

an aviation **improvement** company

ECHOAdvisory



*Creating and distributing **innovative** products, with an **emphasis** on time and cost savings.*



Bulletin

Service Bulletin for airfield lights installed in water washout areas and shoulders.
This is a product update for customers who experience
excessive erosion around lights.

In Order to prevent the problem of erosion around lights as pictured here



It is recommended that Airfield Mats be installed as pictured here



Contact your Authorized Echo Advisory sales representative to order some today

Bulletin

Service Bulletin for airfield lights installed in grassy shoulders.
This is a product update for customers who experience
excessive vegetation growth around lights.

In Order to prevent the problem of high grass around lights as pictured here



It is recommended that Airfield Mats are installed as pictured here



Contact your Authorized Echo Advisory sales representative to order some today



The Mat

12mm thick made from recycled rubber with polyurethane binders. The mats anchor to the ground with **galvanized steel anchors**. Lawn mower equipment can pass over the mat cutting all the grass without the use of line trimmers while still staying a safe distance from the light.

Patent No. 6,527,407



True Mowing Efficiency

The patented anchoring system and elongated “football” shape was designed to allow maintenance crews with larger mowers to mow in a line, from light-to-light and make only one pass on each side of the light. The *Football Mat* is 4 feet wide by 7 feet long. The *Football Mat* uses 6 ground anchors to secure it in place. Mowers can move in a more natural mowing arc around airfield lights, expediting the mowing process even further. The *Airfield Mats* are large enough to prevent lights from disappearing into the tall grass letting the mowing crew better visually identify the light location preventing “accidental breakage”. ***Other smaller mats do not accomplish this same efficiency and often still require line-trimming to complete the job.***

When lighting, sign and fencing projects are bid under the Airport Improvement Programs(AIP) this **Airfield Mat System** qualifies as part of the funded project.

Plan on protecting your airport’s investment with the time and cost savings of the **Airfield Mat system**.

Call Echo Advisory Services, LLC for product information and support.
Call our national distribution partners for pricing and availability

Distributed by:



Protect Your Investment

This patented product was designed to reduce the damage caused by mower equipment impact to airfield lighting signs and other objects. During routine grounds maintenance using larger and imprecise mowing equipment, crews often report broken lights and posts. The Airfield Mat allows the mower to cruise past each light with a wider contingency space.

Patent No. 6,527,407



Reduce Your Cost

The **Airfield Mat System** eliminates the constant attention and extra labor dedicated to controlling vegetation in hard to reach areas. Vegetation control around airport post lighting, directional signs, wind socks, fences and buildings calls for special attention. The **Airfield Mat System** is a cost effective solution that *reduces the labor to trim vegetation*, prevents erosion around the base of light or sign fixtures, and replaces the need for the use of environmentally damaging chemicals and poisons.

Countless man hours accrue during the tedious task of line-trimming grass that mowers can't reach. With the **Airfield Mat System**, mowing equipment can overlap the mat, *eliminating the need for grass trimming* and ensuring visibility around lights and signs.

Some airports use weed and grass-killers to control growth around airfield lights and signs. The **Airfield Mat System** *eliminates the use of such chemicals*, protecting ground water and wildlife and eliminating airfield crew exposure.

- Saves Money
- Protects Airfield Lights
- Saves Labor Time
- Reduces Health Risks
- Environmentally Friendly
- Installs Quickly and Easily
- Long Lasting Durability



Bulletin

Service Bulletin for airfield lights susceptible to mower impact.
This is a product update for customers who experience
excessive light and sign breakage around the airfield.

In Order to prevent the problem of light and sign breakage as pictured here



It is recommended that Airfield Mats are installed as pictured here



Contact your Authorized Echo Advisory sales representative to order some today

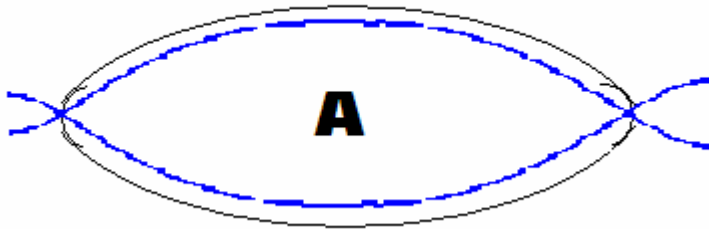
Optimal Mat Performance

Reviewing the mowing path taken by the mowing vehicles
it can be concluded the football mat the most optimal design.

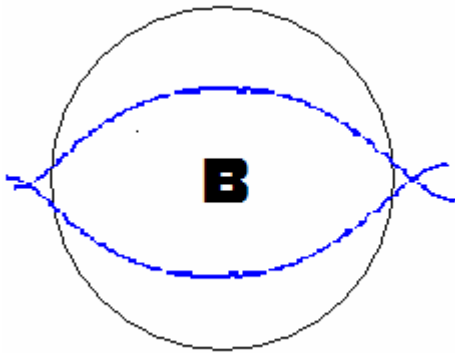
A = Recommended

B&C = Less Desirable

Mowers weave around the perimeter of a light as they proceed along a directional path down the runway or taxiway. The blue line depicts the path of a mower decks edge as it passes by a light

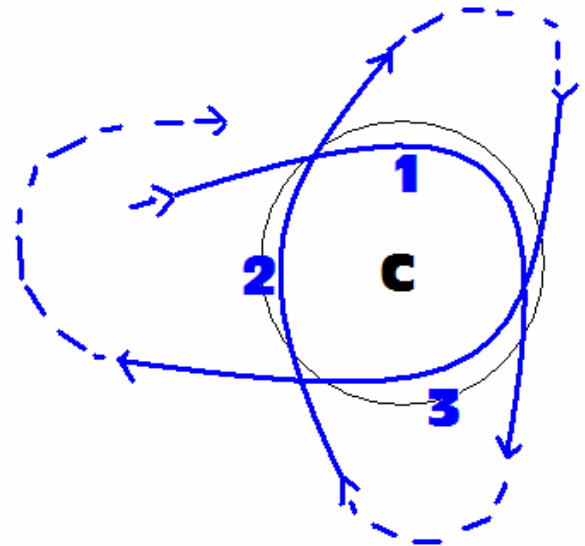


The football or elongated shaped mat complements this mowing path giving the mower perimeter a length of 7 feet and a width of 4 feet around the light.



