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Also admitted in Massachusetts
and New York

October 4, 2023

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

Re: **Cellco Partnership d/b/a Verizon Wireless – Petition for a Declaratory Ruling on the Need to Obtain a Certificate for the Installation of a Wireless Telecommunications Facility at 19 Doubling Road, Greenwich, Connecticut**

Dear Attorney Bachman:

Enclosed is an original and fifteen (15) copies of the above-referenced Petition for Declaratory Ruling filed on behalf of Cellco Partnership d/b/a Verizon Wireless for the installation of a wireless telecommunications facility at 19 Doubling Road, Greenwich, Connecticut. Also enclosed is a $625.00 check for the filing fee.

Thank you in advance for your assistance and cooperation.

Sincerely,

Kenneth C. Baldwin

Enclosures

27984899-v1

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION OF CELLCO PARTNERSHIP 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 19 DOUBLING ROAD, GREENWICH, CONNECTICUT	:	PETITION NO. ____
	:	OCTOBER 4, 2023

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

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the installation of a wireless telecommunications facility on the roof of the Greenwich Country Club ("GCC") clubhouse. The GCC clubhouse, golf course, surface parking areas and related site improvements are located on an approximately 165-acre parcel at 19 Doubling Road in Greenwich, Connecticut (the "Property"). *See* Attachment 1 –Site Schematic Map (Aerial Photograph). The Property is owned by GCC.

The Property is in Greenwich's RA-1 Residential zone district and is surrounded by low-density residential uses. Cellco refers to its proposed facility as its "Greenwich 4 Facility". The

Greenwich 4 Facility will provide Cellco customers with improved wireless service on the Property and surrounding residential areas.

II. Proposed Construction Activity

The proposed Greenwich 4 Facility will consist of the installation of a total of nine (9) panel type antennas and six (6) remote radio heads ("RRHs"). Six (6) antennas and three (3) RRHs would be attached to metal frame pipe mast support structure in the western portion of the clubhouse roof (Enclosure No. 1).[1] Three (3) antennas and three (3) RRHs would be attached to metal frame pipe mast support structure in the eastern portion of the clubhouse roof (Enclosure No. 2). Both antenna pipe mast support structures would be surrounded by radio frequency ("RF") transparent screening enclosures designed to match the existing chimneys on the clubhouse building. The top of antenna screening Enclosure No. 1 would extend approximately ten (10) feet above the roof peak, 52 feet above ground level ("AGL"). The top of antenna screening Enclosure No. 2 would extend approximately twelve (12) feet above the roof peak, 49 feet 9 inches AGL. Equipment associated with the antennas will be located on the ground adjacent to the northeast corner of the building behind an existing fence. Cellco will share the GCC's on-site generator. (*See* Cellco's Project Plans included in Attachment 2).

Cellco will provide wireless telecommunications services in its 700 MHz, 850 MHz, 1900 MHz, 2100 MHz and C-Band (3730 MHz and 3625 MHz) frequency ranges from the proposed Greenwich 4 Facility. Specifications for Cellco's antennas and remote radio heads are included in Attachment 3. The Greenwich 4 Facility will be capable of providing 5G wireless services in the future.

[1] An existing chimney on the western portion of the roof will be removed and replaced with a faux chimney antenna screening structure (Enclosure No. 1).

Cellco's project engineer, Centek Engineering, prepared a Structural Analysis ("SA") that confirms the antenna mast support structure, associated dunnage, anchoring system and host-building roof are all structurally capable of supporting the Greenwich 4 Facility improvements. A copy of the SA is included in Attachment 4.

III. Discussion

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

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

1. Physical Environmental Effects

Cellco respectfully submits that the proposed Greenwich 4 Facility will not involve a significant impact on the physical and environmental characteristics of the Property or the surrounding community. All roof-top improvements associated with the Greenwich 4 Facility will be located behind faux chimney screening enclosures. Cellco's equipment cabinets will be located on the ground adjacent to the east side of the clubhouse building adjacent to the existing GCC mechanical equipment and behind an existing ornamental fence. No tree removal or site grading is required to install Cellco's ground-mounted equipment.

2. Visual Effects

As described above, the antennas, RRHs and antenna pipe mast support structures will be

located behind radio frequency transparent faux chimney screening enclosures on the roof of the building. The enclosures are designed and painted to match the existing chimneys on the roof of the building. Ground-mounted equipment will be located behind an existing screen fence adjacent to other GCC mechanical equipment. Visual effects associated with the proposed Greenwich 4 Facility would, therefore, be minimal or non-existent. Year-round views of the faux chimney enclosures would be limited primarily to the Property and its immediate surroundings, comparable to the visibility of the existing roof-top chimneys. A Visibility Analysis for the proposed Greenwich 4 Facility improvements is included in Attachment 5.

3. FCC Compliance

Radio frequency ("RF") emissions from the Greenwich 4 Facility will not exceed the maximum permissible exposure limits established by the Federal Communications Commission ("FCC"). Included in Attachment 6 is a Far Field RF exposure calculation confirming that the proposed Greenwich 4 Facility will operate well within (7.9%) the FCC safety standards.

4. FAA Notification Not Required

Cellco's proposed facility improvements will not extend above the height of the tallest existing chimney structure on the roof in the center of the building.[2] Therefore, no Federal Airways and Airspace Report was prepared.

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

On October 4, 2023, a copy of this Petition was sent to Greenwich's First Selectman, Fred Camillo; Patrick LaRow, Greenwich's Director of Planning and Zoning; and Greenwich Country Club, the owner of the Property. Copies of the letters sent to these public officials and

[2] The tallest chimney structure on the roof of the GCC clubhouse extends to a height of 56 feet AGL (*See* Attachment 2, Plan Sheet C-3).

the Property owner are included in Attachment 7.

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

IV. Conclusion

Based on the information provided above, Cellco respectfully requests that the Council issue a determination, in the form of a declaratory ruling, that the installation of the proposed rooftop metal frame pipe mast support structures and faux chimney screening structures 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

Site Schematic

Proposed Wireless Telecommunications Facility
Greenwich 4 CT
19 Doubling R oad
Greenwich, Connecticut

verizon

N

70 35 0 70 Feet

Map Notes:
Base Map Source: 2023 Nearmap Aerial Imagery
Map Scale: 1 inch = 70 feet
Map Date: July 2023

ALL-POINTS TECHNOLOGY CORPORATION

ATTACHMENT 2

verizon

GREENWICH 4 CT
19 DOUBLING ROAD
GREENWICH, CT 06830

SITE DIRECTIONS

FROM: 20 ALEXANDER DRIVE, WALLINGFORD, CT **TO:** 19 DOUBLING ROAD GREENWICH, CT 06830

1. TURN RIGHT ONTO ALEXANDER DR	0.30 MI.
2. TURN RIGHT ONTO BARNES INDUSTRIAL PARK RD	0.10 MI.
3. TURN LEFT AT THE 1ST CROSS STREET ONTO CT-68 W	0.40 MI.
4. TURN RIGHT	0.20 MI.
5. TURN RIGHT ONTO N COLONY RD	0.30 MI.
6. TURN RIGHT TO MERGE ONTO CT-15 N TOWARD HARTFORD	0.20 MI.
7. MERGE ONTO CT-15 S	55.4 MI.
8. TAKE EXIT 31 TO NORTH STREET	0.01 MI.
9. TURN RIGHT ONTO NORTH STREET	2.80 MI.
10. TURN RIGHT ONTO DOUBLING ROAD	0.20 MI.
11. TURN RIGHT ONTO GOLD CLUB ROAD	0.50 MI.
12. DESTINATION ON RIGHT	

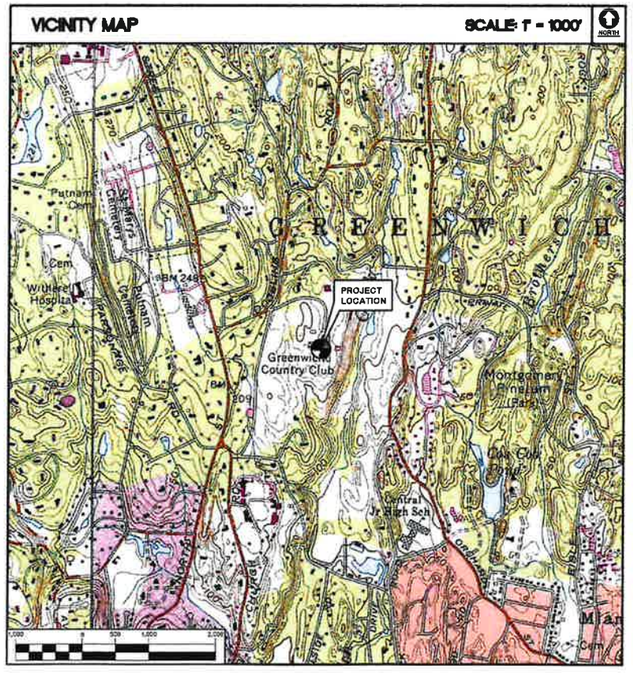
SITE INFORMATION

THE SCOPE OF WORK SHALL GENERALLY INCLUDE:

1. THE PROPOSED CELLCO PARTNERSHIP ANTENNA INSTALLATION TO CONSIST OF A TOTAL OF (3) ANTENNA SECTORS INCLUDING A TOTAL OF (3) ANTENNAS AND (6) ANTENNAS WITH INTEGRATED RRHs. ADDITIONAL APPURTENANCES INCLUDE (6) REMOTE RADIO HEADS (RRHs), (2) OVER VOLTAGE PROTECTION BOX (OVP) AND ASSOCIATED CABLES.
2. POWER AND TELCO UTILITIES SHALL BE ROUTED FROM EXISTING DEMARCS WITHIN THE SUBJECT BUILDING. FINAL UTILITY DEMARC LOCATIONS AND ROUTING TO BE DETERMINED DURING CONSTRUCTION DOCUMENT PHASE OF THE PROJECT, AND WILL BE COORDINATED WITH BUILDING OWNER AND LOCAL UTILITY COMPANY REQUIREMENTS.
3. EQUIPMENT LAYOUT SHOWN HEREIN IS PRELIMINARY AND SCHEMATIC. FINAL LAYOUT TO BE DETERMINED DURING THE CONSTRUCTION PHASE OF THE PROJECT.
4. THE PROPOSED CELLCO PARTNERSHIP ANTENNA RF TRANSPARENT SCREENING ENCLOSURES SHALL MATCH THE EXISTING BUILDING FACADE IN COLOR AND ARCHITECTURAL APPEARANCE.
5. THE PROPOSED CELLCO PARTNERSHIP ANTENNA RF TRANSPARENT SCREENING ENCLOSURE DIMENSIONS SHOWN ARE APPROXIMATE AND WILL BE FINALIZED DURING THE CONSTRUCTION DOCUMENT PHASE OF THE PROJECT.
6. THE EXISTING GENERATOR IS TO BE REMOVED AND REPLACED. REPLACEMENT GENERATOR TO SERVE EXISTING BUILDING AND PROPOSED LESSEE EQUIPMENT. LANDLORD AND LESSEE TO COORDINATE NEW GENERATOR SIZE. CONTRACTOR IS RESPONSIBLE FOR, BUT NOT LIMITED TO, REMOVING, REPLACING, ROUTING AND CONNECTING ALL EXISTING AND PROPOSED CONDUIT.

VICINITY MAP

SCALE: 1" = 1000'



GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES, ANTENNAS, AND SMALL WIND TURBINE SUPPORT STRUCTURES.", 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.

PROJECT SUMMARY

SITE NAME:	GREENWICH 4 CT
SITE ADDRESS:	19 DOUBLING ROAD GREENWICH, CT 06830
PROPERTY OWNER:	GREENWICH COUNTRY CLUB 19 DOUBLING ROAD GREENWICH, CT 06830
LESSEE/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 20 ALEXANDER DRIVE, FLOOR 2 WALLINGFORD, CT 06492
VERIZON SITE ACQUISITION CONTACT:	DAVID TIVNAN SAI COMMUNICATIONS LLC (603) 212-8328
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE (860) 275-8345
PROPOSED TOWER COORDINATES:	LATITUDE 41°-03'-23.21" LONGITUDE 73°-36'-41.36" GROUND ELEVATION: 198.61'± A.M.S.L. COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA 2C CERTIFICATION PREPARED BY CENTEK ENGINEERING FOR VERIZON WIRELESS, DATE (REVISED) 09/29/2023.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
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C-4	PARTIAL WEST BUILDING ELEVATION & RF CHIMNEY	1
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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/02/23	DMA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
0	09/29/23	DMA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
B	01/13/23	BSP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	12/21/22	ASC	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

verizon

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
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Branford, CT 06405
www.CentekEng.com

Cellco Partnership d/b/a Verizon Wireless

GREENWICH 4 CT
19 DOUBLING ROAD
GREENWICH, CT 06830

DATE: 12/21/22
SCALE: AS NOTED
JOB NO. 22017.01

TITLE SHEET

T-1

Sheet No. 1 of 8

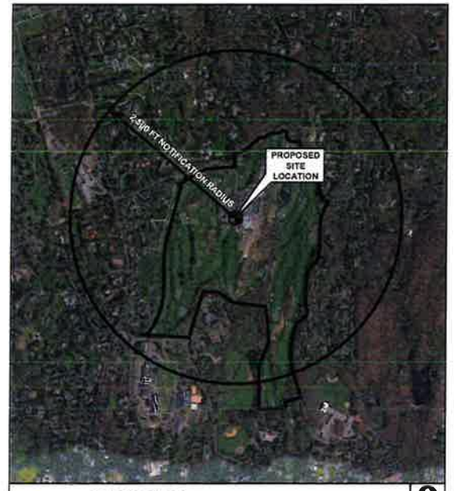
ABUTTERS LIST

REF.	ID	ADDRESS	OWNER	MAILING ADDRESS
1	11-1081	25 FAIRWAY LANE	25 FAIRWAY LANE, LLC	29 FAIRWAY LANE, GREENWICH, CT 06830
2	11-1021	FAIRWAY LANE	CLT FAIRWAY LLC C/O JAMES GARDINER	115 NUTMEG LANE, FAIRFIELD, CT 06824
3	11-1028	9 FAIRWAY LANE	CLT FAIRWAY LLC	9 FAIRWAY LANE, GREENWICH, CT 06824
4	11-1029	7 FAIRWAY LANE	KAREN GIANUZZI	7 FAIRWAY LANE, GREENWICH, CT 06824
5	11-1272	160 STANWICH ROAD	CAROL R GILBRIDE	160 STANWICH ROAD, GREENWICH, CT 06830
6	11-1295	156 STANWICH ROAD	ERIC & KAREN HOPP	156 STANWICH ROAD, GREENWICH, CT 06830
7	11-1011	154 STANWICH ROAD	HORACIO MARTIN ROBREDO & NATALIA GARCIA LOPEZ	154 STANWICH ROAD, GREENWICH, CT 06830
8	11-1229	150 STANWICH ROAD	VINAYKUMAR & ARUNA PATWARDHAN	150 STANWICH ROAD, GREENWICH, CT 06830
9	08-2404	147 STANWICH ROAD	JOSEPH S. & WENDY MALLORY III	147 STANWICH ROAD, GREENWICH, CT 06830
10	08-3483	1 PINE RIDGE ROAD	PETER D. CLOSE	1 PINE RIDGE ROAD, GREENWICH, CT 06830
11	08-3877	133 STANWICH ROAD	EDINEIA BICKERSTAFF	133 STANWICH ROAD, GREENWICH, CT 06830
12	08A-1091	28 JEFFERY ROAD	PRUDY & ALFRED SOFER	28 JEFFERY ROAD, GREENWICH, CT 06830
13	08-3898	127 STANWICH ROAD	ROBERT GOTTLIEB	127 STANWICH ROAD, GREENWICH, CT 06830
14	08-3897	123 STANWICH ROAD	ANTHONY & CLAUDIA BUETI	123 STANWICH ROAD, GREENWICH, CT 06830
15	08-3981	119 STANWICH ROAD	ANDREW & ISABELLA LEAHY	119 STANWICH ROAD, GREENWICH, CT 06830
16	08A-1000	117 STANWICH ROAD	KENNETH A. & MARGARET MULLER JR	117 STANWICH ROAD, GREENWICH, CT 06830
17	08-3980	115 STANWICH ROAD	CHARLES SETON V. HENRY & MOLLY McAULIFFE URELL-POE	115 STANWICH ROAD, GREENWICH, CT 06830
18	08-3978	113 STANWICH ROAD	ANTHONY & JENNIFER FEBLES	113 STANWICH ROAD, GREENWICH, CT 06830
19	08-3979	111 STANWICH ROAD	DIONISIO FERENC & MARIANA TANNER	111 STANWICH ROAD, GREENWICH, CT 06830
20	08-3977	323 ORCHARD STREET	KATHERIN ALEXANDRA MENACHO DE SAOUD & RAJA BIAGI SAOUD	323 ORCHARD STREET, GREENWICH, CT 06830
21	08-3758	109 STANWICH ROAD	MARK & PAULA KANDL	109 STANWICH ROAD, GREENWICH, CT 06830
22	08-3757	107 STANWICH ROAD	RYAN BENINCASA & NOELLE RADCLIFFE WINICKI	107 STANWICH ROAD, GREENWICH, CT 06830
23	08-3756	105 STANWICH ROAD	JONATHAN B OSSER	105 STANWICH ROAD, GREENWICH, CT 06830
24	08A-1711	101 STANWICH ROAD	NINA MONTI & MICHAEL LULKIN	101 STANWICH ROAD, GREENWICH, CT 06830
25	08-3608	99 STANWICH ROAD	MICHAEL & IRINA STRAW	99 STANWICH ROAD, GREENWICH, CT 06830
26	08-3607	95 STANWICH ROAD	ROBERT & RACHEL KOVEN	95 STANWICH ROAD, GREENWICH, CT 06830
27	08-4366/S	9 INDIAN ROCK LANE	TOWN OF GREENWICH C/O FINANCE DEPTARTMENT	101 FIELD POINT ROAD, GREENWICH, CT 06830
28	11-1094	80 STANWICH ROAD	STEPHEN M. NAPIER TR C/O THE STANWICH ROAD REAK ESTATE TRUST	P.O. BOX 5178, GREENWICH, CT 06830
29	11-1094	2 CARDINAL ROAD	2 CARDINAL RD LLC	401 OLD CHURCH RD, GREENWICH, CT 06830
30	11-2020	21 CARDINAL ROAD	GREENWICH COUNTRY DAY SCHOOL INC	401 OLD CHURCH RD, GREENWICH, CT 06830
31	11-2021	47 FAIRFIELD ROAD	GREENWICH COUNTRY DAY SCHOOL INC	PO BOX 823, GREENWICH, CT 06836
32	11-4020/S	23 FAIRFIELD ROAD	GREENWICH COUNTRY DAY SCHOOL INC	PO BOX 823, GREENWICH, CT 06836
33	07-4024/S	401 OLD CHURCH ROAD	GREENWICH COUNTRY DAY SCHOOL INC	PO BOX 823, GREENWICH, CT 06836
34	07/2688/S	444 OLD CHURCH ROAD	444 OLD CHURCH ROAD LLC	444 OLD CHURCH ROAD, GREENWICH, CT 06830
35	11-1013	330 NORTH STREET	JOHN & MACY MACASKILL	3 FAIRFIELD ROAD, GREENWICH, CT 06830
36	11-2208	336 NORTH STREET	SCOTT & VANESSA ROSEN	14 GOLF CLUB ROAD, GREENWICH, CT 06830
37	11-2891	334 NORTH STREET	JERRY D. & MARJORIE A. LEE	18 GOLF CLUB ROAD, GREENWICH, CT 06830
38	11-2308	340 NORTH STREET	KATHLEEN CRAIG KNIGHT	340 NORTH STREET, GREENWICH, CT 06830
39	11-2507	344 NORTH STREET	HELEN W. HALL TR	344 NORTH STREET, GREENWICH, CT 06830
40	11-1103	348 NORTH STREET	AUGUST I. & JILL DUPONT	348 NORTH STREET, GREENWICH, CT 06830
41	11-2886	NORTH STREET	CREIGHTON S. MCDONOUGH & CLAIRE RAUH	6 GOLF CLUB ROAD, GREENWICH, CT 06830
42	11-1481	352 NORTH STREET	MAJORIE & GUY L. SMITH IV	352 NORTH STREET, GREENWICH, CT 06830
43	11-1480	36 GOLF CLUB ROAD	ELLEN B GRIFFIN	36 GOLF CLUB ROAD, GREENWICH, CT 06830
44	11-3212	7 DOUBLING ROAD	ANDREW MARCUS	7 DOUBLING ROAD, GREENWICH, CT 06830
45	11-1484	10 GOLF CLUB ROAD	RICHARD H. & JOAN L. WYNN	10 GOLF CLUB ROAD, GREENWICH, CT 06830
46	11-1652	15 DOUBLING ROAD	MARSHALL H. HEAVEN & MARY ANN GRABAVOY	15 DOUBLING ROAD, GREENWICH, CT 06830
47	11-3235	16 DOUBLING ROAD	GPFS LLC	16 DOUBLING ROAD, GREENWICH, CT 06830
48	11-3236	29 DOUBLING ROAD	29 DOUBLING ROAD LLC	29 DOUBLING ROAD, GREENWICH, CT 06830
49	11-2161	31 DOUBLING ROAD	AMIOT CHRISTINE CARTER TR ET AL	31 DOUBLING ROAD, GREENWICH, CT 06830
50	11-1680	29 FAIRWAY LANE	BARTON J. & ELIZABETH GOODWIN	29 FAIRWAY LANE, GREENWICH, CT 06830

1 / C-1 ABUTTERS MAP
SCALE: 1"=300'

APPROXIMATE NORTH

GRAPHIC SCALE
300 0 150 300 600 1200
(IN FEET)
1 inch = 300 ft.



MUNICIPALITY NOTIFICATION LIMIT MAP

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/03/23	DWA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
0	06/26/23	DWA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
2	01/12/23	BMP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	12/21/22	ASC	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

verizon

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Cellco Partnership d/b/a Verizon Wireless

GREENWICH 4 CT
19 DOUBLING ROAD
GREENWICH, CT 06830

DATE: 12/21/22
SCALE: AS NOTED
JOB NO. 22017.01

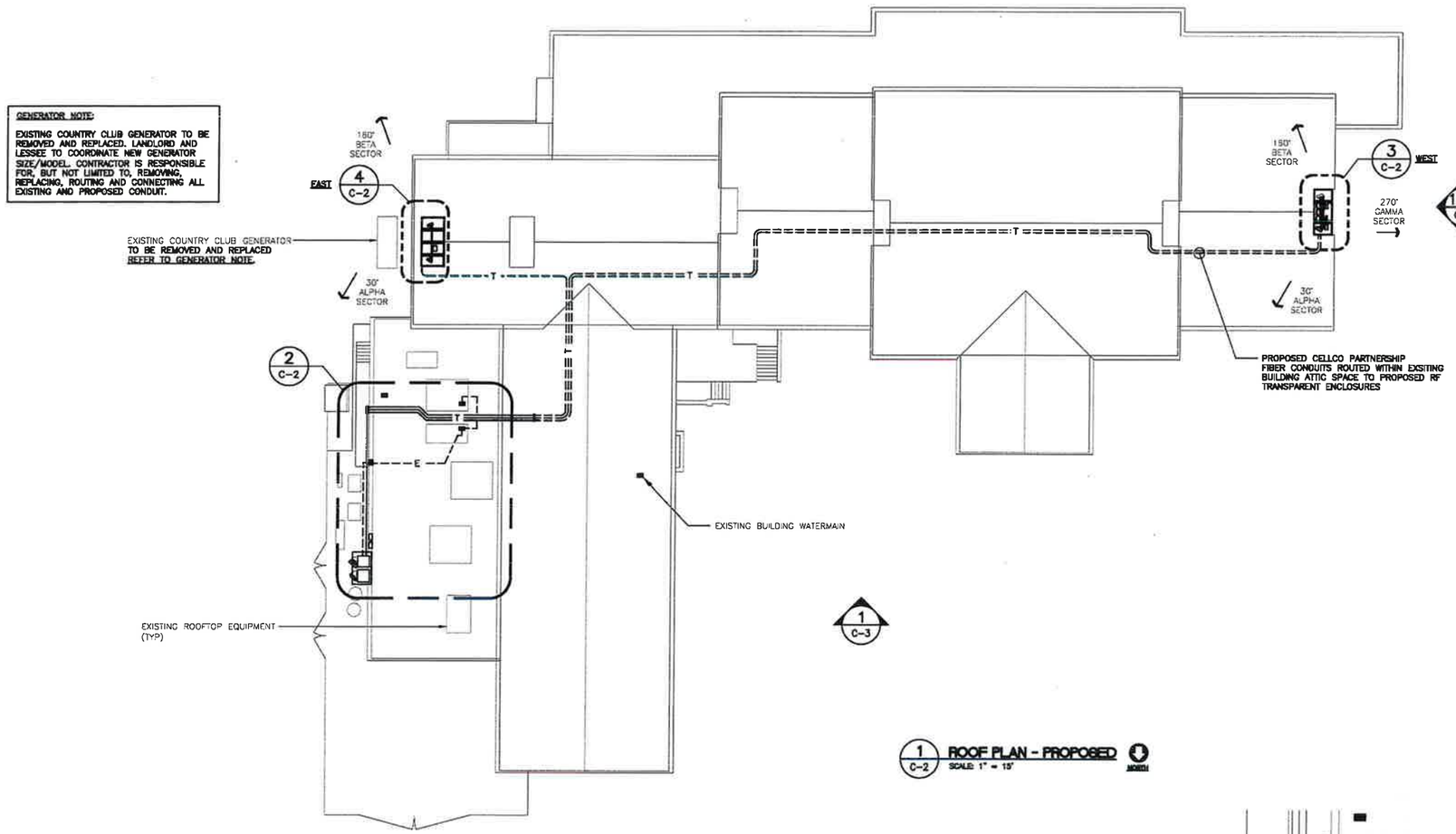
ABUTTERS MAP AND LIST

C-1

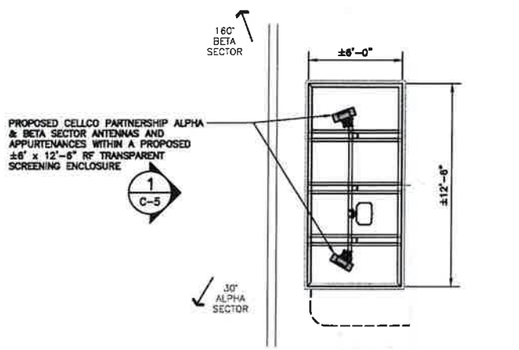
Sheet No. 2 of 6

GENERATOR NOTE:

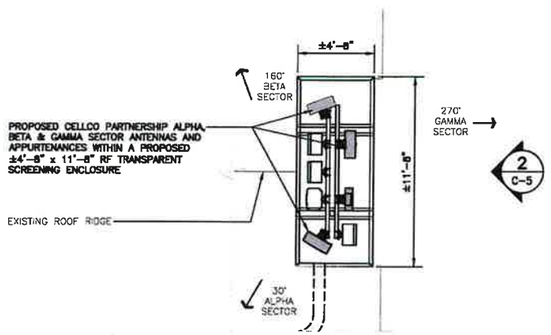
EXISTING COUNTRY CLUB GENERATOR TO BE REMOVED AND REPLACED. LANDLORD AND LESSEE TO COORDINATE NEW GENERATOR SIZE/MODEL. CONTRACTOR IS RESPONSIBLE FOR, BUT NOT LIMITED TO, REMOVING, REPLACING, ROUTING AND CONNECTING ALL EXISTING AND PROPOSED CONDUIT.



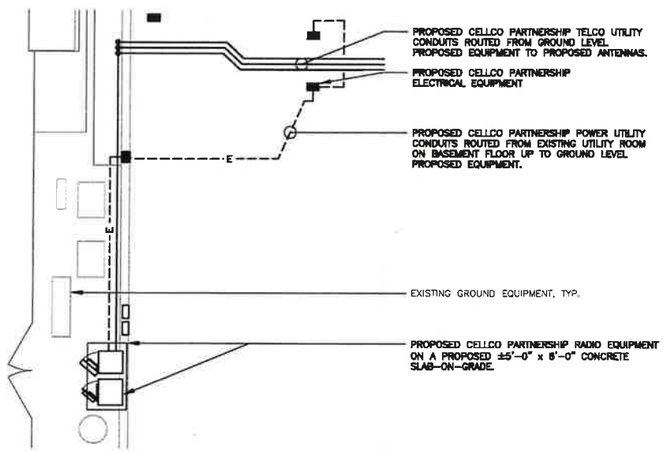
1 C-2 **ROOF PLAN - PROPOSED** SCALE: 1" = 15'



4 C-2 **PARTIAL ROOF PLAN - EAST** SCALE: 1/4" = 1'



3 C-2 **PARTIAL ROOF PLAN - WEST** SCALE: 1/4" = 1'



2 C-2 **EQUIPMENT PLAN - PROPOSED** SCALE: 1/8" = 1'

STRUCTURAL COMPLIANCE

HOST STRUCTURE AND ANTENNA ENCLOSURES

A STRUCTURAL EVALUATION OF THE EXISTING HOST STRUCTURE AND THE PROPOSED ANTENNA ENCLOSURE SUPPORT WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND WAS FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

THE DESIGN, FABRICATION AND INSTALLATION OF RF TRANSPARENT ANTENNA CONCEALMENT ENCLOSURE AND ITS ATTACHMENT TO THE SUPPORT FRAME WILL BE PERFORMED BY A VENDOR WITH A MINIMUM OF 5 YEARS EXPERIENCE IN RF TRANSPARENT ANTENNA ENCLOSURES. THE DELEGATED DESIGN FOR COMPLIANCE WITH ALL STATE AND LOCAL LOADING REQUIREMENTS WILL BE BE PREPARED UNDER THE DIRECT SUPERVISION OF A STATE OF CONNECTICUT LICENSED STRUCTURAL ENGINEER EXPERIENCED IN THESE SYSTEMS.

REFER TO THE STRUCTURAL LETTER PREPARED BY CENTEK ENGINEERING (PROJECT # 22017.01) DATED 09/29/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND WITHOUT PRIOR CONTRACTOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED AND ACCEPTED BY THE E.O.R.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/02/23	DRA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
0	09/29/23	DRA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
B	07/12/23	BSP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	12/21/22	ASC	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR CLIENT REVIEW

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Branford, CT 06405
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GREENWICH 4 CT

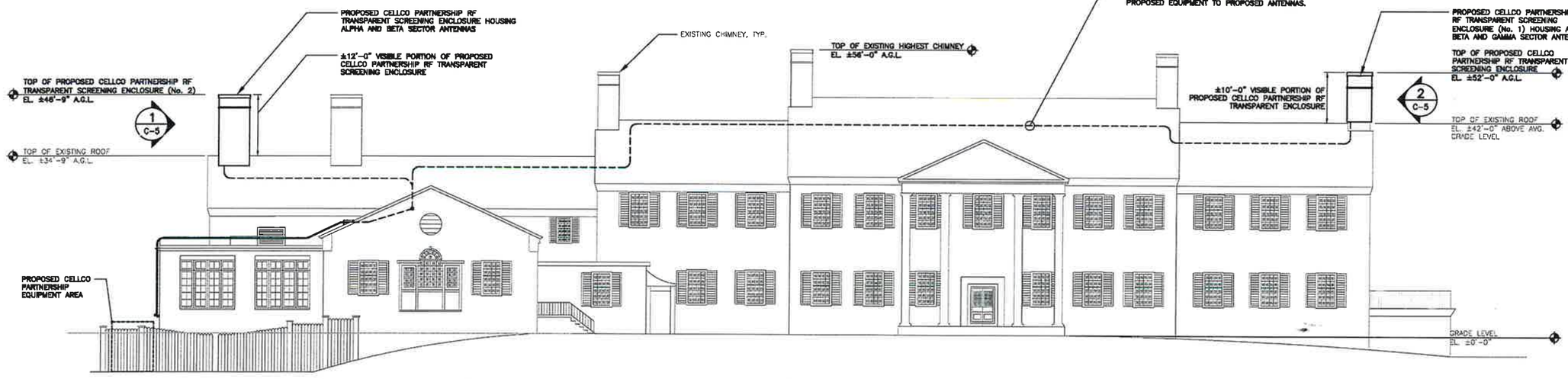
19 DOUBLING ROAD
GREENWICH, CT 06830

DATE: 12/21/22
SCALE: AS NOTED
JOB NO. 22017.01

ROOF AND EQUIPMENT PLANS

C-2

Sheet No. 3 of 8



1 C-3 **NORTH BUILDING ELEVATION**
SCALE: 1" = 10'

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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/02/23	GMA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
0	08/29/23	GMA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
B	01/12/23	BBP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	12/21/22	ASC	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR CLIENT REVIEW

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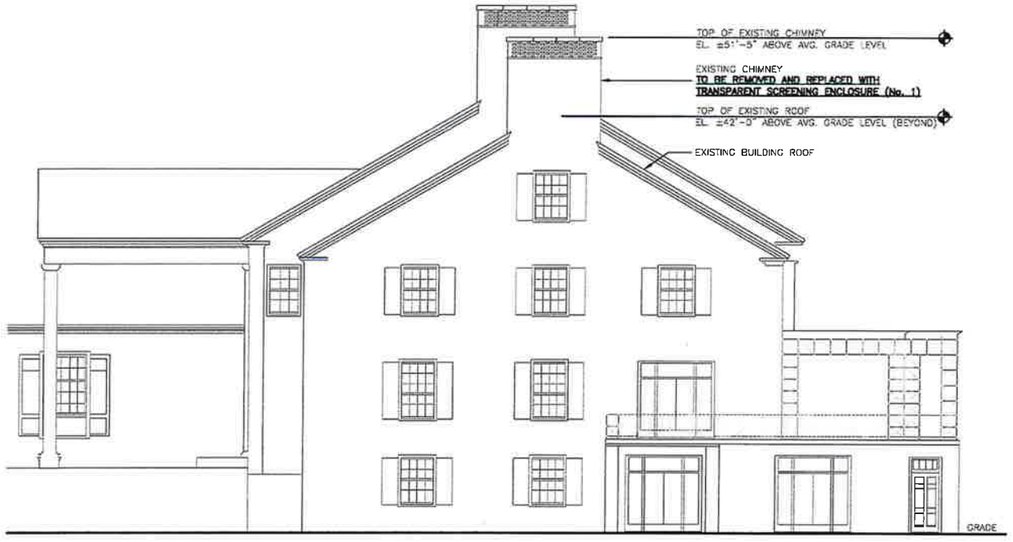
JOB NO. 22017.01

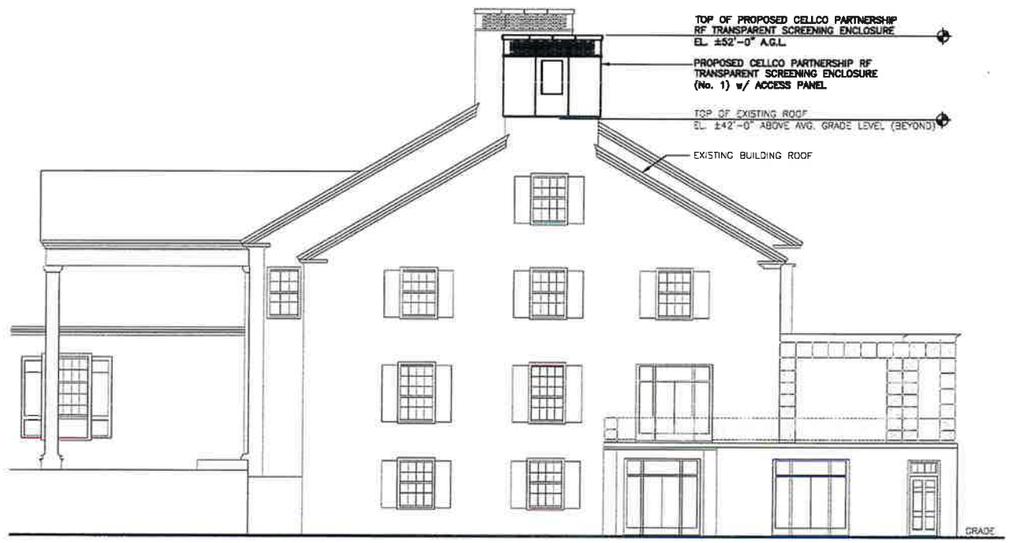
NORTH BUILDING ELEVATION

C-3

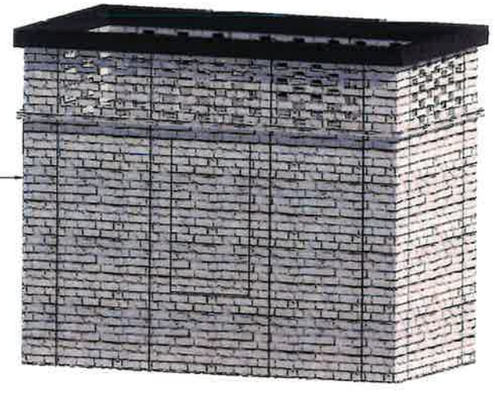
Sheet No. 4 of 8



1 C-4 **PARTIAL WEST ELEVATION - EXISTING**
SCALE: 1/8" = 1'-0"



2 C-4 **PARTIAL WEST ELEVATION - PROPOSED**
SCALE: 1/8" = 1'-0"



ANTENNA ENCLOSURE NOTE

THE RF TRANSPARENT ANTENNA ENCLOSURE DESIGN SHALL MATCH THE ARCHITECTURAL APPEARANCE AND COLOR OF THE EXISTING CHIMNEYS.

