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 1300 HALL BOULEVARD,	:	
BLOOMFIELD, CONNECTICUT	:	JUNE 29, 2022

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 a 4-story commercial office building (the former Cigna Headquarters) on an approximately 37-acre parcel at 1300 Hall Boulevard in Bloomfield, Connecticut (the "Property"). *See* Attachment 1 –Site Schematic Map (Aerial Photograph). The Property and several separate adjacent parcels are owned by The Atrium CT, LLC ("Atrium"). The Property is developed with two commercial office buildings, a structured parking garage, surface parking areas and related site improvements. A dipole antenna is currently attached to the mechanical penthouse of the roof of the building. According to Atrium, this antenna is used for on-property communications among the owner's staff.

The Property is surrounded by undeveloped land to the west; undeveloped land and ball fields to the south, the Gillette Ridge Golf Course to the north and additional commercial uses to the east on adjacent parcels also owned by Atrium. Cellco refers to its proposed facility as its Bloomfield 4 cell site (the "Bloomfield 4 Facility").

II. Proposed Construction Activity

A. Cellco's Proposed Bloomfield 4 Facility

The Bloomfield 4 Facility will consist of the installation of nine (9) panel type antennas and nine (9) remote radio heads ("RRHs") attached to a new steel lattice tower that would be constructed in the northeast portion of the roof. The new tower would extend approximately 12'-6" above an existing mechanical penthouse on the roof. Equipment associated with the antennas will be located on a steel dunnage platform on the roof of the building to the east of the mechanical penthouse. (*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 Bloomfield 4 Facility. Specifications for Cellco's antennas and remote radio heads are included in Attachment 3. The Bloomfield 4 Facility will be capable of providing 5G wireless service.

In cooperation with its engineering consultant Chappell Engineering Associates, LLC, a Structural Analysis and a separate Structural (Mount) Analysis have been performed and have confirmed that the host-building, the rooftop tower and proposed antenna mounting system will be structurally capable of supporting the Bloomfield 4 Facility. Copies of the two structural analyses referenced about are 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., 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 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 Bloomfield 4 Facility will be located on the roof of the existing 4- story office building on the existing commercial office campus. No ground disturbance, tree removal or site grading is required to develop and maintain the Bloomfield 4 Facility.

2. Visual Effects

Given its location on the roof of an existing 4-story office building and the limited height of the proposed lattice tower structure, any visual effects associated with the proposed Bloomfield 4 Facility will be minimal and will not detract from the general appearance and characteristics of the building or the Property. Photo Simulations of the proposed rooftop lattice tower are included in Attachment 5. The top portion of the lattice tower would be visible from certain locations to the south of the building on the Property or on the adjacent parcel to the north

(Gillette Ridge Golf Course). These visual effects, however, are minor and will not adversely impact any adjacent recreational or residential development in the area.

3. FCC Compliance

Radio frequency ("RF") emissions from the Bloomfield 4 Facility will not exceed the maximum permissible exposure limits established by the Federal Communications Commission ("FCC"). Included in Attachment 6 is a general power density table that demonstrates that Cellco's facility will operate within the FCC safety standards.

4. FAA Notification Not Required

Cellco prepared a Federal Airways and Airspace Report ("FAA Report") for the proposed Bloomfield 4 Facility. According to the FAA Report, the proposed Bloomfield 4 Facility will not constitute an airspace obstruction and therefore notice of the FAA is not required. A copy of the FAA Report is included in Attachment 7.

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

On June 29, 2022, a copy of this Petition was sent to Bloomfield's Town Manager, Stanley Hawthorne; Jennifer Valentino-Rodriguez, Bloomfield's Director of Planning and Zoning; and The Atrium CT LLC, the Owner of the Property. Because the Property is located within 2,500 feet of the Town of West Hartford, copies of this Petition were also sent to West Hartford's Mayor, Shari Cantor and West Hartford's Town Planner, Todd Dumais. Copies of the letters sent to public officials and the Property owner are included in Attachment 8.

A copy of this Petition was also sent to the owners of land that abuts the Property. A sample abutter's letter and the list of those abutting landowners to whom notice was sent is included in Attachment 9.

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 of the proposed rooftop telecommunications tower 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.

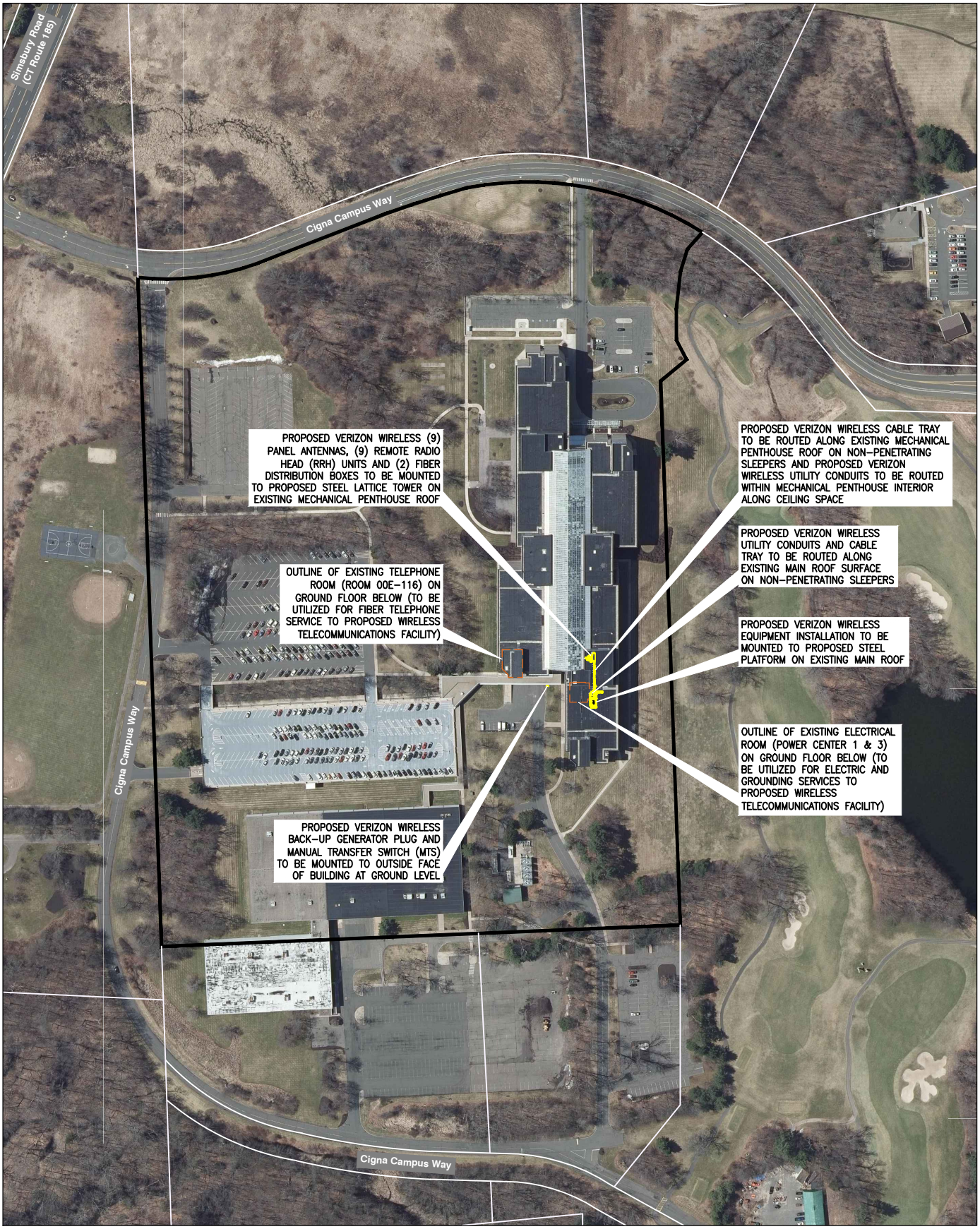
Respectfully submitted,

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 Equipment
- Proposed Verizon Wireless Conduit and/or Cable Tray
- Existing Ground Floor Utility Rooms
- Subject Property
- Approximate Parcel Boundary (Town Of Bloomfield, CT GIS)

NORTH

0' 75' 150' 300' 450' Feet

Map Notes:
Base Map Source: 2019 CT ECO Imagery
Map Scale: 1 inch = 300 Feet
Map Date: Spring 2019

Site Schematic

Proposed Wireless Telecommunications Facility
Bloomfield 4 CT
1300 Hall Boulevard
Bloomfield, CT 06002

verizon

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

ATTACHMENT 2

verizon

20 ALEXANDER DRIVE, WALLINGFORD, CT 06492

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

PROJECT TYPE: WIRELESS TELECOMMUNICATIONS INSTALLATION ON ROOFTOP OF EXISTING (4)-STORY STEEL FRAMED BUILDING

SITE INFORMATION:

PROPERTY OWNER:	THE ATRIUM CT LLC 2 PARK AVENUE, 17TH FLOOR NEW YORK, NY 10166
APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
SITE ADDRESS:	1300 HALL BOULEVARD BLOOMFIELD, CT 06002
COUNTY:	HARTFORD COUNTY, CONNECTICUT
SITE CONTROL POINT:	SOUTHEAST CORNER OF EXISTING MECHANICAL PENTHOUSE N 41°-48'-30.48" (41.808467°) (NAD '83) W 72°-44'-36.55" (72.743486°) (NAD '83)
ARCHITECT / ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752

VICINITY MAP

SCALE: 1"=1000'

DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE I-91 NORTH. TAKE THE CT-218 EXIT TOWARD WINDSOR/BLOOMFIELD. TURN LEFT ONTO CT-218 WEST. USE THE LEFT 2 LANES TO TURN LEFT ONTO CT-189 SOUTH. TURN RIGHT THEN RIGHT AGAIN. THE SITE IS LOCATED STRAIGHT AHEAD.

SHEET INDEX

DWG.	DESCRIPTION	REV.
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C02	PROPERTY PLAN	5
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A02	NORTH BUILDING ELEVATION AND ENLARGED PART NORTH BUILDING ELEVATION	5
RF01	ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS	5

DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORS SIZE, SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

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REVISIONS

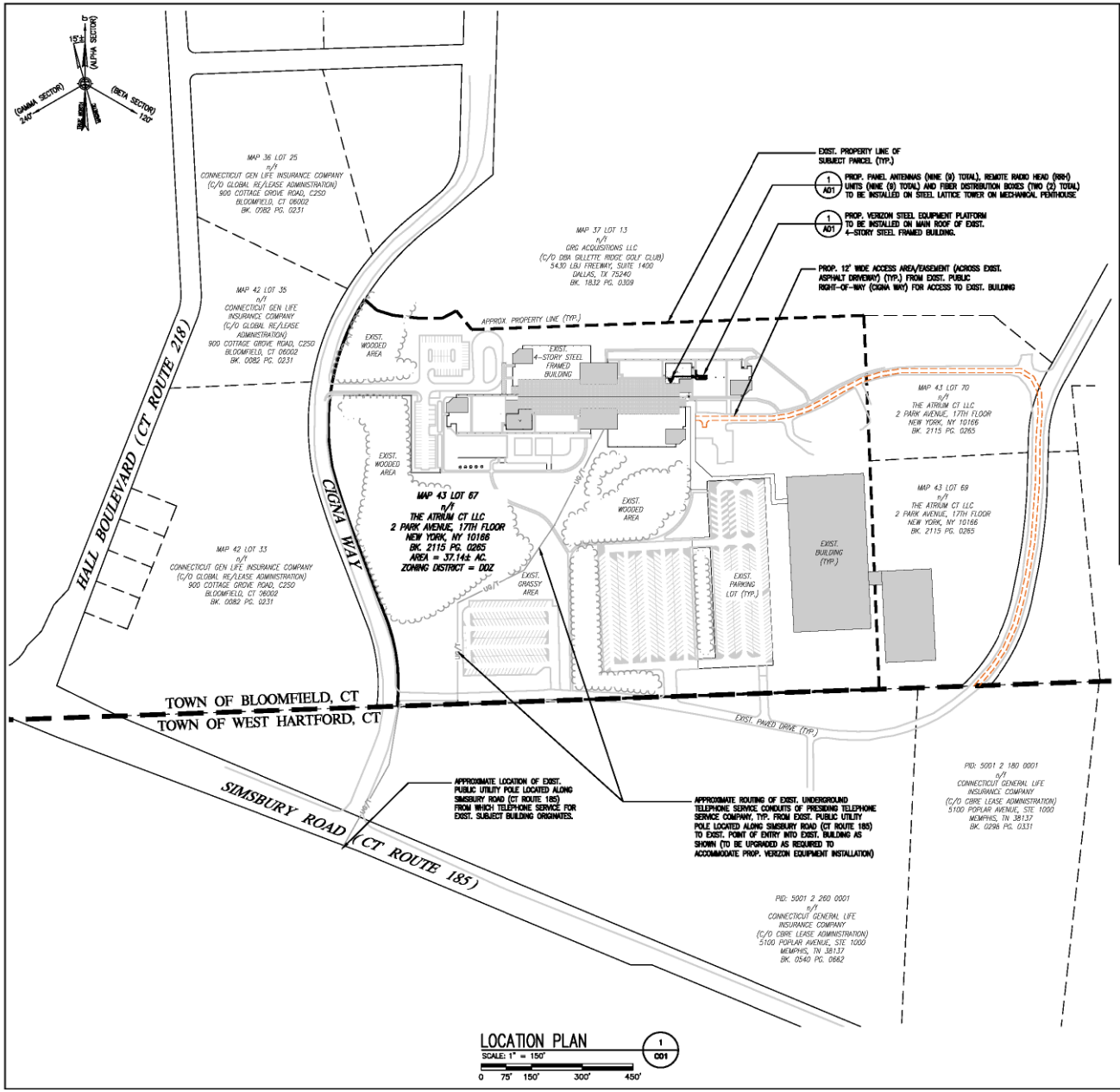
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	2/9/22
1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22
5	REVISED PER LANDLORD COMMENTS	6/15/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
TITLE SHEET

DRAWING NO:
T01

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212263877
CEA PROJECT NO.: 96210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 16953123
		VZW LOCATION CODE: 684872



LOCATION PLAN
SCALE: 1" = 150'
1 C01
0 75' 150' 300' 450'

GENERAL NOTES:

1A. LIMITED DESIGN VISIT DATES: 8/10/21 & 9/17/21
1B. 1A SURVEY VISIT DATE: 2/16/22

2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD '83)
4. SITE CONTROL POINT: SE CORNER OF EXISTING MECHANICAL PENTHOUSE LATITUDE: N41°-48'-30.48" (41.808467°) (NAD '83) LONGITUDE: W72°-44'-36.55" (72.743488°) (NAD '83)
5. LAND OWNER: THE ATRIUM CT LLC 2 PARK AVENUE, 17TH FLOOR NEW YORK, NY 10166
6. SITE ADDRESS: 1300 HALL BOULEVARD BLOOMFIELD, CT 06002
7. APPLICANT: CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
11. PLAN REFERENCES: TOWN OF BLOOMFIELD ASSESSOR/GIS MAPS
12. ALL UNDERGROUND UTILITY INFORMATION PRESENTED HEREON WAS DETERMINED FROM SURFACE EVIDENCE AND PLANS OF RECORD. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. CALL DIGSAFE 1-888-344-7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.
13. THE PROPERTY LINES SHOWN WERE COMPILED UTILIZING TOWN OF BLOOMFIELD ASSESSOR'S PLANS, GIS, RECORDED DEEDS, PLANS OF REFERENCE AND DESIGN VISITS OF THE SITE PERFORMED BY CHAPPELL ENGINEERING ASSOCIATES ON 8/10/21 & 9/17/21.
14. THE SITE IS LOCATED IN FLOOD HAZARD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF BLOOMFIELD, CT (MAP NUMBER 09003C0361F) EFFECTIVE 9/26/2008.

LEGEND

- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- PROPERTY OFFSET/RADIUS
- EXIST. EASEMENT
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES (OHW)
- APPROXIMATE ZONING BOUNDARY
- APPROXIMATE TOWN LINE

CLIENT:
verizon
" Because Better Matters "

ARCHITECT/ENGINEER:
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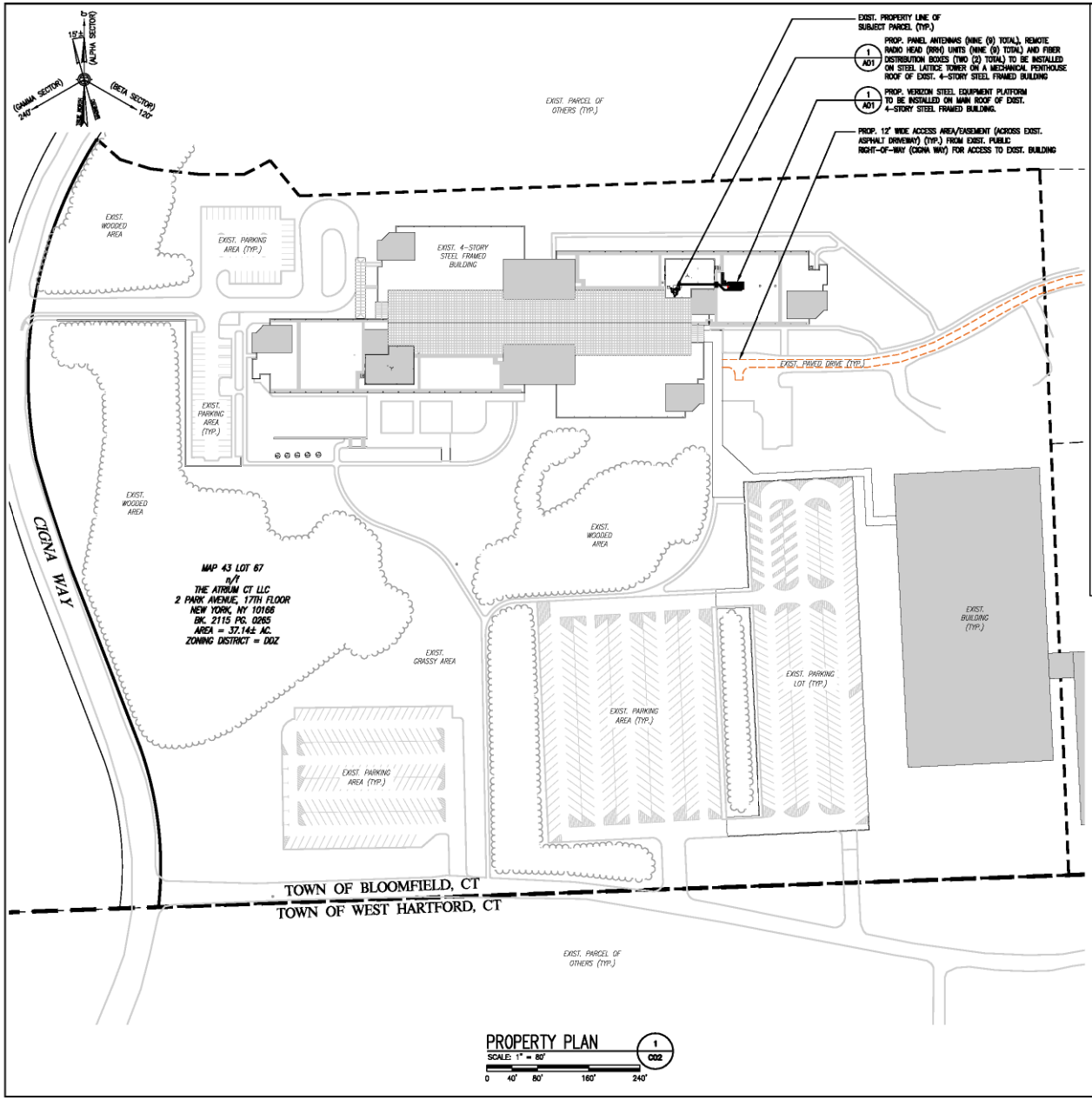
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22
5	REVISED PER LANDLORD COMMENTS	6/15/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
LOCATION PLAN

DRAWING NO:
C01

SCALE: 1" = 150'	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212263677
CEA PROJECT NO.: 96210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 16853123
		VZW LOCATION CODE: 684872



NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.
2. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.
3. NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.
4. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
5. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
6. COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE PROJECT OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF PROJECT OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE EXHIBIT 3). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
7. WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS COROTHANE II, SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINES.
8. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
10. ALL (E)ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
11. ALL (E)INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING.
12. THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
14. PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. PROJECT OWNER'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROX. TO THE BTS RADIO CABINETS. PROJECT OWNER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.
15. THE TOTAL IMPACT AREA OF THE DISTURBED CONSTRUCTION SITE IS BOUNDED BY THE LIMIT OF WORK AS SHOWN HEREON. THE PROJECT IMPACT AREA IS BELOW THE EXEMPTION THRESHOLD OF 43,560 SQUARE FEET IN 40 CFR PARTS 9, 122-124 AND THEREFORE IS NOT SUBJECT TO REGULATION UNDER THE EPA OR STATE-MANAGED NPDES GENERAL CONSTRUCTION PERMIT PROGRAM. THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL SITE DEVELOPMENT WORK IN A MANNER THAT DOES NOT EXCEED THE LIMITS OF WORK SHOWN ON THE PLANS. ADDITIONALLY, THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL CONSTRUCTION ACTIVITIES IN A MANNER THAT DOES NOT RESULT IN STORM WATER DISCHARGES WITH AN ADVERSE IMPACT ON ANY STORM WATER COLLECTION/CONVEYANCE SYSTEM, WETLAND, WATER BODY, OR OTHER WATER RESOURCE AREAS.

LEGEND

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- EXIST. EASEMENT
- PROPERTY OFFSET/RADIUS
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. TREELINE
- PROP. TREELINE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES (OHW)
- PROP. OVERHEAD UTILITIES (OHW)
- PROP. UTILITIES (T/E)
- EXIST. STONE WALL
- LIMIT OF EXIST. WETLANDS
- EXIST. 100' WETLAND BUFFER
- EXIST. UTILITY POLE
- HYDRANT
- DRILL HOLE
- STONE/CONC. BOUND
- TELCO MANHOLE
- SEWER MANHOLE
- WATER MANHOLE
- DRAINAGE MANHOLE
- CATCH BASIN
- GAS VALVE
- WATER VALVE

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
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SEAL:

ENGINEER/LAND SURVEYOR DATE

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PROJECT NAME:

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

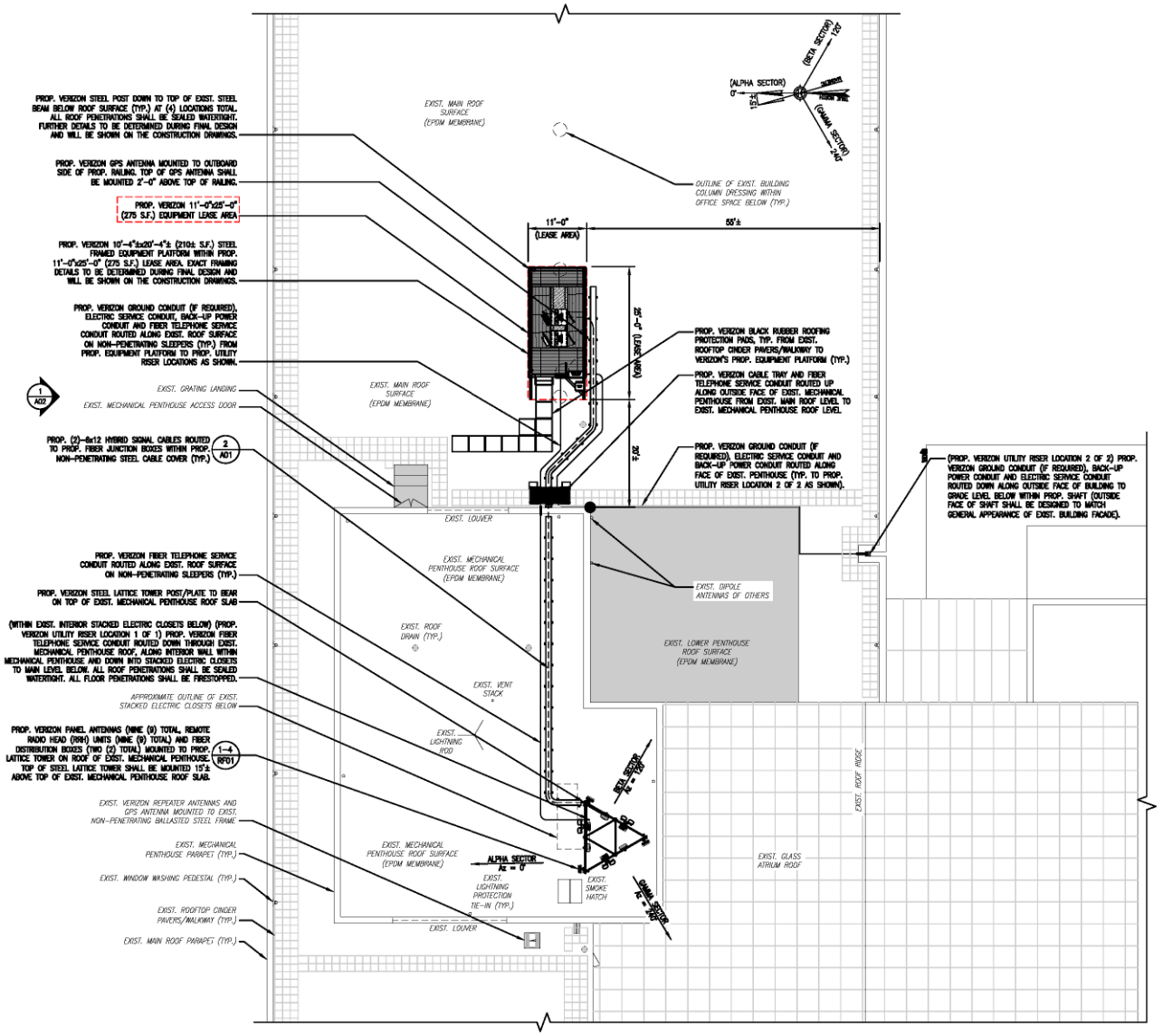
DRAWING TITLE:

PROPERTY PLAN

DRAWING NO:

C02

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
1" = 80'	DRAWN BY: NWC	20212283877
	CHECKED BY: GRS	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16953133
96210.403	2/9/22	VZW LOCATION CODE:
		684872



PART ROOF PLAN
1 A01
SCALE: 1" = 10'
0 5' 10' 20' 30'

SITE CONTROL POINT:
SOUTHEAST CORNER OF EXISTING MECHANICAL PENTHOUSE
N 41°-48'-30.48" (41.808467') (NAD '83)
W 72°-44'-36.55" (72.743486') (NAD '83)
GROUND ELEVATION = 146.0' AMSL (NAVD '88)
PER CEA 1A SURVEY

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
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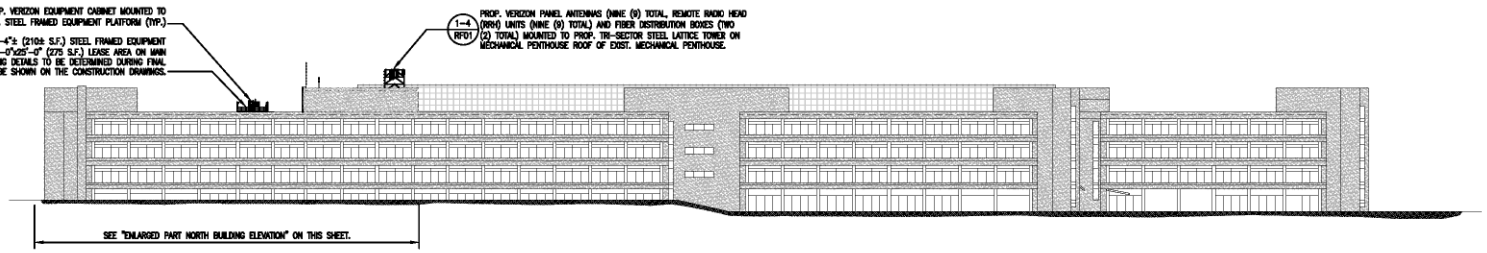
PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
PART ROOF PLAN AND SITE DETAILS

DRAWING NO:
A01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212263877
	CHECKED BY: GRS	VZW PROJECT NO:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16953133
96210.403	2/9/22	VZW LOCATION CODE:
		684872

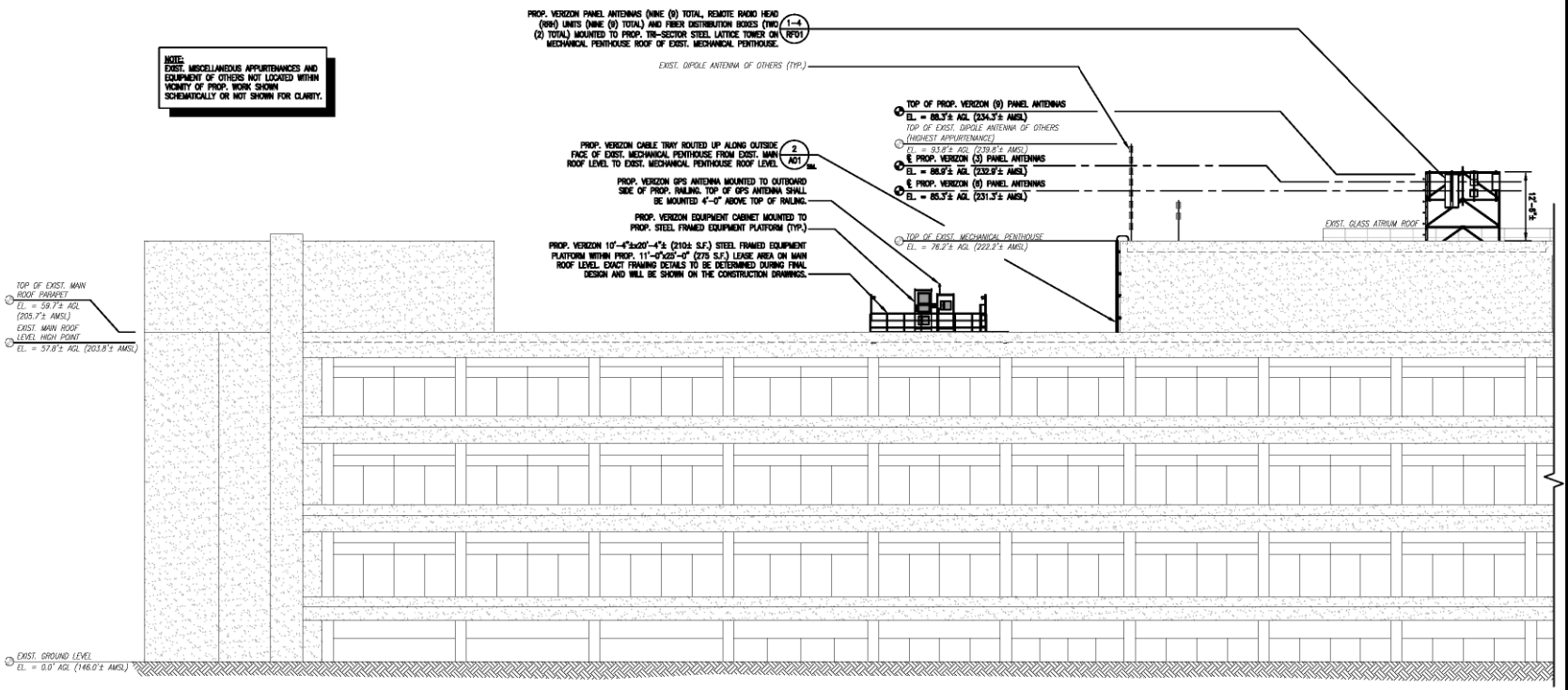


NORTH BUILDING ELEVATION (1 / A02)

SCALE: 1" = 40'

0 20' 40' 80' 120'

NOTE:
EXIST. MISCELLANEOUS APPURTENANCES AND EQUIPMENT OF OTHERS NOT LOCATED WITHIN VICINITY OF PROP. WORK SHOWN SCHEMATICALLY OR NOT SHOWN FOR CLARITY.



ENLARGED PART NORTH BUILDING ELEVATION (1A / A02)

SCALE: 1" = 10'

0 5' 10' 20' 30'

LEGEND	
AGL.	ABOVE GROUND LEVEL
BGL.	BELOW GROUND LEVEL
AMSL.	ABOVE MEAN SEA LEVEL

CLIENT:
verizon
"Because Better Matters"

ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORS' SIZE SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

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REVISIONS

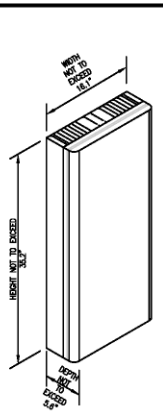
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	2/9/22
1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22
5	REVISED PER LANDLORD COMMENTS	6/15/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

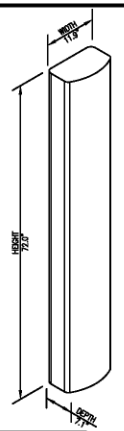
DRAWING TITLE:
NORTH BUILDING ELEVATION AND ENLARGED PART NORTH BUILDING ELEVATION

DRAWING NO:
A02

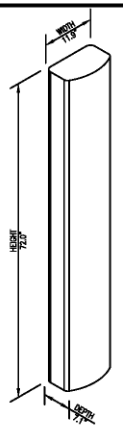
SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GBS	VZW PROJECT CODE: 20212263877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 19853123
		VZW LOCATION CODE: 684872



ITEM 1	
MT6407-77A ANTENNA	
MAX. DIMENSIONS:	35.2"H x 16.1"W x 5.6"D
MAX. WEIGHT:	87.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	



ITEM 2	
LTE (700/850/AWS/CBRS MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	50.9 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	



ITEM 3	
LTE (700/850/1900 MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	43.7 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL PROP. PANEL ANTENNA SPECIFICATIONS

SCALE: NONE

1 RF01

RF BILL OF MATERIALS (PROP. (FINAL) CONFIGURATION)

SITE NAME: BLOOMFIELD 4 CT — A = ALPHA SECTOR B = BETA SECTOR G = GAMMA SECTOR

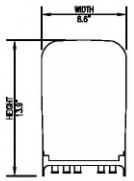
ITEM (SEE PLAN)		DESCRIPTION	BAND	QTY	STATUS	CABLE LENGTH/UNIT SIZE	COMMENTS
1 RF02	1	PANEL ANTENNA	3700-3980	3 TOTAL (A,B,G)	PROP.	35.2"H x 16.1"W x 5.6"D (87.1 lbs, each)	MOUNT TO PROP. PIPE MAST
	2	PANEL ANTENNA	700/850/AWS/CBRS	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x 7.1"D (50.9 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	3	PANEL ANTENNA	700/850/1900	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x 7.1"D (43.7 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	4	SIDE-BY-SIDE ANTENNA MOUNT KIT	–	3 TOTAL (A,B,G)	PROP.	25.4 lbs, each	MOUNT TO PROP. PIPE MAST
	5	6x12 HYBRID SIGNAL CABLE (MAIN LINE)	–	2 TOTAL	PROP.	165 FT.±	ROUTE WITHIN PROP. NON-PENETRATING STEEL CABLE COVER ALONG ROOFTOP OF EXIST. BUILDING TO PROP. FIBER JUNCTION BOXES
	6	1x1 HYBRID SIGNAL CABLE (JUMPER)	–	9 TOTAL (3 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOXES TO PROP. REMOTE RADIO HEAD UNITS
	7	1x2 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. MT6407-77A ANTENNAS
	8	⅛" COAXIAL CABLE (JUMPER)	–	48 TOTAL (16 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
	9	RET CONTROL CABLE(S) (JUMPER)	–	PER RF REQ.	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
2 RF02	10	REMOTE RADIO HEAD (RRH) UNIT	700/850	3 TOTAL (A,B,G)	PROP.	15.5"H x 15.8"W x 10.0"D (70.3 lbs, each)	MOUNT TO PROP. PIPE MAST
	11	REMOTE RADIO HEAD (RRH) UNIT	1900/2100	3 TOTAL (A,B,G)	PROP.	15.4"H x 15.8"W x 12.0"D (84.4 lbs, each)	MOUNT TO PROP. PIPE MAST
	12	REMOTE RADIO HEAD (RRH) UNIT	BAND 48	3 TOTAL (A,B,G)	PROP.	13.9"H x 8.6"W x 4.2"D (18.6 lbs, each)	MOUNT TO PROP. PIPE MAST
4 RF02	13	UPPER FIBER JUNCTION BOX WITH SURGE	–	2 TOTAL	PROP.	29.56"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO PROP. PIPE MAST
	14	LOWER FIBER JUNCTION BOX/RACK	–	1 TOTAL	PROP.	29.56"H x 16.5"W x 12.6"D (32.0 lbs, each)	EQUIPMENT CABINET/ROOM INTERFACE

THIS RF BILL OF MATERIALS (BOM) HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 8/26/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF BILL OF MATERIALS (FINAL CONFIGURATION)

SCALE: NONE

3 RF01



ITEM 10	
LTE/CDMA (700/850 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.5"H x 15.8"W x 10.0"D
WEIGHT:	70.3 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 11	
PCS-AWS (1900/2100 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.4"H x 15.8"W x 12.0"D
WEIGHT:	84.4 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 12	
(BAND 48 (3.5 GHz)) NR AU RRH	
DIMENSIONS:	13.9"H x 8.6"W x 4.2"D
WEIGHT:	18.6 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL REMOTE RADIO HEAD (RRH) UNIT DIMENSIONS

SCALE: N.T.S.

