New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

EM-CING-006-051007

October 7, 2005

Ms. Pamela Katz, Chairman, and
Members of the Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Request by New Cingular Wireless PCS, LLC for an Order Approving Shared Use of an Approved Municipal Tower off Lopus Road, Beacon Falls

Dear Chairman Katz and Members of the Council:

Pursuant to Connecticut General Statutes (C.G.S.) Section 16-50aa, New Cingular Wireless PCS, LLC ("Cingular") hereby requests an order from the Connecticut Siting Council ("Council") for the proposed shared use by Cingular of an approved municipal tower to be located at the Beacon Falls Public Works Department garage, Lopus Road, Beacon Falls. A copy of this letter is being sent to the 1st Selectman of the Town of Beacon Falls.

Approved Municipal Tower

Under a lease agreement dated 10/23/03, AT&T Wireless agreed to construct a communications tower for the Town of Beacon Falls on the Town-owned Lopus Road site. Upon completion of construction, title to the tower would automatically transfer to the Town, and the Town would assume all responsibilities and liabilities of ownership. Thereafter, AT&T as tenant would pay rent to the Town as landlord. As a result of the merger between AT&T Wireless and Cingular, however, Cingular has assumed the role of tenant under this agreement.

In March of 2004, site plans for the tower project were comprehensively reviewed and approved by the Town of Beacon Falls Planning & Zoning Commission ("P&Z"). A copy of the P&Z's March 18, 2004 minutes are attached along with its letter to the Board of Selectmen recommending acceptance of the plans. Subsequent to the Cingular-AT&T merger, P&Z discussed the minor changes to the plans incident to converting it from an AT&T design to a Cingular design, i.e., a shelter in lieu of an equipment pad, and determined that its earlier approval would embrace either design.

The tower itself will consist of a 150 foot monopole with Town antennas at the top, and the lower levels of the tower reserved for wireless carrier use. The tower will be at the center of a 42 ft x 45 ft equipment compound surrounded by an 8-foot high chain link fence. The tower will be located adjacent to the Lopus Road Public Works garage at approximate coordinates of N 41° 26' 00" and W 73° 04' 13" (NAD 83).

Proposed Shared Use of the Municipal Tower

Cingular operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in New Haven County, which includes the area to be served by Cingular's proposed installation. Attached to this request are a site location map, a site plan, the tower profile, and tower design drawings. Cingular proposes to install up to twelve Powerwave 7770 dual band panel antennas, or their equivalent, approximately 55 inches in height at a centerline height of 145 feet above ground level. Cingular also proposes to place an 11½ ft x 20 ft prefabricated concrete equipment shelter at the base of the tower.

The Lopus Road Tower is not a Facility for purposes of Council Jurisdiction

The Town of Beacon Falls will own and operate the Lopus Road tower which is needed for emergency communications in the community. The Town owns the underlying land as well. As such, the approved tower is not a "facility" as that term is defined in Section 16-50i of the Connecticut General Statues, but rather a "municipal" tower which will continue to remain under the jurisdiction of the Town.

Given that the Lopus Road tower is an uncertificated facility for purposes of the Siting Council, Cingular respectfully requests an order pursuant to Section 16-50aa of the Connecticut General Statutes approving its shared use of the approved tower for the reasons more fully set forth below:

A. **Technical Feasibility.** The approved tower will be structurally sound and capable of supporting the proposed shared use of the Cingular antennas at 145 feet AGL. The proposed shared use of this tower is therefore technically feasible.

B. **Legal Feasibility.** Under C.G.S §16-50aa, the Council has been authorized to issue an order approving the proposed shared use of a tower facility such as the facility to be located at Lopus Road (C.G.S §16-50aa(c) (1)). Under the authority vested in the Council by C.G.S §16-50aa, an order approving the shared use of the Town's tower would satisfy Cingular's Siting Council obligations and permit it to obtain a building permit for the proposed installation.

C. **Environmental Feasibility.** The proposed shared use of this tower facility would have a minimal environmental effect for the following reasons:

    1. The proposed installation would have an insignificant incremental visual impact

and would not cause any significant change or alteration in the physical or environmental characteristics of the property. The addition of the proposed antennas would not increase the height of the monopole tower. Cingular's equipment will be housed in an equipment shelter, and all construction will occur in the approved compound.

2. The proposed installation would not increase noise levels at the existing facility by six decibels or more.

3. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The "worst-case" exposure calculation in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower is as follows:

Company	Centerline Height (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density† (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Town of Beacon Falls *	155	To be determined					
Cingular	145	880-894	6	296	0.0304	0.5867	5.18
Cingular	145	1930-1935 1965-1970	3	427	0.0219	1.0000	2.19
Total							**7.37%**

* Information provided by the Town of Beacon Falls.

† Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 (i.e., the square of 1.6) as described in FCC OET Bulletin No. 65.

As the table demonstrates, the "worst-case" exposure due to the Cingular transmissions would be approximately 7.4 % of the ANSI/IEEE standard, as calculated for mixed frequency sites. Cumulative power density levels resulting from Cingular's proposed use of the tower facility would thus be well within applicable ANSI/IEEE standards.

4. The proposed installation would not require any water or sanitary facilities, or generate air emissions or discharges to water bodies. After construction is completed (approximately four weeks), the proposed installation would not generate any vehicular traffic other than periodic maintenance visits. The proposed use of the facility would therefore have a minimal environmental effect, and is environmentally feasible.

D. **Economic Feasibility.** Cingular has entered into an agreement with the Town of Beacon Falls to share use of the tower. The proposed facility sharing is therefore economically feasible.

E. **Public Safety Concerns.** As stated above, the approved tower will be structurally

capable of supporting Cingular's proposed antennas, and radio frequency emissions fall well below State and Federal safety standards. Cingular is not aware of any other public safety concerns relative to the proposed sharing of the tower. In fact, the provision of new or improved wireless coverage in the area is expected to enhance the safety and welfare of Beacon Falls's residents.

Conclusion

For the reasons discussed above, the proposed shared use of the approved municipal tower off Lopus Road in the Town of Beacon Falls satisfies the criteria stated in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the proliferation of communication towers in Connecticut. Cingular therefore respectfully requests that the Council issue an order approving the proposed shared use. Thank you for your attention to this matter.

Please feel free to call me at (860) 513-7636 or Christopher Fisher, Esq. at (914) 761-1300 with questions concerning this tower sharing request. Thank you for your consideration in this matter.

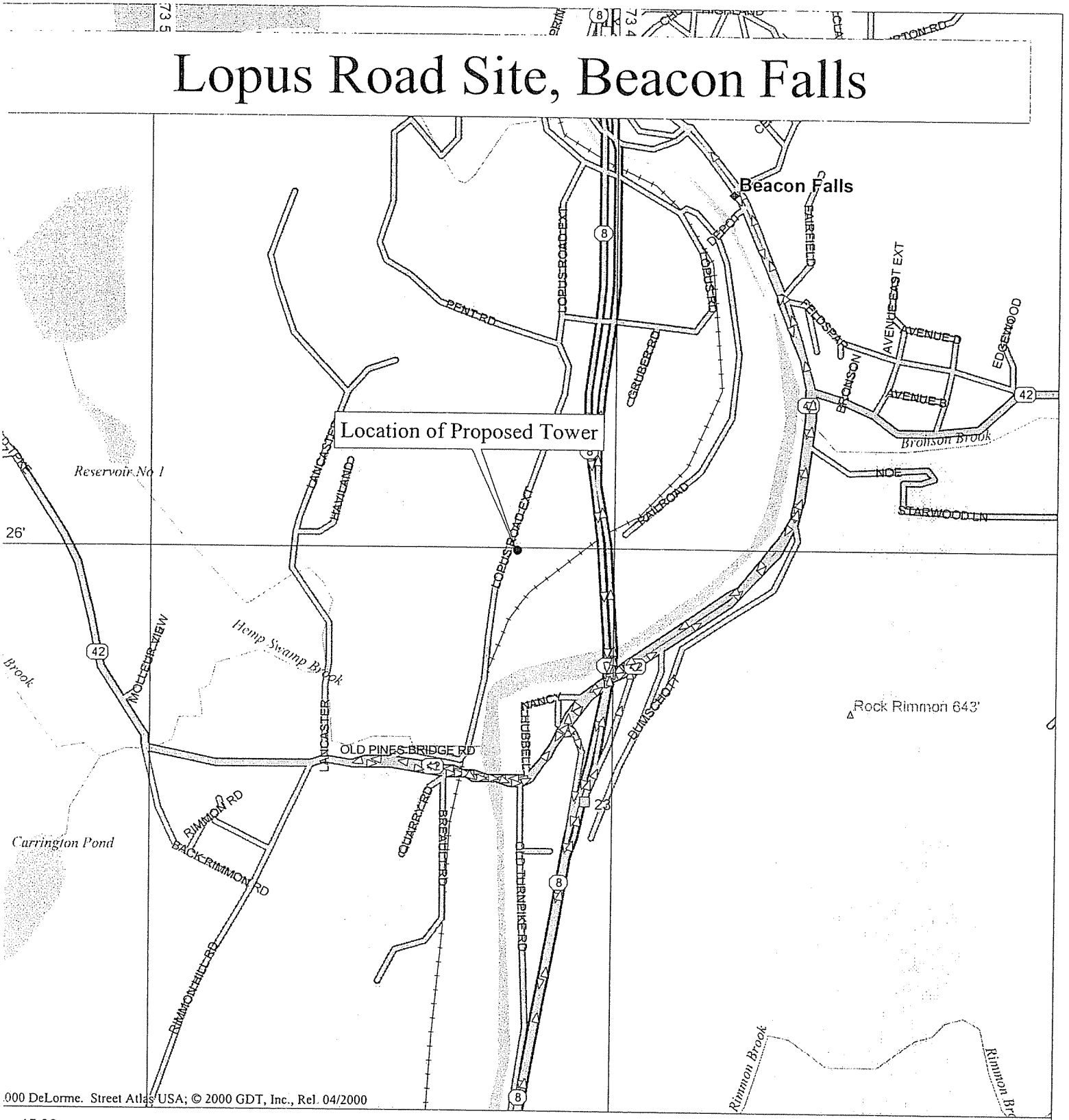
Sincerely,

Steven L. Levine
Real Estate Consultant

cc: Honorable Susan Ann Cable, 1st Selectman, Town of Beacon Falls
Michele G. Briggs, Manager of Real Estate
Christopher B. Fisher, Esq.