4 C-5 **TYPICAL RF TRANSPARENT CHIMNEY RENDERING**
SCALE: N.T.S.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/07/23	DMA	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
0	06/29/23	DMA	TJR	CT SITING COUNCIL DRAWINGS – REVISED FOR APPROVAL
B	01/12/23	BSP	TJR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	12/21/22	ASC	TJR	CT SITING COUNCIL DRAWINGS – ISSUED FOR CLIENT REVIEW

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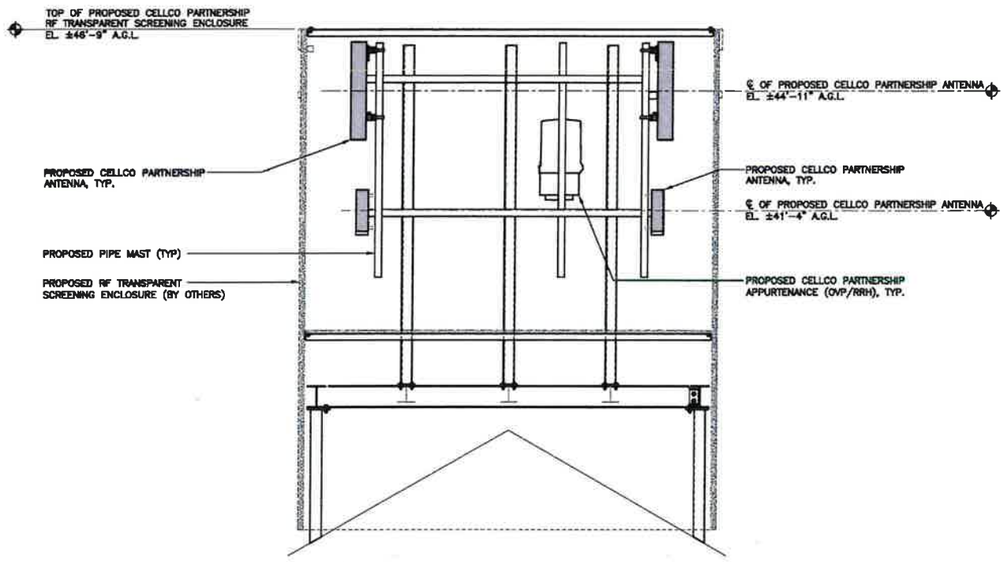
PARTIAL WEST BUILDING ELEV. & RF CHIMNEY

C-4

Sheet No. 5 of 6

4 / C-2

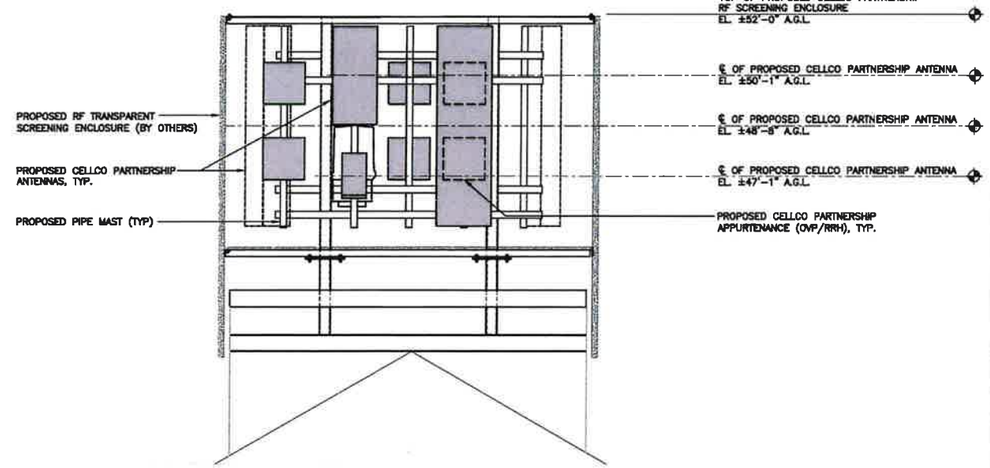


1 / C-5 **EAST SCHEMATIC ENCLOSURE SECTION**
SCALE: 1/2" = 1'- 0"

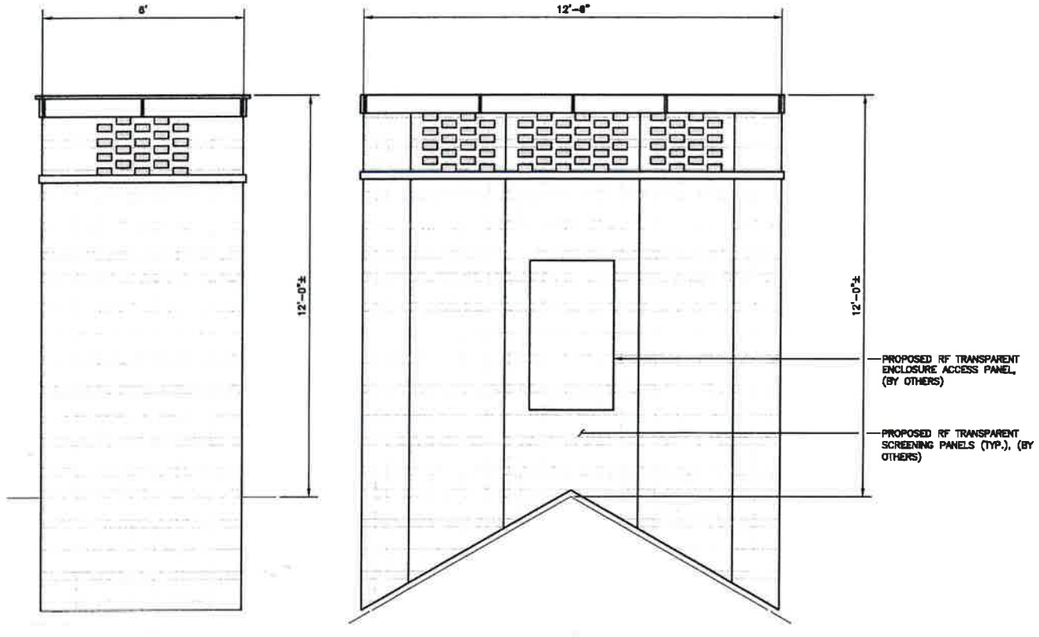
ANTENNA ENCLOSURE NOTE

THE RF TRANSPARENT ANTENNA ENCLOSURE DESIGN SHALL MATCH THE ARCHITECTURAL APPEARANCE AND COLOR OF THE EXISTING CHIMNEYS.

3 / C-2

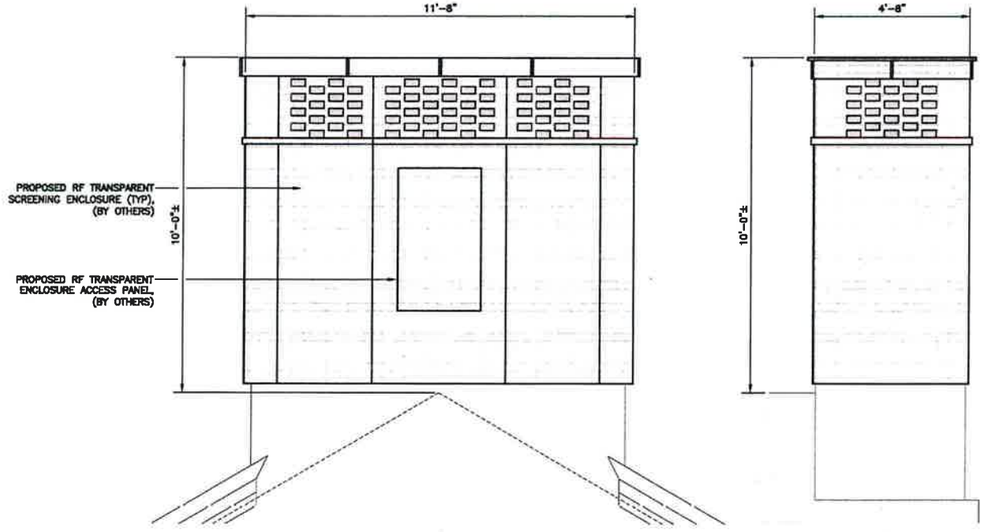


2 / C-5 **WEST SCHEMATIC ENCLOSURE SECTION**
SCALE: 1/2" = 1'- 0"



SIDE ELEVATION **FRONT ELEVATION**

3 / C-5 **EAST SCHEMATIC ENCLOSURE ELEVATIONS**
SCALE: 1/2" = 1'- 0"



FRONT ELEVATION **SIDE ELEVATION**

4 / C-5 **WEST SCHEMATIC ENCLOSURE ELEVATIONS**
SCALE: 1/2" = 1'- 0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/25/23	DMA	TSR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
0	06/29/23	DMA	TSR	CT SITING COUNCIL DRAWINGS – ISSUED FOR APPROVAL
B	01/13/23	BSP	TSR	CT SITING COUNCIL DRAWINGS – REVISED PER CLIENT COMMENTS
A	12/21/22	ASC	TSR	CT SITING COUNCIL DRAWINGS – ISSUED FOR CLIENT REVIEW

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JOB NO. 22017.01

ANTENNA ENCLOSURE ELEVATIONS

C-5

Sheet No. 5 of 6

ATTACHMENT 3

NNH4-65B-R6H4

12-port sector antenna, 4x 698–896 and 8x 1695–2360 MHz, 65° HPBW, 6x RET

- Features broadband Low Band (698-896 MHz) and High Band (1695-2360 MHz) arrays for 4T4R (4X MIMO) capability for Band 14, AWS, PCS and WCS applications
- Non-stacked high band array design provides higher gain and narrower vertical beamwidth than traditional antenna designs
- Independent tilt for all arrays
- Array configuration provides capability for 4T4R (4x MIMO) on Low band and Dual 4T4R (4x MIMO) on High band
- Optimized SPR performance across all operating bands
- Excellent wind loading characteristics
- Supports re-configurable antenna sharing capability enabling control of the internal RET system using up to two separate RET compatible OEM radios

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 | 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	8
RF Connector Quantity, low band	4
RF Connector Quantity, total	12

Remote Electrical Tilt (RET) Information

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

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NNH4-65B-R6H4

Input Voltage	10–30 Vdc
Internal RET	High band (4) | Low band (2)
Power Consumption, active state, maximum	8 W
Power Consumption, idle state, maximum	1 W
Protocol	3GPP/AISG 2.0 (Multi-RET)

Dimensions

Width	498 mm | 19.606 in
Depth	197 mm | 7.756 in
Net Weight, antenna only	34 kg | 74.957 lb
Length	1828 mm | 71.969 in

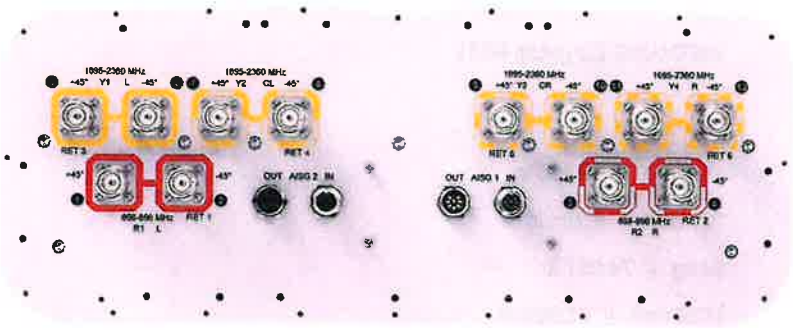
Array Layout

Array	Freq (MHz)	Conns	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	CPxxxxxxxxxxxxxxxmm.1
R2	698-896	3-4	2	CPxxxxxxxxxxxxxxxmm.2
Y1	1695-2360	5-6	3	CPxxxxxxxxxxxxxxxmm.3
Y2	1695-2360	7-8	4	CPxxxxxxxxxxxxxxxmm.4
Y3	1695-2360	9-10	5	CPxxxxxxxxxxxxxxxmm.5
Y4	1695-2360	11-12	6	CPxxxxxxxxxxxxxxxmm.6

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

Port Configuration

NNH4-65B-R6H4



Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Polarization	±45°
Total Input Power, maximum	900 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2180**	**2300–2360**
Gain, dBi	14.2	14.8	16.7	17.3	17.9	18.4
Beamwidth, Horizontal, degrees	68	64	70	67	61	59
Beamwidth, Vertical, degrees	11.5	10.2	6.9	6.5	6	5.4
Beam Tilt, degrees	2–14	2–14	2–12	2–12	2–12	2–12
USLS (First Lobe), dB	16	18	16	19	19	19
Front-to-Back Ratio at 180°, dB	30	30	33	34	34	34
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	25
VSWR | Return loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0

PIM, 3rd Order, 2 x 20 W, dBc	-150	-150	-150	-150	-150	-150
Input Power per Port at 50°C, maximum, watts	300	300	250	250	250	200

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2180**	**2300–2360**
Gain by all Beam Tilts, average, dBi	13.8	14.5	16.1	16.9	17.5	18
Gain by all Beam Tilts Tolerance, dB	±0.6	±0.5	±0.7	±0.6	±0.6	±0.5
Beamwidth, Horizontal Tolerance, degrees	±5.7	±3.2	±6.4	±7.5	±5.9	±3.6
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.7	±0.5	±0.3	±0.4	±0.2
USLS, beampeak to 20° above beampeak, dB	16	15	12	15	15	16
Front-to-Back Total Power at 180° ± 30°, dB	20	21	27	26	27	28
CPR at Boresight, dB	24	23	19	19	20	17
CPR at Sector, dB	12	10	7	5	6	8

Mechanical Specifications

Effective Projective Area (EPA), frontal	0.65 m² | 6.997 ft²
Effective Projective Area (EPA), lateral	0.22 m² | 2.368 ft²
Wind Loading @ Velocity, frontal	694.0 N @ 150 km/h (156.0 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	235.0 N @ 150 km/h (52.8 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	900.0 N @ 150 km/h (202.3 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	571.0 N @ 150 km/h (128.4 lbf @ 150 km/h)
Wind Speed, maximum	241.402 km/h | 150 mph

Packaging and Weights

Width, packed	565 mm | 22.244 in
Depth, packed	309 mm | 12.165 in
Length, packed	2035 mm | 80.118 in
Weight, gross	47.6 kg | 104.94 lb

Regulatory Compliance/Certifications

NNH4-65B-R6H4

Agency	Classification
CHINA-ROHS	Above maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
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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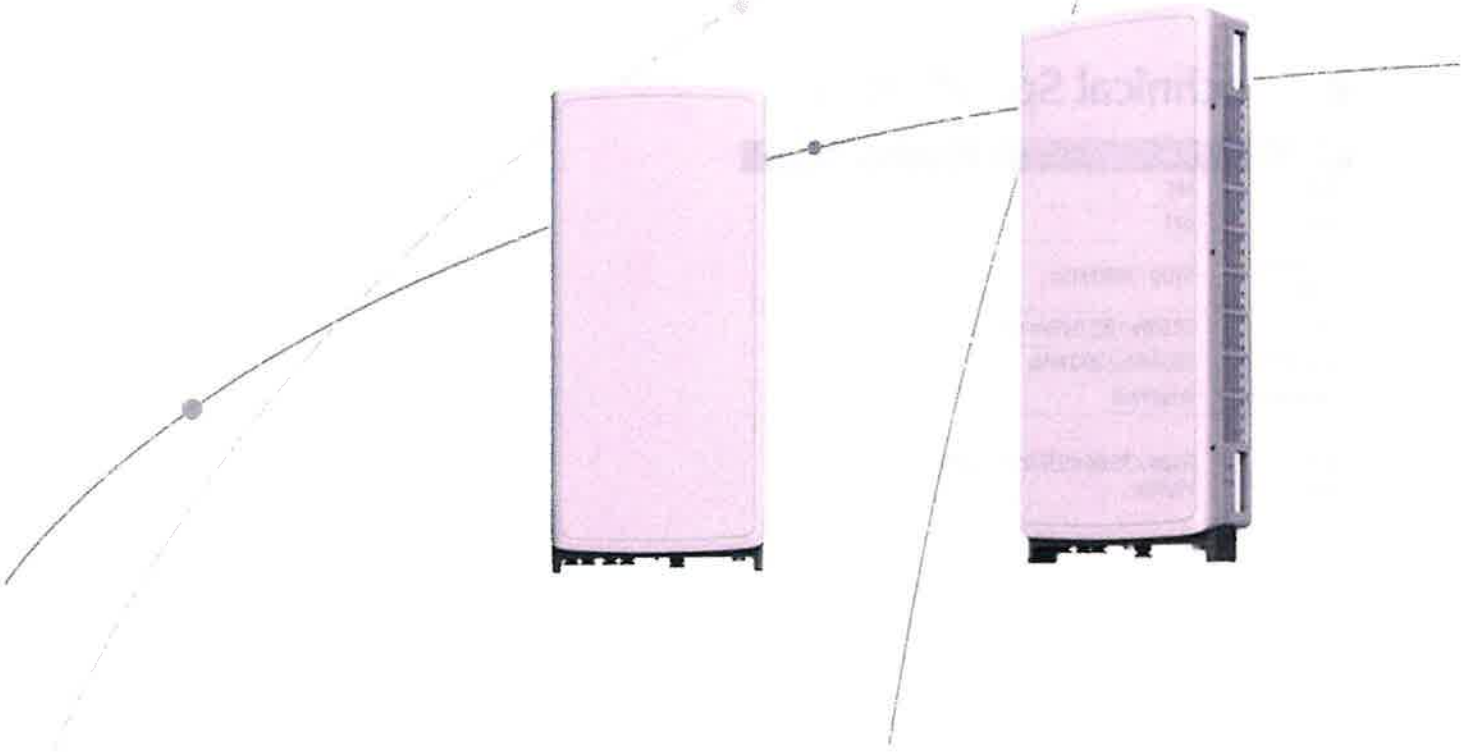
SAMSUNG C-Band 64T64R Massive MIMO Radio

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

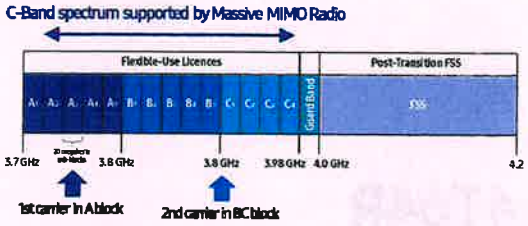


Points of Differentiation

Wide Bandwidth

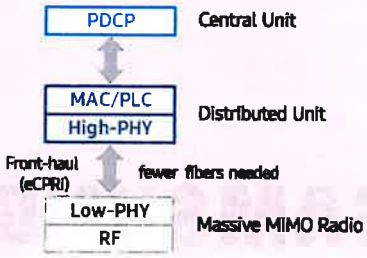
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

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.

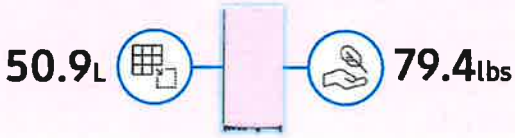
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

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

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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

[CBRS] Clip-on Antenna Specifications

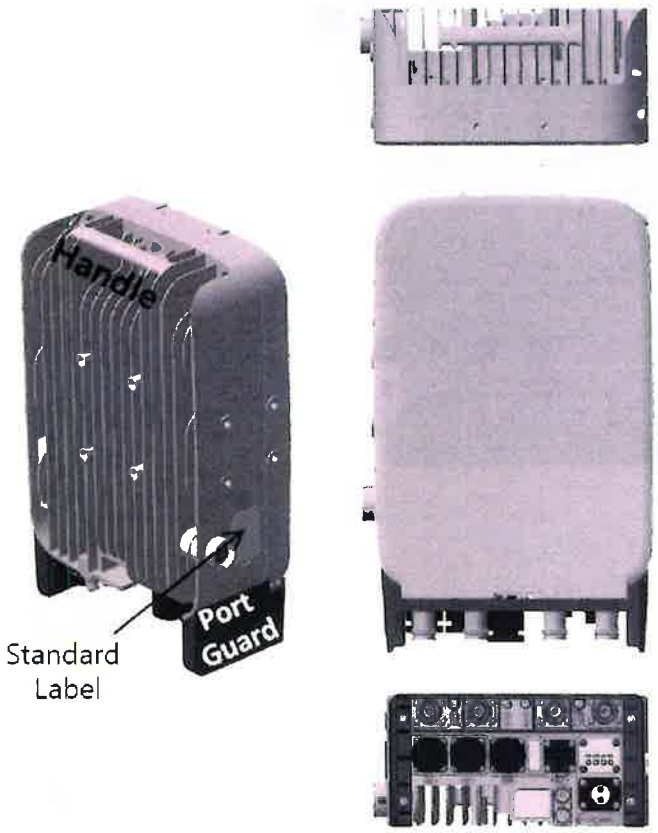
VzW accepted IP45 in FLD, but IP55 is Samsung Spec.

Items	Clip-on Antenna, BASTA**
Antenna Gain	12.5 ± 0.5 dBi (Max 13 dBi)
Horizontal BW (-3dB)	65° ± 5°
Vertical BW (-3dB)	17° ±3°
Electrical Tilt	8° (fixed) ±2°
Front-to-Back Ratio	> 25 dB
Port-to-Port Tracking	< 3 dB
VSWR	< 1.5
Isolation	> 25 dB
Ingress Protection	**IP55**
Size	220(W)×313(H)×34.3(D) mm (*) (8.7 x 12.3 x 1.4 inch.)
Weight	< **2.0** kg [Typ. 1.3 kg]
It is required that the radio should be weatherproofed properly with JMA WPS Boot with external antenna or with Weatherproof Boot for clip-on antennas.	

Antenna includes integrated cable with connector
* Design is subject to minor change

** Ant. spec. follows NGMN recommendations on Base Station Antenna Standards (BASTA). For example, 'mean ± tolerance of 86.6%' is applied to double-sided specification of statistical RF parameters.

[CBRS RRH] Spec.



Current Size: 216 x 307 x 105.5 mm (6.99L)
(8.5 x 12.1 x 4.1 inch., excluding Port Guard)
Design is subject to minor change

Item	Specification
Band	Band 48 (3.5 GHz)
Frequency	3550~3700 MHz
IBW	150 MHz
OBW	80 MHz
# of Carriers	5/10/15/20 MHz x 4 carriers
RF Chain	4TX / 4RX
RF Output Power & EIRP	4 path x 5 W (Total: 20 W = 43 dBm) (EIRP: 47 dBm / 10 MHz)
RX Sensitivity	Typical : -101.5 dBm @ 1 Rx (3GPP 36.104, Wide Area)
Modulation	256-QAM support (1024-QAM with 1~2dB power back-off)
Input Power	-48 VDC (-38 to -57 VDC, 1 SKU), with clip-on AC-DC converter (Option)
Power Consumption	About 160 Watt @ 100% RF load, typical conditions
Volume	Under 7L (w/o Antenna), Under 9.6L (with antenna)
Weight	Under 8.0 kg (18.64 lb) (w/o Antenna), Under 10.5 Kg (with ant.)
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (W/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A
	[B48] : FCC 47 CFR 96.41 e)
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, duplex or Bi-Di
CPRI Cascade	Not supported
# of Antenna Port	4
External Alarm (UDA)	4
RET	AISG 2.2
TMA & built-in Bias-T I//F and PIM cancellation	Not supported
Mounting Options	Pole, wall, tower, back to back, side by side (for external ant), 3 RRH with Clip-on Antenna on the pole
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
NB-IoT	Not Supported (HW Resource reserved for 1 Guard Band NB-IoT per LTE carrier)
Spectrum Analyzer	TX/RX Support
External Alarm (UDA)	4
5G NR	Support with S/W upgrade
XRAN	Support with S/W upgrade

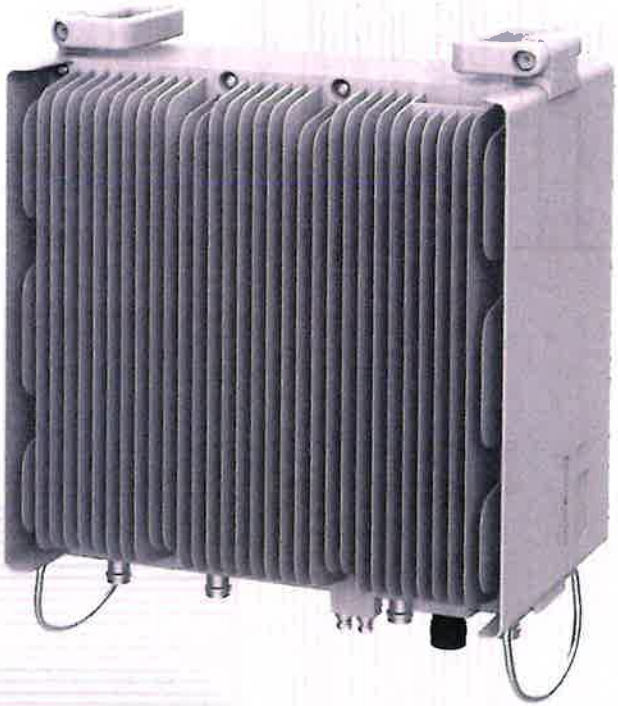
SAMSUNG

700/850MHZ MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

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

Model Code RF4440d-13A



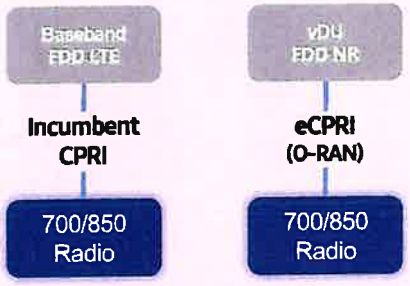
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

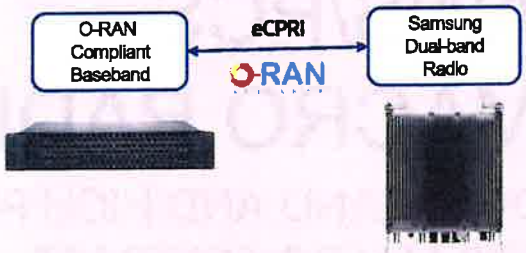
Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



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

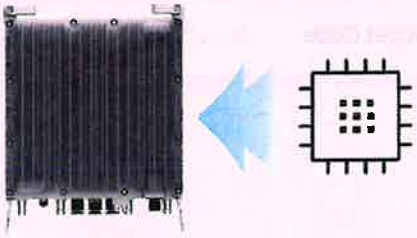
The number of required carriers varies according to site (region). The ability to support many carriers is essential for using all frequencies that the operator has available.

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

SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

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

Model Code RF4439d-25A

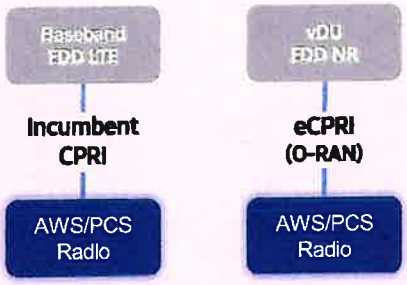
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

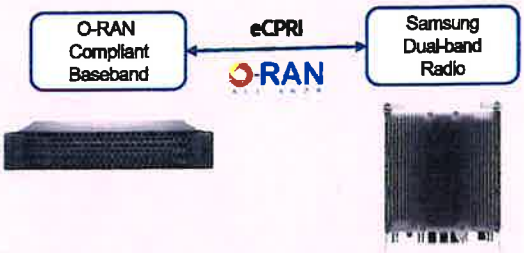
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

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

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



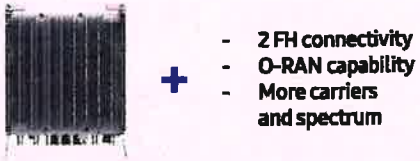
Optimum Spectrum Utilization

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

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

Brand New Features in a Compact Size

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



Technical Specifications

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

ATTACHMENT 4

CENTEK engineering

Centered on Solutions

Structural Analysis Report

Antenna Mounts/Enclosures

Proposed Verizon Wireless
Rooftop Site Build

Site Ref: Greenwich 4 CT

19 Doubling Road
Greenwich, CT

CENTEK Project No. 22017.01

Date: September 29, 2023

Prepared for:
Verizon Wireless
20 Alexander Drive
Wallingford, CT 06492

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

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Introduction

The purpose of this structural analysis report (SAR) is to summarize the results of our analysis of the hosting building structural components impacted by the proposed Verizon Wireless site build at the Greenwich Country Club building located at 19 Doubling Road in Greenwich, Connecticut.

The proposed antennas are to be mounted within two (East & West) proposed faux chimney RF transparent antenna concealment enclosures. The East Antenna Enclosure will be mounted to an internal steel frame and will be anchored to the host building's structural steel rood framing by means of a steel platform. The West Antenna Enclosure will also be mounted to an internal steel frame which will be anchored to the existing masonry faux chimney structure as modified by the proposed design.

The analysis performed encompasses the design of the antenna enclosure steel support framing, the design of any associated dunnage and anchorage for transfer of loads to the existing building structure, and verification of the structural impact on the host building.

The RF transparent antenna concealment enclosures and their attachment to the steel framing prepared under this design will be provided during the construction phase of the project as a delegated design performed by a vendor with a minimum of five (5) years of experience in the design of RF transparent antenna enclosures. The delegated design for compliance with state and local building code requirements will be prepared under the direct supervision of a State of Connecticut licensed structural engineer experience in these systems.

Primary Assumptions Used in the Analysis

- The host structure's theoretical capacity not including any assessment of the condition of the host structure.
- The proposed elevated steel antenna frames carry the horizontal and vertical loads due to the weight of equipment, and wind and transfers into host structure.
- The existing lateral bracing system of the host structure was not included in this assessment.
- Proposed reinforcement and support steel will be properly installed and maintained.
- Structure is in plumb condition.
- Loading for equipment and enclosure as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as observed during roof framing mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.

Antenna and Equipment Summary

Location	Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
East Chimney Enclosure	**(1) Commscope NHH4-65B-R6H4 Antenna** **(1) Samsung B5/B13 RRH** **(1) Samsung B2/B66A RRH** **(1) CBRS RRH-RT4423-48A** **(1) Samsung MT6407-77A** **(1) Samsung XXDWMM-12.5-65** **(1) Raycap OVP Box**	51/55-ft	Antenna Pipe Mast mounted to HSS Tube within Enclosure
West Chimney Enclosure	**(2) Commscope NHH4-65B-R6H4 Antenna** **(2) Samsung B5/B13 RRH** **(2) Samsung B2/B66A RRH** **(2) CBRS RRH-RT4423-48A** **(2) Samsung MT6407-77A** **(2) Samsung XXDWMM-12.5-65** **(1) Raycap OVP Box**	51/55-ft	Antenna Pipe Mast mounted to HSS Tube within Enclosure

Equipment – Indicates equipment to be installed.

Analysis

The roof and enclosure support framing wer analyzed using a comprehensive computer program titled Risa3D. The program analyzes the equipment enclosure supports and antenna mounts considering the worst case code prescribed loading condition. The structures were considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

Design Loading

Loading was determined per the requirements of the 2021 International Building Code amended by the 2022 CSBC and ASCE 7-16 "Minimum Design Loads for Buildings and Other Structures".

Wind Speed:	V_{ult} = 120 mph	*Appendix P of the 2022 CT State Building Code*
Risk Category:	II	*2021 IBC; Table 1604.05*
Exposure Category:	Surface Roughness B	*ASCE 7-16; Section 26.7.2*
Ground Snow Load	30 psf	*Appendix P of the 2022 CT State Building Code*
Dead Load	Equipment and framing self-weight	*Identified within SAR design calculations*
Live Load	20 psf	*ASCE 7-16; Table 4-1 "Roofs – All Other Construction"*

Reference Standards

2021 International Building Code:

1. ACI 318-14, *Building Code Requirements for Structural Concrete.*
2. ACI 530-13, *Building Code Requirements for Masonry Structures.*
3. AISC 360-10, *Specification for Structural Steel Buildings*

Results

Structure stresses were calculated utilizing the structural analysis software RISA 3D. The stresses were determined based on the AISC standard.

- Calculated stresses for the antenna ballast, platforms, and host building were found to **be within allowable** limits.

Sector	Component	Stress Ratio (percentage of capacity)	Result
East Chimney Enclosure	L2 ½ x 2 ½ x 4 Panel Frame Member	77%	**PASS**
	LL2x2x5/16x 4" Enclosure Frame Member	93%	**PASS**
	HSS4x4x1/4 Enclosure Post	59%	**PASS**
	W12x26 Steel Member (under roof)	26%	**PASS**
	Existing 16WF36 Rafters	41%	**PASS**
West Chimney Enclosure	L2 ½ x 2 ½ x 4 Panel Frame Member	52%	**PASS**
	LL2x2x5/16x 4" Enclosure Frame Member	83%	**PASS**
	HSS4x4x1/4 Enclosure Post	36%	**PASS**
	W6x15 Steel Member (Within Chimney)	21%	**PASS**
	Connection to Masonry	79%	**PASS**
	Existing 16WF40 Ridge	14%	**PASS**
	Existing 10WF21 Chimney Frame Member	10%	**PASS**
	L2 ½ x2 ½ Hanger	97%	**PASS**

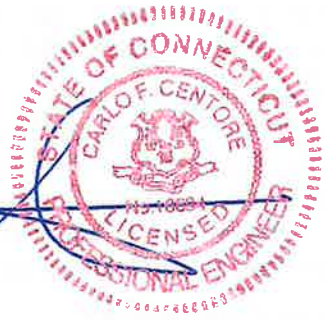
Conclusion

This analysis finds the proposed antenna enclosure steel support framing, associated dunnage and anchorage to the existing building, and the impacted host building structural components **HAVE SUFFICIENT CAPACITY** to support the proposed Verizon equipment configuration.

