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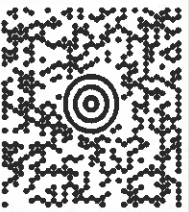

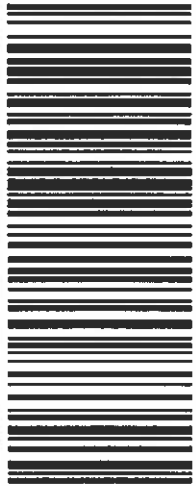

Customers without a Daily Pickup
Take your package to any location of The UPS Store®, UPS Access Point™ location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampussShip and select UPS Locations.
Schedule a same day or future day Pickup to have a UPS driver pickup all your CampussShip packages.
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M&M SEAFOOD
1124 MAIN ST
BROCKTON, MA 02301

UPS Access Point™
BOOST MOBILE 649
649 WARREN AVE
BROCKTON, MA 02301

FOLD HERE

<p>PATRICIA HOWAK 508 265 5599 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER MA 02379</p>	<p>1 LBS PAK 1 OF 1</p>
<p>SHIP TO: MELANIE A. BACHIMAN 8608272935 CONNECTICUT SITTING COUNCIL EXECUTIVE DIRECTOR TEN FRANKLIN SQUARE NEW BRITAIN CT 06051-2655</p>	
	<p>CT 067 9-06</p> 
<p>UPS NEXT DAY AIR</p> <p>TRACKING #: 1Z 9Y4 503 01 3456 0438</p> <p>1</p>	
<p>BILLING: P/P</p>	
<p>Reference # 1: CT2303-CSC</p>	<p>CS 21 5 37 WNTNVS0 1S CA 07/2019</p> 

September 27, 2019

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Regarding: Notice of Exempt Modification – AT&T Site CT2303
Address: 395 Round Hill Road, Greenwich, CT 06831

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (“AT&T”) currently maintains a wireless telecommunications facility on an existing 115’ Flagpole tower at the above-referenced address, latitude 41.0951081, longitude -73.6641931. Said tower is owned by Cellco Partnership d/b/a Verizon Wireless.

AT&T desires to modify its existing telecommunications facility by installing (3) antennas, (6) tower mounted amplifiers and (6) coax cables, as more particularly detailed and described on the enclosed Construction Drawings prepared by Hudson Design Group LLC, dated March 6, 2018 and last revised September 20, 2019. The centerline height of the antennas will be 90 feet.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable Peter J. Tesei, First Selectmen, Town of Greenwich; Kate DeLuca, Director of Planning and Zoning, Town of Greenwich; William Marr, Building Official, Town of Greenwich; Cellco Partnership d/b/a Verizon Wireless as the tower owner; and Round Hill Community Church as property owner at the above referenced address.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Specifically:

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF Emissions Analysis Report dated June 28, 2019 for AT&T's modified facility enclosed herewith.*
5. The proposed modifications will not cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated July 25, 2019 and prepared by Semaan Engineering Solutions enclosed herewith.*

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Patricia Nowak
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
pnowak@clinellc.com

Enclosures: Exhibit 1 – Construction Drawings
Exhibit 2 – RF Emissions Analysis Report
Exhibit 3 – Structural Analysis

cc: Peter Tesei, First Selectmen, Town of Greenwich
Kate DeLuca, Director of Planning and Zoning, Town of Greenwich
William Marr, Building Official, Town of Greenwich
Cellco Partnership d/b/a Verizon Wireless, tower owner
Round Hill Community Church, property owner

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED INSIDE EXISTING FLAGPOLE:

- NEW AT&T ANTENNA: (NNH4-65B-R6) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T TMAs: (TMA2117F00V1-1) (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- NEW AT&T 7/8" COAX CABLES (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- INSTALL NEW 36"Ø SHROUD TO REPLACE EXISTING 30"Ø SHROUD (BY OTHERS).

ITEMS TO BE MOUNTED INSIDE EXISTING EQUIPMENT SHELTER:

- UPGRADE DUL TO 5216 IN EXISTING LTE RACK
- ADD XMU IN EXISTING LTE RACK.
- DECOM GSM 850 & RXAIT.
- INSTALL (1) EQUIPMENT RACK.
- NEW AT&T RRUS: RRUS-12 (PCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS: RRUS-32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T SURGE ARRESTOR: (APTDC-BDFDM-DB) (TOTAL OF 8)
- NEW AT&T DIPLEXER: (QBC0007F1V51-1) (TYP OF 4 PER SECTOR, TOTAL OF 12).

ITEMS TO REMAIN:

- (3) RRU'S & (6) 7/8" COAX CABLES.

SITE ADDRESS: 395 ROUND HILL ROAD
GREENWICH, CT 06831

PACE ID: MRCTB022576

LATITUDE: 41.0951081° N 41° 5' 42.39" N
LONGITUDE: 73.6641931° W 73° 39' 51.09" W

TYPE OF SITE: FLAGPOLE/INDOOR EQUIPMENT

STRUCTURE HEIGHT: 115'-0"± A.G.L
RAD CENTER: 90'-0"± A.G.L

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT2303

SITE NAME: GREENWICH ROUND HILL ROAD

FA CODE: 10050955

PACE ID: MRCTB024291 & MRCTB022576

PROJECT: LTE 2C/3C 2018 UPGRADE

**FOR ZONING
(NOT FOR CONSTRUCTION)**

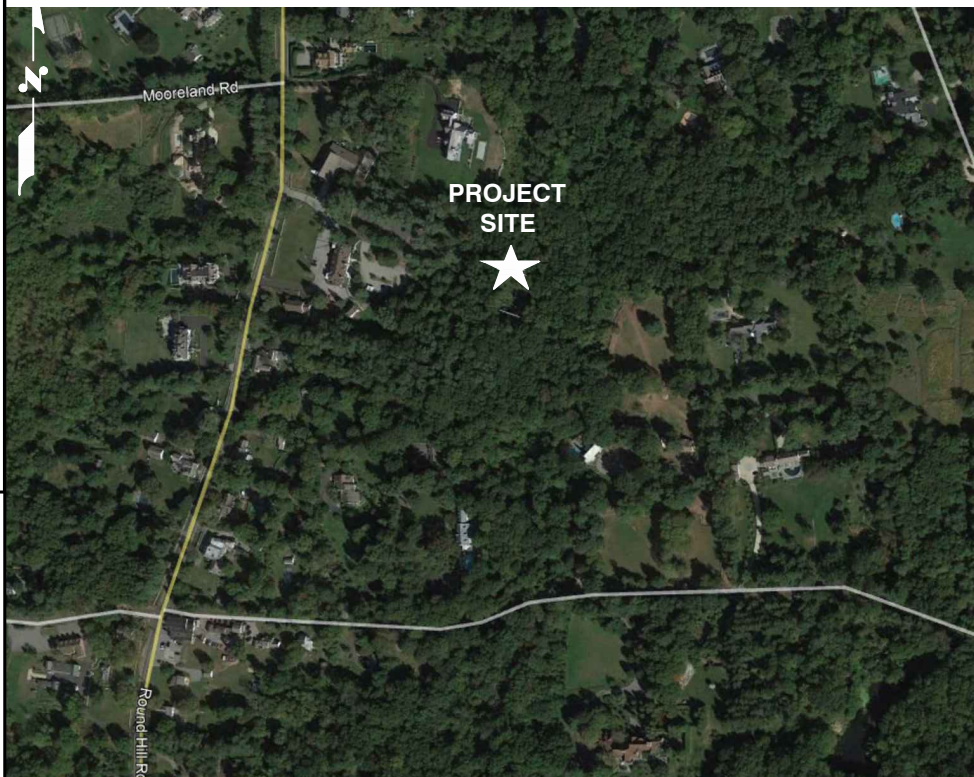
DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLAN	2
A-2	ANTENNA LAYOUT & ELEVATION	2
A-3	DETAILS	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM	2

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-15 S VIA EXIT 17. TAKE EXIT 29 TOWARD LAKE AVE. KEEP LEFT AT THE FORK TO GO ON OLD MILL RD. TURN RIGHT ONTO ROUND HILL RD. 395 ROUND HILL RD IS ON THE RIGHT.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS



CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

HGD HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301 WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2303
SITE NAME: GREENWICH ROUND HILL ROAD
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/20/19	ISSUED FOR PERMITTING	AT	DPH	
1	06/12/18	ISSUED FOR REVIEW	GA	DJC	
A	03/06/18	ISSUED FOR REVIEW	GA	DJC	



AT&T		
TITLE SHEET (LTE 2C)		
SITE NUMBER	DRAWING NUMBER	REV
CT2303	T-1	1

GROUNDING NOTES

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

GENERAL NOTES

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

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

BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

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

HG HUDSON Design Group LLC
 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
 TEL: (978) 557-5553 FAX: (978) 336-5586

CENTERLINE COMMUNICATIONS
 750 WEST CENTER STREET., SUITE #301 WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2303
SITE NAME: GREENWICH ROUND HILL ROAD
 395 ROUND HILL ROAD GREENWICH, CT 06831 FAIRFIELD COUNTY

at&t
 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067

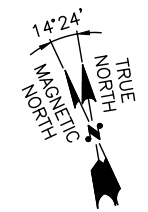
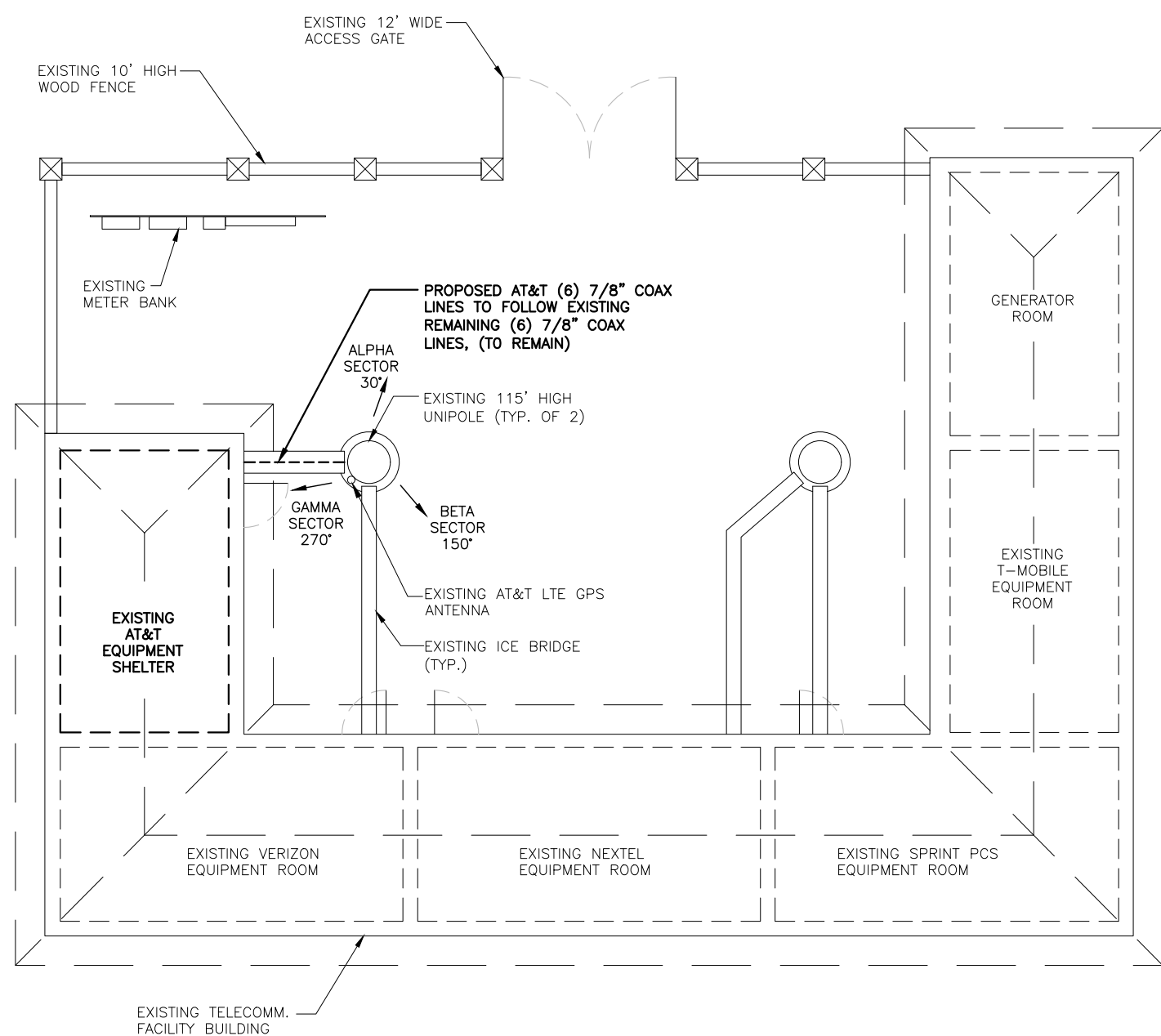
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A	03/06/18		ISSUED FOR REVIEW	GA	DJC		
SCALE:		AS SHOWN		DESIGNED BY:	AT	DRAWN BY:	GA

AT&T
GENERAL NOTES (LTE 2C)
 Daniel P. Hamm
 No. 24178
 LICENSED PROFESSIONAL ENGINEER

SITE NUMBER	DRAWING NUMBER	REV
CT2303	GN-1	1

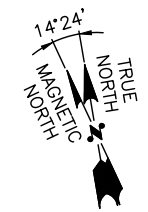
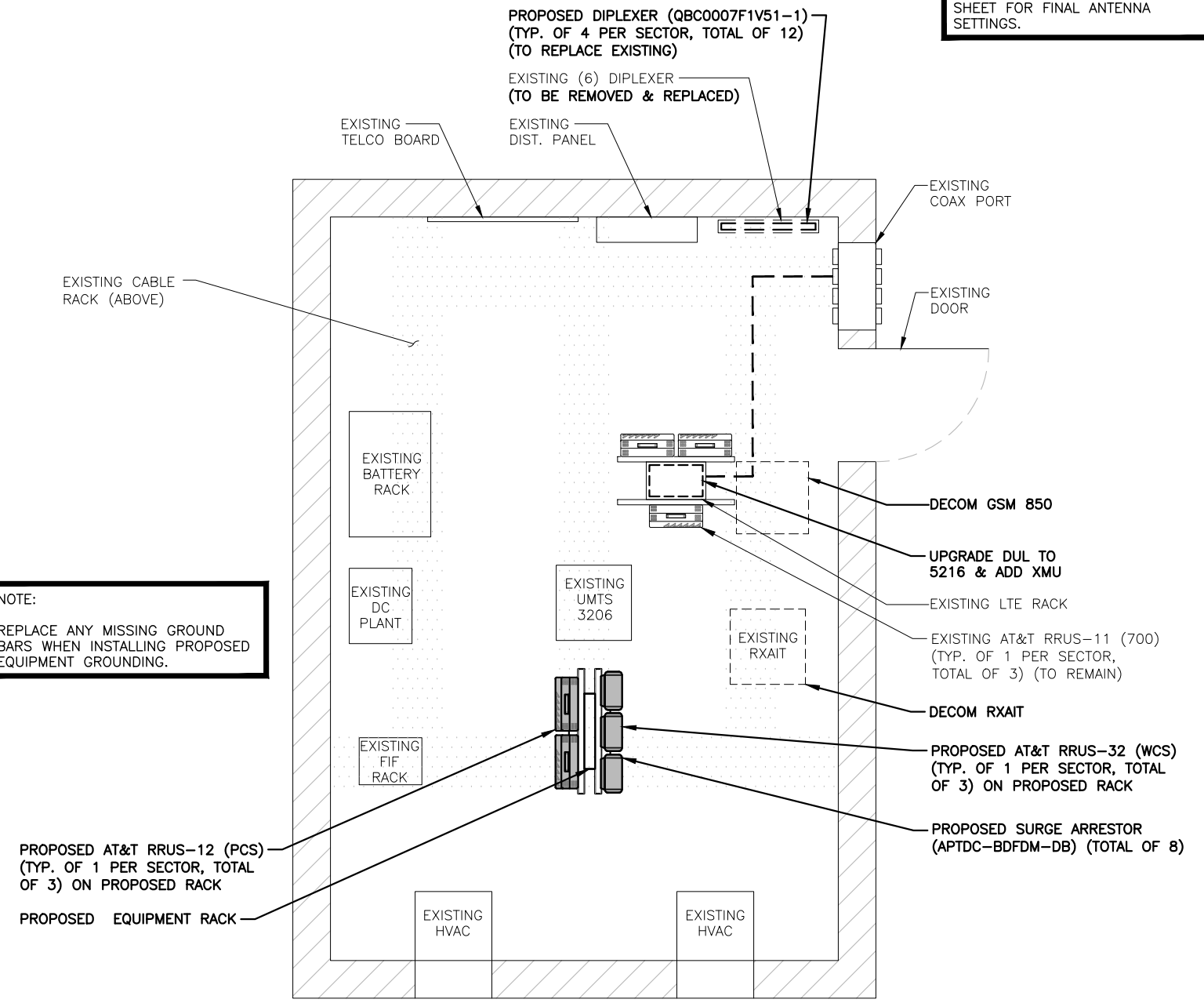
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

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



COMPOUND PLAN
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"
1
A-1

NOTE:
REPLACE ANY MISSING GROUND BARS WHEN INSTALLING PROPOSED EQUIPMENT GROUNDING.



