9.51	-8.61	-5.49
	200.00	00.00	120	A1b	10.01	-9.25	-5.78
0.9D - 1.0Ev + 1.0Eh 240 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-9.63	11.89
	200.00	00.00	240	A1a	-9.43	-8.51	-5.44
	200.00	00.00	120	A1b	10.30	-9.63	-5.95
0.9D - 1.0Ev + 1.0Eh 300 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-8.88	11.22
	200.00	00.00	240	A1a	-9.72	-8.88	-5.61
	200.00	00.00	120	A1b	10.59	-10.00	-6.11
0.9D - 1.0Ev + 1.0Eh 330 deg M1	0.00	00.00		1	0.00	53.58	0.00
	200.00	00.00	0	A1	0.00	-8.61	10.98
	200.00	00.00	240	A1a	-10.01	-9.25	-5.78
	200.00	00.00	120	A1b	10.51	-9.90	-6.07
1.0D + 1.0W Service Normal	0.00	00.00		1	0.00	57.71	-0.43
	200.00	00.00	0	A1	0.00	-4.62	6.64
	200.00	00.00	240	A1a	-12.55	-12.12	-7.59
	200.00	00.00	120	A1b	12.55	-12.12	-7.59
1.0D + 1.0W Service 60 deg	0.00	00.00		1	-0.36	58.67	-0.21
	200.00	00.00	0	A1	-0.29	-7.52	9.59
	200.00	00.00	240	A1a	-15.21	-14.96	-8.78
	200.00	00.00	120	A1b	8.16	-7.52	-5.05
1.0D + 1.0W Service 90 deg	0.00	00.00		1	-0.42	58.36	0.00

	200.00	00.00	0	A1	-0.37	-9.86	12.16
	200.00	00.00	240	A1a	-14.60	-14.17	-8.27
	200.00	00.00	120	A1b	6.47	-5.56	-3.89
1.0D + 1.0W Service 120 deg	0.00	00.00		1	-0.37	57.71	0.21
	200.00	00.00	0	A1	-0.30	-12.12	14.67
	200.00	00.00	240	A1a	-12.85	-12.12	-7.08
	200.00	00.00	120	A1b	5.75	-4.62	-3.32
1.0D + 1.0W Service 180 deg	0.00	00.00		1	0.00	58.67	0.41
	200.00	00.00	0	A1	0.00	-14.96	17.57
	200.00	00.00	240	A1a	-8.45	-7.51	-4.54
	200.00	00.00	120	A1b	8.45	-7.51	-4.54
1.0D + 1.0W Service 210 deg	0.00	00.00		1	0.21	58.36	0.36
	200.00	00.00	0	A1	0.14	-14.17	16.78
	200.00	00.00	240	A1a	-6.61	-5.56	-3.65
	200.00	00.00	120	A1b	10.71	-9.86	-5.76
1.0D + 1.0W Service 240 deg	0.00	00.00		1	0.37	57.71	0.21
	200.00	00.00	0	A1	0.30	-12.12	14.67
	200.00	00.00	240	A1a	-5.75	-4.62	-3.32
	200.00	00.00	120	A1b	12.85	-12.12	-7.08
1.0D + 1.0W Service 300 deg	0.00	00.00		1	0.36	58.67	-0.21
	200.00	00.00	0	A1	0.29	-7.51	9.59
	200.00	00.00	240	A1a	-8.16	-7.51	-5.05
	200.00	00.00	120	A1b	15.21	-14.96	-8.78
1.0D + 1.0W Service 330 deg	0.00	00.00		1	0.21	58.36	-0.36
	200.00	00.00	0	A1	0.14	-5.56	7.55
	200.00	00.00	240	A1a	-10.35	-9.86	-6.40
	200.00	00.00	120	A1b	14.46	-14.17	-8.51

Site Number: 417306
Site Name: Morgan (MWW) MN, MN
Customer: AT&T MOBILITY

Code: ANSI/TIA-222-H
Engineering Number: OAA761574_C3_05

4/8/2021 10:36:13 AM

Guy Anchor Design Loads

Radius (ft)	Drop (ft)	Azimuth (°)	Uplift (kip)	Shear (kip)
200.00	0.00	0	34.47	37.93
200.00	0.00	240	34.47	37.93
200.00	0.00	120	34.47	37.93

Maximum Cable Forces Summary

Load Case	Elevation (ft)	Cable	Anchor Node	Tower Node	Allow Tension (kip)	Applied Tension (kip)	Use %
1.2D + 1.0Di + 1.0Wi 60 deg	56.54	3/8 EHS	A1a	26b	9.24	3.98	43
1.2D + 1.0Di + 1.0Wi 60 deg	116.54	9/16 EHS	A1a	50b	21.00	7.42	35
1.2D + 1.0Di + 1.0Wi 60 deg	176.54	1/2 EHS	A1a	T3a	16.14	6.11	38
1.2D + 1.0W 90 deg	236.72	9/16 EHS	A1a	T4b	21.00	15.87	76

Maximum Torque Arm Stress Summary

Load Case	Elevation (ft)	Member	Type	Compression %	Tension %
1.2D + 1.0Di + 1.0Wi Normal	56.54	PL 4.5 x 0.375"	Horiz		4
1.2D + 1.0W 60 deg	116.54	PL 4.5 x 0.375"	Horiz		6
1.2D + 1.0W Normal	176.54	C12 x 20.7	Horiz		1
1.2D + 1.0W Normal	236.72	C12 x 20.7	Horiz		3

Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
111 mph Normal with No Ice	143.46	0.103	0.0255	0.2301	0.2313
111 mph Normal with No Ice	176.54	0.386	0.0158	1.0710	1.0711
111 mph Normal with No Ice	179.81	0.439	0.0167	1.0546	1.0546
111 mph Normal with No Ice	180.19	0.446	0.0160	1.0434	1.0434
111 mph Normal with No Ice	236.73	2.102	-0.0156	2.9862	2.9863
111 mph Normal with No Ice	249.81	2.700	-0.0144	2.9188	2.9188
111 mph Normal with No Ice	250.00	2.709	-0.0144	2.9362	2.9362
111 mph Normal with No Ice	270.25	3.702	-0.0171	2.9342	2.9342
111 mph 60 degree with No Ice	143.46	0.217	0.0171	0.0693	0.0714
111 mph 60 degree with No Ice	176.54	0.323	0.0113	0.5538	0.5540
111 mph 60 degree with No Ice	179.81	0.346	0.0096	0.5022	0.5023
111 mph 60 degree with No Ice	180.19	0.349	0.0091	0.4665	0.4666
111 mph 60 degree with No Ice	236.73	1.249	-0.0316	1.6321	1.6324
111 mph 60 degree with No Ice	249.81	1.641	-0.0128	1.9985	1.9985
111 mph 60 degree with No Ice	250.00	1.648	-0.0130	2.0165	2.0165
111 mph 60 degree with No Ice	270.25	2.320	-0.0125	2.0224	2.0224
111 mph 90 degree with No Ice	143.46	0.174	0.0427	0.2096	0.2134
111 mph 90 degree with No Ice	176.54	0.383	0.0238	0.9624	0.9627
111 mph 90 degree with No Ice	179.81	0.426	0.0235	0.8890	0.8891
111 mph 90 degree with No Ice	180.19	0.431	0.0229	0.8714	0.8716
111 mph 90 degree with No Ice	236.73	1.824	-0.0326	2.5801	2.5801
111 mph 90 degree with No Ice	249.81	2.343	-0.0056	2.5663	2.5665
111 mph 90 degree with No Ice	250.00	2.351	-0.0059	2.5858	2.5860
111 mph 90 degree with No Ice	270.25	3.219	-0.0056	2.5772	2.5773
111 mph 120 degree with No Ice	143.46	0.103	0.0251	0.2301	0.2312
111 mph 120 degree with No Ice	176.54	0.386	0.0158	1.0710	1.0711
111 mph 120 degree with No Ice	179.81	0.439	0.0167	1.0546	1.0546
111 mph 120 degree with No Ice	180.19	0.446	0.0160	1.0433	1.0434
111 mph 120 degree with No Ice	236.73	2.101	-0.0285	2.9861	2.9862
111 mph 120 degree with No Ice	249.81	2.700	0.0096	2.9184	2.9184
111 mph 120 degree with No Ice	250.00	2.709	0.0096	2.9358	2.9358
111 mph 120 degree with No Ice	270.25	3.702	0.0088	2.9337	2.9338
111 mph 180 degree with No Ice	143.46	0.217	0.0175	0.0693	0.0715
111 mph 180 degree with No Ice	176.54	0.323	0.0113	0.5538	0.5540
111 mph 180 degree with No Ice	179.81	0.346	0.0096	0.5022	0.5023
111 mph 180 degree with No Ice	180.19	0.349	0.0091	0.4665	0.4666
111 mph 180 degree with No Ice	236.73	1.249	-0.0135	1.6322	1.6325
111 mph 180 degree with No Ice	249.81	1.641	-0.0098	1.9986	1.9987
111 mph 180 degree with No Ice	250.00	1.648	-0.0098	2.0166	2.0166
111 mph 180 degree with No Ice	270.25	2.320	-0.0111	2.0226	2.0226
111 mph 210 degree with No Ice	143.46	0.174	0.0423	0.2096	0.2133
111 mph 210 degree with No Ice	176.54	0.383	0.0238	0.9624	0.9627
111 mph 210 degree with No Ice	179.81	0.426	0.0235	0.8890	0.8891
111 mph 210 degree with No Ice	180.19	0.431	0.0229	0.8714	0.8716
111 mph 210 degree with No Ice	236.73	1.824	-0.0064	2.5800	2.5800
111 mph 210 degree with No Ice	249.81	2.343	-0.0306	2.5660	2.5662
111 mph 210 degree with No Ice	250.00	2.351	-0.0310	2.5855	2.5857
111 mph 210 degree with No Ice	270.25	3.219	-0.0313	2.5769	2.5770
111 mph 240 degree with No Ice	143.46	0.103	0.0251	0.2301	0.2312
111 mph 240 degree with No Ice	176.54	0.386	0.0157	1.0710	1.0711
111 mph 240 degree with No Ice	179.81	0.439	0.0167	1.0546	1.0546
111 mph 240 degree with No Ice	180.19	0.446	0.0160	1.0433	1.0434
111 mph 240 degree with No Ice	236.73	2.101	0.0008	2.9861	2.9862
111 mph 240 degree with No Ice	249.81	2.700	-0.0320	2.9184	2.9184
111 mph 240 degree with No Ice	250.00	2.709	-0.0324	2.9358	2.9358

