



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
BPH60353

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
RON PRICE
304-558-0492

VENDOR

HEMPHILL CORPORATION
 3515 DAWSON ROAD
 TULSA OK 74115

SHIP TO

HEALTH AND HUMAN RESOURCES
 BPH - TRAUMA & EMERGENCY CARE
 SYSTEM
 VARIOUS LOCALES AS INDICATED
 ON PURCHASE ORDER

DATE PRINTED 05/24/2006	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
BID OPENING DATE 06/08/2006	BID OPENING TIME 01:30PM			

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		968-15		
<p>OPEN END CONTRACT TO PROVIDE COMMUNICATION TOWERS</p> <p>OPEN END CONTRACT</p> <p>TO ESTABLISH AN OPEN END CONTRACT FOR VARIOUS COMMUNICATIONS TOWERS FOR BUILD-OUT OF THE STATEWIDE MEDICAL COMMAND MICROWAVE INTEROPERABLE COMMUNICATIONS SYSTEM PER THE ATTACHED SPECIFICATIONS.</p> <p>EXHIBIT 3</p> <p>LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE ON AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.</p> <p>UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.</p> <p>RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE: *R. Price* TELEPHONE: **918-834-2200** DATE: **6-7-06**

TITLE: **V.P.** PHONE: **73-0778629** ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required registration fee. (Effective June 8, 2006, the fee will change from \$45.00 to \$125.00 pursuant to House Bill 4031.)
5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this contract is automatically null and void, and is terminated without further order.
14. **HIPAA Business Associate Addendum:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as EQUAL to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in cases of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **DUPLICATE BIDS:** All quotations must be delivered by the bidder to the respective offices listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications.

ORIGINAL SIGNED BID TO:

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

DUPLICATE BID TO:

State Auditor's Office
Bid Observer
Building 1 Room W114
1900 Kanawha Boulevard, East
Charleston, WV 25305-0230

NOTICE: Beginning June 8, 2006, there is no need to submit a duplicate bid to the State Auditor's Office pursuant to House Bill 4031



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RFQ COPY

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HEALTH AND HUMAN RESOURCES
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<p>ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICE SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</p> <p>OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN CAUSES (INCLUDING BUT NOT LIMITED TO DELAYS IN TRANSPORTATION OR AN UNANTICIPATED INCREASE IN THE VOLUME OF WORK.)</p> <p>QUANTITIES: QUANTITIES LISTED IN THE REQUISITION ARE APPROXIMATIONS ONLY, BASED ON ESTIMATES SUPPLIED BY THE STATE SPENDING UNIT. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACT SHALL COVER THE QUANTITIES ACTUALLY ORDERED FOR DELIVERY DURING THE TERM OF THE CONTRACT, WHETHER MORE OR LESS THAN THE QUANTITIES SHOWN.</p> <p>ORDERING PROCEDURE: SPENDING UNIT(S) SHALL ISSUE A WRITTEN STATE CONTRACT ORDER (FORM NUMBER WV-39) TO THE VENDOR FOR COMMODITIES COVERED BY THIS CONTRACT. THE ORIGINAL COPY OF THE WV-39 SHALL BE MAILED TO THE VENDOR AS AUTHORIZATION FOR SHIPMENT, A SECOND COPY MAILED TO THE PURCHASING DIVISION, AND A THIRD COPY RETAINED BY THE SPENDING UNIT.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Rol... U.P</i>	TELEPHONE 919-834-2200	DATE 6-7-06
FAX 730778629	ADDRESS CHANGES TO BE NOTED ABOVE	

WHEN RESPONDING TO REQ. INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED VENDOR



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HEALTH AND HUMAN RESOURCES
 BPH - TRAUMA & EMERGENCY CARE
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<p>ORDER.</p> <p>THE TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT SHALL SUPERSEDE ANY AND ALL SUBSEQUENT TERMS AND CONDITIONS WHICH MAY APPEAR ON ANY ATTACHED PRINTED DOCUMENTS SUCH AS PRICE LISTS, ORDER FORMS, SALES AGREEMENTS OR MAINTENANCE AGREEMENTS, INCLUDING ANY ELECTRONIC MEDIUM SUCH AS CD-ROM.</p> <p>REV. 04/11/2001</p> <p>EXHIBIT 6</p> <p>PRICE ADJUSTMENT PROVISION: THE STATE OF WEST VIRGINIA WILL CONSIDER BIDS THAT CONTAIN PROVISIONS FOR PRICE ADJUSTMENTS PRIOR TO THE ORIGINAL EXPIRATION OF THE CONTRACT, PROVIDED THAT SUCH PRICE ADJUSTMENT COVERS BOTH UPWARD AND DOWNWARD MOVEMENT OF THE COMMODITY PRICE, AND THAT ADJUSTMENT IS BASED ON THE "PASS THROUGH" INCREASE OR DECREASE OF RAW MATERIALS AND/OR LABOR, WHICH MAKE UP ALL OR A SUBSTANTIAL PART OF A PRODUCT. ADJUSTMENTS ARE TO BE BASED UPON AN ACTUAL DOLLAR FIGURE, NOT A PERCENTAGE. ALL PRICE ADJUSTMENT REQUESTS MUST BE SUBSTANTIATED IN A MANNER ACCEPTABLE TO THE DIRECTOR PURCHASING, E.G. GOVERNMENTAL BENCH MARKS, GENERAL MARKET INCREASE, PUBLISHED PRICE LISTS. SUCH REQUESTS FOR AND INCREASE SHOULD BE RECEIVED IN WRITING BY THE DIRECTOR OF PURCHASING AT LEAST 30 DAYS IN ADVANCE OF THE EFFECTIVE DATE OF THE INCREASE. ANY TIME THE VENDOR REQUESTS A PRICE ADJUSTMENT, THE PURCHASING DIVISION MAY EITHER ACCEPT THE PRICE ADJUSTMENT AND AMEND THE CONTRACT ACCORDINGLY OR REJECT THE ADJUSTMENT IN ITS ENTIRETY AND CANCEL THE CONTRACT.</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

NAME: Richard TELEPHONE: 918-834-2200 DATE: 6-7-06
 U.P. FEIN: 73-0778629 ADDRESS CHANGES TO BE NOTED ABOVE

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HEALTH AND HUMAN RESOURCES
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<p>PREFERRED TERMS: IT IS PREFERRED THAT THE PRICES ON THIS CONTRACT ARE FIRM FOR LIFE OF THE CONTRACT, AS INDICATED IN THE LIFE OF CONTRACT CLAUSE CONTAINED HEREIN, NOT TO EXCEED ONE (1) YEAR.</p> <p>VENDOR PREFERENCE CERTIFICATE</p> <p>CERTIFICATION AND APPLICATION* IS HEREBY MADE FOR PREFERENCE IN ACCORDANCE WITH WEST VIRGINIA CODE, SA-3-37 (DOES NOT APPLY TO CONSTRUCTION CONTRACTS).</p> <p>A. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>() BIDDER IS AN INDIVIDUAL RESIDENT VENDOR AND HAS RESIDED CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>() BIDDER IS A PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR AND HAS MAINTAINED ITS HEAD-QUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR 80% OF THE OWNERSHIP INTEREST OF BIDDER IS HELD BY ANOTHER INDIVIDUAL, PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR WHO HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>() BIDDER IS A CORPORATION NONRESIDENT VENDOR WHICH HAS AN AFFILIATE OR SUBSIDIARY WHICH EMPLOYS A MINIMUM OF ONE HUNDRED STATE RESIDENTS AND WHICH</p>						

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SIGNATURE <i>[Signature]</i>	TELEPHONE 918-834-2200	DATE 6-7-06
FILE V.P.	FEN 73-0778629	ADDRESS CHANGES TO BE NOTED ABOVE

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BOOK

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<p>HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA CONTINUOUSLY FOR THE FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION.</p> <p>B. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>() BIDDER IS A RESIDENT VENDOR WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES WORKING ON THE PROJECT BEING BID ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID;</p> <p>OR</p> <p>() BIDDER IS A NONRESIDENT VENDOR EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS OR IS A NONRESIDENT VENDOR WITH AN AFFILIATE OR SUBSIDIARY WHICH MAINTAINS ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES OR BIDDERS' AFFILIATE'S OR SUBSIDIARY'S EMPLOYEES ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID.</p> <p>BIDDER UNDERSTANDS IF THE SECRETARY OF TAX & REVENUE DETERMINES THAT A BIDDER RECEIVING PREFERENCE HAS FAILED TO CONTINUE TO MEET THE REQUIREMENTS FOR SUCH PREFERENCE, THE SECRETARY MAY ORDER THE DIRECTOR OF PURCHASING TO: (A) RESCIND THE CONTRACT OR PURCHASE ORDER ISSUED; OR (B) ASSESS A PENALTY AGAINST SUCH BIDDER IN AN AMOUNT NOT TO EXCEED 5% OF THE BID AMOUNT AND THAT SUCH PENALTY WILL BE PAID TO THE CONTRACTING AGENCY OR DEDUCTED FROM ANY UNPAID BALANCE ON THE</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

APPROVED: *Russell* TELEPHONE: 918-834-2200 DATE: 6-7-06
 V.P. PERM: 73-0778629 ADDRESS CHANGES TO BE NOTED ABOVE

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<p>CONTRACT OR PURCHASE ORDER.</p> <p>BY SUBMISSION OF THIS CERTIFICATE, BIDDER AGREES TO DISCLOSE ANY REASONABLY REQUESTED INFORMATION TO THE PURCHASING DIVISION AND AUTHORIZES THE DEPARTMENT OF TAX AND REVENUE TO DISCLOSE TO THE DIRECTOR OF PURCHASING APPROPRIATE INFORMATION VERIFYING THAT BIDDER HAS PAID THE REQUIRED BUSINESS TAXES, PROVIDED THAT SUCH INFORMATION DOES NOT CONTAIN THE AMOUNTS OF TAXES PAID NOR ANY OTHER INFORMATION DEEMED BY THE TAX COMMISSIONER TO BE CONFIDENTIAL.</p> <p>UNDER PENALTY OF LAW FOR FALSE SWEARING (WEST VIRGINIA CODE 61-5-3), BIDDER HEREBY CERTIFIES THAT THIS CERTIFICATE IS TRUE AND ACCURATE IN ALL RESPECTS; AND THAT IF A CONTRACT IS ISSUED TO BIDDER AND IF ANYTHING CONTAINED WITHIN THIS CERTIFICATE CHANGES DURING THE TERM OF THE CONTRACT, BIDDER WILL NOTIFY THE PURCHASING DIVISION IN WRITING IMMEDIATELY.</p> <p>BIDDER: <u>Hemphill Corporation</u></p> <p>DATE: <u>6-7-06</u></p> <p>SIGNED: <u>[Signature]</u></p> <p>TITLE: <u>Vice President</u></p> <p>* CHECK ANY COMBINATION OF PREFERENCE CONSIDERATION(S) IN EITHER "A" OR "B", OR BOTH "A" AND "B" WHICH YOU ARE ENTITLED TO RECEIVE. YOU MAY REQUEST UP TO THE MAXIMUM 5% PREFERENCE FOR BOTH "A" AND "B".</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

INITIALS <u>[Signature]</u>	TELEPHONE 918-834-2200	DATE 6-7-06
TITLE V.P.	FAX 73-0778629	ADDRESS CHANGES TO BE NOTED ABOVE

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06/08/2006	01:30PM		01:30PM	

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
	(REV. 12/00)					
<p>NOTICE</p> <p>AN ORIGINAL, SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>THE BID MUST CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPES OR THE BIDS MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: 41</p> <p>RFQ. NO.: BPH60349</p> <p>BID OPENING DATE AND TIME</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:</p> <p style="text-align: center;">918-836-3139</p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY):</p> <p style="text-align: center;">Dave Morrison</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

Signature: <i>Redacted</i>	TELEPHONE: 918-834-2200	DATE: 6-7-06
FAX: 73-0778629	ADDRESS CHANGES TO BE NOTED ABOVE	

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The West Virginia Department of Health and Human Resources (DHHR), Bureau for Public Health (BPH), State Trauma and Emergency Care System (STECS) desires to establish an open-end contract for the purchase of various communications towers for the Statewide Medical Command communications and interoperable radio system as well as all state agencies and political subdivisions.

SPECIFICATIONS

1.0 General

- 1.1 Successful bidder shall pre-pay freight costs for delivery to Clarksburg, WV and/or Charleston, WV. Vendor will then be paid the actual freight costs upon submission of original freight invoice to STECS.
- 1.2 Quote shall include all applicable catalog items and accessories not specifically included with a listed tower at a fixed discounted price. Quote shall include sample of actual prices with discount applied to the following sample items:

Estimated Annual Order*	Description
15	Six (6) foot standard side arms.
15	Six (6) foot tapered side arms.
5	Safety climb device.
10	300 mm coated red beacon
10	Red side light assemble that will accept a 117 watt bulb.
6	Tower section with 12 inch face and 10 feet long (capable of telescoping into adjoining sections.)
6	Tower section with 18 inch face and 10 feet long (capable of telescoping into adjoining sections.)
25	¼ inch eye to eye turnbuckles
25	3/8 inch eye to eye turnbuckles
25	½ inch eye to eye turnbuckles
25	¼ inch eye to jaw turnbuckles
25	3/8 inch eye to jaw turnbuckles
25	½ inch eye to jaw turnbuckles

*Above numbers are sample estimates only. The actual number ordered may be more or less.

NOTE: Bid MUST include a percent discount to be applied to all catalog items and applied to the sample items listed above.

- 1.3 Quote shall be valid for a period of one year from date of opening with option to renew for two (2) additional one year periods.
- 1.4 Quote shall include samples of pertinent warranties. Bidder must warranty product for a minimum of one (1) year.
- 1.5 Delivery must be guaranteed no greater than eight (8) weeks after each tower order date.
- 1.6 All towers must meet industry standards. (i.e. UL listing, FCC, IEEE)
- 1.7 Manufacturer must have manufactured like structures of proven quality for a minimum of five (5) years, and provide at least three (3) references of actual projects completed of like structures.

2.0 Detail Specifications for Communications Towers

This request is for pricing for materials, parts and delivery necessary for the construction of various communications towers. It does not include installation of the tower. Bidder shall include costs based on the sample number of towers listed in the chart below. Tower sizes, types, and sample number requested are as follows:

Estimated Annual Order*	Self Supporting
1	140' self supporting
1	160' self supporting
2	180' self supporting
1	200' self supporting
1	220' self supporting
2	240' self supporting
1	260' self supporting
1	280' self supporting
2	300' self supporting
2	320' self supporting
2	340' self supporting
	Guyed
1	160' guyed
1	200' guyed
1	240' guyed
1	280' guyed
1	320' guyed
1	360' guyed
1	400' guyed
1	440' guyed
4	480' guyed

*Above numbers are sample estimates only. The actual number ordered may be more or less.

- 2.1 Towers will be constructed on an equilateral triangle pattern with steel legs and cross bracing members of either bolted or welded construction. The triangular size shall be sufficient to meet EIA standards as per the International Building Code acceptance. All tower sections and accessories will be hot dipped galvanized after fabrication according to ASTM specification A-123, which gives a minimum of 2 oz. of zinc per square foot of surface.
- 2.2 Towers will be designed for a wind load of 90 mph - 3 second gusts, with 1/2" radial ice per the EIA Standards and the International Building Code acceptance. Wind and ice shall be considered on the tower, antenna, guys, and all appurtenances. The manufacturer should consider that the structures are for essential facilities. Importance factors should be adjusted accordingly.
- 2.3 Towers shall be able to accommodate torque arms at appropriate locations to support 6 GHZ microwave dishes and directional antenna. (All guyed towers shall have minimum face width of 40 inches or greater, measured to the outside of the tower legs on the face)
- 2.4 Towers shall have a lightning rod assembly designed to be mounted higher than the uppermost antenna.
- 2.5 Towers will have a climbing leg or step pegs designed to meet current EIA standards per the International Building Code acceptance.
- 2.6 Towers shall be designed for waveguide ladders on three (3) faces. Waveguide ladders shall accommodate snap-in and bolt-on style hangers with a minimum of 12 holes. Guyed towers shall have waveguide brace brackets
- 2.7 Towers shall be designed and fabricated according to the EIA standards per the International Building Code acceptance. All tower design and engineering data must be submitted to the purchaser prior to delivery of tower.
- 2.8 All tower members shall be designed to allow easy inspection of all surfaces for possible corrosion.
- 2.9 The shaft of guyed towers shall be supported on a point mount at the center of the foundation in a manner to prevent transmission of binding forces between tower and concrete base.
- 2.10 Structural steel shall comply with the latest specifications for structural steel for bridges and buildings.
- 2.11 All welding shall be x-ray quality and conform to latest AISC and AWS standards.
- 2.12 Any members that are received buckled or bent must be replaced.

- 2.13 Nuts and bolts shall conform to the latest ASTM standards. Split ring lock nuts shall be supplied to secure all nuts.
- 2.14 All guy strands shall be extra high strength and conform to latest ASTM specifications, with class A zinc coating.
- 2.15 Tower guys shall be provided with a turnbuckle safety at each anchor point.
- 2.16 Tower guys shall each be provided as one continuous strand from anchor point to the tower.
- 2.17 Towers shall have grounding plates attached to each leg at tapered base section to accommodate thermo weld connection of ground wires.
- 2.18 Tower will be supplied with tower lighting package as appropriate to its height.
- 2.19 Tower lighting package shall be a dual lighting system. Components shall consist of white strobe light(s) to be operational during the daytime and red light(s) to be operational at night.
- 2.20 Tower lighting package shall include necessary control equipment to monitor tower lights.
- 2.21 Ice shields shall be provided for center beacons where applicable.
- 2.22 Tower package shall include a 12 foot sector boom to be mounted at the top of the structure with 12 antenna locations on the boom. In addition, the tower shall be designed to accommodate up to ten (10) UHF/VHF antenna on 6 foot side arms distributed equally over the tower height down to a height of 50 feet. Antennas will be up to 18 ft. in length.

2.23 Each tower shall be designed to accommodate additional attachments as per the following table:

Tower Loading Requirements			
140 self	4-8' HP 6 GHZ dishes - 80' to 130'	4-6' HP 6 GHZ dishes - 80' to 130'	12' sector boom at top
160 self	4-8' HP 6 GHZ dishes - 80' to 150'	4-6' HP 6 GHZ dishes - 80' to 150'	12' sector boom at top
180 self	4-8' HP 6 GHZ dishes - 80' to 170'	4-6' HP 6 GHZ dishes - 80' to 170'	12' sector boom at top
200 self	4-8' HP 6 GHZ dishes - 80' to 190'	4-6' HP 6 GHZ dishes - 80' to 190'	12' sector boom at top
220 self	4-8' HP 6 GHZ dishes - 80' to 210'	4-6' HP 6 GHZ dishes - 80' to 210'	12' sector boom at top
240 self	4-8' HP 6 GHZ dishes - 80' to 230'	4-6' HP 6 GHZ dishes - 80' to 230'	12' sector boom at top
260 self	4-8' HP 6 GHZ dishes - 80' to 250'	4-6' HP 6 GHZ dishes - 80' to 250'	12' sector boom at top
280 self	4-8' HP 6 GHZ dishes - 80' to 270'	4-6' HP 6 GHZ dishes - 80' to 270'	12' sector boom at top
300 self	4-8' HP 6 GHZ dishes - 80' to 290'	4-6' HP 6 GHZ dishes - 80' to 290'	12' sector boom at top
320 self	4-8' HP 6 GHZ dishes - 80' to 310'	4-6' HP 6 GHZ dishes - 80' to 310'	12' sector boom at top
340 self	4-8' HP 6 GHZ dishes - 80' to 330'	4-6' HP 6 GHZ dishes - 80' to 330'	12' sector boom at top
160 guyed	4-8' HP 6 GHZ dishes - 80' to 150'	4-6' HP 6 GHZ dishes - 80' to 150'	12' sector boom at top
200 guyed	4-8' HP 6 GHZ dishes - 80' to 190'	4-6' HP 6 GHZ dishes - 80' to 190'	12' sector boom at top
240 guyed	4-8' HP 6 GHZ dishes - 80' to 230'	4-6' HP 6 GHZ dishes - 80' to 230'	12' sector boom at top
280 guyed	4-8' HP 6 GHZ dishes - 80' to 270'	4-6' HP 6 GHZ dishes - 80' to 270'	12' sector boom at top
320 guyed	4-8' HP 6 GHZ dishes - 80' to 310'	4-6' HP 6 GHZ dishes - 80' to 310'	12' sector boom at top
360 guyed	4-8' HP 6 GHZ dishes - 80' to 350'	4-6' HP 6 GHZ dishes - 80' to 350'	12' sector boom at top
400 guyed	4-8' HP 6 GHZ dishes - 80' to 390'	4-6' HP 6 GHZ dishes - 80' to 390'	12' sector boom at top
440 guyed	4-8' HP 6 GHZ dishes - 80' to 430'	4-6' HP 6 GHZ dishes - 80' to 430'	12' sector boom at top
480 guyed	4-8' HP 6 GHZ dishes - 80' to 470'	4-6' HP 6 GHZ dishes - 80' to 470'	12' sector boom at top

The above loading should also include ice shields over dishes. Towers should also be designed for multiple cellular carriers in lieu of same locations where dishes are located. (Microwave Dishes with ray domes are back to back at four locations equally distributed over the mounting height range specified in the above chart.)

2.24 The following drawings shall be furnished by the successful vendor, for each tower at the time of ordering:

- Four (4) copies of tower design and calculation sheets
- Four (4) copies of foundation plans
- Four (4) copies of guying specifications
- Four (4) copies of final erection drawings

Samples of the above documents should be provided with this quote.

2.25 All tower drawings shall have a West Virginia PE stamp or seal.

2.26 All tower foundation drawings shall have a West Virginia PE stamp or seal.

2.27 Each structural member shall be identified by a part number and any parts with the same part number must be interchangeable. This will result in tower sections capable of being installed in any 120 degree rotation without changing the tower structurally. Match marking requirements of tower sections by the manufacturer, for proper assembly, shall not be acceptable.

- 2.28 Tubular leg members shall maintain an open interior diameter through the flange plate at least as large as the inside diameter of the pipe and electrically welded externally and internally.
- 2.29 Flanged leg connections shall utilize a minimum of four bolts per leg. Tower leg members shall utilize a 50 KSI minimum yield strength.
- 2.30 The tower manufacturer shall maintain the highest quality steel manufacturing standards for production. Only AWS certified welders shall be employed for tower fabrication. A fully qualified quality control department shall be employed with a quality control manual maintained to establish minimum acceptable fabrication standards, procedures, and requirements for documentation.
- 2.31 All Self Supporting towers indicated should assume normal soil and level ground.
- 2.32 All Guy Towers should assume normal soil, with 50 ft. drop in elevation from tower base to its farthest anchor point.

EVALUATION SHEET - TOWERS

Estimated Annual Order	Self Supporting	Unit Cost	Total Cost
1	140' self supporting	\$ 23,455.00	\$ 23,455.00
1	160' self supporting	\$ 26,930.00	\$ 26,930.00
2	180' self supporting	\$ 30,464.00	\$ 60,928.00
1	200' self supporting	\$ 41,000.00	\$ 41,000.00
1	220' self supporting	\$ 44,846.00	\$ 44,846.00
2	240' self supporting	\$ 50,947.00	\$ 101,894.00
1	260' self supporting	\$ 57,593.00	\$ 57,593.00
1	280' self supporting	\$ 64,240.00	\$ 64,240.00
2	300' self supporting	\$ 70,885.00	\$ 141,770.00
2	320' self supporting	\$ 77,532.00	\$ 155,064.00
2	340' self supporting	\$ 87,087.00	\$ 174,174.00
	Guyed		
1	160' guyed	\$ 19,997.00	\$ 19,997.00
1	200' guyed	\$ 30,593.00	\$ 30,593.00
1	240' guyed	\$ 34,354.00	\$ 34,354.00
1	280' guyed	\$ 38,117.00	\$ 38,117.00
1	320' guyed	\$ 41,878.00	\$ 41,878.00
1	360' guyed	\$ 56,841.00	\$ 56,841.00
1	400' guyed	\$ 60,603.00	\$ 60,603.00
1	440' guyed	\$ 64,365.00	\$ 64,365.00
4	480' guyed	\$ 68,126.00	\$ 272,504.00
	GRAND TOTAL	\$ 989,853.00	\$ 1,511,146.00

*Above numbers are sample estimates only. The actual number ordered may be more or less

EVALUATION SHEET - TOWER ACCESSORIES

Fixed discount price for catalog accessories: Five (5) %

Quote of above discount applied to the following sample items:

Estimated Annual Order	Description	Unit Cost	Total Cost
15	Six (6) foot standard side arms.	\$ 650.00	\$ 9,750.00
15	Six (6) foot tapered side arms.	\$ 650.00	\$ 9,750.00
5	Safety climb device.	\$ 274.00	\$ 1,370.00
10	300 mm coated red beacon	\$ 1,900.00	\$ 19,000.00
10	Red side light assembly that will accept a 117 watt bulb.	\$ 392.00	\$ 3,920.00
6	Tower section with 12 inch face and 10 feet long (capable of telescoping into adjoining sections.)	\$ 1,000.00	\$ 6,000.00
6	Tower section with 18 inch face and 10 feet long (capable of telescoping into adjoining sections.)	\$ 1,200.00	\$ 7,200.00
25	1/4 inch eye to eye turnbuckles	\$ 18.00	\$ 450.00
25	3/8 inch eye to eye turnbuckles	\$ 22.00	\$ 550.00
25	1/2 inch eye to eye turnbuckles	\$ 30.00	\$ 750.00
25	1/4 inch eye to jaw turnbuckles	\$ 15.00	\$ 375.00
25	3/8 inch eye to jaw turnbuckles	\$ 18.00	\$ 450.00
25	1/2 inch eye to jaw turnbuckles	\$ 25.00	\$ 625.00
	GRAND TOTAL	\$ 6,194.00	\$ 60,190.00

*Above numbers are sample estimates only. The actual number ordered may be more or less

State of West Virginia
RFQ Number: BHP060353

Specification No.1.4: Please see attached warranty.

Hemphill Corporation Terms and Conditions Relating to Sales

WARRANTY

Hemphill Corporation warrants all products to be reasonably fit for the purpose for which they are designed and manufactured and are to be free from material and manufacturing defects. This warranty extends for a period of one year from the date of shipment provided the Purchaser installs the product in accordance with Hemphill Corporation's recommended policy and procedures. This warranty shall be voided if the Purchaser installs items not conforming to Hemphill Corporation's plans and specifications.

The above warranty applies only to Hemphill Corporation manufactured products. All items supplied by Hemphill Corporation but manufactured by others are warranted only to the extent that those items are warranted to Hemphill Corporation and then only to the extent that Hemphill Corporation is responsible to enforce said warranty. This warranty does not apply where there has been unreasonable use, negligence, accident, or modifications not previously authorized by Hemphill Corporation or improper alteration or repair. This warranty is further inapplicable in instances of flood, fire, hurricanes, tornadoes, earthquakes, lightning, or winds or ice in excess of anticipated design criteria, or in instances when tower modifications are not made pursuant to and in strict accordance with Hemphill Corporation's written instructions.

Should products furnished by Hemphill Corporation fail to perform as designed and specified, whether due to Hemphill Corporation's neglect or omission, the Purchaser's exclusive remedy shall be to obtain repair or replacement of the nonconforming product. The decision to repair or replace a nonconforming product rests solely with Hemphill Corporation. Hemphill Corporation liability extends only to cover the costs associated with the repair or replacement of the nonconforming product including the costs of labor, manufacturing, and materials F.O.B. Hemphill Corporation plant. Hemphill Corporation shall in no event be liable to third persons for any claims or damages including special, direct, indirect, incidental, or consequential damages due to a nonconforming product. The Buyer agrees to indemnify and hold Hemphill Corporation harmless for, of, and from any loss, claims, damages, expenses and attorney's fees, including but not limited to, any fines, penalties and corrective measures Hemphill Corporation may sustain by reason of the Buyer's failure to comply with said laws, rules, and regulations in connection with the performance of this sale.

The above warranty is made in lieu of all other warranties either express or implied including, but not limited to, warranty as to product, material, workmanship, or manufacturer.

PRICING and TERMS

It is the Purchaser's responsibility to provide to Hemphill Corporation all design loading specifications (wind loads, ice loads, antenna loading, foundation elevations and geotechnical information) based on site-specific information. All quotes shall be valid for a period of sixty (60) days from the date of the quote unless otherwise stated. All prices are FOB Tulsa, Oklahoma, unless otherwise stated. No Federal, State, or local taxes are included in the quoted price. Should Hemphill Corporation be required to collect or pay any levied tax, the product price shall be subject to increase by the amount of any tax imposed. This increase will be assessed without notification. Applicable taxes may include, but are not limited to, the following: sales, use or consumption, delivery, storage, processing, and purchase taxes.

Catalog pricing is not to be construed as a quote and is subject to change without notice being given.

Orders are to be invoiced the earlier of the date shipped or the originally scheduled shipping date.

Terms are NET 30 days on approved credit. All accounts not paid within thirty (30) days of the invoice date are subject to a 1½% per month service charge. All costs associated with collecting delinquent accounts, including costs and attorney fees, shall be charged to the Purchaser.

CREDIT

All purchase orders are subject to approval by Hemphill Corporation's Credit Department. Hemphill Corporation shall reserve the right to, at any time, decline to accept, manufacture, and ship or deliver any order based upon a Purchaser's credit status except upon receipt of payment, security or upon other terms satisfactory to Hemphill Corporation. Under no condition shall credit be extended to those accounts with an outstanding balance more than 90 days old. All remittances and credits are first applied to Purchaser's oldest account balances.

ORDERS, MODIFICATIONS and CANCELLATIONS

Orders for the design and fabrication of products are only accepted in writing on Buyer's purchase orders. No verbal purchase orders shall be accepted. A \$250.00 minimum shall be imposed on all orders.

All modifications to the originally quoted product must be made in writing and are subject to approval and acceptance by Hemphill Corporation. Acceptance of modifications may result in changes in the quoted price. No work will be performed on modified products until accepted, in writing, by all parties. Hemphill Corporation reserves the right to make modifications to its products specifications and may substitute any material or component with a replacement of equal or superior quality.

No order may be canceled after acceptance by Hemphill Corporation unless agreed to in writing. All requests for cancellation must be received by Hemphill Corporation in writing. If the Purchaser makes a written request to cancel all, or any portion, of an order before any work has commenced then the cancellation shall be subject to a \$500.00 cancellation fee. If a written request for cancellation is received after work on the order has commenced, Purchaser shall be responsible for, and assessed, a charge representing the reasonable costs of the services performed and materials utilized to the point of cancellation, plus a reasonable profit. The reasonableness of the amount charged for the canceled services is solely the determination of Hemphill Corporation. Purchaser shall have the right to receive the materials produced at the point of cancellation, if so desired.

RETURNS

No product may be returned without the express written consent of Hemphill Corporation. All items must be returned within sixty (60) days of the date of delivery. All returned items are subject to a minimum restocking fee of 25% of the purchase price plus the transportation cost. All items being returned must be in the original packaging, if any, be accompanied by the original shipping documentation and be in new condition. For all items accepted for return, Purchaser shall receive credit less any restocking and transporting fees. The amount of credit to be issued for returned product rests solely with Hemphill Corporation. Under no condition will Hemphill Corporation accept for return any electrical, lighting, insulation, safety equipment or nuts and bolts.

RISK OF LOSS

Risk of loss passes from Hemphill Corporation to the Purchaser when the products are delivered to the carrier. Title is retained by Hemphill Corporation until paid in full by Purchaser. All products are carefully inspected by Hemphill Corporation at the time of delivery to the carrier. Hemphill Corporation does not assume responsibility for damages or shortages that occur in transit. Buyer must make all claims and report all damages and losses to the delivering transportation company. Purchaser is advised to inspect the shipment prior to accepting delivery. Purchaser, not the carrier or Hemphill Corporation, is responsible for the unloading of the shipment. Upon arrival of a Hemphill Corporation communications tower at the job site or storage facility all components must be inventoried and signed for when received. Customers will have forty-eight (48) hours after delivery of the tower to report any shortages. Any components or parts requested after this period of time will be invoiced to the customer plus any freight and handling charges incurred. Any claim for shortage resulting from Hemphill Corporation must be made within forty-eight (48) hours of receipt of delivery. In the event Purchaser fails to pay for the products delivered, Hemphill Corporation, at their option, may repossess all unpaid items and charge Purchaser for the cost of repossessing.

FORCE MAJEURE

Hemphill Corporation will make every effort to maintain shipping schedules, however, Hemphill Corporation shall be excused for any delay or failure to perform to the extent that any delay or failure in performance results from any cause beyond Hemphill Corporation's reasonable control and without its fault or negligence, such as acts of God, acts of civil or military authority, embargoes, availability of raw materials, fuel and transportation, epidemics, war, riots, insurrections, fires, explosions, earthquakes, floods, unusually severe weather conditions or strikes.

SHIPPING and FREIGHT

Quoted pricing includes packaging for standard ground transportation shipment. Purchaser must request and specify any special packaging and shipping requirements. Pricing for special packaging and shipping will be quoted upon request. Shipping time will commence upon receipt of the purchase order.

Purchaser is responsible for providing accurate directions to the site of delivery. All risk of delay and associated costs resulting from inaccurate delivery instructions shall be borne by the Purchaser. Hemphill Corporation shall not be responsible for any back-charges resulting from freight delays.

Purchaser is responsible for specifying the freight and routing requirements in the written purchase order. In the event conflicting instructions are received, after the purchase order, the last received set of written orders shall control. All freight charges shall be borne by the Purchaser unless otherwise quoted. Purchaser, not the carrier or Hemphill Corporation, is responsible for the unloading of the shipment.

Purchaser is to provide right of ingress and egress and the site of delivery is to be readily accessible to a tractor with trailer up to sixty (60) feet long with a gross vehicle weight up to 80,000 pounds. Any property damage incurred as a result of ingress and egress to the site will be Purchaser's responsibility.

STORAGE

All orders that are not released for shipping, at the Purchaser's request, within fifteen (15) days of the date of delivery specified in the quote or purchase order shall be assessed a storage fee of 1½% of the purchase price per month. Purchaser must provide seven (7) days notice prior to shipping stored items.

NON-WAIVER

No waiver by Hemphill Corporation of a Purchaser breach of any of these terms and conditions shall be construed as a waiver of any other term or breach.

NON-DISCLOSURE

Purchaser shall not disclose or publish to any other entity, individual or the public any proprietary

information pertaining to Hemphill Corporation products including, but not limited to, plans, specifications, drawings, or pricing information. Assembly drawings may be disseminated as necessary to erectors and maintenance personnel.

CHOICE OF LAW

Purchaser acknowledges that the laws and procedures of the state of Oklahoma, in effect on the date of the order, shall govern and apply to the resolution or litigation of any disputes arising under this agreement.

THE AGREEMENT

By submitting a purchase order for Hemphill Corporation products, Hemphill Corporation conclusively presumes that Purchaser accepts the terms and conditions stated herein unless specific written objections are received prior to the receipt of the order.

AFFIDAVIT

West Virginia Code §5A-3-10a states:

No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions.

"Political subdivision" means any county commission, municipality, county board of education, any instrumentality established by a county or municipality, any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law, or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION:

The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

LICENSING:

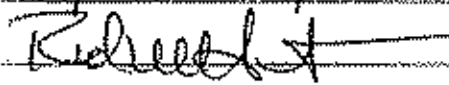
The vendor must be licensed in accordance with any and all state requirements to do business with the state of West Virginia

CONFIDENTIALITY:

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit www.state.wv.us/admin/purchase/privacy for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name: Hemphill Corporation

Authorized Signature:  Date: 6-7-06

State of West Virginia
RFQ Number: BHP060353

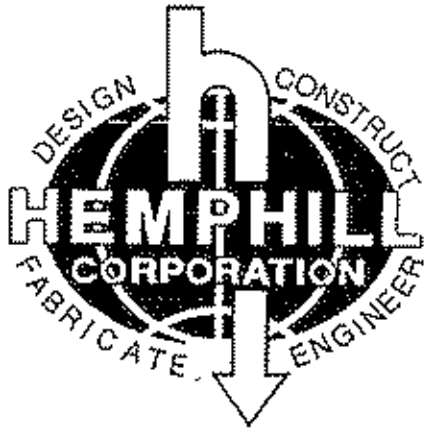
Specification No.1.7: Hemphill Corporation has manufactured towers since 1996.
Please see the following references of completed projects of like structures:

1. Mr. Michael Kehoe
Verizon Wireless
Two Verizon Place
Roswell, GA 30076
Off: 770-667-4708
2. Mr. Fred Smart, Director
Harrison County West Virginia
Office of Emergency Services
420 Buckhannon Pike
Nutter Fort, WV 26301
Off: 304-623-4115
Fax: 304-623-6558
3. Ms. Cindy Whetsell
Grant County West Virginia
Sheriff's Office
5 Highland Avenue
Petersburg, WV 26847
Off: 304-257-9645

State of West Virginia
RFQ Number: BHP060353

Specification No. 2.24: Please see attached examples of tower design and calculation sheets, foundation plans, guying specifications, and erections drawings.

Tower Permit Drawings & Information



Tower Division

3515 Dawson Rd.
Tulsa, OK 74115
(918) 834-2200

Customer: *Hemphill Corporation*

Site: *Hwy 431/CR74, AL*

City: *Hwy 431/CR74, AL*

Job No.: *1414*

Model: *SST*

Tower Ht.: *250'*

Loading: *70 mph 1/2" Ice*

Date: *July 13, 2005*

APPROPRIATE LOADING

- STD BEACON/SIGNAL LIGHT W/ 1" CONDUIT AT 250' ELEVATION.
- (3) STD. 12" P.S.G. MOUNTS W/ (3) 10' x 5' HP ANTENNAS & (2) 5' x 1' PANEL ANTENNAS AT 260' ELEV. FED BY 1 5/8" COAX.
- (3) STD. 12" PHOTING SECTOR GATE MOUNTS W/ (6) 5' x 1' PANEL ANTENNAS AT 210', 230', & 190' ELEV'S FED BY 1 5/8" COAX.
- (2) 8" DIA HP SOLID RISHES AT 170' ELEVATION EACH FED BY 1 5/8" COAX.
- (3 EA) WAVEGUIDE LADDERS
- (1 EA) STEEL BOLTS W/ SAFETY CLIMB TO 250' HEIGHT

TOWER DESIGN LOADING

- TOWER IS DESIGNED PER EA/TIA-222F FOR 70 MPH WIND LOAD WITH 1/8" ICE.
- TRANSMISSION LADDERS AND LINES MUST BE EVENLY DISTRIBUTED ON ALL (3) FACED.

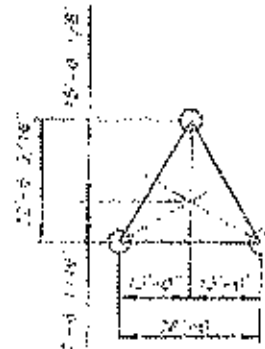
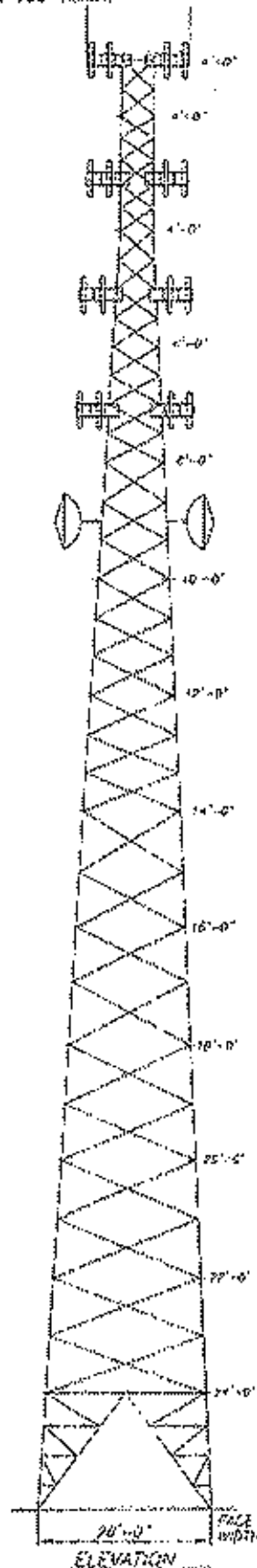
REFERENCE DRAWINGS

- FOUNDATION DRAWINGS
 - TOWER BASE A-AB09
 - ANCHOR BOLT A-A03
 - BASE GROUT A-SS0071
 - GROUNDING A-GR013
- CELL MOUNT N/A
- DISH MOUNTS N/A
- BRACING LACING A-WB13
- SAFETY CLIMB B-SAFETY
- ICE SHIELD N/A
- LIGHTNING ROD A-LTR0077
- WAVEGUIDE LADDER N/A
- WAVEGUIDE BRIDGE N/A
- WAVEGUIDE BRIDGE N/A
- BEACON MOUNT N/A
- LIGHTNING DIAPHRAM N/A
- SIDE LIGHTS N/A
- FOR SECTION ASSEMBLY SEE DRAWING A-ASSTY 00

FOR SELECTION OF SIGNAL LIGHTING W/ (1) BEACON / SIGNAL AT 250' ELEVATION
(2) RED OBSTRUCTION LIGHTS AT 125' ELEVATION

Not applicable
Not applicable
Not applicable
Not applicable
Not applicable

250'	2" SCH 40	1.4" x 1.75" x 3/16"
240'		
230'		
220'		
210'		
200'	3" SCH 40	1.7" x 2.125" x 1/4"
180'		
170'	4" SCH 40	1.7" x 2.125" x 1/4"
160'		
150'		
140'		
130'	5" SCH 40	1.8" x 2.5" x 1/4"
120'		
110'		
100'	6" SCH 40	1.8" x 2.5" x 1/4"
90'		
80'		
70'	8" SCH 40	1.8" x 2.5" x 1/4"
60'		
50'		
40'		
30'		
20'		
10'		
0'		



PLAN VIEW

BASE REACTIONS

Overturn	4,973.0 K-FT
Shear	37.8 KIPS
Weight	72.8 KIPS
Uplift	198.4 KIPS
Compression	235.4 KIPS



Rev.	Description	Date	By
1	250' Self Support Tower		
2	Memphis Corporation		
3	Site Map (3/1/07) E.		
4	Drawn	1/11/07	JAB
5	Checked	1/11/07	JAB
6	Approved	1/11/07	JAB

Tower Division

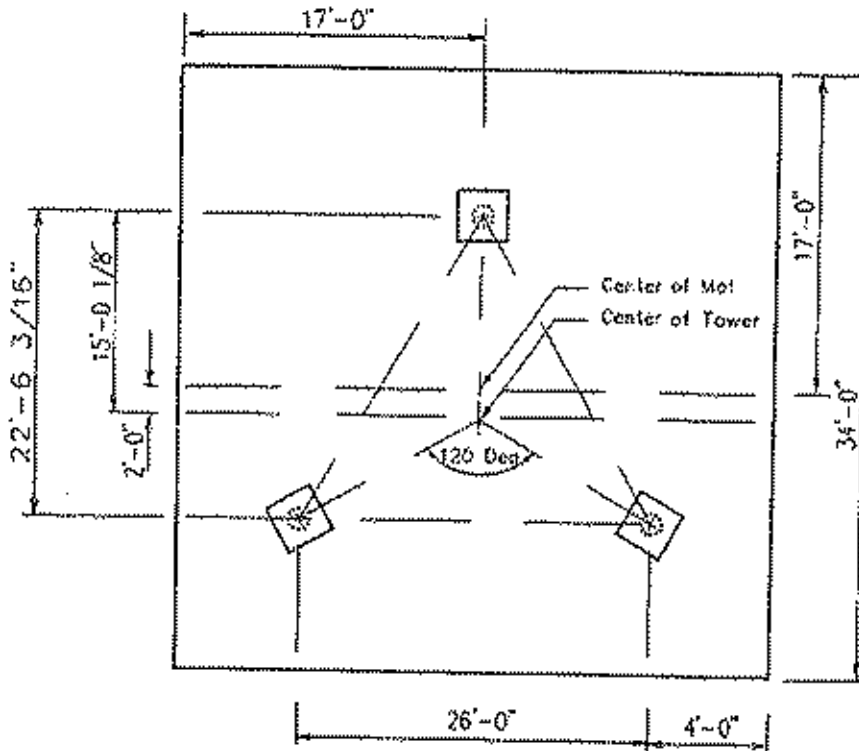
HEMPHILL CORPORATION
 3515 DAWSON ROAD
 TULSA, OK 74115

OFFICE: 918-834-2200

FAX: 918-836-7109

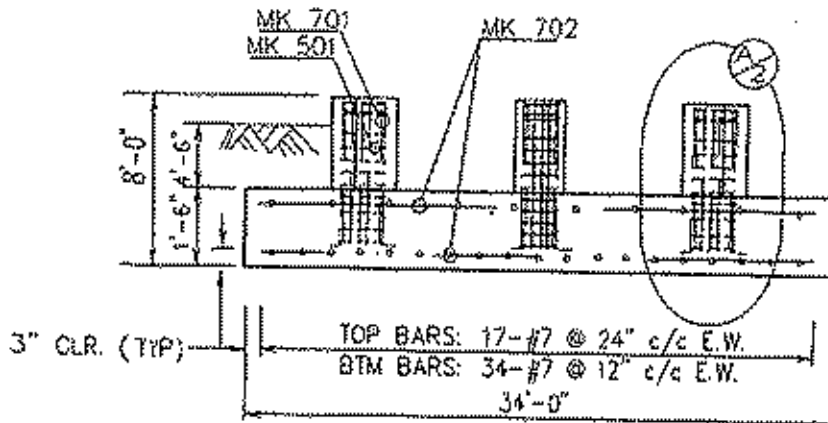
MAT FOUNDATION

(NOT TO SCALE)



NOTE:

Cylindrical pedestals 4'-0" in diameter may be used in place of the 3'-6" square pedestals pictured.



ON: 205131

MATERIAL SPECIFICATIONS		REBAR SCHEDULE			DESIGN LOADS*	
CONCRETE: ACI A318-95 ($f_c=3$ ksi)	REBAR: ASTM A615 GR. 60 TIES: ASTM A615 GR. 60	MARK	DIAMETER	LENGTH	QUANTITY	VERTICAL FORCE: 72.9 Kips
501		0.625	11'-8"	15x3 = 45	HORIZONTAL FORCE: 37.8 Kips	
701		0.875	9'-4"	10x3 = 48	O.T. MOMENT: 4973 Ft-Kips	
		702	0.875	39'-6"	102	* Per Hemphill Dwg. E-1414 dated 7/13/05
NUMBER REQUIRED:	1	CONCRETE: 73.07 cu.yd. (net)				
BY: JMS	DATE: 8/7/05	CLIENT: HEMPHILL CORPORATION				
JOB NO: 1414	DWG. NO: 1414-1 of 3	PROJECT: 250 FOOT SELF SUPPORTING TOWER				
		SITE: HWY 431/CR 74, AL				
		SITE NO.:				

HEMPHILL CORPORATION

3515 DAWSON ROAD


TULSA, OK 74115

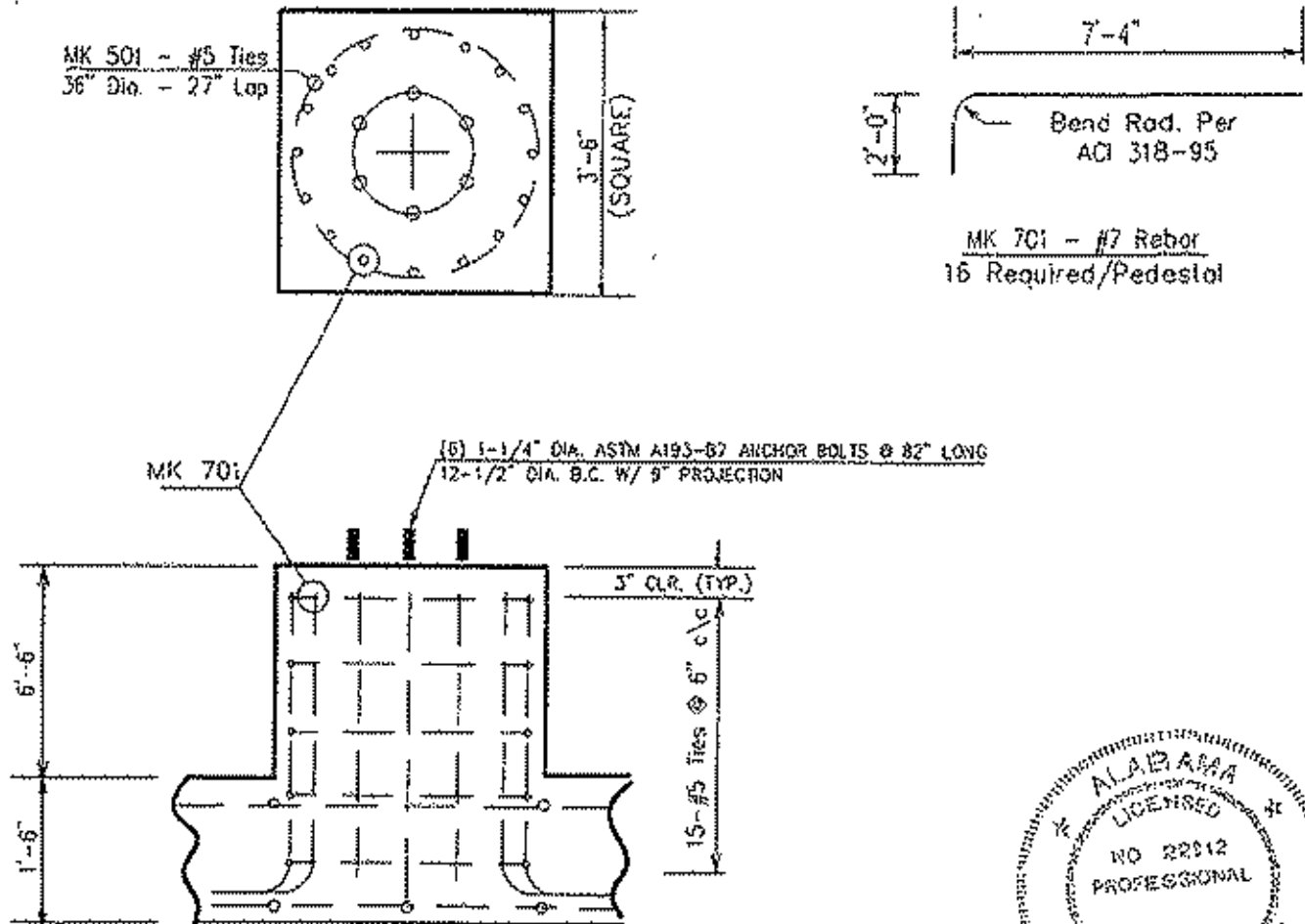
OFFICE: 918-834-2200

FAX: 918-836-7109

MAT FOUNDATION

(NOT TO SCALE)

Detail  Pedestal
(Typical - 3 Pieces)



NOTES:

1. Tower location and orientation to be provided by Client.
2. Tower footprint plan and dimensions are per Hemphill Drawing No. B-1414 dated 7/13/05.
3. Tower footprint template to be provided by Hemphill Corporation.
4. Anchor bolts and templates to be provided by Hemphill Corporation.
5. Design based on site conditions presented by Hemphill.
6. Construction tolerances for foundations shall be per Hemphill Drawing No. 1414-3, of 3.

DESIGN LOADS *

DOWN LOAD: 198.4 Kips
UP LOAD: 235.4 Kips
SHEAR/LEG: 22.6 Kips

* Per Hemphill Dwg. B-1414 dated 7/13/05

BY: JMS	DATE: 8/7/05	CLIENT: HEMPHILL CORPORATION
JOB NO: 1414	DWG. NO: 1414-2 of 3	PROJECT: 250 FOOT SELF SUPPORTING TOWER
		SITE: HWY 431/CR 74, AL
		SITE NO:

HEMPHILL CORPORATION

3515 DAWSON ROAD

TULSA, OK 74115

OFFICE: 918-834-2200

FAX: 918-836-7109

TOWER FOUNDATIONS AND ANCHORS

STANDARD SPECIFICATION

1. Foundation designs are in accordance with ANSI/EIA 222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures.
2. Work shall comply with local codes, safety regulations, and unless noted otherwise, the most recent edition of ACI 318, "Building Code Requirements for Structural Concrete". Procedures for the protection of excavations, existing construction, and utilities shall be established prior to foundation construction.
3. Proportions of concrete materials shall be suitable for the placement method utilized and shall yield durable concrete. The durability of concrete shall conform to the requirements of ACI 318 for the conditions expected at the site. Concrete shall develop a minimum compressive strength of 3300 psi within 28 days of placement.
4. The maximum size of aggregate shall not exceed the lesser of 1-inch one-third the clear distance behind or between reinforcing, or the size suitable for the placement method utilized.
5. Reinforcing steel shall be deformed, shall conform to ASTM A615, and shall be Grade 60 unless noted otherwise. Splices in reinforcement shall comply with the requirements of ACI 318.
6. Reinforcing cages shall be braced to retain dimensions during handling and concrete placement. Welding on steel reinforcement and embeddings is strictly prohibited.
7. The minimum concrete cover for reinforcement shall be 3-inches unless noted otherwise. Approved spacers shall be less than 3" in length. Spacers shall be attached intermittently throughout the entire length of vertical reinforcing cages to assure cage concentricity within excavations.
8. Backfill materials shall be compacted to a minimum unit weight of 100 pcf or the unit weight utilized for the design.
9. For self-supporting towers, the foundation at the highest elevation shall be formed to 12-inches above grade. The tops of the foundations for the other two legs shall be constructed level with the first one.
10. Foundation construction shall be supervised by personnel knowledgeable and experienced with the foundation type. Construction shall conform to generally accepted construction practices.
11. For foundation and anchor detail requirements refer to the tower manufacturer's drawing.
12. Excavations shall be cleared of loose materials and debris prior to concrete placement. Sides of excavations shall be rough and shall be free of loose materials.
13. Concrete shall be placed in a manner which precludes separation of concrete materials. Free fall concrete is permitted provided the fall is vertical and does not hit the sides of the excavation, the formwork, reinforcing steel, form ties, cage bracing or other obstructions. Concrete fall through water is strictly prohibited unless the concrete is pumped or tremied.
14. Concrete shall be placed against undisturbed soil where possible. Forms, when required, shall be removed prior to backfilling.
15. Construction joints at the base of pedestals for pad-and-pedestal foundations shall be intentionally roughened to a full amplitude depth of 1/4-inch. No other construction joints shall be permitted.
16. Outside the limits of the anchor bolt area, the top of the foundation shall be sloped to drain and shall have a finished finish. The area within the anchor bolt limits shall be level and shall have a scratched finish. Exposed edges of concrete foundations shall be finished with a 3/4" chamfer.
17. Grillage piles shall be constructed in accordance with ACI 335.3R "Standard Specification for the Construction of End Bearing Drilled Piers".
18. Concrete used in the construction of dry or covered piles less than 2' of water in bottom of pile (note) shall be at least a 6-sack per cubic yard mix and shall be placed in a slump of 5'.
19. The discharge for concrete placed pumped or tremied through water shall be maintained at least 5" below the concrete surface. Concrete placement shall be continuous till complete. Concrete placed by this method shall be a 7-sack per cubic yard mix and shall be placed at a slump of 7" to 9".
20. For the lesser of 25 cubic yards or one day's placement, a minimum of one set of 4 concrete cylinders shall be cast in accordance with ASTM C-31 and ASTM C-39.
21. Tower bases leveled using the double-net system shall be grouted using Master Builders Etnico 536 Grout or equivalent.

TOLERANCES - ALL TOWERS

- | | |
|---|-------------|
| 22. Concrete Dimensions: | +6", -1" |
| 23. Depth from Grade to Bottom of Concrete: | +3", -0" |
| 24. Offset Per Out-of-Plumb: | 1" |
| 25. Placement of Reinforcing Steel: | Per ACI 318 |
| 26. Projection of Embedments: | ± 1/8" |
| 27. Vertical Embedment Out-of-Plumb: | 1/2" |

TOLERANCES - GUYED TOWERS

- | | |
|--|----------------------|
| 28. Guy Anchor Radius: | ± 3% of Tower Height |
| 29. Anchor Elev. Relative to Tower Base: | ± 3% of Tower Height |
| 30. Anchor Rod Alignment Relative to Guy Radius: | ± 6" |
| 31. Anchor Rod Slope: | ± 1" |

TOLERANCES - SELF-SUPPORTING TOWERS

- | | |
|--|---|
| 32. Anchor Bolt Spacing: | ± 1/16" |
| 33. Bolt Circle Diameter: | ± 1/16" |
| 34. Bolt Circle Orientation: | ± 1/4" |
| 35. Maximum Difference in Elevation Between Any Two Tower Foundations: | ± 1/2" |
| 36. Center-to-Center Dimension of Anchor Bolt Circles: | ± 1/16" or 1/16" over 20 ft. of Base Spread |
| 37. Distance From Center of Foundation to Center of Bolt Circle: | 1/24 of Foundation Width (a Maximum of 2") |



BY: JMS

DATE: 8/7/05

CLIENT: HEMPHILL CORPORATION

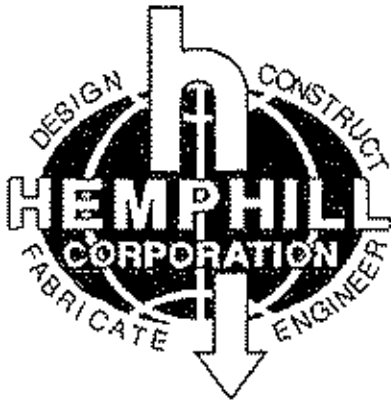
PROJECT: 250 FOOT SELF SUPPORT TOWER

SCALE: NTS

DWG. NO. 1414-3 of 3

SITE: HWY 431/CR 74, AL

SITE NO:



TULSA
3515 Dawson Road
Tulsa, OK 74115
Phone: (918) 834-2200
Fax: (918) 836-7109

GEOTECHNICAL SUMMARY REPORT
SITE LOCATION: HWY 431/CR 74, AL
HEMPHILL PROJECT NO. 1414

TOWER TYPE : LATTICED (SELF SUPPORT)

TOWER HEIGHT ABOVE GROUND LEVEL : 250'

MAXIMUM BASE SPREAD (CENTER TO CENTER) : 26'-0"

SOIL DESCRIPTION : REFER TO BORING LOGS

SURFACE WATER : NONE OBSERVED

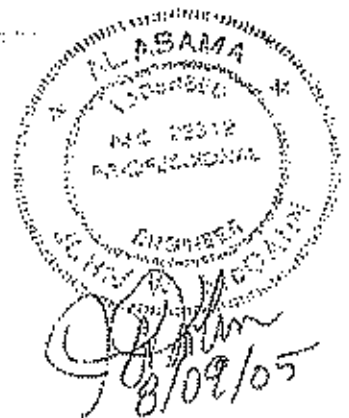
DEPTH TO GROUND WATER : NONE OBSERVED

RECOMMENDED TYPE OF FOUNDATION : MAT FOUNDATION

**MINIMUM FOUNDATION BEARING DEPTH : 6' BELOW GROUND
LEVEL**

ESTIMATED DESIGN PARAMETERS (MEAN):

- 1. UNIT WEIGHT (MOIST) γ : 100 pcf**
- 2. PHI ANGLE M : 15°**
- 3. COHESION, c : 1.5 ksf**
- 4. NET ALLOWABLE BEARING PRESSURE : 16.0 ksf**



PROPOSAL
1000 Highway Tower

CHB444.43

SPECIAL DESIGN

Variable Taper with Angle Bracing

Wind
Wind Speed
Wind Direction
Wind Exposure
Wind Duration
Wind Frequency

Table with columns: Transmissions, Height, Area, Weight, etc. Includes data for various transmission levels and heights.

PIPE LEGS

DESIGN

Main design table with columns: No., Dia., Material, Height, Area, Weight, etc. Lists various pipe specifications and their properties.

Hardware

Table listing hardware specifications such as bolts, nuts, washers, and their respective quantities and specifications.

Tower Base Dimensions

Table detailing tower base dimensions, including length, width, and height measurements.

Tower Configuration

Table describing tower configuration parameters, such as leg spacing and structural details.

Max. Capacities

Table showing maximum capacities for various components, including tension, compression, and shear.

Base Restraints (from Williams "Notes")

Table detailing base restraints and their associated dimensions and capacities.

Design requires minimum 5/8" dia. Steel Pipe

Table providing design requirements and specifications for the steel pipe used in the tower.

Design Note: Refer to accompanying drawings for necessary details.

Mastlod

Section No.	type	Bottom elev.	Top Elev.	Bottom Width	Top Width	a	b	c	d	e	f	g	h	i
13	T	0	20	26.00	24.00	x	3	0	20	26.00	24.00	20.00		
12	T	20	40	24.00	22.00	x	3	0	40	24.00	22.00	10.00		
11	T	40	60	22.00	20.00	x	3	0	60	22.00	20.00	10.00		
10	T	60	80	20.00	18.00	x	3	0	80	20.00	18.00	10.00		
9	T	80	100	18.00	16.00	x	3	0	100	18.00	16.00	10.00		
8	T	100	120	16.00	14.00	x	3	0	120	16.00	14.00	10.00		
7	T	120	140	14.00	12.00	x	3	0	140	14.00	12.00	6.67		
6	T	140	160	12.00	10.00	x	3	0	160	12.00	10.00	6.67		
5	T	160	180	10.00	8.00	x	3	0	180	10.00	8.00	6.67		
4	T	180	200	8.00	6.00	x	3	0	200	8.00	6.00	5.00		
3	T	200	220	6.00	4.00	x	3	0	220	6.00	4.00	4.00		
2	TT	220	240	4.00	4.00	x	3	0	220	240	4.00	4.00		
1	SG	240	250	4.00	4.00	x	3	0	240	250	4.00	4.00		

	legs	diag	top girts	wind	vertical sub-diag.	mid girts	plates			
0	20	22	7	7	7	5	3	0	/	PIPE 13
20	40	22	7	0	0	0	0	0	/	PIPE 12
40	60	22	7	0	0	0	0	0	/	PIPE 11
60	80	20	5	0	0	0	0	0	/	PIPE 10
80	100	20	5	0	0	0	0	0	/	PIPE 9
100	120	20	4	0	0	0	0	0	/	PIPE 8
120	140	18	3	0	0	0	0	0	/	PIPE 7
140	160	18	3	0	0	0	0	0	/	PIPE 6
160	180	16	2	0	0	0	0	0	/	PIPE 5
180	200	12	1	0	0	0	0	0	/	PIPE 4
200	220	12	1	0	0	0	0	0	/	PIPE 3
220	240	11	1	0	0	0	0	0	/	PIPE 2
240	250	11	1	0	0	0	0	0	/	PIPE 1

Ident	NO	material types	
	1	angja 1 1 0 1 750 1 750 0 1875 450	All Loads
	2	angja 2 1 0 2 000 2 000 0 1875 450	
	3	angja 3 1 0 3 500 3 500 0 260 450	
	4	angja 4 1 0 3 000 3 000 0 150 450	
	5	angja 5 1 0 3 500 3 500 0 250 450	
	6	angja 6 1 0 3 500 3 500 0 3125 450	
	7	angja 7 1 0 4 000 4 000 0 250 450	
	8	angja 8 1 0 4 000 4 000 0 3125 450	
	9	angja 9 1 0 4 000 4 000 0 375 450	
	10	tube 10 1 0 2 075 2 075 0 200 450	2 1/2"
	11	tube 11 1 0 2 075 2 075 0 275 450	2 1/2"
	12	tube 12 1 0 3 500 3 500 0 210 450	3"
	13	tube 13 1 0 3 500 3 500 0 300 450	3"
	14	tube 14 1 0 4 000 4 000 0 225 450	3 1/2"
	15	tube 15 1 0 4 000 4 000 0 310 450	3 1/2"
	16	tube 16 1 0 4 000 4 500 0 230 450	4"
	17	tube 17 1 0 4 500 4 500 0 320 450	4"
	18	tube 18 1 0 5 500 5 500 0 250 450	5"
	19	tube 19 1 0 5 500 5 500 0 375 450	5"
	20	tube 20 1 0 6 000 6 000 0 280 450	6"
	21	tube 21 1 0 6 000 6 000 0 420 450	6"
	22	tube 22 1 0 6 000 6 000 0 320 450	6"
	23	tube 23 1 0 6 000 6 000 0 500 450	6"
	24	tube 24 1 0 7 000 7 000 0 350 450	7 0"
	25	tube 25 1 0 7 000 7 000 0 500 450	7 0"
	26	angja 26 2 0 2 000 2 000 0 1875 450	
	27	angja 27 2 0 2 500 2 500 0 250 450	
	28	angja 28 2 0 3 000 3 000 0 250 450	
	29	angja 29 2 0 3 000 3 500 0 250 450	
	30	angja 30 2 0 3 000 3 000 0 250 450	
	31	angja 31 2 0 3 500 3 500 0 250 450	
	32	angja 32 2 0 3 500 3 500 0 375 450	
	33	angja 33 2 0 4 000 4 000 0 250 450	
	34	angja 34 2 0 4 000 4 000 0 375 450	
	35	angja 35 2 0 4 500 5 000 0 3125 450	
	36	tube 36 1 0 3 15 1 15 0 150 450	
	37	sr 37 1 0 0 0 0 0 0 0 3125 450	Cambria
	38	sr 38 1 0 0 0 0 0 0 0 1675 450	Cambria
	39	tube 39 1 0 12 75 12 75 0 400 450	12"
	40	tube 40 1 0 12 75 12 75 0 500 450	12"
	41	tube 41 1 0 2 075 2 075 0 150 450	
	42	tube 42 1 0 16 00 16 00 0 500 450	
	43	tube 43 1 0 16 00 16 00 0 840 450	
	44	tube 44 1 0 16 00 16 00 0 560 450	
	45	tube 45 1 0 16 00 16 00 0 930 450	
	46	sr 46 1 0 1 750 1 750 0 1875 450	
	47	sr 47 1 0 2 000 2 000 1 500 450	
	48	sr 48 1 0 2 250 2 250 1 125 450	
	49	sr 49 1 0 2 500 2 500 1 250 450	
	50	sr 50 1 0 2 750 2 750 1 375 450	
	51	sr 51 1 0 3 000 3 000 1 500 450	
	52	sr 52 1 0 3 250 3 250 1 625 450	
	53	sr 53 1 0 3 500 3 500 1 750 450	
	54	sr 54 1 0 3 750 3 750 1 875 450	
	55	sr 55 1 0 4 000 4 000 2 000 450	
	56	sr 56 1 0 4 250 4 250 2 125 450	
	57	sr 57 1 0 4 500 4 500 2 250 450	
	58	sr 58 1 0 4 750 4 750 2 375 450	
	59	sr 59 1 0 5 000 5 000 2 500 450	
	60	sr 60 1 0 5 250 5 250 2 625 450	
	61	sr 61 1 0 5 500 5 500 2 750 450	
	62	angja 62 2 0 3 500 3 000 0 250 450	
	63	angja 63 2 0 3 500 3 000 0 250 450	
	64	tube 64 1 0 2 375 2 375 0 210 450	
	65	angja 65 1 0 4 000 4 000 0 4375 450	
	66	angja 66 1 0 4 000 4 000 0 510 450	
	67	angja 67 1 0 4 500 4 500 0 4375 450	
	68	angja 68 2 0 4 000 4 000 0 375 450	
	69	angja 69 2 0 4 000 4 000 0 4375 450	
	70	angja 70 2 0 4 500 4 500 0 375 450	
	71	angja 71 2 0 4 500 4 500 0 4375 450	
	72	angja 72 2 0 5 000 5 000 0 4375 450	
	73	angja 73 2 0 5 000 5 000 0 510 450	
	74	angja 74 2 0 5 500 5 500 0 4375 450	
	75	angja 75 2 0 5 500 5 500 0 510 450	
	76	angja 76 2 0 6 000 6 000 0 510 450	
	77	angja 77 2 0 6 000 6 000 0 590 450	
	78	angja 78 2 0 6 500 6 500 0 510 450	
	79	angja 79 2 0 7 000 7 000 0 590 450	
	80	angja 80 2 0 7 500 7 500 0 590 450	
	81	angja 81 1 0 2 750 1 000 0 2500 450	
	82	angja 82 1 0 2 750 1 000 0 2500 450	
	83	angja 83 1 0 2 750 1 000 0 2500 450	
	84	angja 84 1 0 2 750 1 000 0 2500 450	
	85	angja 85 1 0 2 750 1 000 0 2500 450	
	86	angja 86 1 0 2 750 1 000 0 2500 450	
	87	angja 87 1 0 2 750 1 000 0 2500 450	
	88	sr 88 1 0 6 500 6 500 3 250 450	
	89	sr 89 1 0 7 000 7 000 3 500 450	
	90	sr 90 1 0 7 500 7 500 3 750 450	
	91	sr 91 1 0 8 000 8 000 4 000 450	
	92	sr 92 1 0 8 500 8 500 4 250 450	

Antennas

for Panel Antennas on Platforms or Mast Arms

Calc's for (1) Antenna with ice :

#REF!	#REF!	ice	0.50	in.	Ice Density	56.0	lbs/c.f.
						no ice	with ice
		Height:	48.00	in.		49.00	in.
		Width:	9.00	in.		10.00	in.
		Thickness:	6.00	in.		7.00	in.
		Volume:	2,592	cu.in.		3,430	cu.in.
		Volume of ice:				838	cu.in.
		Weight of ice:				27	lbs.
		Weight:	26.70	lbs.		54	lbs.
		Surface:	7.0	sq.ft.		3.4	sq.ft.
		Force Coef. Ca:	1.40	Panels ONLY		1.50	USIS (lbs for Mast Arms & L.P. Platforms)
		Force Coef. Ca:	1.20	Whips		1.50	USIS (lbs for platforms & mast arm - see page 11)

Special Antenna Note:

No Reduction for whips

Used surface area reduction factor due to overlap of panel antennas and platform.

Platform Width = 13.00 ft

platform 42.0 sf Ht. = 3.50 ft (with hand rail)

antennas $\frac{\#REF!}{\#REF!} \times 1.8 = \#REF!$ sf (overall)

26.0 sf (used for platform)

$\#REF!$ sf (composite remainder for antennas)

As opposed to:

#REF! * 3.4 = #REF! sf

Reduction Factor: $\frac{\#REF!}{\#REF!} = \#REF!$ sf (with reduction factor)

for Panel Antennas on Platforms or Mast Arms

Calc's for (1) Antenna with ice :

#REF!	#REF!	ice	0.50	in.	Ice Density	56.0	lbs/c.f.
						no ice	with ice
		Height:	120.00	in.		121.00	in.
		Width:	3.00	in.		4.00	in.
		Thickness:	3.00	in.		4.00	in.
		Volume:	1,080	cu.in.		1,936	cu.in.
		Volume of ice:				356	cu.in.
		Weight of ice:				25	lbs.
		Weight:	26.70	lbs.		54	lbs.
		Surface:	2.5	sq.ft.		3.4	sq.ft.
		Force Coef. Ca:	1.40	Panels ONLY		1.50	USIS (lbs for Mast Arms & L.P. Platforms)
		Force Coef. Ca:	1.20	Whips		1.50	USIS (lbs for platforms & mast arm - see page 11)

Special Antenna Note:

No Reduction for whips

Used surface area reduction factor due to overlap of panel antennas and platform.

