o-3
GO 8/2-1
14 March 1961

FIRST ENDORSEMENT on Chief, Site Survey Team, Jupiter LORAN A/C Station ltr, dtd 14 March 1961, file GO8/2-1

From: Commander, Seventh Coast Guard District
To: Commandant (CCS)

Subj: Jupiter LORAN A/C Site Survey Report; submission of

1. Forwarded, approved subject to the following comments:

a. Collocation of Jupiter LORAN-C and Hobe Sound LORAN-A Stations at the site proposed is considered highly desirable from the standpoints of engineering and economy. It is equally desirable operational-wise provided the decrease in LORAN-A coverage, as indicated by the prospective signal to noise ratio reported in the Electronic Engineering Section, is acceptable.

b. The proposal that Jupiter Inlet Light Station be designated a sub-unit of the A/C Station is consistent with current district organizational planning now being developed.

c. The location of the family housing units at Jupiter Inlet Light Station is strongly recommended. This property is Coast Guard owned and ideally located for family living and convenient to shopping, schools and recreation. A structurally sound housing unit is presently located at the Light Station which can be renovated and modified to provide four (4) family units for about $50,000. Further, the Florida Board of Parks and Historic Memorials have requested that Coast Guard construction and disturbance of the natural aspects of the park area be kept to the minimum required for our operations. The location of family housing at the loran site would not be compatible with the Board's request.

d. Air conditioning of the barracks and messing building and the signal building is recommended and consistent with present district policy.

e. The land at the selected site is valued at $9500/acre for planning purposes should the provisions of the Economy Act of 1932 apply to the proposed improvements.

f. A former barracks building in fair condition is presently located at Jupiter Inlet Light Station which could be renovated for temporary use in the event monetary restrictions preclude construction of a barracks and messing building at the loran site during the first year of occupancy. It is estimated

that renovation costs would approximate $25,000 to provide suitable temporary accommodations. For the effectiveness of operation and equipment maintenance, a barracks-messing facility should be included in the initial construction phase at the loran site. Further, there are several detrimental aspects to the location of barracks and family housing proximate to each other.

g. Enclosure (1) to this endorsement is a recommended schedule for the construction, procurement, equipment installation, and personnel manning phases based upon on-air operation of 1 January 1962. Failure to meet any of the important underscored dates will necessarily delay the prospective on-air date. In respect to the personnel manning the following schedule is recommended:

RELE to report by	7-1-61
Electronic Installation Crew	9-20-61
Full Crew	1-1-62

G. A. Knudsen

G. A. KNUDSEN

Encl: (1) Proposed Schedule

WCC
6-13

From: Senior Member, Jupiter Loran A/C Site Survey Team
To: Commandant (CCS)

Subj: Jupiter Loran A/C Site Survey Report

ENCLOSURE (3) to C7CGD(o-3) ltr GO 8/2-1, dtd 14 March 1961, Serial: 3559

Reproducible Drugs. turned over to Art Section.

Joni

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	ITEM	COGNIZANT DIV - BRANCH		TARGET DATE
1.	Allotment of Administrative Funds	f		3/5/61
2.	Right of entry for survey	e & l		3/5/61
3.	Site Survey	o & e		
	a. Commence	e & o		2/20/61
	b. Complete - forward to HQ	e & o		3/13/61
	c. Approved by HQ	DCS		3/20/61
4.	Right of entry for construction	e		3/6/61
5.	Site Acquisition	e & l		3/6/61
6.	Complete station design (Electronics and Civil Const. Dwgs & Specs)	HQ(E)		4/20/61
7.	Advertise for bids	ecv - fs		4/26/61
8.	Open bids	fs		6/6/61
9.	Award contract (after review by HQ)	fs - ecv		6/21/61
10.	Construction	eee - ecv		
	a. Signal building & transmitter building	ecv - eee	complete	10/1/61
	b. Antennas and ground systems	ecv - eee	complete	11/1/61
	c. Electronics Equipment installation	eee	commence	10/1/61
			complete	11/20/61
	d. Barracks Building	ecv	complete	1/1/62
	e. Family quarters	ecv	complete	1/1/62
	f. Complete station	e		1/1/62

ITEM	COGNIZANT DIV - BRANCH		TARGET DATE
11. Procurement & Staging GFE - at site	ecv - eee - o		
a. Electronics equip. & associated installation material	eee		9/20/61
b. Civil Engineering Equipment	ecv		
(1) Signal & transmitter building	ecv		9/1/61
(2) Barracks building	ecv		12/1/61
(3) Family quarters	ecv		12/1/61
(4) Transmitting antenna towers	ecv		8/15/61
c. Vehicles	o		9/20/61
12. Personnel at site	p, e		
a. Inspection personnel	ecv - eee		
(1) Construction	ecv		7/1/61
(2) Electronics	eee		7/1/61
b. Electronics installation team	eee - p		9/20/61
c. Nucleus crew (PCO, ET's, EN's)	eee-ecv-p		11/15/61
d. Full crew	p		1/1/62
13. Electronic equipment stabilization	eee	commence complete	11/20/61 11/30/61
14. Systems checks (Loran A/C)	eee	commence complete	12/1/61 12/31/61
14. Station Operational	e - o		1/1/62
16. Commissioning	o		1/1/62

UNITED STATES COAST GUARD

ADDRESS REPLY TO:
COMMANDER
7TH COAST GUARD DISTRICT
150 S.E. THIRD AVE.
MIAMI 32, FLA.

o-3
GO 8/2-1
Serial: 3559
14 March 1961

From: Senior Member, Jupiter Loran A/C Site Survey Team
To: Commandant (CCS)
Via: Commander, Seventh Coast Guard District

Subj: Jupiter Loran A/C Site Survey Report; submission of

Ref: (a) COMDT(OAN) ltr GO8/2-1, dtd 10 February 1961

1. The site survey for the collocation of the Jupiter LORAN-C and Hobe Sound LORAN-A stations has been completed as directed by reference (a). The survey was conducted during the period 7 February to 8 March 1961.

2. Only one site was considered by the Board, that being the northerly 165 acres, more or less, of the Jonathan Dickinson State Park as described in the site survey report. Lease negotiations for the site have been completed favorably and are pending approval and acceptance by the Commandant.

3. Logistic and administrative support requirements were not covered in detail inasmuch as the selected site is non-isolated and will be supported in accordance with the general policies for the support of district units. No problems are envisaged in regard to staging or transportation of equipment, nor construction at the site.

4. It will be noted that the personnel allowance proposed in paragraph K of the General Operations Report provides for six (6) enlisted personnel and one (1) officer additional to the allowances presently authorized for the Jupiter LORAN-C Station, Hobe Sound LORAN-A Station, and Jupiter Inlet Light Station. The additional ratings, 1 - DCC, 1 - CS1, 1 - YN2, 1 - FN and 2 - SN, are considered necessary to support full messing and berthing facilities, additional administrative detail, station maintenance and repair, and security watches. The technical ratings proposed are considered necessary to meet watchstanding requirements, equipment maintenance and repair with due regard for normal ineffective time for leave, hospitalization, etc. It is considered that normal watch procedures will require 1 - Loran-C watchstander, 1 - watch supervisor, and 1 - technician in standby status at the station with each 6-hour watch section. The recommended allowance includes four (4) billets for the loran monitoring unit and four (4) for watchstanding and maintenance of Jupiter Inlet Light Station, which is proposed to be a sub-unit of the A/C Station.

5. In view of the prospects that the monitor unit may not be required more than six (6) months after the station is declared operational, the four (4) billets would be released. Discounting the four (4) billets earmarked "Light Station", the recommended allowance will conform closely to that proposed in enclosure (6) to reference (a).

6. Radarmen and Sonarmen qualified for loran watch standing are recommended in lieu of Radiomen as there will be no CW communications watch standing requirements. The critical aspects of the RM rating is an important consideration.

7. The site survey report consists of the following:

I General Operations Section
II Civil Engineering Section
III Electronics Engineering Section
IV Enclosures

Twelve copies of the report were prepared - eight (8) to Headquarters and four (4) retained in the District.

C. D. BUDD
LCDR, USCG
Chief, Site Survey Team

Encl: (1) Site Survey Report (original)
(2) Site Survey Report (7 copies) - separate enclosure
(3) Six (6) reproducible drawings - separate enclosure

JUPITER LORAN A/C STATION

SITE SURVEY REPORT

PART I - GENERAL OPERATIONS REPORT

A. LOCAL NAME FOR SITE

1. Local Name:

The local area in which the site is located is Jonathan Dickinson State Park, Martin County, Florida. However, as a matter of common usage and colloquial reference, it is recommended that the site be officially recognized as JUPITER LORAN A/C STATION.