The same path reduced to match a round mat shows that a mower decks perimeter utilizes a much smaller ratio of the mat. In the case of a 4ft diameter mat the mats effectiveness of the mowing perimeter is reduced from 7 to 4 feet length wise and 4 to 2 feet in width. In the case of smaller mats such as a 26 inch mat the effectiveness of the mat is reduced to inches not feet.

Mower operators often find themselves taking a more frustrating approach to round mats resulting in a pattern called orbiting. This often results in mower wheels taking sharp turns on the mat and the mower is more likely to buckle or dislodge the mat.



It is recommended that Airfield Mats are installed
as pictured here







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The Airfield Mat System

The Airfield Mat System:

This product was designed to eliminate the constant attention, which must be given to each post light on an airfield. Labor to trim vegetation, environment damaging chemicals and poisons and accidental breakage are virtually eliminated. Eliminates erosion around the base of the light fixture due to rain and wind. The mat is 4 feet in diameter and made from recycled rubber with polyurethane binders.

- Saves Money
- Protects Airfield Lights
- Saves Labor Time
- Reduces Health Risks
- Environmentally Friendly
- Installs Quickly and Easily
- Long Lasting Durability



The Round Airfield Mat:

The Airfield Mat is designed to alleviate the need to trim the grass around the post lights on your air field. Lawn mower equipment can pass over the mat cutting all the grass with out the use of line trimmers while still staying a safe distance from the light..

A Four Wheel Steer Kubota taking action around the mat.

Securely anchored to the ground, the mat does not allow grass to grow near the light.



The Football Airfield Mat:

The Football Airfield Mat: This product was designed to do the same job as the Round Mat, yet allow maintenance crews with larger mowers to mow in a line, from light-to-light and only make one pass on each side of the light. The Football Mat is 4 feet wide by 7 feet long and made of the same compound as the Round Mat. The Football Mat uses 6 ground anchors to secure it in place.

Mowers can move in a more natural mowing arc around airfield lights, expediting the mowing process even further, and probably sparing a few more lights in the process.



Even the most cumbersome field mowers can maintain a safe Maneuvering distance from the light while cutting all the grass



A Kubota Tractor Making a high speed pass traversing from from one light to another



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Benefits of the Airfield Mat System:

- Saves Money
- Protects Airfield Lights
 - Saves Labor Time
 - Reduces Health Risks
 - Environmentally Friendly
 - Installs Quickly and Easily
 - Long Lasting Durability



Saves Labor Costs Countless man-hours are accrued during the tedious task of line-trimming airfield lights to ensure visibility. With the, mowing equipment can overlap the mat the Airfield Mat System, eliminating the need for grass trimming, thus saving Time, Money, and Labor.

Prevents Health and Safety Hazards The light saver system eliminates the need to spread toxic chemicals, reducing the time a ground crew will need to be performing hazardous tasks in potentially dangerous locations.

Prevents Costly Equipment Breakage During routine grounds maintenance using large and imprecise mowing equipment, crews often report broken lights and posts. Using the Airfield Mat allows the mower to cruise past each light with a wider contingency space

Environmentally Friendly Some airports use weed and grass-killers to control growth around airfield lights. The Airfield Mat eliminates the use of such chemicals, protecting ground water and wildlife and eliminating airfield crew exposure.

Wise Planning These types of chemicals may be restricted by the EPA in the near future. Echo's System is a step towards being prepared for any such restrictions.

Quick and Easy Installation Airfield Mats are secured to the earth with Echo's recessed Ground Anchoring System. The anchors can be quickly and easily installed by one person either by hand, a ratchet, or with a cordless drill. These durable anchors will hold the mat securely even in the most adverse weather conditions, and prevent displacement from prop-wash or jet-blast.

Long Lasting Ground Anchors are galvanized steel while the Airfield Mats are made from a durable synthetic rubber compounds. Both materials have proven resistance to nature's elements.

The Airfield Mat System can be installed and forgotten, while the benefits continue year after year.

Advice heard around the worldSM



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Cost Savings Analysis

For a
75 light installation

COST PER YEAR				
	Per light		For 75 lights	
	No Mat	Airfield Mat Solution	No Mat	Airfield Mat Solution
Labor		No Annual Costs		No Annual Costs
Trimming*	26.25		1968.75	
Replacing broken lights***	4.17		312.75	
Materials				
Trimmer Costs+	1.75		131.25	
Poisons++	2.00		150.00	
Broken Lights+++	16.68		1251.00	
Liability Issues				
Workers on Runways to Trim	High risks with possible high costs			
Workers on Runways to repair lights				
Total Costs PER YEAR	50.85		3813.75	

Total Costs TWO YEARS	101.70		7627.50	
Total Costs TEN YEARS	508.50		38,137.50	

TOTAL SAVINGS WITH AIRFIELD MAT SYSTEM; 10 YEARS PLUS

Ten Year Cost from above chart		\$38,137		
One time Cost of Mats (w/ freight estimate)		Approx 9,500		
One time Cost of installation (est. cost to contractor)		750		
SAVINGS		\$27,887		

