

October 14, 2015

VIA EMAIL & OVERNIGHT DELIVERY

Hon. Robin Stein, Chairman
and Members of the Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. 451
Homeland Towers, LLC (Homeland)
and New Cingular Wireless PCS, LLC (AT&T)
Proposed Wireless Telecommunications Tower Facility
1325 Cheshire Street, Cheshire, Connecticut

Dear Chairman Stein and Members of the Council:

On behalf of Message Center Management, Inc. ("MCM") and New Cingular Wireless PCS, LLC ("AT&T"), please accept for review and approval this minor alteration from the approved Development Management Plan ("D&M Plan") for the captioned Facility as approved in Docket No. 451. This modification is *de minimus* and stems from a change in the tower manufacturer.

Tower Manufacturer Change

Enclosed are an original and fifteen (15) sets of 11"x 17" sized revised D&M drawings being filed in accordance with the Siting Council's ("Council") Decision and Order dated January 14, 2015 ("Decision and Order") and Regulations of Connecticut State Agencies (RCSA) Section 16-50j-77(b). The Council approved the original D&M on June 25, 2015. Homeland Towers has identified a more preferred tower manufacturer but the available product requires a slightly different configuration for the foundation.

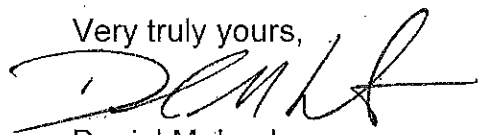
The foundation will now be 33 square feet and terminate 6.5 feet below grade whereas the original D&M noted a 32.5 square foot foundation terminating 6 feet below grade. The tower and proposed loading remain unchanged and the tower is still designed to pass both TIA/EIA 222 Rev F and Rev G. Please find enclosed a revised structural report prepared by Ambor Structures dated September 22, 2015 providing an analysis of the new tower.

We respectfully request review and approval of this minor modification. Should you or staff have any questions please do not hesitate to contact me.

Thank you for your consideration of the enclosed.

CUDDY &
FEDER^{LLP}

Very truly yours,

A handwritten signature in black ink, appearing to read 'DML', written over the typed name.

Daniel M. Laub

Enclosures

CERTIFICATE OF SERVICE

I hereby certify that on this day, an original and fifteen copies of the foregoing was sent electronically and by overnight delivery to the Connecticut Siting Council with copy to:

Burton B. Cohen, Esq.
Murtha Cullina LLP
265 Church Street, 9th Floor
New Haven, CT 06510
bcohen@murthalaw.com


Michael A. Milone
Town Manager
Town of Cheshire
84 South Main Street
Cheshire, CT 06410
mmilone@cheshirect.org

Neil Dryfe, Chief of Police
Town of Cheshire
500 Highland Avenue
Cheshire, CT 06410
ndryfe@cheshirect.org

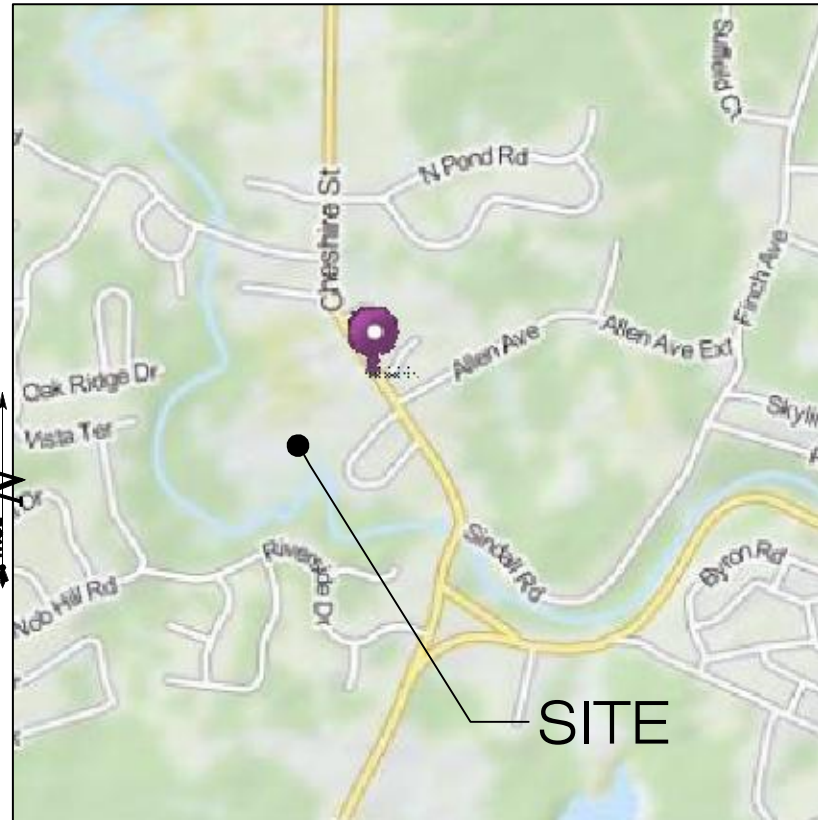
Ms. Jennifer Arcesi
226 Nob Hill Road
Cheshire, CT 06410
jarcesi@cox.net

Gary Wassmer
13 Worden Circle
Cheshire, CT 06410
wassmerg@gmail.com

Dated: October 14, 2015

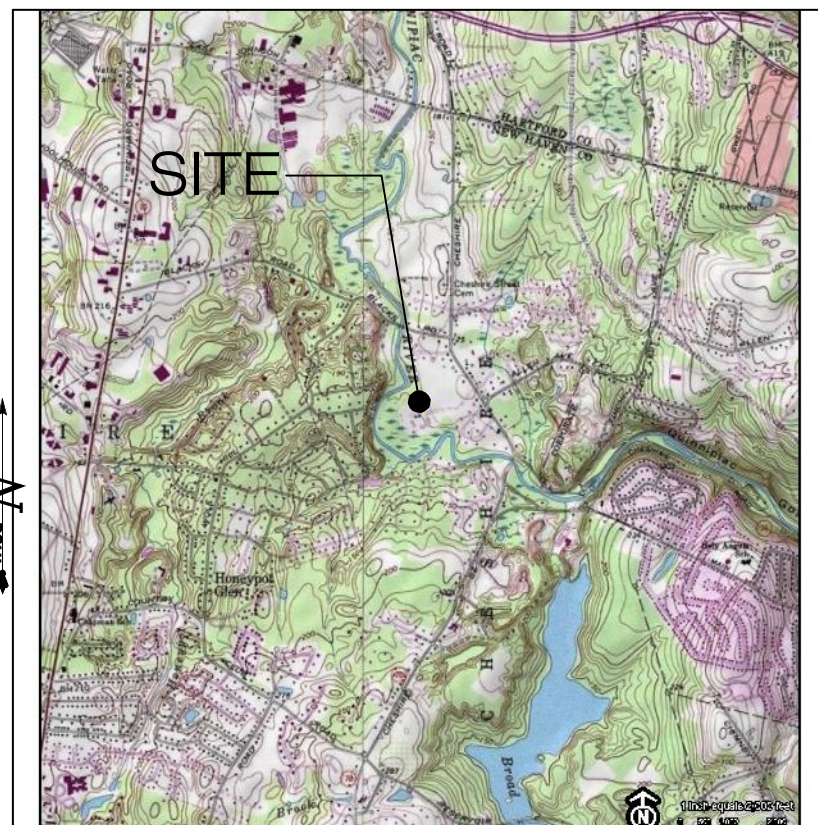

Daniel M. Laub

LOCATION MAP



SCALE : NTS SOURCE: GOOGLE MAPS

USGS TOPOGRAPHIC MAP



SCALE : 1" = 2000'± SOURCE: USGS 7.5 QUADRANGLE FOR MERIDEN



**NEW CINGULAR
WIRELESS PCS, LLC
(AT&T)**
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067



3 SADDLEBROOK DRIVE PHONE: (860)-663-1697
KILLINGWORTH, CT 06419 FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

CONTACT PERSONNEL

APPLICANTS:
HOMELAND TOWERS
22 SHELTER ROCK LANE
BUILDING C
DANBURY, CONNECTICUT 06810

CO-APPLICANTS
AT&T MOBILITY
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

LANDLORD
TOWN OF CHESHIRE
84 SOUTH MAIN STREET
CHESHIRE, CT 06410

HOMELAND PROJECT MANAGER:
VINCENT XAVIER
(914) 879-9172

HOMELAND PROJECT ATTORNEY:
CUDDY & FEDER, LLP
445 HAMILTON AVENUE
14TH FLOOR
WHITE PLAINS, NY 10601

POWER PROVIDER:
NU (203) 271-4856
DAVID MOREL

TELCO PROVIDER:
FRONTIER: (800) 921-8102

CALL BEFORE YOU DIG:
(800) 922-4455

GOVERNING CODES:
2009 CONNECTICUT BUILDING CODE (2003 IBC BASIS)
2011 NATIONAL ELECTRIC CODE
IA/TIA 222F

SITE INFORMATION

**CHESHIRE
1325 CHESHIRE STREET
CHESHIRE, CT 06410**

**DEVELOPMENT & MANAGEMENT PLAN
DRAWING INDEX**

T-1 TITLE SHEET & INDEX

EX- 1 TOPOGRAPHIC SURVEY

R-1 ABUTTERS MAP

SP-1 SITE PLAN

SP-2 TURTLE PROTECTION PROGRAM & CONST. SEQUENCE

A-1 COMPOUND PLAN & TOWER ELEVATION

C-1 AT&T EQUIP. SHELTER PLAN & DETAILS

C-2 AT&T ANTENNA PLAN & DETAILS

C-3 TOWN EQUIPMENT PLAN & DETAILS

S-1 COMPOUND DETAILS

N-1 NOTES & SPECIFICATIONS

*** SITE INFORMATION:**

-SITE NAME:..... CHESHIRE
-SITE ID NUMBER:..... CT-005
-SITE ADDRESS:..... 1325 CHESHIRE STREET
CHESHIRE, CT 06410

-MAP:..... 38
-LOTS:..... 180

-ZONE:..... R-40
-LATITUDE - 41° 31' 57.32" N
-LONGITUDE - 72° 52' 13.70" W
-ELEVATION - 116± AMSL

-FEMA/FIRM
DESIGNATION:..... PANEL# 09009C0161H - ZONE X
-ACREAGE:..... 59.0± Ac (VOL. 150, PAGE 376)

HOMELAND TOWERS SITE NUMBER:
CT-005

APT FILING NUMBER:
CT-283-250



HOMELAND TOWERS
22 SHELTER ROCK LANE
BUILDING C
DANBURY, CT 06810



3 SADDLEBROOK DRIVE PHONE: (860)-663-1697
KILLINGWORTH, CT 06419 FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

DEVELOPMENT & MANAGEMENT DOCUMENTS

**CHESHIRE
1325 CHESHIRE STREET
CHESHIRE, CT 06410**

DESIGN TYPE:
**RAW LAND
DEVELOPMENT SITE**

REVISIONS:

REV.0: 04/29/15: FOR REVIEW: SMC
REV.1: 05/14/15: CLIENT REVISIONS: SMC
REV.2: 10/05/15: TOWER REVISIONS: SMC
REV.3:
REV.4:
REV.5:

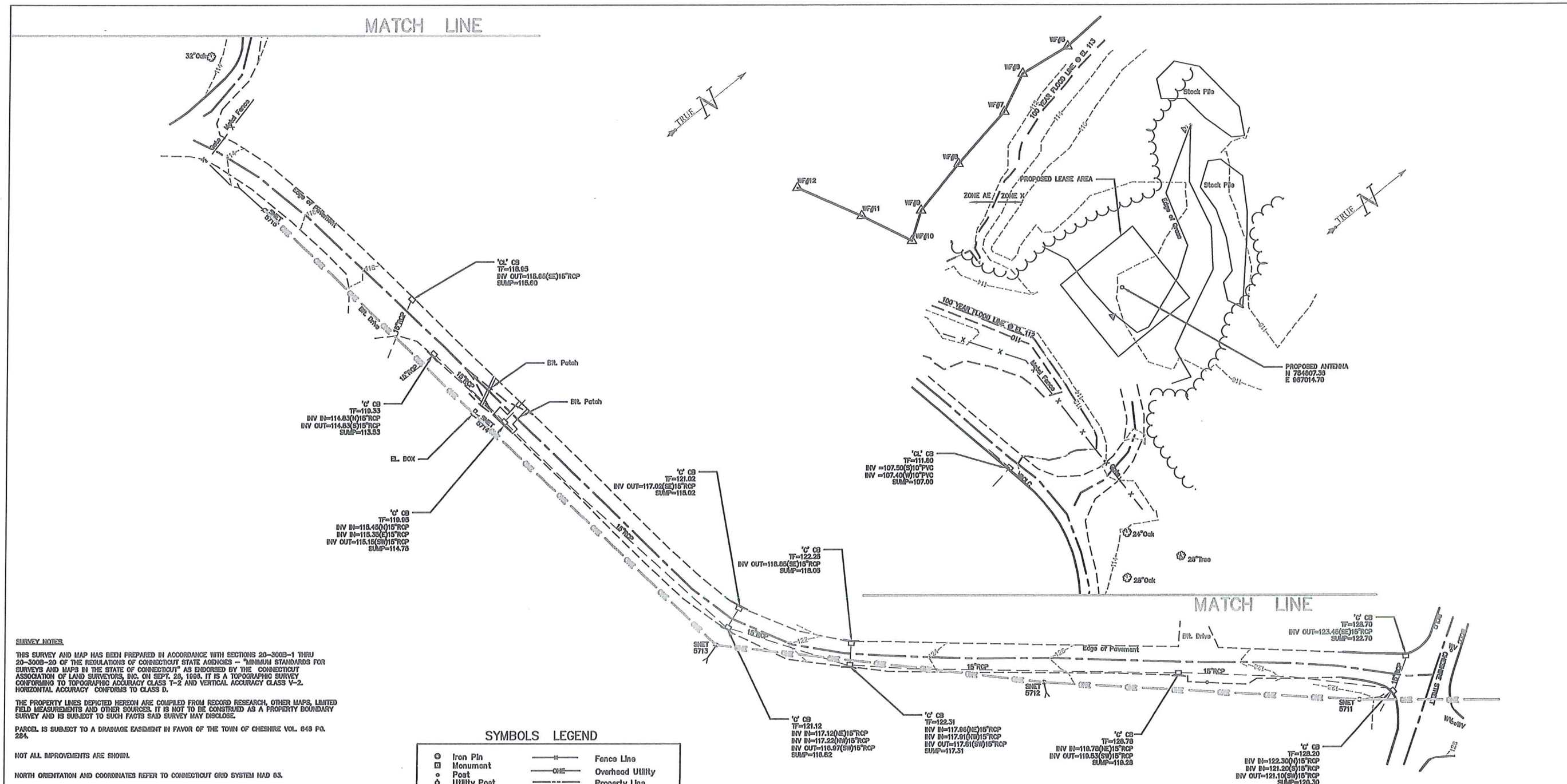
**TITLE SHEET
& INDEX**

APT FILING NUMBER: CT-283-250
APT DRAWING NUMBER: CT005 T-1

DRAWN BY: RCB SCALE: AS NOTED
CHECKED BY: SMC DATE: 04/29/15

SHEET NUMBER:

T-1



SURVEY NOTES

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 28, 1998. IT IS A TOPOGRAPHIC SURVEY CONFORMING TO TOPOGRAPHIC ACCURACY CLASS T-2 AND VERTICAL ACCURACY CLASS V-2. HORIZONTAL ACCURACY CONFORMS TO CLASS D.

THE PROPERTY LINES DEPICTED HEREON ARE COMPILED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS SAID SURVEY MAY DISCLOSE.

PARCEL IS SUBJECT TO A DRAINAGE EASEMENT IN FAVOR OF THE TOWN OF CHESHIRE VOL. 643 PG. 22A.

NOT ALL IMPROVEMENTS ARE SHOWN.

NORTH ORIENTATION AND COORDINATES REFER TO CONNECTICUT GRID SYSTEM NAD 83.

ELEVATIONS ARE BASED ON NAVD 1988.

PARCEL ADDRESS: 1323 CHESHIRE STREET, CHESHIRE CT.

PARCEL OWNER OF RECORD: TOWN OF CHESHIRE.

PARCEL IS IN THE R-40 ZONE.

PARCEL MAP 26 LOT 100 CHESHIRE ASSESSORS MAP.

PARCEL AREA = 6.2± ACRES.

PARCEL IS IN ZONE X AND AE OF THE FLOOD INSURANCE RATE MAP, NEW HAVEN COUNTY, CONNECTICUT, ALL JURISDICTIONS, PANEL 161 OF 635, MAP NUMBER 06000C0161H, EFFECTIVE DATE DECEMBER 17, 2010, BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

100 YEAR FLOOD LINE BASED ON ELEVATIONS DEPICTED ON THE FLOOD INSURANCE RATE MAP, NEW HAVEN COUNTY, ALL JURISDICTIONS, PANEL 161 OF 635, MAP NUMBER 06000C0161H, EFFECTIVE DATE DECEMBER 17, 2010, BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

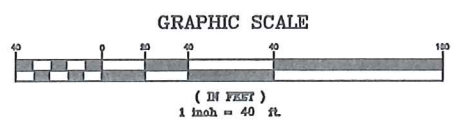
WETLAND FLAG LOCATIONS PROVIDED BY ALL-POINTS TECHNOLOGY CORPORATION.

MAP REFERENCES

1) 1) "PROPERTY OF JOHN DANAHYER TO BE SOLD TO TOWN OF CHESHIRE, CHESHIRE STREET, CHESHIRE CONN., SCALE 1"=100", DATED DECEMBER 29, 1993, BY CARL G. MATSON - LAND SURVEYOR & CIVIL ENGINEER.

SYMBOLS LEGEND

○ Iron Pin	— Fence Line
□ Monument	— Overhead Utility
○ Post	— Property Line
◇ Utility Post	— Property Line
← Guy Anchor	— Contour Line
□ 'CL' CB	— Tree Line
□ 'C' CB	— Property Line
⊙ Deciduous Tree	△ WF/00 Wetland Flag
WV Water Valve	BCLC Bituminous Curb

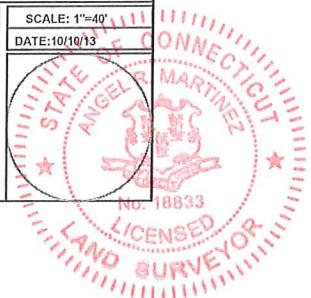


TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND SEAL.

Rafael Martinez
A. RAFAEL MARTINEZ, LLS #18833 DATE 10/10/13

HOMELAND TOWERS: CT005-CHESHIRE	1323 CHESHIRE STREET CHESHIRE, CT 06410	TOPOGRAPHIC SURVEY
APT FILING NUMBER: CT-283-250		APT FILING NUMBER: CT-283-250
		APT DRAWING NUMBER: CT-283-250-EX-1.DWG
		DRAWN BY: JBR
		CHECKED BY: ARM
		SCALE: 1"=40'
		DATE: 10/10/13
		SHEET NUMBER:
		EX-1
ALL-POINTS TECHNOLOGY CORPORATION, P.C. 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 PHONE: (860)-663-1697 FAX: (860)-663-0935 WWW.ALLPOINTSTECH.COM	REVISIONS:	
	REV.0:	
	REV.1:	
	REV.2:	
	REV.3:	
	REV.4:	
	REV.5:	



ABUTTERS INFORMATION

NOB HILL ROAD	MARKS PLACE	RIVERSIDE DRIVE	WORDEN CIRCLE
PARCEL: 38-178 286 NOB HILL ROAD N/F JOSEPH R. ANTHONY 286 NOB HILL ROAD CHESHIRE, CT 06410	PARCEL: 29-111 5 MARKS PLACE N/F DREW S. & JENNIFER K. BLACK 450 RIVERSIDE DRIVE CHESHIRE, CT 06410	PARCEL: 38-171 450 RIVERSIDE DRIVE N/F ROBERT H. & LINDA J. DOANE 450 RIVERSIDE DRIVE CHESHIRE, CT 06410	PARCEL: 39-68 13 WORDEN CIRCLE N/F GARY WASSMER & ANDREA IVEY 13 WORDEN CIRCLE CHESHIRE, CT 06410
PARCEL: 38-177 270 NOB HILL ROAD N/F GORDON R. & JUDITH P. OBEREMPT 270 NOB HILL ROAD CHESHIRE, CT 06410	PARCEL: 29-112 7 MARKS PLACE N/F CHRISTOPHER J. & NANCY S. SIMOK 7 MARKS PLACE CHESHIRE, CT 06410	PARCEL: 38-170 454 RIVERSIDE DRIVE N/F JANE RUSSELL BATE 454 RIVERSIDE DRIVE CHESHIRE, CT 06410	PARCEL: 39-67 15 WORDEN CIRCLE N/F KATHLEEN S. RICHARD 15 WORDEN CIRCLE CHESHIRE, CT 06410
PARCEL: 38-176 256 NOB HILL ROAD N/F FD/SDFS 256 NOB HILL ROAD CHESHIRE, CT 06410	PARCEL: 29-113 9 MARKS PLACE N/F ATTANASIO JOSEPH JR 9 MARKS PLACE CHESHIRE, CT 06410	PARCEL: 38-169 470 RIVERSIDE DRIVE N/F THOMAS E. GRIMSHAW 470 RIVERSIDE DRIVE CHESHIRE, CT 06410	PARCEL: 39-66 17 WORDEN CIRCLE N/F RICHARD M. & ROSEANNE B. FERRARO 17 WORDEN CIRCLE CHESHIRE, CT 06410
PARCEL: 38-175 240 NOB HILL ROAD N/F HARRY J. JR & CHARLENE R. BLACK 240 NOB HILL ROAD CHESHIRE, CT 06410	PARCEL: 29-114 11 MARKS PLACE N/F DIANE M. KEARNEY 11 MARKS PLACE CHESHIRE, CT 06410	PARCEL: 38-168 490 RIVERSIDE DRIVE N/F ROBERT A. MEISTER 490 RIVERSIDE DRIVE CHESHIRE, CT 06410	PARCEL: 30-142 19 WORDEN CIRCLE N/F CATHE A. NIZICH 19 WORDEN CIRCLE CHESHIRE, CT 06410
PARCEL: 38-174 226 NOB HILL ROAD N/F JENNIFER ARCESI & DAVID CETRONE 226 NOB HILL ROAD CHESHIRE, CT 06410	PARCEL: 29-115 13 MARKS PLACE N/F PETER S. & GINA M. REINERS 13 MARKS PLACE CHESHIRE, CT 06410	PARCEL: 38-167 510 RIVERSIDE DRIVE N/F SCOTT WEINER & ANAT LEVITEH 510 RIVERSIDE DRIVE CHESHIRE, CT 06410	CHESHIRE STREET PARCEL: 30-141 1369 CHESHIRE STREET N/F STEPHEN J. & DANNA COBBE 1369 CHESHIRE STREET CHESHIRE, CT 06410
	SABLE COURT	PARCEL: 38-181 520 RIVERSIDE DRIVE N/F JOHN F. & ROBIN G. CAPONE 520 RIVERSIDE DRIVE CHESHIRE, CT 06410	PARCEL: 30-2 1311 CHESHIRE STREET N/F JEAN H. WARGO 1311 CHESHIRE STREET CHESHIRE, CT 06410
	PARCEL: 29-130 499 SABLE COURT N/F MARK S. & SUSAN HALLBACH 499 SABLE COURT CHESHIRE, CT 06410	PARCEL: 39-4 CHESHIRE STREET N/F CHESHIRE LAND TRUST INC. CHESHIRE, CT 06410	PARCEL: 30-4 1355 CHESHIRE STREET N/F DAVID M. & SANDRA D. LETOURNEAU 1355 CHESHIRE STREET CHESHIRE, CT 06410
	OAKRIDGE DRIVE	PARCEL: 29-40 540 OAKRIDGE DRIVE N/F EDWARD S. KONOWITZ 540 OAKRIDGE DRIVE CHESHIRE, CT 06410	PARCEL: 30-3 1339 CHESHIRE STREET N/F VARRI RAMPRASAD 1339 CHESHIRE STREET CHESHIRE, CT 06410
	PARCEL: 29-32 532 OAKRIDGE DRIVE N/F DONALD L. & DIANE E. DRUST 532 OAKRIDGE DR CHESHIRE, CT 06410	VISTA TERRACE	PARCEL: 30-3 1344 CHESHIRE STREET N/F RICHARD SR. & DOREEN C. PRUITT 1344 CHESHIRE STREET CHESHIRE, CT 06410
	PARCEL: 29-32 532 OAKRIDGE DRIVE N/F DONALD L. & DIANE E. DRUST 532 OAKRIDGE DR CHESHIRE, CT 06410	PARCEL: 29-33 94 VISTA TERRACE N/F JOAN L. TATIGIAN 94 VISTA TERRACE CHESHIRE, CT 06410	PARCEL: 30-22 1322 CHESHIRE STREET N/F MONTGOMERY T. HELMS 1322 CHESHIRE STREET CHESHIRE, CT 06410
		PARCEL: 29-39 91 VISTA TERRACE N/F LIAM C. & ALISON A. CONSIDINE 91 VISTA TERRACE CHESHIRE, CT 06410	PARCEL: 30-24 1314 CHESHIRE STREET N/F JOHN E. & TARA K. MILLER 1314 CHESHIRE STREET CHESHIRE, CT 06410

SITE AREAS & VOLUMES OF EARTHWORK

SITework SHALL PRODUCE A BALANCED SITE IN TERMS OF CUT AND FILL. THE COMPOUND AND ROADWAY WILL IMPORT APPROXIMATELY 160 CUBIC YARDS OF CLEAN BROKEN STONE. THE UTILITY TRENCH FROM THE DEMARC TO THE COMPOUND WILL EXCAVATE APPROXIMATELY 250 CUBIC YARDS OF MATERIAL THAT WILL BE USED TO BACKFILL THE TRENCH.

COMPOUND AREA SLOPES:
 EXISTING - <2.0%
 PROPOSED - <2.0%

TOTAL AREA OF DISTURBANCE = 13,500 ± SF

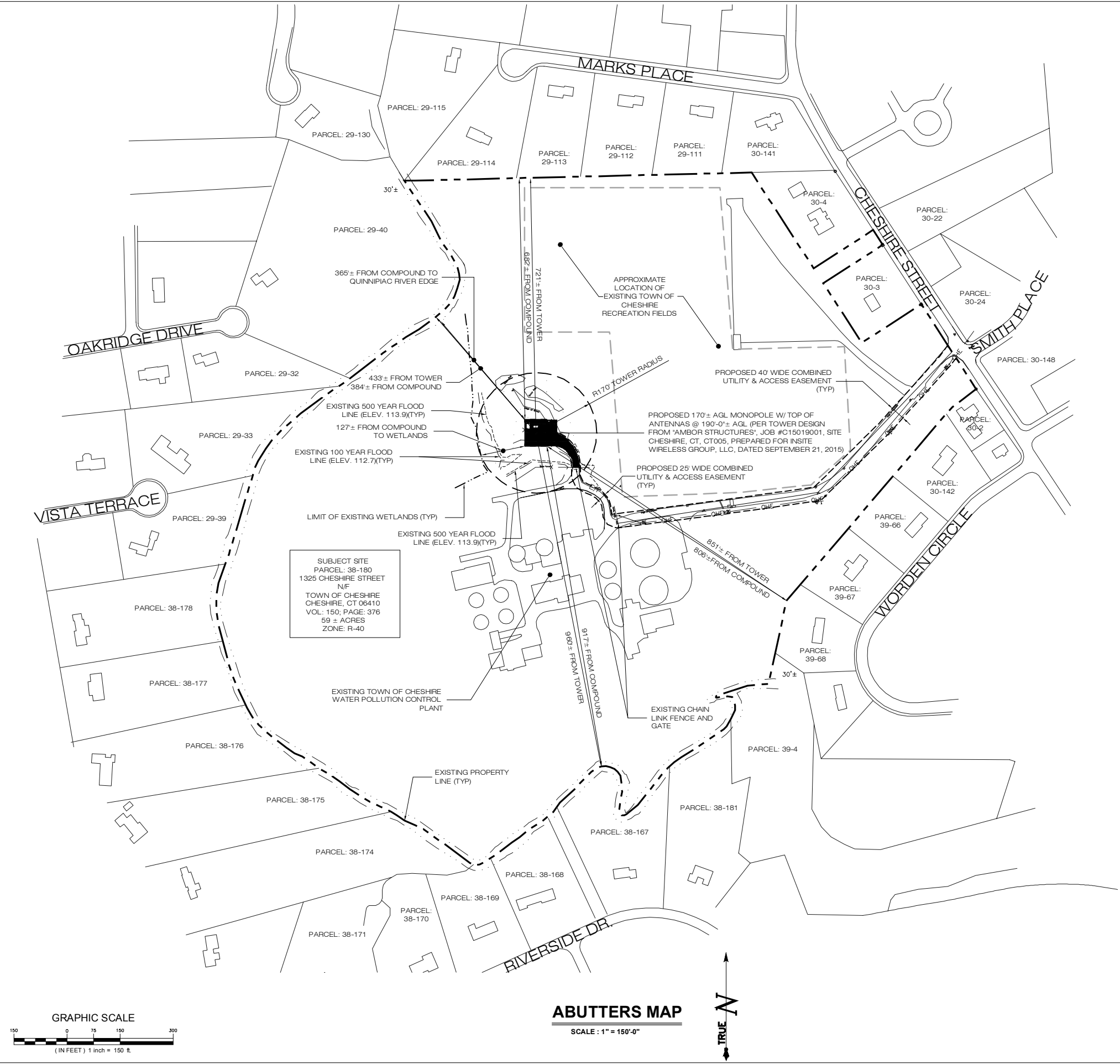
STORMWATER VELOCITY:
 PRIOR TO GROUND COVER < 3.0 FT/SEC
 FOLLOWING GROUND COVER < 3.0 FT/SEC

STORMWATER VOLUME:
 PROPOSED IMPERVIOUS AREA = 8,125 SF
 WATER QUALITY STD VOLUME (1") = 677 CF
 NEW GRAVEL SURFACE AREA = 6,338 SF
 STORAGE VOLUME (6" DEPTH, 30% VOIDS) = 950 CF

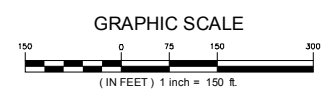
GROUND COVER TO BE ESTABLISHED AS FOLLOWS
 (U.O.N):
 - WHITE CLOVER @ 0.20#/- SF
 - TALL FESCUE @ 0.45#/- SF
 - RYEGRASS @ 0.10#/- SF

- BASE MAPPING FOR SHEETS R-1, SP-1 AND A-1 FROM:
1. PLAN ENTITLED 'TOPOGRAPHIC SURVEY - 1325 CHESHIRE STREET CHESHIRE, CONNECTICUT' PREPARED BY MARTINEZ COUCH & ASSOCIATES, LLC 1084 CROMWELL AVENUE ROCKY HILL, CT DATED OCTOBER 10, 2013.
 2. TOWN OF CHESHIRE ASSESSORS MAPS 29, 30, 38, & 39.
 3. TOWN OF CHESHIRE 'ZONING MAP'
 4. DIGITAL GLOBAL 2012 DIGITAL ORTHOPHOGRAPHS.

HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250  HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410		ABUTTERS MAP	
	DESIGN TYPE: RAW LAND DEVELOPMENT SITE		APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 R-1	
 ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM	REVISIONS: REV.0: 04/29/15: FOR REVIEW: SMC REV.1: 05/14/15: CLIENT REVISIONS: SMC REV.2: 10/05/15: TOWER REVISIONS: SMC REV.3: REV.4: REV.5:		DRAWN BY: RCB CHECKED BY: SMC	SCALE: AS NOTED DATE: 04/29/15
	SHEET NUMBER: <h1>R-1</h1>			



ABUTTERS MAP
 SCALE: 1" = 150'-0"



SURVEY NOTES

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE "CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1996. IT IS A TOPOGRAPHIC SURVEY CONFORMING TO TOPOGRAPHIC ACCURACY CLASS T-2 AND VERTICAL ACCURACY CLASS V-2. HORIZONTAL ACCURACY IS CONFORMS TO CLASS D.

THE PROPERTY LINES DEPICTED HEREON ARE COMPILED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS SAID SURVEY MAY DISCLOSE.

PARCEL IS SUBJECT TO A DRAINAGE EASEMENT IN FAVOR OF THE TOWN OF CHESHIRE VOL. 646 PG. 284.

NOT ALL IMPROVEMENTS ARE SHOWN.

NORTH ORIENTATION AND COORDINATES REFER TO CONNECTICUT GRID SYSTEM NAD 83.

ELEVATIONS ARE BASED ON NAVD 1988.

ALL IMPROVEMENTS ARE NOT SHOWN.

PARCEL ADDRESS: 1325 CHESHIRE STREET, CHESHIRE CT.

PARCEL OWNER OF RECORD: TOWN OF CHESHIRE.

PARCEL IS IN THE R-40 ZONE.

PARCEL MAP 38 LOT 180 CHESHIRE ASSESSORS MAP.

PARCEL AREA = 59± ACRES.

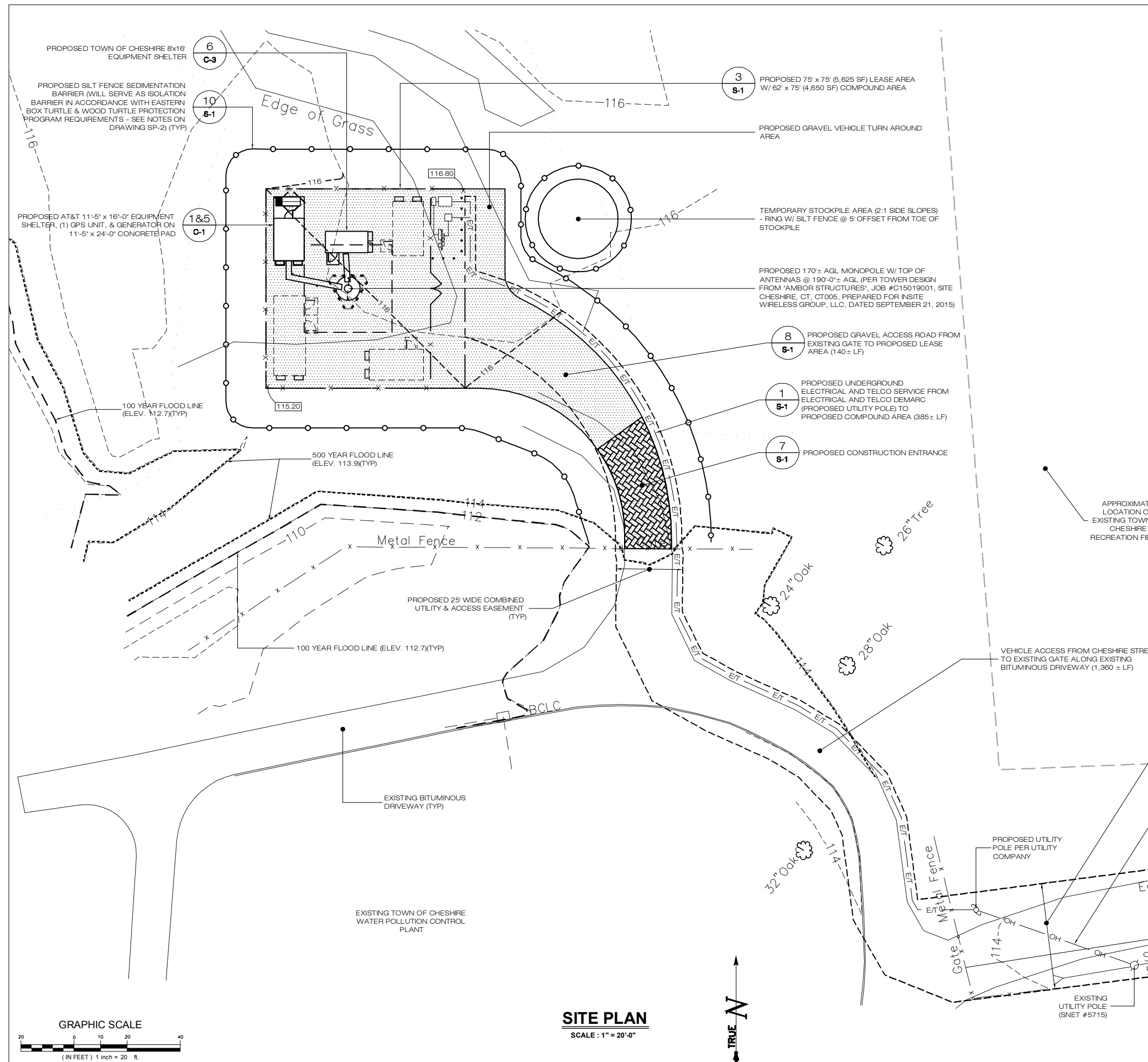
PARCEL IS IN ZONE X AND AE OF THE FLOOD INSURANCE RATE MAP, NEW HAVEN COUNTY, CONNECTICUT, ALL JURISDICTIONS, PANEL 161 OF 635, MAP NUMBER 09009C0161H, EFFECTIVE DATE DECEMBER 17, 2010, BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

THE 100 YEAR FLOOD LINE BASED ON ELEVATIONS DEPICTED ON THE FLOOD INSURANCE RATE MAP, NEW HAVEN COUNTY, ALL JURISDICTIONS, PANEL 161 OF 635, MAP NUMBER 09009C0161H, EFFECTIVE DATE DECEMBER 17, 2010, BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

THE 500 YEAR FLOOD LINE BASE ON ELEVATIONS TAKEN FROM THE FLOOD INSURANCE STUDY, QUINNIAC RIVER NEW HAVEN COUNTY, CONNECTICUT DATED JULY 8, 2013 BY FEDERAL EMERGENCY MANAGEMENT AGENCY.

MAP REFERENCES

1) 1) "PROPERTY OF JOHN DANAHER TO BE SOLD TO TOWN OF CHESHIRE, CHESHIRE STREET, CHESHIRE CONN., SCALE 1"=100, DATED DECEMBER, 29, 1965, BY CARL G. MATTSOON - LAND SURVEYOR & CIVIL ENGINEER.



APPROXIMATE LOCATION OF EXISTING TOWN OF CHESHIRE RECREATION FIELDS

VEHICLE ACCESS FROM CHESHIRE STREET TO EXISTING GATE ALONG EXISTING BITUMINOUS DRIVEWAY (1,360 ± LF)

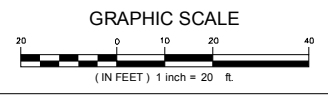
PROPOSED 40' WIDE COMBINED UTILITY & ACCESS EASEMENT (TYP)

PROPOSED OVERHEAD ELECTRICAL AND TELCO SERVICE FROM ELECTRICAL AND TELCO DEMARC (SNET #5715) TO PROPOSED UTILITY POLE

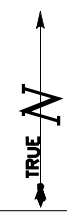
PROPOSED UTILITY POLE PER UTILITY COMPANY

EXISTING UTILITY POLE (SNET #5715)

NOTE: NO TREES WILL BE REMOVED IN CONSTRUCTING THE FACILITY



SITE PLAN
SCALE: 1" = 20'-0"



HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410		SITE PLAN	
	DESIGN TYPE: RAW LAND DEVELOPMENT SITE		APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 SP-1	
REVISIONS:		DRAWN BY: RCB CHECKED BY: SMC		SCALE: AS NOTED DATE: 04/29/15
REV.0: 04/29/15: FOR REVIEW: SMC REV.1: 05/14/15: CLIENT REVISIONS: SMC REV.2: 10/05/15: TOWER REVISIONS: SMC REV.3: REV.4: REV.5:		SHEET NUMBER: SP-1		

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

ENVIRONMENTAL NOTES

Eastern Box Turtle and Wood Turtle Protection Program

Eastern Box Turtle and Wood Turtle, both State Special Concern species afforded protection under the Connecticut Endangered Species Act, are known to occur on or within the vicinity of the site. The following protective measures satisfy requirements from the Connecticut Department of Energy & Environmental Protection (CTDEEP) Wildlife Division and follow protocols developed from previous rare species consultations and state-approved protection plans. This protection plan is valid for one year from the date of CTDEEP's letter, at which point if construction has not been initiated, a new Natural Diversity Data Base review request from CTDEEP is required.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site if work will occur during the Eastern Box Turtle's and Wood Turtle's active period (April 1 to November 15). All-Points Technology Corporation, P.C. (APT) will serve as the Environmental Monitor for this project to ensure that Eastern Box Turtle and Wood Turtle protection measures are implemented properly and will provide an education session on Eastern Box Turtle and Wood Turtle prior to the start of construction activities. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by phone at (860) 984-9515 or via email at dgustafson@alpointstech.com.

The proposed Eastern Box Turtle and Wood Turtle species protection program consists of several components: isolation of the project perimeter; periodic inspection and maintenance of isolation structures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. Isolation Measures & Erosion and Sedimentation Controls

- Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the Verizon Wireless project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.
- Installation of erosion and sedimentation controls (i.e., silt fencing), required for erosion control compliance and creation of a barrier to possible migrating/dispersing herpetofauna, shall be performed by the Contractor following clearing activities and prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following erosion control barrier installation to ensure the area is free of to ensure the area is free of eastern box turtles and wood turtles and satisfactorily installed. The intent of the barrier is to segregate the majority of the work zone from foraging/migrating/dispersing turtles. Oftentimes complete isolation of a work zone is not feasible due to accessibility needs and locations of staging/material storage areas, etc. In those circumstances, the barriers will be positioned to deflect migrating/dispersal routes away from the work zone to minimize potential encounters with turtles.
- The fencing will consist of non-reinforced conventional erosion control woven fabric, installed approximately six inches below surface grade and staked at seven to ten-foot intervals using four-foot oak stakes or approved equivalent. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breaches in the fabric following installation and at either on a weekly or biweekly inspection frequency by APT. If inspections are performed on a biweekly basis, such inspections will also include inspections following storm events of 0.25 inch or greater. Inspections will be conducted by APT throughout the course of the construction project.
- The extent of the barrier fencing will be as shown on the site plans. The Contractor shall have additional barrier fencing should field conditions warrant extending the fencing as directed by APT.
- No equipment, vehicles or construction materials shall be stored outside of barrier fencing.
- All silt fencing shall be removed within 30 days of completion of work and permanent stabilization of site soils so that reptile and amphibian movement between uplands and wetlands is not restricted.

2. Contractor Education

- 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 providing photos of eastern box turtles and wood turtles and emphasizing the non-aggressive nature of these turtles, the absence of need to destroy animals that might be encountered and the need to follow Protective Measures as described in Section 4 below. Workers will also be provided information regarding the identification of other turtle species that could be encountered.
- The education session will also focus on means to discriminate between the species of concern and other native species to avoid unnecessary "false alarms". Encounters with any species of turtles will be documented.
- The Contractor will be provided with cell phone and email contacts for APT personnel to immediately report any encounters with eastern box turtle, wood turtle or other turtle species. Educational poster materials will be provided by APT and displayed on the job site to maintain worker awareness as the project progresses.

3. Petroleum Materials Storage and Spill Prevention

- Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.
- A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.
- The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor
 - Petroleum and Hazardous Materials Storage and Refueling
 - Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
 - Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.
 - Initial Spill Response Procedures
 - Stop operations and shut off equipment.
 - Remove any sources of spark or flame.
 - Contain the source of the spill.
 - Determine the approximate volume of the spill.
 - Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
 - Ensure that fellow workers are notified of the spill.
 - Spill Clean Up & Containment
 - Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
 - Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
 - Isolate and eliminate the spill source.
 - Contact the appropriate local, state and/or federal agencies, as necessary.
 - Contact a disposal company to properly dispose of contaminated materials.
 - Reporting
 - Complete an incident report.
 - Submit a completed incident report to the Connecticut Siting Council.

4. Turtle Protective Measures

- Prior to the start of construction each day, the Contractor shall search the entire work area for turtles.
- If a turtle is found, it shall be immediately moved, unharmed, by carefully grasped in both hands, one on each side of the shell, between the turtle's forelimbs and the hind limbs, and placed just outside of the isolation barrier in the approximate direction it was walking.
- Special care shall be taken by the Contractor during early morning and evening hours so that possible basking or foraging turtles are not harmed by construction activities.

5. Herbicide and Pesticide Restrictions

- The use of herbicides and pesticides at the proposed wireless telecommunications facility and along the proposed access drive are strictly prohibited.

6. Reporting



- Monthly inspection reports (brief narrative and applicable photos) will be submitted to the Connecticut Siting Council for compliance verification. Any observations of turtles will be included in the reports.
- Following completion of the construction project, APT will provide a summary report to CTDEEP documenting the monitoring and maintenance of the barrier fence and erosion control measures.
- Any observations of eastern box turtle or wood turtle will be reported to CTDEEP by APT, with photo-documentation (if possible) and with specific information on the location and disposition of the animal.

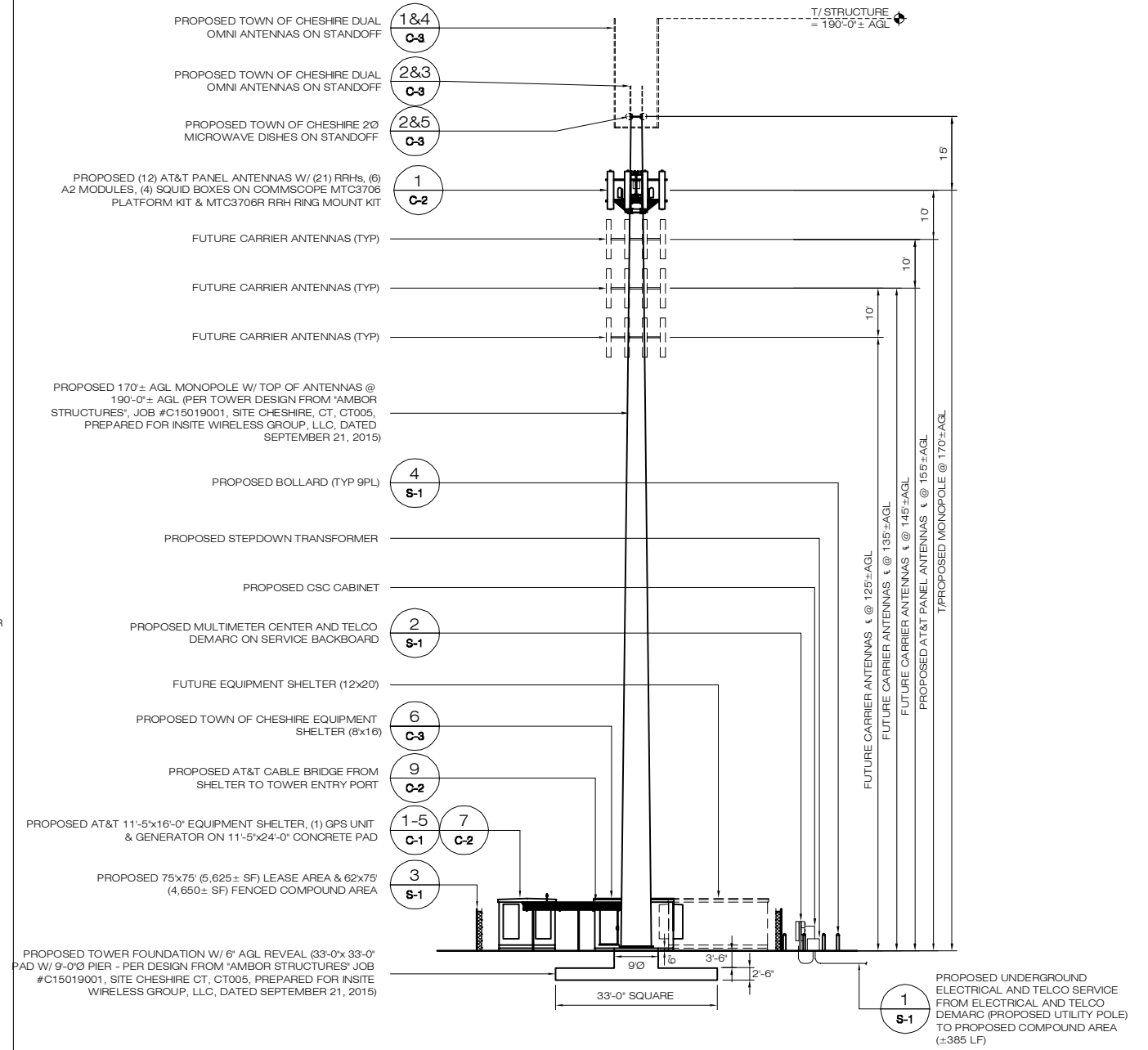
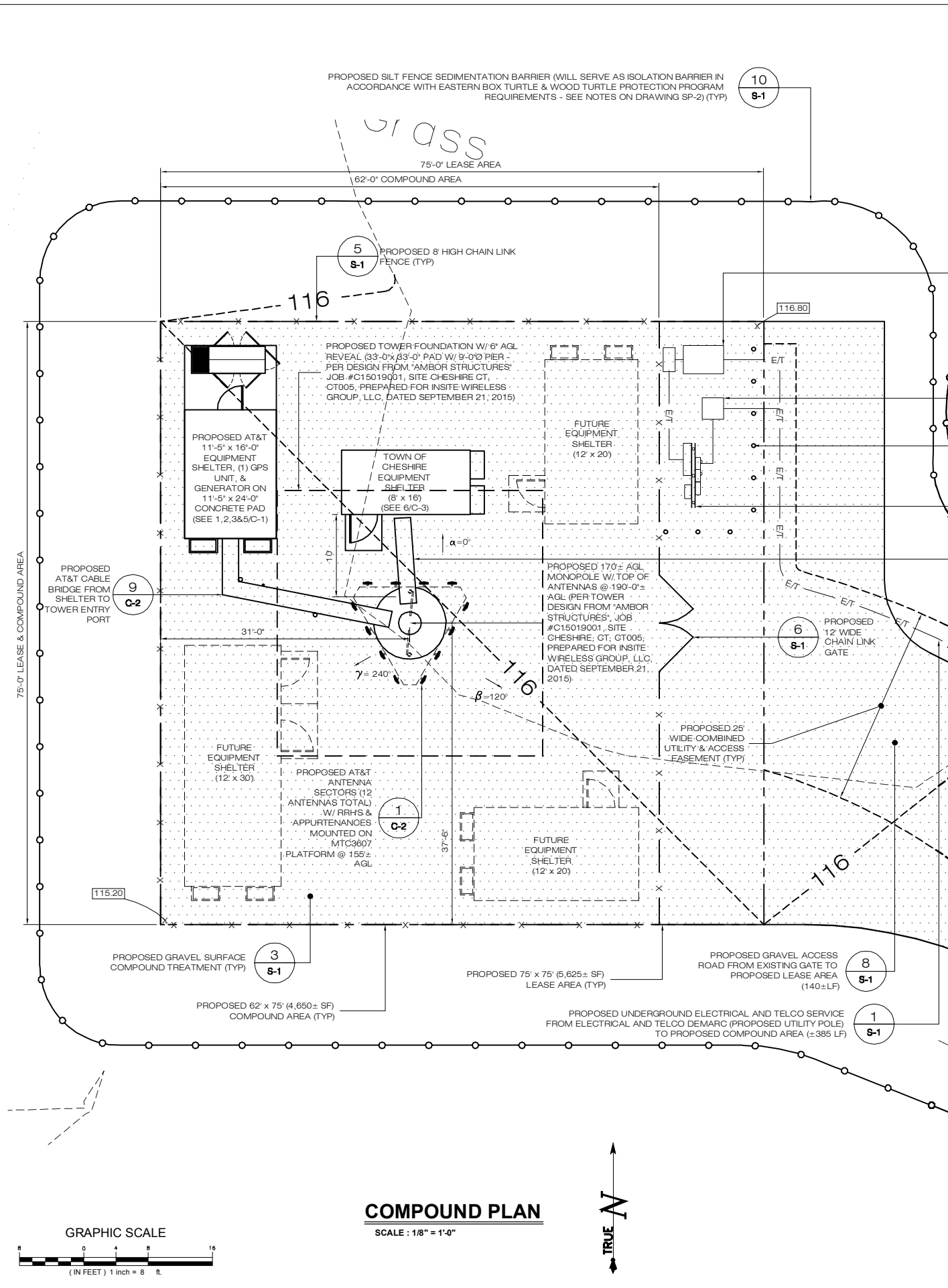
CONSTRUCTION SEQUENCING

CONTRACTOR TO FOLLOW THE FOLLOWING CONSTRUCTION PHASING AS CLOSELY AS POSSIBLE:

- MOBILIZATION: BRING MATERIAL AND EQUIPMENT TO SITE. ALL CONSTRUCTION TRAFFIC AND ACTIVITIES MUST RESIDE INSIDE ACCESS PATH DELINEATED, WITHIN STAGING AND STOCKPILE AREA, OR WITHIN AREA WHERE PROPOSED WORK IS BEING COMPLETED. THE CONTRACTOR IS TO PROTECT WETLANDS FROM DISTURBANCE AT ALL TIMES AND NO CONSTRUCTION ACTIVITIES OR DUMPING SHALL OCCUR IN THE WETLANDS.
- INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROL BARRIERS.
- INSTALL CONSTRUCTION ENTRANCE.
- CLEAR AND ROUGH GRADE ACCESS ROAD TO THE NEW EQUIPMENT COMPOUND.
- CONSTRUCT NEW UTILITY TRENCH & SET CONDUITS & BACKFILL.
- ROUGH GRADE COMPOUND AREA
- EXCAVATE FOR TOWER FOUNDATION AND EQUIPMENT SHELTER FOUNDATION.
- FINALIZE ACCESS ROAD GRADES AND INSTALL WEARING COURSE.
- PREPARE SUBGRADE AND INSTALL FORMS, STEEL REINFORCING, AND CONCRETE FOR TOWER FOUNDATION & EQUIPMENT SHELTER FOUNDATION.
- INSTALL BURIED GROUND RINGS, GROUND RODS, GROUND LEADS, UTILITY CONDUITS, AND UTILITY EQUIPMENT.
- BACKFILL FOUNDATION & EQUIPMENT SHELTER FOUNDATION.
- ERECT MONOPOLE.
- INSTALL TELECOMMUNICATIONS EQUIPMENT ON TOWER AND IN COMPOUND.
- INSTALL COMPOUND GRAVEL SURFACES.
- INSTALL FENCING.
- CONNECT GROUNDING LEADS AND LIGHTENING PROTECTION.
- FINAL GRADE AROUND COMPOUND.
- LOAM AND SEED DISTURBED AREAS OUTSIDE COMPOUND, AS REQUIRED.
- REMOVE SILT FENCING AFTER SEEDED AREAS HAVE ESTABLISHED VEGETATION.
- FINAL CLEANUP AND EQUIPMENT TESTING.

THE ESTIMATED TIME FOR COMPLETION OF THE WORK IS APPROXIMATELY FOUR (4) WEEKS. THE EXACT PROCESS MAY VARY DEPENDING ON THE CONTRACTORS' AND SUBCONTRACTORS' AVAILABILITY TO COMPLETE WORK AND WEATHER DELAYS.

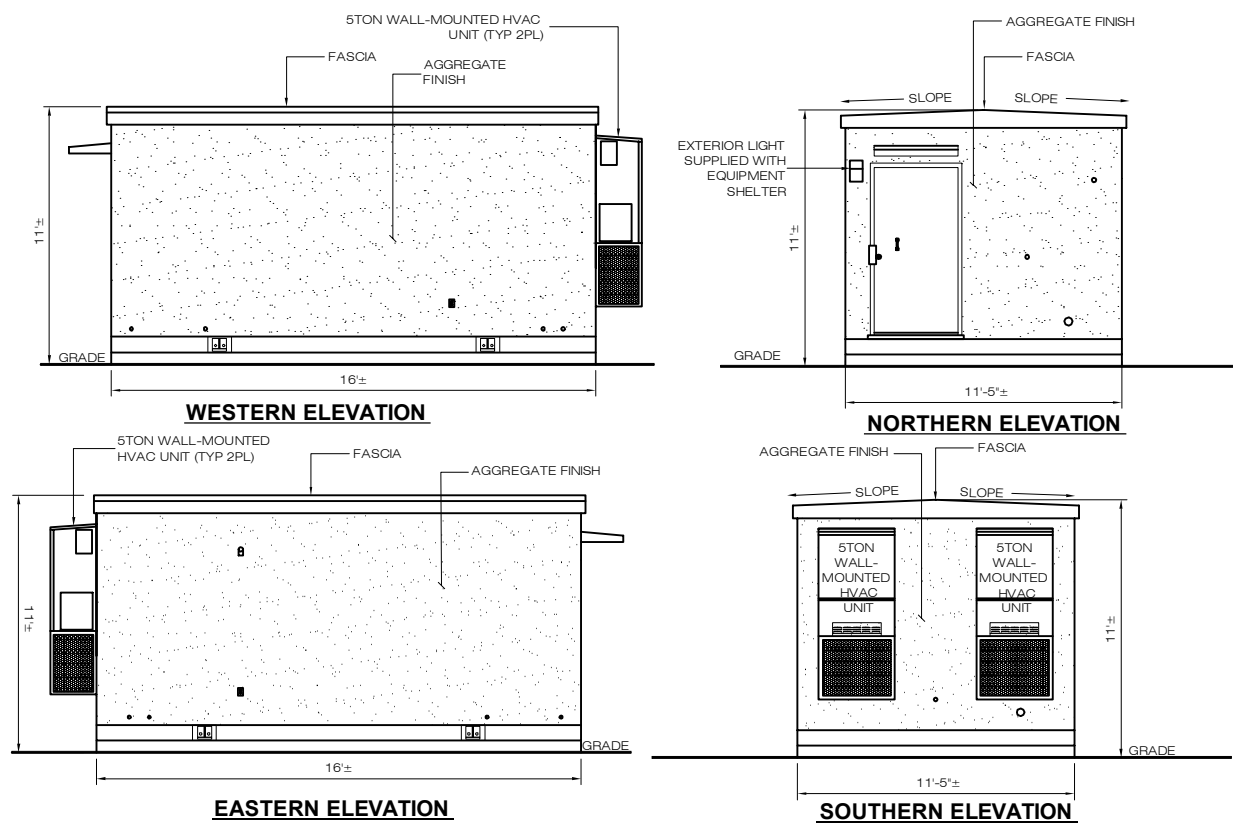
HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250	DEVELOPMENT & MANAGEMENT DOCUMENTS		TURTLE PROTECTION PROGRAM & CONST. SEQUENCE	
	CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410			
 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DESIGN TYPE: RAW LAND DEVELOPMENT SITE		APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 SP-2	
	REVISIONS:		DRAWN BY: RCB	SCALE: AS NOTED
 ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM		CHECKED BY: SMC	DATE: 04/29/15	SHEET NUMBER: SP-2
REV.0: 04/29/15: FOR REVIEW: SMC		REVISIONS:		
REV.1: 05/14/15: CLIENT REVISIONS: SMC		REV.2: 10/05/15: TOWER REVISIONS: SMC		
REV.3:		REV.4:		
REV.5:		REV.5:		



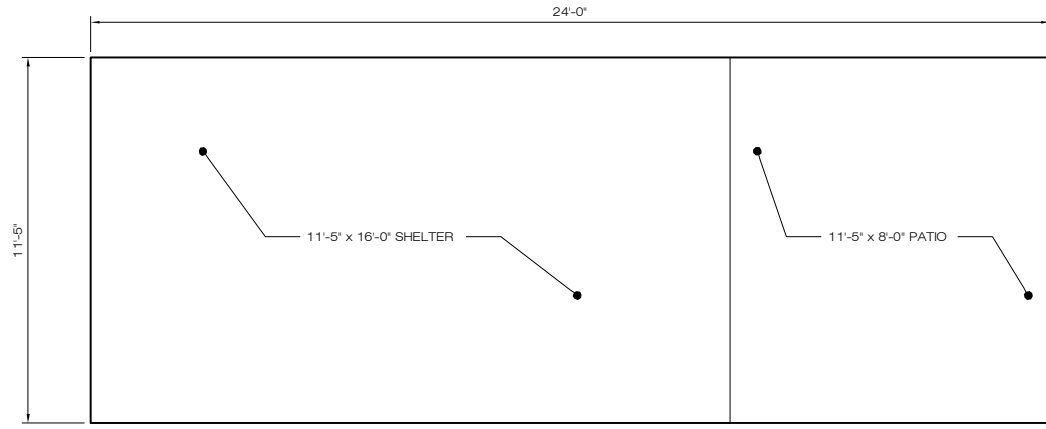
ENGINEERING ANALYSIS AND CERTIFICATION

IN ACCORDANCE WITH THE 2009 CONNECTICUT STATE BUILDING CODE AND THE ELECTRONIC INDUSTRIES ASSOCIATION STANDARD EIA/TIA-222-F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORT STRUCTURES" FOR NEW HAVEN COUNTY, THE TOWER WOULD BE DESIGNED TO WITHSTAND PRESSURES EQUIVALENT TO A MAXIMUM 85 MPH FASTEST MILE WIND SPEED. THE FOUNDATION DESIGN WOULD BE BASED ON SOIL CONDITIONS AT THE SITE.

