Robinson+Cole

KENNETH C. BALDWIN

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

Also admitted in Massachusetts

December 4, 2025

Via Federal Express

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

Re: **Docket No. 533 – Application of Tarpon Towers III, LLC and Cellco Partnership d/b/a Verizon Wireless for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation of a Wireless Telecommunications Facility at 161 Conrad Street, Naugatuck, Connecticut**

Development and Management Plan Submission

Dear Attorney Bachman:

Enclosed please find fifteen (15) copies of the following:

1. Development and Management ("D&M") Plans prepared by All Points Technologies Corporation for the approved telecommunications facility at 161 Conrad Street in Naugatuck, Connecticut incorporating the Council's conditions of approval. Also enclosed are two (2) full size (24" x 36") sets of D&M plans. In accordance with Condition 2(d), the tower has been relocated to south and east away from the properties at 171 Conrad Street and 134 Craig Circle.

2. Tower and Foundation Design from TAPP dated October 28, 2025. In accordance with Condition 2(e) of the Council's Decision and Order, the tower design incorporates a yield point that ensures the tower setback radius remains within the boundaries of the host parcel.

3. Geotechnical Study prepared by Welti Geotechnical, P.C. dated October 16, 2025.

4. Letter from Verizon Wireless confirming its commitment to share the approved tower.

We respectfully request that this information be reviewed, and this matter be placed on the next available Siting Council agenda for approval. Please feel free to contact me if you have any questions or require additional information. Thank you.

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
N. Warren "Pete" Buss, Mayor Borough of Naugatuck
Parties and Intervenors of Record

CT1239 CONRAD ST
161 CONRAD STREET
NAUGATUCK, CT 06770

DRAWING INDEX

SITE DIRECTIONS

START: 20 ALEXANDER DRIVE
WALLINGFORD, CONNECTICUT 06492

END: 161 CONRAD STREET
NAUGATUCK, CT 06770

1.	HEAD NORTH ON ALEXANDER DRIVE	0.3 MI
2.	TURN RIGHT ONTO BARNES INDUSTRIAL ROAD S	0.1 MI
3.	TURN LEFT ONTO BARNES RD. (CT-68 W)	4.4 MI
4.	TURN LEFT ONTO CT-68 W/ CT-70 W	1.2 MI
5.	TURN LEFT ONTO CT-68 W/ CT-70W / MAIN ST.	1.7 MI
6.	TURN LEFT ONTO CT-68 W	7.7 MI
7.	TURN RIGHT ONTO CHURCH ST.	0.5 MI
8.	TURN LEFT ONTO FIELD ST.	0.9 MI
9.	TURN LEFT ONTO CONRAD ST., DESTINATION WILL ON THE LEFT	0.3 MI

LOCATION MAP
SCALE : 1" = 200'

VZ SITE NAME: NAUGATUCK 5
VZ MDG LOCATON CODE: 616755202
VZ PSLC: 470709
VZ FUZE ID: 17453771
T-MOBLE SITE NAME: TARPON TOWERS MONOPOLE NAUGATUCK
T-MOBILE SITE ID: CTNH488A
AT&T SITE NAME: S3458G
AT&T SITE ID: SICT002531
LOCATION: 161 CONRAD STREET
NAUGATUCK, CT 06770

PROJECT SCOPE: RAWLAND SITE W/ GROUND EQUIPMENT WITHIN A 6,737± S.F. TELECOMMUNICATIONS EQUIPMENT COMPOUND W/ NEW 150'± AGL MONOPOLE.

ASSESSORS TAX I.D: 014-9020

LATITUDE: 41° 29' 53.03" N (41.49806)

LONGITUDE: 73° 04' 12.18" W (73.07005)

GROUND ELEVATION: 514.9'± AMSL

COORDINATES & GROUND ELEVATION INDICATED HEREIN WERE ESTABLISHED FROM A FAA 1-A SURVEY CERTIFICATION, AS PREPARED BY LANGAN CT, INC., DATED AUGUST 18, 2025.

PROPERTY OWNER: BOROUGH OF NAUGATUCK
229 CHURCH STREET
NAUGATUCK, CT 06770

APPLICANT: TARPON TOWERS III, LLC
8916 77th TERRACE EAST
SUITE 103
LAKEWOOD RANCH, FL 34202

CO APPLICANTS: CELLCO PARTNERSHIP
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

T-MOBILE NORTHEAST, LLC
15COMMERCE WAY
SUITE B
NORTON, MA 02766

AT&T
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

LEGAL/REGULATORY COUNSEL: ROBINSON & COLE, LLP
KENNETH C. BALDWIN, ESQ.
ONE STATE STREET
HARTFORD, CT 06103

ENGINEER CONTACT: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
567 VAUXHALL STREET EXT., - SUITE 311
WATERFORD, CT 06385
(860) 663-1697

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T-Mobile Northeast LLC
15 COMMERCE WAY
SUITE B
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at&t
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FRAMINGHAM, MA 01701

D&M DOCUMENTS

NO	DATE	REVISION
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1	10/06/25	CARRIER REVISIONS: RCB
2	10/29/25	ADD TOWER INFO: RCB
3	11/20/25	FINAL: RCB
4	12/02/25	AT&T EQUIP REVISIONS: RCB
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

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DATE: 09/12/25
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VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

STATE OF CONNECTICUT · ROBERT CHARLES BURNS · 21071 · LICENSED PROFESSIONAL ENGINEER

NOTES

1. THIS SURVEY HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
   a. THIS SURVEY IS A PROPERTY SURVEY CONFORMING TO A HORIZONTAL ACCURACY OF A-2 AND A TOPOGRAPHIC SURVEY CONFORMING TO A T-2 ACCURACY. THE BOUNDARY DETERMINATION IS A RESURVEY. THE PURPOSE OF THIS SURVEY IS TO PROVIDE A BOUNDARY OPINION AND DEPICT SITE FEATURES FOR FUTURE SITE DEVELOPMENT.
2. THIS SURVEY IS BASED UPON EXISTING PHYSICAL CONDITIONS FOUND AT THE SUBJECT SITE, DEED INFORMATION AND THE FOLLOWING REFERENCES:
   A. MAP TITLED "MAP OF HILLTOP, SUBDIVISION OF LAND OF GARDNER F. WOOD, BIRCH LANE, NAUGATUCK, CONN. SECTION "B", SCALE: 1"=40', DATED: AUGUST 1951, BY: FRANK A. DESMOND, L.S., MAP BOOK 7 PAGE 11
   B. MAP TITLED "BOUNDARY SURVEY, PROPERTY OF THE CONNECTICUT WATER COMPANY, CONRAD STREET, NAUGATUCK, CONNECTICUT", SCALE: 1"=20', DATED: JUNE, 1986, BY: WILLIAM A. BERGLUND, R.L.S., MAP BOOK 35 PAGE 12
   C. MAP TITLED "EXISTING CONDITIONS SURVEY PREPARED FOR NAUGATUCK HOUSING AUTHORITY, 53 CONRAD STREET, NAUGATUCK, CONNECTICUT", SCALE: 1"=60', DATED: JANUARY 2, 2014, LAST REVISED: MARY 10, 2017, BY: HARRY E. COLE & SON, MAP BOOK 42 PAGE 59
3. THE MERIDIAN OF THIS SURVEY IS REFERENCED TO CONNECTICUT STATE PLANE COORDINATE SYSTEM NAD 83 (EPOCH 2011). POSITION WAS DETERMINED BY GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) AS PROVIDED BY HXGN SMARTNET CONTINUOUSLY OPERATED REFERENCE STATIONS (CORS).
4. ELEVATIONS SHOWN ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) (GEOID 18) AS DETERMINED BY GNSS
5. PLANIMETRIC AND TOPOGRAPHIC INFORMATION SHOWN HEREON HAS BEEN OBTAINED FROM GROUND SURVEYS BY LANGAN CT, INC. FIELD WORK COMPLETED DURING THE MONTH OF SEPTEMBER 2024 & JUNE 2025.
6. AS PER THE NATIONAL FLOOD INSURANCE PROGRAM FIRM MAP ENTITLED "NEW HAVEN COUNTY, CONNECTICUT PANEL 252 OF 635, MAP NUMBER 09009C0252H, EFFECTIVE DATE DECEMBER 17, 2010" THE PROJECT AREA IS IN ZONE X (UNSHADED).
7. UNLESS SPECIFICALLY NOTED HEREON, STORM AND SANITARY SEWER INFORMATION (INCLUDING PIPE INVERT, PIPE MATERIAL, AND PIPE SIZE) WAS OBSERVED AND MEASURED AT FIELD LOCATED STRUCTURES (MANHOLES/CATCH BASINS, ETC). CONDITIONS CAN VARY FROM THOSE ENCOUNTERED AT THE TIMES WHEN AND LOCATIONS WHERE DATA IS OBTAINED. DESPITE MEETING THE REQUIRED STANDARD OF CARE, THE SURVEYOR CANNOT, AND DOES NOT WARRANT THAT PIPE MATERIAL AND/OR PIPE SIZE THROUGHOUT THE PIPE RUN ARE THE SAME AS THOSE OBSERVED AT EACH STRUCTURE, OR THAT THE PIPE RUN IS STRAIGHT BETWEEN THE LOCATED STRUCTURES.
8. ADDITIONAL UTILITY (WATER, GAS, ELECTRIC ETC.) DATA MAY BE SHOWN FROM FIELD LOCATED SURFACE MARKINGS (BY OTHERS), EXISTING STRUCTURES, AND/OR FROM EXISTING DRAWINGS.
9. UNLESS SPECIFICALLY NOTED HEREON, THE SURVEYOR HAS NOT EXCAVATED TO PHYSICALLY LOCATE THE UNDERGROUND UTILITIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE SHOWN UNDERGROUND UTILITIES ARE EITHER IN SERVICE, ABANDONED OR SUITABLE FOR USE, NOR ARE IN THE EXACT LOCATION OR CONFIGURATION INDICATED HEREON.
10. ALL BUILDINGS AND STRUCTURES WERE LOCATED AND MEASURED AT GROUND LEVEL. THE SURVEYOR MAKES NO DETERMINATIONS OR GUARANTEES AS TO THE ABSENCE, EXISTENCE OR LOCATION OF UNDERGROUND STRUCTURES, FOUNDATIONS, FOOTINGS, PROJECTIONS, WALLS, TANKS, SEPTIC SYSTEMS, ETC. NO TEST PITS, EXCAVATIONS OR GROUND PENETRATING RADAR WERE PERFORMED AS PART OF THIS SURVEY.
11. PRIOR TO ANY DESIGN OR CONSTRUCTION, THE PROPER UTILITY AGENCIES MUST BE CONTACTED FOR VERIFICATION OF UTILITY TYPE AND FOR FIELD LOCATIONS.
12. THIS SURVEY IS NOT VALID WITHOUT THE EMBOSSED OR INKED SEAL OF THE PROFESSIONAL.

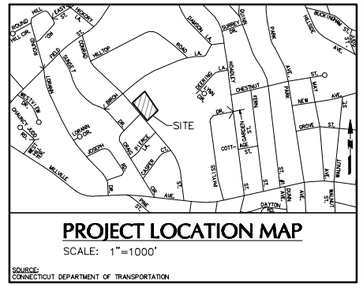
LEGEND (NOT SHOWN TO SCALE)

- POSTS
- TREE
- ELECTRIC BOX
- ELECTRIC METER
- COMMUNICATION BOX
- GUY WIRE
- POWER POLE
- ROOF DRAIN
- WATER VALVE
- X 262.3 — SPOT ELEVATION
- BIT — BITUMINOUS
- EP — EDGE OF PAVEMENT
- DYS — DOUBLE YELLOW STRIPE
- CHAINLINK FENCE
- TREE LINE
- OVERHEAD WIRE
- PROPERTY LINE
- 322 — CONTOUR LINE
- D — DRAINAGE MARK OUT LINE
- E — ELECTRIC MARK OUT LINE
- C — COMMUNICATION MARK OUT LINE
- W — WATER MARK OUT LINE
- UNK — UNKNOWN MARK OUT LINE

TITLE REPORT

COMMITMENT FOR TITLE INSURANCE ISSUED BY WESTCOR LAND TITLE INSURANCE COMPANY. COMMITMENT NUMBER: TAR-186016-C, COMMITMENT DATE: AUGUST 6, 2024. SCHEDULE B SECTION II:

1. ANY DEFECT, LIEN, ENCUMBRANCE, ADVERSE CLAIM, OR OTHER MATTER THAT APPEARS FOR THE FIRST TIME IN THE PUBLIC RECORDS OR IS CREATED, ATTACHES, OR IS DISCLOSED BETWEEN THE COMMITMENT DATE AND THE DATE ON WHICH ALL OF THE SCHEDULE B, PART I. NOTHING TO PLOT.
2. RIGHTS OR CLAIMS OF PARTIES IN POSSESSION NOT SHOWN BY THE PUBLIC RECORDS. NO DOCUMENTS STATING SAID RIGHTS OR CLAIMS WERE PROVIDED TO THE SURVEYOR, RIGHTS MAY EXIST, NOTHING TO PLOT.
3. EASEMENTS OR CLAIMS OF EASEMENTS NOT SHOWN BY THE PUBLIC RECORDS. NO EVIDENCE OF UNRECORDED EASEMENTS OR CLAIMS WERE OBSERVED AT THE TIME OF SURVEY, NOTHING TO PLOT.
4. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, ENCROACHMENTS, OVERLAPS, VARIATIONS OR SHORTAGE IN AREA OR CONTENT, PARTY WALLS AND ANY OTHER MATTERS THAT WOULD BE DISCLOSED BY A CORRECT SURVEY AND/OR PHYSICAL INSPECTION OF THE LAND. NO EVIDENCE OF DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, ENCROACHMENTS, OVERLAPS, VARIATIONS OR SHORTAGE IN AREA OR CONTENT OR PARTY WALLS WERE OBSERVED ON THE SUBJECT PARCEL AT THE TIME OF SURVEY.
5. ANY LIEN, OR RIGHT TO LIEN, FOR SERVICES, LABOR OR MATERIAL HERETOFORE OR HEREAFTER FURNISHED, IMPOSED BY LAW AND NOT SHOWN BY THE PUBLIC RECORD. NO DOCUMENTATION PROVIDED, NOTHING TO PLOT.
6. ANY WATER OR WELL RIGHTS, OR RIGHTS OR TITLE TO WATER OR CLAIMS THEREOF, IN, ON OR UNDER THE LAND. NO DOCUMENTS STATING SAID RIGHTS WERE PROVIDED TO THE SURVEYOR.
7. UNPATENTED MINING CLAIMS; RESERVATIONS OR EXCEPTIONS IN PATENTS OR IN THE ACTS AUTHORIZING THE ISSUANCE OF SAID PATENTS, NO RESERVATION OR EXCEPTIONS DOCUMENTS WERE PROVIDED TO THE SURVEYOR, NOTHING TO PLOT.
8. ALL TAXES, ASSESSMENTS, LEVIES AND CHARGES WHICH CONSTITUTE LIENS OR ARE DUE OR PAYABLE INCLUDING UNREDEEMED TAX SALES. NOTHING TO PLOT.
9. RIGHTS OF FEE SIMPLE OWNERS IN AND TO THE SUBJECT PROPERTY. SUBJECT PARCEL BOUNDARY DEPICTED ON SURVEY.
10. RESOLUTION DATED JULY 23, 1993 AND RECORDED JULY 23, 1993 IN VOL 378 PAGE 747, IN NEW HAVEN COUNTY, CONNECTICUT. BLANKET IN NATURE, CONRAD STREET IS A PUBLIC RIGHT OF WAY AND IS DEPICTED ON SURVEY.
11. TERMS AND CONDITIONS OF AN UNRECORDED AGREEMENT, AS EVIDENCED BY A(N) AGREEMENT BETWEEN THE CONNECTICUT WATER COMPANY, A CONNECTICUT CORPORATION AND THE TOWN AND BOROUGH OF NAUGATUCK, DATED JANUARY 25, 1993 AND RECORDED JULY 23, 1993 IN VOL 378 PAGE 750, IN NEW HAVEN COUNTY, CONNECTICUT. BLANKET IN NATURE.
12. CORPORATE RESOLUTION DATED JULY 9, 1993 AND RECORDED JULY 23, 1993 IN VOL 378 PAGE 770, IN NEW HAVEN COUNTY, CONNECTICUT. BLANKET IN NATURE.



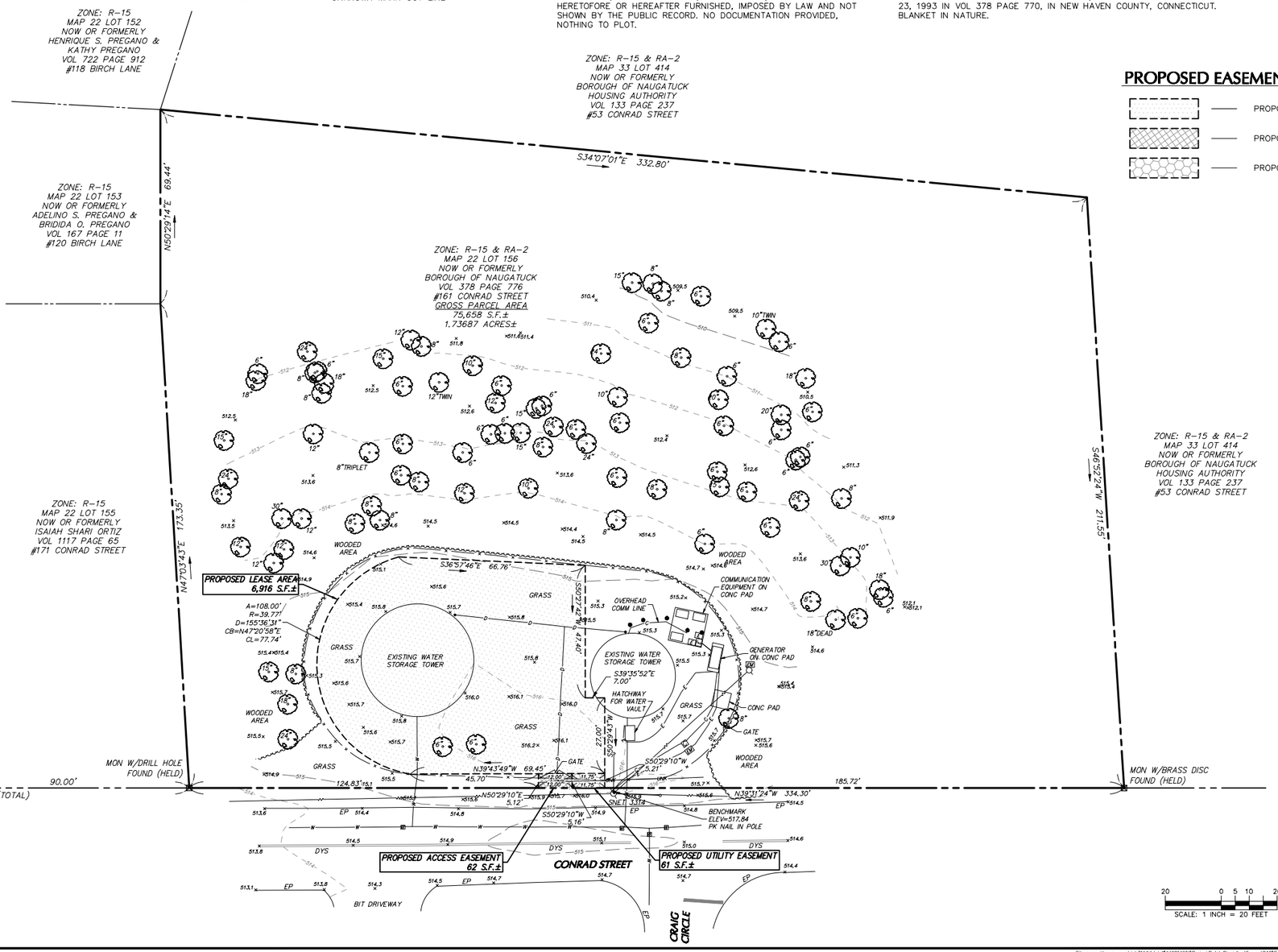
PROJECT LOCATION MAP

SCALE: 1"=1000'

CT NAD 83

PROPOSED EASEMENT LEGEND

- PROPOSED LEASE AREA
- PROPOSED ACCESS EASEMENT
- PROPOSED UTILITY EASEMENT



Date	Description	No.
6/5/2025	ADDITIONAL TOPO AREA	3
2/21/2025	ADDED PROPOSED UTILITY EASEMENT	2
2/13/2025	ADDED PROPOSED LEASE AREA & ACCESS EASEMENT	1

REVISIONS

"TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

ANDREW G. IVES — DATE SIGNED
PROFESSIONAL LAND SURVEYOR
CT STATE LIC. NO. 70286

STATE OF CONNECTICUT · ANDREW G. IVES · NO. 70286 · LICENSED LAND SURVEYOR

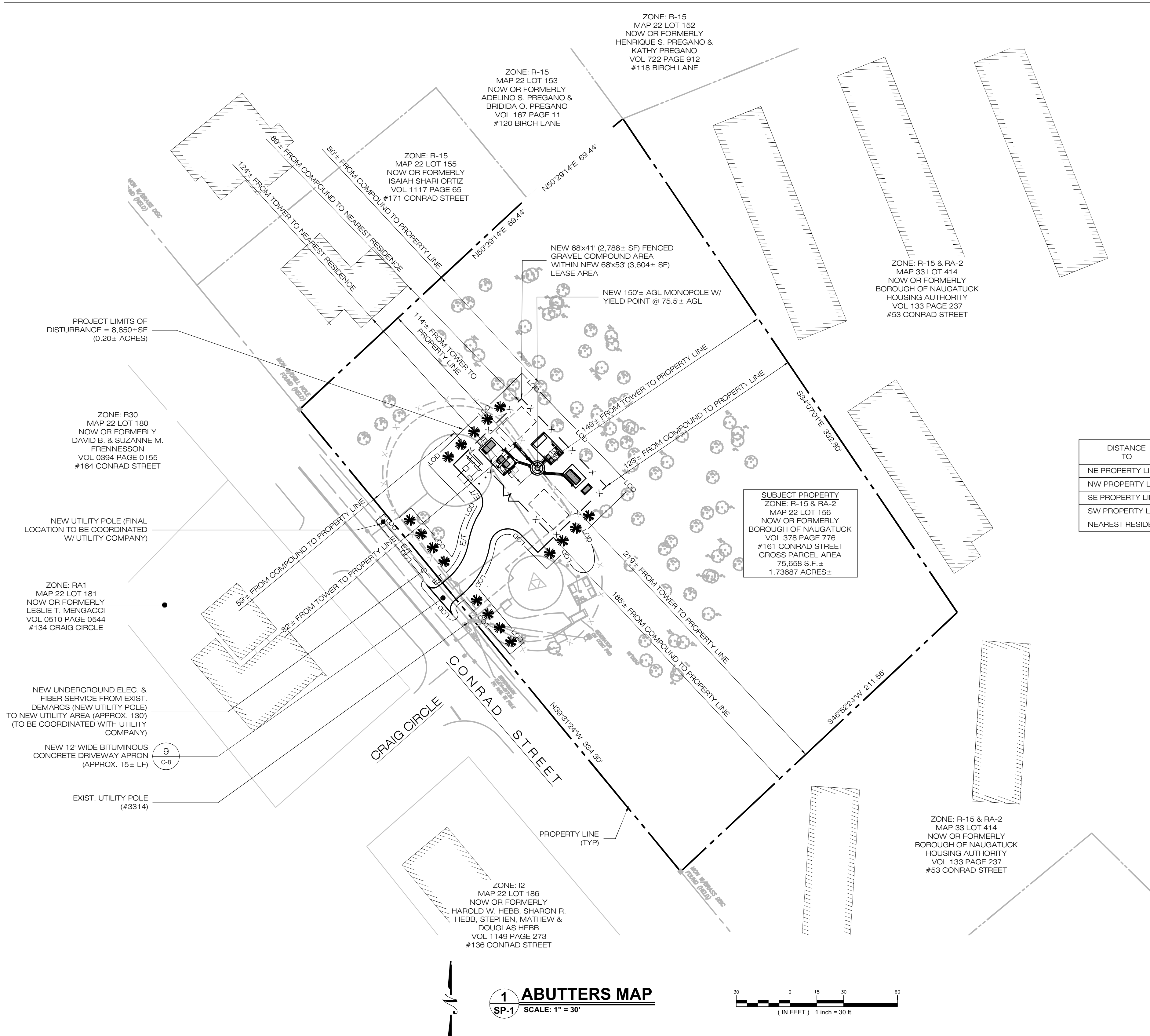
LANGAN
Langan CT, Inc.
555 Long Wharf Drive, 9th Floor
New Haven, CT 06511
T: 203.562.5771 F: 203.789.6142 www.langan.com

Project
161 CONRAD STREET
MAP 22 LOT 156
NAUGATUCK CONNECTICUT

Drawing Title
PROPERTY & TOPOGRAPHIC SURVEY

Project No.	Drawing No.
140304201	VB101
Date: SEPTEMBER 10, 2024	
Drawn By: JJS	
Checked By: AGI	Sheet 1 of 1

PROJECT NO. 140304201



1 ABUTTERS MAP
SP-1 SCALE: 1" = 30'

MAP REFERENCE:

1. "PROPERTY & TOPOGRAPHIC SURVEY"; MAP: 22 LOT: 159 161 CONRAD STREET, NAUGATUCK, CONNECTICUT; PREPARED BY: LANGAN CT, INC. w/ LATEST REVISION DATED: 02/13/25.
2. BASE MAPPING SUPPLEMENTED W/ FIELD MEASUREMENTS OBTAINED BY ALL-POINTS TECHNOLOGY CORPORATION ON 06/05/25.

SITE AREAS & VOLUMES OF EARTHWORK

SITEWORK ENTAILS APPROXIMATELY 100 CUBIC YARDS OF EXCAVATION. THE COMPOUND WILL IMPORT APPROXIMATELY 70 CUBIC YARDS OF CLEAN BROKEN STONE. THE UTILITY TRENCH FROM THE PROP. UTILITY POLE TO THE COMPOUND WILL EXCAVATE APPROXIMATELY 60 CUBIC YARDS OF MATERIAL THAT WILL BE USED TO BACKFILL THE TRENCH.

COMPOUND AREA SLOPES:
EXISTING - 4.0%
PROPOSED - 4.0%

TOTAL AREA OF DISTURBANCE = 8,850± SF

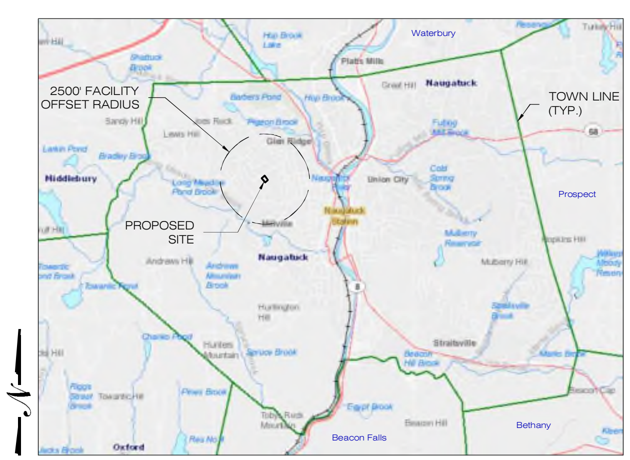
STORMWATER VELOCITY:
PRIOR TO GROUND COVER < 3.0 FT/SEC
FOLLOWING GROUND COVER < 3.0 FT/SEC

STORMWATER VOLUME:
PROPOSED IMPERVIOUS AREA = 1,500 SF
WATER QUALITY STD VOLUME (1.3") = 163 CF
STORAGE VOLUME (6" DEPTH, 40% VOIDS) = 558 CF

GROUND COVER TO BE ESTABLISHED AS FOLLOWS (U.O.N):
- WHITE CLOVER @ 0.20#/- SF
- TALL FESCUE @ 0.45#/- SF
- RYEGRASS @ 0.10#/- SF

DISTANCE TO	PREVIOUS TOWER LOCATION	PREVIOUS COMPOUND LOCATION	NEW TOWER LOCATION	NEW COMPOUND LOCATION
NE PROPERTY LINE	186'±	147'±	149'±	123'±
NW PROPERTY LINE	90'±	44'±	114'±	80'±
SE PROPERTY LINE	243'±	183'±	219'±	185'±
SW PROPERTY LINE	46'±	13'±	82'±	59'±
NEAREST RESIDENCE	101'±	53'±	124'±	89'±

NOTE:
NO TREES WILL NEED TO BE REMOVED IN CONSTRUCTION OF THE FACILITY.



