Development Services

From Concept to Construction

Phone: 503-823-7300 Email: bds@portlandoregon.gov 1900 SW 4th Ave, Portland, OR 97201
More Contact Info (http://www.portlandoregon.gov//bds/article/519984)

APPEAL SUMMARY

Status: Decision Rendered - Reconsideration of ID 27557

Appeal ID: 27746	**Project Address:** 1705 SW 11th Ave
Hearing Date: 5/11/22	**Appellant Name:** Courtnee Gomez
Case No.: B-011	**Appellant Phone:** 9165274157
Appeal Type: Building	**Plans Examiner/Inspector:** Kent Hegsted, Lisa Buellesbach
Project Type: commercial	**Stories:** 8 **Occupancy:** R-2 **Construction Type:** II-A, II-B
Building/Business Name: AT&T	**Fire Sprinklers:** Yes - Full
Appeal Involves: Alteration of an existing structure,Reconsideration of appeal	**LUR or Permit Application No.:** 22-129381-CO
Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4]	**Proposed use:** Unmanned Rooftop Telecom Facility

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	IBC/26/#1
Requires	Code Guide for Fiber Reinforced Plastic Material - OSSC/26/#1. Use of Fiber Plastic Material for rooftop screening applications. Section B (Design and Construction), #7: "The height of the FRP screen shall not exceed 10' above the elevation of the roof at any point where the FRP screen is attached."
Code Modification or Alternate Requested	The intent of this appeal is to allow the FRP screens to stay at the existing 15'-6" above the roof.
Proposed Design	AT&T has an existing telecommunications facility/cell-site located on the roof of Blumel Hall at Portland State University. The installation consists of three antenna sectors mounted on steel frames attached to the roof and located behind FRP Screens and a rooftop equipment shelter. The existing and proposed screens do not meet the height limit contained within Code Guide OSSC/26/#1, which limits FRP screen height to 10' above the roof. However, the existing enclosure was approved under LU 11-137393 CU DZ for a screen height of 15’-6” and has previously received approval of a building code appeal (Appeal ID #13968). Each existing antenna sector/frame is approximately 15' long by 6' deep. The screens are setback between approx. 5' and 12' from the edge of the roof. Due to the additional wind and weight of the screens at antenna sectors Alpha and Gamma, reinforcement to the horizontal FRP angles is needed. Additionally, a full replacement FRP screening for Beta Sector is also needed. The proposed reinforcement of the horizontal FRP angles and the replacement FRP for Beta Sector will not increase the existing height of the facility. The proposal is illustrated on the attached construction drawings (Exhibit A). Note the structural drawings (Sheets S-1 through S-10) include detailed information about the design of the proposed FRP screens.

Reason for alternative

As described in the previous section, AT&T has an existing telecommunications facility located on the roof of Blumel Hall at Portland State University. In 2011, AT&T moved the existing antennas mounted to the building's exterior to the (3) FRP enclosures that exist today as detailed in the LU 11-137393 CU DZ (associated building permit # 11-180157-000-00-CO). This relocation returned "the integrity to the brick and terra cotta building". Additionally, the size of the enclosures was approved as it matched "the scale and location of where stair and elevator overruns might occur on this L-shaped building". The enclosures fully screen the antennas from the adjacent buildings while providing an architectural feature that compliments the building's exterior. If required to comply with the 10' rule, it would expose the existing equipment and defeat the stealthing design required per the land use approval.

The alternative design also provides equivalent structural capacity, life safety and fire protection to what the code requires. As documented in the attached Structural Analysis report dated September 3, 2021 by Trylon (Exhibit B), once the proposed structural modifications are made to the existing roof structure, the screen additions will meet all applicable Codes (except the 10' height limitation) and will provide adequate structural capacity. The City requires that Fiber Reinforced Plastic (FRP) products proposed to be over the 10ft height limit have a valid approval report, such as an International Code Council Evaluation Service (ICC-ES) report or City of Los Angeles Research Report (LA-RR). The applicant is proposing to use FRP screens manufactured by Raycap, which has an approved LA-RR. The structural report (Exhibit B) specifies the use of LA-RR approved FRP by Raycap and a copy of the approval report (City of Los Angles Research Report (LA-RR)) is attached as Exhibit C. The use of this tested and approved material will ensure that the project meets or exceed all safety standards.

As detailed in the LA-RR dated February 15, 2021, there is a maximum allowable height of 18 feet above the roof level. The overall height being proposed is 15'6", which is below this limit. Additionally, the individual rooftop screening panel area in any one plane is less than 250 square feet, and the total maximum aggregate area of all panels shall not exceed the larger of 3 square feet per foot of building frontage or 5 percent of the area of the roof.

Regarding fire protection, the City further requires that FRP material used for rooftop screening applications shall be classified as CC1 or better and have a maximum flame spread of 50. The screens designed by Fibergrate Composite Structures that will be used for this installation (Exhibit C), have a flame spread rating of 25 or less, as tested in accordance with ASTM E-84, and meet the self-extinguishing requirements of ASTM D-635. Furthermore, it should be noted that the existing building is fully sprinkled. This was confirmed on August 30, 2016, by Jeff Herman, City of Portland Fire Plans Reviewer. Additionally, the proposed screens that will enclose the existing antenna frames have adequate clearance for access around them, are well away from rooftop mechanical equipment, and do not obstruct any means of egress for emergencies or access to the roof for the fire department. Based on the foregoing, the alternative design provides equivalent structural capacity, life safety and fire protection and meets the intent of the guidelines. As such, the proposed screens that extend 15'-6" above the roof should be approved for this installation.

APPEAL DECISION

Increase in maximum allowable height of FRP screens from 10 feet to 15 feet 6 inches above the roof of a Type IIA building: Granted provided all FRP products used are Stealthskin Enclosure System from Raycap as approved in Research Report: RR 25400 issued February 15, 2021 (Exhibit C) and that a copy of the report is included with the project documents submitted for the building permit.
Appellant may contact John Butler (503 865-6427) or e-mail at John.Butler@portlandoregon.gov with questions.

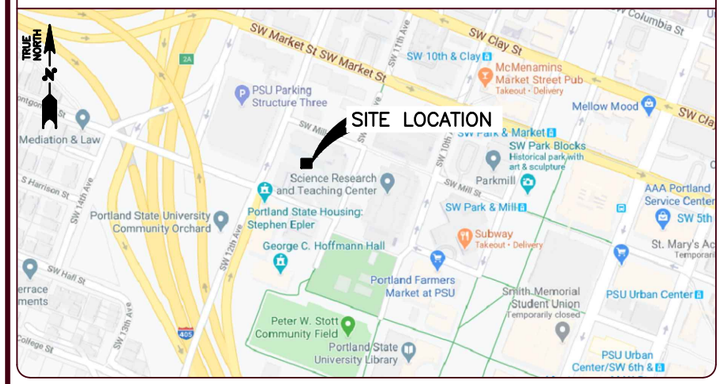
The Administrative Appeal Board finds with the conditions noted, that the information submitted by the appellant demonstrates that the approved modifications or alternate methods are consistent with the intent of the code; do not lessen health, safety, accessibility, life, fire safety or structural requirements; and that special conditions unique to this project make strict application of those code sections impractical.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

AT&T

UPGRADE:
LTE 5C, LTE 6C, 5G NR 1SR

VICINITY MAP



DRIVING DIRECTIONS

FROM: 19801 SW 72 AVE, STE.200, TUALATIN, OR 97062
TO: 1705 SW 11TH AVENUE, PORTLAND, OR 97201

1. HEAD EAST TOWARD SW 72ND AVE
2. TURN LEFT TOWARD SW 72ND AVE
3. TURN RIGHT ONTO SW 72ND AVE
4. TURN RIGHT AT THE 1ST CROSS STREET ONTO SW SAGERT ST
5. TURN LEFT ONTO SW BOONES FERRY RD
6. TURN RIGHT ONTO SW AVERY ST
7. TURN LEFT ONTO SW TUALATIN-SHERWOOD RD
8. CONTINUE STRAIGHT TO STAY ON SW TUALATIN-SHERWOOD RD
9. USE THE LEFT 2 LANES TO TURN LEFT ONTO OR-99W
10. TURN LEFT ONTO OR-18 W/OR-233 S
11. USE ANY LANE TO TAKE THE STATE HWY 99W RAMP TO CORVALLIS/MCMINNVILLE
12. CONTINUE ONTO OR-99W N/PACIFIC HWY W
13. TURN RIGHT ONTO W BOOTH BEND RD

PROJECT INFORMATION

SITE NAME:	PSU
FA NUMBER:	10094246
RFDS NAME & ID:	PR46 & 3547802
SITE TYPE:	ROOFTOP
COUNTY:	MULTNOMAH
JURISDICTION:	CITY OF PORTLAND
LATITUDE:	45.5138900°
LONGITUDE:	-122.6861100°
AMSL:	±268'
SITE ADDRESS:	1705 SW 11TH AVENUE PORTLAND, OR 97201
TAX LOT#:	1S1E04AD 8800
OCCUPANCY:	R-2, S-2
CONSTRUCTION TYPE:	IIA, IIB
ZONING:	RxD
PROPERTY ID:	R246509
PROPERTY OWNER:	OREGON STATE BOARD OF HIGHER EDUCATION P.O. BOX 3175 EUGENE, OR 97403

811 Know what's BELOW. Call before you dig. www.call811.com

SITE ID:
PR46

FA NUMBER:
10094246

RFDS NAME & ID:
PR46 & 3547802

SITE NAME:
PSU

LTE NEXT CARRIER PTN:
3898A0SWK5, 3898A0SWS6, 3898A0SWZ8, 3898A0SWM7

SITE ADDRESS:
1705 SW 11TH AVENUE
PORTLAND, OR 97201

PROJECT DESCRIPTION

THE PROJECT WILL BE COMPRISED OF
MODIFICATION TO AT&T ANTENNA ARRAY:

- REMOVE (6) (E) (KMW - ET-X-UW-70-16-70-18-IR-AT-RA) ANTENNAS
- REMOVE (3) (E) (KATHREIN - 742-264) ANTENNAS
- REMOVE (1) (E) (COMMSCOPE - SBNHH-1D65C) ANTENNAS
- INSTALL (6) (N) (COMMSCOPE - NNHH-65C-R4/R6) ANTENNAS
- REMOVE (3) (E) RRUS 2X40-07L-AT & REPLACE W/ (3) (N) RRUS 4T4R
- B12/14/29 370W AHLBBA
- INSTALL (3) (N) RRUS 4T4R B5 160W AHCA
- REMOVE (E) UNUSED TMAS
- INSTALL (2) (N) DBC0135F3V92-1 DIPLEXERS
- MODIFY THE EXISTING FRP SHROUD STRUCTURE ON SECTOR ALPHA AND GAMMA AS PER DRAWING
- REMOVE THE EXISTING FRP BOX ON BETA SECTOR AND INSTALL A NEW ONE AS PER DRAWINGS

MODIFICATION TO AT&T EQUIPMENT ENCLOSURE:

- REPLACE EXISTING POWER PLANT WITH (N) NETSURE 7100 POWER PLANT
- INSTALL (9) (N) RECTIFIERS AND (2) (N) CONVERTERS
- INSTALL (3) PWRT-208-S POWER TRUNKS
- INSTALL (1) DC6-48-60-RM
- INSTALL A 5G GROWTH KIT WITH (1) ASIK & (1) ABIL IN SUBRACK C2
- REMOVE (3) (E) DC6-48-60-0-1B-01SURGE PROTECTOR
- INSTALL (3) (N) DC6-48-60-18E SURGE PROTECTOR
- REMOVE (12) (E) FIBER PAIRS
- INSTALL (3) (N) 18PR FIBER TRUNKS

PROJECT TEAM

APPLICANT COMPANY: ADDRESS:	 AT&T MOBILITY 19801 SW 72 AVE, STE.200 TUALATIN, OR 97062
PROJECT MANAGER PHONE: COMPANY: ADDRESS:	JOHN EVANS 415-265-8200 SMARTLINK GROUP 2001 N. MAIN STREET, SUITE 240 WALNUT CREEK, CA 94596
CONSTRUCTION MANAGER PHONE: COMPANY ADDRESS:	OLY PETERSON 503-369-1671 SMARTLINK GROUP 11410 NE 122ND WAY KIRKLAND, WA 98034
ZONING MANAGER PHONE: COMPANY: ADDRESS:	COURTNEE GOMEZ 916-527-4157 SMARTLINK GROUP 11410 NE 122ND WAY KIRKLAND, WA 98034
ARCHITECT/ENGINEER OMPANY: EMAIL: COMPANY: ADDRESS:	ATTN: KATYA SERAVALLE 1-855-669-5421 KATYA.SERAVALLE@TRYLON.COM TRYLON TSF 1825 W. WALNUT HILL LANE, SUITE 120 IRVING, TX 75038

CODE COMPLIANCE

ALL WORK & MATERIALS SHALL BE PERFORMED & INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

1. 2019 OREGON STRUCTURAL SPECIALITY CODE (2018 IBC)
2. 2019 OREGON MECHANICAL SPECIALITY CODE (2018 IMC)
3. 2017 OREGON RESIDENTIAL SPECIALITY CODE (2015 IRC)
4. 2017 OREGON ELECTRICAL SPECIALITY CODE (2017 NFPA 70)
5. ANSI/EIA-TIA-222-H

THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. THIS FACILITY IS EXEMPT FROM HANDICAP REQUIREMENTS PER 2019 OREGON STRUCTURAL SPECIALTY CODE SECTION 1103.2.9. THIS FACILITY IS NON-OCCUPIABLE AND ACCESSIBLE ONLY TO SERVICE PERSONNEL.

