Jon Ritter

16 Chestnut Street, Suite 420
Foxboro, MA 02035
Tel (774) 264-0016
Fax (774) 215-5423

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

Re: **Notice of Exempt Modification – 39 Cherry Ave, Waterbury, CT 06704**

Dear Ms. Bachman:

Please accept this letter as notification pursuant to R.C.S.A Section 16-50j-73, for construction that constitutes modification pursuant to R.C.S.A Section 16-50j-72(b) and 16-50j-73. In accordance with R.C.S.A Section 16-50j-73, a copy of this submission is being sent to the City of Waterbury. A copy of this submission is also being sent to American Tower's Inc. and the property owner on which the tower is located. After conversations with the property owner, it has been confirmed that the smokestack is no longer functioning as its intended use *(functioning smokestack)* and the jurisdiction is considering the smokestack to be an antenna support structure. I have included the original zoning decision with the filing as this now falls under the CSC's jurisdiction.

T-Mobile Northeast LLC's Proposed Wireless Modifications

T-Mobile as successor in interest to Omnipoint Communications achieved an initial approval to install antennas as well as related ground equipment and currently maintains this equipment at 39 Cherry Ave, Waterbury, CT 06704. The facility consists of a One-Hundred and Forty One foot high smokestack. T-Mobile now intends to modify the facility as shown on the enclosed plans prepared by Infinigy Engineering and annexed hereto in Exhibit 1. T-Mobile requests to relocate T-Mobile's sector from the One Hundred foot level to One Hundred Thirty Seven foot level. The modifications will consist of removing and replacing six (6) new antennas, three (3) new RRU's and Coax, to replace existing coax for Beta and Gamma Sectors as well as install a chimney mount at the AGL of One-Hundred and Thirty Seven feet (137'). Enclosed plans include specific modification drawings. A structural analysis has been completed for the site and attached as exhibit 3.

T-Mobile's Proposed Wireless Modifications Constitutes An "Exempt Modification"

The proposed modification to the above mentioned Facility constitutes an exempt modification of an existing facility provided for in R.C.S.A Section 16-50j-72(b)(2) and Council regulations promulgated pursuant thereto.

1) The proposed modification will not result in an increase in the height of the existing tower.
2) The modifications will remain entirely within the limits of the leased area. The modifications therefor, will not require the extension of the boundary.
3) The proposed modification does not increase the noise levels at the boundary by six(6) decibels or more under normal conditions.
4) T-Mobile's proposed facility will not increase the cumulative radio frequency electromagnetic radiation power density at the Tower sites' boundary to or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. A cumulative General Power Density table for T-Mobile's proposed modified facility is included as Exhibit 2.
5) The facility has received all municipal zoning approvals and building permits. (Regs., Conn. State Agencies Section 16-50j-72))

For all the foregoing reasons, T-Mobile Northeast LLC respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A Section 16-50j-72(b)(2)

Respectfully submitted,

Jonathan H. Ritter

Jon Ritter 774-264-0016
On behalf of American Tower Corporation
c/o Tower Resource Management, Inc.
16 Chestnut Street, Suite 420
Foxboro, MA 02035

cc: **City of Waterbury – Major Neil M. O'Leary**
American Tower's Inc.
New Opportunities Economic Development Corporation

Exhibit 1

Site Plan

Exhibit 2

Power Density Report

Exhibit 3

Structural Analysis

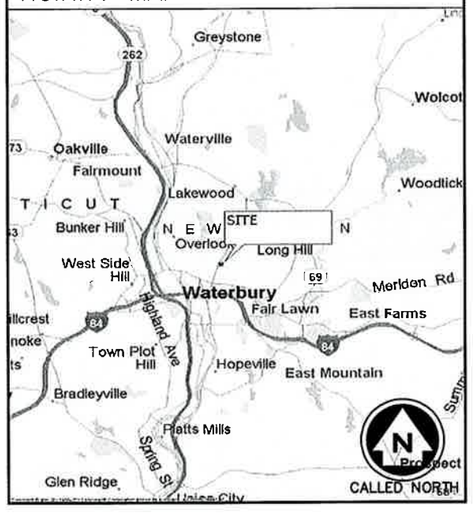
T-MOBILE NORTHEAST LLC

CTNH332C
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

(794DB CONFIGURATION)

VICINITY MAP



DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL:
"CALL BEFORE YOU DIG"
WWW.CBYD.COM
CALL 811, OR 1-800-922-4455
CALL THREE WORKING DAYS PRIOR TO DIGGING
SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC	– RED	SEWER	– GREEN
GAS/OIL	– YELLOW	SURVEY	– PINK
TEL/CATV	– ORANGE	PROPOSED EXCAVATION	– WHITE
WATER	– BLUE	RECLAIMED WATER	– PURPLE

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES. RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T-MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC., DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
14. THE CONTRACTOR SHALL NOTIFY THE T-MOBILE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE T-MOBILE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.

PROJECT SUMMARY

SITE NUMBER:	CTNH332C	APPLICANT:	T-MOBILE NORTHEAST LLC 103 MONARCH DR. LIVERPOOL, NY 13088
SITE NAME:	NH332/CHERRYSMOKESTACK		
SITE ADDRESS:	39 CHERRY AVE. WATERBURY, CT 06704	PROJECT MANAGER:	AMERICAN TOWER CORPORATION 319 QUARRY ROAD SPRING CITY, PA 19475
PROPERTY OWNER:	AMERICAN TOWER CORPORATION		
PARCEL:	M/B/L: 0255-0167-0125	CONTACT:	BRUCE HOFFMASTER (484) 942-6339
ZONING:	RH		
JURISDICTION:	CITY OF WATERBURY	ARCHITECT/ENGINEER:	INFINIGY ENGINEERING 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205
ATC SITE NUMBER:	370628		
LAT./LONG.:	N 41.55952' / W -73.03428'	CONTACT:	ALEX WELLER 518-690-0790
CONSTRUCTION TYPE:	L700 UPGRADE		

PROJECT DESCRIPTION

☐ EXISTING MONOPOLE	▨ EXISTING CABINET(S)	▨ OUTDOOR
☐ EXISTING LATTICE TOWER	☐ EXISTING S12000	☐ INDOOR
☐ EXISTING GUYED TOWER	▨ EXISTING GSM 3106	▨ EXISTING CONCRETE PAD
▨ EXISTING SMOKESTACK	▨ EXISTING RBS 6102	☐ EXISTING STEEL PLATFORM
☐ EXISTING BUILDING	☐ SITE SUPPORT KIT	▨ EXISTING PPC
☐ EXISTING FLAGPOLE	☐ SITE SUPPORT CABINET	☐ PANELBOARD
☐ EXISTING FORT WORTH	▨ GPS	

T-MOBILE NORTHEAST LLC PROPOSES THE MODIFICATION OF AN UNMANNED WIRELESS BROADBAND FACILITY. ADDITION OF PROPOSED LTE 700 PANEL ANTENNAS, RRUS, AND COAX. REPLACE EXISTING COAX FOR BETA AND GAMMA SECTORS DUE TO RELOCATION TO HIGHER RAD CENTER.

SHEET INDEX

SHEET	DESCRIPTION	REVISION
T-1	TITLE SHEET	5
C-1	SITE PLAN	5
C-2	COMPOUND PLAN & ELEVATION	5
C-3	ANTENNA DETAIL & RF SCHEDULE	5
C-4	EQUIPMENT SPECIFICATIONS	5
E-1	GROUNDING AND POWER DIAGRAMS	5
E-2	COAX/FIBER PLUMBING DIAGRAM	5
N-1	GENERAL AND ELECTRICAL NOTES	5
S-1	SMOKESTACK MODIFICATION DRAWINGS	0
S-2	GENERAL NOTES	0
S-3	PROPOSED PORT HOLE DESIGN	0

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
12/15/15	FOR PERMIT	0
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2/26/16	REVISED/ FOR PERMIT	3
3/14/16	REVISED/ FOR PERMIT	4
6/29/16	REVISED SCOPE/FOR REVIEW	5

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24708
LICENSED
PROFESSIONAL ENGINEER
AUG 0 2016

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

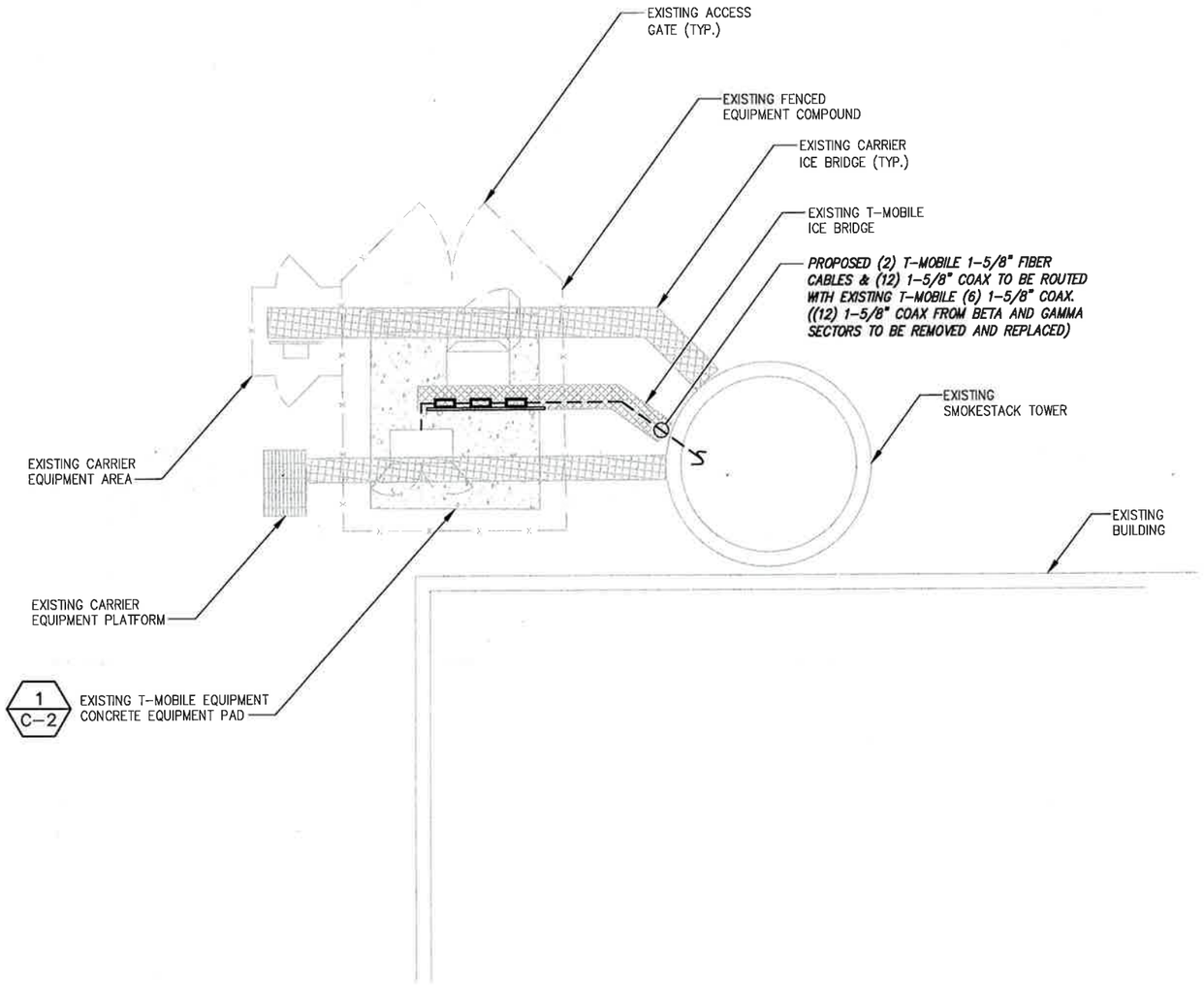
SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

