Northeast Site Solutions
Victoria Masse
5 Melrose Drive
Farmington, CT 06032
victoria@northeastsitesolutions.com

May 9, 2024

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
190 Colt Highway (aka Rattlesnake Mountain), Farmington, CT 06032
Latitude: 41.70364722 N
Longitude: -72.83174722 W
Site#: CT11934A_Replacement

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile. T-Mobile plans to install antennas and related equipment to the tower site located at 190 Colt Highway, Farmington, Connecticut.

T-Mobile proposes to install nine (9) 600/700/1900/2100/2500 5G MHz antenna and six (6) RRUs at the 160-foot level of the existing 1290-foot guyed tower, three (3) hybrid cable will also be installed. T-Mobile equipment cabinets will be placed within existing building. Included are plans by Centek, dated October 17, 2023, Exhibit C. Also included is a structural analysis prepared by Turris, dated March 7, 2024 confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Farmington, per the Town plan meeting on June 25, 1979. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Blonski, Kathleen A., Town Manager Rutherford, Shannon P.E., Town Planner, as well as the property owner and tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the tower is 1290-feet; T-Mobile proposed antennas will be located at a center line height of 160-feet.

2.The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.

3.The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4.The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 25.69% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, T-Mobile respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing guyed tower has been deemed structurally capable of supporting T-Mobile proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this guyed tower in Farmington. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing T-Mobile to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of T-Mobile equipment at the 160-foot level of the existing 1290-foot guyed tower would have an insignificant visual impact on the area around the guyed tower. T-Mobile ground equipment would be installed within the existing facility compound. T-Mobile shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. T-Mobile will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist T-Mobile with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting T-Mobile proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing tower. T-Mobile intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Farmington.

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 5 Melrose Drive, Farmington, CT 06032
Email: victoria@northeastsitesolutions.com

Attachments
Cc:
Blonski, Kathleen A., Town Manager
Town of Farmington
1 Monteith Drive
Farmington, CT 06032

Rutherford, Shannon P.E., Town Planner
Town of Farmington
1 Monteith Drive
Farmington, CT 06032

COMMUNICATIONS SITE MGMT LLC, Property and Tower Owner
225 ASYLUM ST, 29TH FL
HARTFORD, CT 06103

Exhibit A

Original Facility Approval

PUBLIC HEARING TOWN PLAN AND ZONING COMMISSION FEBRUARY 27, 1984 - 2

DAVID T. CHASE

The hearing opened at 9:22 p.m. Sec. Baird read the notice for special exception for transmitter building and tower on Colt Highway.

Atty. William Wollenberg represented Mr. Chase and Arch Communications, who would be owner of the tower. Also participating in the presentation were Arnold Chase, President of Arch who submitted copies of FAA approval (Exh. 1), copies of public hearing and minutes of TPZC 6/25/79 meeting (Exh. 2), and letter of agreement with LeBlanc & Royle (Exh. 3) regarding removal of existing towers; Engineer James Thompson of Buck & Buck; Engineer Don Marshall of LeBlanc & Royle who submitted copies of profile of the tower (Exh. 4); George Mandeville of E. G. & G. of Salem, Mass., manufacturers of strobe lights; Alvin Andrus, broadcast consulting engineer who submitted copies of his engineering statement (Exh. 5). Mr. Wollenberg submitted copies of FCC File No. BPCT-820329KF (Exh. 6) and letter dated 12/8/83 from Tomasso Brothers (Exh. 7). Charles Fitch, Director of Engineering of Arch also assisted in responding to questions from the Commission.

No one spoke in favor of the applications; and speaking in opposition were Atty. Thomas Clark, representing Viacom Industries, Pat Brady, General Manager of Channel 30 WVIT, who submitted copies of a statement (Exh. B), and Ogden Prestholdt, broadcast engineer, on behalf of Channel 30 who submitted copies of a prepared statement (Exh. A). The hearing closed at 11:15 p.m.

The foregoing hearings were recorded on a cassette recorder and the cassettes filed in the Planning Department.

E. Mathews
2/29/84

REGULAR MEETING TOWN PLAN AND ZONING COMMISSION MARCH 26, 1984

Present were Commissioners Johansen, Baird, Chaffee, Hoyer, Whinnem, and Sewell (substituting for Goodridge); the Town Planner and Planning Aide. The regular meeting opened at 9:55 p.m.

FRANK BESSONI

Atty. Howard Belkin and Eng. Augustine Lepore represented Mr. Bessoni in discussing proposed condominium development on a 14.1-acre site on Main Street opposite the intersection with Cooke Street. The preliminary plan showed 54 units. The Town Planner advised that because a good portion of the site lies within the Floodway, the maximum density on the balance of residentially zoned lane would be more like 35. Developer was asked to work with the Planner on any revised proposals.

VALLEY CONCRETE CORP.

Mr. Hoben advised that plans had been revised to show locations of outside storage as requested by the Commission.

Upon motion made and seconded (Whinnem/Sewell) it was by a vote of three in favor (Whinnem, Sewell, Johansen) to two opposed (Hoyer, Chaffee)

VOTED: To grant Valley Concrete Corp. site plan approval of addition to building and relocation of concrete batch plant to the property at 232 Colt Highway according to plan entitled "Property of Colt Realty, Colt Highway, Farmington, Connecticut" dated January 1983, revised to March 23, 1984. This action rescinds Paragraph 2. of the restrictive covenant filed on the land records by Valley Concrete Corp. in Vol. 210 Pages 365, 366.

DAVID T. CHASE

Upon motion made and seconded (Baird/Hoyer) it was unanimously

VOTED: To grant David T. Chase approval for modification of location and height of broadcasting tower approved on June 25, 1979 on Assessor's Lot 71-A, west side of Colt Highway in R-80 Zone; subject to the following conditions:

1. Final approval of the tower by the Federal Communications Commission;

2. Prior to issuance of a Building Permit, applicant shall present documentation of FCC approval, or post bond in an amount satisfactory to the Town Engineer to ensure disassembly of the tower if denied by FCC;

3. Condition of June 25, 1979 approval regarding removal of all other towers on the site remains in effect. It is understood that two towers will be removed immediately

upon erection of the new tower, and that the applicant will use all efforts to renegotiate a lease on the third tower to effect its removal as soon as possible;

4. Applicant will provide public access to the Metacomet Trail, provision of such access to be reviewed by staff.

INTERTOWN REALTY CO.

Mr. Hoben advised of receipt of application to the Zoning Board of Appeals for variance from the requirement of four acres for a PR Zone. Upon motion made and seconded (Chaffee/Baird) it was unanimously voted to table action on the Intertown Realty Co. request until the Zoning Board of Appeals acts on that application.

AMAC DEVELOPMENT

The Commission and Wetlands Agency acted jointly on this application. Upon motion made and seconded (Sewell/Baird) it was unanimously (voting: Sewell, Baird, Chaffee, Hoyer, Johansen)

VOTED: To grant AMAC Development change of zone from R-80 to PR on 13.6 acres, Assessor's Lot 10, Colt Highway, approve site plan for 62,000 sq. ft. of office space in five buildings, and grant permit for storm water discharge and fill of approximately 1.5 acres of wetlands, subject to the following conditions:

1. Review and approval by Town Planner of final landscaping plan for the north side of the property and along Mountain Road;

2. Applicant to provide the Town will sanitary sewer line easement to Mountain Road as specified by Town Engineer;

3. Parking spaces to be provide based upon 20 percent efficiency of the buildings, with 25 percent of the required number reserved for future installation if required;

4. Staff to refer the approved plan to the Department of Transportation with the recommendation that widening of Route 6 in the area be approved to provide deceleration lanes for both westbound and eastbound traffic.

The zone change was granted because the proposed development provides an appropriate transition from the adjacent residential area and the highway, the site not being particularly suitable for single family residential use; the development is not inconsistent with the public welfare, and encourages the most appropriate use of the land.

THE FIP CORP.

Upon motion made and seconded (Hoyer/Sewell) The FIP Corp. applications were tabled until the next meeting.

PUBLIC HEARING TOWN PLAN AND ZONING COMMISSION JUNE 25,1979

Present were Commissioners Cragin, Susla, Gencarelli, Wehrly, Johansen, Alternate Baird (substituting for Mr. Stewart), Alternate Glass; the Town Planner and the Planning Aide.

GLORIA AZIA - LOG CABIN PACKAGE STORE

The public hearing opened at 7:38 p.m. Sec. Susla read the hearing notice.

Ron Giddicks represented the applicant and explained that due to the business' growth additional space was requested. The addition would have a brick facade with aluminum batten siding on the rear and west sides. The loading and refuse area would be screened. The entire building will be used by the present tenant.

No one spoke in favor of or in opposition to the application.

The hearing closed at 7:48 p.m.

DeDOMINICIS AND ROBINSON (WRCH)

The hearing opened at 7:48 p.m. Sec. Susla read the hearing notice. Enzo DeDominicis explained the reason for the request for an 1125 ft. tower was tb overcome reception problems for the FM station due to the hills in the area. Also that a new television station (Channel 61) has been allocated for the Hartford area which would most likely use the same tower for its antenna. WRCH had requested use of the Channel 30 tower but had been denied. It was the owners' intent to retain the present 350' tower for backup use and for other tenants.

No one spoke in favor of or in opposition to the application.

The hearing closed at 8:25 p.m.

The foregoing hearings were recorded on a cassette tape recorder and the cassettes filed in the office of Town Planner.

E. Mathews
6/28/79

that with the required green space the application for the Marriott could be brought in for a new public hearing; however the plans should contain a note to the effect that if the utility easement is used as a road to Route 6 then additional open space shall be provided.

GLORIA AZIA - LOG CABIN PACKAGE STORE

Upon a motion duly made and seconded (Susla/Gencarelli) it was unanimously

VOTED: To grant Gloria Azia, 276 Scott Swamp Road, site plan approval for addition to existing building. Approval is contingent upon:

1. The bank of the brook to the north of the building is to be cleaned of debris;

2. Additional landscaping in front of the building and around dumpster, and relocation of the dumpster further from the bank of the brook; said revision to be approved by the Commission.

OTTO PAPARAZZO - RED OAK

Upon a motion duly made and seconded (Gencarelli/Susla) it was unanimously

VOTED: To grant Otto Paparazzo conditional approval for the Red Oak development subject to final review by the Commission; and specifically contingent upon the following:

1. Submission of 1/16" scale plans for each cluster including grading, building, utilities and coordination of same prior to issuance of Building Permit; said plans to be reviewed by staff and if Building Inspector requires additional fill it will be provided;

2. A field review by Town Engineer of final grades prior to issuance of Certificate of Occupancy;

3. Submission and acceptance of details for retaining walls;

4. Submission and Commission approval of a typical landscape plan;

5. Roof gutters on all units and tie in to footing drains and storm water system;

6. At least one foot between top of grade and clapboards;

7. Architecturals for the 30 units of Section 8 housing to be submitted for Commission approval.

DeDOMINICIS AND ROBINSON (WRCH)

Commissioners felt that the addition of another large tower in the area should call for removal of other existing towers. Members would also like to have assurance from the owners of their cooperation in extending use of the tower to others if possible when requested.

Upon a motion duly made and seconded (Susla/Gencarelli) it was

VOTED: To grant Enzo DeDominicis and Nicholas H. Robinson a special exception to build a radio tower on Rattlesnake Mountain in the R-80 Zone. Approval is contingent upon the removal of all other towers on the property following erection of the new tower; and an attempt to get necessary approval to eliminate strobe lights on the new tower due to the proximity of the Channel 30 tower.

The vote was five in favor and one opposed (Cragin).

LOEHMANN'S PLAZA

Upon a motion duly made and seconded (Gencarelli/Johansen) it was unanimously

VOTED: To grant Richard Bronson approval for site plan revision for Loehmann's Plaza, Farmington Avenue, including revised site drainage system and on site detention basin subject to the following:

1. Submission of revised planting plan to the Commission for the detention basin area;

2. The pipe from the basin to connect with drainage pipe to Farmington Avenue to be 12" pipe blocked to approximately 6";

3. A note on the plat and a caveat recorded on the deed regarding future maintenance of the detention basin, said note to be recorded within six weeks from date of approval;

4. Submission of maintenance details to the Town staff for their review and approval prior to recording on the deed.

MINUTES

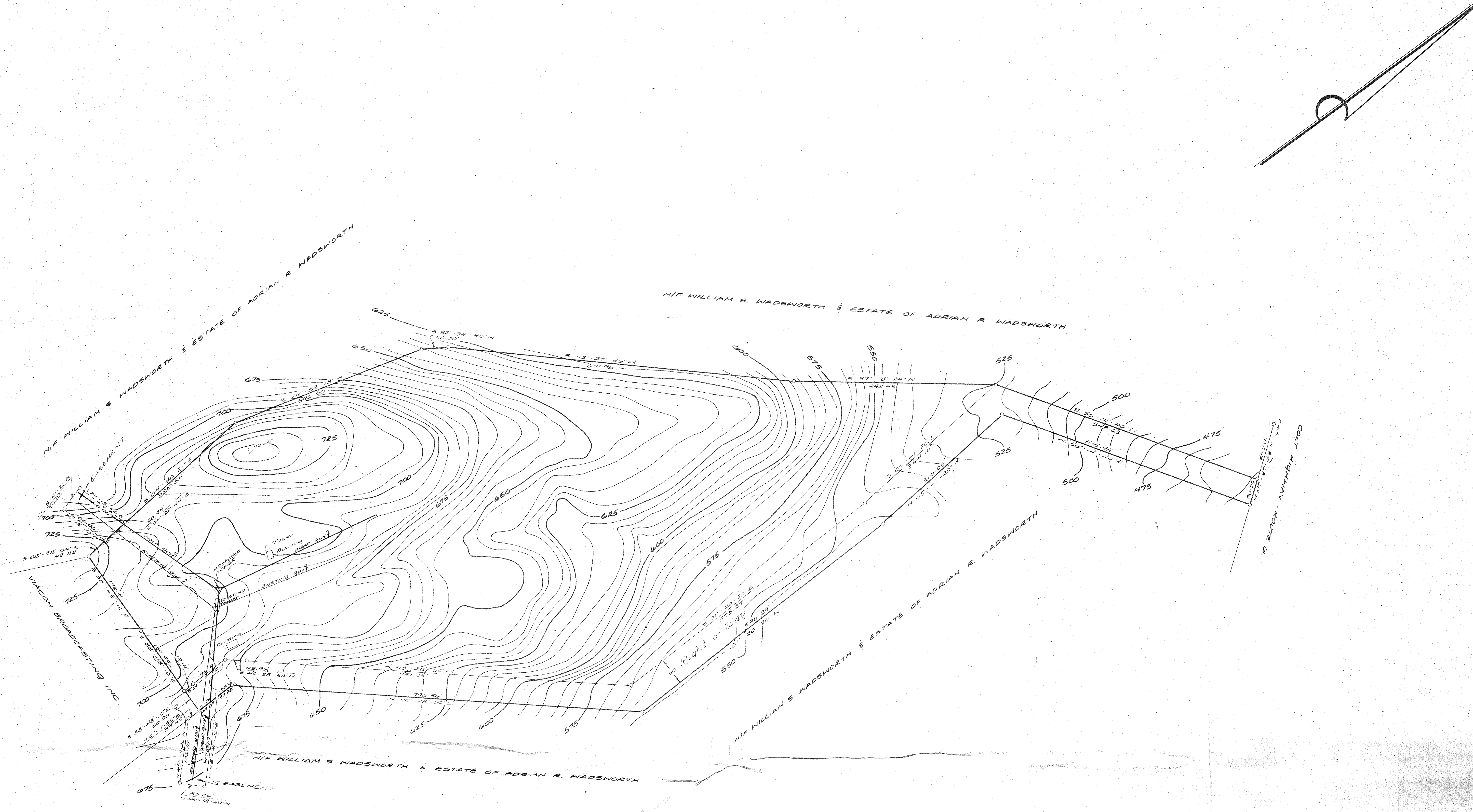
Upon a motion made and seconded (Wehrly/Baird) the minutes of the May 15, May 29, June 4 and June 11 meetings were unanimously approved as written.

The Town Planner asked if it was the consensus of the Commissioners that the proposed special events regulation should be considered by the Town Council as a Council ordinance rather than a zoning regulation. This was confirmed, and is to be referred to the Council.

The meeting adjourned at 12:45 A.M. June 26, 1979.

The foregoing meeting was recorded on a cassette tape recorder and the cassettes filed in the office of the Town Planner.

E. Mathews
6/27/79



NOTE:
TOPOGRAPHY BASED ON ENLARGEMENT OF CONNECTICUT STATE HIGHWAY DEPT. PHOTOGRAMMETRY AND NOT VERIFIED IN THE FIELD.