SHEET INDEX

SHEET #	DESCRIPTION	REVISION #
T-1	TITLE SHEET	6
GN-1	GENERAL NOTES	6
A-1	OVERALL SITE PLAN	6
A-2	ENLARGED SITE PLAN	6
A-3	EXISTING & PROPOSED EQUIPMENT LAYOUT PLANS	6
A-4	EXISTING & PROPOSED ANTENNA PLANS	6
A-5	EXISTING & PROPOSED BUILDING ELEVATIONS	6
A-6 TO A-7	EXISTING & PROPOSED BUILDING ELEVATIONS	6
A-8	ANTENNA AND EQUIPMENT SCHEDULE	6
A-9 TO A-10	EQUIPMENT DETAILS	6
S-(1-2)	STRUCTURAL ROOF & EQUIPMENT ROOM FRAMING PLAN	6
S-(3-5)	ENLARGED ANTENNA LAYOUT PLAN, FLOOR PLANK & SLEEPER CONNECTION DETAILS, PLATFORM & ROOF CONNECTION DETAIL	6
E-(1-2)	GROUNDING PLAN & GROUNDING DETAILS	6
RF-1	PLUMBING DIAGRAM	6
ATTACHED	FRP MODIFICATION & INSTALLATION DETAILS	6

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Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

REGISTERED PROFESSIONAL ENGINEER
90528PE
OREGON
JULY 14, 2015
CLIFF ABERNATHY
EXPIRES: 12-31-22

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	03/15/21	100% CD	RCD
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2	05/06/21	100% CD	RCD
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FA NUMBER:
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RFDS NAME & ID:
PR46 & 3547802

SITE NAME:
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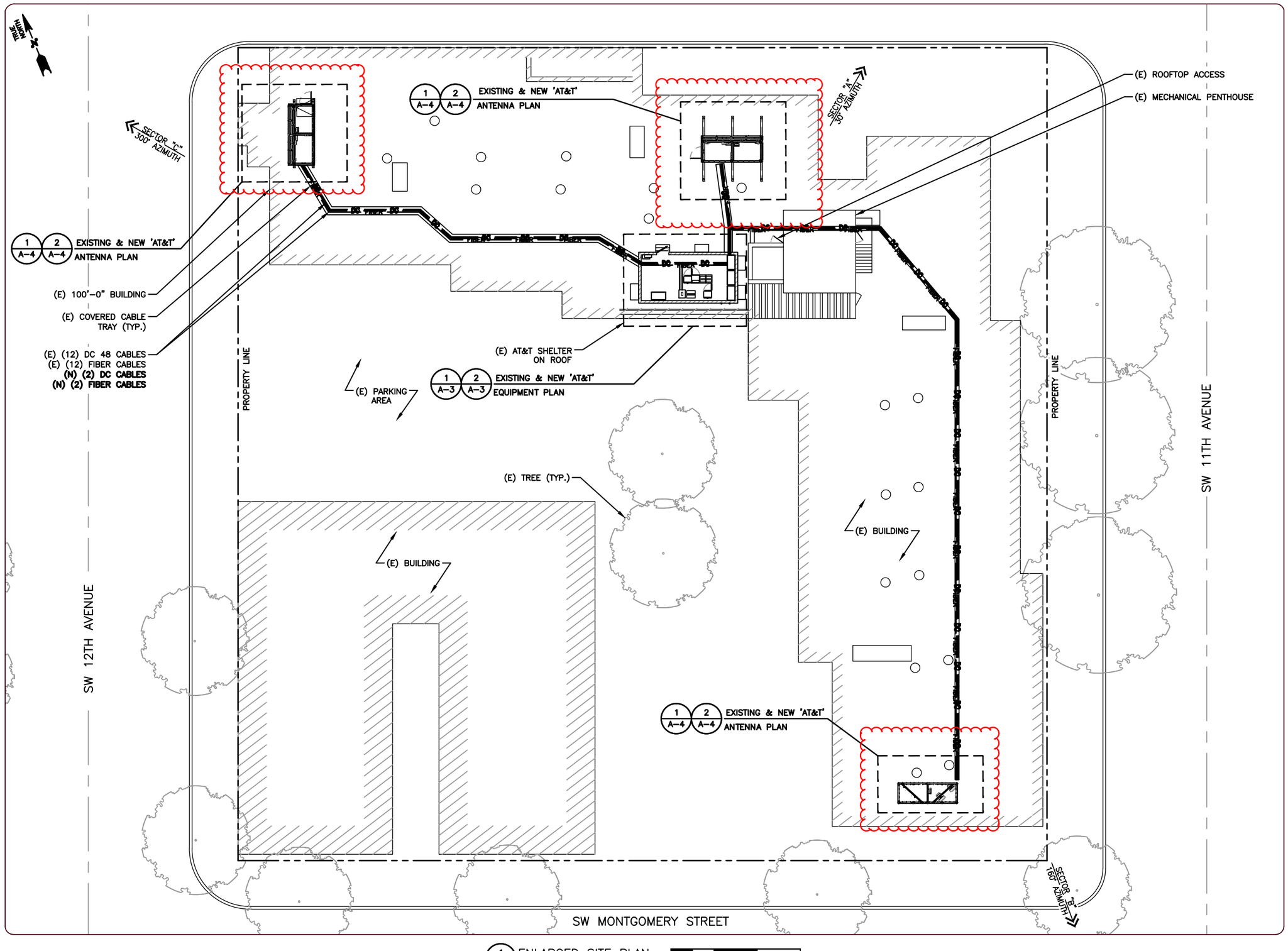
SITE ADDRESS:
1705 SW 11TH AVENUE
PORTLAND, OR 97201

SHEET DESCRIPTION

TITLE SHEET

SHEET No.

T-1



1 A-2 ENLARGED SITE PLAN
SCALE (11" X 17"): 3/32" = 1'-0" 0 5'-4" 10'-8" 21'-4" 32'-0"

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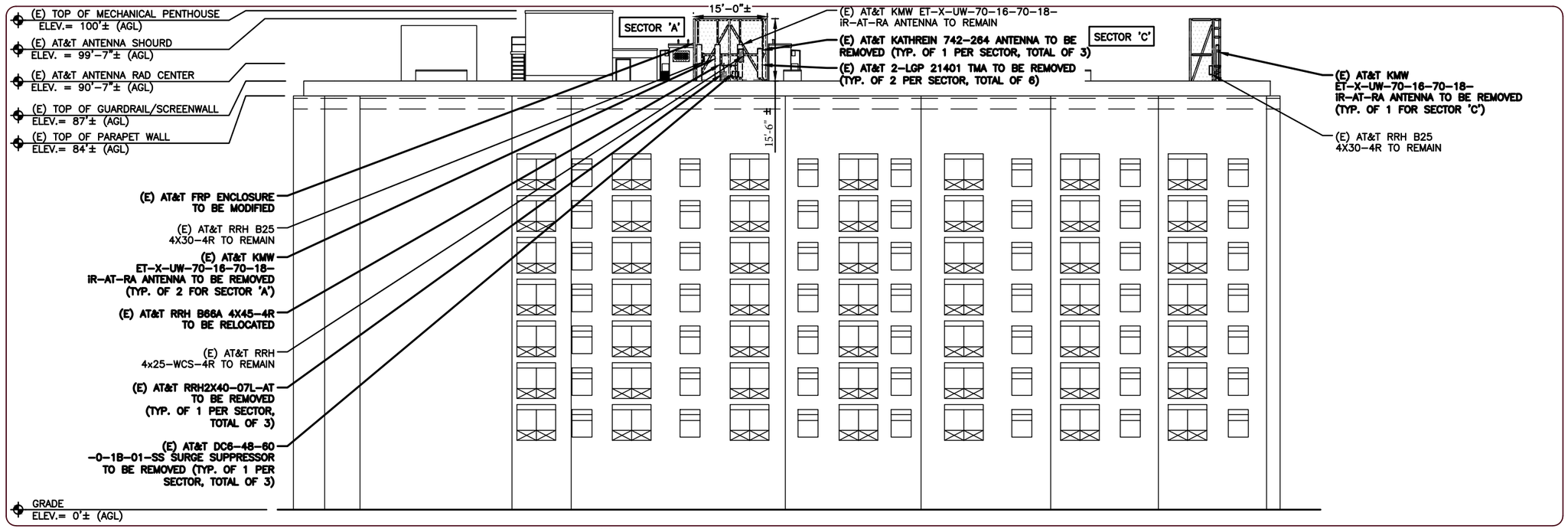
ENLARGED SITE PLAN

SHEET No.

A-2



1 A-5 EXISTING NORTHEAST ELEVATION
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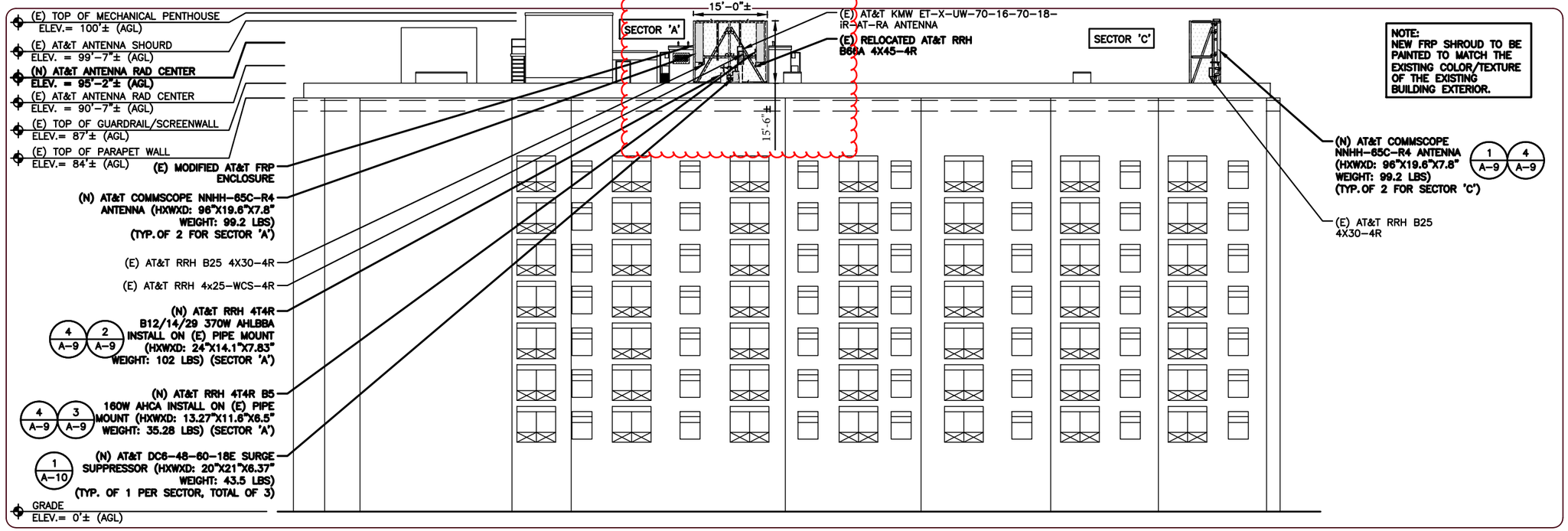