Platform Width = 12.00 ft

platform 42.0 sf Ht. = 3.50 ft (with hand rail)

antennas $\frac{\#REF!}{\#REF!} \times 1.8 = \#REF!$ sf (overall)

138.6 sf (used for platform)

$\#REF!$ sf (composite remainder for antennas)

As opposed to:

#REF! * 3.4 = #REF! sf

Reduction Factor: $\frac{\#REF!}{\#REF!} = \#REF!$ sf (with reduction factor)

Legs for Self Support Towers

Section	Leg Length (ft)	Weldments		Nominal O.D.	Pipe WVR	Pipe I.O.	Pipe End Area (sq in)	Moments of Inertia (in ⁴)	Radius of Gyration (in)	Stress			Max Capacity (kips)	Pipe O.D. (in)	Weight (lb/ft)	Steel #
		1,000 LBS (HIGH)	d.B.							K ₁	F ₁	F ₂				
1	46	6.3	21.9	2.0	0.134	2.67	1.07	0.757	7.2	1.99	19.76	0.00	16.7	2.375	3.7	A1
2	48	30.0	1.5	2.0	0.134	2.67	1.07	0.757	6.0	2.46	21.33	0.00	16.8	2.375	3.7	A1
3	48	42.3	21.7	3.0	0.213	3.00	2.22	1.164	6.0	3.30	24.65	0.00	16.8	2.375	3.6	A1
4	40	35.3	6.1	3.0	0.213	3.00	2.22	1.164	5.6	3.35	24.10	0.00	16.8	2.375	3.6	A1
5	40	26.2	14.8	4.0	0.333	4.00	3.17	1.516	5.0	3.91	27.87	0.00	16.8	2.375	4.0	A1
6	40	104.1	41.3	5.0	0.238	3.00	2.22	1.374	4.6	3.31	23.41	0.00	16.8	2.375	4.0	A1
7	40	125.6	22.4	5.0	0.238	3.00	2.22	1.374	4.6	3.31	23.41	0.00	16.8	2.375	4.0	A1
8	40	110.4	36.3	6.0	0.246	4.00	3.17	1.243	4.4	3.11	21.11	0.00	16.8	2.375	4.0	A1
9	40	158.6	18.8	6.0	0.246	4.00	3.17	1.243	4.4	3.11	21.11	0.00	16.8	2.375	4.0	A1
10	40	176.0	0.6	6.0	0.246	4.00	3.17	1.243	4.4	3.11	21.11	0.00	16.8	2.375	4.0	A1
11	40	194.1	12.1	6.0	0.246	4.00	3.17	1.243	4.4	3.11	21.11	0.00	16.8	2.375	4.0	A1
12	40	212.4	25.2	6.0	0.246	4.00	3.17	1.243	4.4	3.11	21.11	0.00	16.8	2.375	4.0	A1
13	40	231.2	10.1	6.0	0.246	4.00	3.17	1.243	4.4	3.11	21.11	0.00	16.8	2.375	4.0	A1

Angle Diagonals for Self Support Towers

COMPRESSION LOADING

Fy = 50,000 psi
E = 29,000,000

Qc = 126.1
Kc = 1.0
Fy = 55.5
Designing based for 50 (not ASD) conditions
* F_a Allowable (increased due to wind)

Section	Diag Length (ft)	Weirspan LOADS (kips)	d/c	Maximal Diag Spacing	Diagonal Description	Diagonal (sq) Area	Smallest Radius of Gyration	I _{xx}	I _{yy}	K _c Q _c		F _a	F _p	F _b	Max Capacity (kips)		Weight (lbs/ft)
										< Q _c	> Q _c				Capacity	Weight	
1	38.42	1.50	7.9	1	1 3/8 x 1 3/8 x 3/16	0.67	0.763	112.0	1.41	77.05	0.00	15.2	9.4	3.1			
2	35.94	2.50	8.6	1	1 3/8 x 1 3/8 x 3/16	0.67	0.763	99.0	1.40	77.11	0.00	12.5	10.4	3.1			
3	43.22	1.80	6.0	1	1 3/8 x 1 3/8 x 3/16	0.67	0.763	126.1	1.40	77.00	0.00	12.3	7.1	3.0			
4	39.60	2.00	7.1	1	1 3/8 x 1 3/8 x 3/16	0.67	0.763	104.0	1.38	76.00	0.00	14.7	6.5	2.8			
5	32.45	3.00	2.1	2	2 x 2 x 3/16	0.94	0.884	114.5	1.15	90.00	4.39	1.5	3.5	3.3			
6	47.37	2.30	4.9	3	2 3/8 x 2 3/8 x 3/16	1.19	0.694	167.1	1.37	90.00	5.33	7.1	6.4	4.0			
7	41.02	3.70	2.6	3	2 3/8 x 2 3/8 x 3/16	1.19	0.694	144.5	1.31	90.00	4.16	3.3	6.6	4.0			
8	41.21	3.40	3.4	4	3 x 3 x 1/4	1.44	0.592	181.7	1.10	90.00	4.01	3.6	7.8	4.9			
9	42.55	3.10	3.8	3	2 3/8 x 2 3/8 x 3/16	1.19	0.694	174.0	1.16	90.00	4.11	6.3	10.6	3.3			
10	42.11	3.20	3.8	5	3 1/2 x 3 1/2 x 3/16	1.60	0.644	193.5	1.18	90.00	4.00	3.3	9.0	3.7			
11	42.07	3.50	3.7	5	3 x 3 x 1/4	1.44	0.770	182.4	1.13	90.00	4.10	6.0	11.6	5.0			
12	43.42	2.95	4.1	4	3 x 3 x 1/4	1.44	0.795	194.7	1.12	90.00	3.91	3.2	10.0	4.6			
13	42.74	3.00	3.1	7	3 x 3 x 1/4	1.44	0.795	188.9	1.11	90.00	4.00	6.0	12.1	4.6			

Top Girt Capacities:

???? vert. ang.	Section	Girt Length (in)	from Weisman avg. Loads at sine vert. ang. (kips) diff.
	1	none here	
	2	none here	
	3	none here	
	4	none here	
	5	none here	
	6	none here	
	7	none here	
	8	none here	
	9	none here	
	10	none here	

Angle Wind bracing for Self Support Towers

COMPRESSION LOADING

$F_{10} = 36,600 \text{ lb}$
 $F_{15} = 79,020 \text{ lb}$
 $C_{10} = 174.1$
 $K_1 = 1.0$
 $P_1 = 1.22$

RAI made = 200

Sec No.	Leg Length (ft)	400×200	diff	Maximal Leg Comp	Diagonal Displacement	Diagonal End Area	Smaller Radius of Gyration	RAI	Weight (lb/ft)
1	400' 0" 0" 0" 0"								
2	400' 0" 0" 0" 0"								
3	400' 0" 0" 0" 0"								
4	400' 0" 0" 0" 0"								
5	400' 0" 0" 0" 0"								
6	400' 0" 0" 0" 0"								
7	400' 0" 0" 0" 0"								
8	400' 0" 0" 0" 0"								
9	400' 0" 0" 0" 0"								
10	400' 0" 0" 0" 0"								

Sub-Diagonals for Self Support Towers

COMPRESSION LOADING

Fy = 55,000 psi Ccr = 102.0
 E = 29,000,000 K = 1.0
 Pcr = 1.33

K/r must be < 200

Section	Leg Length (in)	K/r < 200	diff	Material List ID #	Diagonal Description	Diagonal End Area	Smallest Radius of Gyration	K/r	Weight (lb/ft)
1	none here								
7	none here								
2	none here								
4	none here								
5	none here								
6	none here								
3	none here								
8	none here								
9	none here								
10	none here								
11	none here								
12	none here								
13	none here								

Angle Sub-Horizontals for Self-Support Towers

Windward Sub-Horizontal Bracing

Stories	Leg Length (ft)	Vertical Height (ft)	ΔH	Member Len (ft)	Original bracing	Proposed Bracing	Erection Method	YDi	F ₁			F ₂	F ₃	F ₄	Max Moment (kips)	Weight (kips)
									1.0	1.5	2.0					
1	147.00	147.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
2	147.00	294.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
3	147.00	441.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
4	147.00	588.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
5	147.00	735.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
6	147.00	882.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
7	147.00	1029.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
8	147.00	1176.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
9	147.00	1323.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
10	147.00	1470.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
11	147.00	1617.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	
12	147.00	1764.00	147	147				0.60	1.0	1.5	2.0	1.0	10.4	17.5	4.5	

PROPOSAL COST ESTIMATE:

Self Support Tower (lower legs & bracing only)

Longest Unsupported Element Lengths

Section No.	PIPE	Leg (ft.)	Wind (ft.)	Sub- Horiz. (ft.)
1	5.00	2.30		
2	4.00	2.21		
3	4.00	3.41		
4	3.00	4.72		
5	5.00	6.04		
6	6.67	7.35		
7	10.00	8.67		
8	20.00	10.00		
9	30.00	11.32		
10	40.00	12.65		
11	50.00	14.00		
12	60.00	15.35		
13	70.00	16.70		

Number of Elements per Section

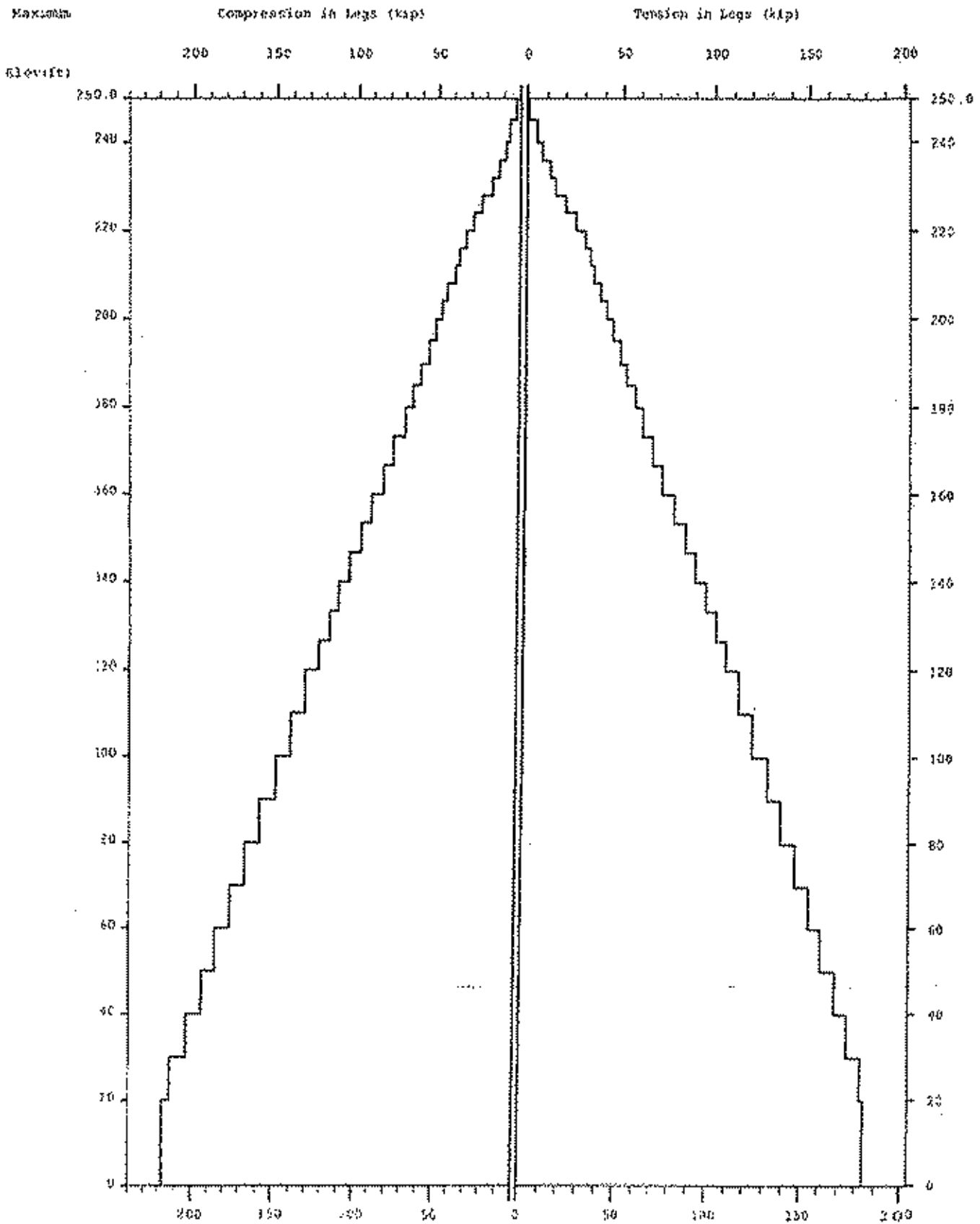
PIPE	Leg	Wind	Sub- Horiz.
1	18	18	18
2	36	36	36
3	54	54	54
4	72	72	72
5	90	90	90
6	108	108	108
7	126	126	126
8	144	144	144
9	162	162	162
10	180	180	180
11	216	216	216
12	252	252	252
13	288	288	288

Total Length of Member per Section

PIPE	Leg (ft.)	Wind (ft.)	Sub- Horiz. (ft.)
1	45.0	57.6	57.6
2	50.4	64.8	64.8
3	59.4	75.6	75.6
4	67.2	86.4	86.4
5	75.6	97.2	97.2
6	84.0	108.0	108.0
7	92.4	118.8	118.8
8	100.8	129.6	129.6
9	109.2	140.4	140.4
10	117.6	151.2	151.2
11	136.8	172.8	172.8
12	156.0	194.4	194.4
13	175.2	216.0	216.0

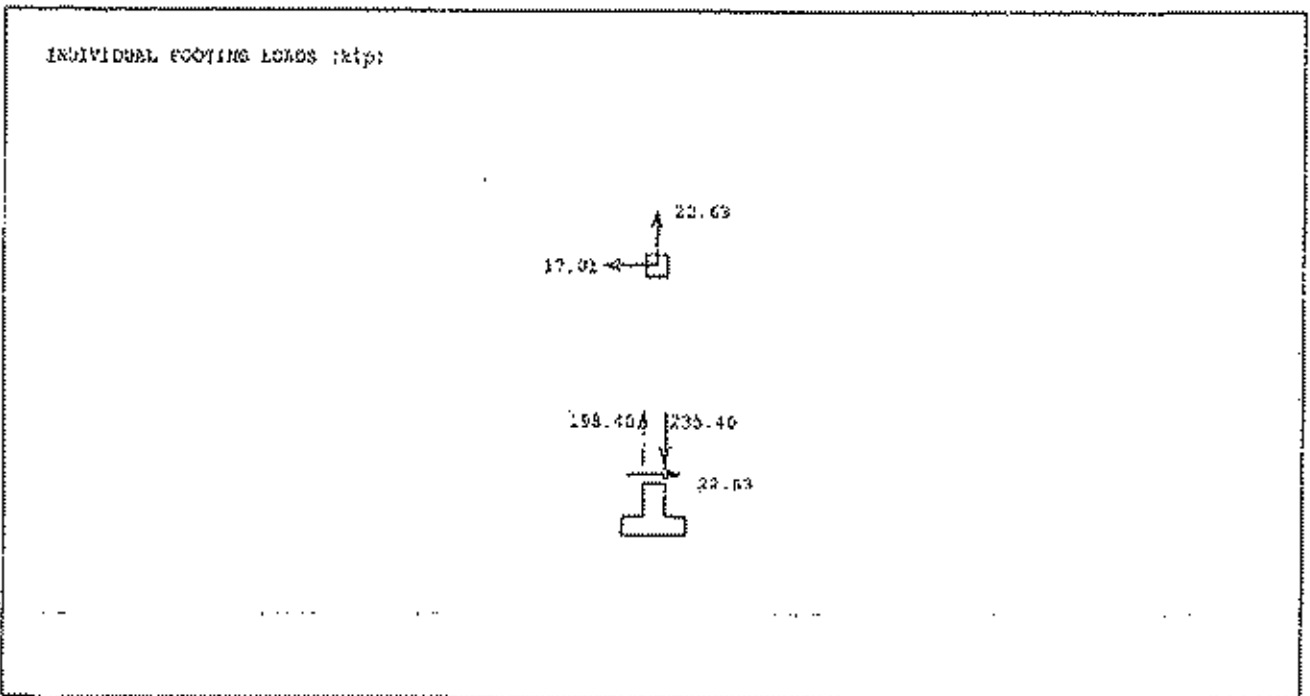
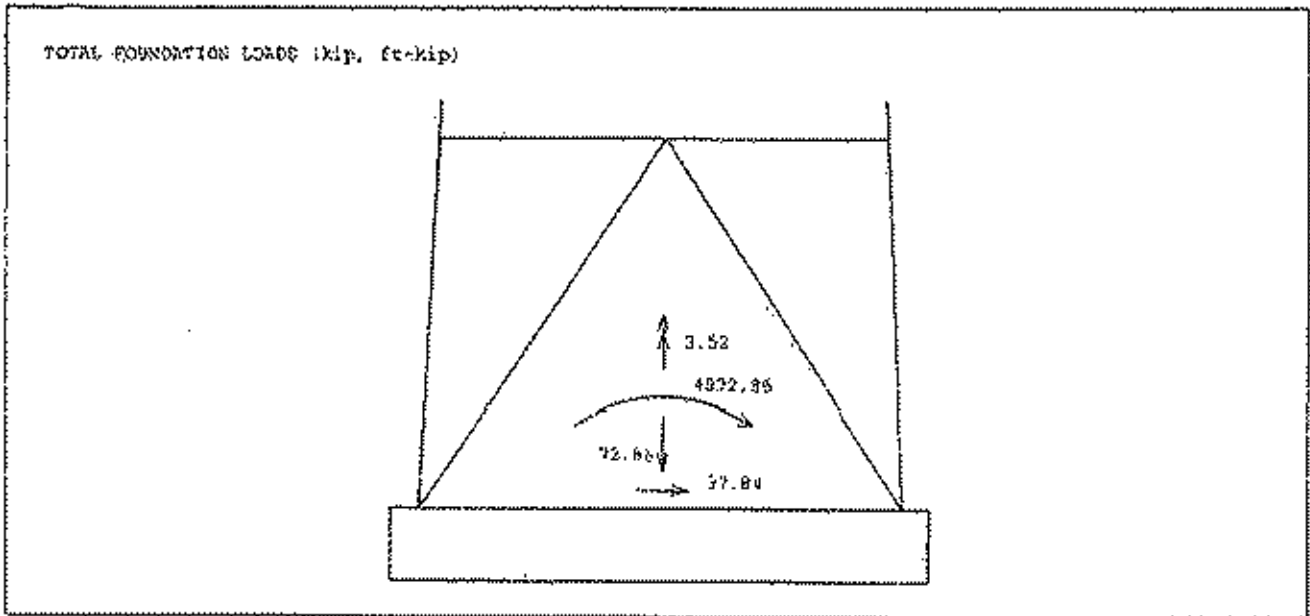
Total Weight of Member per Section

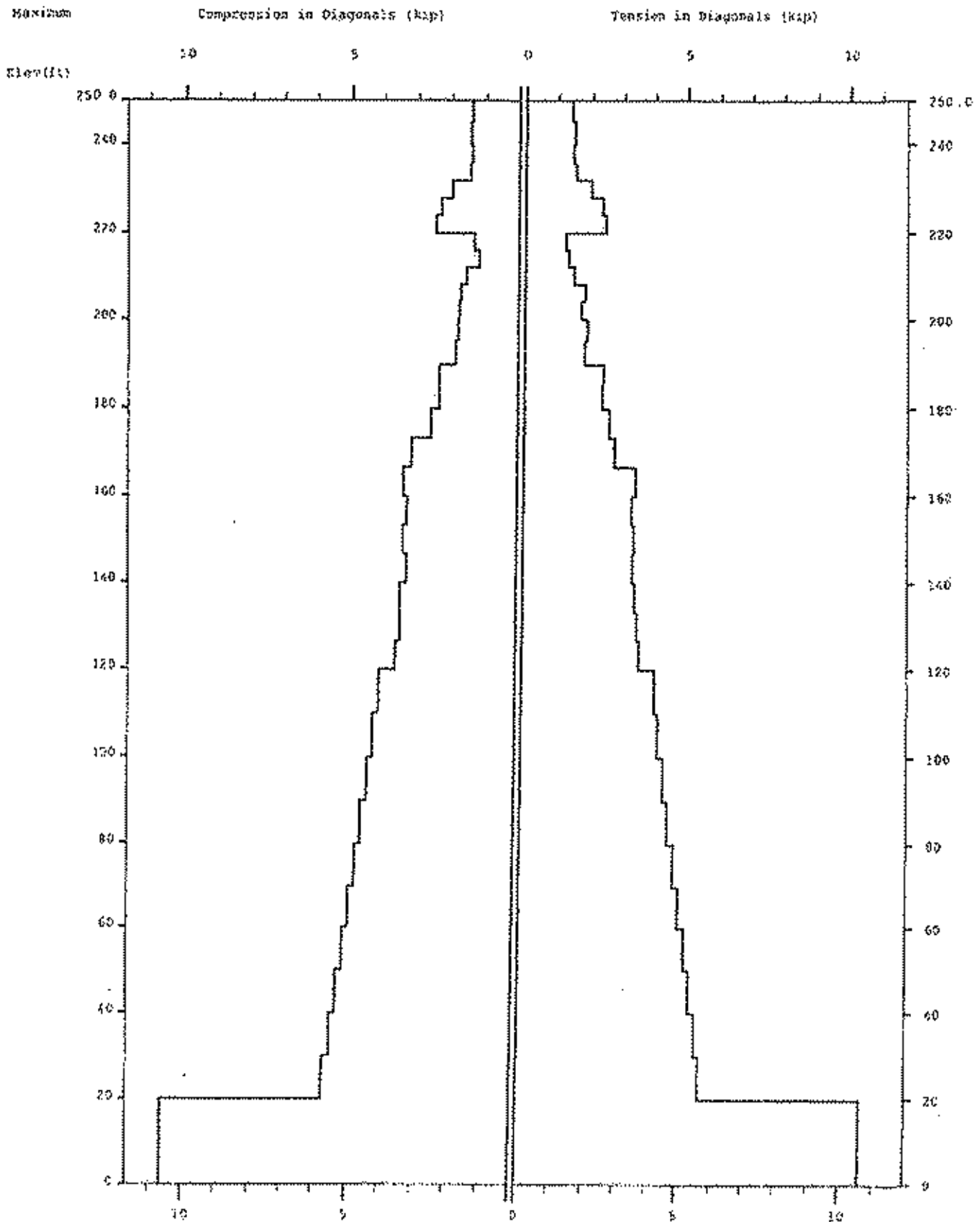
PIPE	Leg (lbs)	Wind (lbs)	Sub- Horiz. (lbs)
1	168	32	32
2	219	42	42
3	270	54	54
4	321	66	66
5	372	78	78
6	423	90	90
7	474	102	102
8	525	114	114
9	576	126	126
10	627	138	138
11	678	150	150
12	729	162	162
13	780	174	174

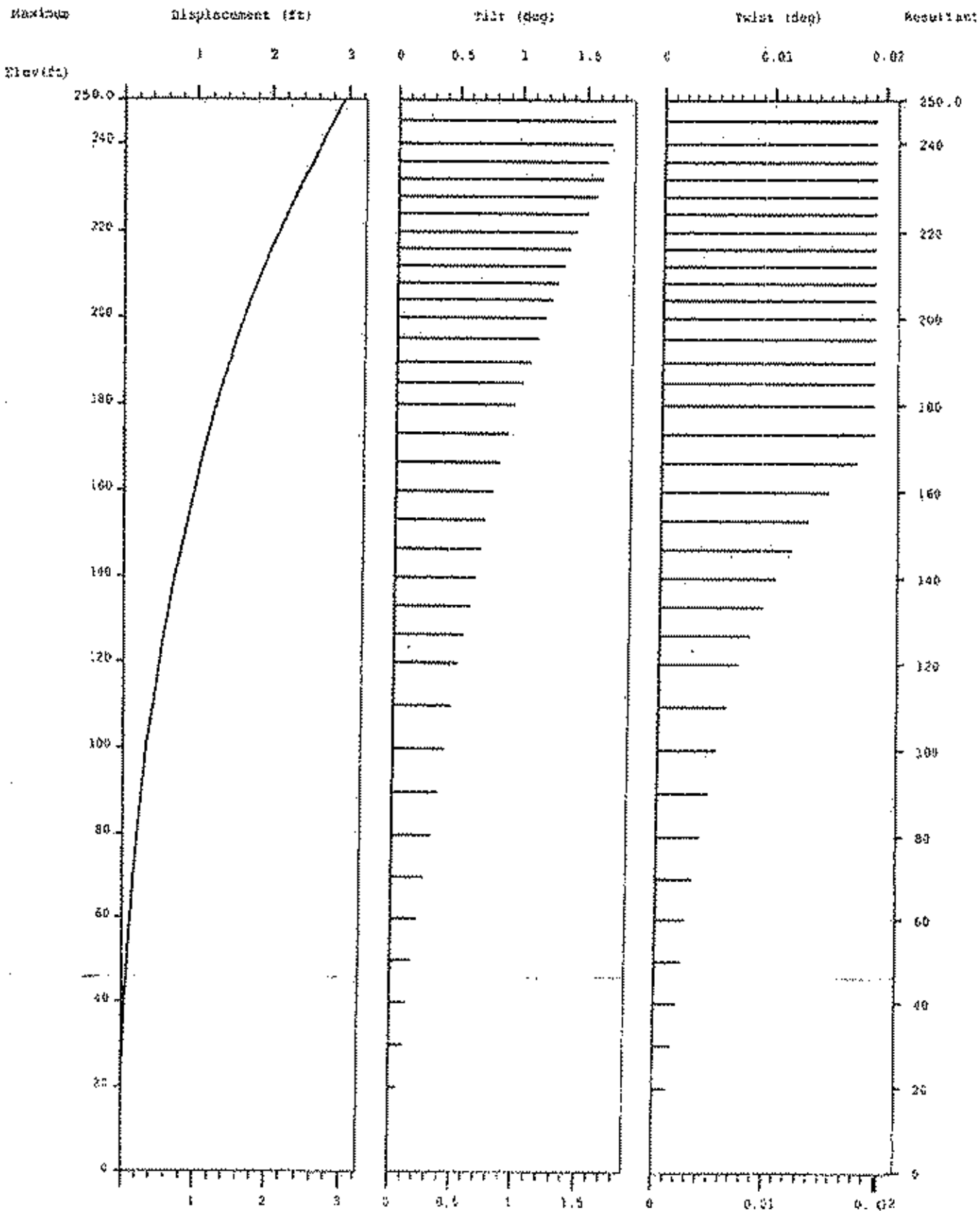


Hemphill - 250' SST 10 mph 1/2" ice * 1414

MAXIMUM FOR ALL LOAD CASES







=====
 MAST - Latticed Tower Analysis (Unguyed) (c)1997 Guymast Inc. 416-736-7453
 Processed under license at:

Hemphill Corporation on: 7 aug 2005 at: 11:27:53
 =====

Hemphill * 250'SST 70 mph 1/2" ice * 1414

MAST GEOMETRY (ft)
 =====

PANEL TYPE	NO.OF LEGS	ELEV.AT BOTTOM	ELEV.AT TOP	F.W.AT BOTTOM	F.W.AT TOP	TYPICAL PANEL HEIGHT
x	3	240.00	250.00	4.00	4.00	5.00
x	3	220.00	240.00	4.00	4.00	4.00
x	3	200.00	220.00	6.00	4.00	4.00
x	3	180.00	200.00	8.00	6.00	5.00
x	3	160.00	180.00	10.00	8.00	6.67
x	3	140.00	160.00	12.00	10.00	6.67
x	3	120.00	140.00	14.00	12.00	6.67
x	3	100.00	120.00	16.00	14.00	10.00
x	3	80.00	100.00	18.00	16.00	10.00
x	3	60.00	80.00	20.00	18.00	10.00
x	3	40.00	60.00	22.00	20.00	10.00
x	3	20.00	40.00	24.00	22.00	10.00
a	3	0.00	20.00	26.00	24.00	20.00

MEMBER PROPERTIES
 =====

MEMBER TYPE	BOTTOM ELEV ft	TOP ELEV ft	X-SECTN AREA in	RADIUS OF GYRAT in	ELASTIC MODULUS ksi	THERMAL EXPANSN /deg
LE	220.00	250.00	1.075	0.000	29000	0.0000000
LE	180.00	220.00	2.228	0.000	29000	0.0000000
LE	160.00	180.00	3.174	0.000	29000	0.0000000
LE	120.00	160.00	4.300	0.000	29000	0.0000000
LE	60.00	120.00	5.581	0.000	29000	0.0000000
LE	0.00	60.00	8.399	0.000	29000	0.0000000
DI	180.00	250.00	0.621	0.000	29000	0.0000000
DI	160.00	180.00	0.937	0.000	29000	0.0000000
DI	120.00	160.00	1.187	0.000	29000	0.0000000
DI	100.00	120.00	1.437	0.000	29000	0.0000000
DI	60.00	100.00	1.687	0.000	29000	0.0000000
DI	0.00	60.00	1.937	0.000	29000	0.0000000
HO	0.00	20.00	1.937	0.000	29000	0.0000000

BR 0.00 20.00 1.937 0.000 29000 0.0000000

=====
 LOADING CONDITION A =====

wind from north: 60.6 mph 1/2" ice

MAST LOADING

=====

LOAD ELEV APPLY..LOAD..AT LOADFORCES.....MOMENTS.....
 TYPE RADIUS AZI AZI HORIZ DOWN VERTICAL TORSNAL
 ft ft kip kip ft-kip ft-kip

C	250.0	0.00	0.0	0.0	0.22	0.15	0.00	0.00
C	250.0	0.00	0.0	0.0	1.18	0.96	0.00	0.00
C	250.0	0.00	0.0	0.0	0.48	1.70	0.00	0.00
C	250.0	0.00	0.0	0.0	0.06	0.09	0.00	0.00
C	230.0	0.00	0.0	0.0	0.47	1.70	0.00	0.00
C	230.0	0.00	0.0	0.0	0.86	0.72	0.00	0.00
C	210.0	0.00	0.0	0.0	0.46	1.70	0.00	0.00
C	210.0	0.00	0.0	0.0	0.84	0.72	0.00	0.00
C	190.0	0.00	0.0	0.0	0.44	1.70	0.00	0.00
C	190.0	0.00	0.0	0.0	0.82	0.72	0.00	0.00
C	170.0	0.00	0.0	0.0	0.05	0.30	0.00	0.00

D	250.0	0.00	180.0	0.0	0.05	0.08	0.00	0.00
D	240.0	0.00	180.0	0.0	0.05	0.08	0.00	0.00
D	240.0	0.00	180.0	0.0	0.05	0.09	0.00	0.00
D	232.0	0.00	180.0	0.0	0.05	0.09	0.00	0.00
D	232.0	0.00	180.0	0.0	0.06	0.10	0.00	0.00
D	228.0	0.00	180.0	0.0	0.06	0.10	0.00	0.00
D	228.0	0.00	180.0	0.0	0.07	0.11	0.00	0.00
D	220.0	0.00	180.0	0.0	0.07	0.11	0.00	0.00
D	220.0	0.00	180.0	0.0	0.08	0.13	0.00	0.00
D	210.0	0.00	180.0	0.0	0.07	0.13	0.00	0.00

D	166.7	0.00	60.0	0.0	0.11	0.19	0.01	0.01
D	160.0	0.00	60.0	0.0	0.11	0.19	0.01	0.01
D	160.0	0.00	60.0	0.0	0.12	0.22	0.01	0.01
D	153.3	0.00	60.0	0.0	0.12	0.22	0.01	0.01
D	153.3	0.00	60.0	0.0	0.12	0.23	0.01	0.01
D	146.7	0.00	60.0	0.0	0.12	0.23	0.01	0.01
D	146.7	0.00	60.0	0.0	0.12	0.23	0.00	0.01
D	140.0	0.00	60.0	0.0	0.12	0.23	0.00	0.01
D	140.0	0.00	60.0	0.0	0.12	0.23	0.00	0.01
D	133.3	0.00	60.0	0.0	0.12	0.23	0.00	0.01
D	133.3	0.00	60.0	0.0	0.12	0.24	0.00	0.00
D	126.7	0.00	60.0	0.0	0.12	0.24	0.00	0.00
D	126.7	0.00	60.0	0.0	0.12	0.24	0.00	0.00
D	120.0	0.00	60.0	0.0	0.12	0.24	0.00	0.00
D	120.0	0.00	60.0	0.0	0.12	0.25	0.00	0.00
D	110.0	0.00	60.0	0.0	0.12	0.25	0.00	0.00
D	110.0	0.00	240.0	0.0	0.12	0.25	0.00	0.00
D	100.0	0.00	240.0	0.0	0.12	0.25	0.00	0.00
D	100.0	0.00	240.0	0.0	0.12	0.27	0.00	0.00
D	90.0	0.00	240.0	0.0	0.12	0.27	0.00	0.00
D	90.0	0.00	240.0	0.0	0.12	0.28	0.00	-0.01
D	80.0	0.00	240.0	0.0	0.12	0.28	0.00	-0.01
D	80.0	0.00	240.0	0.0	0.12	0.28	0.01	-0.01
D	70.0	0.00	240.0	0.0	0.12	0.28	0.01	-0.01
D	70.0	0.00	240.0	0.0	0.12	0.29	0.01	-0.01
D	60.0	0.00	240.0	0.0	0.12	0.29	0.01	-0.01
D	60.0	0.00	240.0	0.0	0.12	0.34	0.01	-0.01
D	50.0	0.00	240.0	0.0	0.12	0.34	0.01	-0.01
D	50.0	0.00	240.0	0.0	0.12	0.35	0.01	-0.01
D	40.0	0.00	240.0	0.0	0.12	0.35	0.01	-0.01
D	40.0	0.00	240.0	0.0	0.11	0.35	0.01	-0.01
D	30.0	0.00	240.0	0.0	0.11	0.35	0.01	-0.01
D	30.0	0.00	240.0	0.0	0.11	0.36	0.01	-0.01
D	20.0	0.00	240.0	0.0	0.11	0.36	0.01	-0.01
D	20.0	0.00	240.0	0.0	0.12	0.43	0.01	-0.01
D	0.0	0.00	240.0	0.0	0.12	0.43	0.01	-0.01

ANTENNA LOADING

..... ANTENNA..... ATTACHMENT ANTENNA FORCES.....

TYPE ELEV AZI RAD AZI AXIAL SHEAR GRAVITY TORSION
ft ft kip kip kip ft-kip

HP	170.0	0.0	5.2	0.0	1.01	0.00	0.95	0.00
HP	170.0	120.0	5.2	120.0	-0.59	-0.31	0.95	-0.64

SUPPRESS PRINTING

.. FOR THIS LOADING.. MAXIMUMS
LOADS DISPL MEMBER FOUNDN ALL DISPL MEMBER FOUNDN

INPUT FORCES LOADS FORCES LOADS

no yes yes yes no no no no

=====

LOADING CONDITION B =====

wind from east; 50.6 mph 1/2" ice

MAST LOADING

=====

LOAD ELEV APPLY. LOAD..AT LOADFORCES.....MOMENTS.....

TYPE RADIUS AZI AZI HORIZ DOWN VERTICAL TORSNAL

ft ft kip kip ft-kip ft-kip

C	250.0	0.00	0.0	90.0	0.22	0.15	0.00	0.00
C	250.0	0.00	0.0	90.0	1.18	0.96	0.00	0.00
C	250.0	0.00	0.0	90.0	0.48	1.70	0.00	0.00
C	250.0	0.00	0.0	90.0	0.06	0.09	0.00	0.00
C	230.0	0.00	0.0	90.0	0.47	1.70	0.00	0.00
C	230.0	0.00	0.0	90.0	0.86	0.72	0.00	0.00
C	210.0	0.00	0.0	90.0	0.46	1.70	0.00	0.00
C	210.0	0.00	0.0	90.0	0.84	0.72	0.00	0.00
C	190.0	0.00	0.0	90.0	0.44	1.70	0.00	0.00
C	190.0	0.00	0.0	90.0	0.82	0.72	0.00	0.00
C	170.0	0.00	0.0	90.0	0.05	0.30	0.00	0.00
D	250.0	0.00	180.0	90.0	0.05	0.08	0.00	0.00
D	240.0	0.00	180.0	90.0	0.05	0.08	0.00	0.00
D	240.0	0.00	180.0	90.0	0.05	0.09	0.00	0.00
D	232.0	0.00	180.0	90.0	0.05	0.09	0.00	0.00
D	232.0	0.00	180.0	90.0	0.06	0.10	0.00	0.00
D	228.0	0.00	180.0	90.0	0.06	0.10	0.00	0.00
D	228.0	0.00	180.0	90.0	0.07	0.11	0.00	0.00
D	220.0	0.00	180.0	90.0	0.07	0.11	0.00	0.00
D	220.0	0.00	180.0	90.0	0.08	0.13	0.00	0.00
D	212.0	0.00	180.0	90.0	0.08	0.13	0.00	0.00
D	212.0	0.00	180.0	90.0	0.08	0.14	0.00	0.00
D	208.0	0.00	180.0	90.0	0.08	0.14	0.00	0.00
D	208.0	0.00	180.0	90.0	0.09	0.15	0.00	0.00
D	195.0	0.00	180.0	90.0	0.09	0.15	0.00	0.00
D	195.0	0.00	180.0	90.0	0.09	0.15	0.00	0.00
D	190.0	0.00	180.0	90.0	0.09	0.15	0.00	0.00
D	190.0	0.00	180.0	90.0	0.10	0.16	0.00	0.00
D	180.0	0.00	180.0	90.0	0.10	0.17	0.00	0.00
D	180.0	0.00	180.0	90.0	0.10	0.18	0.00	0.00

D	173.3	0.00	180.0	90.0	0.10	0.18	0.00	0.00
D	173.3	0.00	60.0	90.0	0.10	0.19	0.00	0.00
D	166.7	0.00	60.0	90.0	0.10	0.19	0.00	0.00
D	166.7	0.00	60.0	90.0	0.11	0.19	0.01	-0.01
D	160.0	0.00	60.0	90.0	0.11	0.19	0.01	-0.01
D	160.0	0.00	60.0	90.0	0.12	0.22	0.01	-0.01
D	153.3	0.00	60.0	90.0	0.12	0.22	0.01	-0.01
D	153.3	0.00	60.0	90.0	0.12	0.23	0.01	0.00
D	146.7	0.00	60.0	90.0	0.12	0.23	0.01	0.00
D	146.7	0.00	60.0	90.0	0.12	0.23	0.00	0.00
D	140.0	0.00	60.0	90.0	0.12	0.23	0.00	0.00
D	140.0	0.00	60.0	90.0	0.12	0.23	0.00	0.00
D	133.3	0.00	60.0	90.0	0.12	0.23	0.00	0.00
D	133.3	0.00	60.0	90.0	0.12	0.24	0.00	0.00
D	126.7	0.00	60.0	90.0	0.12	0.24	0.00	0.00
D	126.7	0.00	60.0	90.0	0.12	0.24	0.00	0.00
D	120.0	0.00	60.0	90.0	0.12	0.24	0.00	0.00
D	120.0	0.00	60.0	90.0	0.12	0.25	0.00	0.00
D	110.0	0.00	60.0	90.0	0.12	0.25	0.00	0.00
D	110.0	0.00	240.0	90.0	0.12	0.25	0.00	0.00
D	100.0	0.00	240.0	90.0	0.12	0.25	0.00	0.00
D	100.0	0.00	240.0	90.0	0.12	0.27	0.00	0.00
D	90.0	0.00	240.0	90.0	0.12	0.27	0.00	0.00
D	90.0	0.00	240.0	90.0	0.12	0.28	0.00	0.00
D	80.0	0.00	240.0	90.0	0.12	0.28	0.00	0.00
D	80.0	0.00	240.0	90.0	0.12	0.28	0.01	0.00
D	70.0	0.00	240.0	90.0	0.12	0.28	0.01	0.00
D	70.0	0.00	240.0	90.0	0.12	0.29	0.01	0.01
D	60.0	0.00	240.0	90.0	0.12	0.29	0.01	0.01
D	60.0	0.00	240.0	90.0	0.12	0.34	0.01	0.01
D	50.0	0.00	240.0	90.0	0.12	0.34	0.01	0.01
D	50.0	0.00	240.0	90.0	0.12	0.35	0.01	0.01
D	40.0	0.00	240.0	90.0	0.12	0.35	0.01	0.01
D	40.0	0.00	240.0	90.0	0.11	0.35	0.01	0.01
D	30.0	0.00	240.0	90.0	0.11	0.35	0.01	0.01
D	30.0	0.00	240.0	90.0	0.11	0.36	0.01	0.01
D	20.0	0.00	240.0	90.0	0.11	0.36	0.01	0.01
D	20.0	0.00	240.0	90.0	0.12	0.43	0.01	0.00
D	0.0	0.00	240.0	90.0	0.12	0.43	0.01	0.00

ANTENNA LOADING

=====

.....ANTENNA.....	ATTACHMENT	ANTENNA FORCES				
TYPE	ELEV	AZI	RAD	AZI	AXIAL	SHEAR	GRAVITY	TORSION
	fl	fl	kip	kip	kip	fl-kip		
HP	170.0	0.0	5.2	0.0	-0.10	0.48	0.95	0.62
HP	170.0	120.0	5.2	120.0	0.96	-0.19	0.95	0.32

SUPPRESS PRINTING

=====

...FOR THIS LOADING..MAXIMUMS.....
 LOADS DISPL MEMBER FOUNDN ALL DISPL MEMBER FOUNDN
 INPUT FORCES LOADS FORCES LOADS

no yes yes yes no no no no

=====

LOADING CONDITION C =====

wind from south; 60.6 mph 1/2" ice

MAST LOADING

=====

LOAD ELEV APPLY..LOAD..AT LOADFORCES.....MOMENTS.....
 TYPE RADIUS AZI AZI HORIZ DOWN VERTICAL TORSNAL
 ft ft kip kip ft-kip ft-kip

C	250.0	0.00	0.0	180.0	0.22	0.15	0.00	0.00
C	250.0	0.00	0.0	180.0	1.18	0.98	0.00	0.00
C	250.0	0.00	0.0	180.0	0.48	1.70	0.00	0.00
C	250.0	0.00	0.0	180.0	0.06	0.09	0.00	0.00
C	230.0	0.00	0.0	180.0	0.47	1.70	0.00	0.00
C	230.0	0.00	0.0	180.0	0.86	0.72	0.00	0.00
C	210.0	0.00	0.0	180.0	0.46	1.70	0.00	0.00
C	210.0	0.00	0.0	180.0	0.84	0.72	0.00	0.00
C	190.0	0.00	0.0	180.0	0.44	1.70	0.00	0.00
C	190.0	0.00	0.0	180.0	0.82	0.72	0.00	0.00
C	170.0	0.00	0.0	180.0	0.05	0.30	0.00	0.00
D	250.0	0.00	180.0	180.0	0.06	0.08	0.00	0.00
D	240.0	0.00	180.0	180.0	0.06	0.08	0.00	0.00
D	240.0	0.00	180.0	180.0	0.06	0.09	0.00	0.00
D	232.0	0.00	180.0	180.0	0.06	0.09	0.00	0.00
D	232.0	0.00	180.0	180.0	0.06	0.10	0.00	0.00
D	228.0	0.00	180.0	180.0	0.06	0.10	0.00	0.00
D	228.0	0.00	180.0	180.0	0.07	0.11	0.00	0.00
D	220.0	0.00	180.0	180.0	0.07	0.11	0.00	0.00
D	220.0	0.00	180.0	180.0	0.08	0.13	0.00	0.00
D	212.0	0.00	180.0	180.0	0.08	0.13	0.00	0.00
D	212.0	0.00	180.0	180.0	0.08	0.14	0.00	0.00
D	208.0	0.00	180.0	180.0	0.08	0.14	0.00	0.00
D	208.0	0.00	180.0	180.0	0.09	0.15	0.00	0.00
D	190.0	0.00	180.0	180.0	0.09	0.15	0.00	0.00
D	190.0	0.00	180.0	180.0	0.10	0.16	0.00	0.00
D	180.0	0.00	180.0	180.0	0.10	0.17	0.00	0.00

D	180.0	0.00	180.0	180.0	0.10	0.18	0.00	0.00
D	173.3	0.00	180.0	180.0	0.10	0.18	0.00	0.00
D	173.3	0.00	60.0	180.0	0.11	0.19	0.00	-0.01
D	166.7	0.00	60.0	180.0	0.11	0.19	0.00	-0.01
D	166.7	0.00	60.0	180.0	0.11	0.19	0.01	-0.01
D	160.0	0.00	60.0	180.0	0.11	0.19	0.01	-0.01
D	160.0	0.00	60.0	180.0	0.12	0.22	0.01	-0.01
D	153.3	0.00	60.0	180.0	0.12	0.22	0.01	-0.01
D	153.3	0.00	60.0	180.0	0.12	0.23	0.01	-0.01
D	146.7	0.00	60.0	180.0	0.12	0.23	0.01	-0.01
D	146.7	0.00	60.0	180.0	0.12	0.23	0.00	-0.01
D	140.0	0.00	60.0	180.0	0.12	0.23	0.00	-0.01
D	140.0	0.00	60.0	180.0	0.12	0.23	0.00	-0.01
D	133.3	0.00	60.0	180.0	0.12	0.23	0.00	-0.01
D	133.3	0.00	60.0	180.0	0.12	0.24	0.00	0.00
D	126.7	0.00	60.0	180.0	0.12	0.24	0.00	0.00
D	126.7	0.00	60.0	180.0	0.12	0.24	0.00	0.00
D	120.0	0.00	60.0	180.0	0.12	0.24	0.00	0.00
D	120.0	0.00	60.0	180.0	0.12	0.25	0.00	0.00
D	110.0	0.00	60.0	180.0	0.12	0.25	0.00	0.00
D	110.0	0.00	240.0	180.0	0.12	0.25	0.00	0.00
D	100.0	0.00	240.0	180.0	0.12	0.25	0.00	0.00
D	100.0	0.00	240.0	180.0	0.13	0.27	0.00	0.00
D	90.0	0.00	240.0	180.0	0.13	0.27	0.00	0.00
D	90.0	0.00	240.0	180.0	0.13	0.28	0.00	0.01
D	80.0	0.00	240.0	180.0	0.13	0.28	0.00	0.01
D	80.0	0.00	240.0	180.0	0.12	0.28	0.01	0.01
D	70.0	0.00	240.0	180.0	0.12	0.28	0.01	0.01
D	70.0	0.00	240.0	180.0	0.12	0.29	0.01	0.01
D	60.0	0.00	240.0	180.0	0.12	0.29	0.01	0.01
D	60.0	0.00	240.0	180.0	0.13	0.34	0.01	0.01
D	50.0	0.00	240.0	180.0	0.13	0.34	0.01	0.01
D	50.0	0.00	240.0	180.0	0.12	0.35	0.01	0.01
D	40.0	0.00	240.0	180.0	0.12	0.35	0.01	0.01
D	40.0	0.00	240.0	180.0	0.12	0.35	0.01	0.01
D	30.0	0.00	240.0	180.0	0.12	0.35	0.01	0.01
D	30.0	0.00	240.0	180.0	0.12	0.36	0.01	0.01
D	20.0	0.00	240.0	180.0	0.12	0.36	0.01	0.01
D	20.0	0.00	240.0	180.0	0.13	0.43	0.01	0.01
D	0.0	0.00	240.0	180.0	0.13	0.43	0.01	0.01

ANTENNA LOADING

..... ANTENNA..... ATTACHMENT ANTENNA FORCES.....
 TYPE ELEV AZI RAD AZI AXIAL SHEAR GRAVITY TORSION
 ft ft kip kip kip ft-kip

HP	170.0	0.0	52.0	0.0	-0.85	0.00	0.95	0.00
HP	170.0	120.0	52.0	120.0	0.74	0.30	0.95	-0.05

SUPPRESS PRINTING

=====

...FOR THIS LOADING..MAXIMUMS.....
 LOADS DISPL MEMBER FOUNDN ALL DISPL MEMBER FOUNDN
 INPUT FORCES LOADS FORCES LOADS

no yes yes yes no no no no

=====

LOADING CONDITION D =====

wind from north: 70 mph no ice

MAST LOADING

=====

LOAD ELEV APPLY..LOAD..AT LOADFORCES.....MOMENTS.....
 TYPE RADIUS AZI AZI HORIZ DOWN VERTICAL TORSNAL
 ft ft kip kip ft-kip ft-kip

C	250.0	0.00	0.0	0.0	0.22	0.06	0.00	0.00
C	250.0	0.00	0.0	0.0	1.40	0.30	0.00	0.00
C	250.0	0.00	0.0	0.0	0.43	1.33	0.00	0.00
C	250.0	0.00	0.0	0.0	0.08	0.09	0.00	0.00
C	230.0	0.00	0.0	0.0	0.42	1.33	0.00	0.00
C	230.0	0.00	0.0	0.0	1.03	0.22	0.00	0.00
C	210.0	0.00	0.0	0.0	0.41	1.33	0.00	0.00
C	210.0	0.00	0.0	0.0	1.00	0.22	0.00	0.00
C	190.0	0.00	0.0	0.0	0.40	1.33	0.00	0.00
C	190.0	0.00	0.0	0.0	0.97	0.22	0.00	0.00
C	170.0	0.00	0.0	0.0	0.04	0.20	0.00	0.00
D	250.0	0.00	180.0	0.0	0.05	0.04	0.00	0.00
D	240.0	0.00	180.0	0.0	0.05	0.04	0.00	0.00
D	240.0	0.00	180.0	0.0	0.05	0.05	0.00	0.00
D	232.0	0.00	180.0	0.0	0.05	0.05	0.00	0.00
D	232.0	0.00	180.0	0.0	0.06	0.05	0.00	0.00
D	228.0	0.00	180.0	0.0	0.06	0.05	0.00	0.00
D	228.0	0.00	180.0	0.0	0.06	0.05	0.00	0.00
D	220.0	0.00	180.0	0.0	0.06	0.05	0.00	0.00
D	220.0	0.00	180.0	0.0	0.07	0.07	0.00	0.00
D	212.0	0.00	180.0	0.0	0.07	0.07	0.00	0.00
D	212.0	0.00	180.0	0.0	0.08	0.07	0.00	0.00
D	208.0	0.00	180.0	0.0	0.08	0.07	0.00	0.00
D	208.0	0.00	180.0	0.0	0.08	0.06	0.00	0.00
D	190.0	0.00	180.0	0.0	0.08	0.08	0.00	0.00
D	190.0	0.00	180.0	0.0	0.09	0.08	0.00	0.00

D	180.0	0.00	180.0	0.0	0.09	0.08	0.00	0.00
D	180.0	0.00	180.0	0.0	0.10	0.10	0.00	0.00
D	173.3	0.00	180.0	0.0	0.10	0.10	0.00	0.00
D	173.3	0.00	60.0	0.0	0.10	0.10	0.00	0.01
D	166.7	0.00	60.0	0.0	0.10	0.10	0.00	0.01
D	166.7	0.00	60.0	0.0	0.11	0.11	0.00	0.01
D	160.0	0.00	60.0	0.0	0.11	0.11	0.00	0.01
D	160.0	0.00	60.0	0.0	0.12	0.13	0.00	0.01
D	153.3	0.00	60.0	0.0	0.12	0.13	0.00	0.01
D	153.3	0.00	60.0	0.0	0.12	0.13	0.00	0.01
D	146.7	0.00	60.0	0.0	0.12	0.13	0.00	0.01
D	146.7	0.00	60.0	0.0	0.12	0.13	0.00	0.01
D	140.0	0.00	60.0	0.0	0.12	0.15	0.00	0.01
D	140.0	0.00	60.0	0.0	0.12	0.14	0.00	0.00
D	133.3	0.00	60.0	0.0	0.12	0.14	0.00	0.00
D	133.3	0.00	60.0	0.0	0.12	0.14	0.00	0.00
D	126.7	0.00	60.0	0.0	0.12	0.14	0.00	0.00
D	126.7	0.00	60.0	0.0	0.12	0.14	0.00	0.00
D	120.0	0.00	60.0	0.0	0.12	0.14	0.00	0.00
D	120.0	0.00	60.0	0.0	0.13	0.15	0.00	0.00
D	110.0	0.00	60.0	0.0	0.13	0.15	0.00	0.00
D	110.0	0.00	240.0	0.0	0.13	0.15	0.00	0.00
D	100.0	0.00	240.0	0.0	0.13	0.15	0.00	0.00
D	100.0	0.00	240.0	0.0	0.13	0.16	0.00	0.00
D	90.0	0.00	240.0	0.0	0.13	0.16	0.00	0.00
D	90.0	0.00	240.0	0.0	0.13	0.17	0.00	-0.01
D	80.0	0.00	240.0	0.0	0.13	0.17	0.00	-0.01
D	80.0	0.00	240.0	0.0	0.13	0.17	0.00	-0.01
D	70.0	0.00	240.0	0.0	0.13	0.17	0.00	-0.01
D	70.0	0.00	240.0	0.0	0.12	0.17	0.00	-0.01
D	60.0	0.00	240.0	0.0	0.12	0.17	0.00	-0.01
D	60.0	0.00	240.0	0.0	0.13	0.22	0.00	-0.01
D	50.0	0.00	240.0	0.0	0.13	0.22	0.00	-0.01
D	50.0	0.00	240.0	0.0	0.13	0.22	0.00	-0.01
D	40.0	0.00	240.0	0.0	0.13	0.22	0.00	-0.01
D	40.0	0.00	240.0	0.0	0.12	0.22	0.00	-0.01
D	30.0	0.00	240.0	0.0	0.12	0.22	0.00	-0.01
D	30.0	0.00	240.0	0.0	0.12	0.23	0.01	-0.01
D	20.0	0.00	240.0	0.0	0.12	0.23	0.01	-0.01
D	20.0	0.00	240.0	0.0	0.14	0.29	0.00	-0.01
D	0.0	0.00	240.0	0.0	0.14	0.29	0.00	-0.01

ANTENNA LOADING

TYPE	ELEV	AZI	RAD	AZI	AXIAL	SHEAR	GRAVITY	TORSION
	ft	ft	kip	kip	kip	ft-kip		
HP	170.0	0.0	5.2	0.0	1.32	0.00	0.45	0.00
HP	170.0	120.0	5.2	120.0	-0.77	-0.41	0.45	-0.83

SUPPRESS PRINTING

=====

...FOR THIS LOADING..MAXIMUMS.....
 LOADS DISPL MEMBER FOUNDN ALL DISPL MEMBER FOUNDN
 INPUT FORCES LOADS FORCES LOADS

no yes yes yes no no no no

=====
 LOADING CONDITION E =====

wind from east, 70 mph no ice

MAST LOADING

=====

LOAD ELEV APPLY..LOAD..AT LOADFORCES.....MOMENTS.....
 TYPE RADIUS AZI AZI HORIZ DOWN VERTICAL TORSNAL
 ft ft kip kip ft-kip ft-kip

C	250.0	0.00	0.0	90.0	0.22	0.06	0.00	0.00
C	250.0	0.00	0.0	90.0	1.40	0.30	0.00	0.00
C	250.0	0.00	0.0	90.0	0.43	1.33	0.00	0.00
C	250.0	0.00	0.0	90.0	0.08	0.09	0.00	0.00
C	230.0	0.00	0.0	90.0	0.42	1.33	0.00	0.00
C	230.0	0.00	0.0	90.0	1.03	0.22	0.00	0.00
C	210.0	0.00	0.0	90.0	0.41	1.33	0.00	0.00
C	210.0	0.00	0.0	90.0	1.00	0.22	0.00	0.00
C	190.0	0.00	0.0	90.0	0.40	1.33	0.00	0.00
C	190.0	0.00	0.0	90.0	0.97	0.22	0.00	0.00
C	170.0	0.00	0.0	90.0	0.04	0.20	0.00	0.00
D	250.0	0.00	180.0	90.0	0.05	0.04	0.00	0.00
D	240.0	0.00	180.0	90.0	0.05	0.04	0.00	0.00
D	240.0	0.00	180.0	90.0	0.05	0.05	0.00	0.00
D	232.0	0.00	180.0	90.0	0.05	0.05	0.00	0.00
D	232.0	0.00	180.0	90.0	0.05	0.05	0.00	0.00
D	228.0	0.00	180.0	90.0	0.06	0.05	0.00	0.00
D	228.0	0.00	180.0	90.0	0.07	0.05	0.00	0.00
D	220.0	0.00	180.0	90.0	0.07	0.05	0.00	0.00
D	220.0	0.00	180.0	90.0	0.07	0.07	0.00	0.00
D	212.0	0.00	180.0	90.0	0.07	0.07	0.00	0.00
D	212.0	0.00	180.0	90.0	0.08	0.07	0.00	0.00
D	208.0	0.00	180.0	90.0	0.08	0.07	0.00	0.00
D	208.0	0.00	180.0	90.0	0.08	0.08	0.00	0.00
D	190.0	0.00	180.0	90.0	0.09	0.08	0.00	0.00

D	190.0	0.00	180.0	90.0	0.09	0.08	0.00	0.00
D	180.0	0.00	180.0	90.0	0.10	0.08	0.00	0.00
D	180.0	0.00	180.0	90.0	0.10	0.10	0.00	0.00
D	173.3	0.00	180.0	90.0	0.10	0.10	0.00	0.00
D	173.3	0.00	60.0	90.0	0.11	0.10	0.00	0.00
D	166.7	0.00	60.0	90.0	0.11	0.10	0.00	0.00
D	166.7	0.00	60.0	90.0	0.11	0.11	0.00	-0.01
D	160.0	0.00	60.0	90.0	0.11	0.11	0.00	-0.01
D	160.0	0.00	60.0	90.0	0.12	0.13	0.00	-0.01
D	153.3	0.00	60.0	90.0	0.12	0.13	0.00	-0.01
D	153.3	0.00	60.0	90.0	0.12	0.13	0.00	0.00
D	146.7	0.00	60.0	90.0	0.12	0.13	0.00	0.00
D	146.7	0.00	60.0	90.0	0.12	0.13	0.00	0.00
D	140.0	0.00	60.0	90.0	0.12	0.13	0.00	0.00
D	140.0	0.00	60.0	90.0	0.13	0.14	0.00	0.00
D	133.3	0.00	60.0	90.0	0.13	0.14	0.00	0.00
D	133.3	0.00	60.0	90.0	0.13	0.14	0.00	0.00
D	126.7	0.00	60.0	90.0	0.13	0.14	0.00	0.00
D	126.7	0.00	60.0	90.0	0.13	0.14	0.00	0.00
D	120.0	0.00	60.0	90.0	0.13	0.14	0.00	0.00
D	120.0	0.00	60.0	90.0	0.13	0.16	0.00	0.00
D	110.0	0.00	60.0	90.0	0.13	0.15	0.00	0.00
D	110.0	0.00	240.0	90.0	0.13	0.15	0.00	0.00
D	100.0	0.00	240.0	90.0	0.13	0.15	0.00	0.00
D	100.0	0.00	240.0	90.0	0.13	0.16	0.00	0.00
D	90.0	0.00	240.0	90.0	0.13	0.16	0.00	0.00
D	90.0	0.00	240.0	90.0	0.13	0.17	0.00	0.00
D	80.0	0.00	240.0	90.0	0.13	0.17	0.00	0.00
D	80.0	0.00	240.0	90.0	0.13	0.17	0.00	0.00
D	70.0	0.00	240.0	90.0	0.13	0.17	0.00	0.00
D	70.0	0.00	240.0	90.0	0.13	0.17	0.00	0.00
D	60.0	0.00	240.0	90.0	0.13	0.17	0.00	0.00
D	60.0	0.00	240.0	90.0	0.13	0.22	0.00	0.01
D	50.0	0.00	240.0	90.0	0.13	0.22	0.00	0.01
D	50.0	0.00	240.0	90.0	0.13	0.22	0.00	0.01
D	40.0	0.00	240.0	90.0	0.13	0.22	0.00	0.01
D	40.0	0.00	240.0	90.0	0.12	0.22	0.00	0.01
D	30.0	0.00	240.0	90.0	0.12	0.22	0.00	0.01
D	30.0	0.00	240.0	90.0	0.12	0.23	0.01	0.01
D	20.0	0.00	240.0	90.0	0.12	0.23	0.01	0.01
D	20.0	0.00	240.0	90.0	0.14	0.29	0.00	0.00
D	0.0	0.00	240.0	90.0	0.14	0.29	0.00	0.00

ANTENNA LOADING

==*****

ANTENNA		ATTACHMENT		ANTENNA FORCES				
TYPE	ELEV	AZI	RAD	AZI	AXIAL	SHEAR	GRAVITY	TORSION
	ft		kip	kip	kip	ft-kip		
HP	170.0	0.0	52.00	-0.13	0.63	0.45	0.81	
HP	170.0	120.0	52.120.0	1.26	-0.25	0.45	0.42	

SUPPRESS PRINTING

=====

...FOR THIS LOADING..MAXIMUMS.....

LOADS DISPL MEMBER FOUNDN ALL DISPL MEMBER FOUNDN
 INPUT FORCES LOADS FORCES LOADS

no yes yes yes no no no no

=====

LOADING CONDITION F =====

wind from south; 70 mph no ice

MAST LOADING

=====

LOAD ELEV APPLY..LOAD..AT LOADFORCES.....MOMENTS.....
 TYPE RADIUS AZI AZI HORIZ DOWN VERTICAL TORSNAL

ft ft kip kip ft-kip ft-kip

C	250.0	0.00	0.0	180.0	0.22	0.06	0.00	0.00
C	250.0	0.00	0.0	180.0	1.40	0.30	0.00	0.00
C	250.0	0.00	0.0	180.0	0.43	1.33	0.00	0.00
C	250.0	0.00	0.0	180.0	0.08	0.09	0.00	0.00
C	230.0	0.00	0.0	180.0	0.42	1.33	0.00	0.00
C	230.0	0.00	0.0	180.0	1.03	0.22	0.00	0.00
C	210.0	0.00	0.0	180.0	0.41	1.33	0.00	0.00
C	210.0	0.00	0.0	180.0	1.00	0.22	0.00	0.00
C	190.0	0.00	0.0	180.0	0.40	1.33	0.00	0.00
C	190.0	0.00	0.0	180.0	0.97	0.22	0.00	0.00
C	170.0	0.00	0.0	180.0	0.04	0.20	0.00	0.00
D	250.0	0.00	180.0	180.0	0.08	0.04	0.00	0.00
D	240.0	0.00	180.0	180.0	0.06	0.04	0.00	0.00
D	240.0	0.00	180.0	180.0	0.06	0.05	0.00	0.00
D	232.0	0.00	180.0	180.0	0.08	0.05	0.00	0.00
D	232.0	0.00	180.0	180.0	0.06	0.05	0.00	0.00
D	228.0	0.00	180.0	180.0	0.06	0.05	0.00	0.00
D	228.0	0.00	180.0	180.0	0.07	0.05	0.00	0.00
D	220.0	0.00	180.0	180.0	0.07	0.05	0.00	0.00
D	220.0	0.00	180.0	180.0	0.07	0.07	0.00	0.00
D	212.0	0.00	180.0	180.0	0.07	0.07	0.00	0.00
D	212.0	0.00	180.0	180.0	0.08	0.07	0.00	0.00
D	208.0	0.00	180.0	180.0	0.08	0.07	0.00	0.00
D	208.0	0.00	180.0	180.0	0.09	0.08	0.00	0.00

D	190.0	0.00	180.0	180.0	0.09	0.08	0.00	0.00
D	190.0	0.00	180.0	180.0	0.10	0.08	0.00	0.00
D	180.0	0.00	180.0	180.0	0.10	0.08	0.00	0.00
D	180.0	0.00	180.0	180.0	0.10	0.10	0.00	0.00
D	173.3	0.00	180.0	180.0	0.10	0.10	0.00	0.00
D	173.3	0.00	60.0	180.0	0.11	0.10	0.00	-0.01
D	166.7	0.00	60.0	180.0	0.11	0.10	0.00	-0.01
D	166.7	0.00	60.0	180.0	0.12	0.11	0.00	-0.01
D	160.0	0.00	60.0	180.0	0.12	0.11	0.00	-0.01
D	160.0	0.00	60.0	180.0	0.13	0.13	0.00	-0.01
D	153.3	0.00	60.0	180.0	0.13	0.13	0.00	-0.01
D	153.3	0.00	60.0	180.0	0.13	0.13	0.00	-0.01
D	146.7	0.00	60.0	180.0	0.13	0.13	0.00	-0.01
D	146.7	0.00	60.0	180.0	0.13	0.13	0.00	-0.01
D	140.0	0.00	60.0	180.0	0.13	0.13	0.00	-0.01
D	140.0	0.00	60.0	180.0	0.13	0.14	0.00	0.00
D	133.3	0.00	60.0	180.0	0.13	0.14	0.00	0.00
D	133.3	0.00	60.0	180.0	0.13	0.14	0.00	0.00
D	126.7	0.00	60.0	180.0	0.13	0.14	0.00	0.00
D	126.7	0.00	60.0	180.0	0.13	0.14	0.00	0.00
D	120.0	0.00	60.0	180.0	0.13	0.14	0.00	0.00
D	120.0	0.00	60.0	180.0	0.13	0.15	0.00	0.00
D	110.0	0.00	60.0	180.0	0.13	0.15	0.00	0.00
D	110.0	0.00	240.0	180.0	0.13	0.15	0.00	0.00
D	100.0	0.00	240.0	180.0	0.13	0.15	0.00	0.00
D	100.0	0.00	240.0	180.0	0.14	0.16	0.00	0.00
D	90.0	0.00	240.0	180.0	0.14	0.16	0.00	0.00
D	90.0	0.00	240.0	180.0	0.14	0.17	0.00	0.01
D	80.0	0.00	240.0	180.0	0.14	0.17	0.00	0.01
D	80.0	0.00	240.0	180.0	0.14	0.17	0.00	0.01
D	70.0	0.00	240.0	180.0	0.14	0.17	0.00	0.01
D	70.0	0.00	240.0	180.0	0.14	0.17	0.00	0.01
D	60.0	0.00	240.0	180.0	0.14	0.17	0.00	0.01
D	60.0	0.00	240.0	180.0	0.14	0.22	0.00	0.01
D	50.0	0.00	240.0	180.0	0.14	0.22	0.00	0.01
D	50.0	0.00	240.0	180.0	0.14	0.22	0.00	0.01
D	40.0	0.00	240.0	180.0	0.14	0.22	0.00	0.01
D	40.0	0.00	240.0	180.0	0.13	0.22	0.00	0.01
D	30.0	0.00	240.0	180.0	0.13	0.22	0.00	0.01
D	30.0	0.00	240.0	180.0	0.13	0.23	0.01	0.01
D	20.0	0.00	240.0	180.0	0.13	0.23	0.01	0.01
D	20.0	0.00	240.0	180.0	0.16	0.29	0.00	0.01
D	0.0	0.00	240.0	180.0	0.16	0.29	0.00	0.01

ANTENNA LOADING

..... ANTENNA	ATTACHMENT ANTENNA FORCES
TYPE	ELEV AZI RAD AZI	AXIAL SHEAR GRAVITY TORSION
	ft ft kip kip	kip ft-kip

HP	170.0	0.0	5.2	0.0	-1.11	0.00	0.45	0.00
----	-------	-----	-----	-----	-------	------	------	------

HP 170.0 120.0 5.2 120.0 0.97 0.39 0.45 -0.05

SUPPRESS PRINTING

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...FOR THIS LOADING..MAXIMUMS.....