STATE OF CONNECTICUT
EDWARD F. REUBER
NO. 4140
REGISTERED LAND SURVEYOR

MAP OF LAND
OWNED BY
Enzo DeDominicis &
Nicholas H. Robinson

Colt Highway - Route 6 Farmington, Connecticut

— Scale 1" = 100' — June 1979 —

Certified substantially correct,

Edward F. Reuber , Surveyor

HODGE SURVEYING ASSOCIATES, P.C.

Z-7920

JOB NO. 71-104 DRW.

TOWER	ELEVATION (CONC. BASE)	ELEVATION (TOP OF TOWER)	CO-ORDINATES (BASED ON U.S.G.S. CONNECTICUT PLANE CO-ORDINATE SYSTEM)	GEOGRAPHIC POSITION
"A" PROPOSED ADDITION	720.84	1300.83 1846.83	N. 316,039.89 E. 577,470.27	41°-42'-02.458" NORTH LATITUDE 72°-49'-56.993" EAST LONGITUDE
"B"	726.04	1282.56	N. 316,087.86 E. 577,426.85	41°-42'-02.931" NORTH LATITUDE 72°-49'-57.566" EAST LONGITUDE
"C"	741.45	857.48	N. 316,107.62 E. 577,352.67	41°-42'-03.126" NORTH LATITUDE 72°-49'-58.545" EAST LONGITUDE

NOTE:
ELEVATIONS BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

NOTE:
FOR REFERENCE SEE MAP ENTITLED, "PORTION OF PROPERTY OF, ADRIAN R. & WILLIAM S. WADSWORTH, TO BE CONVEYED TO, THE NEW BRITAIN BROADCASTING CO., RATTLESNAKE MOUNTAIN, FARMINGTON, CONN., DECEMBER 1, 1952, SCALE 1"=100', J.D. WILLIAMS, CIVIL ENG'R & L.S."

STATE OF CONNECTICUT · EDWARD F. REUBER · No. 4140 · REGISTERED LAND SURVEYOR

MAP OF LAND
OWNED BY

Viacom Broadcasting Inc.

SOUTHERLY OF ROUTE 6 FARMINGTON, CONNECTICUT

Scale 1"=50' December 1977 REVISED JANUARY 1978. REVISED APRIL 1979.

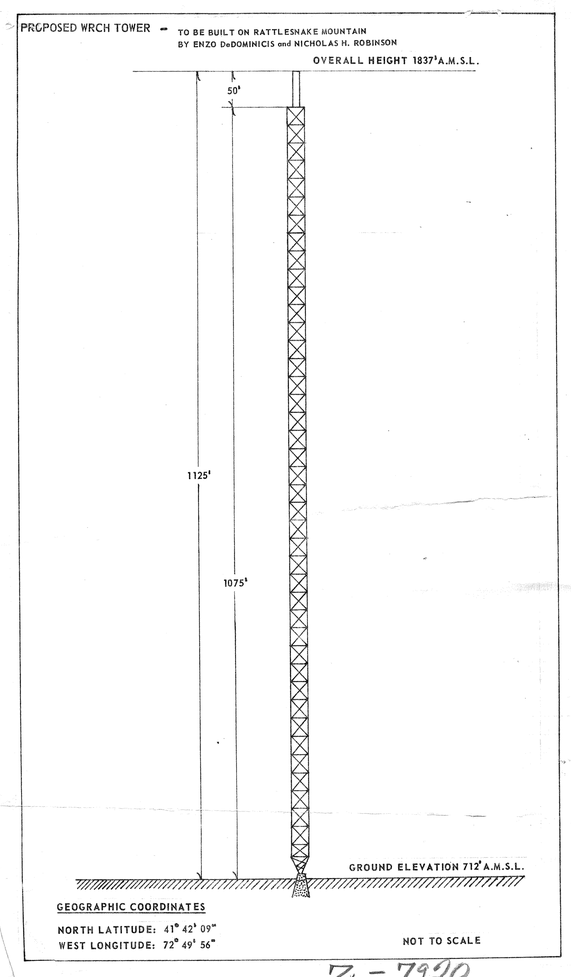
certified substantially correct.

Edward F. Reuber, SURVEYOR

Hodge Surveying Associates, P.C.

Z-7920

PROPOSED WRCH TOWER – TO BE BUILT ON RATTLESNAKE MOUNTAIN
BY ENZO DeDOMINICIS and NICHOLAS H. ROBINSON



GEOGRAPHIC COORDINATES

NORTH LATITUDE: 41° 42' 09"
WEST LONGITUDE: 72° 49' 56"

NOT TO SCALE

Z - 7920

REGULAR MEETING TOWN PLAN AND ZONING COMMISSION JUNE 25, 1979 - 4

Upon a motion duly made and seconded (Susla/Gencarelli) it was

VOTED: To grant Enzo DeDominicis and Nicholas H. Robinson a special exception to build a radio tower on Rattlesnake Mountain in the R-80 Zone. Approval is contingent upon the removal of all other towers on the property following erection of the new tower; and an attempt to get necessary approval to eliminate strobe lights on the new tower due to the proximity of the Channel 30 tower.

The vote was five in favor and one opposed (Cragin).

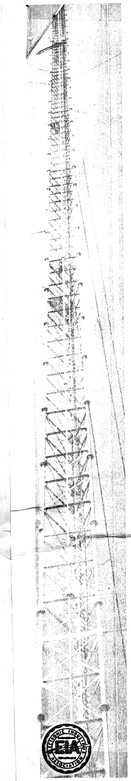
TOWN OF FARMINGTON, CONN.
TOWN PLANNING & ZONING

6/25/79 - TPZC - Approved spec. exc for radio tower on Rattlesnake Mtn. with conditions as above.

6/25/79 E.G. Mathews

RECEIVED
JUN 6 1979
OFFICE OF TOWN PLANNER
FARMINGTON, CONN.

Z-7920



Kline Towers
Kline Iron & Steel Co.
PLANTS IN COLUMBIA AND WEST COLUMBIA
REPLY TO: 1225-35 HUGER ST. P.O. BOX 1013
COLUMBIA, S.C. / 29202 / 803-779-7080

PROPOSED WRCH TOWER SPECIFICATIONS

1. 1125 ft. - overall height above ground to top of lightning arrestor.
2. Guyed tower - non-insulated. Uniform Triangular Cross Section, 10' Face, 3 Levels Strobe Lighting, 5 Levels of 3 Guy Cables each. Pivot Base.
3. Tower site located on Rattlesnake Mountain, Farmington, Connecticut- maximum distance to outer guy anchors 335 ft. - difference in ground elevation between center of tower and outer guy anchors - 80 ft.
4. All work based upon field services being performed by union iron workers.
5. Tower designed in accordance with EIA Standards RS-222-C - 50 lb. wind loading.

Z-7920

Victoria Masse <victoria@northeastsitesolutions.com>

T-Mobile (CT11934A) | Request for Original Tower Approval | 190 Colt Highway, Farmington CT

Sandra Michaud <michauds@farmington-ct.org> Fri, May 3, 2024 at 3:04 PM
To: "victoria@northeastsitesolutions.com" <victoria@northeastsitesolutions.com>
Cc: Shannon Rutherford <rutherfords@farmington-ct.org>, "denise@northeastsitesolutions.com" <denise@northeastsitesolutions.com>

Good afternoon

In response to your request, I have attached minutes of the original tower approval from the Town Plan & Zoning Commission and a plan set with tower details. Unfortunately, I am unable to locate the supporting paper application file.

Any questions, please contact our office.

Thank you

Sandy

Sandra Michaud

Town of Farmington

Land Use Coordinator

1 Monteith Drive

Farmington, CT 06032

860-675-2325

From: Victoria Masse <victoria@northeastsitesolutions.com>
Sent: Thursday, May 2, 2024 4:59 PM
To: Shannon Rutherford <rutherfords@farmington-ct.org>
Cc: Denise Sabo <denise@northeastsitesolutions.com>
Subject: T-Mobile (CT11934A) | Request for Original Tower Approval | 190 Colt Highway, Farmington CT

Good Afternoon,

I am reaching out on behalf of T-Mobile in regards to obtaining an original zoning or building permit for the original build of this Tower located at **190 Colt Highway**.

The purpose of my request is to file a zoning application with the Connecticut Siting Council as T-Mobile is proposing to install antennas on this existing Tower. Part of the requirement to file with the Council is to provide proof of the original approval of the Tower height to ensure we are not exceeding the height limit.

Attached to this email you will find the parcel map and property card for your reference. Please let me know if you have an approval of this original Tower build in your records.

Thank you very much

--

--

Victoria Masse

Zoning & Permitting Specialist

Mobile: 860-306-2326

Email: victoria@northeastsitesolutions.com

5 attachments

CT11934A_Property Card.pdf
1409K

CT11934A_Parcel Map.pdf
250K

Z7920.pdf
1912K

David Chase-Colt Highway Z-8401 Minutes.pdf
3376K

DeDominicis and Robinson - Colt Highway Z-7920.pdf
2779K

Exhibit B

Property Card

Farmington

Unique ID: 03750190 **Card No:** 1 Of 1

Location:	190 COLT HIGHWAY	Map Id:	0141 7A1	Zone:	R80	Date Printed:	5/2/2024
		Neighborhood:	99			Last Update:	5/2/2024

Owner Of Record	Volume/Page	Date	Sales Type	Valid	Sale Price
COMMUNICATIONS SITE MGMT LLC	0619/0171	3/2/2000		No	0
KATHLEEN TIERNEY PROP TAX, CHASE ENTERPRIESES, 225 ASYLUM ST 29TH FL, HARTFORD, CT 06			Exempt		

Prior Owner History

CHASE FAMILY INTERESTS 7 LLC	CHERYL CHASE FREEMAN EVP	0522/0135	8/2/1996	Warranty Deed	No	0
CHASE FAMILY LP 7		0408/0595	3/23/1990	Quit Claim	No	0
CHASE FAMILY LP 6		0306/0637	8/14/1984		No	0
CHASE ENTERPRISES		0303/0738	5/18/1984		No	0
CHASE FAMILY LP 5 & RADIO CORP OF HTFD	ENZO DEDOMINICIS PRES	0303/0736	5/18/1984	Warranty Deed	No	250.000

Permit Number	Date	Permit Description
82339	7/13/2022	INSTALL DAMING SYSTEM ON EXISTING 1248 TOWER
79163	6/18/2021	REMOVAL OF ANTENNAS FROM COMMUNICATION TOWER

Supplemental Data

Census/Tract	4602-02	Card	S-13A
Dev Map ID		Route	0375000
GIS ID		Map	80
Route		Bill#	01202
District		Prcl	000
Utilities			

Appraised Value

Total Land Value	1,531,900
Total Building Value	825,200
Total Outbldg Value	5,400
Total Market Value	2,362,500

Acres

Land Type	Acres	490	Total Value
Commercial Excess	17.02	17.02	0
Primary Site	3.00	0.00	1,174,500
Total	20.0200	17.02	1,531,900

State Item Codes

Code	Quantity	Value
21-Commercial Land	3.00	822.120
32-Industrial Building	1.00	577.640
62-Forest	17.02	4.650
33-Industrial Improvement	1.00	3.780

Assessment History (Prior Years as of Oct 1)

	2024	2023	2022	2021	2020
Land	826,770	826,770	826,770	826,800	826,800
Building	577,640	577,640	577,640	475,610	475,610
Outbuilding	3,780	3,780	3,780	3,290	3,290
Total	**1,408,190**	**1,408,190**	**1,408,190**	**1,305,700**	**1,305,700**

490 Appraised Totals

Type	Acres	Value	Type	Acres	Value
Forest/Woodlan	17.02	6638			
			Totals	**17.02**	**6638**

Application Date: **Expiration Date:**

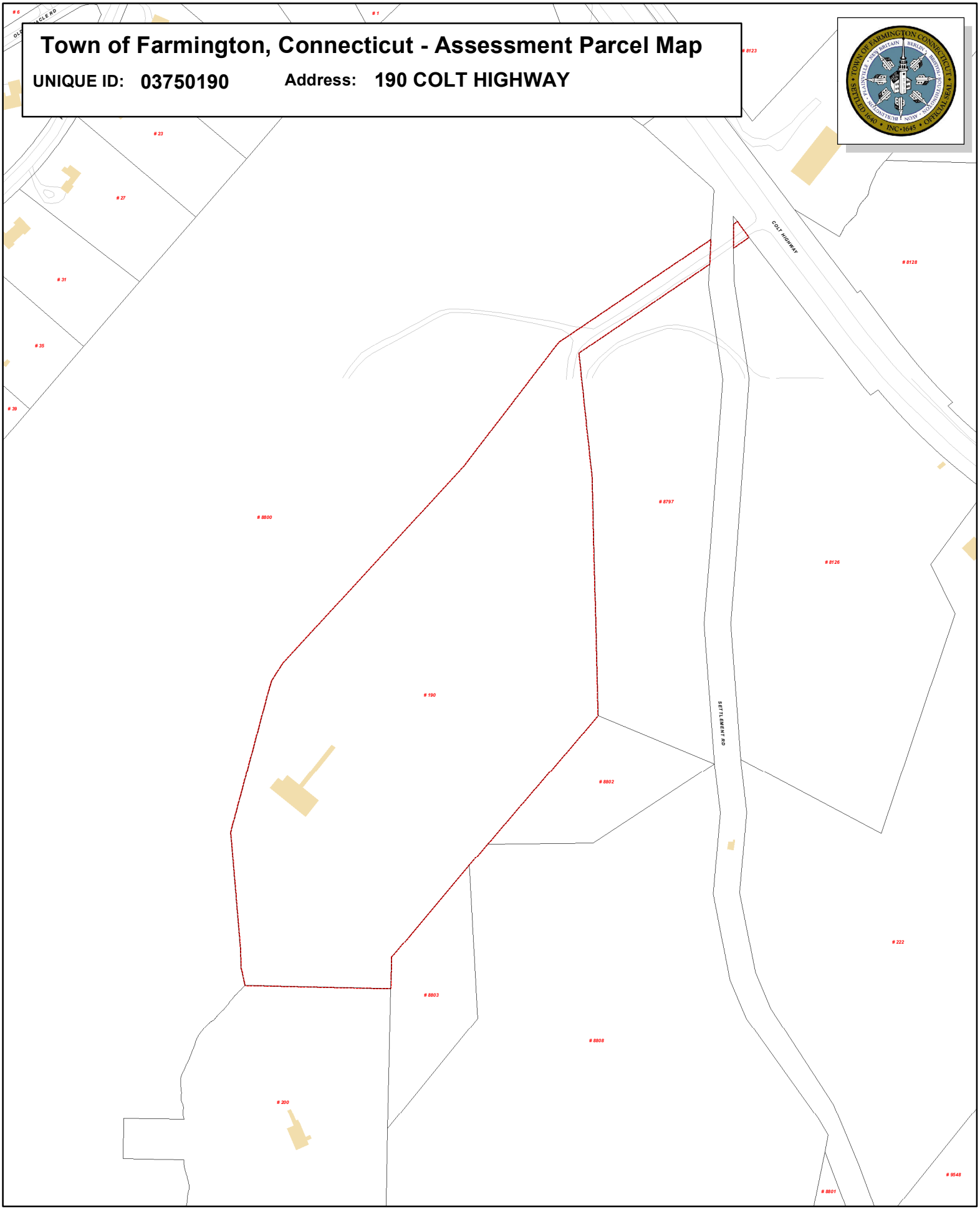
Comments

6/23/2022 NO BLDG ACCESS USED GIS

Revaluation Date: 10/1/2022

Town of Farmington, Connecticut - Assessment Parcel Map

UNIQUE ID: 03750190 **Address:** 190 COLT HIGHWAY



Map Produced August 2023

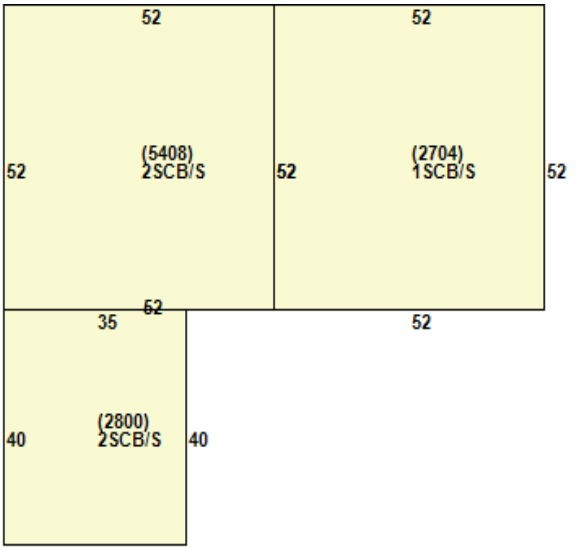
Approximate Scale: 1 inch = 300 feet

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Farmington and its mapping contractors assume no legal responsibility for the information contained herein.

