

Appendix A1

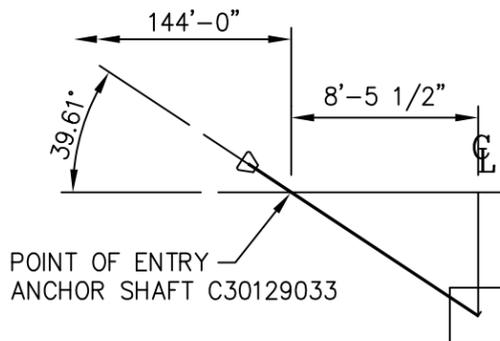
Lattice Meteorological Tower Design Diagrams



TOWER ERECTION DRAWINGS

TOWER DESIGN LOADING		
WIND	EPA (NO ICE)	EPA (1/2" ICE)
70 MPH	77.6	103.7
80 MPH	59.1	76.7
90 MPH	46.0	51.4
100 MPH	37.0	10.0
110 MPH	30.2	N/A

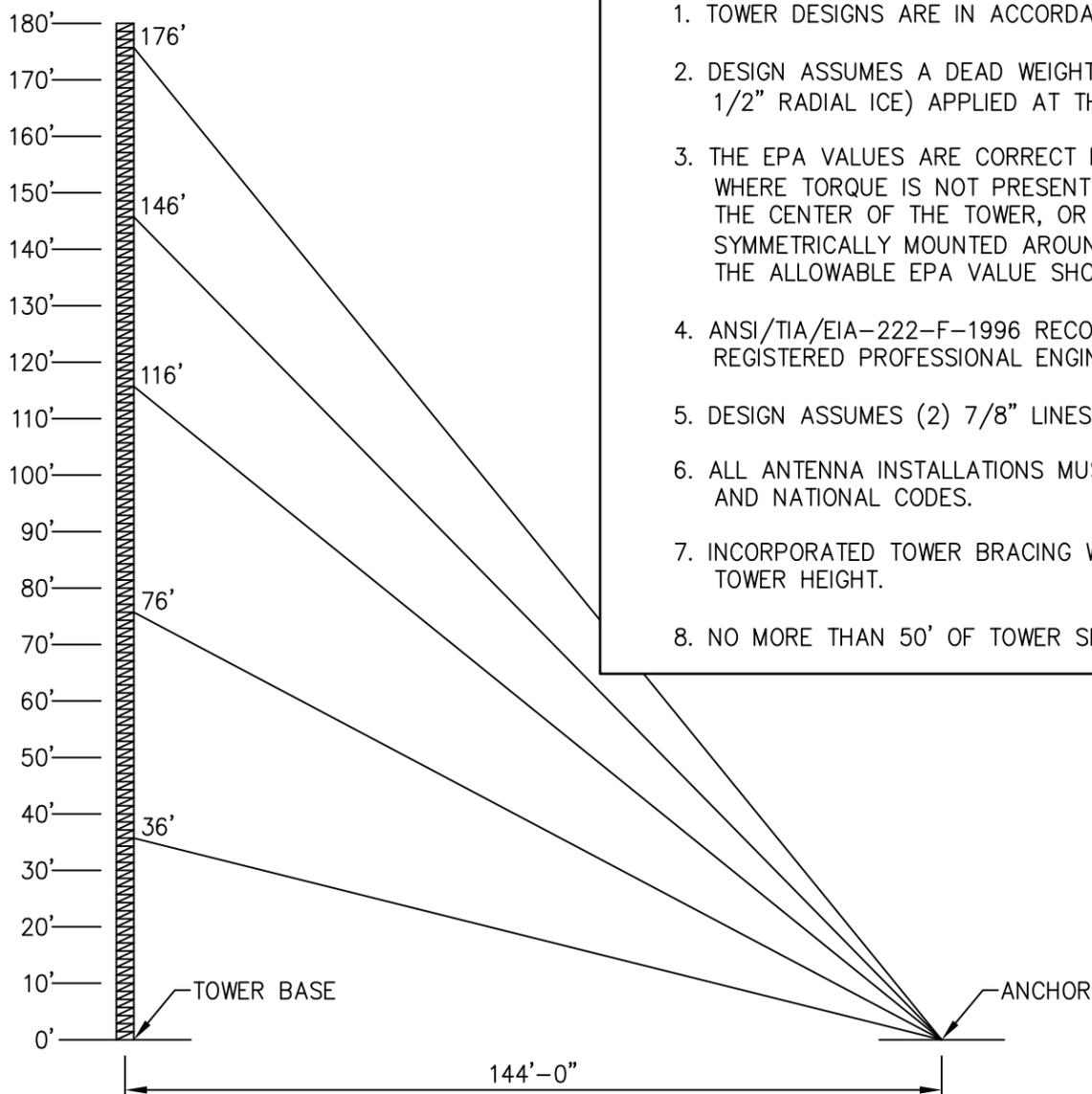
- B CONCRETE FOUNDATION
- A8 CONCRETE ANCHORS
- C30904064 BASE INSTALLATION
- C30904026 10 FT. STD. SECTION (0' TO 180')
- C30904189 GUY BRACKET ASSEMBLY
- C30904138 LEG CAP INSTALLATION
- 9014671 BOLT DETAILS
- 907901 INVENTORY REQUIREMENT SHEET



