LINDA CROCKETT LINGLE
Mayor

HENRY OLIVA
Director

ALLEN SHISHIDO
Deputy Director

DEPARTMENT OF
PARKS AND RECREATION
COUNTY OF MAUI

1580-C KAAHUMANU AVENUE
WAILUKU, HAWAII 96793

PLANNING & DEVELOPMENT
(808) 243-7931

January 5, 1996

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King Street
Central Pacific Plaza, Suite 400
Honolulu, Hawaii 96813

RE: FINAL ENVIRONMENTAL ASSESSMENT/NEGATIVE DECLARATION FOR THE PROPOSED 4TH MARINE DIVISION MEMORIAL PARK EXPANSION, MAUI, HAWAII - TMK: 2-7-02:76 & por 58

Dear Mr. Gill:

The Maui County Department of Parks and Recreation has determined that the proposed 4th Marine Division Memorial Park Expansion will not have significant environmental effects and has issued a Negative Declaration. Please publish this notice in the January 23, 1996 OEQC Bulletin. No comment letters were received during the 30-day public comment period which ended on September 22, 1995.

Transmitted herewith are four (4) copies of the Final Environmental Assessment prepared for the 4th Marine Division Memorial Park Expansion Project, and a completed OEQC Bulletin Publication form.

We thank you for your assistance in handling this matter. Please contact Mr. Rory Frampton of Chris Hart & Partners at 242-1955 if you have any questions.

Sincerely,

Henry Oliva
Director

HO:mlf

Enclosures

c: Rory Frampton, Chris Hart & Partners

1996-01-23-MA-FEA - 4th Marine Division Memorial Park Expansion

FINAL ENVIRONMENTAL ASSESSMENT

4TH MARINE DIVISION MEMORIAL PARK EXPANSION

HAIKU, MAUI, HAWAII
TMK 2-7-02:76 & POR.58

CHRIS HART & PARTNERS

Prepared for:

County of Maui
Department of Parks and Recreation
1580 Kaahumanu Avenue
Wailuku, Maui, Hawaii 96793
Phone: 243-7387

Prepared by:

Chris Hart and Partners
Landscape Architecture and Planning
1955 Main Street, Suite 200
Wailuku, Maui, Hawaii 96793
Phone: 242-1955

December 1995

FINAL
ENVIRONMENTAL ASSESSMENT

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December 1995

TABLE OF CONTENTS

I. PROJECT OVERVIEW

Proposing Agency:	County of Maui Department of Parks and Recreation 1580 - C Kaahumanu Avenue Wailuku, Maui, Hawaii 96793
Planning Consultant/Agent:	Chris Hart & Partners 1955 Main St. Suite 200 Wailuku, Maui, Hawaii 96793
Land Owner:	County of Maui
Tax Map Key (TMK):	2-7-02: 76 & por.58

A. PROJECT LOCATION, EXISTING USE, LAND USE DESIGNATION, AND OWNERSHIP

The County of Maui Department of Parks and Recreation proposes the expansion of 4th Marine Division Memorial Park located in Haiku, Maui, Hawaii (TMK 2-7-02: 76 & por.58). See Figure 1. The expansion will encompass the existing 4th Marine Division Memorial Park. See Figure 2.

The project site is currently undeveloped and is utilized for grazing and agricultural purposes. There are no existing structures on the project site.

The existing 4th Marine Division Memorial Park is currently utilized for park purposes including play ground activities and picnics. The park has four covered picnic tables with barbecue pits, swings, jungle gym, sand boxes and a memorial plaque with three flag poles. Existing landscape planting consists of grass areas, hedges, and a variety of trees, including Eucalyptus, African Tulip, and Shower.

Ownership of the subject property was recently conveyed from Alexander & Baldwin, Inc. to the County of Maui.

B. PROJECT NEED AND BACKGROUND INFORMATION

The Haiku region is lacking in facilities to meet the recreational and athletic needs of adults and young athletes. The Haiku Community Center is the only public facility in the region that includes fields for organized athletic activities. This facility however, is presently too crowded and over used.

In response to the need for a new athletic and recreational park facility, the County of Maui purchased 24.6 acres of land from Alexander & Baldwin, Inc. adjacent to the 4th Marine Division Memorial Park. Subsequently, the Mayor appointed a committee consisting of Haiku residents to provide public input during the design stage of the proposed park expansion. Several meetings were held by this committee resulting in the final design of the 4th Marine Division Memorial Park.

In addition to athletic play fields, the committee identified a need for an equestrian facility. As a result, Alexander & Baldwin, Inc. has agreed to donate an additional 4.1 acres to accommodate this facility.

C. PROPOSED ACTION

The applicant is proposing to expand the existing 4th Marine Division Memorial Park from its existing size of approximately 6 acres to approximately 34.7 acres. The concept master plan for the proposed park expansion and related improvements will include the following (See Figure 3):

- Two baseball fields with back stops;
- Two soccer fields with goal posts;
- An equestrian/rodeo arena;
- Two tennis courts;
- On-site parking stalls, including handicap stalls, as well as a turn around area;
- Landscape planting;
- Walking/Hiking trails on Kauhikoa Hill ("Giggle Hill");
- Perimeter fencing (horse fencing) ;

- A grass access road around the perimeter of the baseball and soccer fields to the rodeo/equestrian arena; and
- Restroom facilities.

The proposed expansion is anticipated to take place in phases. The first phase of the park expansion will include approximately 17.3 acres and will be located mauka (east, south, and southwest) of the existing 4th Marine Division Memorial Park. The first phase of the park expansion will include the following (See Figure 4):

- A little league baseball field with back stop, having an approximate radius of 300 feet;
- A soccer field, measuring approximately 195 feet by 300 feet, with goal posts;
- An equestrian/rodeo arena, measuring approximately 240 feet by 130 feet;
- Seventy-three (73) on-site parking stalls, including four (4) handicap stalls, as well as a turn around area;
- Landscape planting;
- Perimeter fencing (horse fencing) around the parking area; and
- A grass access road around the perimeter of the baseball and soccer fields to the rodeo/equestrian arena.

The County plans to begin construction of the first phase in December 1995 and be completed by mid 1996.

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

The project site, located approximately 1.5 miles mauka (south) of Haiku Town, is surrounded by an area that is characterized by a rural atmosphere, comprised of residential dwellings and various agricultural settlements on a variety of lot sizes.

The project site, adjacent to the existing 4th Marine Division Memorial Park, is situated on the mauka (east-southeast) side of Puu Kauhikoa ("Giggle Hill"). To the west, across Kokomo Road, is A&B, Inc.'s Haiku Mauka Subdivision. South of the project site are large agricultural lots, while to the north is Lilikoi gulch, a natural drainage way. To the east is vacant pasture lands and the site of Alexander & Baldwin, Inc.'s proposed "Kauhikoa Hill" Subdivision.

2. Climate

Located on the windward coast of Maui on the lower slopes of Haleakala, Haiku's climatic pattern is heavily influenced by the northeasterly tradewinds as is typical of windward areas in the Hawaiian Islands. In the absence of the tradewinds, diurnal heating and cooling of the Island produces onshore sea breezes during the day and offshore land breezes at night. The average annual rainfall at the project site is approximately 75 inches with showers usually more frequent during the night and early morning. Average temperatures range from lows in the mid 60's to highs in the mid 80's.

3. Topography and Soil Characteristics

The project site is located at approximately 1,050 feet in elevation (M.S.L.) on the north facing slopes of Haleakala, a dormant volcano which rises 10,023 feet above sea level. The topography of the Haiku region is characterized by dissected upland slopes cut by major valleys formed over time as the natural drainage pattern. The average slope of the Haiku region ranges from 3% to 15%.

The high point of the subject property is formed by a natural crest near the center the property. Approximately one-third (1/3) of the site slopes towards Kokomo Road while the remaining portion, approximately two-thirds (2/3), slopes towards Lilikoi Gulch.

Underlying the project site and surrounding lands are soils belonging to the Pauwela-Haiku association. This association is comprised of deep, gently sloping to moderately steep soils that are well drained and have a fine-textured subsoil on low uplands.

The predominant soil type specific to the project site is Haiku Clay, 3-7 percent slopes (HbB) and Haiku Clay, 7-15 percent slopes (HbC). HbB and HbC soils consists of well-drained soils that have developed in material weathered from basic igneous rock. Runoff is slow to medium and the erosion hazard is slight to moderate. (Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, August 1972, prepared by the United States Department of Agriculture, Soil Conservation Service).

4. Flood Hazard

The project site is in an area that has been designated Zone "C" by the Flood Insurance Rate Map. Zone "C" is an area of minimal flooding.