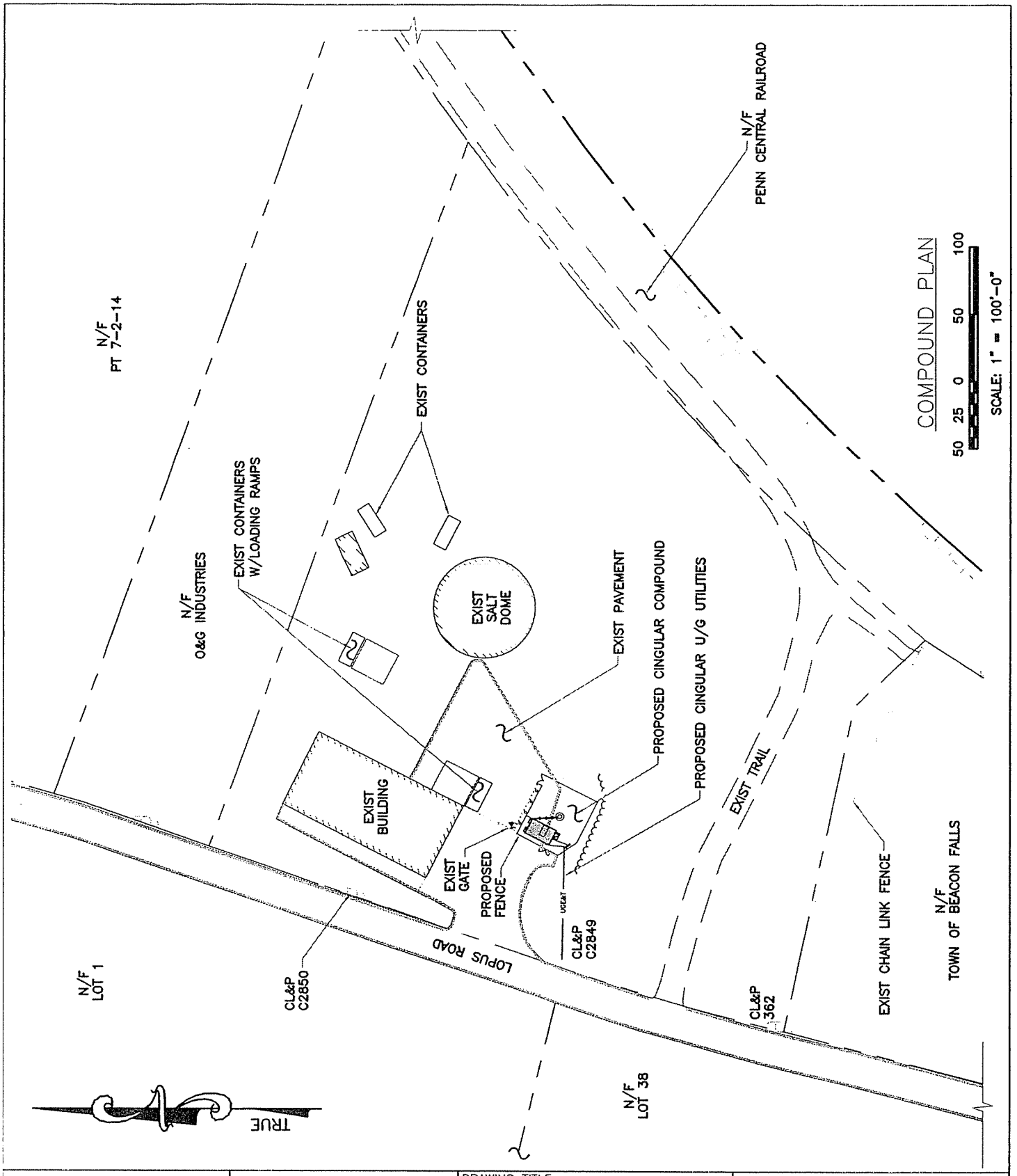
Enclosures

Lopus Road Site, Beacon Falls



ag 15.00
Oct 07 14:44 2005
ale 1:15,625 (at center)
1000 Feet
500 Meters

- Local Road
- State Route
- Interstate/Limited Access
- Exit
- Railroad
- Small Town
- Summit
- Water
- State Park/Forest
- Woodland
- River/Canal



TECTONIC

TECTONIC Engineering & Surveying Consultants P.C.
955 Little Britain Road
New Windsor, NY 12553
Phone: (845) 567-6656
Fax: (845) 567-8703
www.tectonicengineering.com

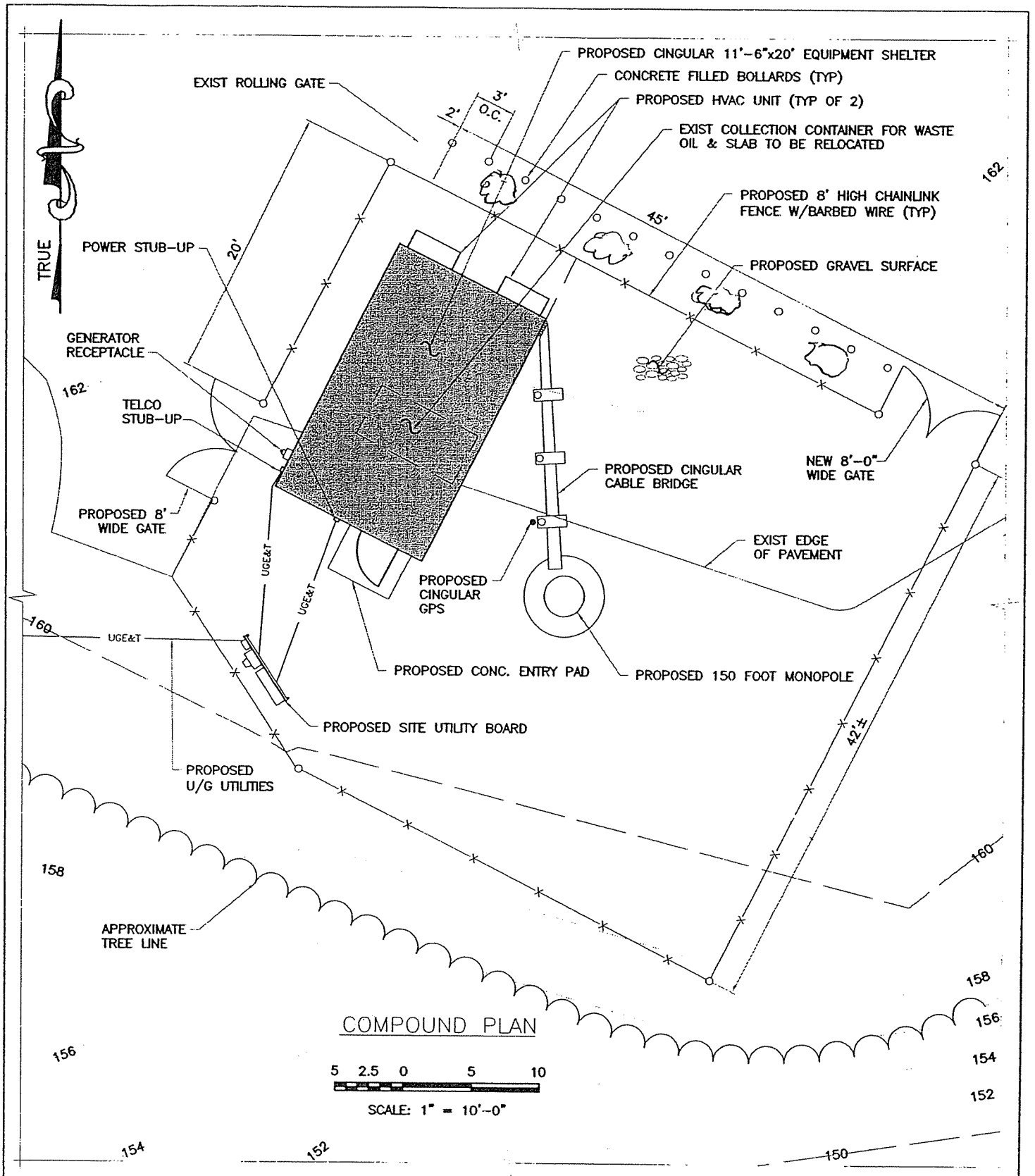
cingular WIRELESS
500 ENTERPRISE DRIVE
SUITE 3A
ROCKY HILL, CT. 06067

DRAWING TITLE:
SITE ACCESS MAP
SITE-BEACON FALLS

PROJECT INFORMATION:
BEACON FALLS CENTRAL
LOPUS ROAD
BEACON FALLS, CT 06403

DRAWING NO.
SC-1

REVISION NO. 0	DRAWN BY: KAP
DATE: 8/5/05	CHECKED BY: CD
SCALE: AS SHOWN	APPROVED BY: MP
ISSUED FOR APPROVAL	SHEET NO. 1 of 4
WORK ORDER #: 3917-BEACON FALLS	



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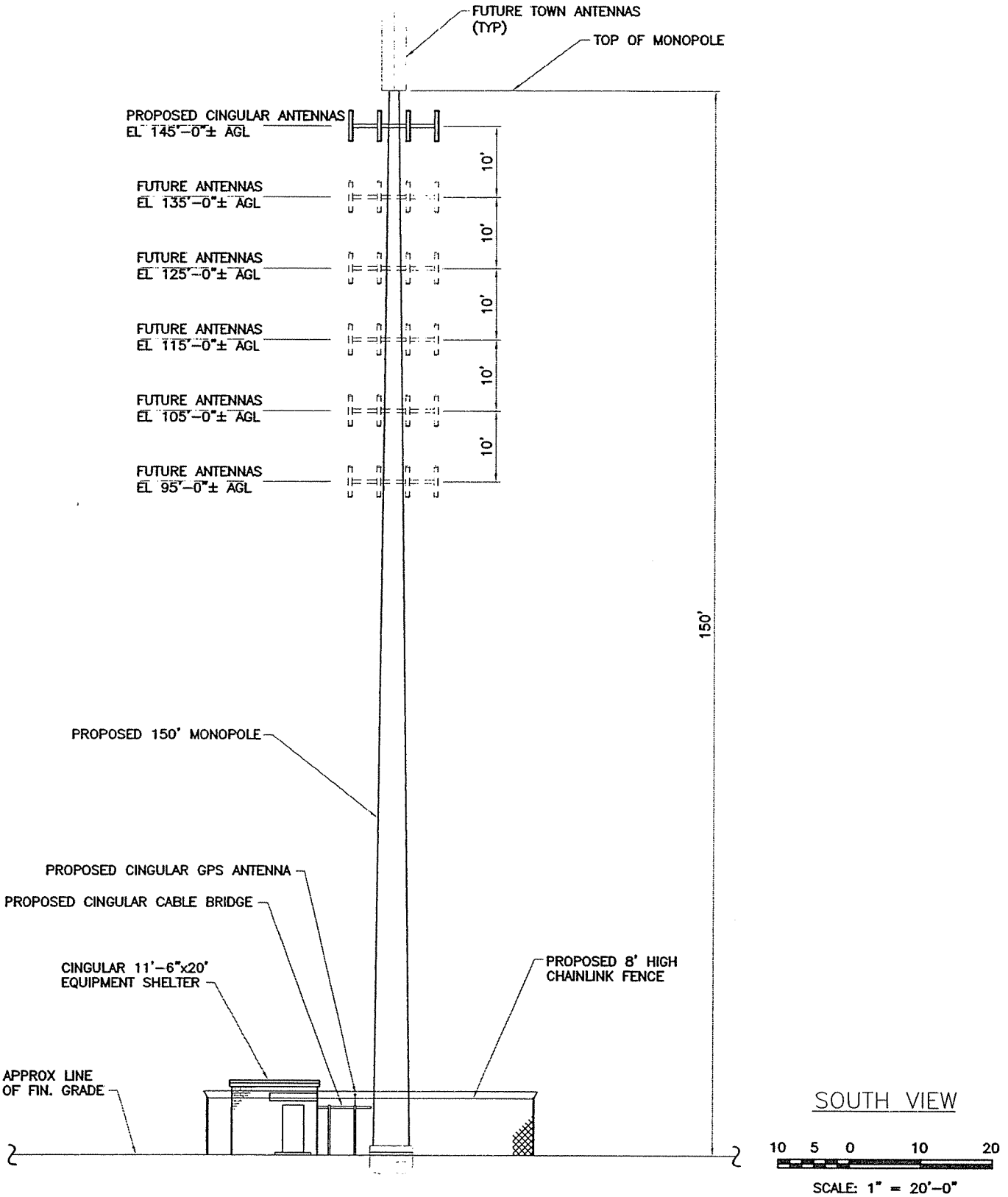
cingular WIRELESS
500 ENTERPRISE DRIVE
SUITE 3A
ROCKY HILL, CT. 06067

DRAWING TITLE:
COMPOUND PLAN
SITE-BEACON FALLS

PROJECT INFORMATION:
BEACON FALLS CENTRAL
LOPUS ROAD
BEACON FALLS, CT 06403

DRAWING NO.
SC-2

REVISION NO 0	DRAWN BY: KAP
DATE: 8/5/05	CHECKED BY: CD
SCALE: AS SHOWN	APPROVED BY: MP
ISSUED FOR APPROVAL	SHEET NO. 2 of 4
WORK ORDER #: 3917-BEACON FALLS	



SOUTH VIEW

10 5 0 10 20

SCALE: 1" = 20'-0"

TECTONIC

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New Windsor, NY 12553
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Fax: (845) 567-8703
www.tectonicengineering.com

cingular WIRELESS
500 ENTERPRISE DRIVE
SUITE 3A
ROCKY HILL, CT 06067

DRAWING TITLE:
TOWER ELEVATION
SITE-BEACON FALLS

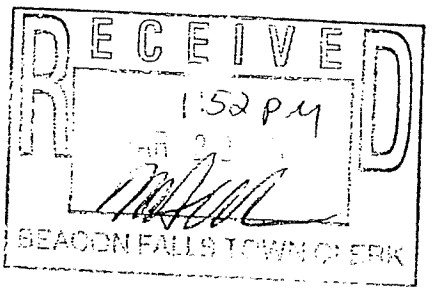
PROJECT INFORMATION:
BEACON FALLS CENTRAL
LOPUS ROAD
BEACON FALLS, CT 06403

DRAWING NO.
SC-3

REVISION NO 0	DRAWN BY: KAP
DATE: 8/5/05	CHECKED BY: CD
SCALE: AS SHOWN	APPROVED BY: MP
ISSUED FOR APPROVAL	SHEET NO. 3 of 4
WORK ORDER #: 3917-BEACON FALLS	

Town of BEACON FALLS
Connecticut

Planning and Zoning Commission



Board of Selectman
10 Maple Avenue
Beacon Falls, CT. 06403

The Beacon Falls Planning and Zoning Commission, after review of site plan proposed by AT&T, respectfully recommends acceptance.