2 A-5 PROPOSED NORTHEAST ELEVATION
SCALE: 3/32" = 1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

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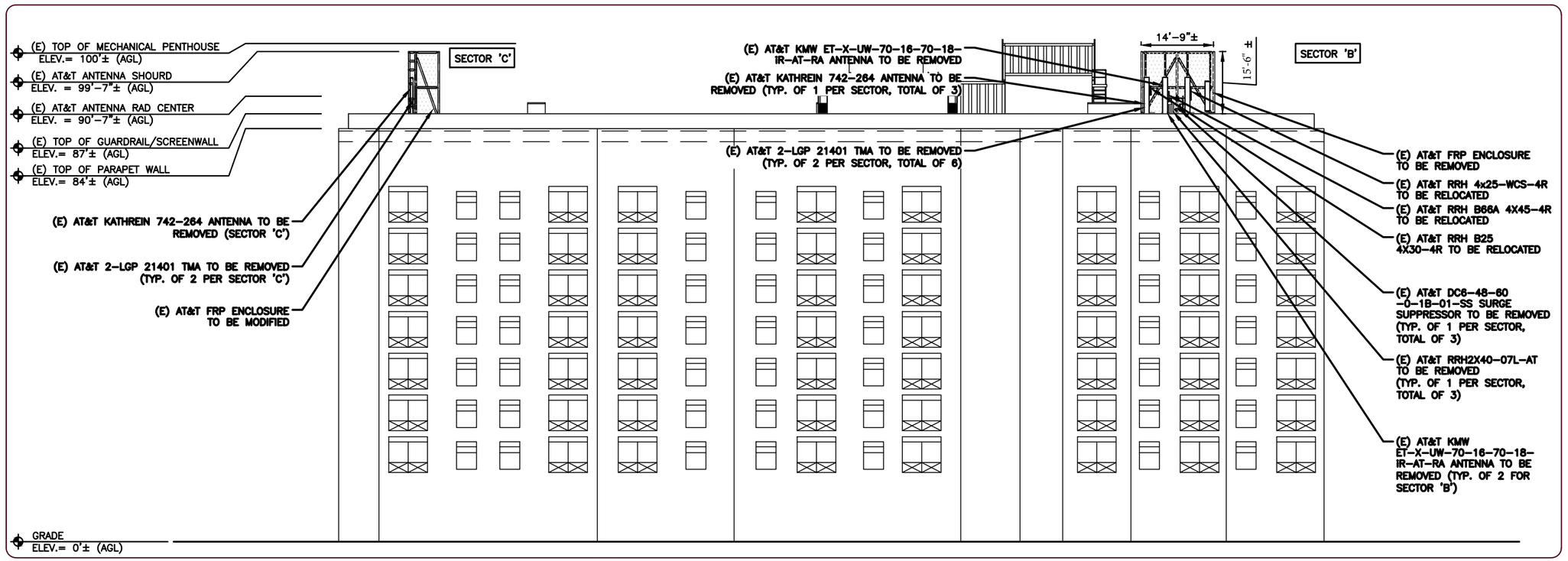
SHEET DESCRIPTION

EXISTING & PROPOSED BUILDING ELEVATIONS

SHEET No.

A-5



1 A-6 EXISTING SOUTHWEST ELEVATION
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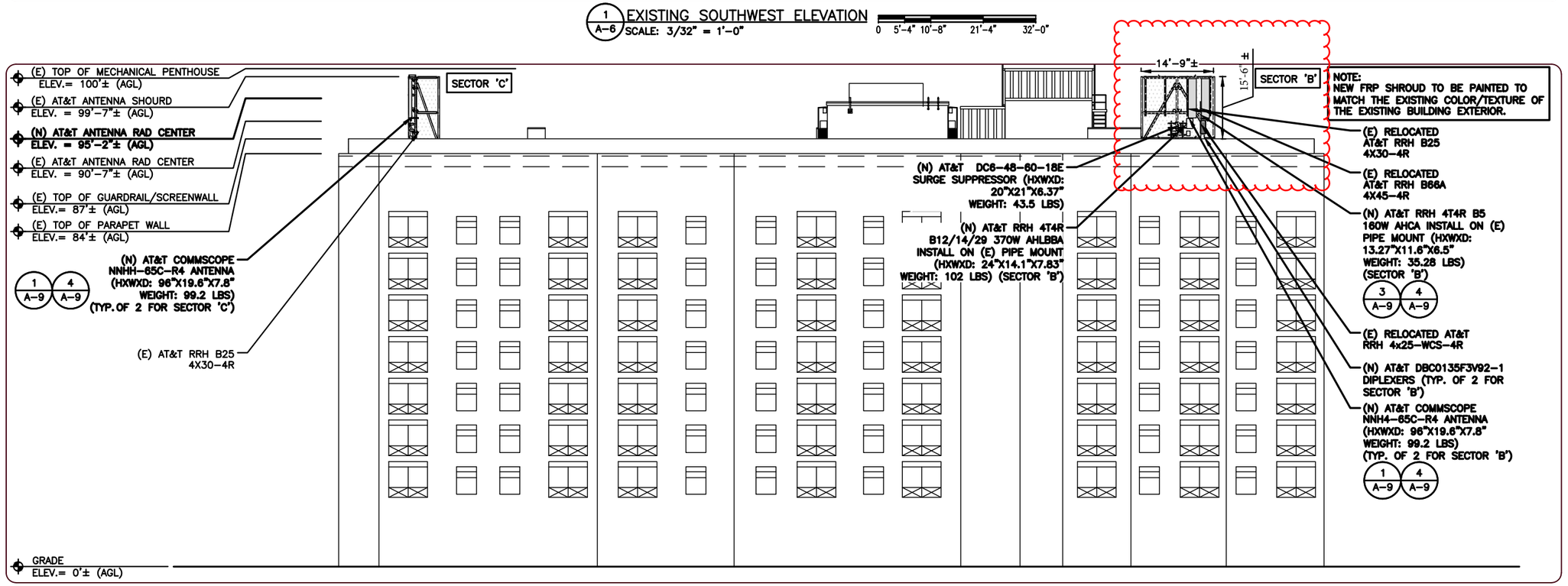

2 A-6 PROPOSED SOUTHWEST ELEVATION
SCALE: 3/32" = 1'-0"
0 5'-4" 10'-8" 21'-4" 32'-0"

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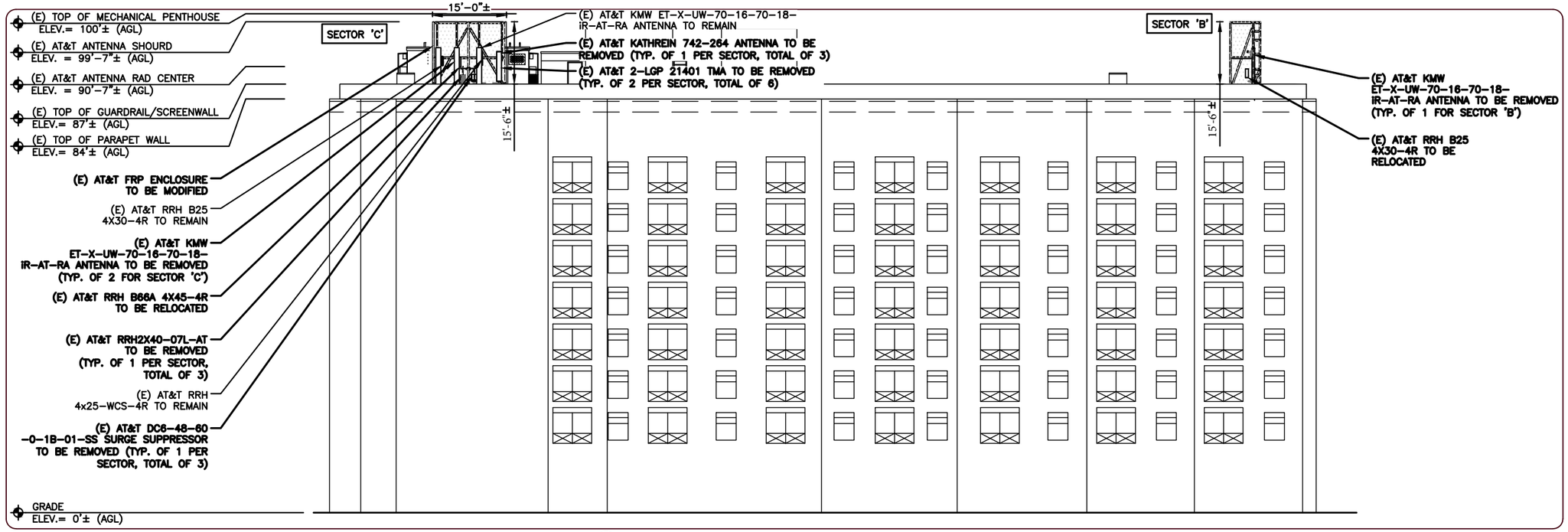
SHEET No.

A-6



1 A-7 EXISTING NORTHWEST ELEVATION
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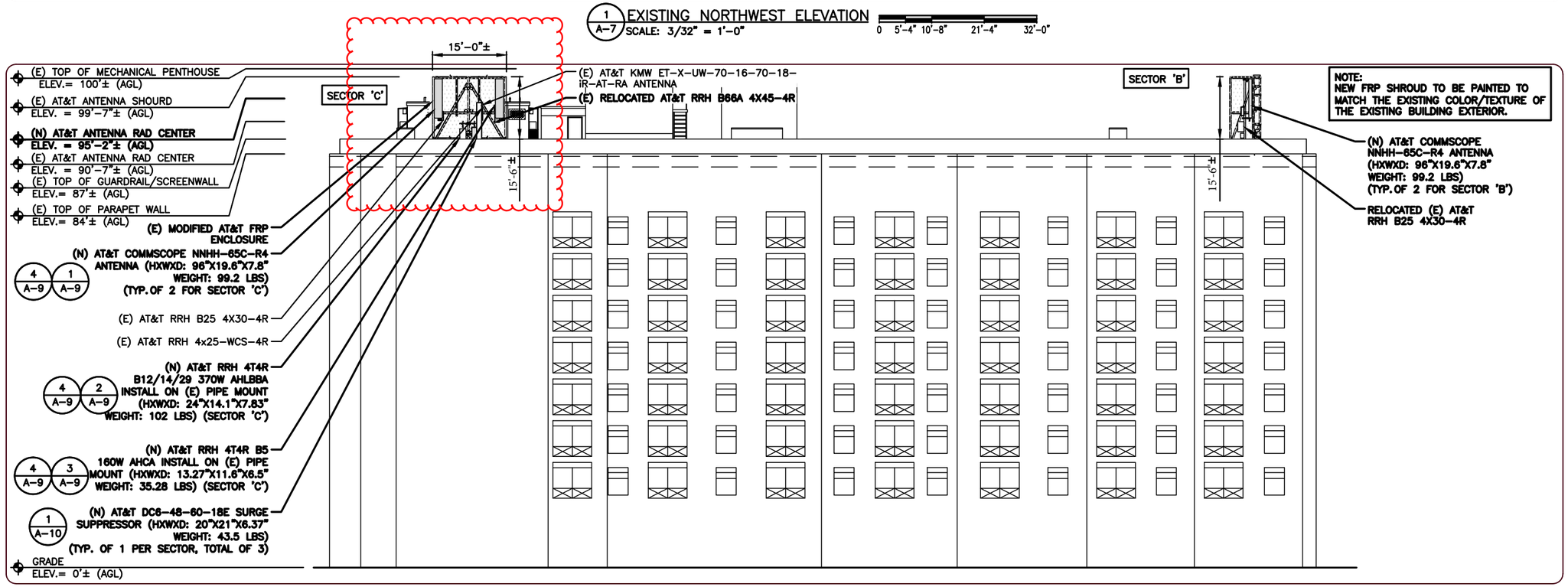