111 mph 240 degree with No Ice	270.25	3.702	-0.0314	2.9337	2.9338
111 mph 300 degree with No Ice	143.46	0.217	0.0172	0.0693	0.0714
111 mph 300 degree with No Ice	176.54	0.323	0.0113	0.5538	0.5540
111 mph 300 degree with No Ice	179.81	0.346	0.0096	0.5022	0.5023
111 mph 300 degree with No Ice	180.19	0.349	0.0091	0.4665	0.4666
111 mph 300 degree with No Ice	236.73	1.249	0.0002	1.6321	1.6324
111 mph 300 degree with No Ice	249.81	1.641	-0.0185	1.9985	1.9985
111 mph 300 degree with No Ice	250.00	1.648	-0.0186	2.0165	2.0165
111 mph 300 degree with No Ice	270.25	2.320	-0.0191	2.0224	2.0224
111 mph 330 degree with No Ice	143.46	0.174	0.0423	0.2096	0.2133
111 mph 330 degree with No Ice	176.54	0.383	0.0237	0.9624	0.9627
111 mph 330 degree with No Ice	179.81	0.426	0.0235	0.8890	0.8891
111 mph 330 degree with No Ice	180.19	0.431	0.0228	0.8714	0.8716
111 mph 330 degree with No Ice	236.73	1.824	-0.0052	2.5800	2.5801
111 mph 330 degree with No Ice	249.81	2.343	-0.0209	2.5662	2.5664
111 mph 330 degree with No Ice	250.00	2.351	-0.0209	2.5857	2.5859
111 mph 330 degree with No Ice	270.25	3.219	-0.0235	2.5771	2.5772
50 mph Normal with 1.00 in Radial Ice	143.46	0.044	0.0194	0.0825	0.0843
50 mph Normal with 1.00 in Radial Ice	176.54	0.016	0.0139	0.5316	0.5317
50 mph Normal with 1.00 in Radial Ice	179.81	0.019	0.0127	0.1172	0.1177
50 mph Normal with 1.00 in Radial Ice	180.19	0.019	0.0125	0.0872	0.0878
50 mph Normal with 1.00 in Radial Ice	236.73	0.214	-0.0179	0.9200	0.9202
50 mph Normal with 1.00 in Radial Ice	249.81	0.314	-0.0184	0.5310	0.5313
50 mph Normal with 1.00 in Radial Ice	250.00	0.315	-0.0184	0.5358	0.5361
50 mph Normal with 1.00 in Radial Ice	270.25	0.491	-0.0186	0.5316	0.5320
50 mph 60 deg with 1.00 in Radial Ice	143.46	0.113	0.0207	0.0046	0.0207
50 mph 60 deg with 1.00 in Radial Ice	176.54	0.135	0.0139	0.5346	0.5348
50 mph 60 deg with 1.00 in Radial Ice	179.81	0.143	0.0134	0.2207	0.2211
50 mph 60 deg with 1.00 in Radial Ice	180.19	0.144	0.0131	0.1721	0.1725
50 mph 60 deg with 1.00 in Radial Ice	236.73	0.426	-0.0196	0.9184	0.9186
50 mph 60 deg with 1.00 in Radial Ice	249.81	0.547	-0.0148	0.6203	0.6205
50 mph 60 deg with 1.00 in Radial Ice	250.00	0.549	-0.0148	0.6240	0.6242
50 mph 60 deg with 1.00 in Radial Ice	270.25	0.756	-0.0148	0.6198	0.6200
50 mph 90 deg with 1.00 in Radial Ice	143.46	0.088	0.0973	0.0565	0.1120
50 mph 90 deg with 1.00 in Radial Ice	176.54	0.101	0.0812	0.5478	0.5538
50 mph 90 deg with 1.00 in Radial Ice	179.81	0.107	0.0803	0.1875	0.2032
50 mph 90 deg with 1.00 in Radial Ice	180.19	0.107	0.0800	0.1428	0.1629
50 mph 90 deg with 1.00 in Radial Ice	236.73	0.340	0.0470	0.9468	0.9479
50 mph 90 deg with 1.00 in Radial Ice	249.81	0.450	0.0506	0.5791	0.5808
50 mph 90 deg with 1.00 in Radial Ice	250.00	0.452	0.0506	0.5862	0.5879
50 mph 90 deg with 1.00 in Radial Ice	270.25	0.643	0.0506	0.5826	0.5843
50 mph 120 deg with 1.00 in Radial Ice	143.46	0.044	0.0175	0.0825	0.0840
50 mph 120 deg with 1.00 in Radial Ice	176.54	0.016	0.0138	0.5316	0.5317
50 mph 120 deg with 1.00 in Radial Ice	179.81	0.019	0.0126	0.1172	0.1177
50 mph 120 deg with 1.00 in Radial Ice	180.19	0.019	0.0124	0.0872	0.0878
50 mph 120 deg with 1.00 in Radial Ice	236.73	0.213	-0.0171	0.9199	0.9201
50 mph 120 deg with 1.00 in Radial Ice	249.81	0.314	-0.0133	0.5309	0.5312
50 mph 120 deg with 1.00 in Radial Ice	250.00	0.315	-0.0133	0.5357	0.5361
50 mph 120 deg with 1.00 in Radial Ice	270.25	0.491	-0.0133	0.5315	0.5319
50 mph 180 deg with 1.00 in Radial Ice	143.46	0.113	0.0215	0.0046	0.0215
50 mph 180 deg with 1.00 in Radial Ice	176.54	0.135	0.0140	0.5346	0.5348
50 mph 180 deg with 1.00 in Radial Ice	179.81	0.143	0.0135	0.2207	0.2211
50 mph 180 deg with 1.00 in Radial Ice	180.19	0.144	0.0132	0.1721	0.1725
50 mph 180 deg with 1.00 in Radial Ice	236.73	0.426	-0.0172	0.9184	0.9186
50 mph 180 deg with 1.00 in Radial Ice	249.81	0.547	-0.0169	0.6203	0.6205
50 mph 180 deg with 1.00 in Radial Ice	250.00	0.549	-0.0169	0.6240	0.6242
50 mph 180 deg with 1.00 in Radial Ice	270.25	0.756	-0.0169	0.6198	0.6200
50 mph 210 deg with 1.00 in Radial Ice	143.46	0.088	0.0964	0.0565	0.1112
50 mph 210 deg with 1.00 in Radial Ice	176.54	0.101	0.0811	0.5478	0.5538
50 mph 210 deg with 1.00 in Radial Ice	179.81	0.107	0.0802	0.1875	0.2032
50 mph 210 deg with 1.00 in Radial Ice	180.19	0.107	0.0799	0.1428	0.1629
50 mph 210 deg with 1.00 in Radial Ice	236.73	0.340	0.0470	0.9468	0.9479

