#### CONNECTICUT SITING COUNCIL

SUB-PETITION AND PETITION AMENDMENT	)	
OF NEW CINGULAR WIRELESS PCS, LLC	)	
("AT&T") TO THE CONNECTICUT SITING	)	
COUNCIL FOR MODIFICATION AND	)	SUB-PETITION NO.
EXTENSION OF AN EXISTING WIRELESS		
TELECOMMUNICATIONS FACILITY AT	)	FEBRUARY 16, 2021
174 SOUTH GRAND STREET IN	)	
WEST SUFFIELD (TOWN OF SUFFIELD),	)	
CONNECTICUT		

#### SUB-PETITION AND PETITION AMENDMENT FOR DECLARATORY RULING TO APPROVE AN ELIGIBLE FACILITIES REQUEST FOR MODIFICATION AND EXTENSION OF AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY WITHOUT SUBSTANTIAL PHYSICAL CHANGE TO THE EXISTING TOWER AT <u>174 SOUTH GRAND STREET, WEST SUFFIELD (TOWN OF SUFFIELD), CONNECTICUT</u>

#### I. <u>Introduction</u>

On behalf of New Cingular Wireless PCS, LLC ("AT&T"), we respectfully submit this letter and enclosures seeking administrative approval of an amendment to Petition No. 1097 for a collocation with an extension of an existing facility, which qualifies as an eligible facility request pursuant to Section 6409 of the Federal Middle-Class Tax Relief and Job Creation Act of 2012 ("Section 6409"). AT&T hereby petitions the Connecticut Siting Council ("Council") to amend Petition No. 1097 to modify the existing 119' tall monopole (the "Facility") owned by American Tower Corp. at 174 South Grand Street, West Suffield (Town of Suffield), Connecticut (the "Premises"). The underlying property is owned by Robert G. and Darian P. Paganelli. AT&T's amendment consists of extending the existing 119' tall tower by 20' to 139' and collocating a wireless facility consisting of antennas and other equipment at a centerline height of approximately 135' on the proposed extension as well as associated unmanned equipment within the existing equipment compound at the base of the existing monopole. None of this work represents a substantial change to the existing Facility.

#### II. <u>Existing Facility and Site Background</u>

The existing Facility was approved in Docket No. 403 and consists of a 119' tall monopole with a fenced equipment compound at grade. Verizon maintains a wireless facility on the existing tower with antennas located at a centerline height of approximately 119' above grade level ("AGL") and an equipment shelter within the fenced equipment compound at grade. A chain link fence surrounds the Facility. As noted in the Docket No. 403 Findings of Fact, the Facility was designed to accommodate a 20' height extension. The Premises is an approximately 17.6 acre residential parcel owned by Robert G. and Darian P. Paganelli and is improved with a single family home. The Facility is located in the northeastern portion of the Premises.

In March of 2014, AT&T submitted a Petition to the Council requesting approval for an initial 10' height extension of the existing Facility for collocation of its wireless facility. See

Petition No. 1097. AT&T subsequently modified its 2014 request and sought a 15' height extension. AT&T's amended Petition was approved by the Council on May 15, 2014. AT&T did not install its facility that was approved in Petition No. 1097. A copy of the Council's Decision Letter and May 1, 2014 and May 15, 2014 Staff Reports are included in Attachment 1.

#### III. <u>Proposed Modification</u>

AT&T plans to extend the height of the existing monopole by 20' bringing the Facility's total height to 139'. AT&T proposes to install six (6) panel antennas; twelve (12) remote radio head units ("RRH") and two (2) surge arrestors on a frame mount on the extension at a centerline height approximately 135' AGL. Within the existing fenced equipment compound, AT&T will install a 6'8" x 6'8" walk in equipment cabinet on a concrete pad as well as a 20kW diesel emergency back-up generator. Site drawings detailing AT&T's proposed modification are included in Attachment 3. A Structural Modification Report confirming that the tower can accommodate AT&T's proposed modification is included in Attachment 4. A Mount Analysis Report confirming the proposed mounts are adequate to support the final loading is included in Attachment 5.<sup>1</sup> Specifications of the proposed emergency back-up generator are enclosed in Attachment 6.

IV. <u>The Modification and Amendment to Petition No. 1097 Does Not Represent a Substantial</u> <u>Change to the Physical Dimensions of the Existing Tower and is an Eligible Facility</u> <u>Request</u>

Section 6409 requires that within 60 days of submission, a state or local agency must approve an "eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station."<sup>2</sup> Section 6409 and the FCC Declaratory Ruling clarifying its rules provide that a modification does not constitute a "substantial change" of the physical dimensions of a tower if it meets the following criteria:<sup>3</sup>

- A. <u>Modification does not increase the height by more than the greater of 10% of the tower height or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed 20'.</u> AT&T is proposing to extend the 119' tower by 20' for a tower height of 139'. As set forth in the FCC Declaratory Ruling clarifying its rules implementing Section 6409, the height increase is measured from the top of the existing antenna to the bottom of the proposed antenna. In this case, the distance between the top of Verizon's existing antenna to the bottom of AT&T's proposed antenna is less than 20'. Thus, AT&T's proposed extension does not constitute more than one additional antenna array with separation from the nearest existing antenna of more than 20'.
- B. <u>Modification does not add an appurtenance to the body of the tower that would protrude</u> from the edge of the tower by the greater of 20' or the width of the tower at the level of the <u>appurtenance</u>, whichever is greater. In this instance, the greater of the two variables is 20'. AT&T's proposed antenna mounts will not extend more than 20' from the edge of the tower.

<sup>&</sup>lt;sup>1</sup> The calculations included in the Structural Modification and Mount Analysis Reports are being filed as a bulk filing given the volume of these calculations.

<sup>&</sup>lt;sup>2</sup> 47 USCA § 1455(a)(1).

<sup>&</sup>lt;sup>3</sup> 47 CFR § 1.6100(b)(7).

- C. <u>Modification does not involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets</u>. AT&T is proposing one equipment cabinet (walk-in-cabinet).
- D. <u>Modification does not require excavation or deployment outside the current site of the tower or base station</u>. AT&T's proposed equipment cabinet will be placed within an equipment shelter that will be located within the existing fenced equipment compound at the base of the tower. No excavation is proposed or required for this modification.
- E. <u>The collocation does not defeat the existing concealment elements of the tower or base</u> <u>station</u>. The existing tower does not incorporate concealment elements.
- F. <u>The proposal complies with conditions associated with the prior approval of the tower or base station and any non-compliance is due to an increase in height, increase in width, addition of cabinets, or new excavation that does not exceed the corresponding "substantial change" thresholds. The tower will be raised above the height previously approved by the Council, but such extension is within the parameters allowed under Section 6409. Moreover, as noted above, the Facility was designed to accommodate a 20' height extension per the Docket No. 403 Findings of Fact. Thus, the modifications comply with all conditions of approval in Docket No. 403.</u>

In light of the foregoing, AT&T's proposed amendment to Petition No. 1097 constitutes an "eligible facilities request" under Section 6409 as it is a "collocation of new transmission equipment" at an existing facility which does not "substantially change" the physical dimensions of the existing facility.

#### V. <u>Compliance with FCC MPE Limits</u>

The Facility's maximum cumulative power density levels are not expected to exceed 15.32% of the Federal permitted emission standards for the general public. A copy of the Calculated Radio Frequency Emissions analysis completed by C Squared Systems and dated January 14, 2021 is included in Attachment 7. The analysis is cumulative and includes the existing wireless carriers' facility as well as AT&T's proposed modification. The analysis demonstrates that the total radio frequency power density will be well within standards adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and the Maximum Permissible Exposure ("MPE") limits established by the Federal Communications Commission for the public.

#### VI. <u>Notice</u>

Pursuant to Petition 1133, a notice letter and a copy of this Sub-Petition was provided to the Town of Suffield and the abutting property owners. Copies of this correspondence may be found in Attachment 8.

#### VII. Conclusion

It is respectfully submitted that AT&T's proposed amendment to Petition 1097 satisfies the criteria of Section 6409, while also enhancing wireless communication services to the community and enabling users to access a state-of-the-art, digital system for voice communications, messaging, and data transmission and reception.

Respectfully submitted,

Daniel Patrick Lucia Chiocchio On behalf of AT&T

cc: Town of Suffield Abutting Property Owners AT&T SAI Communications, Inc.

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STATE OF CONNECTICUT CONNECTICUT SITING COUNCIL

> Ten Franklin Square, New Britain, CT 06051 Phone: (860) 827-2935 Fax: (860) 827-2950 E-Mail: siting.council@ct.gov www.ct.gov/csc

#### CERTIFIED MAIL RETURN RECEIPT REQUESTED

May 16, 2014

Lucia Chiocchio, Esq. Cuddy & Feder LLP 445 Hamilton Avenue, 14th Floor White Plains, New York 10601

RE: **PETITION NO. 1097 -** New Cingular Wireless PCS, LLC petition for a declaratory ruling that an amended Certificate of Environmental Compatibility and Public Need is not required to co-locate on and extend an existing wireless telecommunications facility located at 174 South Grand Street, Suffield, Connecticut.

Dear Attorney Chiocchio:

At a public meeting held on May 15, 2014, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated March 17, 2014 and the supplemental submission dated May 2, 2014.

Enclosed for your information are copies of the staff reports on this project.

Very truly yours,

Steinler

Robert Stein Chairman

RS/CDM/jb

Enclosure: Staff Reports dated May 1 and May 15, 2014

c: The Honorable Edward G. McAnaney, First Selectman, Town of Suffield William Hawkins, AICP, Town Planner, Town of Suffield





### STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051 Phone: (860) 827-2935 Fax: (860) 827-2950 E-Mail: siting.council@ct.gov www.ct.gov/csc

> Petition No. 1097 AT&T Suffield, Connecticut Staff Report May 1, 2014

On March 20, 2014, the Connecticut Siting Council (Council) received a petition from New Cingular Wireless PCS, LLC (AT&T) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the extension of and collocation on an existing telecommunications tower located at 174 South Grand Street in Suffield, Connecticut. Council member Dan Lynch and staff members David Martin and Fred Cunliffe visited the site on April 23, 2014 to review the proposal. Lucia Chiocchio of Cuddy & Feder and Adam Braillard of SmartLink, represented AT&T at the field review.

The existing 120-foot tower was approved under Docket 403. The applicant was Verizon, which currently has antennas installed at the top of the existing tower. AT&T proposes to extend the tower by 10 feet to an overall height of 130 feet and to install 12 antennas on a low profile platform at a centerline height of 129 feet. A professional engineer has certified that the tower is structurally capable of supporting the proposed extension. For its ground equipment, AT&T would install a 11.5-foot by 16-foot pre-fabricated shelter. It would also install a 50 kW diesel generator capable of running 48 hours before needing to be refueled. AT&T representatives indicated that a noise study concluded that AT&T's installation would not create noise levels exceeding regulatory limits.

The area surrounding the existing facility is characterized by low density residential properties and agricultural uses. The existing facility is closely surrounded by well established, dense vegetation that forms an effective visual screen for the nearest residential neighbors. At a height of 120 feet, the existing tower is barely visible over the mature, deciduous trees that surround it. Its visibility is limited to a short stretch along South Grand Street, and its height relative to the surrounding trees makes the tower an easily overlooked landscape feature. Extending the height of the tower by ten feet should not increase its visual presence by any significant degree.