2 A-7 PROPOSED NORTHWEST ELEVATION
SCALE: 3/32" = 1'-0"
0 5'-4" 10'-8" 21'-4" 32'-0"

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PORTLAND, OR 97201

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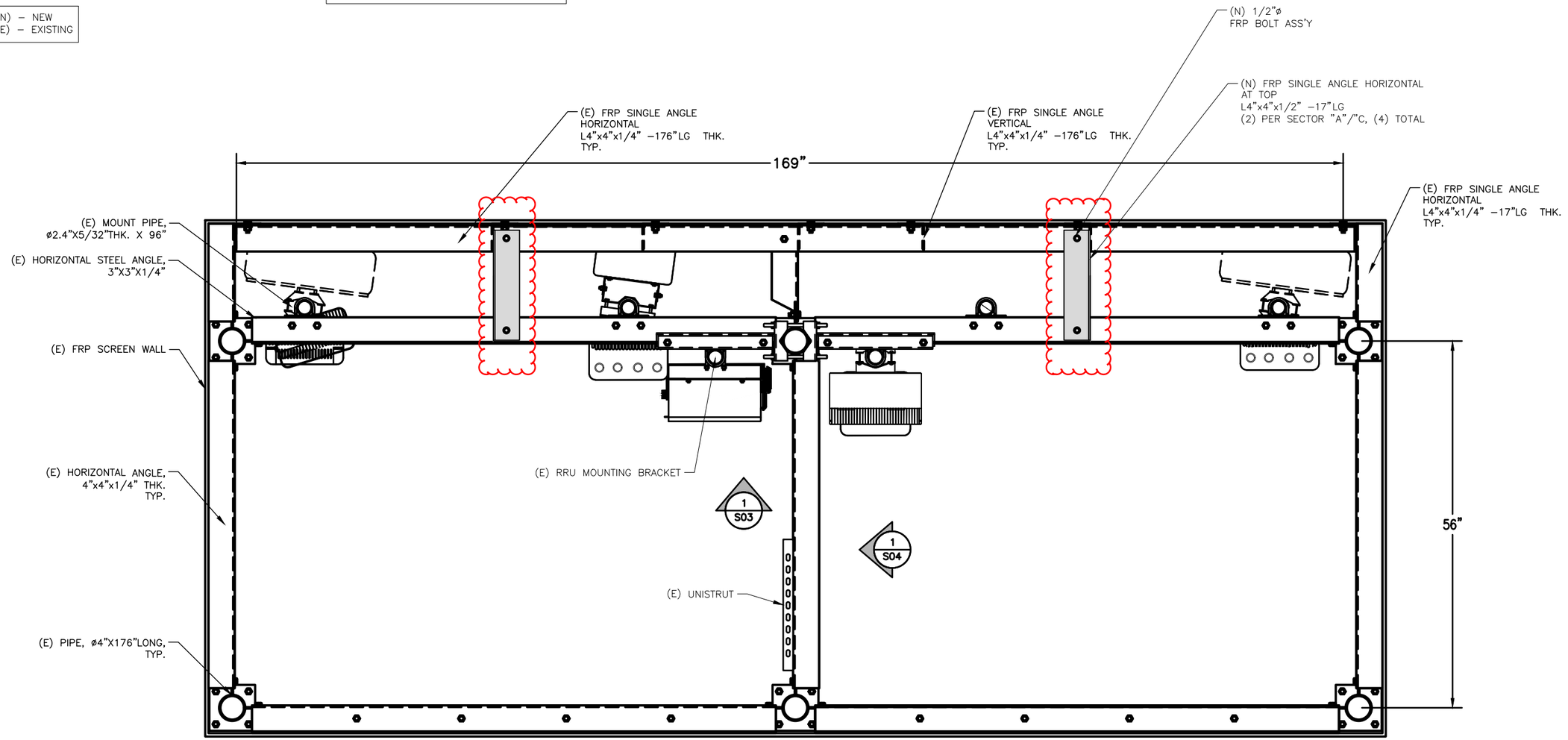
EXISTING & PROPOSED BUILDING ELEVATIONS

SHEET No.

A-7

EQUIPMENT NOT SHOWN FOR CLARITY.

(N) – NEW
(E) – EXISTING



INSTALLATION NOTES:

REINFORCE EACH FRP SHROUD FOR ALPHA AND GAMMA SECTORS:
– INSTALL (1) NEW L4"X4"X0.5", ~179"LG. FRP SINGLE ANGLE HORIZONTAL AT BOTTOM SIDE;
– INSTALL (2) NEW L4"X4"X0.5", ~17"LG. FRP SINGLE ANGLE HORIZONTAL TO CONNECT THE EXISTING TOP STEEL HORIZONTAL ANGLE WITH THE EXISTING TOP HORIZONTAL FRP;
– INSTALL (2) NEW L4"X4"X0.5", ~17"LG. FRP SINGLE ANGLE HORIZONTAL TO CONNECT THE PROPOSED FRP HORIZONTAL ANGLE (176") WITH THE EXISTING BOTTOM HORIZONTAL FRP;
– INSTALL (3) NEW L4"X4"X0.5", ~20"LG. FRP SINGLE ANGLE HORIZONTAL TO CONNECT THE EXISTING MEDIAN MAST PIPE WITH THE EXISTING FRP VERTICAL ANGLE;

1 S02 PROPOSED PLAN VIEW
SCALE: 1–1/2" = 1'–0"
0 0'–4" 0'–8" 1'–4" 2'–0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– NEW FRP ANGLE WILL BE 4"x4"x1/2"
– NEW FRP HSS SQUARE WILL BE 4"x4"x1/2"
– ALL NEW FRP BOLTS FOR CONNECTION FRP PROFILE WILL BE 1/2"øx6".
– ALL NEW STEEL BOLTS TO BE (A307).
– USE FRP 3/8"øx8"@12" BOLTS ASS'Y EACH FRP PANEL ITEMS TOGHETER.
– PAINT THE SHROUD TO MATCH THE EXISTING BUILDING.

NOTE:
– CONTRACTOR SHALL OBTAIN PASSING STRUCTURAL ANALYSIS BY TRYLON PRIOR TO ANY INSTALLATION SHOWN IN THE DRAWING.
– FIELD CHECK ALL THE DIMENSIONS BEFORE CUTTING ANGLES, SQUARE, PIPES, FRP SCREENS.
– 9/16"ø HOLES TO BE FIELD DRILLED.
– 9/16ø HOLE REQUIRE A MINIMUM OF 1–1/4" EDGE DISTANCE
– APPLY TWO COATS OF GALVICON TO ALL FIELD CUT OR DRILLED EDGES.

NOTE:
– CONTRACTOR TO ENSURE PURCHASED ALL FRP MATERIALS TO BE SUPPLIED FROM RAYCAP

AT&T

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1362 MELLON ROAD, SUITE 140
HANOVER, MD 21076

Trylon
Speed, Quality, Credibility
1825 W WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1–855–669–5421

REGISTERED PROFESSIONAL ENGINEER
90528PE
1-27-22
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CLIFF ABERNATHY
EXPIRES: 12-31-22

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	10/20/2021	FOR REVIEW	NI
1	03/10/2021	REVISED HEIGHT OF SHROUDS TO 120"	HM
2	09/19/2021	REVISED HEIGHT OF SHROUDS TO 176"	HM
3	01/26/2022	REVISED SHEETS	HM

SITE INFORMATION

SITE NAME:
PSU

SITE NUMBER:
PR46

SITE ADDRESS:
1705 SW 11TH AVENUE,
PORTLAND, OR 97201

SHEET DESCRIPTION

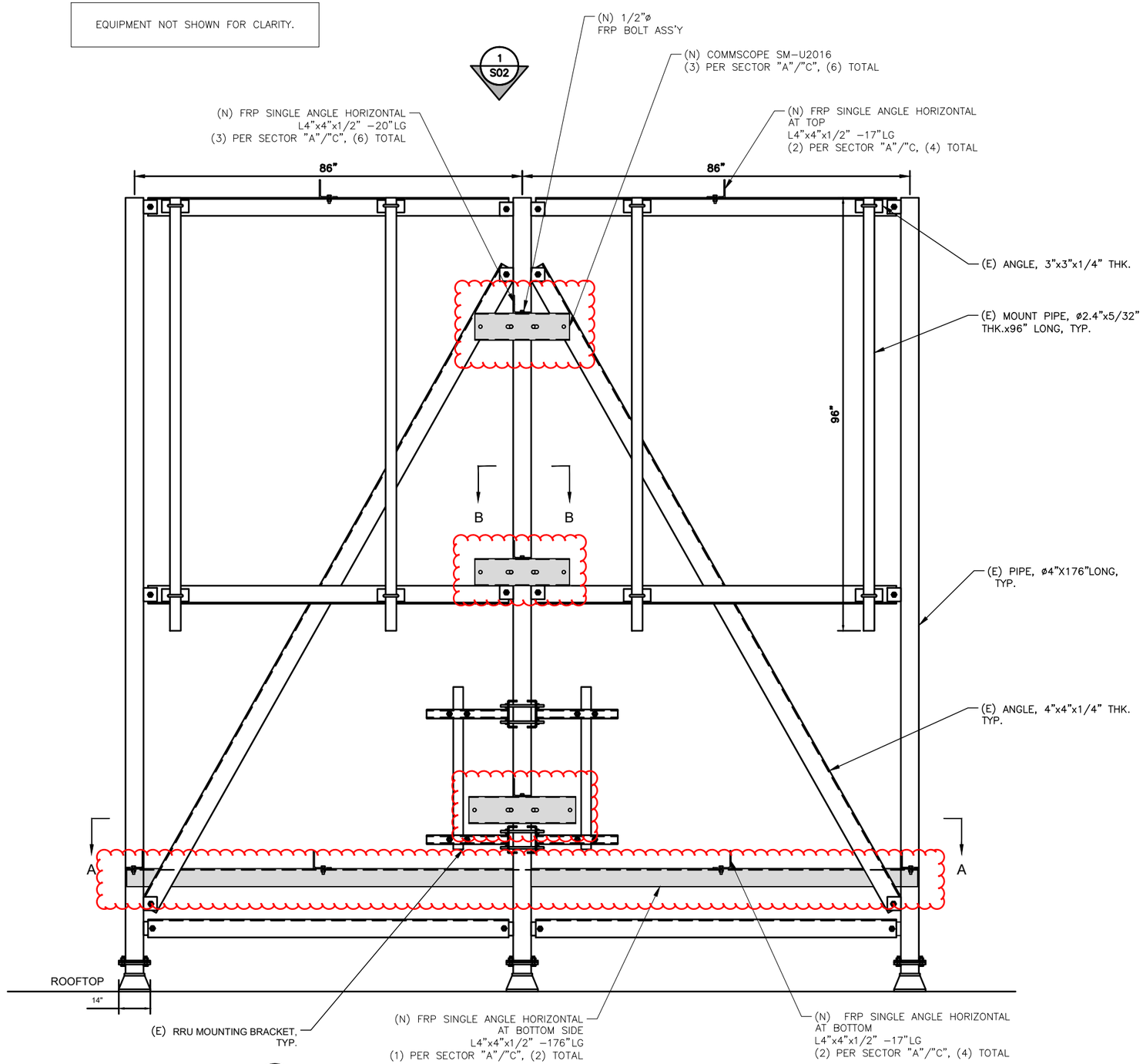
FRP SHROUD
REINFORCING SECTOR
ALPHA & GAMMA

SHEET No.

