STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

February 4, 2009

Mark R. Richard
UMTS Project Manager
T-Mobile USA, Inc.
35 Griffin Road South
Bloomfield, CT 06002

RE: **EM-T-MOBILE-015-090107** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 1330 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Mr. Richard:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated January 6, 2009, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. 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. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such 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.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP/laf

c: The Honorable Bill Finch, Mayor, City of Bridgeport
Melanie J. Howlett, Associate City Attorney, City of Bridgeport
Chopsey Hill Associates
Carrie L. Larson, Esq., Pullman & Comley, LLC

STATE OF CONNECTICUT

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Internet: ct.gov/csc

Daniel F. Caruso
Chairman

January 14, 2009

The Honorable Bill Finch
Mayor
City of Bridgeport
City Hall Annex
999 Broad Street
Bridgeport, CT 06604

RE: **EM-T-MOBILE-015-090107** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 1330 Chopsey Hill Road, Bridgeport, Connecticut.

Dear Mayor Finch:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by January 28, 2009.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Melanie J. Howlett, Associate City Attorney, City of Bridgeport

T-Mobile

January 6, 2009

Via Federal Express **EM-T-MOBILE-015-090107**

S. Derek Phelps, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Chopsey Hill Associates Facility
1330 Chopsey Hill Road, Bridgeport, Connecticut
T-Mobile Site CT11680A

Dear Mr. Phelps:

ORIGINAL

Omnipoint Communications, a subsidiary of T-Mobile USA, Inc. ("T-Mobile"), intends to replace existing antennas, install additional antennas and replace existing ground equipment at the existing 240-foot lattice tower facility owned by Chopsey Hill Associates and located at 1330 Chopsey Hill Road, Bridgeport, Connecticut ("Facility"). T-Mobile is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation. This installation constitutes an exempt modification pursuant to the Public Utility Environmental Standards Act, Connecticut General Statutes Section 16-50g *et. seq.* (PUESA), and Section 16-50j-72(b)(2) of the Regulations of the Connecticut State Agencies adopted pursuant to PUESA. In accordance with R.C.S.A. Section 16-50j-73, a copy of this notice has been sent to Bill Finch, Mayor, City of Bridgeport.

The existing Facility consists of a 280-foot guyed lattice tower capable of supporting multiple carriers within a fenced compound. The coordinates for the Facility are **Lat: 41°-13'-10" and Long: 73°-12-08".** The tower is located in the northern portion of Bridgeport, approximately 250 feet east of Chopsey Hill Road and 220 feet north of Trumbull Avenue. The Facility is roughly 3,700 feet east of main Street (Route 25) and roughly 1 mile west of Route 8 (see Site Map, attached as Exhibit A). The tower currently supports multiple antennas at various levels. These antenna locations are shown in detail in the Appurtenance Information, pages 4 and 5 of the attached structural analysis (Exhibit E). T-Mobile currently has six antennas on the tower at the two hundred foot (200') level centerline AGL (above ground level) T-Mobile proposes to remove three antennas and proposes to add an additional three antennas (one per sector), for a total of six antennas at their current elevation on the tower. T-Mobile proposes to install three RFS APX-16PV-16PVL-C antennas on existing pipe mounts at the same elevation, two hundred foot (200') level centerline AGL. T-Mobile also intends to supplement it's three existing S12000 equipment cabinets with one additional UMTS 3106 equipment cabinet to be mounted on a proposed four foot by seven foot (4' x 7') concrete pad adjacent to T-Mobile's existing concrete pad. The four cabinets will all be mounted on T-Mobile's existing and proposed equipment pad contained within T-Mobile's existing lease area. T-Mobile intends to run new coaxial cable on its existing ice bridge from its current equipment pad to the existing tower. Utilities will be run via a proposed underground conduit from existing utility sources at the Facility (See Design Drawings and Equipment Specifications, attached as Exhibits B and C respectively).

T-Mobile USA, Inc.
Office: (860) 692-7100
Fax: (860) 692-7159
35 Griffin Rd S
Bloomfield, CT 06002

For the following reasons, the proposed modifications to the Chopsey Hill Road Facility meet the exempt modification criteria set forth in R.C.S.A. Section 16-50j-72(b)(2):

1. The proposed modification will not increase the height of the tower as T-Mobile seeks to add to its existing antenna configuration and install additional antennas at a center line height of approximately 200 feet.

2. The installation and replacement of T-Mobile's antennas and ground equipment will not require an extension of the site boundaries.

3. The proposed modifications will not increase the noise levels at the existing Facility by six decibels or more.

4. The operation of the additional antennas will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. The worst-case RF power density calculations for the proposed Pocket antennas would be 59.491% of the FCC standard (see general power density calculations table, attached as Exhibit D).

Also attached, Exhibit E, is a structural assessment confirming that the tower can support the existing and proposed antennas and associated equipment.

For the foregoing reasons, T-Mobile respectfully submits that the proposed antenna installation and equipment at the Bridgeport Facility constitutes an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Respectfully Submitted,

Mark R. Richard
UMTS Project Manager
Agent for T-Mobile

cc: Bill Finch, Mayor, City of Bridgeport
Remo Tartaglia Associates
Carrie Larson

Hartford/72800.11/KSHEATHELM/344107v1

T-Mobile USA, Inc.
Office: (860) 692-7100
Fax: (860) 692-7159
35 Griffin Rd S
Bloomfield, CT 06002

