

TS-T-Mobile-115-051005



Helen Moore  
Corporate Counsel - Litigation  
Direct Line: 210.832.3460  
Direct Fax: 210.832.3126  
HelenMoore@clearchannel.com

VIA EMAIL & CERTIFIED MAIL

July 15, 2009

RECEIVED  
ORIGINAL JUL 20 2009  
CONNECTICUT  
SITING COUNCIL

Karen Crist, Corporate Counsel  
T-Mobile  
4 Sylvan Way  
Parsippany, NJ 07054

Re: Demand for Indemnification Pursuant to the October 25, 2005 Lease Agreement between Capstar Radio Operating Company ("Clear Channel") and Omnipoint Communications (T-Mobile) (the "Lease Agreement")

Dear Ms. Crist:

On October 25, 2005, your company entered into the referenced Lease Agreement. According to the terms of the Lease Agreement, T-Mobile was responsible for obtaining a structural analysis of the condition of the tower at 151 Waterbury Road in Prospect, CT. Your company hired Walker Engineer to perform the analysis. Walker Engineer did not conduct an independent analysis of the tower site, but instead relied on the prior analysis conducted for AT&T. The prior analysis incorrectly asserted that the tower is a solid steel construction when in fact the tower has a hollow leg construction. Based on this incorrect conclusion, your company installed its equipment on our tower. Your equipment overstressed and caused irreparable damage to the tower. Additionally, we recently received the attached Notice from the Connecticut Citing Council threatening to condemn our tower due to its overstressed condition.

According to Section 9 of the Lease Agreement T-Mobile is obligated to indemnify us against the negligence of its contractors and for any damage your equipment causes our tower. Our tower must be replaced due to the negligent installation of T-Mobile's equipment. We cannot replace it with an identical tower, because that model no longer meets current industry standards. However, we can replace it with a comparable model with similar features, such as the Electronics Research Monopole proposal. The monopole project has a current market value of \$ 197,580.00. It will cost \$170,650 to purchase this tower, erect it, and reinstall both ATT and T Mobile on the new structure and \$26,930.00 to build a road to enable the installation of this new tower. Our Director of Vertical Real Estate recently forwarded T-Mobile a very generous offer to split the cost of replacing the tower even though we are entitled to seek the entire cost from your company alone. All of



these costs are directly attributable to the negligence of your contractor and the damage your equipment caused our tower. If you refuse to indemnify us against these expenses you will be in breach of your lease agreement and we will exercise our rights under Section 19 of the Lease Agreement

Please forward proof of T-Mobile's general liability insurance to me at the address listed above and notify your carrier of this damage claim.

I look forward to receiving your prompt response to this letter by July 21, 2009.

Nothing contained in this letter shall be deemed a waiver of any other default not specifically referenced above, or a waiver of any right, remedy, or recourse available to Clear Channel, or an election of remedies resulting from the defaults referenced above or any other defaults that may exist with respect to the parties' relationship.

Sincerely,

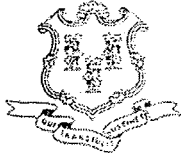
A handwritten signature in cursive script that reads "Helen Moore".

Helen Moore

Enc.

cc: Gary Hess (w/ Enc.)

Connecticut City Council (w/Enc.)



Daniel F. Caruso  
Chairman

## STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2933 Fax: (860) 827-2950

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

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

May 26, 2009

Lisa R. Humble  
State Building Inspector  
1111 Country Club Road  
Middletown, CT 06457

Dear Ms. Humble:

I am writing to inform you of an existing, overstressed telecommunications tower located at 151 Waterbury Road in Prospect, Connecticut. The Connecticut Siting Council (Council) is in receipt of a structural analysis (enclosed) that shows that this tower is out of compliance with the Connecticut State Building Code and the ITA/EIA-222-F standard.

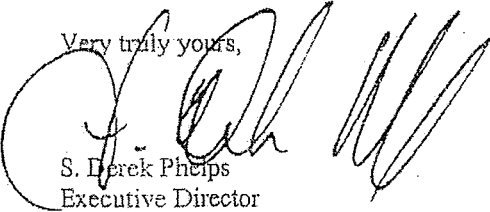
The tower to which I refer is a 195 foot guyed lattice tower owned by Clear Channel Communications located at 151 Waterbury Road in prospect, Connecticut. In a letter dated November 14, 2008, addressed to the Town of Prospect Building Official (a copy of which is enclosed for your convenience), Clear Channel acknowledged the need for replacement of the structurally deficient tower. Clear Channel, however, offered no specific timeline for addressing this condition, indicating only that the company was "negotiating plans" to replace, rather than repair, the existing structure. We believe that to date no such action has been taken.

The Siting Council has enforcement powers over telecommunications towers for which the Council granted a certificate of environmental compatibility and public need. Given that the Council did not certificate this tower, there are no established compliance standards for the Council to enforce.

For your information, I am enclosing a structural analysis of the tower that was prepared by URS Corporation in February, 2008, along with related correspondence. I ask that your office seek to enforce the applicable building codes with respect to this tower in order to address this potential threat to public safety.

I would appreciate being kept informed about any actions you may take on this matter. If you have any questions about this material, please feel free to contact me. Thank you.

Very truly yours,



S. Derek Phelps  
Executive Director

c: Daniel F. Caruso, Chairman  
Richard Walsh, Clear Channel

G:\Dev\dkf\Prospect Tower\SB\letter.doc





# 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@po.state.ct.us](mailto:siting.council@po.state.ct.us)

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

October 24, 2005

Karina Fournier  
Zoning Department  
T-Mobile  
100 Filley Street  
Bloomfield, CT 06002

RE: **TS-T-MOBILE-115-051005** - Omnipoint Communications, Inc. (T-Mobile) request for an order to approve tower sharing at an existing telecommunications facility located at 151 Waterbury Road, Prospect, Connecticut.

Dear Ms. Fournier:

At a public meeting held October 19, 2005, 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. This facility has also 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.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated October 5, 2005, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.  
Chairman

PBK/laf

c: The Honorable Robert J. Chatfield, Mayor, Town of Prospect  
William J. Donovan, Zoning Enforcement Officer, Town of Prospect  
SFX Broadcasting of Connecticut  
Christopher B. Fisher, Esq., Cuddy & Feder LLP



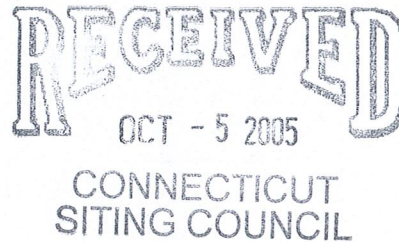
100 Filley Street, Bloomfield, CT 06002  
860-692-7100 fax 860-692-7159  
hkarina@adelphia.net

TS-T-MOBILE-115-051005

October 5, 2005

**BY HAND**

Pamela B. Katz, Chairman and  
Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051



RE: **Tower Sharing Request by T-Mobile**  
**151 Waterbury Road, Prospect, CT**  
**Latitude: 41 31 24/ Longitude: 72 59 57**

Dear Ms. Katz and Members of the Siting Council:

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa, Omnipoint Communications, Inc. a.k.a. T-Mobile (formerly Voicestream Wireless Corp.) hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed shared use of an existing communications tower, located at 151 Waterbury Road ("Prospect East Mountain"), in Prospect, owned by SFX Broadcasting of CT. T-Mobile and SFX Broadcasting of CT have agreed to the shared use of the Prospect East Mountain, as detailed below.

**Prospect East Mountain**

The Prospect East Mountain facility consists of a one hundred ninety five (195) foot high-guyed tower ("Tower") owned and operated by SFX Broadcasting of CT. T-Mobile proposes to locate antennas at a centerline mounting height of one hundred thirty (130) feet. The equipment will be located within the existing leased area at the base of the tower.

~ ORIGINAL ~

Prospect East Mountain

As shown on the enclosed plans prepared by Diversified Technology Consultants, including a site plan and tower elevation of the Prospect East Mountain Facility, annexed hereto as Exhibit 1, T-Mobile proposes a shared use of the Facility by placing antennas on the tower and equipment needed to provide personal communications services ("PCS") within the existing site plan. T-Mobile will install nine (9) antennas at the one hundred thirty (130) foot level of the Tower. Three (3) associated unmanned equipment cabinets will be located at the base of the tower.

Connecticut General Statutes § 16-50aa provides that, upon written request for shared use approval, an order approving such use shall be issued, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns." (C.G.S. § 16-50aa(c)(1).) Further, upon approval of such shared use, it is exclusive and no local zoning or land use approvals are required C.G.S. §16-50x. Shared use of the Prospect East Mountain facility satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

- A. Technical Feasibility The existing Tower and compound were designed to accommodate multiple carriers. A structural analysis of the Tower with the proposed T-Mobile installation has been performed and is attached as Exhibit 2. The structural analysis concludes that the tower can safely accommodate the proposed T-Mobile antennas. The proposed shared use of this Tower is technically feasible. There is sufficient room at the base of the facility, T-Mobile will locate their equipment within the existing leased area and then will replace the fence to surround their equipment.
- B. Legal Feasibility Pursuant to C.G.S. § 16-50aa, the Council has been authorized to issue an order approving shared use of the existing Prospect East Mountain facility. (C.G.S. § 16-50aa (C)(1)). Under the authority vested in the Council by C.G.S. § 16-50aa, an order by the Council approving the shared use of a tower would permit the Applicant to obtain a building permit for the proposed installation.
- C. Environmental Feasibility The proposed shared use would have a minimal environmental effect, for the following reasons:

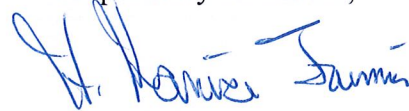
- 1.) The proposed installation would have a de minimis visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing facility,
  - 2.) The proposed installation by T-Mobile would not increase the height of the tower nor expand the existing leased area at the Prospect East Mountain facility and will be of minimal impact to the facility;
  - 3.) The proposed installation would not increase the noise levels at the existing facility boundaries by six decibels or more;
  - 4.) Operation of T-Mobile's antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. The "worst case" exposure calculated for the operation of this facility for all carriers would be approximately 3.3 % of the standard. See Radio Frequency Field Survey dated September 9, 2005, prepared by Farid Marbough, annexed hereto as Exhibit 3;
  - 5.) The proposed shared use of the Prospect East Mountain facility will not require any water or sanitary facilities, or generate any air emissions or discharges to water bodies. Further, the installation will not generate any traffic other than for periodic maintenance visits.
- D. Economic Feasibility The Applicant and the tower owner have agreed to share use of the Prospect East Mountain facility on terms agreeable to both parties. The proposed tower sharing is therefore economically feasible.
- E. Public Safety As stated above and evidenced in the Radio Frequency Field Survey annexed hereto as Exhibit 3, the operation of T-Mobile's antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. Further, the addition of T-Mobile's telecommunications service in the Prospect area through shared use of the Prospect East Mountain facility is expected to enhance the safety and welfare of local residents and travelers through the area resulting in an improvement to public safety in this area.

Page 4

Conclusion

As delineated above, the proposed shared use of the Prospect East Mountain facility satisfies the criteria set forth in C.G.S. § 16-50aa, and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of tower in the State of Connecticut. T-Mobile therefore requests the Siting Council issue an order approving the proposed shared use of the Prospect East Mountain facility.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "K. Fournier" with a stylized flourish at the end.

Karina Fournier  
Zoning Dept.  
T-Mobile  
100 Filley St.  
Bloomfield, CT 06002  
(860) 692-7100

cc: Prospect Mayor, Robert J. Chatfield



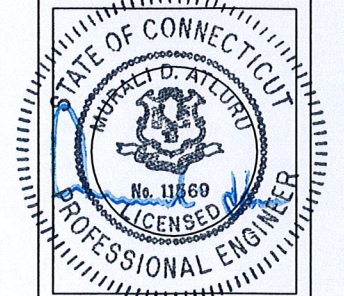
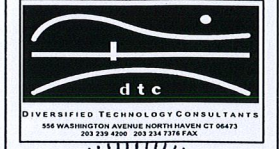
# Exhibit 1

# PROSPECT EAST MOUNTAIN

151 WATERBURY ROAD  
PROSPECT, CT 06712

SITE NUMBER: CTNH302A

OMNIPONT COMMUNICATIONS, INC.  
100 FILLEY STREET  
BLOOMFIELD, CT 06002  
OFFICE: (860) 692-7100  
FAX: (860) 692-7159



**APPROVALS**

LANDLORD \_\_\_\_\_

LEASING \_\_\_\_\_

R.F. \_\_\_\_\_

ZONING \_\_\_\_\_

CONSTRUCTION \_\_\_\_\_

A/E \_\_\_\_\_

PROJECT NO: 05-151-160

DRAWN BY: DEB

CHECKED BY: AGS

**SUBMITTALS**

NO.	DATE	DESCRIPTION
1	09.28.05	CONSTRUCTION
0	09.16.05	CONSTRUCTION

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF OMNIPONT COMMUNICATIONS, INC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

CTNH302A  
PROSPECT EAST MOUNTAIN  
151 WATERBURY ROAD  
PROSPECT, CT 06712

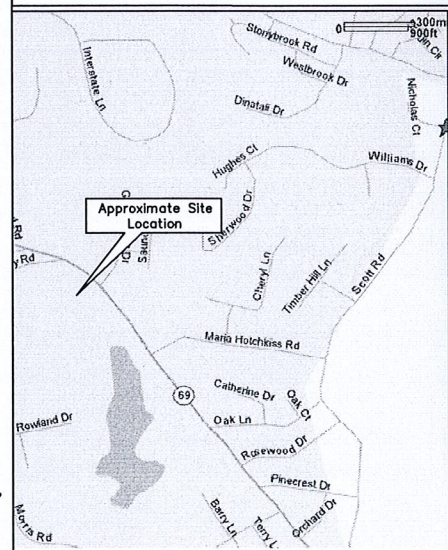
SHEET TITLE  
TITLE SHEET AND INDEX

SHEET NUMBER  
**T-1**

**GENERAL NOTES**

- 1) THE CONTRACTOR SHALL GIVE ALL NOTICES & COMPLY w/ ALL LAWS, ORDINANCES, RULES, REGULATIONS & LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL & UTILITY COMPANY SPECIFICATIONS, & LOCAL & STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT & THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE w/ ALL APPLICABLE CODES, REGULATIONS, & ORDINANCES.
- 2) THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION & CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS and/or SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT & IMPROVEMENTS IN ACCORDANCE w/ THE INTENT OF THESE DOCUMENTS.
- 3) THE CONTRACTOR or BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE LESSEE/LICENSEE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, or OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL or PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY or EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
- 4) THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR & ALL OTHER MATERIALS & LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT as DESCRIBED HEREIN.
- 5) THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS or PERFORMING WORK TO FAMILIARIZE HIMSELF w/ THE FIELD CONDITIONS & TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE w/ THE CONTRACT DOCUMENTS.
- 6) THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED w/ CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
- 7) THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT & MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE or WHERE LOCAL CODES or ORDINANCES TAKE PRECEDENCE.
- 8) THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED w/ THE LATEST REVISIONS & ADDENDUM'S or CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED w/ THE PROJECT.
- 9) THE CONTRACTOR SHALL SUPERVISE & DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES & PROCEDURES & FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- 10) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS & ESTABLISHING & MAINTAINING ALL LINES & GRADES REQ'D TO CONSTRUCT ALL IMPROVEMENTS as SHOWN HEREIN.
- 11) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS & INSPECTIONS WHICH MAY BE REQ'D FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY or LOCAL GOVERNMENT AUTHORITY.
- 12) THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION on or ABOUT THE PROPERTY.
- 13) THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN & HAZARD FREE DURING CONSTRUCTION & DISPOSE OF ALL DIRT, DEBRIS, RUBBISH & REMOVE EQUIPMENT NOT SPECIFIED as REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION & FREE FROM PAINT SPOTS, DUST, or SMUDGES OF ANY NATURE.
- 14) THE CONTRACTOR SHALL COMPLY w/ ALL OSHA REQUIREMENTS as THEY APPLY TO THIS PROJECT.
- 15) THE CONTRACTOR SHALL NOTIFY THE LESSEE/LICENSEE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL or CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
- 16) THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. on THE JOB.
- 17) ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS & EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72hr PRIOR TO ANY EXCAVATION ACTIVITY. DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233 CALL BEFORE YOU DIG (CT): 1-800-922-4455
- 18) PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE/LICENSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

**VICINITY MAP**  
AS SHOWN



**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE LESSEE/LICENSEE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

