GBT Operations Memo 5

NATIONAL RADIO ASTRONOMY OBSERVATORY
Green Bank, West Virginia

May 20, 1993

MEMORANDUM

To: B. Hall

From: R. Fleming RLF

Subject: GBT Obstruction Marking and Lighting

NRAO has received the final results of the aeronautical study concerning obstruction lighting and marking for the GBT antenna. A copy is attached for your project files.

In summary:

Requirement to use white obstruction lighting (a RFI producer) is waived;

Requirement to use orange and white striped marking is waived;

Red (incandescent) obstruction lighting is approved;

Red lighting must operate 24 hours/day.

After reviewing the appropriate FAA circular, it is determined that the GBT should be marked with two flashing omnidirectional beacons (L-864) and five double red steady burning (L-810) lights located as shown on the attached drawing.

All light assemblies must be located where they may be serviced easily and quickly. The lights on the arm (2 flashing beacons & 2 double steady burning light assemblies) should be mounted perpendicular to a tangent line at the corners of the arm. The lights must be FAA approved.

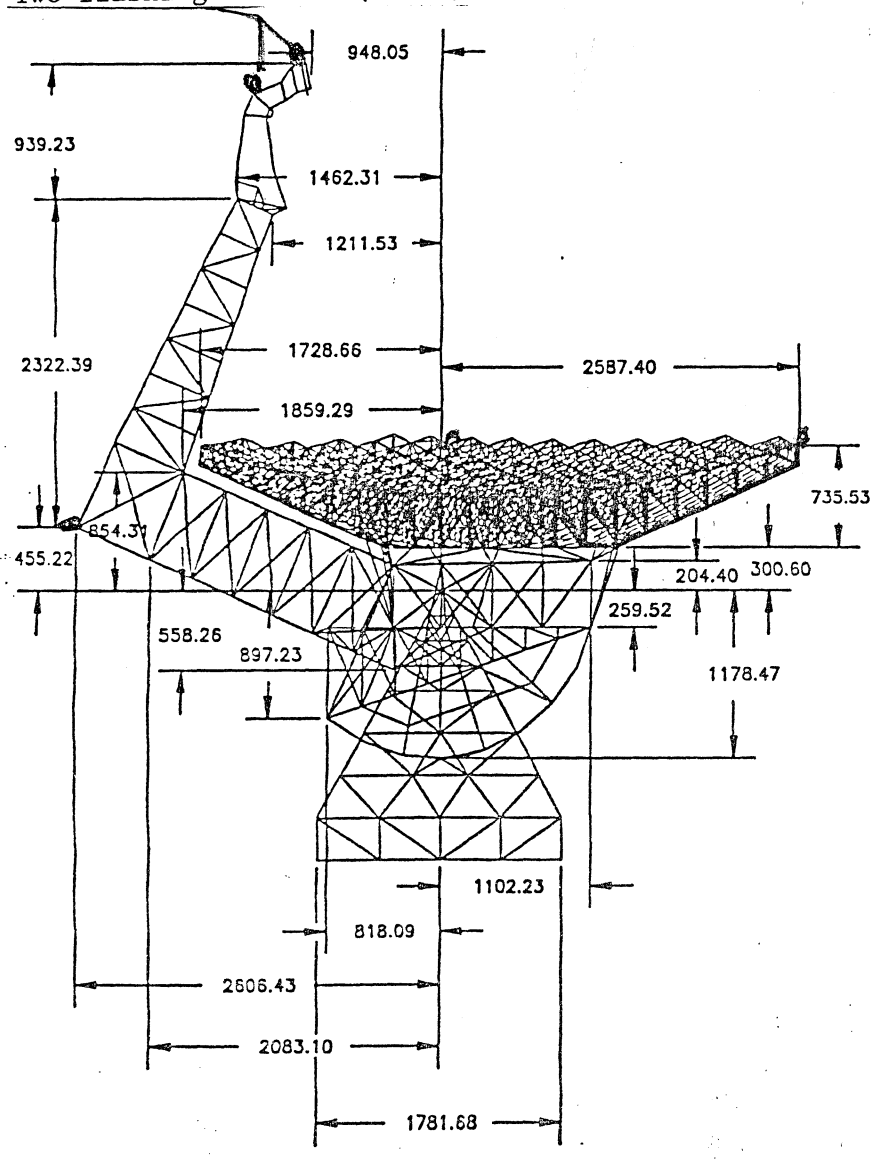
The flashing beacons have two bulbs in one housing. The steady burning lights are configured as two lights side by side. Two bulbs at each light location provides some redundancy. If one of the flashing light bulbs burns out there is no immediate problem, however if both are out we are required to notify the FAA if the failure or malfunction lasts more than 30 minutes. We then are required to replace the bulbs as soon as possible and notify the FAA again. Failure of a steady burning side or intermediate light should be corrected as soon as possible, but notification is not required. The two lamps per light and weekly maintenance days should allow us to meet this FAA requirement.

