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
www.ct.gov/csc

June 9, 2005

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

RE: **EM-VER-049-050505** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 37 Bacon Road, Enfield, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on June 8, 2005, the Connecticut Siting Council (Council) acknowledged 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 May 5, 2005, 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,

Pamela B. Katz, P.E.
Chairman

PBK/jkl

c: The Honorable Patrick L. Tallarita, Mayor, Town of Enfield
Jose Giner, Director of Planning and Community Development, Town of Enfield
Scott A. Shanley, Town Manager, Town of Enfield
Christopher B. Fisher, Esq., Cuddy and Feder LLP
Christine Farrell, T-Mobile Inc.

G:\EM\BAM-VERIZON\ENFIELD\dc060805.DOC

CSC
CONNECTICUT SITING COUNCIL

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Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

May 5, 2005

The Honorable Patrick L. Tallarita
Mayor
Town of Enfield
820 Enfield Street
Enfield, CT 06082

RE: **EM-VER-049-050505** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 37 Bacon Road, Enfield, Connecticut.

Dear Mayor Tallarita:

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.

The Council will consider this item at the next meeting scheduled for June 1, 2005 at 1:30 p.m. in Hearing Room Two, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by May 31, 2005.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/cm

Enclosure: Notice of Intent

c: Jose Giner, Director of Planning and Community Development, Town of Enfield
Scott A. Shanley, Town Manager, Town of Enfield

ROBINSON & COLE

EM-VER-049-050505

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

May 5, 2005

Via Hand Delivery

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

Re: **Notice of Exempt Modification**
37 Bacon Road
Enfield, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to install antennas on the existing 180-foot monopole tower owned by Shaker Pine Fire District at 37 Bacon Road in Enfield, Connecticut. Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Enfield Mayor, Patrick L. Tallarita.

The facility consists of a 180-foot self-supporting lattice tower capable of supporting multiple carriers within a fenced compound. The tower currently supports municipal antennas at the top of the tower; Cingular antennas at the 169-foot level; and T-Mobile antennas at the 157-foot level. Cellco proposes to install twelve (12) panel-type antennas at the 147-foot level on the tower and a 12' x 30' single-story equipment shelter near the base of the tower. (See Tab 1- Project Plans).

The planned modifications to the Enfield facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the overall height of the existing tower. Cellco's antennas will be mounted with their centerline at the 147-foot level on the 180-foot tower.

2. The proposed installation of a 12' x 30' equipment shelter will not require an extension of the fenced compound or lease area.

3. The proposed antenna modification will not increase the noise levels at the facility by six decibels or more.

4. The operation of the antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. The worst-case RF power density calculations for the proposed Cellco antennas would be 6.70% of the FCC standard. A copy of the general power density calculations table is attached behind Tab 2.

Also attached, behind Tab 3, is a structural analysis confirming that the tower can support the existing and proposed antennas and associated equipment.

For the foregoing reasons, Cellco respectfully submits that the proposed antenna installation at the Enfield facility tower constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Attachments
cc: Patrick L. Tallarita, Mayor
Sandy M. Carter

Cellco Partnership

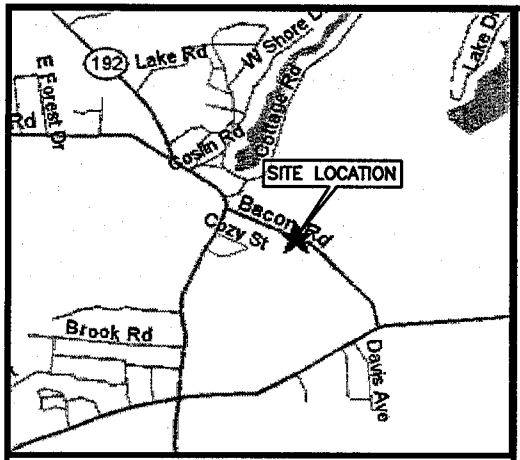
d.b.a. verizon wireless

SOMERS WEST

37 BACON STREET
ENFIELD, CONNECTICUT 06082

NOTE:
1. THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

STRUCTURAL NOTE:
1. NEW CONSTRUCTION REPRESENTED ON THESE PLANS IS PROPOSED PREDICATED ON THE REQUIREMENT THAT A STRUCTURAL ANALYSIS BE PERFORMED BY A LICENSED CONNECTICUT PROFESSIONAL STRUCTURAL ENGINEER AND CERTIFICATION IS GIVEN BY THE ENGINEER THAT THE EXISTING TOWER AND ALL EXISTING AND PROPOSED ANTENNAS AND APPURTENANCES SUPPORTED BY THE TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT STRUCTURAL CAPACITY AND COMPLY WITHOUT THE CONNECTICUT BUILDING CODE AND ALL APPLICABLE EIA/TIA CRITERIA. NO WORK PROPOSED HEREON SHALL BE PROGRESSED WITHOUT CONFIRMATION OF THIS CERTIFICATION.



LOCATION MAP
ENFIELD, CT

1500 0 1500

SCALE: 1" = 1,500'±

DIRECTIONS (FROM HARTFORD, CT):
TAKE I-91 N TO EXIT 48 TOWARD THOMSONVILLE ONTO CT-220. TURN RIGHT ONTO CT-192. TURN RIGHT ONTO BACON ROAD. SITE IS ON LEFT.

PROJECT SUMMARY

SITE NAME:	SOMERS WEST
SITE ADDRESS:	37 BACON STREET ENFIELD, CT 06082
OWNER:	TOWN OF ENFIELD FIRE DEPARTMENT ENFIELD, CONNECTICUT 06082
LESSEE:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
APPLICANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
CONTACT PERSON:	SANDY CARTER CELLCO PARTNERSHIOP (860) 803-8219
COORDINATES:	LATITUDE: 42°-00'-57.37" N (NAD 83) LONGITUDE: 72°-31'-43.46" W (NAD 83)

SHEET INDEX

SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
S-1	PARTIAL SITE PLAN
S-2	MONOPOLE ELEVATION

NOTE:
DRAWINGS FOR SITING COUNCIL ONLY. NOT TO BE USED FOR CONSTUCTION

NO.	DATE	BY	DESCRIPTION
0	03/28/05	JRF	SITING COUNCIL
B	03/01/05	JRF	PRELIMINARY SITING COUNCIL
A	02/25/05	JRF	PRELIMINARY SITING COUNCIL

Dewberry-Goodkind, Inc.
A Dewberry Company
59 Elm Street, Suite 101
New Haven, CT 06510
p. (203) 776-2277
f. (203) 776-2288
Engineers
Planners
Surveyors

SCALE: AS SHOWN
DESIGNED BY: CKD
DATE: 02/25/05

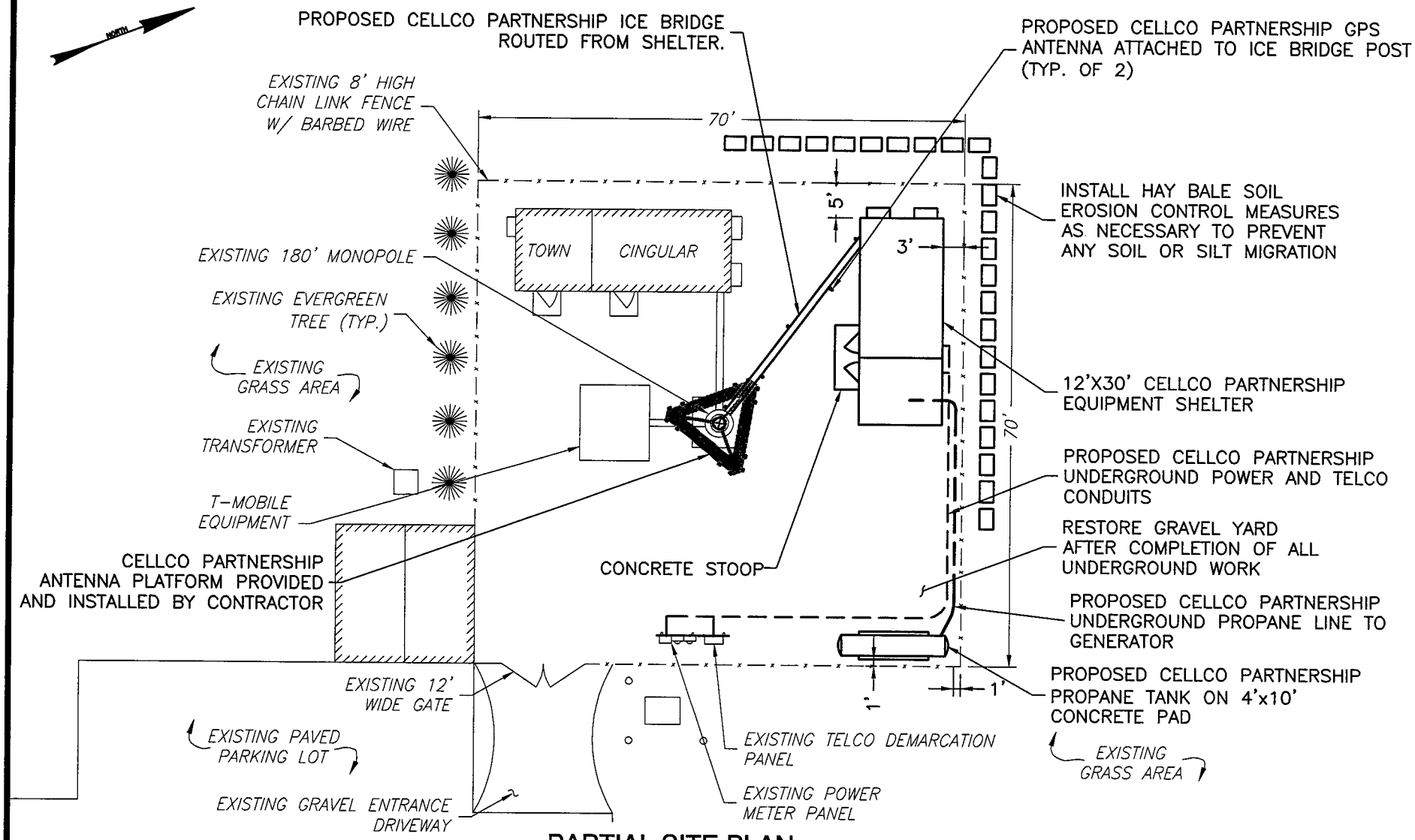
TITLE SHEET

Cellco Partnership d.b.a. verizon wireless

SITE NAME: SOMERS WEST
37 BACON STREET
ENFIELD, CT 06082

PROJECT: 1997001240
LOCATION CODE: 119614

SHEET NO. T - 1



PARTIAL SITE PLAN

20' 0 20'