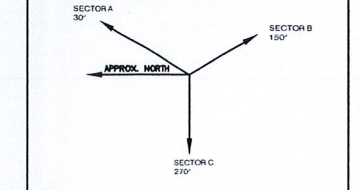
**SHEET INDEX**

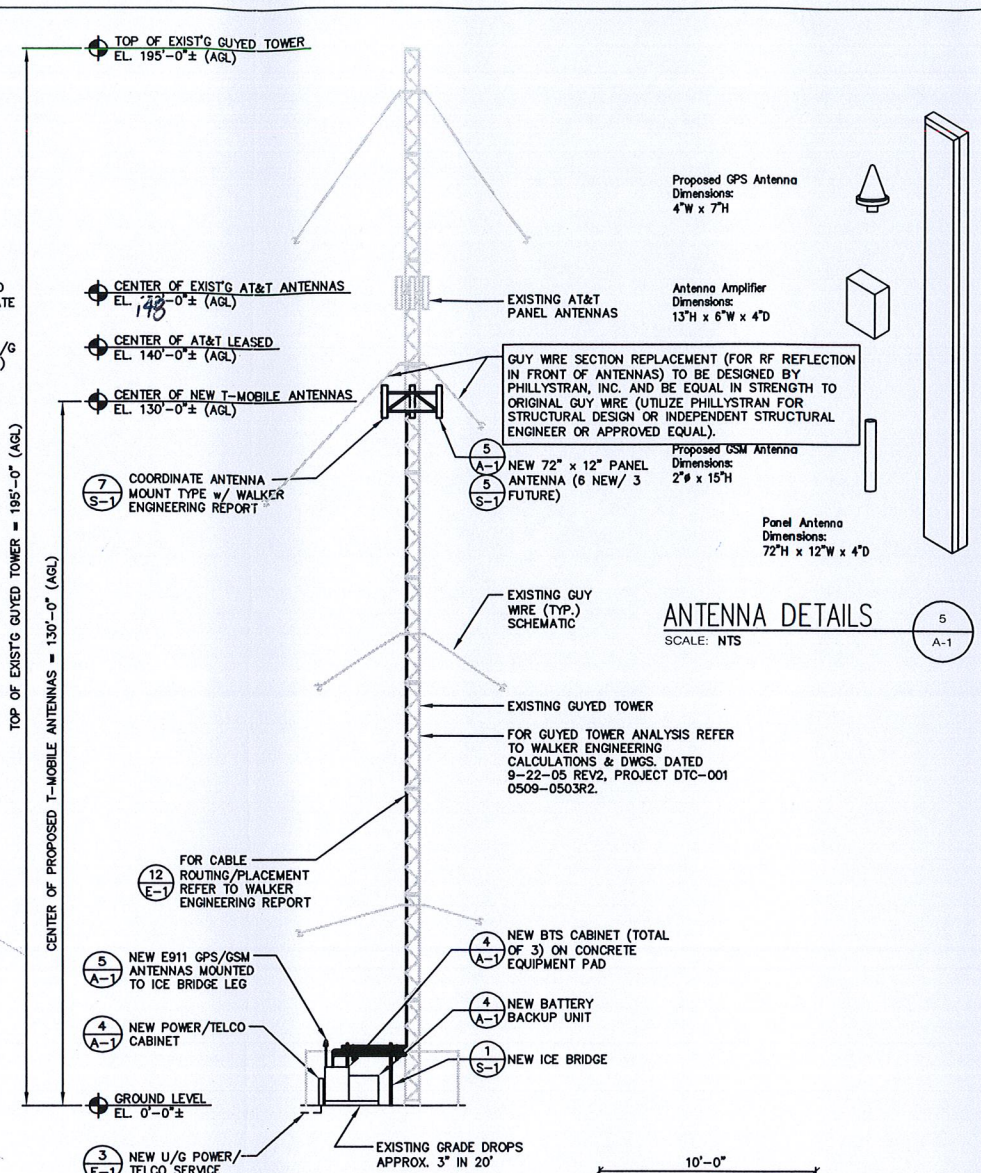
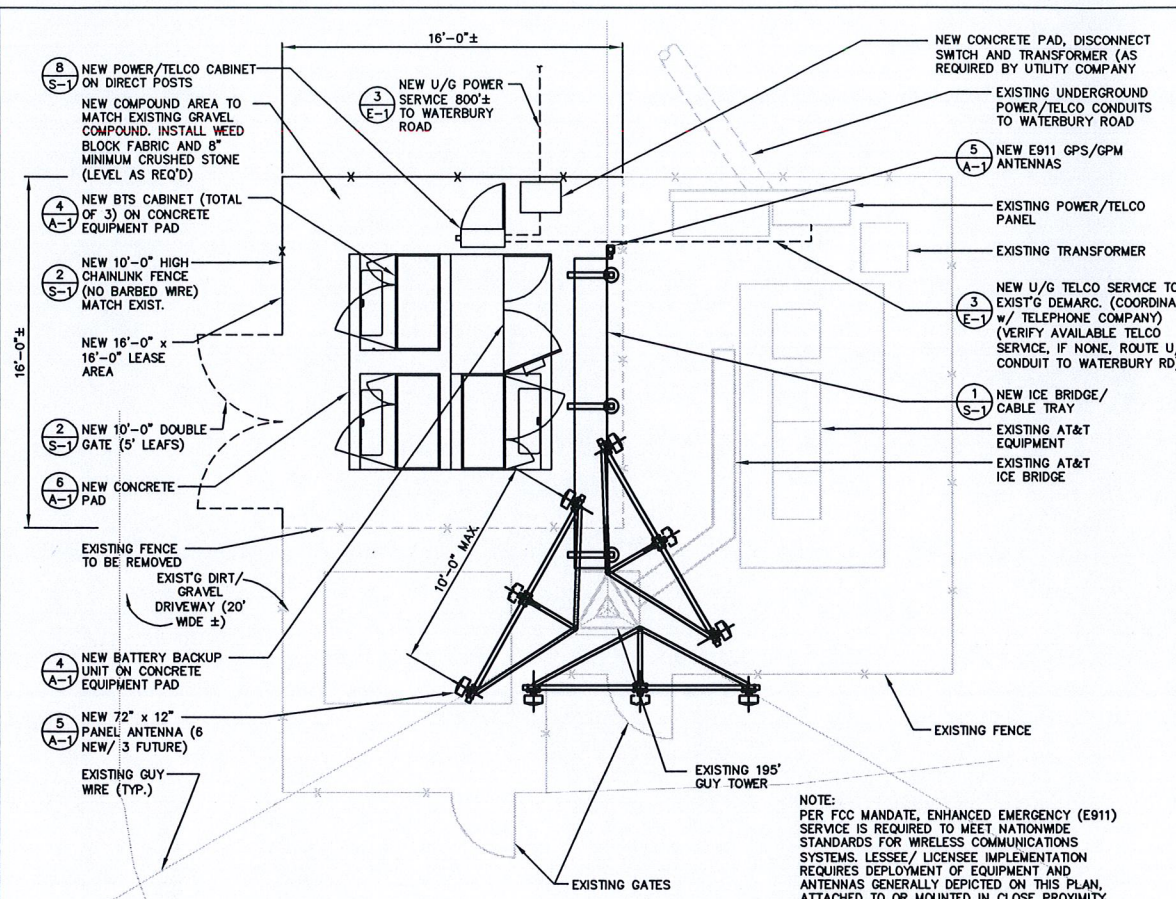
SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET & INDEX	1
A-1	PLANS, ELEVATIONS, DETAILS AND NOTES	1
S-1	EQUIPMENT ELEVATIONS, STRUCTURAL NOTES & DETAILS	1
E-1	ELECTRICAL PLANS, DETAILS AND NOTES	1

**PROJECT SUMMARY**

SITE NUMBER: CTNH302A  
 SITE NAME: PROSPECT EAST MOUNTAIN  
 SITE ADDRESS: 151 WATERBURY ROAD  
 PROSPECT, CT 06712  
 ASSESSOR'S PARCEL NO.: MAP: 104, BLK: N/A, LOT: 151  
 CONSTRUCTION TYPE: CO-LOCATION  
 PROPERTY OWNER: SFX BROADCASTING OF CT  
 10 COLUMBUS BLVD  
 HARTFORD, CT 06106  
 STRUCTURE OWNER: SFX BROADCASTING OF CT  
 10 COLUMBUS BLVD  
 HARTFORD, CT 06106  
 APPLICANT: OMNIPONT COMMUNICATIONS, INC.  
 100 FILLEY STREET  
 BLOOMFIELD, CT 06002

**ANTENNA ORIENTATION KEY**





### ABBREVIATIONS

SF	SQUARE FOOT	ADJ	ADJUSTABLE
APPROX	APPROXIMATE	SHT	SHEET
CONC	CONCRETE	SIM	SIMILAR CONDUIT
CONT	CONTINUOUS	STL	STEEL
CJ	CONSTRUCTION JOINT	TOC	TOP OF CONCRETE
DIA	DIAMETER	TOM	TOP OF MASONRY
DWG	DRAWING	TYP	TYPICAL
EGB	EQUIPMENT GROUND BAR	VIF	VERIFY IN FIELD
EA	EACH	UON	UNLESS OTHERWISE NOTED
ELEC	ELECTRICAL	WWF	WELDED WIRE FABRIC
EL	ELEVATION	BTS	BASE TRANSMISSION STATION
EQ	EQUAL	w/	WITH
EQUIP	EQUIPMENT	LNA	LOW NOISE AMPLIFIER
EXT	EXTERIOR	PCS	PERSONAL COMM. SERVICES
FF	FINISHED FLOOR	A-1	ANTENNA MARK NO.
GA	GAUGE	&	AND
GALV	GALVANIZED	@	AT
GC	GENERAL CONTRACTOR	PL	PLATE BAR
LG	LONG	MIN	MINIMUM
MAX	MAXIMUM	MTL	METAL
MECH	MECHANICAL	NIC	NOT IN CONTRACT
MFR	MANUFACTURER	NTS	NOT TO SCALE
MGB	MASTER GROUND	OC	ON CENTER
AGL	ABOVE GROUND LEVEL	OPP	OPPOSITE
ARL	ABOVE ROOF LEVEL		
AFL	ABOVE FLOOR LEVEL		

### SYMBOLS AND MATERIALS

	NEW ANTENNA		GROUT or PLASTER
	EXISTING ANTENNA		BRICK
	ASPHALT		MASONRY
	NEW ACCESS EASEMENT		CONCRETE
	CONCRETE		EARTH
	ELECTRIC BOX		GRAVEL
	LIGHT POLE		PLYWOOD
	FND. MONUMENT		SAND
	SPOT ELEVATION		WOOD CONT.
	SET POINT		WOOD BLOCKING
	REVISION		STEEL
	GRID REFERENCE		CENTERLINE
	DETAIL REFERENCE		PROPERTY LINE
	ELEVATION		STEPPED FOOTING
			MATCH LINE
			WORK POINT
			GROUND WIRE
			COAXIAL CABLE

**NOTE:** PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE/LICENSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

**NOTE:** PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A GLOBAL STRUCTURAL STABILITY ANALYSIS TO DETERMINE CAPACITY AND SUITABILITY OF EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY PROPOSED EQUIPMENT. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ALL REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

**NOTE:** ON EXISTING ANTENNA SUPPORT STRUCTURES WITH FAA OBSTRUCTION MARKINGS, PAINT ANTENNAS, MOUNTING HARDWARE, AND EXPOSED VERTICAL CABLE RUNS TO MATCH EXISTING HARDWARE PATTERN (AVIATION ORANGE OR WHITE).

- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.
- ALL DIMENSIONS SHOWN THUS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH AFFECTS THE CONTRACTOR'S WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS W/ LESSEE/LICENSEE PRIOR TO CONSTRUCTION.
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH & INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
- THE GENERAL CONTRACTOR AND/OR HIS SUB CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS & INSPECTIONS WHICH MAY BE REQ'D FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTRY OR LOCAL GOVERNMENT AUTHORITY.
- ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY & ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES & SUPPORT STRUCTURES.
- COAXIAL CABLE CONNECTORS & TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE LESSEE/LICENSEE & IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF LESSEE/LICENSEE SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE ATTACHMENT K).
- ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- ANY EQUIPMENT THAT IS TO BE PAINTED SHALL BE PAINTED TO MATCH EXISTING. PAINT SHALL BE SHERWIN WILLIAMS, COROTHANE II. SURFACE PREPARATION & APPLICATION SHALL BE IN ACCORDANCE W/ MANF'S SPECIFICATIONS & LESSEE/LICENSEE GUIDELINES.
- COORDINATION, LAYOUT, & FURNISHING OF CONDUIT, CABLE & ALL APPURTENANCES REQ'D FOR PROPER INSTALLATION OF ELECTRICAL & TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERMAN WILLIAMS COROTHANE II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND PROJECT OWNERS GUIDELINES
- PRIOR TO EXCAVATION NEAR BUILDING, CONTRACTOR TO CONTACT & COORDINATE W/ PROPERTY LESSEE/LICENSEE.
- ALL ACTIVE SEWER, WATER, GAS, ELECTRIC, & OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, & WHERE REQ'D FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
- ALL INACTIVE SEWER, WATER, GAS, ELECTRIC & OTHER UTILITIES, WHICH INTERFERE W/ THE EXECUTION OF THE WORK, SHALL BE REMOVED OR CAPPED, PLOUGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE W/ THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY.
- THE AREAS OF THE PROPERTY DISTURBED BY THE WORK & NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDDED & COVERED W/MULCH.
- THE CONTRACTOR SHALL ESTABLISH & MAINTAIN SOIL EROSION & SEDIMENTATION CONTROLS AT ALL TIMES DURING CONSTRUCTION.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE W/ LOCAL UTILITY COMPANY REQUIREMENTS & SPECIFICATIONS.
- PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE REQ'D TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT & ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE/LICENSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO (E911) EQUIPMENT & LOCATION AS TECHNOLOGY EVOLVES TO MEET REQ'D SPECIFICATION.

**OMNIPONT COMMUNICATIONS, INC.**  
100 FILLEY STREET  
BLOOMFIELD, CT 06002  
OFFICE: (860) 692-7100  
FAX: (860) 692-7159

**STATE OF CONNECTICUT**  
MURALI D. ATLURU  
No. 11569  
LICENSED PROFESSIONAL ENGINEER

**APPROVALS**

LANDLORD \_\_\_\_\_  
LEASING \_\_\_\_\_  
R.F. \_\_\_\_\_  
ZONING \_\_\_\_\_  
CONSTRUCTION \_\_\_\_\_  
A/E \_\_\_\_\_

PROJECT NO: 05-151-180  
DRAWN BY: DEB  
CHECKED BY: AGS

**SUBMITTALS**

1	09.28.05	CONSTRUCTION
0	09.18.05	CONSTRUCTION

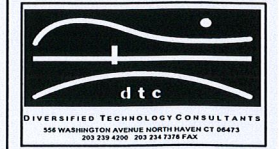
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**CTNH302A**  
**PROSPECT EAST MOUNTAIN**  
151 WATERBURY ROAD  
PROSPECT, CT 06712

SHEET TITLE  
**PLANS, ELEVATIONS, DETAILS, AND NOTES**

SHEET NUMBER  
**A-1**

OMNIPONT COMMUNICATIONS, INC.  
 100 FILLEY STREET  
 BLOOMFIELD, CT 06002  
 OFFICE: (860) 692-7100  
 FAX: (860) 692-7159



**APPROVALS**

LANDLORD \_\_\_\_\_  
 LEASING \_\_\_\_\_  
 R.F. \_\_\_\_\_  
 ZONING \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 A/E \_\_\_\_\_

PROJECT NO: 05-151-180  
 DRAWN BY: DEB

CHECKED BY: AGS

**SUBMITTALS**

NO.	DATE	DESCRIPTION
1	09.28.05	CONSTRUCTION
0	09.18.05	CONSTRUCTION

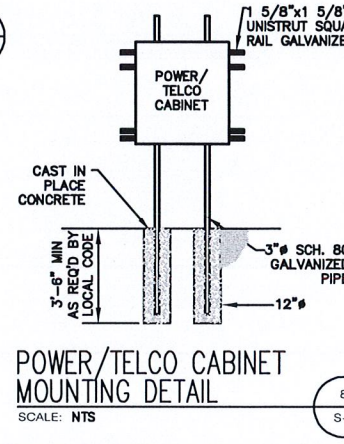
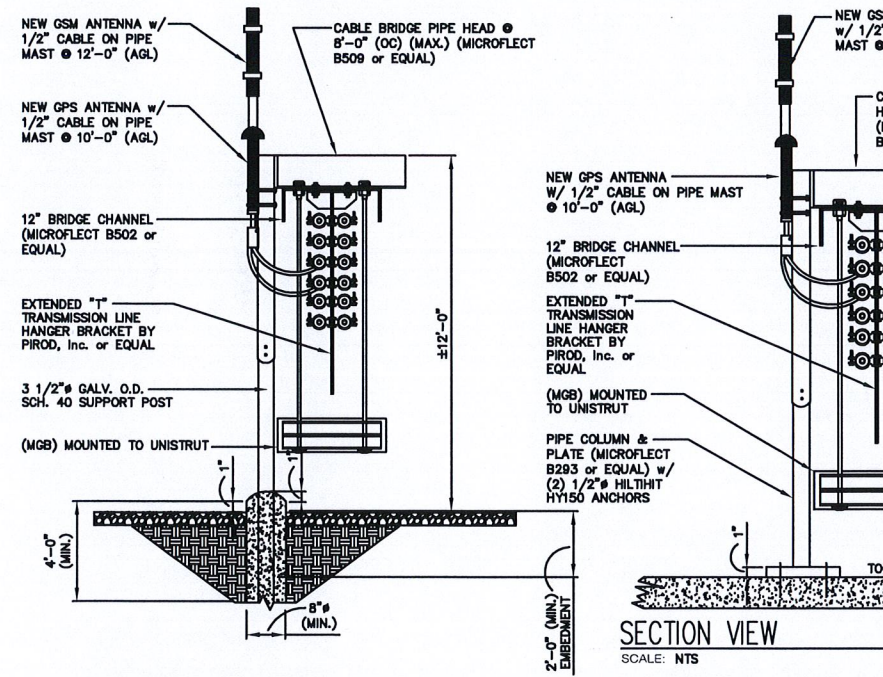
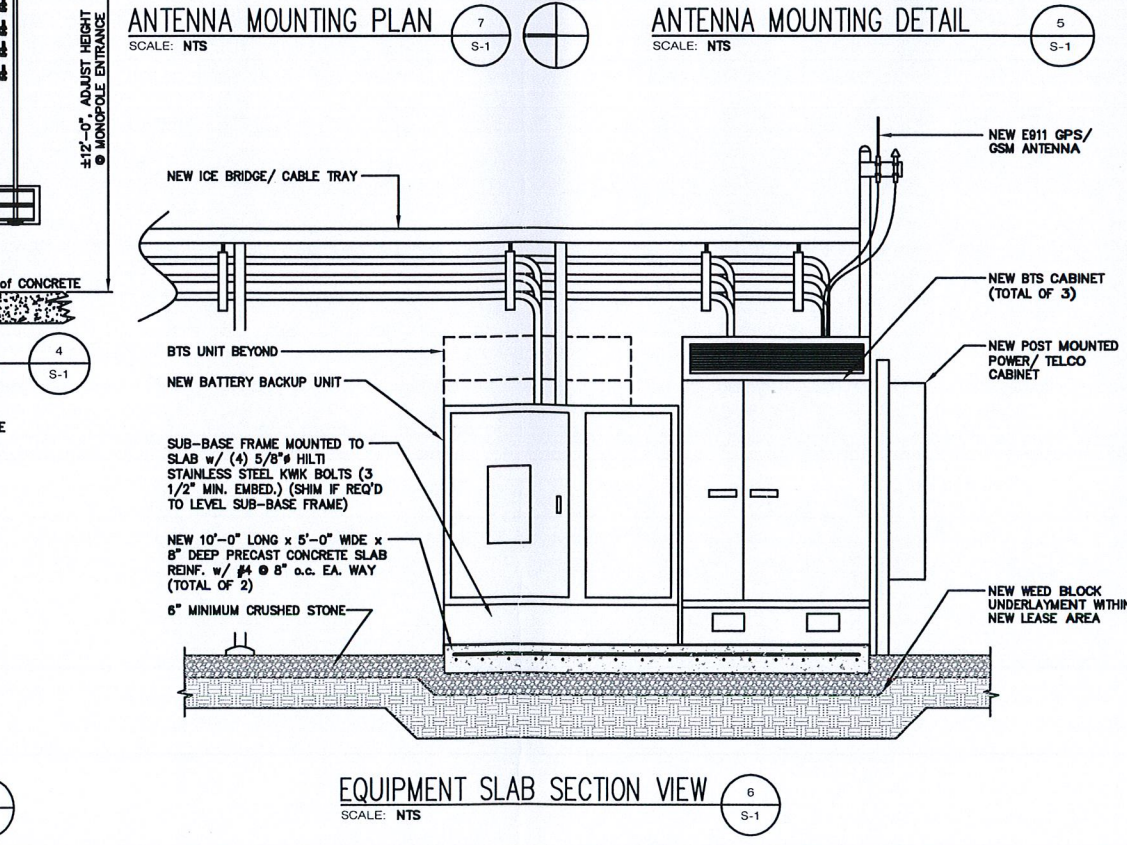
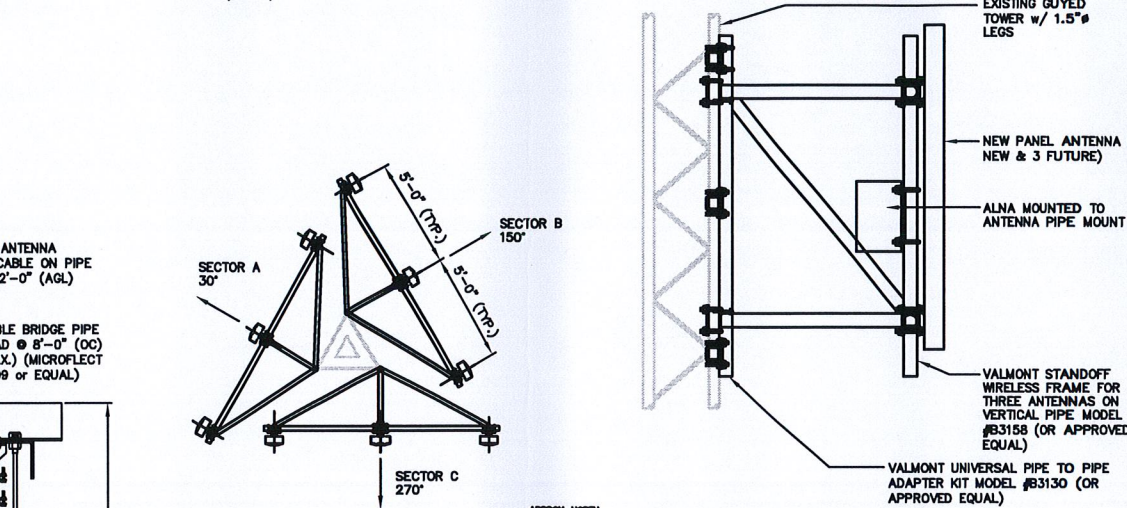
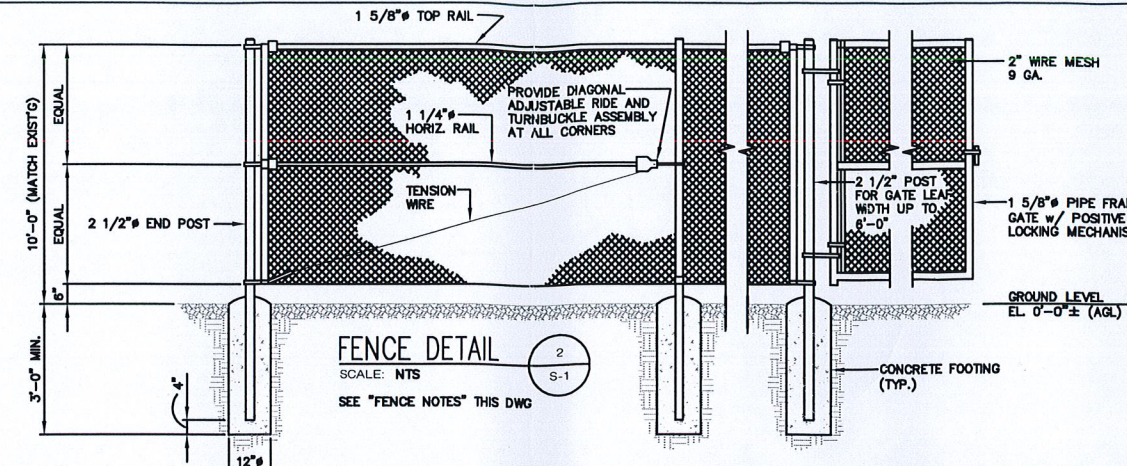
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CTNH302A  
 PROSPECT EAST MOUNTAIN  
 151 WATERBURY ROAD  
 PROSPECT, CT 06712