2 MUNICIPALITY NOTIFICATION LIMIT MAP
SP-1 SCALE: 1" = 1 MILE

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
LAKEWOOD RANCH, FL 34202

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
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SUITE B
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at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

D&M DOCUMENTS

NO	DATE	REVISION
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1	10/06/25	CARRIER REVISIONS: RCB
2	10/29/25	ADD TOWER INFO: RCB
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5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

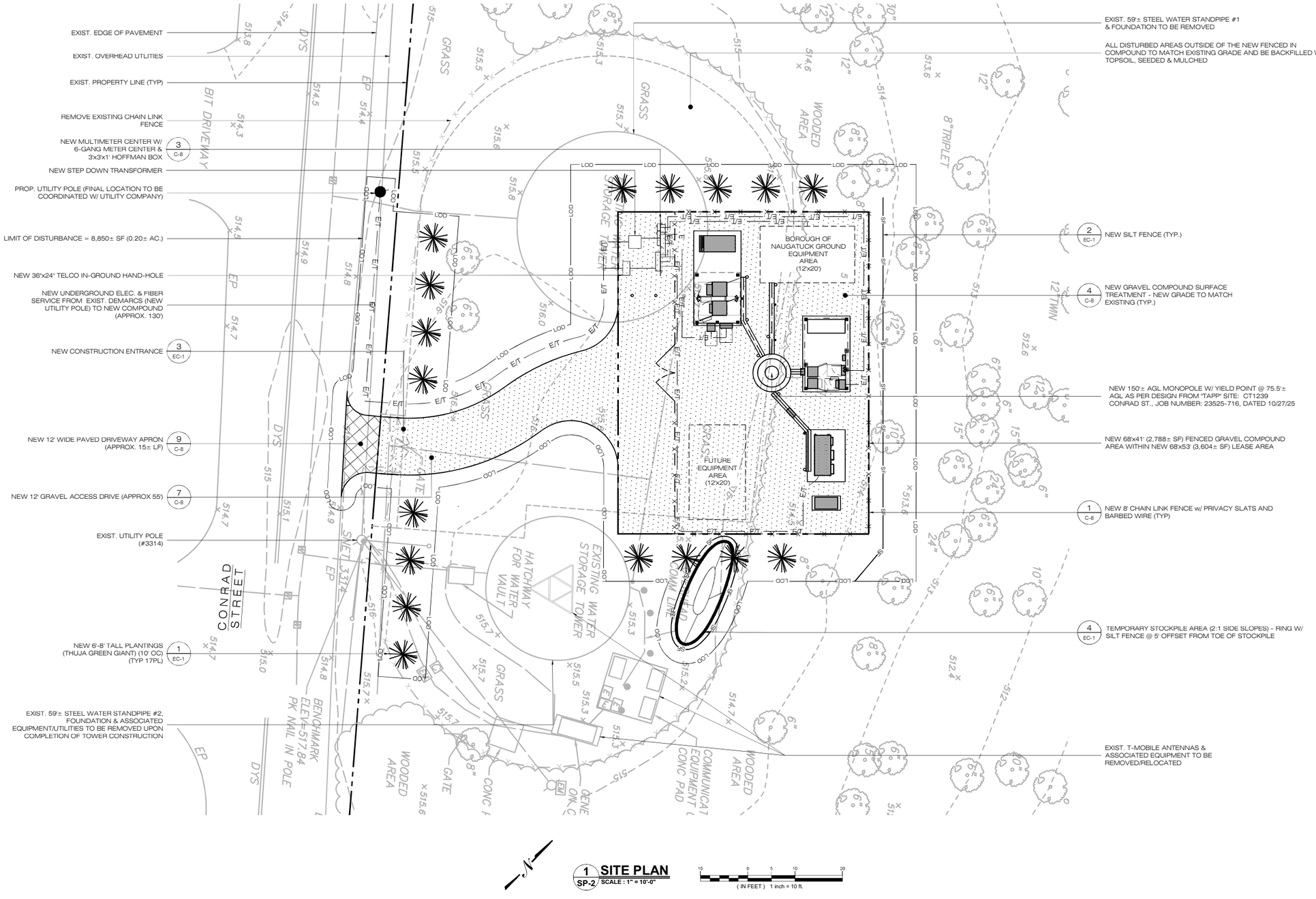
OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770
APT FILING NUMBER: CT752130
DRAWN BY: ELZ
DATE: 09/12/25 CHECKED BY: RCB
VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:
ABUTTERS & MUNICIPALITY NOTIFICATION MAP

SHEET NUMBER:
SP-1



1 SP-2 **SITE PLAN**
SCALE : 1" = 10'-0"

(IN FEET) 1 inch = 10 ft.

TARPON TOWERS
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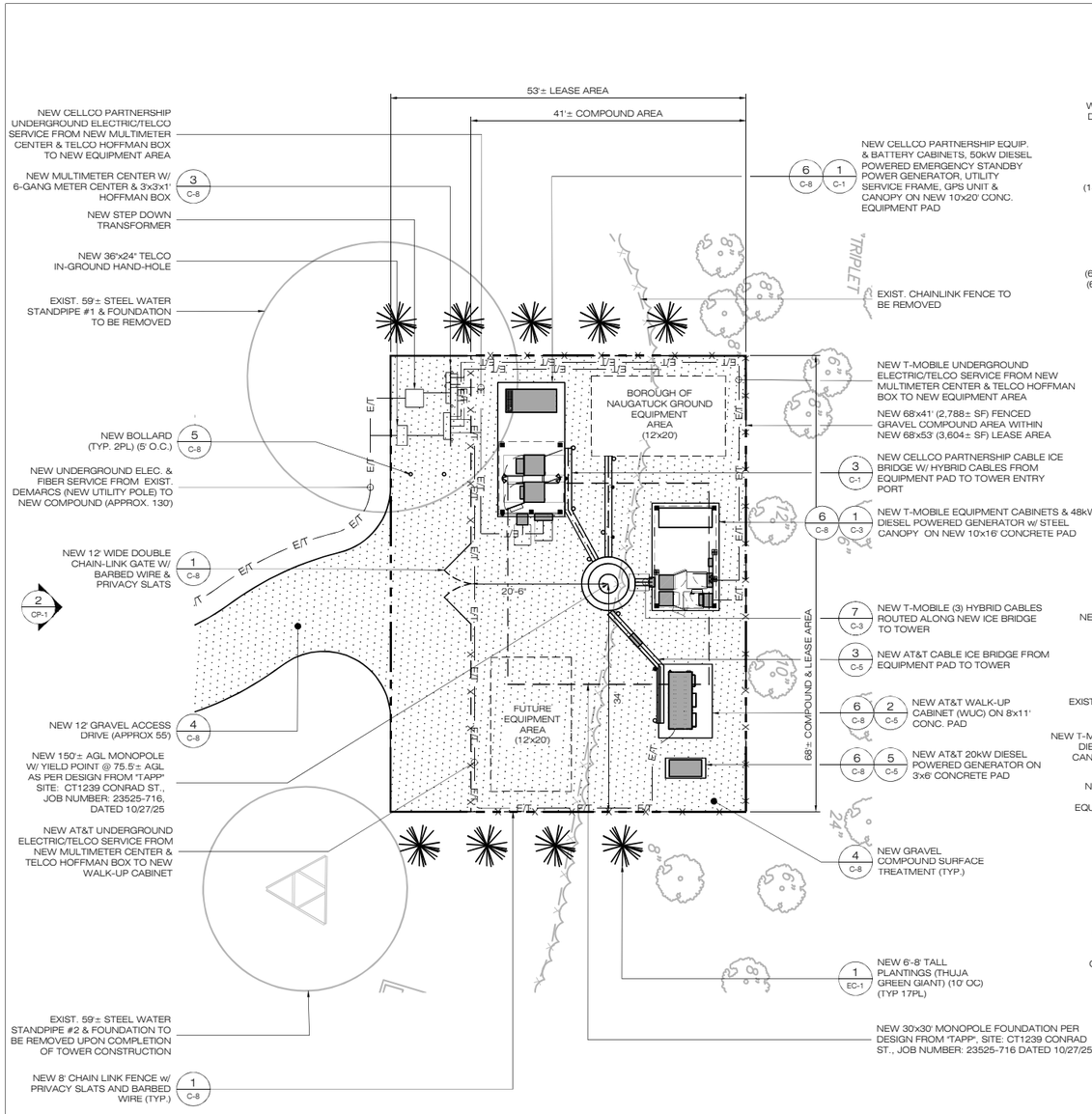
SHEET TITLE:
SITE PLAN

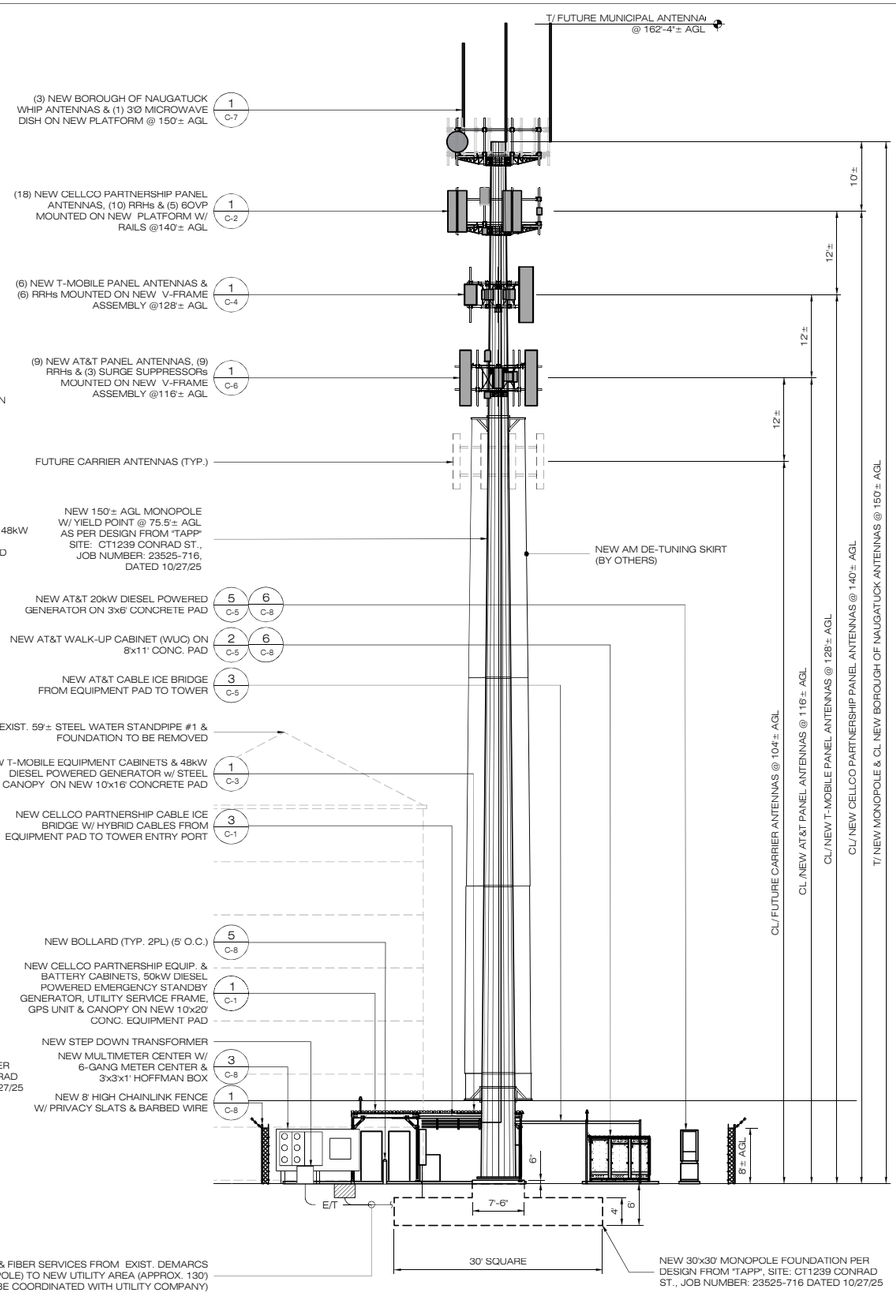
SHEET NUMBER:
SP-2

STATE OF CONNECTICUT ROBERT CHARLES BURNS 21021 LICENSED PROFESSIONAL ENGINEER



1 CP-1 **COMPOUND PLAN**
SCALE : 1" = 10'-0"

10 0 5 10 20
(IN FEET) 1 inch = 10 ft.



2 CP-1 **WEST ELEVATION**
SCALE : 1" = 10'-0"

10 0 5 10 20
(IN FEET) 1 inch = 10 ft.

TARPON TOWERS
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PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

DRAWN BY: ELZ

DATE: 09/12/25 CHECKED BY: RCB

VZW MDG LOC. CODE: 616755202

VZW PSLC: 470709

VZW FUZE ID: 17453771

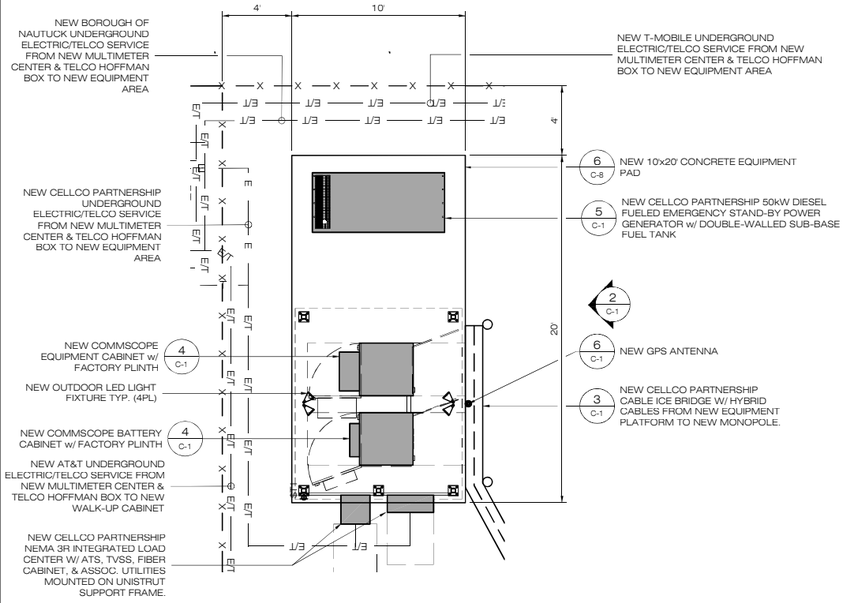
SHEET TITLE:

COMPOUND PLAN & ELEVATION

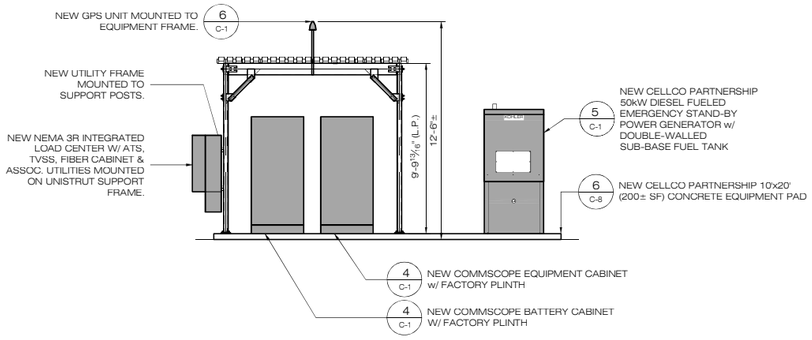
SHEET NUMBER:

CP-1

STATE OF CONNECTICUT ROBERT C. BURNS 21071 LICENSED PROFESSIONAL ENGINEER

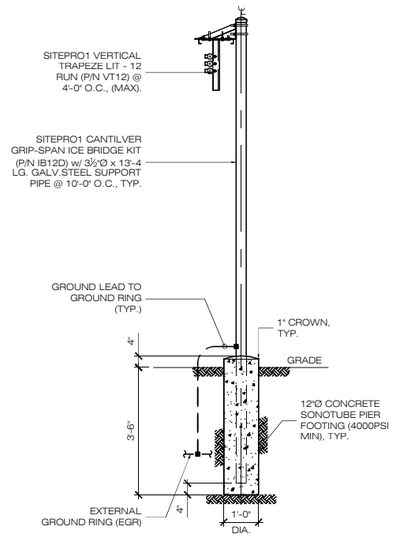


1 C-1 EQUIPMENT AREA PLAN
SCALE : 1/4" = 1'-0"

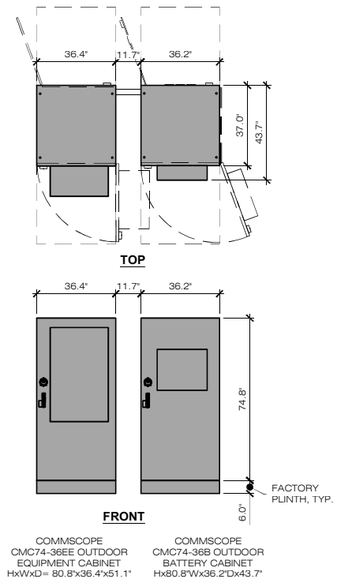


EASTERN ELEVATION

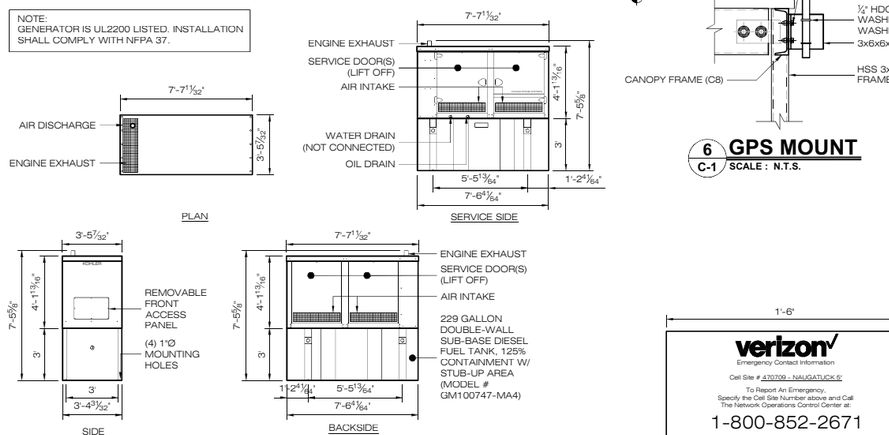
2 C-1 EQUIPMENT ELEVATION
SCALE : 1/4" = 1'-0"



3 C-1 ICE BRIDGE DETAIL
SCALE : 1/2" = 1'-0"

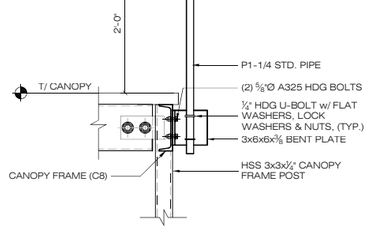


4 C-1 OUTDOOR EQUIPMENT CABINETS
SCALE : 3/8" = 1'-0"



KOHLER CO. 50kW DIESEL-POWERED GENERATOR
MODEL # ADV-8862 50REOZK,
120/240V, 1PH, 3W, 60 Hz w/
SOUND ATTENUATION ENCLOSURE AND 229
GALLON UL 142 LISTED SUB-BASE FUEL TANK
DRY ASSEMBLY WEIGHT = 3042lbs
TOTAL WEIGHT w/ FUEL = 4668lbs

5 C-1 DIESEL GENERATOR SCHEMATICS
SCALE : 1/4" = 1'-0"



6 C-1 GPS MOUNT
SCALE : N.T.S.

7 C-1 TYPICAL EMERGENCY NOTICE
SCALE : N.T.S.

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
LAKEWOOD RANCH, FL 34202

ALL-POINTS TECHNOLOGY CORPORATION
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Cellco Partnership d/b/a
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20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

T-Mobile Northeast LLC
15 COMMERCE WAY
SUITE B
NORTON, MA 02766

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

D&M DOCUMENTS

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4	12/02/25	AT&T EQUIP REVISIONS: RCB
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
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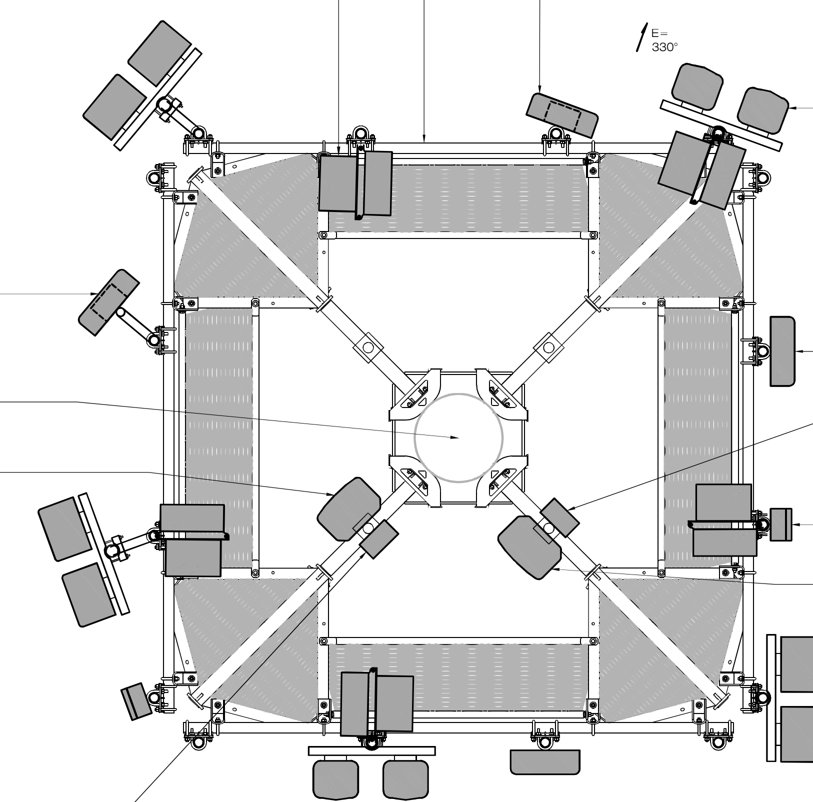
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:
CELLCO PARTNERSHIP EQUIPMENT PLAN & DETAILS

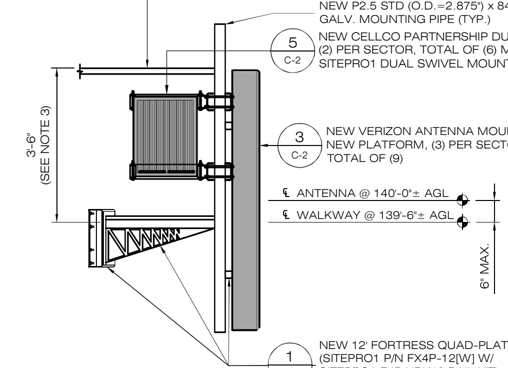
SHEET NUMBER:
C-1

STATE OF CONNECTICUT ROBERT C. BURNS 21001 LICENSED PROFESSIONAL ENGINEER

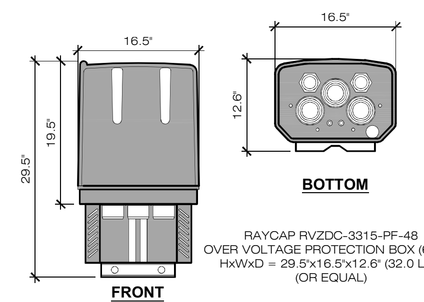


1 ANTENNA PLAN
C-2 SCALE : ½" = 1'-0"

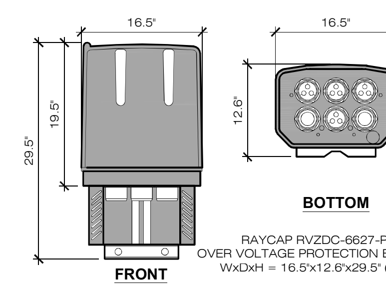
ANTENNA MOUNT NOTES:
1. CONTRACTOR TO VERIFY DIAMETER OF MONOPOLE PRIOR TO ORDERING ANTENNA MOUNT.
2. CONTRACTOR TO VERIFY PART NUMBERS WITH MANUFACTURER PRIOR TO ORDERING. THE FOLLOWING PART NUMBERS ARE FOR SITEPRO1 P/N FX4P-12[W] W/ SITEPRO1 F4P HRK12 HANDRAIL KIT.
3. COORDINATE HANDRAIL HEIGHT WITH MANUFACTURER.
4. INSTALL PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.



2 ANTENNA MOUNTING DETAIL
C-2 SCALE : ½" = 1'-0"

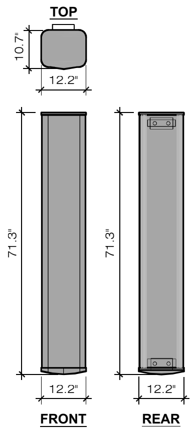


RAYCAP RVZDC-3315-PF-48
OVER VOLTAGE PROTECTION BOX (6OVP)
HxWxD = 29.5x16.5"x12.6" (32.0 Lbs)
(OR EQUAL)

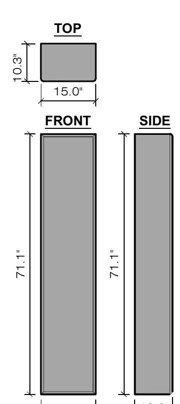


RAYCAP RVZDC-6627-PF-48
OVER VOLTAGE PROTECTION BOX (12OVP)
WxDxH = 16.5"x12.6"x29.5" (32.0 lbs)

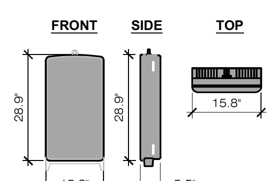
4 OVER VOLTAGE PROTECTION BOX (OVP)
C-2 SCALE : 1" = 1'-0"



JMA MX06FIT665-02
X-POL ANTENNA
HxWxD=71.3"x12.2"x10.7" (51.0 Lbs)

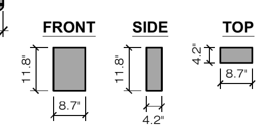


JMA MX06FIT645-02 ANTENNA
HxWxD=71.1"x15.0"x10.3"
WT=52.8 Lbs



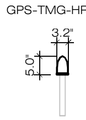
SAMSUNG MT6413-77A ANTENNA
HxWxD=28.9"x15.8"x5.5" (57.3 Lbs)

PANEL ANTENNAS



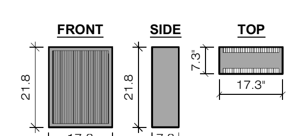
CBRS ORAN RRH (RT4423-48A)
4T4R 20W RU
REMOTE RADIO HEAD (RRH)
HxWxD=11.8"x8.7"x4.2" (18.7 Lbs)

PCTEL
GPS-TMG-HR-26N

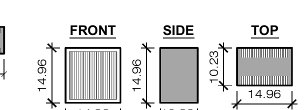


GPS UNITS

3 ANTENNA DETAILS
C-2 SCALE : ½" = 1'-0



SAMSUNG ORAN DUAL HIGH BAND
B2/B66A (RF4801d-25A)
PCS/AWS REMOTE RADIO HEAD (RRH)
HxWxD=21.8"x17.3"x7.3" (88.0 Lbs)



SAMSUNG DUAL LOW BAND B5/B13
(RF4461d-13A) ORAN
REMOTE RADIO HEAD (RRH)
HxWxD=14.96"x14.96"x10.23" (79.1 Lbs)

NOTE:
1. MOUNT RRHs PER MANUFACTURERS RECOMMENDATIONS.