ANCHOR DETAILS

GENERAL NOTES:

1. TOWER DESIGNS ARE IN ACCORDANCE WITH ANSI/TIA/EIA-222-F-1996.
2. DESIGN ASSUMES A DEAD WEIGHT OF 500 lbs. (NO ICE) AND 700 lbs. (WITH 1/2" RADIAL ICE) APPLIED AT THE TOP OF THE TOWER.
3. THE EPA VALUES ARE CORRECT FOR SYMMETRICALLY LOADED INSTANCES WHERE TORQUE IS NOT PRESENT (SUCH AS ONE TOP MOUNTED ANTENNA AT THE CENTER OF THE TOWER, OR THREE LEG MOUNTED PANEL ANTENNAS SYMMETRICALLY MOUNTED AROUND THE TOWER). SHOULD TORQUE BE PRESENT, THE ALLOWABLE EPA VALUE SHOWN WILL BE REDUCED.
4. ANSI/TIA/EIA-222-F-1996 RECOMMENDS THAT DESIGNS BE EVALUATED BY A REGISTERED PROFESSIONAL ENGINEER FOR EACH SPECIFIC APPLICATION.
5. DESIGN ASSUMES (2) 7/8" LINES PER FACE (6 TOTAL).
6. ALL ANTENNA INSTALLATIONS MUST BE GROUNDED IN ACCORDANCE WITH LOCAL AND NATIONAL CODES.
7. INCORPORATED TOWER BRACING WILL BE UTILIZED FOR CLIMBING FOR THE FULL TOWER HEIGHT.
8. NO MORE THAN 50' OF TOWER SHALL BE ASSEMBLED AND LIFTED AT A TIME.



ELEVATION VIEW

TOTAL WEIGHT = 3,820 LBS.

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES
TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:
TOLERANCES DO NOT APPLY
TO RAW MATERIAL