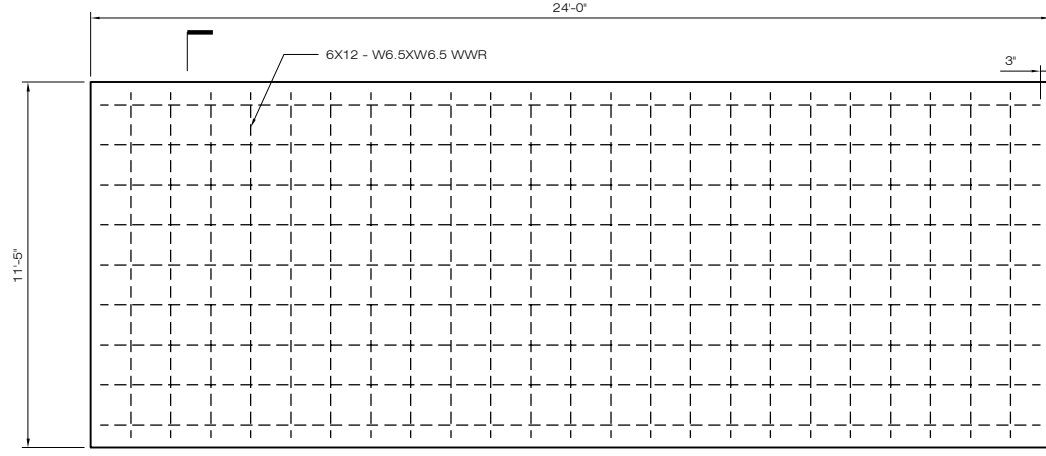
HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410		COMPOUND PLAN & TOWER ELEVATION	
	DESIGN TYPE: RAW LAND DEVELOPMENT SITE		APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 A-1	
REVISIONS: REV.0: 04/29/15: FOR REVIEW: SMC REV.1: 05/14/15: CLIENT REVISIONS: SMC REV.2: 10/05/15: TOWER REVISIONS: SMC REV.3: REV.4: REV.5:		DRAWN BY: RCB CHECKED BY: SMC	SCALE: AS NOTED DATE: 04/29/15	SHEET NUMBER: A-1



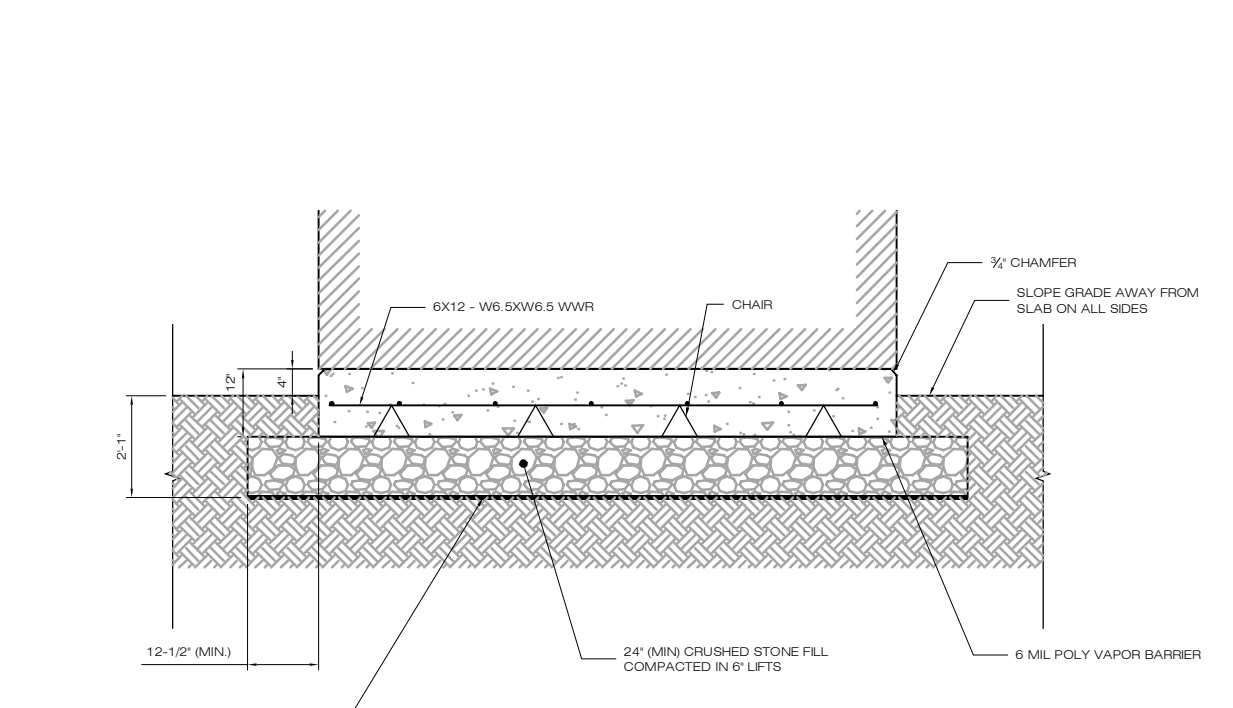
1 11'-5" X 16' EQUIPMENT SHELTER
SCALE : NTS



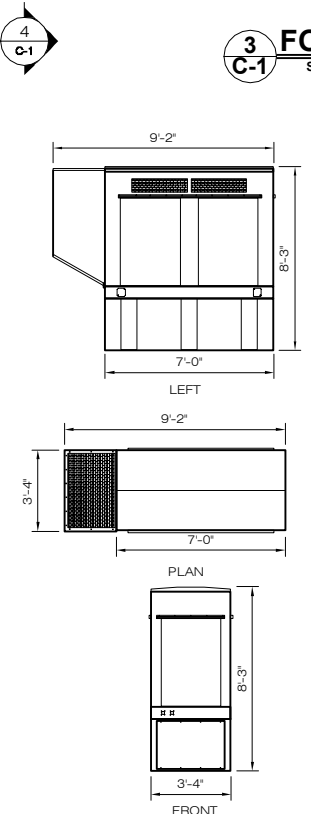
2 CONCRETE PAD PLAN
SCALE : NTS



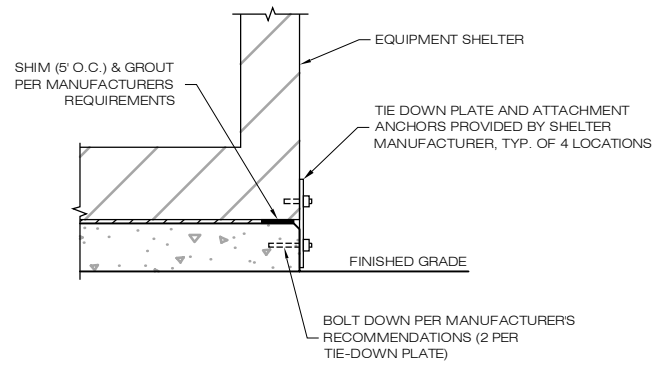
3 FOUNDATION PLAN
SCALE : NTS



4 CONCRETE PAD SECTION
SCALE : NTS



5 GENERAC 35kW DIESEL GENERATOR
SCALE : 1/4" = 1'-0"



6 TIE - DOWN DETAIL
SCALE : NTS

CONCRETE PAD NOTES

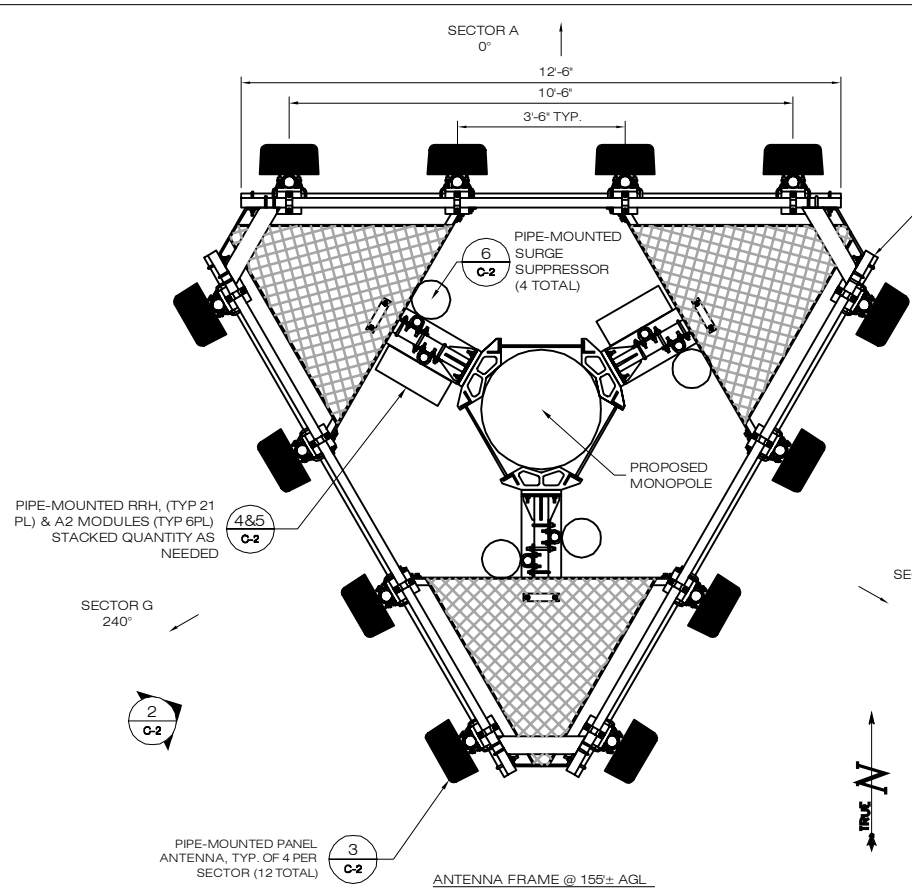
- FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
- UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
- CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f_c)=3000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%).
- BAR REINFORCING TO BE ASTM A615 GRADE 60.
- WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS A82.
- COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO BASE SLAB.
- ALL REINFORCING TO HAVE 2" MINIMUM CONCRETE COVER.
- ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 BUILDING CODE, AND IBC 2009.
- SLAB TO BE LEVEL. 1/2"±.
- SLAB FOUNDATION DESIGNED ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
- SLAB FOUNDATION DESIGN ASSUMING MAXIMUM SOIL PLASTICITY OF 27.
- CONTRACTOR TO VERIFY FINAL SHELTER DIMENSIONS PRIOR TO CONSTRUCTION OF FOUNDATION.
- GRADE SHALL SLOPE AWAY FROM THE CONCRETE PAD TO ALLOW FOR PROPER WATER RUN OFF.
- ANCHOR SHELTER TO FOUNDATION PER SHELTER MANUFACTURERS RECOMMENDATIONS.

DESIGN LOAD CRITERIA

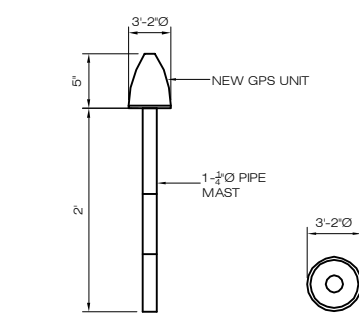
EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH CARRIERS.

DESIGN BASIS	CONNECTICUT STATE BUILDING CODE
GOVERNING CODE	40 PSF (ASCE 7-05)
DESIGN LIVE LOADS	IMPORTANCE CATEGORY II
IMPORTANCE CATEGORY	
SNOW LOAD:	
GROUND SNOW LOAD (Pg)	30 PSF
IMPORTANCE FACTOR	1.0
EXPOSURE FACTOR (Ce)	0.9
THERMAL FACTOR (Ct)	1.0
WIND LOAD:	
BASIC WIND LOAD	100 MPH (3 SEC. GUST)
EXPOSURE GROUP	C
IMPORTANCE FACTOR	1.00
SHELTER LOAD:	
FLOOR LIVE LOAD INCLUDING EQUIPMENT	250 PSF
EQUIPMENT SHELTER DL	20,000 LBS
SEISMIC DESIGN PARAMETERS:	
SEISMIC USE GROUP	I
MCE SPECTRAL ACCELERATION SHORT (Ss)	0.244
MCE SPECTRAL ACCELERATION SHORT (Si)	0.063
SITE CLASS	D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR	1.0

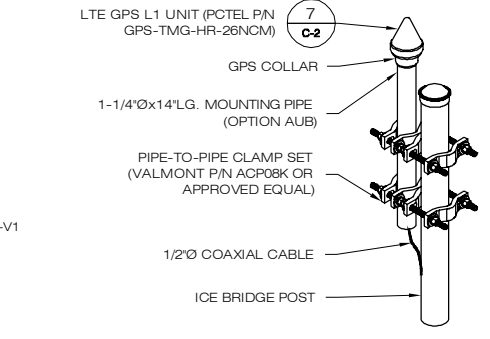
HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410		AT&T EQUIP. SHELTER PLAN & DETAILS	
	DESIGN TYPE: RAW LAND DEVELOPMENT SITE		APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 C-1	
 ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 PHONE: (860)-663-1697 FAX: (860)-663-0935 WWW.ALLPOINTSTECH.COM	REVISIONS: REV.0: 04/29/15: FOR REVIEW: SMC REV.1: 05/14/15: CLIENT REVISIONS: SMC REV.2: 10/05/15: TOWER REVISIONS: SMC REV.3: REV.4: REV.5:		DRAWN BY: RCB CHECKED BY: SMC	SCALE: AS NOTED DATE: 04/29/15
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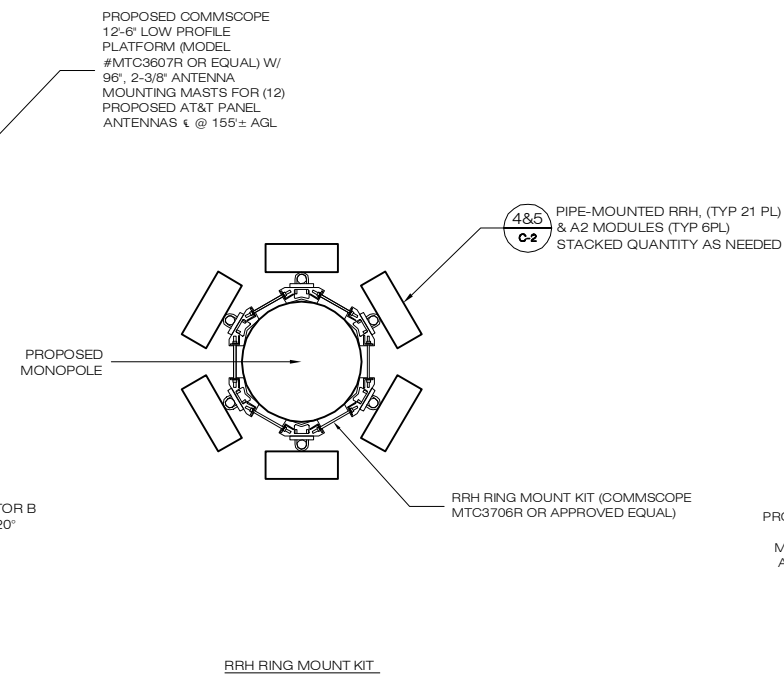
1 ANTENNA PLAN
SCALE: NTS



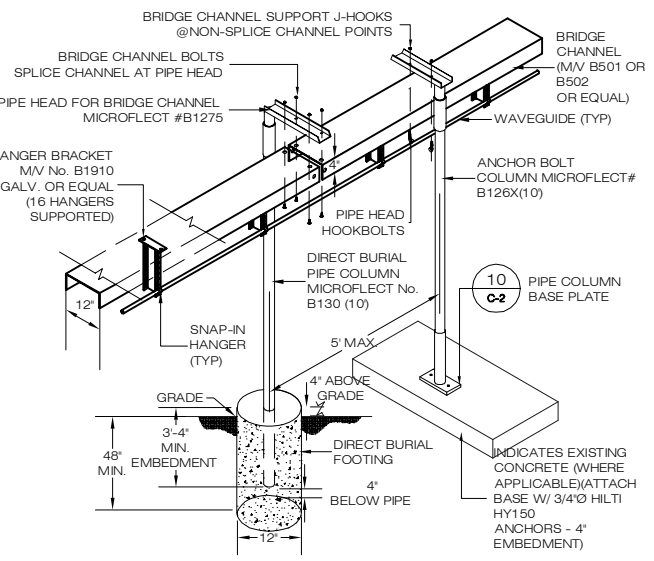
7 TYPICAL GPS DETAILS
SCALE: NTS



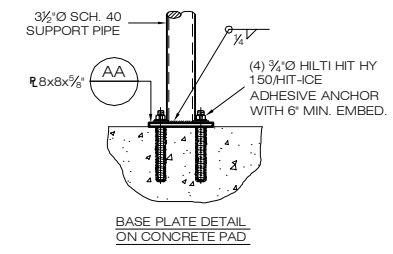
8 TYPICAL GPS MOUNTING DETAIL
SCALE: NTS



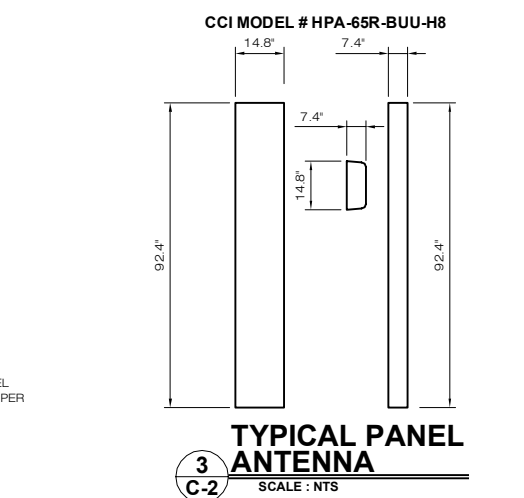
2 ANTENNA ELEVATION
SCALE: NTS



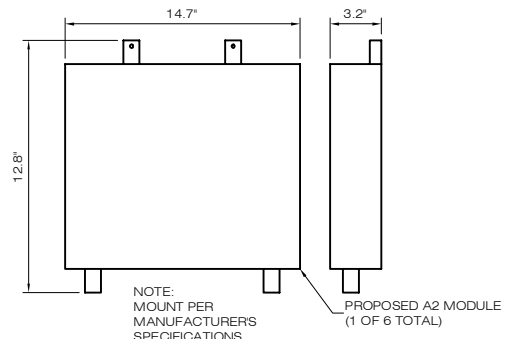
9 CABLE BRIDGE & COAX HANGER DETAIL
SCALE: NTS



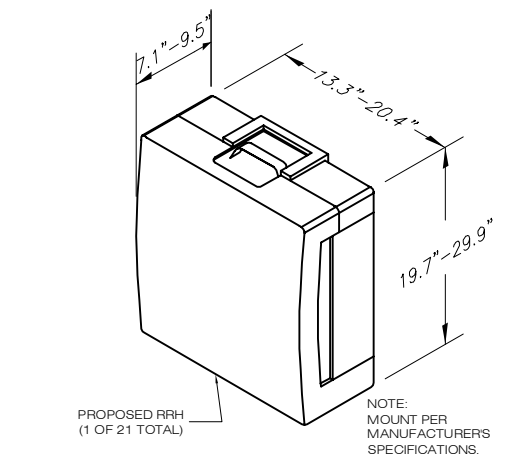
10 PIPE BASE PLATE
SCALE: N.T.S.



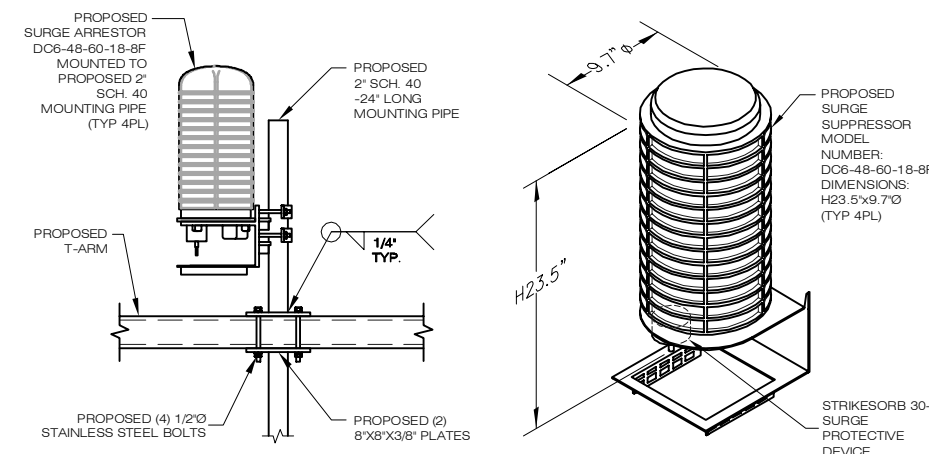
3 TYPICAL PANEL ANTENNA
SCALE: NTS



4 TYPICAL A2 MODULE
SCALE: NTS



5 TYPICAL RRU
SCALE: NTS

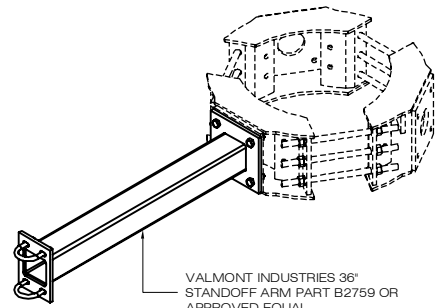


6 TYPICAL SURGE SUPPRESSOR
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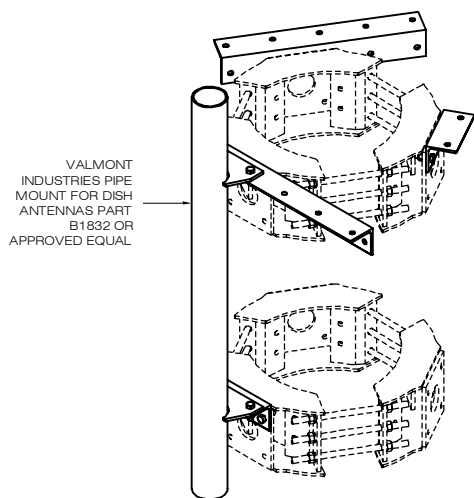
HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410 DESIGN TYPE: RAW LAND DEVELOPMENT SITE		AT&T ANTENNA PLAN & DETAILS APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 C-2 DRAWN BY: RCB CHECKED BY: SMC SCALE: AS NOTED DATE: 04/29/15	
	REVISIONS: REV.0: 04/29/15: FOR REVIEW: SMC REV.1: 05/14/15: CLIENT REVISIONS: SMC REV.2: 10/05/15: TOWER REVISIONS: SMC REV.3: REV.4: REV.5:		SHEET NUMBER: C-2	

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

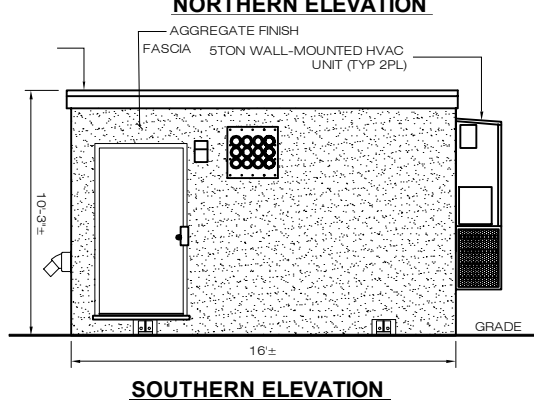
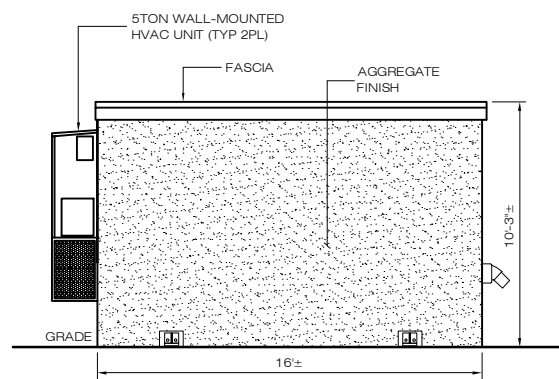
PHONE: (860)-663-1697
FAX: (860)-663-0935



1 3' SIDEARM ANTENNA MOUNT
SCALE: NTS

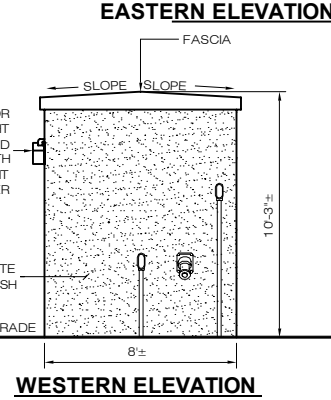
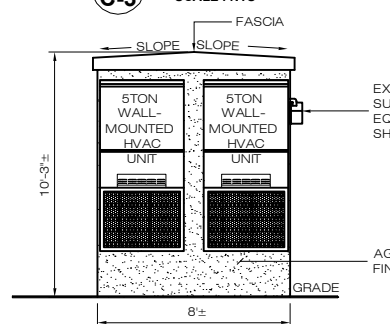


2 MICROWAVE DISH MOUNT
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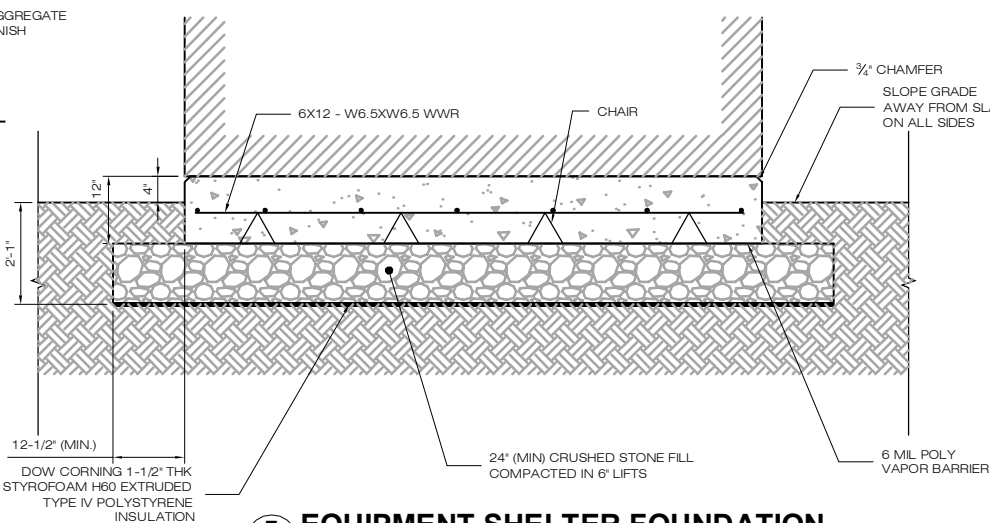


6 8' X 16' EQUIPMENT SHELTER
SCALE: NTS

3 dbSpectra DS4C00F36D-N ANTENNA
SCALE: NTS



7 EQUIPMENT SHELTER FOUNDATION
SCALE: NTS

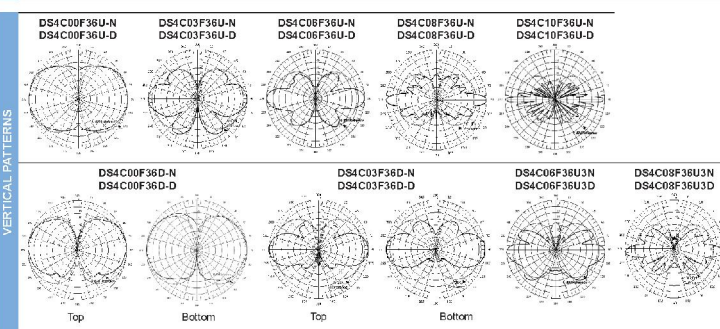


dbSpectra Inc. • 495 R. Billerica Avenue • N. Billerica, MA 01862 USA • Tel: (978) 459-8800 • Fax: (978) 459-3310 / 8810
www.radiowavesinc.com

dbSpectra

UHF Omni Antennas (450-482 MHz)

Model Number	450-482 MHz									
	DS4C00F36U-N	DS4C00F36U-D	DS4C03F36U-N	DS4C03F36U-D	DS4C06F36U-N	DS4C06F36U-D	DS4C10F36U-N	DS4C10F36U-D	DS4C00F36D-N	DS4C00F36D-D
Input Connector	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN	N(F)	7/16 DIN
Type	Single	Single	Single	Single	Single	Single	Dual	Dual	Beamtilt	Beamtilt
Bandwidth, MHz	33	33	33	33	33	33	33	33	33	33
Power, Watts	500	500	500	500	500	500	500	500	500	500
Gain, dBi	0	3	6	9	10	0	3	6	8	8
Horizontal Beamwidth, degrees	360	360	360	360	360	360	360	360	360	360
Vertical Beamwidth, degrees	80	30	18	10	6	80	30	18	10	10
Beam Tilt, degrees	0	0	0	0	0	0	0	3 Down	3 Down	3 Down
Isolation (minimum), dB	N/A	N/A	N/A	N/A	N/A	N/A	> 25	36	N/A	N/A
Number of Connectors	1	1	1	1	1	1	2	2	1	1
Flat Plate Area, ft ² (m ²)	0.38 (0.04)	1.59 (0.15)	2.1 (0.19)	3.85 (0.34)	4.78 (0.44)	1.24 (0.12)	2.79 (0.26)	1.93 (0.18)	3.85 (0.34)	3.85 (0.34)
Lateral Windload Thrust, lb(N)	10 (46)	60 (267)	80 (267)	136 (605)	179 (798)	35 (154)	105 (467)	73 (322)	120 (534)	120 (534)
Survival Wind Speed										
without ice, mph(kph)	451 (726)	200 (322)	161 (259)	50 (145)	70 (113)	177 (285)	120 (193)	170 (274)	95 (153)	95 (153)
with 0.5" radial ice, mph(kph)	329 (529)	175 (282)	130 (209)	65 (105)	50 (80)	145 (233)	100 (161)	150 (241)	65 (105)	65 (105)
Mounting Hardware included	DSH2V3R	DSH2V3R	DSH3V3R	DSH3V3N	DSH3V3N	DSH2V3R	DSH3V3N	DSH3V3R	DSH3V3N	DSH3V3N
Length, ft(m)	2.9 (0.9)	8 (2.4)	10.3 (3.1)	18.3 (5.6)	23.6 (7.3)	6.2 (1.9)	14 (4.3)	9.7 (3)	18.3 (5.6)	18.3 (5.6)
Radome O.D., in(cm)	2 (5.1)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)	2 (5.1)	3 (7.6)	3 (7.6)	3 (7.6)	3 (7.6)
Net Weight, w/o bracket, lb(kg)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)	2.5 (6.4)
Shipping Weight, lb(kg)	9.6 (4.4)	40 (18.1)	59 (26.6)	77 (34.9)	95 (43.1)	20.6 (9.3)	70 (31.6)	55 (24.9)	77 (34.9)	77 (34.9)



VHF Dual Antennas (140-174 MHz)
Fiberglass Omni. Two antennas in a single radome.