If you have any questions or concerns please contact Chairman Jeff Burkitt.

Mary Ellen Fernandes
Mary Ellen Fernandes
Clerk, P & Z Commission
March 20, 2004

10 Maple Avenue • Beacon Falls, CT 06403-1198 • (203) 729-4340 • Fax: (203) 720-1078

Town of BEACON FALLS
Connecticut

Planning and Zoning Commission
Regular Meeting Minutes
March 18, 2004
Draft Minutes Subject to Modification

I Call to Order

Chairman Burkitt called the regular meeting of the Beacon Falls Planning and Zoning Commission to order at 7:30 P.M.
Present: Chairman Burkitt, Commissioners Carl Vitale, Peter Betkoski, Richard Franco, David Chadderton and Bill Abromaitis.
Absent: Kevin McDuffie

II Approval of Minutes

A motion to approve the minutes of the Feb 2004 regular meeting as submitted was made by Comm. Abromaitis and 2nd by Comm. Franco. All in favor. A motion to approve the minutes of Public Hearing on 6 month moratorium was made by Comm. Vitale and 2nd by Comm. Abromaitis. All in favor. A motion to approve the minutes of the Public Hearing on Pond Spring was made by Comm. Abromaitis and 2nd by Comm. Franco. All in favor.

III Comments from the Public

John smith, E.J. Smith Company came forward and requested a extension for filing of the mylar for application P-2003-115 Smith Farms-Section IV. Chairman Burkitt stated that this would be handled under Old Business.

IV Zoning Enforcement Officers Report

A written report was submitted. Discussion followed. A motion to accept report as submitted was made by Comm. Abromaitis and 2nd by Comm. McDuffie. All in favor. Charlie Edwards requested permission to have site trailer on project for 18 months. Comm. Chadderton made a motion to grant request for construction trailer for up to 18 months or more specifically September 18, 2005. Seconded by Comm. Abromaitis. All in favor.

V Town Engineers Report

An written report was submitted. Discussion followed. A motion to accept report as submitted was made by Comm. Abromaitis and was 2nd by Comm. Franco. All in favor.

VI Comprehensive Plan of Conservation and Development

No report.

VII Old Business

A joint discussion between the Board of Selectman, Atty. Civitello, Planning & Zoning and Atty. Buemi. After hearing from both attorneys, it was decided that this discussion does not belong before the Planning and Zoning Commission.
1)Application P-2003-114SP- Chatfield/Woodhaven – A motion to set a Public Hearing date for May 4, 2004 at 7:30 PM was made by Comm. Vitale and 2nd by Comm. Abromaitis. All in favor.
3)Fawn Hill Estates – A motion to send a letter to Board of Selectman to recommend reducing the maintenance bond was made by Comm. Vitale and 2nd by Comm. Abromaitis. All in favor.
2)Pond Spring Village – Site Plan – Accept for review.
4)E J Smith – A motion to grant request of extension to file mylar was made by Comm. Chadderton and 2nd by Comm. Abromaitis. All in favor.

VIII New Business

1) Application P-2004-120- 6 month moratorium – A motion to table to April 15, 2004 was made by Comm. Vitale and 2nd by Comm. Betkoski. All in favor.
2)Joyce Van Lines – Application accepted under review.
3)Earth Works – Application accepted under review.

IX New Applications

1) ATT Cell Tower – A motion to recommend to Board of Selectman to accept was made by Comm. Chadderton and 2nd by Comm. Abromaitis. All in favor.
2) Cotton Hollow Rd – Multi unit – A brief discussion resulted in a motion to Table until issues are resolved was made by Comm. Chadderton and 2nd by Comm. Franco. All in favor.
3) Oakwood Estates – A motion to set Public Hearing for May 4, 2004 at 7:00 PM was made by Comm. Abromaitis and 2nd by Comm. Franco. All in favor.
4) Westwind Estates – Resubdivision Lot 22 & 23 – Public Hearing date set for March 18, 2004 at 7:15 P.M.
5) Charlie Edwards – Lot Line Revisions – A motion to approve was made by Comm. Chadderton and 2nd by Comm. Vitale. All in favor.

X Correspondence and Payment of Bills

The following bills were submitted for payment:
Nafis & Young $ 552.50 / M.E. Fernandes $ 192.00 / Wtby Republican $102.90
Nutmeg Printers $394.00 / Fasano, Ipplitio & Lee $730.00 / Karen Wilson $115.00. A motion to accept Payment of Bills as submitted was made by Comm. Abromaitis and 2nd by Comm. Franco. All in favor.
A motion to accept all correspondence and place on file was made by Comm. Chadderton and 2nd by Comm. Franco. All in favor.

XI Executive Session

A motion to go into executive session was made by Comm. Chadderton and 2nd by Comm. Vitale. All in favor. A motion to come out of executive session was made by Comm. Vitale and 2nd by Comm. Abromaitis. All in favor.

MAR 24 2004

XII Petitions from Commissioners

No activity

XII Adjournment

A motion to adjourn was made by Comm. Chadderton and 2nd by Comm. Abromaitis. All in favor.

Respectfully Submitted,

Mary Ellen Fernandes

Mary Ellen Fernandes

Clerk, March 20, 2004

Engineered Endeavors Inc.

7610 Jenther Drive
Mentor, Ohio 44060
Tel (440) 918-1101 Fax (440) 918-1108

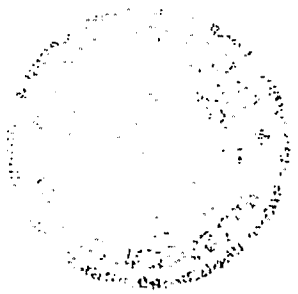
Communications Structure Nonlinear Analysis and Design Program

10:07:12 10-03-2005
Revision 1.3 - 1/22/01
Engineer: NGU

Customer TECTONIC
Job Name 13674
Structure 145' MONOPOLE
Location NEW HAVEN COUNTY, CT
Site BEACON FALLS / S1690

OD BOT	OD TOP	NUM. SIDES	THICK INCH	TAPER IN/FT	LENGTH FT	JOINT INCH	JOINT TYPE	YIELD KSI	WEIGHT LBS	JOINT HEIGHT
32.03	17.50	18	0.2500	0.278	52.29	55.00	SLIP	65.0	3419.	94.00
43.89	30.13	18	0.3750	0.278	49.54	72.00	SLIP	65.0	7261.	49.75
56.00	41.35	18	0.3750	0.278	52.75	0.00	BASEPL	65.0	10193.	0.00
			TOTAL TUBE WEIGHT				20873.	POUNDS		
			POLE SHAFT LENGTH				144.00	FEET		

E = 29600.0 KSI
UNIT WGT = 0.283 LBS/CU IN
AISC constants are used for stress reductions.
TUBE SECTIONS HAVE 18 SIDES AND ARE TREATED AS ROUND
Internal bend radius = 3 X T
Tube diameters are measured flat to flat.
Tube diameters are increased by 1.020 for wind across points.
Drag coefficients are increase by 1.300 for steps on the pole.
AISC Tube Shape Coefficient of 1.000 is applied.
REVISED DATA FILE NAME T:\ENG5\JOBS13\13674145



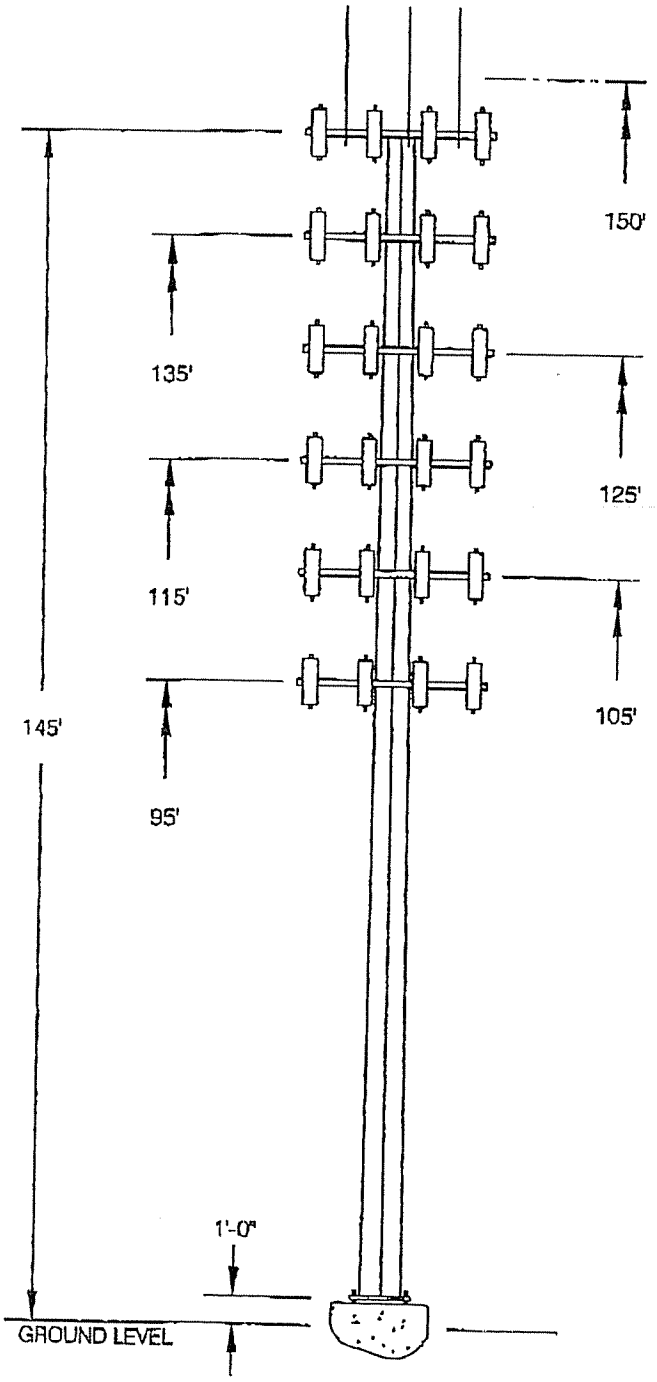
ENGINEERED ENDEAVORS INCORPORATED
The Experienced Point of View

Customer: TECTONIC
Description: 145' MONOPOLE
EEI Job Number: 13674

EMERSON™ Network Power

SITE INFORMATION
Location: NEW HAVEN COUNTY, CT
Site Name: BEACON FALLS
Site Number: S1690

DESIGN INFORMATION
Designed By: N. UNGER
Design Date: 10/3/2005
Status: REVISION 0



ANTENNA LOADING

(12) 7770 PANEL ANTENNAS, (6) LGP2140X TMAs, (18) LGP13519 DIPLEXERS AND (3) OMNIDIRECTIONAL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 145' (CINGULAR)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 135' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 125' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 115' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 105' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 95' (FUTURE)

DESIGN CRITERIA

DESIGNED IN ACCORDANCE WITH THE TIA/EIA 222-F FOR 85 MPH FASTEST MILE WIND SPEED AND 1/2" RADIAL ICE (NON-SIMULTANEOUS)

DESIGN MEETS THE REQUIREMENTS OF SECTIONS 1609 AND 3108 OF THE 2000 AND 2003 INTERNATIONAL BUILDING CODES FOR 105 MPH 3-SECOND GUST WIND SPEED

STATE OF CONNECTICUT
MICHAEL R. MOREL
No. 21220
LICENSED PROFESSIONAL ENGINEER

10/3/05

Michael R. Morel

ENGINEERED ENDEAVORS, INC.
7610 Jenther Drive • Mentor, Ohio 44060-4872
Phone: (440) 918-1101 • Phone: (888) 270-3855
Fax: (440) 918-1108 • www.engend.com

ENGINEERED
ENDEAVORS
INCORPORATED
The Experienced Point of View

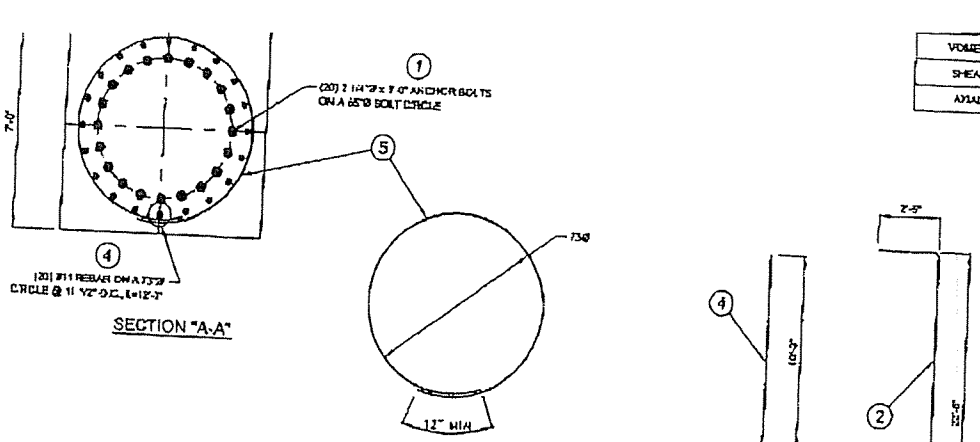
7610 Jenther Drive * Mentor, OH 44060-4872
Ph: (440) 918-1101 * Ph: (888) 270-3855
Fx: (440) 918-1108 * www.engend.com

