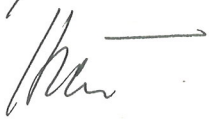


Št. biroja: 1606
Datum: 21-12-1992

Biroinvest
21.11.92


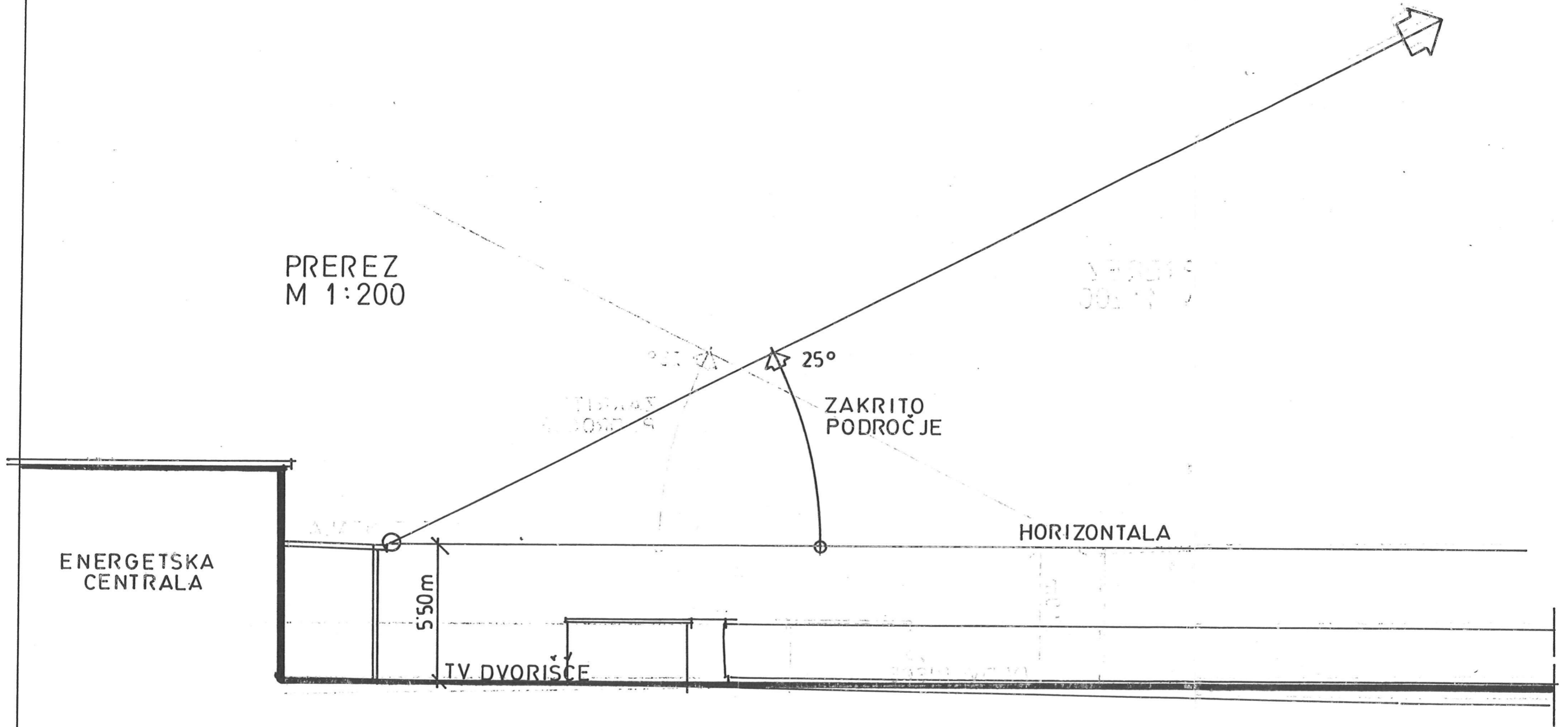
Technical Manual

***9-Meter
Earth Station Antenna
Site Preparation***

42S068B

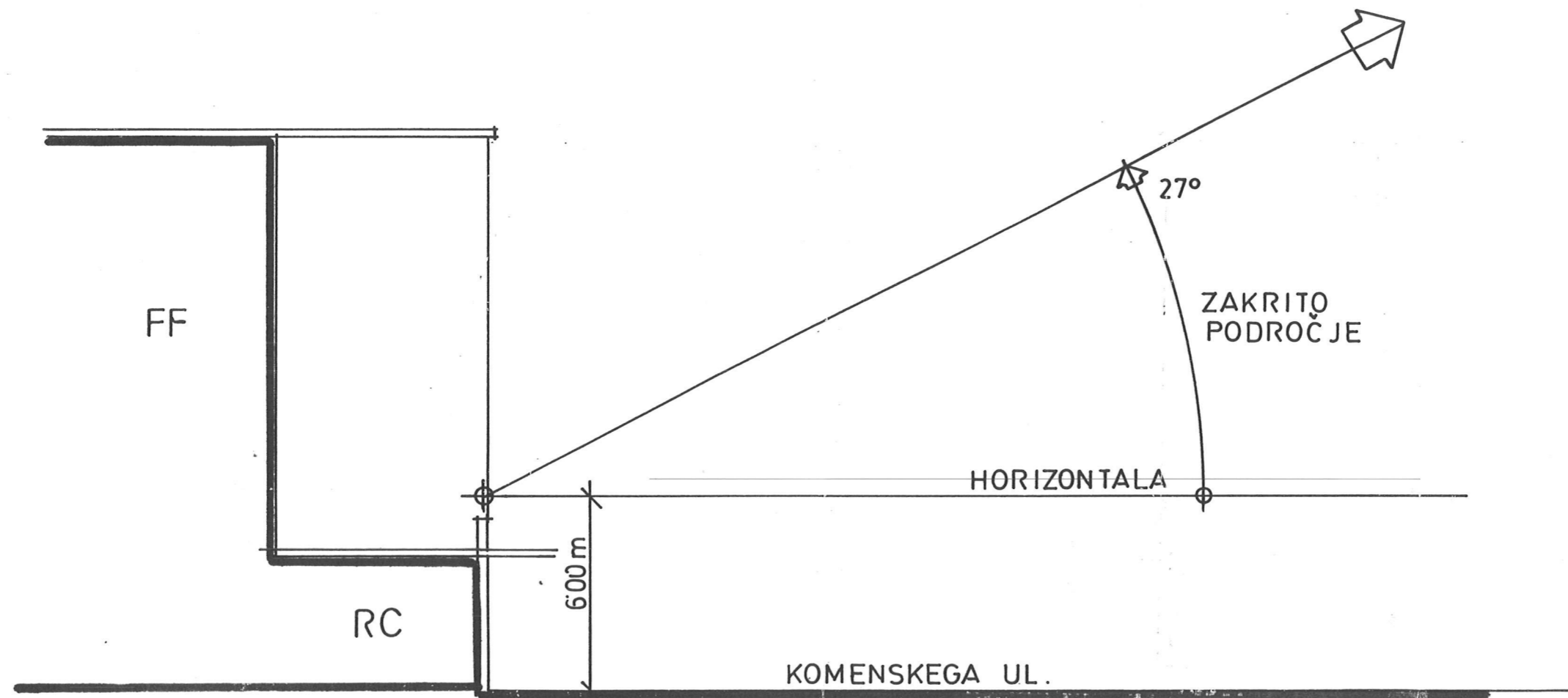
Scientific-Atlanta, Inc.

PREREZ
M 1:200



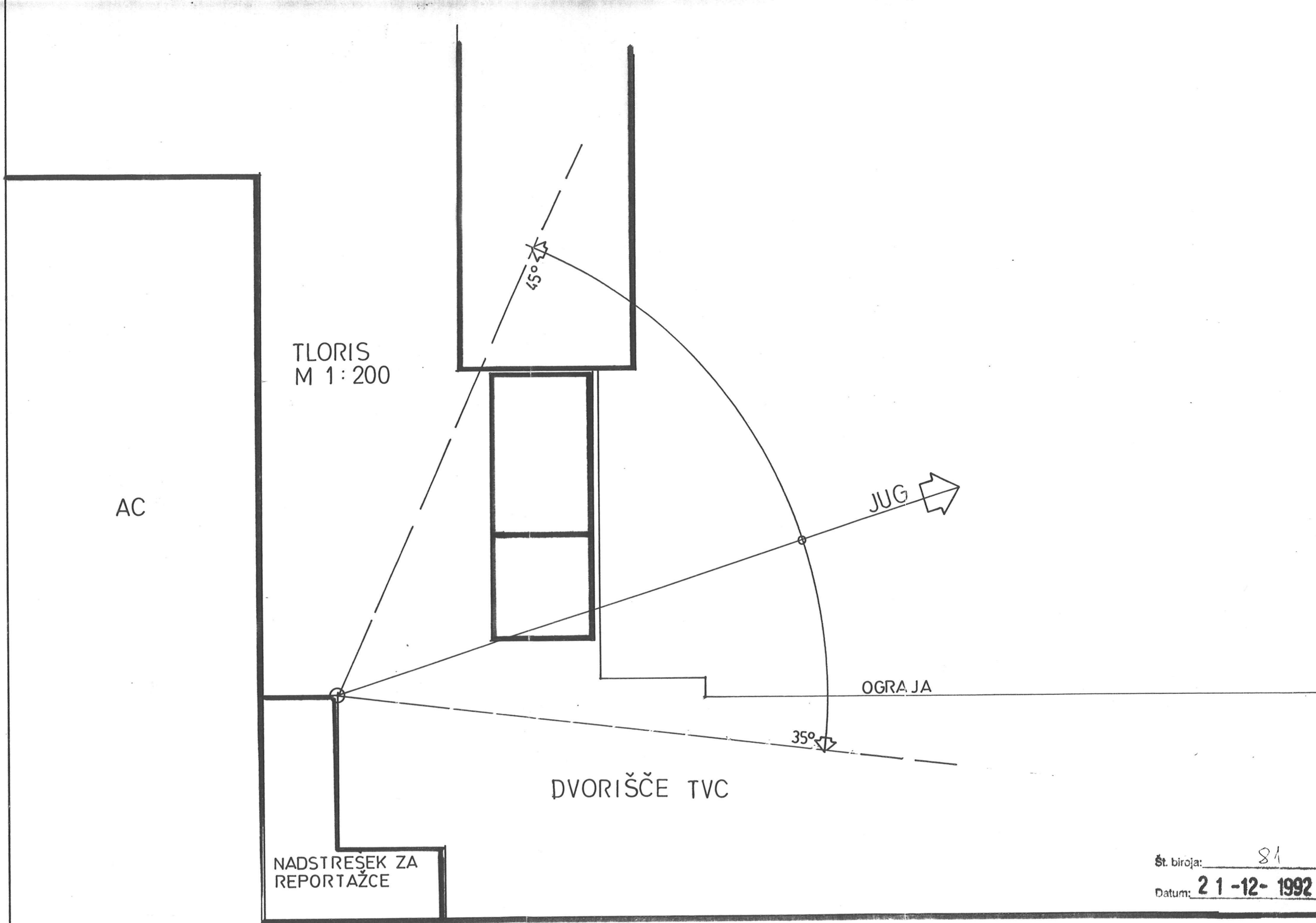
Primi D. O. O. - Invest

Št. biroja: 81
Datum: 2.1-12-1992



Primož D.

Št. biroja: 81
Datum: 21-12-1992



Št. biroja: 81
Datum: 21-12-1992



Primi D.

TLORIS
M 1:200

NADSTRESEK

45°

KOMENSKEGA UL.

JUG 

FF

RC
STREHA

45°

BWT



Primi D.

Št. biroja: 81
Datum: 21-12-1992

Technical Manual

9-Meter Earth Station Antenna Site Preparation

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In all correspondence with Scientific-Atlanta, Inc. regarding this publication, please refer to

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SECTION 1

GENERAL INFORMATION

1-1 **Introduction to Manual**

1-2 **Description**

SECTION 1 GENERAL INFORMATION

INTRODUCTION TO MANUAL

This manual contains information needed to properly locate and install the foundation for the 9-meter (9M) Earth Station Antenna. Section 1 provides general information, Section 2 provides antenna site selection criteria, and Section 3 provides the foundation installation information. All warnings and cautions should be reviewed before any procedures are performed. Failure to do so may result in personal injury or equipment damage.

Scientific-Atlanta, Inc. makes every effort to ensure that the information contained herein is correct and complete.

DESCRIPTION

There are two foundations for the two 9-meter antenna mounts. These are: the Model 8084 foundation for the Model 8020 mount and Model 8084-120 foundation for the Model 8020-120 mount. The Model 8084 and Model 8084-120 foundations are an essential part of the antenna installation. The foundation should be oriented so that the desired pointing angles can be achieved and accurately maintained under maximum wind loads.

The antenna mount is designed to safely support the antenna in winds up to 125 mi/h. The pointing accuracy of the installed antenna is determined by the stiffness of the mount, the antenna, and the foundation. It is recommended that the foundation be designed for a maximum tilt of 0.15 degrees when the 125 mi/h wind loads are applied to the antenna. It is imperative that competent engineering assistance be engaged to assure that the foundation is properly designed for the local site conditions and building codes. The contractor does not imply or warrant that the foundation design shown in this manual or the Site Installation Manual (42S067) is appropriate for any particular locality or site condition.

The Model 8084-120 foundation kit includes thirty-two foundation anchor bolts and an anchor bolt location template, is available. The template accurately locates the three main foundation plates for the mount and three foundation plate locations for the azimuth actuators. The Model 8084 foundation kit includes twenty foundation anchor bolts and an anchor bolt location template. The template accurately locates the three main foundation plates for the mount and one foundation plate for the azimuth actuator.

A true north-south reference line for the purpose of foundation orientation may be established by reference to: (1) a magnetic compass heading (corrected for declination or variation), (2) a survey from registered benchmarks, or (3) a sighting of Polaris (North Star). This line is used to position the foundation pad and to establish the heading of the foundation anchor bolt pattern. The survey should be done by a qualified surveyor.

SECTION 2 ANTENNA SITE SELECTION

- 2-1 **General**
- 2-1 **Determining Aiming Coordinates**
- 2-8 **Verifying Operational Clearance**
- 2-8 **Verifying Clear Line-of-Site**
- 2-8 **Verifying Absence of Signal Interference**
- 2-11 **Verifying Availability of Power Requirements**
- 2-12 • **Conduit Placement**

SECTION 2 ANTENNA SITE SELECTION

GENERAL

One of the most important factors to be considered for trouble-free, high-quality signal reception from desired satellites is the location of the antenna (i.e., the antenna site). For optimal signal reception, it is important that the antenna site selected provides the following:

- **Operational Clearance.** The site must allow clearance for antenna movement (both elevation and azimuth) necessary for aiming and maintenance purposes.
- **Clear Line-Of-Sight.** The site must allow clearance for antenna to be aimed (pointed) at desired satellite(s) with no obstructions between satellite(s) and any portion of the reflector.
- **Absence Of Signal Interference.** The site must be free of strong microwave and other signal interference.

In order to evaluate the antenna site selected against the above criteria, the antenna pointing position (i.e., aiming coordinates) for the desired satellite(s) must be determined. The method of determining aiming coordinates for desired satellite(s) and for ensuring that the criteria are met is described below.

DETERMINING AIMING COORDINATES

The location of each satellite, from which reception is desired, is defined in degrees West Longitude (see Table 2-1). In order to receive signals from a desired satellite, an antenna must be positioned properly (i.e., have the correct elevation and azimuth). The coordinates (degrees elevation and degrees azimuth) used for positioning the antenna are referred to as aiming coordinates. The following procedure, through use of an example, describes the method for determining the aiming coordinates at a selected site for a given satellite. This procedure is used here to evaluate the selected antenna site before the antenna is installed; however, the procedure is also used following antenna installation to accurately aim the reflector at the desired satellite(s). The procedure is described as follows:

1. Using information or maps provided by the FAA or other agency at location of antenna site, determine the latitude and longitude of your selected antenna site. This position must be defined in latitude (degrees North of the equator) and in longitude (degrees West of the 0° Meridian, which runs through London, England). The map in Figure 2-1 shows relative longitudes and latitudes for U.S. locations. For example, Atlanta, Georgia is 33.7° North, 84.4° West.

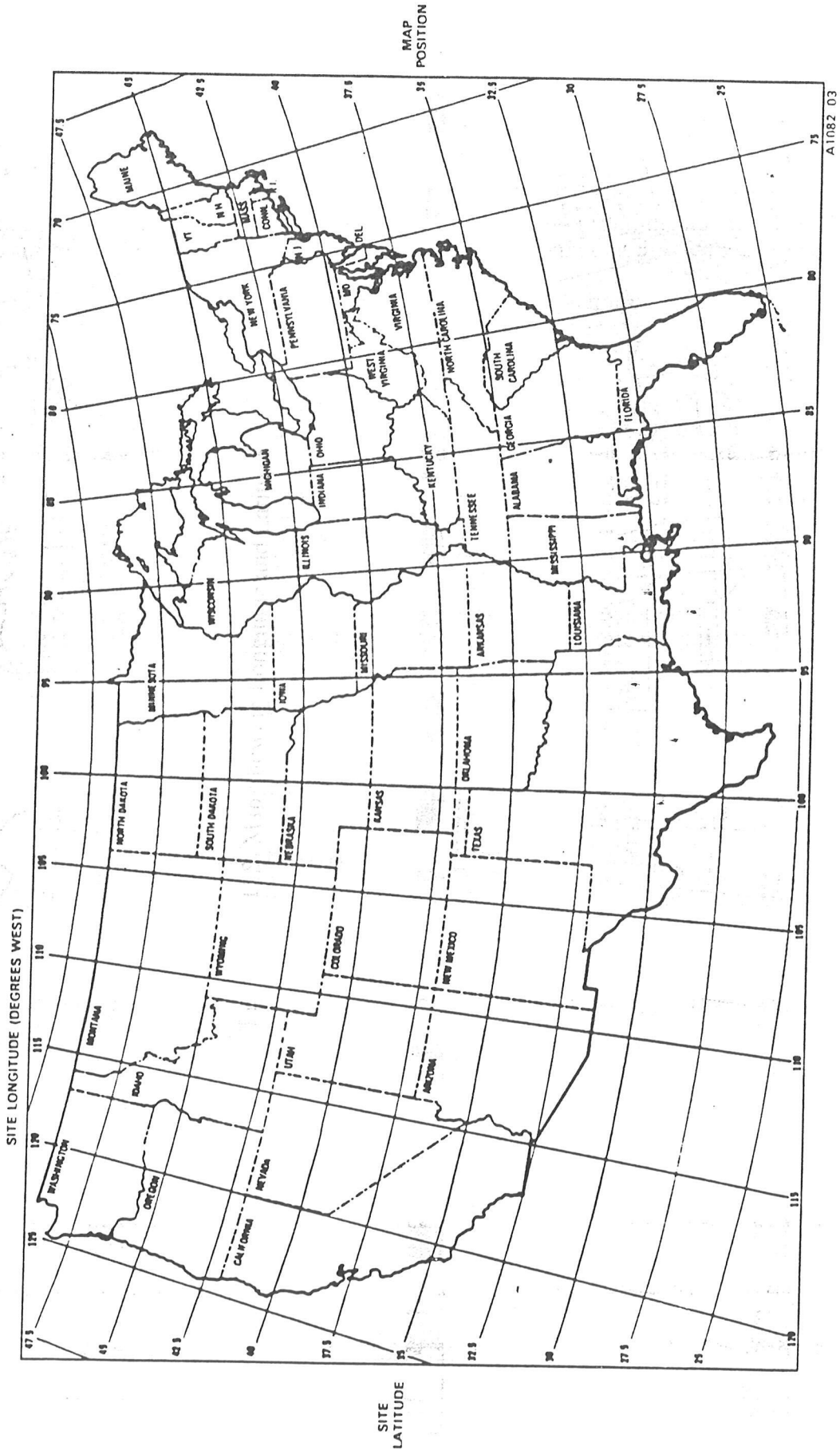


Figure 2-1. U.S. Map Showing Longitude and Latitude

2. Using Table 2-1, obtain the longitude of the satellite(s) that will be used to receive signals. For example, Satcom F3R is 131° West Longitude.

Table 2-1. Listing of Longitude for Various Satellites*

<u>Satellite</u>	<u>Location in Degrees West Longitude</u>	<u>Satellite</u>	<u>Location in Degrees West Longitude</u>
SPACENET II	69	ANIK D1	104.5
SATCOM F2R	72	GSTAR 2	105
GALAXY 2	74	ANIK C1	107.3
COMSTAR 2&4	76	ANIK C2	110
K2	81	ANIK D2	110.5
SATCOM F4	82	MORELOS 1	113.5
K1	85	ANIK C3	114.9
TELSTAR 302	85	MORELOS 2	116.8
SPACENET 3	87	SPACENET 1	120
WESTAR 3	91	WESTAR 5	122.5
SBS 4	91	SBS 5	123
GSTAR 3	93	TELSTAR 303	125
GALAXY 3	93.5	ASC 1	128
SBS 3	95	SATCOM F3R	131
TELSTAR 301	96	GALAXY 1	134
WESTAR 4	99	SATCOM FIR	139
SBS 1&2	99	AURORA 1	143
GSTAR 1	103		

*Satellite positions listed are subject to change. These positions represent assignments for a particular time period.

3. Subtract the selected antenna site longitude (determined in step 1) from the satellite longitude (determined in step 2). From the examples listed above, the equation is: $131^\circ - 84.4^\circ = 46.6^\circ$ difference.

NOTE

If the difference is a positive number, use the graph given in Figure 2-2 for step 4. If the difference is a negative number, use the graph given in Figure 2-3 for step 4.

4. Using either Figure 2-2 or Figure 2-3, as determined above (see NOTE), perform the following procedure:

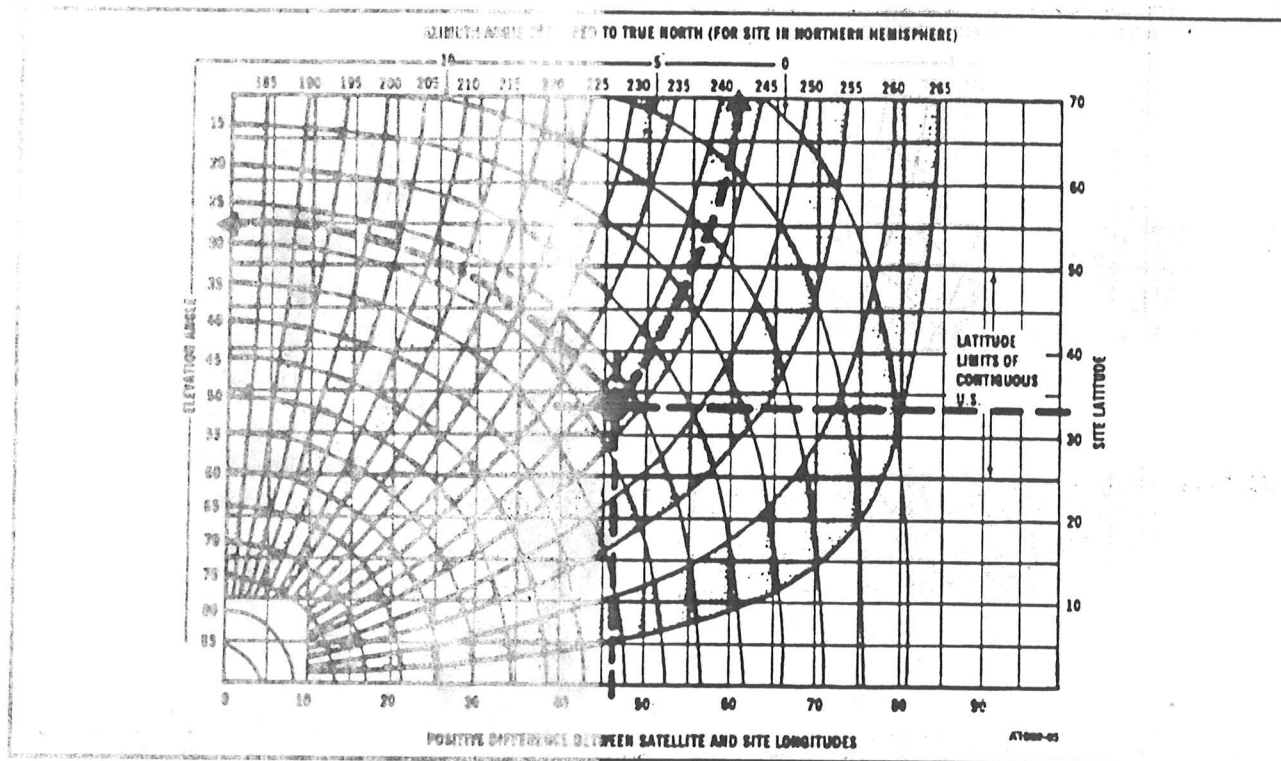


Figure 2-2. Universal Azimuth-Elevation Look Angles for Positive Differences Between Site and Satellite

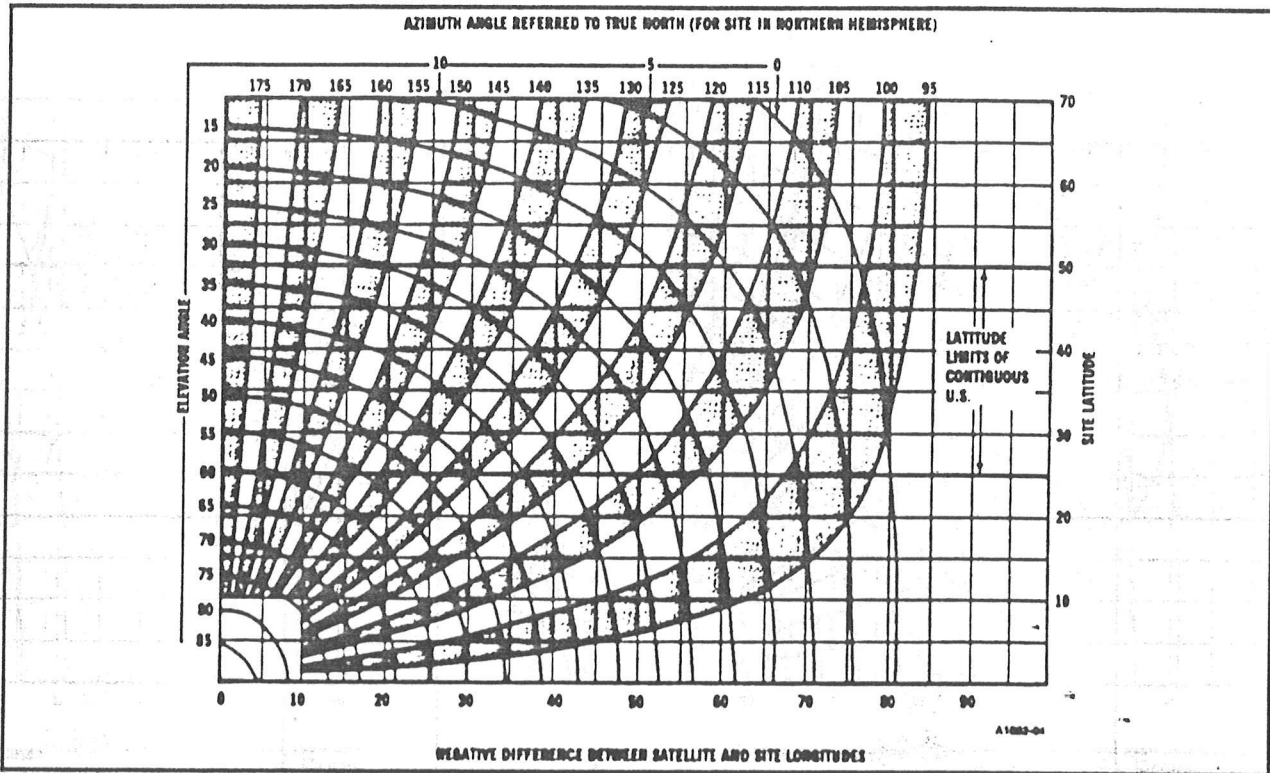


Figure 2-3. Universal Azimuth-Elevation Look Angles for Negative Differences

- a. Along the bottom edge of the graph, mark the point corresponding to the difference number obtained in step 3. In the example above, the point is 46.6°.
- b. Along the right edge of the graph, mark the point corresponding to the selected antenna site latitude (determined in step 1). The example point is 33.7°.
- c. As shown in Figure 2-2 (by the example) project these two points upward (from the bottom edge of the graph) and inward (from the right edge of the graph) until these two lines intersect. Mark this point with a circle for reference.
- d. To determine the elevation aiming coordinate for the antenna, follow the curved lines around to the left and estimate where the reference point determined in (b) above would intersect the left edge of the graph. The example is about 27°.