5. Flora and Fauna

The project site is situated in the midst of the rural atmosphere of Haiku. Natural environment features, such as plant and animal life, therefore, are reflective of this Rural setting. Existing vegetation within the site include various weeds and grasses. There are no rare, endangered or threatened species of plants at the site.

Animal life in the project vicinity similarly reflects the rural character of the region. Avifauna typically found in the Haiku area include the common myna, several species of dove, cardinal, house finch, and house sparrow. Mammals common to this area include cats, dogs, rodents, mongoose.

6. Air Quality

Haiku's constant exposure to tradewinds creates a clean air environment. There are no point sources of airborne emissions in the Haiku region. The air quality of the Haiku region is considered good with air pollutants being attributed to natural, agricultural and vehicular sources. Natural sources of air pollution emissions include plants (aero-allergens) and wind-blown dust.

7. Noise Characteristics

Surrounding ambient noise levels in the Haiku region are characteristic of its rural atmosphere and are considered relatively low. Background noise levels in the vicinity of the project site are attributed to natural (e.g. wind) conditions and traffic from Kokomo Road.

8. Scenic Resources

From the project site, the north facing slopes Haleakala and portions of Maui's northshore are visible. The project site is not part of a significant scenic view corridor. "Giggle Hill" is a prominent cinder cone which can be seen throughout Central Maui. This hill could be considered a scenic resource especially given its association with the former 4th Marine Division "Camp Maui" (see below).

9. Archaeological/Historical Resources

The proposed project site, formerly called "Camp Maui", was utilized as a war-time military camp site by the 4th Marine Division during World War II. Approximately twenty-five thousand men trained at Camp Maui from 1944 to 1945.

Since land burial was an accepted alternative method of ammunition disposal during World War II, a bomb disposal consultant was obtained to conduct a surface and subsurface investigation for the proposed project site (Donaldson, 1993, 1995). The purpose of the investigations were to determine the extent and magnitude of buried weapons and unexploded ordnance (uxo) items. The consultant conducted two investigations, one in December 1993 and the other in July 1995.

The investigations consisted of 1) a physical surface and subsurface study which included the use of magnetic and metal detectors, 2) a search of official records and documents, and 3) interviews with residents and former Marines from Camp Maui.

The initial investigation in December 1993, which covered approximately 20 acres of the project site, did not result in the discovery or detection of any uxo items within the project site. However, it should be noted that a buried dump site, which was most likely associated with Camp Maui, was discovered outside of the proposed boundaries of the park. It is possible that uxo, weapons, and equipment may be buried within this dump site.

In July 1995, the same consultant investigated the remaining portion of the project site (approximately 4 acres) which will be acquired for the equestrian arena. This investigation did not result in the discovery or detection of any uxo items. The investigation did result in the detection of metal buried in the gully area near the site of the proposed equestrian arena. The consultant recommends that no excavation be done in this gully or swale area other than the grubbing of trees.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

The population of the County of Maui has exhibited relatively strong growth over the past decade with the 1990 population estimated to be 100,504, a 41.9% increase over the 1980 population of 70,847. Growth in the County is expected to continue, with resident population projections to the year 2000 and 2010, estimated to be 124,561 and 138,378, respectively.

The Paia-Haiku Community Plan region follows the Countywide pattern of population growth, with the region's 1990 population of 7,788 expected to rise to 9,068 by the year 2000 and to 9,902 by the year 2010 (Community Resource, Inc. 1990).

2. Economy

The economy of Haiku includes diversified agriculture and ranching as well as numerous country/town businesses. In addition, the region is surrounded by large agricultural acreage which include sugar cane

fields and pineapple fields. The vast expanse of agricultural lands managed by HC&S and Maui Land and Pine Co., Ltd., is considered a key component of the local economy.

C. PUBLIC SERVICES

1. Recreational Facilities

Recreational facilities within the Haiku region include the existing 4th Marine Division Memorial Park and the Haiku Community Center. Recreational opportunities offered at these facilities include individual and organized athletic activities as well as social gatherings.

2. Police and Fire Protection

The Maui County Police Department is headquartered in Central Maui at the Wailuku Station. The Haiku region is patrolled by officers from the Wailuku Station.

Fire prevention, suppression, and protection services for the project site is provided by the County Department of Fire Control's Paia Station, located in Paia Town.

3. Solid Waste

Single-family residential solid waste collection service is provided by the County of Maui on a once-a-week basis. Residential solid waste collected by County crews are disposed at the County's 55-acre Central Maui Landfill, located four miles southeast of the Kahului Airport. In addition to County-collected refuse, the Central Maui Landfill accepts commercial waste from private collection companies.

Solid waste collection service for the project site is currently provided by the County.

4. Health Care

Maui Memorial Hospital in Wailuku, the only major medical facility on the island, services the Haiku region. Acute, general and emergency

care services are provided by the 145-bed facility. In addition, numerous privately operated medical/dental clinics and offices are located in the Wailuku-Kahului area to serve the region's residents.

5. Schools

The Paia-Haiku region is served by the State Department of Education's public school system. Department of Education facilities in the Paia-Haiku region include (with 1995 enrollment in parenthesis) Haiku Elementary School (430), Paia Elementary School (238), and Kalama Intermediate School (1215). High school students from Paia-Haiku region are serviced by Maui High School located in Kahului.

The region is also served by privately operated Seabury Hall School (grades 6th-12th) in Olinda.

D. INFRASTRUCTURE

1. Roadways

The Haiku region is served by a roadway network which includes collectors and local roads. The primary roadways include Kokomo Road, the principal linkage between Haiku and Makawao, Kauhikoa Road, East Kuiaha, and West Kuiaha. Hana Highway is located approximately 3 miles makai (northwest) of the project site.

Access to the project site is provided via a driveway off of Kokomo Road across from the intersection of Laenani Street and Kokomo Road.

2. Wastewater

The Haiku region is not serviced by a County wastewater treatment system. The region is served by cesspools or septic tanks. The State Department of Health (DOH) has designated a critical wastewater disposal area throughout most of the Island, including the Haiku region. Within the indicated critical areas, septic tanks are required for wastewater disposal, while in the non-critical areas, cesspools are

permitted with DOH approval. The proposed project is located within the critical area.

There is currently one restroom building on the site.

3. Water

Water service to the project site is provided via a 8-inch waterline which is located along Kokomo Road. Two water meters currently serve the proposed site.

4. Drainage

There are no County improved storm drainage systems within the project site.

Existing on-site surface runoff peak volume generated by the total park expansion area (34.7 acres) during the 10-year 1-hour rainstorm is calculated to be 28.0 cfs.

Existing on-site surface runoff peak volume generated by the proposed Phase One site (17.3 acres) during the 10-year 1-hour rainstorm is calculated to be 13.4 cfs. Runoff generated at the proposed site for phase one currently sheet flows from the high point near the center of the subject property in two directions. Approximately 5.4 cfs flows towards Kokomo Road and approximately 8.0 cfs flows into Lilikoi Gulch.

Runoff along Kokomo Road flows to a 24-inch culvert located approximately 90 feet below the existing park entrance. Flows from the culvert discharge into an earth swale running through Lot 13 of the Haiku Mauka Subdivision. The capacity of the 24-inch culvert is 20 cfs.

The existing surface runoff flowing towards Lilikoi Gulch sheet flows over the pasture land before entering a natural drainage way into the gulch.

5. Electrical

The proposed project site is serviced by overhead power lines.

III. PROJECT IMPACT ASSESSMENT

A. PHYSICAL ENVIRONMENT

1. Surrounding Uses

The project site is surrounded by Haiku's residential and agricultural settlements. Immediate surrounding land uses include A&B, Inc.'s Haiku Mauka Subdivision to the south and the proposed "Kauhikoa Hill" subdivision to the east. The proposed project is intended to provide park improvements and related facilities. The project is viewed as a positive enhancement to the Haiku community. The proposed project is not anticipated to have any adverse impacts upon surrounding land uses.

2. Flora and Fauna

There are no known significant habitats of rare, endangered or threatened species of flora and fauna located on the project site. Siting of structures and facilities were done to minimize tree removal, however some existing trees will be removed in order to construct the park improvements and the parking stalls. Some Eucalyptus trees and some African Tulip trees will remain. Additional shade trees and landscape improvements will be provided.

3. Air Quality

Air quality impacts attributed to the project will include dust generated by short-term, construction-related activities. Site work such as grading and utilities and construction of the play fields, for example, will generate airborne particulates. Dust control measures such as regular watering and sprinkling will be implemented as needed to minimize wind-blown emissions.

The proposed project will result in a increase in the volume of traffic being attracted to the project site. However, since park-related traffic represents a small portion of overall traffic activity in the Haiku region, the proposed project is not anticipated to be detrimental to local air quality.

