NAVY/MARINE CORPS ACTIVITIES

MCAS (H) FUTENMA

OKINAWA JAPAN MASTER PLAN

DEPARTMENT OF THE NAVY

PACIFIC DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

FACILITIES PLANNING DEPARTMENT

Futenma Master Plan

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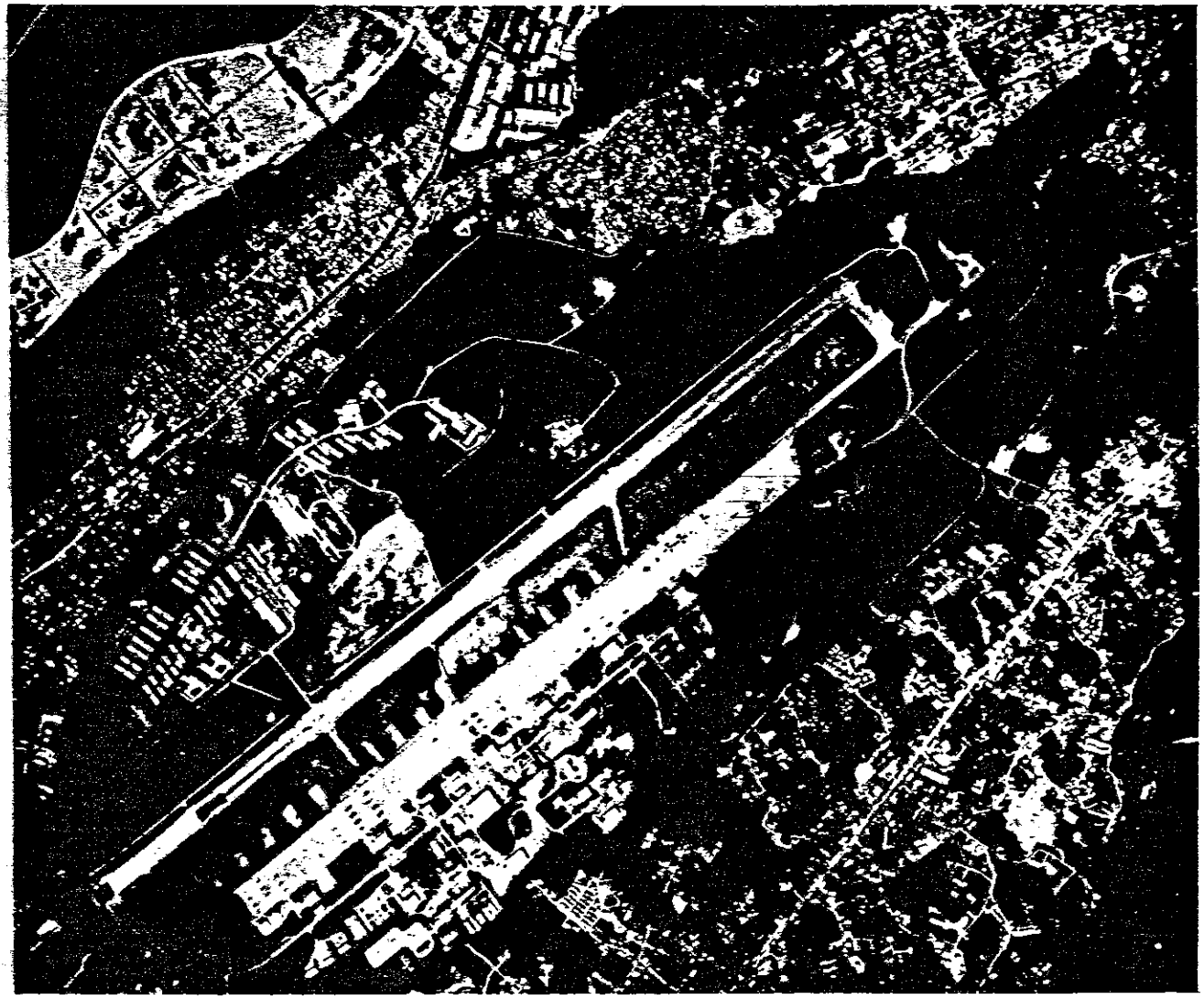


MCAS (H) FUTENMA

B. INTRODUCTION

1. Background

MCAS (H) Futenma is located on the southwestern coast of Okinawa, 7 km south of Kadena Air Base
The station contains 1,188 acres of real estate and is located in the city of Ginowan.

MCAS (H) Futenma is part of the Marine Corps Base, Camp Smedley D. Butler (MCB Camp Butler) which has nine other major camps (Foster, Kuwae, Courtney, Hansen, Schwab, Henoko, Onna Point, and Kinser.

2. Planning Objectives

The objective of this Master Plan is to provide a realistic and orderly development scheme for MCAS (H) Futenma, taking into account the interrelationships with other military activities on Okinawa and current land use trends of adjacent civilian communities. The Plan identifies specific sites for near-term high priority programmed facilities as well as far-term unprogrammed facilities. A land use plan is provided as a guide for long-range and unidentified line items to support the activity's missions and tasks.

3. Planning Approach

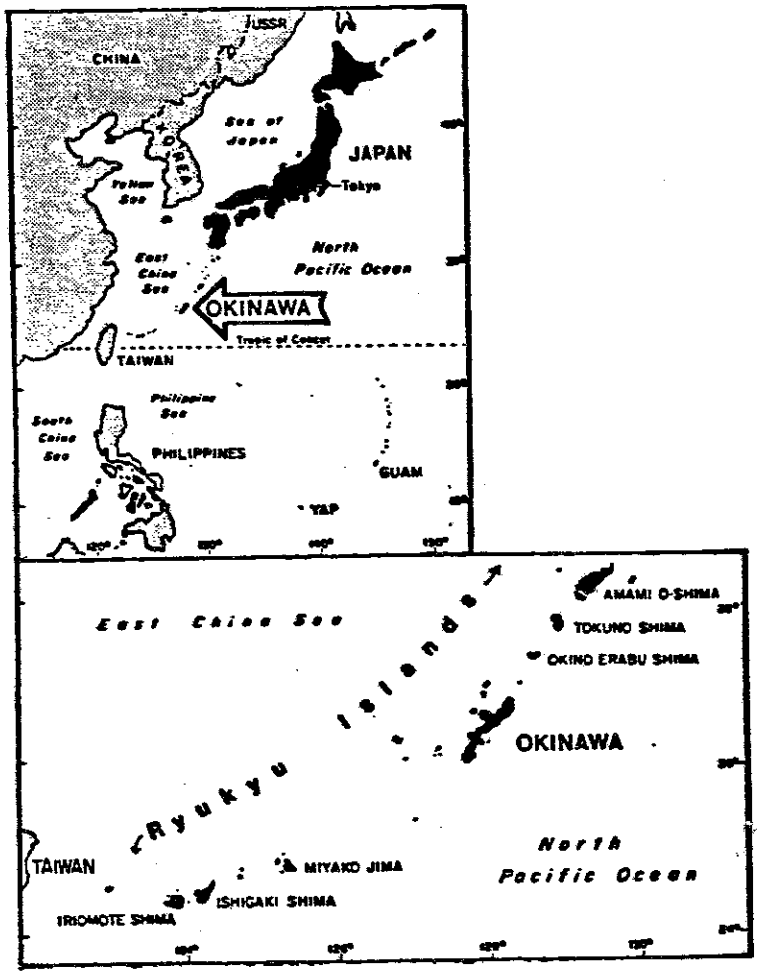
This master planning effort began with the gathering and analysis of information on facility requirements, and on-site inspection and interviews