2. Site Description:

The land for the proposed site is located in the northerly limits of Jonathan Dickinson State Park and is seven (7) miles north of Jupiter, Florida. The legal description is as follows: "All that land in Section 35 of Township 39 South, Range 42 East, lying east of the Florida East Coast Railway right-of-way, west of U.S. Highway 1 (as delineated on the State of Florida, State Road Department map entitled R/W Map Project 640-B, Road No. (4)5 Palm Beach and Martin County dated 1-20-59), south of the north border of Jonathan Dickinson State Park, and north of a line commencing at the FEC right-of-way and the south boundary of Section 35, running east 800 ft, then north 400 ft, then east about 1,450 ft, to U.S. 1, the tract containing 165 acres more or less."

B. LAND FOR SITE

1. Ownership and Control:

The land is owned by the State of Florida and controlled by the Florida Board of Parks and Historic Memorials, Tallahassee, Florida (Mr. Walter Coldwell, Director). Further information concerning the land area is incorporated in the Civil Engineering Section of this report and details are shown on enclosed CCGD7(ecv) Drawing 3135.

2. Jurisdiction and Availability:

a. Non-private.

(1) Names, titles and addresses of cognizant officials of government.

Mr. Walter Coldwell
Director, Florida Park Service
Tallahassee, Florida

Mr. Paul Walker
Superintendent, Jonathan Dickinson State Park
Jupiter, Florida

Board of Directors
Florida Board of Parks and Historic Memorials
Tallahassee, Florida

(2) Availability of site.

By lease from the Florida Board of Parks and Historic Memorials. Lease draft approved by the Board on 8 March 1960, to be forwarded to Coast Guard Headquarters for review and acceptance. In brief, the terms of the lease provide for the use of the 165-acre tract by the Government for the installation of equipment, buildings, and structures necessary to the operation of electronic aids to navigation. At the option of the Government, the proposed lease may be renewed from year to year at a rental of $1.00 per annum, provided that no renewal shall extend the period of occupancy beyond 30 June 1981. If the site is required beyond the 20 year period specified, the lease may be renegotiated for continued use at a nominal cost. The proposed lease may be terminated by the Government upon 120 days written notice to the Lessor.

b. Privately owned.

Not applicable.

3. Description of Site:

a. Geographic limits (general location).

The site lies approximately within the following coordinates:

NORTH 27°-02'-34"N
SOUTH 27°-01'-41"N
WEST 80°-07'-06"W (Most westerly limit)
EAST 80°-06'-41"W (Most easterly limit)

The actual eastern boundary is the right-of-way for U.S. Highway No. 1 and the western boundary is the Florida East Coast Railway right-of-way.

The Loran C antenna coordinates are:

27°-01'-57.9"N
80°-06'-54.8"W

b. Accessibility.

The site is accessible by U.S. Highway 1 from Jupiter, 8 miles to the south, and Jonathan Dickinson State Park roads. The nearest airport is Palm Beach International located 28 miles to the south and accessible via State Highway 98 and U.S. 1. The Florida East Coast RR provides regular service to Jupiter.

c. Other details of interest concerning description.

The site consists of rolling sand dunes with elevations varying from 10 to 30 feet above mean sea level. Approximately 80% of the site is covered with scrub oak, brush, scrub pine and pine saplings.

Year around construction is feasible with due regard for tropical storm possibilities during the "hurricane season" from 20 June to 10 November. The season of heavy rainfall is the period June to October when an average of 8 inches per month may be expected.

d. Describe developments existing or planned nearby. Will they affect Loran Station operation?

There are no existing or planned developments in the immediate area which in the opinion of the board, will interfere with the proposed loran installation. Further information on interference considerations are included in the Electronics Engineering Section of this report and the tabulation of radio broadcasts stations and 40-mile radius plot included in Section IV (Enclosures).

It will be noted on the enclosed CCGD7(ecv) Dwg 3125 "Plot Plan" that the AT and T Co. telephone cable, buried to 30" transverses the proposed site. Loran station construction and antenna layouts plans are located so as to clear the cable right-of-way. However, the proposed access road from U.S. 1 will cross the cable run. The AT and T Lease granted by the State of Florida stipulates that the grantor specifically reserves the right to cross the right-of-way at any time with roads, canals, drainage ditches, and other easements, and the grantee agrees to relocate, if necessary, at its own expense, to conform with such crossings.

The lease for the loran site recently executed by the State of Florida and forwarded for acceptance by Headquarters provides that the Lessor assign to the Government for the duration of the lease such right, title and interest as it retained under any easements or rights-of-way previously granted by the State of Florida or Agency thereof, particularly the right-of-way granted AT&T Co. on 8 July 1947 for the purposes of constructing telephone lines.

C. LOCAL OFFICIALS

1. Involved with Construction:

Mr. Paul Walker
Superintendent, Jonathan Dickinson State Park
Jupiter, Florida

2. Persons that should be contacted in the area:

Other than the individual named in C. 1 above, it is felt that in the interests of community relations courtesy contact should be made with the following:

Chairman, Board of County Commissioners,
Martin County,
Stuart, Florida

Chairman, Board of County Commissioners,
Palm Beach County,
West Palm Beach, Florida

Mr. Dan Barden
President, Jupiter Chamber of Commerce,
Jupiter, Florida

3. Local population:

a. General discussion of local inhabitants.

The general area between West Palm Beach and Stuart, including the Hobe Sound Area, is dedicated to the tourist trade and yachting facilities. It is estimated that there are 5000 to 6000 permanent residents in this suburban area. The temporary residents and tourists will triple the population during the winter season.

Although the principal industrial installations are located in West Palm Beach and Stuart, three major industrial plants are being located in the area (1) Pratt-Whitney, 20 miles west of the site, (2) RCA, 6 miles west, (3) Minneapolis-Honeywell, 14 miles south. It is expected that these three plants will employ from 4000 - 5000 people. In anticipation, there has been much activity in the way of development-type housing with supporting shopping areas.

b. Possible conflicts, ameliorating conditions, local officials to contact.

No conflicts anticipated. Coast Guard and public relations in the area are of a high order. Local officials to contact are indicated in C. 2 hereof.

c. Special restrictions set up by local government.

None.

D. SECURITY

1. Protection:

Small arms allowance recommended in D. 4 hereof.

Installed fire main system with fire pump operated from either commercial or standby power systems.

2. Fencing:

Wooden fencing around the bases of antennas will be required for the protection of personnel and visitors. Fencing for security purposes is not considered necessary.

3. If normal station complement is considered inadequate to handle security indicate additional measures required.

Normal complement will be adequate for security purposes.

4. Small arms allowance required and/or recommended:

An allowance of 1 - 12 ga. shotgun; 1 - M-1 rifle; 2 - .45 cal. pistols is recommended.

E. PERSONNEL

1. Transportation:

a. United States to general locality.

Regularly scheduled transportation service by air, rail and bus.

The below-listed air lines provide scheduled passenger service to Palm Beach International Airport located 28 miles south of the site.

Eastern Airlines	National Airlines
Delta Airlines	Northeast Airlines
Capital Airlines	Mackey Airlines

The Florida East Coast RR provides scheduled passenger service to Jupiter, 8 miles south, and West Palm Beach, 20 miles south. There is 1 northbound and 1 southbound passenger stop at Jupiter daily. Five (5) daily northbound and southbound passenger stops are made at West Palm Beach.

Greyhound Bus Service is available to Jupiter and will make unscheduled stops on Highway U.S. 1, immediately adjacent to the site, on request. This is a major bus route with either direct or inter-connecting schedules from all points in the Midwest and East Coast.

b. General locality to site.

Transportation from Palm Beach International Airport to West Palm Beach is available by airport limousine, taxi and bus. There are 15 scheduled Greyhound Bus trips daily which can provide passenger service from West Palm Beach to the site. Taxi service from Jupiter to the site is available at an average rate of $1.50.

c. Personal vehicles, licenses.

No special requirements. Provisions are the same as for any other stateside station.

d. Other considerations.

None.

2. Medical:

a. Hospital.

Good Samaritan and St. Marys' Hospitals located in West Palm Beach are the major hospitals in the area and are utilized for emergency hospitalization of military personnel upon referral by the USPHS Contract Physician. Otherwise, personnel are referred to the USPHS Hospital, Savannah, Georgia, or the USAF Hospital, Homestead AFB, Florida.

b. Medical.

Dr. Bechtold, USPHS Contract Physician, West Palm Beach, provides outpatient treatment and emergency hospitalization for military personnel presently assigned to the Loran C Station, Hobe Sound Loran A Station, Jupiter Inlet Light Station and Lake Worth Inlet Lifeboat Station. Dr. Bechtold is a member of a nine-doctor clinic and any of the member-doctors provide medical services in the absence of the Contract Physician.

c. Clothing.

Local shopping developments will satisfy the needs at reasonable retail prices. However, it is expected that dependents would take advantage of the preferred shopping facilities in the metropolitan West Palm Beach area.

d. Schooling.

Jupiter Inlet Lt. Sta., recommended site for proposed family housing, is located in Palm Beach County. There are excellent elementary and junior high schools within 1 1/2 miles and the school bus route is U.S. 1 immediately adjacent to the proposed housing site.