For this petition, AT&T notified the Town and abutting property owners. No comments have been received.

AT&T's proposed tower extension and antenna installation should not create any significantly adverse environmental impacts.







View of the existing tower from South Grand Street, 2000 feet south of the facility.





### STATE OF CONNECTICUT

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Ten Franklin Square, New Britain, CT 06051 Phone: (860) 827-2935 Fax: (860) 827-2950 E-Mail: siting.council@ct.gov www.ct.gov/csc

> Petition No. 1097- Revision AT&T Suffield, Connecticut Staff Report May 15, 2014

In this petition, AT&T originally indicated that it was seeking to extend an existing 120-foot monopole tower by ten feet in order to mount antennas at a centerline height of 129 feet above ground level. Subsequent to the Council's field review, conducted on April 23, 2014, AT&T notified the Council that it actually wanted to extend the tower by 15 feet to an overall height of 135 feet and install its antennas at a centerline height of 130 feet.

The Structural Analysis submitted with AT&T's petition was for a 15-foot extension and concluded that the tower could support such an extension. The power density, originally calculated by staff to be approximately 66.7% of the FCC limit, would not change substantially, and would actually decline slightly with the one foot increase in the centerline height of the antennas to approximately 66.1% of the MPE limit.

The five-foot increase in overall height to 135 feet should not significantly alter the tower's visual presence in the surrounding landscape.

AT&T's proposed tower extension and antenna installation should not create any significantly adverse environmental impacts.



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#### LETTER OF AUTHORIZATION

#### SITE NO / PROJECT NO: 416862 / OAA760209

SITE NAME: SUFFIELD SW CT CT

ADDRESS: 174 S Grand St, West Suffield, CT 06093

APN: 16H-24-51-A, 16H-2451-A-CEL

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, operator of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize SAI Group, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit SAI Group to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature:

Margaret Robinson, Senior Counsel US Tower Division

**NOTARY BLOCK** 

COMMONWEALTH OF MASSACHUSETTS COUNTY OF MIDDLESEX

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner and/or operator), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 18<sup>th</sup> day of December, 2020.

NOTARY SEAL



Notary Public <u>Muchand P Automa</u> My Commission Expires: December 19, 2025

\* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.

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		PROJECT INFORMATION					
SCOPE OF	WORK:	TELECOMMUNICATIONS FACILITY (NSB A EXISTING WITH PROPOSED 20' EXTENSION. PROPOSED WALK- WILL BE INSTALLED AT GRADE INSIDE A EXISTING H PROPOSED (3) TPA65R-BU8DA-K ANTENNAS, (3) (3) 4478 B14 RRH, (3) 4415 B30 RRH, (3) 444 B2/B66A RRH, (1) DC6-48-60-0-8F & (1) DC9 INSTALLED AT A HEIGHT OF 135'-0"):	–IN CABINET, AND GENERATOR FENCED–IN COMPOUND. DMP65R–BU8DA–K ANTENNAS, 9 B5/B12 RRH, (3) 8843	-			at&t
SITE ADDRE	ISS:	174 SOUTH GRAND STREET WEST SUFFIELD. CT 06093					
APPLICANT:		AT&T 550 COCHITUATE ROAD FRAMINGHAM, MA 01701					
SITE OWNER	र:	ATC SEQUOIA LLC C/O AMERICAN TOWER 10 PRESIDENTIAL WAY			SIT	ENUM	BER: CT2388
LATITUDE:		WOBURN, MA 01801 41.98703 N, 41° 59' 13.3" N			SITE NAME: SU	FFIELD	SOUTH GR
LONGITUDE:		72.70208 W, 72° 42' 07.5" W			F		E.10006004
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TYPE OF SI		MONOPOLE/ WALK-IN CABINET			ΡΑΟ	CE ID: N	<b>MRCTB04845</b>
HEIGHT:	MONOPOLE	119'-0"±					
EXTENSION RAD CENTER	HEIGHT:	139'-0"± 135'-0"±				PROJ	ECT: NSB
APPLICABLE	CODES:	ALL WORK SHALL CONFORM TO ALL CURRENT APP CODE, NATIONAL ELECTRIC CODE (NEC 2017), ANS WITH AT&T MOBILITY SPECIFICATIONS					
		DRAWING INDEX			VICINITY MAP		
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GN-1	GENERAL NO	AL NOTES		4 HARTFORD CT/SPRINGFIELD, TURN LEFT ONTO I-291 W, AT EXIT 1A-2A, 1B-2B, TAKE RAMP RIGHT FOR I-91 SOUTH TOWARD HARTFORD CT, AT EXIT 3 TAKE RAMP RIGHT FOR US-5 NORTH TOWARD AGAWAM, TAKE RAMP RIGHT TOWARD AGAWAM/SOUTHWICK, AT ROUNDABOUT TAKE 3RD EXIT ONTO			2. THE FACILITY IS AN UNMAN ACCESSED BY TRAINED TEC
C-1	SITE PLAN		4 MA-57W / HENRY BODURTHA HWY W TOWARD AGAWAM / SOUTHWICK / MA-57 WEST, TURN LEFT ONTO MA-187/S WESTFIELD ST, ROAD NAME CHANGES TO CT-187/N GRAND, ARRIVE AT CT-187/S			, TURN LEFT	NOT REQUIRE ANY WATER ( REGULATIONS REQUIRING P
A-1	COMPOUND	& EQUIPMENT PLANS	4				3. CONTRACTOR SHALL VERIFY AND SHALL IMMEDIATELY N
A-2	ANTENNA LA	YOUT & ELEVATIONS	4				BEFORE PROCEEDING WITH
A-3	DETAILS		4				4. CONSTRUCTION DRAWINGS A SIGNED SUBMITTAL DATE LI
A-4	DETAILS		4				
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NORTH ANDOVE		AX: (978) 336-5586 SALEM, NH 03079	HA	RTFORD COUNTY	FRAMINGHAM, MA 01701	SCALE: AS SHOWN	DESIGNED BY: JC DRAWN BY:

## 88 RAND STREET

## 151

#### GENERAL NOTES

E CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION MENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY WRY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

INMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY D TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES ITER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY NG PUBLIC ACCESS PER ADA REQUIREMENTS.

ERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE LY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES WITH THE WORK OR BE RESPONSIBLE FOR SAME.

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#### **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.
- APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- 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 - SAL

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
- 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 FOUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS. THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, 9. 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.

- 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:

STANDARDS

STRUCTURAL CONCRETE;

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

AGL AWG

BBU

SCALE: AS SHOWN

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.

			BTCW	BARE TINNED SOLID		
			BGR	BURIED GROUND RIN	IG	
			BTS	BASE TRANSCEIVER	STA	
			E	EXISTING		
			EGB	EQUIPMENT GROUND	B	
			EGR	EQUIPMENT GROUND	R	
4	01/27/21	ISSUE	ED FOR	CONSTRUCTION	AR	
3	01/12/21 ISSUED FOR REVIEW					
2	12/14/20 ISSUED FOR REVIEW					
1	12/07/20	ISSUED FOR REVIEW				
0	10/14/20	ISSUE	ED FOR	REVIEW	ES	
NO.	DATE			REVISIONS	BY	

DESIGNED BY: JC DRAWN

HUDSON ⋗∖⊂ **Design Group LLC** 45 BEECHWOOD DRIVE TEL: (978) 557-5553 ORTH ANDOVER. MA 01845 FAX: (978) 336-558



SITE NUM SITE NAME: SUFFIELD

> 174 SOUTH GRAND STREET WEST SUFFIELD, CT 06093 HARTFORD COUNTY



BER: CT2388 ) SOUTH GRAND STREET	
CRAND STREET	

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

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.

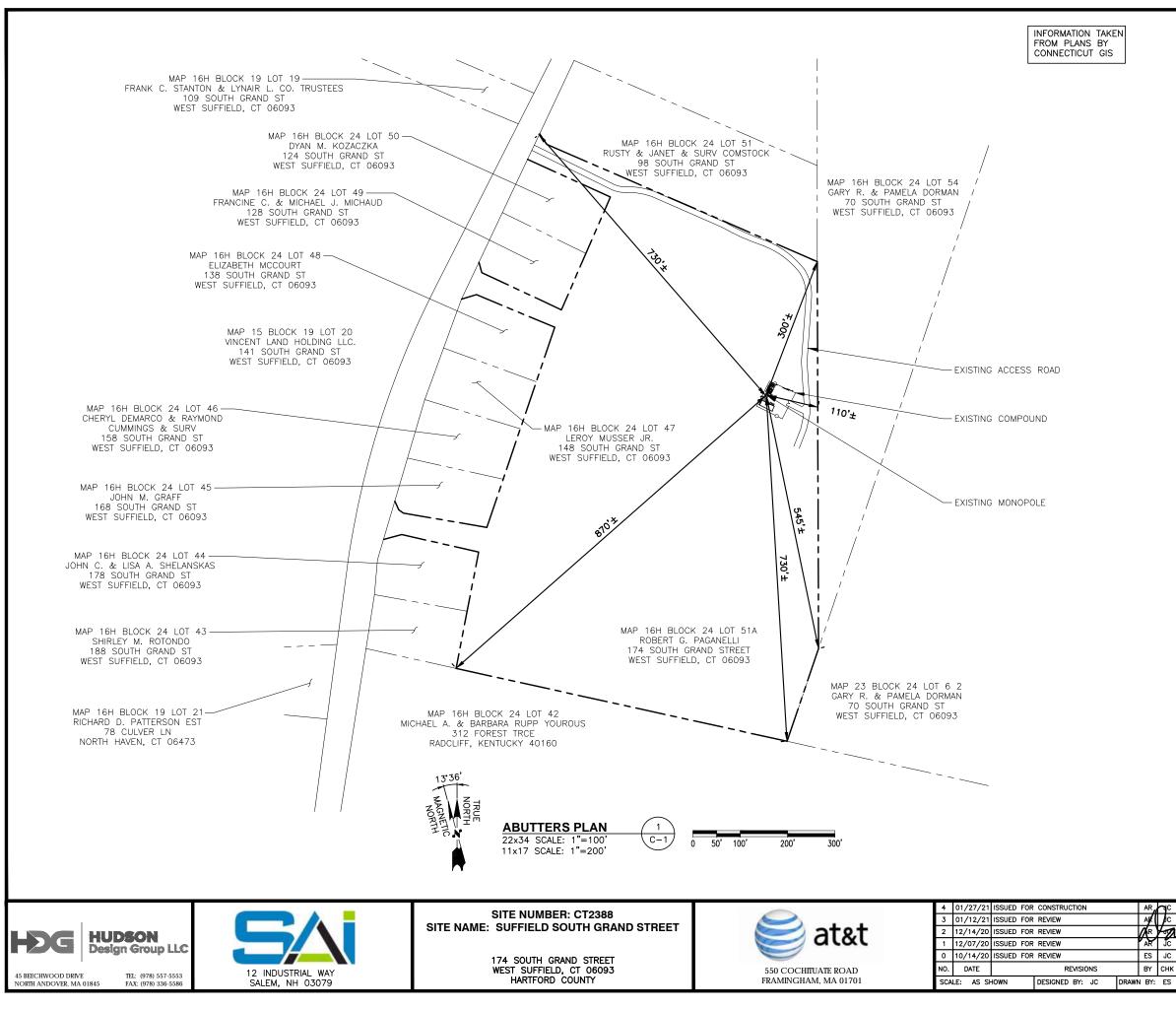
#### BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