NOTE

For reference, elevation is measured up from the horizon and azimuth is measured clockwise from the North.

- e. To determine the azimuth aiming coordinate for the antenna, follow the curved lines upward and estimate where the reference point determined in (b) above would intersect the upper edge of the graph. The example is about 242°.
5. When using a compass to locate the azimuth aiming coordinate determined in step 4.e above, it may be necessary to adjust the compass indication (because of magnetic deviation) before pointing the antenna. In the example, the azimuth angle is 242°; however, from Figure 2-4, Atlanta, Georgia, is about +1° of magnetic deviation from true North. Therefore, to compensate for deviation, add 1° to our azimuth calculation: 242° + 1° = 243°, which is the actual azimuth reading to use in pointing the antenna.

NOTE

The above method should be used in determining the antenna aiming coordinates for both the satellite(s) from which reception is currently desired and for satellite(s) from which reception may be desired in the future.

Azimuth and elevation aiming coordinates may also be determined by formula using a digital calculator. In these formulas, X represents the site latitude in degrees, Y represents the site longitude in degrees, and Z represents the satellite longitude in degrees. For the southern hemisphere, enter X as negative. If west longitudes are entered as positive numbers, define the longitude difference as:

$$D = Z - Y$$

If East longitudes are entered as positive numbers, define the longitude difference as:

$$D = Y - Z$$

The constant K is defined as:

$$K = \frac{1}{6.611}$$

Compute the elevation angle E and the azimuth angle A according to the following formulas:

$$E = \tan^{-1} \left(\frac{\cos D \times \cos X - K}{\sqrt{(\sin D)^2 + (\cos D \times \sin X)^2}} \right)$$

$$A = \tan^{-1} \frac{\tan D}{\sin X}$$

If X > 0 (i.e., a northern hemisphere latitude), then add 180° to A to get the angle from true north. Then add the appropriate magnetic deviation angle as described before to obtain the compass heading.

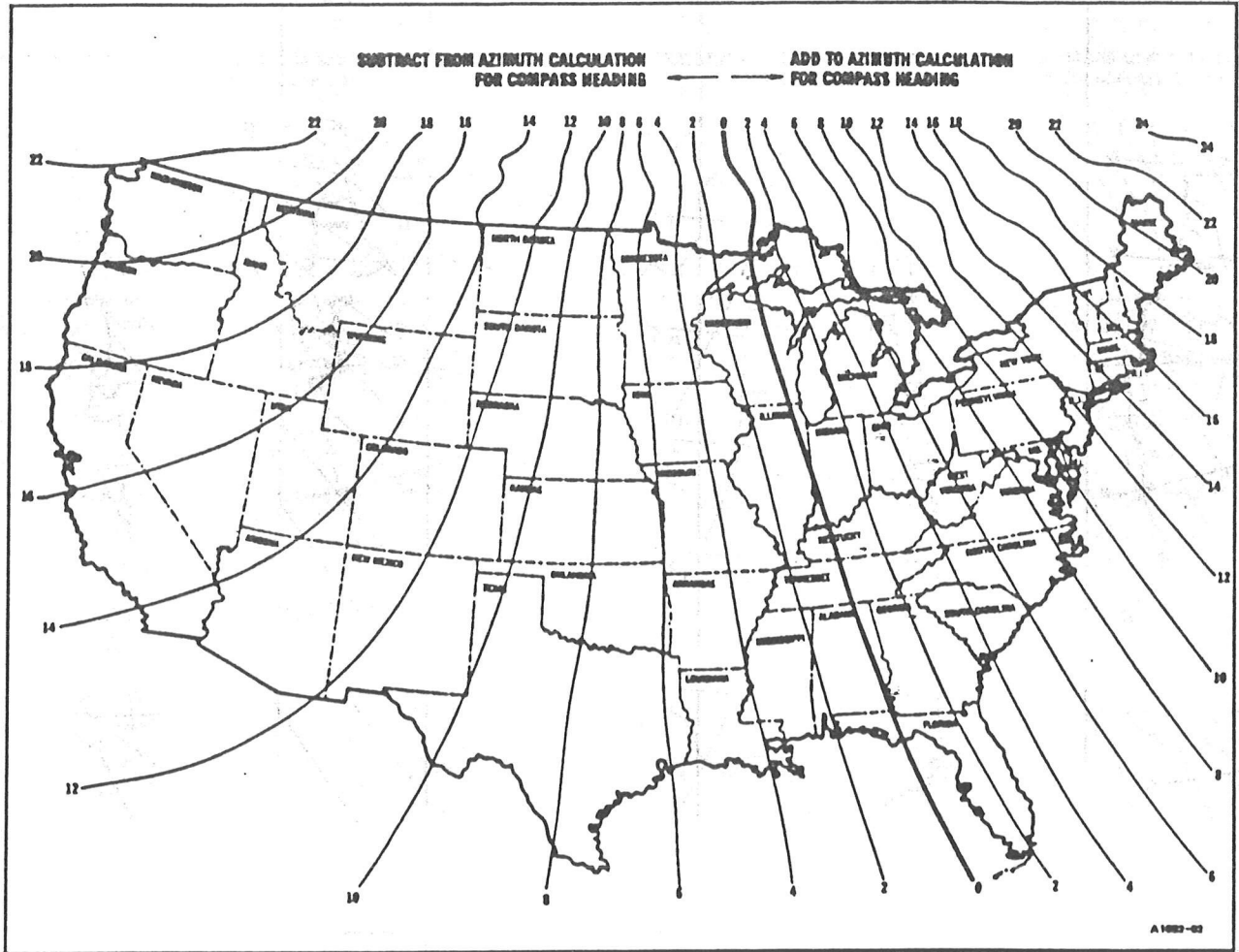


Figure 2-4. U.S. Map Showing Magnetic Deviation for Compass Indications

**VERIFYING
OPERATIONAL
CLEARANCE**

Once the antenna aiming coordinates have been determined, it is necessary to verify operational clearance (see Figure 2-5). This ensures that the antenna movement necessary for both aiming and maintenance purposes is not restricted.

**VERIFYING CLEAR
LINE-OF-SIGHT**

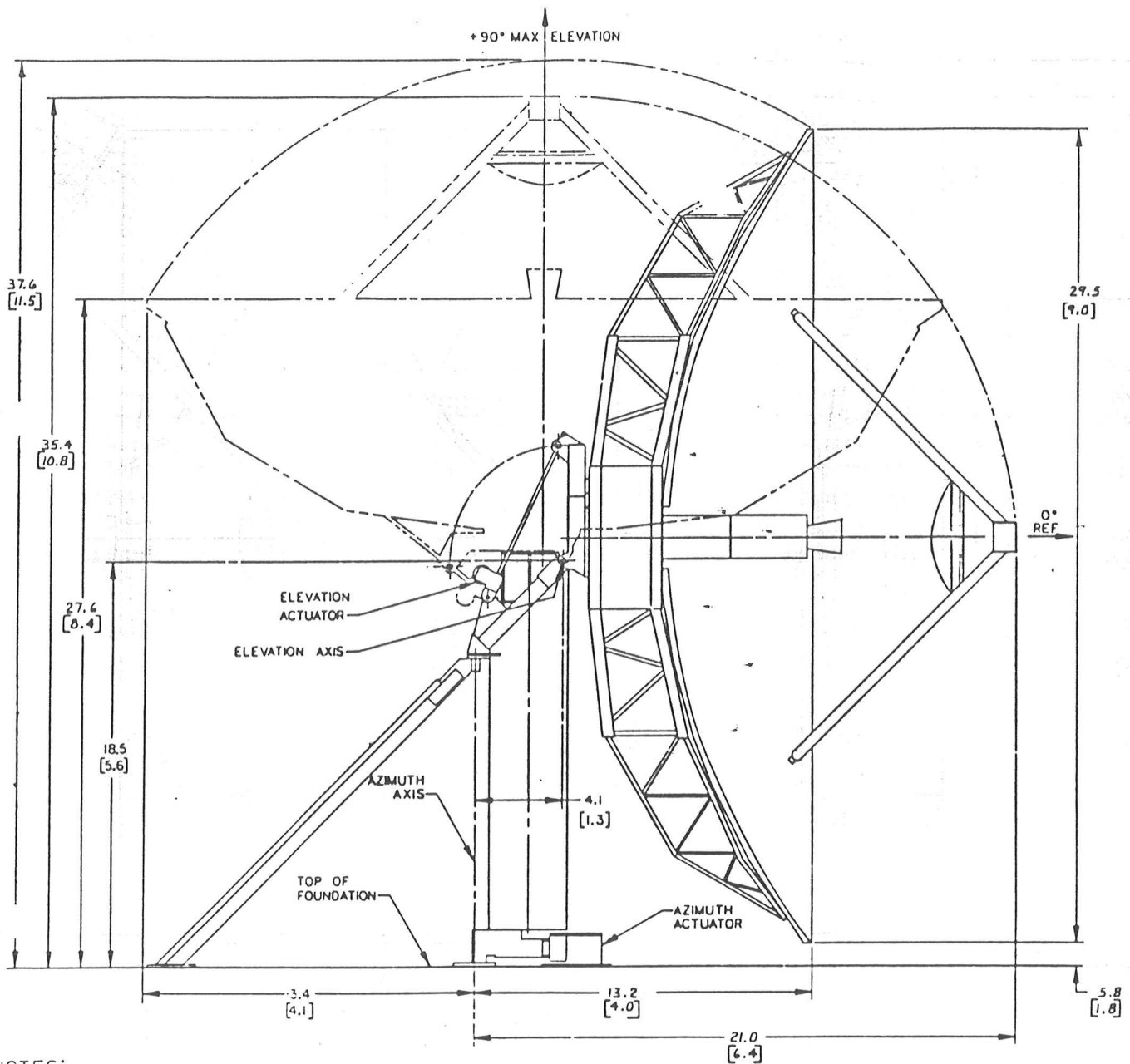
Once the operational clearance has been verified, it is necessary to verify a clear line-of-sight. This ensures that the antenna may be aimed at desired satellite(s) without obstruction between the satellite(s) and any portion of the reflector. When using the satellite(s) aiming coordinates for a particular site, be sure that there are no trees, buildings, power lines, etc., between the dish location and the satellite. It is important that this clearance includes the total dish surface area and that nothing is blocking any portion of the dish surface.

**VERIFYING
ABSENCE OF
SIGNAL
INTERFERENCE**

For optimal signal reception, it is important that the antenna site selected be free of strong microwave or other signal interface. Microwave systems in the vicinity of a selected antenna site can cause interference. If a known source of interference (e.g., a Bell System microwave tower) is close by, it may be necessary to have a site survey performed to determine if the site selected is suitable. Two of the companies which perform these services are:

- Comsearch, Inc.
11720 Sunrise Valley Drive
Reston, VA 22091
(703) 620-6300

Comsearch, Inc.
251 West Renner Road
Richardson, TX 75080
(214) 680-1000



NOTES:

1. ALL DIMENSIONS ARE IN FEET [METERS].
DRAWING IS NOT TO SCALE.
2. NO BUILDINGS, WALLS, FENCES, OR OTHER PERMANENT FIXTURES SHOULD BE PLANNED FOR INSTALLATION ANY CLOSER THAN 2 METERS OF THE ANTENNA AND FOUNDATION ENVELOPE WITHOUT CONSULTATION WITH THE FACTORY.

ELEVATION

Figure 2-5. Clearance Requirements for 9-Meter Earth Station Antenna (Sheet 1 of 2), 455552

ANTENNA SITE SELECTION

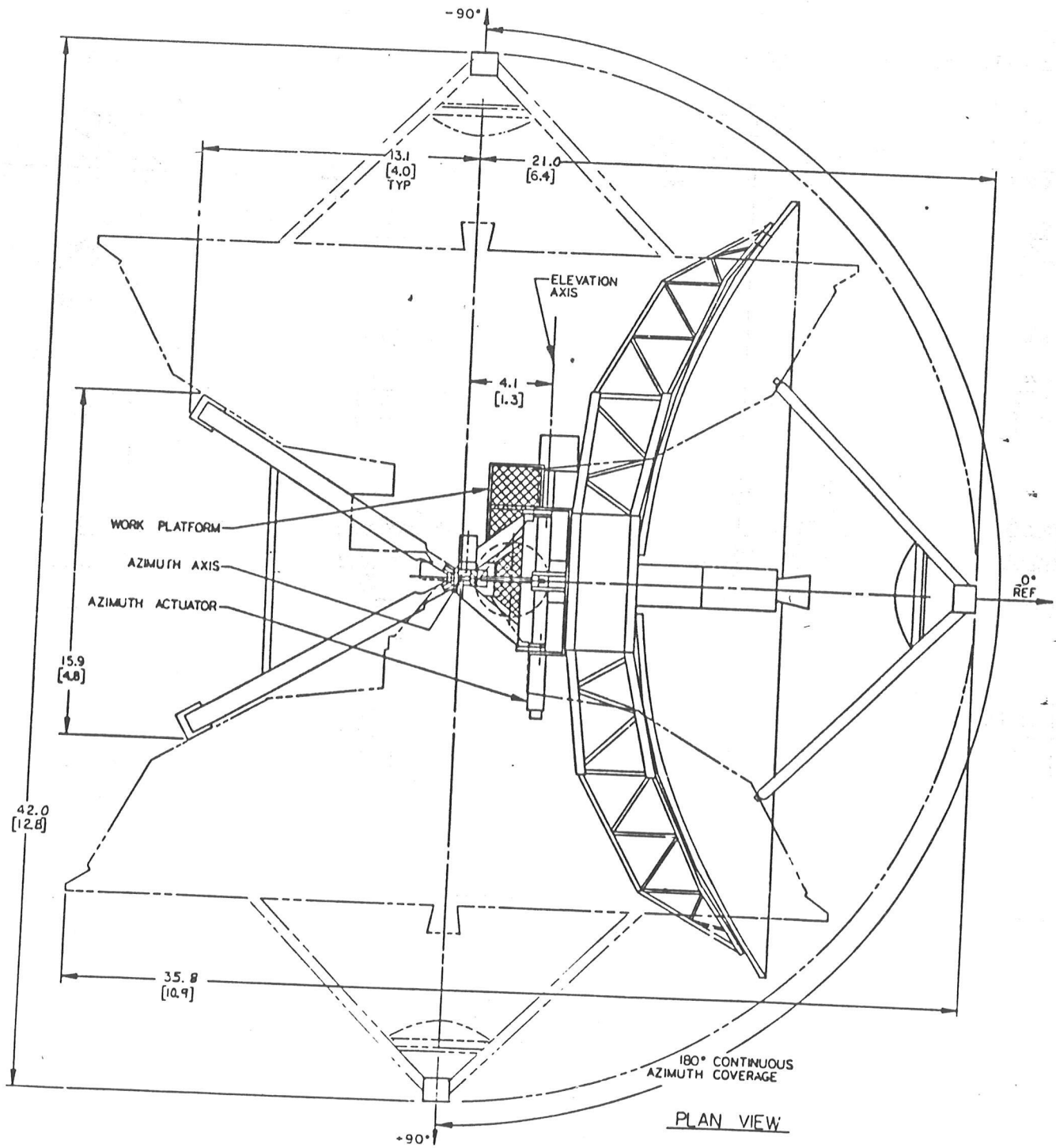


Figure 2-5. Clearance Requirements for 9-Meter Earth Station Antenna (Sheet 2 of 2), 455552

**VERIFYING
AVAILABILITY OF
POWER
REQUIREMENTS**

The power requirements will vary depending on the options purchased with the 9M antenna. Table 2-2 provides a list of the power requirements for each option. Verify that adequate power is available prior to finalizing the selection of the site.

Table 2-2. Power Requirements

Antenna Motorization - Domestic (60 Hz)

Azimuth Axis	208V ac, 3-phase, 6.3 amp max (single speed) 208V ac, 3-phase, 18.0 amp max (dual speed)
Elevation Axis	208V ac, 3-phase, 6.3 amp (single speed) 208V ac, 3-phase, 18.0 amp max (dual speed)
Polarization Axis	208V ac, 3-phase, 0.24 amp

(Maximum full load current with both single speed actuators and polarization motor running is 12.84 amps. Maximum full load current with both dual speed actuators and polarization motor running is 36.24 amps.)

Antenna Motorization - International (50 Hz)

Azimuth Axis	380V ac, 3-phase, 6.5 amp max (single speed) 380V ac, 3-phase, 9.6 amp max (dual speed)
Elevation Axis	380V ac, 3-phase, 6.5 amp (single speed) 380V ac, 3-phase, 9.6 amp max (dual speed)
Polarization Axis	380V ac, 3-phase, 0.15 amp

(Maximum full load current with both single speed actuators and polarization motor running is 13.15 amps. Maximum full load current with both dual speed actuators and polarization motor running is 19.35 amps.)

NOTE

Power requirements for 415V systems are 90 percent of the requirements for 380V systems.

NOTE

Circuit breaker selection should take into consideration that motor starting or locked rotor amp surge may be as high as 6 times the full load running current. The combined azimuth and elevation connections must be completed by an electrical contractor and must meet all state and local electrical codes.

Table 2-2. Power Requirements - Continued

De-Ice System

Full Reflector Power	208V - 240V ac, 3-phase, 35.7 kVa
Half Reflector Power	208V - 240V ac, 3-phase, 17.8 kVa
Feed and Subreflector	208V - 240V ac, 3-phase, 1.7 kVa

Conduit Placement

Prior to installing the foundation (the next section), determination must be made as to how power and control cables will be run to the antenna. If the cables are to be run underground, conduit must be placed in the foundation prior to pouring the cement.

Conduit should be run to two locations for the antenna cables. A conduit for the azimuth actuator motor cables should be terminated near the actuator foot location. In the case of the 120 degree azimuth mount, the termination should be near the foot that will be used most often. A conduit for all the remaining cables should be terminated near the back left foot of the mount (foot 2 on either foundation plan drawing in the following section), toward the centerline of the mount and forward of the foot.

SECTION 3 FOUNDATION INSTALLATION

- 3-1 **General**
- 3-1 **Antenna Considerations**
- 3-1 **Foundation Design Considerations**
- 3-62 **Foundation Construction**

SECTION 3 FOUNDATION INSTALLATION

GENERAL

The pointing accuracy of the installed antenna is determined by the stiffness of the mount, the reflector, and the foundation. Therefore, antenna foundation preparation is an essential part of antenna installation.

ANTENNA CONSIDERATIONS

The foundation heading is critical to the performance of the motorized antenna and the non-motorized antenna. The foundation heading establishes the center of azimuth travel.

Proper electrical grounding shall be provided by the installing contractor to meet local applicable codes. Depending on local soil conditions, this may take the form of a buried grid or a suitable copper stake. The antenna mount shall be electrically connected to the ground.

Provisions must be made to provide suitable support for power, RF, and control cables either by buried conduit or overhead cable tray. If conduit is supplied, it shall be at least 4-inches in diameter with at least a 36-inch radius bend. Lightning arrestors must be provided across all cables leaving the antenna per applicable local codes and N.F.P.A. codes. (Refer to Section 2 for information on required operational clearances.)

FOUNDATION DESIGN CONSIDERATIONS

The antenna mount is designed to safely support the antenna in winds up to 125 mi/h. It is recommended that the foundation be designed for a maximum tilt of 0.15 degrees when the 125 mi/h wind loads are applied to the antenna. It is imperative that competent engineering assistance be engaged to assure that the foundation is properly designed for the local site conditions and building codes. Scientific-Atlanta, Inc. does not imply or warrant that the foundation design shown in this manual is appropriate for any particular locality or site condition.

The loading for the above conditions is presented in Figure 3-1 for the 120° azimuth mount and Figure 3-2 for the 180° azimuth mount. The load directional signal convention is illustrated on sheet 6 of either figure. The foundation loading information should be used in implementing the design.

CAUTION

Since soil and environmental conditions, building codes, installation practices and other factors vary among different localities, those persons installing antenna mounts are cautioned to secure professional engineering services for the design and construction supervision of antenna mount foundations.

This antenna mount anchor bolt orientation and worst case loading table is furnished to be used to establish required dimensions and location of bolts relative to each other and as a guide to antenna mount characteristics that must be considered in the professional design of a foundation.

Scientific-Atlanta does not represent, nor recommend that any particular design or size foundation is appropriate for any particular locality or installation.

NOTE

1. Total stiffness of foundation and soil together must be such as to give a maximum of 0.1° tilt of the foundation anchors in a 125 mi/h wind.
2. Anchor bolt locations must be within $1/32$ inch of dimensions given in anchor bolt location plan. Scientific-Atlanta anchor bolt template is recommended for locating anchor bolts. Refer to Figure 3-6 for the 120° azimuth mount and Figure 3-5 for the 180° azimuth mount.
3. Scientific-Atlanta typical monolithic slab foundation designs for 100 mi/h and 125 mi/h wind loads are shown in Figure 3-3 for the 120° azimuth mount and Figure 3-4 for the 180° azimuth mount.
4. If cadmium or zinc plated nuts are used on anchor bolts, a final torque of 600 ft-lb should be applied after grout under mount baseplates has cured. If fluoropolymer coated nuts are used (finish on Scientific-Atlanta supplied nuts) a final torque of 450 ft-lb should be applied.
5. Surface of concrete foundation at the four mount feet should be level within 0.50 inch.

Figure 3-3 presents a typical pad foundation design for the 120° azimuth mount. Figure 3-4 presents a design for the 180° azimuth mount. Tables 3-1 and 3-2 are the foundation kits for the two mounts. If a special foundation design or load frame is required, a qualified structural engineer who is familiar with local structural codes should be employed.

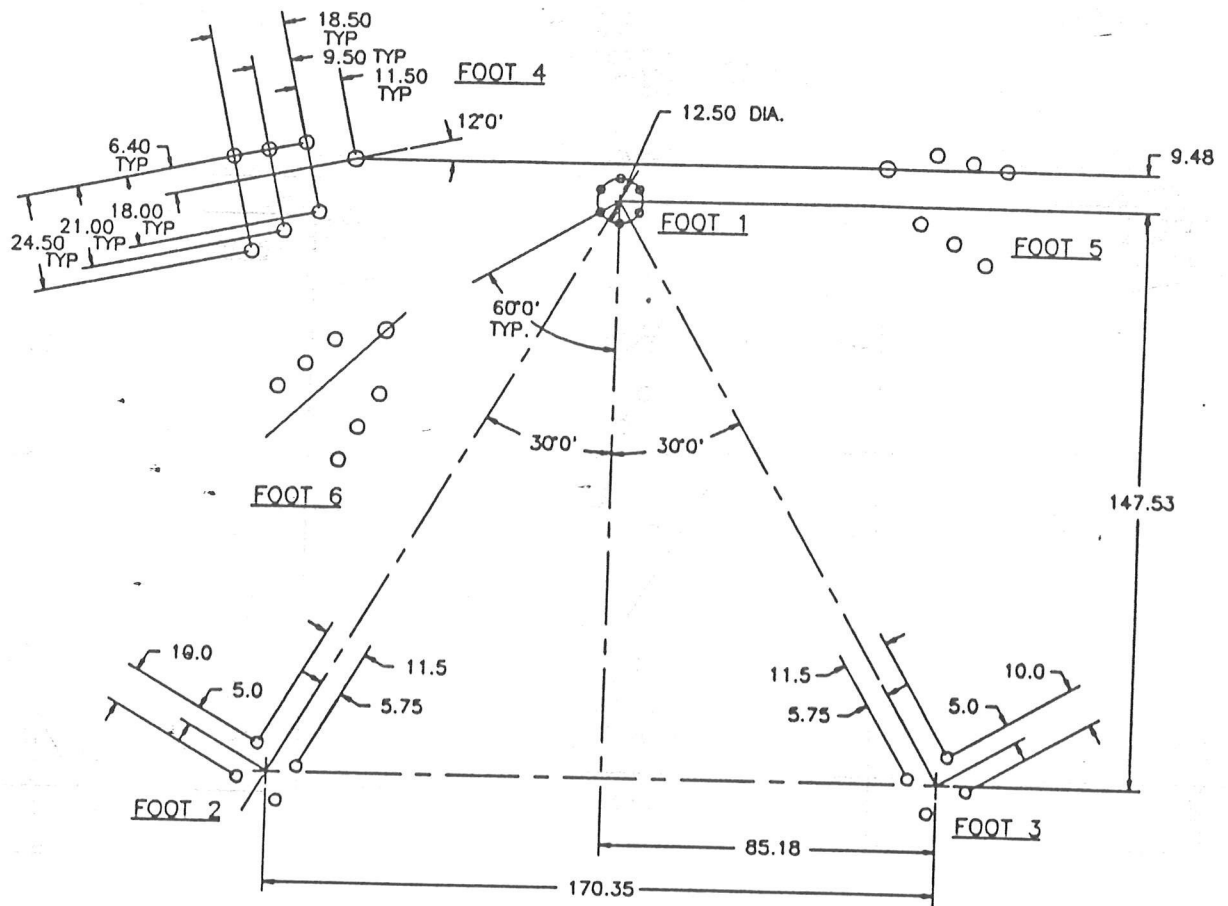
Table 3-1. Foundation Kit, 120° Azimuth Mount

Qty.	Part No.	Description
64	89778	1-1/4 Stl Zinc Pld Flat Washer
64	336628	1-1/4-8 UN Hex Nut
32	336627	1-1/4-8 UN Anchor Bolt
32	268370	3.0 X 3.0 X 0.75 THK Anchor Plate
1	360160	Foundation Template

