

March 31, 2020

*Via Electronic Mail*

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

Re: **Notice of Exempt Modification – Facility Modification  
2895 State Street, Hamden, Connecticut**

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains panel-type antennas and remote radio heads (RRHs) on a platform at the top of the existing 136-foot tower at 2895 State Street in Hamden, Connecticut (the “Property”). The tower is owned by SBA 2012 TC Assets, LLC (“SBA”), and the Property is owned by Joseph J. Farricielli. The Siting Council approved Cellco’s shared use of the tower in 2014 in TS-VER-062-140522. The existing tower was approved by the Town of Hamden on November 9, 1999. A copy of the Town’s approval and the Council’s tower share approval are included in Attachment 1.

Cellco now intends to modify its facility by removing six (6) remote radio heads (“RRHs”) and installing six (6) new RRHs in the same location on the mounting platform. Cellco will also install one universal handrail kit on the same antenna platform. A set of project plans showing the proposed facility modifications and specifications for Cellco’s new RRHs are included in Attachment 2.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Hamden’s Mayor, Curt Leng; Hamden’s Town Planner, Daniel Kops; and Joseph J. Farricielli, the Property owner; and SBA, the tower owner.

# Robinson+Cole

Melanie A. Bachman, Esq.  
March 31, 2020  
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The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement RRHs, and safety handrails will be installed at the top of the existing tower.
2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The installation of new RRHs will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for the modified facility is included in Attachment 3.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower, its foundation and new RRHs and mounts can support Cellco's proposed facility modifications. (See Structural Analysis Report included in Attachment 4 and Antenna Mount Structural Analysis Report included in Attachment 5).

A copy of the parcel map and Property owner information is included in Attachment 6. A Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 7.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

# Robinson+Cole

Melanie A. Bachman, Esq.  
March 31, 2020  
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Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kenneth C. Baldwin

Enclosures

Copy to:

Curt Leng, Hamden Mayor  
Daniel Kops, Hamden Town Planner  
SBA  
Joseph J. Farricielli  
Tim Parks

# **ATTACHMENT 1**

Doc 5359  
Time 3:55

TOWN OF HAMDEN  
PLANNING AND ZONING COMMISSION

SPECIAL PERMIT NO: 99-887

THE HAMDEN PLANNING AND ZONING COMMISSION HEREBY GRANTS A SPECIAL PERMIT IN ACCORDANCE WITH SECTION 737 OF THE HAMDEN ZONING REGULATIONS TO PERMIT THE FOLLOWING USE: Telecommunications Facility / Tower & Antennas & equipment structure

AT THE PREMISES DESCRIBED AS FOLLOWS: 2895 State St.  
THE RECORD OWNER OF WHICH IS Look Investment Agency  
THE APPLICANT FOR WHICH IS NexTel Communications/Mid Atlantic  
THIS SPECIAL PERMIT SHALL BECOME EFFECTIVE WHEN FILED.

THIS SPECIAL PERMIT IS GRANTED IN ACCORDANCE WITH A MOTION PASSED BY THE HAMDEN PLANNING AND ZONING COMMISSION AT ITS MEETING ON November 9, 1999, ~~2000~~, AND IS SUBJECT TO THE FOLLOWING CONDITIONS AND/OR STIPULATIONS, IF ANY: see minutes attached

THIS SPECIAL PERMIT SHALL NOT BECOME EFFECTIVE UNTIL FILED ON THE LAND RECORDS OF THE TOWN OF HAMDEN DATED AT HAMDEN, CONNECTICUT THIS 11 DAY OF June, 2000.

PLANNING AND ZONING COMMISSION  
TOWN OF HAMDEN  
BY: Michael Pires  
CHAIRMAN

THIS IS TO CERTIFY THAT THIS IS A TRUE COPY OF THE SPECIAL PERMIT GRANTED, AS ABOVE INDICATED, AND IS ON FILE IN THE OFFICIAL RECORDS OF THE HAMDEN TOWN PLANNING AND ZONING COMMISSION.

PLANNING AND ZONING COMMISSION  
TOWN OF HAMDEN  
BY: Antoinette Oliveira  
ANTOINETTE OLIVEIRA  
PLANNING ADMINISTRATOR

TOWN OF HAMDEN

ZONING PERMIT AND APPROVAL FOR ISSUANCE OF BUILDING PERMIT

This permit is hereby applied for in accordance with requirements of the Hamden Zoning Regulations, per plot plan attached for:

New Construction Swimming Pool Change of Use Other Addition
\* ANY ADDITIONAL TENANTS OTHER THAN NEXTEL THAT WOULD LIKE SPACE ON THIS TOWER WILL COME BEFORE P&Z COMMISSION FOR APPROVAL.

Location 2895 State St. Hamden, CT Zoning District FP/CCD-1

Lot Area 19.33 Ac Lot Frontage 50' Lot No. 2432/21

Bldg. Hgt. 10' 4" No. of stories 7 Lot Coverage N/A

Subdivision N/A No. of Bldgs./Structures N/A New X Existing

Property Use Single Family X Commercial/Business Mixed Uses Religious

Multifamily Industrial/Mfg. 2-3 Family Other

P & Z Approval (s) Site Plan X Special Permit 99-887 Resubdivision Subdivision

O.S.D. C.A.M. A.P.Z. Flood Hazard Area

Granted On 11/9/99 X Conditionally Unconditionally Not Required

Variance(s) for: N/A Granted on N/A

PROPERTY OWNER Look Investment Agency, Inc. ADDRESS POB 1065 HFD, CT PHONE 86405

This is to certify that the requirements of the following Departments, Boards, and/or Commission have been met as attested to by the signature(s) of the applicable authorized official(s).

Zoning Enforcement Officer Joseph Mandate 5/25/01 Z.E.O.

Town Engineering Dept. Town Engineer

Water Pollution Control Authorized Signature

Quinnipiack Valley Health Dist. Director of Health

Fire Department Fire Chief

Police Department Chief of Police

Conservation Commission John A. Rocco Jr 6-1-00 Chairman/Authorized Agt.

Tax Department Joe Hub 6/12/00 Tax Collector

This zoning permit and approval for issuance of a building permit is based on the plot plan submitted and is subject to all conditions (if any) of approval, attached by any board, and/or commission. Falsification by omission, or misrepresentation, or failure to comply with the conditions of approval of record, shall constitute a violation of the Hamden Zoning Regulation.

SIGNATURE Scott Chase Applicant/Owner/Agent DATE 5/25/00

Copies: White File 203-239-4200 DTC RECEIVED TOWN OF HAMDEN

Canary Planning

Pink Engineering

Gold

Floodplain Y N Flood Zone
Substantial Improvement Y N
If yes: structures existing value \$
Alterations value \$

Rev. 3/95

MAY 26 2000



## TOWN OF HAMDEN

PLANNING & ZONING DEPARTMENT  
2372 Whitney Avenue  
Hamden, CT 06518  
Telephone (203) 287-2592

TOWN CLERK  
HAMDEN, CT

1999 NOV 10 P 2:09

REC'D AND FILED BY

November 10, 1999

New Haven Register  
40 Sargent Drive  
New Haven, CT. 06511  
Attn: Kimberly

FAX# 865-8360  
Bill: 287-2592

**RE: LEGAL NOTICE TO APPEAR IN THE NEW HAVEN REGISTER ON TUESDAY, NOVEMBER 16, 1999.**

**DP68726 - THE PLANNING AND ZONING COMMISSION**, Town of Hamden, held a Public Hearing and Regular Meeting on Tuesday, November 9, 1999 at 7:30 p.m. in the Council Chambers, Memorial Town Hall and the following actions were taken:

1. Special Permit/CAM/FP 99-887. 2895 State St. CDD-1. Proposed installation of 140' Tower, 12 antennas, and associated telecommunications equipment facility. Total structure elevation 160.89'AMSL. Property Owner: Look Investment Agency. Nextel Communications of Mid-Atlantic, Applicant. **APPROVED WITH CONDITIONS.**
2. Special Permit/WS 99-888. 750 Sherman Ave. M-1. 34,650sf expansion of existing facility, parking; stormwater drainage and landscaping. 750 Sherman Realty Corp. Property Owner, Carl Porto Atty. for Superior Printing Ink, Applicant. **APPROVED WITH CONDITIONS.**
3. Special Permit/WS/FP 99-879. 135 Sanford St. CDD-1. 36 unit multi-family. Elm City Builders, Inc., Owner/Applicant. **WITHDRAWN BY APPLICANT.**
4. Special Permit 99-881. 336 and 410 Denslow Hill Rd. R3. Single Family Dwellings. Open Space Development. Property Owner: Shepard Group. Bernard Pellegrino, Atty. for Housewright Development, Applicant. **TABLED TO DECEMBER 14, 1999.**
5. Minor Amendment Special Permit 97-813. 2656 Whitney Ave. To legalize construction of Handicap Ramp/Zammataro. **SIGNED-OFF ADMINISTRATIVELY.**



# TOWN OF HAMD CONNECTICUT

1  
 Stick postage stamps to article to cover First-Class charges for any selected optional services (See front)

1. If you want this receipt postmarked, stick the gummi address leaving the receipt attached, and present the window or hand it to your rural carrier/no extra charge).
2. If you do not want this receipt postmarked, stick the return address of the article, date, detach, and retain the 1
3. If you want a return receipt, write the certified mail number on a return receipt card, Form 3811, and attach it to the front of the envelope. Otherwise, affix to back of envelope a RETURN RECEIPT REQUESTED adjacent to the number.
4. If you want delivery restricted to the addressee, on address, enclose RESTRICTED DELIVERY on the front of the envelope.
5. Enter fees for the services requested in the appropriate box on the return receipt. If return receipt is requested, check the applicable box.
6. Save this receipt and present it if you make an inquiry.

**MINUTES: THE PLANNING AND ZONING COMMISSION, Town of Hamden, held a Public Hearing and Regular Meeting on Tuesday, November 9, 1999 at 7:30 p.m. in the Council Chambers, Memorial Town Hall, 2372 Whitney Avenue.**

Commissioners in attendance: Mr. Sims  
 Mr. Crocco  
 Mr. Ajello  
 Mr. DelVecchio  
 Mr. Pappas  
 Mr. Luppi

Staff in Attendance: Mr. Dodes, Planning Consultant  
 Mr. Troiano, Assistant Town Attorney  
 Ms. Teixeira, Court Recorder  
 Ms. Tobin, Clerk of the Commission

TOWN CLERK  
 HAMPDEN, CT  
 1999 NOV 16 P 12:07  
 RECD AND FILED

Mr. Pappas called the meeting to order at 7:30 p.m. Clerk Tobin read the Public Hearing Notice into the record. Mr. Pappas introduced the panel.

**A. Public Hearing**

1. Special Permit/CAM/FP 99-887  
 2895 State St. CDD-1  
 Proposed installation of 140' Tower,  
 12 antennas, and associated telecommunications equipment facility. Total  
 structure elevation 160.89' AMSL  
 Look Investment Agency, Inc.  
 Nextel Communications of Mid-Atlantic, Applicant

John Knuff of Hurwitz & Sagarin of Milford, CT addressed the Commission on behalf of Nextel. Nextel engineer Stephen Crotty, the person in charge of real estate for Nextel and Scott Chassis, a professional engineer with Diversified Technology Consults, were also in attendance. The



**MINUTES: THE PLANNING AND ZONING COMMISSION, Town of Hamden,** held a Public Hearing and Regular Meeting on Tuesday, November 9, 1999 at 7:30 p.m. in the Council Chambers, Memorial Town Hall, 2372 Whitney Avenue.

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application is for permission to construct a personal wireless facility at 2895 State Street, a permitted use in a CDD1 zone. To clarify current DEP actions, they concern Parcel A, the "Q Park" site and the "Tire Pond" and remedies are sought for Tire Pond and Parcel A by the DEP. The P&Z hearing on this application is not the proper forum for conducting a debate on those issues. Nextel deserves to have its application heard on its own merits. DEP has jurisdiction and expertise in these areas, and any environmental issues should be left to them.

It is important not to forget that this proposed use is consistent with the CDD-1 zone, on commercial property, near the railroad tracks, is consistent with the many utility towers in the area, and has a vast expanse to the south that will not be developed in any manner because of the wetlands. Attorney Knuff said he would appreciate the Commission's consideration of these comments. The application has two components, a monopole with antennas and an equipment shelter. The highest part of the structure will be 143' above grade, 2' shorter than the original proposal. The monopole can support three additional carriers in addition to Nextel. Nextel first tries to co-locate on an existing structure. Attorney Knuff said they located a facility on an apartment building on Mix Avenue last year. Exhibit 6 demonstrates that 10 out of 11 suggested sites are co-locations. There is no structure available in the area being proposed to support Nextel's facilities. Information is provided in the binder on the other towers.

Scott Chassis from Diversified Technology Consultants, a professional engineer, showed an aerial photo showing the town line, Tire Pond, and the proposed site. Photos of the existing uses along State Street were shown, including the railroad right of way, transmission and distribution lines, two-way radio antenna structures, and commercial uses. Tidal flat wetlands were also noted.

A site survey was presented showing the main features of the surrounding site and the proposed lease areas. A more detailed site plan of the 50' x 50' area was shown, and included a concrete foundation 3+' above grade; the equipment shelter 10 x 20 prefab concrete structure which will sit on the foundation; and a tower of 143'. A photo showed that the tower meets all fall back and setback requirements. The exiting gravel road will require no improvements. The site will require phone and power services. A telephone pole is situated about 30' from the lease area.

In July of this year a view-shed analysis was done. A balloon was flown and they drove in a two-mile radius of the site. The red area on the drawing indicated the antenna is not visible due to topography (ridge line); the green area will not be visible due to existing vegetation; the blue area is the area of visibility, primarily 24% of the two mile radius, but it is undeveloped tidal flats. The brown area is partially visible, between buildings.

In accordance with regulations, photo simulations were required from the nearest residential districts. Location 1, 1500' from the site, is an R-4 area. There is an abutting residential district further to the south, and the antenna was shown near the right of way the light switch.

Steve Crotty, an engineer from Nextel explained the need for this facility from a radio frequency perspective. Outlined on the topography map was the Town of Hamden with 11 adjacent

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facilities. The green areas show existing coverage. 10 of 11 of their facilities are co-locations on existing buildings or towers. Their search ring was shown, and any site within that area would provide appropriate coverage. Coverage from the proposed facility was shown. The green areas overlap adjacent facilities. The 143' level is the minimum required to provide the coverage without additional antennas. They operate on their own frequencies, different from two-way radio antennas. In response to the Commission, Mr. Knuff said their pole would hold their own antennas plus three others. They do not have any co-locators to date. All users have different frequencies so they will not interfere with each other. Attorney Knuff said the only thing they are seeking approval for is Nextel's equipment. Our regulations require that antenna owners provide space for additional carriers. Panel antennas are used with a triangular base. Mr. DelVecchio asked about radiation. Attorney Knuff said FCC has standards and they will be at 1.1% of the FCC standard. An environmental impact statement was provided. There are no endangered species in the area (Exhibit 10). Exhibit 18 is the FCC report.

Mr. Sims asked if antennas would have any bearing on electronic devices in the area i.e. computers. Attorney Knuff said they would not. Attorney Knuff said voluminous material was provided to P&Z to show compliance with regulations. Exhibit 10 is the Environmental Impact Assessment; FAA thresholds for lighting; tower foundation design (Exhibit 13); view lines required by regulations (Exhibit 15); viewshed analysis (Exhibit 16; photo simulations of the site (Exhibit 17; a balloon test conducted on 9/1/99 and properly noticed; an emissions report showing the facility; and an emissions report showing the facility would operate at 1.1% of FCC requirements (Exhibit 18). Compliance with regulations has been documented, and CAM has reported no adverse impact. Exhibit A, regarding the balloon test, was submitted for the record.

Mr. Crocco said regarding Map Z-1, the outline of lease area is shown, and inside one note mentions concrete block. There are bins of materials in the location of the proposed lease area, and they will be moved to another location on site to make room. The shelter will be approximately 15' from the antenna, and power lines will be underground to the pole. Mr. Crocco asked if a co-locator wanted to go on the antenna, would they have to come before this Commission. Mr. Dodes said yes. Mr. Dodes said if this Commission was to turn down an applicant that wanted to put up a tower, what recourse would the applicant have.

Attorney Knuff said if it was not Bell Atlantic or Snet, the carrier could try to find a new location or appeal to federal or local or state court. The Siting Council is responsible for Snet and Bell Atlantic. The federal or local court can't come in to override the Town's decision. The only difference is that they can appeal to federal court whereas most commercial organizations cannot. Attorney Knuff said they have described other structures in the area and given the reasons they cannot be used. The other pole in the area was designed for two carriers with a third attempting to locate there. Exhibit 8 in the testimony is from Sprint stating the pole is not structurally able to carry an additional antenna.

Attorney Knuff described the triangular platform with three antennas each having four sides. The intent is to create a structure to hold as many antennas as possible to avoid other antenna poles being necessary near this one. Attorney Knuff said there is no federal or state

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**MINUTES: THE PLANNING AND ZONING COMMISSION, Town of Hamden,** held a Public Hearing and Regular Meeting on Tuesday, November 9, 1999 at 7:30 p.m. in the Council Chambers, Memorial Town Hall, 2372 Whitney Avenue.

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administrative agency that can tell the town to issue a permit but the federal or state court could tell the town to issue a permit. The Siting Council does not play a role in Nextel's tower.

Mr. Dodes read his comments on this application, giving the background information and noting comments from reviewing departments. The Police Department has no objections. The Engineering Department has no objection, but noted that they will require full "as-built" information in the Auto Cadd 14 format. CAM sees no adverse impact on Long Island Sound. His only concern is the actual location of the property upon which this tower is to be located. The requirements of the zoning regulations have been met. Mr. Dodes recommended approval. Mr. Dodes is more concerned about the specific location of the tower. He is not concerned about the impact on the area. He feels these are not pretty, and co-locations should be the first choice.

Mr. Crocco asked Mr. Troiano if there was any reason this Commission could not hear this application. Mr. Troiano said we have to hear the application and make our decision based on its merits. Other issues on the site are not relevant.

There were no speakers in favor, against or commenting. Mr. Pappas closed the Public Hearing on Special Permit/CAM/FP 99-887.

2. Special Permit/WS 99-888  
750 Sherman Ave. M-1  
34,650 square foot expansion of existing facility,  
parking, storm water drainage and landscaping  
750 Sherman Realty Corp. Property Owner Carl Porto,  
Atty. for Superior Printing Ink, Applicant

Mr. Dodes read his memo dated November 9, 1999, giving the background of the project and noting Department and Agency reviews. Variances were granted for parking and lot coverage in August 19, 1999. The application was approved by the Conservation Commission on November 3, 1999, with conditions. RWA made several comments, which are included in Mr. Dodes' memo. Mr. Dodes said the applicant met with the Town Engineer and modified the plans to the satisfaction of the Town Engineer. These plans are complete and Mr. Dodes recommended approval subject to whatever conditions the Commission may want to impose as a result of the information brought forward at this Public Hearing. (The Town Engineer's report dated 11/9/99 to Mr. Dodes stated plans as well as supporting data submitted to the office on 11/8/99 are satisfactory to the Town Engineer.)

Attorney Carl Porto addressed the Commission on behalf of the Applicant. He said required variances were granted by the ZBA. At the Inland Wetlands meeting, regional water and inland wetlands were concerned about storm water discharge. They returned to the Conservation Commission last week for the third time, and they had a letter from RWA indicating their approval. They now have a set of plans approved fully by ZBA, Inland Wetlands and RWA. Mr. Savarese attended the Inland Wetlands meeting and indicated his approval of these plans.

**MINUTES: THE PLANNING AND ZONING COMMISSION, Town of Hamden,** held a Public Hearing and Regular Meeting on Tuesday, November 9, 1999 at 7:30 p.m. in the Council Chambers, Memorial Town Hall, 2372 Whitney Avenue.

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an automated packaging line that uses about 40 pallets per month, and they don't have the space to store those inside. Once the addition is complete they will be able to store them inside.

Christiaan Dinkeloo, the project architect, showed elevation drawings to the Commission. There are currently no air conditioning units planned for the roof. There is currently a small unit on the roof of the original building. The structure is designed to allow the addition of air conditioning units on the roof if that should become necessary in the future. Rooftop units may be 5-6' tall, but there is a parapet of 2.5'. Mr. Crocco said it is an industrial area and the angle would not allow the units to be seen. Mr. Pappas asked that the vegetation line be extended to hide the view from the rails to trails. Attorney Porto agreed.

There were no further questions and no speakers in favor, against or commenting. Mr. Pappas closed the Public Hearing on Special Permit/CAM/FP 99-888.

Rich DePodesta commented that the parking is quite extensive for what is being used, and he asked if they could leave the front grassed and left as a reserve area for parking if needed at a later date. Mr. Dodes said they went for a variance so we have a technical problem and cannot change what the ZBA granted.

Mr. Mat Calafasi a Hamden resident, asked a general question regarding the number of trucks and deliveries to the facility. The plant manager said at most three tractor trailers a day, usually one a day. The addition will not increase traffic.

3. Special Permit/WS/FP 99-879  
135 Sanford St. CDD-1  
36 unit multi-family. Elm City Builders, Inc., Owner/Applicant

**Withdrawn at the request of the applicant.**

Mr. Pappas closed the Public Hearing.

**B. Regular Meeting**

1. Special Permit/CAM/FP 99-887  
2895 State St. CDD-1  
Proposed installation of 140' Tower,  
12 antennas, and associated telecommunications equipment facility. Total  
structure elevation 160.89' AMSL  
Look Investment Agency, Inc.  
Nextel Communications of Mid-Atlantic, Applicant

Mr. Crocco asked if the Commission has to make it a condition that if any other tenants want to be on the pole they have to come before this Commission. Nick said the tower itself will be fully constructed the first time around, and the new tenant is not going to create any different

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**MINUTES: THE PLANNING AND ZONING COMMISSION**, Town of Hamden, held a Public Hearing and Regular Meeting on Tuesday, November 9, 1999 at 7:30 p.m. in the Council Chambers, Memorial Town Hall, 2372 Whitney Avenue.

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construction or modification to the existing structure. He doesn't think it is covered in the regulations.

**Mr. Ajello made a motion to approve Special Permit/CAM/FP 99-887 with the condition that any additional tenants other than Nextel that would like space on that tower will come before the P&Z Commission for approval. Mr. Sims seconded the motion. The vote was unanimous in favor.**

2. Special Permit/WS 99-888  
750 Sherman Ave. M-1  
34,650sf expansion of existing facility,  
parking, storm water drainage and landscaping  
750 Sherman Realty Corp. Property Owner Carl Porto,  
Atty. for Superior Printing Ink, Applicant

The Commission wanted to add a condition that the tree line in the rear will be continued. Mr. Luppi wants to see planting between the curb line and the parking in the front of the building. Mr. Luppi discovered a 10' strip of grass that would remain, and he is suggesting some type of planting in that 10' buffer without obstructing the line of site. Mr. Dodes said he could sit with Attorney Porto and the engineer and architect, and approve at his discretion.

**Mr. Luppi made a motion to approve Special Permit/WS 99-888, 750 Sherman Avenue, subject to the conditions requested by reviewing agencies; and that the applicant submit some landscaping plans for the grass strip across the front of the building for the approval of the Town planner; and to the rear of the building near the swale, which buffers the trail, 6' high arborvitae be planted where necessary to block the building from the trail area. Mr. Crocco seconded the motion. The vote was unanimous, in favor.**

3. Special Permit/WS/FP 99-879  
135 Sanford St. CDD-1  
36 unit multi-family. Elm City Builders, Inc., Owner/Applicant

**Withdrawn at the request of the applicant.**

4. Special Permit 99-881  
336 and 410 Denslow Hill Rd. R3  
Single Family Dwellings  
Open Space Development  
Property Owner: Shepard Group  
Bernard Pellegrino, Atty. for Housewright Development, Applicant

Mr. DelVecchio said the report from the Engineering was received today by the Planning and Zoning Office, and distributed to the Commission this evening. Our statutes state reports should be received ten days prior to the meeting. There is a lot of material in the report, and he has not

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# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

June 16, 2014

Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103-3597

RE: **TS-VER-062-140522**– Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 2895 State Street, Hamden, Connecticut.

Dear Attorney Baldwin:

At a public meeting held June 12, 2014, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

- The proposed coax and remote radio heads shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering Inc. dated February 11, 2014 and stamped by Bradley Newman;
- Sprint/Nextel's equipment, coax, and mount shall be removed prior to Cellco's installation per the same structural analysis report;
- Not more than 45 days following completion of the antenna installation, Cellco shall provide documentation certifying that its installation complied with the engineer's recommendation;
- Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by Verizon shall be removed within 60 days of the date the antenna ceased to function;
- Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
- Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;
- Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council and applies only to this request for tower sharing dated May 21, 2014. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from the approved tower sharing request is enforceable under the provisions of Connecticut General Statutes § 16-50u.



The proposed shared use is to be implemented as specified in your letter dated May 21, 2014, including the placement of all necessary equipment and shelters within the tower compound.

Please be advised that the validity of this action shall expire one year from the date of this letter.

Thank you for your attention and cooperation.