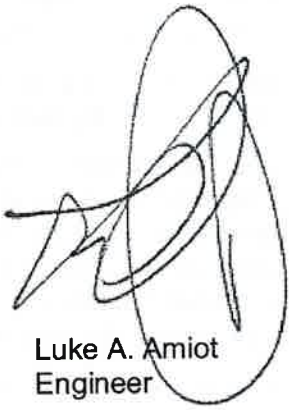
The analysis is based, in part, on the information provided to this office by Verizon Wireless. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Carlo F. Centore, PE
Structural Engineer



Luke A. Amiot
Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

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

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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Branford, CT 06405 F: (203) 488-8587

Subject: Wind Load on Equipment per ASCE 7-10

Location: Greenwich, CT

Date: 09/26/2023

Prepared by: LAA; Checked by: CFC
Job No. 22017.01

Design Wind Load on Other Structures:

(Based on IBC 2021, CSBC 2022 and ASCE 7-16)

Wind Speed =	$V := 120$	mph	(User Input)	(CSBC Appendix-N)
Risk Category =	$BC := II$		(User Input)	(IBC Table 1604.5)
Exposure Category =	$Exp := C$		(User Input)	
Height Above Grade =	$Z := 52$	ft	(User Input)	
Structure Type =	$Structuretype := Square\_Chimney$			
Structure Height =	$Height := 12$	ft	(User Input) (User Input)	
Horizontal Dimension of Structure =	$Width := 12$	ft	(User Input)	

Terrain Exposure Constants:

Nominal Height of the Atmospheric Boundary Layer =

$$zg := \begin{cases} 1200 & \text{if } Exp = B \\ 900 & \text{if } Exp = C \\ 700 & \text{if } Exp = D \end{cases} = 900$$

(Table 26.9-1)

3-Sec Gust Speed Power Law Exponent =

$$\alpha := \begin{cases} 7 & \text{if } Exp = B \\ 9.5 & \text{if } Exp = C \\ 11.5 & \text{if } Exp = D \end{cases} = 9.5$$

(Table 26.9-1)

Integral Length Scale Factor =

$$l := \begin{cases} 320 & \text{if } Exp = B \\ 500 & \text{if } Exp = C \\ 650 & \text{if } Exp = D \end{cases} = 500$$

(Table 26.9-1)

Integral Length Scale Power Law Exponent =

$$\varepsilon := \begin{cases} \frac{1}{3} & \text{if } Exp = B \\ \frac{1}{5} & \text{if } Exp = C \\ \frac{1}{8} & \text{if } Exp = D \end{cases} = 0.2$$

(Table 26.9-1)

Turbulence Intensity Factor =

$$c := \begin{cases} 0.3 & \text{if } Exp = B \\ 0.2 & \text{if } Exp = C \\ 0.15 & \text{if } Exp = D \end{cases} = 0.2$$

(Table 26.9-1)

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Exposure Constant =	$Z_{min} := \begin{\|} \text{if } Exp = B \\ \quad \begin{\|} 30 \end{\|} \\ \text{if } Exp = C \\ \quad \begin{\|} 15 \end{\|} \\ \text{if } Exp = D \\ \quad \begin{\|} 7 \end{\|} \end{\|} = 15$	(Table 26.9-1)
Exposure Coefficient =	$K_z := \begin{\|} \text{if } 15 \le Z \le zg \\ \quad \begin{\|} 2.01 \cdot \left(\frac{Z}{zg}\right)^{\left(\frac{2}{\alpha}\right)} \end{\|} \\ \text{if } Z < 15 \\ \quad \begin{\|} 2.01 \cdot \left(\frac{15}{zg}\right)^{\left(\frac{2}{\alpha}\right)} \end{\|} \end{\|} = 1.1$	(Table 29.3-1)
Topographic Factor =	$K_{zt} := 1$	(Eq. 26.8-2)
Wind Directionality Factor =	$K_d = 0.9$	(Table 26.6-1)
Velocity Pressure =	$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 36.59$	(Eq. 29.3-1)
Peak Factor for Background Response =	$g_Q := 3.4$	(Sec 26.9.4)
Peak Factor for Wind Response =	$g_v := 3.4$	(Sec 26.9.4)
Equivalent Height of Structure =	$z := \begin{\|} \text{if } Z_{min} > 0.6 \cdot Height \\ \quad \begin{\|} Z_{min} \end{\|} \\ \text{else} \\ \quad \begin{\|} 0.6 \cdot Height \end{\|} \end{\|} = 15$	(Sec 26.9.4)
Intensity of Turbulence =	$I_z := c \cdot \left(\frac{33}{z}\right)^{\left(\frac{1}{6}\right)} = 0.228$	(Eq. 26.9-7)
Integral Length Scale of Turbulence =	$L_z := l \cdot \left(\frac{z}{33}\right)^{\varepsilon} = 427.057$	(Eq. 26.9-9)
Background Response Factor =	$Q := \sqrt{\frac{1}{1 + 0.63 \cdot \left(\frac{Width + Height}{L_z}\right)^{0.63}}} = 0.952$	(Eq. 26.9-8)
Gust Response Factor =	$G := 0.925 \cdot \left(\frac{(1 + 1.7 \cdot g_Q \cdot I_z \cdot Q)}{1 + 1.7 \cdot g_v \cdot I_z}\right) = 0.9$	(Eq. 26.9-6)
Force Coefficient =	$C_f = 1.3$	(Fig 29.5-1 - 29.5-3)
Wind Force =	$F := q_z \cdot G \cdot C_f = 43$	psf

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Subject: Wind Load on Equipment per ASCE 7-10

Location: Greenwich, CT

Date: 09/26/2023

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Job No. 22017.01

Development of Wind on Antennas

Antenna Data:

Antenna Model =	Samsung XXDWMM-12.5-65		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 12.32$	in	(User Input)
Antenna Width =	$W_{ant} := 8.66$	in	(User Input)
Antenna Thickness =	$T_{ant} := 1.35$	in	(User Input)
Antenna Weight =	$WT_{ant} := 2.86$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.7$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.7$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 32$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 0.1$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.1$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 5$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 3$	lbs

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Development of Wind on Antennas

Antenna Data:

Antenna Model =	Samsung MT6407-77A		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 35.1$	in	(User Input)
Antenna Width =	$W_{ant} := 16.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 87$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 168$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.3$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 57$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 87$	lbs

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Subject: Wind Load on Equipment per ASCE 7-10

Location: Greenwich, CT

Date: 09/26/2023

Prepared by: LAA; Checked by: CFC
Job No. 22017.01

Development of Wind on Antennas

Antenna Data:

Antenna Model =	Commscope NNH4-65B-R6H4		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 19.6$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.79$	in	(User Input)
Antenna Weight =	$WT_{ant} := 83.12$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 9.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 9.8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 419$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 167$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 83$	lbs

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Subject: Wind Load on Equipment per ASCE 7-10

Location: Greenwich, CT

Date: 09/26/2023

Prepared by: LAA; Checked by: CFC
Job No. 22017.01

Development of Wind on RRHs

RRH Data:

RRH Model =	Samsung B2/B66A RRH		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 15.0$	in	(User Input)
RRH Width =	$W_{RRH} := 15.0$	in	(User Input)
RRH Thickness =	$T_{RRH} := 10.0$	in	(User Input)
RRH Weight =	$WT_{RRH} := 75$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.6$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.6$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 67$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 45$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 75$	lbs

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Subject: Wind Load on Equipment per ASCE 7-10

Location: Greenwich, CT

Date: 09/26/2023

Prepared by: LAA; Checked by: CFC
Job No. 22017.01

Development of Wind & Ice Load on RRHs

RRH Data:

RRH Model =	Samsung B5/B13 RRH		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 15.0$	in	(User Input)
RRH Width =	$W_{RRH} := 15.0$	in	(User Input)
RRH Thickness =	$T_{RRH} := 10.23$	in	(User Input)
RRH Weight =	$WT_{RRH} := 79.1$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.6$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.6$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 67$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 1.1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 46$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 79$	lbs

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Location: Greenwich, CT
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Prepared by: LAA; Checked by: CFC
Job No. 22017.01

Development of Wind & Ice Load on RRHs

RRH Data:

RRH Model =	Samsung CBRS RRH		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 11.8$	in	(User Input)
RRH Width =	$W_{RRH} := 8.7$	in	(User Input)
RRH Thickness =	$T_{RRH} := 3.6$	in	(User Input)
RRH Weight =	$WT_{RRH} := 18.6$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 0.7$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.7$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 31$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.3$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.3$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 13$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 19$	lbs

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Subject: Wind Load on Equipment per ASCE 7-10

Location: Greenwich, CT

Date: 09/26/2023

Prepared by: LAA; Checked by: CFC
Job No. 22017.01

Development of Wind & Ice Load on RRHs

RRH Data:

RRH Model =	Raycap OVP Box		
RRH Shape =	Flat		(User Input)
RRH Height =	$L_{RRH} := 19.18$	in	(User Input)
RRH Width =	$W_{RRH} := 15.73$	in	(User Input)
RRH Thickness =	$T_{RRH} := 10.25$	in	(User Input)
RRH Weight =	$WT_{RRH} := 26.9$	lbs	(User Input)
Number of RRHs =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

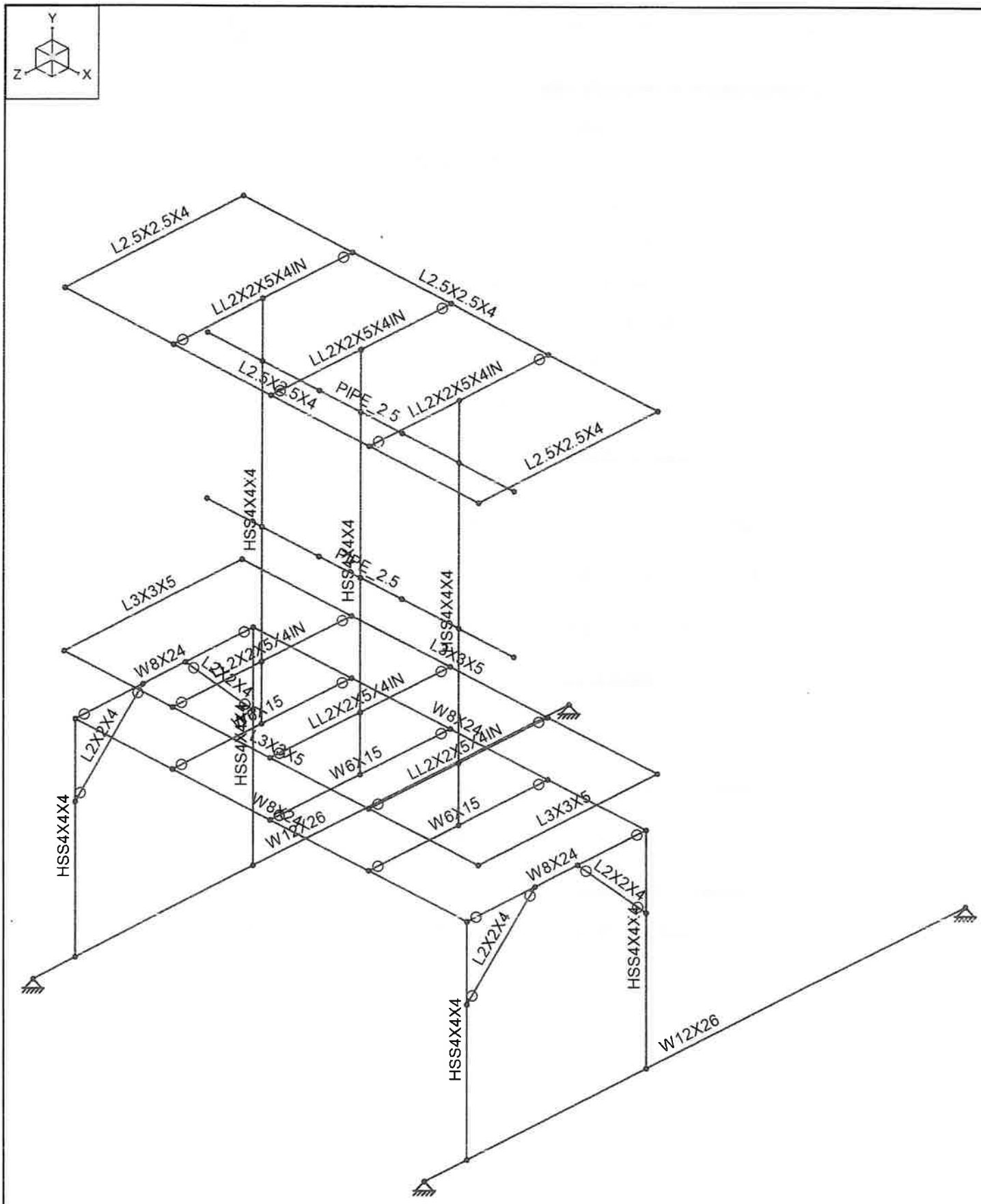
Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 2.1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 2.1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 90$	lbs

Wind Load (Side)

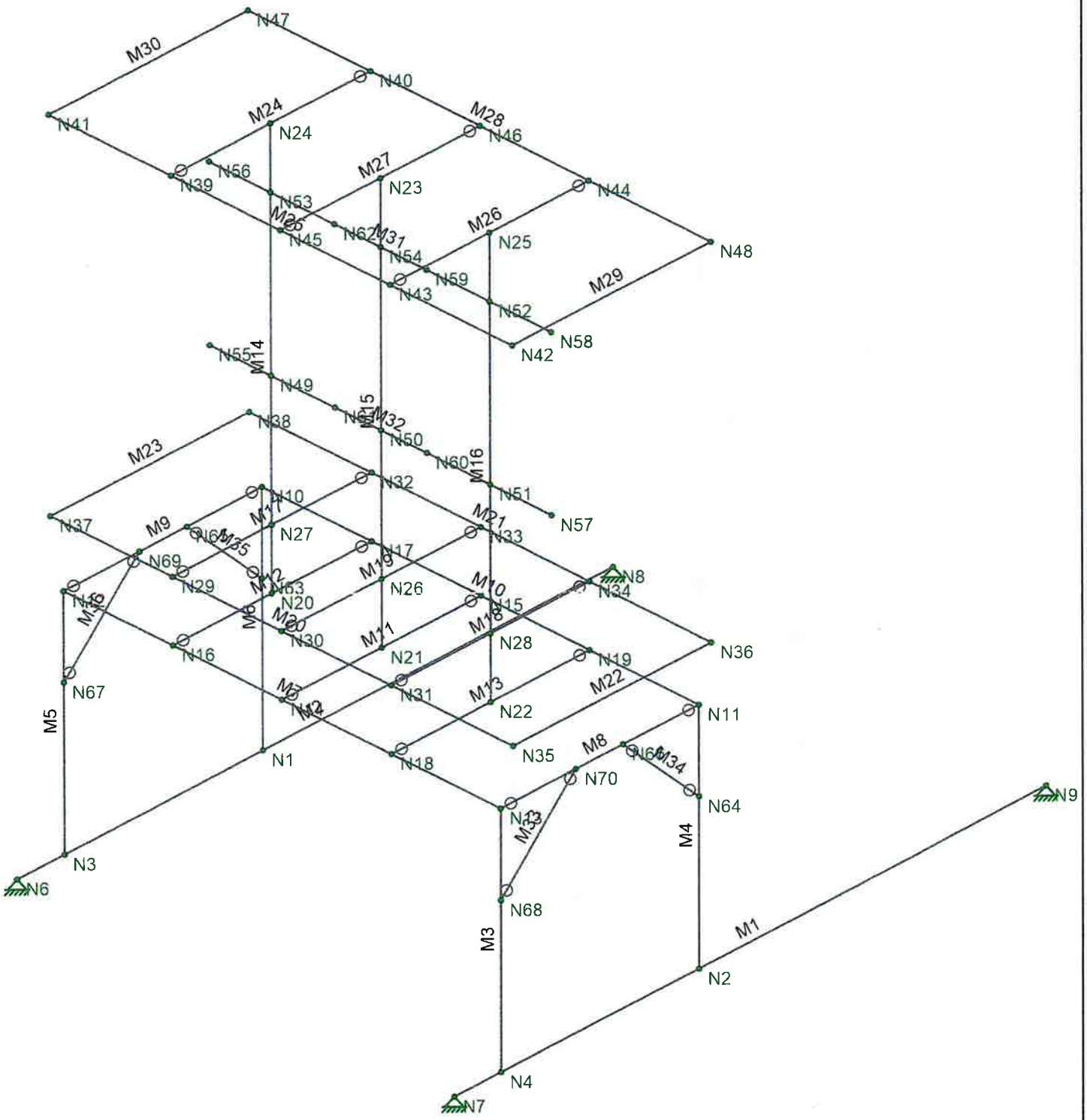
Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 1.4$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.4$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 58$	lbs

Gravity Load (without ice)

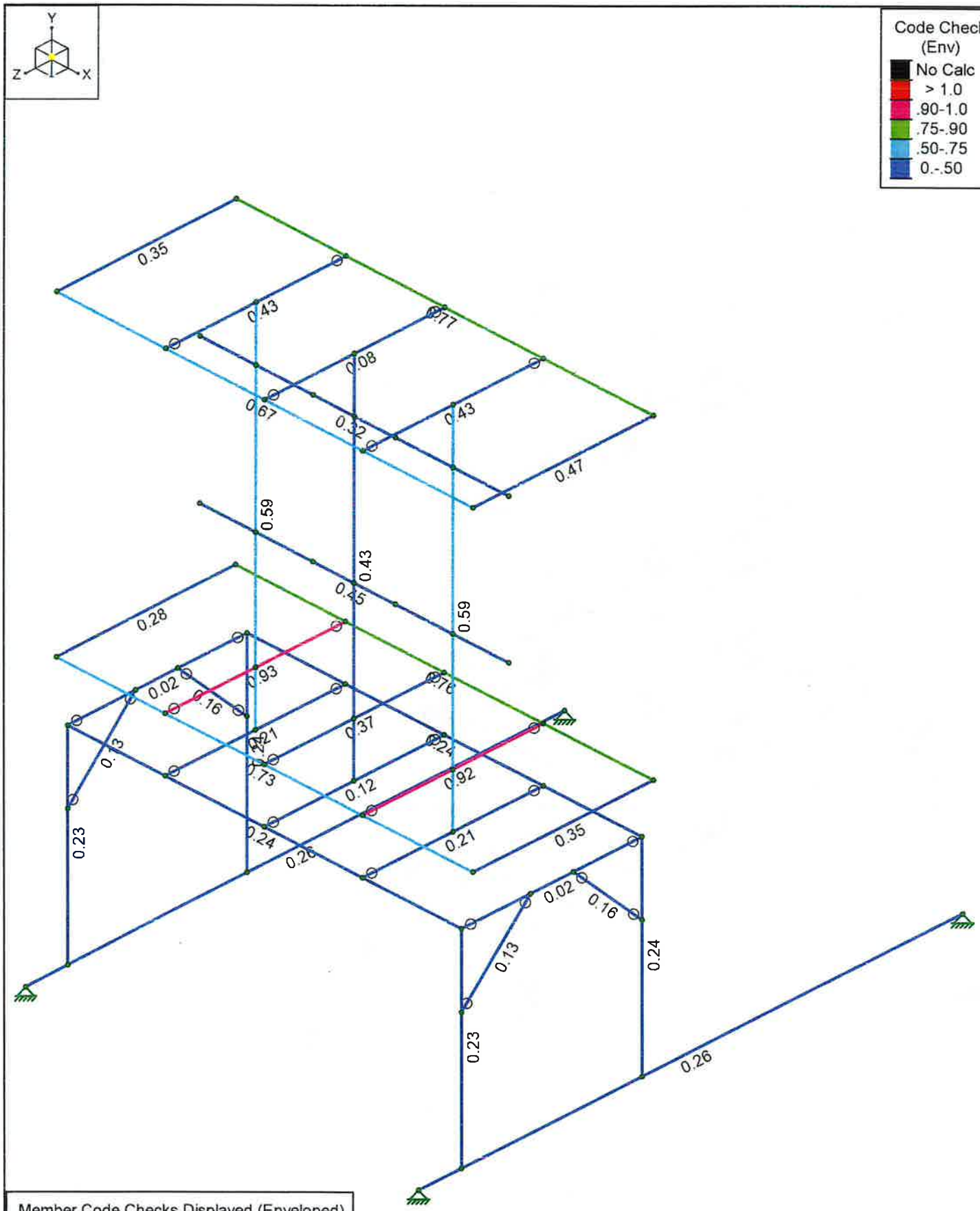
Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 27$	lbs



Centek Engineering	Greenwich 4- East Chimney Frame	SK-1
Luke Amiot		Sep 28, 2023
22017.01		New Chimney Frame Analysis.r3d



Centek Engineering	Greenwich 4- East Chimney Frame	SK-2
Luke Amiot		Sep 28, 2023
22017.01		New Chimney Frame Analysis.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering	Greenwich 4- East Chimney Frame	SK-3
Luke Amiot		Sep 28, 2023
22017.01		New Chimney Frame Analysis.r3d

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N1	0	0	0	
2	N2	11.5	0	0	
3	N3	0	0	5.25	
4	N4	11.5	0	5.25	
5	N6	0	0	6.5	
6	N7	11.5	0	6.5	
7	N8	0	0	-9.25	
8	N9	11.5	0	-9.25	
9	N10	0	5.75	0	
10	N11	11.5	5.75	0	
11	N12	0	5.75	5.25	
12	N13	11.5	5.75	5.25	
13	N14	5.75	5.75	5.25	
14	N15	5.75	5.75	0	
15	N16	2.875	5.75	5.25	
16	N17	2.875	5.75	0	
17	N18	8.625	5.75	5.25	
18	N19	8.625	5.75	0	
19	N20	2.875	5.75	2.625	
20	N21	5.75	5.75	2.625	
21	N22	8.625	5.75	2.625	
22	N23	5.75	16	2.625	
23	N24	2.875	16	2.625	
24	N25	8.625	16	2.625	
25	N26	5.75	7.25	2.625	
26	N27	2.875	7.25	2.625	
27	N28	8.625	7.25	2.625	
28	N29	2.875	7.25	5.25	
29	N30	5.75	7.25	5.25	
30	N31	8.625	7.25	5.25	
31	N32	2.875	7.25	0	
32	N33	5.75	7.25	0	
33	N34	8.625	7.25	0	
34	N35	11.833	7.25	5.25	
35	N36	11.833	7.25	0	
36	N37	-0.333	7.25	5.25	
37	N38	-0.333	7.25	0	
38	N39	2.875	16	5.25	
39	N40	2.875	16	0	
40	N41	-0.333	16	5.25	
41	N42	11.833	16	5.25	
42	N43	8.625	16	5.25	
43	N44	8.625	16	0	
44	N45	5.75	16	5.25	
45	N46	5.75	16	0	
46	N47	-0.333	16	0	
47	N48	11.833	16	0	
48	N49	2.875	10.5	2.625	
49	N50	5.75	10.5	2.625	
50	N51	8.625	10.5	2.625	
51	N52	8.625	14.5	2.625	
52	N53	2.875	14.5	2.625	
53	N54	5.75	14.5	2.625	
54	N55	1.25	10.5	2.625	
55	N56	1.25	14.5	2.625	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	N57	10.25	10.5	2.625	
57	N58	10.25	14.5	2.625	
58	N59	6.955	14.5	2.625	
59	N60	6.955	10.5	2.625	
60	N61	4.545	10.5	2.625	
61	N62	4.545	14.5	2.625	
62	N63	0	3.75	0	
63	N64	11.5	3.75	0	
64	N65	0	5.75	2	
65	N66	11.5	5.75	2	
66	N67	0	3.75	5.25	
67	N68	11.5	3.75	5.25	
68	N69	0	5.75	3.25	
69	N70	11.5	5.75	3.25	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	N6	Reaction	Reaction	Reaction
2	N7	Reaction	Reaction	Reaction
3	N9	Reaction	Reaction	Reaction
4	N8	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N7	N9	W12X26	Beam	Wide Flange	A992	Typical
2	M2	N6	N8	W12X26	Beam	Wide Flange	A992	Typical
3	M3	N4	N13	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
4	M4	N2	N11	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
5	M5	N3	N12	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
6	M6	N1	N10	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
7	M7	N12	N13	W8X24	Beam	Wide Flange	A992	Typical
8	M8	N13	N11	W8X24	Beam	Wide Flange	A992	Typical
9	M9	N12	N10	W8X24	Beam	Wide Flange	A992	Typical
10	M10	N10	N11	W8X24	Beam	Wide Flange	A992	Typical
11	M11	N14	N15	W6X15	Beam	Wide Flange	A992	Typical
12	M12	N16	N17	W6X15	Beam	Wide Flange	A992	Typical
13	M13	N18	N19	W6X15	Beam	Wide Flange	A992	Typical
14	M14	N20	N24	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
15	M15	N21	N23	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
16	M16	N22	N25	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
17	M17	N29	N32	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
18	M18	N31	N34	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
19	M19	N30	N33	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
20	M20	N37	N35	L3X3X5	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N38	N36	L3X3X5	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N35	N36	L3X3X5	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N37	N38	L3X3X5	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N39	N40	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
25	M25	N41	N42	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
26	M26	N43	N44	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
27	M27	N45	N46	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
28	M28	N47	N48	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
29	M29	N42	N48	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
30	M30	N41	N47	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
31	M31	N56	N58	PIPE_2.5	Beam	HSS Pipe	A53 Gr.B	Typical
32	M32	N55	N57	PIPE_2.5	Beam	HSS Pipe	A53 Gr.B	Typical
33	M33	N68	N70	L2X2X4	Beam	Single Angle	A36 Gr.36	Typical
34	M34	N66	N64	L2X2X4	Beam	Single Angle	A36 Gr.36	Typical
35	M35	N65	N63	L2X2X4	Beam	Single Angle	A36 Gr.36	Typical
36	M36	N69	N67	L2X2X4	Beam	Single Angle	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	M1	W12X26	15.75	Lbyy	N/A	N/A	Lateral
2	M2	W12X26	15.75	Lbyy	N/A	N/A	Lateral
3	M3	HSS4X4X4	5.75	Lbyy	N/A	N/A	Lateral
4	M4	HSS4X4X4	5.75	Lbyy	N/A	N/A	Lateral
5	M5	HSS4X4X4	5.75	Lbyy	N/A	N/A	Lateral
6	M6	HSS4X4X4	5.75	Lbyy	N/A	N/A	Lateral
7	M7	W8X24	11.5	Lbyy	N/A	N/A	Lateral
8	M8	W8X24	5.25	Lbyy	N/A	N/A	Lateral
9	M9	W8X24	5.25	Lbyy	N/A	N/A	Lateral
10	M10	W8X24	11.5	Lbyy	N/A	N/A	Lateral
11	M11	W6X15	5.25	Lbyy	N/A	N/A	Lateral
12	M12	W6X15	5.25	Lbyy	N/A	N/A	Lateral
13	M13	W6X15	5.25	Lbyy	N/A	N/A	Lateral
14	M14	HSS4X4X4	10.25	Lbyy	N/A	N/A	Lateral
15	M15	HSS4X4X4	10.25	Lbyy	N/A	N/A	Lateral
16	M16	HSS4X4X4	10.25	Lbyy	N/A	N/A	Lateral
17	M17	LL2X2X5X4in	5.25	Lbyy	N/A	N/A	Lateral
18	M18	LL2X2X5X4in	5.25	Lbyy	N/A	N/A	Lateral
19	M19	LL2X2X5X4in	5.25	Lbyy	N/A	N/A	Lateral
20	M20	L3X3X5	12.166	Lbyy	N/A	N/A	Lateral
21	M21	L3X3X5	12.166	Lbyy	N/A	N/A	Lateral
22	M22	L3X3X5	5.25	Lbyy	N/A	N/A	Lateral
23	M23	L3X3X5	5.25	Lbyy	N/A	N/A	Lateral
24	M24	LL2X2X5X4in	5.25	Lbyy	N/A	N/A	Lateral
25	M25	L2.5X2.5X4	12.166	Lbyy	N/A	N/A	Lateral
26	M26	LL2X2X5X4in	5.25	Lbyy	N/A	N/A	Lateral
27	M27	LL2X2X5X4in	5.25	Lbyy	N/A	N/A	Lateral
28	M28	L2.5X2.5X4	12.166	Lbyy	N/A	N/A	Lateral
29	M29	L2.5X2.5X4	5.25	Lbyy	N/A	N/A	Lateral
30	M30	L2.5X2.5X4	5.25	Lbyy	N/A	N/A	Lateral
31	M31	PIPE_2.5	9	Lbyy	N/A	N/A	Lateral
32	M32	PIPE_2.5	9	Lbyy	N/A	N/A	Lateral
33	M33	L2X2X4	2.828	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
34	M34	L2X2X4	2.828	Lbyy	N/A	N/A	Lateral
35	M35	L2X2X4	2.828	Lbyy	N/A	N/A	Lateral
36	M36	L2X2X4	2.828	Lbyy	N/A	N/A	Lateral

Member Distributed Loads (BLC 5 : Panel Weight)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M20	Y	-0.023	-0.023	0	%100
2	M23	Y	-0.023	-0.023	0	%100
3	M21	Y	-0.023	-0.023	0	%100
4	M22	Y	-0.023	-0.023	0	%100
5	M25	Y	-0.023	-0.023	0	%100
6	M28	Y	-0.023	-0.023	0	%100
7	M29	Y	-0.023	-0.023	0	%100
8	M30	Y	-0.023	-0.023	0	%100

Member Distributed Loads (BLC 9 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M17	Y	-0.03	-0.03	2.22e-16	5.25
2	M18	Y	-0.03	-0.03	2.22e-16	5.25
3	M19	Y	-0.029	-0.029	2.22e-16	5.25
4	M22	Y	-0.016	-0.016	2.22e-16	5.25
5	M23	Y	-0.016	-0.016	4.441e-16	5.25

Member Distributed Loads (BLC 10 : BLC 3 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M17	Y	-0.061	-0.061	2.22e-16	5.25
2	M18	Y	-0.061	-0.061	2.22e-16	5.25
3	M19	Y	-0.058	-0.058	2.22e-16	5.25
4	M22	Y	-0.032	-0.032	2.22e-16	5.25
5	M23	Y	-0.032	-0.032	4.441e-16	5.25

Member Distributed Loads (BLC 11 : BLC 6 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M22	X	-0.188	-0.188	0	5.25
2	M29	X	-0.188	-0.188	5.718e-15	5.25

Member Distributed Loads (BLC 12 : BLC 7 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M20	Z	-0.188	-0.188	1.554e-15	12.166
2	M25	Z	-0.188	-0.188	3.109e-15	12.166

Member Distributed Loads (BLC 13 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M17	Y	-0.091	-0.091	2.22e-16	5.25
2	M18	Y	-0.091	-0.091	2.22e-16	5.25
3	M19	Y	-0.086	-0.086	2.22e-16	5.25
4	M22	Y	-0.048	-0.048	2.22e-16	5.25

Member Distributed Loads (BLC 13 : BLC 8 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
5	M23	Y	-0.048	-0.048	4.441e-16	5.25

Member Area Loads (BLC 2 : Dead Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N37	N35	N36	N38	Y	A-B	-0.01

Member Area Loads (BLC 3 : Live Load (Roof))

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N37	N35	N36	N38	Y	A-B	-0.02

Member Area Loads (BLC 6 : Wind-X)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N35	N42	N48	N36	X	A-B	-0.043

Member Area Loads (BLC 7 : Wind-Z)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N37	N41	N42	N35	Z	A-B	-0.043

Member Area Loads (BLC 8 : Snow Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N37	N35	N36	N38	Y	A-B	-0.03

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Distributed	Area(Member)
1	Self Weight	DL	-1			
2	Dead Load	DL				1
3	Live Load (Roof)	RLL				1
4	Equipment Load	DL		7		
5	Panel Weight	DL			8	
6	Wind-X	WLX				1
7	Wind-Z	WLZ				1
8	Snow Load	SL				1
9	BLC 2 Transient Area Loads	None			5	
10	BLC 3 Transient Area Loads	None			5	
11	BLC 6 Transient Area Loads	None			2	
12	BLC 7 Transient Area Loads	None			2	
13	BLC 8 Transient Area Loads	None			5	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (a)	Yes	Y	DL	1	RLL	1								
4	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
5	IBC 16-11 (a)	Yes	Y	DL	1	LL	0.75	LLS	0.75	RLL	0.75				
6	IBC 16-11 (b)	Yes	Y	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
7	IBC 16-12 (a) (a)	Yes	Y	DL	1	WLX	0.6								
8	IBC 16-12 (a) (b)	Yes	Y	DL	1	WLZ	0.6								
9	IBC 16-12 (a) (c)	Yes	Y	DL	1	WLX	-0.6								
10	IBC 16-12 (a) (d)	Yes	Y	DL	1	WLZ	-0.6								
11	IBC 16-13 (a) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	RLL	0.75		
12	IBC 16-13 (a) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	RLL	0.75		
13	IBC 16-13 (a) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
14	IBC 16-13 (a) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
15	IBC 16-13 (b) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
16	IBC 16-13 (b) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
17	IBC 16-13 (b) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
18	IBC 16-13 (b) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
19	IBC 16-13 (c) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75				
20	IBC 16-13 (c) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75				
21	IBC 16-13 (c) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75				
22	IBC 16-13 (c) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75				
23	IBC 16-15 (a)	Yes	Y	DL	0.6	WLX	0.6								
24	IBC 16-15 (b)	Yes	Y	DL	0.6	WLZ	0.6								

Envelope Node Reactions NOTE: HIGHLIGHTED VALUES BELOW APPLIED TO EXISTING RAFTER

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N6	max	0.599	7	3.401	18	0.984	24	0	24	0	24	0	24
2		min	-0.361	9	0.227	24	-1.042	10	0	1	0	1	0	1
3	N7	max	0.41	23	3.437	18	0.984	24	0	24	0	24	0	24
4		min	-0.599	9	0.249	24	-1.043	10	0	1	0	1	0	1
5	N9	max	0.097	23	1.867	8	0.405	8	0	24	0	24	0	24
6		min	-0.14	9	-0.189	10	-0.331	10	0	1	0	1	0	1
7	N8	max	0.14	7	1.856	8	0.404	8	0	24	0	24	0	24
8		min	-0.085	9	-0.2	10	-0.331	10	0	1	0	1	0	1
9	Totals:	max	1.185	7	7.791	4	2.746	8						
10		min	-1.185	9	3.525	23	-2.746	10						