NRAO has tested a light and reviewed specifications of other lights from one FAA approved vendor and can recommend the following lights from Flash Technology, Nashua, NH, (603) 883-6500, that will satisfy FAA requirements for the GBT:

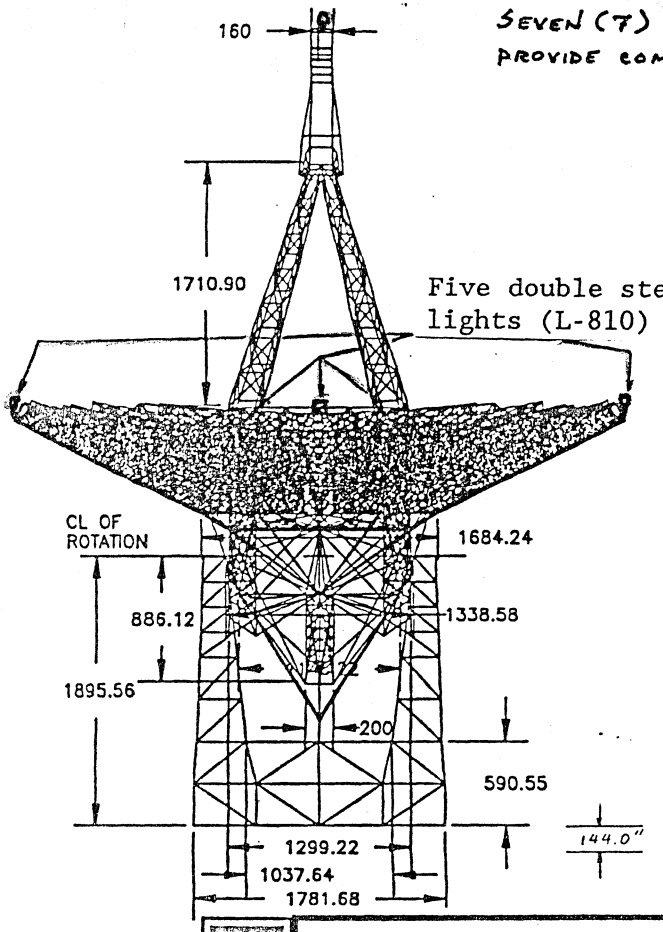
Red flashing beacon - Model FB-300
Red double steady burning light - OL-2

Copy to: R. Fisher
M. Holstine
L. King
J. Lockman
L. Macknik
W. Sizemore

Two flashing beacons (L-864)



LIGHTS MUST BE PLACED AT HIGHEST AND WIDEST PART OF STRUCTURE REGARDLESS OF ORIENTATION. SEVEN (7) LIGHTS TOTAL SHOULD PROVIDE COMPLETE COVERAGE.



Five double steady burning lights (L-810)

NATIONAL RADIO ASTRONOMY OBSERVATORY
GBT PROJECT – EDGEMONT ROAD CHARLOTTESVILLE, VA.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ANGLES ± 3 PLACE DEC: ± 2 PLACE DEC: ± 1 PLACE DEC. ±	PROJ: GREEN BANK TELESCOPE	TITLE: 100 METER TELESCOPE	
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		DESIGNED BY:	DATE:
	FINISH:	APPROVED BY:	DATE:
	SHEET NUMBER 1:2	DRAWING NUMBER B35102M031	REV: SCALE: 1=950

MJH/RCF
5/20/93

U.S. Department
of Transportation
**Federal Aviation
Administration**

Eastern Region

Fitzgerald Federal Building
John F. Kennedy
International Airport
Jamaica, New York 11430

MAY 0 4 1993

Mr. Richard L. Fleming
National Radio Astronomy Observatory
P.O. Box 2
Greenbank, WV 24944-0002

RE: Aeronautical Study No. 92-AEA-1859-OE

Dear Mr. Fleming:

This letter is in response to your request dated March 19, 1993, for relief of the marking requirement as determined on the above mentioned aeronautical study.