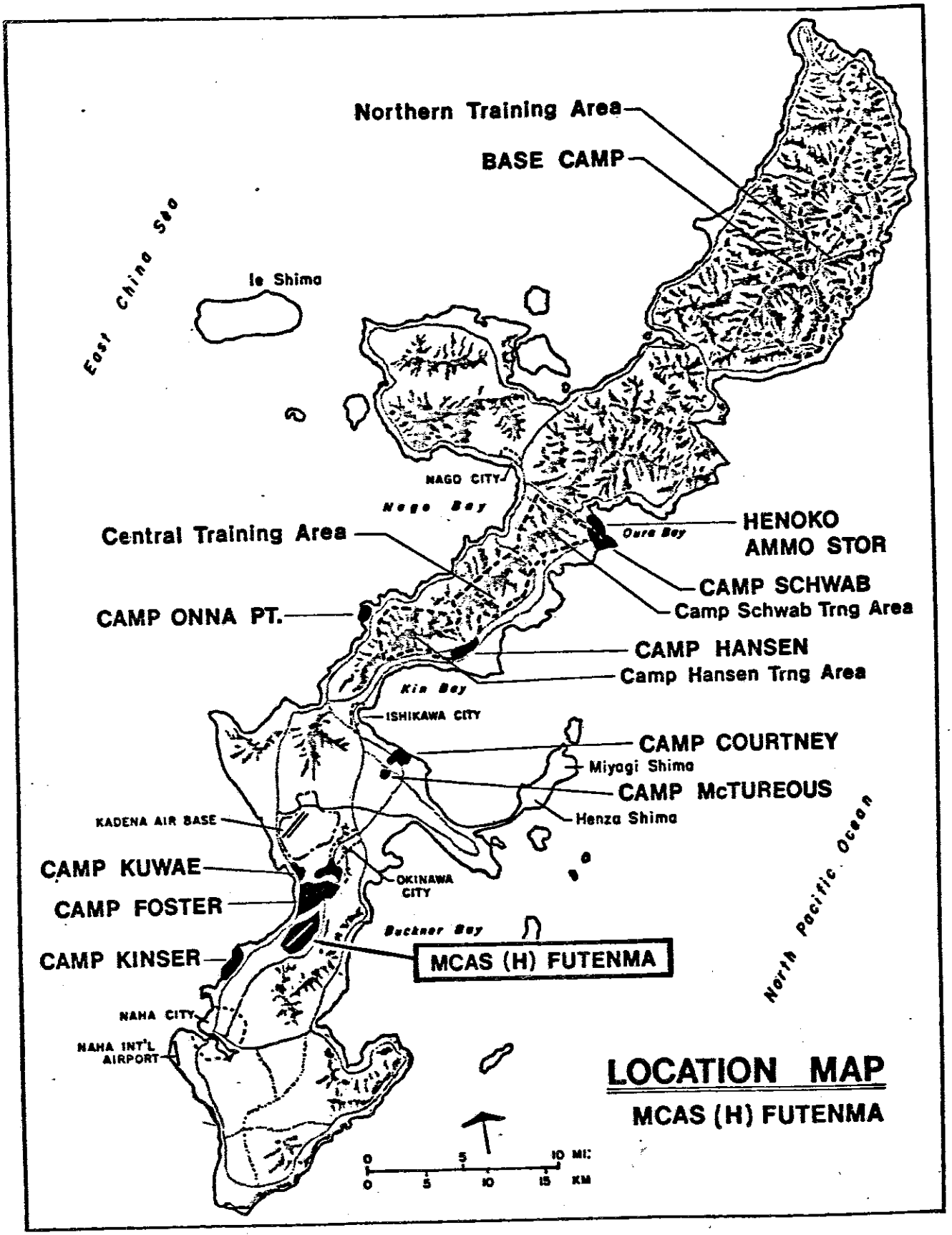
4. Scope

This Master Plan is based on requirements generated by the most recent planning and programming documents developed in CY The proposed land use plan allocates sufficient area on which to site all required basic facilities.

5. Use of the Master Plan

This Plan is intended to be a viable document and can be adjusted to accommodate changes. The narrative portion of the Plan provides a sufficiently broad analysis to insure the orderly development of all near-term and long-term facilities.





LOCATION MAP

MCAS (H) FUTENMA

C. METHODOLOGY

The methodology for preparing this Master Plan included the following steps.

1. Data Collection

Data collection consisted of the accumulation of all available information about the activity and surrounding area including the planning documents, maps, environmental data base and other pertinent data. Historical data, land use constraints and man-made considerations, such as existing adjacent land uses, were also collected. Finally, the best available projections of future requirements were obtained. This data was supplemented by discussions with appropriate personnel at the activity and the chain of command. A Prefinal Plan was published in March 1978, but follow-on planning was held in abeyance pending resolution of personnel loading levels at the station. On-site planning for this Draft Plan began in June 1979.

2. Development of Planning Objectives

The development of planning objectives was accomplished in coordination with the activity and the chain of command following review of the basic data.

3. Evaluation and Analysis

An on-site evaluation of existing conditions was made with station personnel. Problem areas were reviewed and alternative solutions were discussed. An analysis was made of the data gathered from existing documents, from the on-site visit and from discussions with activity personnel. The ability of the station to accommodate future requirements was evaluated. Conclusions/recommendations were developed to support the activity mission and planning objectives, giving priority consideration to environmental and fiscal constraints.

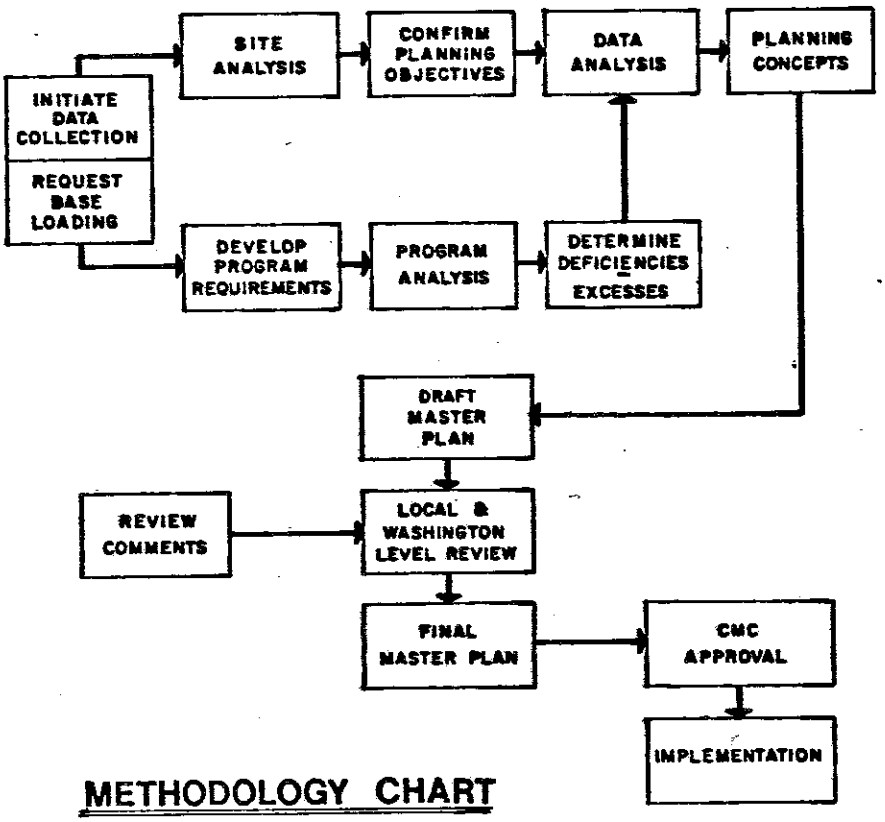
4. Draft Reports

The results of the efforts of the above steps were synthesized and are published herein. Distribution to all interested commands within the Marine Corps is being made for review comments and discussion.

5. Final Reports

Reviews and comments on the report will be incorporated into the Plan and a Final report will be published. Upon Commandant of the Marine Corps (CMC) approval, the Plan will become the guide for all future development at the station.

Normal methodology is shown



METHODOLOGY CHART

D. PLANNING ANALYSIS

1. Regional Profile -- An Okinawa Overview

a. Introduction. This section is a very brief summary of data contained in the Okinawa Navy/Marine Corps Regional Profile, which provides an Okinawa-wide data base for this and other master plans of Okinawa Navy and Marine Corps activities.

b. Location. Okinawa, at 454 square miles in area, is the largest of the Ryukyu Islands and is located about 970 miles southwest of Tokyo

c. Geology Okinawa is part of the exposed crest of a large submarine ridge. It has two distinct physiographic provinces--a series of high, discontinuous mountains to the north and open, rolling uplands to the south. The highest mountain on Okinawa, however, is only about 1,650 feet above sea level.

d. Meteorology. Okinawa is located at the latitude of Miami Beach and has a similar climate with mild winters and humid summers. Rainfall averages about 83 inches per year, and typhoons are common, especially between May and November

e. Population and Employment. The latest census (1975) shows an Okinawan population of just over 1 million people--up almost 100,000 from the 1970 census. About half of this increase was in the 20 to 29 age group--the group that, prior to reversion, left the island in large numbers to find employment.

f. Transportation. All land transportation on Okinawa is by highway vehicle. The road system was decimated by World War II and has been completely rebuilt. Inter-base access is adequate, except for peak-hour traffic congestion (see

Five scheduled airlines serve Okinawa with 23 international and 21 local flights per day.

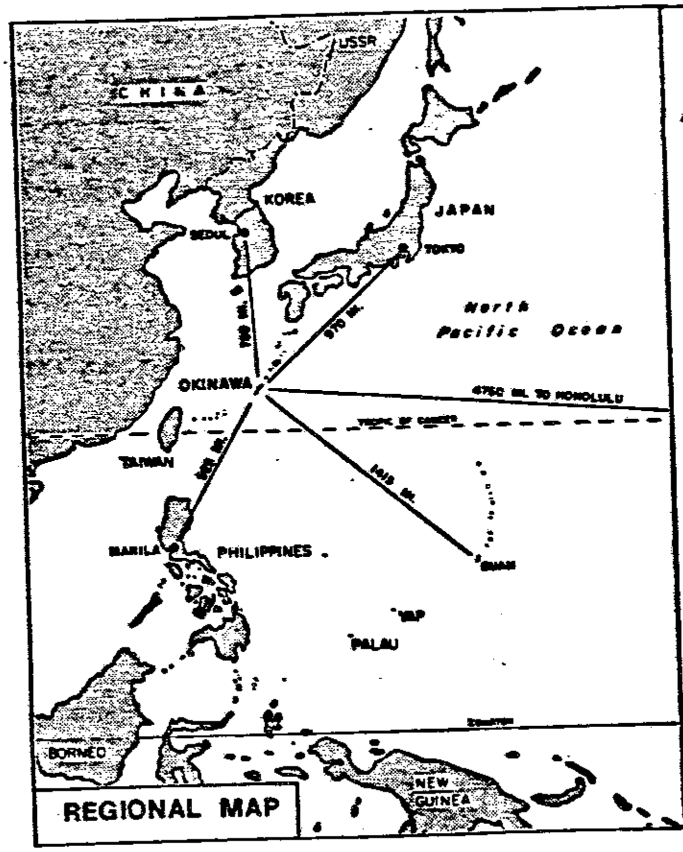
Ocean passenger service is available daily between the outer islands and Japan.