Very truly yours,



Robert Stein

Chairman

RS/MP/jb

c: The Honorable Scott D. Jackson, Mayor, Town of Hamden  
Leslie Creane, Town Planner, Town of Hamden  
Sean Gornley, SBA Communications

# **ATTACHMENT 2**



DATE OF DY: 12/18/19	DRAWN BY: DRA	ZVM
CHECKED BY: JRM	ZVM	ZVM
DATE: 01/02/20	ZVM	ZVM

PROJECT CODE: 20171849083 LC: 482726 CM: AL
ZVM
ZVM

**DE-1**

**HAMDEN 5 CT ANTMO**

**2895 STATE STREET**

**HAMDEN, CT 06517**

**COMPUND, LOCATION PLAN**

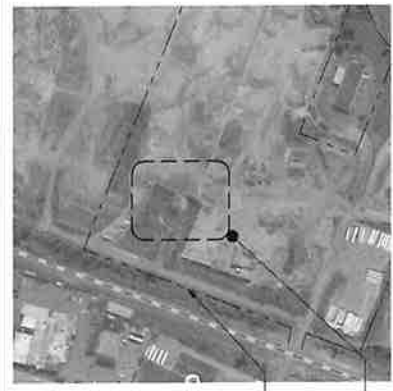
**& NOTES**

AFT FILING NUMBER: CT1418B11200

SHEET NUMBER:

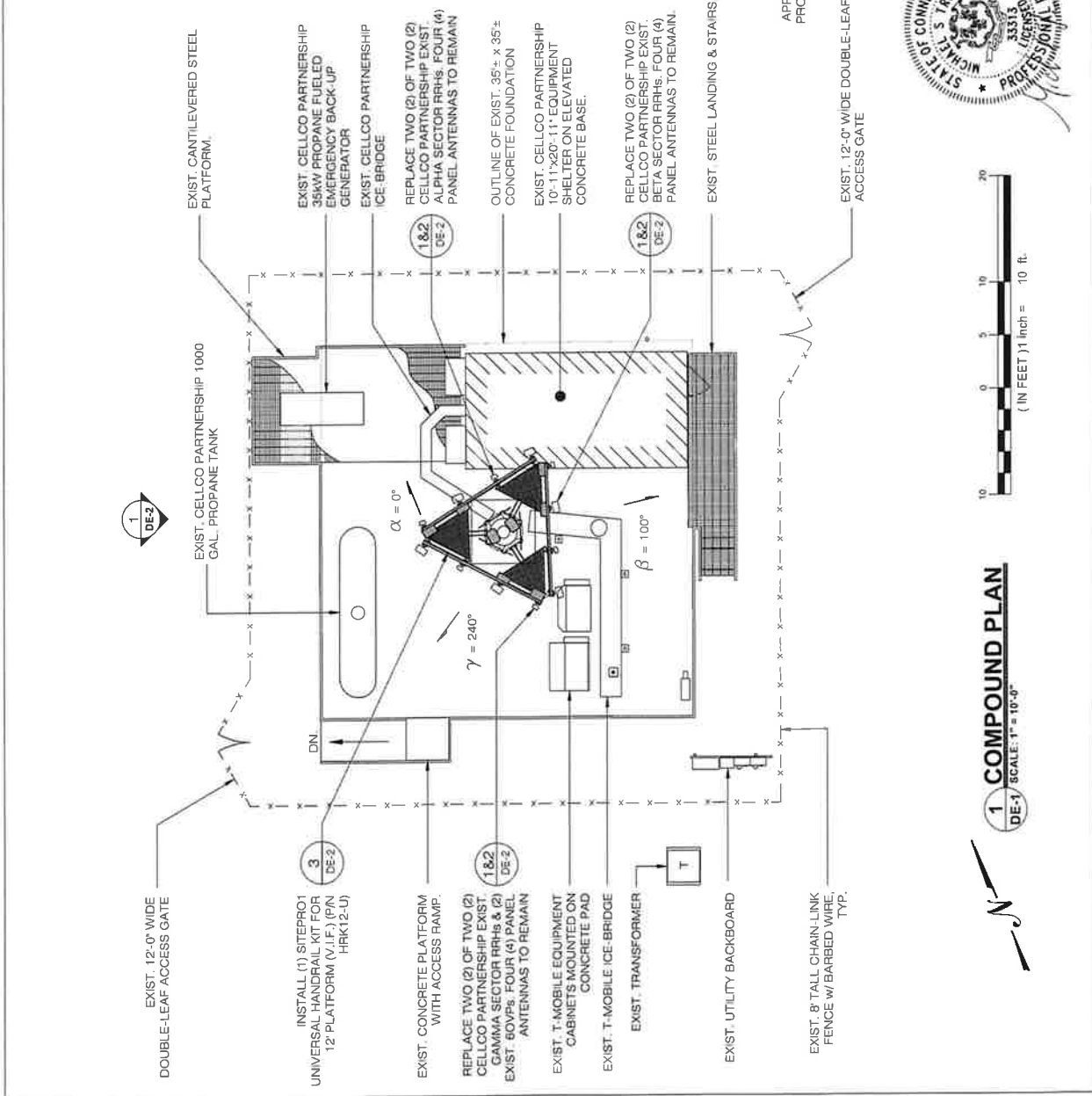
34 HADFIELD ROAD  
 ALL-POINTS TECHNOLOGY CORPORATION  
 HARTFORD, CT 06115  
 PHONE: (860) 463-1697  
 FAX: (860) 463-0735  
 WWW.ALLPOINTS.COM

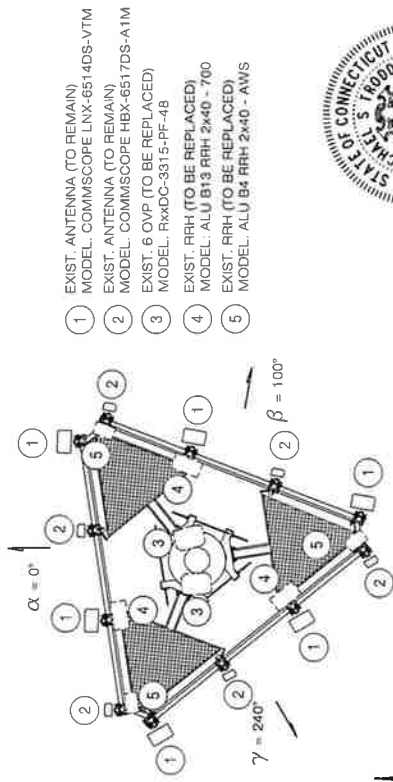
- NOTES:**
- DESIGN EXHIBIT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND CONVEY GENERAL INFORMATION PERTAINING TO THE SIZE AND LOCATION OF THE PROPOSED WIRELESS EQUIPMENT UPGRADE.
  - BASE MAPPING FROM FIELD MEASUREMENTS TAKEN BY ALL-POINTS TECH. CORP., P.C. ON 12/18/19.
  - REFER TO TOWER STRUCTURAL ANALYSIS REPORT PREPARED BY TOWER ENGINEERING SOLUTIONS, DATED MARCH 16, 2020 AVAILABLE UNDER SEPARATE COVER.
  - REFER TO MOUNT STRUCTURAL ANALYSIS REPORT PREPARED BY ALL POINTS TECHNOLOGY CORP., DATED MARCH 24, 2020 AVAILABLE UNDER SEPARATE COVER.
  - PROJECT SCOPE INCLUDES THE FOLLOWING.
    - REPLACEMENT OF SIX (6) EXIST. RRHS WITH SIX (6) PROP. RRHS.
    - REPLACEMENT OF TWO (2) EXIST. 60VPS WITH (2) PROP. 60VPS.
    - REPLACEMENT OF TWO (2) 6X12 HYBRID CABLE FEED-LINES WITH (2) 6X12-HYBRID LOW INDUCTANCE CABLE FEED-LINES.
    - INSTALLATION OF ONE (1) SITEPROT UNIVERSAL HANDIRAL KIT FOR 12 PLATFORM (V.I.F.) (PN HRK12-U)
  - ALL EXPOSED STEEL AND HARDWARE TO BE HOT DIP GAL. (DG).
  - CAP & WEATHERPROOF ALL UN-USED CABLE ENTRY PORTS (WHERE APPLICABLE).
  - MOUNT & GROUND ALL NEW EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
  - ALL ANTENNAS, APPURTENANCES AND NEW STEEL SHALL BE PAINTED TO MATCH EXIST. (WHERE APPLICABLE) AND SHALL BE APPROVED BY OWNER.



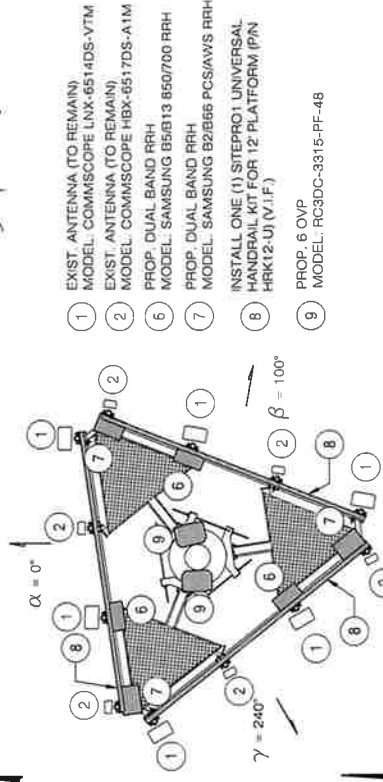
**LOCATION PLAN**  
 SCALE: 1" = 1000'-0"

- REVISIONS:**
- REV0: 01/02/20 FOR REVIEW -JRM
  - REV1: 01/14/20 FOR REVIEW -JRM
  - REV2: 02/26/20 REV. PER VZW COMMENTS -JRM
  - REV3: 03/24/20 REV. PER VZW COMMENTS -JRM
  - REV4:





**2 EXISTING PLATFORM**  
 DE-2 SCALE: 3/16" = 1'-0"



**3 PROPOSED PLATFORM**  
 DE-2 SCALE: 3/16" = 1'-0"

INSTALL ONE (1) STEPRO1 UNIVERSAL HANDRAIL KIT FOR 12 PLATFORM (P/N HRK12-U) (V.I.F.)

T/ EXIST. TOWER @ 140.67' ± AGL

REPLACE SIX (6) OF SIX (6) EXIST. CELCO PARTNERSHIP RRHs & (2) EXIST. 60VPS (12) TWELVE EXIST. PANEL ANTENNAS TO REMAIN.

1/ EXIST CELCO PARTNERSHIP ANTENNAS @ 142.5' ± AGL

2 EXIST. T-MOBILE ANTENNAS @ 132.68' ± AGL

EXIST. MONOPOLE TOWER ATOP CONC. BASE

REPLACE (2) EXIST. CELCO PARTNERSHIP 6x12 HYBRID FEED-LINE CABLES w/ (2) PROP. 6x12 HYBRID LOW INDUCTANCE FEED-LINE CABLES ROUTED WITHIN EXIST. TOWER.

EXIST. T-MOBILE EQUIPMENT CABINETS ON CONCRETE PAD AND ICE-BRIDGE

EXIST. 35' ± x 35' ± ELEVATED CONCRETE BASE

EXIST. 8' TALL CHAIN-LINK FENCE WITH BARBED WIRE, TYP.

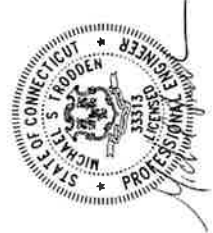
APPROX. EXIST. GRADE @ 11.4' ± AMSL

EXIST. CELCO PARTNERSHIP 11' ± x 21' ± EQUIPMENT SHELTER ON ELEVATED CONCRETE BASE

EXIST. CELCO PARTNERSHIP 50 KW PROPANE FUELED EMERGENCY BACK UP GENERATOR ON EXIST. ELEVATED STEEL DUNNAGE

**1 WEST ELEVATION**  
 DE-2 SCALE: 1" = 20'-0"

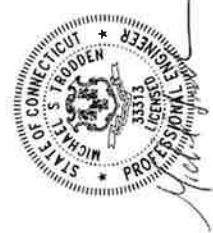
- 1 EXIST. ANTENNA (TO REMAIN)  
 MODEL: COMMSCOPE LNX-6514DS-V7M
- 2 EXIST. ANTENNA (TO REMAIN)  
 MODEL: COMMSCOPE HBX-6517DS-A1M
- 3 EXIST. 6 OVP (TO BE REPLACED)  
 MODEL: RxdC-3315-PF-48
- 4 EXIST. RRH (TO BE REPLACED)  
 MODEL: ALU B13 RRH 2x40 - 700
- 5 MODEL. ALU B4 RRH 2x40 - AWS



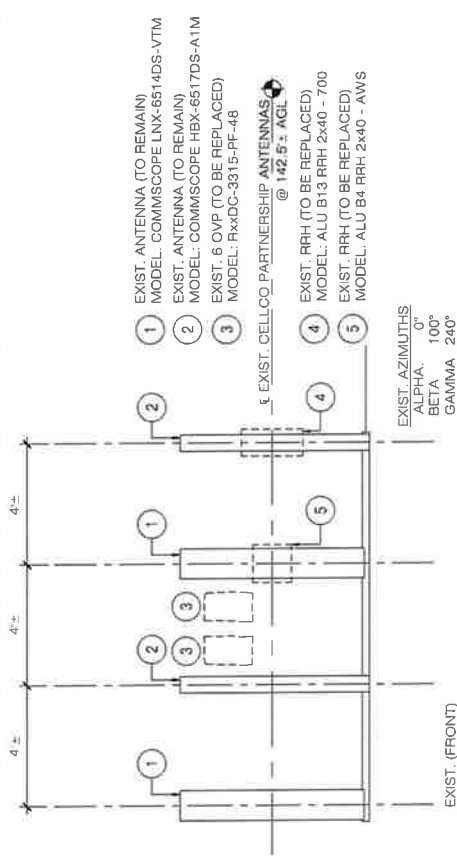
- 1 EXIST. ANTENNA (TO REMAIN)  
 MODEL: COMMSCOPE LNX-6514DS-V7M
- 2 EXIST. ANTENNA (TO REMAIN)  
 MODEL: COMMSCOPE HBX-6517DS-A1M
- 6 PROP. DUAL BAND RRH  
 MODEL: SAMSUNG B51G13 B50700 RRH
- 7 PROP. DUAL BAND RRH  
 MODEL: SAMSUNG B21B66 PCS/AWS RRH
- 8 INSTALL ONE (1) STEPRO1 UNIVERSAL HANDRAIL KIT FOR 12 PLATFORM (P/N HRK12-U) (V.I.F.)
- 9 PROP. 6 OVP  
 MODEL: RC3DC-3315-PF-48

**REVISIONS:**

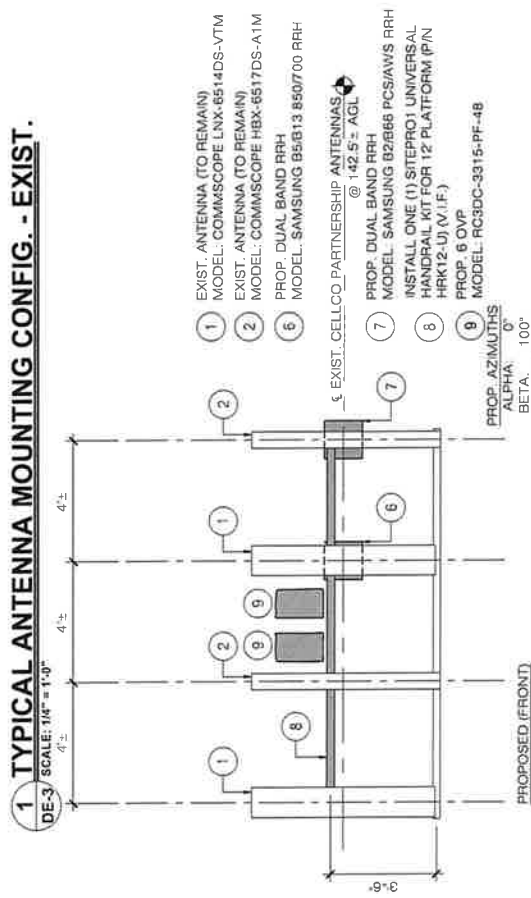
- REV0: 01/02/20 FOR REVIEW -JRM
- REV1: 01/14/20 FOR REVIEW -JRM
- REV2: 02/26/20 REV. PER VZW COMMENTS -JRM
- REV3: 03/24/20 REV. PER VZW COMMENTS -JRM
- REV4:



**REVISIONS:**  
 -REV0: 01/02/20. FOR REVIEW. JRM  
 -REV1: 01/14/20. FOR REVIEW. JRM  
 -REV2: 02/26/20. REV. PER VZW COMMENTS. JRM  
 -REV3: 03/24/20. REV. PER VZW COMMENTS. JRM  
 -REV4:



**1 TYPICAL ANTENNA MOUNTING CONFIG. - EXIST.**  
 DE-3 / SCALE: 1/4" = 1'-0"



**2 TYPICAL ANTENNA MOUNTING CONFIG. - PROP.**  
 DE-3 / SCALE: 1/4" = 1'-0"

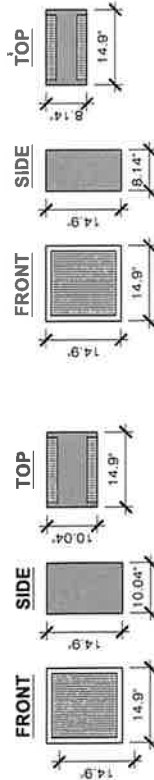
**NOTES:**  
 1. ANTENNA CONFIGURATIONS SHOWN HEREIN ARE FRONT ELEVATIONS.  
 2. REFER TO THE FINAL RFDS PROVIDED BY CELCO PARTNERSHIP FOR THE LATEST INFORMATION REGARDING EQUIPMENT MODELS, REQUIRED CABLING, AZIMUTHS & DOWN-TILT INFORMATION.  
 3. REFER TO NOTES ON SHEET DE-1 FOR MORE INFORMATION

**EQUIPMENT DATA**

**EQUIPMENT SPECIFICATIONS**

SECTOR	ANTENNA MAKE/MODEL	QTY	AZIMUTH	EQUIPMENT STATUS	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)
ALPHA	700: ANDREW LNX-6514DS-VTM	1	0	ETR	72.9	11.9	7.1	31.3 (2)
	1900: ANDREW HBX-6517DS-VTM	1		ETR	74.9	6.5	3.3	13.7 (2)
	850: ANDREW LNX-6514DS-VTM	1		ETR	72.9	11.9	7.1	31.3 (2)
BETA	2100: ANDREW HBX-6517DS-VTM	1	100	ETR	74.9	6.5	3.3	13.7 (2)
	700: ANDREW LNX-6514DS-VTM	1		ETR	72.9	11.9	7.1	31.3 (2)
	1900: ANDREW HBX-6517DS-VTM	1		ETR	74.9	6.5	3.3	13.7 (2)
GAMMA	850: ANDREW LNX-6514DS-VTM	1	240	ETR	72.9	11.9	7.1	31.3 (2)
	2100: ANDREW HBX-6517DS-VTM	1		ETR	74.9	6.5	3.3	13.7 (2)
	APURTENANCE MAKE/MODEL							
	SAMSUNG B5/B13 850/700 RRH	3	-	PROP.	14.9	14.9	8.14	82.0
	SAMSUNG B2/B66 PCS/AWS RRH	3	-	PROP.	14.9	14.9	10.04	97.5
	RAYCAP RC3DC-3315-PF-48	2	-	PROP.	28.9	15.7	10.3	32

- (1) 'ETR' DENOTES EXIST. TO REMAIN
- (2) WEIGHT WITHOUT MOUNTING BRACKET.
- (3) ANTENNA DATA BASED ON RFDS DATED 04/26/19

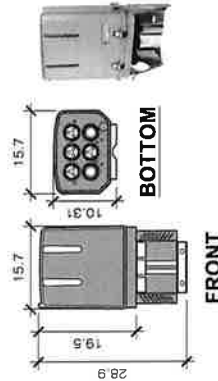


SAMSUNG DUAL HIGH BAND B2/B669 RRH  
RRH PCS/AWS  
REMOTE RADIO HEAD (RRH)  
WxDxH = 14.9"x14.9"x10.04" (97.5 Lbs)

SAMSUNG DUAL HIGH BAND B5/B13 RRH  
RRH 850/700  
REMOTE RADIO HEAD (RRH)  
WxDxH = 14.9"x14.9"x8.14" (82.0 Lbs)

NOTE: WEIGHTS INCLUDE SOLAR SHIELD & MOUNTING BRACKET

**1 PROP. RRH EQUIPMENT**  
DE-4 SCALE: 1/2" = 1'-0"



RAYCAP RC3DC-3315-PF-48  
OVER VOLTAGE PROTECTION BOX (OVP)  
WxDxH = 15.7"x19.5"x10.3" (32.0 Lbs)

**OVER VOLTAGE PROTECTION BOX (OVP)**  
**2 PROTECTION BOX (OVP)**  
DE-4 SCALE: 1" = 20'-0"

REVISIONS:  
-REV0: 01/02/20 FOR REVIEW: JRM  
-REV1: 01/14/20 FOR REVIEW: JRM  
-REV2: 02/26/20 REV. PER VZW COMMENTS: JRM  
-REV3: 03/24/20 REV. PER VZW COMMENTS: JRM  
-REV4:



# SAMSUNG

## Dual-Band Radio Unit 700/850MHz (B13/B5) RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



### Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

### Key Technical Specifications

Duplex Type: FDD  
Operating Frequencies:  
B13: DL(746-756MHz)/UL(777-787MHz)  
B5: DL(869-894MHz)/UL(824-849MHz)  
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)  
RF Chain: 4T4R/2T4R/2T2R  
Output Power: Total 320W  
DU-RU Interface: CPRI (10Gbps)  
Dimensions: 380 x 380 x 207mm (29.9L)  
Weight: 31.9kg  
Input Power: -48V DC  
Operating Temp.: -40 - 55°(w/o solar load)  
Cooling: Natural convection

# SAMSUNG

## Dual-Band Radio Unit AWS/PCS (B66/B2)

RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.



The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

### Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

### Key Technical Specifications

Duplex Type: FDD  
Operating Frequencies:  
B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)  
B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)  
Instantaneous Bandwidth:  
70MHz(B66) + 60MHz(B2)  
RF Chain: 4T4R/2T4R/2T2R  
Output Power: Total 320W  
DU-RU Interface: CPRI (10Gbps)  
Dimensions: 380 x 380 x 255mm (36.8L)  
Weight: 38.3kg  
Input Power: -48V DC  
Operating Temp.: -40 - 55°(w/o solar load)  
Cooling: Natural convection

# **ATTACHMENT 3**

Site Name: Hamden 5 CT  
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm <sup>2</sup> )	Maximum Permissible Exposure* (mW/cm <sup>2</sup> )	Fraction of MPE (%)
VZW 700	746	4	891	3,565	143	0.0627	0.4973333333	12.61%
VZW Cellular	880	4	457	1,828	143	0.0322	0.5866666667	5.48%
VZW PCS	1970	4	1,950	7,799	143	0.1372	1.0	13.72%
VZW AWS	2145	4	1,995	7,981	143	0.1404	1.0	14.04%

**Total Percentage of Maximum Permissible Exposure**

45.84%

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.



# **ATTACHMENT 4**



**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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## Structural Analysis Report

**Existing 136 ft. EEI Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT46137-A**

**Customer Site Name: Hamden-State St**

**Carrier Name: Verizon (App#: 126597, V2)**

**Carrier Site ID / Name: 467276 / Hamden 5 CT**

**Site Location: 2895 State Street**

**Hamden, Connecticut**

**New Haven County**

**Latitude: 41.360008**

**Longitude: -72.885694**

### Analysis Result:

**Max Structural Usage: 77.6% [Pass]**

**Max Foundation Usage: 75.9% [Pass]**

**Additional Usage Caused by Mount Modification: +1.5%**



**Report Prepared By : Delu Zhou**



**Tower Engineering Solutions**

Phone (972) 483-0607, Fax (972) 975-9615  
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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## **Structural Analysis Report**

**Existing 136 ft. EEI Monopole**  
**Customer Name: SBA Communications Corp**  
**Customer Site Number: CT46137-A**  
**Customer Site Name: Hamden-State St**  
**Carrier Name: Verizon (App#: 126597, V2)**  
**Carrier Site ID / Name: 467276 / Hamden 5 CT**  
**Site Location: 2895 State Street**  
**Hamden, Connecticut**  
**New Haven County**  
**Latitude: 41.360008**  
**Longitude: -72.885694**

### **Analysis Result:**

**Max Structural Usage: 77.6% [Pass]**  
**Max Foundation Usage: 75.9% [Pass]**  
**Additional Usage Caused by Mount Modification: +1.5%**

**Report Prepared By : Delu Zhou**

## Introduction

The purpose of this report is to summarize the analysis results on the 136 ft. EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Engineered Endeavors Incorporated (Job No. 5315-P01) Structure & Foundation Design Calculations dated August 16, 1999
<b>Foundation Drawing</b>	N/A
<b>Geotechnical Report</b>	Dr. Clarence Welti, P.E., P.C., Project Name: Nextel Tower Site, dated 5/27/1999
<b>Modification Drawings</b>	N/A

## Analysis Criteria

The feasibility analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft.
<b>Seismic Parameters:</b>	$S_S = 0.186$ , $S_1 = 0.062$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

### Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	136.0	6	Andrew HBX-6517DS-VTM - Panel	Low Profile Platform	(2) 1 5/8" Hybrid	Verizon
-		6	Andrew LNX-6514DS-VTM - Panel			
-		3	Alcatel Lucent RRH-2X40 700U RRHs			
-		3	Alcatel Lucent RRH-2X40-AWS RRHs			
-		2	RFS DB-T16Z-8AB-0Z COVP			
6	128.0	3	RFS APXVAARR24_43-U-NA20 (Octa)	Platform w/ Hand Rail (SitePro RMQP-496-HK)	(10) 1 5/8" (1) 1 5/8" Fiber (2) 1-1/4" Hybrid	T-Mobile
7		3	Ericsson Air 32 KRD901146-1_B66A_B2A			
8		3	Ericsson KRY 112 144/2 TMA			
9		3	Ericsson Radio 4449 B71 + B12 RRU			
10		3	Ericsson AIR 21 B2A/B4P			

### Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	136.0	6	Andrew LNX-6514DS-VTM Panel	Low Profile Platform w/ Handrail Kit	(2) 1 5/8" Hybrid	Verizon
2		6	Andrew HBX-6517DS-VTM Panel			
3		3	Samsung B2/B66A RRHBR049			
4		3	Samsung B5/B13 RRHBR04C			
5		2	Raycap RVZDC-6627-PF-48 COVP			

All transmission lines are considered running inside of the pole shafts.