Table 3-2. Foundation Kit, 180° Azimuth Mount

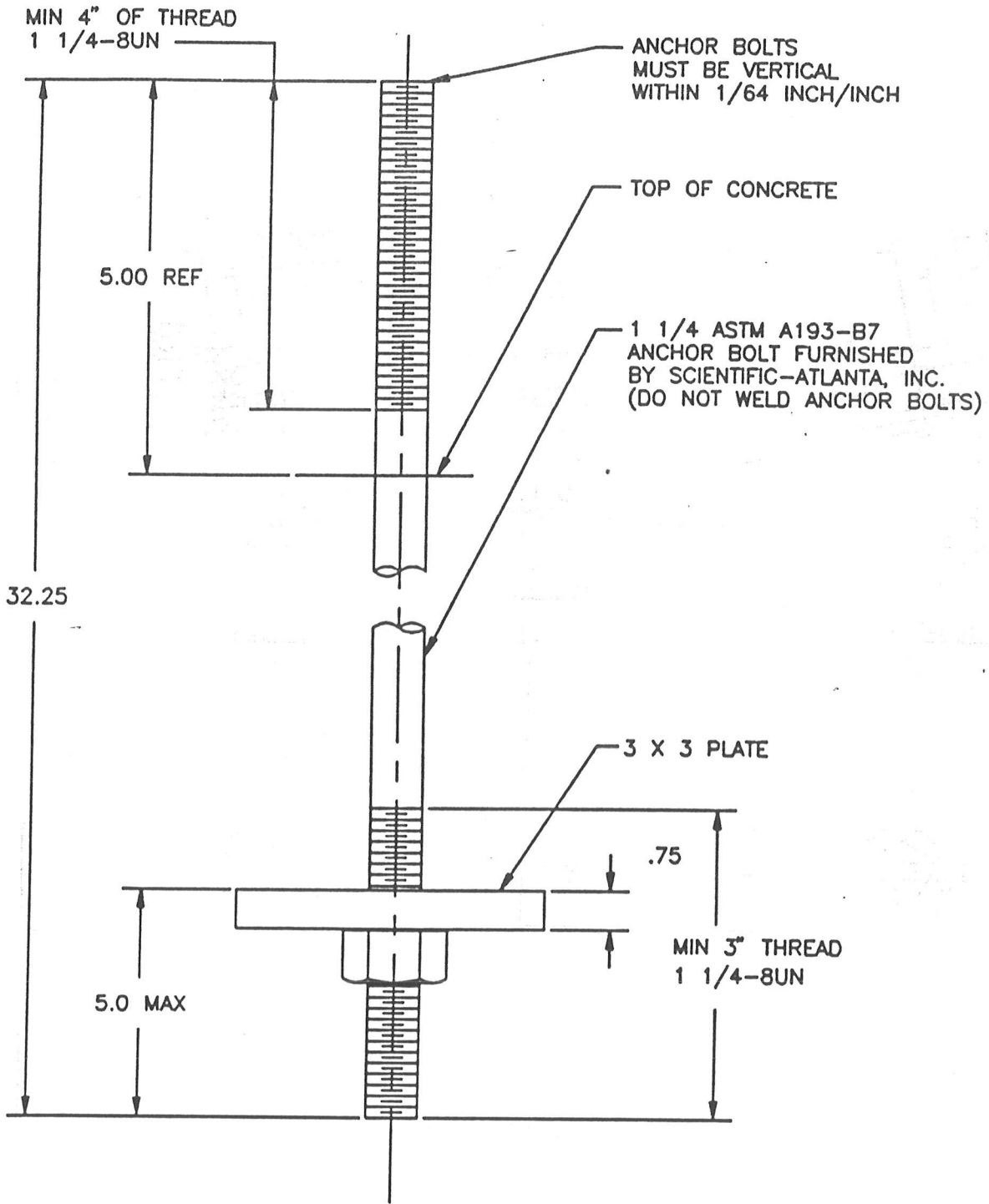
Qty.	Part No.	Description
20	336628	1-1/4-8 UN Hex Nut
20	336627	1-1/4-8 UN Anchor Bolt
20	268370	3.0 X 3.0 X 0.75 THK Anchor Plate
1	268351	Foundation Template

FOUNDATION INSTALLATION



ANCHOR BOLT LOCATION PLAN

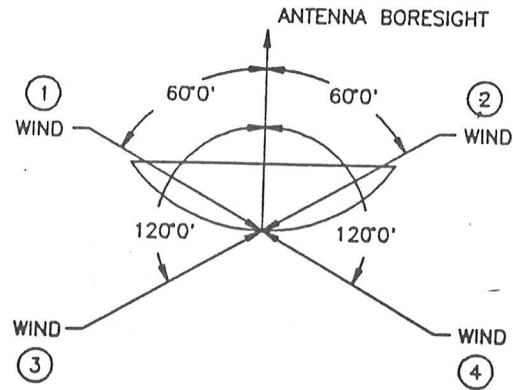
Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 1 of 37), 454948



ANCHOR BOLT DETAIL

Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 2 of 37), 454948

FOUNDATION INSTALLATION

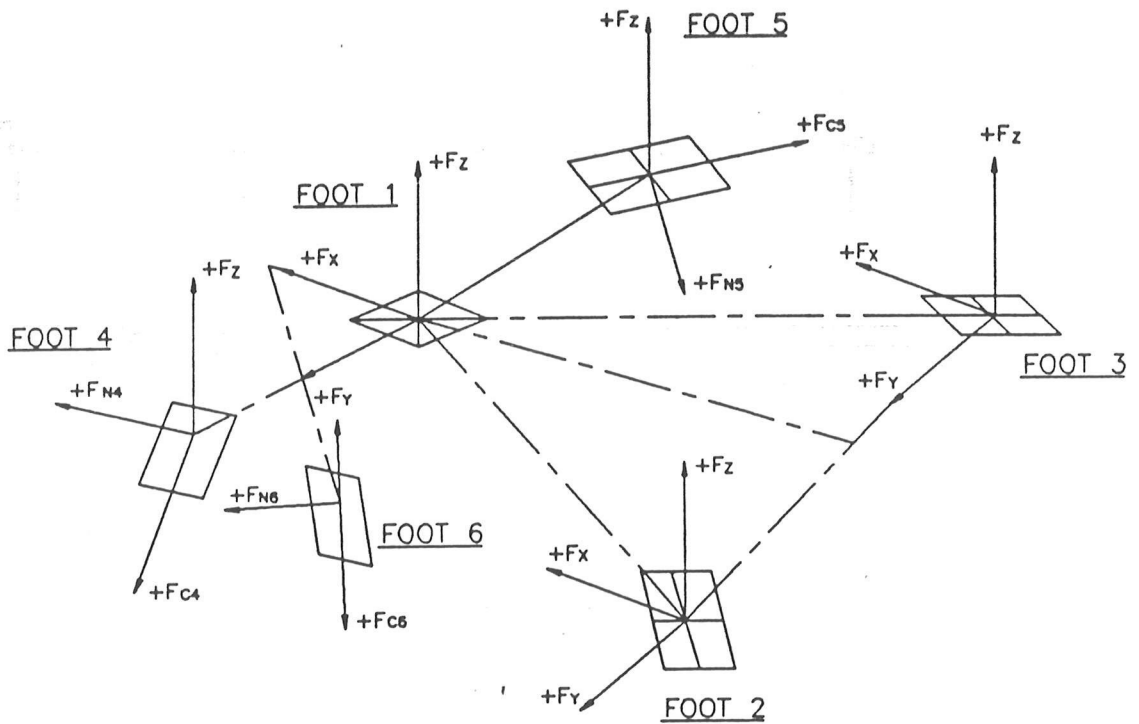


PLAN VIEW OF ANTENNA

THE WIND DIRECTION IS ALWAYS ASSUMED TO BE PARALLEL TO THE GROUND. THE ANTENNA IS AT 0° ELEVATION. WIND LOAD CASES ARE AS FOLLOW:

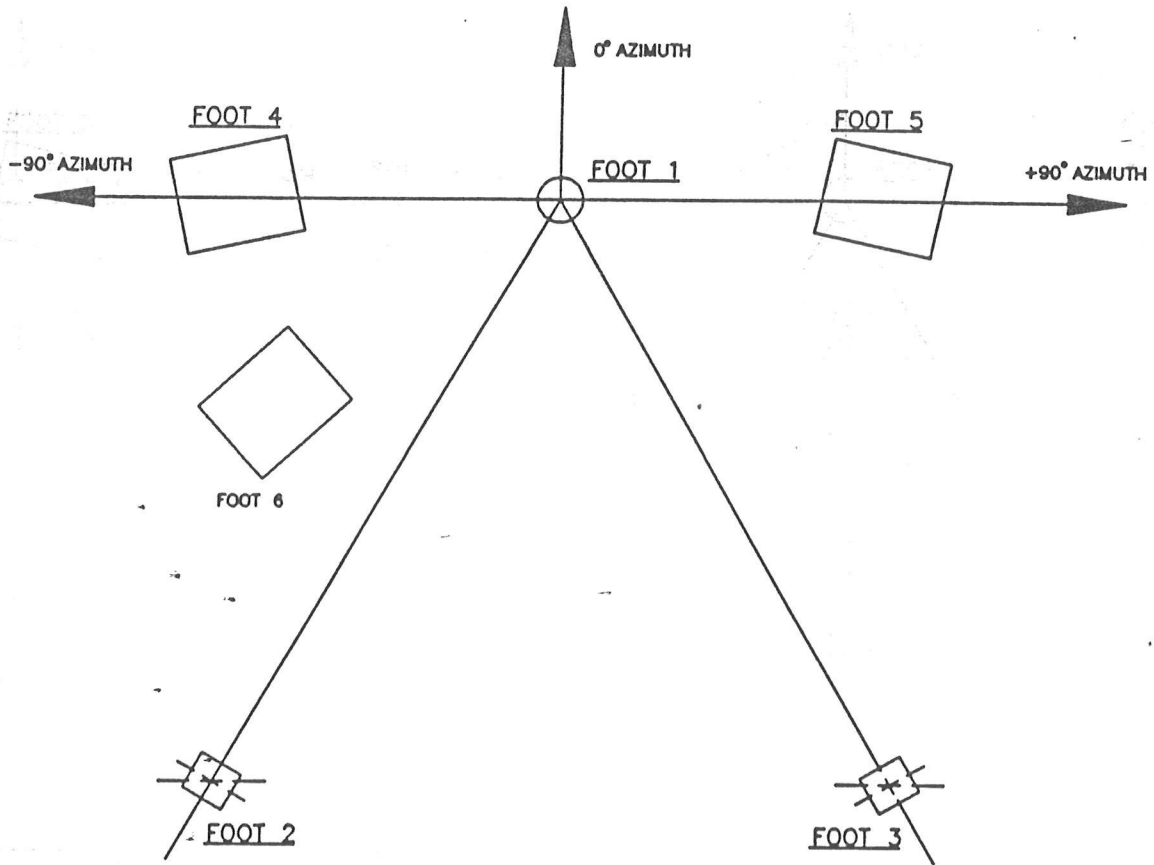
- CASE ① 125 MPH WIND FROM 60° LEFT OF BORESIGHT
- CASE ② 125 MPH WIND FROM 60° RIGHT OF BORESIGHT
- CASE ③ 125 MPH WIND FROM 120° LEFT OF BORESIGHT
- CASE ④ 125 MPH WIND FROM 120° RIGHT OF BORESIGHT

WIND LOAD CASES



LOAD DIRECTIONAL SIGN CONVENTION

Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 3 of 37), 454948



MAXIMUM TOTAL OVERTURNING MOMENT ON
FOUNDATION IS 896,000 FT/LBS

ANTENNA AZIMUTH POSITIONS

Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 4 of 37), 454948

Az Anagl	Wind From	El Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
-30	None	0	-4195	-2251	-16352	158	-84	-132	4038	2336	4379	0	0	-2022
-30	None	30	-3630	-1956	-15790	130	-69	-165	3501	2025	3754	0	0	-1926
-30	None	60	-2720	-1484	-14888	82	-42	-220	2638	1525	2751	-0	2	-1769
-30	None	90	-1710	-955	-13893	31	-14	-280	1680	970	1637	0	0	-1591
125 MPH, 59°F														
-30	-30	0	16398	-13669	42253	-2215	1194	-2841	-45903	-26544	-53620	-4164	19566	82
-30	30	0	7155	24436	34452	-458	179	-803	-45648	-26400	-53325	4163	-19565	5549
-30	-60	0	24366	-41377	51789	-3388	1865	-4201	-49768	-28777	-58106	-10350	48640	-3609
-30	60	0	1470	53235	32739	501	-382	314	-48906	-28287	-57111	10350	-48639	9931
-30	-90	0	-21562	68852	-31621	4500	-2595	4910	4000	2304	4328	15480	-72748	8257
-30	90	0	13173	-73354	-1077	-4185	2427	-5174	4074	2366	4426	-15480	72749	-12301
-30	-120	0	-25987	77407	-41119	6167	-3548	6841	9799	5655	11061	17503	-82253	9092
-30	120	0	13597	-83820	-5281	-5478	3187	-6681	10752	6231	12183	-17503	82252	-14347
-30	-150	0	-25447	48298	-55399	4415	-2499	4789	28725	16605	33044	11823	-55561	3441
-30	150	0	1148	-60405	-31792	-2610	1563	-3368	28969	16761	33336	-11823	55562	-12302
-30	0	0	11875	5433	38694	-1345	691	-1831	-46086	-26651	-53833	0	-2	2846
-30	0	30	2877	856	2504	-776	388	-1184	-32230	-18639	-37742	0	1	948
-30	0	60	-7869	-4474	-40322	35	-37	-264	-9181	-5311	-10976	1	-3	-1703
-30	0	90	7550	3770	-153	-536	295	-933	-11202	-6484	-13330	0	1	291
-30	180	90	-10968	-5686	-27629	595	-320	371	14562	8425	16604	-0	1	-3473
-30	180	60	-13942	-7188	-32093	795	-427	600	19945	11539	22858	0	0	-4124
-30	180	30	-15621	-7877	-39422	1067	-562	905	31456	18195	36225	-1	3	-4991
-30	180	0	-15765	-7784	-55980	1239	-642	1091	40126	23206	46289	-1	2	-5526

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 5 of 37), 454948

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
-30	None	0	2219	-4136	0	-78	36	85	-54	-10	2507	1026	-0	
-30	None	30	1928	-3579	0	-69	36	77	-46	-3	2285	945	-0	
-30	None	60	1463	-2681	0	-54	38	65	-33	7	1919	811	1	
-30	None	90	942	-1686	0	-38	39	51	-19	19	1507	660	-1	
125 MPH, 59°F														
-30	-30	0	13475	16165	0	906	-524	-1040	587	-10	-20913	-4707	6965	
-30	30	0	-24089	7053	0	923	-513	-1050	621	18	3434	-1472	-6965	
-30	-60	0	40791	24021	0	969	-572	-1119	615	-27	-39864	-7425	17315	
-30	60	0	-52481	1449	0	1001	-544	-1133	686	37	20777	658	-17315	
-30	-90	0	-67877	-21257	0	-21	52	44	38	58	47511	6943	-25897	
-30	90	0	72314	12987	0	-135	19	126	-147	-78	-42498	-4892	25897	
-30	-120	0	-76311	-25618	0	-117	121	161	-7	78	54579	8150	-29281	
-30	120	0	82632	13405	0	-288	90	293	-266	-101	-46749	-5068	29281	
-30	-150	0	-47614	-25086	0	-524	324	612	-306	38	42432	7577	-19779	
-30	150	0	59549	1132	0	-621	300	683	-458	-71	-26217	-1427	19779	
-30	0	0	-5356	11707	0	920	-522	-1052	608	4	-8809	-3115	-1	
-30	0	30	-844	2836	0	645	-361	-735	429	9	-4387	-1498	0	
-30	0	60	4411	-7757	0	185	-92	-205	130	17	1792	760	-1	
-30	0	90	-3717	7443	0	201	-20	-182	164	106	-2867	-941	0	
-30	180	90	5606	-10812	0	-276	97	285	-201	-67	5878	2260	0	
-30	180	60	7086	-13744	0	-377	130	389	-277	-95	7391	2813	-0	
-30	180	30	7765	-15400	0	-610	270	659	-428	-87	9402	3550	1	
-30	180	0	7674	-15541	0	-797	437	904	-531	-20	10652	4007	1	

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 6 of 37), 454948

No	Wind El Angl From Angl	Foot 1			Foot 2			Foot 3			Foot 4		
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
0	None	0	0	0	2446	0	2527	2445	1410	2526	0	0	0
0	None	30	-4233	-17670	2113	-1111	2140	2120	1222	2148	0	0	-1562
0	None	60	-3175	-16910	1576	-1008	1515	1596	920	1539	0	0	-1547
0	None	90	-1995	-15711	980	-564	823	1016	584	865	0	0	-1522
125 MPH, 59°F													
0	-30	0	19721	-8744	-28726	16563	-33647	-26041	-15005	-30526	-5755	8282	-1703
0	30	0	7996	8378	-26250	15126	-30768	-28303	-16318	-33155	5755	-8282	-199
0	-60	0	29773	-21404	-32497	18742	-38025	-26688	-15372	-31273	-14308	20589	-2768
0	60	0	626	21011	-26761	15415	-31358	-31893	-18393	-37323	14308	-20589	954
0	-90	0	-26692	32170	8001	-4633	8983	-2708	-1581	-3464	21399	-30792	1269
0	90	0	16912	-32169	-3110	1813	-3930	7597	4400	8514	-21399	30792	-4392
0	-120	0	-31891	36684	13282	-7683	15114	-475	-300	8514	24194	-34815	1592
0	120	0	17416	-36637	-894	541	-1362	12783	7395	14534	-24194	34815	-4869
0	-150	0	-30880	24723	21771	-12566	24559	13089	7529	14868	16343	-23518	302
0	150	0	2424	-24539	-27674	15952	-32423	21304	12296	24416	-16343	23518	-4034
0	0	0	13975	-184	-19213	11075	-22606	-27356	-15767	-32054	0	0	-947
0	0	30	3470	-97	10727	3032	-6416	-19046	-10978	-22412	0	0	-1236
0	0	60	-9100	16	-5259	3993	-8346	-5287	-3048	-6448	-0	-0	-1609
0	0	90	8811	-108	-6916	3993	9992	-6730	-3885	-8130	-0	-0	-1210
0	180	90	-12799	67	8875	-5120	9992	8760	5053	9858	0	0	-1777
0	180	60	-16274	94	12142	-7004	13785	11981	6911	13597	0	0	-1866
0	180	30	-18272	120	18997	-10955	21738	18791	10835	21498	-0	-0	-1954
0	180	0	-18473	134	24132	-13911	27691	23902	13777	27423	-0	0	-2004

Weight only

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 7 of 37), 454948

Az Angl	Wind From	El Angl	Foot 1			Foot 2			Foot 3			Foot 4		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
0	None	0	-0	-4821	0	-15	20	23	15	20	-23	1519	661	-0
0	None	30	4	-4173	0	-14	23	23	14	23	-23	1473	635	0
0	None	60	12	-3127	0	-13	27	24	12	27	-24	1396	592	0
0	None	90	20	-1966	0	-11	32	26	10	32	-24	1308	543	-0
125 MPH, 59°F														
0	-30	0	8620	19442	0	142	-320	-281	-233	-352	376	-6198	-4762	-3543
0	30	0	-8259	7882	0	222	-346	-363	-152	-322	291	5291	3865	3543
0	-60	0	21100	29351	0	103	-328	-252	-302	-397	457	-14897	-11264	-8808
0	60	0	-20713	617	0	288	-389	-441	-113	-328	260	13708	10208	8808
0	-90	0	-31714	-26313	0	167	-40	-163	199	86	-214	22780	16647	13173
0	90	0	31713	16672	0	-196	80	209	-170	-46	169	-19742	-15326	-13173
0	-120	0	-36164	-31440	0	193	-13	-173	277	149	-312	25722	18829	14894
0	120	0	36118	17169	0	-272	141	305	-195	-19	178	-22190	-17230	-14894
0	-150	0	-24372	-30442	0	32	148	46	265	250	-353	18722	13412	10061
0	150	0	24192	2389	0	-257	244	343	-29	145	-48	-13719	-10987	-10061
0	0	0	182	13777	0	183	-335	-324	-194	-339	336	-466	-455	0
0	0	30	95	3421	0	127	-230	-224	-133	-232	230	455	61	0
0	0	60	-16	-8972	0	34	-52	-55	-33	-52	54	1652	733	0
0	0	90	107	8686	0	23	25	-8	-30	22	14	420	47	-0
0	180	90	-66	-12617	0	-46	39	59	49	41	-63	2195	1039	0
0	180	60	-92	-16043	0	-62	51	78	67	53	-84	2476	1195	0
0	180	30	-118	-18013	0	-110	144	166	117	147	-173	2769	1361	0
0	180	0	-132	-18212	0	-157	276	273	165	279	-281	2948	1464	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 8 of 37), 454948

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
30	None	0	-4257	2428	-17026	4222	-2442	4592	36	13	-274	-0	0	-1532
30	None	30	-3686	2098	-16362	3651	-2112	3928	35	13	-275	-0	0	-1531
30	None	60	-2766	1567	-15293	2733	-1580	2861	32	13	-278	1	-1	-1529
30	None	90	-1742	974	-14108	1712	-989	1674	32	14	-279	-0	1	-1527
125 MPH, 59°F														
30	-30	0	17500	-16388	42314	-48059	27798	-56127	1421	912	1382	-5650	9027	-1809
30	30	0	6596	2448	43521	-46498	26889	-54311	-1632	-856	-2165	5650	-9028	-1286
30	-60	0	26805	-30988	45844	-52779	30532	-61612	3434	2085	3724	-14045	22442	-2196
30	60	0	-377	15704	48563	-49142	28414	-57379	-3666	-2027	-4524	14045	-22443	-900
30	-90	0	-24352	37748	-14145	7675	-4453	8610	-6748	-3916	-8154	21007	-33567	-550
30	90	0	15840	-32892	-19901	766	-430	571	6819	3942	7606	-21007	33566	-2514
30	-120	0	-28872	43794	-20739	15044	-8719	17170	-8555	-4974	-10258	23751	-37952	-412
30	120	0	16276	-36585	-28321	6296	-3625	6991	8662	4997	9740	-23751	37952	-2649
30	-150	0	-27694	34139	-44565	32609	-18871	37566	-5276	-3111	-6467	16044	-25637	-773
30	150	0	2939	-19921	-49192	27131	-15681	31192	5489	3124	6038	-16044	25636	-2277
30	0	0	12150	-7030	43292	-47599	27529	-55592	-105	29	-391	-0	1	-1547
30	0	30	3024	-1756	5077	-33079	19131	-38729	-74	19	-368	0	-0	-1567
30	0	60	-7900	4548	-40597	-9103	5265	-10885	-10	11	-316	-1	1	-1580
30	0	90	7643	-4446	1641	-11831	6849	-14061	-1	16	-311	0	-0	-1508
30	180	90	-11128	6397	-29854	15255	-8826	17409	62	11	-249	0	-1	-1545
30	180	60	-14146	8138	-35020	20866	-12073	23928	78	11	-233	-0	0	-1546
30	180	30	-15888	9139	-43302	32677	-18904	37645	111	7	-206	1	-1	-1532
30	180	0	-16069	9238	-60449	41531	-24021	47922	137	2	-190	1	-1	-1522

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 9 of 37), 454948

Az Anagl	Wind From Anagl	El From Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
30	None	0	-2394	-4196	0	59	-11	-57	84	38	-91	1386	585	-0
30	None	30	-2068	-3633	0	50	-4	-45	73	38	-82	1379	581	-0
30	None	60	-1545	-2726	0	36	7	-27	57	39	-68	1366	574	0
30	None	90	-960	-1717	0	19	19	-7	38	39	-52	1348	564	-0
125 MPH, 59°F														
30	-30	0	16155	17252	0	-692	40	616	-998	-541	1129	-6418	-4386	-2848
30	30	0	-2413	6503	0	-607	-3	521	-926	-530	1061	8867	5345	2848
30	-60	0	30548	26426	0	-799	71	723	-1121	-590	1258	-17793	-11627	-7080
30	60	0	-15482	-372	0	-601	-30	503	-952	-564	1101	20218	12571	7080
30	-90	0	-37212	-24007	0	248	-107	-267	244	62	-241	29767	18657	10589
30	90	0	32426	15615	0	-130	85	154	-77	13	60	-26994	-17486	-10589
30	-120	0	-43174	-28462	0	388	-136	-402	418	141	-430	33465	21015	11972
30	120	0	36067	16045	0	-92	107	132	11	79	-49	-30652	-19817	-11972
30	-150	0	-33655	-27302	0	562	-102	-535	732	343	-801	23137	14437	8088
30	150	0	19639	2898	0	262	50	-201	477	304	-562	-20202	-13160	-8087
30	0	0	6930	11978	0	-654	19	572	-968	-539	1102	1222	478	-0
30	0	30	1731	2981	0	-455	17	400	-672	-371	763	1383	572	0
30	0	60	-4483	-7788	0	-128	16	118	-183	-91	203	1546	671	-0
30	0	90	4383	7534	0	-183	112	214	-221	-27	204	1209	482	0
30	180	90	-6306	-10970	0	222	-74	-228	297	105	-308	1491	647	0
30	180	60	-8023	-13945	0	304	-104	-313	406	141	-420	1520	665	-0
30	180	30	-9009	-15663	0	464	-98	-449	648	284	-699	1511	664	0
30	180	0	-9107	-15842	0	573	-33	-510	841	454	-950	1505	663	0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 10 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind El From Anagl	Foot 1			Foot 2			Foot 3			Foot 4			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
60	None	0												
60	None	30	-2477	4232	-14987	4886	-2831	5366	-2409	-1401	-3112	0	0	-1559
60	None	60	-2147	3661	-14601	4228	-2450	4600	-2081	-1211	-2732	0	0	-1560
60	None	90	-1614	2739	-13981	3169	-1836	3370	-1553	-904	-2119	-1	1	-1561
60	None	120	-1024	1719	-13291	1993	-1154	2002	-969	-565	-1441	0	-1	-1562
125 MPH, 59°F														
60	-30	0	11741	-24518	18266	-54524	31594	-63669	28531	16598	32864	-5201	12210	-1754
60	30	0	2149	418	21153	-54488	31567	-63623	25788	15012	29680	5201	-12209	-1502
60	-60	0	19608	-44170	18848	-58797	34073	-68636	32470	18884	37442	-12930	30353	-1946
60	60	0	-4371	17742	25532	-58708	34008	-68524	26077	15188	30019	12929	-30352	-1319
60	-90	0	-20003	50764	-8502	4947	-2880	5445	-8469	-4905	-10146	19338	-45397	-1086
60	90	0	15051	-42302	-21469	4822	-2781	5283	3654	2104	3926	-19338	45398	-2032
60	-120	0	-23215	59031	-11054	12390	-7196	14096	-13779	-7989	-16320	21865	-51329	-1013
60	120	0	15903	-46491	-27606	12254	-7084	13918	1557	877	1485	-21864	51328	-2088
60	-150	0	-20499	47911	-27111	34512	-20007	39797	-21939	-12748	-25815	14769	-34672	-1163
60	150	0	6162	-23231	-37420	34418	-19932	39675	-12330	-7193	-14660	-14770	34673	-1887
60	0	0	7003	-12150	19928	-54875	31794	-64075	27342	15912	31484	0	-1	-1628
60	0	30	1731	-3028	-11196	-38134	22095	-44623	19009	11062	21793	-0	1	-1614
60	0	60	-4581	7892	-45129	-10485	6076	-12496	5240	3049	5780	1	-2	-1587
60	0	90	4398	-7666	-4160	-13623	7899	-16150	6807	3955	7595	-0	1	-1577
60	180	90	-6446	11099	-22424	17607	-10205	20152	-8742	-5084	-10473	-0	1	-1547
60	180	60	-8189	14116	-24840	24078	-13956	27674	-11965	-6958	-14219	0	-0	-1539
60	180	30	-9196	15849	-27325	37700	-21848	43501	-18744	-10904	-22103	-1	2	-1521
60	180	0	-9301	16025	-40123	47912	-27761	55361	-23828	-13866	-28020	-1	2	-1510