* 3 minutes per light to walk from light to light, figuring 35 times a year, figuring \$15 an hour for labor

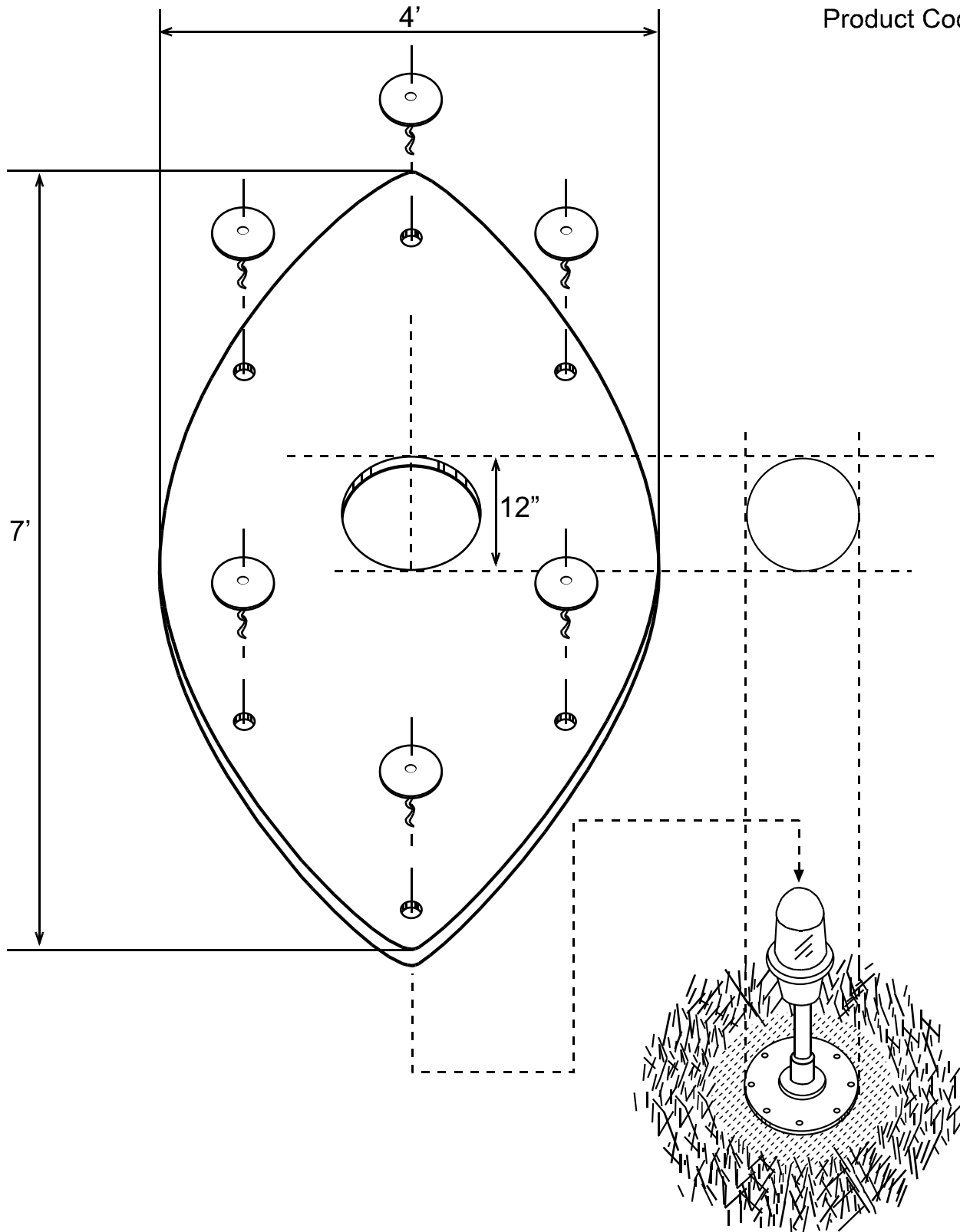
** 3 minutes per light to walk or driving from light to light, figuring 5 times a year, figuring \$15 an hour for labor