Farmington

Unique ID: 03750190

Location:	190 COLT HIGHWAY	**Unit**	



Commercial Building Description

Building Use	Industrial
Class	
Overall Condition	Average
Construction Quality	C
Stories	2.00
Year Built	1996
Remodel	
Percent Complete	100
GLA	**10912**

Basement

Basement Area	0

HVAC

Heating Type	FHA
Fuel Type	Natural Gas
Cooling Type	Central

Interior

Floors	Carpet/Concrete
Walls	Painted Concrete Block/Dr
Wall Height	

Exterior

Exterior Walls	8" CB
Roof Type	Other
Roof Cover	

Special Features

Description	Area/Qty
Base Value	10912
Central Air	10912

Attached Component Computations

Type	Yr Blt	Area/Qty
Steel Electric Overhead Doo	1996	1

Detached Component Computations

Type	Year	Condition	Area/Qty
Fencing	1996	Average	1600

Type	Year	Condition	Area/Qty

Exhibit C

Construction Drawings

SITE NAME: COLT HIGHWAY RELO
SITE ID: CT11934A
190 COLT HIGHWAY
FARMINGTON, CT 06032

T-MOBILE A/L TEMPLATE (PROVIDED BY RFDS)

67E5A998E_1xAIR+1OP+1QP

T-MOBILE RAN TEMPLATE (PROVIDED BY RFDS)

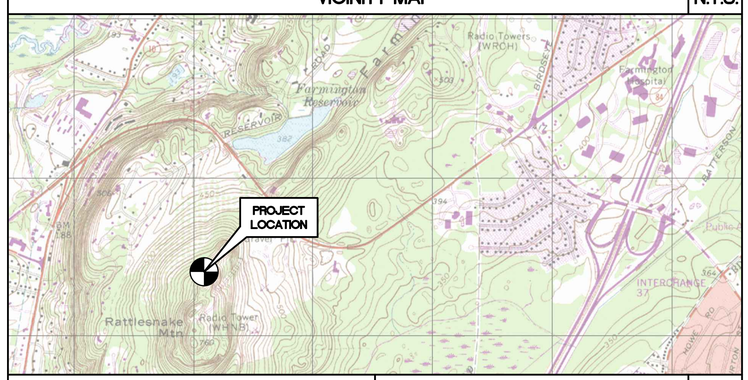
67E5A998E 6160

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
8. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
9. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
10. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

SITE LOCATION MAP — N.T.S.

VICINITY MAP — N.T.S.



SITE COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH.

SITE COORDINATES: LATITUDE: 41° 42' 13.13" N
LONGITUDE: 72° 49' 54.29" W
GROUND ELEVATION: ±710' AMSL

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. INSTALL (3) PROPOSED T-MOBILE ANTENNAS PER SECTOR. TOTAL OF (9)
2. INSTALL (2) PROPOSED T-MOBILE RRUs PER SECTOR. TOTAL OF (6)
3. INSTALL (3) ANTENNA SECTOR FRAMES (SITEPRO P/N: VFA12)
4. INSTALL (1) PROPOSED TELCO BOX
5. INSTALL (1) PROPOSED 3-PHASE 200A PPC CABINET
6. INSTALL (1) ERICSSON 19" RACK
7. INSTALL (1) POWER 6230 UNIT ATOP PROPOSED 6230 BATTERY RACK
8. INSTALL STEP-DOWN 45KVA TRANSFORMER
9. INSTALL SUB-METER AT MAIN PANEL
10. INSTALL PROPOSED T-MOBILE POWER & FIBER UTILITIES

PROJECT INFORMATION

SITE NAME:	COLT HIGHWAY RELO
SITE ID:	CT11934A
SITE ADDRESS:	190 COLT HIGHWAY FARMINGTON, CT 06032
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT. 06002
CONTACT PERSON:	MATT BANDLE NORTHEAST SITE SOLUTIONS (508) 642-8801
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT. 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
SITE COORDINATES:	LATITUDE: 41°-42'-13.13" N LONGITUDE: 72°-49'-54.29" W GROUND ELEVATION: ±710' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH PRO.

SHEET INDEX

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E-3	ELECTRICAL GROUNDING PLANS	1
E-4	TYPICAL GROUNDING DETAILS	1
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REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
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PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SITE NAME: COLT HIGHWAY RELO
SITE ID: CT11934A
190 COLT HIGHWAY
FARMINGTON, CT 06032

DATE: 06/2/23
SCALE: AS NOTED
JOB NO. 23002.04

TITLE SHEET

T-1

SHEET NO. 1 OF 11

NOTES AND SPECIFICATIONS:

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 97 MPH (Vasd)
  (EXPOSURE C/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-16).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

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ANTENNA/APPURTENANCE SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) TMA (QTY)	(QTY) PROPOSED HYBRID/COAX
A1	PROPOSED	COMMSCOPE (VV-65A-R1)	54.7 x 12.1 x 4.6	160'	60°	(P) RADIO 4460 B25+B66 (1)		(1) 6x12 HYBRID CABLE (±350')
A2	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.7	160'	60°	(P) RADIO 4480 B71+B85 (1)		
A3	PROPOSED	ERICSSON (AIR6419 B41)	34.5 x 20 x 8	160'	60°			
B1	PROPOSED	COMMSCOPE (VV-65A-R1)	54.7 x 12.1 x 4.6	160'	180°	(P) RADIO 4460 B25+B66 (1)		(1) 6x12 HYBRID CABLE (±350')
B2	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.7	160'	180°	(P) RADIO 4480 B71+B85 (1)		
B3	PROPOSED	ERICSSON (AIR6419 B41)	34.5 x 20 x 8	160'	180°			
C1	PROPOSED	COMMSCOPE (VV-65A-R1)	54.7 x 12.1 x 4.6	160'	300°	(P) RADIO 4460 B25+B66 (1)		(1) 6x12 HYBRID CABLE (±350')
C2	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.7	160'	300°	(P) RADIO 4480 B71+B85 (1)		
C3	PROPOSED	ERICSSON (AIR6419 B41)	34.5 x 20 x 8	160'	300°			

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
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B	07/24/23	LGL	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
A	07/03/23	LGL	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

T-Mobile

NSS NORTHEAST Site Solutions

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SITE NAME: COLT HIGHWAY RELO
SITE ID: CT11934A
190 COLT HIGHWAY
FARMINGTON, CT 06032

DATE: 06/2/23
SCALE: AS NOTED
JOB NO. 23002.04

SPECIFICATIONS, NOTES, AND ANT. SCHEDULE

N-1

SHEET NO. 2 OF 11

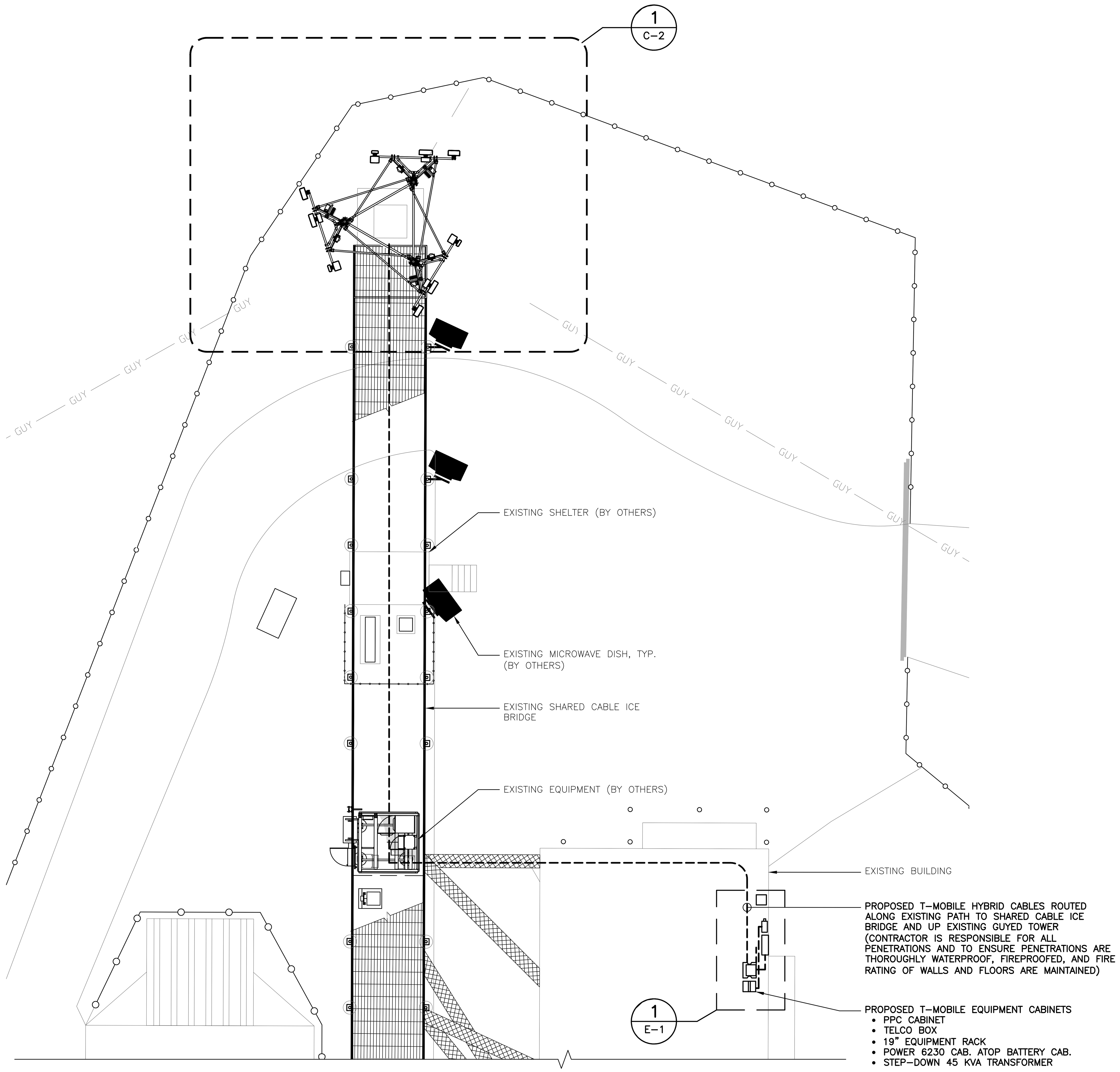
STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

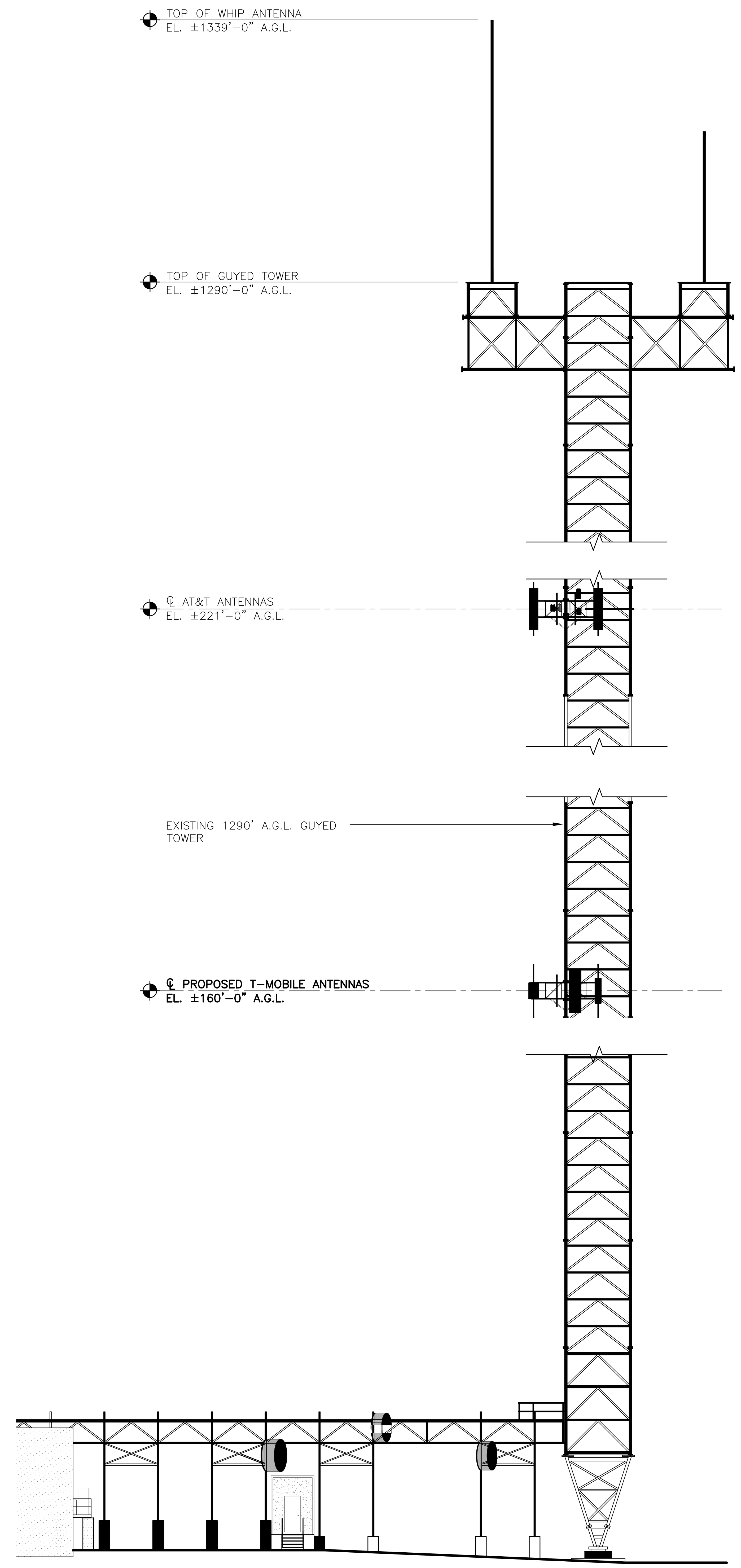
A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC (PROJECT # 23002.04) DATED 10/17/2023 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.



1 / C-1 **PARTIAL COMPOUND PLAN - PROPOSED**
SCALE: 1" = 10'
TRUE NORTH



2 / C-1 **TOWER ELEVATION - PROPOSED**
SCALE: 1" = 15'

GRAPHIC SCALE
15 0 7.5 15 30 60
1" = 15'-0"

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PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT
CARLO F. CENTORE
No. 16694
LICENSED PROFESSIONAL ENGINEER

[illegible]

T-Mobile

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
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www.CentekEng.com

T-MOBILE NORTHEAST LLC

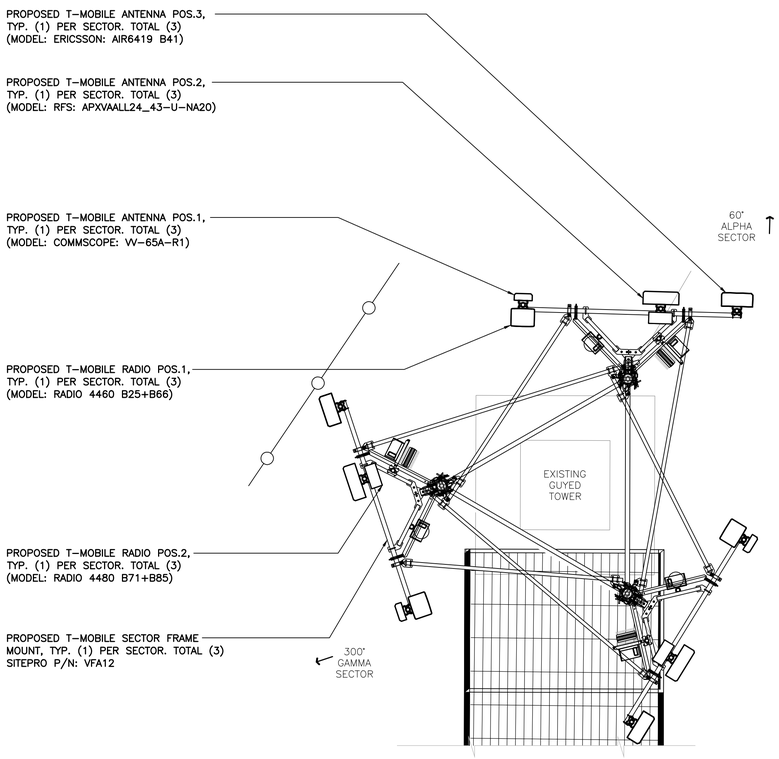
SITE NAME: COLT HIGHWAY RELO
SITE ID: CT11934A
190 COLT HIGHWAY
FARMINGTON, CT 06032