2. On-site Analysis

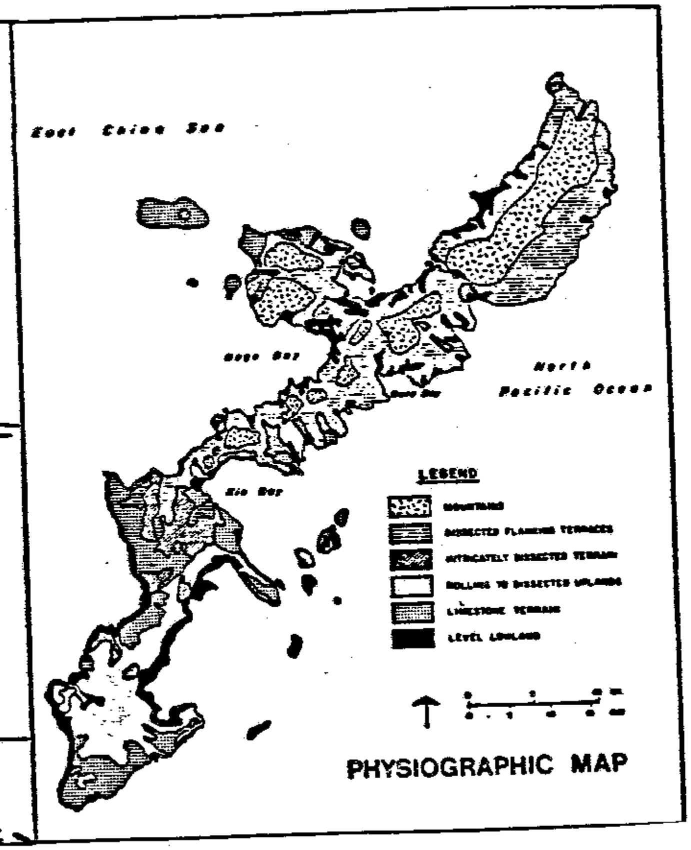
a. Natural Environment

(1) Location The station is located along the southwestern coast on the narrow isthmus connecting the heavily populated south and south-central areas of the island of Okinawa. The station lies within the boundary of Ginowan City, population approximately 54,000 and is bordered by National Highways 58 and 330. These two highways, along with a local road, provide access to the station. The Master Plan for MCAS (H) Futenma covers 1,188 acres of real estate within the station boundary.

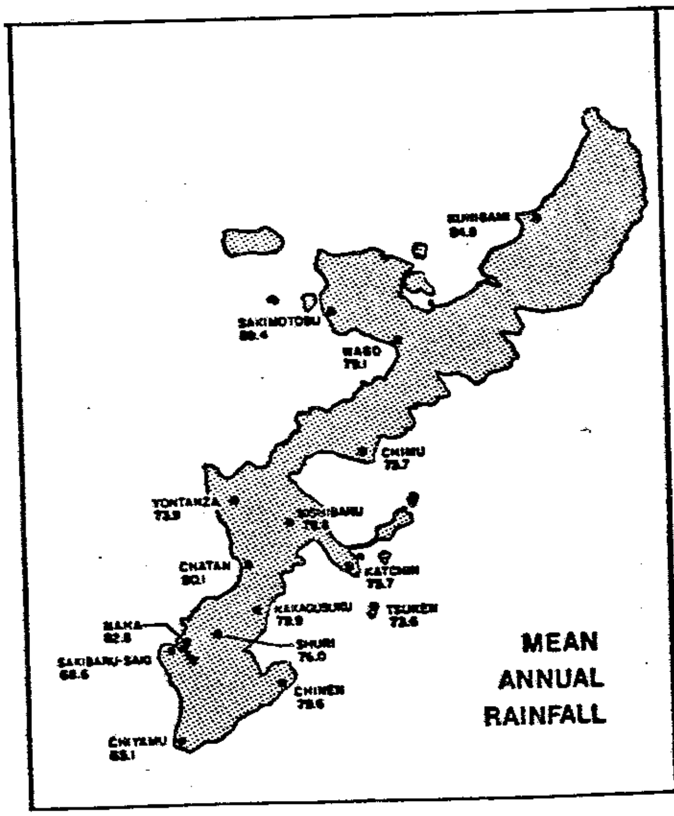
(2) Topography The station is sited on a plateau with the elevations being about 60 meters along the northwestern boundary and 96 meters along the southeastern boundary. The runway area is basically level and the airfield elevation is 75 meters (246 feet). A steep bluff approximately 20 meters high runs along the western boundary and physically separates the station from the municipality of Ginowan City. There is a strip of moderately sloping terrain along the southeastern boundary.