5 RRH EQUIPMENT
C-2 SCALE : ½" = 1'-0"

RAYCAP RTH-0306-PFC
HxWxD=12.43"x9.65"x5.43"
WT = (15.9 Lbs) (INCL BRACKET)

6 NGOVP3
C-2 SCALE: NTS

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DESIGN PROFESSIONALS OF RECORD

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SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

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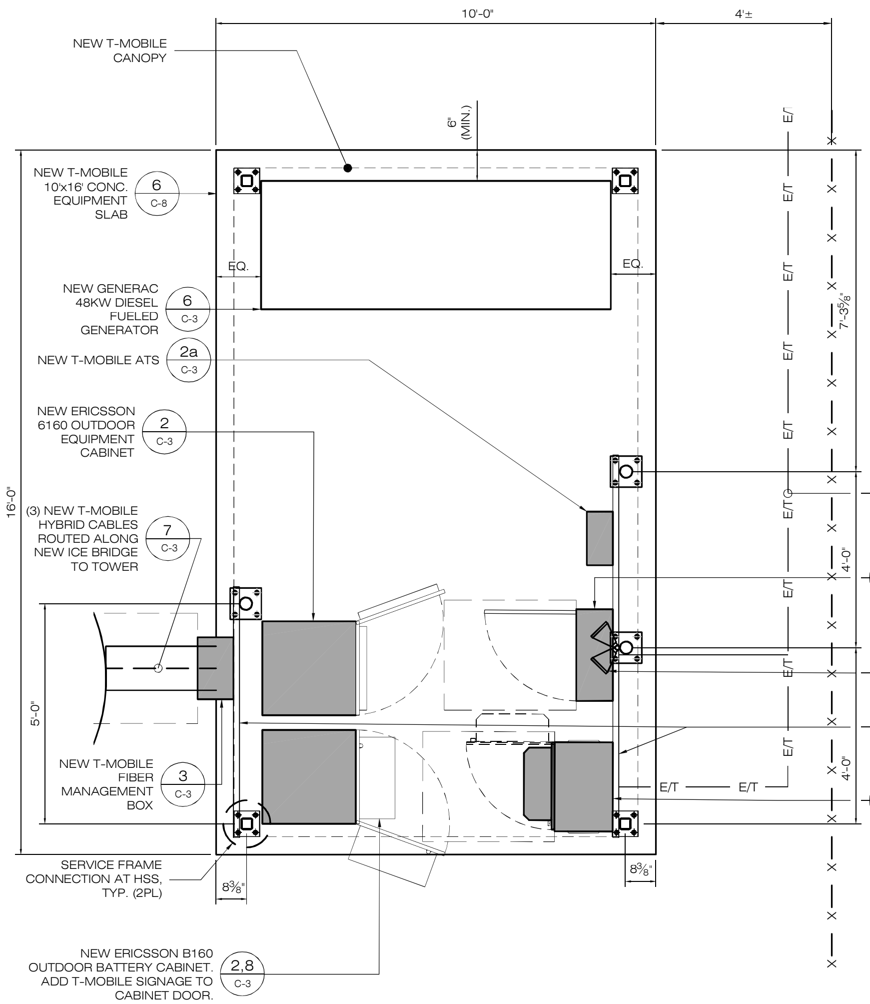
SHEET TITLE:

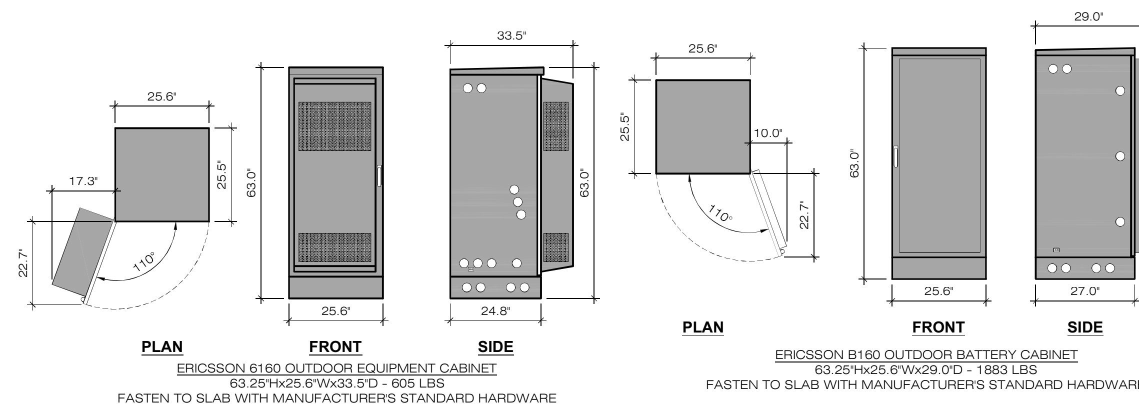
CELLCO PARTNERSHIP ANTENNA PLAN & DETAILS

SHEET NUMBER:

C-2

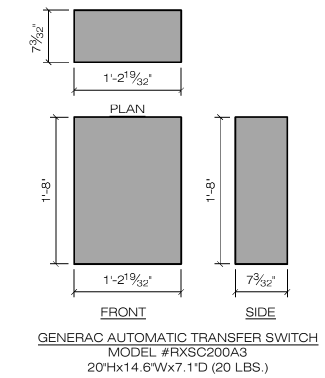


1 T-MOBILE EQUIPMENT AREA
C-3 SCALE : ½" = 1'-0"



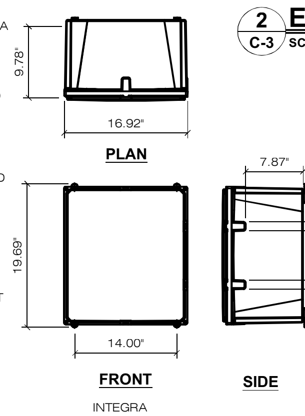
SECURE TO CONCRETE SLAB AS PER MANUFACTURER RECOMMENDATIONS

2 EQUIPMENT CABINETS
C-3 SCALE : ½" = 1'-0"

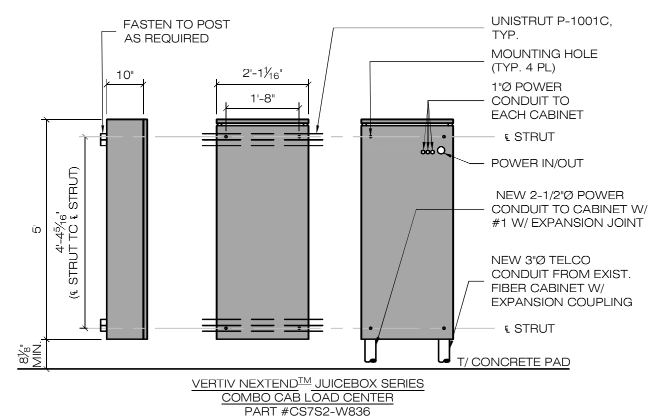


SECURE TO NEW UNISTRUT RACK AS PER MANUFACTURER RECOMMENDATIONS

2a AUTOMATIC TRANSFER SWITCH
C-3 SCALE : N.T.S.

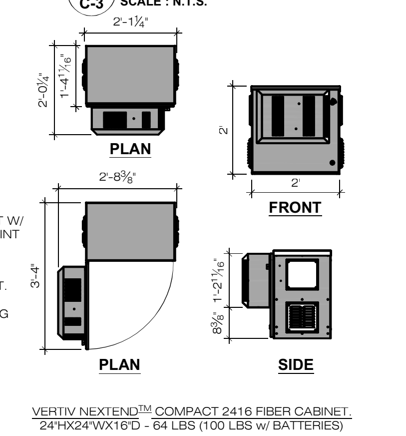


3 FIBER MANAGEMENT BOX
C-3 SCALE : 1" = 1'-0"



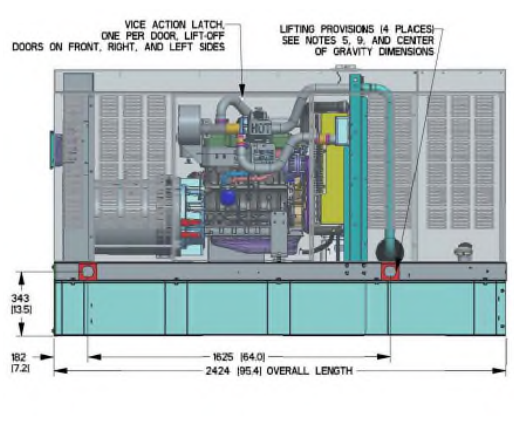
SECURE TO NEW UNISTRUT RACK AS PER MANUFACTURER RECOMMENDATIONS

4 T-MOBILE VERTIV NEXTEND™ COMBO CAB LOAD CENTER
C-3 SCALE : ½" = 1'-0"



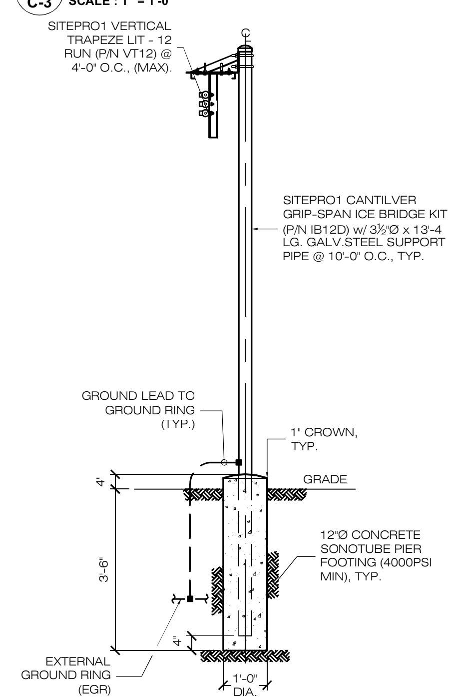
SECURE TO NEW UNISTRUT RACK AS PER MANUFACTURER RECOMMENDATIONS

5 T-MOBILE VERTIV NEXTEND™ COMPACT2416 FIBER CABINET
C-3 SCALE : ½" = 1'-0"

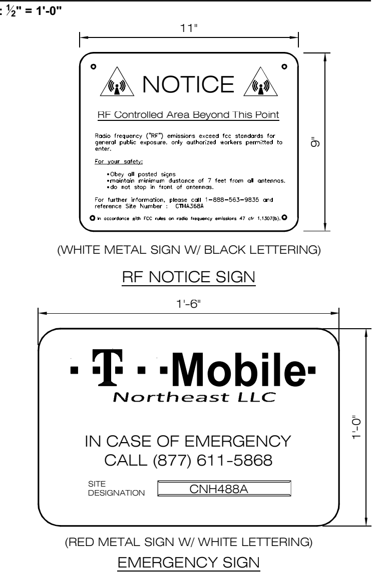


GENERAC 40kW DIESEL POWERED GENERATOR
MODEL # RD048-48KW
HxWxD: 57"x35"x95"
WEIGHT: 2,197± lbs

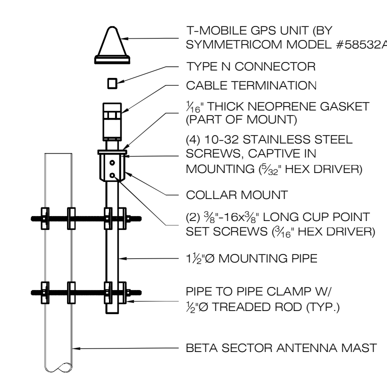
6 GENERATOR SCHEMATICS
C-3 SCALE: N.T.S.



7 ICE BRIDGE DETAIL
C-3 SCALE : ½" = 1'-0"



8 TYPICAL SIGNAGE
C-3 SCALE : N.T.S.



9 GPS MOUNT
C-3 SCALE : N.T.S.

TARPON TOWERS
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LAKEWOOD RANCH, FL 34202

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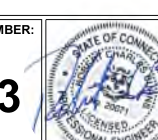
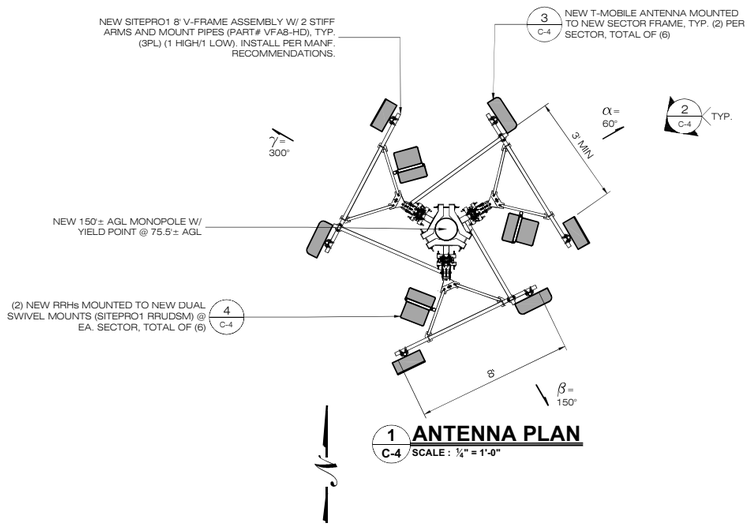
SHEET TITLE:
T-MOBILE EQUIPMENT PLAN & DETAILS

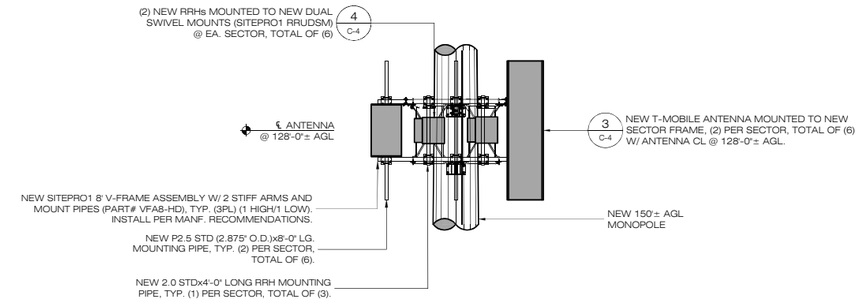
SHEET NUMBER:
C-3



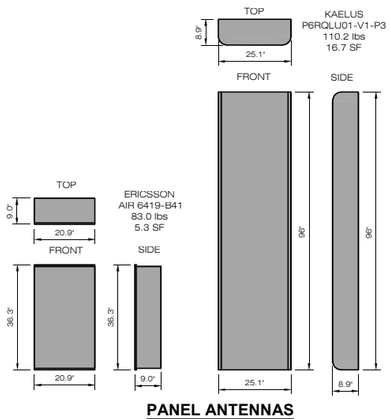
ANTENNA MOUNT NOTES:
1. CONTRACTOR TO VERIFY DIAMETER OF MONOPOLE PRIOR TO ORDERING ANTENNA MOUNT.
2. CONTRACTOR TO VERIFY PART NUMBERS WITH MANUFACTURER PRIOR TO ORDERING.
3. INSTALL PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.



1 C-4 ANTENNA PLAN
SCALE : ¼" = 1'-0"

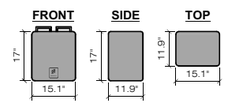


2 C-4 ANTENNA MOUNTING DETAIL
SCALE : ¼" = 1'-0"

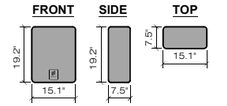


PANEL ANTENNAS

3 C-4 ANTENNA DETAIL
SCALE : ½" = 1'-0"



ERICSSON
RADIO-4460 B25/B66 (OR EQUAL)
REMOTE RADIO UNIT (RRU)
WxDxH=15.1"x11.9"x17.0" (108± Lbs)



ERICSSON
RADIO-4480 B71/B85 (OR EQUAL)
REMOTE RADIO UNIT (RRU)
WxDxH=15.1"x7.5"x19.2" (93± Lbs)

4 C-4 RRU EQUIPMENT
SCALE : ½" = 1'-0"

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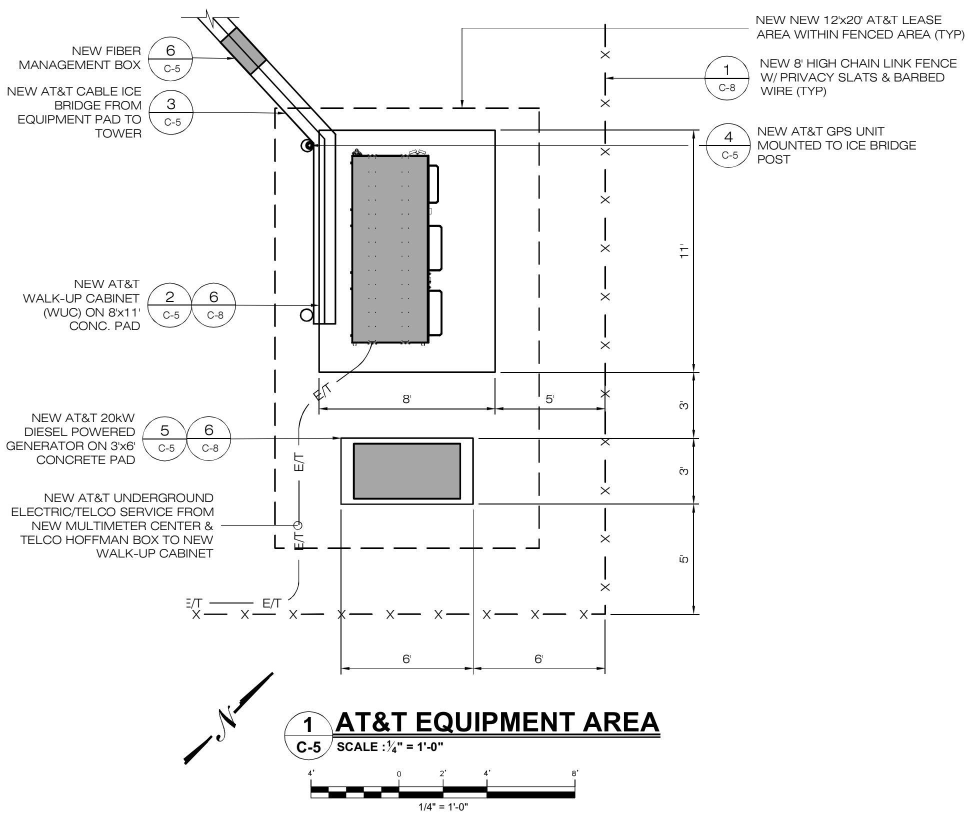
VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:
T-MOBILE ANTENNA PLAN & DETAILS

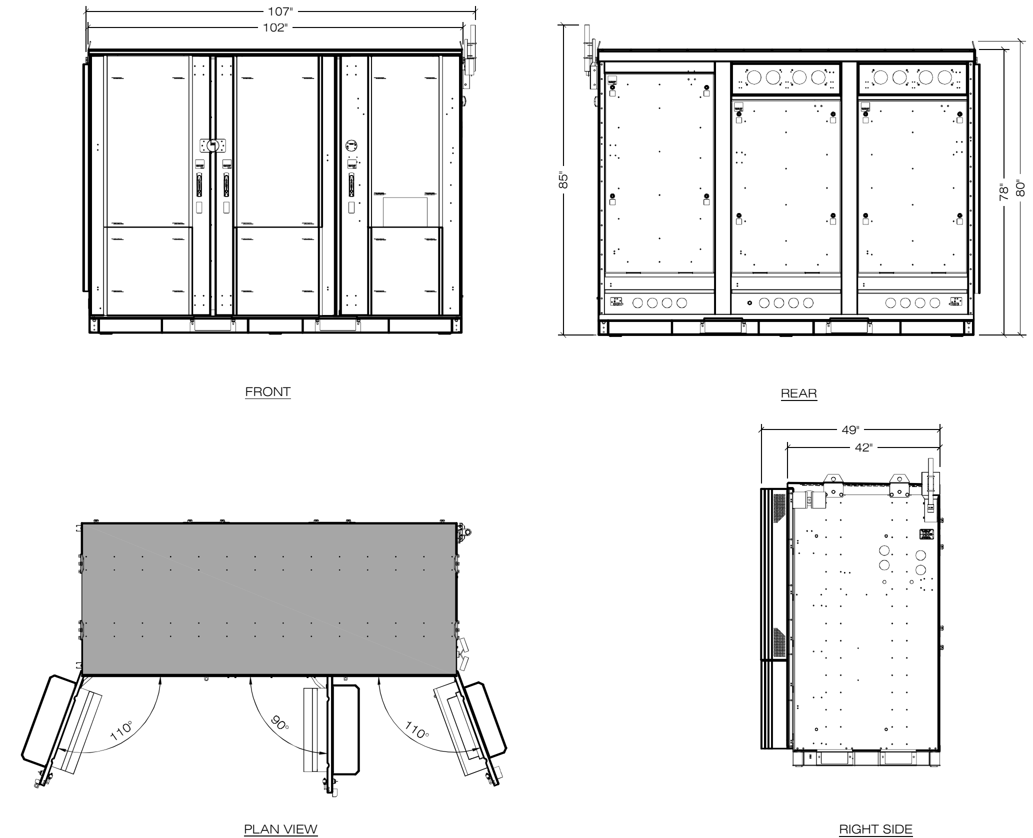
SHEET NUMBER:
C-4

STATE OF CONNECTICUT ROBERT CHARLES BURNS 25021 LICENSED PROFESSIONAL ENGINEER



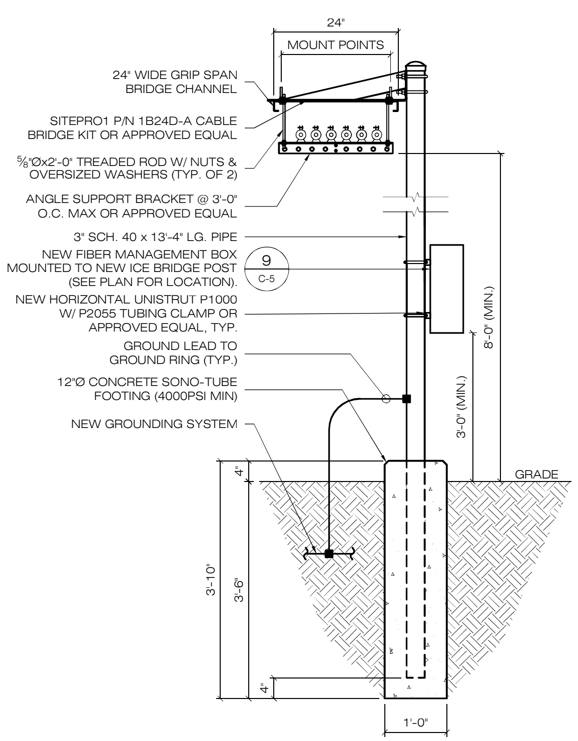
1 AT&T EQUIPMENT AREA
C-5
SCALE : ¼" = 1'-0"

1/4" = 1'-0"

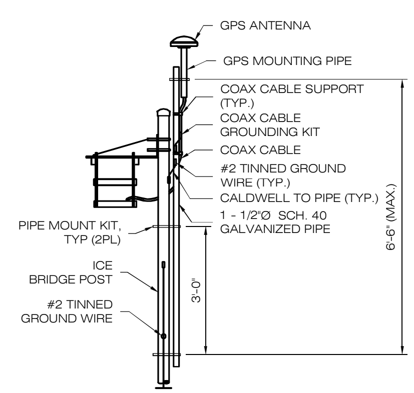


ANDREW WALK-UP-CABINET (WUC)
COLOR: COOL WHITE
78"Hx102"Wx49"D
(2,722 LBS INCLUDES DC PLANT; EXCLUDES BATTERIES & ADD'L EQUIPMENT)
(MOUNTED TO CONCRETE PAD PER MANUFACTURERS RECOMMENDATIONS)

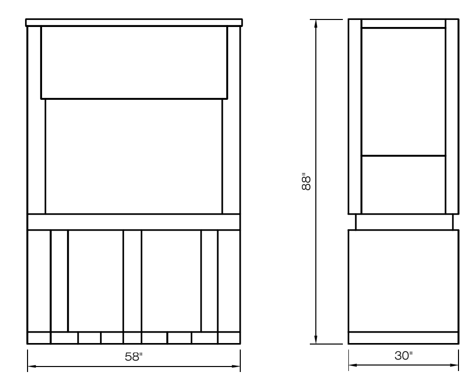
2 WUC EQUIPMENT DETAILS
C-5
SCALE : N.T.S.



3 CABLE BRIDGE DETAIL
C-5
SCALE : N.T.S.

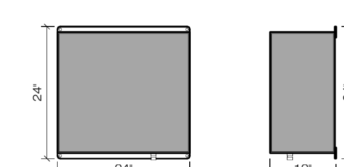


4 GPS MOUNT
C-5
SCALE : N.T.S.



KOHLER
20kW DIESEL FIRED DC GENERATOR
P/N #20REOZK-C
W/ 105 GALLON FUEL TANK

5 DIESEL GENERATOR
C-5
SCALE : 1/4" = 1'-0"



NOTE:
DIMENSIONS SHOWN ARE APPROXIMATE. VERIFY W/ CM PRIOR TO CONSTRUCTION

6 FIBER MANAGEMENT BOX
C-5
SCALE : ¾" = 1'-0"

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
LAKEWOOD RANCH, FL 34202

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

T-Mobile Northeast LLC
15 COMMERCE WAY
SUITE B
NORTON, MA 02766

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

D&M DOCUMENTS

NO	DATE	REVISION
0	09/12/25	FOR REVIEW: RCB
1	10/06/25	CARRIER REVISIONS: RCB
2	10/29/25	ADD TOWER INFO: RCB
3	11/20/25	FINAL: RCB
4	12/02/25	AT&T EQUIP REVISIONS: RCB
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

DRAWN BY: ELZ

DATE: 09/12/25 | CHECKED BY: RCB

VZW MDG LOC. CODE: 616755202

VZW PSLC: 470709

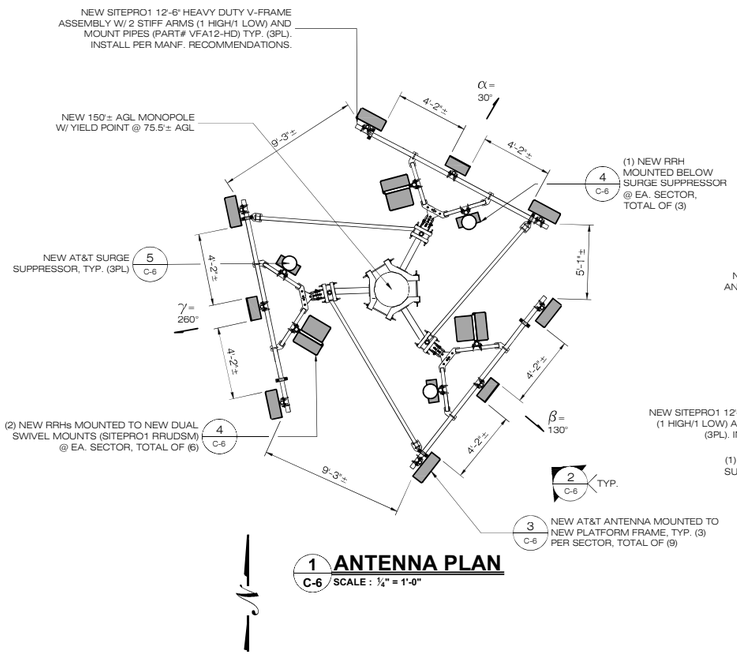
VZW FUZE ID: 17453771

SHEET TITLE:

AT&T EQUIPMENT PLAN & DETAILS

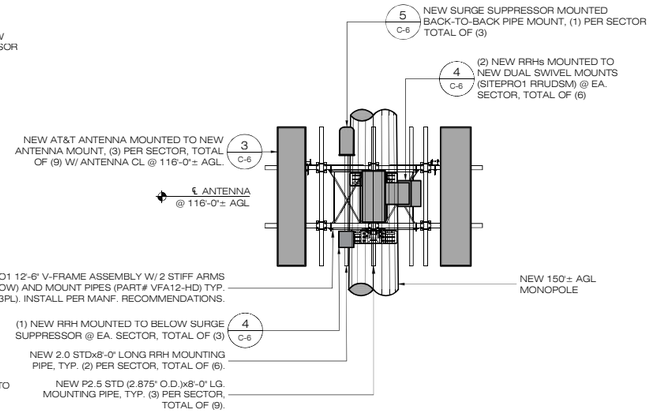
SHEET NUMBER:

C-5

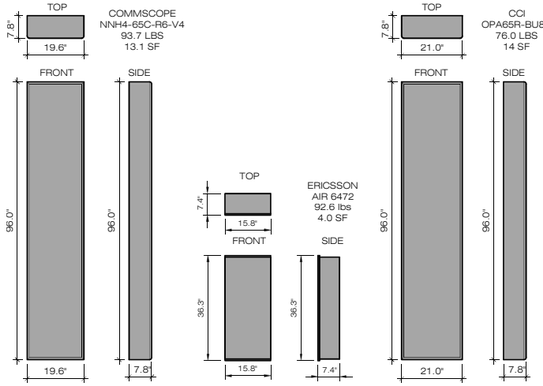


1 ANTENNA PLAN
C-6 SCALE : ¼" = 1'-0"

ANTENNA MOUNT NOTES:
1. CONTRACTOR TO VERIFY DIAMETER OF MONOPOLE PRIOR TO ORDERING ANTENNA MOUNT.
2. CONTRACTOR TO VERIFY PART NUMBERS WITH MANUFACTURER PRIOR TO ORDERING.
3. INSTALL PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS.

