

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE: :
: :
A PETITION OF CELLCO PARTNERSHIP : PETITION NO. ____
D/B/A VERIZON WIRELESS FOR A :
DECLARATORY RULING ON THE NEED :
TO OBTAIN A SITING COUNCIL :
CERTIFICATE FOR THE INSTALLATION :
OF A WIRELESS TELECOMMUNICATIONS :
FACILITY AT 1212 MAIN STREET, :
HARTFORD, CONNECTICUT : JULY 13, 2023

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies (“R.C.S.A.”), Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Petition”) that no Certificate of Environmental Compatibility and Public Need (“Certificate”) is required under Section 16-50k(a) of the Connecticut General Statutes (“C.G.S.”) for the installation of a wireless telecommunications facility on the roof of The Pennant at North Crossing (the “Pennant”), residential apartment building at 1212 Main Street in Hartford, Connecticut (the “Property”). See Attachment 1 –Site Schematic. The Property is owned by the City of Hartford c/o RMS DINO LLC (the “Property Owner”).

The Property is surrounded by the Dunkin Park baseball stadium to the north, Interstate 84 to the south, a surface parking lot to the west and The Millennium residential building to the east. Cellco refers to its proposed facility as its “Hartford YG” cell site.

II. Proposed Construction Activity

A. Cellco's Proposed Hartford YG Facility

The Hartford YG Facility will consist of the installation of up to eighteen (18) panel type antennas¹ and nine (9) remote radio heads (“RRHs”) attached to individual pipe masts on three (3) steel ballast mounting frames on the roof of the building. Two (2) mounting frames (eight (8) antennas) will be located in the northern portion of the roof along Trumbull Street. One (1) mounting frame will be located in the southeast portion of the roof along Morgan Street North. Equipment associated with the antennas will be located inside the Pennant parking garage. (See Cellco's Project Plans included in Attachment 2).

Cellco will provide wireless telecommunications services in its 700 MHz, 850 MHz, 1900 MHz, 2100 MHz and C-Band (3730 MHz and 3625 MHz) frequency ranges from the proposed Hartford YG Facility. Specifications for Cellco's antennas and remote radio heads are included in Attachment 3. The Hartford YG Facility will be capable of providing 5G wireless service.

Cellco's project engineer, TEP Northeast (“TEP”), prepared a Structural Analysis Report (“SA”) that confirms the antenna pipe masts, ballast mounting frames and the roof of the Pennant building itself are structurally capable of supporting Cellco's wireless facility improvements. A copy of the TEP SA is included in Attachment 4.

III. Discussion

A. The Proposed Facility Will Not Have A Substantial Adverse Environmental Effect

The Public Utility Environmental Standards Act (the “Act”), C.G.S. § 16-50g et seq.,

¹ Cellco intends to install twelve (12) antennas initially and add six (6) antennas as needed to maintain adequate service in downtown Hartford.

provides for the orderly and environmentally compatible development of telecommunications facilities in the state to avoid “a significant impact on the environment and ecology of the State of Connecticut.” C.G.S. § 16-50g. To achieve these goals, the Act established the Council, and requires a Certificate of Environmental Compatibility and Public Need for the construction of cellular telecommunication towers “that may, as determined by the council, have a substantial adverse environmental effect”. C.G.S. § 16-50k(a).

1. Physical Environmental Effects

Cellco respectfully submits that the proposed facility will not involve a significant impact on the physical and environmental characteristics of the Property or the surrounding community. All improvements associated with the Hartford YG Facility will be located on the roof of the existing five-story residential building and within the existing parking garage. No ground disturbance, tree removal or site grading is required to develop or maintain the Hartford YG Facility.

2. Visual Effects

Included in Attachment 5, is a Visibility Assessment and Photo Simulations of the proposed roof-top improvements. Visual effects associated with the proposed Hartford YG Facility would not have an adverse impact on existing views of the building or the character of the surrounding area. Views of the proposed antennas and antenna pipe masts would be generally obstructed by adjacent buildings and structures, including Dunkin Stadium around the Property.

3. FCC Compliance

Radio frequency (“RF”) emissions from the Hartford YG Facility will not exceed the maximum permissible exposure limits established by the Federal Communications Commission

(“FCC”). Included in Attachment 6 is a far field RF exposure calculation confirming that the proposed facility will operate well within the FCC safety standards.

4. FAA Notification Not Required

Cellco’s proposed facility improvements will not extend above the height of the tallest existing rooftop penthouse, located in the western portion of the roof. Therefore, no Federal Airways and Airspace Report will need to be prepared and no FAA notification is required.

B. Notice to the Town, Property Owner and Abutting Landowners

On July 13, 2023, a copy of this Petition was sent to Hartford’s Mayor, Luke Bronin; Erin Howard, Hartford’s Acting Director of Planning; and The City of Hartford c/o RMS DINO LLC, the Owner of the Property. Copies of the letters sent to these public officials and the Property owner are included in Attachment 7.


A copy of this Petition was also sent to the owners of land considered to abut the Property. A sample abutter’s notice letter and the list of those abutting landowners to whom notice was sent is included in Attachment 8.

IV. Conclusion

Based on the information provided above, Cellco respectfully requests that the Council issue a determination, in the form of a declaratory ruling, that the installation described above, will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

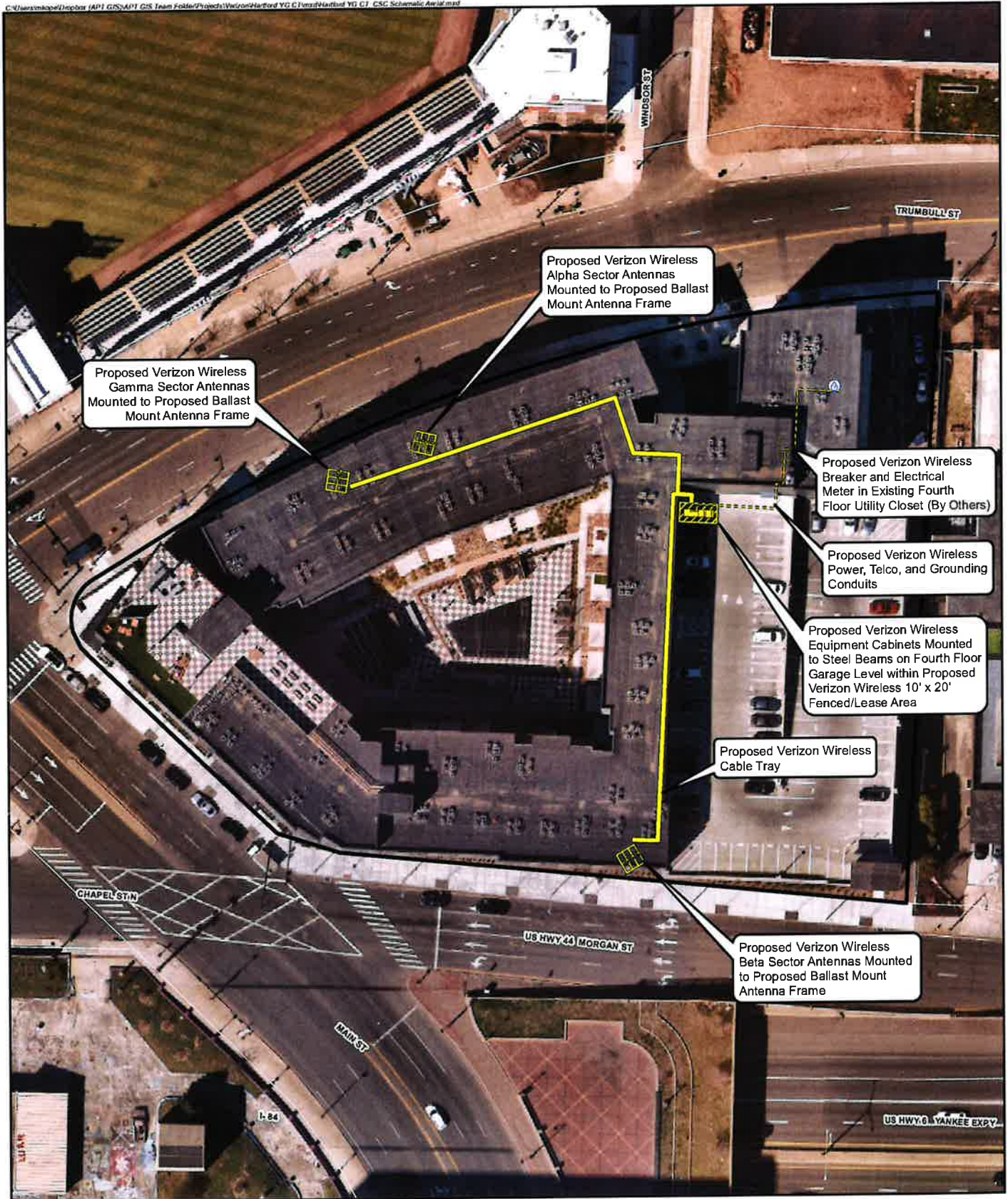
Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON
WIRELESS

By 

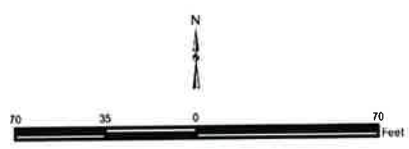
Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200
Its Attorneys

ATTACHMENT 1



- Legend**
- Proposed Verizon Wireless Fenced/ Lease Area
 - Proposed Verizon Wireless Equipment Existing Utility Closet (By Others)
 - Proposed Verizon Wireless Conduit
 - Approximate Water Main (By Others)
 - Subject Property
 - Approximate Parcel Boundary

Map Note:
 Base Map Source: 2022 Neemap Aerial Imagery
 Map Scale: 1 inch = 70 feet
 Map Date: June 2023



Site Schematic
 Proposed Wireless Telecommunications Facility
 Hartford YG CT
 1212 Main Street
 Hartford, Connecticut



ATTACHMENT 2

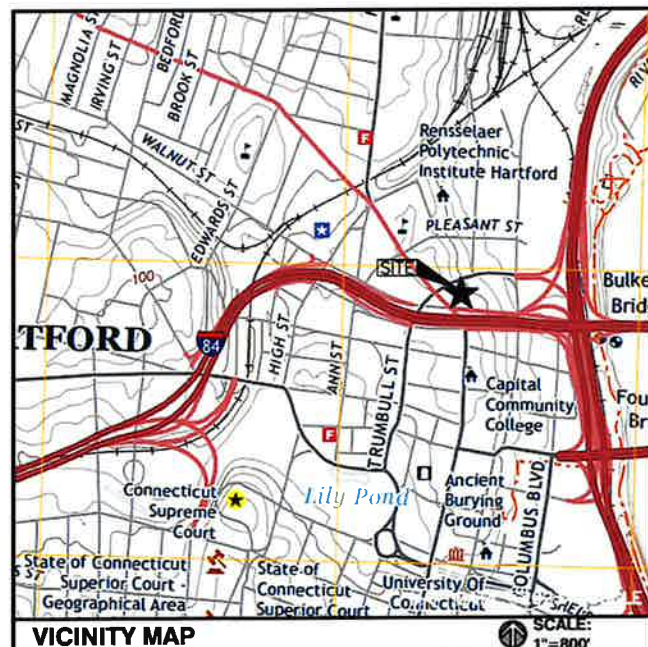
CELLCO PARTNERSHIP

d.b.a. **verizon**✓

WIRELESS COMMUNICATIONS FACILITY

HARTFORD YG CT

1212 MAIN STREET
HARTFORD, CT 06013



DIRECTIONS TO SITE:
FROM VERIZON WALLINGFORD CT OFFICE
HEAD SOUTH TOWARD ALEXANDER DR
TURN RIGHT, TURN RIGHT TOWARD ALEXANDER DR
TURN RIGHT TOWARD ALEXANDER DR, TURN RIGHT ONTO ALEXANDER DR
TURN RIGHT ONTO BARNES INDUSTRIAL PARK RD
TURN RIGHT ONTO CT-68 E. CONTINUE STRAIGHT TO STAY ON CT-68 E
SHARP LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD
FOLLOW I-91 N TAKE EXIT 32A-32B FOR TRUMBULL STREET. TURN
LEFT ONTO MARKET ST, TURN RIGHT ONTO MORGAN ST. TURN RIGHT
ONTO MAIN ST.

PROJECT SUMMARY

PROJECT ENGINEER

TEP- NORTHEAST
TEP, OPCO, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553

MEP ENGINEER

TEP- NORTHEAST
TEP, OPCO, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553

PROJECT SUMMARY

SITE NAME: HARTFORD YG CT
SITE ADDRESS: 1212 MAIN STREET
HARTFORD, CT 06013

APPLICANT: TIM PARKS
CELLCO PARTNERSHIP D/B/A VERIZON
20 ALEXANDER DRIVE
WALLINGFORD, CT 06108

SITE ACQUISITION CONTACT: CHRISTINA GLASS
SAI COMMUNICATIONS, LLC
12 INDUSTRIAL WAY
SALEM, NH 03079

LEGAL/REGULATORY COUNSEL: KENNETH C. BALDWIN ESQ.
ROBINSON + COLE LLP
(860)275-8345

LATITUDE: N41° 46' 14.39" N 41.770664°
LONGITUDE: W72° 40' 21.54" W 72.672650°

PARCEL ID: 267293001
PROPERTY OWNER: CITY OF HARTFORD, CT

SHEET INDEX

SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
C-1	ABUTTERS PLAN
A-1	ROOF PLAN
A-2	ELEVATION
A-3	EQUIPMENT PLAN

VERIZON WIRELESS IS PROPOSING TO INSTALL THE FOLLOWING IMPROVEMENTS ON PROPOSED TELECOMMUNICATION SITE:

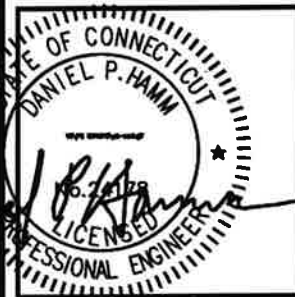
- NEW CABINETS: (2) CABINETS MOUNTED ON STEEL BEAMS
- NEW PANEL ANTENNAS: (4) ANTENNAS PER SECTOR, FOR A TOTAL OF (12)
- NEW ANTENNAS W/RRHs: (2) ANTENNAS WITH CLIP-ON RRHs PER SECTOR, FOR A TOTAL (6)
- NEW RRHs: (2) RRHs PER SECTOR, FOR A TOTAL OF (6)
- NEW OVP: (3) OVPs IN TOTAL

ITEMS LISTED ABOVE TO BE MOUNTED ON (3) PROPOSED BALLAST MOUNTS ON EXISTING ROOFTOP AND STEEL BEAMS ON & GARAGE LEVEL

- NEW TELCO & POWER SERVICES WILL BE ROUTED THROUGH UTILITY CLOSETS FROM FIBER CLOSET AND ELECTRICAL ROOM ON THE BASEMENT LEVEL RESPECTIVELY TO PROPOSED INTEGRATED LOAD CENTER AND HOFFMAN BOX ON ROOF.
- FINAL UTILITY ROUTING TO BE DETERMINED/VERIFIED BY UTILITY COMPANIES DURING CONSTRUCTION PHASE.

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.
verizon✓

TEP
NORTHEAST
TEP, OPCO, LLC
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553



CHECKED BY: JX
APPROVED BY: DPH

SUBMITTALS

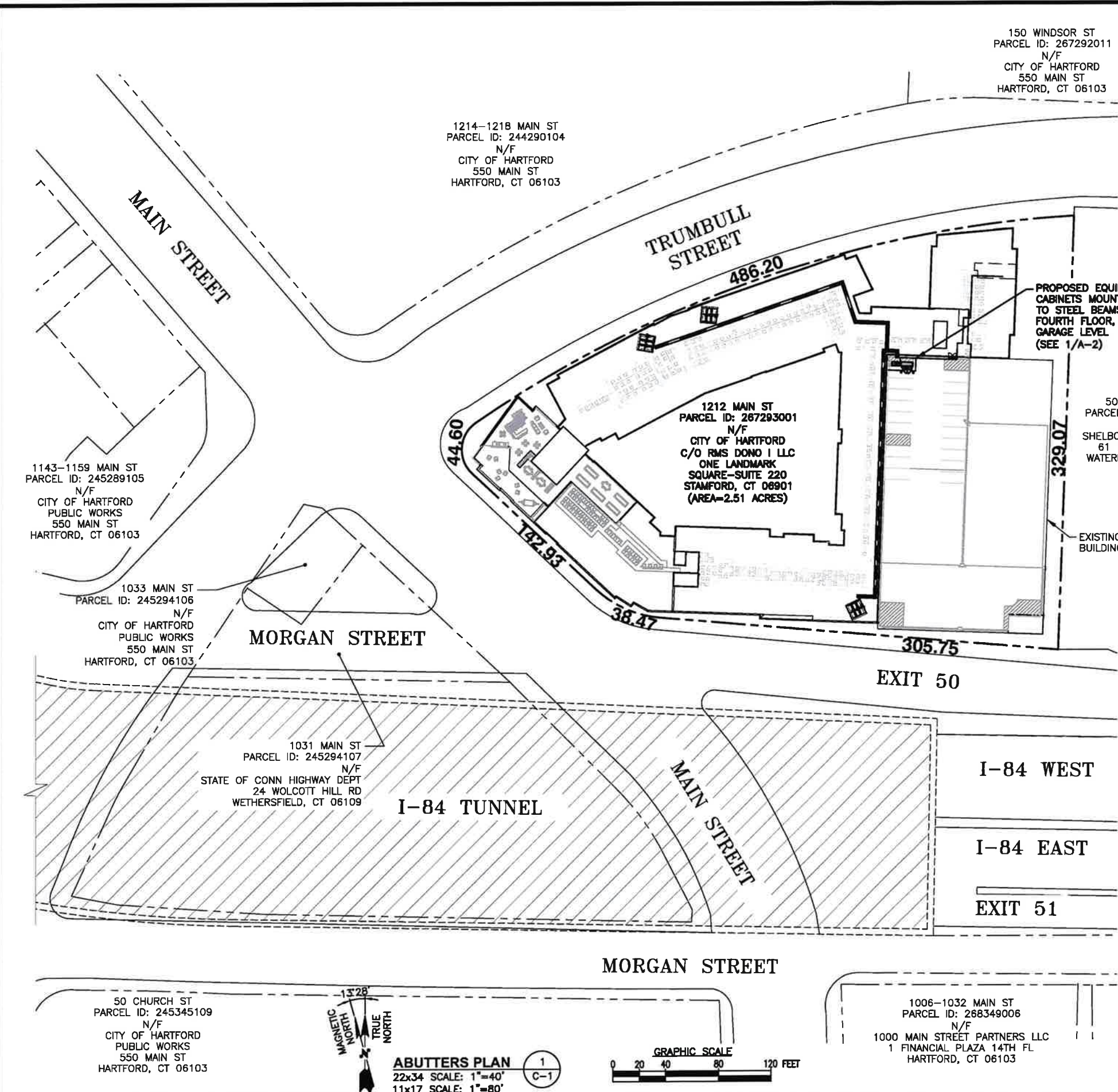
REV.	DATE	DESCRIPTION	BY
0	05/30/23	CSC DRWS FOR REVIEW	TR

SITE NAME:
HARTFORD YG CT

SITE ADDRESS:
1212 MAIN STREET
HARTFORD, CT 06013

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

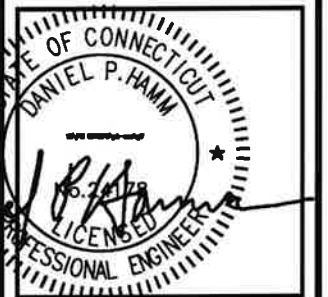


SOURCE:

- ONLINE ASSESSORS, TAX AND GIS MAPS FROM THE CITY OF HARTFORD CT ACCESSED ON MAY 31, 2023
- PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.