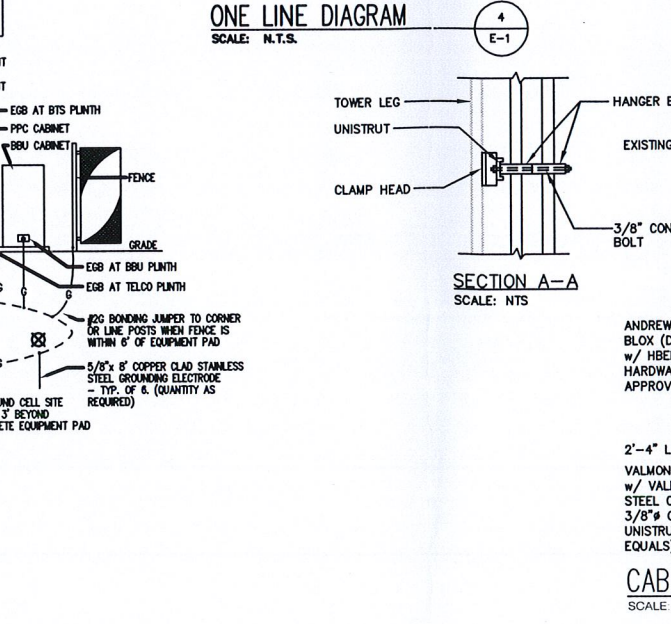
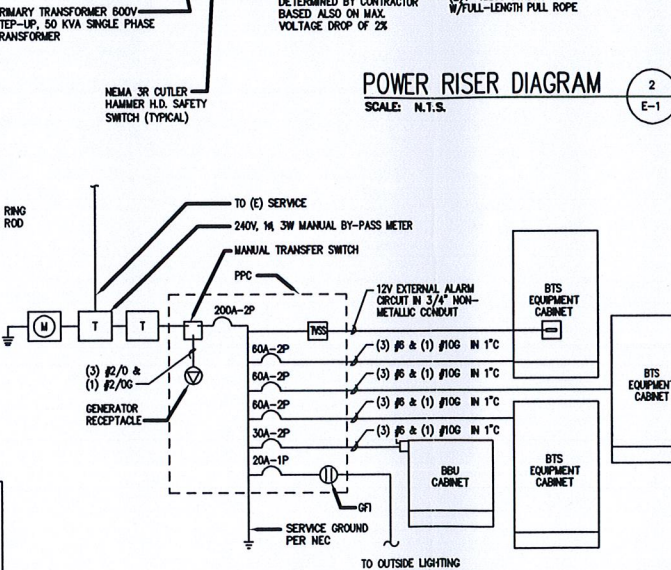
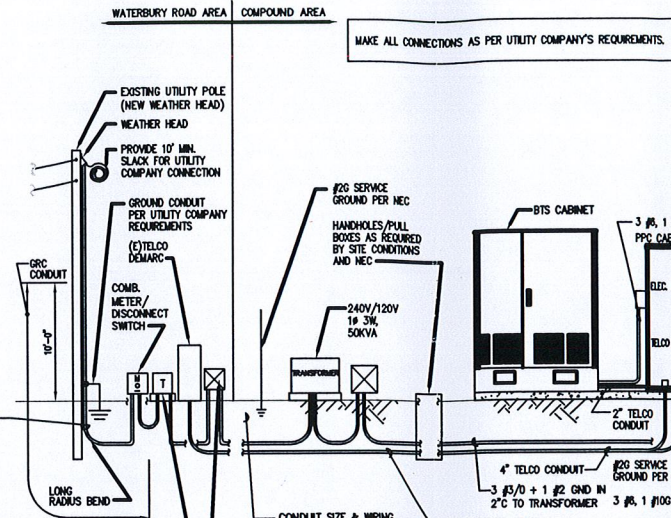
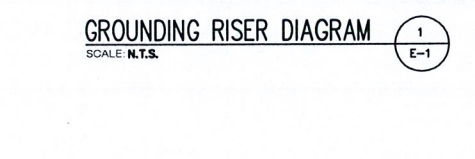
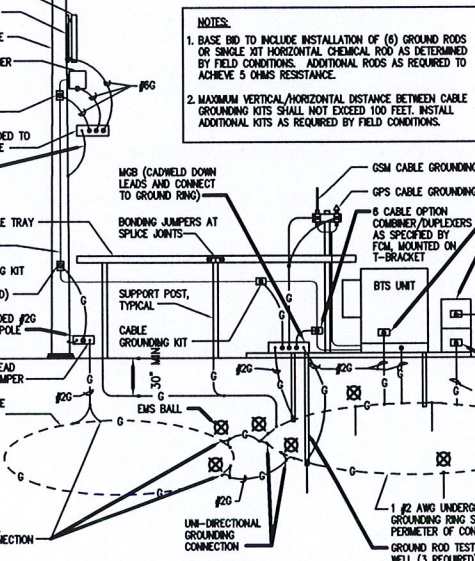
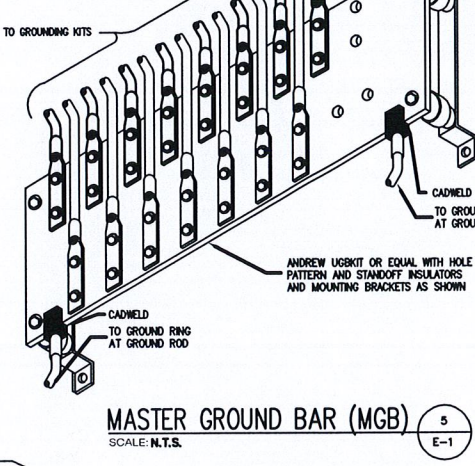
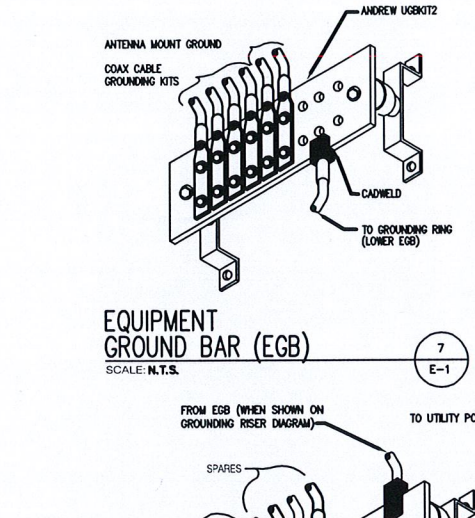
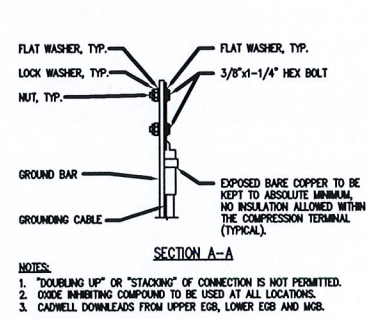
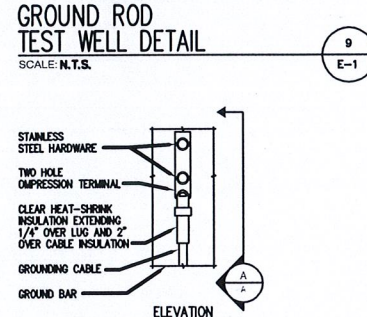
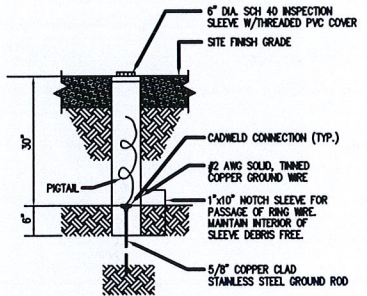
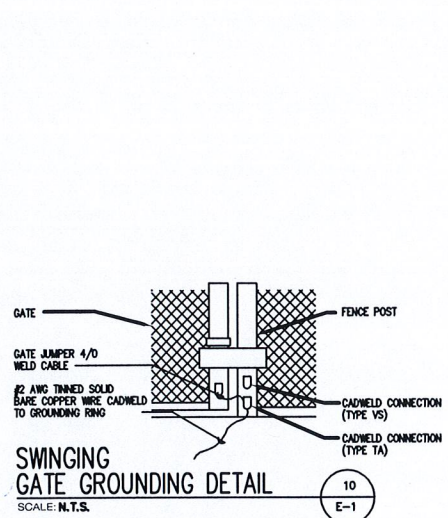
SHEET TITLE  
 EQUIPMENT ELEVATIONS,  
 STRUCTURAL NOTES  
 AND DETAILS

SHEET NUMBER  
**S-1**

- STRUCTURAL NOTES**
- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE & APPLICABLE SUPPLEMENTS, ANSI/ASCE7, EA/TA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.
  - CONTRACTOR SHALL VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD PRIOR TO FABRICATION & ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER.
  - DESIGN & CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION & ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
  - STRUCTURAL & MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 STRUCT. STEEL UNLESS OTHERWISE INDICATED.
  - STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, or ASTM A53 PIPE STEEL BLACK & HOT-DIPPED ZINC-COATED WELDED & SEAMLESS TYPE E or S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
  - STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) & CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS & PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE #5/8" UON.
  - ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE w/ ASTM A123 "ZINC (HOT-DIP GALVANIZED COATINGS ON IRON & STEEL PRODUCTS)", UNLESS OTHERWISE NOTED.
  - ALL BOLTS, ANCHORS & MISCELLANEOUS HARDWARE SHALL BE GALV. IN ACCORDANCE w/ ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON & STEEL HARDWARE", UNLESS OTHERWISE NOTED.
  - FIELD WELDS, DRILL HOLES, SAW CUTS & ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED w/ AN ORGANIC ZINC REPAIR PAINT COMPLYING w/ REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN or EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW DRY TIME BETWEEN COATS) w/ A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 or A153 as APPLICABLE.
  - CONTRACTOR SHALL COMPLY w/ AWS CODE FOR PROCEDURES, APPEARANCE & QUALITY OF WELDS, & FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS & WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE w/ AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES & WELDING SHALL CONFORM TO AISC % D.I.L. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION.11.
  - INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS or CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL or CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
  - UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING as MANUFACTURED BY UNISTRUT CORP, WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1-5/8"x 1-5/8"x12GA, UNLESS OTHERWISE NOTED, & SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
  - EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD w/ NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE & EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE Hilti-HIT HY-20 and/or HY-150 SYSTEMS (as SPECIFIED AN DWG.) or ENGINEERS APPROVED EQUAL w/ 4-1/4" MIN. EMBEDMENT DEPTH.
  - EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT II or APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE w/ THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE & ONE HALF (3 1/2) INCHES.
  - GRAVEL SUB BASE & CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL.
  - CONCRETE FOR FENCE & ICE BRIDGE SUPPORT SHALL BE 3000 PSI AIR ENTRAINED (4%-6%) NORMAL WEIGHT CONCRETE.
  - ALL CAST IN PLACE CONCRETE SHALL BE MIXED & PLACED IN ACCORDANCE w/ THE REQUIREMENTS OF ACI 318 & ACI 301.
  - THE FOLLOWING MINIMUM CONCRETE COVER OVER REINFORCING STEEL SHALL BE as FOLLOWS UNLESS NOTED OTHERWISE:  
 CONCRETE CAST AGAINST EARTH ... 3 INCHES.  
 CONCRETE EXPOSED TO EARTH or WATER  
 #8 & LARGER ..... 2 INCHES  
 #5 & SMALLER ..... 1 1/2 INCHES  
 ALL EXPOSED EDGES SHALL BE PROVIDED w/ A 3/4"x3/4" CHAMFER UNLESS NOTED OTHERWISE.
  - LUMBER SHALL COMPLY w/ THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION & THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED & SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
  - WHERE ROOF PENETRATIONS ARE REQ'D, THE CONTRACTOR SHALL CONTACT & COORDINATE RELATED WORK w/ THE BUILDING OWNER & THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER as TO NOT VOID THE EXISTING ROOF WARRANTY.
  - PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE REQ'D TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT & ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO or MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE/LICENSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO (E911) EQUIPMENT & LOCATION as TECHNOLOGY EVOLVES TO MEET REQ'D SPECIFICATION.



- FENCE NOTES:**
- INSTALL FENCING PER ASTM F-567, SWING GATE PER ASTM F-900.
  - ALL END POSTS, LINE POSTS, PULL POSTS, POSTS FOR GATE LEAF, PIPES FOR GATE FRAME AND TOP RAILS SHALL BE SCHEDULE 40 PIPE PER ASTM F-1083.
  - FABRIC SHALL BE 12 GA. CORE WIRE SIZE 2" MESH CONFORMING TO ASTM A-362.
  - TENSION WIRE SHALL BE 7 GA. GALV. STEEL.
  - THE WIRE SHALL BE 11 GA. GALV. STEEL (MIN.) AT POSTS AND RAILS. A SINGLE WRAP FABRIC TIE AT TENSION WIRE BY HOG RINGS SPACED MAX. OF 24" INTERVALS.
  - BARBED WIRE SHALL BE DOUBLE STRAND 12 1/2" O.D. TWISTED WIRE TO MATCH 6. W/FABRIC 14 GA., 4 PT. BARBS SPACES AT APPROXIMATELY 5" O.C.
  - COMPLY WITH LOCAL ORDINANCES OF BARBED WIRE PERMIT REQUIREMENTS, IF REQUIRED.
  - STEEL FENCE SYSTEM SHALL INCLUDE THE FENCE POSTS, FABRIC, GATE SYSTEM AND ALL NECESSARY ERECTION ACCESSORIES, FITTINGS AND FASTENINGS. ALL FENCE SYSTEM COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. GATES SHALL BE SWING GATES WITH 5'-0" LEAF. REFER TO TYPICAL FENCE DETAIL FOR ADDITIONAL INFORMATION. INSTALL FENCE AFTER CONCRETE HAS ATTAINED 75% OF 28 DAY DESIGN STRENGTH.