2 RF01

RADIO FREQUENCY (RF) DESIGN NOTES:
1) ALL RADIO FREQUENCY (RF) DESIGN INFORMATION CONTAINED ON THIS SHEET IS SHOWN SCHEMATICALLY.

2) THE GENERAL CONTRACTOR SHALL CONFIRM ALL RF DESIGN ELEMENTS SHOWN (INCLUDING BUT NOT LIMITED TO PANEL ANTENNA MODELS & ARRANGEMENT, AZIMUTHS, REMOTE RADIO HEAD (RRH) UNIT MODELS & ARRANGEMENT AND CABLING DIAGRAMS/SCHEMATICS) WITH THE VERIZON WIRELESS RF ENGINEER AT THE TIME OF CONSTRUCTION.

Procedure

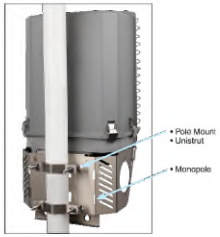
Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 ***Option 1: Pole Mount*** Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 ***Option 2: Unistrut***

4.4 ***Option 3: Monopole*** Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.



Gland/Insert Definitions

5.1 See picture to identify Base Gland Assembly Definitions.

Assembled in unit as shipped:

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M75	A	190-0760	42mm	6x12 RL
4	M75	B	190-0738	3x 16.6mm	1x2

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M75	190-0760	42mm	6x12 RL	2 glands fit 1 each 6/12 Hyb	B
2	M75	190-0747	2x 24.5mm	2x12 DC	2 glands fit 2 each #6 12 cond DC	B
1	M75	190-0805	2x 10.5mm	2x12 Fiber	1 gland fit 2 x 12 fiber trunk	B
1	M75	190-0812	2x 9.5mm	2 ETH	1 gland fits 2 ethernet cable	B

ITEM 13	
FIBER JUNCTION BOX	
DIMENSIONS:	29.56"H x 16.5"W x 12.6"D
WEIGHT:	32.0 LBS
QUANTITY:	TOTAL OF 2
STATUS: PROPOSED	

TYPICAL FIBER JUNCTION BOX DIMENSIONS, SCHEMATIC AND MOUNTING PROCEDURE

SCALE: N.T.S.

4 RF01

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

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REVISIONS

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1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22
5	REVISED PER LANDLORD COMMENTS	6/15/22

PROJECT NAME:

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:

ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS

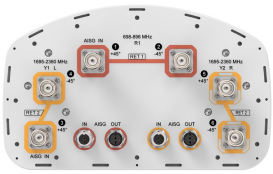
DRAWING NO:

RF01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212283877
	CHECKED BY: GRS	VZW PROJECT NO:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	16953123
96210.403	2/9/22	VZW LOCATION CODE:
		684872

ATTACHMENT 3

NHH-65B-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	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 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

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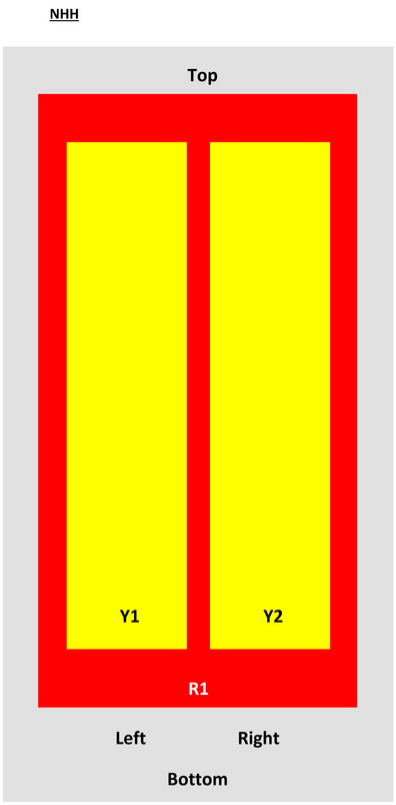
NHH-65B-R2B

Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	180 mm | 7.087 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	19.8 kg | 43.651 lb

Array Layout



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxx1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxx2
Y2	1695-2360	5-6		

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

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NHH-65B-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	14.9	15	17.7	17.9	18.4	18.7
Beamwidth, Horizontal, degrees	65	60	71	69	64	57
Beamwidth, Vertical, degrees	12.4	11.2	5.7	5.2	4.9	4.6
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	13	14	18	18	19	18
Front-to-Back Ratio at 180°, dB	30	29	31	30	29	31
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	300	300	300	300

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	14.5	14.5	17.3	17.7	18.1	18.5
Gain by all Beam Tilts Tolerance, dB	±0.6	±1.1	±0.4	±0.4	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.4 7 ° | 14.6 14 ° | 14.3	0 ° | 14.7 7 ° | 14.7 14 ° | 14.1	0 ° | 17.2 4 ° | 17.3 7 ° | 17.3	0 ° | 17.6 4 ° | 17.7 7 ° | 17.7	0 ° | 18.0 4 ° | 18.2 7 ° | 18.1	0 ° | 18.3 4 ° | 18.5 7 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2	±2.1	±3	±4.1	±6.5	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.7	±0.7	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	13	14	16	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	23	22	27	27	25	25
CPR at Boresight, dB	22	21	23	23	22	19

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CPR at Sector, dB	10	7	16	13	11	4

Mechanical Specifications

Effective Projective Area (EPA), frontal	0.26 m² | 2.799 ft²
Effective Projective Area (EPA), lateral	0.22 m² | 2.368 ft²
Wind Loading @ Velocity, frontal	278.0 N @ 150 km/h (62.5 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	230.0 N @ 150 km/h (51.7 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	537.0 N @ 150 km/h (120.7 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	282.0 N @ 150 km/h (63.4 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	409 mm | 16.102 in
Depth, packed	299 mm | 11.772 in
Length, packed	1952 mm | 76.85 in
Weight, gross	32.3 kg | 71.209 lb

Regulatory Compliance/Certifications

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

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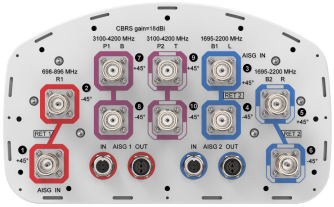
NHHSS-65B-R2BT4



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	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	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

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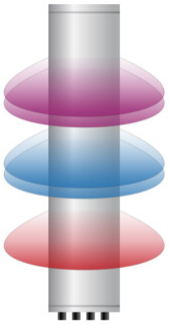
NHHSS-65B-R2BT4

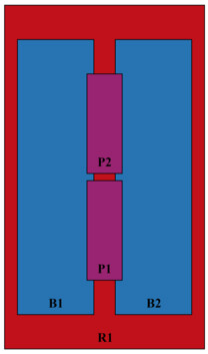
RET Interface, quantity	2 female | 2 male
Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
Power Consumption, active state, maximum	10 W
Power Consumption, idle state, maximum	2 W
Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	181 mm | 7.126 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	23.1 kg | 50.927 lb

Array Layout





Array ID	Frequency (MHz)	RF Connector	RET (SRET)	AISG No.	AISG RET UID
R1	698-896	1 - 2	1	AISG1	CPxxxxxxxxxxxxxxR1
B1	1695-2200	3 - 4	2	AISG2	CPxxxxxxxxxxxxxxB1
B2	1695-2200	5 - 6			
P1	3100-4200	7 - 8	N/A	NA	N/A
P2	3100-4200	9 - 10			

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

Port Configuration

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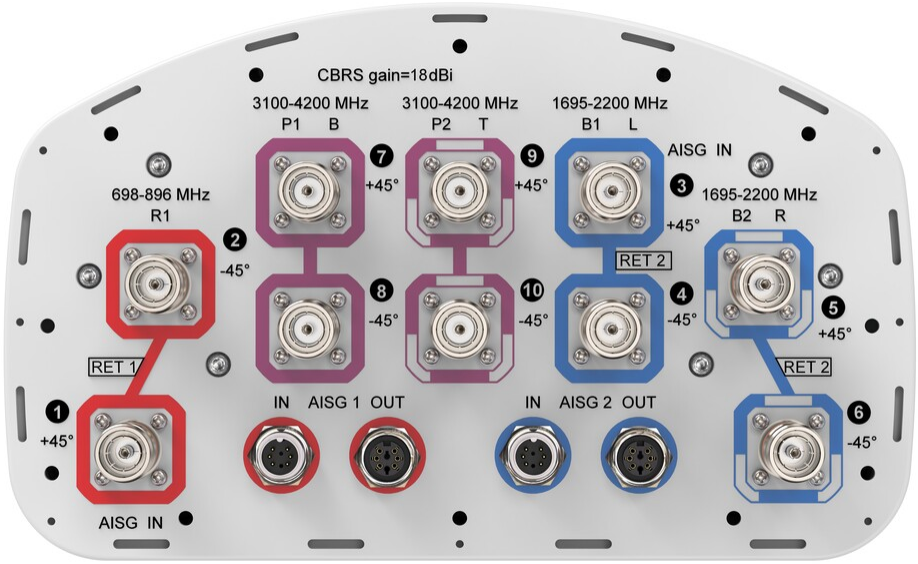
NHHSS-65B-R2BT4



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	14.8	15.2	17.4	17.8	18	17.7	17.3	17.9
Beamwidth, Horizontal, degrees	65	62	66	61	64	54	64	60
Beamwidth, Vertical, degrees	13	11.6	5.5	5.2	4.9	5.7	5.3	4.9
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	4	4	4
USLS (First Lobe), dB	15	15	16	18	18	16	17	18
Front-to-Back Ratio at 180°, dB	26	29	31	28	27	30	33	29
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	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
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-140	-140	-140

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Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	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	14.6	14.8	17	17.5	17.7	17.3	17	17.2
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.4	±0.6	±0.3	±0.4	±0.6	±0.7	±0.8
Gain by Beam Tilt, average, dBi	0 ° | 14.6 7 ° | 14.6 14 ° | 14.4	0 ° | 15.0 7 ° | 14.9 14 ° | 14.5	0 ° | 16.9 3 ° | 17.0 7 ° | 16.8	0 ° | 17.4 3 ° | 17.5 7 ° | 17.4	0 ° | 17.5 3 ° | 17.8 7 ° | 17.6			
Beamwidth, Horizontal Tolerance, degrees	±1.7	±1.3	±7.2	±3.1	±6.2	±10	±6.7	±10.5
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.8	±0.2	±0.2	±0.4	±0.4	±0.3	±0.4
USLS, beampeak to 20° above beampeak, dB	18	16	14	15	17	14		
Front-to-Back Total Power at 180° ± 30°, dB	22	25	25	25	24	26	25	24
CPR at Boresight, dB	24	17	16	21	19	15	17	14
CPR at Sector, dB	12	6	11	10	8	8	9	7

Mechanical Specifications

Wind Loading @ Velocity, frontal	278.0 N @ 150 km/h (62.5 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	230.0 N @ 150 km/h (51.7 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	537.0 N @ 150 km/h (120.7 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	287.0 N @ 150 km/h (64.5 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	1973 mm | 77.677 in
Depth, packed	441 mm | 17.362 in
Length, packed	337 mm | 13.268 in
Weight, gross	35.1 kg | 77.382 lb

Regulatory Compliance/Certifications

Agency	**Classification**
CHINA-ROHS	Above maximum concentration value

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NHHSS-65B-R2BT4

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

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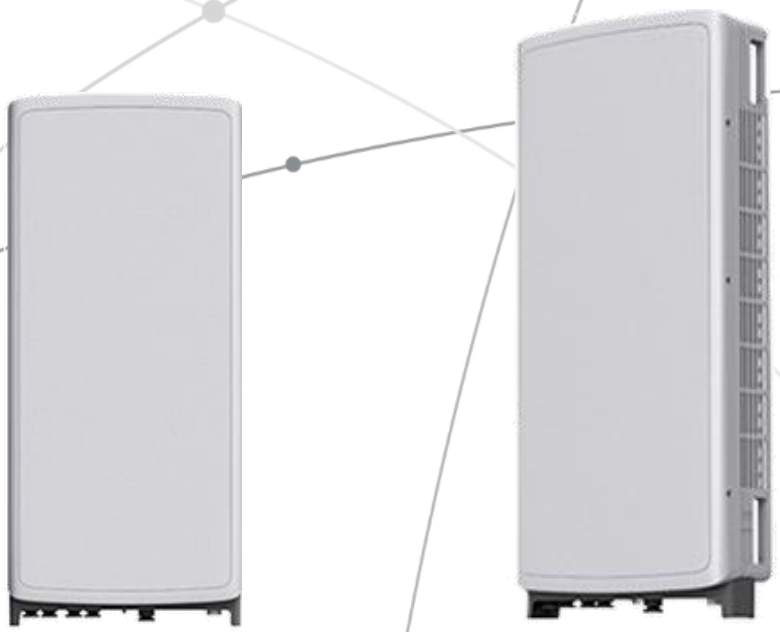
SAMSUNG

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

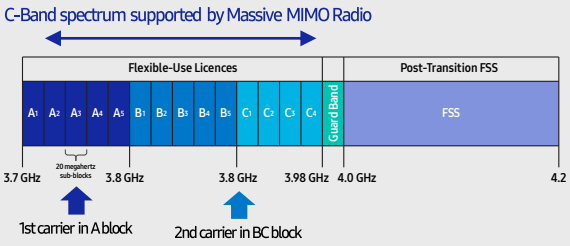


Points of Differentiation

Wide Bandwidth

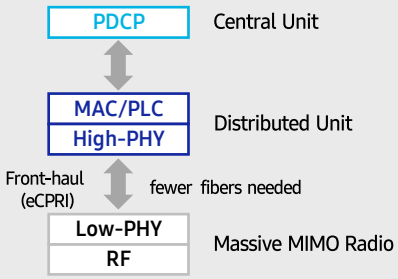
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

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



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.

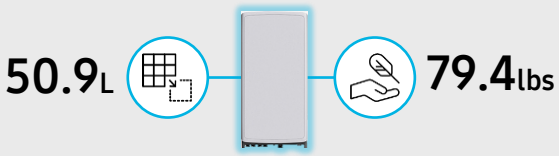
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

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

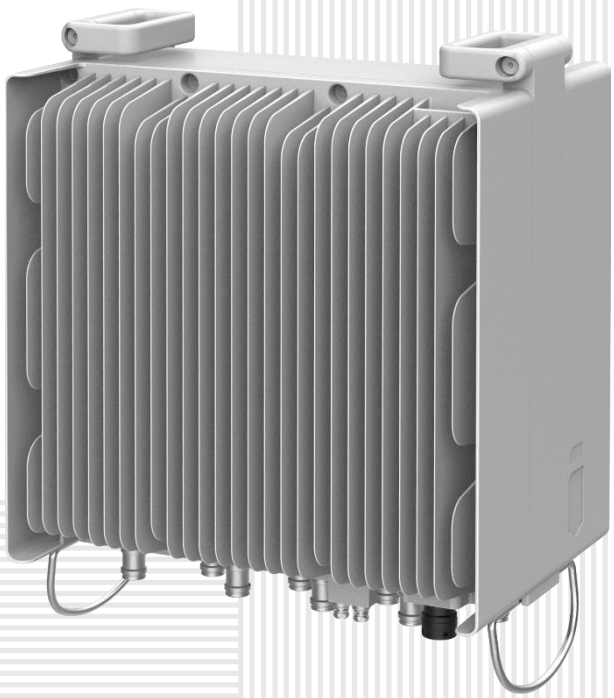
AWS/PCS MACRO RADIO

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.

57196

Model Code	RF4439d-25A



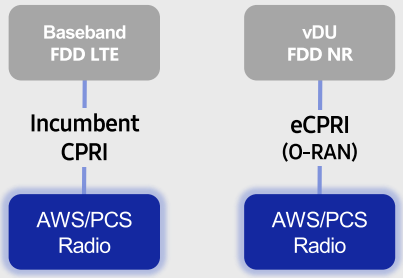
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

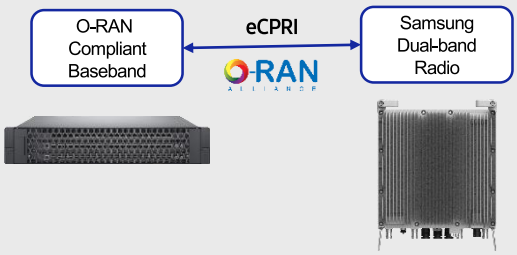
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



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.

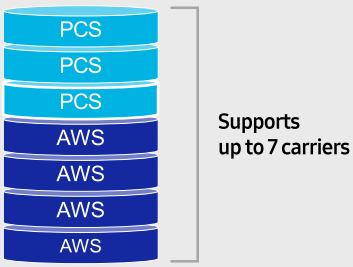
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

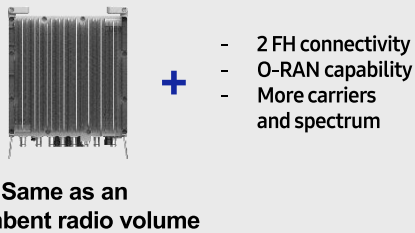
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

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.

57196

Model Code	RF4440d-13A

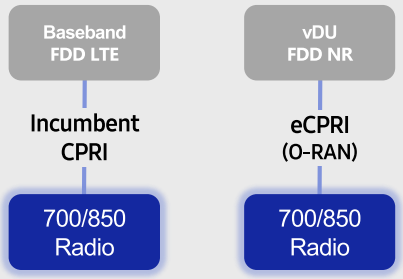
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

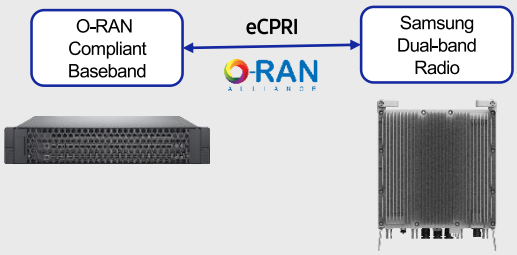
Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



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.

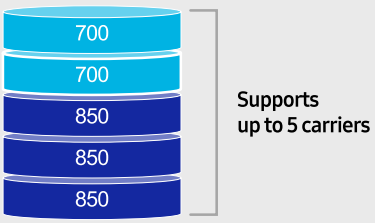
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



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.

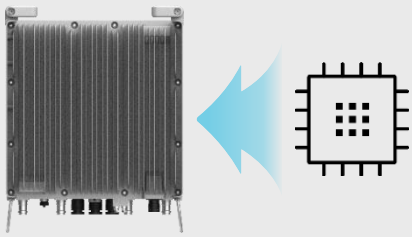
The new 700/850MHz dual-band radio can support up to 2 carriers in the B13 (700MHz) band and 3 carriers in the B5 (850MHz) band, respectively.



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 Transportation Vibration	Office 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

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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.

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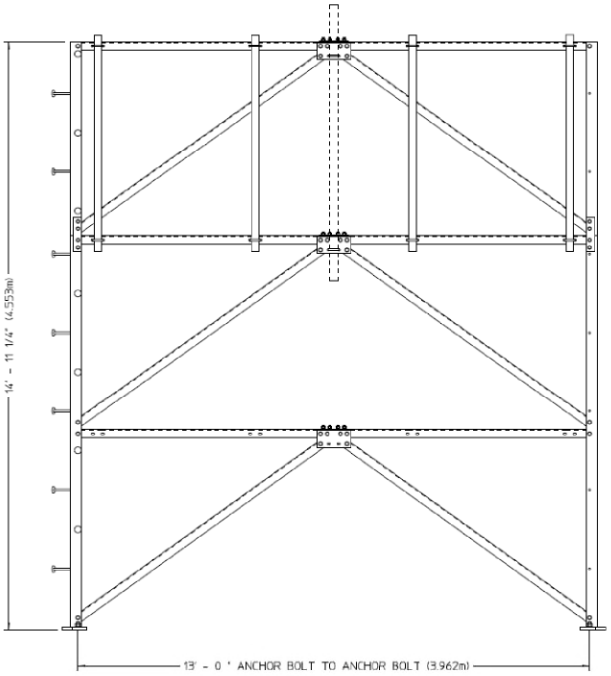
ATTACHMENT 4

verizon

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

STRUCTURAL ANALYSIS
BLOOMFIELD 4 CT



Address:
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002
LOCATION CODE: 684872

Date:
JUNE 2, 2022 (REVISION 0)

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752
t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

June 2, 2022

verizon

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

RE:

Site Name:	Bloomfield 4 CT
Site Location Code:	684872
Site Address:	1300 Hall Boulevard, Bloomfield, CT 06002

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the proposed Verizon roof-mounted antenna frame at the above-referenced address at approximately 90ft AGL to analyze the effect of the proposed Verizon antenna installation on the subject frame.

The proposed antenna support structure will consist of a triangular 13ft x 13ft x 15ft high antenna frame supporting nine (9) individual antenna mounting pipes. Our analysis has considered the following total major equipment loads indicated on the antenna design summary (included in this report) to be installed on the proposed low-profile antenna frame.

Appurtenance	Size (HxWxD) (in)	Weight	Location	Status
(3) NHH-65B-R2B Panel Antennas	72.0x11.9x7.1	43.7lbs	Face of Mount	Proposed
(3) NHHSS-65B-R2B R2BT4 Panel Antennas	72.0x11.9x7.1	48.1lbs	Face of Mount	Proposed
(3) MT6407-77A Panel Antennas	35.2x16.1x5.6	87lbs	Face of Mount	Proposed
(3) 700/850 mHz RRH	15.0x15.0x9.0	70.3lbs	Face of Mount	Proposed
(3) 1900/2100 mHz RRH	15.0x15.0x10.0	84.4lbs	Face of Mount	Proposed
(3) RT4401-48A RRH	13.9x8.6x4.2	18.6lbs	Face of Mount	Proposed
(1) Fiber Junction Box	29.6x16.5x12.6	32.0lbs	Face of Mount	Proposed

The proposed antennas and ancillary hardware are shown on the enclosed Zoning Drawings and RF Data Sheets.

We have modeled the triangular antenna frame under both wind and wind/ice loads. Our analysis and results are included in this report.

Based upon our analysis of the antenna mounts being proposed, **the proposed Valmont 3-Leg Roof Frame (Product Number 31-92103) has adequate capacity** to support the proposed antenna configuration as shown on the zoning drawings. **The maximum percentage stress capacity as determined by our analysis are the upper horizontal L's with a capacity of 41%.** Our analysis assumes the proposed mount will be installed and maintained according to the manufacturers' recommendations.

If you have any questions regarding this matter, please do not hesitate to call.

Sincerely,
CHAPPELL ENGINEERING ASSOCIATES, LLC

STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26376
LICENSED PROFESSIONAL ENGINEER

Clement J Salek, P.E.
CJS/cjs

Appendix A – Zoning Drawings

verizon

20 ALEXANDER DRIVE, WALLINGFORD, CT 06492

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

PROJECT TYPE: WIRELESS TELECOMMUNICATIONS INSTALLATION ON ROOFTOP OF EXISTING (4)-STORY STEEL FRAMED BUILDING

SITE INFORMATION:

PROPERTY OWNER:	THE ATRIUM CT LLC 2 PARK AVENUE, 17TH FLOOR NEW YORK, NY 10166
APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
SITE ADDRESS:	1300 HALL BOULEVARD BLOOMFIELD, CT 06002
COUNTY:	HARTFORD COUNTY, CONNECTICUT
SITE CONTROL POINT:	SOUTHEAST CORNER OF EXISTING MECHANICAL PENTHOUSE N 41°-48'-30.48" (41.808467°) (NAD '83) W 72°-44'-36.55" (72.743486°) (NAD '83)
ARCHITECT / ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752

VICINITY MAP

SCALE: 1"=1000'

DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE I-91 NORTH. TAKE THE CT-218 EXIT TOWARD WINDSOR/BLOOMFIELD. TURN LEFT ONTO CT-218 WEST. USE THE LEFT 2 LANES TO TURN LEFT ONTO CT-189 SOUTH. TURN RIGHT THEN RIGHT AGAIN. THE SITE IS LOCATED STRAIGHT AHEAD.

SHEET INDEX

DWG.	DESCRIPTION	REV.
T01	TITLE SHEET	4
C01	LOCATION PLAN	4
C02	PROPERTY PLAN	4
A01	PART ROOF PLAN AND SITE DETAILS	4
A02	NORTH BUILDING ELEVATION AND ENLARGED PART NORTH BUILDING ELEVATION	4
RF01	ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS	4

DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
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NO.	DESCRIPTION	DATE
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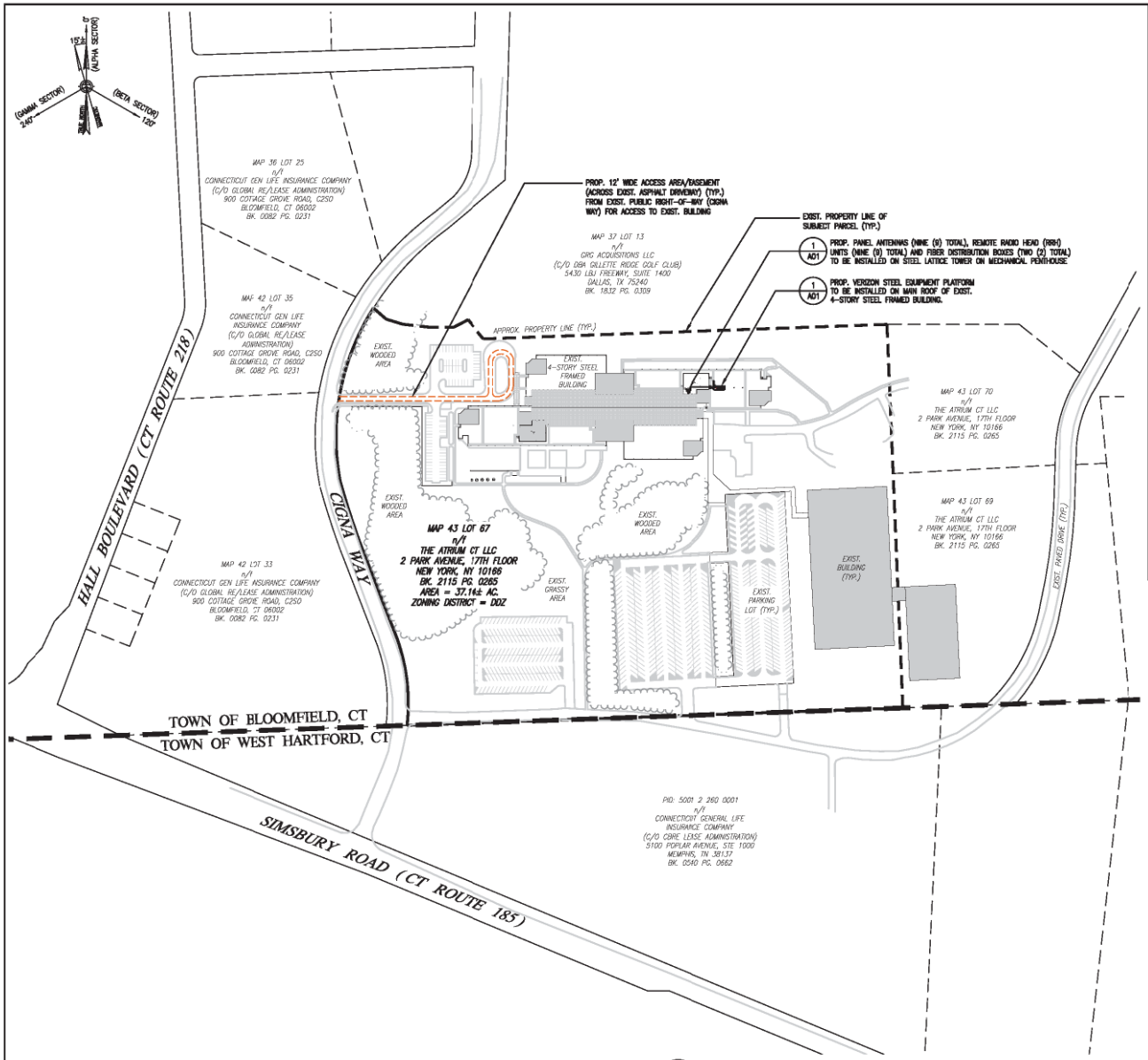
1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
TITLE SHEET

DRAWING NO:
T01

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212283877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 19653133
		VZW LOCATION CODE: 684872



LOCATION PLAN
SCALE: 1" = 150'
1 C01
0 75' 150' 300' 450'

GENERAL NOTES:

1A.	LIMITED DESIGN VISIT DATES:	8/10/21 & 9/17/21
1B.	1A SURVEY VISIT DATE:	2/16/22
2.	VERTICAL DATUM:	NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
3.	HORIZONTAL DATUM:	NORTH AMERICAN DATUM OF 1983 (NAD '83)
4.	SITE CONTROL POINT:	SE CORNER OF EXISTING MECHANICAL PENTHOUSE LATITUDE: N41°-48'-30.48" (41.808467') (NAD '83) LONGITUDE: W72°-44'-36.55" (72.743488') (NAD '83)
5.	LAND OWNER:	THE ATRIUM CT LLC 2 PARK AVENUE, 17TH FLOOR NEW YORK, NY 10166
6.	SITE ADDRESS:	1300 HALL BOULEVARD BLOOMFIELD, CT 06002
7.	APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
11.	PLAN REFERENCES:	TOWN OF BLOOMFIELD ASSESSOR/GIS MAPS

12. ALL UNDERGROUND UTILITY INFORMATION PRESENTED HEREON WAS DETERMINED FROM SURFACE EVIDENCE AND PLANS OF RECORD. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. CALL DIGSAFE 1-888-344-7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.
13. THE PROPERTY LINES SHOWN WERE COMPILED UTILIZING TOWN OF BLOOMFIELD ASSESSOR'S PLANS, GIS, RECORDED DEEDS, PLANS OF REFERENCE AND DESIGN VISITS OF THE SITE PERFORMED BY CHAPPELL ENGINEERING ASSOCIATES ON 8/10/21 & 9/17/21.
14. THE SITE IS LOCATED IN FLOOD HAZARD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF BLOOMFIELD, CT (MAP NUMBER 09003C0361F) EFFECTIVE 9/26/2008.