MODEL	DS1E03F36D-N	DS1F03F36D-N	DS1G03F36D-N
Model with 7/16 DIN	DS1E03F36D-D	DS1F03F36D-D	DS1G03F36D-D
Type	Dual Omni	Dual Omni	Dual Omni
ELECTRICAL SPECIFICATIONS			
Frequency Range (MHz)	140-150	150-164	160-174
Bandwidth (MHz)	10	14	14
Power (Watts)	500	500	500
Gain (dBi)	3	2.6	2.6
Horizontal Beamwidth (degrees)	360	360	360
Vertical Beamwidth (degrees)	30	30	30
Beam Tilt (degrees)	0	0	0
VSWR	1.5:1	1.5:1	1.5:1
Isolation (minimum) (dB)	30	30	30
PIM Rated Design	Yes	Yes	Yes
MECHANICAL SPECIFICATIONS			
Material/Construction	Brass/Copper	Brass/Copper	Brass/Copper
Input Connector	N(F)	N(F)	N(F)
# of Connectors	2	2	2
Temperature Range (degrees)	-30 to +60 C	-30 to +60 C	-30 to +60 C
Flat Plate Area (ft ² /m ²)	4.06 / 0.38	3.75 / 0.35	3.75 / 0.35
Mounting Hardware - included	DSH3V3N	DSH3V3N	DSH3V3N
DIMENSIONS			
Length (ft/m)	24.3 / 7.4	22.2 / 6.8	22.5 / 6.9
Radome O.D., in(cm)	3 / 7.62	3 / 7.62	3 / 7.62
Mast O.D., in(cm)	3.2 / 8.13	3.2 / 8.13	3.2 / 8.13
Net Weight - without bracket (lb/kg)	71 / 32.2	71 / 32.2	71 / 32.2
Shipping Weight (lb/kg)	81 / 36.7	81 / 36.7	81 / 36.7
VERTICAL PATTERN - TOP			
	DS1E03F36D-N	DS1F03F36D-N	DS1G03F36D-N
VERTICAL PATTERN - BOTTOM			
	DS1E03F36D-N	DS1F03F36D-N	DS1G03F36D-N

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RADIO WAVES
THE LEADER IN MICROWAVE ANTENNA INNOVATION

High Performance Series for 4.4-5.0 GHz Frequencies

Key Features

- High Performance antennas minimize interference as they have more stringent radiation side lobe and front-to-back suppression characteristic
- Lightweight and rugged design
- Easily installed with our superior mounting system included with the antenna
- RF connector: "N" female connector. Some models are available with 7/16 DIN Connector. Please call the factory for availability
- Our industry leading 5-year warranty
- Radome is included
- Single (HP) and Dual (HPD) polarization are available



Antenna Specifications, Electrical (typical)

Model Number	Diameter ft. (m)	Frequency GHz	Low	Mid	High	3dB BW degs	S-Pol Rejection, dB	F1B Ratio, dB	VSWR, Max (R.L., dB)	Antenna Weight
4424-2	3.3 (1)	4.4-5.0	25.4	25.4	25.4	2.8 degs	24 dB	40 dB	1.5 (1.1)	7.2 lbs (3.3 kg)
4424-3	4.0 (1.2)	4.4-5.0	29.2	29.2	29.2	3.1 degs	20 dB	22 dB	1.5 (1.1)	8.0 lbs (3.6 kg)
4424-4	4.7 (1.4)	4.4-5.0	32.9	32.9	32.9	3.3 degs	20 dB	18 dB	1.5 (1.1)	10.0 lbs (4.5 kg)
4424-5	5.4 (1.6)	4.4-5.0	36.7	36.7	36.7	3.4 degs	18 dB	17 dB	1.5 (1.1)	12.0 lbs (5.4 kg)
4424-6	6.1 (1.8)	4.4-5.0	40.5	40.5	40.5	3.5 degs	18 dB	17 dB	1.5 (1.1)	14.0 lbs (6.3 kg)
4424-7	6.8 (2.1)	4.4-5.0	44.3	44.3	44.3	3.6 degs	18 dB	17 dB	1.5 (1.1)	16.0 lbs (7.3 kg)
4424-8	7.5 (2.3)	4.4-5.0	48.1	48.1	48.1	3.7 degs	18 dB	17 dB	1.5 (1.1)	18.0 lbs (8.2 kg)
4424-9	8.2 (2.5)	4.4-5.0	51.9	51.9	51.9	3.8 degs	18 dB	17 dB	1.5 (1.1)	20.0 lbs (9.1 kg)

Note: 1.5:1 max VSWR. Side Pol. Rejection: 20 dB. Return Loss: 18 dB.

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www.radiowavesinc.com

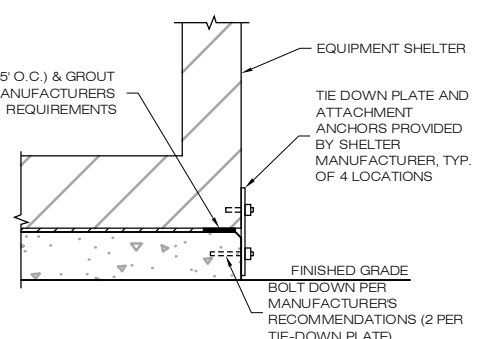
5 RADIO WAVES HFD2-4.7 ANTENNA
SCALE: NTS

DESIGN LOAD CRITERIA

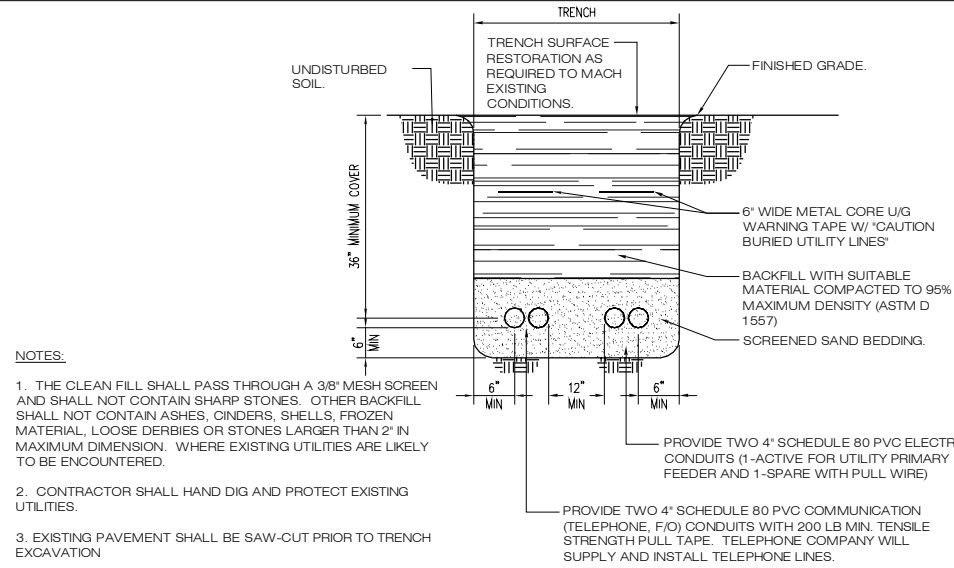
EQUIPMENT SHELTER SHALL BE DESIGNED AND MANUFACTURED TO MEET ALL STATE AND LOCAL CODES. ITS LAYOUT SHALL BE COORDINATED WITH CARRIERS.

DESIGN BASIS:
GOVERNING CODE: CONNECTICUT STATE BUILDING CODE
DESIGN LIVE LOADS: 40 PSF (ASCE 7-05)
IMPORTANCE CATEGORY: IV
SNOW LOAD: 30 PSF
IMPORTANCE FACTOR: 1.2
EXPOSURE FACTOR (Ce): 0.9
THERMAL FACTOR (Ct): 1.0
WIND LOAD:
BASIC WIND LOAD: 100 MPH (3 SEC. GUST)
EXPOSURE GROUP: C
IMPORTANCE FACTOR: 1.15
SHELTER LOAD:
FLOOR LIVE LOAD INCLUDING EQUIPMENT: NA
EQUIPMENT SHELTER DL: NA
SEISMIC DESIGN PARAMETERS:
SEISMIC USE GROUP: III
MCE SPECTRAL ACCELERATION SHORT (Ss): 0.244
MCE SPECTRAL ACCELERATION SHORT (S1): 0.063
SITE CLASS: D FOR UNKNOWN SOIL PROPERTIES
IMPORTANCE FACTOR: 1.5

8 TIE-DOWN DETAIL
SCALE: NTS



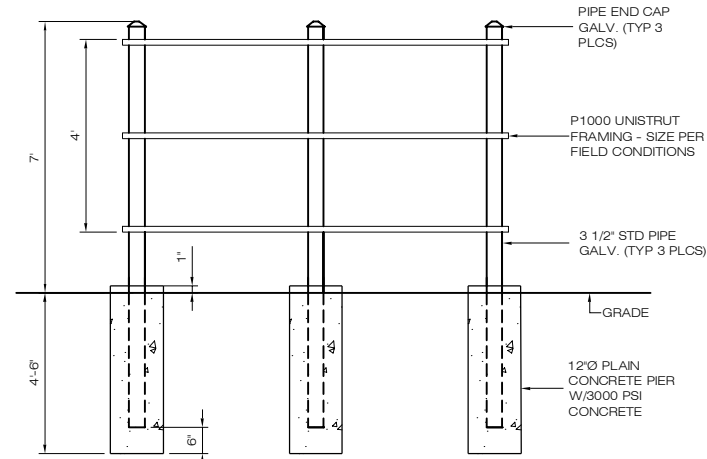
HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810 ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM PHONE: (860)-663-1697 FAX: (860)-663-0935	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410 DESIGN TYPE: RAW LAND DEVELOPMENT SITE REVISIONS: REV. 0: 04/29/15: FOR REVIEW: SMC REV. 1: 05/14/15: CLIENT REVISIONS: SMC REV. 2: 10/05/15: TOWER REVISIONS: SMC REV. 3: REV. 4: REV. 5:	TOWN EQUIPMENT PLAN & DETAILS APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 C-3 DRAWN BY: RCB CHECKED BY: SMC SCALE: AS NOTED DATE: 04/29/15 SHEET NUMBER: C-3
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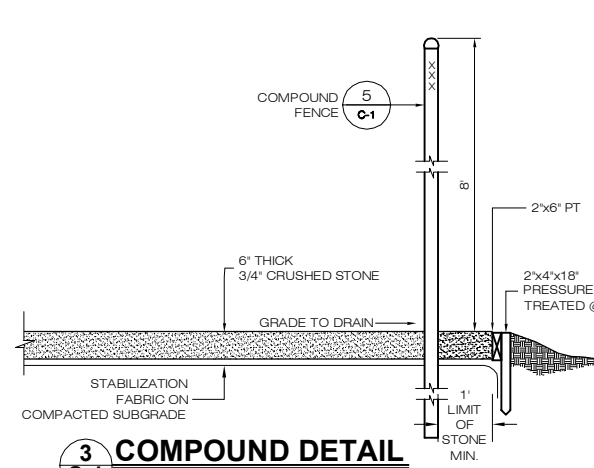
NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8\"/>

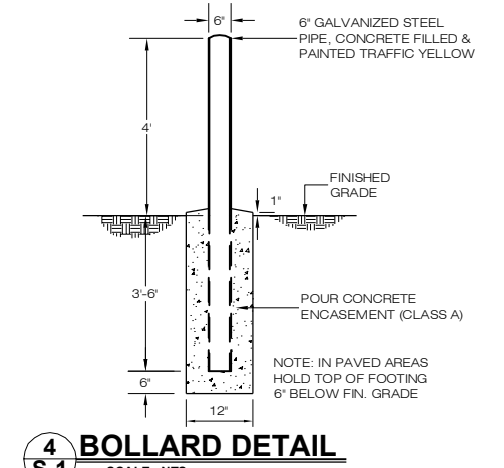
1 PRIMARY UTILITY TRENCH
S-1 SCALE: NTS



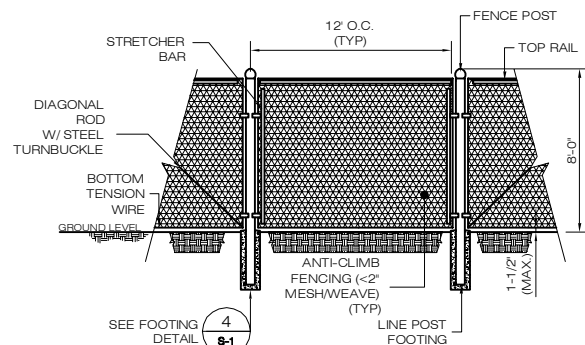
2 UTILITY BACKBOARD DETAIL
S-1 SCALE: NTS



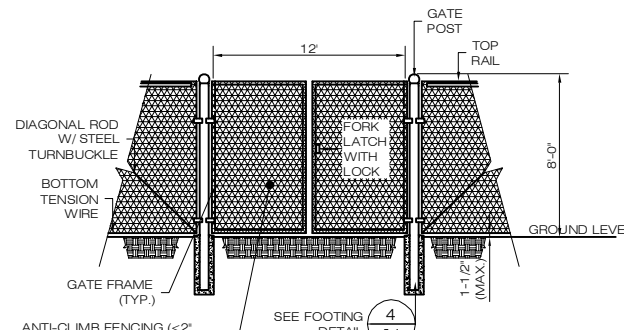
3 COMPOUND DETAIL
S-1 SCALE: NTS



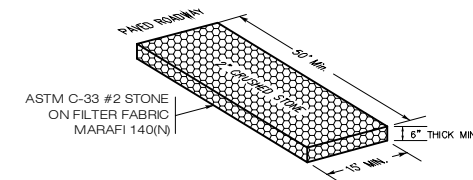
4 BOLLARD DETAIL
S-1 SCALE: NTS



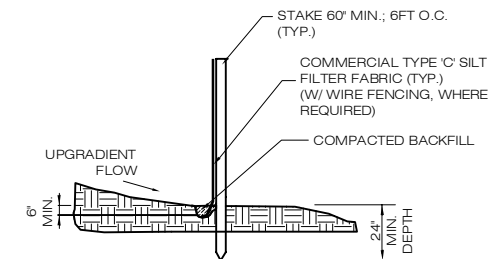
5 CHAIN-LINK FENCING DETAIL
S-1 SCALE: NTS



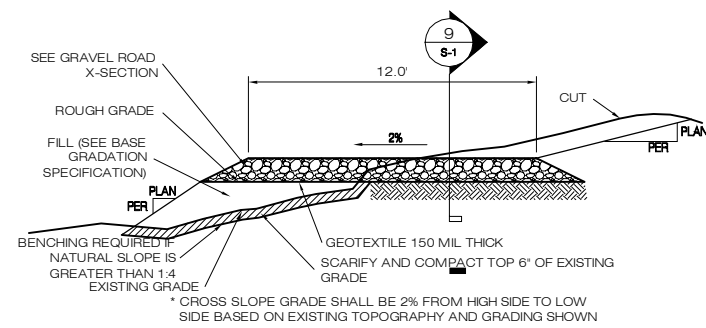
6 FENCE & GATE DETAIL
S-1 SCALE: N.T.S.



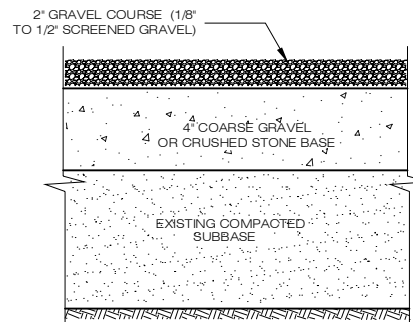
7 (CE) CONSTRUCTION ENTRANCE DETAIL
S-1 SCALE: NTS



10 GEOTEXTILE SILT FENCE DETAIL
S-1 SCALE: NTS



8 TYPICAL GRAVEL ROAD SECTION
S-1 SCALE: NTS



- 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 CLEAN GRANULAR MATERIAL (SEE NOTES, SHEET N-1), FREE FROM DEBRIS AND UNSUITABLE MATERIALS.
 3. RECYCLED CONCRETE MAY BE SUBSTITUTED FOR GRAVEL OR CRUSHED STONE BASE IN NON-WETLANDS AREAS.

9 GRAVEL ROAD X-SECTION
S-1 SCALE: NTS

HOMELAND TOWERS SITE NUMBER: CT-005 APT FILING NUMBER: CT-283-250 HOMELAND TOWERS 22 SHELTER ROCK LANE BUILDING C DANBURY, CT 06810	DEVELOPMENT & MANAGEMENT DOCUMENTS CHESHIRE 1325 CHESHIRE STREET CHESHIRE, CT 06410	COMPOUND DETAILS	
	DESIGN TYPE: RAW LAND DEVELOPMENT SITE	APT FILING NUMBER: CT-283-250 APT DRAWING NUMBER: CT005 S-1 DRAWN BY: RCB CHECKED BY: SMC	
 ALL-POINTS TECHNOLOGY CORPORATION 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419 WWW.ALLPOINTSTECH.COM	REVISIONS: REV.0: 04/29/15: FOR REVIEW: SMC REV.1: 05/14/15: CLIENT REVISIONS: SMC REV.2: 10/05/15: TOWER REVISIONS: SMC REV.3: REV.4: REV.5:		SHEET NUMBER: <h1>S-1</h1>
	SCALE: AS NOTED DATE: 04/29/15		



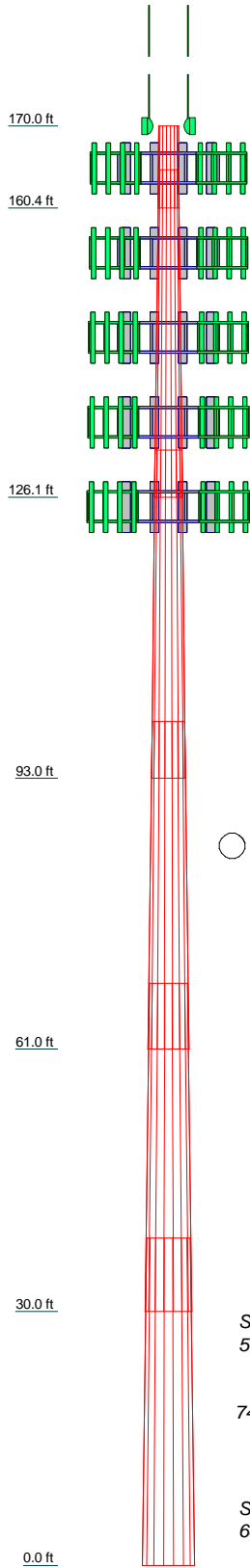
Structural Design Report

Date: September 22, 2015
Customer: Insite Wireless Group, LLC
Project: 170' Monopole
Site: Cheshire, CT
Site Number: CT005
Ambor Job Number: C15019001

Monopole Profile Rev F.....	2
Foundation Drawing.....	3
Pole Calculation Rev F.....	4~24
Foundation Calculation Rev F.....	25
Monopole Profile Rev G.....	26
Pole Calculation Rev G.....	27~48
Foundation Calculation Rev G.....	49

Prepared by Vince Jiang
Ambor Structures, Inc.

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	8'7-13/16"	18	0.28	4'5-7/8"	27.17	30.04	A572-65	0.8
2	38'8-17/32"	18	0.35	5'6-27/32"	28.15	39.68	A572-65	5.0
3	38'8-17/32"	18	0.39	6'6-9/32"	37.31	48.83	A572-65	7.0
4	38'8-17/32"	18	0.47	7'9-1/8"	46.05	57.58	A572-65	10.1
5	38'8-17/32"	18	0.55	8'8-1/32"	54.33	65.85	A572-65	13.7
6	38'8-9/32"	18	0.55	62.17	73.69		A572-65	15.5



DESIGNED APPURTENANCE LOADING

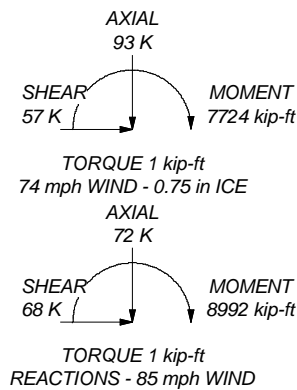
TYPE	ELEVATION	TYPE	ELEVATION
DS1F03F36D-Ns	181.25	(2) RRUS 12	155
DS1F03F36D-Ns	181.25	(2) RRUS 12	155
DS1F03F36D-Ns	173.099	(2) RRUS 12	155
DS1F03F36D-Ns	173.099	FC 12-PC6-10E	155
(2) Dish Mounts	170	FC 12-PC6-10E	155
(2) Flush Mounts	170	FC 12-PC6-10E	155
VHLPX2-11	170	Sabre 12' LP Platform	155
VHLPX2-11	170	Sabre 12' LP Platform	155
(4) 8"1"0.5' Panel (50lbs)	165	(4) HPA-65R-BUU-H8 w/ Mount Pipe	155
(6) RRUS 11	165	(4) HPA-65R-BUU-H8 w/ Mount Pipe	155
(6) RRUS 11	165	(4) 9442 RRH	145
(6) RRUS 11	165	(4) 9442 RRH	145
(2) FD9R6004	165	(4) 9442 RRH	145
(2) FD9R6004	165	DC6-48-60-18-8F	145
(2) FD9R6004	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	Sabre 12' LP Platform	145
(4) (4) GPS-TMG-HR-26N	165	(4) 8"1"0.5' Panel (50lbs)	145
Sabre 12' LP Platform	165	(4) 8"1"0.5' Panel (50lbs)	145
(4) 8"1"0.5' Panel (50lbs)	165	(4) 9442 RRH	135
(4) 8"1"0.5' Panel (50lbs)	165	(4) 9442 RRH	135
(4) HPA-65R-BUU-H8 w/ Mount Pipe	155	(4) 9442 RRH	135
(3) RRUS 11	155	(4) 9442 RRH	135
(3) RRUS 11	155	DC6-48-60-18-8F	135
(3) RRUS 11	155	Sabre 12' LP Platform	135
(2) RRUS A2 MODULE	155	(4) 8"1"0.5' Panel (50lbs)	135
(2) RRUS A2 MODULE	155	(4) 8"1"0.5' Panel (50lbs)	135
(2) RRUS A2 MODULE	155	(4) 8"1"0.5' Panel (50lbs)	135
(2) RRUS 22 xx20	155	(4) 9442 RRH	125
(2) RRUS 22 xx20	155	(4) 9442 RRH	125
(2) RRUS 22 xx20	155	(4) 9442 RRH	125
24" x 24" x 10" RRU	155	DC6-48-60-18-8F	125
24" x 24" x 10" RRU	155	(4) 8"1"0.5' Panel (50lbs)	125
DC12-48-60-RM	155	(4) 8"1"0.5' Panel (50lbs)	125
DC12-48-60-RM	155	(4) 8"1"0.5' Panel (50lbs)	125

MATERIAL STRENGTH


GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

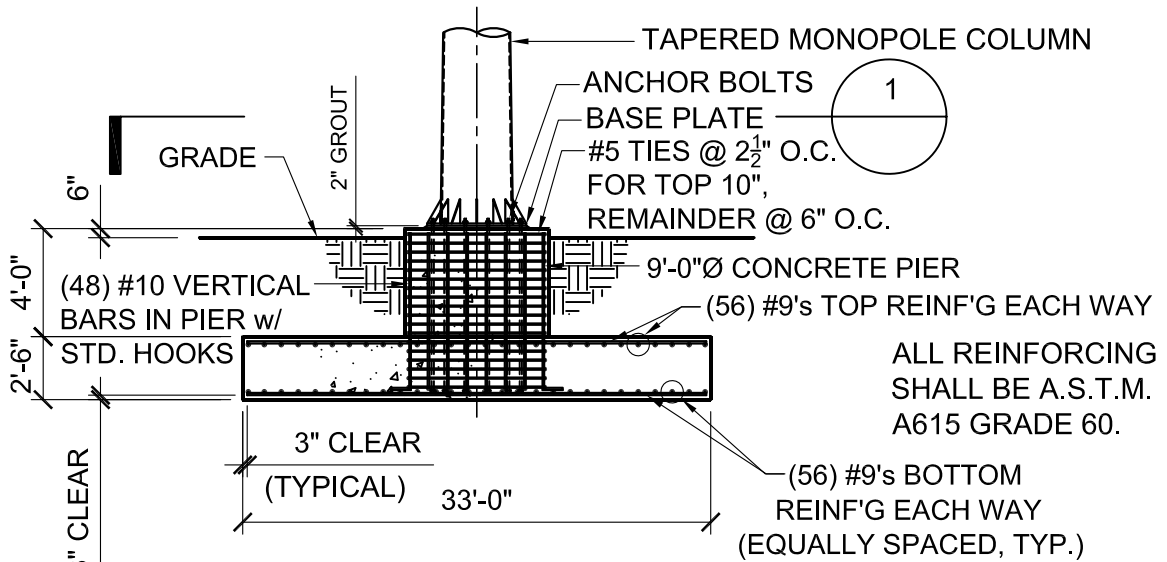
TOWER DESIGN NOTES

1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 74 mph basic wind with 0.75 in ice.
3. Deflections are based upon a 60 mph wind.
4. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
5. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
6. TOWER RATING: 97.6%



09/22/2015

 Am bor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job: 170 ft Tapered Monopole Project: Cheshire, CT (CT005)	
	Client: AMBOR / InSite Towers Code: TIA/EIA-222-F	Drawn by: Vince Date: 09/22/15
	Path: D:\C-Police\15019\InSite\TX\AMBOR-170R_InSite_CheshireCT_081915_RevF.dwg	App'd: Scale: NTS Dwg No.: E-1
	09/22/2015	

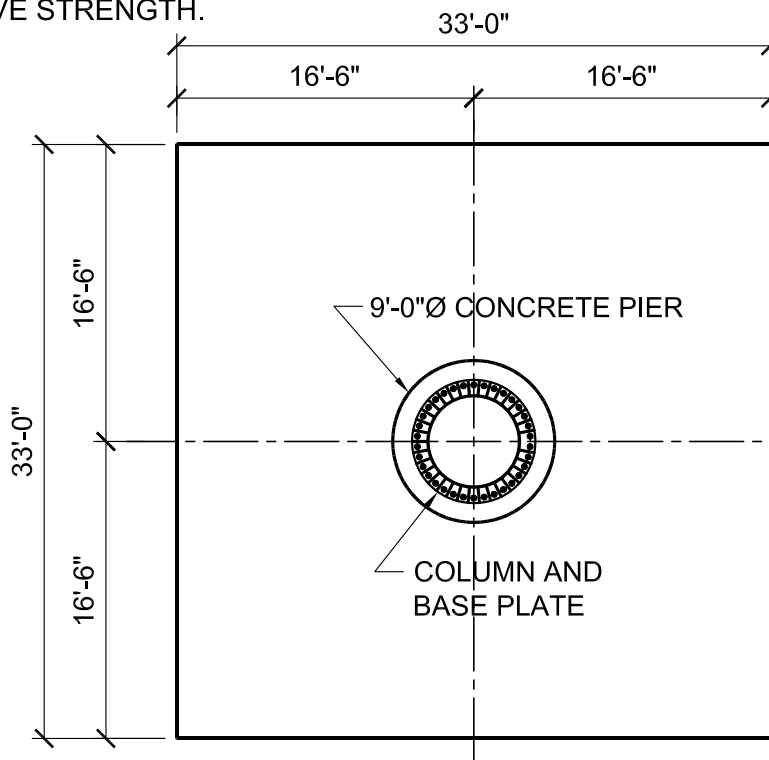


SPREAD FOUNDATION

NOT TO SCALE

NOTE: CONCRETE SHALL BE 3000 P.S.I. (MINIMUM) @ 28 DAYS COMPRESSIVE STRENGTH.

NOTE: FOUNDATION DESIGN PER SOIL REPORT BY: TERRACON CONSULTANTS 201 HAMMER MILL ROAD ROCKY HILL, CT 06067 (PROJECT NO. J2145102) MARCH 18, 2014



Q COLUMN & FOOTING



08/24/2015

NOTE: FOUNDATION INSTALLATION SHALL BE OBSERVED BY AN ENGINEER REPRESENTING TERRACON

REFER TO SOIL REPORT FOR PROPER PREPARATION AND INSTALLATION REQUIREMENTS.

SECTION

SCALE: $\frac{3}{32}$ " = 1'-0"

B&P JOB NO. 15700.064

bennett & pless



Experience Structural Expertise
Atlanta, GA • Chattanooga, TN • North Sioux City, SD

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Fax No. (678) 990-8701
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job name **170' MONOPOLE CELL TOWER**
SPREAD FOUNDATION w/ PIER
CHESHIRE, CT

date **8/24/15**

by **TED**

chk'd. **MTD**

sheet #

1

of 1

AMBOR
STRUCTURES

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job 170 ft Tapered Monopole	Page 1 of 20
	Project Cheshire, CT (CT005)	Date 22:57:55 09/22/15
	Client AMBOR / InSite Towers	Designed by Vince

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Basic wind speed of 85 mph.

Nominal ice thickness of 0.75 in.

Ice density of 56 pcf.