DATE:	06/2/23
SCALE:	AS NOTED
JOB NO.	23002.04

COMPOUND PLAN AND TOWER ELEVATION

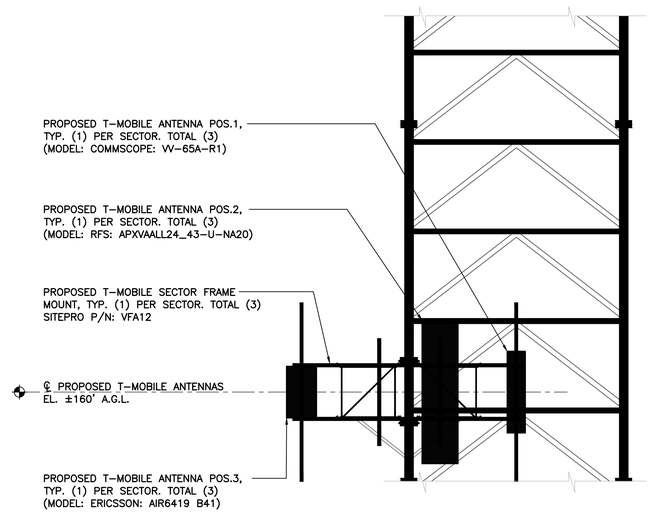
C-1

SHEET NO. 3 OF 11



1 / C-2 **PROPOSED ANTENNA PLAN - ALPHA/BETA/GAMMA**
SCALE: 1/4" = 1'

TRUE NORTH



2 / C-2 **PROPOSED ANTENNA ELEVATION - ALPHA/BETA/GAMMA**
SCALE: 1/4" = 1'

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	10/17/23	BSP	TJR	CONSTRUCTION DRAWINGS - ANTENNA RAD CENTER CHANGE
0	08/10/23	LGL	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
B	07/24/23	LGL	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
A	07/03/23	LGL	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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Branford, CT 06405
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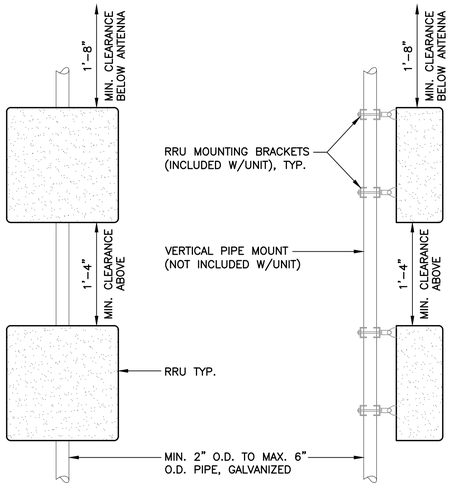
ANTENNA PLANS AND ELEVATIONS

C-2

SHEET NO. 4 OF 11

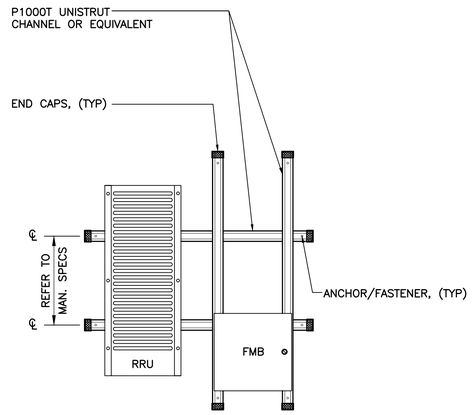


NOTES: (PIPE MOUNTING)

1. T-MOBILE SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 C-3 TYPICAL RRU MOUNTING DETAILS

SCALE: NOT TO SCALE



NOTES: (UNISTRUT MOUNTING)

1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

2 C-3 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE

APXVAALL24_43-U-NA20

AIR6419 B41

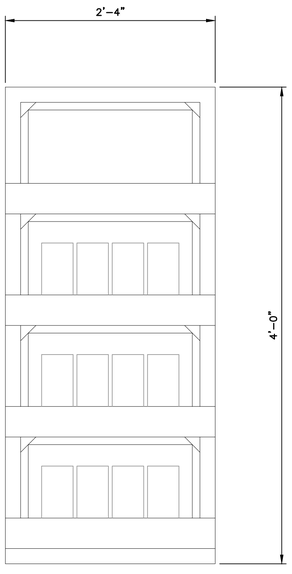
VV-65A-R1

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6419 B41	34.5"L x 20"W x 8"D	±41 LBS.
MAKE: COMMSCOPE MODEL: VV-65A-R1	54.7"L x 12.1"W x 4.6"D	±73 LBS.
MAKE: RFS MODEL: APXVAALL24_43-U-NA20	95.9"L x 24"W x 8.7"D	±128 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.		

45 KVA STEP-DOWN TRANSFORMER					
EQUIPMENT	VOLTAGE	ENCLOSURE	KVA	DIMENSIONS	WEIGHT
MAKE: SQUARE D MODEL: EXN45T3HCU	208V SECONDARY 480V PRIMARY	NEMA-1	45	26"L x 26"W x 30"H	±399 LBS

3 C-3 PROPOSED TRANSFORMER DETAIL

SCALE: NOT TO SCALE



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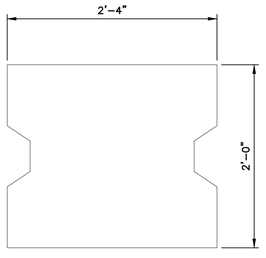


PLAN

6230 BATTERY RACK		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: POWER 6230 BATTERY RACK	63.0"H x 28.0"W x 24."D	±1980 LBS.

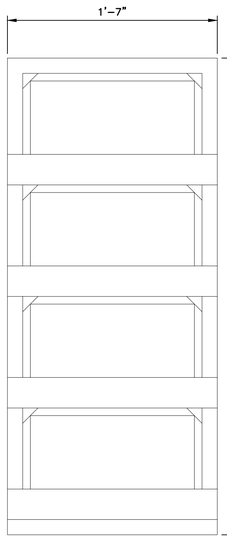
4 C-3 POWER 6230 BATTERY RACK

SCALE: NOT TO SCALE

POWER ENCLOSURE		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: POWER 6230	14.0"H x 19.0"W x 16.0"D	53 LBS

5 C-3 6230 POWER CABINET DETAIL

SCALE: NOT TO SCALE



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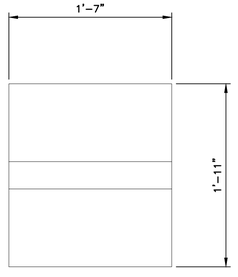

PLAN

ERICSSON 19" RACK		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: 19" RACK	63.0"H x 19.0"W x 23.0"D	±200 LBS.

6 C-3 ERICSSON 19" RACK

SCALE: NOT TO SCALE

VERTIV 200A PPC CABINET					
EQUIPMENT	PHASE	VOLTAGE	LOAD CENTER	AMP	DIMENSIONS
MAKE: VERTIV MODEL: F1004395	3-PHASE	120/208	24 POSITIONS	200	43"L x 24"W x 8.5"D

7 C-3 200A PPC CABINET DETAIL

SCALE: NOT TO SCALE

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TYPICAL EQUIPMENT DETAILS

C-3

SHEET NO. 5 OF 11

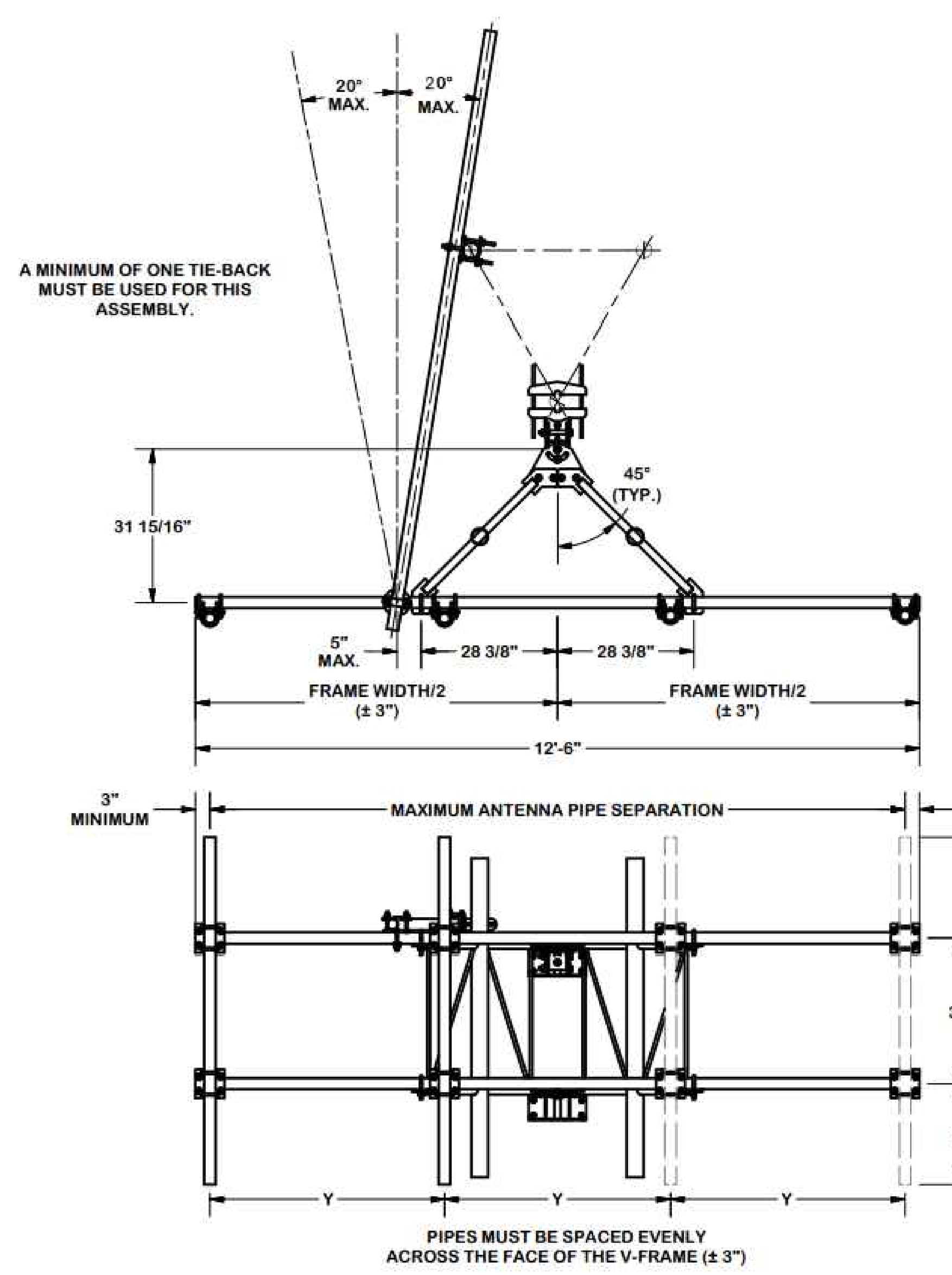
RADIO 4460 B25+B66

RADIO 4480 B71+B85

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4480 B71+B85	21.8"L x 15.7"W x 7.5"D	±84 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.

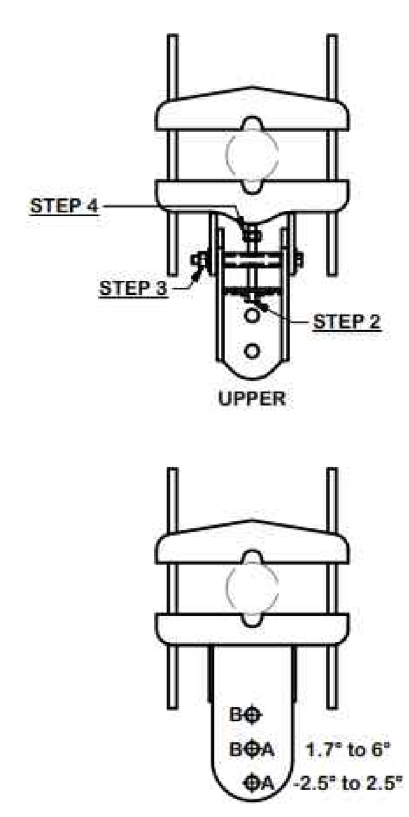
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

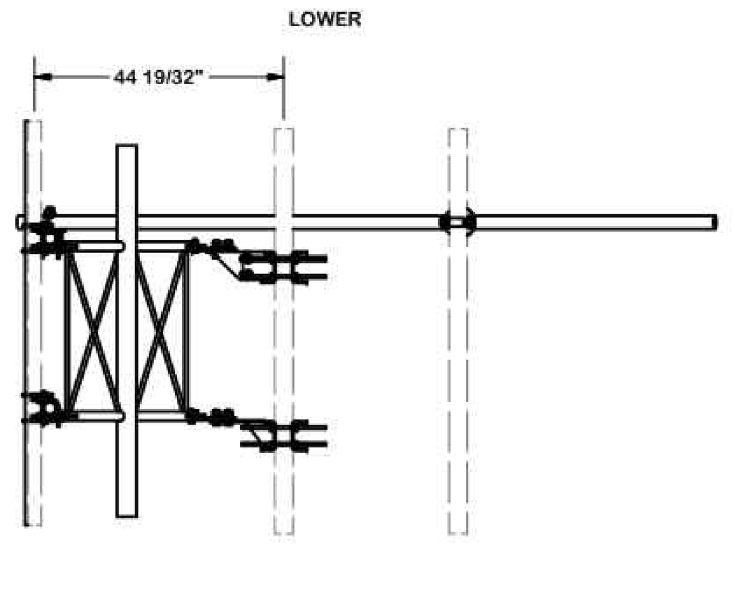
1 / C-4 PROPOSED RRU DETAIL
SCALE: NOT TO SCALE



ANGLE CALIBRATING PROCEDURE:

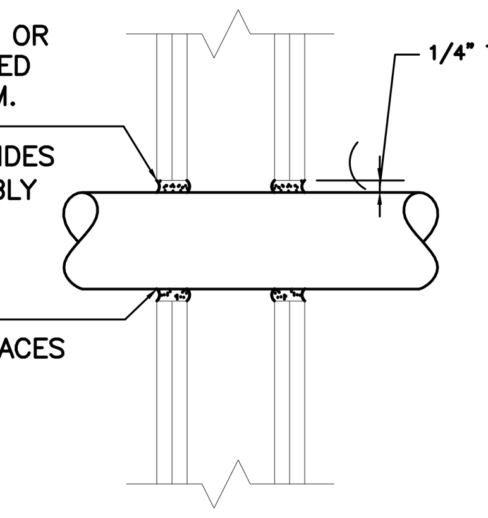
1. **MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:**
   - **HOLE A = -2.5° TO 2.5°**
   - **HOLE B = 1.7° TO 6°**
2. **USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER**
3. **TORQUE LOCKING BOLTS TO 50 ft.-lbs.**
4. **ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.**





2 / C-4 PROPOSED SECTOR FRAME DETAIL
SITEPRO P/N: VFA12

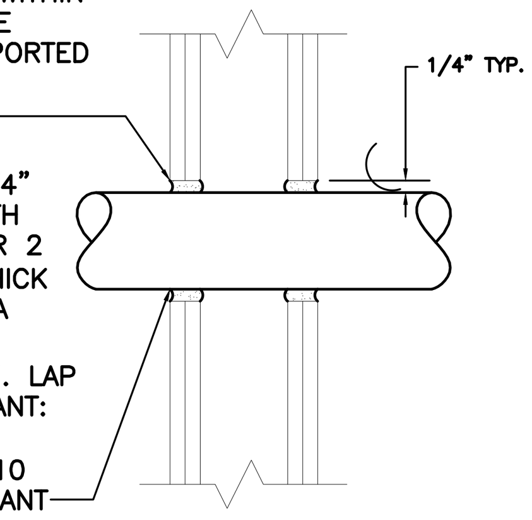
PIPE OR CONDUIT	ANNULAR SPACE IN.	MIN. FILL MATERIAL THICKNESS	F RATING HR
PIPE	3/4"	1 1/4"	2
CONDUIT	3/4"	3/4"	1



UL SYSTEM NUMBER: WL1051
F RATING – 1 & 2 HR.