Exhibit A

Site Map

T-Mobile Site CT11680A

1330 Chopsey Hill Road

Bridgeport, Connecticut

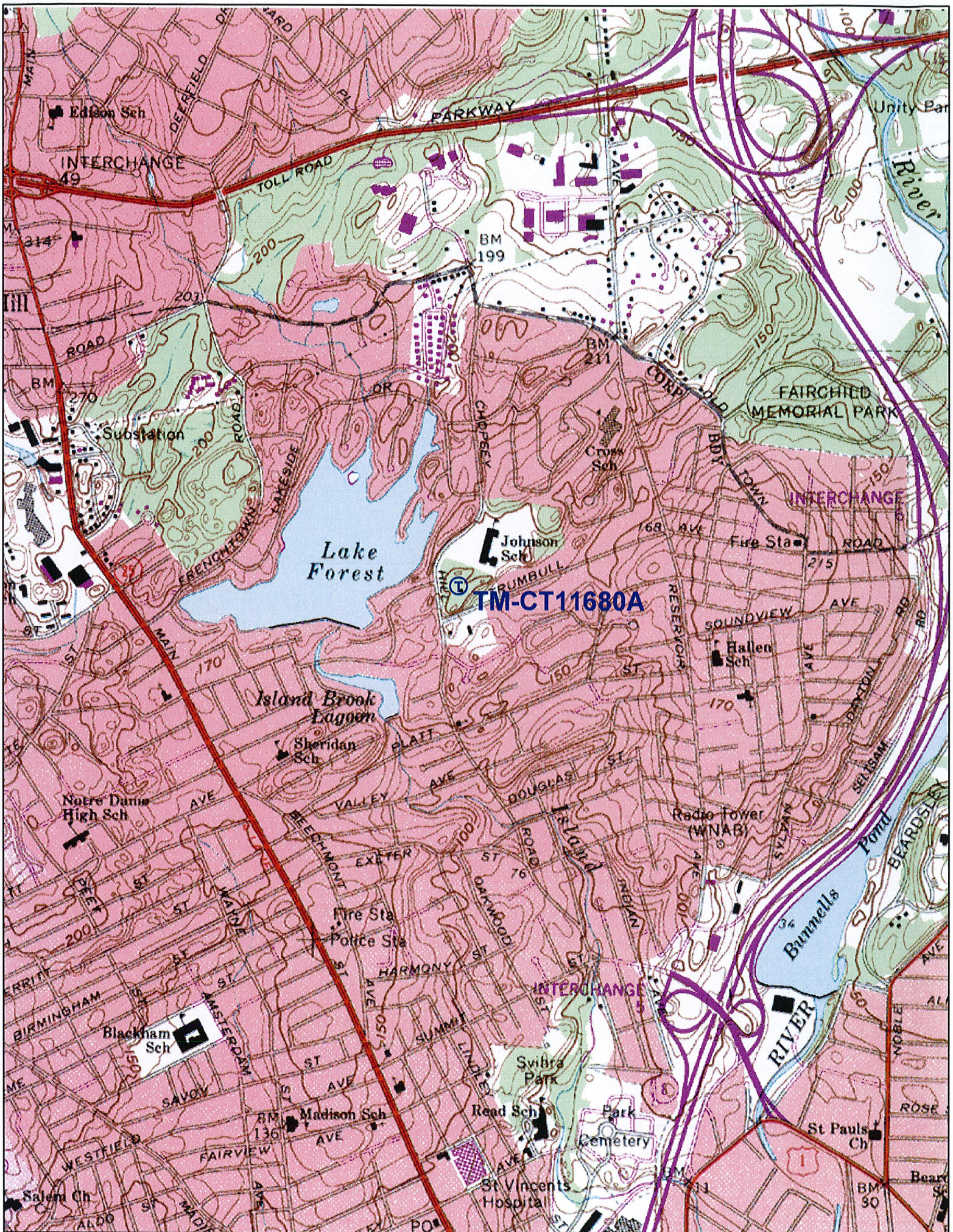


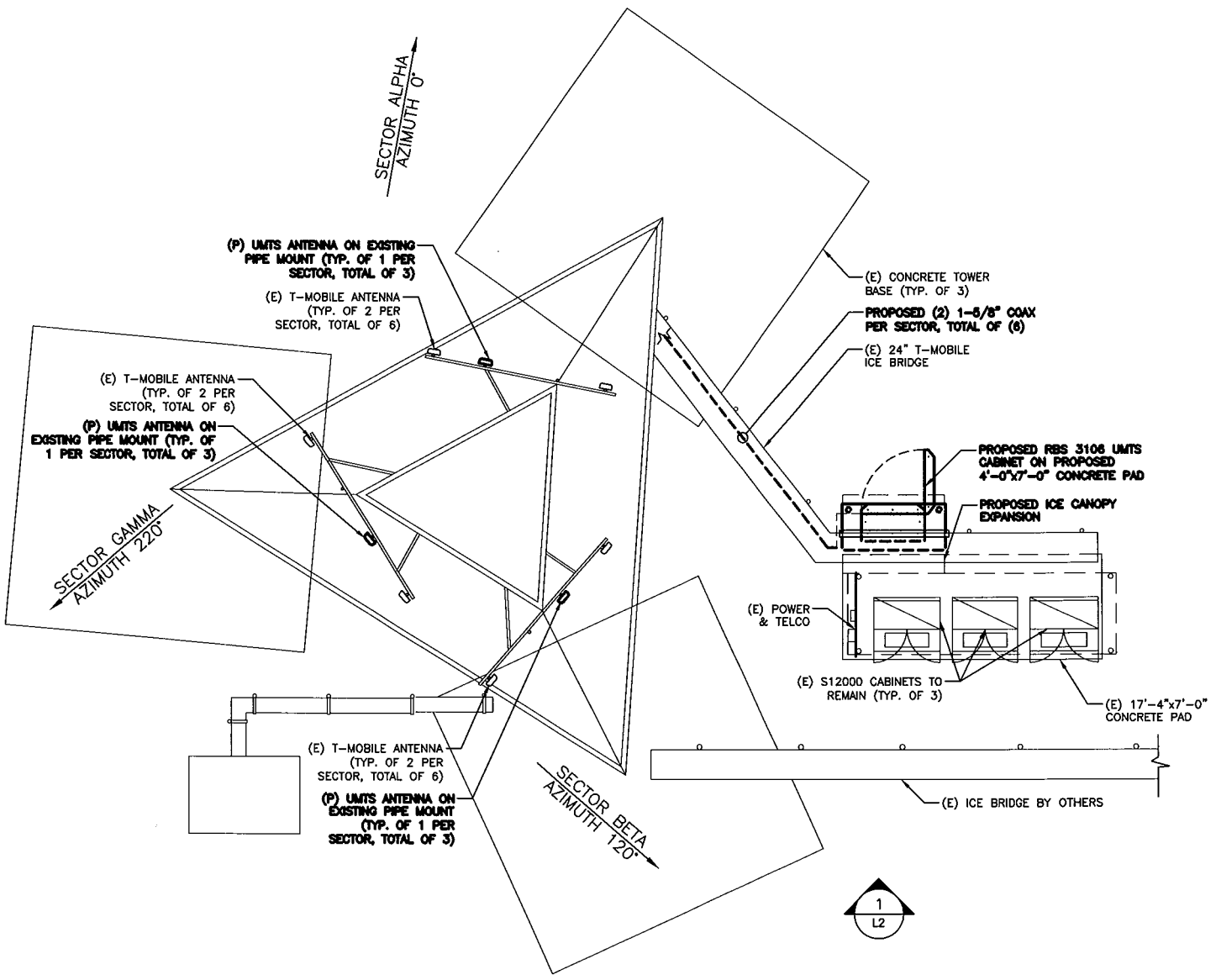
Exhibit B

Design Drawings

T-Mobile Site CT11680A

1330 Chopsey Hill Road

Bridgeport, Connecticut



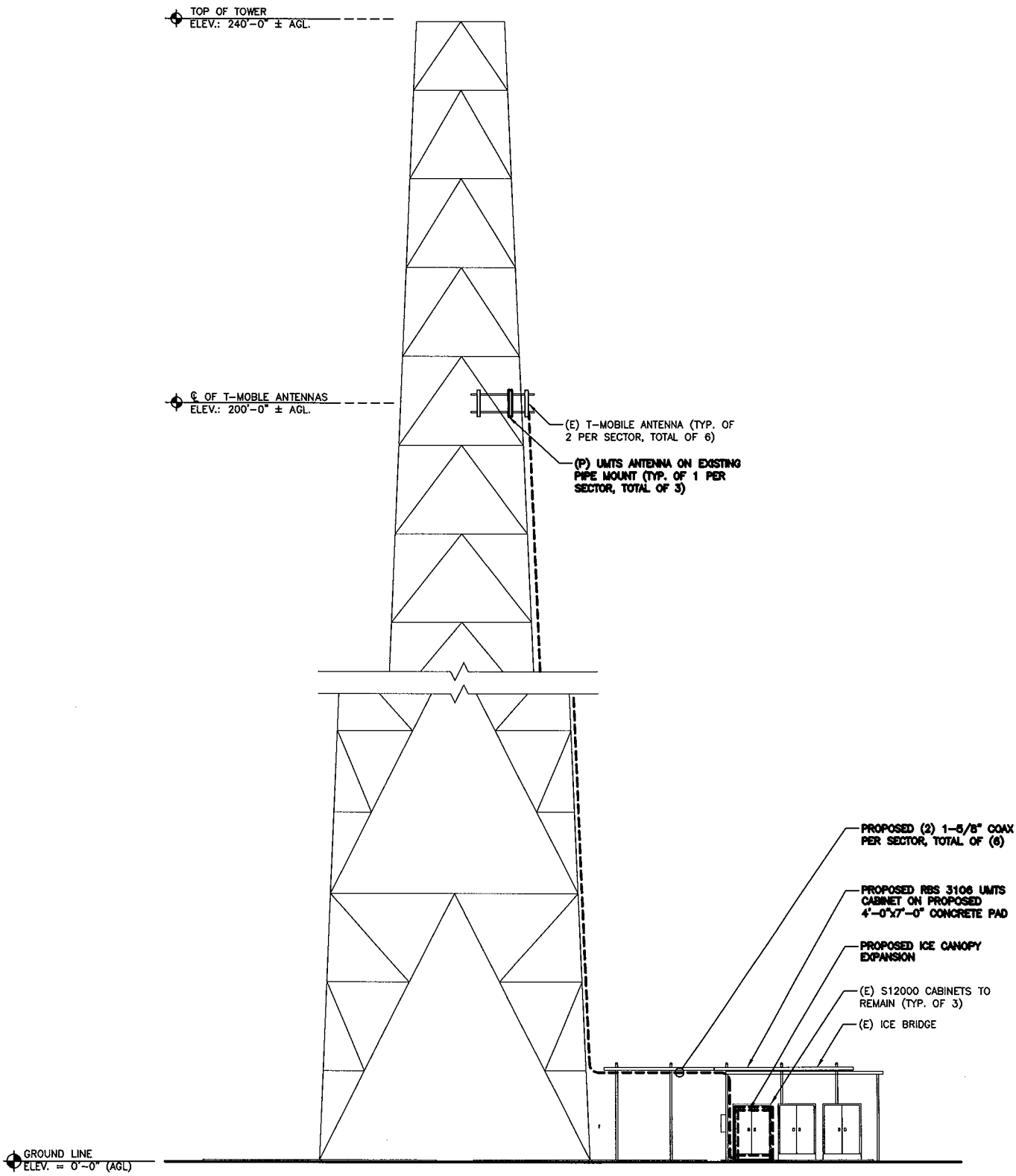
COMPOUND LAYOUT PLAN 1

SCALE: NTS

T··Mobile·
15 COMMERCE WAY
NORTON, MA 02766

MAXTON
50 Eastman St.
South Easton, MA 02375
Phone: (508) 936-6393
Fax: (508) 936-6395

PROJECT LOCATION: CHOPSEY HILL CT11680A 1280 CHOPSEY HILL ROAD BRIDGEPORT, CT 06606	PROJECT MANAGER: KB	DRAWN BY: DM	BSDA PROJ. #: 2889.098
	12/31/08	COMPOUND LAYOUT PLAN	SHEET: L1
APPROVED BY:	11/10/08 10/16/08		



ELEVATION

SCALE: N.T.S.

1

T··Mobile·
15 COMMERCE WAY
NORTON, MA 02766

MAXTON
50 Eastman St.
South Easton, MA 02375
Phone: (508) 936-6393
Fax: (508) 936-6395

PROJECT LOCATION: CHOPSEY HILL CT11680A 1280 CHOPSEY HILL ROAD BRIDGEPORT, CT 06606	PROJECT MANAGER: KB	DRAWN BY: DM	BSDA PROJ. #: 2889.098
	12/31/08	ELEVATION	SHEET: L2
APPROVED BY:	11/10/08		
	10/16/08		

Exhibit C

Equipment Specifications

T-Mobile Site CT11680A

1330 Chopsey Hill Road

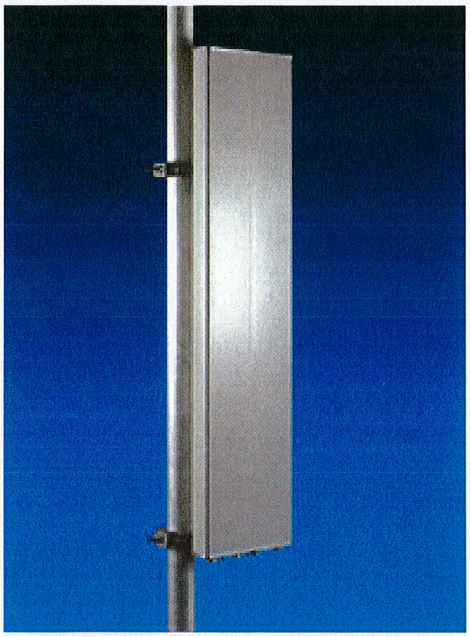
Bridgeport, Connecticut

Technical Data Sheet **APX16PV-16PVL-C**

Optimizer® Panel Dual Polarized Antenna

Product Description

Gathering two X-Polarised antennas in a sigle radome this pair of variable tilt antenna provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features a wide downtilt range with optional remote tilt.