A wind speed of 74 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity √ Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r √ Retension Guys To Initial Tension Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. √ Autocalc Torque Arm Areas SR Members Have Cut Ends Sort Capacity Reports By Component √ Triangulate Diamond Inner Bracing √ Use TIA-222-G Tension Splice Capacity Exemption 	<ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression √ All Leg Panels Have Same Allowable Offset Girt At Foundation Consider Feedline Torque Include Angle Block Shear Check <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
--	--	---

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	170'-160'4-3/16"	9'7-13/16"	4'5-7/8"	18	27.17	30.04	0.28	1.10	A572-65 (65 ksi)
L2	160'4-3/16"-126' 1-11/16"	38'8-17/32"	5'6-27/32"	18	28.15	39.68	0.35	1.42	A572-65 (65 ksi)
L3	126'1-11/16"-93"	38'8-17/32"	6'8-9/32"	18	37.31	48.83	0.39	1.57	A572-65 (65 ksi)
L4	93'-60'11-5/8"	38'8-17/32"	7'9-1/8"	18	46.05	57.58	0.47	1.89	A572-65 (65 ksi)

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job 170 ft Tapered Monopole	Page 2 of 20
	Project Cheshire, CT (CT005)	Date 22:57:55 09/22/15
	Client AMBOR / InSite Towers	Designed by Vince

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
L5	60'11-5/8"-30'1/4"	38'8-17/32"	8'8-1/32"	18	54.33	65.85	0.55	2.20	A572-65 (65 ksi)
L6	30'1/4"-0'	38'8-9/32"		18	62.17	73.69	0.55	2.20	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	I/Q in ²	w in	w/t
L1	27.59	23.53	2149.79	9.55	13.80	155.76	4302.42	11.76	4.30	15.591
L2	30.50	26.04	2914.09	10.57	15.26	190.96	5832.01	13.02	4.80	17.424
L3	29.94	31.26	3052.07	9.87	14.30	213.41	6108.16	15.63	4.33	12.223
L4	40.29	44.23	8641.47	13.96	20.16	428.70	17294.32	22.12	6.36	17.949
L5	39.57	46.13	7943.69	13.11	18.95	419.10	15897.83	23.07	5.87	14.92
L6	49.58	60.53	17939.83	17.19	24.81	723.22	35903.27	30.27	7.90	20.069
L7	48.79	68.29	17923.86	16.18	23.39	766.15	35871.31	34.15	7.27	15.412
L8	58.47	85.56	35251.47	20.27	29.25	1205.15	70549.32	42.79	9.30	19.711
L9	57.51	93.88	34299.59	19.09	27.60	1242.83	68644.32	46.95	8.59	15.625
L10	66.87	113.99	61411.06	23.18	33.45	1835.81	122902.93	57.01	10.62	19.312
L11	65.75	107.57	51599.12	21.87	31.58	1633.83	103266.14	53.79	9.97	18.134
L12	74.83	127.69	86307.99	25.97	37.44	2305.43	172729.54	63.86	12.00	21.822

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
L1 170'-160'4-3/16" 6"				1	1	1		
L2 160'4-3/16"-12 6'-11/16"				1	1	1		
L3 126'-1-11/16"-9 3'				1	1	1		
L4 93'-60'11-5/8"				1	1	1		
L5 60'11-5/8"-30'1/4"				1	1	1		
L6 30'1/4"-0'				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _A A _A	Weight klf
LDF7-50A (1 5/8 FOAM)	A	No	Inside Pole	195' - 5'	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00
LDF7-50A (1 5/8)	B	No	Inside Pole	185' - 5'	12	No Ice	0.00

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight klf
FOAM)						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	C	No	Inside Pole	175' - 5'	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	A	No	Inside Pole	165' - 5'	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	B	No	Inside Pole	135' - 5'	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	C	No	Inside Pole	115' - 5'	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	170'-160'4-3/16"	A	0.000	0.000	0.000	0.000	0.14
		B	0.000	0.000	0.000	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.09
L2	160'4-3/16"-126'1-11/16"	A	0.000	0.000	0.000	0.000	0.67
		B	0.000	0.000	0.000	0.000	0.34
		C	0.000	0.000	0.000	0.000	0.34
L3	126'1-11/16"-93'	A	0.000	0.000	0.000	0.000	0.65
		B	0.000	0.000	0.000	0.000	0.35
		C	0.000	0.000	0.000	0.000	0.34
L4	93'-60'11-5/8"	A	0.000	0.000	0.000	0.000	0.63
		B	0.000	0.000	0.000	0.000	0.34
		C	0.000	0.000	0.000	0.000	0.34
L5	60'11-5/8"-30'1/4"	A	0.000	0.000	0.000	0.000	0.61
		B	0.000	0.000	0.000	0.000	0.33
		C	0.000	0.000	0.000	0.000	0.33
L6	30'1/4"-0'	A	0.000	0.000	0.000	0.000	0.49
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	0.000	0.000	0.27

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} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	170'-160'4-3/16"	A	0.750	0.000	0.000	0.000	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.09
L2	160'4-3/16"-126'1-11/16"	A	0.750	0.000	0.000	0.000	0.000	0.67
		B		0.000	0.000	0.000	0.000	0.34
		C		0.000	0.000	0.000	0.000	0.34
L3	126'1-11/16"-93'	A	0.750	0.000	0.000	0.000	0.000	0.65
		B		0.000	0.000	0.000	0.000	0.35
		C		0.000	0.000	0.000	0.000	0.34
L4	93'-60'11-5/8"	A	0.750	0.000	0.000	0.000	0.000	0.63
		B		0.000	0.000	0.000	0.000	0.34

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L5	60'11-5/8"-30'1/4"	C	0.750	0.000	0.000	0.000	0.000	0.34
		A		0.000	0.000	0.000	0.000	0.61
		B		0.000	0.000	0.000	0.000	0.33
L6	30'1/4"-0'	C	0.750	0.000	0.000	0.000	0.000	0.33
		A		0.000	0.000	0.000	0.000	0.49
		B		0.000	0.000	0.000	0.000	0.27
		C		0.000	0.000	0.000	0.000	0.27

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
DS1F03F36D-Ns	C	From Leg	1.50	0.00	181'3"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03
DS1F03F36D-Ns	B	From Leg	1.50	0.00	181'3"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03

DS1F03F36D-Ns	C	From Leg	1.50	0.00	173'1-3/16"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03
DS1F03F36D-Ns	B	From Leg	1.50	0.00	173'1-3/16"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03

(2) Dish Mounts	C	None		0.00	170'	No Ice	2.50	2.50	0.12
						1/2" Ice	3.00	3.00	0.16
						1" Ice	3.50	3.50	0.20

(2) Flush Mounts	C	None		0.00	170'	No Ice	3.00	3.00	0.10
						1/2" Ice	3.50	3.50	0.14
						1" Ice	4.00	4.00	0.18

(4) 8'1*0.5' Panel (50lbs)	A	From Leg	4.00	0.00	165'	No Ice	11.47	6.80	0.05
			0'			1/2" Ice	12.08	7.38	0.11
			0'			1" Ice	12.71	7.98	0.18
(4) 8'1*0.5' Panel (50lbs)	B	From Leg	4.00	0.00	165'	No Ice	11.47	6.80	0.05
			0'			1/2" Ice	12.08	7.38	0.11
			0'			1" Ice	12.71	7.98	0.18
(4) 8'1*0.5' Panel (50lbs)	C	From Leg	4.00	0.00	165'	No Ice	11.47	6.80	0.05
			0'			1/2" Ice	12.08	7.38	0.11
			0'			1" Ice	12.71	7.98	0.18
(6) RRUS 11	A	None		0.00	165'	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.10
(6) RRUS 11	B	None		0.00	165'	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.10
(6) RRUS 11	C	None		0.00	165'	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.10

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
(2) FD9R6004	A	None				0.00	165'	No Ice 1.00 1/2" Ice 1.30 1" Ice 1.60	1.00 1.30 1.60	0.01 0.01 0.02
(2) FD9R6004	B	None				0.00	165'	No Ice 1.00 1/2" Ice 1.30 1" Ice 1.60	1.00 1.30 1.60	0.01 0.01 0.02
(2) FD9R6004	C	None				0.00	165'	No Ice 1.00 1/2" Ice 1.30 1" Ice 1.60	1.00 1.30 1.60	0.01 0.01 0.02
DC6-48-60-18-8F	A	None				0.00	165'	No Ice 2.57 1/2" Ice 2.80 1" Ice 3.04	2.57 2.80 3.04	0.02 0.04 0.07
DC6-48-60-18-8F	B	None				0.00	165'	No Ice 2.57 1/2" Ice 2.80 1" Ice 3.04	2.57 2.80 3.04	0.02 0.04 0.07
DC6-48-60-18-8F	C	None				0.00	165'	No Ice 2.57 1/2" Ice 2.80 1" Ice 3.04	2.57 2.80 3.04	0.02 0.04 0.07
(4) (4) GPS-TMG-HR-26N	C	None				0.00	165'	No Ice 0.50 1/2" Ice 0.75 1" Ice 1.00	0.50 0.75 1.00	0.01 0.01 0.01
Sabre 12' LP Platform	C	None				0.00	165'	No Ice 28.47 1/2" Ice 33.59 1" Ice 38.71	28.47 33.59 38.71	1.12 1.51 1.91

(4) HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.00 0' 0'			0.00	155'	No Ice 13.53 1/2" Ice 14.34 1" Ice 15.14	9.58 11.05 12.50	0.10 0.20 0.30
(4) HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.00 0' 0'			0.00	155'	No Ice 13.53 1/2" Ice 14.34 1" Ice 15.14	9.58 11.05 12.50	0.10 0.20 0.30
(4) HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.00 0' 0'			0.00	155'	No Ice 13.53 1/2" Ice 14.34 1" Ice 15.14	9.58 11.05 12.50	0.10 0.20 0.30
(3) RRUS 11	A	None				0.00	155'	No Ice 3.25 1/2" Ice 3.49 1" Ice 3.74	1.37 1.55 1.74	0.05 0.07 0.10
(3) RRUS 11	B	None				0.00	155'	No Ice 3.25 1/2" Ice 3.49 1" Ice 3.74	1.37 1.55 1.74	0.05 0.07 0.10
(3) RRUS 11	C	None				0.00	155'	No Ice 3.25 1/2" Ice 3.49 1" Ice 3.74	1.37 1.55 1.74	0.05 0.07 0.10
(2) RRUS A2 MODULE	A	None				0.00	155'	No Ice 1.87 1/2" Ice 2.05 1" Ice 2.24	0.42 0.53 0.65	0.02 0.03 0.04
(2) RRUS A2 MODULE	B	None				0.00	155'	No Ice 1.87 1/2" Ice 2.05 1" Ice 2.24	0.42 0.53 0.65	0.02 0.03 0.04
(2) RRUS A2 MODULE	C	None				0.00	155'	No Ice 1.87 1/2" Ice 2.05 1" Ice 2.24	0.42 0.53 0.65	0.02 0.03 0.04
(2) RRUS 22 xx20	A	None				0.00	155'	No Ice 3.87 1/2" Ice 4.15 1" Ice 4.44	2.76 3.02 3.29	0.08 0.10 0.14
(2) RRUS 22 xx20	B	None				0.00	155'	No Ice 3.87 1/2" Ice 4.15	2.76 3.02	0.08 0.10

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral	Vert						°
(2) RRUS 22 xx20	C	None				0.00	155'	1" Ice	4.44	3.29	0.14
								No Ice	3.87	2.76	0.08
								1/2" Ice	4.15	3.02	0.10
24" x 24" x 10" RRU	A	None				0.00	155'	1" Ice	4.44	3.29	0.14
								No Ice	5.60	2.33	0.06
								1/2" Ice	6.10	2.67	0.09
24" x 24" x 10" RRU	C	None				0.00	155'	1" Ice	6.60	3.01	0.12
								No Ice	5.60	2.33	0.06
								1/2" Ice	6.10	2.67	0.09
DC12-48-60-RM	A	None				0.00	155'	1" Ice	6.60	3.01	0.12
								No Ice	2.25	2.25	0.02
								1/2" Ice	2.50	2.50	0.04
DC12-48-60-RM	C	None				0.00	155'	1" Ice	2.75	2.75	0.05
								No Ice	2.25	2.25	0.02
								1/2" Ice	2.50	2.50	0.04
(2) RRUS 12	A	None				0.00	155'	1" Ice	2.75	2.75	0.05
								No Ice	3.67	1.49	0.06
								1/2" Ice	3.93	1.67	0.08
(2) RRUS 12	B	None				0.00	155'	1" Ice	4.19	1.87	0.11
								No Ice	3.67	1.49	0.06
								1/2" Ice	3.93	1.67	0.08
(2) RRUS 12	C	None				0.00	155'	1" Ice	4.19	1.87	0.11
								No Ice	3.67	1.49	0.06
								1/2" Ice	3.93	1.67	0.08
FC 12-PC6-10E	A	None				0.00	155'	1" Ice	4.19	1.87	0.11
								No Ice	1.00	1.00	0.01
								1/2" Ice	1.25	1.25	0.01
FC 12-PC6-10E	A	None				0.00	155'	1" Ice	1.50	1.50	0.02
								No Ice	1.00	1.00	0.01
								1/2" Ice	1.25	1.25	0.01
FC 12-PC6-10E	A	None				0.00	155'	1" Ice	1.50	1.50	0.02
								No Ice	1.00	1.00	0.01
								1/2" Ice	1.25	1.25	0.01
Sabre 12' LP Platform	C	None				0.00	155'	1" Ice	1.50	1.50	0.02
								No Ice	28.47	28.47	1.12
								1/2" Ice	33.59	33.59	1.51
***** (4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00	0'	0.00	145'	No Ice	1" Ice	11.47	6.80	0.05
								1/2" Ice	12.08	7.38	0.11
								1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00	0'	0.00	145'	No Ice	1" Ice	11.47	6.80	0.05
								1/2" Ice	12.08	7.38	0.11
								1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	4.00	0'	0.00	145'	No Ice	1" Ice	11.47	6.80	0.05
								1/2" Ice	12.08	7.38	0.11
								1" Ice	12.71	7.98	0.18
(4) 9442 RRH	A	None				0.00	145'	1" Ice	12.71	7.98	0.18
								No Ice	2.85	1.83	0.04
								1/2" Ice	3.09	2.04	0.06
(4) 9442 RRH	B	None				0.00	145'	1" Ice	3.34	2.26	0.08
								No Ice	2.85	1.83	0.04
								1/2" Ice	3.09	2.04	0.06
(4) 9442 RRH	C	None				0.00	145'	1" Ice	3.34	2.26	0.08
								No Ice	2.85	1.83	0.04
								1/2" Ice	3.09	2.04	0.06
DC6-48-60-18-8F	C	None				0.00	145'	1" Ice	3.34	2.26	0.08
								No Ice	2.57	2.57	0.02

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						Vert
						1/2" Ice	2.80	2.80	0.04	
						1" Ice	3.04	3.04	0.07	
(4) E15S09P80	A	None			0.00	145'	No Ice	1.00	1.00	0.01
							1/2" Ice	1.30	1.30	0.01
							1" Ice	1.60	1.60	0.02
(4) E15S09P80	B	None			0.00	145'	No Ice	1.00	1.00	0.01
							1/2" Ice	1.30	1.30	0.01
							1" Ice	1.60	1.60	0.02
(4) E15S09P80	C	None			0.00	145'	No Ice	1.00	1.00	0.01
							1/2" Ice	1.30	1.30	0.01
							1" Ice	1.60	1.60	0.02
Sabre 12' LP Platform	C	None			0.00	145'	No Ice	28.47	28.47	1.12
							1/2" Ice	33.59	33.59	1.51
							1" Ice	38.71	38.71	1.91

(4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00		0.00	135'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00		0.00	135'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	4.00		0.00	135'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 9442 RRH	A	None			0.00	135'	No Ice	2.85	1.83	0.04
							1/2" Ice	3.09	2.04	0.06
							1" Ice	3.34	2.26	0.08
(4) 9442 RRH	B	None			0.00	135'	No Ice	2.85	1.83	0.04
							1/2" Ice	3.09	2.04	0.06
							1" Ice	3.34	2.26	0.08
(4) 9442 RRH	C	None			0.00	135'	No Ice	2.85	1.83	0.04
							1/2" Ice	3.09	2.04	0.06
							1" Ice	3.34	2.26	0.08
DC6-48-60-18-8F	C	None			0.00	135'	No Ice	2.57	2.57	0.02
							1/2" Ice	2.80	2.80	0.04
							1" Ice	3.04	3.04	0.07
Sabre 12' LP Platform	C	None			0.00	135'	No Ice	28.47	28.47	1.12
							1/2" Ice	33.59	33.59	1.51
							1" Ice	38.71	38.71	1.91

(4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00		0.00	125'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00		0.00	125'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	4.00		0.00	125'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 9442 RRH	A	None			0.00	125'	No Ice	2.85	1.83	0.04
							1/2" Ice	3.09	2.04	0.06
							1" Ice	3.34	2.26	0.08
(4) 9442 RRH	B	None			0.00	125'	No Ice	2.85	1.83	0.04
							1/2" Ice	3.09	2.04	0.06
							1" Ice	3.34	2.26	0.08
(4) 9442 RRH	C	None			0.00	125'	No Ice	2.85	1.83	0.04
							1/2" Ice	3.09	2.04	0.06

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
DC6-48-60-18-8F	C	None			0.00	125'	1" Ice	3.34	2.26	0.08
							No Ice	2.57	2.57	0.02
							1/2" Ice	2.80	2.80	0.04
Sabre 12' LP Platform	C	None			0.00	155'	1" Ice	3.04	3.04	0.07
							No Ice	28.47	28.47	1.12
							1/2" Ice	33.59	33.59	1.51
							1" Ice	38.71	38.71	1.91

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz Lateral	Vert							
			ft	ft	°	°	ft	ft	ft ²	K		
VHLPX2-11	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0.00	0.00		170'	2.00	No Ice	3.14	0.00
										1/2" Ice	3.41	0.00
										1" Ice	3.68	0.00
VHLPX2-11	B	Paraboloid w/Shroud (HP)	From Leg	1.00	0.00	0.00		170'	2.00	No Ice	3.14	0.00
										1/2" Ice	3.41	0.00
										1" Ice	3.68	0.00

Tower Pressures - No Ice

$G_H = 1.690$

Section Elevation	z	K _Z	q _Z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		ksf	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
170'-160'4-3/16"	L1	165'1-3/16"	0	22.993	A	0.000	22.993	22.993	100.00	0.000	0.000
					B	0.000	22.993	100.00	0.000	0.000	
					C	0.000	22.993	100.00	0.000	0.000	
160'4-3/16"-126'1-11/16"	L2	142'6-19/32"	0	98.621	A	0.000	98.621	98.621	100.00	0.000	0.000
					B	0.000	98.621	100.00	0.000	0.000	
					C	0.000	98.621	100.00	0.000	0.000	
126'1-11/16"-93'-60'11-5/8"	L3	109'1-7/16"	0	121.230	A	0.000	121.230	121.230	100.00	0.000	0.000
					B	0.000	121.230	100.00	0.000	0.000	
					C	0.000	121.230	100.00	0.000	0.000	
93'-60'11-5/8"	L4	76'8-7/8"	0	140.935	A	0.000	140.935	140.935	100.00	0.000	0.000
					B	0.000	140.935	100.00	0.000	0.000	
					C	0.000	140.935	100.00	0.000	0.000	
60'11-5/8"-30'1/4"	L5	45'5-7/8"	0	157.984	A	0.000	157.984	157.984	100.00	0.000	0.000
					B	0.000	157.984	100.00	0.000	0.000	
					C	0.000	157.984	100.00	0.000	0.000	
L6	30'1/4"-0"	14'8-9/32"	1	0	173.163	A	0.000	173.163	173.163	100.00	0.000

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Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
ft	ft		ksf	ft ²		ft ²	ft ²	ft ²			
					B	0.000	173.163		100.00	0.000	0.000
					C	0.000	173.163		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.690$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
ft	ft		ksf	in	ft ²		ft ²	ft ²	ft ²			
L1 170'-160'4-3/16"	165'1-3/16"	1.584	0	0.75	24.199	A	0.000	24.199	24.199	100.00	0.000	0.000
						B	0.000	24.199		100.00	0.000	0.000
						C	0.000	24.199		100.00	0.000	0.000
L2 160'4-3/16"-126' 1-11/16"	142'6-19/32"	1.519	0	0.75	102.899	A	0.000	102.899	102.899	100.00	0.000	0.000
						B	0.000	102.899		100.00	0.000	0.000
						C	0.000	102.899		100.00	0.000	0.000
L3 126'1-11/16"-93'	109'1-7/16"	1.407	0	0.75	125.372	A	0.000	125.372	125.372	100.00	0.000	0.000
						B	0.000	125.372		100.00	0.000	0.000
						C	0.000	125.372		100.00	0.000	0.000
L4 93'-60'11-5/8"	76'8-7/8"	1.273	0	0.75	144.938	A	0.000	144.938	144.938	100.00	0.000	0.000
						B	0.000	144.938		100.00	0.000	0.000
						C	0.000	144.938		100.00	0.000	0.000
L5 60'11-5/8"-30'1' 4"	45'5-7/8"	1.096	0	0.75	161.854	A	0.000	161.854	161.854	100.00	0.000	0.000
						B	0.000	161.854		100.00	0.000	0.000
						C	0.000	161.854		100.00	0.000	0.000
L6 30'1/4"-0'	14'8-9/32"	1	0	0.75	176.915	A	0.000	176.915	176.915	100.00	0.000	0.000
						B	0.000	176.915		100.00	0.000	0.000
						C	0.000	176.915		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.690$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
ft	ft		ksf	ft ²		ft ²	ft ²	ft ²			
L1 170'-160'4-3/16"	165'1-3/16"	1.584	0	22.993	A	0.000	22.993	22.993	100.00	0.000	0.000
					B	0.000	22.993		100.00	0.000	0.000
					C	0.000	22.993		100.00	0.000	0.000
L2 160'4-3/16"-126' 2"	142'6-19/32"	1.519	0	98.621	A	0.000	98.621	98.621	100.00	0.000	0.000
					B	0.000	98.621		100.00	0.000	0.000
					C	0.000	98.621		100.00	0.000	0.000
L3 126'1-11/16"-93' 3"	109'1-7/16"	1.407	0	121.230	A	0.000	121.230	121.230	100.00	0.000	0.000
					B	0.000	121.230		100.00	0.000	0.000
					C	0.000	121.230		100.00	0.000	0.000
L4 93'-60'11-5/8"	76'8-7/8"	1.273	0	140.935	A	0.000	140.935	140.935	100.00	0.000	0.000
					B	0.000	140.935		100.00	0.000	0.000
					C	0.000	140.935		100.00	0.000	0.000
L5 60'11-5/8"-30'1'	45'5-7/8"	1.096	0	157.984	A	0.000	157.984	157.984	100.00	0.000	0.000
					B	0.000	157.984		100.00	0.000	0.000

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Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} _{In Face}	C _{AA} _{Out Face}
ft	ft		ksf	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
L6 30'1/4"-0' 1/4"	14'8-9/32"	1	0	173.163	C	0.000	157.984	173.163	100.00	0.000	0.000
					A	0.000	173.163		100.00	0.000	0.000
					B	0.000	173.163		100.00	0.000	0.000
					C	0.000	173.163		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F _a	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K	c						ft ²	K	klf	
L1	0.33	0.81	A	1	0.65	1	1	1	22.993	0.74	0.08	C
170'-160'4-3/16"			B	1	0.65	1	1	1	22.993			
6"			C	1	0.65	1	1	1	22.993			
L2	1.35	4.97	A	1	0.65	1	1	1	98.621	3.04	0.09	C
160'4-3/16"-1			B	1	0.65	1	1	1	98.621			
26'-11/16"			C	1	0.65	1	1	1	98.621			
L3	1.35	7.02	A	1	0.65	1	1	1	121.230	3.46	0.10	C
126'-11/16"-			B	1	0.65	1	1	1	121.230			
93'			C	1	0.65	1	1	1	121.230			
L4	1.31	10.13	A	1	0.65	1	1	1	140.935	3.64	0.11	C
93'-60'11-5/8"			B	1	0.65	1	1	1	140.935			
			C	1	0.65	1	1	1	140.935			
L5	1.27	13.69	A	1	0.65	1	1	1	157.984	3.50	0.11	C
60'11-5/8"-30'			B	1	0.65	1	1	1	157.984			
1/4"			C	1	0.65	1	1	1	157.984			
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	1	1	1	173.163	3.52	0.12	C
			B	1	0.65	1	1	1	173.163			
			C	1	0.65	1	1	1	173.163			
Sum Weight:	6.64	52.12						OTM	1423.62 kip-ft	17.90		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F _a	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K	c						ft ²	K	klf	
L1	0.33	0.81	A	1	0.65	1	1	1	22.993	0.74	0.08	C
170'-160'4-3/16"			B	1	0.65	1	1	1	22.993			
6"			C	1	0.65	1	1	1	22.993			
L2	1.35	4.97	A	1	0.65	1	1	1	98.621	3.04	0.09	C
160'4-3/16"-1			B	1	0.65	1	1	1	98.621			
26'-11/16"			C	1	0.65	1	1	1	98.621			
L3	1.35	7.02	A	1	0.65	1	1	1	121.230	3.46	0.10	C
126'-11/16"-			B	1	0.65	1	1	1	121.230			
93'			C	1	0.65	1	1	1	121.230			
L4	1.31	10.13	A	1	0.65	1	1	1	140.935	3.64	0.11	C
93'-60'11-5/8"			B	1	0.65	1	1	1	140.935			
			C	1	0.65	1	1	1	140.935			
L5	1.27	13.69	A	1	0.65	1	1	1	157.984	3.50	0.11	C
60'11-5/8"-30'			B	1	0.65	1	1	1	157.984			
1/4"			C	1	0.65	1	1	1	157.984			

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	1	1	1	173.163	3.52	0.12	C
			B	1	0.65	1	1	1	173.163			
			C	1	0.65	1	1	1	173.163			
Sum Weight:	6.64	52.12						OTM	1423.62 kip-ft	17.90		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1	0.33	0.81	A	1	0.65	1	1	1	22.993	0.74	0.08	C
170'-160'4-3/16"			B	1	0.65	1	1	1	22.993			
			C	1	0.65	1	1	1	22.993			
L2	1.35	4.97	A	1	0.65	1	1	1	98.621	3.04	0.09	C
160'4-3/16"-126'1-11/16"			B	1	0.65	1	1	1	98.621			
			C	1	0.65	1	1	1	98.621			
L3	1.35	7.02	A	1	0.65	1	1	1	121.230	3.46	0.10	C
126'1-11/16"-93'			B	1	0.65	1	1	1	121.230			
			C	1	0.65	1	1	1	121.230			
L4	1.31	10.13	A	1	0.65	1	1	1	140.935	3.64	0.11	C
93'-60'11-5/8"			B	1	0.65	1	1	1	140.935			
			C	1	0.65	1	1	1	140.935			
L5	1.27	13.69	A	1	0.65	1	1	1	157.984	3.50	0.11	C
60'11-5/8"-30'1/4"			B	1	0.65	1	1	1	157.984			
			C	1	0.65	1	1	1	157.984			
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	1	1	1	173.163	3.52	0.12	C
			B	1	0.65	1	1	1	173.163			
			C	1	0.65	1	1	1	173.163			
Sum Weight:	6.64	52.12						OTM	1423.62 kip-ft	17.90		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1	0.33	1.08	A	1	0.65	1	1	1	24.199	0.58	0.06	C
170'-160'4-3/16"			B	1	0.65	1	1	1	24.199			
			C	1	0.65	1	1	1	24.199			
L2	1.35	6.09	A	1	0.65	1	1	1	102.899	2.38	0.07	C
160'4-3/16"-126'1-11/16"			B	1	0.65	1	1	1	102.899			
			C	1	0.65	1	1	1	102.899			
L3	1.35	8.39	A	1	0.65	1	1	1	125.372	2.69	0.08	C
126'1-11/16"-93'			B	1	0.65	1	1	1	125.372			
			C	1	0.65	1	1	1	125.372			
L4	1.31	11.72	A	1	0.65	1	1	1	144.938	2.81	0.09	C
93'-60'11-5/8"			B	1	0.65	1	1	1	144.938			
			C	1	0.65	1	1	1	144.938			

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	klf	
L5	1.27	15.47	A	1	0.65	1	1	1	161.854	2.69	0.09	C
60'11-5/8"-30'			B	1	0.65	1	1	1	161.854			
1/4"			C	1	0.65	1	1	1	161.854			
L6 30'1/4"-0'	1.03	17.43	A	1	0.65	1	1	1	176.915	2.70	0.09	C
			B	1	0.65	1	1	1	176.915			
			C	1	0.65	1	1	1	176.915			
Sum Weight:	6.64	60.18						OTM	1106.02 kip-ft	13.84		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	klf	
L1	0.33	1.08	A	1	0.65	1	1	1	24.199	0.58	0.06	C
170'-160'4-3/1			B	1	0.65	1	1	1	24.199			
6"			C	1	0.65	1	1	1	24.199			
L2	1.35	6.09	A	1	0.65	1	1	1	102.899	2.38	0.07	C
160'4-3/16"-1			B	1	0.65	1	1	1	102.899			
26'1-11/16"			C	1	0.65	1	1	1	102.899			
L3	1.35	8.39	A	1	0.65	1	1	1	125.372	2.69	0.08	C
126'1-11/16"-			B	1	0.65	1	1	1	125.372			
93'			C	1	0.65	1	1	1	125.372			
L4	1.31	11.72	A	1	0.65	1	1	1	144.938	2.81	0.09	C
93'-60'11-5/8"			B	1	0.65	1	1	1	144.938			
			C	1	0.65	1	1	1	144.938			
L5	1.27	15.47	A	1	0.65	1	1	1	161.854	2.69	0.09	C
60'11-5/8"-30'			B	1	0.65	1	1	1	161.854			
1/4"			C	1	0.65	1	1	1	161.854			
L6 30'1/4"-0'	1.03	17.43	A	1	0.65	1	1	1	176.915	2.70	0.09	C
			B	1	0.65	1	1	1	176.915			
			C	1	0.65	1	1	1	176.915			
Sum Weight:	6.64	60.18						OTM	1106.02 kip-ft	13.84		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	klf	
L1	0.33	1.08	A	1	0.65	1	1	1	24.199	0.58	0.06	C
170'-160'4-3/1			B	1	0.65	1	1	1	24.199			
6"			C	1	0.65	1	1	1	24.199			
L2	1.35	6.09	A	1	0.65	1	1	1	102.899	2.38	0.07	C
160'4-3/16"-1			B	1	0.65	1	1	1	102.899			
26'1-11/16"			C	1	0.65	1	1	1	102.899			
L3	1.35	8.39	A	1	0.65	1	1	1	125.372	2.69	0.08	C
126'1-11/16"-			B	1	0.65	1	1	1	125.372			
93'			C	1	0.65	1	1	1	125.372			