LEGEND

- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- PROPERTY OFFSET/RADIUS
- EXIST. EASEMENT
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES
- APPROXIMATE ZONING BOUNDARY
- APPROXIMATE TOWN LINE

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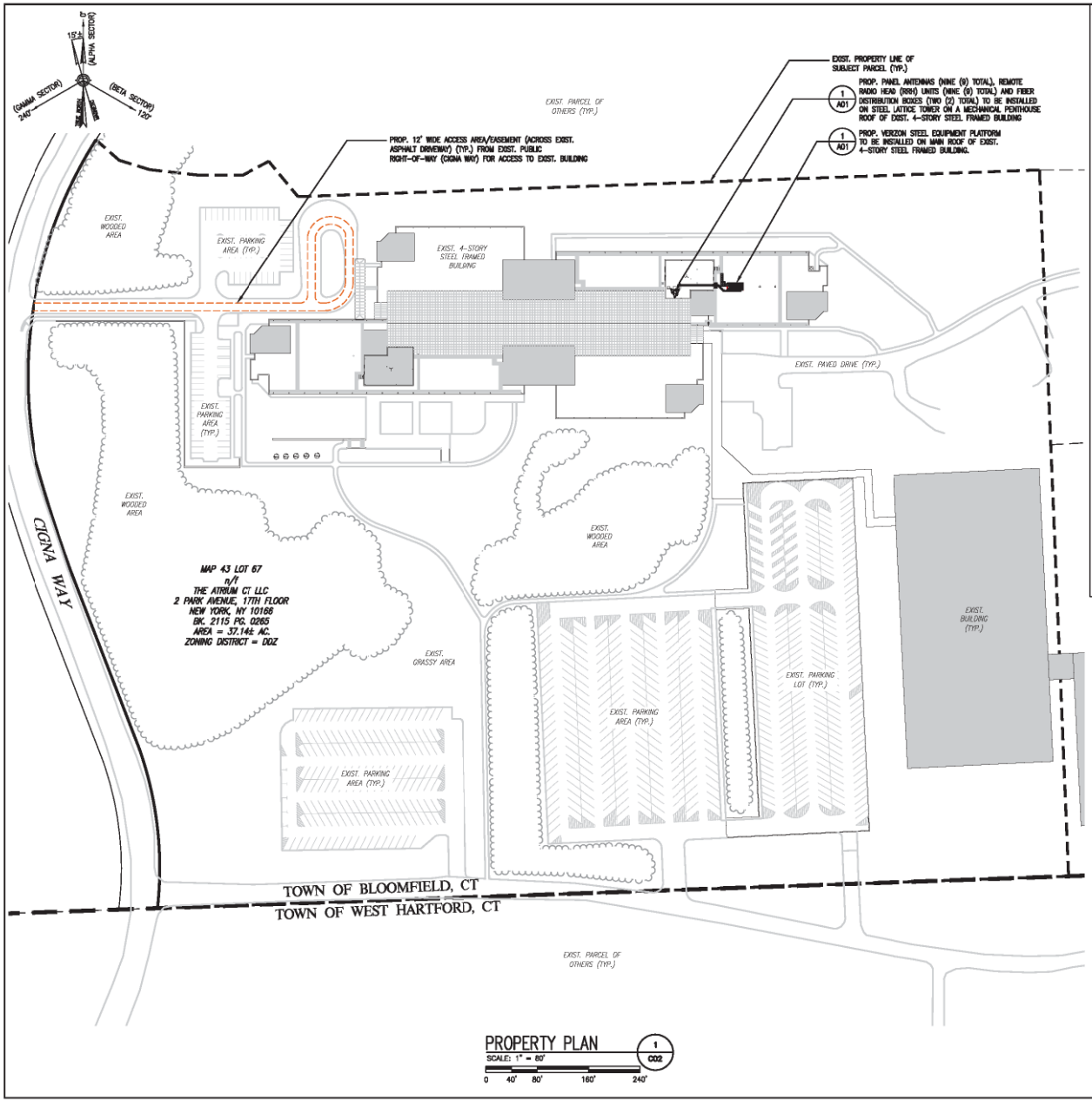
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
LOCATION PLAN

DRAWING NO:
C01

SCALE: 1" = 150'	DESIGNED BY: NWC	VZW PROJECT CODE: 20212283877
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 19653133
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW LOCATION CODE: 684872



PROPERTY PLAN
SCALE: 1" = 80'
1 C02
0 40' 80' 160' 240'

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.
2. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.
3. NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.
4. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
5. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
6. COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE PROJECT OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF PROJECT OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE EXHIBIT 3). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
7. WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS COROTHANE II SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINE'S.
8. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
10. ALL (E)ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
11. ALL (E)INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERES WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING.
12. THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
14. PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. PROJECT OWNER'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROX. TO THE BTS RADIO CABINETS. PROJECT OWNER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.
15. THE TOTAL IMPACT AREA OF THE DISTURBED CONSTRUCTION SITE IS BOUNDED BY THE LIMIT OF WORK AS SHOWN HEREON. THE PROJECT IMPACT AREA IS BELOW THE EXEMPTION THRESHOLD OF 43,560 SQUARE FEET IN 40 CFR PARTS 9, 122-124 AND THEREFORE IS NOT SUBJECT TO REGULATION UNDER THE EPA OR STATE-MANAGED NPDES GENERAL CONSTRUCTION PERMIT PROGRAM. THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL SITE DEVELOPMENT WORK IN A MANNER THAT DOES NOT EXCEED THE LIMITS OF WORK SHOWN ON THE PLANS. ADDITIONALLY, THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL CONSTRUCTION ACTIVITIES IN A MANNER THAT DOES NOT RESULT IN STORM WATER DISCHARGES WITH AN ADVERSE IMPACT ON ANY STORM WATER COLLECTION/CONVEYANCE SYSTEM, WETLAND, WATER BODY, OR OTHER WATER RESOURCE AREAS.

LEGEND

- EXIST. ROW/EASEMENT
- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- EXIST. EASEMENT
- PROPERTY OFFSET/RADIUS
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. TREELINE
- PROF. TREELINE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES (OHW)
- PROF. OVERHEAD UTILITIES (OHW)
- PROF. UTILITIES (T/E)
- EXIST. STONE WALL
- LIMIT OF EXIST. WETLANDS
- EXIST. 100' WETLAND BUFFER
- EXIST. UTILITY POLE
- HYDRANT
- DRILL HOLE
- STONE/CONC. BOUND
- TELCO MANHOLE
- SEWER MANHOLE
- WATER MANHOLE
- DRAINAGE MANHOLE
- CATCH BASIN
- GAS VALVE
- WATER VALVE

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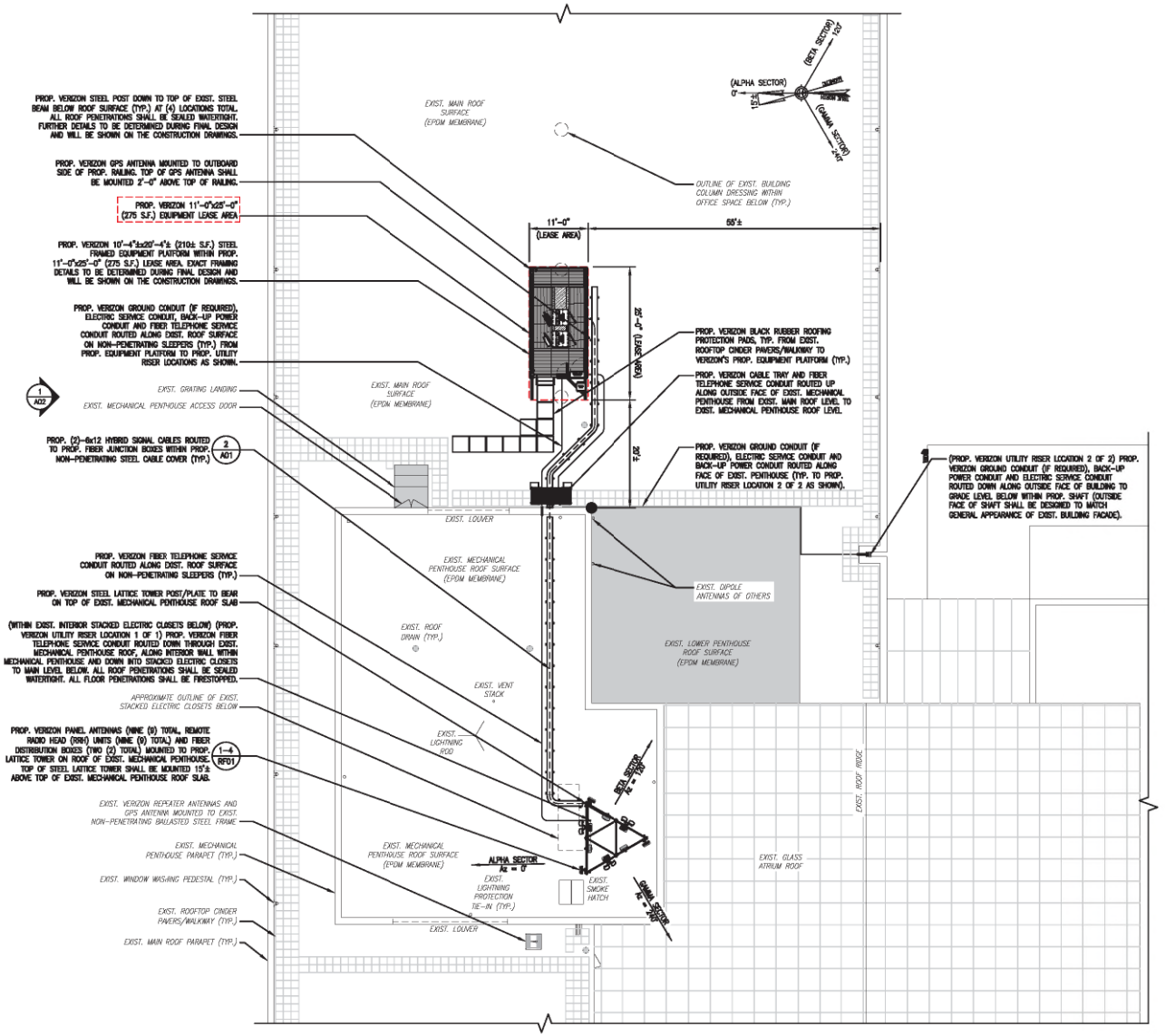
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
PROPERTY PLAN

DRAWING NO:
C02

SCALE: 1" = 80'	DESIGNED BY: NWC	VZW PROJECT CODE: 20212283877
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 19653133
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW LOCATION CODE: 684872



PART ROOF PLAN
1 A01
SCALE: 1" = 10'
0 5' 10' 20' 30'

SITE CONTROL POINT:
SOUTHEAST CORNER OF EXISTING MECHANICAL PENTHOUSE
N 41°-48'-30.48" (41.808467°) (NAD '83)
W 72°-44'-36.55" (72.743486°) (NAD '83)
GROUND ELEVATION = 146.0' AMSL (NAVD '88)
PER CEA 1A SURVEY

CLIENT:
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ARCHITECT/ENGINEER:
CHAPPELL ENGINEERING ASSOCIATES, LLC
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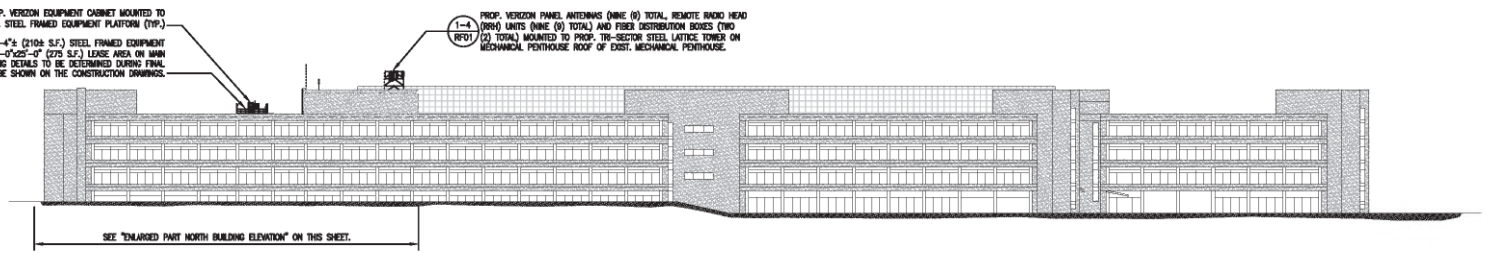
PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
PART ROOF PLAN AND SITE DETAILS

DRAWING NO:
A01

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212283877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 19683133
		VZW LOCATION CODE: 684872

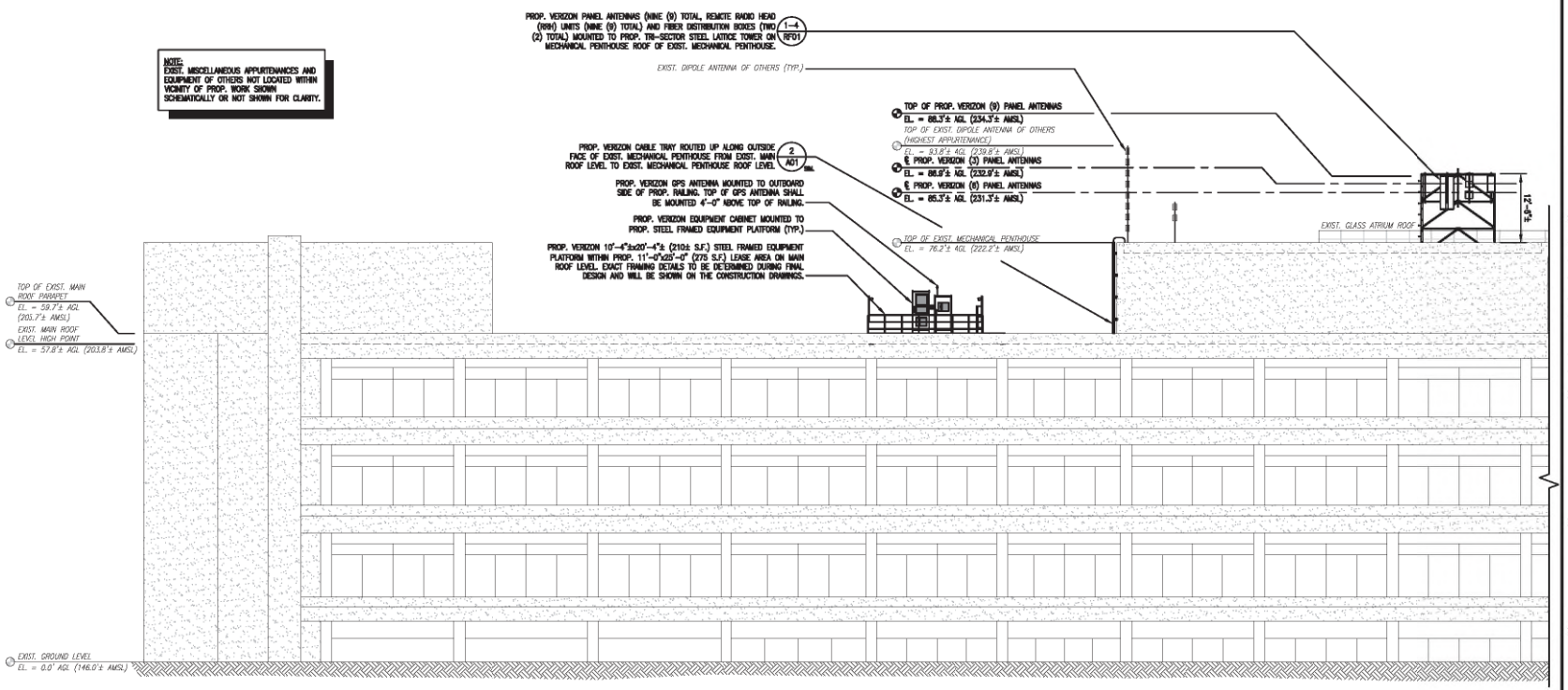


NORTH BUILDING ELEVATION (1 / A02)

SCALE: 1" = 40'

0 20' 40' 80' 120'

NOTE:
EXIST. MISCELLANEOUS APPURTENANCES AND EQUIPMENT OF OTHERS NOT LOCATED WITHIN VICINITY OF PROP. WORK SHOWN SCHEMATICALLY OR NOT SHOWN FOR CLARITY.



ENLARGED PART NORTH BUILDING ELEVATION (1A / A02)

SCALE: 1" = 10'

0 5' 10' 20' 30'

LEGEND	
AGL	ABOVE GROUND LEVEL
BGL	BELOW GROUND LEVEL
AMSL	ABOVE MEAN SEA LEVEL

CLIENT:
verizon
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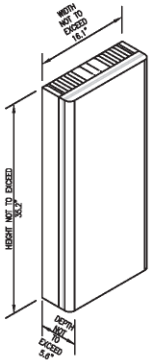
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

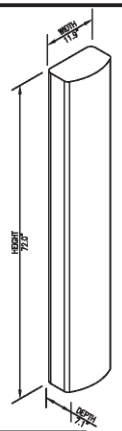
DRAWING TITLE:
NORTH BUILDING ELEVATION AND ENLARGED PART NORTH BUILDING ELEVATION

DRAWING NO:
A02

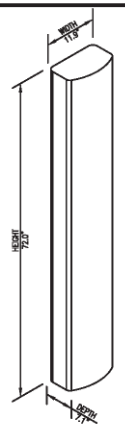
SCALE: AS SHOWN	DESIGNED BY: MWC DRAWN BY: MWC CHECKED BY: SRB	VZW PROJECT CODE: 20212263877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 15853123
		VZW LOCATION CODE: 684872



ITEM 1	
MT6407-77A ANTENNA	
MAX. DIMENSIONS:	35.2"H x 16.1"W x 5.8"D
MAX. WEIGHT:	87.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	



ITEM 2	
LTE (700/850/AWS/CBRS MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	50.9 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	



ITEM 3	
LTE (700/850/1900 MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	43.7 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL PROP. PANEL ANTENNA SPECIFICATIONS

SCALE: NONE

1 RF01

RF BILL OF MATERIALS (PROP. (FINAL) CONFIGURATION)

SITE NAME: BLOOMFIELD 4 CT — **A = ALPHA SECTOR B = BETA SECTOR G = GAMMA SECTOR**

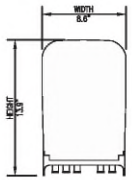
ITEM (SEE PLAN)		DESCRIPTION	BAND	QTY	STATUS	CABLE LENGTH/UNIT SIZE	COMMENTS
1 RF02	1	PANEL ANTENNA	3700-3980	3 TOTAL (A,B,G)	PROP.	35.2"H x 16.1"W x 5.8"D (87.1 lbs, each)	MOUNT TO PROP. PIPE MAST
	2	PANEL ANTENNA	700/850/AWS/CBRS	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x 7.1"D (50.9 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	3	PANEL ANTENNA	700/850/1900	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x 7.1"D (43.7 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	4	SIDE-BY-SIDE ANTENNA MOUNT KIT	–	3 TOTAL (A,B,G)	PROP.	25.4 lbs, each	MOUNT TO PROP. PIPE MAST
	5	6x12 HYBRID SIGNAL CABLE (MAIN LINE)	–	2 TOTAL	PROP.	165 FT.±	ROUTE WITHIN PROP. NON-PENETRATING STEEL CABLE COVER ALONG ROOFTOP OF EXIST. BUILDING TO PROP. FIBER JUNCTION BOXES
	6	1x1 HYBRID SIGNAL CABLE (JUMPER)	–	9 TOTAL (3 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOXES TO PROP. REMOTE RADIO HEAD UNITS
	7	1x2 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. MT6407-77A ANTENNAS
	8	⅜" COAXIAL CABLE (JUMPER)	–	48 TOTAL (16 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
	9	RET CONTROL CABLE(S) (JUMPER)	–	PER RF REQ.	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
2 RF02	10	REMOTE RADIO HEAD (RRH) UNIT	700/850	3 TOTAL (A,B,G)	PROP.	15.5"H x 15.5"W x 10.0"D (70.3 lbs, each)	MOUNT TO PROP. PIPE MAST
	11	REMOTE RADIO HEAD (RRH) UNIT	1900/2100	3 TOTAL (A,B,G)	PROP.	15.4"H x 15.8"W x 12.0"D (84.4 lbs, each)	MOUNT TO PROP. PIPE MAST
	12	REMOTE RADIO HEAD (RRH) UNIT	BAND 48	3 TOTAL (A,B,G)	PROP.	13.9"H x 8.6"W x 4.2"D (18.8 lbs, each)	MOUNT TO PROP. PIPE MAST
4 RF02	13	UPPER FIBER JUNCTION BOX WITH SURGE	–	2 TOTAL	PROP.	29.58"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO PROP. PIPE MAST
	14	LOWER FIBER JUNCTION BOX/RACK	–	1 TOTAL	PROP.	29.58"H x 16.5"W x 12.6"D (32.0 lbs, each)	EQUIPMENT CABINET/ROOM INTERFACE

THIS RF BILL OF MATERIALS (BOM) HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 6/28/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF BILL OF MATERIALS (FINAL CONFIGURATION)

SCALE: NONE

3 RF01



ITEM 10	
LTE/CDMA (700/850 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.5"H x 15.8"W x 10.0"D
WEIGHT:	70.3 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 11	
PCS-AWS (1900/2100 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.4"H x 15.8"W x 12.0"D
WEIGHT:	84.4 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 12	
(BAND 48 (3.5 GHz)) NR AU RRH	
DIMENSIONS:	13.9"H x 8.6"W x 4.2"D
WEIGHT:	18.8 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

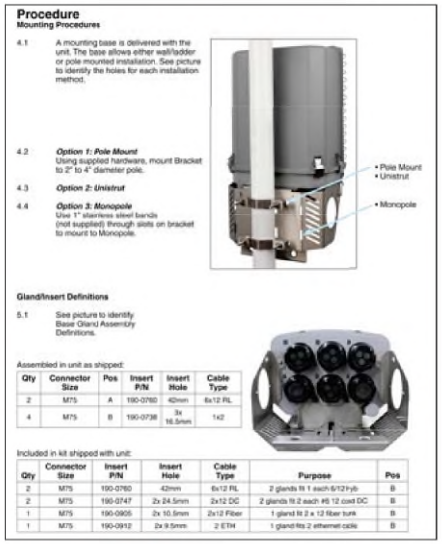
TYPICAL REMOTE RADIO HEAD (RRH) UNIT DIMENSIONS

SCALE: N.T.S.

2 RF01

RADIO FREQUENCY (RF) DESIGN NOTES:
1) ALL RADIO FREQUENCY (RF) DESIGN INFORMATION CONTAINED ON THIS SHEET IS SHOWN SCHEMATICALLY.

2) THE GENERAL CONTRACTOR SHALL CONFIRM ALL RF DESIGN ELEMENTS SHOWN (INCLUDING BUT NOT LIMITED TO PANEL ANTENNA MODELS & ARRANGEMENT, AZIMUTHS, REMOTE RADIO HEAD (RRH) UNIT MODELS & ARRANGEMENT AND CABLING DIAGRAMS/SCHEMATICS) WITH THE VERIZON WIRELESS RF ENGINEER AT THE TIME OF CONSTRUCTION.



Procedure

Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 *Option 1: Pole Mount* Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 *Option 2: Unistrut*

4.4 *Option 3: Monopole* Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

Gland/Insert Definitions

5.1 See picture to identify Base Gland Assembly Definitions.

Assembled in unit as shipped:

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M75	A	190-0760	42mm	6x12 RL
4	M75	B	190-0738	3x 16.5mm	1x2

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M75	190-0760	42mm	6x12 RL	2 glands fit 1 each-6/12 hyb	B
2	M75	190-0747	2x 24.5mm	2x12 DC	2 glands fit 2 each #6 12 cond DC	B
1	M75	190-0905	2x 10.5mm	2x12 Fiber	1 gland fit 2 x 12 fiber trunk	B
1	M75	190-0912	2x 9.5mm	2 ETH	1 gland fits 2 ethernet cable	B

ITEM 13	
FIBER JUNCTION BOX	
DIMENSIONS:	29.58"H x 16.5"W x 12.6"D
WEIGHT:	32.0 LBS
QUANTITY:	TOTAL OF 2
STATUS: PROPOSED	

TYPICAL FIBER JUNCTION BOX DIMENSIONS, SCHEMATIC AND MOUNTING PROCEDURE

SCALE: N.T.S.

4 RF01

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:

THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORS SIZE SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

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

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	2/9/22
1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:

ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS

DRAWING NO:

RF01

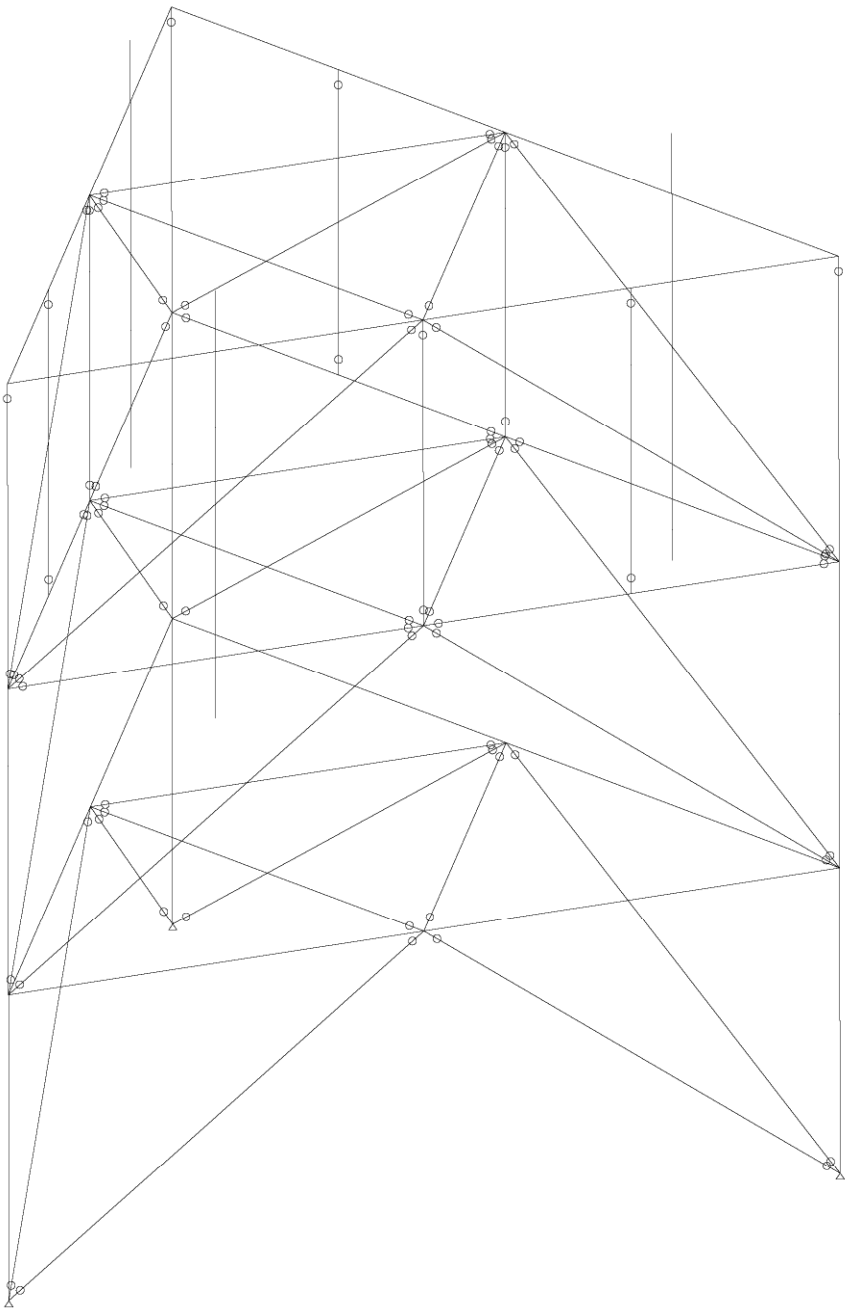
SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212283877
	CHECKED BY: GBS	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	19653133
98210.403	2/9/22	VZW LOCATION CODE:
		684872

Appendix B – Mount Analysis

Verizon Bloomfield CT Antenna Frame 96210.403

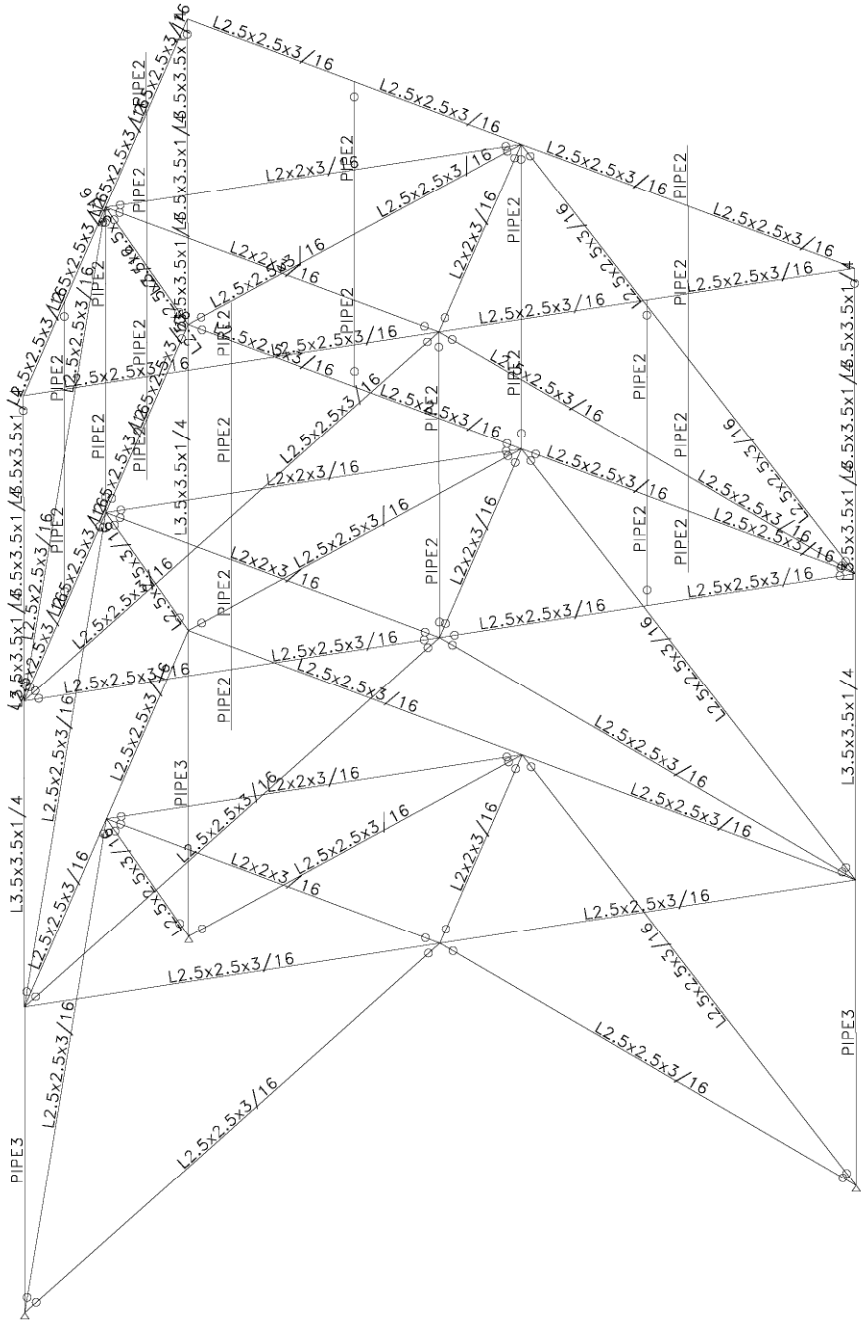
X3
X2
X1

SCALE = 1:34	UNITS: kip ft	DATE: 5/23/22



Verizon Bloomfield CT Antenna Frame 96210.403

SCALE = 1:34	UNITS: kip ft	DATE: 5/23/22



Verizon Bloomfield CT Antenna Frame 96210.403

Prepared by:

Load no. 1: Front No Ice (units - kips ft.)

/ JOINT LOADS
FX2 -0.13 FX3 -0.05 N 68 69
FX2 -0.045 FX3 -0.044 N 49 51
FX2 -0.035 FX3 -0.044 N 47 48 53 55
FX2 -0.11 FX3 -0.05 N 66 67 63 65

/ JOINT LOADS
FX2 -0.03 FX3 -0.084 N 82 81 83 84 86 85
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-1.11 kip
FX3=-1.068 kip

Load no. 2: Side No Ice (units - kips ft.)

/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
FX1 -0.035 FX3 -0.044 N 49 51
FX1 -0.11 FX3 -0.05 N 68 69

FX1 -0.11 FX3 -0.05 N 66 67 63 65
FX1 -0.03 FX3 -0.044 N 47 48 53 55
FX1 -0.03 FX3 -0.084 N 82 81 83 84 86 85
/ END

F O R C E S U M M A T I O N

FX1=-1.03 kip
FX2=0. kip
FX3=-1.068 kip

Load no. 3: Front Ice (units - kips ft.)

/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
FX2 -0.05 FX3 -0.16 N 68 69
FX2 -0.04 FX3 -0.016 N 66 67 63 65

FX2 -0.015 FX3 -0.075 N 49 51
FX2 -0.015 FX3 -0.075 N 47 48 53 55
FX2 -0.01 FX3 -0.123 N 82 81 83 84 86 85
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.41 kip
FX3=-1.572 kip

Load no. 4: Side Ice (units - kips ft.)

/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
/ JOINT LOADS
FX1 -0.04 FX3 -0.16 N 68 69

FX1 -0.04 FX3 -0.16 N 66 67 63 65
FX1 -0.015 FX3 -0.075 N 49 51
FX1 -0.015 FX3 -0.075 N 47 48 53 55
FX1 -0.01 FX3 -0.123 N 82 81 83 84 86 85
/ END

F O R C E S U M M A T I O N

FX1=-0.39 kip
FX2=0. kip
FX3=-2.148 kip

Load no. 5: Selfweight (units - kips ft.)

/ BEAM LOADS
SELF X3 -1. B 1 TO 36 52 TO 60 81 TO 137
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-1.4249 kip

Load no. 6: Front Frame Ice (units - kips ft.)