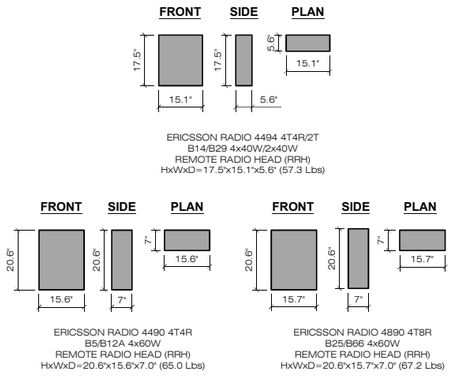


2 ANTENNA MOUNTING DETAIL
C-6 SCALE : ¼" = 1'-0"



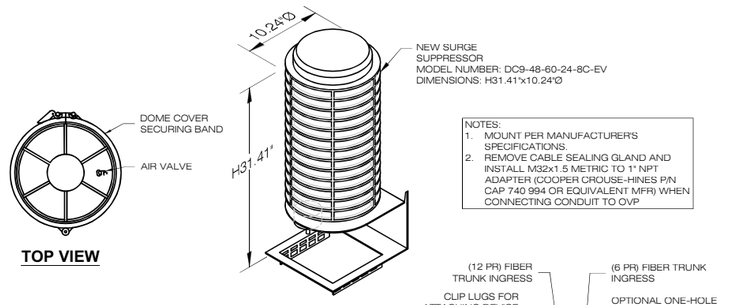
PANEL ANTENNAS

3 ANTENNA DETAIL
C-6 SCALE : ½" = 1'-0"



NOTES:
1. DIMENSIONS SUBJECT TO CHANGE BASED UPON AVAILABILITY AT TIME OF CONSTRUCTION.
2. REFER TO MANUFACTURER RECOMMENDATION FOR ALL RRH CLEARANCES.

4 RRH EQUIPMENT
C-6 SCALE : ½" = 1'-0"



RAYCAP DC9-48-60-24-8C-EV (SURGE SUPPRESSOR)
HxDia. = 31.41"x10.24"Ø (26.2 Lbs)
(OR EQUAL)
COLOR: GRAY

5 TYPICAL SURGE SUPPRESSOR
C-6 SCALE : N.T.S.

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
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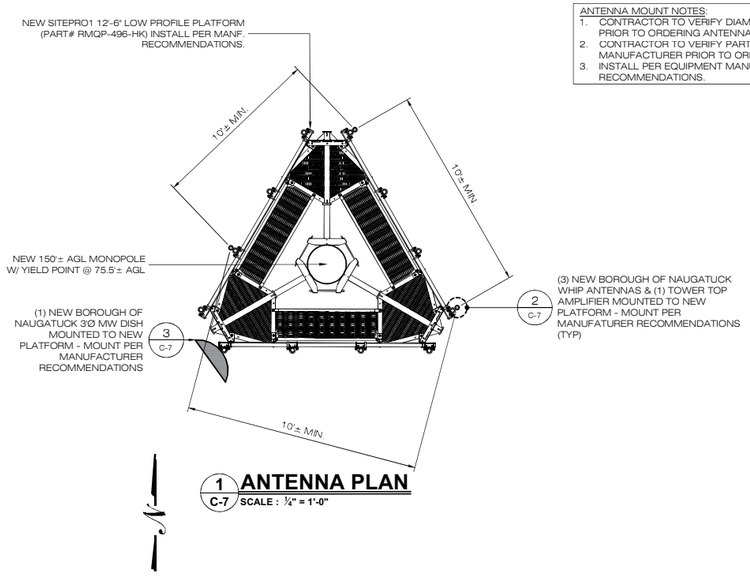
SHEET TITLE:

AT&T ANTENNA PLAN & DETAILS

SHEET NUMBER:

C-6

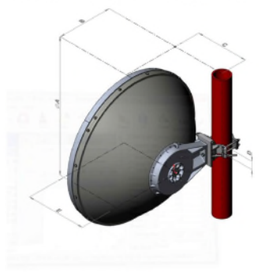


1 C-7 **ANTENNA PLAN**
SCALE : ¼" = 1'-0"

ANTENNA MOUNT NOTES:
1. CONTRACTOR TO VERIFY DIAMETER OF MONOPOLE PRIOR TO ORDERING ANTENNA MOUNT.
2. CONTRACTOR TO VERIFY PART NUMBERS WITH MANUFACTURER PRIOR TO ORDERING.
3. INSTALL PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS.

VHLP3-11W-6WH/A

Antenna Dimensions and Mounting Information



Dimension in inches (mm)					
Antenna size, ft (m)	A	B	C	D	E
3 (1.0)	39.3 (999)	16 (407)	15.2 (387)	2.4 (60)	17.2 (437)

Wind Forces at Wind Velocity Survival Rating

Axial Force (FA)	2903 N | 652.621 lbf
Angle a for MT Max	0°
Side Force (FS)	1439 N | 323.5 lbf
Twisting Moment (MT)	1179 N-m | 10,435.029 in lb
Zcg without Ice	135 mm | 5.315 in
Zcg with 1/2 in (12 mm) Radial Ice	84 mm | 3.307 in
Weight with 1/2 in (12 mm) Radial Ice	46 kg | 101.413 lb

3 C-7 **MW DISH DETAIL**
SCALE : NTS

800 MHz Corporate Collinear Antennas

746-870 MHz
CC807 Series

RFI TECHNOLOGY SOLUTIONS

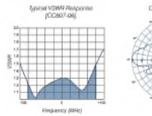
These industry leading PIM and PIP rated collinear arrays allow site operators to combine, with complete integrity, a large number of communications services into a single, low profile collinear antenna array.

The true corporate feed of these arrays maintains total pattern integrity over a very broad operating and width, similar to that previously available only is exposed dipole configurations. This is now achieved in the preferred from factor of a fully enclosed fiberglass radome. The corporate collinears employ a unique corporate phasing system enabling precision control of the element placements ensuring phase purity resulting in exceptional bandwidth and electrical performance.

Gain is maximised and side lobes reduced chamelically. In a patented design approach the individual dipole elements are soldered to a brass support tube which is directly connected to the mounting tube and the lightning spike at the top of the antenna.

Features:

- 500W Continuous Power rating for CC807-11, CC807-08, CC807-06
- -150dBc Passive Intermodulation (PIM) rating
- 25 kW Peak instantaneous (PIP) rating
- Extraordinary bandwidth characteristics with superior pattern control
- DC grounding on all elements for the ultimate in lightning protection and dissipation of static noise.



Electrical Specifications

Model Number	CC807-03-P	CC807-06-P	CC807-08-P	CC807-11-P
Nominal Gain dBd (dBi)	3 (5.1)	6 (8.1)	8 (10.1)	10.5 (12.6)
Frequency MHz	746 - 870			
Tuned Bandwidth MHz	Full Band			
VSWR (Return Loss)	<1.5:1			
Downtilt [1]	Not Offered	3 "Std, -3°, -5°	0 "Std, -1°, -2°, -3°, -4°, -5°	
Vertical Beamwidth°	28	17	9	4.5
Horizontal Beamwidth°	Omni +/- 0.5dB			
Input Power W	250	500		
Passive IM 3rd order (2x20W) dBc	-150			
Peak Instantaneous Power kW	25			

Mechanical

Model Number		CC807-03-P	CC807-06-P	CC807-08-P	CC807-11-P
Construction		Sky blue fibreglass radome			
Length mm (inches)		1203 (47)	1741 (69)	2617 (111)	5219 (205)
Radome Diameter mm (inches)		76 (3)			
Weight kg (lbs)		4 (9)	7 (16)	13(27)	22 (48)
Shipping Weight kg (lbs)		8 (18)	11 (25)	18 (40)	30 (66)
Shipping Dimensions mm (inches)	H	115 (4.5)			
	W	115 (4.5)			
	L	1400 (55)	1990 (78)	3000 (118)	5600 (220)
Termination		4.3-10 fixed female			
Suggested Clamps (not included)		2 x UC-114			
Invertible Mounting		Yes [1]			
Projected area cm² (ft²)	No Ice	885 (0.9)	1268 (1.4)	2320 (2.5)	4500 (4.9)
	With Ice	1048 (1.2)	1571 (1.7)	2982 (3.1)	5760 (6.2)
Lateral Thrust @160km/h N (100 mph lbs)		98 (22)	150 (34)	275 (62)	540 (121)
Wind Gust Rating km/h (mph)	No Ice	>240 (>150)			
Torque @ 160km/h Nm (100mph ft-lbs)		20 (15)	73 (54)	278 (205)	1032 (761)

[1] To order pre-set downtilt versions available, simply add a -T2 or -T4, etc towards the end of the part number to denote the downtilt model required. For eg. CC807-11-T2-P to order a CC807-11-P with 2 deg of downtilt. Please note: Models with downtilt are NOT field invertible.

2 C-7 **ANTENNA DETAIL**
SCALE : NTS

dbSpectra
Always a Better Value

700/800 MHz Antenna - Omnidirectional, Low-PIM/Hi-PIP, 8.8 dBd

Models DS7C09P36U-Series Antennas

Specifications	
Design Type	True Corporate Feed
Frequency Range	764-869 MHz
Passive Intermodulation – PIM (2 x 20W sources)	-150 dBc, 3rd Order
Bandwidth	105 MHz
Gain (average over BW)	8.8 dBd
Configuration	Single antenna
Beam Tilt (electrical downtilt)	(x) = - , 2, 3, 4, or 6 degrees
Vertical Beamwidth (E-Plane) typ.	6.2°
Impedance	50 ohms
VSWR / Return Loss	1.5:1 / 14 dB (min.)
Average Power Rating	500 W
Peak Instantaneous Power	25 kW
Polarization	Vertical
Lightning Protection	Direct Ground
Connector DS7C09P36U(x)D DS7C09P36U(x)M Equivalent Flat-Plate Area	7/16 DIN (F) 4.3-10 (F) 2.35 sq. ft.
Lateral Windload Thrust @100mph	99 lbf.
Rated Wind Speed	175 mph (without ice) 149 mph (with ½" radial ice)
Total Length	14.2 feet
Mounting Mast Length	35 inches
Mounting Hardware (included)	DSH3V3N
Mast O.D.	2.5 inches
Radome color	Horizon Blue
Radome O.D.	3.0 inches
Weight, antenna, and hardware	68 lbs.
Shipping Weight	84 lbs.
Invertibility	Antennas are not invertible. For invertible tilt options contact dbSpectra at *tech@dbspectra.com*
Ordering Information DS7C09P36U(x)D – 7/16 DIN Connector DS7C09P36U(x)M – 4.3-10 Connector	1. Replace (x) in model number with Beam Tilt options. 2. "-" in the beam-tilt options represents 0° down-tilt.

Features and Benefits

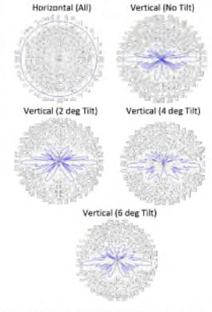
Tested to stringent Peak Instantaneous Power (PIP) levels of 25 KW using dbSpectra's multi-channel P25 PIP test bed. High PIP level is demanded by today's digital systems.

PIM-rated Design – 3rd-Order performance better than -150 dBc!

Sturdy Construction – Heavy-wall fiberglass radome minimizes tip deflection.

Excellent Lightning Protection – heavy internal conductor DC ground.

Radiation Patterns:



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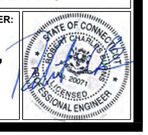
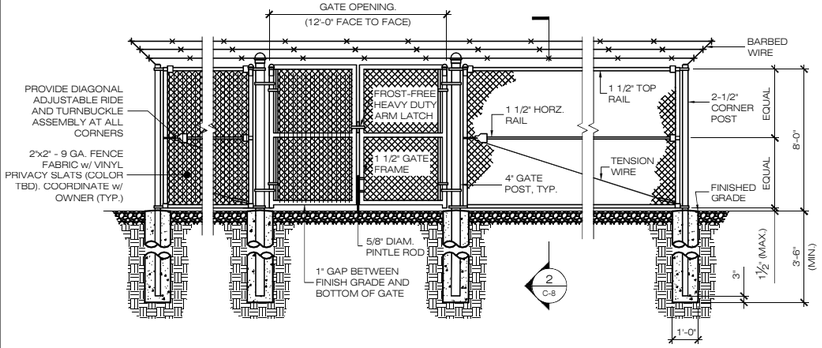
SHEET TITLE:
BOROUGH OF NAUGATUCK EQUIPMENT PLAN & DETAILS

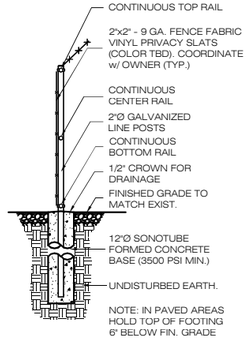
SHEET NUMBER:
C-7



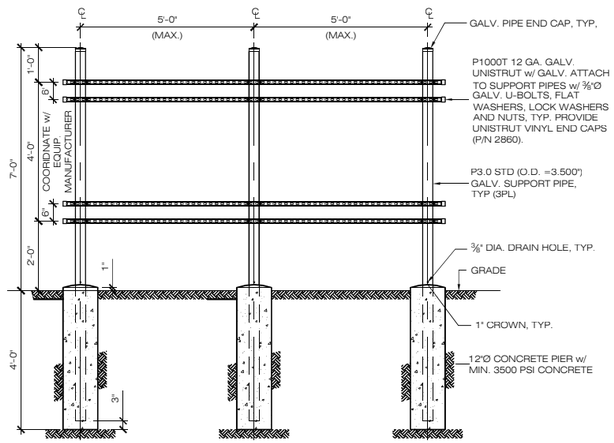
FENCE NOTES:
1. ATTACH EACH GATE WITH 1-1/2 PAIR OF NON-LIFT-OFF TYPE, MALLEABLE IRON FORGING, PIN-TYPE HINGES. ASSEMBLIES SHALL ALLOW FOR 180° OF GATE TRAVEL.
2. FENCE POST SPACING NOT TO EXCEED 8'-0" O.C.
3. ALL POSTS TO BE SCH 40 AND PIPE SIZES SHOWN HEREIN ARE NOMINAL UNLESS OTHERWISE NOTED.



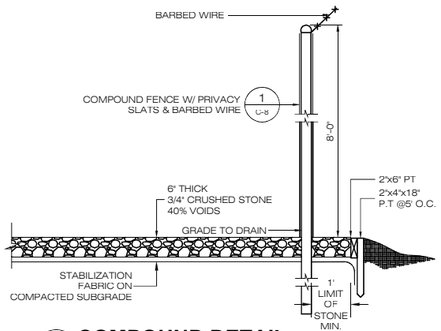
1 C-8 CHAIN-LINK FENCING DETAIL
SCALE : N.T.S.



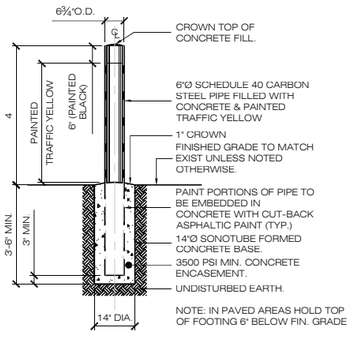
2 C-8 SECTION
SCALE : N.T.S.



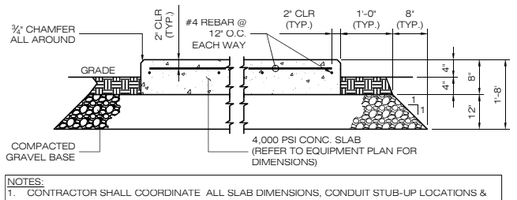
3 C-8 UTILITY SERVICE FRAME DETAIL
SCALE : ½" = 10'



4 C-8 COMPOUND DETAIL
SCALE : N.T.S.

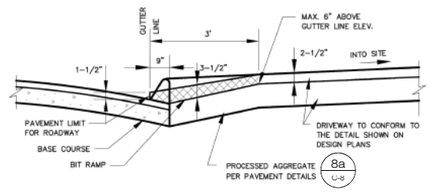


5 C-8 BOLLARD DETAIL
SCALE : NTS



NOTES:
1. CONTRACTOR SHALL COORDINATE ALL SLAB DIMENSIONS, CONDUIT STUB-UP LOCATIONS & HOLD DOWN REQUIREMENTS W/ EQUIPMENT MANUFACTURER.
2. CONCRETE SLAB DESIGN IS BASED ON A MINIMUM ALLOWABLE SOIL BEARING PRESSURE (Q_a) OF 3,000 PSF.
3. TOPS OF CONCRETE FOUNDATION MUST BE WITHIN 0.02" PER FOOT OF ELEVATION SPECIFIED BY THE CUSTOMER.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE MIN. 4000 PSI @ 28 DAYS.

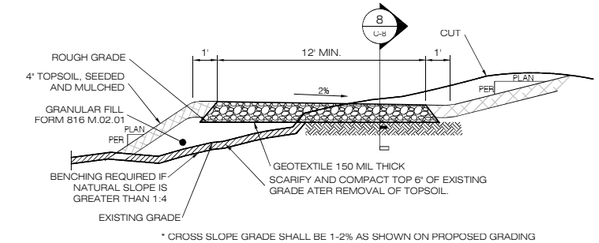
6 C-8 TYPICAL CONCRETE PAD DETAIL
SCALE : N.T.S.



NOTE:
1. COMPACTION TO BE COMPLETED IN 4" LIFTS
2. DEPTHS SHOWN ARE AFTER COMPACTION

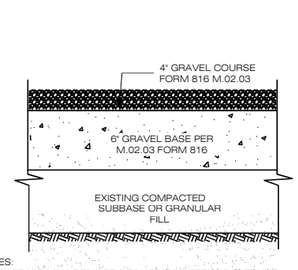
9 C-7 PAVED DRIVEWAY APRON SECTION
SCALE : N.T.S.

NOTE: LIMIT OF PAVED DRIVEWAY APRON TO BE THE EXISTING PROPERTY LINE.



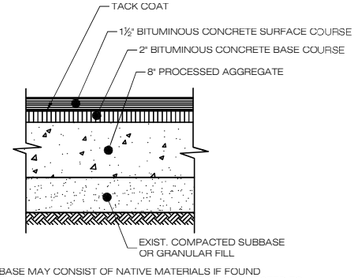
* CROSS SLOPE GRADE SHALL BE 1-2% AS SHOWN ON PROPOSED GRADING
* WHERE CUT OR FILL EMBANKMENTS ARE STEEPER THAN 3:1 USE A STAPLED IN PLACE, BIODEGRADABLE EROSION CONTROL BLANKET OR A BONDED FIBER MATRIX HYDROSEED APPLICATION.

7 C-8 TYPICAL ACCESS DWY CROSS SECTION
SCALE : N.T.S.



NOTES:
1. SUBBASE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBBASE TO BE COMPACTED TO 95% MAX DRY DENSITY.
2. SUBBASE IS TO BE FREE FROM DEBRIS AND UNSUITABLE MATERIALS.

8 C-8 GRAVEL ACCESS DRIVE /TURN AROUND SECTION
SCALE : N.T.S.



NOTES:
1. SUBBASE MAY CONSIST OF NATIVE MATERIALS IF FOUND ACCEPTABLE BY THE ENGINEER. SUBBASE TO BE COMPACTED TO 95% MAX DRY DENSITY.
2. SUBBASE IS TO BE FREE FROM DEBRIS AND UNSUITABLE MATERIALS.

8a C-8 PAVED ACCESS DRIVE SECTION
SCALE : N.T.S.

BOROUGH OF NAUGATUCK	BITUMINOUS CONCRETE DRIVEWAY APRON	Scale: NTS
	BOROUGH OF NAUGATUCK ENGINEERING DEPARTMENT STANDARD DETAIL	Drawing No. SD–24
	229 Church Street, Naugatuck, CT 06770 www.naugatuck-ct.gov	Date:10/2011

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
LAKEWOOD RANCH, FL 34202

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
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Cellco Partnership d/b/a verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

T-Mobile Northeast LLC
15 COMMERCE WAY
SUITE B
NORTON, MA 02766

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

D&M DOCUMENTS

NO	DATE	REVISION
0	09/12/25	FOR REVIEW: RCB
1	10/06/25	CARRIER REVISIONS: RCB
2	10/29/25	ADD TOWER INFO: RCB
3	11/20/25	FINAL: RCB
4	12/02/25	AT&T EQUIP REVISIONS: RCB
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

DRAWN BY: ELZ
DATE: 09/12/25
CHECKED BY: RCB

VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE: SITE DETAILS

SHEET NUMBER: C-8

STATE OF CONNECTICUT ROBERT C. BURNS 30071 LICENSED PROFESSIONAL ENGINEER

EROSION CONTROL NOTES

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2024 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE BOROUGH OF NAUGATUCK AND/OR PERMITTEE. ALL PERIMETER SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.

2. THESE DRAWINGS ARE ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL MEASURES FOR THIS SITE. SEE CONSTRUCTION SEQUENCE FOR ADDITIONAL INFORMATION. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN ARE SHOWN AS REQUIRED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL EROSION CONTROL MEASURES ARE CONFIGURED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION OF SOILS AND PREVENT THE TRANSPORT OF SEDIMENTS AND OTHER POLLUTANTS TO STORM DRAINAGE SYSTEMS AND/OR WATERCOURSES. ACTUAL SITE CONDITIONS OR SEASONAL AND CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS, AS REQUIRED, AND AS DIRECTED BY THE PERMITTEE AND/OR SWPCP MONITOR. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER CONTRACT PLANS FOR APPROPRIATE INFORMATION.

3. A BOND OR LETTER OF CREDIT MAY BE REQUIRED TO BE POSTED WITH THE GOVERNING AUTHORITY FOR THE EROSION CONTROL INSTALLATION AND MAINTENANCE.

4. THE CONTRACTOR SHALL APPLY THE MINIMUM EROSION & SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN IN CONJUNCTION WITH CONSTRUCTION SEQUENCING, SUCH THAT ALL ACTIVE WORK ZONES ARE PROTECTED. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, MUNICIPAL OFFICIALS, OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED BY THE CONTRACTOR.

5. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CONSTRUCTION SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR INSTALLED SEDIMENTATION AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS WEEKLY AND WITHIN 24 HOURS OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS AS NECESSARY IN A TIMELY MANOR.

6. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (SILT FENCE, COMPOST FILTER SOCK, EROSION CONTROL BLANKET, ETC.) ON-SITE FOR PERIODIC MAINTENANCE AND EMERGENCY REPAIRS.

7. ALL FILL MATERIAL PLACED ADJACENT TO ANY WETLAND AREA SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #200 SIEVE (BANK RUN), SHALL BE PLACED IN MAXIMUM ONE FOOT LIFTS, AND SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR OR AS SPECIFIED IN THE CONTRACT SPECIFICATIONS.

8. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING, ORANGE SAFETY FENCE, CONSTRUCTION TAPE, OR EQUIVALENT FENCING/TAPE. ANY LIMB TRIMMING SHOULD BE DONE AFTER CONSULTATION WITH AN ARBORIST AND BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.

9. CONSTRUCTION ENTRANCES (ANTI-TRACKING PADS) SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE DURATION OF ALL CONSTRUCTION IF REQUIRED. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED. CONTRACTOR SHALL ENSURE THAT ALL VEHICLES EXITING THE SITE ARE PASSING OVER THE ANTI-TRACKING PADS PRIOR TO EXISTING.

10. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SEDIMENT BARRIER UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE BARRIER.

11. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS. ALL SLOPES SHALL BE SEEDED AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

12. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE CONFORMING TO THE GUIDELINES WITHIN THE APPROVED LIMIT OF DISTURBANCE IF REQUIRED. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE PERMITTEE OR MUNICIPALITY.

13. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ON-SITE AT ALL TIMES AND SECURED APPROPRIATELY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE/CONTAINMENT.

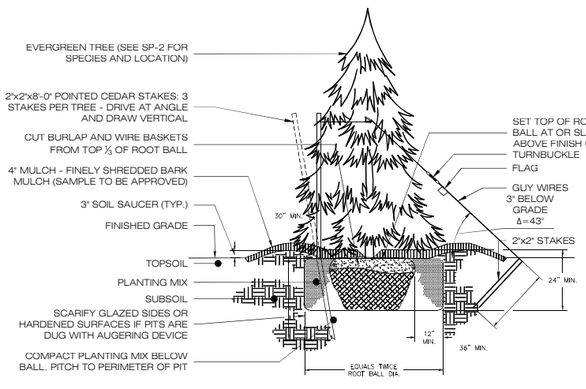
14. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.

15. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER ON UNPAVED TRAVELWAYS TO KEEP THE TRAVELWAYS DAMP. CALCIUM CHLORIDE MAY ALSO BE APPLIED TO ACCESS ROADS. DUMP TRUCK LOADS EXITING THE SITE SHALL BE COVERED.

16. VEGETATIVE ESTABLISHMENT SHALL OCCUR ON ALL DISTURBED SOIL, UNLESS THE AREA IS UNDER ACTIVE CONSTRUCTION, IT IS COVERED IN STONE OR SCHEDULED FOR PAVING WITHIN 30 DAYS. TEMPORARY SEEDING OR NON-LIVING SOIL PROTECTION OF ALL EXPOSED SOILS AND SLOPES SHALL BE INITIATED WITHIN THE FIRST 7 DAYS OF SUSPENDING WORK IN AREAS TO BE LEFT LONGER THAN 30 DAYS.

17. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP CONCRETE PADS, CLEAN THE STORMWATER MANAGEMENT SYSTEMS AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS ONCE THE SITE IS FULLY STABILIZED AND APPROVAL HAS BEEN RECEIVED FROM PERMITTEE OR THE MUNICIPALITY.

18. SEEDING MIXTURES SHALL BE NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX, OR APPROVED EQUAL BY OWNER.



STAKING
STAKING FOR EVERGREEN TREES OVER 6' HIGH

1 EVERGREEN TREE PLANTING
EC-1 SCALE : N.T.S.

SEDIMENT & EROSION CONTROL NARRATIVE

1. THE PROJECT INCLUDES THE INSTALLATION OF A 150'± AGL MONOPOLE WITH ASSOCIATED GROUND MOUNTED EQUIPMENT. ALL DISTURBED AREAS ARE TO BE SEEDED AND STABILIZED PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT.

   THE PROPOSED PROJECT INVOLVES THE FOLLOWING CONSTRUCTION:
   A. CONSTRUCTION OF 150'± AGL MONOPOLE.
   C. CONSTRUCTION OF A 41'x68' (2,788± SF) FENCED EQUIPMENT COMPOUND W/ GRAVEL SURFACE TREATMENT AND ASSOCIATED UTILITIES.
   D. CONSTRUCTION OF A 55'± 12' WIDE GRAVRL ACCESS DRIVE.
   E. CONSTRUCTION OF CONCRETE EQUIPMENT PADS W/ EQUIPMENT CABINETS & DIESEL FIRED GENERATORS.
   F. THE STABILIZATION OF PERVIOUS DISTURBED AREAS WITH PERMANENT GRASS TREATMENTS.

2. FOR THIS PROJECT, THERE ARE APPROXIMATELY 8,850± SF OF THE SITE BEING DISTURBED.

3. A GEOTECHNICAL ENGINEERING REPORT BY DELTA OAKS GROUP DATED OCTOBER 14, 2024 HAS BEEN COMPLETED FOR THIS PROJECT IS AVAILABLE UNDER SEPARATE COVER.

4. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED IN APPROXIMATELY 12 WEEKS.

5. REFER TO THE CONSTRUCTION SEQUENCING AND EROSION AND SEDIMENTATION NOTES FOR INFORMATION REGARDING SEQUENCING OF MAJOR OPERATIONS IN THE ON-SITE CONSTRUCTION PHASES.

6. MEASURES ARE BASED UPON ENGINEERING PRACTICE, JUDGEMENT AND THE APPLICABLE SECTIONS OF THE 2024 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL.

7. DETAILS FOR THE TYPICAL EROSION AND SEDIMENTATION MEASURES ARE SHOWN ON PLAN SHEET C-1 OR PROVIDED AS SEPARATE SUPPORT DOCUMENTATION FOR REVIEW IN THIS PLAN.

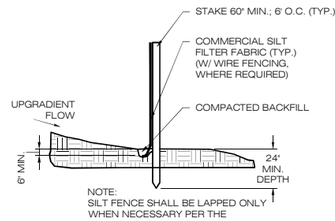
8. CONSERVATION PRACTICES TO BE USED DURING CONSTRUCTION AREA:
   A. STAGED CONSTRUCTION;
   B. MINIMIZE THE DISTURBED AREAS DURING CONSTRUCTION;
   C. STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE WITH TEMPORARY OR PERMANENT MEASURES;
   D. MINIMIZE IMPERVIOUS AREAS;
   E. UTILIZE APPROPRIATE CONSTRUCTION EROSION AND SEDIMENTATION MEASURES.

SUGGESTED CONSTRUCTION SEQUENCE

THE FOLLOWING SUGGESTED SEQUENCE OF CONSTRUCTION ACTIVITIES IS PROJECTED BASED UPON ENGINEERING JUDGEMENT AND BEST MANAGEMENT PRACTICES. THE CONTRACTOR MAY ELECT TO ALTER THE SEQUENCING TO BEST MEET THE CONSTRUCTION SCHEDULE, THE EXISTING SITE ACTIVITIES AND WEATHER CONDITIONS. THE CONTRACTOR SHALL SUBMIT THE FINAL CONSTRUCTION SCHEDULE TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO MOBILIZING TO THE SITE AND INITIATING CONSTRUCTION ACTIVITIES. THE CONSTRUCTION SEQUENCE IS ALSO SUBJECT TO REQUIREMENTS AS NOTED IN THE RESOURCE PROTECTION MEASURES.

1. CONTACT THE OWNER TO SCHEDULE A PRE-CONSTRUCTION MEETING. PHYSICALLY FLAG THE TREES TO BE REMOVED IN THE FIELD AS NECESSARY TO FACILITATE THE PRE-CONSTRUCTION MEETING.
2. CONDUCT A PRE-CONSTRUCTION MEETING TO DISCUSS THE PROPOSED WORK AND EROSION AND SEDIMENTATION CONTROL MEASURES. THE MEETING SHOULD BE ATTENDED BY THE OWNER, THE OWNER REPRESENTATIVE(S), THE GENERAL CONTRACTOR, DESIGNATED SUB-CONTRACTORS AND THE PERSON, OR PERSONS, RESPONSIBLE FOR THE IMPLEMENTATION, OPERATION, MONITORING AND MAINTENANCE OF THE EROSION AND SEDIMENTATION MEASURES. THE CONSTRUCTION PROCEDURES FOR THE ENTIRE PROJECT SHALL BE REVIEWED AT THIS MEETING.
3. NOTIFY THE OWNER AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT. NOTIFY CALL BEFORE YOU DIG CONNECTICUT AT (800) 922-4455.
4. CLEAR AND GRUB AS REQUIRED, TO INSTALL THE PERIMETER EROSION AND SEDIMENTATION CONTROL MEASURES AND, IF APPLICABLE, TREE PROTECTION.
5. INSTALL CONSTRUCTION ENTRANCE.
6. PERFORM THE REMAINING CLEARING AND GRUBBING AS NECESSARY. REMOVE CUT WOOD AND STUMPS. CHIP BRUSH AND STOCKPILE FOR FUTURE USE OR REMOVE OFF-SITE. REMOVE AND DISPOSE OF DEMOLITION DEBRIS OFF-SITE.
7. TEMPORARILY SEED DISTURBED AREAS NOT UNDER CONSTRUCTION FOR THIRTY (30) DAYS OR MORE.
8. EXCAVATE AND ROUGH GRADE NEW ACCESS DRIVE.
9. INSTALL ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AS DICTATED BY SITE CONDITIONS IN ORDER TO PROPERLY CONTROL AND TREAT RUNOFF.
10. INSTALL UTILITY CONDUITS.
11. EXCAVATE AND ROUGH GRADE EQUIPMENT COMPOUND.
12. EXCAVATE FOR TOWER FOUNDATION & EQUIPMENT PADS.
13. FINALIZE ACCESS ROAD GRADES.
14. INSTALL PAVED DRIVEWAY APRON & GRAVEL SURFACE ON THE ACCESS DRIVEWAY.
15. PREPARE SUBGRADE AND INSTALL FORMS, STEEL REINFORCING, & CONCRETE FOR TOWER FOUNDATION & EQUIPMENT PADS.
16. INSTALL BURIED GROUND RINGS, GROUND RODS, GROUND LEADS, & UTILITY EQUIPMENT.
17. BACKFILL TOWER FOUNDATION.
18. ERECT MONOPOLE.
19. INSTALL TELECOMMUNICATIONS EQUIPMENT ON TOWER & COMPOUND.
20. INSTALL COMPOUND GRAVEL SURFACES.
21. INSTALL FENCING.
22. CONNECT GROUNDING LEADS & LIGHTNING PROTECTION.
23. FINAL GRADE AROUND COMPOUND.
24. INSTALL LANDSCAPING.
25. LOAM & SEED DISTURBED AREAS OUTSIDE COMPOUND, AS REQUIRED.
26. TEST ALL NEW EQUIPMENT.
27. AFTER THE SITE IS STABILIZED AND WITH THE APPROVAL OF THE OWNER, REMOVE PERIMETER EROSION AND SEDIMENTATION CONTROLS.
28. PERFORM FINAL PROJECT CLEANUP.

NOTE: CONSTRUCTION OF THE FACILITY WILL ONLY TAKE PLACE BETWEEN THE HOURS OF 8:00 AM AND 5:30 PM, MONDAY THROUGH SATURDAY



NOTE:
SILT FENCE SHALL BE LAPPED ONLY WHEN NECESSARY PER THE MANUFACTURER RECOMMENDATIONS.

2 SILT FENCE DETAIL
EC-1 SCALE : N.T.S.

CONSTRUCTION OPERATION AND MAINTENANCE PLAN - BY CONTRACTOR

E&S MEASURE	INSPECTION SCHEDULE	MAINTENANCE REQUIRED
CONSTRUCTION ENTRANCE	DAILY	PLACE ADDITIONAL STONE, EXTEND THE LENGTH OR REMOVE AND REPLACE THE STONE. CLEAN PAVED SURFACES OF TRACKED SEDIMENT.
HAY BALES	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/REPLACE WHEN FAILURE, OR OBSERVED DETERIORATION, IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE BALE.
SILT FENCE/FILTER SOCKS	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/REPLACE WHEN FAILURE, OR OBSERVED DETERIORATION, IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE.
SILT SACKS	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/REPLACE WHEN FAILURE, OR OBSERVED DETERIORATION, IS OBSERVED. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE SACK.
TOPSOIL/BORROW STOCKPILES	DAILY	REPAIR/REPLACE SEDIMENT BARRIERS AS NECESSARY.
WATER BARS	DAILY	REPAIR/RESHAPE AS NECESSARY. REMOVE SILT WHEN IT REACHES 1/2 THE HEIGHT OF THE WATER BAR.
TEMPORARY DIVERSION DITCHES	DAILY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR/RESHAPE AS NECESSARY. REVIEW CONDITIONS IF REPETITIVE FAILURES OCCUR.
TEMPORARY SEDIMENT TRAPS/BASINS	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REMOVE SEDIMENT WHEN IT REACHES 1/2 OF THE MINIMUM REQUIRED WET STORAGE VOLUME.
TEMPORARY SOIL PROTECTION	WEEKLY & WITHIN 24 HOURS OF RAINFALL > 0.2"	REPAIR ERODED OR BARE AREAS IMMEDIATELY. RESEED AND MULCH.

3 CONSTRUCTION ENTRANCE DETAIL
EC-1 SCALE : N.T.S.

ENVIRONMENTAL NOTES
RESOURCES PROTECTION MEASURES

BAT PROTECTION PROGRAM

THE PROPOSED FACILITY IS LOCATED WITHIN SENSITIVE HABITAT POTENTIALLY USED BY TRICOLORED BAT (*TCB*; PERIMYOTIS SUBFLAVUS), A FEDERALLY PROPOSED ENDANGERED AND STATE ENDANGERED SPECIES. IN ORDER TO PROTECT THIS BAT SPECIES AND PREVENT INCIDENTAL TAKE, PROTECTION MEASURES ARE PROPOSED DURING CONSTRUCTION OF THE FACILITY.

IT IS OF THE UTMOST IMPORTANCE THAT THE CONTRACTOR COMPLIES WITH THE REQUIREMENT FOR IMPLEMENTATION OF THESE PROTECTIVE MEASURES AND THE EDUCATION OF ITS EMPLOYEES AND SUBCONTRACTORS PERFORMING WORK ON THE PROJECT SITE.

ALL-POINTS TECHNOLOGY CORPORATION, P.C. (*APT*) WILL SERVE AS THE ENVIRONMENTAL MONITOR FOR THIS PROJECT TO ENSURE THAT THESE PROTECTION AND CONSERVATION MEASURES ARE IMPLEMENTED PROPERLY. APT WILL PROVIDE AN EDUCATION SESSION FOR THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION ACTIVITIES ON THE POTENTIAL PRESENCE OF TCB. THE CONTRACTOR SHALL CONTACT DEAN GUSTAFSON, SENIOR BIOLOGIST AT APT, AT LEAST 5 BUSINESS DAYS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES TO SCHEDULE A PRE-CONSTRUCTION MEETING. MR. GUSTAFSON CAN BE REACHED BY PHONE AT (860) 552-2033 OR VIA EMAIL AT DGUSTAFSON@ALLPOINTSTECH.COM.

THIS PROTECTION PROGRAM CONSISTS OF SEVERAL COMPONENTS: EDUCATION OF ALL CONTRACTORS AND SUB-CONTRACTORS PRIOR TO INITIATION OF WORK ON THE SITE; PROTECTIVE MEASURES; PERIODIC INSPECTION OF THE CONSTRUCTION PROJECT; AND, REPORTING. DETAILS OF THE TCB PROTECTION MEASURES TO BE IMPLEMENTED IN ASSOCIATION WITH CONSTRUCTION AND OPERATION OF THE FACILITY ARE PROVIDED BELOW.

1. CONTRACTOR EDUCATION

   a. PRIOR TO WORK ON SITE, THE CONTRACTOR SHALL ATTEND AN EDUCATIONAL SESSION AT THE PRE-CONSTRUCTION MEETING WITH APT. THIS ORIENTATION AND EDUCATIONAL SESSION WILL CONSIST OF AN INTRODUCTORY MEETING WITH APT TO EMPHASIZE THE ENVIRONMENTALLY SENSITIVE NATURE OF THE PROJECT, THE RARE SPECIES RESOURCES, AND THE REQUIREMENT TO DILIGENTLY FOLLOW THE PROTECTIVE MEASURES AS DESCRIBED IN SECTIONS BELOW.

   b. THE CONTRACTOR WILL BE PROVIDED WITH CELL PHONE AND EMAIL CONTACTS FOR APT PERSONNEL TO IMMEDIATELY REPORT ANY ENCOUNTERS WITH ANY RARE SPECIES. EDUCATIONAL POSTER MATERIALS WILL BE PROVIDED BY APT AND DISPLAYED ON THE JOB SITE TO MAINTAIN WORKER AWARENESS AS THE PROJECT PROGRESSES.

   c. IF ANY RARE SPECIES ARE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY CEASE ALL WORK, AVOID ANY DISTURBANCE TO THE SPECIES, AND CONTACT APT.

2. BAT HABITAT - TREE CLEARING RESTRICTION

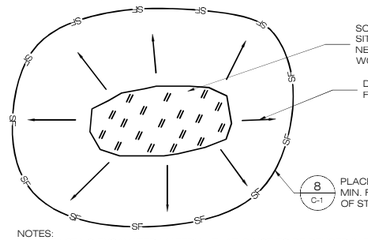
   a. A TIME OF YEAR RESTRICTION (TOYR) FOR TREE CLEARING RESTRICTS TREE REMOVAL TO OCCUR ONLY BETWEEN AUGUST 16TH THROUGH MAY 31ST, DURING THE TCBS INACTIVE SEASON, WHEN TCB WOULD LIKELY NOT BE PRESENT IN FORESTED HABITAT ON THE SUBJECT PROPERTY. DO NOT REMOVE TREES BETWEEN JUNE 1ST THROUGH AUGUST 15TH.

3. REPORTING

   a. A COMPLIANCE MONITORING REPORT (BRIEF NARRATIVE AND APPLICABLE PHOTOS) DOCUMENTING APT INSPECTION VERIFYING TOYR FOR TREE REMOVAL WAS ADHERED TO WILL BE SUBMITTED BY APT TO THE PERMITTEE FOR COMPLIANCE VERIFICATION. ANY OBSERVATIONS OF BATS WILL BE INCLUDED IN THE REPORTS.

   b. FOLLOWING COMPLETION OF THE CONSTRUCTION PROJECT, APT WILL PROVIDE A FINAL COMPLIANCE MONITORING REPORT TO THE PERMITTEE DOCUMENTING IMPLEMENTATION OF THIS TCB PROTECTION PROGRAM AND ANY SPECIES OBSERVATIONS. THE PERMITTEE SHALL PROVIDE A COPY OF THE FINAL COMPLIANCE MONITORING REPORT TO THE CONNECTICUT SITING COUNCIL FOR COMPLIANCE VERIFICATION.

   c. ANY OBSERVATIONS OF RARE SPECIES WILL BE REPORTED TO DEEP BY APT ON THE APPROPRIATE SPECIAL ANIMAL REPORTING FORM, WITH PHOTO-DOCUMENTATION (IF POSSIBLE) AND SPECIFIC INFORMATION ON THE LOCATION AND DISPOSITION OF THE ANIMAL.



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.
3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
5. ANY SOIL IN STOCKPILES IN EXCESS OF SEVEN (7) DAYS SHALL BE SEEDED AND MULCHED OR COVERED.

4 TEMPORARY STOCKPILE DETAIL
EC-1 SCALE : N.T.S.

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
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2	10/29/25	ADD TOWER INFO: RCB
3	11/20/25	FINAL: RCB
4	12/02/25	AT&T EQUIP REVISIONS: RCB
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

DRAWN BY: ELZ
DATE: 09/12/25
CHECKED BY: RCB

VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:
EROSION CONTROL, PLANTING & ENVIRONMENTAL NOTES & DETAILS

SHEET NUMBER:
EC-1

STATE OF CONNECTICUT · ROBERT CHARLES BURNS · 30021 · LICENSED PROFESSIONAL ENGINEER

DESIGN BASIS:

GOVERNING CODES/DESIGN STANDARDS:
2021 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE 2022 CONNECTICUT STATE BUILDING CODE
ASCE 7-16

DESIGN CRITERIA:

RISK CATEGORY:	II	(2021 IBC TABLE 1604.5)
SNOW LOAD:		
GROUND, P_g:	30 PSF	(2022 CSBC APPENDIX P)
ROOF, P_f:	30 PSF	(MIN. PER 2022 CSBC ADD 1608.1.1) (ASCE 7-16 SEC. 7.3, EQ. 7.3-1)
EXPOSURE FACTOR, C_e:	0.9	(ASCE 7-16 TABLE 7.3-1)
THERMAL FACTOR, C_t:	1.2	(ASCE 7-16 TABLE 7.3-2)
SNOW IMPORTANCE FACTOR, I_s:	1.0	(ASCE 7-16 TABLE 1.5-2)
WIND LOADS:		
BASIC DESIGN WIND SPEED, V: (3-SECOND GUST)	120 MPH	(2022 CSBC APPENDIX P)
EXPOSURE CATEGORY	B	(2021 IBC SEC. 1609.4.3)
SEISMIC LOAD:		
SITE CLASS:	D	(2021 IBC SEC. 1613.2)
MCE GROUND MOTION (PERIOD = 0.2S), S_1 :	0.187	(2021 IBC FIG. 1613.3.1(1))
MCE GROUND MOTION (PERIOD = 1.0S) S_S :	0.054	(2021 IBC FIG. 1613.3.1(2))
SEISMIC DESIGN CATEGORY:	B	(2021 IBC SEC. 1613.3.5)

01 GENERAL:

ABBREVIATIONS USED IN THESE SPECIFICATIONS INCLUDE THE FOLLOWING:

ACI	AMERICAN CONCRETE INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AWS	AMERICAN WELDING SOCIETY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN STANDARDS AND TESTING METHODS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
ICC-ES	INTERNATIONAL CODE COUNCIL EVALUATION SERVICE
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
UL	UNDERWRITERS LABORATORIES
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

EVERY INDIVIDUAL TRADE, DISCIPLINE, AND CONTRACTOR SHALL INCLUDE THESE GENERAL SPECIFICATIONS.

THE ENGINEER IS NOT RESPONSIBLE FOR NOR A GUARANTOR OF THE INSTALLING CONTRACTORS WORK, ADEQUACY OF ANY SITE COMPONENT, SUPERVISION OF ANY WORK, AND SAFETY IN, ON, OR ABOUT THE WORK SITE.

ANY REFERENCE HEREIN TO AN OR EQUAL ITEM, THAT EQUAL ITEM SHALL BE PRE-APPROVED BY THE CONSTRUCTION MANAGER BEFORE INSTALLATION

ALL TRADES SHALL COORDINATE THEIR WORK WITH ALL OTHER TRADES AND OTHER WORK AND CONDITIONS AS APPROPRIATE OR REQUIRED TO AVOID CONFLICTS. RESOLVE AND COORDINATE ALL CONFLICTS WITH ALL AFFECTED WORK AND SITE OPERATIONS. COORDINATION WITH THE SITE SHALL BE WITH THE OWNER, OR OWNER'S SPECIFIED REPRESENTATIVE, FOR EVERYTHING RELATED TO THE INSTALLATION OF THIS PROJECT.

ALL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE EDITIONS OF ALL APPLICABLE CODES AND SHALL BE ACCEPTABLE TO ALL AUTHORITIES HAVING JURISDICTION (AHJ). WHERE A CONFLICT EXISTS BETWEEN CODES, PLANS, SPECIFICATIONS, AND/OR AHJ, THE MORE STRINGENT AUTHORITY SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLANS AND SPECIFICATIONS, PLAN SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLAN SHEETS, CONSTRUCTION MANAGER SHALL BE CONSULTED PRIOR TO COMMENCING ANY WORK.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE AND USABLE SYSTEM THROUGHOUT AND AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN AND/OR OTHERWISE REQUIRED.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INSTALLATIONS, AND EQUIPMENT IN THE FIELD PRIOR TO BID, FABRICATION, AND INSTALLATION OF ANY WORK.

CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED FOR INSPECTIONS PRIOR TO CLOSING PENETRATIONS AND OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR SHALL VISIT THE SITE TO MANAGE AND GAIN APPROVAL FOR ALL TENANT DISRUPTIONS, POWER OUTAGES, WORK SCHEDULES, DEFINITION OF WORK AREA AND WORK STORAGE, PROPER BUILDING/SITE ACCESS, NOISE AND CLEANLINESS REQUIREMENTS WITH THE BUILDING/SITE MANAGEMENT PRIOR TO ALL WORK. ANY DISRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE IMPLEMENTED ONLY UPON WRITTEN APPROVAL OF THE OWNER.

THE CONTRACTOR SHALL SAFEGUARD AGAINST CREATING ANY HAZARD AFFECTING TENANT EGRESS OR COMPROMISING SITE SECURITY MEASURES.

PRIOR TO ALL BELOW-GRADE WORK AND ANY SURFACE WORK IN A NEW AREA FOR STRUCTURES OR VEHICLES, CONTRACTOR SHALL ENGAGE A MARKOUT SERVICE TO IDENTIFY ANY UNDERGROUND STRUCTURES, CONDUITS, AND PIPELINES IN THE AREA. ALL EXISTING SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UNDERGROUND UTILITIES IDENTIFIED OR ENCOUNTERED, SHALL BE PROTECTED AT ALL TIMES. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN DIGGING OR EXCAVATING IN ANY MANNER AROUND OR NEAR SUCH UTILITIES. CONTRACTOR IS RESPONSIBLE FOR REPAIRS, REPLACEMENT, AND ALL DAMAGES DUE TO DAMAGE OF UTILITIES BY HIS OPERATIONS.

ALL EXISTING AND NEW EQUIPMENT AND MATERIAL LOCATIONS, ROUTING, ORIENTATION, MOUNTING, SPECIFICATIONS AND GENERAL INSTALLED CHARACTERISTICS SHALL BE CONSIDERED DIAGRAMMATIC ON THE PLANS. EXACT CONDITIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO ANY INSTALLATION. ANY DIFFERENCES THAT MAY CAUSE SCHEDULE, COST, OR QUALITY SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER PRIOR TO ANY WORK.

ALL REFERENCES HEREIN TO VERIFICATION OF ANY CONDITION OF SITE, FIELD, PLANS, OR SPECIFICATIONS PRIOR TO ANY WORK SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR. ANY AND ALL ADDITIONS, MODIFICATIONS, CHANGES, REPAIR, OR DEMOLITION AS A RESULT OF FAILURE TO BRING ANY EXISTING CONDITION PROPERLY TO THE ATTENTION OF THE OWNER OR ENGINEER SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR WITHOUT DELAY, COST, OR CHANGES IN QUALITY.

ALL NOTES THIS SHEET SHALL APPLY UNLESS SPECIFICALLY NOTED OTHERWISE ON THE INCLUDED DRAWINGS OR IN SEPARATE PROJECT SPECIFICATIONS AS APPLICABLE. ALL SPECIFICATIONS SHALL BE CONSIDERED REQUIRED UNLESS APPROVED EQUAL BY THE OWNER, CONSTRUCTION MANAGER, OR ENGINEER AS APPLICABLE.

THE WORDS “PROVIDE” OR “INSTALL” SHALL MEAN FURNISH AND INSTALL.

CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF HIS WORK. ANY PATCHING SHALL MATCH EXISTING SURROUNDING AREA IN ALL RESPECTS. ALL REMOVED MATERIAL SHALL BE REMOVED FROM THE PREMISES DAILY IN AN APPROVED SAFE MANNER.

ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE PROMPTLY WHEN DEEMED TO BE SURPLUS.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF HIS WORK AND NEWLY INSTALLED OR EXISTING WORK, INCLUDING PROTECTION OF THE SITE, ALL STRUCTURES, AND ALL OCCUPANTS. FURNISH, INSTALL, MAINTAIN, AND REMOVE AS APPROPRIATE, ALL APPROPRIATE BARRIERS, SAFETY GUARDS, SIGNAGE, AND SECURITY AS REQUIRED.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR RESPECTIVE FEES, PERMITS, INSPECTIONS, TESTING, CERTIFICATES, AND ALL MANAGEMENT OF SAME REQUIRED FOR COMPLETION OF AND LEGAL OCCUPANCY OF THE FINISHED PROJECT.

ALL CONTRACTORS SHALL PROVIDE ALL NECESSARY TOOLS, FIXTURES, SERVICES, MATERIALS, JOB AIDS, AND PERSONNEL REQUIRED FOR THE EXECUTION OF THEIR WORK.

EACH CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP BY THEM TO BE FREE OF DEFECTS AND MAINTAINED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY THE OWNER AND ENGINEER.

ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS IN THE TRADE HAVING JURISDICTION.

ANY DEVIATION, MODIFICATION, ADDITION, OR CHANGE IN DESIGN SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE OWNER OR ENGINEER.

ALL CONTRACTORS SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION, AND SHALL NOT PROCEED UNTIL ENGINEER APPROVAL IN WRITING IS RETURNED. EACH CONTRACTOR SHALL MAINTAIN ON JOB SITE A COMPLETE SET OF SHOP DRAWINGS WITH ANY DEVIATIONS FROM THE ORIGINAL DESIGN SHALL BE NOTED.

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, WITHOUT BLEMISH OR DEFECT, AND SUITABLE AND LISTED FOR THE INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR SPECIFICATIONS. ALL ITEMS OF EQUIPMENT OR MATERIAL THAT ARE OF ONE GENERIC TYPE SHALL BE ONE MANUFACTURER THROUGHOUT.

ALL MATERIALS, EQUIPMENT, TOOLS, AND ITEMS UNDER THE CONTRACTOR'S RESPONSIBILITY ON THE JOBSITE SHALL BE ADEQUATELY SECURED, MAINTAINED, AND PROTECTED, SO AS NOT TO BECOME DAMAGED OR CREATE ANY HAZARD TO PERSONNEL OR PROPERTY.

THE CONTRACTORS HOURS OF WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND BE APPROVED BY THE OWNER.

CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR ALL OF HIS CREW AND INSURE THAT EVERY CREW MEMBER FOLLOWS SAVE WORK PRACTICES. SAFETY TRAINING SHALL INCLUDE, BUT NOT BE LIMITED TO, FALL PROTECTION, CONFINED SPACE ENTRY, ELECTRICAL SAFETY, AND TRENCHING/EXCAVATION SAFETY WHERE SUCH WORK IS EXECUTED OR ENCOUNTERED.

ALL TEMPORARY WORK REQUIRED OR SPECIFIED AS A PART OF THIS WORK, SHALL MEET ALL OF THE SAME REQUIREMENTS AS PERMANENT INSTALLATIONS, SHALL MEET ALL APPLICABLE CODE REQUIREMENTS, AND SHALL BE COMPLETELY REMOVED AFTER ITS PURPOSES HAVE BEEN SERVED.