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L4 93'-60'11-5/8"	1.31	11.72	A	1	0.65	1	1	1	144.938	2.81	0.09	C
			B	1	0.65	1	1	1	144.938			
			C	1	0.65	1	1	1	144.938			
L5 60'11-5/8"-30' 1/4"	1.27	15.47	A	1	0.65	1	1	1	161.854	2.69	0.09	C
			B	1	0.65	1	1	1	161.854			
			C	1	0.65	1	1	1	161.854			
L6 30'1/4"-0'	1.03	17.43	A	1	0.65	1	1	1	176.915	2.70	0.09	C
			B	1	0.65	1	1	1	176.915			
			C	1	0.65	1	1	1	176.915			
Sum Weight:	6.64	60.18						OTM	1106.02 kip-ft	13.84		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/1 6"	0.33	0.81	A	1	0.65	1	1	1	22.993	0.37	0.04	C
			B	1	0.65	1	1	1	22.993			
			C	1	0.65	1	1	1	22.993			
L2 160'4-3/16"-1 26'1-11/16"	1.35	4.97	A	1	0.65	1	1	1	98.621	1.52	0.04	C
			B	1	0.65	1	1	1	98.621			
			C	1	0.65	1	1	1	98.621			
L3 126'1-11/16"- 93'	1.35	7.02	A	1	0.65	1	1	1	121.230	1.73	0.05	C
			B	1	0.65	1	1	1	121.230			
			C	1	0.65	1	1	1	121.230			
L4 93'-60'11-5/8"	1.31	10.13	A	1	0.65	1	1	1	140.935	1.81	0.06	C
			B	1	0.65	1	1	1	140.935			
			C	1	0.65	1	1	1	140.935			
L5 60'11-5/8"-30' 1/4"	1.27	13.69	A	1	0.65	1	1	1	157.984	1.74	0.06	C
			B	1	0.65	1	1	1	157.984			
			C	1	0.65	1	1	1	157.984			
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	1	1	1	173.163	1.75	0.06	C
			B	1	0.65	1	1	1	173.163			
			C	1	0.65	1	1	1	173.163			
Sum Weight:	6.64	52.12						OTM	709.34 kip-ft	8.92		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/1 6"	0.33	0.81	A	1	0.65	1	1	1	22.993	0.37	0.04	C
			B	1	0.65	1	1	1	22.993			
			C	1	0.65	1	1	1	22.993			
L2 160'4-3/16"-1 26'1-11/16"	1.35	4.97	A	1	0.65	1	1	1	98.621	1.52	0.04	C
			B	1	0.65	1	1	1	98.621			
			C	1	0.65	1	1	1	98.621			

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L3 126'1-11/16"-93'	1.35	7.02	A	1	0.65	1	1	1	121.230	1.73	0.05	C
			B	1	0.65	1	1	1	121.230			
			C	1	0.65	1	1	1	121.230			
L4 93'-60'11-5/8"	1.31	10.13	A	1	0.65	1	1	1	140.935	1.81	0.06	C
			B	1	0.65	1	1	1	140.935			
			C	1	0.65	1	1	1	140.935			
L5 60'11-5/8"-30'1/4"	1.27	13.69	A	1	0.65	1	1	1	157.984	1.74	0.06	C
			B	1	0.65	1	1	1	157.984			
			C	1	0.65	1	1	1	157.984			
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	1	1	1	173.163	1.75	0.06	C
			B	1	0.65	1	1	1	173.163			
			C	1	0.65	1	1	1	173.163			
Sum Weight:	6.64	52.12						OTM	709.34 kip-ft	8.92		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	0.81	A	1	0.65	1	1	1	22.993	0.37	0.04	C
			B	1	0.65	1	1	1	22.993			
			C	1	0.65	1	1	1	22.993			
L2 160'4-3/16"-126'1-11/16"	1.35	4.97	A	1	0.65	1	1	1	98.621	1.52	0.04	C
			B	1	0.65	1	1	1	98.621			
			C	1	0.65	1	1	1	98.621			
L3 126'1-11/16"-93'	1.35	7.02	A	1	0.65	1	1	1	121.230	1.73	0.05	C
			B	1	0.65	1	1	1	121.230			
			C	1	0.65	1	1	1	121.230			
L4 93'-60'11-5/8"	1.31	10.13	A	1	0.65	1	1	1	140.935	1.81	0.06	C
			B	1	0.65	1	1	1	140.935			
			C	1	0.65	1	1	1	140.935			
L5 60'11-5/8"-30'1/4"	1.27	13.69	A	1	0.65	1	1	1	157.984	1.74	0.06	C
			B	1	0.65	1	1	1	157.984			
			C	1	0.65	1	1	1	157.984			
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	1	1	1	173.163	1.75	0.06	C
			B	1	0.65	1	1	1	173.163			
			C	1	0.65	1	1	1	173.163			
Sum Weight:	6.64	52.12						OTM	709.34 kip-ft	8.92		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M _x kip-ft	Sum of Overturning Moments, M _z kip-ft	Sum of Torques kip-ft
Leg Weight	52.12					
Bracing Weight	0.00					
Total Member Self-Weight	52.12			0.07	0.00	

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Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Total Weight	72.49			0.07	0.00	
Wind 0 deg - No Ice		0.00	-67.60	-8793.02	0.00	0.00
Wind 90 deg - No Ice		67.68	-0.01	-1.96	-8806.45	0.54
Wind 180 deg - No Ice		0.00	67.58	8790.15	0.00	0.00
Member Ice	8.06					
Total Weight Ice	93.23			0.12	0.00	
Wind 0 deg - Ice		0.00	-56.66	-7465.86	0.00	0.00
Wind 90 deg - Ice		56.72	-0.01	-1.60	-7477.30	0.64
Wind 180 deg - Ice		0.00	56.64	7463.57	0.00	0.00
Total Weight	72.49			0.07	0.00	
Wind 0 deg - Service		0.00	-33.68	-4381.26	0.00	0.00
Wind 90 deg - Service		33.72	-0.01	-0.94	-4387.99	0.27
Wind 180 deg - Service		0.00	33.67	4379.90	0.00	0.00

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	170 - 160.354	Pole	Max Tension	5	0.00	0.00	0.00
			Max. Compression	5	-6.46	0.00	-0.12
			Max. Mx	3	-1.61	-29.54	0.04
			Max. My	2	-1.62	0.00	29.17
			Max. Vy	3	12.08	-9.72	0.04
			Max. Vx	2	-12.00	0.00	9.25
			Max. Torque	7			-0.65
L2	160.354 - 126.135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-31.34	0.00	-0.12
			Max. Mx	3	-15.32	-959.67	0.42
			Max. My	2	-15.34	0.00	956.55
			Max. Vy	3	47.69	-959.67	0.42
			Max. Vx	2	-47.61	0.00	956.55
			Max. Torque	7			-0.65
L3	126.135 - 92.9974	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-43.08	0.00	-0.12

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	92.9974 - 60.974	Pole	Max. Mx	3	-24.70	-2712.12	0.80
			Max. My	2	-24.71	0.00	2706.41
			Max. Vy	3	57.78	-2712.12	0.80
			Max. Vx	2	-57.70	0.00	2706.41
			Max. Torque	7			-0.65
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-55.10	0.00	-0.12
			Max. Mx	3	-36.31	-4553.62	1.18
			Max. My	2	-36.32	0.00	4545.40
			Max. Vy	3	61.10	-4553.62	1.18
L5	60.974 - 30.0182	Pole	Max. Vx	2	-61.02	0.00	4545.40
			Max. Torque	7			-0.65
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-70.60	0.00	-0.12
			Max. Mx	3	-51.08	-6437.88	1.54
			Max. My	2	-51.08	0.00	6427.24
			Max. Vy	3	64.19	-6437.88	1.54
			Max. Vx	2	-64.11	0.00	6427.24
			Max. Torque	7			-0.65
			Max Tension	1	0.00	0.00	0.00
L6	30.0182 - 0	Pole	Max. Compression	5	-93.23	0.00	-0.12
			Max. Mx	3	-72.47	-8991.56	2.01
			Max. My	2	-72.47	0.00	8977.85
			Max. Vy	3	67.71	-8991.56	2.01
			Max. Vx	2	-67.63	0.00	8977.85
			Max. Torque	7			-0.65

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	7	93.23	-56.72	0.01
	Max. H _x	11	72.49	0.00	-33.67
	Max. H _z	2	72.49	0.00	67.60
	Max. M _x	2	8977.85	0.00	67.60
	Max. M _z	3	8991.56	-67.68	0.01
	Max. Torsion	1	0.00	0.00	0.00
	Min. Vert	1	72.49	0.00	0.00
	Min. H _x	3	72.49	-67.68	0.01
	Min. H _z	4	72.49	0.00	-67.58
	Min. M _x	4	-8974.93	0.00	-67.58
	Min. M _z	1	0.00	0.00	0.00
	Min. Torsion	7	-0.65	-56.72	0.01

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	72.49	0.00	0.00	0.07	0.00	0.00

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 0 deg - No Ice	72.49	0.00	-67.60	-8977.85	0.00	0.00
Dead+Wind 90 deg - No Ice	72.49	67.68	-0.01	-2.01	-8991.56	0.54
Dead+Wind 180 deg - No Ice	72.49	0.00	67.58	8974.93	0.00	0.00
Dead+Ice+Temp	93.23	0.00	0.00	0.12	0.00	0.00
Dead+Wind 0 deg+Ice+Temp	93.23	0.00	-56.66	-7712.20	0.00	0.00
Dead+Wind 90 deg+Ice+Temp	93.23	56.72	-0.01	-1.66	-7724.05	0.65
Dead+Wind 180 deg+Ice+Temp	93.23	0.00	56.64	7709.83	0.00	0.00
Dead+Wind 0 deg - Service	72.49	0.00	-33.68	-4477.37	0.00	0.00
Dead+Wind 90 deg - Service	72.49	33.72	-0.01	-0.97	-4484.26	0.27
Dead+Wind 180 deg - Service	72.49	0.00	33.67	4475.98	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-72.49	0.00	0.00	72.49	0.00	0.000%
2	0.00	-72.49	-67.60	0.00	72.49	67.60	0.000%
3	67.68	-72.49	-0.01	-67.68	72.49	0.01	0.000%
4	0.00	-72.49	67.58	0.00	72.49	-67.58	0.000%
5	0.00	-93.23	0.00	0.00	93.23	0.00	0.000%
6	0.00	-93.23	-56.66	0.00	93.23	56.66	0.000%
7	56.72	-93.23	-0.01	-56.72	93.23	0.01	0.000%
8	0.00	-93.23	56.64	0.00	93.23	-56.64	0.000%
9	0.00	-72.49	-33.68	0.00	72.49	33.68	0.000%
10	33.72	-72.49	-0.01	-33.72	72.49	0.01	0.000%
11	0.00	-72.49	33.67	0.00	72.49	-33.67	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.00000326
3	Yes	5	0.0000001	0.00000371
4	Yes	5	0.0000001	0.00000326
5	Yes	4	0.0000001	0.0000001
6	Yes	6	0.0000001	0.00001084
7	Yes	6	0.0000001	0.00001085
8	Yes	6	0.0000001	0.00001084
9	Yes	5	0.0000001	0.00000295
10	Yes	5	0.0000001	0.00000307
11	Yes	5	0.0000001	0.00000295

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
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Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160.354	4.10	10	2.56	0.00
L2	164.846 - 126.135	3.87	10	2.56	0.00
L3	131.708 - 92.9974	2.45	10	2.26	0.00
L4	99.6849 - 60.974	1.34	10	1.61	0.00
L5	68.7292 - 30.0182	0.62	10	1.02	0.00
L6	38.6901 - 0	0.20	10	0.55	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
181'3"	DS1F03F36D-Ns	10	4.10	2.56	0.00	76855
173'1-3/16"	DS1F03F36D-Ns	10	4.10	2.56	0.00	76855
170'	VHLPX2-11	10	4.10	2.56	0.00	76855
165'	(4) 8*1*0.5' Panel (50lbs)	10	3.88	2.56	0.00	76855
155'	(4) HPA-65R-BUU-H8 w/ Mount Pipe	10	3.43	2.52	0.00	10812
145'	(4) 8*1*0.5' Panel (50lbs)	10	3.00	2.44	0.00	5604
135'	(4) 8*1*0.5' Panel (50lbs)	10	2.58	2.31	0.00	3784
125'	(4) 8*1*0.5' Panel (50lbs)	10	2.19	2.14	0.00	3205

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160.354	8.21	3	5.13	0.00
L2	164.846 - 126.135	7.75	3	5.13	0.00
L3	131.708 - 92.9974	4.90	3	4.53	0.00
L4	99.6849 - 60.974	2.69	3	3.23	0.00
L5	68.7292 - 30.0182	1.25	3	2.04	0.00
L6	38.6901 - 0	0.40	3	1.10	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
181'3"	DS1F03F36D-Ns	3	8.21	5.13	0.00	38986
173'1-3/16"	DS1F03F36D-Ns	3	8.21	5.13	0.00	38986
170'	VHLPX2-11	3	8.21	5.13	0.00	38986
165'	(4) 8*1*0.5' Panel (50lbs)	3	7.77	5.13	0.00	38986
155'	(4) HPA-65R-BUU-H8 w/ Mount Pipe	3	6.88	5.05	0.00	5466
145'	(4) 8*1*0.5' Panel (50lbs)	3	6.00	4.89	0.00	2831
135'	(4) 8*1*0.5' Panel (50lbs)	3	5.17	4.63	0.00	1910
125'	(4) 8*1*0.5' Panel (50lbs)	3	4.39	4.29	0.00	1615

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Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	9'7"-13/16'	170'	193.1	4.01	26.04	-3.07	104.31	0.029
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	38'8"-17/3 2"	170'	152.6	6.42	42.36	-15.32	271.78	0.056
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	38'8"-17/3 2"	170'	123.7	9.76	58.04	-24.70	566.21	0.044
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	38'8"-17/3 2"	170'	104.9	13.58	82.10	-36.31	1114.83	0.033
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	38'8"-17/3 2"	170'	91.6	17.75	109.49	-51.08	1943.58	0.026
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	38'8"-9/32'	170'	89.5	18.50	112.08	-58.17	2072.93	0.028

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx} F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	26.92	1.69	39.00	0.043	0.00	0.00	39.00	0.000
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	959.67	29.29	39.00	0.751	0.00	0.00	39.00	0.000
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	2712.12	48.96	39.00	1.255	0.00	0.00	39.00	0.000
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	4553.63	49.26	39.00	1.263	0.00	0.00	39.00	0.000
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	6437.87	45.63	39.00	1.170	0.00	0.00	39.00	0.000
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	6998.58	47.33	39.00	1.214	0.00	0.00	39.00	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio f _v F _v	Actual T kip-ft	Actual f _{vt} ksi	Allow. F _{vt} ksi	Ratio f _{vt} F _{vt}
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	5.11	0.20	26.00	0.015	0.29	0.01	26.00	0.000
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	47.69	1.13	26.00	0.087	0.54	0.01	26.00	0.000
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	57.78	1.00	26.00	0.077	0.54	0.00	26.00	0.000

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job	170 ft Tapered Monopole	Page	20 of 20
	Project	Cheshire, CT (CT005)	Date	22:57:55 09/22/15
	Client	AMBOR / InSite Towers	Designed by	Vince

Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio f _v / F _v	Actual T kip-ft	Actual f _{vt} ksi	Allow. F _{vt} ksi	Ratio f _{vt} / F _{vt}
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	61.10	0.74	26.00	0.057	0.54	0.00	26.00	0.000
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	64.19	0.59	26.00	0.045	0.54	0.00	26.00	0.000
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	65.29	0.58	26.00	0.044	0.54	0.00	26.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P P _a	Ratio f _{bx} F _{bx}	Ratio f _{by} F _{by}	Ratio f _v F _v	Ratio f _{vt} F _{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170 - 160.354 (1)	0.029	0.043	0.000	0.015	0.000	0.073	1.333	H1-3+VT ✓
L2	160.354 - 126.135 (2)	0.056	0.751	0.000	0.087	0.000	0.809	1.333	H1-3+VT ✓
L3	126.135 - 92.9974 (3)	0.044	1.255	0.000	0.077	0.000	1.300	1.333	H1-3+VT ✓
L4	92.9974 - 60.974 (4)	0.033	1.263	0.000	0.057	0.000	1.296	1.333	H1-3+VT ✓
L5	60.974 - 30.0182 (5)	0.026	1.170	0.000	0.045	0.000	1.197	1.333	H1-3+VT ✓
L6	30.0182 - 0 (6)	0.028	1.214	0.000	0.044	0.000	1.242	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail	
L1	170 - 160.354	Pole	TP30.04x27.17x0.28	1	-3.07	139.04	5.5	Pass	
L2	160.354 - 126.135	Pole	TP39.68x28.15x0.35	2	-15.32	362.29	60.7	Pass	
L3	126.135 - 92.9974	Pole	TP48.83x37.31x0.39	3	-24.70	754.75	97.6	Pass	
L4	92.9974 - 60.974	Pole	TP57.58x46.05x0.47	4	-36.31	1486.07	97.3	Pass	
L5	60.974 - 30.0182	Pole	TP65.85x54.33x0.55	5	-51.08	2590.79	89.8	Pass	
L6	30.0182 - 0	Pole	TP73.69x62.17x0.55	6	-58.17	2763.22	93.2	Pass	
							Summary		
							Pole (L3)	97.6	Pass
							RATING =	97.6	Pass

Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	73.69 in
	Pole Thickness	0.55 in
	Plate Diameter	87.4 in
	Plate Thickness	2.76 in
	Plate Fy	50 ksi
	Weld Length	0.3125 in
	ϕ_s Resistance	524.85 k-in
	Applied	442.39 k-in
Stiffeners	#	0

Code Rev. **F**
A.S.I. **1.33**
Moment **8992.0 k-ft**
Axial **72.0 k**

Date **9/22/2015**
Engineer **MD**
Site #
Carrier

Bolts	#	28
	Bolt Circle (R)adial / (S)quare	81.56 in R
	Diameter	2.25 in
	Hole Diameter	2.625 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	ϕ_s Resistance	194.86 k
Applied	191.51 k	
Reinforcement	#	0
Extra Bolts	#	0

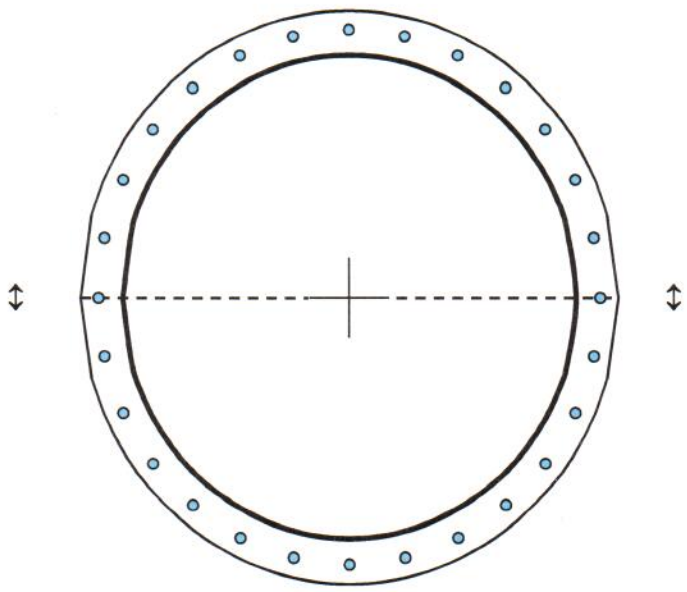


Plate Stress Ratio:
0.84 (Pass)

Bolt Stress Ratio:
0.98 (Pass)

PROJECT No: 170' Tapered Monopole
 PROJECT NAME: Cheshire, CT
AMBOR / InSite Towers
 DATE: September 22, 2015

ENG: MD
 CHK: _____
 PAGE: _____ of _____

EIA-222-F

SINGLE GLOBAL FOUNDATION WITH PIER(S) CHECKS

Global Tower Reactions		Allowable Loads	Calculated Reactions	Allowable Resistance		
<input type="radio"/> TIA-G	Maximum Moment	8,992.00 k-ft	Disturbing Moment	9,434.0	10,638.5 k-ft	pass 88.7% [GOVERNS]
<input checked="" type="radio"/> EIA-F	Axial Load	72.00 kips	Maximum Bearing	2.90	5.00 kips	pass 57.9%
	Shear Load	68.00 kips	Punching Shear	1,187.4	1,834.7 kips	pass 64.7%
	Pier Rebar Required	(minimum only, use PCACOL for total quantity)		(48) #10 @ 6.68 in **MINIMUM**		
	Rebar Required	(checked rebar for 6" min to 24" max spacing)		(56) #9 @ 7.09 in		

SF=2.26

Soil Parameters	Soils Report	Pier Geometry	Pad Geometry
ϕ	0.0 °	Qty of Piers	1
Water Level	11.00 ft (3.35 m)	Width (Bp)	9.00 ft
Soil Dry Density (γ_{dry})	0.125 kcf (19.6 kN/m ³)	Width (Wp)	9.00 ft
Soil Sub Density (γ_{sub})	0.062 kcf (9.73 kN/m ³)	Height (Hp)	4.00 ft
All. Bearing Pressure	5.000 ksf (239.4 kPa)	Pier Type	R (Rnd or Sq)
Bearing Safety Factor	2	Conc γ_{dry}	0.150 kcf (23.6)
		Width (Bm)	33.00 ft
		Width (Wm)	33.00 ft
		Height (Hm)	2.50 ft
		Depth (D)	6.00 ft

Volume of Concrete/Soil	Concrete (110.2cuyd)			ft
	1 Pier	Mat	Soil	
Depth (above)	0.50	--	--	ft
Depth (dry)	3.50	2.50	3.50	ft
Depth (submerged)	0.00	0.00	0.00	ft
Volume (above)	31.75	--	--	ft ³
Volume (dry)	222.26	2,722.50	3589.24	ft ³
Volume (submerged)	0.00	0	0.00	ft ³
Total	254	2723	3589	ft ³

Calculations	Factored	Allowable
Axial Download	--	72.0 kips
Weight of Concrete (not factored)	--	446.5 kips(110.2yds)
Weight of Soil (not factored)	--	448.7 kips
Total Download (P)	--	967.1 kips
Resisting Moment Arm	--	16.5 ft
Moment Resistance	--	10638.5 k-ft

(divide by 1.5 - cl. 7.2.4.5)

Concrete Reinforcing Design	MAT	PIER
f'c	3.000 ksi (20.7 MPa)	
fy	60.00 ksi (413.7 MPa)	
Steel (Metric/ASTM)	ASTM	ASTM
Bar size	9 #	10 #
	1.000 in ²	1.270 in ²

Bearing Capacity Check	Factored	Allowable
Contact Area	--	1089.00 ft ²
Calculate eccentricity e	--	9.75 ft >L/6
Calculate (c = L/2 - e)	--	6.75 ft
1) $q_{max} = P/A \cdot (1+6e/L)$	--	--
2) $q_{max} = 2P / b \cdot 3c$	--	2.90 ksf [GOV]
q allowable	--	5.00 ksf

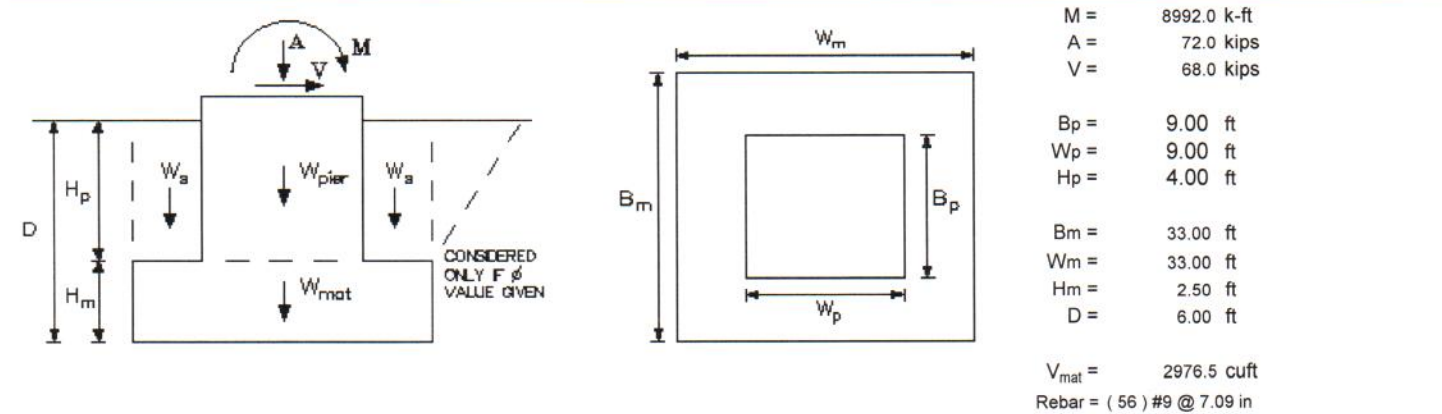
(not factored)

Slab Reinforcing	Wgt of Rebar
1/2 Disturbing Moment	4717.00 kip-ft
Ku	196.08
ρ	0.00380
4/3 * ρ if $\rho < \rho_{min}$	0.00506
$\rho_{min} \geq 0.0018$	0.00180
As	39.08 in ²
Number of bars	56 bars on 7.09 in c/c

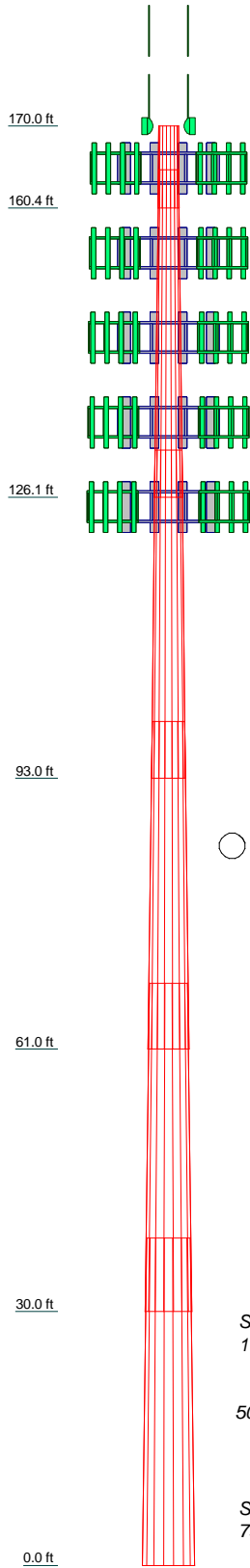
Check for 2-Way Shear (Punching)	Factored	Allowable
Shear Area (b _o x d)	--	77.54 ft ²
Factored Bearing Stress	--	1.20 ksf
Factored Shear Force	--	1187.44 kips
Factored Shear Resistance	--	1834.7 kips
Check for 2-way Shear	--	0.65

(ACI-318)

Note: The 1/2 moment is derived from a bending moment diagram that considered the uplift and download components at the exact face width of the tower.