NOTE: HIGHLIGHTED VALUES BELOW ARE STRESS RATIOS IDENTIFIED IN REPORT

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M1	W12X26	0.259	6.563	8	0.061	0	y	18	72.795	229.042	20.384	75.219	1.412	H1-1b
2	M2	W12X26	0.258	6.563	8	0.061	0	y	18	72.795	229.042	20.384	75.24	1.413	H1-1b
3	M3	HSS4X4X4	0.235	5.75	9	0.068	3.714	z	10	80.831	92.826	10.765	10.765	1.665	H1-1b
4	M4	HSS4X4X4	0.236	0	8	0.072	3.714	z	8	80.831	92.826	10.765	10.765	1.656	H1-1b
5	M5	HSS4X4X4	0.234	5.75	7	0.067	3.714	z	10	80.831	92.826	10.765	10.765	1.665	H1-1b
6	M6	HSS4X4X4	0.236	0	8	0.072	3.714	z	8	80.831	92.826	10.765	10.765	1.657	H1-1b
7	M7	W8X24	0.239	5.75	10	0.069	11.5	y	10	123.687	211.976	21.382	54.298	1.123	H1-1b
8	M8	W8X24	0.02	3.281	8	0.033	3.227	y	8	189.464	211.976	21.382	57.635	1.919	H1-1b
9	M9	W8X24	0.02	3.281	8	0.033	3.227	y	8	189.464	211.976	21.382	57.635	1.919	H1-1b
10	M10	W8X24	0.239	5.75	8	0.07	11.5	y	8	123.687	211.976	21.382	53.537	1.107	H1-1b
11	M11	W6X15	0.124	2.625	10	0.044	0	y	10	115.545	132.635	10.834	25.364	1.433	H1-1b
12	M12	W6X15	0.208	2.625	16	0.08	5.25	y	16	115.545	132.635	10.834	25.364	1.535	H1-1b
13	M13	W6X15	0.213	2.625	16	0.082	5.25	y	16	115.545	132.635	10.834	25.364	1.529	H1-1b
14	M14	HSS4X4X4	0.59	0	8	0.055	1.495	z	8	59.802	92.826	10.765	10.765	2.046	H1-1b
15	M15	HSS4X4X4	0.433	0	10	0.028	1.495	y	9	59.802	92.826	10.765	10.765	2.179	H1-1b
16	M16	HSS4X4X4	0.591	0	8	0.056	1.495	z	8	59.802	92.826	10.765	10.765	2.018	H1-1b
17	M17	LL2X2X5X4in	0.925	2.625	4	0.136	2.625	y	17	27.822	49.609	10.805	1.616	1	H1-1b
18	M18	LL2X2X5X4in	0.923	2.625	4	0.139	2.625	y	15	27.822	49.609	10.805	1.616	1	H1-1b
19	M19	LL2X2X5X4in	0.365	2.625	4	0.046	2.625	y	17	27.822	49.609	10.805	1.616	1	H1-1b

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
20	M20	L3X3X5	0.726	3.168	4	0.032	3.295	z	8	4.267	38.371	1.34	2.216	1.12	H2-1
21	M21	L3X3X5	0.758	8.998	4	0.031	3.168	y	4	4.267	38.371	1.34	2.22	1.125	H2-1
22	M22	L3X3X5	0.351	5.25	15	0.033	5.25	z	7	20.75	38.371	1.34	2.942	1.5	H2-1
23	M23	L3X3X5	0.281	0	4	0.024	5.25	y	4	20.75	38.371	1.34	2.835	1.214	H2-1
24	M24	LL2X2X5X4in	0.43	2.625	16	0.087	2.625	y	8	27.822	49.609	10.805	1.616	1	H1-1b
25	M25	L2.5X2.5X4	0.666	8.998	7	0.04	3.168	z	8	1.95	25.653	0.741	1.141	1.173	H2-1
26	M26	LL2X2X5X4in	0.434	2.625	7	0.093	2.625	y	7	27.822	49.609	10.805	1.616	1	H1-1b
27	M27	LL2X2X5X4in	0.08	2.625	24	0.021	2.625	z	7	27.822	49.609	10.805	1.616	1	H1-1b
28	M28	L2.5X2.5X4	0.773	8.998	7	0.025	8.998	y	8	1.95	25.653	0.741	1.083	1.05	H2-1
29	M29	L2.5X2.5X4	0.47	5.25	7	0.049	5.25	z	7	10.436	25.653	0.741	1.568	1.5	H2-1
30	M30	L2.5X2.5X4	0.346	0	8	0.02	5.25	z	8	10.436	25.653	0.741	1.568	1.5	H2-1
31	M31	PIPE 2.5	0.315	7.313	9	0.063	4.5		7	17.39	33.743	2.393	2.393	1	H1-1b
32	M32	PIPE 2.5	0.452	7.313	9	0.085	7.313		9	17.39	33.743	2.393	2.393	1	H1-1b
33	M33	L2X2X4	0.133	1.385	10	0.012	2.828	y	9	13.574	20.35	0.46	1.036	1.136	H2-1
34	M34	L2X2X4	0.155	1.444	8	0.008	2.828	y	9	13.574	20.35	0.46	1.036	1.136	H2-1
35	M35	L2X2X4	0.155	1.444	8	0.008	2.828	y	7	13.574	20.35	0.46	1.036	1.136	H2-1
36	M36	L2X2X4	0.133	1.444	10	0.012	2.828	y	7	13.574	20.35	0.46	1.036	1.136	H2-1

Envelope Member End Reactions

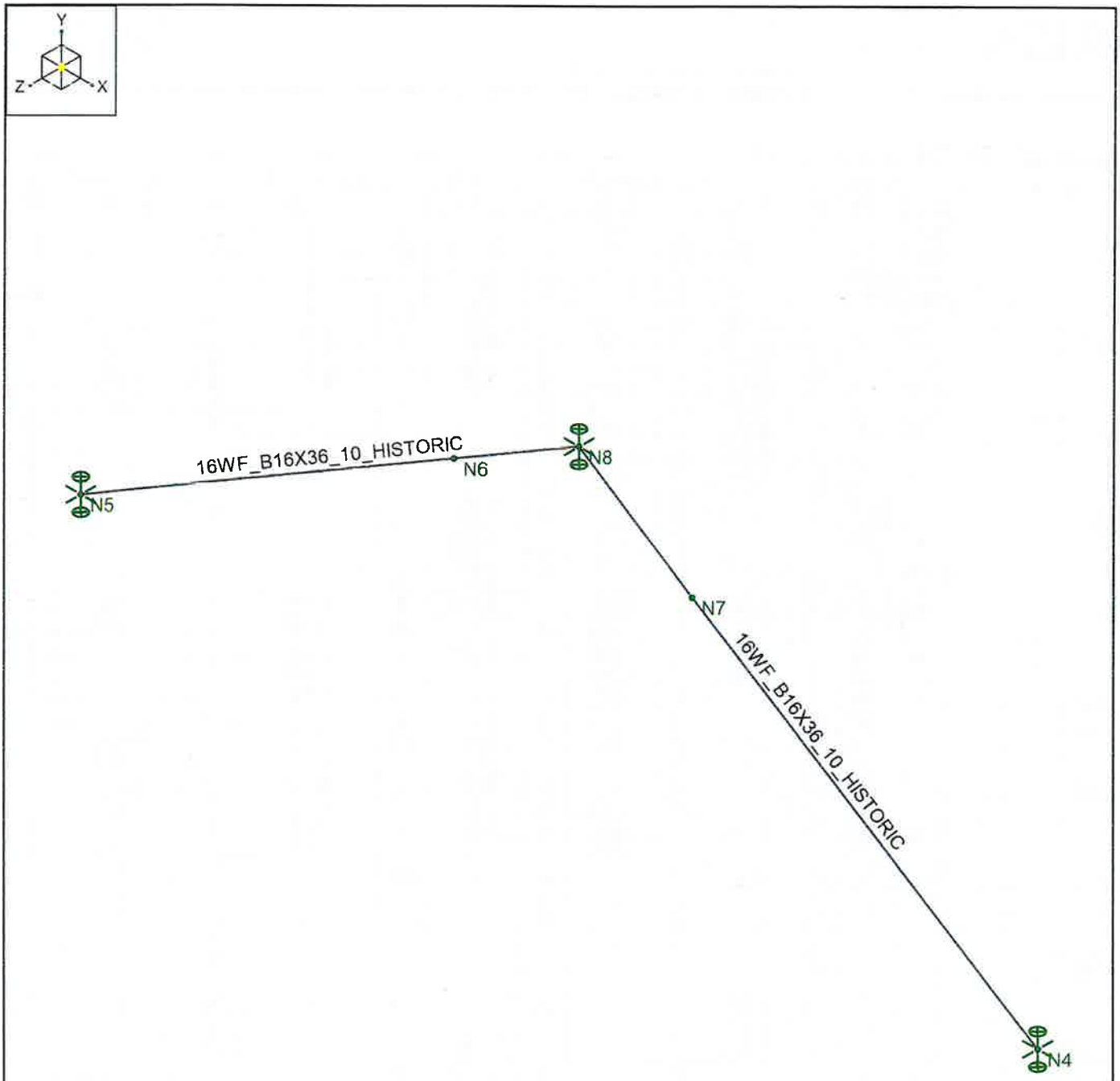
	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	M1	I	max	1.043	10	3.438	18	0.41	23	0	24	0	24	0	24
2			min	-0.984	24	0.247	24	-0.6	9	0	1	0	1	0	1
3		J	max	0.405	8	0.189	10	0.14	9	0	24	0	24	0	24
4			min	-0.331	10	-1.868	8	-0.097	23	0	1	0	1	0	1
5	M2	I	max	1.042	10	3.401	18	0.6	7	0	24	0	24	0	24
6			min	-0.984	24	0.225	24	-0.36	9	0	1	0	1	0	1
7		J	max	0.404	8	0.2	10	0.085	9	0	24	0	24	0	24
8			min	-0.331	10	-1.857	8	-0.14	7	0	1	0	1	0	1
9	M3	I	max	3.737	10	0.426	9	0.526	24	0.247	24	1.645	10	0.013	9
10			min	-1.706	24	-0.279	23	-0.715	10	-0.36	10	-1.098	24	-0.006	23
11		J	max	2.433	10	0.417	9	0.519	10	0.248	24	0.002	9	1.598	23
12			min	-0.788	24	-0.279	23	-0.437	24	-0.361	10	-0.002	23	-2.417	9
13	M4	I	max	3.763	8	0.336	9	0.901	8	0.34	24	1.515	10	0.006	23
14			min	-1.186	10	-0.229	23	-0.663	10	-0.364	10	-2.29	8	-0.013	9
15		J	max	2.262	16	0.329	9	0.486	10	0.341	24	0.003	9	1.323	23
16			min	-0.111	10	-0.229	23	-0.545	8	-0.364	10	-0.002	23	-1.93	9
17	M5	I	max	3.712	10	0.247	9	0.527	24	0.359	10	1.639	10	0.005	24
18			min	-1.721	24	-0.425	7	-0.713	10	-0.248	24	-1.102	24	-0.012	7
19		J	max	2.411	10	0.245	9	0.518	10	0.36	10	0.002	23	2.414	7
20			min	-0.801	24	-0.416	7	-0.438	24	-0.248	24	-0.002	9	-1.413	9
21	M6	I	max	3.74	8	0.206	9	0.9	8	0.363	10	1.521	10	0.012	7
22			min	-1.209	10	-0.336	7	-0.665	10	-0.341	24	-2.284	8	-0.005	24
23		J	max	2.241	16	0.204	9	0.486	10	0.363	10	0.002	23	1.932	7
24			min	-0.132	10	-0.329	7	-0.545	8	-0.341	24	-0.003	9	-1.186	9
25	M7	I	max	0.412	7	2.664	10	0.667	24	0.002	9	0.36	10	2.415	7
26			min	-0.244	9	-0.913	24	-0.686	10	-0.002	23	-0.248	24	-1.414	9
27		J	max	0.413	9	0.898	24	0.686	10	0.002	9	0.361	10	2.418	9
28			min	-0.279	23	-2.688	10	-0.667	24	-0.002	23	-0.248	24	-1.599	23
29	M8	I	max	1.103	24	0.113	24	0.002	8	0.014	8	0	24	0	24
30			min	-1.206	10	-0.254	10	0	9	-0.013	10	0	1	0	1
31		J	max	1.174	10	0.482	8	0	9	0.014	8	0	24	0	24
32			min	-1.262	8	-0.312	10	-0.002	8	-0.013	10	0	1	0	1
33	M9	I	max	1.103	24	0.114	24	0	7	0.013	10	0	24	0	24
34			min	-1.205	10	-0.252	10	-0.002	8	-0.014	8	0	1	0	1
35		J	max	1.174	10	0.48	8	0.002	8	0.013	10	0	24	0	24

Envelope Member End Reactions (Continued)

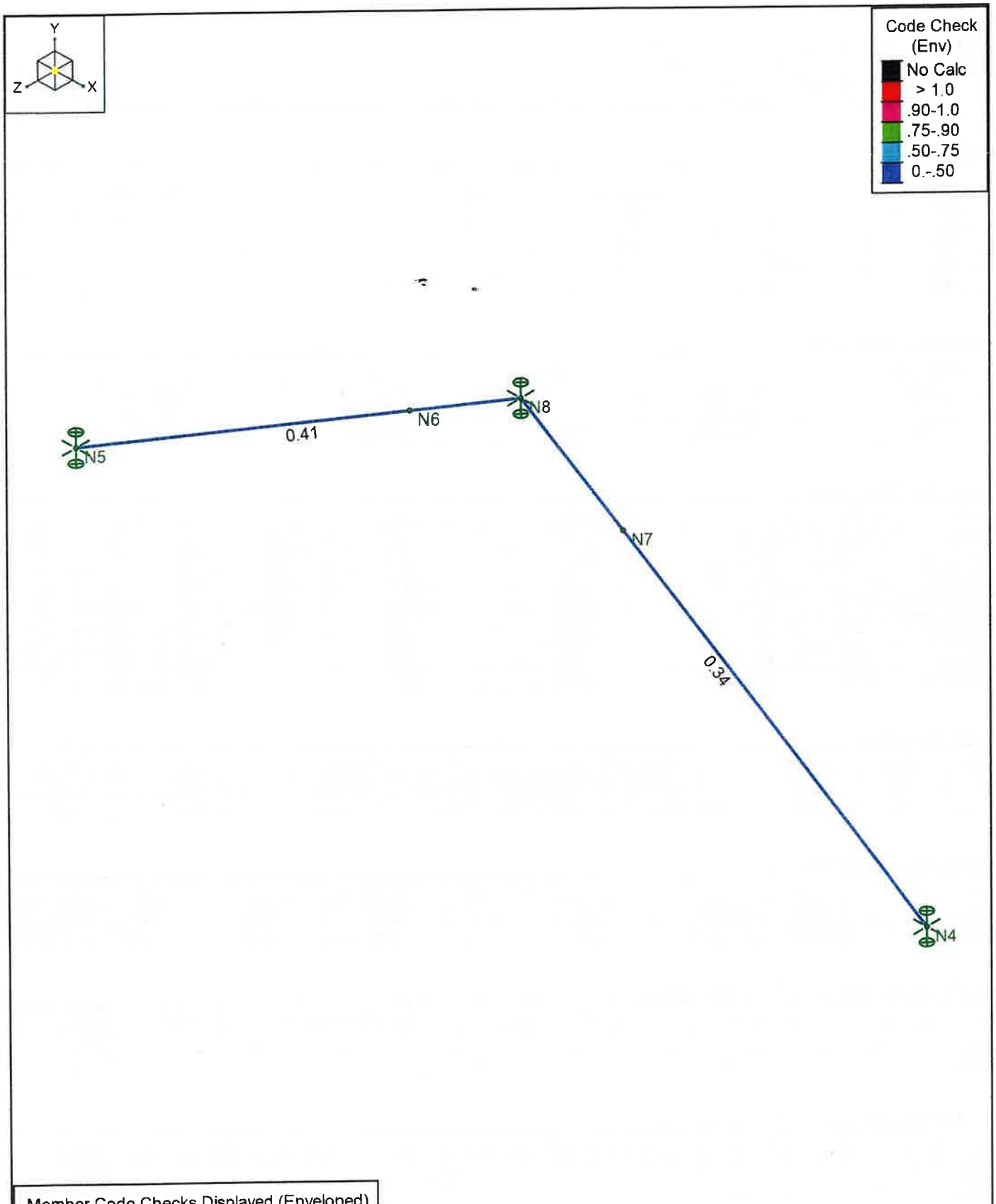
	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
36			min	-1.262	8	-0.314	10	0	7	-0.014	8	0	1	0	1
37	M10	I	max	0.327	7	2.704	8	0.712	8	0.003	9	0.363	10	1.933	7
38			min	-0.202	9	-0.446	10	-0.688	10	-0.002	23	-0.341	24	-1.186	9
39		J	max	0.326	9	0.423	10	0.688	10	0.003	9	0.364	10	1.93	9
40			min	-0.228	23	-2.727	8	-0.711	8	-0.002	23	-0.341	24	-1.322	23
41	M11	I	max	0.249	18	1.205	10	0.219	7	0.016	7	0	24	0	24
42			min	-0.044	24	-0.653	24	-0.22	9	-0.016	9	0	1	0	1
43		J	max	0.022	24	0.553	10	0.176	9	0.016	9	0	24	0	24
44			min	-0.256	18	-1.127	8	-0.177	7	-0.015	7	0	1	0	1
45	M12	I	max	0.579	10	1.909	10	0.213	23	0.018	7	0	24	0	24
46			min	-0.661	8	-0.68	24	-0.223	9	-0.014	9	0	1	0	1
47		J	max	0.723	8	0.321	10	0.182	9	0.013	9	0	24	0	24
48			min	-0.582	10	-1.994	16	-0.171	23	-0.017	7	0	1	0	1
49	M13	I	max	0.579	10	1.957	10	0.224	7	0.014	23	0	24	0	24
50			min	-0.66	8	-0.651	24	-0.214	9	-0.018	9	0	1	0	1
51		J	max	0.723	8	0.276	10	0.171	9	0.017	9	0	24	0	24
52			min	-0.582	10	-2.041	16	-0.184	7	-0.014	23	0	1	0	1
53	M14	I	max	3.002	15	0.407	9	1.401	8	0.112	7	5.854	10	0.027	9
54			min	0.312	9	-0.404	7	-1.174	10	-0.108	9	-6.211	8	-0.035	7
55		J	max	0.529	8	0.201	9	0.646	8	0.09	10	0.033	20	-0.013	23
56			min	0.307	23	-0.122	23	-0.565	10	-0.198	8	-0.102	10	-0.038	9
57	M15	I	max	0.933	4	0.401	9	0.07	24	0.113	23	4.614	10	0.032	9
58			min	0.305	24	-0.401	7	-0.51	18	-0.114	9	-4.352	24	-0.031	7
59		J	max	0.079	10	0.278	9	0.154	24	0.013	9	0.058	10	0.006	7
60			min	-0.012	24	-0.291	7	0.283	10	-0.013	7	-0.172	8	-0.006	9
61	M16	I	max	3.09	17	0.409	9	1.401	8	0.108	23	5.863	10	0.035	9
62			min	-0.232	23	-0.411	7	-1.175	10	-0.114	9	-6.212	8	-0.028	23
63		J	max	0.53	8	0.118	9	0.646	8	0.197	8	0.034	20	0.04	7
64			min	0.308	23	-0.203	7	-0.565	10	-0.09	10	-0.1	10	0.024	9
65	M17	I	max	0.678	8	-0.152	24	0.13	9	0.001	23	0	24	0	24
66			min	-0.499	10	-0.396	4	-0.121	23	-0.026	17	0	1	0	1
67		J	max	0.166	10	0.391	4	0.113	7	0.027	17	0	24	0	24
68			min	-0.256	8	0.14	24	-0.11	9	-0.001	23	0	1	0	1
69	M18	I	max	0.635	8	-0.152	24	0.122	9	0.026	15	0	24	0	24
70			min	-0.544	10	-0.396	4	-0.132	7	0.004	9	0	1	0	1
71		J	max	0.122	10	0.389	4	0.112	23	-0.003	9	0	24	0	24
72			min	-0.302	16	0.14	24	-0.117	9	-0.027	15	0	1	0	1
73	M19	I	max	-0.037	24	-0.035	24	0.059	9	0.009	7	0	24	0	24
74			min	-0.239	18	-0.069	9	-0.06	23	-0.009	9	0	1	0	1
75		J	max	0.413	16	0.102	8	0.057	7	0.009	9	0	24	0	24
76			min	-0.131	10	0.043	23	-0.056	9	-0.009	7	0	1	0	1
77	M20	I	max	-0.029	10	-0.069	24	0.066	24	0.001	15	0.254	4	0.255	4
78			min	-0.11	16	-0.242	4	-0.096	10	0	9	0.095	23	0.095	23
79		J	max	0.27	23	0.242	4	0.061	10	0.001	15	0.217	17	0.218	9
80			min	-0.358	9	0.069	24	-0.094	8	0	9	-0.104	23	-0.106	23
81	M21	I	max	0.11	16	-0.072	23	0.096	10	0.001	16	0.153	16	0.151	16
82			min	0.029	10	-0.247	4	-0.066	24	0	10	0.012	10	0.012	10
83		J	max	0.346	7	0.247	4	0.094	8	0.001	16	0.319	15	0.321	15
84			min	-0.235	9	0.073	24	-0.061	10	0	10	0.011	9	0.01	9
85	M22	I	max	0.094	8	0.245	4	0.27	23	0.001	7	0.217	9	0.217	17
86			min	-0.061	10	0.071	23	-0.358	9	-0.001	9	-0.106	23	-0.105	23
87		J	max	0.094	8	-0.071	24	0.235	9	0.001	7	-0.01	9	-0.011	9
88			min	-0.061	10	-0.244	4	-0.346	7	-0.001	9	-0.319	15	-0.32	15
89	M23	I	max	0.066	24	0.244	4	0.11	16	0.001	16	-0.095	23	-0.096	10
90			min	-0.096	10	0.071	24	0.029	10	0	10	-0.254	4	-0.255	4

Envelope Member End Reactions (Continued)

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
91		J	max	0.066	24	-0.071	23	0.11	16	0.001	16	0.152	16	0.153	16
92			min	-0.096	10	-0.245	4	0.029	10	0	10	0.012	10	0.012	10
93	M24	I	max	0.513	8	-0.143	23	0.109	9	-0.007	23	0	24	0	24
94			min	-0.446	10	-0.242	16	-0.054	23	-0.019	9	0	1	0	1
95		J	max	0.101	10	0.235	10	0.067	23	0.02	8	0	24	0	24
96			min	-0.111	8	0.136	24	-0.089	9	0.006	23	0	1	0	1
97	M25	I	max	0.009	10	-0.039	24	0.069	24	0.001	7	0.171	8	0.172	8
98			min	-0.087	8	-0.07	9	-0.09	10	0	9	0.011	10	0.011	10
99		J	max	0.271	23	0.076	7	0.068	10	0.001	7	0.182	9	0.183	9
100			min	-0.332	9	0.039	24	-0.086	8	0	9	-0.1	23	-0.101	23
101	M26	I	max	0.487	8	-0.143	23	0.047	9	0.018	7	0	24	0	24
102			min	-0.473	10	-0.242	16	-0.111	7	0.011	24	0	1	0	1
103		J	max	0.073	10	0.234	10	0.09	7	-0.011	9	0	24	0	24
104			min	-0.137	8	0.136	24	-0.068	9	-0.021	7	0	1	0	1
105	M27	I	max	0.238	24	0.053	24	0.136	9	0.003	7	0	24	0	24
106			min	-0.295	10	-0.025	10	-0.143	7	-0.003	9	0	1	0	1
107		J	max	0.1	8	0.014	9	0.148	7	0.003	9	0	24	0	24
108			min	-0.016	10	0.003	10	-0.142	9	-0.003	23	0	1	0	1
109	M28	I	max	0.087	8	-0.043	23	0.09	10	0.001	8	0.152	8	0.15	8
110			min	-0.009	10	-0.076	8	-0.069	24	0	10	-0.046	10	-0.046	10
111		J	max	0.338	7	0.078	7	0.088	7	0.001	8	0.232	7	0.233	7
112			min	-0.26	9	0.046	23	-0.068	10	0	10	-0.049	9	-0.05	9
113	M29	I	max	0.086	7	0.071	8	0.271	23	0.001	23	0.183	9	0.182	9
114			min	-0.068	10	0.043	23	-0.332	9	-0.001	9	-0.101	23	-0.1	23
115		J	max	0.086	7	-0.042	24	0.261	9	0.001	23	0.05	9	0.049	9
116			min	-0.068	10	-0.071	10	-0.338	7	-0.001	9	-0.232	7	-0.232	7
117	M30	I	max	0.068	24	0.071	10	0.087	8	0.001	8	-0.011	10	-0.011	10
118			min	-0.09	10	0.042	24	-0.009	10	0	10	-0.171	8	-0.172	8
119		J	max	0.068	24	-0.043	23	0.087	8	0.001	8	0.15	8	0.151	8
120			min	-0.09	10	-0.071	8	-0.009	10	0	10	-0.046	10	-0.046	10
121	M31	I	max	0	24	-0.05	24	0	24	0	24	0	24	0	24
122			min	0	1	-0.083	7	0	1	0	1	0	1	0	1
123		J	max	0	24	0.087	13	0	24	0	24	0	24	0	24
124			min	0	1	0.052	24	0	1	0	1	0	1	0	1
125	M32	I	max	0	24	0	24	0	24	0	24	0	24	0	24
126			min	0	1	0	1	0	1	0	1	0	1	0	1
127		J	max	0	24	0.022	11	0	24	0	24	0	24	0	24
128			min	0	1	0.013	23	0	1	0	1	0	1	0	1
129	M33	I	max	1.741	10	0.003	21	0	23	0.001	9	0	24	0	24
130			min	-1.364	24	0.002	23	0	9	-0.001	23	0	1	0	1
131		J	max	1.734	10	-0.002	24	0	23	0.001	9	0	24	0	24
132			min	-1.368	24	-0.003	1	0	9	-0.001	23	0	1	0	1
133	M34	I	max	2.036	8	0.003	21	0	24	0	23	0	24	0	24
134			min	-1.631	10	0.002	23	0	1	-0.001	9	0	1	0	1
135		J	max	2.042	8	-0.002	24	0	24	0	23	0	24	0	24
136			min	-1.624	10	-0.003	1	0	1	-0.001	9	0	1	0	1
137	M35	I	max	2.034	8	0.003	19	0	24	0.001	7	0	24	0	24
138			min	-1.633	10	0.002	23	0	7	0	9	0	1	0	1
139		J	max	2.04	8	-0.002	24	0	24	0.001	7	0	24	0	24
140			min	-1.627	10	-0.003	1	0	7	0	9	0	1	0	1
141	M36	I	max	1.73	10	0.003	19	0	19	0.001	9	0	24	0	24
142			min	-1.371	24	0.002	23	0	9	-0.001	7	0	1	0	1
143		J	max	1.737	10	-0.002	24	0	19	0.001	9	0	24	0	24
144			min	-1.367	24	-0.003	1	0	9	-0.001	7	0	1	0	1



Centek Engineering	Greenwich 4- East Chimney Existing Roof Framing	SK-4
Luke Amiot		Sep 28, 2023
22017.01		Existing Roof Rafter Analysis.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering	Greenwich 4- East Chimney Existing Roof Framing	SK-5
Luke Amiot		Sep 28, 2023
22017.01		Existing Roof Rafter Analysis.r3d

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N8	5.5	2.5	3	
2	N4	24.29	-9.5	3	
3	N5	-15	-9.5	3	
4	N6	0.375	-0.5	3	
5	N7	10.1975	-0.5	3	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]
1	N5	Reaction	Reaction	Reaction	Reaction
2	N8	Reaction	Reaction	Reaction	Reaction
3	N4	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N5	N8	16WF_B16X36_10_HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
2	M2	N4	N8	16WF_B16X36_10_HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	M1	16WF_B16X36_10_HISTORIC	23.754	1	Lbyy	N/A	N/A	Lateral
2	M2	16WF_B16X36_10_HISTORIC	22.295	1	Lbyy	N/A	N/A	Lateral

Member Distributed Loads (BLC 2 : Dead Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.19	-0.19	0	%100
2	M2	Y	-0.19	-0.19	0	%100

Member Distributed Loads (BLC 8 : Snow Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.237	-0.237	0	%100
2	M2	Y	-0.237	-0.237	0	%100

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Distributed
1	Self Weight	DL	-1		
2	Dead Load	DL			2
3	Live Load (Roof)	RLL			
4	Equipment Load	DL		2	
5	Panel Weight	DL			
6	Wind-X	WLX		2	
7	Wind-Z	WLZ		2	
8	Snow Load	SL			2
9	Dead Load (Masonry)	DL			
10	Dead Load (Concrete)	DL			

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (a)	Yes	Y	DL	1	RLL	1								
4	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
5	IBC 16-11 (a)	Yes	Y	DL	1	LL	0.75	LLS	0.75	RLL	0.75				
6	IBC 16-11 (b)	Yes	Y	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		
7	IBC 16-12 (a) (a)	Yes	Y	DL	1	WLX	0.6								
8	IBC 16-12 (a) (b)	Yes	Y	DL	1	WLZ	0.6								
9	IBC 16-12 (a) (c)	Yes	Y	DL	1	WLX	-0.6								
10	IBC 16-12 (a) (d)	Yes	Y	DL	1	WLZ	-0.6								
11	IBC 16-13 (a) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	RLL	0.75		
12	IBC 16-13 (a) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	RLL	0.75		
13	IBC 16-13 (a) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
14	IBC 16-13 (a) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
15	IBC 16-13 (b) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
16	IBC 16-13 (b) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
17	IBC 16-13 (b) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
18	IBC 16-13 (b) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
19	IBC 16-13 (c) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75				
20	IBC 16-13 (c) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75				
21	IBC 16-13 (c) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75				
22	IBC 16-13 (c) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75				
23	IBC 16-15 (a)	Yes	Y	DL	0.6	WLX	0.6								
24	IBC 16-15 (b)	Yes	Y	DL	0.6	WLZ	0.6								

Envelope Node Reactions

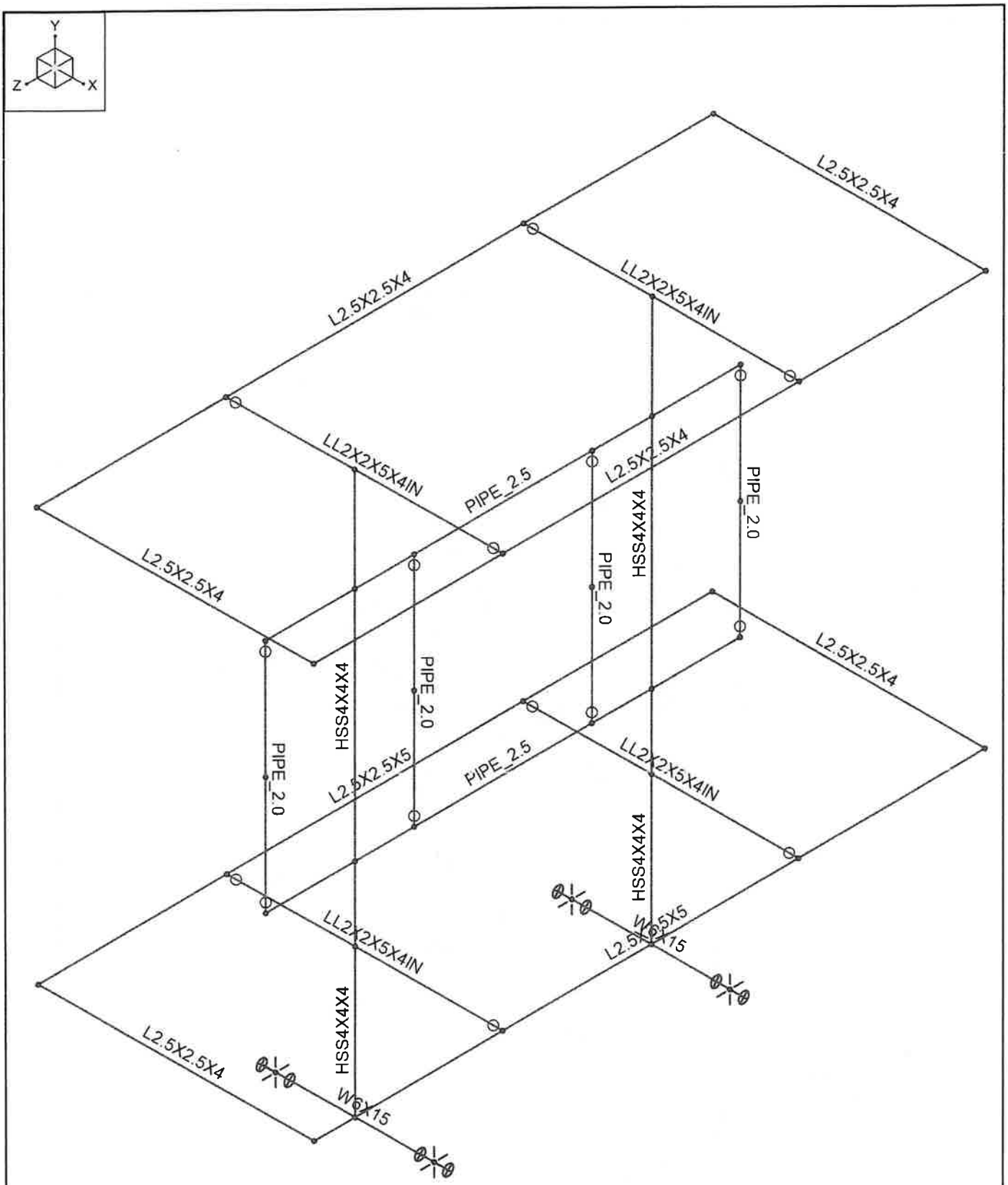
	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N5	max	0.79	4	5.015	4	0.142	10	0	24	0.104	24	0	24
2		min	0.213	23	1.608	23	-0.144	24	0	1	-0.103	10	0	1
3	N8	max	0.608	9	18.579	4	0.949	10	0	24	0.359	10	0	24
4		min	-0.499	23	7.272	24	-0.949	8	0	1	-0.362	24	0	1
5	N4	max	-0.344	24	4.623	4	0.16	10	0	24	0.104	10	0	24
6		min	-0.896	4	1.488	23	-0.163	24	0	1	-0.105	24	0	1
7	Totals:	max	0.72	9	28.217	4	1.252	10						
8		min	-0.72	23	10.37	23	-1.252	8						

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks

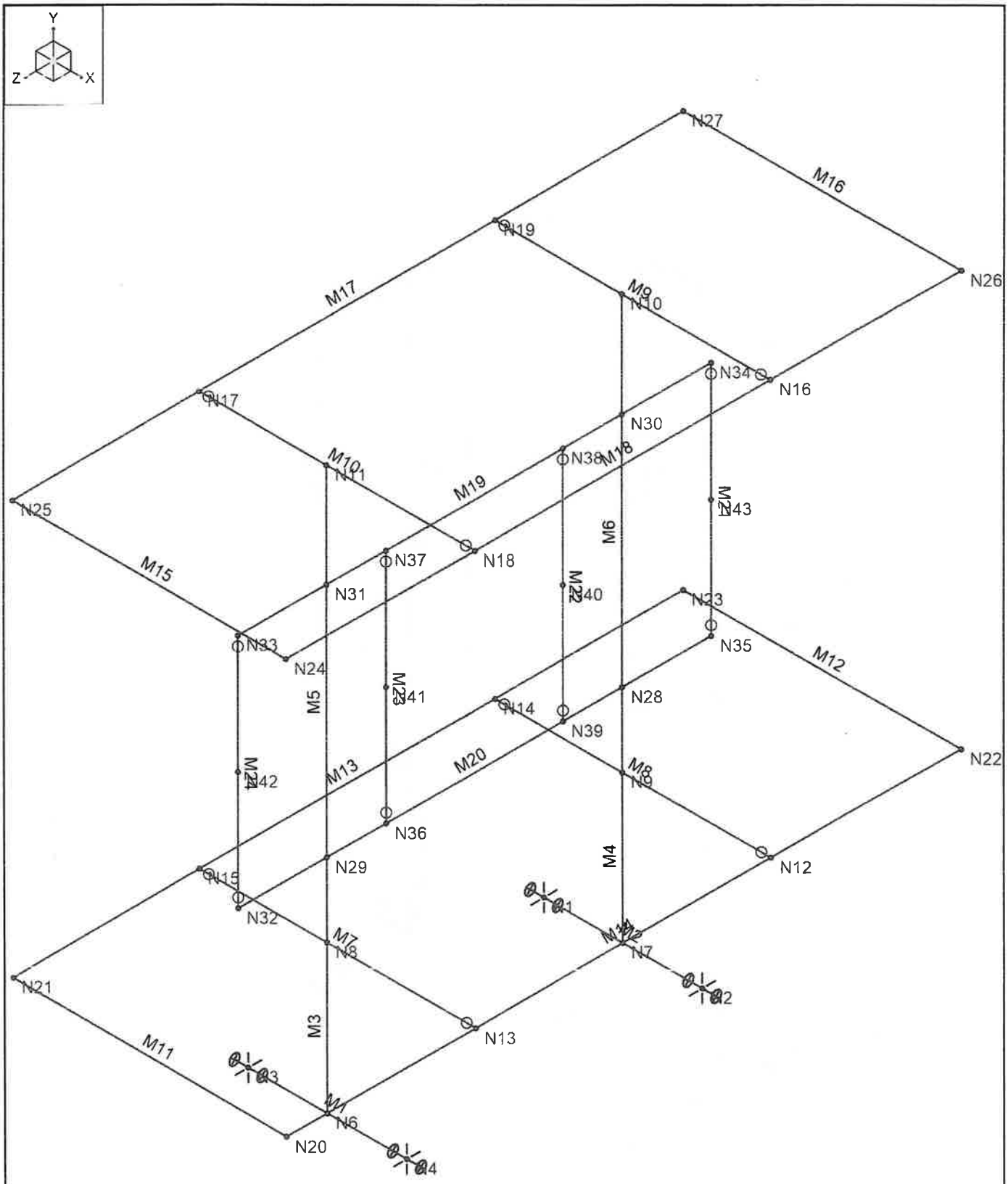
	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M1	16WF_B16X36_10_HISTORIC	0.412	23.754	4	0.125	23.754	y	4	121.63	228.287	18.17	91.945	1.972	H1-1b
2	M2	16WF_B16X36_10_HISTORIC	0.337	22.295	4	0.12	22.295	y	4	125.747	228.287	18.17	113.174	2.386	H1-1b