ANY EXISTING UTILITY, SERVICE, STRUCTURE, EQUIPMENT, OR FIXTURE OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER.

IF ASBESTOS IS ENCOUNTERED DURING WORK EXECUTION, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER AND CEASE ALL ACTIVITIES IN AFFECTED AREAS UNTIL NOTIFIED BY THE CONSTRUCTION TO RESUME OPERATIONS.

EXIST. ELECTRICAL AND MECHANICAL FIXTURES, PIPING, WIRING AND EQUIPMENT OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. TEMPORARY SERVICE INTERRUPTIONS MUST BE COORDINATED WITH OWNER.

05 ANCHORS:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

EXPANSION ANCHORS SHALL BE USED WHERE ATTACHING TO CONCRETE. MASONRY MOUNTS SHALL HAVE INJECTION ADHESIVE ANCHORING.

EXPANSION BOLTS SHALL BE HILTI KWIK BOLT 3 OR EQUAL. MINIMUM EMBEDMENT 4 INCHES.

INJECTION ADHESIVE ANCHORING IN MASONRY WITH VOIDS SHALL BE HILTI HIT HY-70 OR EQUAL WITH THREADED ROD AND SCREEN TUBES. ANCHORING IN BRICKS WITH HOLES SHALL HAVE ANCHORS SPACED 2 COMPLETE BRICKS APART MINIMUM, SHALL MAINTAIN 2 COMPLETE BRICKS OR 16 INCHES FROM FREE EDGES (WHICHEVER IS LESS), AND SHALL BE EMBEDDED 3-1/2 INCHES MINIMUM. ANCHORING IN HOLLOW CONCRETE BLOCK SHALL USE 50% MORE ANCHORS THAN SHOWN IN DETAIL, SHALL LIMIT ONE ANCHOR MAXIMUM PER BLOCK CELL, SHALL MAINTAIN 12" SPACING FROM FREE EDGES, AND SHALL BE EMBEDDED THROUGH FACE.

INJECTION ADHESIVE ANCHORING IN SOLID MASONRY AND GROUT FILLED BLOCK SHALL BE HILTI HIT HY-200 OR EQUAL WITH THREADED ROD. MAINTAIN 12 INCHES BETWEEN ANCHORS AND ALL FREE EDGES. MINIMUM SPACING BETWEEN ANCHORS IS 8 INCHES.

ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT BE INSTALLED IN MORTAR JOINTS.

GRATING SHALL BE ATTACHED USING FOUR GRATING CLAMPS OR 1/4 FILLET WELDS PER SECTION.

05 STEEL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

MATERIALS:

WIDE FLANGE	ASTM A992, GR 50
TUBING	ASTM A500, GR B
PIPE	ASTM A53, GR B
BOLTS	ASTM A325
GRATING	TYPE GW-2 (1-1/4"x3/16" BARS)
EXISTING METALS	ASTM A36

PROVIDE CERTIFICATION THAT WELDERS TO BE USED IN WORK ARE LICENSED AND HAVE SATISFACTORILY PASSED AWS QUALIFICATION TEST UNDER THE PROVISIONS OF APPENDIX D, PARTS II AND III OF THE AWS CODE FOR WELDING IN BUILDING CONSTRUCTION.

ALL BUILDING CONNECTION POINTS TO BE CENTERED ON EXISTING STRUCTURAL BEARING POINTS AND THE LOCATIONS ARE TO BE VERIFIED IN FIELD PRIOR TO THE FABRICATION OF STEEL.

DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF AISC SPECIFICATION FOR *"THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS"*.

NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIAMETER GALVANIZED ASTM A 307 BOLTS UNLESS OTHERWISE NOTED.

ALL STEEL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS WITH A COATING WEIGHT OF 2 OZ/SF.

ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE."

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY TOUCHING UP ALL DAMAGED GALVANIZED STEEL WITH COLD ZINC, "GALVANOX", "DRY GALV", OR "ZINC IT", IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH UP DAMAGED NON-GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW. FIELD CUTTING OF STRUCTURAL STEEL IS NOT PERMITTED EXCEPT WITH THE PRIOR APPROVAL OF THE ENGINEER.

CONTRACTOR TO REMOVE AND RE-INSTALL ALL FIRE PROOFING AS REQUIRED DURING CONSTRUCTION.

THE STEEL STRUCTURE SHALL BE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER COMPLETION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION.

ALL STEEL ELEMENTS SHALL BE INSTALLED PLUMB AND LEVEL.

TOWER MANUFACTURER'S DESIGNS SHALL PREVAIL FOR TOWER.

CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION.

STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE MINIMUM 3/4" DIAMETER AND EACH CONNECTION SHALL HAVE MINIMUM TWO BOLTS. LOCK WASHERS ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

DESIGN CONNECTIONS AT BEAM ENDS FOR 10 KIPS (MIN).

ALL U-BOLTED CONNECTIONS SHALL BE COMPLETED WITH DOUBLE NUTS OR A LOCK WASHER.

CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS *"STANDARD QUALIFICATION PROCEDURES"*. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE LARGER OF 1/4" FILLET OR MINIMUM SIZE PER TABLE J2.4 IN THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE REGARDING DAMAGED GALVANIZED SURFACES.

ALL ARC AND GAS WELDING SHALL BE DONE BY A LICENSED AND CERTIFIED WELDER IN ACCORDANCE WITH AWS.

SEAL ALL PENETRATIONS AND SEAMS BETWEEN MASONRY AND STEEL WITH DOW CORNING 790 SILICONE BUILDING SEALANT OR EQUAL.

26 ELECTRICAL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

ALL ELECTRICAL CONDUCTORS:

- INSULATION SHALL BE MINIMUM 600V TYPE THHN, THWN-2, OR XHHW.
- BRANCH CIRCUIT CONDUCTORS SHALL BE SOFT DRAWN 98% MINIMUM CONDUCTIVITY PROPERLY REFINED COPPER.
- FEEDER CIRCUIT CONDUCTORS SHALL BE EITHER COPPER OR ALUMINUM OF THE APPROPRIATE SIZE FOR THE APPLICATION, OR AS SPECIFICALLY NOTED.
- PERMANENTLY LABEL OR TAG ALL CONDUCTORS WITH THEIR CIRCUIT DESIGNATION AT ALL TERMINATION ENDS, SPLICES, AND VISIBLE AS PASS-THROUGH IN ALL ENCLOSURES.

ALL CONDUIT, RACEWAY, WIREWAYS, DUCTS, ETC. SHALL BE LISTED AND SUITABLE FOR THE APPLICATION. ONLY THE FOLLOWING CONDUITS AS APPROVED AND LISTED FOR THE APPLICATION SHALL BE ACCEPTABLE:

- ELECTRICAL METALLIC TUBING (EMT).
- COMPRESSION COUPLINGS AND CONNECTORS ONLY MADE UP WRENCH TIGHT.
- FLEXIBLE METAL CONDUIT (FMC) AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC).
- FINAL CONNECTIONS TO VIBRATING OR ADJUSTABLE EQUIPMENT INCLUDING, BUT NOT LIMITED TO, LIGHT FIXTURES, HVAC UNITS, TRANSFORMERS, MOTORS, ETC. OR WHERE EQUIPMENT IS PLACED UPON SLAB ON-GRADE.
- RIGID GALVANIZED STEEL (RGS).
- ALL FITTINGS, CONNECTORS, AND COUPLINGS SHALL BE THREADED MADE UP WRENCH TIGHT.
- RIGID POLYVINYL CHLORIDE (PVC) SCHEDULE 40 OR SCHEDULE 80.
- MAY BE USED FOR SERVICES, EXTERIOR, BELOW GRADE, AND WET LOCATIONS.
- SHALL NOT BE USED IN CONCRETE SLABS NOR EXPOSED WITHIN A BUILDING OR STRUCTURE.
- METAL-CLAD CABLE (MC)
- CONCEALED INSTALLATIONS ONLY.
- WITHIN A DUCT WITH SMOOTH OR CORRUGATED METAL JACKET AND NO OUTER COVERING OVER THE METAL JACKET.

IN FINISHED SPACES, ALL CONDUITS SHALL BE CONCEALED EXCEPT TO MAKE A FINAL CONNECTION TO EQUIPMENT NOT MOUNTED IN OR AGAINST FINISH MATERIAL.

ALL FEEDER AND BRANCH CIRCUITS SHALL HAVE A SEPARATE PROPERLY SIZED AND MARKED GROUNDING CONDUCTOR, PER APPLICABLE CODES, THAT BONDS ALL ENCLOSURES, BOXES, ETC. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING CONDUCTOR.

IF EXISTING ELECTRIC SERVICE IS TO REMAIN, CONTRACTOR SHALL BE VERIFY THAT IT MEETS PROJECT REQUIREMENTS WITHOUT MODIFICATION. IF IT IS TO BE ADDED OR REPLACED AS A PART OF THIS WORK, CONTRACTOR SHALL ORDER FROM, COORDINATE WITH, AND GAIN APPROVAL FROM THE ELECTRICAL UTILITY. ALL ELECTRICAL EQUIPMENT SHALL BE AS SPECIFIED AND AS APPROVED BY THE LOCAL UTILITY WHERE APPLICABLE.

ALL EQUIPMENT, ENCLOSURES, ETC. SHALL BE SUITABLE FOR THE INSTALLED ENVIRONMENT, MINIMUM NEMA 3R FOR ALL EXTERIOR INSTALLATIONS.

WIRING DEVICES SHALL BE SPECIFICATION GRADE AND WIRING DEVICE COVER PLATES SHALL BE PLASTIC WITH ENGRAVING AS SPECIFIED. COLOR SHALL BE IVORY. ALL DEVICES AND COVER PLATES SHALL BE OF THE SAME MANUFACTURER.

ALL FIRE-RATED PENETRATIONS SHALL BE SEALED USING A SUITABLE AND LISTED FIRE SEALING DEVICE OR GROUT THAT WILL MAINTAIN THE FIRE RATING OF THE STRUCTURE PENETRATED.

PROVIDE PERMANENTLY AFFIXED ENGRAVED NAMEPLATES FOR ALL CODE REQUIRED LABELING AND ON ALL PANELS, METERING, DISCONNECTS, AND ELECTRICAL EQUIPMENT THAT IDENTIFIES EQUIPMENT SERVED, ELECTRICAL SOURCE WITH CIRCUIT IDENTIFICATION, AND VOLTAGES WITHIN.

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL TERMINATIONS TO ALL EQUIPMENT.

ALL ELECTRICAL APPURTENANCES THAT ARE DISCONNECTED SHALL BE COMPLETELY REMOVED WITH EXISTING STRUCTURES TO REMAIN, REPAIRED, FINISHED, FILLED, PAINTED, ETC. ALL PANEL SCHEDULES, EQUIPMENT LABELING, AND CODE-REQUIRED LABELING, SHALL BE VERIFIED AND PROPERLY COMPLETED TO MATCH THE INSTALLATION.

26 GROUNDING:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH BEST INDUSTRY PRACTICE, THE REQUIREMENTS OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC), AND ALL OTHER APPLICABLE CODES AND REGULATIONS.

ALL GROUNDING ELECTRODES PRESENT AT EACH SERVICE LOCATION SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM.

ALL EQUIPMENT ENCLOSURES, DEVICES, AND CONDUITS SHALL BE GROUNDED BY THE INSTALLATION OF A SEPARATE GROUNDING CONDUCTOR FOR ALL FEEDER AND BRANCH CIRCUITS THAT IS SIZED PER CODE OR IS OF THE SIZE INDICATED ON THE DRAWINGS, SHALL BE CONTINUOUS IN LENGTH, AND SHALL BE BONDED TO EACH ENCLOSURE PASSED THROUGH. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING WIRE OR CIRCUIT.

BOND ALL METALLIC CONDUITS TOGETHER THAT ARE CONNECTED TO NON-METALLIC ENCLOSURES, IN-GROUND BOXES, AND TO AN ENCLOSURE WHERE A GROUND BUS IS SPECIFIED OR SUPPLIED. ACCOMPLISH THIS BOND WITH GROUNDING CONDUCTORS MINIMUM SIZED TO THE LARGEST GROUNDING CONDUCTOR PRESENT IN THE ENCLOSURE CONNECTED TO A GROUNDING TYPE BUSHING EQUALLY SIZED OR MAXIMUM GROUND WIRE ACCOMMODATION AVAILABLE IN STANDARD MANUFACTURE FOR THE CONDUIT SIZE, WHICHEVER IS LESS.

EQUIPMENT GROUNDING AND LOAD SIDE BONDING CONDUCTORS SHALL BE SIZED PER THE CIRCUIT'S OVER-CURRENT PROTECTIVE DEVICE (OCPD) SIZE. WHERE THE UNGROUNDED CONDUCTORS ARE INCREASED IN SIZE ABOVE THE STANDARD FOR THE CIRCUIT'S OCPD, INCREASE THE GROUNDING CONDUCTOR PROPORTIONATELY TO THE CROSS-SECTIONAL AREA OF THE UNGROUNDED CONDUCTORS.

SERVICE MAIN BONDING JUMPERS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED AND INSTALLED PER THE MINIMUM OF ALL APPLICABLE CODES AND REGULATIONS.

26 LIGHTNING PROTECTION:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS AND THE GROUNDING SPECIFICATIONS HEREIN.

THE LIGHTNING PROTECTION GROUNDING SYSTEM (LPGS) SHALL CONSIST OF BONDING ALL EQUIPMENT AND CONDUCTIVE STRUCTURES TO LOCALIZED SINGLE-POINT GROUNDING CONNECTIONS (TYPICALLY GROUND BARS) WHICH ARE BONDED TOGETHER AND TO AN IN-GROUND SYSTEM. IF THE LPGS IS ON A BUILDING, IT SHALL BE EFFECTIVELY BONDED TO THE ELECTRICAL SERVICE MAIN BONDING JUMPER AND TO ADDITIONAL IN-GROUND ELECTRODES AS MAY BE REQUIRED OR INDICATED. IF THE LPGS IS ON A DEDICATED COMMUNICATION SITE, ALL EQUIPMENT AREAS AND TOWERS SHALL EACH HAVE THEIR OWN IN-GROUND RING WITH EVERY RING BONDED TOGETHER, AND ALL CONDUCTIVE STRUCTURES IN CLOSE PROXIMITY (FENCES, ICE BRIDGES, ISOLATED EQUIPMENT, ETC.) ALSO BONDED TO PROVIDE A COMMON ELECTRICAL EQUIPOTENTIAL SYSTEM FOR ALL CONDUCTIVE ELEMENTS AND STRUCTURES.

CONDUCTORS:

- MIN #2 AWG SOLID BARE TINNED COPPER (SBTC) FOR ALL IN-GROUND CONDUCTORS.
- MIN #2 AWG COPPER GREEN STRANDED FOR BONDING STRUCTURES, AND FOR INTER-SYSTEM BONDING OF INDIVIDUAL ELEMENTS SUCH AS GROUND BAR TO GROUND BAR.
- MIN #6 AWG COPPER GREEN STRANDED OR ALL EQUIPMENT BONDING.
- INSTALL ALL IN-GROUND CONDUCTORS IN THE SAME HORIZONTAL PLANE OR IN A DOWNWARD DIRECTION AWAY FROM THE TOWER AND EQUIPMENT AREAS.
- AVOID LONG RUNS. MAKE DIRECT RUNS AS MUCH AS POSSIBLE.
- PLACE THROUGH NON-METALLIC SLEEVES WHEN PASSING THROUGH FLOORS, WALLS, CEILINGS, AND SIMILAR STRUCTURES.
- MAKE ALL CONNECTIONS IN CONTACT WITH EARTH WITH EXOTHERMIC WELDING. MAKE ALL OTHER CONNECTIONS WITH EXOTHERMIC WELDING, IRREVERSIBLE COMPRESSION CONNECTORS, OR LISTED COMPRESSION TWO-HOLE LUGS.
- INSTALL ALL CONDUCTORS WITH A MINIMUM 18 INCH BEND RADIUS AND NO BEND LONGER THAN A 90 DEGREE ARC. ALL BENDS SHALL BE HORIZONTAL, OR DOWNWARD TOWARDS EARTH.
- ALL CONDUCTORS PASSING FROM ABOVE-GROUND TO IN-GROUND CONNECTIONS, WHERE EXPOSED, SHALL BE COVERED AND PROTECTED WITH A NON-METALLIC CONDUIT SEALED AT BOTH ENDS.
- IF 2 OR MORE IN-GROUND CONDUCTOS ARE IN THE SAME PATH (2 RINGS OVERLAPPING, BONDING FOLLOWING ANOTHER RING OR RADIAL, OR SIMILAR), COMBINE WITH A SHARED SINGLE CONDUCTOR.

EQUIPMENT AND TOWER GROUND RINGS SHALL BE:

- BONDED TO ANY CONDUCTIVE OBJECT OR STRUCTURE WITHIN 5 FEET OF EQUIPMENT GROUND RINGS AND WITHIN 20 FEET OF TOWER GROUND RINGS.
- INSTALLED MINIMUM 18 INCHES FROM FOUNDATIONS, FOOTINGS, AND SIMILAR.

INSTALL ALL IN-GROUND RINGS, RADIALS, BONDS CONNECTING THEM, AND ALL SIMILAR GROUNDING:

- MIN 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE, WHICHEVER IS GREATER DEPTH.
- MIN 2 FEET FROM FOUNDATIONS, FOOTINGS, OTHER GROUNDING SYSTEMS, AND SIMILAR STRUCTURES, EXCEPT WHEN MAKING A BOND TO ANY OF THESE STRUCTURES. DO NOT BOND TO FOUNDATION INTERNAL REINFORCEMENT.

ALL EQUIPMENT GROUPED IN A COMMON AREA, COMPOUND, STRUCTURE, OR SIMILAR SHALL BE BONDED TO A SINGLE-POINT GROUND, PREFERABLY AN ISOLATED GROUND BAR. BOND THE GROUND BAR TO THE SYSTEM WITH MINIMUM SINGLE BONDING CONDUCTOR. IF BONDING TO AN IN-GROUND RING, INSTALL 2 BONDING CONDUCTORS MINIMUM WITH EACH CONDUCTOR INSTALLED DIRECTIONALLY AWAY FROM EACH OTHER AND PARALLEL TO THE IN-GROUND CONDUCTOR, WITH NO TEE CONNECTIONS.

TOWER GROUNDING:

- EACH TOWER LEG SHALL BE BONDED TO ITS RING. SINGLE-LEGGED TOWERS, OR MONOPOLES, SHALL HAVE 2 BONDS ON OPPOSITE SIDES.
- BOND TO TOWER BASE, NOT TO VERTICAL TOWER STRUCTURE, AWAY FROM TOWER MOUNTING HARDWARE.
- EACH BOND SHALL HAVE A CORRESPONDING GROUND ROD ON THE RING.
- EACH BOND SHALL CONSIST OF 2 CONDUCTORS FROM THE TOWER TO ITS RING WITH EACH CONDUCTOR DIRECTED IN OPPOSITE DIRECTIONS WITH A PARALLEL CONNECTION ON THE RING ON OPPOSITE SIDES OF THE GROUND ROD.

EQUIPMENT AREA GROUNDING:

- COMMUNICATION AREAS ON EARTH SHALL HAVE A GROUND RING.
- BOND ALL EQUIPMENT TO A SINGLE-POINT GROUND (GROUND BAR).
- BOND THE EQIPMENT SINGLE-POINT GROUND TO THE EQUIPMENT GROUND RING WITH MINIMUM 2 CONDUCTORS DIRECTED IN OPPOSITE DIRECTIONS WITH PARALLEL CONNECTIONS ON THE RING.
- IF EQUIPMENT IS ENCLOSED IN A SHELTER:
- IF THE SHELTER IS CONSIDERED TO BE EXPOSED TO A DIRECT LIGHTNING STRIKE, INSTALL A BUILDING LIGHTNING PROTECTION SYSTEM PER APPLICABLE VERSION OF NFPA 780.
- BOND ALL FIXED CONDUCTIVE BUILDING COMPONENTS TOGETHER AND TO THE BUILDING RING GROUND AT THE CORNERS. THIS IS TYPICALLY CALLED THE HALO GROUND. DO NOT BOND EQUIPMENT TO THE HALO GROUND.
- BOND ALL EQUIPMENT TOGETHER TO A SINGLE-POINT OR INTERIOR EQUIPMENT RING GROUND (IEGR). BOND THE SINGLE-POINT OR IEGR TO THE EXTERNAL EQUIPMENT RING GROUND.
- PLACE GROUND RODS AT THE EQUIPMENT GROUND RING CORNERS.

GROUND RODS:

- SEPARATION SPACE BETWEEN ANY 2 GROUND RODS SHALL BE NO CLOSER THAN THEIR DEPTH. THIS APPLIES TO ALL RODS IN THE COMPLETE SYSTEM.
- DRIVE VERTICALLY IN UNDISTURBED SOIL WITH THE TOP AT SAME DEPTH AS THE IN-GROUND CONDUCTOR. IF NOT POSSIBLE TO INSTALL VERTICALLY, PLACE AS CLOSE TO VERTICAL AS POSSIBLE AND IN A DIRECTION AWAY FROM THE NEAREST ABOVE-GROUND CONDUCTIVE ELEMENT (TOWER, EQUIPMENT, ETC.).

RADIALS (TYP. NEW DEDICATED COMMUNICATION SITES):

- WHERE FEASIBLE WITH ENOUGH SPACE AVAILABLE, INSTALL A MINIMUM OF 4, MAXIMUM 10 RING RADIALS.
- EACH RADIAL'S LENGTH SHALL BE MIN 20 FT, MAX 80 FT.
- EXTEND RADIALS PERPENDICULAR FROM RINGS IN AS STRAIGHT LINE AS POSSIBLE, AWAY FROM OTHER RING GROUNDS, RADIALS, BONDS, AND SIMILAR.
- A COMMON PRACTICE IS TO PLACE 4 RADIALS FROM THE TOWER RING TO THE 4 CORNERS OF THE AVAILABLE AREA.

AT A MINIMUM, BOND ALL COMPOUND CONDUCTIVE FENCE CORNER POSTS AND GATE POSTS TO THE LPGS. PREFERABLY, INSTALL A GROUND RING THAT FOLLOWS THE FENCE LINE, BONDING ALL POSTS TO THE RING.

27 ANTENNAS & CABLES:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRANSMISSION CABLES, JUMPERS, CONNECTORS, GROUNDING STRAPS, ANTENNAS, MOUNT AND HARDWARE. ALL MATERIALS SHALL BE INSPECTED BY THE CONTRACTOR FOR DAMAGE UPON DELIVERY. JUMPERS SHALL BE SUPPLIED AT ANTENNAS AND EQUIPMENT INSIDE SHELTER. COORDINATE LENGTH OF JUMPER CABLES WITH OWNER. COORDINATE AND VERIFY ALL OF THE MATERIALS TO BE PROVIDED WITH OWNER PRIOR TO SUBMITTING BID AND ORDERING MATERIALS.

AFTER INSTALLATION, THE TRANSMISSION LINE SYSTEM SHALL BE PIM / SWEEP TESTED FOR PROPER INSTALLATION AND DAMAGE WITH ANTENNAS CONNECTED. CONTRACTOR SHALL OBTAIN AND USE LATEST TESTING PROCEDURES FROM OWNER OR MANUFACTURER PRIOR TO BIDDING.

ANTENNA CABLES SHALL BE UNIQUELY COLOR-CODED AT THE ANTENNAS, BOTH SIDES OF EQUIPMENT SHELTER WALL, AND JUMPER CABLES AT THE EQUIPMENT.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONNECTORS, ASSOCIATED CABLE MOUNTING AND GROUNDING HARDWARE, WALL MOUNTS, STANDOFFS, AND ALL ASSOCIATED HARDWARE TO INSTALL ALL CABLES AND ANTENNAS TO THE MANUFACTURER'S AND OWNER'S SPECIFICATIONS.

ANTENNA CABLES SHALL BE FOAM DIELECTRIC COAXIAL CABLES AS FOLLOWS:

- BASE STATION ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 100 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 100 FT.
  - GPS ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 200 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 200 FT.

MINIMUM BENDING RADIUS FOR COAXIAL CABLES SHALL BE:

- 15 FT FOR 7/8" COAXIAL CABLES.
- 25 FT FOR 1-5/8" COAXIAL CABLES.

CABLE SHALL BE INSTALLED WITH A MINIMUM NUMBER OF BENDS WHERE POSSIBLE. CABLE SHALL NOT BE LEFT UNTERMINATED AND SHALL BE SEALED IMMEDIATELY AFTER BEING INSTALLED.

ALL EXTERIOR CABLE CONNECTIONS SHALL BE COVERED WITH A WATERPROOF SPLICING KIT.

CONTRACTOR SHALL VERIFY EXACT LENGTH AND DIRECTION OF TRAVEL IN FIELD PRIOR TO CONSTRUCTION.

CABLE SHALL BE FURNISHED AND INSTALLED WITHOUT SPLICES AND WITH CONNECTORS AT EACH END.

27 CABLE TRAY:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CABLE TRAY SHALL BE MADE OF EITHER CORROSION RESISTANT METAL OR WITH A CORROSION RESISTANT FINISH.

CABLE TRAY SHALL BE OF LADDER TRAY TYPE WITH FLAT COVER CLAMPED TO SIDE RAILS.

CABLE LADDER SHALL BE SIZED TO FIT ALL CABLES IN ACCORDANCE WITH NEC AND NEMA 11-15-84.

CABLE LADDER TRAYS SHALL BE NEMA CLASS 12A BY PW INDUSTRIES, INC. OR EQUAL.

CABLE LADDER TRAY SHALL BE SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

ALL WORKMANSHIP SHALL CONFORM TO THESE REQUIREMENTS AND ALL LOCAL CODES AND STANDARDS TO ENSURE SAFE AND ADEQUATE GROUNDING SYSTEM.

31 EXCAVATION & FILL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CONTRACTOR SHALL GRADE ONLY AREAS SHOWN TO BE MODIFIED AS A PART OF THIS WORK AND ONLY TO THE EXTENT REQUIRED TO SHED OVERLAND WATER FLOW AWAY FROM SITE. ALL MADE SLOPES SHALL NOT BE STEEPER THAN 3:1 (HORIZONTAL:VERTICAL). SEDIMENTATION AND EROSION CONTROLS SHOWN AND SPECIFIED SHALL BE ESTABLISHED BEFORE STRIPPING EXISTING VEGETATION.

ORGANIC MATERIAL AND DEBRIS SHALL BE STRIPPED AND STOCKPILED BEFORE ADDING FILL MATERIAL.

NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

ALL FILL SHALL BE PLACED IN ONE FOOT LIFTS AND COMPACTED IN PLACE. STRUCTURAL FILL SHALL BE COMPACTED TO 95% OF ITS MAXIMUM DRY UNIT WEIGHT TESTED IN ACCORDANCE WITH ASTM D1557.

EXCAVATIONS FOR FOOTINGS SHALL BE CUT LEVEL TO THE REQUIRED DEPTH AND TO UNDISTURBED SOIL. REPORT UNSUITABLE SOIL CONDITIONS TO THE CONSTRUCTION MANAGER.

TRENCH EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH DAY.

TOWER FOUNDATION EXCAVATION, BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH TOWER MANUFACTURER'S DESIGNS AND SPECIFICATIONS.

NATIVE GRAVEL MATERIAL MAY BE USED FOR TRENCH BACKFILL WHERE SELECT MATERIAL IS NOT SPECIFIED. GRAVEL MATERIAL FOR CONDUIT TRENCH BACKFILL SHALL NOT CONTAIN ROCK GREATER THAN 2 INCHES IN DIAMETER.