4. Noise

As with air quality, ambient noise conditions will be impacted by construction activities. Heavy construction equipment, such as bulldozers, front end loaders, and materials-carrying trucks and trailers, would be the dominant source of noise during the site construction period. However, once completed , it is anticipated that the project will not have an adverse impact upon existing noise characteristics.

5. Visual Resources

The proposed landscape concept plan for the project includes native plants and trees which will enhance the project site as well as provide visual screening and blending of surrounding land uses. A majority of the view planes from Kokomo Road and from the project site will be maintained. Through appropriate landscape planting and park design the project should enhance the visual character of the area.

6. Archaeological and Historical Resources

As noted above in Section II, a bomb consultant conducted two investigations of the proposed project site to determine the possibility of buried equipment and/or unexploded ordnance (uxo) on the site. The investigations did not result in the discovery or detection of any uxo items within the project site. In addition, the project site has been plowed and cultivated in pineapple since World War II and is currently used as pasture for cattle. As a result of the two surface and sub-surface investigations, the consultant feels that the possibility of uxo items existing at the proposed site is highly unlikely.

The second investigation did result in the detection of metal buried in the gully area near the proposed equestrian arena. The consultant recommends that no excavation be done in this gully or swale area other than the grubbing of trees. The gully area is located on the perimeter of the site and outside any active recreation areas. There are no plans to excavate this area. A major portion of this section will

be covered with fill. As such, the consultant recommends proceeding with the proposed project.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Local Economy and Population

On a short-term basis, the project will support construction and construction-related employment.

On a long-term basis, the construction of the of the park will not have an impact on employment opportunities, nor will it have an impact upon local population levels.

C. PUBLIC SERVICES

The proposed project is not anticipated to adversely affect public services such as police or fire protection or medical services in terms of service area. Solid Waste collection service for the proposed project site will be provided by private collection companies (?).

The proposed project will provide the Haiku region with a permanent recreational facility which will promote the general health and welfare of the regions residents. The region is lacking in facilities to meet the recreational and athletic needs of adults and young athletes. Thus, the proposed project will provide increased recreational opportunities for Maui residents and will have a positive impact upon the region's public services.

D. INFRASTRUCTURE

1. Traffic

The proposed project will result in a increase in the volume of traffic being attracted to the project site. However, since park-related traffic represents a small portion of overall traffic activity in the Haiku region, it is anticipated that the project will not have an adverse effect on traffic operations on adjacent streets.

2. Wastewater System

The proposed plans do not include the construction of new restrooms. The project site is not serviced by County wastewater treatment system and is considered a critical wastewater disposal area. Therefore, the proposed project will not have an impact upon the County wastewater treatment system.

3. Water System

There will be no new water meters as part of the proposed project. A temporary irrigation system will be used initially for turf and landscape start up as well as dust and erosion control. After vegetation is established, the site will rely upon rainfall. Thus, the project will not have a long term impact upon the water source, storage and transmission system in Haiku.

4. Drainage

Alteration to the natural on-site drainage pattern will be kept to a minimum. Runoff will sheet flow over the park into grassed swales. The park expansion will reduce the slope of the land to accommodate the ball fields. This reduced slope will slow runoff allowing for more infiltration into the soil. The benefit of the increased infiltration, however, is offset by the increase in impervious area created by the parking lot paving. The total surface runoff generated by the proposed conceptual master plan is 13.4 cfs, an increase of 2.7 cfs.

Phase One of the proposed park expansion will maintain the same drainage pattern. Minimal on-site drainage improvements include installing a grated drain inlet to collect and convey surface runoff under the proposed parking lot into the swale along Kokomo Road. The surface runoff on the "Kokomo" system increases by about 0.3 cfs to 5.7 cfs. Although the proposed grading of the fields reduces the slope of the land, that benefit is offset by the addition of the impervious surfaces.

As a result of the grading of the equestrian/rodeo arena, the surface runoff flowing towards Lilikoi Gulch is reduced by about 0.3 cfs to 7.1 cfs.

A depression at the park access culvert crossing will help detain low intensity rainfalls on the "Kokomo" system. During the 10-year design storm, however, the negligible increase resulting from the project will continue to flow along Kokomo Road until discharging into Maliko Gulch. As a result, the proposed project is not anticipated to have an negligible impact upon the existing hydrologic conditions and adjoining or downstream properties.

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE LAWS

The Hawaii Land Use Law, Chapter 205, Hawaii Revised Statutes, establishes four major land use districts in which all lands in the State are placed. These districts are designated "Urban", "Rural", "Agriculture", and "Conservation". The subject property is located within the State "Agricultural" district. Parks are a permitted use within the State "Agricultural" district.

B. GENERAL PLAN OF THE COUNTY OF MAUI

The General Plan of the County of Maui (1980) update provides long term goals, objectives, and policies directed toward the betterment of living conditions in the County. Addressed are social, environmental, and economic issues which influence future growth in Maui County. The following General Plan objective and policies are addressed by the proposed project:

Objective: To improve the quality and availability of public facilities throughout Maui County.

Policies:

- Encourage the design of multi-purpose public facilities accessible to all age groups and the handicapped.
- Encourage the development of public facilities which will be architecturally and ecologically compatible with their surroundings and foster community development.

Objective: To provide high-quality recreational facilities to meet the present and future needs of our residents of all ages and physical ability.

Policies:

- Develop facilities that will meet the different recreational needs of various communities.

- Develop multi-purpose recreational facilities.
- Expand, improve and create new beach rights-of-ways, parks, campsites, and other facilities designated for family use.
- Encourage the transfer of under-utilized State and Federal land to the County for public recreation and cultural use.

Objective: To provide a wide range of recreational, cultural and traditional opportunities for all our people.

Policies:

- Encourage the use of public facilities for both cultural and recreational activities.
- Encourage the use of public lands to expand and enhance outdoor recreational and cultural opportunities.

C. PAIA-HAIKU COMMUNITY PLAN

Nine (9) community plan regions have been established in Maui County. Each region's growth and development is guided by a Community Plan which contain objectives and policies in accordance with the County General Plan. The purpose of the Community Plan is to outline a relatively detailed agenda for carrying out these objectives.

The proposed project is located within the Paia-Haiku Community Plan region. The proposed project would facilitate implementation of the Paia-Haiku Community Plan by addressing the following objectives:

- Improve maintenance and provide more facilities at existing recreation areas, including the old Maui High School.

Maps are included within each Community Plan in order to capture spatially the intent of the plan. The project site is designated "Agriculture" by the Paia-Haiku Community Plan Land Use Map.

The proposed update of the Paia-Haiku Community Plan requests that the parcel be changed to "Park"

V. FINDINGS AND CONCLUSIONS

The proposed project will provide the Haiku region with a permanent recreational facility which will promote the general health and welfare of the regions residents. The region is lacking in facilities to meet the recreational and athletic needs of adults and young athletes. Thus, the proposed project will provide increased recreational opportunities for Maui residents and will have a positive impact upon the region.

The proposed project will involve earthwork and construction activities. In the short term, these activities may generate temporary nuisances normally associated with construction activities. All construction activities are anticipated to be limited to normal daylight working hours. Impacts generated from construction activities are not considered significant.

From a long-term perspective, the proposed project is not anticipated to result in adverse environmental impacts.

The former use of the project site during World War II as a military training camp ("Camp Maui") necessitated an investigation to determine the possibility of buried military equipment and/or unexploded ordnance (uxo) on the site. The investigation did not result in the discovery or detection of any uxo items within the project site. The investigation concluded that the possibility of uxo items existing at the proposed site is highly unlikely. In addition, the project site has been plowed and cultivated in pineapple since World War II and is currently used as pasture for cattle.

The project will not have an impact on employment opportunities, nor will it have an impact upon local population levels. Public service needs such as police, medical facilities and schools will not be adversely impacted by the project. Impacts upon roadways, water, wastewater, drainage, and other infrastructure systems are not considered significant.

In light of the foregoing findings, it is concluded that the proposed action will not result in any significant impacts.