/ BEAM LOADS
DIST GL FX2 -0.0015 B 1 TO 36 52 TO 60 81 TO 137
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-0.6287 kip
FX3=0. kip

Load no. 7: Side Frame Ice (units - kips ft.)

```
/ BEAM LOADS
DIST GL FX1 -0.0015 B 1 TO 36 52 TO 60 81 TO 137
/ END
```

F O R C E S U M M A T I O N

FX1=-0.6287 kip
FX2=0. kip
FX3=0. kip

Load no. 8: Front Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
DIST GL FX2 -0.0045 B 1 TO 36 52 TO 60 81 TO 137
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=-1.8861 kip
FX3=0. kip

Load no. 9: Side Frame No Ice (units - kips ft.)

```
/ BEAM LOADS
/ BEAM LOADS
DIST GL FX1 -0.0045 B 1 TO 36 52 TO 60 81 TO 137
/ END STATIC
```

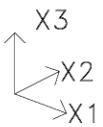
F O R C E S U M M A T I O N

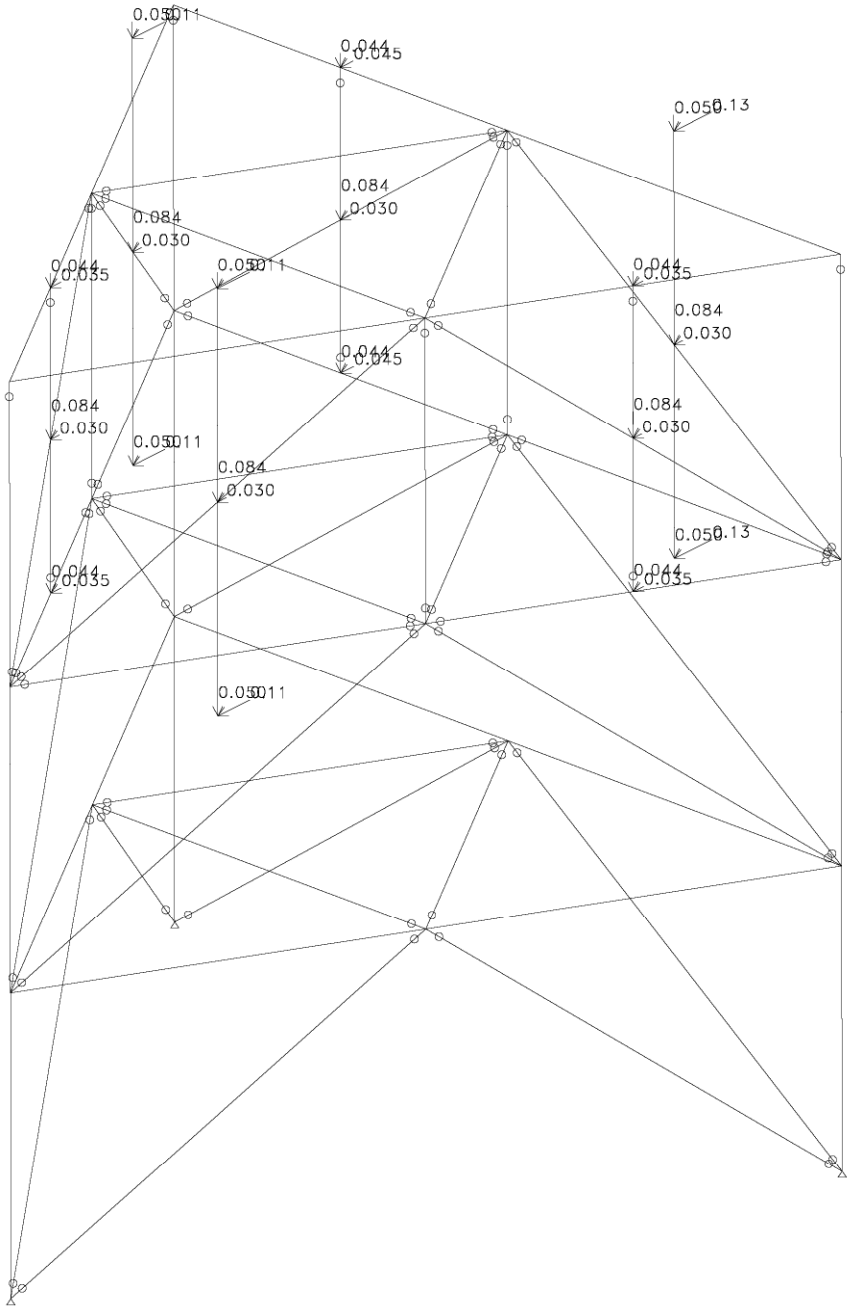
FX1=-1.8861 kip
FX2=0. kip
FX3=0. kip

Verizon Bloomfield CT Antenna Frame 96210.403

Load 1: Front No Ice

SCALE = 1:34 | UNITS: kip ft | DATE: 5/23/22



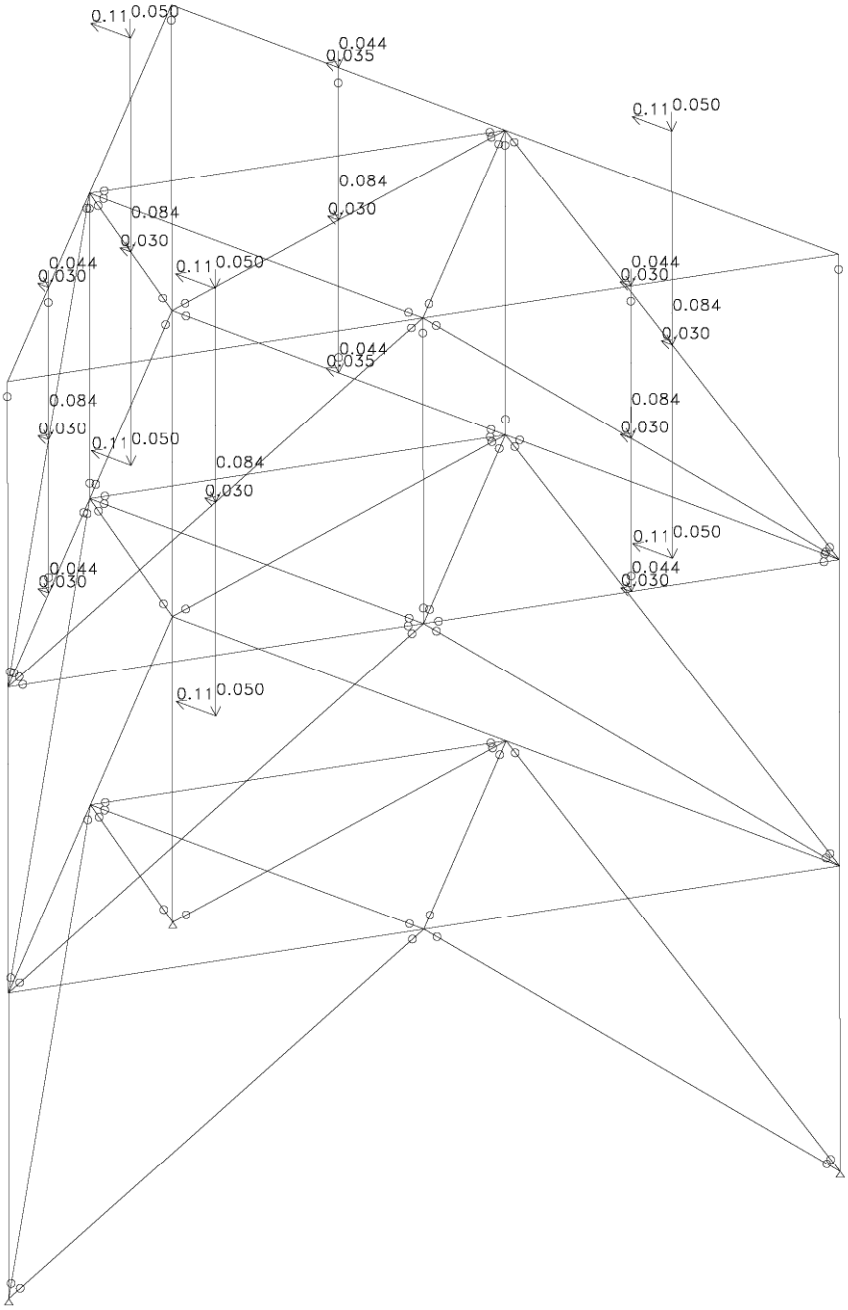


Verizon Bloomfield CT Antenna Frame 96210.403

Load 2: Side No Ice

X3
X2
X1

SCALE = 1:34	UNITS: kip ft	DATE: 5/23/22

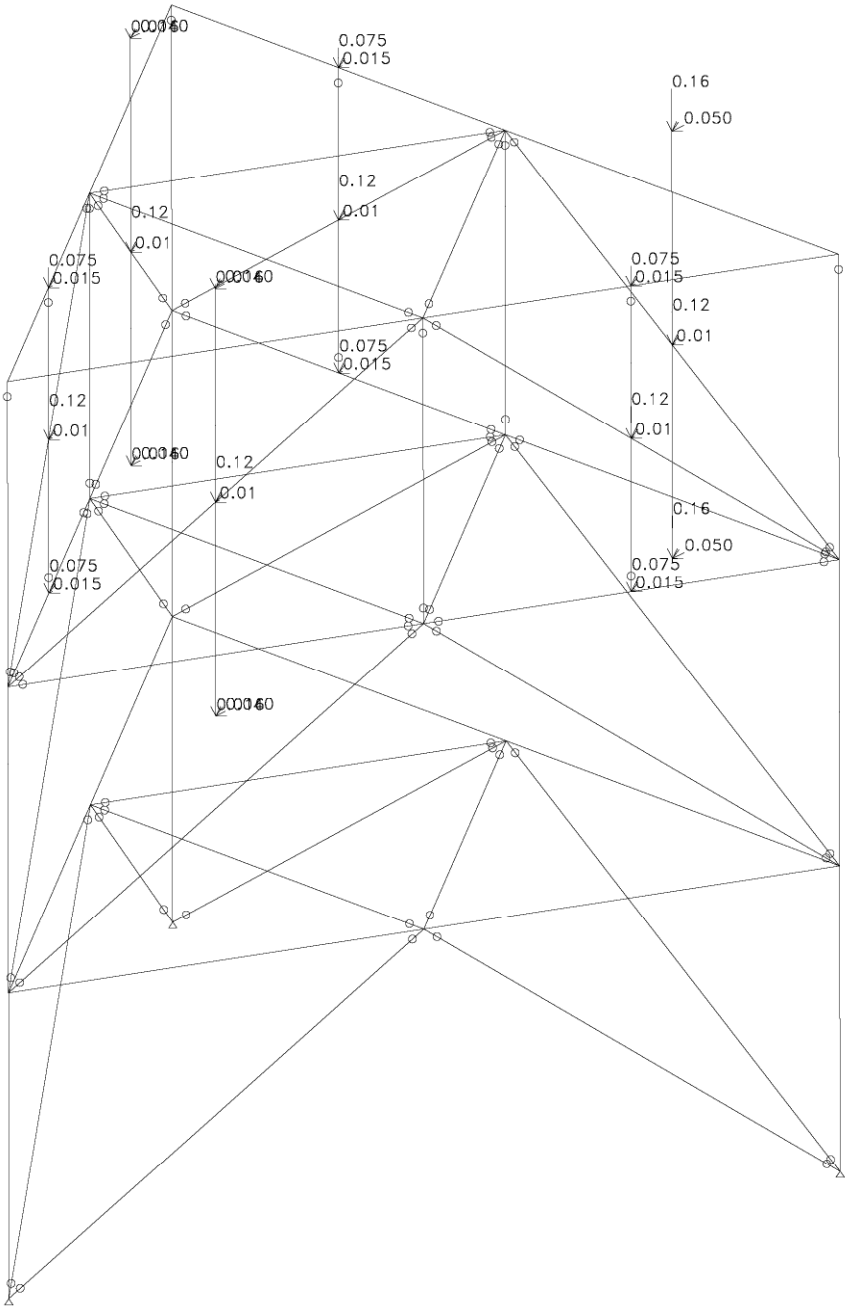


Verizon Bloomfield CT Antenna Frame 96210.403

Load 3: Front Ice

X3
X2
X1

SCALE = 1:34 | UNITS: kip ft | DATE: 5/23/22

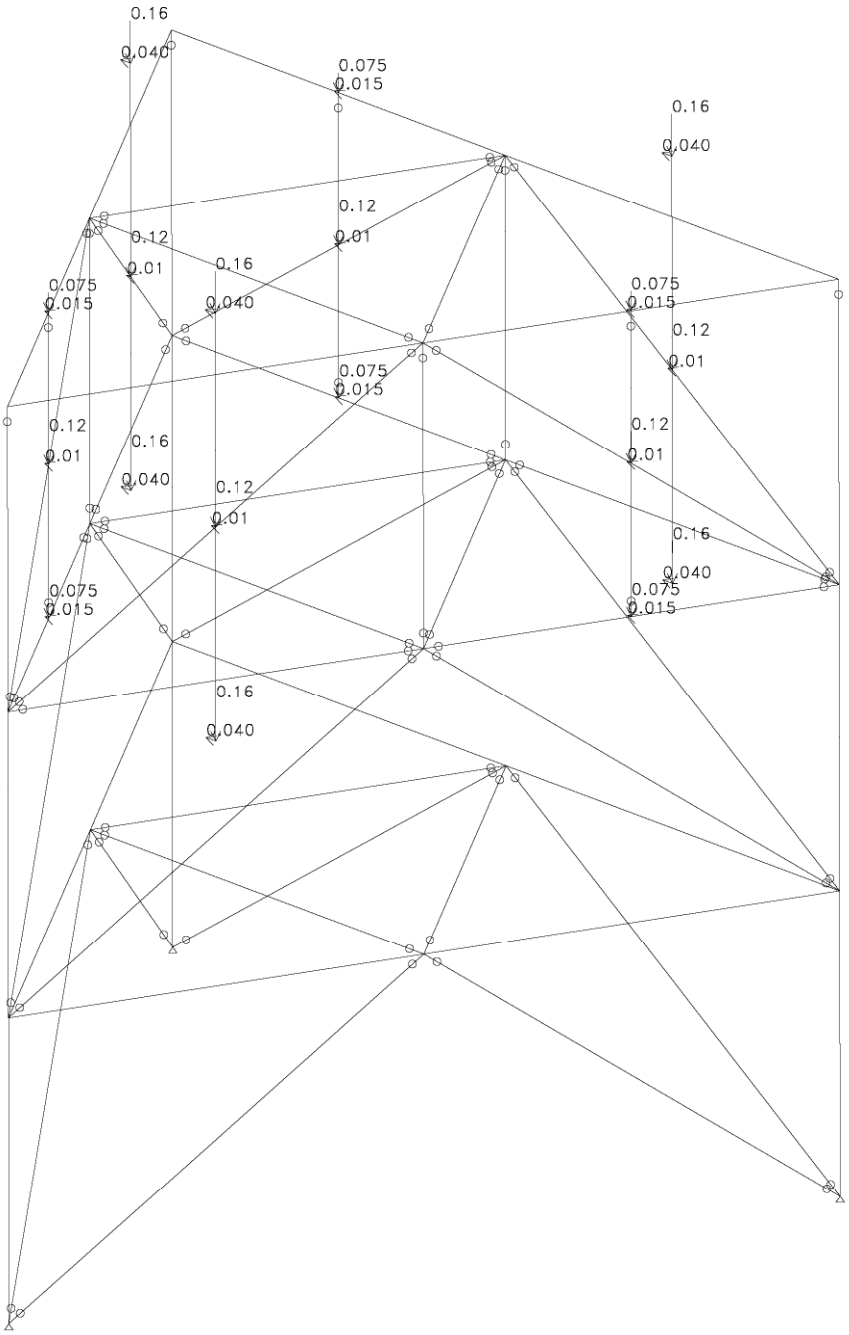


Verizon Bloomfield CT Antenna Frame 96210.403

Load 4: Side Ice

X3
X2
X1

SCALE = 1:34 | UNITS: kip ft | DATE: 5/23/22

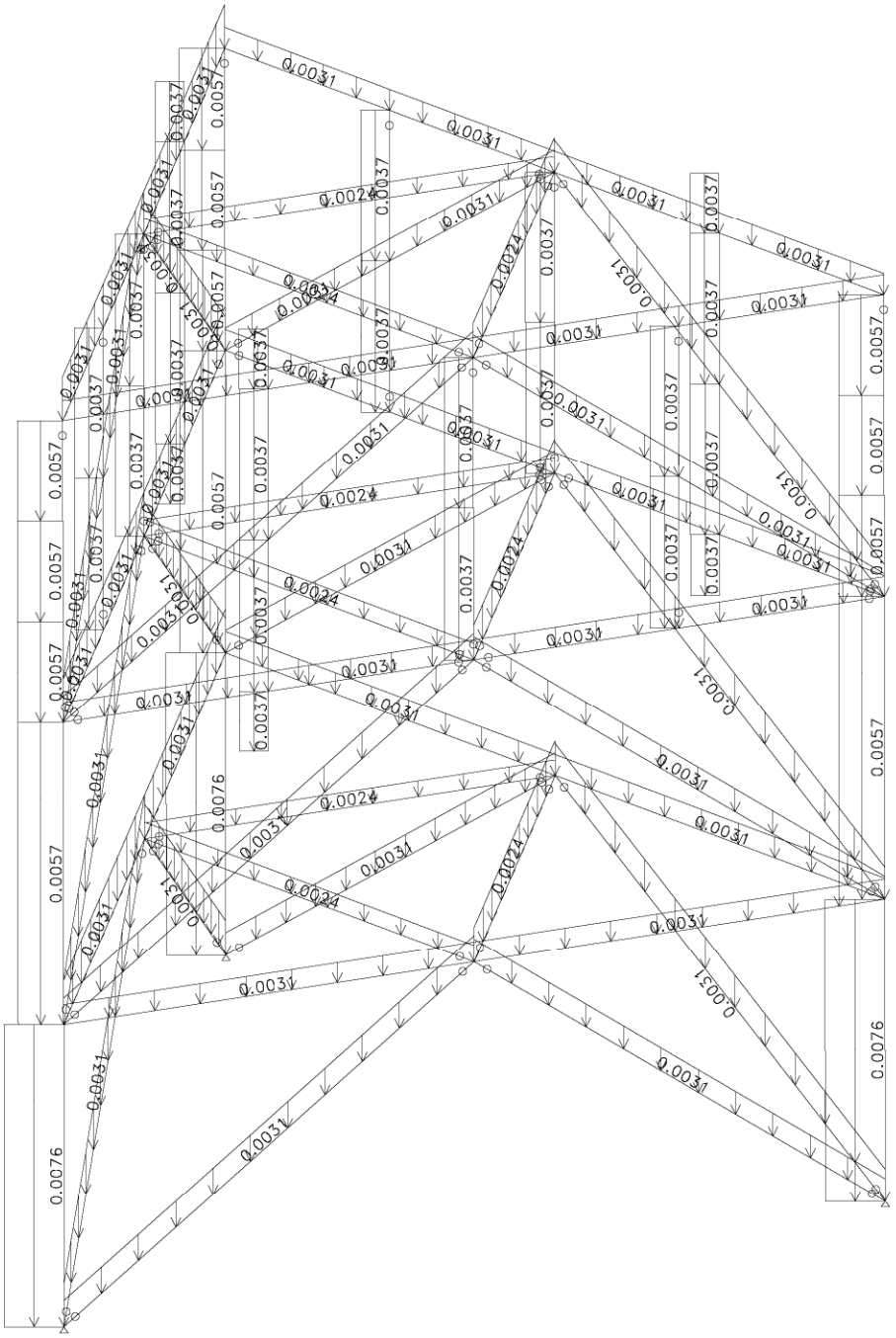


Verizon Bloomfield CT Antenna Frame 96210.403

Load 5: Selfweight

X3
X2
X1

SCALE = 1:34 | UNITS: kip ft | DATE: 5/23/22

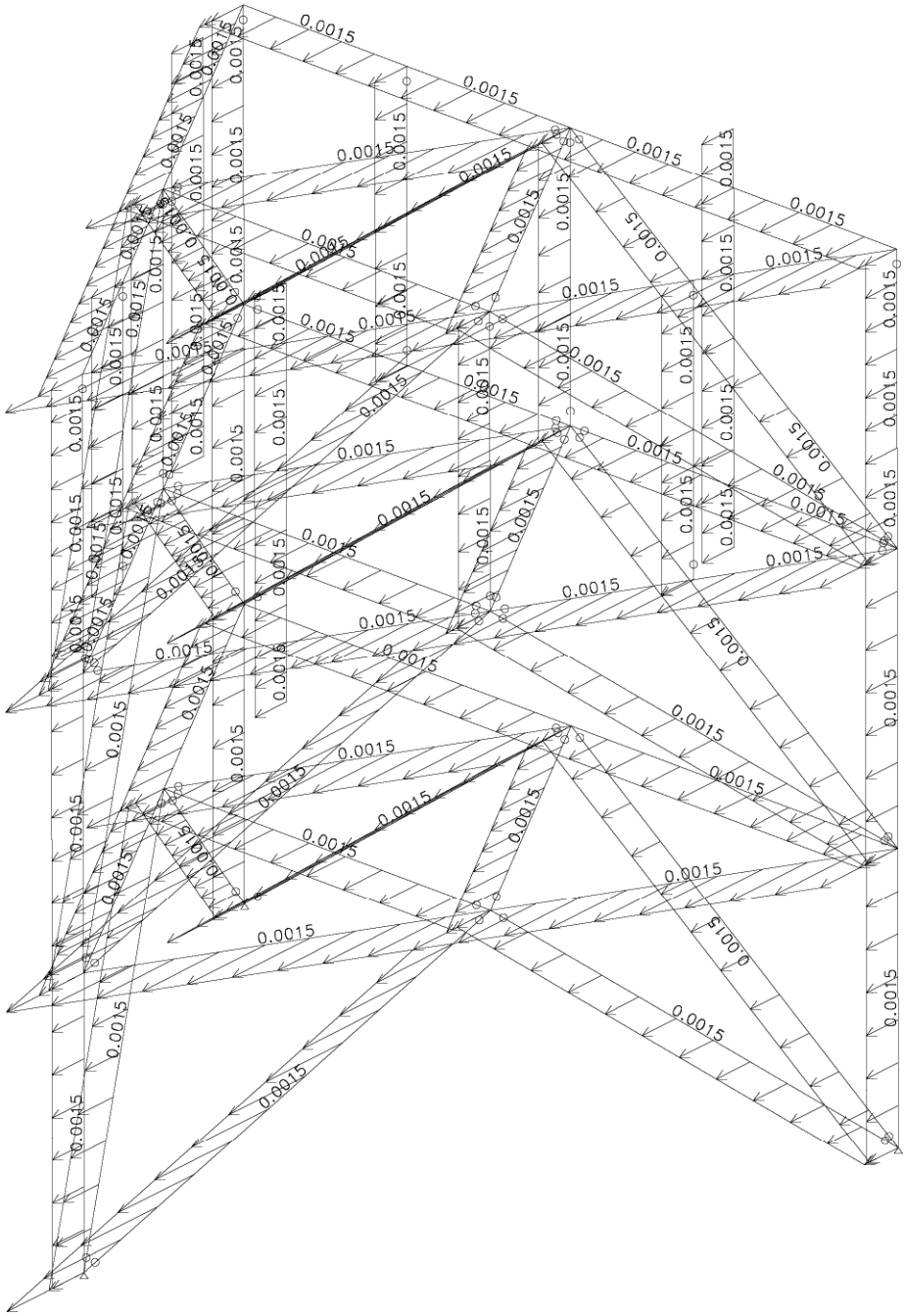


Verizon Bloomfield CT Antenna Frame 96210.403

Load 6: Front Frame Ice

X3
X2
X1

SCALE = 1:34 | UNITS: kip ft | DATE: 5/23/22

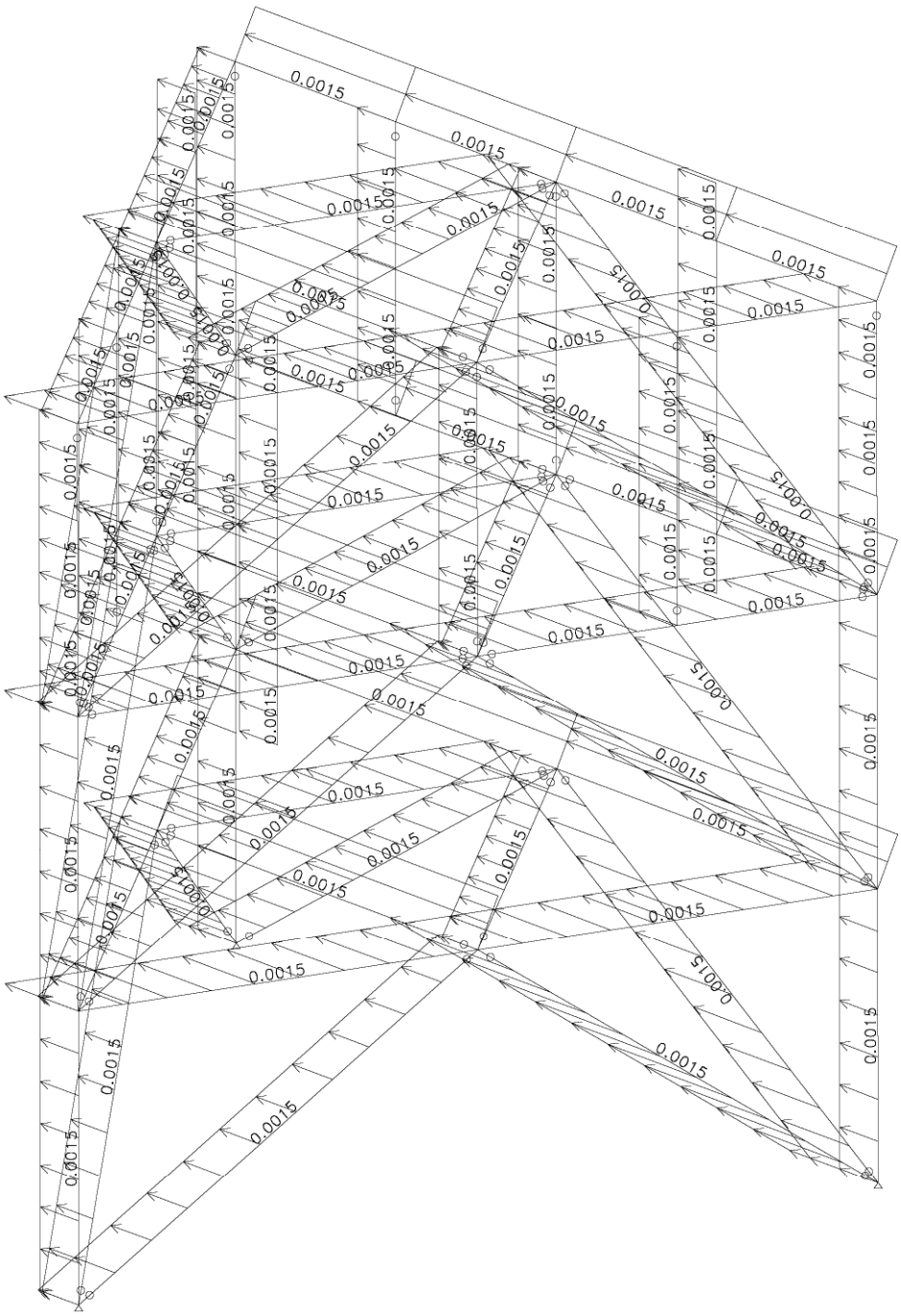


Verizon Bloomfield CT Antenna Frame 96210.403

Load 7: Side Frame Ice

X3
X2
X1

SCALE = 1:34	UNITS: kip ft	DATE: 5/23/22

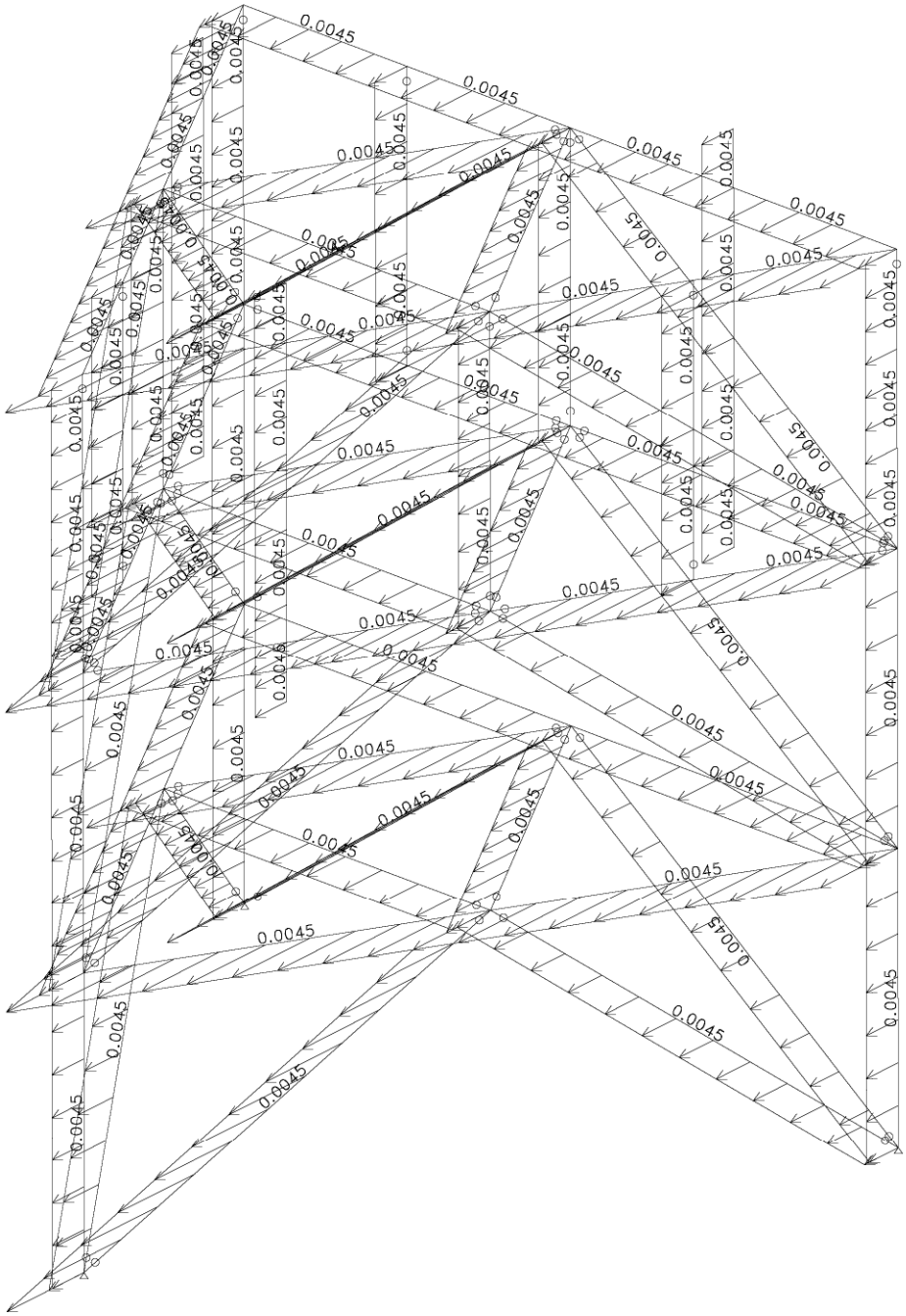


Verizon Bloomfield CT Antenna Frame 96210.403

Load 8: Front Frame No Ice

X3
X2
X1

SCALE = 1:34	UNITS: kip ft	DATE: 5/23/22

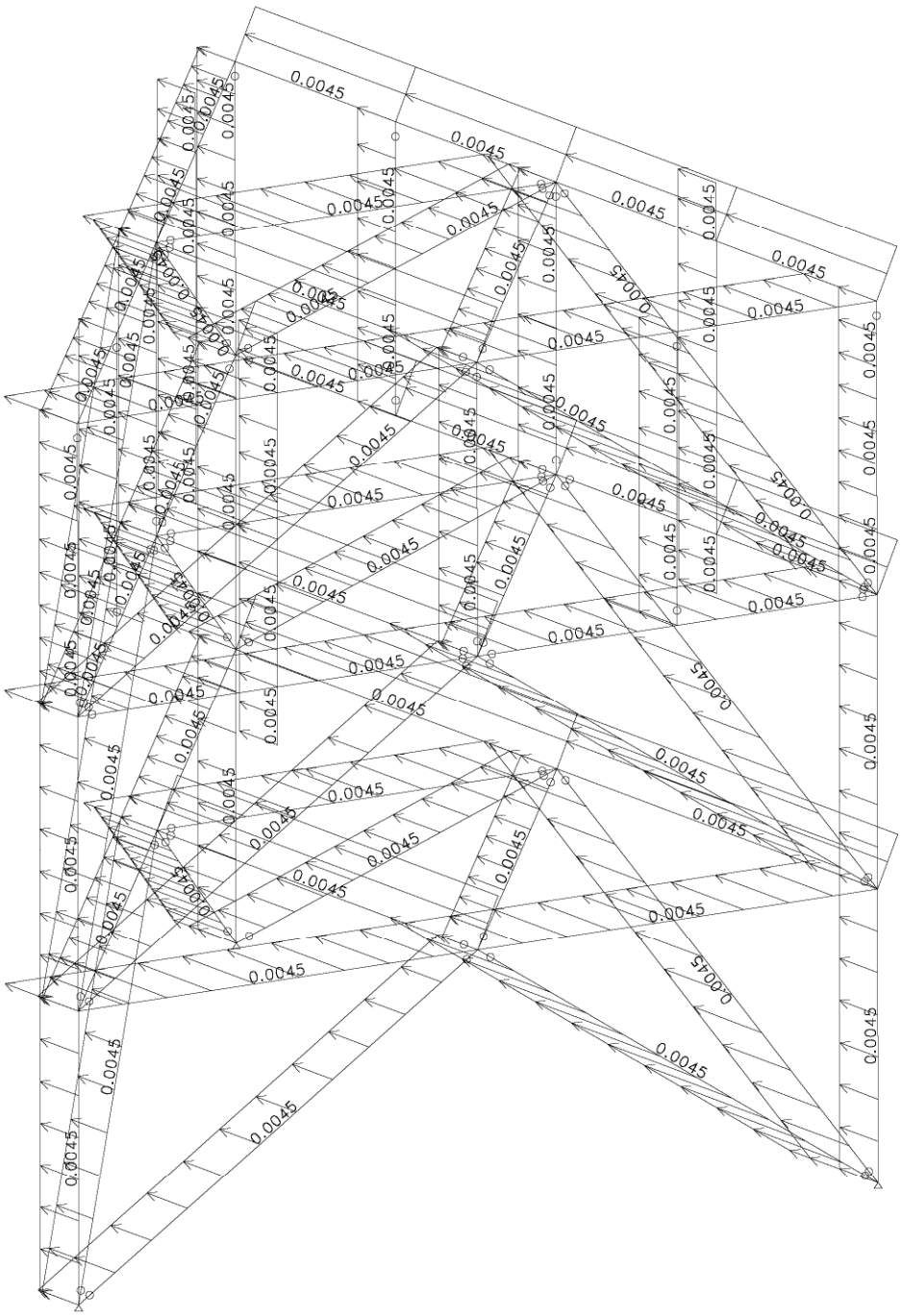


Verizon Bloomfield CT Antenna Frame 96210.403

Load 9: Side Frame No Ice

X3
X2
X1

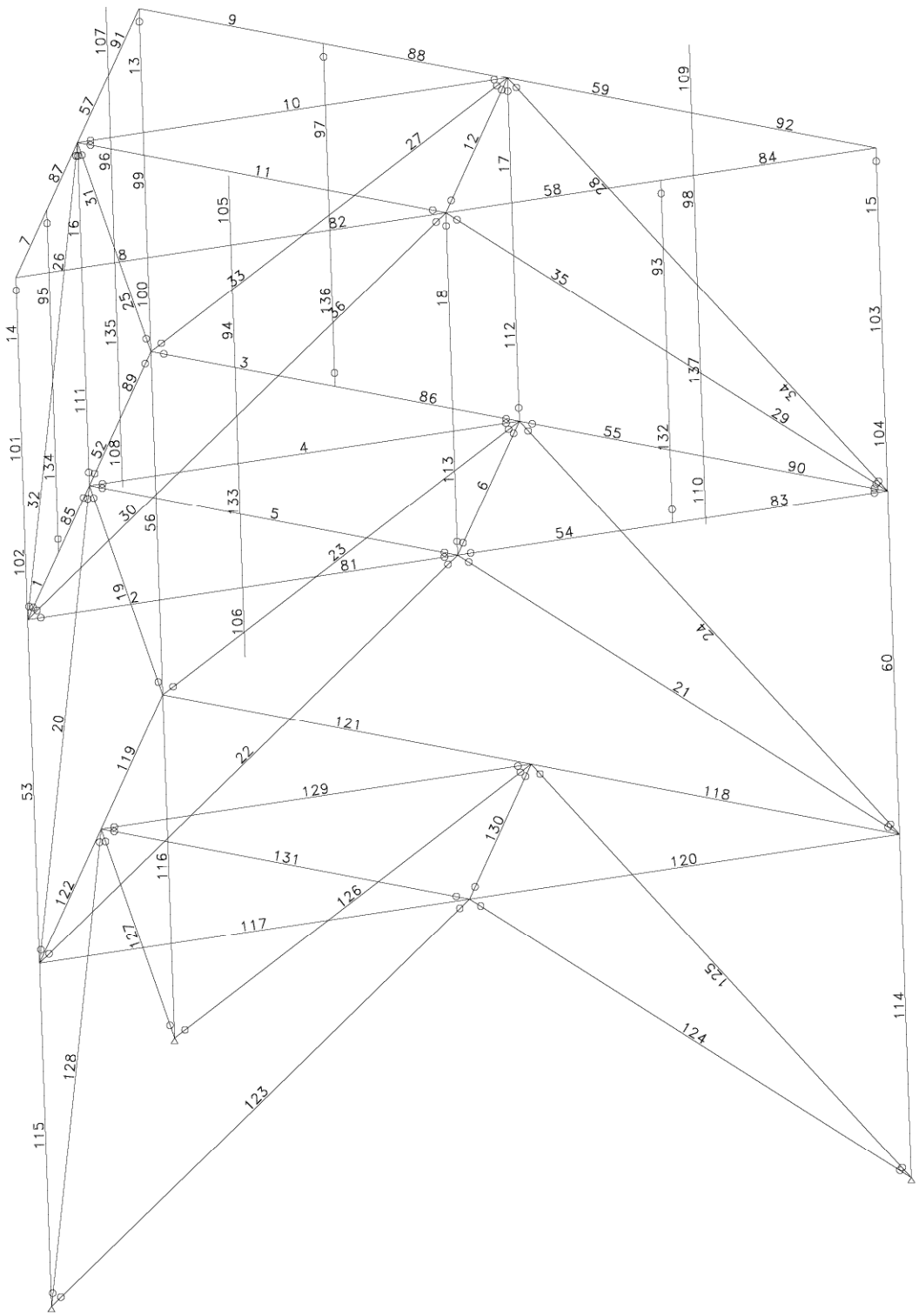
SCALE = 1:34	UNITS: kip ft	DATE: 5/23/22