LEGEND

- PROPERTY LINE - SUBJECT PARCEL
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR LINE
- TREE LINE
- BARBED WIRE FENCE REMAINS
- OHW - OVERHEAD WIRE (TRANSMISSION LINE)
- EXISTING CHAIN LINK FENCE
- EXISTING BUILDING



CHECKED BY: JX
APPROVED BY: DPH

SUBMITTALS

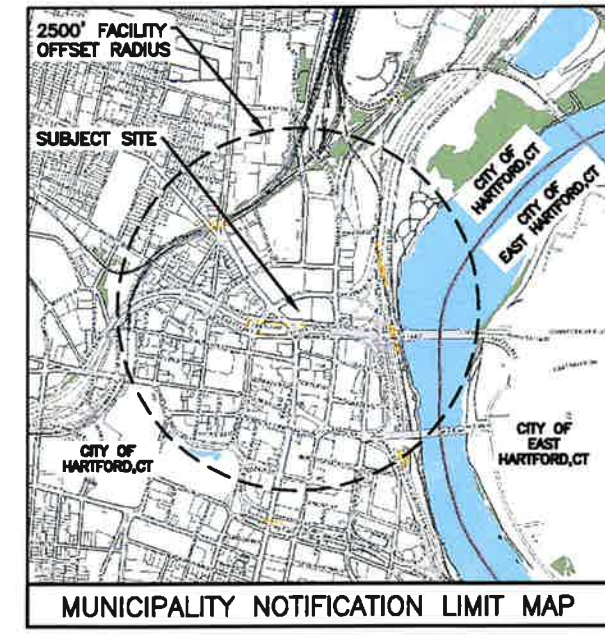
REV.	DATE	DESCRIPTION	BY
0	05/30/23	CSC DRGS FOR REVIEW	TR

SITE NAME:
HARTFORD YG CT

SITE ADDRESS:
1212 MAIN STREET
HARTFORD, CT 06013

SHEET TITLE
ABUTTERS
PLAN

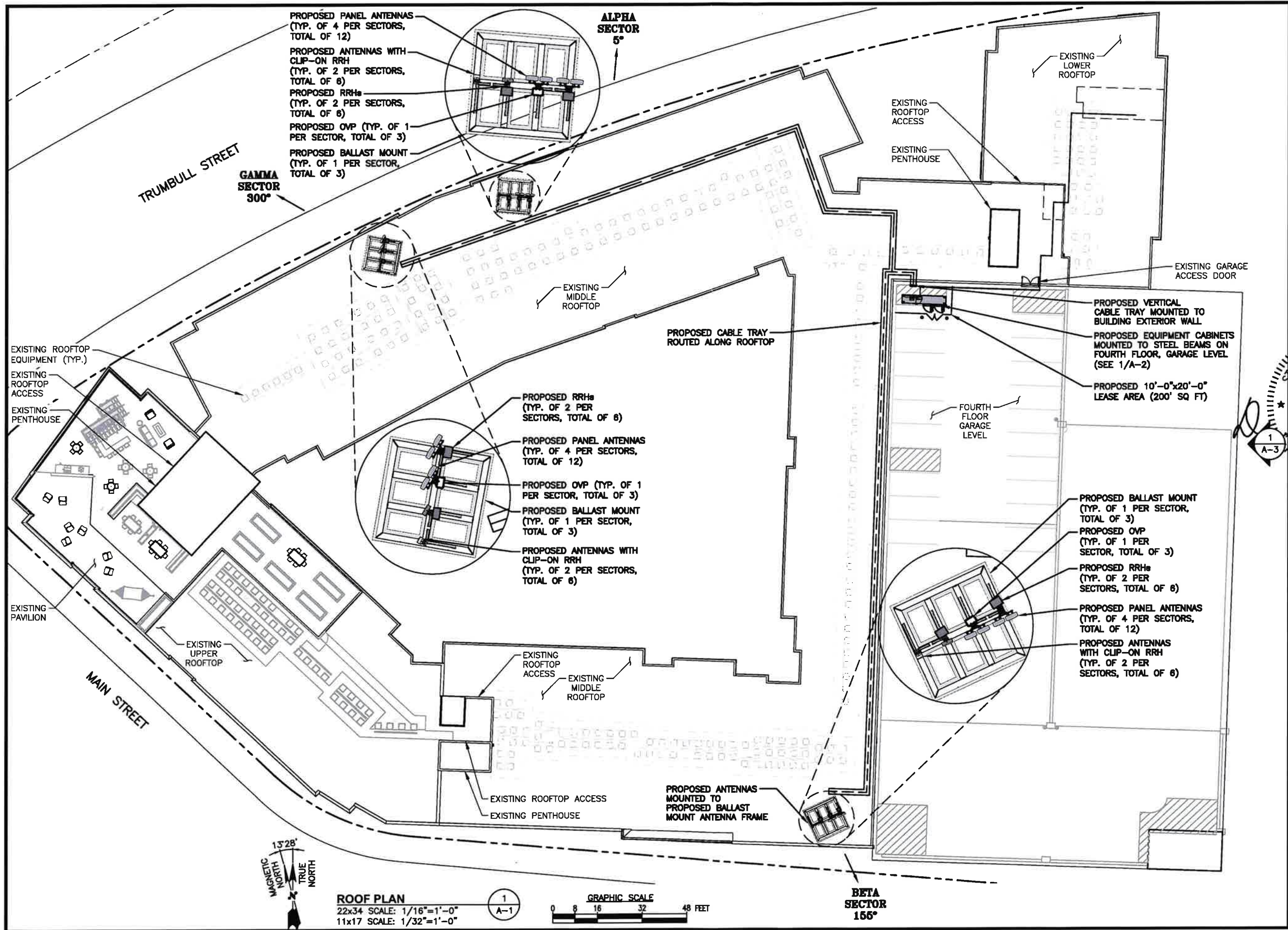
SHEET NUMBER
C-1



ABUTTERS PLAN 1
22x34 SCALE: 1"=40'
11x17 SCALE: 1"=80'

MAGNETIC NORTH 13°28' TRUE NORTH

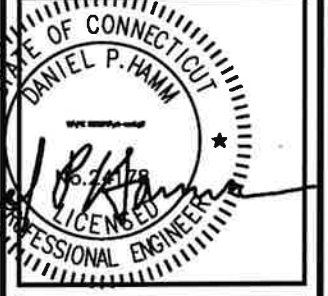
GRAPHIC SCALE
0 20 40 80 120 FEET



PREPARED FOR: CELCO PARTNERSHIP D.B.A.



TEP
NORTHEAST
TEP GROUP, LLC
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553



CHECKED BY: JX

APPROVED BY: DPH

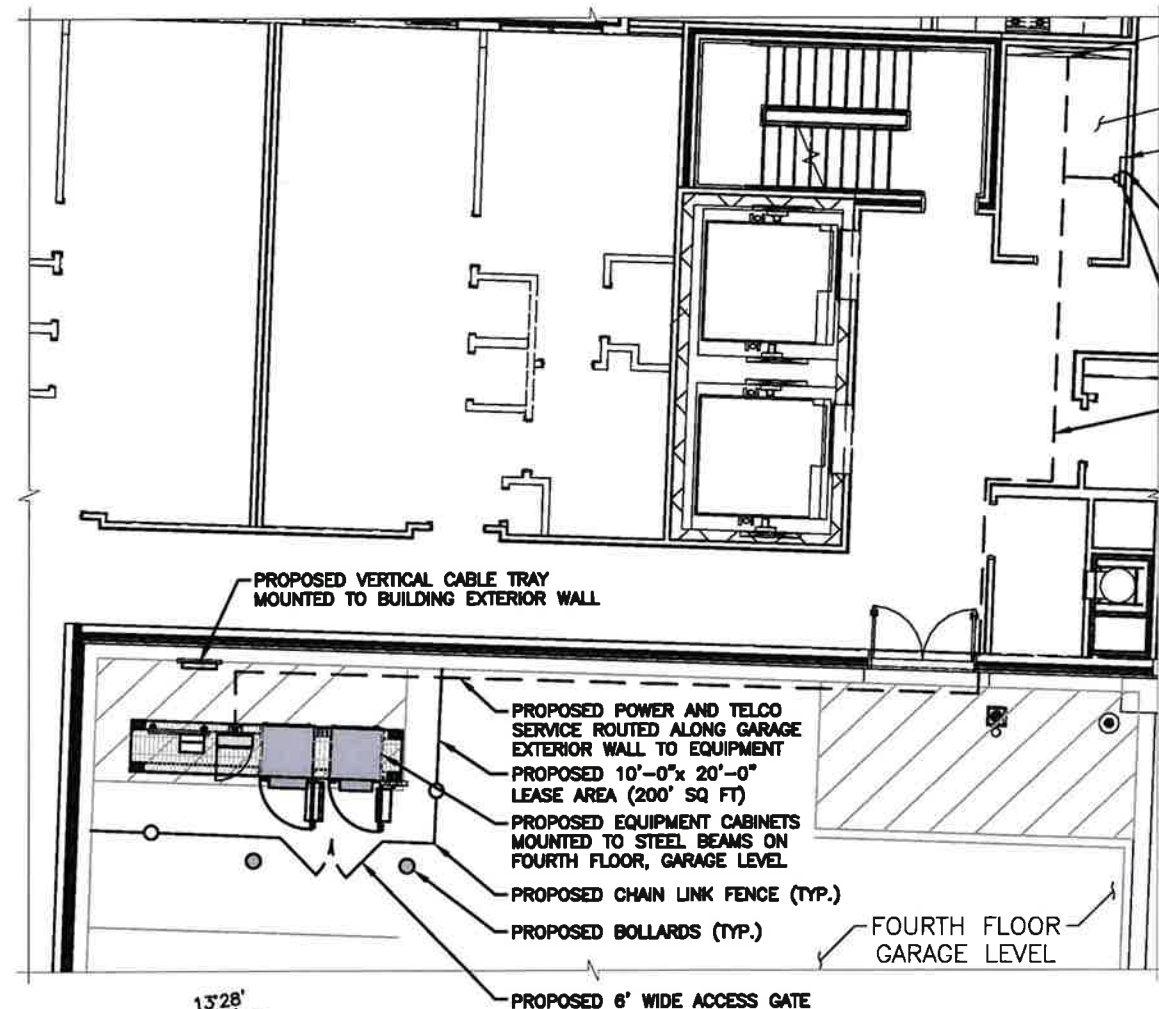
SUBMITTALS			
REL.	DATE	DESCRIPTION	BY
0	05/30/23	CSC DRWS FOR REVIEW	JR

SITE NAME:
HARTFORD YG CT

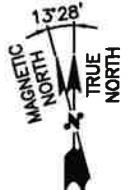
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1212 MAIN STREET
HARTFORD, CT 06013

SHEET TITLE
ROOF PLAN

SHEET NUMBER
A-1

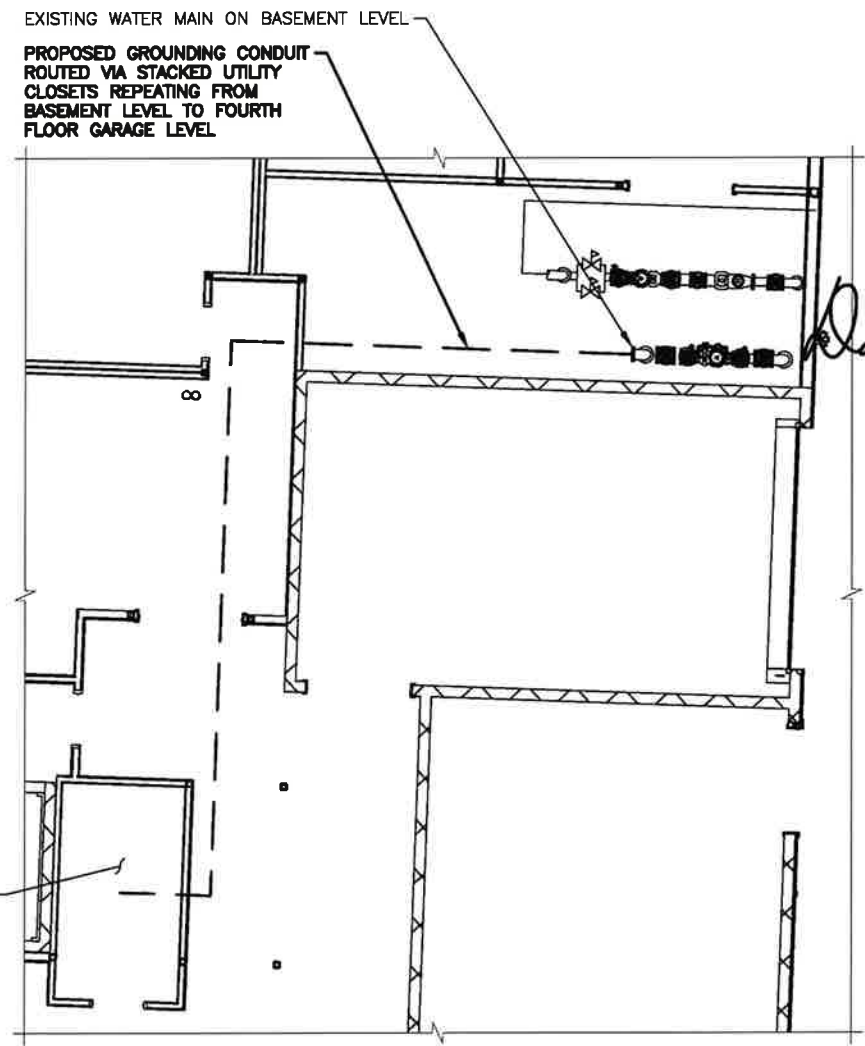
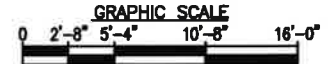


- EXISTING TELCO BOARD IN EXISTING FOURTH FLOOR UTILITY CLOSET
- EXISTING ROOM TELECOM - C4-02
- EXISTING 240V, 3 PM 1200A MAX, TAP BOX (UTILITY CLOSET - 4TH FLOOR)
- PROPOSED 200A, 2P. BREAKER IN TAP BOX (UTILITY CLOSET - 4TH FLOOR)
- PROPOSED 200A, 1P PH, 2P ELECTRICAL METER IN VACANT METER SOCKET (UTILITY CLOSET - 4TH FLOOR)
- PROPOSED POWER, TELCO AND GROUNDING CONDUITS ROUTED WITHIN 4TH FLOOR CEILING



EQUIPMENT PLAN (FOURTH FLOOR)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

1
A-2



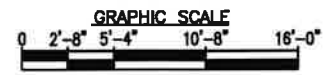
- EXISTING WATER MAIN ON BASEMENT LEVEL
- PROPOSED GROUNDING CONDUIT ROUTED VIA STACKED UTILITY CLOSETS REPEATING FROM BASEMENT LEVEL TO FOURTH FLOOR GARAGE LEVEL

EXISTING ROOM FURN/TELECOM - B1-09



EQUIPMENT PLAN (BASEMENT FLOOR)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

2
A-2



CHECKED BY: JX

APPROVED BY: DPH

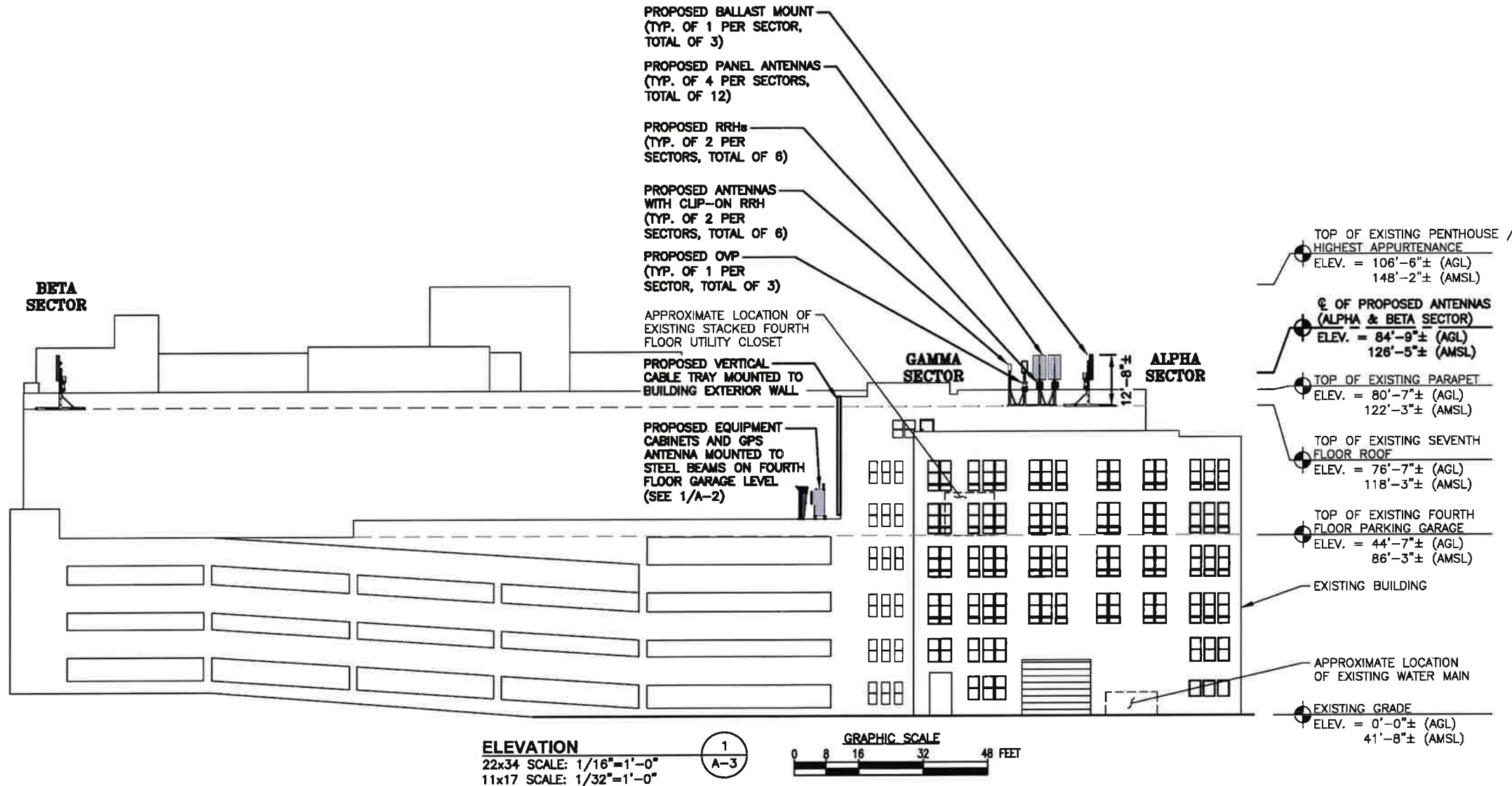
SUBMITTALS			
REL. DATE	DESCRIPTION	BY	
0	05/30/23	CSC DWGS FOR REVIEW	TR

SITE NAME:
HARTFORD YG CT

SITE ADDRESS:
1212 MAIN STREET
HARTFORD, CT 06013

SHEET TITLE
EQUIPMENT PLAN

SHEET NUMBER
A-2



CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	05/30/23	CSC DWS FOR REVIEW	TR

SITE NAME:
HARTFORD YG CT

SITE ADDRESS:
1212 MAIN STREET
HARTFORD, CT 06013

SHEET TITLE:
ELEVATION

SHEET NUMBER:
A-3

NOTE:
AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY TEP NORTHEAST, LLC.
DATED: APRIL 20, 2023

NOTE TO GENERAL CONTRACTOR:
'RF' DESIGN AND EQUIPMENT IS BASED UPON RFDS ISSUED BY VZW DATED: FEBRUARY 23, 2023 REVISION 3. THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

ATTACHMENT 3

NHH-45A-R2B



6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 45° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x Rx or 4x MIMO
- Separate RS-485 RET input/output for low and high band

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Copper Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 3