EQUIPMENT PLAN
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
2
A-1

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

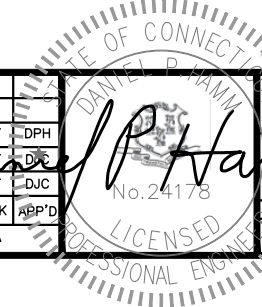
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WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2303
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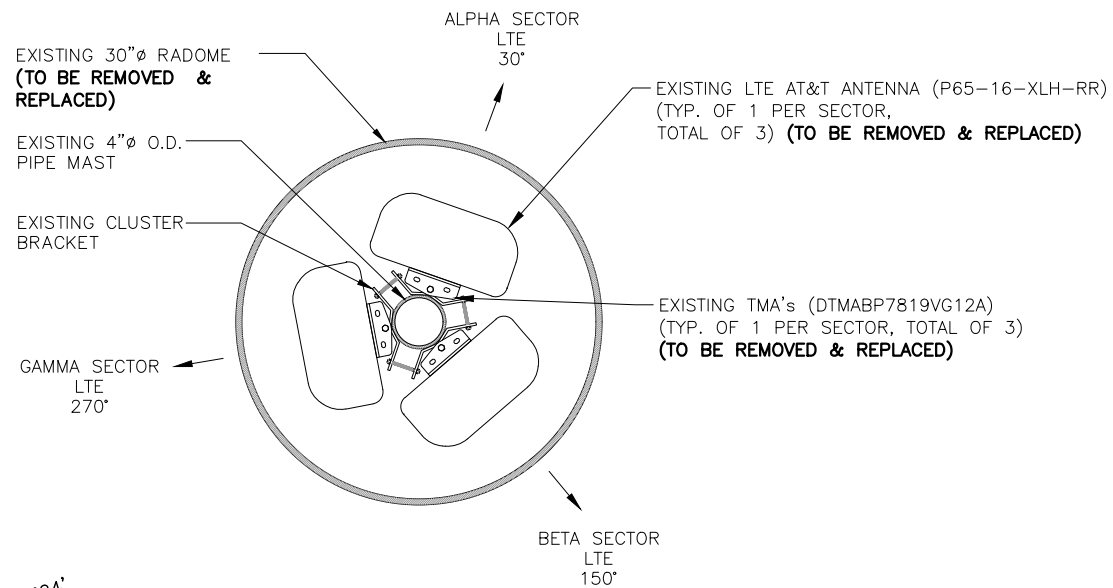
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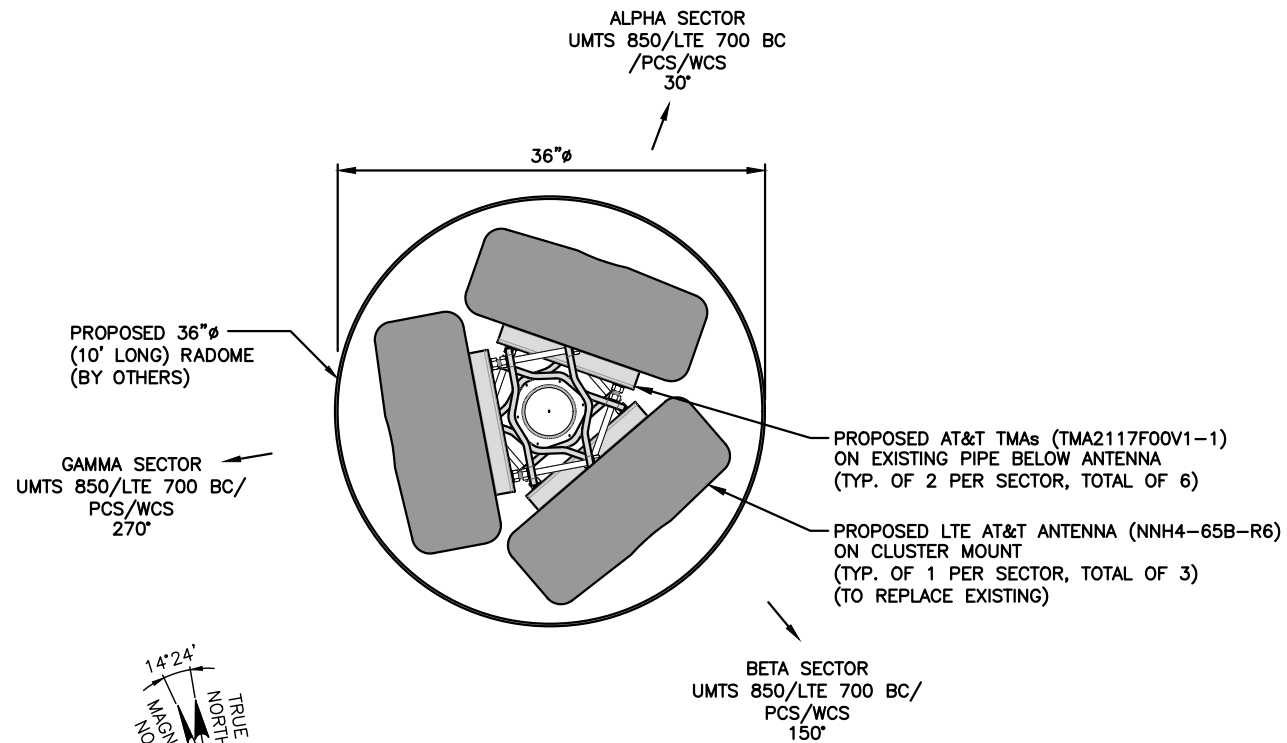
SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GA



AT&T
COMPOUND & EQUIPMENT PLAN (LTE 2C)
SITE NUMBER: CT2303 DRAWING NUMBER: A-1 REV: 1



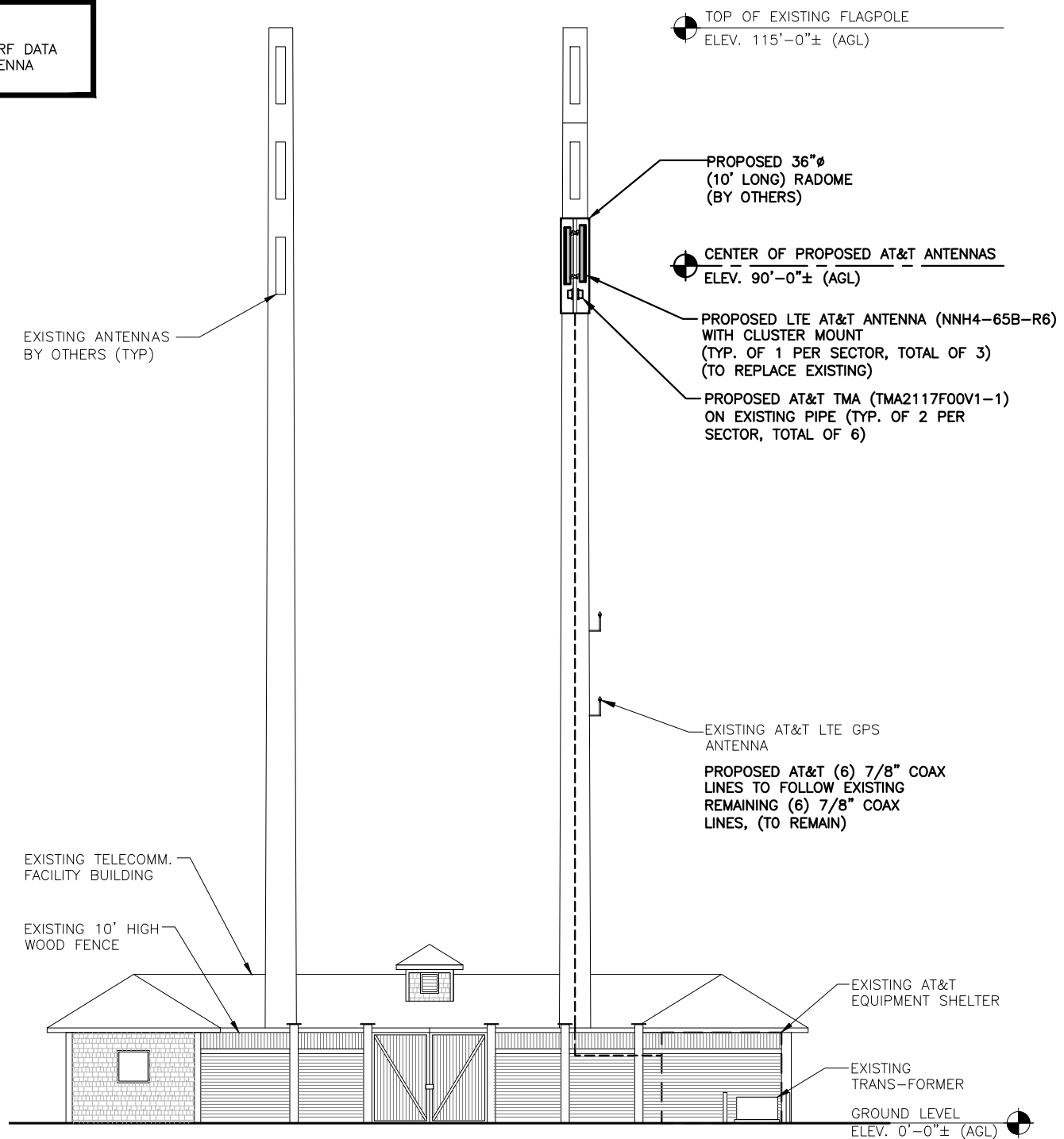
EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S. A-2



PROPOSED ANTENNA LAYOUT 2
SCALE: N.T.S. A-2

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

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



ELEVATION 3
22x34 SCALE: 1/8"=1'-0" A-2
11x17 SCALE: 1/16"=1'-0"

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Design Group LLC
45 BEECHWOOD DRIVE
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CENTERLINE
COMMUNICATIONS
750 WEST CENTER STREET., SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CT2303
SITE NAME: GREENWICH ROUND HILL ROAD
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/20/19	ISSUED FOR PERMITTING	AT	DPH	
1	06/12/18	ISSUED FOR REVIEW	SO	DJC	
A	03/06/18	ISSUED FOR REVIEW	GA	DJC	

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: GA

AT&T
ANTENNA LAYOUT & ELEVATION (LTE 2C)
SITE NUMBER: CT2303 DRAWING NUMBER: A-2 REV: 1

ANTENNA SCHEDULE										
SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL. HEIGHT	AZIMUTH	TMA/ COMBINER	RRU	SIZE (INCHES) (L x W x D)	FEEDER
A1	PROPOSED	UMTS 850/LTE 700 BC/PCS/WCS	NNH4-65B-R6	72"X19.6"X7.8"	90'-0"±	30°	(P)(2) TMA2117F00V1-1 (P)(G)(4) QBC0007F1V51-1	(E)(G) RRUS-11 (700) (P)(G) RRUS-12 (PCS) (P)(G) RRUS-32 (WCS)	20.4X18.5X7.5 27.2X12.1X7.0	(2)(E) 7/8" (115"±) (2)(P) 7/8" (115"±)
A2	-	-	-	-	-	-	-	-	-	-
A3	-	-	-	-	-	-	-	-	-	-
A4	-	-	-	-	-	-	-	-	-	-
B1	PROPOSED	UMTS 850/LTE 700 BC/PCS/WCS	NNH4-65B-R6	72"X19.6"X7.8"	90'-0"±	150°	(P)(2) TMA2117F00V1-1 (P)(G)(4) QBC0007F1V51-1	(E)(G) RRUS-11 (700) (P)(G) RRUS-12 (PCS) (P)(G) RRUS-32 (WCS)	20.4X18.5X7.5 27.2X12.1X7.0	(2)(E) 7/8" (115"±) (2)(P) 7/8" (115"±)
B2	-	-	-	-	-	-	-	-	-	-
B3	-	-	-	-	-	-	-	-	-	-
B4	-	-	-	-	-	-	-	-	-	-
C1	PROPOSED	UMTS 850/LTE 700 BC/PCS/WCS	NNH4-65B-R6	72"X19.6"X7.8"	90'-0"±	270°	(P)(2) TMA2117F00V1-1 (P)(G)(4) QBC0007F1V51-1	(E)(G) RRUS-11 (700) (P)(G) RRUS-12 (PCS) (P)(G) RRUS-32 (WCS)	20.4X18.5X7.5 27.2X12.1X7.0	(2)(E) 7/8" (115"±) (2)(P) 7/8" (115"±)
C2	-	-	-	-	-	-	-	-	-	-
C3	-	-	-	-	-	-	-	-	-	-
C4	-	-	-	-	-	-	-	-	-	-

RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(P)	RRUS-12	20.4"	18.5"	7.5"
3(P)	RRUS-32	27.2"	12.1"	7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
SEE RFDS FOR RRH
FREQUENCY AND
MODEL NUMBER

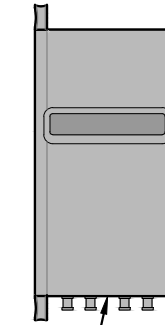
PROPOSED RRU REFER TO THE
FINAL RFDS AND CHART FOR
QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S
SPECIFICATIONS.

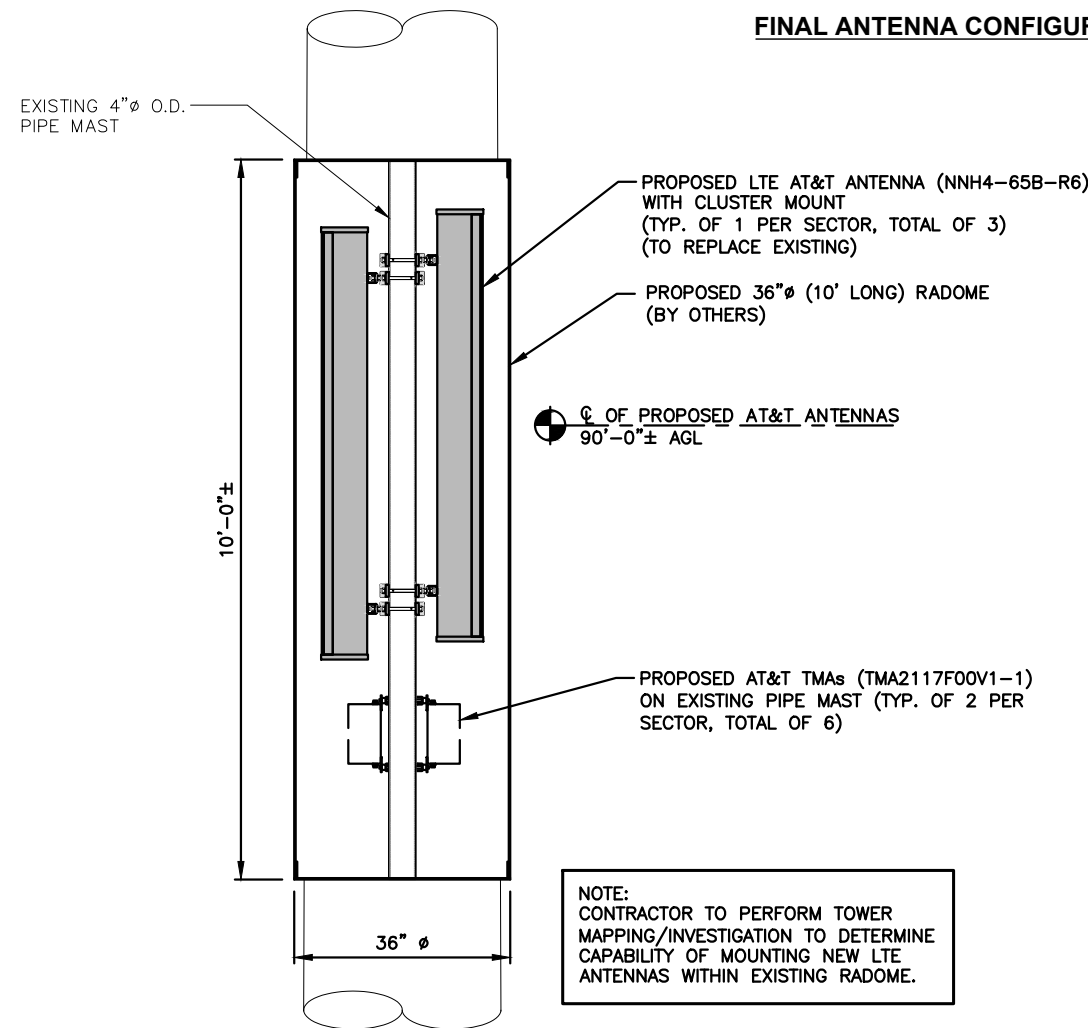
PROPOSED RRUS DETAIL 2
SCALE: N.T.S. A-3

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

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

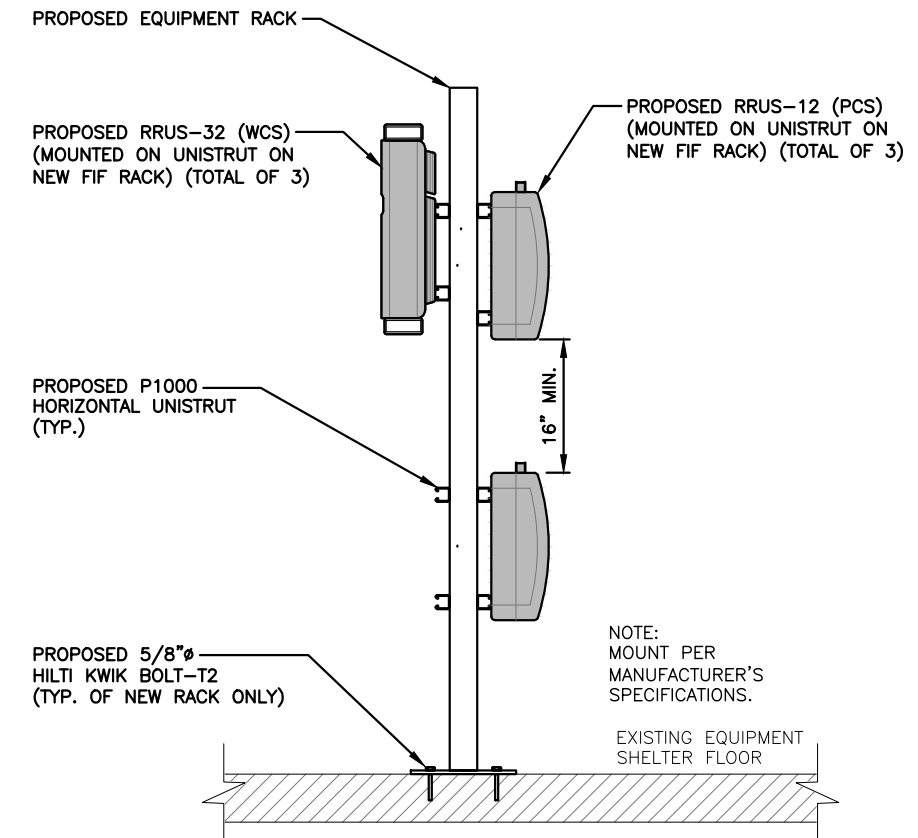


FINAL ANTENNA CONFIGURATION TABLE 1
A-3



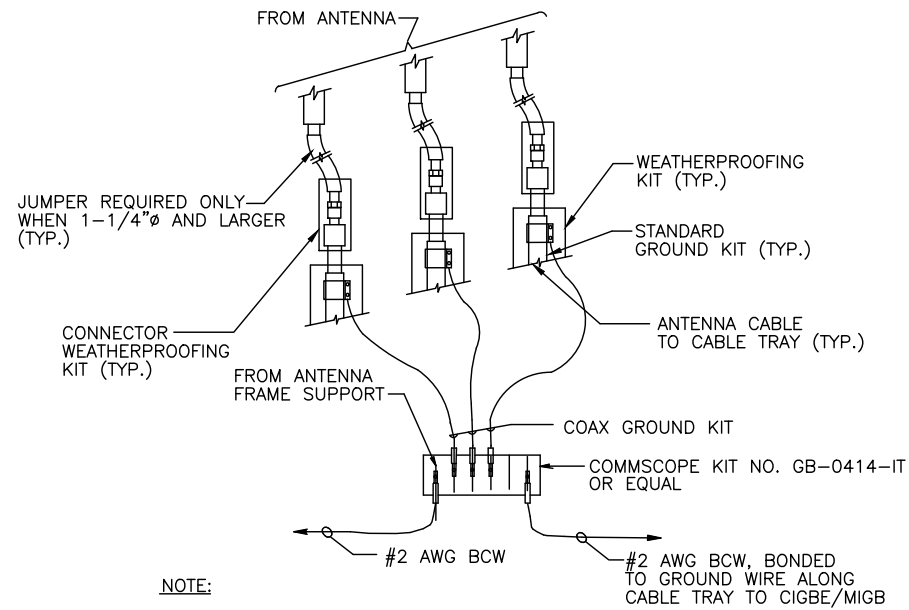
PROPOSED ANTENNA & RRUS MOUNT DETAIL 3
A-3

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"



PROPOSED EQUIPMENT RACK DETAIL 4
A-3

SCALE: N.T.S.