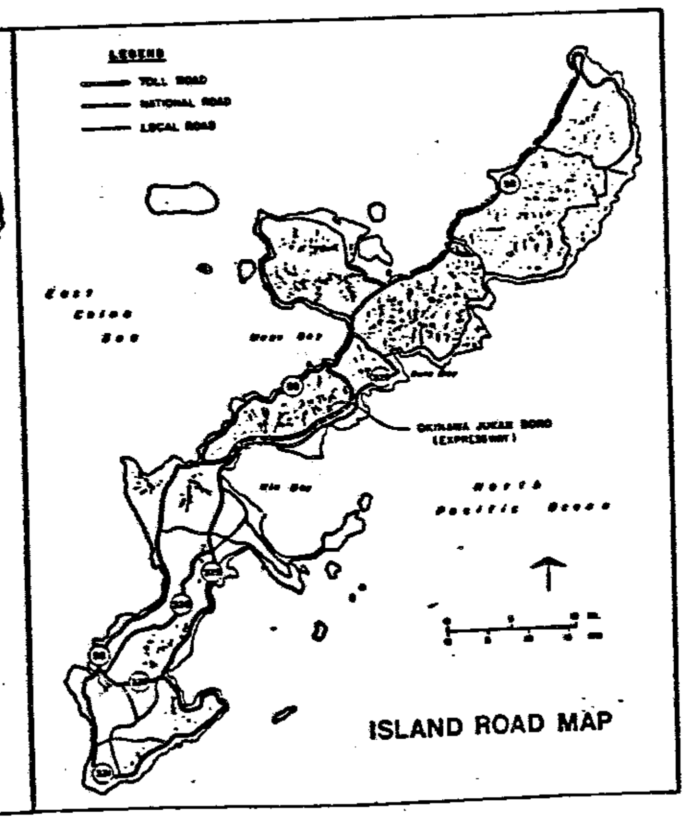
REGIONAL MAP



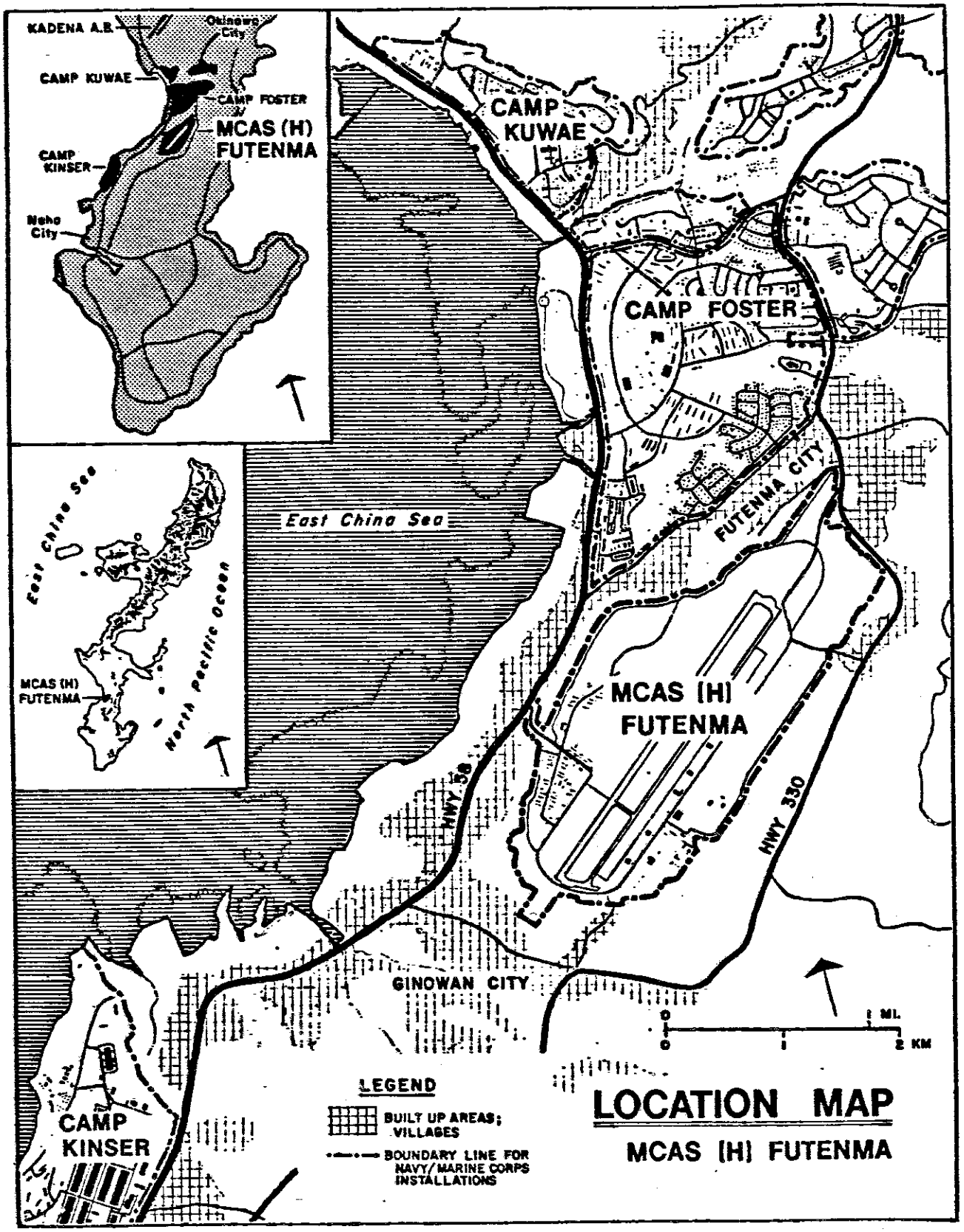
PHYSIOGRAPHIC MAP

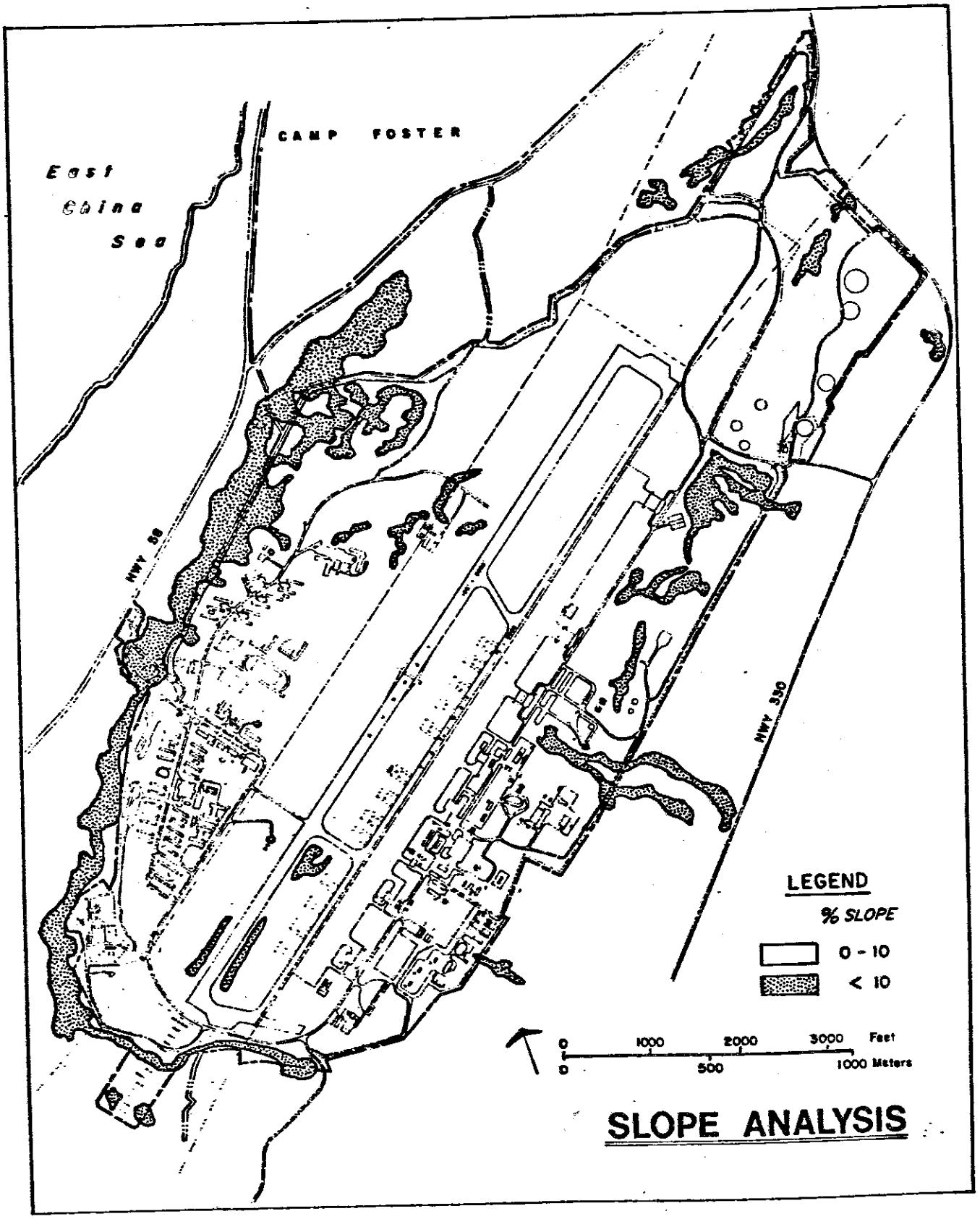


MEAN ANNUAL RAINFALL



ISLAND ROAD MAP


KADENA A.B.
Okinawa City
CAMP KUWAE
CAMP FOSTER
MCAS (H) FUTENMA
CAMP KINSER
Naha City
East China Sea
North Pacific Ocean
MCAS (H) FUTENMA
CAMP KUWAE
CAMP FOSTER
FUTENMA CITY
East China Sea
MCAS (H) FUTENMA
HWY 58
HWY 330
GINOWAN CITY
0 1 MI
0 1 2 KM
CAMP KINSER
LEGEND
BUILT UP AREAS; VILLAGES
BOUNDARY LINE FOR NAVY/MARINE CORPS INSTALLATIONS
LOCATION MAP
MCAS (H) FUTENMA

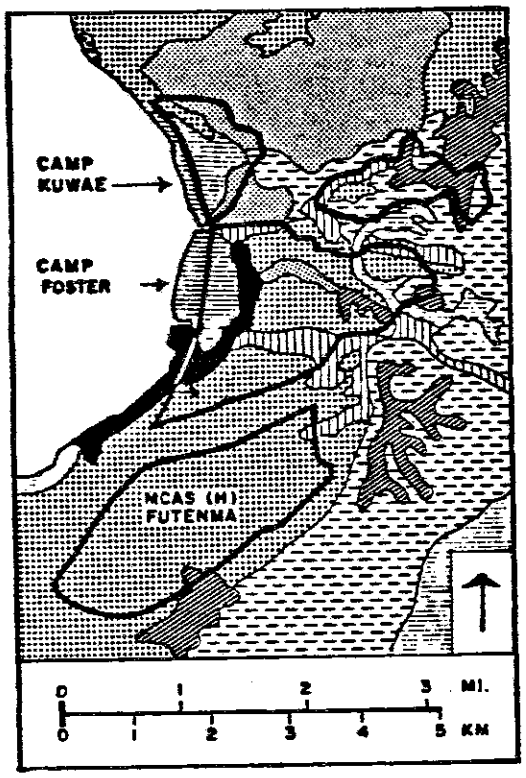

CAMP FOSTER
East China Sea
HWY 58
HWY 330
LEGEND
% SLOPE
0 - 10
< 10
0 1000 2000 3000 Feet
0 500 1000 Meters
SLOPE ANALYSIS

(3) Soils Characteristics The soil on station is predominantly a granular material, colored light buff to yellow, with poorly bedded, fine to medium grained, sand containing irregular lumps and gravel-size fragments. The soil is composed chiefly of calcium carbonate. The unit contains cemented zones and layers of hard limestone. Thick cemented zones are most common along exposed surfaces; cemented zones or layers also occur along joints, crevices, caverns and water courses. The unit contains clay, silt and quartz sand in its basal portion; near masses of hard bedrock, it contains much noncalcareous debris. Natural caverns are common in this unit, and during periods of heavy rainfall or typhoons, sink holes have occurred. Several sink holes were formed by the collapse of the roofs over caverns on the northeast extension of the runway in 1948. In addition to natural caverns, there is evidence of excavated tunnels crisscrossing portions of Futenma. These were dug by the Japanese during World War II.

(4) Plant and Wildlife. Undeveloped areas on the station are covered with brush and are presently the habitat of wildlife commonly found on Okinawa
Detailed data on flora and fauna is presented in the Okinawa Navy/Marine Corps Regional Profile.

(5) Historic/Archeological Sites. There are no registered historic or archeological sites on the station; however, by oral agreement between the station officials and the local community, three locations on or near the station have been informally designated as historic sites. These areas are to remain unaltered under the agreement

Numerous hillside tombs are also located throughout the station. No adverse impacts on the tombs will result from any proposal of this Plan.