DESIGN CALCULATIONS FOR A SPREAD FOOTER FOUNDATION

TECTONIC
145 ft Monopole

Beacon Falls / S1690
New Haven County, CT

EEI Project Number 13674
October 3, 2005

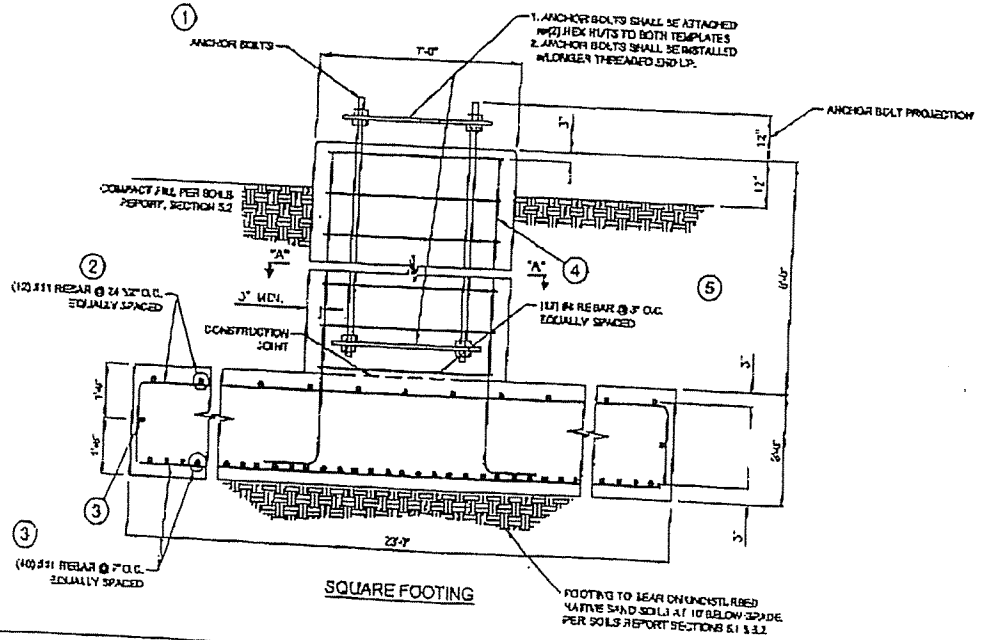


SECTION "A-A"

MOMENT	3311.4 kip-ft
SHEAR	31.3 kips
AXIAL	36.0 kips

ITEM	QTY.	DESCRIPTION
1	20	2 1/4"Ø x 9'-0" [ASTM A615-GR.60] ANCHOR BOLTS
2	24	#11 REBAR x 27'-6" [ASTM A615-GR.60]
3	14	#3 REBAR x 22'-5" [ASTM A615-GR.60]
4	20	#11 REBAR x 12'-0" [ASTM A615-GR.60]
5	12	#4 REBAR x 21'-0" [ASTM A615-GR.60]

VOL. CONCRETE @ 4000 psi [TYPE II CEMENT]	733 yd³
STEEL [ASTM A615-GR.60]	17322.0 lbs



SQUARE FOOTING

GENERAL NOTES:

1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING: EEI JOB# 13674, DRAWING# 3355644 SOIL REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REPORT NO. W.O. 3917 BEACON - 06/17/05
2. FOUNDATION EMBEDMENT IS SHOWN FROM THE GROUND LEVEL AT THE TIME OF SOIL INVESTIGATION AS DEPICTED IN THE SOIL REPORT. SHOULD THE ACTUAL SOIL CONDITIONS DIFFER FROM THOSE IN THIS REPORT, THE GEOTECHNICAL ENGINEER AND FOUNDATION DESIGNER SHOULD BE NOTIFIED IN ORDER TO RE-EVALUATE THE FOUNDATION DESIGN.
3. SOIL REPORT SHOULD BE CONSULTED PRIOR TO CONSTRUCTION. STEEL CASING OR SLURRY METHOD MAY BE REQUIRED TO PREVENT SOIL FROM CAVING DURING CONSTRUCTION. THE CASING SHOULD BE REMOVED AFTER COMPLETION OF CONCRETING OR, IF LEFT IN THE GROUND, ALL VOIDS AROUND THE CASING SHALL BE FILLED WITH PRESSURIZED GROUT. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
4. FOUNDATION EXCAVATION SHALL BE INSPECTED PRIOR TO PLACEMENT OF REINFORCEMENT AND ANCHOR BOLTS.
5. SPECIAL INSPECTION OF REINFORCEMENT, ANCHOR BOLT INSTALLATION, AND CONCRETE IS REQUIRED PER 2003 I.B.C. FOUNDATION REINFORCEMENT AND ANCHOR BOLTS SHALL BE INSPECTED PRIOR TO PLACEMENT.
6. REINFORCING STEEL SHALL CONFORM TO ASTM A615-97, Fy=60 ksi. REINFORCEMENT SHALL BE ASSEMBLED USING STEEL WIRE. WELDING IS NOT PERMITTED. MINIMUM SPLICE LENGTH FOR No. 8 BARS AND SMALLER = 44 x dbar; FOR No. 7 BARS AND LARGER = 60 x dbar. HORIZONTAL TIES SHALL BE STAGGERED WITH NO MORE THAN 50% OF SPLICES BY ONE PLACE.
7. CONCRETE MIX DESIGN AND CONSTRUCTION PROCEDURE SHALL BE IN COMPLIANCE WITH ACI 318-02, ACI 336.3R-93, AND ALL APPLICABLE STATE AND LOCAL CODES.
   a. MINIMUM COMPRESSIVE STRENGTH = 4000 psi AT 28 DAYS. USE TYPE II CEMENT UNLESS STATED OTHERWISE.
   b. CONCRETE MIX SHOULD HAVE A SLUMP OF 5" (±1") FOR DRILLED PIER AND 3" (±1") FOR MAT FOUNDATIONS.
   c. FOR DRILLED PIERS ONLY THE CONCRETE OVER THE ENTIRE LENGTH OF ANCHOR BOLTS SHALL BE VIBRATED. FOR MAT FOUNDATIONS ALL CONCRETE SHALL BE VIBRATED.
8. ANCHOR BOLT ORIENTATION IS REQUIRED PRIOR TO CONCRETE PLACEMENT. THE CONTRACTOR SHOULD CONSULT THE SITE PLAN AND MONOPOLE DRAWING FOR PROPER ACCESS PORT ORIENTATION.

REV	DESCRIPTION	DATE	DWN	CHK
1	COMPLETED DRAWING	10/3/05	N.D.	

ENGINEERED ENDEAVORS INCORPORATED
The Experienced Point of View
7510 Jenther Drive • Manlor, OH 44730-4672
Ph: (440) 918-1501 • Ph: (888) 270-3656
Fx: (440) 918-1108 • www.eiqonl.com

TECTONIC
145'-0" MONOPOLE
BEACON FALLS / S1690
NEW HAVEN COUNTY, CT

SCALE: N.T.S.	PROJECT NO.	13674
SHEET 1 of 1	DRAWING NO.	13674S-145.0

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

October 7, 2005

Honorable Susan Ann Cable
1st Selectman, Town of Beacon Falls
Town Hall, 10 Maple Avenue
Beacon Falls, Connecticut 06403

Re: Request by New Cingular Wireless PCS, LLC for an Order Approving Shared Use of an Approved Municipal Tower off Lopus Road, Beacon Falls

Dear Ms. Cable:

As you know, New Cingular Wireless PCS, LLC ("Cingular") intends to install cellular antennas and equipment at an approved wireless telecommunications tower located at the Beacon Falls Public Works Department garage off Lopus Road. Pursuant to Cingular's (formerly AT&T Wireless) lease with the Town, the tower will be owned and operated by the Town of Beacon Falls. We will be filing a building permit application within the next few days.

Pursuant to Connecticut General Statutes Section 16-50aa, Cingular has also requested an order approving shared use of the tower from the Connecticut Siting Council.

The accompanying letter fully describes Cingular's proposal. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at (860) 513-7636 or Mr. Derek Phelps, Executive Director, Connecticut Siting Council at (860) 827-2935.

Sincerely,

Steven L. Levine
Real Estate Consultant

Enclosures

Engineered Endeavors Inc.

7610 Jenther Drive
Mentor, Ohio 44060
Tel (440) 918-1101 Fax (440) 918-1108

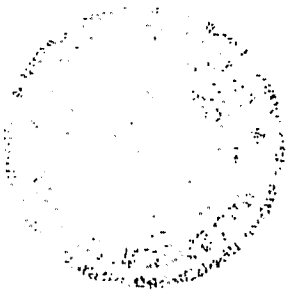
Communications Structure Nonlinear Analysis and Design Program

10:07:12 10-03-2005
Revision 1.3 - 1/22/01
Engineer: NGU

Customer TECTONIC
Job Name 13674
Structure 145' MONOPOLE
Location NEW HAVEN COUNTY, CT
Site BEACON FALLS / S1690

OD BOT	OD TOP	NUM. SIDES	THICK INCH	TAPER IN/FT	LENGTH FT	JOINT INCH	JOINT TYPE	YIELD KSI	WEIGHT LBS	JOINT HEIGHT
32.03	17.50	18	0.2500	0.278	52.29	55.00	SLIP	65.0	3419.	94.00
43.89	30.13	18	0.3750	0.278	49.54	72.00	SLIP	65.0	7261.	49.75
56.00	41.35	18	0.3750	0.278	52.75	0.00	BASEPL	65.0	10193.	0.00
			TOTAL TUBE WEIGHT				20873.	POUNDS		
			POLE SHAFT LENGTH				144.00	FEET		

E = 29600.0 KSI
UNIT WGT = 0.283 LBS/CU IN
AISC constants are used for stress reductions.
TUBE SECTIONS HAVE 18 SIDES AND ARE TREATED AS ROUND
Internal bend radius = 3 X T
Tube diameters are measured flat to flat.
Tube diameters are increased by 1.020 for wind across points.
Drag coefficients are increase by 1.300 for steps on the pole.
AISC Tube Shape Coefficient of 1.000 is applied.
REVISED DATA FILE NAME T:\ENG5\JOBS13\13674145



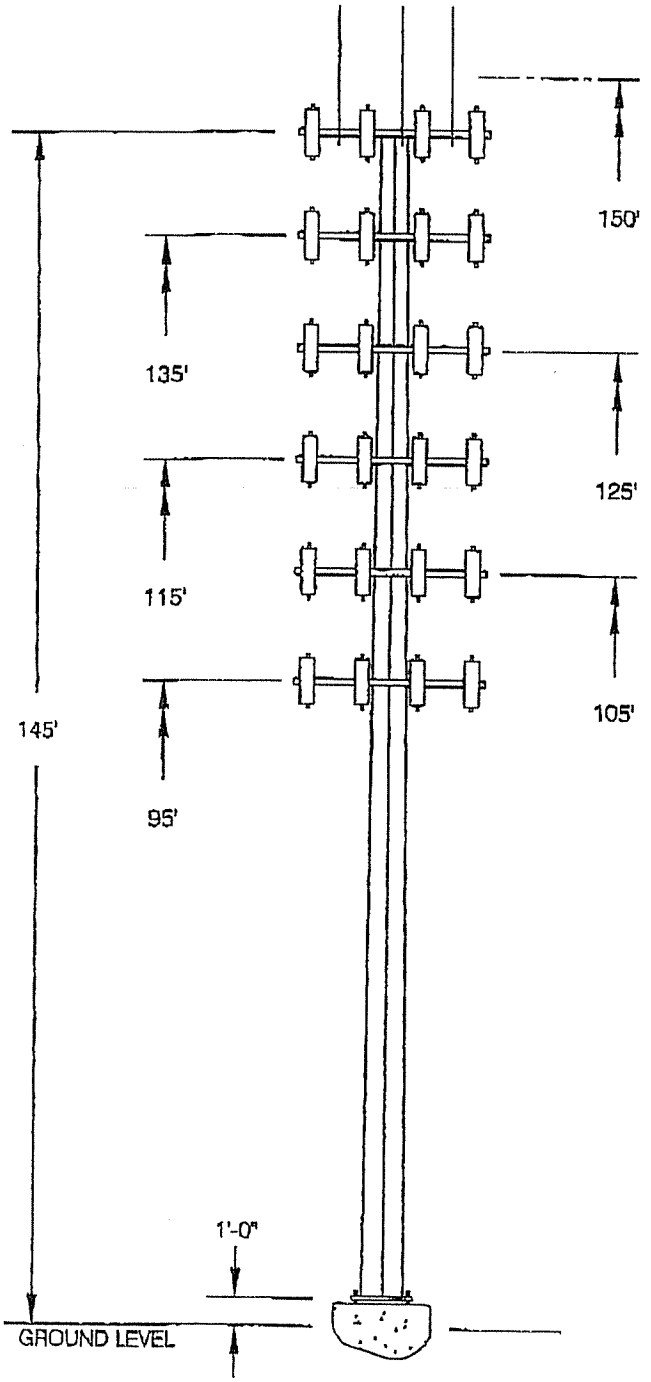
ENGINEERED ENDEAVORS INCORPORATED
The Experienced Point of View