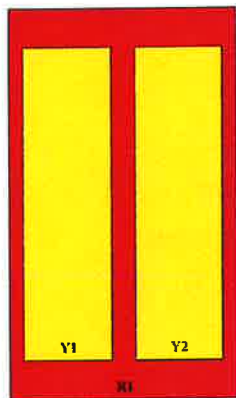
NHH-45A-R2B

Internal RET	High band (1) Low band (1)
Power Consumption, active state, maximum	10 W
Power Consumption, idle state, maximum	2 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	457 mm 17.992 in
Depth	178 mm 7.008 in
Length	1220 mm 48.032 in
Net Weight, without mounting kit	21 kg 46.297 lb

Array Layout

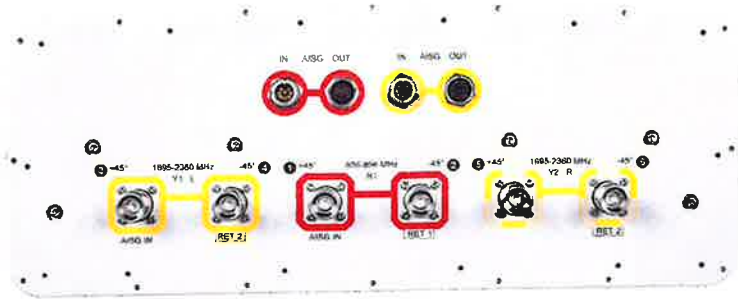


Array ID	Frequency (MHz)	RF Connector	RET (SRET)	AISG No.	AISG RET UID
R1	698-896	1 - 2	1	AISG1	CPxxxxxxxxxxxxxxR1
Y1	1695-2360	3 - 4	2	AISG2	CPxxxxxxxxxxxxxxY1
Y2	1695-2360	5 - 6			

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

NHH-45A-R2B



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	600 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	15.5	16.2	18.3	19	19.2	20
Beamwidth, Horizontal, degrees	48	44	44	44	43	39
Beamwidth, Vertical, degrees	18.5	16.8	7.9	7.3	6.8	6
Beam Tilt, degrees	2–18	2–18	1–9	1–9	1–9	1–9
USLS (First Lobe), dB	16	17	17	16	15	15
Front-to-Back Ratio at 180°, dB	32	33	36	36	36	35
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	25
VSWR Return loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0

NHH-45A-R2B

PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	300	300	250	250	250	200

Electrical Specifications, BASTA

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	15.1	15.9	17.9	18.7	19	19.8
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.4	±0.6	±0.4	±0.3	±0.4
Beamwidth, Horizontal Tolerance, degrees	±1.8	±3	±1.9	±1.3	±2.1	±1.6
Beamwidth, Vertical Tolerance, degrees	±1	±0.9	±0.3	±0.3	±0.5	±0.2
USLS, beampeak to 20° above beampeak, dB	17	22	12	13	14	15
Front-to-Back Total Power at 180° ± 30°, dB	24	24	27	29	30	30
CPR at Boresight, dB	24	25	15	18	19	20
CPR at Sector, dB	18	17	11	13	15	16

Mechanical Specifications

Wind Loading @ Velocity, frontal	677.0 N @ 150 km/h (152.2 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	135.0 N @ 150 km/h (30.3 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	677.0 N @ 150 km/h (152.2 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	595.0 N @ 150 km/h (133.8 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	563 mm 22.165 in
Depth, packed	355 mm 13.976 in
Length, packed	1393 mm 54.843 in
Weight, gross	32.1 kg 70.768 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

NHH-45A-R2B

REACH-SVHC	Compliant as per SVHC revision on www.commscope.com/ProductCompliance
ROHS	Compliant/Exempted
UK-ROHS	Compliant/Exempted



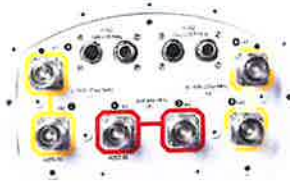
Included Products

BSAMNT-3	-	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.
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* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance
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NHH-65A-R2B



6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Aluminum Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 3
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W

NHH-65A-R2B

Protocol 3GPP/AISG 2.0 (Single RET)

Dimensions

Width 301 mm | 11.85 in

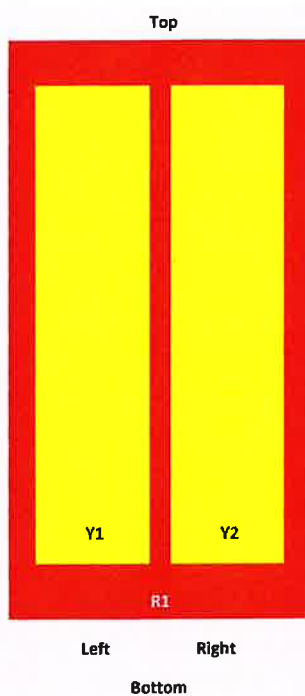
Depth 180 mm | 7.087 in

Length 1413 mm | 55.63 in

Net Weight, without mounting kit 15.9 kg | 35.053 lb

Array Layout

NHH



Array	Freq (MHz)	Comms	RET (SRET)	AISG RET UID
R1	698-896	L-2	1	XXXXXXXXXXXXXXXXXXXX
Y1	1695-2360	L-1	2	XXXXXXXXXXXXXXXXXXXX
Y2	1695-2360	S-6		XXXXXXXXXXXXXXXXXXXX

View from the front of the antenna
(Sizes of colored boxes are not true depictions of array sizes)

Electrical Specifications

Impedance 50 ohm

Operating Frequency Band 1695 – 2360 MHz | 698 – 896 MHz

NHH-65A-R2B

Polarization	±45°
Total Input Power, maximum	900 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	13.4	13.5	16.4	16.5	17.1	17.5
Beamwidth, Horizontal, degrees	66.2	61	69	64	61	61
Beamwidth, Vertical, degrees	17.8	16.2	7.1	6.5	6.1	5.5
Beam Tilt, degrees	0–18	0–18	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	16	18	17	16	15
Front-to-Back Ratio at 180°, dB	29	26	33	32	30	32
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
VSWR Return loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	300	300	250	250	250	200

Electrical Specifications, BASTA

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	13.1	13.2	16.1	16.3	16.6	17.1
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.5	±0.4	±0.4	±0.6	±0.5
Gain by Beam Tilt, average, dBi	0° 13.3 9° 13.2 18° 13.8	0° 13.4 9° 13.4 18° 12.7	0° 16.0 5° 16.1 10° 16.0	0° 16.1 5° 16.3 10° 16.3	0° 16.4 5° 16.7 10° 16.4	0° 17.0 5° 17.2 10° 16.7
Beamwidth, Horizontal Tolerance, degrees	±2.8	±3.6	±3.9	±3.5	±6.6	±4.6
Beamwidth, Vertical Tolerance, degrees	±1.5	±1.3	±0.3	±0.4	±0.5	±0.3
USLS, beampeak to 20° above beampeak, dB	15	16	12	13	13	14
Front-to-Back Total Power at 180° ± 30°, dB	24	23	27	26	23	26
CPR at Boresight, dB	18	19	20	22	21	22

NHH-65A-R2B

CPR at Sector, dB	10	5	12	9	5	2
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Mechanical Specifications

Effective Projective Area (EPA), frontal	0.19 m ² 2.045 ft ²
Effective Projective Area (EPA), lateral	0.16 m ² 1.722 ft ²
Wind Loading @ Velocity, frontal	206.0 N @ 150 km/h (46.3 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	169.0 N @ 150 km/h (38.0 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	396.0 N @ 150 km/h (89.0 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	208.0 N @ 150 km/h (46.8 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	380 mm 14.961 in
Depth, packed	295 mm 11.614 in
Length, packed	1537 mm 60.512 in
Weight, gross	26.5 kg 58.422 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant/Exempted
UK-ROHS	Compliant/Exempted



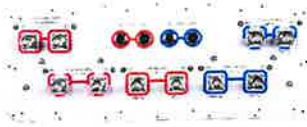
Included Products

BSAMNT-3	-	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.
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* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance
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NHHSS-45A-R2BT4



10-port sector antenna, 2x 698–896, 4x 1695–2200 MHz and 4x 3100–4200, 45° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Perfect antenna to add 3.5GHz CBRS to macro sites
- Low band and mid band performance mirrors the performance of existing NHH hex port antennas
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- Interleaved dipole technology providing for attractive, low wind load mechanical package
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, mid band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	10

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male


NHHSS-45A-R2BT4

Input Voltage	10–30 Vdc
Internal RET	Low band (1) Mid band (1)
Power Consumption, active state, maximum	10 W
Power Consumption, idle state, maximum	2 W
Protocol	3GPP/AISG 2.0

Dimensions

Width	457 mm 17.992 in
Depth	178 mm 7.008 in
Length	1220 mm 48.032 in
Net Weight, without mounting kit	26.5 kg 58.422 lb

Array Layout



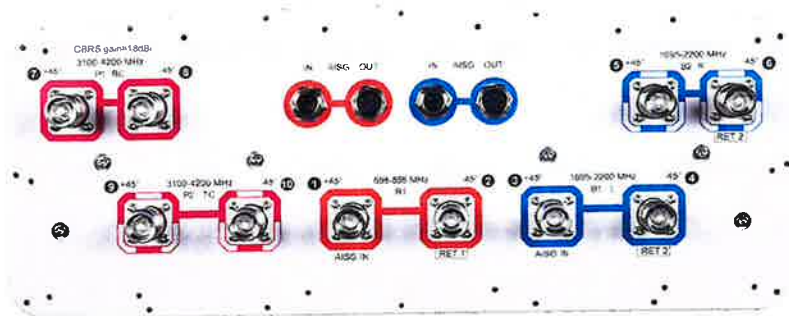
Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-896	1-2	1	CPxxxxxxxxxxxxxxxxR1
B1	1695-2200	3-4	2	CPxxxxxxxxxxxxxxxxB1
B2	1695-2200	5-6		
P1	3100-4200	7-8	n/a	n/a
P2	3100-4200	9-10	n/a	n/a

Left Bottom Right

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

NHHSS-45A-R2BT4



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2200 MHz 3100 – 4200 MHz 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	1,000 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	698-806	806-896	1695-1880	1850-1990	1920-2200	3100-3550	3550-3700	3700-4200
Gain, dBi	15.6	16.5	18	18.7	19.1	16.9	17.3	16.7
Beamwidth, Horizontal, degrees	46	41	46	44	41	48	43	44
Beamwidth, Vertical, degrees	18.7	16.7	7.7	7.2	6.8	9.7	9	8.4
Beam Tilt, degrees	2-18	2-18	1-9	1-9	1-9	4	4	4
USLS (First Lobe), dB	15	16	15	15	14	18	17	15
Front-to-Back Ratio at 180°, dB	29	32	33	33	33	33	34	32
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	28	28	28	28	28	28
VSWR Return loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0

NHHSS-45A-R2BT4

PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-140	-140	-140
Input Power per Port at 50°C, maximum, watts	250	250	250	250	250	100	100	100

Electrical Specifications, BASTA

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	3100–3550	3550–3700	3700–4200
Gain by all Beam Tilts, average, dBi	15.3	16.2	17.6	18.3	18.7	16.2	17	16.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.4	±0.8	±0.5	±0.6	±0.6	±0.5	±0.6
Beamwidth, Horizontal Tolerance, degrees	±2.2	±2.1	±3	±2.1	±2.2	±6.7	±2.5	±3.4
Beamwidth, Vertical Tolerance, degrees	±1.1	±1.1	±0.5	±0.3	±0.5	±0.7	±0.4	±0.6
USLS, beampeak to 20° above beampeak, dB			14	14	14	16	16	14
Front-to-Back Total Power at 180° ± 30°, dB	22	23	24	26	27	26	27	23
CPR at Boresight, dB	18	19	16	18	17	14	15	16
CPR at Sector, dB	10	11	3	3	4	6	7	6

Mechanical Specifications

Wind Loading @ Velocity, frontal	677.0 N @ 150 km/h (152.2 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	135.0 N @ 150 km/h (30.3 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	677.0 N @ 150 km/h (152.2 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	595.0 N @ 150 km/h (133.8 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	563 mm 22.165 in
Depth, packed	355 mm 13.976 in
Length, packed	1393 mm 54.843 in
Weight, gross	37.6 kg 82.894 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system

NHHSS-45A-R2BT4

ROHS

Compliant/Exempted

UK-ROHS

Compliant/Exempted



Included Products

BSAMNT-3

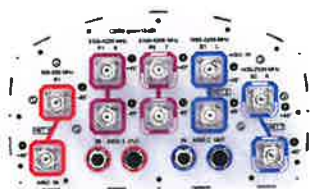
- Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note

Severe environmental conditions may degrade optimum performance

NHHSS-65A-R2BT4



10-port sector antenna, 2x 698–896, 4x 1695–2200 and 4x 3100–4200 MHz, 65° HPBW, 2x RETs and 2x SBTs. Both high bands share the same electrical tilt.

- Perfect antenna to add 3.5GHz CBRS to macro sites
- Low band and mid band performance mirrors the performance of existing NHH hex port antennas
- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One LB RET and one HB RET. Both high bands are controlled by one RET to ensure same tilt level for 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	Aluminum Low loss circuit board
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, mid band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	10

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	4x 8 pin connector as per IEC 60130-9 Daisy chain in: Male / Daisy chain out: Female Pin3: RS485A(AISG_B), Pin5: RS485B(AISG_A), Pin6: DC 10~30V, Pin7: DC_Return
RET Interface, quantity	2 female 2 male

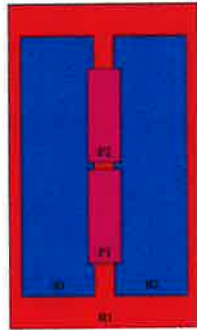
NHHSS-65A-R2BT4

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 3
Internal RET	Low band (1)
Power Consumption, active state, maximum	10 W
Power Consumption, idle state, maximum	2 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm 11.85 in
Depth	181 mm 7.126 in
Length	1413 mm 55.63 in
Net Weight, without mounting kit	19.5 kg 42.99 lb

Array Layout

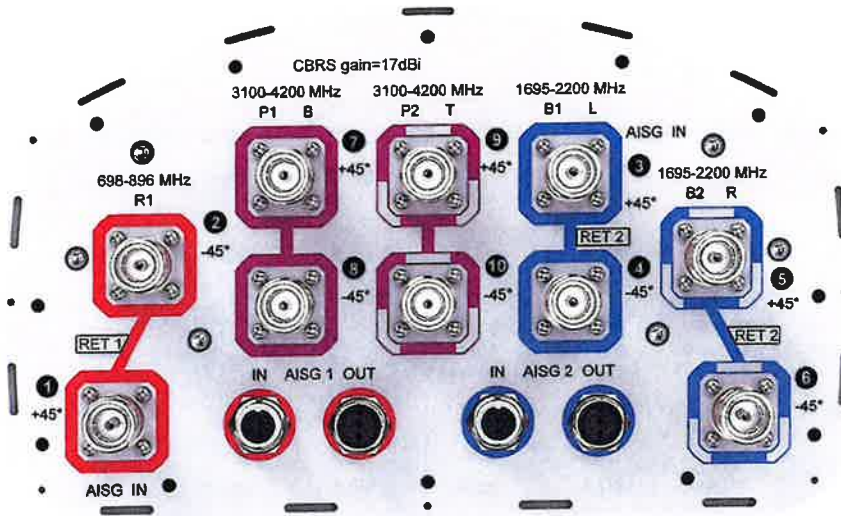


Array ID	Frequency (MHz)	RF Connector	RET (sets)	AISG No.	AISG RET UID
R1	698-896	1 - 2	1	AISG1	CPxxxxxxxxxxxxxxxxR1
G1	1695-2200	3 - 4	2	AISG2	CPxxxxxxxxxxxxxxxxB1
G2	1695-2200	5 - 6			
P1	3100-4200	7 - 8	N/A	NA	N/A
P2	3100-4200	9 - 10	N/A	NA	N/A

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

NHHSS-65A-R2BT4



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2200 MHz 3100 – 4200 MHz 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	1,000 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	3100–3550	3550–3700	3700–4200
Gain, dBi	13.8	13.9	16.2	16.7	16.9	16.9	16.5	16.8
Beamwidth, Horizontal, degrees	67	64	69	62	62	56	67	62
Beamwidth, Vertical, degrees	16.2	14.4	7	6.6	6.4	7.5	6.9	6.3
Beam Tilt, degrees	0–18	0–18	0–10	0–10	0–10	4	4	4
USLS (First Lobe), dB	16	16	17	16	17	16	18	17
Front-to-Back Ratio at 180°, dB	29	27	30	28	27	31	32	29
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	25	25	25
VSWR Return loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-140	-140	-140

NHHSS-65A-R2BT4

Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	100	100	100
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Electrical Specifications, BASTA

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	3100–3550	3550–3700	3700–4200
Gain by all Beam Tilts, average, dBi	13.4	13.6	15.7	16.4	16.6	16.5	16.1	16.4
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.6	±0.7	±0.4	±0.3	±0.6	±0.5	±0.5
Gain by Beam Tilt, average, dBi	0° 13.6 9° 13.5 18° 13.2	0° 13.8 9° 13.6 18° 12.7	0° 15.9 5° 16.0 10° 15.7	0° 16.4 5° 16.6 10° 16.4	0° 16.6 5° 16.7 10° 16.5			
Beamwidth, Horizontal Tolerance, degrees	±2.2	±1.8	±8.3	±2.9	±4.1	±11.4	±5	±8.5
Beamwidth, Vertical Tolerance, degrees	±1.1	±0.8	±0.4	±0.4	±0.4	±0.6	±0.3	±0.5
USLS, beampeak to 20° above beampeak, dB			15	16	16	13	14	14
Front-to-Back Total Power at 180° ± 30°, dB	23	24	23	24	23	24	25	23
CPR at Boresight, dB	25	18	16	19	18	16	17	14
CPR at Sector, dB	11	8	10	10	9	7	6	7

Mechanical Specifications

Wind Loading @ Velocity, frontal	206.0 N @ 150 km/h (46.3 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	169.0 N @ 150 km/h (38.0 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	396.0 N @ 150 km/h (89.0 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	208.0 N @ 150 km/h (46.8 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	380 mm 14.961 in
Depth, packed	295 mm 11.614 in
Length, packed	1537 mm 60.512 in
Weight, gross	30.1 kg 66.359 lb

Regulatory Compliance/Certifications

Agency	Classification
CHINA-ROHS	Below maximum concentration value

NHHSS-65A-R2BT4

REACH-SVHC

Compliant as per SVHC revision on www.commscope.com/ProductCompliance

ROHS

Compliant

UK-ROHS

Compliant



Included Products

BSAMNT-3

-

Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note

Severe environmental conditions may degrade optimum performance

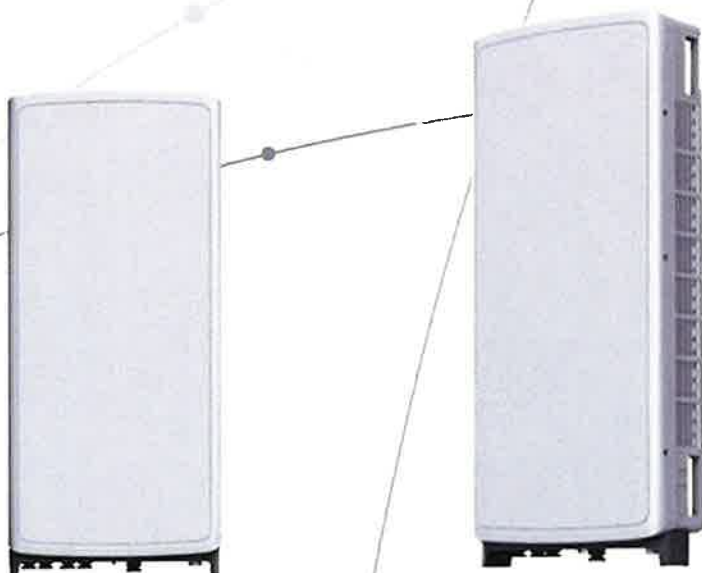
SAMSUNG

SAMSUNG C-Band 64T64R Massive MIMO Radio

for High Capacity and Wide Coverage

Samsung C-Band 64T64R Massive MIMO Radio enables mobile operators to increase coverage range, boost data speeds and ultimately offer enriched 5G experiences to users in the U.S..