BANK OR CRUSHED GRAVEL SHALL CONSIST OF TOUGH, DURABLE PARTICLES OF CRUSHED OR UNCRUSHED GRAVEL FREE OF SOFT, THIN, ELONGATED OR LAMINATED PIECES AND MEET THE SPECIFIED GRADATION.

PROCESSED AGGREGATE BASE SHALL CONSIST OF COURSE AND FINE AGGREGATES COMBINED AND MIXED SO THAT THE RESULTING MATERIAL CONFORMS TO THE GRADATION. COURSE AGGREGATE SHALL BE EITHER GRAVEL OR BROKEN STONE AND FINE AGGREGATE SHALL CONSIST OF SAND.

BANK GRAVEL FILL SHALL PASS WITH THE FOLLOWING SIZE SQUARE MESH SIEVES:

25-60% WITH PASS 1/4"
15-45% WITH PASS #10
2-25% WITH PASS #40
0-10% WITH PASS #100
0-5% WITH PASS #200

BANK GRAVEL BASE SHALL PASS WITH THE FOLLOWING SIZE SQUARE MESH SIEVES:

100%	WITH PASS 5"
100%	WITH PASS 3-1/2"
100%	WITH PASS 2-1/4"
95-100%	WITH PASS 2"
55-100%	WITH PASS 1-1/2"
25-60%	WITH PASS 1/4"
15-45%	WITH PASS #10
5-25%	WITH PASS #40
0-10%	WITH PASS #100
0-5%	WITH PASS #200

PROCESSED AGG BASE SHALL PASS WITH THE FOLLOWING SIZE SQUARE MESH SIEVES:

90-100%	WITH PASS 3-1/2"
55-95%	WITH PASS 1-1/2"
50-75%	WITH PASS 3/4"
25-45%	WITH PASS 1/4"
5-20%	WITH PASS #40
2-12%	WITH PASS #100

FILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, ICE, TRASH AND DEBRIS. REFER TO GEOTECHNICAL ENGINEERING AS APPLICABLE FOR ALL FILL MATERIAL REQUIREMENTS.

31 SEDIMENTATION & EROSION CONTROL:

THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE 2024 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND AS DIRECTED BY THE TOWN OF PERMITTEE AND/OR SWPCP MONITOR. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY SEDIMENT TRAPS OR GRASS FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM DRAINS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR AND APPROVED BY THE ENGINEER.

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXIST. SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENTATION CONTROL.

LIMITS OF CLEARING AND GRUBBING SHALL BE CLEARLY MARKED BEFORE COMMENCING WITH SUCH WORK.

SEDIMENTATION AND EROSION CONTROL (SEC) MEASURES SHOWN SHALL BE INSTALLED PRIOR TO LAND CLEARING, EXCAVATION OR GRADING OPERATIONS. REQUIREMENTS OF LOCAL WETLAND AGENCY SHALL BE MET PRIOR TO EARTHWORK OPERATIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN SEC MEASURES THROUGHOUT DURATION OF PROJECT UNTIL DISTURBED LAND IS THOROUGHLY VEGETATED.

FAILURE OF THE SEC SYSTEMS SHALL BE CORRECTED IMMEDIATELY AND SUPPLEMENTED WITH ADDITIONAL MEASURES AS NEEDED.

TOPSOIL SHALL BE SPREAD TO FINISH GRADES AND SEEDED AS SOON AS FINISHED GRADES ARE ESTABLISHED. STRAW MULCH, JUTE NETTING OR MATS SHALL BE USED WHERE THE NEW SEED IS PLACED.

VEGETATIVE SEEDING:

- AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF 3". TOPSOIL SHALL BE LOOSENED BY RAKING OR DISKING BEFORE SEEDING. APPLY 50 Lbs. OF DOLOMITIC LIMESTONE AND 25 Lbs. OF 10-10-10 FERTILIZER PER 1000 SF. HARROW LIME AND FERTILIZER INTO LOOSE SOIL.
- APPLY COMMON BERMUDA AND RYE GRASS AT 50 LBS PER ACRE. USE CYCLONE SEED DRILL CULTIPACKER SEEDER OR HYDROSEEDER (SEED & FERTILIZER SLURRY) FOR STEEP SLOPES. IRRIGATE UNTIL VEGETATION IS COMPLETELY ESTABLISHED.

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
LAKEWOOD RANCH, FL 34202

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

T-Mobile
Northeast LLC
15 COMMERCE WAY
SUITE B
NORTON, MA 02766

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

D&M DOCUMENTS

NO	DATE	REVISION
0	09/12/25	FOR REVIEW: RCB
1	10/06/25	CARRIER REVISIONS: RCB
2	10/29/25	ADD TOWER INFO: RCB
3	11/20/25	FINAL: RCB
4	12/02/25	AT&T EQUIP REVISIONS: RCB
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT.
SUITE 311
WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET
NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET
NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

	DRAWN BY: ELZ
DATE: 09/12/25	**CHECKED BY: RCB**

VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:

NOTES & SPECIFICATIONS

SHEET NUMBER:

N-1

Michael F. Plahovinsak, P.E.

18301 State Route 161, Plain City, Ohio 43064
(614) 398-6250 - mike@mfpeng.com

November 25, 2025

Tarpon Towers

Re: Proposed 150-ft Monopole
Located in New Haven Co., CT: CT1239 Conrad St.
MFP Project #: 23525-716 / TAPP Project Number: TP-25179

I understand that there may be some concern on the part of local building officials regarding the potential for failure of the proposed communication monopole. Communication structures are designed in accordance with the Telecommunications Industry Association TIA-222-H , "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures". This Structure is to be fabricated by TransAmerican Power Products

I have designed this monopole to withstand a 3-sec. gusted wind speed of 130 mph as recommended by TIA-222-H for New Haven Co., CT. The design also conforms to the requirements of the 2022 Connecticut Building Code.

This monopole has been designed to accommodate a theoretical fall radius. The upper 75' of the pole has been designed to meet the wind loads of the design, however, the lower portion of the pole has been designed with a minimum 10% extra capacity. Assuming the pole has been fabricated according to my design, and well maintained, in the event of a failure due to extreme wind and comparable appurtenance antenna load (winds in excess of the design wind load), it would yield/buckle at the 75' elevation. The yielded section is designed to swing down and rest on the ground, resulting in an approximate 0-ft fall radius. The pole shafts are designed to buckle and bend, not rupture and disconnect. The designed 0-ft fall radius is less than the required 58-ft fall radius.

The structure has been designed with all of the applicable factors as required by the code. A properly designed, constructed and maintained pole has never collapsed; monopoles are safe structures with a long history of reliable operation.

I hope this review of the monopole design has given you a greater degree of comfort regarding the design capacity inherent in pole structures. If you have any additional questions please call me at 614-398-6250 or email mike@mfpeng.com.

Sincerely,

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
LICENSED PROFESSIONAL ENGINEER
NOV 25 2025

Michael F. Plahovinsak, P.E.

TAPP
QUALITY STEEL POLES. DELIVERED.
2427 Kelly Lane
Houston, Texas 77066
281-444-8277

Page 1 of 3		Job Number:	23525-716
Eng: MFP		Customer Ref:	TP-25179
		Date:	10/27/2025
Structure:	150-FT MONOPOLE		
Site:	CT1239 CONRAD ST.		
Location:	NEW HAVEN CO., CT / 41°29'53", -73°4'12"		
Owner:	TARPON TOWERS		
Revision No.:	Revision Date:		

DESIGN

Building Code:	2022 CONNECTICUT BUILDING CODE		
Design Standard:	TIA-222-H		
Wind Speed Load Cases:	ASCE-7-16 WIND SPEED		
Load Case #1:	130 MPH Design Wind Speed		
Load Case #2:	50 MPH Wind with 1" Ice Accumulation		
Load Case #3	60 MPH Service Wind Speed		
Structure Class Risk Category	Exposure Cat.	Topography Cat.	Crest Height
III	C	1	

STRUCTURE MEETS THE MINIMUM REQUIREMENTS OF TIA-222-I

EQUIPMENT LIST

Elev.	Description
153	(2) CC807 + (1) DS7C09PU-N
148	(1) TTA + (1) 3-FT DISH + 12-FT PLATFORM WITH HANDRAIL
140	ANTENNAS + MOUNTING (EPA 42,000 IN2)
140	GENERIC ANTENNA MOUNT
128	ANTENNAS + MOUNTING (EPA 30,000 IN2)
128	GENERIC ANTENNA MOUNT
116	ANTENNAS + MOUNTING (EPA 30,000 IN2)
116	GENERIC ANTENNA MOUNT
103	(3) FFVV-65B-R3 + (6) RRU + (1) RAYCAP
103	8-FT PLATFORM WITH HANDRAIL

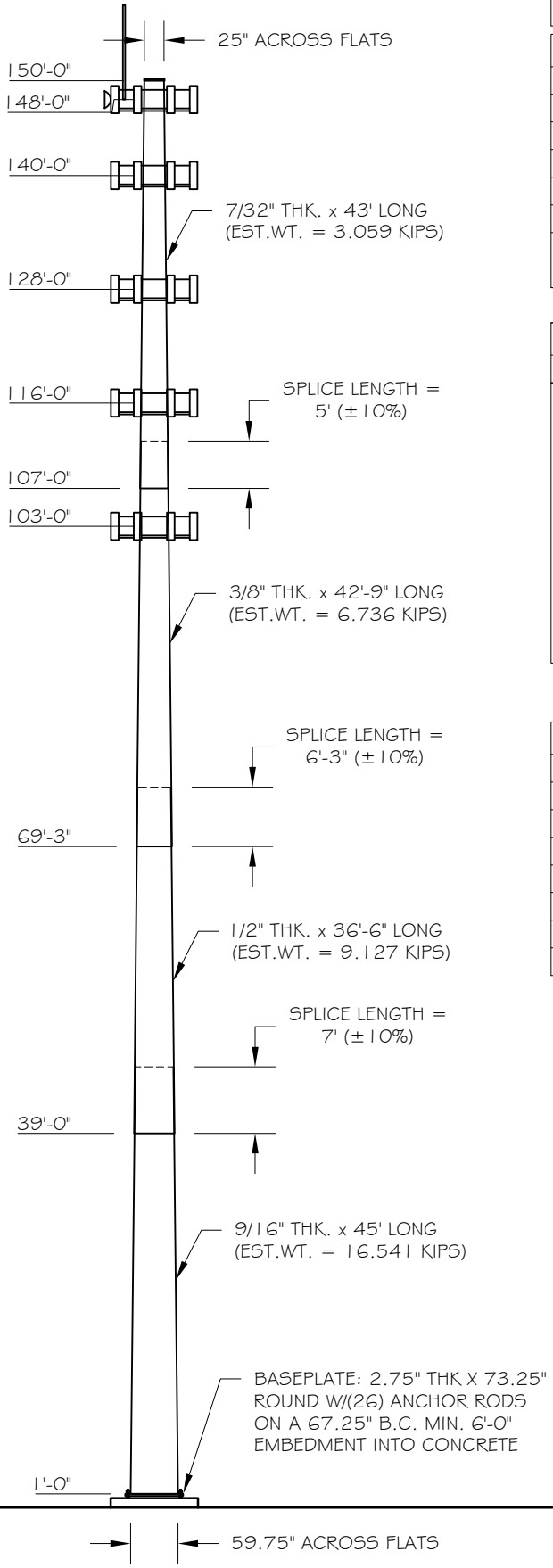
ANTENNA FEED LINES ROUTED ON THE INSIDE OF THE POLE

POLE DESIGNED FOR A MAX 0-FT FALL RADIUS

STRUCTURE PROPERTIES

Cross-Section: 18-Sided	Taper: 0.2479 in/ft
Shaft Steel: ASTM A572 GR 65	Baseplate Steel: ASTM A572 GR 50
Anchor Rods: 2.25 in. A615 GR. 75 X 7'-0"	

Sect.	Length (ft)	Thickness (in)	Splice (ft)	Top Dia. (in)	Bot Dia. (in)
1	43.00	0.2188	5.00	25.00	35.66
2	42.75	0.3750	6.25	33.98	44.58
3	36.50	0.5000	7.00	42.28	51.33
4	45.00	0.5625	0	48.59	59.75



STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
LICENSED PROFESSIONAL ENGINEER

10.27.2025

MICHAEL F. PLAHOVINSAK, P.E. #25849
Sole Proprietor - Independent Engineer
18301 S.R. 161, Plain City, OH 43064
614-398-6250 / mike@mfpeng.com

BASE REACTIONS FOR FOUNDATION DESIGN

Moment:	8869 ft-kip
Shear:	75 kip
Axial:	77 kip

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Page 2 of 3		Job Number:	23525-716
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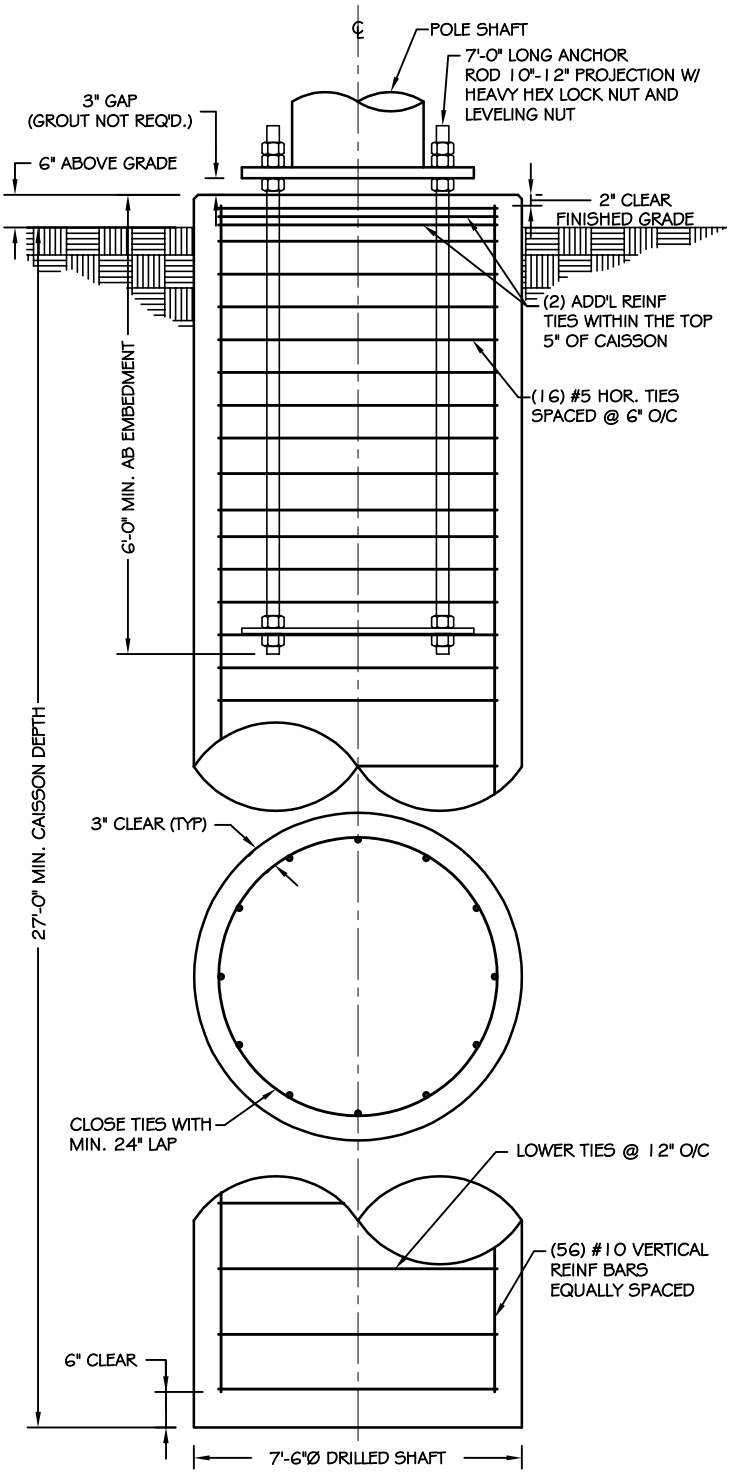

CAISSON FOUNDATION

NOT TO SCALE

FOUNDATION NOTES:

1. ALL FOUNDATION CONCRETE SHALL USE TYPE II CEMENT AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.45. IN AREAS OF POTENTIAL FREEZING, CONCRETE SHALL BE AIR ENTRAINED 6% (±1.5%). ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION.

2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 VERTICAL BARS SHALL BE GRADE 60, AND TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. THE PLACEMENT OF ALL REINFORCEMENT SHALL CONFORM TO ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

3. CAISSON FOUNDATION INSTALLATION SHALL BE IN ACCORDANCE WITH ACI 336, "STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF DRILLED PIERS", LATEST EDITION.

4. THE CONTRACTOR SHALL DETERMINE THE MEANS AND METHODS TO SUPPORT THE EXCAVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND SHALL CONSULT THE GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.

5. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT BY:
ENGINEER: WELTI GEOTECHNICAL
REPORT NO.: N/A (DATED 10/16/25)

6. ESTIMATED CONCRETE VOLUME = 45 CUBIC YARDS.

7. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:
MOMENT: 8869 FT*KIPS
SHEAR: 75 KIPS
AXIAL: 77 KIPS

8. GEOTECHNICAL REPORT INDICATES GROUNDWATER MAY BE ENCOUNTERED AT 13'-6" BELOW GRADE.

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
No. 25849
LICENSED PROFESSIONAL ENGINEER

10.27.2025

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4. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT BY:
ENGINEER: WELTI GEOTECHNICAL
REPORT NO.: N/A (DATED 10/16/25)

5. ESTIMATED CONCRETE VOLUME = 139 CUBIC YARDS.

6. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:
MOMENT: 8869 FT*KIPS
SHEAR: 75 KIPS
AXIAL: 77 KIPS

STATE OF CONNECTICUT
MICHAEL F. PLAHOVINSAK
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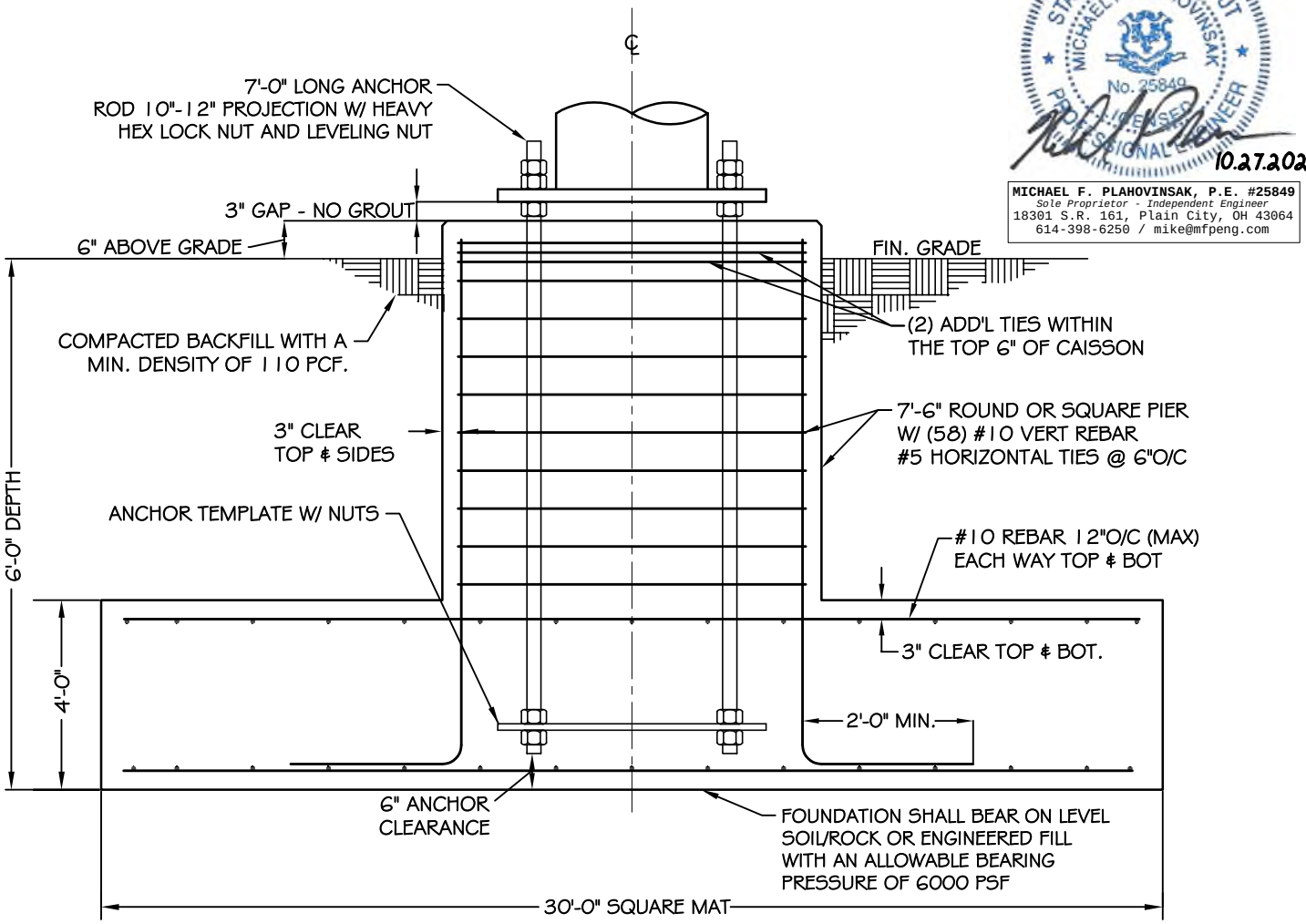


SPREAD FOOTING

NOT TO SCALE

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower base elevation above sea level: 515.00 ft.
Basic wind speed of 130 mph.
Risk Category III.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-107.00	43.00	5.00	18	25.0000	35.6598	0.2188	0.8750	A572-65 (65 ksi)
L2	107.00-69.25	42.75	6.25	18	33.9828	44.5806	0.3750	1.5000	A572-65 (65 ksi)
L3	69.25-39.00	36.50	7.00	18	42.2812	51.3297	0.5000	2.0000	A572-65 (65 ksi)
L4	39.00-1.00	45.00		18	48.5944	59.7500	0.5625	2.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	25.3519	17.2059	1334.9410	8.7973	12.7000	105.1135	2671.6385	8.6046	4.0150	18.354
	36.1762	24.6072	3904.9253	12.5816	18.1152	215.5609	7814.9887	12.3059	5.8911	26.931
L2	35.7078	40.0017	5708.1578	11.9308	17.2633	330.6535	11423.8265	20.0046	5.3210	14.189
	45.2105	52.6158	12989.9879	15.6930	22.6470	573.5862	25997.0684	26.3129	7.1862	19.163
L3	44.4297	66.3068	14623.7470	14.8323	21.4789	680.8432	29266.7362	33.1597	6.5615	13.123
	52.0444	80.6667	26330.9765	18.0445	26.0755	1009.7981	52696.5999	40.3410	8.1540	16.308
L4	51.0193	85.7549	24995.1432	17.0513	24.6859	1012.5253	50023.1756	42.8856	7.5626	13.445
	60.5850	105.6719	46768.8712	21.0116	30.3530	1540.8319	93599.2822	52.8460	9.5260	16.935

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 150.00-107.00				1	1	1			
L2 107.00-69.25				1	1	1			
L3 69.25-39.00				1	1	1			
L4 39.00-1.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
Safety Climb & Step Bolts Exposed	C	No	Yes	CaAa (Out Of Face)	150.00 - 1.00	1	No Ice	0.06	0.09
							1/2" Ice	0.14	0.63
							1" Ice	0.24	1.77
**									
1/2"	C	No	Yes	Inside Pole	148.00 - 1.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
1 5/8"	C	No	Yes	Inside Pole	148.00 - 1.00	2	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
1.3"	C	No	Yes	Inside Pole	148.00 - 1.00	1	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
**									
1 5/8"	C	No	Yes	Inside Pole	140.00 - 1.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
1 5/8"	C	No	Yes	Inside Pole	128.00 - 1.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
1 5/8"	C	No	Yes	Inside Pole	116.00 - 1.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
1 5/8"	C	No	Yes	Inside Pole	103.00 - 1.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.00-107.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.365	1.15
L2	107.00-69.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.076	2.53
L3	69.25-39.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	1.664	2.08

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L4	39.00-1.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.090	2.61

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.00-107.00	A	1.316	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	12.933	1.28
L2	107.00-69.25	A	1.268	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	11.354	2.64
L3	69.25-39.00	A	1.208	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	8.805	2.16
L4	39.00-1.00	A	1.094	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	10.605	2.71

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
3-Wire De-Tuning Equipment	C	None		0.0000	150.00 - 1.00	No Ice	20.00	20.00	0.20
						1/2" Ice	25.00	25.00	0.25
						1" Ice	30.00	30.00	0.30
**									
RFI CC807 10' Whip	A	From Face	3.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	3.10 4.17 5.25	3.10 4.17 5.25	3.00 3.02 3.05
RFI CC807 10' Whip	B	From Face	3.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	3.10 4.17 5.25	3.10 4.17 5.25	3.00 3.02 3.05
DBSpectra DS7C09PU-N Omni	C	From Face	3.00 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice 1" Ice	4.34 5.82 7.31	4.34 5.82 7.31	0.04 0.07 0.11
TTA	B	From Face	3.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice	1.50 2.00 3.00	1.50 2.00 3.00	0.05 0.07 0.07
12' Platform w/ Handrail	C	None		0.0000	148.00	No Ice 1/2" Ice 1" Ice	30.00 35.00 40.00	30.00 35.00 40.00	1.80 2.60 3.40
**									
EPA 42,000 in2	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	292.00 300.00 308.00	292.00 300.00 308.00	4.00 6.00 8.00
EPA 30,000 in2	C	None		0.0000	128.00	No Ice 1/2" Ice 1" Ice	208.33 225.00 241.67	208.33 225.00 241.67	4.00 5.00 6.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
EPA 30,000 in2	C	None		0.0000	116.00	No Ice	208.33	208.33	4.00
						1/2" Ice	225.00	225.00	5.00
						1" Ice	241.67	241.67	6.00
**									
Andrew FFVV-65B-R3 w/ mount pipe	A	From Face	3.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	15.31 15.84 16.37	8.02 8.98 9.82	0.12 0.23 0.35
Andrew FFVV-65B-R3 w/ mount pipe	B	From Face	3.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	15.31 15.84 16.37	8.02 8.98 9.82	0.12 0.23 0.35
Andrew FFVV-65B-R3 w/ mount pipe	C	From Face	3.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	15.31 15.84 16.37	8.02 8.98 9.82	0.12 0.23 0.35
Raycap RDIDC-9181-PF-48	A	From Face	2.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	1.87 2.04 2.21	1.07 1.20 1.35	0.10 0.12 0.14
(3) Samsung RT4450	B	From Face	2.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.30 0.37 0.45	0.30 0.37 0.45	0.02 0.02 0.03
(3) Samsung RT4451	C	From Face	2.00 0.00 0.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.30 0.37 0.45	0.30 0.37 0.45	0.02 0.02 0.03
8' Platform w/ Handrail	C	None		0.0000	103.00	No Ice 1/2" Ice 1" Ice	30.00 35.00 40.00	30.00 35.00 40.00	1.80 2.60 3.40
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
3 ft standard	A	Paraboloid w/o Radome	From Face	1.00 0.00 0.00	0.0000		148.00	3.00	No Ice 1/2" Ice 1" Ice	7.06 7.47 7.88	0.10 0.18 0.25