50 mph 210 deg with 1.00 in Radial Ice	249.81	0.450	0.0506	0.5791	0.5808
50 mph 210 deg with 1.00 in Radial Ice	250.00	0.452	0.0505	0.5862	0.5879
50 mph 210 deg with 1.00 in Radial Ice	270.25	0.643	0.0505	0.5826	0.5843
50 mph 240 deg with 1.00 in Radial Ice	143.46	0.044	0.0175	0.0825	0.0840
50 mph 240 deg with 1.00 in Radial Ice	176.54	0.016	0.0138	0.5316	0.5317
50 mph 240 deg with 1.00 in Radial Ice	179.81	0.019	0.0126	0.1172	0.1177
50 mph 240 deg with 1.00 in Radial Ice	180.19	0.019	0.0124	0.0872	0.0878
50 mph 240 deg with 1.00 in Radial Ice	236.73	0.213	-0.0175	0.9199	0.9201
50 mph 240 deg with 1.00 in Radial Ice	249.81	0.314	-0.0212	0.5309	0.5312
50 mph 240 deg with 1.00 in Radial Ice	250.00	0.315	-0.0212	0.5357	0.5361
50 mph 240 deg with 1.00 in Radial Ice	270.25	0.491	-0.0211	0.5315	0.5319
50 mph 300 deg with 1.00 in Radial Ice	143.46	0.113	0.0198	0.0046	0.0198
50 mph 300 deg with 1.00 in Radial Ice	176.54	0.135	0.0139	0.5346	0.5348
50 mph 300 deg with 1.00 in Radial Ice	179.81	0.143	0.0134	0.2207	0.2211
50 mph 300 deg with 1.00 in Radial Ice	180.19	0.144	0.0131	0.1721	0.1725
50 mph 300 deg with 1.00 in Radial Ice	236.73	0.426	-0.0164	0.9184	0.9186
50 mph 300 deg with 1.00 in Radial Ice	249.81	0.547	-0.0219	0.6203	0.6205
50 mph 300 deg with 1.00 in Radial Ice	250.00	0.549	-0.0219	0.6240	0.6242
50 mph 300 deg with 1.00 in Radial Ice	270.25	0.756	-0.0220	0.6198	0.6200
50 mph 330 deg with 1.00 in Radial Ice	143.46	0.088	0.0964	0.0565	0.1112
50 mph 330 deg with 1.00 in Radial Ice	176.54	0.101	0.0811	0.5478	0.5538
50 mph 330 deg with 1.00 in Radial Ice	179.81	0.107	0.0802	0.1875	0.2032
50 mph 330 deg with 1.00 in Radial Ice	180.19	0.107	0.0799	0.1428	0.1629
50 mph 330 deg with 1.00 in Radial Ice	236.73	0.340	0.0470	0.9468	0.9479
50 mph 330 deg with 1.00 in Radial Ice	249.81	0.450	0.0506	0.5791	0.5808
50 mph 330 deg with 1.00 in Radial Ice	250.00	0.452	0.0505	0.5862	0.5879
50 mph 330 deg with 1.00 in Radial Ice	270.25	0.643	0.0505	0.5826	0.5843
Seismic Normal M1	143.46	0.002	0.0014	0.0050	0.0052
Seismic Normal M1	176.54	0.008	0.0036	0.2528	0.2528
Seismic Normal M1	179.81	0.009	0.0032	0.0456	0.0457
Seismic Normal M1	180.19	0.010	0.0031	0.0305	0.0307
Seismic Normal M1	236.73	0.052	-0.0056	0.3998	0.3999
Seismic Normal M1	249.81	0.071	-0.0050	0.1016	0.1017
Seismic Normal M1	250.00	0.071	-0.0050	0.1024	0.1025
Seismic Normal M1	270.25	0.106	-0.0042	0.1064	0.1065
Seismic 60 deg M1	143.46	0.002	0.0014	0.0049	0.0051
Seismic 60 deg M1	176.54	0.007	0.0036	0.2452	0.2452
Seismic 60 deg M1	179.81	0.009	0.0032	0.0502	0.0503
Seismic 60 deg M1	180.19	0.009	0.0031	0.0287	0.0289
Seismic 60 deg M1	236.73	0.050	-0.0057	0.3741	0.3742
Seismic 60 deg M1	249.81	0.069	-0.0048	0.1011	0.1013
Seismic 60 deg M1	250.00	0.069	-0.0048	0.1016	0.1018
Seismic 60 deg M1	270.25	0.103	-0.0041	0.1043	0.1044
Seismic 90 deg M1	143.46	0.002	0.0014	0.0050	0.0052
Seismic 90 deg M1	176.54	0.008	0.0036	0.2507	0.2508
Seismic 90 deg M1	179.81	0.009	0.0032	0.0486	0.0487
Seismic 90 deg M1	180.19	0.009	0.0032	0.0305	0.0307
Seismic 90 deg M1	236.73	0.051	-0.0056	0.3928	0.3928
Seismic 90 deg M1	249.81	0.070	-0.0046	0.1004	0.1005
Seismic 90 deg M1	250.00	0.070	-0.0046	0.1008	0.1009
Seismic 90 deg M1	270.25	0.104	-0.0040	0.1053	0.1053
Seismic 120 deg M1	143.46	0.002	0.0014	0.0050	0.0052
Seismic 120 deg M1	176.54	0.008	0.0036	0.2528	0.2528
Seismic 120 deg M1	179.81	0.009	0.0032	0.0456	0.0457
Seismic 120 deg M1	180.19	0.010	0.0031	0.0305	0.0307
Seismic 120 deg M1	236.73	0.052	-0.0056	0.3998	0.3999
Seismic 120 deg M1	249.81	0.071	-0.0047	0.1016	0.1017
Seismic 120 deg M1	250.00	0.071	-0.0047	0.1024	0.1025
Seismic 120 deg M1	270.25	0.106	-0.0040	0.1064	0.1065
Seismic 180 deg M1	143.46	0.002	0.0014	0.0049	0.0051
Seismic 180 deg M1	176.54	0.007	0.0036	0.2452	0.2452
Seismic 180 deg M1	179.81	0.009	0.0032	0.0502	0.0503

Seismic 180 deg M1	180.19	0.009	0.0031	0.0287	0.0289
Seismic 180 deg M1	236.73	0.050	-0.0054	0.3741	0.3742
Seismic 180 deg M1	249.81	0.069	-0.0048	0.1011	0.1013
Seismic 180 deg M1	250.00	0.069	-0.0048	0.1016	0.1018
Seismic 180 deg M1	270.25	0.103	-0.0041	0.1043	0.1044
Seismic 210 deg M1	143.46	0.002	0.0014	0.0050	0.0052
Seismic 210 deg M1	176.54	0.008	0.0036	0.2507	0.2508
Seismic 210 deg M1	179.81	0.009	0.0032	0.0486	0.0487
Seismic 210 deg M1	180.19	0.009	0.0032	0.0305	0.0307
Seismic 210 deg M1	236.73	0.051	-0.0053	0.3928	0.3928
Seismic 210 deg M1	249.81	0.070	-0.0049	0.1004	0.1005
Seismic 210 deg M1	250.00	0.070	-0.0049	0.1008	0.1009
Seismic 210 deg M1	270.25	0.104	-0.0041	0.1053	0.1053
Seismic 240 deg M1	143.46	0.002	0.0014	0.0050	0.0052
Seismic 240 deg M1	176.54	0.008	0.0036	0.2528	0.2528
Seismic 240 deg M1	179.81	0.009	0.0032	0.0456	0.0457
Seismic 240 deg M1	180.19	0.010	0.0031	0.0305	0.0307
Seismic 240 deg M1	236.73	0.052	-0.0053	0.3998	0.3999
Seismic 240 deg M1	249.81	0.071	-0.0050	0.1016	0.1017
Seismic 240 deg M1	250.00	0.071	-0.0050	0.1024	0.1025
Seismic 240 deg M1	270.25	0.106	-0.0043	0.1064	0.1065
Seismic 300 deg M1	143.46	0.002	0.0014	0.0049	0.0051
Seismic 300 deg M1	176.54	0.007	0.0036	0.2452	0.2452
Seismic 300 deg M1	179.81	0.009	0.0032	0.0502	0.0503
Seismic 300 deg M1	180.19	0.009	0.0031	0.0287	0.0289
Seismic 300 deg M1	236.73	0.050	-0.0054	0.3741	0.3742
Seismic 300 deg M1	249.81	0.069	-0.0051	0.1011	0.1013
Seismic 300 deg M1	250.00	0.069	-0.0051	0.1016	0.1018
Seismic 300 deg M1	270.25	0.103	-0.0043	0.1043	0.1044
Seismic 330 deg M1	143.46	0.002	0.0014	0.0050	0.0052
Seismic 330 deg M1	176.54	0.008	0.0036	0.2507	0.2508
Seismic 330 deg M1	179.81	0.009	0.0032	0.0486	0.0487
Seismic 330 deg M1	180.19	0.009	0.0032	0.0305	0.0307
Seismic 330 deg M1	236.73	0.051	-0.0054	0.3928	0.3928
Seismic 330 deg M1	249.81	0.070	-0.0050	0.1004	0.1005
Seismic 330 deg M1	250.00	0.070	-0.0050	0.1008	0.1009
Seismic 330 deg M1	270.25	0.104	-0.0043	0.1053	0.1053
Seismic (Reduced DL) Normal M1	143.46	0.002	0.0015	0.0049	0.0051
Seismic (Reduced DL) Normal M1	176.54	0.008	0.0037	0.2553	0.2553
Seismic (Reduced DL) Normal M1	179.81	0.009	0.0032	0.0454	0.0455
Seismic (Reduced DL) Normal M1	180.19	0.009	0.0032	0.0300	0.0301
Seismic (Reduced DL) Normal M1	236.73	0.051	-0.0056	0.4036	0.4036
Seismic (Reduced DL) Normal M1	249.81	0.070	-0.0050	0.1004	0.1005
Seismic (Reduced DL) Normal M1	250.00	0.070	-0.0050	0.1012	0.1013
Seismic (Reduced DL) Normal M1	270.25	0.104	-0.0042	0.1051	0.1052
Seismic (Reduced DL) 60 deg M1	143.46	0.002	0.0015	0.0048	0.0050
Seismic (Reduced DL) 60 deg M1	176.54	0.008	0.0037	0.2479	0.2479
Seismic (Reduced DL) 60 deg M1	179.81	0.009	0.0033	0.0503	0.0504
Seismic (Reduced DL) 60 deg M1	180.19	0.009	0.0032	0.0285	0.0287
Seismic (Reduced DL) 60 deg M1	236.73	0.049	-0.0057	0.3783	0.3784
Seismic (Reduced DL) 60 deg M1	249.81	0.068	-0.0048	0.0994	0.0995
Seismic (Reduced DL) 60 deg M1	250.00	0.068	-0.0048	0.0999	0.1001
Seismic (Reduced DL) 60 deg M1	270.25	0.102	-0.0040	0.1032	0.1033
Seismic (Reduced DL) 90 deg M1	143.46	0.002	0.0015	0.0049	0.0051
Seismic (Reduced DL) 90 deg M1	176.54	0.008	0.0037	0.2533	0.2533
Seismic (Reduced DL) 90 deg M1	179.81	0.009	0.0033	0.0489	0.0490
Seismic (Reduced DL) 90 deg M1	180.19	0.009	0.0032	0.0301	0.0303
Seismic (Reduced DL) 90 deg M1	236.73	0.050	-0.0057	0.3967	0.3967
Seismic (Reduced DL) 90 deg M1	249.81	0.069	-0.0046	0.0985	0.0986
Seismic (Reduced DL) 90 deg M1	250.00	0.069	-0.0046	0.0990	0.0991
Seismic (Reduced DL) 90 deg M1	270.25	0.103	-0.0040	0.1041	0.1041
Seismic (Reduced DL) 120 deg M1	143.46	0.002	0.0015	0.0049	0.0051