The proposed Loran A/C Station is located in Martin County. Elementary schools for grades 1 through 6 are located in Hobe Sound, 1 1/2 miles to the north. However, the junior high schools are located in Stuart which is approximately 20 miles distant.

e. Miscellaneous.

None

5. Mail:

a. Service.

There are two mail deliveries daily to the Jupiter Post Office. It is recommended that mail be picked up from a post office box at the Jupiter Post Office as is the procedure at the present Loran C Station.

b. Official Address.

U.S. Coast Guard Loran A/C Station
P. O. Box 636
Jupiter, Florida

6. Vehicular or water transportation required.

a. General.

There is no requirement for water transportation at this site.

The present vehicle allowance for Hobe Sound Loran Station is 1 - 1/2 ton pick-up truck and for Jupiter Loran C Station 1 - 1/4 ton jeep truck.

c. Clothing.

Local shopping developments will satisfy the needs at reasonable retail prices. However, it is expected that dependents would take advantage of the preferred shopping facilities in the metropolitan West Palm Beach area.

d. Schooling.

Jupiter Inlet Lt. Sta., recommended site for proposed family housing, is located in Palm Beach County. There are excellent elementary and junior high schools within 1 1/2 miles and the school bus route is U.S. 1 immediately adjacent to the proposed housing site.

The proposed Loran A/C Station is located in Martin County. Elementary schools for grades 1 through 6 are located in Hobe Sound, 1 1/2 miles to the north. However, the junior high schools are located in Stuart which is approximately 20 miles distant.

e. Miscellaneous.

None

5. Mail:

a. Service.

There are two mail deliveries daily to the Jupiter Post Office. It is recommended that mail be picked up from a post office box at the Jupiter Post Office as is the procedure at the present Loran C Station.

b. Official Address.

U.S. Coast Guard Loran A/C Station
P. O. Box 636
Jupiter, Florida

6. Vehicular or water transportation required.

a. General.

There is no requirement for water transportation at this site.

The present vehicle allowance for Hobe Sound Loran Station is 1 - 1/2 ton pick-up truck and for Jupiter Loran C Station 1 - 1/4 ton jeep truck.

(1) Type and number.

It is recommended that the vehicle allowance for the A/C Station be as follows:

1 - Jeep with power winch for general utility.
1 - Station Wagon for personnel transportation and light load supply deliveries.

Jupiter Inlet Lt. Sta. has an allowance for a 3/4 ton truck which can be made available for delivery of supplies and equipment to the A/C Station.

(2) Spares required.

Same as for other district units.

7. Environment:

a. Settlements nearby.

Jupiter, Florida, is located 8 miles to the south and has a permanent resident population of 500 in the corporate area. West Palm Beach, the nearest large city, has a population of about 60,000. Stuart, 20 miles to the north, has a population of 3,000. However, the area between West Palm Beach and Stuart is a well developed residential and resort section with a population of 5000 - 6000, which is about tripled during the winter months.

b. Population types.

Average American people.

c. Language.

Not applicable.

8. Local Restrictions.

Those established by State and County laws and ordinances.

a. Contacts with local population.

Relations with the public in the area are of a high order.

b. Customs.

Not applicable.

c. Commercial practices.

Same as any average suburban area in CONUS.

d. Taxes.

State of Florida has a three percent sales tax.

9. Recreation:

a. On station.

The Recreation room for the proposed barracks building should be provided with radio, television, pool table, table tennis, and outdoor basketball. 16 mm motion picture projection equipment is recommended for training purposes.

b. Off station.

This area has excellent recreational facilities such as fishing, boating, swimming, water skiing, bowling and spectator sports.

c. Limitations.

None.

d. Uniforms.

Standard uniform requirements.

10. Health Conditions.

a. Endemic diseases.

No problem in this area.

b. Precautions.

Insects are prolific in this semi-tropical climate, mosquitoes, house flies, sand flies, ticks and roaches being the most prevalent for control purposes. Fine mesh screening should be provided for all buildings and heavy duty power spraying equipment is necessary. Spraying equipment should be suitable for mounting on a vehicle for spraying station grounds during the summer months.

11. Local fauna and flora.

a. General.

The site is generally rolling sand dunes with an elevation of from 10 - 30 feet above sea level. The site has about an 80% coverage of scrub oak, brush and pine. Mosquitoes and flies are a problem during the months of April to November. Rattlesnakes and rats exist in the park area. Water moccasins are in considerable number in the low marshy western section of the park but are rarely seen at the proposed loran site.

b. Special problems for station personnel.

None except as indicated in 10. b. hereof.

12. Morale.

Climate and local conditions are conducive to a high state of morale.

13. Berthing and Messing.

Berthing and messing to be provided on the station and in the proposed family housing.

An 18-man barracks building consisting of a messroom, recreation room, office space, sick bay, and sleeping quarters similar to the construction provided for UPOLU POINT, Hawaii, as shown on CG Dwg. No. 108429, sheet 29 of 52. Air conditioning is important to this area for morale and personnel efficiency. The Board of Parks and Historic Memorials have requested that Coast Guard construction be accomplished so as to preserve trees, vegetation, and sand dunes as much as possible. This will obstruct prevailing breezes significantly and adds to the importance of air conditioning. In this connection a reverse-cycle system is recommended for both cooling and heating.

F. LOGISTICS

1. Transportation (supplies).

a. United States to general locality, air and surface.

Same as shown for transportation of personnel. Rail freight via Florida East Coast RR to sidings located 4 1/2 miles south of the site. Air freight to Palm Beach International Airport via carriers listed previously in this report. Water shipments may be made to deep draft terminals at West Palm Beach, 20 miles south.

Truck freight shipments, via carriers listed in the Civil Engineering Section may be made direct to the site or to freight terminals in West Palm Beach, thence to the site by local carriers or CG truck.

GSK supplies to be delivered by the CG Supply Depot, Miami Beach, and Naval Supply Depot, Jacksonville NAS, Florida.

Commissary supplies to be procured locally and delivered to the station weekly or as required.

b. General locality to the site.

Local trucking service or Coast Guard truck.

c. Emergency.

CG aircraft and CG truck.

2. Air Support.

a. Existing airfields on or near site.

(1) Name of field-owners and operators of field.

Palm Beach International Airport, a civil airdrome for which permit covers use by transient military aircraft.

(2) Runways - number, length, surface, weight restrictions, special hazards to loading and takeoffs, elevation.

There are two runways:

1 - 090° - 270°, 8000 feet long.
1 - 130° - 310°, 6503 feet long.

Both runs are asphalt surfaced.

The wheel-load restrictions are as follows:

Single - wheel type landing gear	- 95,000 lbs.
Twin - wheel type	- 200,000 lbs.
Twin - tandem type	- 350,000 lbs.

The airfield is 19 feet above sea level.

(3) Hangars and repair facilities.

Available.

(4) Fuel facilities and method of handling.

All aircraft fuels available. The handling procedures conform to those required for major airport operations.

(5) Crash and fire fighting facilities.

Available.

(6) Night operation - lights.

Airfield is equipped for night operations and conforms to FAA requirements for scheduled commercial aircraft operations. High intensity runway lights installed.

(7) Navigational aids.

(a) Approach and landing.

1. Non directional beacon.

2. VORTAC - identification PBI. VOR-115.5 mcs - Channel 102. Bearing and distance VORTAC Station to field, 094°, 2.8 miles.

3. Low frequency radio range (356 kcs), identification PI.

4. Ground control approach.

(b) Field communications.

1. Approach control.
318.2 mcs
257.8 mcs
126.2 mcs
118.0 mcs
115.5 mcs (transmit only)
119.1 mcs
356 kcs (transmit only)
243 mcs)
121.5 mcs) --emergency channels.

2. Tower frequencies.
257.8 mcs
126.2 mcs
122.7 mcs (receive only)
3023.5 kcs (receive only)
278 kcs (transmit only)
243 mcs)
121.5 mcs) --emergency channels.

3. Ground Control.
348.6 mcs
121.9 mcs

(8) Present operations at field.

(a) Type of operations.

Scheduled commercial passenger and cargo, transient military, local non-scheduled.

(b) Type of aircraft using field.

Various types of commercial, military, and private.

(9) Weather forecasting facilities.

U.S. Weather Bureau Regional Office located at terminal.

(10) Control tower.

Yes.

(11) Access to field.

(a) Roads.

State Highway 98 primary access.

(b) Buses.

Local to West Palm Beach.

(c) FEC RR terminal located at West Palm Beach.

(12) Suitability of field for UF operations.

Suitable for UF, C123 and C130 type aircraft.

b. Is an airstrip needed for support?

(1) Explain.

No. Use of present commercial facilities recommended.

(2) If required, describe area available.

(a) Not applicable.

(b) Not applicable.

(c) Not applicable.

(d) Not applicable.

(e) Prevailing winds.