LOADS	DISPL	MEMBER	FOUNDN	ALL	DISPL	MEMBER	FOUNDN
INPUT	FORCES	LOADS		FORCES	LOADS		

no	yes	yes	yes	no	no	no	no
----	-----	-----	-----	----	----	----	----

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MAST - Latticed Tower Analysis (Unguyed) (c)1997 Guymast Inc. 416-736-7453
Processed under license at:

Hemphill Corporation on: 7 aug 2005 at: 11:27:53

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Hemphill * 250'SST 70 mph 1/2" ice * 1414

LOADING CONDITION A =====

wind from north; 60.6 mph 1/2" ice

LOADING CONDITION B =====

wind from east; 60.6 mph 1/2" ice

LOADING CONDITION C =====

wind from south; 60.6 mph 1/2" ice

LOADING CONDITION D =====

wind from north; 70 mph no ice

LOADING CONDITION E =====

wind from east; 70 mph no ice

LOADING CONDITION F =====

wind from south; 70 mph no ice

=====

MAST - Latticed Tower Analysis (Unguyed) (c)1997 Guymast Inc. 416-736-7453
 Processed under license at:

Hemphill Corporation on: 7 aug 2005 at: 11:27:53

MAXIMUM MAST DISPLACEMENTS:

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ELEV ft	DEFLECTIONS (ft)			TILTS (DEG)		TWIST
	NORTH	EAST	DOWN	NORTH	EAST	DEG
250.0	2.936 F	-2.864 E	0.042 C	1.710 F	-1.677 E	0.019 E
245.0	2.785 F	-2.716 E	0.039 C	1.706 F	-1.672 E	0.019 E
240.0	2.638 F	-2.572 E	0.037 C	1.684 F	-1.650 E	0.019 E
236.0	2.520 F	-2.457 E	0.036 C	1.658 F	-1.624 E	0.019 E
232.0	2.407 F	-2.346 E	0.034 C	1.618 F	-1.585 E	0.019 E
228.0	2.295 F	-2.236 E	0.032 C	1.569 F	-1.536 E	0.019 E
224.0	2.187 F	-2.130 E	0.031 C	1.500 F	-1.468 E	0.019 E
220.0	2.085 F	-2.031 E	0.030 C	1.414 F	-1.384 E	0.019 E
216.0	1.988 F	-1.935 E	0.028 C	1.369 F	-1.339 E	0.019 E
212.0	1.894 F	-1.844 E	0.027 C	1.323 F	-1.294 E	0.019 E
208.0	1.803 F	-1.754 E	0.026 C	1.278 F	-1.249 E	0.019 E
204.0	1.715 F	-1.669 E	0.025 C	1.232 F	-1.204 E	0.019 E
200.0	1.630 F	-1.585 E	0.024 C	1.186 F	-1.158 E	0.019 E
195.0	1.529 F	-1.487 E	0.023 C	1.127 F	-1.100 E	0.019 E
190.0	1.433 F	-1.394 E	0.022 C	1.068 F	-1.043 E	0.019 E
185.0	1.342 F	-1.305 E	0.021 C	1.009 F	-0.985 E	0.019 E
180.0	1.256 F	-1.221 E	0.020 C	0.950 F	-0.926 E	0.019 E
173.3	1.148 F	-1.116 E	0.018 C	0.893 F	-0.870 E	0.019 E
168.7	1.047 F	-1.017 E	0.017 C	0.836 F	-0.814 E	0.018 E

160.0	0.952 F	-0.925 E	0.016 C	0.778 F	-0.757 E	0.015 E
153.3	0.864 F	-0.838 E	0.015 C	0.735 F	-0.715 E	0.013 E
146.7	0.780 F	-0.757 E	0.014 C	0.691 F	-0.672 E	0.012 E
140.0	0.701 F	-0.681 E	0.013 C	0.647 F	-0.629 E	0.011 E
133.3	0.628 F	-0.609 E	0.013 C	0.602 F	-0.586 E	0.009 E
126.7	0.560 F	-0.543 E	0.012 C	0.558 F	-0.543 E	0.008 E
120.0	0.497 F	-0.481 E	0.011 C	0.514 F	-0.499 E	0.007 E
110.0	0.411 F	-0.398 E	0.010 C	0.462 F	-0.449 E	0.006 E
100.0	0.333 F	-0.323 E	0.009 C	0.411 F	-0.399 E	0.005 E
90.0	0.265 F	-0.257 E	0.008 C	0.359 F	-0.349 E	0.005 E
80.0	0.206 F	-0.199 E	0.007 C	0.307 F	-0.298 E	0.004 E
70.0	0.155 F	-0.150 E	0.006 C	0.255 F	-0.248 E	0.003 E
60.0	0.114 F	-0.110 E	0.005 C	0.204 F	-0.198 E	0.003 E
50.0	0.080 F	-0.077 E	0.004 C	0.170 F	-0.165 E	0.002 E
40.0	0.051 F	-0.049 E	0.004 C	0.136 F	-0.131 E	0.002 E
30.0	0.027 F	-0.026 E	0.003 B	0.101 F	-0.098 E	0.002 E
20.0	0.010 F	-0.010 E	0.002 C	0.067 F	-0.065 E	0.001 E
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A

MAXIMUM ANTENNA ROTATIONS:

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ELEV	ANT	ANT	-----BEAM DEFLECTIONS (DEG)-----			
R	AZI	TYPE	ROLL	YAW	PITCH	TOTAL
170.0	0.0	HP	0.842 E	0.018 E	-0.864 F	0.842 E
170.0	120.0	HP	-0.756 F	0.021 E	-0.722 E	0.757 F

MAXIMUM TENSION IN MAST MEMBERS (kip)

=====

ELEV	LEGS	DIAG	HORIZ	BRACE
ft				
250.0	-----		0.01 F	0.00 A
	0.48 D	1.39 D		
245.0	-----		0.03 D	0.00 A
	4.85 D	1.46 F		
240.0	-----		0.00 C	0.00 A
	7.39 D	1.41 D		
235.0	-----		0.03 D	0.00 A
	11.38 D	1.48 F		
232.0	-----		0.01 A	0.00 A
	14.22 D	1.97 D		
228.0	-----		0.01 D	0.00 A
	19.84 D	2.33 E		
224.0	-----		0.03 A	0.00 A
	24.89 D	2.45 E		
220.0	-----		0.01 D	0.00 A
	29.67 D	1.20 E		

216.0	-----	0.02 A	0.00 A
	32.54 D 1.30 B		
212.0	-----	0.01 D	0.00 A
	35.06 D 1.44 E		
208.0	-----	0.02 A	0.00 A
	38.25 D 1.80 E		
204.0	-----	0.01 D	0.00 A
	41.65 D 1.70 E		
200.0	-----	0.02 A	0.00 A
	45.23 D 1.88 E		
195.0	-----	0.01 D	0.00 A
	48.96 D 1.80 E		
190.0	-----	0.01 A	0.00 A
	52.38 D 2.38 E		
185.0	-----	0.01 A	0.00 A
	57.05 D 2.36 E		
180.0	-----	0.01 A	0.00 A
	61.59 D 2.60 E		
173.3	-----	0.01 A	0.00 A
	67.41 D 2.75 D		
168.7	-----	0.01 A	0.00 A
	73.09 D 3.41 D		
160.0	-----	0.01 A	0.00 A
	79.54 D 3.28 F		
153.3	-----	0.01 A	0.00 A
	85.57 D 3.38 D		
146.7	-----	0.01 A	0.00 A
	91.59 D 3.34 E		
140.0	-----	0.01 A	0.00 A
	97.19 D 3.43 D		
133.3	-----	0.01 A	0.00 A
	102.89 D 3.52 E		
126.7	-----	0.01 A	0.00 A
	108.26 D 3.59 E		
120.0	-----	0.01 A	0.00 A
	115.01 D 4.13 E		
110.0	-----	0.01 A	0.00 A
	122.77 D 4.26 E		
100.0	-----	0.01 A	0.00 A
	130.59 D 4.44 E		
90.0	-----	0.01 A	0.00 A
	138.10 D 4.59 E		
80.0	-----	0.01 A	0.00 A
	145.69 D 4.78 E		
70.0	-----	0.01 A	0.00 A
	153.04 D 4.94 E		
60.0	-----	0.01 A	0.00 A
	160.39 D 5.13 E		
50.0	-----	0.00 A	0.00 A
	167.48 D 5.31 E		
40.0	-----	0.00 D	0.00 A
	174.64 D 5.50 E		

30.0	-----	0.00 A	0.00 A
	181.61 D 5.65 E		
20.0	-----	5.77 E	0.00 B
	184.21 D 10.63 E		
0.0	-----	0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

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ELEV	LEGS	DIAG	HORIZ	BRACE
ft				
250.0	-----	-0.01 D	0.00 A	
	-2.05 C -1.40 F			
245.0	-----	-0.02 F	0.00 A	
	-6.28 F -1.45 D			
240.0	-----	0.00 A	0.00 A	
	-8.99 F -1.43 F			
236.0	-----	-0.03 F	0.00 A	
	-13.17 F -1.45 D			
232.0	-----	-0.01 F	0.00 A	
	-16.73 F -2.01 F			
228.0	-----	-0.01 F	0.00 A	
	-23.11 F -2.33 E			
224.0	-----	-0.02 F	0.00 A	
	-28.41 F -2.46 E			
220.0	-----	-0.01 F	0.00 A	
	-33.28 F -1.35 B			
216.0	-----	-0.01 F	0.00 A	
	-36.74 F -1.18 E			
212.0	-----	-0.01 F	0.00 A	
	-39.75 F -1.57 B			
208.0	-----	-0.01 F	0.00 A	
	-43.99 F -1.73 E			
204.0	-----	-0.01 F	0.00 A	
	-47.49 F -1.77 E			
200.0	-----	-0.01 F	0.00 A	
	-51.57 F -1.82 E			
195.0	-----	-0.01 F	0.00 A	
	-55.50 F -1.87 E			
190.0	-----	-0.01 F	0.00 A	
	-60.43 F -2.38 E			
185.0	-----	-0.01 F	0.00 A	
	-65.46 F -2.37 E			
180.0	-----	-0.01 F	0.00 A	
	-70.53 F -2.60 E			
173.3	-----	-0.01 F	0.00 A	

166.7	-77.35 F	-3.17 E	-0.01 F	0.00 A
160.0	-84.19 F	-3.41 F	-0.01 F	0.00 A
153.3	-91.31 F	-3.29 D	-0.01 F	0.00 A
146.7	-97.93 F	-3.41 F	-0.01 F	0.00 A
140.0	-104.65 F	-3.32 E	-0.01 F	0.00 A
133.3	-110.98 F	-3.50 F	-0.01 F	0.00 A
126.7	-117.43 F	-3.50 E	0.00 F	0.00 A
120.0	-123.60 F	-3.63 F	-0.01 F	0.00 A
110.0	-131.96 F	-4.13 E	-0.01 F	0.00 A
100.0	-140.44 F	-4.30 E	-0.01 F	0.00 A
90.0	-149.63 F	-4.44 E	-0.01 F	0.00 A
80.0	-158.61 F	-4.63 E	0.00 F	0.00 A
70.0	-167.70 F	-4.79 E	-0.01 F	0.00 A
60.0	-176.61 F	-4.97 E	0.00 F	0.00 A
50.0	-185.67 F	-5.15 E	0.00 F	0.00 A
40.0	-194.68 F	-5.35 E	0.00 F	0.00 A
30.0	-203.78 F	-5.51 E	0.00 F	0.00 A
20.0	-212.75 F	-5.70 E	-5.82 E	0.00 A
0.0	-218.29 F	-10.63 E	0.00 A	0.00 A

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)

LOAD--COMPONENTS-----				TOTAL
NORTH	EAST	DOWN	UPLIFT	SHEAR
22.63 F	-17.01 E	235.40 F	-198.40 D	22.63 F

MAXIMUM TOTAL LOADS ON FOUNDATION : (kip & kip-ft)

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-----HORIZONTAL-----			DOWN	-----OVERTURNING-----			TORSION
NORTH	EAST	TOTAL		NORTH	EAST	TOTAL	
@ 359.0				@ 358.8			

37.8	-36.2	37.8	72.9	4971.7	-4806.9	4972.9	3.5
F	E	F	A	F	E	F	E

=====

ORIGINAL DATA FILE :

C:\11414 usm

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Hemphill * 250'SST 70 mph 1/2" ice * 1414

MAST GEOMETRY

x 3 240.0 250.0 4.0 4.0 5.0
x 3 220.0 240.0 4.0 4 0 4 0
x 3 200.0 220.0 6.0 4.0 4.0
x 3 180.0 200.0 8.0 6.0 5.0
x 3 160.0 180.0 10.0 8.0 6.67
x 3 140.0 160.0 12.0 10.0 6.67
x 3 120.0 140.0 14.0 12.0 6.67
x 3 100.0 120.0 16.0 14.0 10.0
x 3 80.0 100.0 18.0 16.0 10.0
x 3 60.0 80.0 20.0 18.0 10.0
x 3 40.0 60.0 22.0 20.0 10.0
x 3 20.0 40.0 24.0 22.0 10.0
a 3 0.0 20.0 26.0 24.0 20.0

MEMBER PROPERTIES

LE 220.0 250.0 1.075 0.0 29000. 0.0
LE 180.0 220.0 2.228 0.0 29000. 0.0
LE 160.0 180.0 3.174 0.0 29000. 0.0
LE 120.0 160.0 4.30 0.0 29000. 0.0
LE 60.0 120.0 5.581 0.0 29000. 0.0
LE 0.0 60.0 8.399 0.0 29000. 0.0
DI 180.0 250.0 0.621 0.0 29000. 0.0
DI 160.0 180.0 0.937 0.0 29000. 0.0
DI 120.0 160.0 1.187 0.0 29000. 0.0
DI 100.0 120.0 1.437 0.0 29000. 0.0
DI 60.0 100.0 1.687 0.0 29000. 0.0
DI 0.0 60.0 1.937 0.0 29000. 0.0
HO 0.0 20.0 1.937 0.0 29000. 0.0
SR 0.0 20.0 1.937 0.0 29000. 0.0

wind from north; 60.6 mph 1/2" ice

MAST LOADING

D 250. 0. 180. 0. 0.054 0.0849 0. 0.
D 240. 0. 180. 0. 0.0537 0.0849 0. 0.
D 240. 0. 180. 0. 0.0544 0.0881 0. 0.
D 232. 0. 180. 0. 0.0641 0.0881 0. 0.
D 232. 0. 180. 0. 0.062 0.0997 0. 0.
D 228. 0. 180. 0. 0.062 0.0997 0. 0.
D 228. 0. 180. 0. 0.0717 0.1112 0. 0.
D 220. 0. 180. 0. 0.0713 0.1112 0. 0.
D 220. 0. 180. 0. 0.0753 0.126 0. 0.
D 212. 0. 180. 0. 0.0745 0.1277 0. 0.
D 212. 0. 180. 0. 0.0805 0.1371 0. 0.
D 208. 0. 180. 0. 0.0805 0.1371 0. 0.
D 208. 0. 180. 0. 0.0866 0.1475 0. 0.
D 195. 0. 180. 0. 0.0846 0.1465 0. 0.
D 195. 0. 180. 0. 0.0848 0.1465 0. 0.
D 190. 0. 180. 0. 0.0848 0.1465 0. 0.
D 190. 0. 180. 0. 0.0955 0.1638 0. 0.
D 180. 0. 180. 0. 0.0956 0.1657 0. 0.
D 180. 0. 180. 0. 0.0962 0.1841 0. 0.
D 173.33 0. 180. 0. 0.0982 0.1841 0. 0.
D 173.33 0. 60. 0. 0.1036 0.1891 0.0042 0.0069
D 166.66 0. 60. 0. 0.1036 0.1891 0.0042 0.0069
D 166.66 0. 60. 0. 0.1091 0.1942 0.0073 0.012
D 150. 0. 60. 0. 0.1091 0.1942 0.0073 0.012
D 150. 0. 60. 0. 0.1153 0.2244 0.0063 0.0102
D 153.33 0. 60. 0. 0.1153 0.2244 0.0063 0.0102
D 153.33 0. 60. 0. 0.116 0.2276 0.0053 0.0085
D 146.66 0. 60. 0. 0.116 0.2276 0.0053 0.0085
D 146.66 0. 60. 0. 0.1167 0.231 0.0044 0.0069
D 140. 0. 60. 0. 0.1167 0.231 0.0044 0.0069
D 140. 0. 60. 0. 0.1173 0.2342 0.0034 0.0052
D 133.33 0. 60. 0. 0.1173 0.2342 0.0034 0.0052
D 133.33 0. 60. 0. 0.1178 0.2376 0.0024 0.0037
D 126.66 0. 60. 0. 0.1178 0.2376 0.0024 0.0037
D 126.66 0. 60. 0. 0.1183 0.2411 0.0014 0.0021
D 120. 0. 60. 0. 0.1183 0.2411 0.0014 0.0021
D 120. 0. 60. 0. 0.1181 0.2493 0.0002 0.0002
D 110. 0. 60. 0. 0.1181 0.2493 0.0002 0.0002
D 110. 0. 240. 0. 0.1178 0.2531 0.0013 -0.0019
D 100. 0. 240. 0. 0.1178 0.2531 0.0013 -0.0019
D 100. 0. 240. 0. 0.1198 0.2717 0.0028 -0.0039
D 90. 0. 240. 0. 0.1198 0.2717 0.0028 -0.0039
D 90. 0. 240. 0. 0.1188 0.2763 0.0043 -0.0058
D 80. 0. 240. 0. 0.1188 0.2763 0.0043 -0.0058
D 80. 0. 240. 0. 0.1173 0.281 0.0058 -0.0076
D 70. 0. 240. 0. 0.1173 0.281 0.0058 -0.0076
D 70. 0. 240. 0. 0.1151 0.2857 0.0073 -0.0091
D 60. 0. 240. 0. 0.1151 0.2857 0.0073 -0.0091
D 60. 0. 240. 0. 0.1193 0.3404 0.0087 -0.0105
D 50. 0. 240. 0. 0.1193 0.3404 0.0087 -0.0105

D 50. 0. 240. 0. 0. 1151 0.3458 0.0102 -0.0116
 D 40. 0. 240. 0. 0. 1151 0.3458 0.0102 -0.0116
 D 40. 0. 240. 0. 0. 1093 0.3513 0.0117 -0.0123
 D 30. 0. 240. 0. 0. 1093 0.3513 0.0117 -0.0123
 D 30. 0. 240. 0. 0. 1097 0.3569 0.0132 -0.0137
 D 20. 0. 240. 0. 0. 1097 0.3569 0.0132 -0.0137
 D 20. 0. 240. 0. 0. 1215 0.4304 0.0077 -0.008
 D 0. 0. 240. 0. 0. 1215 0.4304 0.0077 -0.008
 C 250. 0. 0. 0. 0.0509 0.095 0. 0.
 C 250. 0. 0. 0. 0.2191 0.15 0. 0.
 C 250. 0. 0. 0. 1.1775 0.95 0. 0.
 C 250. 0. 0. 0. 0.4803 1.7 0. 0.
 C 230. 0. 0. 0. 0.8523 0.72 0. 0.
 C 230. 0. 0. 0. 0.469 1.7 0. 0.
 C 210. 0. 0. 0. 0.8402 0.72 0. 0.
 C 210. 0. 0. 0. 0.457 1.7 0. 0.
 C 190. 0. 0. 0. 0.8165 0.72 0. 0.
 C 190. 0. 0. 0. 0.4441 1.7 0. 0.
 C 170. 0. 0. 0. 0.0495 0.3 0. 0.

ANTENNA LOADING

HP 170.00 120.00 5.20 120.00 -0.592 -0.312 0.947 -0.64
 HP 170.00 0.00 5.20 0.00 1.011 0.000 0.947 0.00
 wind from east: 60.6 mph 1/2" ice

MAST LOADING

D 250. 0. 180. 90. 0.0546 0.0849 0. 0.
 D 240. 0. 180. 90. 0.0543 0.0849 0. 0.
 D 240. 0. 180. 90. 0.055 0.0881 0. 0.
 D 232. 0. 180. 90. 0.0548 0.0881 0. 0.
 D 232. 0. 180. 90. 0.0626 0.0997 0. 0.
 D 228. 0. 180. 90. 0.0626 0.0997 0. 0.
 D 228. 0. 180. 90. 0.0723 0.1112 0. 0.
 D 220. 0. 180. 90. 0.0719 0.1112 0. 0.
 D 220. 0. 180. 90. 0.0759 0.126 0. 0.
 D 212. 0. 180. 90. 0.0752 0.1277 0. 0.
 D 212. 0. 180. 90. 0.0812 0.1371 0. 0.
 D 208. 0. 180. 90. 0.0812 0.1371 0. 0.
 D 208. 0. 180. 90. 0.0873 0.1475 0. 0.
 D 195. 0. 180. 90. 0.0853 0.1455 0. 0.
 D 195. 0. 180. 90. 0.0855 0.1465 0. 0.
 D 190. 0. 180. 90. 0.0855 0.1465 0. 0.
 D 190. 0. 180. 90. 0.0962 0.1638 0. 0.
 D 180. 0. 180. 90. 0.0964 0.1657 0. 0.
 D 180. 0. 180. 90. 0.099 0.1841 0. 0.
 D 173.33 0. 180. 90. 0.099 0.1841 0. 0.
 D 173.33 0. 60. 90. 0.1045 0.1891 0.0042 -0.004
 D 166.66 0. 60. 90. 0.1045 0.1891 0.0042 -0.004
 D 166.66 0. 60. 90. 0.11 0.1942 0.0073 -0.0069
 D 160. 0. 60. 90. 0.11 0.1942 0.0073 -0.0069
 D 160. 0. 60. 90. 0.1164 0.2244 0.0063 -0.0059
 D 153.33 0. 60. 90. 0.1164 0.2244 0.0063 -0.0059
 D 153.33 0. 60. 90. 0.1172 0.2276 0.0053 -0.0049
 D 146.66 0. 60. 90. 0.1172 0.2276 0.0053 -0.0049

D 146.55 0. 60. 90. 0.118 0.231 0.0044 -0.004
 D 140. 0. 60. 90. 0.118 0.231 0.0044 -0.004
 D 140. 0. 60. 90. 0.1186 0.2342 0.0034 -0.003
 D 133.33 0. 60. 90. 0.1186 0.2342 0.0034 -0.003
 D 133.33 0. 60. 90. 0.1192 0.2376 0.0024 -0.0021
 D 126.56 0. 60. 90. 0.1192 0.2376 0.0024 -0.0021
 D 126.56 0. 60. 90. 0.1197 0.2411 0.0014 -0.0012
 D 120. 0. 60. 90. 0.1197 0.2411 0.0014 -0.0012
 D 120. 0. 60. 90. 0.1195 0.2493 0.0002 -0.0001
 D 110. 0. 60. 90. 0.1195 0.2493 0.0002 -0.0001
 D 110. 0. 240. 90. 0.1193 0.2531 0.0013 0.0011
 D 100. 0. 240. 90. 0.1193 0.2531 0.0013 0.0011
 D 100. 0. 240. 90. 0.1215 0.2717 0.0028 0.0023
 D 90. 0. 240. 90. 0.1215 0.2717 0.0028 0.0023
 D 90. 0. 240. 90. 0.1206 0.2763 0.0043 0.0034
 D 80. 0. 240. 90. 0.1206 0.2763 0.0043 0.0034
 D 80. 0. 240. 90. 0.1191 0.281 0.0058 0.0044
 D 70. 0. 240. 90. 0.1191 0.281 0.0058 0.0044
 D 70. 0. 240. 90. 0.1169 0.2857 0.0073 0.0053
 D 60. 0. 240. 90. 0.1169 0.2857 0.0073 0.0053
 D 60. 0. 240. 90. 0.1213 0.3404 0.0087 0.0061
 D 50. 0. 240. 90. 0.1213 0.3404 0.0087 0.0061
 D 50. 0. 240. 90. 0.1171 0.3458 0.0102 0.0067
 D 40. 0. 240. 90. 0.1171 0.3458 0.0102 0.0067
 D 40. 0. 240. 90. 0.1113 0.3513 0.0117 0.0071
 D 30. 0. 240. 90. 0.1113 0.3513 0.0117 0.0071
 D 30. 0. 240. 90. 0.1117 0.3569 0.0132 0.0079
 D 20. 0. 240. 90. 0.1117 0.3569 0.0132 0.0079
 D 20. 0. 240. 90. 0.1243 0.4304 0.0077 0.0046
 D 0. 0. 240. 90. 0.1243 0.4304 0.0077 0.0046
 C 250. 0. 0. 90. 0.0609 0.095 0. 0.
 C 250. 0. 0. 90. 0.2191 0.15 0. 0.
 C 250. 0. 0. 90. 1.1775 0.96 0. 0.
 C 250. 0. 0. 90. 0.4803 1.7 0. 0.
 C 230. 0. 0. 90. 0.8623 0.72 0. 0.
 C 230. 0. 0. 90. 0.469 1.7 0. 0.
 C 210. 0. 0. 90. 0.8402 0.72 0. 0.
 C 210. 0. 0. 90. 0.457 1.7 0. 0.
 C 190. 0. 0. 90. 0.8165 0.72 0. 0.
 C 190. 0. 0. 90. 0.4441 1.7 0. 0.
 C 170. 0. 0. 90. 0.0495 0.3 0. 0.

ANTENNA LOADING

HP 170.00 120.00 5.20 120.00 0.951 -0.187 0.947 0.32
 HP 170.00 0.00 5.20 0.00 -0.101 0.483 0.947 0.62

wind from south; 60.6 mph 1/2" ice

MAST LOADING

D 250. 0. 180. 180 0.0554 0.0849 0. 0.
 D 240. 0. 180. 180 0.0551 0.0849 0. 0.
 D 240. 0. 180. 180 0.057 0.0881 0. 0.
 D 232. 0. 180. 180 0.0557 0.0881 0. 0.
 D 232. 0. 180. 180 0.0544 0.0997 0. 0.
 D 228. 0. 180. 180 0.0544 0.0997 0. 0.

D 228 0. 180. 180. 0.0741 0.1112 0. 0.
D 220 0. 180. 180. 0.0737 0.1112 0. 0.
D 220 0. 180. 180. 0.0777 0.126 0. 0.
D 212 0. 180. 180. 0.0771 0.1277 0. 0.
D 212 0. 180. 180. 0.0832 0.1371 0. 0.
D 208 0. 180. 180. 0.0832 0.1371 0. 0.
D 208 0. 180. 180. 0.089 0.1466 0. 0.
D 190 0. 180. 180. 0.0875 0.1464 0. 0.
D 190 0. 180. 180. 0.0985 0.1639 0. 0.
D 180 0. 180. 180. 0.0988 0.1657 0. 0.
D 180 0. 180. 180. 0.1014 0.1841 0. 0.
D 173.33 0. 180. 180. 0.1014 0.1841 0. 0
D 173.33 0. 60. 180. 0.107 0.1891 0.0042 -0.0069
D 166.66 0. 60. 180. 0.107 0.1891 0.0042 -0.0069
D 166.66 0. 60. 180. 0.1127 0.1942 0.0073 -0.012
D 160 0. 60. 180. 0.1127 0.1942 0.0073 -0.012
D 160 0. 60. 180. 0.1199 0.2244 0.0063 -0.0102
D 153.33 0. 60. 180. 0.1199 0.2244 0.0063 -0.0102
D 153.33 0. 60. 180. 0.1209 0.2276 0.0053 -0.0085
D 146.66 0. 60. 180. 0.1209 0.2276 0.0053 -0.0085
D 146.66 0. 60. 180. 0.1218 0.231 0.0044 -0.0069
D 140 0. 60. 180. 0.1218 0.231 0.0044 -0.0069
D 140 0. 60. 180. 0.1227 0.2342 0.0034 -0.0052
D 133.33 0. 60. 180. 0.1227 0.2342 0.0034 -0.0052
D 133.33 0. 60. 180. 0.1235 0.2376 0.0024 -0.0037
D 126.66 0. 60. 180. 0.1235 0.2376 0.0024 -0.0037
D 126.66 0. 60. 180. 0.1242 0.2411 0.0014 -0.0021
D 120 0. 60. 180. 0.1242 0.2411 0.0014 -0.0021
D 120 0. 60. 180. 0.1236 0.2493 0.0002 -0.0002
D 110 0. 60. 180. 0.1236 0.2493 0.0002 -0.0002
D 110 0. 240. 180. 0.1235 0.2531 0.0013 0.0019
D 100 0. 240. 180. 0.1235 0.2531 0.0013 0.0019
D 100 0. 240. 180. 0.1266 0.2717 0.0028 0.0039
D 90 0. 240. 180. 0.1266 0.2717 0.0028 0.0039
D 90 0. 240. 180. 0.1258 0.2763 0.0043 0.0058
D 80 0. 240. 180. 0.1258 0.2763 0.0043 0.0058
D 80 0. 240. 180. 0.1245 0.281 0.0058 0.0076
D 70 0. 240. 180. 0.1245 0.281 0.0058 0.0076
D 70 0. 240. 180. 0.1224 0.2857 0.0073 0.0091
D 60 0. 240. 180. 0.1224 0.2857 0.0073 0.0091
D 60 0. 240. 180. 0.1273 0.3404 0.0087 0.0105
D 50 0. 240. 180. 0.1273 0.3404 0.0087 0.0105
D 50 0. 240. 180. 0.1231 0.3458 0.0102 0.0116
D 40 0. 240. 180. 0.1231 0.3458 0.0102 0.0116
D 40 0. 240. 180. 0.1172 0.3513 0.0117 0.0123
D 30 0. 240. 180. 0.1172 0.3513 0.0117 0.0123
D 30 0. 240. 180. 0.1178 0.3559 0.0132 0.0137
D 20 0. 240. 180. 0.1178 0.3559 0.0132 0.0137
D 20 0. 240. 180. 0.1328 0.4304 0.0077 0.008
D 0 0. 240. 180. 0.1328 0.4304 0.0077 0.008
C 250 0 0 180 0.0609 0.095 0. 0
C 250 0 0. 180. 0.2191 0.15 0. 0.

C 250. 0. 0. 180. 1.1775 0.96 0. 0.
C 250. 0. 0. 180. 0.4803 1.7 0. 0.
C 230. 0. 0. 180. 0.8623 0.72 0. 0.
C 230. 0. 0. 180. 0.469 1.7 0. 0.
C 210. 0. 0. 180. 0.8402 0.72 0. 0.
C 210. 0. 0. 180. 0.457 1.7 0. 0.
C 190. 0. 0. 180. 0.8165 0.72 0. 0.
C 190. 0. 0. 180. 0.4441 1.7 0. 0.
C 170. 0. 0. 180. 0.0496 0.3 0. 0.

ANTENNA LOADING

HP 170.00 120.00 5.20 120.00 0.740 0.296 0.947 -0.05

HP 170.00 0.00 5.20 0.00 -0.853 0.000 0.947 0.00

wind from north; 70 mph no ice

MAST LOADING

D 250. 0. 180. 0. 0.0534 0.0432 0. 0.
D 240. 0. 180. 0. 0.0531 0.0432 0. 0.
D 240. 0. 180. 0. 0.0539 0.045 0. 0.
D 232. 0. 180. 0. 0.0536 0.045 0. 0.
D 232. 0. 180. 0. 0.059 0.0496 0. 0.
D 228. 0. 180. 0. 0.059 0.0496 0. 0.
D 228. 0. 180. 0. 0.0648 0.0543 0. 0.
D 220. 0. 180. 0. 0.0644 0.0543 0. 0.
D 220. 0. 180. 0. 0.0698 0.0666 0. 0.
D 212. 0. 180. 0. 0.071 0.0676 0. 0.
D 212. 0. 180. 0. 0.0763 0.0717 0. 0.
D 208. 0. 180. 0. 0.0763 0.0717 0. 0.
D 208. 0. 180. 0. 0.0816 0.0757 0. 0.
D 190. 0. 180. 0. 0.0841 0.0756 0. 0.
D 190. 0. 180. 0. 0.0831 0.083 0. 0.
D 180. 0. 180. 0. 0.0944 0.084 0. 0.
D 160. 0. 180. 0. 0.0991 0.101 0. 0.
D 173.33 0. 180. 0. 0.0991 0.101 0. 0.
D 173.33 0. 60. 0. 0.1049 0.1036 0.0017 0.0062
D 166.66 0. 60. 0. 0.1049 0.1036 0.0017 0.0062
D 166.66 0. 60. 0. 0.1106 0.1062 0.003 0.0107
D 160. 0. 60. 0. 0.1106 0.1062 0.003 0.0107
D 160. 0. 60. 0. 0.1197 0.129 0.0026 0.0091
D 153.33 0. 60. 0. 0.1197 0.129 0.0026 0.0091
D 153.33 0. 60. 0. 0.1209 0.1311 0.0022 0.0076
D 146.66 0. 60. 0. 0.1209 0.1311 0.0022 0.0076
D 146.66 0. 60. 0. 0.1221 0.1332 0.0018 0.0061
D 140. 0. 60. 0. 0.1221 0.1332 0.0018 0.0061
D 140. 0. 60. 0. 0.1231 0.1353 0.0014 0.0047
D 133.33 0. 60. 0. 0.1231 0.1353 0.0014 0.0047
D 133.33 0. 60. 0. 0.1239 0.1374 0.001 0.0033
D 126.66 0. 60. 0. 0.1239 0.1374 0.001 0.0033
D 126.66 0. 60. 0. 0.1246 0.1396 0.0006 0.0019
D 120. 0. 60. 0. 0.1246 0.1396 0.0006 0.0019
D 120. 0. 60. 0. 0.1258 0.1451 0.0001 0.0002
D 110. 0. 60. 0. 0.1258 0.1491 0.0001 0.0002
D 110. 0. 240. 0. 0.1257 0.1515 0.0005 -0.0017
D 100. 0. 240. 0. 0.1257 0.1515 0.0005 -0.0017

D 100. 0. 240. 0. 0.1293 0.1641 0.0011 -0.0035
 D 90. 0. 240. 0. 0.1293 0.1641 0.0011 -0.0035
 D 90. 0. 240. 0. 0.1284 0.1671 0.0017 -0.0052
 D 80. 0. 240. 0. 0.1284 0.1671 0.0017 -0.0052
 D 80. 0. 240. 0. 0.1268 0.1701 0.0023 -0.0067
 D 70. 0. 240. 0. 0.1268 0.1701 0.0023 -0.0067
 D 70. 0. 240. 0. 0.1245 0.1732 0.0029 -0.0081
 D 60. 0. 240. 0. 0.1245 0.1732 0.0029 -0.0081
 D 60. 0. 240. 0. 0.1319 0.217 0.0035 -0.0093
 D 50. 0. 240. 0. 0.1319 0.217 0.0035 -0.0093
 D 50. 0. 240. 0. 0.1273 0.2206 0.0041 -0.0103
 D 40. 0. 240. 0. 0.1273 0.2206 0.0041 -0.0103
 D 40. 0. 240. 0. 0.1211 0.2242 0.0047 -0.011
 D 30. 0. 240. 0. 0.1211 0.2242 0.0047 -0.011
 D 30. 0. 240. 0. 0.1216 0.2278 0.0053 -0.0122
 D 20. 0. 240. 0. 0.1216 0.2278 0.0053 -0.0122
 D 20. 0. 240. 0. 0.1395 0.2871 0.0031 -0.0071
 D 0. 0. 240. 0. 0.1395 0.2871 0.0031 -0.0071
 C 250. 0. 0. 0. 0.0812 0.095 0. 0.
 C 250. 0. 0. 0. 0.2213 0.08 0. 0.
 C 250. 0. 0. 0. 1.4047 0.3 0. 0.
 C 250. 0. 0. 0. 0.4309 1.325 0. 0.
 C 230. 0. 0. 0. 1.0288 0.225 0. 0.
 C 230. 0. 0. 0. 0.4207 1.325 0. 0.
 C 210. 0. 0. 0. 1.0024 0.225 0. 0.
 C 210. 0. 0. 0. 0.4089 1.325 0. 0.
 C 190. 0. 0. 0. 0.9741 0.225 0. 0.
 C 190. 0. 0. 0. 0.3984 1.325 0. 0.
 C 170. 0. 0. 0. 0.0441 0.2 0. 0.

ANTENNA LOADING

HP 170.00 120.00 5.20 120.00 -0.773 -0.407 0.447 -0.83
 HP 170.00 0.00 5.20 0.00 1.322 0.000 0.447 0.00

wind from east; 70 mph no ice

MAST LOADING

D 250. 0. 180. 90. 0.0544 0.0432 0. 0.
 D 240. 0. 180. 90. 0.0541 0.0432 0. 0.
 D 240. 0. 180. 90. 0.0549 0.045 0. 0.
 D 232. 0. 180. 90. 0.0546 0.045 0. 0.
 D 232. 0. 180. 90. 0.0599 0.0496 0. 0.
 D 228. 0. 180. 90. 0.0599 0.0496 0. 0.
 D 228. 0. 180. 90. 0.0657 0.0543 0. 0.
 D 220. 0. 180. 90. 0.0653 0.0543 0. 0.
 D 220. 0. 180. 90. 0.0707 0.0666 0. 0.
 D 212. 0. 180. 90. 0.072 0.0676 0. 0.
 D 212. 0. 180. 90. 0.0773 0.0717 0. 0.
 D 208. 0. 180. 90. 0.0773 0.0717 0. 0.
 D 208. 0. 180. 90. 0.0827 0.0757 0. 0.
 D 190. 0. 180. 90. 0.0853 0.0756 0. 0.
 D 190. 0. 180. 90. 0.0942 0.083 0. 0.
 D 180. 0. 180. 90. 0.0956 0.084 0. 0.
 D 180. 0. 180. 90. 0.1003 0.101 0. 0.
 D 173.33 0. 180. 90. 0.1003 0.101 0. 0.

D 173.33 0. 60. 90. 0.1062 0.1036 0.0017 -0.0036
 D 166.66 0. 60. 90. 0.1062 0.1036 0.0017 -0.0036
 D 166.66 0. 60. 90. 0.112 0.1062 0.003 -0.0062
 D 160. 0. 60. 90. 0.112 0.1062 0.003 -0.0062
 D 160. 0. 60. 90. 0.1214 0.129 0.0026 -0.0053
 D 153.33 0. 60. 90. 0.1214 0.129 0.0026 -0.0053
 D 163.33 0. 60. 90. 0.1228 0.1311 0.0022 -0.0044
 D 146.66 0. 60. 90. 0.1228 0.1311 0.0022 -0.0044
 D 146.66 0. 60. 90. 0.124 0.1332 0.0018 -0.0035
 D 140. 0. 60. 90. 0.124 0.1332 0.0018 -0.0035
 D 140. 0. 60. 90. 0.1251 0.1353 0.0014 -0.0027
 D 133.33 0. 60. 90. 0.1251 0.1353 0.0014 -0.0027
 D 133.33 0. 60. 90. 0.126 0.1374 0.001 -0.0018
 D 126.66 0. 60. 90. 0.126 0.1374 0.001 -0.0019
 D 126.66 0. 60. 90. 0.1268 0.1396 0.0006 -0.0011
 D 120. 0. 60. 90. 0.1268 0.1396 0.0006 -0.0011
 D 120. 0. 60. 90. 0.1279 0.1491 0.0001 -0.0001
 D 110. 0. 60. 90. 0.1279 0.1491 0.0001 -0.0001
 D 110. 0. 240. 90. 0.1278 0.1515 0.0005 0.001
 D 100. 0. 240. 90. 0.1278 0.1515 0.0005 0.001
 D 100. 0. 240. 90. 0.1318 0.1641 0.0011 0.002
 D 90. 0. 240. 90. 0.1318 0.1641 0.0011 0.002
 D 90. 0. 240. 90. 0.1309 0.1671 0.0017 0.003
 D 80. 0. 240. 90. 0.1309 0.1671 0.0017 0.003
 D 80. 0. 240. 90. 0.1294 0.1701 0.0023 0.0039
 D 70. 0. 240. 90. 0.1294 0.1701 0.0023 0.0039
 D 70. 0. 240. 90. 0.1272 0.1732 0.0029 0.0047
 D 60. 0. 240. 90. 0.1272 0.1732 0.0029 0.0047
 D 60. 0. 240. 90. 0.1348 0.217 0.0035 0.0054
 D 50. 0. 240. 90. 0.1348 0.217 0.0035 0.0054
 D 50. 0. 240. 90. 0.1302 0.2206 0.0041 0.006
 D 40. 0. 240. 90. 0.1302 0.2206 0.0041 0.006
 D 40. 0. 240. 90. 0.1239 0.2242 0.0047 0.0064
 D 30. 0. 240. 90. 0.1239 0.2242 0.0047 0.0064
 D 30. 0. 240. 90. 0.1245 0.2278 0.0053 0.007
 D 20. 0. 240. 90. 0.1245 0.2278 0.0053 0.007
 D 20. 0. 240. 90. 0.1435 0.2871 0.0031 0.0041
 D 0. 0. 240. 90. 0.1435 0.2871 0.0031 0.0041
 C 250 0. 0. 90. 0.0812 0.096 0. 0.
 C 250 0. 0. 90. 0.2213 0.06 0. 0.
 C 250 0. 0. 90. 1.4047 0.3 0. 0.
 C 250 0. 0. 90. 0.4309 1.325 0. 0.
 C 230 0. 0. 90. 1.0288 0.225 0. 0.
 C 230 0. 0. 90. 0.4207 1.325 0. 0.
 C 210 0. 0. 90. 1.0024 0.225 0. 0.
 C 210 0. 0. 90. 0.4099 1.325 0. 0.
 C 190 0. 0. 90. 0.9741 0.225 0. 0.
 C 190 0. 0. 90. 0.3984 1.325 0. 0.
 C 170 0. 0. 90. 0.0441 0.2 0. 0.

ANTENNA LOADING

HP 170.00 120.00 5.20 120.00 1.256 -0.245 0.447 0.42
 HP 170.00 0.00 5.20 0.00 -0.132 0.631 0.447 0.81

wind from south; 70 mph no ice

MAST LOADING

D 250. 0. 180. 180. 0.0572 0.0432 0. 0.
D 240. 0. 180. 180. 0.0568 0.0432 0. 0.
D 240. 0. 180. 180. 0.0579 0.045 0. 0.
D 232. 0. 180. 180. 0.0576 0.045 0. 0.
D 232. 0. 180. 180. 0.0628 0.0496 0. 0.
D 228. 0. 180. 180. 0.0626 0.0496 0. 0.
D 228. 0. 180. 180. 0.0683 0.0543 0. 0.
D 220. 0. 180. 180. 0.068 0.0543 0. 0.
D 220. 0. 180. 180. 0.0733 0.0666 0. 0.
D 212. 0. 180. 180. 0.0748 0.0676 0. 0.
D 212. 0. 180. 180. 0.0803 0.0717 0. 0.
D 208. 0. 180. 180. 0.0803 0.0717 0. 0.
D 208. 0. 180. 180. 0.0858 0.0757 0. 0.
D 196. 0. 180. 180. 0.0887 0.0756 0. 0.
D 196. 0. 180. 180. 0.0977 0.083 0. 0.
D 180. 0. 180. 180. 0.0993 0.084 0. 0.
D 180. 0. 180. 180. 0.1039 0.101 0. 0.
D 173.33 0. 180. 180. 0.1039 0.101 0. 0.
D 173.33 0. 60. 180. 0.1101 0.1036 0.0017 -0.0062
D 166.66 0. 60. 180. 0.1101 0.1036 0.0017 -0.0062
D 166.66 0. 60. 180. 0.1161 0.1062 0.003 -0.0107
D 160. 0. 60. 180. 0.1161 0.1062 0.003 -0.0107
D 160. 0. 60. 180. 0.1267 0.129 0.0026 -0.0091
D 153.33 0. 60. 180. 0.1267 0.129 0.0026 -0.0091
D 153.33 0. 60. 180. 0.1283 0.1311 0.0022 -0.0076
D 146.66 0. 60. 180. 0.1283 0.1311 0.0022 -0.0076
D 146.66 0. 60. 180. 0.1299 0.1332 0.0018 -0.0061
D 140. 0. 60. 180. 0.1299 0.1332 0.0018 -0.0061
D 140. 0. 60. 180. 0.1312 0.1353 0.0014 -0.0047
D 133.33 0. 60. 180. 0.1312 0.1353 0.0014 -0.0047
D 133.33 0. 60. 180. 0.1324 0.1374 0.001 -0.0033
D 126.66 0. 60. 180. 0.1324 0.1374 0.001 -0.0033
D 126.66 0. 60. 180. 0.1334 0.1396 0.0006 -0.0019
D 120. 0. 60. 180. 0.1334 0.1396 0.0006 -0.0019
D 120. 0. 60. 180. 0.1339 0.1491 0.0001 -0.0002
D 110. 0. 60. 180. 0.1339 0.1491 0.0001 -0.0002
D 110. 0. 240. 180. 0.134 0.1515 0.0005 0.0017
D 100. 0. 240. 180. 0.134 0.1515 0.0005 0.0017
D 100. 0. 240. 180. 0.1393 0.1641 0.0011 0.0035
D 90 0. 240. 180. 0.1393 0.1641 0.0011 0.0035
D 90. 0. 240. 180. 0.1386 0.1671 0.0017 0.0052
D 90 0. 240. 180. 0.1386 0.1671 0.0017 0.0052
D 80. 0. 240. 180. 0.1373 0.1701 0.0023 0.0067
D 70. 0. 240. 180. 0.1373 0.1701 0.0023 0.0067
D 70. 0. 240. 180. 0.1351 0.1732 0.0029 0.0081
D 60. 0. 240. 180. 0.1351 0.1732 0.0029 0.0081
D 60 0. 240. 180. 0.1436 0.217 0.0035 0.0093
D 50. 0. 240. 180. 0.1436 0.217 0.0035 0.0093
D 50 0. 240. 180. 0.1389 0.2206 0.0041 0.0103
D 40 0. 240. 180. 0.1389 0.2206 0.0041 0.0103

D 40. 0. 240. 180. 0.1324 0.2242 0.0047 0.011
D 30. 0. 240. 180. 0.1324 0.2242 0.0047 0.011
D 30. 0. 240. 180. 0.1332 0.2278 0.0053 0.0122
D 20. 0. 240. 180. 0.1332 0.2278 0.0053 0.0122
D 20. 0. 240. 180. 0.1556 0.2871 0.0031 0.0071
D 0. 0. 240. 180. 0.1556 0.2871 0.0031 0.0071
C 250. 0. 0. 180. 0.0812 0.095 0. 0.
C 250. 0. 0. 180. 0.2213 0.06 0. 0.
C 250. 0. 0. 180. 1.4047 0.3 0. 0.
C 250. 0. 0. 180. 0.4309 1.325 0. 0.
C 230. 0. 0. 180. 1.0288 0.225 0. 0.
C 230. 0. 0. 180. 0.4207 1.325 0. 0.
C 210. 0. 0. 180. 1.0024 0.225 0. 0.
C 210. 0. 0. 180. 0.4099 1.325 0. 0.
C 190. 0. 0. 180. 0.9741 0.225 0. 0.
C 190. 0. 0. 180. 0.3984 1.325 0. 0.
C 170. 0. 0. 180. 0.0441 0.2 0. 0.

ANTENNA LOADING

HP 170.00 120.00 5.20 120.00 0.967 0.387 0.447 -0.06
HP 170.00 0.00 5.20 0.00 -1.114 0.000 0.447 0.00

=====
END OF FILE

ELAPSED CPU TIME 0.09 SECONDS.

=====
C

Hemphill * 250'SST 70 mph 1/2" ice * 1414

mast geometry

a 3 3 0 20 26 24 20
 x 3 0 20 40 24 22 10
 x 3 0 40 60 22 20 10
 x 3 0 60 80 20 18 10
 x 3 0 80 100 18 16 10
 x 3 0 100 120 16 14 10
 x 3 0 120 140 14 12 6.67
 x 3 0 140 160 12 10 6.67
 x 3 0 160 180 10 8 6.67
 x 3 0 180 200 8 6 5
 x 3 0 200 220 6 4 4
 x 3 0 220 240 4 4 4
 x 3 0 240 250 4 4 5

material types

angle 1 1 0 1.750 1.750 0.1875 490
 angle 2 1 0 2.000 2.000 0.250 490
 angle 3 1 0 2.500 2.500 0.250 490
 angle 4 1 0 3.000 3.000 0.250 490
 angle 5 1 0 3.500 3.500 0.250 490
 angle 6 1 0 3.500 3.500 0.3125 490
 angle 7 1 0 4.000 4.000 0.250 490
 angle 8 1 0 4.000 4.000 0.3125 490
 angle 9 1 0 4.000 4.000 0.375 490
 tube 10 1 0 2.875 2.875 0.203 490
 tube 11 1 0 2.875 2.875 0.276 490
 tube 12 1 0 3.500 3.500 0.216 490
 tube 13 1 0 3.500 3.500 0.300 490
 tube 14 1 0 4.000 4.000 0.226 490
 tube 15 1 0 4.000 4.000 0.318 490
 tube 16 1 0 4.500 4.500 0.237 490
 tube 17 1 0 4.500 4.500 0.337 490
 tube 18 1 0 5.563 5.563 0.258 490
 tube 19 1 0 5.563 5.563 0.375 490
 tube 20 1 0 6.625 6.625 0.280 490
 tube 21 1 0 6.625 6.625 0.432 490
 tube 22 1 0 8.625 8.625 0.322 490
 tube 23 1 0 8.625 8.625 0.500 490
 tube 24 1 0 10.75 10.75 0.365 490
 tube 25 1 0 10.75 10.75 0.500 490
 angle 26 2 0 2.500 2.000 0.1875 490
 angle 27 2 0 2.500 2.500 0.250 490
 angle 28 2 0 3.000 2.000 0.250 490
 angle 29 2 0 3.000 2.500 0.250 490
 angle 30 2 0 3.000 3.000 0.250 490
 angle 31 2 0 3.500 2.500 0.250 490
 angle 32 2 0 3.500 3.000 0.3125 490
 angle 33 2 0 4.000 3.000 0.250 490
 angle 34 2 0 4.000 4.000 0.250 490
 angle 35 2 0 4.000 3.000 0.3125 490
 tube 36 1 0 1.315 1.315 0.109 490
 sr 37 1 0 0.625 0.625 0.3125 490
 sr 38 1 0 0.375 0.375 0.1875 490
 tube 39 1 0 12.75 12.75 0.406 490
 tube 40 1 0 12.75 12.75 0.500 490
 tube 41 1 0 2.375 2.375 0.154 490
 plate 42 1 0 6.000 12.00 0.500 490
 plate 43 2 0 6.000 12.00 0.500 490
 plate 44 2 0 13.00 13.00 0.125 490
 plate 45 2 0 12.00 12.00 0.500 490
 sr 46 1 0 1.750 1.750 0.875 490
 sr 47 1 0 2.000 2.000 1.000 490

```

sr 48 1 0 2.250 2.250 1.125 490
sr 49 1 0 2.500 2.500 1.250 490
sr 50 1 0 2.750 2.750 1.375 490
sr 51 1 0 3.000 3.000 1.500 490
sr 52 1 0 3.250 3.250 1.625 490
sr 53 1 0 3.500 3.500 1.750 490
sr 54 1 0 3.750 3.750 1.875 490
sr 55 1 0 4.000 4.000 2.000 490
sr 56 1 0 4.250 4.250 2.125 490
sr 57 1 0 4.500 4.500 2.250 490
sr 58 1 0 4.750 4.750 2.375 490
sr 59 1 0 5.000 5.000 2.500 490
sr 60 1 0 5.250 5.250 2.625 490
sr 61 1 0 5.500 5.500 2.750 490
angle 62 2 0 3.500 3.000 0.250 490
angle 63 2 0 2.500 2.000 0.250 490
tube 64 1 0 2.375 2.375 0.218 490
angle 65 1 0 5.000 5.000 0.375 490
angle 66 1 0 5.000 5.000 0.500 490
angle 67 2 0 4.000 3.500 0.4375 490
angle 68 2 0 4.000 3.000 0.375 490
angle 69 2 0 4.000 3.500 0.375 490
angle 70 2 0 4.000 4.000 0.250 490
angle 71 2 0 4.000 4.000 0.4375 490
angle 72 2 0 4.000 4.000 0.375 490
angle 73 2 0 4.000 4.000 0.500 490
angle 74 2 0 2.000 2.000 0.1875 490
angle 75 2 0 2.000 2.000 0.2500 490
angle 76 2 0 2.000 2.000 0.3125 490
angle 77 2 0 2.500 2.500 0.1875 490
angle 78 2 0 2.500 2.500 0.3125 490
angle 79 2 0 3.000 3.000 0.1875 490
angle 80 2 0 3.000 3.000 0.3125 490
angle 81 2 0 3.000 3.000 0.3750 490
angle 82 2 0 3.500 3.500 0.2500 490
angle 83 2 0 3.500 3.500 0.3125 490
angle 84 2 0 3.500 3.500 0.3750 490
angle 85 1 0 2.000 2.000 0.2500 490
tube 86 1 0 16.00 16.00 0.500 490
tube 87 1 0 14.00 14.00 0.500 490
sr 88 1 0 5.750 5.750 2.875 490
sr 89 1 0 6.000 6.000 3.000 490
sr 90 1 0 6.250 6.250 3.125 490
sr 91 1 0 6.500 6.500 3.250 490
sr 92 1 0 6.750 6.750 3.375 490
sr 93 1 0 7.000 7.000 3.500 490
sr 94 1 0 7.250 7.250 3.625 490
sr 95 1 0 7.500 7.500 3.75 490
sr 96 1 0 7.750 7.750 3.875 490
sr 97 1 0 8.000 8.000 4.000 490
sr 98 1 0 8.250 8.250 4.125 490
sr 99 1 0 8.500 8.500 4.250 490
panel properties
0 20 22 7 7 7 5 3 0 / PIPE 13
20 40 22 7 0 0 0 0 0 / PIPE 12
40 60 22 7 0 0 0 0 0 / PIPE 11
60 80 20 5 0 0 0 0 0 / PIPE 10
80 100 20 5 0 0 0 0 0 / PIPE 9
100 120 20 4 0 0 0 0 0 / PIPE 8
120 140 18 3 0 0 0 0 0 / PIPE 7
140 160 18 3 0 0 0 0 0 / PIPE 6
160 180 16 2 0 0 0 0 0 / PIPE 5
180 200 12 1 0 0 0 0 0 / PIPE 4