- RISER DIAGRAM FEEDER SCHEDULE NOTES:**
1. THE CONTRACTOR SHALL INSTALL GROUNDING BUSHINGS ON ALL CONDUITS AS INDICATED.
  2. ALL CONDUITS SHALL BE EMT UNLESS INDICATED OTHERWISE.
  3. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL (1) GF SERVICE DUPLEX RECEPTACLE WITH NEMA 3R IN-USE COVER, (AS REQUIRED BY NEC), (2) SURFACE MOUNTED, NONMETALLIC, GASKETED, CORROSION RESISTANT, 20W TRIPLE TUBE COMPACT FLUORESCENT FIXTURE WITH ELECTRONIC BALLAST. FIXTURE SHALL BE CANLET #0FWF28H10-GSC OR EQUAL. (1) SINGLE POLE SWITCH IN WEATHER-TIGHT ENCLOSURE. FURNISH AND INSTALL (2) #12, (1) #12 GND. IN 3/4\"/>

**ELECTRICAL LEGEND**

	NEW PANEL BOARD, SURFACE MOUNTED
	EXISTING PANEL BOARD, SURFACE MOUNTED
	DRY TYPE TRANSFORMER
	METER
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54\"/>
	FUSIBLE DISCONNECT SWITCH, MOUNTED 54\"/>
	TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
	DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
	JUNCTION BOX, SURFACE MOUNTED 18\"/>
	EXPOSED WIRING
	HOME RUNS, MINIMUM 2#10 + 1#10G IN 3/4\"/>
	A.F.F. ABOVE FINISHED FLOOR
	U.O.N. UNLESS OTHERWISE NOTED
	W.P. WEATHERPROOF
	GFI GROUND FAULT INTERRUPTER
	A AMPERE
	V VOLT
	KWH KILOWATT - HOUR
	C CONDUIT
	GRC GALVANIZED RIGID CONDUIT
	G GROUND
	MGB MASTER GROUND BAR
	EGB EQUIPMENT GROUND BAR
	GROUND COPPER WIRE, SIZE AS NOTED
	EXPOSED WIRING
	COAXIAL CABLE
	EXOTHERMIC (CADWELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
	PPC POWER PROTECTION CABINET
	OMS-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

- ELECTRICAL AND GROUNDING NOTES**
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
  2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
  3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
  4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SUD PERMITS AND COORDINATION OF INSPECTIONS.
  5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PPC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
  6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
  7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE 10HN, THHN, OR THHNSULATION.
  8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH FULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
  9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BITS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH FULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREASE/LEAK DETECTION TAPE AT EACH END.
  10. WHERE CONDUIT BETWEEN BITS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BITS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PPC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
  11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
  12. PPC SUPPLIED BY PROJECT OWNER.
  13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BITS SITE GROUNDING STANDARDS".
  14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
  15. USE #8 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
  16. ALL GROUND CONNECTIONS TO BE BURIED HYDRON COMPRESSOR TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
  17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12\"/>

**OMNIPONT COMMUNICATIONS, INC.**  
 100 FILLEY STREET  
 BLOOMFIELD, CT 06002  
 OFFICE: (860) 692-7100  
 FAX: (860) 692-7159

**DIVERSIFIED TECHNOLOGY CONSULTANTS**  
 558 WASHINGTON AVENUE, NORTH HAVEN, CT 06477  
 203 239 4300 203 234 7378 FAX

**STATE OF CONNECTICUT**  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 11950

**APPROVALS**

LANDLORD \_\_\_\_\_  
 LEASING \_\_\_\_\_  
 R.F. \_\_\_\_\_  
 ZONING \_\_\_\_\_  
 CONSTRUCTION \_\_\_\_\_  
 A/E \_\_\_\_\_

PROJECT NO: 05-151-160

DRAWN BY: DEB

CHECKED BY: AGS

**SUBMITTALS**

1	09.28.05	CONSTRUCTION
0	09.16.05	CONSTRUCTION

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**CTNH302A PROSPECT EAST MOUNTAIN**  
 151 WATERBURY ROAD  
 PROSPECT, CT 06712

**SHEET TITLE**  
 ELECTRICAL PLANS, DETAILS, AND NOTES

**SHEET NUMBER**  
**E-1**

## Exhibit 2

# WALKER ENGINEERING, INC.

8451 DUNWOODY PLACE  
NORTHRIDGE 400, BLDG. 8  
DUNWOODY, GA 30350  
(770) 641-7306 FAX (770) 587-2196

CIVIL • STRUCTURAL  
N 33° 59' 13.6" W 84° 20' 26.8"

Mr. Dan Bolan  
**Diversified Technology Consultants**

09/22/05

556 Washington Avenue  
North Haven, CT 06473

**Site: Prospect**

Sub: Structural Analysis of 195-ft Guy Tower  
151 Waterbury Drive, Prospect, CT 06712

Dear Mr. Bolan:

Walker Engineering has performed a Level-Two finite element, P- $\Delta$  structural analysis of the above noted tower in accordance with your Authorization for Services for the addition of the **T-Mobile proposed** antennas outlined below. This analysis consists of determining the forces on the tower caused by existing, proposed, and reserved loads. The existing, proposed, and reserved loads were provided by your office.

The subject tower is a 195-ft, three face, guyed-tower, designed and manufactured by Stainless, Inc in 1972. The complete tower manufacturer's drawings are unavailable. The tower data was obtained from a portion of the original Stainless design, Report No.: 2349-1, dated 05/09/73, a climbing report by CSB Communications, Site Name: Prospect CT, Site No.: CT-626, dated 06/04/02, and a previous reinforcement design by Walker Engineering Inc., Job No. 0206-225, Drawing No. S-1, S-2, and S-3, dated 09/05/02. The tower geometry and member sizes were obtained from these data and are assumed to be accurate. The tower has also been assumed to be in good condition and capable of supporting its original full design capacity.

Our analysis was performed in accordance with TIA/EIA-222-F for an 85 mph<sup>1</sup> base windload, and ASCE-7 windload with 3/4" radial ice, as specified by Diversified Technology Consultants.

**Existing, reserved, and proposed loads include the following:**

at 148 ft AT&T: Three Allgon 7250.03 panel antennas on three flush mounts, fed by six 1-1/4"  $\varnothing$  coax cables.

<sup>1</sup> The minimum windspeed specified by EIA-222-F for New Haven County, CT is 85 mph.

- at 140 ft AT&T: Three Allgon 7250.03 panel antennas on three flush mounts, fed by six 1-1/4"Ø coax cables
- at 137 ft Torque arm assembly.
- at 130 ft T-Mobile (Proposed):** Nine EMS DR65-19-XXDPQ panel antennas on three T-Frame Sector mounts, fed by eighteen 1-5/8"Ø coax cables.
- at 83 ft Existing: One dipole (broken) antenna fed by one 1/2"Ø coax cable.

**Note:** The analysis **assumes** that the coax cables (existing, reserved, and proposed) are installed on the tower per the *Cable Plan Drawing E-7, Walker Engineering Job No. 0509-503, dated 09/22/05*. Additional waveguide ladders may be required. *Please notify the undersigned prior to altering the cable routing configuration or if the coax configuration is different than the following chart.* Placement of small cables for beacons, ground rods, etc. are not critical.

<u>Existing:</u>	<u>Proposed/Reserved:</u>
<u>Face A:</u> 2ea 7/8"Ø to 92' 1ea 1/2"Ø to 83'	None
<u>Face B:</u> 6ea 1-1/4"Ø to 148' (AT&T)	10ea 1-5/8"Ø to 130' (T-Mobile) (Install on two layers per drawing E-7)
<u>Face C:</u> 1ea 1-5/8"Ø to 159' 6ea 1-1/4"Ø to 140' (AT&T)	8ea 1-5/8"Ø to 130' (T-Mobile) (Install on two layers per drawing E-7)

**Tower Summary:**

This analysis shows that the subject tower **is adequate** to support the existing, reserved, and proposed loads.

A copy of the analysis is enclosed. A summary of the controlling load cases is provided below:

<u>Guy Elev.</u>	<u>Guy Size</u>	<u>Allowable Load</u>	<u>Existing/ Proposed</u>	<u>% of Allowable</u>
at 187-ft	5/16"Ø	5.60 k	3.06 k	55 %
at 137-ft	5/16"Ø	5.60 k	5.11 k	91 %
at 87-ft	5/16"Ø	5.60 k	5.62 k	100 %
at 37-ft	5/16"Ø	5.60 k	2.91 k	52 %



<u>Tower Element</u>	<u>Elevation</u>	<u>CSI<sup>2</sup></u>
Tower Legs	0-ft to 195-ft	0.86
Diagonal Bracing	0-ft to 195-ft	0.70
Horizontal Bracing	0-ft to 195-ft	0.14

**Foundation Summary:**

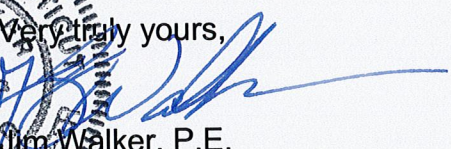
The original foundation design drawings and loads are unavailable. Walker Engineering, Inc. had performed a foundation evaluation according to foundation mapping by CSB Communications, Site Name: Prospect CT, Site No.: CT-626, dated 06/04/02, Walker Engineering's guy anchor design, Walker Job No.: 0206-225, Drawing No.: S-2, dated 09/05/02, and the Geotechnical soils report by Criscuolo Shepard Associates, PC, CSA File No. 2002.906, dated: 08/13/02. The results indicate that the existing tower mast foundation and guy anchor foundations **are adequate** to support the existing, future, and proposed loads.

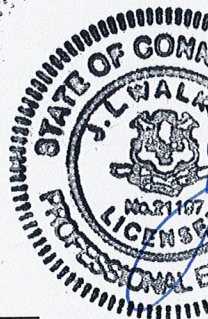
<u>Foundation Loads</u>	<u>Orig. Design<sup>3</sup> Reactions</u>	<u>Existing/ Proposed</u>	<u>% of Reactions</u>
Mast (vert.)	48.0 k	40 k	83 %
Existing Guy Anchor (vert)	18.1 k	13 k	72 %
Radius at 135-ft (horiz)	18.9 k	16 k	85 %

As future loads are installed, the tower should be re-evaluated on a case-by-case basis.

The analysis is based, in part, on information provided to this office by Diversified Technology Consultants. If the existing conditions are different than the information in this report, Walker Engineering should be contacted for resolution of any issues.

Walker Engineering appreciates the opportunity to be of service in this matter. Please do not hesitate to give me a call if you have any questions or comments.

Very truly yours,  
  
 J.L. Walker, P.E.  
 22 Sep. 2005

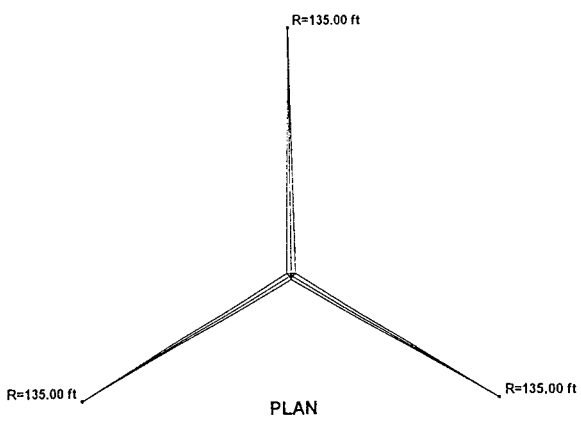
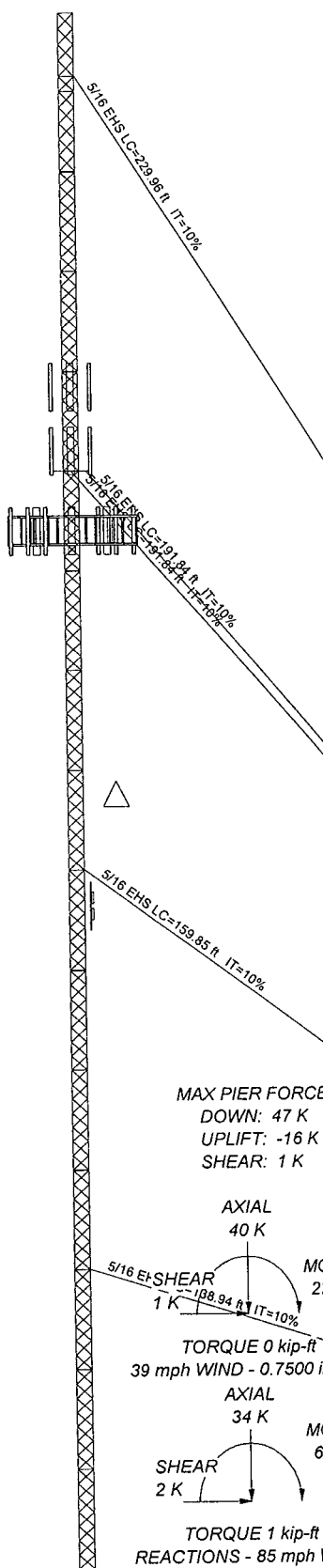


encl

<sup>2</sup> "Combined Stress Index" Ratio of calculated loads verses total allowable loads; should be less than, or equal to, 1.00.

<sup>3</sup> Foundation reactions from new guy anchor foundation by Walker Engineering, Drawing S-2, Job No. 0206-225, dated 09/05/02. Geotechnical soils report by Criscuolo Shepard Associates, PC, CSA File No. 2002.906, dated: 08/13/02.

195.0 ft  
187.0 ft  
175.0 ft  
150.0 ft  
137.5 ft  
125.0 ft  
100.0 ft  
87.5 ft  
75.0 ft  
50.0 ft  
37.5 ft  
25.0 ft  
0.0 ft



**APPURTENANCES**

TYPE	ELEVATION	TYPE	ELEVATION
Allgon 7250.03 panel antenna (ATI)	148	Flush mount (ATI)	140
Allgon 7250.03 panel antenna (ATI)	148	(3) Proposed EMS DR65-19-XXDPQ panel antennas (T-Mobile)	130
Allgon 7250.03 panel antenna (ATI)	148	(3) Proposed EMS DR65-19-XXDPQ panel antennas (T-Mobile)	130
Flush mount (ATI)	148	(3) Proposed EMS DR65-19-XXDPQ panel antennas (T-Mobile)	130
Flush mount (ATI)	148	(3) Proposed EMS DR65-19-XXDPQ panel antennas (T-Mobile)	130
Flush mount (ATI)	148	(3) Proposed EMS DR65-19-XXDPQ panel antennas (T-Mobile)	130
Allgon 7250.03 panel antenna (ATI)	140	Proposed T-Frame mount (T-Mobile)	130
Allgon 7250.03 panel antenna (ATI)	140	Proposed T-Frame mount (T-Mobile)	130
Allgon 7250.03 panel antenna (ATI)	140	Proposed T-Frame mount (T-Mobile)	130
Flush mount (ATI)	140	Proposed T-Frame mount (T-Mobile)	130
Flush mount (ATI)	140	Dipole (broken) (Existing)	83

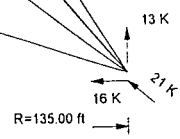
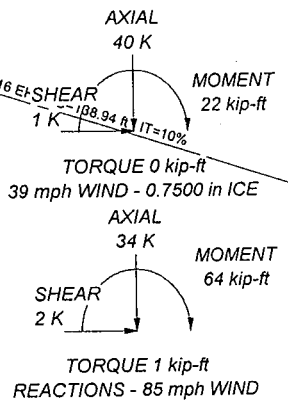
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 39 mph basic wind with 0.75 in ice.

MAX PIER FORCES:  
DOWN: 47 K  
UPLIFT: -16 K  
SHEAR: 1 K



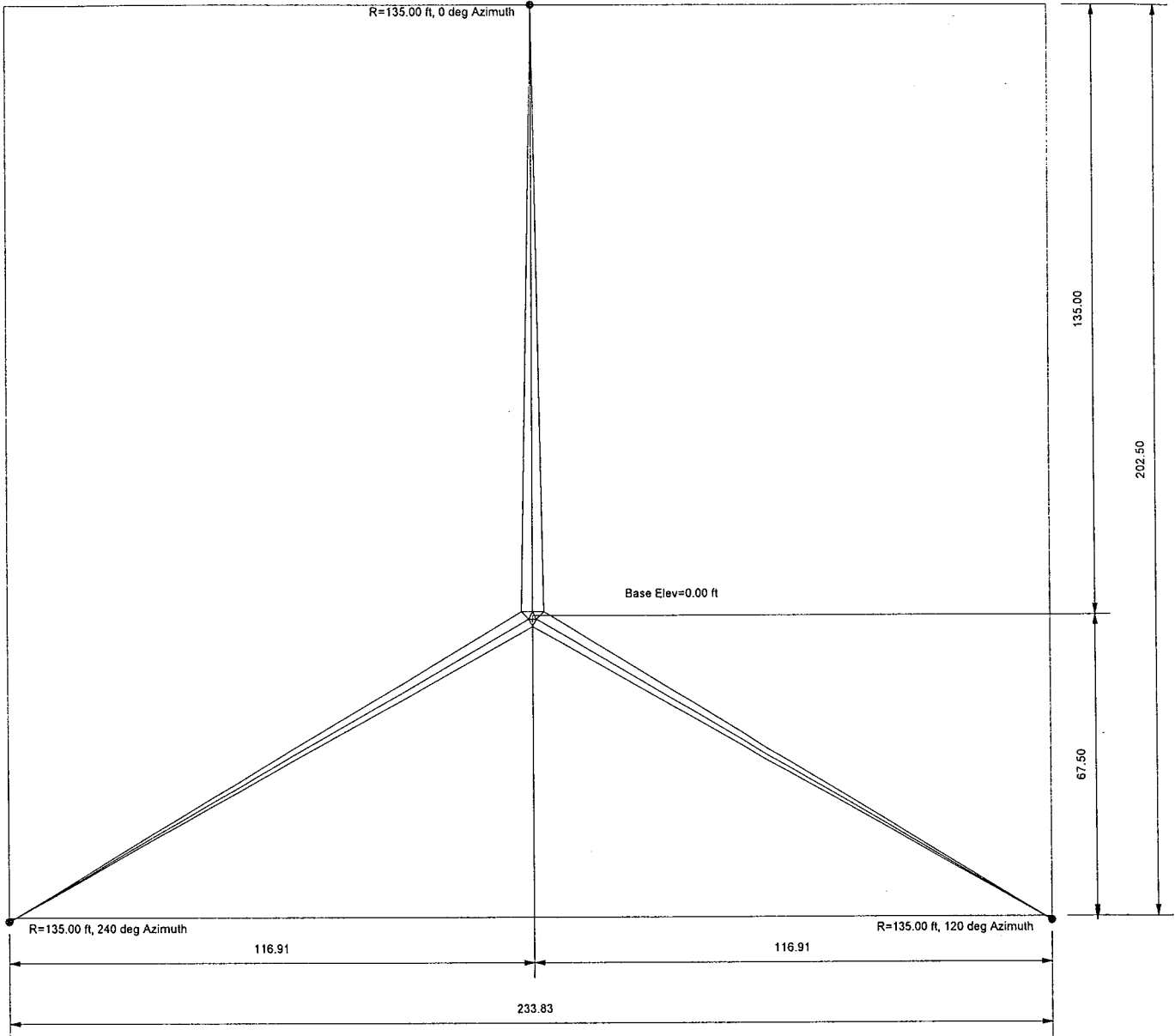
Section	SR 1/2	A572-50	SR 1/2	A36	SQ 3/4x3/4	SQ 3/4x3/4	2.08333	91 @ 1.92188	10 @ 1.99167
Legs									
Leg Grade									
Diagonals									
Diagonal Grade									
Top Girts									
Mid Girts									
Bottom Girts									
Top Guy Pull-Offs									
Face Width (ft)									
# Panels @ (ft)									
Weight (K)									5.2