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 11 of 37), 454948

Az Anagl	Wind From Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
		Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only													
60	None	0	-2441	0	120	-48	-127	129	38	-130	1410	609	-0
60	None	30	-2116	0	103	-36	-106	113	38	-116	1410	609	-0
60	None	60	-1591	0	75	-17	-73	86	39	-94	1407	608	0
60	None	90	-1010	0	44	4	-36	57	39	-68	1407	608	-0
125 MPH, 59°F													
60	-30	0	24170	11574	-1353	453	1391	-1484	-523	1538	-9564	-4063	115
60	30	0	-412	2119	-1294	408	1317	-1448	-535	1513	12538	5349	-115
60	-60	0	43544	19330	-1496	518	1545	-1622	-555	1672	-25984	-11056	286
60	60	0	-17490	-4309	-1358	412	1374	-1538	-584	1615	28969	12347	-286
60	-90	0	-50045	-19719	250	-148	-289	208	10	-184	42487	18102	-428
60	90	0	41703	14837	-10	52	34	50	65	-76	-39667	-16884	428
60	-120	0	-58195	-22886	465	-234	-517	429	73	-406	47832	20379	-484
60	120	0	45832	15677	136	18	-108	229	144	-269	-45030	-19168	484
60	-150	0	-47232	-20208	942	-366	-993	986	298	-997	32742	13952	-327
60	150	0	22902	6075	736	-208	-737	861	342	-911	-29998	-12767	327
60	0	0	11978	6904	-1333	434	1363	-1476	-532	1536	1489	644	-0
60	0	30	2985	1707	-927	306	950	-1025	-366	1065	1511	653	0
60	0	60	-7780	-4516	-257	96	269	-280	-89	285	1514	654	-0
60	0	90	7557	4336	-352	215	410	-346	-25	311	1393	602	0
60	180	90	-10942	-6354	440	-207	-481	460	103	-448	1417	612	0
60	180	60	-13916	-8073	602	-286	-661	629	138	-610	1410	609	-0
60	180	30	-15624	-9066	931	-383	-992	997	280	-998	1373	593	0
60	180	0	-15797	-9169	1166	-395	-1200	1285	448	-1329	1353	585	0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 12 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind El From Anagl	Foot 1			Foot 2			Foot 3			Foot 4			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
90	None	0												
90	None	30	4906	-12162	4243	-2464	4622	-4214	-2444	-5208	-0	0	-1584	
90	None	60	4247	-12159	3674	-2133	3960	-3645	-2114	-4547	-0	-0	-1585	
90	None	90	3184	-12155	2758	-1600	2894	-2729	-1583	-3484	-0	-0	-1586	
90	None	90	2003	-12151	1741	-1010	1711	-1713	-994	-2304	-0	0	-1587	
125 MPH, 59°F														
90	-30	0	3652	-13806	-46368	26921	-54227	47975	27821	55427	-4162	19575	-1726	
90	30	0	-3704	-10315	-47886	27795	-55987	46332	26874	53521	4162	-19575	-1552	
90	-60	0	9194	-16108	-49037	28475	-57333	52747	30584	60969	-10348	48664	-1860	
90	60	0	-9246	-7999	-52565	30506	-61423	48907	28372	56515	10348	-48664	-1426	
90	-90	0	-13350	-4381	863	-518	703	-7825	-4524	-9395	15476	-72782	-1258	
90	90	0	13293	-19941	7620	-4408	8537	-601	-362	-1017	-15476	72782	-1910	
90	-120	0	-14793	-2283	6383	-3726	7124	-15202	-8798	-17964	17498	-82290	-1208	
90	120	0	14735	-22064	14967	-8669	17077	-6090	-3549	-7397	-17498	82290	-1947	
90	-150	0	-10140	-6035	27147	-15772	31261	-32658	-18929	-38249	11820	-55587	-1308	
90	150	0	10081	-18388	32509	-18860	37478	-26938	-15634	-31616	-11820	55587	-1806	
90	0	0	-26	-12058	-47446	27543	-55477	47472	27533	54845	0	-0	-1639	
90	0	30	-26	-33434	-32967	19138	-38643	32993	19135	38021	-0	-0	-1624	
90	0	60	-27	-51269	-9052	5256	-10838	9080	5265	10236	-0	-0	-1599	
90	0	90	-28	-12110	-11765	6835	-14000	11793	6834	13381	-0	-0	-1603	
90	180	90	-29	-12838	15244	-8853	17418	-15215	-8821	-17985	0	-0	-1572	
90	180	60	-29	-10840	20843	-12105	23930	-20814	-12066	-24487	0	-0	-1565	
90	180	30	-30	-5387	32625	-18944	37628	-32595	-18900	-38177	-0	-0	-1553	
90	180	0	-30	-12234	41458	-24068	47892	-41428	-24026	-48445	-0	0	-1545	

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 13 of 37), 454948

Az Anagl	Wind From Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
		Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only													
90	None	0	-28	0	150	-81	-169	139	19	-129	1453	646	0
90	None	30	-28	0	129	-64	-143	121	22	-115	1453	646	0
90	None	60	-28	0	95	-38	-100	93	26	-93	1452	646	-0
90	None	90	-28	0	57	-9	-53	61	32	-68	1451	647	0
125 MPH, 59°F													
90	-30	0	3600	0	-1663	809	1834	-1560	-300	1492	-16683	-3160	6974
90	30	0	-3651	0	-1647	774	1804	-1571	-333	1518	19678	4509	-6974
90	-60	0	9064	0	-1803	894	1997	-1674	-302	1592	-43697	-8857	17336
90	60	0	-9115	0	-1766	814	1925	-1700	-379	1652	46699	10210	-17336
90	-90	0	-13161	0	184	-156	-236	113	-54	-70	69042	14902	-25927
90	90	-0	13105	0	116	-5	-103	165	92	-187	-66137	-13610	25927
90	-120	0	-14583	0	419	-285	-502	319	-32	-259	77862	16759	-29315
90	120	0	14526	0	334	-94	-334	385	153	-408	-74967	-15475	29315
90	-150	0	-9997	0	1076	-575	-1213	967	128	-896	53051	11519	-19802
90	150	0	9937	0	1023	-455	-1107	1008	244	-989	-50190	-10257	19802
90	0	0	-26	0	-1667	797	1831	-1576	-318	1515	1498	675	-0
90	0	30	-26	0	-1159	558	1275	-1094	-217	1050	1506	671	0
90	0	60	-27	0	-321	165	358	-299	-48	281	1503	662	-0
90	0	90	-28	0	-434	305	525	-371	28	305	1448	651	0
90	180	90	-29	0	547	-323	-632	493	35	-442	1455	642	-0
90	180	60	-29	0	749	-445	-867	674	44	-602	1449	638	-0
90	180	30	-30	0	1161	-633	-1315	1067	133	-985	1430	630	-0
90	180	0	-30	0	1458	-712	-1610	1373	262	-1312	1420	625	0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 14 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind From	El Anagl	Foot 1			Foot 2			Foot 3			Foot 5			
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only															
-90	None	0													
-90	None	30	-29	-4906	-12162	-4214	2444	-5208	4243	2464	4622	-0	-0	-1584	
-90	None	60	-29	-4247	-12159	-3645	2114	-4547	3674	2133	3960	-0	-0	-1585	
-90	None	90	-29	-3184	-12155	-2729	1583	-3484	2758	1600	2894	-0	-0	-1586	
125 MPH, 59°F			-29	-2003	-12151	-1713	994	-2304	1741	1010	1711	-0	-0	-1587	
-90	-30	0	-3704	-5708	-10315	46332	-26874	53521	-47886	-27795	-55987	4162	19575	-1552	
-90	30	0	3652	33516	-13806	47975	-27821	55427	-46368	-26921	-54227	-4162	-19575	-1726	
-90	-60	0	-9246	-33506	-7998	48907	-28372	56515	-52565	-30506	-61423	10348	48664	-1426	
-90	60	0	9194	64004	-16108	52747	-30584	60969	-49037	-28475	-57333	-10348	-48664	-1860	
-90	-90	0	13293	68012	-19941	-601	362	-1017	7620	4408	8537	-15476	-72782	-1910	
-90	90	0	-13350	-77823	-4381	-7825	4524	-9395	863	518	703	15476	72782	-1259	
-90	-120	0	14735	75182	-22064	-6090	3549	-7397	14967	8669	17077	17498	-82290	-1947	
-90	120	0	-14793	-89705	-2282	-15202	8798	-17964	14967	8669	17077	-17498	82290	-1208	
-90	-150	0	10081	41416	-18388	-26938	15634	-31616	6383	3726	7124	17498	82290	-1806	
-90	150	0	-10140	-69965	-6035	-32658	18929	-38249	-27147	15772	31261	-11820	-55587	-1308	
-90	0	0	-26	14021	-12058	47472	-27533	54844	-47446	-27543	-55477	11820	55587	-1308	
-90	0	30	-26	3484	-33434	32993	-19135	38021	-32967	-19138	-38643	-0	0	-1639	
-90	0	60	-27	-9126	-51269	9080	-5265	10236	-9052	-5256	-10838	-0	-0	-1624	
-90	0	90	-28	8833	-12110	11793	-6834	13381	-11765	-6835	-14000	-0	-0	-1599	
-90	180	90	-29	-12838	-12192	-15215	8821	-17985	15244	8853	17418	0	0	-1603	
-90	180	60	-29	-16322	-10840	-20814	12066	-24487	20843	12105	23930	0	0	-1572	
-90	180	30	-30	-18328	-5387	-32595	18900	-38177	32625	18944	37628	-0	-0	-1565	
-90	180	0	-30	-18533	-12234	-41428	24026	-48445	41458	24068	47892	-0	-0	-1553	
												-0	-0	-1545	

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 15 of 37), 454948

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 5		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
-90	None	0	4837	-28	0	-139	19	129	-150	-81	169	-1447	659	-0
-90	None	30	4187	-28	0	-121	22	115	-129	-64	143	-1447	659	0
-90	None	60	3139	-28	0	-93	26	93	-95	-38	100	-1447	660	0
-90	None	90	1974	-28	0	-61	32	68	-57	-9	53	-1446	660	-0
125 MPH, 59°F														
-90	-30	0	5627	-3651	0	1571	-333	-1518	1647	774	-1804	-19673	4522	7273
-90	30	0	-33041	3600	0	1560	-300	-1492	1663	809	-1834	16690	-3145	-7273
-90	-60	0	33032	-9115	0	1700	-379	-1652	1766	814	-1925	-46695	10222	18080
-90	60	0	-63097	9064	0	1674	-302	-1592	1803	894	-1997	43705	-8840	-18080
-90	-90	0	-67048	13105	0	-165	92	187	-116	-5	103	66146	-13592	-27041
-90	90	0	76721	-13161	0	-113	-54	70	-184	-156	236	-69040	14911	27041
-90	-120	0	-74117	14526	0	-385	153	408	-334	-94	334	74977	-15457	-30573
-90	120	0	88433	-14583	0	-319	-32	259	-419	-285	502	-77860	16767	30573
-90	-150	0	-40829	9937	0	-1008	244	989	-1023	-455	1107	50197	-10240	-20652
-90	150	0	68973	-9997	0	-967	128	896	-1076	-575	1213	-53047	11528	20652
-90	0	0	-13822	-26	0	1576	-318	-1515	1667	797	-1831	-1492	689	0
-90	0	30	-3434	-26	0	1094	-217	-1050	1159	558	-1275	-1501	685	0
-90	0	60	8997	-27	0	299	-48	-281	321	165	-358	-1498	675	0
-90	0	90	-8707	-28	0	371	28	-305	434	305	-525	-1443	665	0
-90	180	90	12657	-29	0	-493	35	442	-547	-323	632	-1449	655	0
-90	180	60	16091	-29	0	-674	44	602	-749	-445	867	-1444	651	0
-90	180	30	18068	-30	0	-1067	133	985	-1161	-633	1315	-1425	643	0
-90	180	0	18271	-30	0	-1373	262	1312	-1458	-712	1610	-1415	637	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 16 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind From Anagl	El	Foot 1			Foot 2			Foot 3			Foot 5		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
-60	None	0	-2477	-4232	-14987	-2409	1401	-3112	4886	2831	5366	0	0	-1559
-60	None	30	-2147	-3661	-14601	-2081	1211	-2732	4228	2450	4600	0	0	-1560
-60	None	60	-1614	-2739	-13981	-1553	904	-2119	3169	1836	3370	-1	-1	-1561
-60	None	90	-1024	-1719	-13291	-969	565	-1441	1993	1154	2002	0	1	-1562
125 MPH, 59°F														
-60	-30	0	2149	-418	21153	25788	-15012	29680	-54488	-31567	-63623	5201	12209	-1502
-60	30	0	11741	24518	18266	28531	-16598	32864	-54524	-31594	-63669	-5201	-12210	-1754
-60	-60	0	-4371	-17742	25532	26077	-15188	30019	-58708	-34008	-68524	12929	30352	-1319
-60	60	0	19608	44170	18848	32470	-18884	37442	-58797	-34073	-68636	-12930	-30353	-1946
-60	-90	0	15051	42302	-21469	3654	-2104	3926	4822	2781	5283	-19338	-45398	-2032
-60	90	0	-20003	-50764	-8502	-8469	4905	-10148	4947	2880	5445	19338	45397	-1086
-60	-120	0	15903	46491	-27606	1558	-877	1485	12254	7084	13918	-21864	-51328	-2088
-60	120	0	-23215	-59031	-11054	-13779	7989	-16320	12390	7196	14096	21865	51329	-1013
-60	-150	0	6162	23231	-37420	-12330	7193	-14660	34418	19932	39675	-14770	-34673	-1887
-60	150	0	-20499	-47911	-27111	-21939	12748	-25815	34512	20007	39797	14769	34672	-1163
-60	0	0	7003	12150	19928	27342	-15912	31484	-54875	-31794	-64075	0	1	-1628
-60	0	30	1731	3028	-11196	19009	-11062	21793	-38134	-22095	-44623	-0	-1	-1614
-60	0	60	-4581	-7892	-45129	5240	-3049	5780	-10485	-6076	-12496	1	2	-1587
-60	0	90	4398	7666	-4160	6807	-3955	7595	-13623	-7899	-16150	-0	-1	-1577
-60	180	90	-6446	-11099	-22424	-8742	5084	-10473	17607	10205	20152	-0	-1	-1547
-60	180	60	-8189	-14116	-24840	-11965	6958	-14219	24078	13956	27674	0	0	-1539
-60	180	30	-9196	-15849	-27325	-18744	10904	-22103	37700	21848	43501	-1	-2	-1521
-60	180	0	-9301	-16025	-40123	-23828	13866	-28020	47912	27761	55361	-1	-2	-1510

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 17 of 37), 454948

Az Anagl From Anagl	Wind El	Foot 1			Foot 2			Foot 3			Foot 5		
		Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only													
-60	None	0	-2441	0	-129	38	130	-120	-48	127	-1405	622	0
-60	None	30	-2116	0	-113	38	116	-103	-36	106	-1404	622	0
-60	None	60	-1591	0	-86	39	94	-75	-17	73	-1402	621	-0
-60	None	90	-1010	0	-57	39	68	-44	4	36	-1401	621	0
125 MPH, 59°F													
-60	-30	0	2119	0	1448	-535	-1513	1294	408	-1317	-12533	5361	318
-60	30	0	11574	0	1484	-523	-1538	1353	453	-1391	9571	-4048	-318
-60	-60	0	-4309	0	1538	-584	-1615	1358	412	-1374	-28965	12356	790
-60	60	0	19330	0	1622	-555	-1672	1496	518	-1545	25992	-11037	-790
-60	-90	0	14837	0	-50	65	76	10	52	-34	39676	-16864	-1181
-60	90	0	-19719	0	-208	10	184	-250	-148	289	-42484	18109	1181
-60	-120	-0	15677	0	-229	144	269	-136	18	108	45039	-19147	-1336
-60	120	0	-22886	0	-429	73	406	-465	-234	517	-47830	20384	1336
-60	-150	0	6075	0	-861	342	911	-736	-208	737	30006	-12749	-902
-60	150	0	-20208	0	-986	298	997	-942	-366	993	-32738	13959	902
-60	0	0	6904	0	1476	-532	-1536	1333	434	-1363	-1483	657	0
-60	0	30	1707	0	1025	-366	-1065	927	306	-950	-1505	666	-0
-60	0	60	-4516	0	280	-89	-285	257	96	-269	-1508	667	0
-60	0	90	4336	0	346	-25	-311	352	215	-410	-1388	616	-0
-60	180	90	-6354	0	-460	103	448	-440	-207	481	-1411	625	-0
-60	180	60	-8073	0	-629	138	610	-602	-286	661	-1405	622	0
-60	180	30	-9066	0	-997	280	998	-931	-383	992	-1368	606	-0
-60	180	0	-9169	0	-1285	448	1329	-1166	-395	1200	-1348	597	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 18 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 5		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
-30	None	0	-4257	-2428	-17026	36	-13	-274	4222	2442	4592	-0	-0	-1532
-30	None	30	-3686	-2098	-16362	35	-13	-275	3651	2112	3928	-0	-0	-1531
-30	None	60	-2766	-1567	-15293	32	-13	-278	2733	1580	2861	1	1	-1529
-30	None	90	-1742	-974	-14108	32	-14	-278	1712	989	1674	-0	-0	-1527
125 MPH, 59°F														
-30	-30	0	6596	-2448	43521	-1632	856	-2165	-46498	-26889	-54311	5650	9028	-1286
-30	30	0	17500	16388	42314	1421	-912	1382	-48059	-27798	-56127	-5650	-9027	-1809
-30	-60	0	-377	-15704	48563	-3666	2027	-4524	-49142	-28414	-57379	14045	22443	-900
-30	60	0	26805	30988	45844	3434	-2085	3724	-52779	-30532	-61612	-14045	-22442	-2196
-30	-90	0	15840	32892	-19901	6819	-3942	7606	766	430	571	-21007	-33566	-2515
-30	90	0	-24352	-37748	-14145	-6748	3916	-8154	7675	4453	8610	21007	33567	-550
-30	-120	0	16276	36585	-28321	8662	-4997	9740	6296	3625	6991	-23751	-37952	-2650
-30	120	0	-28872	-43794	-20739	-8555	4974	-10258	15044	8719	17170	23751	37952	-412
-30	-150	0	2939	19921	-49192	5489	-3124	6038	27131	15681	31192	-16044	-25636	-2277
-30	150	0	-27694	-34139	-44565	-5276	3111	-6467	32609	18871	37566	16044	25637	-773
-30	0	0	12150	7030	43292	-105	-29	-391	-47599	-27529	-55592	-0	-1	-1547
-30	0	30	3024	1756	5077	-74	-19	-368	-33079	-19131	-38729	0	0	-1567
-30	0	60	-7900	-4548	-40597	-10	-11	-316	-9103	-5265	-10885	-1	-1	-1580
-30	0	90	7643	4446	1641	-1	-16	-311	-11831	-6849	-14061	0	0	-1508
-30	180	90	-11128	-6397	-29854	62	-11	-249	15255	8826	17409	0	1	-1545
-30	180	60	-14146	-8138	-35020	78	-11	-233	20866	12073	23928	-0	-0	-1546
-30	180	30	-15888	-9139	-43302	111	-7	-206	32677	18904	37645	1	1	-1532
-30	180	0	-16069	-9238	-60449	137	-2	-190	41531	24021	47922	1	1	-1522

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 19 of 37), 454948

Az Anagl	Wind From Anagl	El Anagl	Foot 1		Foot 2		Foot 3		Foot 5					
			Mx	My	Mx	My	Mx	My	Mx	My	Mz			
Weight only														
-30	None	0	2394	-4196	0	-84	38	91	-59	-11	57	-1380	598	0
-30	None	30	2068	-3633	0	-73	38	82	-50	-4	45	-1373	594	0
-30	None	60	1545	-2726	0	-57	39	68	-36	7	27	-1360	586	-0
-30	None	90	960	-1717	0	-38	39	52	-19	19	7	-1343	576	0
125 MPH, 59°F														
-30	-30	0	2413	6503	0	926	-530	-1061	607	-3	-521	-8862	5353	-2687
-30	30	0	-16155	17252	0	998	-541	-1129	692	40	-616	6425	-4369	2687
-30	-60	0	15482	-372	0	952	-564	-1101	601	-30	-503	-20216	12574	-6680
-30	60	0	-30548	26426	0	1121	-590	-1258	799	71	-723	17802	-11605	6680
-30	-90	0	-32426	15615	0	77	13	-60	130	85	-154	27005	-17459	9992
-30	90	0	37212	-24007	0	-244	62	241	-248	-107	267	-29767	18655	-9992
-30	-120	0	-36067	16045	0	-11	79	49	92	107	-132	30664	-19789	11297
-30	120	0	43174	-28462	0	-418	141	430	-388	-136	402	-33465	21011	-11297
-30	-150	0	-19639	2898	0	-477	304	562	-262	50	201	20212	-13137	7631
-30	150	0	33655	-27302	0	-732	343	801	-562	-102	535	-23135	14438	-7631
-30	0	0	-6930	11978	0	968	-539	-1102	654	19	-572	-1216	491	0
-30	0	30	-1731	2981	0	672	-371	-763	455	17	-400	-1377	585	-0
-30	0	60	4483	-7788	0	183	-91	-203	128	16	-118	-1540	684	0
-30	0	90	-4383	7534	0	221	-27	-204	183	112	-214	-1203	494	-0
-30	180	90	6306	-10970	0	-297	105	308	-222	-74	228	-1485	659	-0
-30	180	60	8023	-13945	0	-406	141	420	-304	-104	313	-1515	678	0
-30	180	30	9009	-15663	0	-648	284	699	-464	-98	449	-1506	676	-0
-30	180	0	9107	-15842	0	-841	454	950	-573	-33	510	-1499	675	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 20 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl From Anagl	Wind El From Anagl	Foot 1			Foot 2			Foot 3			Foot 5		
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only													
0	None	0	-4891	-0	-17670	2445	-1410	2446	1411	2527	-0	0	-1562
0	None	30	-4233	4	-16920	2120	-1222	2113	1218	2140	-0	0	-1547
0	None	60	-3172	12	-15711	1596	-920	1576	908	1516	-0	0	-1522
0	None	90	-1995	21	-14373	1016	-584	980	564	823	-0	0	-1494
125 MPH, 59°F													
0	-30	0	7996	-8377	49943	-28303	16318	-33155	-15126	-30768	5755	8282	-198
0	30	0	19721	8744	51696	-26041	15005	-30526	-28726	-33647	-5755	-8282	-1703
0	-60	0	625	-21011	53547	-31893	18393	-37323	-26761	-31358	14308	20589	955
0	60	0	29773	21404	57888	-26688	15372	-31273	-32497	-38025	-14308	-20589	-2769
0	-90	0	16912	32169	-14368	7597	-4400	8514	-3110	-3930	-21399	-30792	-4393
0	90	0	-26692	-32170	-20967	-2708	1581	-3463	8001	8982	21399	30792	1270
0	-120	0	17416	36637	-22481	12782	-7395	14534	-894	-1362	-24194	-34815	-4869
0	120	0	-31892	-36684	-30009	-475	300	-876	13282	7683	24194	34815	1593
0	-150	0	2424	24539	-49254	21303	-12296	24416	12939	7443	24194	34815	1593
0	150	0	-30880	-24723	-54308	13089	-7529	14868	21771	12566	-16343	-23518	-4035
0	0	0	13975	184	51247	-27356	15767	-32054	-27674	-15952	16343	23518	303
0	0	30	3470	97	10727	-19046	10978	-22412	-19213	-11075	-0	-0	-947
0	0	60	-9100	-16	-38844	-5287	3048	-6448	-5259	-3032	-0	-0	-1235
0	0	90	8811	108	3508	-6730	3885	-8130	-6916	-3993	-0	-0	-1609
0	180	90	-12799	-67	-32250	8760	-5053	9858	8875	5120	0	0	-1210
0	180	60	-16274	-94	-38326	11981	-6911	13597	12142	7004	-0	-0	-1777
0	180	30	-18272	-120	-48617	18791	-10835	21498	18997	10955	-0	-0	-1866
0	180	0	-18473	-134	-67287	23902	-13778	27423	24132	13911	-0	0	-1954
													-2004

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 21 of 37), 454948

Weight only

125 MPH, 59°F

0	None	0	0	-4821	0	-15	20	23	15	20	-23	-1513	673	-0
0	None	30	-4	-4173	0	-14	23	23	14	23	-23	-1467	648	0
0	None	60	-12	-3127	0	-12	27	24	13	27	-24	-1390	604	0
0	None	90	-20	-1966	0	-10	32	24	11	32	-26	-1302	555	-0
0	-30	0	8259	7882	0	152	-322	-291	-222	-346	363	-5293	3858	-3392
0	30	0	-8620	19442	0	233	-352	-376	-142	-320	281	6205	-4748	3392
0	-60	0	20712	617	0	113	-328	-260	-288	-389	441	-13716	10184	-8432
0	60	0	-21100	29351	0	302	-397	-457	-103	-328	252	14909	-11233	8432
0	-90	0	-31713	16672	0	170	-46	-169	196	80	-209	19763	-15272	12612
0	90	0	31714	-26313	0	-199	86	214	-167	-40	163	-22788	16618	-12612
0	-120	0	-36117	17169	0	195	-19	-178	272	141	-305	22213	-17169	14260
0	120	0	36164	-31440	0	-277	149	312	-193	-13	173	-25732	18796	-14260
0	-150	0	-24192	2389	0	29	145	48	257	244	-343	13738	-10938	9632
0	150	0	24372	-30442	0	-265	250	353	-32	148	-46	-18725	13398	-9632
0	0	0	-182	13777	0	194	-339	-336	-183	-335	324	468	-452	0
0	0	30	-95	3421	0	133	-232	-230	-127	-230	224	-450	69	0
0	0	60	16	-8972	0	33	-52	-54	-34	-52	55	-1646	746	0
0	0	90	-107	8686	0	30	22	-14	-23	25	8	-416	55	-0
0	180	90	66	-12617	0	-49	41	63	46	39	-59	-2188	1054	0
0	180	60	92	-16043	0	-67	53	84	62	51	-78	-2468	1213	0
0	180	30	118	-18013	0	-117	147	173	110	144	-166	-2761	1380	0
0	180	0	132	-18212	0	-165	279	281	157	276	-273	-2939	1483	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 22 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind From Anagl	El	Foot 1			Foot 2			Foot 3			Foot 5		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
30	None	0	-4195	2251	-16352	4038	-2336	4379	158	84	-132	0	0	-2022
30	None	30	-3630	1956	-15789	3501	-2025	3753	130	69	-164	0	0	-1926
30	None	60	-2720	1484	-14887	2638	-1525	2751	82	42	-220	-0	-2	-1769
30	None	90	-1710	955	-13893	1680	-970	1637	31	14	-280	0	2	-1591
125 MPH, 59°F														
30	-30	0	7155	-24436	34453	-45648	26400	-53325	-458	-179	-803	4163	19565	5548
30	30	0	16398	13669	42252	-45903	26544	-53620	-2215	-1194	-2842	-4164	-19566	83
30	-60	0	1470	-53236	32741	-48907	28287	-57112	502	382	315	10350	48639	9929
30	60	0	24366	41378	51786	-49767	28776	-58105	-3389	-1866	-4201	-10350	-48640	-3607
30	-90	0	13173	73355	-1081	4075	-2366	4427	-4186	-2427	-5175	-15480	-72749	-12298
30	90	0	-21561	-68853	-31617	3998	-2304	4327	4501	2595	4911	15480	72748	8254
30	-120	0	13597	83821	-5285	10753	-6231	12184	-5479	-3187	-6682	-17503	-82252	-14344
30	120	0	-25986	-77409	-41115	9797	-5654	11059	6168	3548	6842	17503	82253	9088
30	-150	0	1148	60406	-31794	28969	-16761	33336	-2611	-1563	-3368	-11823	-55562	-12300
30	150	0	-25447	-48299	-55396	28724	-16604	33042	4416	2500	4790	11823	55561	3438
30	0	0	11875	-5433	38693	-46086	26651	-53833	-1345	-691	-1832	0	1	2846
30	0	30	2877	-856	2504	-32230	18639	-37742	-776	-388	-1184	-0	-1	948
30	0	60	-7869	4474	-40322	-9181	5311	-10976	35	37	-264	1	3	-1704
30	0	90	7550	-3770	-153	-11202	6484	-13330	-536	-295	-933	-0	-1	291
30	180	90	-10968	5686	-27628	14562	-8424	16604	595	320	371	-0	-1	-3473
30	180	60	-13942	7188	-32092	19945	-11539	22858	795	427	600	0	0	-4124
30	180	30	-15621	7876	-39422	31456	-18195	36225	1067	563	905	-1	-3	-4992
30	180	0	-15765	7784	-55979	40126	-23206	46288	1239	642	1092	-1	-2	-5527