REFERENCES

REFERENCES

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FIGURES

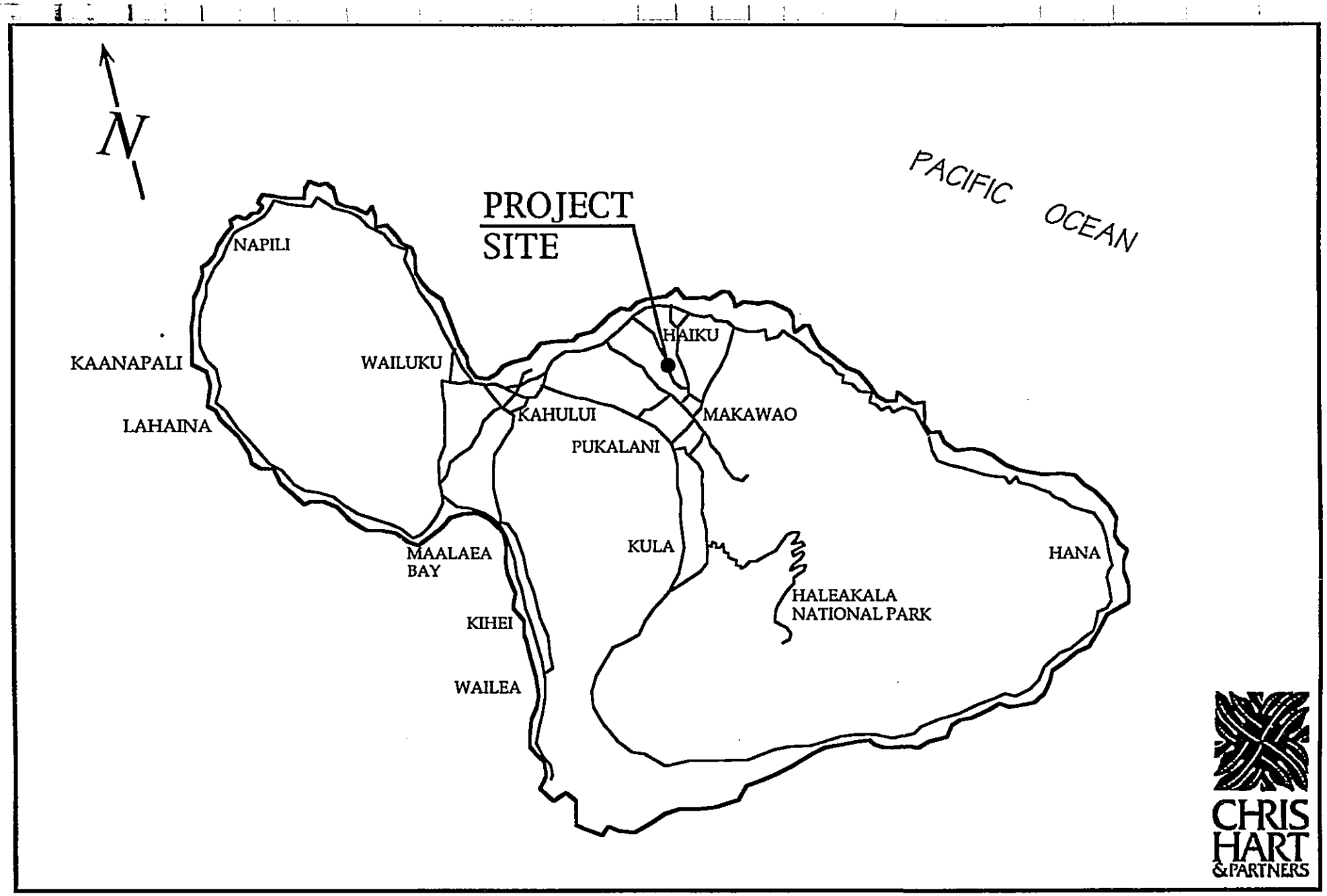


FIGURE 1 - REGIONAL LOCATION MAP
4th Marine Division
Memorial Park Expansion

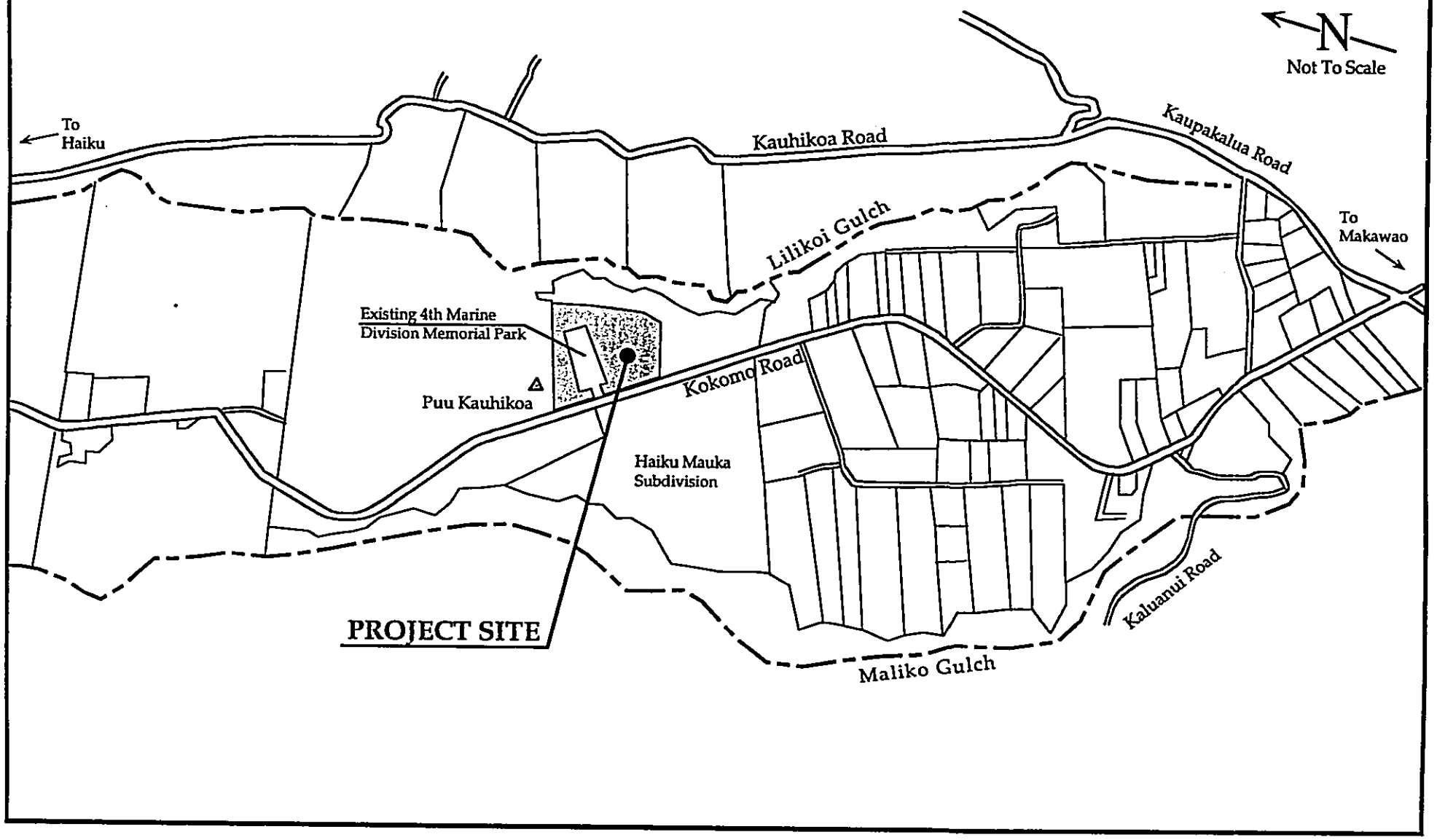
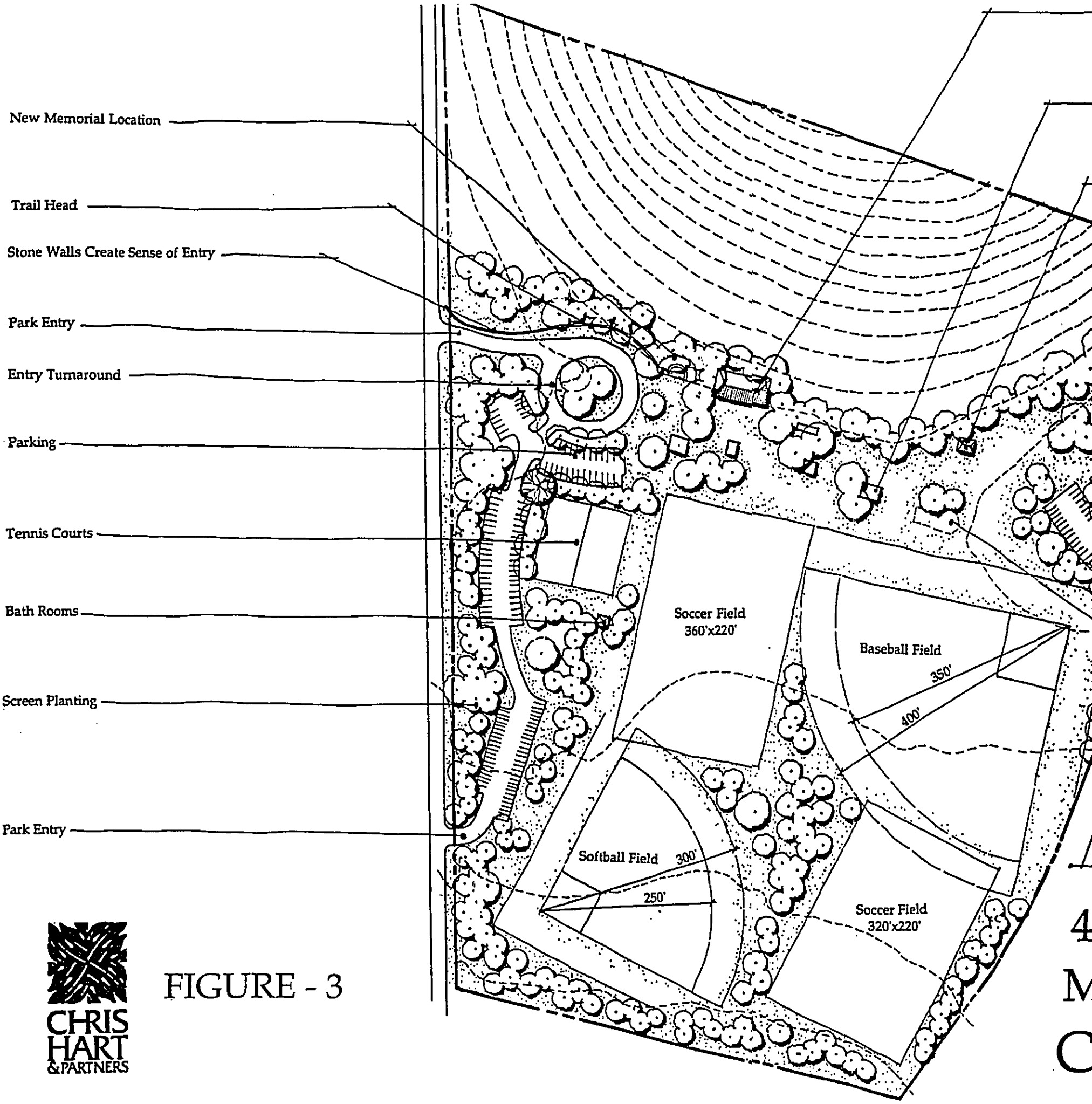