SCALE: 1" = 20'

NO.	DATE	BY	DESCRIPTION
0	03/28/05	JRF	SITING COUNCIL
B	03/01/05	JRF	PRELIMINARY SITING COUNCIL
A	02/25/05	JRF	PRELIMINARY SITING COUNCIL

Dewberry-Goodkind, Inc.
A Dewberry Company
59 Elm Street, Suite 101
New Haven, CT 06510
p. (203) 776-2277
f. (203) 776-2288
Engineers
Planners
Surveyors

SCALE: AS SHOWN

DESIGNED BY: CKD

DATE: 02/25/05

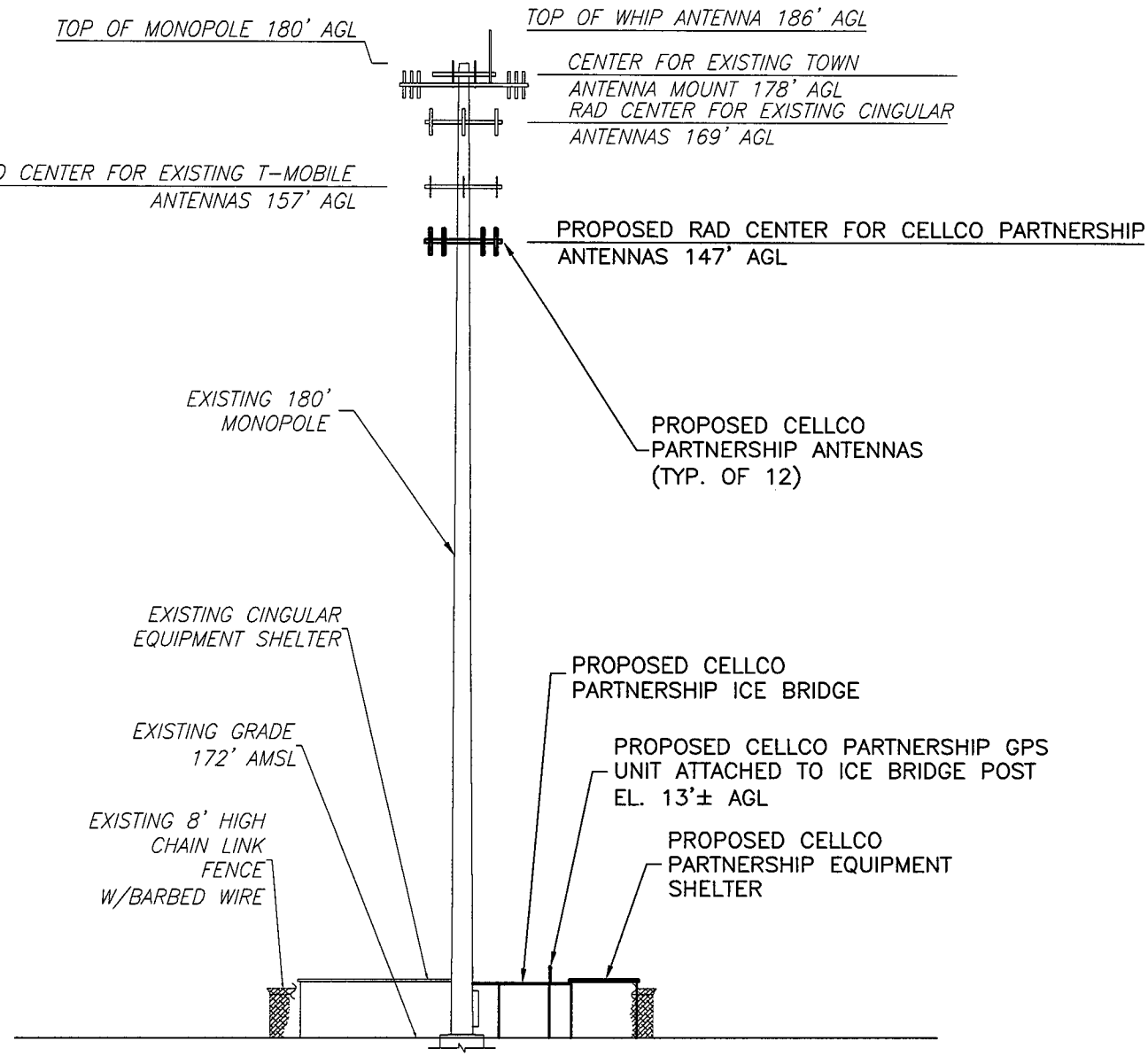
PARTIAL SITE PLAN

Cellco Partnership
d.b.a. verizon wireless

SITE NAME: SOMERS WEST
37 BACON STREET
ENFIELD, CT 06082

PROJECT: 1997001240
LOCATION CODE: 119614

SHEET NO. S - 1



MONOPOLE ELEVATION (LOOKING NORTHWEST)

30' 0 30'

SCALE: 1" = 30'

NO.	DATE	BY	DESCRIPTION
0	03/28/05	JRF	SITING COUNCIL
B	03/01/05	JRF	PRELIMINARY SITING COUNCIL
A	02/25/05	JRF	PRELIMINARY SITING COUNCIL

Dewberry-Goodkind, Inc.
A Dewberry Company
59 Elm Street, Suite 101
New Haven, CT 06510
p. (203) 776-2277
f. (203) 776-2288
Engineers
Planners
Surveyors

SCALE: AS SHOWN

DESIGNED BY: CKD

DATE: 02/25/05

MONOPOLE ELEVATION

Cellco Partnership
d.b.a. verizon wireless

SITE NAME: SOMERS WEST
37 BACON STREET
ENFIELD, CT 06082

PROJECT: 1997001240
LOCATION CODE: 119614

SHEET NO. S - 2

General Power Density

Site Name: Somers West, CT
Tower Height: 147 Ft. rad center

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
Verizon	880	9	200	1800	147	0.0300	0.56733	5.28%
Verizon	1900	3	285	855	147	0.0142	1	1.42%
Total Percentage of Maximum Permissible Exposure								6.70%

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

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case scenario, maximum values used.