Verizon Bloomfield CT Antenna Frame 96210.403

SCALE = 1:28

DATE: 5/23/22



Verizon Bloomfield CT Antenna Frame 96210.403

Prepared by:

Code: AISC-LRFD
Page: 3
Date: 5/23/22

Results Summary Table

Beam	Section	Com	Defl L/	Slen	CAPACITY Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom	
1	L 2.5x2.5x3/16	2	1649	158	-0.03	MJ	0.00	0.10	0.10	0.20	
						MI	0.00	0.09	0.00		
2	L 2.5x2.5x3/16	2	937	158	0.02	MJ	0.01	0.20	0.23	0.34	
						MI	0.01	0.20	0.00		
3	L 2.5x2.5x3/16	1	1451	315	-0.13	MJ	0.01	0.19	0.29	0.41	***
						MI	0.01	0.27	0.00		
4	L 2x2x3/16	2	3317	198	-0.03	MJ	0.00	0.02	0.04	0.06	
						MI	0.00	0.03	0.00		
5	L 2x2x3/16	1	2977	198	0.01	MJ	0.00	0.02	0.04	0.07	
						MI	0.00	0.04	0.00		
6	L 2x2x3/16	2	3317	195	-0.05	MJ	0.00	0.02	0.04	0.09	
						MI	0.00	0.03	0.00		
7	L 2.5x2.5x3/16	2	1967	158	-0.02	MJ	0.01	0.16	0.17	0.25	
						MI	0.01	0.12	0.00		
8	L 2.5x2.5x3/16	4	1583	158	-0.01	MJ	0.01	0.22	0.23	0.29	
						MI	0.01	0.14	0.00		
9	L 2.5x2.5x3/16	3	2806	238	-0.07	MJ	0.01	0.21	0.27	0.37	
						MI	0.01	0.18	0.00		
10	L 2x2x3/16	2	3317	198	-0.04	MJ	0.00	0.02	0.04	0.07	
						MI	0.00	0.03	0.00		
11	L 2x2x3/16	1	2977	198	0.01	MJ	0.00	0.02	0.04	0.07	
						MI	0.00	0.04	0.00		
12	L 2x2x3/16	2	3317	195	-0.06	MJ	0.00	0.02	0.04	0.09	
						MI	0.00	0.03	0.00		
16	PIPE 2	2	9999	74	-0.01	MJ	0.00	0.01	0.01	0.01	
						MI	0.00	0.01	0.00		
17	PIPE 2	2	9999	74	-0.01	MJ	0.00	0.01	0.01	0.01	
						MI	0.00	0.01	0.00		
18	PIPE 2	1	9999	74	-0.01	MJ	0.00	0.01	0.01	0.01	
						MI	0.00	0.01	0.00		
19	L 2.5x2.5x3/16	1	2907	199	-0.13	MJ	0.00	0.04	0.05	0.12	
						MI	0.00	0.03	0.00		
20	L 2.5x2.5x3/16	1	2834	199	-0.20	MJ	0.00	0.04	0.04	0.13	
						MI	0.00	0.03	0.00		
21	L 2.5x2.5x3/16	2	2833	199	-0.02	MJ	0.00	0.04	0.05	0.08	
						MI	0.00	0.03	0.00		
22	L 2.5x2.5x3/16	1	3820	197	-0.20	MJ	0.00	0.02	0.04	0.23	
						MI	0.00	0.03	0.00		
23	L 2.5x2.5x3/16	2	3016	197	-0.22	MJ	0.00	0.02	0.04	0.22	
						MI	0.00	0.04	0.00		
24	L 2.5x2.5x3/16	2	2981	199	-0.06	MJ	0.00	0.05	0.05	0.09	
						MI	0.00	0.04	0.00		
25	L 2.5x2.5x3/16	4	1752	199	-0.07	MJ	0.00	0.09	0.10	0.16	
						MI	0.00	0.07	0.00		
26	L 2.5x2.5x3/16	2	1929	199	-0.10	MJ	0.00	0.08	0.08	0.14	
						MI	0.00	0.06	0.00		
27	L 2.5x2.5x3/16	1	1845	183	-0.11	MJ	0.00	0.07	0.08	0.15	
						MI	0.00	0.07	0.00		
28	L 2.5x2.5x3/16	3	1722	199	-0.05	MJ	0.00	0.09	0.10	0.16	
						MI	0.00	0.08	0.00		
29	L 2.5x2.5x3/16	3	1851	199	-0.03	MJ	0.00	0.08	0.09	0.12	
						MI	0.00	0.05	0.00		
30	L 2.5x2.5x3/16	4	1744	182	-0.10	MJ	0.00	0.09	0.10	0.16	
						MI	0.00	0.07	0.00		
52	L 2.5x2.5x3/16	2	933	158	-0.05	MJ	0.01	0.20	0.23	0.34	
						MI	0.01	0.20	0.00		
53	L 3.5x3.5x1/4	1	9999	139	-0.05	MJ	0.00	0.00	0.01	0.03	
						MI	0.00	0.01	0.00		
54	L 2.5x2.5x3/16	2	1626	158	-0.05	MJ	0.00	0.11	0.11	0.19	
						MI	0.00	0.09	0.00		
56	L 3.5x3.5x1/4	4	9999	141	-0.04	MJ	0.00	0.01	0.01	0.03	
57	L 2.5x2.5x3/16	4	1602	129	-0.02	MJ	0.01	0.22	0.23	0.29	
						MI	0.01	0.13	0.00		

Verizon Bloomfield CT Antenna Frame 96210.403

Prepared by:

Code: AISC-LRFD
Page: 4
Date: 5/23/22

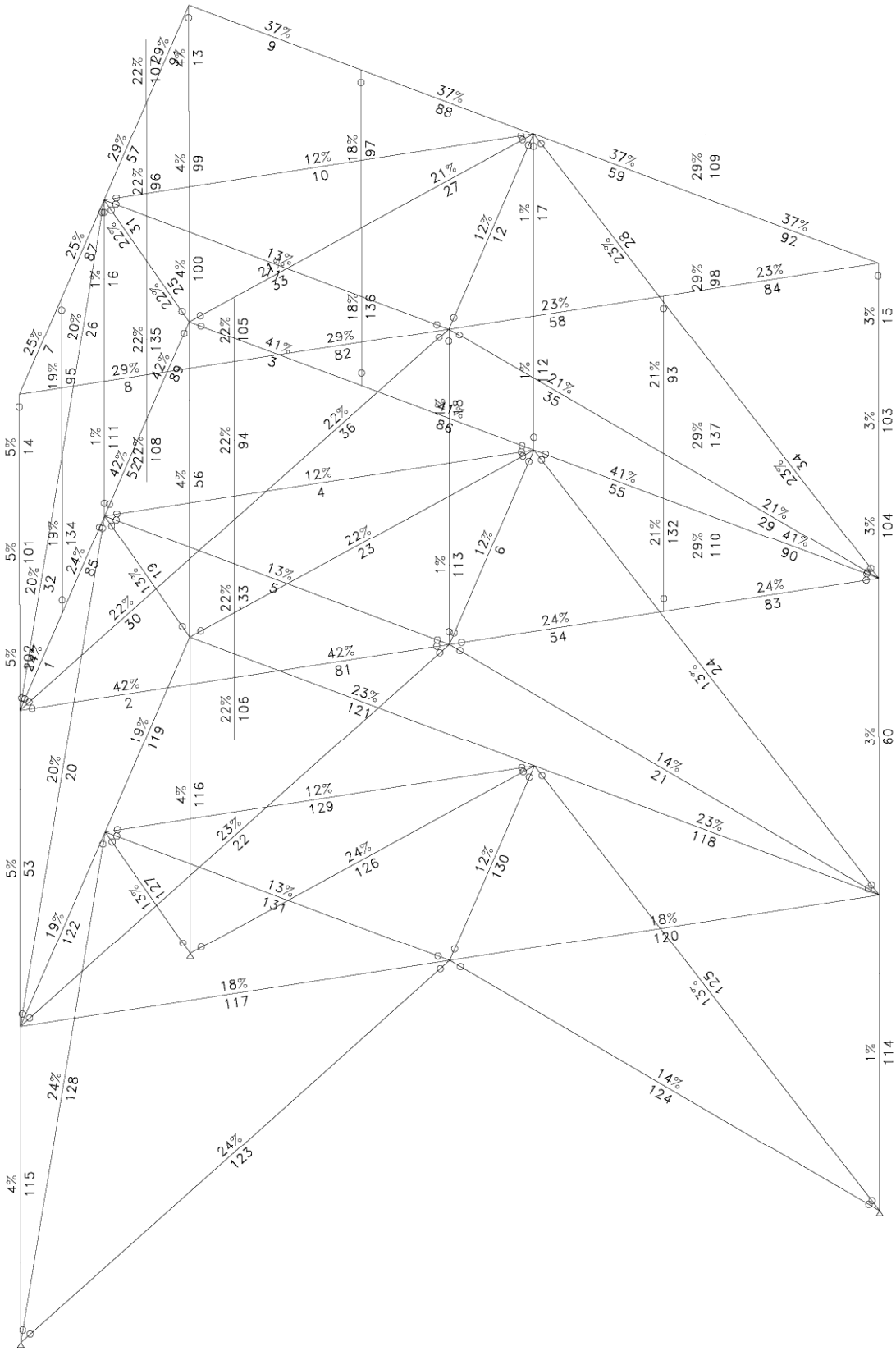
Results Summary Table

Beam	Section	Com	Defl L/	Slen	CAPACITY Axial	Dir	Shear	Mom	LTB	Combined Axial+Mom	
58	L 2.5x2.5x3/16	2	1826	138	-0.02	MJ	0.01	0.16	0.17	0.23	
						MI	0.01	0.11	0.00		
60	L 3.5x3.5x1/4	3	9999	152	-0.03	MI	0.00	0.00	0.00	0.03	
93	PIPE 2	3	1887	76	0.00	MJ	0.00	0.05	0.05	0.12	
						MI	0.01	0.08	0.00		
95	PIPE 2	4	2055	76	0.00	MJ	0.00	0.05	0.05	0.11	
						MI	0.00	0.07	0.00		
97	PIPE 2	3	2119	76	0.00	MJ	0.01	0.08	0.08	0.09	
						MI	0.00	0.02	0.00		
105	PIPE 2	2	1743	44	-0.01	MJ	0.01	0.07	0.07	0.18	
						MI	0.01	0.10	0.00		
107	PIPE 2	2	1765	44	-0.01	MJ	0.01	0.07	0.07	0.18	
						MI	0.01	0.10	0.00		
109	PIPE 2	1	1345	45	-0.01	MJ	0.01	0.13	0.13	0.15	
						MI	0.01	0.07	0.00		
114	PIPE 3	3	9999	52	-0.01	MI	0.00	0.00	0.00	0.01	
115	PIPE 3	1	9999	51	-0.04	MI	0.00	0.00	0.00	0.04	
116	PIPE 3	2	9999	51	-0.04	MI	0.00	0.00	0.00	0.04	
117	L 2.5x2.5x3/16	1	9999	315	-0.18	MJ	0.00	0.01	0.02	0.12	***
						MI	0.00	0.02	0.00		
118	L 2.5x2.5x3/16	2	9999	315	-0.21	MJ	0.00	0.02	0.03	0.23	***
						MI	0.00	0.02	0.00		
119	L 2.5x2.5x3/16	1	9999	315	-0.19	MJ	0.00	0.01	0.02	0.13	***
						MI	0.00	0.02	0.00		
123	L 2.5x2.5x3/16	1	3820	197	-0.21	MJ	0.00	0.02	0.04	0.24	
						MI	0.00	0.03	0.00		
124	L 2.5x2.5x3/16	2	2833	199	0.03	MJ	0.00	0.04	0.05	0.09	
						MI	0.00	0.03	0.00		
125	L 2.5x2.5x3/16	2	2981	199	0.04	MJ	0.00	0.05	0.05	0.08	
						MI	0.00	0.04	0.00		
126	L 2.5x2.5x3/16	2	3016	197	-0.24	MJ	0.00	0.02	0.04	0.24	
						MI	0.00	0.04	0.00		
127	L 2.5x2.5x3/16	1	2907	199	-0.12	MJ	0.00	0.04	0.05	0.12	
						MI	0.00	0.03	0.00		
128	L 2.5x2.5x3/16	1	2834	199	-0.21	MJ	0.00	0.04	0.04	0.24	
						MI	0.00	0.03	0.00		
129	L 2x2x3/16	2	3317	198	-0.01	MJ	0.00	0.02	0.04	0.06	
						MI	0.00	0.03	0.00		
130	L 2x2x3/16	2	3317	191	-0.02	MJ	0.00	0.02	0.04	0.07	
						MI	0.00	0.03	0.00		
131	L 2x2x3/16	1	2977	198	0.01	MJ	0.00	0.02	0.04	0.07	
						MI	0.00	0.04	0.00		

Verizon Bloomfield CT Antenna Frame 96210.403

SCALE = 1:27

DATE: 6/ 1/22

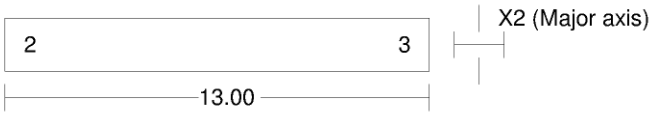


Actual/allowable Maximum result

Detailed Results Table for Beam 3 - 90

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 3, 86, 55, 90



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

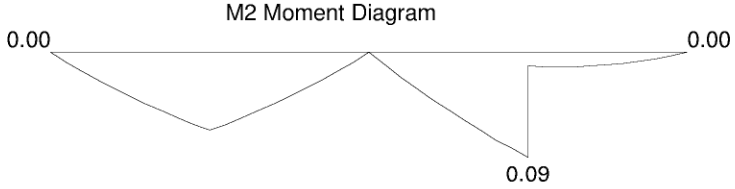
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 2.5x2.5x3/16

Ix = 0.55 Iy = 0.55in4 Sx = 0.30 Sy = 0.30in3 Area = 0.90
h = 2.50 b = 2.50in t = 0.19 ey = 1.82in ex = 1.82in
J = 0.01 Cw = 0.00in6 Iv = 0.22 in4

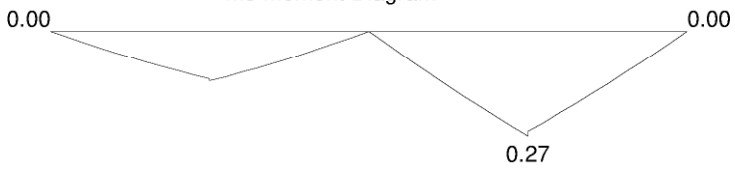
DESIGN COMBINATION = 1

M2 Moment Diagram



Max. AXIAL Force = 0.31 (tens.) Max. SHEAR Force = 0.03

M3 Moment Diagram



Max. AXIAL Force = 0.31 (tens.) Max. SHEAR Force = 0.09

SECTION CLASSIFICATION: *** SLENDER ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 13.23	<	12.8	12.8	(Fy= 36.0)
b/t= 13.23	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V2 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.43	Vu = 0.09 Vn = 9.20	0.01
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.27 Mn = 1.14	0.27

Detailed Results Table for Beam 3 - 90

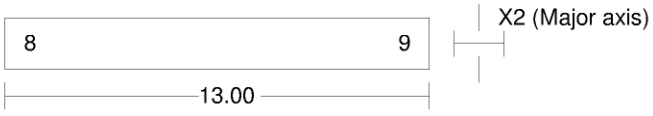
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.09 Mn = 1.14	0.09
Deflection	$\frac{defl.}{L / 400} < 1.00$		defl = 0.10749	0.28
Axial Force (D1-1)	$\frac{Pu}{0.90AgFy} < 1.00$	(kL/r)x =200 (kL/r)y =315	Pu = 0.31 Ag = 0.90 Fy = 36.00	0.01
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 13.00 on +z flange Segment End Moments: 0.00 and 0.00	Lb = 13.00 Cb = 1.81	M = 0.27 Mn = 1.02 My = 0.91 Mob = -1.00	0.29
Combined Forces (tension) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$		Mux = 0.09 Muy = 0.27	0.41

Detailed Results Table for Beam 9 - 92

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 9, 88, 59, 92



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

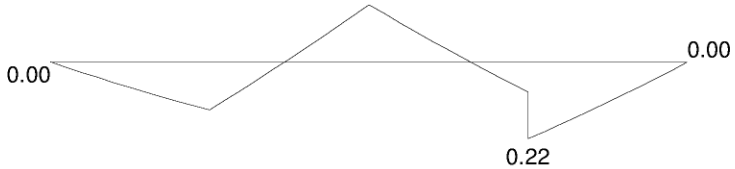
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 2.5x2.5x3/16

Ix = 0.55 Iy = 0.55in4 Sx = 0.30 Sy = 0.30in3 Area = 0.90
h = 2.50 b = 2.50in t = 0.19 ey = 1.82in ex = 1.82in
J = 0.01 Cw = 0.00in6 Iv = 0.22 in4

DESIGN COMBINATION = 3

M2 Moment Diagram

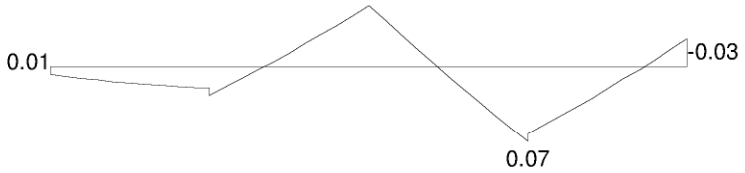


Detailed Results Table for Beam 9 - 92

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Max. AXIAL Force = 0.02 (tens.), -0.13 (compr.) Max. SHEAR Force = 0.10

M3 Moment Diagram



Max. AXIAL Force = 0.02 (tens.), -0.13 (compr.) Max. SHEAR Force = 0.04

SECTION CLASSIFICATION: *** SLENDER ***

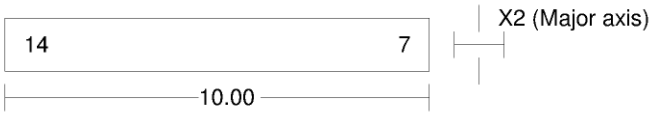
Limiting Ratios:		Compact	Non-Compact	
d/t= 13.23	<	12.8	12.8	(Fy= 36.0)
b/t= 13.23	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.07 Mn = 1.14	0.07
V3 Shear (F2-1)	Vu/(.9*Vn)<1.00 Vn=0.6*Fy*Av	Av = 0.43	Vu = 0.10 Vn = 9.20	0.01
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.22 Mn = 1.14	0.21
Deflection	$\frac{defl.}{L / 400} < 1.00$		defl = 0.05112	0.13
Axial Force (4-1),(4-2)	$\frac{Pu}{0.90AgFcr} < 1.00$	(kL/r)x =151 (kL/r)y =238 $\lambda c\sqrt{Q}$ = 2.66 Q = 0.90	Pu = 0.13 Ag = 0.90 Fcr = 4.45	0.04
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 13.00 on +z flange Segment End Moments: 0.00 and 0.00	Lb = 13.00 Cb = 1.21	M = 0.22 Mn = 0.89 My = 0.91 Mob = 1.76	0.27
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 11.19 Pey = 4.51	Mux = 0.22 Muy = 0.07 B1x = 1.01 B1y = 1.03	0.37

Detailed Results Table for Beam 14

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 53, 102, 101, 14



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

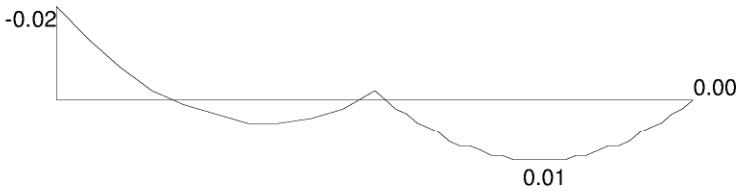
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 3.5x3.5x1/4

Ix = 2.01 Iy = 2.01in4 Sx = 0.79 Sy = 0.79in3 Area = 1.69
h = 3.50 b = 3.50in t = 0.25 ey = 2.53in ex = 2.53in
J = 0.04 Cw = 0.00in6 Iv = 0.81 in4

DESIGN COMBINATION = 1

M3 Moment Diagram



Max. AXIAL Force = -0.97 (compr.) Max. SHEAR Force = 0.01

SECTION CLASSIFICATION: *** SLENDER ***

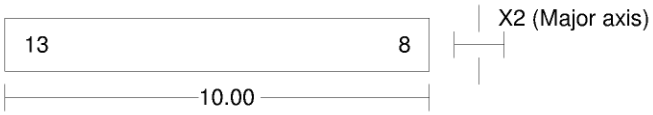
Limiting Ratios:		Compact	Non-Compact	
d/t= 14.11	<	12.8	12.8	(Fy= 36.0)
b/t= 14.11	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.79 QS =0.962	M = 0.02 Mn = 2.98	0.01
Axial Force (4-1),(4-2)	$\frac{Pu}{0.90AgFcr} < 1.00$	(kL/r)x =87 (kL/r)y =137 $\lambda c\sqrt{Q}$ = 1.53 Q = 1.69	Pu = 0.97 Ag = 1.69 Fcr = 13.42	0.05
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 10.00 on -z flange Segment End Moments: 0.02 and 0.00	Lb = 10.00 Cb = 2.32	M = 0.02 Mn = 2.68 My = 2.38 Mob = -1.00	0.01
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 61.75 Pey = 24.90	Mux = 0.00 Muy = 0.02 B1x = 1.02 B1y = 1.04	0.03

Detailed Results Table for Beam 13

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 56, 100, 99, 13



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 3.5x3.5x1/4

Ix = 2.01 Iy = 2.01in4 Sx = 0.79 Sy = 0.79in3 Area = 1.69
h = 3.50 b = 3.50in t = 0.25 ey = 2.53in ex = 2.53in
J = 0.04 Cw = 0.00in6 Iv = 0.81 in4

DESIGN COMBINATION = 4

Max. AXIAL Force = -0.87 (compr.) Max. SHEAR Force = 0.00

SECTION CLASSIFICATION: *** SLENDER ***

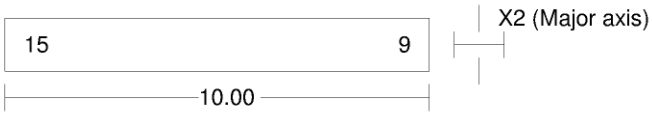
Limiting Ratios:		Compact	Non-Compact	
d/t= 14.11	<	12.8	12.8	(Fy= 36.0)
b/t= 14.11	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.79 QS =0.962	M = 0.01 Mn = 2.98	0.00
Axial Force (4-1),(4-2)	$\frac{Pu}{0.90AgFcr} < 1.00$	(kL/r)x =88 (kL/r)y =138 $\lambda c\sqrt{Q}$ = 1.55 Q = 1.69	Pu = 0.87 Ag = 1.69 Fcr = 13.22	0.04
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 10.00 on +z flange Segment End Moments: -0.01 and 0.00	Lb = 10.00 Cb = 2.52	M = 0.01 Mn = 2.98 My = 2.38 Mob = 16.50	0.00
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 60.35 Pey = 24.54	Mux = 0.01 Muy = 0.00 B1x = 1.01 B1y = 1.04	0.03

Detailed Results Table for Beam 15

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 60, 104, 103, 15



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 3.5x3.5x1/4

Ix = 2.01 Iy = 2.01in4 Sx = 0.79 Sy = 0.79in3 Area = 1.69
h = 3.50 b = 3.50in t = 0.25 ey = 2.53in ex = 2.53in
J = 0.04 Cw = 0.00in6 Iv = 0.81 in4

DESIGN COMBINATION = 3

Max. AXIAL Force = -0.62 (compr.) Max. SHEAR Force = 0.00

SECTION CLASSIFICATION: *** SLENDER ***

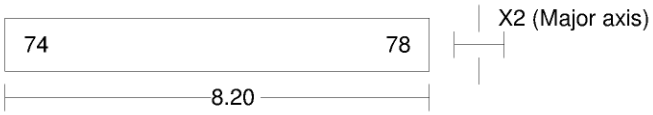
Limiting Ratios:		Compact	Non-Compact	
d/t= 14.11	<	12.8	12.8	(Fy= 36.0)
b/t= 14.11	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Axial Force (4-1),(4-2)	$\frac{Pu}{0.90AgFcr} < 1.00$	(kL/r)x =89 (kL/r)y =140 $\lambda c\sqrt{Q}$ = 1.57 Q = 1.69	Pu = 0.62 Ag = 1.69 Fcr = 12.85	0.03
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 10.00 on +z flange Segment End Moments: 0.01 and 0.00	Lb = 10.00 Cb = 1.97	M = 0.01 Mn = 2.92 My = 2.38 Mob = 12.93	0.00
Combined Forces (compress.) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 59.00 Pey = 23.85	Mux = 0.01 Muy = 0.00 B1x = 1.01 B1y = 1.03	0.02

Detailed Results Table for Beam 123

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 123



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

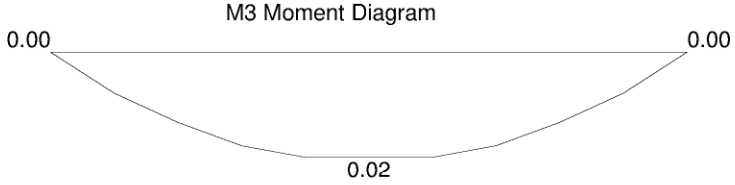
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 2.5x2.5x3/16

Ix = 0.55 Iy = 0.55in4 Sx = 0.30 Sy = 0.30in3 Area = 0.90
h = 2.50 b = 2.50in t = 0.19 ey = 1.82in ex = 1.82in
J = 0.01 Cw = 0.00in6 Iv = 0.22 in4

DESIGN COMBINATION = 1

M3 Moment Diagram



Max. AXIAL Force = -1.13 (compr.) Max. SHEAR Force = 0.01

SECTION CLASSIFICATION: *** SLENDER ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 13.23	<	12.8	12.8	(Fy= 36.0)
b/t= 13.23	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.02 Mn = 1.14	0.02
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.00 Mn = 1.14	0.00
Deflection	$\frac{defl.}{L / 400} < 1.00$		defl = 0.01436	0.06
Axial Force (4-1),(4-2)	$\frac{Pu}{0.90AgFcr} < 1.00$	(kL/r)x =125 (kL/r)y =197 λc√Q = 2.21 Q = 0.90	Pu = 1.13 Ag = 0.90 Fcr = 6.49	0.21
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 8.20 on +z flange Segment End Moments: 0.00 and 0.00	Lb = 8.20 Cb = 1.14	M = 0.02 Mn = 1.02 My = 0.91 Mob = -1.00	0.02

Detailed Results Table for Beam 123

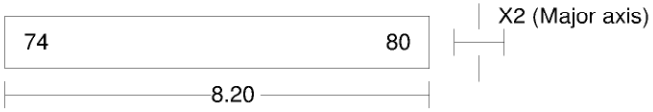
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Combined Forces (compress.) (H1-1a)	$\frac{Pu}{\phi Pn} + \frac{8Mux}{9\phi Mnx} + \frac{8Muy}{9\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 16.33 Pey = 6.58	Mux = 0.00 Muy = 0.02 B1x = 1.07 B1y = 1.21	0.24

Detailed Results Table for Beam 128

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 128



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

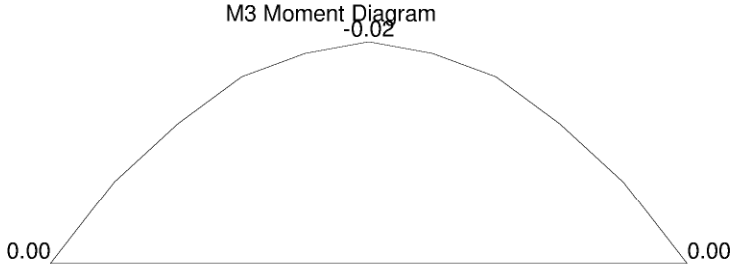
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 2.5x2.5x3/16

Ix = 0.55 Iy = 0.55in4 Sx = 0.30 Sy = 0.30in3 Area = 0.90
h = 2.50 b = 2.50in t = 0.19 ey = 1.82in ex = 1.82in
J = 0.01 Cw = 0.00in6 Iv = 0.22 in4

DESIGN COMBINATION = 1

M3 Moment Diagram



Max. AXIAL Force = -1.12 (compr.) Max. SHEAR Force = 0.01

SECTION CLASSIFICATION: *** SLENDER ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 13.23	<	12.8	12.8	(Fy= 36.0)
b/t= 13.23	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.02 Mn = 1.14	0.02

Detailed Results Table for Beam 128

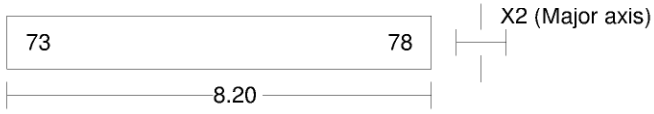
*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.00 Mn = 1.14	0.00
Deflection	$\frac{defl.}{L / 400} < 1.00$		defl = 0.01436	0.06
Axial Force (4-1),(4-2)	$\frac{Pu}{0.90AgFcr} < 1.00$	(kL/r)x =125 (kL/r)y =197 $\lambda c\sqrt{Q}$ = 2.21 Q = 0.90	Pu = 1.12 Ag = 0.90 Fcr = 6.49	0.21
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 8.20 on -z flange Segment End Moments: 0.00 and 0.00	Lb = 8.20 Cb = 1.14	M = 0.02 Mn = 1.02 My = 0.91 Mob = -1.00	0.02
Combined Forces (compress.) (H1-1a)	$\frac{Pu}{\phi Pn} + \frac{8Mux}{9\phi Mnx} + \frac{8Muy}{9\phi Mny} < 1.00$	Cmx = 1.00 Cmy = 1.00 Pex = 16.33 Pey = 6.58	Mux = 0.00 Muy = 0.02 B1x = 1.07 B1y = 1.21	0.24

Detailed Results Table for Beam 124

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 124



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

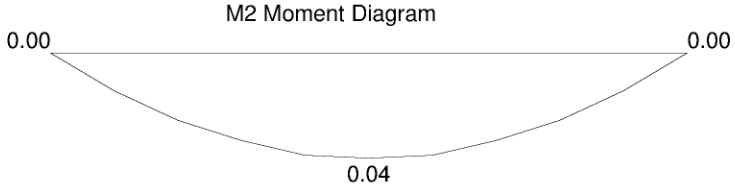
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 240 (compr.) 300 (tens.)
- Allowable Deflection : 1/400
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: L 2.5x2.5x3/16

Ix = 0.55 Iy = 0.55in4 Sx = 0.30 Sy = 0.30in3 Area = 0.90
h = 2.50 b = 2.50in t = 0.19 ey = 1.82in ex = 1.82in
J = 0.01 Cw = 0.00in6 Iv = 0.22 in4

DESIGN COMBINATION = 2

M2 Moment Diagram

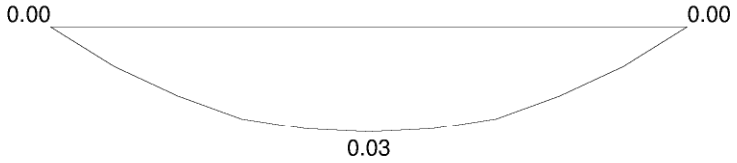


Detailed Results Table for Beam 124

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Max. AXIAL Force = 0.52 (tens.) Max. SHEAR Force = 0.02

M3 Moment Diagram



Max. AXIAL Force = 0.52 (tens.) Max. SHEAR Force = 0.02

SECTION CLASSIFICATION: *** SLENDER ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 13.23	<	12.8	12.8	(Fy= 36.0)
b/t= 13.23	<	15.3		

DESIGN	EQUATION	FACTORS	VALUES	RESULT
M3 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.03 Mn = 1.14	0.03
M2 Moment (A-F1-1) without LTB	$\frac{M}{0.9Mn} < 1.00$	Z = 0.30 QS =0.986	M = 0.04 Mn = 1.14	0.04
Deflection	$\frac{\text{defl.}}{L / 400} < 1.00$		defl = 0.03473	0.14
Axial Force (D1-1)	$\frac{Pu}{0.90AgFy} < 1.00$	(kL/r)x =126 (kL/r)y =199	Pu = 0.52 Ag = 0.90 Fy = 36.00	0.02
Lateral Torsional Buckling (5-6)	$\frac{M}{0.9Mn} < 1.00$ Critical Segment from 0.00 to 8.20 on +z flange Segment End Moments: 0.00 and 0.00	Lb = 8.20 Cb = 1.14	M = 0.04 Mn = 0.99 My = 0.91 Mob = 2.64	0.04
Combined Forces (tension) (H1-1b)	$\frac{Pu}{2\phi Pn} + \frac{Mux}{\phi Mnx} + \frac{Muy}{\phi Mny} < 1.00$		Mux = 0.04 Muy = 0.03	0.08

verizon

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

STRUCTURAL ANALYSIS
BLOOMFIELD 4 CT

Address:
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002
LOCATION CODE: 684872

Date:
JUNE 2, 2022 (REVISION 0)

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752
t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

June 2, 2022

verizon

20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

RE:

Support Structure Structural Analysis
Verizon Site Name: Bloomfield 4 CT (Location Code:684872)
Site Address: 1300 Hall Boulevard; Bloomfield, CT 06002
CEA Job Number: 96210.403

To whom it may concern:

Chappell Engineering Associates, LLC has performed a structural analysis of the proposed elevated steel rooftop frame at the above-referenced location. Verizon proposes to install an 25ft x 11ft elevated steel frame to support one (1) BTS radio cabinet and one (1) BBU battery back-up cabinet. The proposed steel equipment frame will be secured to the existing main structural roof framing beams spaced at approximately 24ft o.c.