Customer: TECTONIC
Description: 145' MONOPOLE
EEI Job Number: 13674

EMERSON™ Network Power

SITE INFORMATION
Location: NEW HAVEN COUNTY, CT
Site Name: BEACON FALLS
Site Number: S1690

DESIGN INFORMATION
Designed By: N. UNGER
Design Date: 10/3/2005
Status: REVISION 0



ANTENNA LOADING

(12) 7770 PANEL ANTENNAS, (6) LGP2140X TMAs, (18) LGP13519 DIPLEXERS AND (3) OMNIDIRECTIONAL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 145' (CINGULAR)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 135' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 125' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 115' (FUTURE)

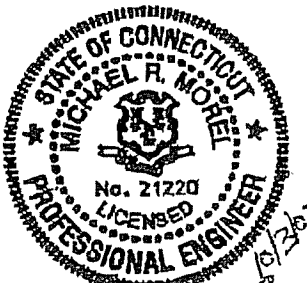
(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 105' (FUTURE)

(12) ALP 9212 PANEL ANTENNAS MOUNTED ON A 12' LOW PROFILE PLATFORM AT 95' (FUTURE)

DESIGN CRITERIA

DESIGNED IN ACCORDANCE WITH THE TIA/EIA 222-F FOR 85 MPH FASTEST MILE WIND SPEED AND 1/2" RADIAL ICE (NON-SIMULTANEOUS)

DESIGN MEETS THE REQUIREMENTS OF SECTIONS 1609 AND 3108 OF THE 2000 AND 2003 INTERNATIONAL BUILDING CODES FOR 105 MPH 3-SECOND GUST WIND SPEED



ENGINEERED ENDEAVORS, INC.
7610 Jenther Drive • Mentor, Ohio 44060-4872
Phone: (440) 918-1101 • Phone: (888) 270-3855
Fax: (440) 918-1108 • www.engend.com

Engineered Endeavors Inc. 145' MONOPOLE 13674 PAGE 2

APPURTENANCES

DESCRIPTION	NUM.	ELEV.	Kz	AREA < WITHOUT ICE	WGT	Ca >	AREA < WITH ICE	WGT	Ca >	FACTOR
7770	12	144.	1.523	4.20	35.	1.4000	4.67	68.	1.4000	0.93
TMA	6	144.	1.523	0.68	18.	1.4000	0.83	24.	1.4000	0.91
DIPLEXER	18	144.	1.523	0.11	5.	1.4000	0.17	7.	1.4000	1.06
LOW PROF. PLATF.	1	144.	1.523	7.50	2100.	2.0000	9.00	3250.	2.0000	1.00
ALP 9212-N	12	134.	1.492	3.90	27.	1.4000	4.24	55.	1.4000	0.80
LOW PROF. PLATF.	1	134.	1.492	7.50	2100.	2.0000	9.00	3250.	2.0000	1.00
ALP 9212-N	12	124.	1.460	3.90	27.	1.4000	4.24	55.	1.4000	0.80
LOW PROF. PLATF.	1	124.	1.460	7.50	2100.	2.0000	9.00	3250.	2.0000	1.00
ALP 9212-N	12	114.	1.425	3.90	27.	1.4000	4.24	55.	1.4000	0.80
LOW PROF. PLATF.	1	114.	1.425	7.50	2100.	2.0000	9.00	3250.	2.0000	1.00
ALP 9212-N	12	104.	1.388	3.90	27.	1.4000	4.24	55.	1.4000	0.80
LOW PROF. PLATF.	1	104.	1.388	7.50	2100.	2.0000	9.00	3250.	2.0000	1.00
ALP 9212-N	12	94.	1.349	3.90	27.	1.4000	4.24	55.	1.4000	0.80
LOW PROF. PLATF.	1	94.	1.349	7.50	2100.	2.0000	9.00	3250.	2.0000	1.00
DB 222	3	150.	1.541	1.60	16.	1.8000	3.50	40.	1.8000	1.00

LOAD CASE 1

BASIC LOADING

DEAD LOAD FACTOR 1.00 WIND PSF REDUCTION 1.00 RADIAL ICE 0.00 IN.

WIND VELOCITY 85 BOTTOM 19.76 PSF TOP 29.79 PSF
MAX BASE ROTATION 0.00 DEG

APPLIED APPURTENANCE FORCES

	ELEVATION FT	WEIGHT KIPS	WIND KIPS
70	144.00	0.420	3.310
A	144.00	0.108	0.262
PLEXER	144.00	0.095	0.148
W PROF. PLATF.	144.00	2.100	0.757
P 9212-N	134.00	0.324	2.590
W PROF. PLATF.	134.00	2.100	0.741
P 9212-N	124.00	0.324	2.533
W PROF. PLATF.	124.00	2.100	0.725
P 9212-N	114.00	0.324	2.473
W PROF. PLATF.	114.00	2.100	0.708
P 9212-N	104.00	0.324	2.409
W PROF. PLATF.	104.00	2.100	0.689
P 9212-N	94.00	0.324	2.340
W PROF. PLATF.	94.00	2.100	0.670
222	150.00	0.048	0.441

TUBE PROPERTIES			MEMBER FORCES			STRESSES			STRESS	TOTAL	
LEV FT	DIAM IN	WALL IN	SHEAR K	BENDING K-FT	AXIAL K	AXIAL KSI	BEND. KSI	ALLOW KSI	RATIOS	DEFL IN	TILT DEG
4.00	17.50	0.2500	5.44	2.64	2.46	0.18	0.55	51.99	0.01	94.9	6.11
4.00	20.28	0.2500	5.44	56.76	2.46	0.16	8.75	51.99	0.17	82.3	5.98
4.00	23.06	0.2500	9.54	151.68	5.04	0.28	18.02	51.99	0.35	70.2	5.69
4.00	25.83	0.2500	13.60	287.02	7.76	0.39	27.06	50.32	0.54	58.8	5.27
4.00	28.61	0.2500	17.58	462.10	10.64	0.48	35.42	48.97	0.73	48.4	4.74
4.00	31.39	0.2500	21.46	676.00	13.71	0.56	42.95	47.86	0.91	39.1	4.13
			TYPE OF JOINT: SLIP JOINT								
4.00	30.76	0.3750	25.33	676.01	17.76	0.50	30.19	51.99	0.59	39.1	4.13
2.75	33.89	0.3750	25.33	960.33	17.76	0.45	35.22	51.99	0.69	30.0	3.61
1.75	36.94	0.3750	26.06	1246.53	19.44	0.45	38.36	51.00	0.76	22.3	3.08
0.75	40.00	0.3750	26.80	1540.94	21.27	0.46	40.36	49.89	0.82	15.7	2.57
9.75	43.06	0.3750	27.54	1843.63	23.23	0.46	41.59	48.93	0.86	10.4	2.07
			TYPE OF JOINT: SLIP JOINT								
9.75	42.18	0.3750	28.39	1843.63	27.46	0.56	43.36	49.19	0.89	10.4	2.07
6.00	46.00	0.3750	28.39	2233.84	27.46	0.51	44.08	48.13	0.92	5.3	1.44
4.00	49.33	0.3750	29.18	2583.88	29.81	0.52	44.26	47.33	0.94	2.3	0.93
2.00	52.67	0.3750	29.92	2942.89	32.17	0.52	44.16	46.64	0.96	0.6	0.45
0.00	56.00	0.3750	31.25	3311.40	36.00	0.55	43.90	46.03	0.96	0.0	0.00

Engineered Endeavors Inc. 145' MONOPOLE 13674 PAGE 4

REACTION COMPONENTS (KIPS AND FT-KIPS)

TRANSVERSE SHEAR	VERTICAL FORCE	WIND SHEAR	MOMENT ABOUT TRANSVERSE	MOMENT ABOUT VERTICAL	MOMENT ABOUT WIND AXIS
0.000	36.002	-31.247	3311.405	0.000	0.000

LOAD CASE 2

BASIC LOADING PLUS ICE

DEAD LOAD FACTOR 1.00 WIND PSF REDUCTION 0.87 RADIAL ICE 0.50 IN.

WIND VELOCITY 85 BOTTOM 17.19 PSF TOP 25.92 PSF
MAX BASE ROTATION 0.00 DEG

APPLIED APPURTENANCE FORCES

	ELEVATION FT	WEIGHT KIPS	WIND KIPS
70	144.00	0.811	3.202
A	144.00	0.144	0.278
PLEXER	144.00	0.126	0.199
W PROF. PLATF.	144.00	3.250	0.790
P 9212-N	134.00	0.660	2.450
W PROF. PLATF.	134.00	3.250	0.774
P 9212-N	124.00	0.660	2.396
W PROF. PLATF.	124.00	3.250	0.757
P 9212-N	114.00	0.660	2.339
W PROF. PLATF.	114.00	3.250	0.739
P 9212-N	104.00	0.660	2.279
W PROF. PLATF.	104.00	3.250	0.720
P 9212-N	94.00	0.660	2.214
W PROF. PLATF.	94.00	3.250	0.699
222	150.00	0.120	0.839

TUBE PROPERTIES			MEMBER FORCES			STRESSES			STRESS	TOTAL	
LEV FT	DIAM IN	WALL IN	SHEAR K	BENDING K-FT	AXIAL K	AXIAL KSI	BEND. KSI	ALLOW KSI	RATIOS	DEFL IN	TILT DEG
4.00	17.50	0.2500	6.00	5.03	4.07	0.30	1.05	51.99	0.02	96.5	6.31
4.00	20.28	0.2500	6.00	64.68	4.07	0.26	9.98	51.99	0.20	83.6	6.16
4.00	23.06	0.2500	10.11	165.19	8.14	0.45	19.62	51.99	0.39	71.1	5.84
4.00	25.83	0.2500	14.13	305.83	12.35	0.61	28.83	50.32	0.58	59.4	5.38
4.00	28.61	0.2500	18.04	485.55	16.74	0.75	37.21	48.97	0.77	48.8	4.82
4.00	31.39	0.2500	21.81	703.00	21.30	0.87	44.66	47.86	0.95	39.4	4.19
			TYPE OF JOINT: SLIP JOINT								
4.00	30.76	0.3750	25.54	703.00	26.85	0.75	31.39	51.99	0.62	39.4	4.19
2.75	33.89	0.3750	25.54	989.66	26.85	0.68	36.30	51.99	0.71	30.1	3.65
1.75	36.94	0.3750	26.65	1276.20	30.38	0.71	39.28	51.00	0.78	22.3	3.11
0.75	40.00	0.3750	27.22	1569.03	32.35	0.69	41.10	49.89	0.84	15.8	2.58
9.75	43.06	0.3750	27.22	1868.16	32.35	0.64	42.15	48.93	0.87	10.4	2.08
			TYPE OF JOINT: SLIP JOINT								
9.75	42.18	0.3750	27.87	1868.16	36.57	0.74	43.94	49.19	0.90	10.4	2.08
6.00	46.00	0.3750	27.87	2251.19	36.57	0.68	44.42	48.13	0.94	5.3	1.44
4.00	49.33	0.3750	28.45	2592.48	38.92	0.67	44.40	47.33	0.95	2.3	0.93
2.00	52.67	0.3750	29.00	2940.49	41.28	0.67	44.13	46.64	0.96	0.6	0.45
0.00	56.00	0.3750	30.08	3295.68	45.11	0.69	43.69	46.03	0.96	0.0	0.00