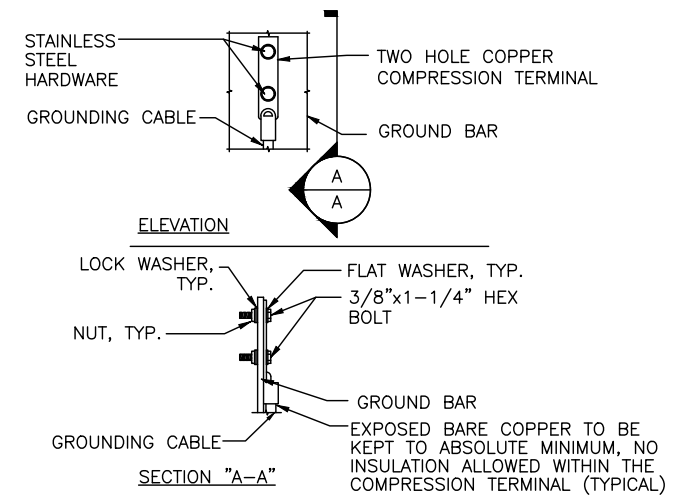
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1
G-1



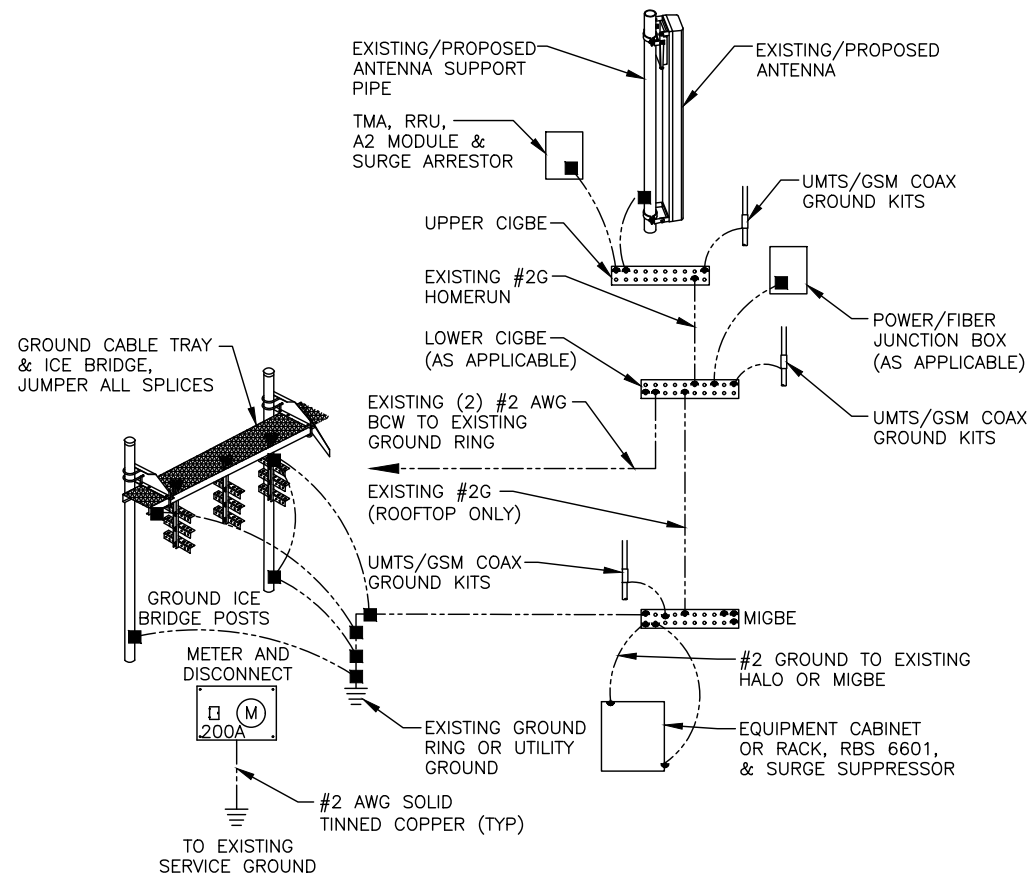
NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

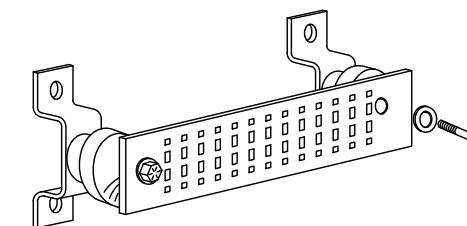
3
G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2
G-1



GROUND BAR - DETAIL

SCALE: N.T.S

4
G-1

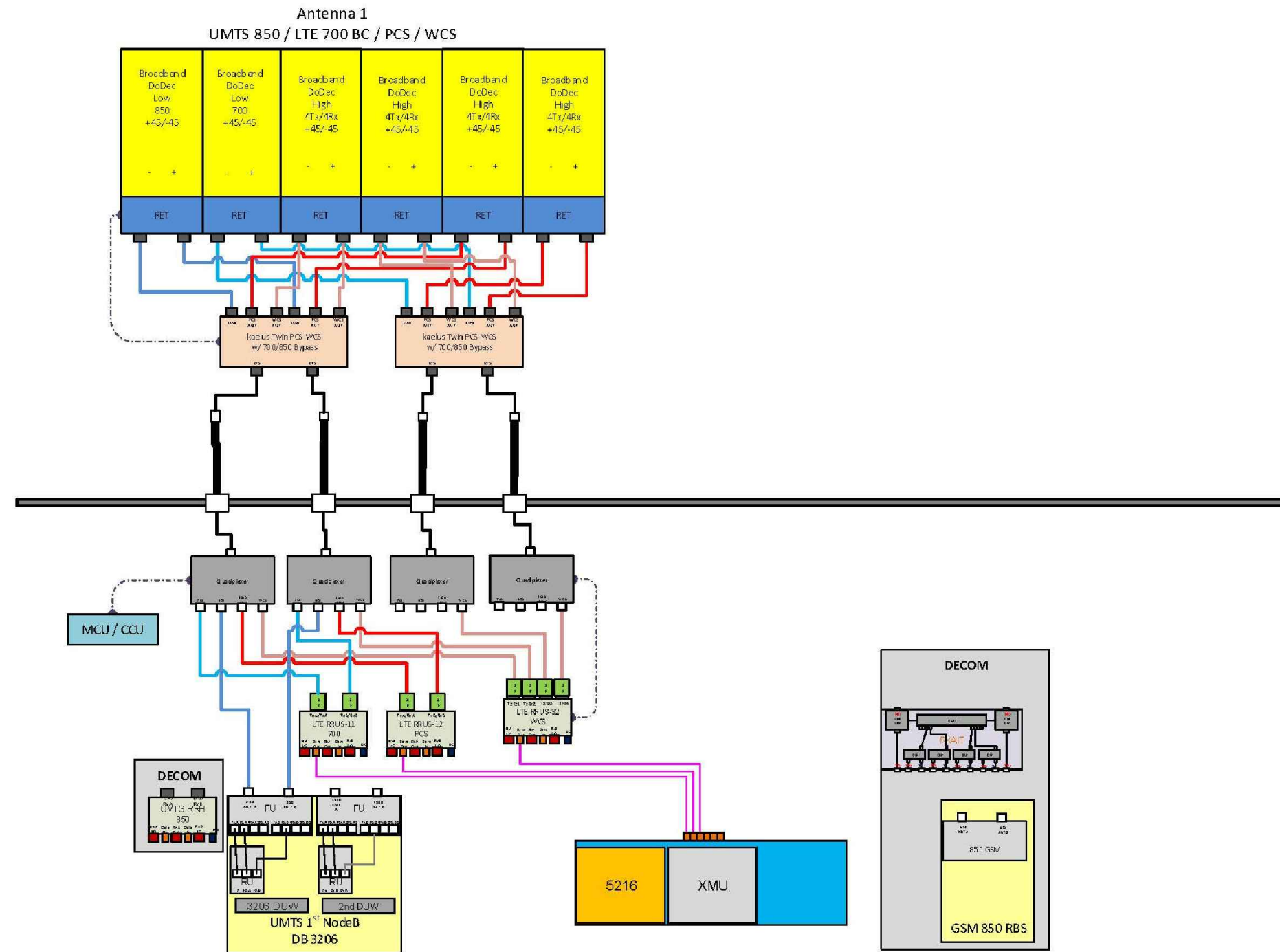
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

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



RF PLUMBING DIAGRAM 1
SCALE: N.T.S. RF-1

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

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	09/20/19	ISSUED FOR PERMITTING	MR	AT	DPH
1	06/12/18	ISSUED FOR REVIEW	SG	AT	DJC
A	03/06/18	ISSUED FOR REVIEW	GA	AT	DJC
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: GA		

AT&T		
SHEETTITLE (LTE 2C)		
SITE NUMBER	DRAWING NUMBER	REV
CT2303	SHEETNUMBER	1

EXHIBIT 2



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2303

Greenwich Round Hill Road
395 Round Hill Road

Greenwich, CT 06831

June 28, 2019

Centerline Communications Project Number: 950012-232

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	15.95 %



June 28, 2019

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT2303 – Greenwich Round Hill Road**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **395 Round Hill Road in Greenwich, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent 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 AT&T Wireless antenna facility located at **395 Round Hill Road in Greenwich, Connecticut**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each 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)
UMTS	850 MHz	2	30
LTE	1900 MHz	4	40
LTE	2300 MHz	4	30
LTE	700 MHz	2	40

Table 1: Channel Data Table



The following antennas listed in Table 2 were used in the modeling for transmission in the 700 MHz, 850 MHz, and 1900 MHz (PCS) and 2300 MHz 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. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Quintel QS66512-2	88
B	1	Quintel QS66512-2	88
C	1	Quintel QS66512-2	88

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed AT&T 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	ERP (W)	MPE %
Antenna A1	Quintel QS66512-2	850 MHz / 1900 MHz / 2300 MHz / 700 MHz / 1900 MHz	11.35 dBd / 13.85 dBd / 14.85 dBd / 11.05 dBd / 13.85 dBd	16	580	13,268.61	6.99
Sector A Composite MPE%							6.99
Antenna B1	Quintel QS66512-2	850 MHz / 1900 MHz / 2300 MHz / 700 MHz / 1900 MHz	11.35 dBd / 13.85 dBd / 14.85 dBd / 11.05 dBd / 13.85 dBd	16	580	13,268.61	6.99
Sector B Composite MPE%							6.99
Antenna C1	Quintel QS66512-2	850 MHz / 1900 MHz / 2300 MHz / 700 MHz / 1900 MHz	11.35 dBd / 13.85 dBd / 14.85 dBd / 11.05 dBd / 13.85 dBd	16	580	13,268.61	6.99
Sector C Composite MPE%							6.99

Table 3: AT&T Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T 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 sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
AT&T – Max Per Sector Value	6.99 %
Verizon	3.76%
T-Mobile	2.58%
Sprint	2.62%
Site Total MPE %:	15.95 %

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	6.99 %
AT&T Sector B Total:	6.99 %
AT&T Sector C Total:	6.99 %
Site Total:	15.95 %

Table 5: Site MPE Summary



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

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (i.tW/cm ²)	Frequency (MHz)	Allowable MPE (i.tW/cm ²)	Calculated % MPE
AT&T 850 MHz UMTS	2	409.37	88.0	3.80	850 MHz UMTS	567	0.67%
AT&T 1900 MHz LTE	4	970.64	88.0	18.02	1900 MHz LTE	1000	1.80%
AT&T 2300 MHz LTE WCS	4	916.48	88.0	17.02	2300 MHz LTE WCS	1000	1.70%
AT&T 700 MHz LTE	2	509.40	88.0	4.73	700 MHz LTE	467	1.01%
AT&T 1900 MHz LTE	4	970.64	88.0	18.02	1900 MHz LTE	1000	1.80%
						Total:	6.99 %

Table 6: AT&T 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 AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	6.99 %
Sector B:	6.99 %
Sector C:	6.99 %
AT&T Maximum Total (per sector):	6.99 %
Site Total:	15.95 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **15.95 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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 values calculated were well within the allowable 100% threshold standard per the federal government.

A handwritten signature in black ink that reads 'Ryan B. McManus'.

Ryan McManus
Senior RF EME Compliance Manager
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

EXHIBIT 3



Structural Analysis Report

Prepared for:

KGI

805 Las Cimas Parkway
Building Three, Suite 370
Austin, TX 78746

ATTN: Mr. Sean Rock

Structure : 114 ft Monopole
Site ID : 27741
Proposed Carrier : AT&T
Site Name : Round Hill CT
Site Location : 395 Round Hill Road
Greenwich, CT
41.095117, -73.664219
County : Fairfield
Date : July 25, 2019
Max Usage : 44%
Result : Pass

Prepared By:
Jung Hyun Hong
Structural Engineer

A handwritten signature in black ink, appearing to read 'JH', is located below the text 'Structural Engineer'.





Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment	2
Structure Usages.....	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 114 ft monopole to reflect the change in loading by AT&T.

Supporting Documents

Tower Drawings	EEl Project #14679, dated December 15, 2006
Foundation Drawing	EEl Project #14679, dated February 12, 2007
Geotechnical Report	Clarence Welti Associates Site: 395 Round Hill Road, dated February 6, 2007

Analysis

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

Basic Wind Speed:	90 mph (3-Second Gust) Vasd / 115 mph (3-Second Gust) Vult
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.26, S_1 = 0.07$
Site Class:	D - Stiff Soil

Conclusion

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

If you have any questions or require additional information, please contact Semaan Engineering Solutions at 402-289-1888.

Existing and Reserved Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
110.0	110.0	3	QXW-636X6312XBF-EDIN	Flush Mount Inside Canister	(12) 1 5/8"	Verizon
100.0	100.0	3	BXA-70063/6CF	Flush Mount Inside Canister	(6) 1 5/8"	
90.0	-	-	-	Flush Mount Inside Canister	(6) 1 5/8"	AT&T
30.0	30.0	1	GPS	Flush Mount	(1) 1/2"	

Equipment to be Removed

This loading **is not** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
No loading considered to be removed						

Proposed Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
90.0	90.0	6	TMA2117F00V1-1	Existing Flush Mount Inside Canister	(6) 1 5/8"	AT&T
		3	NNH4-65B-R6			

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	44%	Pass
Shaft	28%	Pass
Base Plate	26%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	378.6	36%
Axial (Kips)	33.3	16%
Shear (Kips)	6.1	14%
Reinf. Conc. Foundation Capacity	N/A	16%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
90.0	TMA2117F00V1-1	AT&T	0.246	0.415
	NNH4-65B-R6			

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



Standard Conditions

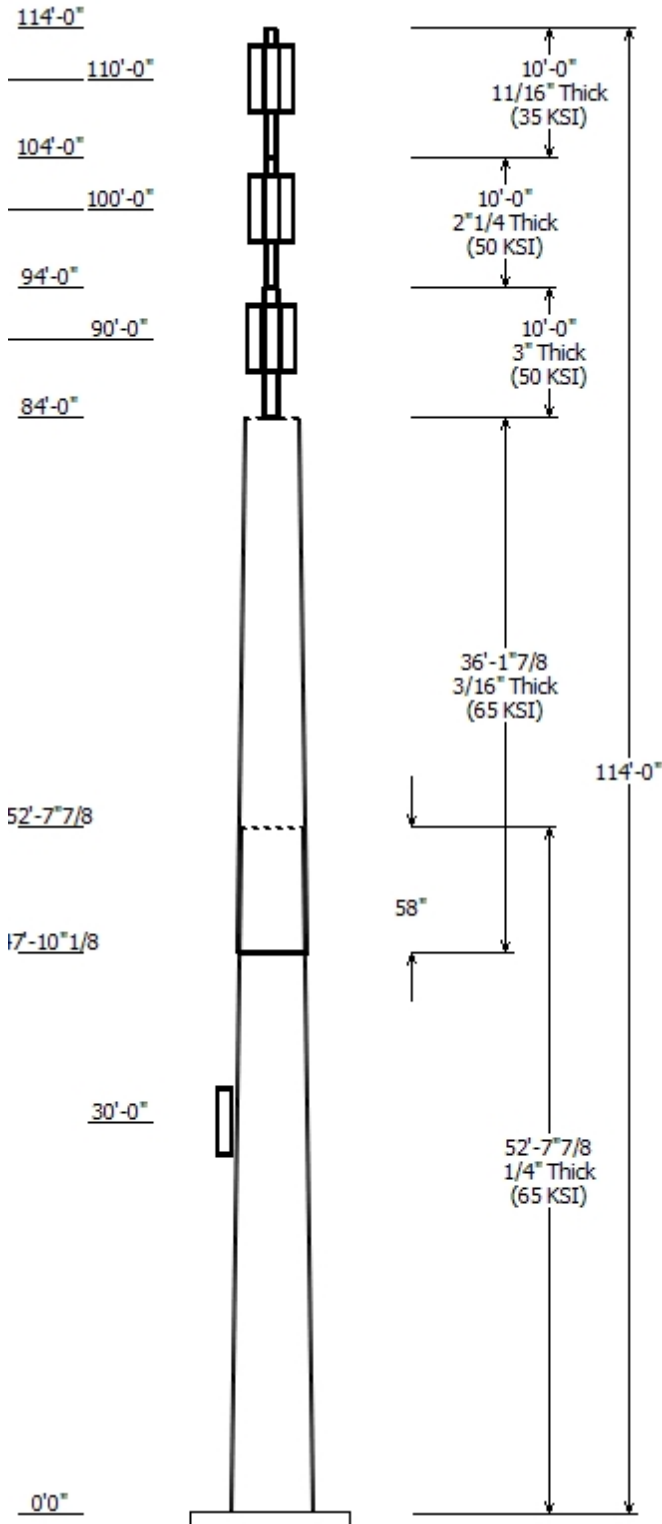
All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings 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 that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. 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.