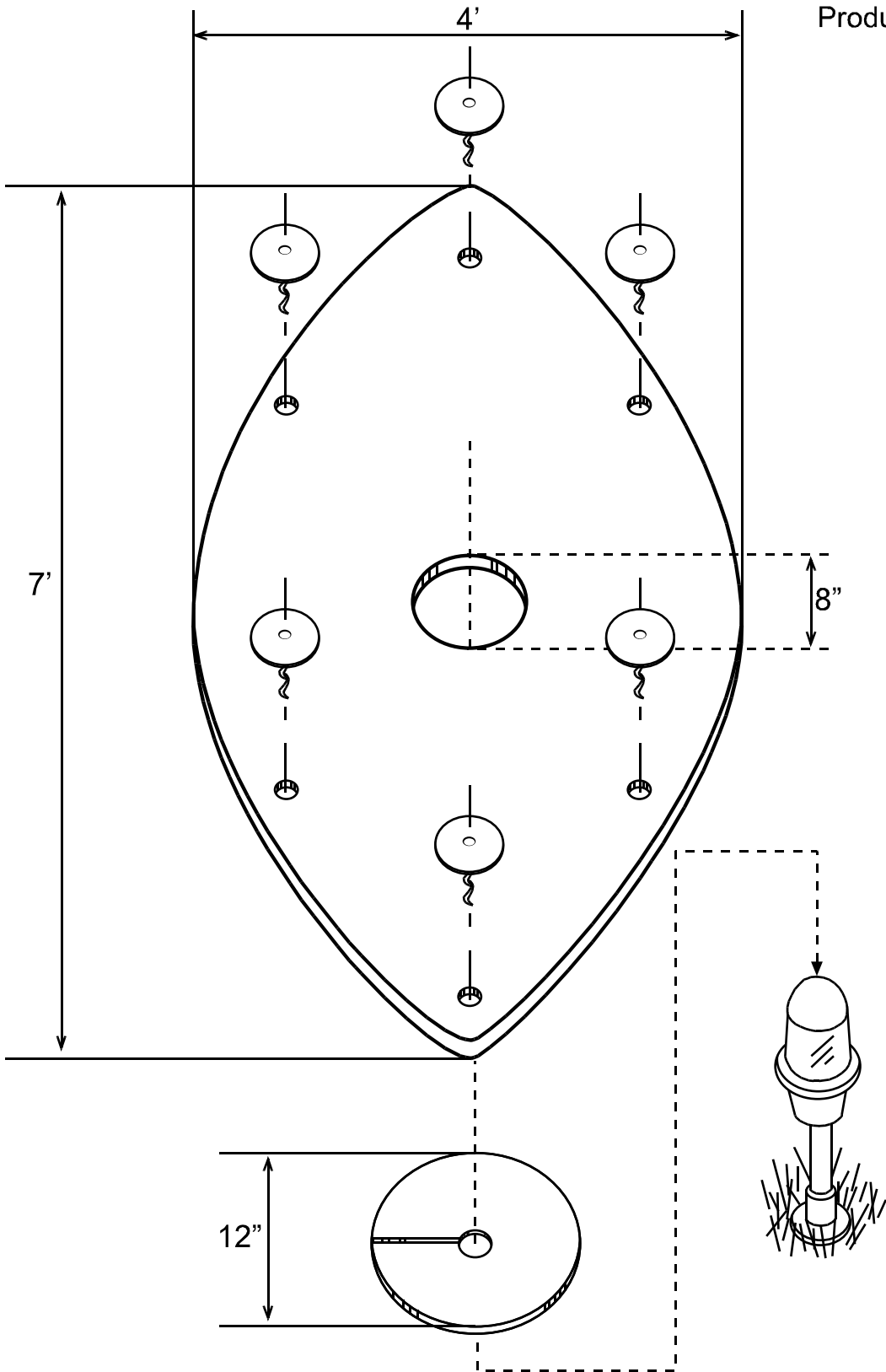
*** Mowing equipment inevitably attempts to minimize trimming need by getting too close to light. figuring 1 light broken out of 300 passes with the mowing equipment. Figuring 50 mowing passes times per year. Figuring 45 minutes to repair light at \$25 per hour.

+ 3 minutes per light figuring 35 times a year, Figuring a gas powered trimmer will last 350 hours and the trimmer would cost \$350 to replace.

++ Figuring \$200 of poison would cover 400 lights applications with 5 applications per year

+++ Mowing equipment inevitably attempts to minimize trimming need by getting too close to light. 1 light broken out of 300 passes with the mower equipment. Figuring 50 mowing passes times per year. Figuring \$75 in parts to repair light.