Seismic (Reduced DL) 120 deg M1	176.54	0.008	0.0037	0.2553	0.2553
Seismic (Reduced DL) 120 deg M1	179.81	0.009	0.0032	0.0454	0.0455
Seismic (Reduced DL) 120 deg M1	180.19	0.009	0.0032	0.0300	0.0301
Seismic (Reduced DL) 120 deg M1	236.73	0.051	-0.0056	0.4036	0.4036
Seismic (Reduced DL) 120 deg M1	249.81	0.070	-0.0047	0.1004	0.1005
Seismic (Reduced DL) 120 deg M1	250.00	0.070	-0.0047	0.1012	0.1013
Seismic (Reduced DL) 120 deg M1	270.25	0.104	-0.0040	0.1051	0.1052
Seismic (Reduced DL) 180 deg M1	143.46	0.002	0.0015	0.0048	0.0050
Seismic (Reduced DL) 180 deg M1	176.54	0.008	0.0037	0.2479	0.2479
Seismic (Reduced DL) 180 deg M1	179.81	0.009	0.0033	0.0503	0.0504
Seismic (Reduced DL) 180 deg M1	180.19	0.009	0.0032	0.0285	0.0287
Seismic (Reduced DL) 180 deg M1	236.73	0.049	-0.0055	0.3783	0.3784
Seismic (Reduced DL) 180 deg M1	249.81	0.068	-0.0048	0.0994	0.0995
Seismic (Reduced DL) 180 deg M1	250.00	0.068	-0.0048	0.0999	0.1001
Seismic (Reduced DL) 180 deg M1	270.25	0.102	-0.0041	0.1032	0.1033
Seismic (Reduced DL) 210 deg M1	143.46	0.002	0.0015	0.0049	0.0051
Seismic (Reduced DL) 210 deg M1	176.54	0.008	0.0037	0.2533	0.2533
Seismic (Reduced DL) 210 deg M1	179.81	0.009	0.0033	0.0489	0.0490
Seismic (Reduced DL) 210 deg M1	180.19	0.009	0.0032	0.0301	0.0303
Seismic (Reduced DL) 210 deg M1	236.73	0.050	-0.0053	0.3967	0.3967
Seismic (Reduced DL) 210 deg M1	249.81	0.069	-0.0049	0.0985	0.0986
Seismic (Reduced DL) 210 deg M1	250.00	0.069	-0.0049	0.0990	0.0991
Seismic (Reduced DL) 210 deg M1	270.25	0.103	-0.0041	0.1041	0.1042
Seismic (Reduced DL) 240 deg M1	143.46	0.002	0.0015	0.0049	0.0051
Seismic (Reduced DL) 240 deg M1	176.54	0.008	0.0037	0.2553	0.2553
Seismic (Reduced DL) 240 deg M1	179.81	0.009	0.0032	0.0454	0.0455
Seismic (Reduced DL) 240 deg M1	180.19	0.009	0.0032	0.0300	0.0301
Seismic (Reduced DL) 240 deg M1	236.73	0.051	-0.0053	0.4036	0.4036
Seismic (Reduced DL) 240 deg M1	249.81	0.070	-0.0050	0.1004	0.1005
Seismic (Reduced DL) 240 deg M1	250.00	0.070	-0.0050	0.1012	0.1013
Seismic (Reduced DL) 240 deg M1	270.25	0.104	-0.0042	0.1051	0.1052
Seismic (Reduced DL) 300 deg M1	143.46	0.002	0.0015	0.0048	0.0050
Seismic (Reduced DL) 300 deg M1	176.54	0.008	0.0037	0.2479	0.2479
Seismic (Reduced DL) 300 deg M1	179.81	0.009	0.0033	0.0503	0.0504
Seismic (Reduced DL) 300 deg M1	180.19	0.009	0.0032	0.0285	0.0287
Seismic (Reduced DL) 300 deg M1	236.73	0.049	-0.0054	0.3783	0.3784
Seismic (Reduced DL) 300 deg M1	249.81	0.068	-0.0051	0.0994	0.0995
Seismic (Reduced DL) 300 deg M1	250.00	0.068	-0.0051	0.0999	0.1001
Seismic (Reduced DL) 300 deg M1	270.25	0.102	-0.0043	0.1032	0.1033
Seismic (Reduced DL) 330 deg M1	143.46	0.002	0.0015	0.0049	0.0051
Seismic (Reduced DL) 330 deg M1	176.54	0.008	0.0037	0.2533	0.2533
Seismic (Reduced DL) 330 deg M1	179.81	0.009	0.0033	0.0489	0.0490
Seismic (Reduced DL) 330 deg M1	180.19	0.009	0.0032	0.0301	0.0303
Seismic (Reduced DL) 330 deg M1	236.73	0.050	-0.0054	0.3967	0.3967
Seismic (Reduced DL) 330 deg M1	249.81	0.069	-0.0050	0.0985	0.0986
Seismic (Reduced DL) 330 deg M1	250.00	0.069	-0.0050	0.0990	0.0991
Seismic (Reduced DL) 330 deg M1	270.25	0.103	-0.0042	0.1041	0.1042
Serviceability - 60 mph Wind Normal	143.46	0.024	0.0031	0.0181	0.0184
Serviceability - 60 mph Wind Normal	176.54	0.028	0.0038	0.2781	0.2781
Serviceability - 60 mph Wind Normal	179.81	0.032	0.0035	0.0990	0.0991
Serviceability - 60 mph Wind Normal	180.19	0.033	0.0034	0.0863	0.0863
Serviceability - 60 mph Wind Normal	236.73	0.230	-0.0066	0.6200	0.6200
Serviceability - 60 mph Wind Normal	249.81	0.329	-0.0064	0.5175	0.5175
Serviceability - 60 mph Wind Normal	250.00	0.330	-0.0064	0.5223	0.5223
Serviceability - 60 mph Wind Normal	270.25	0.502	-0.0062	0.5219	0.5220
Serviceability - 60 mph Wind 60 deg	143.46	0.043	0.0032	0.0028	0.0043
Serviceability - 60 mph Wind 60 deg	176.54	0.060	0.0041	0.2781	0.2781
Serviceability - 60 mph Wind 60 deg	179.81	0.065	0.0038	0.1302	0.1302
Serviceability - 60 mph Wind 60 deg	180.19	0.065	0.0037	0.1063	0.1064
Serviceability - 60 mph Wind 60 deg	236.73	0.282	-0.0080	0.5687	0.5687
Serviceability - 60 mph Wind 60 deg	249.81	0.384	-0.0055	0.5282	0.5282
Serviceability - 60 mph Wind 60 deg	250.00	0.385	-0.0055	0.5330	0.5330

Serviceability - 60 mph Wind 60 deg	270.25	0.562	-0.0053	0.5344	0.5345
Serviceability - 60 mph Wind 90 deg	143.46	0.035	0.0197	0.0097	0.0218
Serviceability - 60 mph Wind 90 deg	176.54	0.048	0.0204	0.2867	0.2874
Serviceability - 60 mph Wind 90 deg	179.81	0.052	0.0203	0.1238	0.1253
Serviceability - 60 mph Wind 90 deg	180.19	0.053	0.0202	0.1049	0.1067
Serviceability - 60 mph Wind 90 deg	236.73	0.267	0.0135	0.6339	0.6341
Serviceability - 60 mph Wind 90 deg	249.81	0.369	0.0141	0.5334	0.5335
Serviceability - 60 mph Wind 90 deg	250.00	0.371	0.0141	0.5396	0.5397
Serviceability - 60 mph Wind 90 deg	270.25	0.549	0.0138	0.5373	0.5375
Serviceability - 60 mph Wind 120 deg	143.46	0.024	0.0031	0.0181	0.0184
Serviceability - 60 mph Wind 120 deg	176.54	0.028	0.0038	0.2781	0.2781
Serviceability - 60 mph Wind 120 deg	179.81	0.032	0.0035	0.0990	0.0991
Serviceability - 60 mph Wind 120 deg	180.19	0.033	0.0034	0.0863	0.0863
Serviceability - 60 mph Wind 120 deg	236.73	0.230	-0.0065	0.6200	0.6200
Serviceability - 60 mph Wind 120 deg	249.81	0.329	-0.0042	0.5175	0.5175
Serviceability - 60 mph Wind 120 deg	250.00	0.330	-0.0042	0.5223	0.5223
Serviceability - 60 mph Wind 120 deg	270.25	0.502	-0.0041	0.5219	0.5220
Serviceability - 60 mph Wind 180 deg	143.46	0.043	0.0036	0.0028	0.0046
Serviceability - 60 mph Wind 180 deg	176.54	0.060	0.0041	0.2781	0.2781
Serviceability - 60 mph Wind 180 deg	179.81	0.065	0.0038	0.1302	0.1303
Serviceability - 60 mph Wind 180 deg	180.19	0.065	0.0037	0.1064	0.1065
Serviceability - 60 mph Wind 180 deg	236.73	0.282	-0.0061	0.5689	0.5689
Serviceability - 60 mph Wind 180 deg	249.81	0.384	-0.0056	0.5286	0.5286
Serviceability - 60 mph Wind 180 deg	250.00	0.385	-0.0056	0.5333	0.5334
Serviceability - 60 mph Wind 180 deg	270.25	0.562	-0.0055	0.5348	0.5349
Serviceability - 60 mph Wind 210 deg	143.46	0.035	0.0197	0.0097	0.0218
Serviceability - 60 mph Wind 210 deg	176.54	0.048	0.0204	0.2867	0.2874
Serviceability - 60 mph Wind 210 deg	179.81	0.052	0.0203	0.1238	0.1253
Serviceability - 60 mph Wind 210 deg	180.19	0.053	0.0202	0.1049	0.1067
Serviceability - 60 mph Wind 210 deg	236.73	0.267	0.0135	0.6339	0.6341
Serviceability - 60 mph Wind 210 deg	249.81	0.369	0.0141	0.5334	0.5335
Serviceability - 60 mph Wind 210 deg	250.00	0.371	0.0141	0.5396	0.5397
Serviceability - 60 mph Wind 210 deg	270.25	0.549	0.0138	0.5373	0.5375
Serviceability - 60 mph Wind 240 deg	143.46	0.024	0.0031	0.0181	0.0184
Serviceability - 60 mph Wind 240 deg	176.54	0.028	0.0038	0.2781	0.2781
Serviceability - 60 mph Wind 240 deg	179.81	0.032	0.0035	0.0990	0.0991
Serviceability - 60 mph Wind 240 deg	180.19	0.033	0.0034	0.0863	0.0863
Serviceability - 60 mph Wind 240 deg	236.73	0.230	-0.0055	0.6200	0.6200
Serviceability - 60 mph Wind 240 deg	249.81	0.329	-0.0070	0.5175	0.5175
Serviceability - 60 mph Wind 240 deg	250.00	0.330	-0.0070	0.5223	0.5223
Serviceability - 60 mph Wind 240 deg	270.25	0.502	-0.0066	0.5219	0.5220
Serviceability - 60 mph Wind 300 deg	143.46	0.043	0.0036	0.0028	0.0046
Serviceability - 60 mph Wind 300 deg	176.54	0.060	0.0041	0.2781	0.2781
Serviceability - 60 mph Wind 300 deg	179.81	0.065	0.0038	0.1302	0.1303
Serviceability - 60 mph Wind 300 deg	180.19	0.065	0.0037	0.1064	0.1065
Serviceability - 60 mph Wind 300 deg	236.73	0.282	-0.0055	0.5689	0.5689
Serviceability - 60 mph Wind 300 deg	249.81	0.384	-0.0077	0.5286	0.5286
Serviceability - 60 mph Wind 300 deg	250.00	0.385	-0.0077	0.5333	0.5334
Serviceability - 60 mph Wind 300 deg	270.25	0.562	-0.0074	0.5348	0.5349
Serviceability - 60 mph Wind 330 deg	143.46	0.035	0.0186	0.0097	0.0208
Serviceability - 60 mph Wind 330 deg	176.54	0.048	0.0203	0.2867	0.2874
Serviceability - 60 mph Wind 330 deg	179.81	0.052	0.0202	0.1237	0.1253
Serviceability - 60 mph Wind 330 deg	180.19	0.053	0.0201	0.1049	0.1067
Serviceability - 60 mph Wind 330 deg	236.73	0.267	0.0134	0.6339	0.6340
Serviceability - 60 mph Wind 330 deg	249.81	0.369	0.0139	0.5333	0.5335
Serviceability - 60 mph Wind 330 deg	250.00	0.371	0.0139	0.5395	0.5396
Serviceability - 60 mph Wind 330 deg	270.25	0.549	0.0136	0.5373	0.5374