verizonwireless

Sabre Communications Corporation

Structural Design Report

180' Monopole
located at: Enfield, CT

prepared for: Site Acquisitions, Inc.
by: Sabre Communications Corporation ™

Job Number: 04-07104
Revision A
July 23, 2003

Monopole Profile 1

Foundation Design Summary (Option 1) 2

Foundation Design Summary (Option 2) 3

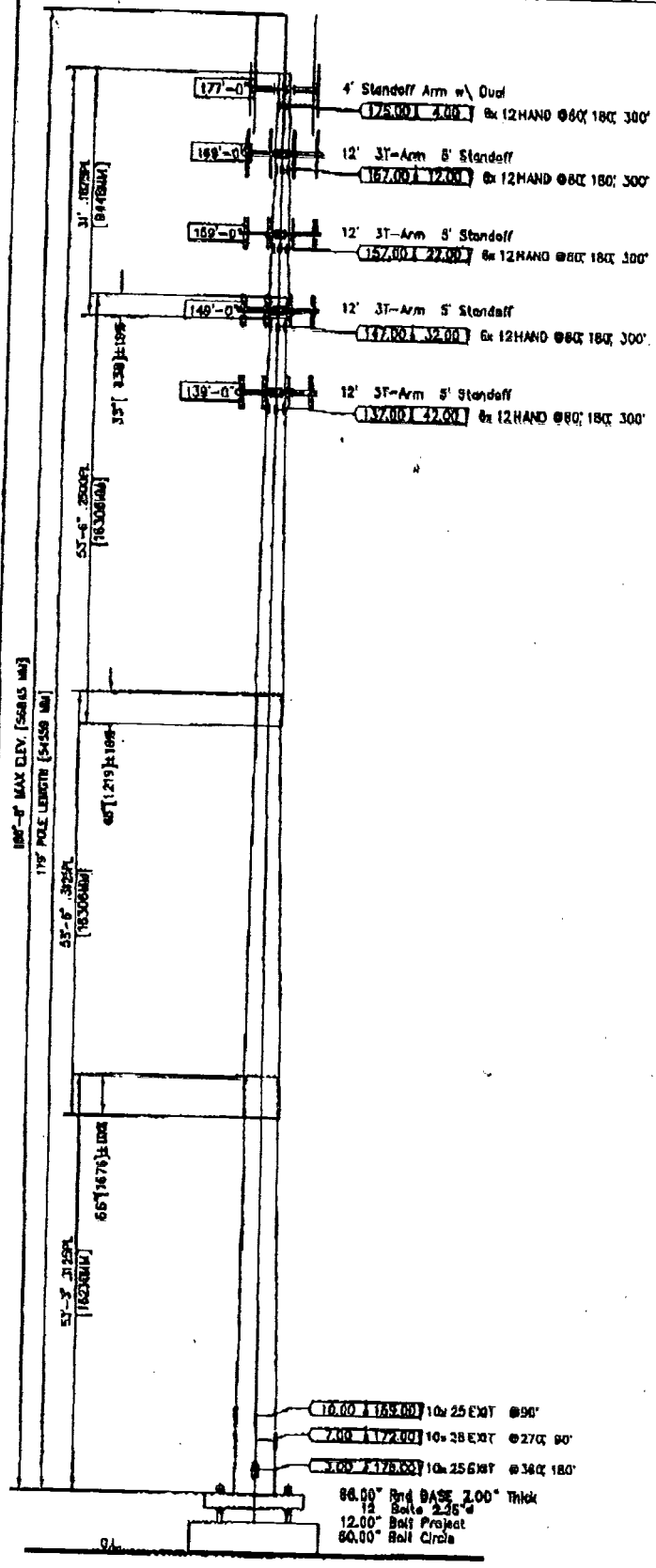
Pole Calculation C1-C6

Foundation Calculations F1-F9

STATE OF CONNECTICUT
KEITH J. THOMAS
No. 21551
LICENSED PROFESSIONAL ENGINEER

7/23/03

Prepared by KJT
Checked by KJT
Approved by KJT



POLE SPECIFICATIONS	
POLE HEIGHT	179.00 FEET
TAPER	.2253 IN/FT
POLE SHAPE	18 SIDED POLYGON
ORIENTATION	

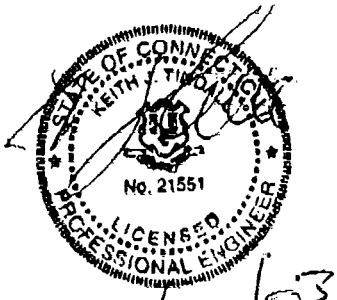
Lev	Qty	Elev ft.	Fwt	APPURTENANCE / ANTENNA DESCRIPTION
1	2	177.00	F	4' Standoff Arm w\ Dual
	4	179.00	F	15' WHIP
2	1	169.00	F	12' 3T-Arm 5' Standoff
	12	169.00	F	6' X 6IN
3	1	159.00	F	12' 3T-Arm 5' Standoff
	12	159.00	F	4' X 1'
4	1	149.00	F	12' 3T-Arm 5' Standoff
	12	149.00	F	4' X 1'
5	1	139.00	F	12' 3T-Arm 5' Standoff
	12	139.00	F	4' X 1'

Sec	LENGTH (ft)	Flat-Flat TOP#	Flat-Flat BOT#	THICK (in)	WEIGHT (lbs)	STEEL SPEC	FINISH
1	31.00	14.40	21.38	.1875	1111	A572-65	Galv
2	53.50	20.39	32.44	.2500	3779	A572-65	Galv
3	53.50	31.04	43.10	.3125	8636	A572-65	Galv
4	53.25	41.83	53.23	.3125	8431	A572-65	Galv
	(in)	#Bolts	Holes				
BP	86.00	12	40.00	2.000	1224	A633-60	Galv
		#Bolts	Holes	TOTAL	21181		
AB	84.00	2.25	2.625		1980	A615-75	Galv-18"

LOAD CASE DESCRIPTION	WIND (mph)	G.L.F. VERT.	RAD. ICE	FACTORS CUST	Cf	WIND (psf)
1) Max Wind	80.00	1.00		1.69	.65	27.60
2) Max Wind Load x.75	69.28	1.00	.50	1.69	.65	20.77
3) Everyday Operating	50.00	1.00		1.69	.85	10.82

LOAD CASE DESCRIPTION	BASE REACT Axial (kips)	Shear (kips)	Mom (ft-k)	DISP @TOP DEFL (ft)	SWAY (deg)
1) Max Wind	34.8	21.2	2690	15.0	9.43
2) Max Wind Load x.75	40.5	17.5	2234	12.8	8.10
3) Everyday Operating	34.2	8.3	1058	6.9	3.73

1) FULL HEIGHT STEP BOLTS
2) ANTENNA FEED LINES RUN INSIDE POLE



7/23/03

Site Acquisitions, Inc.

Enfield, CT

180.00 MONOPOLE

04-07104		SIZE A	DRAWING NO. 04-07104-01	REV A
DATE	21JUL03			
DRAWN BY	—			
CHECKED BY	ARH	—	SCALE N.T.S.	PAGE 1

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IOWA 51101

JOB: 04-07104 Mon 21-Jul-03 09:53
Site Acquisitions, Inc. Tel: 712.258.6690
Enfield, CT Fax: 712.258.8250

TOP	DIAMETER	14.40 in.	[14.62 in. Point-Point]
BOTTOM	DIAMETER	53.23 in.	[54.05 in. Point-Point]
POLE	HEIGHT	179.00 ft.	18 SIDED FLAT ORIENTAT ION
BASE	HEIGHT	1.00 ft.	ABOVE GROUND
E-MODULUS		29000 ksi	[12000 ksi SHEAR MODULUS]

APPURTENANCES

ATTACH POINTS:

NO.	X,ft	Qty	Description	Status
1	177.00	2	4' Standoff Arm w\ Dual	Future Appur t
2	169.00	1	12' 3T-Arm 5' Standoff	Future Appurt
3	159.00	1	12' 3T-Arm 5' Standoff	Future Appurt
4	149.00	1	12' 3T-Arm 5' Standoff	Future Appurt
5	139.00	1	12' 3T-Arm 5' Standoff	Future Appurt

POLE SECTIONS

No.	Bottom X,ft.	Thick in.	Connect type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	31.00	.18750	SLIP	33.	.2253	31.00	1111	A572-65	GALV
2	81.75	.25000	SLIP	48.	.2253	53.50	3779	A572-65	GALV
3	131.25	.31250	SLIP	66.	.2253	53.50	6636	A572-65	GALV
4	179.00	.31250	C-Weld		.2253	53.25	8431	A572-65	GALV

SECTION PROPERTIES

X,ft	D,in	T,in	Area in^2	Iz in^4	IxIy in^4	SxSy in^3	w/t	d/t	Fy ksi	
179.00	14.40	.1875	8.46	432	216	29.5	11.78	76.8	65.00	TOP
177.00	14.85	.1875	8.73	474	237	31.4	12.20	79.2	65.00	-P1
172.00	15.98	.1875	9.40	590	295	36.4	13.26	85.2	65.00	
169.00	16.65	.1875	9.80	672	336	39.7	13.90	88.8	65.00	-P2
164.00	17.78	.1875	10.47	818	409	45.3	14.96	94.8	65.00	
159.00	18.91	.1875	11.14	986	493	51.4	16.02	100.8	65.00	-P3
154.00	20.03	.1875	11.81	1176	588	57.8	17.08	106.8	65.00	
150.75	20.76	.1875	12.25	1310	655	62.1	17.76	110.7	65.00	Slip-B1
149.00	20.78	.2500	16.29	1734	867	82.2	12.90	83.1	65.00	-P4
148.00	21.01	.2500	16.47	1792	896	84.0	13.05	84.0	65.00	Slip-T2
143.00	22.14	.2500	17.37	2102	1051	93.5	13.85	88.5	65.00	
139.00	23.04	.2500	18.08	2372	1186	101.4	14.48	92.1	65.00	-P5
134.00	24.16	.2500	18.97	2740	1370	111.7	15.28	96.7	65.00	
129.00	25.29	.2500	19.87	3146	1573	122.5	16.07	101.2	65.00	
124.00	26.42	.2500	20.76	3590	1795	133.8	16.87	105.7	65.00	
119.00	27.54	.2500	21.66	4074	2037	145.7	17.66	110.2	65.00	
114.00	28.67	.2500	22.55	4600	2300	158.0	18.46	114.7	65.00	
109.00	29.80	.2500	23.44	5168	2584	170.8	19.25	119.2	65.00	
104.00	30.92	.2500	24.34	5784	2892	184.2	20.05	123.7	65.00	
101.25	31.54	.2500	24.83	6142	3071	191.8	20.48	126.2	65.00	Slip-B2
97.25	31.94	.3125	31.37	7930	3965	244.5	16.26	102.2	65.00	Slip-T3
92.25	33.07	.3125	32.49	8806	4403	262.2	16.90	105.8	65.00	
87.25	34.20	.3125	33.61	9746	4873	280.7	17.53	109.4	65.00	
82.25	35.32	.3125	34.72	10752	53 76	299.8	18.17	113.0	65.00	
77.25	36.45	.3125	35.84	1 1822	5911	319.4	18.80	116.6	65.00	
72.25	37.58	.3125	36.96	1 2964	6482	339.8	19.44	120.2	65.00	
67.25	38.70	.3125	38.08	1 4176	7088	360.7	20.07	123.8	65.00	
62.25	39.83	.3125	39.19	1 5460	7730	382.3	20.71	127.5	65.00	
57.25	40.96	.3125	40.31	1 6820	8410	404.5	21.35	131.1	65.00	
53.25	41.86	.3125	41.20	1 7964	8982	422.7	21.85	133.9	65.00	Slip-B3
48.25	42.36	.3125	41.70	1 8622	9311	433.0	22.14	135.5	65.00	
47.75	42.47	.3125	41.81	1 8772	9386	435.3	22.20	135.9	65.00	Slip-T4
42.75	43.60	.3125	42.93	2 0318	10159	459.0	22.84	139.5	65.00	
37.75	44.72	.3125	44.05	2 1946	10973	483.2	23.47	143.1	65.00	
32.75	45.85	.3125	45.17	2 3660	11830	508.2	24.11	146.7	65.00	
27.75	46.98	.3125	46.28	2 5458	12729	533.7	24.74	150.3	65.00	
22.75	48.10	.3125	47.40	2 7346	13673	559.9	25.38	153.9	65.00	
17.75	49.23	.3125	48.52	2 9326	14663	586.6	26.01	157.5	65.00	
12.75	50.36	.3125	49.64	3 1400	15700	614.1	26.65	161.1	65.00	
7.75	51.48	.3125	50.75	3 3568	16784	642.1	27.29	164.7	65.00	
2.75	52.61	.3125	51.87	3 5834	17917	670.8	27.92	168.3	65.00	
.00	53.23	.3125	52.48	3 7124	18562	686.8	28.27	170.3	65.00	BASE