Place the collar around the stake light



Place the large mat ...**Round or Football**...over the collar



Anchor the Echo Advisory™ Mat System into place

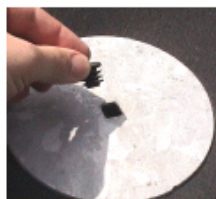


Set the Anchors



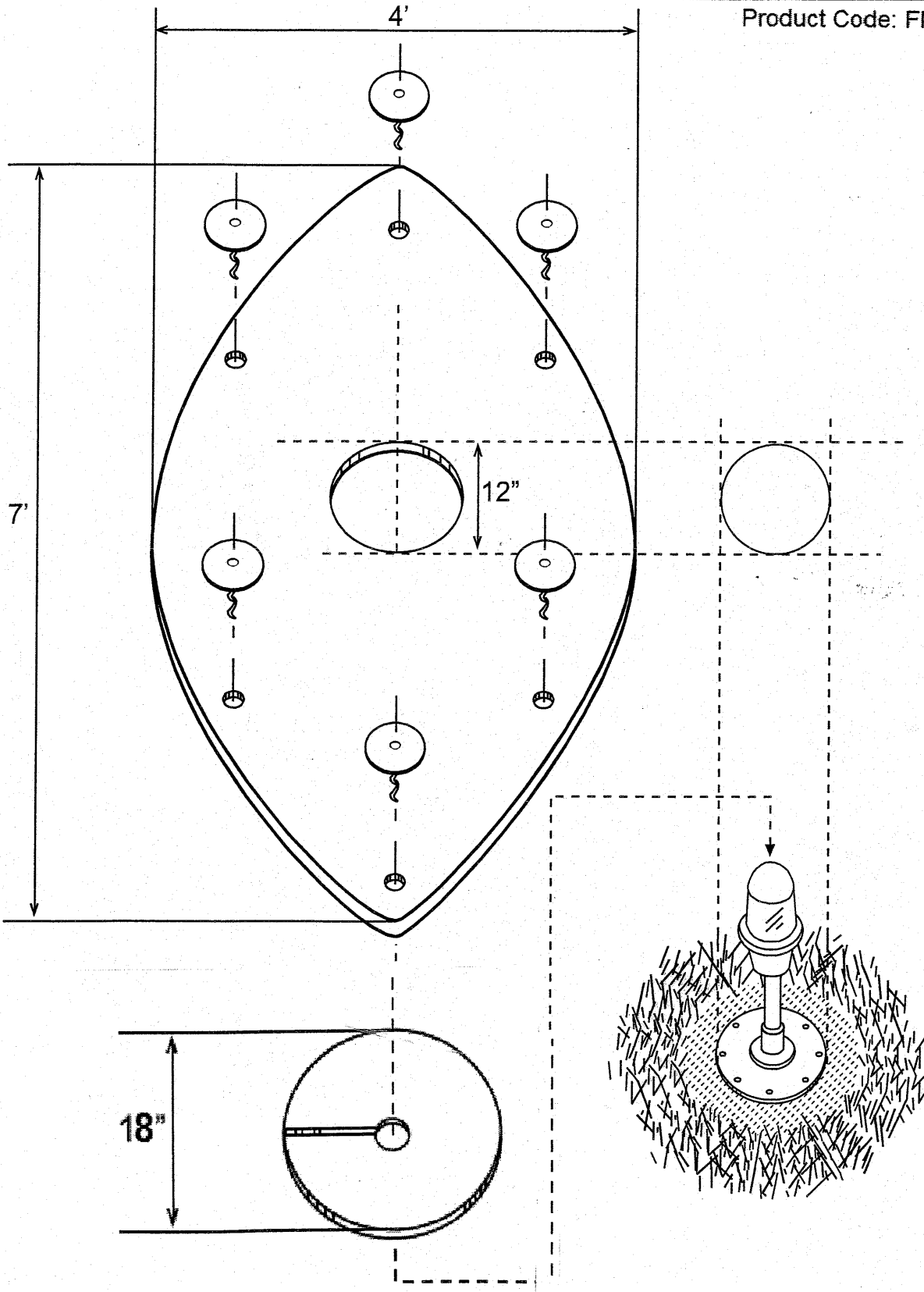
And the plugs

1. Set Anchor Plug into square hole.

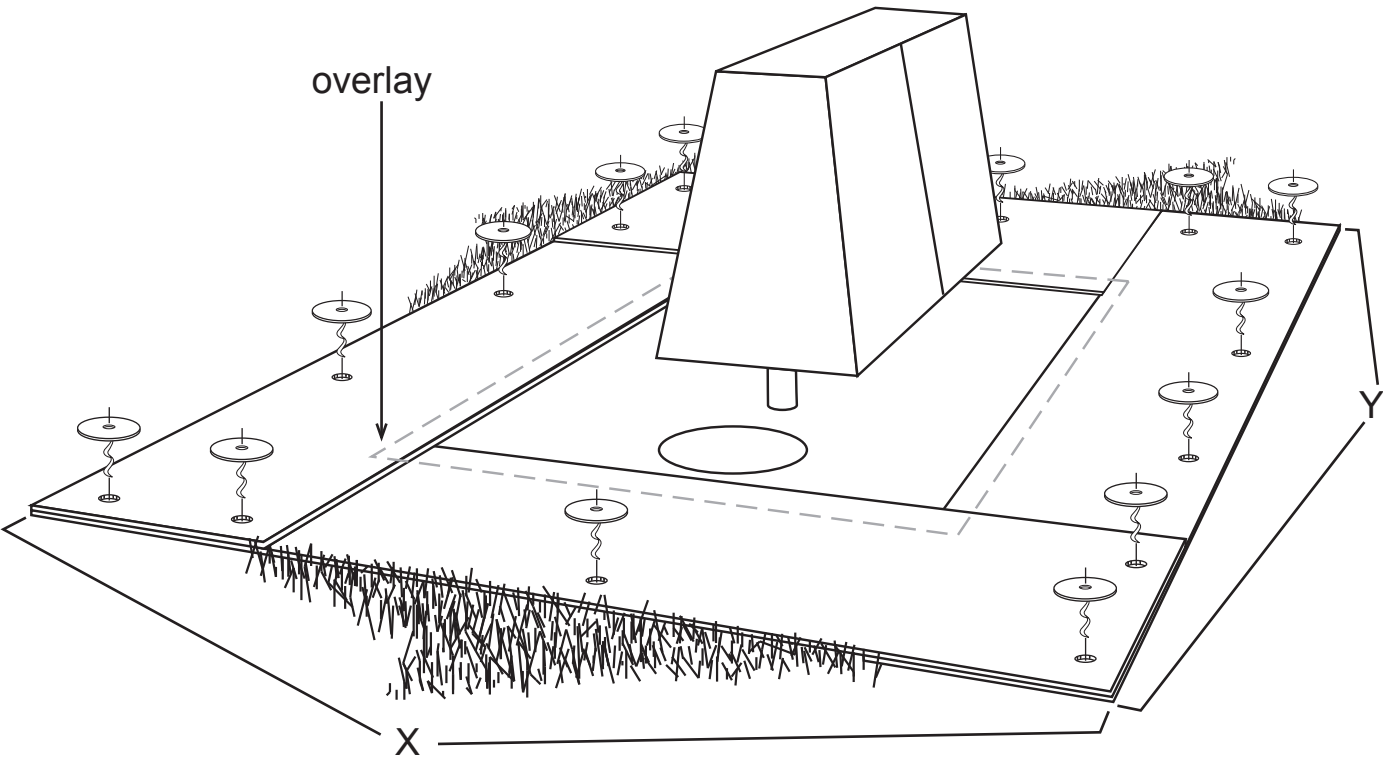


2. Tap Anchor Plug into place with hammer.









Length needed = perimeter extending 2 feet from base = $2X + 2Y$

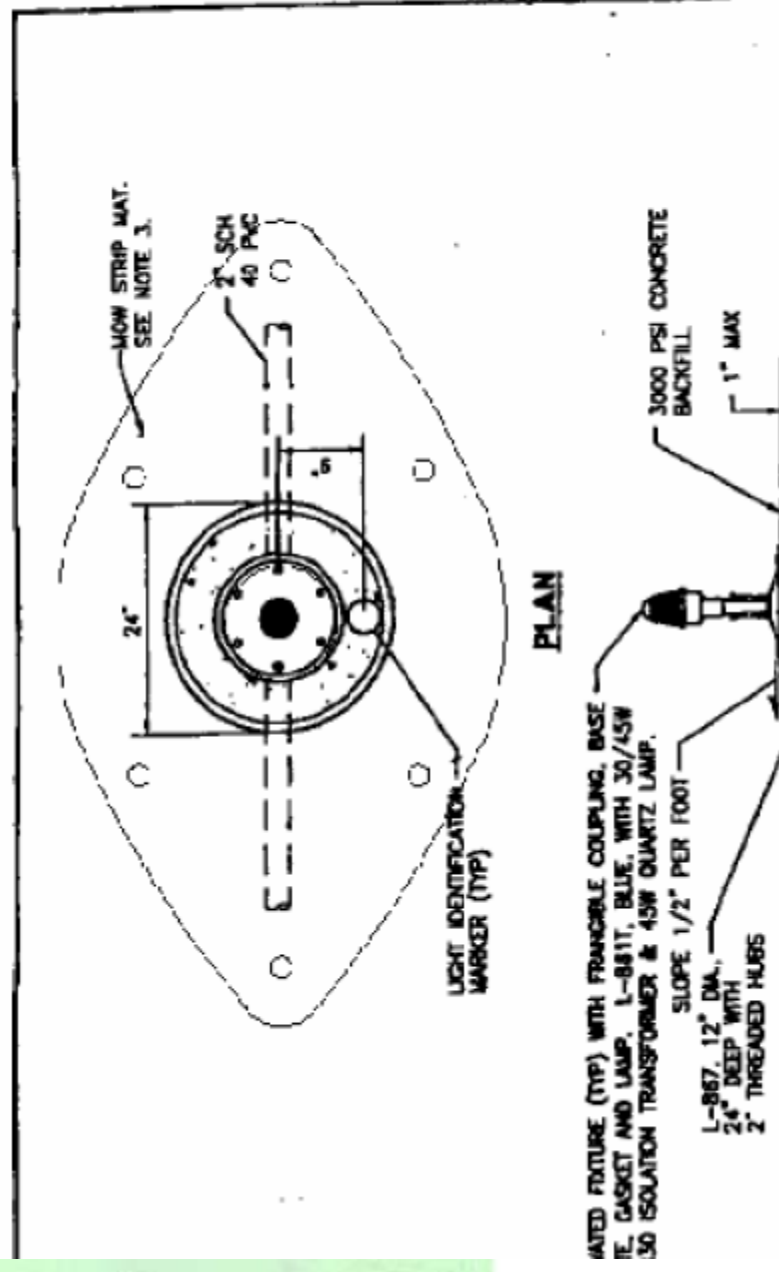
SM-1: 30ft Length - 10 Anchors

SM-2: 60ft Length - 20 Anchors

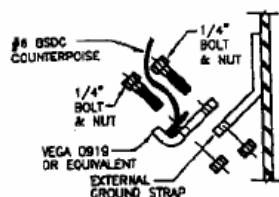
Airports With Echo Advisory Mats

Boca Raton, Florida	Martin County, Pennsylvania	Union County, Mississippi
Tallahassee, Florida	State College, Pennsylvania	Dimondale, Michigan