SHEET 1 OF **8** SHEETS



CALLED NORTH

1 COMPOUND PLAN
SCALE: AS NOTED

GENERAL SITE NOTES:

1. A COMPLETE BOUNDARY SURVEY OF THE HOST PARCEL HAS NOT BEEN PERFORMED BY INFINIGY. BOUNDARY INFORMATION IF SHOWN WAS OBTAINED FROM INFORMATION PROVIDED BY OTHERS. PROPERTY IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. BASEMAPPING INFORMATION BASED ON PROVIDED INFORMATION.
3. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.
4. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.
5. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
6. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
8. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED. ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT MISS UTILITY AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
9. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SITE LEGEND

———	SITE PROPERTY LINE
———	STREET OR ROAD
— x — x —	CHAIN LINK FENCE
—o—o—	OPAQUE WOODEN FENCE
	TREES/SHRUBS
	TREE LINE
⊠	UTILITY POLE
(E)	EXISTING
(N)	NEW
(P)	PROPOSED
(F)	FUTURE

GRAPHIC SCALE

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

T-MOBILE NORTHEAST LLC
103 MONARCH DR.
LIVERPOOL, NY 13088

INFINIGY
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Fax # (518) 690-0793

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RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24305
LICENSED PROFESSIONAL ENGINEER
AUG 03 2016

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

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SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

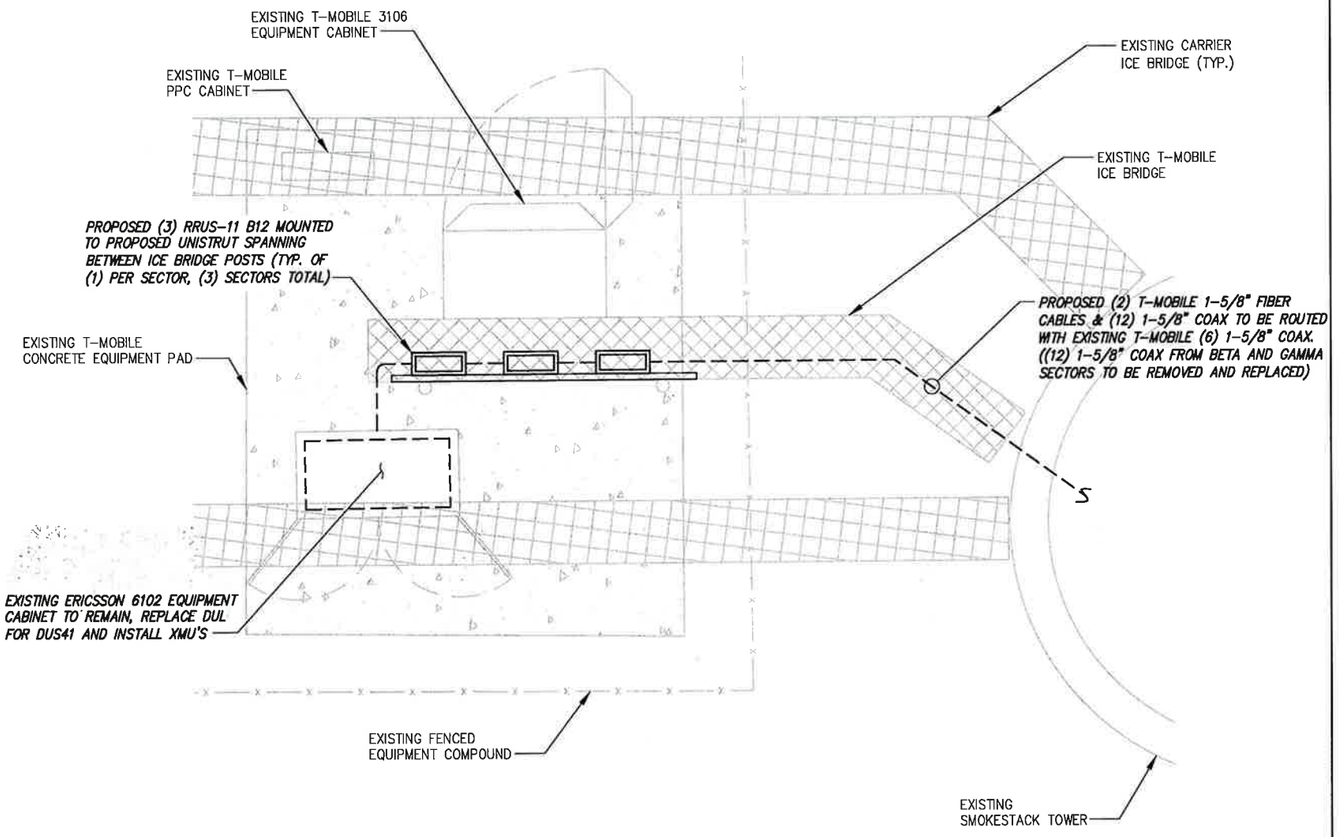
SHEET TITLE

SITE PLAN

SHEET NUMBER

C-1

SHEET 2 OF **8** SHEETS



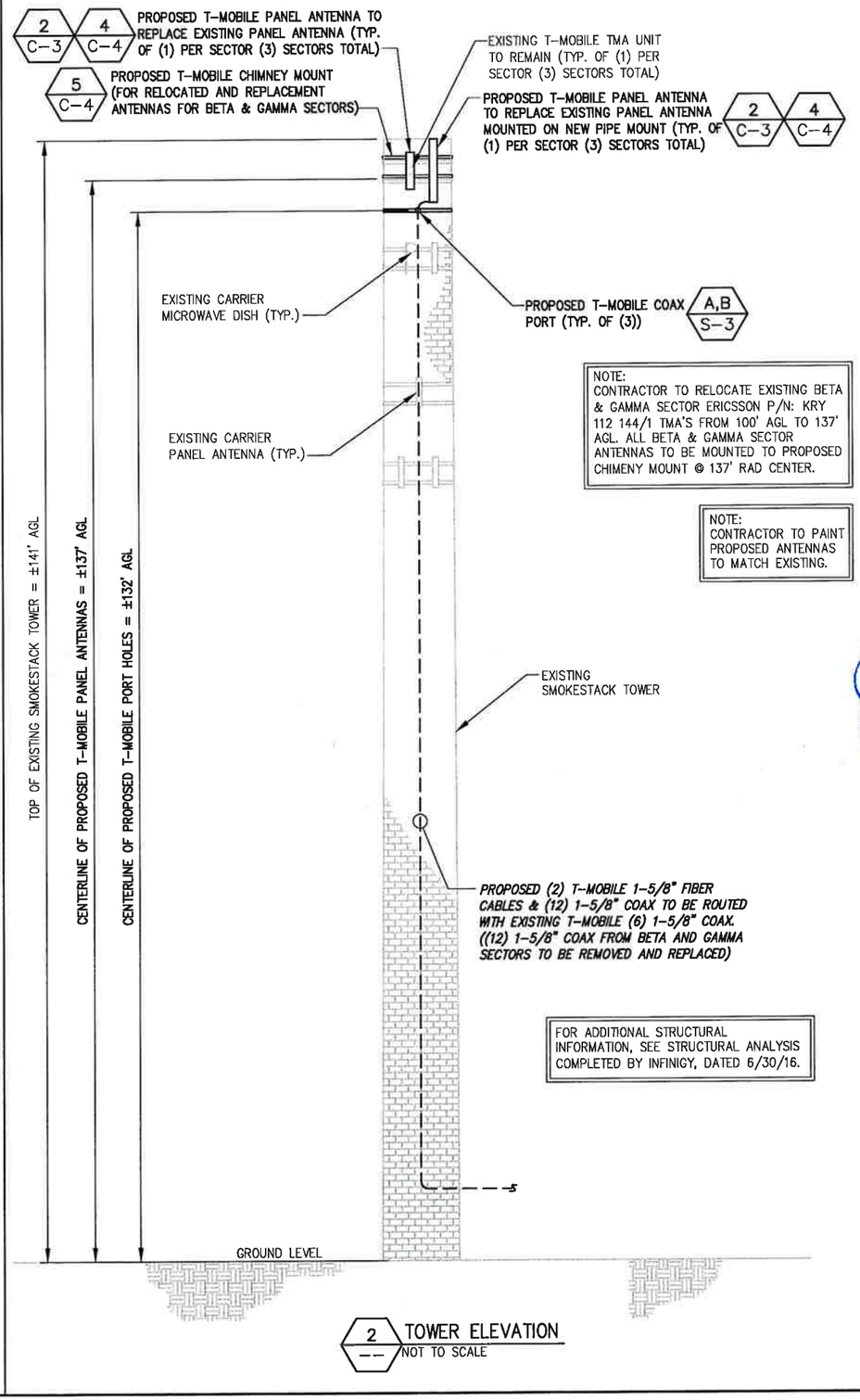
CALLED NORTH

1 — COMPOUND PLAN
SCALE: AS NOTED

GRAPHIC SCALE

4' 2' 0 2' 4'

SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"



NOTE:
CONTRACTOR TO RELOCATE EXISTING BETA & GAMMA SECTOR ERICSSON P/N: KRY 112 144/1 TMA'S FROM 100' AGL TO 137' AGL. ALL BETA & GAMMA SECTOR ANTENNAS TO BE MOUNTED TO PROPOSED CHIMENY MOUNT @ 137' RAD CENTER.

NOTE:
CONTRACTOR TO PAINT PROPOSED ANTENNAS TO MATCH EXISTING.

FOR ADDITIONAL STRUCTURAL INFORMATION, SEE STRUCTURAL ANALYSIS COMPLETED BY INFINIGY, DATED 6/30/16.