**Walker Engineering Inc**  
8451 Dunwoody Place, Bldg 8  
Atlanta, Georgia 30350  
Phone: 770-641-7306  
FAX: 770-587-2196

Job: **DTC-001R2; 0509-0503R2**  
Project: **Prospect**  
Client: **Diversified Technology Consultants**  
Code: **TIA/EIA-222-F**  
Path: S:\Projects\Tower\DTC\ERI\Tower\DTC-001R2 0509-0503R2 Prospect 195-R GT.an

Drawn by: **bhe**  
Date: **09/22/05**  
Scale: **NTS**  
App'd:  
Dwg No. **E-1**

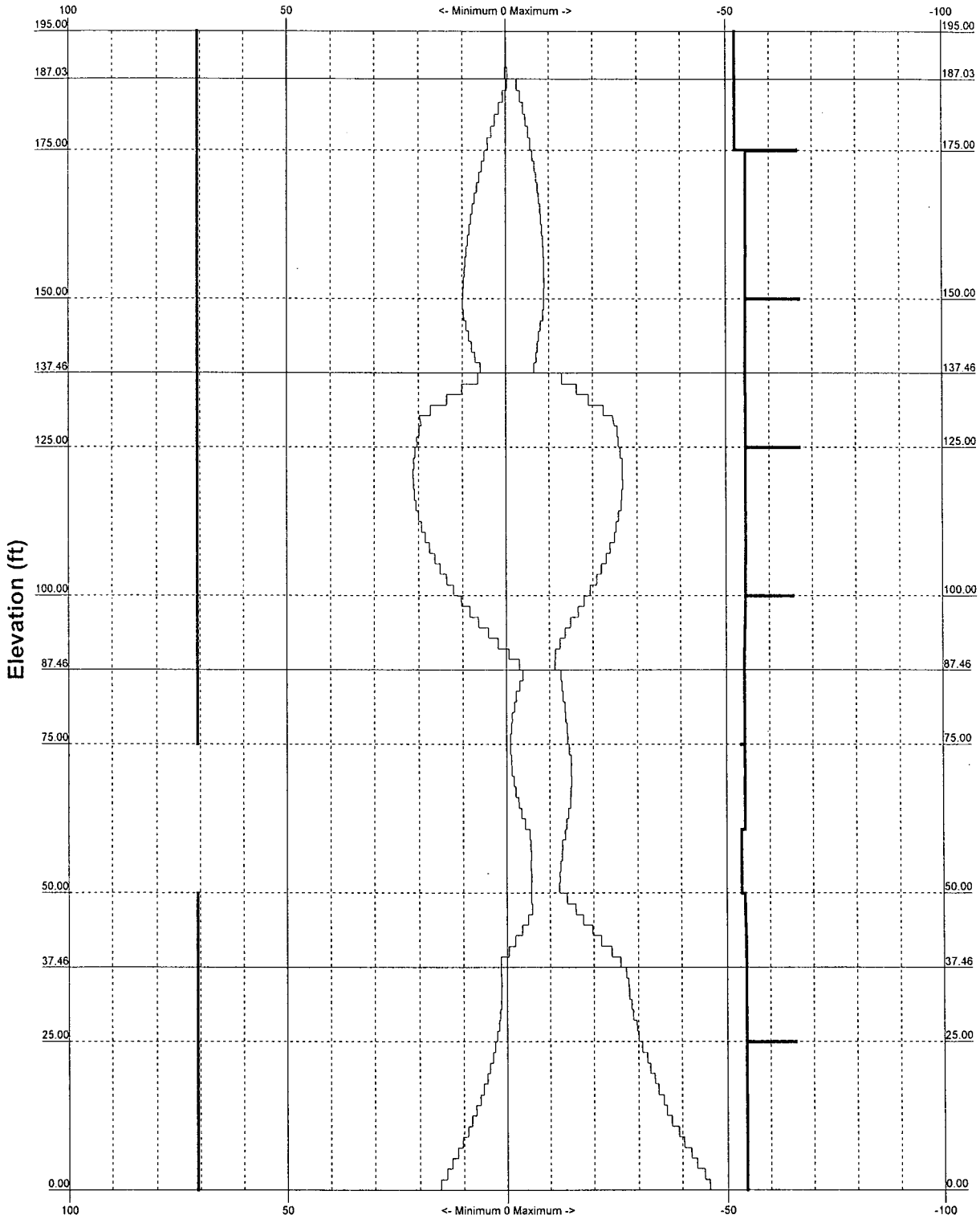
# Plot Plan




 Tower Engineers	<b>Walker Engineering Inc</b> 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Phone: 770-641-7306 FAX: 770-587-2196		Job: <b>DTC-001R2; 0509-0503R2</b>	
	Client: <b>Diversified Technology Consultants</b>		Drawn by: <b>bhe</b>	App'd:
	Code: <b>TIA/EIA-222-F</b>		Date: <b>09/22/05</b>	Scale: <b>NTS</b>
	Path:		Dwg No. <b>E-2</b>	
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TIA/EIA-222-F - 85 mph/39 mph 0.7500 in Ice

Leg Capacity ——— Leg Compression (K)



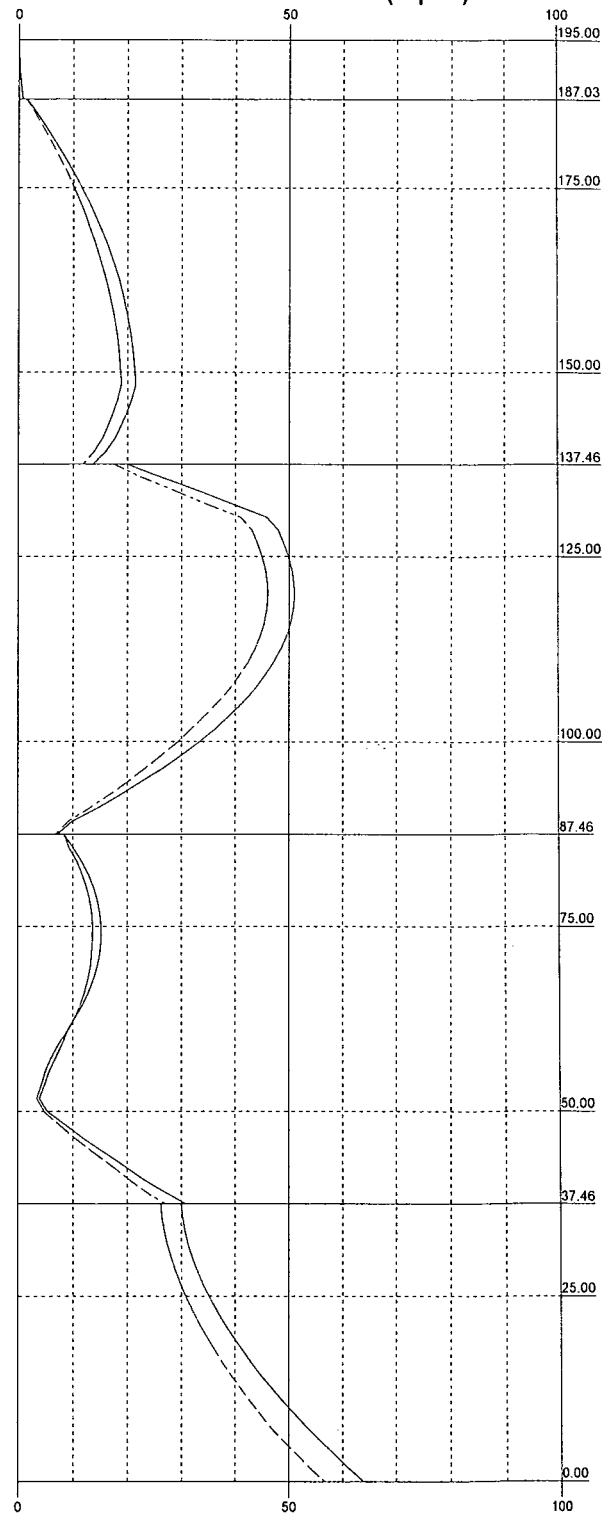
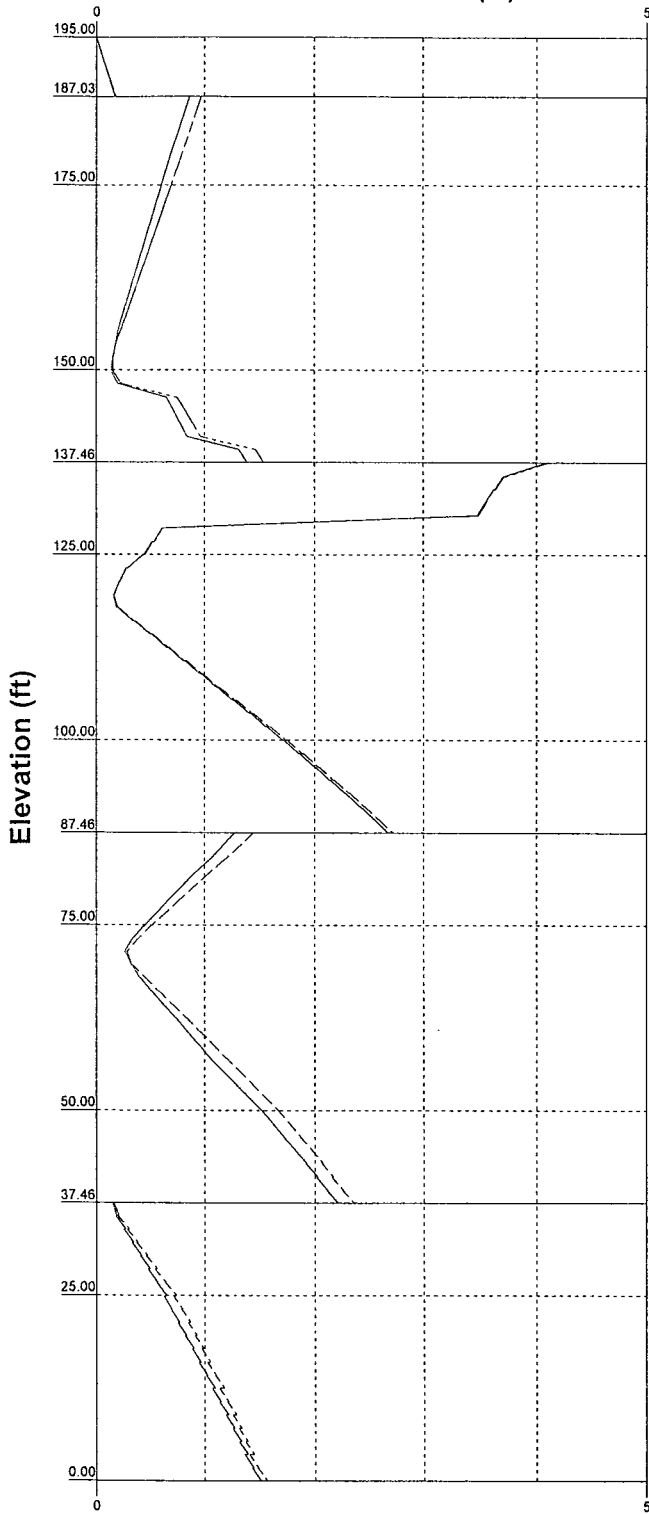
 <p><b>Walker Engineering Inc</b> 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Tower Engineers Phone: 770-641-7306 FAX: 770-587-2196</p>	Job: <b>DTC-001R2; 0509-0503R2</b>
	Project: <b>Prospect</b>
	Client: <b>Diversified Technology Consultants</b>
	Code: <b>TIA/EIA-222-F</b>
	Path: <b>S:\Projects\Towers\DTC\ERITower\DTC-001R2_0509-0503R2 Prospect 195-4 GT.dwg</b>
Drawn by: <b>bhe</b>	App'd:
Date: <b>09/22/05</b>	Scale: <b>NTS</b>
	Dwg No. <b>E-3</b>


— Vx    - - - - Vz

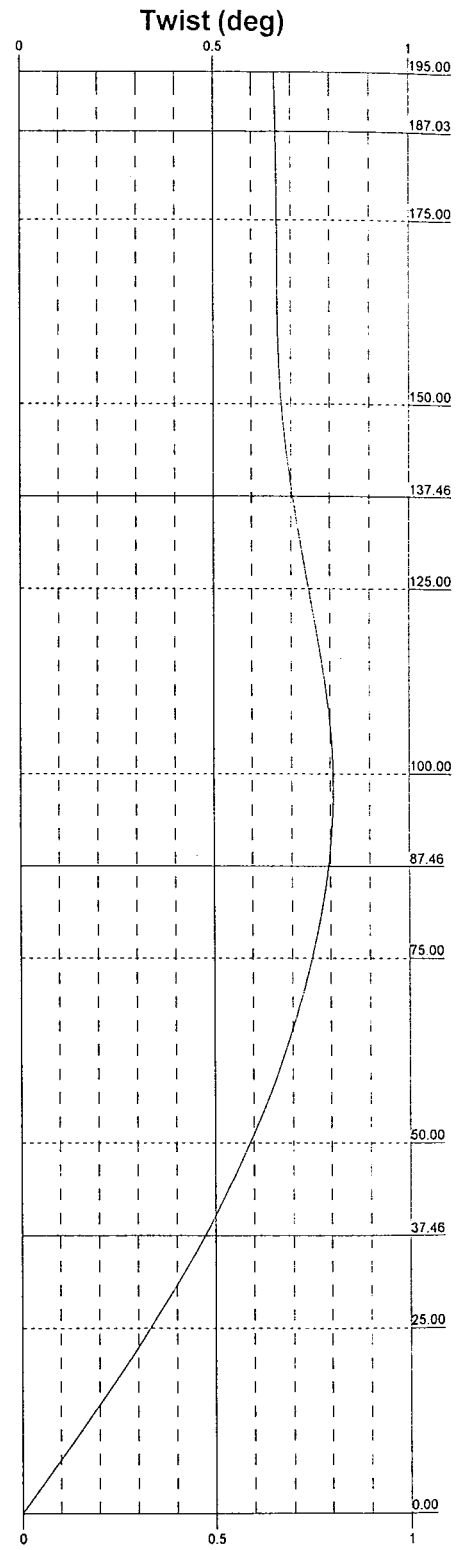
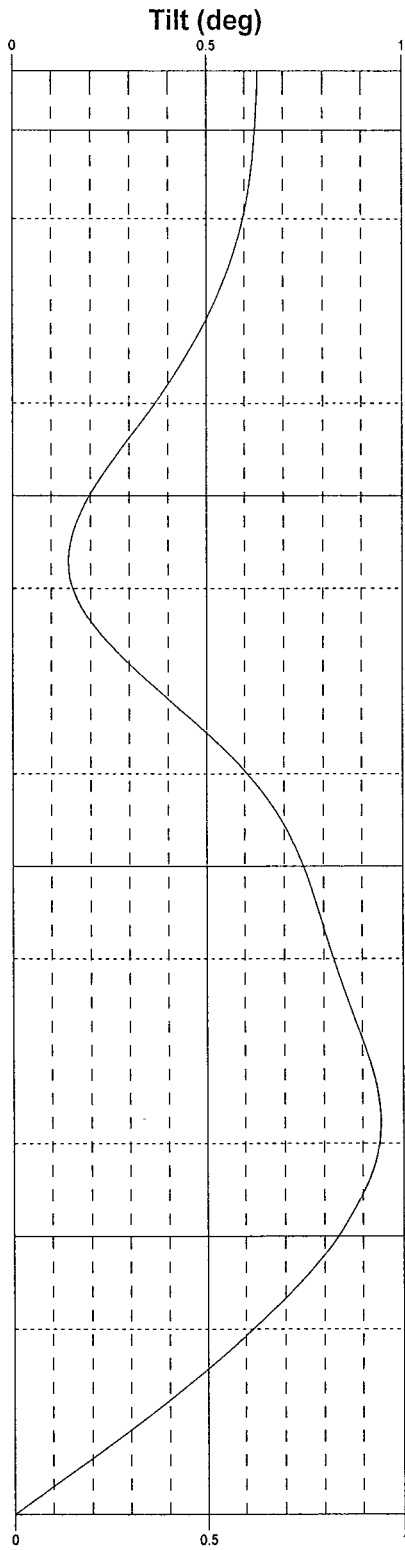
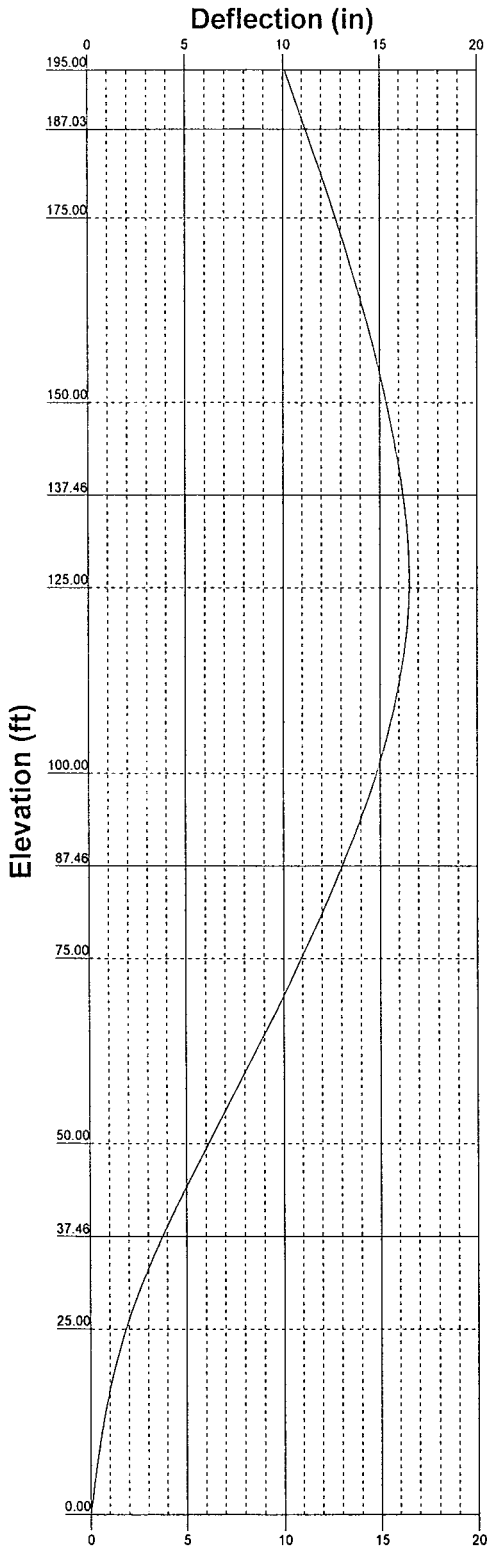
— Mx    - - - - Mz


Global Mast Shear (K)

Global Mast Moment (kip-ft)