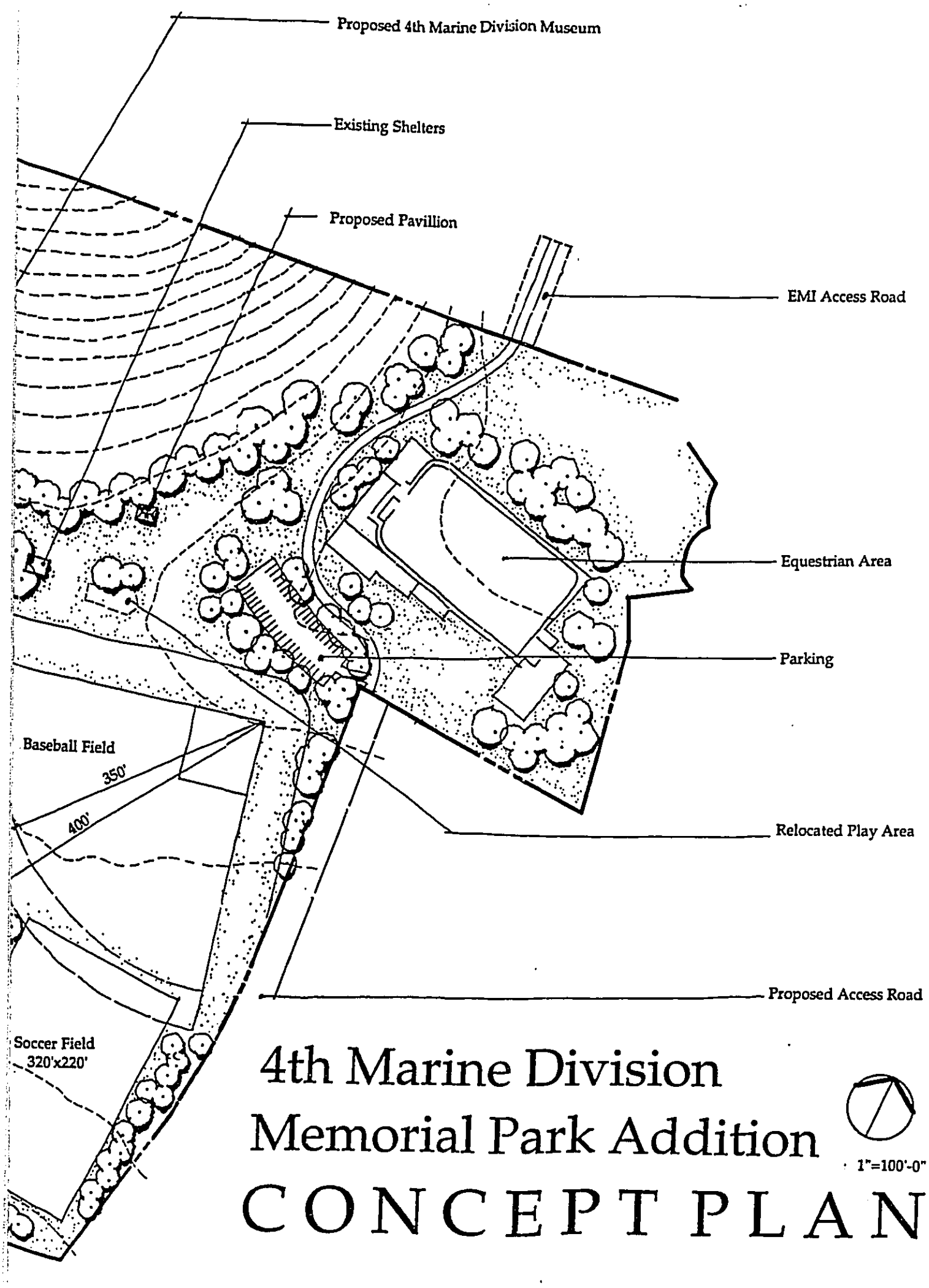
FIGURE - 2
PROJECT LOCATION MAP
4th Marine Division
Memorial Park Expansion