Engineered Endeavors Inc. 145' MONOPOLE 13674 PAGE 6

REACTION COMPONENTS (KIPS AND FT-KIPS)

TRANSVERSE SHEAR	VERTICAL FORCE	WIND SHEAR	MOMENT ABOUT TRANSVERSE	MOMENT ABOUT VERTICAL	MOMENT ABOUT WIND AXIS
0.000	45.111	-30.076	3295.685	0.000	0.000

SUMMARY TABLE

ELEV	STRESS RATIO	AXIAL	BENDING	LOADING
144.00	0.02	4.07	5.0	2 BASIC LOADING PLUS ICE
134.00	0.20	4.07	64.7	2 BASIC LOADING PLUS ICE
124.00	0.39	8.14	165.2	2 BASIC LOADING PLUS ICE
114.00	0.58	12.35	305.8	2 BASIC LOADING PLUS ICE
104.00	0.77	16.74	485.5	2 BASIC LOADING PLUS ICE
94.00	0.95	21.30	703.0	2 BASIC LOADING PLUS ICE
82.75	0.71	26.85	989.7	2 BASIC LOADING PLUS ICE
71.75	0.78	30.38	1276.2	2 BASIC LOADING PLUS ICE
60.75	0.84	32.35	1569.0	2 BASIC LOADING PLUS ICE
49.75	0.90	36.57	1868.2	2 BASIC LOADING PLUS ICE
36.00	0.94	36.57	2251.2	2 BASIC LOADING PLUS ICE
24.00	0.95	38.92	2592.5	2 BASIC LOADING PLUS ICE
12.00	0.96	41.28	2940.5	2 BASIC LOADING PLUS ICE
0.00	0.96	36.00	3311.4	1 BASIC LOADING

MAXIMUM SUPPORT MOMENT K-FT	3311.41
CORRESPONDING AXIAL FORCE KIPS	36.00
CORRESPONDING SHEAR FORCE KIPS	31.25

Engineered Endeavors Inc. 145' MONOPOLE 13674 PAGE 8

BASE PLATE AT ELEVATION 0.00 FEET

TUBE DIAMETER	56.00	INCHES
DESIGN MOMENT	3311.4	KIP FT
DESIGN MOMENT IS	0.	DEGREES FROM THE WIND DIRECTION
BOLTS ARE ON THE	KNUCKLES	OF THE TUBE
APPLIED AXIAL FORCE	36.0	KIPS
APPLIED SHEAR	31.25	KIPS

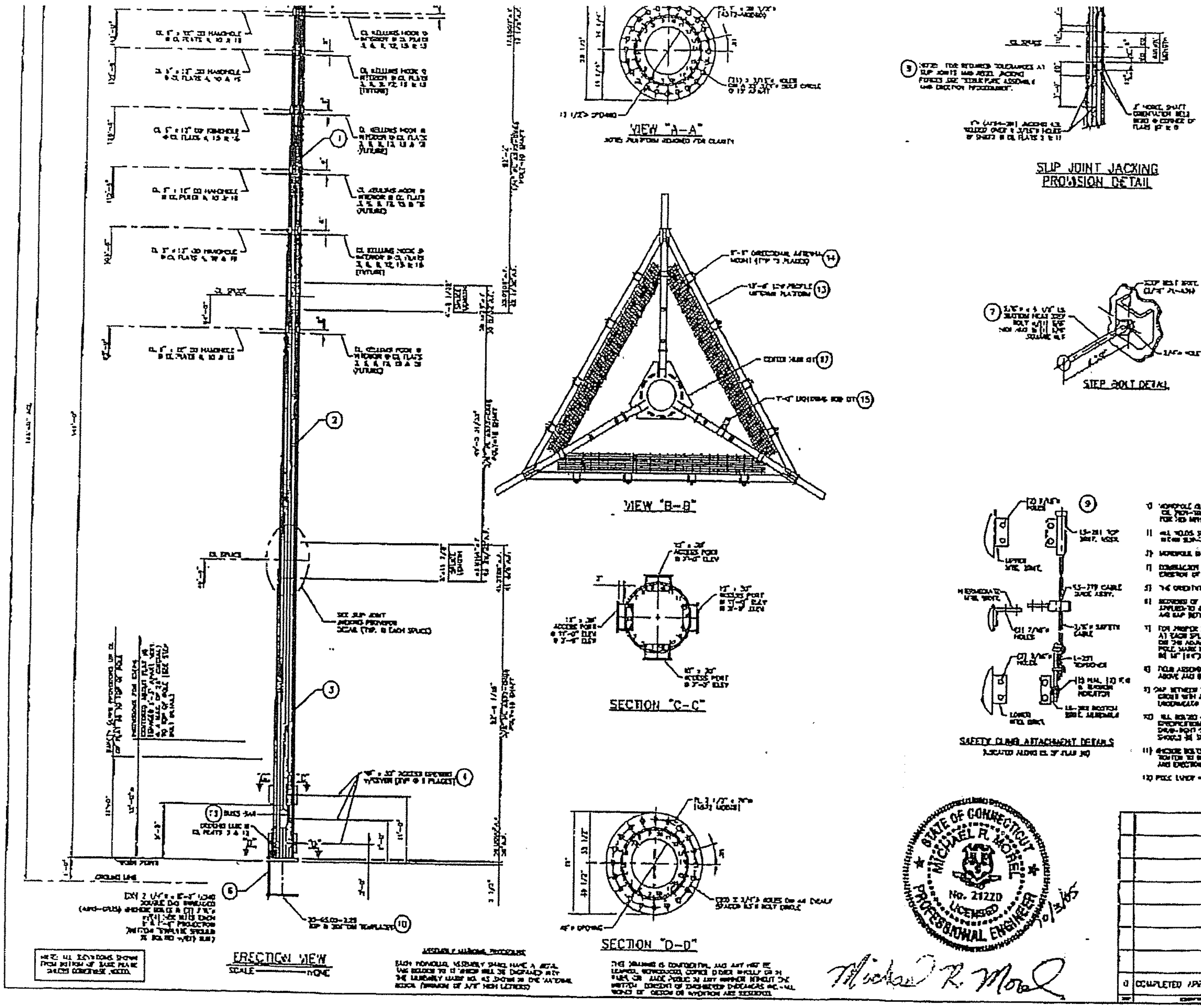
BOLT DATA

BOLT TYPE	A615 GR75	
BOLTS ARE EVENLY SPACED		
DIAMETER	2.250	INCHES
EFFECTIVE AREA	3.250	SQ IN
TOTAL LENGTH	8.0	FEET
MINIMUM EMBEDMENT	6.4	FEET
NUMBER OF BOLTS	20	
BOLT CIRCLE DIAMETER	65.00	INCHES
ALLOWABLE STRESS	60.0	KSI
APPLIED AXIAL STRESS	38.2	KSI
MAX BOLT FORCE	124.1	KIPS
BOLT BENDING STRESS	2.3	KSI
COMBINED BOLT STRESS	40.4	KSI
CLEARANCE UNDER PLATE	3.25	INCHES
BOLT WEIGHT	2256.0	POUNDS

PLATE DATA

DIAMETER OF PLATE	71.00	INCHES
MATERIAL	A572 GR60	
PROVIDED THICKNESS	2.500	INCHES
REQUIRED THICKNESS	1.689	INCHES
BOLT HOLE DIAMETER	2.625	INCHES
CENTER HOLE SIZE	46.00	INCHES
NET WEIGHT	1497.1	POUNDS
RAW STOCK WEIGHT	3566.5	POUNDS
SURFACE AREA	29.39	SQ FT
ALLOWABLE STRESS	59.99	KSI
MAX APPLIED STRESS	27.38	KSI
CONCRETE STRENGTH	3000.	PSI

Base Plate - use 71.00 inch ROUND x 2.500 inch A572 GR60
with (20) 2.250 diameter x 8.00 foot caged A615 GR75 bolts
on a 65.00 inch bolt circle.



--	1	1	---	SHAFT ASSY. (TOP) 52.25' LG.
--	1	2	---	SHAFT ASSY. (MIDDLE) 49.50' LG.
--	1	3	---	SHAFT ASSY. (BOTTOM) 32.74' LG.
31.41	6	4	K11157	15" x 30" ACCESS PORT COVER PL
		5		HARDWARE AS FOLLOWS:
6.87	18	5/A	K11057	6" x 12" HANDHOLE COVER PL
779.50	20	6	2.25-4880C-4	[illegible]
1.08	--	7	532006	[illegible]
	1	8		STRUCTURE ASSEMBLY AND ERECTION PROCEDURES
	1	9	DBI-140	145'-0" SAFETY CLIMB KIT
	1	9/A	L2010	SAFETY CLIMB HARNESS
127.38	2	10	20-65.00-2.25	SETTING TEMPLATE
1.50	3	11	2515625	5/8"Ø KELLUMS HOOK ASSY.
	1	12		PLATFORM ASSEMBLY PROCEDURE
1090.12	1	13	K10934A	13'-0" LOW PROFILE WINDOWAL PLATFORM
40.91	12	14	K11014	8'-0" LOW PROFILE DIRECTIONAL ANTENNA MOUNTS
23.63	1	15	K10333	7' LIGHTNING ROD KIT
7.50	1	16	K10062	BUSS BAR KIT
232.32	1	17	K11128	CENTER HUB KIT

TOTAL GALV. STR. & ACCES. WT. ___
TOTAL ANCHOR BOLT & TEMPLATE WT. 2831.78#

GENERAL NOTES

[illegible]

ENGINEERED ENDEAVORS INCORPORATED

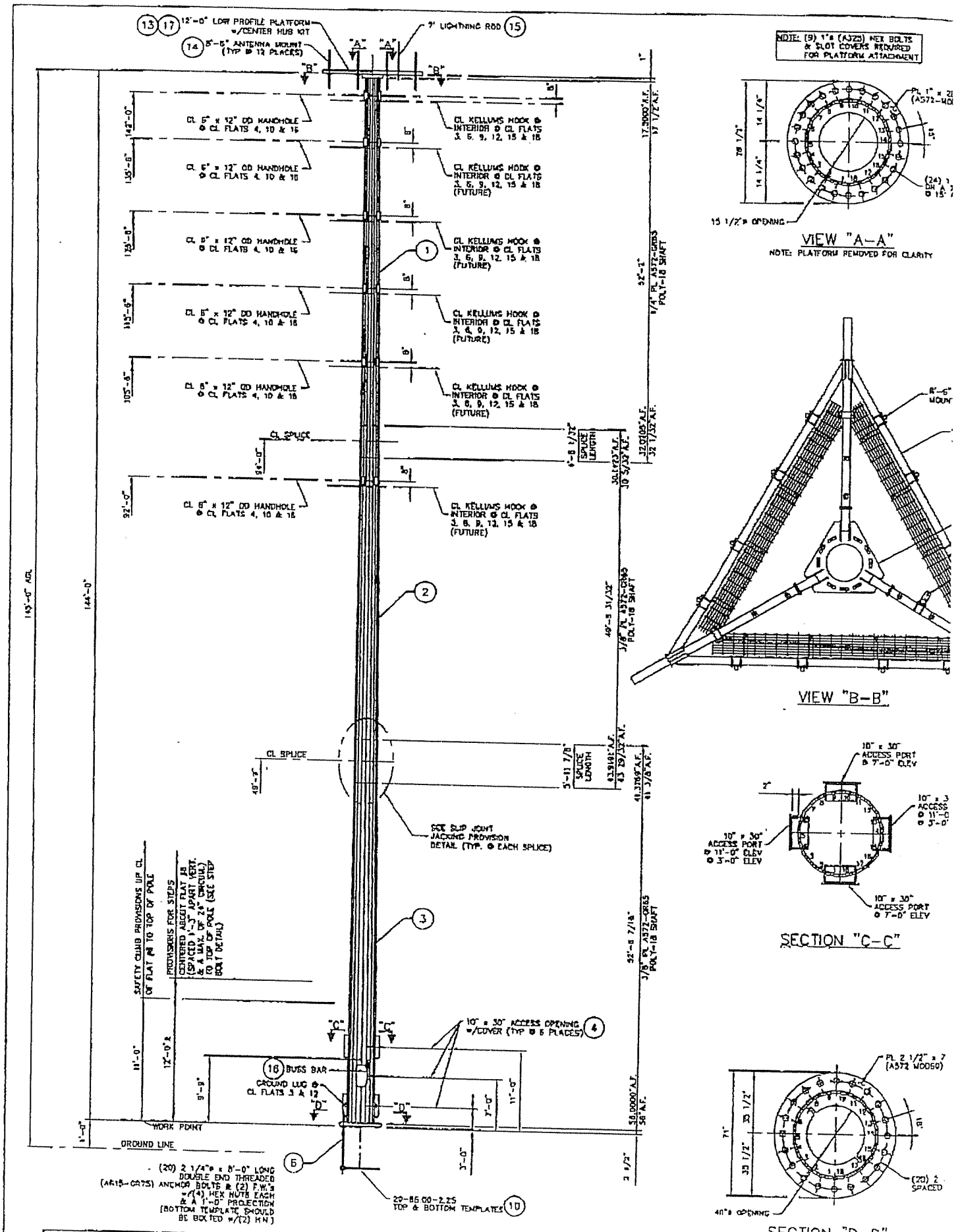
145'-0" MONOPOLE
TECTONIC
BEACON FALLS S1690 /
CINGULAR 3917
NEW HAVEN COUNTY, CT