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 90 deg - No Ice
5	0.9 Dead+1.0 Wind 90 deg - No Ice
6	1.2 Dead+1.0 Wind 180 deg - No Ice
7	0.9 Dead+1.0 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 107	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-43.70	0.25	15.67
			Max. Mx	4	-22.94	-1015.35	2.12
			Max. My	2	-22.99	2.74	1019.06
			Max. Vy	4	52.23	-1015.35	2.12
			Max. Vx	6	52.09	-21.33	-995.48
			Max. Torque	4			-1.38
L2	107 - 69.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-62.42	0.45	16.45
			Max. Mx	4	-37.38	-3105.22	-10.88
			Max. My	2	-37.41	5.70	3097.17
			Max. Vy	4	60.21	-3105.22	-10.88
			Max. Vx	6	60.04	-43.09	-3079.59
			Max. Torque	4			1.91
L3	69.25 - 39	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-77.56	0.46	16.71
			Max. Mx	4	-51.40	-4933.88	-21.39
			Max. My	2	-51.43	7.93	4915.94
			Max. Vy	4	63.58	-4933.88	-21.39
			Max. Vx	6	63.42	-60.55	-4903.56
			Max. Torque	4			1.90
L4	39 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-105.29	0.46	16.62
			Max. Mx	4	-77.40	-7893.31	-37.24
			Max. My	2	-77.40	11.25	7860.46
			Max. Vy	4	67.49	-7893.31	-37.24
			Max. Vx	6	67.34	-86.48	-7856.17
			Max. Torque	4			1.89

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 107	23.994	12	1.4878	0.0002
L2	112 - 69.25	13.011	12	1.1756	0.0001
L3	75.5 - 39	5.598	12	0.7200	0.0000
L4	46 - 1	2.028	12	0.4116	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.00	RFI CC807 10' Whip	12	23.994	1.4878	0.0008	31656
150.00	3-Wire De-Tuning Equipment	12	23.994	1.4878	0.0008	31656

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	3 ft standard	12	23.380	1.4740	0.0008	31656
144.86	3-Wire De-Tuning Equipment	12	22.417	1.4522	0.0007	30806
140.00	EPA 42,000 in2	12	20.934	1.4178	0.0006	15828
139.72	3-Wire De-Tuning Equipment	12	20.850	1.4158	0.0006	15403
134.59	3-Wire De-Tuning Equipment	12	19.304	1.3780	0.0006	10268
129.45	3-Wire De-Tuning Equipment	12	17.789	1.3380	0.0005	7701
128.00	EPA 30,000 in2	12	17.368	1.3262	0.0005	7194
124.31	3-Wire De-Tuning Equipment	12	16.314	1.2950	0.0005	6160
119.17	3-Wire De-Tuning Equipment	12	14.891	1.2483	0.0005	5133
116.00	EPA 30,000 in2	12	14.043	1.2173	0.0005	4655
114.03	3-Wire De-Tuning Equipment	12	13.530	1.1972	0.0005	4425
108.90	3-Wire De-Tuning Equipment	12	12.241	1.1410	0.0005	4236
103.76	3-Wire De-Tuning Equipment	12	11.026	1.0801	0.0005	4343
103.00	Andrew FFVV-65B-R3 w/ mount pipe	12	10.853	1.0708	0.0005	4361
98.62	3-Wire De-Tuning Equipment	12	9.885	1.0159	0.0005	4463
93.48	3-Wire De-Tuning Equipment	12	8.814	0.9496	0.0004	4590
88.34	3-Wire De-Tuning Equipment	12	7.812	0.8825	0.0004	4724
83.21	3-Wire De-Tuning Equipment	12	6.878	0.8160	0.0003	4867
78.07	3-Wire De-Tuning Equipment	12	6.008	0.7513	0.0003	5013
72.93	3-Wire De-Tuning Equipment	12	5.202	0.6897	0.0003	5033
67.79	3-Wire De-Tuning Equipment	12	4.459	0.6316	0.0002	4962
62.66	3-Wire De-Tuning Equipment	12	3.779	0.5765	0.0002	4883
57.52	3-Wire De-Tuning Equipment	12	3.164	0.5238	0.0002	4802
52.38	3-Wire De-Tuning Equipment	12	2.616	0.4729	0.0002	4724
47.24	3-Wire De-Tuning Equipment	12	2.134	0.4234	0.0001	4690
42.10	3-Wire De-Tuning Equipment	12	1.720	0.3747	0.0001	5070
36.97	3-Wire De-Tuning Equipment	12	1.368	0.3266	0.0001	5793
31.83	3-Wire De-Tuning Equipment	12	1.071	0.2790	0.0001	6758
26.69	3-Wire De-Tuning Equipment	12	0.821	0.2318	0.0001	8110
21.55	3-Wire De-Tuning Equipment	12	0.610	0.1850	0.0001	10137
16.41	3-Wire De-Tuning Equipment	12	0.430	0.1385	0.0000	13516
11.28	3-Wire De-Tuning Equipment	12	0.274	0.0922	0.0000	20274
6.14	3-Wire De-Tuning Equipment	12	0.133	0.0461	0.0000	40548
1.00	3-Wire De-Tuning Equipment	0	0.000	0.0000	0.0000	41667

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 107	124.226	4	7.5039	0.0011
L2	112 - 69.25	68.043	4	6.1193	0.0004
L3	75.5 - 39	29.374	4	3.7740	0.0002
L4	46 - 1	10.654	4	2.1619	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.00	RFI CC807 10' Whip	4	124.226	7.5039	0.0023	6686
150.00	3-Wire De-Tuning Equipment	4	124.226	7.5039	0.0023	6686
148.00	3 ft standard	4	121.095	7.4465	0.0024	6686
144.86	3-Wire De-Tuning Equipment	4	116.188	7.3558	0.0026	6506
140.00	EPA 42,000 in2	4	108.627	7.2115	0.0029	3341

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.72	3-Wire De-Tuning Equipment	4	108.200	7.2031	0.0030	3252
134.59	3-Wire De-Tuning Equipment	4	100.310	7.0411	0.0033	2166
129.45	3-Wire De-Tuning Equipment	4	92.568	6.8654	0.0035	1623
128.00	EPA 30,000 in2	4	90.419	6.8127	0.0036	1515
124.31	3-Wire De-Tuning Equipment	4	85.023	6.6753	0.0037	1297
119.17	3-Wire De-Tuning Equipment	4	77.725	6.4639	0.0038	1079
116.00	EPA 30,000 in2	4	73.363	6.3192	0.0038	977
114.03	3-Wire De-Tuning Equipment	4	70.723	6.2235	0.0038	928
108.90	3-Wire De-Tuning Equipment	4	64.064	5.9498	0.0037	882
103.76	3-Wire De-Tuning Equipment	4	57.767	5.6454	0.0035	894
103.00	Andrew FFVV-65B-R3 w/ mount pipe	4	56.867	5.5983	0.0035	896
98.62	3-Wire De-Tuning Equipment	4	51.826	5.3180	0.0033	907
93.48	3-Wire De-Tuning Equipment	4	46.238	4.9757	0.0030	921
88.34	3-Wire De-Tuning Equipment	4	40.995	4.6262	0.0026	936
83.21	3-Wire De-Tuning Equipment	4	36.095	4.2777	0.0022	950
78.07	3-Wire De-Tuning Equipment	4	31.531	3.9380	0.0019	962
72.93	3-Wire De-Tuning Equipment	4	27.299	3.6149	0.0016	961
67.79	3-Wire De-Tuning Equipment	4	23.398	3.3107	0.0014	947
62.66	3-Wire De-Tuning Equipment	4	19.834	3.0226	0.0012	932
57.52	3-Wire De-Tuning Equipment	4	16.612	2.7475	0.0011	918
52.38	3-Wire De-Tuning Equipment	4	13.736	2.4822	0.0010	904
47.24	3-Wire De-Tuning Equipment	4	11.211	2.2237	0.0009	898
42.10	3-Wire De-Tuning Equipment	4	9.040	1.9691	0.0007	971
36.97	3-Wire De-Tuning Equipment	4	7.195	1.7171	0.0007	1109
31.83	3-Wire De-Tuning Equipment	4	5.636	1.4675	0.0006	1294
26.69	3-Wire De-Tuning Equipment	4	4.322	1.2199	0.0005	1552
21.55	3-Wire De-Tuning Equipment	4	3.213	0.9739	0.0004	1940
16.41	3-Wire De-Tuning Equipment	4	2.267	0.7293	0.0003	2586
11.28	3-Wire De-Tuning Equipment	4	1.443	0.4856	0.0002	3879
6.14	3-Wire De-Tuning Equipment	4	0.701	0.2426	0.0001	7758
1.00	3-Wire De-Tuning Equipment	0	0.000	0.0000	0.0000	7972

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 107 (1)	TP35.6598x25x0.2188	43.00	0.00	0.0	23.7466	-22.99	1389.17	0.017
L2	107 - 69.25 (2)	TP44.5806x33.9828x0.375	42.75	0.00	0.0	50.7716	-37.38	2970.14	0.013
L3	69.25 - 39 (3)	TP51.3297x42.2813x0.5	36.50	0.00	0.0	77.9128	-51.40	4557.90	0.011
L4	39 - 1 (4)	TP59.75x48.5944x0.5625	45.00	0.00	0.0	105.672 0	-77.40	6181.80	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 107 (1)	TP35.6598x25x0.2188	1019.07	1067.21	0.955	0.00	1067.21	0.000
L2	107 - 69.25 (2)	TP44.5806x33.9828x0.375	3105.23	3192.17	0.973	0.00	3192.17	0.000
L3	69.25 - 39 (3)	TP51.3297x42.2813x0.5	4933.93	5830.32	0.846	0.00	5830.32	0.000
L4	39 - 1 (4)	TP59.75x48.5944x0.5625	7893.40	9416.25	0.838	0.00	9416.25	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 107 (1)	TP35.6598x25x0.2188	51.93	416.75	0.125	0.06	1248.26	0.000
L2	107 - 69.25 (2)	TP44.5806x33.9828x0.375	60.21	891.04	0.068	1.90	3328.59	0.001
L3	69.25 - 39 (3)	TP51.3297x42.2813x0.5	63.58	1367.37	0.046	1.89	5878.92	0.000
L4	39 - 1 (4)	TP59.75x48.5944x0.5625	67.49	1854.54	0.036	1.89	9612.75	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 107 (1)	0.017	0.955	0.000	0.125	0.000	0.987 ✔	1.000	✔
L2	107 - 69.25 (2)	0.013	0.973	0.000	0.068	0.001	0.990 ✔	1.000	✔
L3	69.25 - 39 (3)	0.011	0.846	0.000	0.046	0.000	0.860 ✔	1.000	✔
L4	39 - 1 (4)	0.013	0.838	0.000	0.036	0.000	0.852 ✔	1.000	✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 107	Pole	TP35.6598x25x0.2188	1	-22.99	1389.17	98.7	Pass
L2	107 - 69.25	Pole	TP44.5806x33.9828x0.375	2	-37.38	2970.14	99.0	Pass
L3	69.25 - 39	Pole	TP51.3297x42.2813x0.5	3	-51.40	4557.90	86.0	Pass
L4	39 - 1	Pole	TP59.75x48.5944x0.5625	4	-77.40	6181.80	85.2	Pass
							Summary	
						Pole (L2)	99.0	Pass
						RATING =	**99.0**	**Pass**

Michael F. Plahovinsak, P.E.
18301 State Route 161 W
Plain City, OH 43064
Phone: 614-398-6250
email: mike@mfpeng.com

Job 150-ft monopole - MFP #23525-716	**Page** BP & AB Calc
Project CT1239 Conrad St.	**Date** 10/27/2025
Client TAPP TP-25179	**Designed by** Mike

Anchor Rod and Base Plate Calculation

TIA-222-H

Factored Base Reactions:		***Pole Shape:***	***Anchor Rods:***	***Base Plate:***
Moment:	7893 ft-kips	18-Sided	(26) 2.25 in. A615 GR. 75	2.75 in. x 73.25 in. Roun
Shear:	67 kips	***Pole Dia. (D_f):***	Anchor Rods Evenly Spaced	fy = 50 ksi
Axial:	77 kips	59.75 in	On a 67.25 in Bolt Circle	

Anchor Rod Calculation According to TIA-222-H

ϕ_t , ϕ_v = 0.75 TIA 4.9.6
I_{bolts} = 14698.33 in^2 Momet of Inertia
P_u = 214 kips Tension Force
V_u = 2.6 kips Shear Force
Rnt = 325.00 kips Nominal Tensile Strength
Rnv = 198.80 kips (0.5 x fu x ag)
Stress Rating = **87.7%** Satisfies TIA-H 4.9.9

Base Plate Calculation According to TIA-222-H

ϕ = 0.90 TIA 4.7
M_{PL} = 508.1 in-kip Plate Moment
L = 7.2 in Section Length
Z = 13.6 Plastic Section Modulus
M_P = 682.5 in-kip Plastic Moment
ϕM_n = 614.2 in-kip Factored Resistance

Calculated Moment vs Factored Resistance
508.07 in-kip $\leq$ 614 in-kip

Stress Rating = **82.7%**

Anchor Rods Are Adequate	**87.7%**	☑
Base Plate is Adequate	**82.7%**	☑

Michael F. Plahovinsak, P.E.
18301 State Route 161 W
Plain City, OH 43064
Phone: 614-398-6250
email: mike@mfpeng.com

Job	Page
150-ft monopole - MFP #23525-716	FND
Project	**Date**
CT1239 Conrad St.	10/27/2025
Client	**Designed by**
TAPP TP-25179	Mike

Caisson Calculation

According to TIA-222-H

1. Foundation overturning resistance calculated with PLS Caisson, for Brom's method for rigid piles. Soil layers modeled after recommendations from the geotechnical report.
2. Cohesion strength for the upper 22.5 ft has been reduced by 50%
3. An additional load factor of 1.3 has been applied to the reinforcement design
4. Foundation Loads Factored in Accordance with TIA-222-H
5. Design water table = 13.5 ft below grade

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.50 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 7.500 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	S	4.00	0.00	100.0		1.000	-0.00
2	S	9.50	4.00	130.0		3.255	32.00
3	S	20.00	13.50	67.6		3.255	32.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 8869.0 VERTICAL (k) = 77.0 SHEAR (k) = 75.0
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.33

*** CALCULATED PIER LENGTH (ft) = 27.500

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
S	0.50	4.00	100.0		1.000	18.00	3.17
S	4.50	9.50	130.0		3.255	707.93	10.21
S	14.00	5.42	67.6		3.255	721.22	16.80
S	19.42	8.08	67.6		3.255	-1346.47	23.62

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	WITH THE ADDITIONAL SAFETY FACTOR MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	WITHOUT ADDITIONAL SAFETY FACTOR MOMENT (ft-k)
0.00	100.7	12402.2	75.5	9301.9
2.75	95.0	12674.8	71.2	9506.4
5.50	48.6	12897.7	36.5	9673.5
8.25	-94.1	12851.7	-70.6	9639.0
11.00	-308.9	12314.1	-231.7	9235.8
13.75	-595.6	11086.9	-446.7	8315.4
16.50	-940.1	8984.1	-705.1	6738.3
19.25	-1322.1	5882.2	-991.6	4411.7
22.00	-951.3	2684.7	-713.5	2013.6
24.75	-494.4	688.3	-370.8	516.3
27.50	0.0	0.0	0.0	0.0

*** TOTAL REINFORCEMENT PCT = 0.96 REINFORCEMENT AREA (in^2) = 61.07
*** USABLE AXIAL CAP. (k) = 77.0 USABLE MOMENT CAP. (ft-k) = 9718.2

For Design:

7.5-ft Diameter caisson x 27.5-ft long (27-ft Embeded with 0.5-ft above grade)
Concrete strength =4500 PSI @ 28 days. Estimated Concrete Volume = 45 CY3.
(56) #10 Vertical Rebar. Steel Cross-Section = 71.12 in2

Pier and Pad Foundation

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	77	kips
Base Shear, Vu_comp:	75	kips
Moment, M_u:	8869	ft-kips
Tower Height, **H**:		ft
BP Dist. Above Fdn, bp_{dist}:	6	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	58	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	6	ft
Pad Width, W_1:	30	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	30	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4.5	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	110	pcf
Ultimate Net Bearing, Qnet:	12.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	20	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:		ft
Foundation Bearing on Rock?		
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	213.02	75.00	**35.2%**	**Pass**
Bearing Pressure (ksf)	9.50	7.42	**78.1%**	**Pass**
*Overturning (kip*ft)*	9801.76	9394.00	**95.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	12217.33	9056.50	**74.1%**	**Pass**
Pier Compression (kip)	40277.25	102.31	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	7246.32	5256.21	**72.5%**	**Pass**
Pad Shear - 1-way (kips)	1561.09	560.23	**35.9%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.201	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9296.35	5433.90	**58.5%**	**Pass**

Soil Rating:	**95.8%**
Structural Rating:	**74.1%**

WELTI GEOTECHNICAL, P.C.

227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

October 16, 2025

Mr. Brett Buggeln
Tarpon Towers, LLC
8916 77th Terrace East, Ste 103
Lakewood Ranch, FL 34202

Ref: Geotechnical Study for Proposed Cell Tower (CT1239), 161 Conrad Street, Naugatuck, CT

Dear Brett:

1.0 Herewith are the data from the test boring taken at the above referenced site. One boring was drilled at the proposed tower location to a depth of 30.4 feet below the existing grade. A tower/boring location plan is included with boring logs. *The boring was drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

2.0 The **Subject Project** will include the construction of a 150-foot monopole tower.

3.0 The **Soils Cross Section** from the boring is generally as follows:

Topsoil to 3"

Fine to coarse SAND, little to some Gravel, little Silt to 13.5 feet, dense to very dense

Fine to coarse SAND, some Gravel, Cobbles and Boulders, little Silt to 30+ feet, dense to very dense
Note: Auger refusal was encountered at 13.5 feet below the existing grade. The boring was cored thru dense soil with cobbles and boulders from 13.5 to 30 feet.

Groundwater was in the borehole was below at 13.5 feet below the existing grade at the completion of the boring. The boring was drilled with water below 13.5 feet. An accurate reading could not be taken before the borehole collapsed.

4.0 In general the criteria for tower support is that the foundation capacity would exceed the loads, which might collapse the tower. **Movements from strains in the soils should be limited to differential settlement (or lateral movements of less than ½").**

5.0 The **foundation for the tower** can be with a large mat designed to prevent overturning by gravity resistance of the weight of the mat and soil cover. The mat foundation can be placed on the natural inorganic soils at least 4 feet below the existing grade. There should be a minimum 6" layer of 3/8" crushed stone beneath foundations on the natural soils. The **Allowable Bearing Pressure** on the crushed stone atop the natural soils can be 3.0 Tons/sf.

5.1 In **summary** the following soil properties and design values would apply to alternate 1.

Soil Property/Parameter	Value
Soil Unit Weight (Backfill)	125 pcf
Soil Unit Weight (Natural)	125 pcf
Soil Unit Weight Submerged (Natural)	63 pcf
Angle of Internal Friction (φ)	34°
Cohesion	0
Pull Out Angle from Vertical	30°
Sliding Coefficient	0.6
Frost Protection Depth (by code)	3.5 feet
Allowable Soil Bearing Pressure on the natural soil inorganic at 4+ feet below the existing grade	3.0 Tons/sf

6.0 Regarding **backfill of foundations**, the material should conform to the following or be 3/8" crushed stone.

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 85	No.4

The fraction, passing the No.4 sieve should have less than 15% passing the No. 200 sieve.

All backfill and fill must be compacted to at least 95% of modified optimum density in accordance with ASTM D-1557.

7.0 The soils at the subject site are generally in OSHA class C which would require excavations that are in excess of 5 feet to have slopes which are less than 34^{o} (i.e., 1.5H to1.0V).

8.0 This report has been prepared for specific application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Welti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions please call me.

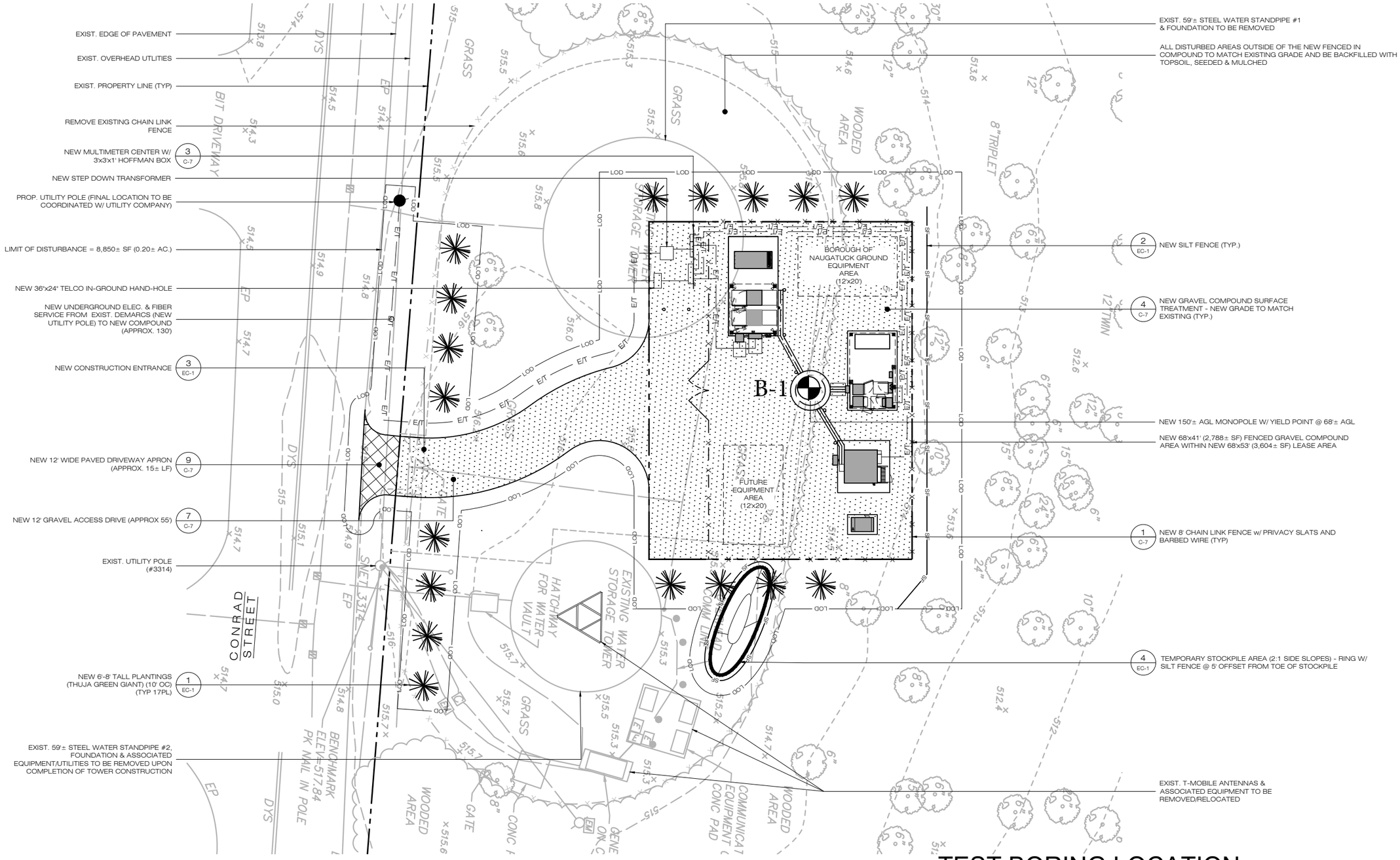
Very truly yours,

Max Welti

Max Welti, P. E.
President, Welti Geotechnical, P.C.

APPENDIX

TEST BORING LOCATION
+
TEST BORING DATA



1 SITE PLAN
SP-2 SCALE : 1" = 10'-0"

(IN FEET) 1 inch = 10 ft.

TEST BORING LOCATION
CLARENCE WELTI ASSOCIATES, INC.
10/2/25

TARPON TOWERS
8916 77th TERRACE EAST, SUITE 103
LAKEWOOD RANCH, FL 34202

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

T-Mobile Northeast LLC
15 COMMERCE WAY
SUITE B
NORTON, MA 02766

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

D&M DOCUMENTS

NO	DATE	REVISION
0	09/12/25	FOR REVIEW: RCB
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: ROBERT C. BURNS, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: BOROUGH OF NAUGATUCK
ADDRESS: 229 CHURCH STREET NAUGATUCK, CT 06770

CT1239 CONRAD ST

SITE ADDRESS: 161 CONRAD STREET NAUGATUCK, CT 06770

APT FILING NUMBER: CT752130

DRAWN BY: ELZ
DATE: 09/12/25
CHECKED BY: RCB

VZW MDG LOC. CODE: 616755202
VZW PSLC: 470709
VZW FUZE ID: 17453771

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
SP-2

CLARENCE WELTI ASSOC., INC.
P.O. BOX 397
GLASTONBURY, CONN 06033

CLIENT
TARPON TOWERS, LLC

PROJECT NAME
PROPOSED CELL TOWER (CT1239, CONRAD ST)
LOCATION
161 CONRAD STREET, NAUGATUCK, CT

	AUGER	CASING	SAMPLER	CORE BAR.
TYPE	HSA		SS	NQ
SIZE I.D.	3.75"		1.375"	2.0"
HAMMER WT.			140lbs	
HAMMER FALL			30"	

OFFSET
LINE & STA.
LONGITUDE
LATITUDE

SURFACE ELEV.
HOLE NO. B-1

GROUND WATER OBSERVATIONS
AT FT. AFTER HOURS
AT FT. AFTER HOURS

START DATE 10/2/25
FINISH DATE 10/2/25

DEPTH	SAMPLE NO.	BLOWS/6"	DEPTH	A	STRATUM DESCRIPTION + REMARKS	ELEV.
0	1	11-60	0.0'-0.7'		TOPSOIL 0.30	
					LIGHT BR.FINE-CRS.SAND, LITTLE TO SOME GRAVEL, LITTLE SILT	
	2	4-60	3.0'-3.8'			
5	3	50-53-40-60	5.0'-7.0'			
10	4	41-60	10.0'-10.8'			
					13.5	
15					BR.FINE-CRS.SAND, SOME GRAVEL, COBBLES & BOULDERS, LITTLE SILT	
					NOTE: ENCOUNTERED AUGER REFUSAL @ 13.5 FEET. CORED THRU DENSE SOILS WITH COBBLES AND BOULDERS FROM 13.5 TO 30 FEET	
					RUN #1 13.5'- 18.5' RECOVERED 24"	
20					RUN #2 18.5'- 23.5' RECOVERED 13"	
					RUN #3 23.5'- 30.0' RECOVERED 14"	
25						
30	5	60	30.0'-30.4'		30.4	
					BOTTOM OF BORING @ 30.4'	
					NOTE: THERE WAS NO WATER IN BOREHOLE TO 13.5 FEET BELOW GRADE. THE BORING WAS DRILLED WITH WATER BELOW THAT LEVEL.	
35						

LEGEND: COL. A:
SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER
INSPECTOR:

SHEET 1 OF 1 | HOLE NO. **B-1**

Verizon Wireless
20 Alexander Dr
Wallingford, CT 06492

November 24, 2025

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

Re: **Docket No. 533 – Application of Tarpon Towers III, LLC and Cellco Partnership d/b/a Verizon Wireless for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation of a Wireless Telecommunications Facility at 161 Conrad Street, Naugatuck, Connecticut**

Dear Attorney Bachman:

In accordance with condition 2(a) of the Docket No. 533 Decision and Order ("D&O"), this letter serves as notice of Verizon Wireless' commitment to install and operate on the approved Naugatuck telecommunications facility upon completion of construction by Tarpon Towers III, LLC. Verizon Wireless anticipates that its equipment will be operational within the eighteen-month timeframe included in the Council's D&O.

Thank you for your consideration of this information.

Sincerely,

Andrew Candiello (Nov 24, 2025 10:29:24 EST)

Andrew Candiello

Verizon Wireless
Associate Director – Real Estate/Regulatory
New England – Network Real Estate
Cellco Partnership d/b/a Verizon Wireless