2 — TOWER ELEVATION
NOT TO SCALE

T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

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DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000
DRAWN BY: MAP
CHECKED BY: ASW

STATE OF CONNECTICUT · JOHN S. STEVENS · 24705 · LICENSED PROFESSIONAL ENGINEER · AUG 0 3 2016

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

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CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

SHEET TITLE

COMPOUND PLAN & ELEVATION

SHEET NUMBER

C-2

SHEET 3 OF 8 SHEETS

RF SYSTEM SCHEDULE (794DB CONFIGURATION)

SECTOR	TECHNOLOGY	ANTENNA PORT	BAND	ANTENNA MODEL #	VENDOR	QTY (REMOVED)	QTY (NEW)	AZIMUTH	M-TILT	E-TILT	ANTENNA CENTERLINE	TMA MODEL #	VENDOR	RRU MODEL #	VENDOR	CABLE LENGTH	CABLE DIAMETER	CABLE TYPE	CABLE MODEL #	VENDOR	CABLE TAGGING	COLOR CODING	JUMPER TYPE	JUMPER TAGGING	COLOR CODING
A	U1900/G1900	P1	---	SBNHH-1D65C	COMMSCOPE	1	1	40°	0°	2°	137'-0"	KRY 112 144/1	ERICSSON	–	–	(6) EXISTING	1-5/8"	COAX	EXISTING	EXISTING	EXISTING	–	COAX	---	–
	U2100	P2	---						0°	2°		KRY 112 489/2	ERICSSON	–	–										
	L700	P3	---						0°	2°		–	–	–	–										
	L2100	P4/P5	---	AIR33 B66Aa/B2a	ERICSSON	1	1	40°	0°	2°	137'-0"	–	–	–	–	±175'	1-5/8"	HYBRID	6x12 HCS	*ERICSSON*	FIBER 1	0	FIBER	LTE 700 FIBER	–
	L1900	P5/P6	---						0°	2°		–	–	–	–	±175'	1-5/8"	HYBRID	9x18 HCS	*ERICSSON*	FIBER 1	0	FIBER	LTE 700 FIBER	–
B	U1900/G1900	P1	---	SBNHH-1D65C	COMMSCOPE	1	1	140°	0°	2°	137'-0"	KRY 112 144/1	ERICSSON	–	–	(6) (P) ±175'	1-5/8"	COAX	TBD	TBD	COAX	–	COAX	---	–
	U2100	P2	---						0°	2°		KRY 112 489/2	ERICSSON	–	–										
	L700	P3	---						0°	2°		–	–	–	–										
	L2100	P4/P5	---	AIR33 B66Aa/B2a	ERICSSON	1	1	140°	0°	2°	137'-0"	–	–	–	–	(ANTENNA CONNECTED VIA PROPOSED HYBRID CABLE.)								LTE 700 FIBER	–
	L1900	P5/P6	---						0°	2°		–	–	–	–									LTE 700 FIBER	–
C	U1900/G1900	P1	---	SBNHH-1D65C	COMMSCOPE	1	1	250°	0°	2°	137'-0"	KRY 112 144/1	ERICSSON	–	–	(6) (P) ±175'	1-5/8"	COAX	TBD	TBD	COAX	–	COAX	---	–
	U2100	P2	---						0°	2°		KRY 112 489/2	ERICSSON	–	–										
	L700	P3	---						0°	2°		–	–	–	–										
	L2100	P4/P5	---	AIR33 B66Aa/B2a	ERICSSON	1	1	250°	0°	2°	137'-0"	–	–	–	–	(ANTENNA CONNECTED VIA PROPOSED HYBRID CABLE.)								LTE 700 FIBER	–
	L1900	P5/P6	---						0°	2°		–	–	–	–									LTE 700 FIBER	–

KEY	
EXISTING	R – RED – GSM
PROPOSED	G – GREEN – UMTS 1900
FIBER CONNECTION	B – BLUE – UMTS AWS
	Y – YELLOW – LTE
	O – ORANGE – FIBER CABLE

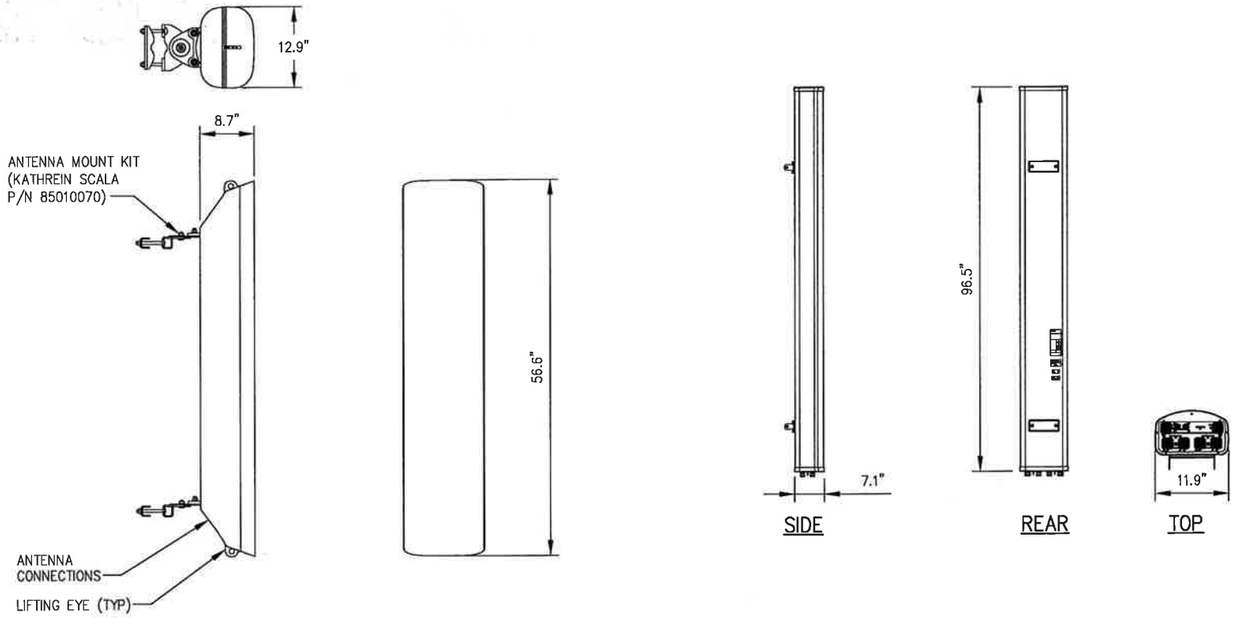
COAX NOTES:

- ALPHA – USE (6) OF EXISTING 1-5/8" COAX FOR ALPHA. ADD (2) 1-5/8" FIBER CABLES.
- BETA – REMOVE EXISTING (6) 1-5/8" COAX FROM LOWER RAD CENTER AND REPLACE WITH (6) 1-5/8" COAX. PLUG INTO FIBER TRUNK ON ALPHA.
- GAMMA – REMOVE EXISTING (6) 1-5/8" COAX FROM LOWER RAD CENTER AND REPLACE WITH (6) 1-5/8" COAX. PLUG INTO FIBER TRUNK ON ALPHA.

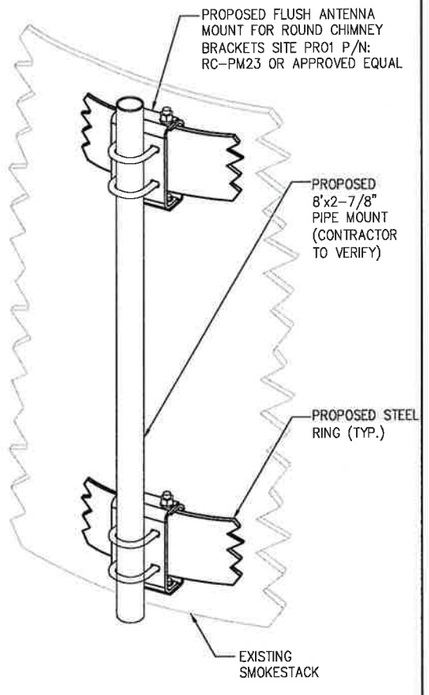
1 — RF SYSTEM SCHEDULE
NOT TO SCALE

ERICSSON MODEL NO.:	AIR 32 B66Aa/B2a
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	56.6"x12.9"x8.7"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	132.2 LBS
CONNECTOR:	7-16 DIN FEMALE

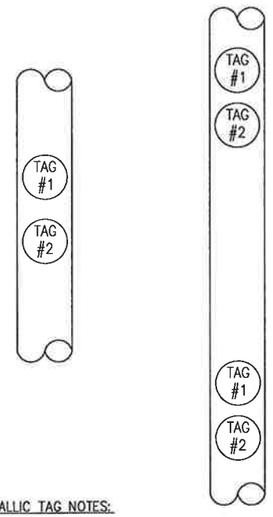
COMMSCOPE MODEL NO.:	SBNHH-1D65C
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	96.5"x11.9"x7.1"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	49.6 LBS
CONNECTOR:	7-16 DIN FEMALE



2 — ANTENNA DETAILS
NOT TO SCALE



3 — MOUNTING DETAIL
NOT TO SCALE



METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET.
2. CABLES LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KITS WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMODATE ALL CONFIGURATIONS.

4 — METALLIC TAG DETAIL
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
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DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
PROFESSIONAL ENGINEER
LICENSED
AUG 24 2016
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