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 23 of 37), 454948

Az Anagl	Wind From Anagl	El	Foot 1			Foot 2			Foot 3			Foot 5		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
30	None	0	-2219	-4136	0	54	-10	-52	78	36	-85	-2499	1045	0
30	None	30	-1928	-3579	0	46	-3	-41	69	36	-77	-2278	963	0
30	None	60	-1463	-2681	0	33	7	-25	54	38	-65	-1913	827	-1
30	None	90	-942	-1686	0	19	19	-7	38	39	-51	-1502	673	1
125 MPH, 59°F														
30	-30	0	24090	7053	0	-621	18	543	-923	-513	1050	-3473	-1558	7264
30	30	0	-13476	16165	0	-587	-10	500	-906	-524	1040	20912	-4718	-7264
30	-60	0	52482	1449	0	-686	37	609	-1001	-544	1133	-20846	512	18058
30	60	0	-40792	24021	0	-615	-27	516	-969	-572	1119	39888	-7386	-18059
30	-90	0	-72315	12986	0	147	-78	-165	135	19	-126	42577	-4731	-27011
30	90	0	67877	-21256	0	-38	58	62	21	52	-44	-47573	6821	27010
30	-120	-0	-82633	13404	0	266	-101	-280	288	90	-293	46841	-4879	-30539
30	120	0	76312	-25618	0	7	78	33	117	121	-161	-54648	8017	30539
30	-150	0	-59550	1132	0	458	-71	-430	621	300	-683	26293	-1265	-20629
30	150	0	47615	-25086	0	306	38	-245	524	323	-612	-42464	7522	20629
30	0	0	5356	11707	0	-608	4	525	-920	-522	1052	8788	-3164	1
30	0	30	844	2836	0	-429	9	374	-645	-361	735	4377	-1521	-0
30	0	60	-4411	-7757	0	-130	17	120	-185	-92	205	-1786	776	1
30	0	90	3717	7443	0	-164	106	194	-201	-20	182	2861	-954	-0
30	180	90	-5606	-10812	0	201	-67	-207	276	97	-285	-5862	2300	-0
30	180	60	-7086	-13744	0	277	-95	-286	377	130	-389	-7371	2862	0
30	180	30	-7765	-15400	0	428	-87	-412	610	270	-659	-9377	3611	-1
30	180	0	-7674	-15541	0	531	-20	-467	797	437	-904	-10624	4076	-1

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 24 of 37), 454948

FOUNDATION INSTALLATION

Az Angrl From Angrl	Wind El From Angrl	Foot 1			Foot 2			Foot 3			Foot 6			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
-60	None	0	-2523	-4003	-14290	-2188	1274	-2857	4712	2730	5164	-0	0	-2145
-60	None	30	-2178	-3475	-14008	-1905	1109	-2528	4083	2366	4432	-0	0	-2024
-60	None	60	-1623	-2622	-13559	-1450	844	-1999	3072	1780	3257	1	-1	-1825
-60	None	90	-1002	-1681	-13061	-947	552	-1415	1950	1129	1952	-1	1	-1602
125 MPH, 59°F														
-60	-30	0	21206	-4174	19036	24704	-14385	28421	-53850	-31196	-62881	-13410	14967	1297
-60	30	0	-5902	24429	11082	25594	-14896	29451	-52555	-30449	-61379	13411	-14967	6720
-60	-60	0	42009	-24384	26779	26203	-15261	30166	-58947	-34147	-68802	-33338	37207	-2270
-60	60	0	-25251	46660	7535	28004	-16295	32253	-55740	-32296	-65081	33339	-37208	11166
-60	-90	0	-53211	49314	-30281	391	-213	135	7145	4131	7985	49864	-55651	8035
-60	90	0	48166	-57319	1705	-4766	2759	-5847	2276	1328	2339	-49863	55650	-12323
-60	-120	0	-61355	54628	-37066	-1911	1133	-2545	14739	8528	16807	56377	-62920	8678
-60	120	0	53762	-66173	1139	-9311	5399	-11130	9188	5335	10372	-56378	62921	-14507
-60	-150	0	-46357	29706	-41338	-13666	7967	-16211	35419	20514	40840	38083	-42503	2583
-60	150	0	31176	-51785	-16471	-17942	10431	-21171	31691	18368	36517	-38082	42502	-13001
-60	0	0	7717	10214	15245	25318	-14739	29133	-53563	-31031	-62549	-1	1	4046
-60	0	30	2165	1883	-13931	17804	-10364	20394	+37364	-21647	-43727	1	-1	1790
-60	0	60	-4542	-7903	-45054	5213	-3033	5749	-10494	-6081	-12507	-2	2	-1454
-60	0	90	4710	6873	-5973	5967	-3469	6620	-13096	-7592	-15537	1	-1	764
-60	180	90	-6718	-10230	-20151	-7858	4572	-9446	16994	9849	19439	1	-1	-3968
-60	180	60	-8563	-12953	-21839	-10776	6269	-12837	23263	13482	26726	-0	0	-4807
-60	180	30	-9713	-14285	-23321	-17140	9974	-20239	36610	21214	42233	2	-2	-5956
-60	180	0	-9896	-14237	-35551	-21992	12802	-25887	46668	27038	53914	2	-2	-6602

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 25 of 37), 454948

Az Angl From Angl	Wind El	Foot 1		Foot 2		Foot 3		Foot 6						
		Mx	My	Mx	My	Mx	My	Mx	My					
Weight only														
-60	None	0	3946	-2487	0	-123	36	124	-113	-45	120	1854	2375	0
-60	None	30	3425	-2147	0	-107	37	111	-97	-34	100	1662	2146	0
-60	None	60	2585	-1600	0	-83	38	90	-71	-16	69	1349	1771	-1
-60	None	90	1657	-988	0	-56	39	67	-43	4	35	993	1346	1
125 MPH, 59°F														
-60	-30	0	4115	20905	0	1421	-530	-1487	1263	393	-1283	-17799	-16865	7090
-60	30	0	-24082	-5818	0	1405	-507	-1461	1265	412	-1294	1925	-1761	-7091
-60	-60	0	24039	41414	0	1545	-586	-1622	1364	414	-1380	-33187	-28963	17627
-60	60	0	-45998	-24893	0	1500	-530	-1555	1360	454	-1397	15913	8666	-17627
-60	-90	0	-48616	-52457	0	-141	85	163	-90	5	75	38372	30273	-26364
-60	90	0	56507	47483	0	-104	-13	84	-136	-95	165	-34664	-25523	26364
-60	-120	0	-53854	-60486	0	-326	164	362	-243	-31	225	44241	35227	-29808
-60	120	0	65236	53001	0	-304	46	285	-328	-171	367	-38081	-27550	29808
-60	-150	0	-29285	-45700	0	-899	350	948	-777	-227	782	34594	29470	-20136
-60	150	0	51052	30734	0	-876	274	890	-820	-309	860	-21132	-13077	20135
-60	0	0	-10069	7607	0	1422	-522	-1484	1272	405	-1297	-7999	-9387	1
-60	0	30	-1856	2134	0	993	-360	-1034	891	288	-911	-4398	-5091	-0
-60	0	60	7791	-4478	0	280	-89	-285	257	95	-269	769	1075	1
-60	0	90	-6775	4643	0	324	-21	-290	327	203	-382	-2765	-3142	-0
-60	180	90	10085	-6622	0	-436	98	424	-413	-194	452	4753	5836	-0
-60	180	60	12770	-8442	0	-597	131	579	-566	-269	621	6084	7426	0
-60	180	30	14082	-9575	0	-954	271	956	-882	-361	939	7913	9609	-1
-60	180	0	14036	-9756	0	-1235	438	1281	-1110	-369	1140	8948	10843	-1

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 26 of 37), 454948

FOUNDATION INSTALLATION

Az Anagl	Wind From Anagl	Foot 1			Foot 2			Foot 3			Foot 6			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
-30	None	0	-4238	-2431	-16873	24	-6	-288	4215	2438	4584	0	-0	-1602
-30	None	30	-3665	-2109	-16229	16	-2	-297	3650	2111	3927	0	-0	-1580
-30	None	60	-2742	-1590	-15192	1	5	-315	2742	1585	2872	-1	0	-1543
-30	None	90	-1718	-1012	-14045	-14	12	-331	1732	1001	1698	1	-0	-1500
125 MPH, 59°F														
-30	-30	0	21468	2134	43711	-1801	954	-2361	-46430	-26850	-54232	-9120	4309	-1297
-30	30	0	2763	11127	40398	938	-632	821	-47608	-27536	-55603	9120	-4309	206
-30	-60	0	36497	-3835	50235	-3626	2004	-4477	-49338	-28528	-57607	-22673	10711	-2330
-30	60	0	-9928	18392	42301	2697	-1658	2868	-52027	-30096	-60737	22672	-10711	1390
-30	-90	0	-39186	14581	-23706	6215	-3591	6904	1479	843	1399	33910	-16020	1225
-30	90	0	30712	-19443	-10034	-6168	3579	-7479	6948	4032	7765	-33911	16020	-4430
-30	-120	0	-45948	15917	-32554	8012	-4620	8986	7077	4077	7898	38341	-18113	1492
-30	120	0	33377	-23048	-15946	-7851	4566	-9440	14183	8219	16169	-38340	18113	-4961
-30	-150	0	-39106	6102	-51564	5180	-2944	5678	27543	15920	31671	25899	-12235	37
-30	150	0	14342	-19990	-40875	-4677	2764	-5771	31918	18470	36763	-25899	12235	-4294
-30	0	0	12216	6688	42422	-433	161	-772	-47338	-27378	-55289	1	-0	-539
-30	0	30	3069	1552	4574	-273	96	-599	-32925	-19042	-38550	-0	0	-950
-30	0	60	-7886	-4564	-40571	-32	2	-341	-9098	-5262	-10879	1	-1	-1526
-30	0	90	7693	4261	1314	-186	91	-526	-11696	-6770	-13904	-0	0	-1063
-30	180	90	-11126	-6287	-29400	156	-65	-139	15160	8771	17299	-1	0	-1937
-30	180	60	-14153	-7980	-34427	218	-92	-70	20733	11996	23774	0	-0	-2086
-30	180	30	-15900	-8924	-42518	303	-118	16	32499	18800	37438	-1	1	-2271
-30	180	0	-16083	-8996	-59561	353	-127	61	41332	23905	47690	-1	1	-2368

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 27 of 37), 454948

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 6		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
-30	None	0	2396	-4178	0	-84	38	91	-59	-11	57	1055	1446	0
-30	None	30	2079	-3613	0	-74	38	82	-51	-4	46	1014	1379	0
-30	None	60	1567	-2703	0	-57	39	69	-36	7	28	947	1268	-0
-30	None	90	998	-1694	0	-39	39	53	-20	19	8	872	1143	0
125 MPH, 59°F														
-30	-30	0	-2104	21164	0	922	-530	-1057	602	-5	-516	-3696	-8361	-3518
-30	30	0	-10969	2723	0	982	-537	-1113	676	33	-599	1965	4848	3518
-30	-60	0	3781	35980	0	957	-566	-1105	605	-29	-506	-8052	-18425	-8745
-30	60	0	-18132	-9787	0	1096	-582	-1233	774	61	-696	6046	14454	8745
-30	-90	0	-14375	-38631	0	54	20	-37	107	76	-130	11520	25907	13080
-30	90	0	19167	30277	0	-222	55	218	-226	-99	244	-9411	-23017	-13080
-30	-120	0	-15692	-45297	0	-36	86	74	68	97	-107	13078	29423	14789
-30	120	0	22721	32904	0	-391	132	403	-361	-127	374	-10488	-25730	-14788
-30	-150	0	-6016	-38552	0	-490	308	575	-274	46	214	9933	21705	9990
-30	150	0	19707	14139	0	-710	336	778	-540	-94	512	-5972	-15625	-9990
-30	0	0	-6593	12043	0	959	-537	-1092	644	14	-561	-877	-1776	0
-30	0	30	-1530	3026	0	666	-369	-758	449	14	-394	-127	-524	-0
-30	0	60	4499	-7775	0	183	-91	-202	127	16	-117	922	1227	1
-30	0	90	-4200	7584	0	216	-26	-198	178	110	-207	87	-162	-0
-30	180	90	6198	-10968	0	-294	104	305	-219	-72	224	1656	2446	-0
-30	180	60	7866	-13952	0	-401	139	415	-299	-102	308	1924	2891	0
-30	180	30	8797	-15674	0	-642	282	693	-458	-96	442	2262	3454	-0
-30	180	0	8868	-15855	0	-834	452	943	-566	-30	502	2445	3764	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 28 of 37), 454948

FOUNDATION INSTALLATION

Az Wind Angl From Angl	El	Foot 1			Foot 2			Foot 3			Foot 6			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
0	None	0	-4891	0	-17670	2446	-1411	2527	2445	1410	2526	-0	0	-1562
0	None	30	-4233	-4	-16919	2113	-1218	2140	2120	1222	2148	-0	0	-1547
0	None	60	-3172	-12	-15711	1576	-908	1516	1596	920	1539	-0	0	-1522
0	None	90	-1995	-21	-14372	980	-564	823	1016	584	865	-0	0	-1494
125 MPH, 59°F														
0	-30	0	19721	-8744	51696	-28726	16563	-33647	-26041	-15005	-30526	-5755	8282	-1703
0	30	0	7996	8378	49943	-26250	15126	-30768	-28303	-16318	-33155	5755	-8282	-199
0	-60	0	29773	-21404	57888	-32497	18742	-38025	-26688	-15372	-31273	-14308	20589	-2768
0	60	0	626	21011	53548	-26761	15415	-31358	-31893	-18393	-37323	14308	-20589	954
0	-90	0	-26692	32170	-20966	8001	-4633	8983	-2708	-1581	-3464	21399	-30792	1269
0	90	0	16912	-32169	-14369	-3110	1813	-3930	7597	4400	8514	-21399	30792	-4392
0	-120	0	-31891	36684	30008	13282	-7683	15114	-475	-300	-876	24194	-34815	1592
0	120	0	17416	-36637	-22481	-894	541	-1362	12783	7395	14534	-24194	34815	-4869
0	-150	0	-30880	24723	-54307	21771	-12566	24959	13089	7529	14868	16343	-23518	302
0	150	0	2424	-24539	-49254	12939	-7443	14694	21304	12296	24416	-16343	23518	-4034
0	0	0	13975	-184	51247	-27674	15952	-32423	-27356	-15767	-32054	0	-0	-947
0	0	30	3470	-97	10727	-19213	11075	-22606	-19046	-10978	-22412	0	-0	-1236
0	0	60	-9100	16	-38844	-5259	3032	-6416	-5287	-3048	-6448	-0	-0	-1609
0	0	90	8811	-108	3508	-6916	3993	-8346	-6730	-3885	-8130	-0	-0	-1210
0	180	90	-12799	67	-32250	8875	-5120	9992	8760	5053	9858	0	0	-1777
0	180	60	-16274	94	-38326	12142	-7004	13785	11981	6911	13597	0	0	-1866
0	180	30	-18272	120	-48617	18997	-10955	21738	18791	10835	21498	-0	-0	-1954
0	180	0	-18473	134	-67287	24132	-13911	27691	23902	13777	27423	-0	0	-2004

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 29 of 37), 454948

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 6		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
0	None	0	22	-4831	0	-16	20	24	14	20	-22	928	1232	-0
0	None	30	23	-4181	0	-15	23	24	13	23	-23	919	1218	0
0	None	60	24	-3133	0	-13	27	25	12	27	-23	905	1195	0
0	None	90	26	-1968	0	-11	32	26	10	32	-24	889	1167	-0
125 MPH, 59°F														
0	-30	0	5404	23014	0	141	-320	-280	-234	-352	376	-3564	-7306	-2829
0	30	0	-5317	4435	0	231	-351	-373	-143	-321	283	4812	8736	2829
0	-60	0	13295	38145	0	96	-325	-244	-308	-398	463	-9815	-19271	-7034
0	60	0	-13205	-8042	0	305	-397	-460	-98	-325	246	11020	20627	7034
0	-90	0	-20252	-39369	0	185	-48	-183	215	89	-229	16477	31017	10519
0	90	0	20296	29707	0	-216	89	230	-186	-49	185	-14622	-28552	-10519
0	-120	0	-23194	-46205	0	213	-22	-195	294	152	-329	18526	34940	11894
0	120	0	23232	31896	0	-295	152	330	-215	-23	197	-16595	-32346	-11894
0	-150	0	-15535	-40452	0	43	143	34	274	252	-362	12950	24231	8034
0	150	0	15557	12306	0	-275	252	362	-44	142	-33	-10792	-21251	-8034
0	0	0	44	13840	0	187	-337	-329	-190	-338	332	622	712	0
0	0	30	32	3449	0	129	-231	-226	-131	-231	228	773	967	0
0	0	60	17	-8987	0	33	-52	-54	-34	-52	55	964	1290	0
0	0	90	41	8717	0	25	24	-10	-28	23	13	730	902	-0
0	180	90	11	-12653	0	-48	41	61	47	40	-61	1047	1433	0
0	180	60	7	-16090	0	-65	52	82	64	52	-81	1094	1512	0
0	180	30	5	-18070	0	-113	146	170	113	146	-170	1133	1579	0
0	180	0	7	-18274	0	-162	278	277	161	278	-277	1147	1607	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 30 of 37), 454948

Az Anagl	Wind From Anagl	Foot 1			Foot 2			Foot 3			Foot 6			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
30	None	0												
30	None	30	-4261	2427	-17054									
30	None	60	-3689	2098	-16389	4223	-2443	4594						
30	None	90	-2770	1567	-15317	3652	-2112	3930	38	15	-271	-0	0	-1561
30	None	0	-1745	975	-14129	2735	-1581	2863	37	15	-272	-0	0	-1562
125 MPH, 59°F														
30	-30	0	22416	-15372	42154	-48075	27808	-56146	1467	939	1435	-10596	7976	-1736
30	30	0	1668	1432	43685	-46476	26877	-54286	-1672	-879	-2210	10597	-7976	-1482
30	-60	0	39037	-28462	45447	-52823	30558	-61663	3543	2148	3851	-26342	19828	-1928
30	60	0	-12622	13178	48968	-49092	28385	-57321	-3769	-2087	-4643	26343	-19828	-1297
30	-90	0	-42659	33972	-13564	7748	-4495	8694	-6906	-4008	-8338	39400	-29657	-1084
30	90	0	34138	-29117	-20539	696	-389	489	6983	4037	7796	-39399	29656	-2038
30	-120	0	-49568	39527	-20076	15126	-8767	17266	-8736	-5079	-10469	44547	-33531	-1013
30	120	0	36965	-32319	-29049	6216	-3578	6898	8848	5105	9957	-44547	33531	-2098
30	-150	0	-41675	31255	-44142	32665	-18903	37630	-5397	-3181	-6608	30092	-22650	-1173
30	150	0	16914	-17039	-49702	27078	-15650	31130	5615	3196	6184	-30091	22650	-1903
30	0	0	12145	-7030	43294	-47597	27528	-55589	-102	31	-387	-1	1	-1609
30	0	30	3015	-1761	5048	-33079	19131	-38728	-66	24	-358	0	-0	-1601
30	0	60	-7910	4539	-40659	-9105	5267	-10888	3	18	-302	-2	1	-1583
30	0	90	7642	-4442	1647	-11827	6846	-14057	-4	14	-315	0	-0	-1568
30	180	90	-11134	6394	-29903	15255	-8826	17409	67	14	-242	1	-0	-1556
30	180	60	-14152	8134	-35074	20866	-12073	23928	84	14	-226	-0	0	-1552
30	180	30	-15893	9136	-43354	32678	-18904	37645	115	9	-202	1	-1	-1538
30	180	0	-16072	9237	-60500	41532	-24021	47923	139	3	-187	1	-1	-1527

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 31 of 37), 454948

Az Angl	Wind From Angl	El	Foot 1			Foot 2			Foot 3			Foot 6		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
30	None	0	-2393	-4200	0	59	-11	-57	84	38	-91	919	1237	0
30	None	30	-2068	-3637	0	50	-4	-45	73	38	-82	918	1235	0
30	None	60	-1545	-2730	0	36	7	-27	57	39	-68	916	1233	-0
30	None	90	-961	-1720	0	19	19	-7	38	39	-52	912	1227	0
125 MPH, 59°F														
30	-30	0	15154	22099	0	-693	41	617	-999	-541	1129	-6270	-8312	132
30	30	0	-1411	1644	0	-606	-4	520	-925	-530	1060	8164	10860	-132
30	-60	0	28059	38484	0	-802	72	727	-1123	-590	1261	-16995	-22557	329
30	60	0	-12991	-12443	0	-598	-31	500	-950	-564	1098	18893	25111	-329
30	-90	0	-33490	-42055	0	253	-109	-272	248	63	-245	27742	36864	-492
30	90	0	28704	33655	0	-134	87	159	-81	13	63	-25903	-34390	492
30	-120	0	-38967	-48866	0	393	-139	-407	422	141	-434	31233	41501	-557
30	120	0	31862	36441	0	-97	109	138	7	78	-45	-29402	-39037	557
30	-150	0	-30812	-41085	0	566	-104	-539	735	344	-803	21390	28426	-376
30	150	0	16797	16675	0	259	52	-197	474	304	-560	-19577	-25989	376
30	0	0	6930	11972	0	-654	19	572	-968	-539	1102	947	1274	0
30	0	30	1736	2972	0	-455	17	401	-672	-371	763	968	1303	-0
30	0	60	-4475	-7798	0	-128	17	118	-183	-90	203	977	1314	0
30	0	90	4379	7534	0	-183	112	213	-221	-27	203	891	1199	-0
30	180	90	-6303	-10976	0	222	-73	-227	297	105	-308	935	1257	-0
30	180	60	-8019	-13951	0	304	-103	-313	406	141	-419	935	1257	0
30	180	30	-9007	-15667	0	464	-98	-449	648	284	-699	917	1233	-0
30	180	0	-9106	-15845	0	573	-33	-509	841	454	-950	900	1211	-0

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 32 of 37), 454948

FOUNDATION INSTALLATION

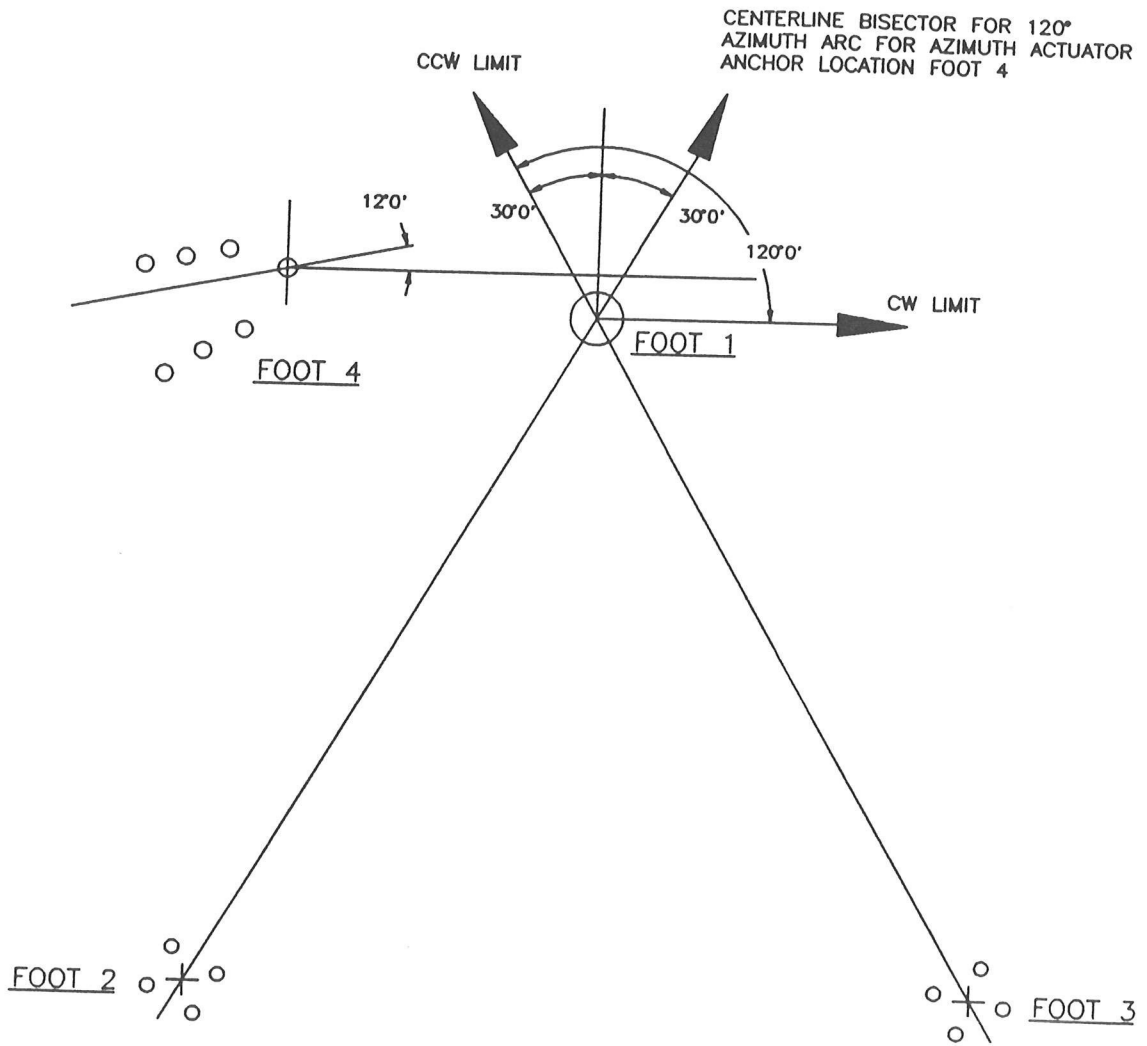
Az Anagl	Wind From Anagl	El	Foot 1			Foot 2			Foot 3			Foot 6		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
60	None	0	-2478	4235	-15003	4890	-2834	5370	-2411	-1402	-3115	0	-0	-1584
60	None	30	-2148	3664	-14617	4231	-2452	4605	-2083	-1212	-2734	0	-0	-1585
60	None	60	-1616	2742	-13998	3173	-1838	3374	-1555	-905	-2121	-1	1	-1586
60	None	90	-1027	1722	-13308	1996	-1156	2006	-970	-566	-1442	1	-1	-1587
125 MPH, 59°F														
60	-30	0	19899	-27194	18188	-54539	31602	-63686	28555	16612	32892	-13369	14863	-1727
60	30	0	-6035	3080	21144	-54472	31558	-63605	25789	15013	29681	13368	-14863	-1551
60	-60	0	39908	-50814	18718	-58835	34095	-68680	32513	18908	37491	-33235	36950	-1861
60	60	0	-24698	24369	25571	-58669	33986	-68480	26062	15179	30001	33234	-36949	-1425
60	-90	0	-50388	60693	-8388	5008	-2915	5516	-8515	-4932	-10202	49708	-55264	-1257
60	90	0	45432	-52225	-21615	4768	-2750	5221	3696	2128	3975	-49708	55265	-1912
60	-120	0	-57567	70258	-10918	12459	-7236	14176	-13833	-8020	-16383	56202	-62485	-1206
60	120	0	50254	-57708	-27768	12194	-7049	13847	1604	904	1539	-56202	62484	-1949
60	-150	0	-43700	55500	-27014	34561	-20036	39854	-21982	-12773	-25865	37964	-42207	-1307
60	150	0	29371	-30804	-37522	34379	-19910	39630	-12306	-7179	-14631	-37964	42208	-1808
60	0	0	6990	-12157	19885	-54875	31794	-64075	27355	15919	31499	1	-1	-1639
60	0	30	1721	-3033	-11237	-38133	22094	-44621	19018	11067	21804	-1	1	-1624
60	0	60	-4588	7892	-45162	-10482	6074	-12493	5243	3050	5784	2	-2	-1599
60	90	0	4394	-7666	-4181	-13620	7897	-16147	809	3957	7598	-1	1	-1601
60	180	90	-6445	11104	-22436	17611	-10207	20157	-8747	-5087	-10479	-1	1	-1573
60	180	60	-8188	14123	-24849	24083	-13959	27679	-11972	-6962	-14226	0	-0	-1567
60	180	30	-9190	15857	-27326	37706	-21851	43507	-18755	-10910	-22115	-2	2	-1554
60	180	0	-9294	16035	-40119	47918	-27764	55368	-23840	-13873	-28035	-2	2	-1545