Envelope Member End Reactions

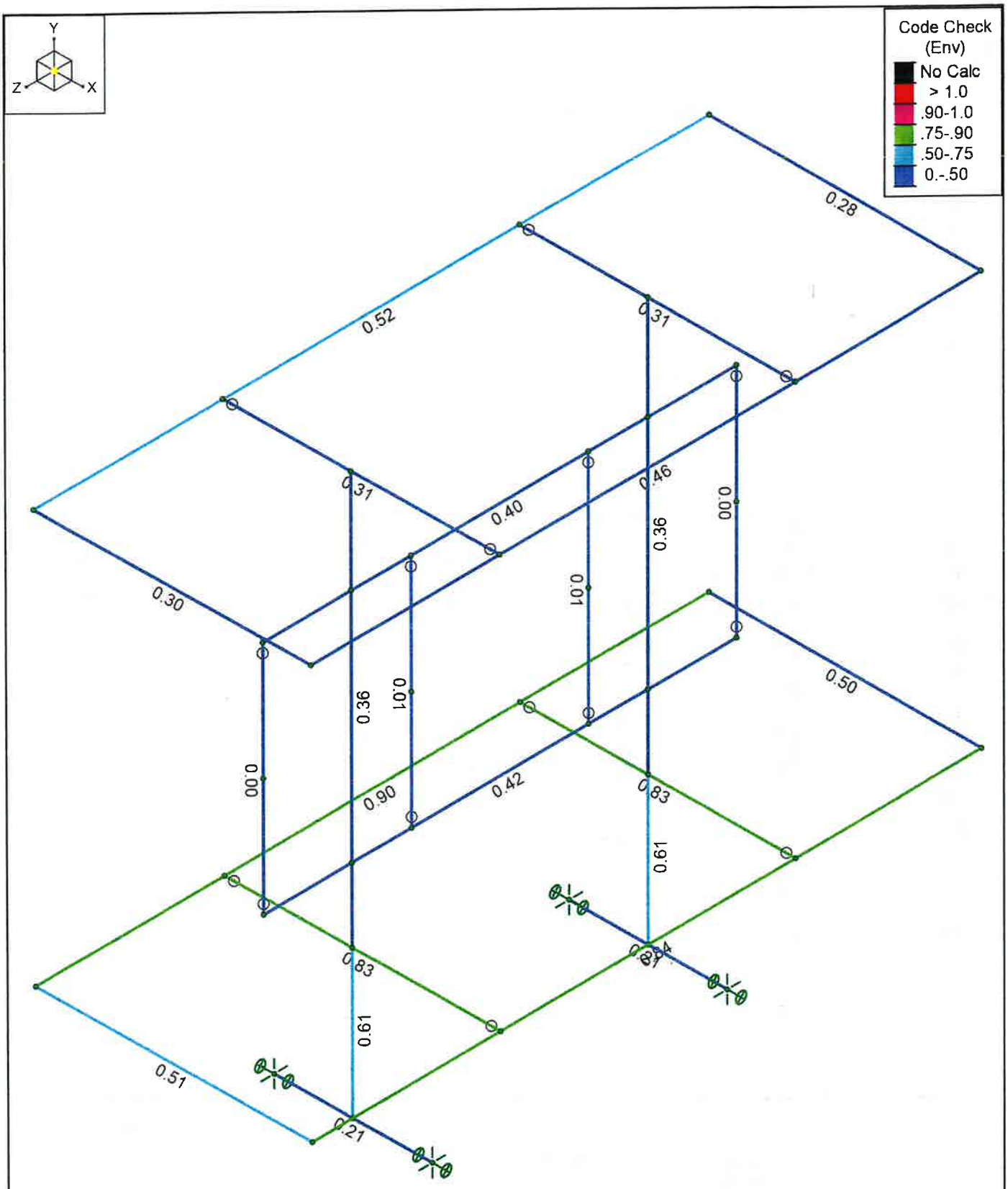
	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	M1	I	max	3.215	4	3.93	4	0.144	10	0.053	24	0.09	24	0	24
2			min	0.997	23	1.236	24	-0.145	24	-0.052	10	-0.089	10	0	1
3		J	max	-1.362	23	-3.323	24	0.473	24	0.053	24	0.309	24	37.074	4
4			min	-4.083	4	-8.531	4	-0.469	10	-0.052	10	-0.307	10	14.233	24
5	M2	I	max	3.243	4	3.415	4	0.164	24	0.056	10	0.088	10	0	24
6			min	1.091	24	1.021	23	-0.162	10	-0.057	24	-0.088	24	0	1
7		J	max	-1.646	24	-3.071	23	0.45	10	0.056	10	0.117	24	37.074	4
8			min	-4.168	4	-8.187	4	-0.454	24	-0.057	24	-0.117	10	14.233	24



Centek Engineering	Greenwich 4- West Chimney Frame	SK-6
Luke Amiot		Sep 29, 2023
22017.01		Existing Chimney Frame Analysi...



Centek Engineering	Greenwich 4- West Chimney Frame	SK-8
Luke Amiot		Sep 29, 2023
22017.01		Existing Chimney Frame Analysi...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering	Greenwich 4- West Chimney Frame	SK-9
Luke Amiot		Sep 29, 2023
22017.01		Existing Chimney Frame Analysi...

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N1	0	0	0	
2	N2	2.67	0	0	
3	N3	0	0	5	
4	N4	2.67	0	5	
5	N6	1.335	0	5	
6	N7	1.335	0	0	
7	N8	1.335	2.5	5	
8	N9	1.335	2.5	0	
9	N10	1.335	9.5	0	
10	N11	1.335	9.5	5	
11	N12	3.835	2.5	0	
12	N13	3.835	2.5	5	
13	N14	-0.825	2.5	0	
14	N15	-0.825	2.5	5	
15	N16	3.835	9.5	0	
16	N17	-0.825	9.5	5	
17	N18	3.835	9.5	5	
18	N19	-0.825	9.5	0	
19	N20	3.835	2.5	8.1875	
20	N21	-0.825	2.5	8.1875	
21	N22	3.835	2.5	-3.1875	
22	N23	-0.825	2.5	-3.1875	
23	N24	3.835	9.5	8.1875	
24	N25	-0.825	9.5	8.1875	
25	N26	3.835	9.5	-3.1875	
26	N27	-0.825	9.5	-3.1875	
27	N28	1.335	3.75	0	
28	N29	1.335	3.75	5	
29	N30	1.335	7.75	0	
30	N31	1.335	7.75	5	
31	N32	1.335	3.75	6.5	
32	N33	1.335	7.75	6.5	
33	N34	1.335	7.75	-1.5	
34	N35	1.335	3.75	-1.5	
35	N36	1.335	3.75	4	
36	N37	1.335	7.75	4	
37	N38	1.335	7.75	1	
38	N39	1.335	3.75	1	
39	N40	1.335	5.75	1	
40	N41	1.335	5.75	4	
41	N42	1.335	5.75	6.5	
42	N43	1.335	5.75	-1.5	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]
1	N3	Reaction	Reaction	Reaction	Reaction
2	N4	Reaction	Reaction	Reaction	Reaction
3	N1	Reaction	Reaction	Reaction	Reaction
4	N2	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N3	N4	W6X15	Beam	Wide Flange	A992	Typical
2	M2	N1	N2	W6X15	Beam	Wide Flange	A992	Typical
3	M3	N6	N8	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
4	M4	N7	N9	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
5	M5	N8	N11	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
6	M6	N9	N10	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical
7	M7	N15	N13	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
8	M8	N14	N12	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
9	M9	N19	N16	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
10	M10	N17	N18	LL2X2X5X4in	Beam	Double Angle (No Gap)	A36 Gr.36	Typical
11	M11	N20	N21	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N22	N23	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N21	N23	L2.5X2.5X5	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N20	N22	L2.5X2.5X5	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N24	N25	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N26	N27	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N25	N27	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N24	N26	L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N33	N34	PIPE 2.5	Beam	HSS Pipe	A53 Gr.B	Typical
20	M20	N32	N35	PIPE 2.5	Beam	HSS Pipe	A53 Gr.B	Typical
21	M21	N34	N35	PIPE 2.0	Beam	HSS Pipe	A53 Gr.B	Typical
22	M22	N38	N39	PIPE 2.0	Beam	HSS Pipe	A53 Gr.B	Typical
23	M23	N37	N36	PIPE 2.0	Beam	HSS Pipe	A53 Gr.B	Typical
24	M24	N33	N32	PIPE 2.0	Beam	HSS Pipe	A53 Gr.B	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	M1	W6X15	2.67	Lbyy	N/A	N/A	Lateral
2	M2	W6X15	2.67	Lbyy	N/A	N/A	Lateral
3	M3	HSS4X4X4	2.5	Lbyy	N/A	N/A	Lateral
4	M4	HSS4X4X4	2.5	Lbyy	N/A	N/A	Lateral
5	M5	HSS4X4X4	7	Lbyy	N/A	N/A	Lateral
6	M6	HSS4X4X4	7	Lbyy	N/A	N/A	Lateral
7	M7	LL2X2X5X4in	4.66	Lbyy	N/A	N/A	Lateral
8	M8	LL2X2X5X4in	4.66	Lbyy	N/A	N/A	Lateral
9	M9	LL2X2X5X4in	4.66	Lbyy	N/A	N/A	Lateral
10	M10	LL2X2X5X4in	4.66	Lbyy	N/A	N/A	Lateral
11	M11	L2.5X2.5X4	4.66	Lbyy	N/A	N/A	Lateral
12	M12	L2.5X2.5X4	4.66	Lbyy	N/A	N/A	Lateral
13	M13	L2.5X2.5X5	11.375	Lbyy	N/A	N/A	Lateral
14	M14	L2.5X2.5X5	11.375	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
15	M15	L2.5X2.5X4	4.66	Lbyy	N/A	N/A	Lateral
16	M16	L2.5X2.5X4	4.66	Lbyy	N/A	N/A	Lateral
17	M17	L2.5X2.5X4	11.375	Lbyy	N/A	N/A	Lateral
18	M18	L2.5X2.5X4	11.375	Lbyy	N/A	N/A	Lateral
19	M19	PIPE 2.5	8	Lbyy	N/A	N/A	Lateral
20	M20	PIPE 2.5	8	Lbyy	N/A	N/A	Lateral
21	M21	PIPE 2.0	4	Lbyy	N/A	N/A	Lateral
22	M22	PIPE 2.0	4	Lbyy	N/A	N/A	Lateral
23	M23	PIPE 2.0	4	Lbyy	N/A	N/A	Lateral
24	M24	PIPE 2.0	4	Lbyy	N/A	N/A	Lateral

Member Distributed Loads (BLC 5 : Panel Weight)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M11	Y	-0.018	-0.018	0	%100
2	M13	Y	-0.018	-0.018	0	%100
3	M14	Y	-0.018	-0.018	0	%100
4	M12	Y	-0.018	-0.018	0	%100
5	M15	Y	-0.018	-0.018	0	%100
6	M17	Y	-0.018	-0.018	0	%100
7	M16	Y	-0.018	-0.018	0	%100
8	M18	Y	-0.018	-0.018	0	%100

Member Distributed Loads (BLC 9 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M7	Y	-0.041	-0.041	2.22e-16	4.66
2	M8	Y	-0.041	-0.041	3.331e-16	4.66
3	M11	Y	-0.016	-0.016	3.331e-16	4.66
4	M12	Y	-0.016	-0.016	3.331e-16	4.66

Member Distributed Loads (BLC 10 : BLC 3 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M7	Y	-0.082	-0.082	2.22e-16	4.66
2	M8	Y	-0.082	-0.082	3.331e-16	4.66
3	M11	Y	-0.032	-0.032	4.441e-16	4.66
4	M12	Y	-0.032	-0.032	3.331e-16	4.66

Member Distributed Loads (BLC 11 : BLC 6 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M14	X	-0.151	-0.151	1.166e-15	11.375
2	M18	X	-0.15	-0.15	2.776e-16	11.375

Member Distributed Loads (BLC 12 : BLC 7 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M11	Z	-0.151	-0.151	1.332e-15	4.66
2	M15	Z	-0.15	-0.15	0	4.66

Member Distributed Loads (BLC 13 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M7	Y	-0.123	-0.123	2.22e-16	4.66
2	M8	Y	-0.123	-0.123	3.331e-16	4.66
3	M11	Y	-0.048	-0.048	3.331e-16	4.66
4	M12	Y	-0.048	-0.048	3.331e-16	4.66

Member Area Loads (BLC 2 : Dead Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N21	N20	N22	N23	Y	B-C	-0.01

Member Area Loads (BLC 3 : Live Load (Roof))

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N23	N21	N20	N22	Y	A-B	-0.02

Member Area Loads (BLC 6 : Wind-X)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N20	N24	N26	N22	X	A-B	-0.043

Member Area Loads (BLC 7 : Wind-Z)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N21	N25	N24	N20	Z	A-B	-0.043

Member Area Loads (BLC 8 : Snow Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N21	N20	N22	N23	Y	B-C	-0.03

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Distributed	Area(Member)
1	Self Weight	DL	-1			
2	Dead Load	DL				1
3	Live Load (Roof)	RLL				1
4	Equipment Load	DL		13		
5	Panel Weight	DL			8	
6	Wind-X	WLX				1
7	Wind-Z	WLZ				1
8	Snow Load	SL				1
9	BLC 2 Transient Area Loads	None			4	
10	BLC 3 Transient Area Loads	None			4	
11	BLC 6 Transient Area Loads	None			2	
12	BLC 7 Transient Area Loads	None			2	
13	BLC 8 Transient Area Loads	None			4	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
3	IBC 16-10 (a)	Yes	Y	DL	1	RLL	1								
4	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
5	IBC 16-11 (a)	Yes	Y	DL	1	LL	0.75	LLS	0.75	RLL	0.75				
6	IBC 16-11 (b)	Yes	Y	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		
7	IBC 16-12 (a) (a)	Yes	Y	DL	1	WLX	0.6								
8	IBC 16-12 (a) (b)	Yes	Y	DL	1	WLZ	0.6								
9	IBC 16-12 (a) (c)	Yes	Y	DL	1	WLX	-0.6								
10	IBC 16-12 (a) (d)	Yes	Y	DL	1	WLZ	-0.6								
11	IBC 16-13 (a) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	RLL	0.75		
12	IBC 16-13 (a) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	RLL	0.75		
13	IBC 16-13 (a) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
14	IBC 16-13 (a) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
15	IBC 16 13 (b) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
16	IBC 16-13 (b) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
17	IBC 16-13 (b) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
18	IBC 16-13 (b) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
19	IBC 16-13 (c) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75				
20	IBC 16-13 (c) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75				
21	IBC 16-13 (c) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75				
22	IBC 16-13 (c) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75				
23	IBC 16-15 (a)	Yes	Y	DL	0.6	WLX	0.6								
24	IBC 16-15 (b)	Yes	Y	DL	0.6	WLZ	0.6								

Envelope Node Reactions NOTE: HIGHLIGHTED VALUES BELOW APPLIED MASONRY CONNECTION

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	0.513	23	3.172	7	0.204	8	0.407	24	0	24	0	24
2		min	-0.513	9	-1.554	9	-0.189	10	-0.429	10	0	1	0	1
3	N4	max	0.513	23	3.261	9	0.232	8	0.407	24	0	24	0	24
4		min	-0.513	9	-1.813	23	-0.219	10	-0.429	10	0	1	0	1
5	N1	max	0.514	7	3.108	7	0.19	24	0.405	24	0	24	0	24
6		min	-0.514	9	-1.616	9	-0.202	10	-0.431	10	0	1	0	1
7	N2	max	0.514	7	3.197	9	0.22	24	0.405	24	0	24	0	24
8		min	-0.514	9	-1.849	23	-0.231	10	-0.431	10	0	1	0	1
9	Totals:	max	2.054	23	4.878	4	0.842	24						
10		min	-2.054	9	1.973	23	-0.842	10						

NOTE: HIGHLIGHTED VALUES BELOW ARE STRESS RATIOS IDENTIFIED IN REPORT

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M1	W6X15	0.212	0	10	0.119	1.78	y	9	127.986	132.635	10.834	25.364	1.332	H1-1b
2	M2	W6X15	0.213	2.67	10	0.117	1.697	y	9	127.986	132.635	10.834	25.364	1.382	H1-1b
3	M3	HSS4X4X4	0.608	0	9	0.041	2.5	y	7	90.43	92.826	10.765	10.765	1.194	H1-1b
4	M4	HSS4X4X4	0.608	0	9	0.041	2.5	y	7	90.43	92.826	10.765	10.765	1.194	H1-1b
5	M5	HSS4X4X4	0.355	0	9	0.021	5.25	y	7	75.615	92.826	10.765	10.765	1.665	H1-1b
6	M6	HSS4X4X4	0.356	0	9	0.021	1.24	y	7	75.615	92.826	10.765	10.765	1.663	H1-1b
7	M7	LL2X2X5X4in	0.833	2.184	4	0.176	2.136	y	16	31.454	49.609	10.805	1.616	1	H1-1b
8	M8	LL2X2X5X4in	0.835	2.184	4	0.176	2.136	y	4	31.454	49.609	10.805	1.616	1	H1-1b
9	M9	LL2X2X5X4in	0.311	2.184	10	0.089	2.136	y	10	31.454	49.609	10.805	1.616	1	H1-1b
10	M10	LL2X2X5X4in	0.311	2.184	8	0.091	2.136	y	8	31.454	49.609	10.805	1.616	1	H1-1b
11	M11	L2.5X2.5X4	0.514	0	18	0.04	0	z	10	12.63	25.653	0.741	1.603	1.5	H2-1
12	M12	L2.5X2.5X4	0.496	4.66	15	0.026	0	y	4	12.63	25.653	0.741	1.585	1.409	H2-1
13	M13	L2.5X2.5X5	0.897	8.294	4	0.032	3.081	y	4	2.725	31.473	0.876	1.504	1.075	H2-1
14	M14	L2.5X2.5X5	0.836	3.081	4	0.032	8.294	y	4	2.725	31.473	0.876	1.504	1.075	H2-1
15	M15	L2.5X2.5X4	0.301	0	10	0.038	0	z	10	12.63	25.653	0.741	1.603	1.5	H2-1

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks (Continued)

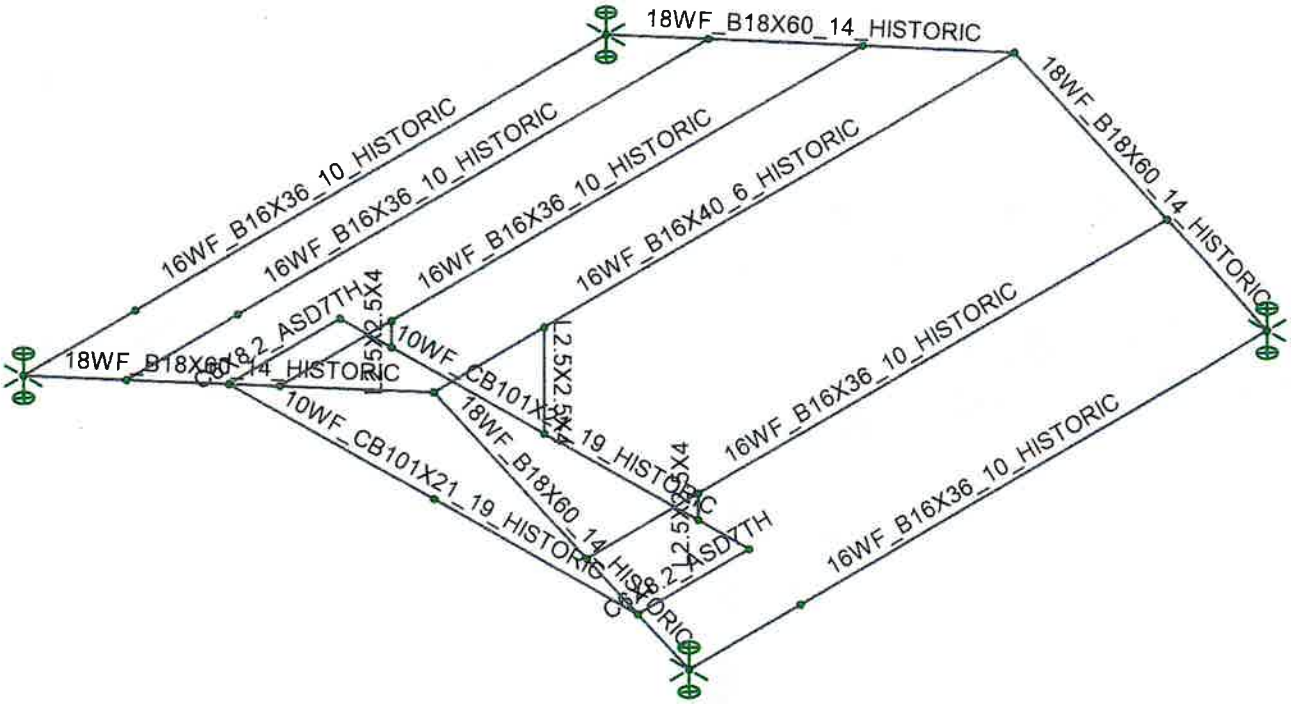
	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
16	M16	L2.5X2.5X4	0.279	4.66	7	0.011	4.66	z	7	12.63	25.653	0.741	1.603	1.5	H2-1
17	M17	L2.5X2.5X4	0.516	3.081	8	0.018	8.294	y	7	2.23	25.653	0.741	1.155	1.128	H2-1
18	M18	L2.5X2.5X4	0.462	3.081	8	0.032	3.081	z	7	2.23	25.653	0.741	1.164	1.148	H2-1
19	M19	PIPE 2.5	0.397	1.5	10	0.044	1.5		10	19.986	33.743	2.393	2.393	1	H1-1b
20	M20	PIPE 2.5	0.424	1.5	10	0.053	6.5		8	19.986	33.743	2.393	2.393	1	H1-1b
21	M21	PIPE 2.0	0.003	4	10	0.002	4		24	17.646	21.377	1.245	1.245	1	H1-1b*
22	M22	PIPE 2.0	0.006	4	8	0.002	4		24	17.646	21.377	1.245	1.245	1	H1-1b*
23	M23	PIPE 2.0	0.005	4	10	0.002	4		24	17.646	21.377	1.245	1.245	1	H1-1b*
24	M24	PIPE 2.0	0.004	4	8	0.002	4		10	17.646	21.377	1.245	1.245	1	H1-1b*

Envelope Member End Reactions

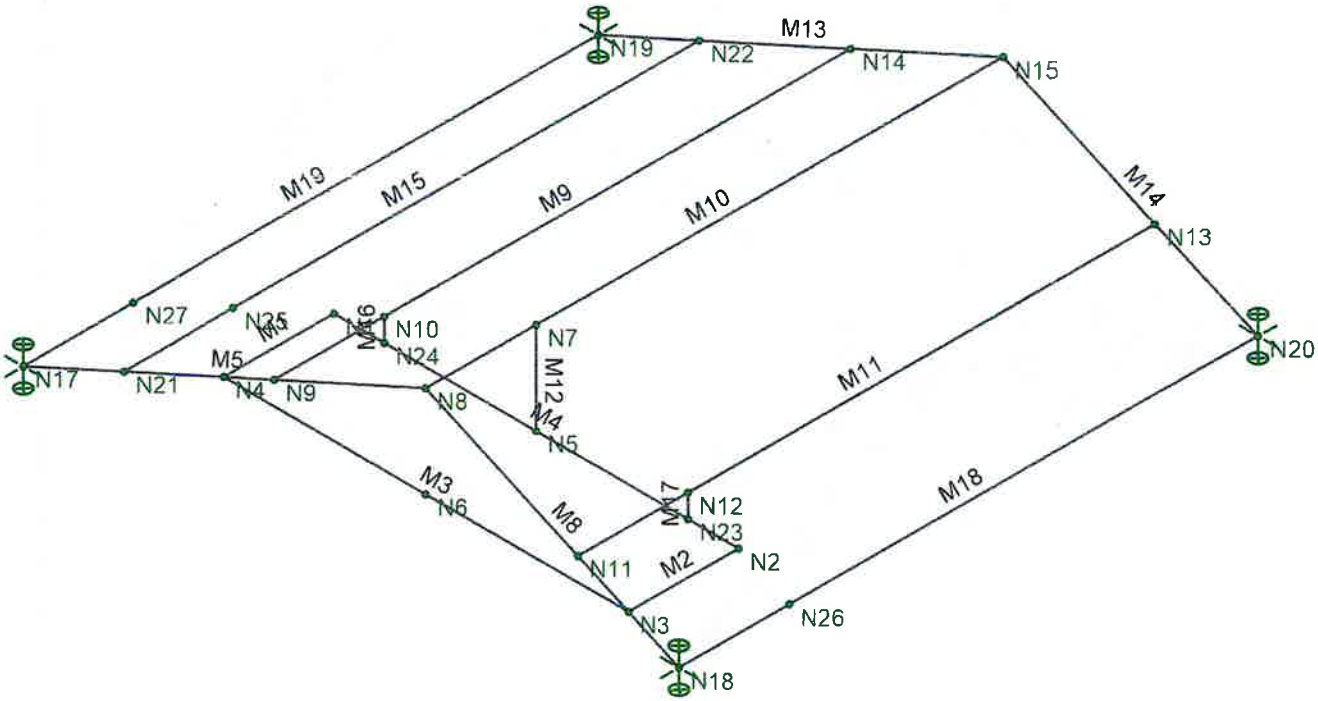
	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	M1	I	max	0.513	23	3.173	7	0.204	8	0.407	24	0	24	0	24
2			min	-0.513	9	-1.554	9	-0.189	10	-0.429	10	0	1	0	1
3		J	max	0.513	9	1.813	23	0.219	10	0.429	10	0	24	0	24
4			min	-0.513	23	-3.261	9	-0.232	8	-0.407	24	0	1	0	1
5	M2	I	max	0.514	7	3.108	7	0.19	24	0.405	24	0	24	0	24
6			min	-0.514	9	-1.616	9	-0.202	10	-0.431	10	0	1	0	1
7		J	max	0.514	9	1.849	23	0.231	10	0.431	10	0	24	0	24
8			min	-0.514	7	-3.197	9	-0.22	24	-0.405	24	0	1	0	1
9	M3	I	max	2.777	18	1.043	9	0.441	8	0.04	10	0.858	10	6.428	9
10			min	0.315	24	-1.042	7	-0.421	10	-0.04	24	-0.814	24	-6.207	23
11		J	max	2.746	18	1.043	9	0.441	8	0.04	10	0.291	8	3.82	9
12			min	0.296	24	-1.042	7	-0.421	10	-0.04	24	-0.195	10	-3.617	23
13	M4	I	max	2.651	16	1.042	9	0.418	24	0.039	10	0.862	10	6.426	9
14			min	0.855	10	-1.042	7	-0.438	10	-0.041	24	-0.81	24	-6.203	23
15		J	max	2.621	16	1.042	9	0.418	24	0.039	10	0.239	8	3.82	9
16			min	0.824	10	-1.042	7	-0.438	10	-0.041	24	-0.234	10	-3.612	23
17	M5	I	max	1.655	10	0.532	9	0.234	8	0.01	10	0.243	8	3.739	9
18			min	-0.1	24	-0.531	7	-0.189	10	-0.009	24	-0.211	10	-3.685	7
19		J	max	0.393	10	0.527	9	0.242	8	0.032	10	0.04	8	0.066	10
20			min	0.231	24	-0.526	7	-0.188	10	-0.033	24	0.01	10	0	23
21	M6	I	max	1.53	8	0.531	9	0.204	24	0.009	10	0.258	8	3.735	9
22			min	0.16	10	-0.53	7	-0.242	10	-0.009	24	-0.186	10	-3.685	7
23		J	max	0.392	8	0.527	9	0.193	24	0.032	10	-0.002	24	0.067	20
24			min	0.234	23	-0.527	7	-0.237	10	-0.034	24	-0.04	10	0.002	23
25	M7	I	max	0.072	18	-0.13	24	0.116	10	0.038	16	0	24	0	24
26			min	-0.043	24	-0.332	4	-0.105	24	0.008	10	0	1	0	1
27		J	max	0.484	7	0.33	4	0.103	24	-0.008	10	0	24	0	24
28			min	-0.449	9	0.124	23	-0.112	10	-0.032	16	0	1	0	1
29	M8	I	max	0.032	9	-0.131	23	0.097	10	-0.003	24	0	24	0	24
30			min	-0.064	15	-0.329	4	-0.11	8	-0.038	18	0	1	0	1
31		J	max	0.457	23	0.331	4	0.107	8	0.032	18	0	24	0	24
32			min	-0.482	9	0.125	23	-0.095	10	0.002	24	0	1	0	1
33	M9	I	max	0.04	9	-0.106	23	0.119	10	-0.001	24	0	24	0	24
34			min	-0.055	7	-0.178	8	-0.096	24	-0.021	10	0	1	0	1
35		J	max	0.462	23	0.178	8	0.096	24	0.019	10	0	24	0	24
36			min	-0.474	9	0.09	23	-0.116	10	0.001	24	0	1	0	1
37	M10	I	max	0.059	10	-0.104	24	0.093	10	0.022	8	0	24	0	24
38			min	-0.045	24	-0.179	10	-0.122	8	0.005	10	0	1	0	1
39		J	max	0.476	7	0.178	10	0.118	8	-0.005	10	0	24	0	24
40			min	-0.456	9	0.09	23	-0.093	10	-0.018	8	0	1	0	1
41	M11	I	max	0.039	23	0.199	4	0.262	10	0.001	18	0.017	24	0.016	24
42			min	-0.062	17	0.053	23	-0.176	24	-0.001	24	-0.259	18	-0.26	18
43		J	max	0.039	23	-0.053	24	0.267	8	0.001	18	0.183	16	0.185	16

Envelope Member End Reactions (Continued)

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
44			min	-0.062	17	-0.2	4	-0.159	10	-0.001	24	-0.024	10	-0.023	10
45	M12	I	max	0.058	7	0.2	4	-0.017	9	0	17	0.157	15	0.159	15
46			min	-0.036	9	0.053	24	-0.123	15	0	23	0.009	9	0.009	9
47		J	max	0.058	7	-0.053	23	-0.017	9	0	17	-0.047	9	-0.047	9
48			min	-0.036	9	-0.199	4	-0.123	15	0	23	-0.248	15	-0.249	15
49	M13	I	max	0.267	8	-0.055	23	0.062	18	0.001	15	0.184	16	0.184	16
50			min	-0.159	10	-0.204	4	-0.039	23	0	9	-0.022	10	-0.024	10
51		J	max	0.123	15	0.203	4	0.059	7	0.001	15	0.248	15	0.248	15
52			min	0.017	9	0.053	24	-0.035	9	0	9	0.047	9	0.047	9
53	M14	I	max	0.176	24	-0.051	23	0.039	23	0.001	16	0.259	18	0.26	18
54			min	-0.262	10	-0.196	4	-0.061	17	0	10	-0.016	24	-0.017	24
55		J	max	-0.017	9	0.197	4	0.035	9	0.001	16	0.158	15	0.158	15
56			min	-0.123	15	0.052	23	-0.059	7	0	10	0.009	9	0.009	9
57	M15	I	max	0.042	23	0.051	9	0.245	10	0.001	10	0.037	24	0.036	24
58			min	-0.056	9	0.031	23	-0.187	24	-0.001	24	-0.152	10	-0.152	10
59		J	max	0.042	23	-0.031	24	0.249	8	0.001	10	0.133	8	0.133	8
60			min	-0.056	9	-0.052	7	-0.175	10	-0.001	24	-0.037	10	-0.036	10
61	M16	I	max	0.053	7	0.052	7	0.002	9	0	10	0.108	7	0.108	7
62			min	-0.042	9	0.031	24	-0.075	7	0	23	-0.011	9	-0.011	9
63		J	max	0.053	7	-0.031	23	0.002	9	0	10	-0.006	9	-0.006	9
64			min	-0.042	9	-0.051	9	-0.075	7	0	23	-0.139	7	-0.14	7
65	M17	I	max	0.249	8	-0.033	24	0.056	9	0	7	0.133	8	0.134	8
66			min	-0.176	10	-0.055	8	-0.043	23	0	9	-0.036	10	-0.037	10
67		J	max	0.075	7	0.054	7	0.053	7	0	7	0.14	7	0.139	7
68			min	-0.002	9	0.031	24	-0.042	9	0	9	0.006	9	0.006	9
69	M18	I	max	0.187	24	-0.029	23	0.043	23	0	8	0.151	10	0.152	10
70			min	-0.245	10	-0.054	8	-0.056	9	0	10	-0.036	24	-0.037	24
71		J	max	0.002	9	0.051	8	0.042	9	0	8	0.108	7	0.108	7
72			min	-0.075	7	0.029	23	-0.053	7	0	10	-0.011	9	-0.011	9
73	M19	I	max	0	8	-0.063	24	0	9	0	24	0.002	10	0	24
74			min	0	22	-0.128	10	0	7	0	1	-0.002	24	0	1
75		J	max	0	10	0.07	8	0.001	7	0	24	0.002	24	0	24
76			min	0	8	0.036	23	-0.001	9	0	1	-0.002	10	0	1
77	M20	I	max	0	22	-0.079	23	0	7	0	24	0.002	24	0	24
78			min	0	8	-0.141	8	0	9	0	1	-0.002	10	0	1
79		J	max	0	8	0.073	10	0.001	9	0	24	0.002	10	0	24
80			min	0	10	0.028	24	-0.001	7	0	1	-0.002	24	0	1
81	M21	I	max	0.037	10	0	9	0	10	0.002	10	0	24	0	24
82			min	0.006	24	0	7	0	8	-0.002	24	0	1	0	1
83		J	max	0.051	10	0	7	0	8	0.002	10	0	24	0	24
84			min	0.015	24	0	9	0	10	-0.002	24	0	1	0	1
85	M22	I	max	0.022	24	0.001	9	0	10	0.002	10	0	24	0	24
86			min	-0.07	10	-0.001	7	0	8	-0.003	24	0	1	0	1
87		J	max	0.108	8	0.001	7	0	8	0.002	10	0	24	0	24
88			min	0.027	10	-0.001	9	0	10	-0.003	24	0	1	0	1
89	M23	I	max	0.055	10	0	9	0	10	0.003	10	0	24	0	24
90			min	-0.027	24	0	7	0	8	-0.003	24	0	1	0	1
91		J	max	0.096	10	0	7	0	8	0.003	10	0	24	0	24
92			min	-0.003	24	0	9	0	10	-0.003	24	0	1	0	1
93	M24	I	max	-0.016	24	0.001	9	0	10	0.002	10	0	24	0	24
94			min	-0.049	10	-0.001	7	0	8	-0.002	24	0	1	0	1
95		J	max	0.066	8	0.001	7	0	8	0.002	10	0	24	0	24
96			min	0.034	23	-0.001	9	0	10	-0.002	24	0	1	0	1



Centek Engineering	Greenwich 4- West Chimney Frame	SK-10
Luke Amiot		Sep 29, 2023
22017.01		Existing Chimney Lower Frame ...