ESE

(f) Not applicable.

(g) Not applicable.

(h) Weather conditions.

See Section G of this report.

(i) Not applicable.

3. Communications Facilities and Needs:

a. Radio.

(1) Present equipment located at the Loran C Station:

One (1) Collins 32RS-1 single sideband transceiver.
One (1) Army Model BC-610-1 AM Transmitter.
Two (2) AM receivers, Army type R-274D/URR.

(2) Additional equipment required:

Two (2) AN/URT-17 transmitters.
Two (2) Model R-840/URR receivers.
Two (2) TT48A/UG teletypes
Mode of operation should be compatible with the communication capabilities of the other East Coast Loran chain.

(3) An inter-communication system should be provided between the signal building, transmitter building, and barracks.

b. Telegraph, teletype, or cable.

Retain existing TWX.

c. Telephone.

Retain existing drops on West Palm Beach and Jupiter exchanges. West Palm Beach exchange is considered essential for economy reasons. Prior to obtaining drop on West Palm Beach exchange the average monthly toll charges for communications with monitor station averaged over $100.00 per month.

d. Messenger.

None required.

e. Crypto.

Standard strip cipher allowance is recommended.

f. Emergency.

West Palm Beach telephone exchange with Lake Worth Inlet Lifeboat Station and TWX with District Office provide adequate emergency communications.

g. Point-to-point circuit.

(1) Are 24-hour communications required with other Loran stations?

Yes, 24-hour communications are required.

(2) What is the distance to adjacent Loran stations?

Bearing 025° True, 550 Nautical miles to Cape Hatteras and bearing 029° True, 1007 Nautical miles to Nantucket.

(3) Is there a requirement for direct communications between the operational commander and each Loran station, or may a relay system be used?

Direct communications are required.

(4) Are there interference and noise level problems in the area of the station?

None contemplated. See listing of broadcasting stations and 40 mile location indicator chart included in Section IV (Enclosures).

(5) If so, how much time and what is the communication distance at which an arrival notice message would be confirmed by the aircraft concerned?

None required.

h. Ship/shore circuit.

(1) Is there a requirement for communications with Coast Guard ships?

No.

(2) Is there a requirement for communication with Navy, MSTS, or commercial shipping?

No.

i. Air/ground circuit.

Transmitting and receiving equipment should be calibrated on air/ground frequencies to facilitate communications with aircraft during the system accuracy check and flight check required twice annually.

No other air/ground communications required.

j. SAR circuit.

(1) Is there a secondary requirement for SAR circuits?

No.

(2) Will the above circuits provide these capabilities or are additional circuits required.

None required.

k. Radiomen.

(1) Are radiomen required for the above communications circuit? If so, how many and what rates?

None required, unless a responsibility for CW traffic arises in the future.

l. Telephone.

(1) Is there a requirement for connection to any local telephone circuits? If so, what are the monthly rental and non-recurring charges?

Retain connection on West Palm Beach and Jupiter exchanges. Non-recurring charges $32.00 and recurring charges of approximately $85.00 per month.

(2) To whom will they be able to talk?

To all subscribers on West Palm Beach and Jupiter exchanges. This will include Lake Worth Inlet Lifeboat Station, Jupiter Light Station and Jupiter Loran C Monitor Station.

m. Teletype.

(1) Is there a requirement for connection to any local teletype circuit? If so, what is the monthly rental charge and the non-recurring charges?

Yes, TWX.

Monthly rental charge is $14.20.

There is no non-recurring charge.

(2) With whom does teletype circuit terminate.

Connects with everyone served by TWX.

Primary means of communication with Commander, 7th CG District.

n. Amateur radio.

(1) Should the installation of an amateur radio station be authorized?

No. Due to non-isolated location and adequate recreational facilities in area, not considered necessary for morale purposes.

(2) What special amateur licensing is required for U.S. nationals to operate an amateur station.

Usual FCC requirements.

(3) What type and amount of radio equipment is recommended for the amateur station?

None required.

c. General.

(1) Are there available military or non-military facilities which can fulfill any of the above requirements?

No.

(2) If so, what are they and under what conditions may the Coast Guard use them?

Not applicable.

(3) Will there be any financial charges for use of these facilities?

Not applicable.

4. Food.

a. Locally available.

Fresh provisions and dry stores are available locally.

b. Special restrictions.

None.

G. METEOROLOGICAL

1. Climate.

This information is provided in the U.S. Weather Bureau summary of Climatological Data for the area, a 73-year summary of hurricane occurrence East and Gulf Coasts, and tropical storm frequency chart which are included in Section IV - ENCLOSURES.

2. Availability of weather forecasts and warning service.

Weather forecasts and emergency warnings issued by U.S. Weather Bureau Regional Office, West Palm Beach. This information is also distributed to district units by the District RCC.

3. Special considerations.

a. Local land conditions.

Nothing significant.

b. Harbor facilities affected by weather.

The nearest port facility is Palm Beach Harbor located 20 miles south. This channel is marked for day and night navigation with a project depth of 25 feet. The project width of the entrance channel is 300 feet and the inner channel is 200 feet, terminating in a turning basin. The mean tidal range is 2.8 feet at the inlet and 1.8 feet at the dock terminals. Pilotage is available at all times. Piers and wharfs are available for handling ocean-going vessels as well as stevedoring services and railroad sidings.

c. Severe conditions.

See hurricane summary data included in Section IV - ENCLOSURES.

d. Unusual conditions prevailing.

None.

H. OCEANOGRAPHY

Oceanography data is not applicable to this site.

I. HYDROGRAPHY

Not applicable.

J. GENERAL COMMENTS AND RECOMMENDATIONS

1. Conclusions and Construction Requirements Recommended by the Site Survey Board:

a. The below-listed new construction at the proposed site is recommended.

(1) Loran A/C signal building, transmitter building, barracks and messing building.

(2) The signal and transmitter building should be constructed of concrete block walls with concrete floor and lightweight concrete or open web steel joist roof designed to resist hurricane force winds.

(3) Generators for standby power and transformer vault should be located either in or immediately adjacent to the signal building.

(4) An 18-man barracks building, consisting of mess room, recreation room, office space, enlisted berthing area, CPO berthing area, and sick bay. Construction to be the same or similar to the layout shown on CG Dwg. No. 108429, Sheet 29 of 52, authorized for Upolu Point, Hawaii.

(5) Access roads and parking areas as shown on enclosed CCGD7(ecv) Dwg. 3135, Sheet 3 of 4, and as described in B. 7. of the Civil Engineering Section of the report.

(6) Loran A and Loran C transmitting and receiving antennas and communications antennas as shown on CCGD7(eee) Dwg. 3121, Sheet 2 of 2.

b. The below-listed new construction and modification of existing structure is recommended for family housing units to be located at Jupiter Inlet Light Station.

(1) Construct five (5) housing units, four (4) three-bedroom, 2-bath units, and one (1) four-bedroom, 2-bath unit using standard drawings developed by the 7th CG District.

(2) Modify and renovate an existing family quarters unit at the Light Station which presently consists of six (6) two-bedroom, 1-bath units. This building is structurally sound, conducive to renovation, and ideally located for family living. It is proposed that the building be modified to provide two (2) four-bedroom, 2 bath units on the ground level and renovate the two, 2-bedroom units on the second level. It is estimated that this proposal can be accomplished for approximately $50,000.00, considerably less then the cost of four separate units. Preliminary plans for such modification are being developed in the district and will be formalized for submission if the recommendation is approved. The general layout for family housing units is shown on the enclosed CCGD7(ecv) Drawing 3135, Sheet 4 of 4.

c. It is strongly recommended that the barracks building and signal building be air-conditioned for the reasons given in E. 13. of this section of the report.

d. Permanent type masonry construction is recommended. Awning type windows are the most desirable with a minimum of corrosive metal exposure to reduce maintenance. Screens and hurricane shutters should be provided for all windows. The buildings should be designed against hurricane winds, mold and dampness, and termite-shielded. Roof finish to be white to reflect heat.

e. Two (2) old and inadequate dwellings, one (1) vehicle maintenance and auxiliary power building, one (1) storage building, and six (6) minor buildings now existing at the Light Station to be removed in the way of proposed family quarters compound.

f. Existing roads to be resurfaced and parking areas provided as shown on enclosed Dwg. 3135, Sheet 4 of 4.