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



Job Information	
Pole : 27741	Code: ANSI/TIA-222-G
Description :	
Client : KGI	Struct Class : II
Location : Round Hill CT, Greenwich, CT	
Shape : 18 Sides	Exposure : B
Height : 114.00 (ft)	Topo : 1
Base Elev (ft): 1.00	
Taper: 0.14434(in/ft)	

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap		Steel Grade (ksi)
		Top	Bottom			Length (in)	Taper (in/ft)	
1	52.659	33.39	41.00	0.250		0.000	0.144340	65
2	36.156	29.25	34.46	0.188	Slip Joint	57.781	0.144340	65
3	10.000	6.000	6.000	3.000	Butt Joint	0.000	0.000000	50
4	10.000	4.500	4.500	2.250	Butt Joint	0.000	0.000000	50
5	10.000	4.500	4.500	0.674	Butt Joint	0.000	0.000000	35

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
110.000	110.000	3	QXW-636X6312XBF-EDIN	
110.000	110.000	1	Flush Mount	
100.000	100.000	1	Flush Mount	
100.000	100.000	3	BXA-70063/6CF	
90.000	90.000	3	NNH4-65B-R6	
90.000	90.000	6	TMA2117F00V1-1	
90.000	90.000	1	Flush Mount	
30.000	30.000	1	GPS	

Linear Appurtenance				
Elev (ft)	From	To	Description	Exposed To Wind
104.0	114.0		Canister	Yes
94.000	104.0		Canister	Yes
84.000	94.000		Canister	Yes
0.000	100.0		1 5/8" Coax	No
0.000	30.000		1/2" Coax	No
0.000	90.000		1 5/8" Coax	No
0.000	90.000		1 5/8" Coax	No
0.000	110.0		1 5/8" Coax	No

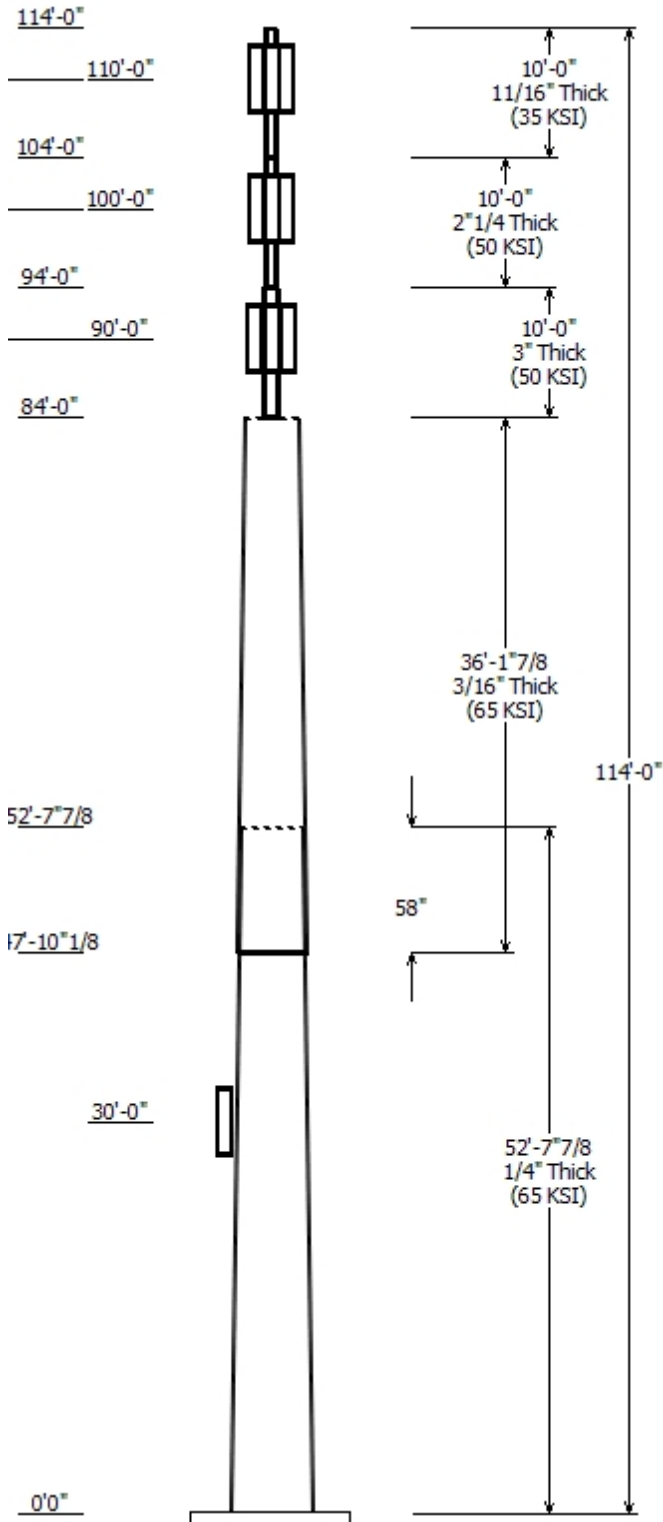
Load Cases	
1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	378.64	6.08	19.78
0.9D + 1.6W	375.40	6.07	14.84

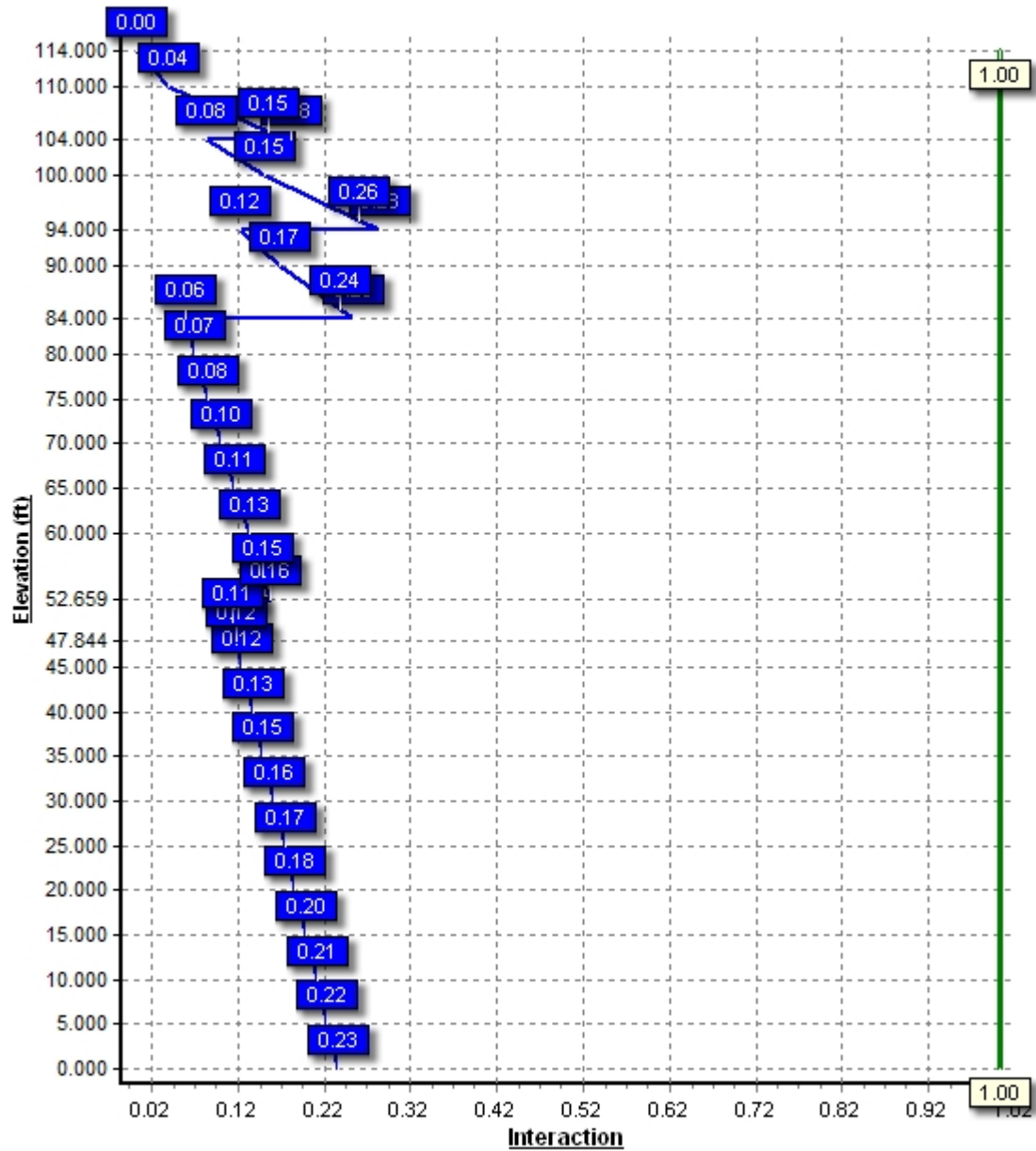
1.2D + 1.0Di + 1.0Wi	180.47	2.62	33.28
(1.2 + 0.2Sds) * DL + E ELFM	75.08	0.87	19.81
(1.2 + 0.2Sds) * DL + E EMAM	80.49	1.00	19.81
(0.9 - 0.2Sds) * DL + E ELFM	74.24	0.87	13.34
(0.9 - 0.2Sds) * DL + E EMAM	79.46	1.00	13.34
1.0D + 1.0W	104.56	1.69	16.49

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000



Load Case : 1.2D + 1.6W
Max Ratio 80.34% at 0.0ft



Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:07 AM

Customer: KGI

Analysis Parameters

Location:	Fairfield County, CT	Height (ft):	114
Code:	ANSI/TIA-222-G	Shape:	18 Sides. Sect 3: Round Solid. Sect 4: Round Solid. Sect 5: Round
Pole Type:	Custom	Top Diameter (in):	4.50
Pole Manufacturer:	EEI	Taper (in/ft) :	0.144

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	90 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.87		
T_L (sec):	6	p :	1.3
S_s :	0.259	S_1 :	0.071
F_a :	1.593	F_v :	2.400
S_{ds} :	0.275	S_{d1} :	0.114
		C_s :	0.040
		C_s Max:	0.040
		C_s Min:	0.030

Load Cases

1.2D + 1.6W	90 mph with No Ice
0.9D + 1.6W	90 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:07 AM

Customer: KGI

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	52.659	0.2500	65		0.00	5,253	41.00	0.00	32.33	6783.7	27.51	164.00	33.39	52.66	26.30	3651.8	22.15	133.60	0.144340
2-18	36.156	0.1875	65	Slip	57.78	2,319	34.46	47.84	20.40	3029.2	31.00	183.84	29.25	84.00	17.30	1845.7	26.10	156.00	0.144340
3-RS	10.000	3.0000	50	Butt	0.00	962	6.000	84.00	28.27	63.6	0.00	2.00	6.000	94.00	28.27	63.6	0.00	2.00	0.000000
4-RS	10.000	2.2500	50	Butt	0.00	541	4.500	94.00	15.90	20.1	0.00	2.00	4.500	104.00	15.90	20.1	0.00	2.00	0.000000
5-R	10.000	0.6740	35	Butt	0.00	276	4.500	104.00	8.10	14.8	0.00	6.68	4.500	114.00	8.10	14.8	0.00	6.68	0.000000
Shaft Weight						9,351													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
110.00	Flush Mount	1	250.00	0.000	1.00	841.36	0.000	1.00	0.000	0.000
110.00	QXW-636X6312XBF-EDIN	3	38.00	0.000	1.00	225.48	0.000	1.00	0.000	0.000
100.00	BXA-70063/6CF	3	17.00	0.000	1.00	176.05	8.774	1.00	0.000	0.000
100.00	Flush Mount	1	250.00	0.000	1.00	835.67	0.000	1.00	0.000	0.000
90.00	Flush Mount	1	250.00	0.000	1.00	829.43	0.000	1.00	0.000	0.000
90.00	NNH4-65B-R6	3	82.00	0.000	1.00	315.44	0.000	1.00	0.000	0.000
90.00	TMA2117F00V1-1	6	26.00	0.000	1.00	59.70	1.365	1.00	0.000	0.000
30.00	GPS	1	0.60	0.280	1.00	13.44	0.492	1.00	0.000	0.000
Totals		19	1317.60			5,028.97			Number of Loadings :	8

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Protected Width (in)	Exposed To Wind	Carrier
104.00	114.00	1	Canister Difference	30.00	50.00	N	25.50	Y	
0.00	110.00	12	1 5/8" Coax	1.98	1.04	N	0.00	N	Verizon
94.00	104.00	1	Canister Difference	30.00	84.69	N	25.50	Y	
0.00	100.00	6	1 5/8" Coax	1.98	1.04	N	0.00	N	Verizon
84.00	94.00	1	Canister Difference	30.00	135.00	N	24.00	Y	
0.00	90.00	6	1 5/8" Coax	1.98	1.04	N	0.00	N	AT&T
0.00	90.00	6	1 5/8" Coax	1.98	1.04	N	0.00	N	AT&T
0.00	30.00	1	1/2" Coax	0.65	0.16	N	0.00	N	AT&T

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:07 AM

Customer: KGI

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.2500	41.000	32.334	6,783.7	27.51	164.00	69.0	325.9	0.0	0.0
5.00		0.2500	40.278	31.761	6,429.6	27.00	161.11	69.6	314.4	0.0	545.3
10.00		0.2500	39.557	31.189	6,088.1	26.49	158.23	70.2	303.1	0.0	535.5
15.00		0.2500	38.835	30.616	5,758.9	25.98	155.34	70.8	292.1	0.0	525.8
20.00		0.2500	38.113	30.043	5,441.7	25.47	152.45	71.4	281.2	0.0	516.0
25.00		0.2500	37.391	29.471	5,136.4	24.96	149.57	72.0	270.6	0.0	506.3
30.00		0.2500	36.670	28.898	4,842.8	24.45	146.68	72.6	260.1	0.0	496.5
35.00		0.2500	35.948	28.325	4,560.6	23.94	143.79	73.2	249.9	0.0	486.8
40.00		0.2500	35.226	27.753	4,289.5	23.43	140.91	73.8	239.8	0.0	477.1
45.00		0.2500	34.505	27.180	4,029.4	22.93	138.02	74.4	230.0	0.0	467.3
47.84	Bot - Section 2	0.2500	34.094	26.854	3,886.3	22.64	136.38	74.8	224.5	0.0	261.4
50.00		0.2500	33.783	26.607	3,780.1	22.42	135.13	75.0	220.4	0.0	345.1
52.66	Top - Section 1	0.1875	33.774	19.988	2,848.7	30.35	180.13	65.7	166.1	0.0	421.2
55.00		0.1875	33.436	19.786	2,763.6	30.03	178.33	66.1	162.8	0.0	158.4
60.00		0.1875	32.715	19.357	2,587.5	29.35	174.48	66.9	155.8	0.0	333.0
65.00		0.1875	31.993	18.927	2,419.1	28.68	170.63	67.7	148.9	0.0	325.7
70.00		0.1875	31.271	18.498	2,258.1	28.00	166.78	68.5	142.2	0.0	318.4
75.00		0.1875	30.549	18.069	2,104.4	27.32	162.93	69.3	135.7	0.0	311.1
80.00		0.1875	29.828	17.639	1,957.9	26.64	159.08	70.1	129.3	0.0	303.8
84.00	Top - Section 2	0.1875	29.250	17.295	1,845.7	26.10	156.00	70.7	124.3	0.0	237.7
84.00	Bot - Section 3	3.0000	6.000	28.274	63.6	0.00	2.00	50.0	21.2	36.0	
85.00		3.0000	6.000	28.274	63.6	0.00	2.00	50.0	21.2	36.0	96.2
90.00		3.0000	6.000	28.274	63.6	0.00	2.00	50.0	21.2	36.0	481.1
94.00	Top - Section 3	3.0000	6.000	28.274	63.6	0.00	2.00	50.0	21.2	36.0	384.8
94.00	Bot - Section 4	2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	
95.00		2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	54.1
100.0		2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	270.6
104.0	Top - Section 4	2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	216.5
104.0	Bot - Section 5	0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	
105.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	27.6
110.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	137.8
114.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	110.3
											9,351.4

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:07 AM

Customer: KGI

Load Case: 1.2D + 1.6W

90 mph with No Ice

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		135.6	0.0					0.0	0.0	135.6	0.0	0.0	0.0
5.00		268.8	654.3					0.0	188.2	268.8	842.5	0.0	0.0
10.00		264.0	642.6					0.0	188.2	264.0	830.8	0.0	0.0
15.00		259.2	630.9					0.0	188.2	259.2	819.1	0.0	0.0
20.00		254.4	619.2					0.0	188.2	254.4	807.4	0.0	0.0
25.00		249.6	607.5					0.0	188.2	249.6	795.7	0.0	0.0
30.00	Appertunance(s)	248.7	595.8	6.9	0.0	0.0	0.7	0.0	188.2	255.6	784.7	0.0	0.0
35.00		252.8	584.2					0.0	187.2	252.8	771.4	0.0	0.0
40.00		257.1	572.5					0.0	187.2	257.1	759.7	0.0	0.0
45.00		203.8	560.8					0.0	187.2	203.8	748.0	0.0	0.0
47.84	Bot - Section 2	131.4	313.7					0.0	106.5	131.4	420.2	0.0	0.0
50.00		127.9	414.2					0.0	80.7	127.9	494.9	0.0	0.0
52.66	Top - Section 1	133.2	505.5					0.0	99.5	133.2	605.0	0.0	0.0
55.00		196.1	190.1					0.0	87.7	196.1	277.8	0.0	0.0
60.00		267.6	399.6					0.0	187.2	267.6	586.8	0.0	0.0
65.00		267.6	390.8					0.0	187.2	267.6	578.0	0.0	0.0
70.00		267.1	382.1					0.0	187.2	267.1	569.3	0.0	0.0
75.00		266.1	373.3					0.0	187.2	266.1	560.5	0.0	0.0
80.00		238.3	364.5					0.0	187.2	238.3	551.7	0.0	0.0
84.00	Top - Section 2	115.4	285.3					0.0	149.8	115.4	435.1	0.0	0.0
85.00		59.5	115.5					39.3	199.4	98.8	314.9	0.0	0.0
90.00	Appertunance(s)	89.9	577.3	0.0	0.0	0.0	782.4	198.5	997.2	288.4	2,356.9	0.0	0.0
94.00	Top - Section 3	47.9	461.8					161.1	737.9	209.0	1,199.7	0.0	0.0
95.00		46.0	64.9					43.1	124.1	89.1	189.0	0.0	0.0
100.00	Appertunance(s)	69.5	324.7	0.0	0.0	0.0	361.2	217.5	620.5	287.0	1,306.4	0.0	0.0
104.00	Top - Section 4	38.9	259.8					176.2	466.4	215.1	726.2	0.0	0.0
105.00		47.3	33.1					44.4	75.0	91.6	108.1	0.0	0.0
110.00	Appertunance(s)	71.4	165.4	0.0	0.0	0.0	436.8	223.6	374.9	295.0	977.1	0.0	0.0
114.00		31.9	132.3					180.9	240.0	212.9	372.3	0.0	0.0
Totals:										6,198.46	19,788.8	0.00	0.00