Centek Engineering	Greenwich 4- West Chimney Frame	SK-11
Luke Amiot		Sep 29, 2023
22017.01		Existing Chimney Lower Frame ...

Company : Centek Engineering
Designer : Luke Amiot
Job Number : 22017.01
Model Name : Greenwich 4- West Chimney Frame

9/29/2023
9:36:00 AM
Checked By : CFC

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N1	0	0	0	
2	N2	11	0	0	
3	N3	11	0	3	
4	N4	0	0	3	
5	N5	5.5	0	0	
6	N6	5.5	0	3	
7	N7	5.5	2.5	0	
8	N8	5.5	2.5	3	
9	N9	1.375	0.625	3	
10	N10	1.375	0.625	0	
11	N11	9.625	0.625	3	
12	N12	9.625	0.625	0	
13	N13	9.625	0.625	-12.67	
14	N14	1.375	0.625	-12.67	
15	N15	5.5	2.5	-12.67	
16	N17	-5.5	-2.5	3	
17	N18	12.375	-0.625	3	
18	N19	-5.5	-2.5	-12.67	
19	N20	12.375	-0.625	-12.67	
20	N21	-2.75	-1.25	3	
21	N22	-2.75	-1.25	-12.67	
22	N23	9.625	0	0	
23	N24	1.375	0	0	
24	N25	-2.75	-1.25	0	
25	N26	12.375	-0.625	0	
26	N27	-5.5	-2.5	0	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]
1	N17	Reaction	Reaction	Reaction	Reaction
2	N19	Reaction	Reaction	Reaction	Reaction
3	N20	Reaction	Reaction	Reaction	Reaction
4	N18	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N4		C6X8.2 ASD7TH	Beam	Channel	A36 Gr.36	Typical
2	M2	N2	N3		C6X8.2 ASD7TH	Beam	Channel	A36 Gr.36	Typical
3	M3	N3	N4		10WF CB101X21 19 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
4	M4	N2	N1		10WF CB101X21 19 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
5	M5	N8	N17		18WF B18X60 14 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
6	M8	N8	N18		18WF B18X60 14 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
7	M9	N9	N14	330	16WF B16X36 10 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
8	M10	N8	N15		16WF B16X40 6 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
9	M11	N11	N13	30	16WF B16X36 10 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
10	M12	N7	N5		L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
11	M13	N15	N19		18WF B18X60 14 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
12	M14	N15	N20		18WF B18X60 14 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
13	M15	N21	N22	330	16WF B16X36 10 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
14	M16	N24	N10		L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
15	M17	N23	N12		L2.5X2.5X4	Beam	Single Angle	A36 Gr.36	Typical
16	M18	N18	N20	30	16WF B16X36 10 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical
17	M19	N17	N19	330	16WF B16X36 10 HISTORIC	Beam	Wide Flange	A36 Gr.36	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	M1	C6X8.2 ASD7TH	3	Lbyy	N/A	N/A	Lateral
2	M2	C6X8.2 ASD7TH	3	Lbyy	N/A	N/A	Lateral
3	M3	10WF CB101X21 19 HISTORIC	11	Lbyy	N/A	N/A	Lateral
4	M4	10WF CB101X21 19 HISTORIC	11	Lbyy	N/A	N/A	Lateral
5	M5	18WF B18X60 14 HISTORIC	12.083	Lbyy	N/A	N/A	Lateral
6	M8	18WF B18X60 14 HISTORIC	7.552	Lbyy	N/A	N/A	Lateral
7	M9	16WF B16X36 10 HISTORIC	15.67	Lbyy	N/A	N/A	Lateral
8	M10	16WF B16X40 6 HISTORIC	15.67	Lbyy	N/A	N/A	Lateral
9	M11	16WF B16X36 10 HISTORIC	15.67	Lbyy	N/A	N/A	Lateral
10	M12	L2.5X2.5X4	2.5	Lbyy	N/A	N/A	Lateral
11	M13	18WF B18X60 14 HISTORIC	12.083	Lbyy	N/A	N/A	Lateral
12	M14	18WF B18X60 14 HISTORIC	7.552	Lbyy	N/A	N/A	Lateral
13	M15	16WF B16X36 10 HISTORIC	15.67	Lbyy	N/A	N/A	Lateral
14	M16	L2.5X2.5X4	0.625	Lbyy	N/A	N/A	Lateral
15	M17	L2.5X2.5X4	0.625	Lbyy	N/A	N/A	Lateral
16	M18	16WF B16X36 10 HISTORIC	15.67	Lbyy	N/A	N/A	Lateral
17	M19	16WF B16X36 10 HISTORIC	15.67	Lbyy	N/A	N/A	Lateral

Member Distributed Loads (BLC 2 : Dead Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M13	Y	-0.076	-0.076	0	%100
2	M14	Y	-0.076	-0.076	0	%100

Member Distributed Loads (BLC 4 : Equipment Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M4	Y	-0.581	-0.581	0	%100

Member Distributed Loads (BLC 8 : Snow Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M14	Y	-0.19	-0.19	0	%100
2	M13	Y	-0.19	-0.19	0	%100

Member Distributed Loads (BLC 9 : Dead Load (Masonry))

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.267	-0.267	0	%100
2	M4	Y	-0.267	-0.267	0	%100
3	M2	Y	-0.267	-0.267	0	%100

Member Distributed Loads (BLC 10 : Dead Load (Concrete))

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M4	Y	-0.156	-0.156	0	%100

Member Distributed Loads (BLC 11 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.032	-0.034	0	0.6
2	M1	Y	-0.034	-0.024	0.6	1.2
3	M1	Y	-0.024	-0.018	1.2	1.8
4	M1	Y	-0.018	-0.028	1.8	2.4
5	M1	Y	-0.028	-0.038	2.4	3
6	M9	Y	-0.037	-0.04	0	2.239
7	M9	Y	-0.04	-0.051	2.239	4.477
8	M9	Y	-0.051	-0.062	4.477	6.716
9	M9	Y	-0.062	-0.058	6.716	8.954
10	M9	Y	-0.058	-0.051	8.954	11.193
11	M9	Y	-0.051	-0.051	11.193	13.431
12	M9	Y	-0.051	-0.051	13.431	15.67
13	M10	Y	-0.036	-0.059	0	2.239
14	M10	Y	-0.059	-0.06	2.239	4.477
15	M10	Y	-0.06	-0.049	4.477	6.716
16	M10	Y	-0.049	-0.056	6.716	8.954
17	M10	Y	-0.056	-0.062	8.954	11.193
18	M10	Y	-0.062	-0.056	11.193	13.431
19	M10	Y	-0.056	-0.044	13.431	15.67
20	M15	Y	-0.029	-0.043	0	2.239
21	M15	Y	-0.043	-0.044	2.239	4.477
22	M15	Y	-0.044	-0.04	4.477	6.716
23	M15	Y	-0.04	-0.044	6.716	8.954
24	M15	Y	-0.044	-0.051	8.954	11.193
25	M15	Y	-0.051	-0.048	11.193	13.431
26	M15	Y	-0.048	-0.034	13.431	15.67
27	M19	Y	-0.018	-0.018	8.882e-16	15.67
28	M2	Y	-0.018	-0.018	0	3
29	M11	Y	-0.04	-0.037	0	2.239
30	M11	Y	-0.037	-0.044	2.239	4.477
31	M11	Y	-0.044	-0.05	4.477	6.716
32	M11	Y	-0.05	-0.046	6.716	8.954
33	M11	Y	-0.046	-0.043	8.954	11.193
34	M11	Y	-0.043	-0.043	11.193	13.431
35	M11	Y	-0.043	-0.043	13.431	15.67
36	M18	Y	-0.007	-0.012	0	2.239
37	M18	Y	-0.012	-0.018	2.239	4.477
38	M18	Y	-0.018	-0.019	4.477	6.716
39	M18	Y	-0.019	-0.018	6.716	8.954
40	M18	Y	-0.018	-0.018	8.954	11.193
41	M18	Y	-0.018	-0.018	11.193	13.431
42	M18	Y	-0.018	-0.018	13.431	15.67

Member Distributed Loads (BLC 12 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M10	Y	-0.14	-0.155	8.954	11.193
2	M10	Y	-0.155	-0.14	11.193	13.431
3	M10	Y	-0.14	-0.11	13.431	15.67
4	M15	Y	-0.074	-0.107	0	2.239
5	M15	Y	-0.107	-0.11	2.239	4.477
6	M15	Y	-0.11	-0.1	4.477	6.716
7	M15	Y	-0.1	-0.111	6.716	8.954
8	M15	Y	-0.111	-0.128	8.954	11.193
9	M15	Y	-0.128	-0.12	11.193	13.431
10	M15	Y	-0.12	-0.086	13.431	15.67
11	M19	Y	-0.045	-0.045	1.277e-15	15.67
12	M2	Y	-0.046	-0.046	0	3
13	M11	Y	-0.099	-0.093	0	2.239
14	M11	Y	-0.093	-0.109	2.239	4.477
15	M11	Y	-0.109	-0.126	4.477	6.716
16	M11	Y	-0.126	-0.115	6.716	8.954
17	M11	Y	-0.115	-0.107	8.954	11.193
18	M11	Y	-0.107	-0.107	11.193	13.431
19	M11	Y	-0.107	-0.107	13.431	15.67
20	M18	Y	-0.017	-0.03	0	2.239
21	M18	Y	-0.03	-0.045	2.239	4.477
22	M18	Y	-0.045	-0.049	4.477	6.716
23	M18	Y	-0.049	-0.044	6.716	8.954
24	M18	Y	-0.044	-0.044	8.954	11.193
25	M18	Y	-0.044	-0.044	11.193	13.431
26	M18	Y	-0.044	-0.044	13.431	15.67
27	M1	Y	-0.079	-0.086	0	0.6
28	M1	Y	-0.086	-0.059	0.6	1.2
29	M1	Y	-0.059	-0.044	1.2	1.8
30	M1	Y	-0.044	-0.07	1.8	2.4
31	M1	Y	-0.07	-0.095	2.4	3
32	M9	Y	-0.092	-0.101	0	2.239
33	M9	Y	-0.101	-0.127	2.239	4.477
34	M9	Y	-0.127	-0.155	4.477	6.716
35	M9	Y	-0.155	-0.145	6.716	8.954
36	M9	Y	-0.145	-0.128	8.954	11.193
37	M9	Y	-0.128	-0.128	11.193	13.431
38	M9	Y	-0.128	-0.128	13.431	15.67
39	M10	Y	-0.09	-0.148	0	2.239
40	M10	Y	-0.148	-0.15	2.239	4.477
41	M10	Y	-0.15	-0.124	4.477	6.716
42	M10	Y	-0.124	-0.14	6.716	8.954

Member Area Loads (BLC 2 : Dead Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N17	N8	N15	N19	Y	A-B	-0.012
2	N8	N18	N20	N15	Y	A-B	-0.012

Member Area Loads (BLC 8 : Snow Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	N8	N17	N19	N15	Y	A-B	-0.03
2	N8	N18	N20	N15	Y	A-B	-0.03

Basic Load Cases

	BLC Description	Category	Y Gravity	Distributed	Area(Member)
1	Self Weight	DL	-1		
2	Dead Load	DL		2	2
3	Live Load (Roof)	RLL			
4	Equipment Load	DL		1	
5	Panel Weight	DL			
6	Wind-X	WLX			
7	Wind-Z	WLZ			
8	Snow Load	SL		2	2
9	Dead Load (Masonry)	DL		3	
10	Dead Load (Concrete)	DL		1	
11	BLC 2 Transient Area Loads	None		42	
12	BLC 8 Transient Area Loads	None		42	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (a)	Yes	Y	DL	1	RLL	1								
4	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
5	IBC 16-11 (a)	Yes	Y	DL	1	LL	0.75	LLS	0.75	RLL	0.75				
6	IBC 16-11 (b)	Yes	Y	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75		
7	IBC 16-12 (a) (a)	Yes	Y	DL	1	WLX	0.6								
8	IBC 16-12 (a) (b)	Yes	Y	DL	1	WLZ	0.6								
9	IBC 16-12 (a) (c)	Yes	Y	DL	1	WLX	-0.6								
10	IBC 16-12 (a) (d)	Yes	Y	DL	1	WLZ	-0.6								
11	IBC 16-13 (a) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	RLL	0.75		
12	IBC 16-13 (a) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	RLL	0.75		
13	IBC 16-13 (a) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
14	IBC 16-13 (a) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	RLL	0.75		
15	IBC 16-13 (b) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
16	IBC 16-13 (b) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
17	IBC 16-13 (b) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
18	IBC 16-13 (b) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75
19	IBC 16-13 (c) (a)	Yes	Y	DL	1	WLX	0.45	LL	0.75	LLS	0.75				
20	IBC 16-13 (c) (b)	Yes	Y	DL	1	WLZ	0.45	LL	0.75	LLS	0.75				
21	IBC 16-13 (c) (c)	Yes	Y	DL	1	WLX	-0.45	LL	0.75	LLS	0.75				
22	IBC 16-13 (c) (d)	Yes	Y	DL	1	WLZ	-0.45	LL	0.75	LLS	0.75				
23	IBC 16-15 (a)	Yes	Y	DL	0.6	WLX	0.6								
24	IBC 16-15 (b)	Yes	Y	DL	0.6	WLZ	0.6								

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N17	max	16.435	4	10.604	4	-0.194	24	0	24	0.098	4	0	24
2		min	7.793	23	4.756	23	-0.713	4	0	1	-0.058	1	0	1
3	N19	max	11.011	4	9.308	4	0.658	4	0	24	-0.064	24	0	24
4		min	3.371	23	2.749	23	0.16	23	0	1	-0.262	4	0	1
5	N20	max	-3.361	24	7.554	4	0.994	4	0	24	1.184	4	0	24
6		min	-10.993	4	2.378	23	0.402	23	0	1	0.663	23	0	1
7	N18	max	-7.803	24	9.664	4	-0.367	24	0	24	0.357	22	0	24
8		min	-16.452	4	4.619	23	-0.939	4	0	1	0.213	23	0	1
9	Totals:	max	0	22	37.13	4	0	4						
10		min	0	6	14.501	23	0	23						

NOTE: HIGHLIGHTED VALUES BELOW ARE STRESS RATIOS IDENTIFIED IN REPORT

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks

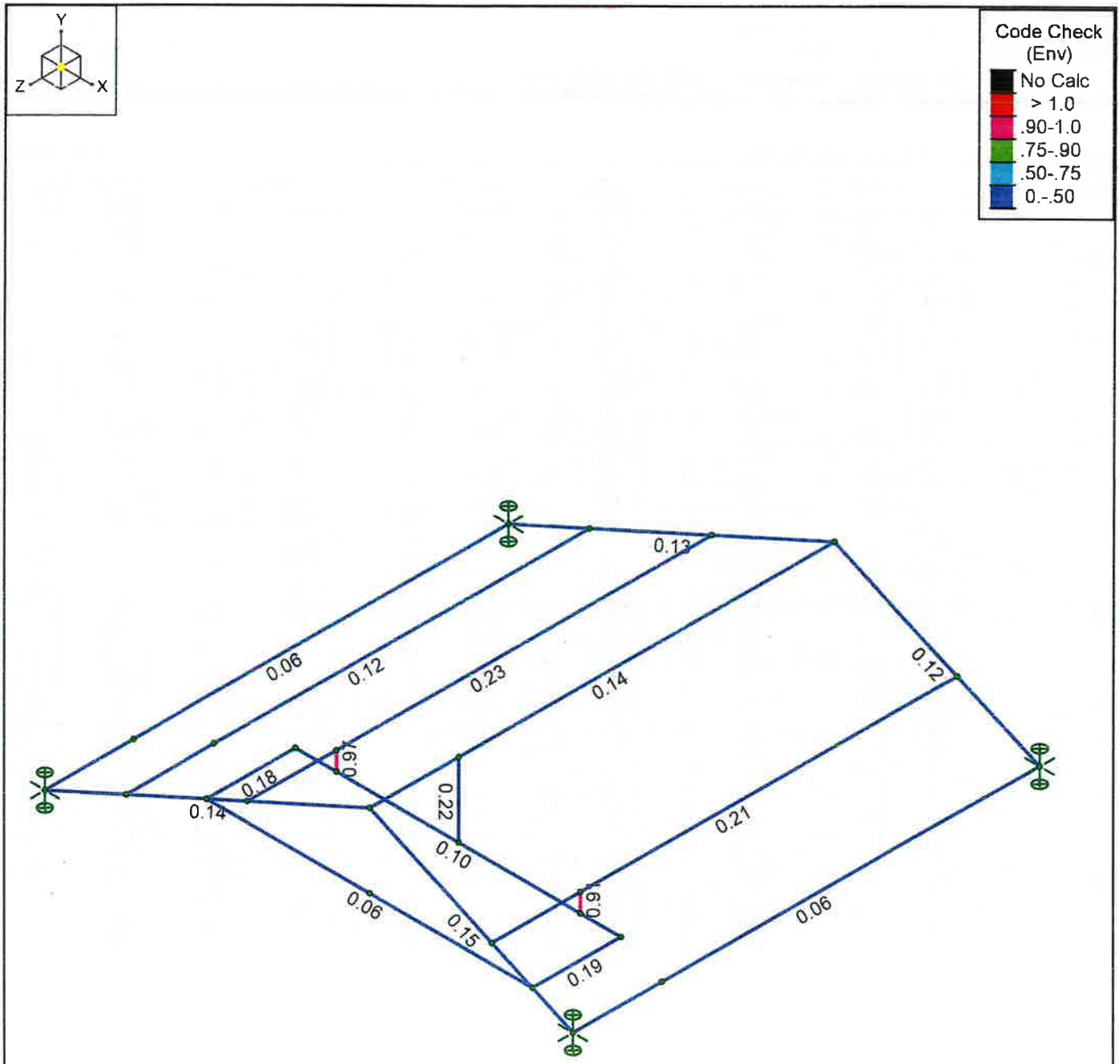
	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	M1	C6X8.2 ASD7TH	0.18	3	4	0.053	3	y	4	40.835	51.737	1.413	9.229	2.988	H1-1b
2	M2	C6X8.2 ASD7TH	0.187	3	4	0.057	3	y	4	40.835	51.737	1.413	9.229	2.701	H1-1b
3	M3	10WF_CB101X21_19_HISTORIC	0.064	11	4	0.005	0	y	4	74.312	133.437	9.697	42.754	1.267	H1-1b
4	M4	10WF_CB101X21_19_HISTORIC	0.1	5.5	4	0.085	5.5	y	4	74.312	133.437	9.697	42.754	1.698	H1-1b
5	M5	18WF_B18X60_14_HISTORIC	0.144	4.531	4	0.053	4.531	y	4	251.224	380.263	35.824	218.802	1.346	H1-1b
6	M8	18WF_B18X60_14_HISTORIC	0.147	7.552	4	0.047	6.057	z	4	323.417	380.263	35.824	218.802	1.737	H1-1b
7	M9	16WF_B16X36_10_HISTORIC	0.233	0	4	0.075	2.938	y	4	93.562	228.287	18.17	90.724	1.151	H1-1b
8	M10	16WF_B16X40_6_HISTORIC	0.143	3.428	4	0.084	0	y	4	110.995	253.725	21.762	113.041	1.206	H1-1b
9	M11	16WF_B16X36_10_HISTORIC	0.205	0	4	0.07	2.938	y	4	93.562	228.287	18.17	91.912	1.166	H1-1b
10	M12	L2.5X2.5X4	0.221	2.5	4	0.001	2.5	y	4	20.92	25.653	0.741	1.688	1.5	H2-1
11	M13	18WF_B18X60_14_HISTORIC	0.127	0	4	0.037	0	y	4	251.224	380.263	35.824	218.802	1.179	H1-1b
12	M14	18WF_B18X60_14_HISTORIC	0.122	0	4	0.025	0	y	4	323.417	380.263	35.824	218.802	2.113	H1-1b
13	M15	16WF_B16X36_10_HISTORIC	0.117	7.835	4	0.019	15.67	y	4	93.562	228.287	18.17	88.719	1.125	H1-1b
14	M16	L2.5X2.5X4	0.966	0	4	0.175	0.625	y	4	25.328	25.653	0.741	1.688	1.5	H2-1
15	M17	L2.5X2.5X4	0.91	0	4	0.167	0.625	y	4	25.328	25.653	0.741	1.688	1.5	H2-1
16	M18	16WF_B16X36_10_HISTORIC	0.065	7.509	4	0.011	15.67	y	4	93.562	228.287	18.17	88.981	1.128	H1-1b
17	M19	16WF_B16X36_10_HISTORIC	0.061	7.835	4	0.01	15.67	y	4	93.562	228.287	18.17	89.331	1.133	H1-1b

Envelope Member End Reactions

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	M1	I	max	0.169	4	0.316	4	0.078	4	0.003	4	-0.039	24	0.008	22
2			min	0.055	23	0.165	23	0.029	23	0.001	23	-0.107	4	0.005	23
3		J	max	0.169	4	-0.38	24	0.078	4	0.003	4	0.127	4	0.74	4
4			min	0.055	23	-0.8	4	0.029	23	0.001	23	0.048	23	0.33	23
5	M2	I	max	0.115	4	0.124	22	-0.02	24	-0.001	24	0.073	4	-0.024	24
6			min	0.041	23	0.074	23	-0.052	4	-0.002	4	0.027	23	-0.05	4
7		J	max	0.115	4	-0.454	24	-0.02	24	-0.001	24	-0.034	24	1.132	4
8			min	0.041	23	-0.903	4	-0.052	4	-0.002	4	-0.084	4	0.546	23
9	M3	I	max	4.356	4	0.183	4	0.014	4	-0.001	24	0.067	4	0.213	4
10			min	2.003	23	0.097	23	0.004	23	-0.002	4	0.036	23	0.098	23
11		J	max	4.356	4	-0.042	24	0.01	4	-0.001	24	0.197	4	-0.207	24
12			min	2.003	23	-0.07	1	0.003	23	-0.002	4	0.071	23	-0.517	4
13	M4	I	max	0.052	4	-0.074	24	0.115	4	0.05	4	-0.027	24	-0.001	24
14			min	0.02	23	-0.124	1	0.041	23	0.024	23	-0.073	4	-0.002	4
15		J	max	0.078	4	0.317	4	-0.055	24	0.008	22	-0.039	24	-0.001	24
16			min	0.029	23	0.165	23	-0.169	4	0.005	23	-0.107	4	-0.003	4
17	M5	I	max	12.781	4	3.148	4	-0.427	24	-0.009	24	2.348	4	3.863	4
18			min	6.121	23	1.496	23	-1.003	4	-0.025	4	0.943	23	1.805	23
19		J	max	19.027	4	-0.877	24	-0.194	24	0.044	4	-0.287	24	0	22
20			min	8.957	23	-2.156	4	-0.712	4	0.007	23	-1.059	4	0	4
21	M8	I	max	13.205	4	2.177	4	0.838	4	0.028	22	-0.896	24	3.858	4
22			min	6.296	23	1.094	23	0.353	23	0.017	23	-2.256	4	1.803	23
23		J	max	18.685	4	-0.799	24	0.937	4	-0.377	24	0.775	4	0.001	22
24			min	8.913	23	-1.432	4	0.367	23	-0.776	4	0.146	23	0	4
25	M9	I	max	-0.273	24	4.29	4	1.399	4	0.106	4	-1.427	24	-0.247	24
26			min	-0.576	4	2.047	23	0.686	23	0.051	23	-3.212	4	-0.557	4
27		J	max	-0.217	24	-0.778	24	-0.282	24	-0.012	24	-0.922	24	-0.046	24
28			min	-0.402	4	-2.206	4	-0.963	4	-0.025	4	-2.734	4	-0.18	4
29	M10	I	max	1.845	4	5.909	4	0.014	4	-0.002	24	-0.04	24	1.858	4
30			min	0.781	23	2.782	23	0.006	23	-0.005	4	-0.082	4	0.737	23
31		J	max	1.844	4	-1.021	24	0.007	4	0.001	4	0.045	22	2.195	4
32			min	0.781	23	-2.825	4	0.004	23	0	23	0.027	23	0.981	23
33	M11	I	max	-0.028	4	3.93	4	-0.623	24	-0.05	24	2.766	4	-0.202	24
34			min	-0.052	1	1.928	23	-1.216	4	-0.105	4	1.294	23	-0.436	4

Envelope Member End Reactions (Continued)

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
35		J	max	0.082	4	-0.725	24	0.833	4	0.024	4	2.418	4	0.042	22
36			min	0.01	23	-1.957	4	0.259	23	0.011	23	0.871	23	0.003	4
37	M12	I	max	-2.912	24	-0.003	24	-0.001	24	0	4	0.008	4	0	4
38			min	-5.107	4	-0.008	4	-0.005	4	0	1	0.002	23	-0.003	1
39		J	max	-2.906	24	-0.003	24	-0.001	24	0	4	-0.005	24	0.005	4
40			min	-5.096	4	-0.008	4	-0.005	4	0	1	-0.014	4	0.001	23
41	M13	I	max	10.543	4	4.058	4	0.934	4	0.025	4	-1.191	24	5.88	4
42			min	3.325	23	1.178	23	0.389	23	0.011	23	-2.672	4	1.704	23
43		J	max	13.553	4	-0.873	24	0.659	4	-0.008	24	1.203	4	0	4
44			min	4.101	23	-3.21	4	0.16	23	-0.04	4	0.374	23	0	1
45	M14	I	max	11.163	4	2.708	4	-0.392	24	-0.008	24	2.724	4	5.878	4
46			min	3.5	23	0.803	23	-0.914	4	-0.017	4	1.222	23	1.703	23
47		J	max	12.821	4	-0.504	24	-0.402	24	0.22	4	-0.906	24	0	4
48			min	3.942	23	-1.563	4	-0.996	4	0.101	23	-2.016	4	-0.001	1
49	M15	I	max	0.127	4	1.226	4	0.702	4	0	22	-0.438	24	-0.169	24
50			min	-0.02	1	0.311	23	0.177	23	0	4	-1.808	4	-0.403	4
51		J	max	0.127	4	-0.334	24	-0.196	24	0	22	-0.534	24	-0.077	24
52			min	-0.02	1	-1.315	4	-0.766	4	0	4	-2.016	4	-0.218	4
53	M16	I	max	-2.111	24	-0.57	24	-0.058	24	-0.001	24	0.419	4	-0.216	24
54			min	-3.518	1	-1.19	4	-0.181	4	-0.004	4	0.2	23	-0.449	4
55		J	max	-2.112	24	-0.57	24	-0.058	24	-0.001	24	-0.078	24	0.016	22
56			min	-3.521	1	-1.19	4	-0.181	4	-0.004	4	-0.187	4	-0.003	4
57	M17	I	max	-1.99	24	1.16	4	-0.041	24	0.003	4	-0.184	24	0.462	4
58			min	-3.317	1	0.56	23	-0.115	4	0.001	23	-0.38	4	0.224	23
59		J	max	-1.991	24	1.16	4	-0.041	24	0.003	4	0.082	4	-0.042	24
60			min	-3.319	1	0.56	23	-0.115	4	0.001	23	0.045	23	-0.101	4
61	M18	I	max	0	24	0.532	4	-0.119	24	0	4	0.894	4	-0.496	24
62			min	0	1	0.168	23	-0.345	4	-0.001	1	0.294	23	-0.962	4
63		J	max	0	24	-0.259	24	0.386	4	0	4	0.96	4	0.239	22
64			min	0	1	-0.734	4	0.128	23	-0.001	1	0.318	23	0.143	23
65	M19	I	max	0	24	0.67	4	0.39	4	0	22	-0.314	24	-0.052	24
66			min	0	1	0.218	23	0.127	23	0	4	-0.964	4	-0.097	4
67		J	max	0	24	-0.223	24	-0.127	24	0	22	-0.316	24	-0.013	24
68			min	0	1	-0.68	4	-0.39	4	0	4	-0.967	4	-0.025	4

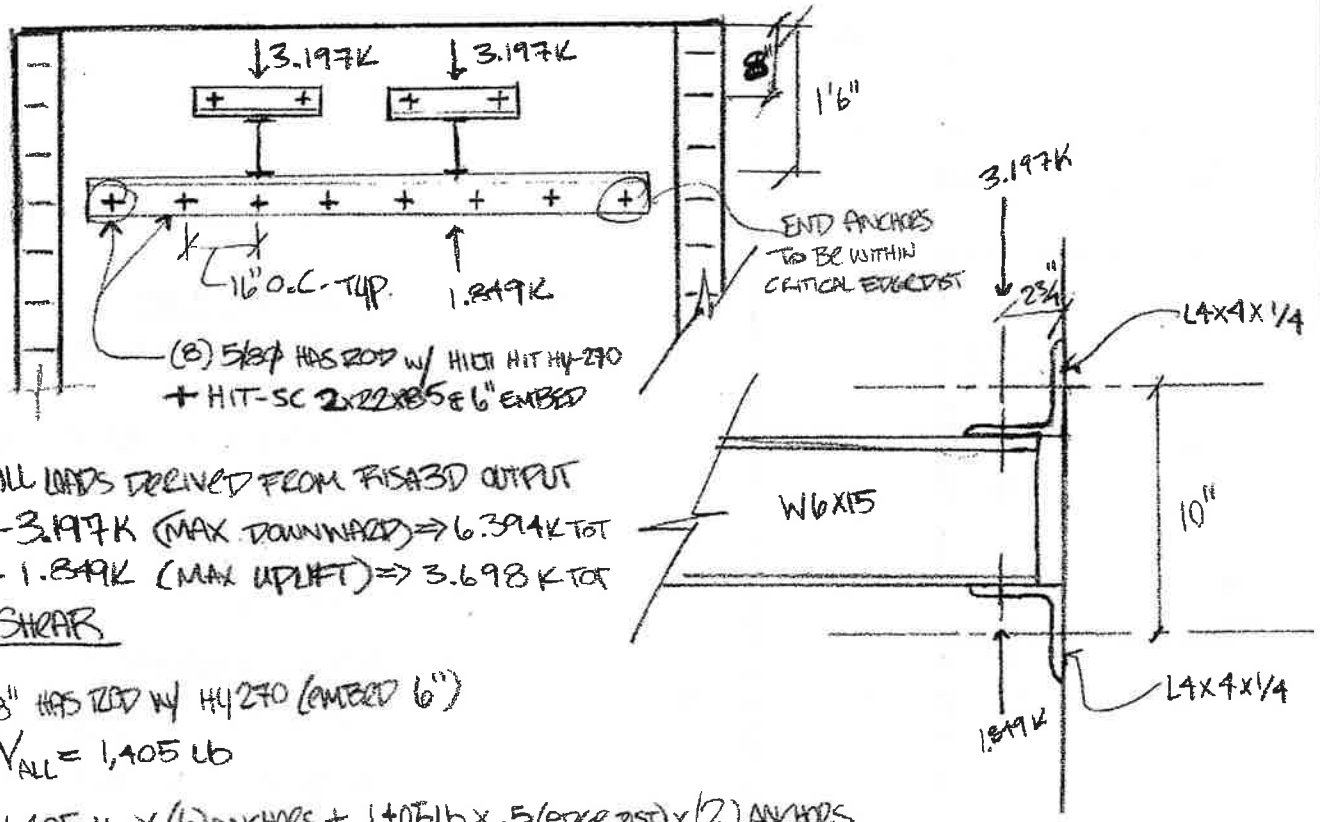


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering	Greenwich 4- West Chimney Frame	SK-12
Luke Amiot		Sep 29, 2023
22017.01		Existing Chimney Lower Frame ...

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

JOB GREENWICH 4 - ANCHORAGE TO EXIST CHIMNEY
SHEET NO. 1 OF 2
CALCULATED BY LAA DATE 09/28/23
CHECKED BY CFC DATE
SCALE NTS



★ ALL LOADS DERIVED FROM RISA3D OUTPUT
−3.197K (MAX DOWNWARD) ⇒ 6.394K TOT
+1.849K (MAX UPLIFT) ⇒ 3.698K TOT

SHEAR

5/8" HAS ROD W/ HY-270 (EMBED 6")
V_{ALL} = 1,405 LB

1,405 LB × (6) ANCHORS + 1405 LB × .5 (EDGE DIST) × (2) ANCHORS

$V_{ALL\ TOTAL}$ = 9835 LB > 6.394 K OK
> 3.698 K OK

TENSION

5/8" HAS ROD W/ HY-270 (EMBED 6")
T_{ALL} = 1,025 LB

DOWNWARD

6.394K × 2 3/4" = 17.6 K-IN
17.6 K-IN / 10" = 1.76 K = T_{TOT}
(2) ANCHORS × 1,025 LB = 2.05 K > 1.76 K OK

UPLIFT

3.698K × 2 3/4" = 10.17 K-IN
10.17 K-IN / 10" = 1.017 K
(6) ANCHR × 1.025K + (2) ANCH × 1.025K × .5
= 7.175 K > 1.017 K OK

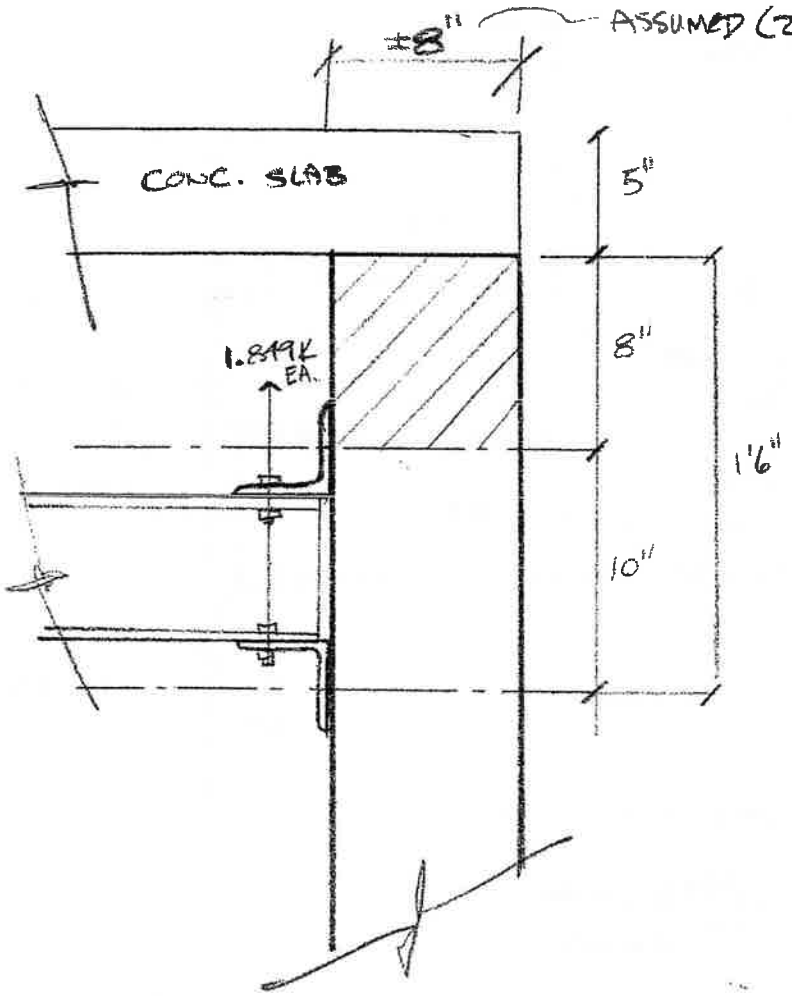
COMBINED

$$\frac{\text{SHEAR}}{\text{SHEAR}} + \frac{\text{TENSION}}{\text{TENSION}} = \frac{6.394\text{K}}{9.835} + \frac{1.017\text{K}}{7.175\text{K}} = 0.792$$

79.2% OK

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

JOB GREENWICH 1 - EXIST CHIMNEY MASONRY CHECK
SHEET NO. 2 OF 2
CALCULATED BY LAA DATE 09/28/23
CHECKED BY CFC DATE
SCALE NTS



ASSUMED (2) WYTHES OF 4" BRICK

LENGTH OF MASONRY = 11'0"

1.849K x 2 LOCATIONS = 3.698K

CONCRETE WEIGHT
11'0" x 2'0" (TRIBUTARY) x 5"/12
= 9.17 FT3.
9.17 x 150 LB/FT3 = 1.375K

3.698K
- 1.375K
2,323 LB

MASONRY WEIGHT
11'0" x 8"/12 x 8"/12 = 4.88 FT3
4.88 FT3 x 100 LB/FT3 = .488K

2,323 LB
- 488 LB
1835 LB UPLIFT

(11'x12) x (8") = 1056 IN2

ALLOWABLE TENSILE STRESS MORTAR CEMENT TYPE N = 30 PSI

$\frac{1835\ lb}{1056\ in^2} = 1.74\ \frac{lb}{in^2}$ OF UPLIFT <<<< 30 PSI OK

ATTACHMENT 5

ALL-POINTS
TECHNOLOGY CORPORATION

VISIBILITY ANALYSIS

GREENWICH 4 CT
19 DOUBLING ROAD
GREENWICH, CT

PREPARED FOR:

verizon

PREPARED BY:
All-Points Technology Corporation, P.C.
567 Vauxhall Street Extension – Suite 311
Waterford, CT 06320

VISUAL ASSESSMENT & PHOTO-SIMULATIONS

Cellco Partnership, d/b/a Verizon Wireless ("Verizon Wireless") is seeking approval for the development of a new wireless communications facility (the "Facility") at 19 Doubling Road in Greenwich, Connecticut (the "Host Property"). All-Points Technology Corporation, P.C. ("APT") completed this assessment to evaluate the potential visual effects of the proposed Facility from within a two-mile radius (the "Study Area").