Features/Benefits

- **Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High Suppression of all Upper Sidelobes (Typically <-20dB).**
- **Optional remote tilt - can be retrofitted.**
- **Two X-Polarised panels in a single radome.**
- **Dual polarization.**
- **Low profile for low visual impact.**
- **Broadband design.**

Technical Features

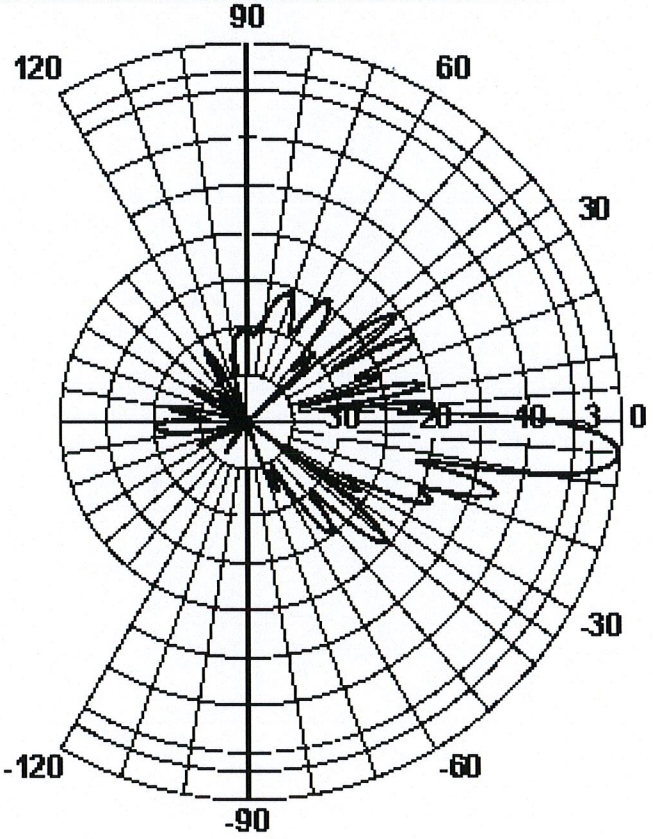
Frequency Band	PCS 1900 (1850-1990 MHz)
Horizontal Pattern	Directional
Antenna Type	Panel Dual Polarized
Electrical Down Tilt Option	Variable
Gain, dBi (dBd)	17.8 (15.8) , 17.8 (15.8)
Frequency Range, MHz	1850-1990 , 1850-1990

Optimizer® Panel Dual Polarized Antenna

Connector Type	(4) 7-16 DIN Female
Connector Location	Bottom
Mount Type	Downtilt
Electrical Downtilt, deg	0-10 , 0-10
Horizontal Beamwidth, deg	66 , 66
Mounting Hardware	APM40-2
Rated Wind Speed, km/h (mph)	160 (100)
VSWR	< 1.5:1
Vertical Beamwidth, deg	6.6
1st Upper Sidelobe Suppression, dB	> 17 (typically > 20)
Upper Sidelobe Suppression, dB	> 18 all (typically > 20)
Polarization	Dual pol +/-45°
Front-To-Back Ratio, dB	> 25
Maximum Power Input, W	300
Isolation between Ports, dB	> 30
Lightning protection	Direct Ground
3rd Order IMP @ 2 x 38 dBm, dBc	> 160
Overall Length, m (ft)	1.35 (4.42)
Dimensions - HxWxD, mm (in)	1349 x 330 x 80 (53 x 12.9 x 3.1)
Weight w/o Mtg. Hardware, kg (lb)	18.0 (39.6)
Radiating Element Material	Brass
Radome Material	Fiberglass
Reflector Material	Aluminum
Max Wind Loading Area, m² (ft²)	0.64 (6.6)
Maximum Thrust @ Rated Wind, N (lbf)	787 (177)
Shipping Weight, kg (lb)	23.8 (52)
Packing Dimensions, HxWxD, mm (in)	1550 x 420 x 210 (61 x 16.5 x 8.3)
Survival Wind Speed, km/h (mph)	200 (125)

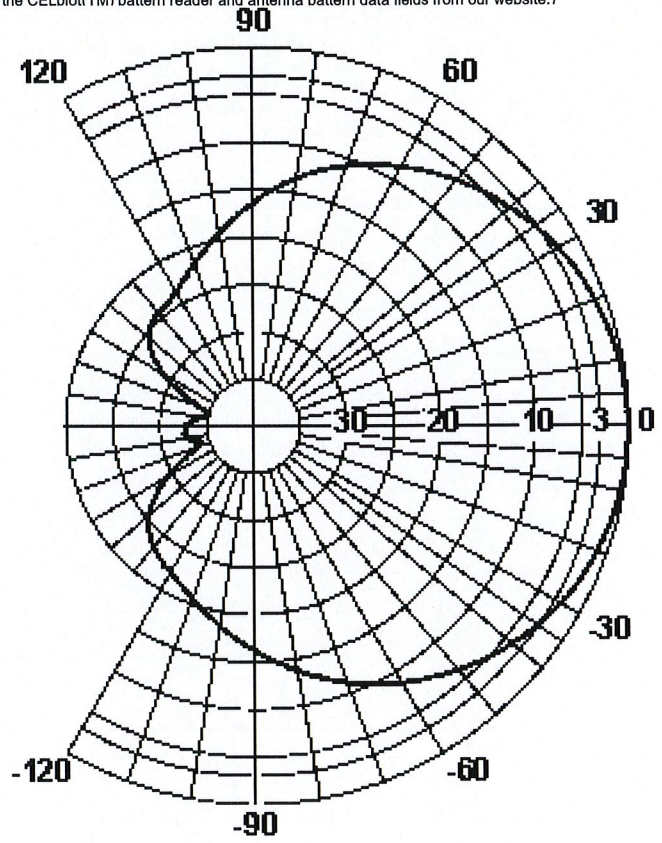
Vertical Pattern

(This is a general representation of the antenna family pattern. For the latest detailed pattern contact Applications Engineering. You may also download the CELplot(TM) pattern reader and antenna pattern data fields from our website.)



Horizontal Pattern

(This is a general representation of the antenna family pattern. For the latest detailed pattern contact Applications Engineering. You may also download the CELplot(TM) pattern reader and antenna pattern data fields from our website.)



Product/Service Bulletin

Nortel Networks

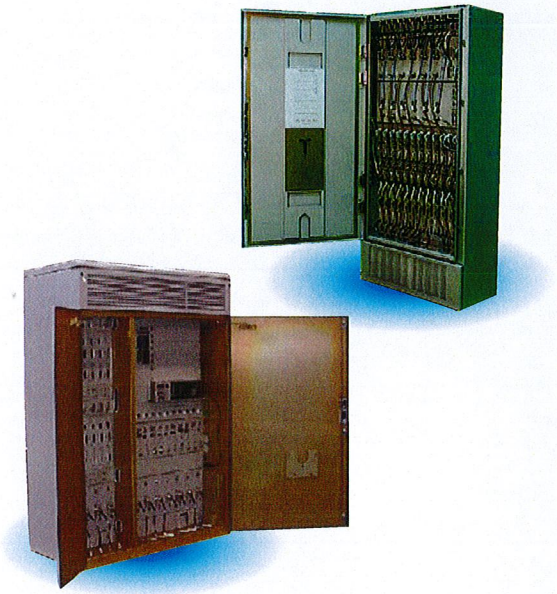
Univity GSM S12000 BTS

Indoor & Outdoor versions

As the GSM industry moves into the world of data, pressure has increased on capacity and so network enhancement and development costs are rising. The Univity GSM S12000 BTS – Indoor and Outdoor versions – is a product that meets the needs of a mature GSM market by increasing site capacity and at the same time lowering the risks and the costs of introduction.

The Univity GSM S12000 BTS – Indoor and Outdoor versions – is built on an existing field proven platform, the Univity GSM S8000 BTS, which is known for its quality and robustness. The reuse of a considerable amount of technology lowers the risk and cost for the operators when introducing this new product into their network.

The Univity GSM S12000 BTS – Indoor version is designed for protected sites while the Outdoor version is a fully integrated BTS site with AC power supply and extended temperature range.



In this document the term "the S12000 BTS" stands for "the Univity GSM S12000 BTS - Indoor and Outdoor version" except where mentioned.

The high capacity cell site

Nortel Networks addresses the growing needs of GSM capacity by introducing the S12000 BTS, which is an innovative development of the S8000 BTS. This innovative approach to network expansion and development is aimed at providing high capacity sites installed with low risk, reduced network impact and a lower cost of ownership.

The S12000 BTS is a key component to the delivery of more capacity within a GSM/GPRS network while driving down network costs. The S12000 BTS offers nearly double the capacity of the S8000 BTS, thereby offering a more compact site and improved operational efficiency.

Finally the S12000 BTS supports more users and offers higher speed data access and quality then increasing opportunities of revenues.

Lowering the cost of ownership and network introduction

It is not just the introduction of the evolution of a field proven and reliable technology that reduces the cost of ownership but also the reduced spares holding and training requirements. By the design of the S12000 BTS, Nortel Networks has aimed to reduce the cost of introducing the S12000 BTS into a GSM network. The S12000 BTS brings considerable savings in CAPEX and OPEX to the operator since main modules and skills are usable within both the S8000 BTS and S12000 BTS. The operator does not have to change the network Engineering and Operational procedures on the existing S8000 BTS. Moreover, via the high capacity and the high RF performance of the S12000 BTS, fewer sites are required. Low introduction costs are invaluable when facing the financial pressures of network enhancements such as GPRS or new services such as UMTS. The use of the S12000 BTS puts the operator in a position to make efficient use of all resources and reduce network complexity relieving pressure on investment.

NORTEL NETWORKS™

Modular and flexible

The S12000 BTS supports twelve TRX per cabinet and offers cost effective configurations from 1 to 16 TRX per cell in a tri-sector configuration. A dual band configuration of 6 + 6 TRX can be supported in a single cabinet for all coupling configurations.

The modular design of the S12000 BTS and the possibility to choose between multiple RF-combining options allows the operator to deploy the S12000 BTS solution in a number of different scenarios such as high-capacity solution in cities or alternatively enabling to provide wide coverage with a minimum number of sites in rural area.