```

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200 220 12 1 0 0 0 0 / PIPE 3
220 240 41 1 0 0 0 0 / PIPE 2
240 250 41 1 0 0 0 0 / PIPE 1
trans lines
ah1.625 10 250 5 -3 -60 -150
ah1.625 10 230 3 -3 -60 -150
ah1.625 10 210 2 -3 -60 -150
ah1.625 10 190 2 -3 -60 -150
ah1.625 10 170 2 -3 60 -150
microwave parabolic antennas
hp 170 0 8 5.19615242270663 0 0
hp 170 120 8 5.19615242270663 120 0
wind from north; 60.6 mph 1/2" ice
wind loading
  0 60.6 0 0.5 56 1 1
extra loading
c 170 0 0 0 0.0495607247368607 0.3 0 0
c 190 0 0 0 0.444077440000018 1.7 0 0
c 190 0 0 0 0.816529486451646 0.72 0 0
c 210 0 0 0 0.456959257806405 1.7 0 0
c 210 0 0 0 0.840215409515003 0.72 0 0
c 230 0 0 0 0.468992216397829 1.7 0 0
c 230 0 0 0 0.86234052692504 0.72 0 0
c 250 0 0 0 0.480299318123779 1.7 0 0
c 250 0 0 0 1.17750800572281 0.96 0 0
c 250 0 0 0 0.219122730388268 0.15 0 0
e 250 0 0 0 0.0608674251078521 0.095 0 0
suppress printing
0 1 0 0 0 0 0
wind from east; 60.6 mph 1/2" ice
wind loading
  90 60.6 0 0.5 56 1 1
extra loading
c 170 0 0 90 0.0495607247368607 0.3 0 0
c 190 0 0 90 0.444077440000018 1.7 0 0
c 190 0 0 90 0.816529486451646 0.72 0 0
c 210 0 0 90 0.456959257806405 1.7 0 0
c 210 0 0 90 0.840215409515003 0.72 0 0
c 230 0 0 90 0.468992216397829 1.7 0 0
c 230 0 0 90 0.86234052692504 0.72 0 0
c 250 0 0 90 0.480299318123779 1.7 0 0
c 250 0 0 90 1.17750800572281 0.96 0 0
c 250 0 0 90 0.219122730388268 0.15 0 0
c 250 0 0 90 0.0608674251078521 0.095 0 0
suppress printing
0 1 0 0 0 0 0
wind from south; 60.6 mph 1/2" ice
wind loading
 180 60.6 0 0.5 56 1 1
extra loading
c 170 0 0 180 0.0495607247368607 0.3 0 0
c 190 0 0 180 0.444077440000018 1.7 0 0
c 190 0 0 180 0.816529486451646 0.72 0 0
c 210 0 0 180 0.456959257806405 1.7 0 0
c 210 0 0 180 0.840215409515003 0.72 0 0
c 230 0 0 180 0.468992216397829 1.7 0 0
c 230 0 0 180 0.86234052692504 0.72 0 0
c 250 0 0 180 0.480299318123779 1.7 0 0
c 250 0 0 180 1.17750800572281 0.96 0 0
c 250 0 0 180 0.219122730388268 0.15 0 0
c 250 0 0 180 0.0608674251078521 0.095 0 0
suppress printing
0 1 0 0 0 0 0

```

wind from north; 70 mph no ice

wind loading
0 70 0 0 56 1 1

extra loading

c 170 0 0 0 0.0440539775438762 0.2 0 0
c 190 0 0 0 0.398373617450093 1.325 0 0
c 190 0 0 0 0.974105352258105 0.225 0 0
c 210 0 0 0 0.409929656772566 1.325 0 0
c 210 0 0 0 1.00236224293018 0.225 0 0
c 230 0 0 0 0.420724200270864 1.325 0 0
c 230 0 0 0 1.0287571198404 0.225 0 0
c 250 0 0 0 0.430867591066493 1.325 0 0
c 250 0 0 0 1.40474639279213 0.3 0 0
c 250 0 0 0 0.22133609130128 0.06 0 0
c 250 0 0 0 0.0811565668104695 0.095 0 0

suppress printing

0 1 0 0 0 0 0

wind from east; 70 mph no ice

wind loading
90 70 0 0 56 1 1

extra loading

c 170 0 0 90 0.0440539775438762 0.2 0 0
c 190 0 0 90 0.398373617450093 1.325 0 0
c 190 0 0 90 0.974105352258105 0.225 0 0
c 210 0 0 90 0.409929656772566 1.325 0 0
c 210 0 0 90 1.00236224293018 0.225 0 0
c 230 0 0 90 0.420724200270864 1.325 0 0
c 230 0 0 90 1.0287571198404 0.225 0 0
c 250 0 0 90 0.430867591066493 1.325 0 0
c 250 0 0 90 1.40474639279213 0.3 0 0
c 250 0 0 90 0.22133609130128 0.06 0 0
c 250 0 0 90 0.0811565668104695 0.095 0 0

suppress printing

0 1 0 0 0 0 0

wind from south; 70 mph no ice

wind loading
180 70 0 0 56 1 1

extra loading

c 170 0 0 180 0.0440539775438762 0.2 0 0
c 190 0 0 180 0.398373617450093 1.325 0 0
c 190 0 0 180 0.974105352258105 0.225 0 0
c 210 0 0 180 0.409929656772566 1.325 0 0
c 210 0 0 180 1.00236224293018 0.225 0 0
c 230 0 0 180 0.420724200270864 1.325 0 0
c 230 0 0 180 1.0287571198404 0.225 0 0
c 250 0 0 180 0.430867591066493 1.325 0 0
c 250 0 0 180 1.40474639279213 0.3 0 0
c 250 0 0 180 0.22133609130128 0.06 0 0
c 250 0 0 180 0.0811565668104695 0.095 0 0

suppress printing

0 1 0 0 0 0 0

Hemphill Corporation

3515 Dawson Rd.
Tulsa, OK 74115-4954

6/7/2006
11:26 AM

Customer: Conquest Construction
Site: Hwy 431/CR74, AL.
Tower: 250' SST
Written by: BAS

Page 1 of 1
Job No.: 1414
Date: 7-Jun-06
Filled by:

Qty	Part No.	Description	Length (ft)	Placement	Unit Wt.	Total Wt.
18	A03	Anchor Bolt 1 - 1/4"	82"		37.00	666.00
3	BT6	Anchor Bolt Template			12.00	36.00
3	BL6	Anchor Bolt Template			8.00	24.00
1		Drawing Package / Instructions			1.00	1.00
1		Packet w/ 2 sets of erection prints			1	1.00
Sub Total						728.00
Total Weight This Page						728.00

1. STD. BEACON/STROBE LIGHT W/ 1" CONDUIT AT 250' ELEVATION.
2. (3) STD. 12" P.S.G. MOUNTS W/ (3) 10" x 3" WHIP ANTENNAS & (12) 5' x 1' PANEL ANTENNAS AT 250' ELEV. FED BY 1 5/8" COAX.
3. (3) STD. 12" ROTATING SECTOR GATE MOUNTS W/ (9) 5' x 1' PANEL ANTENNAS AT 230', 210', & 190' ELEV.'S FED BY 1 5/8" COAX.
4. (2) 8' DIA. HP SOLID DISHS AT 170' ELEVATION. EACH FED BY 1 5/8" COAX.
5. (3 EA.) WAVEGUIDE LADDERS.
6. (1 EA.) STEP BOLTS W/ SAFETY CLIMB TO 250' HEIGHT.

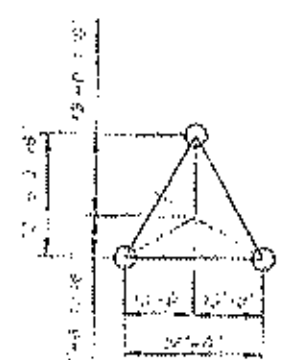
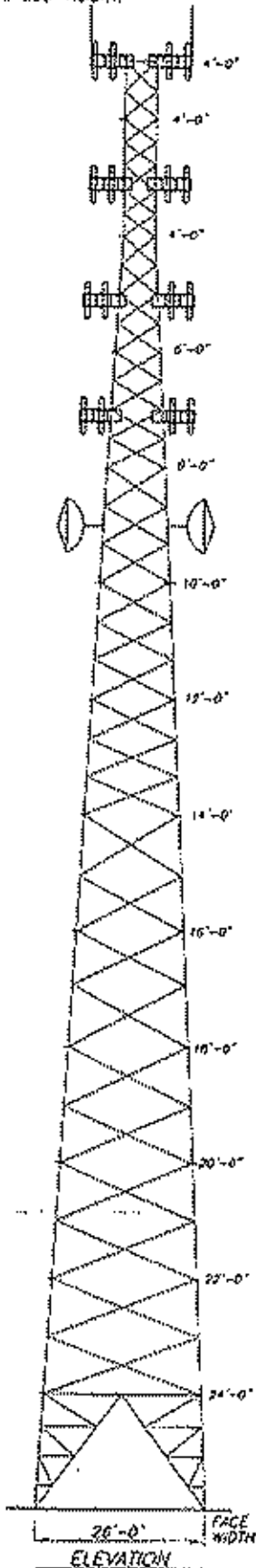
TOWER DESIGN LOADING.

1. TOWER IS DESIGNED PER CLAS/A-222F FOR 70 MPH WIND LOAD WITH 1/2" ICE.
2. TRANSMISSION LADDERS AND LINES MUST BE EVENLY DISTRIBUTED ON ALL (3) FACES.

REFERENCE DRAWINGS

1. FOUNDATION DRAWINGS
 - TOWER BASE A-4825
 - ANCHOR BOLT A-403
 - BASE GROUT A-5516/11
 - GROUNDING A-GRND13
2. CELL MOUNT N/A
3. DISH MOUNTS N/A
4. BRACING LACING A-INST1
5. SAFETY CLIMB B-SAFETY
6. ICE SHIELD N/A
7. LIGHTNING ROD A-1170D/1
8. WAVEGUIDE LADDER N/A
9. TX-LINE GROUNDING B-COAX-551
10. WAVEGUIDE BRIDGE N/A
11. BEACON MOUNT N/A
12. LIGHTING DIAGRAM N/A
13. SIDE LIGHTS N/A
14. FOR SECTION ASSEMBLIES SEE DRAWING A-ASSY NO.

PART		QTY	DESCRIPTION	REMARKS
COATING				
1st Rod	LS 2 1/2" x 1/2"	12T	2" SCH 40	Not Applicable
2nd Rod	LS 2 1/2" x 1/2"	11T	2" SCH 40	Not Applicable
3rd Rod	LS 2 1/2" x 1/2"	10T	2" SCH 40	Not Applicable
DISKS	LS 2 1/2" x 1/2"	8T	2" SCH 40	Not Applicable
WAVEGUIDES	LS 2 1/2" x 1/2"	6T	2" SCH 40	Not Applicable
LEGS	LS 2 1/2" x 1/2"	4T	2" SCH 40	Not Applicable
SECTION ASSY NO.				



PLAN VIEW

BASE REACTIONS

Overturn	4,973.0 K-FT
Shear	37.8 KIPS
Weight	72.9 KIPS
Uplift	198.4 KIPS
Compression	235.4 KIPS

	Rev. Description	Date	By
	File 250 Self Support Tower		
	Corp Memphis Corporation		
	Site Hwy 431/CR2A, AL		
	Drawn By BS	Proj No. 1414	
Checked By ELM	Scale None		
Date 7-11-65	Page No. 8-1414		

Top Template
Mark No. BT6

Pad or Pier

Bottom Template
Mark No. BL6

Projection

9"

Side Detail

Anchor Bolt
Template

Mark No. BT6
(6) 1-1/4" ϕ Bolts
on 1'-1/2" B.C.

22'-6 3/16"

15'-0 1/8"

7'-6 1/16"

Tower
Axis

120°
typ.

13'-0"


13'-0"

26'-0"

Plan View

Note:

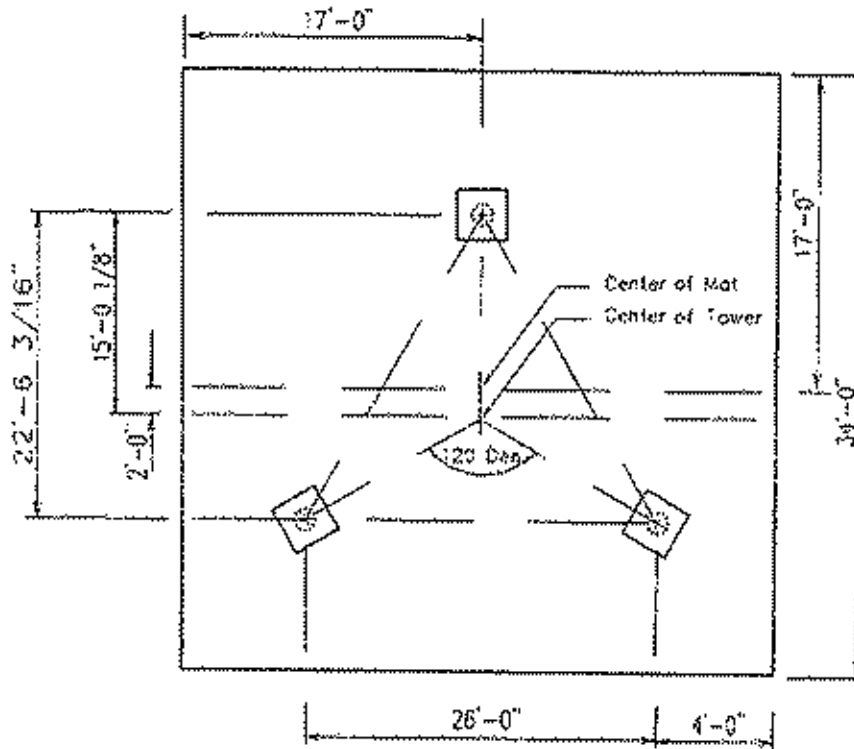
1. Anchor bolt orientation always is as shown for (6) bolt flanges.
2. Anchor bolts must be set plumb within $\pm 0.5^\circ$.

Rev	Description	Date	By
		Title	Anchor Bolt Layout Section
		Cust	Standard
		Site	Standard
		Own By	DC
		Job No.	Standard
		Scale	None
		Date	3/14/05
		Dwg No.	A-AB26-3

Tower Division

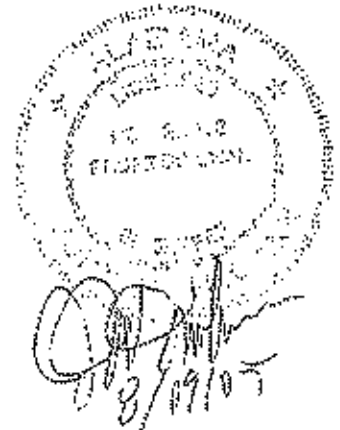
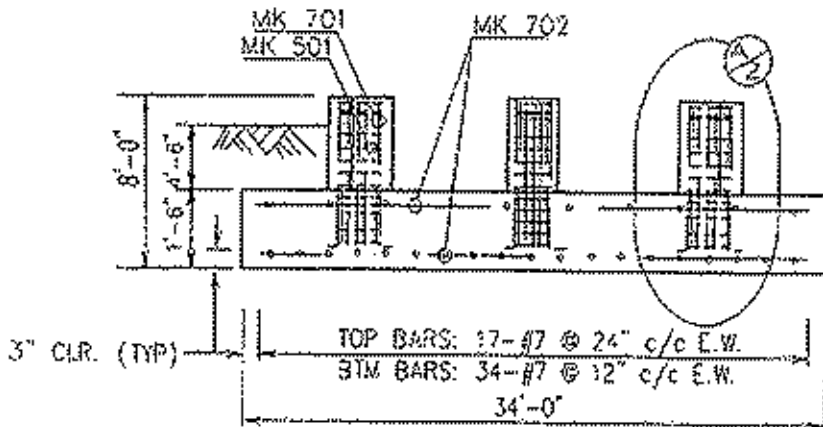
MAT FOUNDATION

(NOT TO SCALE)



NOTE:

Cylindrical pedestals 4'-0" in diameter may be used in place of the 3'-6" square pedestals pictured.




ON: 20531

MATERIAL SPECIFICATIONS		REBAR SCHEDULE			DESIGN LOADS ¹		
CONCRETE: ACI A318-95 (f _c =3 ksi)	MARK	DIAMETER	LENGTH	QUANTITY	VERTICAL FORCE:	72.9 Kips	
REBAR: ASTM A615 GR. 60	S01	0.625	11'-8"	15x3 = 45	HORIZONTAL FORCE:	37.8 Kips	
TIES: ASTM A615 GR. 60	701	0.875	9'-4"	16x3 = 48	O.T. MOMENT:	4973 Ft-Kips	
	702	0.875	39'-6"	102			
NUMBER REQUIRED:	1	CONCRETE:	73.07 cu.yd. (net)				
BY: JMS	DATE: 8/7/05	CLIENT:	HEMPHILL CORPORATION				
JOB NO: 1414	DWG. NO: 1414-1 of 3	PROJECT:	250 FOOT SELF SUPPORTING TOWER				
		SITE:	HWY 431/CR 74, AL				
		SITE NO.:					

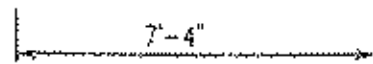
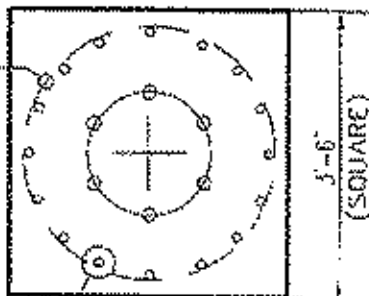
¹ Per Hemphill: Dwg. B-1414 dated 7/13/05

MAT FOUNDATION

(NOT TO SCALE)

Detail  Pedestal
(Typical - 3 Places)

MK 501 - #5 Ties
36" Dia - 27" Lop

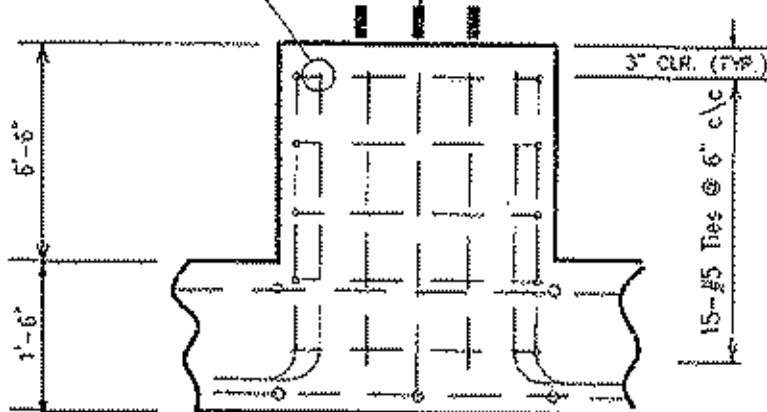


Bend Rad. Per
ACI 318-95

MK 701 - #7 Rebar
16 Required/Pedestal

MK 701

(6) 1-1/4" DIA. ASTM A193-B7 ANCHOR BOLTS @ 92" LONG
12-1/2" DIA. B.C. W/ 9" PROJECTION



NOTES:

1. Tower location and orientation to be provided by Client.
2. Tower footprint plan and dimensions are per Hemphill Drawing No. B-1414 dated 7/13/05.
3. Tower footprint template to be provided by Hemphill Corporation.
4. Anchor bolts and templates to be provided by Hemphill Corporation.
5. Design based on site conditions presented by Hemphill.
6. Construction tolerances for foundations shall be per Hemphill Drawing No. 1414-3 of 3

DESIGN LOADS *
DOWN LOAD: 198.4 Kips
UP LOAD: 235.4 Kips
SHEAR/LEG: 22.6 Kips
* Per Hemphill Dwg B-1414 dated 7/13/05

BY: JMS	DATE: 8/7/05	CLIENT: HEMPHILL CORPORATION
JOB NO: 1414	DWG. NO: 1414-2 of 3	PROJECT: 250 FOOT SELF SUPPORTING TOWER
		SITE: HWY 431/CR 74, AL
		SITE NO:

HEMPHILL CORPORATION

3515 DAWSON ROAD

TULSA, OK 74115

OFFICE: 918-834-2200

FAX: 918-836-7109

TOWER FOUNDATIONS AND ANCHORS

STANDARD SPECIFICATION

1. Foundation designs are in accordance with ANSIEIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures.
2. Work shall comply with local codes, safety regulations, and unless noted otherwise, the most recent edition of ACI 318, "Building Code Requirements for Structural Concrete". Procedures for the protection of excavations, existing construction, and utilities shall be established prior to foundation construction.
3. Proportions of concrete materials shall be suitable for the placement method utilized and shall yield durable concrete. The durability of concrete shall conform to the requirements of ACI 318 for the conditions expected at the site. Concrete shall develop a minimum compressive strength of 3000 psi within 28 days of placement.
4. The maximum size of aggregate shall not exceed the lesser of 1-inch one-third the clear distance behind or between reinforcing or the size permitted for the placement method utilized.
5. Reinforcing steel shall be deformed, shall conform to ASTM A615, and shall be Grade 60 unless noted otherwise. Splices in reinforcement shall comply with the requirements of ACI 318.
5. Reinforcing cages shall be spaced to retain dimensions during handling and concrete placement. Welding on steel reinforcement and embeddings is strictly prohibited.
7. The minimum concrete cover for reinforcement shall be 3-inches unless noted otherwise. Approx. spacing shall be less than 3" in length. Spacers shall be attached intermittently throughout the entire length of vertical reinforcing cages to assure cage conformity within excavations.
6. Backfill materials shall be compacted to a minimum unit weight of 100 pcf or the pcf weight utilized for the design.
8. For self-supporting towers, the foundation at the highest elevation shall be 12-inches above grade. The tops of the foundations for the other two legs shall be constructed level with the first one.
10. Foundation construction shall be supervised by personnel knowledgeable and experienced with the foundation type. Construction shall conform to generally accepted construction practices.
11. For foundation and anchor detail requirements, refer to the tower manufacturer's drawing.
12. Excavations shall be cleared of loose materials and debris prior to concrete placement. Sides of excavations shall be rough and shall be free of loose materials.
13. Concrete shall be placed in a manner which precludes separation of concrete materials. Fine-pit concrete is permitted provided the fall is vertical and does not hit the sides of the excavation, the formwork, reinforcing steel, form ties, pipe bracing or other obstructions. Concrete fall through water is strictly prohibited unless the concrete is pumped or tremied.
14. Concrete shall be placed against undisturbed soil where possible. Forms, when required, shall be removed prior to backfilling.
15. Construction joints at the base of pedestals for pad and pedestal foundations shall be intentionally roughened to a full amplitude depth of 1/4-inch. No other construction joints shall be permitted.
16. Outside the limits of the anchor bolt area, the top of the foundation shall be sloped to drain and shall have a beaded finish. The area within the anchor bolt limits shall be level and shall have a scratched finish. Exposed edges of concrete foundations shall be finished with a 3/4" chamfer.
17. Drilled piers shall be constructed in accordance with ACI 308.5R, "Standard Specification for the Construction of End Bearing Drilled Piers".
18. Concrete used in the construction of dry or tremied piers less than 2' of water in bottom of pier hole shall be at least a 5-sack per cubic yard mix and shall be placed at a slump of 5".
18. The discharge for concrete placed pumped or tremied through water shall be maintained at least 5' below the concrete surface. Concrete placement shall be continuous till complete. Concrete placed by this method shall be a 7-sack per cubic yard mix and shall be placed at a slump of 7" to 9".
20. For less than 25 cubic yards or one day's placement, a minimum of one set of 4 concrete cylinders shall be cast in accordance with ASTM C 31 and ASTM C-39.
21. Tower bases leveled using the adjustable system shall be grouted using Master Builders Embeds 636 Grout or equivalent.

TOLERANCES - ALL TOWERS

22. Concrete Dimensions	+0" -1"
23. Depth from Grade to Bottom of Concrete	+3" -0"
24. Grilled Pier Out-of-Plumb	"
25. Placement of Reinforcing Steel	Per ACI 301
26. Projection of Embedments	+5/16"
27. Vertical Embedment Out-of-Plumb	1/2"

TOLERANCES - GUYED TOWERS

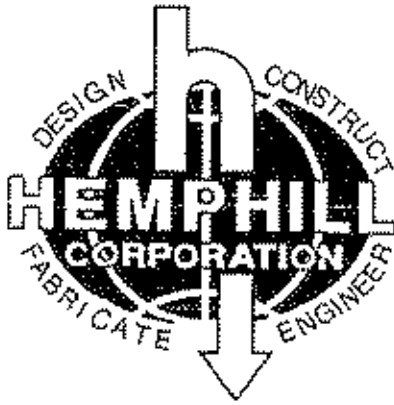
28. Guy Anchor Rods	±3% of Tower Height
29. Anchor Elev. Relative to Tower Base	±2% of Tower Height
30. Anchor Rod Alignment Relative to Guy Rods	±0.1"
31. Anchor Rod Slope	±1"

TOLERANCES - SELF-SUPPORTING TOWERS

32. Anchor Bolt Spacing	±1/8"
33. Bolt Circ. Diameter	±1/16"
34. Bolt Circ. Dimension	±1/8"
35. Maximum Difference in Elevation Between Any Two Tower Foundations	±1/2"
36. Circular-Letter Dimension of Anchor Bolt Circles	±1/16" or 1/16" per 24 H. of Base Spacing
37. Distance From Center of Foundation to Corner of Base Circle	1/8" of Circumferential Wind to a Maximum of 2"



BY	JMS	DATE	6/7/05	CLIENT:	HEMPHILL CORPORATION
SCALE	NTS	DWG. NO	1414-3 of 3	PROJECT:	250 FOOT SELF SUPPORT TOWER
				SITE:	HWY 431/CR 76, AL
				SITE NO:	



TULSA
3515 Dawson Road
Tulsa, OK 74115
Phone: (918) 834-2200
Fax: (918) 836-7109

GEOTECHNICAL SUMMARY REPORT
SITE LOCATION: HWY 431/CR 74, AL
HEMPHILL PROJECT NO. 1414

TOWER TYPE : LATTICED (SELF SUPPORT)

TOWER HEIGHT ABOVE GROUND LEVEL : 250'

MAXIMUM BASE SPREAD (CENTER TO CENTER) : 26'-0"

SOIL DESCRIPTION : REFER TO BORING LOGS

SURFACE WATER : NONE OBSERVED

DEPTH TO GROUND WATER : NONE OBSERVED

RECOMMENDED TYPE OF FOUNDATION : MAT FOUNDATION

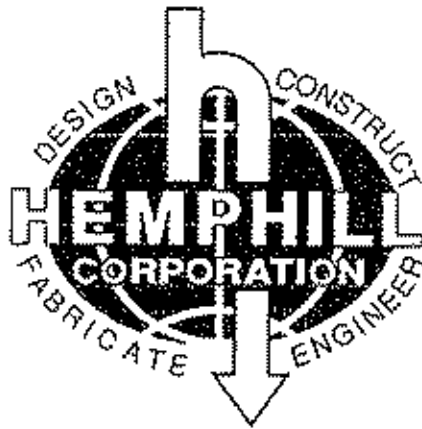
MINIMUM FOUNDATION BEARING DEPTH : 6' BELOW GROUND
LEVEL

ESTIMATED DESIGN PARAMETERS (MEAN):

1. UNIT WEIGHT (MOIST) γ : 100 pcf
2. PHI ANGLE ϕ : 15°
3. COHESION, c : 1.5 ksf
4. NET ALLOWABLE BEARING PRESSURE : 16.0 ksf



Tower Assembly Drawings



Tower Division

3515 Dawson Rd.
Tulsa, OK 74115
(918) 834-2200

Customer: *Hemphill Corporation*

Site: *Hwy 431/CR74, AL*

City: *Hwy 431/CR74, AL*

Job No.: *1414*

Model: *SST*

Tower Ht.: *250'*

Loading: *70 mph 1/2" Ice*

Date: *July 13, 2005*

1. STD. BEACON/STROBE LIGHT W/ 1" CONDUIT AT 250' ELEVATION.
2. (3) STD. 12" P.S.G. MOUNTS W/ (3) 10' x 3" WHIP ANTENNAS & (2) 5' x 1' PANEL ANTENNAS AT 250' ELEV. FED BY 1 5/8" COAX.
3. (3) STD. 12" PIVOTING SECTOR GATE MOUNTS W/ (9) 5' x 1' PANEL ANTENNAS AT 230', 210', & 190' ELEV'S FED BY 1 5/8" COAX.
4. (2) 8' DIA. HP SOLID DISHES AT 170' ELEVATION. EACH FED BY 1 5/8" COAX.
5. (3 EA.) WAVEGUIDE LADDERS.
6. (1 EA.) STEEL BOLTS W/ SAFETY CLIMB TO 250' HEIGHT.

TOWER DESIGN LOADING

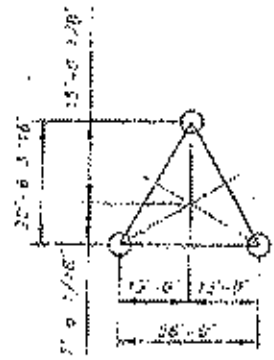
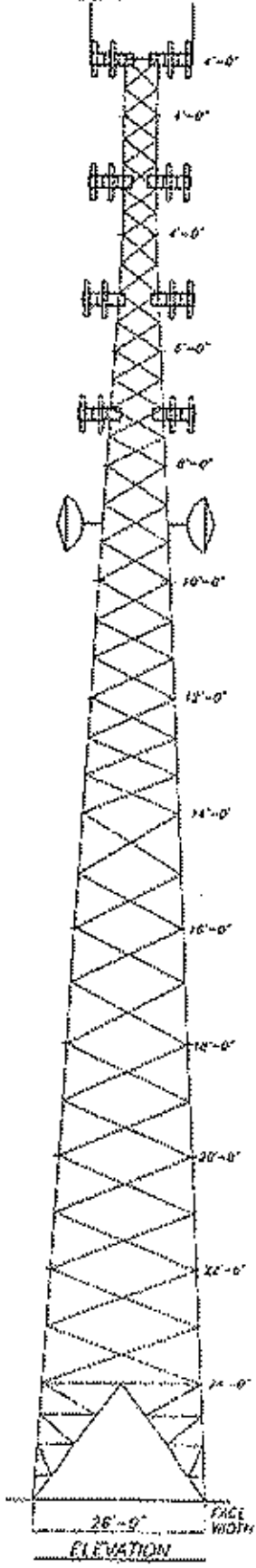
1. TOWER IS DESIGNED PER EA/TIA-222F FOR 70 MPH WIND LOAD WITH 1/2" ICE.
2. TRANSMISSION LADDERS AND LINES MUST BE EVENLY DISTRIBUTED ON ALL (3) FACES.

REFERENCE DRAWINGS

1. FOUNDATION DRAWINGS
 - TOWER BASE A-AB26
 - ANCHOR BOLT A-AD1
 - BASE GROUT A-BSTGR71
 - GROUNDING A-GRND13
2. CELL MOUNT N/A
3. DISH MOUNTS N/A
4. BRACING LACING A-INST1
5. SAFETY CLIMB B-SAFETY
6. ICE SHIELD N/A
7. LIGHTNING ROD A-LTROD71
8. WAVEGUIDE LADDER N/A
9. TX-LINE GROUNDING B-COAX-BST
10. WAVEGUIDE BRIDGE N/A
11. BEACON MOUNT N/A
12. LIGHTING DIAGRAM N/A
13. SIDE LIGHTS N/A
14. FOR SECTION ASSEMBLIES SEE DRAWING A-ASSY NO.

EXA SPECIFICATION RE DUAL LIGHTING SEE (1) BEACON / STROBE AT 250' ELEVATION
(7) RED OBSTRUCTION LIGHTS AT 120' ELEVATION

SECTION ASSY NO.	HEIGHT	SECTION	HEIGHT	SECTION	HEIGHT	SECTION	HEIGHT	SECTION	HEIGHT
135B	0'	14" x 14" x 1/2"	20'	8" SCH 40	20'	14" x 14" x 1/2"	40'	8" SCH 40	40'
	20'	14" x 14" x 1/2"	40'	8" SCH 40	40'	14" x 14" x 1/2"	60'	6" SCH 40	60'
	40'	14" x 14" x 1/2"	60'	6" SCH 40	60'	14" x 14" x 1/2"	80'	6" SCH 40	80'
	60'	14" x 14" x 1/2"	80'	6" SCH 40	80'	14" x 14" x 1/2"	100'	6" SCH 40	100'
	80'	14" x 14" x 1/2"	100'	6" SCH 40	100'	14" x 14" x 1/2"	120'	6" SCH 40	120'
	100'	14" x 14" x 1/2"	120'	6" SCH 40	120'	14" x 14" x 1/2"	140'	6" SCH 40	140'
	120'	14" x 14" x 1/2"	140'	6" SCH 40	140'	14" x 14" x 1/2"	150'	6" SCH 40	150'
	140'	14" x 14" x 1/2"	150'	6" SCH 40	150'	14" x 14" x 1/2"	160'	6" SCH 40	160'
	150'	14" x 14" x 1/2"	160'	6" SCH 40	160'	14" x 14" x 1/2"	170'	6" SCH 40	170'
	160'	14" x 14" x 1/2"	170'	6" SCH 40	170'	14" x 14" x 1/2"	180'	6" SCH 40	180'
	170'	14" x 14" x 1/2"	180'	6" SCH 40	180'	14" x 14" x 1/2"	190'	6" SCH 40	190'
	180'	14" x 14" x 1/2"	190'	6" SCH 40	190'	14" x 14" x 1/2"	200'	6" SCH 40	200'
	190'	14" x 14" x 1/2"	200'	6" SCH 40	200'	14" x 14" x 1/2"	210'	6" SCH 40	210'
	200'	14" x 14" x 1/2"	210'	6" SCH 40	210'	14" x 14" x 1/2"	220'	6" SCH 40	220'
	210'	14" x 14" x 1/2"	220'	6" SCH 40	220'	14" x 14" x 1/2"	230'	6" SCH 40	230'
	220'	14" x 14" x 1/2"	230'	6" SCH 40	230'	14" x 14" x 1/2"	240'	6" SCH 40	240'
	230'	14" x 14" x 1/2"	240'	6" SCH 40	240'	14" x 14" x 1/2"	250'	6" SCH 40	250'



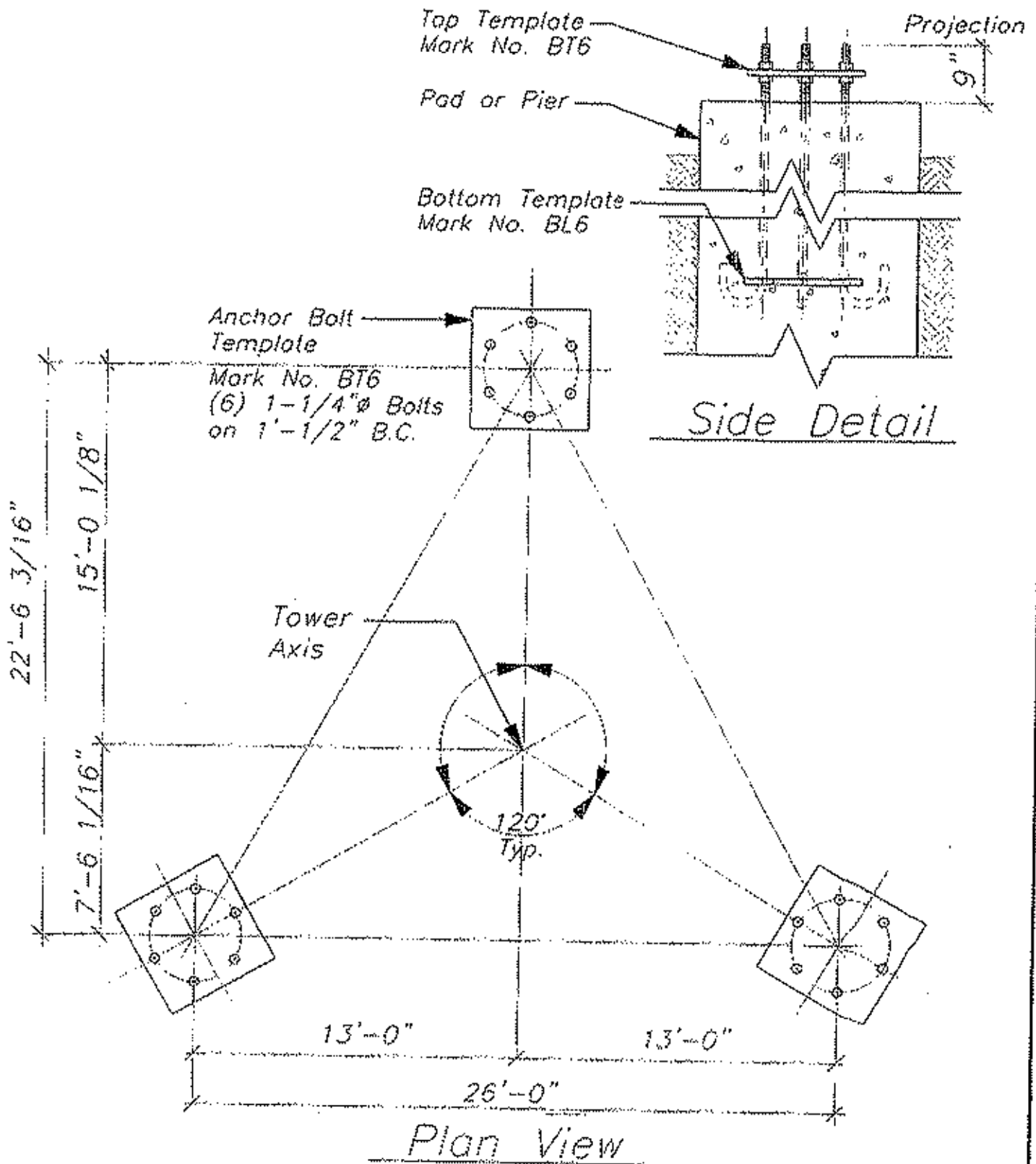
PLAN VIEW

BASE REACTIONS

Overturb	4,973.0	K-FT
Shear	37.8	KIPS
Weight	22.8	KIPS
Uplift	198.4	KIPS
Compression	235.4	KIPS

Rev	Description	Date	By
	File 250' Self Support Tower		
	Cost Weight Comparison		
	Site 104 451/CAT, AL		
Drawn By	DLK	Doc No.	1414
Checked By	DLK	Scale	None
Date	7-13-05	Proj. No.	B-1414


Tower Division



Note:

1. Anchor bolt orientation always is as shown for (5) bolt flanges.
2. Anchor bolts must be set plumb within $\pm 0.5'$

Rev.	Description	Date	By
	100 Anchor Bolt Layout Section		
	Cust. Standard		
	Std. Standard		
	Dwn. By DG	Job No	Standard
	Chk By	Scale	None
	Date 3/14/05	Dwg No	A-AB26-3


 Tower Division

Top bracket will bolt to antenna mount on towers with rotating platform.
(Part MS02L)

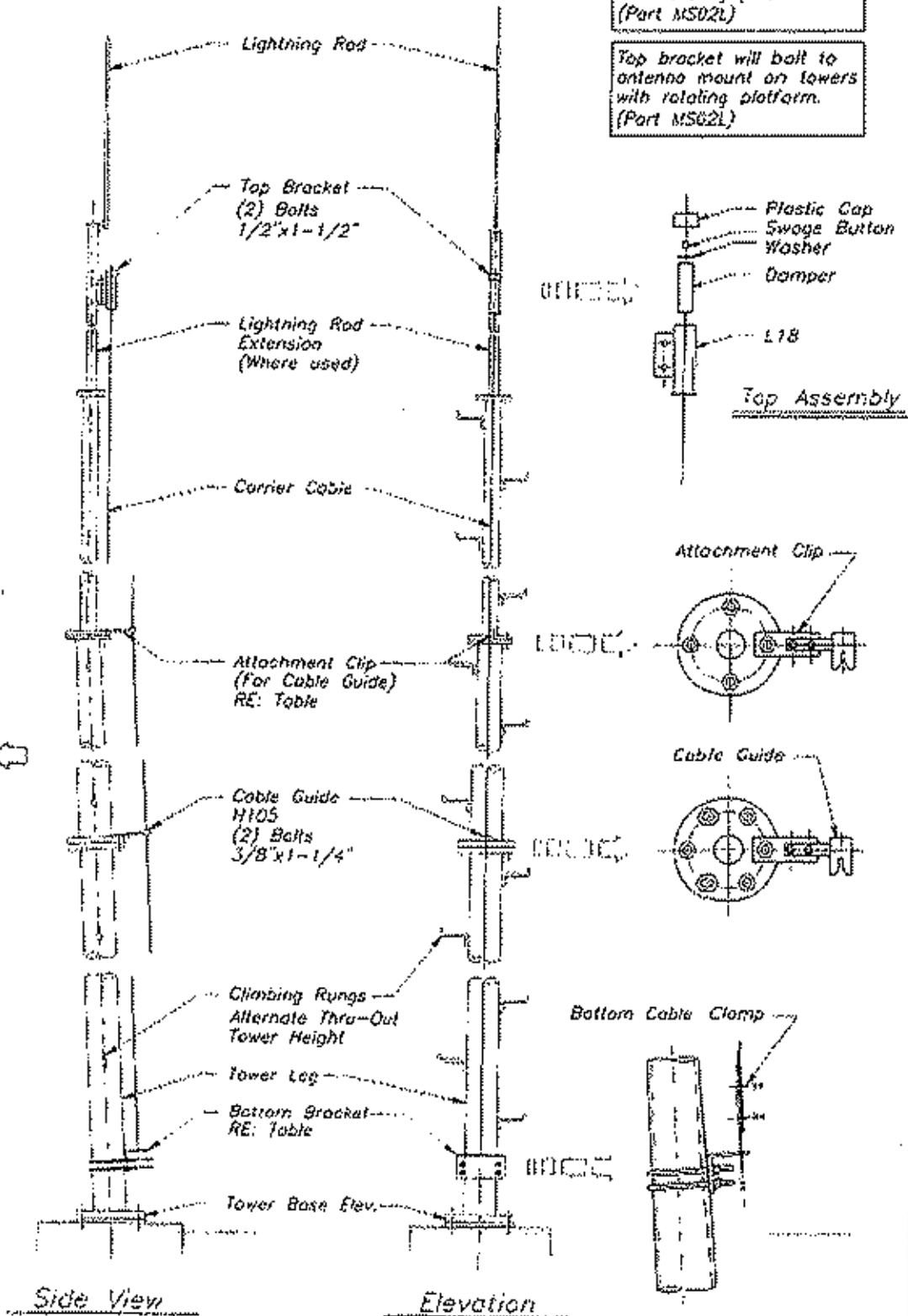
Top bracket will bolt to antenna mount on towers with rotating platform.
(Part MS62L)

Flange Bolt #	Bracket No.	Qty.
2" ø	L27	---
1 3/4" ø	L25	---
1 1/2" ø	L25	---
1 3/8" ø	L19	---
1 1/4" ø	L20	---
1 1/8" ø	L21	---
1" ø	L22	---
7/8" ø	L23	2
3/4" ø	L24	4
5/8" ø	L28	6

Cable Guide Required Every 20'

Leg Size	Bracket No.	U-Bolt
10"	L17	U-11
8"	L16	U-10
6"	L15	U-9
5"	L14	U-8
4"	L15	U-12
4 1/2"	L15	U-12
3 1/2"	L15	U-7
3"	L19	U-6
2 1/2"	L14	U-5
2"	L14	U-4
6 3/4"	L15	U-9
5"	L14	U-8
4 3/4"	L14	U-8
4 1/2"	L15	U-12
4"	L15	U-7
3 3/4"	L15	U-7
3 1/2"	L15	U-6
3"	L15	U-6

(1) Base Bracket Required
Install Approx. 1'-6" Above
Base Leg Flange



Side View

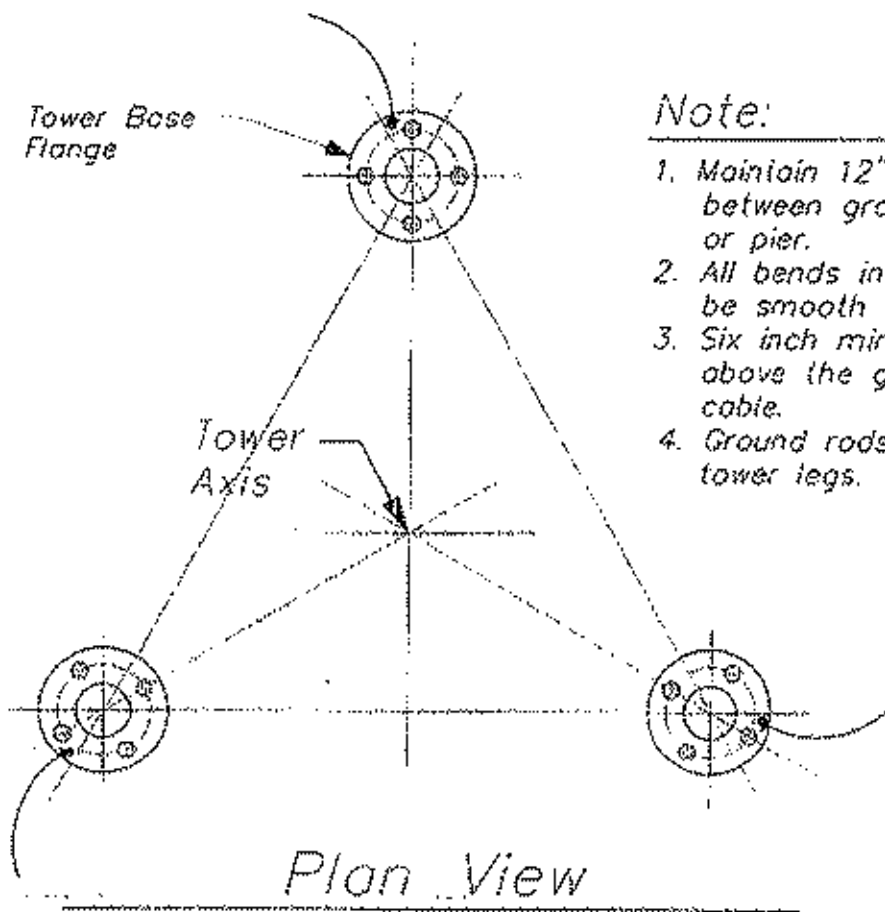
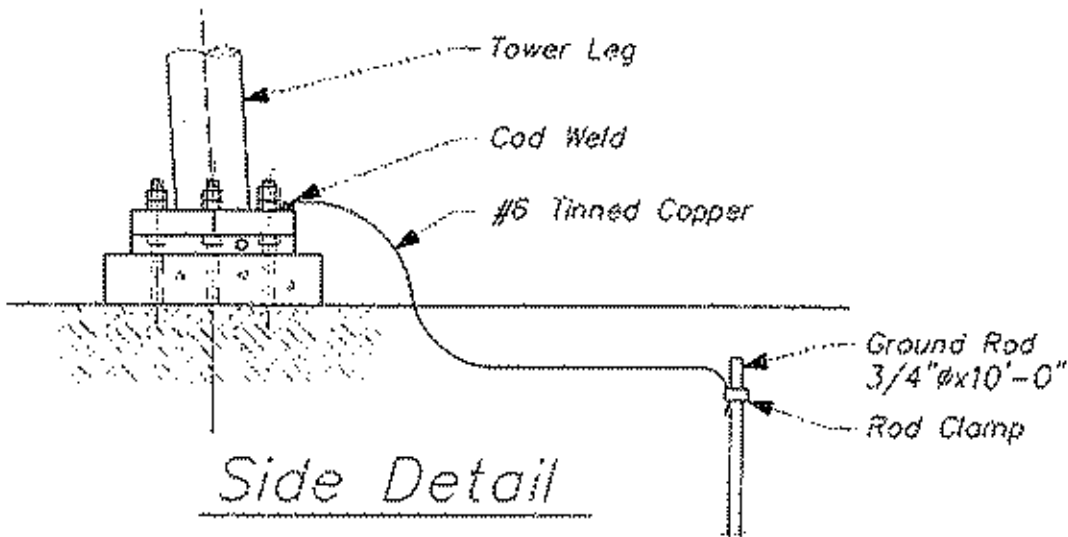
Elevation

Notes:

1. Always align the climbing rung attachments for proper section azimuth orientation
2. Install Ladder Safety System per OSHA/SALA specifications provided
3. Locate the attachment hardware on the tower as shown.
4. Inspect the ball and hardware before each use.

REV	REMOVED PIPE AND BAR CALLOUTS FROM LEGEND	2/5/99	11
Rev	Description	Date	By
1	1. Climbing Rung & Safety Check Installation		
	Cost	Standard	
	Site	Standard	
	Own. By	JRP	100-115 Standard
	Chk. By	None	None
	Date	4/29/98	8-SAFETY6

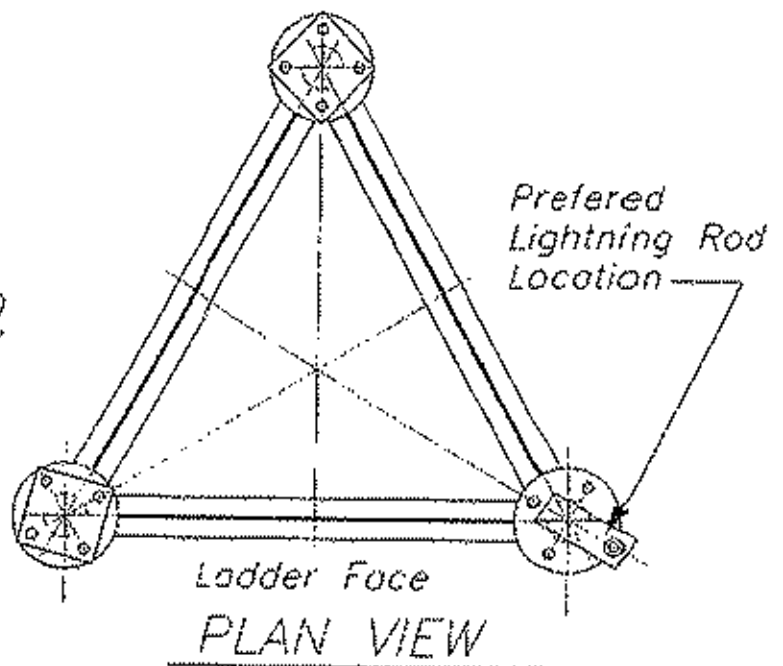
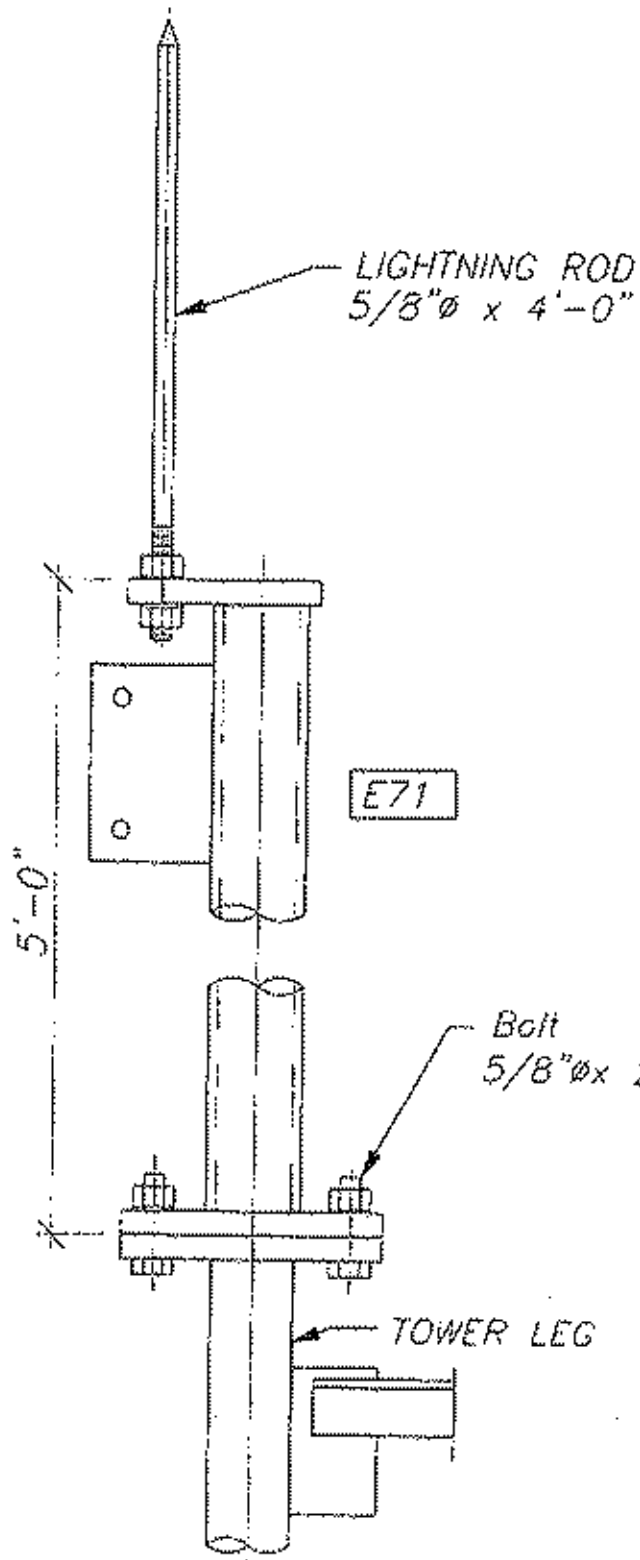




Note:

1. Maintain 12" minimum clearance between ground rod and base pad or pier.
2. All bends in the ground wire should be smooth curves without kinks.
3. Six inch minimum cover required above the ground rod and buried cable.
4. Ground rods required at all tower legs.

Per	Description	Date	By	
<p>Tower Division</p>	Title	Memphis SST Grounding		
	Inst.	Stongord		
	Site	Stongord		
	Drawn By	DC	Job No	Standard
	Check By		State	None
	Date	5/31/05	Dwg No	A-GRND13

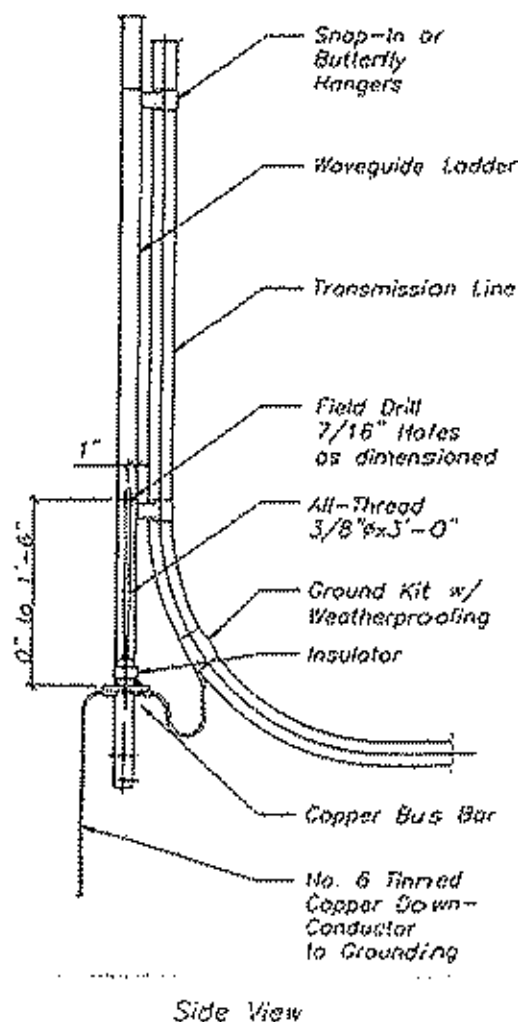
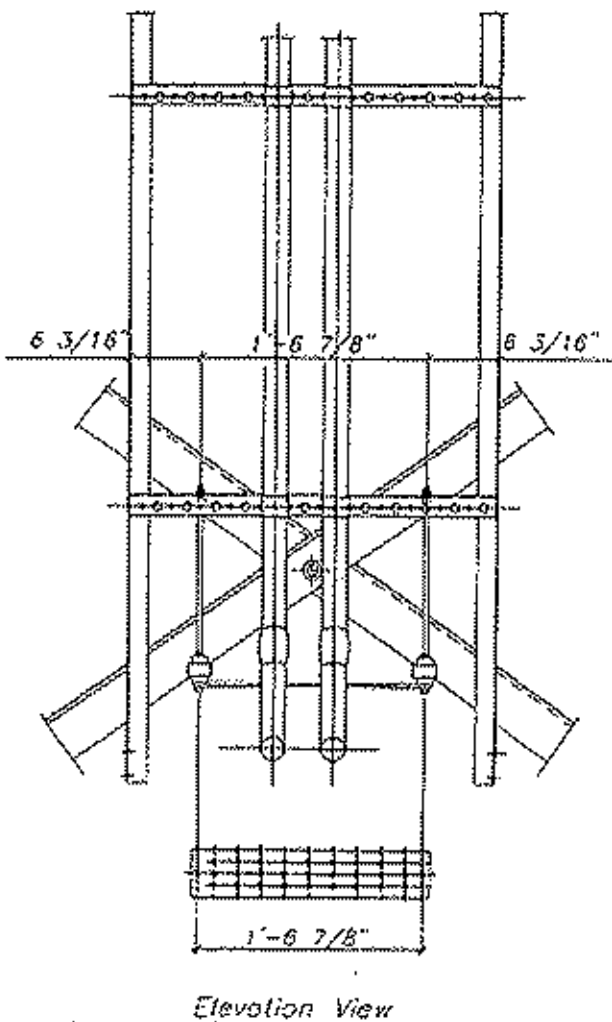
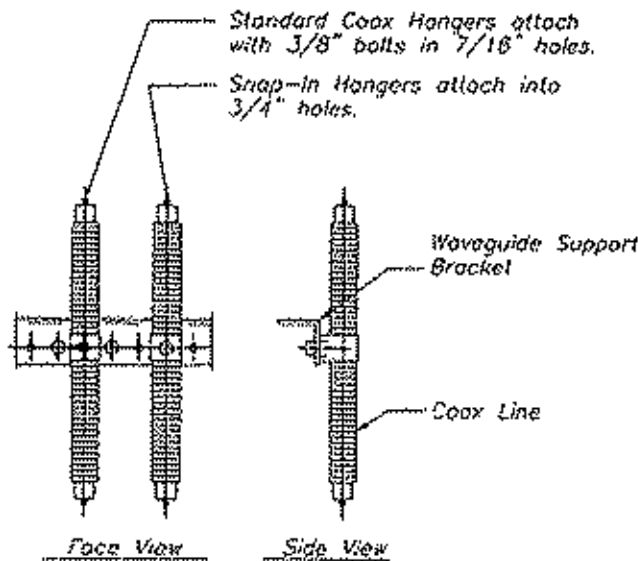


INSTALLATION DETAIL
SST TOWERS

NOTES

1. LOCK WASHERS ARE REQUIRED UNDER ALL NUTS.

Per	Description	Date	By	
	Title	Lightning Rod Installation		
	Cost.	Standard		
	Site	Standard		
	Drawn By	DC	Job No	Standard
	Chk By	BLM	Scale	None
	Date	10/04/04	Dwg. No	L7R0071
Tower Division				



Coax Attachment Detail

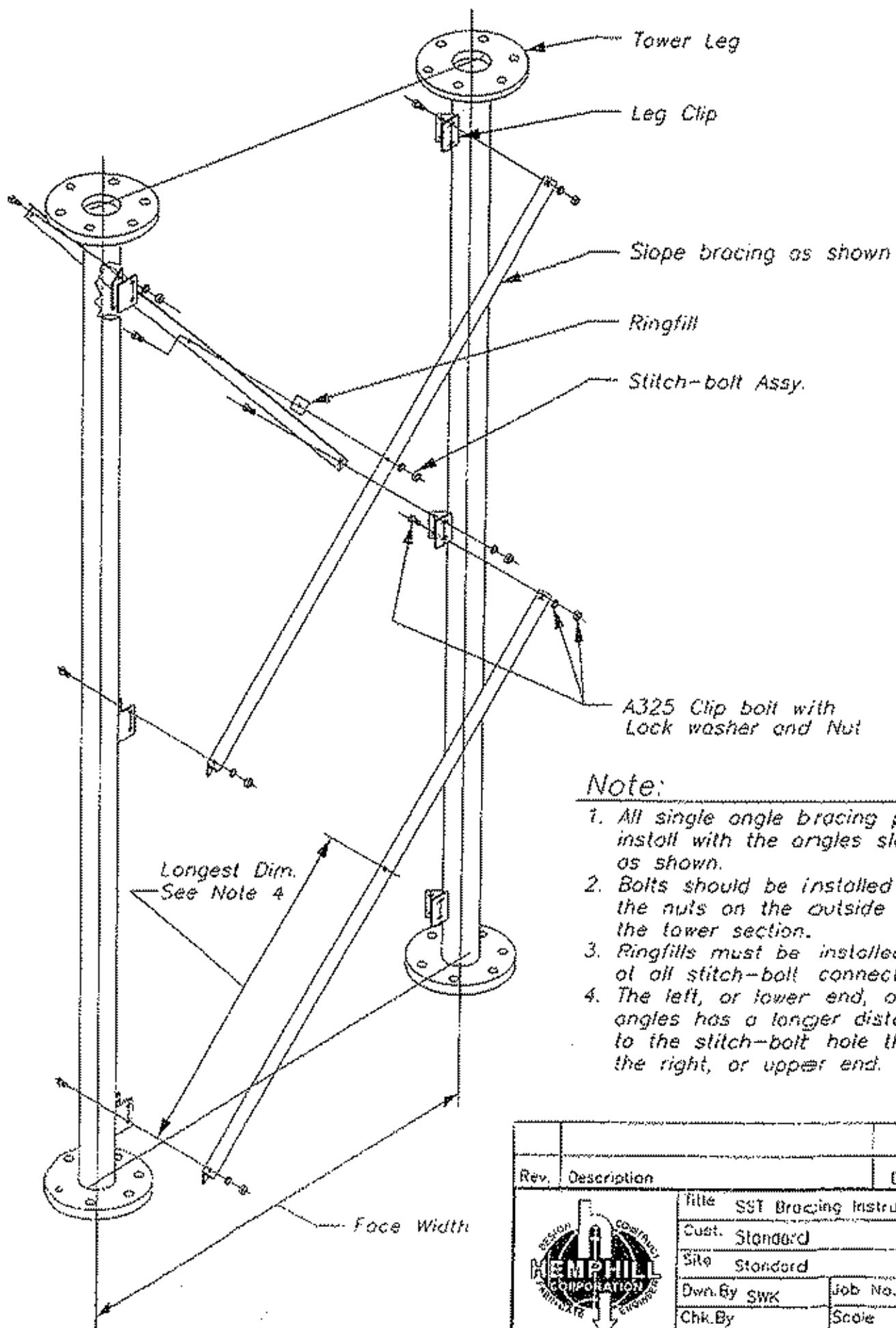
Note:

1. All coax lines, hangers, and grounding wires are supplied by others.
2. Install all hardware per the manufacturers instructions.
3. Transmission lines should be installed in a continuous straight line from the base to antenna elevation.
4. The bus bar insulator may be installed with or without the all-thread as required

1	Insulators added	4/4/92	JWH
Rev	Description	Date	By
	Side Transmission Line Installation		
	Dist	Standard	
	Site	Standard	
	Des. By	JWH	Job No. Standard
	Chk. By	JWH	Scale None
	Date	9/19/86	Draw. No. 8-COAX-557



Tower Division



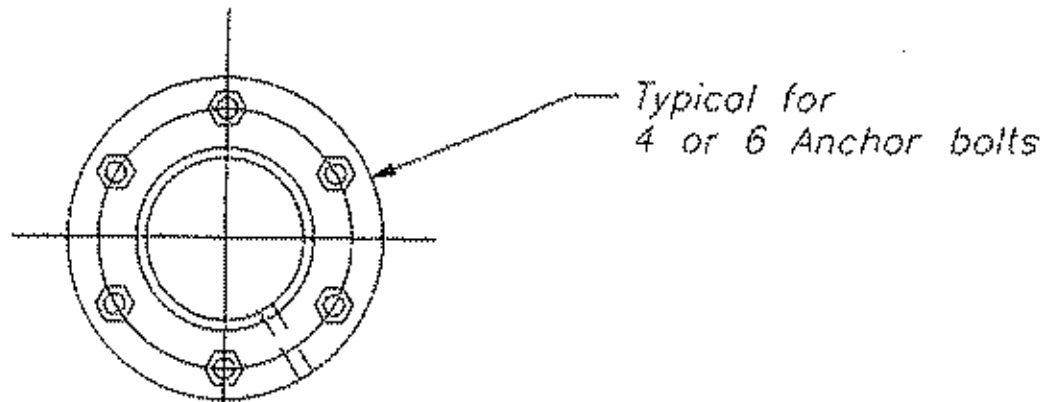
Note:

1. All single angle bracing patterns install with the angles sloped as shown.
2. Bolts should be installed with the nuts on the outside of the tower section.
3. Ringfills must be installed at all stitch-bolt connections.
4. The left, or lower end, of all angles has a longer distance to the stitch-bolt hole than the right, or upper end.

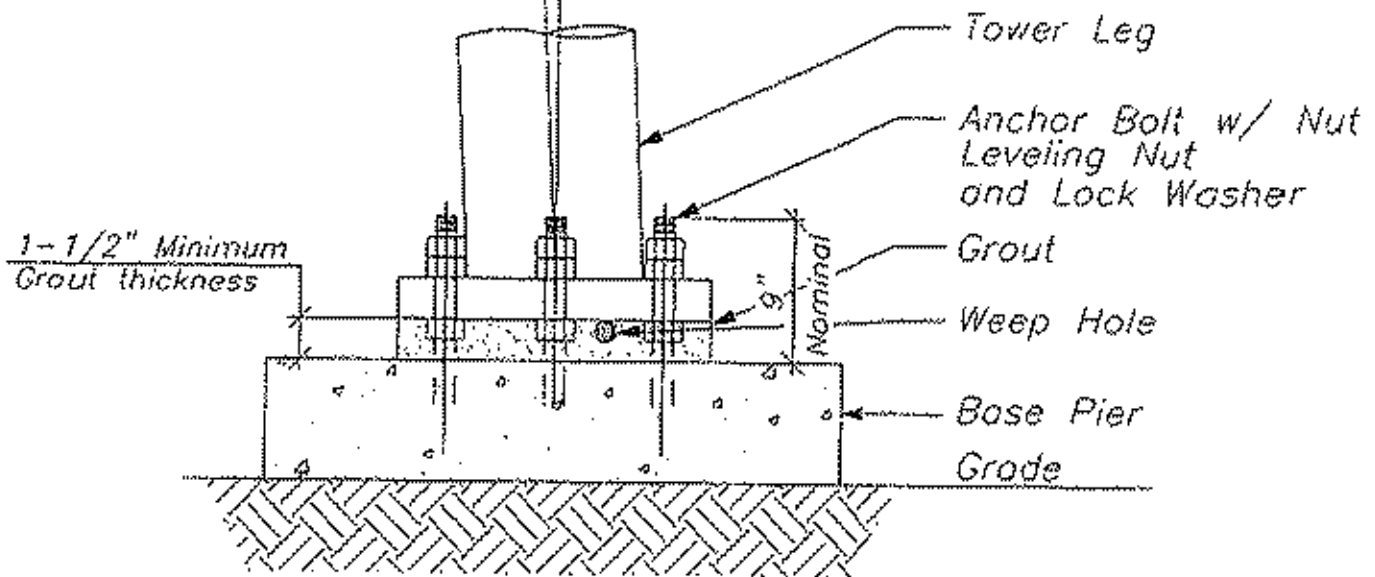
Rev.	Description	Date	By
	Title SST Bracing Instructions		
	Cust. Standard		
	Site Standard		
	Dwn. By SWK	Job No. Standard	
	Chk. By	Scale None	
	Date 06/01/98	Dwg. No. A-INST 1	



Tower Division



Plan View



Elevation

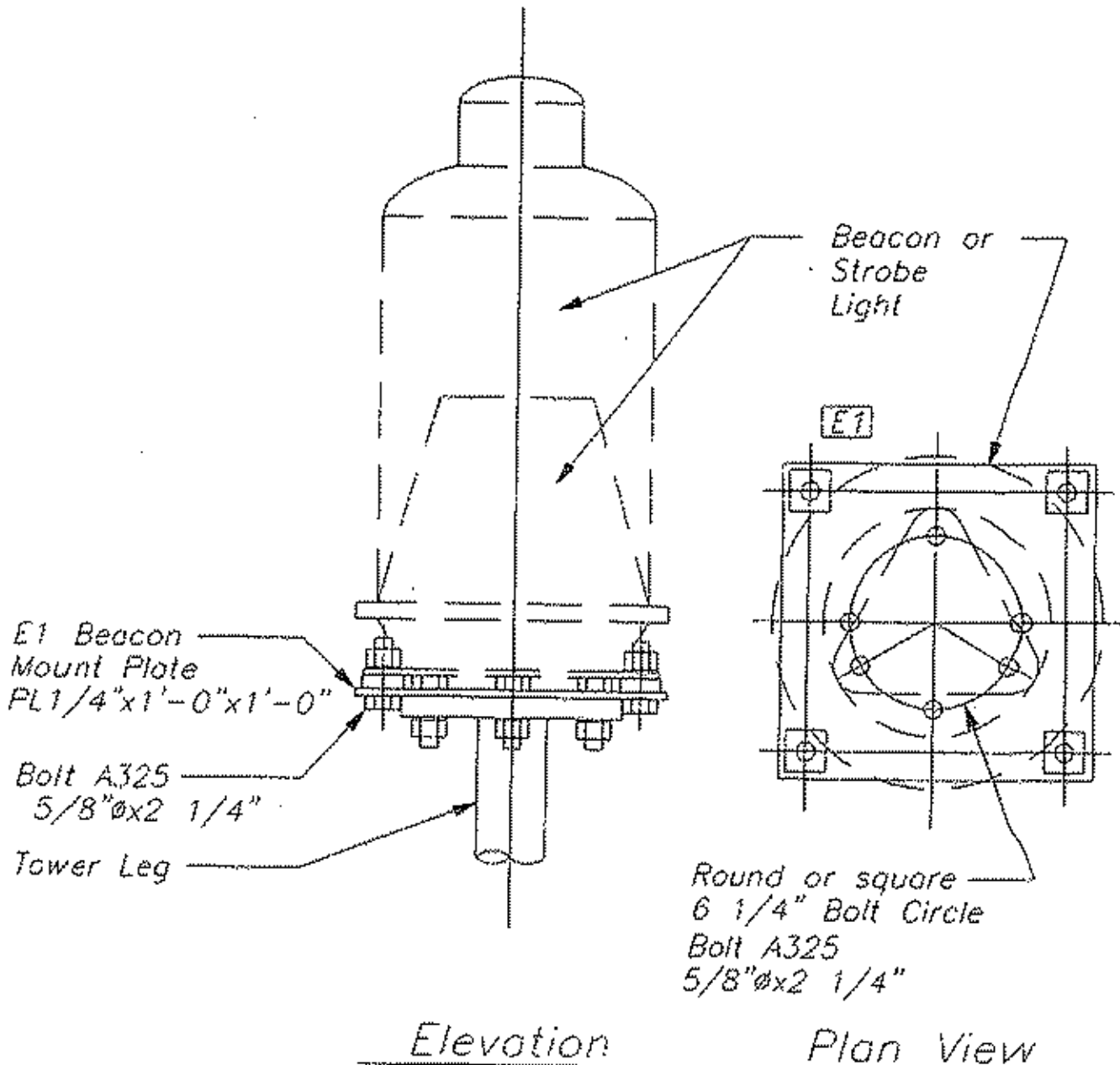
Notes:

1. Grout: 11,000 psi non-shrink.
2. The weep hole should be formed with PVC pipe, 3/4" or larger, or with the use of a wooden dowel. Dowels must be removed after the Grout hardens.
3. Weep holes are required at all legs.

Rev.	Description	Date	By
	Title SST Base Grouting		
	Cust. Standard		
	Site Standard		
	Own. By RDT	Job No. Standard	
	Chk. By	Scale None	
	Date 10/12/00	Dwg. No. ASSTGRT1	



Tower Division



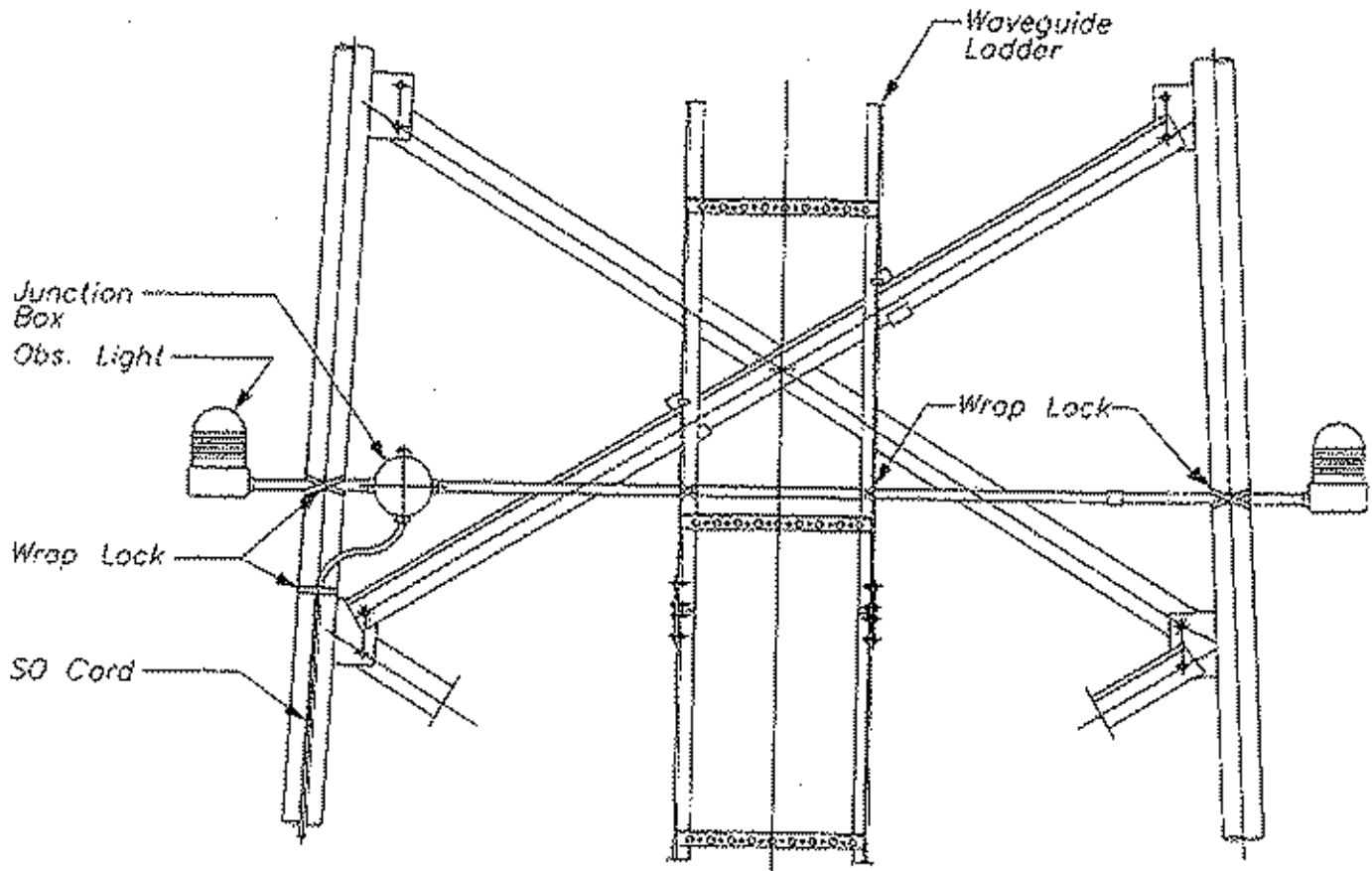
NOTES

1. All bolts require lock washers.
2. Refer to manufacturers supplied information for proper service cord routing and attachment.

Rev.	Description	Date	By
	Title Top Beacon Mounting		
	Cust. Standard for Hemphill		
	Site Standard		
	Dwn. By DG	Job No. Standard	
	Chk. By BLM	Scale None	
	Date 08/26/04	Dwg. No. A-BCMNTB	



Tower Division



ELEVATION

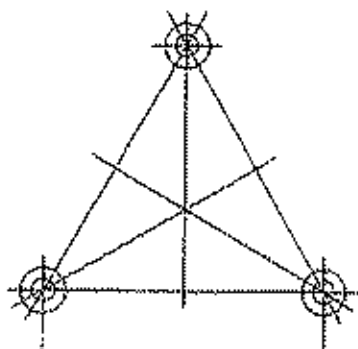
Notes:

1. UV resistant Zip Ties may be substituted for Wrap Lock if unavailable.
2. See the cover sheet for the proper elevation of the side lights.
3. Cutting and threading may be required, in the field, by the Erector, to provide the proper light placement.
4. If support cannot be provided by the waveguide ladder Wrap Lock the conduit to the lower diagonals.
5. If three Obstruction lights are required an additional conduit run may be required across another face.

Rev.	Description	Date	By
		Title Obstruction Light Mounting	
		Cust. Standard	
		Site Standard	
		Drawn By JMP	Job No. ANY
		Chk. By	Scale None
Date 07/27/98	Dwg. No. A-ESIOE.2		

PARTS LIST

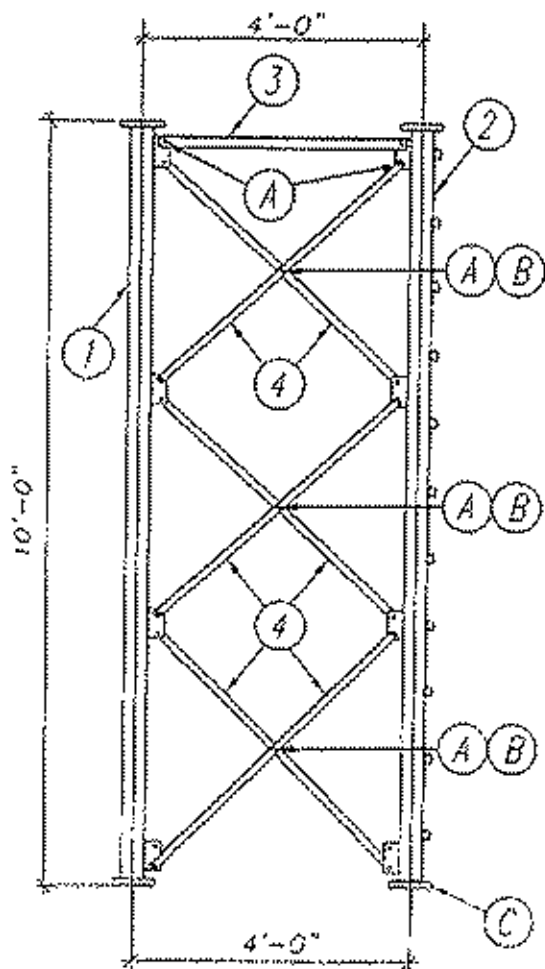
Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L01	2	Leg: Pipe 2" Sch 40 x 10'-0"		172
(2)	67L011	1	Leg: Pipe 2" Sch 40 x 10'-0"		88
(3)	70G1	3	Grid: L1 3/4 x 1 3/4 x 3/16 x 3'-6 7/8"		24
(4)	70D1A	18	Diag: L1 3/4 x 1 3/4 x 3/16 x 4'-6 3/4"		180
(A)		51	Bolt: 5/8" x 1 3/4" w/ HH Nut		8
(B)	RF1	9	Ringfill: Pt. 3/8x2sar w/ 13/16 Hole		4
(C)		12	Bolt: 5/8" x 3 1/4" w/ HH Nut		3
Total Section Wt.					479



PLAN VIEW

Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Step bolts required on one (2) leg only.



1SG
ELEVATION

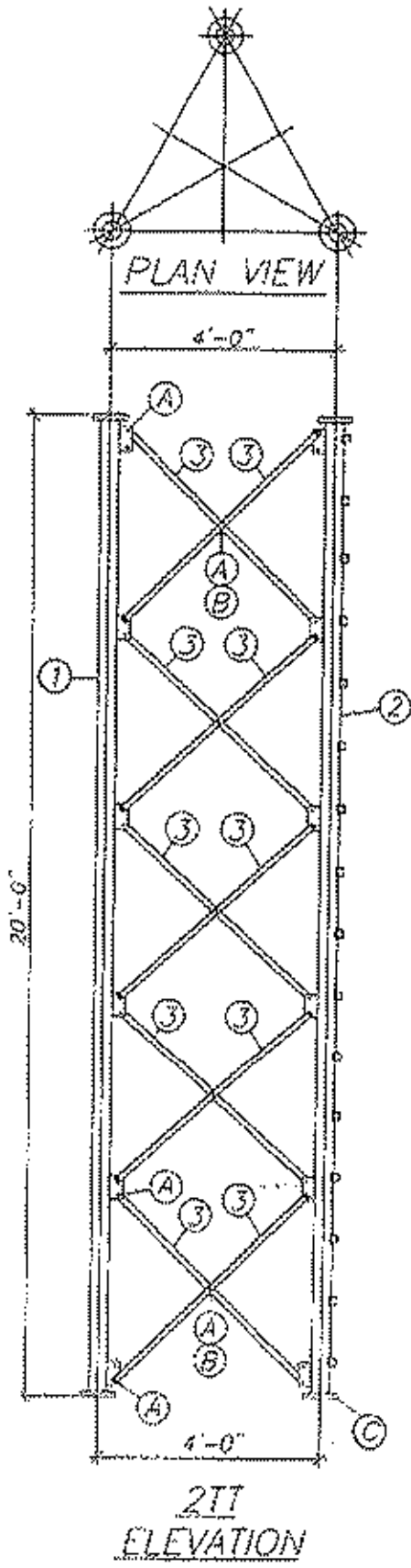
Rev.	Description	Date	By
	Title Section 1SG Ass'y		
	Cust. Standard		
	Site Standard		
	Dwn. By DG	Job No. Standard	
	Chk. By	Scale None	
	Date 7-18/05	Dwg. No. A-1SG-67	



Tower Division

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L02	2	Leg: Pipe 2" Sch 40	x 20'-0"	314
(2)	67L02L	1	Leg: Pipe 2" Sch 40	x 20'-0"	169
(3)	7002	30	Diag: L1 3/4 x 1 3/4 x 3/16	x 5'-1 5/8"	330
(A)		75	Bolt: 5/8" x 1 3/4" w/ HH Nut		11
(B)	RF1	15	Ringfill: PL 3/8 x 2" Sar w/13/16 Hole		6
(C)		18	Bolt: 5/8" x 4 1/4" w/ HH Nut		7
Total Section Wt.					836



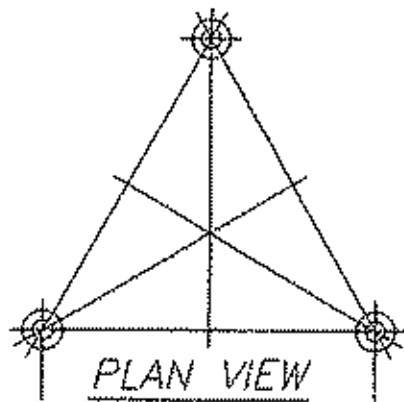
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Stop bolts required on one (2) leg only.

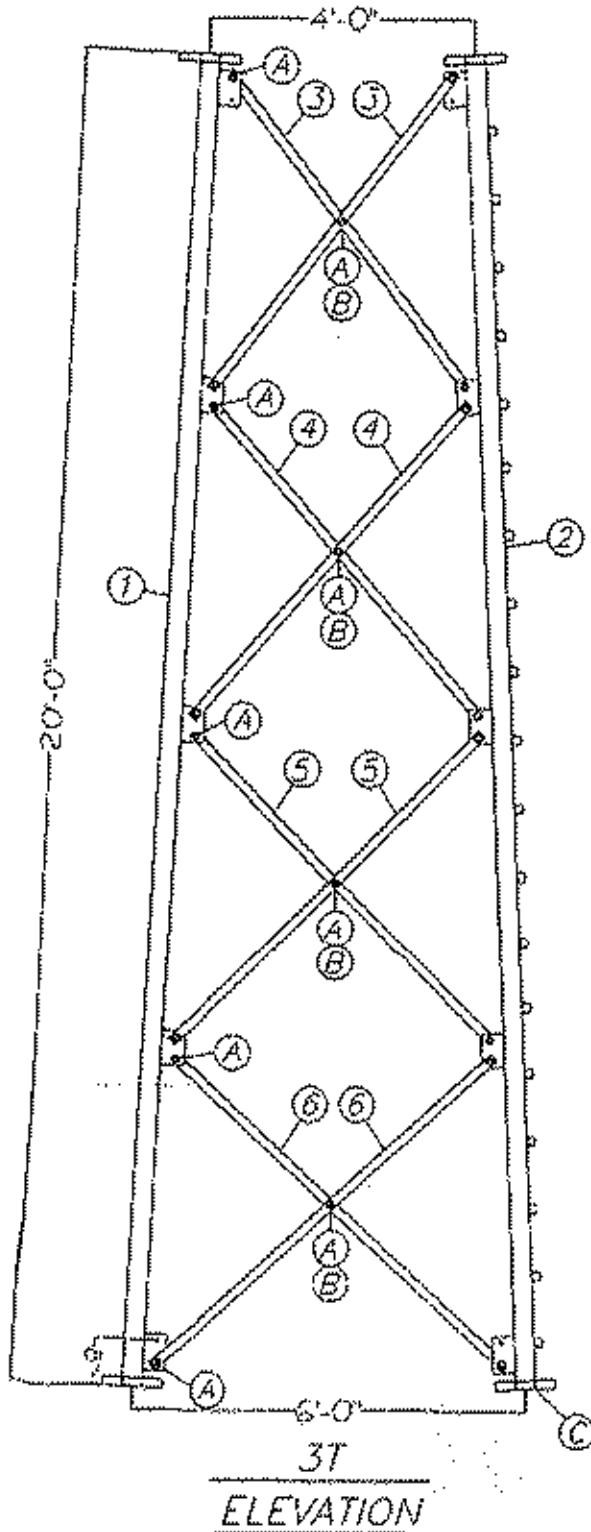
Rev.	Description	Date	By
	Title Section 2TT Assy		
	Cust. Standard		
	Site Standard		
	Dwn.By DG	Job No. Standard	
	Chk.By	Scale None	
	Date 7/18/05	Dwg.No. A-2TT-67	



Tower Division



PARTS LIST					
Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L03	2	Leg: Pipe 3" Sch 40	x20'-0"	498
(2)	67L03L	1	Leg: Pipe 3" Sch 40	x20'-0"	261
(3)	63D5	6	Diag: L 1 3/4 x 1 3/4 x 3/16 x 5'-11 13/16"		72
(4)	63D4	6	Diag: L 1 3/4 x 1 3/4 x 3/16 x 3'-3 9/16"		78
(5)	63D5	6	Diag: L 1 3/4 x 1 3/4 x 3/16 x 6'-7 5/8"		84
(6)	63D6	6	Diag: L 1 3/4 x 1 3/4 x 3/16 x 5'-11 7/8"		90
(A)		60	Bolt: 5/8" x 1 3/4" w/ HH Nut		9
(B)	RF1	12	Rinofil: PL 3/8 x 2 Sor w/ 13/16 Hole		5
(C)		18	Bolt: 5/8" x 4 1/4" w/ HH Nut		7
Total Section Wt.					1104



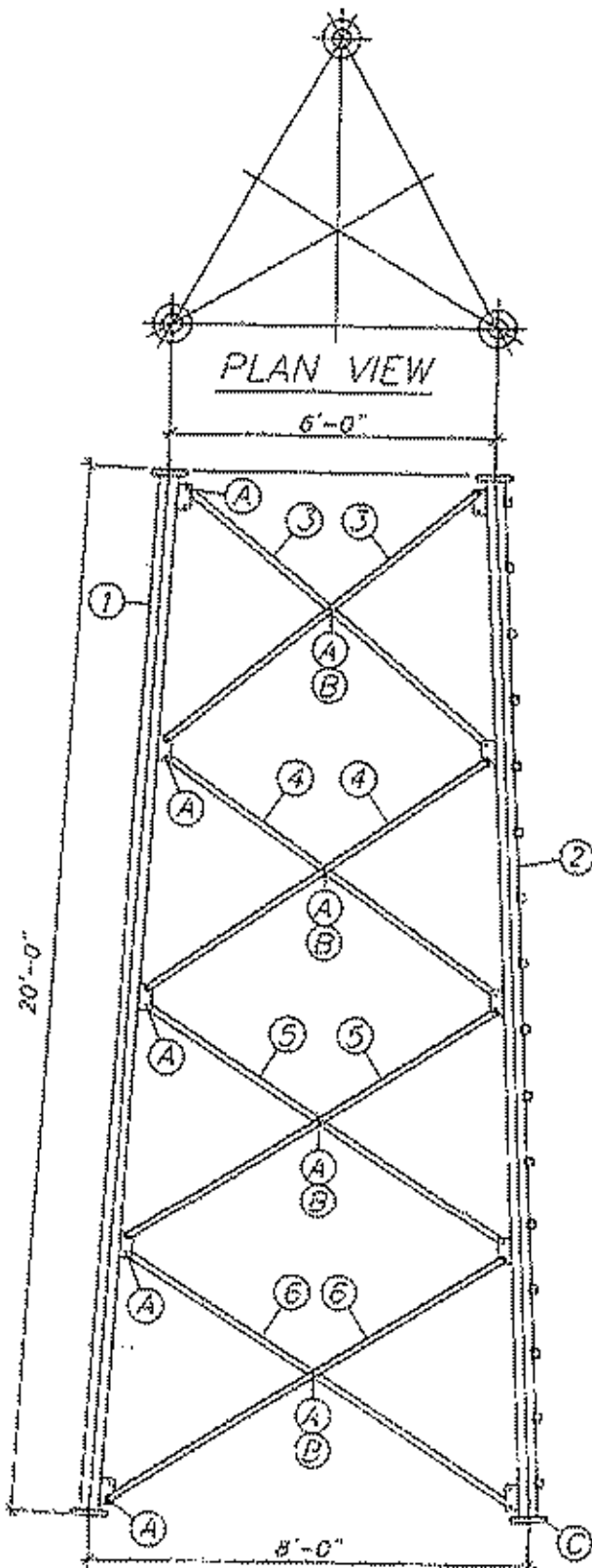
Notes:

1. All bolts require Lock Washers.
2. Mkt. No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Maintain step bolt and safety climb run with (2) leg.

Rev.	Description	Date	By
		Title	Section 3T Ass'y
		Cust.	Standard
		Site	Standard
		Dwn. By	DG
		Job No.	Standard
		Chk. By	Scale None
		Date	7/18/05
		Dwg. No.	A-3T-67

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L04	2	Leg: Pipe 3" Sch 40	x 20'-0"	498
(2)	67L04L	1	Leg: Pipe 3" Sch 40	x 20'-0"	261
(3)	70D7	6	Diag: L 1 3/4 x 1 3/4 x 3/16	x 7'-5"	80
(4)	70D8	6	Diag: L 1 3/4 x 1 3/4 x 3/16	x 7'-8 7/16"	96
(5)	70D9	6	Diag: L 1 3/4 x 1 3/4 x 3/16	x 8'-1 1/8"	102
(6)	70D10	6	Diag: L 1 3/4 x 1 3/4 x 3/16	x 8'-7 1/16"	108
(A)		60	Bolt: 5/8" x 1 3/4 w/ HH Nut		9
(B)	RF1	12	Ringfit: PL 3/8 x 2 Sqr w/ 13/16 Hole		5
(C)		18	Bolt: 5/8" x 4 1/4 w/ HH Nut		7
Total Section Wt.					1,176



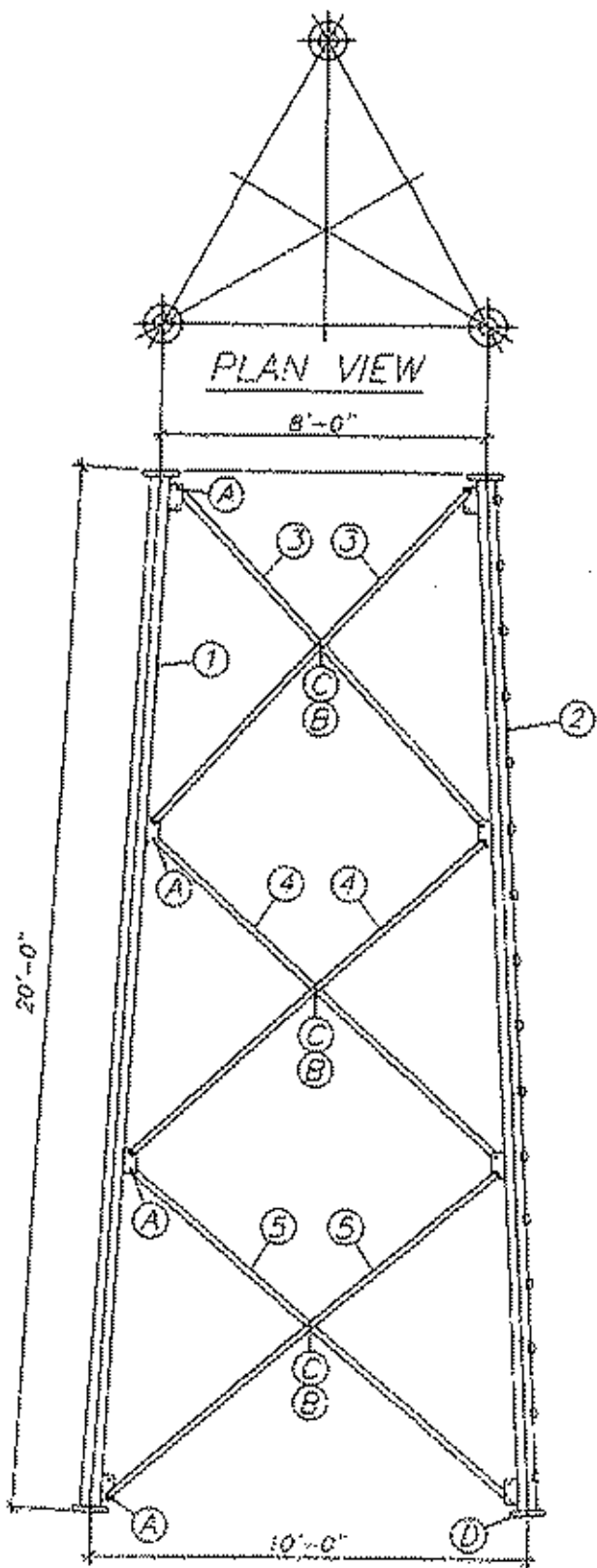
Notes:

1. All bolts require Lock Washers.
2. Mkt.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with (2) leg.

Rev.	Description	Date	By
		Title	Section 4T Ass'y
		Cust.	Standard
		Site	Standard
		Own.By	DG Job No. Standard
		Clk.By	Scale None
		Date	7/18/05 Dwg.No A-41-67
Tower Division			

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L05	2	Leg: Pipe 4" Sch 40 x 20'-0"		604
(2)	67L05L	1	Leg: Pipe 4" Sch 40 x 20'-0"		314
(3)	70011	6	Diag: L 2 x 2 x 1/4 x 9'-11 3/8		192
(4)	70012	6	Diag: L 2 x 2 x 1/4 x 10'-4 1/4		198
(5)	70013	6	Diag: L 2 x 2 x 1/4 x 10'-11 5/8		204
(A)		36	Bolt: 5/8" x 1 3/4 w/ HH Nut		5
(B)		9	Bolt: 5/8" x 2 w/ HH Nut		2
(C)	RF1	9	Rinfill: PL 3/8 x 2 Sor w/ 13/16 Hole		4
(D)		18	Bolt: 5/8" x 4 1/4 w/ HH Nut		7
Total Section Wt.					1,530



Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with (2) leg.

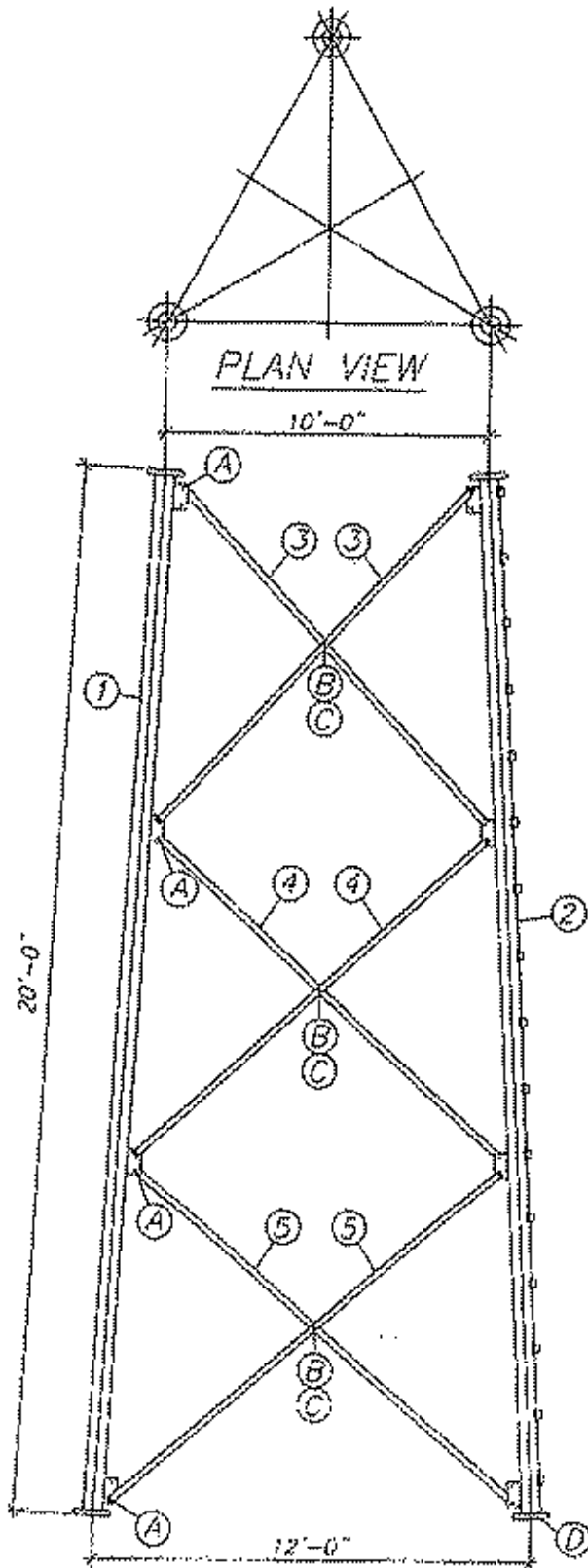
Rev.	Description	Date	By
		Title	Section 5T Ass'y
		Cust. Standard	
		Site	Standard
		Own. By	DC
		Job No.	Standard
		Chk. By	
		Scale	None
		Date	7/18/05
		Dwg. No.	A-5T-67

5T
ELEVATION

Tower Division

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L06	2	Leg: Pipe 5" Sch 40 x 20'-0"		744
(2)	67L06L	1	Leg: Pipe 5" Sch 40 x 20'-0"		384
(3)	70D14	6	Diag: L 2 1/2 x 2 1/2 x 1/4 x 11'-5 1/2"		216
(4)	70D15	6	Diag: L 2 1/2 x 2 1/2 x 1/4 x 11'-10 15/16"		228
(5)	70D16	6	Diag: L 2 1/2 x 2 1/2 x 1/4 x 12'-6 5/8"		240
(A)		36	Bolt: 5/8" x 1-3/4 w/ HH Nut		5
(B)		9	Bolt: 5/8" x 2 w/ HH Nut		1
(C)	RF1	9	Ringfil: PL 3/8 x 2 Sac w/ 13/16 Hole		4
(D)		18	Bolt 5/8" x 4 1/4 w/ HH Nut		7
Total Section Wt.					1,829



6T
ELEVATION

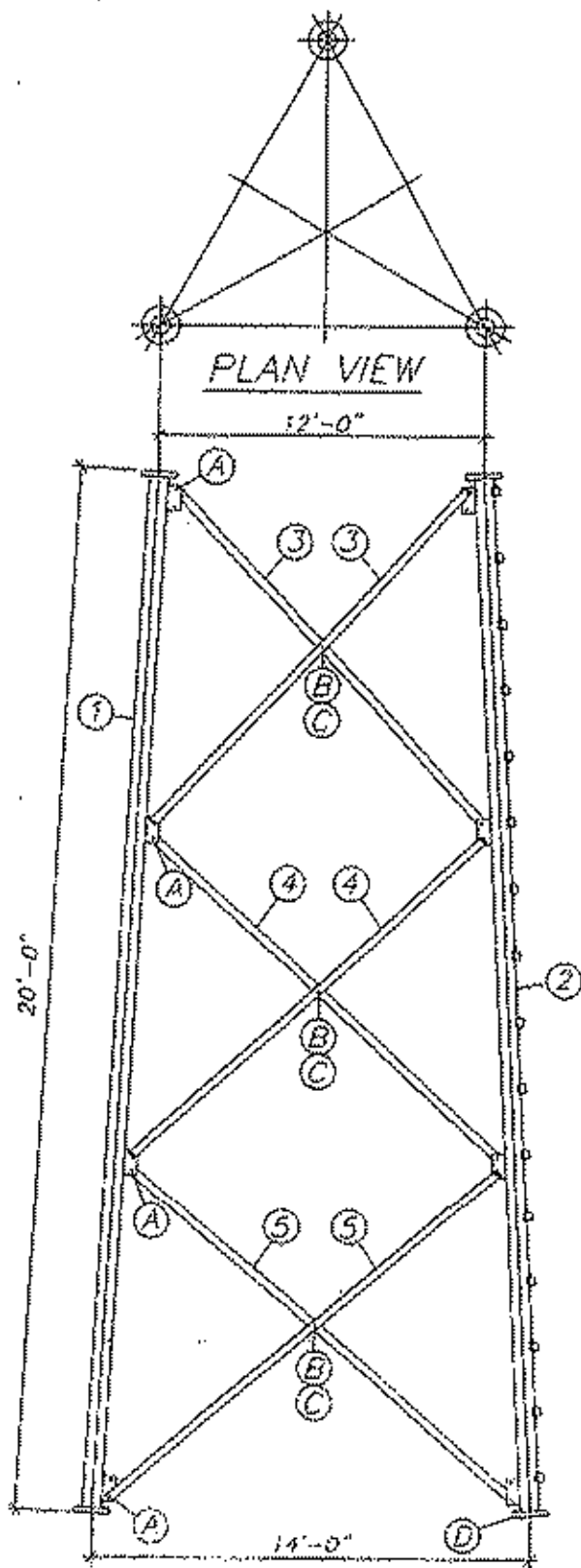
Notes:

1. All bolts require Lock Washers.
2. Mfr. No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with (2) leg.

Rev.	Description	Date	By
	Title Section 6T Assy		
	Cust. Standard		
	Site Standard		
	Dwn. By DC	Job No. Standard	
	Chk. By	Scale None	
	Date 7/18/05	Dwg. No. A-6T-67	



Tower Division



7T
ELEVATION

PARTS LIST					
Item	Part	Qty.	Description	Lth.	Wt.
①	67L07	2	Leg: Pipe 5 Sch 40 x 20'-0"		776
②	67L07L	1	Leg: Pipe 5 Sch 40 x 20'-0"		400
③	70D17	6	Diag: L2-1/2 x 2-1/2 x 1/4 x 13'-2 1/8		252
④	70D18	6	Diag: L2-1/2 x 2-1/2 x 1/4 x 13'-8 1/16		258
⑤	70D19	6	Diag: L3-1/2 x 2-1/2 x 1/4 x 14'-3 7/8		270
(A)		36	Bolt: 5/8# x 1-3/4 w/ HH Nut		5
(B)		9	Bolt: 5/8# x 2 w/ HH Nut		2
(C)	RF1	9	Ringfit: PL 3/8 x 2 Sq w/ 13/16 Hole		4
(D)		18	Bolt 3/4# x 4 1/2" w/ HH Nut		10
Total Section Wt.					1,977

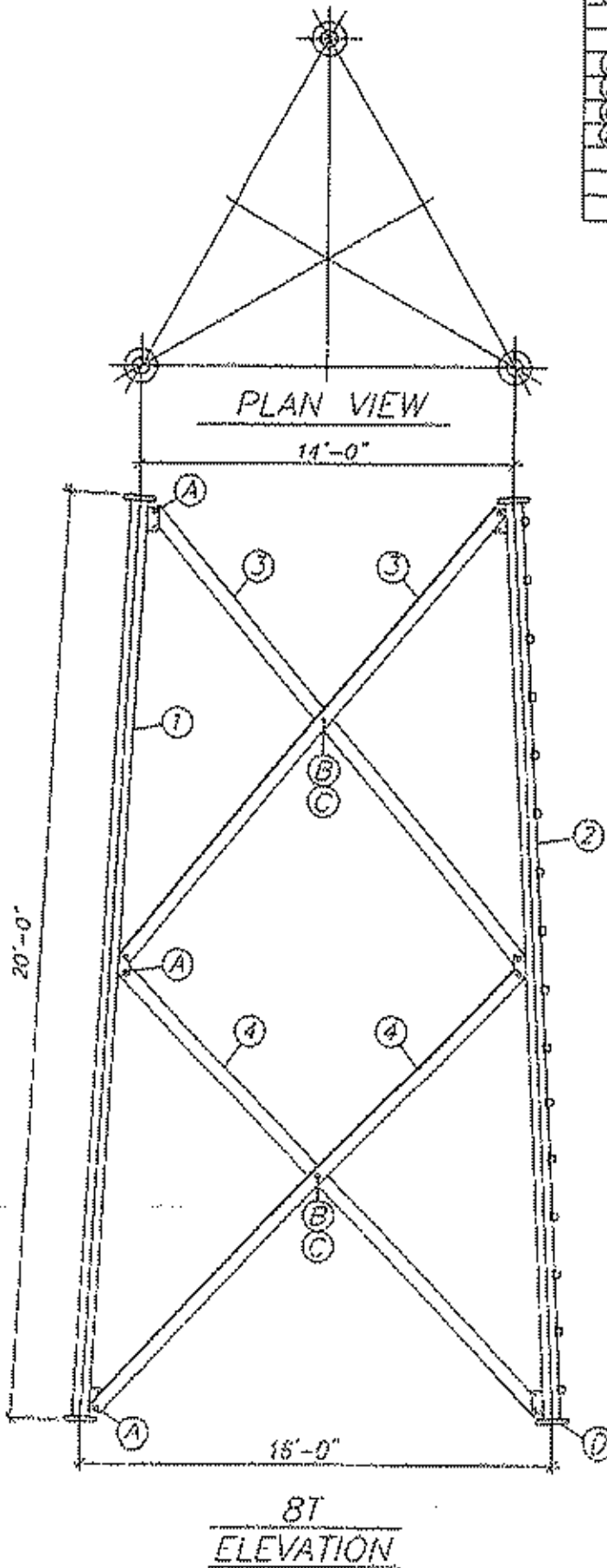
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with ② leg.

Rev.	Description:	Date	By
		Title	Section 7T Ass'y
		Cust.	Standard
		Site	Standard
		Own. By	DG
		Job No.	Standard
		Chk. By	
		Scale	None
		Date	7/18/05
		Dwg. No.	A-7T-67
Tower Division			

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L08	2	Leg: Pipe 6" Sch 40 x 20'-0"		962
(2)	67L08L	1	Leg: Pipe 6" Sch 40 x 20'-0"		493
(3)	70020	6	Diag: L 3 x 3 x 1/4 x 16'-6 1/2"		486
(4)	70021	6	Diag: L 3 x 3 x 1/4 x 17'-4 1/8"		510
(A)		24	Bolt: 5/8" x 1-3/4 w/ HH Nut		4
(B)		6	Bolt: 5/8" x 2 w/ HH Nut		1
(C)	RF1	6	Ringfill PL 3/8 x 2 Sqr w/ 13/16 hole		2
(D)		18	Bolt: 3/4" x 1/2 w/ HH Nut		10
Total Section Wt.					2,468



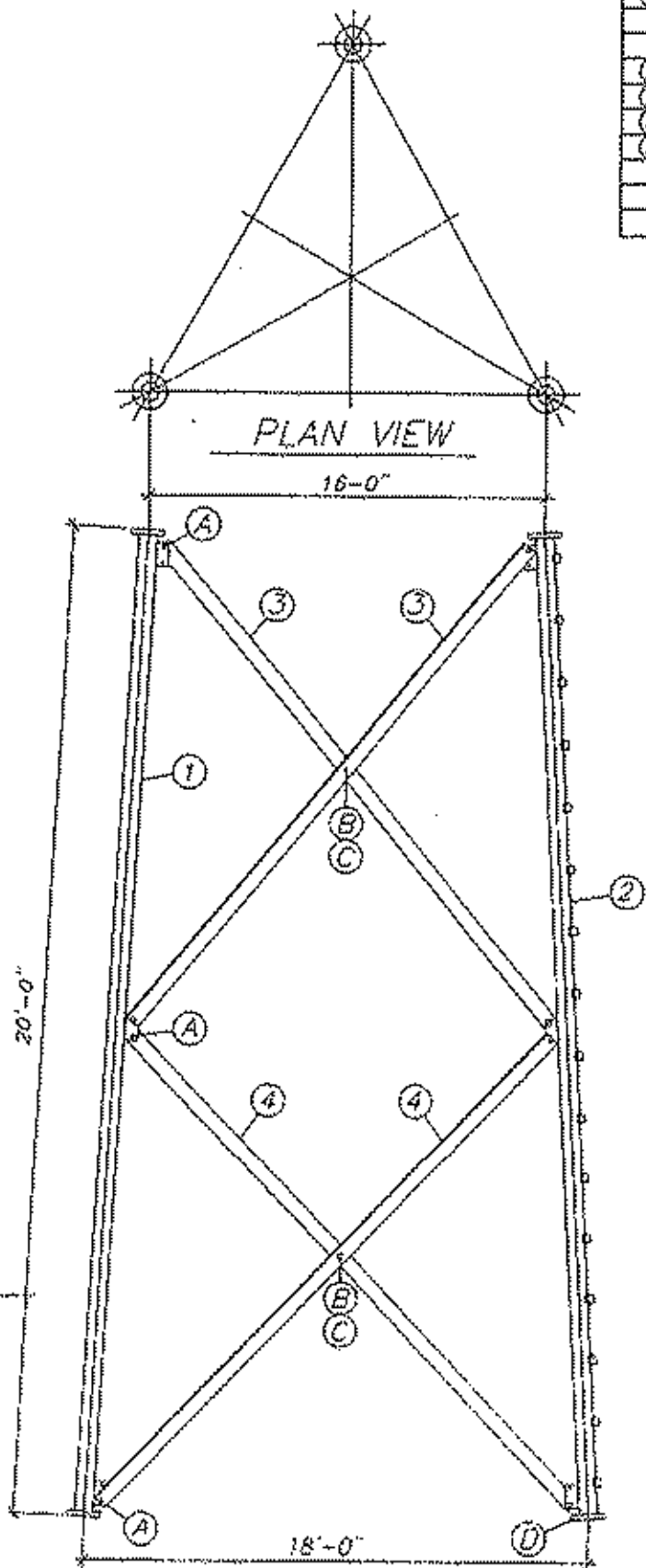
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with (2) leg.

Rev.	Description	Date	By
		Title	Section 8T Ass'y
		Cust.	Standard
		Site	Standard
		Dwn.By	DC
		Job No.	Standard
		Chk.By	Scale None
		Date	7/19/05
		Dwg.No.	A-8T-67
Tower Division			

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L09	2	Leg: Pipe 6" Sch 40 x 20'-0"		960
(2)	67L09L	1	Leg: Pipe 6" Sch 40 x 20'-0"		492
(3)	70D22	6	Diag: L3 1/2 x 3 1/2 x 1/4 x 18'-2 11/16		630
(4)	70D23	6	Diag: L3 1/2 x 3 1/2 x 1/4 x 19'-0 3/4		660
(A)		24	Bolt: 5/8" x 1-3/4 w/ HH Nut		4
(B)		6	Bolt: 5/8" x 2 w/ HH Nut		1
(C)	RF1	6	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole		2
(D)		18	Bolt: 3/4" x 4 1/2" w/ HH Nut		10
Total Section Wt.					2,759



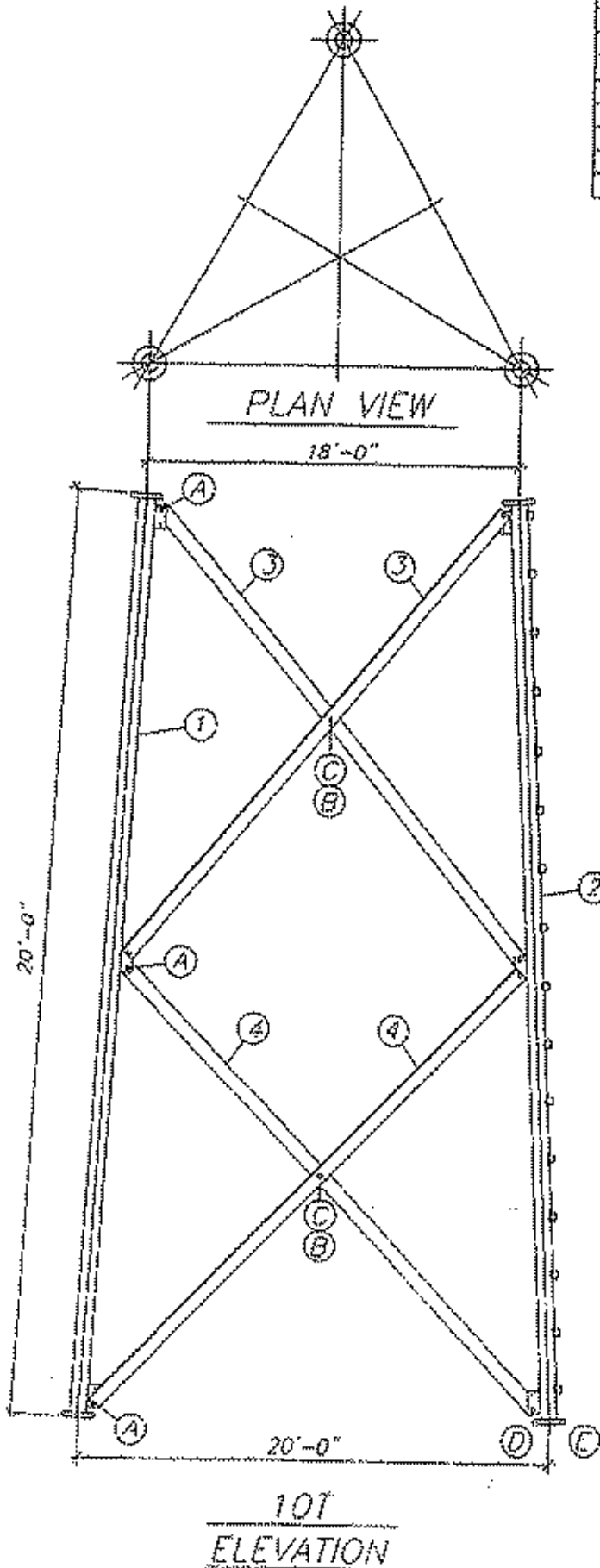
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Maintain step bolt and safety climb run with (2) leg.

Rev.	Description	Date	By
		Title	Section ST Assy
		Cust.	Standard
		Site	Standard
		Own. By	DC
		Job No.	Standard
		Chk. By	Scale None
		Date	7/19/05
		Dwg. No.	A-91-67
Tower Division			

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L10	2	Leg: Pipe 6" Sch 40 x 20'-0"		1,018
(2)	67L10L	1	Leg: Pipe 6" Sch 40 x 20'-0"		521
(3)	70D24	6	Diag: L 3 1/2 x 3 1/2 x 1/4 x 19'-11 9/16		690
(4)	70D25	6	Diag: R 3 1/2 x 3 1/2 x 1/4 x 20'-9 7/8"		720
(A)		24	Bolt: 5/8" x 1-3/4 w/ HH Nut		4
(B)		6	Bolt: 5/8" x 2 w/ HH Nut		1
(C)	RF1	6	Ringfil: Pl 3/8 x 7 Sq w/ 13/16" Hole		2
(D)		18	Bolt: 3/4" x 4 1/2 w/ HH Nut		10
Total Section Wt.					2,986



Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with (2) leg.

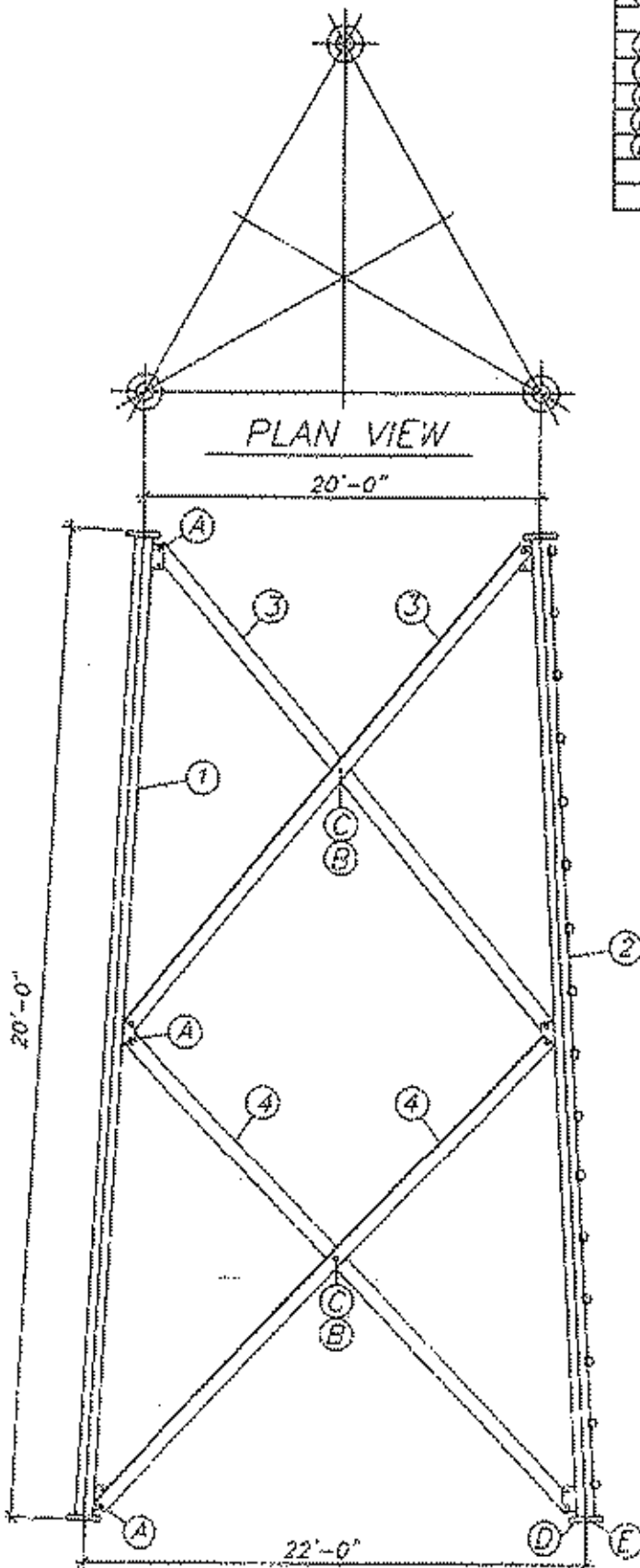
Rev.	Description	Date	By
	Title Section 101 Ass'y		
	Cost. Standard		
	Site Standard		
	Dwn.By DG	Job No. Standard	
	Chk.By	Scale None	
	Date 7/19/05	Dwg.No. A-101-67	



Tower Division

PARTS LIST

Item	Part	Dty.	Description	Lth.	Wt.
(1)	67L11	2	Leg: Pipe 8" Sch 40 x 20'-0"		1428
(2)	67L111	1	Leg: Pipe 8" Sch 40 x 20'-0"		776
(3)	70026	6	Diag: L 4 x 4 x 1/4" x 21'-6 5/16"		852
(4)	70027	6	Diag: L 4 x 4 x 1/4" x 22'-4 13/16"		888
(A)		24	Bolt: 5/8" x 1-3/4" w/ HH Nut		4
(B)		6	Bolt: 5/8" x 2" w/ HH Nut		1
(C)	RF1	6	Ringfit: Pl 3/8 x 2 Sor w/ 3/16" Hole		2
(D)		17	Bolt: 7/8" x 4 1/2" w/ HH Nut		13
(E)		1	Bolt: 7/8" x 4 3/4" w/ HH Nut		1
Total Section Wt.					3915



117
ELEVATION

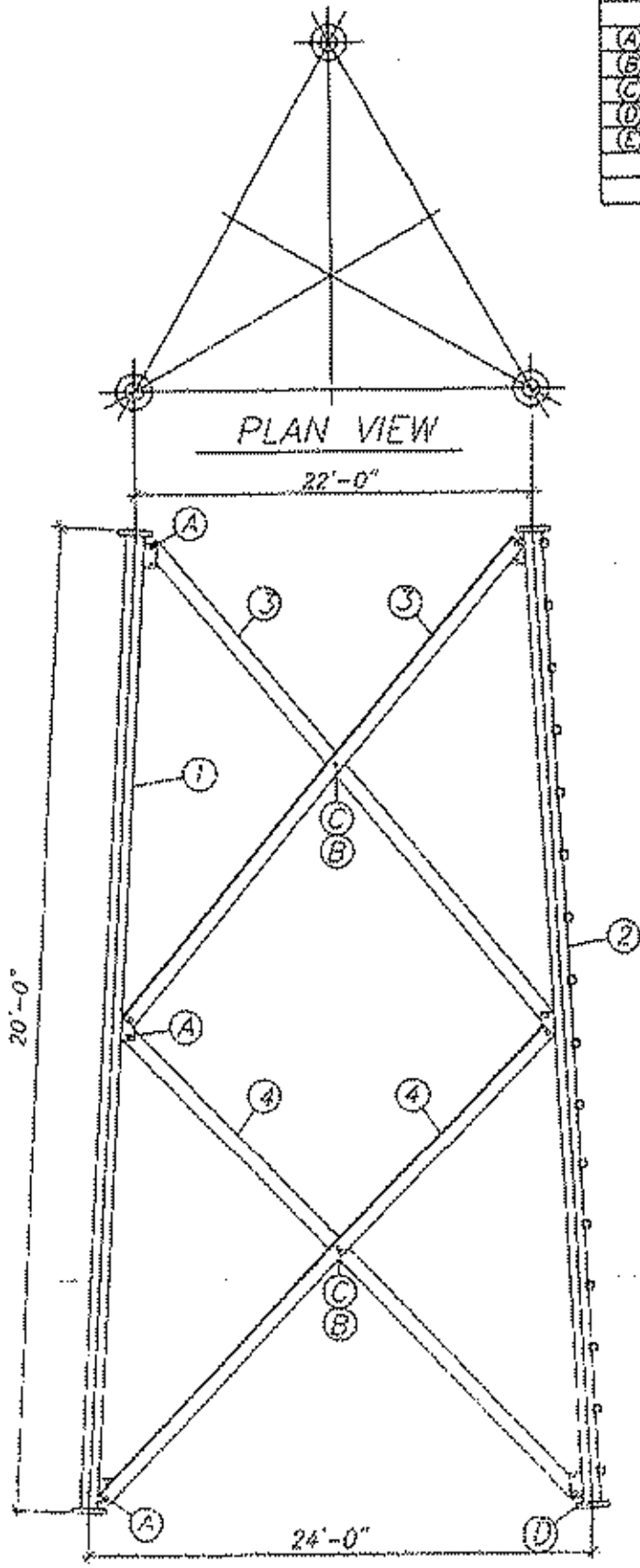
Notes:

1. All bolts require Lock Washers.
2. Mkt. No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Maintain step bolt and safety climb run with (2) leg.
5. Flange bolt (E) provided for safety climb cable guide bracket. (1/4" longer)

Rev	Description	Date	By
		Title Section 111 Ass'y	
		Cust. Standard	
		Site Standard	
Dwn. By DG		Job No. Standard	
Chk. By		Scale None	
Date 7/19/05		Dwg. No. A-111-67	
Tower Division			

PARTS LIST

Item	Part	Qty.	Description	Lth.	Wt.
(1)	67L12	2	Leg: Pipe 8" Sch 40 x 20'-0"		1428
(2)	57L12L	1	Leg: Pipe 8" Sch 40 x 20'-0"		726
(3)	70D28	6	Diag: L x 4 x 1/4" x 33'-4 1/8"		918
(4)	70D29	6	Diag: L x 4 x 1/4" x 24'-2 13/16"		954
(A)		24	Bolt: 5/8" ϕ x 1 3/4" w/ HH Nut		4
(B)		6	Bolt: 5/8" ϕ x 2" w/ HH Nut		1
(C)	RF1	6	Ringfill: Pl. 3/8 x 2" Sq w/ 13/16" Hole		2
(D)		17	Bolt: 7/8" ϕ x 4 1/2" w/ HH Nut		13
(E)		1	Bolt: 7/8" ϕ x 4 3/4" w/ HH Nut		1
Total Section Wt.					4047



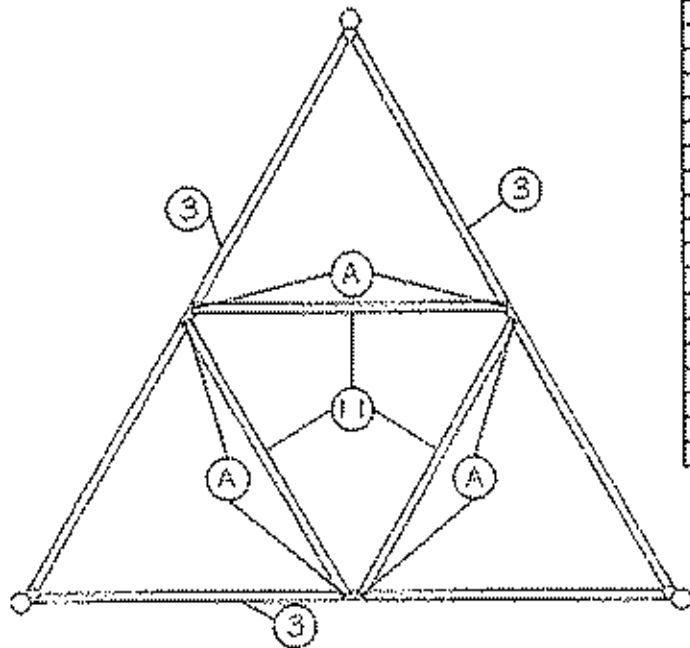
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Maintain step bolt and safety climb run with (2) leg.

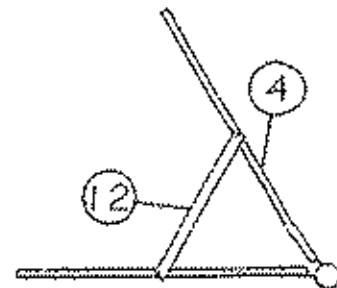
Rev.	Description	Date	By
		Title Section 12T Ass'y	
		Cust. Standard	
		Site Standard	
Dwn. By DG		Job No. Standard	
Chk. By		Scale None	
Date 7/19/05		Dwg No. A-12T-67	
Tower Division			

PARTS LIST

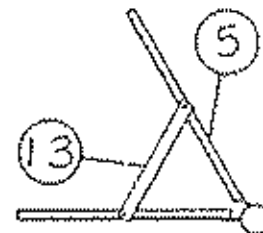
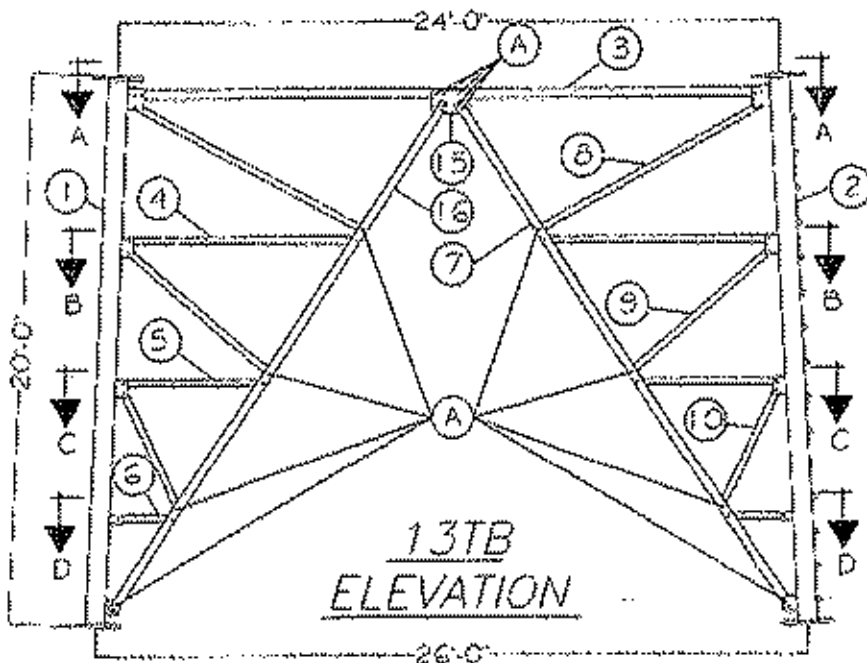
Item	Part	Qty	Description	Lth.	Wt.
(1)	67L13	2	Leg: Pipe 8" Sch 40 x 20'-0"		1470
(2)	67L13L	1	Leg: Pipe 8" Sch 40 x 20'-0"		747
(3)	63H1	3	Girt: L 4 x 4 x 1/4 x 22'-11 1/16"		453
(4)	63H2	6	Girt: L 2 1/2 x 2 1/2 x 1/4 x 8'-4 5/16"		204
(5)	63H3	6	Girt: L 2 1/2 x 2 1/2 x 1/4 x 5'-3 1/16"		132
(6)	63H4	6	Girt: L 2 1/2 x 2 1/2 x 1/4 x 2'-2 7/16"		54
(7)	63D26L	3	Diag: L 4 x 4 x 1/4 x 22'-0 11/16"		438
(8)	67D27	6	Diag: L3-1/2 x 3-1/2 x 1/4 x 8'-6 3/16"		330
(9)	67D28	6	Diag: L3-1/2 x 3-1/2 x 1/4 x 6'-10 7/16"		240
(10)	67D29	6	Diag: L3-1/2 x 3-1/2 x 1/4 x 4'-11 3/4"		174
(11)	67W1	3	Brace: L 2 1/2 x 2 1/2 x 1/4 x 21'-5 7/8"		141
(12)	67W2	3	Brace: L 2 1/2 x 2 1/2 x 1/4 x 4'-7 9/16"		57
(13)	67W3	3	Brace: L 2 1/2 x 2 1/2 x 1/4 x 3'-2 3/16"		39
(14)	67W4	3	Brace: L 2 1/2 x 2 1/2 x 1/4 x 1'-1 7/8"		21
(15)	P163	3	Plate: 3/8" x 10" x 1'-5 1/4"		64
(16)	63D26R	3	Diag: L3-1/2 x 3-1/2 x 1/4 x 22'-0 11/16"		438
(A)		144	Brace Bolt: 3/40 x 2 w/ MH Nut		36
Total Section Wt.					5,628



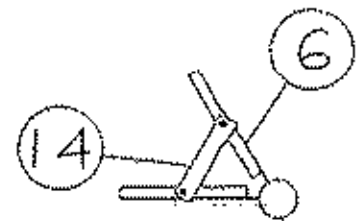
Section "A-A"



Section "B-B"



Section "C-C"



Section "D-D"

Notes:

- All bolts require Lock Washers.
- Mk.No.'s are stamped at the bottom of each leg.
- Install bolts with the nuts projecting up or outwards from the lower.
- Maintain step ball and safety climb run with (2) leg.

Rev.	Description	Date	By		
		Title	Section 13TB Aus'y		
		Cost.	Standard		
		Site	Standard		
		Own. By	DG	Job No.	Standard
		Chk. By		Scale	None
Date	7/20/05	Dwg. No.	A-13TB-67		

Hemphill Corporation

3515 Dawson Rd.
Tulsa, OK 74115-4954

8/2/2005

1:49 PM

Customer: Hemphill Corporation
Site: Hwy 431/CR74, AL
Tower: 250' SST
Written by: DG

Page: 1 of 5
Job No.: 1414
Date: 19-Jul-05
Filled by:

Qty	Part No.	Description	Length (ft)	Placement	Unit Wt.	Total Wt.
Section 1SG Assembly						
2	67L01	Leg. Pipe 2" Sch 40	x 10'-0"		86.00	172.00
1	67L01L	Leg. Pipe 2" Sch 40	x 10'-0"		88.00	88.00