K. PERSONNEL ALLOWANCE SHEET

Present Jupiter Loran "C"	Present Hobe Sound Loran "A"	Present Jupiter LTSTA	Recommended Jupiter Loran "A/C"
LTJG - 1	ETC - 1	BM1 - 1	LT or LTJG - 1
SN - 3*	ET1 - 1	SN - 2	RELE - 1
ETC - 1	ET2 - 2	EN2 - 1	BM1 - 1#
ET1 - 3*			SN - 7#&
ET2 - 4*			CS1 - 1
ET3 - 5*			ETC - 1
EN1 - 1			ET1 - 4 &
			ET2 - 4 &
			ET3 - 4 &
			RD1 - 1 §
			RD3 - 1 §
			SO2 - 1 §
			SO3 - 1 §
			EN1 - 1
			EN2 - 1#
			FN - 1
			DCC - 1
			YN2 - 1
Total 1 OFF 17 ENL	4 ENL	4 ENL	Total 2 OFF 31 ENL

* Includes following for Loran Monitor unit:
1 - SN
1 - ET1
1 - ET2
1 - ET3

Includes:

1 - BM1)
1 - EN2) Jupiter Inlet LTSTA
2 - SN)

& 1 - SN)
& 1 - ET1) For Loran Monitor Unit
& 1 - ET2)
& 1 - ET3)

§ 1 - RD1)
§ 1 - RD3) to be trained in Loran "A" and/or "C" watchstanding
§ 1 - SO2)
§ 1 - SO3)

SUBMITTED: _____

C. D. BUDD, LCDR, USCG
Senior Member Site Survey Party

JUPITER LORAN A/C STATION

SITE SURVEY REPORT

PART II - CIVIL ENGINEERING REPORT

A. SITE AND ANTENNA LOCATION

1. Local Name for Site:

Jupiter Loran A/C Station.

2. Geographic Position of Loran Antenna:

Loran A 27°-02'-12.1"N
80°-06'-53.0"W

Loran C 27°-01'-57.9"N
80°-06'-54.8"W

Position of the antennas was determined approximately by plotting on C&GS Quadrangle Map T-8413 of Hobe Sound, Fla. Establishment of the monuments and witness points for the location of the antenna downlead will be accomplished when the lease is approved. Approximate plotting error is + or - one (1) second of arc.

3. Antenna Location Monument: None at present.

4. Chart Showing Site Location:

C&GS Chart 1247 - "BETHEL SHOAL TO JUPITER INLET"
C&GS Chart 846 - "WALTON TO DELRAY BEACH"

5. Boundary Description:

All the land for the proposed site is located in Jonathon Dickinson State Park and is under the control of the Board of Parks and Historic Memorials of the State of Florida.

Legal description is as follows: "All that land in Section 35 of Township 39 South, Range 42 East, lying east of the Florida East Coast Railway right-of-way, west of U.S. Highway 1 (as delineated on the State of Florida, State Road Department map entitled R/W Map Project 640-B, Road No. (4)5 Palm Beach and Martin County dated 1-20-59), south of the north border of Jonathon Dickinson State Park, and north of a line commencing at the FEC right-of-way and the south boundary of Section 35, running east 800 ft., then north 400 ft., then east about 1,450 ft. to U.S. 1, the tract containing 165 acres more or less."

6. Photographs:

Five (5) ground level photos are included in Section IV.
Seven (7) aerial photos of the site taken by Coast Guard helicopter are included in Section IV.

B. CONDITIONS AFFECTING MOVEMENT OF GEAR TO ACTUAL SITE:

1. Nearest Harbor or Anchorage:

See Part I for details. West Palm Beach is the nearest major port for handling cargo and is approximately 20 miles from the site.

2. Beaches for Landing:

No beach landings required at this site.

3. Mobile Equipment Required:

Trucks will be required to haul all construction materials and equipment to the site whether delivery is made by ship, railway or motor freight. Construction equipment should include earth moving machines, grader, ready-mix concrete trucks, tower erection hoist, smooth rollers, truck loading equipment, dump trucks, and possibly a crane for lifting heavy equipment.

4. Existing Transportation Facilities:

U.S. Highway 1 runs along the east side of the site. A railroad siding and loading facilities are available in the town of Jupiter, Fla., which is approximately 8 miles from the site. Jupiter is on the main line of the Florida East Coast Railway.

Local Motor Freight Lines

Central Truck Lines Inc. - 955 28th St., West Palm Beach
Mercury Motor Express Inc. - 621 1st St., West Palm Beach
Ryder Truck Lines - 1100 Ortega Rd., West Palm Beach
Tamiami Freightways - 621 1st St., West Palm Beach
Terminal Transport Co. Inc. - 1555 W. Atlantic Ave., Delray Beach

See Part 1 for additional details.

5. Landing craft required:

Not required.

6. Availability of Stevedoring, Drayage and Local Labor:

See Section B.4 hereof for the names of local trucking companies. Labor supply is good for all trades, wage rates are slightly less then the Miami area. For more detailed information see Wage Rage Decision No U-12,961, Date of Decision 1-21-60, Expires 4-21-60.

7. Road Construction Necessary:

About 2660 ft. of access road must be constructed at the Loran site. (See C7CGD(ecv) drawing number 3135, Sheet 3 of 4) The road should be constructed by leveling the sand, a 6" base course of crushed rock (688 cu. yds. of rock) should then be laid. Apply a layer of 1 1/2" asphaltic concrete to 28,000 sq. ft., the remaining area of 8,700 sq. ft. to be unpaved. A culvert must be provided where the road crosses the cable R/W which is located between the signal building and U.S. 1. At the housing site 48,000 sq. ft. of roadway is to be resurfaced with 1 1/2" of asphaltic concrete (see C7CGD(ecv) drawing No. 3135, Sheet 4 of 4).

8. Air Transportation Facilities:

The nearest major airport is Palm Beach International Airport which is approximately 25 miles from the site. See Part I for additional information.

C. ACTUAL SITE CONDITIONS

1. Topography of Site:

The site at the proposed loran station consists of a series of sand dunes with a rolling type configuration. Elevations at the site vary from 10 to 30 ft. above mean sea level. The topography of the site is shown on CG drawings numbered 3135, sheet 2 of 4, and sheet 3 of 4.

2. Vegetation and Tree Cover:

Approximately 80% of the Loran site is covered by a mixture of scrub oak, brush, scrub pines and pine saplings.

Tree Density and Size/Acre

Saplings, 3" trunks and under ------ 11
Trunks, 3" to 6" diameter --------- 22
Trunks, 6" to 12" diameter -------- 44

See aerial and ground photos.

3. Ground Conditions and Geology of the Site:

The entire area at the site is covered with fine sand to a depth of approximately 60 feet. Below the sand is a layer of limestone rock which extends to an indefinite depth. The ground water table is approximately the same as mean sea level throughout this area.

4. Earthwork required:

No additional fill is required. Approximately 2000 cu. yds. of grading will be required.

5. Foundations for Structures, Engines, etc.:

The type of soil at the site is A-3 (Public Roads Administration Classification) with a bearing value of 2 tons/ft^2. This site is located in a semi-tropical climate with no frost problems. Foundations for buildings should be placed 6 to 12 inches below grade.

6. Termite Proofing:

Termite proofing should be provided.

7. Local Sources of Construction Materials:

a. Building Materials:
Lainhart & Potter - West Palm Beach & Jupiter, Fla.
Brittain Lumber Co. - Lake Worth, Fla.
Logan Moore Lumber Co. - West Palm Beach, Fla.
Lindsley Lumber Co. - West Palm Beach, Fla.

b. Concrete Readimix:
Rinker Materials Corp. - Old Dixie Hwy., Jupiter, Fla.

8. Pier or Wharf:

Not required.

D. UTILITY REPORT

1. Potable Water Supply and Sewage Disposal:

Water will be obtained at the Loran site by drilling two (2) wells one to be located at the barracks buildings and the other at the signal building. Two wells at the present Jupiter Loran site have provided a generous supply of uncontaminated water, however the water is somewhat rusty in appearance.

The majority of wells in the area run from 60 to 100 feet in depth. Wells driven to a depth of greater than 100 feet generally encounter salt water. Jupiter Light Station is connected to a commercial water system which is capable of providing service to the proposed new housing area. Sewage disposal at the Loran site and at the housing site will be provided by septic tanks and drain fields.

2. External Electric Power Supply:

The Florida Power & Light Company will provide service to the Loran site and the housing area. Presently, a power line runs along the east side of U.S. 1 adjacent to our site, however, at the present the service is 7.6 KV single phase. (See CG drawing 3135, sheet 2 of 4). Representatives of the power company indicate that 3 phase, 13.2 KV, 4-wire Wye system service will be extended to a point adjacent to the site when required by the Coast Guard at no additional cost. The power company will provide the Coast Guard with primary substation transformers installed in a Coast Guard built vault built to power company specifications which will be furnished on request. The present Jupiter Loran C station receives power from the same system 4 miles south of the proposed site and the service is reliable with good regulation.

The power company advised the survey team to install two (2) metering systems with one for the Loran equipment and one for the barracks load. This way the Loran would come under an industrial rate and the barracks would be placed on a commercial rate. Rate schedules for each are enclosed.

3. Standby Power:

Two standby diesel generators will be required for the Loran A/C operation. They should be located in the new combined Loran A/C signal power building. No additional standby generators will be required for barracks areas or family quarters areas. The combined Loran A/C load with essential lighting, air conditioning, and communication equipment is 190 KVA. Two (2) automatic starting 250 KVA (200 KW), 3 phase, 4 wire, 120/208 volts synchronous generators are required.