S02

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 S03 PROPOSED ELEVATION VIEW
SCALE: 1" = 1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– NEW FRP ANGLE WILL BE 4"x4"x1/2"
– NEW FRP HSS SQUARE WILL BE 4"x4"x1/2"
– ALL NEW FRP BOLTS FOR CONNECTION FRP PROFILE WILL BE 1/2"øx6".
– ALL NEW STEEL BOLTS TO BE (A307).
– USE FRP 3/8"øx8"@12" BOLTS ASS'Y EACH FRP PANEL ITEMS TOGHETER.
– PAINT THE SHROUD TO MATCH THE EXISTING BUILDING.

NOTE:
– CONTRACTOR SHALL OBTAIN PASSING STRUCTURAL ANALYSIS BY TRYLON PRIOR TO ANY INSTALLATION SHOWN IN THE DRAWING.
– FIELD CHECK ALL THE DIMENSIONS BEFORE CUTTING ANGLES, SQUARE, PIPES, FRP SCREENS.
– 9/16"ø HOLES TO BE FIELD DRILLED.
– 9/16ø HOLE REQUIRE A MINIMUM OF 1–1/4" EDGE DISTANCE
– APPLY TWO COATS OF GALVICON TO ALL FIELD CUT OR DRILLED EDGES.

NOTE:
– CONTRACTOR TO ENSURE PURCHASED ALL FRP MATERIALS TO BE SUPPLIED FROM RAYCAP

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Trylon
Speed, Quality, Credibility
1825 W WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1–855–669–5421

REGISTERED PROFESSIONAL ENGINEER
90528PE
1-27-22
OREGON
JULY 14, 2015
CLIFF A BERNATHY
EXPIRES: 12-31-22

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SITE INFORMATION

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SHEET DESCRIPTION

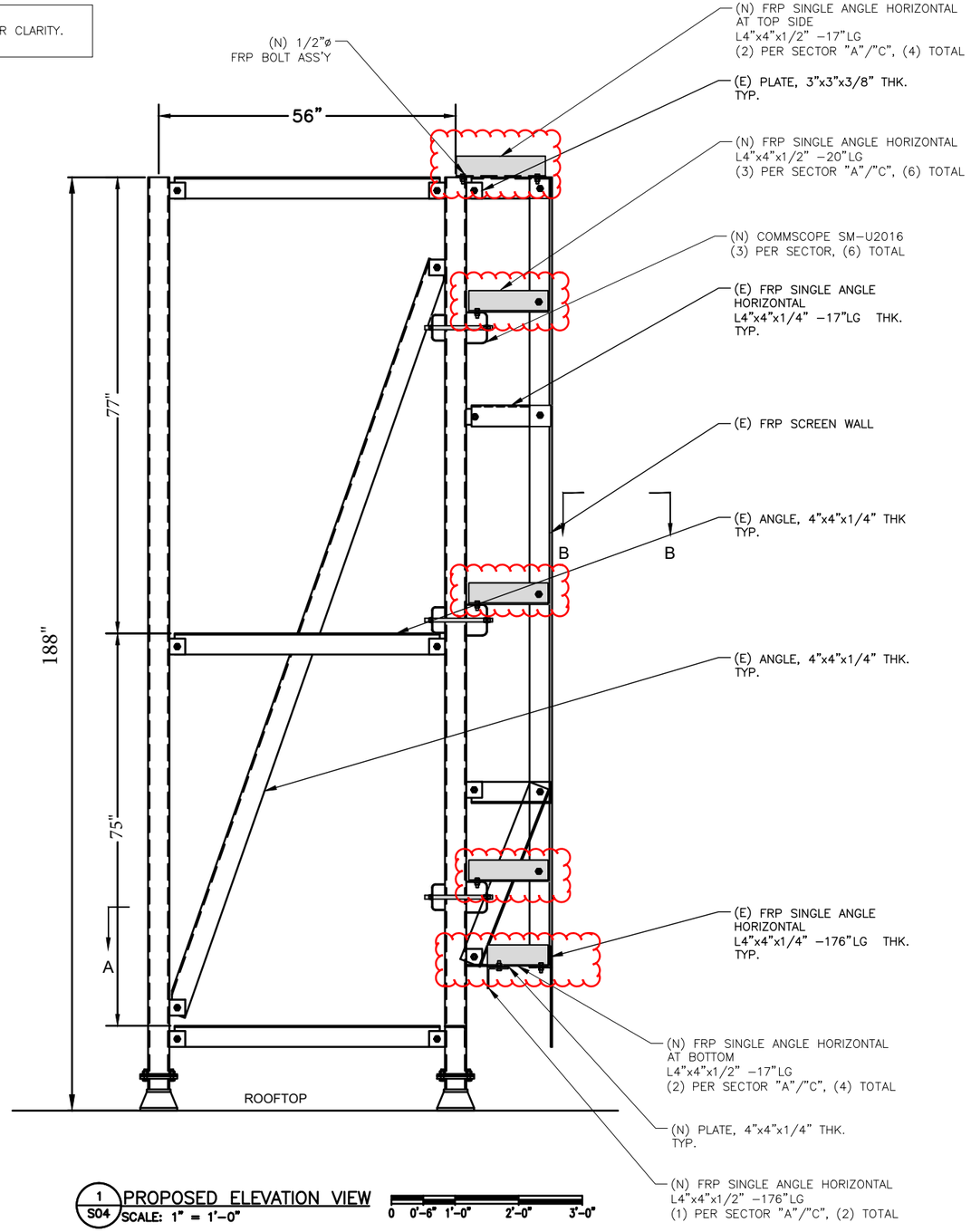
FRP SHROUD
REINFORCING SECTOR
ALPHA & GAMMA

SHEET No.

S03

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 / S04 PROPOSED ELEVATION VIEW
SCALE: 1" = 1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– NEW FRP ANGLE WILL BE 4"x4"x1/2"
– NEW FRP HSS SQUARE WILL BE 4"x4"x1/2"
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1–855–669–5421

REGISTERED PROFESSIONAL ENGINEER
90528PE
1-27-22
OREGON
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SHEET DESCRIPTION

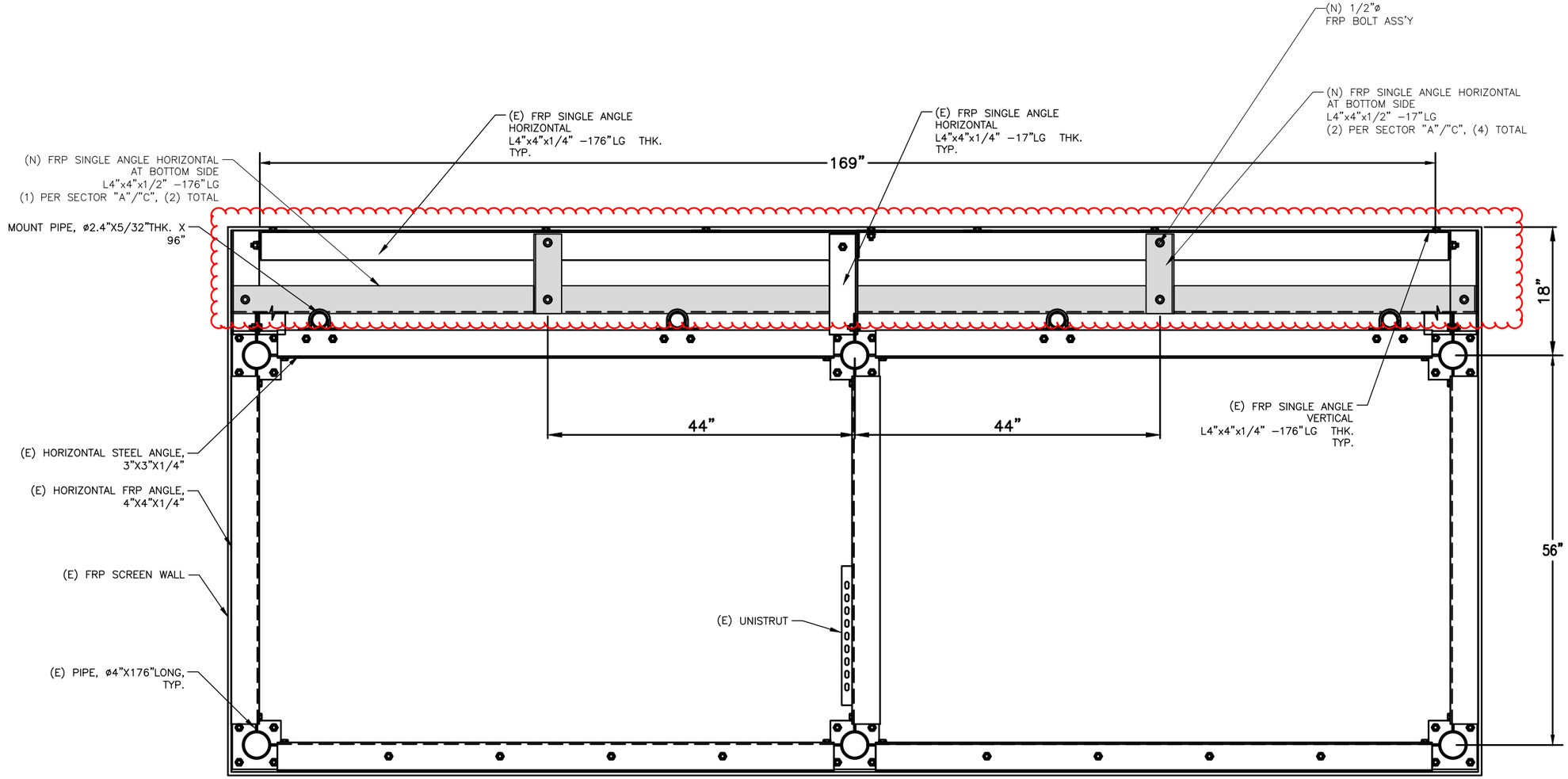
FRP SHROUD
REINFORCING SECTOR
ALPHA & GAMMA

SHEET No.

S04

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 S05 SECTION A–A
SCALE: 1" = 1'–0"
0 0'–6" 1'–0" 2'–0" 3'–0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– NEW FRP ANGLE WILL BE 4"x4"x1/2"
– NEW FRP HSS SQUARE WILL BE 4"x4"x1/2"
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REGISTERED PROFESSIONAL ENGINEER
90528PE
1-27-22
OREGON
JULY 14, 2015
CLIFF ABERNATHY
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SITE INFORMATION

SITE NAME:
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SHEET DESCRIPTION

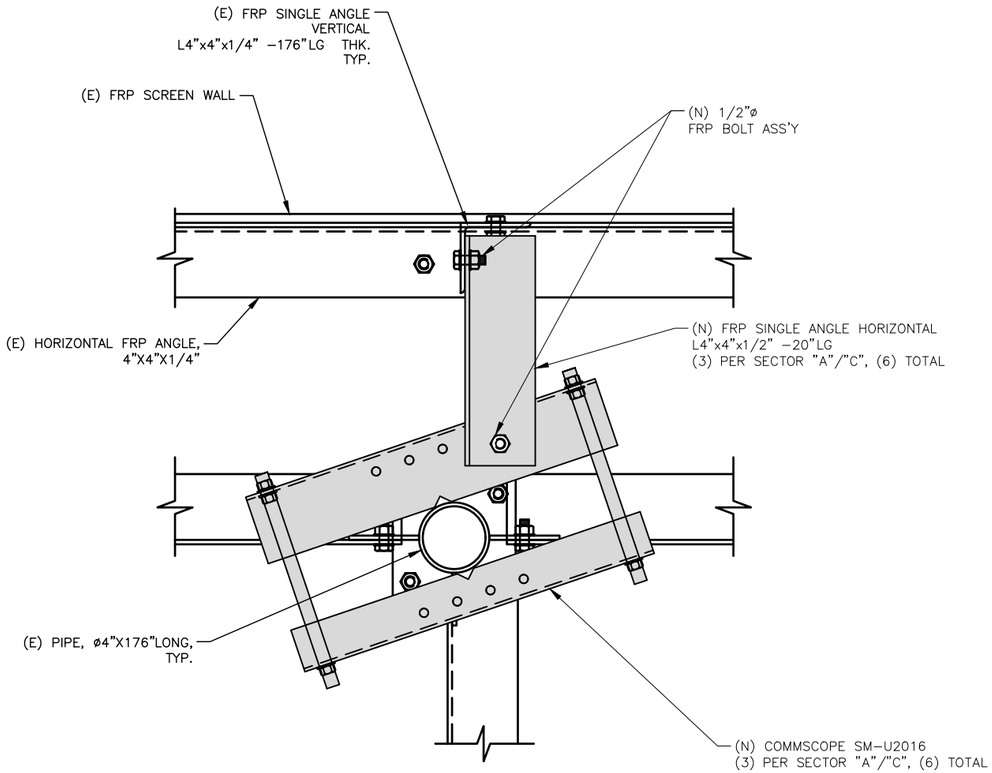
FRP SHROUD
REINFORCING SECTOR
ALPHA & GAMMA

SHEET No.