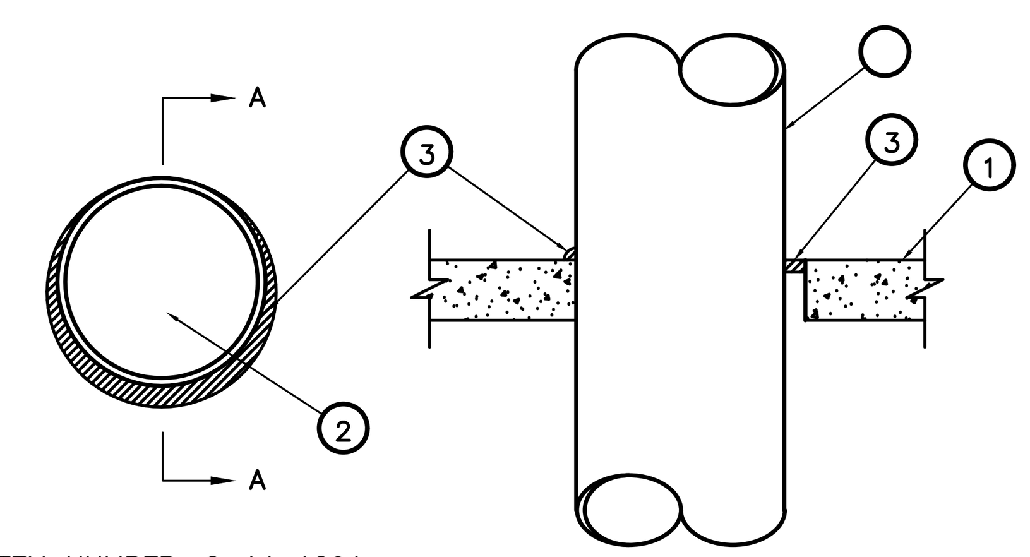
3 / C-4 PIPE AND CONDUIT PENETRATION DETAIL IN GYPSUM WALLBOARD
SCALE: NOT TO SCALE

MAX. DIA. OF THROUGH PENETRANT	NOMINAL ANNULAR SPACE IN.	FILL MATERIAL TYPE
1"	1/2"	FSP 1100 PUTTY
2"	1"	FS 1900 SEALANT



UL SYSTEM NUMBER: WL2038
F RATING – 1 & 2 HR.

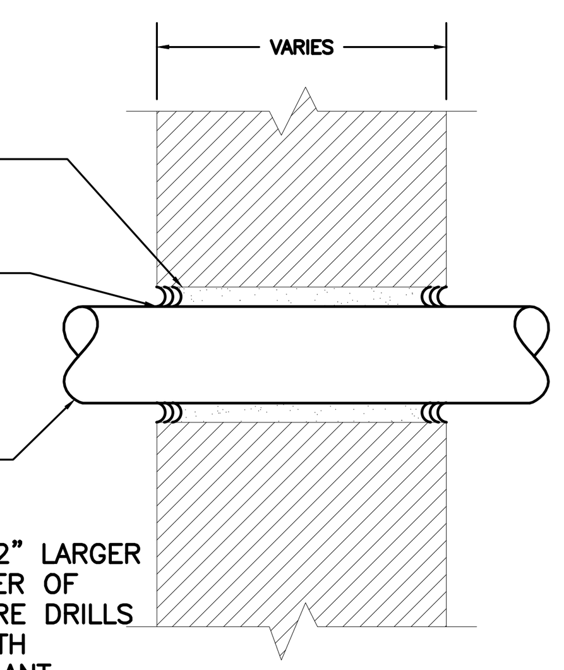
4 / C-4 PVC CONDUIT PENETRATION DETAIL IN GYPSUM WALLBOARD
SCALE: NOT TO SCALE



UL SYSTEM NUMBER: C-AJ-1291
F RATING – 2-HR

SECTION A-A

5 / C-4 METAL PIPE THROUGH CONCRETE FLOOR/ WALL OR BLOCK WALL
SCALE: NOT TO SCALE



NOTE:
CORE HOLE 1 1/2" LARGER THAN THE DIAMETER OF THE CONDUIT. CORE DRILLS TO BE SEALED WITH ELASTOMERIC SEALANT.

6 / C-4 PIPE AND CONDUIT PENETRATION DETAIL IN NON-RATED PARTITION
SCALE: NOT TO SCALE

NOTES:

1. FLOOR OR WALL ASSEMBLY – MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 30-7/8 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

   A. STEEL FLOOR UNIT/FLOOR ASSEMBLY (NOT SHOWN) – AS AN ALTERNATE TO ITEM 1, THE FLOOR ASSEMBLY MAY CONSIST OF A FLUTED STEEL FLOOR UNIT/ CONCRETE FLOOR ASSEMBLY. THE FLOOR ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL FLOOR CEILING DESIGN IN THE FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

   B. CONCRETE – MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT ON NORMAL WEIGHT (100-150 PCF) CONCRETE, AS MEASURED FROM THE TOP PLANE OF THE FLOOR UNITS.

   C. STEEL FLOOR AND FORM UNITS* – COMPOSITE OR NON-COMPOSITE 1-1/2 TO 3 IN. DEEP FLUTED GALV STEEL UNITS AS SPECIFIED IN THE INDIVIDUAL FLOOR-CEILING DESIGN. MAX DIAM OF OPENING IS 30-7/8 IN.

2. THROUGH-PENETRANT – ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. TO MAX 7/8 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:

   A. STEEL PIPE NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

   B. IRON PIPE NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.

   C. COPPER PIPE NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

   D. COPPER TUBING NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

   E. CONDUIT NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT.

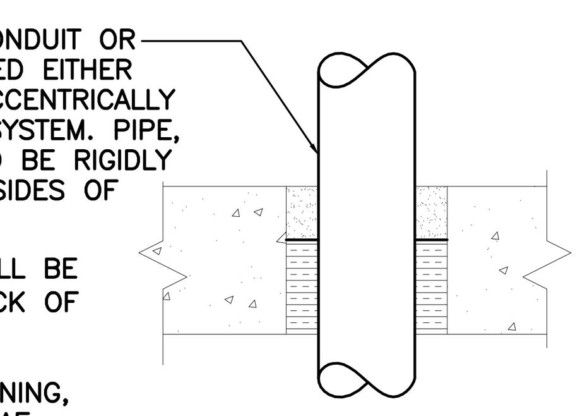
   F. CONDUIT NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT).

3. FILL, VOID OR CAVITY MATERIAL* – SEALANT – MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 1/4 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL.

FLOOR OR WALL	MIN. THICK.	MAX. PIPE DIA.	MIN. ANNULAR SPACE	MAX. ANNULAR SPACE	MIN. FILL MAT. THICK.	MIN. FORM. MAT. THICK.	F RATING
F	3 3/4"	1 1/2"	3/8"	2 1/8"	1"	2 3/4"	2
F	3 3/4"	6"	3/8"	3/4"	1"	2 3/4"	2
F	3 3/4"	6"	3/8"	1"	2"	1 3/4"	2
F	4 1/2"	1 1/2"	3/8"	2 1/8"	1"	3 1/2"	3
F	4 1/2"	6"	3/8"	3/4"	1"	3 1/2"	3
F	4 1/2"	6"	3/8"	1"	2"	2 1/2"	3
W	5 1/2"	1 1/2"	3/8"	2 1/8"	1"	3 1/2"	3
W	5 1/2"	6"	3/8"	3/4"	1"	3 1/2"	3
W	6 1/2"	1 1/2"	3/8"	2 1/8"	2"	2 1/2"	3
W	6 1/2"	6"	3/8"	1"	2"	2 1/2"	3

THROUGH PENETRANTS
ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL.

FORMING MATERIAL SHALL BE A MIN. OF 1 1/2" THICK OF MIN. 4.0 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED IN OPENING, USG INTERIORS-TYPE SAF



THICKNESS OF SEALANT APPLIED FLUSH W/THE TOP SURFACE OF BOTH SIDES OF FLOOR/WALL (SEE TABLE), USG INTERIORS-TYPE SS

UL SYSTEM NUMBER: CAJ1020

F RATING – 3 HR.

7 / C-4 PIPE AND CONDUIT PENETRATION DETAIL IN CONCRETE OR MASONRY
SCALE: NOT TO SCALE

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A	07/03/23	LGL	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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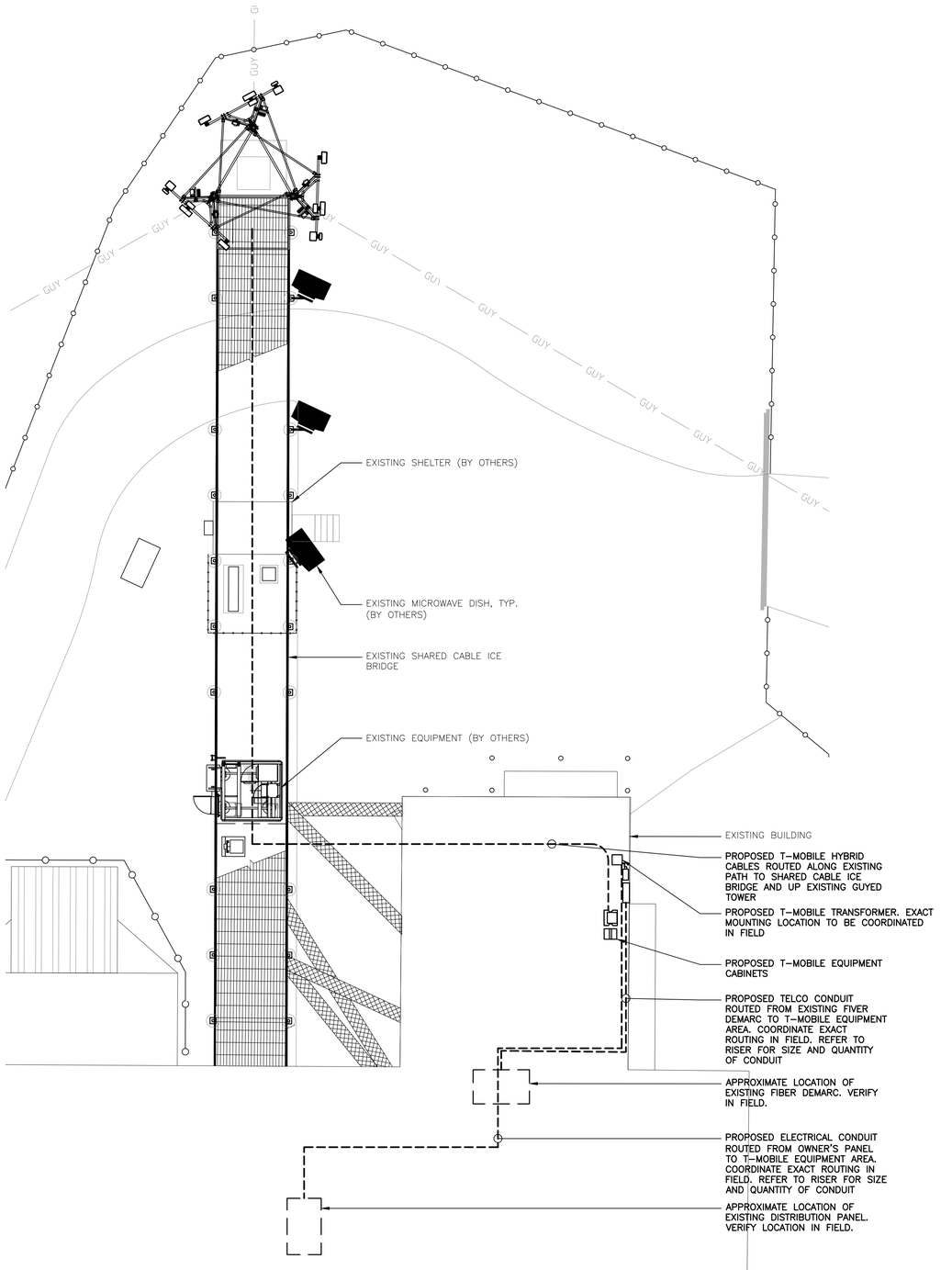
TYPICAL EQUIPMENT DETAILS

C-4

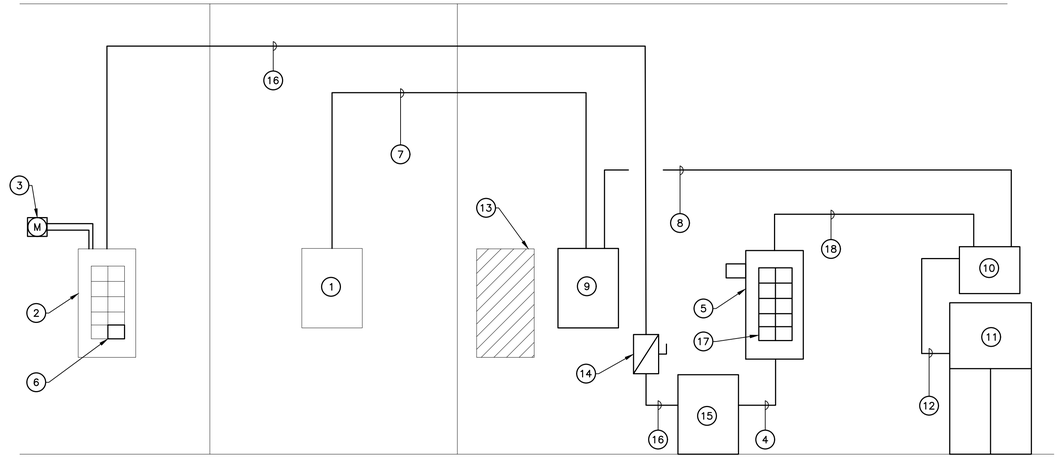
SHEET NO. 6 OF 11



1 / E–1 **ELECTRICAL CONDUIT ROUTING PLAN**
SCALE: 1" = 10'

RISER DIAGRAM NOTES

1. EXISTING FIBER DEMARC LOCATED IN FIBER/TELEPHONE ROOM ADJACENT TO FRONT SUITE.
2. EXISTING 225A, 480V, THREE PHASE PANEL LOCATED IN REAR SUITE MECHANICAL ROOM TO REMAIN. PRIOR TO START OF CONSTRUCTION, CONTRACTOR TO VERIFY EXISTING AVAILABLE ELECTRICAL CAPACITY.
3. NEW 100A, 480V, THREE PHASE, SUBMETER WITH ASSOCIATED WIRING AND CIRCUIT BREAKER. COORDINATE MOUNTING LOCATION WITH CONSTRUCTION MANAGER.
4. (4) 3/0 AWG, (1) #6 AWG GROUND, 2" CONDUIT. MAX LENGTH NOT TO EXCEED 10'.
5. NEW 200A, 208V, THREE PHASE, PPC CABINET. COORDINATE MOUNTING LOCATION WITH CONSTRUCTION MANAGER.
6. NEW 100A/3P SHUNT TRIP CIRCUIT BREAKER TO SERVE NEW TRANSFORMER.
7. 2" CONDUIT WITH FIBER TELCO CABLES ROUTED FROM EXISTING TELCO DEMARC TO TELCO BOX IN EQUIPMENT AREA. PROVIDE FINAL TELCO CONNECTIONS AS SPECIFIED BY MANUFACTURER AND TELEPHONE SERVICE PROVIDER. VERIFY DEMARC LOCATION IN FIELD.
8. TELCO CONDUITS AND CONDUCTORS ROUTED TO EQUIPMENT CABINET PER MANUFACTURERS SPECIFICATIONS.
9. 3 X 3 X 1 HOFFMAN BOX
10. NEW T–MOBILE EQUIPMENT RACK
11. NEW T–MOBILE BATTERY CABINET
12. DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.
13. EXISTING 100A SPRINT PANEL TO BE REMOVED.
14. NEW 100A, 480V FUSED DISCONNECT WITH (3) 100A FUSES.
15. NEW 45KVA, 480V DELTA PRIMARY, 208V WYE SECONDARY, THREE PHASE STEP DOWN TRANSFORMER.
16. (3) #1 AWG, (1) #8 AWG GROUND, 1–1/2" CONDUIT.
17. NEW (9) 25A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT
18. (3) #10 AWG, (1) #10 AWG GROUND, 3/4" CONDUIT. TOTAL OF (9)



2 / E–1 **ELECTRICAL POWER RISER DIAGRAM**
SCALE: NOT TO SCALE

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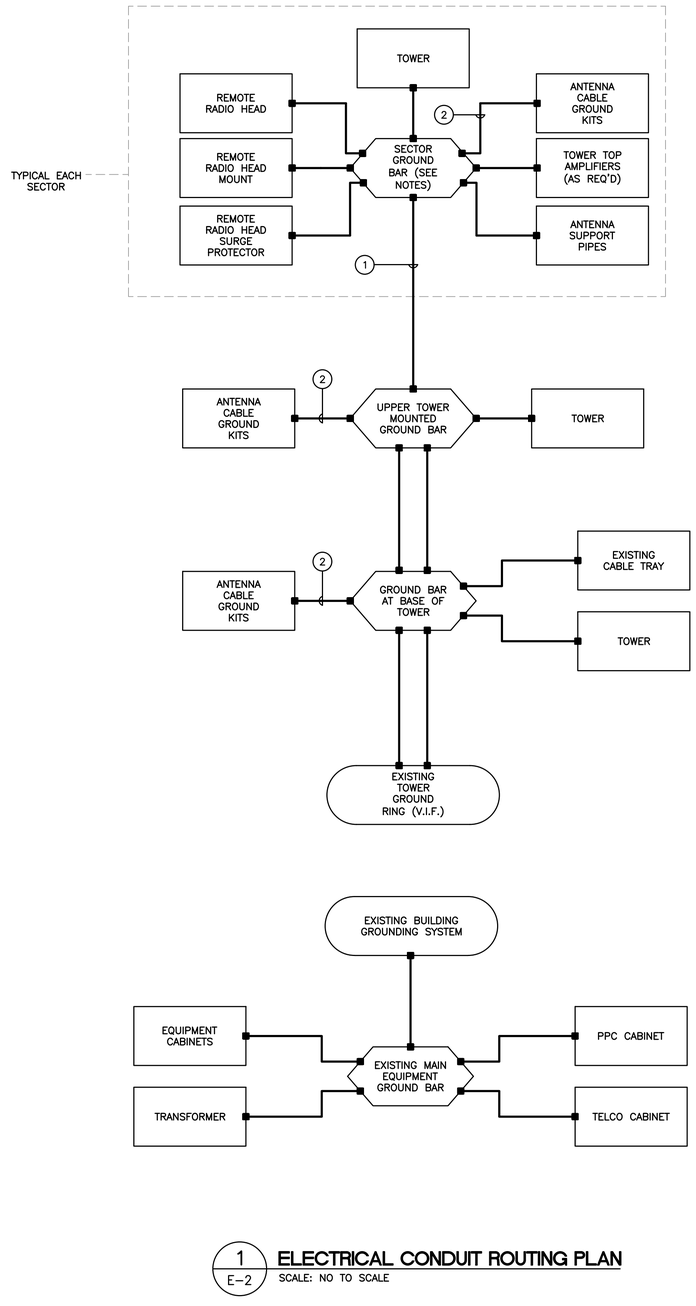
ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING

E–1

SHEET NO. 7 OF 11



1 / E-2 **ELECTRICAL CONDUIT ROUTING PLAN**

SCALE: NO TO SCALE

GROUNDING SCHEMATIC NOTES

(1) #2/0 GREEN INSULATED

(2) #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
7. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
8. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
9. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
10. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
11. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
12. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING. DO NOT CADWELD TO TOWER.