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

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

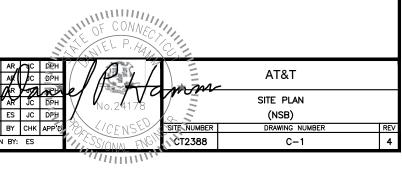
#### TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

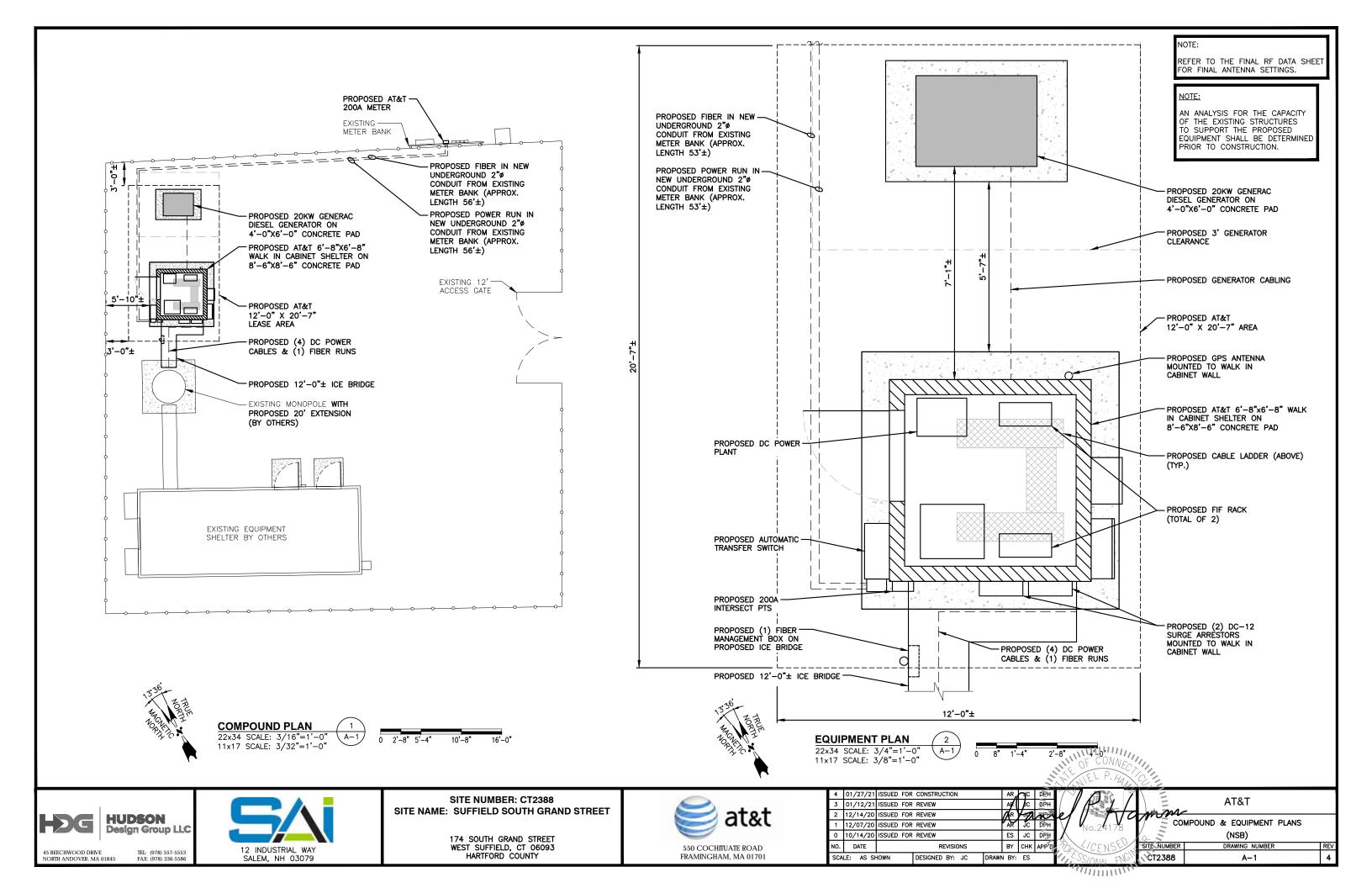
		ABBREVIATIONS		
ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BASE TRANSCEIVER STATION	Ρ	PROPOSED	TYP	TYPICAL
EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE	VIF	VERIFY IN FIELD
EQUIPMENT GROUND RING	REFY	REFERENCE		
VIEW AF C	DPH DPH	READE		AT&T
	DPH	No 24178	GEN	VERAL NOTES
VIEW ES JC	DPH 🔨			(NSB)
REVISIONS BY CHK A	PP'5 PO	CENS SITE NUMBER		DRAWING NUMBER REV
SIGNED BY: JC DRAWN BY: ES	11	SSIONAL ENG CT2388		GN-1 4
		MITHIN		

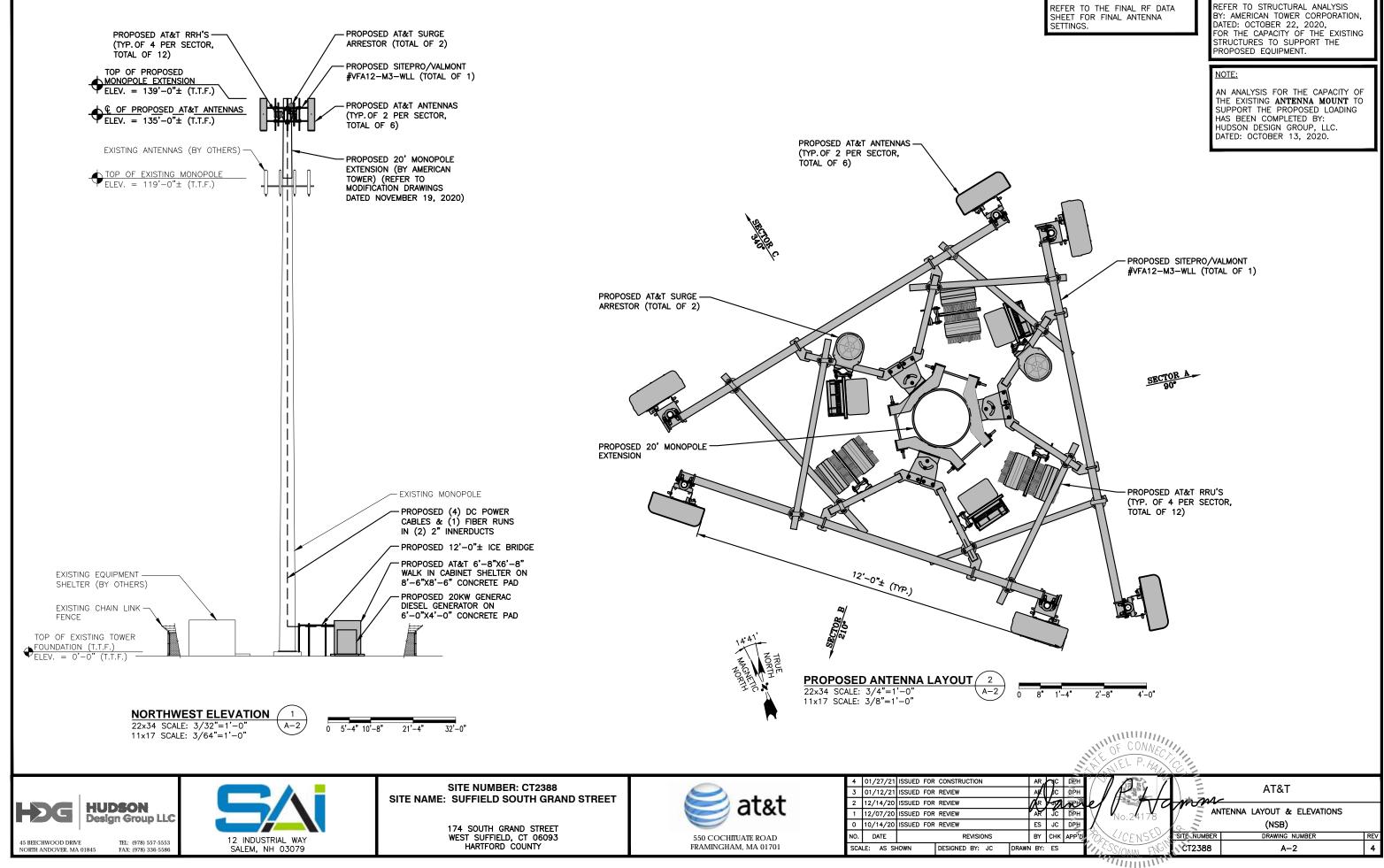


### **GENERAL NOTES:**

- 1. PROPERTY LINE INFORMATION (WHEN APPLICABLE) WAS PREPARED USING TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUCTED AS A BOUNDARY SURVEY.
- 2. NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
- 3. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (THERE IS NO HANDICAP ACCESS REQUIRED).
- THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
   CONNECTION TO ELECTRICAL & TELEPHONE UTILITIES TO BE
- CONNECTION TO ELECTRICAL & TELEPHONE UTILITIES TO BE DETERMINED BY THE APPROPRIATE UTILITY COMPANY.
   SUBCONTRACTOR TO VERIFY ANTENNA ELEVATION AND AZIMUTH
- WITH RF ENGINEER PRIOR TO INSTALLATION. SEE ANTENNA CONFIGURATION SHEETS FOR SITE SPECIFIC DETAILS.
   SUBCONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO
- SUBCONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
   SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OPTAINING
- 8. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION.
- 9. THE MAXIMUM AREA OF DISTURBANCE IS LESS THAN 1 ACRE. THE PROJECT IMPACT AREA IS BELOW THE EXEMPTION THRESHOLD OF 43,560 SQUARE FEET IN 40 CFR PARTS 9, 122–124 AND THEREFORE IS NOT SUBJECT TO REGULATION UNDER THE EPA OR STATE-MANAGED NPDES GENERAL CONSTRUCTION PERMIT PROGRAM. THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL SITE DEVELOPMENT IN ACCORDANCE WITH THE "LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL" ISSUED BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION. ADDITIONALLY, THE PROJECT OWNERS GENERAL CONTRACTOR SHALL CONDUCT ALL CONSTRUCTION ACTIVITIES IN A MANNER THAT DOES NOT RESULT IN STORM WATER COLLECTION/CONVEYANCE SYSTEM, WETLAND, WATER BODY, OR OTHER WATER RESOURCE AREAS.