Site Number: 27741

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Load Case: 1.2D + 1.6W

90 mph with No Ice

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.78	-6.08	0.00	-378.64	0.00	378.64	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.234
5.00	-18.93	-5.83	0.00	-348.26	0.00	348.26	1,990.85	995.43	3,279.75	1,642.31	0.04	-0.08	0.222
10.00	-18.10	-5.59	0.00	-319.10	0.00	319.10	1,971.76	985.88	3,189.37	1,597.06	0.16	-0.15	0.209
15.00	-17.27	-5.35	0.00	-291.16	0.00	291.16	1,952.06	976.03	3,099.16	1,551.88	0.36	-0.22	0.196
20.00	-16.46	-5.11	0.00	-264.42	0.00	264.42	1,931.73	965.87	3,009.16	1,506.81	0.63	-0.29	0.184
25.00	-15.66	-4.87	0.00	-238.87	0.00	238.87	1,910.79	955.40	2,919.43	1,461.88	0.97	-0.36	0.172
30.00	-14.87	-4.63	0.00	-214.51	0.00	214.51	1,889.23	944.62	2,830.03	1,417.12	1.37	-0.42	0.159
35.00	-14.10	-4.38	0.00	-191.37	0.00	191.37	1,867.06	933.53	2,741.01	1,372.54	1.84	-0.48	0.147
40.00	-13.34	-4.13	0.00	-169.45	0.00	169.45	1,844.27	922.13	2,652.43	1,328.19	2.37	-0.53	0.135
45.00	-12.59	-3.93	0.00	-148.79	0.00	148.79	1,820.86	910.43	2,564.34	1,284.08	2.96	-0.59	0.123
47.84	-12.17	-3.80	0.00	-137.61	0.00	137.61	1,807.27	903.63	2,514.48	1,259.11	3.32	-0.62	0.116
50.00	-11.67	-3.67	0.00	-129.42	0.00	129.42	1,796.83	898.42	2,476.80	1,240.24	3.60	-0.64	0.111
52.66	-11.07	-3.54	0.00	-119.66	0.00	119.66	1,181.91	590.96	1,634.83	818.63	3.97	-0.66	0.156
55.00	-10.79	-3.34	0.00	-111.38	0.00	111.38	1,176.68	588.34	1,611.13	806.76	4.30	-0.68	0.147
60.00	-10.21	-3.08	0.00	-94.67	0.00	94.67	1,165.04	582.52	1,560.38	781.35	5.04	-0.74	0.130
65.00	-9.63	-2.81	0.00	-79.28	0.00	79.28	1,152.79	576.40	1,509.51	755.88	5.84	-0.78	0.113
70.00	-9.06	-2.54	0.00	-65.24	0.00	65.24	1,139.92	569.96	1,458.59	730.38	6.68	-0.83	0.097
75.00	-8.50	-2.27	0.00	-52.54	0.00	52.54	1,126.44	563.22	1,407.67	704.88	7.57	-0.86	0.082
80.00	-7.95	-2.03	0.00	-41.18	0.00	41.18	1,112.33	556.17	1,356.80	679.41	8.49	-0.90	0.068
84.00	-7.52	-1.91	0.00	-33.07	0.00	33.07	1,100.61	550.30	1,316.18	659.07	9.25	-0.92	0.057
84.00	-7.52	-1.91	0.00	-33.07	0.00	33.07	1,272.34	636.17	159.04	135.00	9.25	-0.92	0.251
85.00	-7.20	-1.84	0.00	-31.16	0.00	31.16	1,272.34	636.17	159.04	135.00	9.44	-0.92	0.236
90.00	-4.84	-1.54	0.00	-21.94	0.00	21.94	1,272.34	636.17	159.04	135.00	10.74	-1.52	0.166
94.00	-3.64	-1.31	0.00	-15.77	0.00	15.77	1,272.34	636.17	159.04	135.00	12.15	-1.85	0.120
94.00	-3.64	-1.31	0.00	-15.77	0.00	15.77	715.69	357.85	67.10	56.95	12.15	-1.85	0.282
95.00	-3.44	-1.24	0.00	-14.46	0.00	14.46	715.69	357.85	67.10	56.95	12.55	-1.92	0.259
100.00	-2.14	-0.92	0.00	-8.24	0.00	8.24	715.69	357.85	67.10	56.95	15.02	-2.72	0.148
104.00	-1.42	-0.68	0.00	-4.54	0.00	4.54	715.69	357.85	67.10	56.95	17.46	-3.08	0.082
104.00	-1.42	-0.68	0.00	-4.54	0.00	4.54	255.19	127.60	34.57	26.17	17.46	-3.08	0.179
105.00	-1.32	-0.58	0.00	-3.86	0.00	3.86	255.19	127.60	34.57	26.17	18.12	-3.14	0.153
110.00	-0.36	-0.23	0.00	-0.94	0.00	0.94	255.19	127.60	34.57	26.17	21.55	-3.37	0.037
114.00	0.00	-0.21	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	24.39	-3.41	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:07 AM

Customer: KGI

Load Case: 0.9D + 1.6W	90 mph with No Ice (Reduced DL)	24 Iterations
Gust Response Factor : 1.10		Wind Importance Factor : 1.00
Dead Load Factor : 0.90		
Wind Load Factor : 1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		135.6	0.0					0.0	0.0	135.6	0.0	0.0	0.0
5.00		268.8	490.7					0.0	141.1	268.8	631.8	0.0	0.0
10.00		264.0	482.0					0.0	141.1	264.0	623.1	0.0	0.0
15.00		259.2	473.2					0.0	141.1	259.2	614.3	0.0	0.0
20.00		254.4	464.4					0.0	141.1	254.4	605.5	0.0	0.0
25.00		249.6	455.7					0.0	141.1	249.6	596.8	0.0	0.0
30.00	Appertunance(s)	248.7	446.9	6.9	0.0	0.0	0.5	0.0	141.1	255.6	588.5	0.0	0.0
35.00		252.8	438.1					0.0	140.4	252.8	578.5	0.0	0.0
40.00		257.1	429.3					0.0	140.4	257.1	569.7	0.0	0.0
45.00		203.8	420.6					0.0	140.4	203.8	561.0	0.0	0.0
47.84	Bot - Section 2	131.4	235.3					0.0	79.9	131.4	315.1	0.0	0.0
50.00		127.9	310.6					0.0	60.5	127.9	371.2	0.0	0.0
52.66	Top - Section 1	133.2	379.1					0.0	74.7	133.2	453.8	0.0	0.0
55.00		196.1	142.6					0.0	65.7	196.1	208.3	0.0	0.0
60.00		267.6	299.7					0.0	140.4	267.6	440.1	0.0	0.0
65.00		267.6	293.1					0.0	140.4	267.6	433.5	0.0	0.0
70.00		267.1	286.5					0.0	140.4	267.1	426.9	0.0	0.0
75.00		266.1	280.0					0.0	140.4	266.1	420.4	0.0	0.0
80.00		238.3	273.4					0.0	140.4	238.3	413.8	0.0	0.0
84.00	Top - Section 2	115.4	214.0					0.0	112.3	115.4	326.3	0.0	0.0
85.00		59.5	86.6					39.3	149.6	98.8	236.2	0.0	0.0
90.00	Appertunance(s)	89.9	433.0	0.0	0.0	0.0	586.8	198.5	747.9	288.4	1,767.7	0.0	0.0
94.00	Top - Section 3	47.9	346.4					161.1	553.4	209.0	899.8	0.0	0.0
95.00		46.0	48.7					43.1	93.1	89.1	141.8	0.0	0.0
100.00	Appertunance(s)	69.5	243.5	0.0	0.0	0.0	270.9	217.5	465.3	287.0	979.8	0.0	0.0
104.00	Top - Section 4	38.9	194.8					176.2	349.8	215.1	544.6	0.0	0.0
105.00		47.3	24.8					44.4	56.2	91.6	81.0	0.0	0.0
110.00	Appertunance(s)	71.4	124.1	0.0	0.0	0.0	327.6	223.6	281.2	295.0	732.8	0.0	0.0
114.00		31.9	99.2					180.9	180.0	212.9	279.2	0.0	0.0
Totals:										6,198.46	14,841.6	0.00	0.00

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:08 AM

Customer: KGI

Load Case: 0.9D + 1.6W

90 mph with No Ice (Reduced DL)

24 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-14.84	-6.07	0.00	-375.40	0.00	375.40	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.230
5.00	-14.20	-5.82	0.00	-345.04	0.00	345.04	1,990.85	995.43	3,279.75	1,642.31	0.04	-0.08	0.217
10.00	-13.57	-5.57	0.00	-315.93	0.00	315.93	1,971.76	985.88	3,189.37	1,597.06	0.16	-0.15	0.205
15.00	-12.95	-5.33	0.00	-288.06	0.00	288.06	1,952.06	976.03	3,099.16	1,551.88	0.35	-0.22	0.192
20.00	-12.34	-5.09	0.00	-261.42	0.00	261.42	1,931.73	965.87	3,009.16	1,506.81	0.62	-0.29	0.180
25.00	-11.74	-4.85	0.00	-236.00	0.00	236.00	1,910.79	955.40	2,919.43	1,461.88	0.96	-0.35	0.168
30.00	-11.15	-4.60	0.00	-211.77	0.00	211.77	1,889.23	944.62	2,830.03	1,417.12	1.36	-0.41	0.155
35.00	-10.57	-4.35	0.00	-188.79	0.00	188.79	1,867.06	933.53	2,741.01	1,372.54	1.82	-0.47	0.143
40.00	-9.99	-4.10	0.00	-167.03	0.00	167.03	1,844.27	922.13	2,652.43	1,328.19	2.35	-0.53	0.131
45.00	-9.43	-3.90	0.00	-146.54	0.00	146.54	1,820.86	910.43	2,564.34	1,284.08	2.93	-0.58	0.119
47.84	-9.12	-3.76	0.00	-135.47	0.00	135.47	1,807.27	903.63	2,514.48	1,259.11	3.29	-0.61	0.113
50.00	-8.75	-3.64	0.00	-127.35	0.00	127.35	1,796.83	898.42	2,476.80	1,240.24	3.57	-0.63	0.108
52.66	-8.29	-3.50	0.00	-117.68	0.00	117.68	1,181.91	590.96	1,634.83	818.63	3.92	-0.65	0.151
55.00	-8.08	-3.31	0.00	-109.48	0.00	109.48	1,176.68	588.34	1,611.13	806.76	4.25	-0.67	0.143
60.00	-7.64	-3.04	0.00	-92.95	0.00	92.95	1,165.04	582.52	1,560.38	781.35	4.98	-0.73	0.126
65.00	-7.21	-2.77	0.00	-77.74	0.00	77.74	1,152.79	576.40	1,509.51	755.88	5.77	-0.77	0.109
70.00	-6.79	-2.51	0.00	-63.87	0.00	63.87	1,139.92	569.96	1,458.59	730.38	6.61	-0.82	0.093
75.00	-6.37	-2.24	0.00	-51.34	0.00	51.34	1,126.44	563.22	1,407.67	704.88	7.48	-0.85	0.079
80.00	-5.96	-2.00	0.00	-40.16	0.00	40.16	1,112.33	556.17	1,356.80	679.41	8.39	-0.88	0.064
84.00	-5.63	-1.88	0.00	-32.18	0.00	32.18	1,100.61	550.30	1,316.18	659.07	9.14	-0.90	0.054
84.00	-5.63	-1.88	0.00	-32.18	0.00	32.18	1,272.34	636.17	159.04	135.00	9.14	-0.90	0.243
85.00	-5.39	-1.80	0.00	-30.30	0.00	30.30	1,272.34	636.17	159.04	135.00	9.33	-0.91	0.229
90.00	-3.62	-1.50	0.00	-21.29	0.00	21.29	1,272.34	636.17	159.04	135.00	10.60	-1.49	0.161
94.00	-2.72	-1.28	0.00	-15.27	0.00	15.27	1,272.34	636.17	159.04	135.00	11.99	-1.81	0.115
94.00	-2.72	-1.28	0.00	-15.27	0.00	15.27	715.69	357.85	67.10	56.95	11.99	-1.81	0.272
95.00	-2.57	-1.21	0.00	-13.99	0.00	13.99	715.69	357.85	67.10	56.95	12.37	-1.88	0.249
100.00	-1.60	-0.89	0.00	-7.97	0.00	7.97	715.69	357.85	67.10	56.95	14.78	-2.65	0.142
104.00	-1.06	-0.66	0.00	-4.39	0.00	4.39	715.69	357.85	67.10	56.95	17.17	-3.00	0.079
104.00	-1.06	-0.66	0.00	-4.39	0.00	4.39	255.19	127.60	34.57	26.17	17.17	-3.00	0.172
105.00	-0.98	-0.56	0.00	-3.73	0.00	3.73	255.19	127.60	34.57	26.17	17.80	-3.06	0.146
110.00	-0.27	-0.23	0.00	-0.91	0.00	0.91	255.19	127.60	34.57	26.17	21.14	-3.28	0.036
114.00	0.00	-0.21	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	23.91	-3.32	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:08 AM

Customer: KGI

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	24 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		51.1	0.0					0.0	0.0	51.1	0.0	0.0	0.0
5.00		101.6	965.7					0.0	188.2	101.6	1,153.9	0.0	0.0
10.00		100.3	977.9					0.0	188.2	100.3	1,166.0	0.0	0.0
15.00		98.8	976.4					0.0	188.2	98.8	1,164.5	0.0	0.0
20.00		97.3	969.7					0.0	188.2	97.3	1,157.9	0.0	0.0
25.00		95.7	960.3					0.0	188.2	95.7	1,148.4	0.0	0.0
30.00	Appertunance(s)	95.7	949.0	2.3	0.0	0.0	13.6	0.0	188.2	98.0	1,150.7	0.0	0.0
35.00		97.5	936.5					0.0	187.2	97.5	1,123.7	0.0	0.0
40.00		99.4	923.1					0.0	187.2	99.4	1,110.3	0.0	0.0
45.00		78.9	908.9					0.0	187.2	78.9	1,096.1	0.0	0.0
47.84	Bot - Section 2	51.0	511.2					0.0	106.5	51.0	617.7	0.0	0.0
50.00		49.7	565.0					0.0	80.7	49.7	645.7	0.0	0.0
52.66	Top - Section 1	51.8	690.4					0.0	99.5	51.8	789.9	0.0	0.0
55.00		76.4	352.1					0.0	87.7	76.4	439.8	0.0	0.0
60.00		104.4	740.8					0.0	187.2	104.4	928.0	0.0	0.0
65.00		104.7	727.7					0.0	187.2	104.7	914.9	0.0	0.0
70.00		104.8	714.3					0.0	187.2	104.8	901.5	0.0	0.0
75.00		104.7	700.7					0.0	187.2	104.7	887.9	0.0	0.0
80.00		94.0	686.8					0.0	187.2	94.0	874.0	0.0	0.0
84.00	Top - Section 2	44.7	539.9					0.0	149.8	44.7	689.6	0.0	0.0
85.00		17.8	130.9					17.3	316.4	35.0	447.2	0.0	0.0
90.00	Appertunance(s)	26.9	654.6	52.7	0.0	0.0	1,983.6	87.2	1,582.6	166.8	4,220.9	0.0	0.0
94.00	Top - Section 3	14.6	524.1					70.8	1,207.1	85.4	1,731.2	0.0	0.0
95.00		15.5	77.5					18.8	241.5	34.3	319.0	0.0	0.0
100.00	Appertunance(s)	23.4	387.8	174.5	0.0	0.0	1,674.0	94.9	1,208.3	292.8	3,270.1	0.0	0.0
104.00	Top - Section 4	13.1	310.5					76.9	937.5	90.1	1,248.1	0.0	0.0
105.00		16.0	45.8					19.4	192.9	35.3	238.7	0.0	0.0
110.00	Appertunance(s)	24.1	229.3	0.0	0.0	0.0	1,757.4	97.7	965.0	121.8	2,951.6	0.0	0.0
114.00		10.8	183.7					79.1	712.8	89.9	896.5	0.0	0.0
Totals:										2,656.42	33,283.8	0.00	0.00

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:08 AM

Customer: KGI

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

24 Iterations

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.28	-2.62	0.00	-180.47	0.00	180.47	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.124
5.00	-32.13	-2.53	0.00	-167.39	0.00	167.39	1,990.85	995.43	3,279.75	1,642.31	0.02	-0.04	0.118
10.00	-30.96	-2.45	0.00	-154.72	0.00	154.72	1,971.76	985.88	3,189.37	1,597.06	0.08	-0.07	0.113
15.00	-29.79	-2.37	0.00	-142.46	0.00	142.46	1,952.06	976.03	3,099.16	1,551.88	0.17	-0.11	0.107
20.00	-28.64	-2.29	0.00	-130.62	0.00	130.62	1,931.73	965.87	3,009.16	1,506.81	0.30	-0.14	0.102
25.00	-27.49	-2.20	0.00	-119.19	0.00	119.19	1,910.79	955.40	2,919.43	1,461.88	0.47	-0.17	0.096
30.00	-26.33	-2.11	0.00	-108.18	0.00	108.18	1,889.23	944.62	2,830.03	1,417.12	0.66	-0.20	0.090
35.00	-25.21	-2.03	0.00	-97.61	0.00	97.61	1,867.06	933.53	2,741.01	1,372.54	0.90	-0.23	0.085
40.00	-24.10	-1.93	0.00	-87.48	0.00	87.48	1,844.27	922.13	2,652.43	1,328.19	1.16	-0.26	0.079
45.00	-23.00	-1.86	0.00	-77.82	0.00	77.82	1,820.86	910.43	2,564.34	1,284.08	1.45	-0.29	0.073
47.84	-22.39	-1.81	0.00	-72.54	0.00	72.54	1,807.27	903.63	2,514.48	1,259.11	1.63	-0.31	0.070
50.00	-21.74	-1.76	0.00	-68.64	0.00	68.64	1,796.83	898.42	2,476.80	1,240.24	1.77	-0.32	0.067
52.66	-20.95	-1.71	0.00	-63.96	0.00	63.96	1,181.91	590.96	1,634.83	818.63	1.95	-0.33	0.096
55.00	-20.51	-1.64	0.00	-59.96	0.00	59.96	1,176.68	588.34	1,611.13	806.76	2.11	-0.34	0.092
60.00	-19.58	-1.54	0.00	-51.78	0.00	51.78	1,165.04	582.52	1,560.38	781.35	2.49	-0.37	0.083
65.00	-18.67	-1.43	0.00	-44.10	0.00	44.10	1,152.79	576.40	1,509.51	755.88	2.89	-0.40	0.075
70.00	-17.77	-1.33	0.00	-36.94	0.00	36.94	1,139.92	569.96	1,458.59	730.38	3.32	-0.42	0.066
75.00	-16.88	-1.22	0.00	-30.30	0.00	30.30	1,126.44	563.22	1,407.67	704.88	3.77	-0.44	0.058
80.00	-16.00	-1.13	0.00	-24.18	0.00	24.18	1,112.33	556.17	1,356.80	679.41	4.24	-0.46	0.050
84.00	-15.31	-1.08	0.00	-19.68	0.00	19.68	1,100.61	550.30	1,316.18	659.07	4.64	-0.47	0.044
84.00	-15.31	-1.08	0.00	-19.68	0.00	19.68	1,272.34	636.17	159.04	135.00	4.64	-0.47	0.158
85.00	-14.86	-1.09	0.00	-18.60	0.00	18.60	1,272.34	636.17	159.04	135.00	4.74	-0.48	0.149
90.00	-10.64	-0.92	0.00	-13.16	0.00	13.16	1,272.34	636.17	159.04	135.00	5.43	-0.83	0.106
94.00	-8.91	-0.83	0.00	-9.46	0.00	9.46	1,272.34	636.17	159.04	135.00	6.22	-1.03	0.077
94.00	-8.91	-0.83	0.00	-9.46	0.00	9.46	715.69	357.85	67.10	56.95	6.22	-1.03	0.179
95.00	-8.59	-0.83	0.00	-8.63	0.00	8.63	715.69	357.85	67.10	56.95	6.44	-1.07	0.164
100.00	-5.32	-0.49	0.00	-4.49	0.00	4.49	715.69	357.85	67.10	56.95	7.83	-1.54	0.086
104.00	-4.08	-0.37	0.00	-2.53	0.00	2.53	715.69	357.85	67.10	56.95	9.21	-1.74	0.050
104.00	-4.08	-0.37	0.00	-2.53	0.00	2.53	255.19	127.60	34.57	26.17	9.21	-1.74	0.113
105.00	-3.84	-0.34	0.00	-2.16	0.00	2.16	255.19	127.60	34.57	26.17	9.58	-1.77	0.097
110.00	-0.89	-0.12	0.00	-0.48	0.00	0.48	255.19	127.60	34.57	26.17	11.51	-1.90	0.022
114.00	0.00	-0.09	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	13.11	-1.91	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:08 AM