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
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0	08/10/23	TGK	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
B	07/24/23	TGK	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
A	06/20/23	TGK	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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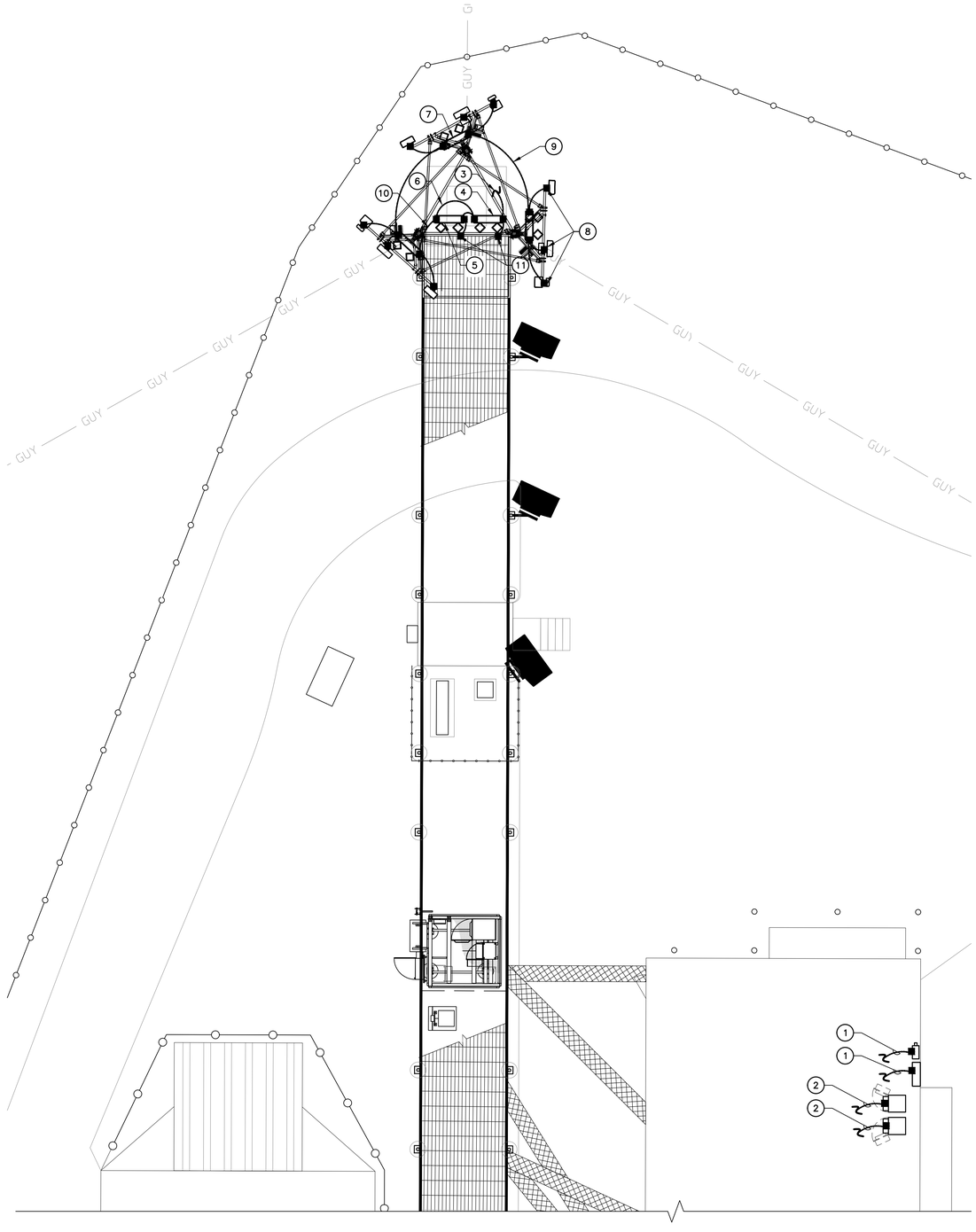
SITE ID: CT11934A
190 COLT HIGHWAY
FARMINGTON, CT 06032

DATE: 06/2/23
SCALE: AS NOTED
JOB NO. 23002.04

ELECTRICAL SCHEMATIC DIAGRAM

E-2

SHEET NO. 8 OF 11



1 E-3 **ELECTRICAL GROUNDING PLAN - ANTENNA**
SCALE: NO TO SCALE

GROUNDING PLAN NOTES:

1. BOND PPC AND TELCO BOX TO EXISTING MAIN GROUND BAR.
2. BOND EQUIPMENT CABINETS TO EXISTING MAIN GROUND BAR PER NEC AND MANUFACTURER SPECIFICATIONS.
3. BOND LOWER TOWER MOUNTED GROUND BAR TO TOWER GROUND RING TYP. 2 LEADS.
4. LOWER TOWER MOUNTED GROUND BAR.
5. UPPER TOWER MOUNTED GROUND BAR.
6. BOND LOWER TOWER MOUNTED GROUND BAR TO UPPER TOWER MOUNTED GROUND BAR TYP. 2 LEADS
7. SECTOR GROUND BAR. (TYPICAL)
8. BOND ANTENNA MOUNTING PIPES AND RRU MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL)
9. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
10. CONNECT SECTOR GROUND BAR TO UPPER TOWER MOUNTED GROUND BAR TYP.
11. BOND GROUND BAR TO TOWER.

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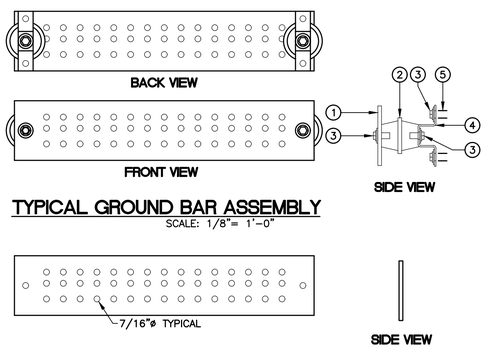
ELECTRICAL GROUNDING PLANS

E-3

SHEET NO. 9 OF 11

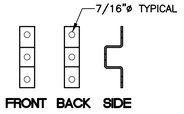


TYPICAL GROUND BAR ASSEMBLY
SCALE: 1/8"= 1'-0"

TYPICAL GROUND BAR - DIMENSIONS
SCALE: 1/8"= 1'-0"

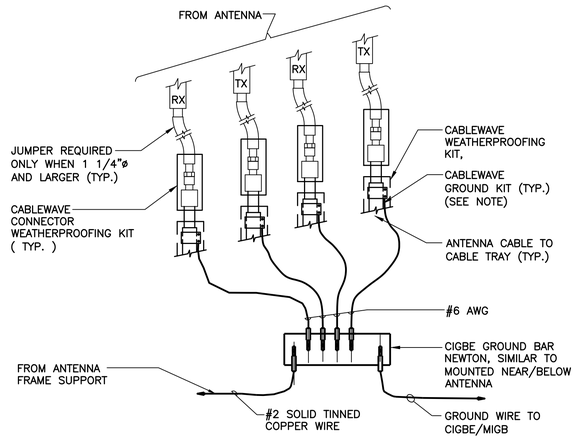
NOTES

1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"Wx1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8"ø EXPANSION BOLT FOR CONCRETE.



BRACKET FOR GROUND BAR-DIMENSIONS
SCALE: 1/8"= 1'-0"

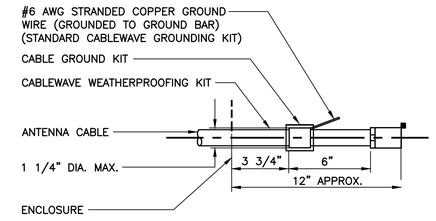
1 E-4 MASTER/EQUIPMENT GROUND BAR DETAILS
NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

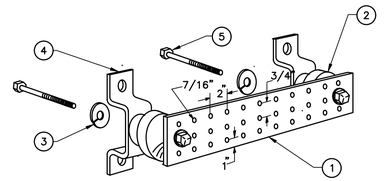
2 E-4 CONNECTION OF GROUND WIRES TO GROUND BAR
NOT TO SCALE



NOTES:

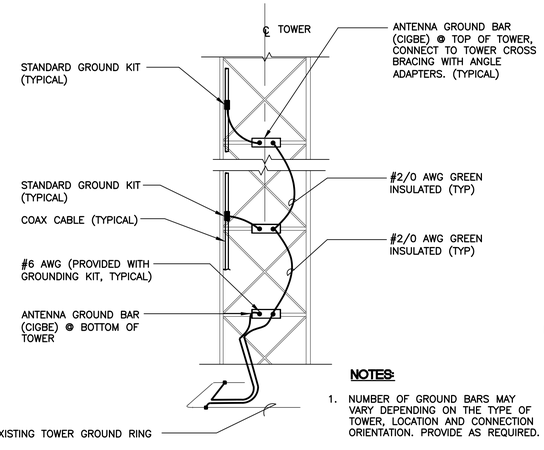
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 E-4 ANTENNA CABLE GROUNDING DETAIL
NOT TO SCALE



NOTES

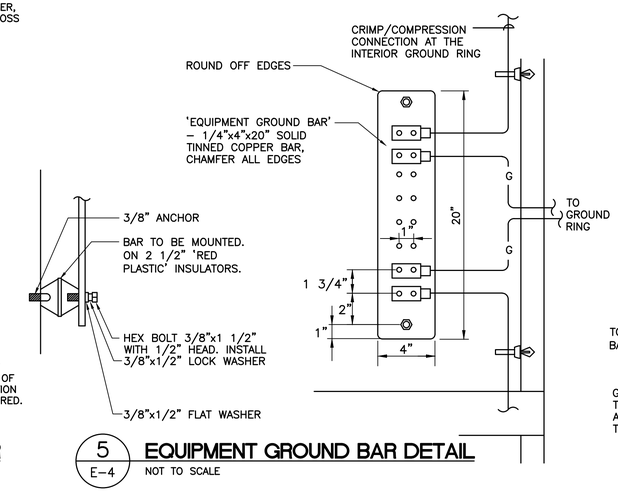
1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.



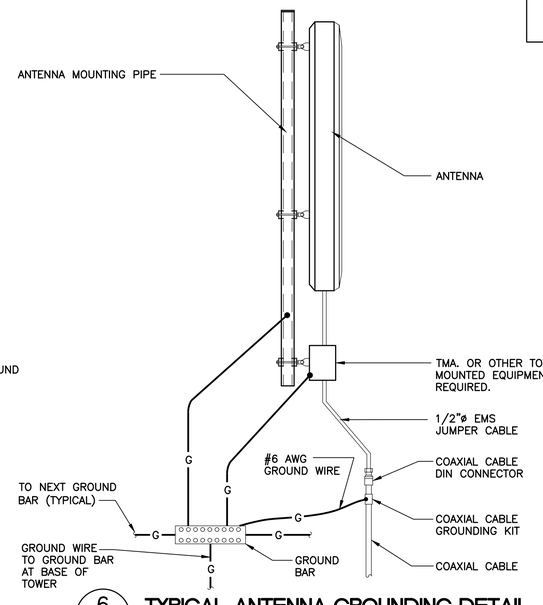
NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

4 E-4 ANTENNA CABLE GROUNDING - LATTICE TOWER
NOT TO SCALE



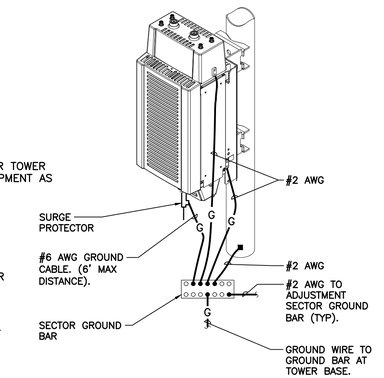
5 E-4 EQUIPMENT GROUND BAR DETAIL
NOT TO SCALE



6 E-4 TYPICAL ANTENNA GROUNDING DETAIL
NOT TO SCALE

7 E-4 GROUND BAR DETAIL
NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



8 E-4 RRH POLE MOUNT GROUNDING
NOT TO SCALE

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TYPICAL GROUNDING DETAILS

E-4

SHEET NO. 10 OF 11

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. INSTALL 100A, 480V, 3P, ELECTRIC SERVICE WITH SUBMETER AND STEP DOWN TRANSFORMER FOR OWNER AND ASSOCIATED DISTRIBUTION EQUIPMENT.
2. NEW SITE TELEPHONE SERVICE AS SPECIFIED BY TELEPHONE COMPANY.
3. CELLULAR GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, INTERIOR GROUNDING RING, GROUND BARS, ETC.
4. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

N. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

SECTION 16111

1.01. CONDUIT

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH – INTERMATIC #FF15M (INTERIOR LIGHTS)
2. DUPLEX RECEPTACLE – P&S #2095 (GFCI) SPECIFICATION GRADE
3. SINGLE POLE SWITCH – P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE
4. DUPLEX RECEPTACLE – P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES – ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.
2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.
2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. INTERIOR GROUND RING
3. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
4. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	10/17/23	TGK	TJR	CONSTRUCTION DRAWINGS – ANTENNA RAD CENTER CHANGE
0	08/10/23	TGK	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
B	07/24/23	TGK	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
A	06/20/23	TGK	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SITE NAME: COLT HIGHWAY RELO
SITE ID: CT11934A
190 COLT HIGHWAY
FARMINGTON, CT 06032

DATE: 06/2/23
SCALE: AS NOTED
JOB NO. 23002.04

ELECTRICAL SPECIFICATIONS

E-5

SHEET NO. 11 OF 11

Exhibit D

Structural Analysis Report

PROJECT:
STRUCTURAL ANALYSIS
of
Existing 1339ft
LRM3700 Guyed Mast

CUSTOMER:
Northeast Site Solutions
Communications Site Management LLC

SITE:
Rattlesnake Mountain
(aka Farmington), CT

TURRIS FILE:
23-1513
March 7, 2024

Turris Project: 23-1513
March 7, 2024

STRUCTURAL ANALYSIS OF

Existing 1339 Ft. LRM3700 Guyed Mast

at Rattlesnake (aka Farmington), CT

FOR:

Northeast Site Solutions
Communications Site Management LLC

Attention: Jason Berry

CC: Joe Legere
Communications Site Management LLC.
Goodwin Square
225 Asylum Street, 29th Floor
Hartford, CT 06103

Prepared by: Meimei Lam
TURRIS CORP.
70 Todd Road, Georgetown, ON, Canada L7G 4R7
Phone: (905) 877-8885 Fax: (905) 877-8835

Reviewed By: Tony Fonseca, P.E.
Turris Engineering Inc.
9 Apple Lane, Moorestown, NJ 08057
Phone: (856) 206-9561 Fax: (856) 206-0479 Mob: (803) 873-1562

Introduction

We have completed the structural analysis of the existing 1339ft LRM3700 guyed mast at Rattlesnake (aka Farmington), CT, and are pleased to submit our report for your attention. The purpose of this analysis is to evaluate the tower for compliance with ANSI/TIA-222-H with proposed loading based on the following information:

Table 1 – Proposed Loading

ID	Pos	Description	Qty	Elev (ft)	Tx Line	Qty	AZ	Comments
112	112	Commscope VV-65A-R1 RFS APXVAALL24_43_U_NA20 Ericsson AIR6419 B41 Ericsson 4460 B25+B66 Ericsson 4480 B71+B85	3 3 3 3 3	160	6x24 Hybrid Cable 1.76"	3	0/120/240	T-Mobile

We trust the analysis and recommendations presented in the report will meet your requirements. However, please do not hesitate to contact us if you have any questions, or require any further information regarding this study.