## **Analysis Results**

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	<b>67.8%</b>	<b>55.7%</b>	<b>77.6%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	2324.8	21.8
Analysis Reactions	2362.2	22.3
Factored Reactions*	3138.5	29.4
% of Design Reactions	75.3%	75.9%

\* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

A foundation reactions comparison was performed between the original design reactions and the current analysis reactions. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

## **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.7016 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

**Usage Diagram - Max Ratio 67.78% at 92.0ft**

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Gh:** 1.1

3/16/2020

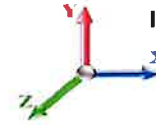
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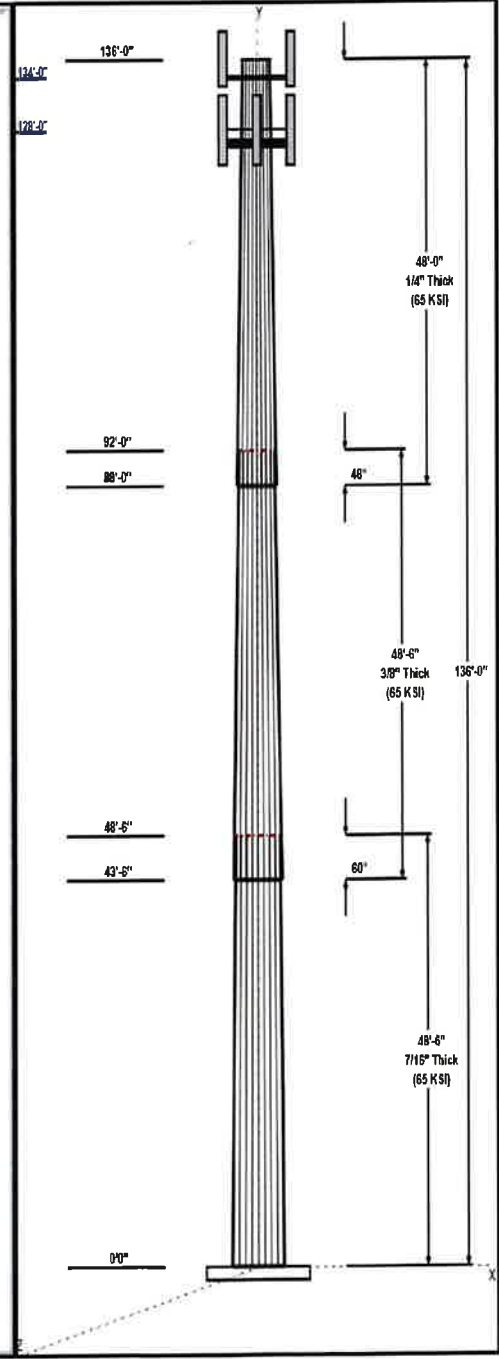
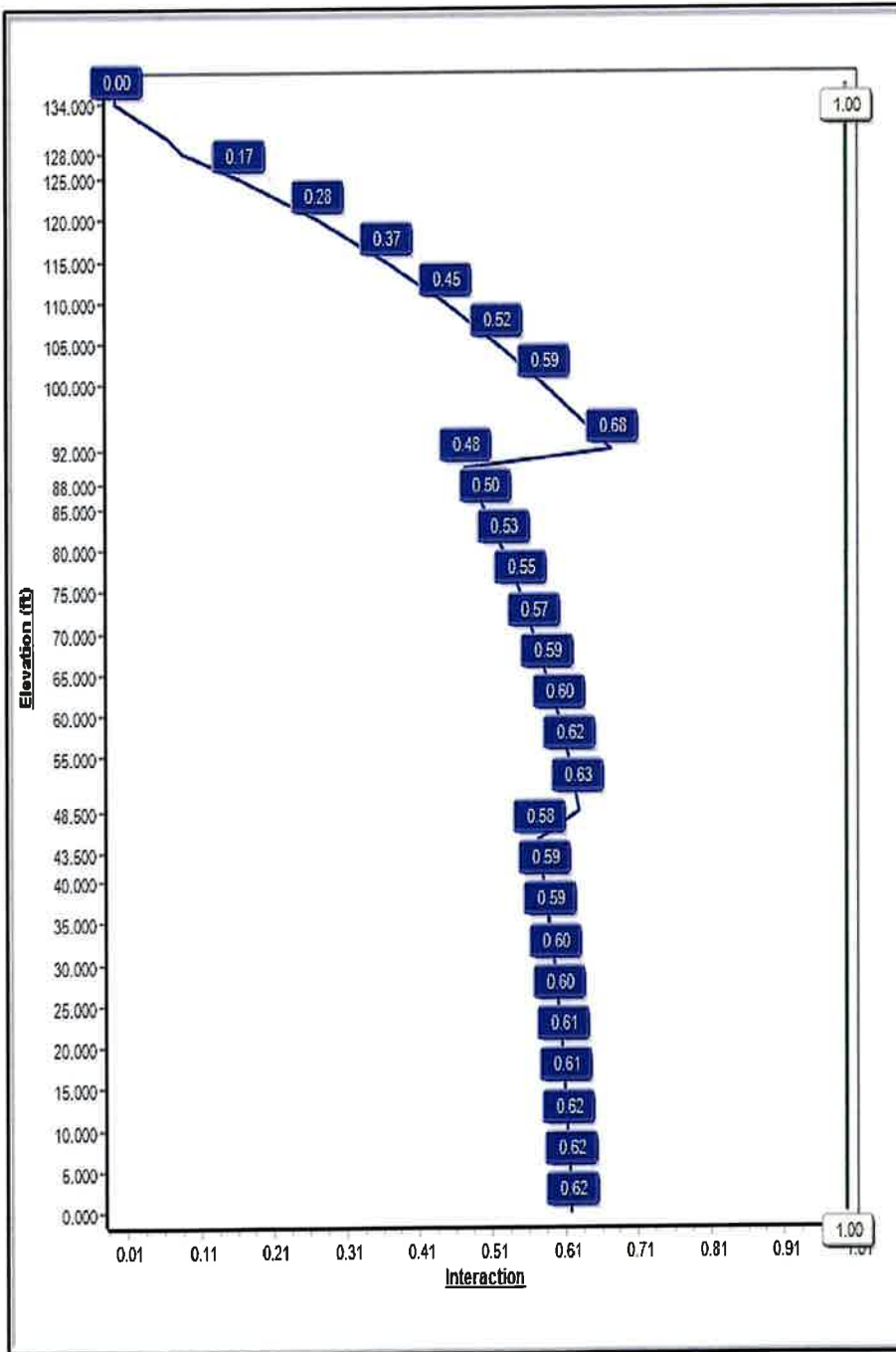
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 97 mph Wind**

**Iterations:** 25



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**Structure: CT46137-A-SBA**

**Type:** Tapered  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.18566

3/16/2020

Page: 2



Shaft Properties							
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.50	34.00	43.00	0.438		0.18566	65
2	48.50	26.67	35.67	0.375	Slip	0.18566	65
3	48.00	19.00	27.91	0.250	Slip	0.18566	65

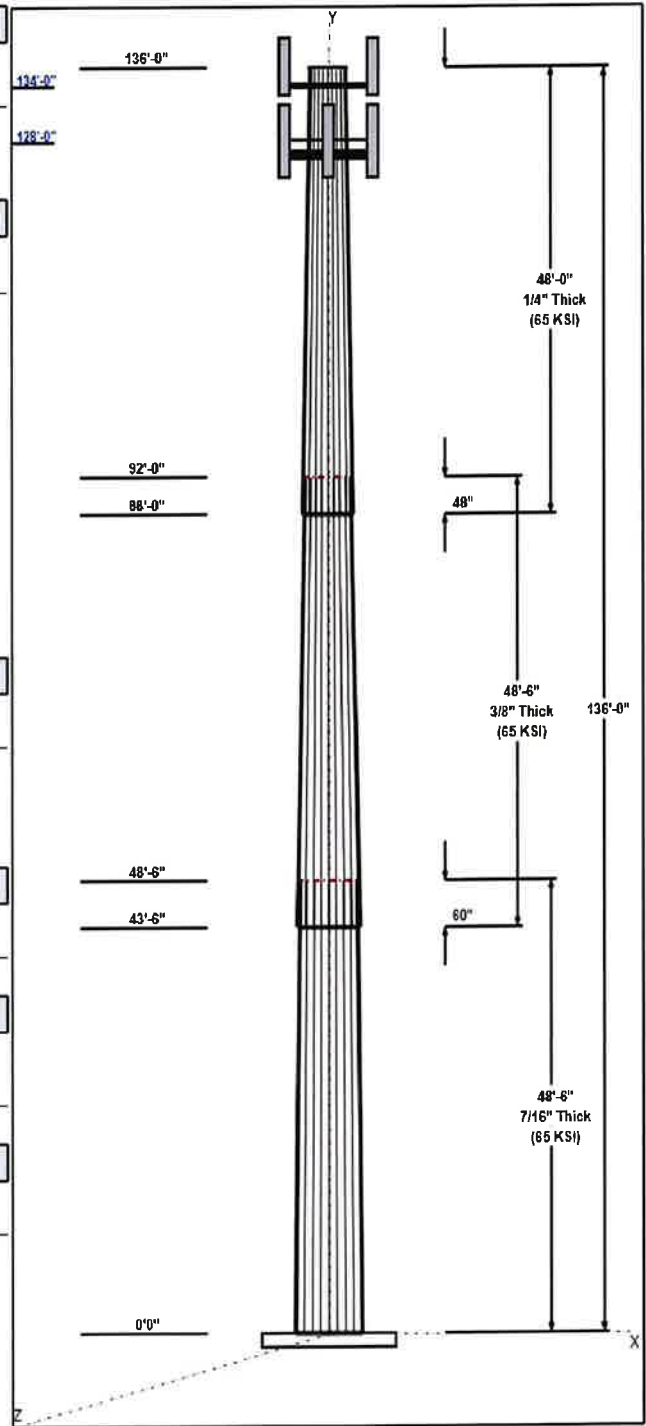
Discrete Appurtenances				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
134.00	134.00	1	Low Profile Platform	Verizon
134.00	134.00	1	HRR12-U Handrail	Verizon
134.00	136.00	6	LNx-6514DS-VTM	Verizon
134.00	136.00	6	HBX-6517DS-VTM	Verizon
134.00	136.00	3	Samsung B2/B66A	Verizon
134.00	136.00	3	Samsung B5/B13	Verizon
134.00	136.00	2	Raycap	Verizon
128.00	128.00	3	Ericsson AIR 21 B2A/B4P	T-Mobile
128.00	128.00	1	SitePro RMQP-496-HK	T-Mobile
128.00	128.00	3	RFS	T-Mobile
128.00	128.00	3	Ericsson Air 32	T-Mobile
128.00	128.00	3	Ericsson KRY 112 144/2	T-Mobile
128.00	128.00	3	Ericsson Radio 4449 B71	T-Mobile

Linear Appurtenances				
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	136.00	Inside	1 5/8" Fiber	Verizon
0.00	128.00	Inside	1 5/8" Coax	T-Mobile
0.00	128.00	Inside	1 5/8" Fiber	T-Mobile
0.00	128.00	Inside	1-1/4" Hybrid	T-Mobile

Anchor Bolts			
Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Radial

Base Plate			
Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	57.0	60.0	Round

Reactions			
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	2362.2	22.3	31.6
0.9D + 1.6W 97 mph Wind	2332.5	22.3	23.7
1.2D + 1.0Di + 1.0Wi 50 mph Wind	662.4	6.3	48.5
1.2D + 1.0E	210.0	1.8	31.6
0.9D + 1.0E	207.2	1.8	23.7
1.0D + 1.0W 60 mph Wind	561.3	5.3	26.4

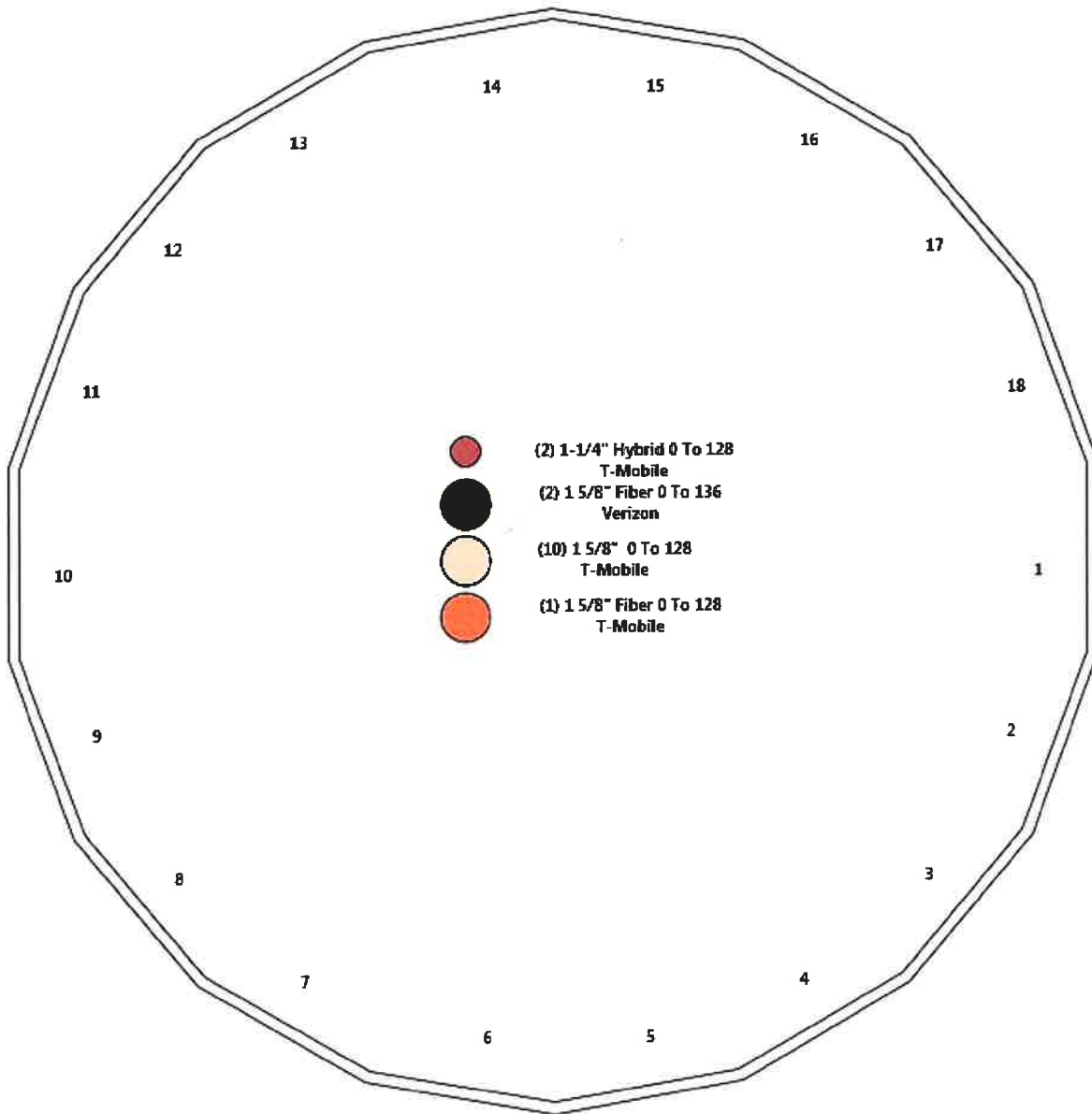


Structure: CT46137-A-SBA - Coax Line Placement

Type: Monopole  
Site Name: Hamden-State St  
Height: 136.00 (ft)

3/16/2020

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## Shaft Properties

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.500	0.4375	65		0.00	8,722
2	18	48.500	0.3750	65	Slip	60.00	6,049
3	18	48.000	0.2500	65	Slip	48.00	3,007
<b>Total Shaft Weight:</b>							<b>17,779</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	43.00	0.00	59.10	13527.07	15.92	98.29	34.00	48.50	46.60	6629.90	12.29	77.70	0.185662
2	35.67	43.50	42.01	6613.82	15.36	95.13	26.67	92.00	31.30	2733.70	11.13	71.12	0.185662
3	27.91	88.00	21.95	2121.90	18.28	111.65	19.00	136.00	14.88	660.83	11.99	76.00	0.185662

## Load Summary

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

3/16/2020

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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	134.00	Low Profile Platform	1	1500.00	22.00	1.00	2794.23	39.464	1.00	0.00	0.00
2	134.00	HRR12-U Handrail	1	400.00	6.75	0.75	869.37	13.273	0.00	0.00	0.00
3	134.00	LNx-6514DS-VTM	6	38.80	8.09	0.80	241.30	10.854	0.80	0.00	2.00
4	134.00	HBX-6517DS-VTM	6	13.20	5.29	0.75	131.72	6.498	0.75	0.00	2.00
5	134.00	Samsung B2/B66A RRHBR049	3	84.00	1.88	0.67	134.39	2.425	0.75	0.00	2.00
6	134.00	Samsung B5/B13 RRHBR04C	3	70.30	1.88	0.67	121.83	2.425	0.67	0.00	2.00
7	134.00	Raycap RVZDC-6627-PF-48 COVP	2	32.00	3.79	0.90	175.22	4.886	0.90	0.00	2.00
8	128.00	Ericsson AIR 21 B2A/B4P	3	123.00	11.54	0.89	403.03	13.172	0.89	0.00	0.00
9	128.00	SitePro RMQP-496-HK	1	2449.00	48.00	1.00	4973.07	80.981	1.00	0.00	0.00
10	128.00	RFS APXVAARR24 43-U-NA20	3	128.00	20.24	0.70	580.06	22.104	0.72	0.00	0.00
11	128.00	Ericsson Air 32	3	132.20	6.51	0.87	304.42	7.610	0.88	0.00	0.00
12	128.00	Ericsson KRY 112 144/2 TMA	3	11.00	0.41	0.67	21.61	0.878	0.67	0.00	0.00
13	128.00	Ericsson Radio 4449 B71 + B12 -	3	70.00	1.65	0.67	136.90	2.178	0.67	0.00	0.00
<b>Totals:</b>			<b>38</b>	<b>6,580.50</b>			<b>16,331.97</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	136.00	(2) 1 5/8" Fiber	0.00	Inside
0.00	128.00	(10) 1 5/8" Coax	0.00	Inside
0.00	128.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	128.00	(2) 1-1/4" Hybrid	0.00	Inside

## Shaft Section Properties

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	43.000	59.101	13527.1	15.92	98.29	82.5	619.6	0.0
5.00		0.4375	42.072	57.812	12661.1	15.55	96.16	82.5	592.7	994.6
10.00		0.4375	41.143	56.523	11833.0	15.17	94.04	82.5	566.5	972.6
15.00		0.4375	40.215	55.234	11041.7	14.80	91.92	82.5	540.8	950.7
20.00		0.4375	39.287	53.945	10286.6	14.42	89.80	82.5	515.7	928.8
25.00		0.4375	38.358	52.656	9566.7	14.05	87.68	82.5	491.2	906.9
30.00		0.4375	37.430	51.367	8881.1	13.67	85.55	82.5	467.3	884.9
35.00		0.4375	36.502	50.078	8229.2	13.30	83.43	82.5	444.0	863.0
40.00		0.4375	35.574	48.789	7609.9	12.93	81.31	82.5	421.3	841.1
43.50	Bot - Section 2	0.4375	34.924	47.887	7195.5	12.66	79.83	82.5	405.8	575.7
45.00		0.4375	34.645	47.500	7022.6	12.55	79.19	82.5	399.2	457.0
48.50	Top - Section 1	0.3750	34.745	40.908	6105.6	14.93	92.65	0.0	0.0	1052.1
50.00		0.3750	34.467	40.576	5958.4	14.80	91.91	82.5	340.5	208.0
55.00		0.3750	33.539	39.472	5484.8	14.36	89.44	82.5	322.1	681.0
60.00		0.3750	32.610	38.367	5037.0	13.92	86.96	82.5	304.2	662.2
65.00		0.3750	31.682	37.262	4614.2	13.49	84.49	82.5	286.9	643.4
70.00		0.3750	30.754	36.157	4215.8	13.05	82.01	82.5	270.0	624.6
75.00		0.3750	29.825	35.052	3841.0	12.61	79.53	82.5	253.7	605.8
80.00		0.3750	28.897	33.947	3489.1	12.18	77.06	82.5	237.8	587.0
85.00		0.3750	27.969	32.842	3159.4	11.74	74.58	82.5	222.5	568.2
88.00	Bot - Section 3	0.3750	27.412	32.179	2971.9	11.48	73.10	82.5	213.5	331.9
90.00		0.3750	27.040	31.737	2851.2	11.30	72.11	82.5	207.7	365.9
92.00	Top - Section 2	0.2500	27.169	21.360	1955.5	17.75	108.68	0.0	0.0	360.9
95.00		0.2500	26.612	20.918	1836.6	17.36	106.45	81.0	135.9	215.8
100.00		0.2500	25.684	20.181	1649.4	16.70	102.74	81.8	126.5	349.6
105.00		0.2500	24.756	19.444	1475.3	16.05	99.02	82.5	117.4	337.1
110.00		0.2500	23.827	18.708	1313.9	15.39	95.31	82.5	108.6	324.6
115.00		0.2500	22.899	17.971	1164.7	14.74	91.60	82.5	100.2	312.0
120.00		0.2500	21.971	17.235	1027.3	14.09	87.88	82.5	92.1	299.5
125.00		0.2500	21.042	16.498	901.1	13.43	84.17	82.5	84.3	287.0
128.00		0.2500	20.485	16.056	830.6	13.04	81.94	82.5	79.9	166.2
130.00		0.2500	20.114	15.761	785.7	12.78	80.46	82.5	76.9	108.3
134.00		0.2500	19.371	15.172	700.9	12.25	77.49	82.5	71.3	210.5
135.00		0.2500	19.186	15.025	680.7	12.12	76.74	82.5	69.9	51.4
136.00		0.2500	19.000	14.878	660.8	11.99	76.00	82.5	68.5	50.9

**17778.7**

## Wind Loading - Shaft

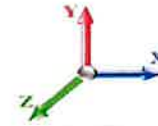
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor**    1.20  
**Wind Load Factor**    1.60



**Iterations**    25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	325.40	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	318.37	0.650	0.000	5.00	17.997	11.70	400.4	0.0	1193.5
10.00		1.00	0.85	19.450	21.40	311.35	0.650	0.000	5.00	17.604	11.44	391.7	0.0	1167.2
15.00		1.00	0.85	19.450	21.40	304.32	0.650	0.000	5.00	17.211	11.19	383.0	0.0	1140.9
20.00		1.00	0.90	20.638	22.70	306.24	0.650	0.000	5.00	16.818	10.93	397.1	0.0	1114.5
25.00		1.00	0.95	21.630	23.79	306.11	0.650	0.000	5.00	16.426	10.68	406.5	0.0	1088.2
30.00		1.00	0.98	22.477	24.72	304.49	0.650	0.000	5.00	16.033	10.42	412.3	0.0	1061.9
35.00		1.00	1.01	23.218	25.54	301.80	0.650	0.000	5.00	15.640	10.17	415.4	0.0	1035.6
40.00		1.00	1.04	23.880	26.27	298.28	0.650	0.000	5.00	15.247	9.91	416.5	0.0	1009.3
43.50	Bot - Section 2	1.00	1.06	24.305	26.74	295.43	0.650	0.000	3.50	10.439	6.79	290.3	0.0	690.8
45.00		1.00	1.07	24.479	26.93	294.12	0.650	0.000	1.50	4.510	2.93	126.3	0.0	548.4
48.50	Top - Section 1	1.00	1.09	24.869	27.36	290.89	0.650	0.000	3.50	10.387	6.75	295.5	0.0	1262.6
50.00		1.00	1.09	25.029	27.53	295.87	0.650	0.000	1.50	4.393	2.86	125.8	0.0	249.5
55.00		1.00	1.12	25.536	28.09	290.81	0.650	0.000	5.00	14.386	9.35	420.3	0.0	817.2
60.00		1.00	1.14	26.008	28.61	285.36	0.650	0.000	5.00	13.994	9.10	416.4	0.0	794.6
65.00		1.00	1.16	26.450	29.09	279.58	0.650	0.000	5.00	13.601	8.84	411.5	0.0	772.0
70.00		1.00	1.17	26.866	29.55	273.52	0.650	0.000	5.00	13.208	8.59	405.9	0.0	749.5
75.00		1.00	1.19	27.259	29.98	267.19	0.650	0.000	5.00	12.815	8.33	399.6	0.0	726.9
80.00		1.00	1.21	27.632	30.39	260.64	0.650	0.000	5.00	12.423	8.07	392.7	0.0	704.4
85.00		1.00	1.22	27.987	30.79	253.88	0.650	0.000	5.00	12.030	7.82	385.2	0.0	681.8
88.00	Bot - Section 3	1.00	1.23	28.192	31.01	249.74	0.650	0.000	3.00	7.029	4.57	226.7	0.0	398.3
90.00		1.00	1.24	28.325	31.16	246.94	0.650	0.000	2.00	4.692	3.05	152.1	0.0	439.0
92.00	Top - Section 2	1.00	1.24	28.457	31.30	244.11	0.650	0.000	2.00	4.629	3.01	150.7	0.0	433.0
95.00		1.00	1.25	28.650	31.51	244.41	0.650	0.000	3.00	6.826	4.44	223.7	0.0	258.9
100.00		1.00	1.27	28.961	31.86	237.16	0.650	0.000	5.00	11.063	7.19	366.5	0.0	419.5
105.00		1.00	1.28	29.260	32.19	229.77	0.650	0.000	5.00	10.670	6.94	357.2	0.0	404.5
110.00		1.00	1.29	29.548	32.50	222.24	0.650	0.000	5.00	10.278	6.68	347.4	0.0	389.5
115.00		1.00	1.30	29.826	32.81	214.58	0.650	0.000	5.00	9.885	6.43	337.3	0.0	374.4
120.00		1.00	1.32	30.094	33.10	206.81	0.650	0.000	5.00	9.492	6.17	326.8	0.0	359.4
125.00		1.00	1.33	30.354	33.39	198.92	0.650	0.000	5.00	9.099	5.91	316.0	0.0	344.4
128.00	Appurtenance(s)	1.00	1.33	30.506	33.56	194.14	0.650	0.000	3.00	5.271	3.43	184.0	0.0	199.4
130.00		1.00	1.34	30.605	33.67	190.93	0.650	0.000	2.00	3.435	2.23	120.3	0.0	129.9
134.00	Appurtenance(s)	1.00	1.35	30.801	33.88	184.47	0.650	0.000	4.00	6.682	4.34	235.5	0.0	252.6
135.00		1.00	1.35	30.850	33.93	182.85	0.650	0.000	1.00	1.631	1.06	57.6	0.0	61.7
136.00		1.00	1.35	30.898	33.99	181.22	0.650	0.000	1.00	1.616	1.05	57.1	0.0	61.1
<b>Totals:</b>									<b>136.00</b>			<b>10,351.0</b>		<b>21,334.4</b>