We have considered your inability to use medium intensity strobe lighting due to RF interference and the thermal problems associated with orange and white paint. After careful analysis, aeronautical study has determined that the structure, because of its size and color, would not blend into any physical or atmospheric background that may reasonably be expected in the vicinity. Red obstruction lighting will be needed for night and low visibility conditions.

The Federal Aviation Administration (FAA) has no aeronautical objections to the use of a red lighting system only on this structure, provided it is operated 24 hours a day. The lighting should be in accordance with FAA Advisory Circular, AC 70/7460-1H, change 2, chapters 4, 5 and 13.

Thank you for participating in our Obstruction Evaluation Program.

Sincerely,

Robert P. Alexander
Airspace Specialist
System Management Branch

U.S. Department of Transportation
Federal Aviation Administration

NAD 83 Eastern Region

- REVISION -

Fitzgerald Federal Building
John F. Kennedy
International Airport
Jamaica, New York 11430

ACKNOWLEDGEMENT OF NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

CITY	STATE	LATITUDE/LONGITUDE	MSL	AGL	AMSL
GREEN BANK	WV	38-25-59.42 079-50-23.20	2646	495	3141

ASSOCIATED UNIVERSITIES, INC.
NATIONAL RADIO ASTRONOMY OBSERV.
P. O. BOX 2
GREEN BANK, WEST VIRGINIA 24944

AERONAUTICAL STUDY
No: 92-AEA-1859-OE

Type Structure: RADIO TELESCOPE

The Federal Aviation Administration hereby acknowledges receipt of notice dated 10/02/94 concerning the proposed construction or alteration contained herein.

A study has been conducted under the provisions of Part 77 of the Federal Aviation Regulations to determine whether the proposed construction would be an obstruction to air navigation, whether it should be marked and lighted to enhance safety in air navigation, and whether supplemental notice of start and completion of construction is required to permit timely charting and notification to airmen. The findings of that study are as follows:

The proposed construction would not exceed FAA obstruction standards and would not be a hazard to air navigation. However, the following applies to the construction proposed:

The structure should be obstruction marked and lighted per FAA Advisory Circular AC 70/7460-1H, 'Obstruction Marking and Lighting'. CHAPTERS: [ ]-3 [X]-4 [X]-5 [ ]-6 [ ]-7 [ ]-8 [ ]-9 [ ]-10 [ ]-11 [ ]-12 [X]-13.
Supplemental notice is required at least 48 hours before the start of construction and within five days after construction reaches its greatest height (use the enclosed FAA form).

This determination expires on 10/16/94 unless application is made, (if subject to the licensing authority of the Federal Communications Commission), to the FCC before that date, or it is otherwise extended, revised or terminated.

If the structure is subject to the licensing authority of the FCC, a copy of this acknowledgement will be sent to that Agency.

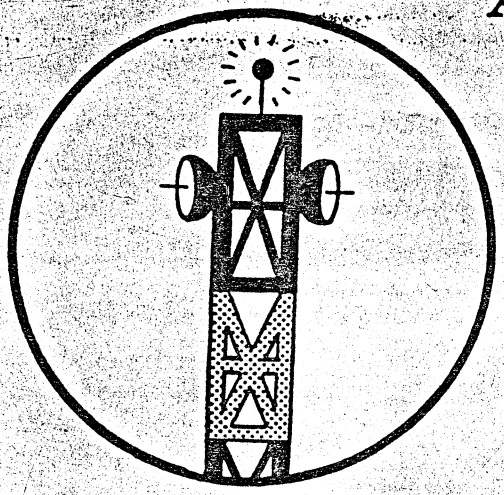
NOTICE IS REQUIRED ANYTIME THE PROJECT IS ABANDONED OR THE PROPOSAL IS MODIFIED

SIGNED Robert P Alexander Specialist, Systems Management Branch
Robert P. Alexander (718)553-1230/1228
ISSUED IN: Jamaica, New York ON 04/21/93