3	70G1	Girt: L1 3/4 x 1 3/4 x 3/16	x 3'-6 7/8		8.00	24.00
16	70D1A	Diag: L1 3/4 x 1 3/4 x 3/16	x 4'-6 3/4		10.00	180.00
54		Bolt: A325 5/8 Dia. x 1 3/4 Lg Assy			0.15	8.10
9	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	3.60
13		Bolt: A325 5/8 Dia. x 3 1/4 Lg Assy			0.28	3.64
Sub Total						479.34
Section 2TT Assembly						
2	67L02	Leg. Pipe 2" Sch 40	x 20'-0"		157.00	314.00
1	67L02L	Leg. Pipe 2" Sch 40	x 20'-0"		169.00	169.00
30	70D2	Diag: L1 3/4 x 1 3/4 x 3/16	x 5'-1 5/8		11.00	330.00
78		Bolt: A325 5/8 Dia. x 1 3/4 Lg Assy			0.15	11.70
15	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	6.00
19		Bolt: A325 5/8 Dia. x 4 1/4 Lg Assy			0.37	7.01
Sub Total						837.71
Section 3T Assembly						
2	67L03	Leg. Pipe 3 Sch 40	x 20'-0"		249.00	498.00
1	67L03L	Leg. Pipe 3 Sch 40	x 20'-0"		261.00	261.00
6	63D3	Diag: L1 3/4 x 1 3/4 x 3/16	x 5'-11 13/16"		12.00	72.00
6	63D4	Diag: L1 3/4 x 1 3/4 x 3/16	x 6'-3 9/16"		13.00	78.00
6	63D5	Diag: L1 3/4 x 1 3/4 x 3/16	x 6'-7 5/8"		14.00	84.00
6	63D6	Diag: L1 3/4 x 1 3/4 x 3/16	x 6'-11 7/8"		15.00	90.00
63		Bolt: A325 5/8 Dia. x 1 3/4 Lg Assy			0.15	9.45
12	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	4.80
19		Bolt: A325 5/8 Dia. x 4 1/4 Lg. Assy			0.37	7.01
Sub Total						1104.26
Section 4T Assembly						
2	67L04	Leg. Pipe 3 Sch 40	x 20'-0"		249.00	498.00
1	67L04L	Leg. Pipe 3 Sch 40	x 20'-0"		261.00	261.00
6	70D7	Diag: L1 3/4 x 1 3/4 x 3/16	x 7'-5		16.00	96.00
6	70D8	Diag: L1 3/4 x 1 3/4 x 3/16	x 7'-8 7/16		16.00	96.00
6	70D9	Diag: L1 3/4 x 1 3/4 x 3/16	x 8'-1 1/8		17.00	102.00
6	70D10	Diag: L1 3/4 x 1 3/4 x 3/16	x 8'-7 1/16		18.00	108.00
63		Bolt: A325 5/8 Dia. x 1 3/4 Lg Assy			0.15	9.45
12	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	4.80
19		Bolt: A325 5/8 Dia. x 4 1/4 Lg Assy			0.37	7.01
Sub Total						1176.26
Total Weight This Page						3597.67

Customer: Hemphill Corporation
 Site: Hwy 431/CR74, AL
 Tower: 250' SST
 Written by: DG

Page 2 of 5
 Job No.: 1414
 Date: 19-Jul-05
 Filled by:

Qty	Part No.	Description	Length (ft)	Placement	Unit Wt.	Total Wt.
Section 5T Assembly						
2	67L05	Leg: Pipe 4 Sch 40	x 20'-3"		302.00	604.00
1	67L05L	Leg: Pipe 4 Sch 40	x 20'-3"		314.00	314.00
6	70D11	Diag: L2 x 2 x 1/4	x 9'-11 3/8"		32.00	192.00
6	70D12	Diag: L2 x 2 x 1/4	x 10'-4 1/4"		33.00	198.00
6	70D13	Diag: L2 x 2 x 1/4	x 10'-11 5/8"		34.00	204.00
39		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	5.85
11		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.87
9	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	3.60
19		Bolt: A325 5/8 Dia. x 4 1/4 Lg. Assy			0.37	7.03
Sub Total						1530.35
Section 6T Assembly						
2	67L06	Leg: Pipe 5 Sch 40	x 20'-0"		372.00	744.00
1	67L06L	Leg: Pipe 5 Sch 40	x 20'-0"		384.00	384.00
6	70D14	Diag: L2-1/2 x 2-1/2 x 1/4	x 11'-5 1/2"		36.00	216.00
6	70D15	Diag: L2-1/2 x 2-1/2 x 1/4	x 11'-10 15/16"		38.00	228.00
6	70D16	Diag: L2-1/2 x 2-1/2 x 1/4	x 12'-6 5/8"		40.00	240.00
39		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	5.85
11		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.87
9	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	3.60
19		Bolt: A325 5/8 Dia. x 4 1/4 Lg. Assy			0.37	7.03
Sub Total						1830.35
Section 7T Assembly						
2	67L07	Leg: Pipe 5 Sch 40	x 20'-3"		388.00	776.00
1	67L07L	Leg: Pipe 5 Sch 40	x 20'-0"		400.00	400.00
6	70D17	Diag: L2 1/2 x 2 1/2 x 1/4	x 13'-2 1/8"		42.00	252.00
6	70D18	Diag: L2 1/2 x 2 1/2 x 1/4	x 13'-8 1/16"		43.00	258.00
6	70D19	Diag: L2 1/2 x 2 1/2 x 1/4	x 14'-3 7/8"		45.00	270.00
39		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	5.85
11		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.87
9	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	3.60
19		Bolt: A325 3/4 Dia. x 4 1/2 Lg. Assy			0.56	10.64
Sub Total						1977.96
Section 8T Assembly						
2	67L08	Leg: Pipe 6 Sch 40	x 20'-0"		481.00	962.00
1	67L08L	Leg: Pipe 6 Sch 40	x 20'-0"		493.00	493.00
6	70D20	Diag: L3 x 3 x 1/4	x 16'-6 1/2"		81.00	486.00
6	70D21	Diag: L3 x 3 x 1/4	x 17'-4 1/8"		85.00	510.00
27		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	4.05
8		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.36
6	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	2.40
19		Bolt: A325 3/4 Dia. x 4 1/2 Lg. Assy			0.56	10.64
Sub Total						2469.45
Total Weight This Page						7808.11

Customer: Hemphill Corporation
 Site: Hwy 431/CR74, AL
 Tower: 250' SST
 Written by: DG

Page 3 of 5
 Job No.: 1414
 Date: 19-Jul-05
 Filled by:

Qty	Part No.	Description	Length (ft)	Placement	Unit Wt.	Total Wt.
Section 9T Assembly						
2	67L09	Leg. Pipe 6 Sch 40	x 20'-0"		480.00	960.00
1	67L09L	Leg. Pipe 6 Sch 40	x 20'-0"		492.00	492.00
6	70D22	Diag. L3 1/2 x 3 1/2 x 1/4	x 18'-2 11/16"		105.00	630.00
6	70D23	Diag. L3 1/2 x 3 1/2 x 1/4	x 19'-0 3/4"		110.00	660.00
26		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	3.90
8		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.36
6	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	2.40
19		Bolt: A325 3/4 Dia. x 4 1/2 Lg. Assy			0.56	10.64
Sub Total						2760.30
Section 10T Assembly						
2	67L10	Leg. Pipe 6 Sch 40	x 20'-0"		509.00	1018.00
1	67L10L	Leg. Pipe 6 Sch 40	x 20'-0"		521.00	521.00
6	70D24	Diag. L3 1/2 x 3 1/2 x 1/4	x 19'-11 9/16"		115.00	590.00
6	70D25	Diag. L3 1/2 x 3 1/2 x 1/4	x 20'-9 7/8"		120.00	720.00
26		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	3.90
8		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.36
6	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	2.40
19		Bolt: A325 3/4 Dia. x 4 1/2 Lg. Assy			0.56	10.64
Sub Total						2967.30
Section 11T Assembly						
2	67L11	Leg. Pipe 8 Sch 40	x 20'-0"		714.00	1428.00
1	67L11L	Leg. Pipe 8 Sch 40	x 20'-0"		726.00	726.00
6	70D26	Diag. L4 x 4 x 1/4	x 21'-6 5/16"		142.00	852.00
6	70D27	Diag. L4 x 4 x 1/4	x 22'-4 13/16"		148.00	888.00
27		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	4.05
8		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.36
6	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	2.40
18		Bolt: A325 7/8 Dia. x 4 1/2 Lg. Assy			0.75	13.68
1		Bolt: A325 7/8 Dia. x 4 3/4 Lg. Assy			0.80	0.80
Sub Total						3916.29
Section 12T Assembly						
2	67L12	Leg. Pipe 8 Sch 40	x 20'-0"		714.00	1428.00
1	67L12L	Leg. Pipe 8 Sch 40	x 20'-0"		726.00	726.00
6	70D28	Diag. L4 x 4 x 1/4	x 23'-2 3/16"		153.00	918.00
6	70D29	Diag. L4 x 4 x 1/4	x 24'-7/8"		159.00	954.00
27		Bolt: A325 5/8 Dia. x 1 3/4 Lg. Assy			0.15	4.05
8		Bolt: A325 5/8 Dia. x 2 Lg. Assy			0.17	1.36
6	RF1	Ringfill: PL 3/8 x 2 Sqr w/ 13/16 Hole			0.40	2.40
18		Bolt: A325 7/8 Dia. x 4 1/2 Lg. Assy			0.75	13.68
1		Bolt: A325 7/8 Dia. x 4 3/4 Lg. Assy			0.80	0.80
Sub Total						4048.29
Total Weight This Page						13692.18

Customer: Hemphill Corporation
 Site: Hwy 431/CR74, AL
 Tower: 250' SST
 Written by: DG

Page 4 of 5
 Job No.: 1414
 Date: 19-Jul-05
 Filled by:

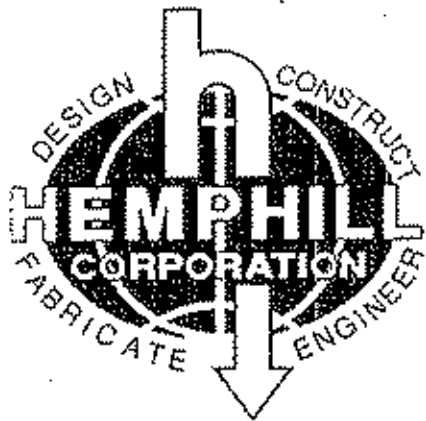
Qty	Part No.	Description	Length (ft)	Placement	Unit Wt.	Total Wt.
Section 13T Assembly						
2	67L13	Leg: Pipe 8" Sch 40	x 20'-0"		735.00	1470.00
1	67L13L	Leg: Pipe 8" Sch 40	x 20'-0"		747.00	747.00
3	63H1	Girt: L4 x 4 x 1/4	x 22'-11 1/16"		151.00	453.00
6	63H2	Girt: L2 1/2 x 2 1/2 x 1/4	x 8'-4 5/16"		34.00	204.00
6	63H3	Girt: L2 1/2 x 2 1/2 x 1/4	x 5'-3 1/16"		22.00	132.00
6	63H4	Girt: L2 1/2 x 2 1/2 x 1/4	x 2'-2 7/16"		9.00	54.00
3	63D26L	Diag: L4 x 4 x 1/4	x 22'-0 11/16"		146.00	438.00
3	63D26R	Diag: L4 x 4 x 1/4	x 22'-0 11/16"		146.00	438.00
6	67D27	Diag: L3 1/2 x 3 1/2 x 1/4	x 9'-5 15/16"		55.00	330.00
6	67D28	Diag: L3 1/2 x 3 1/2 x 1/4	x 6'-10 3/16"		40.00	240.00
6	67D29	Diag: L3 1/2 x 3 1/2 x 1/4	x 4'-11 1/2"		29.00	174.00
3	67W1	Diag: L2 1/2 x 2 1/2 x 1/4	x 11'-5 7/8"		47.00	141.00
3	67W2	Diag: L2 1/2 x 2 1/2 x 1/4	x 4'-7 9/16"		19.00	57.00
3	67W3	Diag: L2 1/2 x 2 1/2 x 1/4	x 3'-2 3/16"		13.00	39.00
3	67W4	Diag: L2 1/2 x 2 1/2 x 1/4	x 1'-7 7/8"		7.00	21.00
3	P163	Plate: 3/8" x 10"	x 1'-5 1/4"		18.00	54.00
148		Bolt: A325 3/4 Dia. x 2 Lg. Assy			0.25	37.00
Sub Total						5029.00
Safety Climb Assembly B-SAFETY6A						
1	L18	Top Bracket Assy. w/ Safety Cable	270"		0.27	0.27
1	L16	Bottom Bracket Assy. L5x5x3/8	x 0'-9 3/8"		12.00	12.00
13	H105	Cable Guide			0.50	6.50
6	L28	Cable Guide Bar 1/4 x 2"	x 0'-5 1/2"		0.70	4.20
4	L24	Cable Guide Bar 1/4 x 2"	x 0'-5 1/2"		0.70	2.80
2	L23	Cable Guide Bar 1/4 x 2"	x 0'-5 1/2"		0.70	1.40
2		Bolt: A325 1/2 Dia. x 1-1/2 Assy.			0.20	0.40
1	J4	Adjusting Bolt 3/8 Dia. x 1'-0 3/4 Assy.			1.00	1.00
26		Bolt: 3/8 Dia. x 1-1/4 Lg. Assy.			0.20	5.20
2	U-10	U-Bolt 5/8 Dia. x 8 3/4 x 11 1/8 Assy.			0.80	1.60
Sub Total						35.37
Lightning Rod Mount A-LTROD71						
1	E71	Pipe 2 Sch 40	x 5'-0"		30.00	30.00
1		Lightning Rod 5/8 Dia. Assy	x 4'-0"		6.00	6.00
4		A325 Bolt 5/8 Dia. x 2 3/4" Lg. Assy.			0.23	0.92
1	P1	Pl. 6 7/8 x 6 7/8			3.30	3.30
4		A325 Bolt 5/8 Dia. x 2-1/4" Lg. Assy.			0.19	0.76
Sub-Total						40.98
Total Weight This Page						5106.35

Customer: Hemphill Corporation
 Site: Hwy 431/CR74, AL
 Tower: 250 SST
 Written by: DG

Page 5 of 5
 Job No.: 1414
 Date: 19-Jul-05
 Filled by:

Qty	Part No.	Description	Length (ft)	Placement	Unit Wt.	Total Wt.
		Miscellaneous				
1		Packet containing (2) sets prints			1.00	1.00
3		Cans Cold-Galvanizing Spray			1.00	3.00
1	PN	Name Plate w/ Hemphill Label			3.00	3.00
3		'Notice' Signs			0.10	0.30
6		Nylon Zip Ties			0.00	0.00
210	SP	Step Rung: 5/8 Sqr. x 7-1/4 Lg.			1.10	231.00
1		Wraplock			0.30	0.30
		Sub-Total				238.60
		Beacon Mount				
1	E1	PL 1/4 x 1' x 1'			5.00	5.00
4		Bolt: A325 5/8 Dia. x 2-1/4 Lg. Assy.			0.70	2.80
		Sub-Total				7.80
		Light Kit				
1		E1 Light Kit			300.00	300.00
		Sub-Total				300.00
		Total Weight This Page				546.40
		Total Weight This Project				30749.62

Tower Permit-Drawings & Information



Tower Division

3515 Dawson Rd.
Tulsa, OK 74115
(918) 834-2200

Customer: *Hemphill Corporation*

Site: *White Plains, KY*

City: *White Plains, KY*

Job No.: *1410*

Model: *Guyed*

Tower Ht.: *320'*

Loading: *70 mph 1/2" Ice*

Date: *May 12 2005*

REFERENCE DRAWINGS

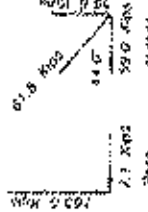
1. FOUNDATION DRAWINGS
2. POWER BASIS
3. ARCHITECTURAL DRAWINGS
4. ELECTRICAL
5. MECHANICAL
6. PIPING
7. SANITARY
8. HEATING
9. PLUMBING
10. ROOFING
11. STRUCTURAL
12. CIVIL
13. METEOROLOGICAL
14. SOIL MECHANICS
15. GEOTECHNICAL
16. ENVIRONMENTAL
17. SAFETY
18. EROSION CONTROL
19. LANDSCAPE ARCHITECTURE
20. HISTORIC PRESERVATION
21. ARCHITECTURAL INTERIORS
22. ARCHITECTURAL EXTERIORS
23. ARCHITECTURAL DETAILS
24. ARCHITECTURAL MATERIALS
25. ARCHITECTURAL FINISHES
26. ARCHITECTURAL SCHEDULES
27. ARCHITECTURAL SPECIFICATIONS
28. ARCHITECTURAL CONTRACT DOCUMENTS
29. ARCHITECTURAL RECORD DRAWINGS
30. ARCHITECTURAL AS-BUILT DRAWINGS

POWER DESIGN LOADINGS

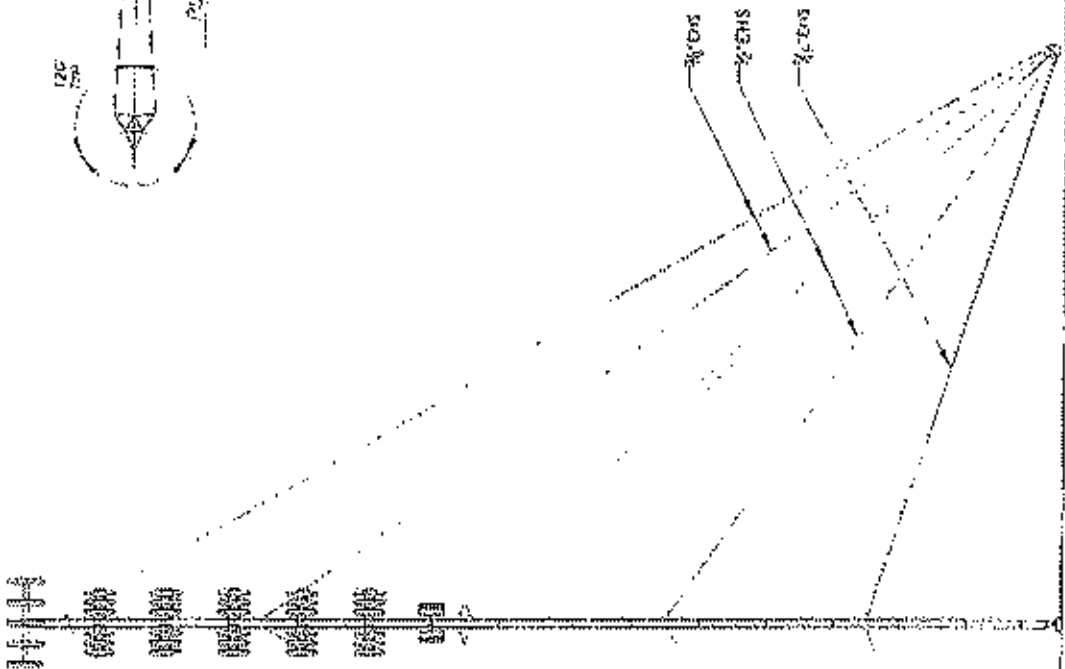
1. LOADS AS DESIGNATED PER POWER CODE
2. LOADS TO BE APPLIED TO THE STRUCTURE
3. TRANSFORMER LOADS AND LOSS FACTORS
4. "DEMAND" FACTORS AS PER IEEE

PERFORMANCE CRITERIA

1. THE SYSTEM SHALL BE DESIGNED TO OPERATE AT 100% EFFICIENCY
2. THE SYSTEM SHALL BE DESIGNED TO OPERATE AT 100% EFFICIENCY
3. THE SYSTEM SHALL BE DESIGNED TO OPERATE AT 100% EFFICIENCY
4. THE SYSTEM SHALL BE DESIGNED TO OPERATE AT 100% EFFICIENCY
5. THE SYSTEM SHALL BE DESIGNED TO OPERATE AT 100% EFFICIENCY



FOUNDATION HEADINGS



SECTION NO.	ASSY. NO.	DESCRIPTION	QTY	UNIT	REMARKS
101	101-1	1.000" x 2.000" ROSE	1	EA	
102	102-1	1.000" x 2.000" ROSE	1	EA	
103	103-1	1.000" x 2.000" ROSE	1	EA	
104	104-1	1.000" x 2.000" ROSE	1	EA	
105	105-1	1.000" x 2.000" ROSE	1	EA	
106	106-1	1.000" x 2.000" ROSE	1	EA	
107	107-1	1.000" x 2.000" ROSE	1	EA	
108	108-1	1.000" x 2.000" ROSE	1	EA	
109	109-1	1.000" x 2.000" ROSE	1	EA	
110	110-1	1.000" x 2.000" ROSE	1	EA	
111	111-1	1.000" x 2.000" ROSE	1	EA	
112	112-1	1.000" x 2.000" ROSE	1	EA	
113	113-1	1.000" x 2.000" ROSE	1	EA	
114	114-1	1.000" x 2.000" ROSE	1	EA	
115	115-1	1.000" x 2.000" ROSE	1	EA	
116	116-1	1.000" x 2.000" ROSE	1	EA	
117	117-1	1.000" x 2.000" ROSE	1	EA	
118	118-1	1.000" x 2.000" ROSE	1	EA	
119	119-1	1.000" x 2.000" ROSE	1	EA	
120	120-1	1.000" x 2.000" ROSE	1	EA	



Site Location: _____

Scale: _____

Project No.: _____

Sheet No.: _____

Date: _____

Drawn by: _____

Checked by: _____

Approved by: _____

Professional Engineer License No. 17719

State of Kentucky

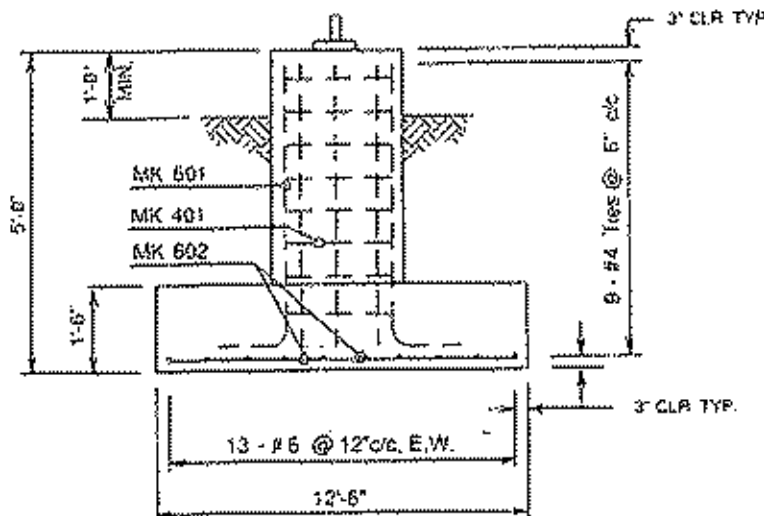
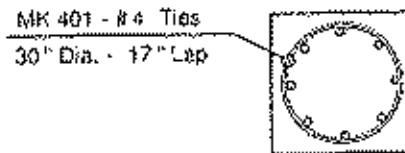
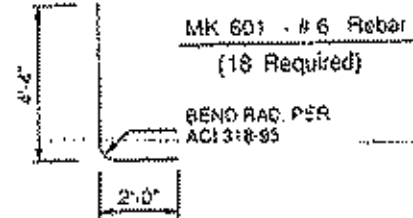
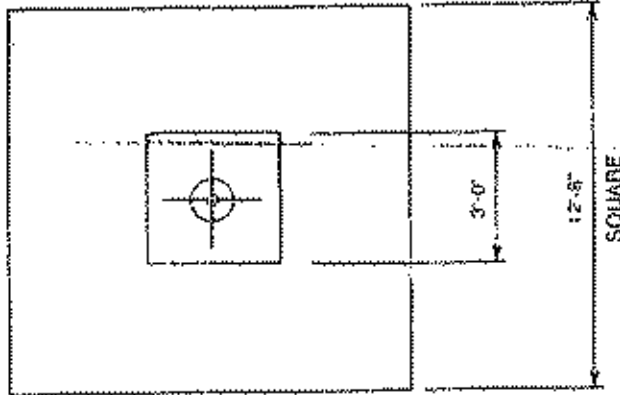
HEMPHILL CORPORATION

3515 DAWSON ROAD
TULSA, OK 74115

OFFICE: 918-834-2200

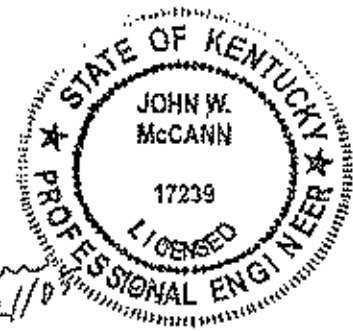
FAX: 918-836-7109

PEDESTAL FOUNDATION (GT1)



NOTES:

1. Tower location and orientation to be provided by Client.
2. Tower footprint plan and dimensions to be provided by Hemphill Corporation.
3. Tower pin and plate to be provided by Hemphill Corporation.
4. Design based on soil parameters provided by Hemphill Corporation.
5. Construction tolerances for foundations and anchors shall be per Hemphill Drawing 1410-3 of 3.



MATERIAL SPECIFICATIONS		REBAR SCHEDULE				DESIGN LOADS *	
CONCRETE: ACI A318-95 (F _c =3 ksi)		MARK	DIAMETER	LENGTH	QUANTITY	Vertical Load:	165.5 Kips
REBAR: ASTM A615 GR. 60		401	0.500"	9'-3"	9	Horizontal Load:	2.1 Kips
TIES: ASTM A615 GR. 60		601	0.750"	6'-4"	18	* Per Hemphill Corporation Dwg. B-1410-1 dated 5/12/05	
		602	0.750"	12'-0"	26		
NUMBER REQUIRED: 1		CONCRETE: 9.85 cu.yd.(net)					
BY: JMS	DATE: 9/12/05	CLIENT: HEMPHILL CORPORATION					
JOB NO: 1410	DWG. NO: 1410-1 of 3	PROJECT: 320 FOOT GUYED TOWER					
		SITE: WHITE PLAINS, KY					

HEMPHILL CORPORATION

3515 DAWSON ROAD

TULSA, OK 74115

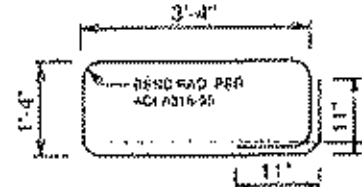
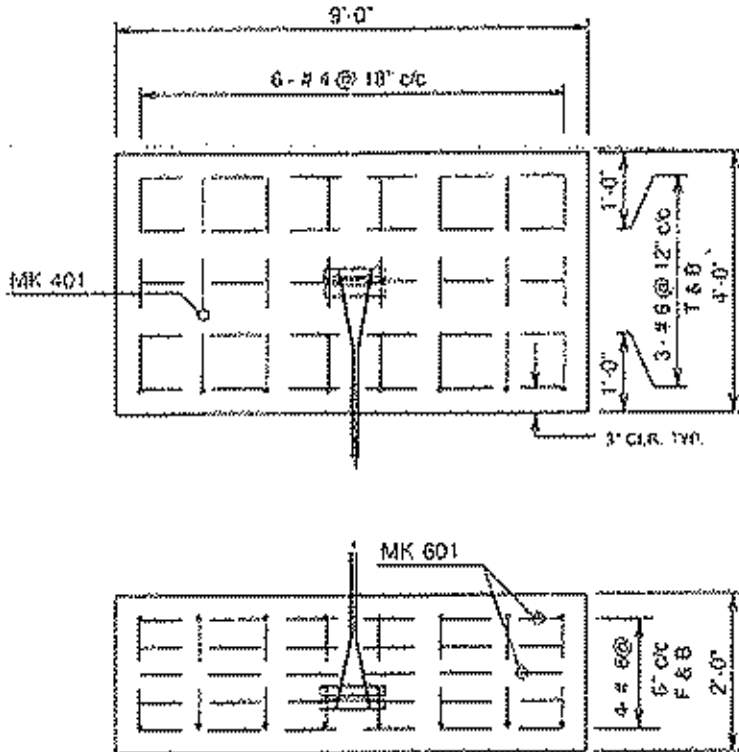
OFFICE: 918-834-2200

FAX: 918-836-7109

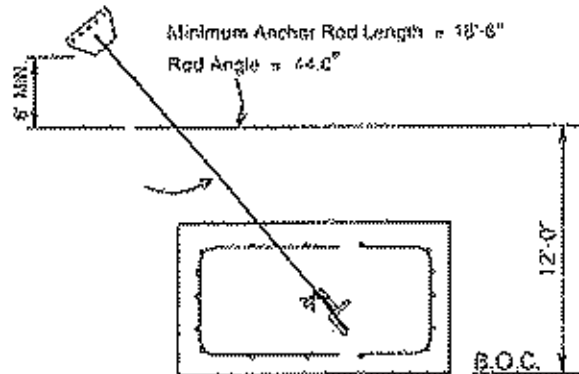
DEADMAN ANCHOR

(OA1, OA2, OA3)

(Radius: 203ft.)

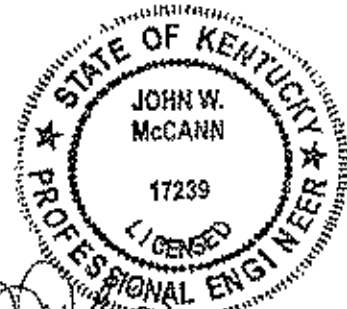


MK 401 - #4 Rebar
(6 Required)



NOTES:

1. Anchor locations and orientations to be provided by client.
2. Anchor rods to be provided by Hemphill Corporation.
3. Anchor rod angle is specified on Hemphill Drawing No. B-1410-1.
4. Tower footprint plan and dimensions to be furnished by Hemphill Corporation.
5. Design based on soil parameters provided by Hemphill Corporation.
6. Construction tolerances for foundations and anchors shall be per Hemphill Drawing 1410-3 of 3.



MATERIAL SPECIFICATIONS		REBAR SCHEDULE				DESIGN LOADS *	
CONCRETE: ACI A318-95 (F _c =3 ksi)		MARK	DIAMETER	LENGTH	QUANTITY	Horizontal Pull:	59.0 Kips
REBAR: ASTM A615 GR. 60		401	0.500"	11'-2"	6x3=18	Vertical Uplift:	56.6 Kips
TIES: ASTM A615 GR. 60		601	0.750"	8'-6"	14x3=42	* Per Hemphill Dwg. B-1410-1 dated 5/12/05	
NUMBER REQUIRED: 3		CONCRETE: 2.67 cu.yd. x 3 = 8.00 cu.yd.(net)					
BY: JMS	DATE: 9/12/05	CLIENT: HEMPHILL CORPORATION					
CHKD:		PROJECT: 320 FOOT GUYED TOWER					
JOB NO: 1410	DWG. NO: 1410-2 of 3	SITE: WHITE PLAINS, KY					
		SITE NO:					

HEMPHILL CORPORATION

3515 DAWSON ROAD
TULSA, OK 74115

FAX: 918-836-7109

OFFICE: 918-834-2200

TOWER FOUNDATIONS AND ANCHORS STANDARD SPECIFICATION

- Foundation designs are in accordance with ANSI/AIA-222-F, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures".
- Work shall comply with local codes, safety regulations and notices noted otherwise, the most recent edition of ACI 318, "Building Code Requirements for Structural Concrete" Procedures for the protection of excavations, existing construction, and utilities shall be established prior to foundation construction.
- Proportions of concrete materials shall be suitable for the placement method utilized and shall yield durable concrete. The durability of concrete shall conform to the requirements of ACI 318 for the conditions expected at the site. Concrete shall develop a minimum compressive strength of 3000 psi within 28 days of placement.
- The maximum size of aggregate shall not exceed the lesser of 1-inch, one-third the clear distance between or between reinforcing, or the size suitable for the placement method utilized.
- Reinforcing steel shall be deformed, shall conform to ASTM A615, and shall be Grade 60 unless noted otherwise. Splices in reinforcement shall comply with the requirements of ACI 318.
- Reinforcing cages shall be braced to retain dimensions during handling and concrete placement. Welding on steel reinforcement and embedments is strictly prohibited.
- The minimum concrete cover for reinforcement shall be 3-inches unless noted otherwise. Approved spacers shall be less than 3" in length. Spacers shall be attached intermittently throughout the entire length of vertical reinforcing cages to assure cage concentricity within excavations.
- Backfill materials shall be compacted to a minimum unit weight of 100 per cent of the unit weight called for the design.
- For self-supporting towers, the foundation at the highest elevation shall be formed to 12-inches above grade. The tops of the foundations for the other two legs shall be constructed level with the first one.
- Foundation construction shall be supervised by personnel knowledgeable and experienced with the foundation type. Construction shall conform to generally accepted construction practices.
- For foundation and anchor detail requirements, refer to the tower manufacturer's drawing.
- Excavations shall be cleared of loose materials and debris prior to concrete placement. Sides of excavations shall be rough and shall be free of loose materials.
- Concrete shall be placed in a manner which precludes separation of concrete materials. Free-fall concrete is permitted provided the fall is vertical and does not hit the sides of the excavation, the formwork, reinforcing steel, form ties, cage bracing or other obstructions. Concrete fall through water is strictly prohibited unless the concrete is pumped or tremied.
- Concrete shall be placed against undisturbed soil where possible. Forms, when required, shall be removed prior to backfilling.
- Construction joints at the base of pedestals for pad and pedestal foundations shall be intentionally roughened to a full amplitude depth of 1/4-inch. No other construction joints shall be permitted.
- Outside the limits of the anchor bolt area, the top of the foundation shall be sloped to drain and shall have a floated finish. The area within the anchor bolt limits shall be level and shall have a scratched finish. Exposed edges of concrete foundations shall be finished with a 3/4" chamfer.
- Drilled piers shall be constructed in accordance with ACI 335.0R, "Standard Specification for the Construction of End Bearing Drilled Piers".
- Concrete used in the construction of dry or dewatered piers (less than 2' of water in bottom of pier hole) shall be at least a 6-sack per cubic yard mix and shall be placed at a slump of 5".
- The discharge for concrete placed pumped or tremied through water shall be maintained at least 5' below the concrete surface. Concrete placement shall be continuous till complete. Concrete placed by this method shall be a 7-sack per cubic yard mix and shall be placed at a slump of 7" to 9".
- For the lesser of 25 cubic yards or one day's placement, a minimum of one set of 4 concrete cylinders shall be cast in accordance with ASTM C-31 and ASTM C-39.
- Tower bases leveled using the double-nut system shall be grouted using Master Builders Emco 638 Grout or equivalent.

TOLERANCES - ALL TOWERS

- | | |
|---|-------------|
| 22. Concrete Dimensions: | ±6" ±1" |
| 23. Depth from Grade to Bottom of Concrete: | ±3" ±0" |
| 24. Drilled Pier Out-of-Plumb: | 1" |
| 25. Placement of Reinforcing Steel: | Per ACI 318 |
| 26. Projection of Embedments: | ±6" ±0" |
| 27. Vertical Embedment Out-of-Plumb: | 1/2" |

TOLERANCES - GUYED TOWERS

- | | |
|--|---------------------|
| 28. Guy Anchor Radius: | ±3% of Tower Height |
| 29. Anchor Elev. Relative to Tower Base: | ±3% of Tower Height |
| 30. Anchor Rod Alignment Relative to Guy Radius: | ±0.1" |
| 31. Anchor Rod Slope: | ±1" |

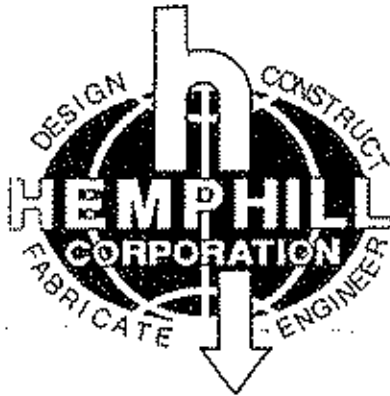
TOLERANCES - SELF-SUPPORTING TOWERS

- | | |
|--|---|
| 32. Anchor Bolt Spacing: | ±1/16" |
| 33. Bolt Circle Diameter: | ±1/16" |
| 34. Bolt Circle Orientation: | ±1/4" |
| 35. Maximum Difference in Elevation Between Any Two Tower Foundations: | ±1/2" |
| 36. Center-to-Center Dimension of Anchor Bolt Circles: | ±1/16" or 1/24 of Foundation Width to a Maximum of 2' |
| 37. Distance From Center of Foundation to Center of Bolt Circle: | ±1/24 of Foundation Width to a Maximum of 2' |



BY: JMS	DATE: 9/12/05
SCALE: NTS	DWG. 1410-3 of 3 NO:

CLIENT: HEMPHILL CORPORATION
PROJECT: 320 FOOT GUYED TOWER
SITE: WHITE PLAINS, KY
SITE NO:



TULSA
3515 Dawson Road
Tulsa, OK 74115
Phone: (918) 834-2200
Fax: (918) 836-7109

**GEOTECHNICAL SUMMARY REPORT
SITE LOCATION: WHITE PLAINS, KY
HEMPHILL PROJECT NO. 1410**

TOWER TYPE : GUY TOWER

TOWER HEIGHT ABOVE GROUND LEVEL : 320'

MAXIMUM BASE SPREAD (CENTER TO CENTER) : 200' RADIUS

SOIL DESCRIPTION : REFER TO BORING LOGS

SURFACE WATER : NONE OBSERVED

DEPTH TO GROUND WATER : NONE OBSERVED

**RECOMMENDED TYPE OF FOUNDATION : PAD AND PEDESTAL &
DEADMAN ANCHORS**

**MINIMUM FOUNDATION BEARING DEPTH : 4' BELOW GROUND
LEVEL FOR BASE AND 12' BELOW GROUND LEVEL FOR ANCHORS**

ESTIMATED DESIGN PARAMETERS (MEAN):

- 1. UNIT WEIGHT (MOIST) γ : 100 pcf**
- 2. PHI ANGLE M : 20°**
- 3. COHESION, c : 1.0 ksf**
- 4. NET ALLOWABLE BEARING PRESSURE : 1.5 ksf**



GRIDED TOWER PROPOSAL

11-5-81
C-103-B-2

M42 - ANGLE BRACES

EXCISE BRACKET MATERIAL
MATERIALS TO BE INSTALLED PER M

Below Horizontal Connections

- Std. White Plym. 1/2"
- Height 200" h
- Wye 7/16" mgn.
- Loc 5/16"
- Wood with the Rods 50.6 mgn.
- Tower Face Width 7.16' h
- Current Power in Leg 7.07 E
- Legs in Disk 0.19 E
- Current Tower in Disk 2.14 M

DESIGN:

Item	Qty	Weight
150	315	4000
200	345	2000
300	175	1000
350	105	500
400	65	300
450	45	200
500	35	150
550	25	100
600	15	50
650	10	30
700	5	15
750	3	8
800	2	4
850	1	2

Grid Wire Connections:

Item	Qty	Weight
150	75	1000
200	105	1500
300	175	2500
400	255	4000
500	345	5000
600	435	6000
700	525	7000
800	615	8000
900	705	9000
1000	795	10000

Wires

Item	Qty	Weight	Volume	Area
150	15	200	10	0.15
200	9	120	6	0.10
300	15	200	10	0.15
400	21	280	14	0.21
500	27	360	18	0.27
600	33	440	22	0.33
700	39	520	26	0.39
800	45	600	30	0.45
900	51	680	34	0.51
1000	57	760	38	0.57

Item	Qty	Weight	Volume	Area
150	15	200	10	0.15
200	9	120	6	0.10
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800	45	600	30	0.45
900	51	680	34	0.51
1000	57	760	38	0.57

Configuration

Height: 920 f.

Tower Configuration:

	Bottom Elev	Top Elev	Max Leg Load	Req'd Leg Dia	Actual Leg Dia	code	Max Diag Load	Req'd Diag Dia	Actual Diag Dia	code	Leg Check	Diag Check
50 ksi legs	300	320	23.9	2.00	2.00	29	2.3	1.750	1.750	36	OK	OK
50 ksi legs	300	300	35.1	2.50	2.50	30	3.5	1.750	1.750	36	OK	OK
50 ksi legs	260	260	55.9	2.50	2.50	30	5.6	1.750	1.750	36	OK	OK
50 ksi legs	220	220	36.7	2.50	2.50	30	3.9	1.750	1.750	36	OK	OK
50 ksi legs	220	340	37.9	2.50	2.50	30	3.2	1.750	1.750	36	OK	OK
50 ksi legs	200	320	55.5	3.00	3.00	31	5.9	1.750	1.750	36	OK	OK
50 ksi legs	180	300	60.7	3.00	3.00	31	6.4	1.750	1.750	36	OK	OK
50 ksi legs	160	180	60.7	3.00	3.00	31	6.4	1.750	1.750	36	OK	OK
50 ksi legs	140	160	56.8	3.00	3.00	31	6.0	1.750	1.750	36	OK	OK
50 ksi legs	120	140	64.1	3.00	3.00	31	6.2	1.750	1.750	36	OK	OK
50 ksi legs	100	120	44.0	3.00	3.00	31	5.3	1.750	1.750	36	OK	OK
50 ksi legs	80	100	55.8	3.00	3.00	31	6.1	1.750	1.750	36	OK	OK
50 ksi legs	60	80	42.4	3.00	3.00	31	4.5	1.750	1.750	36	OK	OK
50 ksi legs	40	60	21.1	3.00	3.00	31	1.7	1.750	1.750	36	OK	OK
50 ksi legs	20	40	21.5	3.00	3.00	31	1.1	1.750	1.750	36	OK	OK
50 ksi legs	0	20	55.5	3.00	3.00	31	1.8	1.750	1.750	36	OK	OK

Vertical Table Look-Up - 50 ksi Sch40 Pipe Legs and 36 ksi Diagonals

	Max. Leg Load	Leg Dia	code	Max. Diag Load	Diag Number	code	
2"sch40	0.000	2.00	29	6.0	1.750	36	L1.75x1.75x3/16
2"sch80	28.3	2.50	30	5.50	2.000	37	L2x2x1/4
3"sch40	32.1	3.00	31	10.70	2.500	38	L2.5x2.5x1/4
3.5"sch40	31.6	3.50	32	17.70	3.000	39	L3x3x1/4
4"sch40	60.8	4.00	33	24.3			
5"sch40	109.5	5.00	34				
6"sch40	154.3	6.00	35				
	205.4						

Antenna_Leads

for Panel Antennas on Platforms or Mast Arms

Calc's for (1) Antenna with ice:

	no ice	in	Ice Density	560 lbs/cu ft
9' 5"x1' Panel Antenna				
	no ice		with ice	
Height	30.00	in	31.00	in
Width	12.00	in	13.00	in
Thickness	12.00	in	13.00	in
Volume	3,600	cu in	10,700	cu in
Volume of ice			7,100	cu in
Weight of ice			39	lbs
Weight	25.0	lbs	39	lbs
Surface	3.0	sq ft	5.5	sq ft
Panel Coef. Ca	1.00	Panels ONLY	N/A	USNS has the platform?
Panel Coef. Ca	1.00	Whips		

Special Antenna Note:

No Reduction for whips

Used surface area reduction factor due to overlap of panel antennas and platform.

Platform Width =	11.0	ft
platform	43.5	sq ft
antennas	4.5	sq ft (with hand rail)

4.5 sq ft (pickup above top platform * # of antennas on a face)
 30.0 x 1.5 = 45.0 sq ft (overall)
 N/A sq ft (used for platform)
 N/A sq ft (composite remainder for antennas)

As opposed to 0

Reduction Factor: N/A

for Panel Antennas on Platforms or Mast Arms

Calc's for (1) Antenna with ice:

	no ice	in	Ice Density	560 lbs/cu ft
9' 10'x3" Whip Antenna				
	no ice		with ice	
Height	32.00	in	33.00	in
Width	3.00	in	4.00	in
Thickness	6.00	in	7.00	in
Volume	2,160	cu in	3,100	cu in
Volume of ice			940	cu in
Weight of ice			49	lbs
Weight	12.0	lbs	52	lbs
Surface	1.5	sq ft	3.9	sq ft
Panel Coef. Ca	1.00	Panels ONLY	N/A	USNS has the platform?
Panel Coef. Ca	1.00	Whips		

Special Antenna Note:

No Reduction for whips

Used surface area reduction factor due to overlap of panel antennas and platform.

Platform Width =	11.0	ft
platform	43.5	sq ft
antennas	0.5	sq ft (with hand rail)

0.5 sq ft (pickup above top platform * # of antennas on a face)
 30.0 x 1.5 = 45.0 sq ft (overall)
 N/A sq ft (used for platform)
 N/A sq ft (composite remainder for antennas)

As opposed to 0

Reduction Factor: N/A

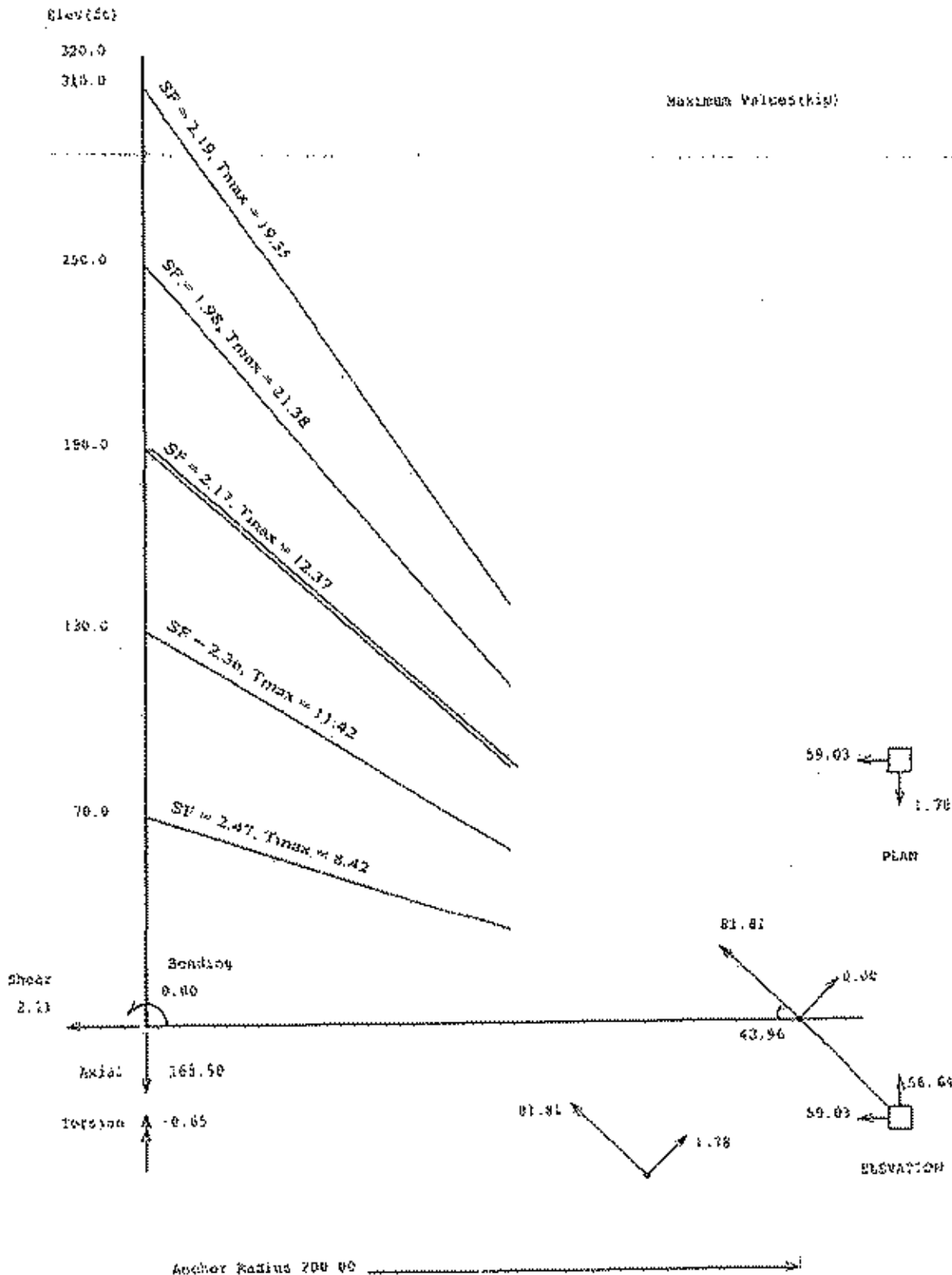
Material_Types

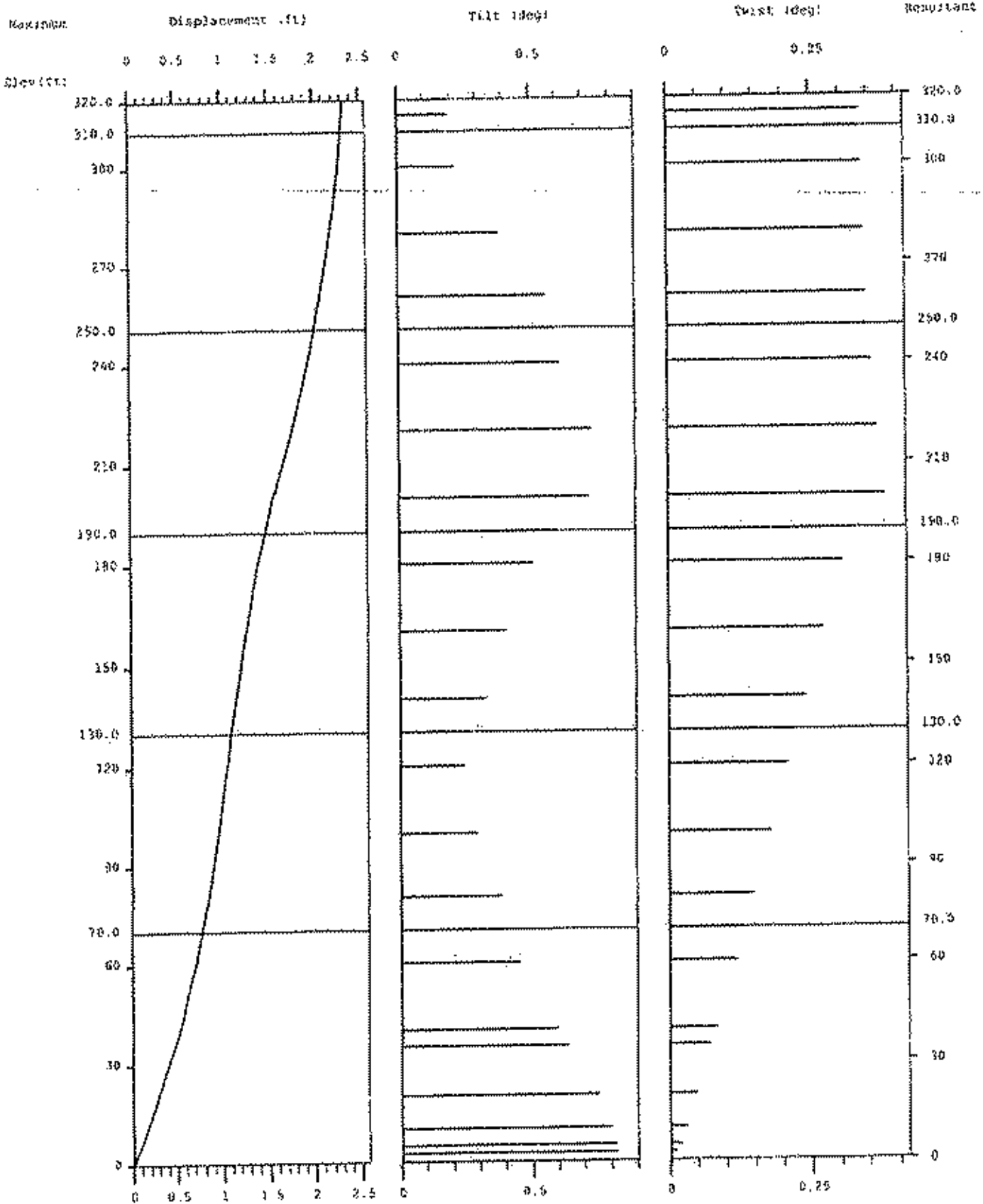
material types

round	1	1	0	4.00	4.00	2.000	490	
round	2	1	0	3.75	3.75	1.875	490	
round	3	1	0	3.50	3.50	1.750	490	
round	4	1	0	3.25	3.25	1.625	490	
round	5	1	0	3.00	3.00	1.500	490	
round	6	1	0	2.75	2.75	1.375	490	
round	7	1	0	2.50	2.50	1.250	490	
round	8	1	0	2.25	2.25	1.125	490	
round	9	1	0	2.00	2.00	1.000	490	
round	10	1	0	1.75	1.75	0.875	490	
round	11	1	0	1.50	1.50	0.750	490	
round	12	1	0	1.25	1.25	0.625	490	
round	13	1	0	1.125	1.125	0.563	490	1 1/8" s.r
round	14	1	0	1.000	1.000	0.500	490	1" s.r.
round	15	1	0	0.875	0.875	0.440	490	7/8" s.r
round	16	1	0	0.750	0.750	0.375	490	3/4" s.r.
round	17	1	0	0.625	0.625	0.313	490	5/8" s.r.
tube	18	1	0	1.315	1.315	0.109	490	1" sch 10 pipe
round	19	1	0	0.375	0.375	0.187	490	3/8" s.r.
round	20	1	0	1.375	1.375	0.687	490	1 3/8" s.r

Hemphill Corporation - White Plains, NY - 320' dia x 70 MPa 1/2" dia x 1410b

Dry Regions, Anchor Loads and Base Loads



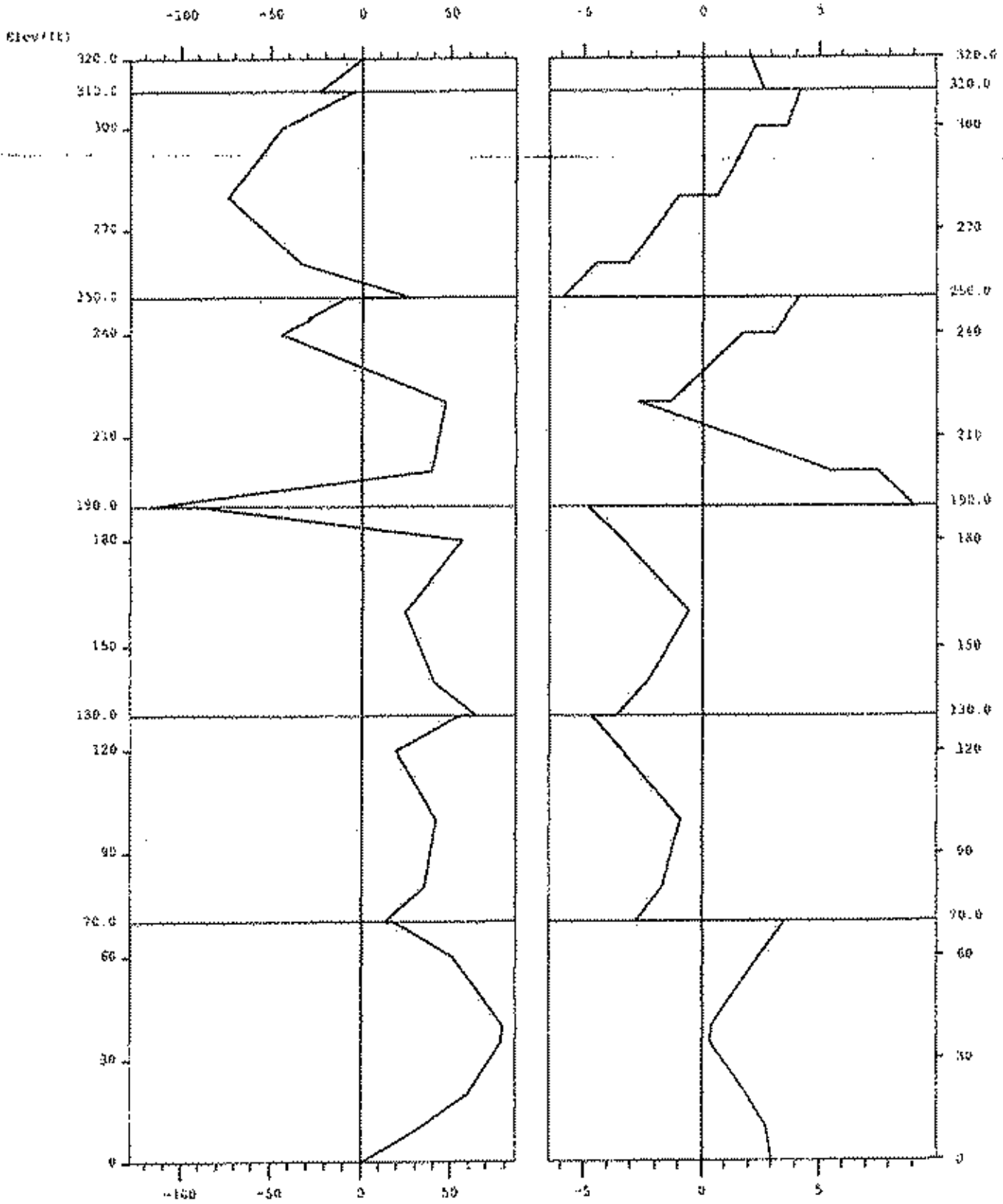


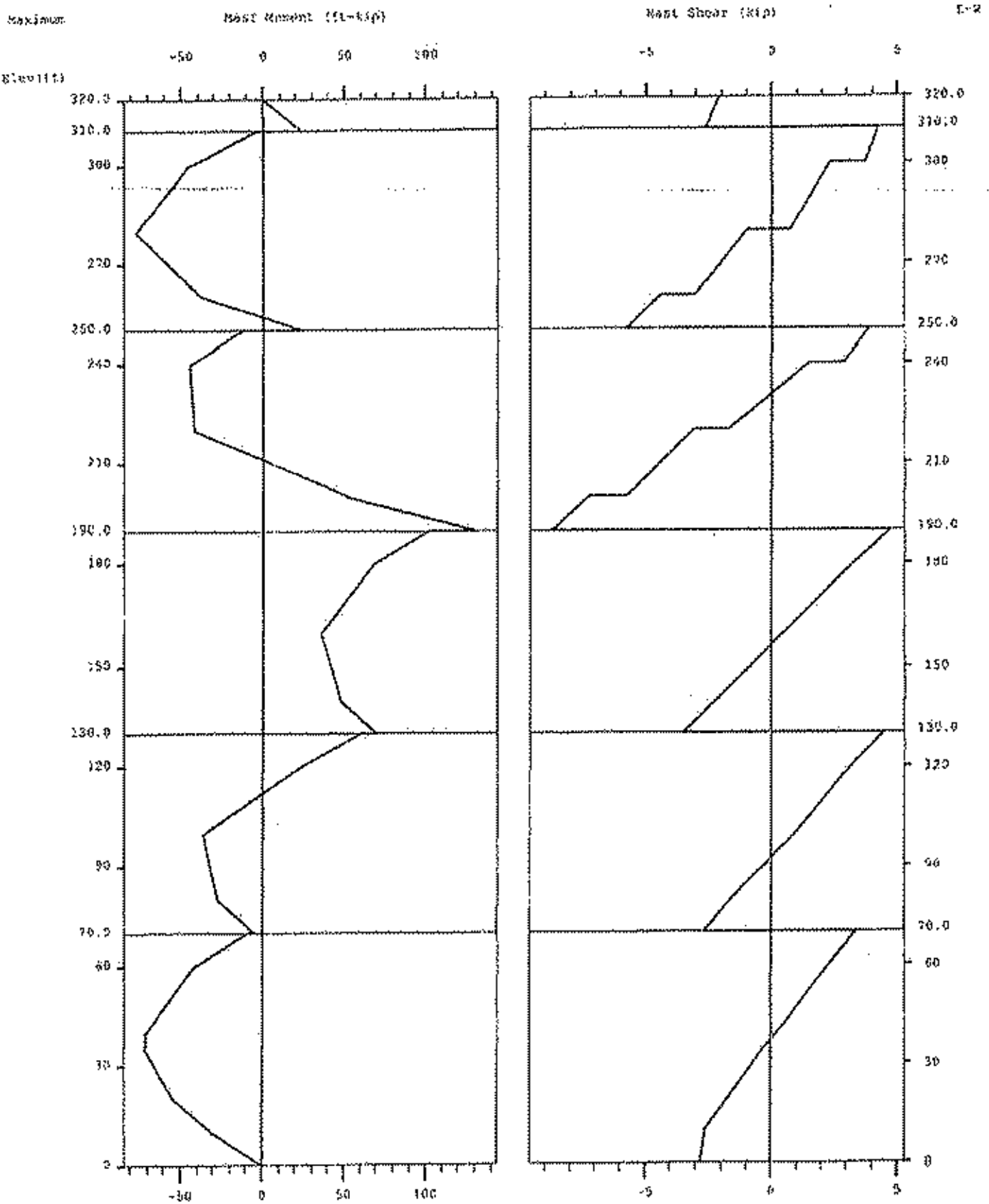
Maxima

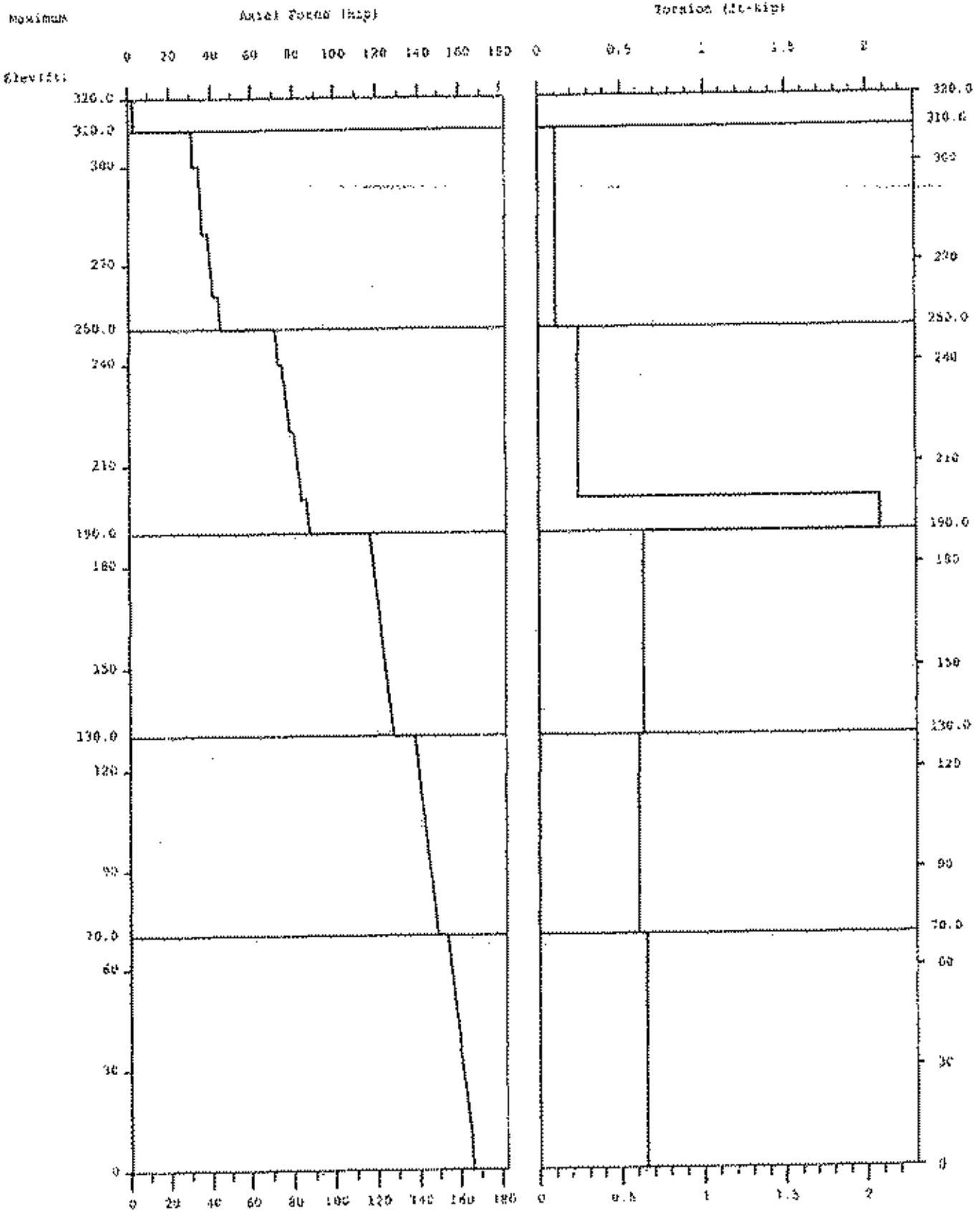
Bent Moment (ft-kip)

Bent Shear (kip)

2 8



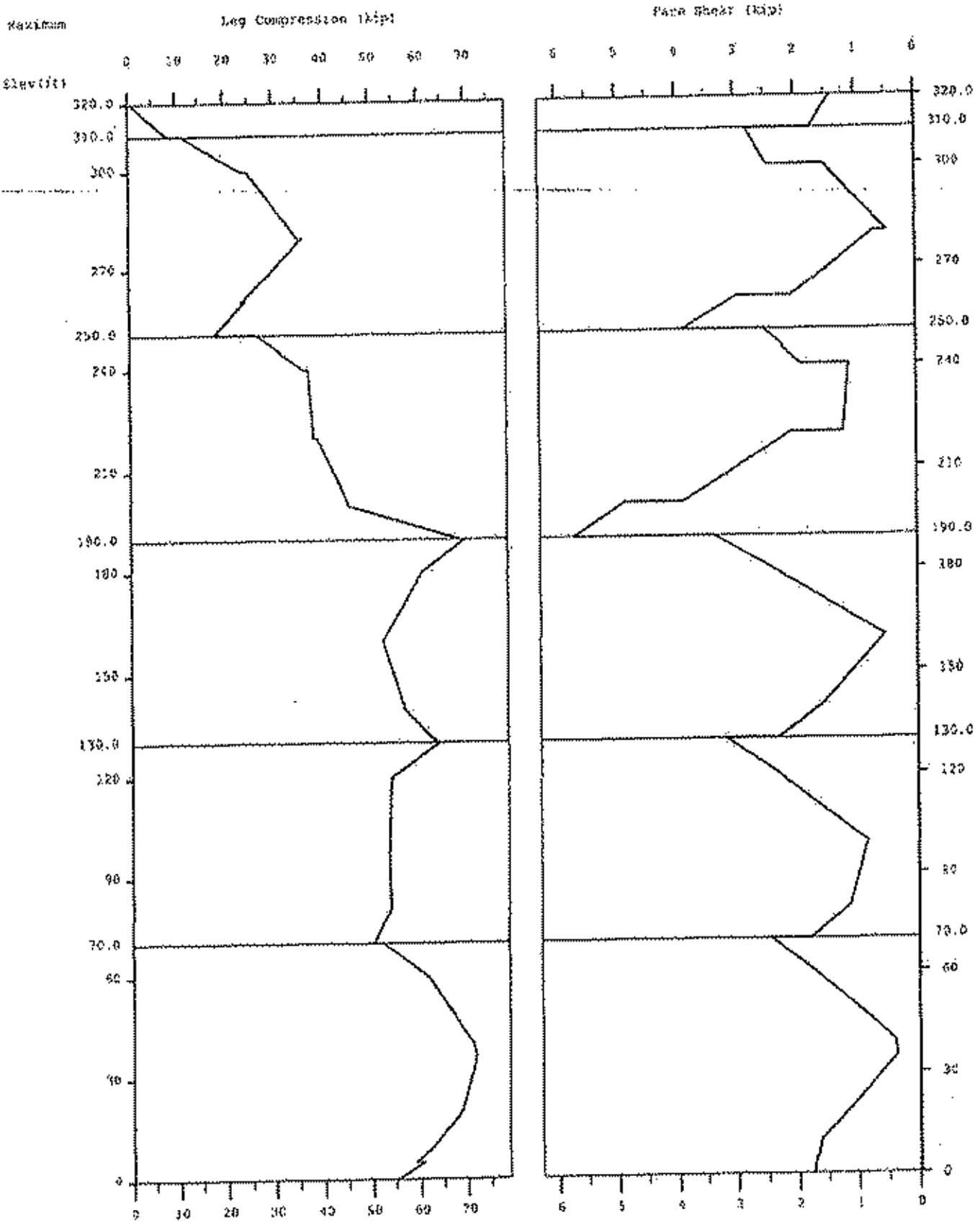




Licensed to: Remphill Corporation

21:14:07

Remphill Corporation - White Plains, NY - 320' x 42' x 70 MPH 1/2" ice - 14106



DEADMAN ANCHOR DESIGN

PROJECT: 325' (up) rd tower
 CLIENT: Memphis Corporation
 SITE: White Plains, KY
 JOB NO: 1410
 DATE: 9/13/2005
 BY: JMS

NOTE: Soil Info From Memphis

INPUTS:

DESIGN LOADS

	INNER	OUTER	
ANCHOR RADIUS	200	100	FEET
UPLIFT, P _v	56.6	56.6	KIPS (GROSS)
SHEAR FORCE, P _h	59	59	KIPS

SOIL PROPERTIES

(GAMMA)_s = 120 PCF
 COHESION, C = 300 PSF
 I-TETA = 30 DEGREES

ANCHOR ROD LENGTH

INNER ANGLE = 43.81094 DEGREES
 L MIN INNER = 18.29 FEET
 OFFSET INNER = 0.42 FEET
 OUTER ANGLE = 43.81094 DEGREES
 L MIN OUTER = 18.29 FEET
 OFFSET OUTER = 0.42 FEET

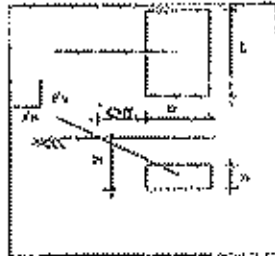
ANCHOR DIMENSIONS:

	INNER	OUTER	
WIDTH	4	4	FEET
LENGTH	6	6	FEET
THICKNESS	2	2	FEET
DEPTH TO B O C (H)	32	32	FEET

DESIGN:

	INNER	OUTER	
K _a FROM GRAPH	6	6	
CONCRETE VOLUME	2.67	2.67	CU YDS.
W _c	4.3	8.1	KIPS
W _s	76.7	76.7	KIPS
S _k	69.1	69.1	KIPS
P _v	77.4	77.4	KIPS
P _h	100	95.3	KIPS
UNITY CHECK	0.86	0.86	
TOP AS REQUIRED	1.76	1.77	SQ IN
SOE AS REQUIRED	4.74	4.81	SQ IN

SOIL PARAMETERS:
 PETA = 18 DEGREES
 Q₀ = 300 PSF
 K_p = 7.0
 sec(ALPHA) = 0.13



INNER DEADMAN IS ADEQUATE W/F S_k = 2.0
 OUTER DEADMAN IS ADEQUATE W/F S_k = 2.0

PAD DESIGN EQUATIONS:

REF. TEXT: FOUNDATIONS, RETAINING & EARTH STRUCTURES BY GREGORY P. TSCHEBOTAROFF, II EDITION

VERTICAL RESISTANCE, R_v IN KIPS = ((W_c/1.25) + (W_s + S_k)) / 2.0

R_v = NET UPLIFT RESISTANCE @ B O C, W/F S OF 2.0
 W_c = WT OF CONC. IN KIPS @ 15' (1' x L x b)
 b = WIDTH OF DEADMAN IN FEET
 L = LENGTH OF DEADMAN IN FEET
 h = THICKNESS OF DEADMAN IN FEET
 W_s = WT. OF SOIL IN KIPS = (GAMMA)_s * (H-h) * (b*L + (b+L) * (H-h) * tan(PHI)) + (4/3) * (H-h)² * tan²(PHI) / 1000
 (GAMMA)_s = UNIT WT. OF SOIL IN PCF
 H = DEPTH TO B O C FROM SOIL SURFACE IN FEET
 (PHI) = (THETA) IN DEGREES
 (THETA) = SOIL FRICTION ANGLE IN DEGREES
 S_k = SKIN FRICTION IN KIPS = (b+L) * (C₀ * (H-h) + 2 * (GAMMA)_s / 3) * (H-h)² * tan(PHI)) * sec(ALPHA) / 1000
 C₀ = C IN PSF
 C = SOIL COHESION IN PSF
 sec(ALPHA) = sec(60° - 1/2 * (2 * alpha))

HORIZONTAL RESISTANCE, R_h IN KIPS = (0.5 * K_p * (GAMMA)_s * H² + K_c * C₀ * h) * (L/F, S) / 1000

K_p = SOIL PASSIVE RESISTANCE = 1.5 * tan²(45° + PHI/2)
 K_c = HORIZONTAL SOIL RESISTANCE COEFFICIENT (REF TEXT FIG 14-26, PAGE 540, AUTHOR MACKENZIE)

UNITY CHECK = SQRT(((P_h/R_h)² + (P_v/R_v)²) <= 1.0

PAD AND PEDESTAL DESIGN FOR UPLIFT RESISTANCE

PROJECT: 100 SST
 CLIENT: NATIONAL WIRELESS
 SITE: ZANZIBAR TN
 JOB NO: 7287
 DATE: 03/20/05 12:47
 BY: DMB

NOTE: 10FOYTECH

INPUTS:

DESIGN LOADS:

DOWN LOAD, Pk: 477 KIPS (NET L&D)
 UPLIFT, Pw: 343 KIPS (GROSS PER LEG)
 SHEAR FORCE: 69 KIPS (TOTAL)

PEDESTAL INFO:

WIDTH: 30 FEET
 LENGTH: 30 FEET
 HEIGHT: 44 FEET
 DEPTH TO B.O.C. FROM SOIL SURF: 7 FEET
 REBAR SIZE: #11
 TIE SIZE: #5

PAD INFO:

WIDTH: 30 FEET
 LENGTH: 30 FEET
 HEIGHT: 2 FEET
 DEPTH: 10 FEET

SOIL PROPERTIES:

GAMMA_s: 140 PCF
 COHESION, C: 500 PSF
 THETA: 10 DEGREES

PEDESTAL DESIGN:

PEDESTAL STEEL: 225 SQ INCHES
 NO. OF REBARS: 16
 TIE SPACING: 18 INCHES
 CONCRETE VOLUME: 338 CU YDS

PAD DESIGN:

Cd: 150 PSF
 (PHI)_s: 2 DEGREES
 sec(ALPHA)_s: 1.00
 Wc: 147 KIPS
 Ws: 433 KIPS
 Sk: 1677 KIPS
 Pw: 405.98 KIPS

PAD IS ADEQUATE TO RESIST UPLIFT W/ F.S. >= 2.0

PEDESTAL STEEL

$$A_s = (PHI)_L / \gamma_s \{ (P_w + 4 \cdot M_o / D_g) (PHI)_s + H \{ (PHI)_s \cdot (MU) \} \}$$

A_s = AREA OF STEEL IN SQ INCHES
 (PHI)_L = 0.75, ULTIMATE DESIGN FACTOR FOR WIND DESIGN
 (PHI)_s = 0.9, ACF FACTOR
 (PHI)_s = 0.85, ACF FACTOR
 γ_s = 150 KSI, REBAR YIELD STRENGTH
 P_w = UPLIFT FORCE IN KIPS (TOTAL UPLIFT FORCE - WEIGHT OF PEDESTAL)
 M_o = OVERTURNING MOMENT AT PEDESTAL BASE = W_c · H, IN KIP-FT
 H = SHEAR FORCE PER LEG IN KIPS
 H = HEIGHT OF PEDESTAL IN FEET
 (MU) = 1.4, COEFFICIENT OF FRICTION

TIE STEEL

$$S = \gamma_s \cdot A_v \cdot D / (PHI)_L \cdot H$$

S = TIE SPACING IN INCHES
 A_v = TIE AREA IN SQ INCHES (0.44 IN² FOR #5 TIES)
 D = DISTANCE FROM EXTREME FIBER TO C.L. OF TENSILE REBAR = (D_{pad}) / 2, IN INCHES
 H = PEDESTAL CHARACTERISTIC IN INCHES

PAD DESIGN

$$P_w = (W_c / 3) + (W_s + S_k) / 2 \cdot D$$

P_w = NET UPLIFT RESISTANCE (B.O.C. W/ F.S. OF 2.0)
 W_c = WT. OF CONC. IN KIPS = 150 (SUM OF b² · H)
 b = WIDTH OF PAD IN FEET
 l = LENGTH OF PAD IN FEET
 H = THICKNESS OF PAD IN FEET

$$W_s = W_T \text{ OF SOIL IN KIPS} = (GAMMA)_s \cdot (H-h) \cdot (b^2 + (l-h) \cdot \tan(PHI)_d \cdot (b + (1/3) \cdot (H-h) \cdot \tan(PHI)_d \cdot c) \cdot (b^2) \cdot \text{ped}) / 1000$$

(GAMMA)_s = UNIT WT. OF SOIL IN PCF
 H = DEPTH TO B.O.C. FROM SOIL SURFACE IN FEET
 (PHI)_d = SOIL FRICTION ANGLE IN DEGREES
 c = SOIL COHESION IN PSF
 (PHI)_s = SOIL FRICTION ANGLE IN DEGREES
 D = PEDestal CRDS SECTION AREA IN SQ FEET

$$S_k = \text{SKIN FRICTION IN KIPS} = (b+l) \cdot (C_d \cdot (H-h) + 2 \cdot (GAMMA)_s \cdot (H-h)^2 \cdot \tan(PHI)_d \cdot \text{sec}(ALPHA)_s) / 1000$$

C_d = 2 · C, IN PSF
 C = SOIL COHESION IN PSF
 sec(α) = 1 / cos(α) = 1 / (2 · tan(α) + 1)

Hemphill Corporation - white plains, KY - 320' M42 = 70 MPH 1/2" ice * 1410c

mast geometry

c 3 0	0	5	1.0	3.5	2.5
c 3 0	5	20	3.5	3.5	2.5
c 3 0	20	40	3.5	3.5	2.5
c 3 0	40	60	3.5	3.5	2.5
c 3 0	60	80	3.5	3.5	2.5
c 3 0	80	100	3.5	3.5	2.5
c 3 0	100	120	3.5	3.5	2.5
c 3 0	120	140	3.5	3.5	2.5
c 3 0	140	160	3.5	3.5	2.5
c 3 0	160	180	3.5	3.5	2.5
c 3 0	180	200	3.5	3.5	2.5
c 3 0	200	220	3.5	3.5	2.5
c 3 0	220	240	3.5	3.5	2.5
c 3 0	240	260	3.5	3.5	2.5
c 3 0	260	280	3.5	3.5	2.5
c 3 0	280	300	3.5	3.5	2.5
c 3 0	300	320	3.5	3.5	2.5

material types

round	1	1	0	4.00	4.00	2.000	490
round	2	1	0	3.75	3.75	1.875	490
round	3	1	0	3.50	3.50	1.750	490
round	4	1	0	3.25	3.25	1.625	490
round	5	1	0	3.00	3.00	1.500	490
round	6	1	0	2.75	2.75	1.375	490
round	7	1	0	2.50	2.50	1.250	490
round	8	1	0	2.25	2.25	1.125	490
round	9	1	0	2.00	2.00	1.000	490
round	10	1	0	1.75	1.75	0.875	490
round	11	1	0	1.50	1.50	0.750	490
round	12	1	0	1.25	1.25	0.625	490
round	13	1	0	1.13	1.13	0.563	490
round	14	1	0	1.00	1.00	0.500	490
round	15	1	0	0.88	0.88	0.440	490
round	16	1	0	0.75	0.75	0.375	490
round	17	1	0	0.63	0.63	0.313	490
tube	18	1	0	1.32	1.32	0.133	490
round	19	1	0	0.38	0.38	0.187	490
round	20	1	0	1.38	1.38	0.687	490
angle	21	2	0	2.50	2.50	0.250	490
round	22	1	0	4.25	4.25	2.125	490
round	23	1	0	4.50	4.50	2.250	490
round	24	1	0	4.75	4.75	2.375	490
round	25	1	0	5.00	5.00	2.500	490
tube	26	1	0	1.50	1.50	0.060	490
tube	27	1	0	1.50	1.50	0.120	490
tube	28	1	0	1.90	1.90	0.200	490
tube	29	1	0	2.38	2.38	0.218	490
tube	30	1	0	2.88	2.88	0.276	490
tube	31	1	0	3.50	3.50	0.300	490
tube	32	1	0	4.00	4.00	0.318	490
tube	33	1	0	4.50	4.50	0.337	490
tube	34	1	0	5.56	5.56	0.375	490
tube	35	1	0	6.63	6.63	0.432	490
angle	36	1	0	1.75	1.75	0.188	490
angle	37	1	0	2.00	2.00	0.250	490
angle	38	1	0	2.50	2.50	0.250	490
angle	39	1	0	3.00	3.00	0.250	490

panel properties

0	7.5	31	36	0	0	0	0
7.5	20	31	36	0	0	0	0
20	40	31	36	0	0	0	0

40 60 31 36 0 0 0 0 0
 60 80 31 36 0 0 0 0 0
 80 100 31 36 0 0 0 0 0
 100 120 31 36 0 0 0 0 0
 120 140 31 36 0 0 0 0 0
 140 160 31 36 0 0 0 0 0
 160 180 31 36 0 0 0 0 0
 180 200 31 36 0 0 0 0 0
 200 220 31 36 0 0 0 0 0
 220 240 30 36 0 0 0 0 0
 240 260 30 36 0 0 0 0 0
 260 280 30 36 0 0 0 0 0
 280 300 30 36 0 0 0 0 0
 300 320 29 36 0 0 0 0 0

trans lines

ah1.625 10 320 3 -1 -60 -150
 ah1.625 10 300 3 -1 -60 -150
 ah1.625 10 280 3 -1 -60 -150
 ah1.625 10 260 2 -1 -60 -150
 ah1.625 10 240 2 -1 -60 -150
 ah1.625 10 220 2 -1 -60 -150

microwave parabolic antennas

hp 200 0 8 2.52 0 0

hp 200 120 8 2.52 120 0

wind from 0 deg at 60.6 mph 1/2" ice

wind loading

0 60.6 0 0.5 56 1 1

extra loading

c 190 0 0 0 0.201745795175344 0.7
 c 200 0 0 0 0.034120699477109 0.2
 c 220 0 0 0 0.456515356737647 1.7
 c 220 0 0 0 0.839399204324061 0.567
 c 240 0 0 0 0.468006756633691 1.7
 c 240 0 0 0 0.860528552520012 0.567
 c 260 0 0 0 0.478833088344667 1.7
 c 260 0 0 0 0.880435033407937 0.567
 c 280 0 0 0 0.489079857759972 1.7
 c 280 0 0 0 0.899275867494141 0.567
 c 300 0 0 0 0.498816370702334 1.7
 c 300 0 0 0 0.917178488065582 0.567
 c 320 0 0 0 0.341464825770232 1.2
 c 320 0 0 0 1.24566368440981 0.756
 c 320 0 0 0 0.231805836008592 0.126
 c 320 0 0 0 0.0643905100023867 0.095

suppress printing

1 0 0 0 0 0 0

wind from 90 deg at 60.6 mph 1/2" ice

wind loading

90 60.6 0 0.5 56 1 1

extra loading

c 190 0 0 90 0.201745795175344 0.7
 c 200 0 0 90 0.034120699477109 0.2
 c 220 0 0 90 0.456515356737647 1.7
 c 220 0 0 90 0.839399204324061 0.567
 c 240 0 0 90 0.468006756633691 1.7
 c 240 0 0 90 0.860528552520012 0.567
 c 260 0 0 90 0.478833088344667 1.7
 c 260 0 0 90 0.880435033407937 0.567
 c 280 0 0 90 0.489079857759972 1.7
 c 280 0 0 90 0.899275867494141 0.567
 c 300 0 0 90 0.498816370702334 1.7
 c 300 0 0 90 0.917178488065582 0.567
 c 320 0 0 90 0.341464825770232 1.2