Model Code : MT6407-77A



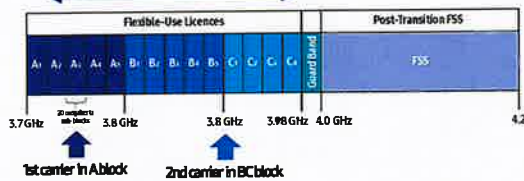
Points of Differentiation

Wide Bandwidth

With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

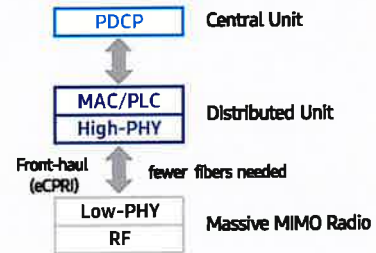
Samsung C-Band massive MIMO Radio covers the entire C-Band 280 MHz spectrum, so it can meet the operator's needs in current A block and future B/C blocks

C-Band spectrum supported by Massive MIMO Radio



Future Proof Product

Samsung C-Band 64T64R Massive MIMO radio supports not only CPRI but also eCPRI as front-haul interface. It enables operators can cut down on OPEX/CAPEX by reducing front-haul bandwidth through low layer split and using ethernet based higher efficient line.



Enhanced Performance

C-Band massive MIMO Radio creates sharp beams and extends networks' coverage on the critical mid-band spectrum using a large number of antenna elements and high output power to boost data speeds.

This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

Furthermore, as C-Band massive MIMO Radio supports MU-MIMO (Multi-user MIMO), it enables to increase user throughput by minimizing interference.



Well Matched Design

Samsung C-Band Massive MIMO radio utilizes 64 antennas, supports up to 280MHz bandwidth, and delivers a 200W output power. despite the above advanced performance, the Radio has a compact size of 50.9L and 79.4lbs. This makes it easy to install the Radio.

It is designed to look solid and compact, with a low profile appearance so that, when installed, harmonizes well with the surrounding environment.



Technical Specifications

Item	Specification
Tech	NR
Band	n77
Frequency Band	3700 - 3980 MHz
EIRP	78.5dBm (53.0 dBm+25.5 dBi)
IBW/OBW	280 MHz / 200 MHz
Installation	Pole/Wall
Size/Weight	16.06 x 35.06 x 5.51 inch (50.86L) / 79.4 lbs

SAMSUNG



About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions.

129 Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, Korea

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SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4439d-25A



Homepage
samsungnetworks.com

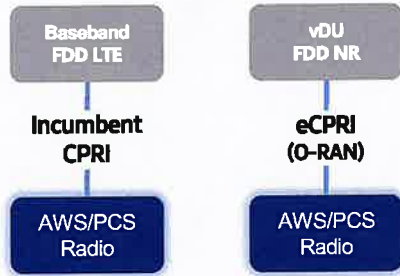


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

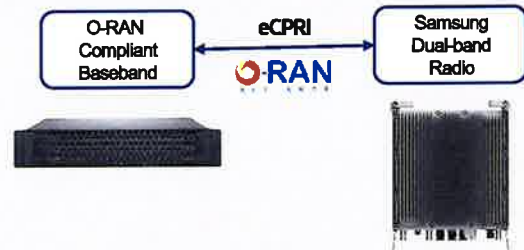
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

SAMSUNG

700/850MHZ MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This 700/850MHz 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code RF4440d-13A



Homepage
[samsungnetworks.com](https://www.samsungnetworks.com)

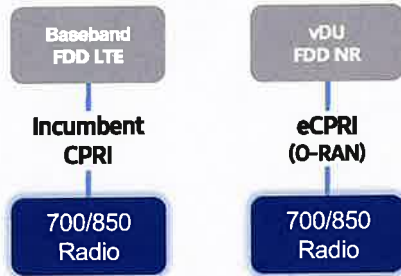


Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

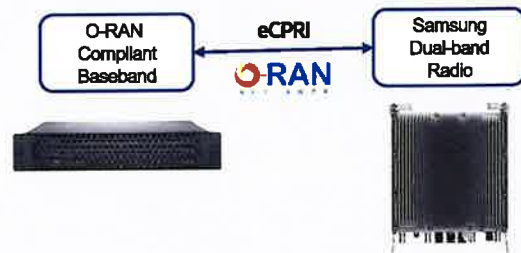
Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help when implementing cost-effective networks because it is capable of sending more data without compromising additional investments.

Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). The ability to support many carriers is essential for using all frequencies that the operator has available.

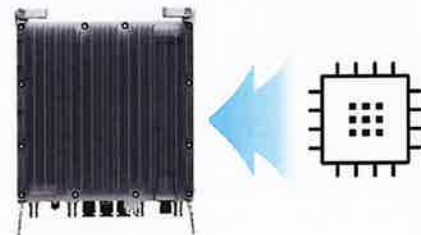
The new 700/850MHz dual-band radio can support up to 2 carriers in the B13 (700MHz) band and 3 carriers in the B5 (850MHz) band, respectively.



Secured Integrity

Access to sensitive data is allowed only to authorized software.

The Samsung radio's CPU can protect root of trust, which is credential information to verify SW integrity, and secure storage provides access control to sensitive data by using dedicated hardware (TPM).



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B13(700MHz), B5(850MHz)
Frequency Band	DL: 746 – 756MHz, UL: 777 – 787MHz DL: 869 – 894MHz, UL: 824 – 849MHz
RF Power	(B13) 4 × 40W or 2 × 60W (B5) 4 × 40W or 2 × 60W
IBW/OBW	(B13) 10MHz / 10MHz (B5) 25MHz / 25MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 9.05inch (33.2L) / 70.33 lb

Specifications

The table below outlines the main specifications of the RRH.

Table 1. Specifications

Item	RT4401-48A
Air Technology	LTE
Band	Band 48 (3.5 GHz)
Operating Frequency (MHz)	3550 to 3700
RF Chain	4TX/4RX
Input Power	-48 V DC (-38 to -57 V DC, 1 SKU), with clip-on AC-DC converter (Option)
Dimension (W × D × H) (mm)	8.55 in. (217.4) × 4.15 in. (105.5) × 13.91 in. (353.5) * RRH only 11.39 in. (289.4) × 5.45 in. (138.5) × 16.16 in. (410.5) * with Clip-on antenna, AC-DC power unit
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A [B48]: FCC 47 CFR 96.41 e)
Spectrum Analyzer	TX/RX Support
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
Operating Humidity	5 to 100 [%] (RH), condensing, not to exceed 30 g/m ³ absolute humidity
Altitude	-60 to 1,800 m
Earthquake	Telcordia Earthquake Risk Zone4 (Telcordia GR-63-CORE)
Vibration in Use	Office Vibration
Transportation Vibration	Transportation Vibration
Noise	Fanless (natural convection cooling)
Wind Resistance	Telcordia GR-487-CORE, Section 3.34
EMC	FCC Title 47, CFR Part 96
Safety	UL 60950-1 2nd ED

Item	RT4401-48A
	UL 62368-1
	UL 60950-22
RF	FCC Title 47, CFR Part 96

The table below outlines the AC/DC power unit specifications of the RRH system.

ATTACHMENT 4

STRUCTURAL ANALYSIS REPORT

For

VERIZON SITE NAME: HARTFORD YG CT

TEP Project Number: 318078.769630

1212 Main Street
Hartford, CT 06120

**Antennas Mounted on Non-Penetrating Ballast Mounts
on the Rooftop; Equipment on Steel Curb on Parking
Garage Top Level**



Prepared for:

verizon✓

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

Dated: April 20, 2023

Prepared by:



(TEP OPCO, LLC)
45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553
www.tepgroup.net





SCOPE OF WORK:

TEP Northeast (TEP NE) has been authorized by Verizon to conduct a structural evaluation of the structure supporting the proposed equipment located in the areas depicted in the latest TEP NE construction drawings.

This report represents this office's findings, conclusions and recommendations pertaining to the support of Verizon's proposed antennas listed below.

This office conducted an on-site visual survey of the above site on July 27, 2022.

The following documents were used for our reference:

- Architectural Building Plans prepared by Lessard Design dated November 20, 2020.
- Architectural Garage Plans prepared by Lessard Design dated May 19, 2020.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing structure **IS CAPABLE** of supporting the proposed equipment loading.

	Design Roof Live Load	Proposed Roof Live Load	Pass/Fail
Alpha & Gamma Sector Roof	20 psf	15.92 psf	PASS
Beta Sector Roof	20 psf	15.66 psf	PASS
Equipment Curb Roof	40 psf	35.29 psf	PASS

Based on our evaluation, we have determined that the proposed mounts **ARE CAPABLE** of supporting the proposed equipment loading.

	Controlling Load Case	Stress Ratio	Pass/Fail
15'x15' Custom Ballast Mount	Overturning	88%	PASS

TEP NE did not perform a condition assessment of the entire roof but did perform an inspection of the existing roof members and structural bearing walls below the area where the equipment is proposed to be located.

*Reference documents attached.



APPURTENANCE CONFIGURATION:

Appurtenances	Dimensions	Weight	**Elevation	Mount
(4) NHH-45A-R2B Antennas	48.0"x18.0"x7.0"	50 lbs	84'-9"	Ballast Mount
(2) NHH-65A-R2B Antenna	55.6"x11.9"x7.1"	36 lbs	84'-9"	Ballast Mount
(4) NHHSS-45A-R2BT4 Antennas	48.0"x18.0"x7.0"	58 lbs	84'-9"	Ballast Mount
(2) NHHSS-65A-R2BT4 Antenna	55.6"x11.9"x7.1"	43 lbs	84'-9"	Ballast Mount
(3) VZ_AT1K04 Antennas	20.3"x9.6"x6.9"	35 lbs	84'-9"	Ballast Mount
(3) MT6407-77A Antennas w/ RRH's	Not to Exceed 35.12"x16.06"x5.51"	Not to Exceed 87.1 lbs	84'-9"	Ballast Mount
(3) B2/B66A RRH ORAN (RF4439d-25A) RRH's	15.0"x15.0"x10.0"	98 lbs	-	Ballast Mount
(3) B5/B13 RRH ORAN (RF4440d-13A) RRH's	15.0"x15.0"x8.1"	82 lbs	-	Ballast Mount
(3) CBRS RRH-RT4401-48A RRH's	16.2"x11.4"x5.4"	19 lbs	-	Ballast Mount
(3) OVP Boxes	28.9"x15.7"x10.3	32 lbs	-	Ballast Mount
(1) CMC74-36E Equipment Cabinet	80.8"x36.2"x43.7"	2000 lbs	-	Equipment Curb
(1) CMC74-36B Battery Cabinet	80.8"x36.2"x43.7"	3600 lbs	-	Equipment Curb
(1) Hoffman Box	36.0"x36.0"x12.0"	150 lbs	-	Equipment Curb

* Proposed equipment shown in bold.

** Elevation to antenna centerline.



DESIGN CRITERIA:

International Building Code (IBC) 2021 with 2022 Connecticut State Building Code Amendments, and ASCE 7-16 (Minimum Design Loads for Buildings and Other Structures).		
Wind		
Reference Wind Speed:	120 mph	(2022 CSBC Appendix P)
Exposure Category:	C	(ASCE 7-16 Chapter 26)
Risk Category:	II	(ASCE 7-16 Table 1.5-1)
Snow		
Ground Snow, P_g :	30	(2022 CSBC Appendix P)
Importance Factor (I_s):	1.0	(ASCE 7-16 Table 1.5-2)
Exposure Factor (C_e):	1.0	(Partially Exposed, Table 7.3-1)
Thermal Factor (C_t):	1.0	(ASCE 7-16 Table 7.3-2)
Flat Roof Snow Load:	21 psf	(ASCE 7-16 Equation 7.3-1)
Min. Flat Roof Snow Load:	30 psf	(2022 CSBC Appendix P)
EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures		
Wind		
City/Town:	Hartford	
County:	Hartford	
Wind Load:	120 mph	(TIA-222-H Figure B-2)
Ice		
Design Ice Thickness (t_i):	1.5 in	(TIA-222-H Figure B-9)
Structure Class:	II	(TIA-222-H Table 2-1)
Importance Factor (I_i):	1.0	(TIA-222-H Table 2-3)
Factored Thickness of Radial Ice (t_{iz}):	1.65 in	(TIA-222-H Sec. 2.6.10)



EXISTING ROOF CONSTRUCTION:

The existing roof construction consists of a roofing membrane over rigid insulation over plywood sheathing over wood trusses supported by wood shear walls and CMU bearing walls.

EXISTING PARKING GARAGE CONSTRUCTION:

The existing parking garage construction consists of a reinforced concrete slab supported by a system of concrete beams and columns.

ANTENNA/RRH/OVP BOX SUPPORT RECOMMENDATIONS:

The proposed antennas, RRH's, and OVP boxes are to be mounted on proposed pipe masts installed on proposed non-penetrating custom ballast mounts located on the roof.

EQUIPMENT RECOMMENDATIONS:

The Verizon equipment is proposed to be installed on a proposed wood curb located on the roof of the existing parking garage supported by the existing reinforced concrete slab.

Limitations and Assumptions:

1. Reference the latest TEP NE construction drawings for all the equipment locations and details.
2. All detail requirements will be designed and furnished in the construction drawings.
3. 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.
4. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
5. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
6. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

FIELD PHOTOS:

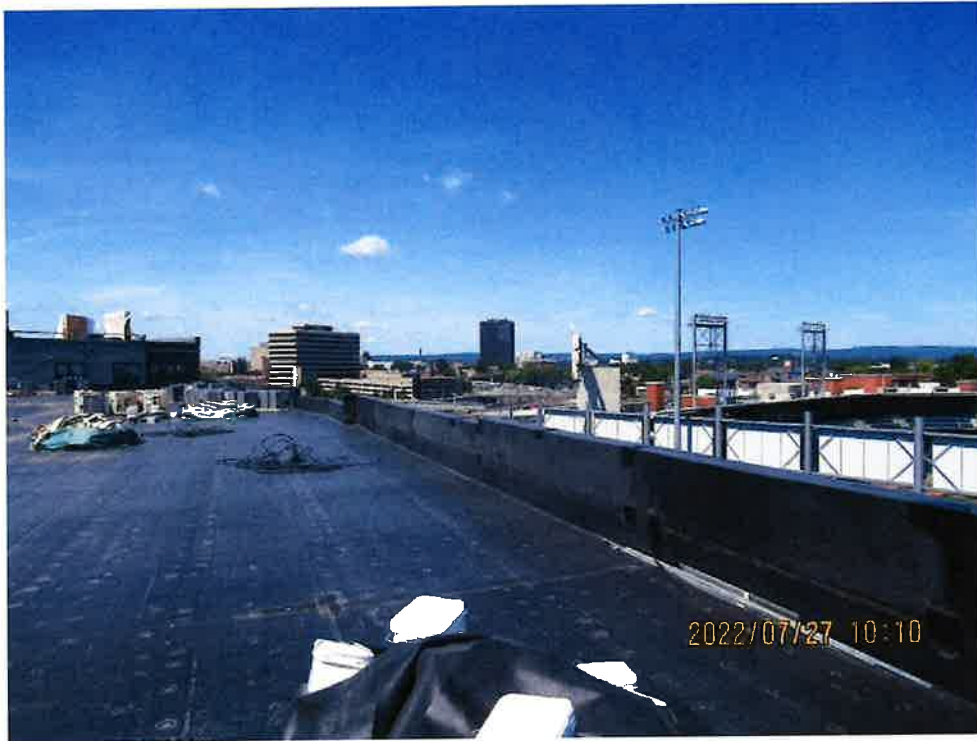


Photo 1: Sample photo illustrating the proposed location of Alpha & Gamma sector.



Photo 2: Sample photo illustrating the proposed location of the equipment cabinets.

FIELD PHOTOS (CONT.):



Photo 3: Sample photo illustrating the existing roof construction.



Photo 4: Sample photo illustrating the existing roof construction.

Wind & Ice Calculations

Date: 4/20/2023
 Project Name: HARTFORD YG CT
 Designed By: KM Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$K_z =$ **1.222** $z =$ 84.75 (ft)
 $z_g =$ 900 (ft)
 $\alpha =$ 9.5

$K_{zmin} \leq K_z \leq 2.01$

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K _t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

$K_{zt} =$ **1**

$K_h =$ 1

$K_c =$ 1.0 (from Table 2-4)

$K_t =$ 0 (from Table 2-5)

$f =$ 0 (from Table 2-5)

$z =$ 84.75

$z_s =$ 50 (Mean elevation of base of structure above sea level)

$H =$ 0 (Ht. of the crest above surrounding terrain)

$K_{zt} =$ 1.00 (from 2.6.6.2.1)

$K_e =$ 1.00 (from 2.6.8)

(If Category 1 then K_{zt}=1.0)

Category = 1

2.6.10 Design Ice Thickness

Max Ice Thickness =
 Importance Factor =

$t_i =$ 1.50 in

$I =$ 1.00 (from Table 2-3)

$K_{iz} =$ 1.10 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

$t_{iz} =$ 1.65 in

Date: 4/20/2023
 Project Name: HARTFORD YG CT
 Designed By: KM Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0]

h= ht. of structure

h= 76.58

G_h= 0.85

2.6.9.2 Guyed Masts

G_h= 0.85

2.6.9.3 Pole Structures

G_h= 1.1

2.6.9 Appurtenances

G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h= 1.35

G_h= 1.00

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

q_z= 42.73

q_{z (ice)}= 7.42

q_{z (30)}= 2.67

K_z= 1.222 (from 2.6.5.2)

K_{zt}= 1.0 (from 2.6.6.2.1)

K_s= 1.0 (from 2.6.7)

K_e= 1.00 (from 2.6.8)

K_d= 0.95 (from Table 2-2)

V_{max}= 120 mph (Ultimate Wind Speed)

V_{max (ice)}= 50 mph

V₃₀= 30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00



Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances			
Member Type	Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
	Ca	Ca	Ca
Flat	1.2	1.4	2.0
Square/Rectangular HSS	1.2 - 2.8(rs) ≥ 0.85	1.4 - 4.0(rs) ≥ 0.90	2.0 - 6.0(rs) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8
	39 ≤ C ≤ 78 (Transitional)	4.14/(C ^{0.485})	3.66/(C ^{0.415})
	C > 78 (Supercritical)	0.5	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.65 in Angle = 0 (deg) Equivalent Angle = 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
NHH-45A-R2B Antenna	48.0	18.0	7.0	6.00	2.67	1.21	310	68
NHH-45A-R2B Antenna (Side)	48.0	7.0	18.0	2.33	6.86	1.39	139	38
NHH-65A-R2B Antenna	55.6	11.9	7.1	4.59	4.67	1.30	255	60
NHH-65A-R2B Antenna (Side)	55.6	7.1	11.9	2.74	7.83	1.43	167	45
NHHSS-45A-R2BT4 Antenna	48.0	18.0	7.0	6.00	2.67	1.21	310	68
NHHSS-45A-R2BT4 Antenna (Side)	48.0	7.0	18.0	2.33	6.86	1.39	139	38
NHHSS-65A-R2BT4 Antenna	55.6	11.9	7.1	4.59	4.67	1.30	255	60
NHHSS-65A-R2BT4 Antenna (Side)	55.6	7.1	11.9	2.74	7.83	1.43	167	45
VZ_AT1K04 Antenna	20.3	9.6	6.9	1.35	2.11	1.20	69	19
VZ_AT1K04 Antenna (Side)	20.3	6.9	9.6	0.97	2.94	1.22	51	15
MT6407-77A Antenna	35.1	16.1	5.5	3.92	2.19	1.20	201	46
MT6407-77A Antenna (Side)	35.1	5.5	16.1	1.34	6.37	1.37	79	24
B2/B66A RRH ORAN (RF4439d-25A) RR	15.0	15.0	10.0	1.56	1.00	1.20	80	21
B2/B66A RRH ORAN (RF4439d-25A) RR	15.0	10.0	15.0	1.04	1.50	1.20	53	15
B5/B13 RRH ORAN (RF4440d-13A) RRH	15.0	15.0	8.1	1.56	1.00	1.20	80	21
B5/B13 RRH ORAN (RF4440d-13A) RRH	15.0	8.1	15.0	0.84	1.85	1.20	43	13
CBRS RRH-RT4401-48A RRH	16.2	11.4	5.4	1.28	1.42	1.20	66	18
CBRS RRH-RT4401-48A RRH (Side)	16.2	5.4	11.4	0.61	3.00	1.22	32	11
OVP Box	28.9	15.7	10.3	3.15	1.84	1.20	162	38
OVP Box (Side)	28.9	10.3	15.7	2.07	2.81	1.21	107	27
L3x3 Angle	3.0	12.0	-	0.25	0.25	2.00	21	
3" Pipe	3.5	12.0	-	0.29	0.29	1.20	15	