S05

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 / S06 SECTION B–B
SCALE: 3" = 1'–0"

0 0'–2" 0'–4" 0'–8" 1'–0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– NEW FRP ANGLE WILL BE 4"x4"x1/2"
– NEW FRP HSS SQUARE WILL BE 4"x4"x1/2"
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REGISTERED PROFESSIONAL ENGINEER
90528PE
1-27-22
OREGON
JULY 14, 2015
CLIFF A BERNATHY
EXPIRES: 12-31-22

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SITE INFORMATION

SITE NAME:
PSU

SITE NUMBER:
PR46

SITE ADDRESS:
1705 SW 11TH AVENUE,
PORTLAND, OR 97201

SHEET DESCRIPTION

FRP SHROUD
REINFORCING SECTOR
ALPHA & GAMMA

SHEET No.

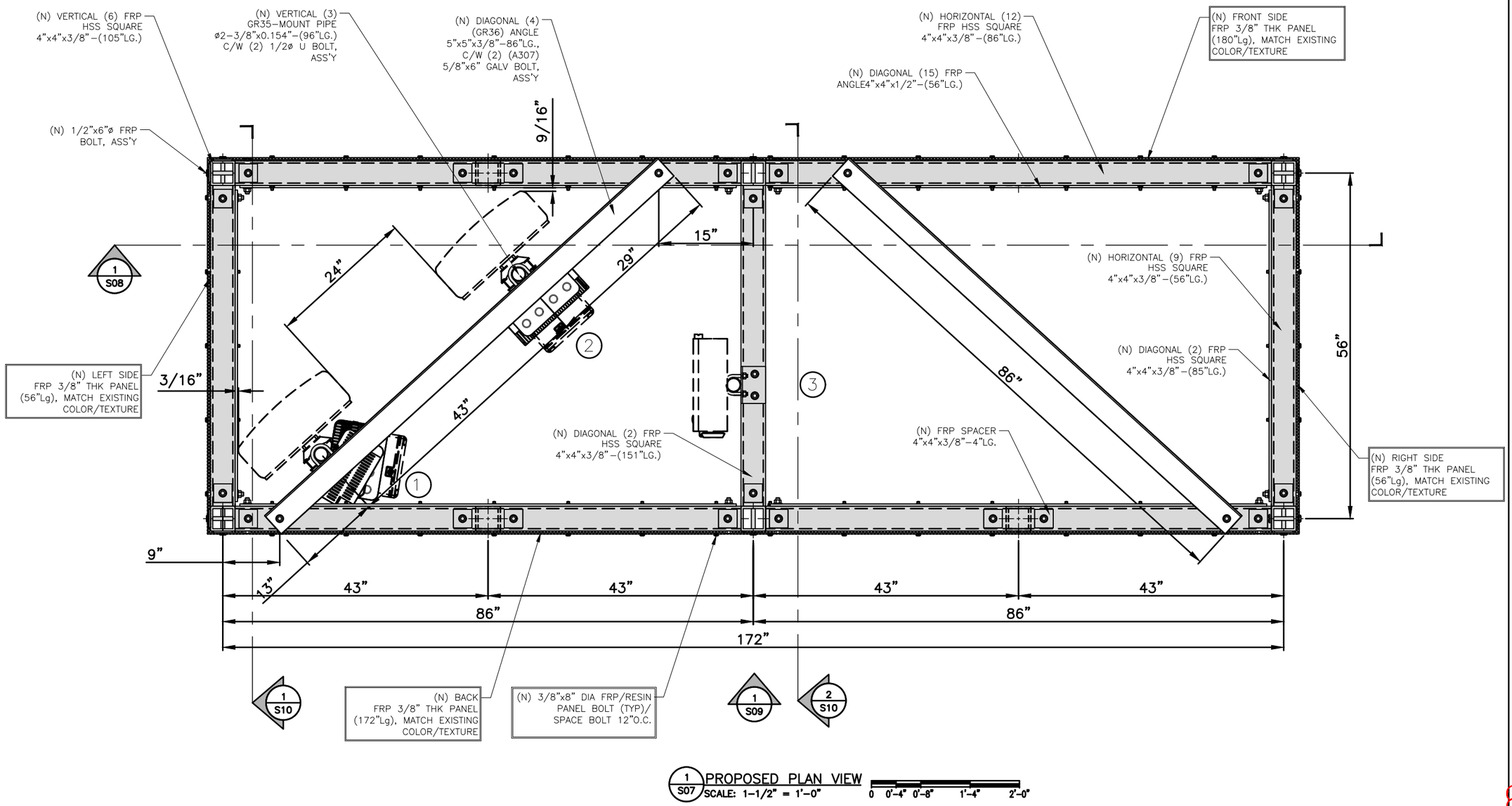
S06

STEEL

FRP

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 S07 PROPOSED PLAN VIEW
SCALE: 1–1/2" = 1'–0"

0 0'–4" 0'–8" 1'–4" 2'–0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– ALL PIPE STEEL TO BE ASTM A53
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REGISTERED PROFESSIONAL ENGINEER
90528PE
1-27-22
OREGON
JULY 14, 2015
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EXPIRES: 12-31-22

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SITE INFORMATION

SITE NAME:
PSU

SITE NUMBER:
PR46

SITE ADDRESS:
1705 SW 11TH AVENUE,
PORTLAND, OR 97201

SHEET DESCRIPTION

NEW SHROUD SECTOR BETA

SHEET No.

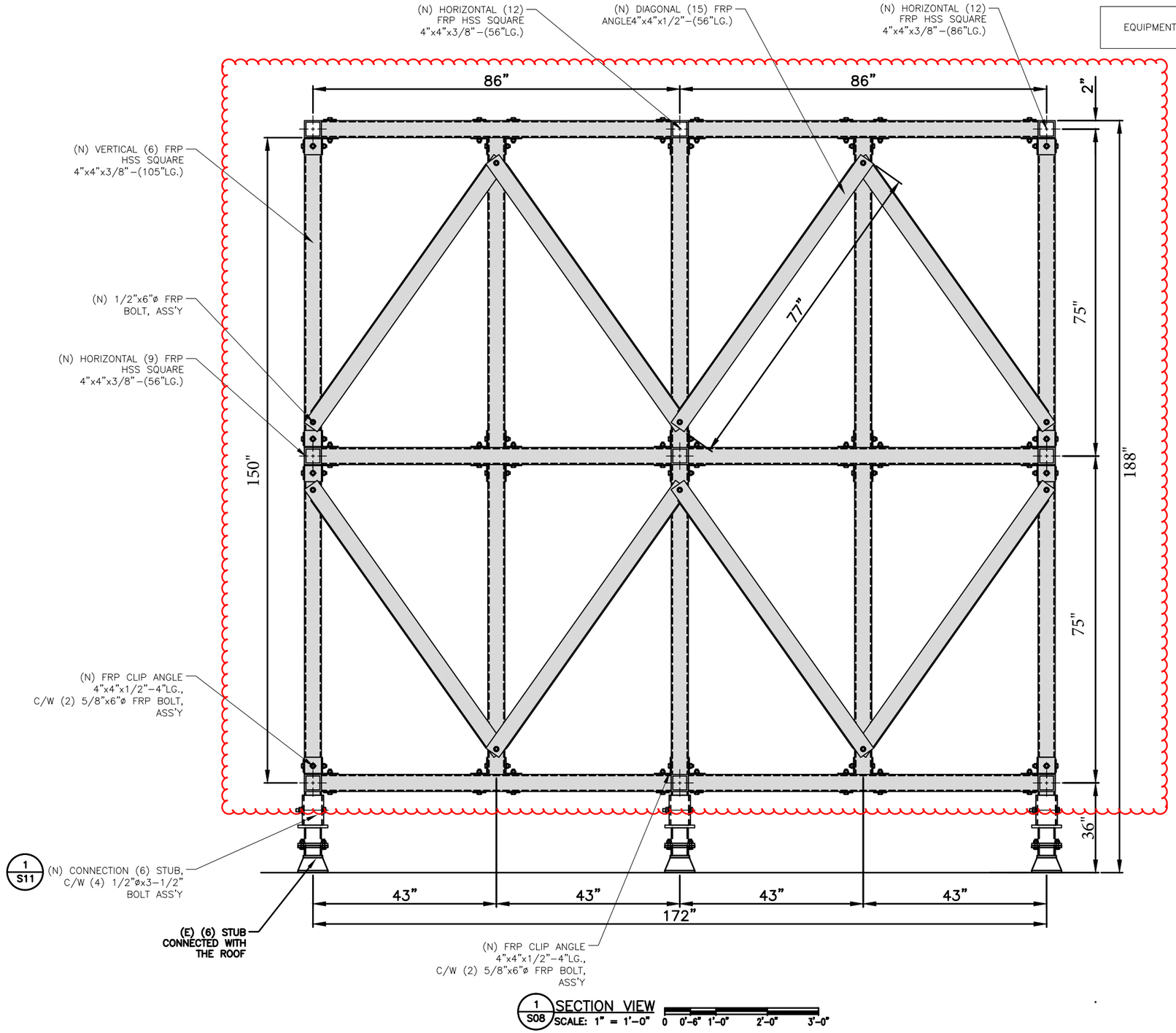
S07

STEEL

FRP

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 S08 SECTION VIEW
SCALE: 1" = 1'–0" 0 0'–6" 1'–0" 2'–0" 3'–0"

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1–855–669–5421

REGISTERED PROFESSIONAL ENGINEER
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SITE INFORMATION

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SHEET DESCRIPTION

NEW SHROUD SECTOR BETA

SHEET No.