## Discrete Appurtenance Forces

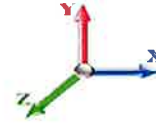
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Low Profile Platform	1	30.801	33.881	1.00	1.00	22.00	1800.00	0.000	0.000	1192.63	0.00	0.00
2	134.00	Samsung B5/B13	3	30.898	33.987	0.60	0.90	3.40	253.08	0.000	2.000	184.94	0.00	369.88
3	134.00	Samsung B2/B66A	3	30.898	33.987	0.60	0.90	3.40	302.40	0.000	2.000	184.94	0.00	369.88
4	134.00	HBX-6517DS-VTM	6	30.898	33.987	0.68	0.90	21.42	95.04	0.000	2.000	1165.06	0.00	2330.11
5	134.00	LNx-6514DS-VTM	6	30.898	33.987	0.72	0.90	34.95	279.36	0.000	2.000	1900.50	0.00	3801.00
6	134.00	HRR12-U Handrail	1	30.801	33.881	0.75	1.00	5.06	480.00	0.000	0.000	274.44	0.00	0.00
7	134.00	Raycap	2	30.898	33.987	0.81	0.90	6.14	76.80	0.000	2.000	333.88	0.00	667.76
8	128.00	Ericsson Radio 4449 B71	3	30.506	33.556	0.54	0.80	2.65	252.00	0.000	0.000	142.45	0.00	0.00
9	128.00	Ericsson KRY 112 144/2	3	30.506	33.556	0.54	0.80	0.66	39.60	0.000	0.000	35.40	0.00	0.00
10	128.00	Ericsson Air 32	3	30.506	33.556	0.70	0.80	13.59	475.92	0.000	0.000	729.80	0.00	0.00
11	128.00	RFS	3	30.506	33.556	0.56	0.80	34.10	460.80	0.000	0.000	1830.85	0.00	0.00
12	128.00	SitePro RMQP-496-HK	1	30.506	33.556	1.00	1.00	48.00	2938.80	0.000	0.000	2577.12	0.00	0.00
13	128.00	Ericsson AIR 21 B2A/B4P	3	30.506	33.556	0.71	0.80	24.65	442.80	0.000	0.000	1323.43	0.00	0.00
<b>Totals:</b>									<b>7,896.60</b>			<b>11,875.43</b>		

## Total Applied Force Summary

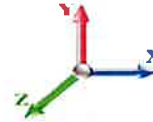
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor**    1.20  
**Wind Load Factor**    1.60



**Iterations**    25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		400.45	1287.14	0.00	0.00
10.00		391.71	1260.82	0.00	0.00
15.00		382.97	1234.50	0.00	0.00
20.00		397.07	1208.19	0.00	0.00
25.00		406.45	1181.87	0.00	0.00
30.00		412.26	1155.55	0.00	0.00
35.00		415.42	1129.23	0.00	0.00
40.00		416.54	1102.92	0.00	0.00
43.50		290.27	756.38	0.00	0.00
45.00		126.31	576.53	0.00	0.00
48.50		295.50	1328.13	0.00	0.00
50.00		125.77	277.64	0.00	0.00
55.00		420.27	910.80	0.00	0.00
60.00		416.35	888.25	0.00	0.00
65.00		411.54	865.69	0.00	0.00
70.00		405.94	843.13	0.00	0.00
75.00		399.63	820.57	0.00	0.00
80.00		392.69	798.01	0.00	0.00
85.00		385.15	775.46	0.00	0.00
88.00		226.71	454.45	0.00	0.00
90.00		152.05	476.50	0.00	0.00
92.00		150.71	470.48	0.00	0.00
95.00		223.74	315.14	0.00	0.00
100.00		366.53	513.20	0.00	0.00
105.00		357.17	498.16	0.00	0.00
110.00		347.41	483.12	0.00	0.00
115.00		337.27	468.08	0.00	0.00
120.00		326.79	453.04	0.00	0.00
125.00		315.97	438.00	0.00	0.00
128.00	(16) attachments	6822.99	4865.50	0.00	0.00
130.00		120.28	135.20	0.00	0.00
134.00	(22) attachments	5471.85	3549.87	0.00	7538.64
135.00		57.57	64.29	0.00	0.00
136.00		57.11	63.69	0.00	0.00
	<b>Totals:</b>	<b>22,226.43</b>	<b>31,649.53</b>	<b>0.00</b>	<b>7,538.64</b>



## Calculated Forces

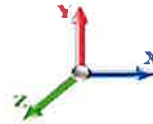
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.60	-22.29	0.00	-2362.2	0.00	2362.22	4390.93	2195.46	7660.90	3836.15	0.00	0.000	0.000	0.623
5.00	-30.22	-22.02	0.00	-2250.7	0.00	2250.75	4295.16	2147.58	7328.71	3669.80	0.13	-0.243	0.000	0.620
10.00	-28.87	-21.75	0.00	-2140.6	0.00	2140.65	4199.39	2099.69	7003.88	3507.15	0.52	-0.489	0.000	0.617
15.00	-27.54	-21.47	0.00	-2031.9	0.00	2031.92	4103.62	2051.81	6686.41	3348.18	1.16	-0.740	0.000	0.614
20.00	-26.25	-21.17	0.00	-1924.5	0.00	1924.57	4007.85	2003.93	6376.31	3192.89	2.07	-0.995	0.000	0.609
25.00	-24.98	-20.86	0.00	-1818.7	0.00	1818.70	3912.08	1956.04	6073.57	3041.30	3.25	-1.254	0.000	0.605
30.00	-23.74	-20.53	0.00	-1714.4	0.00	1714.41	3816.32	1908.16	5778.19	2893.39	4.71	-1.516	0.000	0.599
35.00	-22.53	-20.19	0.00	-1611.7	0.00	1611.78	3720.55	1860.27	5490.18	2749.17	6.44	-1.783	0.000	0.592
40.00	-21.36	-19.82	0.00	-1510.8	0.00	1510.85	3624.78	1812.39	5209.53	2608.64	8.45	-2.053	0.000	0.585
43.50	-20.57	-19.55	0.00	-1441.4	0.00	1441.48	3557.74	1778.87	5017.45	2512.46	10.02	-2.246	0.000	0.580
45.00	-19.95	-19.45	0.00	-1412.1	0.00	1412.16	3529.01	1764.51	4936.24	2471.79	10.74	-2.330	0.000	0.577
48.50	-18.59	-19.14	0.00	-1344.0	0.00	1344.09	3039.25	1519.63	4279.34	2142.85	12.52	-2.526	0.000	0.634
50.00	-18.25	-19.07	0.00	-1315.3	0.00	1315.37	3014.63	1507.31	4209.90	2108.08	13.33	-2.611	0.000	0.630
55.00	-17.26	-18.70	0.00	-1220.0	0.00	1220.03	2932.54	1466.27	3982.54	1994.23	16.23	-2.914	0.000	0.618
60.00	-16.30	-18.32	0.00	-1126.5	0.00	1126.55	2850.45	1425.23	3761.50	1883.54	19.44	-3.218	0.000	0.604
65.00	-15.37	-17.94	0.00	-1034.9	0.00	1034.96	2768.37	1384.18	3546.76	1776.02	22.97	-3.524	0.000	0.588
70.00	-14.46	-17.56	0.00	-945.26	0.00	945.26	2686.28	1343.14	3338.33	1671.65	26.83	-3.829	0.000	0.571
75.00	-13.58	-17.17	0.00	-857.47	0.00	857.47	2604.19	1302.10	3136.22	1570.44	31.00	-4.133	0.000	0.551
80.00	-12.72	-16.79	0.00	-771.59	0.00	771.59	2522.10	1261.05	2940.42	1472.40	35.48	-4.435	0.000	0.529
85.00	-11.91	-16.39	0.00	-687.65	0.00	687.65	2440.02	1220.01	2750.93	1377.51	40.28	-4.732	0.000	0.504
88.00	-11.44	-16.16	0.00	-638.47	0.00	638.47	2390.76	1195.38	2640.27	1322.09	43.31	-4.911	0.000	0.488
90.00	-10.94	-15.99	0.00	-606.15	0.00	606.15	2357.93	1178.96	2567.75	1285.78	45.39	-5.030	0.000	0.476
92.00	-10.45	-15.82	0.00	-574.17	0.00	574.17	1547.90	773.95	1709.73	856.14	47.52	-5.148	0.000	0.678
95.00	-10.08	-15.62	0.00	-526.70	0.00	526.70	1524.57	762.29	1648.80	825.63	50.81	-5.320	0.000	0.645
100.00	-9.50	-15.27	0.00	-448.59	0.00	448.59	1484.88	742.44	1548.79	775.55	56.57	-5.698	0.000	0.585
105.00	-8.96	-14.92	0.00	-372.25	0.00	372.25	1444.16	722.08	1450.80	726.48	62.72	-6.052	0.000	0.519
110.00	-8.44	-14.56	0.00	-297.68	0.00	297.68	1389.90	694.95	1342.87	672.43	69.23	-6.375	0.000	0.449
115.00	-7.95	-14.21	0.00	-224.86	0.00	224.86	1335.17	667.59	1238.67	620.26	76.05	-6.658	0.000	0.369
120.00	-7.49	-13.86	0.00	-153.81	0.00	153.81	1280.45	640.22	1138.68	570.19	83.13	-6.889	0.000	0.276
125.00	-7.07	-13.50	0.00	-84.52	0.00	84.52	1225.72	612.86	1042.90	522.23	90.43	-7.054	0.000	0.168
128.00	-3.08	-6.14	0.00	-44.01	0.00	44.01	1192.89	596.44	987.45	494.46	94.87	-7.115	0.000	0.092
130.00	-2.95	-6.00	0.00	-31.74	0.00	31.74	1171.00	585.50	951.33	476.37	97.85	-7.141	0.000	0.069
134.00	-0.11	-0.13	0.00	-0.19	0.00	0.19	1127.22	563.61	881.10	441.20	103.83	-7.169	0.000	0.001
135.00	-0.06	-0.06	0.00	-0.06	0.00	0.06	1116.28	558.14	863.96	432.62	105.33	-7.169	0.000	0.000
136.00	0.00	-0.06	0.00	0.00	0.00	0.00	1105.33	552.67	846.99	424.13	106.83	-7.169	0.000	0.000

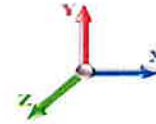
## Wind Loading - Shaft

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor**    0.90  
**Wind Load Factor**    1.60



**Iterations**    25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)	
0.00		1.00	0.85	19.450	21.40	325.40	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0	
5.00		1.00	0.85	19.450	21.40	318.37	0.650	0.000	5.00	17.997	11.70	400.4	0.0	895.1	
10.00		1.00	0.85	19.450	21.40	311.35	0.650	0.000	5.00	17.604	11.44	391.7	0.0	875.4	
15.00		1.00	0.85	19.450	21.40	304.32	0.650	0.000	5.00	17.211	11.19	383.0	0.0	855.6	
20.00		1.00	0.90	20.638	22.70	306.24	0.650	0.000	5.00	16.818	10.93	397.1	0.0	835.9	
25.00		1.00	0.95	21.630	23.79	306.11	0.650	0.000	5.00	16.426	10.68	406.5	0.0	816.2	
30.00		1.00	0.98	22.477	24.72	304.49	0.650	0.000	5.00	16.033	10.42	412.3	0.0	796.4	
35.00		1.00	1.01	23.218	25.54	301.80	0.650	0.000	5.00	15.640	10.17	415.4	0.0	776.7	
40.00		1.00	1.04	23.880	26.27	298.28	0.650	0.000	5.00	15.247	9.91	416.5	0.0	757.0	
43.50	Bot - Section 2	1.00	1.06	24.305	26.74	295.43	0.650	0.000	3.50	10.439	6.79	290.3	0.0	518.1	
45.00		1.00	1.07	24.479	26.93	294.12	0.650	0.000	1.50	4.510	2.93	126.3	0.0	411.3	
48.50	Top - Section 1	1.00	1.09	24.869	27.36	290.89	0.650	0.000	3.50	10.387	6.75	295.5	0.0	946.9	
50.00		1.00	1.09	25.029	27.53	295.87	0.650	0.000	1.50	4.393	2.86	125.8	0.0	187.2	
55.00		1.00	1.12	25.536	28.09	290.81	0.650	0.000	5.00	14.386	9.35	420.3	0.0	612.9	
60.00		1.00	1.14	26.008	28.61	285.36	0.650	0.000	5.00	13.994	9.10	416.4	0.0	595.9	
65.00		1.00	1.16	26.450	29.09	279.58	0.650	0.000	5.00	13.601	8.84	411.5	0.0	579.0	
70.00		1.00	1.17	26.866	29.55	273.52	0.650	0.000	5.00	13.208	8.59	405.9	0.0	562.1	
75.00		1.00	1.19	27.259	29.98	267.19	0.650	0.000	5.00	12.815	8.33	399.6	0.0	545.2	
80.00		1.00	1.21	27.632	30.39	260.64	0.650	0.000	5.00	12.423	8.07	392.7	0.0	528.3	
85.00		1.00	1.22	27.987	30.79	253.88	0.650	0.000	5.00	12.030	7.82	385.2	0.0	511.4	
88.00	Bot - Section 3	1.00	1.23	28.192	31.01	249.74	0.650	0.000	3.00	7.029	4.57	226.7	0.0	298.7	
90.00		1.00	1.24	28.325	31.16	246.94	0.650	0.000	2.00	4.692	3.05	152.1	0.0	329.3	
92.00	Top - Section 2	1.00	1.24	28.457	31.30	244.11	0.650	0.000	2.00	4.629	3.01	150.7	0.0	324.8	
95.00		1.00	1.25	28.650	31.51	244.41	0.650	0.000	3.00	6.826	4.44	223.7	0.0	194.2	
100.00		1.00	1.27	28.961	31.86	237.16	0.650	0.000	5.00	11.063	7.19	366.5	0.0	314.7	
105.00		1.00	1.28	29.260	32.19	229.77	0.650	0.000	5.00	10.670	6.94	357.2	0.0	303.4	
110.00		1.00	1.29	29.548	32.50	222.24	0.650	0.000	5.00	10.278	6.68	347.4	0.0	292.1	
115.00		1.00	1.30	29.826	32.81	214.58	0.650	0.000	5.00	9.885	6.43	337.3	0.0	280.8	
120.00		1.00	1.32	30.094	33.10	206.81	0.650	0.000	5.00	9.492	6.17	326.8	0.0	269.5	
125.00		1.00	1.33	30.354	33.39	198.92	0.650	0.000	5.00	9.099	5.91	316.0	0.0	258.3	
128.00	Appurtenance(s)	1.00	1.33	30.506	33.56	194.14	0.650	0.000	3.00	5.271	3.43	184.0	0.0	149.5	
130.00		1.00	1.34	30.605	33.67	190.93	0.650	0.000	2.00	3.435	2.23	120.3	0.0	97.4	
134.00	Appurtenance(s)	1.00	1.35	30.801	33.88	184.47	0.650	0.000	4.00	6.682	4.34	235.5	0.0	189.5	
135.00		1.00	1.35	30.850	33.93	182.85	0.650	0.000	1.00	1.631	1.06	57.6	0.0	46.2	
136.00		1.00	1.35	30.898	33.99	181.22	0.650	0.000	1.00	1.616	1.05	57.1	0.0	45.8	
<b>Totals:</b>								<b>136.00</b>				<b>10,351.0</b>	<b>16,000.8</b>		

## Discrete Appurtenance Forces

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

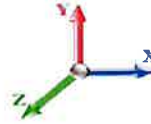
3/16/2020

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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Low Profile Platform	1	30.801	33.881	1.00	1.00	22.00	1350.00	0.000	0.000	1192.63	0.00	0.00
2	134.00	Samsung B5/B13	3	30.898	33.987	0.60	0.90	3.40	189.81	0.000	2.000	184.94	0.00	369.88
3	134.00	Samsung B2/B66A	3	30.898	33.987	0.60	0.90	3.40	226.80	0.000	2.000	184.94	0.00	369.88
4	134.00	HBX-6517DS-VTM	6	30.898	33.987	0.68	0.90	21.42	71.28	0.000	2.000	1165.06	0.00	2330.11
5	134.00	LNx-6514DS-VTM	6	30.898	33.987	0.72	0.90	34.95	209.52	0.000	2.000	1900.50	0.00	3801.00
6	134.00	HRR12-U Handrail	1	30.801	33.881	0.75	1.00	5.06	360.00	0.000	0.000	274.44	0.00	0.00
7	134.00	Raycap	2	30.898	33.987	0.81	0.90	6.14	57.60	0.000	2.000	333.88	0.00	667.76
8	128.00	Ericsson Radio 4449 B71	3	30.506	33.556	0.54	0.80	2.65	189.00	0.000	0.000	142.45	0.00	0.00
9	128.00	Ericsson KRY 112 144/2	3	30.506	33.556	0.54	0.80	0.66	29.70	0.000	0.000	35.40	0.00	0.00
10	128.00	Ericsson Air 32	3	30.506	33.556	0.70	0.80	13.59	356.94	0.000	0.000	729.80	0.00	0.00
11	128.00	RFS	3	30.506	33.556	0.56	0.80	34.10	345.60	0.000	0.000	1830.85	0.00	0.00
12	128.00	SitePro RMQP-496-HK	1	30.506	33.556	1.00	1.00	48.00	2204.10	0.000	0.000	2577.12	0.00	0.00
13	128.00	Ericsson AIR 21 B2A/B4P	3	30.506	33.556	0.71	0.80	24.65	332.10	0.000	0.000	1323.43	0.00	0.00
<b>Totals:</b>									<b>5,922.45</b>			<b>11,875.43</b>		

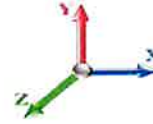
## Total Applied Force Summary

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Page:</b> 13
	<b>Struct Class:</b> II	



**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		400.45	965.35	0.00	0.00
10.00		391.71	945.62	0.00	0.00
15.00		382.97	925.88	0.00	0.00
20.00		397.07	906.14	0.00	0.00
25.00		406.45	886.40	0.00	0.00
30.00		412.26	866.66	0.00	0.00
35.00		415.42	846.93	0.00	0.00
40.00		416.54	827.19	0.00	0.00
43.50		290.27	567.29	0.00	0.00
45.00		126.31	432.40	0.00	0.00
48.50		295.50	996.10	0.00	0.00
50.00		125.77	208.23	0.00	0.00
55.00		420.27	683.10	0.00	0.00
60.00		416.35	666.18	0.00	0.00
65.00		411.54	649.27	0.00	0.00
70.00		405.94	632.35	0.00	0.00
75.00		399.63	615.43	0.00	0.00
80.00		392.69	598.51	0.00	0.00
85.00		385.15	581.59	0.00	0.00
88.00		226.71	340.83	0.00	0.00
90.00		152.05	357.37	0.00	0.00
92.00		150.71	352.86	0.00	0.00
95.00		223.74	236.35	0.00	0.00
100.00		366.53	384.90	0.00	0.00
105.00		357.17	373.62	0.00	0.00
110.00		347.41	362.34	0.00	0.00
115.00		337.27	351.06	0.00	0.00
120.00		326.79	339.78	0.00	0.00
125.00		315.97	328.50	0.00	0.00
128.00	(16) attachments	6822.99	3649.13	0.00	0.00
130.00		120.28	101.40	0.00	0.00
134.00	(22) attachments	5471.85	2662.40	0.00	7538.64
135.00		57.57	48.22	0.00	0.00
136.00		57.11	47.77	0.00	0.00
<b>Totals:</b>		<b>22,226.43</b>	<b>23,737.15</b>	<b>0.00</b>	<b>7,538.64</b>

## Calculated Forces

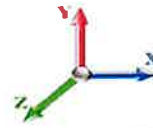
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 25

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-23.69	-22.28	0.00	-2332.5	0.00	2332.54	4390.93	2195.46	7660.90	3836.15	0.00	0.000	0.000	0.614
5.00	-22.63	-21.97	0.00	-2221.1	0.00	2221.16	4295.16	2147.58	7328.71	3669.80	0.13	-0.239	0.000	0.611
10.00	-21.60	-21.66	0.00	-2111.3	0.00	2111.32	4199.39	2099.69	7003.88	3507.15	0.51	-0.483	0.000	0.607
15.00	-20.58	-21.36	0.00	-2003.0	0.00	2003.00	4103.62	2051.81	6686.41	3348.18	1.15	-0.730	0.000	0.603
20.00	-19.59	-21.04	0.00	-1896.1	0.00	1896.19	4007.85	2003.93	6376.31	3192.89	2.05	-0.981	0.000	0.599
25.00	-18.62	-20.70	0.00	-1791.0	0.00	1791.00	3912.08	1956.04	6073.57	3041.30	3.21	-1.236	0.000	0.594
30.00	-17.67	-20.35	0.00	-1687.5	0.00	1687.52	3816.32	1908.16	5778.19	2893.39	4.64	-1.495	0.000	0.588
35.00	-16.74	-19.98	0.00	-1585.7	0.00	1585.79	3720.55	1860.27	5490.18	2749.17	6.35	-1.757	0.000	0.581
40.00	-15.85	-19.60	0.00	-1485.8	0.00	1485.88	3624.78	1812.39	5209.53	2608.64	8.33	-2.022	0.000	0.574
43.50	-15.25	-19.33	0.00	-1417.2	0.00	1417.27	3557.74	1778.87	5017.45	2512.46	9.88	-2.212	0.000	0.569
45.00	-14.78	-19.22	0.00	-1388.2	0.00	1388.28	3529.01	1764.51	4936.24	2471.79	10.59	-2.296	0.000	0.566
48.50	-13.75	-18.92	0.00	-1321.0	0.00	1321.01	3039.25	1519.63	4279.34	2142.85	12.35	-2.488	0.000	0.621
50.00	-13.48	-18.83	0.00	-1292.6	0.00	1292.63	3014.63	1507.31	4209.90	2108.08	13.14	-2.572	0.000	0.618
55.00	-12.73	-18.44	0.00	-1198.5	0.00	1198.50	2932.54	1466.27	3982.54	1994.23	15.99	-2.869	0.000	0.605
60.00	-11.99	-18.05	0.00	-1106.2	0.00	1106.29	2850.45	1425.23	3761.50	1883.54	19.16	-3.168	0.000	0.592
65.00	-11.27	-17.66	0.00	-1016.0	0.00	1016.03	2768.37	1384.18	3546.76	1776.02	22.63	-3.468	0.000	0.576
70.00	-10.58	-17.27	0.00	-927.71	0.00	927.71	2686.28	1343.14	3338.33	1671.65	26.42	-3.767	0.000	0.559
75.00	-9.90	-16.89	0.00	-841.33	0.00	841.33	2604.19	1302.10	3136.22	1570.44	30.53	-4.066	0.000	0.540
80.00	-9.25	-16.50	0.00	-756.91	0.00	756.91	2522.10	1261.05	2940.42	1472.40	34.94	-4.362	0.000	0.518
85.00	-8.63	-16.10	0.00	-674.42	0.00	674.42	2440.02	1220.01	2750.93	1377.51	39.66	-4.654	0.000	0.493
88.00	-8.27	-15.87	0.00	-626.11	0.00	626.11	2390.76	1195.38	2640.27	1322.09	42.64	-4.829	0.000	0.477
90.00	-7.90	-15.70	0.00	-594.37	0.00	594.37	2357.93	1178.96	2567.75	1285.78	44.68	-4.946	0.000	0.466
92.00	-7.52	-15.54	0.00	-562.97	0.00	562.97	1547.90	773.95	1709.73	856.14	46.78	-5.062	0.000	0.663
95.00	-7.23	-15.33	0.00	-516.34	0.00	516.34	1524.57	762.29	1648.80	825.63	50.01	-5.230	0.000	0.631
100.00	-6.79	-14.97	0.00	-439.68	0.00	439.68	1484.88	742.44	1548.79	775.55	55.68	-5.600	0.000	0.572
105.00	-6.37	-14.62	0.00	-364.81	0.00	364.81	1444.16	722.08	1450.80	726.48	61.72	-5.947	0.000	0.507
110.00	-5.97	-14.27	0.00	-291.72	0.00	291.72	1389.90	694.95	1342.87	672.43	68.11	-6.264	0.000	0.439
115.00	-5.60	-13.92	0.00	-220.39	0.00	220.39	1335.17	667.59	1238.67	620.26	74.81	-6.541	0.000	0.360
120.00	-5.25	-13.57	0.00	-150.81	0.00	150.81	1280.45	640.22	1138.68	570.19	81.78	-6.768	0.000	0.269
125.00	-4.94	-13.23	0.00	-82.96	0.00	82.96	1225.72	612.86	1042.90	522.23	88.94	-6.929	0.000	0.163
128.00	-2.14	-6.01	0.00	-43.28	0.00	43.28	1192.89	596.44	987.45	494.46	93.31	-6.989	0.000	0.089
130.00	-2.05	-5.88	0.00	-31.25	0.00	31.25	1171.00	585.50	951.33	476.37	96.24	-7.015	0.000	0.067
134.00	-0.08	-0.13	0.00	-0.19	0.00	0.19	1127.22	563.61	881.10	441.20	102.11	-7.043	0.000	0.000
135.00	-0.04	-0.06	0.00	-0.06	0.00	0.06	1116.28	558.14	863.96	432.62	103.58	-7.043	0.000	0.000
136.00	0.00	-0.06	0.00	0.00	0.00	0.00	1105.33	552.67	846.99	424.13	105.06	-7.043	0.000	0.000

## Wind Loading - Shaft

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Topography:** 1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