Date: 4/20/2023

Project Name: HARTFORD YG CT

Designed By: KM Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.65 in.
Density of ice: 56 pcf

NHH-45A-R2B Antenna

Weight of ice based on total radial SF area:
Height (in): 48.0
Width (in): 18.0
Depth (in): 7.0
Total weight of ice on object: 169 lbs
Weight of object: 50.0 lbs
Combined weight of ice and object: 219 lbs

NHH-65A-R2B Antenna

Weight of ice based on total radial SF area:
Height (in): 55.6
Width (in): 11.9
Depth (in): 7.1
Total weight of ice on object: 145 lbs
Weight of object: 36.0 lbs
Combined weight of ice and object: 181 lbs

NHHSS-45A-R2BT4 Antenna

Weight of ice based on total radial SF area:
Height (in): 48.0
Width (in): 18.0
Depth (in): 7.0
Total weight of ice on object: 169 lbs
Weight of object: 58.0 lbs
Combined weight of ice and object: 227 lbs

NHHSS-65A-R2BT4 Antenna

Weight of ice based on total radial SF area:
Height (in): 55.6
Width (in): 11.9
Depth (in): 7.1
Total weight of ice on object: 145 lbs
Weight of object: 43.0 lbs
Combined weight of ice and object: 188 lbs

VZ_AT1K04 Antenna

Weight of ice based on total radial SF area:
Height (in): 20.3
Width (in): 9.6
Depth (in): 6.9
Total weight of ice on object: 46 lbs
Weight of object: 35.0 lbs
Combined weight of ice and object: 81 lbs

MT6407-77A Antenna

Weight of ice based on total radial SF area:
Height (in): 35.1
Width (in): 16.1
Depth (in): 5.5
Total weight of ice on object: 110 lbs
Weight of object: 87.1 lbs
Combined weight of ice and object: 197 lbs

B2/B66A RRH ORAN (RF4439d-25A) RRH

Weight of ice based on total radial SF area:
Height (in): 15.0
Width (in): 15.0
Depth (in): 10.0
Total weight of ice on object: 50 lbs
Weight of object: 98.0 lbs
Combined weight of ice and object: 148 lbs

B5/B13 RRH ORAN (RF4440d-13A) RRH

Weight of ice based on total radial SF area:
Height (in): 15.0
Width (in): 15.0
Depth (in): 8.1
Total weight of ice on object: 47 lbs
Weight of object: 82.0 lbs
Combined weight of ice and object: 129 lbs

CBRS RRH-RT4401-48A RRH

Weight of ice based on total radial SF area:
Height (in): 16.2
Width (in): 11.4
Depth (in): 5.4
Total weight of ice on object: 39 lbs
Weight of object: 19.0 lbs
Combined weight of ice and object: 58 lbs

OVP Box

Weight of ice based on total radial SF area:
Height (in): 28.9
Width (in): 15.7
Depth (in): 10.3
Total weight of ice on object: 99 lbs
Weight of object: 32.0 lbs
Combined weight of ice and object: 131 lbs

L 3x3 Angles

Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 3
Per foot weight of ice on object: 12 plf

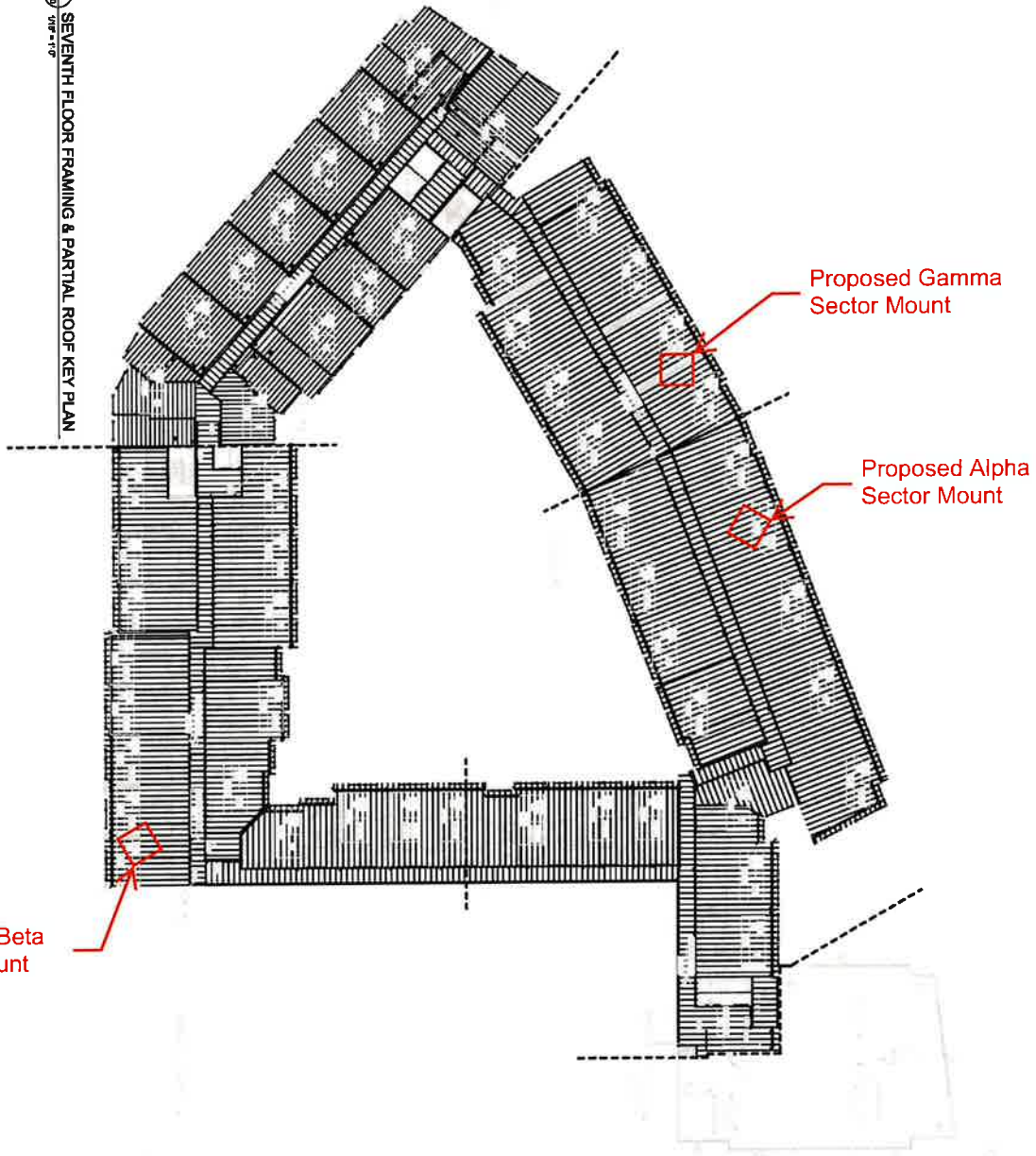
3" Pipe

Per foot weight of ice:
diameter (in): 3.5
Per foot weight of ice on object: 10 plf



Antenna Mount Calculations

1 SEVENTH FLOOR FRAMING & PARTIAL ROOF KEY PLAN
DATE: 07/11/10



NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	07/11/10
2	ISSUED FOR CONSTRUCTION	07/11/10
3	ISSUED FOR AS-BUILT	07/11/10
4	ISSUED FOR RECORD	07/11/10
5	ISSUED FOR ARCHIVE	07/11/10
6	ISSUED FOR CLOSURE	07/11/10
7	ISSUED FOR DESTRUCTION	07/11/10
8	ISSUED FOR REPAIR	07/11/10
9	ISSUED FOR RENOVATION	07/11/10
10	ISSUED FOR DEMOLITION	07/11/10

S-260

DONO PARCEL C
HARTFORD, CT

SEVENTH FLOOR FRAMING KEY PLAN

ENGINE COMPANIES
1. LICENSE NO. 10111
2. LICENSE NO. 10112
3. LICENSE NO. 10113
4. LICENSE NO. 10114
5. LICENSE NO. 10115

lessard
DESIGN



DATE: 07/11/10

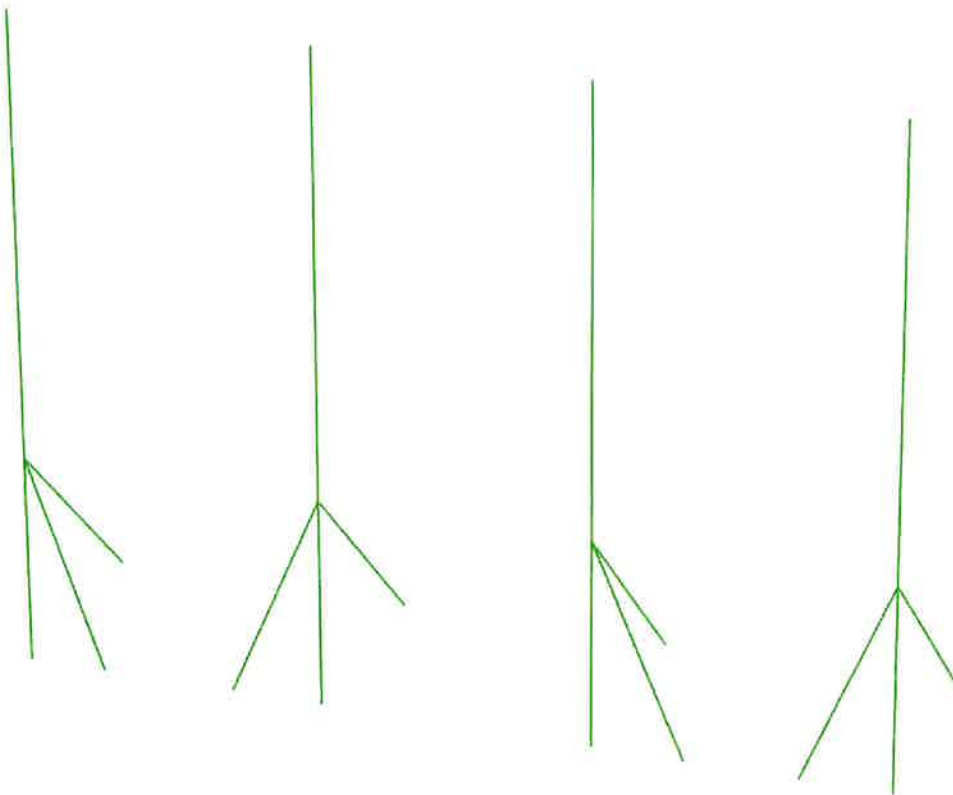






Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





Load data

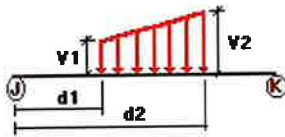
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wif	Wind with Ice (FRONT)	No	WIND
Wis	Wind with Ice (SIDE)	No	WIND
Di	Ice Load	No	LL

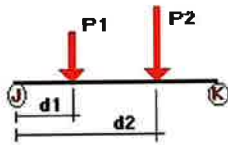
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wf	1	z	-0.015	-0.015	0.00	No	100.00	Yes
	2	z	-0.015	-0.015	50.00	Yes	100.00	Yes
	3	z	-0.021	-0.021	0.00	No	100.00	Yes
	4	z	-0.021	-0.021	0.00	No	100.00	Yes
	5	z	-0.015	-0.015	0.00	No	100.00	Yes
	6	z	-0.015	-0.015	45.00	Yes	100.00	Yes
	7	z	-0.021	-0.021	0.00	No	100.00	Yes
	8	z	-0.021	-0.021	0.00	No	100.00	Yes
	9	z	-0.015	-0.015	0.00	No	100.00	Yes
	10	z	-0.015	-0.015	40.00	Yes	100.00	Yes
	11	z	-0.021	-0.021	0.00	No	100.00	Yes
	12	z	-0.021	-0.021	0.00	No	100.00	Yes
	13	z	-0.015	-0.015	0.00	No	100.00	Yes
	14	z	-0.015	-0.015	50.00	Yes	100.00	Yes
	15	z	-0.021	-0.021	0.00	No	100.00	Yes
Ws	16	z	-0.021	-0.021	0.00	No	100.00	Yes
	1	x	-0.015	-0.015	0.00	No	100.00	Yes
	2	x	-0.015	-0.015	0.00	No	100.00	Yes
	3	x	-0.021	-0.021	0.00	No	100.00	Yes
	4	x	-0.021	-0.021	0.00	No	100.00	Yes
	5	x	-0.015	-0.015	0.00	No	100.00	Yes
	6	x	-0.015	-0.015	0.00	No	100.00	Yes
	7	x	-0.021	-0.021	0.00	No	100.00	Yes
8	x	-0.021	-0.021	0.00	No	100.00	Yes	

	9	x	-0.015	-0.015	0.00	No	100.00	Yes
	10	x	-0.015	-0.015	0.00	No	100.00	Yes
	11	x	-0.021	-0.021	0.00	No	100.00	Yes
	12	x	-0.021	-0.021	0.00	No	100.00	Yes
	13	x	-0.015	-0.015	0.00	No	100.00	Yes
	14	x	-0.015	-0.015	0.00	No	100.00	Yes
	15	x	-0.021	-0.021	0.00	No	100.00	Yes
	16	x	-0.021	-0.021	0.00	No	100.00	Yes
Di	1	y	-0.01	-0.01	0.00	No	100.00	Yes
	2	y	-0.01	-0.01	0.00	No	100.00	Yes
	3	y	-0.012	-0.012	0.00	No	100.00	Yes
	4	y	-0.012	-0.012	0.00	No	100.00	Yes
	5	y	-0.01	-0.01	0.00	No	100.00	Yes
	6	y	-0.01	-0.01	0.00	No	100.00	Yes
	7	y	-0.012	-0.012	0.00	No	100.00	Yes
	8	y	-0.012	-0.012	0.00	No	100.00	Yes
	9	y	-0.01	-0.01	0.00	No	100.00	Yes
	10	y	-0.01	-0.01	0.00	No	100.00	Yes
	11	y	-0.012	-0.012	0.00	No	100.00	Yes
	12	y	-0.012	-0.012	0.00	No	100.00	Yes
	13	y	-0.01	-0.01	0.00	No	100.00	Yes
	14	y	-0.01	-0.01	0.00	No	100.00	Yes
	15	y	-0.012	-0.012	0.00	No	100.00	Yes
	16	y	-0.012	-0.012	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	2	y	-0.05	1.00	No
		y	-0.05	4.00	No
	6	y	-0.098	7.00	No
		y	-0.044	1.50	No
		y	-0.044	3.50	No
		y	-0.082	5.50	No
		y	-0.019	7.00	No
	10	y	-0.018	1.50	No
		y	-0.018	3.00	No
	14	y	-0.058	1.00	No
		y	-0.058	4.00	No
	Wf	2	y	-0.032	7.00
z			-0.31	1.00	No
z			-0.31	4.00	No
6		z	-0.08	7.00	No
		z	-0.101	1.50	No
		z	-0.101	3.50	No
		z	-0.08	5.50	No
		z	-0.066	7.00	No
10		z	-0.035	1.50	No
		z	-0.035	3.00	No

	14	z	-0.31	1.00	No
		z	-0.31	4.00	No
		z	-0.162	7.00	No
Ws	2	x	-0.07	1.00	No
		x	-0.07	4.00	No
		x	-0.053	7.00	No
	6	x	-0.04	1.50	No
		x	-0.04	3.50	No
		x	-0.043	5.50	No
		x	-0.032	7.00	No
	10	x	-0.026	1.50	No
		x	-0.026	3.00	No
	14	x	-0.07	1.00	No
		x	-0.07	4.00	No
Wif	2	x	-0.107	7.00	No
		z	-0.068	1.00	No
		z	-0.068	4.00	No
		z	-0.021	7.00	No
	6	z	-0.023	1.50	No
		z	-0.023	3.50	No
		z	-0.021	5.50	No
		z	-0.018	7.00	No
	10	z	-0.01	1.50	No
		z	-0.01	3.00	No
	14	z	-0.068	1.00	No
		z	-0.068	4.00	No
		z	-0.038	7.00	No
Wis	2	x	-0.019	1.00	No
		x	-0.019	4.00	No
		x	-0.015	7.00	No
	6	x	-0.012	1.50	No
		x	-0.012	3.50	No
		x	-0.013	5.50	No
		x	-0.011	7.00	No
	10	x	-0.008	1.50	No
		x	-0.008	3.00	No
	14	x	-0.019	1.00	No
		x	-0.019	4.00	No
		x	-0.027	7.00	No
Di	2	y	-0.169	1.00	No
		y	-0.169	4.00	No
		y	-0.05	7.00	No
	6	y	-0.055	1.50	No
		y	-0.055	3.50	No
		y	-0.047	5.50	No
		y	-0.039	7.00	No
	10	y	-0.023	1.50	No
		y	-0.023	3.00	No
	14	y	-0.169	1.00	No
		y	-0.169	4.00	No
		y	-0.099	7.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wif	Wind with Ice (FRONT)	No	0.00	0.00	0.00
Wis	Wind with Ice (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wif	0.00	0.00	0.00
Wis	0.00	0.00	0.00
Di	0.00	0.00	0.00

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+Wf
- LC2=1.2DL+Ws
- LC3=1.2DL-Wf
- LC4=1.2DL-Ws
- LC5=0.9DL+Wf
- LC6=0.9DL+Ws
- LC7=0.9DL-Wf
- LC8=0.9DL-Ws
- LC9=1.2DL+Wif+Di
- LC10=1.2DL+Wis+Di
- LC11=1.2DL-Wif+Di
- LC12=1.2DL-Wis+Di
- LC13=1.4DL
- LC14=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 3X3X3_8	3	LC8 at 50.00%	0.06	OK	
		4	LC5 at 56.25%	0.07	OK	
		7	LC8 at 50.00%	0.04	OK	
		8	LC3 at 50.00%	0.04	OK	
		11	LC6 at 50.00%	0.04	OK	
		12	LC2 at 50.00%	0.03	OK	
		15	LC6 at 50.00%	0.05	OK	
		16	LC5 at 56.25%	0.07	OK	
	PIPE 3x0.216	1	LC3 at 100.00%	0.17	OK	
		2	LC3 at 75.00%	0.58	OK	
		5	LC3 at 100.00%	0.07	OK	
		6	LC3 at 75.00%	0.24	OK	
		9	LC4 at 100.00%	0.04	OK	
		10	LC4 at 75.00%	0.14	OK	
		13	LC3 at 100.00%	0.17	OK	
		14	LC3 at 75.00%	0.59	OK	

Date: 4/20/2023
 Project Name: HARTFORD YG CT
 Designed By: KM Checked By: MSC



Check Proposed Alpha & Gamma Antenna Frame:

Item	Wt. (Lbs./ft.)	Linear ft.	Qty.	Total (Lbs.)
C10x25	25	95	1	2372.6
Antenna	50		2	100.0
Antenna	58		2	116.0
Antenna	87.1		1	87.1
Antenna	35		1	35.0
RRH	98		1	98.0
RRH	82		1	82.0
RRH	19		1	19.0
OVP Box	32		1	32.0
3"Ø Steel Pipes	7.58	11	4	333.5
L3x3x3/8	7.2	8.9	4	256.3
Miscellaneous	50		1	50.0
Total, T_{weight}				3581.5 lbs

Area / Load: 3581.5 lbs.
 15' x 15' 225 ft²
 = **15.92 PSF**

Wind Loads:

Item	Lbs.	Qty.	Total (Lbs.)
Antenna	1510	1	1510
RRH & OVP Box	882	1	882
Total, T_{wind}			2392 lbs

Check Overturning Moment:

Distance to Center of antenna, D (ft.) = 8.17
 Distance to Center of RRH & OVP Box, D (ft.) = 4
 Overturning Safety Factor, SF = 1.5
 Mo = Total Wind x D x SF
 = **23789.50755 lb.-ft.**

Date: 4/20/2023
Project Name: HARTFORD YG CT
Designed By: KM Checked By: MSC



Check Frame Weight Requirements for Overturning:

Centroid Distance, D_c (ft.) = 7.5

$$F_w = Mo/D_c$$

$$= \boxed{3171.93 \text{ lbs.} < 3581.52 \text{ lbs.} \text{ O.K!}}$$

Check Sliding:

Friction Factor=

1.16 (Rubber on Rubber - Adhere rubber mats on the underside of the steel frame)

Sliding =

$T_w / \text{Friction Factor} =$

$$= \boxed{2062.07 \text{ lbs.} < 3581.52 \text{ lbs.} \text{ O.K!}}$$

Safety Factor=

Total Wt./ Sliding

$$= \boxed{1.7 \text{ O.K!}}$$

Date: 4/20/2023
 Project Name: HARTFORD YG CT
 Designed By: KM Checked By: MSC



Check Proposed Beta Antenna Frame:

Item	Wt. (Lbs./ft.)	Linear ft.	Qty.	Total (Lbs.)
C10x25	25	95	1	2372.6
Antenna	36		2	72.0
Antenna	43		2	86.0
Antenna	87.1		1	87.1
Antenna	35		1	35.0
RRH	98		1	98.0
RRH	82		1	82.0
RRH	19		1	19.0
OVP Box	32		1	32.0
3"Ø Steel Pipes	7.58	11	4	333.5
L3x3x3/8	7.2	8.9	4	256.3
Miscellaneous	50		1	50.0

Total, T_{weight} 3523.5 lbs

Area / Load: 3523.5 lbs.