Project Setting

The Host Property is an irregularly-shaped parcel located between Stanwich Road to the east, North Street to the west, and Fairfield Road to the south. It is developed with a golf course, tennis courts, and various buildings associated with the Greenwich Country Club. The proposed Facility would be located on the rooftop and adjacent to the clubhouse building (the "clubhouse") in the north central portion of the Host Property ("Site"). Land use within the immediate area is a mix of residential and educational (public and private schools) development.

The topography within the Study Area consists of relatively hilly terrain. Ground elevations range from sea level in the southeastern portion of the Study Area along Cos Cob Harbor to approximately 401 feet above mean sea level ("AMSL") approximately 2 miles northwest of the Site. Tree cover (consisting primarily of mixed deciduous hardwoods) occupies approximately 5,016 acres (or ±62.37%) of the 8,042-acre Study Area.

Project Undertaking

Based on information contained in CT Siting Council Drawings (prepared by Centek Engineering, dated December 21, 2022), two (2) proposed radio-frequency-transparent enclosures (i.e., mock chimneys resembling existing structures) would be installed on the clubhouse rooftop, approximately 57 feet above ground level. One of the proposed Verizon Wireless mock chimney enclosures will replace an existing, unused chimney at the west end of the clubhouse. The mock chimneys would house antennas, remote radio heads (RRHs), ancillary equipment and cabling. Associated ground-mounted equipment would be placed on a new 5′ by 8′ concrete slab within an existing fenced utility area on the eastern side of the clubhouse.

Methodology

APT used the combination of a predictive computer model, in-field analysis, and various data sources to evaluate the visibility associated with the proposed Facility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of visibility throughout the entire Study Area, including private properties and other areas inaccessible for direct observations. The in-field analysis consisted of a reconnaissance of the Study Area to record existing conditions, verify results of the model, inventory seasonal and year-round view locations, and provide photographic documentation from publicly accessible areas. A description of the procedures used in the analysis is provided below.

Preliminary Computer Modeling

To conduct this assessment, a predictive computer model was developed specifically for this project using ESRI's ArcMap GIS[1] software and available GIS data. The predictive model incorporates Project- and Study Area-specific data, including the Site location, its ground elevation, and the proposed mock chimney heights, as well as the surrounding topography, existing vegetation, and structures (the primary features that can block direct lines of sight).

A digital surface model ("DSM"), capturing both the natural and built features on the Earth's surface, was generated for the extent of the Study Area utilizing State of Connecticut 2016 LiDAR[2] LAS[3] data points. LiDAR is a remote-sensing technology that develops elevation data by measuring the time it takes for laser light to return from the surface to the instrument's sensors. The varying reflectivity of objects also means that the "returns" can be classified based on the characteristics of the reflected light, normally into categories such as "bare earth," "vegetation," "road," "surface water" or "building." Derived from the 2016 LiDAR data, the LAS datasets contain the corresponding elevation point data and return classification values. The Study Area DSM incorporates the first return LAS dataset values that are associated with the highest feature in the landscape, typically a treetop, top of a building, and/or the highest point of other tall structures.

Once the DSM was generated, ESRI's Viewshed Tool was utilized to identify locations within the Study Area where the proposed Facility may be visible. ESRI's Viewshed Tool predicts visibility by identifying those cells[4] within the DSM that can be seen from an observer location. Cells where visibility was indicated were extracted and converted from a raster dataset to a polygon

[1] ArcMap is a Geographic Information System desktop application developed by the Environmental Systems Research Institute for creating maps, performing spatial analysis, and managing geographic data.

[2] Light Detection and Ranging

[3] An LAS file is an industry-standard binary format for storing airborne LiDAR data.

[4] Each DSM cell size is 1 square meter.

feature which was then overlaid onto aerial photograph and topographic base maps. Since the DSM includes the highest relative feature in the landscape, isolated "visible" cells are often indicated within heavily forested areas (e.g., from the top of the highest tree) or on building rooftops during the initial processing. It is recognized that these areas do not represent typical viewer locations and overstate visibility. As such, the resulting polygon feature is further refined by extracting those areas. The viewshed results are also cross-checked against the most current aerial photographs to assess whether significant changes (a new housing development, for example) have occurred since the time the LiDAR-based LAS datasets were captured.

The results of the preliminary analysis are intended to provide a representation of those areas where portions of the Facility may potentially be visible to the human eye without the aid of magnification, based on a viewer eye-height of five (5) feet above the ground and the combination of intervening topography, trees and other vegetation, and structures. However, the Facility may not necessarily be visible from all locations within those areas identified by the predictive model, which has its limitations. For instance, the computer model cannot account for mass density, tree diameters and branching variability of trees, or the degradation of views that occurs with distance. As a result, some areas depicted on the viewshed maps as theoretically offering potential visibility of the Facility may be over-predictive because the quality of those views is not sufficient for the human eye to recognize the Facility or discriminate it from other surrounding or intervening objects.

Seasonal Visibility

Visibility also varies seasonally with increased, albeit obstructed, views occurring during "leaf-off" conditions. Beyond the variabilities associated with density of woodland stands found within any given Study Area, each individual tree also has its own unique trunk, pole timber and branching patterns that provide varying degrees of screening in leafless conditions which, as introduced above, cannot be precisely modeled. Seasonal visibility is therefore estimated based on a combination of factors including the type, size, and density of trees within a given area; topographic constraints; and other visual obstructions that may be present. Considering these dynamics, areas depicting seasonal visibility on the viewshed maps are intended to represent locations from where there is a potential for views through intervening trees, as opposed to indicating that leaf-off views will exist from within an entire seasonally-shaded area.

Field Reconnaissance

To supplement and fine tune the results of the computer modeling efforts, APT completed in-field verification activities consisting of a vehicular and pedestrian reconnaissance, and photo-documentation. The field reconnaissance was completed on April 18, 2023. Weather conditions were favorable for the in-field activities with partly cloudy skies. APT conducted the

reconnaissance of the Study Area by driving along roads and other publicly accessible locations to document and inventory where the clubhouse and existing chimneys could be seen above and through the tree canopy and other visual obstructions.

Photographic Documentation and Simulations

Visual observations from the reconnaissance were used to evaluate the results of the preliminary visibility mapping, including identifying any discrepancies in the initial modeling, and to obtain photo-documentation from representative locations within the Study Area. Photographs were taken with a Canon EOS 6D digital camera body[5] and Canon EF 24 to 105 millimeter ("mm") zoom lens. The coordinates of the clubhouse were entered as a "waypoint" into a handheld global positioning system ("GPS") device, with the "find" tool on the GPS unit then used to provide the distance and orientation to the proposed Facility location. The geographic coordinates of each photo location were recorded as meta data using GPS technology internal to the camera. APT used a standard focal length of 50 mm to present a consistent field of view.

Photographic simulations were generated to portray scaled renderings of the proposed Facility from seven (7) locations presented herein where the Facility will be seen above/through the trees. Using field data, site plan information and 3-dimensional (3D) modeling software, spatially referenced models of the Site and Facility were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated to produce virtual camera positions within the spatial 3D model. Photo-simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, which were ultimately composited and merged with the existing conditions photographs (using Adobe Photoshop image editing software). The scale of the subjects in the photograph (the clubhouse and existing chimneys) and the corresponding simulation (the Facility) is proportional to their surroundings.

For presentation purposes in this report, the photographs were produced in an approximate 7-inch by 10.5-inch format. When reproducing the images in this format size, we believe it is important to present the largest view while providing key contextual landscape elements (existing developments, street signs, utility poles, etc.) so that the viewer can determine the proportionate scale of each object within the scene. Photo-documentation of the field reconnaissance and photo-simulations of the proposed Facility are presented in the attachment at the end of this report. The photo-simulations are intended to provide the reader with a general understanding of the visual characteristics associated with the proposed mock chimneys

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

from various locations. Photographs were taken from publicly accessible areas and unobstructed view lines were chosen wherever possible.

Table 1 – Photo Locations summarizes the photographs and simulations presented in the attachment to this report, and includes a description of each location, view orientation, distance from where the photo was taken relative to the Site, and the general characteristics of the view. The photo locations are depicted on the photolog and viewshed maps provided as attachments to this report.

Table 1 – Photo Locations

Photo	Location	Orientation	Distance to Site	Visibility
1	Host Property	South	± 309 Feet	Year Round
2	Golf Club Road	South	± 0.12 Mile	Year Round
3	Doubling Road	Southeast	+ 0.20 Mile	Year Round
4	North Street	East/Northeast	± 0.34 Mile	Not Visible
5	Fairfield Road	North/Northeast	± 0.40 Mile	Not Visible
6	Fairfield Road	North	± 0.25 Mile	Seasonal
7	Stanwich Road	North/Northwest	± 0.39 Mile	Seasonal
8	Stanwich Road	Northwest	± 0.28 Mile	Year Round
9	Stanwich Road	West	± 0.25 Mile	Year Round
10	Montgomery Lane at Stanwich Road	West/Southwest	± 0.33 Mile	Not Visible
11	Stanwich Road	Southwest	± 0.50 Mile	Not Visible
12	Wyngate Road	South	± 0.38 Mile	Not Visible

Final Visibility Mapping

Information obtained during the field reconnaissance was incorporated into the mapping data layers, including observations of the field reconnaissance, the photograph locations, areas that experienced recent land use changes and those places where the initial model was found to over or under-predict visibility. Once the additional data was integrated into the model, APT recalculated the visibility of the proposed Facility within the Study Area.

Conclusions

As presented on the attached viewshed maps, year-round visibility of the Facility would be limited primarily to the Host Property and its immediate surroundings, comparable to the visibility of the chimneys today. Year-round visibility associated with the existing clubhouse chimneys accounts for approximately 20 acres of visibility. Development of the proposed Facility is anticipated to increase year-round visibility by only ±13 acres; the addition of the proposed eastern mock chimney would increase the total year-round visibility to approximately 33 acres. This represents far less than one percent (±0.41%) of the 8,042-acre Study Area. Nearly 94% of the year-round visibility of the Facility (±30 acres) would occur on the Host Property). Seasonal views may extend to areas within ±0.66 mile of the Site.

The results of this assessment demonstrate that areas currently experiencing partial or full views of the clubhouse will likely have views of the mock chimneys. However, due to the combination of the design of the mock chimneys and the in-kind replacement of one existing chimney, the aesthetic character of the clubhouse will be minimally changed. The addition of the mock chimney on the east side of the clubhouse will appear to be an original component of the building. As a result, there will be no significant visual impact to the community.

Proximity to Schools And Commercial Child Day Care Centers

No schools or commercial child day care centers are located within 250 feet of the proposed Facility. The North Street School, located at 381 North Street in Greenwich, is approximately 0.4-mile west of the Site. The Greenwich Country Day School Lower Elementary School is located approximately 0.5-mile south of the Site at 401 Old Church Road in Greenwich. The existing clubhouse and Facility may be visible from both locations when leaves are off the deciduous trees.

Limitations

The viewshed maps presented in the attachment to this report depict areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye-height of five (5) feet above the ground and intervening topography, tree canopy, and structures. This analysis may not account for all visible locations, as it is based on the combination of computer modeling, incorporating aerial photographs, and in-field observations from publicly accessible locations. This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen.

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

ATTACHMENTS

PHOTO LOG

Legend

Site ● Not Visible ◐ Seasonal ◐ Year-Round

N W E S

1 inch = 600 feet

600 300 0 600 Feet

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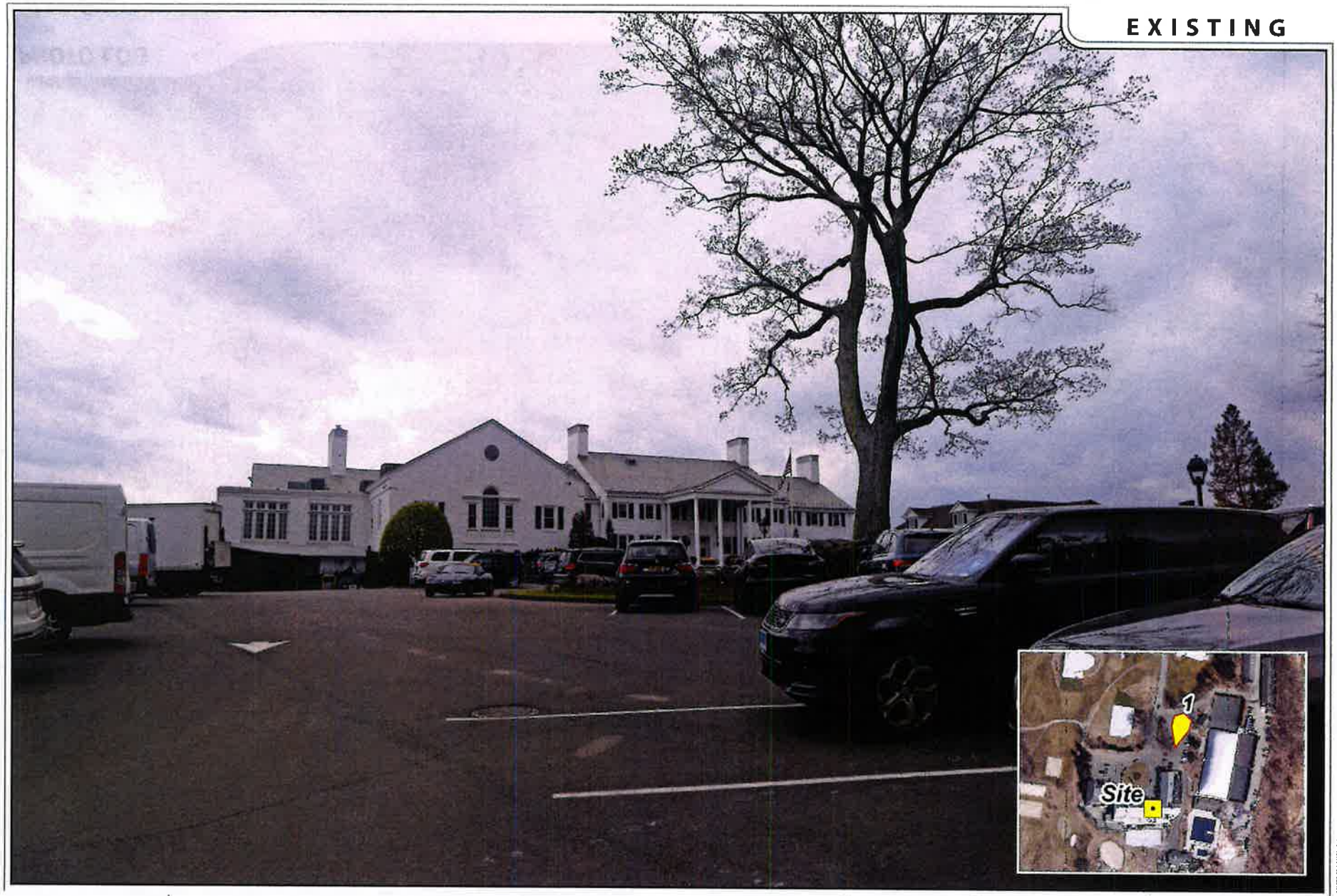
EXISTING



PHOTOGRAPHED 04/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**HOST PROPERTY**	S	+/- 309 FEET	YEAR ROUND

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PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	**HOST PROPERTY**	**S**	**+/- 309 FEET**	**YEAR ROUND**

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verizon

EXISTING

PHOTOGRAPHED ON 4/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	GOLF CLUB ROAD	S	+/- 0.12 MILE	YEAR ROUND

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	GOLF CLUB ROAD	S	+/- 0.12 MILE	YEAR ROUND

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EXISTING

PHOTOGRAPHED ON: 4/19/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	DOUBLING ROAD	SE	+/- 0.20 MILE	YEAR ROUND

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verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	**DOUBLING ROAD**	**SE**	**+/- 0.20 MILE**	**YEAR ROUND**

EXISTING

PHOTOGRAPHED ON 1/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	NORTH STREET	ENE	+/- 0.34 MILE	NOT VISIBLE

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EXISTING

PHOTOGRAPHED ON 4/18/2023

PHOTO	LOCAT ON	ORIENTATION	D STANCE TO SITE	VISIBIL TY
5	FAIRFIELD ROAD	NNE	+/- 0.40 MILE	NOT VISIBLE

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verizon

EXISTING

PHOTOGRAPHED ON 4/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	FAIRFIELD ROAD	N	+/- 0.25 MILE	SEASONAL

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PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	**FAIRFIELD ROAD**	**N**	**+/- 0.25 MILE**	**SEASONAL**

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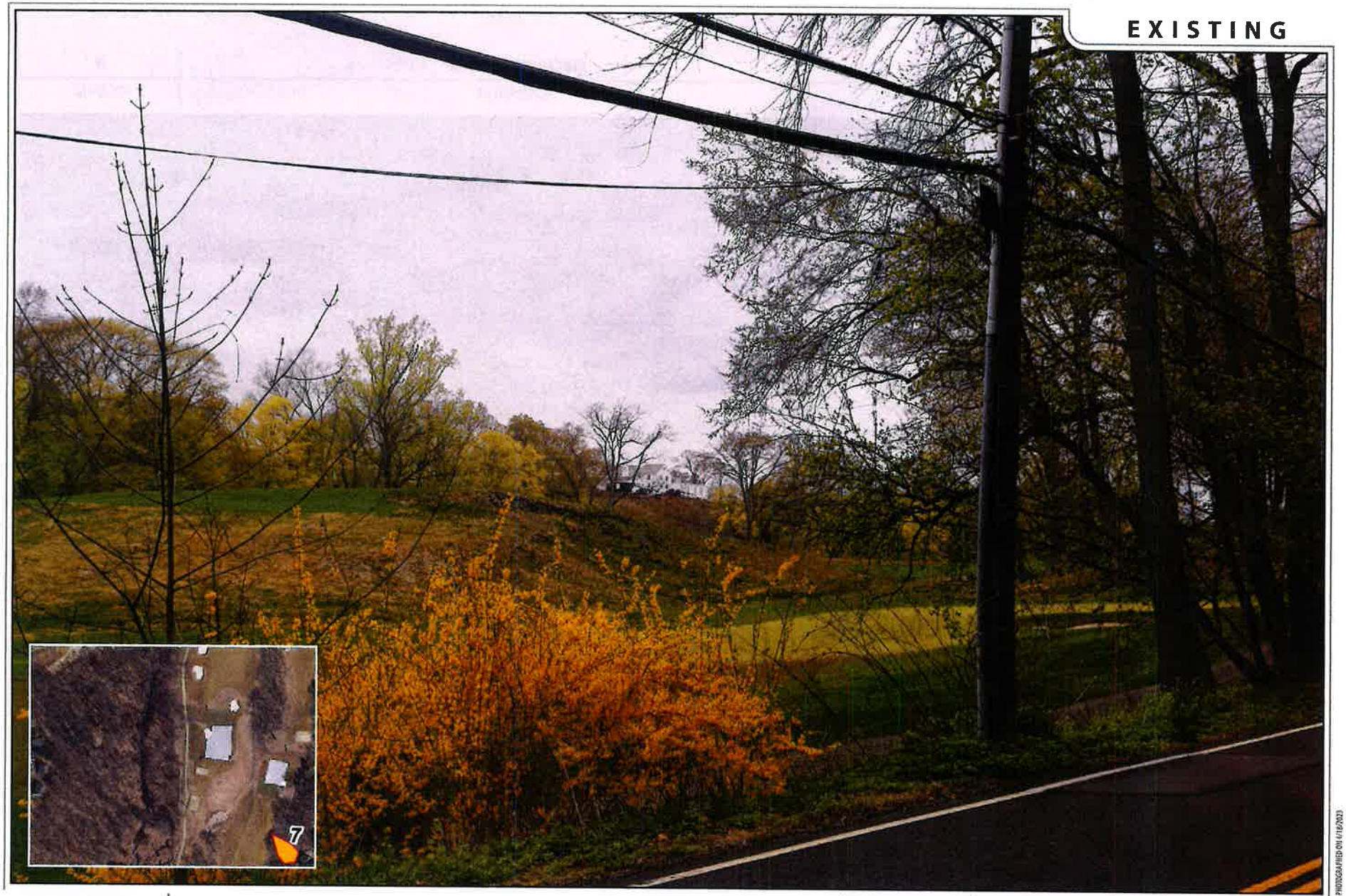
verizon

EXISTING



PHOTOGRAPHED ON 4/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	STANWICH ROAD	NNW	+/- 0.39 MILE	SEASONAL

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verizon

PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	STANWICH ROAD	NNW	+/- 0.39 MILE	SEASONAL

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EXISTING

PHOTOGRAPHED ON 1/19/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
8	STANWICH ROAD	NW	+/- 0.28 MILE	YEAR ROUND

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PROPOSED

PHOTO	LOCATION	ORIENTATION	D STANCE TO SITE	VISIBIL TY
8	STANWICH ROAD	NW	+/- 0.28 MILE	YEAR ROUND

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EXISTING

PHOTOGRAPHED ON 1/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	STANWICH ROAD	W	+/- 0.25 MILE	YEAR ROUND

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PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	STANWICH ROAD	W	+/- 0.25 MILE	YEAR ROUND

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verizon

EXISTING

PHOTOGRAPHED ON 1/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	V SIBILITY
10	MONTGOMERY LANE AT STANWICH ROAD	WSW	+/- 0.33 MILE	NOT VISIBLE

ALL-POINTS TECHNOLOGY CORPORATION

verizon

EXISTING

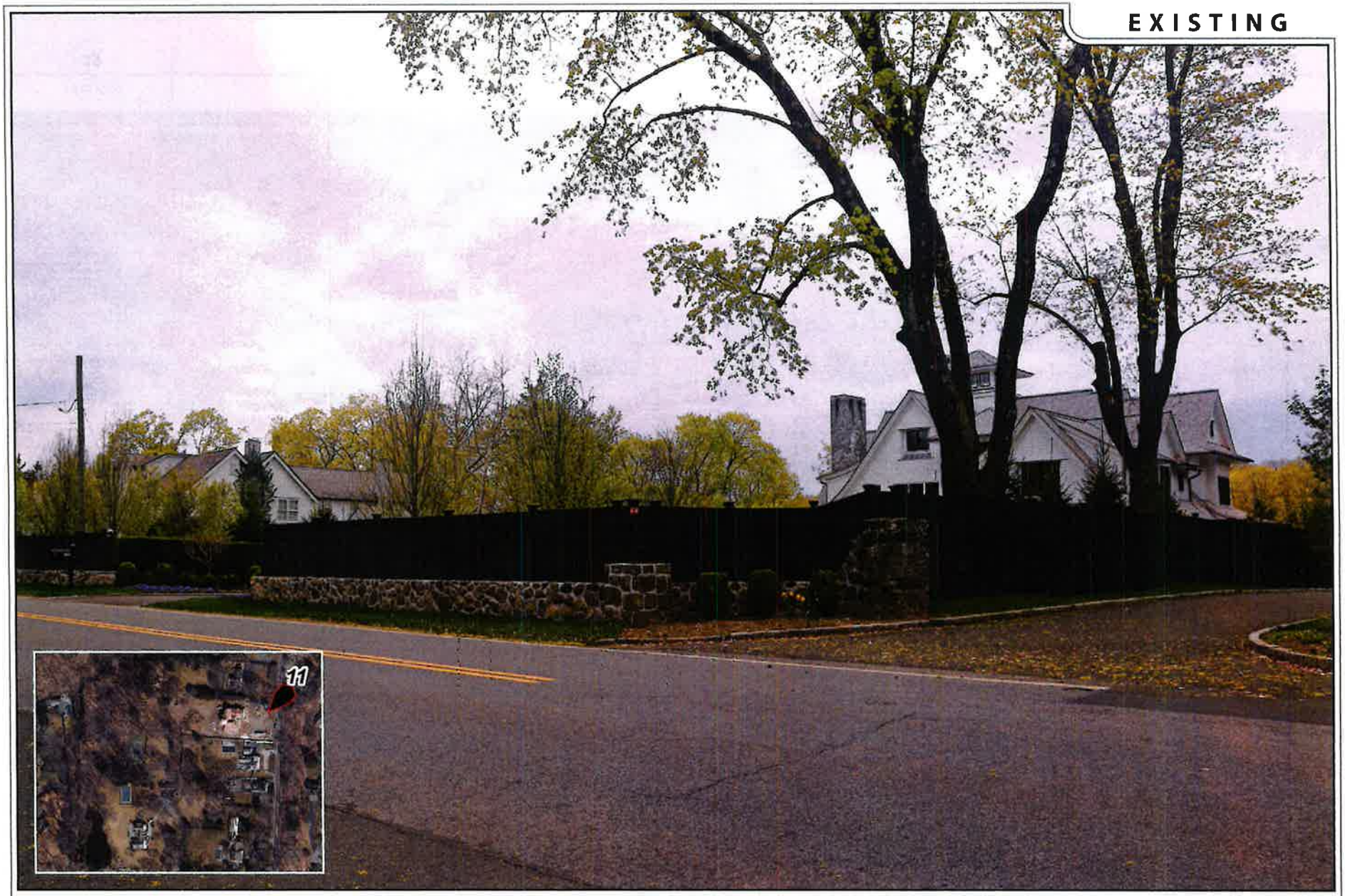


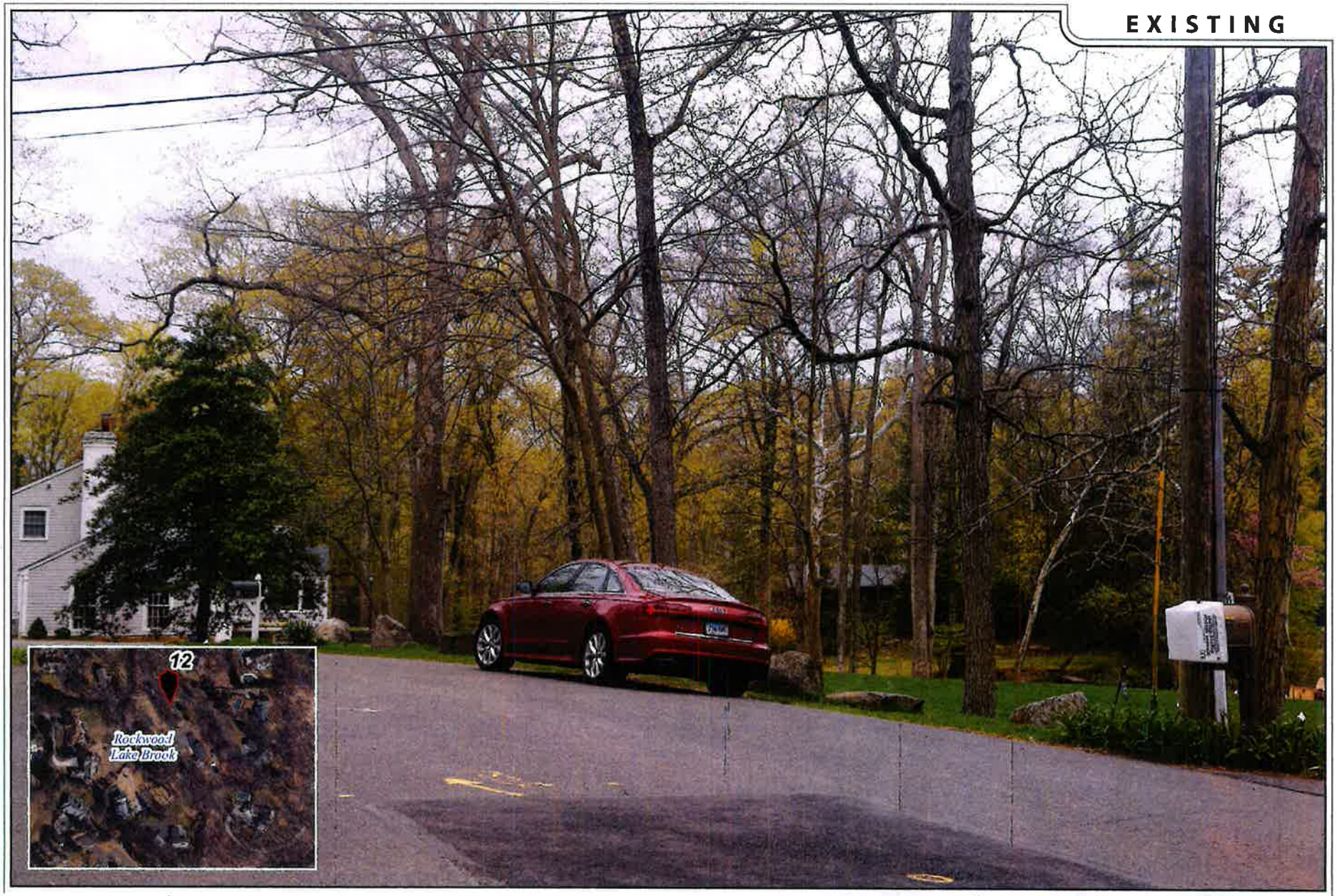
PHOTO	LOCATION	ORIENTATION	D STANCE TO SITE	VISIBIL TY
11	**STANWICH ROAD**	**SW**	**+/- 0.50 MILE**	**NOT VISIBLE**

PHOTOGRAPHED ON 4/10/2023

ALL-POINTS TECHNOLOGY CORPORATION

verizon

EXISTING



PHOTOGRAPHED ON 1/18/2023

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIB LITY
12	**WYNGATE ROAD**	**S**	**+/- 0.38 MILE**	**NOT VISIBLE**

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verizon

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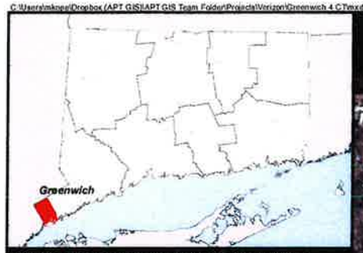

Statewide and Regional Overview Map

Comparative Viewshed Analysis Map

Proposed Eastern Antenna Screening Enclosure
and Existing Central Chimneys
19 Doubling Road
Greenwich, Connecticut

Proposed facility includes the installation of two (2) antenna screening enclosures at heights of 56'-9" AGL to match existing chimneys atop an existing building; the proposed western enclosure will match an unused existing chimney to be removed.
This analysis depicts visibility associated with the proposed eastern antenna enclosure (a new visual element) and the existing central chimneys (+/- 60' AGL) for comparative purposes.
Forest canopy height is derived from LiDAR data.
Study area encompasses a two-mile radius surrounding the existing chimneys and includes 8,042 acres.
Existing conditions field verified by APT on April 18, 2023
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Date: July 2023

Legend

- Existing Chimney
- Proposed Eastern Antenna Screening
- Study Area (2-Mile Radius)
- Municipal Boundary

Photo Locations (April 18, 2021)

- Not Visible
- Seasonal
- Year-Round
- Seasonal Visibility – Existing Chimneys and/or Proposed Western Antenna Enclosure, 335 Acres

Year-Round Visibility (33 Acres Total)

- Existing Chimneys Only, 20 Acres
- Existing Chimneys and Proposed Eastern Antenna Enclosure, 7 Acres
- Proposed Eastern Antenna Enclosure Only, 6 Acres

- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The DSM captures the natural and built features on the Earth's surface.

Municipal Open Space, State Recreation Areas, Trails, County Recreation Areas, and Town Boundary data obtained from CT DEEP. Scenic Roads: CTDOT State Scenic Highways (2015); Municipal Scenic Roads (compiled by APT)

Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

CTDOT Scenic Strips (based on Department of Transportation data)

Notes

***Not all the sources listed above appear on the Viewshed Maps. Only those features within the scale of the graphic are shown

Limitations

This map depicts areas where the proposed Facility may potentially be visible to the human eye without the aid of magnification based on a viewer eye height of 5 feet above the ground and intervening topography, tree canopy and structures. This analysis is intended to provide a representation of those areas where the Facility is likely to be visible.

0.5 0.25 0 0.5 Miles

verizon

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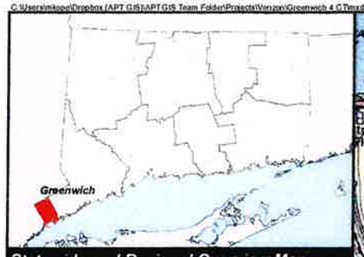

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Forest canopy height is derived from LiDAR data.
Study area encompasses a two-mile radius surrounding the existing chimneys and includes 8,042 acres.
Existing conditions field verified by APT on April 18, 2023
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Glenville, CT (1971) and Stamford, CT (1984)
Map Date: July 2023

Legend

- Existing Chimney
- Proposed Eastern Antenna Screening Enclosure
- Study Area (2-Mile Radius)
- Municipal Boundary

Photo Locations (April 18, 2023)

- Not Visible
- Seasonal
- Year-Round
- Seasonal Visibility - Existing Chimneys and/or Proposed Western Antenna Enclosure, 335 Acres

Year-Round Visibility (33 Acres Total)

- Existing Chimneys Only, 20 Acres
- Existing Chimneys and Proposed Eastern Antenna Enclosure, 7 Acres
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- Trail
- Scenic Highway
- DEEP Boat Launches
- Municipal and Private Open Space Property
- State Forest/Park

Protected Open Space Property

- Federal
- Land Trust
- Municipal
- Private
- State

Data Sources:

Physical Geography / Background Data

A digital surface model (DSM) was created from the State of Connecticut 2016 LiDAR LAS data points. The DSM captures the natural and built features on the Earth's surface.