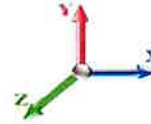
3/16/2020

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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	19.032	22.84	129.8	337.0	1530.5
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	18.713	22.46	127.7	354.2	1521.3
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	18.366	22.04	125.3	361.2	1502.1
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	18.007	21.61	130.3	363.8	1478.4
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	17.641	21.17	133.8	363.8	1452.1
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	17.271	20.73	136.2	362.1	1424.0
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	16.897	20.28	137.6	359.2	1394.8
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	16.522	19.83	138.4	355.3	1364.6
43.50	Bot - Section 2	1.00	1.06	6.458	7.10	0.00	1.200	1.542	3.50	11.339	13.61	96.7	246.5	937.3
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	1.50	4.897	5.88	42.0	107.4	655.8
48.50	Top - Section 1	1.00	1.09	6.608	7.27	0.00	1.200	1.559	3.50	11.296	13.56	98.5	248.1	1510.7
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	1.50	4.783	5.74	42.0	105.8	355.4
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	5.00	15.702	18.84	140.6	347.2	1164.3
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	15.321	18.38	139.8	341.1	1135.7
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	14.939	17.93	138.6	334.6	1106.6
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	14.556	17.47	137.2	327.8	1077.3
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	14.172	17.01	135.5	320.7	1047.6
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	13.788	16.55	133.6	313.4	1017.7
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	13.404	16.08	131.6	305.8	987.6
88.00	Bot - Section 3	1.00	1.23	7.491	8.24	0.00	1.200	1.655	3.00	7.857	9.43	77.7	180.7	578.9
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	2.00	5.245	6.29	52.1	121.3	560.3
92.00	Top - Section 2	1.00	1.24	7.561	8.32	0.00	1.200	1.662	2.00	5.183	6.22	51.7	120.0	553.0
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	3.00	7.660	9.19	77.0	177.1	436.1
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	5.00	12.460	14.95	126.6	287.1	706.6
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	12.074	14.49	123.9	278.8	683.3
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	11.687	14.02	121.1	270.3	659.8
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	11.301	13.56	118.2	261.7	636.1
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	10.914	13.10	115.2	253.0	612.4
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	10.527	12.63	112.1	244.1	588.5
128.00	Appurtenance(s)	1.00	1.33	8.105	8.92	0.00	1.200	1.718	3.00	6.130	7.36	65.6	143.2	342.6
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	2.00	4.009	4.81	43.0	94.0	224.0
134.00	Appurtenance(s)	1.00	1.35	8.184	9.00	0.00	1.200	1.726	4.00	7.833	9.40	84.6	182.3	434.9
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	1.00	1.919	2.30	20.8	45.2	106.9
136.00		1.00	1.35	8.210	9.03	0.00	1.200	1.728	1.00	1.904	2.28	20.6	44.8	105.9
<b>Totals:</b>								<b>136.00</b>				<b>3,505.3</b>		<b>29,892.9</b>

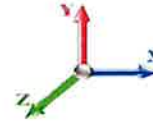
## Discrete Appurtenance Forces

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Page:</b> 16
	<b>Struct Class:</b> II	



**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Low Profile Platform	1	8.184	9.002	1.00	1.00	39.46	2794.23	0.000	0.000	355.27	0.00	0.00
2	134.00	Samsung B5/B13	3	8.210	9.031	0.60	0.90	4.39	368.08	0.000	2.000	39.62	0.00	79.23
3	134.00	Samsung B2/B66A	3	8.210	9.031	0.68	0.90	4.91	414.56	0.000	2.000	44.35	0.00	88.69
4	134.00	HBX-6517DS-VTM	6	8.210	9.031	0.68	0.90	26.32	806.19	0.000	2.000	237.66	0.00	475.32
5	134.00	LNx-6514DS-VTM	6	8.210	9.031	0.72	0.90	46.89	1228.55	0.000	2.000	423.44	0.00	846.88
6	134.00	HRR12-U Handrail	1	8.184	9.002	0.00	1.00	13.27	1349.37	0.000	0.000	119.49	0.00	0.00
7	134.00	Raycap	2	8.210	9.031	0.81	0.90	7.92	363.24	0.000	2.000	71.48	0.00	142.96
8	128.00	Ericsson Radio 4449 B71	3	8.105	8.916	0.54	0.80	3.50	452.70	0.000	0.000	31.23	0.00	0.00
9	128.00	Ericsson KRY 112 144/2	3	8.105	8.916	0.54	0.80	1.41	62.13	0.000	0.000	12.58	0.00	0.00
10	128.00	Ericsson Air 32	3	8.105	8.916	0.70	0.80	15.98	869.29	0.000	0.000	142.49	0.00	0.00
11	128.00	RFS	3	8.105	8.916	0.58	0.80	38.19	1513.07	0.000	0.000	340.55	0.00	0.00
12	128.00	SitePro RMQP-496-HK	1	8.105	8.916	1.00	1.00	80.98	4672.87	0.000	0.000	722.02	0.00	0.00
13	128.00	Ericsson AIR 21 B2A/B4P	3	8.105	8.916	0.71	0.80	28.13	1282.88	0.000	0.000	250.85	0.00	0.00
<b>Totals:</b>									<b>16,177.17</b>			<b>2,791.02</b>		

## Total Applied Force Summary

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Topography:** 1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

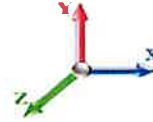
3/16/2020

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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		129.83	1624.12	0.00	0.00
10.00		127.66	1614.98	0.00	0.00
15.00		125.29	1595.72	0.00	0.00
20.00		130.34	1572.01	0.00	0.00
25.00		133.83	1545.70	0.00	0.00
30.00		136.15	1517.68	0.00	0.00
35.00		137.60	1488.42	0.00	0.00
40.00		138.37	1458.23	0.00	0.00
43.50		96.66	1002.89	0.00	0.00
45.00		42.05	683.92	0.00	0.00
48.50		98.52	1576.23	0.00	0.00
50.00		41.99	383.49	0.00	0.00
55.00		140.63	1257.97	0.00	0.00
60.00		139.75	1229.32	0.00	0.00
65.00		138.58	1200.29	0.00	0.00
70.00		137.15	1170.93	0.00	0.00
75.00		135.49	1141.28	0.00	0.00
80.00		133.63	1111.37	0.00	0.00
85.00		131.57	1081.23	0.00	0.00
88.00		77.68	635.12	0.00	0.00
90.00		52.11	597.77	0.00	0.00
92.00		51.73	590.49	0.00	0.00
95.00		76.97	492.26	0.00	0.00
100.00		126.56	800.26	0.00	0.00
105.00		123.90	776.92	0.00	0.00
110.00		121.12	753.42	0.00	0.00
115.00		118.22	729.78	0.00	0.00
120.00		115.20	706.00	0.00	0.00
125.00		112.07	682.10	0.00	0.00
128.00	(16) attachments	1565.31	9251.76	0.00	0.00
130.00		43.03	229.25	0.00	0.00
134.00	(22) attachments	1375.91	7769.70	0.00	1633.08
135.00		20.76	109.50	0.00	0.00
136.00		20.63	108.53	0.00	0.00
	<b>Totals:</b>	<b>6,296.30</b>	<b>48,488.62</b>	<b>0.00</b>	<b>1,633.08</b>



## Calculated Forces

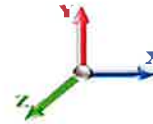
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor**    1.20  
**Wind Load Factor**    1.00



**Iterations**    24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-48.48	-6.32	0.00	-662.42	0.00	662.42	4390.93	2195.46	7660.90	3836.15	0.00	0.000	0.000	0.184
5.00	-46.85	-6.25	0.00	-630.80	0.00	630.80	4295.16	2147.58	7328.71	3669.80	0.04	-0.068	0.000	0.183
10.00	-45.23	-6.17	0.00	-599.55	0.00	599.55	4199.39	2099.69	7003.88	3507.15	0.14	-0.137	0.000	0.182
15.00	-43.63	-6.10	0.00	-568.68	0.00	568.68	4103.62	2051.81	6686.41	3348.18	0.33	-0.207	0.000	0.180
20.00	-42.05	-6.01	0.00	-538.19	0.00	538.19	4007.85	2003.93	6376.31	3192.89	0.58	-0.279	0.000	0.179
25.00	-40.50	-5.92	0.00	-508.12	0.00	508.12	3912.08	1956.04	6073.57	3041.30	0.91	-0.351	0.000	0.177
30.00	-38.97	-5.83	0.00	-478.51	0.00	478.51	3816.32	1908.16	5778.19	2893.39	1.32	-0.424	0.000	0.176
35.00	-37.48	-5.73	0.00	-449.38	0.00	449.38	3720.55	1860.27	5490.18	2749.17	1.80	-0.499	0.000	0.174
40.00	-36.01	-5.61	0.00	-420.74	0.00	420.74	3624.78	1812.39	5209.53	2608.64	2.36	-0.574	0.000	0.171
43.50	-35.01	-5.53	0.00	-401.09	0.00	401.09	3557.74	1778.87	5017.45	2512.46	2.81	-0.628	0.000	0.169
45.00	-34.32	-5.50	0.00	-392.80	0.00	392.80	3529.01	1764.51	4936.24	2471.79	3.01	-0.651	0.000	0.169
48.50	-32.74	-5.41	0.00	-373.53	0.00	373.53	3039.25	1519.63	4279.34	2142.85	3.50	-0.705	0.000	0.185
50.00	-32.36	-5.39	0.00	-365.42	0.00	365.42	3014.63	1507.31	4209.90	2108.08	3.73	-0.729	0.000	0.184
55.00	-31.09	-5.28	0.00	-338.45	0.00	338.45	2932.54	1466.27	3982.54	1994.23	4.54	-0.813	0.000	0.180
60.00	-29.86	-5.17	0.00	-312.04	0.00	312.04	2850.45	1425.23	3761.50	1883.54	5.44	-0.898	0.000	0.176
65.00	-28.65	-5.05	0.00	-286.20	0.00	286.20	2768.37	1384.18	3546.76	1776.02	6.42	-0.982	0.000	0.172
70.00	-27.48	-4.93	0.00	-260.95	0.00	260.95	2686.28	1343.14	3338.33	1671.65	7.49	-1.066	0.000	0.166
75.00	-26.33	-4.81	0.00	-236.28	0.00	236.28	2604.19	1302.10	3136.22	1570.44	8.66	-1.150	0.000	0.161
80.00	-25.22	-4.69	0.00	-212.20	0.00	212.20	2522.10	1261.05	2940.42	1472.40	9.91	-1.233	0.000	0.154
85.00	-24.13	-4.57	0.00	-188.73	0.00	188.73	2440.02	1220.01	2750.93	1377.51	11.24	-1.315	0.000	0.147
88.00	-23.50	-4.49	0.00	-175.03	0.00	175.03	2390.76	1195.38	2640.27	1322.09	12.08	-1.364	0.000	0.142
90.00	-22.90	-4.44	0.00	-166.05	0.00	166.05	2357.93	1178.96	2567.75	1285.78	12.66	-1.397	0.000	0.139
92.00	-22.31	-4.39	0.00	-157.18	0.00	157.18	1547.90	773.95	1709.73	856.14	13.25	-1.429	0.000	0.198
95.00	-21.81	-4.33	0.00	-144.02	0.00	144.02	1524.57	762.29	1648.80	825.63	14.17	-1.476	0.000	0.189
100.00	-21.01	-4.21	0.00	-122.39	0.00	122.39	1484.88	742.44	1548.79	775.55	15.77	-1.579	0.000	0.172
105.00	-20.23	-4.10	0.00	-101.32	0.00	101.32	1444.16	722.08	1450.80	726.48	17.48	-1.676	0.000	0.154
110.00	-19.47	-3.99	0.00	-80.81	0.00	80.81	1389.90	694.95	1342.87	672.43	19.28	-1.764	0.000	0.134
115.00	-18.74	-3.87	0.00	-60.88	0.00	60.88	1335.17	667.59	1238.67	620.26	21.17	-1.840	0.000	0.112
120.00	-18.03	-3.75	0.00	-41.55	0.00	41.55	1280.45	640.22	1138.68	570.19	23.13	-1.903	0.000	0.087
125.00	-17.36	-3.62	0.00	-22.82	0.00	22.82	1225.72	612.86	1042.90	522.23	25.15	-1.947	0.000	0.058
128.00	-8.16	-1.74	0.00	-11.96	0.00	11.96	1192.89	596.44	987.45	494.46	26.38	-1.964	0.000	0.031
130.00	-7.93	-1.69	0.00	-8.47	0.00	8.47	1171.00	585.50	951.33	476.37	27.20	-1.971	0.000	0.025
134.00	-0.22	-0.05	0.00	-0.07	0.00	0.07	1127.22	563.61	881.10	441.20	28.86	-1.978	0.000	0.000
135.00	-0.11	-0.02	0.00	-0.02	0.00	0.02	1116.28	558.14	863.96	432.62	29.27	-1.978	0.000	0.000
136.00	0.00	-0.02	0.00	0.00	0.00	0.00	1105.33	552.67	846.99	424.13	29.69	-1.978	0.000	0.000

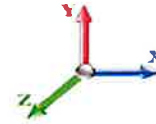
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E				<b>Iterations</b> 23	
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.20	<b>Ss</b>	0.19
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.36	<b>SA</b>	0.04
				<b>Seismic Importance Factor</b>	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		994.58	0.00	0.04	0.02	20.40	
10.00		972.64	0.01	0.06	0.03	28.23	
15.00		950.71	0.02	0.07	0.04	31.32	
20.00		928.78	0.04	0.07	0.04	32.39	
25.00		906.85	0.06	0.07	0.04	32.69	
30.00		884.92	0.09	0.07	0.04	32.78	
35.00		862.99	0.13	0.07	0.03	32.80	
40.00		841.06	0.16	0.07	0.03	32.62	
43.50	Bot - Section 2	575.69	0.19	0.06	0.02	22.43	
45.00		457.03	0.21	0.06	0.02	17.77	
48.50	Top - Section 1	1052.1	0.24	0.06	0.02	40.13	
50.00		207.95	0.26	0.05	0.02	7.80	
55.00		680.96	0.31	0.04	0.01	22.92	
60.00		662.17	0.37	0.03	0.01	17.38	
65.00		643.37	0.43	0.01	0.01	9.45	
70.00		624.57	0.50	-0.02	0.01	-0.15	
75.00		605.77	0.57	-0.04	0.01	-9.66	
80.00		586.97	0.65	-0.07	0.02	-17.08	
85.00		568.17	0.74	-0.10	0.04	-21.08	
88.00	Bot - Section 3	331.88	0.79	-0.11	0.05	-12.90	
90.00		365.87	0.83	-0.12	0.06	-14.18	
92.00	Top - Section 2	360.85	0.86	-0.12	0.07	-13.56	
95.00		215.79	0.92	-0.12	0.10	-7.31	
100.00		349.62	1.02	-0.10	0.14	-7.87	
105.00		337.09	1.13	-0.05	0.20	-1.62	
110.00		324.56	1.24	0.04	0.28	6.23	
115.00		312.03	1.35	0.20	0.38	15.46	
120.00		299.49	1.47	0.43	0.51	25.86	
125.00		286.96	1.60	0.77	0.67	37.23	
128.00	Appurtenance(s)	4007.7	1.67	1.03	0.78	637.33	
130.00		108.27	1.73	1.23	0.86	19.48	
134.00	Appurtenance(s)	2949.4	1.83	1.70	1.04	663.75	
135.00		51.38	1.86	1.84	1.09	12.18	
136.00		50.88	1.89	1.98	1.14	12.68	
<b>Totals:</b>		<b>24,359.2</b>				<b>1,705.9</b>	<b>Total Wind: 22,226.4</b>

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

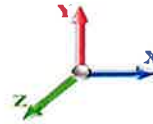
## Calculated Forces

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E		<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b> 1.20	<b>Seismic Load Factor</b> 1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency (f1)</b> 0.36	<b>SA</b> 0.04
	<b>Seismic Importance Factor</b> 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.65	-1.82	0.00	-210.03	0.00	210.03	4390.93	2195.46	7660.90	3836.15	0.00	0.00	0.00	0.062
5.00	-30.36	-1.81	0.00	-200.95	0.00	200.95	4295.16	2147.58	7328.71	3669.80	0.01	-0.02	-0.02	0.062
10.00	-29.10	-1.79	0.00	-191.91	0.00	191.91	4199.39	2099.69	7003.88	3507.15	0.05	-0.04	-0.04	0.062
15.00	-27.86	-1.77	0.00	-182.96	0.00	182.96	4103.62	2051.81	6686.41	3348.18	0.10	-0.07	-0.07	0.061
20.00	-26.66	-1.75	0.00	-174.12	0.00	174.12	4007.85	2003.93	6376.31	3192.89	0.19	-0.09	-0.09	0.061
25.00	-25.47	-1.72	0.00	-165.39	0.00	165.39	3912.08	1956.04	6073.57	3041.30	0.29	-0.11	-0.11	0.061
30.00	-24.32	-1.70	0.00	-156.78	0.00	156.78	3816.32	1908.16	5778.19	2893.39	0.42	-0.14	-0.14	0.061
35.00	-23.19	-1.67	0.00	-148.30	0.00	148.30	3720.55	1860.27	5490.18	2749.17	0.58	-0.16	-0.16	0.060
40.00	-22.08	-1.64	0.00	-139.95	0.00	139.95	3624.78	1812.39	5209.53	2608.64	0.76	-0.19	-0.19	0.060
43.50	-21.33	-1.62	0.00	-134.20	0.00	134.20	3557.74	1778.87	5017.45	2512.46	0.90	-0.20	-0.20	0.059
45.00	-20.75	-1.61	0.00	-131.77	0.00	131.77	3529.01	1764.51	4936.24	2471.79	0.97	-0.21	-0.21	0.059
48.50	-19.42	-1.57	0.00	-126.15	0.00	126.15	3039.25	1519.63	4279.34	2142.85	1.13	-0.23	-0.23	0.065
50.00	-19.14	-1.56	0.00	-123.80	0.00	123.80	3014.63	1507.31	4209.90	2108.08	1.20	-0.24	-0.24	0.065
55.00	-18.23	-1.55	0.00	-115.98	0.00	115.98	2932.54	1466.27	3982.54	1994.23	1.47	-0.27	-0.27	0.064
60.00	-17.34	-1.53	0.00	-108.25	0.00	108.25	2850.45	1425.23	3761.50	1883.54	1.76	-0.30	-0.30	0.064
65.00	-16.48	-1.53	0.00	-100.58	0.00	100.58	2768.37	1384.18	3546.76	1776.02	2.09	-0.33	-0.33	0.063
70.00	-15.63	-1.53	0.00	-92.94	0.00	92.94	2686.28	1343.14	3338.33	1671.65	2.45	-0.36	-0.36	0.061
75.00	-14.81	-1.53	0.00	-85.29	0.00	85.29	2604.19	1302.10	3136.22	1570.44	2.83	-0.39	-0.39	0.060
80.00	-14.01	-1.54	0.00	-77.63	0.00	77.63	2522.10	1261.05	2940.42	1472.40	3.25	-0.42	-0.42	0.058
85.00	-13.24	-1.53	0.00	-69.95	0.00	69.95	2440.02	1220.01	2750.93	1377.51	3.71	-0.45	-0.45	0.056
88.00	-12.78	-1.53	0.00	-65.35	0.00	65.35	2390.76	1195.38	2640.27	1322.09	3.99	-0.46	-0.46	0.055
90.00	-12.31	-1.53	0.00	-62.28	0.00	62.28	2357.93	1178.96	2567.75	1285.78	4.19	-0.48	-0.48	0.054
92.00	-11.83	-1.53	0.00	-59.21	0.00	59.21	1547.90	773.95	1709.73	856.14	4.39	-0.49	-0.49	0.077
95.00	-11.52	-1.54	0.00	-54.61	0.00	54.61	1524.57	762.29	1648.80	825.63	4.70	-0.51	-0.51	0.074
100.00	-11.00	-1.54	0.00	-46.94	0.00	46.94	1484.88	742.44	1548.79	775.55	5.25	-0.55	-0.55	0.068
105.00	-10.51	-1.54	0.00	-39.25	0.00	39.25	1444.16	722.08	1450.80	726.48	5.84	-0.58	-0.58	0.061
110.00	-10.02	-1.53	0.00	-31.55	0.00	31.55	1389.90	694.95	1342.87	672.43	6.47	-0.62	-0.62	0.054
115.00	-9.55	-1.52	0.00	-23.87	0.00	23.87	1335.17	667.59	1238.67	620.26	7.14	-0.65	-0.65	0.046
120.00	-9.10	-1.49	0.00	-16.28	0.00	16.28	1280.45	640.22	1138.68	570.19	7.83	-0.67	-0.67	0.036
125.00	-8.66	-1.45	0.00	-8.83	0.00	8.83	1225.72	612.86	1042.90	522.23	8.54	-0.69	-0.69	0.024
128.00	-3.80	-0.75	0.00	-4.48	0.00	4.48	1192.89	596.44	987.45	494.46	8.97	-0.69	-0.69	0.012
130.00	-3.67	-0.73	0.00	-2.97	0.00	2.97	1171.00	585.50	951.33	476.37	9.27	-0.70	-0.70	0.009
134.00	-0.13	-0.03	0.00	-0.04	0.00	0.04	1127.22	563.61	881.10	441.20	9.85	-0.70	-0.70	0.000
135.00	-0.06	-0.01	0.00	-0.01	0.00	0.01	1116.28	558.14	863.96	432.62	10.00	-0.70	-0.70	0.000
136.00	0.00	-0.01	0.00	0.00	0.00	0.00	1105.33	552.67	846.99	424.13	10.14	-0.70	-0.70	0.000

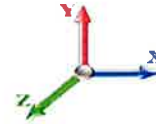
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E				<b>Iterations</b> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.36	<b>SA</b> 0.04
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		994.58	0.00	0.04	0.02	20.40	
10.00		972.64	0.01	0.06	0.03	28.23	
15.00		950.71	0.02	0.07	0.04	31.32	
20.00		928.78	0.04	0.07	0.04	32.39	
25.00		906.85	0.06	0.07	0.04	32.69	
30.00		884.92	0.09	0.07	0.04	32.78	
35.00		862.99	0.13	0.07	0.03	32.80	
40.00		841.06	0.16	0.07	0.03	32.62	
43.50	Bot - Section 2	575.69	0.19	0.06	0.02	22.43	
45.00		457.03	0.21	0.06	0.02	17.77	
48.50	Top - Section 1	1052.1	0.24	0.06	0.02	40.13	
50.00		207.95	0.26	0.05	0.02	7.80	
55.00		680.96	0.31	0.04	0.01	22.92	
60.00		662.17	0.37	0.03	0.01	17.38	
65.00		643.37	0.43	0.01	0.01	9.45	
70.00		624.57	0.50	-0.02	0.01	-0.15	
75.00		605.77	0.57	-0.04	0.01	-9.66	
80.00		586.97	0.65	-0.07	0.02	-17.08	
85.00		568.17	0.74	-0.10	0.04	-21.08	
88.00	Bot - Section 3	331.88	0.79	-0.11	0.05	-12.90	
90.00		365.87	0.83	-0.12	0.06	-14.18	
92.00	Top - Section 2	360.85	0.86	-0.12	0.07	-13.56	
95.00		215.79	0.92	-0.12	0.10	-7.31	
100.00		349.62	1.02	-0.10	0.14	-7.87	
105.00		337.09	1.13	-0.05	0.20	-1.62	
110.00		324.56	1.24	0.04	0.28	6.23	
115.00		312.03	1.35	0.20	0.38	15.46	
120.00		299.49	1.47	0.43	0.51	25.86	
125.00		286.96	1.60	0.77	0.67	37.23	
128.00	Appurtenance(s)	4007.7	1.67	1.03	0.78	637.33	
130.00		108.27	1.73	1.23	0.86	19.48	
134.00	Appurtenance(s)	2949.4	1.83	1.70	1.04	663.75	
135.00		51.38	1.86	1.84	1.09	12.18	
136.00		50.88	1.89	1.98	1.14	12.68	
<b>Totals:</b>		<b>24,359.2</b>				<b>1,705.9</b>	<b>Total Wind: 22,226.4</b>

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

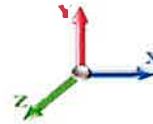
## Calculated Forces

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>3/16/2020</b>
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E		<b>Iterations</b> 23
<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.20	<b>Ss</b> 0.19
<b>Dead Load Factor</b> 0.90	<b>Seismic Load Factor</b> 1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency (f1)</b> 0.36	<b>SA</b> 0.04
	<b>Seismic Importance Factor</b> 1.00	