Sabre Communications Corporation

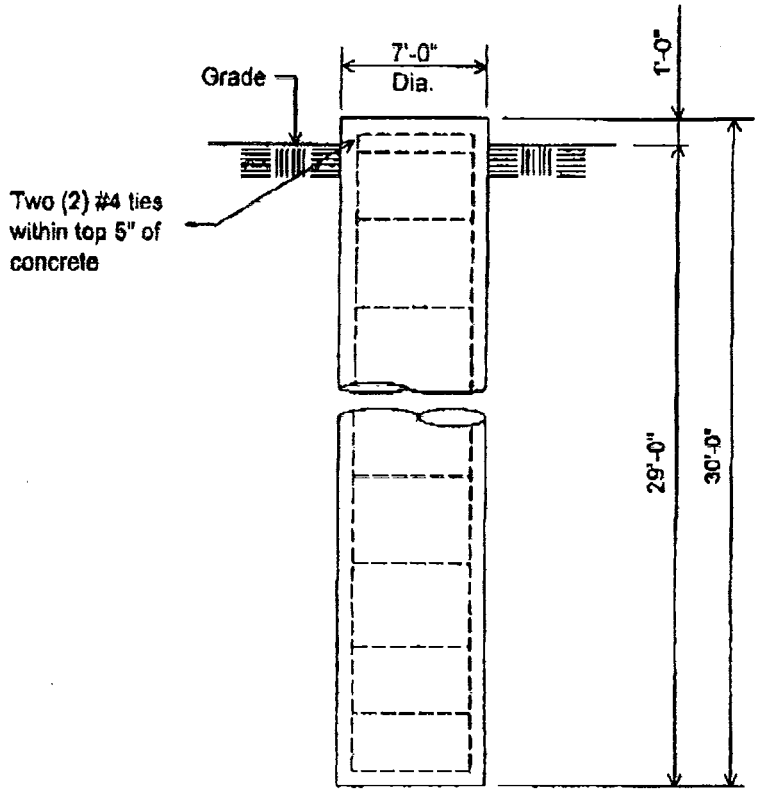
No.: 04-07104
Page: 2
Date: 7/21/2003
By: ARH

Customer: Site Acquisitions, Inc.
Site: Enfield, CT

180' Monopole at
80 mph Wind + 0.5 in. Ice per ANSI/TIA/EIA-222-F-1996.
Antenna Loading per Page 1

STATE OF CONNECTICUT KEITH J. T... No. 21561 LICENSED PROFESSIONAL ENGINEER

7/23/03



ELEVATION VIEW
(42.76 Cu. Yds. each)
(1 REQUIRED)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-02.

2). Rebars to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation design is based on the geotechnical boring by Soil Exploration Corp., project no. 03-0649, dated July 1, 2003.

6). See the geotechnical report for drilled pier installation requirements, if specified.

Rebar Schedule per Pier	
Pier	(36) #8 vertical rebar w/#4 ties, two within top 5" of pier then 12" C/C

Sabre Communications Corporation

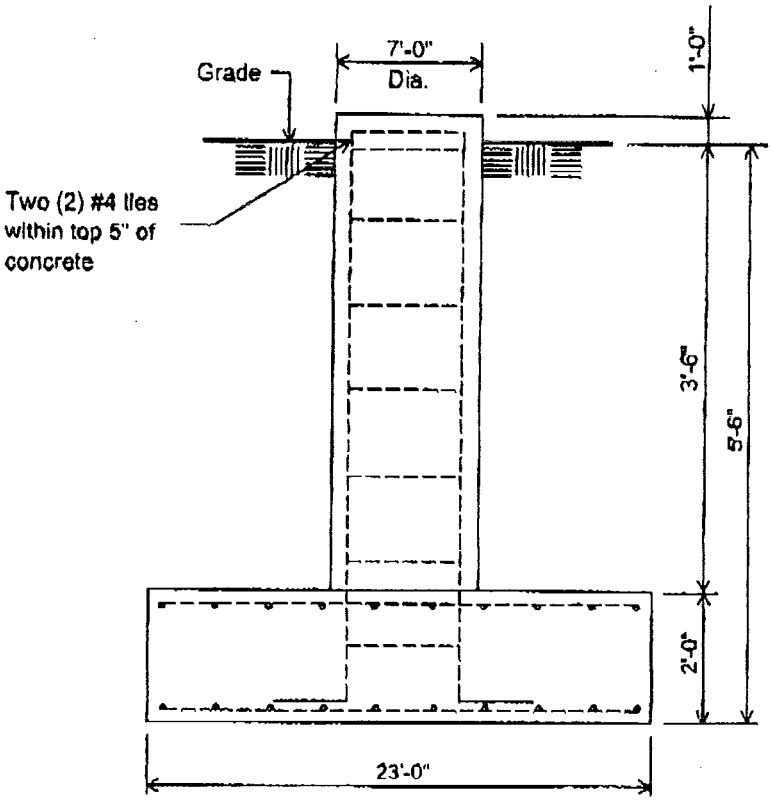
No.: 04-07104
Page: 3
Date: 7/23/03
By: ARH
Revision A

Customer: Site Acquisitions, Inc.
Site: Enfield, CT

180' Monopole at
80 mph Wind + 0.5 In. Ice per ANSI/TIA/EIA-222-F-1996
Antenna Loading per Page 1

STATE OF CONNECTICUT KEITH J. FINDLEY No. 21551 LICENSED PROFESSIONAL ENGINEER

7/23/03



ELEVATION VIEW
(45.6 Cu. Yds. each)
(1 REQUIRED)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-02

2). Rebar to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation design is based on the geotechnical boring by Soil Exploration Corp., project no. 03-0649, dated July 1, 2003.

6). See the geotechnical report for compaction requirements, if specified.

Rebar Schedule per Pad and Pier	
Pier	(36) #8 vertical rebar w/hooks at bottom w/#4 ties, two within top 5" of top of pier then 12" C/C
Pad	(36) #8 horizontal rebar evenly spaced each way top and bottom (144 Total)

2101 Murray St - P.O. Box 658 - Sioux City, IA 51102-0658 - Phone 712.258.6890 - Fax 712.258.8250

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IOWA 51101

JOB: 04-07104 Mon 21-Jul-03 09:53
Site Acquisitions, Inc. Tel: 712.258.6690
Enfield, CT Fax: 712.258.8250

TOP	DIAMETER	14.40 in.	[14.62 in. Point -Point]
BOTTOM	DIAMETER	53.23 in.	[54.05 in. Point -Point]
POLE	HEIGHT	179.00 ft.	18 SIDED FLAT ORIENTAT ION
BASE	HEIGHT	1.00 ft.	ABOVE GROUND
E -MODULUS		29000 ksi	[12000 ksi SHEAR MODULUS]

APPURTENANCES

ATTACH POINTS:

NO.	X,ft	Qty	Description	Status
1	177.00	2	4' Standoff Arm w\ Dual	Future Appur t
2	169.00	1	12' 3T-Arm 5' Standoff	Future Appurt
3	159.00	1	12' 3T-Arm 5' Standoff	Future Appurt
4	149.00	1	12' 3T-Arm 5' Standoff	Future Appurt
5	139.00	1	12' 3T-Arm 5' Standoff	Future Appurt

POLE SECTIONS

No.	Bottom X,ft.	Thick in.	Connect type	LAP in.	Taper in/ft	Length ft.	Weight lbs	Steel Spec	Pole Finish
1	31.00	.18750	SLIP	33.	.2253	31.00	1111	A572-65	GALV
2	81.75	.25000	SLIP	48.	.2253	53.50	3779	A572-65	GALV
3	131.25	.31250	SLIP	66.	.2253	53.50	6636	A572-65	GALV
4	179.00	.31250	C-Weld		.2253	53.25	8431	A572-65	GALV