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Dedicated Open Space & Recreation Areas

Connecticut Department of Energy and Environmental Protection (DEEP): DEEP Property (May 2007; Federal Open Space (1997); Municipal and Private Open Space (1997); DEEP Boat Launches (1994)

Connecticut Forest & Parks Association, Connecticut Walk Books East & West

Other

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0.5 0.25 0 0.5 Miles

verizon

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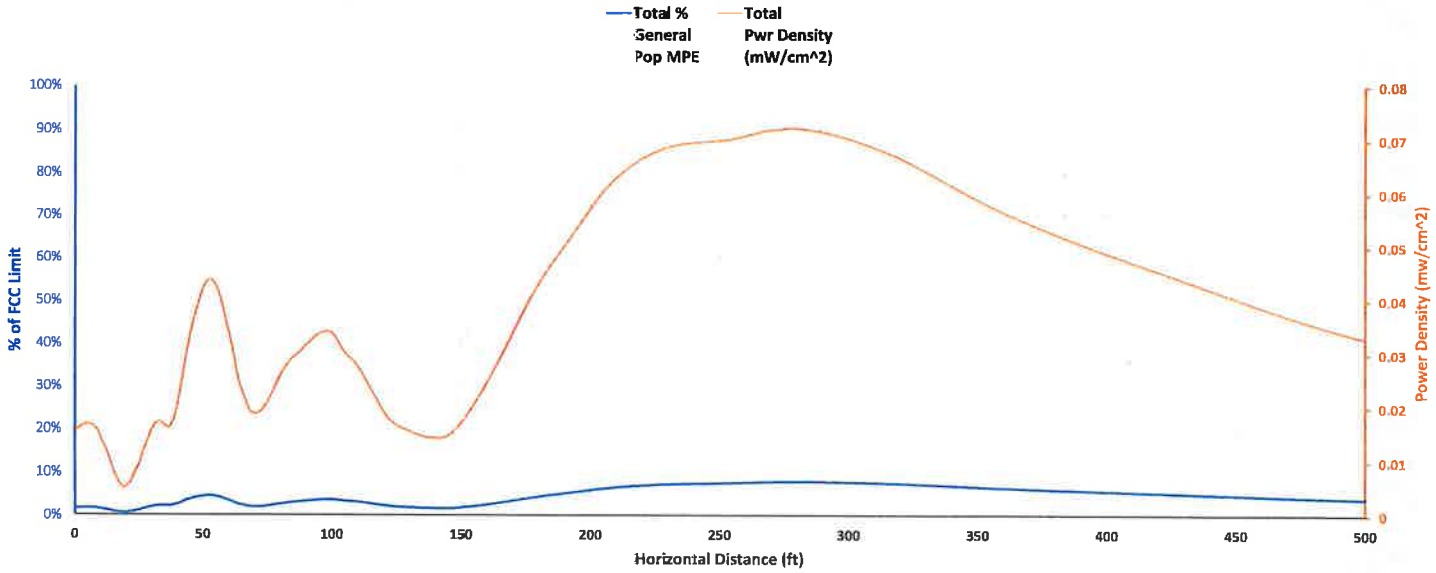
ATTACHMENT 6

Location	GREENWICH 4 CT					
Date	1/9/2023					
Band	C-Band	CBRS	AWS	PCS	850-LTE	700
Operating Frequency (MHz)	3,700	3,550	2,145	1,970	880	746
General Population MPE (mW/cm^2)	1	1	1	1	0.586666667	0.497333333
ERP Per Transmitter (Watts)	8,610	11	1,629	1,246	701	561
Number of Transmitters	2	4	4	4	4	4
Antenna Centerline (feet)	50.5	54.5	52	52	52	52
Total ERP (Watts)	17,220	43	6,514	4,984	2,806	2,244
Total ERP (dBm)	72	46	68	67	64	64
Maximum % of General Population Limit	7.0%					

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



Angle Below Horizon	Power Density (mW/cm^2)						Percent of General Population MPE									Distance	Total Pwr Density (mW/cm^2)	Total % General Pop MPE
	C-Band	CBRS	AWS	PCS	850-LTE	700 MHz	39GHz	28GHz	C-Band	CBRS	AWS	PCS	Cellular	CDMA	700 MHz			
90	0.015458023	2.40463E-06	5.87745E-06	1.44507E-06	0.000231948	0.000112561	0.00%	0.00%	1.55%	0.00%	0.00%	0.00%	0.04%	0.00%	0.02%	0	0.015849871	1.61%
89	0.015453314	2.89026E-06	1.06186E-05	2.51053E-07	0.000222765	0.000115151	0.00%	0.00%	1.55%	0.00%	0.00%	0.00%	0.04%	0.00%	0.02%	0.776750389	0.015849067	1.61%
88	0.01579882	3.09459E-06	2.5217E-05	1.20335E-06	0.000221256	0.000109621	0.00%	0.00%	1.58%	0.00%	0.00%	0.00%	0.04%	0.00%	0.02%	1.553974242	0.016199714	1.65%
87	0.015994208	3.3888E-06	4.83142E-05	4.6214E-06	0.000210512	9.8011E-05	0.00%	0.00%	1.60%	0.00%	0.00%	0.00%	0.04%	0.00%	0.02%	2.332146178	0.01640056	1.67%
86	0.016331855	3.70907E-06	7.2145E-05	9.16022E-06	0.000194271	8.40247E-05	0.00%	0.00%	1.63%	0.00%	0.01%	0.00%	0.03%	0.00%	0.02%	3.111743131	0.016737252	1.70%
85	0.016287048	4.24873E-06	8.63156E-05	1.40536E-05	0.000173897	7.11588E-05	0.00%	0.00%	1.63%	0.00%	0.01%	0.00%	0.03%	0.00%	0.01%	3.893245527	0.016678959	1.69%
84	0.016610497	5.09364E-06	8.33149E-05	2.17983E-05	0.00015273	6.09429E-05	0.00%	0.00%	1.66%	0.00%	0.01%	0.00%	0.03%	0.00%	0.01%	4.677133469	0.016976123	1.71%
83	0.016544565	7.00764E-06	6.47299E-05	3.4818E-05	0.000134371	5.37409E-05	0.00%	0.00%	1.65%	0.00%	0.01%	0.00%	0.02%	0.00%	0.01%	5.46391296	0.0168799	1.70%
82	0.016468706	9.86022E-06	4.19986E-05	5.06914E-05	0.000122585	4.98236E-05	0.00%	0.00%	1.65%	0.00%	0.00%	0.01%	0.02%	0.00%	0.01%	6.254067144	0.016782627	1.69%
81	0.016383014	1.3551E-05	2.80615E-05	6.30683E-05	0.000120313	4.93528E-05	0.00%	0.00%	1.64%	0.00%	0.00%	0.01%	0.02%	0.00%	0.01%	7.048107594	0.016694445	1.68%
80	0.01591684	1.77757E-05	2.83618E-05	6.98928E-05	0.000128509	5.16337E-05	0.00%	0.00%	1.59%	0.00%	0.00%	0.01%	0.02%	0.00%	0.01%	7.846550642	0.016247397	1.64%

79	0.01545422	2.27745E-05	3.63997E-05	7.5474E-05	0.000148354	5.58854E-05	0.00%	0.00%	1.55%	0.00%	0.00%	0.01%	0.03%	0.00%	0.01%	8.649923757	0.015827585	1.60%
78	0.014654221	2.84995E-05	4.10397E-05	8.45091E-05	0.00018047	6.11511E-05	0.00%	0.00%	1.47%	0.00%	0.00%	0.01%	0.03%	0.00%	0.01%	9.458766994	0.015089092	1.53%
77	0.013570686	3.32649E-05	3.67324E-05	9.78924E-05	0.000225036	6.61074E-05	0.00%	0.00%	1.36%	0.00%	0.00%	0.01%	0.04%	0.00%	0.01%	10.27363451	0.014074021	1.43%
76	0.012851747	3.88057E-05	2.6646E-05	0.00011677	0.000280436	6.91563E-05	0.00%	0.00%	1.29%	0.00%	0.00%	0.01%	0.05%	0.00%	0.01%	11.09509613	0.013432578	1.37%
75	0.011886158	4.32078E-05	1.6786E-05	0.000150192	0.000342097	6.85721E-05	0.00%	0.00%	1.19%	0.00%	0.00%	0.02%	0.06%	0.00%	0.01%	11.92373906	0.012560509	1.29%
74	0.010735869	4.69874E-05	1.09143E-05	0.000213154	0.000401973	6.34154E-05	0.00%	0.00%	1.07%	0.00%	0.00%	0.02%	0.07%	0.00%	0.01%	12.76016967	0.011529047	1.19%
73	0.009469926	4.877E-05	1.08335E-05	0.00031657	0.000451827	5.36995E-05	0.00%	0.01%	0.95%	0.00%	0.00%	0.03%	0.08%	0.00%	0.01%	13.60501532	0.010414102	1.08%
72	0.007971987	4.83137E-05	1.73888E-05	0.000457057	0.000484699	4.23127E-05	0.00%	0.01%	0.80%	0.00%	0.00%	0.05%	0.08%	0.00%	0.01%	14.45892648	0.009098345	0.95%
71	0.006629703	4.56805E-05	2.73208E-05	0.000624011	0.000495102	3.449E-05	0.00%	0.01%	0.66%	0.00%	0.00%	0.06%	0.08%	0.00%	0.01%	15.32257879	0.007947905	0.83%
70	0.005573469	4.12221E-05	3.18737E-05	0.00080377	0.00048488	3.36227E-05	0.00%	0.01%	0.56%	0.00%	0.00%	0.08%	0.08%	0.00%	0.01%	16.19667542	0.007075073	0.75%
69	0.004575699	3.89282E-05	2.47221E-05	0.000985792	0.000460561	4.4288E-05	0.00%	0.01%	0.46%	0.00%	0.00%	0.10%	0.08%	0.00%	0.01%	17.08194956	0.006249547	0.66%
68	0.003753926	3.93665E-05	1.10522E-05	0.001148545	0.000429191	8.15923E-05	0.00%	0.01%	0.38%	0.00%	0.00%	0.11%	0.07%	0.00%	0.02%	17.97916705	0.005592746	0.60%
67	0.003200414	4.263E-05	4.05057E-06	0.001256654	0.000398766	0.000158751	0.00%	0.01%	0.32%	0.00%	0.00%	0.13%	0.07%	0.00%	0.03%	18.88912932	0.005195212	0.56%
66	0.003225628	4.61342E-05	9.82389E-06	0.001285236	0.000370242	0.000270075	0.00%	0.01%	0.32%	0.00%	0.00%	0.13%	0.06%	0.00%	0.05%	19.8126765	0.005339867	0.59%
65	0.003562094	4.98935E-05	2.2948E-05	0.00121184	0.000343516	0.000415859	0.00%	0.01%	0.36%	0.00%	0.00%	0.12%	0.06%	0.00%	0.08%	20.75069079	0.005730706	0.64%
64	0.004022299	5.14959E-05	4.27462E-05	0.001029429	0.000318492	0.000601309	0.00%	0.01%	0.40%	0.01%	0.00%	0.10%	0.05%	0.00%	0.12%	21.70410019	0.006200981	0.70%
63	0.004964959	5.07227E-05	9.11448E-05	0.000761082	0.000291698	0.000827813	0.00%	0.01%	0.50%	0.01%	0.01%	0.08%	0.05%	0.00%	0.17%	22.6738825	0.007131662	0.82%
62	0.005998239	4.76789E-05	0.00020713	0.000448687	0.000260283	0.001100131	0.00%	0.01%	0.60%	0.00%	0.02%	0.04%	0.04%	0.00%	0.22%	23.66106971	0.008205483	0.95%
61	0.0067576	4.47856E-05	0.000416319	0.000171445	0.00022368	0.001421107	0.00%	0.01%	0.68%	0.00%	0.04%	0.02%	0.04%	0.00%	0.29%	24.66675279	0.009165076	1.08%
60	0.007451011	3.9231E-05	0.00070839	2.48297E-05	0.000182169	0.001784321	0.00%	0.01%	0.75%	0.00%	0.07%	0.00%	0.03%	0.00%	0.36%	25.69208698	0.010296532	1.22%
59	0.008380793	3.27938E-05	0.001048998	0.00010034	0.000139308	0.002187637	0.00%	0.01%	0.84%	0.00%	0.10%	0.01%	0.02%	0.00%	0.44%	26.73829755	0.011983077	1.43%
58	0.008590034	2.67681E-05	0.001402573	0.000460919	0.000106937	0.002612919	0.00%	0.01%	0.86%	0.00%	0.14%	0.05%	0.02%	0.00%	0.53%	27.80668616	0.013309529	1.60%
57	0.008381789	2.28612E-05	0.001724711	0.001128277	0.000110897	0.003040303	0.00%	0.01%	0.84%	0.00%	0.17%	0.11%	0.02%	0.00%	0.61%	28.8986379	0.014524737	1.77%
56	0.008190348	2.18889E-05	0.00195947	0.00207414	0.000186784	0.003438262	0.00%	0.01%	0.82%	0.00%	0.20%	0.21%	0.03%	0.00%	0.69%	30.015629	0.015983926	1.96%
55	0.00729261	2.19272E-05	0.002005315	0.003212789	0.000360898	0.003779054	0.00%	0.01%	0.73%	0.00%	0.20%	0.32%	0.06%	0.00%	0.76%	31.15923545	0.016773262	2.09%
54	0.006238343	2.35161E-05	0.001761322	0.004411013	0.000648695	0.004046125	0.00%	0.01%	0.62%	0.00%	0.18%	0.44%	0.11%	0.00%	0.81%	32.3311425	0.017277158	2.18%
53	0.005056513	2.57847E-05	0.001227712	0.005530904	0.001050264	0.004190801	0.00%	0.02%	0.51%	0.00%	0.12%	0.55%	0.18%	0.01%	0.84%	33.53315523	0.017278707	2.23%
52	0.003700141	3.02663E-05	0.000574043	0.006451256	0.001549339	0.004208673	0.00%	0.02%	0.37%	0.00%	0.06%	0.65%	0.26%	0.01%	0.85%	34.76721038	0.016754337	2.21%
51	0.002489769	3.63199E-05	0.000169579	0.007146132	0.002106558	0.004098001	0.00%	0.02%	0.25%	0.00%	0.02%	0.71%	0.36%	0.01%	0.82%	36.03538948	0.016365826	2.20%
50	0.001457679	4.45558E-05	0.000457472	0.007710168	0.002676493	0.003850923	0.00%	0.03%	0.15%	0.00%	0.05%	0.77%	0.46%	0.02%	0.77%	37.33993359	0.016564851	2.24%
49	0.000892717	5.4604E-05	0.001745459	0.008215032	0.003199717	0.003492289	0.00%	0.03%	0.09%	0.01%	0.17%	0.82%	0.55%	0.02%	0.70%	38.68325983	0.017968614	2.38%
48	0.000807794	6.53266E-05	0.004008608	0.008804264	0.003615725	0.003049257	0.00%	0.02%	0.08%	0.01%	0.40%	0.88%	0.62%	0.02%	0.61%	40.06797997	0.020675715	2.64%
47	0.001211738	7.98887E-05	0.006864368	0.009512619	0.003870815	0.002551532	0.00%	0.02%	0.12%	0.01%	0.69%	0.95%	0.66%	0.02%	0.51%	41.49692133	0.02445302	2.99%
46	0.002108736	9.53658E-05	0.009676419	0.010409124	0.003925694	0.00203196	0.00%	0.03%	0.21%	0.01%	0.97%	1.04%	0.67%	0.03%	0.41%	42.97315048	0.028651493	3.36%
45	0.003381613	0.00011112	0.011893741	0.011508481	0.003771554	0.001522366	0.00%	0.02%	0.34%	0.01%	1.19%	1.15%	0.64%	0.03%	0.31%	44.5	0.032579333	3.69%
44	0.005019916	0.000123501	0.013224937	0.012737762	0.003408752	0.001058264	0.00%	0.02%	0.50%	0.01%	1.32%	1.27%	0.58%	0.03%	0.21%	46.08109896	0.035893429	3.95%
43	0.006993919	0.000127938	0.013737897	0.014015861	0.002884842	0.000700037	0.00%	0.02%	0.70%	0.01%	1.37%	1.40%	0.49%	0.02%	0.14%	47.7204076	0.038824647	4.17%
42	0.009272049	0.000138599	0.013799943	0.014947784	0.00225465	0.000518893	0.00%	0.05%	0.93%	0.01%	1.38%	1.49%	0.38%	0.02%	0.10%	49.42225691	0.041506698	4.37%
41	0.011482588	0.000153437	0.013779771	0.015098768	0.001604885	0.000451276	0.00%	0.07%	1.15%	0.02%	1.38%	1.51%	0.27%	0.02%	0.09%	51.19139412	0.043336428	4.50%
40	0.013592174	0.000169622	0.013995548	0.013857645	0.000998141	0.00038476	0.00%	0.08%	1.36%	0.02%	1.40%	1.39%	0.17%	0.01%	0.08%	53.03303487	0.043845134	4.50%
39	0.015484513	0.000182974	0.014391127	0.01113767	0.000491243	0.000330594	0.00%	0.07%	1.55%	0.02%	1.44%	1.11%	0.08%	0.01%	0.07%	54.95292347	0.042769227	4.35%
38	0.016781775	0.000183918	0.014707143	0.007315228	0.000237536	0.000285581	0.00%	0.06%	1.68%	0.02%	1.47%	0.73%	0.04%	0.01%	0.06%	56.95740263	0.040100263	4.06%
37	0.016791132	0.000180365	0.014330451	0.003475037	0.000178017	0.000222567	0.00%	0.07%	1.68%	0.02%	1.43%	0.35%	0.03%	0.01%	0.04%	59.05349456	0.035934505	3.63%
36	0.016888509	0.00017256	0.012625725	0.000810879	0.000116267	0.000122027	0.00%	0.07%	1.69%	0.02%	1.26%	0.08%	0.02%	0.01%	0.02%	61.24899546	0.0315082	3.18%
35	0.015252342	0.000157381	0.009407662	2.65571E-05	0.000115527	0.000108813	0.00%	0.05%	1.53%	0.02%	0.94%	0.00%	0.02%	0.01%	0.02%	63.5525863	0.025670118	2.59%
34	0.013749194	0.000143267	0.0052832	0.000872161	0.000154561	0.00025769	0.00%	0.14%	1.37%	0.01%	0.53%	0.09%	0.03%	0.02%	0.05%	65.9739631	0.02199167	2.24%
33	0.011075707	0.000130161	0.001723692	0.002255066	0.000186064	0.000335475	0.00%	0.33%	1.11%	0.01%	0.17%	0.23%	0.03%	0.03%	0.07%	68.52399089	0.019192747	1.98%
32	0.009132157	0.000105173	7.92727E-05	0.002950006	0.000180853	0.000391133	0.00%	0.60%	0.91%	0.01%	0.01%	0.30%	0.03%	0.03%	0.08%	71.21488654	0.018987935	1.97%
31	0.007410246	7.73342E-05	0.000694764	0.002435211	0.000139008	0.00043958	0.00%	0.89%	0.74%	0.01%	0.07%	0.24%	0.02%	0.04%	0.09%	74.06043696	0.020287229	2.10%
30	0.006983835	5.05616E-05	0.002532474	0.001194661	9.15687E-05	0.000489492	0.00%	1.15%	0.70%	0.01%	0.25%	0.12%	0.02%	0.04%	0.10%	77.07626094	0.02306491	2.38%
29	0.008022254	2.80666E-05	0.003928128	0.000222272	9.49265E-05	0.000552568	0.00%	1.32%	0.80%	0.00%	0.39%	0.02%	0.02%	0.04%	0.11%	80.28012511	0.026271224	2.71%
28	0.010124475	1.17872E-05	0.003887682	0.000165726	0.000195386	0.000642527	0.00%	1.35%	1.01%	0.00%	0.39%	0.02%	0.03%	0.04%	0.13%	83.69232771	0.028758938	2.97%
27	0.013069154	2.65099E-06	0.002754135	0.000810373	0.00039372	0.000780164	0.00%	1.24%	1.31%	0.00%	0.28%	0.08%	0.07%	0.03%	0.16%	87.33616749	0.030384524	3.16%
26	0.015697766	5.94422E-07	0.001655713	0.001360456	0.000687364	0.000979908	0.00%	1.18%	1.57%	0.00%	0.17%	0.14%	0.12%	0.02%	0.20%	91.23852095	0.032333152	3.39%
25	0.016945347	5.6673E-06	0.001304957	0.00121982	0.001090933	0.001229693	0.00%	1.21%	1.69%	0.00%	0.13%	0.12%	0.19%	0.01%	0.25%	95.43055796	0.033917437	3.60%
24	0.017979621	1.9105E-05	0.001405122	0.000561582	0.001602934	0.001475416	0.00%	1.09%	1.80%	0.00%	0.14%	0.06%	0.27%	0.00%	0.30%	99.94863644	0.033976549	3.66%
23	0.015484955	4.14274E-05	0.001214002	0.00011801	0.00215487	0.001645962	0.00%	0.97%	1.55%	0.00%	0.12%	0.01%	0.37%	0.00%	0.33%	104.8354303	0.030406833	3.36%
22	0.011811492	7.10661E-05	0.000571449	0.000407078	0.002643502	0.001687246	0.00%	1.04%	1.18%	0.01%	0.06%	0.04%	0.45%	0.00%	0.34%	110.141365	0.02761476	3.12%
21	0.006820438	0.000100953	0.000170152	0.001184502	0.002958273	0.001566884	0.00%	0.98%	0.68%	0.01%	0.02%	0.12%	0.50%	0.01%	0.32%	115.9264634	0.022683357	2.64%
20	0.002699338	0.000136294	0.000689635	0.001668472	0.003011767	0.00129366	0.00%	0.82%	0.27%	0.01%	0.07%	0.17%	0.51%	0.01%	0.26%	122.2627452	0.017724326	2.12%
19	0.000226693	0.000174797	0.001828624	0.001336054	0.002756299	0.000914798	0.00%	0.85%	0.02%	0.02%	0.18%	0.13%	0.47%	0.01%	0.18%	129.2373841	0.015767795	1.87%
18	0.00071799	0.000217799	0.002483796	0.000499822	0.002224937	0.000496954	0.00%	0.78%	0.07%	0.02%	0.25%	0.05%	0.38%	0.01%	0.10%	136.9569174	0.014521468	1.66%
17	0.00476458	0.000251631	0.001942308	3.52385E-06	0.001525878	0.000152236	0.00%	0.63%	0.48%	0.03%	0.19%	0.00%	0.26%	0.01%	0.03%	145.5529415	0.014998177	1.63%
16	0.012129142	0.000275635	0.000730138	0.00037334	0.000815843	5.86956E-05	0.00%	0.64%	1.21%	0.03%	0.07%	0.04%	0.14%	0.00%	0.01%	155.1899428	0.020785397	2.14%
15	0.022036692	0.000286005	3.09733E-05	0.001252239	0.000280666	0.000175869	0.00%	0.62%	2.20%	0.03%	0.00%	0.13%	0.05%	0.00%	0.04%	166.0762609	0.030227781	3.06%
14	0.033845761	0.000287352	0.000342449	0.001763177	7.79468E-05	0.000453729	0.00%	0.52%	3.38%	0.03%	0.03%	0.18%	0.01%	0.01%	0.09%	178.4797515	0.041974385	4.25%
13	0.043785469	0.000279177	0.00097422	0.001410446	0.000275968	0.00091592	0.00%	0.45%	4.38%	0.03%	0.10%	0.14%	0.05%	0.03%	0.18%	192.7506764	0.052274784	5.35%
12	0.054064446	0.000267952	0.000996455	0.000565141	0.000890552	0.001554741	0.00%	0.42%	5.41%	0.03%	0.10%	0.06%	0.15%	0.07%	0.31%	209.3560399	0.062896518	6.54%

11	0.059889629	0.000242131	0.000399117	4.81725E-05	0.001795981	0.002266212	0.00%	0.33%	5.99%	0.02%	0.04%	0.00%	0.31%	0.12%	0.46%	228.9326537	0.068685838	7.28%
10	0.060047426	0.00022014	3.11479E-06	0.000242733	0.002803047	0.002914936	0.00%	0.29%	6.00%	0.02%	0.00%	0.02%	0.48%	0.19%	0.59%	252.372041	0.070190304	7.59%
9	0.05995409	0.000183014	0.000309686	0.000745798	0.003682338	0.003389396	0.00%	0.25%	6.00%	0.02%	0.03%	0.07%	0.63%	0.26%	0.68%	280.9619424	0.07227833	7.94%
8	0.053983936	0.00014837	0.000850196	0.000887603	0.004233709	0.003595172	0.00%	0.19%	5.40%	0.01%	0.09%	0.09%	0.72%	0.31%	0.72%	316.6339526	0.067396267	7.53%
7	0.043345386	0.000116518	0.000871629	0.000505861	0.00434044	0.003495686	0.00%	0.14%	4.33%	0.01%	0.09%	0.05%	0.74%	0.34%	0.70%	362.423416	0.056081291	6.41%
6	0.034168276	8.5781E-05	0.000371645	7.46154E-05	0.003974941	0.003114077	0.00%	0.12%	3.42%	0.01%	0.04%	0.01%	0.68%	0.34%	0.63%	423.3892182	0.044896513	5.23%
5	0.023482588	5.83156E-05	5.83917E-05	0.000108655	0.003247526	0.002509293	0.00%	0.08%	2.35%	0.01%	0.01%	0.01%	0.55%	0.30%	0.50%	508.6373275	0.031933493	3.80%
4	0.014365574	3.65245E-05	0.000354821	0.000558096	0.00231852	0.00178735	0.00%	0.05%	1.44%	0.00%	0.04%	0.06%	0.40%	0.23%	0.36%	636.3796484	0.021236868	2.56%
3	0.0074947	1.9195E-05	0.000826997	0.000889617	0.001382629	0.001080698	0.00%	0.03%	0.75%	0.00%	0.08%	0.09%	0.24%	0.15%	0.22%	849.1105826	0.012862295	1.56%
2	0.002830038	7.96804E-06	0.000806468	0.000721583	0.000620567	0.000496349	0.00%	0.01%	0.28%	0.00%	0.08%	0.07%	0.11%	0.07%	0.10%	1274.313271	0.006026508	0.73%
1	0.000575261	1.77623E-06	0.000308096	0.000249107	0.000149585	0.000123847	0.00%	0.00%	0.06%	0.00%	0.03%	0.02%	0.03%	0.02%	0.02%	2549.403293	0.001548734	0.19%

ATTACHMENT 7

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

October 4, 2023

Via Certificate of Mailing

Fred Camillo, First Selectman
Town of Greenwich
101 Field Point Road
Greenwich, CT 06830

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 19 Doubling Road, Greenwich, Connecticut**

Dear Mr. Camillo:

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 at the Greenwich Country Club ("GCC") at 19 Doubling Road in Greenwich (the "Property").

The facility will consist of the installation of two metal frame pipe mast antenna support structures extending above the roof. Each antenna support structure will be surrounded by a faux chimney screening enclosure. Equipment associated with the antennas will be placed on the ground adjacent to the building behind an existing screen fence.

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

27432186-v1

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

October 4, 2023

Via Certificate of Mailing

Patrick LaRow, Director of Planning and Zoning
Town of Greenwich
101 Field Point Road
Greenwich, CT 06830

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 19 Doubling Road, Greenwich, Connecticut**

Dear Mr. LaRow:

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 at the Greenwich Country Club ("GCC") at 19 Doubling Road in Greenwich (the "Property").

The facility will consist of the installation of two metal frame pipe mast antenna support structures extending above the roof. Each antenna support structure will be surrounded by a faux chimney screening enclosure. Equipment associated with the antennas will be placed on the ground adjacent to the building behind an existing screen fence.

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

27432572-v1

Robinson+Cole

KENNETH C. BALDWIN

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

Also admitted in Massachusetts and New York

October 4, 2023

Via Certificate of Mailing

Greenwich Country Club
19 Doubling Road
Greenwich, CT 06830

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 19 Doubling Road, Greenwich, 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 Greenwich Country Club clubhouse at 19 Doubling Road in Greenwich (the "Property").

A copy of the full Petition is attached for your review. Pursuant to Connecticut Siting Council requirements, copies of the Petition were also sent to municipal officials and landowners whose parcels are considered to abut the Property.

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

Sincerely,

Kenneth C. Baldwin

Attachment

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

October 4, 2023

Via Certificate of Mailing

«Name_and_Address»

Re: **Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to its Existing Wireless Telecommunications Facility at 19 Doubling Road, Greenwich, 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 at the Greenwich Country Club ("GCC") at 19 Doubling Road in Greenwich (the "Property").

The facility will consist of the installation of two metal frame pipe mast antenna support structures extending above the roof. Each antenna support structure will be surrounded by a faux chimney screening enclosure. Equipment associated with the antennas will be placed on the ground adjacent to the building behind an existing screen fence.

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

27432213-v1

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTING PROPERTY OWNERS

19 DOUBLING ROAD
GREENWICH, CONNECTICUT

	Property Address	Owner's and Mailing Address
1.	25 Fairway Lane	25 Fairway Lane, LLC 29 Fairway Lane Greenwich, CT 06830
2.	Fairway Lane	CLT Fairway LLC c/o James Gardiner 115 Nutmeg Lane Fairfield, CT 06824
3.	9 Fairway Lane	CLT Fairway LLC 9 Fairway Lane Greenwich, CT 06830
4.	7 Fairway Lane	Karen Gianuzzi 7 Fairway Lane Greenwich, CT 06830
5.	160 Stanwich Road	Carol R. Gilbride 160 Stanwich Road Greenwich, CT 06830
6.	156 Stanwich Road	Eric and Karen Hopp 156 Stanwich Road Greenwich, CT 06830
7.	154 Stanwich Road	Horacio Martin Robredo and Natalia Garcia Lopez 154 Stanwich Road Greenwich, CT 06830
8.	150 Stanwich Road	Vinaykumar and Aruna Patwardhan 150 Stanwich Road Greenwich, CT 06830

	Property Address	Owner's and Mailing Address
9.	147 Stanwich Road	Joseph S. and Wendy Mallory III 147 Stanwich Road Greenwich, CT 06830
10.	1 Pine Ridge Road	Peter D. Close 1 Pine Ridge Road Greenwich, CT 06830
11.	133 Stanwich Road	Edineia Bickerstaff 133 Stanwich Road Greenwich, CT 06830
12.	26 Jeffrey Road	Prudy and Alfred Sofer 26 Jeffrey Road Greenwich, CT 06830
13.	127 Stanwich Road	Robert Gottlieb 127 Stanwich Road Greenwich, CT 06830
14.	123 Stanwich Road	Anthony and Claudia Bueti 123 Stanwich Road Greenwich, CT 06830
15.	119 Stanwich Road	Andrew and Isabella Leahy 119 Stanwich Road Greenwich, CT 06830
16.	117 Stanwich Road	Kenneth A. and Margaret Muller Jr. 117 Stanwich Road Greenwich, CT 06830
17.	115 Stanwich Road	Charles Seton V. Henry and Molly McAuliffe Urell-Poe 115 Stanwich Road Greenwich, CT 06830
18.	113 Stanwich Road	Anthony and Jennifer Febles 113 Stanwich Road Greenwich, CT 06830
19.	111 Stanwich Road	Dionisio Ferenc and Mariana Tanner 111 Stanwich Road Greenwich, CT 06830

	Property Address	Owner's and Mailing Address
20.	323 Orchard Street	Katherin Alexandra Menacho De Saoud and Raja Biaggi Saoud 323 Orchard Street Greenwich, CT 06830
21.	109 Stanwich Road	Mark and Paula Kandl 109 Stanwich Road Greenwich, CT 06830
22.	107 Stanwich Road	Ryan Benincasa and Noelle Radcliffe Winicki 107 Stanwich Road Greenwich, CT 06830
23.	105 Stanwich Road	Jonathan B. Osser 105 Stanwich Road Greenwich, CT 06830
24.	101 Stanwich Road	Nina Monti and Michael Lulkin 101 Stanwich Road Greenwich, CT 06830
25.	99 Stanwich Road	Michael and Irina Straw 99 Stanwich Road Greenwich, CT 06830
26.	95 Stanwich Road	Robert and Rachel Koven 95 Stanwich Road Greenwich, CT 06830
27.	9 Indian Rock Lane	Town of Greenwich c/o Finance Department 101 Field Point Road Greenwich, CT 06830
28.	80 Stanwich Road	Stephen M. Napier TR c/o The Stanwich Road Real Estate Trust P.O. Box 5176 Greenwich, CT 06830
29.	2 Cardinal Road	2 Cardinal Road LLC 401 Old Church Road Greenwich, CT 06830

	Property Address	Owner's and Mailing Address
30.	21 Cardinal Road	Greenwich Country Day School Inc. 401 Old Church Road Greenwich, CT 06830
31.	47 Fairfield Road	Greenwich Country Day School Inc P.O. Box 623 Greenwich, CT 06836
32.	23 Fairfield Road	Greenwich Country Day School Inc P.O. Box 623 Greenwich, CT 06836
33.	401 Old Church Road	Greenwich Country Day School Inc P.O. Box 623 Greenwich, CT 06836
34.	444 Old Church Road	444 Old Church Road LLC 444 Old Church Road Greenwich, CT 06830
35.	330 North Street	John and Macy Macaskill 3 Fairfield Road Greenwich, CT 06830
36.	336 North Street	Scott and Vanessa Rosen 14 Golf Club Road Greenwich, CT 06830
37.	334 North Street	Jerry D. and Marjorie A. Lee 18 Golf Club Road Greenwich, CT 06830
38.	340 North Street	Kathleen Craig Knight 340 North Street Greenwich, CT 06830
39.	344 North Street	Helen W. Hall TR 344 North Street Greenwich, CT 06830
40.	346 North Street	August I. and Jill Dupont 346 North Street Greenwich, CT 06830

	Property Address	Owner's and Mailing Address
41.	North Street	Creighton S. McDonough and Claire Rauh 6 Golf Club Road Greenwich, CT 06830
42.	352 North Street	Marjorie and Guy L. Smith IV 352 North Street Greenwich, CT 06830
43.	36 Golf Club Road	Ellen B. Griffin 36 Golf Club Road Greenwich, CT 06830
44.	7 Doubling Road	Andrew Marcus 7 Doubling Road Greenwich, CT 06830
45.	10 Golf Club Road	Richard H. and Joan L. Wynn 10 Golf Club Road Greenwich, CT 06830
46.	15 Doubling Road	Marshall H. Heaven and Mary Ann Grabavoy 15 Doubling Road Greenwich, CT 06830
47.	16 Doubling Road	GPFS LLC 16 Doubling Road Greenwich, CT 06830
48.	29 Doubling Road	29 Doubling LLC 29 Doubling Road Greenwich, CT 06830
49.	31 Doubling Road	Amiot Christine Carter TR Et Al 31 Doubling Road Greenwich, CT 06830
50.	29 Fairway Lane	Barton J. and Elizabeth Goodwin 29 Fairway Lane Greenwich, CT 06830