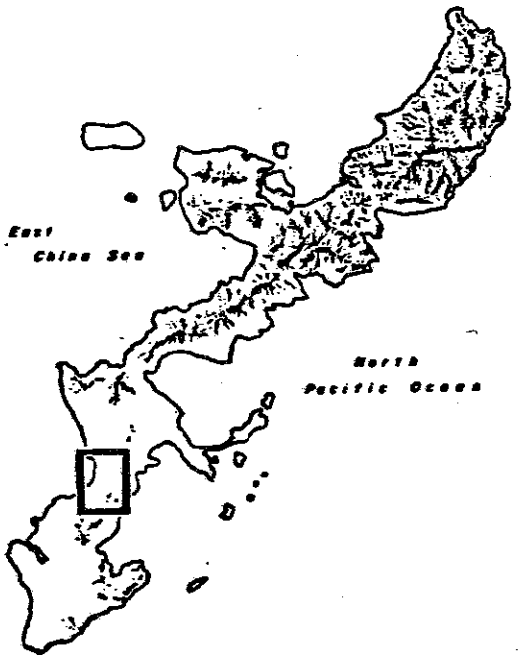


SOIL DESCRIPTION

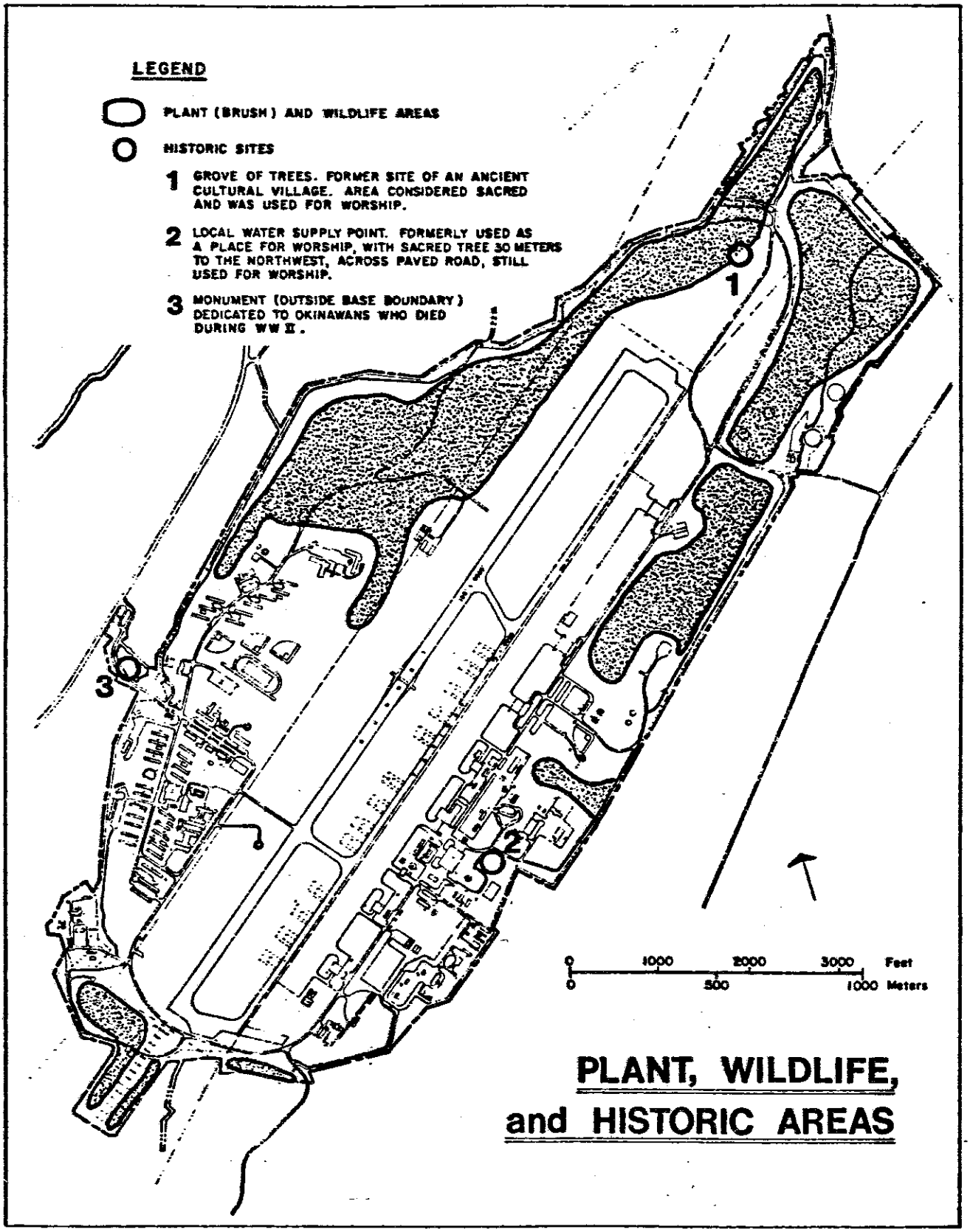
Okinawa clay loam and Chinen stony clay. Two related fertile well-drained clayey soils, one deep, the other shallow and stony, occurring together on limestone plains. Both are very crumbly, or strongly granular; although clayey and plastic, they are porous, permeable, and of good tilth. Generally the soil reaction is about neutral; where depth to limestone exceeds 10 or 15 feet, the soil is slightly to medium acid. Okinawa clay loam, the deep soil that occupies 70 per cent of the unit; has surface soil of dark- brown clay loam 5 to 10 inches thick over subsoil of strong-brown to yellowish-red permeable clay, underlain by limestone at depths of 3 to 20 feet. Chinen stony clay, the shallow stony soil occupying 30 per cent of the unit, consists of dark-brown to brown clay or clay loam with loose fragments and outcrops of the limestone bedrock. The effective or average soil depth is about 15 inches; within horizontal distances of a few inches the actual depth fluctuates between 0 and 3 feet or more. In this soil, stone occupies 10 to 30 per cent of the surface and prevents use of agricultural machinery. Neither soil has water for production of rice.

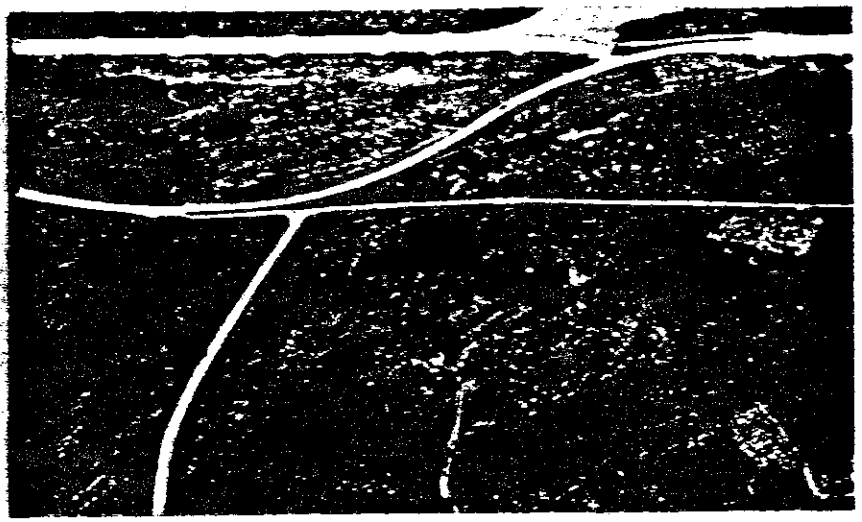
Shuri clay, gently sloping. Olive-colored crumbly calcareous clay 6 to 20 inches deep over raw bedrock of hard, compact, impervious clay. Slowly drained, moderately fertile; no water is available for rice production.

Rough stony land. Limestone mountains and steep slopes, having a few inches of fertile dark-brown crumbly clay or clay loam over bedrock interspersed with bare outcrops of limestone that occupy 20 to 75 per cent of the surface. Nonarable; nutritious grasses will thrive and afford good grazing; good land for forestry; cycads, which have been planted in many areas, afford considerable starch for the natives.



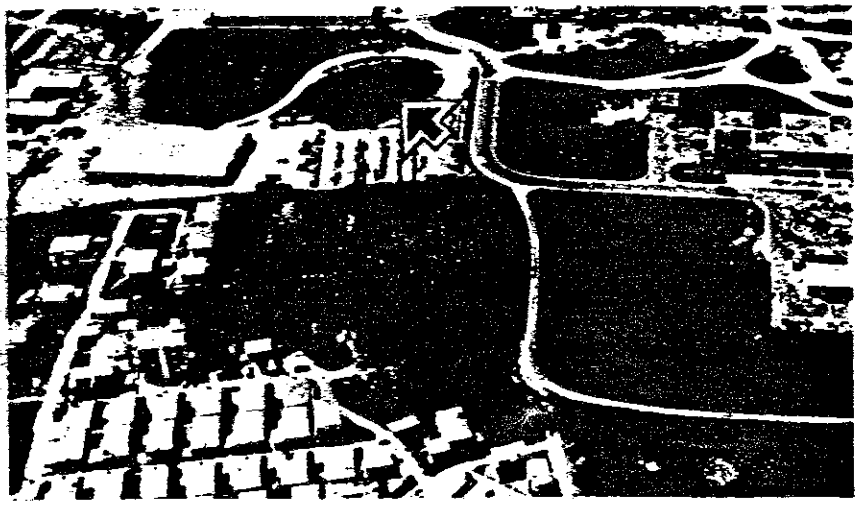
SOILS MAP


LEGEND
PLANT (BRUSH) AND WILDLIFE AREAS
HISTORIC SITES
1 GROVE OF TREES. FORMER SITE OF AN ANCIENT CULTURAL VILLAGE. AREA CONSIDERED SACRED AND WAS USED FOR WORSHIP.
2 LOCAL WATER SUPPLY POINT. FORMERLY USED AS A PLACE FOR WORSHIP, WITH SACRED TREE 30 METERS TO THE NORTHWEST, ACROSS PAVED ROAD, STILL USED FOR WORSHIP.
3 MONUMENT (OUTSIDE BASE BOUNDARY) DEDICATED TO OKINAWANS WHO DIED DURING WW II.
1
2
3
0 1000 2000 3000 Feet
0 500 1000 Meters
PLANT, WILDLIFE, and HISTORIC AREAS