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 33 of 37), 454948

Az Angl	Wind From Angl	El	Foot 1			Foot 2			Foot 3			Foot 6		
			Mx	My	Mz	Mx	My	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
60	None	0	-4175	-2443	0	120	-48	-127	-1485	38	-130	932	1283	-0
60	None	30	-3612	-2118	0	103	-36	-106	-1448	38	-116	933	1284	-0
60	None	60	-2703	-1593	0	75	-17	-73	-1623	39	-94	931	1283	1
60	None	90	-1697	-1013	0	44	4	-36	-1537	39	-69	933	1285	-1
125 MPH, 59°F														
60	-30	0	26809	19617	0	-1354	454	1391	-1485	-523	1538	-12824	-11023	6987
60	30	0	-3036	-5950	0	-1294	408	1317	-1448	-535	1513	14813	13753	-6987
60	-60	0	50093	39343	0	-1497	518	1547	-1623	-555	1674	-33355	-29427	17370
60	60	0	-24024	-24348	0	-1357	412	1374	-1537	-583	1614	35353	32168	-17370
60	-90	0	-59832	-49673	0	252	-149	-291	210	10	-186	52307	47339	-25980
60	90	0	51485	44788	0	-12	52	36	49	65	-74	-50443	-44773	25980
60	-120	0	-69262	-56752	0	467	-235	-519	431	74	-408	59007	53342	-29374
60	120	0	56891	49542	0	134	19	-106	227	143	-267	-57158	-50795	29373
60	-150	0	-54714	-43081	0	944	-366	-995	988	298	-999	40137	36416	-19842
60	150	0	30367	28955	0	735	-207	-736	860	341	-910	-38336	-33932	19842
60	0	0	11985	6891	0	-1333	434	1363	-1476	-532	1536	996	1367	-1
60	0	30	2990	1697	0	-927	306	950	-1025	-366	1065	993	1357	0
60	0	60	-7780	-4523	0	-257	96	269	-280	-89	285	980	1333	-1
60	0	90	7557	4331	0	-352	215	410	-346	-25	311	934	1292	0
60	180	90	-10947	-6353	0	440	-207	-482	460	103	-448	929	1275	0
60	180	60	-13922	-8072	0	602	-286	-661	629	138	-610	923	1267	-0
60	180	30	-15632	-9060	0	931	-384	-993	997	280	-998	900	1240	1
60	180	0	-15808	-9162	0	1166	-395	-1201	1285	448	-1329	885	1222	1

Figure 3-1. Foundation Loads, 120° Azimuth Mount (Sheet 34 of 37), 454948

FOUNDATION INSTALLATION



AZIMUTH ACTUATOR ANCHOR LOCATION FOOT 4

Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 35 of 37), 454948

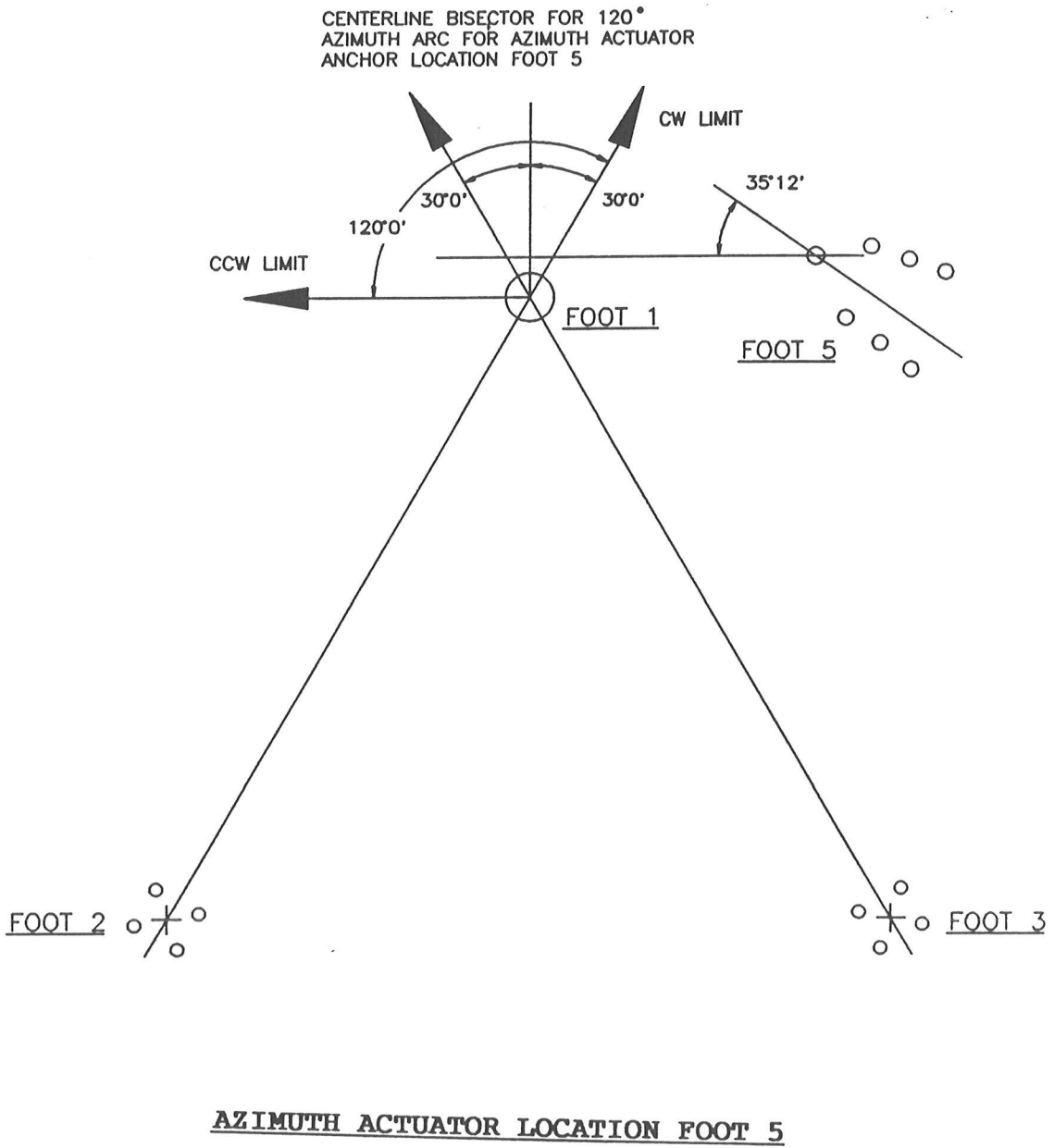


Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 36 of 37), 454948

FOUNDATION INSTALLATION

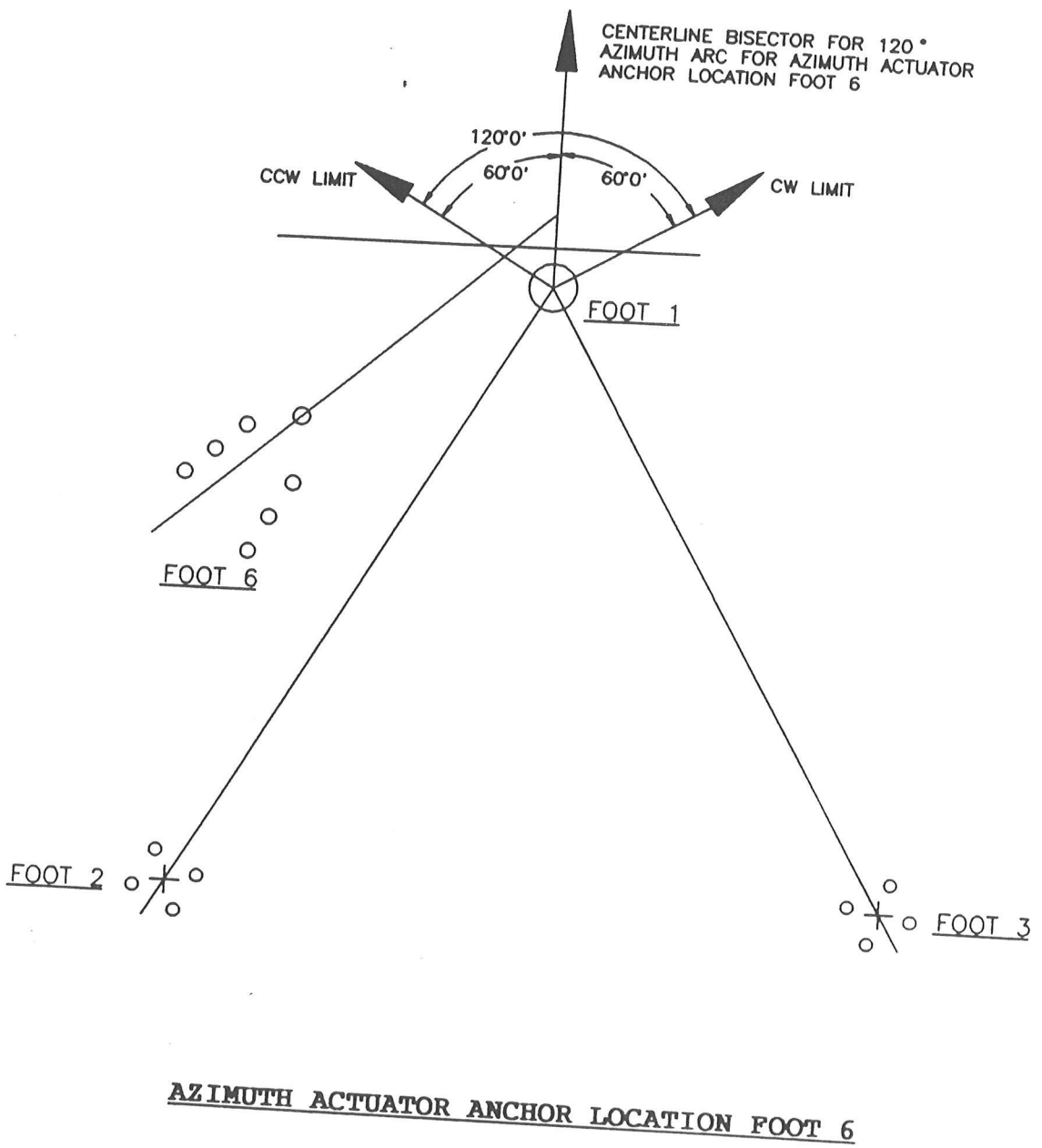
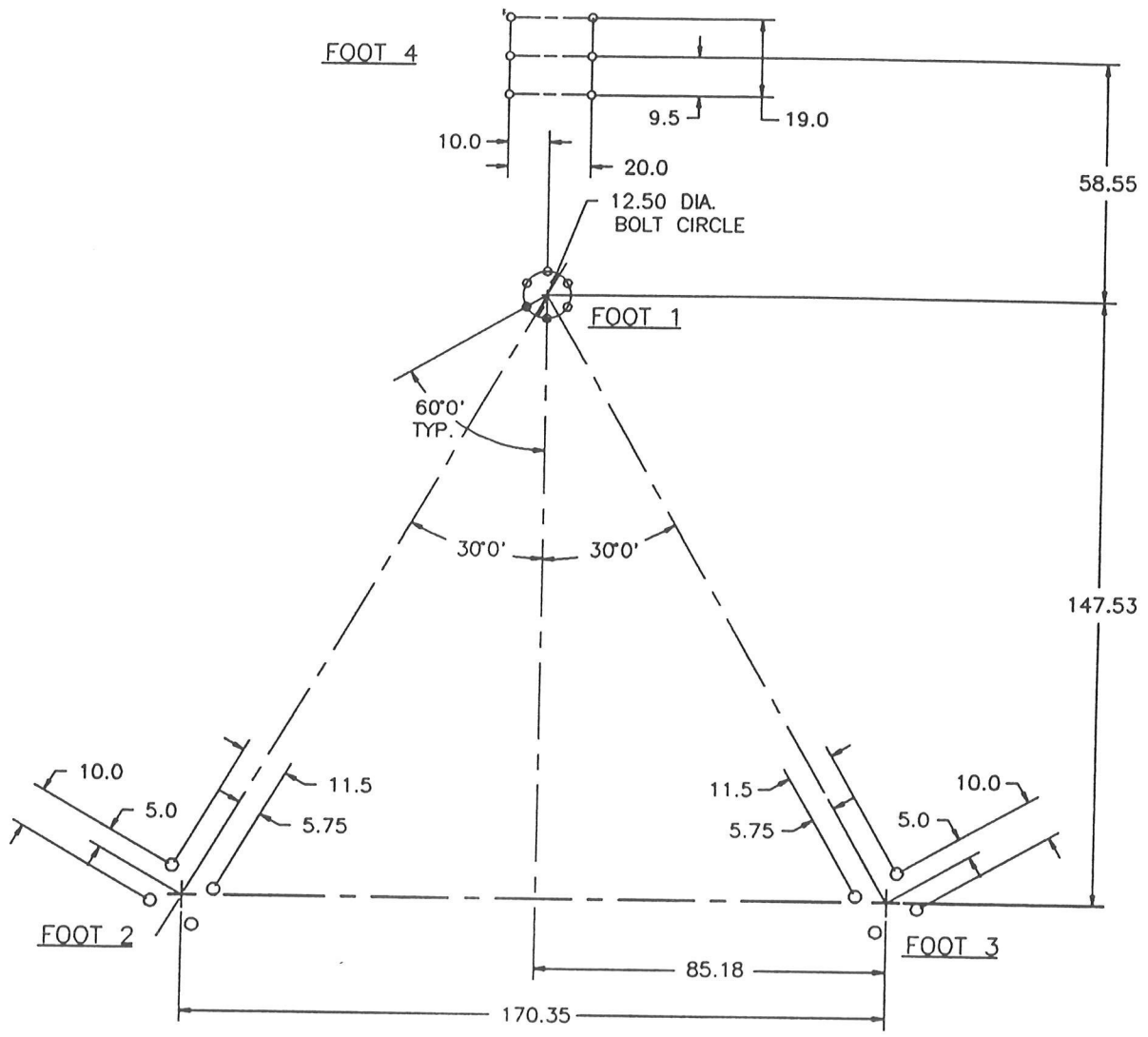


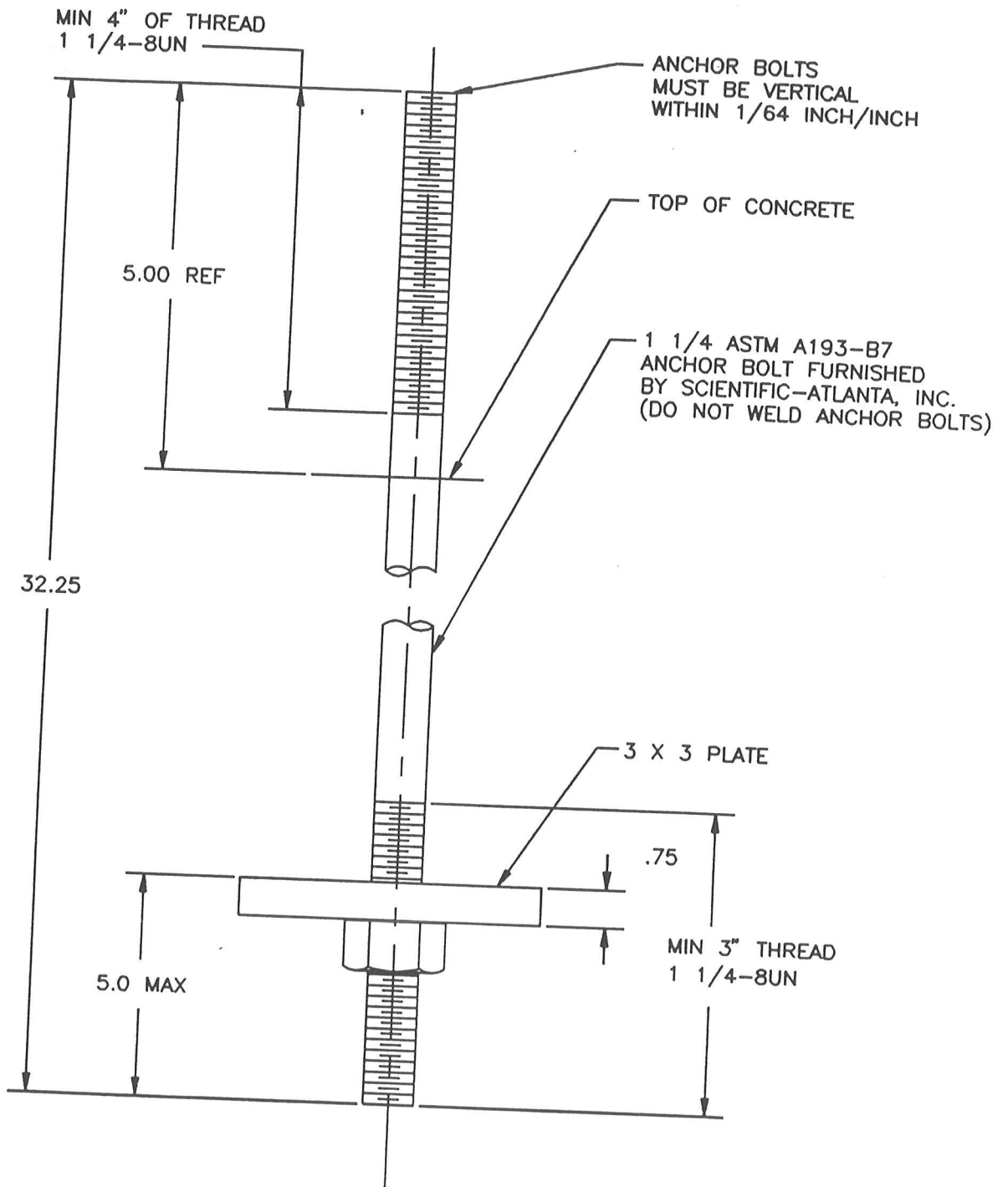
Figure 3-1. Foundation Loads , 120° Azimuth Mount (Sheet 37 of 37), 454948



ANCHOR BOLT LOCATION PLAN

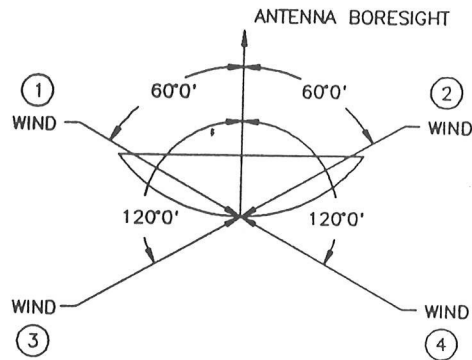
Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 1 of 18), 455097

FOUNDATION INSTALLATION



ANCHOR BOLT DETAIL

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 2 of 18), 455097

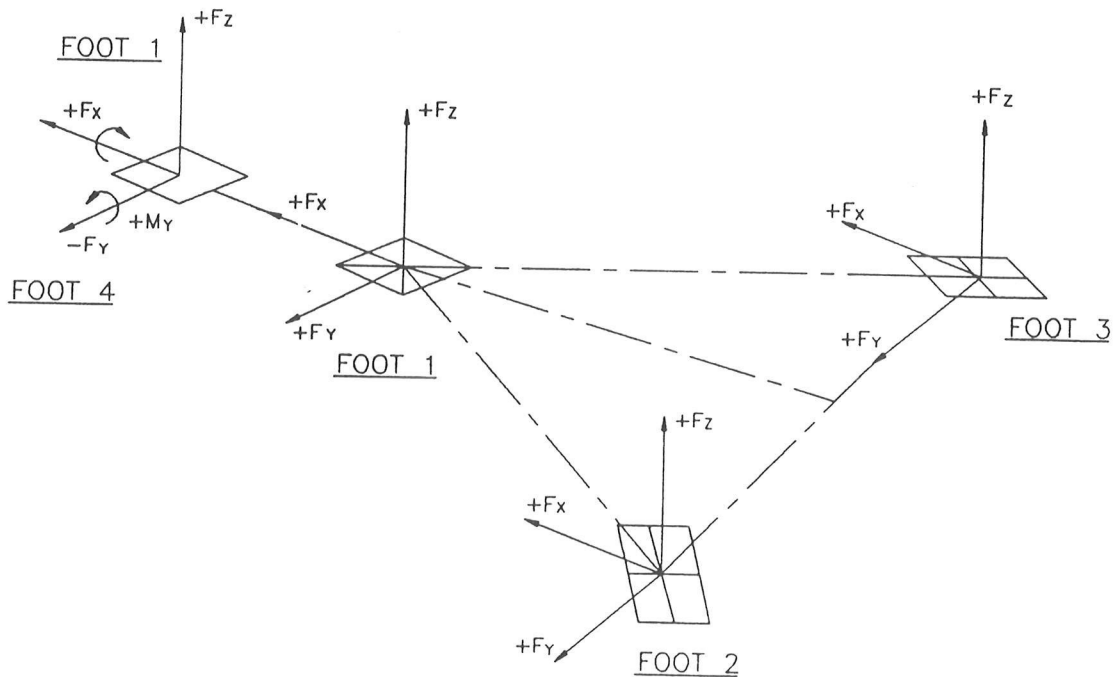


PLAN VIEW OF ANTENNA

THE WIND DIRECTION IS ALWAYS ASSUMED TO BE PARALLEL TO THE GROUND. THE ANTENNA IS AT 0° ELEVATION. WIND LOAD CASES ARE AS FOLLOW:

- CASE ① 125 MPH WIND FROM 60° LEFT OF BORESIGHT
- CASE ② 125 MPH WIND FROM 60° RIGHT OF BORESIGHT
- CASE ③ 125 MPH WIND FROM 120° LEFT OF BORESIGHT
- CASE ④ 125 MPH WIND FROM 120° RIGHT OF BORESIGHT

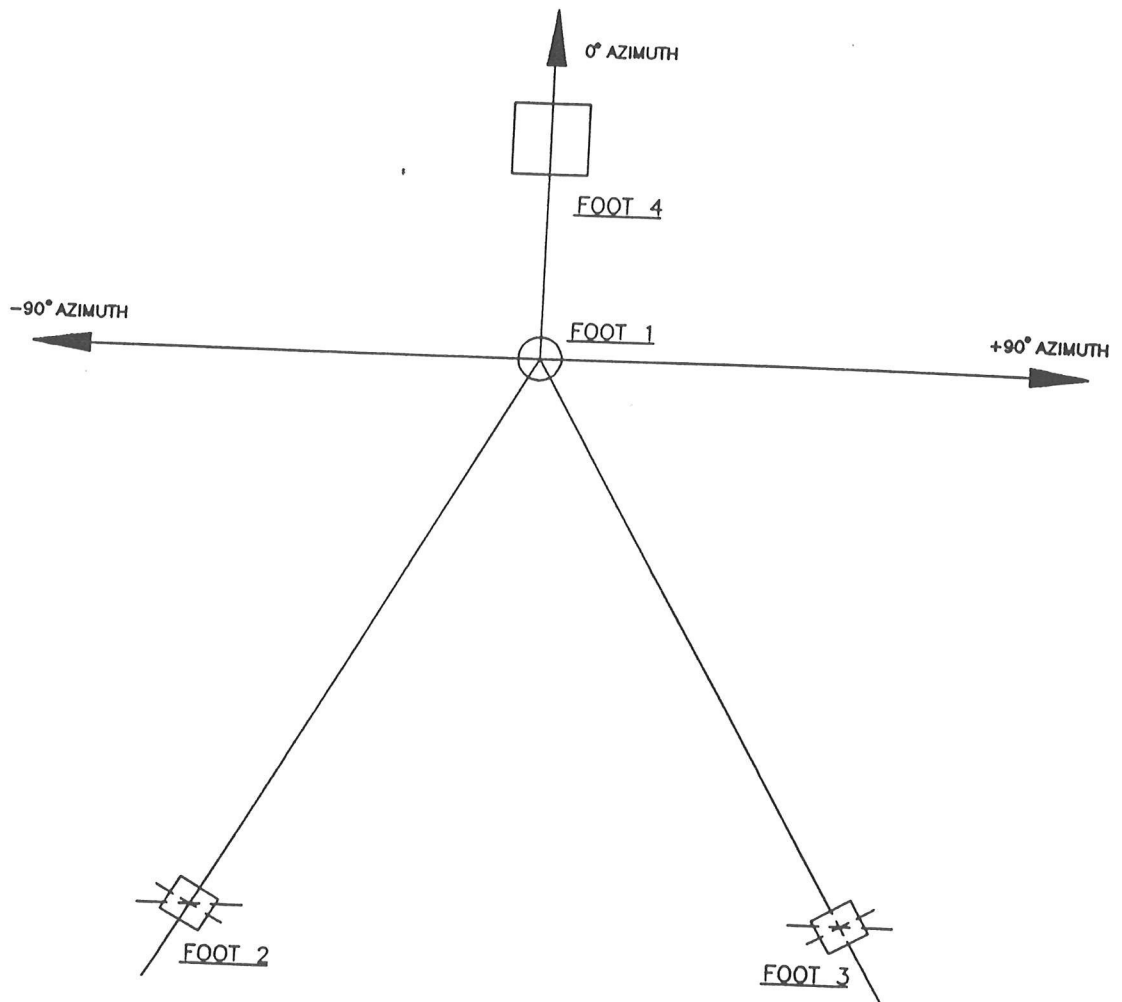
WIND LOAD CASES



LOAD DIRECTIONAL SIGN CONVENTION

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 3 of 18), 455097

FOUNDATION INSTALLATION



MAXIMUM TOTAL OVERTURNING MOMENT ON
FOUNDATION IS 896,000 FT/LBS

ANTENNA AZIMUTH POSITIONS

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 4 of 18), 455097

Az Angrl	Wind From	El Angrl	Foot 1			Foot 2			Foot 3			Foot 4		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
-90	None	0	-0	-4571	-12073	-3939	2286	-4890	3939	2286	4267	0	-0	-1434
-90	None	30	-0	-3933	-12077	-3389	1967	-4251	3389	1967	3627	-0	-0	-1429
-90	None	60	-0	-2906	-12084	-2504	1453	-3223	2504	1453	2598	-0	-0	-1421
-90	None	90	-0	-1764	-12092	-1521	883	-2081	1521	882	1455	0	-0	-1411
125 MPH, 59°F														
-90	-30	0	10504	3484	-10990	46202	-26805	53380	-47638	-27645	-55688	-10164	10163	-932
-90	30	0	-10504	23586	-14061	47445	-27520	54821	-46008	-26705	-53797	10164	-10163	-1093
-90	-60	0	26039	-10156	-9023	49030	-28450	56669	-52358	-30380	-61173	-25267	25266	-604
-90	60	0	-26039	39817	-16094	51876	-30087	59969	-48548	-28183	-56753	25267	-25266	-1253
-90	-90	0	-39396	32800	-19057	-1076	637	-1570	7520	4350	8420	-37788	-37788	-1922
-90	90	0	39396	-41940	-5087	-6800	3932	-8208	356	221	111	42725	-42724	-946
-90	-120	0	-44832	35416	-20996	-6591	3841	-7981	14812	8578	16895	42725	-42724	-2047
-90	120	0	44832	-49091	-3035	-13999	8105	-16572	5779	3371	6416	-42725	42724	-939
-90	-150	0	-30151	14953	-17414	-26935	15636	-31620	32057	18594	36946	28861	-28860	-2042
-90	150	0	30151	-42130	-6280	-31508	-18268	-36922	26386	15324	30367	-28861	28860	-1296
-90	0	0	0	13648	-12526	47138	-27346	54466	-47138	-27358	-55109	-0	0	-959
-90	0	30	0	3485	-33707	32981	-19132	38014	-32981	-19142	-38653	-0	-0	-1131
-90	0	60	-0	-8666	-51252	9462	-5488	10681	-9462	-5493	-11314	-0	-0	-1384
-90	0	90	-0	8700	-12209	11664	-6763	13238	-11664	-6772	-13875	0	-0	-1283
-90	180	90	0	-12228	-11976	-14704	8529	-17398	14704	8535	16782	-0	0	-1539
-90	180	60	0	-15591	-10564	-20198	11715	-23781	20198	11724	23170	-0	0	-1587
-90	180	30	-0	-17511	-4996	-31906	18508	-37388	31906	18519	36781	-0	-0	-1684
-90	180	0	-0	-17688	-11744	-40715	23619	-47626	40715	23629	47017	0	-0	-1776