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	8'7-13/16"	18	0.28	4'5-7/8"	27.17	30.04	A572-65	0.8
2	38'8-17/32"	18	0.35	5'6-27/32"	28.15	39.68	A572-65	5.0
3	38'8-17/32"	18	0.39	6'9-9/32"	37.31	48.83	A572-65	7.0
4	38'8-17/32"	18	0.47	7'9-1/8"	46.05	57.58	A572-65	10.1
5	38'8-17/32"	18	0.55	8'8-1/32"	54.33	65.85	A572-65	13.7
6	38'8-9/32"	18	0.55	62.17	73.69		A572-65	15.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DS1F03F36D-Ns	181.25	(2) RRUS 12	155
DS1F03F36D-Ns	181.25	(2) RRUS 12	155
DS1F03F36D-Ns	173.099	(2) RRUS 12	155
DS1F03F36D-Ns	173.099	FC 12-PC6-10E	155
(2) Dish Mounts	170	FC 12-PC6-10E	155
(2) Flush Mounts	170	FC 12-PC6-10E	155
VHLPX2-11	170	Sabre 12' LP Platform	155
VHLPX2-11	170	Sabre 12' LP Platform	155
(4) 8"11"0.5' Panel (50lbs)	165	Sabre 12' LP Platform	155
(6) RRUS 11	165	Sabre 12' LP Platform	155
(6) RRUS 11	165	(4) HPA-65R-BUU-H8 w/ Mount Pipe	155
(6) RRUS 11	165	(4) HPA-65R-BUU-H8 w/ Mount Pipe	155
(2) FD9R6004	165	(4) 9442 RRH	145
(2) FD9R6004	165	DC6-48-60-18-8F	145
(2) FD9R6004	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	(4) E15S09P80	145
DC6-48-60-18-8F	165	(4) 8"11"0.5' Panel (50lbs)	145
DC6-48-60-18-8F	165	(4) 8"11"0.5' Panel (50lbs)	145
Sabre 12' LP Platform	165	(4) 8"11"0.5' Panel (50lbs)	145
(4) 8"11"0.5' Panel (50lbs)	165	(4) 9442 RRH	145
(4) 8"11"0.5' Panel (50lbs)	165	(4) 9442 RRH	145
(4) HPA-65R-BUU-H8 w/ Mount Pipe	155	(4) 9442 RRH	135
(3) RRUS 11	155	(4) 9442 RRH	135
(3) RRUS 11	155	DC6-48-60-18-8F	135
(3) RRUS 11	155	(4) 8"11"0.5' Panel (50lbs)	135
(2) RRUS A2 MODULE	155	(4) 8"11"0.5' Panel (50lbs)	135
(2) RRUS A2 MODULE	155	(4) 8"11"0.5' Panel (50lbs)	135
(2) RRUS A2 MODULE	155	(4) 9442 RRH	135
(2) RRUS 22 xx20	155	(4) 9442 RRH	125
(2) RRUS 22 xx20	155	(4) 9442 RRH	125
(2) RRUS 22 xx20	155	(4) 9442 RRH	125
24" x 24" x 10" RRU	155	DC6-48-60-18-8F	125
24" x 24" x 10" RRU	155	(4) 8"11"0.5' Panel (50lbs)	125
DC12-48-60-RM	155	(4) 8"11"0.5' Panel (50lbs)	125
DC12-48-60-RM	155	(4) 8"11"0.5' Panel (50lbs)	125

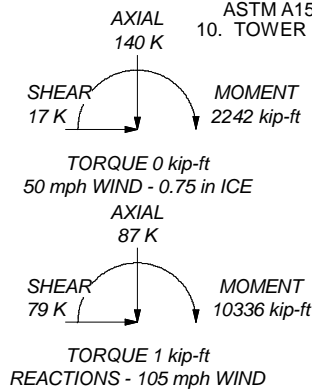
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0'
8. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
9. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
10. TOWER RATING: 81.9%

ALL REACTIONS ARE FACTORED



09/22/2015

 amborstructures.com	Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job: 170 ft Tapered Monopole Project: Cheshire, CT (CT005) Client: InSite Towers Code: TIA-222-G Path:	Drawn by: Vince Date: 09/22/15 Scale: NTS App'd:	Date: 09/22/15 Scale: NTS Dwg No. E-1
	<small>D:\C-Pol\CI15019\InSite\TX\AMBOR-170ft InSite CheshireCT_081915_RevG.dwg</small>			

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job	170 ft Tapered Monopole	Page	2 of 21
	Project	Cheshire, CT (CT005)	Date	07:25:03 09/17/15
	Client	InSite Towers	Designed by	Vince

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	170'-160'4-3/16"	9'7-13/16"	4'5-7/8"	18	27.17	30.04	0.28	1.10	A572-65 (65 ksi)
L2	160'4-3/16"-126' 1-11/16"	38'8-17/32"	5'6-27/32"	18	28.15	39.68	0.35	1.42	A572-65 (65 ksi)
L3	126'1-11/16"-93'	38'8-17/32"	6'8-9/32"	18	37.31	48.83	0.39	1.57	A572-65 (65 ksi)
L4	93'-60'11-5/8"	38'8-17/32"	7'9-1/8"	18	46.05	57.58	0.47	1.89	A572-65 (65 ksi)
L5	60'11-5/8"-30'1' 4"	38'8-17/32"	8'8-1/32"	18	54.33	65.85	0.55	2.20	A572-65 (65 ksi)
L6	30'1/4"-0'	38'8-9/32"		18	62.17	73.69	0.55	2.20	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	27.59	23.53	2149.79	9.55	13.80	155.76	4302.42	11.76	4.30	15.591
	30.50	26.04	2914.09	10.57	15.26	190.96	5832.01	13.02	4.80	17.424
L2	29.94	31.26	3052.07	9.87	14.30	213.41	6108.16	15.63	4.33	12.223
	40.29	44.23	8641.47	13.96	20.16	428.70	17294.32	22.12	6.36	17.949
L3	39.57	46.13	7943.69	13.11	18.95	419.10	15897.83	23.07	5.87	14.92
	49.58	60.53	17939.83	17.19	24.81	723.22	35903.27	30.27	7.90	20.069
L4	48.79	68.29	17923.86	16.18	23.39	766.15	35871.31	34.15	7.27	15.412
	58.47	85.56	35251.47	20.27	29.25	1205.15	70549.32	42.79	9.30	19.711
L5	57.51	93.88	34299.59	19.09	27.60	1242.83	68644.32	46.95	8.59	15.625
	66.87	113.99	61411.06	23.18	33.45	1835.81	122902.93	57.01	10.62	19.312
L6	65.75	107.57	51599.12	21.87	31.58	1633.83	103266.14	53.79	9.97	18.134
	74.83	127.69	86307.99	25.97	37.44	2305.43	172729.54	63.86	12.00	21.822

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1 170'-160'4-3/16"				1	1	1		
6"								
L2 160'4-3/16"-126' 6'1-11/16"				1	1	1		
L3 126'1-11/16"-93' 3'				1	1	1		
L4 93'-60'11-5/8"				1	1	1		
L5 60'11-5/8"-30'1' /4"				1	1	1		
L6 30'1/4"-0'				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job	170 ft Tapered Monopole	Page	3 of 21
	Project	Cheshire, CT (CT005)	Date	07:25:03 09/17/15
	Client	InSite Towers	Designed by	Vince

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight klf
						In Face ft ² /ft	Out Face ft ² /ft	
LDF7-50A (1 5/8 FOAM)	A	No	Inside Pole	195' - 5'	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	B	No	Inside Pole	185' - 5'	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	C	No	Inside Pole	175' - 5'	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	A	No	Inside Pole	165' - 5'	12	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	B	No	Inside Pole	135' - 5'	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00
LDF7-50A (1 5/8 FOAM)	C	No	Inside Pole	115' - 5'	1	No Ice	0.00	0.00
						1/2" Ice	0.00	0.00
						1" Ice	0.00	0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	170'-160'4-3/16"	A	0.000	0.000	0.000	0.000	0.14
		B	0.000	0.000	0.000	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.09
L2	160'4-3/16"-126'1-11/16"	A	0.000	0.000	0.000	0.000	0.67
		B	0.000	0.000	0.000	0.000	0.34
		C	0.000	0.000	0.000	0.000	0.34
L3	126'1-11/16"-93'	A	0.000	0.000	0.000	0.000	0.65
		B	0.000	0.000	0.000	0.000	0.35
		C	0.000	0.000	0.000	0.000	0.34
L4	93'-60'11-5/8"	A	0.000	0.000	0.000	0.000	0.63
		B	0.000	0.000	0.000	0.000	0.34
		C	0.000	0.000	0.000	0.000	0.34
L5	60'11-5/8"-30'1/4"	A	0.000	0.000	0.000	0.000	0.61
		B	0.000	0.000	0.000	0.000	0.33
		C	0.000	0.000	0.000	0.000	0.33
L6	30'1/4"-0'	A	0.000	0.000	0.000	0.000	0.49
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	0.000	0.000	0.27

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} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	170'-160'4-3/16"	A	1.762	0.000	0.000	0.000	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.09
L2	160'4-3/16"-126'1-11/16"	A	1.736	0.000	0.000	0.000	0.000	0.67
		B		0.000	0.000	0.000	0.000	0.34
		C		0.000	0.000	0.000	0.000	0.34

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	Client	InSite Towers	Designed by	Vince

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L3	126'1-11/16"-93'	A	1.690	0.000	0.000	0.000	0.000	0.65
		B		0.000	0.000	0.000	0.000	0.35
		C		0.000	0.000	0.000	0.000	0.34
L4	93'-60'11-5/8"	A	1.632	0.000	0.000	0.000	0.000	0.63
		B		0.000	0.000	0.000	0.000	0.34
		C		0.000	0.000	0.000	0.000	0.34
L5	60'11-5/8"-30'1/4"	A	1.549	0.000	0.000	0.000	0.000	0.61
		B		0.000	0.000	0.000	0.000	0.33
		C		0.000	0.000	0.000	0.000	0.33
L6	30'1/4"-0'	A	1.386	0.000	0.000	0.000	0.000	0.49
		B		0.000	0.000	0.000	0.000	0.27
		C		0.000	0.000	0.000	0.000	0.27

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
DS1F03F36D-Ns	C	From Leg	1.50	0.00	181'3"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03
DS1F03F36D-Ns	B	From Leg	1.50	0.00	181'3"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03

DS1F03F36D-Ns	C	From Leg	1.50	0.00	173'1-3/16"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03
DS1F03F36D-Ns	B	From Leg	1.50	0.00	173'1-3/16"	No Ice	1.50	1.50	0.01
			0'			1/2" Ice	2.25	2.25	0.02
			0'			1" Ice	3.00	3.00	0.03

(2) Dish Mounts	C	None		0.00	170'	No Ice	2.50	2.50	0.12
						1/2" Ice	3.00	3.00	0.16
						1" Ice	3.50	3.50	0.20

(2) Flush Mounts	C	None		0.00	170'	No Ice	3.00	3.00	0.10
						1/2" Ice	3.50	3.50	0.14
						1" Ice	4.00	4.00	0.18

(4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00	0.00	165'	No Ice	11.47	6.80	0.05
			0'			1/2" Ice	12.08	7.38	0.11
			0'			1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00	0.00	165'	No Ice	11.47	6.80	0.05
			0'			1/2" Ice	12.08	7.38	0.11
			0'			1" Ice	12.71	7.98	0.18

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job	170 ft Tapered Monopole	Page	5 of 21
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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
			ft	ft	ft					
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	4.00	0'	0'	0.00	165'	1" Ice 12.71 No Ice 11.47	7.98 6.80	0.18 0.05
			0'					1/2" Ice 12.08	7.38	0.11
			0'					1" Ice 12.71	7.98	0.18
(6) RRUS 11	A	None				0.00	165'	No Ice 3.25	1.37	0.05
								1/2" Ice 3.49	1.55	0.07
								1" Ice 3.74	1.74	0.10
(6) RRUS 11	B	None				0.00	165'	No Ice 3.25	1.37	0.05
								1/2" Ice 3.49	1.55	0.07
								1" Ice 3.74	1.74	0.10
(6) RRUS 11	C	None				0.00	165'	No Ice 3.25	1.37	0.05
								1/2" Ice 3.49	1.55	0.07
								1" Ice 3.74	1.74	0.10
(2) FD9R6004	A	None				0.00	165'	No Ice 1.00	1.00	0.01
								1/2" Ice 1.30	1.30	0.01
								1" Ice 1.60	1.60	0.02
(2) FD9R6004	B	None				0.00	165'	No Ice 1.00	1.00	0.01
								1/2" Ice 1.30	1.30	0.01
								1" Ice 1.60	1.60	0.02
(2) FD9R6004	C	None				0.00	165'	No Ice 1.00	1.00	0.01
								1/2" Ice 1.30	1.30	0.01
								1" Ice 1.60	1.60	0.02
DC6-48-60-18-8F	A	None				0.00	165'	No Ice 2.57	2.57	0.02
								1/2" Ice 2.80	2.80	0.04
								1" Ice 3.04	3.04	0.07
DC6-48-60-18-8F	B	None				0.00	165'	No Ice 2.57	2.57	0.02
								1/2" Ice 2.80	2.80	0.04
								1" Ice 3.04	3.04	0.07
DC6-48-60-18-8F	C	None				0.00	165'	No Ice 2.57	2.57	0.02
								1/2" Ice 2.80	2.80	0.04
								1" Ice 3.04	3.04	0.07
(4) (4) GPS-TMG-HR-26N	C	None				0.00	165'	No Ice 0.50	0.50	0.01
								1/2" Ice 0.75	0.75	0.01
								1" Ice 1.00	1.00	0.01
Sabre 12' LP Platform	C	None				0.00	165'	No Ice 28.47	28.47	1.12
								1/2" Ice 33.59	33.59	1.51
								1" Ice 38.71	38.71	1.91

(4) HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.00	0'	0'	0.00	155'	No Ice 13.53	9.58	0.10
			0'					1/2" Ice 14.34	11.05	0.20
			0'					1" Ice 15.14	12.50	0.30
(4) HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.00	0'	0'	0.00	155'	No Ice 13.53	9.58	0.10
			0'					1/2" Ice 14.34	11.05	0.20
			0'					1" Ice 15.14	12.50	0.30
(4) HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.00	0'	0'	0.00	155'	No Ice 13.53	9.58	0.10
			0'					1/2" Ice 14.34	11.05	0.20
			0'					1" Ice 15.14	12.50	0.30
(3) RRUS 11	A	None				0.00	155'	No Ice 3.25	1.37	0.05
								1/2" Ice 3.49	1.55	0.07
								1" Ice 3.74	1.74	0.10
(3) RRUS 11	B	None				0.00	155'	No Ice 3.25	1.37	0.05
								1/2" Ice 3.49	1.55	0.07
								1" Ice 3.74	1.74	0.10
(3) RRUS 11	C	None				0.00	155'	No Ice 3.25	1.37	0.05
								1/2" Ice 3.49	1.55	0.07
								1" Ice 3.74	1.74	0.10
(2) RRUS A2 MODULE	A	None				0.00	155'	No Ice 1.87	0.42	0.02

<p>tnxTower</p> <p>Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:</p>	Job	170 ft Tapered Monopole	Page	6 of 21
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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			Horz Lateral ft	Vert ft						
							1/2" Ice	2.05	0.53	0.03
							1" Ice	2.24	0.65	0.04
(2) RRUS A2 MODULE	B	None			0.00	155'	No Ice	1.87	0.42	0.02
							1/2" Ice	2.05	0.53	0.03
							1" Ice	2.24	0.65	0.04
(2) RRUS A2 MODULE	C	None			0.00	155'	No Ice	1.87	0.42	0.02
							1/2" Ice	2.05	0.53	0.03
							1" Ice	2.24	0.65	0.04
(2) RRUS 22 xx20	A	None			0.00	155'	No Ice	3.87	2.76	0.08
							1/2" Ice	4.15	3.02	0.10
							1" Ice	4.44	3.29	0.14
(2) RRUS 22 xx20	B	None			0.00	155'	No Ice	3.87	2.76	0.08
							1/2" Ice	4.15	3.02	0.10
							1" Ice	4.44	3.29	0.14
(2) RRUS 22 xx20	C	None			0.00	155'	No Ice	3.87	2.76	0.08
							1/2" Ice	4.15	3.02	0.10
							1" Ice	4.44	3.29	0.14
24" x 24" x 10" RRU	A	None			0.00	155'	No Ice	5.60	2.33	0.06
							1/2" Ice	6.10	2.67	0.09
							1" Ice	6.60	3.01	0.12
24" x 24" x 10" RRU	C	None			0.00	155'	No Ice	5.60	2.33	0.06
							1/2" Ice	6.10	2.67	0.09
							1" Ice	6.60	3.01	0.12
DC12-48-60-RM	A	None			0.00	155'	No Ice	2.25	2.25	0.02
							1/2" Ice	2.50	2.50	0.04
							1" Ice	2.75	2.75	0.05
DC12-48-60-RM	C	None			0.00	155'	No Ice	2.25	2.25	0.02
							1/2" Ice	2.50	2.50	0.04
							1" Ice	2.75	2.75	0.05
(2) RRUS 12	A	None			0.00	155'	No Ice	3.67	1.49	0.06
							1/2" Ice	3.93	1.67	0.08
							1" Ice	4.19	1.87	0.11
(2) RRUS 12	B	None			0.00	155'	No Ice	3.67	1.49	0.06
							1/2" Ice	3.93	1.67	0.08
							1" Ice	4.19	1.87	0.11
(2) RRUS 12	C	None			0.00	155'	No Ice	3.67	1.49	0.06
							1/2" Ice	3.93	1.67	0.08
							1" Ice	4.19	1.87	0.11
FC 12-PC6-10E	A	None			0.00	155'	No Ice	1.00	1.00	0.01
							1/2" Ice	1.25	1.25	0.01
							1" Ice	1.50	1.50	0.02
FC 12-PC6-10E	A	None			0.00	155'	No Ice	1.00	1.00	0.01
							1/2" Ice	1.25	1.25	0.01
							1" Ice	1.50	1.50	0.02
FC 12-PC6-10E	A	None			0.00	155'	No Ice	1.00	1.00	0.01
							1/2" Ice	1.25	1.25	0.01
							1" Ice	1.50	1.50	0.02
Sabre 12' LP Platform	C	None			0.00	155'	No Ice	28.47	28.47	1.12
							1/2" Ice	33.59	33.59	1.51
							1" Ice	38.71	38.71	1.91

(4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00		0.00	145'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00		0.00	145'	No Ice	11.47	6.80	0.05
			0'				1/2" Ice	12.08	7.38	0.11
			0'				1" Ice	12.71	7.98	0.18

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	4.00	0.00	0.00	145'	No Ice 11.47	6.80	0.05
			0'				1/2" Ice 12.08	7.38	0.11
			0'				1" Ice 12.71	7.98	0.18
(4) 9442 RRH	A	None		0.00	0.00	145'	No Ice 2.85	1.83	0.04
							1/2" Ice 3.09	2.04	0.06
							1" Ice 3.34	2.26	0.08
(4) 9442 RRH	B	None		0.00	0.00	145'	No Ice 2.85	1.83	0.04
							1/2" Ice 3.09	2.04	0.06
							1" Ice 3.34	2.26	0.08
(4) 9442 RRH	C	None		0.00	0.00	145'	No Ice 2.85	1.83	0.04
							1/2" Ice 3.09	2.04	0.06
							1" Ice 3.34	2.26	0.08
DC6-48-60-18-8F	C	None		0.00	0.00	145'	No Ice 2.57	2.57	0.02
							1/2" Ice 2.80	2.80	0.04
							1" Ice 3.04	3.04	0.07
(4) E15S09P80	A	None		0.00	0.00	145'	No Ice 1.00	1.00	0.01
							1/2" Ice 1.30	1.30	0.01
							1" Ice 1.60	1.60	0.02
(4) E15S09P80	B	None		0.00	0.00	145'	No Ice 1.00	1.00	0.01
							1/2" Ice 1.30	1.30	0.01
							1" Ice 1.60	1.60	0.02
(4) E15S09P80	C	None		0.00	0.00	145'	No Ice 1.00	1.00	0.01
							1/2" Ice 1.30	1.30	0.01
							1" Ice 1.60	1.60	0.02
Sabre 12' LP Platform	C	None		0.00	0.00	155'	No Ice 28.47	28.47	1.12
							1/2" Ice 33.59	33.59	1.51
							1" Ice 38.71	38.71	1.91

(4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00	0.00	0.00	135'	No Ice 11.47	6.80	0.05
			0'				1/2" Ice 12.08	7.38	0.11
			0'				1" Ice 12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00	0.00	0.00	135'	No Ice 11.47	6.80	0.05
			0'				1/2" Ice 12.08	7.38	0.11
			0'				1" Ice 12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	4.00	0.00	0.00	135'	No Ice 11.47	6.80	0.05
			0'				1/2" Ice 12.08	7.38	0.11
			0'				1" Ice 12.71	7.98	0.18
(4) 9442 RRH	A	None		0.00	0.00	135'	No Ice 2.85	1.83	0.04
							1/2" Ice 3.09	2.04	0.06
							1" Ice 3.34	2.26	0.08
(4) 9442 RRH	B	None		0.00	0.00	135'	No Ice 2.85	1.83	0.04
							1/2" Ice 3.09	2.04	0.06
							1" Ice 3.34	2.26	0.08
(4) 9442 RRH	C	None		0.00	0.00	135'	No Ice 2.85	1.83	0.04
							1/2" Ice 3.09	2.04	0.06
							1" Ice 3.34	2.26	0.08
DC6-48-60-18-8F	C	None		0.00	0.00	135'	No Ice 2.57	2.57	0.02
							1/2" Ice 2.80	2.80	0.04
							1" Ice 3.04	3.04	0.07
Sabre 12' LP Platform	C	None		0.00	0.00	155'	No Ice 28.47	28.47	1.12
							1/2" Ice 33.59	33.59	1.51
							1" Ice 38.71	38.71	1.91

(4) 8*1*0.5' Panel (50lbs)	A	From Leg	4.00	0.00	0.00	125'	No Ice 11.47	6.80	0.05
			0'				1/2" Ice 12.08	7.38	0.11
			0'				1" Ice 12.71	7.98	0.18
(4) 8*1*0.5' Panel (50lbs)	B	From Leg	4.00	0.00	0.00	125'	No Ice 11.47	6.80	0.05

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral	Vert						°
(4) 8*1*0.5' Panel (50lbs)	C	From Leg	0'	4.00	0'	0.00	125'	1/2" Ice	12.08	7.38	0.11
			0'					1" Ice	12.71	7.98	0.18
			0'					No Ice	11.47	6.80	0.05
			0'					1/2" Ice	12.08	7.38	0.11
(4) 9442 RRH	A	None	0'	0.00	125'	No Ice	2.85	1.83	0.04		
						1/2" Ice	3.09	2.04	0.06		
						1" Ice	3.34	2.26	0.08		
						No Ice	2.85	1.83	0.04		
(4) 9442 RRH	B	None	0'	0.00	125'	1/2" Ice	3.09	2.04	0.06		
						1" Ice	3.34	2.26	0.08		
						No Ice	2.85	1.83	0.04		
						1/2" Ice	3.09	2.04	0.06		
(4) 9442 RRH	C	None	0'	0.00	125'	No Ice	2.85	1.83	0.04		
						1/2" Ice	3.09	2.04	0.06		
						1" Ice	3.34	2.26	0.08		
						No Ice	2.85	1.83	0.04		
DC6-48-60-18-8F	C	None	0'	0.00	125'	1/2" Ice	3.09	2.04	0.06		
						1" Ice	3.34	2.26	0.08		
						No Ice	2.57	2.57	0.02		
						1/2" Ice	2.80	2.80	0.04		
Sabre 12' LP Platform	C	None	0'	0.00	155'	1" Ice	3.04	3.04	0.07		
						No Ice	28.47	28.47	1.12		
						1/2" Ice	33.59	33.59	1.51		
						1" Ice	38.71	38.71	1.91		

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:			3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz	Lateral	Vert					
VHLPX2-11	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0'	0.00	170'	2.00	No Ice	3.14	0.00
				0'					1/2" Ice	3.41	0.00
				0'					1" Ice	3.68	0.00
VHLPX2-11	B	Paraboloid w/Shroud (HP)	From Leg	1.00	0'	0.00	170'	2.00	No Ice	3.14	0.00
				0'					1/2" Ice	3.41	0.00
				0'					1" Ice	3.68	0.00

Tower Pressures - No Ice

$$G_H = 1.100$$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		ksf	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
L1	165'1-3/16'	1.407	0	23.348	A	0.000	23.348	23.348	100.00	0.000	0.000
170'-160'4-3/16"					B	0.000	23.348		100.00	0.000	0.000
					C	0.000	23.348		100.00	0.000	0.000

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:</p>	Job	170 ft Tapered Monopole	Page	9 of 21
	Project	Cheshire, CT (CT005)	Date	07:25:03 09/17/15
	Client	InSite Towers	Designed by	Vince

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L2 160'4-3/16"-126' 6-11/16"	142'6-1/8"	1.364	0	100.143	A	0.000	100.143	100.143	100.00	0.000	0.000
					B	0.000	100.143		100.00	0.000	0.000
					C	0.000	100.143		100.00	0.000	0.000
L3 126'1-11/16"-93' 3'	109'31/32"	1.289	0	123.100	A	0.000	123.100	123.100	100.00	0.000	0.000
					B	0.000	123.100		100.00	0.000	0.000
					C	0.000	123.100		100.00	0.000	0.000
L4 93'-60'11-5/8"	76'8-5/32"	1.197	0	143.110	A	0.000	143.110	143.110	100.00	0.000	0.000
					B	0.000	143.110		100.00	0.000	0.000
					C	0.000	143.110		100.00	0.000	0.000
L5 60'11-5/8"-30'1' 4"	45'4-11/16"	1.072	0	160.421	A	0.000	160.421	160.421	100.00	0.000	0.000
					B	0.000	160.421		100.00	0.000	0.000
					C	0.000	160.421		100.00	0.000	0.000
L6 30'1/4"-0'	15'	0.85	0	175.834	A	0.000	175.834	175.834	100.00	0.000	0.000
					B	0.000	175.834		100.00	0.000	0.000
					C	0.000	175.834		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z ksf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 170'-160'4-3/16"	165'1-3/16"	1.407	0	1.76	26.181	A	0.000	26.181	26.181	100.00	0.000	0.000
						B	0.000	26.181		100.00	0.000	0.000
						C	0.000	26.181		100.00	0.000	0.000
L2 160'4-3/16"-126' 1-11/16"	142'6-1/8"	1.364	0	1.74	110.192	A	0.000	110.192	110.192	100.00	0.000	0.000
						B	0.000	110.192		100.00	0.000	0.000
						C	0.000	110.192		100.00	0.000	0.000
L3 126'1-11/16"-93' 3'	109'31/32"	1.289	0	1.69	132.690	A	0.000	132.690	132.690	100.00	0.000	0.000
						B	0.000	132.690		100.00	0.000	0.000
						C	0.000	132.690		100.00	0.000	0.000
L4 93'-60'11-5/8"	76'8-5/32"	1.197	0	1.63	152.132	A	0.000	152.132	152.132	100.00	0.000	0.000
						B	0.000	152.132		100.00	0.000	0.000
						C	0.000	152.132		100.00	0.000	0.000
L5 60'11-5/8"-30'1' 4"	45'4-11/16"	1.072	0	1.55	168.841	A	0.000	168.841	168.841	100.00	0.000	0.000
						B	0.000	168.841		100.00	0.000	0.000
						C	0.000	168.841		100.00	0.000	0.000
L6 30'1/4"-0'	15'	0.85	0	1.39	183.582	A	0.000	183.582	183.582	100.00	0.000	0.000
						B	0.000	183.582		100.00	0.000	0.000
						C	0.000	183.582		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L1 165'1-3/16"	165'1-3/16"	1.407	0	23.348	A	0.000	23.348	23.348	100.00	0.000	0.000

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job 170 ft Tapered Monopole	Page 10 of 21
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	Client InSite Towers	Designed by Vince

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F _{a c e}	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
170'-160'4-3/16"					B	0.000	23.348		100.00	0.000	0.000
6"					C	0.000	23.348		100.00	0.000	0.000
L2	142'6-1/8"	1.364	0	100.143	A	0.000	100.143	100.143	100.00	0.000	0.000
160'4-3/16"-12					B	0.000	100.143		100.00	0.000	0.000
6'-11/16"					C	0.000	100.143		100.00	0.000	0.000
L3	109'31/32"	1.289	0	123.100	A	0.000	123.100	123.100	100.00	0.000	0.000
126'1-11/16"-9					B	0.000	123.100		100.00	0.000	0.000
3'					C	0.000	123.100		100.00	0.000	0.000
L4	76'8-5/32"	1.197	0	143.110	A	0.000	143.110	143.110	100.00	0.000	0.000
93'-60'11-5/8"					B	0.000	143.110		100.00	0.000	0.000
					C	0.000	143.110		100.00	0.000	0.000
L5	45'4-11/16'	1.072	0	160.421	A	0.000	160.421	160.421	100.00	0.000	0.000
60'11-5/8"-30'1/4"					B	0.000	160.421		100.00	0.000	0.000
					C	0.000	160.421		100.00	0.000	0.000
L6	30'1/4"-0'	0.85	0	175.834	A	0.000	175.834	175.834	100.00	0.000	0.000
					B	0.000	175.834		100.00	0.000	0.000
					C	0.000	175.834		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F _{a c e}	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1	0.33	0.81	A	1	0.65	0	1	1	23.348	0.63	0.07	C
170'-160'4-3/16"			B	1	0.65		1	1	23.348			
6"			C	1	0.65		1	1	23.348			
L2	1.35	4.97	A	1	0.65	0	1	1	100.143	2.62	0.08	C
160'4-3/16"-1			B	1	0.65		1	1	100.143			
26'-11/16"			C	1	0.65		1	1	100.143			
L3	1.35	7.02	A	1	0.65	0	1	1	123.100	3.04	0.09	C
126'1-11/16"-9			B	1	0.65		1	1	123.100			
3'			C	1	0.65		1	1	123.100			
L4	1.31	10.13	A	1	0.65	0	1	1	143.110	3.28	0.10	C
93'-60'11-5/8"			B	1	0.65		1	1	143.110			
			C	1	0.65		1	1	143.110			
L5	1.27	13.69	A	1	0.65	0	1	1	160.421	3.28	0.11	C
60'11-5/8"-30'1/4"			B	1	0.65		1	1	160.421			
			C	1	0.65		1	1	160.421			
L6	1.03	15.49	A	1	0.65	0	1	1	175.834	2.99	0.10	C
30'1/4"-0'			B	1	0.65		1	1	175.834			
			C	1	0.65		1	1	175.834			
Sum Weight:	6.64	52.12						OTM	1253.68 kip-ft	15.83		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F _{a c e}	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
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tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job	170 ft Tapered Monopole	Page	11 of 21
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	Client	InSite Towers	Designed by	Vince

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	0.81	A	1	0.65	0	1	1	23.348	0.63	0.07	C
6"			B	1	0.65		1	1	23.348			
L2 160'4-3/16"-126'1-11/16"	1.35	4.97	C	1	0.65		1	1	23.348			
26'1-11/16"			A	1	0.65	0	1	1	100.143	2.62	0.08	C
L3 126'1-11/16"-93'	1.35	7.02	B	1	0.65		1	1	100.143			
93'-60'11-5/8"			C	1	0.65		1	1	100.143			
L4 60'11-5/8"-30'1/4"	1.31	10.13	A	1	0.65	0	1	1	123.100	3.04	0.09	C
L5 60'11-5/8"-30'1/4"	1.27	13.69	B	1	0.65		1	1	123.100			
L6 30'1/4"-0'	1.03	15.49	C	1	0.65		1	1	123.100			
			A	1	0.65	0	1	1	143.110	3.28	0.10	C
			B	1	0.65		1	1	143.110			
			C	1	0.65		1	1	143.110			
Sum Weight:	6.64	52.12	A	1	0.65	0	1	1	160.421	3.28	0.11	C
			B	1	0.65		1	1	160.421			
			C	1	0.65		1	1	160.421			
			A	1	0.65	0	1	1	175.834	2.99	0.10	C
			B	1	0.65		1	1	175.834			
			C	1	0.65		1	1	175.834			
								OTM	1253.68 kip-ft	15.83		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	0.81	A	1	0.65	0	1	1	23.348	0.63	0.07	C
6"			B	1	0.65		1	1	23.348			
L2 160'4-3/16"-126'1-11/16"	1.35	4.97	C	1	0.65		1	1	23.348			
26'1-11/16"			A	1	0.65	0	1	1	100.143	2.62	0.08	C
L3 126'1-11/16"-93'	1.35	7.02	B	1	0.65		1	1	100.143			
93'-60'11-5/8"			C	1	0.65		1	1	100.143			
L4 60'11-5/8"-30'1/4"	1.31	10.13	A	1	0.65	0	1	1	123.100	3.04	0.09	C
L5 60'11-5/8"-30'1/4"	1.27	13.69	B	1	0.65		1	1	123.100			
L6 30'1/4"-0'	1.03	15.49	C	1	0.65		1	1	123.100			
			A	1	0.65	0	1	1	143.110	3.28	0.10	C
			B	1	0.65		1	1	143.110			
			C	1	0.65		1	1	143.110			
Sum Weight:	6.64	52.12	A	1	0.65	0	1	1	160.421	3.28	0.11	C
			B	1	0.65		1	1	160.421			
			C	1	0.65		1	1	160.421			
			A	1	0.65	0	1	1	175.834	2.99	0.10	C
			B	1	0.65		1	1	175.834			
			C	1	0.65		1	1	175.834			
								OTM	1253.68 kip-ft	15.83		