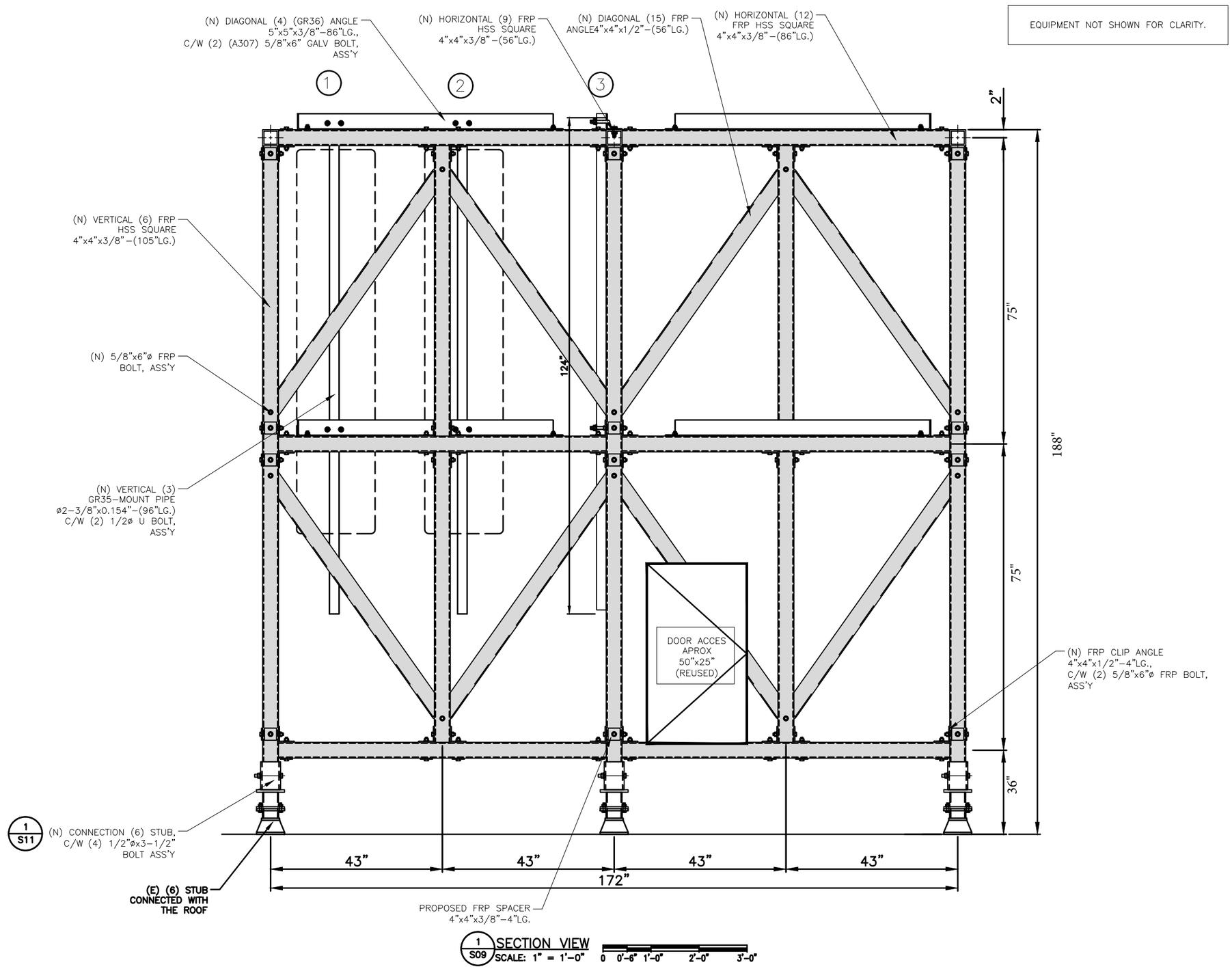
S08

STEEL

FRP

(N) – NEW
(E) – EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



1 S09 SECTION VIEW
SCALE: 1" = 1'–0" 0 0'–6" 1'–0" 2'–0" 3'–0"

NOTE:
– ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
– ALL PIPE STEEL TO BE ASTM A53
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NOTE:
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SITE INFORMATION

SITE NAME:
PSU

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PR46

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SHEET DESCRIPTION

NEW SHROUD SECTOR BETA

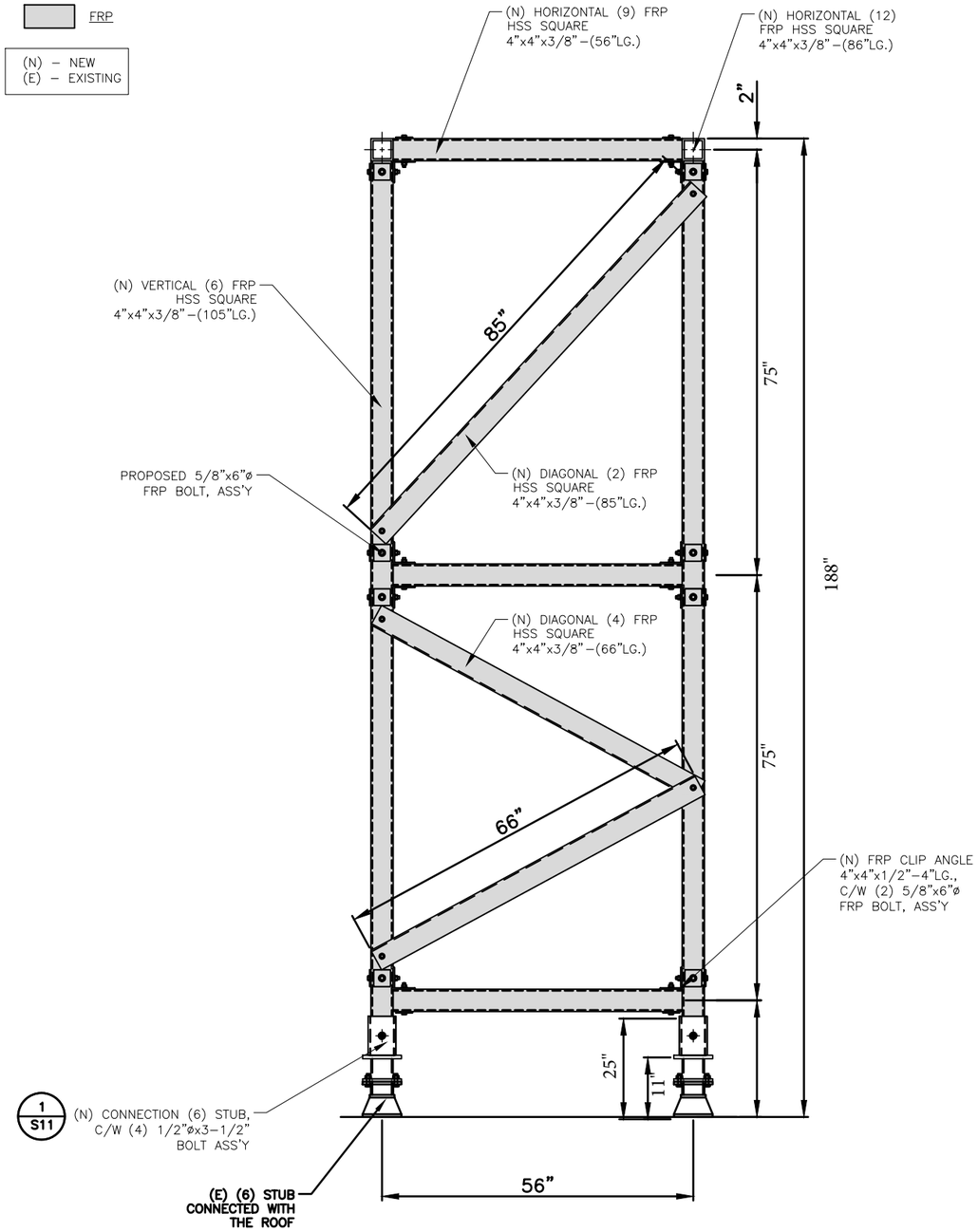
SHEET No.

S09

STEEL

FRP

(N) – NEW
(E) – EXISTING



1 S10 SECTION VIEW
SCALE: 1–1/2" = 1'–0" 0 0'–4" 0'–8" 1'–4" 2'–0"

NOTE:
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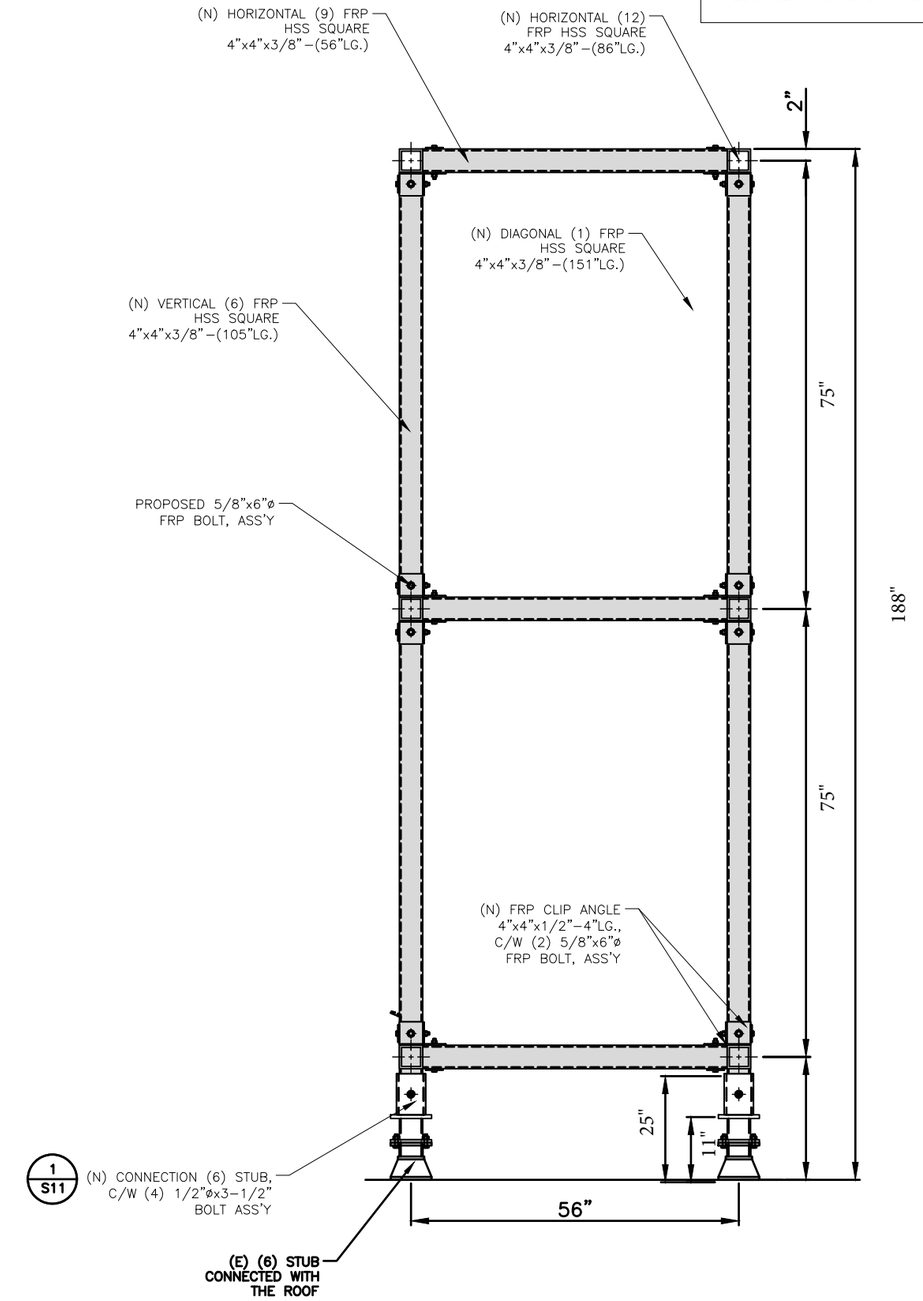

2 S10 SECTION VIEW
SCALE: 1–1/2" = 1'–0" 0 0'–4" 0'–8" 1'–4" 2'–0"

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CLIFF ABERNATHY
EXPIRES: 12-31-22

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SITE INFORMATION

SITE NAME:
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SITE NUMBER:
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SITE ADDRESS:
1705 SW 11TH AVENUE,
PORTLAND, OR 97201

SHEET DESCRIPTION

NEW SHROUD SECTOR BETA

SHEET No.

S10

Exhibit B

Mount Modification Report

Trylon Project # 166962

September 3, 2021

Project Information	
Client	Smartlink
Carrier Name	AT&T
Carrier Site ID	PR46
Carrier Site Name	PSU
PACE Number	MRWOR046226
PTN Number	3898A0SWM7
FA Number	10094246
Site Address	1705 Southwest 11TH Avenue, Portland, Multnomah, OR 97201
Site Coordinates	45.51389, -122.68611
Structure Type	Building
Structure Height	84 ft
Mount Type	FRP Structure
Mount Elevation	90.6 ft

STRUCTURE RATING =	**76.3%**	**PASS**

Analysis Performed by:

Alexandru Ciuca

Reviewed and Approved by:

Cliff Abernathy, P.E.