```

c 320 0 0 90 1.24566368440981 0.756
c 320 0 0 90 0.231805836008592 0.126
c 320 0 0 90 0.0643905100023867 0.095
suppress printing
1 0 0 0 0 0 0
wind from 180 deg at 60.6 mph 1/2" ice
wind loading
180 60.6 0 0 56 1 1
extra loading
c 190 0 0 180 0.201745795175344 0.7
c 200 0 0 180 0.034120699477109 0.2
c 220 0 0 180 0.456515356737647 1.7
c 220 0 0 180 0.839399204324061 0.567
c 240 0 0 180 0.468006756633691 1.7
c 240 0 0 180 0.860528552520012 0.567
c 260 0 0 180 0.478833088344667 1.7
c 260 0 0 180 0.880435033407937 0.567
c 280 0 0 180 0.489079857759972 1.7
c 280 0 0 180 0.899275867494141 0.567
c 300 0 0 180 0.498816370702334 1.7
c 300 0 0 180 0.917178488065582 0.567
c 320 0 0 180 0.341464825770232 1.2
c 320 0 0 180 1.24566368440981 0.756
c 320 0 0 180 0.231805836008592 0.126
c 320 0 0 180 0.0643905100023867 0.095
suppress printing
1 0 0 0 0 0 0
wind from 0 deg at 70 mph no ice
wind loading
0 70 0 0 56 1 1
extra loading
c 190 0 0 0 0.224161994639271 0.5
c 200 0 0 0 0.0454942659694787 0.2
c 220 0 0 0 0.409531441374479 1.325
c 220 0 0 0 0.971935920796282 0.225
c 240 0 0 0 0.419840162632988 1.325
c 240 0 0 0 0.996401481865277 0.225
c 260 0 0 0 0.429552263584156 1.325
c 260 0 0 0 1.01945109131445 0.225
c 280 0 0 0 0.438744449972079 1.325
c 280 0 0 0 1.04126679394058 0.225
c 300 0 0 0 0.447478894762156 1.325
c 300 0 0 0 1.06199614407594 0.225
c 320 0 0 0 0.312196412132784 0.8
c 320 0 0 0 1.44234742405346 0.3
c 320 0 0 0 0.234147309099588 0.06
c 320 0 0 0 0.0858540133365156 0.095
suppress printing
1 0 0 0 0 0 0
wind from 90 deg at 70 mph no ice
wind loading
90 70 0 0 56 1 1
extra loading
c 190 0 0 90 0.224161994639271 0.5
c 200 0 0 90 0.0454942659694787 0.2
c 220 0 0 90 0.409531441374479 1.325
c 220 0 0 90 0.971935920796282 0.225
c 240 0 0 90 0.419840162632988 1.325
c 240 0 0 90 0.996401481865277 0.225
c 260 0 0 90 0.429552263584156 1.325
c 260 0 0 90 1.01945109131445 0.225
c 280 0 0 90 0.438744449972079 1.325
c 280 0 0 90 1.04126679394058 0.225

```


1410c.txt