1.0 Terms of Reference

Previous Analysis:	Structural Analysis (File: 23-1615) dated Oct. 2, 2023 by Turris
Tower Profile:	Radian dwg. No. 37-1030-E01-01 Rev. 2 dated Jan/10/2005.
Tower Foundations:	LeBlanc dwg. No. 3.7A1001-FE10 Issue 2 dated Aug/31/84. LeBlanc dwg. No. 3.7A1001-FE1 Issue 1 dated May/7/84. LeBlanc dwg. No. 3.7A1001-FE2 Issue 1 dated May/1/84. LeBlanc dwg. No. 3.7A1001-FE3 Issue 1 dated Apr/30/84. LeBlanc dwg. No. 3.7A1001-FE4 Issue 1 dated Apr/30/84. LeBlanc dwg. No. 3.7A1001-FE5 Issue 1 dated May/1/84. LeBlanc dwg. No. 3.7A1001-FE6 Issue 1 dated Apr/30/84.
Tower Foundations:	Radian dwg. No. 37-1030-F01-01 Rev. 0 dated Oct/4/2004. Radian dwg. No. 37-1030-F02-01 Rev. 0 dated Oct/5/2004. Radian dwg. No. 37-1030-F03-01 Rev. 0 dated Oct/5/2004. Turris dwg. No. 14-0799-F01-01 Rev. 0 dated Dec/4/2014
Tower Reinforcing:	Turris dwg. No. 20-0415-XE01-01 Rev. 1 dated Aug/18/2020
Antenna Inventory:	Mapping by Communications Site Management, LLC dated December 22, 2014 and refer to Appendix A.
Soil Report:	Dr. Clarence Welti, Geotechnical Engineering Reports dated January 30, 2004 and dated February 1984

A tower inspection was not performed in conjunction with this analysis. The tower and loading data used in this analysis are based on and is as accurate as the data furnished/obtained.

2.0 Analysis Parameters

- Standard: ANSI/TIA-222-H (2022 CT Building Code)
- Basic Wind Speed: 116 mph $V_{ultimate}$
- Basic Wind Speed With Ice: 50 mph
- Design Ice Thickness: 1.16 in
- Structure Class: II
- Exposure Category: B
- Topographic Category: 5
- Type of Hill: 3D Axisymmetrical Hill
- Height of Crest: 250 ft
- Distance from Crest to Tower: 0 ft
- Distance upwind of Crest: 670 ft
- Mean Ground Elevation Above Sea Level: 710.4 ft
- Seismic Parameters: $S_s = 0.21$, $S_1 = 0.048$ (SDC B)

3.0 Analysis Parameters

- All tower members and guys are assumed in good, non-corroded conditions with yield strength as per profile.
- The tower and its foundation system have been properly constructed as per the original design drawings and specifications and able to resist the original design loads.
- This analysis assumes that all previous reinforcing recommendations and antenna rearrangement have been implemented.
- Bolt and/ or welded connections are assumed to develop the full capacity of the connected member.
- All existing/future tx lines less than 3" in diameter are considered grouped together in blocks based on an assumed arrangement for this analysis.
- This analysis assumes that the back-to-back diagonals at sections 6, 7, 12, 13, 19, 20, 21, and 33 had been upgraded with (1) 5/8” stitch bolt on each side of the existing middle stitch bolt.
- This analysis assumes that the antenna mount at elevation 120’ has the structural capacities to support the equipment at elev. 120’.
- The base foundation was analyzed based on the soil parameters as stated in the original foundation drawing (Dwg. 3.7A1001-FE10 Issue 2). Allowable bearing capacity = 50 ksf.
- Evaluation of the existing candelabra arms is excluded from this report as there are no proposed loading changes on the candelabra arms.

4.0 Analysis Results

Appendix A shows the tower profile, along with the antennas, transmission lines and ancillary loading considered in this analysis. The existing structure was analyzed using the comprehensive computer program "TSTower". As per the customer's request, any members overstress exceeding 99% are considered unacceptable and require reinforcing or replacement. Graphical and tabular results are presented in Appendix B:

Maximum Stress Ratios

Leg				
Section	Panel	Member size	Ratio	Comment
32	4	SR 5 1/4	0.77	Acceptable

Diagonal				
Section	Panel	Member size	Ratio	Comment
2	1	2L3x2x5/16	0.87	Acceptable

Horizontal				
Section	Panel	Member size	Ratio	Comment
1	2	2L2 1/2x2x3/16	0.61	Acceptable

Guy			
Level	Member size	Ratio	Comment
7	UH 2 1/16	0.58	Acceptable

Base foundation is acceptable.
Anchor foundations are acceptable.

5.0 Conclusions & Recommendations

The existing 1339 ft LRM3700 guyed tower at Rattlesnake (aka Farmington), CT, and associated foundations are considered in compliance with ANSI/TIA-222-H with the assumptions and listed documentations as stated in this report.

Prepared by:

[illegible]

Meimei Lam, P.Eng.
Project Engineer

Reviewed by:

STATE OF CONNECTICUT ★ LICENSED PROFESSIONAL ENGINEER ★ YOHANNA M. F. WAHBA No. 21333

[illegible] Mar 7/2024

John Wahba, Ph.D, P.Eng., P.E.
Principal Engineer

SCOPE & LIMITATIONS FOR THE PROVISION OF PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURES

All engineering services performed by Turris Corp. (Turris) in connection with the structural analysis of the tower is limited to the strength of the members and does not account for any variations due fabrication, including welding and connection capacities and installations, except as outlined in this Report.

This analysis report is based on assumptions that the information below, but is not necessarily limited to:

- information supplied by the client regarding the structure and its components, foundations, soil conditions, appurtenances loading on the structure, and other site-specific information.
- information from documents and/or drawings in the possession of Turris Corporation, or acquired from field inspections.

It is the responsibility of the client to ensure that the information provided to Turris, and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications provided, and are in non-corroded condition and have not deteriorated. Therefore, we assume that the member capacities have not changed from the “as new” condition.

All services will be performed to meet the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different than the minimum values recommended by the standards, the client shall specify the requirement.

All services are performed in accordance with generally accepted engineering principles and practices. Turris is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Furthermore, Turris assumes no obligations to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulas are hereafter modified or revised. In addition, under no circumstances will Turris have any obligations or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the report and the maximum liability of Turris Corp., if any, pursuant to this Report shall be limited to the total funds actually received by Turris Corp. for preparation of this Report.

Exhibit E

Mount Analysis

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

Proposed T-Mobile Upgrade

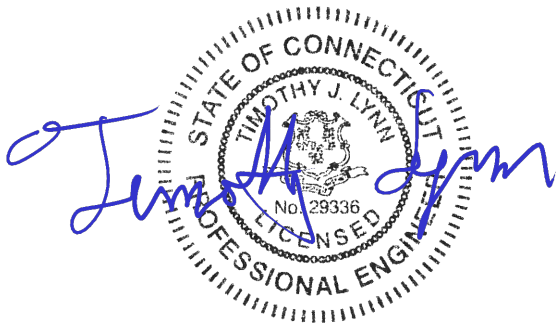
Site Ref: CT11934A

190 Colt Highway
Farmington, CT06032

CENTEK Project No. 23002.04

~~Date: July 05, 2023~~

Rev 3: October 17, 2023



Max Stress Ratio = 51%

Prepared for:

T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002

Table of Contents

Introduction

This structural analysis report (SAR) was prepared to address the structural viability of installing T-Mobile's proposed antenna configuration on the proposed V-Frame sector mounts. The antenna sector mounts are attached to the proposed 1290-ft host guyed lattice tower located at 190 Colt Highway, Farmington, Connecticut.

The proposed V-Frame sector mounts (SitePro1 P/N: VFA12) consists of a V-Frame assembly supporting two (2) horizontal pipes, top and bottom. The pipe masts are connected at both these horizontal pipes. This structural analysis report verifies the adequacy of the aforementioned antenna mount assembly only and its connection to the host guyed lattice tower. For further detail on mounting assembly, refer to the Construction Drawings prepared by Centek Engineering.

Proposed/existing antenna and appurtenance information was taken from an RF data sheet dated 06/14/2023 provided by T-Mobile.

Primary Assumptions Used in the Analysis

- The host structure's theoretical capacity not including any assessment of the condition of the host structure.
- The existing elevated steel antenna frames carry the horizontal and vertical loads due to the weight of equipment, and wind and transfers into host structure.
- Structure is in plumb condition.
- Loading for equipment and enclosure as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All members are assumed to be as observed during roof framing mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.

Antenna and Equipment Summary

Location	Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
Per Sector	**(1) Commscope VV-65A-R1 Antenna** **(1) RFS APXVAALL24_43-U-NA20 Antenna** **(1) Ericsson AIR 6419 B41 Antenna** **(1) Ericsson 4460 B25+B66 Radio** **(1) Ericsson 4480 B71+B85 Radio**	±160-ft	Proposed V-Frame Sector Mounts

Equipment – Indicates proposed equipment to be installed.

Analysis

The antenna frames were analyzed using a comprehensive computer program titled Risa3D. The program examines the antenna mounts considering the worst-case code prescribed loading condition. The structures were considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

Design Loading

Loading was determined per the requirements of the 2017 ANSI/TIA-222-H, 2021 International Building Code amended by the 2022 CSBC and ASCE 7-16 “Minimum Design Loads for Buildings and Other Structures”.

Basic Wind Speed:	V = 120 mph	*Appendix P of the 2022 CT State Building Code*
Basic Wind Speed w/ Ice:	V_i = 50 mph	*Annex B of TIA-222-H*
Risk Category:	II	*2021 IBC; Table 1604.05*
Exposure Category:	Surface Roughness B	*ASCE 7-16; Section 26.7.2*
Dead Load	Equipment and framing self-weight	*Identified within SAR design calculations*

Reference Standards

2021 International Building Code:

1. AISC 360-10, *Specification for Structural Steel Buildings.*

Results

Member stresses and design reactions were calculated utilizing the structural analysis software RISA 3D.

The antenna mounting assembly and impacted host building components were found to be structurally acceptable as presented in the following table:

Sector	Component	Stress Ratio (percentage of capacity)	Result
All Sectors	Pipe 2.5 STD (Proposed Antenna Mast)	38%	**PASS**
	Pipe 2.5 STD (Proposed V-Frame Horizontal)	32%	**PASS**
	Pipe 2.0 STD (Proposed V-Frame Member)	20%	**PASS**
	Pipe 2.0 STD (Proposed V-Frame Stiff-Arm)	47%	**PASS**
	5/8" ∅ threaded rod (V-Frame Mount Connection to Host Tower)	27%	**PASS**

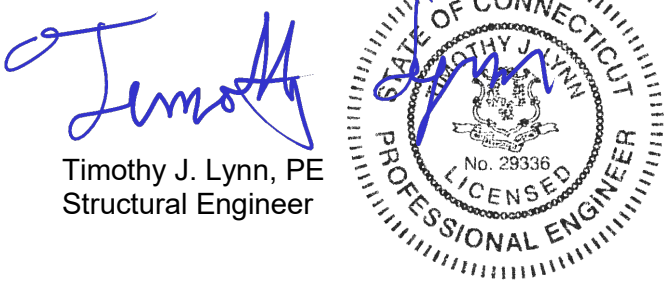
Conclusion

This analysis shows that the proposed subject antenna mount assemblies are **STRUCTURALLY ADEQUETE** to support the proposed T-Mobile modified antenna configuration.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP+1QP

Section 1 - Site Information

Site ID: CT11934A
Status: Draft
Version: 1
Project Type: Replacement
Approved: Not approved
Approved By: Not approved
Last Modified: 06/14/2023 5:24:28 PM
Last Modified By: ANKIT.JAISWAL20@T-Mobile.com

Site Name: CT11934A
Site Class: Utility Lattice Tower
Site Type: Structure Non Building
Plan Year: 2023
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord:

Latitude: 41.70356
Longitude: -72.83222
Address: 190 Colt Highway
City, State: Farmington, CT
Region: NORTHEAST

RAN Template: 67E5A998E 6160			**AL Template:** 67E5998E_1xAIR+1OP+1QP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

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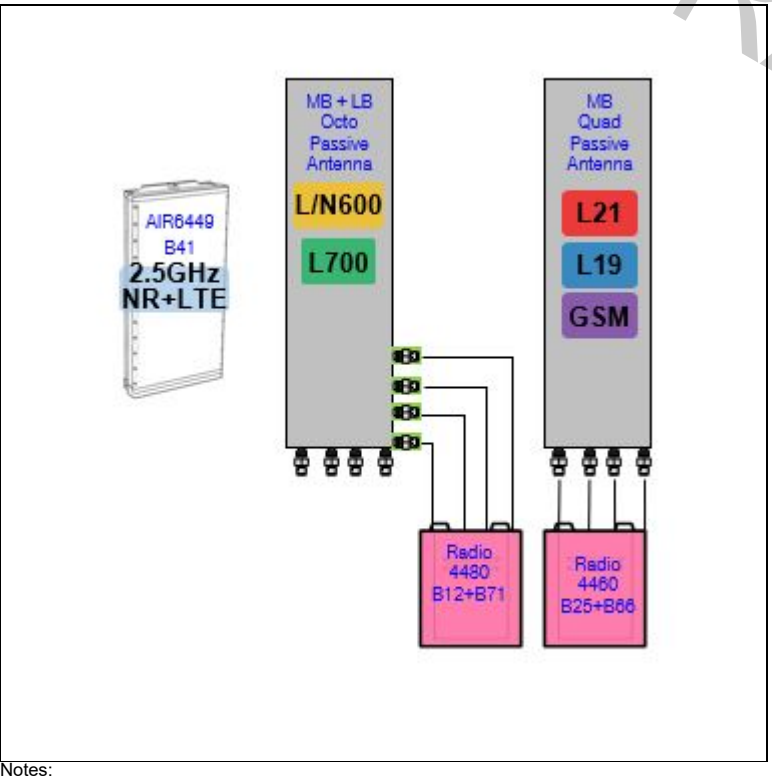
67E5A998E.JPG



Notes:

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RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP+1QP

Section 5 - RAN Equipment

Existing RAN Equipment

----- This section is intentionally blank. -----

Proposed RAN Equipment

Template: 67E5A998E 6160

Enclosure	1	2
Enclosure Type	Enclosure 6160 AC V1	B160
Baseband	RP 6651: N2500 RP 6651: N600, N1900, L600, L700, L1900, L2100	
Transport System	CSR IXRe V2 (Gen2)	
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 100m **(x 3)**, PSU 4813 vR4A (Kit)	

RAN Scope of Work:

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP+1QP

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 67E5998E_1xAIR+1OP+1QP

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Commscope_VV-65A-R1 (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				AIR 6419 B41 (Active Antenna - Massive MIMO)	
Azimuth	60		60				60	
M. Tilt								
Height (ft)	103		103				103	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	L2100 N1900 L1900	L2100 N1900 L1900	N600 L700 L600	N600 L700 L600			N2500	N2500
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt								
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**				
TMAs								
Diplexer / Combiners								
Radio	Radio 4460 B25+B66 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	Radio 4480 B71+B85 (At Antenna)	Radio 4480 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP+1QP

CT11934A_Replacement_1_draft

Print Name: Standard

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Commscope_VV-65A-R1 (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				AIR 6419 B41 (Active Antenna - Massive MIMO)	
Azimuth	180		180				180	
M. Tilt								
Height (ft)	103		103				103	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	N1900 L2100 L1900	N1900 L2100 L1900	L700 N600 L600	L700 N600 L600			N2500	N2500
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt								
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**				
TMAs								
Diplexer / Combiners								
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP+1QP

CT11934A_Replacement_1_draft

Print Name: Standard

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Commscope_VV-65A-R1 (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				AIR 6419 B41 (Active Antenna - Massive MIMO)	
Azimuth	300		300				300	
M. Tilt								
Height (ft)	103		103				103	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech	N1900 L2100 L1900	N1900 L2100 L1900	L700 L600 N600	L700 L600 N600			N2500	N2500
Dark Tech								
Restricted Tech								
Decomm. Tech								
E. Tilt								
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**				
TMAs								
Diplexer / Combiners								
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword.