SECTION PROPERTIES

X,ft	D,in	T,in	Area in^2	Iz in^4	IxIy in^4	SxSy in^3	w/t	d/t	Fy ksi	
179.00	14.40	.1875	8.46	432	216	29.5	11.78	76.8	65.00	TOP
177.00	14.85	.1875	8.73	474	237	31.4	12.20	79.2	65.00	-P1
172.00	15.98	.1875	9.40	590	295	36.4	13.26	85.2	65.00	
169.00	16.65	.1875	9.80	672	336	39.7	13.90	88.8	65.00	-P2
164.00	17.78	.1875	10.47	818	409	45.3	14.96	94.8	65.00	
159.00	18.91	.1875	11.14	986	493	51.4	16.02	100.8	65.00	-P3
154.00	20.03	.1875	11.81	1176	588	57.8	17.08	106.8	65.00	
150.75	20.76	.1875	12.25	1310	655	62.1	17.76	110.7	65.00	Slip-B1
149.00	20.78	.2500	16.29	1734	867	82.2	12.90	83.1	65.00	-P4
148.00	21.01	.2500	16.47	1792	896	84.0	13.05	84.0	65.00	Slip-T2
143.00	22.14	.2500	17.37	2102	1051	93.5	13.85	88.5	65.00	
139.00	23.04	.2500	18.08	2372	1186	101.4	14.48	92.1	65.00	-P5
134.00	24.16	.2500	18.97	2740	1370	111.7	15.28	96.7	65.00	
129.00	25.29	.2500	19.87	3146	1573	122.5	16.07	101.2	65.00	
124.00	26.42	.2500	20.76	3590	1795	133.8	16.87	105.7	65.00	
119.00	27.54	.2500	21.66	4074	2037	145.7	17.66	110.2	65.00	
114.00	28.67	.2500	22.55	4600	2300	158.0	18.46	114.7	65.00	
109.00	29.80	.2500	23.44	5168	2584	170.8	19.25	119.2	65.00	
104.00	30.92	.2500	24.34	5784	2892	184.2	20.05	123.7	65.00	
101.25	31.54	.2500	24.83	6142	3071	191.8	20.48	126.2	65.00	Slip-B2
97.25	31.94	.3125	31.37	7930	3965	244.5	16.26	102.2	65.00	Slip-T3
92.25	33.07	.3125	32.49	8806	4403	262.2	16.90	105.8	65.00	
87.25	34.20	.3125	33.61	9746	4873	280.7	17.53	109.4	65.00	
82.25	35.32	.3125	34.72	10752	53 76	299.8	18.17	113.0	65.00	
77.25	36.45	.3125	35.84	1 1822	5911	319.4	18.80	116.6	65.00	
72.25	37.58	.3125	36.96	1 2964	6482	339.8	19.44	120.2	65.00	
67.25	38.70	.3125	38.08	1 4176	7088	360.7	20.07	123.8	65.00	
62.25	39.83	.3125	39.19	1 5460	7730	382.3	20.71	127.5	65.00	
57.25	40.96	.3125	40.31	1 6820	8410	404.5	21.35	131.1	65.00	
53.25	41.86	.3125	41.20	1 7964	8982	422.7	21.85	133.9	65.00	Slip-B3
48.25	42.36	.3125	41.70	1 8622	9311	433.0	22.14	135.5	65.00	
47.75	42.47	.3125	41.81	1 8772	9386	435.3	22.20	135.9	65.00	Slip-T4
42.75	43.60	.3125	42.93	2 0318	10159	459.0	22.84	139.5	65.00	
37.75	44.72	.3125	44.05	2 1946	10973	483.2	23.47	143.1	65.00	
32.75	45.85	.3125	45.17	2 3660	11830	508.2	24.11	146.7	65.00	
27.75	46.98	.3125	46.28	2 5458	12729	533.7	24.74	150.3	65.00	
22.75	48.10	.3125	47.40	2 7346	13673	559.9	25.38	153.9	65.00	
17.75	49.23	.3125	48.52	2 9326	14663	586.6	26.01	157.5	65.00	
12.75	50.36	.3125	49.64	3 1400	15700	614.1	26.65	161.1	65.00	
7.75	51.48	.3125	50.75	3 3568	16784	642.1	27.29	164.7	65.00	
2.75	52.61	.3125	51.87	3 5834	17917	670.8	27.92	168.3	65.00	
.00	53.23	.3125	52.48	3 7124	18562	686.8	28.27	170.3	65.00	BASE

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IOWA 51101

JOB: 04-07104 Mon 21-Jul-03 09:53
Site Acquisitions, Inc. Tel: 712.258.6690
Enfield, CT Fax: 712.258.8250

CASE - 2: Max Wind Load x.75 — TIA/EIA-222F

VERTICAL OLF	1.00	WIND SPEED	69.3 mph 111.5 k ph
ICE COVER	.50 i n.	GUST FACTOR	1.69
STRESS REDUCTION	.60	EXPOSURE COEFF.	.2857
STRESS AMPLIFY	1.33	Cf	.650
BASE ABOVE Grd	1.0 ft	REFERENCE HEIGHT	33.0 ft
		PRESSURE @Ref.Ht	20.8 psf 994.Pa

APPURTENANCE LOADS

LEV	QTY	DESCRIPTION	Center Line Elev -ft	WEIGHT each lbs	AREA each ft^2	Tx-CABLE Qty	#/ft	WIND psf	FORCES TranY kip s	MOMENT Ax-Z kips	LongX ft-k
1	2	4' Standoff Arm w\ Dual	177.0 0	161	4.4			33.62	.30	-.32	-.1
	4	15' WHIP	179.0 0	88	6.0 1 5/8"	4	1.040	33.72	.81	-1.09	
2	1	12' 3T-Arm 5' Standoff	169.00	930	62.5			33.17	2.07	-.93	-.5
	12	6' X 6IN	169.0 0	51	.0 1 5/8"	12	1.040	33.17		-2.73	
3	1	12' 3T-Arm 5' Standoff	159.00	930	53.9			32.60	1.76	-.93	-.4
	12	4' X 1'	159.0 0	52	.0 1 5/8"	12	1.040	32.60		-2.61	
4	1	12' 3T-Arm 5' Standoff	149.00	930	53.9			32.01	1.72	-.93	-.4
	12	4' X 1'	149.0 0	52	.0 1 5/8"	12	1.040	32.01		-2.49	
5	1	12' 3T-Arm 5' Standoff	139.00	930	53.9			31.38	1.69	-.93	-.4
	12	4' X 1'	139.0 0	52	.0 1 5/8"	12	1.040	31.38		-2.36	

RESULTS

X,ft	WIND psf	FORCES,kips ShearX	Shear Y	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	STRESS ksi	ALLOW ksi	CSR
179.00	21.9	.0	.0	.0	.0	.0	.0	.01	51.8 7	.000
177.00	21.8	.0	1.5	-1.4	-1.8	.0	.0	.89	51.87	.017
172.00	21.7	.0	1.6	-1.6	-9.0	.0	.0	3.17	51.87	.061
169.00	21.6	.0	4.3	-5.1	-14.4	.0	.0	4.91	51.87	.095
164.00	21.4	.0	4.5	-5.4	-35.9	.0	.0	10.05	51.87	.194
159.00	21.2	.0	6.9	-8.9	-58.8	.0	.0	14.59	51.87	.281
154.00	21.0	.0	7.1	-9.2	-93.4	.0	.0	20.19	51.87	.389
150.75	20.9	.0	7.2	-9.4	-116.3	.0	.0	23.26	51.87	.448
149.00	20.8	.0	9.4	-12.7	-129.3	.0	.0	19.69	51.87	.380
148.00	20.8	.0	9.5	-13.0	-138.7	.0	.0	20.62	51.87	.398
143.00	20.6	.0	9.7	-13.4	-186.2	.0	.0	24.68	51.87	.476
139.00	20.4	.0	11.9	-16.9	-225.3	.0	.0	27.62	51.87	.532
134.00	20.2	.0	12.1	-17.4	-284.8	.0	.0	31.53	51.87	.608
129.00	20.0	.0	12.2	-17.9	-345.1	.0	.0	34.72	51.87	.669
124.00	19.7	.0	12.4	-18.4	-406.3	.0	.0	37.33	51.87	.720
119.00	19.5	.0	12.6	-18.9	-468.3	.0	.0	39.47	51.87	.761
114.00	19.3	.0	12.8	-19.5	-531.3	.0	.0	41.23	51.87	.795
109.00	19.0	.0	12.9	-20.0	-595.1	.0	.0	42.67	51.87	.823
104.00	18.8	.0	13.1	-20.5	-659.8	.0	.0	43.83	51.87	.845
101.25	18.6	.0	13.2	-21.2	-695.8	.0	.0	44.40	51.87	.856
97.25	18.4	.0	13.4	-22.2	-748.7	.0	.0	37.46	51.87	.722
92.25	18.2	.0	13.6	-23.0	-815.8	.0	.0	38.04	51.87	.733
87.25	17.9	.0	13.8	-23.8	-884.2	.0	.0	38.52	51.87	.743
82.25	17.6	.0	14.1	-24.5	-953.3	.0	.0	38.88	51.87	.749
77.25	17.3	.0	14.3	-25.4	-1023.3	.0	.0	39.16	51.87	.755
72.25	17.0	.0	14.5	-26.2	-1095.0	.0	.0	39.39	51.87	.759
67.25	16.6	.0	14.7	-27.0	-1166.7	.0	.0	39.53	51.87	.762
62.25	16.3	.0	14.9	-27.9	-1240.0	.0	.0	39.64	51.87	.764
57.25	15.9	.0	15.1	-28.8	-1315.0	.0	.0	39.74	51.87	.766
53.25	15.6	.0	15.3	-29.9	-1375.0	.0	.0	39.77	51.87	.767
48.25	15.1	.0	15.4	-30.6	-1451.7	.0	.0	40.97	51.87	.790
47.75	15.1	.0	15.5	-31.3	-1459.2	.0	.0	40.98	51.87	.790
42.75	14.6	.0	15.7	-32.5	-1536.7	.0	.0	40.94	51.87	.789
37.75	14.1	.0	15.8	-33.4	-1615.0	.0	.0	40.87	51.87	.788
32.75	13.6	.0	16.0	-34.4	-1694.2	.0	.0	40.77	51.87	.786
27.75	13.5	.0	16.2	-35.4	-1774.2	.0	.0	40.66	51.87	.784
22.75	13.5	.0	16.4	-36.4	-1855.0	.0	.0	40.53	51.37	.789
17.75	13.5	.0	16.5	-37.5	-1936.7	.0	.0	40.39	50.83	.795
12.75	13.5	.0	16.7	-38.5	-2019.2	.0	.0	40.24	50.29	.800
7.75	13.5	.0	16.9	-39.6	-2102.5	.0	.0	40.08	49.76	.805
2.75	13.5	.0	17.0	-40.5	-2187.5	.0	.0	39.92	49.22	.811
.00	13.5	.0	17.0	-40.5	2234.2	.0	.0	39.81	48.92	.814

DISPLACEMENTS

Xft.	DEFLECTION ft X	Y	Z	XY-Result	ROTATION, deg X	Y	Z	XY -Res	MicroW Allow
177.00	.00	12.47	-.63	12.47< 7.04%>	-8.10	.00	.00	8.10	
169.00	.00	11.34	-.55	11.34< 6.71%>	-8.04	.00	.00	8.04	
159.00	.00	9.97	-.45	9.97< 6.27%>	-7.79	.00	.00	7.79	
149.00	.00	8.64	-.36	8.64< 5.80%>	-7.36	.00	.00	7.36	
139.00	.00	7.40	-.28	7.40< 5.32%>	6.87	.00	.00	6.87	

SABRE COMMUNICATIONS CORP	JOB: 04-07104	Mon 21-Jul-03 09:53
2101 Murray Street	**Site Acquisitions, Inc.**	Tel: 712.258.6690
Sioux City, IOWA 51101	**Enfield, CT**	Fax: 712.258.8250