Tower Forces - With Ice - Wind Normal To Face

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	Client	InSite Towers	Designed by	Vince

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
L1 170'-160'4"-3/16"	0.33	1.45	A	1	1.2	0	1	1	26.181	0.30	0.03	C
6"			B	1	1.2		1	1	26.181			
			C	1	1.2		1	1	26.181			
L2 160'4"-3/16"-126'1"-11/16"	1.35	7.64	A	1	1.2	0	1	1	110.192	1.21	0.04	C
			B	1	1.2		1	1	110.192			
			C	1	1.2		1	1	110.192			
L3 126'1"-11/16"-93'	1.35	10.18	A	1	1.2	0	1	1	132.690	1.37	0.04	C
			B	1	1.2		1	1	132.690			
			C	1	1.2		1	1	132.690			
L4 93'-60'11"-5/8"	1.31	13.64	A	1	1.2	0	1	1	152.132	1.46	0.05	C
			B	1	1.2		1	1	152.132			
			C	1	1.2		1	1	152.132			
L5 60'11"-5/8"-30'1/4"	1.27	17.41	A	1	1.2	0	1	1	168.841	1.45	0.05	C
			B	1	1.2		1	1	168.841			
			C	1	1.2		1	1	168.841			
L6 30'1/4"-0'	1.03	19.11	A	1	1.2	0	1	1	183.582	1.31	0.04	C
			B	1	1.2		1	1	183.582			
			C	1	1.2		1	1	183.582			
Sum Weight:	6.64	69.43						OTM	567.32 kip-ft	7.08		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
L1 170'-160'4"-3/16"	0.33	1.45	A	1	1.2	0	1	1	26.181	0.30	0.03	C
6"			B	1	1.2		1	1	26.181			
			C	1	1.2		1	1	26.181			
L2 160'4"-3/16"-126'1"-11/16"	1.35	7.64	A	1	1.2	0	1	1	110.192	1.21	0.04	C
			B	1	1.2		1	1	110.192			
			C	1	1.2		1	1	110.192			
L3 126'1"-11/16"-93'	1.35	10.18	A	1	1.2	0	1	1	132.690	1.37	0.04	C
			B	1	1.2		1	1	132.690			
			C	1	1.2		1	1	132.690			
L4 93'-60'11"-5/8"	1.31	13.64	A	1	1.2	0	1	1	152.132	1.46	0.05	C
			B	1	1.2		1	1	152.132			
			C	1	1.2		1	1	152.132			
L5 60'11"-5/8"-30'1/4"	1.27	17.41	A	1	1.2	0	1	1	168.841	1.45	0.05	C
			B	1	1.2		1	1	168.841			
			C	1	1.2		1	1	168.841			
L6 30'1/4"-0'	1.03	19.11	A	1	1.2	0	1	1	183.582	1.31	0.04	C
			B	1	1.2		1	1	183.582			
			C	1	1.2		1	1	183.582			
Sum Weight:	6.64	69.43						OTM	567.32 kip-ft	7.08		

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job	170 ft Tapered Monopole	Page	13 of 21
	Project	Cheshire, CT (CT005)	Date	07:25:03 09/17/15
	Client	InSite Towers	Designed by	Vince

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	1.45	A	1	1.2	0	1	1	26.181	0.30	0.03	C
6"			B	1	1.2		1	1	26.181			
L2 160'4-3/16"-126'1-11/16"	1.35	7.64	C	1	1.2	0	1	1	26.181	1.21	0.04	C
26'1-11/16"			A	1	1.2		1	1	110.192			
L3 126'1-11/16"-93'	1.35	10.18	B	1	1.2	0	1	1	110.192	1.37	0.04	C
93'			C	1	1.2		1	1	110.192			
L4 93'-60'11-5/8"	1.31	13.64	A	1	1.2	0	1	1	132.690	1.46	0.05	C
60'11-5/8"-30'1/4"			B	1	1.2		1	1	132.690			
L5 60'11-5/8"-30'1/4"-0'	1.27	17.41	C	1	1.2	0	1	1	132.690	1.45	0.05	C
30'1/4"-0'			A	1	1.2		1	1	152.132			
			B	1	1.2		1	1	152.132			
			C	1	1.2		1	1	152.132			
			A	1	1.2	0	1	1	168.841	1.45	0.05	C
			B	1	1.2		1	1	168.841			
			C	1	1.2		1	1	168.841			
			A	1	1.2	0	1	1	183.582	1.31	0.04	C
			B	1	1.2		1	1	183.582			
			C	1	1.2		1	1	183.582			
Sum Weight:	6.64	69.43						OTM	567.32 kip-ft	7.08		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	0.81	A	1	0.65	0	1	1	23.348	0.18	0.02	C
6"			B	1	0.65		1	1	23.348			
L2 160'4-3/16"-126'1-11/16"	1.35	4.97	C	1	0.65	0	1	1	23.348	0.76	0.02	C
26'1-11/16"			A	1	0.65		1	1	100.143			
L3 126'1-11/16"-93'	1.35	7.02	B	1	0.65	0	1	1	100.143	0.89	0.03	C
93'			C	1	0.65		1	1	100.143			
L4 93'-60'11-5/8"	1.31	10.13	A	1	0.65	0	1	1	123.100	0.96	0.03	C
60'11-5/8"-30'1/4"			B	1	0.65		1	1	123.100			
L5 60'11-5/8"-30'1/4"-0'	1.27	13.69	C	1	0.65	0	1	1	123.100	0.96	0.03	C
30'1/4"-0'			A	1	0.65		1	1	143.110			
			B	1	0.65		1	1	143.110			
			C	1	0.65		1	1	143.110			
			A	1	0.65	0	1	1	160.421	0.96	0.03	C
			B	1	0.65		1	1	160.421			
			C	1	0.65		1	1	160.421			
			A	1	0.65	0	1	1	175.834	0.87	0.03	C
			B	1	0.65		1	1	175.834			
			C	1	0.65		1	1	175.834			
Sum Weight:	6.64	52.12						OTM	366.27 kip-ft	4.63		

tnxTower Ambor Structures, Inc. 380 Jackson Street Suite #475 St. Paul, MN 55101 Phone: 1.651.528.8774 FAX:	Job 170 ft Tapered Monopole	Page 14 of 21
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	Client InSite Towers	Designed by Vince

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	0.81	A	1	0.65	0	1	1	23.348	0.18	0.02	C
B			1	0.65	1		1	23.348				
C			1	0.65	1		1	23.348				
L2 160'4-3/16"-126'1-11/16"	1.35	4.97	A	1	0.65	0	1	1	100.143	0.76	0.02	C
B			1	0.65	1		1	100.143				
C			1	0.65	1		1	100.143				
L3 126'1-11/16"-93'	1.35	7.02	A	1	0.65	0	1	1	123.100	0.89	0.03	C
B			1	0.65	1		1	123.100				
C			1	0.65	1		1	123.100				
L4 93'-60'11-5/8"	1.31	10.13	A	1	0.65	0	1	1	143.110	0.96	0.03	C
B			1	0.65	1		1	143.110				
C			1	0.65	1		1	143.110				
L5 60'11-5/8"-30'1/4"	1.27	13.69	A	1	0.65	0	1	1	160.421	0.96	0.03	C
B			1	0.65	1		1	160.421				
C			1	0.65	1		1	160.421				
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	0	1	1	175.834	0.87	0.03	C
B			1	0.65	1		1	175.834				
C			1	0.65	1		1	175.834				
Sum Weight:	6.64	52.12						OTM	366.27 kip-ft	4.63		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
L1 170'-160'4-3/16"	0.33	0.81	A	1	0.65	0	1	1	23.348	0.18	0.02	C
B			1	0.65	1		1	23.348				
C			1	0.65	1		1	23.348				
L2 160'4-3/16"-126'1-11/16"	1.35	4.97	A	1	0.65	0	1	1	100.143	0.76	0.02	C
B			1	0.65	1		1	100.143				
C			1	0.65	1		1	100.143				
L3 126'1-11/16"-93'	1.35	7.02	A	1	0.65	0	1	1	123.100	0.89	0.03	C
B			1	0.65	1		1	123.100				
C			1	0.65	1		1	123.100				
L4 93'-60'11-5/8"	1.31	10.13	A	1	0.65	0	1	1	143.110	0.96	0.03	C
B			1	0.65	1		1	143.110				
C			1	0.65	1		1	143.110				
L5 60'11-5/8"-30'1/4"	1.27	13.69	A	1	0.65	0	1	1	160.421	0.96	0.03	C
B			1	0.65	1		1	160.421				
C			1	0.65	1		1	160.421				
L6 30'1/4"-0'	1.03	15.49	A	1	0.65	0	1	1	175.834	0.87	0.03	C
B			1	0.65	1		1	175.834				
C			1	0.65	1		1	175.834				
Sum Weight:	6.64	52.12						OTM	366.27 kip-ft	4.63		

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Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	52.12					
Bracing Weight	0.00					
Total Member Self-Weight	52.12			0.07	0.00	
Total Weight	72.49			0.07	0.00	
Wind 0 deg - No Ice		0.00	-49.60	-6288.68	0.00	0.00
Wind 90 deg - No Ice		49.67	-0.01	-1.63	-6299.92	0.45
Wind 180 deg - No Ice		0.00	49.59	6286.31	0.00	0.00
Member Ice	17.31					
Total Weight Ice	122.02			0.20	0.00	
Wind 0 deg - Ice		0.00	-17.43	-2117.02	0.00	0.00
Wind 90 deg - Ice		17.45	-0.00	-0.30	-2120.52	0.24
Wind 180 deg - Ice		0.00	17.42	2116.68	0.00	0.00
Total Weight	72.49			0.07	0.00	
Wind 0 deg - Service		0.00	-14.49	-1837.25	0.00	0.00
Wind 90 deg - Service		14.51	-0.00	-0.43	-1840.58	0.13
Wind 180 deg - Service		0.00	14.49	1836.65	0.00	0.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 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
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	170 - 160.354	Pole	Max Tension	8	0.00	0.00	0.00
			Max. Compression	8	-11.58	0.00	-0.21
			Max. Mx	4	-1.89	-33.69	0.06
			Max. My	2	-1.90	0.00	33.19
			Max. Vy	4	13.38	-12.58	0.07
			Max. Vx	2	-13.27	0.00	11.96

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L2	160.354 - 126.135	Pole	Max. Torque	4			-0.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-54.24	0.00	-0.21
			Max. Mx	4	-18.14	-1116.97	0.59
			Max. My	2	-18.16	0.00	1112.79
			Max. Vy	4	53.11	-1116.97	0.59
			Max. Vx	2	-53.00	0.00	1112.79
L3	126.135 - 92.9974	Pole	Max. Torque	4			-0.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-72.46	0.00	-0.21
			Max. Mx	4	-29.38	-3080.94	1.09
			Max. My	2	-29.39	0.00	3073.27
			Max. Vy	4	65.19	-3080.94	1.09
			Max. Vx	2	-65.08	0.00	3073.27
L4	92.9974 - 60.974	Pole	Max. Torque	4			-0.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-89.14	0.00	-0.21
			Max. Mx	4	-43.34	-5174.43	1.60
			Max. My	2	-43.35	0.00	5163.39
			Max. Vy	4	69.96	-5174.43	1.60
			Max. Vx	2	-69.85	0.00	5163.39
L5	60.974 - 30.0182	Pole	Max. Torque	4			-0.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-110.20	0.00	-0.21
			Max. Mx	4	-61.13	-7348.40	2.09
			Max. My	2	-61.14	0.00	7334.11
			Max. Vy	4	74.59	-7348.40	2.09
			Max. Vx	2	-74.48	0.00	7334.11
L6	30.0182 - 0	Pole	Max. Torque	4			-0.72
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-140.11	0.00	-0.21
			Max. Mx	4	-86.96	-10336.47	2.72
			Max. My	2	-86.96	0.00	10318.06
			Max. Vy	4	79.51	-10336.47	2.72
			Max. Vx	2	-79.41	0.00	10318.06
			Max. Torque	4			-0.72

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	10	140.11	-17.45	0.00
	Max. H _x	14	72.49	0.00	-14.49
	Max. H _z	2	86.99	0.00	79.36
	Max. M _x	2	10318.06	0.00	79.36
	Max. M _z	4	10336.47	-79.47	0.02
	Max. Torsion	1	0.00	0.00	0.00
	Min. Vert	3	65.24	0.00	79.36
	Min. H _x	4	86.99	-79.47	0.02
	Min. H _z	6	86.99	0.00	-79.34
	Min. M _x	6	-10314.11	0.00	-79.34
	Min. M _z	1	0.00	0.00	0.00

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Torsion	4	-0.72	-79.47	0.02

Tower Mast Reaction Summary

Load Combination	Vertical	Shear _x	Shear _z	Overtuning Moment, M _x	Overtuning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	72.49	0.00	0.00	0.07	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	86.99	0.00	-79.36	-10318.06	0.00	0.00
0.9 Dead+1.6 Wind 0 deg - No Ice	65.24	0.00	-79.36	-10248.81	0.00	0.00
1.2 Dead+1.6 Wind 90 deg - No Ice	86.99	79.47	-0.02	-2.72	-10336.47	0.72
0.9 Dead+1.6 Wind 90 deg - No Ice	65.24	79.47	-0.02	-2.71	-10267.06	0.72
1.2 Dead+1.6 Wind 180 deg - No Ice	86.99	0.00	79.34	10314.11	0.00	0.00
0.9 Dead+1.6 Wind 180 deg - No Ice	65.24	0.00	79.34	10244.85	0.00	0.00
1.2 Dead+1.0 Ice+1.0 Temp	140.11	0.00	0.00	0.21	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	140.11	0.00	-17.43	-2238.27	0.00	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	140.11	17.45	-0.00	-0.30	-2242.03	0.25
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	140.11	0.00	17.42	2237.96	0.00	0.00
Dead+Wind 0 deg - Service	72.49	0.00	-14.49	-1878.31	0.00	0.00
Dead+Wind 90 deg - Service	72.49	14.51	-0.00	-0.44	-1881.73	0.13
Dead+Wind 180 deg - Service	72.49	0.00	14.49	1877.70	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-72.49	0.00	0.00	72.49	0.00	0.000%
2	0.00	-86.99	-79.36	0.00	86.99	79.36	0.000%
3	0.00	-65.24	-79.36	0.00	65.24	79.36	0.000%
4	79.47	-86.99	-0.02	-79.47	86.99	0.02	0.000%
5	79.47	-65.24	-0.02	-79.47	65.24	0.02	0.000%
6	0.00	-86.99	79.34	0.00	86.99	-79.34	0.000%
7	0.00	-65.24	79.34	0.00	65.24	-79.34	0.000%
8	0.00	-140.11	0.00	0.00	140.11	0.00	0.000%
9	0.00	-140.11	-17.43	0.00	140.11	17.43	0.000%
10	17.45	-140.11	-0.00	-17.45	140.11	0.00	0.000%
11	0.00	-140.11	17.42	0.00	140.11	-17.42	0.000%
12	0.00	-72.49	-14.49	0.00	72.49	14.49	0.000%
13	14.51	-72.49	-0.00	-14.51	72.49	0.00	0.000%
14	0.00	-72.49	14.49	0.00	72.49	-14.49	0.000%

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Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.00000685
3	Yes	5	0.0000001	0.00000211
4	Yes	5	0.0000001	0.00000802
5	Yes	5	0.0000001	0.00000271
6	Yes	5	0.0000001	0.00000685
7	Yes	5	0.0000001	0.00000211
8	Yes	4	0.0000001	0.00000001
9	Yes	6	0.0000001	0.00002737
10	Yes	6	0.0000001	0.00002743
11	Yes	6	0.0000001	0.00002737
12	Yes	4	0.0000001	0.00005763
13	Yes	4	0.0000001	0.00005834
14	Yes	4	0.0000001	0.00005762

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160.354	1.71	13	1.07	0.00
L2	164.846 - 126.135	1.61	13	1.07	0.00
L3	131.708 - 92.9974	1.02	13	0.94	0.00
L4	99.6849 - 60.974	0.56	13	0.67	0.00
L5	68.7292 - 30.0182	0.26	13	0.42	0.00
L6	38.6901 - 0	0.08	13	0.23	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
181'3"	DS1F03F36D-Ns	13	1.71	1.07	0.00	173223
173'1-3/16"	DS1F03F36D-Ns	13	1.71	1.07	0.00	173223
170'	VHLPX2-11	13	1.71	1.07	0.00	173223
165'	(4) 8*1*0.5' Panel (50lbs)	13	1.62	1.07	0.00	173223
155'	(4) HPA-65R-BUU-H8 w/ Mount Pipe	13	1.43	1.05	0.00	25236
145'	(4) 8*1*0.5' Panel (50lbs)	13	1.25	1.02	0.00	13128
135'	(4) 8*1*0.5' Panel (50lbs)	13	1.07	0.96	0.00	8878
125'	(4) 8*1*0.5' Panel (50lbs)	13	0.91	0.89	0.00	7580

Maximum Tower Deflections - Design Wind

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Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	170 - 160.354	9.38	4	5.87	0.00
L2	164.846 - 126.135	8.85	4	5.87	0.00
L3	131.708 - 92.9974	5.60	4	5.16	0.00
L4	99.6849 - 60.974	3.08	4	3.68	0.00
L5	68.7292 - 30.0182	1.43	4	2.33	0.00
L6	38.6901 - 0	0.46	4	1.26	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
181'3"	DS1F03F36D-Ns	4	9.38	5.87	0.00	32387
173'1-3/16"	DS1F03F36D-Ns	4	9.38	5.87	0.00	32387
170'	VHLPX2-11	4	9.38	5.87	0.00	32387
165'	(4) 8*1*0.5' Panel (50lbs)	4	8.87	5.87	0.00	32387
155'	(4) HPA-65R-BUU-H8 w/ Mount Pipe	4	7.85	5.78	0.00	4687
145'	(4) 8*1*0.5' Panel (50lbs)	4	6.85	5.58	0.00	2435
135'	(4) 8*1*0.5' Panel (50lbs)	4	5.90	5.28	0.00	1644
125'	(4) 8*1*0.5' Panel (50lbs)	4	5.01	4.89	0.00	1400

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	f P _n K	Ratio $\frac{P_u}{f P_n}$
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	9'7-13/16"	170'	202.1	24.87	-11.52	137.48	0.084
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	38'8-17/32"	170'	152.6	42.36	-18.14	411.16	0.044
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	38'8-17/32"	170'	123.7	58.04	-29.38	856.57	0.034
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	38'8-17/32"	170'	104.9	82.10	-43.34	1686.54	0.026
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	38'8-17/32"	170'	91.6	109.49	-61.13	2946.42	0.021
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	38'8-9/32"	170'	78.6	127.69	-86.95	4393.54	0.020

Pole Bending Design Data

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Section No.	Elevation ft	Size	M_{ux} kip-ft	$f M_{rx}$ kip-ft	Ratio $\frac{M_{ux}}{f M_{rx}}$	M_{uy} kip-ft	$f M_{ry}$ kip-ft	Ratio $\frac{M_{uy}}{f M_{ry}}$
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	3.81	1069.66	0.004	0.00	1069.66	0.000
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	1116.97	2395.86	0.466	0.00	2395.86	0.000
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	3080.94	3930.97	0.784	0.00	3930.97	0.000
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	5174.43	6591.60	0.785	0.00	6591.60	0.000
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	7348.40	10114.25	0.727	0.00	10114.25	0.000
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	10336.50	13094.92	0.789	0.00	13094.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	$f V_n$ K	Ratio $\frac{V_u}{f V_n}$	Actual T_u kip-ft	$f T_n$ kip-ft	Ratio $\frac{T_u}{f T_n}$
L1	170 - 160.354 (1)	TP30.04x27.17x0.28	2.86	916.58	0.003	0.00	2141.93	0.000
L2	160.354 - 126.135 (2)	TP39.68x28.15x0.35	53.11	1549.01	0.034	0.72	4797.57	0.000
L3	126.135 - 92.9974 (3)	TP48.83x37.31x0.39	65.19	2059.16	0.032	0.72	7871.55	0.000
L4	92.9974 - 60.974 (4)	TP57.58x46.05x0.47	69.96	2927.00	0.024	0.72	13199.33	0.000
L5	60.974 - 30.0182 (5)	TP65.85x54.33x0.55	74.59	3924.70	0.019	0.72	20253.25	0.000
L6	30.0182 - 0 (6)	TP73.69x62.17x0.55	79.51	4351.65	0.018	0.72	26221.92	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{f P_n}$	Ratio $\frac{M_{ux}}{f M_{rx}}$	Ratio $\frac{M_{uy}}{f M_{ry}}$	Ratio $\frac{V_u}{f V_n}$	Ratio $\frac{T_u}{f T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	170 - 160.354 (1)	0.084	0.004	0.000	0.003	0.000	0.087	1.000	4.8.2 ✓
L2	160.354 - 126.135 (2)	0.044	0.466	0.000	0.034	0.000	0.512	1.000	4.8.2 ✓
L3	126.135 - 92.9974 (3)	0.034	0.784	0.000	0.032	0.000	0.819	1.000	4.8.2 ✓
L4	92.9974 - 60.974 (4)	0.026	0.785	0.000	0.024	0.000	0.811	1.000	4.8.2 ✓
L5	60.974 - 30.0182 (5)	0.021	0.727	0.000	0.019	0.000	0.748	1.000	4.8.2 ✓
L6	30.0182 - 0 (6)	0.020	0.789	0.000	0.018	0.000	0.809	1.000	4.8.2 ✓

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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	170 - 160.354	Pole	TP30.04x27.17x0.28	1	-11.52	137.48	8.7	Pass
L2	160.354 - 126.135	Pole	TP39.68x28.15x0.35	2	-18.14	411.16	51.2	Pass
L3	126.135 - 92.9974	Pole	TP48.83x37.31x0.39	3	-29.38	856.57	81.9	Pass
L4	92.9974 - 60.974	Pole	TP57.58x46.05x0.47	4	-43.34	1686.54	81.1	Pass
L5	60.974 - 30.0182	Pole	TP65.85x54.33x0.55	5	-61.13	2946.42	74.8	Pass
L6	30.0182 - 0	Pole	TP73.69x62.17x0.55	6	-86.95	4393.54	80.9	Pass
Summary								
Pole (L3)							81.9	Pass
RATING =							81.9	Pass

Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	73.69 in
	Pole Thickness	0.55 in
	Plate Diameter	87.4 in
	Plate Thickness	2.76 in
	Plate Fy	50 ksi
	Weld Length	0.3125 in
	f _s Resistance	708.55 k-in
	Applied	508.87 k-in
Stiffeners	#	0

Bolts	#	28
	Bolt Circle (R)adial / (S)quare	81.56 in R
	Diameter	2.25 in
	Hole Diameter	2.625 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	f _s Resistance	259.82 k
	Applied	220.29 k
Reinforcement	#	0
	#	0
Extra Bolts	#	0

Code Rev. **G**

Date **2015/9/12**
 Engineer **MD**
 Site #
 Carrier

Moment **10336.0 k-ft**
 Axial **87.0 k**

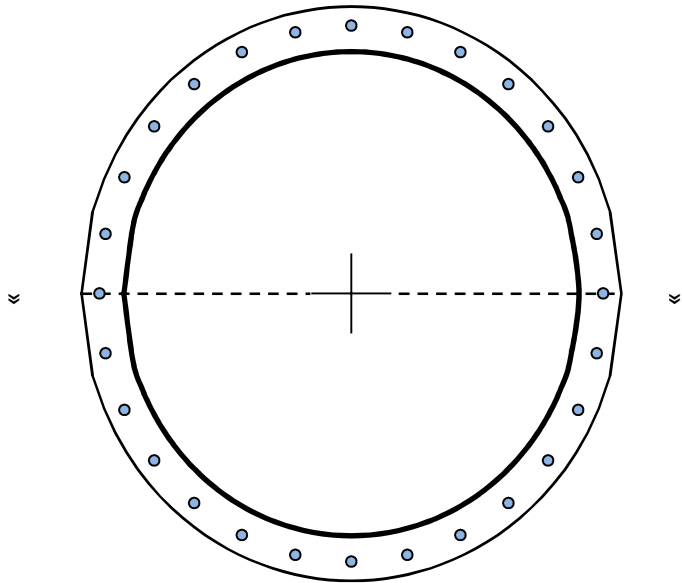


Plate Stress Ratio:
0.72 (Pass)

Bolt Stress Ratio:
0.85 (Pass)

PROJECT No: 170' Tapered Monopole
 PROJECT NAME: Cheshire, CT
AMBOR / InSite Towers
 DATE: September 23, 2015

ENG: MD
 CHK: _____
 PAGE: _____ of _____

TIA-222-G

SINGLE GLOBAL FOUNDATION WITH PIER(S) CHECKS

Global Tower Reactions		Factored Loads	Calculated Reactions	Factored Resistance					
<input checked="" type="radio"/> TIA-G	Maximum Moment	10,336.00 k-ft	Disturbing Moment	10,849.5	12,153.9	k-ft	pass	89.3%	[GOVERNS]
<input type="radio"/> EIA-F	Axial Load	87.00 kips	Maximum Bearing	3.64	7.50	kips	pass	48.5%	
	Shear Load	79.00 kips	Punching Shear	893.2	1,834.7	kips	pass	48.7%	
	Pier Rebar Required	(minimum only, use PCACOL for total quantity)		(48) #10 @ 6.68 in **MINIMUM**					
	Rebar Required	(checked rebar for 6" min to 24" max spacing)		(56) #9 @ 7.09 in					SF=2.24

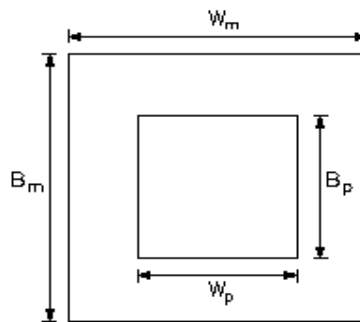
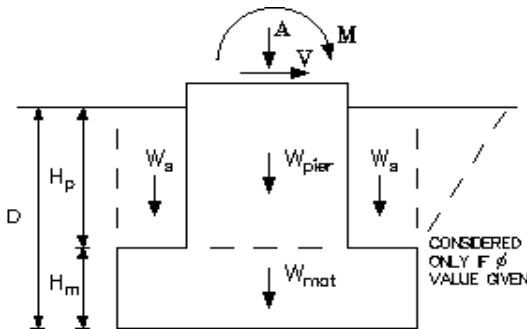
Soil Parameters	Soils Report	Pier Geometry	Pad Geometry
f	0.0 °	Qty of Piers	1
Water Level	11.00 ft (3.35 m)	Width (Bp)	9.00 ft
Soil Dry Density (g _{dry})	0.125 kcf (19.6 kN/m ³)	Width (Wp)	9.00 ft
Soil Sub Density (g _{sub})	0.062 kcf (9.73 kN/m ³)	Height (Hp)	4.00 ft
All. Bearing Pressure	5.000 ksf (239.4 kPa)	Pier Type	R (Rnd or Sq)
Bearing Safety Factor	2	Conc g _{dry}	0.150 kcf (23.6)
		Width (Bm)	33.00 ft
		Width (Wm)	33.00 ft
		Height (Hm)	2.50 ft
		Depth (D)	6.00 ft

Volume of Concrete/Soil	Concrete (110.2cu yd)			Soil	ft	Calculations	Factored	Allowable
	1 Pier	Mat						
Depth (above)	0.50	--	--			Axial Download	87.0	-- kips
Depth (dry)	3.50	2.50	3.50			Weight of Concrete (not factored)	446.5	-- kips(110.2yds)
Depth (submerged)	0.00	0.00	0.00			Weight of Soil (not factored)	448.7	-- kips
Volume (above)	31.75	--	--			Total Download (P)	982.1	-- kips
Volume (dry)	222.26	2,722.50	3589.24			Resisting Moment Arm	16.5	-- ft
Volume (submerged)	0.00	0	0.00			Moment Resistance	12153.9	-- k-ft
Total	254	2723	3589				(x 0.75, cl 9.4.1)	

Concrete Reinforcing Design	MAT	PIER	Calculations	Factored	Allowable
f'c	3.000 ksi (20.7 MPa)		Contact Area	1089.00	-- ft ²
fy	60.00 ksi (413.7 MPa)		Calculate eccentricity e	11.05	-- ft [>L/6]
Steel (Metric/ASTM)	ASTM	ASTM	Calculate (c = L/2 - e)	5.45	-- ft
Bar size	9 #	10 #	1) q _{max} = P/A • (1+6e/L)	--	--
	1.000 in ²	1.270 in ²	2) q _{max} = 2P / b•3c	3.64	-- ksf [GOV]
			q allowable	7.50	-- ksf
				(2 • 0.75)	

Slab Reinforcing	Wgt of Rebar	Check for 2-Way Shear (Punching)	Factored	Allowable
½ Disturbing Moment	5424.75 kip-ft	Shear Area (bo x d)	77.54	-- ft ²
Ku	225.50	Factored Bearing Stress	0.902	-- ksf
r	0.00440	Factored Shear Force	893.23	-- kips
4/3•r if r < r min	0.00586	Factored Shear Resistance	1834.7	-- kips
r min ≥ 0.0018	0.00180	Check for 2-way Shear	0.49	--
As	45.28 in ²		(ACI-318)	
Number of bars	56 bars on			
	7.09 in c/c			

Note: The 1/2 moment is derived from a bending moment diagram that considered the uplift and download components at the exact face width of the tower.



M = 10336.0 k-ft
 A = 87.0 kips
 V = 79.0 kips
 Bp = 9.00 ft
 Wp = 9.00 ft
 Hp = 4.00 ft
 Bm = 33.00 ft
 Wm = 33.00 ft
 Hm = 2.50 ft
 D = 6.00 ft
 V_{mat} = 2976.5 cuft
 Rebar = (56) #9 @ 7.09 in