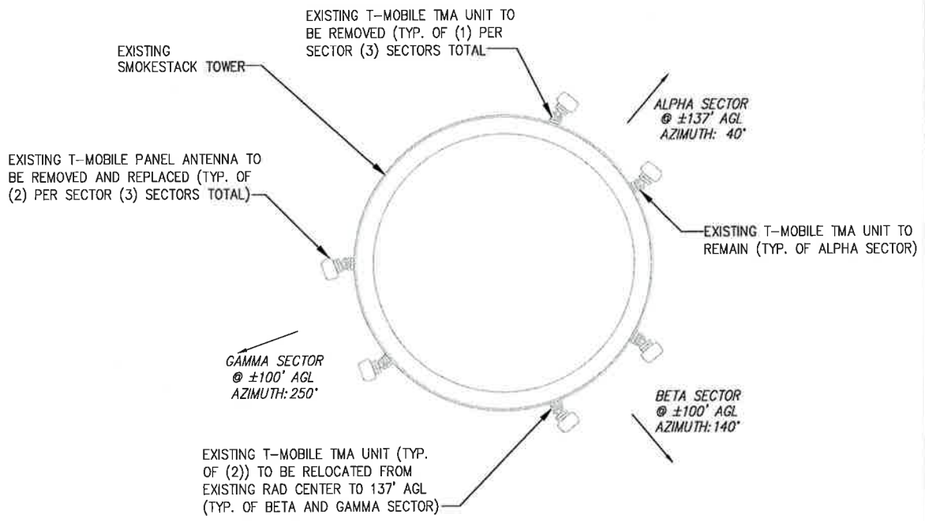
SHEET TITLE

ANTENNA DETAIL & RF SCHEDULE

SHEET NUMBER

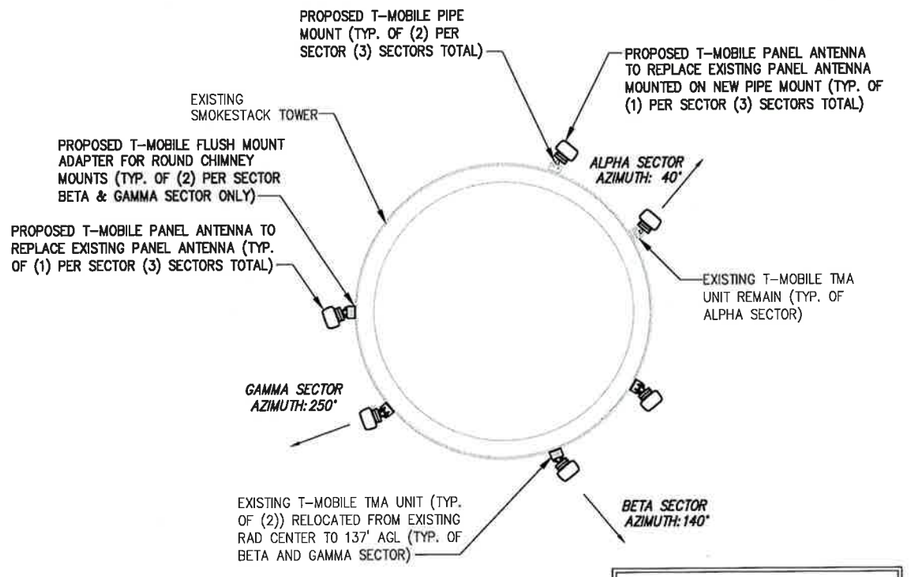
C-3

SHEET 4 OF **8** SHEETS



CALLED NORTH

1 EXISTING ANTENNA ORIENTATION PLAN
NOT TO SCALE



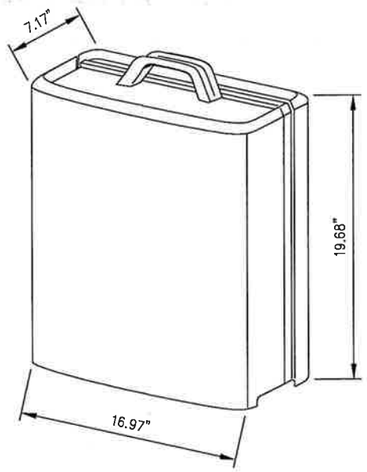
NOTE:
CONTRACTOR TO RELOCATE EXISTING BETA & GAMMA SECTOR ERICSSON P/N: KRY 112 144/1 TMA'S FROM 100' AGL TO 137' AGL. ALL BETA & GAMMA SECTOR ANTENNAS TO BE MOUNTED TO PROPOSED CHIMENY MOUNT @ 137' RAD CENTER.

CALLED NORTH

2 PROPOSED ANTENNA ORIENTATION PLAN @ 137' AGL
NOT TO SCALE

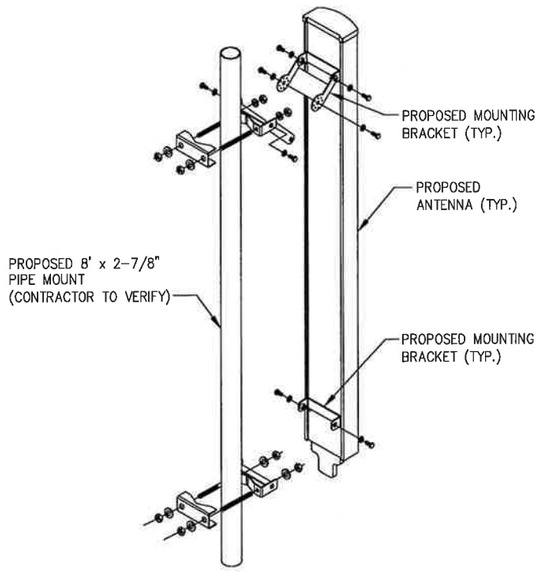
STRUCTURAL NOTES:

1. SPECIFICATIONS / CODES:
   - CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
   - STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 9TH EDITION.
   - WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-92 "STRUCTURAL WELDING" CODE--STEEL.
   - REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE."
2. MATERIALS:
   - CONCRETE: fc' – 3000psi. (MIN. U.N.O.)
   - REINFORCING STEEL: ASTM A615, GRADE 60.
   - WIRE MESH: ASTM A185.
   - STRUCTURAL STEEL: ASTM A36.
   - ELECTRODES FOR WELDING: E 70xx.
   - GALVANIZING: ASTM A153 (BOLTS) OR ASTM A123 (SHAPES, PLATES).
   - EXPANSION BOLTS: HILTI KWIK BOLT II, STAINLESS STEEL, 3/4"Øx43/4" EMBEDMENT OR AN APPROVED EQUAL.



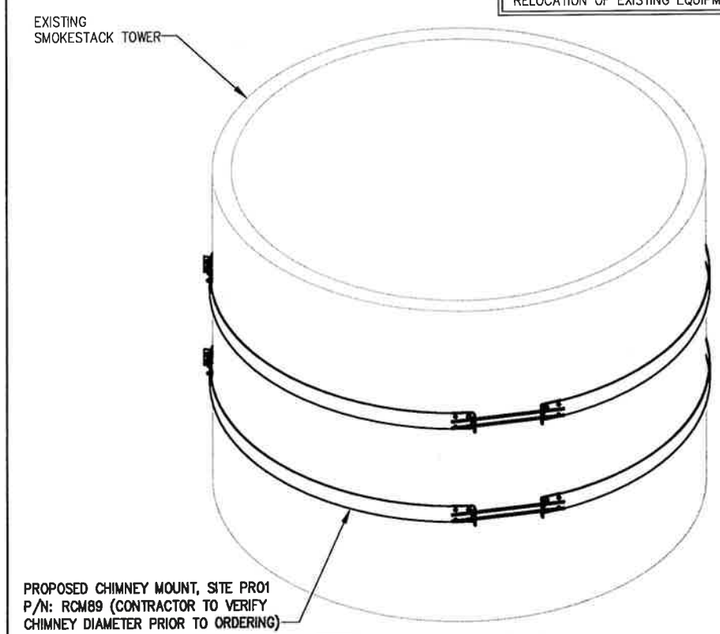
ERICSSON MODEL NO.:	RRUS-11 B12
COLOR:	GRAY
DIMENSIONS, HxWxD:	19.68"x16.97"x7.17" (500 x 431 x 182 mm)
WEIGHT:	50.71 LBS (23 kg)

3 RRUS 11 DETAIL
NOT TO SCALE



4 MOUNTING DETAILS
NOT TO SCALE

CONTRACTOR TO REPAIR ANY EXISTING DAMAGE TO SMOKESTACK UPON RELOCATION OF EXISTING EQUIPMENT.



5 CHIMNEY MOUNT DETAIL
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
103 MOHAWK DR
LIVERPOOL, NY 13088

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SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

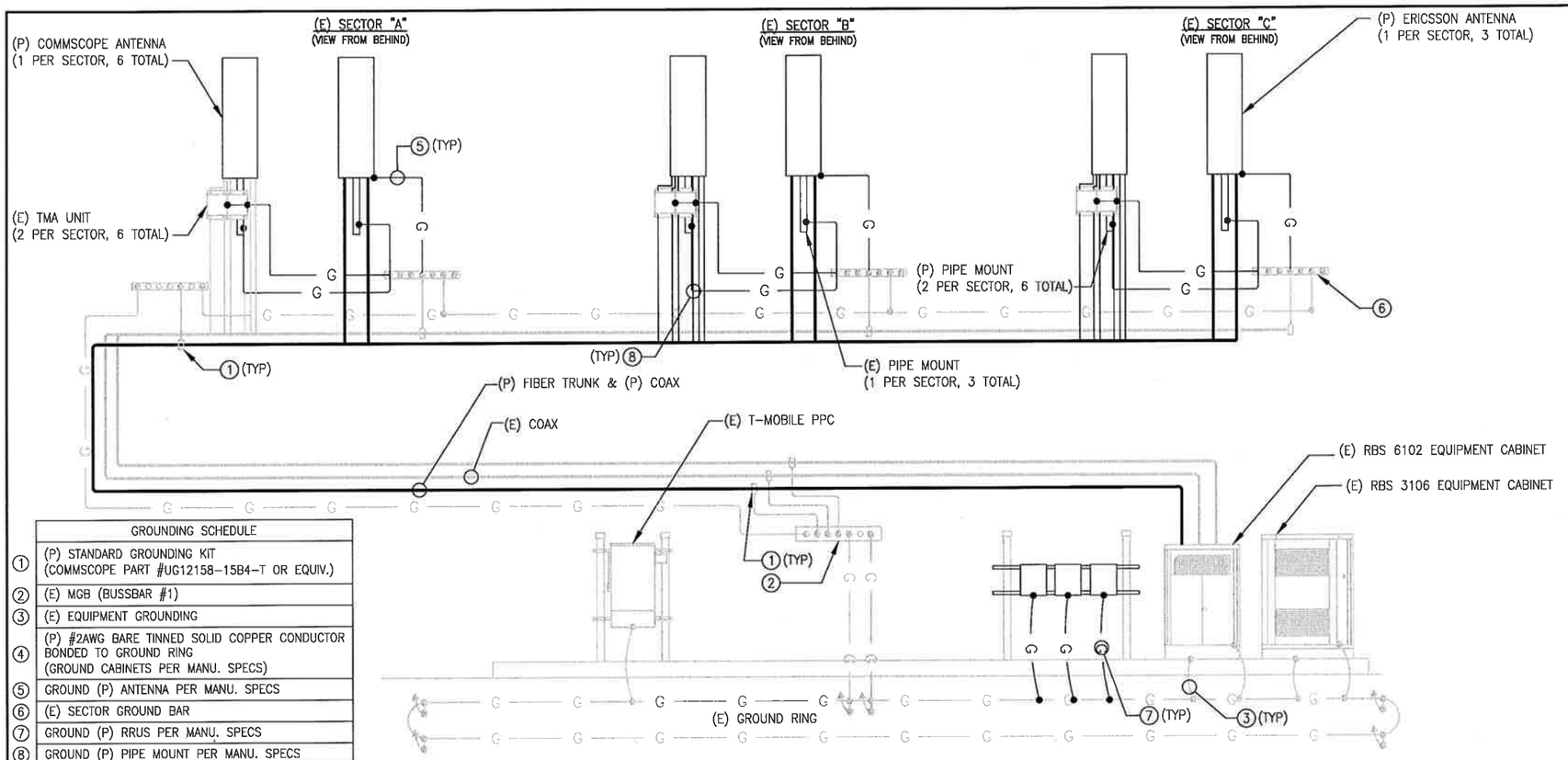
SHEET TITLE

EQUIPMENT SPECIFICATIONS

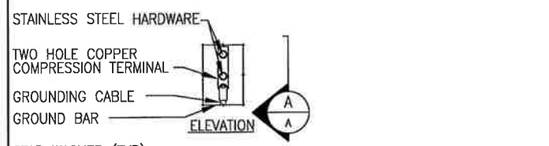
SHEET NUMBER

C-4

SHEET 5 OF **8** SHEETS

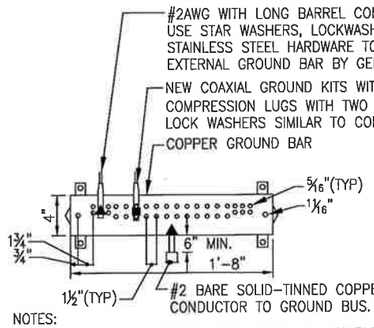


GROUNDING SCHEDULE	
①	(P) STANDARD GROUNDING KIT (COMMSCOPE PART #UG12158-15B4-T OR EQUIV.)
②	(E) MGB (BUSSBAR #1)
③	(E) EQUIPMENT GROUNDING
④	(P) #2AWG BARE TINNED SOLID COPPER CONDUCTOR BONDED TO GROUND RING (GROUND CABINETS PER MANU. SPECS)
⑤	GROUND (P) ANTENNA PER MANU. SPECS
⑥	(E) SECTOR GROUND BAR
⑦	GROUND (P) RRUS PER MANU. SPECS
⑧	GROUND (P) PIPE MOUNT PER MANU. SPECS



EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM, NO INSULATION ALLOWED WITHIN THE COMPRESSION TERMINAL (TYP.)