CASE - 3: Everyday Operating — **TIA/EIA-222F**

VERTICAL OLF	1.00	WIND SPEED	50.0 mph 80.5 k ph
ICE COVER	.00 i n.	GUST FACTOR	1.69
STRESS REDUCTION	.60	EXPOSURE COEFF.	.2857
STRESS AMPLIFY	1.33	Cf	.650
BASE ABOVE Grd	1.0 ft	REFERENCE HEIGHT	33.0 ft
		PRESSURE @Ref.Ht	10.8 psf 518.Pa

APPURTENANCE LOADS

LEV	QTY	DESCRIPTION	Center Line Elev -ft	WEIGHT each lbs	AREA each ft^2	Tx-CABLE Qty	#/ft	WIND psf	FORCES TranY kip s	MOMENT Ax-Z kips	LongX ft-k
1	2 4'	Standoff Arm w\ Dual	177.0 0	147	4.0			17.51	.14	-.29	.0
	4	15' WHIP	179.0 0	15	4.5 1 5/8"	4	1.040	17.56	.32	-.80	
2	1 12'	3T-Arm 5' Standoff	169.00	846	54.7			17.28	.94	-.85	-.2
	12	6' X 6IN	169.0 0	30	.0 1 5/8"	12	1.040	17.28		-2.47	
3	1 12'	3T-Arm 5' Standoff	159.00	846	50.3			16.98	.85	-.85	-.2
	12	4' X 1'	159.0 0	28	.0 1 5/8"	12	1.040	16.98		-2.32	
4	1 12'	3T Arm 5' Standoff	149.00	846	50.3			16.67	.84	-.85	-.2
	12	4' X 1'	149.0 0	28	.0 1 5/8"	12	1.040	16.67		-2.20	
5	1 12'	3T-Arm 5' Standoff	139.00	846	50.3			16.35	.82	-.85	-.2
	12	4' X 1'	139.0 0	28	.0 1 5/8"	12	1.040	16.35		-2.07	

RESULTS

X,ft	WIND psf	FORCES,kips ShearX	Shear Y	AxiaZ	MOMENTS,ft-kips BendX	BendY	TorqZ	STRESS ALLOW ksi	ksi	CSR
179.00	11.4	.0	.0	.0	.0	.0	.0	.00	51.8 7	.000
177.00	11.4	.0	.6	-1.2	-.7	.0	.0	.42	51.87	.008
172.00	11.3	.0	.7	-1.3	-3.7	.0	.0	1.37	51.87	.026
169.00	11.2	.0	1.9	-4.7	-5.9	.0	.0	2.30	51.87	.044
164.00	11.1	.0	2.0	-4.9	-15.4	.0	.0	4.56	51.87	.088
159.00	11.0	.0	3.1	-8.2	-25.6	.0	.0	6.72	51.87	.130
154.00	10.9	.0	3.2	-8.4	-41.2	.0	.0	9.27	51.87	.179
150.75	10.9	.0	3.3	-8.5	-51.6	.0	.0	10.68	51.87	.206
149.00	10.8	.0	4.3	-11.6	-57.5	.0	.0	9.13	51.87	.176
148.00	10.8	.0	4.4	-11.9	-61.8	.0	.0	9.57	51.87	.184
143.00	10.7	.0	4.4	-12.2	-83.6	.0	.0	11.44	51.87	.221
139.00	10.6	.0	5.5	-15.4	-101.6	.0	.0	12.88	51.87	.248
134.00	10.5	.0	5.6	-15.7	-129.2	.0	.0	14.72	51.87	.284
129.00	10.4	.0	5.7	-16.1	-157.2	.0	.0	16.21	51.87	.313
124.00	10.3	.0	5.8	-16.5	-185.7	.0	.0	17.45	51.87	.336
119.00	10.2	.0	5.9	-16.8	-214.5	.0	.0	18.45	51.87	.356
114.00	10.0	.0	6.0	-17.2	-243.9	.0	.0	19.29	51.87	.372
109.00	9.9	.0	6.1	-17.6	-273.8	.0	.0	19.99	51.87	.385
104.00	9.8	.0	6.1	-18.0	-304.0	.0	.0	20.55	51.87	.396
101.25	9.7	.0	6.2	-18.6	-320.9	.0	.0	20.84	51.87	.402
97.25	9.6	.0	6.3	-19.4	-345.8	.0	.0	17.59	51.87	.339
92.25	9.5	.0	6.4	-20.1	-377.3	.0	.0	17.89	51.87	.345
87.25	9.3	.0	6.5	-20.7	-409.5	.0	.0	18.13	51.87	.349
82.25	9.2	.0	6.7	-21.3	-442.3	.0	.0	18.32	51.87	.353
77.25	9.0	.0	6.8	-21.9	-475.5	.0	.0	18.48	51.87	.356
72.25	8.8	.0	6.9	-22.5	-509.3	.0	.0	18.60	51.87	.359
67.25	8.7	.0	7.0	-23.2	-543.7	.0	.0	18.70	51.87	.360
62.25	8.5	.0	7.1	-23.9	-578.7	.0	.0	18.78	51.87	.362
57.25	8.3	.0	7.2	-24.7	-614.2	.0	.0	18.84	51.87	.363
53.25	8.1	.0	7.3	-25.6	-643.0	.0	.0	18.88	51.87	.364
48.25	7.9	.0	7.4	-26.2	-679.5	.0	.0	19.46	51.87	.375
47.75	7.9	.0	7.4	-26.8	-683.3	.0	.0	19.48	51.87	.376
42.75	7.6	.0	7.5	-27.7	-720.3	.0	.0	19.48	51.87	.376
37.75	7.4	.0	7.6	-28.5	-758.1	.0	.0	19.47	51.87	.375
32.75	7.1	.0	7.7	-29.3	-796.3	.0	.0	19.45	51.87	.375
27.75	7.0	.0	7.8	-30.1	-835.0	.0	.0	19.43	51.87	.375
22.75	7.0	.0	7.9	-30.9	-874.2	.0	.0	19.39	51.37	.377
17.75	7.0	.0	8.0	-31.7	-913.3	.0	.0	19.34	50.83	.380
12.75	7.0	.0	8.1	-32.6	-954.2	.0	.0	19.30	50.29	.384
7.75	7.0	.0	8.2	-33.5	-995.0	.0	.0	19.26	49.76	.387
2.75	7.0	.0	8.3	-34.2	-1035.8	.0	.0	19.19	49.22	.390
.00	7.0	.0	8.3	-34.2	1058.3	.0	.0	19.14	48.92	.391

DISPLACEMENTS

Xft.	DEFLECTION ft X	Y	Z	XY-Result	ROTATION, deg X	Y	Z	XY -Res	MicroW Allow
177.00	.00	5.81	-.14	5.81< 3.28%>	-3.73	.00	.00	3.73	
169.00	.00	5.29	-.12	5.29< 3.13%>	-3.70	.00	.00	3.70	
159.00	.00	4.65	-.10	4.65< 2.93%>	-3.60	.00	.00	3.60	
149.00	.00	4.04	-.08	4.04< 2.71%>	-3.41	.00	.00	3.41	
139.00	.00	3.46	-.06	3.46< 2.49%>	-3.19	.00	.00	3.19	

SABRE COMMUNICATIONS CORP
2101 Murray Street
Sioux City, IOWA 51101

Site Acquisitions, Inc.
Enfield, CT

JOB: 04-07104 Mon 21-Jul-03 09:53
Tel: 712.258.6690
Fax: 712.258.8250

LOAD CASE SUMMARIES

	LOAD CASE DESCRIPTION	FORCES, kips X	Y	Z	MOMENTS, ft-kips X	Y	Z
1	Max Wind	.00	21.20	-34.84	2690.8	.0	.0
2	Max Wind Load x.75	.00	17.03	-40.50	2234.2	.0	.0
3	Everyday Operating	.00	8.33	-34.15	1058.3	.0	.0

STRESS ENVELOPE

BOT-UP X,ft.	TOP DOWN			COMBINED STRESS ksi	COMBINED STRESS RATIO	LOAD CASE	Qty	APPURTENANCE
179.00	.00	TOP		.01	.000	1		
177.00	2.00	-1	-P1	.89	.017	2	(2)	4' Standoff Arm w\ Dual
172.00	7.00			3.23	.062	1		
169.00	10.00	-2	-P2	5.03	.097	1	(1)	12' 3T -Arm 5' Standoff
164.00	15.00			10.77	.208	1		
159.00	20.00	-3	-P3	15.81	.305	1	(1)	12' 3T -Arm 5' Standoff
154.00	25.00			22.29	.430	1		
150.75	28.25	Slip -B1		25.86	.499	1		
149.00	30.00	-4	-P4	21.93	.423	1	(1)	12' 3T -Arm 5' Standoff
148.00	31.00	Slip -T2		23.02	.444	1		
143.00	36.00			27.81	.536	1		
139.00	40.00	-5	-P5	31.23	.602	1	(1)	12' 3T -Arm 5' Standoff
134.00	45.00			35.92	.692	1		
129.00	50.00			39.75	.766	1		
124.00	55.00			42.90	.827	1		
119.00	60.00			45.51	.877	1		
114.00	65.00			47.66	.919	1		
109.00	70.00			49.46	.953	1		
104.00	75.00			50.92	.982	1		
101.25	77.75	Slip -B2		51.63	.995	1		
97.25	81.75	Slip -T3		43.64	.841	1		
92.25	86.75			44.39	.856	1		
87.25	91.75			45.00	.868	1		
82.25	96.75			45.51	.877	1		
77.25	101.75			45.94	.886	1		
72.25	106.75			46.26	.892	1		
67.25	111.75			46.52	.897	1		
62.25	116.75			46.71	.900	1		
57.25	121.75			46.88	.904	1		
53.25	125.75	Slip -B3		46.98	.906	1		
48.25	130.75			48.47	.934	1		
47.75	131.25	Slip -T4		48.48	.935	1		
42.75	136.25			48.48	.935	1		
37.75	141.25			48.46	.934	1		
32.75	146.25			48.42	.933	1		
27.75	151.25			48.35	.932	1		
22.75	156.25			48.27	.940	1		
17.75	161.25			48.16	.947	1		
12.75	166.25			48.04	.955	1		
7.75	171.25			47.91	.963	1		
2.75	176.25			47.77	.971	1		
.00	179.00	BASE		47.68	.975	1		