180', 1800 TLWD GUYED TOWER
ITEM NUMBER: C05-002-042

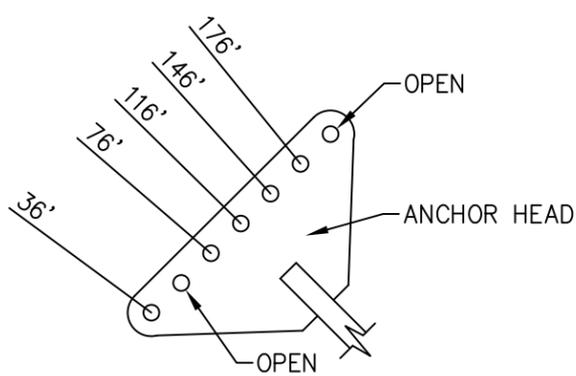
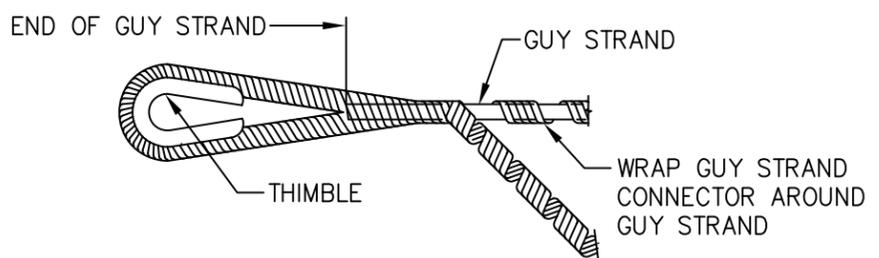
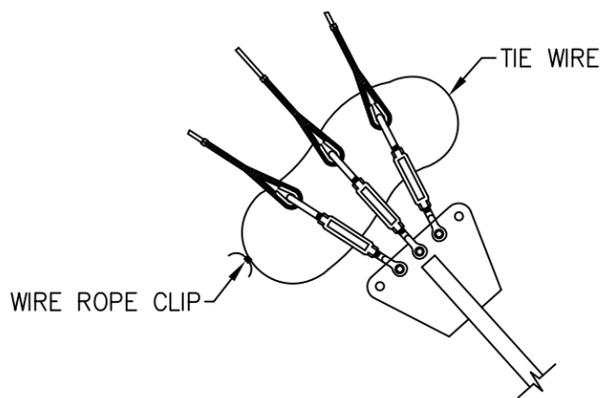
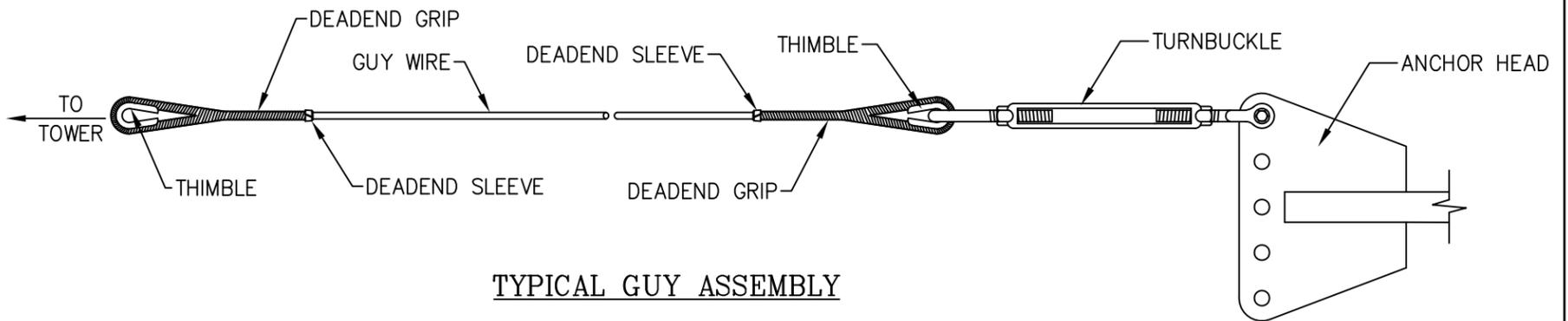
REV	DATE	DRW	CHK	DESCRIPTION

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DATE	08/25/06	SIZE	B	DRAWING NO.	C05002042	REV	0
DRAWN BY	KTW	SCALE	None	PAGE	1 OF 2		
CHECKED BY	PSB						

GUY STRAND AND HARDWARE REQUIRED

ELEVATION	STRAND SIZE	CUT LENGTH (SEE NOTE 2)	TURNBUCKLE	DEADEND GRIP	DEADEND SLEEVE	THIMBLE	TENSION (SEE NOTE 3)
			1 PER GUY	2 PER GUY	2 PER GUY	2 PER GUY	
36'	1/4" EHS	3 @ 164'	1/2 X 12 J & E	1/4"	1/4"	3/8" HVY.	665 LBS.
76'	5/16" EHS	3 @ 180'	3/4 X 12 J & E	5/16"	5/16"	3/8" HVY.	1120 LBS.
116'	5/16" EHS	3 @ 204'	3/4 X 12 J & E	5/16"	5/16"	3/8" HVY.	1120 LBS.
146'	5/16" EHS	3 @ 226'	3/4 X 12 J & E	5/16"	5/16"	3/8" HVY.	1120 LBS.
176'	3/8" EHS	3 @ 251'	3/4 X 12 J & E	3/8"	3/8"	1/2" HVY.	1540 LBS.