Exhibit F

Power Density/RF Emissions Report

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CT11934A

Colt Highway Relo
190 Cole Highway
Farmington, CT 06032

April 3, 2024

Fox Hill Telecom Project Number: 230651

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	25.69 %

FOX HILL TELECOM

April 3, 2024

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CT11934A – Colt Highway Relo**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed equipment to be installed at the T-MOBILE facility located at **190 Cole Highway, Farmington, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report the percentage of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **190 Cole Highway, Farmington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4\ ERP}{R^2}$$

S = Power Density (in µw/cm^2)
ERP = Effective Radiated Power from antenna (watts)
R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.

For each T-Mobile sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	4	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	35
5G	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	60
LTE / 5G NR	2500 MHz (BRS)	8	30

Table 1: Channel Data Table

The following T-Mobile antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	160
A	2	Commscope VV-65A-R1	160
A	3	Ericsson AIR6419 B41	160
B	1	RFS APXVAALL24_43-U-NA20	160
B	2	Commscope VV-65A-R1	160
B	3	Ericsson AIR6419 B41	160
C	1	RFS APXVAALL24_43-U-NA20	160
C	2	Commscope VV-65A-R1	160
C	3	Ericsson AIR6419 B41	160

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	6	200	4,678.48	0.74
Antenna A2	Commscope VV-65A-R1	1900 MHz (PCS) / 2100 MHz (AWS)	15.55 / 16.05	12	540	20,432.87	0.81
Antenna A3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	1.45
						Sector A Composite MPE%	**3.00**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	6	200	4,678.48	0.74
Antenna B2	Commscope VV-65A-R1	1900 MHz (PCS) / 2100 MHz (AWS)	15.55 / 16.05	12	540	20,432.87	0.81
Antenna B3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	1.45
						Sector B Composite MPE%	**3.00**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz	13.65 / 13.85	6	200	4,678.48	0.74
Antenna C2	Commscope VV-65A-R1	1900 MHz (PCS) / 2100 MHz (AWS)	15.55 / 16.05	12	540	20,432.87	0.81
Antenna C3	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	1.45
						Sector C Composite MPE%	**3.00**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional identified carriers on site and their emissions contribution estimates, along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three T-Mobile sectors have the same configuration yielding the same results for all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite estimated MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**3.00 %**
Verizon Wireless	5.64 %
AT&T	2.03 %
NBC	0.32 %
CNG	0.39 %
MediaFlo	0.04 %
Sirius XM radio	0.09 %
All other Sources	14.18 %
Site Total MPE %:	**25.69 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	3.00 %
T-MOBILE Sector B Total:	3.00 %
T-MOBILE Sector C Total:	3.00 %
Site Total:	25.69 %

Table 5: Site MPE Summary

Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three T-Mobile sectors have the same configuration yielding the same results for all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	4	926.96	160	2.44	600 MHz	400	0.61%
T-Mobile 700 MHz LTE	2	485.32	160	0.61	700 MHz	467	0.13%
T-Mobile 1900 MHz (PCS) LTE	4	1,256.23	160	2.10	1900 MHz (PCS)	1000	0.21%
T-Mobile 1900 MHz (PCS) 5G	4	1,435.69	160	2.40	1900 MHz (PCS)	1000	0.24%
T-Mobile 2100 MHz (AWS) LTE	4	2,416.30	160	3.60	2100 MHz (AWS)	1000	0.36%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	4,237.61	160	14.50	2500 MHz (BRS)	1000	1.45%
						Total:	**3.00 %**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-MOBILE facility as well as the site composite emissions estimates value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-MOBILE Sector	Power Density Value (%)
Sector A:	3.00 %
Sector B:	3.00 %
Sector C:	3.00 %
T-MOBILE Maximum Total (per sector):	3.00 %
Site Total:	25.69 %
Site Compliance Status:	**COMPLIANT**

The estimated composite MPE value for this site assuming all carriers present is **25.69 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

Exhibit G

Letter of Authorization

COMMUNICATIONS SITE MANAGEMENT LLC

Goodwin Square / 225 Asylum Street / 29th Floor / Hartford, CT 06103-1534

May 7, 2024

Mr. Matthew Bandle
Northwest Site Solution LLC

RE: Letter of Authorization

Site Address: 200 Colt Highway, Farmington, CT 06032

RE: T-Mobile Site ID: CT11934A

Dear Mr. Bandle,

Communications Site Management LLC is the owner of the tower and property at the above referenced address.

This letter authorizes T-Mobile, LLC, a licensee at the Site Address referenced above ("Licensee"), and its authorized agents from Northeast Site Solutions, LLC to file all necessary administrative approvals, zoning approvals and building permits for the sole purpose of upgrading and maintaining Licensee's telecommunications equipment located at 200 Colt Highway, Farmington, CT 06032.

This authorization may be withdrawn at any time by Communications Site Management LLC by written notice.

Sincerely,

Communications Site Management LLC
By: Chase Family Investments LLC
Its: Sole Member

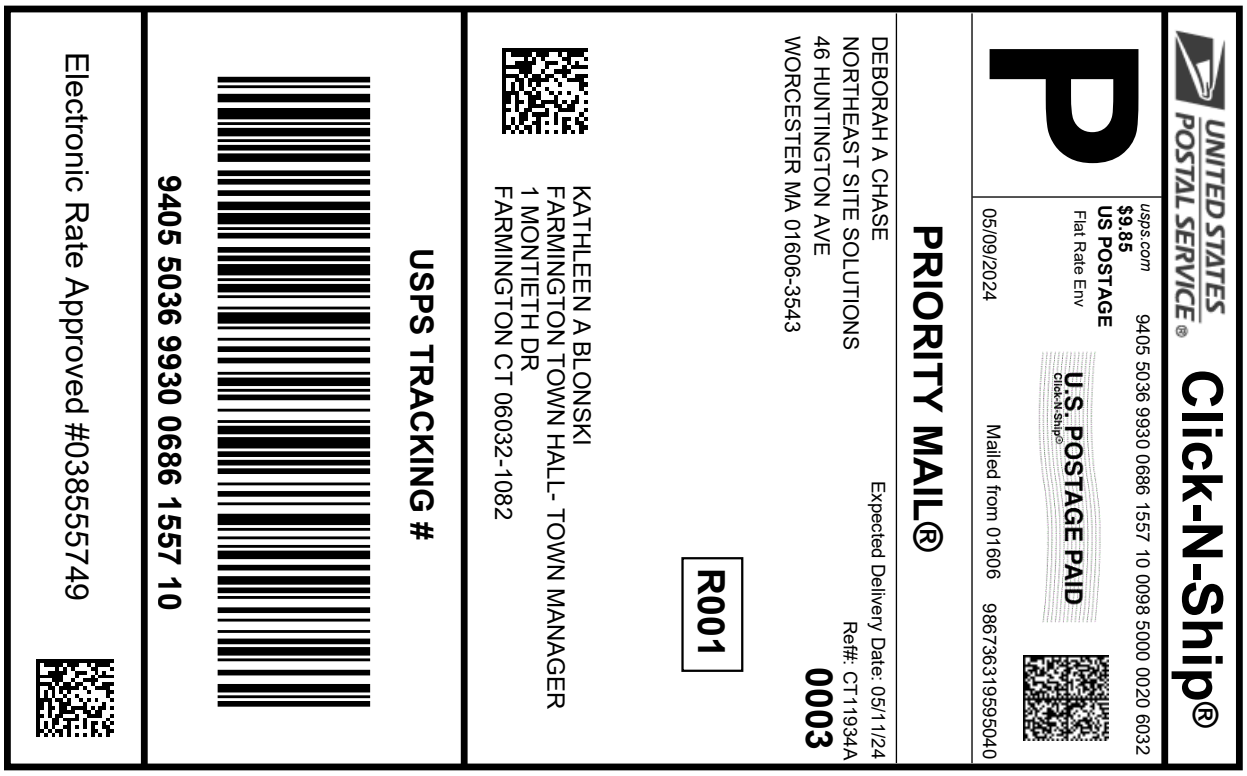
By: _____
Cheryl A. Chase, a manager, and not individually or in any other capacity

By: _____
Arnold L. Chase, a manager, and not individually or in any other capacity

cc: Joe Legere, Division Site Manager

Exhibit H

Recipient Mailings



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Trans. #:	602416157
Print Date:	05/09/2024
Ship Date:	05/09/2024
Expected Delivery Date:	05/11/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11934A

To: KATHLEEN A BLONSKI
FARMINGTON TOWN HALL- TOWN MANAGER
1 MONTIETH DR
FARMINGTON CT 06032-1082

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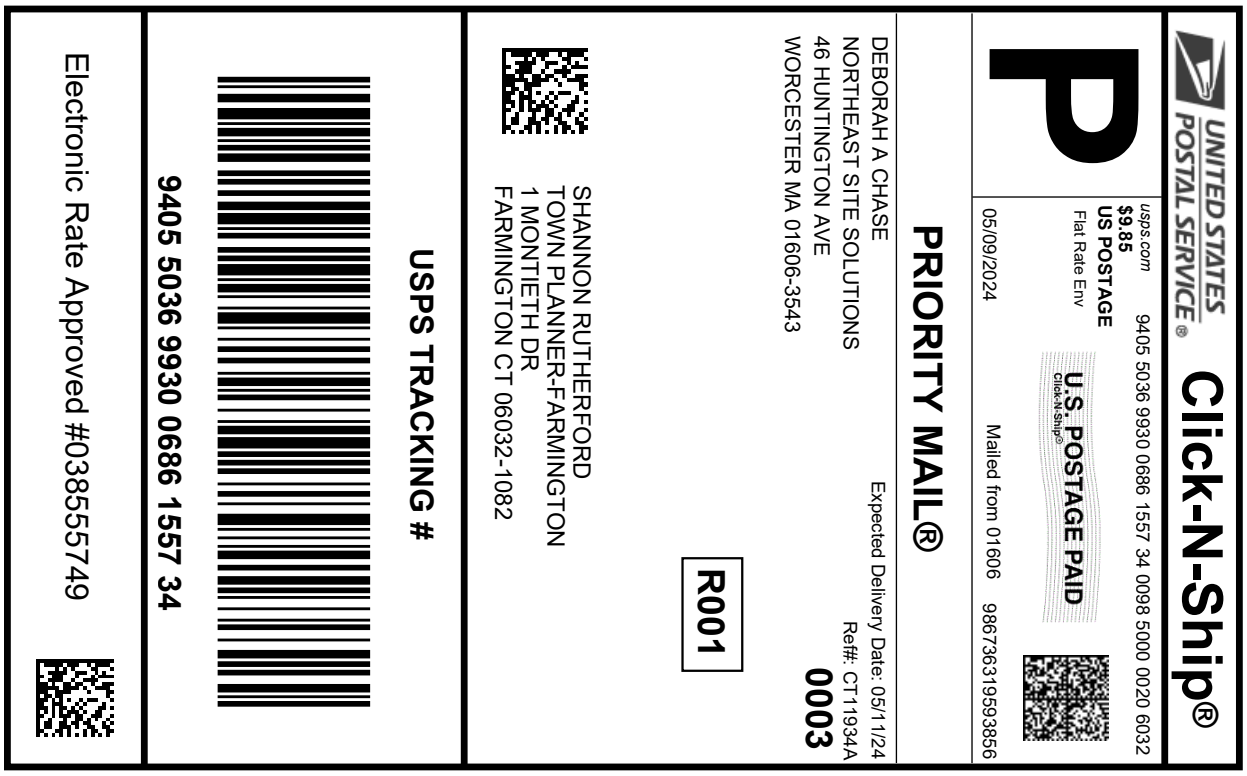

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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
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9405 5036 9930 0686 1557 34

Trans. #:	602416157
Print Date:	05/09/2024
Ship Date:	05/09/2024
Expected Delivery Date:	05/11/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11934A

To: SHANNON RUTHERFORD
TOWN PLANNER-FARMINGTON
1 MONTIETH DR
FARMINGTON CT 06032-1082

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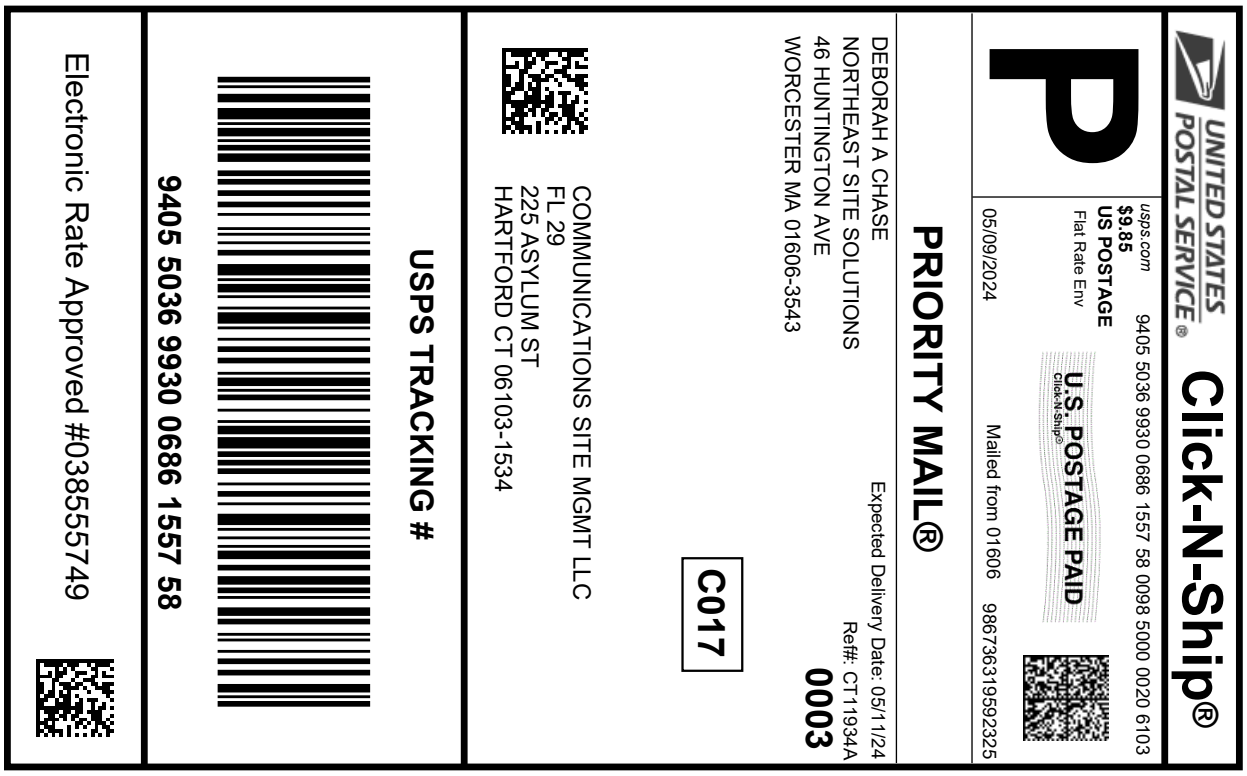

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

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USPS TRACKING # :
9405 5036 9930 0686 1557 58

Trans. #:	602416157
Print Date:	05/09/2024
Ship Date:	05/09/2024
Expected Delivery Date:	05/11/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11934A

To: COMMUNICATIONS SITE MGMT LLC
FL 29
225 ASYLUM ST
HARTFORD CT 06103-1534

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CT 11934A - Farmington

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(800)275-8777

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Product	Qty	Unit Price	Price
Prepaid Mail Farmington, CT 06032 Weight: 0 lb 13.90 oz Acceptance Date: Thu 05/09/2024 Tracking #: 9405 5036 9930 0686 1557 34	1		$0.00
Prepaid Mail Hartford, CT 06103 Weight: 0 lb 14.20 oz Acceptance Date: Thu 05/09/2024 Tracking #: 9405 5036 9930 0686 1557 58	1		$0.00
Prepaid Mail Farmington, CT 06032 Weight: 0 lb 14.40 oz Acceptance Date: Thu 05/09/2024 Tracking #: 9405 5036 9930 0686 1557 10	1		$0.00
Grand Total:			$0.00

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