 Tower Engineers	<b>Walker Engineering Inc</b> 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Phone: 770-641-7306 FAX: 770-587-2196	Job: <b>DTC-001R2; 0509-0503R2</b>	
	Project: <b>Prospect</b>		
	Client: <b>Diversified Technology Consultants</b>	Drawn by: <b>bhe</b>	App'd:
	Code: <b>TIA/EIA-222-F</b>	Date: <b>09/22/05</b>	Scale: <b>NTS</b>
	Path:		Dwg No. <b>E-4</b>

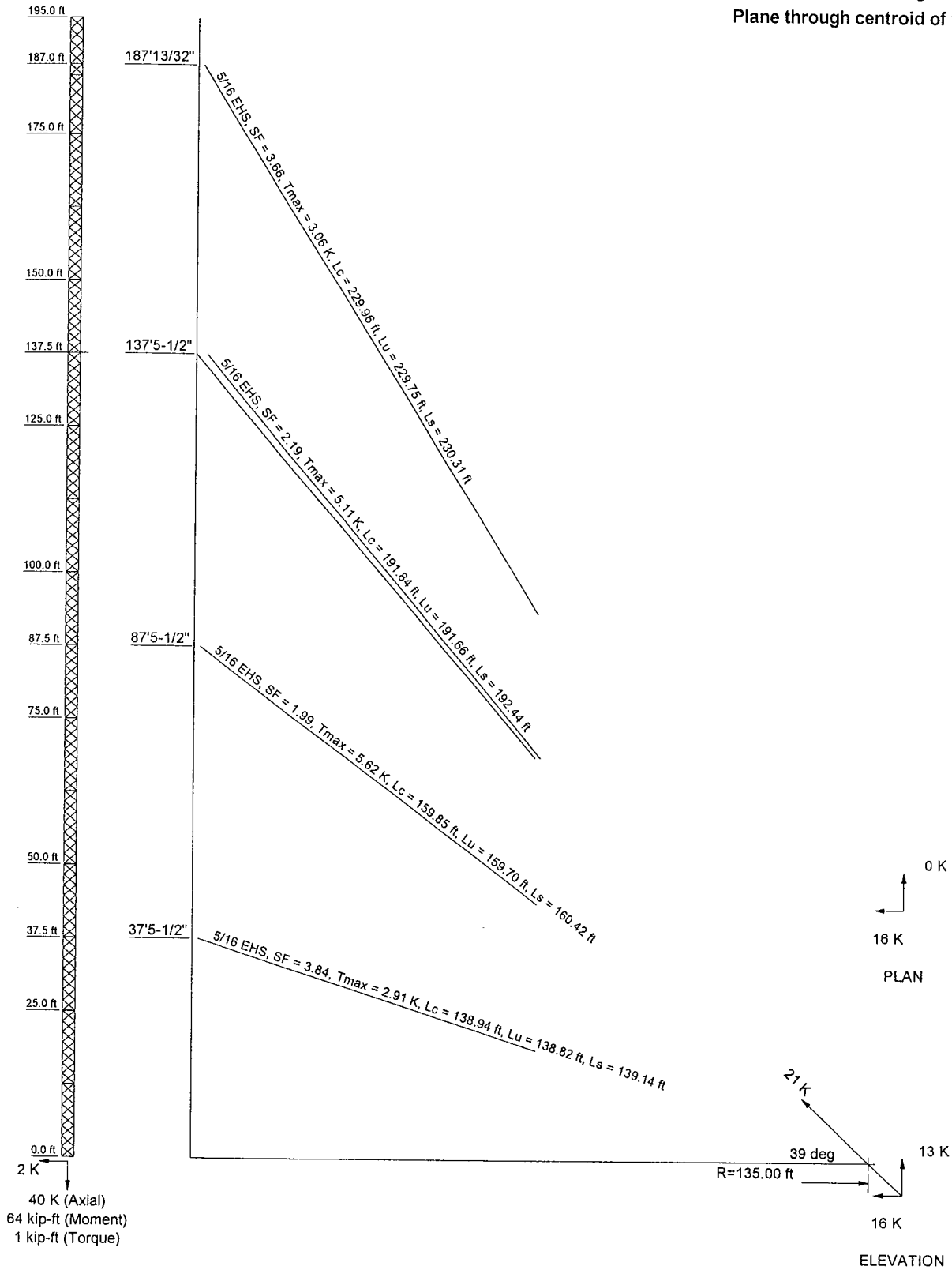



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	Project: <b>Prospect</b>		
	Client: <b>Diversified Technology Consultants</b>	Drawn by: <b>bhe</b>	App'd:
	Code: <b>TIA/EIA-222-F</b>	Date: <b>09/22/05</b>	Scale: <b>NTS</b>
	Path:	Dwg No. <b>E-5</b>	

S:\Projects\Towers\DTC\ERITower\DTC-001R2 0509-0503R2 Prospect 195-ft GT.rvt

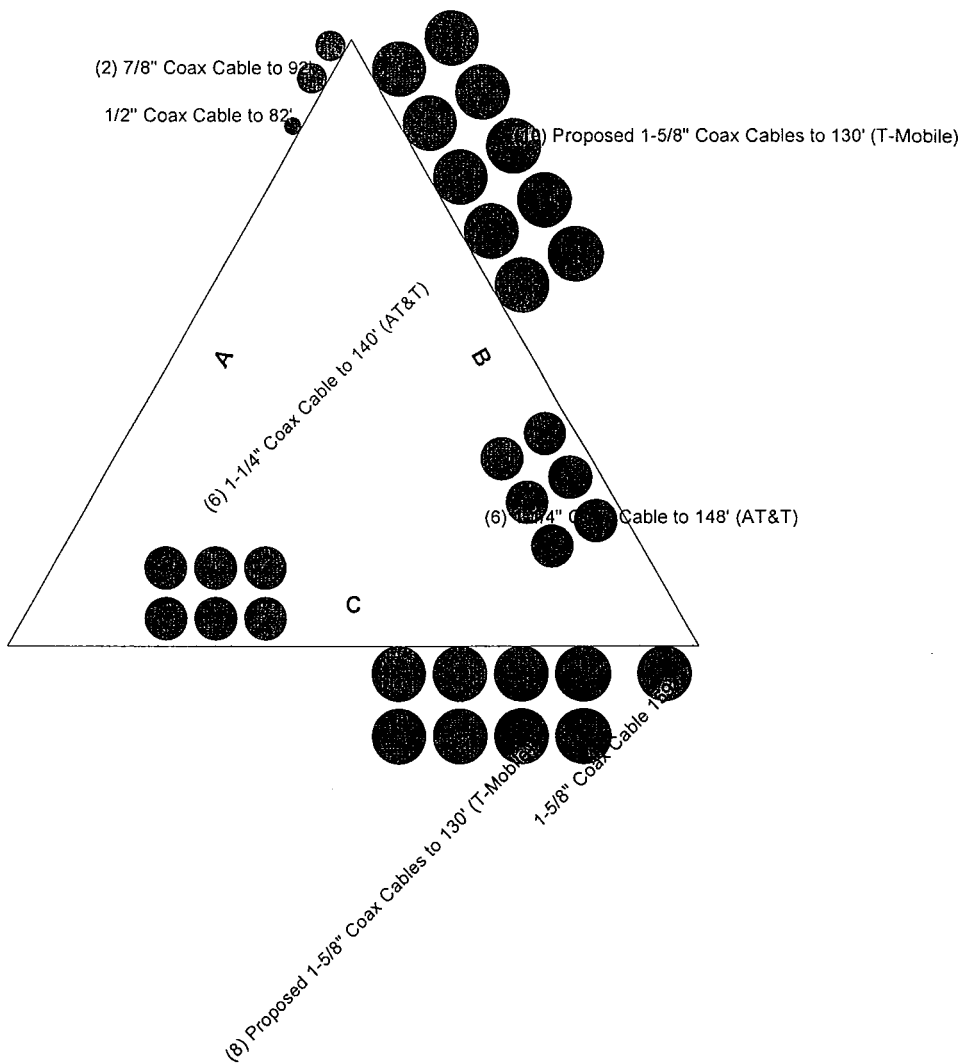
**Guy Tensions and Tower Reactions**  
 TIA/EIA-222-F - 85 mph/39 mph 0.7500 in Ice


Maximum Values  
 Anchor 'A' @ 135 ft Azimuth 0 deg Elev 0 ft  
 Plane through centroid of tower



 Walker Engineering Inc 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Tower Engineers Phone: 770-641-7306 FAX: 770-587-2196	Job: <b>DTC-001R2; 0509-0503R2</b>		
	Project: <b>Prospect</b>		
	Client: <b>Diversified Technology Consultants</b>	Drawn by: <b>bhe</b>	App'd:
	Code: <b>TIA/EIA-222-F</b>	Date: <b>09/22/05</b>	Scale: <b>NTS</b>
	Path: <b>S:\Projects\Towers\DTCE\Tower\DTCE-001R2_0509-0503R2 Prospect 195-R GT.ari</b>	Dwg No. <b>E-6</b>	

# Feedline Plan



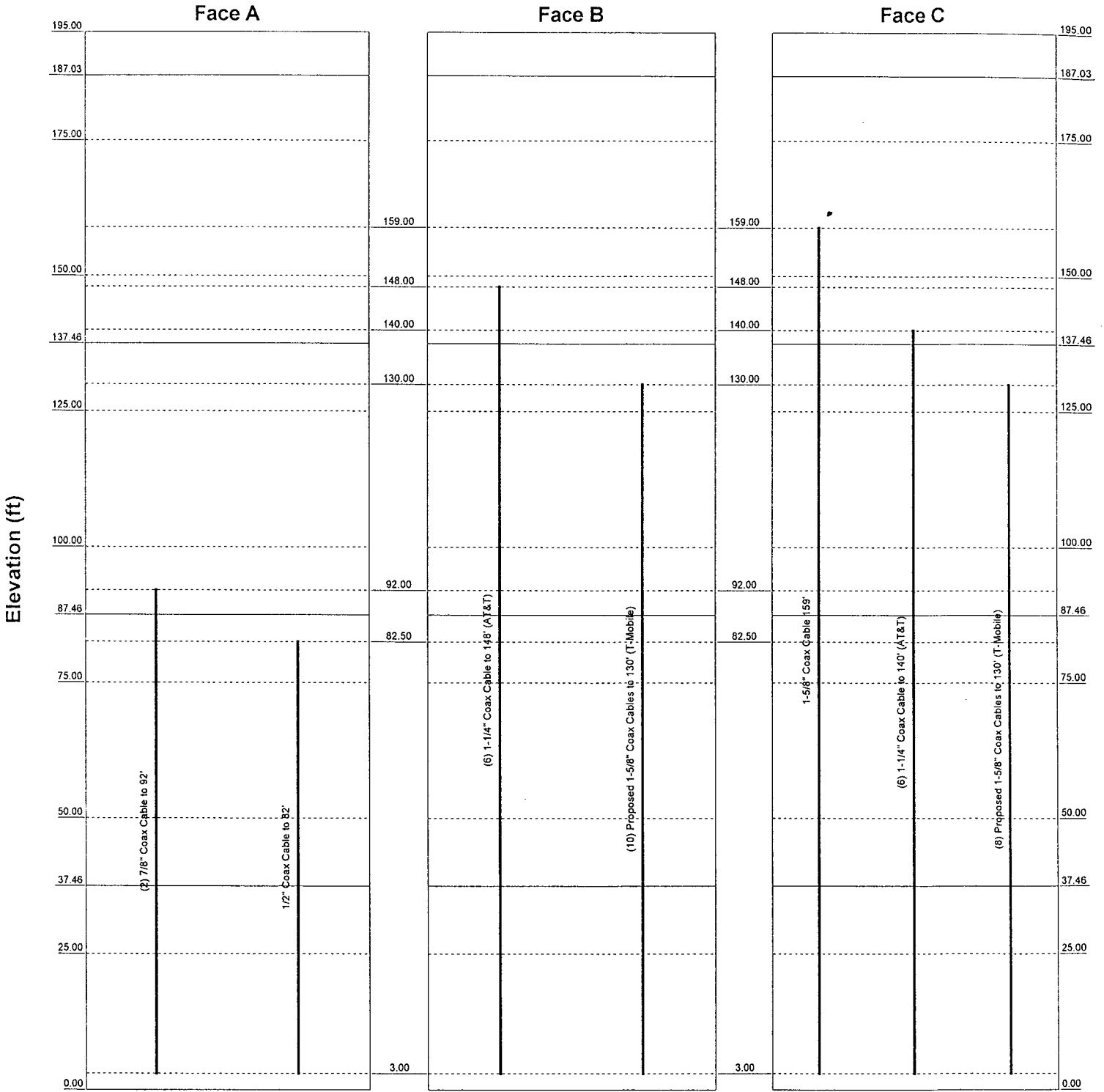
 Tower Engineers	<b>Walker Engineering Inc</b>	Job: <b>DTC-001R2; 0509-0503R2</b>		
	8451 Dunwoody Place, Bldg 8		Project: <b>Prospect</b>	
	Atlanta, Georgia 30350		Client: <b>Diversified Technology Consultants</b>	Drawn by: <b>bhe</b>
	Phone: 770-641-7306		Code: <b>TIA/EIA-222-F</b>	Date: <b>09/22/05</b>
	FAX: 770-587-2196		Scale: <b>NTS</b>	Dwg No. <b>E-7</b>
Path: S:\Project\Towers\DTC\ERITower\DTC-001R2_0509-0503R2 Prospect 195-4 GT.dwg				



# Feedline Distribution Chart

## 0' - 195'

Round
Flat
App In Face
App Out Face
Truss Leg



	<b>Walker Engineering Inc</b>	Job: <b>DTC-001R2; 0509-0503R2</b>		
	8451 Dunwoody Place, Bldg 8		Project: <b>Prospect</b>	
	Atlanta, Georgia 30350		Client: <b>Diversified Technology Consultants</b>	Drawn by: <b>phe</b>
	Phone: 770-641-7306		Code: <b>TIA/EIA-222-F</b>	Date: <b>09/22/05</b>
	FAX: 770-587-2196		Scale: <b>NTS</b>	Dwg No: <b>E-7</b>
Tower Engineers		Path: S:\Projects\Tower\DTCE\Tower\DTCE\001R2_0509-0503R2 Prospect 195-ft GT.rvt		

<b>WEInc</b>  <b>Walker Engineering Inc</b> 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Phone: 770-641-7306 FAX: 770-587-2196	Job	DTC-001R2; 0509-0503R2	Page	1 of 16
	Project	Prospect	Date	13:48:55 09/22/05
	Client	Diversified Technology Consultants.	Designed by	bhe

## Tower Input Data

The main tower is a 3x guyed tower with an overall height of 195.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 2.08 ft at the top and 2.08 ft at the base.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 85 mph.

Nominal ice thickness of 0.7500 in.

Ice density of 56 pcf.

A wind speed of 39 mph is used in combination with ice.

Pressures are calculated at each section.

Safety factor used in guy design is 2.

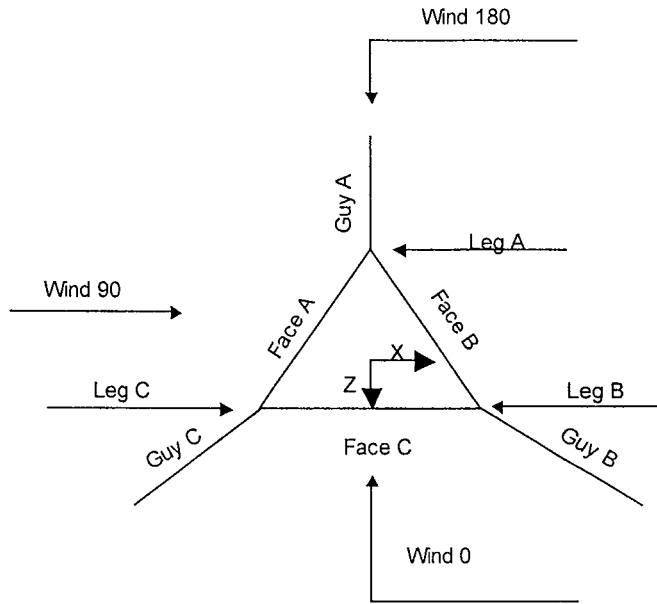
Stress ratio used in tower member design is 1.333.