CHRIS HART &PARTNERS



CHRIS HART & PARTNERS

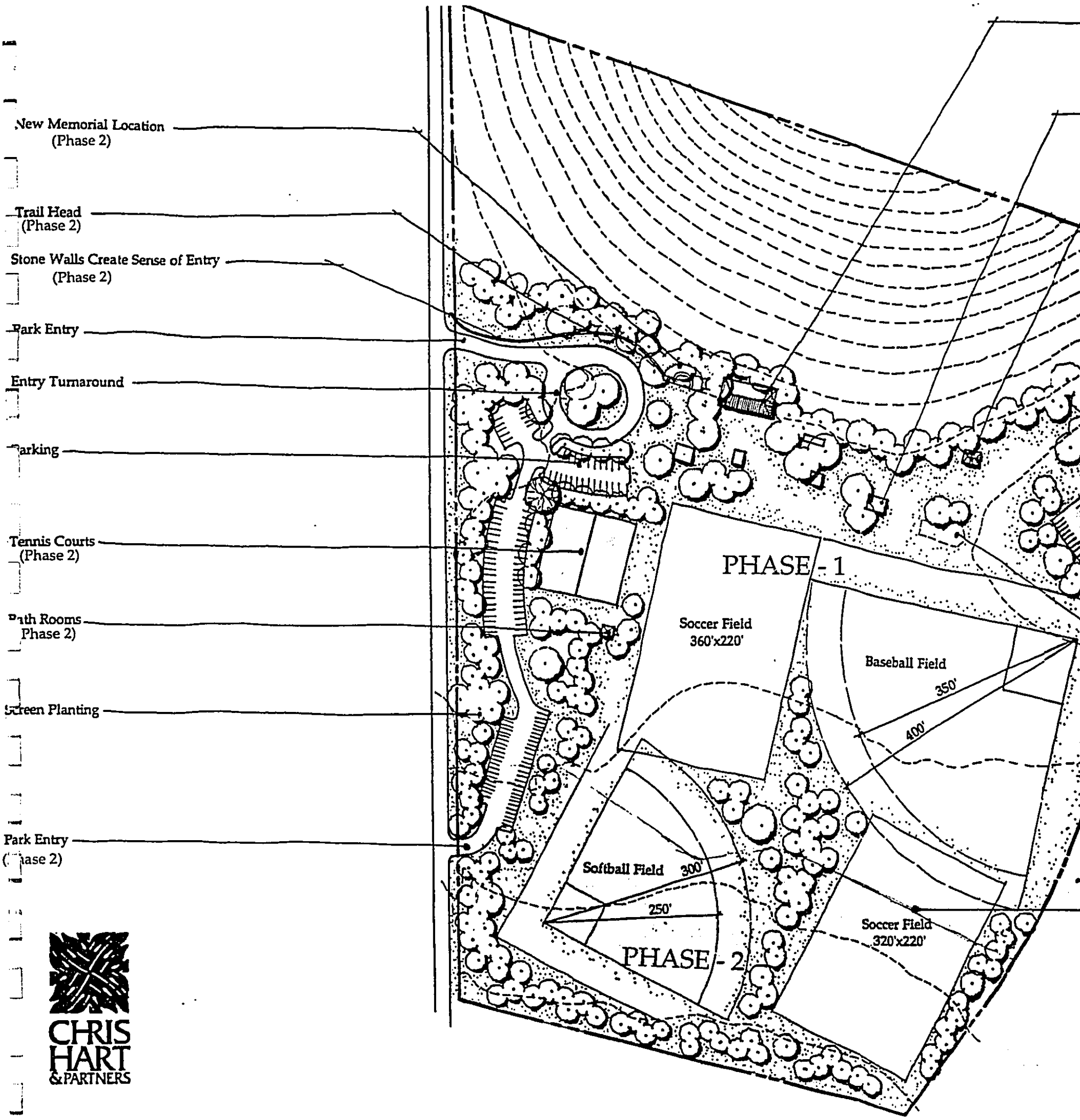
FIGURE - 3



4th Marine Division Memorial Park Addition

1"=100'-0"

CONCEPT PLAN



CHRIS HART & PARTNERS

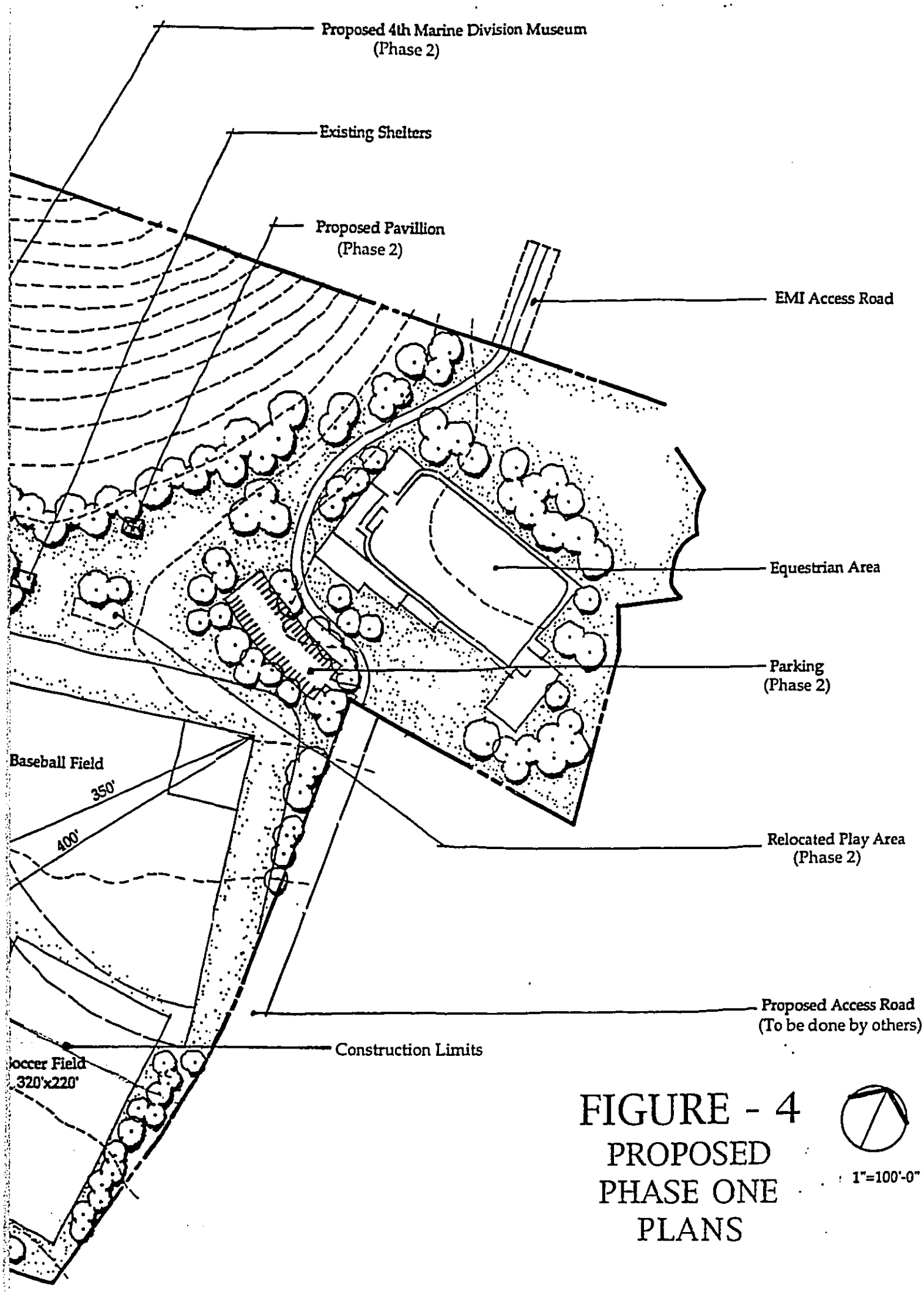


FIGURE - 4

PROPOSED PHASE ONE PLANS

1"=100'-0"

VI. AGENCIES CONSULTED IN THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT

The following agencies were consulted in preparing this draft environmental assessment:

County of Maui:
- Office of the Mayor
- Department of Parks and Recreation
- Department of Planning
- Department of Public Works, Wastewater Division
- Department of Water Supply

State of Hawaii:
- Department of Education

APPENDIX -A
Drainage & Erosion Control Report

DRAINAGE AND EROSION CONTROL REPORT
FOR
4TH MARINE DIVISION
MEMORIAL PARK ADDITION
Haiku, Maui, Hawaii
TMK: (2) 2-7-02: 76 & Portion of 58

Prepared for

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July, 1995

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TABLE OF CONTENTS

I. PURPOSE

The purpose of this report is to present hydrologic and hydraulic design computations and to comply with Chapter 20.08, Soil Erosion and Sedimentation Control of the Maui County Code to obtain a grubbing and grading permit.

II. PROJECT DESCRIPTION

The project involves a 24.6-acre addition to the 6-acre 4th Marine Division Memorial Park in Haiku, Maui. The tax map identifying the location of the existing park and addition is TMK: (2) 2-7-02: 76. The initial phase of the park expansion includes about 13.2 acres. Also included in the initial phase is about 4.1 acres on TMK: (2) 2-7-02: 58 for an equestrian arena. The total area of the first phase development, including the park expansion and equestrian arena, is about 17.3 acres.

The proposed first phase improvements include play fields, an equestrian arena, a paved park access across the Laenani Street/Kokomo Road intersection, 73 paved parking stalls, and landscaping. The play fields include a soccer field and a little league baseball field. The first phase is located immediately mauka of the existing park. (See Figure 1 - Location Map (USGS Map), page 5 and Figure 2 - Vicinity Map (Tax Map), page 6.)

A future Phase 2 development of the park site will consist of about 5.4 acres and includes a soccer field and a pony baseball field. The remaining 6.4 acres of the park addition encompasses a portion of Kauhikoa Hill.

III. DRAINAGE

A. Existing Conditions

The total park, addition, and equestrian arena encompass a 34.7-acre area. Based on the rational method (10-year, 1-hour recurrence interval). The total surface runoff generated by the park is 28.0 cfs.

The first phase of the park development is located adjacent to and mauka of the existing 4th Marine Division Park. Drainage pattern at the site is divided into two areas along a natural crest. The front section of the park flows towards Kokomo Road while the back section flows towards Lilikoi Gulch.

Based on the rational method (10-year, 1-hour recurrence interval), the total surface runoff generated by the Phase I site is about 13.4 cfs. Due to the existing topography of the site, approximately 5.4 cfs flows towards Kokomo Road and about 8.0 cfs flow

towards Lilikoi Gulch. (See Appendix A, page 8.)

The existing drainage improvements along Kokomo Road are minimal. Runoff flows along Kokomo Road to a 24-inch culvert located approximately 90 feet below the existing park entrance. The culvert crosses Kokomo Road and discharges into an earth swale running through Lot 13 of the Kauhikoa Subdivision. The capacity of this 24-inch culvert is about 20 cfs.