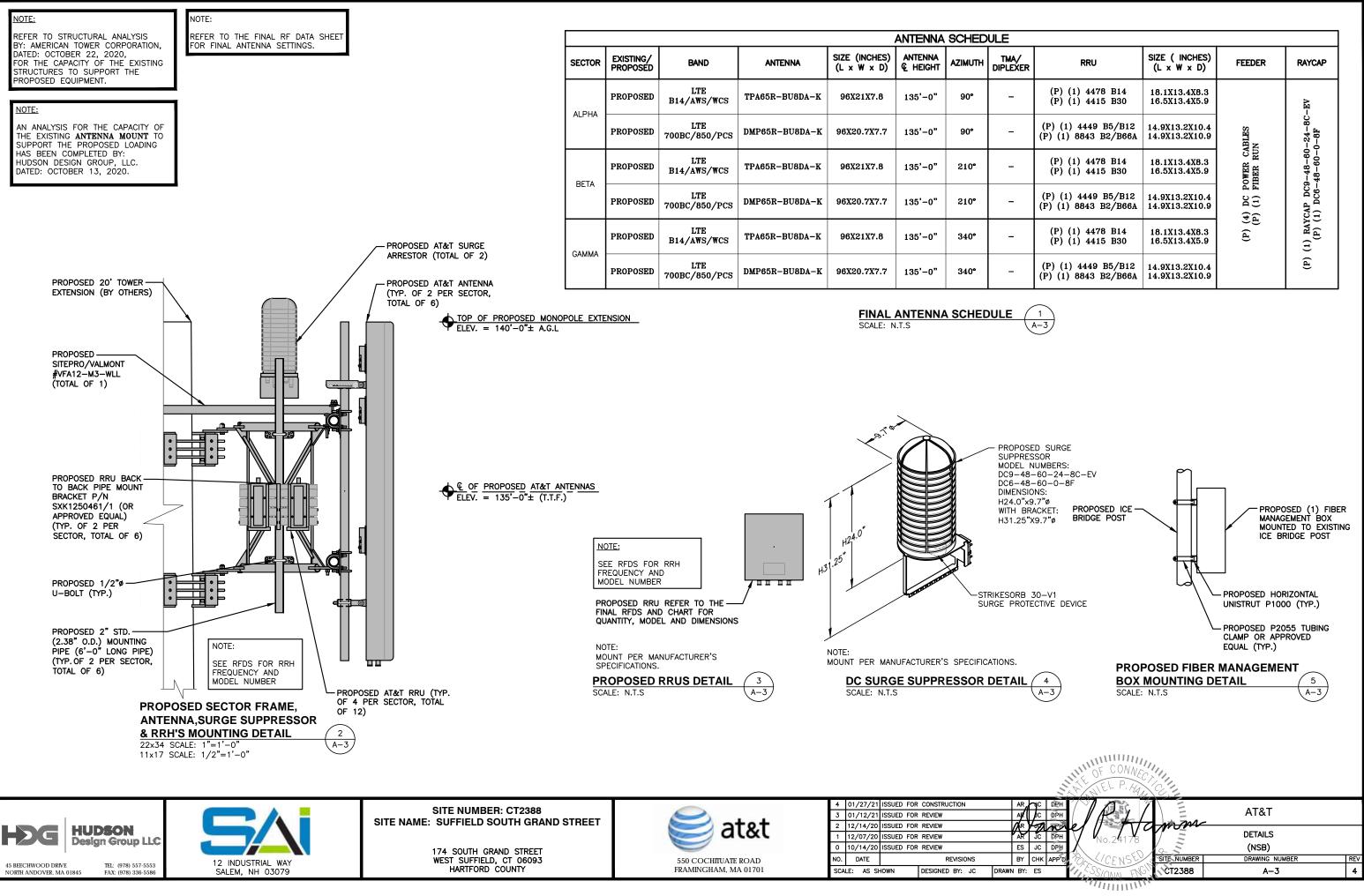




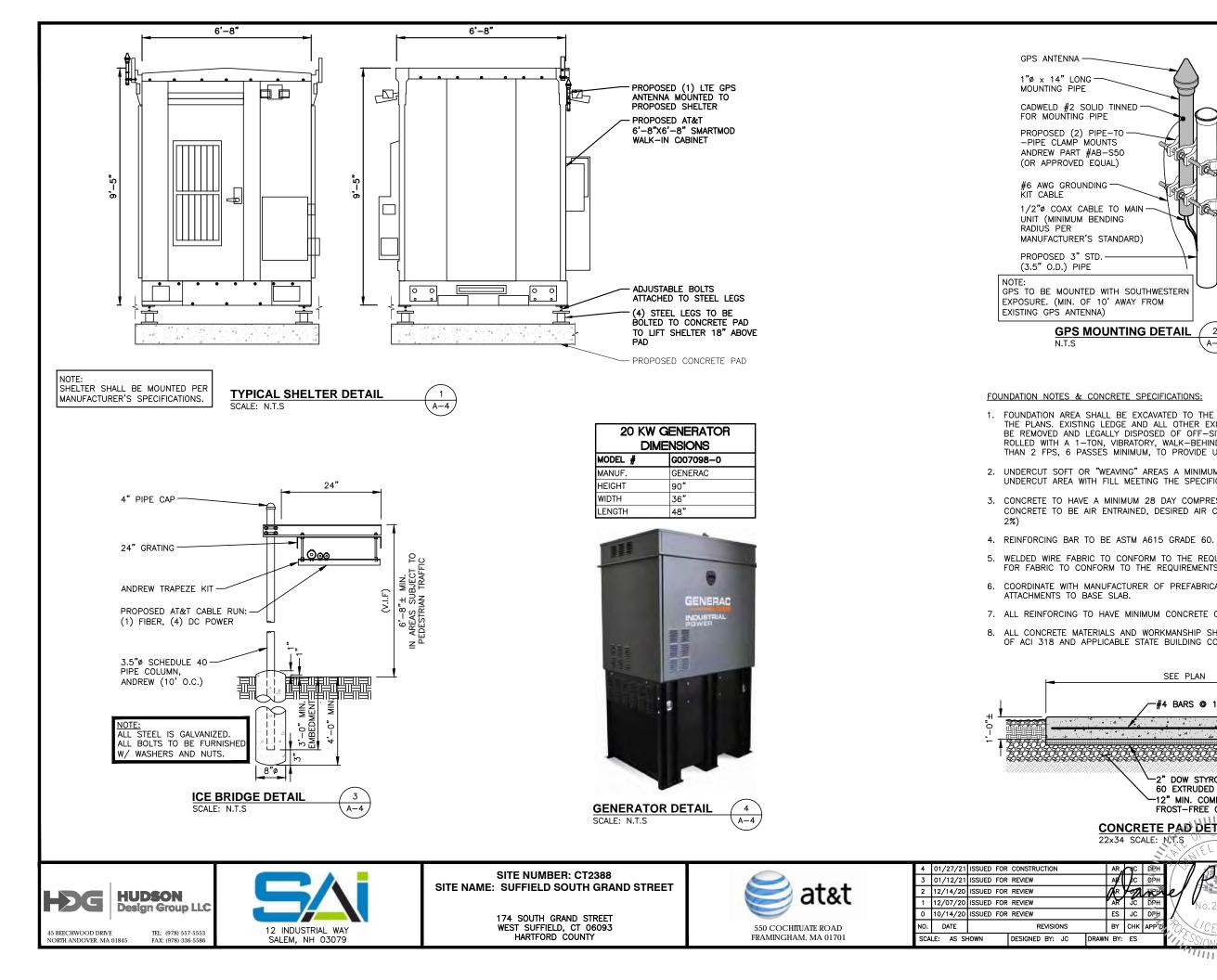
NOTE:

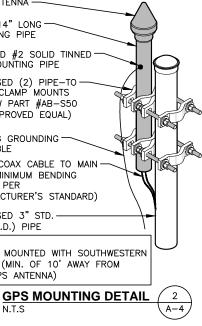
#### NOTE:

REFER TO STRUCTURAL ANALYSIS



/ KER	RRU	SIZE ( INCHES) (L × W × D)	FEEDER	RAYCAP
	(P) (1) 4478 B14 (P) (1) 4415 B30	18.1X13.4X8.3 16.5X13.4X5.9		-EV
	(P) (1) 4449 B5/B12 (P) (1) 8843 B2/B66A	14.9X13.2X10.4 14.9X13.2X10.9	CABLES	(1) RAYCAP DC9-48-60-24-8C-EV (P) (1) DC6-48-60-0-8F
	(P) (1) 4478 B14 (P) (1) 4415 B30	18.1X13.4X8.3 16.5X13.4X5.9	POWER CAB FIBER RUN	)-48-60 48-60-(
	(P) (1) 4449 B5/B12 (P) (1) 8843 B2/B66A	14.9X13.2X10.4 14.9X13.2X10.9	(4) DC P( (P) (1) FI	CAP DCS 1) DC6-
	(P) (1) 4478 B14 (P) (1) 4415 B30	18.1X13.4X8.3 16.5X13.4X5.9	(P) (4 (F	(1) RAY (P) (
	(P) (1) 4449 B5/B12 (P) (1) 8843 B2/B66A	14.9X13.2X10.4 14.9X13.2X10.9		(P)





1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.

2. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.

3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS

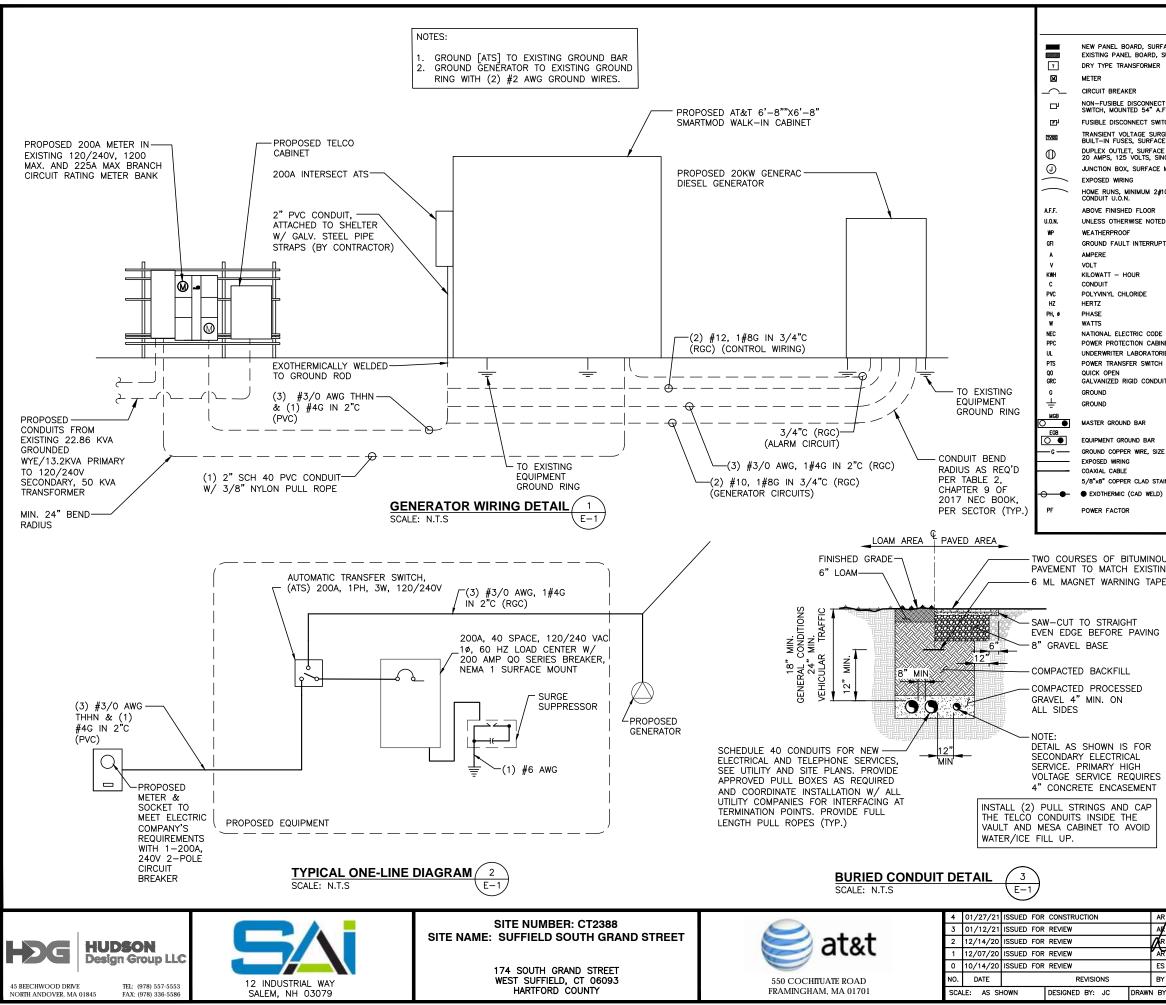
5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.

6. COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF

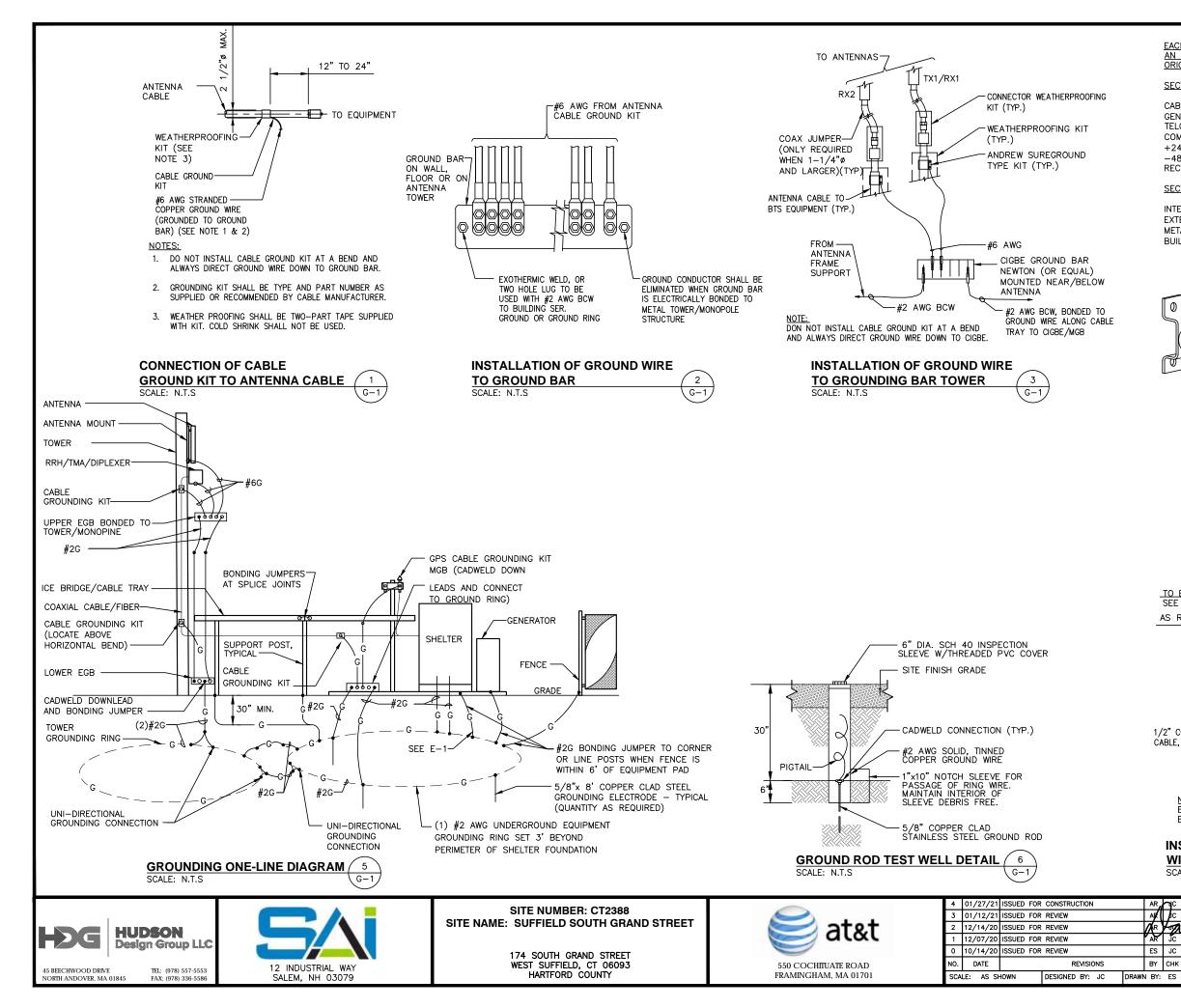
7. ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.

8. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.

SEE PLAN	-	
-#4 BARS @ 10" O.C./E.W.	1" CHAMFER	
2" DOW_ STYROFOAM_HIGHLOAD	18/18/18/18/18/18	
60 EXTRUDED POLYSTYRENE 12" MIN. COMPACTED		
FROST-FREE GRAVEL FILL		
NCRETE PAD DETAIL		
34 SCALE: NT.S		
REL P. HALLE		
	AT&T	
R JC DPH	DETAILS	
S JC DPH	(NSB)	
Y CHK APP'D POR CENSESTE NUMBER	DRAWING NUMBER	REV
BY: ES	A-4	4



	ELECTRICAL AND GROUNDING NOTES
JRFACE MOUNTED D, SURFACE MOUNTED	1. ALL ELECTRICAL WORK SHALL CONFORM TO THE
ER	REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL
	CODÉS.
ECT	2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION
A.F.F. SWITCH, MOUNTED 54"A.F.F.	REQUIREMENTS. 3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND
URGE SUPPRESSOR WITH	MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO
ACE MOUNTED ACE MOUNTED,	PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
SINGLE PHASÉ CE MOUNTED 18" A.F.F.	<ol><li>GENERAL CONTRACTOR SHALL PAY FEES FOR</li></ol>
	PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
2#10 + 1#8G IN 3/4"	5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN
R	WATER TIGHT GALVANIZED RIGID STEEL CONDUITS
DTED	OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE
UPTER	METAL OR NONMETALLIC CONDUITS. 6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
	<ol> <li>ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.</li> </ol>
	8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN
	ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON
	THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
	9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND
DDE ABINET	PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING
FORIES	PROVIDE FULL LENGTH PULL ROPE IN INSTALLED
СН	TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
DUIT	10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND
	PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE
	40 CONDUIT. ABOVE THE GROUND PORTION OF
O MECHANICAL CONNECTION CADWELD CONNECTION	THESE CONDUITS SHALL BE PVC CONDUIT. 11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE
SIZE AS NOTED	NEMA 3R ENCLOSURE. 12. PPC SUPPLIED BY PROJECT OWNER.
	13. GROUNDING SHALL COMPLY WITH NEC ART. 250. 14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT
STAINLESS STEEL GROUND ROD	BOTH ENDS USING MANUFACTURERS COAX CABLE
LD) OR O MECHANICAL (COMPRESSION TYPE) CONNECTION	GROUNDING KITS SUPPLIED BY PROJECT OWNER. 15. USE #6AWG COPPER STRANDED WIRE WITH GREEN
CONNECTION	COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2AWG SOLID
	TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
	16. ALL GROUND CONNECTIONS TO BE BURNDY
IOUS	HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE
TING	COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
\PE	17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE,
	EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE.
	ALWAYS MAKE AT LEAST 12" RADIUS BENDS.
G	#6AWG WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6
	FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
	18. CONNECTIONS TO GROUND BARS SHALL BE MADE
	WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO
	ALL LOCATIONS. 19. APPLY OXIDE INHIBITING COMPOUND TO ALL
	COMPRESSION TYPE GROUND CONNECTIONS. 20. BOND ANTENNA MOUNTING BRACKETS, COAXIAL
	CABLE GROUND KITS, AND ALNA TO EGB PLACED
	NEAR THE ANTENNA LOCATION. 21. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
	22. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT
S	CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
ſ	23. CONTRACTOR SHALL CONDUCT ANTENNA, COAX,
	AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD
	RESULTS FOR PROJECT CLOSE OUT. 24. ALL NEW STRUCTURES WITH A FOUNDATION
	AND/OR FOOTING HAVING 20 FT. OR MORE OF
-	1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL, MUST HAVE IT BONDED TO
NUM OF CONNE	THE GROUND RING USING AN EXOTHERMIC WELD
NE OF CONVE	COPPER GROUND WIRE, PER NEC 250.50.
STR NEL P. 44	
AR CIC DEH	AT&T
AR DC OPH	
AR JC DPH	ÉECTRICAL NOTES & ONE-LINE DIAGRAM
	(NSB)
AR JC PPH V No.24178	



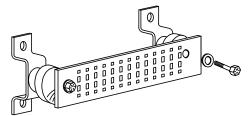
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

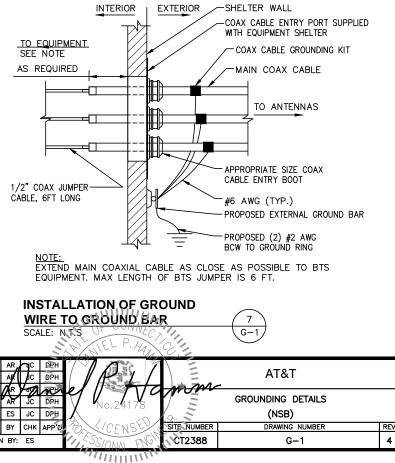
SECTION "P" - SURGE PRODUCERS

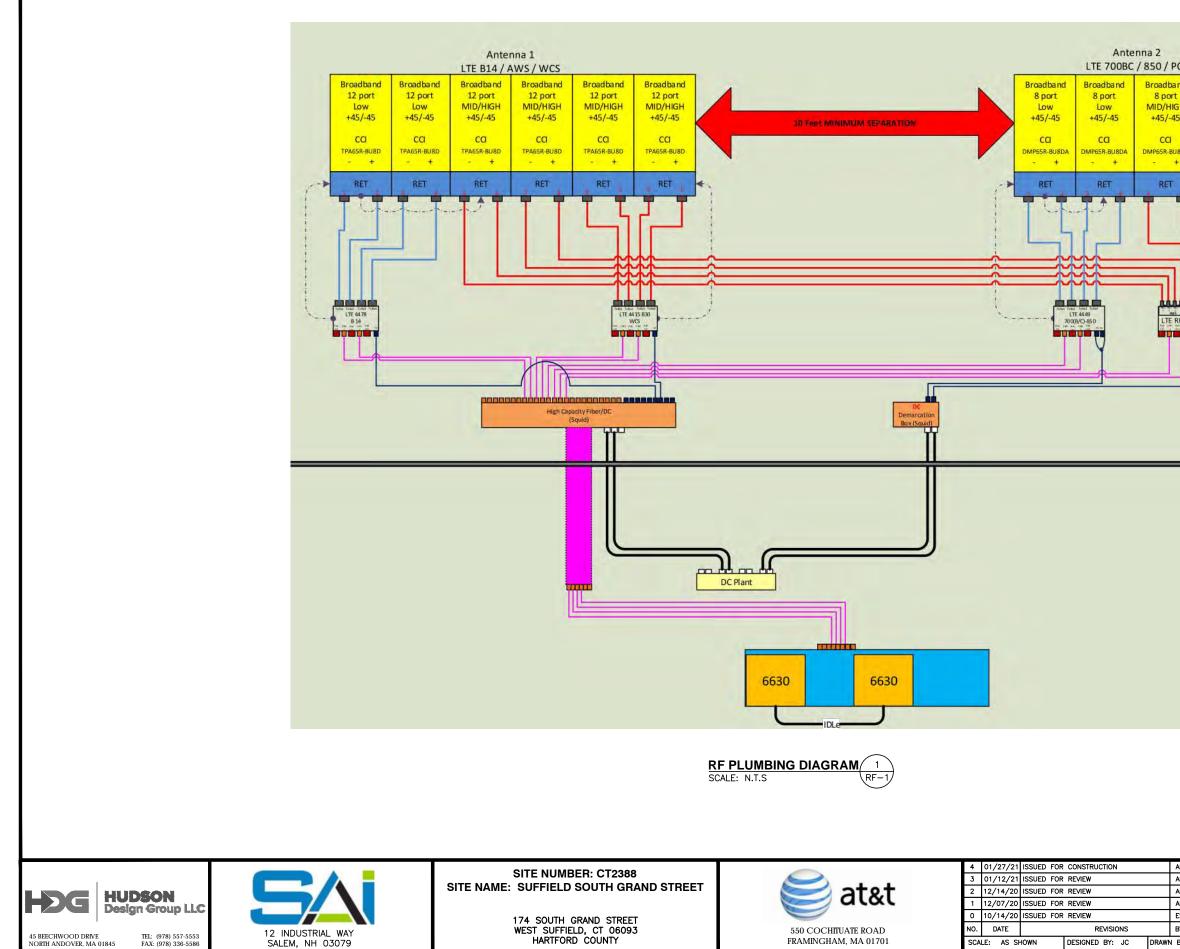
CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG) TELCO GROUND BAR COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG) +24V POWER SUPPLY RETURN BAR (#2 AWG) -48V POWER SUPPLY RETURN BAR (#2 AWG) RECTIFIER FRAMES.