High Performance

The Nortel Networks family of BTS holds a high market position for reliability, operability and service quality. The S12000 BTS provides high data services and voice quality, high coverage and building penetration and smooth call handovers. It possesses many advanced RF features to improve spectral usage and optimisation and so increase available capacity. The AMR and EDGE solutions will further enhance spectrum efficiency. These high performance qualities are extremely important with the introduction of GPRS services.

In addition, as for the S8000 BTS, the S12000 BTS supports UMTS co-sitting thanks to specific combiners, allowing a smooth UMTS introduction.

The high radio performance and advanced digital processing of the S12000 BTS provide one of the highest receive sensitivity in the market today, offering –115 dBm guaranteed and without the need for masthead amplifiers (-117dBm typical). The high radio performance enhances the resistance to interference, improving voice quality, data throughput, cell coverage and service availability.

Nortel Networks experience in frequency hopping, fractional re-use, cell tiering and multi-layer management algorithms provide high spectrum efficiency which releases more capacity for a fixed allocation of spectrum.

Growing the business and ensuring success

The Univity GSM S12000 BTS is future ready. The high capacity and flexibility of the S12000 BTS, the introduction of AMR and EDGE, put the operator in a best position to meet the challenges and opportunities of GSM/GPRS. These advantages enable the operator to capture new revenues, improve profitability and gain a better return on investment as the network develops and moves forward.

Technical Specifications:		Indoor	Outdoor
Frequency range		900 MHz GSM / 900 MHZ Extended GSM 1800 MHz GSM and Dual Band GSM 900 / 1800 850 MHZ GSM 1900 MHz GSM and Dual Band GSM 850 / 1900	
Receive sensitivity	w/o diversity	-110 dBm garanteed (w/o TMA)	
	with diversity	-115 dBm garanteed (w/o TMA)	
Dimensions	Height	1950 mm	1910 mm
	Width	910 mm	1350 mm
	Depth	450 mm	650 mm
Weight	Empty cabinet	170 kg	200 kg
	Fully equipped	415 kg	570 kg
Capacity	Standard	12 TRX per radio cabinet Up to 3 radio cabinets	
	Future option	Up to 4 radio cabinets	
Configuration	Monoband Trisectorial	Up to S16-16-16 (4 radio cabinets)	
	Dual Band Trisectorial	S222_222 (1 radio cabinet) Mono-BCCH dual band cells	
	Cell Splitting	Cell splitting across radio cabinets	
Amplifier output power	Standard	30W (+/- 0.5 dB) GMSK 30W (+/- 0.5 dB) 8-PSK EDGE	
	Optional	60W (+/- 0.5 dB) GMSK* 45W (+/- 0.5 dB) 8-PSK	
Transmission coupling		All coupling configurations From Duplexers to 4 Ways Hybrid Coupling (H4D)	
Power control	Static	6 steps of 2 dB	
	Dynamic	15 steps of 2 dB	
Space for customer Equipment		NA	6U
Frequency Hopping		RF Synthetised	
Supported vocoders		Full Rate (FR) Enhanced Full Rate (EFR) Adaptive Multi-Rate - Full Rate (AMR FR) Adaptive Multi-Rate - Half Rate (AMR HR)	
Encryption algorithms		A5/1 & A5/2	
Power supply	Nominal	DC -48 V tri-phase 230V (50/60Hz) AC Integrated battery backup Optional ancillary battery cabinet	Single, single-split or
Operational temperature range		-5°C to +45°C	-40°C to +50°C
Max acoustic noise		65 dB(A)	
Backhaul	Standard	6 E1 / T1 links	
	Future option	8 E1 / T1 links	

** Frequency dependant*

In North america, the Caribbean, and Latin America :
Tel : 1-800-4-Nortel
or 1-506-674-5470

In Europe, Middle East, and Africa :
Tel : 00-800-8008-9009*
or +44 (0)20 8920 4618

In Asia :
Tel : 65-287-2877

for more information contact your Nortel Networks account representative, or visit :
www.nortelnetworks.com/contact

* call are not from all European Countries.

www.nortelnetworks.com

NN101082-0702

NORTEL NETWORKS™

3 Dimensions

This section describes the physical characteristics of the RBS, that is, dimensions, weight, and color.

Table 1 RBS 3106 Dimensions

Unit	Dimensions (mm)
Height (including installation frame)	1626
Width	1300
Depth	710
Depth including door	926

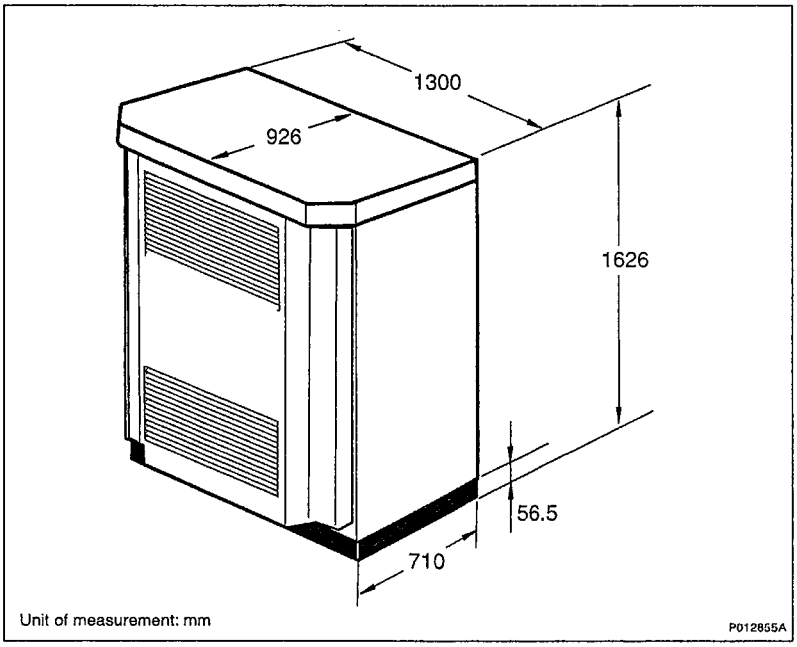


Figure 2 RBS 3106 Dimensions

The various weights of the RBS 3106 are shown in the table below.

Table 2 RBS 3106 Weights

Unit	Type	Weight (kg)
RBS fully equipped excluding batteries	AC-powered	560
RBS fully equipped including batteries	AC-powered	850

Unit	Type	Weight (kg)
RBS fully equipped including batteries and future expansion of hardware (not yet available)	AC-powered	875
RBS fully equipped	DC-powered	510
Installation frame	AC- and DC-powered	12

The color of RBS 3106 is shown in the table below.

Table 3 RBS 3106 Color

Color	Color Standard
Gray	RAL 7035
Green	NCS 8010–G 10 Y

Exhibit D

Power Density Calculations

T-Mobile Site CT11680A

1330 Chopsey Hill Road

Bridgeport, Connecticut

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Maxton
From: Farid Marbouh - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11680A
Date: December 24, 2008

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 Self Support Tower at 1320 Chopsey Hill Road, Bridgeport, 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 (1940-1949.8), (2140-2145), (2110-2120)MHz frequency Band.
2) The antenna array consists of three sectors, with 2 antennas per sector.
3) The model number for GSM antenna is APX16PV-16PVL.
3) The model number for UMTS antenna is APX16DWV-16DWV.
4) GSM antenna center line height is 200 ft.
4) UMTS antenna center line height is 200 ft.
5) The maximum transmit power from any GSM sector is 1754.37 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 1832.69 Watts Effective Radiated Power (EiRP) assuming 2 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 Self Support Tower at 1320 Chopsey Hill Road, Bridgeport, CT, is 0.02091 mW/cm^2. This value represents 2.091% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) 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 57.4%. The combined Power Density for the site is 59.491% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	**CT11680A**
Site Address:	**1320 Chopsey Hill Road**
Town:	**Bridgeport**
Tower Height:	**240 ft.**
Tower Style:	**Self Support Tower**

GSM Data		**UMTS Data**	
Base Station TX output	20 W	**Base Station TX output**	40 W
Number of channels	8	**Number of channels**	2
Antenna Model	APX16PV-16PVL	**Antenna Model**	APX16DWV-16DWV
Cable Size	1 5/8 in.	**Cable Size**	1 5/8 in.
Cable Length	250 ft.	**Cable Length**	250 ft.
Antenna Height	200.0 ft.	**Antenna Height**	200.0 ft.
Ground Reflection	1.6	**Ground Reflection**	1.6
Frequency	1945.0 MHz	**Frequency**	2.1 GHz
Jumper & Connector loss	4.50 dB	**Jumper & Connector loss**	1.50 dB
Antenna Gain	17.8 dBi	**Antenna Gain**	18.0 dBi
Cable Loss per foot	0.0116 dB	**Cable Loss per foot**	0.0116 dB
Total Cable Loss	2.9000 dB	**Total Cable Loss**	2.9000 dB
Total Attenuation	7.4000 dB	**Total Attenuation**	4.4000 dB
Total EIRP per Channel	53.41 dBm	**Total EIRP per Channel**	59.62 dBm
(In Watts)	219.30 W	**(In Watts)**	916.35 W
Total EIRP per Sector	62.44 dBm	**Total EIRP per Sector**	62.63 dBm
(In Watts)	1754.37 W	**(In Watts)**	1832.69 W
nsg	10.4000	**nsg**	13.6000
Power Density (S) =	**0.010227 mW/cm^2**	**Power Density (S) =**	**0.010683 mW/cm^2**
T-Mobile Worst Case % MPE =		**2.0910%**	

Equation Used :

$$S = \frac{(1000)(grf)^2 (Power) * 10^{(nsg/10)}}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	**% of Standard**
Verizon	5.4100 %
Cingular	6.4800 %
Sprint	19.4000 %
AT&T Wireless	3.6800 %
Nextel	1.4500 %
MetroPCS	4.8700 %
Other Antenna Systems	16.1100 %
Total Excluding T-Mobile	**57.4000 %**
T-Mobile	2.0910
Total % MPE for Site	**59.4910%**

Exhibit E

Structural Analysis

T-Mobile Site CT11680A

1330 Chopsey Hill Road

Bridgeport, Connecticut

Pier Structural Engineering Corp.
55 Northfield Drive E, Suite 198
Waterloo, ON N2K 3T6
TEL: 519-885-3806
FAX: 519-886-0076
www.p-sec.ca

Specializing in Communication Tower Engineering

◄ STRUCTURAL ANALYSIS ►

FOR

MAXTON

BAY STATE DESIGN

240-ft SELF SUPPORT TOWER
CT11680A
FAIRFIELD COUNTY, CT

PREPARED FOR:

T-Mobile

PREPARED BY:

Shawn Hoffmeyer, E.I.T.