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SHAPE: 18 SIDED POLYGON with FLAT-FLAT ORIENTATION
BOLTS EVENLY SPACED 15.53 in. ON CENTER

POLE DATA

DIAMETER =	53.23 in.	BASE ACTIONS	AXIAL FORCE=	-34.8 kips	Vert
PLATE =	.3125 in.		SHEAR X =	.0 kips	Long
TAPER =	.2253 in/ft		SHEAR Y =	21.2 kips	Tran
POLE Fy =	65.00 ksi		X-AXIS MOM =	1902.4 ft-kips	Tran
			Y-Axis MOM =	1902.4 ft-kips	Long
			Z-Axis MOM =	.0 ft-kips	Vert

DESIGN CASE = 1 Max Wind

Design: ANY Orientation Reactions at 45.00 deg to X-AXIS

BOLT LOADS

	AXIAL - COMPRESSION	= 182.29 kips		
	AXIAL - TENSION	= 176.49 kips		
	SHEAR	= 1.77 kips		
AXIAL	STRESS	= 54.30 ksi		
SHEAR	STRESS	= .58 ksi		
YIELD	STRENGTH Fy	= 75.00 ksi	CSR	
ALLOW	STRENGTH Fa [.60 x 1 .33]	= 59.85 ksi	.908	EIA-F
	TENSION AREA REQUIRED	= 2.95 in^2		
	TENSION AREA FURNISHED	= 3.29 in^2		
	ROOT AREA FURNISHED	= 3.07 in^2		

ANCHOR BOLT DESIGN USED

12 Bolts on a	60.00 in. Bolt Circle		SHIP
2.250 in. Diameter	67.13 in. Embedded		(lbs)
12.00 in. Exposed	84.00 in. Total Length		1680

CONCRETE BOND - Fc= 4000 psi

TENSION:	NUT:	373.46 kips	COMPRESSION: NUT: 81.51 kips
	ACTING:	-415.15 psi	ACTING: 212.41 psi
	ALLOW:	303.26 psi	ALLOW: 303.26 psi
	LENGTH REQD:	-91.89 in.	LENGTH REQD: 47.02 in.

BASE PLATE

[Bend Model: 1/4 Circ]

YIELD STRENGTH	= 60.0	ksi
BEND LINE WIDTH	= 42.2	in.
PLATE MOMENT	= 1344.9	in-kips
THICKNESS REQD	= 2.00	in.
BENDING STRESS	= 47.8	ksi
ALLOWABLE	= 47.9	ksi
(Fy x .60 x 1.33)		

BASE PLATE USED

2.00 in.	THICK	
66.00 in.	ROUND	SHIP
40.00 in.	CENTER HOLE	(lbs)
.00 in.		1224

LOAD CASE SUMMARY

	FORCES-(kips)			MOMENTS-(ft-k)			ABolt-Str		Plate-Str		ABolt-Bond		
LC	Axial	ShearX	ShearY	X-axis	Y-axis	TorQ	Actual ksi	Allow ksi	Actual ksi	Allow ksi	Actual psi	Allow psi	Design Code
1	34.8	.0	21.2	2690	0	.0	-56.1	59.9	47.8	47.9	212	303	EIA-F
2	40.5	.0	17.0	2234	0	.0	-46.9	59.9	39.3	47.9	149	303	EIA-F
3	34.2	.0	8.3	1058	0	.0	-22.6	59.9	18.2	47.9	-17	303	EIA-F

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Licensed to: Amy Nordstrom

Sabre

LATERALLY LOADED PILE ANALYSIS PROGRAM LPILE plus
PC VERSION 3.0 (C) COPYRIGHT ENSOFT,INC. 1997
THE PROGRAM WAS COMPILED USING MICROSOFT FORTRAN COMPILER,
(C) COPYRIGHT MICROSOFT CORPORATION

180' Monopole Site Acquisitions, Inc. Enfield, CT (04-07104) 7-21-03 ARH

****
ULTIMATE BENDING RESISTANCE AND FLEXURAL RIGIDITY
****

DIAMETER = 84.00 IN

CONCRETE COMPRESSIVE STRENGTH = 4.000000 KIP/IN**2

REBAR YIELD STRENGTH = 60.000000 KIP/IN**2

MODULUS OF ELASTICITY OF STEEL = 29000.000000 KIP/IN**2

NUMBER OF REINFORCING BARS = 36

AREA OF ONE REBAR = .790E+00 IN**2

NUMBER OF ROWS OF REINFORCING BARS = 19

COVER THICKNESS = 4.000 IN

SQUASH LOAD CAPACITY = 20451.72 KIP

ROW NUMBER	AREA OF REINFORCEMENT IN**2	DISTANCE TO CENTROIDAL AXIS IN
1	.790000	38.0000
2	1.580000	37.4227
3	1.580000	35.7084
4	1.580000	32.9090
5	1.580000	29.1097
6	1.580000	24.4260
7	1.580000	19.0000
8	1.580000	12.9968
9	1.580000	6.5986
10	1.580000	.0000
11	1.580000	-6.5986
12	1.580000	-12.9968
13	1.580000	-19.0000
14	1.580000	-24.4260
15	1.580000	-29.1097
16	1.580000	-32.9090

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17	1.580000	-35.7084
18	1.580000	-37.4227
19	.790000	-38.0000

OUTPUT RESULTS FOR AN AXIAL LOAD = 34.84 KIP

MOMENT IN-KIP	EI KIP-IN**2	PHI 1/IN	MAX STR IN/IN	N AXIS IN
.944E+04	.94377E+10	.000001	.00004	43.829
.944E+04	.18875E+10	.000005	.00010	19.278
.129E+05	.14337E+10	.000009	.00017	18.552
.182E+05	.14002E+10	.000013	.00024	18.309
.235E+05	.13808E+10	.000017	.00031	18.208
.287E+05	.13644E+10	.000021	.00038	18.200
.339E+05	.13546E+10	.000025	.00045	18.200
.390E+05	.13448E+10	.000029	.00053	18.200
.443E+05	.13414E+10	.000033	.00060	18.205
.481E+05	.12989E+10	.000037	.00067	18.138
.505E+05	.12313E+10	.000041	.00073	17.853
.523E+05	.11621E+10	.000045	.00079	17.542
.537E+05	.10968E+10	.000049	.00084	17.238
.549E+05	.10364E+10	.000053	.00090	16.949
.598E+05	.72098E+09	.000083	.00127	15.315
.619E+05	.54799E+09	.000113	.00159	14.079
.632E+05	.44164E+09	.000143	.00191	13.327
.637E+05	.36835E+09	.000173	.00220	12.702
.642E+05	.31627E+09	.000203	.00252	12.421
.643E+05	.27618E+09	.000233	.00280	12.001
.645E+05	.24518E+09	.000263	.00308	11.695
.646E+05	.22041E+09	.000293	.00336	11.483
.646E+05	.20007E+09	.000323	.00367	11.352
.646E+05	.18307E+09	.000353	.00396	11.228

THE ULTIMATE BENDING MOMENT AT A CONCRETE STRAIN OF 0.003
IS : .644E+05 IN-KIP

180' Monopole Site Acquisitions, Inc. Enfield, CT (04-07104) 7-21-03 ARH

UNITS--ENGLISH UNITS

INPUT INFORMATION

THE LOADING IS STATIC

PILE GEOMETRY AND PROPERTIES

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PILE LENGTH = 360.00 IN
2 POINTS

X	DIAMETER	MOMENT OF INERTIA	AREA	MODULUS OF ELASTICITY
IN	IN	IN**4	IN**2	LBS/IN**2
.00	84.000	.244E+07	.554E+04	.360E+07
360.00	84.000	.244E+07	.554E+04	.360E+07

SOILS INFORMATION

X AT THE GROUND SURFACE = 12.00 IN

SLOPE ANGLE AT THE GROUND SURFACE = .00 DEG.

5 LAYER(S) OF SOIL

LAYER 1
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 12.00 IN
X AT THE BOTTOM OF THE LAYER = 18.00 IN
MODULUS OF SUBGRADE REACTION = .100E+01 LBS/IN**3

LAYER 2
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 18.00 IN
X AT THE BOTTOM OF THE LAYER = 60.00 IN
MODULUS OF SUBGRADE REACTION = .900E+02 LBS/IN**3

LAYER 3
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 60.00 IN
X AT THE BOTTOM OF THE LAYER = 72.00 IN
MODULUS OF SUBGRADE REACTION = .900E+02 LBS/IN**3

LAYER 4
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 72.00 IN
X AT THE BOTTOM OF THE LAYER = 492.00 IN
MODULUS OF SUBGRADE REACTION = .600E+02 LBS/IN**3

LAYER 5
THE SOIL IS A SAND - P-Y CRITERIA BY REESE ET AL, 1974
X AT THE TOP OF THE LAYER = 492.00 IN
X AT THE BOTTOM OF THE LAYER = 516.00 IN
MODULUS OF SUBGRADE REACTION = .125E+03 LBS/IN**3