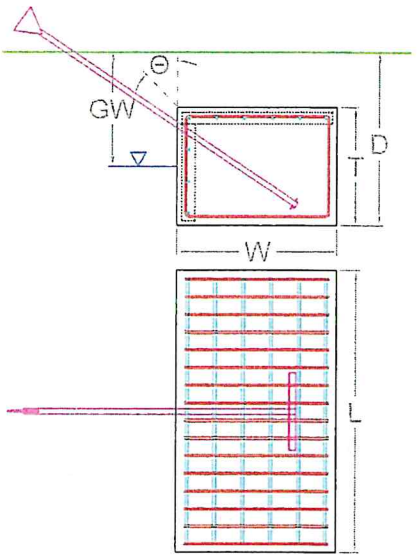
Maximum Reactions Summary

Anchor Group	UpLift	Shear
Base	129.67	1.46
A1	34.47	37.93

Guy Anchor Block Analysis (ANSI/TIA-222-H)

Anchor Block Parameters			
Include Berm?		N	
Analyze Anchor Rod?		N	
Ignore Rebar?		N	
Base Depth	*D*	10.0	ft
Width	*W*	3.0	ft
Length	*L*	15.0	ft
Thickness	*T*	3.0	ft
Water Table Depth [BGL]	*GW*	12	ft
Unit Weight of Concrete		150	pcf
Unit Weight of Soil Above Water Table		110.0	pcf
Unit Weight of Water		62.4	pcf
Unit Weight of Soil [Submerged]		47.6	pcf
Friction Angle		0	°
Cohesion		1,000	psf
Ultimate Skin Friction		0	psf
Coefficient of Shear Friction		0.30	
Conical Failure Angle	Θ	30	°
Soil Uplift at _____ of Anchor		Top	
Capacity Increase (Transient Loads)		1.00	
Uplift Strength Reduction Factor, ϕ_u		0.75	
Shear Strength Reduction Factor, ϕ_v		0.75	
Dead Load Factor		0.90	

Reactions		
Uplift, T_u	34.5	k
Shear, V_u	37.9	k
Anchor Radius	200	ft
Node	A1	-



Soil Uplift Capacity		
Uplift Resistance from Skin Friction and Soil Shear	120.0	k
Nominal Uplift Resistance, $\phi_u T_n$	139.4	k
$T_u / \phi_u T_n$	24.7%	

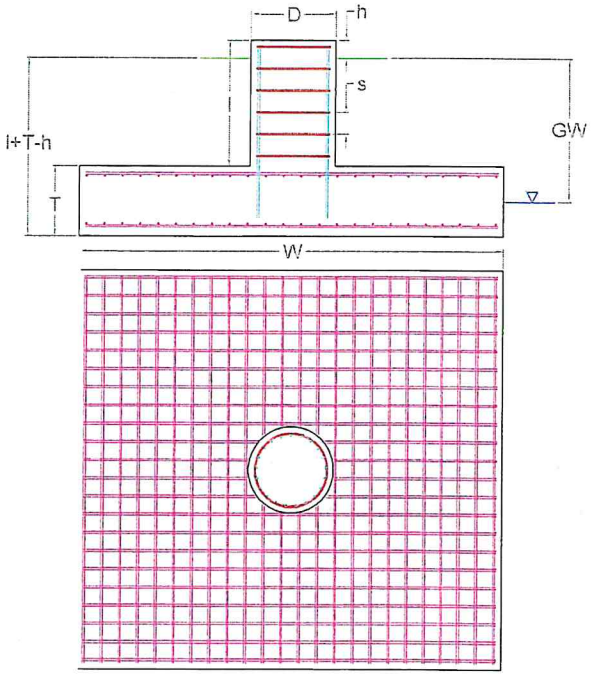
Soil Shear Capacity		
Shear Resistance from Skin Friction	0.0	k
Shear Friction Resistance Due to Normal Force	4.5	k
Passive Pressure	2,935	psf
Passive Pressure Resistance	132.1	k
Nominal Shear Resistance, $\phi_v V_n$	102.4	k
$V_u / \phi_v V_n$	37.0%	

Strength Analysis of Reinforced Concrete		
Concrete Compressive Strength, f'_c	3,000	psi
Rebar Size #	9	
Rebar Area (Single)	1.00	in^2
Rebar Quantity [Top]	4	
Rebar Quantity [Side]	3	
Rebar Yield Strength	60	ksi
Strength Reduction Factor for Shear, ϕ_v	0.75	
Strength Reduction Factor for Lateral Flexure, ϕ_{bv}	0.90	
Strength Reduction Factor for Vertical Flexure, ϕ_{bt}	0.90	
Compression Zone Factor, β_1	0.850	
One Way Shear due to Shear, V_u	15.6	k
One Way Shear Capacity due to Shear, $\phi_c V_n$	94.5	k
$V_u / \phi_v V_n$	16.5%	
One Way Shear due to Uplift, V_u	14.2	k
One Way Shear Capacity due to Uplift, $\phi_c V_n$	94.5	k
$V_u / \phi_v V_n$	15.0%	
Flexure due to Shear Load, M_{uv}	71.1	k-ft
Distance to steel, d_v	31.9	in
Whitney Block, a_v [Side]	1.961	in
Strain in tension rebar, ε_t	0.039	in/in
Flexural Capacity due to Shear, $\phi_{bv} M_{nv}$	417.9	k-ft
Pad Flexure due to Uplift, M_{ut}	64.6	k-ft
Depth to steel, d_t	31.9	in
Whitney Block, a_t [Top]	2.614	in
Strain in tension rebar, ε_t	0.028	in/in
Flexural Capacity due to Uplift, $\phi_{bt} M_{nt}$	551.4	k-ft
$M_u / \phi_b M_n$ (Max)	17.0%	

Pad & Pier Foundation Analysis (ANSI/TIA-222-H)

Foundation & Soil Parameters			
Ignore Rebar?		N	
Pier Diameter	*D*	2.50	ft
Pier Height Above Ground	*h*	0.5	ft
Pad Base Depth	*l+T-h*	6.0	ft
Pad Width	*W*	10.0	ft
Pad Thickness	*T*	1.5	ft
Water Table Depth [BGL]	*GW*	12	ft
Unit Weight of Concrete		150	pcf
Unit Weight of Soil Above Water Table		110.0	pcf
Unit Weight of Water		62.4	pcf
Unit Weight of Soil [Submerged]		47.6	pcf
Cohesion		1,000	psf
Friction Angle		0	°
Ultimate Skin Friction		0	psf
Ultimate Bearing Pressure		6,000	psf
Conical Failure Angle		15	°
Soil Uplift at _____ of Pad		Top	
Capacity Increase (Transient Loads)		1.00	
Bearing Strength Reduction Factor, ϕ_s		0.60	
Uplift Strength Reduction Factor, ϕ_s		0.75	

Reactions		
Moment, M_u	0.0	k-ft
Shear, V_u	1.5	k
Compression, P_u	129.7	k
Uplift, T_u	0.0	k



Soil Axial Capacities and Design Moment		
Weight of Concrete [Buoyancy Considered]	26.2	k
Weight of Soil [Buoyancy Considered]	60.0	k
Skin Friction Resistance	0.0	k
Controlling Failure Mode	Top	
Compressive Force, P_u	138.4	k
Nominal Compressive Capacity per Leg, $\phi_s P_n$	360.0	k
$P_u / \phi_s P_n$	38.4%	
Inflection Point [BGL]	2.6	ft
Design Moment at Inflection Point, M_u	0.1	k-ft

Pad Reinforcement Parameters		
Concrete Compressive Strength, f'_c	3,000	psi
Pad Rebar Size #	7	
Pad Rebar Area	0.60	in^2
Pad Rebar Quantity [Lower]	11	
Pad Rebar Yield Strength, F_y	60	ksi
Pad Clear Cover	3	in
Bending Reduction Factor, ϕ_B	0.90	
Shear Reduction Factor, ϕ_V	0.75	
Compression Reduction Factor, ϕ_C	0.65	
Steel Elastic Modulus	29,000	ksi

Pad Reinforcement Capacities		
Beta factor	0.85	
Lower Reinforcement Steel Area	6.60	
Lower Reinforcement Spacing	11.4	in
One Way Design Shear, V_u	34.7	k
One Way Shear Capacity, ϕV_c	147.5	k
$V_u / \phi V_c$	23.5%	
Punching Design Shear Stress, v_u	54.1	psi
Punching Shear Capacity, $\phi_c V_n$	164.3	psi
$v_u / \phi_c V_n$	32.9%	
Moment Transfer Flexural Ratio, γ_f	0.60	
Neutral Axis Depth	14.98	In
Moment Transfer Flexural Capacity, $\phi M_{sc,f}$	23,670	k-in
$\gamma_f M_{sc} / \phi M_{sc,f}$	0.0%	
Flexure Due to Soil Pressure, M_u	96.3	k-ft
Lower Steel Pad Moment Capacity, ϕM_n	413.3	k-ft
$M_u / \phi M_n$	23.3%	