The drainage area for the existing 24-inch culvert is about 21.7 acres. Using a 50-year, 1-hour storm recurrence interval, the peak runoff flow to this culvert is approximately 17.3 cfs.

The existing surface runoff flowing towards Lilikoi Gulch is allowed to sheet flow over the pasture land before entering a natural drainage way into the gulch.

B. Developed Conditions

Alteration to the natural on-site drainage pattern will be kept to a minimum. Runoff will sheet flow over the park and ball fields into grassed swales. The park development will reduce the slope of the land to accommodate the ball fields. This reduced slope will slow runoff allowing more infiltration into the soil. The benefit of the increased infiltration, however, is offset by the parking lot paving. The total surface runoff generated the development is 13.4 cfs, an increase of 2.7 cfs.

The Phase I development will maintain this drainage pattern. Minimal on-site drainage improvements include installing a grated drain inlet to collect and convey surface runoff under the proposed parking into the swale along Kokomo Road. The surface runoff on the "Kokomo" system increases by about 0.3 cfs to 5.7 cfs. Although the field development reduces the slope of the land, that benefit is off-set by the addition of impervious surfaces.

Due to the grading of the equestrian site, the surface runoff flowing toward Lilikoi Gulch is reduced by about 0.3 cfs to 7.1 cfs.

C. Conclusion

A depression at the park access culvert crossing will help detain low intensity rainfalls on the "Kokomo" system. During the 10-year design storm, however, the negligible increase resulting from the project will continue to flow along Kokomo Road until discharging into Maliko Gulch. As a result, this development will have no adverse effect on the adjacent or downstream properties.

IV. SOIL EROSION CONTROL MEASURES

Soil loss computations show that construction of this project will cause a minimal amount of soil loss. Since the project construction will be phased, the report evaluates the larger first phase development.

The following is a summary of the soil loss computations based on the Universal Soil Loss Equation. (See Figure 3 - Soil Map, page 7 and Appendix C - Soil Erosion Control Measures, page 13.)

Area:	17.3 acres
Uncontrolled Erosion Rate:	16 tons/acre/year
Allowable Erosion Rate:	289 tons/acre/year
Severity Number:	2,768
Allowable Severity Number:	50,000

The figures above indicate that soil loss is within the allowable limits. The uncontrolled erosion rate (16 tons/acre/year) is lower than the allowable erosion rate (289 tons/acre/year) and the severity number (2768) is lower than the allowable severity number (50,000).

Normal erosion control measures will therefore prevent excessive soil loss during construction. Erosion control measures include sprinkling to control dust and installing permanent erosion control measures as soon as possible.

V. REFERENCES

1. R. M. Towill Corporation, *Drainage Master Plan for the County of Maui*, Honolulu, Hawaii, October 1971.

2. City and County of Honolulu, Department of Public Works, Division of Engineering, *Storm Drainage Standards*, Honolulu, Hawaii, May 1988.

3. U. S. Department of Agriculture, Soil Conservation Service, *Erosion and Sediment Control Guide for Hawaii*, Honolulu, Hawaii, March 1981.

4. U. S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*, Washington, D.C., August 1972.

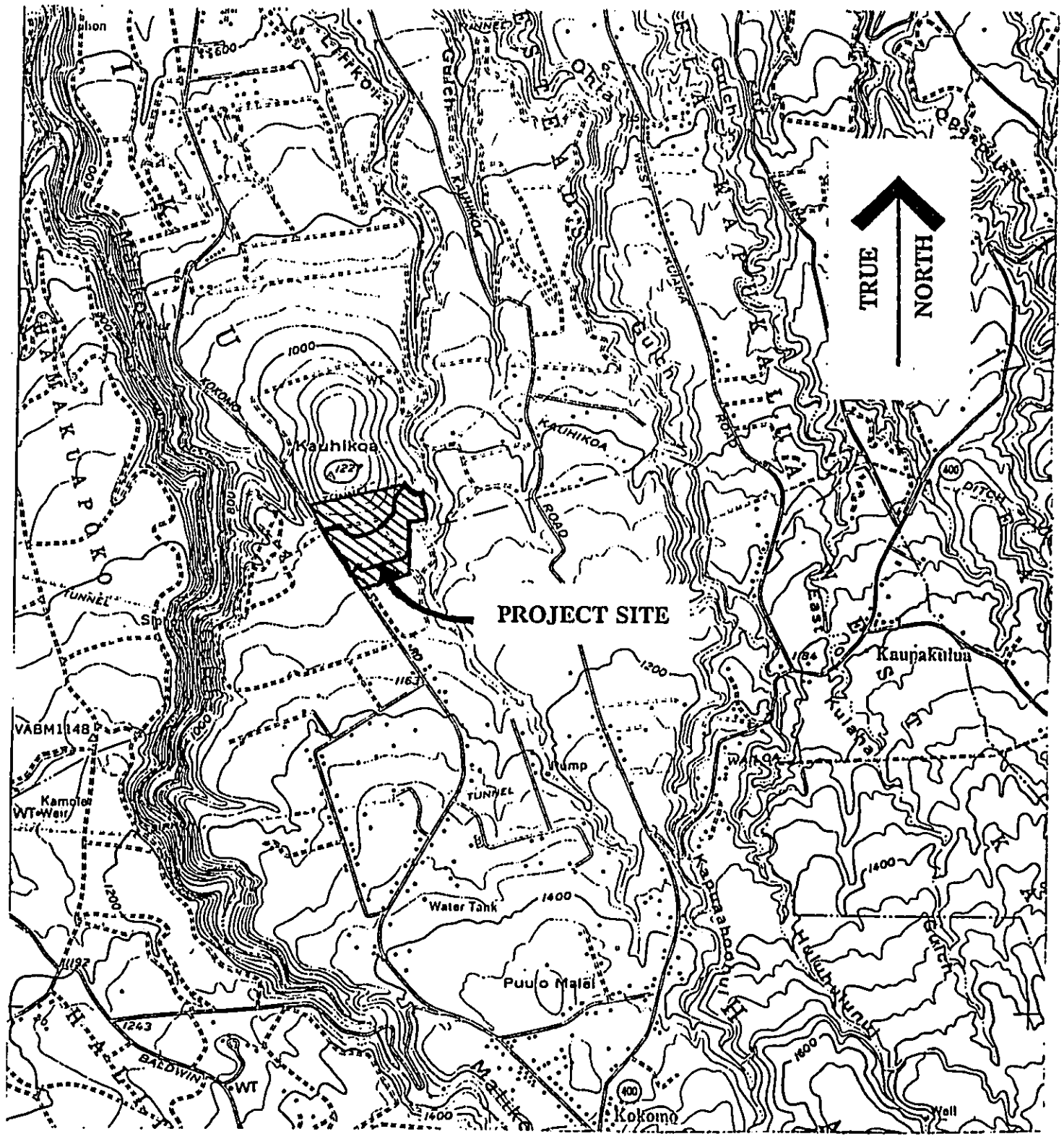

FIGURE 1
LOCATION MAP (USGS MAP)
Scale: 1" = 2000'