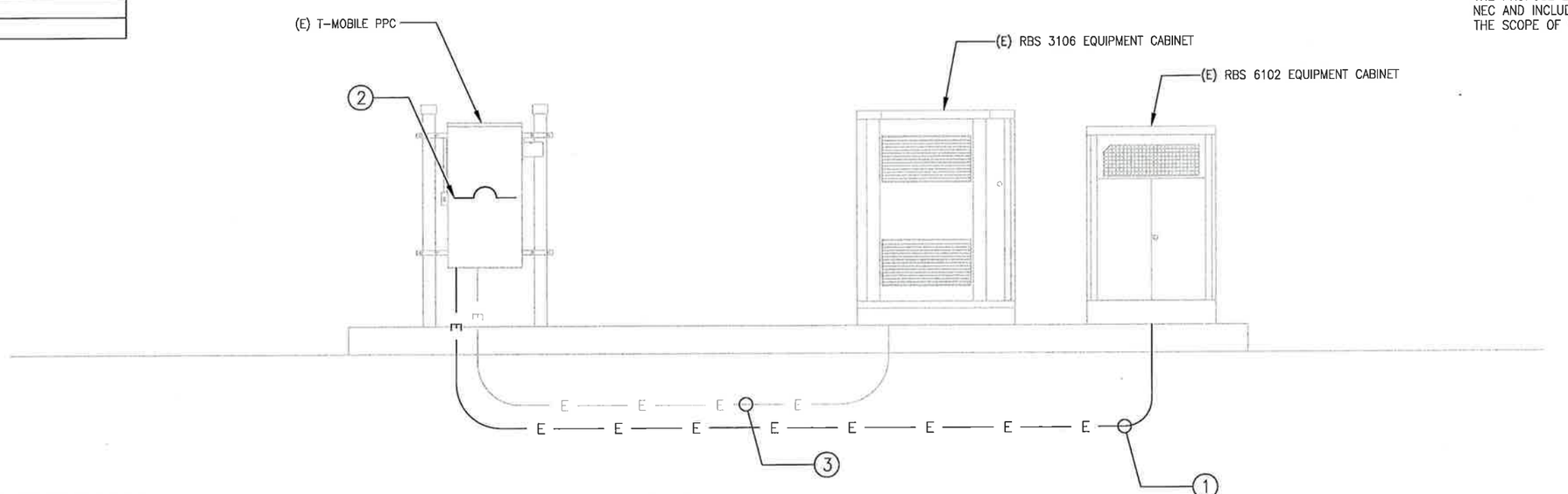
NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

2 GROUND BAR CONNECTION DETAILS
SCALE: NOT TO SCALE

CONDUIT SCHEDULE	
①	(P) WIRE AND CONDUIT UPGRADE FOR POWER
②	(P) 100A BREAKER UPGRADE
③	(E) POWER CONDUIT



3 POWER DIAGRAM
SCALE: NOT TO SCALE

CONTRACTOR NOTE:
CONTRACTOR TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSE LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

NOTE:
INFINIGY HAS NOT CONDUCTED AN ELECTRICAL LOAD STUDY FOR THIS SITE. CONTRACTOR IS TO VERIFY EXISTING ELECTRICAL LOADING PRIOR TO CONSTRUCTION TO ENSURE EXISTING INCOMING SERVICE CAPACITY. ALL ELECTRICAL INSTALLATION IS TO COMPLY WITH NEC, ADOPTED VERSION.

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STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
AUG 02 2016
PROFESSIONAL SEAL

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SITE NUMBER:
CTNH332C

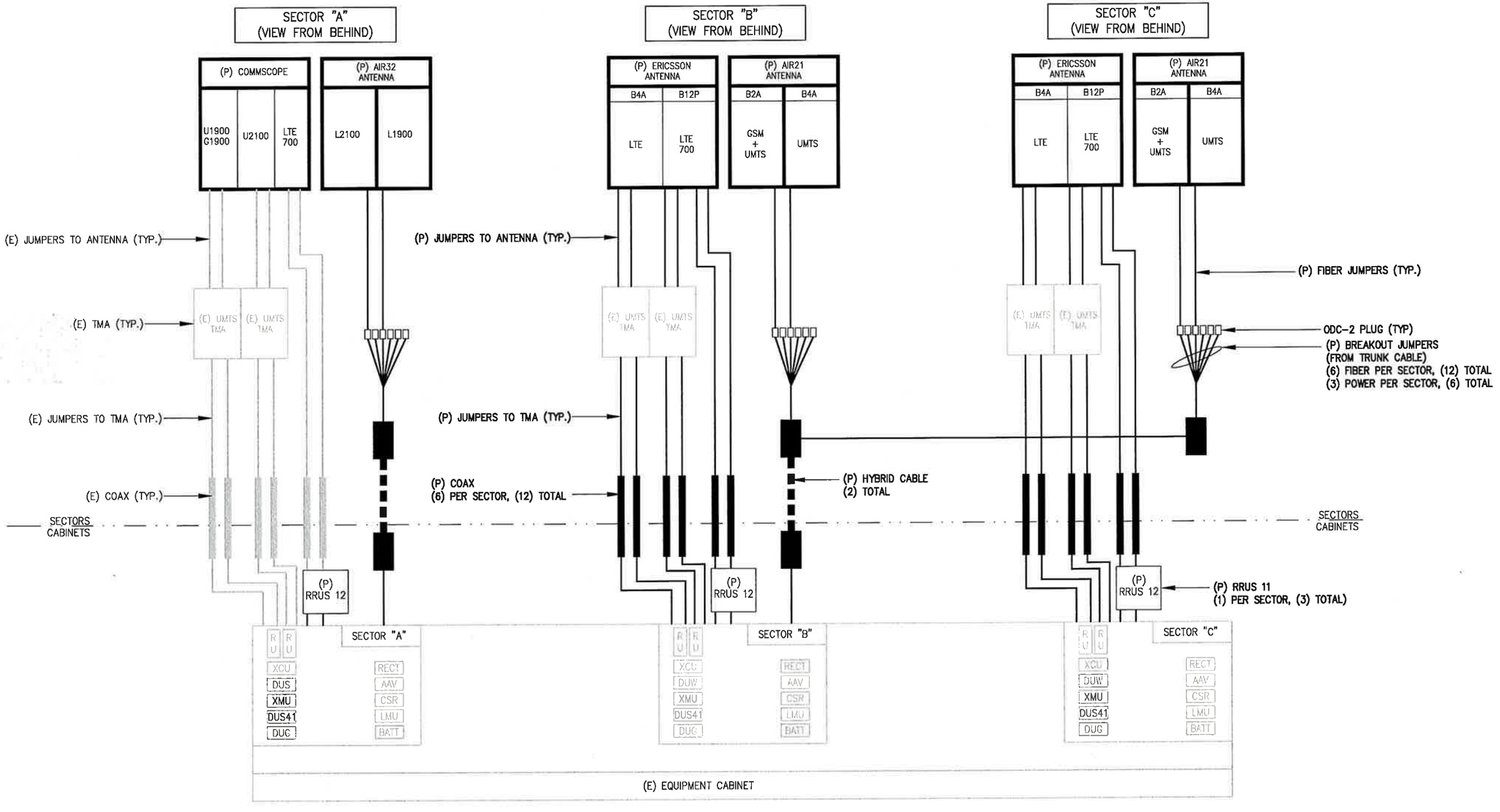
SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

SHEET TITLE
GROUNDING & POWER DIAGRAMS

SHEET NUMBER
E-1

SHEET 6 OF **8** SHEETS



1 — 794DB CONFIGURATION COAX/FIBER PLUMBING DIAGRAM
NOT TO SCALE

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PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24302
LICENSED PROFESSIONAL ENGINEER
AUG 03 2016

PROFESSIONAL SEAL

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CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

SHEET TITLE

COAX/FIBER PLUMBING DIAGRAM

SHEET NUMBER

E-2

SHEET 7 OF 8 SHEETS

ELECTRICAL NOTES:

WORK INCLUDED

1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
   B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
   C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
   D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
   E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
   F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
5. GENERAL
   A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
   B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
   A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
   B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
   C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
   D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
   E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.

GUARANTEE

1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

1. AS-BUILT DRAWINGS:
   A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
2. SERVICE MANUALS:
   A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
   B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING

1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS

1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
   A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
   B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
   C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
   D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
   E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
   F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
   G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
   H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
   I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
   J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
   K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

   L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
   M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
   N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
   O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
   P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8

8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES

1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
   A. GENERAL ELECTRIC COMPANY
   B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
   A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
   B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT

1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
   A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
   A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:

1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION

1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

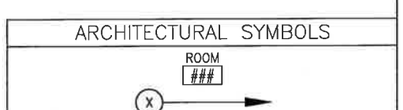
ADMINISTRATION

1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

INSURANCE AND BONDS

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

ARCHITECTURAL SYMBOLS



ABBREVIATIONS

ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
@	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TYP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
12/15/15	FOR PERMIT	0
1/22/16	REVISED PER COMMENTS	1
2/4/16	REVISED PER COMMENTS	2
2/26/16	REVISED/ FOR PERMIT	3
3/14/16	REVISED/ FOR PERMIT	4
6/29/16	REVISED SCOPE/FOR REVIEW	5

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
AUG 0 2 2016
No. 24709
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

SHEET TITLE
GENERAL AND ELECTRICAL NOTES

SHEET NUMBER
N-1

SHEET 8 OF 8 SHEETS

SMOKESTACK MODIFICATION DRAWINGS

PREPARED BY:

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

T-Mobile

AMERICAN TOWER CORPORATION

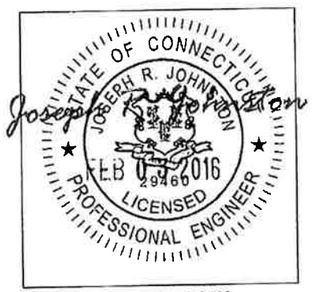
NH332 CHERRY SMOKESTACK

39 CHERRY AVENUE

WATERBURY, CT 06704

2/3/2016

INFINIGY JOB # 317-000



PROFESSIONAL SEAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THESE DOCUMENTS.