```
c 300 0 0 90 0.447478894762156 1.325
c 300 0 0 90 1.06199614407594 0.225
c 320 0 0 90 0.312196412132784 0.8
c 320 0 0 90 1.44234742405346 0.3
c 320 0 0 90 0.234147309099588 0.06
c 320 0 0 90 0.0858540133365156 0.095
suppress printing
1 0 0 0 0 0 0
wind from 180 deg at 70 mph no ice
wind loading
180 70 0 0 56 1 1 .....
extra loading
c 190 0 0 180 0.224161994639271 0.5
c 200 0 0 180 0.0454942659694787 0.2
c 220 0 0 180 0.409531441374479 1.325
c 220 0 0 180 0.971935920796282 0.225
c 240 0 0 180 0.419840162632988 1.325
c 240 0 0 180 0.996401481865277 0.225
c 260 0 0 180 0.429552263584156 1.325
c 260 0 0 180 1.01945109131445 0.225
c 280 0 0 180 0.438744449972079 1.325
c 280 0 0 180 1.04126679394058 0.225
c 300 0 0 180 0.447478894762156 1.325
c 300 0 0 180 1.06199614407594 0.225
c 320 0 0 180 0.312196412132784 0.8
c 320 0 0 180 1.44234742405346 0.3
c 320 0 0 180 0.234147309099588 0.06
c 320 0 0 180 0.0858540133365156 0.095
suppress printing
1 0 0 0 0 0 0
```

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GUYMAST (USA)-Guyed Tower Analysis
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Memphill Corporation

on: 12 sep 2005 at: 21:16:47

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Memphill Corporation - white plains, KY - 320' M42 * 70 MPH 1/2" ice * 1410b

MAST DATA

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UPPER ELEV FT	MAST TYPE OF WEB	NO OF LEGS *	FACE WIDTH FT *	GEOM PANEL HEIGHT FT *	X-SECTION-AREA		BARE WEIGHT K/FT.	ELASTIC MODULUS KIP/IN. SQ	TEMP COEFF /DEG
					ONE LEG IN. SQ.	ONE DIAG IN. SQ.			
320.0	4	3	3.500	2.500	1.480	0.620	0.042	29000.0	0.0000116
300.0	4	3	3.500	2.500	2.260	0.620	0.059	29000.0	0.0000116
280.0	4	3	3.500	2.500	2.260	0.620	0.069	29000.0	0.0000116
260.0	4	3	3.500	2.500	2.260	0.620	0.075	29000.0	0.0000116
240.0	4	3	3.500	2.500	2.260	0.620	0.081	29000.0	0.0000116
220.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
200.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
180.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
160.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
140.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
120.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
100.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
80.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
60.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
40.0	4	3	3.500	2.500	3.020	0.620	0.095	29000.0	0.0000116
20.0	4	3	3.500	2.500	3.020	0.620	0.077	29000.0	0.0000116
5.0	4	3	2.574	2.500	3.020	0.620	0.042	29000.0	0.0000116

* If NO OF LEGS is 1 : that part of the mast is assumed to be cylindrical
 and : FACE WIDTH = outside diameter
 PANEL HEIGHT = thickness
 AREA OF DIAG = Poisson ratio

GUY GEOMETRY

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1410c.gou

ELEV	GUY AZI	DIAMETER	HEIGHT	RADIUS	MAST ATTACH RADIUS	ATTACH AZI	INITIAL TENSION
FT	DEG	IN.	FT.	FT.	FT.	DEG	KIP
310.0	240.0	0.625	310.0	200.0	2.020	240.0	4.240
310.0	120.0	0.625	310.0	200.0	2.020	120.0	4.240
310.0	0.0	0.625	310.0	200.0	2.020	0.0	4.240
250.0	240.0	0.625	250.0	200.0	2.020	240.0	4.240
250.0	120.0	0.625	250.0	200.0	2.020	120.0	4.240
250.0	0.0	0.625	250.0	200.0	2.020	0.0	4.240
190.0	0.0	0.500	190.0	200.0	4.040	300.0	2.690
190.0	240.0	0.500	190.0	200.0	4.040	300.0	2.690
190.0	240.0	0.500	190.0	200.0	4.040	180.0	2.690
190.0	240.0	0.500	190.0	200.0	4.040	180.0	2.690
190.0	120.0	0.500	190.0	200.0	4.040	60.0	2.690
190.0	120.0	0.500	190.0	200.0	4.040	60.0	2.690
190.0	0.0	0.500	190.0	200.0	2.020	240.0	2.690
130.0	240.0	0.500	130.0	200.0	2.020	120.0	2.690
130.0	120.0	0.500	130.0	200.0	2.020	0.0	2.690
130.0	0.0	0.500	130.0	200.0	2.020	240.0	2.080
70.0	240.0	0.438	70.0	200.0	2.020	120.0	2.080
70.0	120.0	0.438	70.0	200.0	2.020	0.0	2.080
70.0	0.0	0.438	70.0	200.0	2.020	0.0	2.080

GUY MATERIAL PROPERTIES

ELEV	GUY AZI	BREAKING STRENGTH	GUY WEIGHT	GUY AREA	ELASTIC MODULUS	THERMAL COEFF	UNSTRESS LENGTH
FT	DEG	KIP	LBS/FT	IN. SQ	KIP/IN. SQ	/DEG	FT
310.0	240.0	42.400	0.813	0.303	21000.0	0.0000116	367.588
310.0	120.0	42.400	0.813	0.303	21000.0	0.0000116	367.588
310.0	0.0	42.400	0.813	0.303	21000.0	0.0000116	367.588
250.0	240.0	42.400	0.813	0.303	21000.0	0.0000116	318.694
250.0	120.0	42.400	0.813	0.303	21000.0	0.0000116	318.694
250.0	0.0	42.400	0.813	0.303	21000.0	0.0000116	318.694
190.0	0.0	26.900	0.517	0.192	21000.0	0.0000116	274.249
190.0	240.0	26.900	0.517	0.192	21000.0	0.0000116	274.249
190.0	240.0	26.900	0.517	0.192	21000.0	0.0000116	274.249
190.0	120.0	26.900	0.517	0.192	21000.0	0.0000116	274.249
190.0	120.0	26.900	0.517	0.192	21000.0	0.0000116	274.249
190.0	0.0	26.900	0.517	0.192	21000.0	0.0000116	274.249
130.0	240.0	26.900	0.517	0.192	21000.0	0.0000116	236.698
130.0	120.0	26.900	0.517	0.192	21000.0	0.0000116	236.698
130.0	0.0	26.900	0.517	0.192	21000.0	0.0000116	236.698
70.0	240.0	20.800	0.399	0.149	21000.0	0.0000116	209.862
70.0	120.0	20.800	0.399	0.149	21000.0	0.0000116	209.862
70.0	0.0	20.800	0.399	0.149	21000.0	0.0000116	209.862

LOADING CONDITION A

wind from 0 deg at 60.6 mph 1/2" ice

MAST LOADING

LOAD TYPE	ELEV FT	FORCES (KIP & KIP/FT)			MOMENTS (FT.K & FT.K/FT)			ANT-ORIENT	
		N	E	DOWN	N	E	TORSION	AZI DEG	VERT DEG
C	320.0	-0.232	0.000	0.126	0.00	0.00	0.00	0.0	0.00
C	320.0	-1.246	0.000	0.756	0.00	0.00	0.00	0.0	0.00
C	320.0	-0.342	0.000	1.200	0.00	0.00	0.00	0.0	0.00
C	320.0	-0.064	0.000	0.095	0.00	0.00	0.00	0.0	0.00
C	300.0	-0.499	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	300.0	-0.917	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	280.0	-0.489	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	280.0	-0.899	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	260.0	-0.479	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	260.0	-0.880	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	240.0	-0.468	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	240.0	-0.860	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	220.0	-0.456	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	220.0	-0.839	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	200.0	-0.584	0.368	0.947	-1.19	2.07	-1.47	120.0	0.00
C	200.0	-1.044	0.000	0.947	2.39	0.00	0.00	0.0	0.00
C	200.0	-0.034	0.000	0.200	0.00	0.00	0.00	0.0	0.00
C	190.0	-0.202	0.000	0.700	0.00	0.00	0.00	0.0	0.00
D	320.0	-0.054	0.000	0.079	0.00	0.00	0.00		
D	300.0	-0.053	0.000	0.079	0.00	0.00	0.00		
D	300.0	-0.079	0.000	0.111	0.00	0.00	0.00		
D	280.0	-0.078	0.000	0.111	0.00	0.00	0.00		
D	280.0	-0.121	0.000	0.134	0.00	0.00	0.00		
D	260.0	-0.119	0.000	0.134	0.00	0.00	0.00		
D	260.0	-0.140	0.000	0.150	0.00	0.00	0.00		
D	240.0	-0.138	0.000	0.150	0.00	0.00	0.00		
D	240.0	-0.137	0.000	0.165	0.00	0.00	0.00		
D	220.0	-0.134	0.000	0.165	0.00	0.00	0.00		
D	220.0	-0.139	0.000	0.190	0.00	0.00	0.00		
D	10.0	-0.081	0.000	0.190	0.00	0.00	0.00		
D	10.0	-0.017	0.000	0.059	0.00	0.00	0.00		
D	5.0	-0.017	0.000	0.059	0.00	0.00	0.00		
D	5.0	-0.016	0.000	0.059	0.00	0.00	0.00		
D	2.5	-0.016	0.000	0.059	0.00	0.00	0.00		
D	2.5	-0.014	0.000	0.055	0.00	0.00	0.00		
D	0.0	-0.014	0.000	0.055	0.00	0.00	0.00		

GUY LOADING

WIND LOADING			TEMP	ICE	LOAD	CONV	PROFILES	LOAD FACTORS			
AZI	SPEED	REF	CHANGE	RAD	DENS	TOL	CAB	WIND	WIND	DEAD	ICE
DEG	MPH	PRESS	DEG	IN	PCF						
		PSF									
0.0	60.6	0.00	-10.00	0.50	56.00	0.0100	2	1	1.00	1.00	1.00

CABLE PROFILE: 1 - CATENARY 2 - PARABOLIC
 WIND PROFILE: 1 - EIA 222 F 2 - Kz = 1 ; Gh = 1
 3 - EIA 222 C 4 - Special Factors
 5 - Site Specific wind Formula

SUPPRESS PRINTING

...FOR THIS LOADING... ..MAXIMUMS.....

INPUT LOADS	DISPL	INTRNL FORCES	MEMBER LOADS	ALL	DISPL	INTRNL FORCES	MEMBER LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION \$

wind from 90 deg at 60.6 mph 1/2" ice

MAST LOADING

LOAD TYPE	ELEV FT	FORCES N	(KIP & E	KIP/FT DOWN	MOMENTS N	(FT.K & E	FT.K/FT TORSION	ANT-ORIENT AZI DEG	VERT DEG
C	320.0	0.000	-0.232	0.126	0.00	0.00	0.00	0.0	0.00
C	320.0	0.000	-1.246	0.756	0.00	0.00	0.00	0.0	0.00
C	320.0	0.000	-0.342	1.200	0.00	0.00	0.00	0.0	0.00
C	320.0	0.000	-0.064	0.095	0.00	0.00	0.00	0.0	0.00
C	300.0	0.000	-0.499	1.700	0.00	0.00	0.00	0.0	0.00
C	300.0	0.000	-0.917	0.567	0.00	0.00	0.00	0.0	0.00
C	280.0	0.000	-0.489	1.700	0.00	0.00	0.00	0.0	0.00
C	280.0	0.000	-0.899	0.567	0.00	0.00	0.00	0.0	0.00
C	260.0	0.000	-0.479	1.700	0.00	0.00	0.00	0.0	0.00
C	260.0	0.000	-0.880	0.567	0.00	0.00	0.00	0.0	0.00
C	240.0	0.000	-0.468	1.700	0.00	0.00	0.00	0.0	0.00
C	240.0	0.000	-0.860	0.567	0.00	0.00	0.00	0.0	0.00
C	220.0	0.000	-0.456	1.700	0.00	0.00	0.00	0.0	0.00
C	220.0	0.000	-0.839	0.567	0.00	0.00	0.00	0.0	0.00
C	200.0	0.329	-0.956	0.947	-1.19	2.07	-0.16	120.0	0.00
C	200.0	0.104	-0.499	0.947	2.39	0.00	1.90	0.0	0.00
C	200.0	0.000	-0.034	0.200	0.00	0.00	0.00	0.0	0.00
C	190.0	0.000	-0.202	0.700	0.00	0.00	0.00	0.0	0.00
D	320.0	0.000	-0.054	0.079	0.00	0.00	0.00		
D	300.0	0.000	-0.053	0.079	0.00	0.00	0.00		
D	300.0	0.000	-0.079	0.111	0.00	0.00	0.00		
D	280.0	0.000	-0.078	0.111	0.00	0.00	0.00		
D	280.0	0.000	-0.121	0.134	0.00	0.00	0.00		
D	260.0	0.000	-0.119	0.134	0.00	0.00	0.00		
D	260.0	0.000	-0.140	0.150	0.00	0.00	0.00		
D	240.0	0.000	-0.138	0.150	0.00	0.00	0.00		
D	240.0	0.000	-0.137	0.165	0.00	0.00	0.00		
D	220.0	0.000	-0.134	0.165	0.00	0.00	0.00		
D	220.0	0.000	-0.139	0.190	0.00	0.00	0.00		
D	10.0	0.000	-0.081	0.190	0.00	0.00	0.00		
D	10.0	0.000	-0.017	0.059	0.00	0.00	0.00		
D	5.0	0.000	-0.017	0.059	0.00	0.00	0.00		
D	5.0	0.000	-0.017	0.059	0.00	0.00	0.00		
D	2.5	0.000	-0.017	0.059	0.00	0.00	0.00		
D	2.5	0.000	-0.014	0.055	0.00	0.00	0.00		

0 0.0 0.000 -0.014 0.055 1410c.gou 0.00 0.00 0.00

GUY LOADING

.. WIND LOADING	...	TEMP	ICE LOAD..	CONV	PROFILES.	.LOAD FACTORS.			
AZI SPEED	REF	CHANGE	RAD DENS	TOL	CAB WIND	WIND	DEAD	ICE	
DEG MPH	PRESS	DEG	IN PCF						
	PSF								
90.0	60.6	0.00	-10.00	0.750	56.00	0.0100	2	1	1.00 1.00 1.00

CABLE PROFILE: 1 - CATENARY 2 - PARABOLIC
 WIND PROFILE: 1 - EIA 222 F 2 - Kz = 1 ; Gh = 1
 3 - EIA 222 C 4 - Special Factors
 5 - Site Specific Wind Formula

SUPPRESS PRINTING

...FOR THIS LOADING..			MAXIMUMS.....			
INPUT	DISPL	INTRNL	MEMBER	ALL	DISPL	INTRNL	MEMBER
LOADS		FORCES	LOADS			FORCES	LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION C
 wind from 180 deg at 60.6 mph 1/2" ice

MAST LOADING

LOAD	ELEV	.FORCES (KIP & KIP/FT)			.MOMENTS (FT.K & FT.K/FT)			ANT-ORIENT	
TYPE	FT	N	E	DOWN	N	E	TORSION	AZI	VERT
								DEG	DEG
C	320.0	0.232	0.000	0.126	0.00	0.00	0.00	0.0	0.00
C	320.0	1.246	0.000	0.756	0.00	0.00	0.00	0.0	0.00
C	320.0	0.342	0.000	1.200	0.00	0.00	0.00	0.0	0.00
C	320.0	0.064	0.000	0.095	0.00	0.00	0.00	0.0	0.00
C	300.0	0.499	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	300.0	0.917	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	280.0	0.489	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	280.0	0.899	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	260.0	0.479	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	260.0	0.880	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	240.0	0.468	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	240.0	0.860	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	220.0	0.456	0.000	1.700	0.00	0.00	0.00	0.0	0.00
C	220.0	0.839	0.000	0.567	0.00	0.00	0.00	0.0	0.00
C	200.0	0.633	-0.498	0.447	-0.56	0.98	0.71	320.0	0.00

					1410c.gou				
C	200.0	0.862	0.000	0.447	1.13	0.00	0.00	0.0	0.00
C	200.0	0.034	0.000	0.200	0.00	0.00	0.00	0.0	0.00
C	190.0	0.202	0.000	0.700	0.00	0.00	0.00	0.0	0.00
D	320.0	0.041	0.000	0.042	0.00	0.00	0.00		
D	300.0	0.040	0.000	0.042	0.00	0.00	0.00		
D	300.0	0.052	0.000	0.059	0.00	0.00	0.00		
D	280.0	0.051	0.000	0.059	0.00	0.00	0.00		
D	280.0	0.065	0.000	0.069	0.00	0.00	0.00		
D	260.0	0.064	0.000	0.069	0.00	0.00	0.00		
D	260.0	0.076	0.000	0.075	0.00	0.00	0.00		
D	240.0	0.075	0.000	0.075	0.00	0.00	0.00		
D	240.0	0.091	0.000	0.081	0.00	0.00	0.00		
D	220.0	0.089	0.000	0.081	0.00	0.00	0.00		
D	220.0	0.118	0.000	0.095	0.00	0.00	0.00		
D	10.0	0.069	0.000	0.095	0.00	0.00	0.00		
D	10.0	0.015	0.000	0.042	0.00	0.00	0.00		
D	5.0	0.015	0.000	0.042	0.00	0.00	0.00		
D	5.0	0.014	0.000	0.043	0.00	0.00	0.00		
D	2.5	0.014	0.000	0.043	0.00	0.00	0.00		
D	2.5	0.012	0.000	0.041	0.00	0.00	0.00		
D	0.0	0.012	0.000	0.041	0.00	0.00	0.00		

GUY LOADING

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.. WIND LOADING ..	TEMP	ICE LOAD..	CONV	PROFILES.	LOAD FACTORS.
AZI SPEED REF	CHANGE	RAD DENS	TOL	CAB WIND	WIND DEAD ICE
DEG MPH PSF	DEG	IN PCF			
180.0 60.6 0.00	0.00	0.00 56.00	0.0100	2 1	1.00 1.00 1.00

CABLE PROFILE: 1 - CATENARY 2 - PARABOLIC
WIND PROFILE: 1 - EIA 222 F 2 - K2 = 1 ; Gh = 1
3 - EIA 222 C 4 - Special Factors
5 - Site Specific wind Formula

SUPPRESS PRINTING

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...FOR THIS LOADING..			MAXIMUMS.....			
INPUT	DISPL	INTRNL	MEMBER	ALL	DISPL	INTRNL	MEMBER
LOADS		FORCES	LOADS			FORCES	LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION D
wind from 0 deg at 70 mph no ice

MAST LOADING

1410c.gou

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LOAD TYPE	ELEV FT	FORCES (KIP & KIP/FT)			MOMENTS (FY.K & FT.K/FT)			ANT-ORIENT	
		N	E	DOWN	N	E	TORSION	AZI DEG	VERT DEG
C	320.0	-0.234	0.000	0.060	0.00	0.00	0.00	0.0	0.00
C	320.0	-1.442	0.000	0.300	0.00	0.00	0.00	0.0	0.00
C	320.0	-0.312	0.000	0.800	0.00	0.00	0.00	0.0	0.00
C	320.0	-0.086	0.000	0.095	0.00	0.00	0.00	0.0	0.00
C	300.0	-0.442	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	300.0	-1.062	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	280.0	-0.439	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	280.0	-1.041	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	260.0	-0.430	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	260.0	-1.020	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	240.0	-0.420	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	240.0	-0.996	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	220.0	-0.410	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	220.0	-0.972	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	200.0	-0.764	0.481	0.447	-0.56	0.98	-1.92	120.0	0.00
C	200.0	-1.365	0.000	0.447	1.13	0.00	0.00	0.0	0.00
C	200.0	-0.045	0.000	0.200	0.00	0.00	0.00	0.0	0.00
C	190.0	-0.224	0.000	0.500	0.00	0.00	0.00	0.0	0.00
D	320.0	-0.052	0.000	0.042	0.00	0.00	0.00		
D	300.0	-0.051	0.000	0.042	0.00	0.00	0.00		
D	300.0	-0.067	0.000	0.059	0.00	0.00	0.00		
D	280.0	-0.066	0.000	0.059	0.00	0.00	0.00		
D	280.0	-0.084	0.000	0.069	0.00	0.00	0.00		
D	260.0	-0.083	0.000	0.069	0.00	0.00	0.00		
D	260.0	-0.100	0.000	0.075	0.00	0.00	0.00		
D	240.0	-0.097	0.000	0.075	0.00	0.00	0.00		
D	240.0	-0.119	0.000	0.081	0.00	0.00	0.00		
D	220.0	-0.116	0.000	0.081	0.00	0.00	0.00		
D	220.0	-0.155	0.000	0.095	0.00	0.00	0.00		
D	10.0	-0.091	0.000	0.095	0.00	0.00	0.00		
D	10.0	-0.018	0.000	0.042	0.00	0.00	0.00		
D	5.0	-0.018	0.000	0.042	0.00	0.00	0.00		
D	5.0	-0.018	0.000	0.043	0.00	0.00	0.00		
D	2.5	-0.018	0.000	0.043	0.00	0.00	0.00		
D	2.5	-0.015	0.000	0.041	0.00	0.00	0.00		
D	0.0	-0.015	0.000	0.041	0.00	0.00	0.00		

GUY LOADING

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.. WIND LOADING ..			TEMP	.ICE LOAD..		CONV	PROFILES.		.LOAD FACTORS.		
AZI	SPEED	REF	CHANGE	RAD	DENS	TOL	CAB	WIND	WIND	DEAD	ICE
DEG	MPH	PSSF	DEG	IN	PCF						
0.0	70.0	0.00	0.00	0.00	56.00	0.0100	2	1	1.00	1.00	1.00

CABLE PROFILE: 1 - CATENARY 2 - PARABOLIC

WIND PROFILE: 1 - EIA 222 F 2 - Kz = 1 ; Gh = 1

 3 - EIA 222 C 4 - Special Factors

 5 - Site Specific wind Formula

SUPPRESS PRINTING
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... FOR THIS LOADING... .. MAXIMUMS.....

INPUT LOADS	DISPL	INTRNL FORCES	MEMBER LOADS	ALL	DISPL	INTRNL FORCES	MEMBER LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION E

wind from 90 deg at 70 mph no ice

MAST LOADING

LOAD TYPE	ELEV FT	FORCES (KIP & KIP/FT)			MOMENTS (FT.K & FT.K/FT)			ANT-ORIENT	
		N	E	DOWN	N	E	TORSION	AZI DEG	VERT DEG
C	320.0	0.000	-0.234	0.060	0.00	0.00	0.00	0.0	0.00
C	320.0	0.000	-1.442	0.300	0.00	0.00	0.00	0.0	0.00
C	320.0	0.000	-0.312	0.800	0.00	0.00	0.00	0.0	0.00
C	320.0	0.000	-0.086	0.095	0.00	0.00	0.00	0.0	0.00
C	300.0	0.000	-0.447	1.325	0.00	0.00	0.00	0.0	0.00
C	300.0	0.000	-1.062	0.225	0.00	0.00	0.00	0.0	0.00
C	280.0	0.000	-0.439	1.325	0.00	0.00	0.00	0.0	0.00
C	280.0	0.000	-1.041	0.225	0.00	0.00	0.00	0.0	0.00
C	260.0	0.000	-0.430	1.325	0.00	0.00	0.00	0.0	0.00
C	260.0	0.000	-1.020	0.225	0.00	0.00	0.00	0.0	0.00
C	240.0	0.000	-0.420	1.325	0.00	0.00	0.00	0.0	0.00
C	240.0	0.000	-0.996	0.225	0.00	0.00	0.00	0.0	0.00
C	220.0	0.000	-0.410	1.325	0.00	0.00	0.00	0.0	0.00
C	220.0	0.000	-0.972	0.225	0.00	0.00	0.00	0.0	0.00
C	200.0	0.430	-1.250	0.447	-0.56	0.98	-0.20	120.0	0.00
C	200.0	0.136	-0.652	0.447	1.13	0.00	2.48	0.0	0.00
C	200.0	0.000	-0.045	0.200	0.00	0.00	0.00	0.0	0.00
C	190.0	0.000	-0.224	0.500	0.00	0.00	0.00	0.0	0.00
D	320.0	0.000	-0.052	0.042	0.00	0.00	0.00		
D	300.0	0.000	-0.051	0.042	0.00	0.00	0.00		
D	300.0	0.000	-0.068	0.059	0.00	0.00	0.00		
D	280.0	0.000	-0.067	0.059	0.00	0.00	0.00		
D	280.0	0.000	-0.085	0.069	0.00	0.00	0.00		
D	260.0	0.000	-0.083	0.069	0.00	0.00	0.00		
D	260.0	0.000	-0.100	0.075	0.00	0.00	0.00		
D	240.0	0.000	-0.098	0.075	0.00	0.00	0.00		
D	240.0	0.000	-0.119	0.081	0.00	0.00	0.00		
D	220.0	0.000	-0.117	0.081	0.00	0.00	0.00		
D	220.0	0.000	-0.156	0.095	0.00	0.00	0.00		
D	10.0	0.000	-0.091	0.095	0.00	0.00	0.00		
D	10.0	0.000	-0.019	0.042	0.00	0.00	0.00		
D	5.0	0.000	-0.019	0.042	0.00	0.00	0.00		
D	5.0	0.000	-0.018	0.043	0.00	0.00	0.00		
D	2.5	0.000	-0.018	0.043	0.00	0.00	0.00		
D	2.5	0.000	-0.015	0.041	0.00	0.00	0.00		

D 0.0 0.000 -0.015 0.041 0.00 0.00 0.00

GUY LOADING
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WIND LOADING		TEMP	ICE LOAD		CONV	PROFILES		LOAD FACTORS			
AZI	SPEED	REF	CHANGE	RAD	DENS	TOL	CAB	WIND	WIND	DEAD	ICE
DEG	MPH	PRESS	DEG	IN	PCF						
90.0	70.0	0.00	0.00	0.00	56.00	0.0100	2	1	1.00	1.00	1.00

CABLE PROFILE: 1 - CATENARY 2 - PARABOLIC
 WIND PROFILE: 1 - EIA 222 F 2 - Kz = 1 ; Gh = 1
 3 - EIA 222 C 4 - Special Factors
 5 - Site Specific wind Formula

SUPPRESS PRINTING
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...FOR THIS LOADING... MAXIMUMS.....

INPUT	DISPL	INTRNL	MEMBER	ALL	DISPL	INTRNL	MEMBER
LOADS		FORCES	LOADS			FORCES	LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION F

wind from 180 deg at 70 mph no ice

MAST LOADING
=====

LOAD TYPE	ELEV FT	FORCES (KIP & KIP/FT)			MOMENTS (FT.K & FT.K/FT)			ANT-ORIENT	
		N	E	DOWN	N	E	TORSION	AZI DEG	VERT DEG
C	320.0	0.234	0.000	0.060	0.00	0.00	0.00	0.0	0.00
C	320.0	1.442	0.000	0.300	0.00	0.00	0.00	0.0	0.00
C	320.0	0.312	0.000	0.800	0.00	0.00	0.00	0.0	0.00
C	320.0	0.086	0.000	0.095	0.00	0.00	0.00	0.0	0.00
C	300.0	0.447	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	300.0	1.062	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	280.0	0.439	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	280.0	1.041	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	260.0	0.430	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	260.0	1.020	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	240.0	0.420	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	240.0	0.996	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	220.0	0.410	0.000	1.325	0.00	0.00	0.00	0.0	0.00
C	220.0	0.972	0.000	0.225	0.00	0.00	0.00	0.0	0.00
C	200.0	0.845	-0.665	0.447	-0.56	0.98	0.94	120.0	0.00

1410c.gou

C	200.0	1.150	0.000	0.447	1.13	0.00	0.00	0.0	0.00
C	200.0	0.045	0.000	0.200	0.00	0.00	0.00	0.0	0.00
C	190.0	0.224	0.000	0.500	0.00	0.00	0.00	0.0	0.00
D	320.0	0.054	0.000	0.042	0.00	0.00	0.00		
D	300.0	0.053	0.000	0.042	0.00	0.00	0.00		
D	300.0	0.069	0.000	0.059	0.00	0.00	0.00		
D	280.0	0.068	0.000	0.059	0.00	0.00	0.00		
D	280.0	0.087	0.000	0.069	0.00	0.00	0.00		
D	260.0	0.085	0.000	0.069	0.00	0.00	0.00		
D	260.0	0.101	0.000	0.075	0.00	0.00	0.00		
D	240.0	0.100	0.000	0.075	0.00	0.00	0.00		
D	240.0	0.121	0.000	0.081	0.00	0.00	0.00		
D	220.0	0.118	0.000	0.081	0.00	0.00	0.00		
D	220.0	0.158	0.000	0.095	0.00	0.00	0.00		
D	10.0	0.092	0.000	0.095	0.00	0.00	0.00		
D	10.0	0.020	0.000	0.042	0.00	0.00	0.00		
D	5.0	0.020	0.000	0.042	0.00	0.00	0.00		
D	5.0	0.019	0.000	0.043	0.00	0.00	0.00		
D	2.5	0.019	0.000	0.043	0.00	0.00	0.00		
D	2.5	0.016	0.000	0.041	0.00	0.00	0.00		
D	0.0	0.036	0.000	0.041	0.00	0.00	0.00		

GUY LOADING

.. WIND LOADING ..	TEMP	ICE LOAD..	CONV	PROFILES.	LOAD FACTORS.
AZI SPEED REF	CHANGE	RAD DENS	TOL	CAS WIND	WIND DEAD ICE
DEG MPH PSF	DEG	IN PCF			
180.0	70.0	0.00	0.00	56.00 0.0100	2 1 1.00 1.00 1.00

CABLE PROFILE: 1 - CATENARY 2 - PARABOLIC
WIND PROFILE: 1 - EIA 222 F 2 - Kz = 1 ; Gh = 1
 3 - EIA 222 C 4 - Special Factors
 5 - Site Specific Wind Formula

SUPPRESS PRINTING

...FOR THIS LOADING... MAXIMUMS.....

INPUT	DISPL	INTRNL	MEMBER	ALL	DISPL	INTRNL	MEMBER
LOADS		FORCES	LOADS			FORCES	LOADS

no	yes	yes	yes	no	no	no	no
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GUYMAST (USA)-Guyed Tower Analysis (c)1997 Guymast Inc. 416-736-7453
Processed under license at:

Hemphill Corporation on: 12 sep 2005 at: 21:16:47

Hemphill Corporation - white plains, KY - 320' M42 @ 70 MPH 1/2" ice @ 1410b

LOADING CONDITION A ===== 6 iterations =====
wind from 0 deg at 60.6 mph 1/2" ice

LOADING CONDITION B ===== 8 iterations =====
wind from 90 deg at 60.6 mph 1/2" ice

LOADING CONDITION C ===== 5 iterations =====
wind from 180 deg at 60.6 mph 1/2" ice

LOADING CONDITION D ===== 5 iterations =====
wind from 0 deg at 70 mph no ice

LOADING CONDITION E ===== 8 iterations =====
wind from 90 deg at 70 mph no ice

LOADING CONDITION F ===== 5 iterations =====
wind from 180 deg at 70 mph no ice

=====

GUYMAST (USA)-Guyed Tower Analysis (c)1997 Guymast Inc. 416-736-7453
Processed under license at:

Hemphill Corporation on: 12 sep 2005 at: 21:16:47

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Hemphill Corporation - white plains, KY - 320' M42 = 70 MPH 1/2" ice * 1410b

MAXIMUM LEG LOADS AND FACE SHEARS (KIP - stress in KSI)

=====

MAST ELEV FT	MAX LEG LOADS					MAX FACE SHEARS		
	AXIAL	BENDING TENS	COMP	TOTAL TENS	COMP	TORSN	BEAM	TOTAL
320.00	0.7A	0.0F	0.0F	0.0A	0.7A	0.0A	1.4E	1.4E

		1410c.gou						
315.00	0.9A	3.6D	3.6F	3.1D	4.1F	0.0A	1.6E	1.6E
	0.9A	3.6D	3.6F	3.1D	4.1F	0.0A	1.6E	1.6E
310.00	1.0A	7.7D	7.7F	7.1D	8.3F	0.0A	1.7E	1.7E
	10.2B	1.3B	1.3A	0.0A	11.3B	0.0D	-2.8B	2.8B
300.00	10.5B	13.4B	14.6A	3.6F	23.9A	0.0D	-2.5B	2.5B
	11.2B	13.4B	14.6A	3.1F	24.7A	0.0D	-1.5B	1.5B
280.00	12.0B	22.8B	24.3A	11.4F	35.1A	0.0D	-0.5B	0.5B
	12.7B	22.8B	24.3A	10.9F	35.9A	0.0D	0.7E	0.7E
260.00	13.6B	12.2B	11.1A	0.0A	23.6A	0.0D	2.0B	2.1B
	14.4B	12.2B	11.1A	0.0A	24.3A	0.0D	3.0B	3.0B
250.00	14.9B	9.1D	5.8F	0.0A	18.0B	0.0D	3.9B	3.9B
	23.6B	5.1B	2.9A	0.0A	26.4B	-0.1D	-2.6E	2.5E
240.00	24.1B	13.8F	14.5A	0.0A	36.3A	-0.1D	-1.9E	1.9D
	24.9B	13.8F	14.5A	0.0A	37.0A	-0.1D	-1.0D	1.1D
220.00	26.0B	15.3F	15.1D	0.0A	38.2A	-0.1D	1.2B	1.2B
	26.7B	15.3F	15.1D	0.0A	38.9A	-0.1D	2.0B	2.1B
200.00	28.0B	13.0B	17.5B	0.0A	45.5B	-0.1D	3.8B	3.9B
	28.7B	12.6B	16.8B	0.0A	45.4B	-0.7E	4.9E	4.9D
190.00	29.3B	37.9A	39.3B	16.4D	68.6B	-0.7E	5.8E	5.7D
	38.8B	29.1A	30.9B	0.9D	69.7B	-0.2E	-3.2E	3.4E
180.00	39.4B	18.3A	21.4B	0.0A	60.7B	-0.2E	-2.2E	2.4E
	39.4B	18.3A	21.4B	0.0A	60.7B	-0.2E	-2.2E	2.4E
160.00	40.6B	8.5B	11.7B	0.0A	52.4B	-0.2E	-0.3F	0.5E
	40.6B	8.5B	11.7B	0.0A	52.4B	-0.2E	-0.3F	0.5E
140.00	41.9B	13.2A	14.9B	0.0A	56.8B	-0.2E	1.5E	1.6D
	41.9B	13.2A	14.9B	0.0A	56.8B	-0.2E	1.5E	1.6D
130.00	42.5B	21.2A	21.1B	0.0A	63.6B	-0.2E	2.3E	2.3D
	45.8B	17.9A	18.2B	0.0A	64.1B	-0.2E	-3.0E	3.2E
120.00	46.5B	6.2A	7.5B	0.0A	54.0B	-0.2E	-2.1E	2.3E
	46.5B	6.2A	7.5B	0.0A	54.0B	-0.2E	-2.1E	2.3E
100.00	47.7B	13.6F	9.5E	0.0A	53.6B	-0.2E	-0.6B	0.8B
	47.7B	13.6F	9.5E	0.0A	53.6B	-0.2E	-0.6B	0.8B

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80.00	49.0B	11.5F	6.5E	0.0A	53.8B	-0.2E	1.0E	1.1D
	49.0B	11.5F	6.5E	0.0A	53.8B	-0.2E	1.0E	1.1D
70.00	49.6B	4.4F	3.1E	0.0A	50.3B	-0.2E	1.8E	1.8D
	51.2B	5.9F	3.2F	0.0A	52.2B	-0.2B	-2.3E	2.5E
60.00	51.8B	16.5F	10.6E	0.0A	61.5B	-0.2B	-1.5E	1.7E
	51.8B	16.5F	10.6E	0.0A	61.5B	-0.2B	-1.5E	1.7E
40.00	53.1B	25.9F	20.8D	0.0A	71.1B	-0.2B	-0.2D	0.4B
	53.1B	25.9F	20.8D	0.0A	71.1B	-0.2B	-0.2D	0.4B
35.00	53.4B	25.7F	21.1D	0.0A	71.5B	-0.2B	0.2F	0.4E
	53.4B	25.7F	21.1D	0.0A	71.5B	-0.2B	0.2F	0.4E
20.00	54.3B	19.5F	16.6D	0.0A	68.5B	-0.2B	1.1E	1.1F
	54.3B	19.5F	16.6D	0.0A	68.5B	-0.2B	1.1E	1.1F
10.00	55.0B	10.8F	9.3D	0.0A	62.9B	-0.2B	1.7E	1.6F
	55.0B	10.8F	9.3D	0.0A	62.9B	-0.2B	1.7E	1.6F
5.00	55.1B	5.5F	4.7D	0.0A	59.1B	-0.2B	1.8E	1.7F
	55.1B	7.5F	6.4D	0.0A	60.5B	-0.3B	1.8E	1.7F
2.50	55.1B	3.8F	3.2D	0.0A	57.9B	-0.3B	1.8E	1.7F
	55.1B	3.8F	3.2D	0.0A	57.9B	-0.3B	1.8E	1.7F
0.00	55.2B	0.0C	0.0E	0.0A	55.2B	-0.3B	1.9E	1.8F

MAXIMUM MAST DEFORMATION CALCULATED

MAST ELEV FT	DEFLECTIONS (FT)				ROTATIONS (DEG)			
	NORTH	EAST	TOTAL	DOWN	NORTH	EAST	TOTAL	TWIST
320.0	2.26F	-2.25B	2.34B	0.12B	-0.12B	-0.15B	0.19B	0.34E
315.0	2.26F	-2.24B	2.32B	0.12B	-0.12B	-0.14B	0.19B	0.34E
310.0	2.25F	-2.23B	2.31B	0.12B	-0.12B	-0.13B	0.18B	0.34E
300.0	2.24F	-2.20B	2.28B	0.12B	-0.13B	-0.18B	0.22B	0.34E
280.0	2.18F	-2.11B	2.18F	0.11B	0.25C	-0.36B	0.39B	0.34E
260.0	2.07F	-1.95B	2.07F	0.11B	0.39F	-0.54B	0.56B	0.35E
250.0	2.00F	-1.86B	2.00F	0.10B	0.40F	-0.56B	0.59B	0.35E

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240.0	1.93F	-1.76B	2.93F	0.10B	0.42F	-0.58B	0.61B	0.36E
220.0	1.76F	-1.53B	1.76F	0.09B	0.56F	-0.71B	0.73B	0.37E
200.0	1.55F	-1.28B	1.55F	0.09B	0.58F	-0.70B	0.72B	0.38E
190.0	1.46F	-1.17E	1.46F	0.08B	0.49F	-0.58B	0.60B	0.32E
180.0	1.38F	-1.11E	1.38F	0.08B	0.41F	-0.49B	0.51B	0.30E
160.0	1.25F	-1.00E	1.25F	0.07B	0.35F	-0.39B	0.40B	0.27E
140.0	1.14F	-0.91E	1.14F	0.06B	0.31F	-0.31B	0.32B	0.24E
130.0	1.08F	-0.87E	1.08F	0.06B	0.27F	-0.24B	0.27F	0.22B
120.0	1.04F	-0.84E	1.04F	0.06B	0.24F	-0.20B	0.24F	0.21B
100.0	0.95F	-0.77E	0.95F	0.05B	0.29F	-0.22E	0.29F	0.18B
80.0	0.83F	-0.68E	0.83F	0.04B	0.38F	-0.30E	0.38F	0.14B
70.0	0.76F	-0.62E	0.76F	0.03B	0.40F	-0.32E	0.40F	0.13B
60.0	0.69F	-0.57E	0.69F	0.03B	0.45F	-0.35E	0.45F	0.11B
40.0	0.51F	-0.42E	0.51F	0.02B	0.59F	-0.48E	0.59F	0.08B
35.0	0.46F	-0.38E	0.46F	0.02B	0.63F	-0.52E	0.63F	0.07B
20.0	0.28F	-0.23E	0.28F	0.01B	0.75F	-0.62E	0.75F	0.04B
10.0	0.14F	-0.12E	0.14F	0.00B	0.80F	-0.67E	0.80F	0.03B
5.0	0.07F	-0.06E	0.07F	0.00B	0.81F	-0.68E	0.81F	0.02B
2.5	0.04F	-0.03E	0.04F	0.00B	0.82F	-0.69E	0.82F	0.01B
0.0	0.00A	0.00A	0.00A	0.00A	0.82F	-0.69E	0.82F	0.00A

MAXIMUM ANTENNA ROTATIONS

ELEV FT	ORIENTATION		BEAM DEFLECTIONS (DEG)			
	AZI DEG	ELEV DEG	ROLL	YAW	PITCH	TOTAL
320.0	0.0	0.0	0.149 B	0.338 E	0.124 B	0.354 B
320.0	0.0	0.0	0.149 B	0.338 E	0.124 B	0.354 B
320.0	0.0	0.0	0.149 B	0.338 E	0.124 B	0.354 B
320.0	0.0	0.0	0.149 B	0.338 E	0.124 B	0.354 B
300.0	0.0	0.0	0.177 B	0.340 E	0.128 B	0.357 B
300.0	0.0	0.0	0.177 B	0.340 E	0.128 B	0.357 B
280.0	0.0	0.0	0.360 B	0.345 E	-0.246 C	0.364 B
280.0	0.0	0.0	0.360 B	0.345 E	-0.246 C	0.364 B
260.0	0.0	0.0	0.535 B	0.349 E	-0.387 F	0.401 A
260.0	0.0	0.0	0.535 B	0.349 E	-0.387 F	0.401 A

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240.0	0.0	0.0	0.583 B	0.357 E	-0.421 F	0.438 A
240.0	0.0	0.0	0.583 B	0.357 E	-0.421 F	0.438 A
220.0	0.0	0.0	0.712 B	0.368 E	-0.559 F	0.571 A
220.0	0.0	0.0	0.712 B	0.368 E	-0.559 F	0.571 A
200.0	120.0	0.0	0.504 F	0.377 E	0.531 B	0.639 B
200.0	0.0	0.0	0.704 B	0.379 E	-0.584 F	0.593 F
200.0	0.0	0.0	0.704 B	0.379 E	-0.584 F	0.593 F
190.0	0.0	0.0	0.583 B	0.322 E	-0.485 F	0.492 F

MAXIMUM INTERNAL MAST FORCES
 =====

MAST ELEV FT	TOTAL AXIAL KIP	SHEAR		MOMENT		TORSION FT-KIP
		N - S KIP	E - W KIP	N - S FT-KIP	E - W FT-KIP	
320.0	2.18 A	2.07 F	-2.07 E	0.00 F	0.00 E	0.00 A
315.0	2.57 A	2.34 F	-2.34 E	-11.05 F	11.02 E	0.00 A
	2.57 A	2.34 F	-2.34 E	-11.05 F	11.02 E	0.00 A
	2.97 A	2.61 F	-2.59 E	-23.44 F	23.35 E	0.00 A
310.0	27.65 B	6.89 A	7.06 B	-25.54 A	-25.80 B	0.10 D
	30.62 B	4.15 A	4.24 B	-4.04 A	-4.28 B	0.10 D
300.0	31.41 B	3.62 A	3.71 B	-44.13 A	-45.44 B	0.10 D
	33.68 B	2.21 A	2.29 B	-44.13 A	-45.44 B	0.10 D
280.0	35.91 B	0.64 A	0.72 B	-73.64 A	-76.77 B	0.10 D
	38.17 B	-1.04 D	-0.98 E	-73.64 A	-76.77 B	0.10 D
260.0	40.86 B	-3.14 A	-3.07 B	-33.51 A	-37.96 B	0.10 D
	43.13 B	-4.50 A	-4.43 B	-33.51 A	-37.96 B	0.10 D
	44.63 B	-5.90 A	-5.83 B	27.50 D	23.86 E	0.10 D
250.0	26.24 B	10.24 A	9.93 B	-28.42 A	-27.48 B	0.13 D
	70.87 B	4.09 D	3.87 E	-8.83 A	-12.85 B	0.24 D
240.0	72.37 B	3.11 D	2.89 E	-43.83 A	-44.11 B	0.24 D
	74.63 B	1.70 D	1.47 E	-43.83 A	-44.11 B	0.24 D

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220.0	77.94 B	-1.38 A	-3.75 B	46.52 F	-42.04 E	0.24 D
	80.20 B	-2.68 A	-3.05 B	46.52 F	-42.04 E	0.24 D
200.0	83.99 B	5.46 F	-5.76 B	38.65 A	53.40 B	0.24 D
	86.09 B	7.50 F	-7.28 E	37.45 A	51.33 B	2.08 E
	87.98 B	9.00 F	-8.76 E	-117.09 F	130.44 B	2.08 E
190.0	28.01 F	-13.92 F	13.50 E	-26.73 D	-28.69 B	-1.74 E
	116.25 B	-4.84 F	4.76 E	-91.40 F	101.74 B	0.64 E
180.0	118.15 B	-3.38 F	3.30 E	55.37 A	68.40 B	0.64 E
	118.15 B	-3.38 F	3.30 E	55.37 A	68.40 B	0.64 E
160.0	121.94 B	-0.54 F	0.49 E	24.44 A	35.41 B	0.64 E
	121.94 B	-0.54 F	0.49 E	24.44 A	35.41 B	0.64 E
140.0	125.73 B	-2.35 D	-2.19 E	39.94 A	47.65 B	0.64 E
	125.73 B	-2.35 D	-2.19 E	39.94 A	47.65 B	0.64 E
	127.62 B	-3.64 D	-3.49 E	64.18 A	69.89 B	0.64 E
130.0	11.21 F	-8.14 F	7.90 E	10.98 F	-10.70 E	0.07 D
	137.53 B	-4.66 F	4.46 E	54.18 A	60.01 B	0.60 E
120.0	139.43 B	-3.39 F	3.20 E	18.68 A	23.11 B	0.60 E
	139.43 B	-3.39 F	3.20 E	18.68 A	23.11 B	0.60 E
100.0	143.22 B	-0.92 F	0.96 B	41.12 F	-36.56 E	0.60 E
	143.22 B	-0.92 F	0.96 B	41.12 F	-36.56 E	0.60 E
80.0	147.01 B	-1.69 D	-1.55 E	34.82 F	-27.46 E	0.60 E
	147.01 B	-1.69 D	-1.55 E	34.82 F	-27.46 E	0.60 E
	148.90 B	-2.80 D	-2.66 E	13.20 F	-4.93 E	0.60 E
70.0	5.01 F	6.65 D	6.56 E	-4.83 D	-4.76 E	0.07 B
	153.55 B	3.54 D	3.39 E	17.92 F	-9.68 E	0.65 B
60.0	155.45 B	2.46 D	2.31 E	50.06 F	-41.89 E	0.65 B
	155.45 B	2.46 D	2.31 E	50.06 F	-41.89 E	0.65 B
40.0	159.24 B	0.40 D	0.27 B	78.45 F	-71.57 E	0.65 B
	159.24 B	0.40 D	0.27 B	78.45 F	-71.57 E	0.65 B
35.0	160.19 B	0.37 F	-0.25 E	77.99 F	-71.68 E	0.65 B

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	160.19 B	0.37 F	-0.25 E	77.99 F	-71.68 E	0.65 B
20.0	163.03 B	1.83 F	-1.70 E	59.14 F	-55.11 E	0.65 B
	163.03 B	1.83 F	-1.70 E	59.14 F	-55.11 E	0.65 B
10.0	164.92 B	2.77 F	-2.62 E	32.79 F	-30.67 E	0.65 B
	164.92 B	2.77 F	-2.62 E	32.79 F	-30.67 E	0.65 B
5.0	165.22 B	2.87 F	-2.72 E	16.70 F	-15.61 E	0.65 B
	165.22 B	2.86 F	-2.72 E	16.70 F	-15.61 E	0.65 B
2.5	165.37 B	2.91 F	-2.76 E	8.41 F	-7.87 E	0.65 B
	165.37 B	2.91 F	-2.76 E	8.41 F	-7.87 E	0.65 B
	165.50 B	2.95 F	-2.80 E	0.00 C	0.00 E	0.65 B
base	165.50 B	2.11 D	1.86 E	0.00 F	0.00 E	-0.65 B

* VERTICAL GUY LOAD & GUY ECCENTRIC MOMENT
+ HORIZONTAL REACTION @ TORSIONAL RESISTANCE

MAXIMUM GUY FORCES AT MAST
=====

GUY LEVEL FT	GUY AZICOMPONENTS AT MAST.....				FACTOR OF SAFETY	...GUY ANGLES...	
		N KIP	E KIP	DOWN KIP	TOTAL KIP		VERT	HORIZ
310.0	0.0	10.1A	-0.4B	16.5A	19.4A	2.19A	-58.6A	-3.9B
	120.0	-5.2B	8.7B	16.5B	19.3B	2.19B	-58.6B	8.5A
	240.0	-3.7F	-6.7F	12.2F	14.4F	2.95F	-58.0C	9.0B
250.0	0.0	13.0A	-0.3B	16.9A	21.4A	1.98A	-52.4A	-2.9B
	120.0	-6.5B	11.2B	16.8B	21.2B	2.00B	-52.4B	7.8A
	240.0	-4.8F	-8.5F	12.5F	15.8F	2.68F	-52.1C	9.5B
190.0	0.0	8.7A	-0.3B	8.7A	12.3A	2.19A	-47.1C	-3.1B
	120.0	-4.5B	7.6B	8.7B	12.4B	2.17B	-44.8B	6.8A
	120.0	-4.2B	7.2B	8.3B	11.8B	2.28B	-44.9B	6.5A
	240.0	-3.4F	-6.0F	6.7F	9.6F	2.80F	-44.4C	8.3B
	240.0	-3.5F	-6.2F	7.0F	10.0F	2.69F	-44.3C	8.6B
	0.0	8.6A	-0.3B	8.5A	12.1A	2.22A	-47.1C	-3.2B
130.0	0.0	9.3A	-0.2B	6.3A	11.2A	2.39A	-39.8F	-2.4B
	120.0	-4.8E	8.2E	6.3E	11.4E	2.36E	-34.6A	4.9A
	240.0	-4.1F	-7.2F	5.5F	9.9F	2.70F	-36.3E	6.8E
70.0	0.0	7.8A	-0.1B	2.9A	8.3A	2.50A	-26.6F	-2.1B
	120.0	-4.0E	6.9E	2.8E	8.4E	2.47E	-21.6A	3.7A
	240.0	-3.4F	-5.9F	2.5F	7.2F	2.87F	-24.7E	3.9E

MAXIMUM GUY FORCES AT ANCHOR

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GUY LEVEL FT	GUY AZICOMPONENTS AT ANCHOR.....				TOTAL KIP	FACTOR OF SAFETY
		RAD KIP	LAT KIP	VERT KIP			
310.0	0.0	10.6A	0.5B	15.6A	18.9A	2.24A	
	120.0	10.6B	-0.4A	15.6B	18.9B	2.24B	
	240.0	7.8F	0.4A	11.8F	14.2F	3.00F	
250.0	0.0	13.4A	0.4B	16.2A	21.0A	2.02A	
	120.0	13.3B	-0.3A	16.1B	20.9B	2.03B	
	240.0	9.9F	0.3A	12.1F	15.6F	2.71F	
190.0	0.0	8.9A	0.2B	8.2A	12.1A	2.22A	
	120.0	9.0B	0.2F	8.2B	12.2B	2.21B	
	120.0	8.3B	-0.3B	7.8B	11.6B	2.32B	
	240.0	6.9F	0.3A	6.5F	9.5F	2.83F	
	240.0	7.2F	-0.2F	6.8F	9.9F	2.72F	
	0.0	8.8A	0.4B	8.1A	11.9A	2.26A	
130.0	0.0	9.4A	0.2B	5.9A	11.1A	2.42A	
	120.0	9.5E	-0.2A	6.1E	11.4E	2.37E	
	240.0	8.3F	0.2A	5.4F	9.9F	2.72F	
70.0	0.0	7.8A	0.2B	2.6A	8.3A	2.51A	
	120.0	7.9E	-0.1A	2.7E	8.4E	2.48E	
	240.0	6.8F	0.1A	2.4F	7.2F	2.88F	

MAXIMUM ANCHOR LOADS

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AZI DEG	RADIUS FT	GUY TO ELEV FTANCHOR LOADS.....		SHAFT FORCES.....			ANGLE DEG
			HORIZ KIP	VERT KIP	LATER- AL KIP	AXIAL KIP	...LATERAL... VERT PLANE KIP	HORIZ PLANE KIP	
0.0	200.0	310.0	10.6A	15.6A	0.5B	18.5A	3.9A	0.5B	
		250.0	13.4A	16.2A	0.4B	20.9A	2.4A	0.4B	
		190.0	8.8A	8.1A	0.3B	11.9A	-0.3A	0.3B	
		190.0	8.9A	8.2A	0.3B	12.1A	-0.3A	0.3B	
		130.0	9.4A	5.9A	0.2B	10.9A	-2.2A	0.2B	
		70.0	7.8A	2.6A	0.2B	7.5A	-3.5A	0.2B	
			59.0A	56.6A	1.8B	81.8A	0.0A	1.8B	43.8A
120.0	200.0	310.0	10.6B	15.6B	-0.4A	18.5B	3.9B	-0.4A	
		250.0	13.3B	16.1B	-0.3A	20.7B	2.3B	-0.3A	
		190.0	8.6B	7.8B	-0.2A	11.6B	-0.3B	-0.2A	
		190.0	9.0B	8.2B	-0.2A	12.2B	-0.3B	-0.2A	
		130.0	9.5E	6.1E	-0.2A	11.1E	-2.2B	-0.2A	
		70.0	7.9E	2.7E	-0.1A	7.6E	-3.5E	-0.1A	

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 58.2B 56.1B -1.5A 80.8B 0.0E -1.5A 44.0B

240.0	200.0	310.0	7.8F	11.8F	0.4A	13.8F	3.1F	0.4A