Cliff Abernathy

Digitally signed by Cliff Abernathy
Date: 2021.09.07 20:47:45 -04'00'

REGISTERED PROFESSIONAL ENGINEER
90528PE
9-7-21
OREGON
JULY 14, 2015
CLIFF ABERNATHY
EXPIRES: 12-31-22

Mount Analysis Report

Smartlink
11410 NE 122nd Ave, Ste 102 Kirkland, WA 98034

Subject: Analysis of the Proposed FRP Structure at 90.6 ft. Elevation

Dear **Smartlink**,

We have been provided with RF information, photos and sketches of the structure for the above referenced sites. AT&T is proposing to change the equipment configuration on the Proposed mounting hardware.

A revised antenna, coax and miscellaneous equipment schematic have been provided to us. We have been asked to evaluate this information to determine whether the mounting apparatus is adequate to safely support the proposed loading change.

RISA 3D (Version 17), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

1. Source Data

Document Type	Source	Reference	Date
RFDS	AT&T	RFDS ID: 3547802	May 5, 2020
Construction Drawings	Trylon	Site ID: PR46	March 2, 2021
Mount Modification Drawings	Trylon	J.N:166962	August 9, 2021
Audit Photos	Trylon	Site ID: PR46	October 7, 2020

2. Analysis Criteria

Adopted Codes and Site Parameters	
Building Code / Local Code	**2018 IBC / 2019 OSSC**
Code Standard	**ASCE 7-16**
Design Wind Speed (mph)	**98**
Design Wind Speed with Ice (mph)	**30**
Design Ice Thickness (in)	**2.0**
Risk Category/Structure Class	**II**
Exposure Category	**C**
Topographic Factor, K_{zt}	**1.0**
Seismic Response Acceleration, S_s (g)	**0.888**
Seismic Response Acceleration, S_1 (g)	**0.398**

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3. Final Loading Configuration

Mount CL (ft)	Equipment CL (ft)	Qty.	Manufacturer	Model	Carrier
90.6	95	6	Commscope	NNHH-65C-R4	AT&T
		2	KMW	ET-X-UW-70-16-70-18-iR-AT-RA	
		3	Nokia	AHCA	
		3	Alcatel	B66A RRH4X45-4R	
		3	Alcatel	RRH4x25-WCS-4R	
		3	Nokia	AHLBBA	
		3	Alcatel	B25 RRH4X30-4R	
		3	Raycap	DC6-48-60-0-1B-01-SS	
		2	Kaelus	DBC0135F3V92-1	

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4. Standard Conditions for Providing Structural Consulting Services on Existing Structures

1) Mounting hardware is analyzed to the best of our ability using all information that is provided or can be obtained during fieldwork (if authorized by client). If the existing conditions are not as we have represented in this analysis, we should be contacted to evaluate the significance of the deviation and revise the assessment accordingly.
2) The structural analysis has been performed assuming that hardware is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, misaligned parts, or any reduction in strength due to the age or fatigue of the product.
3) The structural analysis provided is an assessment of the primary load carrying capacity of the hardware. We provide a limited scope of service. In some cases, we cannot verify the capacity of every weld, plate, connection detail, etc. In some cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of some of the required details may not be possible. In instances where we cannot perform connection capacity calculations, it is assumed that the existing manufactured connections develop the full capacity of the primary members being connected.
4) We cannot be held responsible for mounting hardware that is installed improperly or hardware that is loose or has a tendency of working loose over the lifetime of the mounting hardware. Our analysis has been performed assuming fully tightened connections, and proper installation and symmetry of the mounting hardware per manufacturer's instructions.
5) The structural analysis has been performed using information currently provided by the client and potentially field verified. We have been provided with a mounting arrangement for all telecommunications equipment, including antennas RRH's, TMA's, RRU's, diplexers, surge protection devices, etc. Our analysis has been based upon a particular mounting arrangement. We are not responsible for deviations in the mounting arrangement that may occur over time. If deviations in equipment type or mounting arrangements are proposed, then we should be contacted to revise the recommendations of this structural report.
6) We cannot be held responsible for temporary and unbalanced loads on mounting hardware. Our analysis is based on a particular mounting arrangement or as-built field condition. We are not responsible for the methods and means of how the mounting arrangement is accomplished by the contractor. These methods and means may include rigging of equipment or hardware to lift and locate, temporary hanging of equipment in locations other than the final arrangement, movement and tie off of tower riggers, personnel, and their equipment, etc.
7) Steel grade and strength is unknown and cannot be field tested. We cannot be held responsible for equipment manufactured from inferior steel or bolts. Our analysis assumes that standard structural grade steel has been used by the equipment manufacturer for all assembled parts of the mounting apparatus. Acceptable steels and connection components are specified by the American Institute of Steel Construction. It is assumed all welded connections are performed in the shop under the latest American Welding Society Code. No field welds are permitted or assumed for the existing premanufactured equipment.
8) Steel grades have been assumed as follows, unless noted otherwise:

Assumed Steel Grades	
Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325
U-Bolts, Threaded Rods	SAE J429 Gr. 2

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5. Analysis Results

Mount CL (ft.)	Component	% Capacity	Pass/Fail	Notes
90.6	Mount Pipe(s)	9.8	PASS	1
	FRP Horizontal(s)	70.1	PASS	
	Steel Horizontal(s)	20.8	PASS	
	FRP Vertical(s)	71.4	PASS	
	Steel Vertical(s)	20.9	PASS	
	FRP Bracing(s)	59.3	PASS	
	Steel Bracing(s)	19.0	PASS	
	Connection(s)	76.3	PASS	

Structure Rating (max from all components) =	76.3%

Notes:
1) See additional documentation in "Appendix A – Additional Calculations" for calculations supporting the % capacity consumed.

6. Conclusions and Recommendations

Based on the information provided, our calculations conclude that the Proposed AT&T FRP Structure installed at 90.6 ft. elevation has sufficient capacity to carry the final loading configuration.

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Irving, Texas 75038

Raycap | STEALTH
7555-A Palmetto Commerce Parkway
North Charleston, SC 29420

Attn: Trey Nemeth
(843) 207-8000 ext 121

RESEARCH REPORT: RR 25400

Expires: July 1, 2022
Issued Date: February 15, 2021
Code: 2020 LABC

GENERAL APPROVAL – Renewal - STEALTHCORE FRP Panel Enclosure System and InvisiWave® aperture replacements and radomes for rooftop and Tower-based communication antenna screening.

DETAILS

The Stealthskin Enclosure System consists of pultruded fiberglass reinforced structural shapes (I-beam, WF beam, angles and tubes) and STEALTHCORE FRP panels which spans between structural supports. Connections between the pultruded shapes STEALTHCORE FRP panels are accomplished by means of plastic bolts and nuts, urethane bonding adhesive, and/or steel screws. STEALTHCORE FRP panels attached to the structural members to create the enclosure. InvisiWave® aperture replacements can be installed in new or existing screen wall applications as required to allow transmission of applicable radio equipment. The material specifications are as follows:

1. Pultruded Reinforced Plastic: Reinforced Plastic formed by the pultrusion method. The minimum properties for the Pultrusion Beams are specified in Table 1.

2. ½” FRP threaded rod and nut: Threaded rod is 0.492" overall diameter and net 0.416" diameter. The nut is 1.055: square and 0.692" thick.

3. Stealthcore FRP 1/4" structural panel.

4. InvisiWave® aperture replacments for screenwalls and other flat panel applications.

5. InvisiWave® cylindrical radomes for pole and rooftop faux vent stack applications.

The above products are approved for use with the following conditions:

1. FRP Putrusion Beam: The design values for the FRP pultrusion products are in Table 1.

TABLE 1 - Design values for FRP

Property	Direction	Specification
Tensile	Lengthwise Crosswise	3750 psi 815 psi
Tensile Modulus	Lengthwise Crosswise	3.3 x 10 psi 1.5 x 10 psi
Flexural	Lengthwise Crosswise	3750 psi 1250 psi
Flexural Modulus	Lengthwise Crosswise	1.5 x 10 psi 0.7 x 10 psi
Compressive Modulus	Lengthwise Crosswise	5.4 x 10 psi 2.5 x 10 psi
Shear	Lengthwise - (1) Lengthwise - (2) Crosswise - (1) Crosswise - (2)	350 psi 540 psi 165 psi 215 psi
½" bolt bearing on FRP	Lengthwise Crosswise	3800 psi 2450 psi
½" bolt tension		300 pounds (3)
½" bolt shear		780 pounds (3)
Minimum edge distance		1 - inch

(1) - Load applied perpendicular to lamination.
(2) - Load applied parallel to lamination.
(3) - Load applied to it with five threads, failed by thread stripping. RR 25400
Note: Design value is based on a factor of safety of 8.

2. Stealthcore 1/4" FRP Panels are installed by attaching to an FRP or steel perimeter structural frame, consisting of square tubes, angles, or wide flanges. Stealthcore 1/4" FRP Panels can be attached to the perimeter structural frame by one of two methods.

   a. Holes are drilled at 24" or less spacing around the perimeter of the panel (12 holes total per 4' x 8' panel) at 9/16" diameter. A ½" diameter threaded rod was cut to length and inserted through the drilled holes. An FRP nut was placed on each end of the threaded rod and tightened one-quarter turn from snug. When supported as

described above, the peak load for one 4 feet wide by 8 feet vertical span is 106 pounds per square foot. The factor of safety is 3.

b. Panels are bonded using a quickset urethane continuous bead adhesive around the entire perimeter of the panel, and attached to the perimeter frame via #8 steel screws at 12" or less spacing around the perimeter of the panel (24 screws total per 4' x 8' panel), which may be removed after bond fully cures. When supported as described above, the peak load for one 4 feet wide by 8 feet vertical span is 78 pounds per square foot. The factor of safety is 3.

c. InvisiWave® apertures can be installed in an FRP perimeter frame with structural capacity as described in Table 1. Maximum aperture dimensions are 30-in square.

The panel system is supported by a galvanized steel or FRP support frame (Wide Flange, Angle, Plates and Square Tubes per the material properties listed in #1 above) which conforms to the plans and calculations submitted for building department issuance which have been prepared by a California licensed professional engineer for each specific building project.

3. Complete plans and structural calculations prepared by a California licensed architect, civil or structural engineer shall be submitted to the department for approval prior to permit issuance.

4. The Fire Department shall approval all plans for plastic screening on Fire Marshall Fire Life Safety Projects.

5. Antennas and screening must not obstruct access to the roof by the Fire Department as required by Sec 57.316.4.4 of the Los Angeles Municipal Code which states: No person shall obstruct required access passageways on the roof surface. An unobstructed passageway for use by the Fire Department shall be provided through or around any approved structures or equipment installations on the roof surface. One access passageway shall be provided for every 50-feet length or fraction thereof of roof surface. Passageways shall be at least three feet wide and have at least seven feet of overhead clearance.

6. The individual rooftop screening panel area in any one plane or approximately the same plane shall be limited to 250 square feet and the total maximum aggregate area of all panels shall not exceed the larger of 3 square feet per foot of building frontage or 5 percent of the area of the roof, with a maximum allowable height of 18 feet above the roof level.

7. Screening shall not be illuminated or electrified.

8. Each panel shall be identified with LARR #25400 and Stealth Logo. FRP structure and panels (before painting) will beige in color.

9. Screening material shall be located at least 20 ft from interior property lines for Type I, II, III, and IV buildings per 2020 LABC section 1510.6.2, Item 2.

10. Screening material shall be located at least 5 ft from interior property lines for Type V buildings per 2020 LABC section 1510.6.3, Item 3.

11. The fabrication will be in accordance with manufacturer's quality control manual. A copy of the quality control manual is on file with the Engineering Research Section.

12. STEALTH FRP Structural Members and FRP panels can be used for alternate building applications if the structural requirements outlined in this report are met.

DISCUSSION

The report is in compliance with the 2020 Los Angeles City Building Code.

The approval is based on tests per section 1510.6 and 2303.2 of the 2020 LABC which show that the approved materials exhibit performance that is equivalent to fire-retardant treated wood.

This general approval will remain effective provided the Report is maintained valid and unrevised with the issuing organization. Any revisions to the report must be submitted to this Department for review with appropriate fee to continue the approval of the revised report.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

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