Pompano, Florida	Trenton Mercer, New Jersey	Amarillo, Texas
Lakeland, Florida	Memphis, Tennessee	Booneville, Mississippi
St. Augustine, Florida	Ottumwa, Iowa	Mobile, Alabama
Titusville, Florida	Mackinaw, Michigan	Newton, Iowa
	Escanaba, Michigan	

Engineering and Design

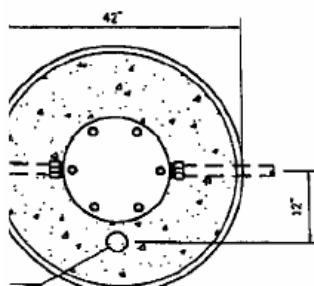


Creating and Distributing Innovative Products with an Emphasis on Making Cost Savings

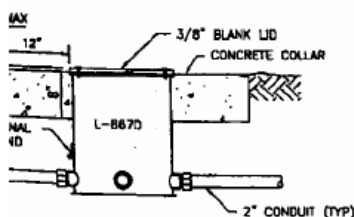


INSET A
E.05

N



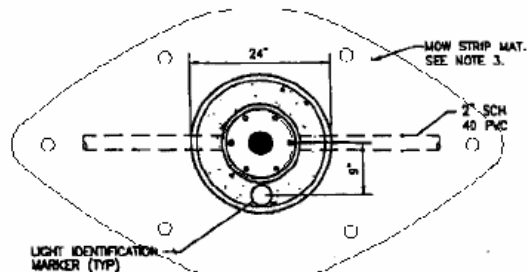
PLAN



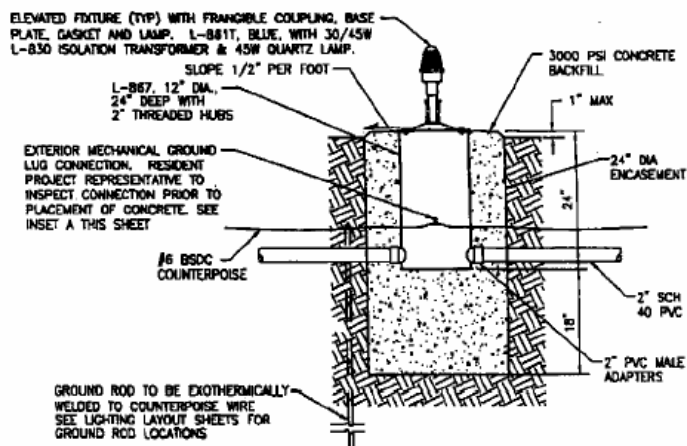
ELEVATION

ORIENTATION OF CONDUITS VARY. SEE PLAN SHEETS FOR DETAILS.
UN SHEETS FOR GROUND ROD LOCATIONS.
ALL PROVIDE A 2" DIA DOMED BRONZE MARKER AT EACH
IS SHOWN. MARKER SHALL BE STAMPED WITH CIRCUIT