NOTES:

1. THE STRAND AND THE CONNECTOR SHOWN HAVE A LEFT HAND LAY. STRAND WHICH HAS A RIGHT HAND LAY REQUIRES A CONNECTOR WITH A RIGHT HAND LAY.
2. ALL CUT LENGTHS SHOWN ARE BASED ON A CLEAR LEVEL SITE, PLUS 10%.
3. GUY TENSIONS ARE DESIGNED AT 60° FAHRENHEIT.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES		MATERIAL:			180', 1800 TLWD GUYED TOWER ITEM NUMBER: C05-002-042							
TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"		TOLERANCES DO NOT APPLY TO RAW MATERIAL										
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REV	DATE	DRW	CHK	DESCRIPTION	DATE	08/24/06	SIZE	B	DRAWING NO.	C05002042	REV	0
					DRAWN BY	KTW			SCALE	None	PAGE	2 OF 2
					CHECKED BY	PSB						

BOLT INSTALLATION DETAILS:

1. **INSTALLATION OF BOLTS:** BOLTS FOR TOWERS AND ANTENNAS SHALL BE INSTALLED WITH THE NUTS FACING TO THE OUTSIDE AND/OR TO THE TOP OF THE TOWER, UNLESS PROHIBITED BY LACK OF CLEARANCE.
2. **TIGHTENING OF BOLTS:** ALL HIGH STRENGTH BOLTS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION, AS DEFINED BY AISC.
3. **NUT LOCKING DEVICE:** ALL NUTS SHALL BE EQUIPPED WITH SOME TYPE OF NUT LOCKING DEVICE. SEE THE INDIVIDUAL DRAWINGS FOR THE TYPE OF NUT LOCKING DEVICE TO BE USED FOR EACH INDIVIDUAL APPLICATION.

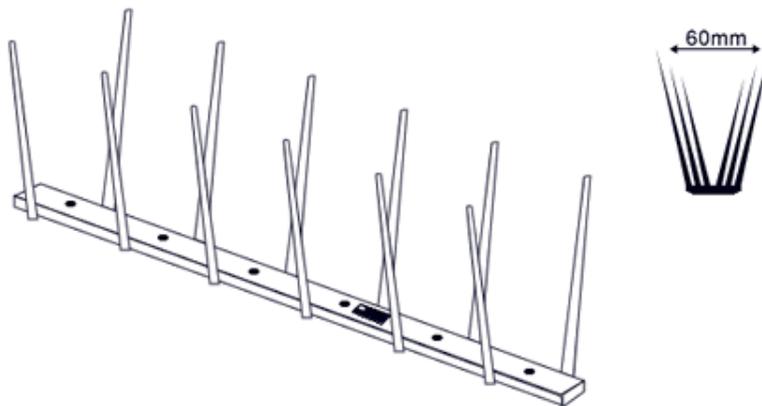
<p>UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES</p> <p>TOLEANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"</p>	<p>MATERIAL:</p> <p>TOLEANCES DO NOT APPLY TO RAW MATERIAL</p>	 <p>Sabre Communications Corporation</p>	<p>BOILT INSTALLATION DETAILS</p>
<p>CONFIDENTIAL</p> <p>This document contains information pertaining to the confidential trade secret property of Sabre Communications Corporation ("Sabre") and must not be reproduced, copied or used, in whole or in part, for any purpose without the prior written consent of Sabre. ©2007 Sabre Communications Corporation. All rights reserved.</p>		<p>DATE: 01/28/00</p> <p>DRAWN BY: MJM</p> <p>CHECKED BY: KJT/DLW</p>	<p>SIZE: B</p> <p>DRAWING NO. 9014671</p> <p>REV 3</p> <p>SCALE: None</p> <p>PAGE 1 OF 1</p>
REV	DATE	DESCRIPTION	
1	01/28/00	ISSUED FOR CONSTRUCTION	
2	03/26/01	ISSUED FOR CONSTRUCTION	
3	03/26/01	ISSUED FOR CONSTRUCTION	

Flock-Off Anti Roost Spikes

Feral Pigeons (*Columbia Livia*) in large numbers can be a nuisance and a health threat. Droppings can destroy

FEATURES:

1. Semi-flexible round topped (to prevent injury to birds) UV stabilised polycarbonate bayonet spikes, 100mm high, set diagonally
2. Spikes 35mm apart but diagonal setting reduces effective gap to 28mm
3. UV stabilised polycarbonate base strips are 333mm long, 20mm wide and 4mm thick
4. Receiving space for 'jigsaw' type press attachment
5. Slightly curved ends to allow joined strips to follow slight curves in receiving surface. (E.g. certain canopies, balconies etc.)
6. Grooves to enable the strip to be snapped off for precise fittings
7. Holes for screws or masonry nails



PRODUCT INFORMATION:

"**Flock-Off**" bird deterrents are UV-stabilised polycarbonate anti-perching devices which prevent large birds, such as feral pigeons, jackdaws, crows and most seagulls, from perching and roosting on building ledges, beams, pipes and ridge-tiles.

"**Flock-Off**" bird deterrents are one-piece constructions, so no assembly is required and no corrosion or rusting occurs.

"**Flock-Off**" bird deterrents are non-conductive. They will not interfere with electronic security systems, or radio signals and transmissions and, unlike metal spikes and wires, they will not attract lightning during thunder storms.

Each piece of "**Flock-Off**" is 333mm long with 6 pairs of spikes. The spikes are:-

- 100mm in height.
- 55mm apart, but set diagonally, thereby reducing the effective gap to 28mm.
- Splayed, giving a depth coverage of 65mm.
- Round-topped and semi-flexible, to prevent injury to birds. (a concern of the environmentalist lobby.)

The base of each piece of "**Flock-Off**" is 20mm wide and 4mm thick and has the following features:-

- 6 holes for fitting with screws or masonry nails.
- 4 snap-off grooves to facilitate precise installation.
- Curved underside for closer fitting to pipes and ridge-tiles.
- "Jig-Saw" type connections (male and female) for joining pieces together.

"**Flock-Off**" is available in the most popular "**chameleon clear**" form which being glass-like, makes it unobtrusive and so does not detract from a building's appearance.

"**Flock-Off**" is accordingly endorsed by architects.

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Email :: info@flockoff.ie :: Created by Nevada



Typical Installation Procedures for Lattice Towers on BLM Land

Mobilization/Delivery

The site will be accessed with a 1-ton pickup and trailer to deliver the tower and related hardware. The crew will then lay out the site and mark the areas to be dug for anchors and the foundation. This work is usually accomplished on the first day of the project.

Excavation

This phase of the project is generally the most difficult, depending on the soils encountered. In dirt or cobble a rubber-tired backhoe or similar piece of equipment is used to dig the anchor and foundation holes. In more rocky soil, a backhoe with a hammer may be needed to break up the rock. In solid rock, the most efficient means of excavation is blasting. This method utilizes a small drill rig to drill a series of small holes around the perimeter of the excavation area. Small charges are used to fracture the rock so that it can be scooped out by a machine.

The first photo below shows a typical backhoe. The second shows a drill rig typical of those used to drill holes for blasting.



Concrete

After excavation is complete, a simple rebar (steel reinforcing bars) structure is made and placed in each hole. Then a concrete truck will access the site and concrete is poured at each anchor and the foundation location. Soon after the concrete begins to set, the holes are backfilled with native materials and the surface is graded to match the surrounding landscape.

The photos below show completed excavations ready for concrete. The first is an anchor location (note rod exiting at an angle) and the second is a foundation.



Erection

After some preparation work on the ground, the crew will start to stack the tower. Usually, the first 30'-40' is set on the foundation using whatever digging machine is on site. This allows the first set of guy wires to be attached so the tower is a stable platform. From that point, ten foot sections are added one at a time using a gin pole until the final erection height is reached.

The photo below shows a tower being stacked. The gin pole is barely visible on the far side. This fixture extends above the top of the tower allowing the next section to be hoisted into place. The gin pole is then moved up for the next section and the process is repeated.



Clean-up & Commissioning

When the tower is fully stacked and final adjustments are made, instruments are added along with electronics and any fencing, marking or other items that are needed. The final step is the clean-up of any debris and the exit by the crew.

The photo below shows a site being commissioned with typical fencing. The truck in the background is a typical 1-ton type used for tower construction.