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-23.74	-1.82	0.00	-207.23	0.00	207.23	4390.93	2195.46	7660.90	3836.15	0.00	0.00	0.00	0.059
5.00	-22.77	-1.80	0.00	-198.16	0.00	198.16	4295.16	2147.58	7328.71	3669.80	0.01	-0.02	0.059	0.059
10.00	-21.82	-1.78	0.00	-189.14	0.00	189.14	4199.39	2099.69	7003.88	3507.15	0.05	-0.04	0.059	0.059
15.00	-20.90	-1.76	0.00	-180.23	0.00	180.23	4103.62	2051.81	6686.41	3348.18	0.10	-0.07	0.059	0.059
20.00	-19.99	-1.73	0.00	-171.43	0.00	171.43	4007.85	2003.93	6376.31	3192.89	0.18	-0.09	0.059	0.059
25.00	-19.10	-1.71	0.00	-162.77	0.00	162.77	3912.08	1956.04	6073.57	3041.30	0.29	-0.11	0.058	0.058
30.00	-18.24	-1.68	0.00	-154.24	0.00	154.24	3816.32	1908.16	5778.19	2893.39	0.42	-0.13	0.058	0.058
35.00	-17.39	-1.65	0.00	-145.84	0.00	145.84	3720.55	1860.27	5490.18	2749.17	0.57	-0.16	0.058	0.058
40.00	-16.56	-1.62	0.00	-137.58	0.00	137.58	3624.78	1812.39	5209.53	2608.64	0.75	-0.18	0.057	0.057
43.50	-15.99	-1.60	0.00	-131.90	0.00	131.90	3557.74	1778.87	5017.45	2512.46	0.89	-0.20	0.057	0.057
45.00	-15.56	-1.59	0.00	-129.49	0.00	129.49	3529.01	1764.51	4936.24	2471.79	0.95	-0.21	0.057	0.057
48.50	-14.57	-1.55	0.00	-123.94	0.00	123.94	3039.25	1519.63	4279.34	2142.85	1.11	-0.23	0.063	0.063
50.00	-14.36	-1.54	0.00	-121.62	0.00	121.62	3014.63	1507.31	4209.90	2108.08	1.19	-0.23	0.062	0.062
55.00	-13.67	-1.52	0.00	-113.92	0.00	113.92	2932.54	1466.27	3982.54	1994.23	1.45	-0.26	0.062	0.062
60.00	-13.01	-1.51	0.00	-106.30	0.00	106.30	2850.45	1425.23	3761.50	1883.54	1.74	-0.29	0.061	0.061
65.00	-12.36	-1.50	0.00	-98.76	0.00	98.76	2768.37	1384.18	3546.76	1776.02	2.06	-0.32	0.060	0.060
70.00	-11.72	-1.50	0.00	-91.25	0.00	91.25	2686.28	1343.14	3338.33	1671.65	2.41	-0.35	0.059	0.059
75.00	-11.11	-1.51	0.00	-83.73	0.00	83.73	2604.19	1302.10	3136.22	1570.44	2.79	-0.38	0.058	0.058
80.00	-10.51	-1.51	0.00	-76.20	0.00	76.20	2522.10	1261.05	2940.42	1472.40	3.20	-0.41	0.056	0.056
85.00	-9.93	-1.51	0.00	-68.66	0.00	68.66	2440.02	1220.01	2750.93	1377.51	3.65	-0.44	0.054	0.054
88.00	-9.58	-1.51	0.00	-64.14	0.00	64.14	2390.76	1195.38	2640.27	1322.09	3.93	-0.46	0.053	0.053
90.00	-9.23	-1.51	0.00	-61.13	0.00	61.13	2357.93	1178.96	2567.75	1285.78	4.12	-0.47	0.051	0.051
92.00	-8.87	-1.51	0.00	-58.12	0.00	58.12	1547.90	773.95	1709.73	856.14	4.32	-0.48	0.074	0.074
95.00	-8.64	-1.51	0.00	-53.60	0.00	53.60	1524.57	762.29	1648.80	825.63	4.63	-0.50	0.071	0.071
100.00	-8.25	-1.51	0.00	-46.06	0.00	46.06	1484.88	742.44	1548.79	775.55	5.17	-0.54	0.065	0.065
105.00	-7.88	-1.51	0.00	-38.51	0.00	38.51	1444.16	722.08	1450.80	726.48	5.75	-0.57	0.058	0.058
110.00	-7.51	-1.51	0.00	-30.96	0.00	30.96	1389.90	694.95	1342.87	672.43	6.37	-0.61	0.051	0.051
115.00	-7.16	-1.49	0.00	-23.43	0.00	23.43	1335.17	667.59	1238.67	620.26	7.02	-0.64	0.043	0.043
120.00	-6.82	-1.46	0.00	-15.99	0.00	15.99	1280.45	640.22	1138.68	570.19	7.70	-0.66	0.033	0.033
125.00	-6.49	-1.42	0.00	-8.68	0.00	8.68	1225.72	612.86	1042.90	522.23	8.40	-0.68	0.022	0.022
128.00	-2.85	-0.74	0.00	-4.41	0.00	4.41	1192.89	596.44	987.45	494.46	8.82	-0.68	0.011	0.011
130.00	-2.75	-0.72	0.00	-2.92	0.00	2.92	1171.00	585.50	951.33	476.37	9.11	-0.69	0.008	0.008
134.00	-0.10	-0.03	0.00	-0.04	0.00	0.04	1127.22	563.61	881.10	441.20	9.69	-0.69	0.000	0.000
135.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	1116.28	558.14	863.96	432.62	9.83	-0.69	0.000	0.000
136.00	0.00	-0.01	0.00	0.00	0.00	0.00	1105.33	552.67	846.99	424.13	9.97	-0.69	0.000	0.000

## Wind Loading - Shaft

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Topography:** 1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

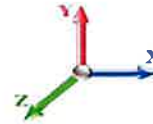
3/16/2020

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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	201.28	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	196.93	0.650	0.000	5.00	17.997	11.70	95.8	0.0	994.6
10.00		1.00	0.85	7.442	8.19	192.59	0.650	0.000	5.00	17.604	11.44	93.7	0.0	972.6
15.00		1.00	0.85	7.442	8.19	188.24	0.650	0.000	5.00	17.211	11.19	91.6	0.0	950.7
20.00		1.00	0.90	7.896	8.69	189.43	0.650	0.000	5.00	16.818	10.93	95.0	0.0	928.8
25.00		1.00	0.95	8.276	9.10	189.35	0.650	0.000	5.00	16.426	10.68	97.2	0.0	906.9
30.00		1.00	0.98	8.600	9.46	188.34	0.650	0.000	5.00	16.033	10.42	98.6	0.0	884.9
35.00		1.00	1.01	8.883	9.77	186.68	0.650	0.000	5.00	15.640	10.17	99.3	0.0	863.0
40.00		1.00	1.04	9.137	10.05	184.51	0.650	0.000	5.00	15.247	9.91	99.6	0.0	841.1
43.50	Bot - Section 2	1.00	1.06	9.300	10.23	182.74	0.650	0.000	3.50	10.439	6.79	69.4	0.0	575.7
45.00		1.00	1.07	9.366	10.30	181.93	0.650	0.000	1.50	4.510	2.93	30.2	0.0	457.0
48.50	Top - Section 1	1.00	1.09	9.515	10.47	179.93	0.650	0.000	3.50	10.387	6.75	70.7	0.0	1052.1
50.00		1.00	1.09	9.576	10.53	183.01	0.650	0.000	1.50	4.393	2.86	30.1	0.0	208.0
55.00		1.00	1.12	9.770	10.75	179.88	0.650	0.000	5.00	14.386	9.35	100.5	0.0	681.0
60.00		1.00	1.14	9.951	10.95	176.51	0.650	0.000	5.00	13.994	9.10	99.6	0.0	662.2
65.00		1.00	1.16	10.120	11.13	172.94	0.650	0.000	5.00	13.601	8.84	98.4	0.0	643.4
70.00		1.00	1.17	10.279	11.31	169.18	0.650	0.000	5.00	13.208	8.59	97.1	0.0	624.6
75.00		1.00	1.19	10.430	11.47	165.27	0.650	0.000	5.00	12.815	8.33	95.6	0.0	605.8
80.00		1.00	1.21	10.572	11.63	161.22	0.650	0.000	5.00	12.423	8.07	93.9	0.0	587.0
85.00		1.00	1.22	10.708	11.78	157.04	0.650	0.000	5.00	12.030	7.82	92.1	0.0	568.2
88.00	Bot - Section 3	1.00	1.23	10.787	11.87	154.48	0.650	0.000	3.00	7.029	4.57	54.2	0.0	331.9
90.00		1.00	1.24	10.838	11.92	152.75	0.650	0.000	2.00	4.692	3.05	36.4	0.0	365.9
92.00	Top - Section 2	1.00	1.24	10.888	11.98	151.00	0.650	0.000	2.00	4.629	3.01	36.0	0.0	360.9
95.00		1.00	1.25	10.962	12.06	151.18	0.650	0.000	3.00	6.826	4.44	53.5	0.0	215.8
100.00		1.00	1.27	11.081	12.19	146.70	0.650	0.000	5.00	11.063	7.19	87.6	0.0	349.6
105.00		1.00	1.28	11.195	12.31	142.13	0.650	0.000	5.00	10.670	6.94	85.4	0.0	337.1
110.00		1.00	1.29	11.305	12.44	137.47	0.650	0.000	5.00	10.278	6.68	83.1	0.0	324.6
115.00		1.00	1.30	11.412	12.55	132.73	0.650	0.000	5.00	9.885	6.43	80.7	0.0	312.0
120.00		1.00	1.32	11.514	12.67	127.92	0.650	0.000	5.00	9.492	6.17	78.1	0.0	299.5
125.00		1.00	1.33	11.614	12.78	123.04	0.650	0.000	5.00	9.099	5.91	75.6	0.0	287.0
128.00	Appurtenance(s)	1.00	1.33	11.672	12.84	120.09	0.650	0.000	3.00	5.271	3.43	44.0	0.0	166.2
130.00		1.00	1.34	11.710	12.88	118.10	0.650	0.000	2.00	3.435	2.23	28.8	0.0	108.3
134.00	Appurtenance(s)	1.00	1.35	11.785	12.96	114.11	0.650	0.000	4.00	6.682	4.34	56.3	0.0	210.5
135.00		1.00	1.35	11.803	12.98	113.10	0.650	0.000	1.00	1.631	1.06	13.8	0.0	51.4
136.00		1.00	1.35	11.822	13.00	112.09	0.650	0.000	1.00	1.616	1.05	13.7	0.0	50.9
<b>Totals:</b>								<b>136.00</b>	<b>2,475.3</b>	<b>17,778.7</b>				

## Discrete Appurtenance Forces

**Structure:** CT46137-A-SBA  
**Site Name:** Hamden-State St  
**Height:** 136.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

3/16/2020

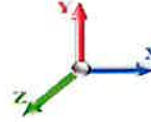
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	134.00	Low Profile Platform	1	11.785	12.963	1.00	1.00	22.00	1500.00	0.000	0.000	285.20	0.00	0.00
2	134.00	Samsung B5/B13	3	11.822	13.004	0.60	0.90	3.40	210.90	0.000	2.000	44.23	0.00	88.45
3	134.00	Samsung B2/B66A	3	11.822	13.004	0.60	0.90	3.40	252.00	0.000	2.000	44.23	0.00	88.45
4	134.00	HBX-6517DS-VTM	6	11.822	13.004	0.68	0.90	21.42	79.20	0.000	2.000	278.60	0.00	557.21
5	134.00	LNx-6514DS-VTM	6	11.822	13.004	0.72	0.90	34.95	232.80	0.000	2.000	454.47	0.00	908.94
6	134.00	HRR12-U Handrail	1	11.785	12.963	0.75	1.00	5.06	400.00	0.000	0.000	65.63	0.00	0.00
7	134.00	Raycap	2	11.822	13.004	0.81	0.90	6.14	64.00	0.000	2.000	79.84	0.00	159.68
8	128.00	Ericsson Radio 4449 B71	3	11.672	12.839	0.54	0.80	2.65	210.00	0.000	0.000	34.06	0.00	0.00
9	128.00	Ericsson KRY 112 144/2	3	11.672	12.839	0.54	0.80	0.66	33.00	0.000	0.000	8.46	0.00	0.00
10	128.00	Ericsson Air 32	3	11.672	12.839	0.70	0.80	13.59	396.60	0.000	0.000	174.52	0.00	0.00
11	128.00	RFS	3	11.672	12.839	0.56	0.80	34.10	384.00	0.000	0.000	437.82	0.00	0.00
12	128.00	SitePro RMQP-496-HK	1	11.672	12.839	1.00	1.00	48.00	2449.00	0.000	0.000	616.27	0.00	0.00
13	128.00	Ericsson AIR 21 B2A/B4P	3	11.672	12.839	0.71	0.80	24.65	369.00	0.000	0.000	316.47	0.00	0.00
<b>Totals:</b>									<b>6,580.50</b>			<b>2,839.80</b>		

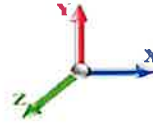
## Total Applied Force Summary

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Page:</b> 25
	<b>Struct Class:</b> II	



**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		95.76	1072.62	0.00	0.00
10.00		93.67	1050.68	0.00	0.00
15.00		91.58	1028.75	0.00	0.00
20.00		94.95	1006.82	0.00	0.00
25.00		97.20	984.89	0.00	0.00
30.00		98.58	962.96	0.00	0.00
35.00		99.34	941.03	0.00	0.00
40.00		99.61	919.10	0.00	0.00
43.50		69.41	630.32	0.00	0.00
45.00		30.20	480.44	0.00	0.00
48.50		70.66	1106.77	0.00	0.00
50.00		30.08	231.37	0.00	0.00
55.00		100.50	759.00	0.00	0.00
60.00		99.56	740.21	0.00	0.00
65.00		98.41	721.41	0.00	0.00
70.00		97.07	702.61	0.00	0.00
75.00		95.57	683.81	0.00	0.00
80.00		93.90	665.01	0.00	0.00
85.00		92.10	646.21	0.00	0.00
88.00		54.21	378.71	0.00	0.00
90.00		36.36	397.08	0.00	0.00
92.00		36.04	392.07	0.00	0.00
95.00		53.50	262.61	0.00	0.00
100.00		87.65	427.66	0.00	0.00
105.00		85.41	415.13	0.00	0.00
110.00		83.08	402.60	0.00	0.00
115.00		80.65	390.07	0.00	0.00
120.00		78.15	377.53	0.00	0.00
125.00		75.56	365.00	0.00	0.00
128.00	(16) attachments	1631.60	4054.59	0.00	0.00
130.00		28.76	112.67	0.00	0.00
134.00	(22) attachments	1308.50	2958.22	0.00	1802.74
135.00		13.77	53.58	0.00	0.00
136.00		13.66	53.08	0.00	0.00
	<b>Totals:</b>	<b>5,315.07</b>	<b>26,374.61</b>	<b>0.00</b>	<b>1,802.74</b>



## Calculated Forces

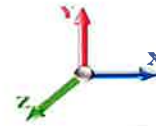
<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor**    1.00  
**Wind Load Factor**     1.00



**Iterations**    24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-26.37	-5.33	0.00	-561.33	0.00	561.33	4390.93	2195.46	7660.90	3836.15	0.00	0.000	0.000	0.152
5.00	-25.29	-5.26	0.00	-534.69	0.00	534.69	4295.16	2147.58	7328.71	3669.80	0.03	-0.058	0.000	0.152
10.00	-24.24	-5.19	0.00	-508.40	0.00	508.40	4199.39	2099.69	7003.88	3507.15	0.12	-0.116	0.000	0.151
15.00	-23.20	-5.12	0.00	-482.46	0.00	482.46	4103.62	2051.81	6686.41	3348.18	0.28	-0.176	0.000	0.150
20.00	-22.19	-5.04	0.00	-456.88	0.00	456.88	4007.85	2003.93	6376.31	3192.89	0.49	-0.236	0.000	0.149
25.00	-21.20	-4.96	0.00	-431.67	0.00	431.67	3912.08	1956.04	6073.57	3041.30	0.77	-0.298	0.000	0.147
30.00	-20.23	-4.88	0.00	-406.85	0.00	406.85	3816.32	1908.16	5778.19	2893.39	1.12	-0.360	0.000	0.146
35.00	-19.29	-4.80	0.00	-382.44	0.00	382.44	3720.55	1860.27	5490.18	2749.17	1.53	-0.423	0.000	0.144
40.00	-18.37	-4.71	0.00	-358.46	0.00	358.46	3624.78	1812.39	5209.53	2608.64	2.01	-0.487	0.000	0.142
43.50	-17.73	-4.64	0.00	-341.98	0.00	341.98	3557.74	1778.87	5017.45	2512.46	2.38	-0.533	0.000	0.141
45.00	-17.25	-4.62	0.00	-335.02	0.00	335.02	3529.01	1764.51	4936.24	2471.79	2.55	-0.553	0.000	0.140
48.50	-16.14	-4.55	0.00	-318.86	0.00	318.86	3039.25	1519.63	4279.34	2142.85	2.97	-0.600	0.000	0.154
50.00	-15.91	-4.53	0.00	-312.04	0.00	312.04	3014.63	1507.31	4209.90	2108.08	3.17	-0.620	0.000	0.153
55.00	-15.14	-4.44	0.00	-289.41	0.00	289.41	2932.54	1466.27	3982.54	1994.23	3.85	-0.692	0.000	0.150
60.00	-14.40	-4.35	0.00	-267.23	0.00	267.23	2850.45	1425.23	3761.50	1883.54	4.62	-0.764	0.000	0.147
65.00	-13.67	-4.25	0.00	-245.50	0.00	245.50	2768.37	1384.18	3546.76	1776.02	5.46	-0.836	0.000	0.143
70.00	-12.97	-4.16	0.00	-224.23	0.00	224.23	2686.28	1343.14	3338.33	1671.65	6.37	-0.909	0.000	0.139
75.00	-12.28	-4.07	0.00	-203.42	0.00	203.42	2604.19	1302.10	3136.22	1570.44	7.36	-0.981	0.000	0.134
80.00	-11.61	-3.98	0.00	-183.06	0.00	183.06	2522.10	1261.05	2940.42	1472.40	8.43	-1.052	0.000	0.129
85.00	-10.97	-3.89	0.00	-163.16	0.00	163.16	2440.02	1220.01	2750.93	1377.51	9.57	-1.123	0.000	0.123
88.00	-10.59	-3.83	0.00	-151.51	0.00	151.51	2390.76	1195.38	2640.27	1322.09	10.29	-1.165	0.000	0.119
90.00	-10.19	-3.79	0.00	-143.84	0.00	143.84	2357.93	1178.96	2567.75	1285.78	10.78	-1.194	0.000	0.116
92.00	-9.79	-3.75	0.00	-136.26	0.00	136.26	1547.90	773.95	1709.73	856.14	11.29	-1.222	0.000	0.166
95.00	-9.53	-3.71	0.00	-125.00	0.00	125.00	1524.57	762.29	1648.80	825.63	12.07	-1.262	0.000	0.158
100.00	-9.10	-3.62	0.00	-106.48	0.00	106.48	1484.88	742.44	1548.79	775.55	13.44	-1.352	0.000	0.143
105.00	-8.68	-3.54	0.00	-88.37	0.00	88.37	1444.16	722.08	1450.80	726.48	14.90	-1.436	0.000	0.128
110.00	-8.27	-3.46	0.00	-70.68	0.00	70.68	1389.90	694.95	1342.87	672.43	16.45	-1.513	0.000	0.111
115.00	-7.88	-3.37	0.00	-53.40	0.00	53.40	1335.17	667.59	1238.67	620.26	18.07	-1.580	0.000	0.092
120.00	-7.51	-3.29	0.00	-36.54	0.00	36.54	1280.45	640.22	1138.68	570.19	19.75	-1.635	0.000	0.070
125.00	-7.14	-3.21	0.00	-20.09	0.00	20.09	1225.72	612.86	1042.90	522.23	21.49	-1.674	0.000	0.044
128.00	-3.14	-1.46	0.00	-10.47	0.00	10.47	1192.89	596.44	987.45	494.46	22.55	-1.689	0.000	0.024
130.00	-3.02	-1.43	0.00	-7.55	0.00	7.55	1171.00	585.50	951.33	476.37	23.25	-1.695	0.000	0.018
134.00	-0.11	-0.03	0.00	-0.05	0.00	0.05	1127.22	563.61	881.10	441.20	24.68	-1.702	0.000	0.000
135.00	-0.05	-0.02	0.00	-0.02	0.00	0.02	1116.28	558.14	863.96	432.62	25.03	-1.702	0.000	0.000
136.00	0.00	-0.01	0.00	0.00	0.00	0.00	1105.33	552.67	846.99	424.13	25.39	-1.702	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT46137-A-SBA	<b>Code:</b> EIA/TIA-222-G	3/16/2020	
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C		
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00		
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil		
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II	Page: 27



### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	22.3	0.00	31.60	0.00	0.00	2362.22
0.9D + 1.6W 97 mph Wind	22.3	0.00	23.69	0.00	0.00	2332.54
1.2D + 1.0Di + 1.0Wi 50 mph Wind	6.3	0.00	48.48	0.00	0.00	662.42
1.2D + 1.0E	1.8	0.00	31.65	0.00	0.00	210.03
0.9D + 1.0E	1.8	0.00	23.74	0.00	0.00	207.23
1.0D + 1.0W 60 mph Wind	5.3	0.00	26.37	0.00	0.00	561.33

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-10.45	-15.82	0.00	-574.17	0.00	-574.17	1547.90	773.95	1709.73	856.14	92.00	0.678
0.9D + 1.6W 97 mph Wind	-7.52	-15.54	0.00	-562.97	0.00	-562.97	1547.90	773.95	1709.73	856.14	92.00	0.663
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-22.31	-4.39	0.00	-157.18	0.00	-157.18	1547.90	773.95	1709.73	856.14	92.00	0.198
1.2D + 1.0E	-11.83	-1.53	0.00	-59.21	0.00	-59.21	1547.90	773.95	1709.73	856.14	92.00	0.077
0.9D + 1.0E	-8.87	-1.51	0.00	-58.12	0.00	-58.12	1547.90	773.95	1709.73	856.14	92.00	0.074
1.0D + 1.0W 60 mph Wind	-9.79	-3.75	0.00	-136.26	0.00	-136.26	1547.90	773.95	1709.73	856.14	92.00	0.166

## Base Plate Summary

<b>Structure:</b> CT46137-A-SB	<b>Code:</b> EIA/TIA-222-G	3/16/2020
<b>Site Name:</b> Hamden-State St	<b>Exposure:</b> C	
<b>Height:</b> 136.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 28



Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 60.00	<b>Bolt Circle:</b> 51.00
<b>Moment (kip-ft):</b> 2324.83	<b>Width (in):</b> 57.00	<b>Number Bolts:</b> 16.00
<b>Axial (kip):</b> 26.85	<b>Style:</b> Round	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 21.75	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.25
Analysis	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 2362.22	<b>Effective Len (in):</b> 12.20	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 48.48	<b>Moment (kip-in):</b> 511.14	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 22.29	<b>Allow Stress (ksi):</b> 81.00	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 0.00	<b>Start Angle (deg):</b> 0.00
<b>Moment Design %:</b> 101.61	<b>Stress Ratio:</b> 0.78	<b>Compression</b>
		<b>Force (kip):</b> 141.98
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.56
		<b>Tension</b>
		<b>Force (kip):</b> 135.92
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.53

# **ATTACHMENT 5**



March 24, 2020

Verizon Wireless  
20 Alexander Drive  
Wallingford, CT 06492

Attn: Mr. Andrew Leone

Re: Antenna Mount Structural Analysis – Wireless Communications Modification  
Verizon Wireless Site I.D.: Hamden 5 CT ANTMO  
2895 State Street  
Hamden, CT 06517

Project/Location Code: 20171646083/467276  
APT Filing No. CT141EB11230  
VZW FUZE I.D.: 15509265

Dear Mr. Leone,

All-Points Technology Corp. (APT), a professional engineering corporation licensed in the State of Connecticut, has been retained by Verizon Wireless (VZW) to assess the structural adequacy of the existing VZW antenna mounting assembly to support the proposed antenna and appurtenance modification at the above noted location. This review is limited to structural evaluation of the existing antenna mounting assembly and its connection to the existing host structure.

Details of the proposed antenna and appurtenance modification are included within the table on the following page. Reference is made to the Design Exhibit Drawings, DE1 thru DE4, prepared by this office, marked Rev 3, dated 03/24/2020.

The structural review has been prepared in accordance with the following design standards:

ANSI/TIA-222-G-2009 - Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

ASCE/SEI 7-10 - Minimum Design Loads for Buildings and Other Structures

AISC - American Institute of Steel Construction Manual of Steel Construction, 14<sup>th</sup> Ed.

IBC 2015 - as amended by the 2018 Connecticut State Building Code.

Antenna, appurtenance and mount assembly loads were evaluated utilizing the ANSI TIA-222-G standard.

- o Load Case 1: 97 mph (3-second gust), 0in ice (Nominal Survival Wind)
- o Load Case 2: 50 mph (3-second gust) with 1.0in ice thickness
- o Load Case 3: 60 mph (3-second gust) (Service Load)
- o Structure Class II
- o Exposure Category C
- o Topographic Category 1.

Note:

1. Based upon IBC 2015/2018 Connecticut State Building Code maximum ultimate wind speed for site location of 125 mph (3-sec gust), equivalent to a nominal design speed of 97 mph (3-sec gust) per Appendix N and exception #5, Section 1609.1.1

**APT ENGINEERING**

567 VAUXHALL STREET EXTENSION · SUITE 311 · WATERFORD, CT 06385 · PHONE 860-663-1697

The existing and proposed VZW antenna/appurtenance and mount assembly loading consists of the following equipment (proposed equipment shown in **bold text**):

Antenna and Appurtenance Make/Model	Quantity	Status	Mount Type	Elevation
Commscope LNX-6514DS-VTM panel antennas	6	ETR	Existing Low Profile Platform Mounting Assembly <b>reinforced with one (1) proposed SitePRO1 HRK12-U Handrail Kit.</b>	142.5 ft ± AGL
Commscope HBX-6517DS-A1M panel antennas	6	ETR		
<b>SAMSUNG B2/B86a (PCS/AWS) Remote Radio Heads (RRHs)</b>	<b>3</b>	<b>P</b>		
<b>SAMSUNG B5/B13 (850/700) Remote Radio Heads (RRHs)</b>	<b>3</b>	<b>P</b>		
<b>Raycap RC3DC-3315-PF-48 (6 OVP)</b>	<b>2</b>	<b>P<sup>2</sup></b>		
<b>6x12 Hybrid Fiber Cables</b>	<b>2</b>	<b>P<sup>2</sup></b>	n/a	n/a

Notes:

1. ETR = Existing to Remain/to be Relocated; P = Proposed.
2. Existing equipment to be replaced.

Based on our analysis, field observations and assumptions made, we have determined that the existing mounts and connections are adequate to support the proposed modification with the mounting assembly reinforcements as shown on the Design Exhibit Drawings. Under the proposed loading as referenced above, the maximum usage of the reinforced mounting assembly is 61%.

The findings of this certification letter are based upon a review of the physical characteristics of the mount assembly and existing field conditions as documented by local field mapping conducted by APT.

If there are any further questions regarding this project or if we may of further assistance, please do not hesitate to call.