DISTRIBUTION OF EFFECTIVE UNIT WEIGHT WITH DEPTH
10 POINTS

X,IN	WEIGHT,LBS/IN**3
12.00	.58E-01
18.00	.58E-01
18.00	.58E-01
60.00	.58E-01
60.00	.58E-01
72.00	.58E-01
72.00	.22E-01

492.00	.22E-01
492.00	.22E-01
516.00	.22E-01

DISTRIBUTION OF STRENGTH PARAMETERS WITH DEPTH
10 POINTS

X,IN	C,LBS/IN**2	PHI,DEGREES	E50
12.00	.000E+00	.100E+01	-----
18.00	.000E+00	.100E+01	-----
18.00	.000E+00	.300E+02	-----
60.00	.000E+00	.300E+02	-----
60.00	.000E+00	.300E+02	-----
72.00	.000E+00	.300E+02	-----
72.00	.000E+00	.300E+02	-----
492.00	.000E+00	.300E+02	-----
492.00	.000E+00	.360E+02	-----
516.00	.000E+00	.360E+02	-----

BOUNDARY AND LOADING CONDITIONS

LOADING NUMBER 1

BOUNDARY-CONDITION CODE	=	1
LATERAL LOAD AT THE PILE HEAD	=	.212E+05 LBS
MOMENT AT THE PILE HEAD	=	.323E+08 IN-LBS
AXIAL LOAD AT THE PILE HEAD	=	.348E+05 LBS

FINITE-DIFFERENCE PARAMETERS

NUMBER OF PILE INCREMENTS	=	100
DEFLECTION TOLERANCE ON DETERMINATION OF CLOSURE	=	.100E-11 IN
MAXIMUM NUMBER OF ITERATIONS ALLOWED FOR PILE ANALYSIS	=	100
MAXIMUM ALLOWABLE DEFLECTION	=	.16E+03 IN

OUTPUT CODES

KOUTPT	=	0
KPYOP	=	1
INC	=	1

DEPTH IN	DIAM IN	PHI	GAMMA AVG LBS/IN**3	A	B	PST	PSD
66.74	84.00	30.0	.543E-01	2.34	1.72	.105E+04	.874E+04

Y IN	P LBS/IN
.000E+00	.000E+00
.117E+00	.406E+03
.233E+00	.812E+03
.350E+00	.121E+04
.467E+00	.132E+04
.583E+00	.141E+04
.700E+00	.148E+04
.817E+00	.155E+04
.933E+00	.161E+04
.105E+01	.167E+04
.117E+01	.172E+04
.128E+01	.177E+04

.140E+01	.181E+04
.315E+01	.246E+04
.872E+02	.246E+04
.171E+03	.246E+04
.255E+03	.246E+04

DEPTH IN	DIAM IN	PHI	GAMMA AVG LBS/IN**3	A	B	PST	PSD
145.48	84.00	30.0	.367E-01	1.69	1.21	.243E+04	.129E+05

Y IN	P LBS/IN
.000E+00	.000E+00
.117E+00	.957E+03
.233E+00	.169E+04
.350E+00	.192E+04
.467E+00	.210E+04
.583E+00	.225E+04
.700E+00	.238E+04
.817E+00	.250E+04
.933E+00	.260E+04
.105E+01	.270E+04
.117E+01	.279E+04
.128E+01	.288E+04
.140E+01	.296E+04
.315E+01	.411E+04
.872E+02	.411E+04
.171E+03	.411E+04
.255E+03	.411E+04

DEPTH IN	DIAM IN	PHI	GAMMA AVG LBS/IN**3	A	B	PST	PSD
224.22	84.00	30.0	.315E-01	1.21	.84	.431E+04	.170E+05

Y IN	P LBS/IN
.000E+00	.000E+00
.117E+00	.151E+04
.233E+00	.194E+04
.350E+00	.223E+04
.467E+00	.247E+04
.583E+00	.267E+04
.700E+00	.284E+04
.817E+00	.300E+04
.933E+00	.314E+04
.105E+01	.328E+04
.117E+01	.340E+04
.128E+01	.351E+04
.140E+01	.362E+04
.315E+01	.521E+04
.872E+02	.521E+04
.171E+03	.521E+04
.255E+03	.521E+04

DEPTH IN	DIAM IN	PHI	GAMMA AVG LBS/IN**3	A	B	PST	PSD
302.96	84.00	30.0	.289E-01	.98	.62	.670E+04	.212E+05

Y IN	P LBS/IN

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.000E+00	.000E+00
.117E+00	.131E+04
.233E+00	.180E+04
.350E+00	.218E+04
.467E+00	.249E+04
.583E+00	.276E+04
.700E+00	.301E+04
.817E+00	.323E+04
.933E+00	.344E+04
.105E+01	.363E+04
.117E+01	.381E+04
.128E+01	.399E+04
.140E+01	.415E+04
.315E+01	.656E+04
.872E+02	.656E+04
.171E+03	.656E+04
.255E+03	.656E+04

O U T P U T I N F O R M A T I O N

****
* COMPUTE LOAD-DISTRIBUTION AND LOAD-DEFLECTION *
* CURVES FOR LATERAL LOADING *
****

LOADING NUMBER 1

BOUNDARY CONDITION CODE	=	1
LATERAL LOAD AT THE PILE HEAD	=	.212E+05 LBS
MOMENT AT THE PILE HEAD	=	.323E+08 IN-LBS
AXIAL LOAD AT THE PILE HEAD	=	.348E+05 LBS

OUTPUT VERIFICATION

THE MAXIMUM MOMENT IMBALANCE FOR ANY ELEMENT = .103E-03 IN-LBS
THE MAX. LATERAL FORCE IMBALANCE FOR ANY ELEMENT = .196E-04 LBS

S U M M A R Y T A B L E

BOUNDARY CONDITION BC1	BOUNDARY CONDITION BC2	AXIAL LOAD LBS	PILE HEAD DEFLECTION IN	MAX. MOMENT IN-LBS	MAX. SHEAR LBS
.2120E+05	.3229E+08	.3484E+05	.9483E+00	.3327E+08	-.1881E+06

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UBC 1806.8.2.1

d = A/2*(1+(1+(4.36*h/A))^0.5)

Monopole

Moment (ft-k)	2690.8
Shear (k)	21.2
Caisson Diameter, b (ft)	7
Caisson Height Above Ground (ft)	1
Caisson Height Below Ground (ft)	23
S_1 (lateral soil pres.) lb/ft^3	300

Applied lateral force, P (lbs)	21200
Dist. from ground to application of P, h (ft)	127.93
A = 2.34*P/(S1*b)	3.08
Min. Depth of Embedment Required, d (ft)	22.33

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MAT FOUNDATION DESIGN BY SABRE COMMUNICATIONS CORP.
180' Monopole Site Acquisitions, Inc. Enfield, CT (04-07104) 7-23-03 ARH

Overall Loads:			
Moment (ft-kips)	2680.80		
Axial (kips)	34.84		
Shear (kips)	21.2		
Allowable Bearing Pressure (ksf)	2	Maximum Soil Bearing Pressure (ksf)	1.58
Water Table Below Grade (ft)	5		
Width of Mat (ft)	23		
Thickness of Mat (ft)	2		
Depth to Bottom of Slab (ft)	5.5		
Quantity of Bars in Bolt Circle	12		
Bolt Circle Diameter (in)	60		
Top of Concrete to Top of Bottom Threads (in)	60		
Diameter of Pier (ft)	7	Minimum Pier Diameter (ft)	6.50
Ht. of Pier Above Ground (ft)	1	Equivalent Square b (ft)	6.20
Ht. of Pier Below Ground (ft)	3.5		
Quantity of Bars in Mat	36		
Bar Diameter in Mat (in)	1		
Area of Bars in Mat (in^2)	28.27		
Spacing of Bars in Mat (in)	7.69	Recommended Spacing (in)	6 to 12
Quantity of Bars Pier	36		
Bar Diameter in Pier (in)	1		
Tie Bar Diameter in Pier (in)	0.5		
Spacing of Ties (in)	12		
Area of Bars in Pier (in^2)	28.27	Minimum Pier A_s (in^2)	27.71
Spacing of Bars in Pier (in)	6.63	Recommended Spacing (in)	6 to 12
f'c (ksi)	4		
fy (ksi)	60		
Unit Wt. of Soil (kcf)	0.1		
Unit Wt. of Concrete (kcf)	0.15		
Load Factor	1.3		
Volume of Concrete (yd^3)	45.60		
Two-Way Shear Action:			
Average d (in)	20		
ϕV_c (kips)	1239.8	V_u (kips)	50.1
$\phi V_c = \phi(2 + 4/\beta_c)f'_c{}^{1/2}b_o d$	1859.8		
$\phi V_c = \phi(\alpha_s d/b_o + 2)f'_c{}^{1/2}b_o d$	1378.9		
$\phi V_c = \phi 4 f'_c{}^{1/2}b_o d$	1239.8		
Shear perimeter, b_o (in)	326.73		
β_c	1		
One-Way Shear:			
q_{ult} (ksf)	1.93		
ϕV_c (kips)	523.7	V_u (kips)	298.8
Stability:			
Allowable Resisting M (ft-k)	2872.6	Total Applied M (ft-k)	2828.6

MAT FOUNDATION DESIGN BY SABRE COMMUNICATIONS CORP. (CONTINUED)
180' Monopole Site Acquisitions, Inc. Enfield, CT (04-07104) 7-23-03 ARH

Pier Design:

ϕV_n (kips)	537.2	V_u (kips)	27.6
$\phi V_c=\phi 2(1+N_u/(2000A_g))f'_c{}^{1/2}b_wd$	537.2		
V_s (kips)	0.0	*** V_s max = $4 f'_c{}^{1/2}b_wd$ (kips)	1428.0
Maximum Spacing (in)	5.61	(Only if Shear Ties are Required)	

*** Ref. To Spacing Requirements ACI 11.5.4.3

Flexure in Slab:

ϕM_n (ft-kips)	2429.7	M_u (ft-kips)	2392.3
a (in)	1.81		
Steel Ratio	0.00612		
β_1	0.85		
Maximum Steel Ratio (.75ρ_b)	0.0214		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	136.00	Required Development in Pad (in)	46.67

Condition	1 Is OK, 0 Fails
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Interaction Diagram Visual Check	1
Two-Way Shear Action	1
One-Way Shear Action	1
Stability (Safety Factor = 1.5)	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1