#### 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)







CS		
nd 5H 5	Broadband 8 port MID/HIGH +45/-45	
IBDA	CCI DMP65R-BU8DA - +	
	RET	
RRUS-	8843 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.

AR	JC	DPH	JC	DPH			
AR	JC	DPH	JC	DPH		AT&T	
AR	JC	DPH	JC	DPH			
AR	JC	DPH	JC	DPH		RF PLUMBING DIAGRAM	
ES	JC	DPH	JC	DPH		(NSB)	
BY	снк	APP'D	СНК	APP'D	SITE NUMBER	DRAWING NUMBER	
BY:	ES		': ES		CT2388	RF-1	

# 



### **Structural Analysis Report**

Structure	:	119 ft Monopole with Proposed 20 ft Extension
ATC Site Name	:	SUFFIELD SW CT CT, CT
ATC Asset Number	:	416862
Engineering Number	:	OAA760209_C3_03
Proposed Carrier	:	AT&T MOBILITY
Carrier Site Name	:	SUFFIELD SOUTH GRAND STREET
Carrier Site Number	:	CT2388
Site Location	:	106 South Grand St.
		West Suffield, CT 06093-3412
		41.987000,-72.702100
County	:	Hartford
Date	:	October 22, 2020
Max Usage	:	47%
Result	:	Pass 32593
		- POLICENSED
Prepared By:		Reviewed By:
Steven Nedrud		

Prepared By: Steven Nedrud Structural Engineer

Ate he

COA: PEC.0001553



#### **Table of Contents**

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Supporting Documents	1
Analysis	1
Conclusion	1
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Proposed Equipment	2
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Standard Conditions	4
Calculations Attached	d



#### Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 119 ft monopole with 20 ft proposed extension to reflect the change in loading by AT&T MOBILITY.

#### **Supporting Documents**

Tower Drawings	EEI Job #16937, dated August 31, 2012
Foundation Drawing	EEI Job #16937, dated March 18, 2013
Geotechnical Report	DET Job #2011.01, dated July 21, 2012

#### <u>Analysis</u>

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:	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	I
Exposure Category:	В
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S <sub>1</sub> = 0.06
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.

• Extension to be designed in subsequent service

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



#### **Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
	3	Alcatel-Lucent RRH2x40-AWS	Low Profile Platform		VERIZON WIRELESS
121.0	2	RFS DB-T1-6Z-8AB-0Z		(2) 1 1/4" Hybriflex Cable	
	3	Alcatel-Lucent RRH2x40-07-U			
	6	Antel BXA-70063/6CF_			
120.0	6	Amphenol Antel LPA-171063-12CF-EDIN-X			
	1	VZW Unused Reserve (19060.68 sqin)			

#### Equipment to be Removed

Elev. <sup>1</sup> (ft) Qty	Antenna	Mount Type	Lines	Carrier	
No loading was considered as removed as part of this analysis.					

#### Proposed Equipment

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
	1	Raycap DC6-48-60-0-8F	_		
	3	Ericsson RRUS 8843 B2, B66A		(1) 0.40" (10.3mm)	
	3	Ericsson RRUS 4415 B30		Fiber (2) 0.82" (20.8mm) 8 AWG 6 (2) 0.92" (23.4mm) Cable (2) 2" conduit	AT&T MOBILITY
135.0	3	Ericsson RRUS 4449 B5, B12			
155.0	3	Ericsson RRUS 4478 B14	Sector Frame		ATAT WODILITY
	1	Raycap DC9-48-60-24-8C-EV			
	3	CCI DMP65R-BU8D			
	3	CCI TPA65R-BU8D			

<sup>1</sup>Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax inside the pole shaft.



#### **Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	36%	Pass
Shaft	47%	Pass
Base Plate	17%	Pass

#### **Foundations**

Reaction Component	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,013.2	35%
Axial (Kips)	37.9	3%
Shear (Kips)	19.7	3%

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) (°)				
	Raycap DC6-48-60-0-8F							
	Ericsson RRUS 8843 B2, B66A	AT&T MOBILITY						
	Ericsson RRUS 4415 B30							
135.0	Ericsson RRUS 4449 B5, B12			0.970	0.870	0 970	0.697	0.687
155.0	Ericsson RRUS 4478 B14		0.870	0.087				
	Raycap DC9-48-60-24-8C-EV							
	CCI DMP65R-BU8D							
	CCI TPA65R-BU8D							

\*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 performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

# 



August 12, 2020 October 13, 2020 (Rev. 1)



SAI Communications 12 Industrial Way Salem NH, 03079

RE: Site Number: FA Number: PACE Number: PT Number: Site Name: Site Address: CT2388 (NSB) 12906924 MRCTB048378 2051A0WDWS EAST GRANBY CT 174 South Grand Street West Suffield, CT 06093

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the new AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) TPA65R-BU8DA-K Antennas (96.0"x20.7"x7.7" Wt. = 87 lbs. /each)
- (3) DMP65R-BU8DA-K Antennas (96.0"x20.7"x7.7" Wt. = 96 lbs. /each)
- (3) B14 4478 RRH's (18.1"x13.4"x8.3" Wt. = 60 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.5" Wt. = 71 lbs. /each)
- (3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" Wt. = 72 lbs. /each)
- (3) 4415 B30 RRH's (16.5"x13.4"x5.9" Wt. = 46 lbs. /each)
- (2) Squid Surge Arrestor (24.0"x9.7" Ø Wt. = 33 lbs.)

\*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1, P/N VFA12-M3-WLL, dated October 26, 2018 were used to perform this analysis.

#### Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.73 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the <u>New SitePro1 VFA12-M3-WLL</u> mount <u>IS CAPABLE</u> of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New Mount Rating	89	LC4	73%	PASS

#### Reference Documents:

• Fabrication drawings prepared by SitePro1, P/N VFA12-M3-WLL, dated October 26, 2018.

This determination was based on the following limitations and assumptions:

- 1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
- 2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
- 3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
- 4. The proposed mount will be adequately secured to the tower structure per the mount manufacturer's specifications.
- 5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
- 6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted, Hudson Design Group LLC

Ynlow al

Michael Cabral Vice President



Daniel P. Hamm, PE Principal

# 

#### 2.5L | 20 kW - AC SDC20 L **INDUSTRIAL DIESEL GENERATOR SET**

EPA Certified Stationary Emergency

Standby Power Rating 20 kW AC, 60 Hz



### Codes and Standards

Generac products are designed to the following standards:



UL2200, UL508, UL142, UL489



NFPA 37, 70, 99, 110



NEC700, 701, 702, 708



ISO 3046, 7637, 8528, 9001

NEMA ICS10, MG1, 250, ICS6, AB1

REF

ANSI ional Standarde Institute

ANSI C62.41

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

## **Powering Ahead**

Image used for illustration purposes only



GENERAC NDUSTRIAL



Model G007098-0 (Steel)

## SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

#### **STANDARD FEATURES**

#### **ENGINE SYSTEM**

- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

#### **Fuel System**

• Primary Fuel Filter

#### **Cooling System**

- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

#### **Electrical System**

- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Sealed/Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor
- Output Circuit Breaker

#### **CONTROL SYSTEM**

- Digital H Control Panel Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485 Communications
- All-Phase Sensing Voltage Regulator
- Full System Status
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant LevelEngine Speed
- Battery Voltage

#### **MODEL OPTIONS**

#### CONTROL SYSTEM

- 21 Light Annunciator- Shipped Loose Kit and Field Installed
- External E-Stop-Shipped Loose Kit and Field Installed

#### ALTERNATOR SYSTEM

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Shutdown

#### **GENERATOR SET**

- Single Side Service
- Internal Genset Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

#### ENCLOSURE

GENERAC

Model G007098-0 (Steel)

• Serviceable Items Accessible Though Lift-Off Door

INDUSTRIAL

- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat<sup>™</sup> Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36" Snow Rating

#### FUEL TANK

- UL 142 Compliant
- Double Wall Construction
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Rhino Coat<sup>™</sup> Textured Polyester Powder Coat
- Stainless Steel Hardware

Generator Run- Dry Contact

Major Alarm- Dry Contact

Minor Alarm- Dry Contact

Conditions

TANKS

Installed

Alarms & Warnings

Low Fuel Alarm- Dry Contact

• Rupture Basin Alarm- Dry Contact

Alarms & Warnings Time and Date Stamped

Alarms & Warnings for Transient and Steady State

Snap Shots of Key Operation Parameters During

External Fuel Vent- Shipped Loose Kit and Field

Alarms and Warnings Spelled Out (No Alarm Codes)

SPEC SHEET

2 of 5

Integrated Fork Pockets

- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch

Modbus protocol

Sealed Boards

Display

ENCLOSURE

○ Aluminum Enclosure

Field Installed

Alarms

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- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)

Predictive Maintenance Algorithm

Single Point Ground Connections

• 0.2 msec High Speed Data Logging

• 15 Channel Data Logging

· Customizable Alarms, Warnings, and Events

Password Parameter Adjustment Protection

Alarm Information Automatically Comes Up On the

O Extreme Cold Weather Kit - Shipped Loose Kit and

## SDC20 | 2.5L | 20 kW - AC INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

#### **APPLICATION AND ENGINEERING DATA**

#### **ENGINE SPECIFICATIONS**

#### General

Make	Mitsubishi	
EPA Emissions Compliance	Interim Tier 4	
Cylinder #	4	
Туре	In-Line	
Displacement - L (Cu In)	2.5 (158)	
Bore - mm (in)	88 (3.5)	
Stroke - mm (in)	103 (4.1)	
Compression Ratio	22:1	
Intake Air Method	Naturally Aspirated	

#### **Engine Governing**

Governor Frequency Regulation (Steady State)

± 0.25%

**Electronic Isochronous** 

#### Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

#### Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2100
Fan Diameter - mm (in)	431.8 (17)
Coolant Heater Wattage	1000
Coolant Heater Voltage	120

#### Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2		
Fuel Specifications	ASTM		
Fuel Filtering (microns)	6		
Fuel Inject Pump Make	Bosch		
Injector Type	Engine Driven Gear		
Engine Type	Diesel		
Fuel Supply Line - mm (in.)	6.6 (0.26)		

#### **Engine Electrical System**

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

#### **ALTERNATOR SPECIFICATIONS**

Standard Model	Mecc Alte ECP 28-2L/4
Poles	4
Field Type	Revolving
Insulation Class - Rotor	Н
Insulation Class - Stator	Н
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<45
Standard Excitation	Brushless

Bearings	Dual Sealed
Coupling	Belt, Pulley
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.5%

# **SPEC SHEET**

#### **RATING DEFINITIONS**

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

3 of 5

GENERAC INDUSTRIAL

#### Model G007098-0 (Steel)

## SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

#### **OPERATING DATA**

#### **POWER RATINGS**

Single-Phase 120/240 VAC @1.0pf Circuit Breaker Size 20 kW 100A Amps: 83

#### **FUEL CONSUMPTION RATES\***

	Diesel - gph (lph)		
	Percent Load	Standby	
	25%	0.74 (2.80)	
	50%	0.99 (3.75)	
	75%	1.41 (5.30)	
	100%	1.90 (7.19)	
* Fuel supply install	ation must accommod	ate fuel consumption rates at 100	)% load.

#### COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	11.9 (45)
Coolant System Capacity	gal (L)	3.5 (13.2)
Heat Rejection to Coolant	BTU/hr	238,200
Inlet Air	cfm (m <sup>3</sup> /min)	2365 (67)
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	77° (25°)
Maximum Radiator Backpressure	in H <sub>2</sub> O	0.50

#### **COMBUSTION AIR REQUIREMENTS**

				Standby		
			Flow at Rated Power cfm (m <sup>3</sup> /min)	88 (2.49)		
ENGINE			EXHA	UST		
		Standby				Standby
Rated Engine Speed	rpm	1800	Exhau	st Flow (Rated Output)	cfm (m <sup>3</sup> /min)	193 (328)
Horsepower at Rated kW**	hp	33.5	Max. E	Backpressure (Post Silencer)	inHg (kPa)	1.38 (4.67)
Piston Speed	ft/min	1220.47	Exhau	st Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)
BMEP	psi	96.5				

\*\* Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.



#### Model G007098-0 (Steel)

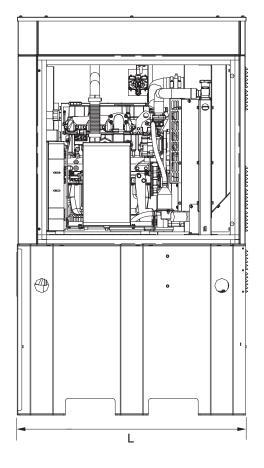


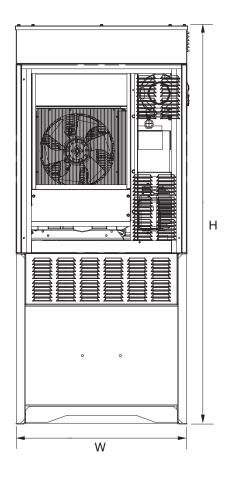
## SDC20 | 2.5L | 20 kW - AC **INDUSTRIAL DIESEL GENERATOR SET**

EPA Certified Stationary Emergency

#### **DIMENSIONS AND WEIGHTS\***

Model G007098-0 (Steel)





#### **Level 2 Sound Attenuation Enclosure**

Run Time Hours	48
Usable Capacity Gal (L)	92 (348.2)
L x W x H in (mm)	48 x 36 x 90
	(1219.2 x 914.4 x 2286)
Weight lbs (kg)	2400 (1089)
Sound Level	71 dBA

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

5 of 5

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

<sup>\*</sup> All measurements are approximate and for estimation purposes only.

## SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency



Model G007098-0 (Steel)

## 



C Squared Systems, LLC 65 Dartmouth Drive Auburn, NH 03032 603-644-2800 support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT2388

## Suffield South Grand Street

174 South Grand Street, West Suffield, CT 06093

January 14, 2021

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#### 1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of AT&T antenna arrays to be mounted on an extension of the existing monopole tower located at 174 South Grand Street in West Suffield, CT. The coordinates of the tower are 41° 59' 13.333" N, 72° 42' 07.515" W.

AT&T is proposing the following:

1) Install six (6) multi-band antennas (three per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T<sup>1</sup> to derive the resulting % MPE of its proposed installation.

#### 2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm<sup>2</sup>). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

<sup>&</sup>lt;sup>1</sup> As referenced to AT&T's Radio Frequency Design Sheet updated 09/21/2018.



#### 3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65, and Connecticut Siting Council recommendations:

Power Density = 
$$\left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right)$$
 X Off Beam Loss

Where:

ERP = Effective Radiated Power

R = Radial Distance =  $\sqrt{(H^2 + V^2)}$ 

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not consider actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.



#### 4. Calculation Results

Table 1 below outlines the power density information for the site. The proposed AT&T antennas are directional in nature; therefore, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm <sup>2</sup> )	Limit	% MPE
Verizon	120	1970	1	2816	0.0078	1.0000	0.78%
Verizon	120	869	1	2349	0.0065	0.5793	1.12%
Verizon	120	698	1	852	0.0024	0.4653	0.51%
Verizon	120	2145	1	1750	0.0048	1.0000	0.48%
AT&T	135	850	1	3883	0.0084	0.5667	1.48%
AT&T	135	1900	3	5877	0.0381	1.0000	3.81%
AT&T	135	725	1	3156	0.0068	0.4833	1.41%
AT&T	135	770	1	3541	0.0077	0.5133	1.49%
AT&T	135	2130	1	9890	0.0214	1.0000	2.14%
AT&T	135	2310	1	9665	0.0209	1.0000	2.09%
						Total	15.32%

 Table 1: Carrier Information<sup>2 3</sup>

 $<sup>^2</sup>$  The existing record in the CSC Power Density Table for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for Verizon was taken directly from the CSC database dated 12/12/2018. Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

<sup>&</sup>lt;sup>3</sup> Antenna height listed for AT&T is in reference to the A.T. Engineering Service, PLLC Structural Analysis Report dated October 22, 2020, and the Hudson Design Group, LLC site drawings dated December 14, 2020 (Rev. 2).



#### 5. Conclusion

The above analysis concludes that RF exposure at ground level from the proposed site modifications will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using conservative calculation methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **15.32% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual % MPE levels will be from the finished modifications.

#### 6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in FCC OET Bulletin 65 Edition 97-01, ANSI/IEEE Std. C95.1, and ANSI/IEEE Std. C95.3.

Maito & Fand

Reviewed/Approved By:

Martin J. Lavin Senior RF Engineer C Squared Systems, LLC January 14, 2021 Date



#### **Attachment A: References**

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board



(A) I	A) Limits for Occupational/Controlled Exposure <sup>4</sup>				
_	Frequency	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
	Range	Strength (E)	Strength (E)	$(mW/cm^2)$	$ E ^2$ , $ H ^2$ or S (minutes)
	(MHz)	(V/m)	(A/m)		$ \mathbf{E} $ , $ \mathbf{H} $ of 5 (minutes)
	0.3-3.0	614	1.63	(100)*	6
	3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
	30-300	61.4	0.163	1.0	6
	300-1500	-	-	f/300	6
	1500-100,000	-	-	5	6

#### Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

#### (B) Limits for General Population/Uncontrolled Exposure<sup>5</sup>

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time $ E ^2$ , $ H ^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	$(180/f^2)^*$	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

#### Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

<sup>&</sup>lt;sup>4</sup> Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

<sup>&</sup>lt;sup>5</sup> General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure



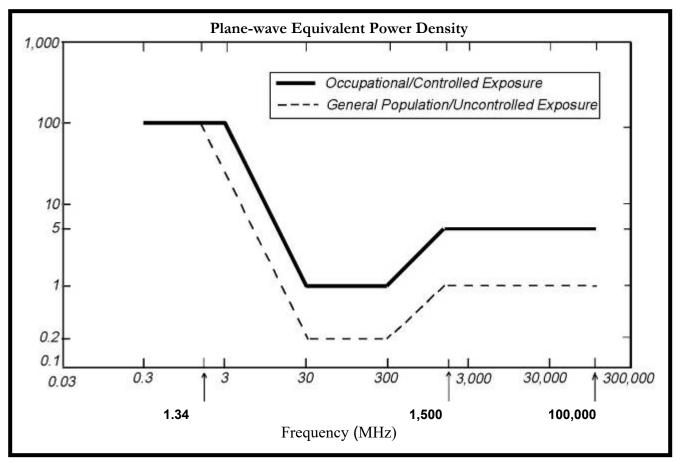
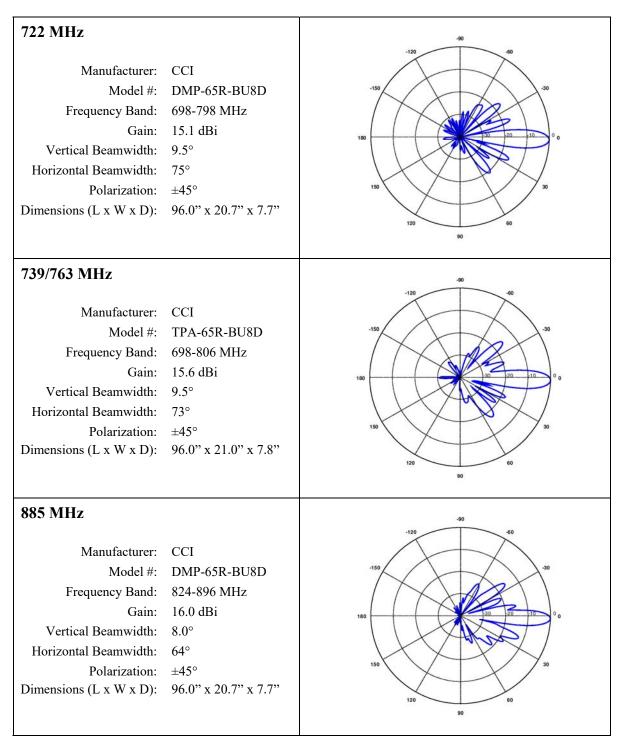


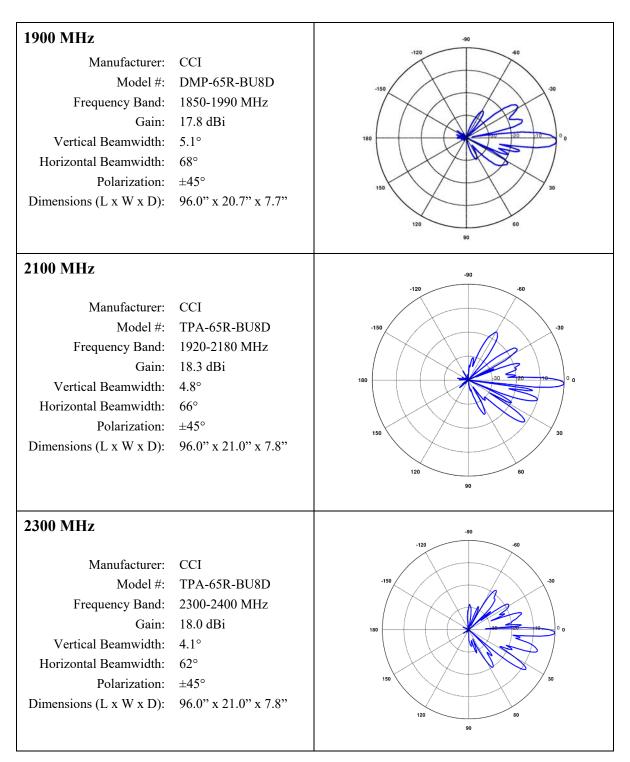
Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)





#### Attachment C: AT&T Antenna Data Sheets and Electrical Patterns









February 16, 2021

#### FIRST CLASS MAIL

Frank C Stanton Lynair L. Stanton 109 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced matter and the filing today of a sub-petition for declaratory ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") for an amendment to Petition No. 1097 to allow a modification of the existing wireless facility at the above-referenced location. AT&T plans to extend the height of the existing monopole by 20' bringing the Facility's total height to 139'. AT&T proposes to install six (6) panel antennas; twelve (12) remote radio head units ("RRH") and two (2) surge arrestors on a frame mount on the extension at a centerline height of approximately 135' AGL. Within the existing fenced equipment compound, AT&T will install a 6'8" x 6'8" walk in equipment cabinet on a concrete pad as well as a 20kW diesel emergency back-up generator.