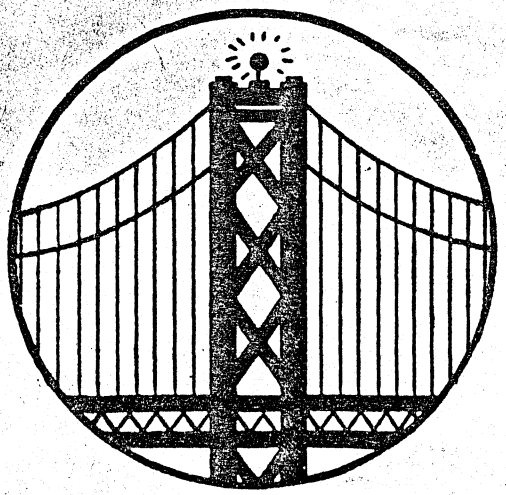
U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

AC 70/7460—1H



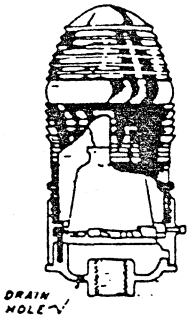
Obstruction Marking and Lighting



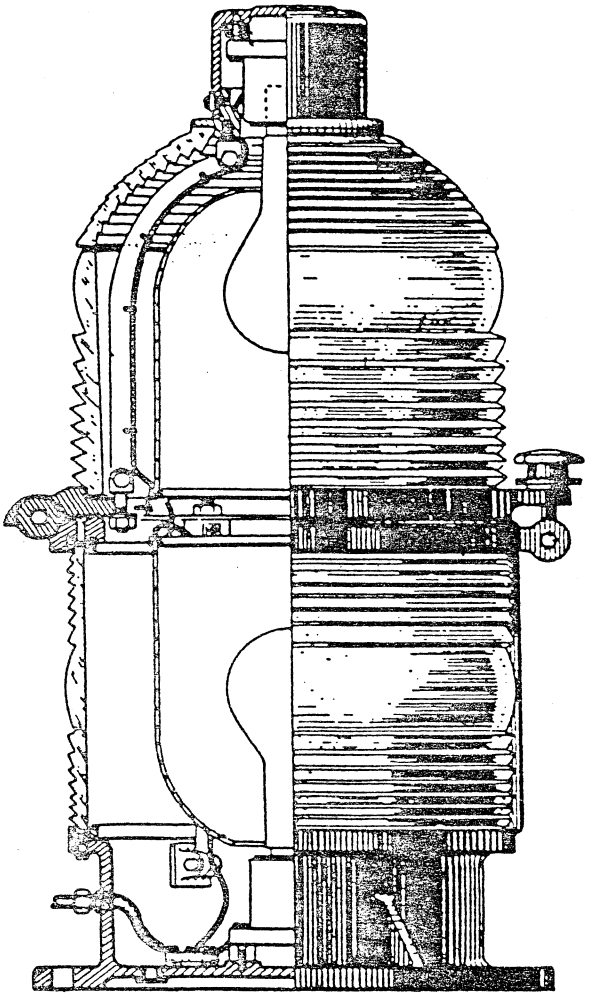
Effective: August 1, 1991
Includes Change 1 Effective: August 1 1991
and Change 2 Effective: September 1, 1992

Prepared by the Air Traffic Rules and Procedures Service

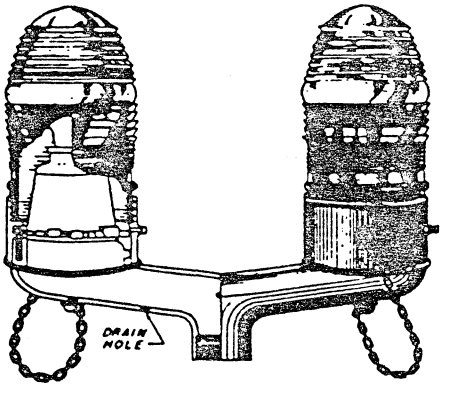
APPENDIX 1



L-810
SINGLE OBSTRUCTION
LIGHT FITTING
(Fresnel Globe)



L-864
RED BEACON
Fresnel Lens



L-810
DOUBLE OBSTRUCTION
LIGHT FITTING
(Fresnel Globe)

TYPES OF RED OBSTRUCTION LIGHTS

FIGURE 1