PLANT AND WILDLIFE AREA

HISTORIC SITE #1



HISTORIC SITE #2

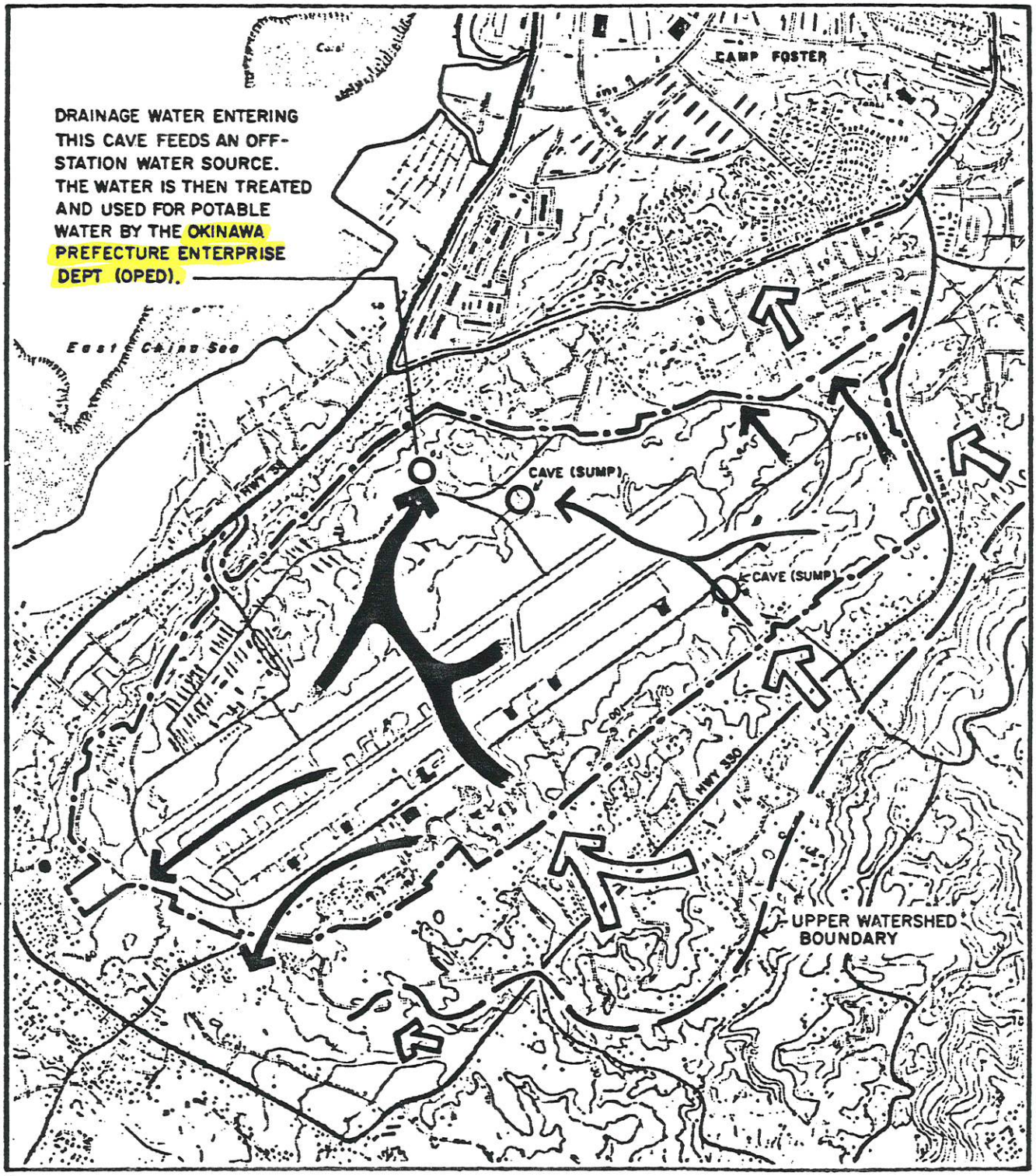
(6) Drainage. As shown on drainage waters from off-station areas enter the station at two major points along the southeastern boundary. Earth-lined ditches convey the waters from off-station into the station's drainage system. Problems arise only during a heavy rainstorm or typhoon when debris and vegetation collect in the drainage ditch and cause a backflow and subsequent flooding of private lands. To maintain good public relations, the station has assisted the local community in clearing these ditches when requested. A new cave (sump) has been dug in the northeast sector which has eliminated much of the surface drainage across the northern end of the runway.

Drainage water from the south sector of the station is conveyed to a cave located outside the station boundary. Overflow from the cave spills onto a low-lying sugarcane area below the cave. Flooding of these cane lands has evoked some complaints from local farmers.

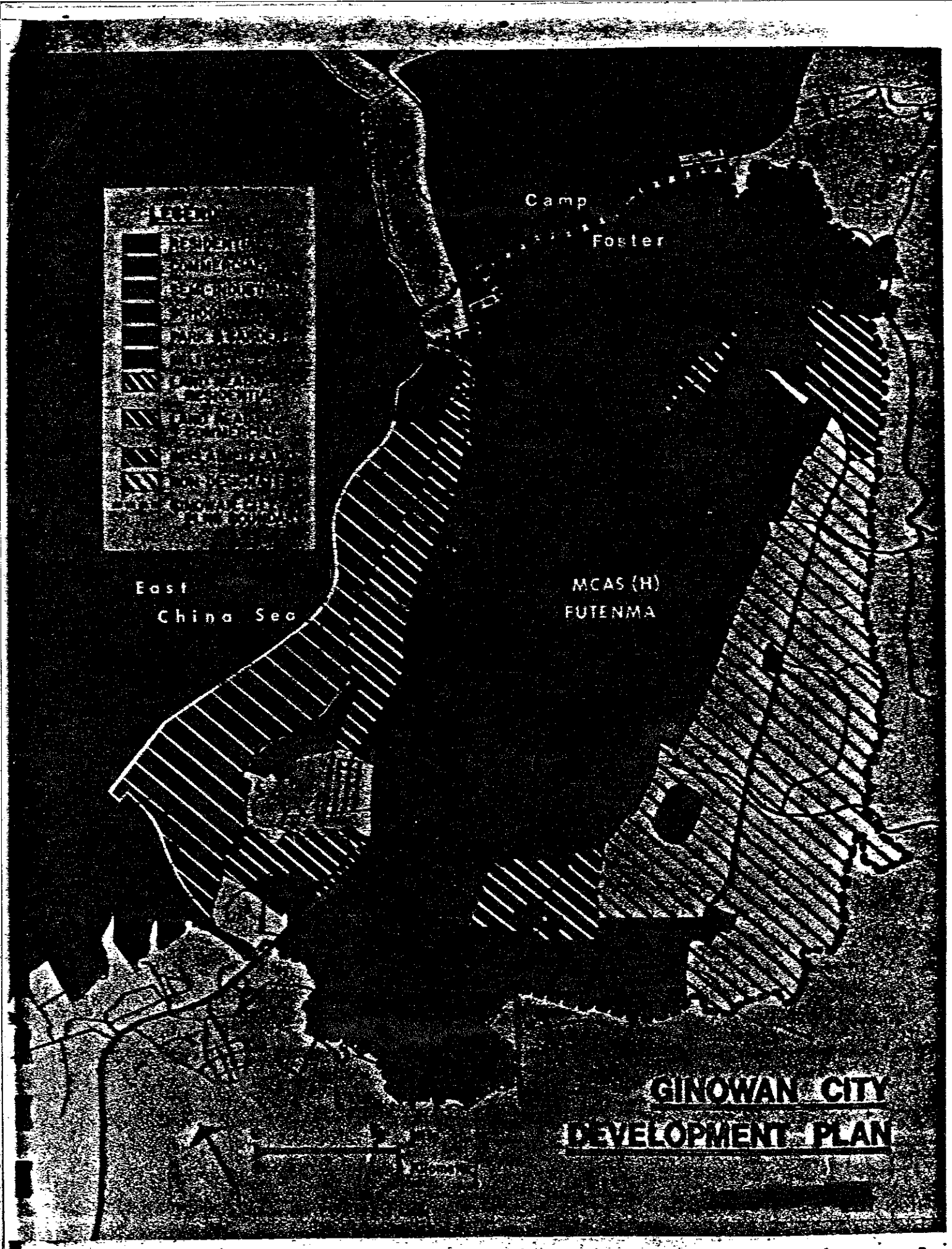
b. Man-made Environment

(1) History. In April 1945, two days after the Hagush Beach landing, the Tenth Army captured the area west of Futenma Village in what is now Ginowan City, and the U.S. Army Corps of Engineers began construction of a heavy (B-29) runway. With the end of hostilities in August 1945, the scope of work was reduced to a medium bomber runway and by October 1945, a 6,500-foot runway was completed. During the ensuing period until 1951, the runway was maintained by the Air Force as an auxiliary landing field. In 1951, a 1,500-foot extension was added and in 1954, another 1,000-foot extension was completed, bringing the runway to its present length of 9,000 feet.

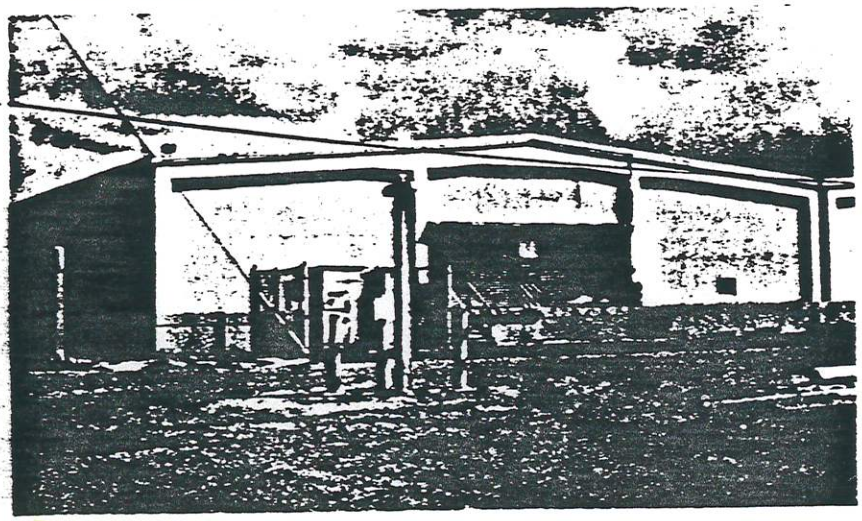
There was little development of base facilities until Naval Mobile Construction Battalion THREE (NMCB THREE) constructed the initial buildings and it was commissioned as U.S. Marine Corps Air Facility (H), Futenma, in 1960. Since that time, construction necessary to provide the essential facilities for mission support has been accomplished.



DRAINAGE PATTERN


Camp
Foster
East
China Sea
MCAS (H)
FUTENMA
GINOWAN CITY
DEVELOPMENT PLAN

POL STORAGE TANK 639



SUPPLY - BLDG 602

GYMNASIUM


LEGEND
OPERATIONAL
TRAINING
MAINTENANCE
SUPPLY / STORAGE
MEDICAL
ADMIN
HOUSING (TROOP)
COMMUNITY / PERSONNEL FACS
OUTDOOR REC
CONSTRAINED LAND (R/W CLEARANCE)
UTILITIES
MAIN GATE
1000 Feet
500 Meters
EXISTING LAND USE
MCAS (H) FUTENMA

c. Air Passenger Terminal/Air Cargo Terminal. The requirement for a combined Air Passenger Terminal/Air Cargo Terminal is 4,000 square feet. Presently, both of these functions are accommodated in a quonset hut building containing only 1,920 square feet.

d. Aviation Maintenance. The Engine Maintenance Shop occupies 16,580 square feet in Hangar 505. A requirement of 21,400 square feet for this function exists, leaving a deficit of 4,820 square feet. In addition, an Aviation Armanent Shop and a Parachute Survival Equipment Shop require 4,500 square feet and 5,570 square feet of floor area, respectively. No adequate space is assigned to these functions at the present time. Space for avionics function is currently satisfied by the use of portable vans.