December 22, 2008

PSEC Job **#2496**

◄ STRUCTURAL ANALYSIS ►

240-ft SELF SUPPORT TOWER
CT11680A
FAIRFIELD COUNTY, CT

PREPARED FOR:

T-Mobile

TABLE OF CONTENTS

INTRODUCTION:

ATTENTION: **Kostandin Butka, Bay State Design**

CARRIER INFO: **Co-Locate Applicant:** **T-Mobile**
Carrier Site Name: **CT11680A**

SITE DATA: **1320 Chopsey Hill Road, Bridgeport, Fairfield County, CT**
Latitude: 41.21953°, Longitude: 73.2013°
240-ft Self Support Tower

We have completed the structural analysis for the existing 240-ft self support tower, located at the above referenced site. The purpose of this analysis is to determine that the existing structure design is in conformance with the TIA/EIA-222-F Standard and local code requirements for the proposed antenna installation. Refer to the Results and Conclusions section at the end of this report for the analysis results.

Description of Structure:

The structure is a 240-ft self support tower. Refer to P-SEC Mapping Report job no. 2496 dated December 18, 2008 for a detailed description of the structure. There are no foundation drawings or site-specific geotechnical properties available. As such, foundations have not been checked. Steel grades have been assumed to be 50 ksi for the tower legs and 36 ksi for all other members. The tower, for the purpose of this analysis, is considered to be in good condition with no defects.

Method of Analysis:

The structure was analyzed using TSTower software suite for communication structures. The software creates a three-dimensional model of the structure and calculates member stresses for various loading cases that account for second order geometric effects due to the displacements. The analysis was performed **in conformance with TIA/EIA-222-F Standard and local code requirements for 85 mph (fastest mile; 105 mph 3-second gust).** The wind is applied to the structure, all appurtenances and antennas.

Design Parameters:

The following design parameters have been used in our analysis:

Design Standard:		TIA/EIA-222-F
County/State:		Fairfield County, CT
Wind Speeds:	*CASE 1*	85 mph (fastest mile; 105 mph 3-second gust)
	CASE 2	78 mph (fastest mile) with 1/2" radial solid ice
	CASE 3	50 mph (fastest mile) for Serviceability
Allowable Stress:		Increased 1/3rd

Documents Provided:

Document	Remarks	Reference	Source
Tower Mapping	Tower Mapping Report, dated 12/18/2008	Job #2496	P-SEC
Tower Foundations	No foundation drawings available	N/A	N/A
Geotechnical Report	No geotechnical report available	N/A	N/A
Existing Loading	Tower Mapping Report, dated 12/18/2008	Job #2496	P-SEC
Final Antenna Configuration	RFDS_CT11680A_v2.xls	EXCEL Spreadsheet	Bay State Design

APPURTENANCE INFORMATION:

Final Loading:

Height (ft)	Antenna		Mount	TX Line		Carrier
	Qty	Description / Type		Qty	Type	
200	3	**RFS APX16DWV-16DWVS-A20**	*On Existing Mounts*	6	1-5/8	T-Mobile
	3	AWS TMA				

* *Final loading from spreadsheets provided by client. Proposed lines to be stacked with existing lines.*

** *Antennas listed above to be added to the loading at 205ft from the EXISTING LOADING table.*

Existing Loading:

Height (ft)	Antenna		Mount	TX Line		Carrier
	Qty	Description / Type		Qty	Type	
240	1	2"x12' Omni	Standoff	--	--	Unknown
240	1	2"x12' Omni	Pipe Mount	1	1-1/4	Unknown
230	1	2"x12' Omni	Standoff	1	7/8	Unknown
225	1	3"x15' Omni	Standoff	1	7/8	Unknown
222	1	3"x15' Omni	Standoff	2	1-1/4	Unknown
210	6	4'x6"x3" Panels	10' Sector Mounts	12	1-5/8	Metro PCS
210	6	Ret Motors				
200	6	4'x1'x2" Panels	14' Sector Mounts	24	1-5/8	T-Mobile
200	6	12"x6"x3" TMA's				
195	1	3' 7-Element Yagi	Flush Mounted	1	7/8	
185	6	4'x1'x6" Panels	10' Sector Mounts	12	1-5/8	Sprint
175	4	5'x3"x6" Panels	(3) 4.5"x10' Pipes Face Mounted	6	1-5/8	Sprint
175	2	5'x3"x6" Panels w/ Fins				

165	6	4'x1'x6" Panels	14' Sector Mounts	12	1-5/8	AT&T
165	12	Powerwave RA21.7770.00				
165	1	3"x15' Omni		1	1-1/4	Unknown
150	6	APL886513-42TO	14' Sector Mounts	6	1-5/8	Unknown
150	6	APL196518-42TO		6	1-5/8	Unknown
137	1	1"x10' Omni	Standoff	1	1/4	Unknown
134	1	3' 17-Element Yagi	Standoff	1	1/4	Unknown
119	1	1"x10' Omni	Standoff	1	7/8	Unknown
105	1	1"x10' Omni	Standoff	1	7/8	Unknown
99	1	3' 17-Element Yagi	Standoff	1	1/4	Unknown
51	1	GPS	Pipe Mount	1	1/2	Unknown
21	1	4' Channel Master Dish	Dish Mount	1	1/4	Unknown

RESULTS:

Refer to the attached Computer Summary sheets for detailed analysis results.

Tower Summary:

Tower Member	Elevation (ft)	% Capacity	Result
Legs	0-240	46	Pass
Diagonals	0-240	85	Pass
Horizontals	0-240	82	Pass

Tower Rating: 85%

Structure:

The existing self support tower **is structurally capable** of supporting the existing and proposed antennas and transmission lines.

Foundations:

The foundations were not checked due to a lack of information, and as such we can not comment on their structural adequacy with respect to the final loading. A site geotechnical report and foundation drawings would be required to determine whether the foundations are adequate. Refer to the output for calculated foundation loads under the final loading scenario.

CONCLUSIONS:

The existing 240-ft self support tower located in Fairfield County (CT11680A), CT **is structurally acceptable** based on the TIA/EIA-222-F Standard and the local building code with a basic wind speed of 85 mph (fastest mile; 105 mph 3-second gust)) and a reduced wind speed with 1/2" solid radial ice.

This analysis may be affected if any assumptions or considerations noted in our report and output are not valid or have been made in error. PSEC should be allowed to review any new information to determine the effect on the structural integrity of the tower

Should you have any questions, please call us any time at 519-885-3806.

Sincerely,

Shawn Hoffmeyer, E.I.T.

Reviewed by,

◄ ANALYSIS OUTPUT ►

240-ft SELF SUPPORT TOWER
CT11680A
FAIRFIELD COUNTY, CT

Section A: PROJECT DATA

Project Title:	240ft. Sefl Support Tower
Customer Name:	Maxton
Site:	CT11680A
Contract No.:	2496
Revision:	1
Engineer:	SH
Date:	Dec 22 2008
Time:	04:01:48 PM
Design Standard:	TIA/EIA-222-F-1996

GENERAL DESIGN CONDITIONS

Start Wind direction:	0.00 (Deg)
End Wind direction:	330.00 (Deg)
Increment wind direction:	30.00 (Deg)
Elevation above ground:	0.00(ft)
Gust Response Factor Gh:	1.10
Material Density:	490.1(lbs/ft^3)
Young's Modulus:	29000.0(ksi)
Poisson Ratio:	0.3
Weight Multiplier:	1.00
Allowable Stress Incr. Factor:	1.333
Increase allowable stress:	Yes
WIND ONLY CONDITIONS:	
Basic Wind Speed:	85.00(mph)
WIND AND ICE CONDITIONS:	
Basic Wind Speed:	85.00(mph)
Ice Thickness:	0.50(in)
Ice density:	56.19(lbs/ft^3)
Wind pressure reduction for iced conditions:	0.75
WIND ONLY SERVICEABILITY CONDITIONS:	
Operational Wind Speed:	50.00(mph)

Analysis performed using: TowerSoft Finite Element Analysis Program

Section N: LEG REACTION DATA

Load Combination Max Envelope
Wind Direction Maximum

Force-Y Download (Kips)	Force-Y Uplift (Kips)	Shear-X (Kips)	Shear-Z (Kips)	Max Shear (Kips)
302.44	226.90			42.37