4. Garbage Disposal:

A term contract will be arranged for the disposal of garbage.

5. Heating and Air Conditioning Requirements:

The Loran signal building and barracks building should be air conditioned with a reverse cycle heating and cooling system. All electronic storerooms should be dehumidified. The housing units should have oil fired forced draft heating system with adequate distribution ducts.

E. CLIMATOLOGY AND SEA CONDITIONS

1. Precipitation and Temperature:

Annual Rainfall 61 inches.
High Temperature for 1960 94°F.
Low Temperature for 1960 36°F.
Average Daily Max. for 1960 82.3°F.
Average Daily Min. for 1960 66.2°F.

2. Wind, Storms and Earthquakes:

There were 13 major tropical storms in the vicinity of the site between 1901 - 1955. Average hourly wind speed for 1960 was 9.9 mph. Prevailing direction of wind is ESE. Maximum wind velocity for 1960 was 46 mph.

3. Atmospheric, Dust and Humidity Conditions:

The ten year average for relative humidity varies from 61% to 84% over a 24 hour period. Moderate dust conditions from blowing sand should be expected.

4. Sea Conditions Affecting Landings:

Not applicable.

5. Construction Season:

Construction possible all year around.

F. CONDITIONS AFFECTING CONSTRUCTION FORCE

1. Nearest Habitation:

Jupiter, Fla. 7 miles.
West Palm Beach, Fla. 25 miles
Numerous motels are present along U.S. 1 in the vicinity of the site.

2. Endemic Diseases:

Not applicable.

3. Transportation, Communications and Postal Facilities:

The nearest train station is in Jupiter, Florida, (7 miles). Frequent bus service is available along U.S. 1, buses will pick up and discharge passengers upon request. Telegraph and postal facilities are available in Jupiter, Fla.

4. Construction Camp:

Not required. A small structure for the stowage of construction materials should be erected at the site. Equipment to be installed can be stored at Jupiter Light Station until it is needed.

G. MISCELLANEOUS

1. Recommended types of construction:

The Loran equipment buildings and the barracks building should be constructed of concrete block walls with a concrete floor and a lightweight concrete or open web steel joist roof all designed for hurricane force winds. Estimated unit cost $13/sq. ft.

It is recommended that the housing units be built using standard drawings developed by the Seventh Coast Guard District. These units are constructed of concrete block walls with a wooden framed roof. Estimated cost $12/sq. ft.

2. Recommended Storage Requirements:

3 months GSK stores
1 month dry stores
2 weeks perishables
Electronic Spares - Standard ERPAL System

3. Fuel Delivery and Storage:

60 days storage based upon normal operating conditions. Fuel is available in Jupiter, Fla. Fuel will be delivered by tank truck. A fuel tank of sufficient capacity to operate the emergency generators at full power for five (5) days should be located adjacent to the emergency power installation. Fuel tanks for heating should be located adjacent to the barracks and housing units.

4. Prospective Contractors:

Birdsall Construction Co.,	230 Royal Palm Way, Palm Beach, Fla.
Murphy Construction Co.,	Clare Ave., West Palm Beach, Fla.
Sands Construction Co., Inc.,	Indian River Drive, Hobe Sound, Fla.
Cleary Bros. Construction Co.,	P. O. Box 1228, West Palm Beach, Fla.
W. G. Lassiter Co., Inc.,	4801 Georgia Ave., West Palm Beach, Fla.
Peet Construction Co., Inc.,	249 Peruvian Ave., Palm Beach, Fla.
Mc Laren Construction Co., Inc.	Comeau Bldg., West Palm Beach, Fla.
Wood & Powell, Contractors,	Plaza Bldg., Palm Beach, Fla.
Stephens Construction Co., Inc.,	501 Monceaux Rd., West Palm Beach, Fla.
James H. Martin, Contractor,	Room#203 Datura Bldg., 205 Datura St., West Palm Beach, Fla.

M. R. Harrisson Corp.,	1061 N. W. 54th St., Miami, Fla.
W. W. Arnold Construction Co., Inc.,	Ralls Road off Edwards Road, Fort Pierce, Fla.
Misik & Lester Construction Co.,	2007 Okeechobee Road, Fort Pierce, Fla.
Atlantic Construction & Engineering, Inc.,	710 North Federal Highway Fort Lauderdale, Fla.
Byrd-Campbell Construction Co.,	220 South Federal Highway, Pompano Beach, Fla.
J. J. Simpson Construction Co.,	2825 North Ocean Blvd., Fort Lauderdale, Florida
Frank J. Rooney, Inc.,	5880 N. E. 4th Avenue, Miami, Florida
Witters Construction Co.,	1397 S. E. 10th Court, Hialeah, Fla.
John B. Orr, Inc.,	485 N. W. 54th St., Miami, Fla.
Joseph G. Moretti, Inc.,	2401 N. W. 7th St., Miami, Fla.
Fred Howland, Inc.,	1451 N. W. 20th St., Miami, Florida

5. Antenna Obstruction Lighting:

Obstruction lighting will be required on the 625 ft. antenna tower as per specification "A-5" of the CAA "Obstruction Marking Manual."

Specification "A-5." When the particular obstruction is more than 600 feet but not more than 750 feet in over-all height above ground, or water if so situated.

There should be installed at the top of the obstruction a flashing 300 mm electric code beacon equipped with two lamps and aviation red color filters. The two lamps of the beacon should burn simultaneously and each should be at least 500 watts. Where a rod or other construction of not more than 20 feet in height and incapable of supporting this beacon is mounted on top of the obstruction and it is determined that this additional construction does not permit unobstructed visibility of the code beacon from aircraft at any normal angle of approach, there should be installed two such beacons positioned so as to insure unobstructed visibility of at least one of the beacons from aircraft at any normal angle of approach.

At approximately two-fifths of the over-all height of the obstruction, a similar flashing 300 mm electric code beacon should be installed in such a position within the obstruction proper that the structural members will not impair visibility of this beacon from aircraft at any normal angle of approach. In the event this code beacon cannot be installed in a manner to insure unobstructed visibility from aircraft at any normal angle of approach, there should be installed two such beacons at this level. Each beacon should be mounted on the outside of diagonally opposite corners or opposite sides of the obstruction at the prescribed height.

On levels at approximately four-fifths, three-fifths and one-fifth of the over-all height of the obstruction one or more lights, each light consisting a lamp of at least 100 watts, enclosed in aviation red obstruction light globes should be installed on each outside corner of the obstruction at each level.

H. DRAWINGS AND SKETCHES

CG Drawing No. 3125, Sheet 1 of 4 "Vicinity and Area Chart"
CG Drawing No. 3125, Sheet 2 of 4 "Site Plan"
CG Drawing No. 3125, Sheet 3 of 4 "Plot Plan"
CG Drawing No. 3125, Sheet 4 of 4 "Proposed Loran A/C Housing"

SUBMITTED: D T Ramsay
D. T. RAMSAY, LT, USCG
Civil Engineering Officer

APPROVED: C D Budd
C. D. BUDD, LCDR, USCG
Senior Member Site Survey Party

JUPITER LORAN A/C STATION

SITE SURVEY REPORT

PART III - ELECTRONICS ENGINEERING REPORT

A. STATIONS INVOLVED

Positions, directions and distances indicated are approximate pending determination of exact antenna geographic coordinates by USC&GS.

1. Loran A:

   a. Slave: Jupiter, Florida
      Position: 27°02'12.1"N
      80°06'53.0"W

   b. Master: Folly Beach, S.C.
      Position: 32°41'01.97"N
      79°55'15.25"W

   c. Great circle bearing from Slave to Master: 001.97°T

   d. Distance between stations: 337.98 N.M.

2. Loran C:

   a. X Slave: Jupiter, Florida
      Position: 27°01'57.9"N
      80°06'54.8"W

   b. Master: Cape Hatteras, N.C.
      Position: 35°14'37.0"N
      75°31'43.0"W

   c. Great circle bearing from X Slave to Master: 024.66°T.

   d. Distance between stations: 544.69 N.M.

   e. Baseline Extension Monitor, West Palm Beach, Florida
      Bearing 193°T, 22 N.M. from X Slave

B. PREDICTED SIGNAL STRENGTH

1. Loran A:

   a. Calculations are on the basis of 800 KW peak radiated power with an ideal short antenna at Jupiter and 640 KW peak radiated power with an antenna of .625 wavelengths in height at Folly Beach.

AT	FROM	PREDICTED F. I.
JUPITER	FOLLY BEACH	350 uv/m
FOLLY BEACH	JUPITER	370 uv/m

b. Informal information indicates that field intensity measurements were made at the site by Mr. F. B. DUNCAN, CGHQ. These measurements were found to be in close agreement with the predicted field intensity.