0 COMPLETED APPROVAL DWG

13674

CS55964

STATE OF CONNECTICUT MICHAEL R. MOREL No. 21220 LICENSED PROFESSIONAL ENGINEER



NOTE: (9) 1"ø (A325) HEX BOLTS & SLOT COVERS REQUIRED FOR PLATFORM ATTACHMENT

VIEW "A-A"
NOTE: PLATFORM REMOVED FOR CLARITY

VIEW "B-B"

SECTION "C-C"

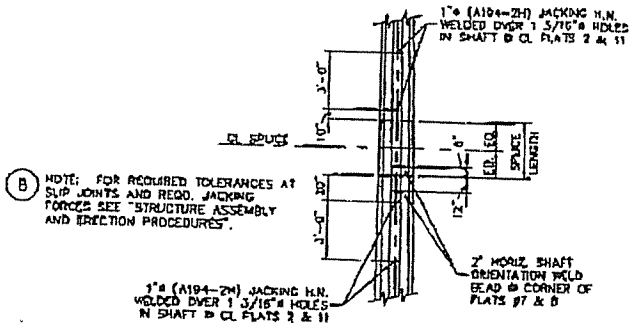
SECTION "D-D"

NOTE: ALL ELEVATIONS SHOWN FROM BOTTOM OF BASE PLATE UNLESS OTHERWISE NOTED.

ERECTION VIEW
SCALE — NONE

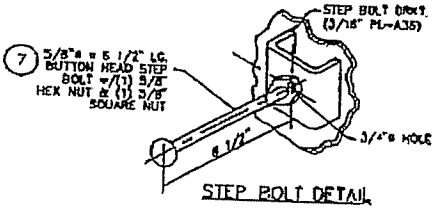
ASSEMBLY MARKING PROCEDURE

EACH INDIVIDUAL ASSEMBLY SHALL HAVE A METAL TAG WELDED TO IT WHICH WILL BE ENGRAVED WITH THE ASSEMBLY MARK NO. AS SHOWN IN THE MATERIAL BLOCK. (MINIMUM OF 5/8" HIGH LETTERS)



(8) NOTE: FOR REQUIRED TOLERANCES AT SLIP JOINTS AND REQD. JACKING FORCES SEE "STRUCTURE ASSEMBLY AND ERECTION PROCEDURES".

SLIP JOINT JACKING PROVISION DETAIL



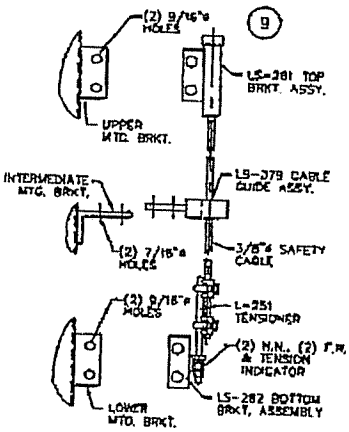
STEP BOLT DETAIL

MATERIAL REQ'D. PER ASSEMBLY

GALV. WT.	QTY.	ITEM	MK. NO.	DESCRIPTION
---	1	1	---	SHAFT ASSY. (TOP) 52.25' LG.
---	1	2	---	SHAFT ASSY. (MIDDLE) 49.50' LG.
---	1	3	---	SHAFT ASSY. (BOTTOM) 52.74' LG.
31.41	8	4	K11497	10" x 30" ACCESS PORT COVER PL
		5		HARDWARE AS FOLLOWS:
6.87	16	5A	K11097	8" x 12" HANDHOLE COVER PL
129.50	20	6	2.25-A8800E-4	2 1/4"ø x 8'-0" LG. (A615-GR75) ANCHOR BOLTS & (2) F.W.'s w/ (4) HEX NUTS (A194-2H) EACH
1.08	---	7	S10006	5/8"ø x 6 1/2" LG. BUTTON HEAD STEP BOLT w/ (1) HEX & (1) SQUARE NUT EACH
	1	8		STRUCTURE ASSEMBLY AND ERECTION PROCEDURES
	1	9	DBI-140	140'-0" SAFETY CLIMB KIT
	1	9A	L2010	SAFETY CLIMB HARNESS
120.88	2	10	20-85.00-2.25	SETTING TEMPLATE
1.50	6	11	GS13625	5/8"ø KELLUMS HOOK ASSY.
	1	12		PLATFORM ASSEMBLY PROCEDURE
1098.42	1	13	K10984A	12'-0" LOW PROFILE ANTENNA PLATFORM
40.91	12	14	K11014	8'-8" LOW PROFILE DIRECTIONAL ANTENNA MOUNTS
28.60	1	15	K10333	7' LIGHTNING ROD KIT
7.30	1	16	K10062	BUSS BAR KIT
292.32	1	17	K11128	CENTER HUB KIT

TOTAL GALV. STR. & ACCES. WT. #

TOTAL ANCHOR BOLT & TEMPLATE WT. 2831.78#



SAFETY CLIMB ATTACHMENT DETAILS

(LOCATED ALONG CL OF FLAT #8)

GENERAL NOTES

1) MONOPOLE IS DESIGNED IN ACCORDANCE WITH TIA/EIA-222F FOR 85 MPH FASTEST MILE WIND SPEED AND 1/2" RADIAL ICE (NON-SIMULTANEOUS). DESIGN MEETS THE REQUIREMENTS OF SECTIONS 1609 & 3108 OF THE 2000 & 2003 IBC FOR 105 MPH 3-SECOND GUST WIND SPEED.

2) ALL WELDS SHALL BE IN ACCORDANCE WITH AWS D.1.1. (LATEST EDITION). LONGITUDINAL SEAM WELDS WITHIN SLIP-JOINT AREA IN FEMALE SECTION SHALL BE 100% PENETRATION.

3) MONOPOLE SHALL BE HOT DIP GALVANIZED PER ASTM A123.

4) CONTRACTOR SHALL THOROUGHLY REVIEW EEI'S ASSEMBLY & ERECTION PROCEDURE PRIOR TO INITIATING THE ERECTION OF THE MONOPOLE.

5) THE ORIENTATION OF THE MONOPOLE SHALL BE VERIFIED PRIOR TO ERECTION OF THE POLE.

6) SECTIONS OF THE MONOPOLE SHALL BE JACKED TOGETHER WITH A MINIMUM JACKING FORCE OF 10,000 lbf APPLIED TO EACH SIDE. FOR A MAXIMUM RECOMMENDED JACKING FORCE, SPLICE LENGTH TOLERANCE AND AIR GAP BETWEEN SECTIONS REFER TO EEI ASSEMBLY & ERECTION PROCEDURE.

7) FOR PROPER SHAFT ALIGNMENT A 2" HORIZONTAL WELD BEAD AND A MARK ARE POSITIONED ON EACH SHAFT AT EACH SPLICE. THE 2" HORIZONTAL WELD BEADS ARE ON THE MATCHING CORNERS. THE MARK NUMBER IS ON THE ADJACENT FLAT. THE CORNERS WITH WELD BEADS SHALL BE AUGNED FROM TOP TO BOTTOM OF THE POLE. MARK NUMBERS SHALL BE MATCHED FOR EACH SIDE & THE DISTANCE BETWEEN TWO WELD BEADS SHOULD BE 18" (±4").

8) FIELD ASSEMBLY NUTS (1"ø) FOR JACKING SECTIONS TOGETHER ARE LOCATED ON OPPOSING SECTION FLATS ABOVE AND BELOW SPLICES.

9) GAP BETWEEN TOP OF THE FOUNDATION AND BOTTOM OF THE BASE PLATE MAY BE FILLED WITH A NON-SHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF f'c=2000 psi. WATER DRAINAGE MUST BE PROVIDED UNDERNEATH THE BASE PLATE TO ENSURE THAT MOISTURE DOES NOT COLLECT INSIDE THE MONOPOLE.

10) ALL BOLTED CONNECTIONS WITH A325 HIGH-STRENGTH BOLTS SHALL BE ASSEMBLED IN ACCORDANCE WITH SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS. BOLTS SHALL BE BROUGHT TO SNUG-TIGHT CONDITIONS AS RECOMMENDED BY THE FLANGE SPECIFICATIONS IN FLANGE-TYPE JOINTS AND SHOULD BE SHIMMED IF NECESSARY. THE SHIMS WILL BE SUPPLIED BY EEI.

11) ANCHOR BOLTS SHALL BE TIGHTENED AFTER THE STRUCTURE IS PLUMB, BOTH TOP & BOTTOM NUT SHALL BE TIGHTEN TO 600 ft-lbs MOMENT. FOR DETAIL ANCHOR BOLT INSTALLATION REFER TO EEI ASSEMBLY AND ERECTION PROCEDURE.

12) POLE TAPER = 0.2783in/ft.

STATE OF CONNECTICUT
MICHAEL R. MOREL
No. 21220
LICENSED PROFESSIONAL ENGINEER
10/3/05

Michael R. Morel

REV.	DESCRIPTION	DATE	DRN	APP.
0	COMPLETED APPROVAL DWG	3/7/05	K	J.L.

ENGINEERED ENDEAVORS INCORPORATED
The Experienced Point of View
7670 Jenther Drive * Mentor, OH 44060-4872
Ph: (440) 918-1101 * Ph: (888) 270-3855
Fx: (440) 918-1108 * www.engend.com

145'-0" MONOPOLE
TECTONIC
BEACON FALLS S1690 / CINGULAR #3917
NEW HAVEN COUNTY, CT

SCALE	NONE	PROJECT NO.	13674
	1 of 1	DRAWING NO.	GS55964

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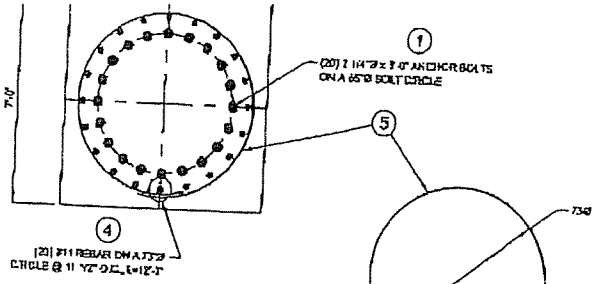
DESIGN CALCULATIONS FOR A SPREAD FOOTER FOUNDATION

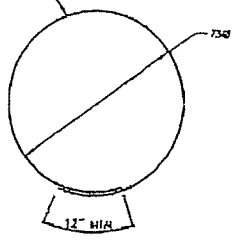
TECTONIC
145 ft Monopole

Beacon Falls / S1690
New Haven County, CT

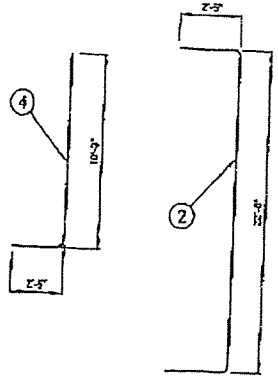
EEI Project Number 13674
October 3, 2005



SECTION "A-A"