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

## Options

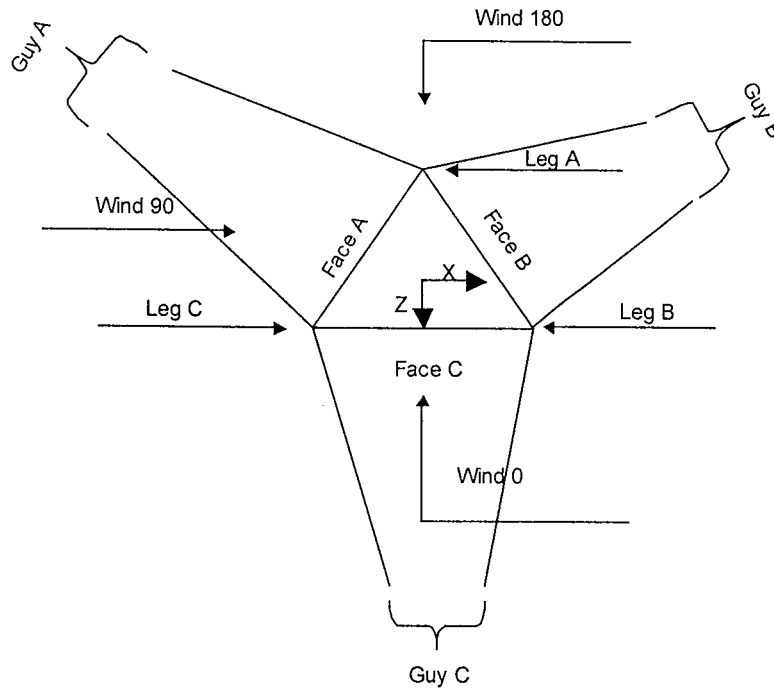
- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>√ Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>Include Bolts In Member Capacity</li> <li>Leg Bolts Are At Top Of Section</li> <li>Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>Add IBC .6D+W Combination</li> </ul> | <ul style="list-style-type: none"> <li>√ Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>√ Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>√ Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>√ SR Members Have Cut Ends</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> </ul> | <ul style="list-style-type: none"> <li>√ Treat Feedline Bundles As Cylinder</li> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feedline Torque</li> <li>Include Angle Block Shear Check</li> <li style="padding-left: 40px;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul> |
|--|--|---|

<b>WEInc</b>  <b>Walker Engineering Inc</b> 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Phone: 770-641-7306 FAX: 770-587-2196	Job DTC-001R2; 0509-0503R2	Page 2 of 16
	Project Prospect	Date 13:48:55 09/22/05
	Client Diversified Technology Consultants.	Designed by bhe



**Corner & Starmount Guyed Tower**

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	Project	Prospect	Date	13:48:55 09/22/05
	Client	Diversified Technology Consultants.	Designed by	bhe



**Face Guyed**

**Tower Section Geometry**

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	195.00-175.00			2.08	1	20.00
T2-T8	175.00-0.00			2.08	7	25.00

**Tower Section Geometry (cont'd)**

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	195.00-175.00	1.99	X Brace	No	No	0.0000	1.0000
T2-T8	175.00-0.00	1.92	X Brace	No	No	1.0000	0.0000

<b>WEInc</b>  <b>Walker Engineering Inc</b> 8451 Dunwoody Place, Bldg 8 Atlanta, Georgia 30350 Phone: 770-641-7306 FAX: 770-587-2196	Job	DTC-001R2; 0509-0503R2	Page	4 of 16
	Project	Prospect	Date	13:48:55 09/22/05
	Client	Diversified Technology Consultants.	Designed by	bhe

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 195.00-175.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T2-T8 175.00-0.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 195.00-175.00	Flat Bar	SQ 3/4x3/4	A36 (36 ksi)	Flat Bar	SQ 3/4x3/4	A36 (36 ksi)
T2-T8 175.00-0.00	Flat Bar	SQ 3/4x3/4	A36 (36 ksi)	Flat Bar	SQ 3/4x3/4	A36 (36 ksi)

**Tower Section Geometry (cont'd)**

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 195.00-175.00	1	Flat Bar	2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2-T8 175.00-0.00	1	Flat Bar	2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>f</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 195.00-175.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2-T8 175.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

<b>WEInc</b>  <b>Walker Engineering Inc</b> 8451 Dumwoody Place, Bldg 8 Atlanta, Georgia 30350 Phone: 770-641-7306 FAX: 770-587-2196	Job	DTC-001R2; 0509-0503R2	Page	5 of 16
	Project	Prospect	Date	13:48:55 09/22/05
	Client	Diversified Technology Consultants.	Designed by	bhe

### Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors <sup>1</sup>								
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace		
				X Y	X Y	X Y	X Y	X Y	X Y	X Y		
T1 195.00-175.00	No	No	1	1	1	1	1	1	1	1	1	1
T2-T8 175.00-0.00	No	No	1	1	1	1	1	1	1	1	1	1

<sup>1</sup>Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 195.00-175.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2-T8 175.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

### Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L <sub>u</sub> ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
187.033	EHS	A 5/16	1.12	10%	21000	0.205	229.76	135.00	0.0000	0.00	100%
		B 5/16	1.12	10%	21000	0.205	229.76	135.00	0.0000	0.00	100%
		C 5/16	1.12	10%	21000	0.205	229.76	135.00	0.0000	0.00	100%
137.458	EHS	A 5/16	1.12	10%	21000	0.205	191.67	135.00	0.0000	0.00	100%
		B 5/16	1.12	10%	21000	0.205	191.67	135.00	0.0000	0.00	100%
		C 5/16	1.12	10%	21000	0.205	191.67	135.00	0.0000	0.00	100%
87.4583	EHS	A 5/16	1.12	10%	21000	0.205	159.71	135.00	0.0000	0.00	100%
		B 5/16	1.12	10%	21000	0.205	159.71	135.00	0.0000	0.00	100%
		C 5/16	1.12	10%	21000	0.205	159.71	135.00	0.0000	0.00	100%
37.4583	EHS	A 5/16	1.12	10%	21000	0.205	138.82	135.00	0.0000	0.00	100%
		B 5/16	1.12	10%	21000	0.205	138.82	135.00	0.0000	0.00	100%
		C 5/16	1.12	10%	21000	0.205	138.82	135.00	0.0000	0.00	100%

### Guy Data(cont'd)

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Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
187.033 137.458	Corner Torque Arm	4.17	0.0000	Channel	A36 (36 ksi)	Channel	C10x15.3
87.4583 37.4583	Corner Corner						

### Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
187.03	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Single Angle	L2x2x1/4
137.46	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Single Angle	L2x2x1/4
87.46	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Single Angle	L2x2x1/4
37.46	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Single Angle	L2x2x1/4

### Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
187.033	0.05	0.05	0.05		4.75	4.75	4.75	
137.458	0.04	0.04	0.04		3.8 sec/pulse 3.32	3.8 sec/pulse 3.32	3.8 sec/pulse 3.32	
87.4583	0.03	0.03	0.03		3.1 sec/pulse 2.32	3.1 sec/pulse 2.32	3.1 sec/pulse 2.32	
37.4583	0.03	0.03	0.03		2.6 sec/pulse 1.76	2.6 sec/pulse 1.76	2.6 sec/pulse 1.76	
					2.3 sec/pulse	2.3 sec/pulse	2.3 sec/pulse	

### Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>
187.033	No	No			1	1	1	1
137.458	No	No	1	1	1	1	1	1
87.4583	No	No			1	1	1	1
37.4583	No	No			1	1	1	1

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**Guy Data (cont'd)**

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
187.033	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
137.458	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
87.4583	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
37.4583	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

**Guy Pressures**

Guy Elevation ft	Guy Location	$\bar{z}$ ft	$q_z$ psf	$q_z$ Ice psf	Ice Thickness in
187.033	A	93.52	25	5	0.7500
	B	93.52	25	5	0.7500
	C	93.52	25	5	0.7500
137.458	A	68.73	23	5	0.7500
	B	68.73	23	5	0.7500
	C	68.73	23	5	0.7500
87.4583	A	43.73	20	4	0.7500
	B	43.73	20	4	0.7500
	C	43.73	20	4	0.7500
37.4583	A	18.73	18	4	0.7500
	B	18.73	18	4	0.7500
	C	18.73	18	4	0.7500

**Feed Line/Linear Appurtenances - Entered As Round Or Flat**

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1-5/8" Coax Cable to 159'	C	Yes	Ar (CfAe)	159.00 - 3.00	0.0000	-0.45	1	1	0.2500	1.9800		0.92
1-1/4" Coax Cable to 148' (AT&T)	B	Yes	Ar (CfAe)	148.00 - 3.00	-2.0000	0.2	6	3	0.2500	1.5500		0.66
1-1/4" Coax Cable to 140' (AT&T)	C	Yes	Ar (CfAe)	140.00 - 3.00	-2.0000	0.2	6	3	0.2500	1.5500		0.66
7/8" Coax Cable to 92'	A	Yes	Ar (CfAe)	92.00 - 3.00	0.0000	0.45	2	2	0.2500	1.0900		0.33
1/2" Coax Cable to 82'	A	Yes	Ar (CfAe)	82.50 - 3.00	0.0000	0.35	1	1	0.2500	0.6300		0.15
Proposed 1-5/8" Coax Cables to 130' (T-Mobile)	B	Yes	Ar (CfAe)	130.00 - 3.00	0.0000	-0.25	10	5	0.2500	1.9800		0.82



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Description	Face or Leg	Allow Shield	Component Type	Placement	Face Offset	Lateral Offset	#	# Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft	in	(Frac FW)			in	in	in	plf
Proposed 1-5/8" Coax Cables to 130' (T-Mobile)	C	Yes	Ar (CfAe)	130.00 - 3.00	0.0000	-0.2	8	4	0.2500	1.9800		0.82

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation	Face	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
	ft		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
T1	195.00-175.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	175.00-150.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	1.485	0.000	0.000	0.000	0.01
T3	150.00-125.00	A	0.000	0.000	0.000	0.000	0.00
		B	15.341	0.000	0.000	0.000	0.13
		C	14.857	0.000	0.000	0.000	0.12
T4	125.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	34.895	0.000	0.000	0.000	0.30
		C	34.556	0.000	0.000	0.000	0.29
T5	100.00-75.00	A	3.482	0.000	0.000	0.000	0.01
		B	34.895	0.000	0.000	0.000	0.30
		C	34.556	0.000	0.000	0.000	0.29
T6	75.00-50.00	A	5.854	0.000	0.000	0.000	0.02
		B	34.895	0.000	0.000	0.000	0.30
		C	34.556	0.000	0.000	0.000	0.29
T7	50.00-25.00	A	5.854	0.000	0.000	0.000	0.02
		B	34.895	0.000	0.000	0.000	0.30
		C	34.556	0.000	0.000	0.000	0.29
T8	25.00-0.00	A	5.152	0.000	0.000	0.000	0.02
		B	30.707	0.000	0.000	0.000	0.27
		C	30.409	0.000	0.000	0.000	0.25

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
	ft		in	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
T1	195.00-175.00	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	175.00-150.00	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		2.610	0.000	0.000	0.000	0.03
T3	150.00-125.00	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		7.296	11.545	0.000	0.000	0.37
		C		12.512	7.969	0.000	0.000	0.35
T4	125.00-100.00	A	0.750	0.000	0.000	0.000	0.000	0.00
		B		13.604	27.541	0.000	0.000	0.85
		C		20.854	23.077	0.000	0.000	0.83
T5	100.00-75.00	A	0.750	5.000	1.898	0.000	0.000	0.07
		B		13.604	27.541	0.000	0.000	0.85

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	$A_R$ $ft^2$	$A_F$ $ft^2$	$C_A A_A$ In Face $ft^2$	$C_A A_A$ Out Face $ft^2$	Weight K
T6	75.00-50.00	C	0.750	20.854	23.077	0.000	0.000	0.83
		A		9.833	2.792	0.000	0.000	0.12
		B		13.604	27.541	0.000	0.000	0.85
T7	50.00-25.00	C	0.750	20.854	23.077	0.000	0.000	0.83
		A		9.833	2.792	0.000	0.000	0.12
		B		13.604	27.541	0.000	0.000	0.85
T8	25.00-0.00	C	0.750	20.854	23.077	0.000	0.000	0.83
		A		8.653	2.457	0.000	0.000	0.10
		B		11.972	24.236	0.000	0.000	0.75
		C		18.352	20.307	0.000	0.000	0.73

### Feed Line Shielding

Section	Elevation ft	Face	$A_R$ $ft^2$	$A_R$ Ice $ft^2$	$A_F$ $ft^2$	$A_F$ Ice $ft^2$
T1	195.00-175.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	175.00-150.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.091	0.641	0.017	0.057
T3	150.00-125.00	A	0.000	0.000	0.000	0.000
		B	0.800	4.398	0.152	0.388
		C	0.812	4.861	0.154	0.429
T4	125.00-100.00	A	0.000	0.000	0.000	0.000
		B	1.860	9.744	0.354	0.860
		C	1.860	10.383	0.354	0.916
T5	100.00-75.00	A	0.214	1.694	0.041	0.149
		B	1.860	9.744	0.354	0.860
		C	1.860	10.383	0.354	0.916
T6	75.00-50.00	A	0.359	3.100	0.068	0.274
		B	1.860	9.744	0.354	0.860
		C	1.860	10.383	0.354	0.916
T7	50.00-25.00	A	0.359	3.100	0.068	0.274
		B	1.860	9.744	0.354	0.860
		C	1.860	10.383	0.354	0.916
T8	25.00-0.00	A	0.316	2.728	0.060	0.241
		B	1.637	8.574	0.311	0.757
		C	1.637	9.137	0.311	0.806

### Feed Line Center of Pressure

Section	Elevation ft	$CP_X$ in	$CP_Z$ in	$CP_X$ Ice in	$CP_Z$ Ice in
T1	195.00-175.00	0.0000	0.0000	0.0000	0.0000
T2	175.00-150.00	0.5019	0.3661	0.2736	0.1996
T3	150.00-125.00	2.0943	1.2458	0.9207	0.5464
T4	125.00-100.00	2.7725	0.5563	1.2544	0.2655
T5	100.00-75.00	2.6407	0.0965	1.1931	0.1413
T6	75.00-50.00	2.5495	-0.1860	1.1254	-0.0535

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Section	Elevation	CP <sub>X</sub>	CP <sub>Z</sub>	CP <sub>X</sub> Ice	CP <sub>Z</sub> Ice
	ft	in	in	in	in
T7	50.00-25.00	2.5495	-0.1860	1.1254	-0.0535
T8	25.00-0.00	2.4509	-0.1788	1.0516	-0.0500

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement  ft	C <sub>A</sub> A <sub>1</sub>		Weight  K
			Horz Lateral ft ft ft	Vert ft			Front ft <sup>2</sup>	Side ft <sup>2</sup>	
Allgon 7250.03 panel antenna (AT&T)	A	From Leg	2.00	0.0000	148.00	No Ice	4.00	1.87	0.02
			0.00			1/2" Ice	4.39	2.33	0.04
			0.00			1" Ice	4.78	2.70	0.06
Allgon 7250.03 panel antenna (AT&T)	B	From Leg	2.00	0.0000	148.00	No Ice	4.00	1.87	0.02
			0.00			1/2" Ice	4.39	2.33	0.04
			0.00			1" Ice	4.78	2.70	0.06
Allgon 7250.03 panel antenna (AT&T)	C	From Leg	2.00	0.0000	148.00	No Ice	4.00	1.87	0.02
			0.00			1/2" Ice	4.39	2.33	0.04
			0.00			1" Ice	4.78	2.70	0.06
Flush mount (AT&T)	A	From Leg	1.00	0.0000	148.00	No Ice	1.76	1.76	0.05
			0.00			1/2" Ice	2.08	2.08	0.07
			0.00			1" Ice	2.40	2.40	0.09
Flush mount (AT&T)	B	From Leg	1.00	0.0000	148.00	No Ice	1.76	1.76	0.05
			0.00			1/2" Ice	2.08	2.08	0.07
			0.00			1" Ice	2.40	2.40	0.09
Flush mount (AT&T)	C	From Leg	1.00	0.0000	148.00	No Ice	1.76	1.76	0.05
			0.00			1/2" Ice	2.08	2.08	0.07
			0.00			1" Ice	2.40	2.40	0.09
Allgon 7250.03 panel antenna (AT&T)	A	From Leg	2.00	0.0000	140.00	No Ice	4.00	1.87	0.02
			0.00			1/2" Ice	4.39	2.33	0.04
			0.00			1" Ice	4.78	2.70	0.06
Allgon 7250.03 panel antenna (AT&T)	B	From Leg	2.00	0.0000	140.00	No Ice	4.00	1.87	0.02
			0.00			1/2" Ice	4.39	2.33	0.04
			0.00			1" Ice	4.78	2.70	0.06
Allgon 7250.03 panel antenna (AT&T)	C	From Leg	2.00	0.0000	140.00	No Ice	4.00	1.87	0.02
			0.00			1/2" Ice	4.39	2.33	0.04
			0.00			1" Ice	4.78	2.70	0.06
Flush mount (AT&T)	A	From Leg	1.00	0.0000	140.00	No Ice	1.76	1.76	0.05
			0.00			1/2" Ice	2.08	2.08	0.07
			0.00			1" Ice	2.40	2.40	0.09
Flush mount (AT&T)	B	From Leg	1.00	0.0000	140.00	No Ice	1.76	1.76	0.05
			0.00			1/2" Ice	2.08	2.08	0.07
			0.00			1" Ice	2.40	2.40	0.09
Flush mount (AT&T)	C	From Leg	1.00	0.0000	140.00	No Ice	1.76	1.76	0.05
			0.00			1/2" Ice	2.08	2.08	0.07
			0.00			1" Ice	2.40	2.40	0.09
Dipole (broken) (Existing)	B	From Leg	1.00	0.0000	83.00	No Ice	2.50	0.00	0.01
			0.00			1/2" Ice	4.00	0.00	0.04
			0.00			1" Ice	5.50	0.00	0.07
(3) Proposed EMS DR65-19- XXDPQ panel antennas (T-Mobile)	A	From Leg	4.00	0.0000	130.00	No Ice	8.40	3.53	0.03
			0.00			1/2" Ice	8.95	3.97	0.07
			0.00			1" Ice	9.51	4.41	0.12
(3) Proposed EMS DR65-19- XXDPQ panel antennas	B	From Leg	4.00	0.0000	130.00	No Ice	8.40	3.53	0.03
			0.00			1/2" Ice	8.95	3.97	0.07

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>A,A</sub> Front ft <sup>2</sup>	C <sub>A,A</sub> Side ft <sup>2</sup>	Weight K
(T-Mobile)			0.00			1" Ice 9.51	4.41	0.12
(3) Proposed EMS DR65-19- XXDPQ panel antennas	C	From Leg	4.00	0.0000	130.00	No Ice 8.40	3.53	0.03
			0.00			1/2" Ice 8.95	3.97	0.07
(T-Mobile)			0.00			1" Ice 9.51	4.41	0.12
Proposed T-Frame mount	A	From Leg	4.00	0.0000	130.00	No Ice 12.20	12.20	0.36
(T-Mobile)			0.00			1/2" Ice 17.60	17.60	0.49
			0.00			1" Ice 23.00	23.00	0.62
Proposed T-Frame mount	B	From Leg	4.00	0.0000	130.00	No Ice 12.20	12.20	0.36
(T-Mobile)			0.00			1/2" Ice 17.60	17.60	0.49
			0.00			1" Ice 23.00	23.00	0.62
Proposed T-Frame mount	C	From Leg	4.00	0.0000	130.00	No Ice 12.20	12.20	0.36
(T-Mobile)			0.00			1/2" Ice 17.60	17.60	0.49
			0.00			1" Ice 23.00	23.00	0.62

### Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 30 deg - No Ice+Guy
4	Dead+Wind 60 deg - No Ice+Guy
5	Dead+Wind 90 deg - No Ice+Guy
6	Dead+Wind 120 deg - No Ice+Guy
7	Dead+Wind 150 deg - No Ice+Guy
8	Dead+Wind 180 deg - No Ice+Guy
9	Dead+Wind 210 deg - No Ice+Guy
10	Dead+Wind 240 deg - No Ice+Guy
11	Dead+Wind 270 deg - No Ice+Guy
12	Dead+Wind 300 deg - No Ice+Guy
13	Dead+Wind 330 deg - No Ice+Guy
14	Dead+Ice+Guy
15	Dead+Wind 0 deg+Ice+Guy
16	Dead+Wind 30 deg+Ice+Guy
17	Dead+Wind 60 deg+Ice+Guy
18	Dead+Wind 90 deg+Ice+Guy
19	Dead+Wind 120 deg+Ice+Guy
20	Dead+Wind 150 deg+Ice+Guy
21	Dead+Wind 180 deg+Ice+Guy
22	Dead+Wind 210 deg+Ice+Guy
23	Dead+Wind 240 deg+Ice+Guy
24	Dead+Wind 270 deg+Ice+Guy
25	Dead+Wind 300 deg+Ice+Guy
26	Dead+Wind 330 deg+Ice+Guy