		250.0	9.9F	12.1F	0.3A	15.5F	2.0F	0.3A
		190.0	7.2F	6.8F	0.2A	9.9F	-0.1C	0.2A
		190.0	6.9F	6.5F	0.2A	9.5F	-0.1C	0.2A
		130.0	8.3F	5.4F	0.2A	9.7F	-1.9F	0.2A
		70.0	6.8F	2.4F	0.1A	6.6F	-3.0F	0.1A
			-----	-----	-----	-----	-----	-----
			46.9F	44.9F	1.5A	65.0F	0.0C	1.5A 43.7F

ORIGINAL DATA FILE :

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Memphill Corporation - white plains, KY - 320' M42 * 70 MPH 1/2" ice * 1410b

MAST DATA

5.0	4	3	2.574	2.50	3.02	0.62	0.042	29000.0	0.0000116	0.0
20.0	4	3	3.50	2.50	3.02	0.62	0.077	29000.0	0.0000116	0.0
40.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
60.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
80.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
100.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
120.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
140.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
160.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
180.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
200.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
220.0	4	3	3.50	2.50	3.02	0.62	0.095	29000.0	0.0000116	0.0
240.0	4	3	3.50	2.50	2.26	0.62	0.081	29000.0	0.0000116	0.0
260.0	4	3	3.50	2.50	2.26	0.62	0.075	29000.0	0.0000116	0.0
280.0	4	3	3.50	2.50	2.26	0.62	0.069	29000.0	0.0000116	0.0
300.0	4	3	3.50	2.50	2.26	0.62	0.059	29000.0	0.0000116	0.0
320.0	4	3	3.50	2.50	1.48	0.62	0.042	29000.0	0.0000116	0.0

GUY GEOMETRY

70	0	0.4375	70	200	2.02	0	2.08	2	120	120
130	0	0.5	130	200	2.02	0	2.69	2	120	120
190	0	0.5	190	200	4.04	300	2.69	2	120	120
190	0	0.5	190	200	4.04	60	2.69	2	120	120
250	0	0.625	250	200	2.02	0	4.24	2	120	120
310	0	0.625	310	200	2.02	0	4.24	2	120	120

GUY MATERIAL PROPERTIES

70	0	20.8	0.399	0.149	21000	11.6e-6	0	2	120
130	0	26.9	0.517	0.192	21000	11.6e-6	0	2	120
190	0	26.9	0.517	0.192	21000	11.6e-6	0	2	120
190	0	26.9	0.517	0.192	21000	11.6e-6	0	2	120
250	0	42.4	0.813	0.303	21000	11.6e-6	0	2	120
310	0	42.4	0.813	0.303	21000	11.6e-6	0	2	120

wind from 0 deg at 60.6 mph 1/2" ice

MAST LOADING

0	320.	-0.0535	0.	0.0794	0.	0.	0.
0	300.	-0.0526	0.	0.0794	0.	0.	0.
0	300.	-0.0791	0.	0.1113	0.	0.	0.

D	280.	-0.0777	0.	0.1113	0.	0.	0.													
D	280.	-0.1208	0.	0.1344	0.	0.	0.													
D	260.	-0.1186	0.	0.1344	0.	0.	0.													
D	260.	-0.1403	0.	0.1498	0.	0.	0.													
D	240.	-0.1375	0.	0.1498	0.	0.	0.													
D	240.	-0.1371	0.	0.1652	0.	0.	0.													
D	220.	-0.1342	0.	0.1652	0.	0.	0.													
D	220.	-0.1385	0.	0.1895	0.	0.	0.													
D	10.	-0.0807	0.	0.1895	0.	0.	0.													
D	10.	-0.0171	0.	0.0586	0.	0.	0.													
D	5.	-0.0171	0.	0.0586	0.	0.	0.													
D	5.	-0.0164	0.	0.0589	0.	0.	0.													
D	2.5	-0.0164	0.	0.0589	0.	0.	0.													
D	2.5	-0.0142	0.	0.0551	0.	0.	0.													
D	0.	-0.0142	0.	0.0551	0.	0.	0.													
C	320.	-0.0644	0.	0.095	0.	0.	0.													
C	320.	-0.2318	0.	0.126	0.	0.	0.													
C	320.	-1.2457	0.	0.756	0.	0.	0.													
C	320.	-0.3415	0.	1.2	0.	0.	0.													
C	300.	-0.9172	0.	0.567	0.	0.	0.													
C	300.	-0.4988	0.	1.7	0.	0.	0.													
C	280.	-0.8993	0.	0.567	0.	0.	0.													
C	280.	-0.4891	0.	1.7	0.	0.	0.													
C	260.	-0.8804	0.	0.567	0.	0.	0.													
C	260.	-0.4788	0.	1.7	0.	0.	0.													
C	240.	-0.8605	0.	0.567	0.	0.	0.													
C	240.	-0.468	0.	1.7	0.	0.	0.													
C	220.	-0.8394	0.	0.567	0.	0.	0.													
C	220.	-0.4565	0.	1.7	0.	0.	0.													
C	200.	-0.0341	0.	0.2	0.	0.	0.													
C	190.	-0.2017	0.	0.7	0.	0.	0.													
C	200.00	-0.584	0.368	0.947	-1.19	2.07	-1.47	120.00												
C	200.00	-1.044	0.000	0.947	2.39	0.00	0.00	0.00												

GUY LOADING

0, 60.6 0. -10. 0.5 56. 0.01 2 1 1.00 1.00 1.00
 wind from 90 deg at 60.6 mph 1/2" ice

MAST LOADING

D	320.	0.	-0.0539	0.0794	0.	0.	0.													
D	300.	0.	-0.053	0.0794	0.	0.	0.													
D	300.	0.	-0.0795	0.1113	0.	0.	0.													
D	280.	0.	-0.0781	0.1113	0.	0.	0.													
D	280.	0.	-0.1212	0.1344	0.	0.	0.													
D	260.	0.	-0.119	0.1344	0.	0.	0.													
D	260.	0.	-0.1403	0.1498	0.	0.	0.													
D	240.	0.	-0.1375	0.1498	0.	0.	0.													
D	240.	0.	-0.1371	0.1652	0.	0.	0.													
D	220.	0.	-0.1342	0.1652	0.	0.	0.													
D	220.	0.	-0.1385	0.1895	0.	0.	0.													
D	10.	0.	-0.0807	0.1895	0.	0.	0.													
D	10.	0.	-0.0173	0.0586	0.	0.	0.													
D	5.	0.	-0.0173	0.0586	0.	0.	0.													
D	5.	0.	-0.0166	0.0589	0.	0.	0.													
D	2.5	0.	-0.0166	0.0589	0.	0.	0.													
D	2.5	0.	-0.0143	0.0551	0.	0.	0.													
D	0.	0.	-0.0143	0.0551	0.	0.	0.													
C	320.	0.	-0.0644	0.095	0.	0.	0.													
C	320.	0.	-0.2318	0.126	0.	0.	0.													
C	320.	0.	-1.2457	0.756	0.	0.	0.													
C	320.	0.	-0.3415	1.2	0.	0.	0.													
C	300.	0.	-0.9172	0.567	0.	0.	0.													
C	300.	0.	-0.4988	1.7	0.	0.	0.													
C	280.	0.	-0.8993	0.567	0.	0.	0.													
C	280.	0.	-0.4891	1.7	0.	0.	0.													

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C	260.	0.	-0.8804	0.567	0.	0.	0.													
C	260.	0.	-0.4788	1.7	0.	0.	0.													
C	240.	0.	-0.8605	0.567	0.	0.	0.													
C	240.	0.	-0.468	1.7	0.	0.	0.													
C	220.	0.	-0.8394	0.567	0.	0.	0.													
C	220.	0.	-0.4565	1.7	0.	0.	0.													
C	200.	0.	-0.0341	0.2	0.	0.	0.													
C	190.	0.	-0.2017	0.7	0.	0.	0.													
C	200.00		0.329	-0.956	0.947	-1.19	2.07	-0.16	120.00											
C	200.00		0.104	-0.499	0.947	2.39	0.00	1.90	0.00											

GUY LOADING

90. 60.6 0. -10. 0.5 56. 0.01 2 1 1.00 1.00 1.00
wind from 180 deg at 60.6 mph 1/2" ice

MAST LOADING

D	320.	0.0406	0.	0.042	0.	0.	0.													
D	300.	0.0399	0.	0.042	0.	0.	0.													
D	300.	0.052	0.	0.0593	0.	0.	0.													
D	280.	0.0511	0.	0.0593	0.	0.	0.													
D	280.	0.0649	0.	0.0687	0.	0.	0.													
D	260.	0.0637	0.	0.0687	0.	0.	0.													
D	260.	0.0761	0.	0.0749	0.	0.	0.													
D	240.	0.0746	0.	0.0749	0.	0.	0.													
D	240.	0.0907	0.	0.0812	0.	0.	0.													
D	220.	0.0887	0.	0.0812	0.	0.	0.													
D	220.	0.1181	0.	0.0951	0.	0.	0.													
D	10.	0.0688	0.	0.0951	0.	0.	0.													
D	10.	0.015	0.	0.0421	0.	0.	0.													
D	5.	0.015	0.	0.0421	0.	0.	0.													
D	5.	0.0142	0.	0.0428	0.	0.	0.													
D	2.5	0.0142	0.	0.0428	0.	0.	0.													
D	2.5	0.0117	0.	0.0408	0.	0.	0.													
D	0.	0.0117	0.	0.0408	0.	0.	0.													
C	320.	0.0644	0.	0.095	0.	0.	0.													
C	320.	0.2318	0.	0.126	0.	0.	0.													
C	320.	1.2457	0.	0.756	0.	0.	0.													
C	320.	0.3415	0.	1.2	0.	0.	0.													
C	300.	0.9172	0.	0.567	0.	0.	0.													
C	300.	0.4988	0.	1.7	0.	0.	0.													
C	280.	0.8993	0.	0.567	0.	0.	0.													
C	280.	0.4891	0.	1.7	0.	0.	0.													
C	260.	0.8804	0.	0.567	0.	0.	0.													
C	260.	0.4788	0.	1.7	0.	0.	0.													
C	240.	0.8605	0.	0.567	0.	0.	0.													
C	240.	0.468	0.	1.7	0.	0.	0.													
C	220.	0.8394	0.	0.567	0.	0.	0.													
C	220.	0.4565	0.	1.7	0.	0.	0.													
C	200.	0.0341	0.	0.2	0.	0.	0.													
C	190.	0.2017	0.	0.7	0.	0.	0.													
C	200.00		0.633	-0.498	0.447	-0.56	0.98	0.71	120.00											
C	200.00		0.862	0.000	0.447	1.13	0.00	0.00	0.00											

GUY LOADING

180. 60.6 0. 0. 0. 56. 0.01 2 1 1.00 1.00 1.00
wind from 0 deg at 70 mph no ice

MAST LOADING

D	320.	-0.0516	0.	0.042	0.	0.	0.													
D	300.	-0.0507	0.	0.042	0.	0.	0.													
D	300.	-0.0671	0.	0.0593	0.	0.	0.													
D	280.	-0.066	0.	0.0593	0.	0.	0.													
D	280.	-0.0845	0.	0.0687	0.	0.	0.													
D	260.	-0.0829	0.	0.0687	0.	0.	0.													
D	260.	-0.0995	0.	0.0749	0.	0.	0.													
D	240.	-0.0975	0.	0.0749	0.	0.	0.													
D	240.	-0.1189	0.	0.0812	0.	0.	0.													

D	220.	-0.1164	0.	0.0812	0.	0.	0.													
D	220.	-0.1555	0.	0.0951	0.	0.	0.													
D	10.	-0.0906	0.	0.0951	0.	0.	0.													
D	10.	-0.0184	0.	0.0421	0.	0.	0.													
D	5.	-0.0184	0.	0.0421	0.	0.	0.													
D	5.	-0.0176	0.	0.0428	0.	0.	0.													
D	2.5	-0.0176	0.	0.0428	0.	0.	0.													
D	2.5	-0.0148	0.	0.0408	0.	0.	0.													
D	0.	-0.0148	0.	0.0408	0.	0.	0.													
C	320.	-0.0859	0.	0.095	0.	0.	0.													
C	320.	-0.2341	0.	0.06	0.	0.	0.													
C	320.	-1.4423	0.	0.3	0.	0.	0.													
C	320.	-0.3122	0.	0.8	0.	0.	0.													
C	300.	-1.062	0.	0.225	0.	0.	0.													
C	300.	-0.4475	0.	1.325	0.	0.	0.													
C	280.	-1.0413	0.	0.225	0.	0.	0.													
C	280.	-0.4387	0.	1.325	0.	0.	0.													
C	260.	-1.0195	0.	0.225	0.	0.	0.													
C	260.	-0.4296	0.	1.325	0.	0.	0.													
C	240.	-0.9964	0.	0.225	0.	0.	0.													
C	240.	-0.4198	0.	1.325	0.	0.	0.													
C	220.	-0.9719	0.	0.225	0.	0.	0.													
C	220.	-0.4095	0.	1.325	0.	0.	0.													
C	200.	-0.0455	0.	0.2	0.	0.	0.													
C	190.	-0.2242	0.	0.5	0.	0.	0.													
C	200.00	-0.764	0.481	0.447	-0.56	0.98	-1.92	120.00												
C	200.00	-1.365	0.000	0.447	1.13	0.00	0.00	0.00												

GUY LOADING

0.70. 0. 0. 0. 56. 0.01 2 1 1.00 1.00 1.00
 wind from 90 deg at 70 mph no ice

MAST LOADING

D	320.	0.	-0.0522	0.042	0.	0.	0.													
D	300.	0.	-0.0514	0.042	0.	0.	0.													
D	300.	0.	-0.0677	0.0593	0.	0.	0.													
D	280.	0.	-0.0665	0.0593	0.	0.	0.													
D	280.	0.	-0.085	0.0687	0.	0.	0.													
D	260.	0.	-0.0835	0.0687	0.	0.	0.													
D	260.	0.	-0.1	0.0749	0.	0.	0.													
D	240.	0.	-0.098	0.0749	0.	0.	0.													
D	240.	0.	-0.1195	0.0812	0.	0.	0.													
D	220.	0.	-0.1169	0.0812	0.	0.	0.													
D	220.	0.	-0.156	0.0951	0.	0.	0.													
D	10.	0.	-0.0909	0.0951	0.	0.	0.													
D	10.	0.	-0.0188	0.0421	0.	0.	0.													
D	5.	0.	-0.0188	0.0421	0.	0.	0.													
D	5.	0.	-0.018	0.0428	0.	0.	0.													
D	2.5	0.	-0.018	0.0428	0.	0.	0.													
D	2.5	0.	-0.015	0.0408	0.	0.	0.													
D	0.	0.	-0.015	0.0408	0.	0.	0.													
C	320.	0.	-0.0859	0.095	0.	0.	0.													
C	320.	0.	-0.2341	0.06	0.	0.	0.													
C	320.	0.	-1.4423	0.3	0.	0.	0.													
C	320.	0.	-0.3122	0.8	0.	0.	0.													
C	300.	0.	-1.062	0.225	0.	0.	0.													
C	300.	0.	-0.4475	1.325	0.	0.	0.													
C	280.	0.	-1.0413	0.225	0.	0.	0.													
C	280.	0.	-0.4387	1.325	0.	0.	0.													
C	260.	0.	-1.0195	0.225	0.	0.	0.													
C	260.	0.	-0.4296	1.325	0.	0.	0.													
C	240.	0.	-0.9964	0.225	0.	0.	0.													
C	240.	0.	-0.4198	1.325	0.	0.	0.													
C	220.	0.	-0.9719	0.225	0.	0.	0.													
C	220.	0.	-0.4095	1.325	0.	0.	0.													

1410c.gou

C	200.	0.	-0.0455	0.2	0.	0.	0.													
C	190.	0.	-0.2242	0.5	0.	0.	0.													
c	200.00		0.430		-1.250			0.447	-0.56	0.98	-0.20	120.00								
c	200.00		0.136		-0.652			0.447	1.13	0.00	2.48	0.00								

GUY LOADING

90. 70. 0. 0. 0. 56. 0.01 2 1 1.00 1.00 1.00
wind from 180 deg at 70 mph no ice

MAST LOADING

D	320.	0.0541	0.	0.042	0.	0.	0.													
D	300.	0.0533	0.	0.042	0.	0.	0.													
D	300.	0.0694	0.	0.0593	0.	0.	0.													
D	280.	0.0687	0.	0.0593	0.	0.	0.													
D	280.	0.0866	0.	0.0687	0.	0.	0.													
D	260.	0.085	0.	0.0687	0.	0.	0.													
D	260.	0.1015	0.	0.0749	0.	0.	0.													
D	240.	0.0995	0.	0.0749	0.	0.	0.													
D	240.	0.121	0.	0.0812	0.	0.	0.													
D	220.	0.1184	0.	0.0812	0.	0.	0.													
D	220.	0.1576	0.	0.0951	0.	0.	0.													
D	10.	0.0918	0.	0.0951	0.	0.	0.													
D	10.	0.02	0.	0.0421	0.	0.	0.													
D	5.	0.02	0.	0.0421	0.	0.	0.													
D	5.	0.019	0.	0.0428	0.	0.	0.													
D	2.5	0.019	0.	0.0428	0.	0.	0.													
D	2.5	0.0156	0.	0.0408	0.	0.	0.													
D	0.	0.0156	0.	0.0408	0.	0.	0.													
C	320.	0.0859	0.	0.095	0.	0.	0.													
C	320.	0.2341	0.	0.06	0.	0.	0.													
C	320.	1.4423	0.	0.3	0.	0.	0.													
C	320.	0.3122	0.	0.8	0.	0.	0.													
C	300.	1.062	0.	0.225	0.	0.	0.													
C	300.	0.4475	0.	1.325	0.	0.	0.													
C	280.	1.0413	0.	0.225	0.	0.	0.													
C	280.	0.4387	0.	1.325	0.	0.	0.													
C	260.	1.0195	0.	0.225	0.	0.	0.													
C	260.	0.4296	0.	1.325	0.	0.	0.													
C	240.	0.9964	0.	0.225	0.	0.	0.													
C	240.	0.4198	0.	1.325	0.	0.	0.													
C	220.	0.9719	0.	0.225	0.	0.	0.													
C	220.	0.4095	0.	1.325	0.	0.	0.													
C	200.	0.0455	0.	0.2	0.	0.	0.													
C	190.	0.2242	0.	0.5	0.	0.	0.													
c	200.00		0.845		-0.665			0.447	-0.56	0.98	0.94	120.00								
c	200.00		1.150		0.000			0.447	1.13	0.00	0.00	0.00								

GUY LOADING

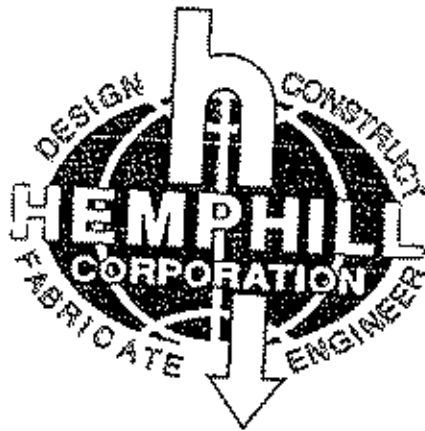
180. 70. 0. 0. 0. 56. 0.01 2 1 1.00 1.00 1.00

=====
END OF FILE

ELAPSED CPU TIME 0.25 SECONDS.

=====
B

Tower Assembly Drawings



Tower Division

3515 Dawson Rd.
Tulsa, OK 74115
(918) 834-2200

Customer: Hemphill Corporation

Site: White Plains, KY

City: White Plains, KY

Job No.: 1410

Model: Guyed

Tower Ht.: 320'

Loading: 70 mph 1/2" Ice

Date: May 12 2005

REFERENCE DRAWINGS

- FOUNDATION DRAWINGS

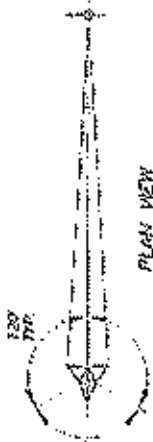
- ROOF BASE A-2822
- ARCHIT. DETAIL B1-1050
- BASE CONNECTIONS A-28103
- TORQUE ARMS A-2828
- CELLULAR CONCRETE N/A
- LADDER INSTALL 1/2
- SAFETY CLIMB B-SAFETY
- LIGHTING RIG A-1800
- 1-LINE CONNECTIONS B-CAL-07
- WATERPOUR BRIDGE B-1052-1
- BEACON MOUNT A-28221
- SIDE LIGHT UNITS A-28221
- LIGHTING DIAGRAM MAINF. DATA SHEET
- WATERPOUR LADDER A-28221

TOWER DESIGN LOADS

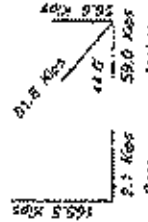
- TOWER IS DESIGNED FOR DART-7207 FOR 70 MPH WIND LOAD WITH 1/2" K.E. TRANSMISSION LADDERS AND UNITS MUST BE EVENLY DISTRIBUTED ON ALL (4) FACES

APPEARANCE LOADS

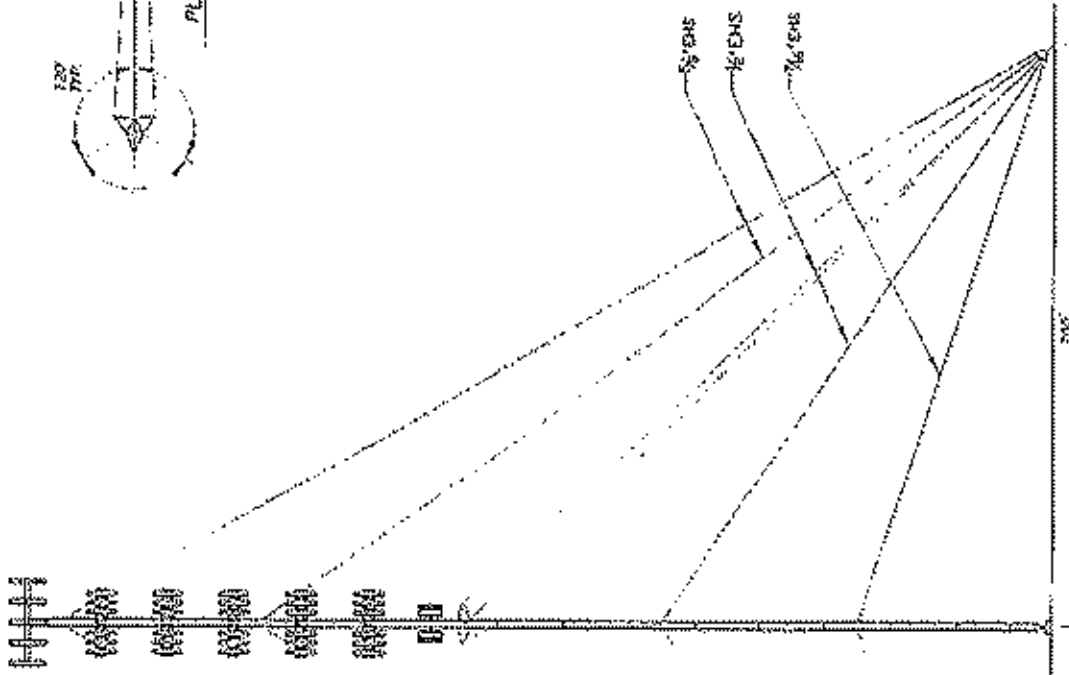
- STD. 12 LB. WEIGHT W/ (12) 5/8" DIA. 1" RODS, & (3) 10" x 3" HP ANGLE IRON AT 300' ELEV. PER BR 1 3/8" COIL
- (1) STD. 12" PARABOLIC SECTION GATE MOUNTS W/ (1) 5/8" DIA. ANGLE IRON AT 200, 280', 280', 280', & 280' ELEV. PER BR 1 3/8" COIL
- (2) 3" DIA HP SOLID DISKS AT 200' ELEVATION EACH PER BR 1 3/8" COIL
- (3) 2" DIA. WAVELENGTH LASERS
- (1) 6A) STEP BRACKETS W/ SAFETY CLIMB TO 100' HEIGHT.



PLAN VIEW



FOUNDATION REACTIONS



SECTION NO.	DESCRIPTION	QUANTITY	UNIT
301	PAINT	NOT APPLICABLE	
302	CHITS	6	1/2" x 1/2"
303	DIMONALS	6	1/2" x 1/2"
304	LEGS	12000' x 0.2500" TUBE	
305	CHITS	2	1/2" x 1/2"
306	LEGS	2	1/2" x 1/2"
307	CHITS	2	1/2" x 1/2"
308	LEGS	2	1/2" x 1/2"
309	CHITS	2	1/2" x 1/2"
310	LEGS	2	1/2" x 1/2"
311	CHITS	2	1/2" x 1/2"
312	LEGS	2	1/2" x 1/2"
313	CHITS	2	1/2" x 1/2"
314	LEGS	2	1/2" x 1/2"
315	CHITS	2	1/2" x 1/2"
316	LEGS	2	1/2" x 1/2"
317	CHITS	2	1/2" x 1/2"
318	LEGS	2	1/2" x 1/2"
319	CHITS	2	1/2" x 1/2"
320	LEGS	2	1/2" x 1/2"
321	CHITS	2	1/2" x 1/2"
322	LEGS	2	1/2" x 1/2"

Rev. Description Date

1. 10/10/2017

2. 10/10/2017

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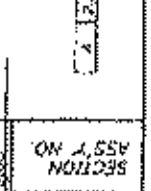
96. 10/10/2017

97. 10/10/2017

98. 10/10/2017

99. 10/10/2017

100. 10/10/2017



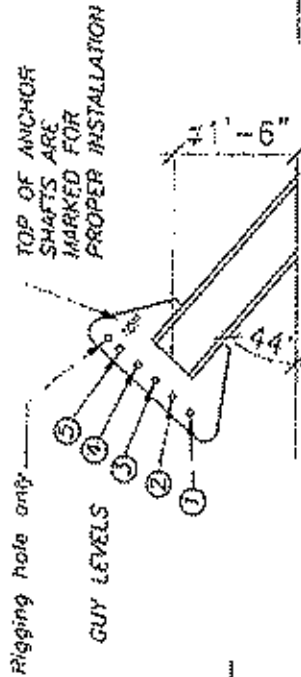
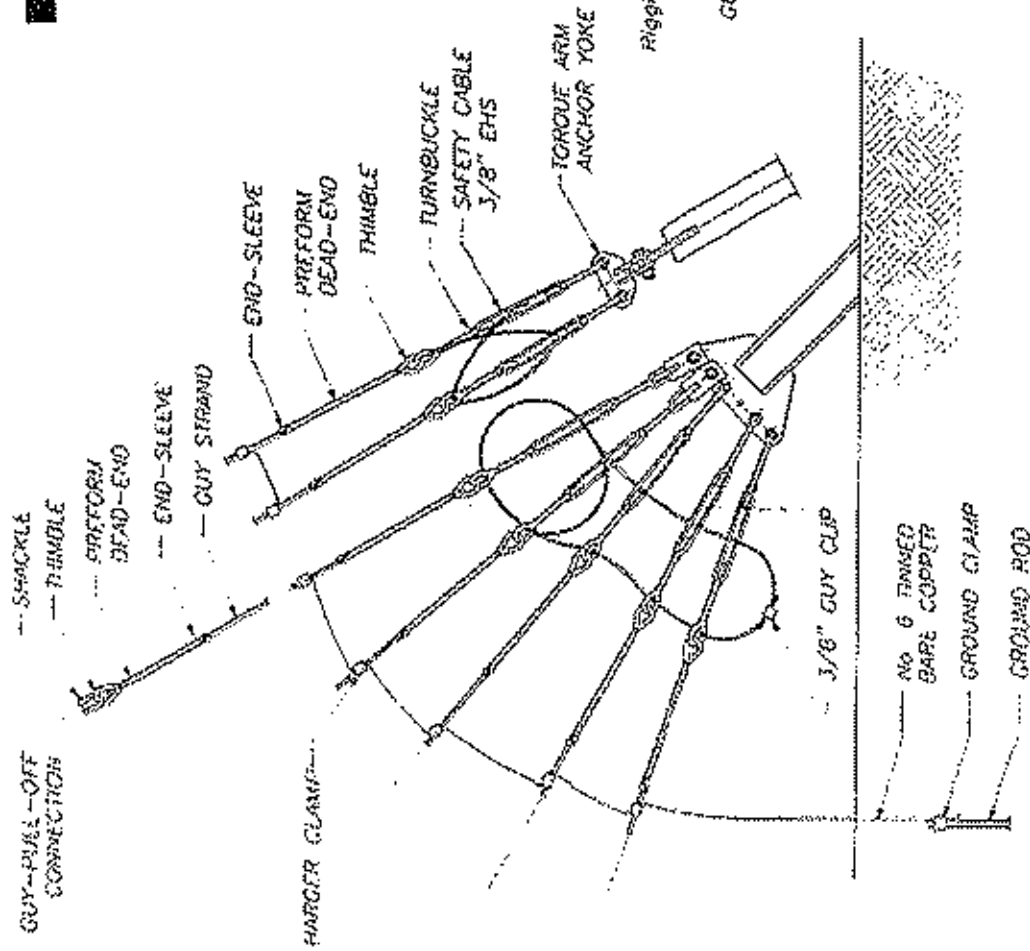
Tower Division

Guy Size	Turnbuckle	Shackle	Dead-End	Thimble	Yoke Mk.No.	Bolt Size
3/8" EHS	3/4" x 12"	3/4"	3/8"	1/2"	AY-01	1 1/8" x 3 1/2" A325
7/16" EHS	3/4" x 12"	3/4"	7/16"			
1/2" EHS	7/8" x 12"	3/4"	1/2"	5/8"		
9/16" EHS	7/8" x 12"	3/4"	9/16"	5/8"	AY-02	1 1/8" x 4" A325
5/8" EHS	1" x 12"	3/4"	5/8"	3/4"	AY-03	1 3/8" x 5" A325
1 1/16" EHS	1 1/4" x 12"	7/8"	1 1/16"	7/8"		
7/8" EHS	1 1/2" x 12"	1"	7/8"	1"		
1" EHS	1 1/2" x 12"	1 1/8"	1"	1 1/8"		

Notes:

- SEE FOUNDATION DRAWINGS FOR ANCHOR SHAFT MK.No. 5.
- SEE GUY WIRE TENSION CHART FOR TENSIONS OTHER THAN FOR NORMAL TEMPERATURE.
- SEE COVER SHEET FOR GUY-PULL-OFF ELEVATIONS AND ANCHOR RADII.
- SAFETY CABLES MUST PASS THRU ALL TURNBUCKLES AS SHOWN.
- GUY SAFETY CABLES ARE SHIPPED WITH THE SAFETY CUMB CABLE WHERE APPLICABLE. 15 FT. IS PROVIDED FOR EACH ANCHOR. REFER TO COVER SHEET TO DETERMINE ANCHOR RADII.

Guy Level	Guy Size	Cut Lth.	Qty.	Initial Tension
1	7/16"	232'	3	2,080#
2	1/2"	259'	3	2,690#
3	1/2"	296'	6	2,690#
4	5/8"	340'	3	4,240#
5	5/8"	389'	3	4,240#



GUY ANCHOR DETAIL

(FOR ILLUSTRATION ONLY)

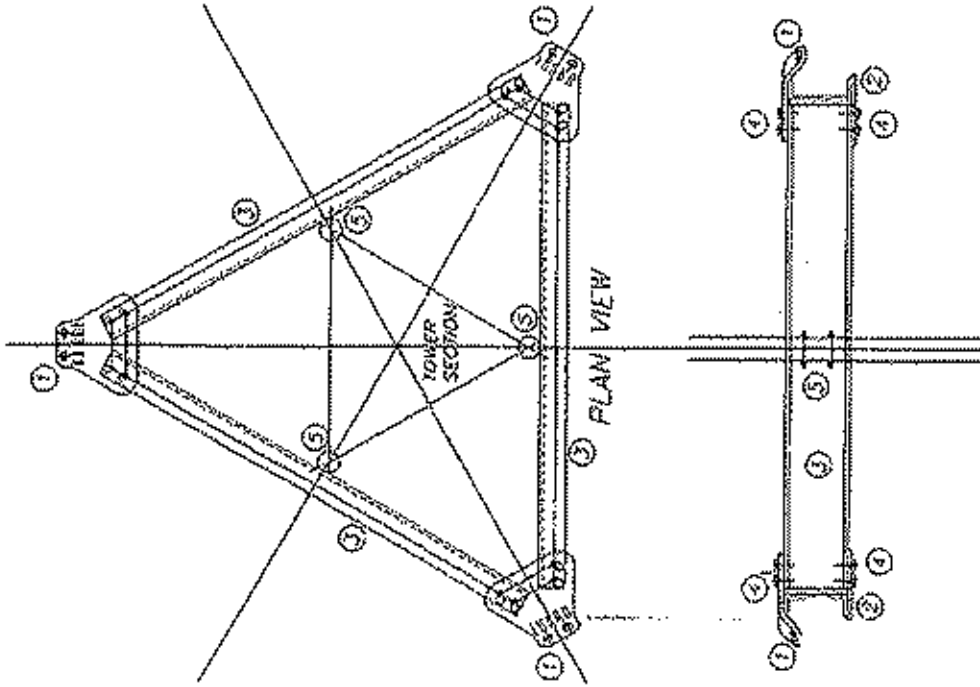
Rev. Description	Date
1st Rev. Guy Anchor Detail	08/12/05
Client: Metaphal Corporation	Drawn By: BSM
Site: ANSA Phase 1K	Scale: None
Drawn By: BSM	Sheet No: 1410
Rev: 05/12/05	Blotoco
Tower Division	

TRQA-11

PARTS LIST

ITEM	QTY	DESCRIPTION	WT. (LBS)
(1) TP1	3	PL 3/4 x 1-3	83
(2) TP2	3	PL 1/2 x 1-1	30
(3) TC6	3	Channel MC10	705
(4)	24	BOLT 3/4" x 2 3/4"	7
(5) UT6	6	U-bolt 3/4" x 3 9/16" x 5 3/4"	8
	36	3/4" Flatwashers	
TOTAL WEIGHT			732

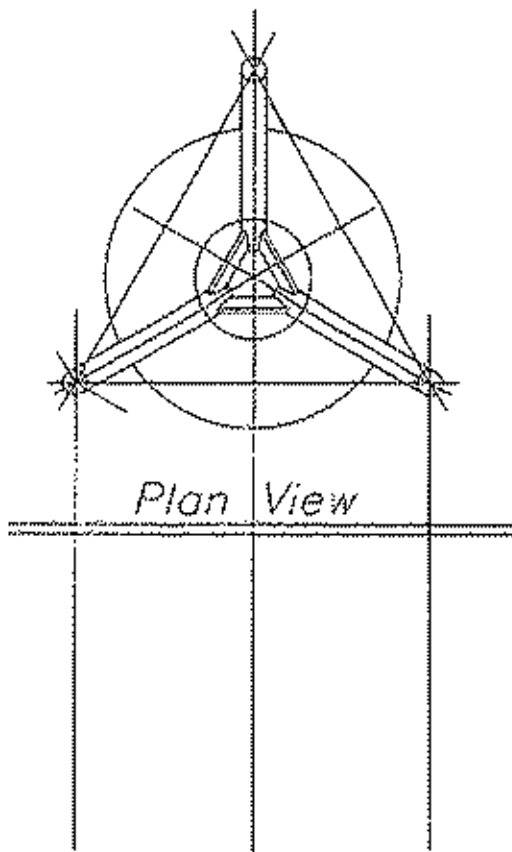
Install on Section Assy 3.OHST at 210'



NOTES:

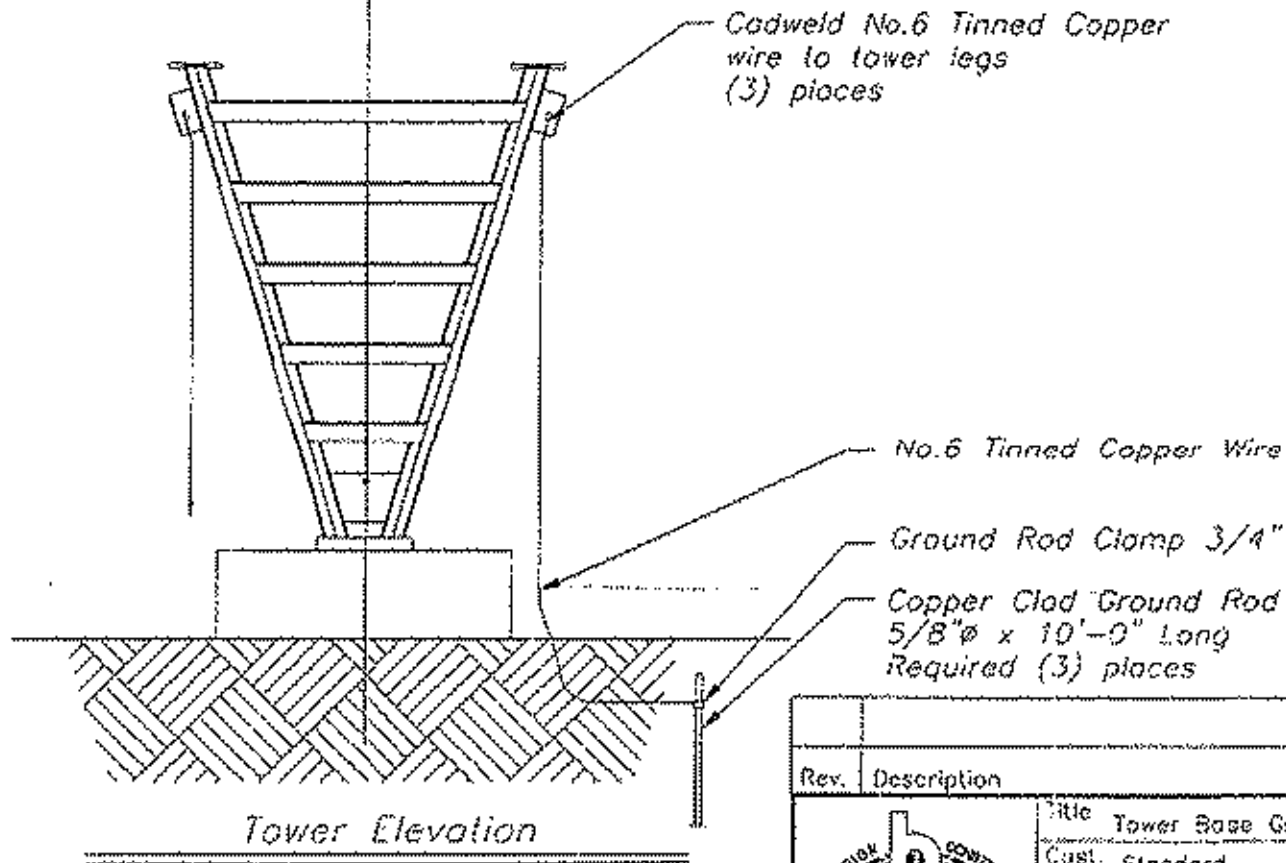
1. INSTALL LOCK WASHERS ON ALL BOLTS.
2. INSTALL BOLTS WITH THE NUTS IN EITHER THE UP OR OUT POSITION.
3. SEE COVER SHEET FOR SECTION NUMBER AND GUY ELEVATION FOR INSTALLATION.
4. INSTALL UBOLTS ON TOP OF TOWER LEG CLIPS

Rev.	Description	Date
Title M42111 Torque Arm Assembly		
Cust. Standard		
Size Standard		
Drawn By	Job No.	Standard
CHK. BY	Scale	Note
Date 3-25-04	Org. No. E-4210R11	
Tower Division		



Note:

1. Maintain 12" minimum clearance between ground rod and base pad.
2. All bends in the ground wire should be smooth curves without kinks.
3. Six inch minimum cover required above the ground rod and buried cable.

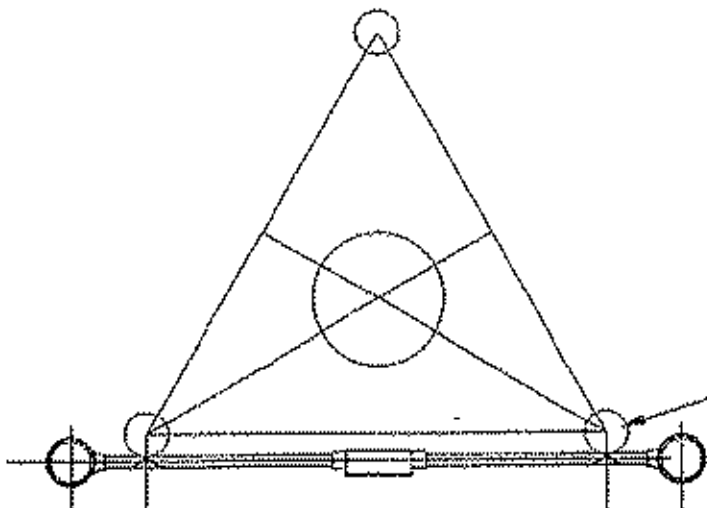


Rev.	Description	Date	By
	Title Tower Base Grounding		
	Cost. Standard		
	Site Standard		
	Dwn. By BLM	Job No. Standard	
	Chk. By	Scale None	
	Date 3/29/04	Dwg. No. A-GRND	



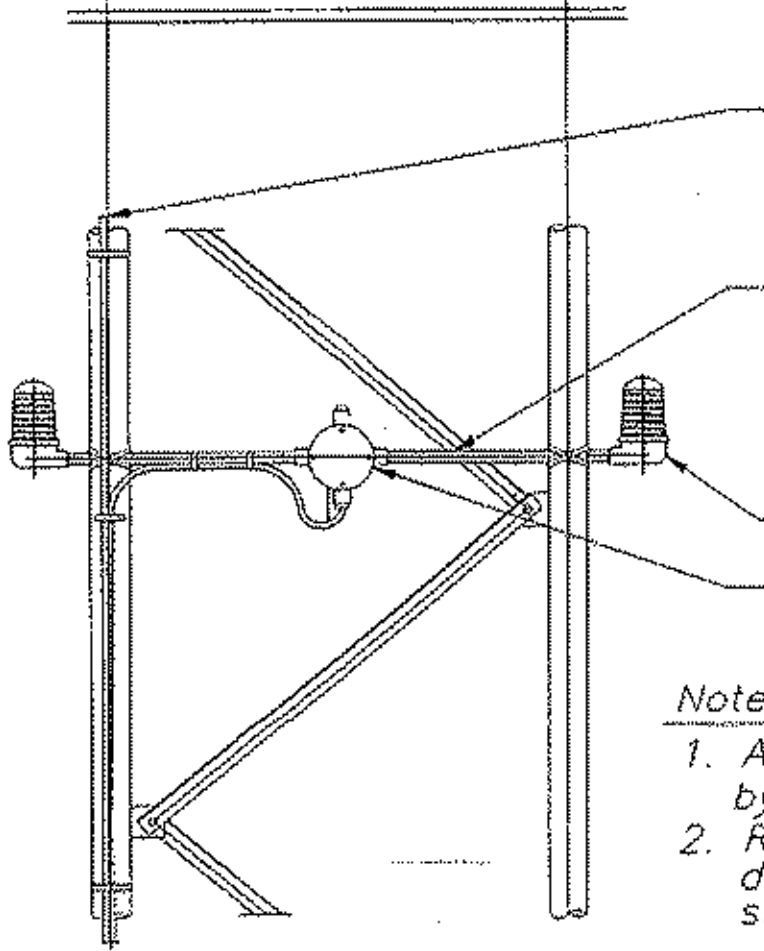
Tower Division

Face Width	Nipple Length
36"	1'-8"
42"	2'-0"
48"	2'-3"



Attach to tower leg
with stainless steel
hose clamp.

Plan View



Beacon cord and
down conductor

3/4" Conduit Nipple

Obstruction Light

Junction Box

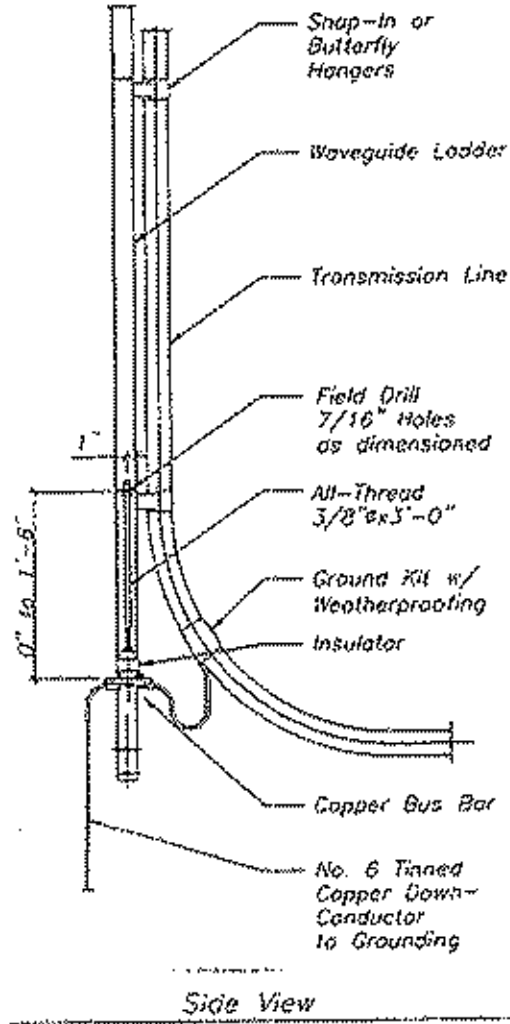
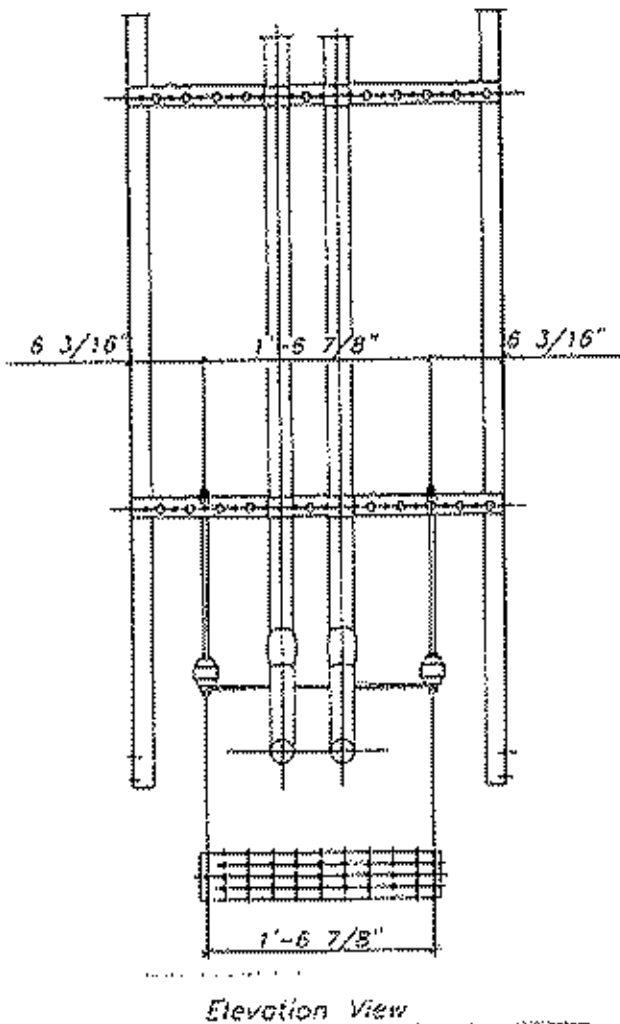
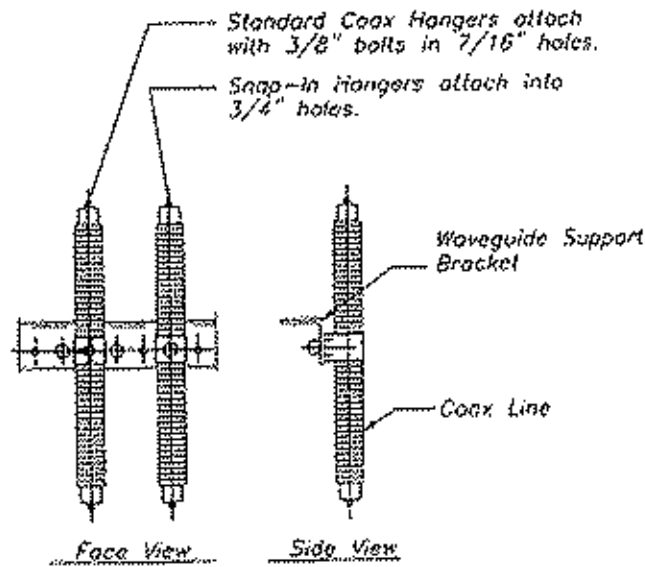
Note:

- 1. All lighting material provided by Manufacturer.
- 2. Route all cords and lightning down conductor down the leg shown.

Tower Elevation

Rev.	Description	Date	By
	Title	Side Light Mounting	
	Cust.	Standard	
	Site	Standard	
	Dwn. By	BLM	Job No. Standard
	Chk By		Scale None
	Date	3/29/04	Dwg No. A-ESIDE

Tower Division



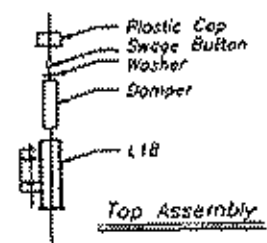
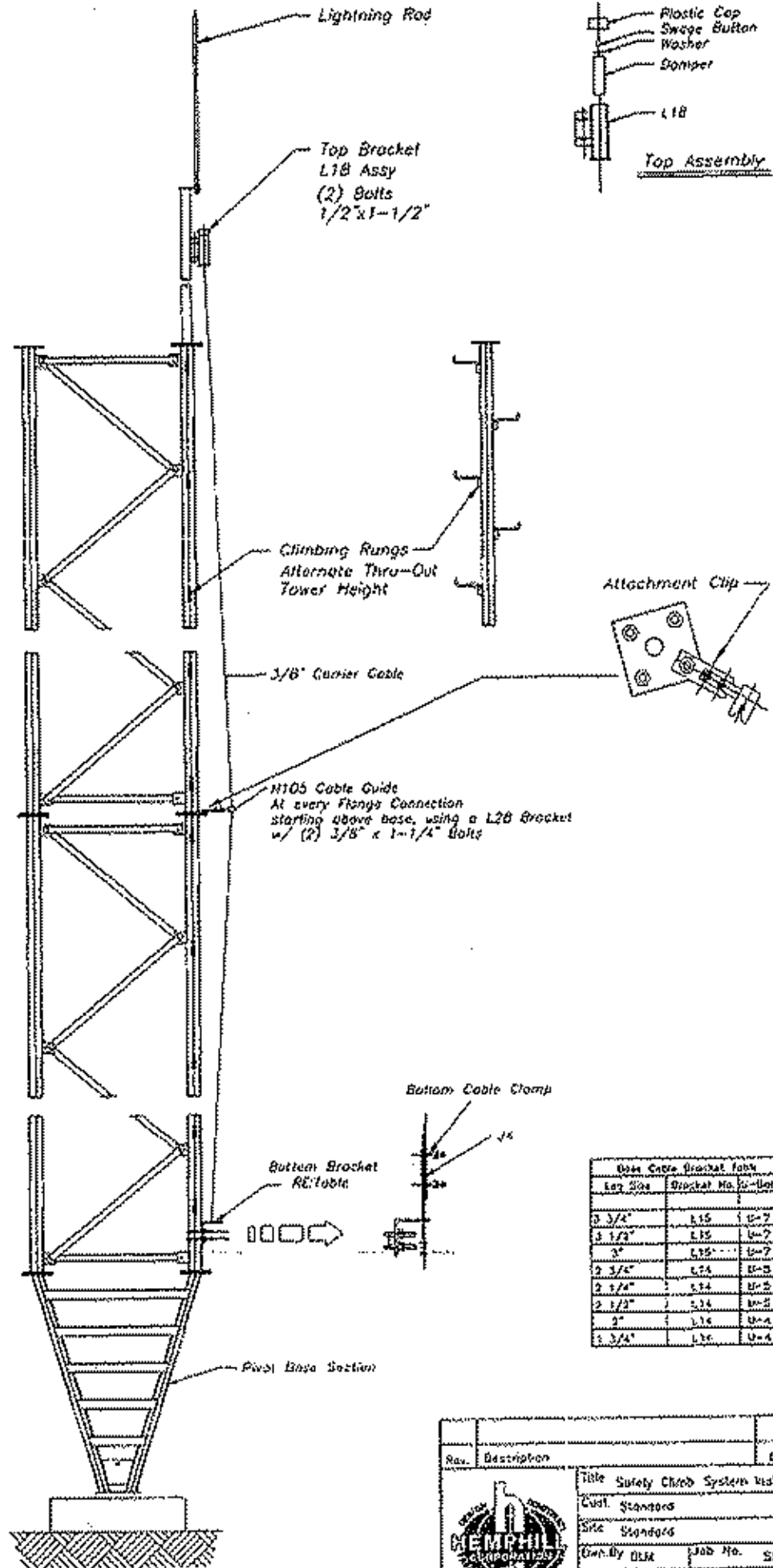
Coax Attachment Detail

Note:

1. All coax lines, hangers, and grounding wires are supplied by others.
2. Install all hardware per the manufacturers instructions.
3. Transmission lines should be installed in a continuous straight line from the base to antenna elevation.
4. The bus bar insulator may be installed with or without the all-thread as required.

Rev.	Description	Date	By
	Title: Transmission Line Installation		
	Code: Standard		
	Site: Standard		
	Drawn By: BJA	Job No.:	Standard
	Checked By:	Scale:	None
	Date: 3/25/04	Drawn to:	B-COAX

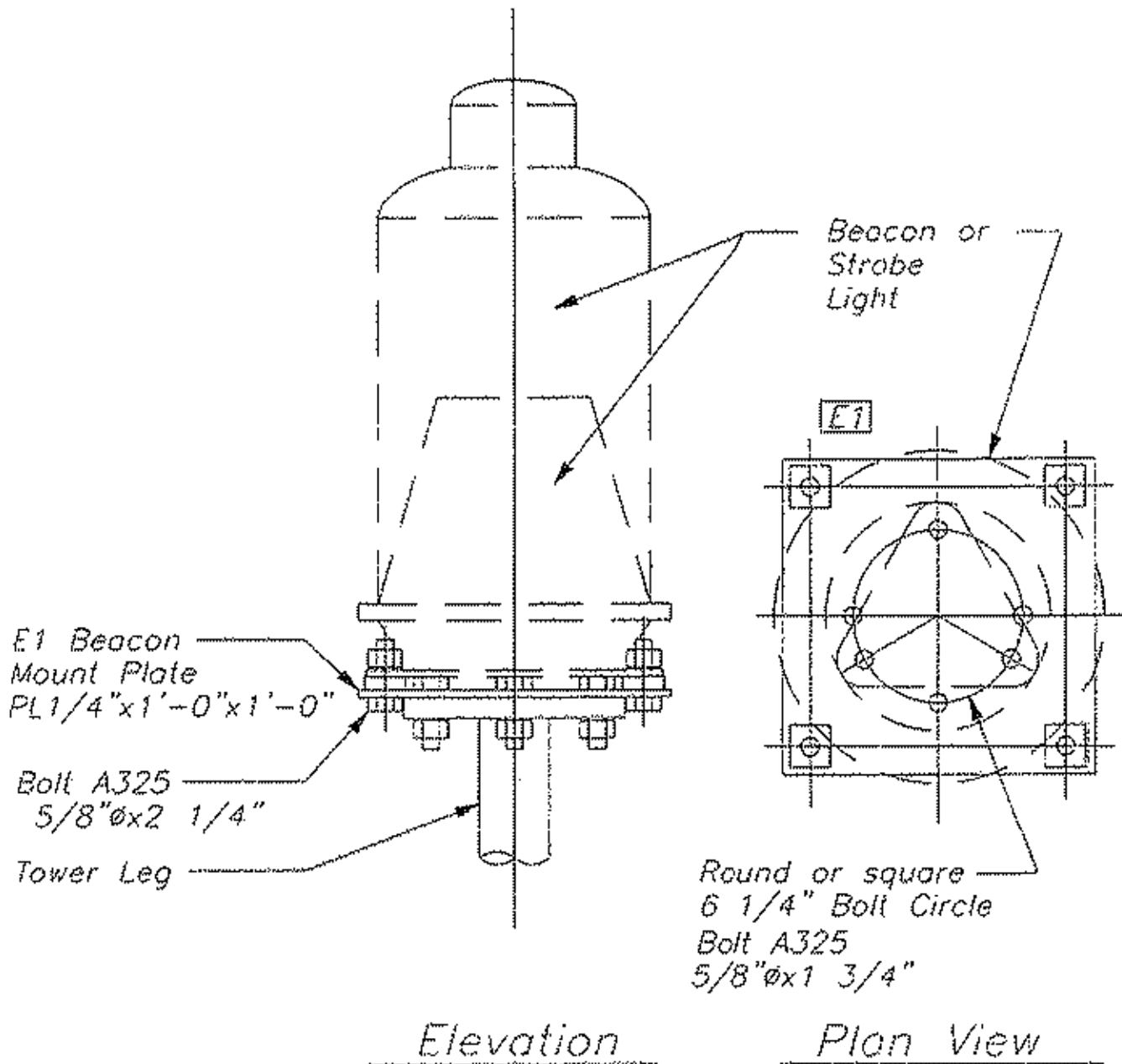




Side Section View

Rev.	Description	Date	By
	Title Safety Climb System Installation		
	Coll. Standards		
	Site Standards		
	Drawn By BLM	Job No.	Standard
	CHK. By	Scale	None
	Date 3/24/04	Draw. No.	8-3457A

Tower Division



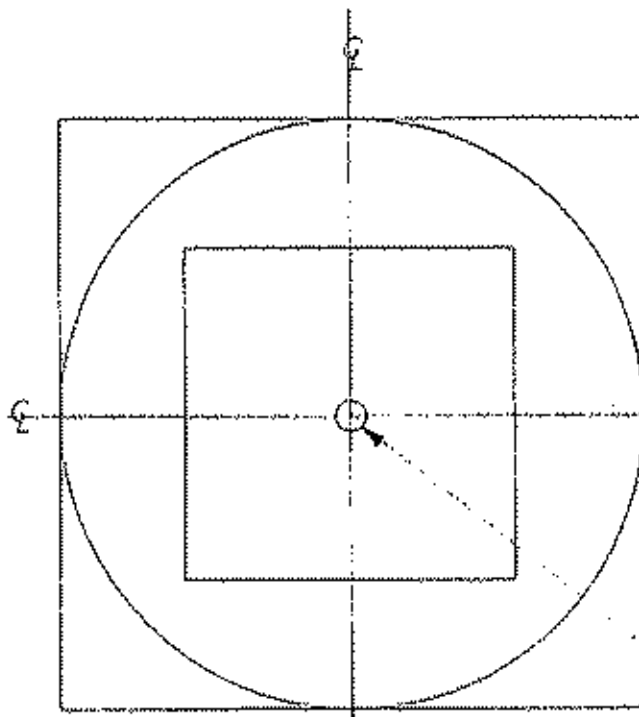
NOTES

1. All bolts require lock washers.
2. Refer to manufacturers supplied information for proper service cord routing and attachment.

Rev.	Description	Date	By
	Title	Top Beacon Mounting	
	Cust.	Standard for Hemphill	
	Site	Standard	
	Own By	JMP	Job No. Standard
	Chk. By	JWM	Scale None
	Date	5/9/96	Dwg. No. A-ECMNTA



Tower Division



Plan View

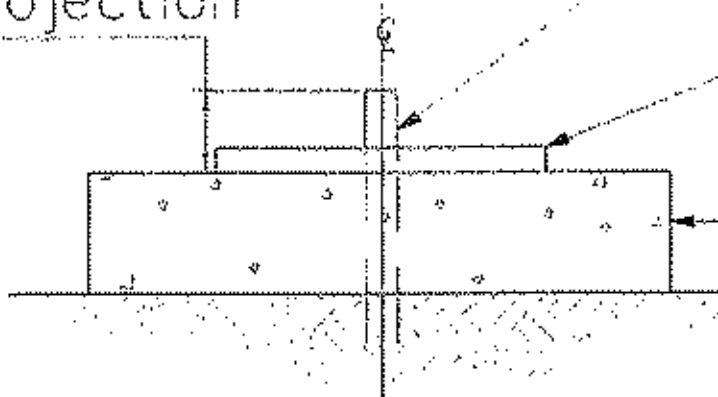
Round or Square
Base pier as
required

Base Pin
Mk.No. "PIN1"
1-1/4"Ø x 1'-0"

Base Plate
Mk.No. "B1"
Pl. 1-1/4" x 1'-4" Sqr.

Base Pier
Grade

4" Projection



Elevation

Notes:

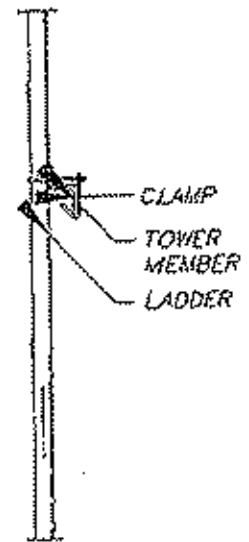
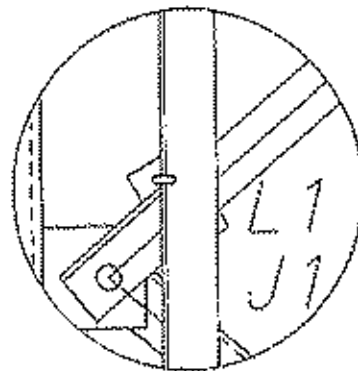
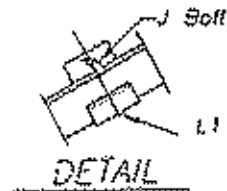
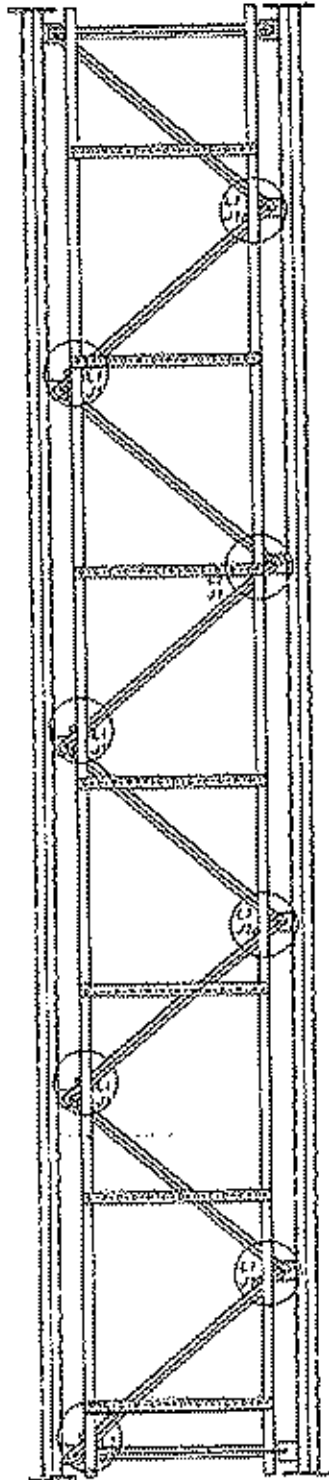
1. The concrete finish around the base pin should be level and smooth.
2. The base pin must be installed vertically at the center of the pier
3. Base plate "B1" should be placed in a level position, after concrete setup.

Rev 1	Changed Length of Projection	6/13/96	ED
Rev	Description	Date	By
		Title Base Pin Placement w/ Plate	
		Cust. Standard	
		Site Standard	
		Drawn By JMP	Job No Standard
		Chk. By	Scale None
Date 10/22/96	Dwg No A-PIN2		

Tower Division

PARTS LIST

Description	
L1	Angle Clamp Bar 1/4" x 2" x 3-3/4"
J-Bolt	3/8" x 5 1/2"



SIDE VIEW

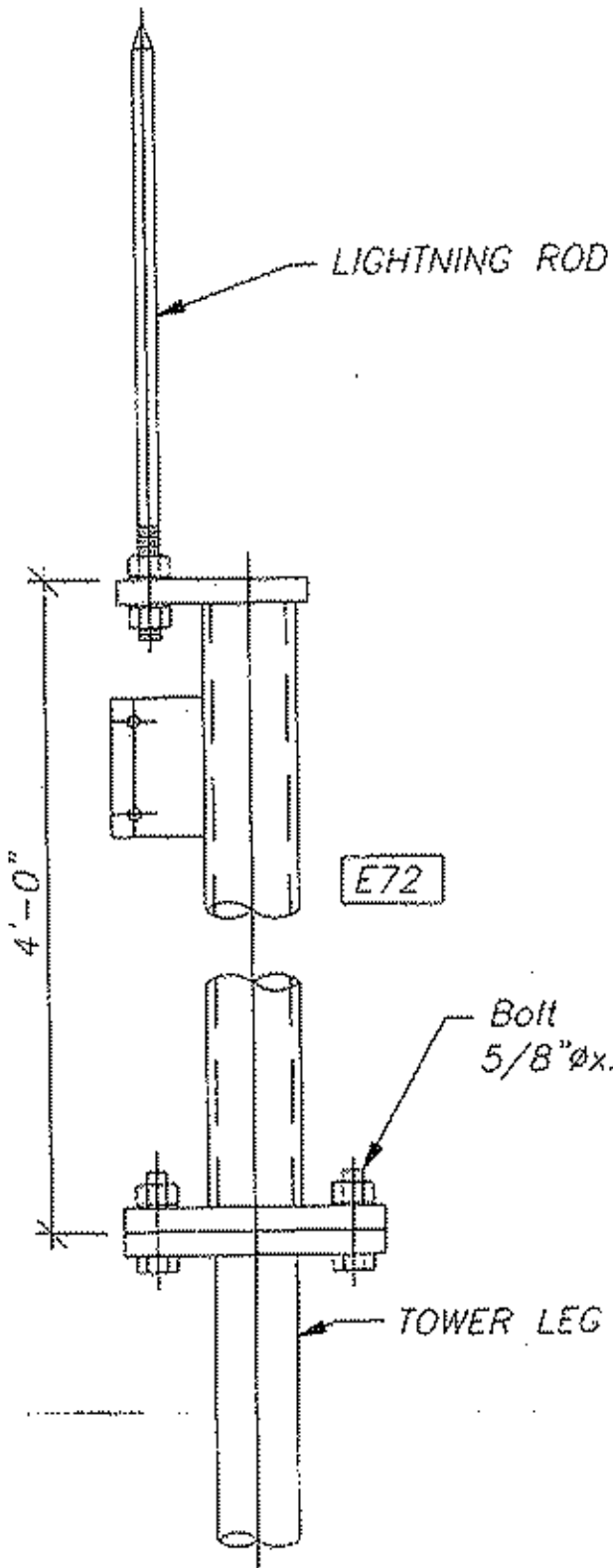
Notes:

1. All bolts require Lock Washers.
2. Install bolts with the nuts projecting up or outwards from the lower.
3. Ladder attachment remains constant whether sections are tapered or straight, or if section length varies.
4. Standard length ladders are 20 feet long.

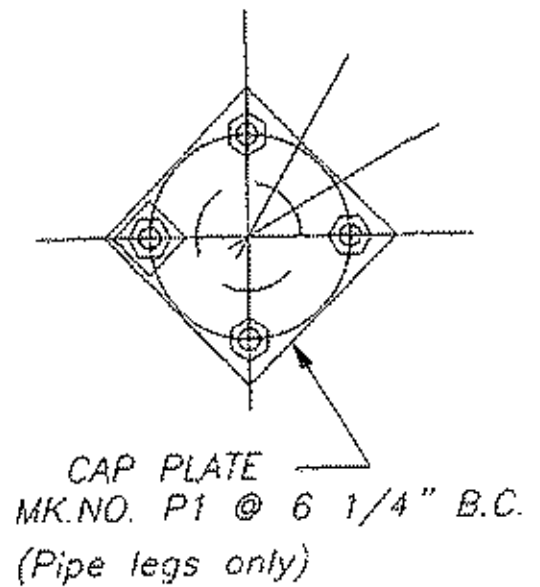
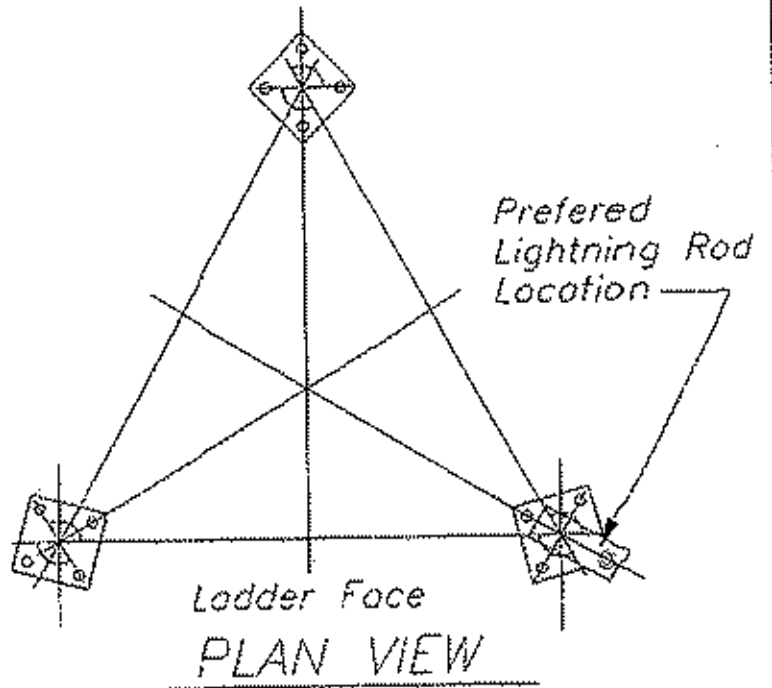
Rev.	Description	Date	By
	Title Waveguide Ladder Attachment		
	Cust. Standard		
	Site Standard		
	Dwn. By BLM	Job No None	
	Chk. By	Scale None	
	Date 1/28/03	Dwg No. A-LDR	



Tower Division



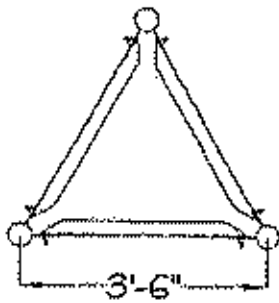
INSTALLATION DETAIL



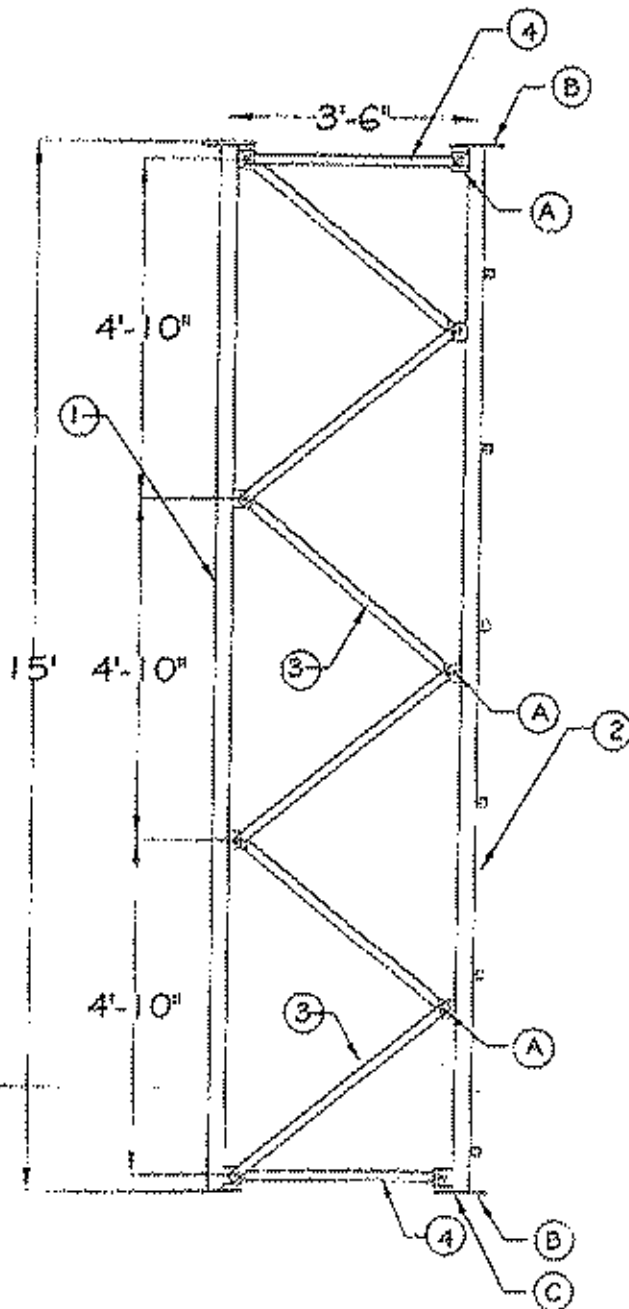
NOTES

1. LOCK WASHERS ARE REQUIRED UNDER ALL NUTS.

Rev.	Description	Date	By
		Title Lightning Rod Installation Cust. Standard Site Standard Dwn.By DC Job No. Standard Chk.By Scale None Date 8/26/05 Dwg.No. LTRO072	
Tower Division			



PLAN VIEW



ELEVATION

3.0C

PARTS LIST

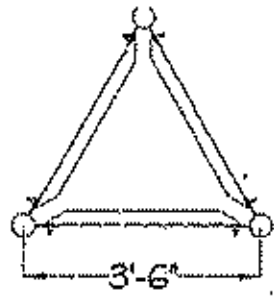
Item	Part	Qty.	Description	Lth.	Wt.
(1)	17.93Z	2	Pipe 3" 3.5000 x 0.3000	x 15'-0"	368
(2)	1.03ZL	1	Pipe 3" 3.5000 x 0.3000	x 15'-0"	193
(3)	KD17	18	DIAGLT 3/4x 1 3/4x 3/16x 3'-11 13/16"		153
(4)	KD01	6	GRISLT 3/4x 1 3/4x 3/16x 3'-0 3/4"		39
(A)		27	GRACE BOLTS: 5/8" x 1 3/4"		6
(B)		11	FLANGE BOLTS: 5/8" x 2"		8
(C)		1	FLANGE BOLTS: 5/8" x 2 1/4"		.66
Total Section Wt.					768

Notes:

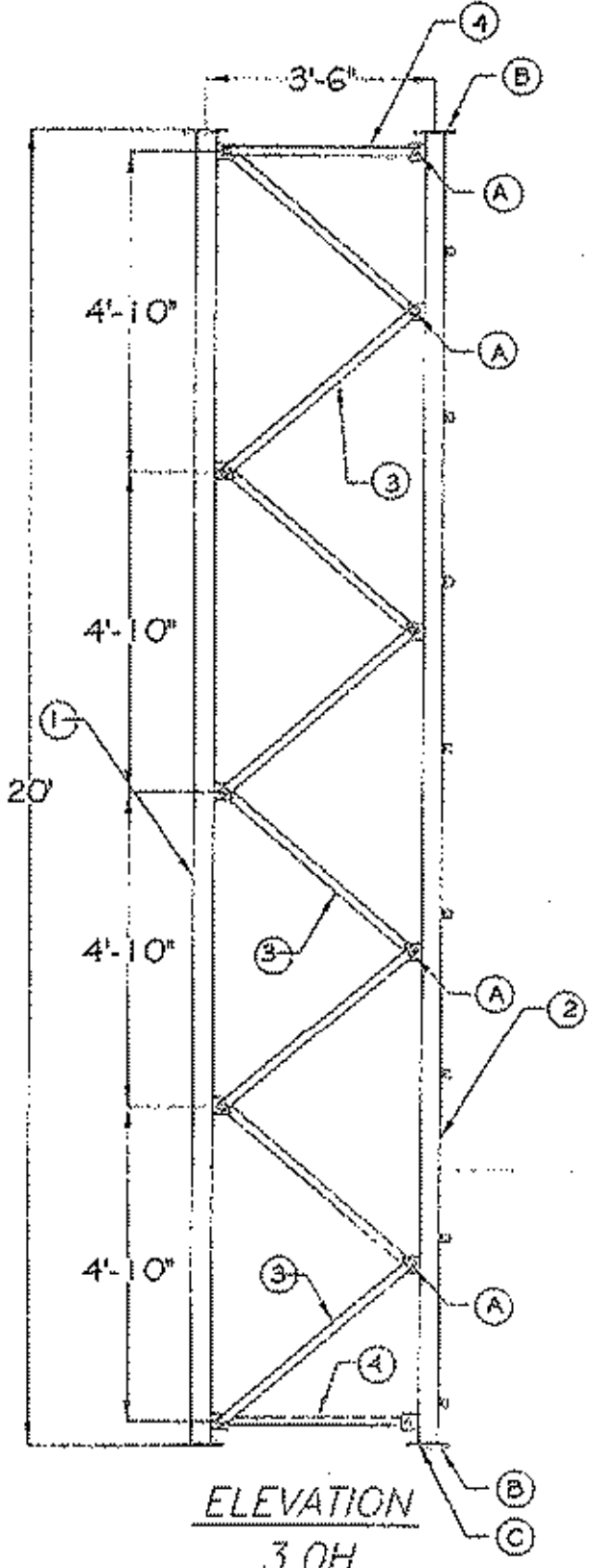
1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Flange bolt (C) provided for safety climb cable guide bracket. (1/4" longer)

Rev.	Description	Date	By		
		Title	Section 3.0C M42 Ass'y		
		Dist.	Standard		
		Site	Standard		
		Dwn. By	DC	Job No.	Standard
		Chk. By		Scale	None
		Date	08/12/04	Dwg. No.	M-42-3.0C
Tower Division					

Item	Part	Qty.	Description	Lth.	Wt.
(1)	R.O.H.	2	Pipe 3" 3.5000 x 0.3000" x 20'-0"		456
(2)	R.O.H.	1	Pipe 3" 3.5000 x 0.3000" x 20'-0"		236
(3)	KDOT	24	BOLTS 3/4" x 3/4" 3/16" 3-17 5/16"		204
(4)	KDOT	6	GIRTS 1/2" x 3/4" 3/16" 3'-0" 3/4"		30
(A)		33	BRACE BOLTS: 5/8" x 1 3/4"		8
(B)		11	FLANGE BOLTS: 5/8" x 2"		8
(C)		1	FLANGE BOLTS: 5/8" x 2 1/4"		.66
Total Section Wt.					957



PLAN VIEW

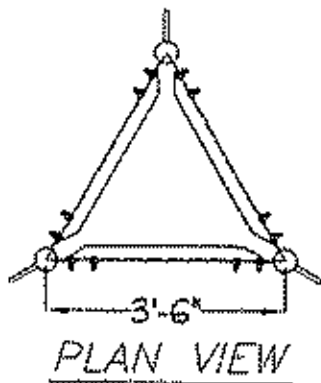


ELEVATION
3.0H

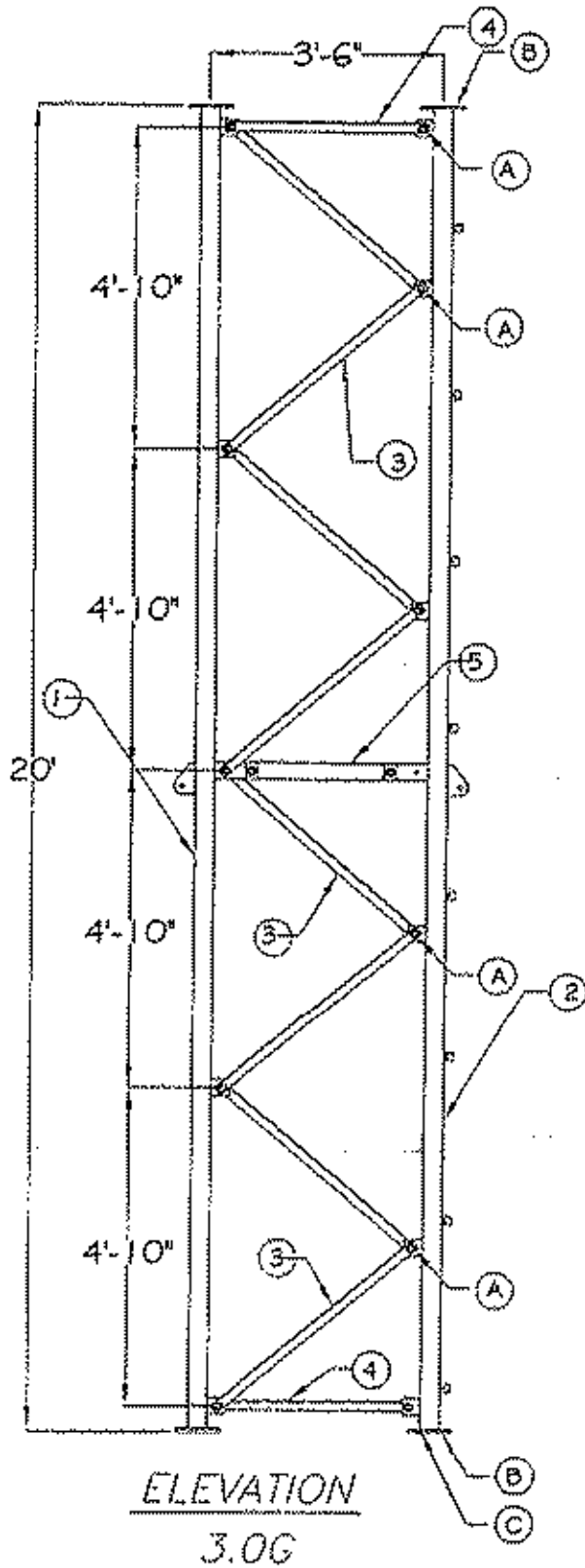
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Flange bolt (C) provided for safety climb cable guide bracket. (1/4" longer)

Rev.	Description	Date	By		
		Title	Section 3.0H M42 Assy		
		Cust.	Standard		
		Site	Standard		
		Own. By	DC	Job No.	Standard
		Chk. By		Scale	None
Date	08/12/04	Dwg. No.	M42-3.0H		
Tower Division					


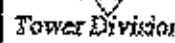


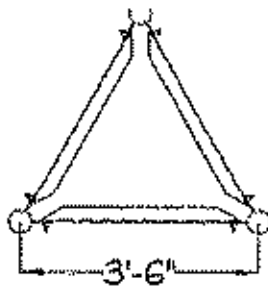
PARTS LIST					
Item	Part	Qty.	Description	Lth.	Wt.
(1)	ROIG	2	Pipe 3" 3.3000 x 0.3000	x 20'-0"	484
(2)	ROIG	1	Pipe 3" 3.5000 x 0.3000	x 20'-0"	239
(3)	ROIG	24	ANGLE 1/4" x 1/4" x 3/16" x 3'-11" 5/16"		300
(4)	KOOI	6	BURRLES 1/4" x 1/4" x 3/16" x 3'-0" 3/4"		54
(5)	GGT	3	BAR 3/8" x 3" x 2'-3" 1/4"		15
(A)		39	BRACE BOLTS: 5/8" x 1 3/4"		9
(B)		11	FLANGE BOLTS: 5/8" x 2"		8
(C)		1	FLANGE BOLTS: 5/8" x 2 1/4"		60
Total Section Wt.					1080



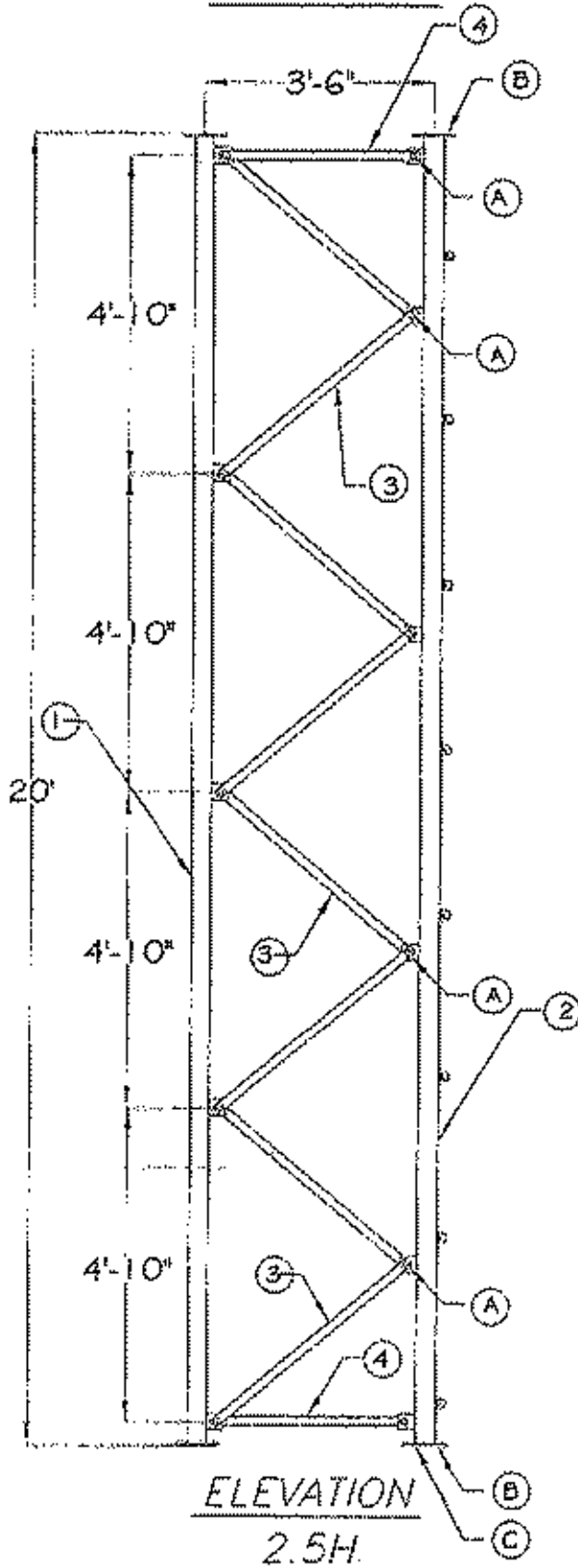
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Flange bolt (C) provided for safety climb cable guide bracket. (1/4" longer)

Rev.	Description	Date	By
		Title	Section 3.0G M42 Assy
		Cont.	Standard
		Site	Standard
		Drawn By	DC
Tower Division		Job No.	Standard
		Scale	None
Tower Division		Date	09/12/04
		Dwg. No.	K-M42-3.0G



PLAN VIEW



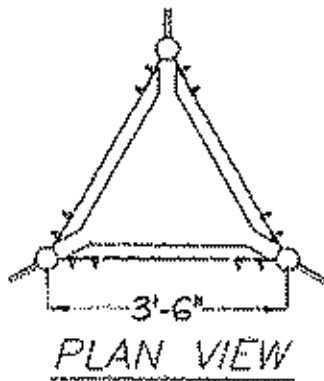
ELEVATION
2.5H

Item	Part	Qty.	Description	Lth.	Wt.
(1)	R25H	2	Pipe 2-1/2" 2.8800" x 0.2760" x 20'-0"		346
(2)	R25H	1	Pipe 2-1/2" 2.8800" x 0.2760" x 20'-0"		185
(3)	K016	24	DIAG. 3/4" x 3/4" x 3/16" x 3'-11 5/16"		204
(4)	K001	6	GRTS. 1/2" x 1 3/4" x 3/16" x 3'-0 3/4"		38
(A)		33	BRACE BOLTS: 5/8" x 1 3/4"		8
(B)		11	FLANGE BOLTS: 5/8" x 2"		8
(C)		1	FLANGE BOLTS: 3/8" x 2 1/4"		86
Total Section Wt.					791

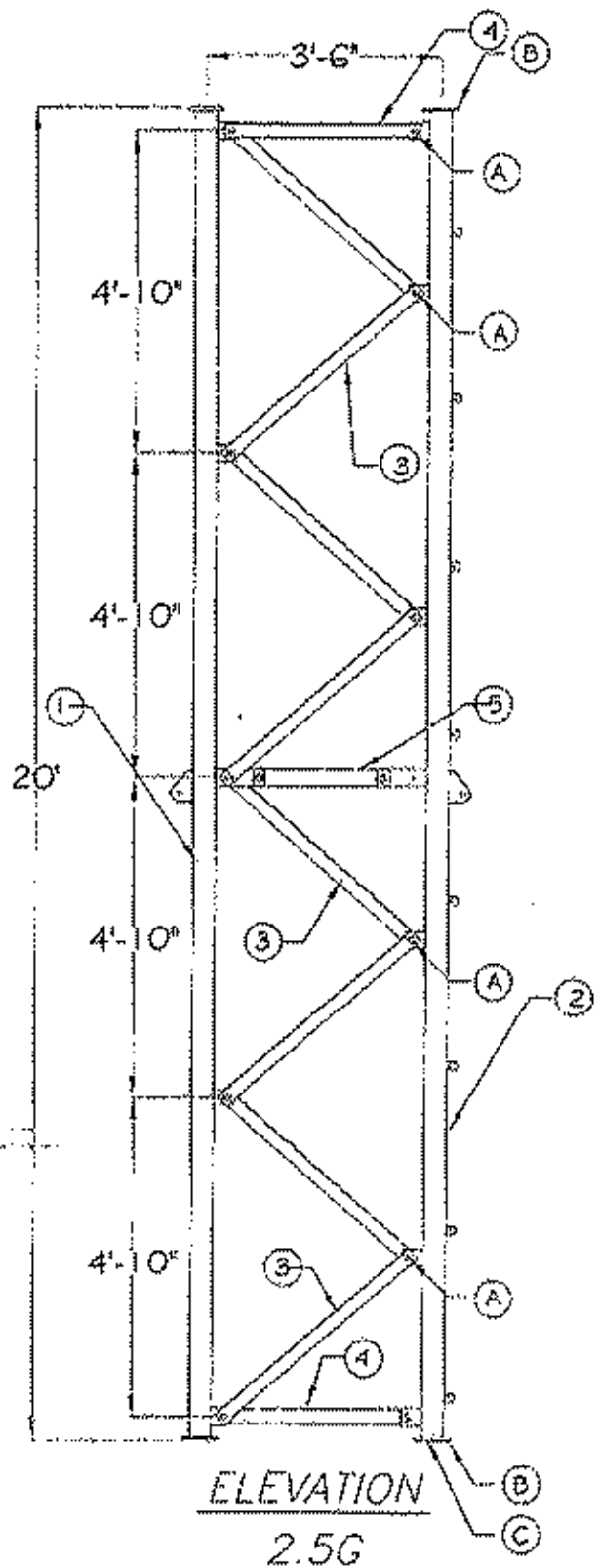
Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the lower.
4. Flange bolt (C) provided for safety climb cable guide bracket. (1/4" longer)

Rev.	Description	Date	By
Title		Section 2.5H M12 Assy	
Cust. Standard		Standard	
Site		Standard	
Dwn. By		DG	
Job No.		Standard	
Chk. By		Scale	
		None	
Date		08/12/04	
Dwg. No.		X-M12-2.5H	
Tower Division			

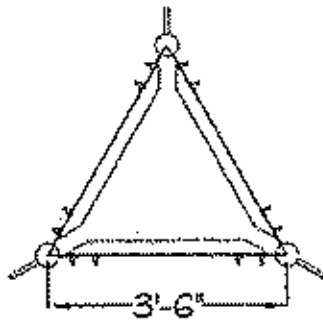


Item	Part	Qty.	Description	Lth.	Wt.
(1)	1.25G	2	Pipe 2-1/2" 2.8800 x 0.2760 x 20'-0"		352
(2)	1.25G	1	Pipe 2-1/2" 2.8800 x 0.2760 x 20'-0"		180
(3)	KD16	24	GRIDS: 1/4 x 1 1/4 x 3/16 x 3'-11 5/16"		300
(4)	KD01	6	GRIDS: 1/4 x 1 1/4 x 3/16 x 3'-11 5/16"		54
(5)	021	3	BAR 3/8 x 3" x 2'-3 1/4"		25
(A)		39	BRACE BOLTS: 5/8" x 1 3/4"		8
(B)		11	FLANGE BOLTS: 5/8" x 2"		2
(C)		1	FLANGE BOLTS: 5/8" x 2 1/4"		.19
Total Section Wt.					927



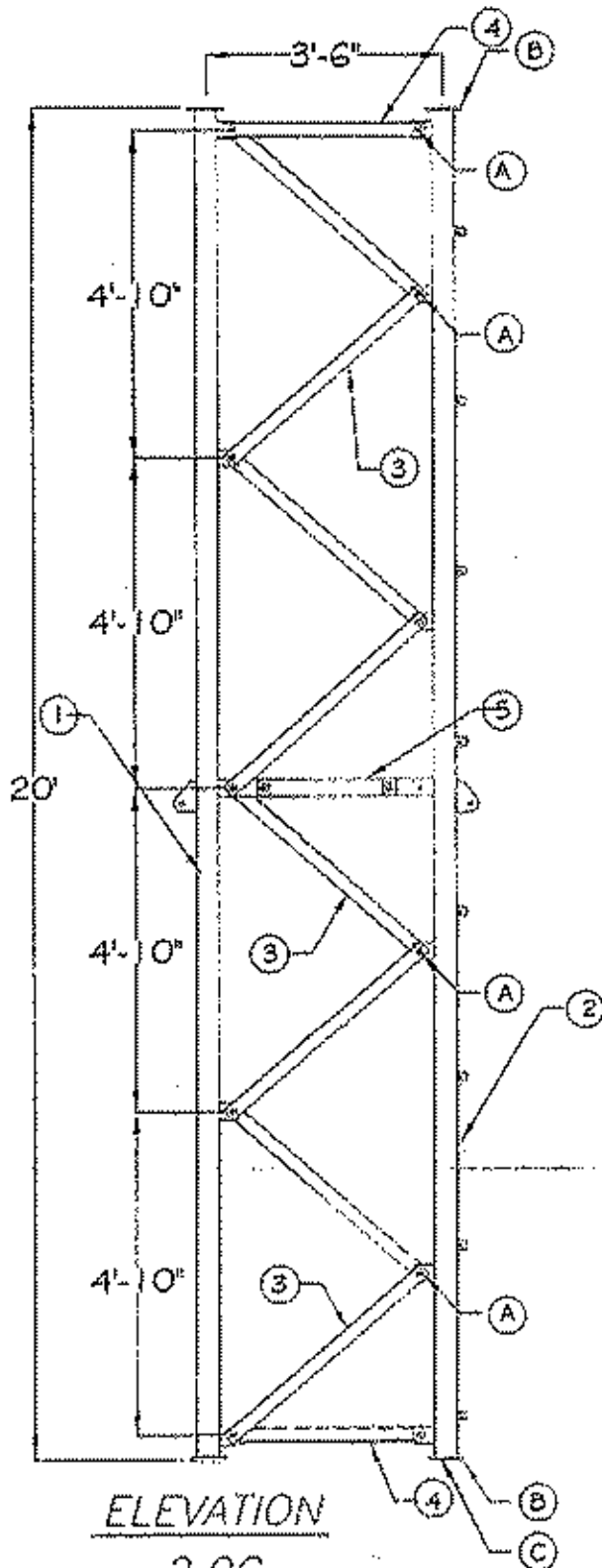
- Notes:
1. All bolts require Lock Washers.
 2. Mk.No.'s are stamped at the bottom of each leg.
 3. Install bolts with the nuts projecting up or outwards from the lower.
 4. Flange bolt (C) provided for safety climb cable guide bracket. (1/4" longer)

Rev.	Description	Date	By
		Title Section 2.5G M42 ass'y	
		Cust. Standard	
		Site Standard	
		Dwn. By OG Job No. Standard	
Chk. By Scale None		Date 08/12/04 Dwg. No. A-M42-2.5G	



PLAN VIEW


Item	Part	Qty.	Description	Len.	Wt.
(1)	RODS	2	Pipe 2" 2.3900 x 0.2180"	x 20'-0"	249
(2)	RODS	1	Pipe 2" 2.3900 x 0.2180"	x 20'-0"	135
(3)	KO16	24	DRILL 1/4" x 1/4" x 3/16" x 3'-11 5/16"		300
(4)	K001	6	DRILL 1/4" x 1/4" x 3/16" x 3'-11 5/16"		54
(5)	SC1	3	BAR 3/8" x 3" x 2'-3 1/4"		25
(A)		19	BRACE BOLTS: 5/8" x 1 3/4"		9
(B)		11	FLANGE BOLTS: 5/8" x 2"		8
(C)		1	FLANGE BOLTS: 5/8" x 2 1/8"		66
Total Section Wt.					931



ELEVATION
2.0G

Notes:

1. All bolts require Lock Washers.
2. Mk.No.'s are stamped at the bottom of each leg.
3. Install bolts with the nuts projecting up or outwards from the tower.
4. Flange bolt (C) provided for safety climb cable guide bracket. (1/4" longer)

Rev.	Description	Date	By		
		Title	Section 2.0G N42 Ass'y		
		Cust.	Standard		
		Site	Standard		
		Own. By	OG	Job No.	Standard
		Chk. By		Scale	None
		Date	08/12/04	Orig. No.	K-N42-2.0G
Tower Division					

Hemphill Corporation

3515 Dawson Rd.
Tulsa, OK 74115-4954

9/14/2005

2:16 PM

Customer: Hemphill Corporation
Site: White Plains, KY
Tower: 320 M42T Guyed

Page 1 of 3
Job No: 1410
Date: 12-May-05

Written by DG

Filed by:

Qty	Part No.	Description	Length	Placement	Unit Wt.	Total Wt.
Tower Sections						
2	TL02G	2.380" Dia. Tube	20 ft.		124.00	248
1	TL02GL	2.380" Dia. Tube	20 ft.		136.00	136
2	TL25G	2.380" Dia. Tube	20 ft.		176.00	352
1	TL25GL	2.380" Dia. Tube	20 ft.		185.00	185
6	TL25H	2.880" Dia. Tube	20 ft.		173.00	1038
3	TL25HL	2.880" Dia. Tube	20 ft.		186.00	558
4	TL03G	3.500" Dia. Tube	20 ft.		227.00	908
2	TL03GL	3.500" Dia. Tube	20 ft.		239.00	478
16	TL03H	3.500" Dia. Tube	20 ft.		224.00	3584
8	TL03HL	3.500" Dia. Tube	20 ft.		236.00	1888
2	TL03SZ	3.500" Dia. Tube	15 ft.		184.00	368
1	TL03ZL	3.500" Dia. Tube	15 ft.		193.00	193
1	3.0HB	Base	5 ft.		392.00	392
176	Flanges	A325 Bolt 5/8" Dia. x 2" Lg. Assy			0.17	30
16	Flanges	A325 Bolt 5/8" Dia. x 2-1/4" Lg. Assy			0.19	3
546	Bracing	A325 Bolt 5/8" Dia. X 1 3/4" Lg. Assy			0.15	82
96	KD01	L 1-3/4" x 1-3/4" x 3/16"	3'-0 3/4"		6.50	624
360	KD16	L 1-3/4" x 1-3/4" x 3/16"	3'-11 5/16"		8.50	3060
18	KD17	L 1 3/4 x 1 3/4 x 3/16	3'-11 13/16"		8.50	153
12	GG1	Bar 3/8 x 3	2'-3 1/4"		8.50	102
Sub-Total						14382
Guy Wire & Hardware			ft			
3	LEVEL 5	5/8 EHS	389		0.813	949
3	LEVEL 4	5/8 EHS	340		0.813	829
6	LEVEL 3	1/2 EHS	296		0.517	918
3	LEVEL 2	1/2 EHS	259		0.517	402
3	LEVEL 1	7/16 EHS	232		0.399	278
Weight's do not include spools						3376
Guy Wire & Hardware (cont'd.)						
9		Turnbuckle 7/8" Dia. x 12 Adj. Jaw-Eye			9.78	79
6		Turnbuckle 1" Dia. x 12 Adj. Jaw-Eye			9.15	55
3		Turnbuckle 3/4" Dia. x 12 Adj. Jaw-Eye			3.87	12
6		Preform Dead-End 7/16			1.88	11
18		Preform Dead-End 1/2			3.15	57
12		Preform Dead-End 5/8			6.50	78
6		Preform End Sleeve 7/16			0.10	1
18		Preform End Sleeve 1/2			0.10	2
12		Preform End Sleeve 5/8			0.10	3
6		Trimble 1/2"			0.51	3
18		Trimble 5/8"			0.75	14
12		Trimble 3/4"			1.47	16
18		Shackle 3/4"			2.80	52
3	AY-G1	Yoke			15.00	45
3		A325 Bolt 1" Dia. X 3 1/2" Lg. Assy			0.77	7
Sub-Total						429
Total Weight This Page						18186

Customer: Hemphill Corporation
 Site: White Plains, KY
 Tower: 320' M42T Guyed
 Written by: DG

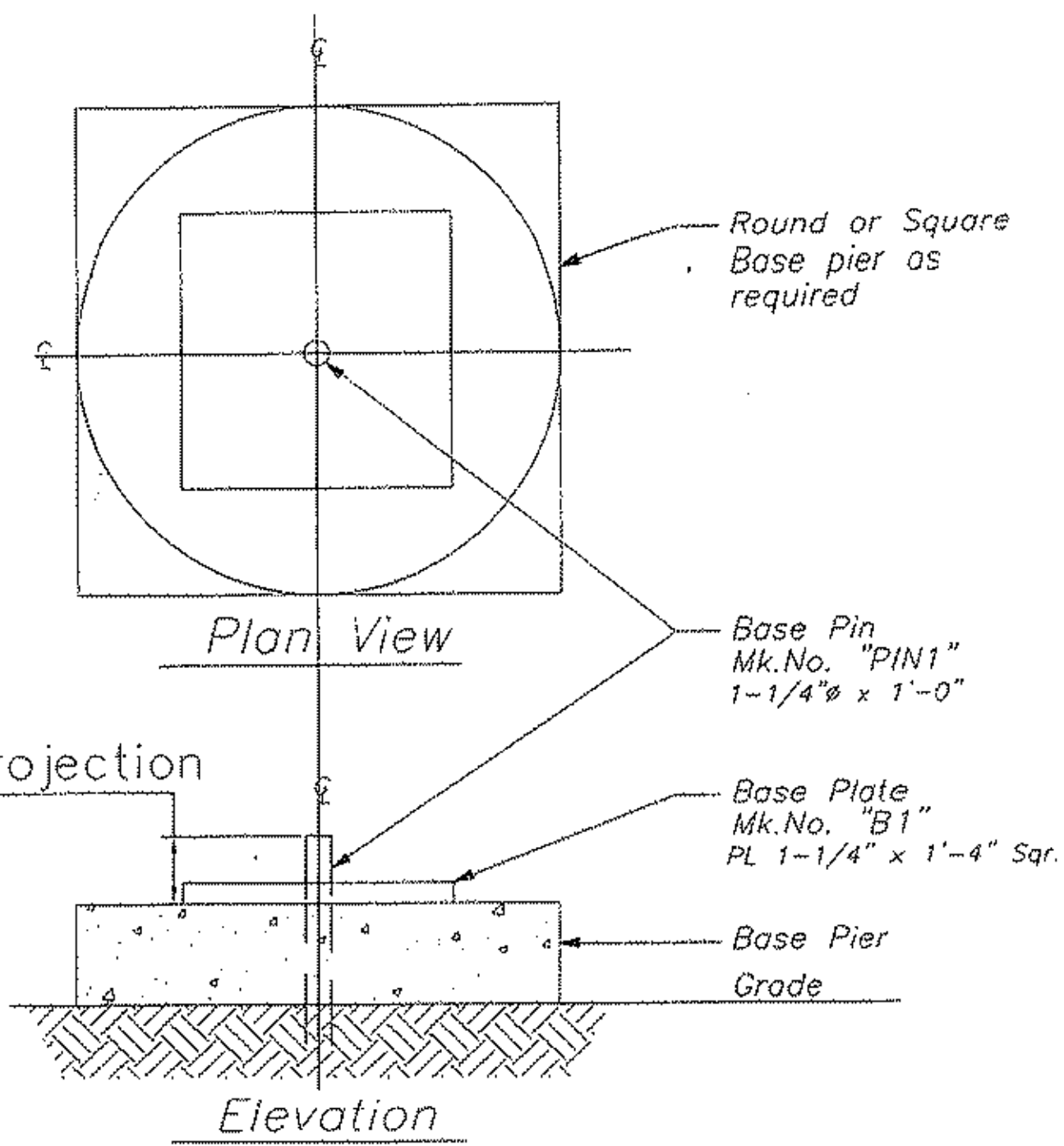
Page 2 of 3
 Job No.: 1410
 Date: 12-May-05
 Filed by:

Qty	Part No.	Description	Length	Placement	Unit Wt	Total Wt
		Miscellaneous				
3		Cans Cold-Galvanize Spray			1.00	3
3		"NOTICE" Signs			0.00	0
0		Nylon zip ties			0.00	0
1		Packet w/ 2 sets erection prints			1.00	1
1	B1	Base PL 1 1/4 x 1'-4	x 1'-4		90.00	90
1		Wrap Lock			1.00	1
260	SP	Step Rung Bar 5/8" Sq x 0'-5"	x 0'-7"		1.50	390
3		3/8" Guywire Rope Clips				
		Sub-Total				485
		Beacon Mount A-BCMNT				
1	E1	PL 1/4 x 1'-0	x 1'-0		11.00	11
4		Bolt A325 5/8 Dia x 1-3/4 Assy.			0.23	1
4		Bolt A325 5/8 Dia x 2-1/4 Lg. Assy.			0.40	2
		Sub-Total				14
		Lightning Rod Mount A-LTOD72				
1	E72	Pipe 2 Sch 40	x 4'-0		24	24
1		Lightning Rod 5/8 Dia. Assy	x 4'-0		6	6
4		A325 Bolt 5/8 Dia. x 2" Lg. Assy.			0.7	3
2	P1	PL 6 7/8 x 6 7/8			3.3	7
8		A325 Bolt 5/8 Dia. x 1 3/4 Lg. Assy.			0.7	6
		Sub-Total				45
		(3) 5' Side Arms (for straight leg)				
3	MT01	Angle L4 x 4 x 1/4"	x 5'-11 5/8"		39	117
3	MT02	Angle L4 x 4 x 1/4"	x 5'-11 5/8"		39	117
6	MT03	Angle L1 3/4 x 1 3/4 x 3/16"	x 3'-11 1/8"		8	48
3	MT04	Angle L3 x 3 x 1/4"	x 3'-3 1/4"		16	48
3	R3	Pipe 2" SCH 40	x 8'-0"		29	87
6	S32	Angle L6 x 6 x 3/8"	x 0'-9"		10	60
6	Y1	Clamp Bar 1/4" x 2"	x 0'-5"		0.8	10
6	STB1	Plate 3/8" x 4"	x 8 1/2"		3	18
3	RM17	Tie Back 2" SCH 40 pipe	x 16'-0"		61	183
12	U4	U-Bolt 1/2" x 2-1/2" x 4-1/2" Assy			0.62	7.44
12	U5	U-Bolt 1/2" x 2-15/16" x 5-1/4" Assy			0.73	8.76
33		Bolt A325 5/8" x 1-3/4" Assy			0.15	4.95
6		Bolt A325 5/8" x 2" Assy			0.17	1.02
3		Allthread Dia 1/2" x 8" Lg W/ (4) Nut & Lockwash			0.7	2
3		Bolt A325 1/2" x 3-1/4" Assy			0.34	1.02
24		1/2" flat washer for U5			0.03568	0.86
		Sub-Total				714.07
		Total Weight This Page				1250

Customer: Hemphill Corporation
 Site: White Plains, KY
 Tower: 320 M42T Guyed
 Written by: DG

Page 3 of 3
 Job No. 1410
 Date: 12-May-05
 Filed by:

Qty	Part No	Description	Length (ft.)	Placement	Unit Wt.	Total Wt
		Lighting Kit - E1				
1		Dual AC Light kit assembly			300.00	300
		Sub-Total				300
		Safety Climb Assembly		B SAFETYL		
1	L18	Top Assy w/ 3/8" Cable	x 355'		86.50	87
1	L15	L5x5x3/8	x 0-9"		9.20	9
16	H105	Cable Guide			0.50	8
2		Bolt A325 1/2" Dia x 1-1/2" Lg. Assy			0.20	0
2	U7	U-Bolt 1/2" Dia x 4-1/16" x 5-3/4" Assy			0.50	1
34		Bolt A325 3/8" Dia x 1-1/4" Lg. Assy			0.20	7
1	J4	Adjusting Bol: 3/8" Dia x 1'-0 3/4" Assy			1.00	1
16	L28	Bar 1/4" x 2"	x 0-5"		0.70	11
		Sub-Total				124
		Torque Arm Assemblies				
		TROA-11				
3	TP1	Pull Off Plate PL 3/4"	1' x 3"		31.00	93
3	TP3	Pull Off Plate PL 1/2"	1' x 1"		10.00	30
3	TC6	Channel MC10	x 7'-5 7/8"		235.00	705
24		Bolt A325 3/4" Dia x 2 3/4" Lg. Assy			0.29	7
6	U16	U-Bolt: 3/4" x 3-9/16"	x 5-3/4"		1.33	8
36		Flatwasher 3/4"			0.05	2
		Sub-Total				845
		Waveguide Ladder Attachment				
15	WG1	Waveguide Ladder 2'-7 1/4"	x 20'-0"		83.00	1245
1	WG15	Waveguide Ladder 2'-7 1/4"	x 15'-0"		20.75	21
128	L1	Angle Clamp Bar 1/4" x 2"			0.53	68
128	J1	J-Bolt 3/8" x 5-1/2"			1.20	154
		Sub-Total				1487
		10' Waveguide Bridge				
2	N1	L2-1/2" x 2-1/2" x 1/4"	x 2'-4 1/8"		10	20.00
2	N2	L2 x 2 x 1/4"	x 2'-5 7/8"		9	18.00
12	N3	L1-3/4" x 1-3/4" x 1/8"	x 1'-11 1/2"		2.8	33.60
2	R2	Pipe 3" Sch 40	x 17'-0"		129	258.00
1	NG1	Grip Strut 1x Gr. X 2'-0"			55	55.00
2		Pipe Cap			1	2.00
2	U-7	U-Bolt 1/2" x 4-1/16"	x 6-1/4"		0.86	1.72
2	U-12	U-Bolt 1/2" x 4-9/16"	x 6-3/4"		0.89	1.78
4		Bolt 1/2" x 2" A325			0.11	0.44
2		Bolt 1/2" x 1-1/2" A325			0.09	0.18
8		SS All-Thread 3/8" x 3'-0"			1	8.00
68		SS Nut 3/8" Hex			0.017	0.99
12	RF3	Ringfil 1/4" x 1-1/2"	x 0'-3"		0.3	3.60
4	RF4	Ringfil 1/4" x 2"	x 0'-3"		0.4	1.60
		Sub-Total				436
		Total Weight This Page				3762
		Grand Total This Project				22606



Notes:

1. The concrete finish around the base pin should be level and smooth.
2. The base pin must be installed vertically at the center of the pier.
3. Base plate "B1" should be placed in a level position, after concrete setup.

Rev.	Description	Date	By
Rev. 1	Changed Length of Projection	5/13/00	ES
Rev.			

	Title Base Pin Placement w/ Plate	
	Cust. Standard	
	Site Standard	
	Own.By JMP	Job No. Standard
	Chk.By	Scale None
Date 10/22/98	Dwg.No. A-PIN2	

Tower Division