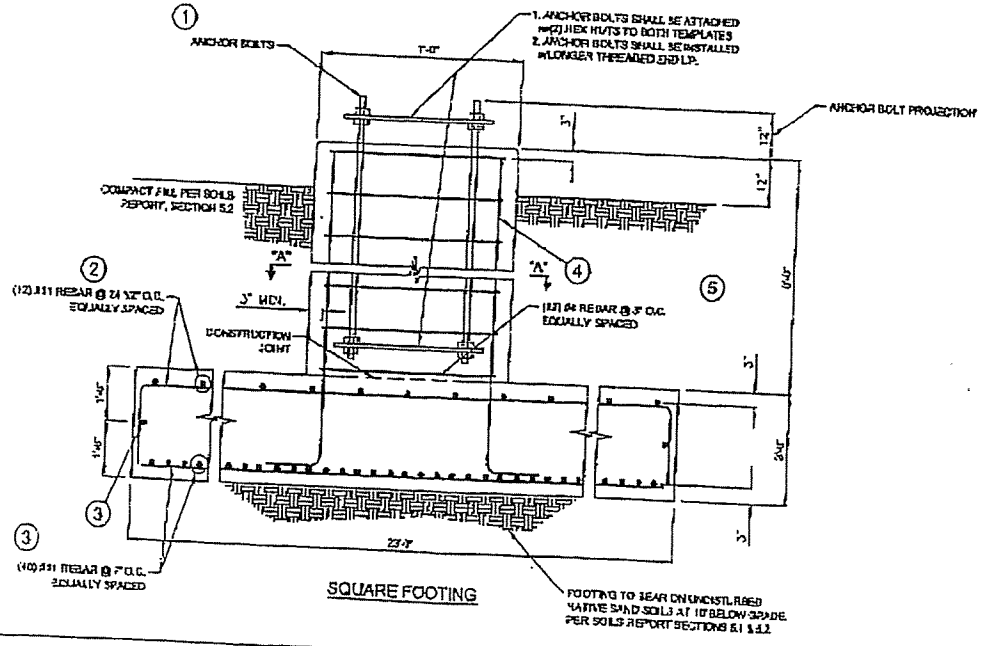


MOMENT	3311.4 kip-ft
SHEAR	11.3 kips
AXIAL	360 kips



ITEM	QTY.	DESCRIPTION
1	20	2 1/4"Ø x 3'-0" [A615-GR.75] ANCHOR BOLTS
2	24	#11 REBAR x 27'-6" [ASTM A615-GR. 60]
3	14	#11 REBAR x 22'-6" (ASTM A615-GR.60)
4	20	#11 REBAR x 12'-0" [ASTM A615-GR.60]
5	12	#4 REBAR x 21'-8" [ASTM A615-GR.60]

VOL. CONCRETE @ 4000 psi [TYPE II CEMENT]	703 yd³
STEEL [ASTM A615-GR.60]	17322.0 lbs



SQUARE FOOTING

GENERAL NOTES:

1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING: EEI JOB# 13674, DRAWING# S555554
SOIL REPORT BY TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C., REPORT NO. #T.D. 3917 BEACON - 05/17/05
2. FOUNDATION EMBEDMENT IS SHOWN FROM THE GROUND LEVEL AT THE TIME OF SOIL INVESTIGATION AS DEPICTED IN THE SOIL REPORT. SHOULD THE ACTUAL SOIL CONDITIONS DIFFER FROM THOSE OF THE REPORT, THE GEOTECHNICAL ENGINEER AND FOUNDATION DESIGNER SHOULD BE NOTIFIED IN ORDER TO RE-EVALUATE THE FOUNDATION DESIGN.
3. SOIL REPORT SHOULD BE CONSULTED PRIOR TO CONSTRUCTION. STEEL CASING OR SLURRY METHOD MAY BE REQUIRED TO PREVENT SOIL FROM CAVING DURING CONSTRUCTION. THE CASING SHOULD BE REMOVED AFTER COMPLETION OF CONCRETING OR, IF LEFT IN THE GROUND, ALL VOIDS AROUND THE CASING SHALL BE FILLED WITH PRESSURIZED GROUT. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
4. FOUNDATION EXCAVATION SHALL BE INSPECTED PRIOR TO PLACEMENT OF REINFORCEMENT AND ANCHOR BOLTS.
5. SPECIAL INSPECTION OF REINFORCEMENT, ANCHOR BOLT INSTALLATION, AND CONCRETE IS REQUIRED PER 2003 I.B.C. FOUNDATION REINFORCEMENT AND ANCHOR BOLTS SHALL BE INSPECTED PRIOR TO PLACEMENT.
6. REINFORCING STEEL SHALL CONFORM TO ASTM A615-97, Fy=60 ksi. REINFORCEMENT SHALL BE ASSEMBLED USING STEEL WIRE. WELDING IS NOT PERMITTED. MINIMUM SPLICE LENGTH FOR No. 5 BARS AND SMALLER = 44 x dBar; FOR No. 7 BARS AND LARGER = 65 x dBar. HORIZONTAL TIES SHALL BE STAGGERED WITH NO MORE THAN 50% OF SPLICES IN ONE PLACE.
7. CONCRETE MIX DESIGN AND CONSTRUCTION PROCEDURE SHALL BE IN COMPLIANCE WITH ACI 318-02, ACI 336.3R-93, AND ALL APPLICABLE STATE AND LOCAL CODES.
   a. MINIMUM COMPRESSIVE STRENGTH = 4000 psi AT 28 DAYS, USE TYPE II CEMENT UNLESS STATED OTHERWISE.
   b. CONCRETE MIX SHOULD HAVE A SLUMP OF 7" (±1") FOR DRILLED PIER AND 3" (±1") FOR MAT FOUNDATIONS.
   c. FOR DRILLED PIERS ONLY THE CONCRETE OVER THE ENTIRE LENGTH OF ANCHOR BOLTS SHALL BE VIBRATED. FOR MAT FOUNDATIONS ALL CONCRETE SHALL BE VIBRATED.
8. ANCHOR BOLT ORIENTATION IS KEY, USED PRIOR TO CONCRETE PLACEMENT. THE CONTRACTOR SHOULD CONSULT THE SITE PLAN AND MONOPOLE DRAWING FOR PROPER ACCESS PORT ORIENTATION.

REV	DESCRIPTION	DATE	DWN	CHK
1	COMPLETED DRAWING	10/3/05	N.D.	

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TECTONIC
145'-0" MONOPOLE
BEACON FALLS / S1690
NEW HAVEN COUNTY, CT

SCALE: N.T.S.	PROJECT NO.	13674	
SHEET 1 of 1	DRAWING NO.	13674S-145.0	

FOUNDATION DESIGN CALCULATIONS
FOR
SPREAD FOOTING FOUNDATION

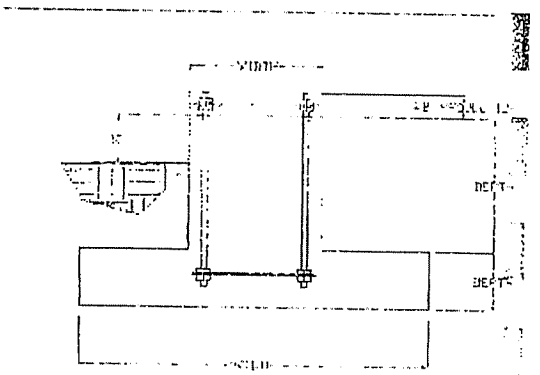
ENGINEERED ENDEAVORS INC.
*7610 Jentner Drive * Mentor, Ohio 44060*
*Tel:(216)918-1101 * Fax:(216)918-1108*

03-Oct-05
11:07 AM

CUSTOMER	TECTONIC
STRUCTURE	145' MONOPOLE
EEI PROJECT	13674
LOCATION	NEW HAVEN COUNTY, CT
SITE NAME	BEACON FALLS / S1690

SERVICE LOADS AT BASE OF THE MONOPOLE

	Design Loading
Moment, kip-ft	3311.4
Shear, kips	31.25
Axial Load, kips	36.0



Anchor Bolts	Quantity		20.0
	Length, ft		8.0
	Circle Dia., in		65.0
	Projection, in		12.0
Foundation Parameters			
Pedestal Min. Width, in			83.00
Pedestal Projection, in			12.0
Found. Min Height, ft			7.5
	Height, ft		Width, ft
Footing	3.00		23.00
Pedestal	8.00		7.00

Soil Unit Wt., pcf	120.00
Concrete Unit Wt., pcf	150.00
Slope of backfill, degrees	0.00

Foundation Weight, kips		296.85
Concrete, cub.yd.		73.30
Soil Weight, kips		403.20
Total Vertical Load, kips		736.05
Kern of Eccentricity, ft		3.83
Actual Eccentricity, ft		4.97
Overturning Moment, kip-ft		3655.15
Resisting Moment, kip-ft		8464.58
Allowable Gross Soil Pressure, ksf	N/A	
Allowable Net Soil Pressure, ksf		6.0
Gross Soil Pressure, (Service Load), ksf		

H=	7.00
B=	23.00

	(gross)	(net)
max q=	3.27	1.94
min q=	0.00	

Safety Factor	Sf=	2.32

ULTIMATE STRENGTH DESIGN OF FOOTING

CONCRETE, psi	3000
STEEL, KSI	60

SHEAR IN FOOTING

1. CASE I -DEAD LOAD, TWO-WAY SHEAR U= 1.4*D

Ultimate Vertical Load, kips	1030.47	
Ultimate Pressure, ksf	1.95	
Ultimate shear V, kips	854.67	
Design shear Vn, kips	2547.57	O.K.

2. CASE II - WIND LOAD, ONE-WAY SHEAR U=0.9*D+1.6*W

Ultimate Moment, kip-ft		5848.24	
Ultimate Vertical Load, kips		662.45	
Eccentricity, ft		8.83	
Ultimate Pressure, ksf	qult=	7.19	
Dist. from edge to critical sect., ft		5.50	
Pressure distance ft	c=	8.02	
Pressure @ critical section, ksf		2.26	
Ultimate Shear, kips		597.21	
Design Shear, kips		770.97	O.K.

FLEXURE STRENGTH DESIGN

Ultimate Moment, kip-ft		Case I	1433.70		
		Case II	7049.33	q1=	0.01
Coefficient of Resistance		Rn=	378.4		
Reinforcement Ratio		r=	0.00686		
Min. Reinforcement Ratio		r min	0.00180		
Min. Steel Area, sq.in.		A1	56.80		
Type of Bars		#	11		
		Ab,in^2=	1.56		
BOTTOM	Min. Number of Bars		36.41		
	Actual Number of Bars		40.00		
	Actual Steel Area, sq.in.		62.40		
	Steel Ratio Actual	ra=	0.00754		
	Revised Coef. of Resist	Rn=	452.07		
	Design Moment, kip-ft		8422.13		
	Horizontal Spacing, in	shor=	6.92		
TOP	Min. Steel Area, sq.in		16.39		
	Min. Number of Bars		10.51		
	Actual Number of Bars		12.00		
	Top Steel Area, sq.in		18.72		
	Horizontal Spacing, in	shor=	24.55		

PEDESTAL DESIGN

Pedestal Width, in		84
Concrete, ksi		3
Reinforcement, ksi		60
Actual Rebars , #11	Q-ty	20
Design Rebars	Q-ty	12
Minimum reinforcement ratio		0.0033
Actual reinforcement ratio		0.0044
Concrete cover , in		4
Rebar layout radius, in		37.50

Ultim. Moment	4629.8
Area, sq.in	1.56
Area, sq.in	2.60
Rebar space, in	11.78

Bending about the major axis

No.	Angle, deg	Coord., in	Edge Dist., in
1	0	37.50	4.50
2	30	32.48	9.52
3	60	18.75	23.25
4	90	0.00	42.00
5	120	-18.75	60.75
6	150	-32.48	74.48
7	180	-37.50	79.50
8	210	-32.48	74.48
9	240	-18.75	60.75
10	270	0.00	42.00
11	300	18.75	23.25
12	330	32.48	9.52

Location of neutral axis c=, in 7.78
Compression zone, a= 6.61

	No.	e	Force kips
	1	0.0013	88.73

eu= 0.003

Concrete, kips 1416.50

Total compression 1505.24

Tension zone

No.	e	Force kips
2	0.0007	50.71
3	0.0060	156.00
4	0.0132	156.00
5	0.0204	156.00
6	0.0257	156.00
7	0.0277	156.00
8	0.0257	156.00
9	0.0204	156.00
10	0.0132	156.00
11	0.0060	156.00
12	0.0007	50.71

ey= 0.00207

Total tension, kips 1505.41

Moment due to compression

Rebars	Force kips	Mom. Arm. in	Moment k-ft
1	88.73	37.50	277.30
2	0.00	32.48	0.00
12	0.00	32.48	0.00
Concrete	1416.50	38.69	4567.46

Total in compression 4844.76

Moment due to tension

Rebars	Force kips	Mom. Arm. in	Moment k-ft
2	50.71	32.48	-137.23
3	156.00	18.75	-243.75
4	156.00	0.00	0.00
5	156.00	-18.75	243.75
6	156.00	-32.48	422.19
7	156.00	-37.50	487.50
8	156.00	-32.48	422.19
9	156.00	-18.75	243.75
10	156.00	0.00	0.00
11	156.00	18.75	-243.75
12	50.71	32.48	-137.23

Total in tension 1057.41

Design moment about the major axis, kip-ft 5311.95