Section O: TOWER FOUNDATION DATA

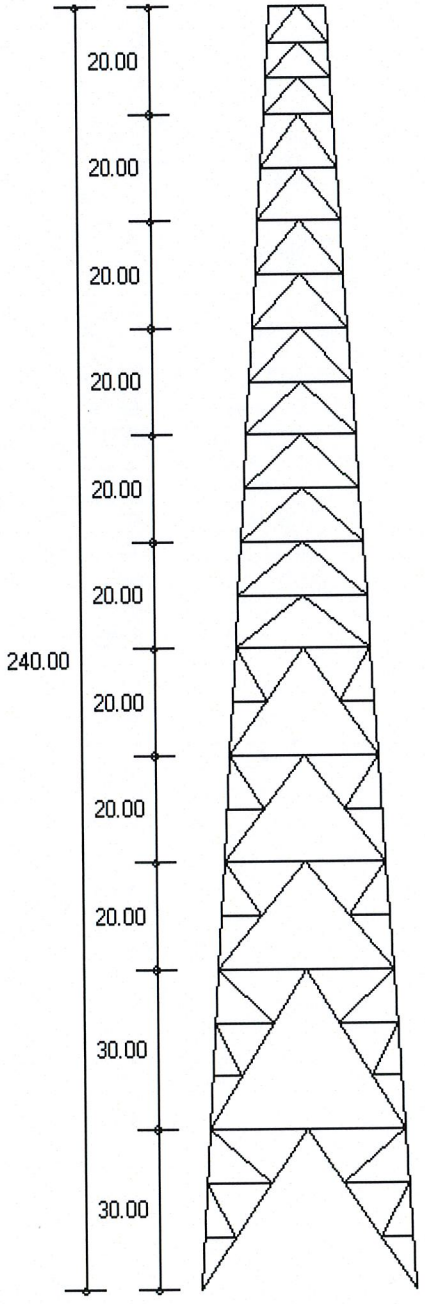
Load Combination Max Envelope
Wind Direction Maximum

Axial Load (Kips)	Shear Load-X (Kips)	Shear Load-Z (Kips)	Total Shear (Kips)	Moment-X (Kipsft)	Moment-Y (Kipsft)	Moment-Z (Kipsft)	Total Moment (Kipsft)
109.23	35.53	61.47	71.00	8079.61	1.77	-4667.44	9330.87
109.23	-71.07	0.00	71.07	-2.49	-1.40	9316.45	9316.45

DESIGN SPECIFICATION

Design Standard: TIA/EIA-222-F-1996
Basic Wind speed = 85.0 (mph)
Service Wind speed = 50.0 (mph)
Ice thickness = 0.50 (in)

Sct.	Length (ft)	Top Width (in)	Bot Width (in)
1	30.00	441.00	486.00
2	30.00	396.00	441.00
3	20.00	366.00	396.00
4	20.00	336.00	366.00
5	20.00	306.00	336.00
6	20.00	276.00	306.00
7	20.00	246.00	276.00
8	20.00	216.00	246.00
9	20.00	186.00	216.00
10	20.00	156.00	186.00
11	20.00	126.00	156.00

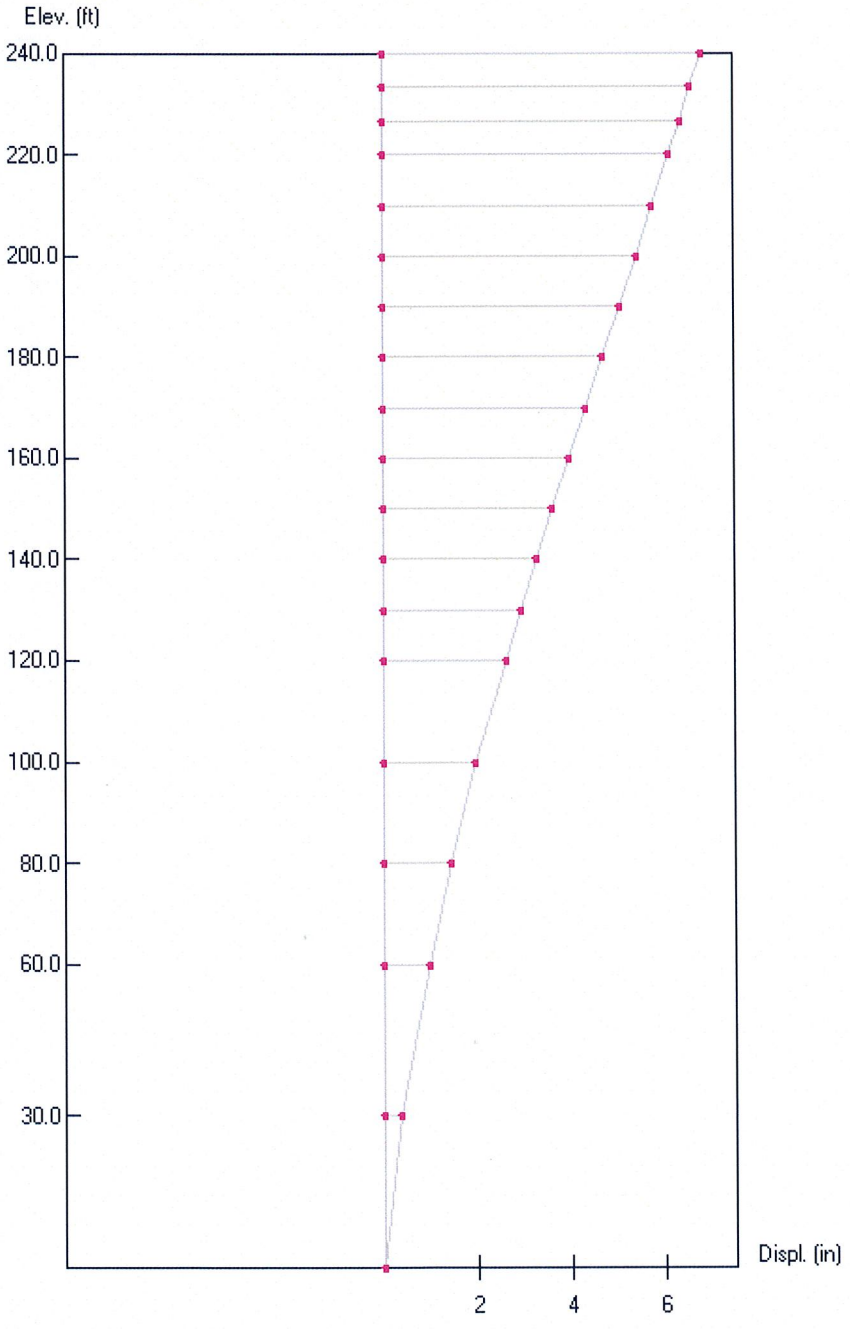


MAXIMUM BASE REACTIONS

	Bare	Iced
Download (Kips)	288.4	302.4
Uplift (Kips)	226.9	214.4
Shear (Kips)	40.8	42.4

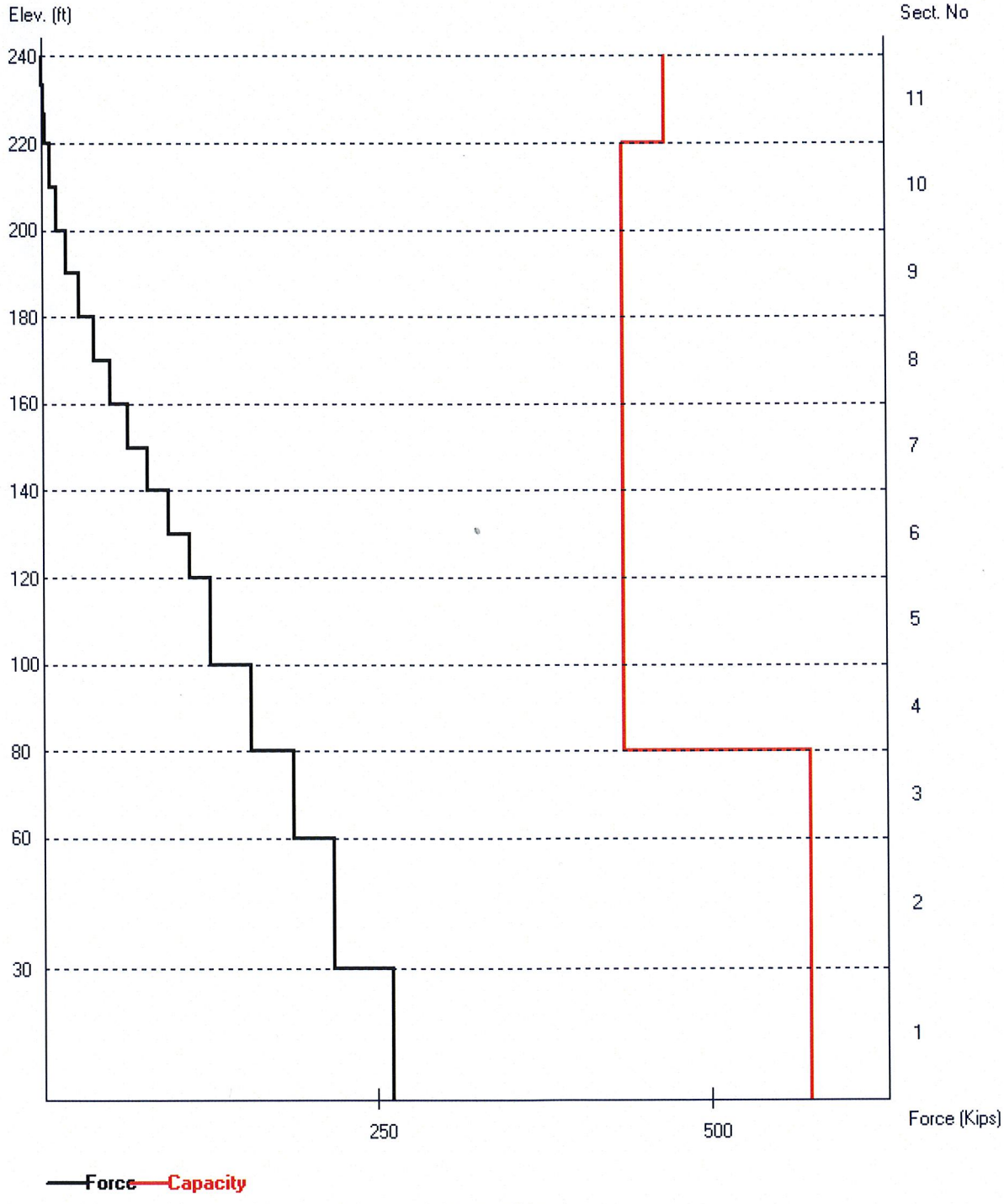
Appendix 1

Horiz. Disp. Diagram
Max. Envelope (All Loading Cases)