JUNCTION CAN
E.05 NOT TO SCALE



PLAN

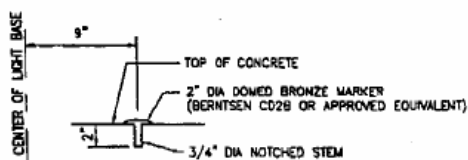


ELEVATION

NOTES:

1. NUMBER AND ORIENTATION OF HUBS VARY. SEE LAYOUT SHEETS FOR CONFIGURATION.
2. CONTRACTOR SHALL PROVIDE AND INSTALL LIGHT FIXTURE ID MARKER AND STAMP. FIXTURE ID NUMBER AS ASSIGNED TO EACH ELEVATED LIGHT FIXTURE BY THE ENGINEER.
3. TAXIWAY EDGE LIGHTS IN EARTH SHALL INCLUDE A MOW STRIP MAT, 4" DIA, WITH GROUND ANCHORS (LIGHTSAYER AIRFIELD MAT BY ECHO ADVISORY, LLC OR APPROVED EQUIVALENT).

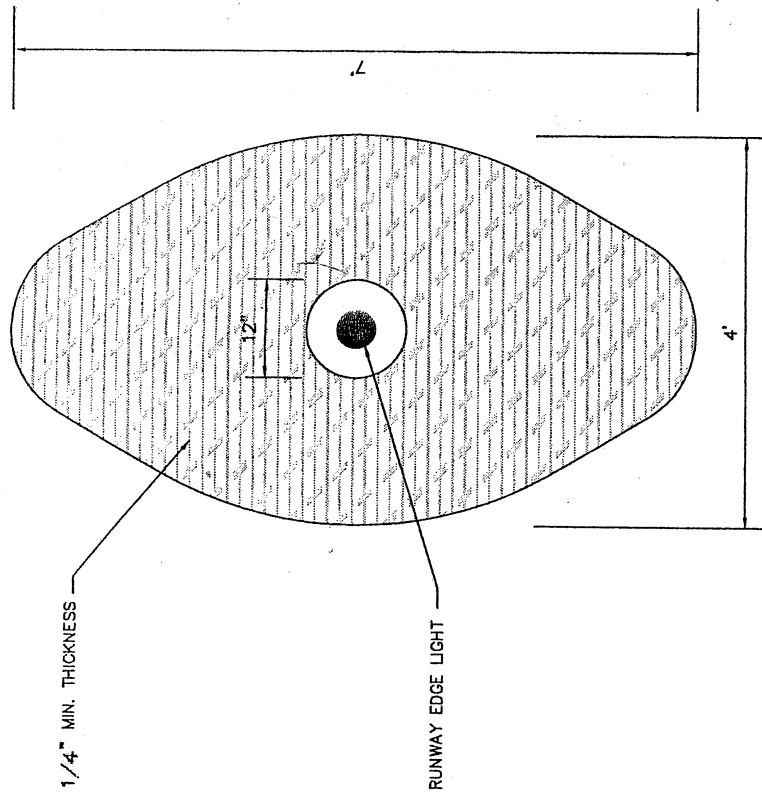
ELEVATED EDGE LIGHT
E.05 NOT TO SCALE



NOTES:

1. IDENTIFICATION SHALL BE STAMPED USING 1/4" FIGURES AND LETTERS UNIFORMLY SPACED ON THE BRONZE MARKER.
2. IDENTIFICATION MARKERS SHALL BE UNIFORMLY INSTALLED ADJACENT TO TAXIWAY AND RUNWAY ELEVATED EDGE LIGHTS. PREFERRED LOCATION IS ON A LINE PERPENDICULAR TO RUNWAY OR TAXIWAY CENTERLINE, INBOARD OF LIGHT FIXTURE.