15' x 15' 225 ft²

= **15.66 PSF**

Wind Loads:

Item	Lbs.	Qty.	Total (Lbs.)
Antenna	1290	1	1290
RRH & OVP Box	882	1	882

Total, T_{wind} 2172 lbs

Check Overturning Moment:

Distance to Center of antenna, D (ft.) = 8.17

Distance to Center of RRH & OVP Box, D (ft.) = 4

Overturning Safety Factor, SF = 1.5

Mo = Total Wind x D x SF

= **21094.50645 lb.-ft.**

Date: 4/20/2023
Project Name: HARTFORD YG CT
Designed By: KM Checked By: MSC



Check Frame Weight Requirements for Overturning:

Centroid Distance, D_c (ft.) = 7.5

$$F_w = M_o / D_c$$

$$= \boxed{2812.60 \text{ lbs.} < 3523.52 \text{ lbs.} \text{ O.K!}}$$

Check Sliding:

Friction Factor= 1.16 (Rubber on Rubber - Adhere rubber mats on the underside of the steel frame)

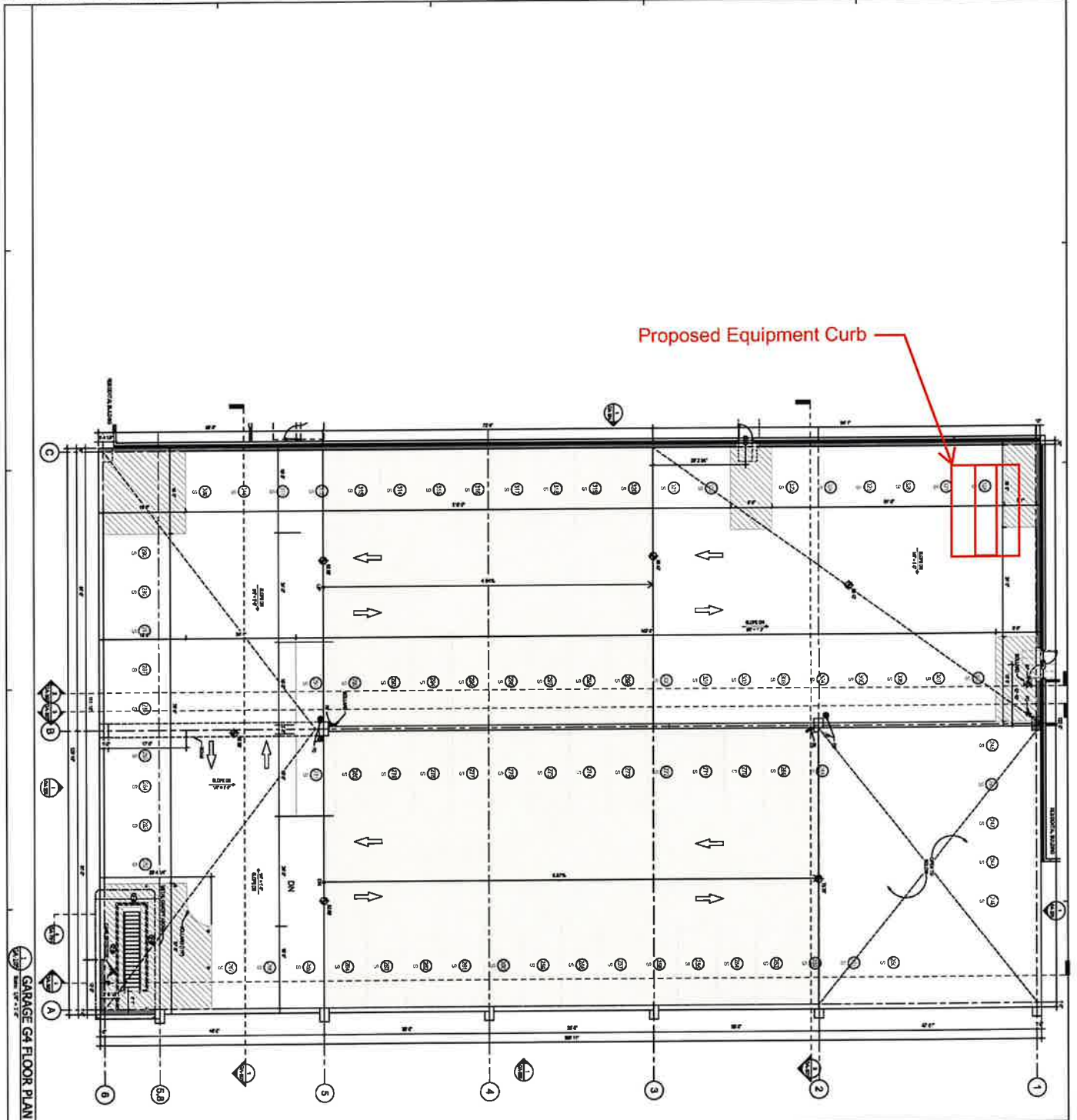
Sliding = $T_w / \text{Friction Factor} =$

$$= \boxed{1872.41 \text{ lbs.} < 3523.52 \text{ lbs.} \text{ O.K!}}$$

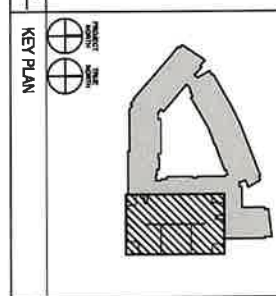
Safety Factor= Total Wt./ Sliding

$$= \boxed{1.9 \text{ O.K!}}$$

**Equipment Curb
Calculations**



GARAGE G4 FLOOR PLAN



KEY PLAN

NO.	DESCRIPTION	DATE
1	REVISION	
2	REVISION	
3	REVISION	
4	REVISION	
5	REVISION	
6	REVISION	
7	REVISION	
8	REVISION	
9	REVISION	
10	REVISION	

NO.	DESCRIPTION	DATE
1	REVISION	
2	REVISION	
3	REVISION	
4	REVISION	
5	REVISION	
6	REVISION	
7	REVISION	
8	REVISION	
9	REVISION	
10	REVISION	

DO NO PARCEL C
HARTFORD, CT

GARAGE FOURTH FLOOR PLAN

THIS COMPANIES
1. LICENSE NUMBER AND EXPIRES
2. LICENSE NUMBER AND EXPIRES
3. LICENSE NUMBER AND EXPIRES
4. LICENSE NUMBER AND EXPIRES

DATE: 11/11/2011

lessard
DESIGN

GA-105

Date: 4/20/2023
 Project Name: HARTFORD YG CT
 Designed By: KM Checked By: MSC



Parking Garage Stress @ Equipment Curb

Reference: Architectural Garage Plans prepared by Lessard Design dated May 19, 2020

Design Area Load:

Parking Garage Design Dead Load = 40 psf

Proposed Equipment Curb Load:

Item	Wt. (Lbs/ft.)	Linear ft.	Qty.	Total (Lbs.)
2x10 Lumber (H)	3	18.0	8	432.0
2x10 Lumber (V)	3	15.0	4	180.0
2x10 Lumber (B)	3	5.71	34	582.2
2x10 Lumber (B)	3	2.58	17	131.7
3/4" Plywood	1.9	270.0	1	513.0
Miscellaneous	50	-	1	50.0

Total Equipment Curb Load = 1889.0 lbs

Proposed Equipment Load:

(1) CMC74-36B Battery Cabinet = 3600 lbs

(1) CMC74-36E Equipment Cabinet = 2000 lbs

(1) Hoffman Box = 150 lbs

Total Proposed Load = 7639 lbs

Equipment Curb Area

Equipment Curb Length = 18.0 ft

Equipment Curb Width = 15.0 ft

Total Curb Area = 270.00 sf

Proposed Area Load = 35.29 psf

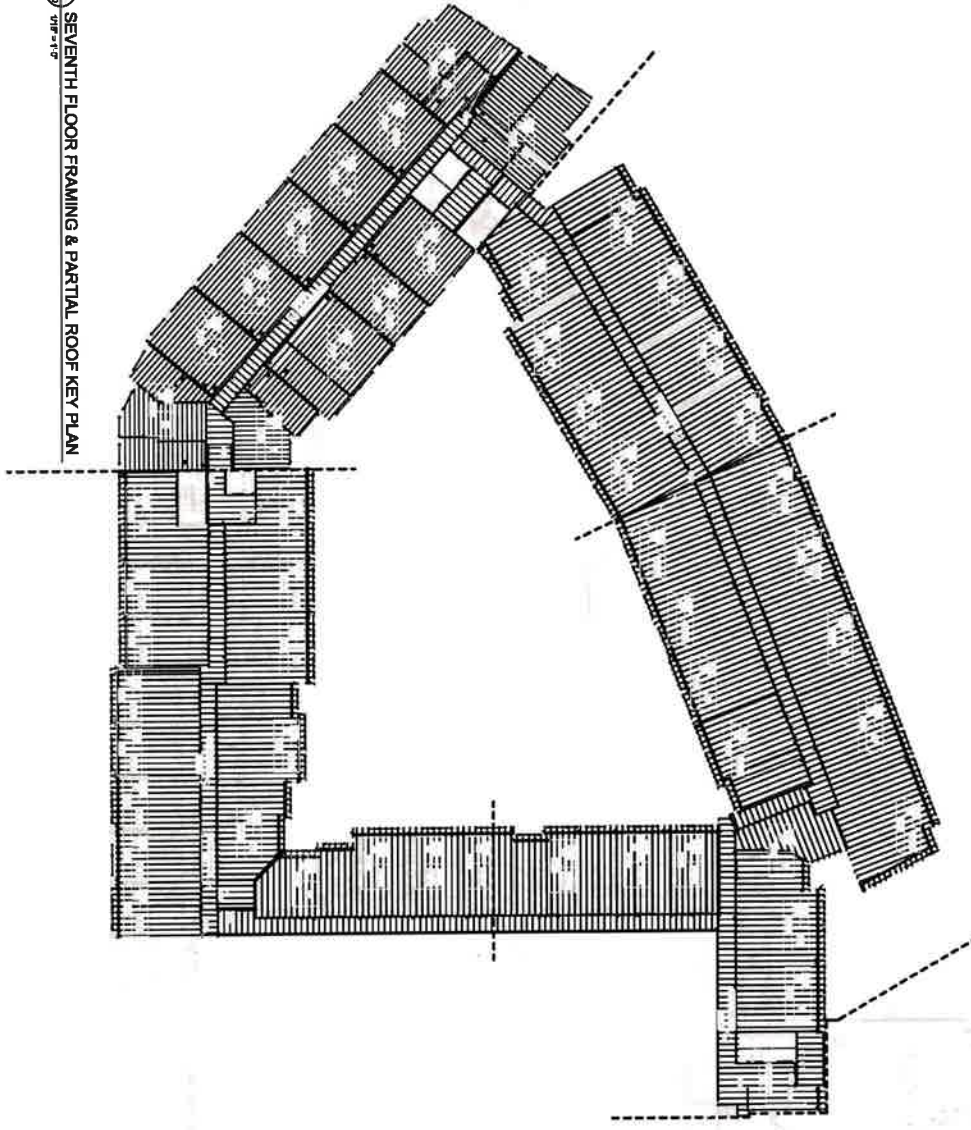
Load Comparison:

Proposed Area Load / Design Area Load ≤ 1.00

35.29 < 40 = 0.88 < 1.00 Therefore, OK!

Reference Documents

SEVENTH FLOOR FRAMING & PARTIAL ROOF KEY PLAN



LESSARD DESIGN
1000 Main Street, Suite 200
Hartford, CT 06103
Tel: 860.234.1234
Fax: 860.234.1235
www.lessarddesign.com

DATE: 01/20/25
PROJECT: DONO PARCEL C
DRAWN BY: [Name]
CHECKED BY: [Name]
SCALE: AS SHOWN

DONO PARCEL C
HARTFORD, CT
SEVENTH FLOOR FRAMING KEY PLAN

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	01/20/25
2	REVISION	
3	REVISION	
4	REVISION	
5	REVISION	
6	REVISION	
7	REVISION	
8	REVISION	
9	REVISION	
10	REVISION	
11	REVISION	
12	REVISION	
13	REVISION	
14	REVISION	
15	REVISION	
16	REVISION	
17	REVISION	
18	REVISION	
19	REVISION	
20	REVISION	

S-260

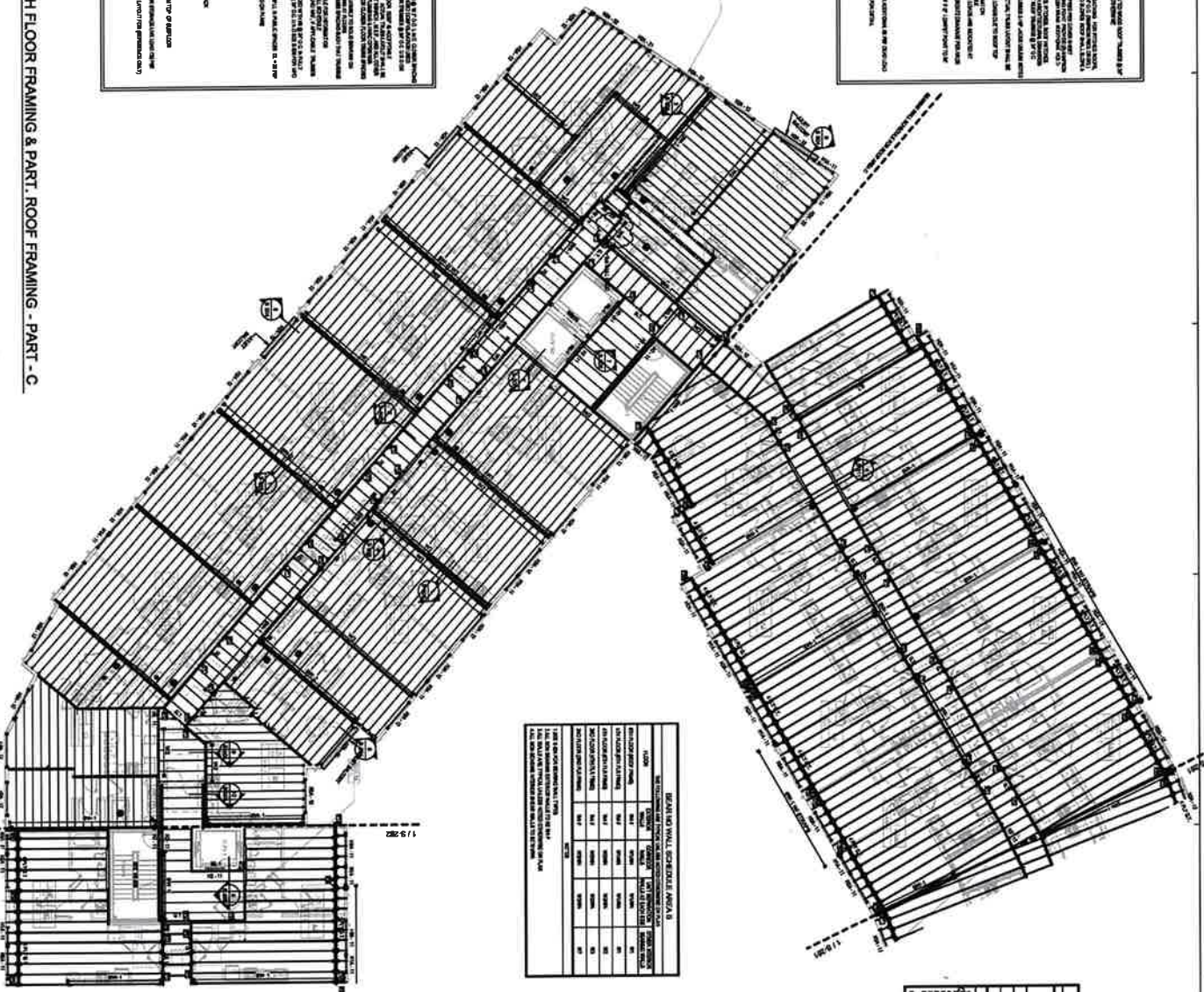
SEVENTH FLOOR FRAMING & PART ROOF FRAMING - PART - C

GENERAL NOTES:

1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
2. ALL JOINTS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
3. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
4. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
5. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
6. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
7. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
8. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
9. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
10. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.

GENERAL NOTES:

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3. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
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9. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.
10. ALL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE AISC STEEL ERECTORS' MANUAL.