The existing roof framing consists of transverse roof beams spaced at approximately 24ft on-center. Roof decking is laid over the main roof beams. The existing transverse roof beams span approximately 53ft (from the exterior building wall to the first interior column support). A rubber membrane roof is laid over the roof deck. We have modeled the existing roof framing in the vicinity of the proposed Verizon equipment frame to determine the suitability of the existing roof framing to support the proposed equipment.

Based upon our site walks on 08-10-2021 and 09-17-2021, our investigation of the existing roof support beams, our review of the proposed loads, and our evaluation of the existing roof framing, Chappell Engineering Associates, LLC has determined that the existing roof framing steel **has adequate capacity** to support the proposed Verizon antenna and associated ancillary equipment loads as shown on the attached drawings. As currently configured, the Verizon framing is rated at 44% capacity.

If you have any questions regarding this matter, please do not hesitate to call.

Very truly yours,

STATE OF CONNECTICUT
CLEMENT J. SALEK
No. 26376
LICENSED
PROFESSIONAL ENGINEER

Clement J. Salek, P.E.
Chappell Engineering Associates, LLC
CJS/cjs

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying

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201 BOSTON POST RD WEST
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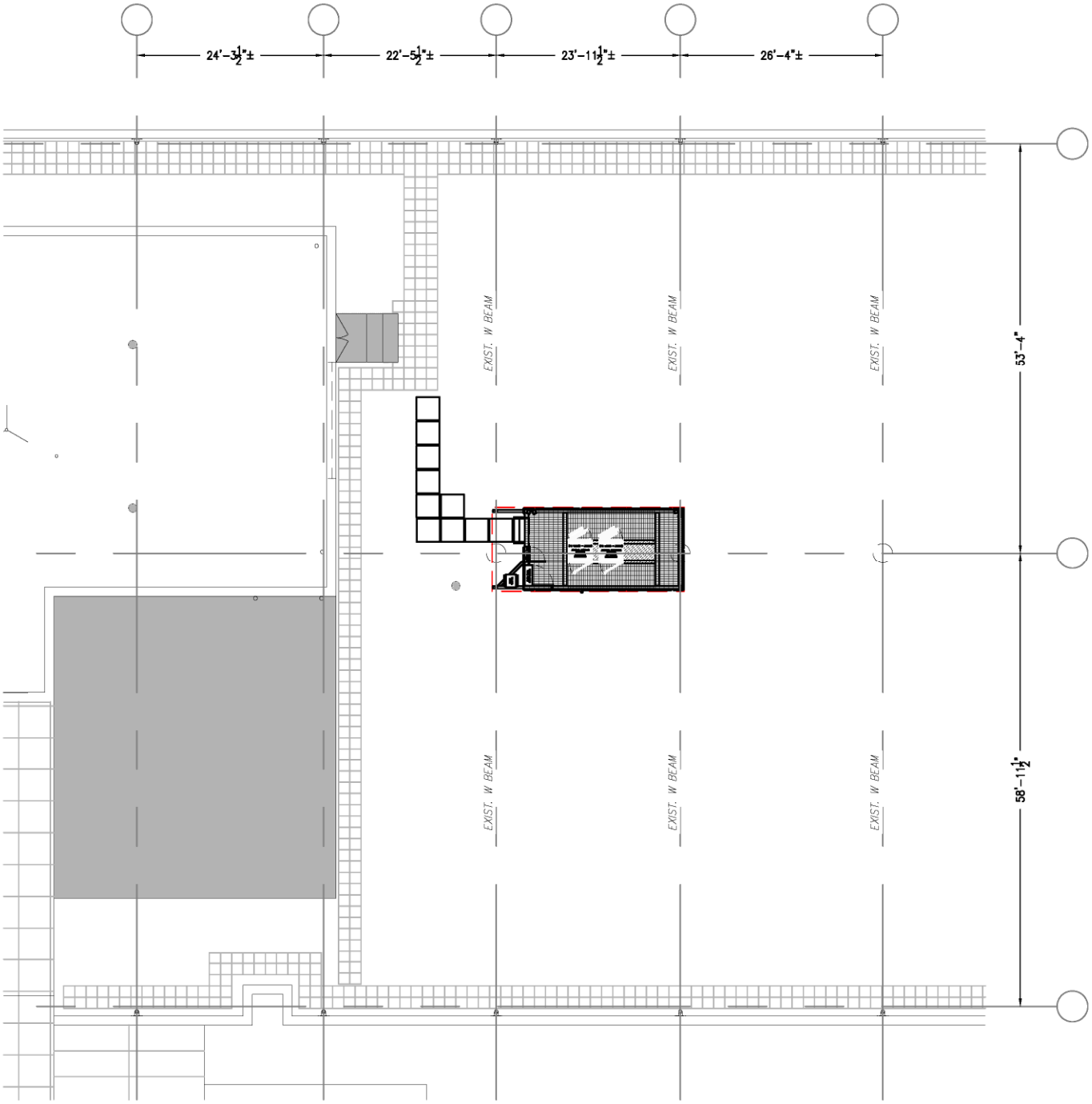
www.chappellengineering.com

TITLE: 1300 Hall Boulevard, Bloomfield, CT 06002			**PAGE:**
PROJECT #: Bloomfield 4 CT (96210.403)			
DATE: May 19, 2022	**BY:** CJS	**CHK:** JMF	



PARTIAL ROOF PLAN
SCALE: 1"=20'

1
SDC

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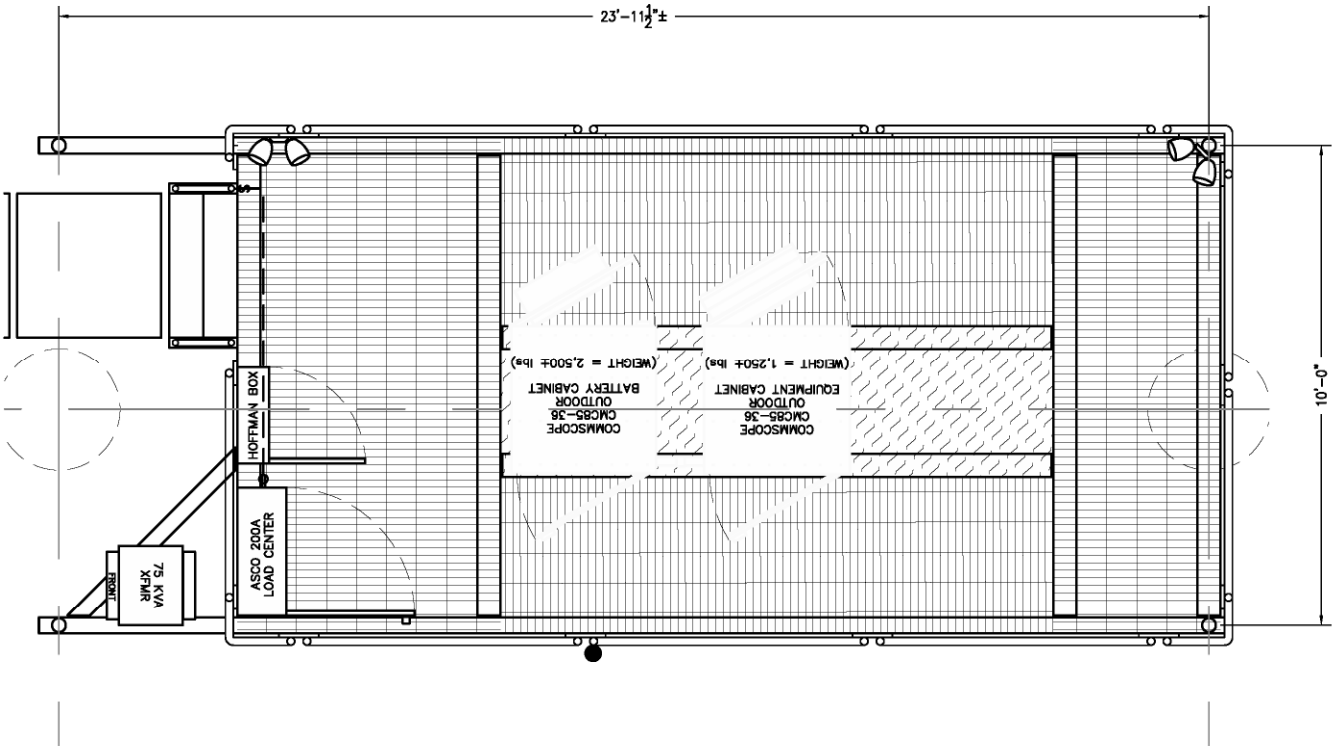
www.chappellengineering.com

TITLE: 1300 Hall Boulevard, Bloomfield, CT 06002			**PAGE:**
PROJECT #: Bloomfield 4 CT (96210.403)			
DATE: May 19, 2022	**BY:** CJS	**CHK:** JMF	



EQUIPMENT FRAME
SCALE: 1/8"=1/-0"

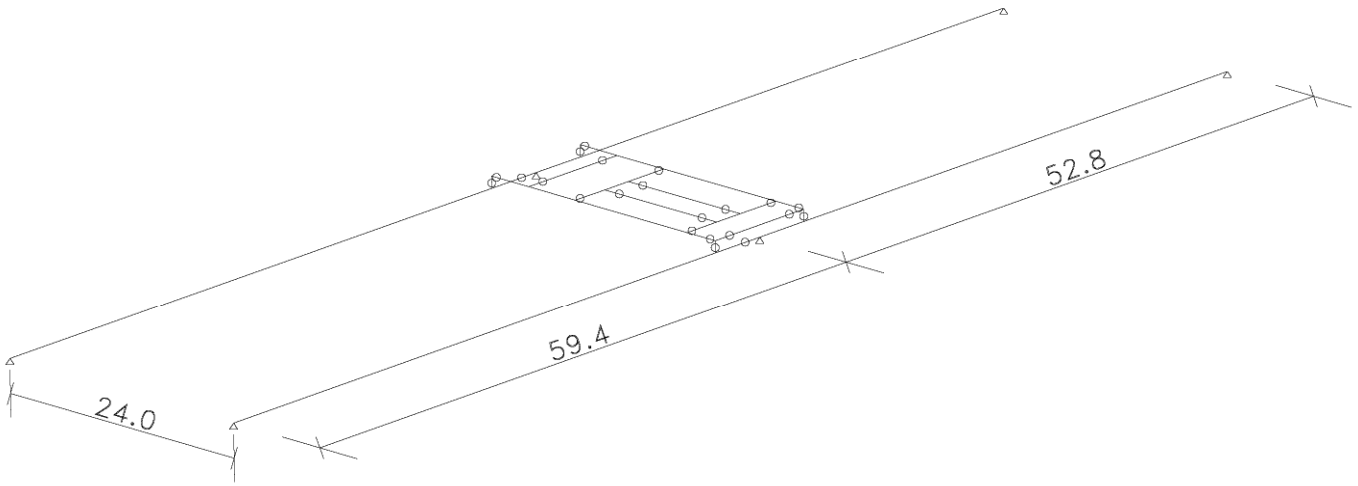
1
SDC

Bloomfield CT

View: Roof Framing

SCALE = 1:179

DATE: 5/19/22



Bloomfield CT

Prepared by:

Load no. 1: Existing Selfweight (units - kips ft.)

```
/ BEAM LOADS
SELF  X3 -1. B 18 19 35 17 15 16 20 36
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-32.85 kip

Load no. 2: Proposed Selfweight (units - kips ft.)

```
/ BEAM LOADS
SELF  X3 -1. B 2 1 3 4 7 24 TO 26 6 21 22 23 5 10 30 28 9 29 27 8 11 12
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-2.0521 kip

Load no. 3: Roof Dead Loads (units - kips ft.)

```
/ GLOBAL LOADS
DIST FX3 -0.02 PLANE 0. 0. 0.   0. 112.26 0.   48.362 112.26 0.   PT
0. 48.362 BEAMS
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-108.58 kip

Load no. 4: Roof Snow Loads (units - kips ft.)