Sincerely,  
**All-Points Technology Corp. P.C.**



Michael S. Trodden, P.E.  
 Sr. Structural Engineer



# ***Appendix A***

*Design Criteria*

# ATC Hazards by Location

## Search Information

**Address:** 2895 State St, Hamden, CT 06517, USA  
**Coordinates:** 41.359036, -72.884762  
**Elevation:** 9 ft  
**Timestamp:** 2020-02-26T05:01:38.942Z  
**Hazard Type:** Wind



### ASCE 7-16

MRI 10-Year ..... 75 mph  
 MRI 25-Year ..... 84 mph  
 MRI 50-Year ..... 91 mph  
 MRI 100-Year ..... 98 mph  
 Risk Category I ..... 109 mph  
 Risk Category II ..... 120 mph  
 Risk Category III ..... **▲ 129 mph**

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

Risk Category IV ..... **▲ 133 mph**

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

### ASCE 7-10

MRI 10-Year ..... 77 mph  
 MRI 25-Year ..... 87 mph  
 MRI 50-Year ..... 94 mph  
 MRI 100-Year ..... 101 mph  
 Risk Category I ..... 114 mph  
 Risk Category II ..... 125 mph  
 Risk Category III-IV ... **▲ 135 mph**

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

### ASCE 7-05

ASCE 7-05 Wind Speed ... **▲ 110 mph**

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

*The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.*

## Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region <https://hazards.atccouncil.org/#/wind?lat=41.359036&lng=-72.884762&address=2895 State St%2C Hamden%2C CT 06517%2C USA>



**(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS**

Municipality	Ground Snow Load	Wind Design Parameters										
		MCE Spectral Accelerations (%g)		Ultimate Design Wind Speeds, $V_{ult}$ (mph)			Nominal Design Wind Speeds, $V_{asd}$ (mph)			Wind-Borne Debris Regions <sup>1</sup>		Hurricane-Prone Regions
		$S_s$	$S_1$	Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes
Montville	30	0.165	0.059	125	135	145	97	105	112		Type A	Yes
Morris	35	0.187	0.065	110	120	125	85	93	97			Yes
Naugatuck	30	0.190	0.064	110	125	135	85	97	105			Yes
New Britain	30	0.183	0.064	115	125	135	89	97	105			Yes
New Canaan	30	0.240	0.068	110	120	130	85	93	101			Yes
New Fairfield	35	0.212	0.067	105	115	125	81	89	97			
New Hartford	40	0.180	0.065	110	120	130	85	93	101			Yes

## ANSI/TIA-222-G

State	County	Min. Basic Wind Speed V (mph)	Max. Basic Wind Speed V (mph)	Min. Basic Wind Speed with Ice V <sub>i</sub> (mph)	Max. Basic Wind Speed with Ice V <sub>i</sub> (mph)	Min. Design Ice Thickness t <sub>i</sub> (in.)	Max. Design Ice Thickness t <sub>i</sub> (in.)	Design Frost Depth (in.)	Min. S <sub>s</sub>	Max. S <sub>s</sub>	Notes
CO	LINCOLN	90	90	50	50	0.00	0.25	50	0.12	0.16	2
CO	LOGAN	90	90	50	60	0.25	0.25	50	0.09	0.11	-
CO	MESA	90	90	40	50	0.00	0.25	50	0.27	0.54	2
CO	MINERAL	90	90	40	40	0.00	0.00	40	0.37	0.49	2
CO	MOFFAT	90	90	50	50	0.00	0.25	50	0.26	0.37	2
CO	MONTEZUMA	90	90	40	40	0.00	0.25	30	0.19	0.37	2
CO	MONTROSE	90	90	40	40	0.00	0.25	40	0.26	0.55	2
CO	MORGAN	90	90	50	50	0.00	0.25	50	0.11	0.15	2
CO	OTERO	90	90	50	50	0.00	0.25	40	0.14	0.18	2
CO	OURAY	90	90	40	40	0.00	0.25	40	0.43	0.56	2
CO	PARK	90	90	50	50	0.00	0.00	50	0.22	0.35	2
CO	PHILLIPS	90	90	50	60	0.25	0.50	50	0.08	0.09	-
CO	PITKIN	90	90	50	50	0.00	0.00	50	0.37	0.54	2
CO	PROWERS	90	90	50	50	0.25	0.50	40	0.11	0.12	-
CO	PUEBLO	90	90	50	50	0.00	0.00	40	0.16	0.23	1, 2
CO	RIO BLANCO	90	90	40	50	0.00	0.25	50	0.27	0.40	2
CO	RIO GRANDE	90	90	40	40	0.00	0.00	40	0.34	0.39	2
CO	ROUTT	90	90	50	50	0.00	0.00	50	0.25	0.31	2
CO	SAGUACHE	90	90	40	50	0.00	0.00	40	0.35	0.49	1, 2
CO	SAN JUAN	90	90	40	40	0.00	0.00	40	0.37	0.54	2
CO	SAN MIGUEL	90	90	40	40	0.00	0.25	40	0.24	0.51	2
CO	SEDGWICK	90	90	60	60	0.25	0.50	50	0.08	0.09	-
CO	SUMMIT	90	90	50	50	0.00	0.00	50	0.27	0.33	2
CO	TELLER	90	90	50	50	0.00	0.00	40	0.18	0.22	1, 2
CO	WASHINGTON	90	90	50	50	0.00	0.25	50	0.09	0.13	-
CO	WELD	90	90	50	50	0.00	0.25	50	0.11	0.21	1, 2
CO	YUMA	90	90	50	50	0.25	0.50	50	0.08	0.11	-
CT	FAIRFIELD	90	110	40	50	0.75	0.75	40	0.30	0.41	1, 2
CT	HARTFORD	90	105	40	50	1.00	1.00	40	0.26	0.28	-
CT	LITCHFIELD	90	100	40	40	0.75	1.00	40	0.26	0.33	1, 2
CT	MIDDLESEX	100	120	50	50	0.75	0.75	40	0.25	0.28	-
CT	NEW HAVEN	95	115	50	50	0.75	0.75	40	0.26	0.32	-
CT	NEW LONDON	105	120	50	50	0.75	0.75	40	0.24	0.27	-
CT	TOLLAND	95	105	40	50	0.75	1.00	40	0.26	0.27	-
CT	WINDHAM	100	110	40	50	0.75	1.00	40	0.26	0.27	-
DE	KENT	90	105	30	40	0.50	0.75	30	0.17	0.25	-
DE	NEW CASTLE	90	90	40	40	0.75	0.75	30	0.24	0.33	-
DE	SUSSEX	95	120	40	40	0.50	0.50	20	0.13	0.18	-
FL	ALACHUA	100	105	30	30	0.00	0.00	0	0.11	0.13	-
FL	BAKER	100	105	30	30	0.00	0.00	0	0.13	0.15	-
FL	BAY	115	130	30	30	0.00	0.25	0	0.08	0.11	-
FL	BRADFORD	100	105	30	30	0.00	0.00	0	0.12	0.14	-
FL	BREVARD	115	135	30	30	0.00	0.00	0	0.08	0.11	-
FL	BROWARD	120	140	30	30	0.00	0.00	0	0.06	0.08	-
FL	CALHOUN	110	120	30	30	0.00	0.00	0	0.09	0.11	-
FL	CHARLOTTE	110	130	30	30	0.00	0.00	0	0.08	0.09	-
FL	CITRUS	100	115	30	30	0.00	0.00	0	0.09	0.11	-

# ***Appendix B***

*Antenna Mount Analysis*



Project ID: CT141EB11230  
 Site Name: Hamden 5 CT  
 Date: 1/14/2020  
 Sheet: of

(Based on ANSI/TIA-222-G-2005)

<u>Site Name:</u>	Hamden 5 CT
<u>Site Address:</u>	2895 State Road Hamden, CT 06517
<u>Site County:</u>	New Haven

Design Criteria

Ultimate Basic Wind Speed, $V_{ULT}$ =	125	mph	2018 CSBC, Appendix N
Nominal Basic Wind Speed, $V_{ASD}$ =	97	mph	2018 CSBC, Appendix N
Basic Wind Speed with ice, $V_i$ =	50	mph	
Basic Wind Speed, $V_w$ =	15	mph	For access/man combinations
Design Ice Thickness, $t_i$ =	0.75	in	
Type of Structure =	Monopole		
Structure Height =	140	ft, +/-	
Structure Class =	II		Table 2-1
Exposure Category =	C		Section 2.6.5
Importance Factor, $I$ =	1.00		Table 2-3
Importance Factor with Ice, $I_{wi}$ =	1.00		Table 2-3
Ice Thickness Importance Factor, $I_{it}$ =	1.00		Table 2-3
$z_g$ =	900		Table 2-4
$\alpha$ =	9.5		Table 2-4
$K_{zmin}$ =	0.85		Table 2-4
$K_{zt}$ =	1.00		Section 2.6.6.4
$K_d$ =	0.95		Table 2-2
$G_h$ =	1.10		Section 2.6.7
Mount $G_h$ =	1.00		Section 2.6.7
$q_z'$ =	22.88	psf	
$q_{zi}'$ =	6.08	psf	Excluding $K_z$
$q_{zw}'$ =	0.55	psf	



(Based on ASCE/TIA-222-G-2009)

Design Criteria: (From Previous Sheet)

$q_s = 22.88$  psf  
 $q_{h1} = 6.08$  psf  
 $q_{h2} = 0.55$  psf  
 $t_s = 0.75$  in

$G_f = 1.00$  Section 2.6.7  
 $K_s = 1.00$  Section 2.6.9.2.2 - Section 2.6.9.2.4

Description	#/Sector	Elev. z, ft	$K_z$	$q_w$ , psf	Dimensions			Hat Panel Front Coefficient			Hat Panel Side Coefficient			Front					
					Height, in	Width, in	Depth, in	Weight, lbs	Area, ft <sup>2</sup>	Aspect Ratio	Ca	C <sub>Aa</sub>	Area, ft <sup>2</sup>	Aspect Ratio	Ca	C <sub>Aa</sub>	Wind Force, lbs	Side Wind Force, lbs	Weight, lbs
LNK-6514DS-VTM	2.0	142.5	1.364	31.20	72.9	11.9	7.1	44.6	6.02	6.126	1.33	8.02	3.594	10.268	1.51	5.424	251.0	170.0	44.6
HBX-6517DS-A1M	2.0	142.5	1.364	31.20	74.9	6.5	3.3	18.1	3.38	11.523	1.55	5.24	1.716	22.697	1.92	3.301	164.0	104.0	18.1
BZ/866 PCS/AWS RRH	1.0	142.5	1.364	31.20	15.0	15.0	10.0	84.4	1.55	1.000	1.20	1.87	1.043	1.490	1.20	1.252	59.0	40.0	84.4
B5/B13 700/850 RRH	1.0	142.5	1.364	31.20	15.0	15.0	8.2	70.3	1.55	1.000	1.20	1.87	0.847	1.836	1.20	1.016	59.0	32.0	70.3
RoxDC-3315-PF-48	1.0	142.5	1.364	31.20	19.2	15.7	10.3	32.0	2.09	1.222	1.20	2.51	1.365	1.871	1.20	1.638	79.0	52.0	32.0

Description	#/Sector	Elev. z, ft	$K_z$	$q_w$ , psf	Dimensions with Ice			Hat Panel Front Coefficient			Hat Panel Side Coefficient			Front					
					Ice Thick, in	Height, in	Depth, in	Weight, lbs	Area, ft <sup>2</sup>	Aspect Ratio	Ca	C <sub>Aa</sub>	Area, ft <sup>2</sup>	Aspect Ratio	Ca	C <sub>Aa</sub>	Wind Force, lbs	Side Wind Force, lbs	Weight, lbs
LNK-6514DS-VTM	2.0	142.5	1.364	8.291	1.74	76.37	13.86	210.5	8.15	5.51	1.31	10.677	5.607	5.51	1.31	7.343	89.0	61.0	255.1
HBX-6517DS-A1M	2.0	142.5	1.364	8.291	1.74	78.37	7.29	125.0	5.43	10.75	1.53	8.277	3.686	10.75	1.53	5.621	69.0	47.0	143.1
BZ/866 PCS/AWS RRH	1.0	142.5	1.364	8.291	1.74	18.43	18.02	64.4	2.36	1.02	1.20	2.831	1.730	1.02	1.20	2.076	24.0	18.0	148.8
B5/B13 700/850 RRH	1.0	142.5	1.364	8.291	1.74	18.43	17.04	61.2	2.36	1.08	1.20	2.831	1.488	1.08	1.20	1.785	24.0	15.0	131.5
RoxDC-3315-PF-48	1.0	142.5	1.364	8.291	1.74	22.65	18.75	82.0	3.02	1.21	1.20	3.619	2.159	1.21	1.20	2.590	31.0	22.0	114.0

Description	#/Sector	Elev. z, ft	$K_z$	$q_w$ , psf	Dimensions			Hat Panel Front Coefficient			Hat Panel Side Coefficient			Front					
					Height, in	Width, in	Depth, in	Weight, lbs	Area, ft <sup>2</sup>	Aspect Ratio	Ca	C <sub>Aa</sub>	Area, ft <sup>2</sup>	Aspect Ratio	Ca	C <sub>Aa</sub>	Wind Force, lbs	Side Wind Force, lbs	Weight, lbs
LNK-6514DS-VTM	2.0	142.5	1.364	0.75	72.9	11.9	7.1	44.6	6.02	6.126	1.33	8.02	3.594	10.268	1.51	5.424	6.0	5.0	44.6
HBX-6517DS-A1M	2.0	142.5	1.364	0.75	74.9	6.5	3.3	18.1	3.38	11.523	1.55	5.24	1.716	22.697	1.92	3.301	4.0	3.0	18.1
BZ/866 PCS/AWS RRH	1.0	142.5	1.364	0.75	15.0	15.0	10.0	84.4	1.55	1.000	1.20	1.87	1.043	1.490	1.20	1.252	2.0	1.0	84.4
B5/B13 700/850 RRH	1.0	142.5	1.364	0.75	15.0	15.0	8.2	70.3	1.55	1.000	1.20	1.87	0.847	1.836	1.20	1.016	2.0	1.0	70.3
RoxDC-3315-PF-48	1.0	142.5	1.364	0.75	19.2	15.7	10.3	32.0	2.09	1.222	1.20	2.51	1.365	1.871	1.20	1.638	2.0	2.0	32



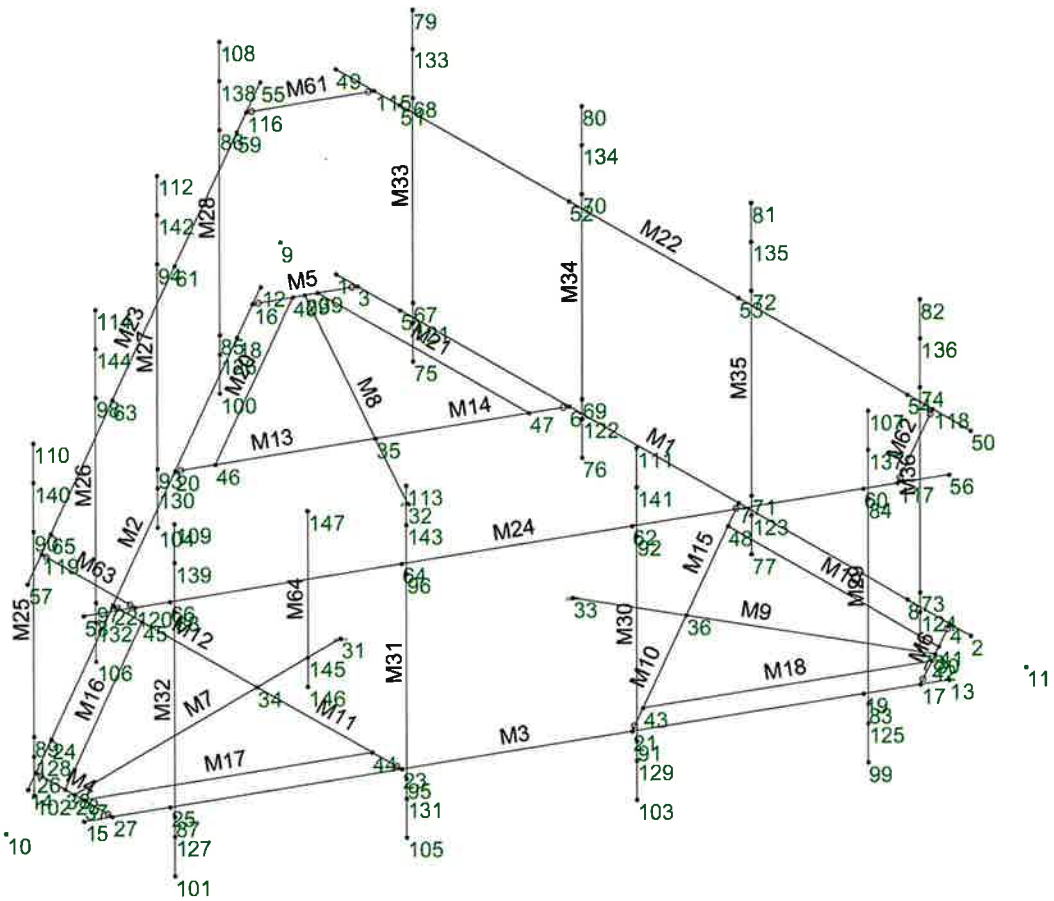
(Based on AISI/TM-222-G-2005)

Design Criteria: (from Previous Sheet)

$q_t = 22.88$  psf  
 $q_{hi} = 6.08$  psf  
 $q_{hw} = 0.55$  psf  
 $t_i = 0.75$  in

$G_s = 1.00$  Section 2.6.9  
 $K_s = 1.00$  Section 2.6.9.2.2 - Section 2.6.9.2.4

Description	Elev. z, ft	$K_t$	$q_t$ , psf	Ice Thick., $t_e$ , in		$q_m$ , psf	$q_{hw}$ , psf	Dimensions		Loading, No Ice		With Ice		Loading, Working							
				$q_t$ , psf	$t_e$ , in			Width or Dia, in	Depth, in	Weight, lbs/ft	Flat or Round	Ca	Wind, lbs/ft	Width or Dia, in	Depth, in	Weight, lbs/ft	Flat or Round	Ca	Wind, lbs/ft		
2.0" STD	142.5	1.364	31.20	1.74	1.74	8.29	0.75	2.375	2.375	3.66	Round	1.20	7.4	5.85	5.85	8.72	1.2	4.85	Round	1.20	0.18
3.0" STD	142.5	1.364	31.20	1.74	1.74	8.29	0.75	3.500	3.500	7.59	Round	1.20	10.9	6.97	6.97	11.11	1.2	5.78	Round	1.20	0.26
TS 4x4x1/4	142.5	1.364	31.20	1.74	1.74	8.29	0.75	4.000	4.000	12.21	FLAT	2.00	20.8	7.47	7.47	15.68	1.2	6.20	FLAT	2.00	0.50
L2x2x3/16	142.5	1.364	31.20	1.74	1.74	8.29	0.75	2.000	2.000	2.44	FLAT	2.00	10.4	5.47	5.47	9.68	1.2	4.54	FLAT	2.00	0.25
L2.5x2.5x1/4	142.5	1.364	31.20	1.74	1.74	8.29	0.75	2.500	2.500	4.10	FLAT	2.00	13.0	5.97	5.97	11.18	1.2	4.95	FLAT	2.00	0.31
PL 1/2"x6"	142.5	1.364	31.20	1.74	1.74	8.29	0.75	6.000	0.500	10.21	FLAT	2.00	31.2	9.47	3.97	16.45	1.2	7.85	FLAT	2.00	0.75



Envelope Only Solution

APT

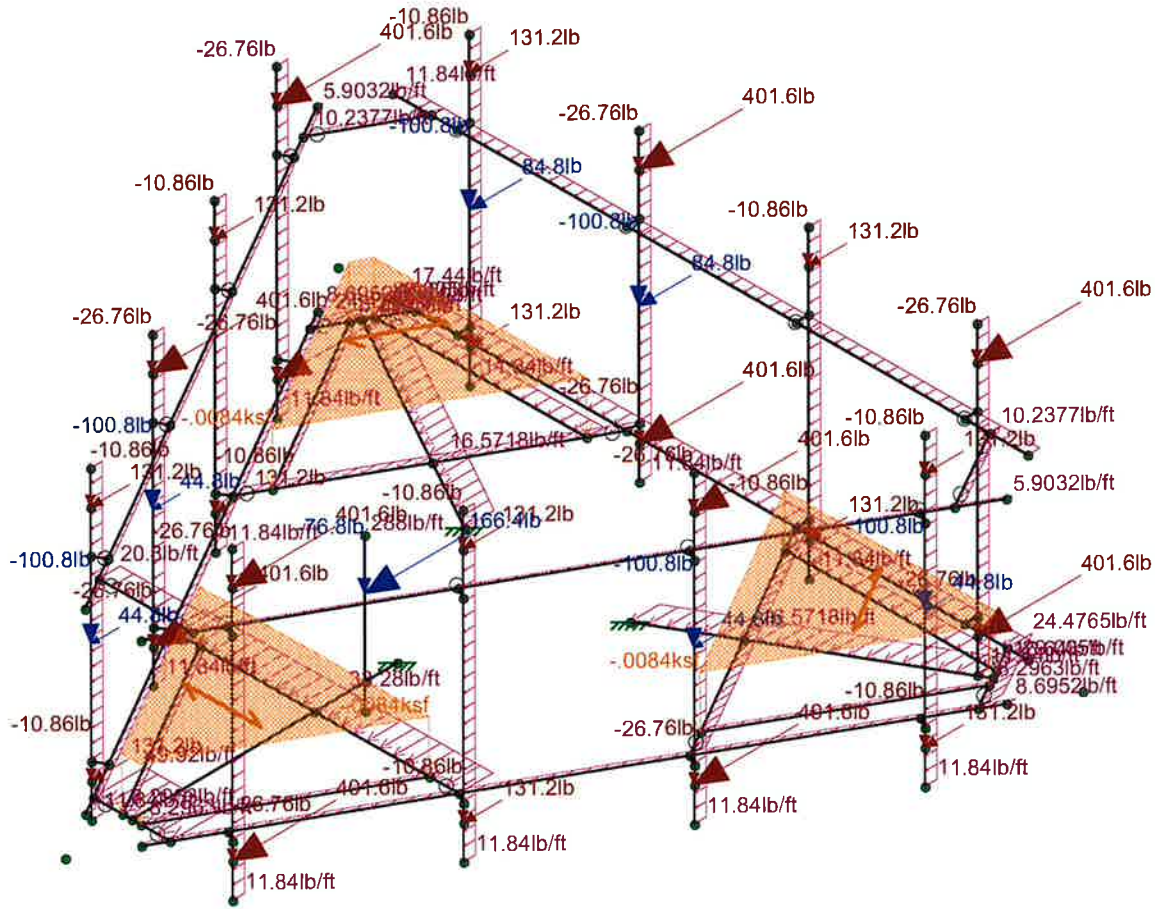
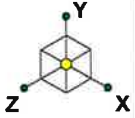
MT

Hamden 5 CT

MOUNTING PLATFORM  
NODE & MEMBER LABELS

Jan 14, 2020

RMQP-4xx with HRK-12.r3d



Loads: LC 5, 1.2DL + 1.6WL-Z

APT

MT

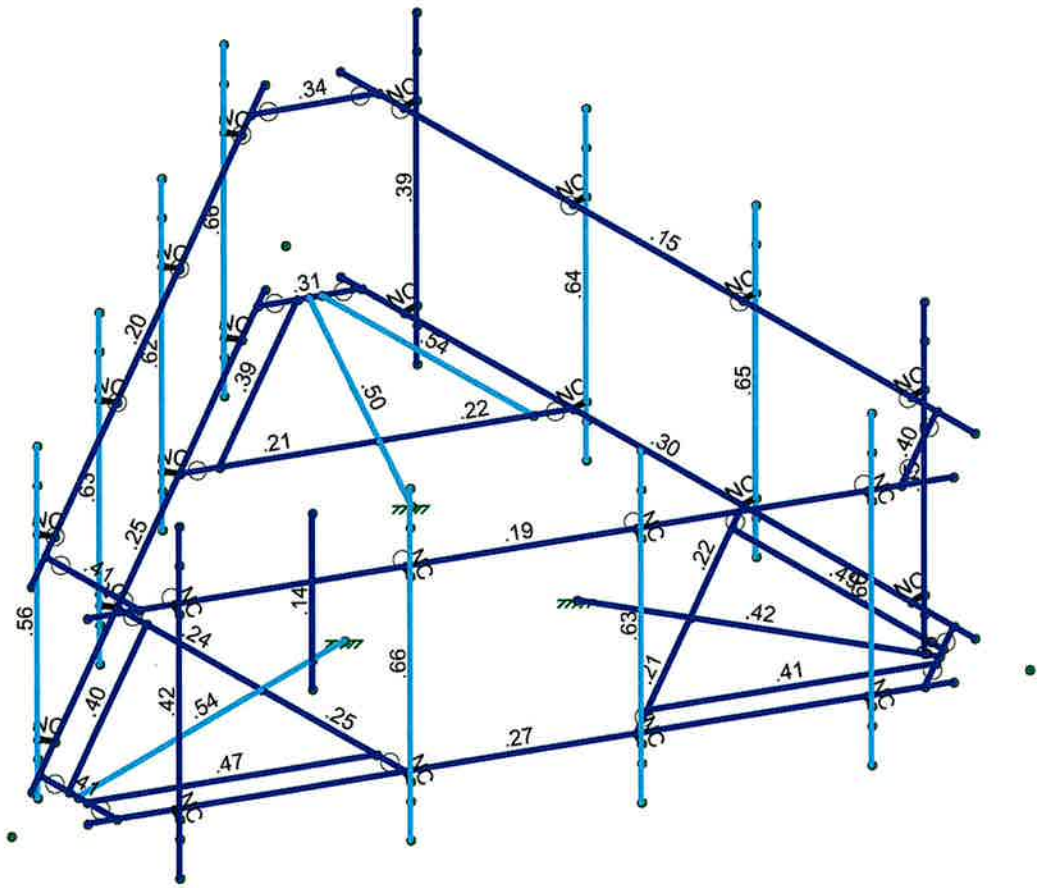
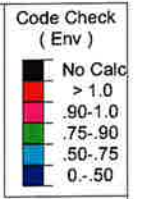
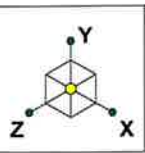
Hamden 5 CT

MOUNTING PLATFORM

MAX LOADING - LC 5

RMQP-4xx with HRK-12.r3d





Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

APT	MOUNTING PLATFORM BENDING STRESSES	
MT		
Hamden 5 CT		RMQP-4xx with HRK-12.r3d