Pier Reinforcement Parameters		
Concrete Compressive Strength (f'_c)	3,000	psi
Pier Rebar Size #	7	
Pier Rebar Area	0.60	in^2
Pier Rebar Quantity	6	
Pier Rebar Yield Strength (F_y)	60	ksi
Tie Rebar Size #	3	
Tie Rebar Area (Single)	0.11	in^2
Tie Rebar Spacing	12.0	in
Tie Rebar Yield Strength (F_y)	60	ksi
Rebar Cage Diameter	22.38	in

Pier Reinforcement Capacities		
Design Moment (M_u)	0.1	k-ft
Nominal Moment Capacity ($\phi_B M_n$)	181.2	k-ft
$M_u / \phi_B M_n$	0.0%	
Design Shear (V_u)	1.5	k
Nominal Shear Capacity ($\phi_V V_n$)	84.5	k
$V_u / \phi_V V_n$	1.7%	
Design Compression (P_u)	129.7	k
Nominal Compression Capacity ($\phi_P P_n$)	1,044.8	k
$P_u / \phi_P P_n$	12.4%	
Pier Reinforcement Ratio	0.005	-

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-AGL-4353-OE
Prior Study No.
2004-AGL-5690-OE

Issued Date: 03/18/2021

Network Regulatory
Alltel Communications Inc.
5055 North Point Pkwy
NP2NE Network Engineering
Alpharetta, GA 30022

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower Morgan_140004283
Location:	Morgan, MN
Latitude:	44-25-18.93N NAD 83
Longitude:	94-55-33.65W
Heights:	1034 feet site elevation (SE)
	281 feet above ground level (AGL)
	1315 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, a med-dual system-Chapters 4,8(M-Dual),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

This determination expires on 09/18/2022 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact our office at (404) 305-6337, or nick.goodly@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-AGL-4353-OE.

Signature Control No: 469958725-474772982 (DNE)
Nick Goodly
Technician

Attachment(s)
Case Description
Frequency Data
Map(s)

cc: FCC

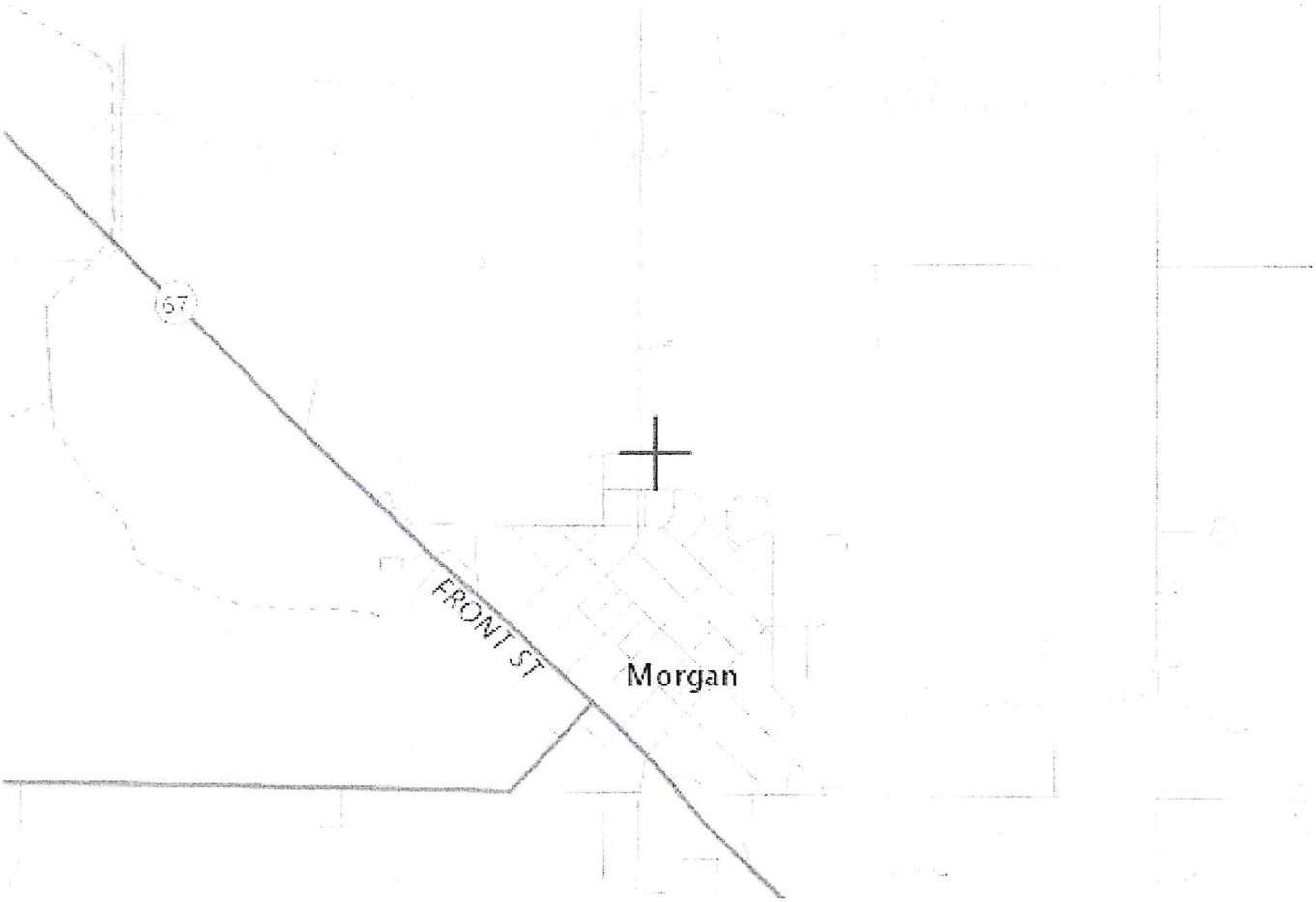
Case Description for ASN 2021-AGL-4353-OE

EExisting tower, proposing height extension to go from 265' to 281' overall. Currently lit with E1 dual red and med intensity, request to keep same. Questions to juliane.madsen@vzw.com

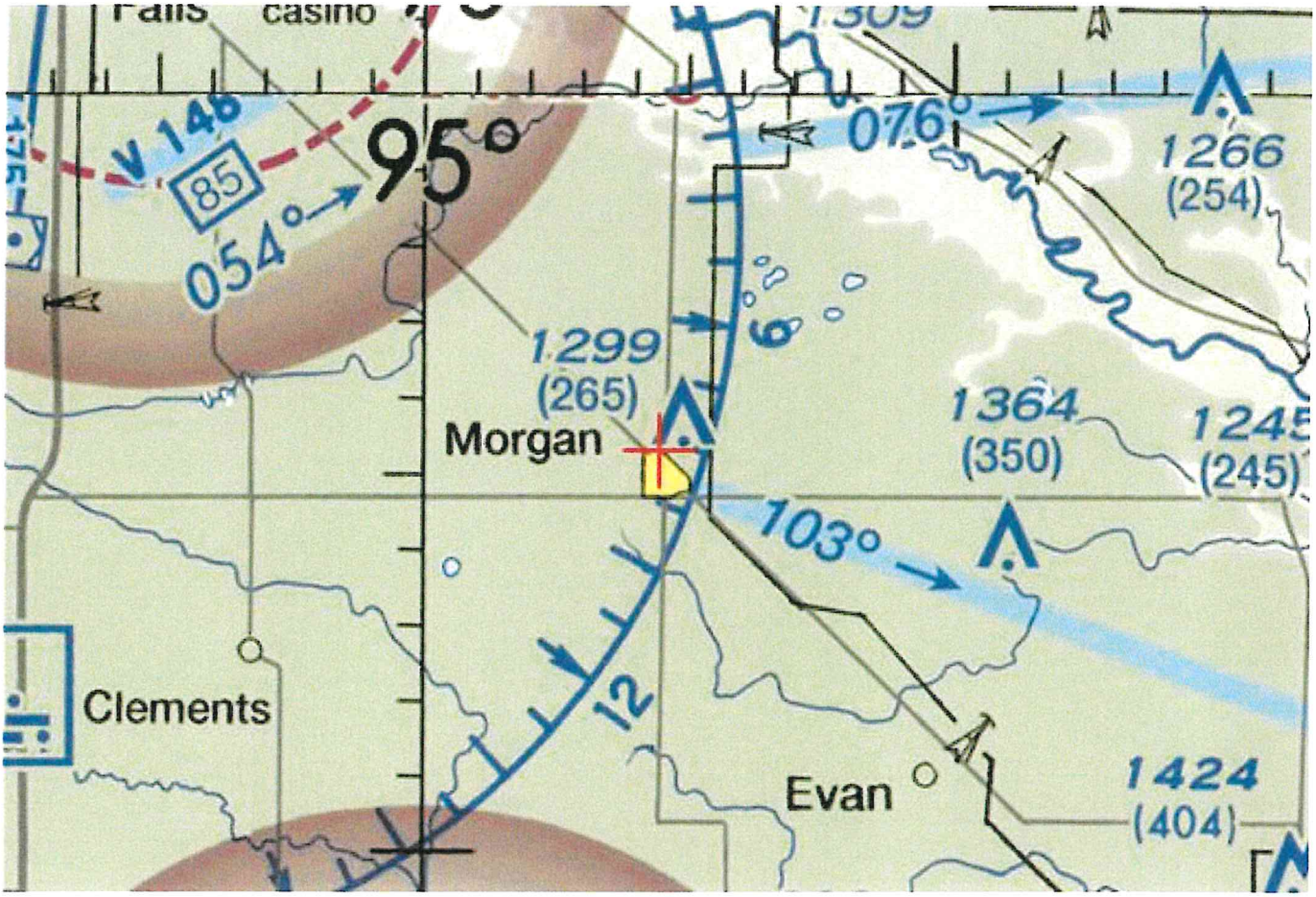
Frequency Data for ASN 2021-AGL-4353-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

TOPO Map for ASN 2021-AGL-4353-OE



Sectional Map for ASN 2021-AGL-4353-OE



AMERICAN TOWER®
CORPORATION

May 17, 2021

Redwood County Government Center
Environmental Office
403 South Mill Street, P.O. Box 130
Redwood Falls, MN 56283

Re: American Tower Site No. 417306/Redwood County, MN
Tower Removal

To whom it may concern:

ATC Sequoia, LLC (a wholly owned subsidiary of American Tower Corporation, hereafter "American Tower") owns the telecommunications tower facility (the "Tower Facility") located at 677 Carleton Avenue, Morgan, Minnesota. As owner of the Tower Facility, pursuant to Section 20, Subdivision 14 of the Redwood County Zoning Ordinance, of the Cook County Zoning Ordinance, American Tower agrees that "Abandoned or unused towers and associated facilities shall be removed within twelve (12) months of the cessation of operations unless the Redwood County Planning Commission has granted a time extension. In the event that a tower is not removed within twelve (12) months of the cessation of the operations at the site the County may remove the tower and associated facilities with costs being assessed against the property."