Customer: KGI

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		37.7	0.0					0.0	0.0	37.7	0.0	0.0	0.0
5.00		74.7	545.3					0.0	156.8	74.7	702.1	0.0	0.0
10.00		73.3	535.5					0.0	156.8	73.3	692.3	0.0	0.0
15.00		72.0	525.8					0.0	156.8	72.0	682.6	0.0	0.0
20.00		70.7	516.0					0.0	156.8	70.7	672.8	0.0	0.0
25.00		69.3	506.3					0.0	156.8	69.3	663.1	0.0	0.0
30.00	Appertunance(s)	69.1	496.5	1.9	0.0	0.0	0.6	0.0	156.8	71.0	653.9	0.0	0.0
35.00		70.2	486.8					0.0	156.0	70.2	642.8	0.0	0.0
40.00		71.4	477.1					0.0	156.0	71.4	633.1	0.0	0.0
45.00		56.6	467.3					0.0	156.0	56.6	623.3	0.0	0.0
47.84	Bot - Section 2	36.5	261.4					0.0	88.7	36.5	350.2	0.0	0.0
50.00		35.5	345.1					0.0	67.3	35.5	412.4	0.0	0.0
52.66	Top - Section 1	37.0	421.2					0.0	83.0	37.0	504.2	0.0	0.0
55.00		54.5	158.4					0.0	73.0	54.5	231.5	0.0	0.0
60.00		74.3	333.0					0.0	156.0	74.3	489.0	0.0	0.0
65.00		74.3	325.7					0.0	156.0	74.3	481.7	0.0	0.0
70.00		74.2	318.4					0.0	156.0	74.2	474.4	0.0	0.0
75.00		73.9	311.1					0.0	156.0	73.9	467.1	0.0	0.0
80.00		66.2	303.8					0.0	156.0	66.2	459.8	0.0	0.0
84.00	Top - Section 2	32.1	237.7					0.0	124.8	32.1	362.5	0.0	0.0
85.00		16.5	96.2					10.9	166.2	27.4	262.4	0.0	0.0
90.00	Appertunance(s)	25.0	481.1	0.0	0.0	0.0	652.0	55.1	831.0	80.1	1,964.1	0.0	0.0
94.00	Top - Section 3	13.3	384.8					44.7	614.9	58.0	999.7	0.0	0.0
95.00		12.8	54.1					12.0	103.4	24.8	157.5	0.0	0.0
100.00	Appertunance(s)	19.3	270.6	0.0	0.0	0.0	301.0	60.4	517.1	79.7	1,088.6	0.0	0.0
104.00	Top - Section 4	10.8	216.5					49.0	388.7	59.8	605.2	0.0	0.0
105.00		13.1	27.6					12.3	62.5	25.5	90.0	0.0	0.0
110.00	Appertunance(s)	19.8	137.8	0.0	0.0	0.0	364.0	62.1	312.4	81.9	814.2	0.0	0.0
114.00		8.9	110.3					50.3	200.0	59.1	310.3	0.0	0.0
Totals:										1,721.80	16,490.6	0.00	0.00

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-16.49	-1.69	0.00	-104.56	0.00	104.56	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.070
5.00	-15.79	-1.62	0.00	-96.12	0.00	96.12	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.02	0.066
10.00	-15.09	-1.55	0.00	-88.03	0.00	88.03	1,971.76	985.88	3,189.37	1,597.06	0.04	-0.04	0.063
15.00	-14.41	-1.48	0.00	-80.29	0.00	80.29	1,952.06	976.03	3,099.16	1,551.88	0.10	-0.06	0.059
20.00	-13.74	-1.41	0.00	-72.88	0.00	72.88	1,931.73	965.87	3,009.16	1,506.81	0.17	-0.08	0.055
25.00	-13.08	-1.35	0.00	-65.81	0.00	65.81	1,910.79	955.40	2,919.43	1,461.88	0.27	-0.10	0.052
30.00	-12.42	-1.28	0.00	-59.07	0.00	59.07	1,889.23	944.62	2,830.03	1,417.12	0.38	-0.12	0.048
35.00	-11.78	-1.21	0.00	-52.67	0.00	52.67	1,867.06	933.53	2,741.01	1,372.54	0.51	-0.13	0.045
40.00	-11.14	-1.14	0.00	-46.61	0.00	46.61	1,844.27	922.13	2,652.43	1,328.19	0.65	-0.15	0.041
45.00	-10.52	-1.09	0.00	-40.91	0.00	40.91	1,820.86	910.43	2,564.34	1,284.08	0.82	-0.16	0.038
47.84	-10.17	-1.05	0.00	-37.82	0.00	37.82	1,807.27	903.63	2,514.48	1,259.11	0.92	-0.17	0.036
50.00	-9.76	-1.01	0.00	-35.56	0.00	35.56	1,796.83	898.42	2,476.80	1,240.24	0.99	-0.18	0.034
52.66	-9.25	-0.98	0.00	-32.87	0.00	32.87	1,181.91	590.96	1,634.83	818.63	1.09	-0.18	0.048
55.00	-9.02	-0.92	0.00	-30.58	0.00	30.58	1,176.68	588.34	1,611.13	806.76	1.18	-0.19	0.046
60.00	-8.53	-0.85	0.00	-25.97	0.00	25.97	1,165.04	582.52	1,560.38	781.35	1.39	-0.20	0.041
65.00	-8.05	-0.77	0.00	-21.73	0.00	21.73	1,152.79	576.40	1,509.51	755.88	1.61	-0.22	0.036
70.00	-7.58	-0.70	0.00	-17.87	0.00	17.87	1,139.92	569.96	1,458.59	730.38	1.84	-0.23	0.031
75.00	-7.11	-0.62	0.00	-14.37	0.00	14.37	1,126.44	563.22	1,407.67	704.88	2.09	-0.24	0.027
80.00	-6.65	-0.56	0.00	-11.25	0.00	11.25	1,112.33	556.17	1,356.80	679.41	2.34	-0.25	0.023
84.00	-6.29	-0.52	0.00	-9.02	0.00	9.02	1,100.61	550.30	1,316.18	659.07	2.55	-0.25	0.019
84.00	-6.29	-0.52	0.00	-9.02	0.00	9.02	1,272.34	636.17	159.04	135.00	2.55	-0.25	0.072
85.00	-6.03	-0.50	0.00	-8.50	0.00	8.50	1,272.34	636.17	159.04	135.00	2.60	-0.25	0.068
90.00	-4.06	-0.42	0.00	-5.98	0.00	5.98	1,272.34	636.17	159.04	135.00	2.96	-0.42	0.047
94.00	-3.06	-0.36	0.00	-4.29	0.00	4.29	1,272.34	636.17	159.04	135.00	3.34	-0.51	0.034
94.00	-3.06	-0.36	0.00	-4.29	0.00	4.29	715.69	357.85	67.10	56.95	3.34	-0.51	0.080
95.00	-2.90	-0.34	0.00	-3.93	0.00	3.93	715.69	357.85	67.10	56.95	3.45	-0.53	0.073
100.00	-1.82	-0.25	0.00	-2.24	0.00	2.24	715.69	357.85	67.10	56.95	4.13	-0.74	0.042
104.00	-1.21	-0.18	0.00	-1.23	0.00	1.23	715.69	357.85	67.10	56.95	4.80	-0.84	0.023
104.00	-1.21	-0.18	0.00	-1.23	0.00	1.23	255.19	127.60	34.57	26.17	4.80	-0.84	0.052
105.00	-1.12	-0.16	0.00	-1.05	0.00	1.05	255.19	127.60	34.57	26.17	4.97	-0.86	0.044
110.00	-0.31	-0.06	0.00	-0.26	0.00	0.26	255.19	127.60	34.57	26.17	5.91	-0.92	0.011
114.00	0.00	-0.06	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	6.69	-0.93	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.26
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.59
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.87
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.69
Total Unfactored Dead Load:	16.49 k
Seismic Base Shear (E):	0.87 k

Load Case (1.2 + 0.2S_{ds}) * DL + E ELM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	112.00	310	887	0.045	39	389
27	107.50	450	1,201	0.061	52	565
26	104.50	90	229	0.012	10	113
25	102.00	605	1,477	0.074	65	759
24	97.50	788	1,782	0.090	78	988
23	94.50	158	338	0.017	15	198
22	92.00	1,000	2,051	0.103	90	1,255
21	87.50	1,312	2,473	0.125	108	1,647
20	84.50	262	466	0.024	20	329
19	82.00	363	612	0.031	27	455
18	77.50	460	706	0.036	31	577
17	72.50	467	641	0.032	28	586
16	67.50	474	577	0.029	25	595
15	62.50	482	515	0.026	22	605
14	57.50	489	454	0.023	20	614
13	53.83	231	192	0.010	8	290
12	51.33	504	387	0.019	17	633
11	48.92	412	292	0.015	13	518
10	46.42	350	227	0.011	10	439
9	42.50	623	348	0.018	15	782
8	37.50	633	286	0.014	12	794
7	32.50	643	228	0.011	10	807
6	27.50	653	175	0.009	8	820

Site Number: 27741

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

5	22.50	663	126	0.006	6	832
4	17.50	673	84	0.004	4	844
3	12.50	683	48	0.002	2	857
2	7.50	692	21	0.001	1	869
1	2.50	702	3	0.000	0	881
Flush Mount	110.00	250	693	0.035	30	314
QXW-636X6312XBF-EDIN	110.00	114	316	0.016	14	143
BXA-70063/6CF	100.00	51	120	0.006	5	64
Flush Mount	100.00	250	590	0.030	26	314
Flush Mount	90.00	250	494	0.025	22	314
TMA2117F00V1-1	90.00	156	308	0.016	13	196
NNH4-65B-R6	90.00	246	486	0.025	21	309
GPS	30.00	1	0	0.000	0	1
		16,491	19,834	1.000	867	20,696

Load Case (0.9 - 0.2Sds) * DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	112.00	310	887	0.045	39	262
27	107.50	450	1,201	0.061	52	380
26	104.50	90	229	0.012	10	76
25	102.00	605	1,477	0.074	65	511
24	97.50	788	1,782	0.090	78	666
23	94.50	158	338	0.017	15	133
22	92.00	1,000	2,051	0.103	90	845
21	87.50	1,312	2,473	0.125	108	1,109
20	84.50	262	466	0.024	20	222
19	82.00	363	612	0.031	27	306
18	77.50	460	706	0.036	31	388
17	72.50	467	641	0.032	28	395
16	67.50	474	577	0.029	25	401
15	62.50	482	515	0.026	22	407
14	57.50	489	454	0.023	20	413
13	53.83	231	192	0.010	8	196
12	51.33	504	387	0.019	17	426
11	48.92	412	292	0.015	13	348
10	46.42	350	227	0.011	10	296
9	42.50	623	348	0.018	15	527
8	37.50	633	286	0.014	12	535
7	32.50	643	228	0.011	10	543
6	27.50	653	175	0.009	8	552
5	22.50	663	126	0.006	6	560
4	17.50	673	84	0.004	4	569
3	12.50	683	48	0.002	2	577
2	7.50	692	21	0.001	1	585
1	2.50	702	3	0.000	0	593
Flush Mount	110.00	250	693	0.035	30	211
QXW-636X6312XBF-EDIN	110.00	114	316	0.016	14	96
BXA-70063/6CF	100.00	51	120	0.006	5	43
Flush Mount	100.00	250	590	0.030	26	211
Flush Mount	90.00	250	494	0.025	22	211
TMA2117F00V1-1	90.00	156	308	0.016	13	132
NNH4-65B-R6	90.00	246	486	0.025	21	208
GPS	30.00	1	0	0.000	0	1
		16,491	19,834	1.000	867	13,935

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.81	-0.87	0.00	-75.08	0.00	75.08	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.054
5.00	-18.95	-0.87	0.00	-70.73	0.00	70.73	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.02	0.053
10.00	-18.09	-0.88	0.00	-66.37	0.00	66.37	1,971.76	985.88	3,189.37	1,597.06	0.03	-0.03	0.051
15.00	-17.24	-0.88	0.00	-61.99	0.00	61.99	1,952.06	976.03	3,099.16	1,551.88	0.07	-0.05	0.049
20.00	-16.41	-0.87	0.00	-57.61	0.00	57.61	1,931.73	965.87	3,009.16	1,506.81	0.13	-0.06	0.047
25.00	-15.59	-0.87	0.00	-53.25	0.00	53.25	1,910.79	955.40	2,919.43	1,461.88	0.20	-0.07	0.045
30.00	-14.78	-0.86	0.00	-48.90	0.00	48.90	1,889.23	944.62	2,830.03	1,417.12	0.28	-0.09	0.042
35.00	-13.99	-0.85	0.00	-44.60	0.00	44.60	1,867.06	933.53	2,741.01	1,372.54	0.39	-0.10	0.040
40.00	-13.21	-0.84	0.00	-40.34	0.00	40.34	1,844.27	922.13	2,652.43	1,328.19	0.50	-0.12	0.038
45.00	-12.77	-0.83	0.00	-36.16	0.00	36.16	1,820.86	910.43	2,564.34	1,284.08	0.63	-0.13	0.035
47.84	-12.25	-0.82	0.00	-33.80	0.00	33.80	1,807.27	903.63	2,514.48	1,259.11	0.71	-0.14	0.034
50.00	-11.62	-0.80	0.00	-32.04	0.00	32.04	1,796.83	898.42	2,476.80	1,240.24	0.77	-0.14	0.032
52.66	-11.33	-0.79	0.00	-29.92	0.00	29.92	1,181.91	590.96	1,634.83	818.63	0.85	-0.15	0.046
55.00	-10.71	-0.77	0.00	-28.07	0.00	28.07	1,176.68	588.34	1,611.13	806.76	0.92	-0.15	0.044
60.00	-10.11	-0.75	0.00	-24.22	0.00	24.22	1,165.04	582.52	1,560.38	781.35	1.09	-0.17	0.040
65.00	-9.51	-0.72	0.00	-20.47	0.00	20.47	1,152.79	576.40	1,509.51	755.88	1.27	-0.18	0.035
70.00	-8.93	-0.70	0.00	-16.85	0.00	16.85	1,139.92	569.96	1,458.59	730.38	1.46	-0.19	0.031
75.00	-8.35	-0.66	0.00	-13.37	0.00	13.37	1,126.44	563.22	1,407.67	704.88	1.67	-0.20	0.026
80.00	-7.89	-0.64	0.00	-10.05	0.00	10.05	1,112.33	556.17	1,356.80	679.41	1.88	-0.21	0.022
84.00	-7.57	-0.62	0.00	-7.51	0.00	7.51	1,100.61	550.30	1,316.18	659.07	2.05	-0.21	0.018
84.00	-7.57	-0.62	0.00	-7.51	0.00	7.51	1,272.34	636.17	159.04	135.00	2.05	-0.21	0.062
85.00	-5.92	-0.51	0.00	-6.89	0.00	6.89	1,272.34	636.17	159.04	135.00	2.10	-0.21	0.056
90.00	-3.85	-0.36	0.00	-4.35	0.00	4.35	1,272.34	636.17	159.04	135.00	2.39	-0.34	0.035
94.00	-3.65	-0.34	0.00	-2.92	0.00	2.92	1,272.34	636.17	159.04	135.00	2.70	-0.40	0.024
94.00	-3.65	-0.34	0.00	-2.92	0.00	2.92	715.69	357.85	67.10	56.95	2.70	-0.40	0.056
95.00	-2.66	-0.26	0.00	-2.57	0.00	2.57	715.69	357.85	67.10	56.95	2.79	-0.42	0.049
100.00	-1.52	-0.16	0.00	-1.25	0.00	1.25	715.69	357.85	67.10	56.95	3.30	-0.55	0.024
104.00	-1.41	-0.15	0.00	-0.61	0.00	0.61	715.69	357.85	67.10	56.95	3.79	-0.60	0.013
104.00	-1.41	-0.15	0.00	-0.61	0.00	0.61	255.19	127.60	34.57	26.17	3.79	-0.60	0.029
105.00	-0.85	-0.09	0.00	-0.46	0.00	0.46	255.19	127.60	34.57	26.17	3.92	-0.61	0.021
110.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	4.57	-0.63	0.000
114.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	5.10	-0.63	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Load Case (0.9 - 0.2Sds) * DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-13.34	-0.87	0.00	-74.24	0.00	74.24	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.051
5.00	-12.76	-0.87	0.00	-69.90	0.00	69.90	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.02	0.049
10.00	-12.18	-0.87	0.00	-65.55	0.00	65.55	1,971.76	985.88	3,189.37	1,597.06	0.03	-0.03	0.047
15.00	-11.61	-0.87	0.00	-61.19	0.00	61.19	1,952.06	976.03	3,099.16	1,551.88	0.07	-0.04	0.045
20.00	-11.05	-0.87	0.00	-56.84	0.00	56.84	1,931.73	965.87	3,009.16	1,506.81	0.13	-0.06	0.043
25.00	-10.50	-0.86	0.00	-52.50	0.00	52.50	1,910.79	955.40	2,919.43	1,461.88	0.20	-0.07	0.041
30.00	-9.95	-0.85	0.00	-48.20	0.00	48.20	1,889.23	944.62	2,830.03	1,417.12	0.28	-0.09	0.039
35.00	-9.42	-0.84	0.00	-43.93	0.00	43.93	1,867.06	933.53	2,741.01	1,372.54	0.38	-0.10	0.037
40.00	-8.89	-0.83	0.00	-39.72	0.00	39.72	1,844.27	922.13	2,652.43	1,328.19	0.49	-0.11	0.035
45.00	-8.60	-0.82	0.00	-35.59	0.00	35.59	1,820.86	910.43	2,564.34	1,284.08	0.62	-0.13	0.032
47.84	-8.25	-0.81	0.00	-33.26	0.00	33.26	1,807.27	903.63	2,514.48	1,259.11	0.70	-0.13	0.031
50.00	-7.82	-0.79	0.00	-31.52	0.00	31.52	1,796.83	898.42	2,476.80	1,240.24	0.76	-0.14	0.030
52.66	-7.63	-0.78	0.00	-29.42	0.00	29.42	1,181.91	590.96	1,634.83	818.63	0.84	-0.14	0.042
55.00	-7.21	-0.76	0.00	-27.60	0.00	27.60	1,176.68	588.34	1,611.13	806.76	0.91	-0.15	0.040
60.00	-6.80	-0.74	0.00	-23.79	0.00	23.79	1,165.04	582.52	1,560.38	781.35	1.07	-0.16	0.036
65.00	-6.40	-0.71	0.00	-20.10	0.00	20.10	1,152.79	576.40	1,509.51	755.88	1.25	-0.18	0.032
70.00	-6.01	-0.69	0.00	-16.53	0.00	16.53	1,139.92	569.96	1,458.59	730.38	1.44	-0.19	0.028
75.00	-5.62	-0.65	0.00	-13.10	0.00	13.10	1,126.44	563.22	1,407.67	704.88	1.64	-0.20	0.024
80.00	-5.31	-0.63	0.00	-9.83	0.00	9.83	1,112.33	556.17	1,356.80	679.41	1.85	-0.20	0.019
84.00	-5.09	-0.61	0.00	-7.32	0.00	7.32	1,100.61	550.30	1,316.18	659.07	2.02	-0.21	0.016
84.00	-5.09	-0.61	0.00	-7.32	0.00	7.32	1,272.34	636.17	159.04	135.00	2.02	-0.21	0.058
85.00	-3.98	-0.50	0.00	-6.72	0.00	6.72	1,272.34	636.17	159.04	135.00	2.07	-0.21	0.053
90.00	-2.59	-0.35	0.00	-4.23	0.00	4.23	1,272.34	636.17	159.04	135.00	2.36	-0.33	0.033
94.00	-2.46	-0.34	0.00	-2.83	0.00	2.83	1,272.34	636.17	159.04	135.00	2.66	-0.39	0.023
94.00	-2.46	-0.34	0.00	-2.83	0.00	2.83	715.69	357.85	67.10	56.95	2.66	-0.39	0.053
95.00	-1.79	-0.26	0.00	-2.49	0.00	2.49	715.69	357.85	67.10	56.95	2.75	-0.41	0.046
100.00	-1.02	-0.16	0.00	-1.21	0.00	1.21	715.69	357.85	67.10	56.95	3.25	-0.54	0.023
104.00	-0.95	-0.15	0.00	-0.59	0.00	0.59	715.69	357.85	67.10	56.95	3.72	-0.59	0.012
104.00	-0.95	-0.15	0.00	-0.59	0.00	0.59	255.19	127.60	34.57	26.17	3.72	-0.59	0.026
105.00	-0.57	-0.09	0.00	-0.44	0.00	0.44	255.19	127.60	34.57	26.17	3.85	-0.60	0.019
110.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	4.48	-0.62	0.000
114.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	5.00	-0.62	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.26
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.59
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	1.87
Redundancy Factor (ρ):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM

Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
28	112.00	310	1.824	1.651	1.020	0.463	124	389
27	107.50	450	1.681	1.050	0.785	0.341	133	565
26	104.50	90	1.588	0.742	0.654	0.269	21	113
25	102.00	605	1.513	0.534	0.558	0.214	112	759
24	97.50	788	1.382	0.252	0.414	0.129	88	988
23	94.50	158	1.299	0.119	0.335	0.081	11	198
22	92.00	1,000	1.231	0.036	0.278	0.046	40	1,255
21	87.50	1,312	1.113	-0.062	0.195	-0.004	-5	1,647
20	84.50	262	1.038	-0.098	0.151	-0.029	-7	329
19	82.00	363	0.978	-0.115	0.121	-0.045	-14	455
18	77.50	460	0.873	-0.121	0.077	-0.061	-24	577
17	72.50	467	0.764	-0.104	0.044	-0.061	-25	586
16	67.50	474	0.663	-0.075	0.023	-0.044	-18	595
15	62.50	482	0.568	-0.041	0.011	-0.015	-6	605
14	57.50	489	0.481	-0.009	0.006	0.017	7	614
13	53.83	231	0.421	0.011	0.006	0.037	7	290
12	51.33	504	0.383	0.023	0.007	0.049	21	633
11	48.92	412	0.348	0.033	0.009	0.058	21	518
10	46.42	350	0.313	0.042	0.011	0.065	20	439
9	42.50	623	0.263	0.053	0.016	0.071	39	782
8	37.50	633	0.205	0.062	0.023	0.074	41	794
7	32.50	643	0.154	0.068	0.030	0.074	41	807
6	27.50	653	0.110	0.071	0.036	0.072	41	820
5	22.50	663	0.074	0.072	0.040	0.069	40	832
4	17.50	673	0.045	0.071	0.042	0.067	39	844
3	12.50	683	0.023	0.065	0.039	0.062	37	857
2	7.50	692	0.008	0.052	0.030	0.051	31	869
1	2.50	702	0.001	0.023	0.013	0.026	16	881
Flush Mount	110.00	250	1.760	1.362	0.909	0.407	88	314
QXW-636X6312XBF-EDIN	110.00	114	1.760	1.362	0.909	0.407	40	143
BXA-70063/6CF	100.00	51	1.454	0.395	0.490	0.174	8	64
Flush Mount	100.00	250	1.454	0.395	0.490	0.174	38	314
Flush Mount	90.00	250	1.178	-0.015	0.239	0.022	5	314
TMA2117F00V1-1	90.00	156	1.178	-0.015	0.239	0.022	3	196

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

NNH4-65B-R6	90.00	246	1.178	-0.015	0.239	0.022	5	309
GPS	30.00	1	0.131	0.069	0.033	0.073	0	1
		16,491	29.437	7.940	8.522	3.375	1,016	20,696

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
28	112.00	310	1.824	1.651	1.020	0.463	124	262
27	107.50	450	1.681	1.050	0.785	0.341	133	380
26	104.50	90	1.588	0.742	0.654	0.269	21	76
25	102.00	605	1.513	0.534	0.558	0.214	112	511
24	97.50	788	1.382	0.252	0.414	0.129	88	666
23	94.50	158	1.299	0.119	0.335	0.081	11	133
22	92.00	1,000	1.231	0.036	0.278	0.046	40	845
21	87.50	1,312	1.113	-0.062	0.195	-0.004	-5	1,109
20	84.50	262	1.038	-0.098	0.151	-0.029	-7	222
19	82.00	363	0.978	-0.115	0.121	-0.045	-14	306
18	77.50	460	0.873	-0.121	0.077	-0.061	-24	388
17	72.50	467	0.764	-0.104	0.044	-0.061	-25	395
16	67.50	474	0.663	-0.075	0.023	-0.044	-18	401
15	62.50	482	0.568	-0.041	0.011	-0.015	-6	407
14	57.50	489	0.481	-0.009	0.006	0.017	7	413
13	53.83	231	0.421	0.011	0.006	0.037	7	196
12	51.33	504	0.383	0.023	0.007	0.049	21	426
11	48.92	412	0.348	0.033	0.009	0.058	21	348
10	46.42	350	0.313	0.042	0.011	0.065	20	296
9	42.50	623	0.263	0.053	0.016	0.071	39	527
8	37.50	633	0.205	0.062	0.023	0.074	41	535
7	32.50	643	0.154	0.068	0.030	0.074	41	543
6	27.50	653	0.110	0.071	0.036	0.072	41	552
5	22.50	663	0.074	0.072	0.040	0.069	40	560
4	17.50	673	0.045	0.071	0.042	0.067	39	569
3	12.50	683	0.023	0.065	0.039	0.062	37	577
2	7.50	692	0.008	0.052	0.030	0.051	31	585
1	2.50	702	0.001	0.023	0.013	0.026	16	593
Flush Mount	110.00	250	1.760	1.362	0.909	0.407	88	211
QXW-636X6312XBF-EDIN	110.00	114	1.760	1.362	0.909	0.407	40	96
BXA-70063/6CF	100.00	51	1.454	0.395	0.490	0.174	8	43
Flush Mount	100.00	250	1.454	0.395	0.490	0.174	38	211
Flush Mount	90.00	250	1.178	-0.015	0.239	0.022	5	211
TMA2117F00V1-1	90.00	156	1.178	-0.015	0.239	0.022	3	132
NNH4-65B-R6	90.00	246	1.178	-0.015	0.239	0.022	5	208
GPS	30.00	1	0.131	0.069	0.033	0.073	0	1
		16,491	29.437	7.940	8.522	3.375	1,016	13,935

Load Case (1.2 + 0.2Sds) * DL + E EMAM

Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.81	-1.00	0.00	-80.49	0.00	80.49	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.058
5.00	-18.95	-0.98	0.00	-75.47	0.00	75.47	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.02	0.055
10.00	-18.09	-0.95	0.00	-70.59	0.00	70.59	1,971.76	985.88	3,189.37	1,597.06	0.03	-0.03	0.053
15.00	-17.24	-0.91	0.00	-65.86	0.00	65.86	1,952.06	976.03	3,099.16	1,551.88	0.08	-0.05	0.051
20.00	-16.41	-0.87	0.00	-61.31	0.00	61.31	1,931.73	965.87	3,009.16	1,506.81	0.14	-0.06	0.049
25.00	-15.59	-0.84	0.00	-56.94	0.00	56.94	1,910.79	955.40	2,919.43	1,461.88	0.21	-0.08	0.047
30.00	-14.78	-0.80	0.00	-52.75	0.00	52.75	1,889.23	944.62	2,830.03	1,417.12	0.30	-0.09	0.045
35.00	-13.99	-0.76	0.00	-48.76	0.00	48.76	1,867.06	933.53	2,741.01	1,372.54	0.41	-0.11	0.043
40.00	-13.21	-0.72	0.00	-44.97	0.00	44.97	1,844.27	922.13	2,652.43	1,328.19	0.53	-0.12	0.041
45.00	-12.77	-0.70	0.00	-41.35	0.00	41.35	1,820.86	910.43	2,564.34	1,284.08	0.67	-0.14	0.039
47.84	-12.25	-0.68	0.00	-39.35	0.00	39.35	1,807.27	903.63	2,514.48	1,259.11	0.76	-0.15	0.038
50.00	-11.62	-0.66	0.00	-37.87	0.00	37.87	1,796.83	898.42	2,476.80	1,240.24	0.82	-0.15	0.037
52.66	-11.33	-0.66	0.00	-36.11	0.00	36.11	1,181.91	590.96	1,634.83	818.63	0.91	-0.16	0.054
55.00	-10.71	-0.65	0.00	-34.57	0.00	34.57	1,176.68	588.34	1,611.13	806.76	0.99	-0.17	0.052
60.00	-10.11	-0.66	0.00	-31.33	0.00	31.33	1,165.04	582.52	1,560.38	781.35	1.18	-0.18	0.049
65.00	-9.51	-0.68	0.00	-28.04	0.00	28.04	1,152.79	576.40	1,509.51	755.88	1.38	-0.20	0.045
70.00	-8.93	-0.70	0.00	-24.67	0.00	24.67	1,139.92	569.96	1,458.59	730.38	1.59	-0.22	0.042
75.00	-8.35	-0.72	0.00	-21.16	0.00	21.16	1,126.44	563.22	1,407.67	704.88	1.83	-0.23	0.037
80.00	-7.89	-0.74	0.00	-17.54	0.00	17.54	1,112.33	556.17	1,356.80	679.41	2.08	-0.24	0.033
84.00	-7.56	-0.74	0.00	-14.59	0.00	14.59	1,100.61	550.30	1,316.18	659.07	2.28	-0.25	0.029
84.00	-7.56	-0.74	0.00	-14.59	0.00	14.59	1,272.34	636.17	159.04	135.00	2.28	-0.25	0.114
85.00	-5.92	-0.76	0.00	-13.85	0.00	13.85	1,272.34	636.17	159.04	135.00	2.34	-0.25	0.107
90.00	-3.84	-0.70	0.00	-10.07	0.00	10.07	1,272.34	636.17	159.04	135.00	2.75	-0.52	0.078
94.00	-3.64	-0.70	0.00	-7.25	0.00	7.25	1,272.34	636.17	159.04	135.00	3.26	-0.68	0.057
94.00	-3.64	-0.70	0.00	-7.25	0.00	7.25	715.69	357.85	67.10	56.95	3.26	-0.68	0.132
95.00	-2.65	-0.61	0.00	-6.55	0.00	6.55	715.69	357.85	67.10	56.95	3.40	-0.71	0.119
100.00	-1.52	-0.44	0.00	-3.52	0.00	3.52	715.69	357.85	67.10	56.95	4.35	-1.06	0.064
104.00	-1.40	-0.42	0.00	-1.77	0.00	1.77	715.69	357.85	67.10	56.95	5.31	-1.21	0.033
104.00	-1.40	-0.42	0.00	-1.77	0.00	1.77	255.19	127.60	34.57	26.17	5.31	-1.21	0.073
105.00	-0.84	-0.27	0.00	-1.36	0.00	1.36	255.19	127.60	34.57	26.17	5.56	-1.24	0.055
110.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	6.90	-1.30	0.000
114.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	7.99	-1.30	0.000

Site Number: 27741

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

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Customer: KGI

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-13.34	-1.00	0.00	-79.46	0.00	79.46	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.054
5.00	-12.76	-0.97	0.00	-74.45	0.00	74.45	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.02	0.052
10.00	-12.18	-0.94	0.00	-69.57	0.00	69.57	1,971.76	985.88	3,189.37	1,597.06	0.03	-0.03	0.050
15.00	-11.61	-0.90	0.00	-64.87	0.00	64.87	1,952.06	976.03	3,099.16	1,551.88	0.08	-0.05	0.048
20.00	-11.05	-0.87	0.00	-60.35	0.00	60.35	1,931.73	965.87	3,009.16	1,506.81	0.13	-0.06	0.046
25.00	-10.50	-0.83	0.00	-56.01	0.00	56.01	1,910.79	955.40	2,919.43	1,461.88	0.21	-0.08	0.044
30.00	-9.95	-0.79	0.00	-51.86	0.00	51.86	1,889.23	944.62	2,830.03	1,417.12	0.30	-0.09	0.042
35.00	-9.42	-0.75	0.00	-47.92	0.00	47.92	1,867.06	933.53	2,741.01	1,372.54	0.40	-0.11	0.040
40.00	-8.89	-0.71	0.00	-44.17	0.00	44.17	1,844.27	922.13	2,652.43	1,328.19	0.53	-0.12	0.038
45.00	-8.60	-0.69	0.00	-40.60	0.00	40.60	1,820.86	910.43	2,564.34	1,284.08	0.66	-0.14	0.036
47.84	-8.25	-0.67	0.00	-38.63	0.00	38.63	1,807.27	903.63	2,514.48	1,259.11	0.75	-0.14	0.035
50.00	-7.82	-0.65	0.00	-37.18	0.00	37.18	1,796.83	898.42	2,476.80	1,240.24	0.81	-0.15	0.034
52.66	-7.63	-0.65	0.00	-35.44	0.00	35.44	1,181.91	590.96	1,634.83	818.63	0.90	-0.16	0.050
55.00	-7.21	-0.64	0.00	-33.93	0.00	33.93	1,176.68	588.34	1,611.13	806.76	0.98	-0.16	0.048
60.00	-6.81	-0.65	0.00	-30.74	0.00	30.74	1,165.04	582.52	1,560.38	781.35	1.16	-0.18	0.045
65.00	-6.40	-0.66	0.00	-27.52	0.00	27.52	1,152.79	576.40	1,509.51	755.88	1.36	-0.20	0.042
70.00	-6.01	-0.69	0.00	-24.20	0.00	24.20	1,139.92	569.96	1,458.59	730.38	1.57	-0.21	0.038
75.00	-5.62	-0.71	0.00	-20.75	0.00	20.75	1,126.44	563.22	1,407.67	704.88	1.80	-0.23	0.034
80.00	-5.31	-0.73	0.00	-17.19	0.00	17.19	1,112.33	556.17	1,356.80	679.41	2.04	-0.24	0.030
84.00	-5.09	-0.73	0.00	-14.29	0.00	14.29	1,100.61	550.30	1,316.18	659.07	2.25	-0.25	0.026
84.00	-5.09	-0.73	0.00	-14.29	0.00	14.29	1,272.34	636.17	159.04	135.00	2.25	-0.25	0.110
85.00	-3.98	-0.74	0.00	-13.55	0.00	13.55	1,272.34	636.17	159.04	135.00	2.30	-0.25	0.104
90.00	-2.58	-0.69	0.00	-9.84	0.00	9.84	1,272.34	636.17	159.04	135.00	2.71	-0.51	0.075
94.00	-2.45	-0.68	0.00	-7.08	0.00	7.08	1,272.34	636.17	159.04	135.00	3.20	-0.66	0.054
94.00	-2.45	-0.68	0.00	-7.08	0.00	7.08	715.69	357.85	67.10	56.95	3.20	-0.66	0.128
95.00	-1.78	-0.59	0.00	-6.40	0.00	6.40	715.69	357.85	67.10	56.95	3.34	-0.69	0.115
100.00	-1.02	-0.43	0.00	-3.44	0.00	3.44	715.69	357.85	67.10	56.95	4.27	-1.04	0.062
104.00	-0.94	-0.41	0.00	-1.73	0.00	1.73	715.69	357.85	67.10	56.95	5.21	-1.19	0.032
104.00	-0.94	-0.41	0.00	-1.73	0.00	1.73	255.19	127.60	34.57	26.17	5.21	-1.19	0.070
105.00	-0.56	-0.27	0.00	-1.33	0.00	1.33	255.19	127.60	34.57	26.17	5.46	-1.21	0.053
110.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	6.77	-1.27	0.000
114.00	0.00	0.00	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	7.83	-1.27	0.000

Site Number: 27741

Code: ANSI/TIA-222-G

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Site Name: Round Hill CT, Greenwich, CT

Engineering Number: REV02

7/25/2019 7:53:09 AM

Customer: KGI

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	6.08	0.00	19.78	0.00	0.00	378.64	94.00	0.28
0.9D + 1.6W	6.07	0.00	14.84	0.00	0.00	375.40	94.00	0.27
1.2D + 1.0Di + 1.0Wi	2.62	0.00	33.28	0.00	0.00	180.47	94.00	0.18
(1.2 + 0.2Sds) * DL + E ELFM	0.87	0.00	19.81	0.00	0.00	75.08	84.00	0.06
(1.2 + 0.2Sds) * DL + E EMAM	1.00	0.00	19.81	0.00	0.00	80.49	94.00	0.13
(0.9 - 0.2Sds) * DL + E ELFM	0.87	0.00	13.34	0.00	0.00	74.24	84.00	0.06
(0.9 - 0.2Sds) * DL + E EMAM	1.00	0.00	13.34	0.00	0.00	79.46	94.00	0.13
1.0D + 1.0W	1.69	0.00	16.49	0.00	0.00	104.56	94.00	0.08

Site Number: **27741**
 Site Name: **Round Hill CT**
 Job Number: **REV02**
 Engineer: **JHH**
 Date: **7/25/2019**