```
/ GLOBAL LOADS
DIST FX3 -0.035 PLANE 0. 0. 0.   0. 112.26 0.   48.362 112.26 0.   PT
0. 48.362 BEAMS
/ END
```

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-190.01 kip

Load no. 5: Proposed Grating (units - kips ft.)

/ GLOBAL LOADS
DIST FX3 -0.01 PLANE 15.189 54.439 1. 15.189 64.439 1. 35.189 64.439
1. PT 0. 20. BEAMS
/ END

F O R C E S U M M A T I O N

FX1=0. kip
FX2=0. kip
FX3=-2. kip

Load no. 6: Proposed Cabinets (units - kips ft.)

/ GLOBAL LOADS
DIST FX3 -0.24 PLANE 20.689 57.439 1. 20.689 60.939 1. 23.689 60.939
1. PT 0. 3. BEAMS
DIST FX3 -0.125 PLANE 24.189 57.439 1. 24.189 60.939 1. 27.189
60.939 1. PT 0. 3. BEAMS
/ END STATIC

F O R C E S U M M A T I O N

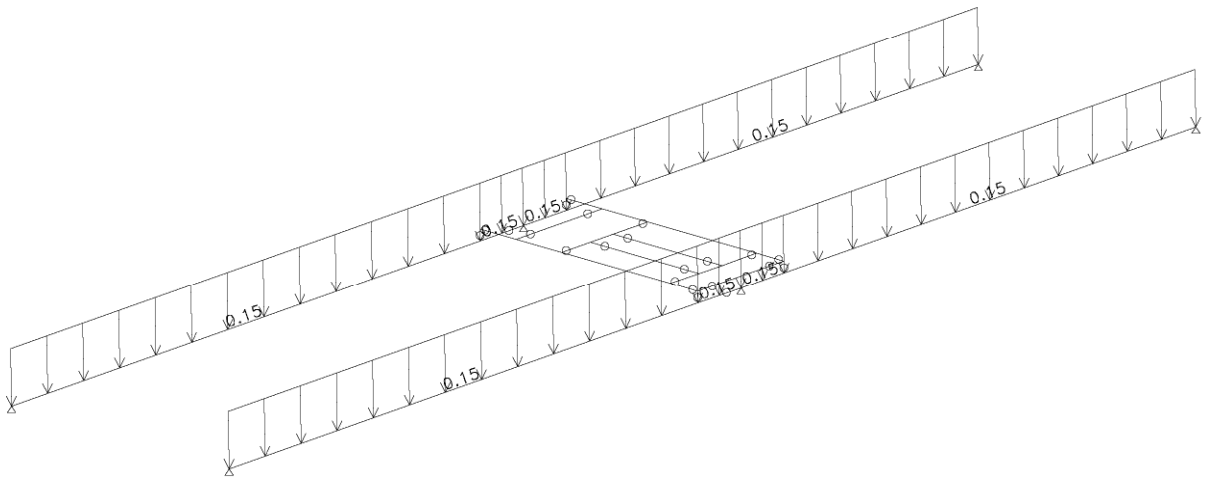
FX1=0. kip
FX2=0. kip
FX3=-3.8325 kip

Bloomfield CT

Load 1: Existing Selfweight

X3
X2
X1

SCALE = 1:184	UNITS: kip ft	DATE: 5/19/22

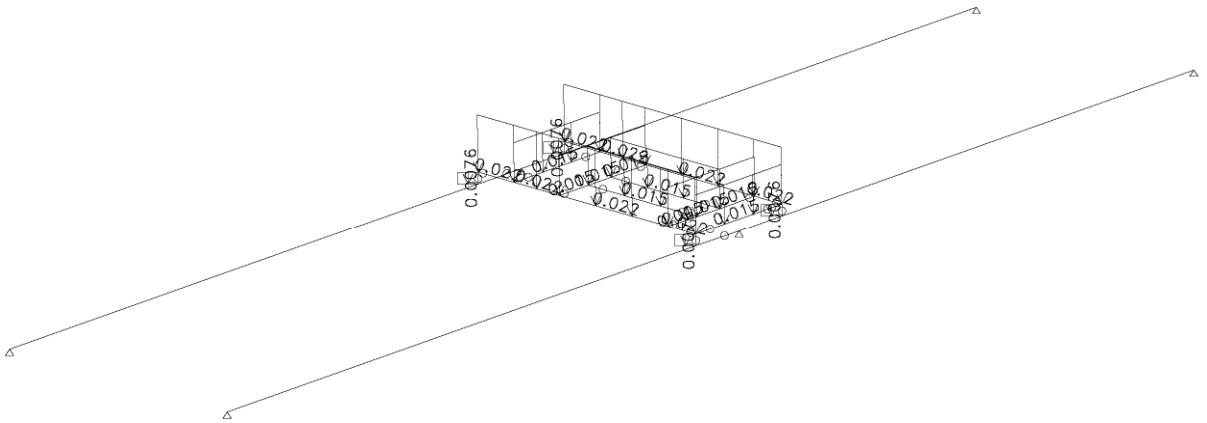


Bloomfield CT

Load 2: Proposed Selfweight

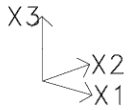
X3
X2
X1

SCALE = 1:184	UNITS: kip ft	DATE: 5/19/22

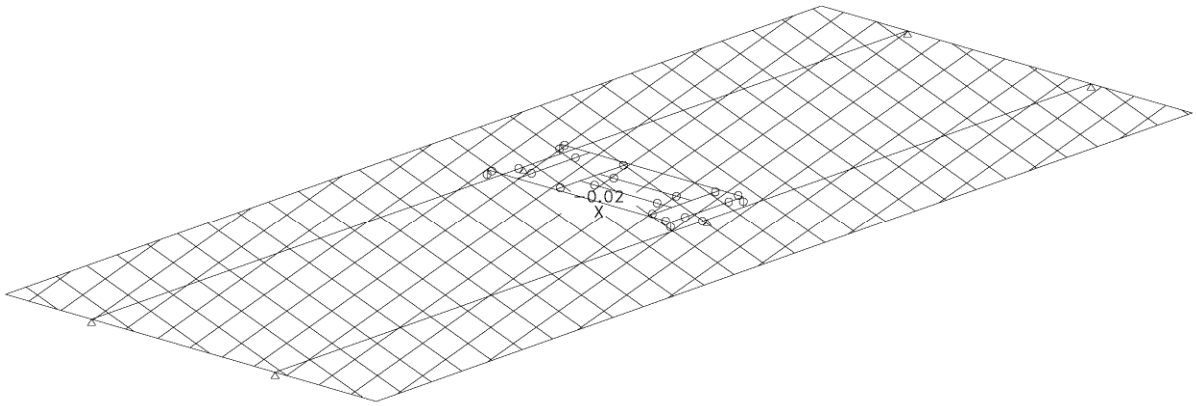


Bloomfield CT

Load 3: Roof Dead Loads



SCALE = 1:218 | UNITS: kip ft | DATE: 5/19/22

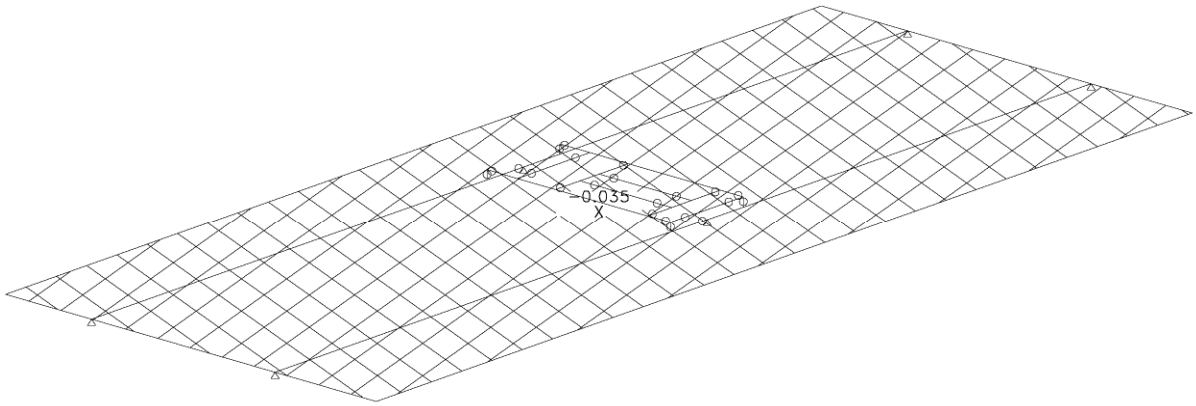


Bloomfield CT

Load 4: Roof Snow Loads

X3
X2
X1

SCALE = 1:218	UNITS: kip ft	DATE: 5/19/22

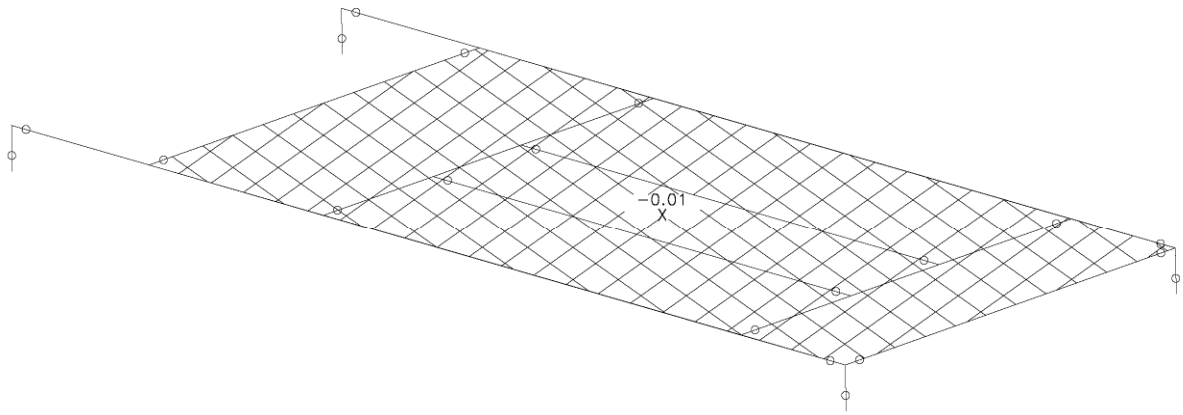


Bloomfield CT

Load 5: Proposed Grating
View: Verizon Frame

X3
X2
X1

SCALE = 1:48	UNITS: kip ft	DATE: 5/19/22

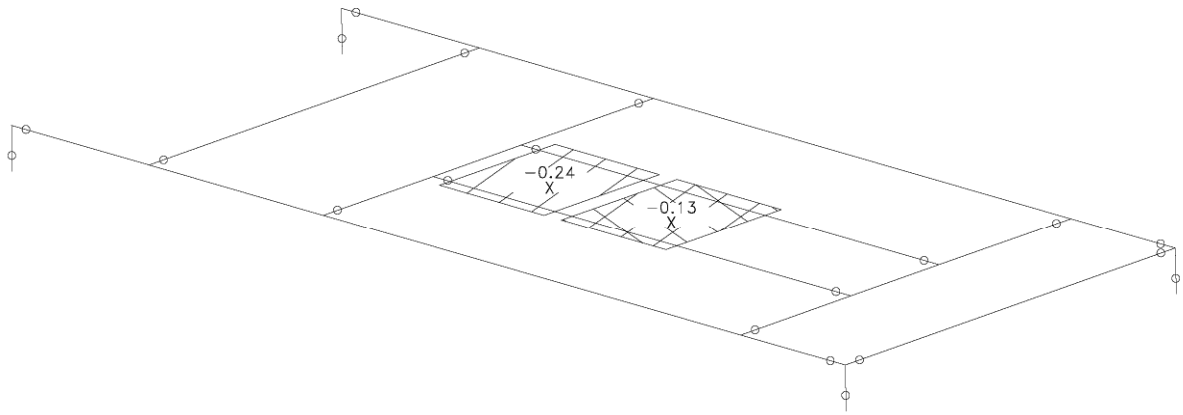


Bloomfield CT

Load 6: Proposed Cabinets
View: Verizon Frame

X3
X2
X1

SCALE = 1:48	UNITS: kip ft	DATE: 5/19/22



Bloomfield CT

Prepared by:

COMBINATIONS TABLE

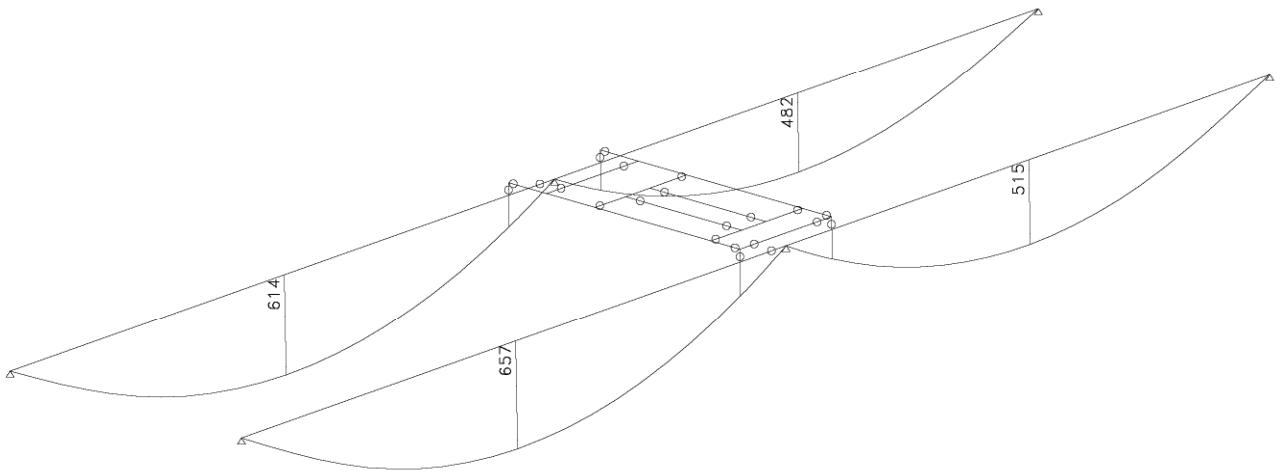
Comb.	
1	Existing Beam Loads 1 * 1.00 + 3 * 1.00 + 4 * 1.00
2	Proposed Beam Loads 1 * 1.00 + 2 * 1.00 + 3 * 1.00 + 4 * 1.00 + 5 * 1.00 + 6 * 1.00

Bloomfield CT

View: Roof Framing

X3
X2
X1

SCALE = 1:173	UNITS: kip*ft	DATE: 5/19/22



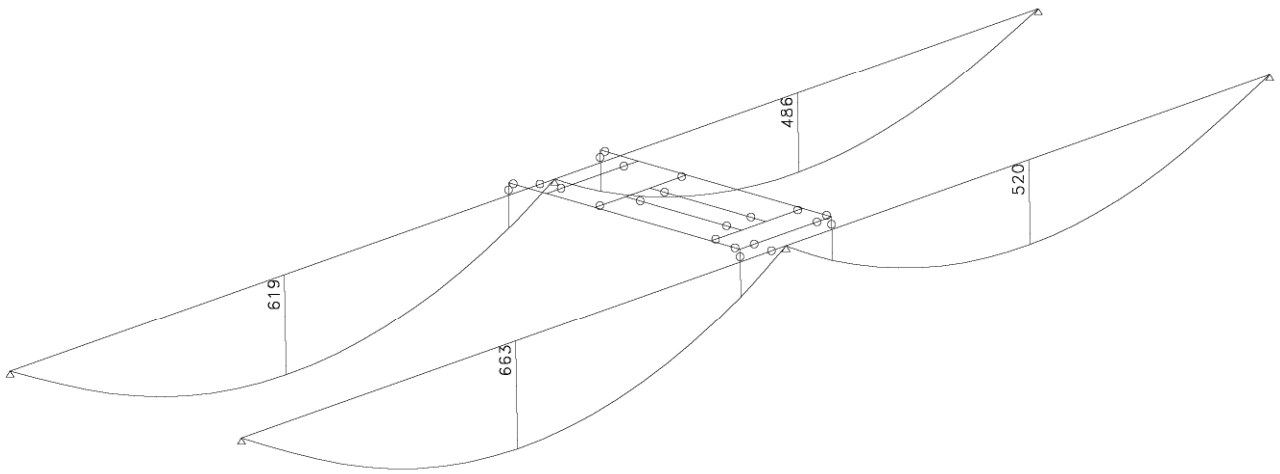
M2 MOMENT COMB. NO. 1 Existing Beam Loads

Bloomfield CT

View: Roof Framing

X3
X2
X1

SCALE = 1:173	UNITS: kip*ft	DATE: 5/19/22



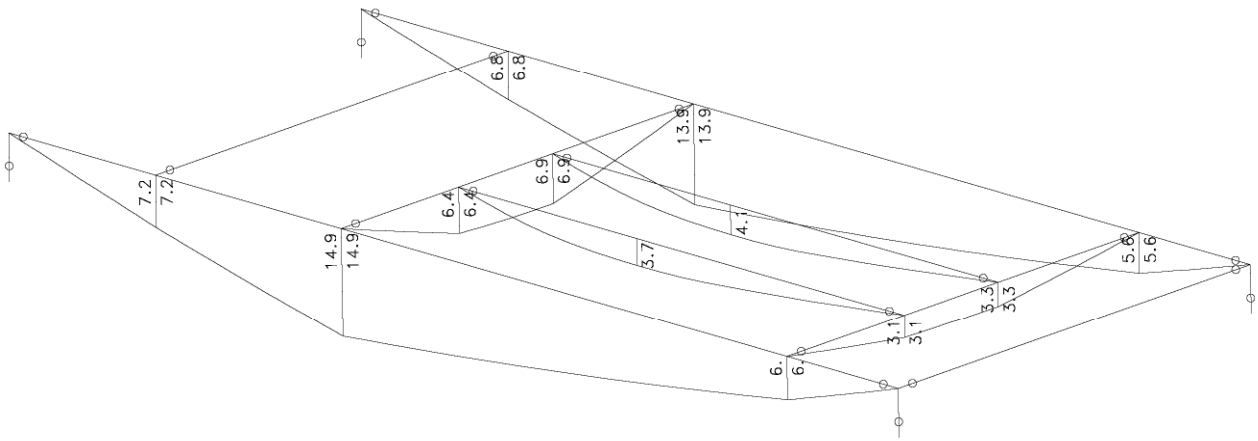
M2 MOMENT COMB. NO. 2 Proposed Beam Loads

Bloomfield CT

View: Verizon Frame

X3
X2
X1

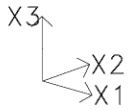
SCALE = 1:45	UNITS: kip*ft	DATE: 5/19/22



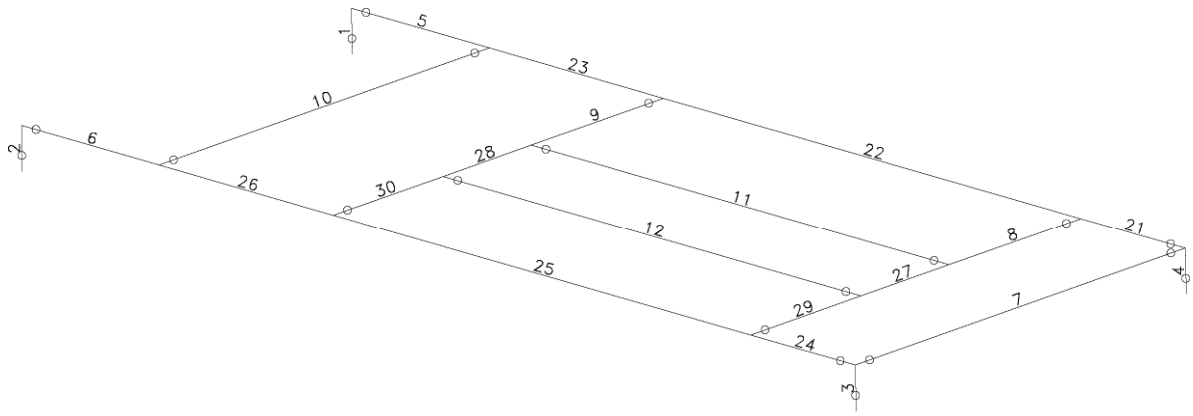
M2 MOMENT COMB. NO. 2 Proposed Beam Loads

Bloomfield CT

View: Verizon Frame



SCALE = 1:48 | UNITS: kip ft | DATE: 5/19/22



Bloomfield CT

Prepared by:

Code: AISC-ASD
Page: 2
Date: 5/19/22

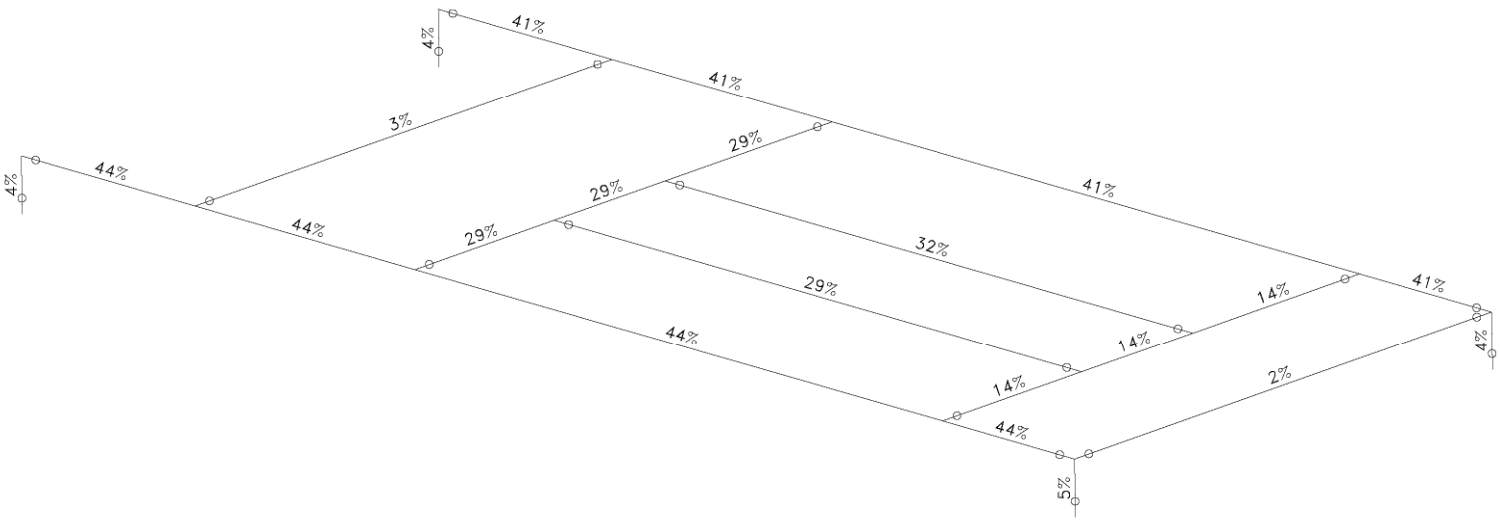
Results Summary Table

					CAPACITY						
Beam	*Section*	*Com*	*Defl L/*	*Slen*	*Axial*	*Dir*	*Shear*	*Mom*	*LTB*	*Combined Axial+Mom*	
1	PIPE 3	2	9999	10	-0.04	MI	0.00	0.00	0.00	0.04	
2	PIPE 3	2	9999	10	-0.04	MI	0.00	0.00	0.00	0.04	
3	PIPE 3	2	9999	10	-0.05	MI	0.00	0.00	0.00	0.05	
4	PIPE 3	2	9999	10	-0.04	MI	0.00	0.00	0.00	0.04	
5	W 12x22	2	997	170	0.00	MJ	0.04	0.28	0.41	0.41	
6	W 12x22	2	936	170	0.00	MJ	0.04	0.30	0.44	0.44	
7	W 8x15	2	9999	137	0.00	MJ	0.00	0.02	0.02	0.02	
10	W 8x15	2	9999	137	0.00	MJ	0.01	0.02	0.03	0.03	
11	W 8x15	2	1987	164	0.00	MJ	0.06	0.17	0.32	0.32	
12	W 8x15	2	2174	164	0.00	MJ	0.05	0.16	0.29	0.29	
29	W 8x15	2	2765	55	0.00	MJ	0.03	0.14	0.14	0.14	
30	W 8x15	2	1345	55	0.00	MJ	0.07	0.29	0.29	0.29	

Bloomfield CT

SCALE = 1:38

DATE: 5/21/22

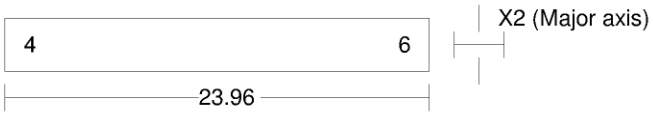


Actual/allowable Maximum result

Detailed Results Table for Beam 6 - 24

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 6, 26, 25, 24



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

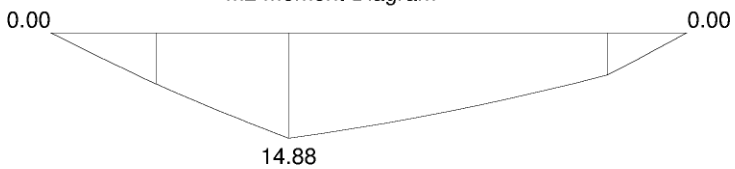
L =	3.96	8.96	20.96
Lat.-Tors.	+ -	+ -	+ -
Compress.	X Y	X Y	X Y

Section: W 12x22

Ix = 156.00 Iy = 4.66in4 Sx = 25.34 Sy = 2.31in3 Area = 6.48
hw = 12.31 bf = 4.03in tw = 0.26 tf = 0.43in
J = 0.29 Cw = 163.85in6

DESIGN COMBINATION = 2

M2 Moment Diagram



Moments at Intermediate Supports:
7.23 14.88 5.96

Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 2.03

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 47.38	<	106.7	163.5	(Fy= 36.0 R = 0.000)
b/t= 4.74	<	10.8	15.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (F4-1)	V/(Av*Fv) <1.00 Fv=0.4*Fy	Av = 3.20	V = 2.03 Fv = 14.40	0.04
M2 Moment (F1-1)	$\frac{M}{S*Fb}$ < 1.00	S = 25.34 Fb =0.660 *Fy	M = 14.88 S*Fb = 50.24	0.30
Deflection	$\frac{defl.}{L / 240}$ < 1.00		defl = 0.30712	0.26

Detailed Results Table for Beam 6 - 24

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Combined Stresses (Local) (H1-2) (H2-1)	$\frac{fa}{0.6Fy} + \frac{fbx}{Fbx} + \frac{fby}{Fby}$ (Ft) < 1.00	fbx = 7.04 Fbx= 23.76 fby = 0.00 Fby= 0.00	P = 0.00 A = 6.48 Fu = 58.00 fb = M/S	0.30
Moment - noncompact (F1-8)	$\frac{M}{S*Fb} < 1.00$ Critical Segment from 8.96 to 20.96 on +z flange Segment End Moments: 14.88 and 5.96	S = 25.34 RT = 1.03 Lb = 12.00	M = 14.88 S*Fb= 33.79 Cb = 1.38	0.44
Combined Stresses (tension) (H2-1)	$\frac{fa}{Ft} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$	Fbx = 15.98 Fby = 27.00	fbx = 7.04 fby = 0.00	0.44

Detailed Results Table for Beam 5 - 21

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 5, 23, 22, 21

CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	3.96	8.96	20.96
Lat.-Tors.	+ -	+ -	+ -
Compress.	X Y	X Y	X Y

Section: W 12x22

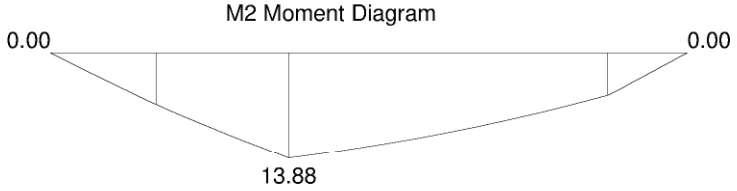
Ix = 156.00 Iy = 4.66in4 Sx = 25.34 Sy = 2.31in3 Area = 6.48
hw = 12.31 bf = 4.03in tw = 0.26 tf = 0.43in
J = 0.29 Cw = 163.85in6

Detailed Results Table for Beam 5 - 21

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN COMBINATION = 2

M2 Moment Diagram



Moments at Intermediate Supports:
6.79 13.88 5.60

Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 1.91

SECTION CLASSIFICATION: *** COMPACT ***

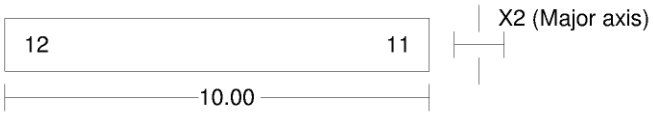
Limiting Ratios:		Compact	Non-Compact	
d/t= 47.38	<	106.7	163.5	(Fy= 36.0 R = 0.000)
b/t= 4.74	<	10.8	15.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (F4-1)	V/(Av*Fv) <1.00 Fv=0.4*Fy	Av = 3.20	V = 1.91 Fv = 14.40	0.04
M2 Moment (F1-1)	$\frac{M}{S*Fb} < 1.00$	S = 25.34 Fb =0.660 *Fy	M = 13.88 S*Fb = 50.24	0.28
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.28834	0.24
Combined Stresses (Local) (H1-2) (H2-1)	$\frac{fa}{0.6Fy} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$ (Ft)	fbx = 6.56 Fbx= 23.76 fby = 0.00 Fby= 0.00	P = 0.00 A = 6.48 Fu = 58.00 fb = M/S	0.28
Moment - noncompact (F1-8)	$\frac{M}{S*Fb} < 1.00$ Critical Segment from 8.96 to 20.96 on +z flange Segment End Moments: 13.88 and 5.60	S = 25.34 RT = 1.03 Lb = 12.00	M = 13.88 S*Fb= 33.73 Cb = 1.37	0.41
Combined Stresses (tension) (H2-1)	$\frac{fa}{Ft} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$	Fbx = 15.95 Fby = 27.00	fbx = 6.56 fby = 0.00	0.41

Detailed Results Table for Beam 30 - 9

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam: 30, 28, 9



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

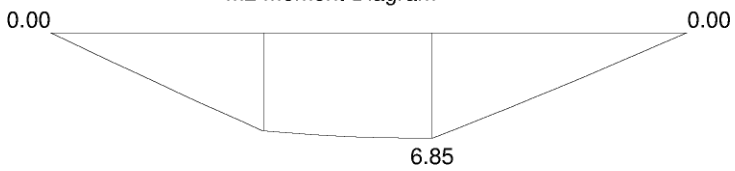
L =	3.33	6.00
Lat.-Tors.	+ -	+ -
Compress.	X Y	X Y

Section: W 8x15

Ix = 48.00 Iy = 3.41in4 Sx = 11.84 Sy = 1.70in3 Area = 4.43
hw = 8.11 bf = 4.02in tw = 0.24 tf = 0.31in
J = 0.14 Cw = 48.41in6

DESIGN COMBINATION = 2

M2 Moment Diagram



Moments at Intermediate Supports:
6.36 6.85

Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 1.97

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 33.23	<	106.7	163.5	(Fy= 36.0 R = 0.000)
b/t= 6.38	<	10.8	15.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (F4-1)	V/(Av*Fv) <1.00 Fv=0.4*Fy	Av = 1.98	V = 1.97 Fv = 14.40	0.07
M2 Moment (F1-1)	$\frac{M}{S*Fb}$ < 1.00	S = 11.84 Fb =0.660 *Fy	M = 6.85 S*Fb = 23.46	0.29
Deflection	$\frac{defl.}{L / 240}$ < 1.00		defl = 0.08922	0.18

Detailed Results Table for Beam 30 - 9

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Combined Stresses (Local) (H1-2) (H2-1)	$\frac{fa}{0.6Fy} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$ (Ft)	fbx = 6.94 Fbx= 23.76 fby = 0.00 Fby= 0.00	P = 0.00 A = 4.43 Fu = 58.00 fb = M/S	0.29
Combined Stresses (tension) (H2-1)	$\frac{fa}{Ft} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$	Fbx = 23.76 Fby = 27.00	fbx = 6.94 fby = 0.00	0.29

Detailed Results Table for Beam 29 - 8

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

Beam:
29, 27, 8

CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

INTERMEDIATE SUPPORTS

L =	3.33	6.00
Lat.-Tors.	+ -	+ -
Compress.	X Y	X Y

Section: W 8x15

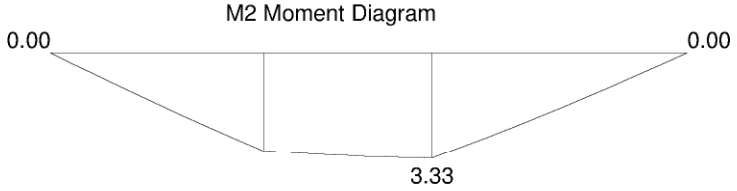
Ix = 48.00 Iy = 3.41in4 Sx = 11.84 Sy = 1.70in3 Area = 4.43
hw = 8.11 bf = 4.02in tw = 0.24 tf = 0.31in
J = 0.14 Cw = 48.41in6

Detailed Results Table for Beam 29 - 8

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN COMBINATION = 2

M2 Moment Diagram



Moments at Intermediate Supports:
3.09 3.33

Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 0.98

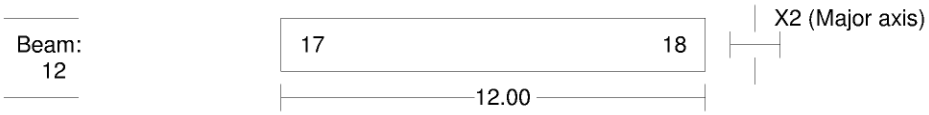
SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 33.23	<	106.7	163.5	(Fy= 36.0 R = 0.000)
b/t= 6.38	<	10.8	15.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (F4-1)	V/(Av*Fv) <1.00 Fv=0.4*Fy	Av = 1.98	V = 0.98 Fv = 14.40	0.03
M2 Moment (F1-1)	$\frac{M}{S*Fb} < 1.00$	S = 11.84 Fb =0.660 *Fy	M = 3.33 S*Fb = 23.46	0.14
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.04341	0.09
Combined Stresses (Local) (H1-2) (H2-1)	$\frac{fa}{0.6Fy} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$ (Ft)	fbx = 3.37 Fbx= 23.76 fby = 0.00 Fby= 0.00	P = 0.00 A = 4.43 Fu = 58.00 fb = M/S	0.14
Combined Stresses (tension) (H2-1)	$\frac{fa}{Ft} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$	Fbx = 23.76 Fby = 27.00	fbx = 3.37 fby = 0.00	0.14

Detailed Results Table for Beam 12

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

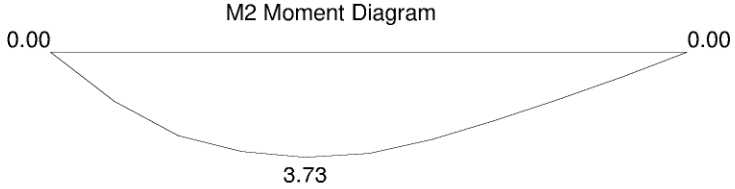
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: W 8x15

Ix = 48.00 Iy = 3.41in4 Sx = 11.84 Sy = 1.70in3 Area = 4.43
hw = 8.11 bf = 4.02in tw = 0.24 tf = 0.31in
J = 0.14 Cw = 48.41in6

DESIGN COMBINATION = 2

M2 Moment Diagram



Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 1.51

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 33.23	<	106.7	163.5	(Fy= 36.0 R = 0.000)
b/t= 6.38	<	10.8	15.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (F4-1)	V/(Av*Fv) <1.00 Fv=0.4*Fy	Av = 1.98	V = 1.51 Fv = 14.40	0.05
M2 Moment (F1-1)	$\frac{M}{S*Fb} < 1.00$	S = 11.84 Fb =0.660 *Fy	M = 3.73 S*Fb = 23.46	0.16
Deflection	$\frac{defl.}{L / 240} < 1.00$		defl = 0.06625	0.11
Combined Stresses (Local) (H1-2) (H2-1)	$\frac{fa}{0.6Fy} + \frac{fbx}{Fbx} + \frac{fby}{Fby}$ (Ft) < 1.00	fbx = 3.77 Fbx= 23.76 fby = 0.00 Fby= 0.00	P = 0.00 A = 4.43 Fu = 58.00 fb = M/S	0.16
Moment - noncompact (F1-8)	$\frac{M}{S*Fb} < 1.00$ Critical Segment from 0.00 to 12.00 on +z flange Segment End Moments: 0.00 and 0.00	S = 11.84 RT = 1.04 Lb = 12.00	M = 3.73 S*Fb= 12.83 Cb = 1.00	0.29

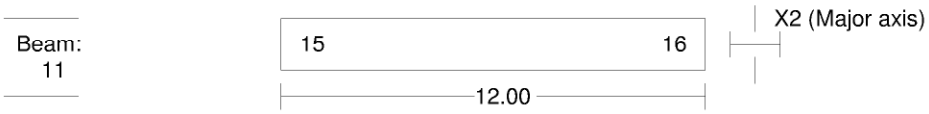
Detailed Results Table for Beam 12

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Combined Stresses (tension) (H2-1)	$\frac{fa}{Ft} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$	Fbx = 13.00 Fby = 27.00	fbx = 3.77 fby = 0.00	0.29

Detailed Results Table for Beam 11

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*



CONSTRAINTS

- Sections : Check
- Steel Grade: A36

DESIGN DATA

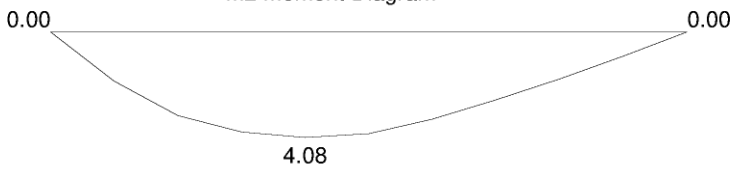
- Kx = 1.00 - Ky = 1.00
- Allow. Slend. : 200 (compr.) 300 (tens.)
- Allowable Deflection : 1/240
- Tension Area Reduction Factor : 1.00
- Building type : Unbraced

Section: W 8x15

Ix = 48.00 Iy = 3.41in4 Sx = 11.84 Sy = 1.70in3 Area = 4.43
hw = 8.11 bf = 4.02in tw = 0.24 tf = 0.31in
J = 0.14 Cw = 48.41in6

DESIGN COMBINATION = 2

M2 Moment Diagram



Max. AXIAL Force = 0.00 (tens.) Max. SHEAR Force = 1.66

SECTION CLASSIFICATION: *** COMPACT ***

Limiting Ratios:		Compact	Non-Compact	
d/t= 33.23	<	106.7	163.5	(Fy= 36.0 R = 0.000)
b/t= 6.38	<	10.8	15.8	

DESIGN	EQUATION	FACTORS	VALUES	RESULT
V3 Shear (F4-1)	V/(Av*Fv) <1.00 Fv=0.4*Fy	Av = 1.98	V = 1.66 Fv = 14.40	0.06
M2 Moment (F1-1)	$\frac{M}{S*Fb} < 1.00$	S = 11.84 Fb =0.660 *Fy	M = 4.08 S*Fb = 23.46	0.17

Detailed Results Table for Beam 11

*Moments: kips*foot , Forces: kips , Stresses: ksi , Section prop.: inch*

DESIGN	EQUATION	FACTORS	VALUES	RESULT
Deflection	$\frac{\text{defl.}}{L / 240} < 1.00$		defl = 0.07247	0.12
Combined Stresses (Local) (H1-2) (H2-1)	$\frac{fa}{0.6Fy} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$ (Ft)	fbx = 4.13 Fbx= 23.76 fby = 0.00 Fby= 0.00	P = 0.00 A = 4.43 Fu = 58.00 fb = M/S	0.17
Moment - noncompact (F1-8)	$\frac{M}{S*Fb} < 1.00$ Critical Segment from 0.00 to 12.00 on +z flange Segment End Moments: 0.00 and 0.00	S = 11.84 RT = 1.04 Lb = 12.00	M = 4.08 S*Fb= 12.83 Cb = 1.00	0.32
Combined Stresses (tension) (H2-1)	$\frac{fa}{Ft} + \frac{fbx}{Fbx} + \frac{fby}{Fby} < 1.00$	Fbx = 13.00 Fby = 27.00	fbx = 4.13 fby = 0.00	0.32

Appendix B – Preliminary Zoning Drawings

verizon

20 ALEXANDER DRIVE, WALLINGFORD, CT 06492

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

PROJECT TYPE: WIRELESS TELECOMMUNICATIONS INSTALLATION ON ROOFTOP OF EXISTING (4)-STORY STEEL FRAMED BUILDING

SITE INFORMATION:

PROPERTY OWNER:	THE ATRIUM CT LLC 2 PARK AVENUE, 17TH FLOOR NEW YORK, NY 10166
APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
SITE ADDRESS:	1300 HALL BOULEVARD BLOOMFIELD, CT 06002
COUNTY:	HARTFORD COUNTY, CONNECTICUT
SITE CONTROL POINT:	SOUTHEAST CORNER OF EXISTING MECHANICAL PENTHOUSE N 41°-48'-30.48" (41.808467°) (NAD '83) W 72°-44'-36.55" (72.743486°) (NAD '83)
ARCHITECT / ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752

VICINITY MAP

SCALE: 1"=1000'

DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE I-91 NORTH. TAKE THE CT-218 EXIT TOWARD WINDSOR/BLOOMFIELD. TURN LEFT ONTO CT-218 WEST. USE THE LEFT 2 LANES TO TURN LEFT ONTO CT-189 SOUTH. TURN RIGHT THEN RIGHT AGAIN. THE SITE IS LOCATED STRAIGHT AHEAD.

SHEET INDEX

DWG.	DESCRIPTION	REV.
T01	TITLE SHEET	4
C01	LOCATION PLAN	4
C02	PROPERTY PLAN	4
A01	PART ROOF PLAN AND SITE DETAILS	4
A02	NORTH BUILDING ELEVATION AND ENLARGED PART NORTH BUILDING ELEVATION	4
RF01	ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS	4

DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
THESE DRAWINGS HAVE BEEN PREPARED IN ARCH D (24"x36") FORMAT. AS SUCH, THE WRITTEN SCALES SHOWN ON ANY REPRODUCTIONS OF A CONTRACTORY SIZE, SHALL BE RENDERED INVALID. ALL BAR SCALES MAY BE USED REGARDLESS OF REPRODUCTION SIZE. WHERE IN CONFLICT, BAR SCALES SHALL SUPERSEDE WRITTEN SCALES.

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

REVISIONS

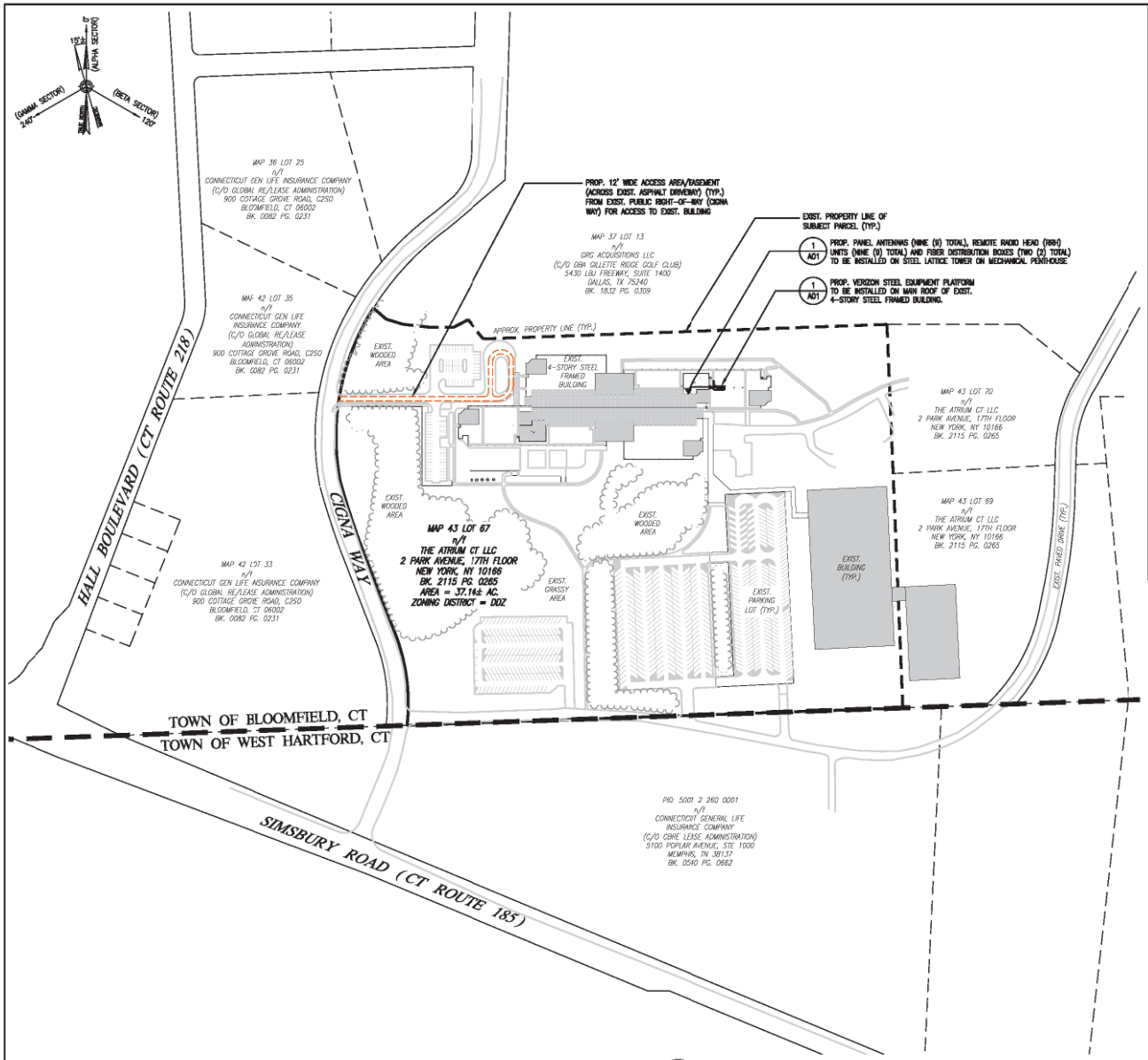
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	2/9/22
1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
TITLE SHEET

DRAWING NO:
T01

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212283877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 19653133
		VZW LOCATION CODE: 684872



LOCATION PLAN
SCALE: 1" = 150'
1 C01
0 75' 150' 300' 450'

GENERAL NOTES:

1A.	LIMITED DESIGN VISIT DATES:	8/10/21 & 9/17/21
1B.	1A SURVEY VISIT DATE:	2/16/22
2.	VERTICAL DATUM:	NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
3.	HORIZONTAL DATUM:	NORTH AMERICAN DATUM OF 1983 (NAD '83)
4.	SITE CONTROL POINT:	SE CORNER OF EXISTING MECHANICAL PENTHOUSE LATITUDE: N41°-48'-30.48" (41.808467') (NAD '83) LONGITUDE: W72°-44'-36.55" (72.743488') (NAD '83)
5.	LAND OWNER:	THE ATRIUM CT LLC 2 PARK AVENUE, 17TH FLOOR NEW YORK, NY 10166
6.	SITE ADDRESS:	1300 HALL BOULEVARD BLOOMFIELD, CT 06002
7.	APPLICANT:	CELLCO PARTNERSHIP (dba VERIZON WIRELESS) 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
11.	PLAN REFERENCES:	TOWN OF BLOOMFIELD ASSESSOR/GIS MAPS

12. ALL UNDERGROUND UTILITY INFORMATION PRESENTED HEREON WAS DETERMINED FROM SURFACE EVIDENCE AND PLANS OF RECORD. ALL UNDERGROUND UTILITIES SHOULD BE LOCATED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY SITE WORK. CALL DIGSAFE 1-888-344-7233 A MINIMUM OF 72 HOURS PRIOR TO PLANNED ACTIVITY.
13. THE PROPERTY LINES SHOWN WERE COMPILED UTILIZING TOWN OF BLOOMFIELD ASSESSOR'S PLANS, GIS, RECORDED DEEDS, PLANS OF REFERENCE AND DESIGN VISITS OF THE SITE PERFORMED BY CHAPPELL ENGINEERING ASSOCIATES ON 8/10/21 & 9/17/21.
14. THE SITE IS LOCATED IN FLOOD HAZARD ZONE X (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF BLOOMFIELD, CT (MAP NUMBER 09003C0361F) EFFECTIVE 9/26/2008.

LEGEND

- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- PROPERTY OFFSET/RADIUS
- EXIST. EASEMENT
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES
- APPROXIMATE ZONING BOUNDARY
- APPROXIMATE TOWN LINE

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:
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SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
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REVISIONS

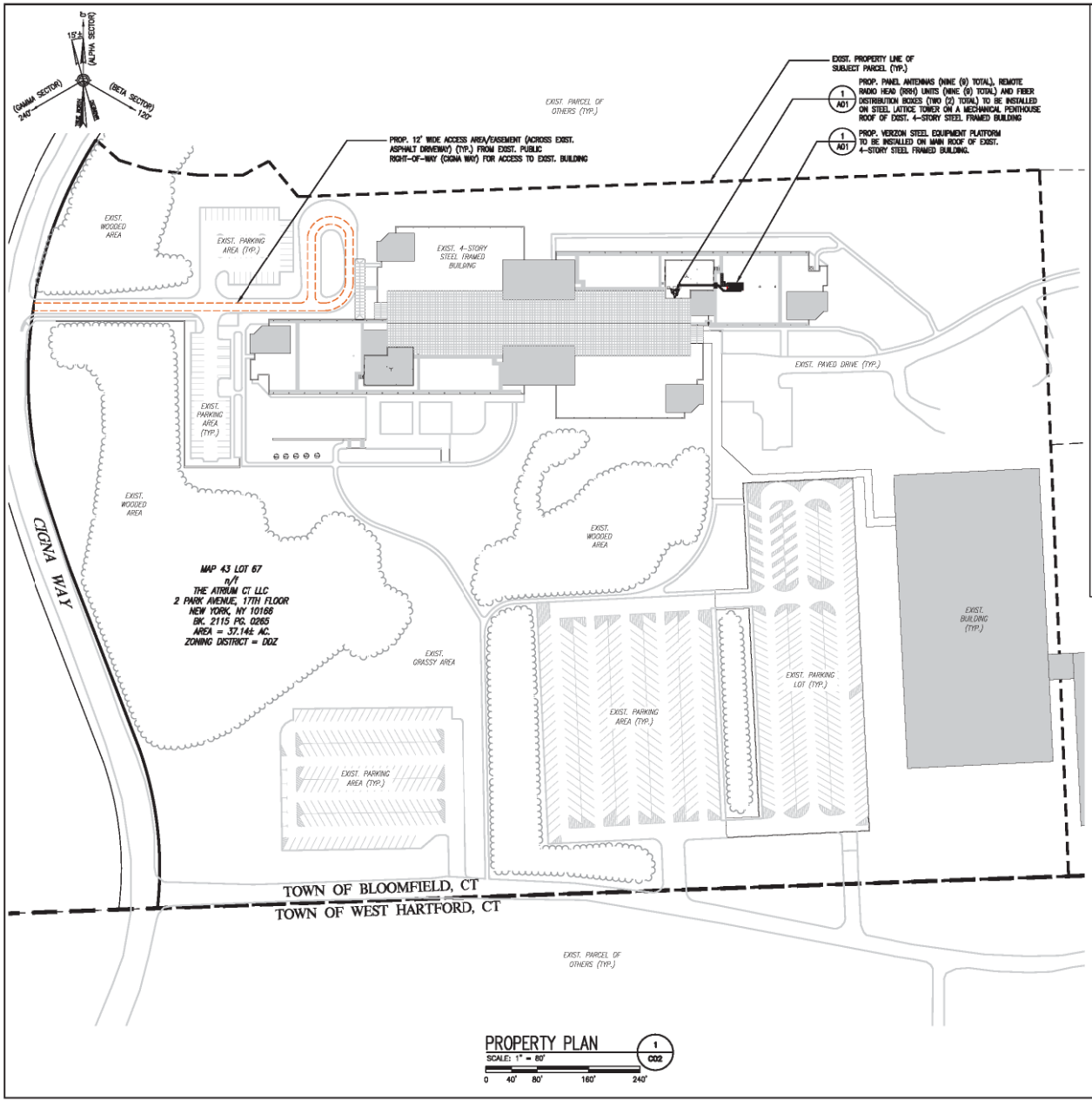
NO.	DESCRIPTION	DATE
0	ISSUED FOR REVIEW	2/9/22
1	REVISED PER 1A FINDINGS	2/28/22
2	REVISED PER ATTORNEY COMMENTS	4/7/22
3	ISSUED FOR ZONING (FINAL)	5/10/22
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
LOCATION PLAN

DRAWING NO:
C01

SCALE: 1" = 150'	DESIGNED BY: NWC	VZW PROJECT CODE: 20212283877
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 19653133
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW LOCATION CODE: 684872



PROPERTY PLAN
SCALE: 1" = 80'
1 C02
0 40' 80' 160' 240'

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.
2. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.
3. NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.
4. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
5. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
6. COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE PROJECT OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF PROJECT OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE EXHIBIT 3). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
7. WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS COROTHANE II SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINE'S.
8. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
9. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
10. ALL (E)ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
11. ALL (E)INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERES WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING.
12. THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
14. PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. PROJECT OWNER'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROX. TO THE BTS RADIO CABINETS. PROJECT OWNER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.
15. THE TOTAL IMPACT AREA OF THE DISTURBED CONSTRUCTION SITE IS BOUNDED BY THE LIMIT OF WORK AS SHOWN HEREON. THE PROJECT IMPACT AREA IS BELOW THE EXEMPTION THRESHOLD OF 43,560 SQUARE FEET IN 40 CFR PARTS 9, 122-124 AND THEREFORE IS NOT SUBJECT TO REGULATION UNDER THE EPA OR STATE-MANAGED NPDES GENERAL CONSTRUCTION PERMIT PROGRAM. THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL SITE DEVELOPMENT WORK IN A MANNER THAT DOES NOT EXCEED THE LIMITS OF WORK SHOWN ON THE PLANS. ADDITIONALLY, THE PROJECT OWNER'S GENERAL CONTRACTOR SHALL CONDUCT ALL CONSTRUCTION ACTIVITIES IN A MANNER THAT DOES NOT RESULT IN STORM WATER DISCHARGES WITH AN ADVERSE IMPACT ON ANY STORM WATER COLLECTION/CONVEYANCE SYSTEM, WETLAND, WATER BODY, OR OTHER WATER RESOURCE AREAS.

LEGEND

- EXIST. ROW/EASEMENT
- PROPERTY LINE (OR STREET)
- ABUTTING PROPERTY LINE
- EXIST. EASEMENT
- PROPERTY OFFSET/RADIUS
- EXIST. CHAIN LINK FENCE
- EXIST. STOCKADE FENCE
- EXIST. TREELINE
- PROF. TREELINE
- EXIST. EDGE OF PAVEMENT
- EXIST. OVERHEAD UTILITIES (OHW)
- PROF. OVERHEAD UTILITIES (OHW)
- PROF. UTILITIES (T/E)
- EXIST. STONE WALL
- LIMIT OF EXIST. WETLANDS
- EXIST. 100' WETLAND BUFFER
- EXIST. UTILITY POLE
- HYDRANT
- DRILL HOLE
- STONE/CONC. BOUND
- TELCO MANHOLE
- SEWER MANHOLE
- WATER MANHOLE
- DRAINAGE MANHOLE
- CATCH BASIN
- GAS VALVE
- WATER VALVE

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chcppellengineering.com

SEAL:

ENGINEER/LAND SURVEYOR DATE

DRAWING SCALE NOTE:
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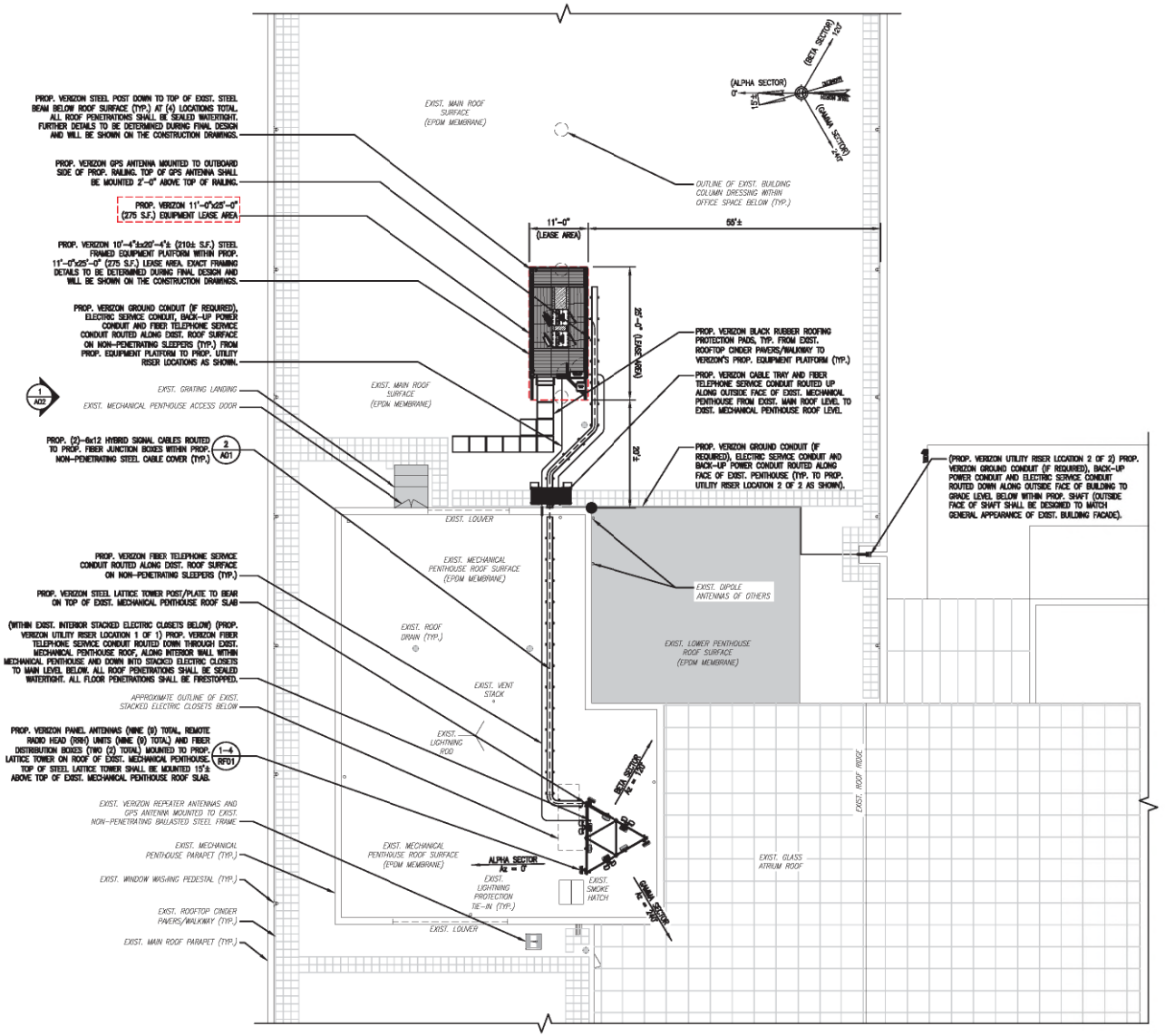
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
PROPERTY PLAN

DRAWING NO:
C02

SCALE: 1" = 80'	DESIGNED BY: NWC	VZW PROJECT CODE: 20212283877
	DRAWN BY: NWC	
	CHECKED BY: GRS	VZW PROJECT NO.: 19653133
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW LOCATION CODE: 684872



PART ROOF PLAN
1 A01
SCALE: 1" = 10'
0 5' 10' 20' 30'

SITE CONTROL POINT:
SOUTHEAST CORNER OF EXISTING MECHANICAL PENTHOUSE
N 41°-48'-30.48" (41.808467°) (NAD '83)
W 72°-44'-36.55" (72.743486°) (NAD '83)
GROUND ELEVATION = 146.0' AMSL (NAVD '88)
PER CEA 1A SURVEY

CLIENT:
verizon
* Because Better Matters *

ARCHITECT/ENGINEER:
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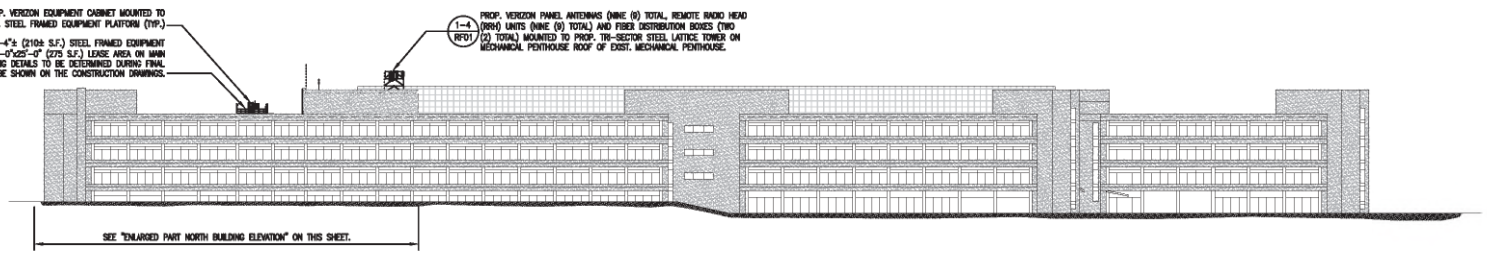
PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:
PART ROOF PLAN AND SITE DETAILS

DRAWING NO:
A01