BEARING WALL SCHEDULE - PART B

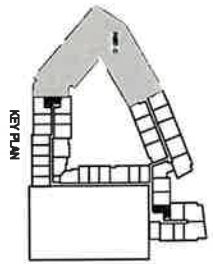
NO.	DESCRIPTION	THICKNESS	HEIGHT	FINISH
1	CONCRETE	12"	10'	SMOOTH
2	CONCRETE	12"	10'	SMOOTH
3	CONCRETE	12"	10'	SMOOTH
4	CONCRETE	12"	10'	SMOOTH
5	CONCRETE	12"	10'	SMOOTH
6	CONCRETE	12"	10'	SMOOTH
7	CONCRETE	12"	10'	SMOOTH
8	CONCRETE	12"	10'	SMOOTH
9	CONCRETE	12"	10'	SMOOTH
10	CONCRETE	12"	10'	SMOOTH

BEARING WALL SCHEDULE - PART C

NO.	DESCRIPTION	THICKNESS	HEIGHT	FINISH
1	CONCRETE	12"	10'	SMOOTH
2	CONCRETE	12"	10'	SMOOTH
3	CONCRETE	12"	10'	SMOOTH
4	CONCRETE	12"	10'	SMOOTH
5	CONCRETE	12"	10'	SMOOTH
6	CONCRETE	12"	10'	SMOOTH
7	CONCRETE	12"	10'	SMOOTH
8	CONCRETE	12"	10'	SMOOTH
9	CONCRETE	12"	10'	SMOOTH
10	CONCRETE	12"	10'	SMOOTH

BEARING WALL SCHEDULE - PART D

NO.	DESCRIPTION	THICKNESS	HEIGHT	FINISH
1	CONCRETE	12"	10'	SMOOTH
2	CONCRETE	12"	10'	SMOOTH
3	CONCRETE	12"	10'	SMOOTH
4	CONCRETE	12"	10'	SMOOTH
5	CONCRETE	12"	10'	SMOOTH
6	CONCRETE	12"	10'	SMOOTH
7	CONCRETE	12"	10'	SMOOTH
8	CONCRETE	12"	10'	SMOOTH
9	CONCRETE	12"	10'	SMOOTH
10	CONCRETE	12"	10'	SMOOTH



NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR PERMIT	8/28/14	JM	SM
2	ISSUED FOR CONSTRUCTION	9/15/14	JM	SM

DONO PARCEL C
HARTFORD, CT
SEVENTH FLOOR FRAMING PLAN-PART-C

RHS COMPANIES
1. LAMARKE GROUP INC
2. HANCOCK GROUP
3. HANCOCK GROUP

lessard DESIGN

1000 WEST STREET, SUITE 200
HARTFORD, CT 06102
TEL: 860.234.1234
WWW.LESSARDDESIGN.COM



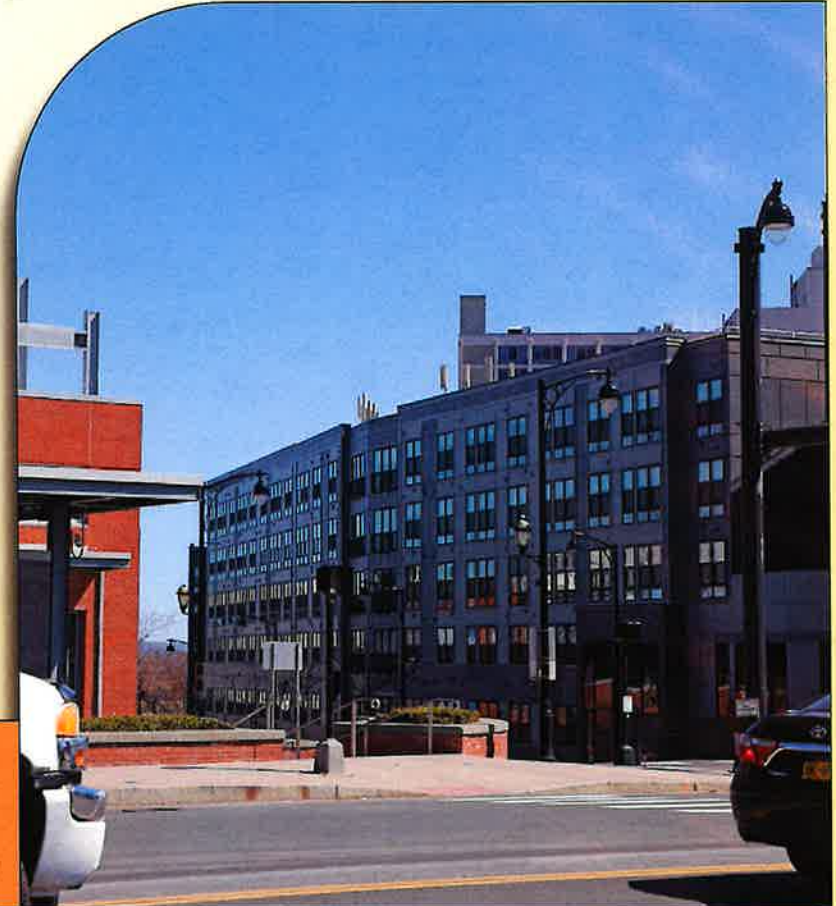
ATTACHMENT 5

Visibility Assessment & Photo-Simulations

HARTFORD YG CT
1212 MAIN STREET
HARTFORD, CT

Prepared in June 2023 by:
All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension – Suite 311
Waterford, CT 06320

Prepared for Verizon Wireless



VISUAL ASSESSMENT & PHOTO-SIMULATIONS

Cellco Partnership, d/b/a Verizon Wireless is seeking approval for the installation of a wireless communications facility (the "Facility") at 1212 Main Street in Hartford, Connecticut. At the request of Verizon Wireless, All-Points Technology Corporation, P.C. ("APT") completed this visibility assessment and prepared computer-generated photo-simulations depicting the Facility.

Project Undertaking

The Facility would be collocated on an existing, triangular-shaped, mixed-use building complex that was constructed in 2021. Verizon Wireless would install three (3) non-penetrating rooftop ballast mounts, each with four (4) panel antennas, five (5) remote radio heads ("RRHs"), one (1) over voltage protection box, and associated cabling. The antennas would be installed at a centerline height of 84'9" above ground level ("AGL"). An equipment platform mounted on steel beams would be located on the fourth level of the building's parking garage within a 200 sq. ft. fenced area. Please refer to the Lease Exhibit prepared by Hudson Design Group, LLC, dated September 19, 2022 for details regarding the proposed installation.

Project Vicinity

The existing building is located on the northeast corner of Main Street and Morgan Street North, immediately south of Trumbull Street and Dunkin' Park, home of the Hartford Yard Goats (the "Stadium"). The area is predominated by downtown Hartford to the south across Interstate 84 ("I-84"), the Connecticut River and the I-84 and Interstate 91 ("I-91") interchange to the east, and a mix of institutional and commercial development to the west and north.

Field Reconnaissance

APT completed field reconnaissance in the project vicinity to record existing conditions, inventory visible and non-visible locations, and provide photographic documentation from publicly accessible areas. The field reconnaissance was completed on March 30, 2023.

Photographic Documentation and Simulations

During the field reconnaissance, APT obtained photographs from representative locations where the existing building is currently visible. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology.

Photographs were taken with a Canon EOS 6D digital camera body¹ and Canon EF 24 to 105 millimeter (“mm”) zoom lens. APT used a standard focal length of 50mm to present a consistent field of view.

Photographic simulations were generated to portray scaled renderings of the proposed Facility from five (5) locations presented herein where the Facility may be recognizable. Using field data, site plan information and 3-dimensional (3D) modeling software, spatially referenced models of the Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo-simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, which were ultimately composited and merged with the existing conditions photographs (using Photoshop image editing software). The scale of the subjects in the photograph (the existing building) and the corresponding simulation (depicting the Facility components) is proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When reproducing the images in this format size, we believe it is important to present the largest view while providing key contextual landscape elements (existing developments, street signs, utility poles, etc.) so that the viewer can determine the proportionate scale of each object within the scene. Photographs presented in the attachment at the end of this report include documentation of existing conditions and photo-simulations of the Facility. The photo-simulations are intended to provide the reader with a general understanding of the different view characteristics associated with the Facility from various locations. Photographs were taken from publicly accessible areas and unobstructed view lines were chosen wherever possible.

Table 1 – Photo Locations on the following page summarizes the photographs and simulations presented in the attachment to this report, and includes a description of each location, view orientation, and distance from where the photo was taken relative to the proposed Facility. The photo locations are depicted on the photolog provided as an attachment to this report.

¹ The Canon EOS 6D is a full-framed camera which includes a lens receptor of the same size as the film used in 35mm cameras. As such, the images produced are comparable to those taken with a conventional 35mm camera.

Table 1 – Photo Locations

Photo	Location	Orientation	Distance to Site
1	Main Street	East	± 335 Feet
2	Chapel Street North	East	± 710 Feet
3	Chapel Street North at Main Street	Northeast	± 260 Feet
4	Morgan Street Parking	North	± 390 Feet
5	LAZ Parking Lot – Market Street	Southwest	± 1,105 Feet

Conclusions

As depicted on the attached photo-simulations, the antennas would be visible from some nearby locations, primarily west and south/southwest of the building, and where they are silhouetted against the sky. Viewpoints from the north would generally be obstructed by the Stadium, or backdropped by the high-rise buildings of downtown Hartford. Views from downtown Hartford, south of the Facility and across the I-84 corridor, would be limited to the southernmost antennas and would be minimal due to intervening structures. It is our opinion that the proposed Facility would not have an adverse visual impact on existing views of the building or the character of the surrounding area.

Limitations

The photo-simulations provide a representation of the Facility under similar settings as those encountered during the field review and reconnaissance. Views of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds); the location, angle and intensity of the sun; and the specific viewer location. Weather conditions on the day of the field review included sunny skies.

ATTACHMENTS

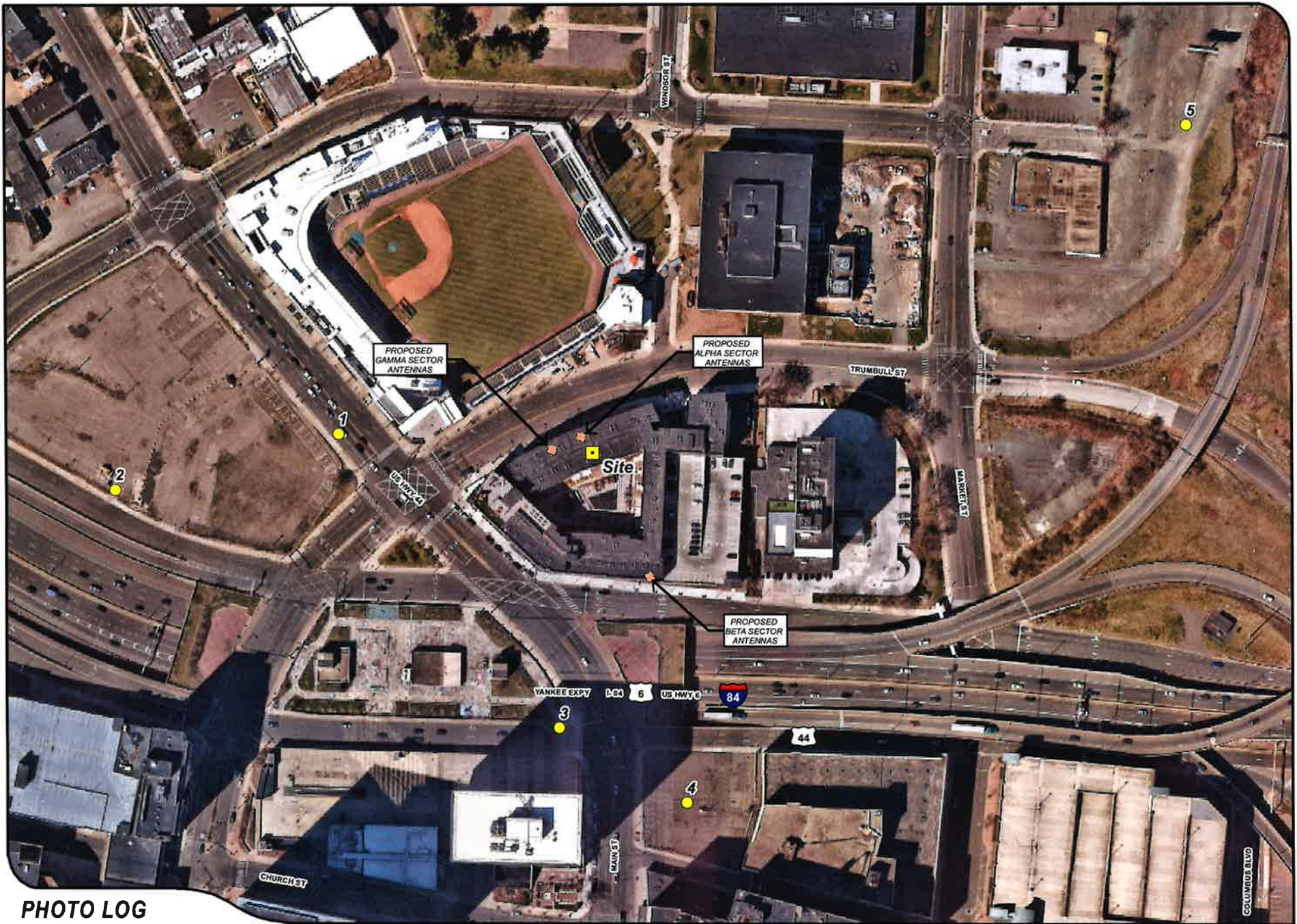
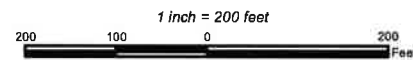


PHOTO LOG

Legend

- Site
- Photographic Location
- Proposed Antenna Sectors





PHOTOGRAPHED 01/17/2023

EXISTING

PHOTO

1

LOCATION

MAIN STREET

ORIENTATION

E

DISTANCE TO SITE

+/- 335 FEET





PROPOSED

PHOTO

1

LOCATION

MAIN STREET

ORIENTATION

E

DISTANCE TO SITE

+/- 335 FEET





PHOTOGRAPHED 01/17/2023

EXISTING

PHOTO

2

LOCATION

CHAPEL STREET NORTH

ORIENTATION

E

DISTANCE TO SITE

+/- 710 FEET





PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
2	CHAPEL STREET NORTH	E	+/- 710 FEET



PHOTOGRAPHED BY JON/2023

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
3	CHAPEL STREET SOUTH AT MAIN STREET	NE	+/- 260 FEET



PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
3	CHAPEL STREET SOUTH AT MAIN STREET	NE	+/- 260 FEET



PHOTOGRAPHED 01/13/2023

EXISTING

PHOTO

4

LOCATION

MORGAN STREET PARKING

ORIENTATION

N

DISTANCE TO SITE

+/- 390 FEET





PROPOSED

PHOTO

4

LOCATION

MORGAN STREET PARKING

ORIENTATION

N

DISTANCE TO SITE

+/- 390 FEET





PHOTOGRAPHED BY 1/19/2023

EXISTING

PHOTO

5

LOCATION

MORGAN STREET PARKING

ORIENTATION

SW

DISTANCE TO SITE

+/- 1,105 FEET





PROPOSED

PHOTO

5

LOCATION

LAZ PARKING LOT - MARKET STREET

ORIENTATION

SW

DISTANCE TO SITE

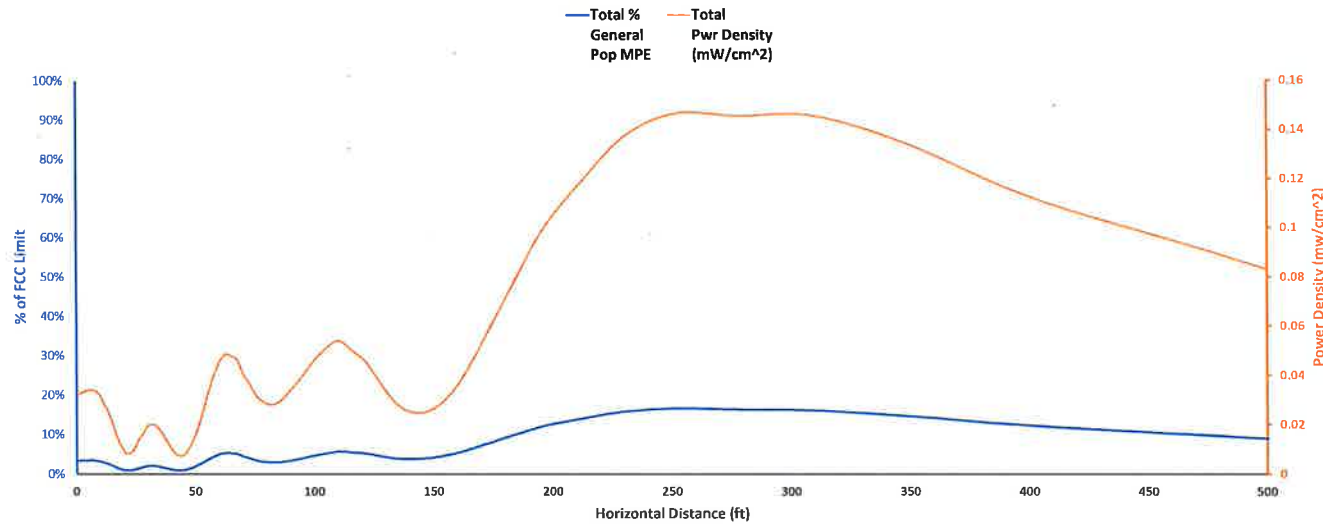
+/- 1,105 FEET



ATTACHMENT 6

Location	Hartford YG CT						
Date	2/3/2023						
Band	28GHZ	C-Band	CBRS	AWS	PCS	850	700
Operating Frequency (MHz)	27,500	3,700	3,550	2,145	1,970	880	746
General Population MPE (mW/cm ²)	1	1	1	1	1	0.58666667	0.49733333
ERP Per Transmitter (Watts)	610	21,131	50	1,972	1,648	496	782
Number of Transmitters	1	2	4	4	4	4	4
Antenna Centrlina (feet)	65	55	65	55	55	55	55
Total ERP (Watts)	610	42,262	200	7,888	6,592	1,984	3,128
Total ERP (dBm)	58	76	53	69	68	63	65
Maximum % of General Population Limit	16.5%						

RF Exposure 6ft Above Ground Level Far Field Formula (per FCC OET65)



Angle Below Horizon	Power Density (mW/cm ²)							Percent of General Population MPE							Distance	Total Pwr Density (mW/cm ²)	Total % General Pop MPE		
	28GHz	C-Band	CBRS	AWS	PCS	850-LTE	700 MHz	390Hz	28GHz	C-Band	CBRS	AWS	PCS	Cellular				CDMA	700 MHz
90	5.83633E-05	0.031289723	3.93704E-07	5.15725E-05	1.8641E-05	0.000110916	0.000858457	0.00%	0.01%	3.13%	0.00%	0.01%	0.00%	0.02%	0.00%	0.17%	0	0.032388066	3.33%
89	6.1101E-05	0.031280193	4.12172E-07	5.03893E-05	1.58978E-05	8.9302E-05	0.000754373	0.00%	0.01%	3.13%	0.00%	0.01%	0.00%	0.02%	0.00%	0.15%	0.855298181	0.032251662	3.31%
88	6.33541E-05	0.031979557	2.65953E-07	4.38419E-05	1.40262E-05	6.78366E-05	0.000640014	0.00%	0.01%	3.20%	0.00%	0.00%	0.00%	0.01%	0.00%	0.13%	1.711117705	0.032808895	3.35%
87	6.50606E-05	0.032375056	9.8707E-08	5.9051E-05	1.21977E-05	5.03271E-05	0.000526656	0.00%	0.01%	3.24%	0.00%	0.01%	0.00%	0.01%	0.00%	0.11%	2.567981185	0.033088448	3.37%
86	6.60203E-05	0.033058512	5.54252E-07	9.339E-05	1.00774E-05	3.9891E-05	0.000426187	0.00%	0.01%	3.31%	0.00%	0.01%	0.00%	0.01%	0.00%	0.09%	3.426413785	0.033694632	3.42%
85	6.61992E-05	0.032967816	8.76765E-07	0.000122774	8.13125E-06	3.81665E-05	0.000347862	0.00%	0.01%	3.30%	0.00%	0.01%	0.00%	0.01%	0.00%	0.07%	4.286944513	0.033551826	3.39%
84	6.52895E-05	0.033622532	7.97762E-07	0.000137293	7.42502E-06	4.44859E-05	0.000295765	0.00%	0.01%	3.36%	0.00%	0.01%	0.00%	0.01%	0.00%	0.06%	5.150107528	0.034173588	3.45%
83	6.33355E-05	0.033489074	1.35107E-06	0.000146528	9.46172E-06	5.69501E-05	0.00026867	0.00%	0.01%	3.35%	0.00%	0.01%	0.00%	0.01%	0.00%	0.05%	6.016443484	0.034035371	3.43%
82	6.02925E-05	0.033335523	2.5078E-06	0.000156287	1.57389E-05	7.20276E-05	0.000264987	0.00%	0.01%	3.33%	0.00%	0.02%	0.00%	0.01%	0.00%	0.05%	6.8865009	0.033907364	3.42%
81	5.59358E-05	0.033162066	2.7398E-06	0.000178508	2.77146E-05	8.63442E-05	0.000280516	0.00%	0.01%	3.32%	0.00%	0.02%	0.00%	0.01%	0.00%	0.05%	7.760837576	0.033793825	3.41%
80	5.02256E-05	0.03221845	2.99195E-06	0.000203761	4.64699E-05	9.69831E-05	0.000310043	0.00%	0.01%	3.22%	0.00%	0.02%	0.00%	0.02%	0.00%	0.06%	8.640022055	0.032928924	3.33%
79	4.94273E-05	0.031282026	4.94307E-06	0.000227149	7.28387E-05	0.000102538	0.000350438	0.00%	0.00%	3.13%	0.00%	0.00%	0.01%	0.02%	0.00%	0.07%	9.524635148	0.032089361	3.25%
78	5.62099E-05	0.029662688	6.94772E-06	0.000236171	0.000106974	0.000103467	0.000398591	0.00%	0.01%	2.97%	0.00%	0.02%	0.01%	0.02%	0.00%	0.08%	10.41527152	0.030571049	3.10%
77	6.31626E-05	0.027469426	7.57688E-06	0.000229016	0.000148565	0.000101028	0.000449952	0.00%	0.01%	2.75%	0.00%	0.02%	0.01%	0.02%	0.00%	0.09%	11.31254137	0.028468727	2.90%
76	6.98082E-05	0.026014169	7.88745E-06	0.000207122	0.000197368	9.79043E-05	0.000502952	0.00%	0.01%	2.60%	0.00%	0.02%	0.02%	0.02%	0.00%	0.10%	12.21707214	0.027097212	2.77%
75	7.58837E-05	0.024059649	9.20828E-06	0.000170729	0.000252555	9.65786E-05	0.000552848	0.00%	0.01%	2.41%	0.00%	0.02%	0.03%	0.02%	0.00%	0.11%	13.12951043	0.025217451	2.58%
74	8.07575E-05	0.021731264	1.09954E-05	0.000134308	0.000312717	0.000100387	0.000596213	0.00%	0.01%	2.17%	0.00%	0.01%	0.03%	0.02%	0.00%	0.12%	14.0505239	0.022966643	2.36%
73	8.83092E-05	0.019168775	1.31231E-05	9.41047E-05	0.000373819	0.000111477	0.000630828	0.00%	0.01%	1.92%	0.00%	0.01%	0.04%	0.02%	0.00%	0.13%	14.98080399	0.020480436	2.12%
72	0.00010819	0.016136687	1.63924E-05	5.87261E-05	0.000430409	0.000132253	0.000653328	0.00%	0.01%	1.61%	0.00%	0.01%	0.04%	0.02%	0.00%	0.13%	15.92106512	0.017538614	1.83%
71	0.000134587	0.013419671	2.09427E-05	5.80442E-05	0.000475126	0.000163807	0.000665363	0.00%	0.01%	1.34%	0.00%	0.01%	0.05%	0.03%	0.00%	0.13%	16.87205305	0.014937541	1.57%