Base Plate and Bolt Analysis

Moment: **427.0 k-ft**
 Shear/Leg: **7.2 k**
 Compression/Leg: **17.4 k**

TIA-222 Code Revision (F/G): **G**
 Anchor Bolt Arrangement: **Corners**
 Monopole Shaft Diameter (Across Flats): **41.0 in**
 Lower Monopole Thickness: **0.250 in**
 # of Sides of Pole: **18**
 Monopole Shaft Yield Strength: **65 ksi**
 Baseplate Diameter / Length: **47.50**
 Base Plate Thickness: **2.00 in**
 Base Plate Yield Strength: **60 ksi**
 Baseplate Detail Type: **D**
 Include Plate Thickness Beyond Bolt Circle: **Y**
 Stress Increase: **1.00**
 Fillet Weld Size: **0.375 in**
 Weld Type (CJP or F/F): **CJP**
 Weld Strength: **70 ksi**

Anchor Bolts

Anchor Bolt Yield Strength: **75 ksi**
 Anchor Bolt Ultimate Strength: **100 ksi**
 Anchor Bolt Diameter: **2.25 in**
 Anchor Bolt Circle: **49.00 in**
 # of Anchor Bolts: **4**
 Minimum Anchor Bolt Separation: **6.00 in**
 Additional Anchor Bolts Installed: **N**

Failure Mode:	Effective Width (in)	Baseplate Flexural Capacity				Baseplate Shear Capacity			
		Moment (k-in)	S/Z (in ³)	Capacity (k-in)	Usage	Shear (k)	Area (in ²)	Capacity (k)	Usage
AA	29.84	400.9	29.8	1611.4	0.25	108.8	59.7	1933.7	0.06
AB	29.84	394.8	29.8	1611.4	0.25	108.8	59.7	1933.7	0.06
BA	30.83	435.3	30.8	1665.0	0.26	108.8	61.7	1998.0	0.05
BB	30.83	435.3	30.8	1665.0	0.26	108.8	61.7	1998.0	0.05

Anchor Bolt Capacity

Area of Bolt: **3.25 in²**
 Inertia of Bolt: **0.84 in⁴**
 Total Bolt Inertia: **3902.2 in⁴**
 Maximum Bolt Tension: **100.1 k**
 Maximum Bolt Compression: **108.8 k**
 Bolt Shear: **1.8 k**
 Tensile Bolt Capacity: **259.8 k**
 Compressive Bolt Capacity: **259.8 k**
 Shear Bolt Capacity: **140.3 k**
 Interaction Equation: **0.44 Result: OK**

Base Weld Capacity

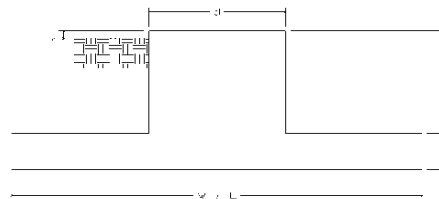
Force / Weld: **3.1 k/in**
 Weld Capacity: **23.8 k/in**
 Interaction Equation: **0.13 Result: OK**

SES Base Plate Design Moment: **435.3 k-in**
 Design Stress: **13.5 ksi**
 SES Base Plate Allowable Stress / Moment Capacity: **1738.9 ksi / k-in**
 Usage: **0.25**

Moment Factor: **1.00**
 Length Factor: **0.96**

Site Name: Round Hill CT
 Site Number: 27741
 Engineering Number: REV02
 Engineer: JHH
 Date: 07/25/19
 Tower Type: MP

Program Last Updated: 5/13/2014



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:

	Analysis
Compression/Leg:	0.0 k
Uplift/Leg:	0.0 k
Total Shear:	6.1 k
Moment:	378.6 k-ft
Tower + Appurtenance Weight:	19.8 k
Depth to Base of Foundation (l + t - h):	5.00 ft
Diameter of Pier (d):	6.00 ft
Height of Pier above Ground (h):	1.00
Width of Pad (W):	15.00 ft
Length of Pad (L):	15.00 ft
Thickness of Pad (t):	3.00 ft
Tower Leg Center to Center:	0.00 ft
Number of Tower Legs:	1.0 (1 if MP or GT)
Tower Center from Mat Center:	0.00 ft
Depth Below Ground Surface to Water Table:	99.00 ft
Unit Weight of Concrete:	150.0 pcf
Unit Weight of Soil Above Water Table:	100.0 pcf
Unit Weight of Water:	62.4 pcf
Unit Weight of Soil Below Water Table:	50.0 pcf
Friction Angle of Uplift:	0.0 Degrees
Ultimate Coefficient of Shear Friction:	0.35
Ultimate Compressive Bearing Pressure:	12000.0 psf
Ultimate Passive Pressure on Pad Face:	0.0 psf
$\phi_{\text{Soil and Concrete Weight}}$:	0.9
ϕ_{Soil} :	0.75

Concrete Strength (f'_c):	4000 psi
Pad Tension Steel Depth:	32.00 in
ϕ_{Shear} :	0.75
$\phi_{\text{Flexure / Tension}}$:	0.90
$\phi_{\text{Compression}}$:	0.65
β :	0.85
Bottom Pad Rebar Size #:	8
# of Bottom Pad Rebar:	16
Pad Bottom Steel Area:	12.64 in ²
Pad Steel F_y :	60000 psi
Top Pad Rebar Size #:	8
# of Top Pad Rebar:	16
Pad Top Steel Area:	12.64 in ²
Pier Rebar Size #:	8
Pier Steel Area (Single Bar):	0.79 in ²
# of Pier Rebar:	22
Pier Steel F_y :	60000 psi
Pier Cage Diameter:	64.0 in
Rebar Strain Limit:	0.008
Steel Elastic Modulus:	29000 ksi
Tie Rebar Size #:	4
Tie Steel Area (Single Bar):	0.20 in ²
Tie Spacing:	6 in
Tie Steel F_y :	60000 psi

Overturning Moment Usage

Design OTM:	415.1 k-ft
OTM Resistance:	1146.2 k-ft
Design OTM / OTM Resistance:	0.36 Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	1422 psf
Factored Nominal Bearing Pressure:	9000 psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.16 Result: OK
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge

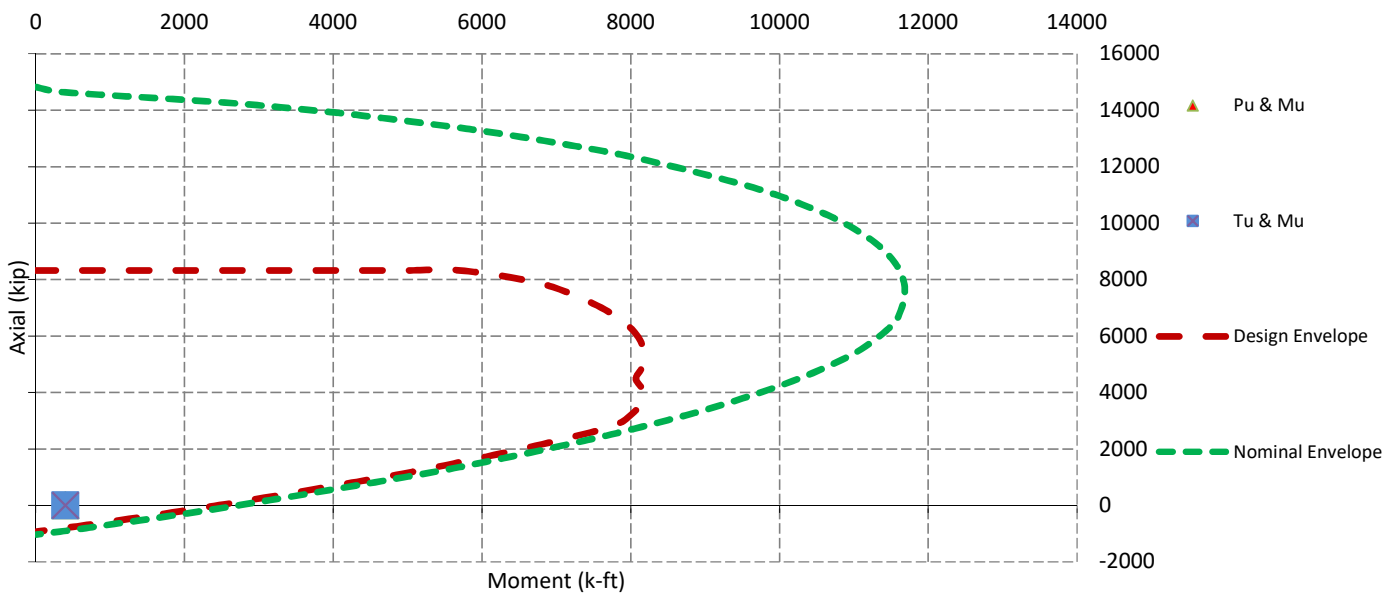
Sliding Factor of Safety

Total Factored Sliding Resistance:	44.6 k
Sliding Design / Sliding Resistance:	0.14 Result: OK

One Way Shear, Flexural Capacity, and Punching Shear

Factored One Way Shear (V_u):	26.9 k
One Way Shear Capacity (ϕV_c):	359.9 k - ACI11.3.1.1
$V_u / \phi V_c$:	0.07 Result: OK
Load Direction Controlling Shear Capacity:	Diagonal to Pad Edge
Lower Steel Pad Factored Moment (M_u):	154.3 k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	1736.8 k-ft - ACI10.3
$M_u / \phi M_n$:	0.09 Result: OK
Load Direction Controlling Flexural Capacity:	Diagonal to Pad Edge
Upper Steel Pad Factored Moment (M_u):	62.6 k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	1790.2 k-ft
$M_u / \phi M_n$:	0.03 Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0022 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0022 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	11 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	11 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0 k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1983.7 k - ACI11.12.2.1
$V_u / \phi V_c$:	0.00 Result: OK
Factored Moment in Pier (M_u):	396.9 k-ft
Pier Moment Capacity (ϕM_n):	2451.3 k-ft
$M_u / \phi M_n$:	0.16 Result: OK
Factored Shear in Pier (V_u):	6.1 k
Pier Shear Capacity (ϕV_n):	386.3 k
$V_u / \phi V_c$:	0.02 Result: OK
Pier Shear Reinforcement Ratio:	0.0005 No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0 k
Pier Tension Capacity (ϕT_n):	938.5 k
$T_u / \phi T_n$:	0.00 Result: OK
Factored Compression in Pier (P_u):	0.0 k
Pier Compression Capacity (ϕP_n):	7167.7 k - ACI10.3.6.2
$P_u / \phi P_n$:	0.00 Result: OK
Pier Compression Reinforcement Ratio:	0.006 OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	0.16 Result: OK

Nominal and Design Moment Capacity and Factored Design Loads

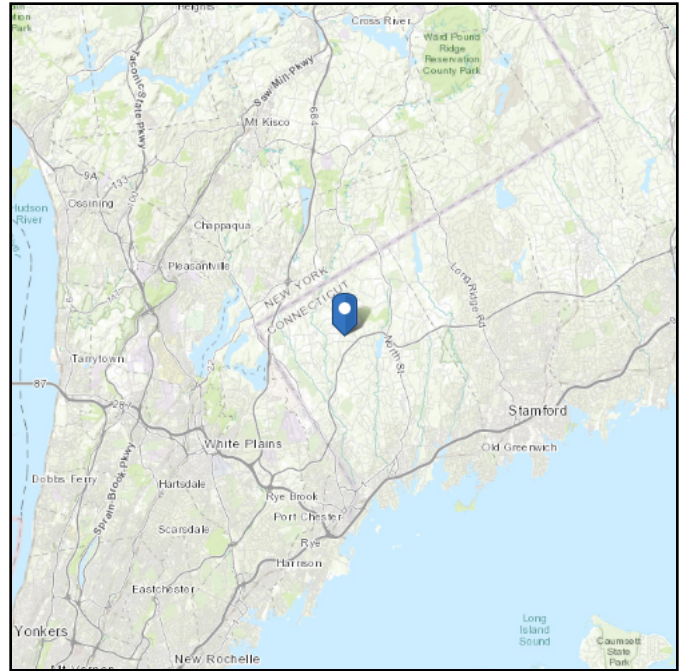


ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 378.96 ft (NAVD 88)
Latitude: 41.095117
Longitude: -73.664219



Wind

Results:

Wind Speed:	116 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Mon Jul 22 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

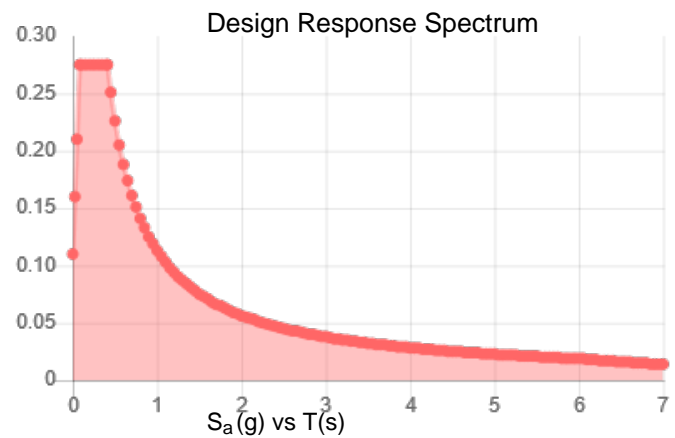
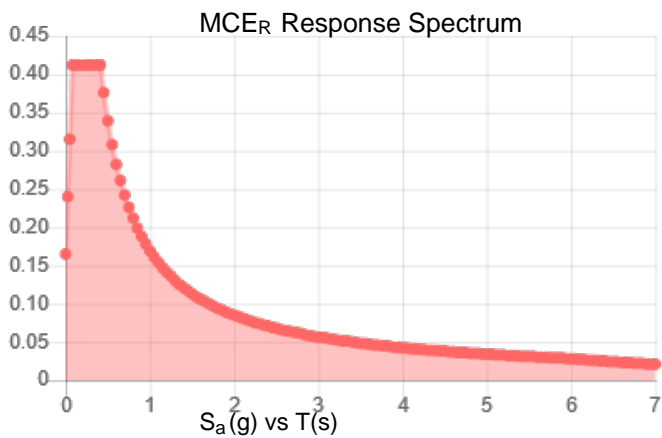
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.259	S_{DS} :	0.275
S_1 :	0.071	S_{D1} :	0.113
F_a :	1.593	T_L :	6
F_v :	2.4	PGA :	0.152
S_{MS} :	0.412	PGA _M :	0.228
S_{M1} :	0.169	F _{PGA} :	1.495
		I_e :	1

Seismic Design Category B



Data Accessed:

Mon Jul 22 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Mon Jul 22 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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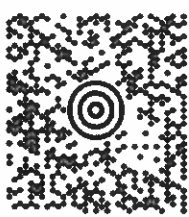
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CENTERLINE COMMUNICATIONS, LLC
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WEST BRIDGEWATER MA 02379

0.2 LBS LTR

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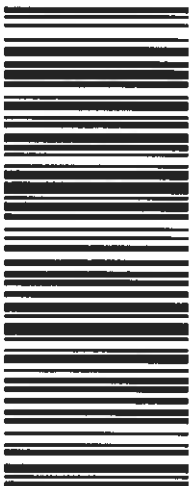


CT 069 9-01

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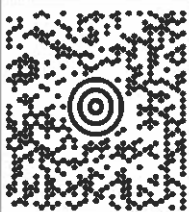
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3. GETTING YOUR SHIPMENT TO UPS
Customers with a Daily Pickup
Your driver will pickup your shipment(s) as usual.
Customers without a Daily Pickup
Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
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UPS CampusShip: View/Print Label

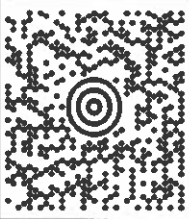
PATRICIA HOWAK
508 265 5599
CHATTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

0.2 LBS LTR

1 OF 1

SHIP TO:

WILLIAM MARR
TOWN OF GREENWICH
BUILDING OFFICIAL
2ND FLOOR
101 FIELD POINT ROAD
GREENWICH CT 06830-6463

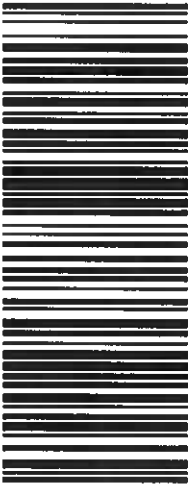


CT 069 9-01

UPS NEXT DAY AIR

TRACKING #: 1Z 9Y4 503 01 3727 4822

1



BILLING: P/P

Reference # 1: CT2303 Building

CS 21 5 37

WNTNVS0 15 CA 07/2019



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WEST BRIDGEWATER, MA 02379

UPS Access Point™
M&M SEAFOOD
1124 MAIN ST
BROCKTON, MA 02301

UPS Access Point™
BOOST MOBILE 649
649 WARREN AVE
BROCKTON, MA 02301

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UPS CampuShip: View/Print Label

UPS Campusship: View/Print Label

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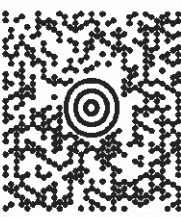
PATRICIA NOWAK 508 265 5599 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER MA 02379	0.2 LBS LTR	1 OF 1
SHIP TO: JOSEPH MCCARTY CELCO PARTNERSHIP-VERIZON WIRELESS MANAGER - NETWORK ENGINEERING ONE VERIZON WAY BASKING RIDGE NJ 07920-1025		
	NJ 078 9-71	
UPS NEXT DAY AIR 1		
TRACKING #: 1Z 9Y4 503 01 2391 0651		
		
BILLING: P/P		
Reference # 1: CT2303 - VZW		
CS 21 5 37 WNTNVS9 15 CA 07/2019		
		

PATRICIA HOWAK
508-265-5599
CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

0.2 LBS LTR 1 OF 1

SHIP TO:

ALLEE RYAN
VERIZON WIRELESS C/O KGI WIRELESS
BUILDING 3, SUITE 370
805 LAS CIMAS PARKWAY
AUSTIN TX 78746-5493



TX 787 9-75



UPS NEXT DAY AIR 1

TRACKING #: 1Z 9Y4 503 01 2777 5265



BILLING: P/P

Reference # 1: CT2303 - VZW KGI

CS 21 5 37

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WEST BRIDGEWATER, MA 02379

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649 WARREN AVE
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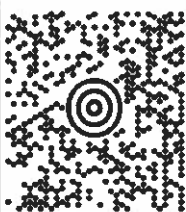
PATRICIA HOWAK
508.265.5599
CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER, MA 02379

2.0 LBS 1TR

1 OF 1

SHIP TO:

ROUND HILL COMMUNITY CHURCH
395 ROUND HILL ROAD
GREENWICH CT 06831-2617

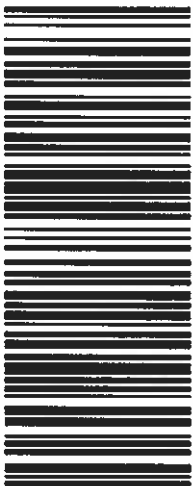


CT 069 9-01

UPS NEXT DAY AIR

TRACKING #: 1Z 9Y4 503 01 2313 9049

1



BILLING: P/P

Reference # 1: CT2303 - Prop Owner

CS 21.5.37

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BROCKTON, MA 02301

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