One other related aircraft maintenance function is the aircraft Ground Support Equipment (GSE) Shop for which the requirement is 13,230 square feet. Currently, this function occupies 7,177 square feet in Building 638. The function is malpositioned, being far from the flight line.

e. Aircraft Maintenance. Existing hangar (OH), maintenance (01) and administrative (02) spaces are provided for in Hangars 501, 503, 505, 507, 515, 520, 527 and 528. There is about a 48,000-square foot shortfall of aircraft maintenance space. A Type II hangar containing 52,610 square feet will satisfy this requirement.

The BFRL shows an additional requirement of 44,000 square feet for a pre-engineered maintenance hangar for detachment-size units. Based on actual use, the existing hangar spaces can be shared to satisfy this requirement.

f. Vehicular Maintenance Shop. The Combat Vehicle Maintenance Shop occupies 18,308 square feet of adequate space in Buildings 601 and 604, and 9,600 square feet of substandard floor space in temporary Buildings T-616 and T-617. A requirement of 22,000 square feet exists, leaving a shortfall of 3,692 square feet.

5. Proposed Land Use

The proposed land use plan shown on
planned functional use designations for land areas on station. The proposed land use plan should:

- Be as close to an ideal plan as is practical taking into consideration all natural and man-made constraints, existing patterns of development and realistic funding constraints. The latter factor has a greater impact on long-range land use planning when each planning element must be considered individually rather than as part of the total plan.

- Be a long-range plan as opposed to a mid-range plan on which are reflected the projects presently in the planning and programming documents.

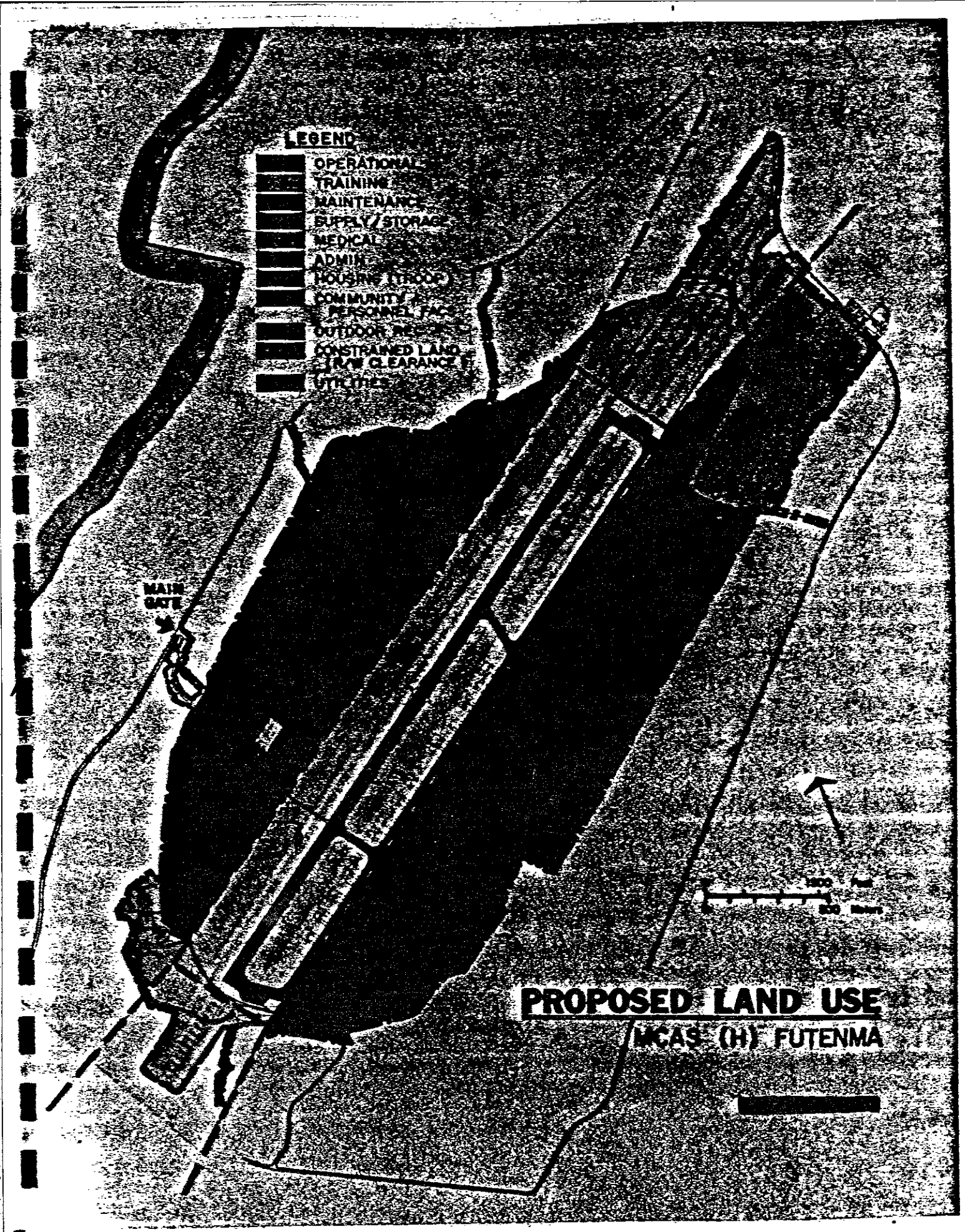
- Be used as a framework for the preparation of development plans and for making future land use decisions.

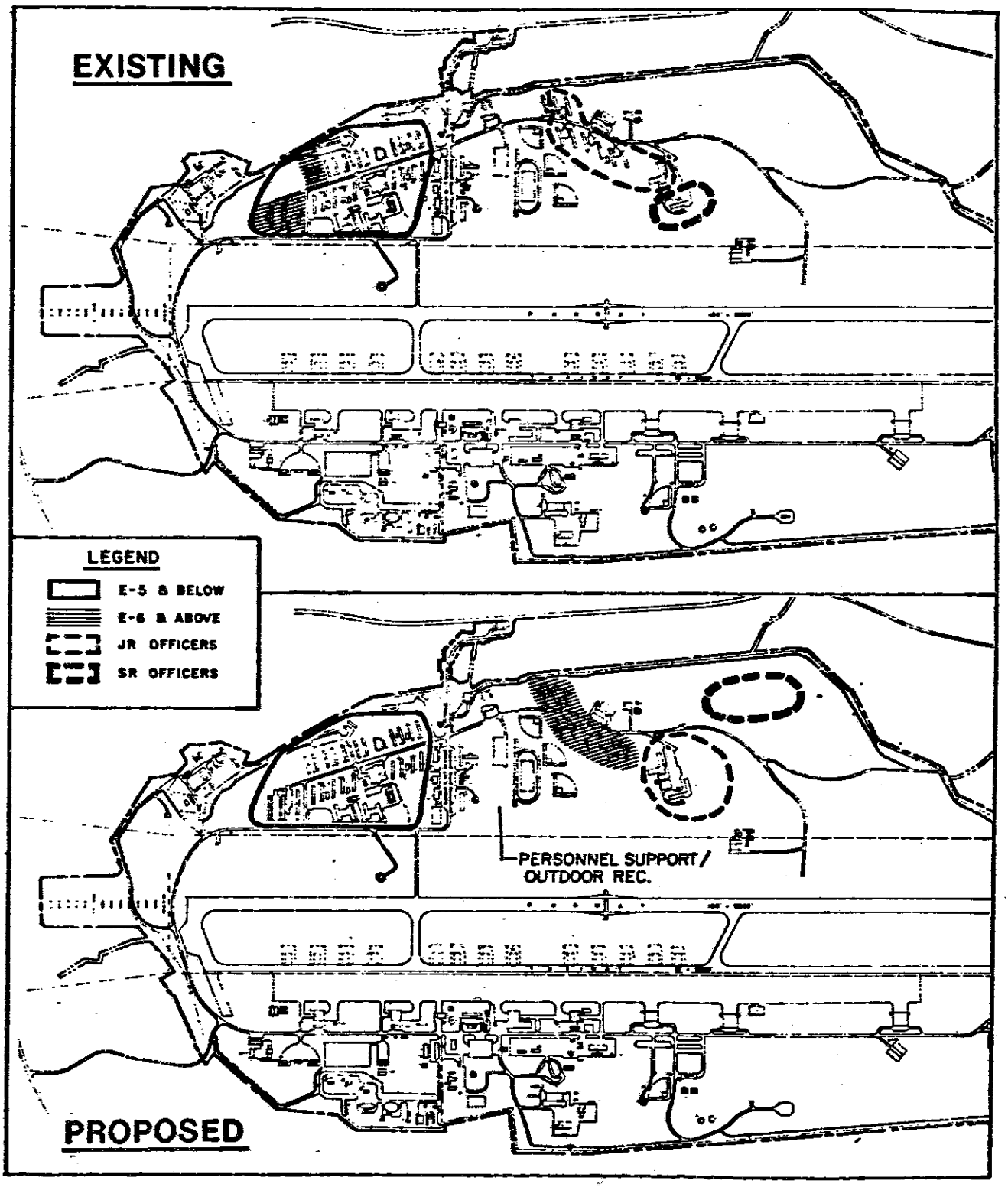
- Require only minor modification from one update to the next.

The designation of specific uses for land areas will help to prevent the uncontrolled development of the station and will reduce conflicting land uses. Because the proposed land use map will be used to control the siting of all new facilities on station, it is the major product of the Master Plan.

Some of the major long-range elements of this Plan which are intended to correct those land use deficiencies discussed in the Existing Land Use section are:

- Expansion of the air operations area southward and movement of the station support functions toward the south boundary to make room for the air operations expansion.