SCALE: AS SHOWN	DESIGNED BY: NWC DRAWN BY: NWC CHECKED BY: GRS	VZW PROJECT CODE: 20212283877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 19683133
		VZW LOCATION CODE: 684872

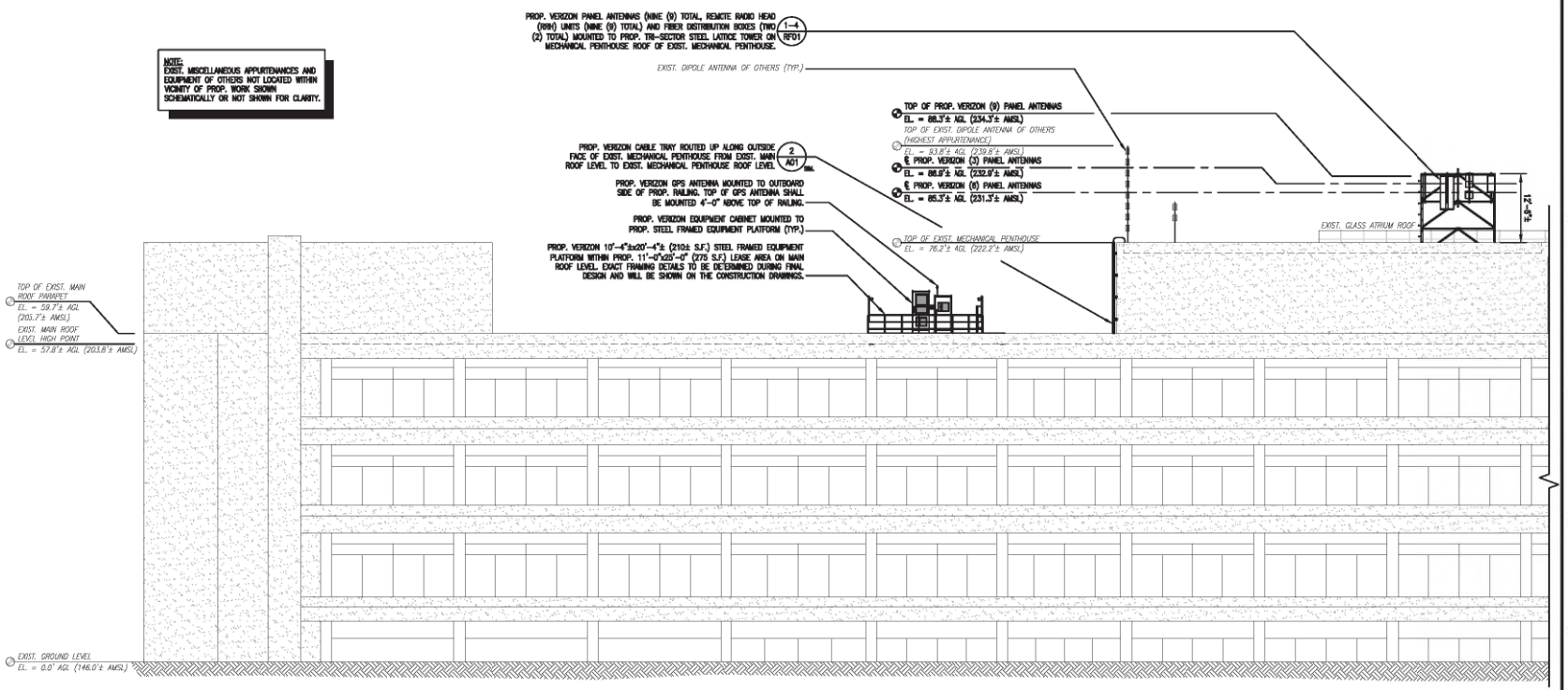


NORTH BUILDING ELEVATION (1 / A02)

SCALE: 1" = 40'

0 20' 40' 80' 120'

NOTE:
EXIST. MISCELLANEOUS APPURTENANCES AND EQUIPMENT OF OTHERS NOT LOCATED WITHIN VICINITY OF PROP. WORK SHOWN SCHEMATICALLY OR NOT SHOWN FOR CLARITY.



ENLARGED PART NORTH BUILDING ELEVATION (1A / A02)

SCALE: 1" = 10'

0 5' 10' 20' 30'

LEGEND	
AGL	ABOVE GROUND LEVEL
BGL	BELOW GROUND LEVEL
AMSL	ABOVE MEAN SEA LEVEL

CLIENT:
verizon
"Because Better Matters"

ARCHITECT/ENGINEER:
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SEAL:

ENGINEER/LAND SURVEYOR DATE

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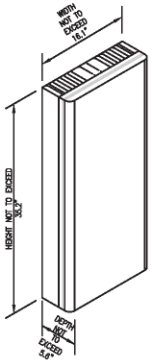
4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:
BLOOMFIELD 4 CT
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

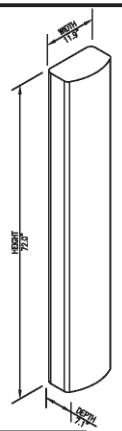
DRAWING TITLE:
NORTH BUILDING ELEVATION AND ENLARGED PART NORTH BUILDING ELEVATION

DRAWING NO:
A02

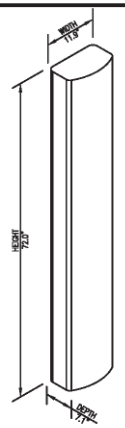
SCALE: AS SHOWN	DESIGNED BY: MWC DRAWN BY: MWC CHECKED BY: SRB	VZW PROJECT CODE: 20212263877
CEA PROJECT NO.: 98210.403	ORIGINAL ISSUE DATE: 2/9/22	VZW PROJECT NO.: 15853123
		VZW LOCATION CODE: 684872



ITEM 1	
MT6407-77A ANTENNA	
MAX. DIMENSIONS:	35.2"H x 16.1"W x 5.8"D
MAX. WEIGHT:	87.1 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	



ITEM 2	
LTE (700/850/AWS/CBRS MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	50.9 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	



ITEM 3	
LTE (700/850/1900 MHz) PANEL ANTENNA	
DIMENSIONS:	72.0"H x 11.9"W x 7.1"D
WEIGHT:	43.7 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

TYPICAL PROP. PANEL ANTENNA SPECIFICATIONS

SCALE: NONE

1 RF01

RF BILL OF MATERIALS (PROP. (FINAL) CONFIGURATION)

SITE NAME: BLOOMFIELD 4 CT — **A = ALPHA SECTOR B = BETA SECTOR G = GAMMA SECTOR**

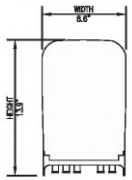
ITEM (SEE PLAN)		DESCRIPTION	BAND	QTY	STATUS	CABLE LENGTH/UNIT SIZE	COMMENTS
1 RF02	1	PANEL ANTENNA	3700-3980	3 TOTAL (A,B,G)	PROP.	35.2"H x 16.1"W x 5.8"D (87.1 lbs, each)	MOUNT TO PROP. PIPE MAST
	2	PANEL ANTENNA	700/850/AWS/CBRS	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x 7.1"D (50.9 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	3	PANEL ANTENNA	700/850/1900	3 TOTAL (A,B,G)	PROP.	72.0"H x 11.9"W x 7.1"D (43.7 lbs, each)	MOUNT TO PROP. SIDE-BY-SIDE MOUNT
	4	SIDE-BY-SIDE ANTENNA MOUNT KIT	–	3 TOTAL (A,B,G)	PROP.	25.4 lbs, each	MOUNT TO PROP. PIPE MAST
	5	6x12 HYBRID SIGNAL CABLE (MAIN LINE)	–	2 TOTAL	PROP.	165 FT.±	ROUTE WITHIN PROP. NON-PENETRATING STEEL CABLE COVER ALONG ROOFTOP OF EXIST. BUILDING TO PROP. FIBER JUNCTION BOXES
	6	1x1 HYBRID SIGNAL CABLE (JUMPER)	–	9 TOTAL (3 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOXES TO PROP. REMOTE RADIO HEAD UNITS
	7	1x2 HYBRID SIGNAL CABLE (JUMPER)	–	6 TOTAL (2 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. UPPER FIBER JUNCTION BOX TO PROP. MT6407-77A ANTENNAS
	8	⅜" COAXIAL CABLE (JUMPER)	–	48 TOTAL (16 PER SECTOR)	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
	9	RET CONTROL CABLE(S) (JUMPER)	–	PER RF REQ.	PROP.	20 FT. MAX. EACH	ROUTE FROM PROP. REMOTE RADIO HEAD (RRH) UNITS TO PROP. ANTENNAS
2 RF02	10	REMOTE RADIO HEAD (RRH) UNIT	700/850	3 TOTAL (A,B,G)	PROP.	15.5"H x 15.5"W x 10.0"D (70.3 lbs, each)	MOUNT TO PROP. PIPE MAST
	11	REMOTE RADIO HEAD (RRH) UNIT	1900/2100	3 TOTAL (A,B,G)	PROP.	15.4"H x 15.8"W x 12.0"D (84.4 lbs, each)	MOUNT TO PROP. PIPE MAST
	12	REMOTE RADIO HEAD (RRH) UNIT	BAND 48	3 TOTAL (A,B,G)	PROP.	13.9"H x 8.6"W x 4.2"D (18.8 lbs, each)	MOUNT TO PROP. PIPE MAST
4 RF02	13	UPPER FIBER JUNCTION BOX WITH SURGE	–	2 TOTAL	PROP.	29.58"H x 16.5"W x 12.6"D (32.0 lbs, each)	MOUNT TO PROP. PIPE MAST
	14	LOWER FIBER JUNCTION BOX/RACK	–	1 TOTAL	PROP.	29.58"H x 16.5"W x 12.6"D (32.0 lbs, each)	EQUIPMENT CABINET/ROOM INTERFACE

THIS RF BILL OF MATERIALS (BOM) HAS BEEN COMPILED FROM ANTENNA RECOMMENDATION DATA SHEET DATED 6/28/2021. CONTRACTOR SHALL CONFIRM ALL FINAL RF MATERIALS/EQUIPMENT TO BE USED WITH VERIZON WIRELESS RF ENGINEER DURING CONSTRUCTION.

RF BILL OF MATERIALS (FINAL CONFIGURATION)

SCALE: NONE

3 RF01



ITEM 10	
LTE/CDMA (700/850 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.5"H x 15.8"W x 10.0"D
WEIGHT:	70.3 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 11	
PCS-AWS (1900/2100 MHz) REMOTE RADIO HEAD UNIT	
DIMENSIONS:	15.4"H x 15.8"W x 12.0"D
WEIGHT:	84.4 LBS
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

ITEM 12	
(BAND 48 (3.5 GHz)) NR AU RRH	
DIMENSIONS:	13.9"H x 8.6"W x 4.2"D
WEIGHT:	18.8 LBS EACH
QUANTITY:	1 PER SECTOR, TOTAL OF 3
STATUS: PROPOSED	

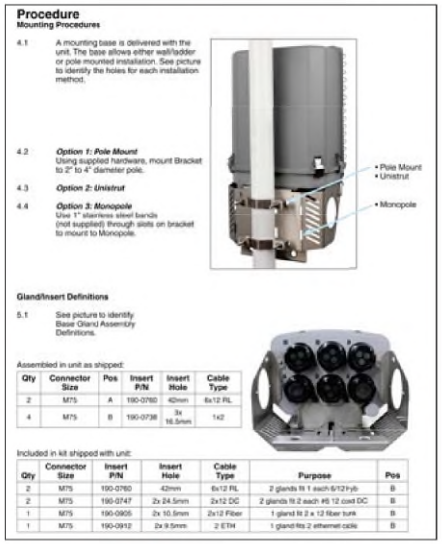
TYPICAL REMOTE RADIO HEAD (RRH) UNIT DIMENSIONS

SCALE: N.T.S.

2 RF01

RADIO FREQUENCY (RF) DESIGN NOTES:
1) ALL RADIO FREQUENCY (RF) DESIGN INFORMATION CONTAINED ON THIS SHEET IS SHOWN SCHEMATICALLY.

2) THE GENERAL CONTRACTOR SHALL CONFIRM ALL RF DESIGN ELEMENTS SHOWN (INCLUDING BUT NOT LIMITED TO PANEL ANTENNA MODELS & ARRANGEMENT, AZIMUTHS, REMOTE RADIO HEAD (RRH) UNIT MODELS & ARRANGEMENT AND CABLING DIAGRAMS/SCHEMATICS) WITH THE VERIZON WIRELESS RF ENGINEER AT THE TIME OF CONSTRUCTION.



Procedure

Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/ladder or pole mounted installation. See picture to identify the holes for each installation method.

4.2 *Option 1: Pole Mount* Using supplied hardware, mount Bracket to 2" to 4" diameter pole.

4.3 *Option 2: Unistrut*

4.4 *Option 3: Monopole* Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

Gland/Insert Definitions

5.1 See picture to identify Base Gland Assembly Definitions.

Assembled in unit as shipped:

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M75	A	190-0760	42mm	6x12 RL
4	M75	B	190-0738	3x 16.5mm	1x2

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M75	190-0760	42mm	6x12 RL	2 glands fit 1 each-6/12 hyb	B
2	M75	190-0747	2x 24.5mm	2x12 DC	2 glands fit 2 each #6 12 cond DC	B
1	M75	190-0905	2x 10.5mm	2x12 Fiber	1 gland fit 2 x 12 fiber trunk	B
1	M75	190-0912	2x 9.5mm	2 ETH	1 gland fits 2 ethernet cable	B

ITEM 13	
FIBER JUNCTION BOX	
DIMENSIONS:	29.58"H x 16.5"W x 12.6"D
WEIGHT:	32.0 LBS
QUANTITY:	TOTAL OF 2
STATUS: PROPOSED	

TYPICAL FIBER JUNCTION BOX DIMENSIONS, SCHEMATIC AND MOUNTING PROCEDURE

SCALE: N.T.S.

4 RF01

CLIENT:

verizon
* Because Better Matters *

ARCHITECT/ENGINEER:

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4	REVISED CONDUIT ROUTING	5/31/22

PROJECT NAME:

BLOOMFIELD 4 CT

1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

DRAWING TITLE:

ANTENNA DETAILS AND ANCILLARY EQUIPMENT SPECIFICATIONS

DRAWING NO:

RF01

SCALE:	DESIGNED BY: NWC	VZW PROJECT CODE:
AS SHOWN	DRAWN BY: NWC	20212283877
	CHECKED BY: GBS	VZW PROJECT NO.:
CEA PROJECT NO.:	ORIGINAL ISSUE DATE:	19653133
98210.403	2/9/22	VZW LOCATION CODE:
		684872

ATTACHMENT 5

PHOTO SIMULATIONS FOR PROPOSED WIRELESS TELECOMMUNICATIONS INSTALLATION ON ROOFTOP OF EXISTING (4) STORY STEEL FRAMED BUILDING

Applicant Site Name:
BLOOMFIELD 4 CT

Site Address:
1300 HALL BOULEVARD
BLOOMFIELD, CT 06002

Date:
APRIL 29, 2022 (REVISION 0)

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying

R.K. Executive Centre ■ 201 Boston Post Road West ■ Suite 101 ■ Marlborough, MA 01752

t. 508.481.7400 ■ www.chappellengineering.com ■ f. 508.481.7406

PHOTO LOCATION MAP

verizon

Bloomfield 4 CT
1300 Hall Boulevard
Bloomfield, CT 06002

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
WWW.CHAPPELLENGINEERING.COM

EXISTING CONDITIONS - PHOTO LOCATION 1

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002

Photo Taken 340' +/- Northeast of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying
WWW.CHAPPELLENGINEERING.COM

PROPOSED CONDITIONS - PHOTO LOCATION 1

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Simulation at 340' +/- Northeast of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
WWW.CHAPPELLENGINEERING.COM

EXISTING CONDITIONS - PHOTO LOCATION 2

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Taken 220' +/- North of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
WWW.CHAPPELLENGINEERING.COM

PROPOSED CONDITIONS - PHOTO LOCATION 2

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002

Photo Simulation at 220' +/- North of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC

Civil · Structural · Land Surveying

WWW.CHAPPELLENGINEERING.COM

EXISTING CONDITIONS - PHOTO LOCATION 3

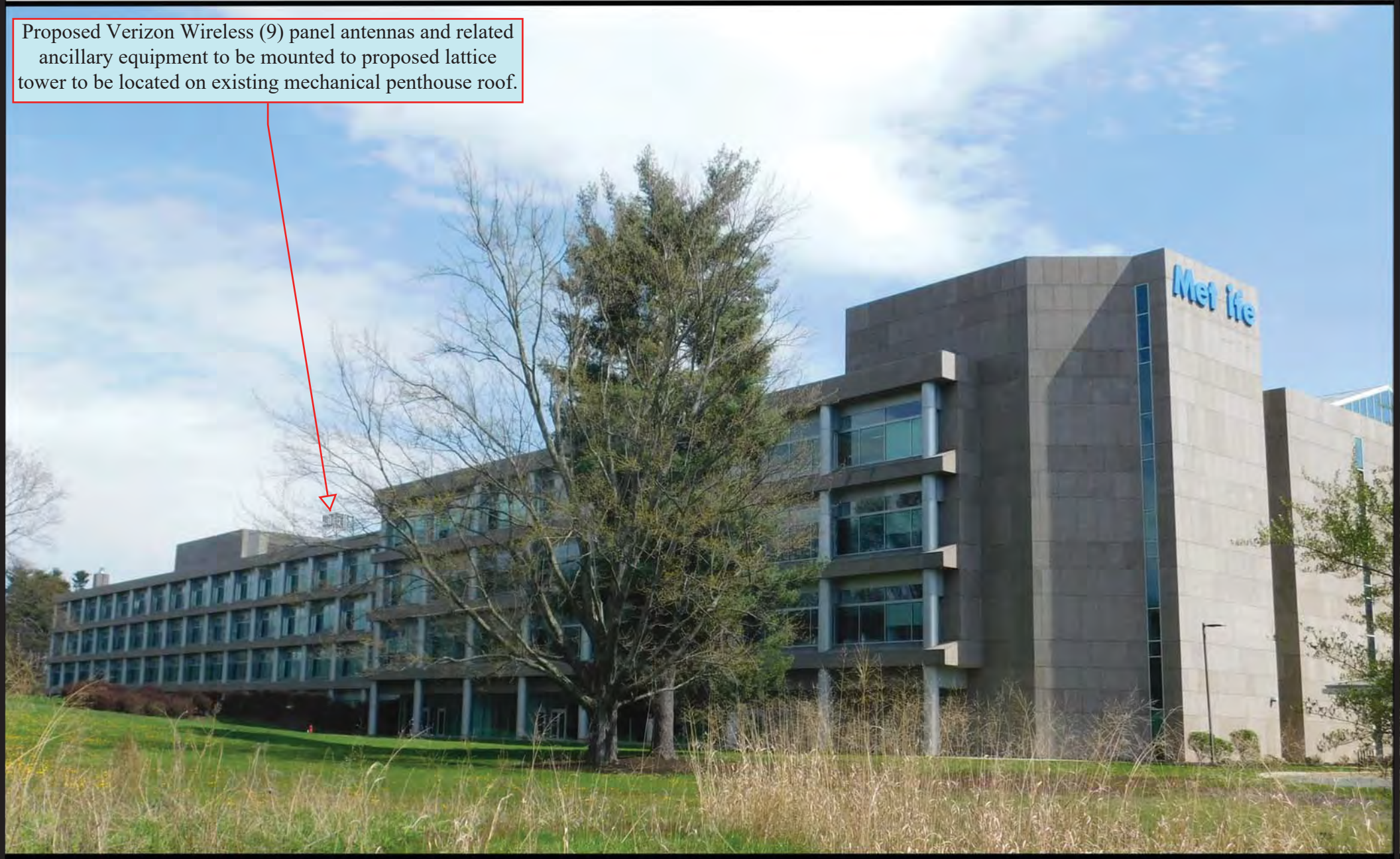
verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Taken 150' +/- Northwest of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying
WWW.CHAPPELLENGINEERING.COM

PROPOSED CONDITIONS - PHOTO LOCATION 3



verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002Photo Simulation
at 150' +/- Northwest of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
WWW.CHAPPELLENGINEERING.COM

EXISTING CONDITIONS - PHOTO LOCATION 4

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Taken 160' +/- Southwest of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying
WWW.CHAPPELLENGINEERING.COM

PROPOSED CONDITIONS - PHOTO LOCATION 4

(No Proposed Installation Features Visible From This Location)

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Simulation at 160' +/- Southwest of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying
WWW.CHAPPELLENGINEERING.COM

EXISTING CONDITIONS - PHOTO LOCATION 5

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Taken 360' +/- Southeast of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying
WWW.CHAPPELLENGINEERING.COM

PROPOSED CONDITIONS - PHOTO LOCATION 5

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Simulation at 360' +/- Southeast of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
WWW.CHAPPELLENGINEERING.COM

EXISTING CONDITIONS - PHOTO LOCATION 6

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002
Photo Taken 1,120' +/- North of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil • Structural • Land Surveying
WWW.CHAPPELLENGINEERING.COM

PROPOSED CONDITIONS - PHOTO LOCATION 6

verizon

Bloomfield 4 CT

1300 Hall Boulevard, Bloomfield, CT 06002

Photo Simulation at 1,120' +/- North of Existing Building

CHAPPELL ENGINEERING ASSOCIATES, LLC

Civil • Structural • Land Surveying

WWW.CHAPPELLENGINEERING.COM

ATTACHMENT 6

Site Name: ***BLOOMFIELD 4 CT***

Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	751	4	689	2756	85.3	0.0136	0.5007	2.72%
VZW Cellular	869	4	700	2800	85.3	0.0138	0.5793	2.39%
VZW PCS	1980	4	1500	6000	85.3	0.0297	1.0000	2.97%
VZW AWS	2125	4	1496	5984	85.3	0.0296	1.0000	2.96%
VZW CBAND	3730	4	6531	26124	85.3	0.1291	1.0000	12.91%
VZW CBRS	3625	4	12	48	85.3	0.0002	1.0000	0.02%
Total Percentage of Maximum Permissible Exposure								23.97%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

**Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz

mW/cm^2 = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

ATTACHMENT 7

****
* Federal Airways & Airspace *
* Summary Report: Existing Structure *
* Non-Antenna Structure *
****

Airspace User: Not Identified

File: BLOOMFIELD_4_CT

Location: Hartford, CT

Latitude: 41°-48'-30.48" Longitude: 72°-44'-36.55"

SITE ELEVATION AMSL.....146 ft.
STRUCTURE HEIGHT.....94 ft.
OVERALL HEIGHT AMSL.....240 ft.

NOTICE CRITERIA
FAR 77.9(a): NNR (DNE 200 ft AGL)
FAR 77.9(b): NNR (DNE Notice Slope)
FAR 77.9(c): NNR (Not a Traverse Way)
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for HFD
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for 4B9
FAR 77.9(d): NNR (Off Airport Construction)

NR = Notice Required
NNR = Notice Not Required
PNR = Possible Notice Required (depends upon actual IFR procedure)
For new construction review Air Navigation Facilities at bottom of this report.

The location and analysis were based upon an existing structure. However, no existing aeronautical study number was identified. If the 'existing' structure penetrates an obstruction surface defined by CFR 77.17, 77.19, 77.21 or 77.23 (see below) it is strongly recommended the FAA be notified of the 'existing' structure to determine obstruction marking or lighting requirements. It is not uncommon for the FAA to issue a Determination of No Hazard (DNH) for an existing structure and modify the airspace to accommodate the structure, should that be required. If the FAA issues a DNH enter the aeronautical study number (ASN) in the space provided on the Airspace Analysis Window Form and re-run Airspace.

The below analysis reflects the aeronautical conditions that exist as of the date stamped on this analysis.

Notice to the FAA is not required at the analyzed location and height for slope, height or Straight-In procedures. Please review the 'Air Navigation' section for notice requirements for offset IFR procedures and EMI.

OBSTRUCTION STANDARDS
  FAR 77.17(a)(1): DNE 499 ft AGL
  FAR 77.17(a)(2): DNE - Airport Surface
  FAR 77.19(a):   DNE - Horizontal Surface
  FAR 77.19(b):   DNE - Conical Surface
  FAR 77.19(c):   DNE - Primary Surface
  FAR 77.19(d):   DNE - Approach Surface
  FAR 77.19(e):   DNE - Approach Transitional Surface
  FAR 77.19(e):   DNE - Abeam Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: HFD: HARTFORD-BRAINARD
Type: A   RD: 35312.5   RE: 18.3
  FAR 77.17(a)(1):   DNE
  FAR 77.17(a)(2):   DNE - Greater Than 5.99 NM.
  VFR Horizontal Surface: DNE
  VFR Conical Surface: DNE
  VFR Primary Surface: DNE
  VFR Approach Surface: DNE
  VFR Transitional Surface: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: 4B9: SIMSBURY
Type: A   RD: 39330.03   RE: 177.1
  FAR 77.17(a)(1):   DNE
  FAR 77.17(a)(2):   Does Not Apply.
  VFR Horizontal Surface: DNE
  VFR Conical Surface: DNE
  VFR Primary Surface: DNE
  VFR Approach Surface: DNE
  VFR Transitional Surface: DNE

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)
  FAR 77.17(a)(3) Departure Surface Criteria (40:1)
  DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)
  FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
  The Maximum Height Permitted is 17000 ft AMSL

PRIVATE LANDING FACILITIES

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
CT04	HEL	CHASE	245.44	2.75	-460	
No Impact to Private Landing Facility Structure 460 ft below heliport.						
0CT5	HEL	ST FRANCIS HOSPITAL	135.51	2.84	+56	
No Impact to Private Landing Facility Structure is beyond notice limit by 12256 feet.						

CT05 HEL KAMAN AEROSPACE CORP 31.45 3.76 +76
No Impact to Private Landing Facility
Structure is beyond notice limit by 17846 feet.

CT06 HEL DELTA ONE 107.54 3.9 +219
No Impact to Private Landing Facility
Structure is beyond notice limit by 18697 feet.

0CT9 HEL HARTFORD HOSPITAL 138.07 4.36 +29
No Impact to Private Landing Facility
Structure is beyond notice limit by 21492 feet.

CT75 HEL UCONN HEALTH 206.27 5.03 -100
No Impact to Private Landing Facility
Structure 100 ft below heliport.

AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRND APCH ANGLE	BEAR
BDL	RADAR	I	19.3		50232	+4	CT	BRADLEY INTL	0.00	

No Impact. Existing Structures Do Not Require Notice based upon EMI. The FAA takes into account and adjusts radar facilities for reflection, clutter and false targets. The studied location is within 20 NM of an Air Traffic Radar facility.
The calculated Radar Line-Of-Sight (LOS) distance is: 38 NM.
This location and height is within the Radar Line-Of-Sight.

BDL	VORTAC	D	109.0	17.19	50559	+80	CT	BRADLEY	.09	
HFD	VOR/DME	R	114.9	138.8	81148	-609	CT	HARTFORD	-.43	
BAF	VORTAC	R	113.0	3.29	129023	-27	MA	BARNES	-.01	
CEF	TACAN	R	114.0	22.53	153575	+0	MA	WESTOVER	0.00	
MAD	VOR/DME	I	110.4	175.56	180769	+24	CT	MADISON	.01	
CTR	VOR/DME	R	115.1	342.44	184625	-1360	MA	CHESTER	-.42	

CFR Title 47, §1.30000-§1.30004
AM STUDY NOT REQUIRED: Structure is not near a FCC licensed AM station.
Movement Method Proof as specified in §73.151(c) is not required.
Please review 'AM Station Report' for details.

Nearest AM Station: WDRC @ 3970 meters.

Airspace® Summary Version 22.3.628

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04-06-2022
11:45:16

ATTACHMENT 8

Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

June 29, 2022

Via Certificate of Mailing

Stanley Hawthorne, Town Manager
Town of Bloomfield
800 Bloomfield Avenue
Bloomfield, CT 06002

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 1300 Hall Boulevard, Bloomfield, Connecticut**

Dear Mr. Hawthorne:

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 1300 Hall Boulevard in Bloomfield (the "Property").

The facility will consist of the installation of nine (9) panel type antennas and nine (9) remote radio heads attached to a new steel lattice tower extended approximately 12'-6" above a mechanical penthouse in the easterly portion of the 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

Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
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and New York

June 29, 2022

Via Certificate of Mailing

Jennifer Valentino-Rodriguez, Director of Planning and Zoning
Town of Bloomfield
800 Bloomfield Avenue
Bloomfield, CT 06002

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 1300 Hall Boulevard, Bloomfield, Connecticut**

Dear Ms. Rodriguez:

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 1300 Hall Boulevard in Bloomfield (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

Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
Main (860) 275-8200
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kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

June 29, 2022

Via Certificate of Mailing

Shari Cantor, Mayor
Town of West Hartford
50 South Main Street
West Hartford, CT 06107

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 1300 Hall Boulevard, Bloomfield, Connecticut**

Dear Mayor Cantor:

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 1300 Hall Boulevard in Bloomfield (the "Property").

The facility will consist of the installation of nine (9) panel type antennas and nine (9) remote radio heads attached to a new steel lattice tower extended approximately 12'-6" above a mechanical penthouse in the easterly portion of the 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

Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

June 29, 2022

Via Certificate of Mailing

Todd Dumais, Town Planner
Town of West Hartford
50 South Main Street
West Hartford, CT 06107

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 1300 Hall Boulevard, Bloomfield, Connecticut**

Dear Mr. Dumais:

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 1300 Hall Boulevard in Bloomfield (the "Property").

The facility will consist of the installation of nine (9) panel type antennas and nine (9) remote radio heads attached to a new steel lattice tower extended approximately 12'-6" above a mechanical penthouse in the easterly portion of the 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

Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
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Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

June 29, 2022

Via Certificate of Mailing

The Atrium CT LLC
2 Park Avenue, 17th Floor
New York, NY 10166

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 1300 Hall Boulevard, Bloomfield, 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 1300 Hall Boulevard in Bloomfield (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

ATTACHMENT 9

Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts
and New York

June 29, 2022

Via Certificate of Mailing

«Owners_and_Mailing_Address»

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to an Existing Wireless Telecommunications Facility at 1300 Hall Boulevard, Bloomfield, 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 1300 Hall Boulevard in Bloomfield (the "Property").

The facility will consist of the installation of nine (9) panel type antennas and nine (9) remote radio heads attached to a new steel lattice tower extended approximately 12'-6" above a mechanical penthouse in the easterly portion of the 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

1300 HALL BOULEVARD
BLOOMFIELD, CONNECTICUT

BLOOMFIELD

	Property Address	Owner's and Mailing Address
1.	1360 Hall Boulevard	GRG Acquisitions LLC c/o DBA Gillette Ridge Golf Club 5430 LBJ Freeway, Suite 1400 Dallas, TX 75240
2.	1348 Hall Boulevard	Connecticut General Life Insurance Company 900 Cottage Grove Road, C2S0 Bloomfield, CT 06002
3.	1340 Hall Boulevard	Connecticut General Life Insurance Company 900 Cottage Grove Road, C2S0 Bloomfield, CT 06002
4.	1330 Hall Boulevard	Connecticut General Life Insurance Company 900 Cottage Grove Road, C2S0 Bloomfield, CT 06002
5.	20 Cigna Campus Way	The Atrium CT LLC 2 Park Avenue, 17th Floor New York, NY 10166
6.	30 Cigna Campus Way	The Atrium CT LLC 2 Park Avenue, 17th Floor New York, NY 10166

WEST HARTFORD

7.	260 Simsbury Road	Connecticut General Life Insurance Company c/o CBRE Lease Administration 5100 Poplar Avenue, Suite 1000 Memphis, TN 38137