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 5 of 18), 455097

FOUNDATION INSTALLATION

Az Angrl From Angrl	Wind El	Foot 1			Foot 2			Foot 3			Foot 4		
		Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz
Weight only													
-90	None	0	2510	0	-133	41	135	-136	-52	143	-521	-1574	0
-90	None	30	2160	0	-115	38	119	-116	-41	120	-502	-1550	-0
-90	None	60	1596	0	-87	35	92	-84	-24	85	-469	-1508	-0
-90	None	90	969	0	-54	31	62	-49	-5	45	-432	-1461	0
125 MPH, 59°F													
-90	-30	0	-1913	5769	1587	-453	-1592	1618	649	-1716	-5846	-6258	-10812
-90	30	0	-12952	-5769	1569	-424	-1562	1623	674	-1733	8404	7714	10812
-90	-60	0	5577	14299	1722	-507	-1735	1741	684	-1839	-16307	-16477	-26877
-90	60	0	-21866	-14299	1679	-439	-1664	1751	741	-1877	19122	18262	26877
-90	-90	0	-18012	-21635	-172	104	200	-122	3	104	25961	24389	40197
-90	90	0	23032	21635	-95	-23	71	-149	-107	182	-27003	-27537	-40197
-90	-120	0	-19449	-24620	-395	181	429	-337	-71	325	29188	27483	45448
-90	120	0	26959	24620	-301	20	269	-375	-212	428	-30681	-31208	-45448
-90	-150	0	-8212	-16557	-1016	329	1039	-999	-364	1041	18807	17107	30700
-90	150	0	23137	16557	-956	229	937	-1021	-451	1104	-21642	-22548	-30700
-90	0	0	-7495	0	1589	-442	-1588	1631	666	-1736	1290	742	-0
-90	0	30	-1914	0	1109	-294	-1101	1144	481	-1225	635	-96	0
-90	0	60	4759	0	313	-56	-297	334	166	-370	-329	-1328	-0
-90	0	90	-4777	-0	383	-55	-357	414	220	-466	56	-837	0
-90	180	90	6715	0	-492	116	481	-513	-229	556	-920	-2085	-0
-90	180	60	8562	0	-674	155	658	-705	-319	766	-1102	-2317	-0
-90	180	30	9617	-0	-1070	268	1055	-1110	-481	1195	-1472	-2791	-0
-90	180	0	9713	-0	-1374	388	1376	-1408	-569	1495	-1825	-3242	0

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 6 of 18), 455097

Az Anagl	Wind From Anagl	El Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
-60	None	0	-2267	-3927	-14572	-2251	1310	-2930	4519	2618	4938	-0	0	-1566
-60	None	30	-1948	-3374	-14202	-1933	1126	-2561	3881	2248	4197	-0	0	-1564
-60	None	60	-1434	-2481	-13607	-1422	828	-1967	2856	1654	3006	1	-1	-1562
-60	None	90	-861	-1493	-12944	-856	499	-1309	1718	994	1682	-1	1	-1559
125 MPH, 59°F														
-60	-30	0	13032	1565	20970	25826	-15038	29729	-54340	-31478	-63446	-5868	10163	-1384
-60	30	0	628	22095	18045	28229	-16427	32519	-54178	-31389	-63260	5868	-10163	-1435
-60	-60	0	22833	-12524	25335	26345	-15346	30336	-58663	-33979	-68466	-14587	25264	-1335
-60	60	0	-7873	38437	18553	31897	-18556	36782	-58259	-33757	-68004	14587	-25265	-1461
-60	-90	0	-25623	34411	-21118	3171	-1824	3365	4822	2782	5284	21817	-37787	-1660
-60	90	0	21089	-42263	-8023	-7670	4443	-9222	4211	2451	4587	-21817	37787	-1471
-60	-120	0	-30063	37590	-27180	1020	-566	859	12226	7068	13884	24667	-42724	-1692
-60	120	0	23252	-49390	-10496	-12852	7454	-15247	11530	6694	13092	-24668	42724	-1479
-60	-150	0	-24689	17537	-36745	-12519	7305	-14883	34025	19702	39214	16663	-28860	-1716
-60	150	0	11094	-41084	-26341	-21146	12291	-24898	33557	19449	38682	-16663	28860	-1572
-60	0	0	6887	11927	19722	27208	-15838	31335	-54624	-31645	-63778	-0	1	-1408
-60	0	30	1789	3100	-11120	19042	-11083	21835	-38225	-22145	-44725	0	-0	-1467
-60	0	60	-4309	-7467	-44686	5471	-3183	6048	-10986	-6366	-13079	-1	2	-1552
-60	0	90	4382	7591	-4086	6751	-3927	7535	-13551	-7853	-16061	0	-0	-1518
-60	180	90	-6106	-10575	-21803	-8460	4923	-10150	16985	9841	19423	0	-1	-1599
-60	180	60	-7791	-13496	-24125	-11629	6767	-13836	23345	13526	26814	-0	0	-1614
-60	180	30	-8762	-15172	-26515	-18379	10697	-21687	36899	21378	42562	1	-1	-1647
-60	180	0	-8858	-15340	-39261	-23459	13656	-27599	47099	27285	54410	1	-1	-1679

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 7 of 18), 455097

FOUNDATION INSTALLATION

Az Angrl From Angrl	Wind El From Angrl	Foot 1			Foot 2			Foot 3			Foot 4			
		Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz	
Weight only														
-60	None	0	2156	-1245	0	-123	53	133	-108	-26	106	-1412	-2008	-0
-60	None	30	1853	-1070	0	-107	49	116	-92	-19	89	-1407	-2004	-0
-60	None	60	1363	-788	0	-80	43	90	-67	-8	61	-1398	-1996	1
-60	None	90	820	-473	0	-50	35	60	-38	5	30	-1390	-1988	-1
125 MPH, 59°F														
-60	-30	0	-859	7157	0	1459	-606	-1558	1279	336	-1268	-8434	-5869	-10810
-60	30	0	-12133	345	0	1487	-596	-1577	1328	373	-1328	6644	2783	10811
-60	-60	0	6878	12539	0	1555	-660	-1667	1348	339	-1330	-19600	-12264	-26875
-60	60	0	-21108	-4324	0	1620	-635	-1710	1460	424	-1468	17884	9244	26875
-60	-90	0	-18897	-14072	0	-59	75	88	2	56	-30	26620	14077	40197
-60	90	0	23209	11582	0	-188	31	177	-218	-108	242	-29444	-18093	-40196
-60	-120	0	-20643	-16510	0	-240	162	287	-143	30	108	30217	16119	45447
-60	120	0	27123	12769	0	-407	108	404	-426	-178	456	-33172	-20252	-45447
-60	-150	0	-9631	-13558	0	-867	396	943	-723	-151	698	19740	10044	30700
-60	150	0	22562	6092	0	-970	362	1015	-899	-281	913	-23079	-14525	-30699
-60	0	0	-6550	3782	0	1483	-605	-1578	1312	357	-1307	-892	-1541	-1
-60	0	30	-1702	982	0	1035	-408	-1094	921	265	-925	-1084	-1714	0
-60	0	60	4100	-2366	0	292	-89	-296	270	104	-284	-1367	-1967	-2
-60	0	90	-4169	2407	0	358	-96	-356	336	143	-360	-1255	-1867	0
-60	180	90	5807	-3353	0	-457	166	476	-412	-133	421	-1522	-2108	1
-60	180	60	7411	-4279	0	-627	224	652	-567	-187	581	-1573	-2153	-0
-60	180	30	8332	-4812	0	-996	377	1045	-892	-272	904	-1678	-2248	1
-60	180	0	8424	-4865	0	-1280	527	1364	-1130	-302	1123	-1786	-2345	1

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 8 of 18), 455097

Az Anl	Wind From Anl	El From Anl	Foot 1			Foot 2			Foot 3			Foot 4		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
-30	None	0	-3919	-2263	-16456	9	2	-305	3911	2261	4229	0	-0	-1598
-30	None	30	-3366	-1943	-15813	8	2	-306	3357	1941	3586	0	-0	-1597
-30	None	60	-2474	-1430	-14778	5	2	-310	2469	1427	2554	-0	1	-1596
-30	None	90	-1484	-855	-13630	4	1	-310	1480	855	1406	0	-1	-1595
125 MPH, 59°F														
-30	-30	0	14788	-3591	43662	-1548	806	-2064	-46400	-26831	-54195	-2724	10163	-1534
-30	30	0	8934	17286	41929	1313	-852	1260	-47759	-27622	-55775	2723	-10163	-1545
-30	-60	0	20228	-18386	49044	-3441	1895	-4259	-49157	-28421	-57394	-6771	25265	-1521
-30	60	0	5750	33384	45021	3187	-1944	3440	-52293	-30248	-61043	6770	-25264	-1548
-30	-90	0	-14972	36845	-20314	6429	-3716	7152	835	470	651	10126	-37787	-1618
-30	90	0	7136	-41371	-12593	-6410	3720	-7762	6983	4051	7804	-10127	37787	-1578
-30	-120	0	-18537	41064	-28780	8215	-4738	9220	6355	3658	7058	11450	-42724	-1628
-30	120	0	6748	-47871	-18968	-8164	4749	-9807	14235	8248	16227	-11449	42724	-1583
-30	-150	0	-20251	23122	-49029	5176	-2941	5671	26857	15521	30871	7734	-28860	-1642
-30	150	0	-3304	-36722	-42900	-5030	2970	-6184	31752	18373	36567	-7734	28860	-1612
-30	0	0	11959	6906	43165	-117	-24	-401	-47397	-27410	-55354	0	-1	-1539
-30	0	30	3123	1802	5294	-84	-15	-378	-33168	-19182	-38831	-0	0	-1562
-30	0	60	-7455	-4302	-39951	-22	-4	-331	-9538	-5518	-11391	0	-2	-1596
-30	0	90	7606	4391	1770	-30	-2	-340	-11765	-6807	-13979	-0	0	-1581
-30	180	90	-10572	-6105	-29027	36	6	-283	14725	8517	16790	-0	1	-1610
-30	180	60	-13495	-7791	-34074	51	7	-270	20242	11708	23197	0	-0	-1615
-30	180	30	-15178	-8765	-42262	79	15	-250	32001	18508	36853	-0	1	-1627
-30	180	0	-15350	-8864	-59379	100	21	-237	40850	23624	47126	-0	1	-1640

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 9 of 18), 455097

FOUNDATION INSTALLATION

Az Anagl	Wind From	El Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
-30	None	0	1243	-2152	0	-81	50	95	-53	5	43	-1843	-1721	0
-30	None	30	1067	-1848	0	-70	47	84	-44	7	35	-1842	-1720	0
-30	None	60	785	-1358	0	-53	41	66	-31	12	21	-1842	-1719	-1
-30	None	90	470	-815	0	-33	34	46	-17	17	6	-1838	-1717	1
125 MPH, 59°F														
-30	-30	0	1972	8121	0	932	-565	-1083	600	-38	-498	-9344	-3663	-10811
-30	30	0	-9493	4906	0	998	-577	-1146	678	0	-584	5881	406	10810
-30	-60	0	10097	11108	0	963	-603	-1129	599	-65	-483	-20649	-6680	-26875
-30	60	0	-18333	3158	0	1116	-628	-1273	779	24	-683	17202	3435	26875
-30	-90	0	-20234	-8222	0	68	25	-46	123	90	-151	26462	5843	40196
-30	90	0	22719	3919	0	-230	76	236	-228	117	237	-30150	-9286	-40197
-30	-120	0	-22551	-10180	0	-21	95	66	85	-81	-131	30147	6820	45447
-30	120	0	26289	3706	0	-402	162	426	-363	-102	363	-33862	-10286	-45447
-30	-150	0	-12697	-11121	0	-483	339	585	-258	85	180	19719	4010	30699
-30	150	0	20167	-1815	0	-720	381	809	-537	-52	488	-23518	-7545	-30700
-30	0	0	-3792	6567	0	971	-575	-1122	644	-19	-545	-1730	-1628	1
-30	0	30	-990	1715	0	677	-387	-775	453	2	-391	-1776	-1665	-0
-30	0	60	2362	-4094	0	189	-83	-205	136	28	-131	-1838	-1718	2
-30	0	90	-2411	4177	0	231	-88	-243	170	50	-171	-1811	-1695	-0
-30	180	90	3353	-5806	0	-298	157	334	-204	-16	184	-1867	-1740	-1
-30	180	60	4279	-7411	0	-408	211	456	-281	-26	255	-1876	-1749	0
-30	180	30	4813	-8335	0	-650	357	737	-441	-18	388	-1900	-1767	-1
-30	180	0	4868	-8430	0	-838	501	971	-554	22	466	-1926	-1789	-1

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 10 of 18), 455097

Az Angrl	Wind From Angrl	Foot 1			Foot 2			Foot 3			Foot 4			
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	
Weight only														
0	None	0	-4522	-4	-17144	2257	-1301	2306	2266	1306	2317	1	-1	-1609
0	None	30	-3883	-4	-16401	1937	-1116	1935	1946	1121	1945	1	-1	-1609
0	None	60	-2854	-4	-15205	1422	-819	1337	1431	824	1348	1	-1	-1609
0	None	90	-1710	-4	-13879	851	-489	674	860	495	684	1	-1	-1608
125 MPH, 59°F														
0	-30	0	13705	-10505	51305	-28493	16427	-33373	-26014	-14988	-30492	-1	10163	-1570
0	30	0	13705	10497	51305	-26023	14994	-30503	-28483	-16421	-33363	0	-10165	-1570
0	-60	0	15008	-26035	56200	-32228	18586	-37711	-26499	-15262	-31052	-1	25267	-1567
0	60	0	15008	26026	56200	-26508	15267	-31063	-32219	-18581	-37700	1	-25269	-1567
0	-90	0	-4522	39380	-17141	7797	-4515	8745	-3275	-1909	-4124	2	-37791	-1609
0	90	0	-4522	-39388	-17141	-3284	1915	-4134	7806	4520	8755	-1	37789	-1609
0	-120	0	-6804	44814	-25713	13022	-7533	14811	-1108	-666	-1613	3	-42729	-1614
0	120	0	-6804	-44822	-25713	-1117	672	-1623	13031	7538	14821	-1	42727	-1614
0	-150	0	-13600	30137	-51234	21361	-12328	24480	12562	7223	14253	2	-28863	-1629
0	150	0	-13600	-30146	-51234	12552	-7217	14243	21370	12333	24491	0	28861	-1629
0	0	0	13818	-4	51732	-27441	15816	-32151	-27432	-15810	-32140	-0	-1	-1570
0	0	30	3612	-4	11291	-19205	11070	-22596	-19196	-11064	-22586	0	-1	-1587
0	0	60	-8603	-4	-38216	-5526	3187	-6727	-5517	-3182	-6716	1	-1	-1610
0	0	90	8787	-4	3909	-6816	3932	-8225	-6807	-3926	-8214	1	-1	-1599
0	180	90	-12206	-4	-31664	8516	-4910	9571	8526	4915	9581	1	-1	-1617
0	180	60	-15581	-4	-37707	11710	-6751	13278	11720	6757	13288	1	-1	-1621
0	180	30	-17527	-4	-48017	18517	-10674	21174	18526	10679	21185	1	-1	-1628
0	180	0	-17727	-4	-66731	23639	-13624	27115	23648	13629	27125	2	-1	-1638

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 11 of 18), 455097

FOUNDATION INSTALLATION

Az Anagl	Wind From	El Anagl	Foot 1			Foot 2			Foot 3			Foot 4		
			Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
0	None	0	2	-2483	0	-17	33	31	16	33	-30	-2001	-1239	1
0	None	30	2	-2133	0	-15	32	29	15	31	-28	-2001	-1239	1
0	None	60	2	-1567	0	-12	30	25	12	30	-25	-2001	-1238	1
0	None	90	2	-939	0	-9	27	22	9	27	-21	-2001	-1237	1
125 MPH, 59°F														
0	-30	0	5769	7526	0	149	-343	-299	-233	-373	386	-9677	-1198	-10811
0	30	0	-5764	7526	0	233	-372	-386	-149	-343	299	5674	-1198	10813
0	-60	0	14297	8242	0	108	-352	-268	-304	-420	470	-21080	-1196	-26877
0	60	0	-14292	8242	0	303	-419	-470	-108	-352	269	17077	-1194	26880
0	-90	0	-21626	-2483	0	173	-32	-165	206	98	-226	26539	-1238	40201
0	90	0	21631	-2483	0	-206	98	226	-173	-32	165	-30542	-1240	-40198
0	-120	0	-24610	-3737	0	199	-1	-172	284	165	-326	30272	-1243	45452
0	120	0	24615	-3737	0	-284	165	327	-199	-1	172	-34275	-1245	-45451
0	-150	0	-16550	-7469	0	31	176	61	270	279	-371	19797	-1259	30703
0	150	0	16555	-7469	0	-270	279	372	-31	175	-61	-23800	-1260	-30701
0	0	0	2	7589	0	192	-360	-345	-193	-360	345	-2001	-1198	1
0	0	30	2	1984	0	132	-237	-231	-132	-237	231	-2001	-1215	1
0	0	60	2	-4725	0	32	-40	-48	-33	-40	48	-2001	-1240	1
0	0	90	2	4825	0	37	-35	-50	-38	-35	50	-2001	-1227	1
0	180	90	2	-6703	0	-56	90	93	55	90	-92	-2001	-1248	1
0	180	60	2	-8557	0	-76	119	125	75	119	-124	-2001	-1251	1
0	180	30	2	-9625	0	-124	212	212	124	212	-212	-2001	-1259	1
0	180	0	2	-9735	0	-167	316	301	167	316	-300	-2001	-1269	1

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 12 of 18), 455097

Az Anagl	Wind From Anagl	El	Foot 1			Foot 2			Foot 3			Foot 4		
			Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only														
30	None	0	-3913	2259	-16425	3905	-2258	4222	9	-2	-305	0	0	-1623
30	None	30	-3360	1940	-15782	3351	-1938	3579	8	-2	-306	0	0	-1622
30	None	60	-2468	1426	-14746	2463	-1424	2547	5	-2	-310	-0	-1	-1621
30	None	90	-1478	852	-13598	1474	-852	1399	4	-1	-310	0	1	-1620
125 MPH, 59°F														
30	-30	0	8940	-17290	41961	-47765	27626	-55782	1313	852	1260	2723	10163	-1569
30	30	0	14794	3587	43694	-46406	26834	-54202	-1548	-806	-2064	-2724	-10163	-1558
30	-60	0	5756	-33387	45052	-52299	30252	-61050	3187	1944	3440	6770	25264	-1573
30	60	0	20234	18382	49075	-49163	28425	-57401	-3441	-1895	-4259	-6771	-25265	-1546
30	-90	0	7142	41367	-12562	6977	-4048	7797	-6410	-3720	-7763	-10127	-37787	-1603
30	90	0	-14966	-36849	-20282	829	-467	644	6429	3716	7152	10126	37787	-1642
30	-120	0	6754	47867	-18936	14229	-8245	16221	-8164	-4749	-9807	-11449	-42724	-1607
30	120	0	-18531	-41068	-28749	6349	-3655	7051	8215	4738	9220	11450	42724	-1652
30	-150	0	-3299	36719	-42869	31746	-18369	36560	-5030	-2970	-6184	-7734	-28860	-1637
30	150	0	-20245	-23125	-48998	26851	-15518	30864	5176	2941	5671	7734	28860	-1667
30	0	0	11965	-6909	43197	-47403	27414	-55361	-117	24	-401	0	1	-1563
30	0	30	3129	-1806	5325	-33174	19185	-38837	-84	15	-378	-0	-0	-1587
30	0	60	-7449	4298	-39919	-9544	5521	-11398	-22	4	-331	0	2	-1621
30	0	90	7612	-4394	1802	-11771	6810	-13986	-30	2	-340	-0	-0	-1606
30	180	90	-10566	6101	-28995	14719	-8514	16783	36	-6	-283	-0	-1	-1635
30	180	60	-13489	7788	-34042	20236	-11704	23190	51	-7	-270	0	0	-1640
30	180	30	-15172	8762	-42231	31995	-18505	36846	79	-15	-250	-0	-1	-1652
30	180	0	-15344	8861	-59347	40844	-23620	47120	100	-21	-237	-0	-1	-1665

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 13 of 18), 455097

FOUNDATION INSTALLATION

Az Anagl	Wind From Angl	Foot 1			Foot 2			Foot 3			Foot 4		
		Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz
Weight only													
30	None	0	-2149	0	52	5	-43	81	50	-94	-2118	-686	-0
30	None	30	-1845	0	44	7	-35	70	47	-83	-2119	-685	-0
30	None	60	-1355	0	31	12	-21	53	41	-65	-2120	-684	1
30	None	90	-812	0	17	17	-6	33	34	-46	-2123	-682	-1
125 MPH, 59°F													
30	-30	0	9495	0	-679	-0	584	-998	-577	1146	-9842	1441	-10810
30	30	0	-1970	0	-601	-38	498	-932	-566	1084	5383	-2628	10811
30	-60	0	18335	0	-779	24	683	-1116	-628	1273	-21163	4470	-26875
30	60	0	-10095	0	-599	-66	483	-963	-603	1129	16687	-5644	26875
30	-90	0	-22717	0	228	-81	-237	229	76	-235	26188	-8251	40197
30	90	0	20236	0	-123	90	151	-68	25	47	-30424	6878	-40196
30	-120	0	-26287	0	363	-102	-363	402	161	-426	29901	-9251	45447
30	120	0	22553	0	-85	117	131	21	95	-65	-34109	7855	-45447
30	-150	0	-20165	0	537	-52	-488	720	380	-809	19557	-6510	30700
30	150	0	12700	0	258	85	-180	483	339	-584	-23681	5045	-30699
30	0	0	3794	0	-644	-19	545	-971	-575	1122	-2231	-593	-1
30	0	30	991	0	-453	2	391	-677	-387	775	-2185	-630	0
30	0	60	-2360	0	-136	28	131	-190	-84	205	-2123	-683	-2
30	0	90	2413	0	-170	49	171	-231	-88	243	-2150	-660	0
30	180	90	-3351	0	204	-16	-184	297	157	-334	-2094	-705	1
30	180	60	-4277	0	281	-26	-255	408	211	-456	-2085	-713	-0
30	180	30	-4811	0	441	-18	-388	650	357	-737	-2061	-732	1
30	180	0	-4866	0	554	22	-466	838	501	-970	-2036	-753	1

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 14 of 18), 455097

Az Angrl	Wind From Angl	Foot 1			Foot 2			Foot 3			Foot 4		
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only													
60	None	0	3904	-14465	4493	-2603	4908	-2238	-1303	-2915	-0	-0	-1659
60	None	30	3352	-14094	3855	-2233	4167	-1921	-1118	-2546	-0	-0	-1657
60	None	60	2459	-13499	2831	-1639	2976	-1409	-821	-1952	1	1	-1654
60	None	90	1471	-12836	1692	-979	1652	-843	-492	-1294	-1	-1	-1651
125 MPH, 59°F													
60	-30	0	-22117	18153	-54203	31404	-63290	28242	16434	32534	5868	10163	-1527
60	30	0	13045	21077	-54366	31493	-63475	25839	15045	29744	-5868	-10163	-1477
60	-60	0	-7860	18660	-58285	33772	-68034	31910	18563	36797	14587	25265	-1554
60	60	0	22846	25442	-58689	33994	-68496	26357	15354	30351	-14587	-25264	-1428
60	-90	0	21102	-7916	4186	-2436	4558	-7657	-4436	-9207	-21817	-37787	-1564
60	90	0	-25610	-34434	4797	-2767	5254	3184	1831	3379	21818	37787	-1753
60	-120	0	23265	49367	11504	-6679	13062	-12840	-7446	-15232	-24668	-42724	-1571
60	120	0	-30051	-37613	12200	-7053	13854	1033	573	874	24668	42724	-1785
60	-150	0	11107	41062	-26234	-19435	38652	-21133	-12284	-24883	-16663	-28860	-1664
60	150	0	-24677	-17560	34000	-19687	39185	-12506	-7297	-14868	16663	28860	-1809
60	0	0	6900	-11949	19830	31660	-63807	27221	15845	31350	-0	-1	-1501
60	0	30	1802	-3122	-11013	22160	-44755	19054	11091	21849	0	0	-1559
60	0	60	-4296	7444	-44578	6381	-13109	5484	3190	6063	-1	-2	-1644
60	0	90	4395	-7614	-3978	7868	-16091	6763	3934	7550	0	0	-1611
60	180	90	-6093	10552	-21696	16959	-9826	-8447	-4916	-10136	0	0	-1692
60	180	60	-7778	13473	-24018	23319	-13511	-11616	-6760	-13821	-0	-0	-1707
60	180	30	-8749	15150	-26407	36873	-21363	-18366	-10689	-21672	1	1	-1739
60	180	0	-8846	15317	-39153	47073	-27270	-23447	-13648	-27584	1	1	-1772

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 15 of 18), 455097

Az Angl	Wind From Angl	Foot 1			Foot 2			Foot 3			Foot 4			
		Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz	
Weight only														
60	None	0	-2144	-1238	0	107	-26	-106	123	53	-132	-1875	-209	0
60	None	30	-1840	-1063	0	91	-19	-88	106	49	-115	-1880	-205	0
60	None	60	-1350	-780	0	66	-8	-61	79	42	-89	-1889	-197	-1
60	None	90	-808	-466	0	38	5	-30	49	35	-59	-1898	-189	1
125 MPH, 59°F														
60	-30	0	12146	352	0	-1328	378	1329	-1488	-596	1578	-9932	4582	-10811
60	30	0	872	7164	0	-1280	336	1269	-1460	-607	1559	5146	-4070	10810
60	-60	0	21121	-4316	0	-1461	424	1469	-1620	-636	1711	-21172	11043	-26875
60	60	0	-6865	12547	0	-1349	339	1330	-1556	-660	1668	16312	-10465	26875
60	-90	0	-23197	11588	0	217	-108	-241	187	31	-176	26157	-16294	40196
60	90	0	18910	-14064	0	-3	56	30	58	75	-87	-29907	15876	-40197
60	-120	0	-27111	12776	0	426	-178	-455	406	108	-403	29884	-18453	45447
60	120	0	20656	-16502	0	143	30	-108	239	162	-286	-33505	17918	-45447
60	-150	0	-22550	6099	0	898	-281	-913	969	361	-1014	19792	-12725	30699
60	150	0	9643	-13552	0	723	-151	-697	866	396	-942	-23027	11844	-30700
60	0	0	6562	3789	0	-1313	357	1308	-1484	-605	1579	-2395	259	1
60	0	30	1715	989	0	-922	265	925	-1036	-409	1095	-2203	86	-0
60	0	60	-4088	-2359	0	-271	104	285	-293	-90	297	-1921	-168	2
60	0	90	4181	2414	0	-336	143	361	-358	-96	356	-2033	-68	-0
60	180	90	-5795	-3346	0	412	-133	-420	456	166	-475	-1765	-308	-1
60	180	60	-7399	-4272	0	567	-187	-581	627	224	-651	-1714	-354	0
60	180	30	-8320	-4805	0	892	-272	-903	995	377	-1044	-1609	-449	-1
60	180	0	-8412	-4858	0	1130	-302	-1123	1279	527	-1363	-1501	-546	-1