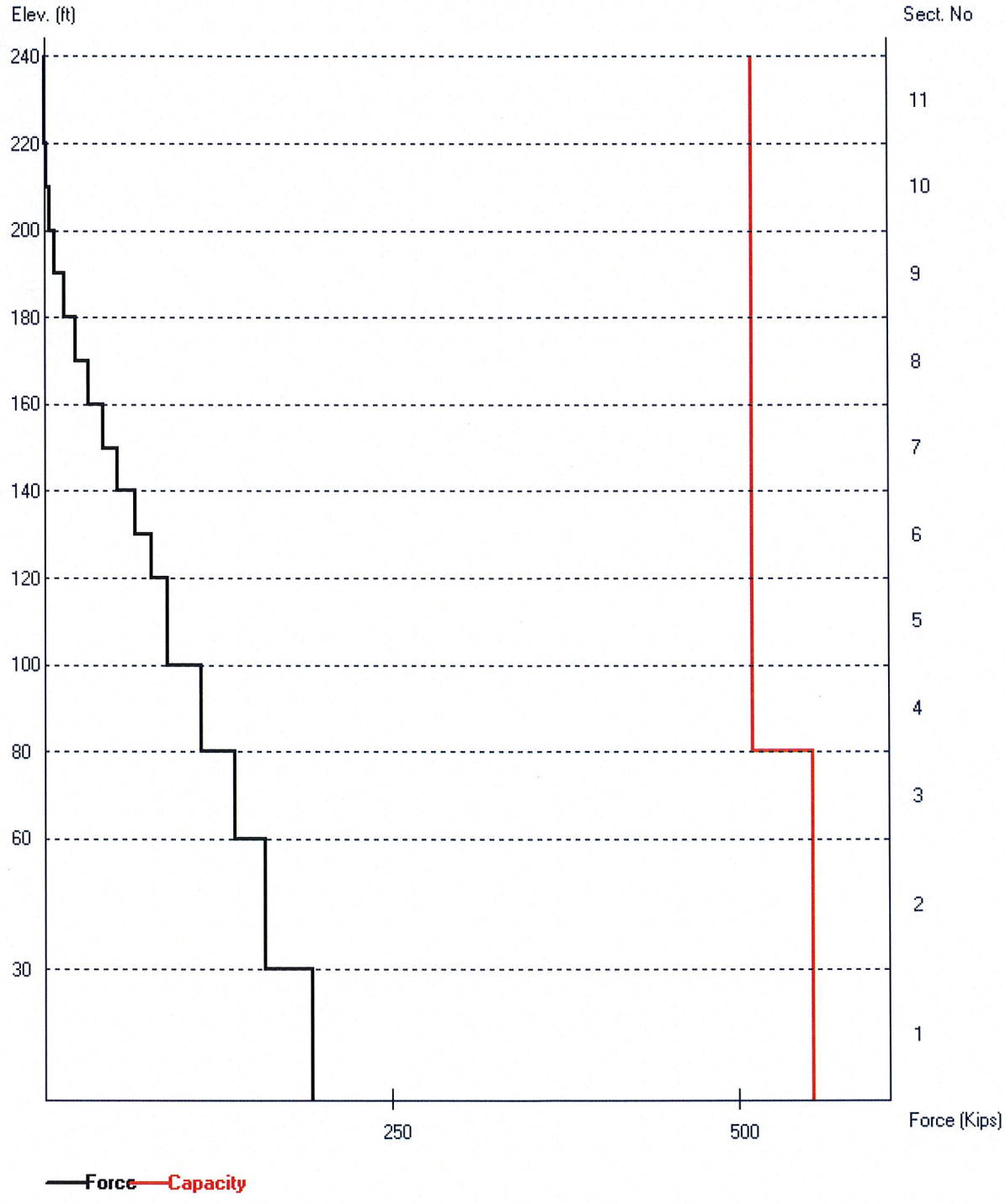
Appendix 2

Leg Load Compression Diagram
Max. Envelope (All Loading Cases)



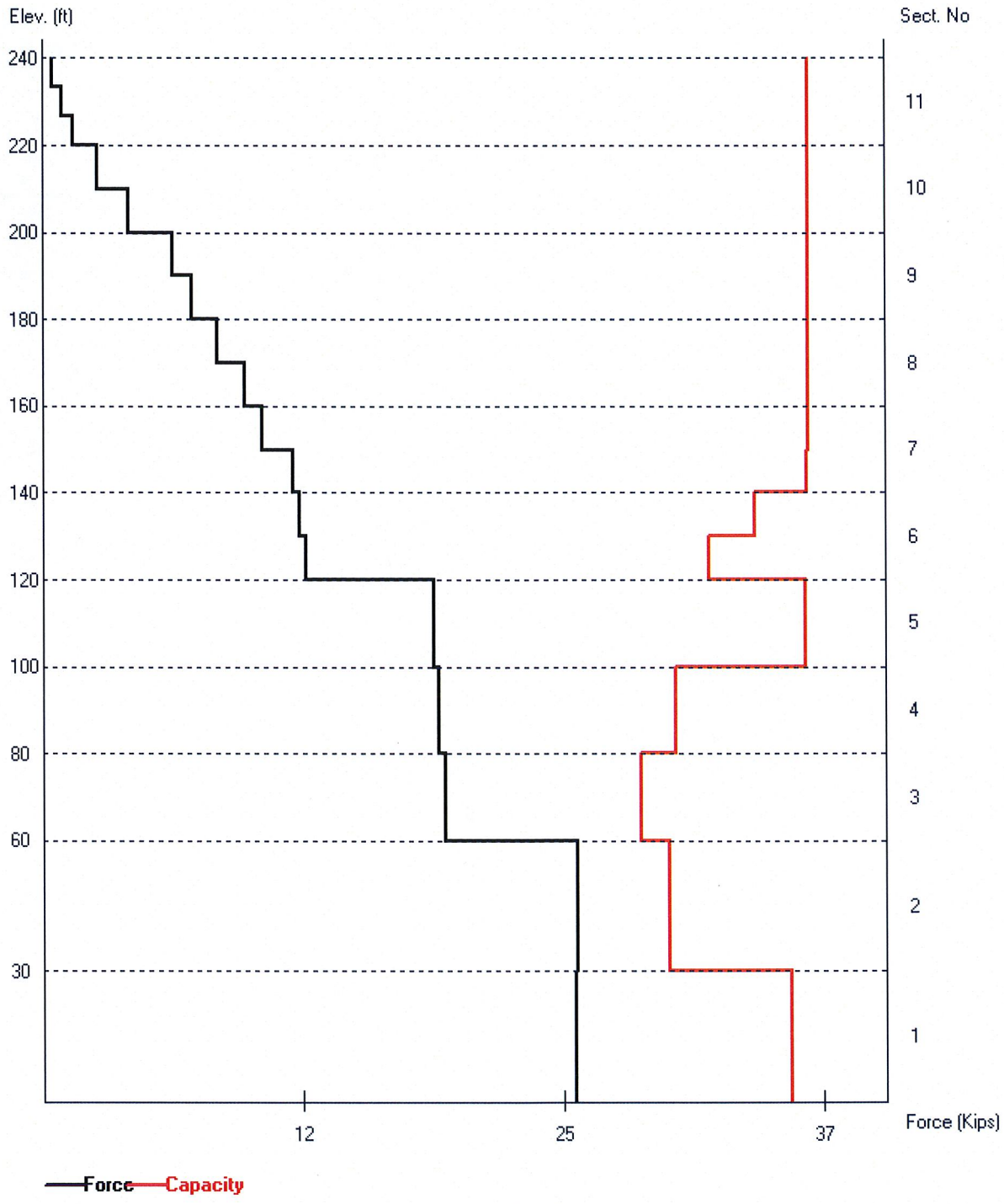
Appendix 3

Leg Load Tension Diagram
Max. Envelope (All Loading Cases)