2. Loran C:

a. Calculations on the basis of 300 KW peak radiated power at Jupiter and Cape Hatteras indicate a signal strength in the order of 2800 uv/m at both Master and X Slave.

C. PREDICTED NOISE

1. Loran A:

a. Figure one (1) illustrates rms equivalent vertically polarized median noise field intensities in db above 1 uv/m, adapted from NBS Circular 557 for 1950 Kc. with a 35 Kc. bandwidth.

b. Annual median is 27.6 db above 1 uv/m and noise intensity that will be exceeded 5% of the time is calculated to be 43 db above 1 uv/m or 142 uv/m.

c. Actual noise measurements were not made.

d. Under the worst noise conditions predicted, a signal to noise ratio of less than 2.5:1 will exist 5% of the time at Jupiter for Loran A and could be expected to cause some difficulty in maintaining synchronization.

2. Loran C:

a. Figure two (2) illustrates rms equivalent vertically polarized median noise field intensities in db above 1 uv/m adapted from NBS Circular 557 for 100 Kc. with a 25 Kc. bandwidth.

b. Annual median is 37 db above 1 uv/m and noise intensity that will be exceeded 5% of the time is calculated to be 53 db above 1 uv/m or 447 uv/m.

c. Actual noise measurements were not made.

d. Under the worst noise conditions predicted, a signal to noise ratio of less than 6.3:1 will exist 5% of the time at Jupiter for Loran C.

D. PROPAGATION CONSIDERATIONS

1. Loran A:

a. From Jupiter Proposed Site to the paired station at Folly Beach, the signal path consists of .33 N.M. of poor soil, .5 N.M. of water, .83 N.M. of poor soil, 336 N.M. of water, and .16 N.M. of poor soil.

b. Vegetation on intervening land areas consists of scrub pine, pine trees, and semi tropical type plants to an average height of approximately thirty (30) feet.

2. Loran C:

a. From Jupiter Proposed Site to the paired station at Cape Hatteras, the signal path consists of .35 N.M. of poor soil, .31 N.M. of water, .33 N.M. of poor soil, 543 N.M. of water, and .7 N.M. of poor soil.

b. Vegetation on intervening land areas consists of scrub pine, pine trees and semi tropical type plants to an average height of approximately thirty (30) feet.

E. GROUND CONDUCTIVITY

1. Loran A and C:

a. No ground conductivity measurements were conducted. The soil in the area consists of sand, in the form of dunes, which are held by existing vegetation. The best estimation is that conductivity of the soil is very poor.

F. INTERFERENCE CONSIDERATIONS

1. Loran A and C:

a. Figure three (3), itemizes other electronic facilities in the area. Based on the operational experience gained from the existing Loran A and Loran C Stations in the area, no problems of mutual interference will result beyond that experienced at the existing Loran C site which is amplified in the following paragraph.

b. Interference to the USAF Missle Test Center located at Jupiter Inlet, as a result of the relocation and increase in radiated power of the Loran Station was investigated. Calculations indicate that the worst condition would be no greater than that presently existing, which is tolerable, and at best, a reduction of interference at the USAF MTC in the order of 2.3 db may result. No difficulties are anticipated in connection with the LORAN installation at this site.

c. A buried telephone cable (AT&T) passes through the proposed station area and is illustrated on the Antenna Layout, Drawing No. EEE 3121 which is submitted as an enclosure. Mr. S. H. BURKE, Cable Engineer, Long Lines Dept., AT&T Co., was contacted in an attempt to determine if any interference problem would result from establishment of the loran stations. Mr. BURKE felt that Loran C would not introduce any objectionable effects to the cable, but reserved an opinion as to the effects of Loran A. This reservation was due primarily to lack of any past experience with conditions comparable to those posed by a high power Loran A installation.

A description of the cable is as follows:

8 Coaxial Lines
66 Pair
Lead Sheath
Copper Screen Jacket
Jute Wrapping

The cable provides telephone service for 2400 circuits utilizing carrier from 20 Kc. to 3000 Kc.

The cable was initially buried to a depth of thirty (30) inches, following the contour of the land, but now closely approaches the surface at some points due to erosion.

d. A total of sixty-four (64) open wire lines run adjacent to the Florida East Coast RR Track which borders the proposed station on its western extremity. The effects that these lines and the RR track, as passive devices, may have on Loran signals is unknown. Experience at the present Loran C Station, Jupiter, has revealed no adverse effects.

Southern Bell Telephone Co. has twenty-eight (28) wires in service and utilizes Voice Frequency Carrier. Mr. J. P. JENKINS, District Engineer, was contacted and indicated the probability of objectionable effects to telephone service from the loran station were not likely, and in the event interference was experienced, Southern Bell would take corrective action.

Western Union Telegraph Co. has twenty-six (26) wires in service. Two (2) carrier channels and eighteen (18) straight telegraphic circuits are employed. Mr. D. B. VIERS of W. U. T. Co. was contacted, but gave no opinion on possible interference from Loran A/C to this service.

Florida East Coast Railroad has ten (10) wires in service. Three (3) wires carry 4400 VAC and the remaining seven (7) are for signal control utilizing H_1 Carrier. Mr. R. L. STEVENS, Signal Dept., was contacted but gave no opinion on possible interference from Loran A/C to this service.

G. COMMUNICATIONS FACILITIES

1. Loran A and C:

a. Facilities at the existing Loran C site include commercial telephone and TWX teletype. During construction AM and SSB Radio Equipment are available at the existing Loran C site.

b. It is recommended local telephone service be provided for communication with the West Palm Beach baseline extension monitor, and Jupiter Inlet LTSTA and TWX with the district.

c. It is recommended radio communication equipment be installed which is compatable with the other stations in the East Coast Loran Chain.

d. It is recommended that interior communications be provided between the signal building, transmitter building and the barracks.

H. ANTENNA LAYOUT SKETCH

1. Loran A and C:

a. Drawing No. EEE-3121 submitted as an enclosure illustrates the proposed antenna layout for Jupiter Loran A/C Station. The antenna positions selected were chosen to avoid the buried telephone cable and provide minimum overland signal path to the paired Loran A Station at Folly Beach, S. C.

b. Loran receiving antennas have been located on the baseline extensions for both Loran A and Loran C to avoid any G. A. F.

c. An area has been reserved for a future Loran C receiving antenna, approximately on the baseline extension of where a Loran C station to the south might be located in the event of future expansion of the system, in that direction.

I. CONCLUSION

1. Loran A and C:

a. It is recommended that when the signal building, transmitter building, and antenna systems are accepted from the contractor by the Coast Guard, the following personnel be available on the station as initial station complement to install the electronics plant under the supervision of the Commander, Seventh Coast Guard District (e-3):

RELE	1	ET2	2
ETC	1	ET3	2
ET1	1		

It is estimated installation of the electronics plant can be completed six (6) weeks after acceptance of the buildings if the above listed personnel and G. F. E. electronics equipment are available.

It is expected Sperry personnel will be provided to assist in the final phase of the installation and initial adjustment of Loran C equipment.

b. Retention of the existing baseline monitor for Loran C at West Palm Beach is recommended.

c. Coverage area for Loran A will be reduced as a result of relocation from Hobe Sound to Jupiter due to the increase of intervening land between the station and the service area. It should be expected that marginal synchronization will result during 5% of the time based on a signal to noise ratio of 2.5:1 and an assigned operational synchronization tolerance of + or - 1 u/sec.

d. It is recommended that an Electronic Repair Parts Allowance List be prepared for the station, including all equipment scheduled for installation and that the ERPAL system be placed in effect concurrent with equipment installation.