### Maximum Reactions

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	46.71	0.97	-0.38
	Max. H <sub>x</sub>	10	46.71	0.97	-0.38
	Max. H <sub>z</sub>	5	-14.00	-0.56	0.28
	Min. Vert	4	-15.87	-0.73	0.21
	Min. H <sub>x</sub>	4	-15.87	-0.73	0.21
	Min. H <sub>z</sub>	10	46.71	0.97	-0.38
Leg B	Max. Vert	6	47.02	-0.82	-0.64
	Max. H <sub>x</sub>	11	-14.03	0.57	0.28
	Max. H <sub>z</sub>	13	-14.03	0.40	0.58
	Min. Vert	12	-16.01	0.56	0.51
	Min. H <sub>x</sub>	6	47.02	-0.82	-0.64
	Min. H <sub>z</sub>	7	40.45	-0.59	-0.72
Leg A	Max. Vert	2	46.72	0.30	1.03
	Max. H <sub>x</sub>	13	40.28	0.33	0.87
	Max. H <sub>z</sub>	2	46.72	0.30	1.03
	Min. Vert	8	-15.87	-0.33	-0.74
	Min. H <sub>x</sub>	8	-15.87	-0.33	-0.74
	Min. H <sub>z</sub>	8	-15.87	-0.33	-0.74
Guy C @ 135 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.69	-0.45	0.26
	Max. H <sub>x</sub>	10	-0.69	-0.45	0.26
	Max. H <sub>z</sub>	3	-13.14	-13.98	8.31
	Min. Vert	5	-13.17	-14.23	7.97
	Min. H <sub>x</sub>	5	-13.17	-14.23	7.97
	Min. H <sub>z</sub>	10	-0.69	-0.45	0.26
Guy B @ 135 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.69	0.45	0.26
	Max. H <sub>x</sub>	11	-13.16	14.22	7.97
	Max. H <sub>z</sub>	13	-13.16	14.01	8.34
	Min. Vert	13	-13.16	14.01	8.34
	Min. H <sub>x</sub>	6	-0.69	0.45	0.26
	Min. H <sub>z</sub>	6	-0.69	0.45	0.26
Guy A @ 135 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-0.69	0.00	-0.52
	Max. H <sub>x</sub>	24	-4.96	0.43	-6.67
	Max. H <sub>z</sub>	2	-0.69	0.00	-0.52
	Min. Vert	7	-13.17	-0.22	-16.31
	Min. H <sub>x</sub>	18	-4.97	-0.44	-6.70
	Min. H <sub>z</sub>	7	-13.17	-0.22	-16.31

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	20.94	-0.01	-0.00	-0.01	0.01	0.00
Dead+Wind 0 deg - No Ice+Guy	33.88	-0.01	-1.53	-63.92	0.12	1.10
Dead+Wind 30 deg - No Ice+Guy	32.02	0.72	-1.29	-53.14	-20.44	1.02
Dead+Wind 60 deg - No Ice+Guy	28.68	1.26	-0.73	-22.67	-39.90	0.63
Dead+Wind 90 deg - No Ice+Guy	32.09	1.47	0.01	9.15	-56.73	-0.01

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Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>y</sub> K	Overturing Moment, M <sub>x</sub> kip-ft	Overturing Moment, M <sub>y</sub> kip-ft	Torque kip-ft
Dead+Wind 120 deg - No Ice+Guy	33.94	1.32	0.77	32.21	-55.78	-0.53
Dead+Wind 150 deg - No Ice+Guy	32.09	0.75	1.28	44.55	-36.27	-0.92
Dead+Wind 180 deg - No Ice+Guy	28.68	-0.01	1.46	45.88	-0.31	-1.19
Dead+Wind 210 deg - No Ice+Guy	32.01	-0.76	1.28	44.26	35.79	-1.02
Dead+Wind 240 deg - No Ice+Guy	33.87	-1.33	0.76	31.85	55.41	-0.58
Dead+Wind 270 deg - No Ice+Guy	32.04	-1.49	0.01	8.81	56.57	0.00
Dead+Wind 300 deg - No Ice+Guy	28.69	-1.28	-0.73	-23.07	39.97	0.56
Dead+Wind 330 deg - No Ice+Guy	32.05	-0.74	-1.29	-53.39	20.66	0.92
Dead+Ice+Guy	37.76	-0.02	0.00	-0.04	0.03	0.00
Dead+Wind 0 deg+Ice+Guy	39.44	-0.02	-0.69	-22.13	0.11	0.20
Dead+Wind 30 deg+Ice+Guy	39.75	0.30	-0.54	-17.36	-10.26	0.25
Dead+Wind 60 deg+Ice+Guy	40.05	0.51	-0.31	-9.79	-17.02	0.11
Dead+Wind 90 deg+Ice+Guy	39.75	0.61	-0.01	-0.20	-20.25	-0.06
Dead+Wind 120 deg+Ice+Guy	39.45	0.58	0.35	11.09	-19.23	-0.09
Dead+Wind 150 deg+Ice+Guy	39.75	0.28	0.55	17.62	-9.97	-0.09
Dead+Wind 180 deg+Ice+Guy	40.04	-0.02	0.62	19.61	-0.06	-0.19
Dead+Wind 210 deg+Ice+Guy	39.74	-0.33	0.55	17.53	9.86	-0.25
Dead+Wind 240 deg+Ice+Guy	39.43	-0.62	0.35	10.93	19.18	-0.11
Dead+Wind 270 deg+Ice+Guy	39.74	-0.65	-0.01	-0.38	20.29	0.06
Dead+Wind 300 deg+Ice+Guy	40.04	-0.56	-0.31	-9.93	17.15	0.08
Dead+Wind 330 deg+Ice+Guy	39.74	-0.35	-0.54	-17.44	10.45	0.09

### Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-10.80	0.00	0.00	10.80	0.00	0.001%
2	-0.03	-10.88	-15.40	0.03	10.88	15.40	0.026%
3	7.67	-10.80	-13.29	-7.67	10.80	13.29	0.021%
4	13.32	-10.72	-7.65	-13.32	10.72	7.66	0.016%
5	15.40	-10.80	0.03	-15.40	10.80	-0.03	0.021%
6	13.38	-10.88	7.73	-13.38	10.88	-7.72	0.026%
7	7.72	-10.80	13.32	-7.72	10.80	-13.32	0.021%
8	0.03	-10.72	15.36	-0.03	10.72	-15.36	0.018%
9	-7.67	-10.80	13.29	7.67	10.80	-13.29	0.021%
10	-13.35	-10.88	7.68	13.35	10.88	-7.67	0.026%
11	-15.40	-10.80	-0.03	15.40	10.80	0.03	0.020%
12	-13.35	-10.72	-7.71	13.35	10.72	7.71	0.013%
13	-7.72	-10.80	-13.32	7.73	10.80	13.32	0.020%
14	0.00	-24.85	0.00	0.00	24.85	-0.00	0.003%
15	-0.01	-24.95	-6.62	0.01	24.95	6.62	0.005%
16	3.26	-24.85	-5.64	-3.26	24.85	5.64	0.005%
17	5.60	-24.75	-3.22	-5.60	24.75	3.22	0.004%
18	6.54	-24.85	0.01	-6.54	24.85	-0.01	0.004%
19	5.75	-24.95	3.32	-5.75	24.95	-3.32	0.006%
20	3.28	-24.85	5.66	-3.28	24.85	-5.66	0.004%
21	0.01	-24.75	6.46	-0.01	24.75	-6.46	0.004%
22	-3.26	-24.85	5.64	3.26	24.85	-5.64	0.005%
23	-5.74	-24.95	3.30	5.74	24.95	-3.30	0.005%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
24	-6.54	-24.85	-0.01	6.54	24.85	0.01	0.005%
25	-5.61	-24.75	-3.24	5.61	24.75	3.24	0.004%
26	-3.28	-24.85	-5.66	3.28	24.85	5.66	0.004%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.0000001	0.00006177
2	Yes	42	0.00014356	0.00008230
3	Yes	42	0.00012766	0.00006868
4	Yes	23	0.00012758	0.00010460
5	Yes	42	0.00012692	0.00006833
6	Yes	42	0.00014351	0.00008218
7	Yes	42	0.00012668	0.00006821
8	Yes	23	0.00014197	0.00010663
9	Yes	42	0.00012760	0.00006864
10	Yes	42	0.00014352	0.00008230
11	Yes	42	0.00012682	0.00006818
12	Yes	22	0.00012097	0.00013138
13	Yes	42	0.00012663	0.00006810
14	Yes	6	0.00000001	0.00003179
15	Yes	28	0.00000001	0.00004689
16	Yes	28	0.00000001	0.00003116
17	Yes	23	0.00000001	0.00004270
18	Yes	29	0.00000001	0.00002454
19	Yes	28	0.00000001	0.00004924
20	Yes	29	0.00000001	0.00002458
21	Yes	23	0.00000001	0.00004255
22	Yes	28	0.00000001	0.00003026
23	Yes	28	0.00000001	0.00004560
24	Yes	28	0.00000001	0.00003096
25	Yes	23	0.00000001	0.00004264
26	Yes	29	0.00000001	0.00002360

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	195 - 175	10.094	6	0.6378	0.6588
T2	175 - 150	12.746	6	0.5966	0.6658
T3	150 - 125	15.347	6	0.3685	0.6760
T4	125 - 100	16.539	6	0.1570	0.7448
T5	100 - 75	14.807	6	0.6083	0.8073
T6	75 - 50	10.923	6	0.8267	0.7507
T7	50 - 25	6.144	6	0.9391	0.5906
T8	25 - 0	1.838	6	0.6201	0.3342

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**Critical Deflections and Radius of Curvature - Design Wind**

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
187.03	Guy	6	11.183	0.6256	0.6624	6803
148.00	Allgon 7250.03 panel antenna	6	15.513	0.3299	0.6793	6193
140.00	Allgon 7250.03 panel antenna	6	16.088	0.2119	0.6973	3691
137.46	Guy	6	16.232	0.2050	0.7044	3262
130.00	(3) Proposed EMS DR65-19-XXDPQ panel antennas	6	16.505	0.1800	0.7278	2433
87.46	Guy	6	13.042	0.7688	0.7944	5124
83.00	Dipole (broken)	6	12.317	0.7924	0.7819	6106
37.46	Guy	6	3.753	0.8374	0.4739	4053

**Section Capacity Table**

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P <sub>allow</sub> K	% Capacity	Pass Fail
T1	195 - 175	Leg	1 1/2	1	-6.08	51.99	12.6	Pass
T2	175 - 150	Leg	1 1/2	73	-8.96	54.52	17.5	Pass
T3	150 - 125	Leg	1 1/2	169	-24.63	54.52	58.9	Pass
T4	125 - 100	Leg	1 1/2	265	-26.70	54.52	51.3	Pass
T5	100 - 75	Leg	1 1/2	362	-18.78	54.41	35.8	Pass
T6	75 - 50	Leg	1 1/2	458	-14.85	54.22	28.9	Pass
T7	50 - 25	Leg	1 1/2	554	-30.04	54.43	57.8	Pass
T8	25 - 0	Leg	1 1/2	650	-44.83	54.51	85.7	Pass
T1	195 - 175	Diagonal	1/2	46	-0.44	2.31	19.0	Pass
T2	175 - 150	Diagonal	1/2	166	-0.29	2.55	11.4	Pass
T3	150 - 125	Diagonal	1/2	220	-1.79	2.55	70.0	Pass
T4	125 - 100	Diagonal	1/2	277	-0.81	2.55	31.9	Pass
T5	100 - 75	Diagonal	1/2	415	-1.17	2.55	45.9	Pass
T6	75 - 50	Diagonal	1/2	472	-0.96	2.55	37.7	Pass
T7	50 - 25	Diagonal	1/2	610	-1.28	2.55	50.0	Pass
T8	25 - 0	Diagonal	1/2	664	-1.22	2.55	47.8	Pass
T1	195 - 175	Top Girt	SQ 3/4x3/4	4	0.00	16.20	0.0	Pass
T2	175 - 150	Top Girt	SQ 3/4x3/4	77	0.03	16.20	0.2	Pass
T3	150 - 125	Top Girt	SQ 3/4x3/4	174	0.07	16.20	0.4	Pass
T4	125 - 100	Top Girt	SQ 3/4x3/4	268	0.19	16.20	1.2	Pass
T5	100 - 75	Top Girt	SQ 3/4x3/4	366	0.22	16.20	1.3	Pass
T6	75 - 50	Top Girt	SQ 3/4x3/4	462	0.12	16.20	0.8	Pass
T7	50 - 25	Top Girt	SQ 3/4x3/4	558	0.12	16.20	0.7	Pass
T8	25 - 0	Top Girt	SQ 3/4x3/4	653	0.13	16.20	0.8	Pass
T1	195 - 175	Bottom Girt	SQ 3/4x3/4	9	0.11	16.20	0.7	Pass
T2	175 - 150	Bottom Girt	SQ 3/4x3/4	81	0.06	16.20	0.4	Pass
T3	150 - 125	Bottom Girt	SQ 3/4x3/4	177	0.24	16.20	1.5	Pass
T4	125 - 100	Bottom Girt	SQ 3/4x3/4	273	0.11	16.20	0.7	Pass
T5	100 - 75	Bottom Girt	SQ 3/4x3/4	369	0.13	16.20	0.8	Pass
T6	75 - 50	Bottom Girt	SQ 3/4x3/4	465	0.11	16.20	0.7	Pass
T7	50 - 25	Bottom Girt	SQ 3/4x3/4	561	0.16	16.20	1.0	Pass
T8	25 - 0	Bottom Girt	SQ 3/4x3/4	655	0.00	0.00	0.0	Pass
T1	195 - 175	Mid Girt	2x1/4	12	0.07	14.40	0.5	Pass
T2	175 - 150	Mid Girt	2x1/4	83	-0.05	0.94	4.8	Pass
T4	125 - 100	Mid Girt	2x1/4	276	-0.13	0.94	13.7	Pass
T6	75 - 50	Mid Girt	2x1/4	468	0.22	14.40	1.5	Pass
T8	25 - 0	Mid Girt	2x1/4	660	-0.11	0.94	12.0	Pass
T1	195 - 175	Guy A@187.033	5/16	750	3.06	5.60	54.7	Pass
T3	150 - 125	Guy A@137.458	5/16	759	5.11	5.60	91.3	Pass



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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P <sub>allow</sub> K	% Capacity	Pass Fail
T5	100 - 75	Guy A@87.4583	5/16	765	5.62	5.60	100.3	Fail X
T7	50 - 25	Guy A@37.4583	5/16	768	2.91	5.60	52.0	Pass
T1	195 - 175	Guy B@187.033	5/16	749	3.05	5.60	54.5	Pass
T3	150 - 125	Guy B@137.458	5/16	756	5.11	5.60	91.2	Pass
T5	100 - 75	Guy B@87.4583	5/16	764	5.62	5.60	100.4	Fail X
T7	50 - 25	Guy B@37.4583	5/16	767	2.91	5.60	52.0	Pass
T1	195 - 175	Guy C@187.033	5/16	745	3.06	5.60	54.7	Pass
T3	150 - 125	Guy C@137.458	5/16	752	5.06	5.60	90.3	Pass
T5	100 - 75	Guy C@87.4583	5/16	763	5.62	5.60	100.3	Fail X
T7	50 - 25	Guy C@37.4583	5/16	766	2.91	5.60	52.0	Pass
T1	195 - 175	Top Guy Pull-Off@187.033	L2x2x1/4	746	0.99	27.01	3.7	Pass
T3	150 - 125	Top Guy Pull-Off@137.458	L2x2x1/4	180	-2.66	21.78	12.2	Pass
T5	100 - 75	Top Guy Pull-Off@87.4583	L2x2x1/4	372	2.40	27.01	8.9	Pass
T7	50 - 25	Top Guy Pull-Off@37.4583	L2x2x1/4	563	1.02	20.26	5.1	Pass
T3	150 - 125	Torque Arm Top@137.458	C10x15.3	762	-1.88	101.74	24.6	Pass
						Summary		
						Leg (T8)	85.7	Pass
						Diagonal (T3)	70.0	Pass
						Top Girt (T5)	1.3	Pass
						Bottom Girt (T3)	1.5	Pass
						Mid Girt (T4)	13.7	Pass
						Guy A (T5)	100.3	Fail X
						Guy B (T5)	100.4	Fail X
						Guy C (T5)	100.3	Fail X
						Top Guy Pull-Off (T3)	12.2	Pass
						Torque Arm Top (T3)	24.6	Pass
						<b>RATING =</b>	<b>100.4</b>	<b>Fail X</b>

## Exhibit 3

## Technical Memo

To: Christine Farrell  
From: Farid Marbough - Radio Frequency Engineer  
cc: Jason Overbey  
Subject: Power Density Report for CTNH302A  
Date: September 9, 2005

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### 1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile PCS antenna installation on a Guyed Tower at 151 Waterbury Road, Prospect, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

### 2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the 1935-1945 MHz frequency band.
- 2) The antenna array consists of three sectors, with 3 antennas per sector.
- 3) The model number for each antenna is APX16PV-16PV-2.
- 4) The antenna center line height is 130 ft.
- 5) The maximum transmit power from any sector is 2291.5 Watts Effective Radiated Power (EIRP) assuming 8 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not change significantly with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

### 3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile PCS antenna installation on a Guyed Tower at 151 Waterbury Road, Prospect, CT, is 0.0327 mW/cm<sup>2</sup>. This value represents 3.27% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm<sup>2</sup>) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

The combined Power Density from other carriers is 0.02%. The combined Power Density for the site is 3.29% of the M.P.E. standard.

## New England Market

Connecticut

### Worst Case Power Density



<b>Site:</b>	<b>CTNH302A</b>
<b>Site Address:</b>	<b>151 Waterbury Road</b>
<b>Town:</b>	<b>Prospect</b>
<b>Tower Height:</b>	<b>150 ft.</b>
<b>Tower Style:</b>	<b>Guyed Tower</b>
Base Station TX output	20 W
Number of channels	8
Antenna Model	APX16PV-16PV-2
Cable Size	1 5/8 in.
Cable Length	150 ft.
Antenna Height	130.0 ft.
Ground Reflection	1.6
Frequency	1935.0 MHz
Jumper & Connector loss	4.50 dB
Antenna Gain	17.8 dBi
Cable Loss per foot	0.0116 dB
Total Cable Loss	1.7400 dB
Total Attenuation	6.2400 dB
Total EIRP per Channel (In Watts)	54.57 dBm 286.44 W
Total EIRP per Sector (In Watts)	63.60 dBm 2291.50 W
nsg	11.5600
<b>Power Density (S) =</b>	<b>0.032696 mW/cm<sup>2</sup></b>
<b>T-Mobile Worst Case % MPE =</b>	<b>3.2696%</b>
Equation Used :	$S = \frac{(1000)(grf)^2 (Power) 10^{(nsg/10)}}{4 \pi (R)^2}$
<small>Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997</small>	

Co-Location Total	
Carrier	% of Standard
Verizon	
Cingular	
Sprint PCS	
AT&T Wireless	0.0200 %
Nextel	
<b>Total Excluding T-Mobile</b>	<b>0.0200 %</b>
T-Mobile	3.2696
<b>Total % MPE for Site</b>	<b>3.2896%</b>