Should you have any questions or concerns, please do not hesitate contact me by email at scott.macneil@americantower.com or by phone at (781) 686-7080.

Very truly yours,

Scott R. MacNeil
Attorney
American Tower Corporation

Conditions for Permit No. 11-21 (Communications Tower – ATT Mobility/New Cingular Wireless PCS LLC – Midwest Wireless/Verizon Wireless Morgan site)

1. The following conditions apply to the communications tower height extension only, as described in the Conditional Use Permit Application. The communications tower site as a whole is still governed by the terms and conditions listed in Conditional Use Permit #13-04, which remain in full force and effect.

2. The permit holder shall comply with all applicable laws, rules, and regulations, including but not limited to Redwood County Ordinance, as hereafter amended from time to time.

3. The permit holder shall allow the Redwood County Environmental Office to inspect the site(s) of the project for all purposes permitted by law whenever deemed necessary by the Redwood County Environmental Office.

4. The construction, maintenance, operation, and decommissioning of the project will conform to the Application for a Conditional Use Permit submitted by David Trost of Qualtek Wireless as attached to the Conditional Use Permit.

5. The permit holder shall contact all relevant local, state, and federal authorities/entities and inquire as to whether a permit and/or license is required. If a permit and/or license is required, the permit holder shall apply for and obtain any and all required permits and/or licenses. A copy of all such permits and/or licenses shall be provided to the Redwood County Environmental Office upon request.

6. The permit holder shall not allow the conditional use to be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted. The permit holder shall not allow the conditional use to impede the normal and orderly development and improvement of surrounding vacant property for uses predominant to the area.

7. Applicant, or permit holder, as used in this Conditional Use Permit to refer to ATT Mobility/New Cingular Wireless PCS LLC, shall also include its successors and assigns.

8. The Redwood County Planning Commission shall review the conditional use permit and shall be authorized to take any and all necessary action(s), including but not limited to revoking the conditional use permit and/or requiring the permit holder to reapply for a conditional use permit, if: 1) The Redwood County Environmental Office acquires information previously unavailable that indicates the terms and conditions of the permit do not accurately represent the actual circumstances of the permitted facility or the conditional use; 2) It is discovered subsequent to the issuance of the permit the permit holder failed to disclose all facts relevant to the issuance of the permit or submitted false or misleading information to the Redwood County Environmental Office, the Redwood County Planning Commission, or the Redwood County Board of Commissioners; 3) The Redwood County Environmental Office determines the permitted facility or conditional use endangers human health or the environment; and/or (4) The permit holder violates any of the herein described conditions.

REDWOOD COUNTY ENVIRONMENTAL OFFICE

Planning & Zoning ● Parks & Trails ● GIS
Aquatic Invasive Species ● Septic Inspector
Drainage Inspector ● Agricultural Inspector

PO BOX 130
REDWOOD FALLS
MINNESOTA 56283
PH: 507-637-4023

REDWOOD COUNTY PLANNING COMMISSION
Cell Tower – Morgan site
Conditional Use Permit Application #11-21
June 29, 2021

FINDINGS OF FACT

ORDINANCE CRITERIA – The Planning Commission may recommend the granting of a Conditional Use Permit in any district provided the proposed use is listed as a conditional use for the district and upon a showing that the standards and criteria stated in this Ordinance will be satisfied and that the use is in harmony with the general purposes and intent of this Ordinance and the Comprehensive Plan.

In determining whether the proposed use is in harmony with the general purposes and intent of the Ordinance and the Comprehensive Plan, the Planning Commission shall consider and make findings on the following questions:

1) What potential health safety and welfare impacts were raised at the hearing and why will they, or why won't they, impact the neighboring residents?

_____

_____

_____

_____

2) What potential impacts on area property uses were raised at the hearing and why will they, or why won't they, impact the property uses in the area?

_____

_____

_____

_____

3) What potential impacts on property values or future development were raised at the hearing, and why will they, or why won't they, impact the neighboring properties?

4) What infrastructure is needed to support the proposed use and how will it be provided?

5) How do the goals, purpose and policies of the Zoning Ordinance and Comprehensive Plan apply to the proposed project?

NAME: _____ DATE: _____

TO: **Whom It May Concern**

FROM: **Nick Brozek**
Land Use and Zoning Supervisor
Redwood County Environmental Office

COPY

DATE: **June 16, 2021**

RE: **Notice of Public Hearing on Application for Conditional Use Permit**

Please find enclosed a *Notice of Public Hearing* regarding an *Application for Conditional Use Permit* submitted by David Trost of Qualtek Wireless o/b/o ATT Mobility/New Cingular Wireless PCS LLC and Midwest Wireless dba Verizon Wireless (landowner) pursuant to Redwood County Code of Ordinances Sections 153.381 & 153.446. The applicant is proposing to add a 25 foot height extension to the existing 250-foot guyed telecommunications tower on the following described property, situated in the County of Redwood, State of Minnesota, to wit:

> 7.27 acre tract in the Southwest Quarter of the Northwest Quarter (SW1/4 NW1/4) of Section 15, Township 111 North, Range 34 West, Morgan Township.

A public hearing thereon will be held before the Redwood County Planning Commission at the Planning Commission meeting scheduled at 1:00 o'clock p.m. on Monday, the 29th day of June, 2021, at the Board Room of the Redwood County Government Center located at 403 South Mill Street, Redwood Falls, MN 56283.

Pursuant to Redwood County Zoning Ordinance, all property owners of record within five hundred (500) feet of the incorporated areas and/or one-quarter (1/4) of a mile of the affected property or the ten (10) properties nearest to the affected property, whichever would provide notice to the greatest number of landowners in the unincorporated areas, the township in which the affected property is located, and all municipalities within two (2) miles of the property are required to be notified in writing of the time and place of the public hearing.

If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office and/or attend the public hearing at the time and date set forth in the *Notice of Public Hearing*.

enclosure

Cc: David Trost (w/ encl)

Redwood County Government Center - Environmental Department
P.O Box 130 Redwood Falls, MN 56283
(507) 637-4023 redwoodcounty-mn.us Environmental@co.redwood.mn.us

Southwest Minnesota
Redwood County
Environmental

NOTICE OF PUBLIC HEARING

An *Application for Conditional Use Permit* has been filed by David Trost of Qualtek Wireless o/b/o ATT Mobility/New Cingular Wireless PCS LLC and Midwest Wireless dba Verizon Wireless (landowner) pursuant to Redwood County Code of Ordinances Sections 153.381 & 153.446. The applicant is proposing to add a 25 foot height extension to the existing 250-foot guyed telecommunications tower on the following described property, situated in the County of Redwood, State of Minnesota, to wit:

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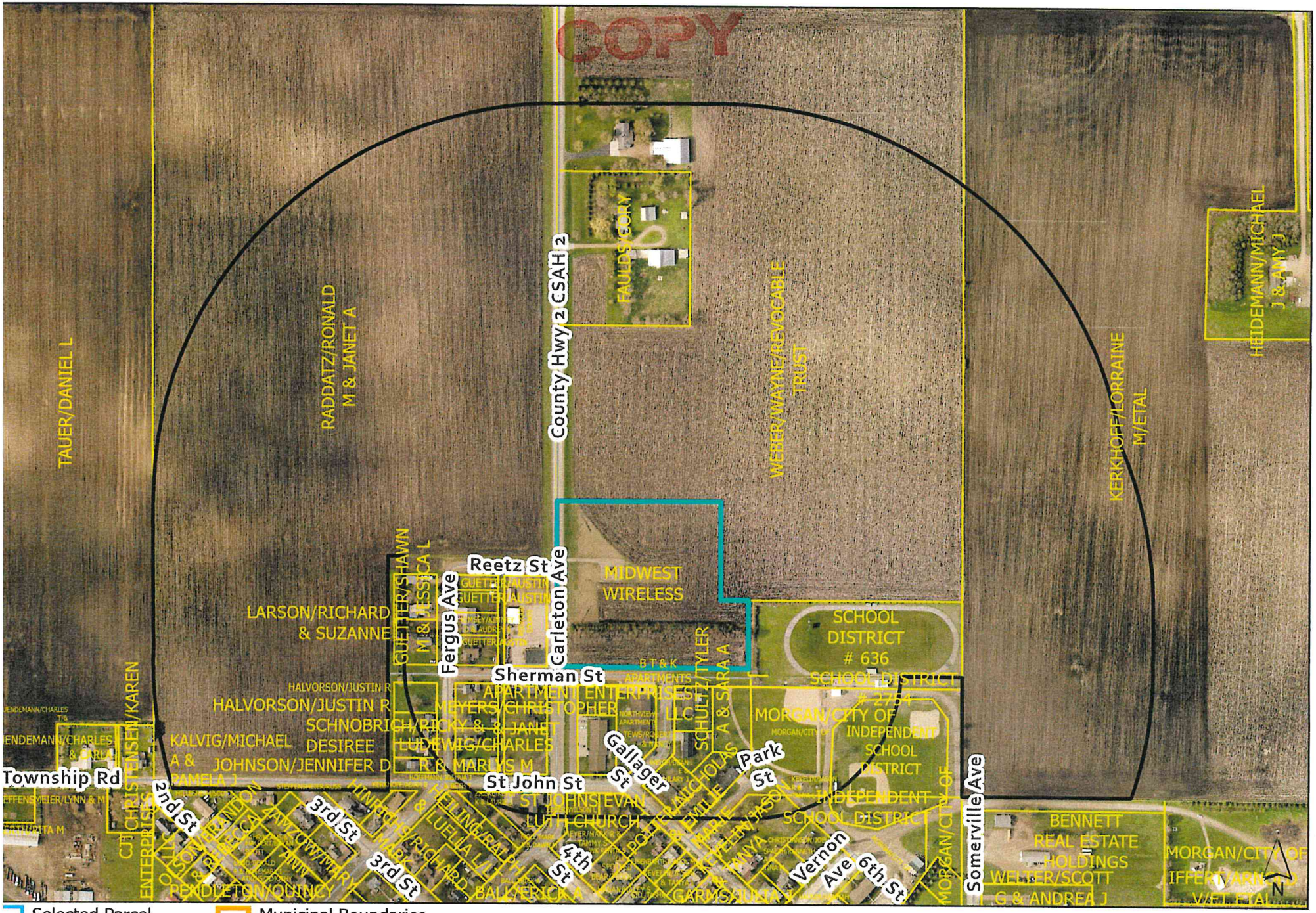
If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023 or in writing at *Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283*.