SUBMITTED: Kelly

C. J. KELLY, LTJG, USCG
Electronics Engineering Officer

APPROVED: C. D. Budd

C. D. BUDD, LCDR, USCG
Senior Member Site Survey Party

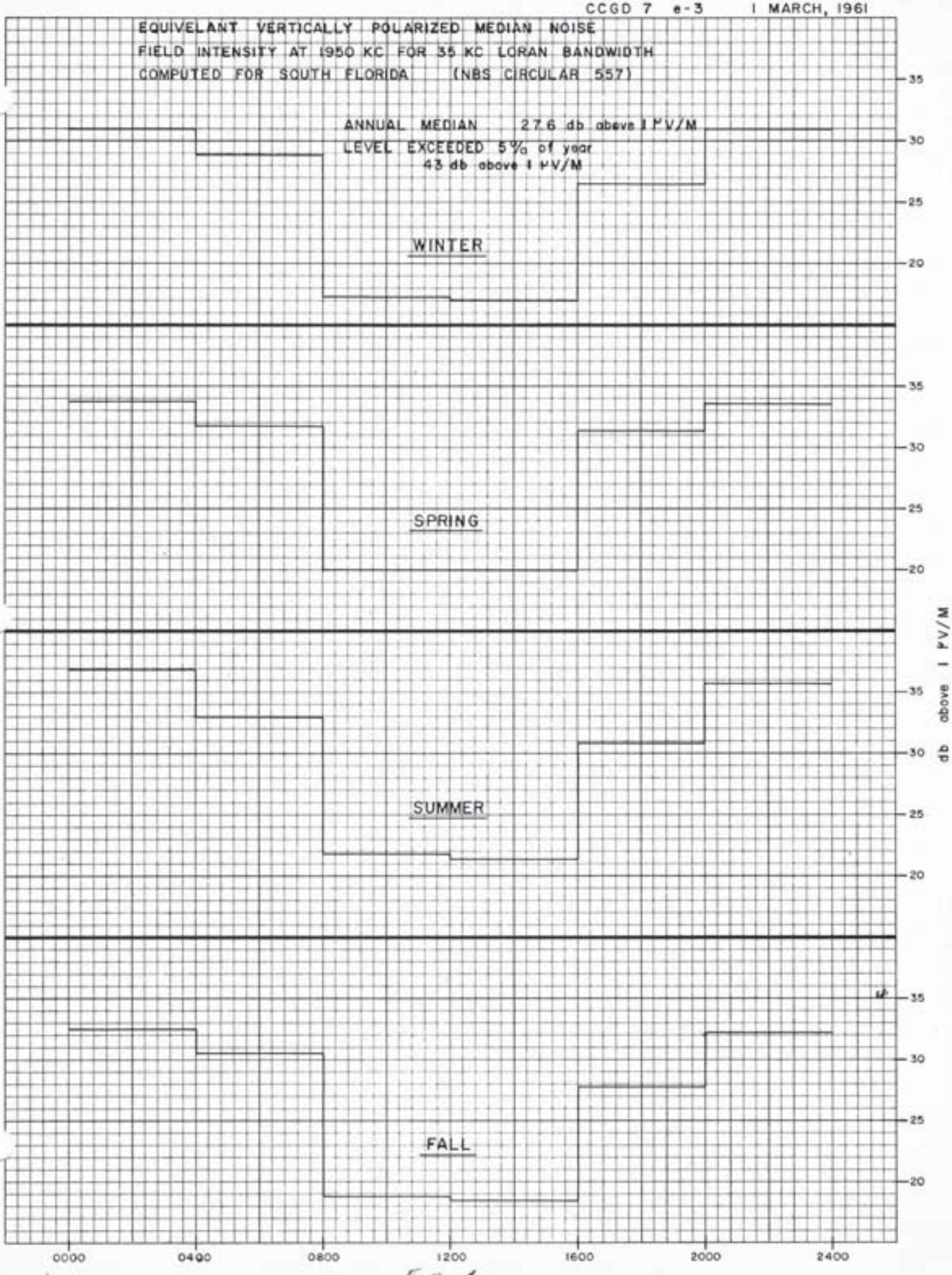
EQUIVELANT VERTICALLY POLARIZED MEDIAN NOISE
FIELD INTENSITY AT 1950 KC FOR 35 KC LORAN BANDWIDTH
COMPUTED FOR SOUTH FLORIDA (NBS CIRCULAR 557)
ANNUAL MEDIAN 27.6 db above 1 μV/M
LEVEL EXCEEDED 5% of year
43 db above 1 μV/M
WINTER
SPRING
SUMMER
FALL
35
30
25
20
db above 1 μV/M
0000
0400
0800
1200
1600
2000
2400

FIG. 1

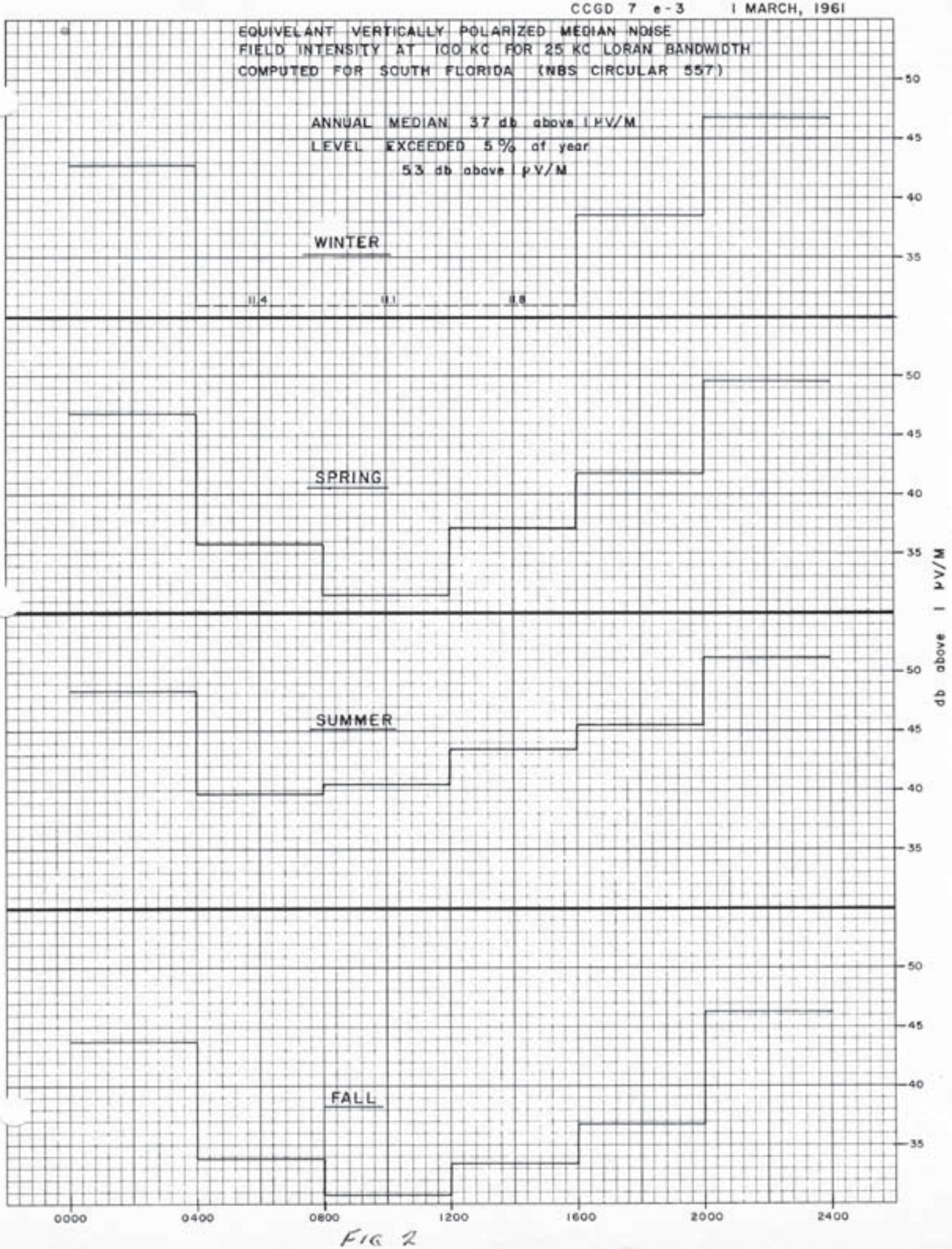
EQUIVELANT VERTICALLY POLARIZED MEDIAN NOISE
FIELD INTENSITY AT 100 KC FOR 25 KC LORAN BANDWIDTH
COMPUTED FOR SOUTH FLORIDA (NBS CIRCULAR 557)
ANNUAL MEDIAN 37 db above 1 μV/M
LEVEL EXCEEDED 5% of year
53 db above 1 μV/M
WINTER
0.4
0.1
0.8
SPRING
SUMMER
FALL
50
45
40
35
db above 1 μV/M
0000
0400
0800
1200
1600
2000
2400

FIG 2

TABULATION OF ELECTRONIC FACILITIES IN JUPITER AREA

FREQ	CALL OR TYPE	EMISSION	POWER	BRNG	DISTANCE
306 Kc.	R/BCN	A2	800 W	159°	5 N.M.
356 Kc.	BCN	6A9	400 W	190°	21 N.M.
472 Kc.	WOE	A1, A2	4 KW	179°	29 N.M.
500 Kc.	WOE	A1, A2	20 KW	179°	29 N.M.
2440 Kc.	LORAC		2.5 KW	158°	4.8 N.M.
4292 Kc.	WOE	A1	5 KW	179°	29 N.M.
6411 Kc.	WOE	A1	5 KW	179°	29 N.M.
8486 Kc.	WOE	A1	5 KW	179°	29 N.M.
12970.5 Kc.	WOE	A1	5 KW	179°	29 N.M.
17160.5 Kc.	WOE	A1	5 KW	179°	29 N.M.
22503 Kc.	WOE	A1	5 KW	179°	29 N.M.
115.5 Mc.	VOR		250 W	190°	21 N.M.
1206 Mc.	DME		4 KW	190°	21 N.M.
1199.25 Mc.	TACAN		6 KW	190°	21 N.M.

FIGURE 3