LEGEND
OPERATIONAL
TRAINING
MAINTENANCE
SUPPLY / STORAGE
MEDICAL
ADMIN
HOUSING / FOOD
COMMUNITY / PERSONNEL FACS
OUTDOOR REC
CONSTRAINED LAND (R/W CLEARANCE)
UTILITIES
MAIN GATE
PROPOSED LAND USE
MCAS (H) FUTENMA



0 1000 2000 Feet
0 500 Meters

UNACCOMPANIED PERSONNEL HOUSING DEVELOPMENT

f. Clubs. The inventory and requirements for clubs on station are as follows:

FACILITY	REQMT (SF)	BLDG #	EXISTING FLOOR AREA (SF)	PERCENT ADEQUATE
Enlisted Club	29,600	402	8,268	28
NCO Club	14,000	401	9,332	67
Officers Club	16,000	201*	13,728	86

*Currently designated as Officers Mess Closed.

Each club now provides a scenic view of the western coastline and the East China Sea. Any new clubs or additions should be designed to take advantage of this feature.

The following is proposed to meet the requirement for clubs:

- Construct a new Officers Club in the vicinity of the proposed officers housing area; redesignate the existing Officers Club to NCO Club (based on a concurrent redesignation of the existing junior officers housing area to NCO quarters); and construct an addition to the Enlisted Club (Building 402). Building 401 could be converted to another use, such as a library.

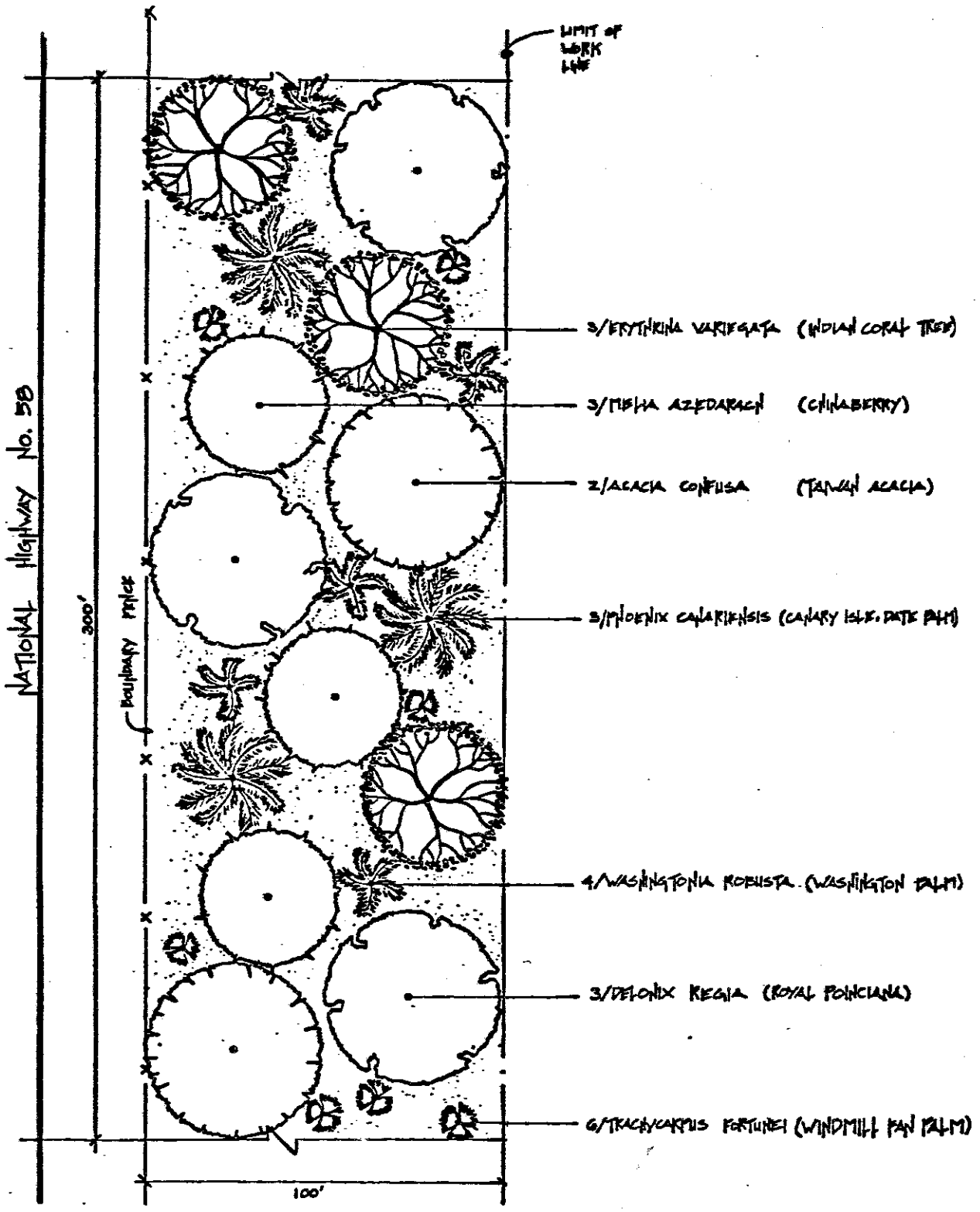
- Another alternative is to retain the Officers Club in Building 201 and construct additions to the existing NCO and Enlisted Clubs.

g. Outdoor Recreation. The primary outdoor recreation area is located between the headquarters buildings and the unaccompanied officers housing complex. This recreation area is centrally located and is readily accessible from a major station road.

Additional housing for unaccompanied enlisted personnel will be constructed in this area and will displace the ball fields. The long-range plan calls for constructing new ball fields closer to the 750-foot runway clearance line.

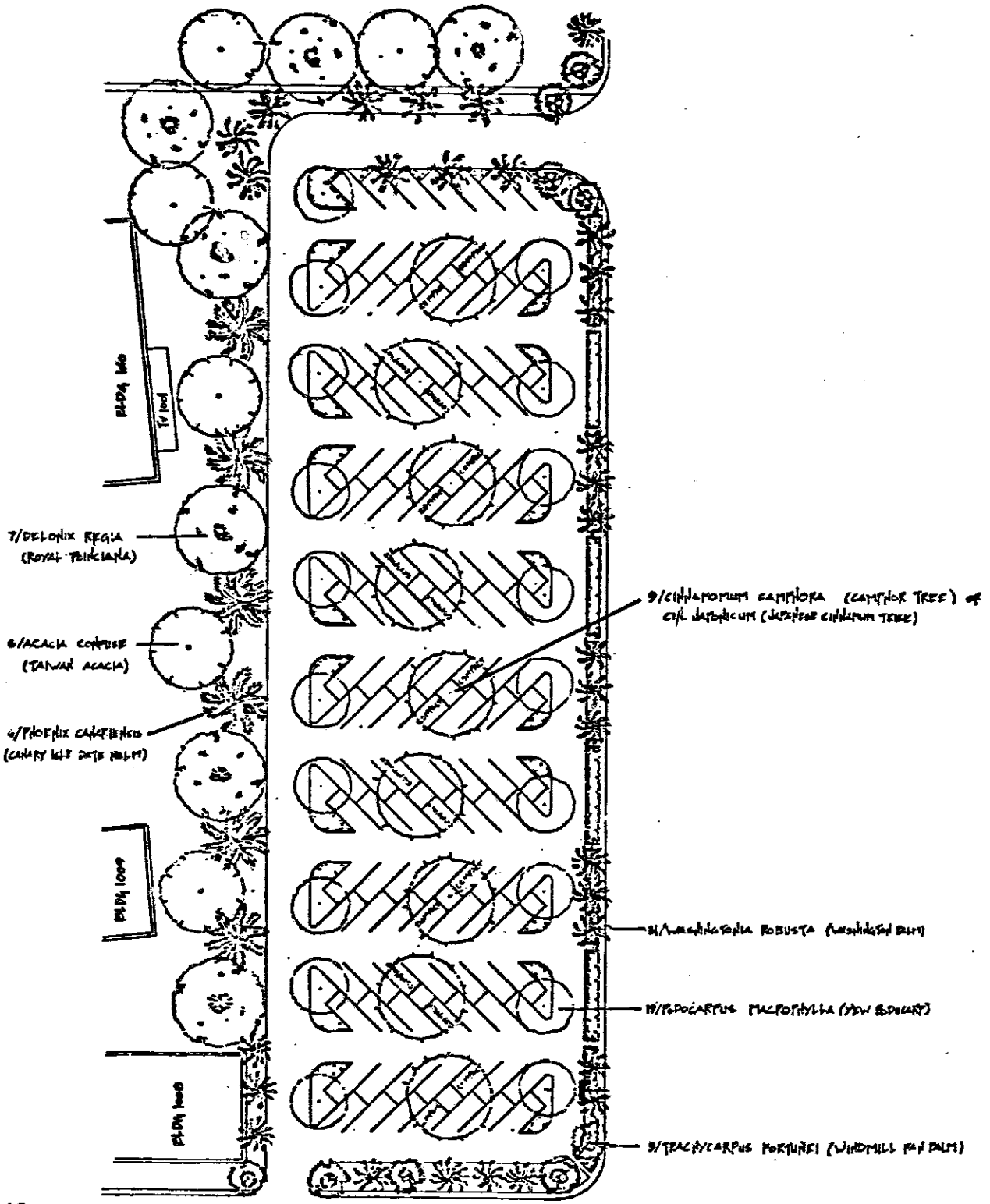
Other outdoor recreational facilities include basketball/volleyball courts in the enlisted housing complex, a four-court tennis facility across from the station headquarters building, and an outdoor swimming pool with bathhouse. All these facilities are to be retained.

h. Landscaping. It is recommended that consideration be given to developing low maintenance landscaping plans for MCAS (H) Futenma. Two "typical" landscaping plans are shown



SCALE

TYPICAL LANDCAPE BUFFER



NOTE:
IF SELECTED TREES CAN NOT BE ACQUIRED, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED TO MAKE THE NEEDED SUBSTITUTIONS.

PARKING LOT & LANDSCAPE PLAN