DATED: June 16th, 2021

Nicholas W. Brozek
Land Use and Zoning Supervisor
Redwood County Environmental Office



Selected Parcel
Notification Area
Parcels
Municipal Boundaries
Sections
Roads

CUP Notification Area:
0.25 miles from selected parcel

Parcel ID: 59-015-2060

0 235 470 940 Feet

AFFIDAVIT OF SERVICE VIA U.S. MAIL

STATE OF MINNESOTA)
) ss
COUNTY OF REDWOOD)

RE: ***Application for Conditional Use Permit*** **submitted by David Trost of Qualtek Wireless o/b/o ATT Mobility/ New Cingular Wireless PCS LLC and Midwest Wireless dba Verizon Wireless (landowner); Permit Application No. 11-21**

I, Lali Ortega, a person not less than eighteen (18) years of age, being first duly sworn upon oath, hereby state a copy of the following:

1. **Notice of Public Hearing on *Application for Conditional Use Permit*; and**
2. **Notice of Public Hearing**

were duly served upon:

--See Attached—

by enclosing a copy of the same in an envelope, with postage prepaid, and depositing said envelope in a United States Postal Service mailbox located at Redwood Falls, Minnesota on the 17th day of June, 2021.

Lali Ortega
Environmental Administrative Assistant

Subscribed and sworn to before me, a Notary Public, on this 17th day of June, 2021, by Lali Ortega.

Notary Public

NICHOLAS W BROZEK
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2024

NAME	C/O	ADDRESS	ADDRESS 2	CITY	STATE	ZIP
APARTMENT ENTERPRISES LLC		540 S 1ST ST		MONTEVIDEO	MN	56265
3 T & K APARTMENTS	% VAN BINSBERGEN & ASSOCIATES	540 S 1ST ST		MONTEVIDEO	MN	56265
EBNER/WILSON L		615 GALLAGER ST		MORGAN	MN	56266
EISENBARTH/CAROL M		613 GALLAGHER ST		MORGAN	MN	56266
FAULDS/CORY		25849 CO HWY 2		MORGAN	MN	56266
GUETTER/AUSTIN		PO BOX 402		MORGAN	MN	56266
GUETTER/SHAWN M & JESSICA L	611 FERGUS AVE	PO BOX 26		MORGAN	MN	56266
HALVORSON/JUSTIN R		PO BOX 322		MORGAN	MN	56266
HAMMERSCHMIDT/TOM R/& DEBRA K	608 GALLAGER ST	PO BOX 337		MORGAN	MN	56266
HELGESON/CATHERINE L	512 FERGUS AVE	PO BOX 222		MORGAN	MN	56266
HILLGER/DOUGLAS		PO BOX 297		MORGAN	MN	56266
HOFFMANN/JOSHUA J & BETH T		313 CARLETON AVE		MORGAN	MN	56266
INDEPENDENT SCHOOL DISTRICT	NO 636	PO BOX 188		MORGAN	MN	56266
JOHNSON/JENNIFER D	503 FERGUS AVE	PO BOX 74		MORGAN	MN	56266
KALVIG/MICHAEL A & PAMELA J		816 W 2ND ST		MORGAN	MN	56266
KERKHOFF/LORRAINE M/ETAL	% MARY LEE DALLMAN	21595 BEACH RD		DEERWOOD	MN	56444
KEVELIN/JASON R & TANYA L		508 GALLAGER ST		MORGAN	MN	56266
KIMSEY/KIMMEY D & AUDREY E		PO BOX 207		MORGAN	MN	56266
KROPIFKO/NATHAN		508 FERGUS AVE		MORGAN	MN	56266
LARSON/RICHARD & SUZANNE		PO BOX 251		MORGAN	MN	56266
LUDEWIG/CHARLES R & MARLYS M		PO BOX 487		MORGAN	MN	56266
MALECEK/CHRISTOPHER P	511 CARLETON AVE	PO BOX 326		MORGAN	MN	56266
MEYERS/CHRISTOPHER & JANET		11055 MAJOR OAK DR		BATON ROUGE	LA	70815
MORGAN/CITY OF		PO BOX 27		MORGAN	MN	56266
NORTHVIEW APARTMENTS	% VAN BINSBERGEN & ASSOCIATES	540 S 1ST ST		MONTEVIDEO	MN	56265
POTTER/NICHOLAS & EMILIE MARIE	POTTER/SCOTT C & KATHY	PO BOX 163		MORGAN	MN	56266
RADDATZ/RONALD M & JANET A		45261 260 ST		MORGAN	MN	56266
REDWOOD COUNTY		PO BOX 130		REDWOOD FALLS	MN	56283
SATHER/TAMMY L	506 FERGUS AVE	PO BOX 394		MORGAN	MN	56266
SCHNOBRICH/RICKY & DESIREE		PO BOX 505		MORGAN	MN	56266
SCHOOL DISTRICT # 2754	SCHOOL DISTRICT # 636	PO BOX 188		MORGAN	MN	56266
SCHOOL DISTRICT # 636		PO BOX 188		MORGAN	MN	56266
SCHULTZ/TYLER A & SARA A		28611 CO RD 7		SLEEPY EYE	MN	56085-4628
ST JOHNS EVAN LUTH CHURCH		403 CARLETON AVE		MORGAN	MN	56266
STEFFENSMEIER/LEE R		815 TOWNSHIP RD		MORGAN	MN	56266
TAUER/DANIEL L		22672 PORTER AVE		MORGAN	MN	56266
TEWS/ROBERT & NANCY		PO BOX 114		MORGAN	MN	56266
WEBER/MARIETTA S & RUSSEL J		PO BOX 156		MORGAN	MN	56266
WEBER/WAYNE/REVOCABLE TRUST		25901 CO HWY 2		MORGAN	MN	56266
WELCH/DEAN E & HILARY J		PO BOX 131		MORGAN	MN	56266
WIDWEST WIRELESS	% VERIZON WIRELESS	PO BOX 2549		ADDISON	TX	75001
WUALTEK WIRELESS	ATTN DAVID TROST	6100 110TH ST		BLOOMINGTON	MN	55425
WITY OF MORGAN	% LISA STEFFL, CLERK	PO BOX 27		MORGAN	MN	56266
WORGAN TOWNSHIP BOARD OF SUPERVISORS	% MARY TAUER, CLERK	22672 PORTER AVE		MORGAN	MN	56266

OFFICIAL PUBLICATION
NOTICE OF PUBLIC HEARING

An *Application for Conditional Use Permit* has been filed by David Trost of Qualtek Wireless o/b/o ATT Mobility/New Cingular Wireless PCS LLC and Midwest Wireless dba Verizon Wireless (landowner) pursuant to Redwood County Code of Ordinances Sections 153.381 & 153.446. The applicant is proposing to add a 25 foot height extension to the existing 250-foot guyed telecommunications tower on the following described property, situated in the County of Redwood, State of Minnesota, to wit:

7.27 acre tract in the Southwest Quarter of the Northwest Quarter (SW1/4 NW1/4) of Section 15, Township 111 North, Range 34 West, Morgan Township.

A public hearing thereon will be held before the Redwood County Planning Commission at the Planning Commission meeting scheduled at 1:00 o'clock p.m. on Monday, the 29th day of June, 2021, at the Board Room of the Redwood County Government Center located at 403 South Mill Street, Redwood Falls, MN 56283.

If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023 or in writing at *Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283.*

DATED: June 14th, 2021
Nicholas W. Brozek
Land Use and Zoning Supervisor
Redwood County Environmental Office
Published in the Redwood Gazette June 17, 2021.

AFFIDAVIT OF PUBLICATION

Gannett Newspaper Publications

State of Minnesota
Counties of Brown, Chippewa, Lyon, Redwood, Watonwan, Yellow Medicine

Lisa Drafall, being first duly sworn, on oath states as follows:

1. I am the Vice President of Sales of the Gannett Newspaper Publications. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has compiled with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows: **- THURSDAY -**, the **17th** day of **JUNE, 2021.**

4. The lowest classified rate paid by commercial users for comparable space, as determined pursuant to §331A.06 and §331A.07 is 9.75 column inch.

5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspapers' known office of issue is located in Brown, Chippewa, Lyon, Redwood, Watonwan & Yellow Medicine counties. The newspapers comply with the conditions in §580.033, subd. 1, clause (1) or (2). If the newspaper known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

By: _____
Vice President of Sales

Subscribed and sworn before me
on the **17th** day of **JUNE, 2021.**

By: Leanne Kaufenberg
Notary Public

LEANNE JOY KAUFENBERG
Notary Public-Minnesota
My Commission Expires Jan 31, 2025