Column: **M28**

Shape: **PIPE\_2.0**

Material: **A53 Gr.B**

Length: **72 in**

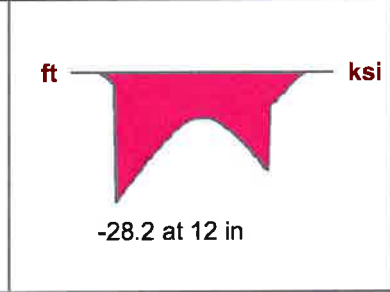
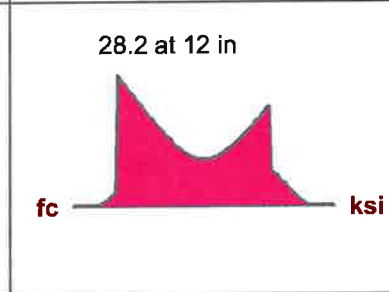
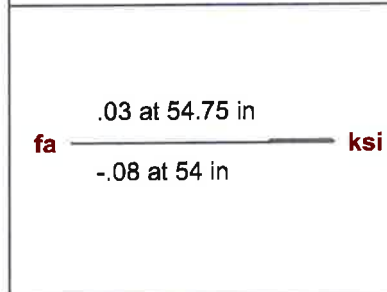
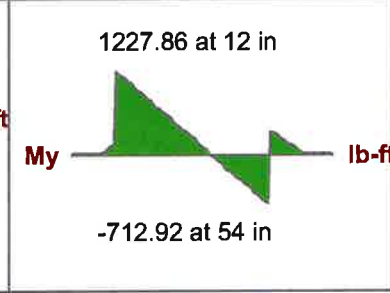
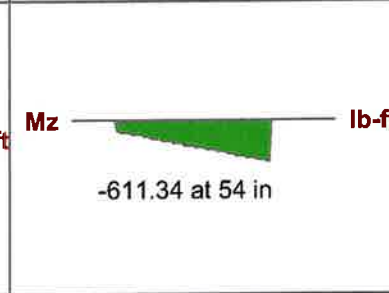
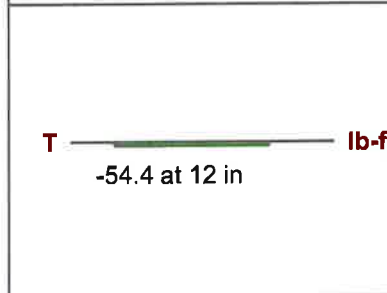
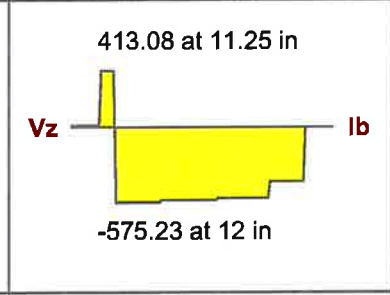
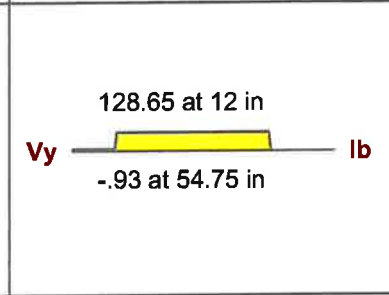
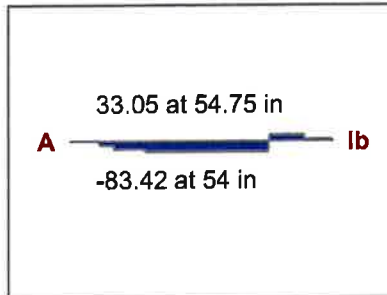
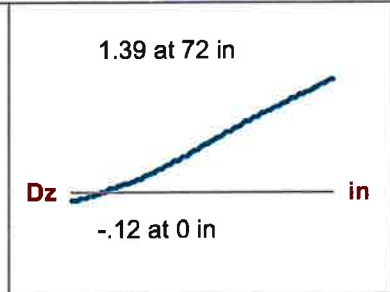
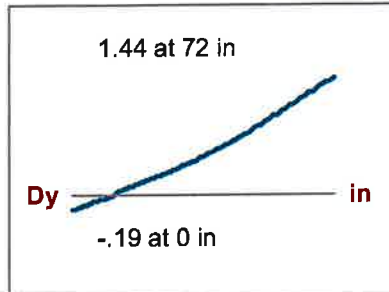
I Joint: **100**

J Joint: **108**

LC 5: **1.2DL + 1.6WL-Z**

Code Check: **0.663 (bending)**

Report Based On 97 Sections



**AISC 14th(360-10): LRFD Code Check**

**Direct Analysis Method**

Max Bending Check	<b>0.663</b>	Max Shear Check	<b>0.094 (s)</b>
Location	<b>12 in</b>	Location	<b>12 in</b>
Equation	<b>H1-1b</b>	Max Defl Ratio	<b>L/44</b>

Bending	Compact	Compression	Non-Slender
Fy	<b>35 ksi</b>	Lb	<b>72 in</b>
phi*Pnc	<b>20866.73 lb</b>	KL/r	<b>91.83</b>
phi*Pnt	<b>32130 lb</b>	L Comp Flange	<b>72 in</b>
phi*Mny	<b>1871.62 lb-ft</b>	L-torque	<b>72 in</b>
phi*Mnz	<b>1871.62 lb-ft</b>	Tau_b	<b>1</b>
phi*Vny	<b>9639 lb</b>		
phi*Vnz	<b>9639 lb</b>		
phi*Tn	<b>1770.39 lb-ft</b>		
Cb	<b>1.34</b>		



Company : APT  
 Designer : MT  
 Job Number : Hamden 5 CT  
 Model Name : MOUNTING PLATFORM

**(Global) Model Settings**

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



Company : APT  
 Designer : MT  
 Job Number : Hamden 5 CT  
 Model Name : MOUNTING PLATFORM

**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	1	2			3.0" STD	Beam	Pipe	A53 Gr.B	Typical
2	M2	12	14			3.0" STD	Beam	Pipe	A53 Gr.B	Typical
3	M3	13	15			3.0" STD	Beam	Pipe	A53 Gr.B	Typical
4	M4	26	27			PL 1/2 x 6	Beam	RECT	A36 Gr.36	Typical
5	M5	16	3			PL 1/2 x 6	Beam	RECT	A36 Gr.36	Typical
6	M6	4	17			PL 1/2 x 6	Beam	RECT	A36 Gr.36	Typical
7	M7	28	31			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
8	M8	29	32			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
9	M9	30	33			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
10	M10	36	21			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
11	M11	34	23			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
12	M12	34	22			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
13	M13	35	20			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
14	M14	35	6			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
15	M15	36	7			HSS4x4x1/4	Beam	SquareTube	A500 Gr.B...	Typical
16	M16	38	45			L2x2x3/16	Beam	Single Angle	A36 Gr.36	Typical
17	M17	37	44			L2x2x3/16	Beam	Single Angle	A36 Gr.36	Typical
18	M18	42	43			L2x2x3/16	Beam	Single Angle	A36 Gr.36	Typical
19	M19	41	48			L2x2x3/16	Beam	Single Angle	A36 Gr.36	Typical
20	M20	40	46			L2x2x3/16	Beam	Single Angle	A36 Gr.36	Typical
21	M21	39	47			L2x2x3/16	Beam	Single Angle	A36 Gr.36	Typical
22	M22	49	50			3.0" STD	Beam	Pipe	A53 Gr.B	Typical
23	M23	55	57			3.0" STD	Beam	Pipe	A53 Gr.B	Typical
24	M24	56	58			3.0" STD	Beam	Pipe	A53 Gr.B	Typical
25	M25	102	110			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
26	M26	106	114			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
27	M27	104	112			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
28	M28	100	108			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
29	M29	99	107			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
30	M30	103	111			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical



Company : APT  
 Designer : MT  
 Job Number : Hamden 5 CT  
 Model Name : MOUNTING PLATFORM

**Member Primary Data (Continued)**

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
31	M31	105	113			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
32	M32	101	109			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
33	M33	75	79			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
34	M34	76	80			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
35	M35	77	81			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
36	M36	78	82			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical
37	M37	5	67			RIGID	None	None	RIGID	Typical
38	M38	6	69			RIGID	None	None	RIGID	Typical
39	M39	7	71			RIGID	None	None	RIGID	Typical
40	M40	8	73			RIGID	None	None	RIGID	Typical
41	M41	54	74			RIGID	None	None	RIGID	Typical
42	M42	53	72			RIGID	None	None	RIGID	Typical
43	M43	52	70			RIGID	None	None	RIGID	Typical
44	M44	51	68			RIGID	None	None	RIGID	Typical
45	M45	25	87			RIGID	None	None	RIGID	Typical
46	M46	23	95			RIGID	None	None	RIGID	Typical
47	M47	21	91			RIGID	None	None	RIGID	Typical
48	M48	19	83			RIGID	None	None	RIGID	Typical
49	M49	18	85			RIGID	None	None	RIGID	Typical
50	M50	20	93			RIGID	None	None	RIGID	Typical
51	M51	22	97			RIGID	None	None	RIGID	Typical
52	M52	24	89			RIGID	None	None	RIGID	Typical
53	M53	65	90			RIGID	None	None	RIGID	Typical
54	M54	63	98			RIGID	None	None	RIGID	Typical
55	M55	61	94			RIGID	None	None	RIGID	Typical
56	M56	59	86			RIGID	None	None	RIGID	Typical
57	M57	60	84			RIGID	None	None	RIGID	Typical
58	M58	62	92			RIGID	None	None	RIGID	Typical
59	M59	64	96			RIGID	None	None	RIGID	Typical
60	M60	66	88			RIGID	None	None	RIGID	Typical
61	M61	116	115			L2.5x2.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
62	M62	118	117			L2.5x2.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
63	M63	119	120			L2.5x2.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
64	M64	147	146			2.0" STD	Column	Wide Flange	A53 Gr.B	Typical

**Member Advanced Data**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4	BenPIN	BenPIN				Yes				None
5	M5	BenPIN	BenPIN				Yes				None
6	M6	BenPIN	BenPIN				Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10		BenPIN				Yes	Default			None
11	M11		BenPIN				Yes	Default			None
12	M12		BenPIN				Yes	Default			None
13	M13		BenPIN				Yes	Default			None
14	M14		BenPIN				Yes	Default			None
15	M15		BenPIN				Yes	Default			None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None



Company : APT  
 Designer : MT  
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**Member Advanced Data (Continued)**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis...	Inactive	Seismic...
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	M33						Yes	** NA **			None
34	M34						Yes	** NA **			None
35	M35						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	M37						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes	** NA **			None
41	M41		00000X				Yes	** NA **			None
42	M42		00000X				Yes	** NA **			None
43	M43		00000X				Yes	** NA **			None
44	M44		00000X				Yes	** NA **			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49						Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53		00000X				Yes	** NA **			None
54	M54		00000X				Yes	** NA **			None
55	M55		00000X				Yes	** NA **			None
56	M56		00000X				Yes	** NA **			None
57	M57		00000X				Yes	** NA **			None
58	M58		00000X				Yes	** NA **			None
59	M59		00000X				Yes	** NA **			None
60	M60		00000X				Yes	** NA **			None
61	M61	0000XO	0000XO				Yes	Default			None
62	M62	0000XO	0000XO				Yes	Default			None
63	M63	0000XO	0000XO				Yes	Default			None
64	M64						Yes	** NA **			None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	3.0" STD	150			Lbyy						Lateral
2	M2	3.0" STD	150			Lbyy						Lateral
3	M3	3.0" STD	150			Lbyy						Lateral
4	M4	PL 1/2 x 6	18.1992			Lbyy						Lateral
5	M5	PL 1/2 x 6	18.1526			Lbyy						Lateral
6	M6	PL 1/2 x 6	18.1526			Lbyy						Lateral



Company : APT  
 Designer : MT  
 Job Number : Hamden 5 CT  
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**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
7	M7	HSS4x4x1/4	63					Lbyy				Lateral
8	M8	HSS4x4x1/4	63					Lbyy				Lateral
9	M9	HSS4x4x1/4	63					Lbyy				Lateral
10	M10	HSS4x4x1/4	34.6294					Lbyy				Lateral
11	M11	HSS4x4x1/4	34.0285					Lbyy				Lateral
12	M12	HSS4x4x1/4	34.0285					Lbyy				Lateral
13	M13	HSS4x4x1/4	34.6294					Lbyy				Lateral
14	M14	HSS4x4x1/4	33.5933					Lbyy				Lateral
15	M15	HSS4x4x1/4	33.5933					Lbyy				Lateral
16	M16	L2x2x3/16	50					Lbyy				Lateral
17	M17	L2x2x3/16	50					Lbyy				Lateral
18	M18	L2x2x3/16	50.071					Lbyy				Lateral
19	M19	L2x2x3/16	49.9303					Lbyy				Lateral
20	M20	L2x2x3/16	50.071					Lbyy				Lateral
21	M21	L2x2x3/16	49.9303					Lbyy				Lateral
22	M22	3.0" STD	150					Lbyy				Lateral
23	M23	3.0" STD	150					Lbyy				Lateral
24	M24	3.0" STD	150					Lbyy				Lateral
25	M25	2.0" STD	72					Lbyy				Lateral
26	M26	2.0" STD	72					Lbyy				Lateral
27	M27	2.0" STD	72					Lbyy				Lateral
28	M28	2.0" STD	72					Lbyy				Lateral
29	M29	2.0" STD	72					Lbyy				Lateral
30	M30	2.0" STD	72					Lbyy				Lateral
31	M31	2.0" STD	72					Lbyy				Lateral
32	M32	2.0" STD	72					Lbyy				Lateral
33	M33	2.0" STD	72					Lbyy				Lateral
34	M34	2.0" STD	72					Lbyy				Lateral
35	M35	2.0" STD	72					Lbyy				Lateral
36	M36	2.0" STD	72					Lbyy				Lateral
37	M61	L2.5x2.5x1/4	22.158					Lbyy				Lateral
38	M62	L2.5x2.5x1/4	22.158					Lbyy				Lateral
39	M63	L2.5x2.5x1/4	22.1878					Lbyy				Lateral
40	M64	2.0" STD	36									Lateral

**Envelope Joint Reactions**

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	31	max	1871.51	1	3353.04	11	4429.3	2	4999.27	2	2137.03	1	130.54	4
2		min	-1874.32	4	-901.22	2	-4366.65	5	-8534.76	5	-2140.11	4	-233.12	1
3	32	max	2373.47	1	2998.16	9	2690.7	2	3515.15	3	2043.74	2	2642.25	6
4		min	-2386.4	4	-525.78	6	-2722.33	5	-1749.55	6	-2081.96	5	-5578.39	3
5	33	max	2362.99	1	2952.36	10	2557.92	2	2892.18	2	1950.37	5	5206.82	10
6		min	-2347.26	4	-159.13	1	-2588.94	5	-1309.29	5	-1924.03	2	-1925.98	1
7	Totals:	max	6607.98	1	8220.78	8	9677.92	2						
8		min	-6607.98	4	3022.42	5	-9677.91	5						

**Envelope AISC 14th(360-10): LRFD Steel Code Checks**

Member	Shape	Code Che...	Loc[in]	LC	Shear Check	Loc[...]	Dir	LC	phi*Pnc...	phi*Pnt [...]	phi*Mn y-y...	phi*Mn z-z...	Cb	Eqn	
1	M1	PIPE 3.0	.299	95.31	2	.118	15.63		5	28250.55	65205	5748.75	5748.75	1.96	H1-1b
2	M2	PIPE 3.0	.250	56.25	2	.143	15.63		2	28250.55	65205	5748.75	5748.75	2.21	H1-1b
3	M3	PIPE 3.0	.268	54.69	6	.153	54.69		5	28250.55	65205	5748.75	5748.75	2.17	H1-1b
4	M4	PL 1/2"x6"	.406	9.1	5	.322	6.82	y	4	42371.05	97200	1012.5	12150	1.58	H1-1b
5	M5	PL 1/2"x6"	.312	9.08	3	.467	11.35	y	5	42551.51	97200	1012.5	12150	1.43	H1-1b
6	M6	PL 1/2"x6"	.355	9.08	2	.412	6.81	y	5	42551.51	97200	1012.5	12150	1.33	H1-1b



Company : APT  
 Designer : MT  
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 Model Name : MOUNTING PLATFORM

**Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)**

Member	Shape	Code	Che...	Loc[in]	LC	Shear	Check	Loc[...	Dir	LC	phi*Pnc...	phi*Pnt [...	phi*Mn y-y...	phi*Mn z-z...	Cb	Eqn
7	M7	HSS4x4x4	.544	63	5	.096	63	y	11	124317...	139518	16180.5	16180.5	2.64	H1-1b	
8	M8	HSS4x4x4	.500	63	3	.104	63	y	2	124317...	139518	16180.5	16180.5	2.54	H1-1b	
9	M9	HSS4x4x4	.421	63	2	.104	63	z	5	124317...	139518	16180.5	16180.5	2.67	H1-1b	
10	M10	HSS4x4x4	.214	0	10	.191	27.78	z	3	134739...	139518	16180.5	16180.5	1.7	H1-1b	
11	M11	HSS4x4x4	.245	0	5	.182	27.29	z	3	134900...	139518	16180.5	16180.5	1.68	H1-1b	
12	M12	HSS4x4x4	.239	0	5	.124	27.29	z	2	134900...	139518	16180.5	16180.5	1.66	H1-1b	
13	M13	HSS4x4x4	.214	0	7	.166	27.78	y	2	134739...	139518	16180.5	16180.5	1.7	H1-1b	
14	M14	HSS4x4x4	.223	0	3	.255	26.94	z	5	135016...	139518	16180.5	16180.5	1.63	H1-1b	
15	M15	HSS4x4x4	.216	0	2	.261	26.94	z	5	135016...	139518	16180.5	16180.5	1.63	H1-1b	
16	M16	L2x2x3	.401	50	5	.023	0	y	1	9802.92	23392.8	557.72	1236.7	2.24	H2-1	
17	M17	L2x2x3	.474	0	6	.021	0	y	4	9802.92	23392.8	557.72	1239.29	2.64	H2-1	
18	M18	L2x2x3	.407	50.07	2	.021	0	y	6	9778.73	23392.8	557.72	1239.29	2.3	H2-1	
19	M19	L2x2x3	.493	49.93	2	.022	0	y	2	9826.72	23392.8	557.72	1206.7	1.9	H2-1	
20	M20	L2x2x3	.392	50.07	2	.021	0	y	5	9778.73	23392.8	557.72	1235.69	2.24	H2-1	
21	M21	L2x2x3	.544	0	2	.028	49.93	y	5	9826.72	23392.8	557.72	1239.29	2.32	H2-1	
22	M22	PIPE 3.0	.149	54.69	2	.076	140...		4	28250.55	65205	5748.75	5748.75	1.57	H1-1b	
23	M23	PIPE 3.0	.202	93.75	5	.130	140...		5	28250.55	65205	5748.75	5748.75	3.08	H1-1b	
24	M24	PIPE 3.0	.186	93.75	5	.144	140...		5	28250.55	65205	5748.75	5748.75	2.91	H1-1b	
25	M25	PIPE 2.0	.561	12	3	.280	12		5	20866.73	32130	1871.62	1871.62	1.88	H1-1b	
26	M26	PIPE 2.0	.630	12	2	.223	12		5	20866.73	32130	1871.62	1871.62	1.66	H1-1b	
27	M27	PIPE 2.0	.618	12	2	.190	12		6	20866.73	32130	1871.62	1871.62	1.04	H1-1b	
28	M28	PIPE 2.0	.663	12	5	.169	12		3	20866.73	32130	1871.62	1871.62	1.34	H1-1b	
29	M29	PIPE 2.0	.661	12	5	.163	54		4	20866.73	32130	1871.62	1871.62	1.33	H1-1b	
30	M30	PIPE 2.0	.629	12	5	.140	12		5	20866.73	32130	1871.62	1871.62	1.17	H1-1b	
31	M31	PIPE 2.0	.658	12	2	.219	12		5	20866.73	32130	1871.62	1871.62	1.58	H1-1b	
32	M32	PIPE 2.0	.417	12	4	.273	54		5	20866.73	32130	1871.62	1871.62	1.76	H1-1b	
33	M33	PIPE 2.0	.387	12	4	.105	12		2	20866.73	32130	1871.62	1871.62	1.51	H1-1b	
34	M34	PIPE 2.0	.639	12	5	.086	12		6	20866.73	32130	1871.62	1871.62	1.81	H1-1b	
35	M35	PIPE 2.0	.655	12	5	.073	12		2	20866.73	32130	1871.62	1871.62	1.81	H1-1b	
36	M36	PIPE 2.0	.451	12	3	.111	54		2	20866.73	32130	1871.62	1871.62	1.56	H1-1b	
37	M61	L2.5x2.5x4	.341	0	2	.229	0	y	5	34496.46	38556	1113.55	2537.39	1.51	H2-1	
38	M62	L2.5x2.5x4	.396	22.16	2	.224	22.16	y	5	34496.46	38556	1113.55	2537.39	1.57	H2-1	
39	M63	L2.5x2.5x4	.413	22.19	5	.105	22.19	y	1	34486.12	38556	1113.55	2537.39	1.04	H2-1	
40	M64	PIPE 2.0	.136	30	5	.017	30		5	28843.41	32130	1871.62	1871.62	1.47	H1-1b	

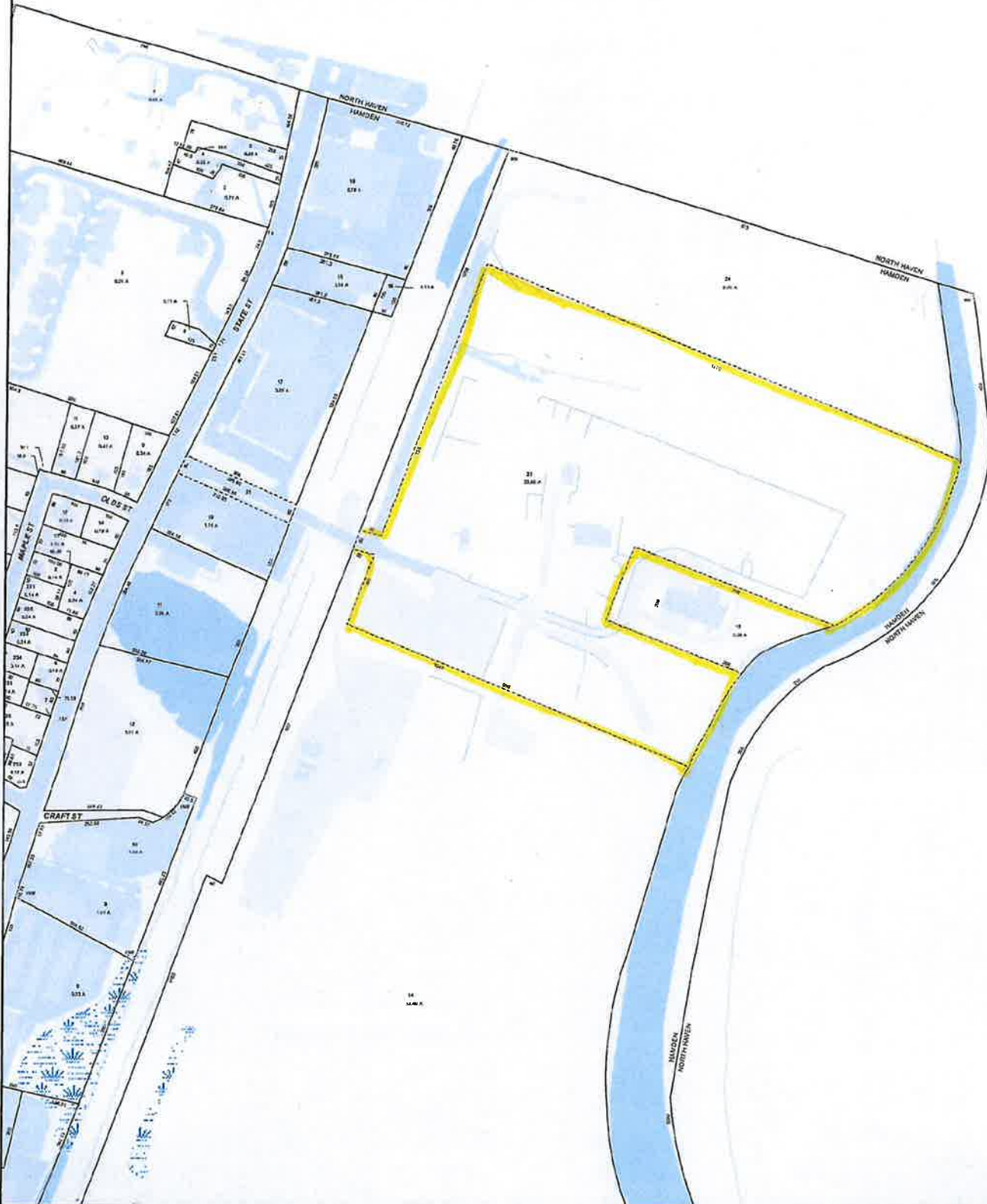


# **ATTACHMENT 6**

# Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 2432-021-00-0000

Address: 2895 STATE ST



Approximate Scale: 1 inch = 350 feet



Map Produced: April 2019

Disclaimer: This map is for informational purposes only.  
All information is subject to verification by any user.  
The Town of Hamden and its mapping contractors assume  
no legal responsibility for the information contained herein.



## Documents and Maps

[Quick Map](#) [Property Card](#)

[Full Assessor Map](#)

Some of these PDF maps are large (2-3 MB) and may take 20 seconds or more to load, even on a DSL connection.

## Detailed Parcel Information

**Parcel No**  
2432-021-00-0000

**Account**  
100130

**Owner**  
FARRICIELLI JOSEPH J

**Location**  
2895 STATE ST

**MAILING ADDRESS**  
104 CHERRY HILL RD  
BRANFORD CT 06405



### » SUMMARY PARCEL INFORMATION & MAP DOCUMENTS

#### PARCEL VALUATIONS

	Appraised Value	Assessed Value
Buildings	185500	129850
Outbuildings	32300	22610
Extra Features	1200	840
Land	775600	542920
<b>TOTAL:</b>	<b>994600</b>	<b>696220</b>

#### PROPERTY INFORMATION

Land Acres	24.67
Land Use	SAND&GRAVL M94
Land Class	I
Zoning	T4
Census Tract	8
Neighborhood	W3
Lot Description	Level
Lot Setting	Urban
Lot Utilities	Public Water,Septic
Street Description	Paved,Semi-Improved

#### SALE INFORMATION

Sale Date	8/28/2013
Sale Price	0
Book / Page	4077/ 44

#### BUILDING AREA

Gross Building Area  
Total Living Area

0

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# **ATTACHMENT 7**



# Certificate of Mailing — Firm

Name and Address of Sender		TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here Postmark with Date of Receipt.			
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103		3	3	neopost <sup>SM</sup> 03/31/2020 <b>US POSTAGE \$002.90</b>  ZIP 06103 041L12203937			
Postmaster, per (name of receiving employee)							
USPS® Tracking Number Firm-specific Identifier		Address (Name, Street, City, State, and ZIP Code™)		Postage	Fee	Special Handling	Parcel Airlift
1.		Curt Leng, Mayor Town of Hamden 2750 Dixwell Avenue Hamden, CT 06518					
2.		Daniel Kops, Town Planner Town of Hamden 2750 Dixwell Avenue Hamden, CT 06518					
3.		Joseph J. Farricelli 104 Cherry Hill Road Branford, CT 06405					
4.							
5.							
6.							