SHEET NUMBER

S-1

SHEET 1 OF 3 SHEETS

NOTES:

GENERAL:

1. THE MODIFICATIONS OUTLINED IN THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE ANSI/TIA-222-G CODE.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
4. THE CONTRACTOR SHOULD NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER TIA-1019-A-2011, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
7. CONTRACTORS PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.
8. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
9. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
10. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
3. ALL STEEL ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI
4. ALL STRUCTURAL STEEL W SHAPES TO BE A992. Fy=50 KSI
5. ALL RECTANGULAR AND ROUND HSS TO BE A500, GRADE B. Fy=46 KSI
6. ALL STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI
7. ALL BOLTS TO BE A325-N. Fy=92 KSI
8. ALL U-BOLTS TO BE A36. Fy=36 KSI
9. ALL WELDING SHALL BE DONE USING E80XX ELECTRODES.
10. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION
11. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.

CONCRETE:

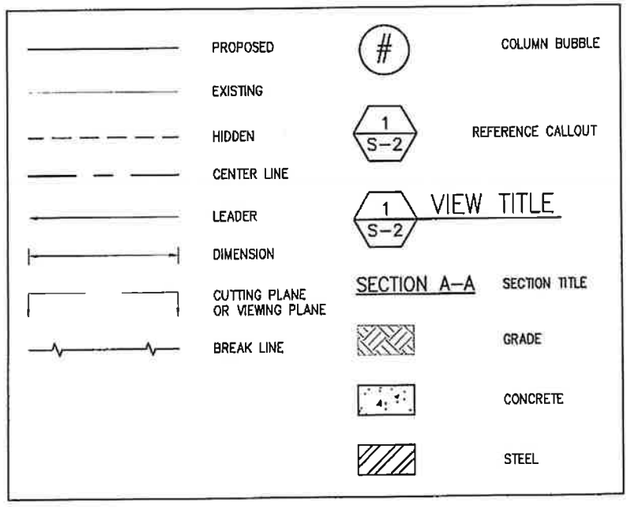
1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

NOTES (CONT'D):

PLUMB & TENSION:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS (EX. DO NOT EXCEED .6" FOR 20' OF VERTICAL DISTANCE)
4. THE TWIST BETWEEN ANY TWO ELEVATIONS SHALL NOT EXCEED .5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.
5. SEE "GUY WIRE RETENSIONING AND STANDARD SAFETY WIRE DETAILS" SHEET FOR ACCEPTABLE GUY WIRE TERMINATION EXTENSION, IF REQURED.

STRUCTURAL SYMBOLS



MINIMUM EDGE DISTANCE, FROM CENTER OF STANDARD HOLE TO EDGE OF CONNECTED PART

NOMINAL RIVET OR BOLT DIAMETER (In.)	AT SHEARED EDGES	AT ROLLED EDGES OF PLATES, SHAPES OR BARS, OR GAS CUT EDGES
1/2"	7/8"	3/4"
5/8"	1 1/8"	7/8"
3/4"	1 1/4"	1"
7/8"	1 1/2"	1 1/8"
1"	1 3/4"	1 1/4"
1 1/8"	2	1 1/2"
1 1/4"	2 1/4"	1 5/8"
OVER 1 1/4"	1 3/4 x DIAMETER	1 1/4 x DIAMETER

STRUCTURAL ABBREVIATIONS:

@	AT
AB	ANCHOR BOLT
ALT	ALTERNATE
APPROX	APPROXIMATE
BM	BEAM
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
CLR	CLEAR
CONC	CONCRETE
CONT	CONTINUOUS
CONT'D	CONTINUED
CTR	CENTERED
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DN	DOWN
do	DITTO
EA	EACH
EF	EACH FACE
EHS	EXTRA HIGH STRENGTH
EL, ELEV	ELEVATION
EMBED	EMBEDDED, EMBEDMENT
ENCL	ENCLOSURE
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EST	ESTIMATED
EW	EACH WAY
EXIST	EXISTING
EXT	EXTERIOR
FAB	FABRICATE
FIN	FINISHED
FND	FOUNDATION
FS	FAR SIDE
FT	FEET
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GR	GRADE
GRND	GROUND, GRADE
GRTG	GRATING
HD	HEAVY DUTY
HEX	HEXAGON(AL)
HORIZ	HORIZONTAL
HP	HIGH POINT
HVY	HEAVY DUTY
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH, INCHES
INCL	INCLUDE, INCLUDING
INFO	INFORMATION
IT	INITIAL TENSION
KSI	KIP (1000 LBS)

L	ANGLE
LC	LENGTH OF CHORD
LG, LNG	LONG, LENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATE, LOCATION
LP	LOW POINT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
NA	NOT APPLICABLE
NEC	NECESSARY
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPG, OPNG	OPENING
OPP	OPPOSITE
OS	OTHERWISE SPECIFIED
PCS	PIECES
PERIM	PERIMETER
PERP	PERPENDICULAR
PL	PLATE, PROPERTY LINE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
QC	QUALITY CONTROL
QUAL	QUALITY
R	RADIUS
REINF	REINFORCEMENT, REINFORCING
REQD	REQUIRED
REV	REVISION
SCHED	SCHEDULE
SP	SPACED, SPACES, SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SQFT	SQUARE FEET
STD	STANDARD
STRUCT	STRUTURAL
SUB	SUBSTITUTE
T&B	TOP & BOTTOM
T/	TOP OF
THD	THREAD, THREADED
THK	THICK
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WP	WORKING POINT
YS	YIELD STRENGTH

T-Mobile

T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
02/02/16	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE ACQ.			

PROJECT NO: 317-000
DRAWN BY: DVA
CHECKED BY: ASW

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
FEB 02 2016
29460
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

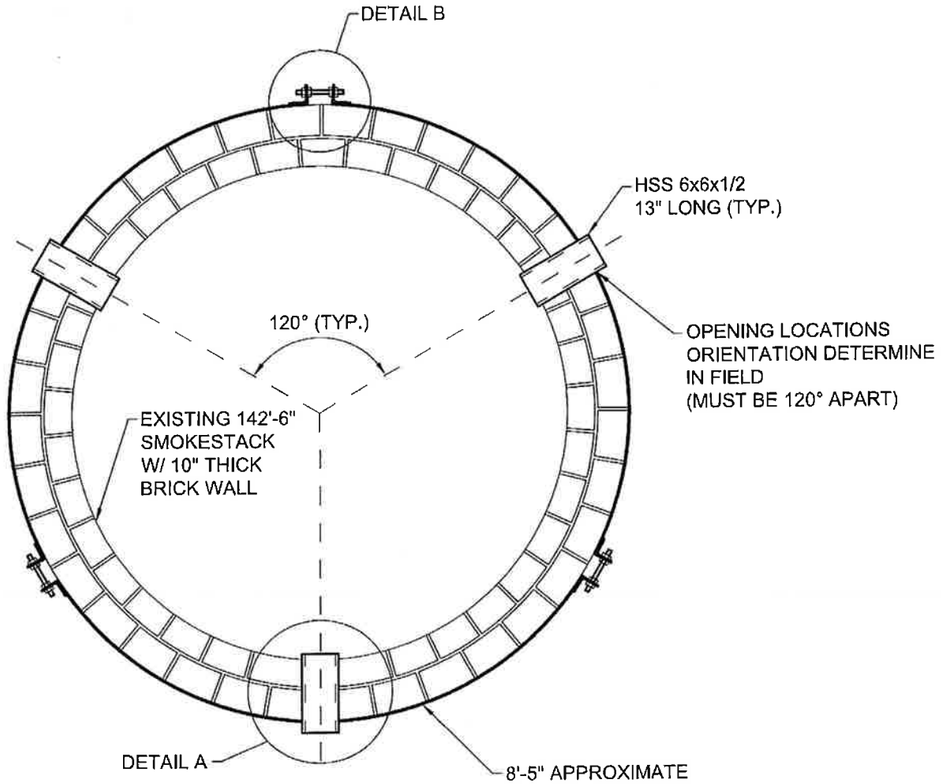
39 CHERRY AVE.
WATERBURY, CT 06704

SHEET TITLE

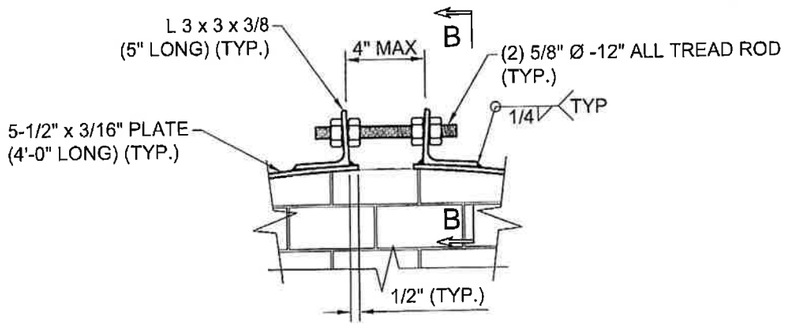
GENERAL NOTES

SHEET NUMBER

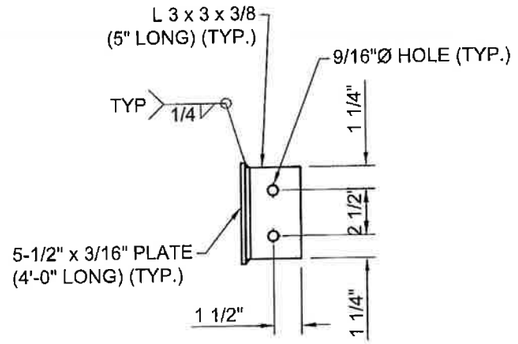
S-2



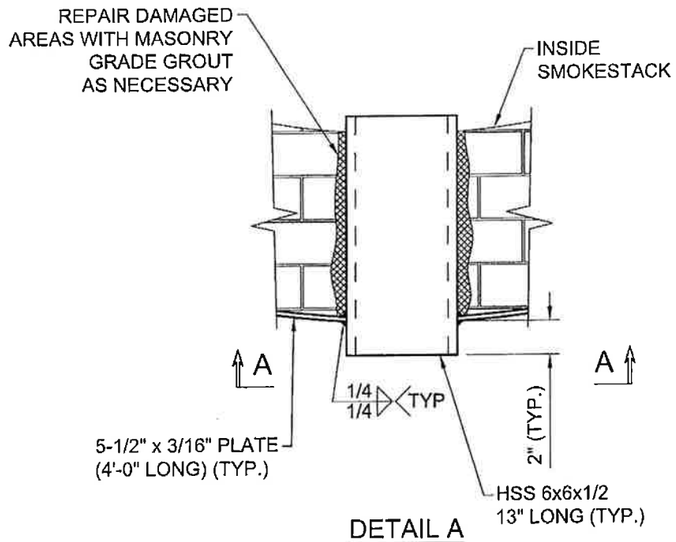
PROPOSED STEEL HOOPS
AT 132' ELEVATION



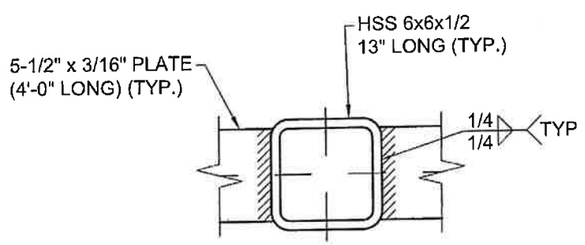
DETAIL B



B - B



DETAIL A



A - A

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
DATE	DESCRIPTION	REVISION
02/03/16	FOR PERMIT	0