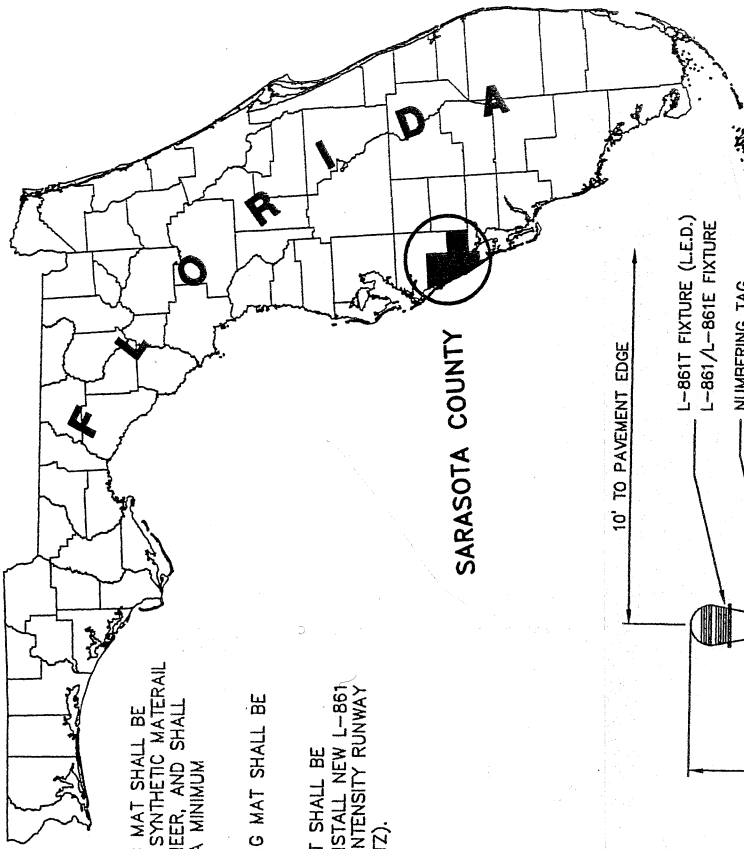
IDENTIFICATION MARKER
E.05 NOT TO SCALE



AIRFIELD LIGHTING MAT
N.T.S.

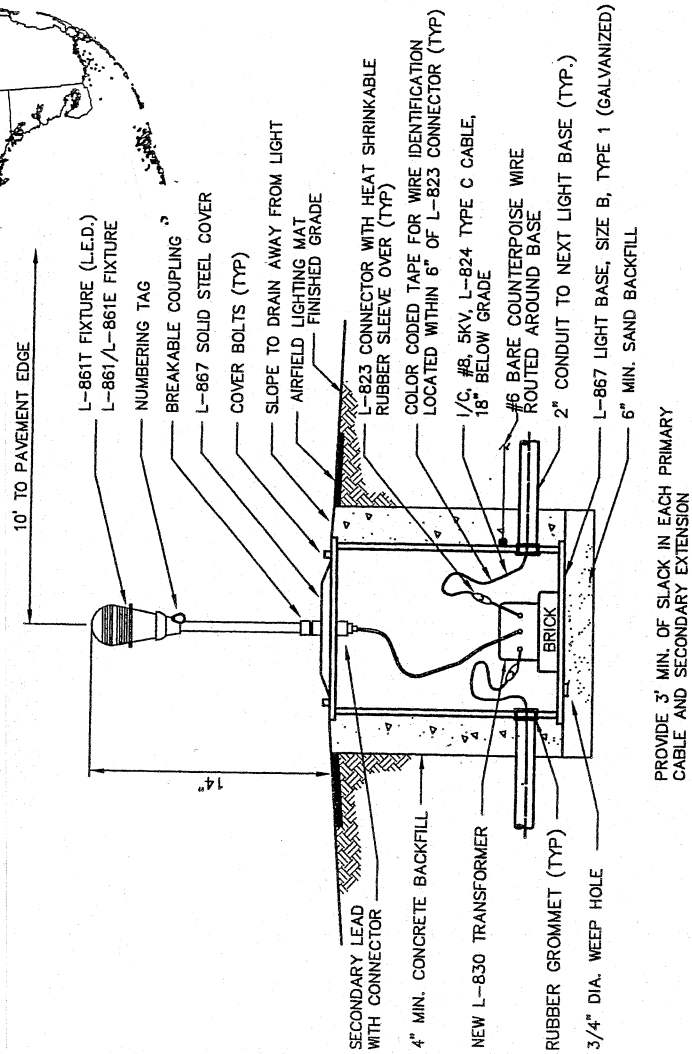
DRAFT

NOTE:
PROJECT IS REHABILITATION OF
CURRENT RUNWAY 4-22.
FOLLOWING REHABILITATION, RUNWAY
WILL BE RE-MARKED AND DESIGNATED
AS RUNWAY 5-23



SARASOTA COUNTY

1. THE AIRFIELD LIGHTING MAT SHALL BE MADE FROM RUBBER OR SYNTHETIC MATERIAL APPROVED BY THE ENGINEER, AND SHALL HAVE A LIFE CYCLE OF A MINIMUM 10-YEARS.
2. THE AIRFIELD LIGHTING MAT SHALL BE ANCHORED IN-PLACE.
3. AIRFIELD LIGHTING MAT SHALL BE INCIDENTAL TO L-861 (INSTALL NEW L-861 BASE MOUNTED MEDIUM INTENSITY RUNWAY LIGHT (MIRL), 30W QUARTZ).



RUNWAY/TAXIWAY EDGE LIGHT BASE MOUNTED
RUNWAY THRESHOLD LIGHT BASE MOUNTED
N.T.S.

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Fall 2005

Performance Results Report

In January of 2005 The Boca Raton Airport installed the Echo Advisory Airfield Mats on each of its runway lights. These mats are anchored by the Echo Advisory patented anchoring system.

On October 24, 2005, Hurricane Wilma presented the Boca Raton Airport with a direct hit and winds estimated at 120 miles per hour.

The Airport suffered extreme damage to countless aircraft and almost every structure on the airfield. Hanger doors were complete ripped off many of the T-Hangers. Two very large corporate hangers completely collapsed in the force of Hurricane Wilma winds.

Upon inspection of the airfield it was found that NONE of the Echo Advisory Airfield Mats were dislodged. The Anchoring system performed its duties and survived one of the worst tests nature has to offer.



The Echo Advisory® Airfield Mat Systems aka. "LightSaver™ Mat" is protected by US. Patent 6,527,407 and Federal Case No. 03-61343-CIV-MORENO in the US District Court of Southern District of Florida.

Steve Byers, inventor and sole owner of Patent Number 6,527,407 requests purchaser verify suppliers licensing rights through Echo Advisory at 412-401-5025