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 16 of 18), 455097

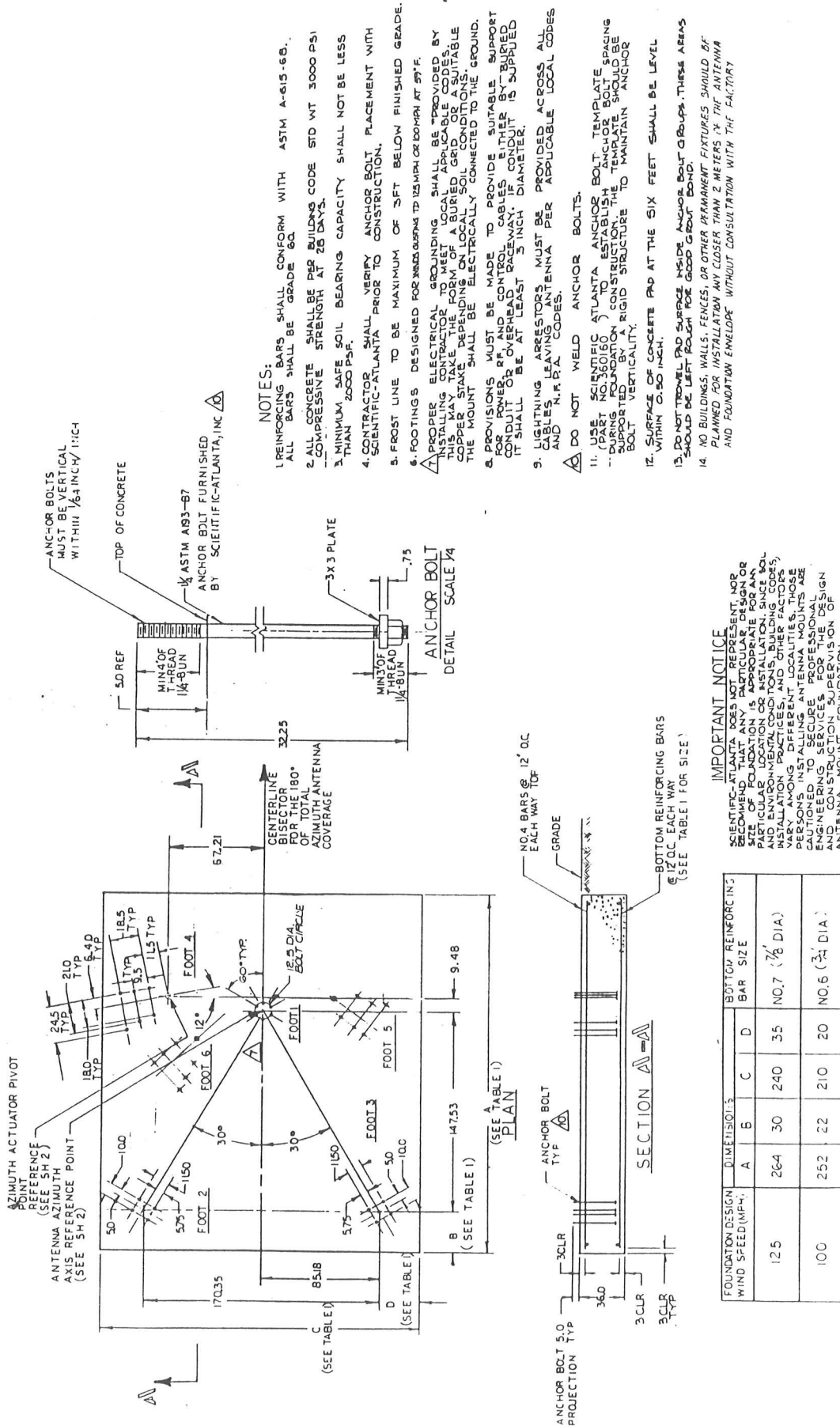
Az Angrl From Angrl	Wind El From Angrl	Foot 1			Foot 2			Foot 3			Foot 4		
		Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz	Fx	Fy	Fz
Weight only													
90	None	0	4476	-11734	3858	-2239	4173	-3858	-2238	-4796	0	0	-1773
90	None	30	3839	-11738	3308	-1920	3533	-3308	-1919	-4157	-0	-0	-1768
90	None	60	2811	-11745	2423	-1405	2503	-2423	-1406	-3128	-0	-0	-1760
90	None	90	1670	-11753	1440	-835	1361	-1440	-836	-1987	0	0	-1750
125 MPH, 59°F													
90	-30	0	-23681	-13722	-46089	26752	-53891	47526	27567	54915	10164	10163	-1432
90	30	0	10504	-10651	-47719	27692	-55783	46283	26852	53474	-10164	-10163	-1171
90	-60	0	-26039	-15755	-48629	28230	-56847	51958	30135	60063	25267	25266	-1592
90	60	0	26039	-8684	-52439	30427	-61267	49111	28497	56763	-25267	-25266	-943
90	-90	0	39396	-4748	275	-174	16	-6719	-3885	-8113	-37788	-37788	-1285
90	90	0	-39396	-18718	7438	-4303	8326	-995	-590	-1476	37788	37788	-2261
90	-120	0	44832	-2696	5698	-3324	6322	-13918	-8058	-16477	-42725	-42724	-1278
90	120	0	-44832	-20657	14731	-8531	16801	-6510	-3793	-7887	42725	42724	-2386
90	-150	0	30151	-5941	26305	-15277	30273	-31427	-18221	-36827	-28861	-28860	-1635
90	150	0	-30151	-17075	31976	-18547	36852	-26854	-15589	-31525	28861	28860	-2381
90	0	0	0	-12188	-47219	27405	-55203	47219	27393	54561	-0	-0	-1299
90	0	30	0	-33368	-33063	19189	-38748	33063	19179	38108	-0	-0	-1470
90	0	60	0	-50913	-9544	5541	-11409	9544	5535	10776	-0	-0	-1723
90	0	90	0	-8794	-11745	6819	-13970	11745	6811	13332	0	0	-1622
90	180	90	0	12133	14623	-8488	16688	-14623	-8482	-17303	-0	-0	-1878
90	180	60	0	15496	20117	-11677	23076	-20117	-11668	-23687	-0	-0	-1926
90	180	30	-0	17417	31825	-18472	36686	-31825	-18461	-37293	-0	-0	-2023
90	180	0	-0	17593	40633	-23582	46923	-40633	-23572	-47532	0	0	-2115

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 17 of 18), 455097

FOUNDATION INSTALLATION

Az Angrl	Wind From	El Angrl	Foot 1			Foot 2			Foot 3			Foot 4		
			Mx	My	Fz	Mx	Fy	Mz	Mx	My	Mz	Mx	My	Mz
Weight only														
90	None	0	-2458	-0	0	133	-52	-140	131	39	-132	-1120	-294	-0
90	None	30	-2108	0	0	113	-41	-118	113	37	-115	-1139	-269	0
90	None	60	-1544	0	0	82	-24	-82	84	33	-89	-1171	-228	0
90	None	90	-917	0	0	47	-4	-43	52	29	-59	-1209	-181	-0
125 MPH, 59°F														
90	-30	0	13004	-5769	0	-1626	674	1735	-1572	-426	1565	-10045	8994	-10812
90	30	0	1965	5769	0	-1621	650	1719	-1590	-455	1596	4205	-4978	10812
90	-60	0	21917	-14299	0	-1754	742	1879	-1682	-440	1667	-20763	19542	-26877
90	60	0	-5526	14299	0	-1744	685	1842	-1725	-509	1739	14666	-15197	26877
90	-90	0	-22981	21635	0	147	-107	-179	92	-25	-67	25362	-26257	40197
90	90	0	18064	-21635	0	119	3	-101	169	103	-196	-27602	25669	-40197
90	-120	0	-26907	24620	0	372	-212	-425	298	19	-266	29040	-29928	45448
90	120	0	19501	-24620	0	334	-71	-323	392	179	-426	-30829	28763	-45448
90	-150	0	-23084	16557	0	1019	-451	-1102	953	227	-934	20001	-21267	30700
90	150	0	8264	-16557	0	997	-363	-1039	1013	328	-1035	-20447	18387	-30700
90	0	0	7547	0	0	-1634	666	1738	-1592	-443	1591	-2931	2022	0
90	0	30	1966	0	0	-1147	482	1227	-1112	-295	1104	-2276	1184	0
90	0	60	-4707	0	0	-336	166	372	-316	-58	301	-1312	-48	0
90	0	90	4829	-0	0	-417	220	468	-386	-56	360	-1696	443	-0
90	180	90	-6663	0	0	510	-229	-553	489	115	-478	-721	-804	0
90	180	60	-8510	0	0	703	-319	-764	672	154	-655	-539	-1037	0
90	180	30	-9565	-0	0	1107	-481	-1193	1067	267	-1051	-168	-1511	0
90	180	0	-9662	-0	0	1405	-569	-1493	1371	386	-1372	184	-1962	-0

Figure 3-2. Foundation Loads, 180° Azimuth Mount (Sheet 18 of 18), 455097



- NOTES:**
1. REINFORCING BARS SHALL CONFORM WITH ASTM A-615-68. ALL BARS SHALL BE GRADE 60.
 2. ALL CONCRETE SHALL BE PER BUILDING CODE STD WT 3000 PSI - COMPRESSIVE STRENGTH AT 28 DAYS.
 3. MINIMUM SAFE SOIL BEARING CAPACITY SHALL NOT BE LESS THAN 2000 PSF.
 4. CONTRACTOR SHALL VERIFY ANCHOR BOLT PLACEMENT WITH SCIENTIFIC-ATLANTA PRIOR TO CONSTRUCTION.
 5. FROST LINE TO BE MAXIMUM OF 3FT BELOW FINISHED GRADE.
 6. FOOTINGS DESIGNED FOR WINDS UP TO 125 MPH OR 100 MPH AT 97 F.
 7. PROPER ELECTRICAL GROUNDING SHALL BE PROVIDED BY INSTALLING CONTRACTOR TO MEET LOCAL APPLICABLE CODES. MINIMUM SIZE FOR BURIED OR A SUITABLE COPPER STRAKE DEPENDING ON LOCAL CODES. THE MOUNT SHALL BE ELECTRICALLY CONNECTED TO THE GROUND.
 8. PROVISIONS MUST BE MADE TO PROVIDE SUITABLE SUPPORT FOR POWER AND CONTROL CABLES. IF CONDUIT IS SUPPLIED CONDUIT OR OVERHEAD RACEWAY IF CONDUIT IS SUPPLIED IT SHALL BE AT LEAST 3 INCH DIAMETER.
 9. LIGHTNING ARRESTORS MUST BE PROVIDED ACROSS ALL CABLES LEAVING ANTENNA PER APPLICABLE LOCAL CODES AND N.F.P.A. CODES.
 10. DO NOT WELD ANCHOR BOLTS.
 11. USE SCIENTIFIC ATLANTA ANCHOR BOLT TEMPLATE (SEE 360160) TO ESTABLISH ANCHOR BOLT SPACING DURING FOUNDATION CONSTRUCTION. TEMPLATE SHOULD BE SUPPORTED BY A RIGID STRUCTURE TO MAINTAIN ANCHOR BOLT VERTICALITY.
 12. SURFACE OF CONCRETE PAD AT THE SIX FEET SHALL BE LEVEL WITHIN 0.50 INCH.
 13. DO NOT TYPICAL PAD SURFACE INSIDE ANCHOR BOLT GROUPS. THESE AREAS SHOULD BE LEFT EXPOSED FOR GOOD GROUT BOND.
 14. NO BUILDINGS, WALLS, FENCES, OR OTHER PERMANENT FIXTURES SHOULD BE PLANNED FOR INSTALLATION ANY CLOSER THAN 2 METERS (6' 7") THE ANTENNA AND FOUNDATION ENVELOPE WITHOUT CONSULTATION WITH THE FACTORY.

Figure 3-3. Foundation Plan, 120° Azimuth Mount (Sheet 1 of 2), 360161

FOUNDATION INSTALLATION

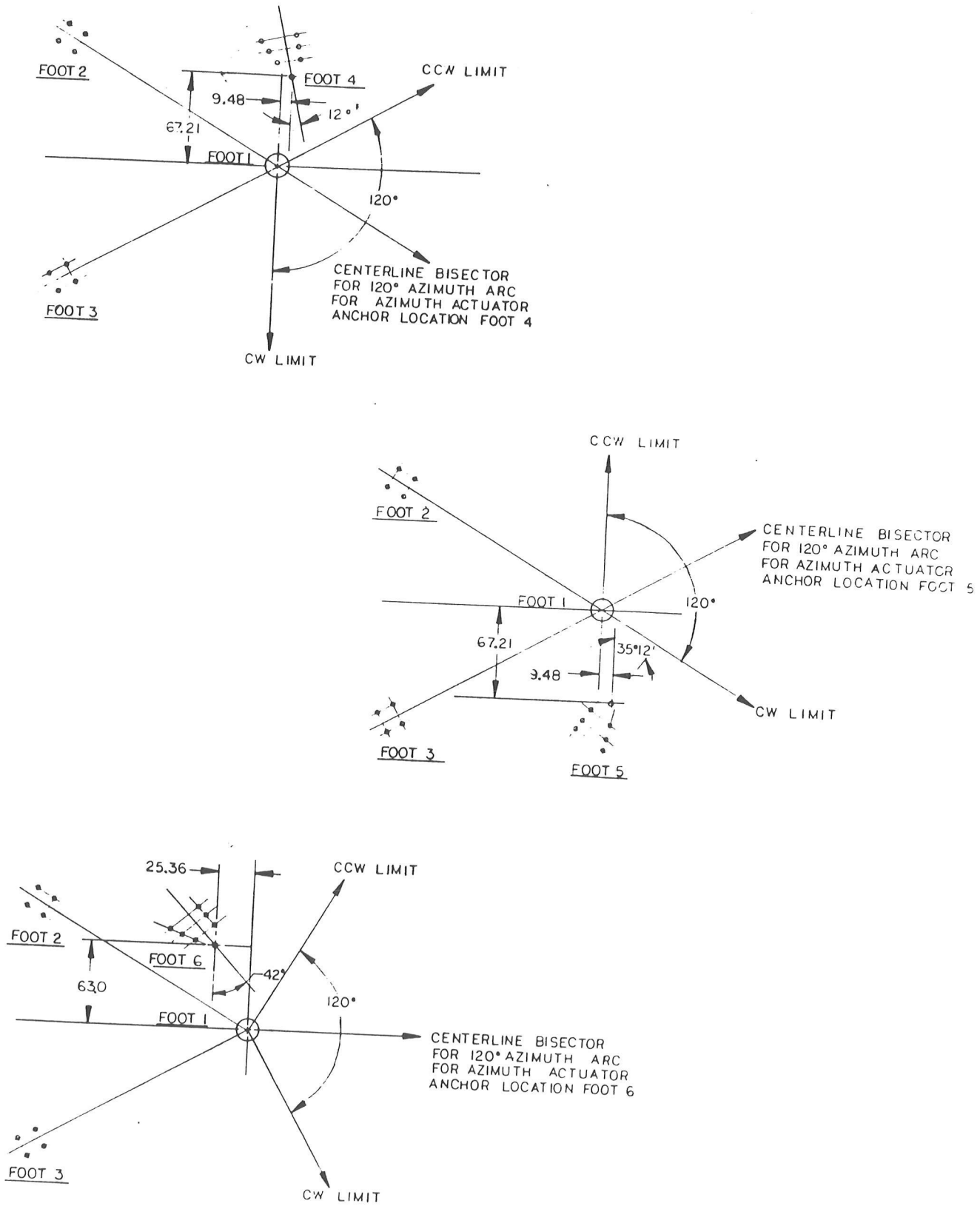


Figure 3-3. Foundation Plan, 120° Azimuth Mount (Sheet 2 of 2), 360161

FOUNDATION CONSTRUCTION

The 9-meter anchor bolt/template kit includes the needed foundation anchor bolts and an anchor bolt location template. The template accurately locates the three main anchor plates for the mount. For the 180° azimuth mount, it also locates a fourth anchor plate for the azimuth jack screw base (Figure 3-5). For the 120° azimuth mount, the template also locates three plates for the optional positions of the azimuth jack screw base (Figure 3-6).

A true north-south reference line for the purpose of foundation orientation may be established by reference to:

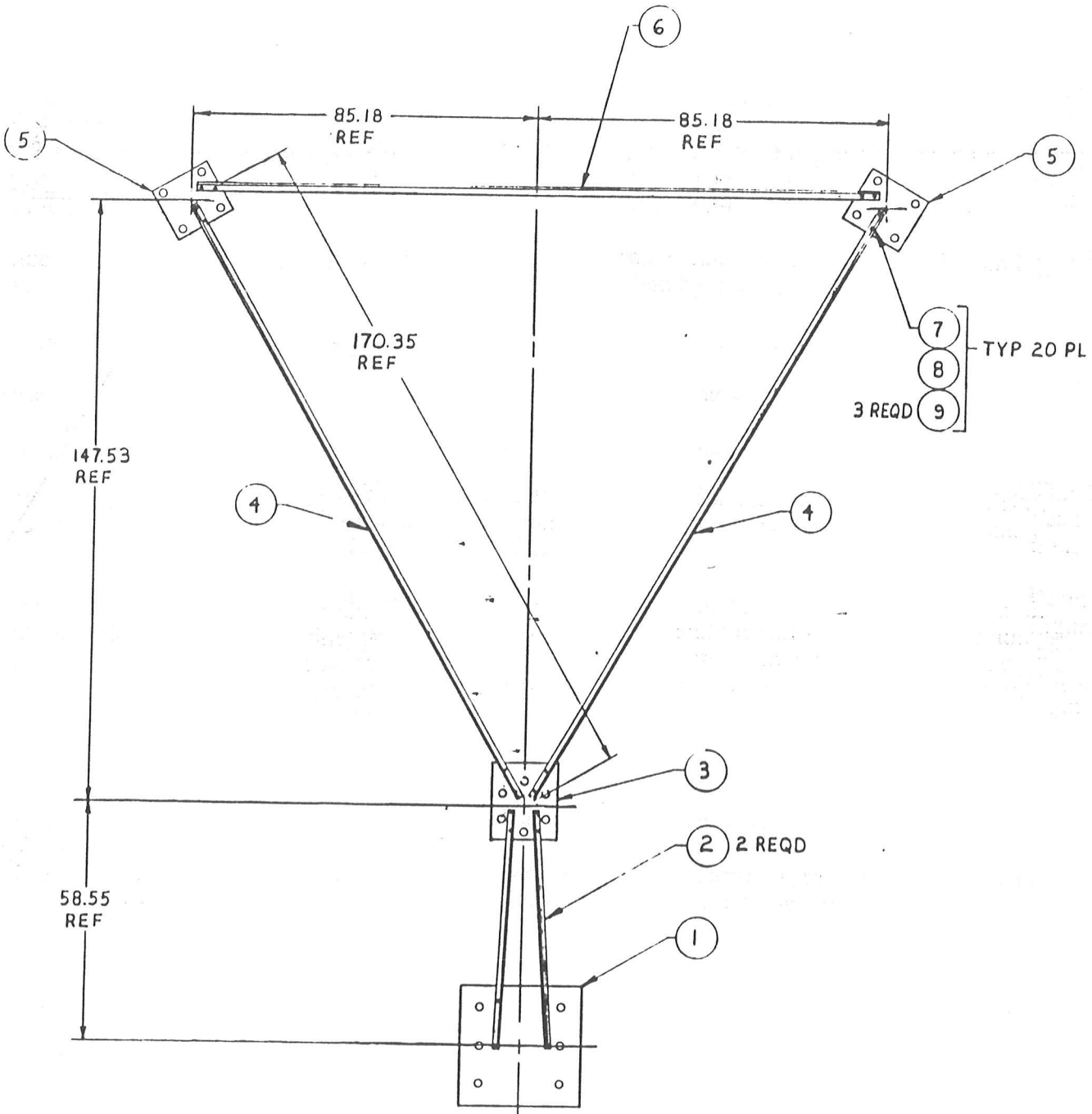
1. A magnetic compass heading (corrected for declination or variation)
2. A survey from registered benchmarks
3. A sighting of Polaris (North Star)

This line is used to position the foundation pad and to establish the heading of the foundation anchor bolt pattern. The survey should be done by a qualified surveyor.

Refer to Figure 3-3 or 3-4 for the recommended foundation size. Figures 3-1 or 3-2, 3-3 or 3-4, and the following details provide the installation information. These recommendations are based on the soil conditions listed and do not consider any special clearance requirements.

1. The minimum safe soil-bearing capacity is 2000 PSF.
2. Reinforcing bars shall conform to ASTM A615, grade 60.
3. Do not weld anchor bolts to reinforcing bars. This will remove the temper and reduce the strength of the anchor bolts.
4. All concrete shall be building code standard weight 3000 psi compressive strength at 28 days.

FOUNDATION INSTALLATION



ITEM OR PART NO	QTY REQD	DR SYMBOL NO	DESCRIPTION OR DESCRIPTION	MATERIAL SPEC OR COMPONENT VALUE	UNIT OR PART NO	1 IN 100
9	60	73278	WASHER, FLAT	$\frac{1}{4}$ SCDP		
8	20	71508	NUT, HEX	$\frac{1}{4}$ -20 SCDP		
7	20	72501	SCREW HEX HD	$\frac{1}{4}$ -20x1 $\frac{1}{2}$ SCDP		
6	1	268350	ANGLE, TEMPLATE	161.2 LONG		
5	2	268349	TEMPLATE, BRACE			
4	2	268348	ANGLE, TEMPLATE	169.1 LONG		
3	1	268347	TEMPLATE BASE NO 2			
2	2	268360	ANGLE, TEMPLATE	52.2 LONG		
1	1	268124	TEMPLATE BASE, NO 1			

PARTS LIST

Figure 3-5. 9-Meter Foundation Template, 180° Azimuth Mount, 268351

FOUNDATION INSTALLATION

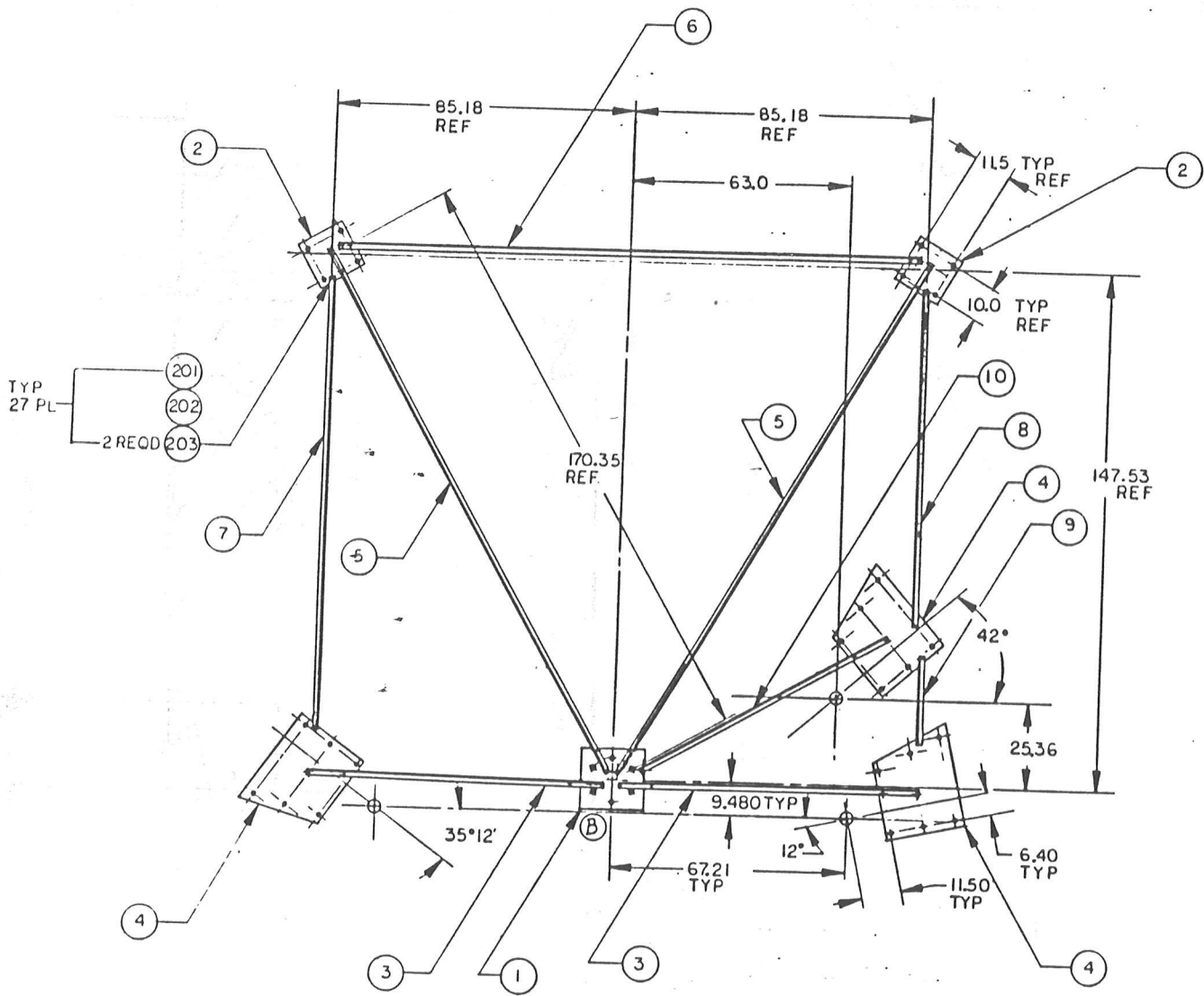


Figure 3-6. 9-Meter Foundation Template, 120° Azimuth Mount (Sheet 1 of 2), 360160

FOUNDATION INSTALLATION

203	54	88536	WASHER, FLAT	1/4	STEEL ZINC PLATED		
202	27	88711	NUT, HEX	1/4-20	STEEL ZINC PLATED		
201	27	88524	SCREW, HEX HD	1/4-20X1 1/4	STEEL ZINC PLATED		
ITEM OR FIND NO	QTY REQD	P-A STOCK NO.	NOMENCLATURE OR DESCRIPTION	MATL SPEC AND SIZE OR COMPONENT VALUE		IDENTIFYING OR PART NO.	FORM NO.

PARTS LIST

10	1	360171	SPACER BAR				
9	1	360170	SPACER BAR				
8	1	360169	SPACER, BAR				
7	1	360168	SPACER BAR				
6	1	268350	ANGLE TEMPLATE				
5	2	268348	ANGLE TEMPLATE				
4	3	359686	TEMPLATE				
3	2	360163	SPACER, BAR				
2	2	360200	TEMPLATE				
1	1	360172	TEMPLATE				
ITEM OR FIND NO	QTY REQD	P-A STOCK NO.	NOMENCLATURE OR DESCRIPTION	MATL SPEC AND SIZE OR COMPONENT VALUE		IDENTIFYING OR PART NO.	FORM NO.

PARTS LIST

Figure 3-6. 9-Meter Foundation Template, 120° Azimuth Mount (Sheet 2 of 2), 360160