DEPT	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	DVA
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
LD 29460 2016
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CTNH332C

SITE NAME:
NH332/CHERRYSMOKESTACK

39 CHERRY AVE.
WATERBURY, CT 06704

SHEET TITLE

PROPOSED STEEL HOOPS

SHEET NUMBER

S-3

SHEET 3 OF 3 SHEETS

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTNH332C

NH332/CherrySmokestack
39 Cherry Street
Waterbury, CT 06704

July 6, 2016

EBI Project Number: 6216003149

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	4.91 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

July 6, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTNH332C – NH332/CherrySmokestack**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **39 Cherry Street, Waterbury, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general public 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 public 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report 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 done for the proposed T-Mobile Wireless antenna facility located at **39 Cherry Street, Waterbury, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile 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.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

6) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

7) Since some of the radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 0.98 dB of additional cable loss for all ground mounted 700 MHz Channels, 1.80 dB of additional cable loss for all ground mounted 1900 MHz channels and 1.86 dB of additional cable loss for all ground mounted 2100 MHz channels. This is based on manufacturers Specifications for 175 feet of 1-5/8" coax cable on each path.

8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. 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. This is rarely the case, and if so, is never continuous.

9) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antennas used in this modeling are the **Ericsson AIR32 B66Aa/B2A** for 1900 MHz (PCS) and 2100 MHz (AWS) channels & the **Commscope SBNHH-1D65C** for 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B66Aa/B2A** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope SBNHH-1D65C** has a maximum gain of **15.1 dBd** at its main lobe at 1900 MHz and 2100 MHz and a maximum gain of **13.6 dBd** at its main lobe at 700 MHz. 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.

11) The antenna mounting height centerline of the proposed antennas is **137 feet** above ground level (AGL).

12) Emissions values for additional carriers were taken determined through calculated estimates based upon typical loading values for MetroPCS and Clearwire since there were no values listed for these two carriers in the Connecticut Siting Council MPE database.

13) All calculations were done with respect to uncontrolled / general public threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	137	Height (AGL):	137	Height (AGL):	137
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	1.96	Antenna B1 MPE%	1.96	Antenna C1 MPE%	1.96
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope SBNHH-1D65C	Make / Model:	Commscope SBNHH-1D65C	Make / Model:	Commscope SBNHH-1D65C
Gain:	15.1 dBd / 13.6 dBd	Gain:	15.1 dBd / 13.6 dBd	Gain:	15.1 dBd / 13.6 dBd
Height (AGL):	137	Height (AGL):	137	Height (AGL):	137
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS) / 700 MHz	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS) / 700 MHz	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS) / 700 MHz
Channel Count	7	Channel Count	7	Channel Count	7
Total TX Power(W):	210	Total TX Power(W):	210	Total TX Power(W):	210
ERP (W):	4,379.16	ERP (W):	4,379.16	ERP (W):	4,379.16
Antenna A2 MPE%	1.05	Antenna B2 MPE%	1.05	Antenna C2 MPE%	1.05

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**3.00 %**
Clearwire	0.19 %
MetroPCS	1.72 %
Site Total MPE %:	**4.91 %**

T-Mobile Sector A Total:	3.00 %
T-Mobile Sector B Total:	3.00 %
T-Mobile Sector C Total:	3.00 %
Site Total:	4.91 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2,334.27	137	9.78	AWS - 2100 MHz	1000	0.98 %
T-Mobile 1900 MHz (PCS) LTE	2	2,334.27	137	9.78	PCS - 1900 MHz	1000	0.98 %
T-Mobile 2100 MHz (AWS) UMTS	2	632.59	137	2.65	AWS - 2100 MHz	1000	0.27 %
T-Mobile 1900 MHz (PCS) UMTS	2	641.39	137	2.69	PCS - 1950 MHz	1000	0.27 %
T-Mobile 1900 MHz (PCS) GSM	2	641.39	137	2.69	PCS - 1950 MHz	1000	0.27 %
T-Mobile 700 MHz LTE	1	548.43	137	1.15	700 MHz	467	0.25 %
						Total:	**3.00 %**

Summary

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

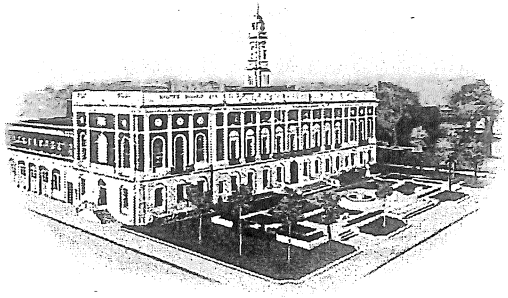
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	3.00 %
Sector B:	3.00 %
Sector C:	3.00 %
T-Mobile Per Sector Maximum:	3.00 %
Site Total:	4.91 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.91%** of the allowable FCC established general public 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.

MICHAEL J. DALTON
CITY CLERK



Office: (203) 574-6744
Fax: (203) 574-6745
E-mail: mdalton@waterburyct.org

OFFICE OF CITY CLERK

THE CITY OF WATERBURY

CONNECTICUT

DATE: **September 20, 2010**

To Whom It May Concern:

THIS IS TO CERTIFY THAT at a Regular Meeting of the Zoning Board of Appeals held on Wednesday, September 15, 2010, it was voted unanimously to **GRANT** a Certificate of Approval with a stipulation that it match the color of the existing antenna for the petition submitted by Clearwire LLC, for a Special Exception from Section 5.13-9 to add antennas to an existing smoke stack for property located at **39 Cherry Avenue. Applicant: Clearwire LLC, Maxton Technology, 1296 Blue Hills Avenue, Bloomfield, CT 06002.**

ATTEST: _____
Michael J. Dalton
City Clerk

MJD/mcr

DEPARTMENT OF PLANNIN
CITY OF WATERBURY
235 GRAND STREET
WATERBURY, CONNECTICUT 06702
Tel. (203) 574-6818 Fax (203) 346-3949

James A. Sequin, AICP
City Planner

December 22, 2005

To whom it may concern:

THIS IS TO CERTIFY THAT at the regular meeting of the Zoning Board of Appeals held on Wednesday, December 21, 2005 the Board approved the application of Omnipoint Communications, Inc. for a VARIANCE of 5.13-9 (c) of the Zoning Regulations requiring a 50 foot setback from residential property, to permit wireless telecommunications/utility equipment to be located 34 feet from the northerly property boundary, 35 feet from the easterly boundary and 25 feet from the northeasterly boundary, in the RH District, for a property located at **39 Cherry Avenue (aka 215 Cherry Street).**

ATTEST: _____

James A. Sequin
City Planner

DEPARTMENT OF PLANNING
CITY OF WATERBURY
235 GRAND STREET
WATERBURY, CONNECTICUT 06702
Tel. (203) 574-6818 Fax (203) 346-3949

James A. Sequin, AICP
City Planner

December 22, 2005

To whom it may concern:

THIS IS TO CERTIFY THAT at the regular meeting of the Zoning Board of Appeals held on Wednesday, December 21, 2005 the Board approved the application of Omnipoint Communications, Inc. for a SPECIAL EXCEPTION under Sections 5.12.-12 and 5.13-9 of the Zoning Regulations to permit a wireless telecommunication facility consisting of panel antennas and related equipment cabinets, in the RH District, for a property located at **39 Cherry Avenue (aka 215 Cherry Street)**.

ATTEST: _____

James A. Sequin
City Planner

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1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Smokestack Analysis Report

June 30, 2016

Site Name	NH332/CherrySmokestack
Site Number	CTNH332C
Infinigy Job Number	368-000
Client	American Tower Corporation
Proposed Carrier	T-Mobile
Site Location	39 Cherry Avenue, Waterbury, CT 06704 41° 33' 34.27" N NAD83 73° 2' 3.4" W NAD83
Structure Type	142.5' Smokestack
Structural Usage Ratio	**52.5%**
Overall Result	**PASSING**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The Smokestack is therefore deemed adequate to support the existing and proposed loading as listed in this report.

Joseph R. Johnston
JUN 30 2016

Nathaniel R. Ober, E.I.T.
Structural Engineer I

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 142.5' Smokestack. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site.

Supporting Documentation

Previous Analysis	International Chimney Corporation, dated February 10, 2014
Proposed Loading	Infinigy Construction Drawings, dated June 30, 2016
Revised Draft Application	American Tower, dated May 2, 2016
Network Modernization RFDS v3.0	T-Mobile, dated April 7, 2016
Existing Loading	Load List, dated June 05, 2014

Analysis Code Requirements

Wind Speed	85 mph (Fastest mile wind speed)
Wind Speed w/ ice	74 mph (Fastest mile wind speed) w/ 1/2" Ice
TIA Revision	ANSI/TIA/EIA-222-F
Adopted IBC	2003 IBC

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The Smokestack is therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober, E.I.T.
Structural Engineer I | Infinigy
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790 | (M) (303) 704-0322
nober@infinigy.com | www.infinigy.com

Existing Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
140.0	--	--	--	(1) 1/2”	--
137.0	1	RFS APX16DWV-16DWVS	Flush	(6) 1-5/8”	T-Mobile
	1	RFS APX16PV-16PVL-A			
	1	Ericsson KRY 122 144/1			
	1	Ericsson KRY 122 489/2			
	1	RFS ATMAA1412D-1A20			
127.0	1	1’ HP Dish	Flush	2” Conduit (4) 1/2”	Clearwire
	3	Samsung U-RAS Premium-F FRH			
	3	Argus LLPX310R-V4			
	3	DragonWave A-ANT-18G-2-C			
	1	RCU			
	4	DragonWave Horizon DUO			
110.0	3	RFS APXV18-209015-C-A20	Flush	(6) 1-5/8”	Metro PCS
100.0	2	RFS APX16DWV-16DWVS	Flush	(12) 1-5/8”	T-Mobile
	2	RFS APX16PV-16PVL-A			
	2	Ericsson KRY 122 144/1			
	2	Ericsson KRY 122 489/2			
	2	RFS ATMAA1412D-1A20			

To Be Relocated from 100’ to 137’

Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
2	Ericsson KRY 122 144/1	Flush	--	T-Mobile
2	Ericsson KRY 122 489/2			

To Be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
137.0	1	RFS APX16DWV-16DWVS	Flush	--	T-Mobile
	1	RFS APX16PV-16PVL-A			
	1	RFS ATMAA1412D-1A20			
100.0	2	RFS APX16DWV-16DWVS	Flush	(12) 1-5/8”	
	2	RFS APX16PV-16PVL-A			
	2	RFS ATMAA1412D-1A20			