70	0.000157459	0.011281669	2.32914E-05	8.87953E-05	0.000495953	0.000207953	0.000667867	0.00%	0.02%	1.13%	0.00%	0.01%	0.05%	0.04%	0.00%	0.13%	17.83454148	0.012922987	1.37%
69	0.00017787	0.009262009	2.30745E-05	0.000115537	0.000483919	0.000264422	0.000659207	0.00%	0.02%	0.93%	0.00%	0.01%	0.05%	0.05%	0.00%	0.13%	18.0933772	0.010986038	1.18%
68	0.000192665	0.007598598	2.44813E-05	0.000137009	0.000434311	0.000332909	0.000642762	0.00%	0.02%	0.76%	0.00%	0.01%	0.04%	0.06%	0.00%	0.13%	19.79728507	0.009362735	1.02%
67	0.000200109	0.006478193	2.9127E-05	0.000158661	0.000350365	0.000413091	0.00061769	0.00%	0.02%	0.65%	0.00%	0.02%	0.04%	0.07%	0.00%	0.12%	20.79926599	0.008247236	0.92%
66	0.000197917	0.006529231	3.62672E-05	0.000175339	0.000243063	0.000500557	0.000583585	0.00%	0.02%	0.65%	0.00%	0.02%	0.05%	0.02%	0.00%	0.12%	21.81620558	0.0082673	0.92%
65	0.000185545	0.007210297	4.31002E-05	0.000189221	0.000135525	0.00059367	0.000538604	0.00%	0.02%	0.72%	0.00%	0.02%	0.01%	0.10%	0.00%	0.11%	22.84907525	0.008895963	0.99%
64	0.000203309	0.008141831	5.23827E-05	0.000199406	5.26974E-05	0.000687565	0.000481991	0.00%	0.02%	0.81%	0.01%	0.02%	0.01%	0.12%	0.00%	0.10%	23.89898684	0.009819183	1.08%
63	0.000218575	0.01004994	6.81759E-05	0.000205201	3.34373E-05	0.00077581	0.000416071	0.00%	0.02%	1.00%	0.01%	0.02%	0.00%	0.13%	0.00%	0.08%	24.96674703	0.01176751	1.27%
62	0.000218158	0.012144749	8.4684E-05	0.000201506	6.9717E-05	0.000854797	0.000345612	0.00%	0.02%	1.21%	0.01%	0.02%	0.01%	0.15%	0.00%	0.07%	26.05376215	0.013915953	1.49%
61	0.000198455	0.013678556	0.000102729	0.000188824	0.000165237	0.000915444	0.00027756	0.00%	0.02%	1.37%	0.01%	0.02%	0.01%	0.15%	0.00%	0.06%	27.16114352	0.015526805	1.65%
60	0.000160792	0.015082141	0.000127437	0.000164998	0.000333834	0.000957314	0.000221707	0.00%	0.02%	1.51%	0.01%	0.02%	0.03%	0.16%	0.00%	0.04%	28.29016319	0.017048223	1.79%
59	0.000138858	0.016964182	0.000154383	0.000147418	0.000565718	0.000973026	0.000187003	0.00%	0.01%	1.70%	0.02%	0.01%	0.06%	0.17%	0.00%	0.04%	29.44217033	0.019130588	2.00%
58	0.000162768	0.017387722	0.000186896	0.000141013	0.000841996	0.000959035	0.000184314	0.00%	0.02%	1.74%	0.02%	0.01%	0.08%	0.16%	0.00%	0.04%	30.61859824	0.019863744	2.07%
57	0.000171495	0.016966198	0.000220944	0.00015474	0.001147233	0.000918705	0.000221259	0.00%	0.02%	1.70%	0.02%	0.02%	0.11%	0.16%	0.00%	0.04%	31.82097207	0.019800574	2.07%
56	0.000160549	0.016578688	0.000260999	0.000181789	0.001460889	0.000851416	0.000302599	0.00%	0.02%	1.66%	0.03%	0.02%	0.15%	0.15%	0.00%	0.06%	33.05091733	0.019796928	2.07%
55	0.000129308	0.014761509	0.000308075	0.000213377	0.001762779	0.00075984	0.000429599	0.00%	0.01%	1.48%	0.03%	0.02%	0.18%	0.13%	0.00%	0.09%	34.31016937	0.018364869	1.93%
54	0.00018548	0.012627489	0.00035508	0.000244531	0.002038845	0.000651491	0.000620252	0.00%	0.02%	1.26%	0.04%	0.02%	0.20%	0.11%	0.00%	0.12%	35.60058387	0.016704498	1.78%
53	0.000235291	0.010235262	0.000399608	0.000286494	0.002270733	0.000530506	0.000813609	0.00%	0.02%	1.02%	0.04%	0.03%	0.23%	0.09%	0.00%	0.16%	36.92414846	0.014771503	1.60%
52	0.000273236	0.007489727	0.000449333	0.000327705	0.002440833	0.000407434	0.01061164	0.00%	0.03%	0.75%	0.04%	0.03%	0.24%	0.07%	0.00%	0.21%	38.2829957	0.012449405	1.38%
51	0.000358165	0.005039726	0.000493303	0.000349481	0.002537897	0.000289067	0.011335745	0.00%	0.04%	0.50%	0.05%	0.03%	0.25%	0.05%	0.00%	0.27%	39.67941763	0.010403885	1.20%
50	0.000397398	0.002950595	0.000516721	0.000331838	0.002564347	0.000183021	0.00163767	0.00%	0.04%	0.30%	0.05%	0.01%	0.26%	0.03%	0.00%	0.33%	41.11588193	0.008581591	1.04%
49	0.000369786	0.001807014	0.000528421	0.000255846	0.002523647	9.69512E-05	0.001951094	0.00%	0.04%	0.18%	0.05%	0.03%	0.25%	0.02%	0.00%	0.39%	42.59505015	0.007532758	0.96%
48	0.000278125	0.001635116	0.000527557	0.000167713	0.002452538	3.59038E-05	0.002279635	0.00%	0.03%	0.16%	0.05%	0.02%	0.25%	0.01%	0.00%	0.46%	44.11979817	0.007376588	0.97%
47	0.000311227	0.002452769	0.000491028	0.000219116	0.002386293	4.91189E-06	0.002618022	0.00%	0.03%	0.25%	0.05%	0.02%	0.24%	0.00%	0.00%	0.53%	45.69323922	0.00848367	1.17%
46	0.000353544	0.004268447	0.000416364	0.000474555	0.002356878	7.17565E-06	0.002948401	0.00%	0.04%	0.43%	0.04%	0.05%	0.24%	0.00%	0.00%	0.59%	47.31874997	0.010825264	1.38%
45	0.000327581	0.006844973	0.00036782	0.000396243	0.002390226	4.45619E-05	0.003271059	0.00%	0.03%	0.68%	0.03%	0.09%	0.24%	0.01%	0.00%	0.66%	49	0.014154126	1.75%
44	0.000235333	0.010161183	0.00025393	0.001644225	0.002466104	0.000117635	0.003566654	0.00%	0.02%	1.02%	0.03%	0.16%	0.25%	0.02%	0.00%	0.72%	50.74098538	0.018445063	2.21%
43	0.000309395	0.014156907	0.000178461	0.002630179	0.002512092	0.000225715	0.003830761	0.00%	0.03%	1.42%	0.02%	0.02%	0.25%	0.04%	0.00%	0.77%	52.54606679	0.02384301	2.79%
42	0.000606439	0.018768238	0.000111639	0.003921393	0.002463149	0.000365608	0.00404334	0.00%	0.06%	1.88%	0.01%	0.39%	0.25%	0.06%	0.00%	0.81%	54.42001323	0.030279805	3.46%
41	0.000875945	0.023242752	6.81564E-05	0.005324814	0.002250892	0.000533187	0.004193767	0.00%	0.09%	2.32%	0.01%	0.53%	0.23%	0.09%	0.00%	0.84%	56.36805195	0.036489513	4.11%
40	0.000999979	0.027512922	4.55603E-05	0.00673835	0.001864678	0.000719662	0.004254548	0.00%	0.10%	2.75%	0.00%	0.67%	0.19%	0.12%	0.00%	0.86%	58.39592604	0.042134699	4.69%
39	0.000889194	0.031343344	4.19784E-05	0.007765371	0.001343422	0.000915666	0.004221454	0.00%	0.09%	3.13%	0.00%	0.78%	0.13%	0.16%	0.00%	0.85%	60.50996067	0.046520428	5.14%
38	0.000688281	0.039369228	4.86178E-05	0.007963473	0.00105802	0.00105802	0.004077579	0.00%	0.07%	3.40%	0.00%	0.80%	0.16%	0.09%	0.00%	0.82%	62.71713998	0.048642119	5.35%
37	0.0008477	0.039988169	5.6216E-05	0.00743609	0.000334499	0.001276202	0.003825115	0.00%	0.09%	3.40%	0.01%	0.74%	0.03%	0.22%	0.00%	0.77%	65.02519626	0.047801061	5.26%
36	0.000875295	0.034185276	5.78341E-05	0.006178114	9.59194E-05	0.001410687	0.003460635	0.00%	0.09%	3.42%	0.01%	0.62%	0.01%	0.24%	0.00%	0.70%	67.4427141	0.046263761	5.08%
35	0.000629069	0.03087339	5.17283E-05	0.004462736	1.02179E-05	0.001493399	0.002991583	0.00%	0.06%	3.09%	0.01%	0.45%	0.00%	0.25%	0.00%	0.60%	69.57925233	0.040512178	4.46%
34	0.001676566	0.027830757	3.75362E-05	0.002802476	0.000194353	0.001507012	0.002453814	0.00%	0.17%	2.78%	0.00%	0.28%	0.02%	0.06%	0.00%	0.49%	72.64548746	0.036502515	4.00%
33	0.003892916	0.022419156	1.71516E-05	0.001460953	0.000489425	0.001446142	0.001874718	0.00%	0.39%	2.24%	0.00%	0.15%	0.05%	0.25%	0.00%	0.38%	75.45338323	0.031600461	3.45%
32	0.006858224	0.018485072	7.64261E-06	0.000563427	0.000742828	0.001307413	0.001300582	0.00%	0.69%	1.85%	0.00%	0.06%	0.07%	0.22%	0.00%	0.26%	78.41639192	0.029265189	3.15%
31	0.010073408	0.014999625	1.29183E-05	0.000121926	0.000861286	0.001100708	0.000778748	0.00%	1.01%	1.50%	0.00%	0.01%	0.09%	0.19%	0.00%	0.16%	81.54969464	0.027948619	2.90%
30	0.012856121	0.014136495	1.73037E-05	5.37475E-05	0.000826816	0.000845149	0.000366149	0.00%	1.29%	1.41%	0.00%	0.01%	0.08%	0.14%	0.00%	0.07%	84.87048957	0.029101782	3.01%
29	0.014552827	0.016238435	2.65447E-05	0.000167325	0.000728605	0.000570343	0.000119361	0.00%	1.46%	1.62%	0.00%	0.02%	0.10%	0.10%	0.00%	0.02%	88.39834001	0.03240364	3.29%
28	0.014710151	0.020493697	3.7038E-05	0.00028552	0.000709067	0.000313482	8.95235E-05	0.00%	1.47%	2.05%	0.00%	0.03%	0.07%	0.05%	0.00%	0.02%	92.1555968	0.036638478	3.69%
27	0.013305782	0.026454238	4.18861E-05	0.000394923	0.000908997	0.000118874	0.000318282	0.00%	1.33%	2.65%	0.00%	0.04%	0.09%	0.02%	0.00%	0.06%	96.16791477	0.041542982	4.19%
26	0.012506327	0.031775006	3.50074E-05	0.000508279	0.001384053	3.01077E-05	0.000834454	0.00%	1.25%	3.18%	0.00%	0.05%	0.14%	0.01%	0.00%	0.17%	100.4648882	0.047073235	4.79%
25	0.01255417	0.034300325	2.31642E-05	0.000608576	0.002043456	8.70743E-05	0.001650498	0.00%	1.26%	3.43%	0.00%	0.06%	0.10%	0.01%	0.00%	0.33%	105.0808391	0.051267265	5.30%
24	0.011191966	0.036398377	1.27039E-05	0.000814789	0.002655189	0.000321085	0.002750078	0.00%	1.12%	3.64%	0.00%	0.08%	0.27%	0.05%	0.00%	0.55%	110.0558019	0.054139688	5.71%
23	0.009848334	0.03134424	5.64148E-06	0.001191721	0.002988009	0.000749462	0.004115991	0.00%	0.98%	3.13%	0.00%	0.12%	0.30%	0.13%	0.00%	0.83%	115.4367659	0.050235449	5.49%
22	0.010375745	0.023908512	4.3356E-06	0.001444007	0.002848523	0.001374498	0.005673738	0.00%	1.04%	2.39%	0.00%	0.14%	0.28%	0.23%	0.00%	1.14%	121.2792558	0.04562936	5.23%
21	0.009676525	0.013805751	1.02506E-05	0.001291448	0.002296821	0.002175964	0.00736846	0.00%	0.97%	1.38%	0.00%	0.13%	0.23%	0.37%	0.00%	1.48%	127.6493642	0.03662522	4.56%
20	0.007911963	0.00546393	2.14939E-05	0.000852162	0.001526062	0.0031195													

ATTACHMENT 7

July 13, 2023

Via Certificate of Mailing

Luke Bronin, Mayor
City of Hartford
550 Main Street
Hartford, CT 06103

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 1212 Main Street, Hartford, Connecticut**

Dear Mayor Bronin:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Petition for Declaratory Ruling (“Petition”) with the Connecticut Siting Council (“Council”) seeking approval for the installation of a wireless telecommunications facility on the roof of the building at 1212 Main Street in Hartford (the “Property”).

The facility will consist of the installation of up to eighteen (18) panel type antennas and nine (9) remote radio heads attached to new pipes extended approximately 12.8’ above the existing roof. Equipment associated with the antennas will be placed on a steel platform also on the roof of the building.

A copy of the full Petition is attached for your review. Landowners whose parcels are considered to abut the Property were also sent notice of this filing along with a copy of the Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachment

July 13, 2023

Via Certificate of Mailing

Erin Howard, AICP, Acting Director of Planning
City of Hartford - Development Services
260 Constitution Plaza, 1st Floor
Hartford, CT 06103

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 1212 Main Street, Hartford, Connecticut**

Dear Ms. Howard:

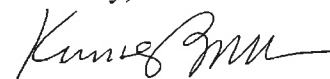
This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Petition for Declaratory Ruling (“Petition”) with the Connecticut Siting Council (“Council”) seeking approval for the installation of a wireless telecommunications facility on the roof of the building at 1212 Main Street in Hartford (the “Property”).

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A copy of the full Petition is attached for your review. Landowners whose parcels are considered to abut the Property were also sent notice of this filing along with a copy of the Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachment

July 13, 2023

Via Certificate of Mailing

City of Hartford
c/o RMS DINO LLC
550 Main Street
Hartford, CT 06103

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 1212 Main Street, Hartford, Connecticut**

Dear Sir or Madam:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Petition for Declaratory Ruling (“Petition”) with the Connecticut Siting Council (“Council”) seeking approval for the installation of a wireless telecommunications facility on the roof of the building at 1212 Main Street in Hartford (the “Property”).

The facility will consist of the installation of up to eighteen (18) panel type antennas and nine (9) remote radio heads attached to new pipes extended approximately 12.8’ above the existing roof. Equipment associated with the antennas will be placed on a steel platform also on the roof of the building.

A copy of the full Petition is attached for your review. Landowners whose parcels are considered to abut the Property were also sent notice of this filing along with a copy of the Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachment

ATTACHMENT 8

July 13, 2023

Via Certificate of Mailing

«Name_and_Address»

Re: Petition for Declaratory Ruling Filed with the Connecticut Siting Council for the Installation of a Wireless Telecommunications Facility at 1212 Main Street, Hartford, Connecticut

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Petition for Declaratory Ruling (“Petition”) with the Connecticut Siting Council (“Council”) seeking approval for the installation of a wireless telecommunications facility on the roof of the building at 1212 Main Street in Hartford (the “Property”).

The facility will consist of the installation of up to eighteen (18) panel type antennas and nine (9) remote radio heads attached to new pipes extended approximately 12.8’ above the existing roof. Equipment associated with the antennas will be placed on a steel platform also on the roof of the building.

This notice and a full copy of the Petition is being sent to you because you are listed on the Town Assessor’s records as an owner of land that abuts the Property. If you have any questions regarding the Petition, the Council’s process for reviewing the Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

Sincerely,



Kenneth C. Baldwin

Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTING PROPERTY OWNERS

**1212 MAIN STREET
HARTFORD, CONNECTICUT**

	Property Address	Owner's and Mailing Address
1.	1214-1218 Main Street	City of Hartford 550 Main Street Hartford, CT 06103
2.	150 Windsor Street	City of Hartford 550 Main Street Hartford, CT 06103
3.	50 Morgan Street	Shelborne Axela LLC 61 Interstate Lane Waterbury, CT 06705
4.	36 Talcott Street	36-70 Talcott Street 755 Main Street, 14 th Floor Hartford, CT 06103
5.	1006 Main Street	1000 Main Street Partner LLC 1 Financial Plaza, 14 th Floor Hartford, CT 06103
6.	1031 Main Street	State of Connecticut Highway Department 24 Wolcott Hill Road Wethersfield, CT 06109
7.	1033 Main Street	City of Hartford Public Works Division 550 Main Street Hartford, CT 06103
8.	1143 Main Street	City of Hartford Public Works Division 550 Main Street Hartford, CT 06103