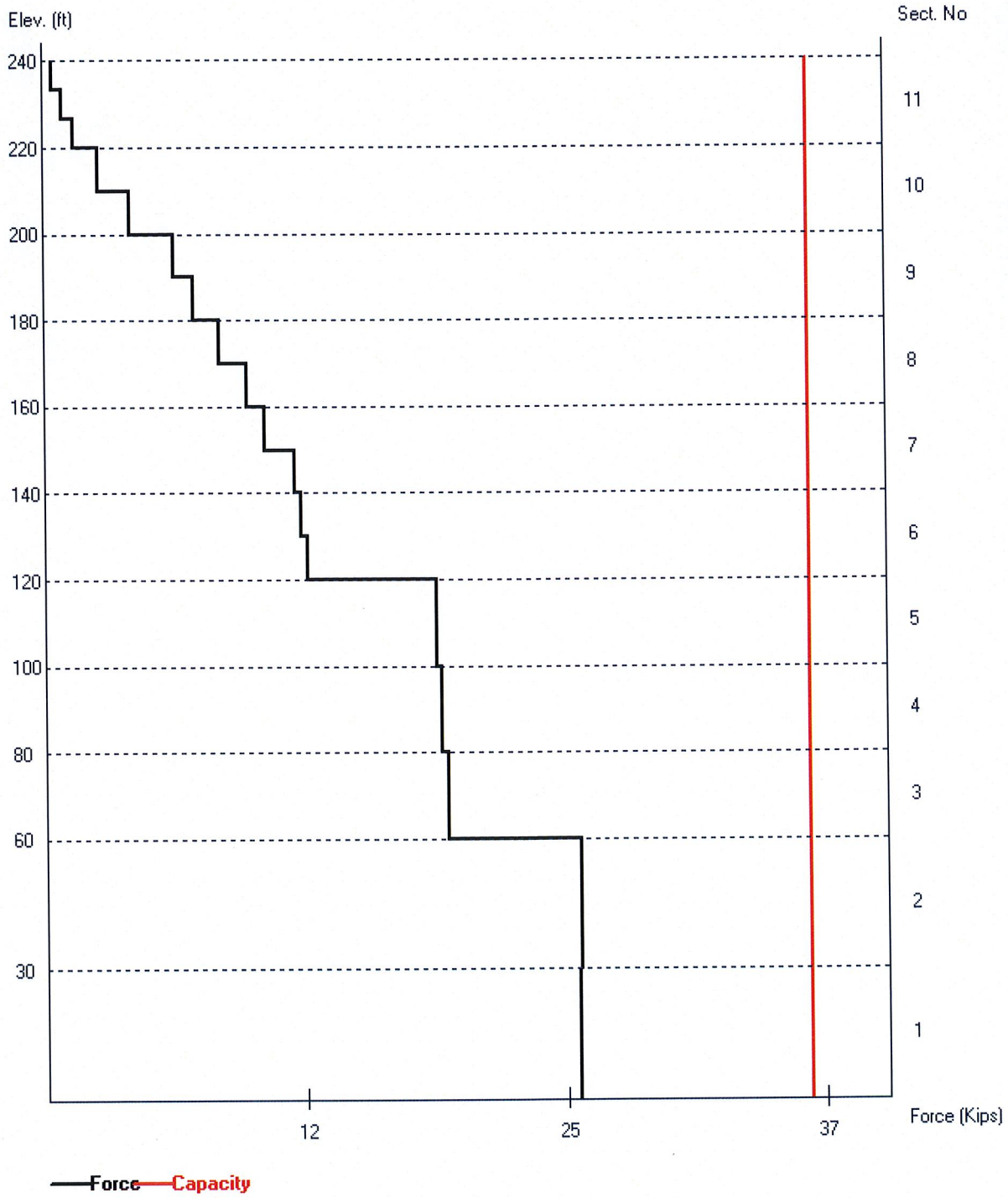
Appendix 4

Diag. Load Compression Diagram
Max. Envelope (All Loading Cases)



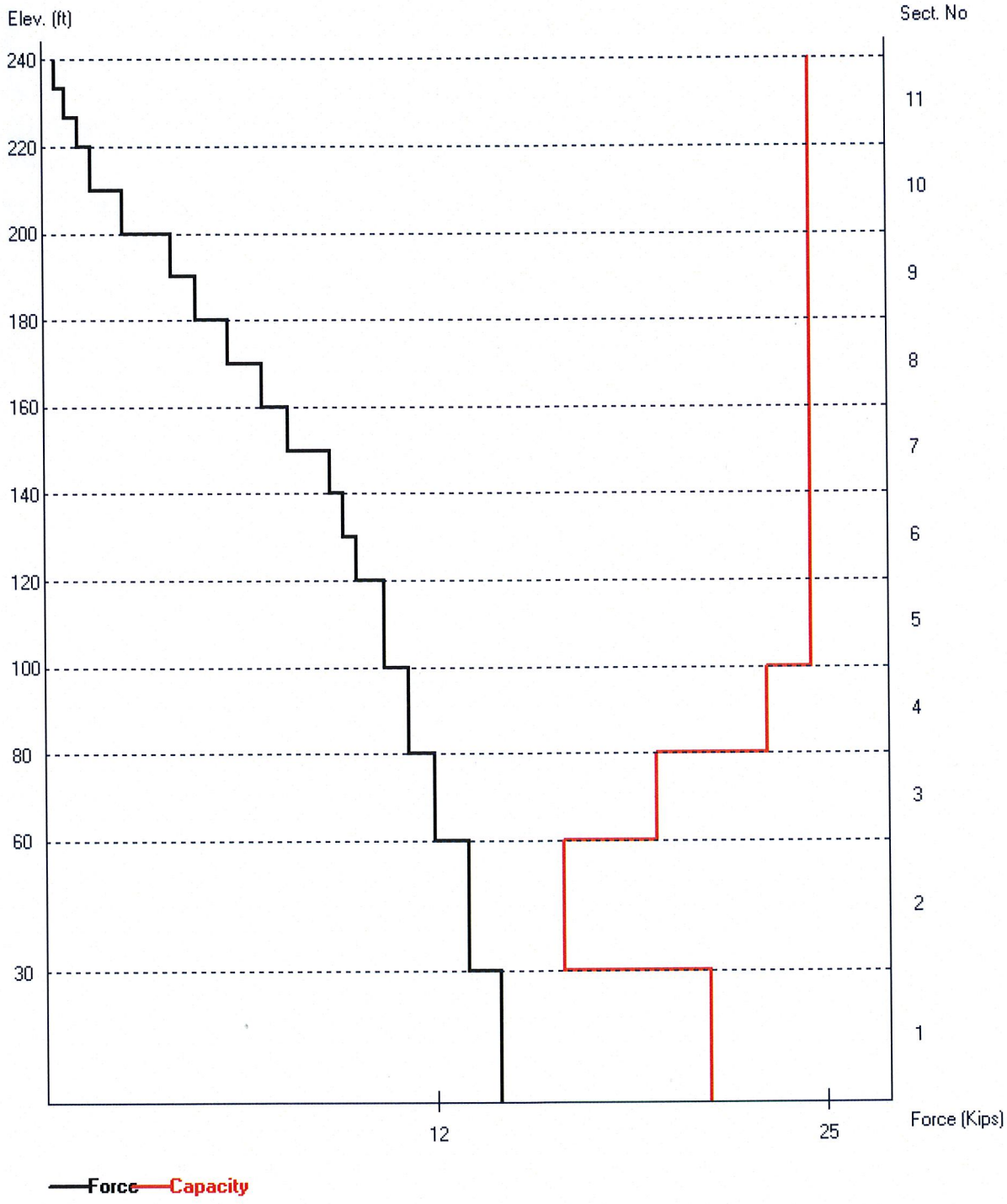
Appendix 5

Diag. Load Tension Diagram
Max. Envelope (All Loading Cases)



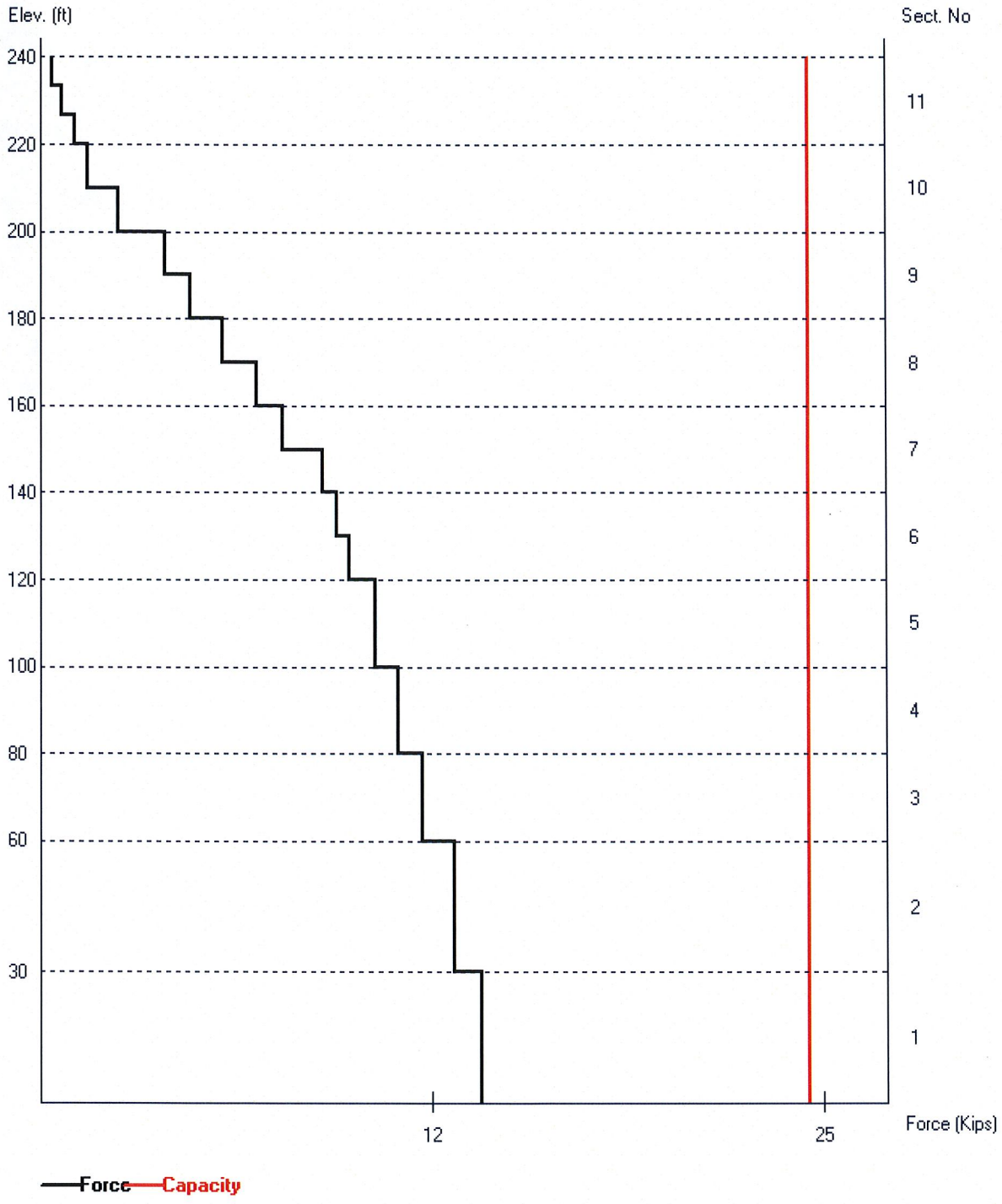
Appendix 6

Horiz. Load Compression Diagram
Max. Envelope (All Loading Cases)



Appendix 7

Horiz. Load Tension Diagram
Max. Envelope (All Loading Cases)



Appendix 8