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
137.0	3	Andrew SBNHH-1D65C	Flush**	(12) 1-5/8" Coax (2) 1-5/8" Fiber	T-Mobile
	3	Ericsson AIR32 B66Aa/B2a			
Ground	3	Ericsson RRUS-11 B12*	H-Frame	--	

***Radios are to be ground mounted**
****See the construction drawings for proposed mount information**

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
140.0	--	--	--	(1) 1/2"	--
137.0	3	Andrew SBNHH-1D65C	Flush	(18) 1-5/8" Coax (2) 1-5/8" Fiber	T-Mobile
	3	Ericsson AIR32 B66Aa/B2a			
	3	Ericsson KRY 122 144/1			
	3	Ericsson KRY 122 489/2			
127.0	1	1' HP Dish	Flush	2" Conduit (4) 1/2"	Clearwire
	3	Samsung U-RAS Premium-F FRH			
	3	Argus LLPX310R-V4			
	3	DragonWave A-ANT-18G-2-C			
	1	RCU			
	4	DragonWave Horizon DUO			
110.0	3	RFS APXV18-209015-C-A20	Flush	(6) 1-5/8"	Metro PCS
Ground	3	Ericsson RRUS-11 B12	H-Frame	--	T-Mobile

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Client: T-Mobile
Site Name: NH332/CherrySmokestack
Site Number: CTNH332C
Job Number: 368-000
Calculated By: NRO

CALCULATION SHEET

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MOMENTS COMPARISON

Existing Sructures:

Wind speed: $V := 85mph$

Smokestack:

Top Smokestack Elevation: $Ht \equiv 142.6ft$

Smokestack Top Diameter: $W_{top} := 8ft$ [Per International Chimney Corporation Analysis]

Smokestack Bottom Diameter: $W_{bottom} := 13.83ft$

Smokestack Midline Width: $W_{smst} := \frac{(W_{top} + W_{bottom})}{2} = 10.915 \cdot ft$

Smokestack Area: $Area_{smst} := 1555.39ft^2$ [CAD Calculation]

Proposed and Existing Equipment:

Center Line Level: $CL_1 := 137ft$

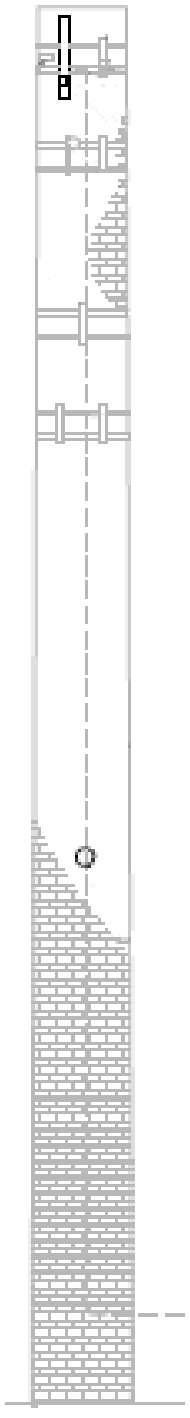
Andre SBNHH-1D65C:	$Ht_{ant1} := 96.6in$	$W_{ant1} := 11.9in$	$Qt_{ant1} := 3$
Ericsson AIR32 B66Aa/B2a	$Ht_{ant2} := 55in$	$W_{ant2} := 12in$	$Qt_{ant2} := 3$
Ericsson KRY 112 144/1:	$Ht_{tma1} := 102in$	$W_{tma1} := 7.7in$	$Qt_{tma1} := 3$
Ericsson KRY 112 489/2	$Ht_{tma2} := 11in$	$W_{tma2} := 6.1in$	$Qt_{tma2} := 3$
Pipe Mounts:	$L_{pipe1} := 5ft$	$W_{pipe1} := 2.375in$	$Qt_{pipe1} := 6$

Center Line Level: $CL_2 := 127ft$

1' HP Dish:	$D_{dish1} := 12in$		$Qt_{dish1} := 1$
Samsung U-RAS Premium-F FRH:	$Ht_{tma3} := 16.1in$	$W_{tma3} := 11.6in$	$Qt_{tma3} := 3$
Argus LLPX310R-V4:	$Ht_{ant3} := 41.1in$	$W_{ant3} := 11.8in$	$Qt_{ant3} := 3$
DragonWave A-ANT-18G-2-C	$D_{dish2} := 26.1in$		$Qt_{dish2} := 3$
RCU:	$Ht_{RRH1} := 8in$	$W_{RRH1} := 2in$	$Qt_{RRH1} := 1$
DragonWave Horizon DUO:	$Ht_{tma4} := 4.7in$	$W_{tma4} := 7.5in$	$Qt_{tma4} := 4$
Pipe Mounts:	$L_{pipe2} := 5ft$	$W_{pipe2} := 2.375in$	$Qt_{pipe2} := 8$

Center Line Level: $CL_3 := 110ft$

RFS APXV18-209015-C-A20:	$Ht_{ant4} := 72in$	$W_{ant4} := 6.6in$	$Qt_{ant4} := 3$
Pipe Mounts:	$L_{pipe3} := 6ft$	$W_{pipe3} := 2.375in$	$Qt_{pipe3} := 3$



Client: T-Mobile
Site Name: NH332/CherrySmokestack
Site Number: CTNH332C
Job Number: 368-000
Calculated By: NRO

CALCULATION SHEET

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Structure Wind Load:

$$F_{smokestack} := Wind\_Force\_Struct\left(Ht, W_{smst}, Round, V, \frac{Ht}{2}, Area_{smst}\right) = 35.748 \cdot kip$$

Structure Wind Load Moment About Smokestack Base :

$$M_{stuct} := F_{smokestack} \cdot \left(\frac{Ht}{2}\right) = 2548.815 \cdot kip \cdot ft$$

Equipment Wind Load:

$$F_{Eq1} := \left[\begin{array}{l} Wind\_Force\left(Ht_{ant1}, W_{ant1}, Flat, V, CL_1, Ht_{ant1} \cdot W_{ant1} \cdot 0.667\right) \cdot Qt_{ant1} \ldots \\ + Wind\_Force\left(Ht_{ant2}, W_{ant2}, Flat, V, CL_1, Ht_{ant2} \cdot W_{ant2} \cdot 0.667\right) \cdot Qt_{ant2} \ldots \\ + Wind\_Force\left(Ht_{tma1}, W_{tma1}, Flat, V, CL_1, Ht_{tma1} \cdot W_{tma1} \cdot 0.667\right) \cdot Qt_{tma1} \ldots \\ + Wind\_Force\left(Ht_{tma2}, W_{tma2}, Flat, V, CL_1, Ht_{tma2} \cdot W_{tma2} \cdot 0.667\right) \cdot Qt_{tma2} \ldots \\ + Wind\_Force\left[L_{pipe1}, W_{pipe1}, Round, V, CL_1, \left(L_{pipe1} - Ht_{ant1}\right) \cdot W_{pipe1}\right] \cdot Qt_{pipe1} \end{array}\right] \cdot 0.5 = 0.794 \cdot kip$$

[137' Level Center Line]

$$F_{Eq2} := \left[\begin{array}{l} Wind\_Force\left(D_{dish1}, D_{dish1}, Flat, V, CL_2, \pi \frac{D_{dish1}^2}{4} \cdot 0.667\right) \cdot Qt_{dish1} \ldots \\ + Wind\_Force\left(Ht_{ant3}, W_{ant3}, Flat, V, CL_2, Ht_{ant3} \cdot W_{ant3} \cdot 0.667\right) \cdot Qt_{ant3} \ldots \\ + Wind\_Force\left(D_{dish2}, D_{dish2}, Flat, V, CL_2, \pi \frac{D_{dish2}^2}{4} \cdot 0.667\right) \cdot Qt_{dish2} \ldots \\ + Wind\_Force\left(Ht_{tma3}, W_{tma3}, Flat, V, CL_2, Ht_{tma3} \cdot W_{tma3} \cdot 0.667\right) \cdot Qt_{tma3} \ldots \\ + Wind\_Force\left(Ht_{RRH1}, W_{RRH1}, Flat, V, CL_2, Ht_{RRH1} \cdot W_{RRH1} \cdot 0.667\right) \cdot Qt_{RRH1} \ldots \\ + Wind\_Force\left(Ht_{tma4}, W_{tma4}, Flat, V, CL_2, Ht_{tma4} \cdot W_{tma4} \cdot 0.667\right) \cdot Qt_{tma4} \ldots \\ + Wind\_Force\left[L_{pipe2}, W_{pipe2}, Round, V, CL_2, \left(L_{pipe2} - Ht_{ant3}\right) \cdot W_{pipe2}\right] \cdot Qt_{pipe2} \end{array}\right] \cdot 0.5 = 0.436 \cdot kip$$

[127' Level Center Line]

$$F_{Eq3} := \left[\begin{array}{l} Wind\_Force\left(Ht_{ant4}, W_{ant4}, Flat, V, CL_3, Ht_{ant4} \cdot W_{ant4} \cdot 0.667\right) \cdot Qt_{ant4} \ldots \\ + Wind\_Force\left[L_{pipe3}, W_{pipe3}, Round, V, CL_3, \left(L_{pipe3} - Ht_{ant4}\right) \cdot W_{pipe3}\right] \cdot Qt_{pipe3} \end{array}\right] \cdot 0.5 = 0.150 \cdot kip$$

[110' Level Center Line]

Equipment Wind Load Moment About Smokestack Base:

$$M_{equip} := F_{Eq1} \cdot CL_1 + F_{Eq2} \cdot CL_2 + F_{Eq3} \cdot CL_3 = 180.686 \cdot kip \cdot ft$$

$$MomentIncrease := \frac{M_{equip}}{M_{stuct}} = 7.1 \cdot \%$$

Client: T-Mobile
Site Name: NH332/CherrySmokestack
Site Number: CTNH332C
Job Number: 368-000
Calculated By: NRO

CALCULATION SHEET

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

OVERTURNING STABILITY CALCULATIONS

Masonry Bottom Thickness: $W_{bot} := 23.5in$ [Per International Chimney Corporation Analysis]

Masonry Top Thickness: $W_{bot} := 9in$

Smokestack Volume: $Vol := 6016.223 \cdot ft^3$ [CAD Calculation]

Assumed Masonry Density: $Den := 125 \cdot \frac{lbf}{ft^3}$

Smokestack Weight: $Wt_{smokestack} := Vol \cdot Den = 752 \cdot kip$

Total Overturning Moment:

$$M_{overturning} := M_{equip} + M_{stuct} = 2729.501 \cdot kip \cdot ft$$

Total Resisting Overturning Moment:

$$M_{resist} := Wt_{smokestack} \cdot \frac{W_{bottom}}{2} = 5200.273 \cdot kip \cdot ft$$

Overturning Check:

$$\%Capacity := \frac{M_{overturning}}{M_{resist}} = 52.5 \cdot \% \quad \text{OK}$$

Smokestack Has Adequate Capacity for Resisting the Applied Overturning Moment