AT&T is submitting this Sub-Petition as an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation Act of 2012 (codified at 47 USC Sec. 1455(a)) and as further clarified by the Federal Communications Commission in regulations found at 47 CFR 1.6100.

This notice and the enclosed copy of the Sub-Petition are provided to you as an abutting property owner in keeping with the Council's ruling in Petition 1133. Any comments regarding this proposal should be provided to the Council within thirty (30) days of the date of this submission.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Daniel Patrick Enclosures

WESTCHESTER | NEW YORK CITY | HUDSON VALLEY | CONNECTICUT



February 16, 2021

#### FIRST CLASS MAIL

Francine C Michaud Michael J Michaud 128 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced matter and the filing today of a sub-petition for declaratory ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") for an amendment to Petition No. 1097 to allow a modification of the existing wireless facility at the above-referenced location. AT&T plans to extend the height of the existing monopole by 20' bringing the Facility's total height to 139'. AT&T proposes to install six (6) panel antennas; twelve (12) remote radio head units ("RRH") and two (2) surge arrestors on a frame mount on the extension at a centerline height of approximately 135' AGL. Within the existing fenced equipment compound, AT&T will install a 6'8" x 6'8" walk in equipment cabinet on a concrete pad as well as a 20kW diesel emergency back-up generator.

AT&T is submitting this Sub-Petition as an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation Act of 2012 (codified at 47 USC Sec. 1455(a)) and as further clarified by the Federal Communications Commission in regulations found at 47 CFR 1.6100.

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Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Daniel Patrick Enclosures



February 16, 2021

### FIRST CLASS MAIL

Vincent Land Holding LLC. 1193 Sheldon Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced matter and the filing today of a sub-petition for declaratory ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") for an amendment to Petition No. 1097 to allow a modification of the existing wireless facility at the above-referenced location. AT&T plans to extend the height of the existing monopole by 20' bringing the Facility's total height to 139'. AT&T proposes to install six (6) panel antennas; twelve (12) remote radio head units ("RRH") and two (2) surge arrestors on a frame mount on the extension at a centerline height of approximately 135' AGL. Within the existing fenced equipment compound, AT&T will install a 6'8" x 6'8" walk in equipment cabinet on a concrete pad as well as a 20kW diesel emergency back-up generator.

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Very truly yours,

Daniel Patrick Enclosures

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February 16, 2021

FIRST CLASS MAIL

John M. Graff 168 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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Daniel Patrick Enclosures



February 16, 2021

#### **FIRST CLASS MAIL** Shirley M. Rotondo

188 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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Daniel Patrick Enclosures

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February 16, 2021

#### FIRST CLASS MAIL

Robert G. Paganelli Darian P Paganelli 174 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility 174 South Grand Street, West Suffield, Connecticut

Dear Sir or Madam:

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Daniel Patrick Enclosures



February 16, 2021

FIRST CLASS MAIL

Leroy Musser Jr. 148 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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Very truly yours,

Daniel Patrick Enclosures

WESTCHESTER | NEW YORK CITY | HUDSON VALLEY | CONNECTICUT



February 16, 2021

#### FIRST CLASS MAIL

Michael A. Yourous Barbara Rupp Yourous 312 Forest Terrace West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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Daniel Patrick Enclosures



February 16, 2021

### FIRST CLASS MAIL

Dyan M. Kozaczka 124 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility 174 South Grand Street, West Suffield, Connecticut

Dear Sir or Madam:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced matter and the filing today of a sub-petition for declaratory ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") for an amendment to Petition No. 1097 to allow a modification of the existing wireless facility at the above-referenced location. AT&T plans to extend the height of the existing monopole by 20' bringing the Facility's total height to 139'. AT&T proposes to install six (6) panel antennas; twelve (12) remote radio head units ("RRH") and two (2) surge arrestors on a frame mount on the extension at a centerline height of approximately 135' AGL. Within the existing fenced equipment compound, AT&T will install a 6'8" x 6'8" walk in equipment cabinet on a concrete pad as well as a 20kW diesel emergency back-up generator.

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Daniel Patrick Enclosures



February 16, 2021

#### FIRST CLASS MAIL Elizabeth McCourt 138 South Grand Street

138 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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Daniel Patrick Enclosures



February 16, 2021

#### FIRST CLASS MAIL

Cheryl Demarco Raymond Cummings 158 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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February 16, 2021

#### FIRST CLASS MAIL

John C. Shelanskas Lisa A. Shelanskas 178 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

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Daniel Patrick Enclosures



February 16, 2021

FIRST CLASS MAIL Robert Sitler 247 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

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Daniel Patrick Enclosures

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February 16, 2021

#### FIRST CLASS MAIL

Gary R. Dorman Pamela Dorman 70 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

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Daniel Patrick Enclosures



445 Hamilton Avenue, 14th Floor White Plains, New York 10601 T 914 761 1300 F 914 761 5372 cuddyfeder.com Daniel Patrick dpatrick@cuddyfeder.com

February 16, 2021

#### FIRST CLASS MAIL

Rusty Comstock Janet Comstock 98 South Grand Street West Suffield, CT 06093

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

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Daniel Patrick Enclosures



#### FIRST CLASS MAIL

First Selectman Melissa Mack Town of Suffield 83 Mountain Road Suffield, CT 06078

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility 174 South Grand Street, West Suffield, Connecticut

Dear Sir or Madam:

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Daniel Patrick Enclosures



February 16, 2021

#### FIRST CLASS MAIL

Bill Hawkins Director of Planning and Development 230C Mountain Road Suffield, CT 06078

Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

Dear Sir or Madam:

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Daniel Patrick Enclosures



445 Hamilton Avenue, 14th Floor White Plains, New York 10601 τ 914 761 1300 F 914 761 5372 cuddyfeder.com

February 16, 2021

First Selectwoman Melissa Mack Town of Suffield 83 Mountain Road Suffield, CT 06078

#### Re: Connecticut Siting Council Sub-Petition Modification of an Existing Wireless Facility <u>174 South Grand Street, West Suffield, Connecticut</u>

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Daniel Patrick

Enclosures

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February 16, 2021

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Dear Sir or Madam:

We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced matter and the filing today of a sub-petition for declaratory ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") for an amendment to Petition No. 1097 to allow a modification of the existing wireless facility at the above-referenced location. AT&T plans to extend the height of the existing monopole by 20' bringing the Facility's total height to 139'. AT&T proposes to install six (6) panel antennas; twelve (12) remote radio head units ("RRH") and two (2) surge arrestors on a frame mount on the extension at a centerline height of approximately 135' AGL. Within the existing fenced equipment compound, AT&T will install a 6'8" x 6'8" walk in equipment cabinet on a concrete pad as well as a 20kW diesel emergency back-up generator.

AT&T is submitting this Sub-Petition as an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation Act of 2012 (codified at 47 USC Sec. 1455(a)) and as further clarified by the Federal Communications Commission in regulations found at 47 CFR 1.6100.

This notice and the enclosed copy of the Sub-Petition are provided to you in keeping with the Council's ruling in Petition 1133. Any comments regarding this proposal should be provided to the Council within thirty (30) days of the date of this submission.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Daniel Patrick

Enclosures

#### **CERTIFICATION OF SERVICE**

I hereby certify that on the 16th day of February, 2021 a copy of the following letter and copy of the Sub-Petition to the Connecticut Siting Council for a declaratory ruling was sent by first class certified mail to the attached list of abutting properties:

Dated: 2/16/2021

Cuddy & Feder LLP 45 Hamilton Avenue, 14<sup>th</sup> Floor White Plains, New York 10601 Attorneys for: New Cingular Wireless PCS, LLC (AT&T)

	·
Frank C. Stanton	Dyan M. Kozaczka
Lynair L. Stanton	124 South Grand Street
109 South Grand Street	West Suffield, CT 06093
West Suffield, CT 06093	
Francine C Michaud	Elizabeth McCourt
Michael J Michaud	138 South Grand Street
128 South Grand Street	West Suffield, CT 06093
West Suffield, CT 06093	
Vincent Land Holding LLC.	Cheryl Demarco
1193 Sheldon Street	Raymond Cummings
West Suffield, CT 06093	158 South Grand Street
11000 Sumona, 01 000 95	West Suffield, CT 06093
John M. Graff	John C. Shelanskas
168 South Grand Street	Lisa A. Shelanskas
West Suffield, CT 06093	178 South Grand Street
(1000 Damoia, 01 000 95	West Suffield, CT 06093
Shirley M. Rotondo	Robert Sitler
188 South Grand Street	247 South Grand Street
West Suffield, CT 06093	West Suffield, CT 06093
	West Sufficia, C1 00093
Robert G. Paganelli	Gary R. Dorman
Darian P Pagenelli	Pamela Dorman
174 South Grand Street	70 South Grand Street
West Suffield, CT 06093	West Suffield, CT 06093
Leroy Musser Jr.	Rusty Comstock
148 South Grand Street	Janet Comstock
West Suffield, CT 06093	98 South Grand Street
	West Suffield, CT 06093
Michael A. Yourous	
Barbara Rupp Yourous	
312 Forest Terrace	
Radcliff, Kentucky 40160	
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I hereby certify that on the 16 day of February, 2021 a copy of the herein letter and copy of the Sub-Petition to the Connecticut Siting Council for a declaratory ruling was sent by first class certified mail to the list below.

Dated: 2/16/2021

Cuddy & Feder LLP 45 Hamilton Avenue, 14<sup>th</sup> Floor White Plains, New York 10601 Attorneys for: New Cingular Wireless PCS, LLC (AT&T)

#### Town of Suffield

First Selectwoman Melissa Mack	Bill Hawkins
Town of Suffield	Director of Planning and Development
83 Mountain Road	230C Mountain Road
Suffield, CT 06078	Suffield, CT 06078