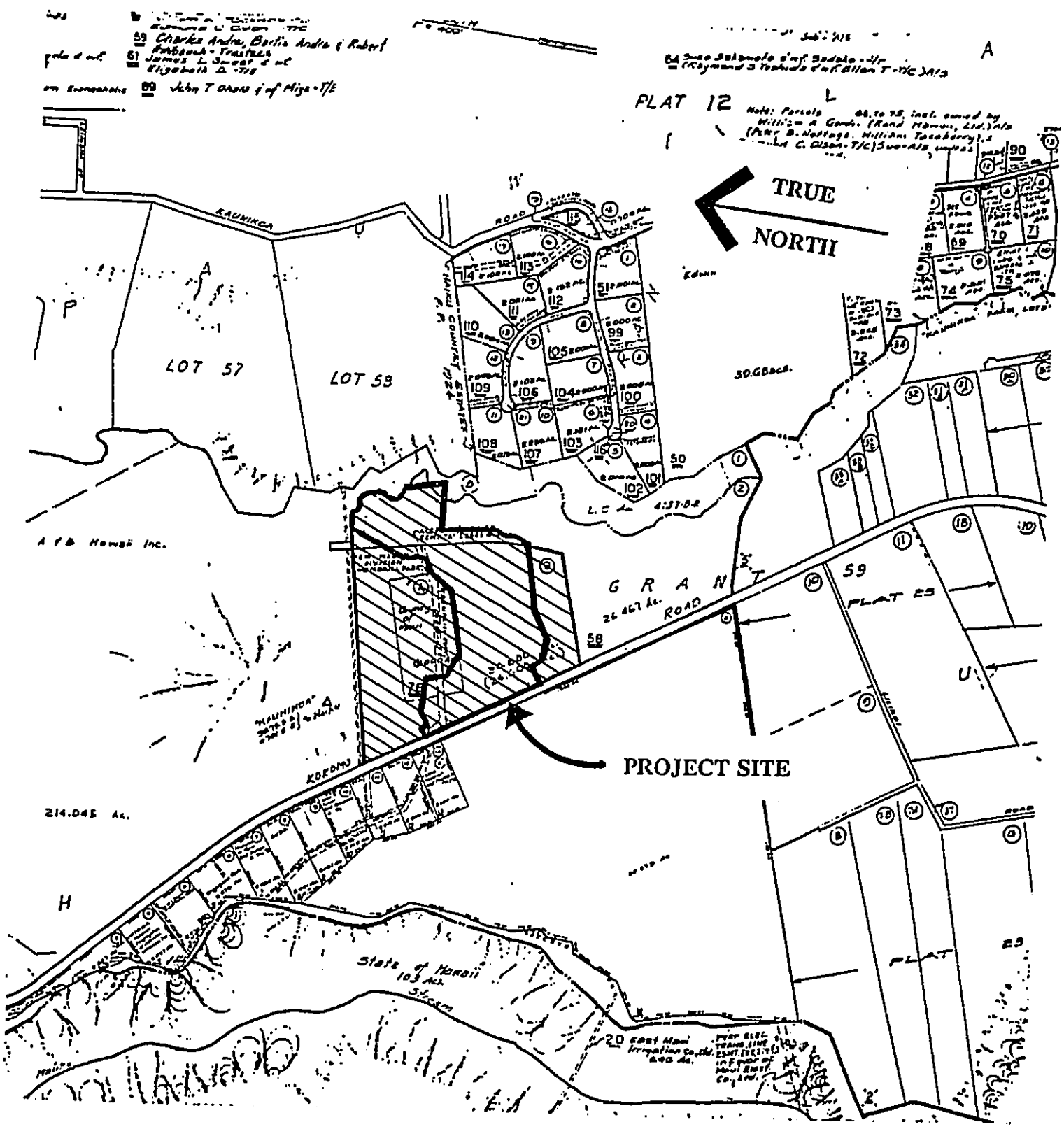

FIGURE 2
VICINITY MAP (TAX MAP)
Scale: 1" = 800'

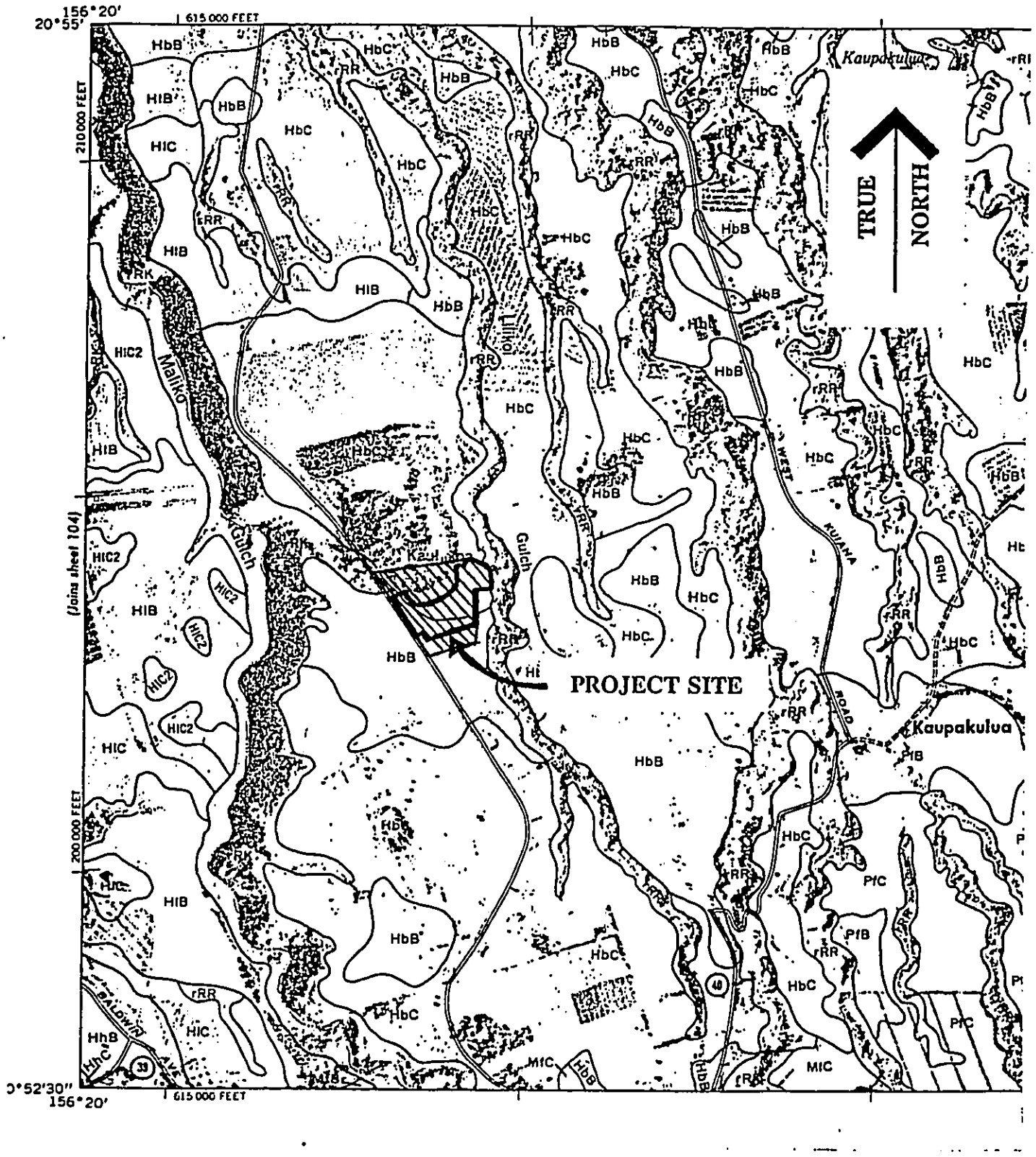

FIGURE 3
SOIL SURVEY MAP
Scale: 1" = 2000'

APPENDIX A

DRAINAGE COMPUTATIONS
(PHASE I EXPANSION)

PURPOSE: To calculate the existing and developed on-site surface runoff generated by the Phase I expansion of the 4th Marine Division Memorial Park development. The runoff computations are based on the rational method using a 10 year, 1-hour rainfall recurrence interval.

1. *EXISTING CONDITIONS:*

A. RUNOFF COEFFICIENT

From Table 1, Ref. 1:

Infiltration:	Medium	0.07
Relief:	Flat (3.2%)	0.02
Vegetal Cover:	High	0.00
Development Type:	Agricultural	0.15
	C =	0.24

B. EXISTING RUNOFF

Determine 10-year recurrence interval runoff for existing conditions.

Drainage Area $_{\text{(Kokomo Road)}}$ = 7.2 acres
Drainage Area $_{\text{(Lilikoi Gulch)}}$ = 10.1 acres
Total Drainage Area (A) = 17.3 acres

Rainfall (I_{10}) = 2.6 inches (From Plate III-14, Ref. 1)

Time of Concentration $(T_c)_{\text{Kokomo Road}}$ = 45 minutes
Time of Concentration $(T_c)_{\text{Lilikoi Gulch}}$ = 39 minutes

Rainfall Intensity $(i_{10})_{\text{Kokomo Road}}$ = 3.1 inches/hour (From Plate 4, Ref. 1)
Rainfall Intensity $(i_{10})_{\text{Lilikoi Gulch}}$ = 3.3 inches/hour (From Plate 4, Ref. 1)

$Q_{10\ \text{(Kokomo Road)}}$ = CiA = 0.24 x 3.1 x 7.2 = 5.4 cfs
$Q_{10\ \text{(Lilikoi Gulch)}}$ = CiA = 0.24 x 3.3 x 10.1 = 8.0 cfs

2. DEVELOPED CONDITIONS:

A. RUNOFF COEFFICIENT

Infiltration:	Medium	0.07
Relief:	Flat (2.0%)	0.00
Vegetal Cover:	High (A.C. pavement)	0.01
Development Type:	Agricultural	0.15
	$C_{(Kokomo\ Road)}$ =	0.23

Infiltration:	Medium	0.07
Relief:	Flat	0.00
Vegetal Cover:	High	0.00
Development Type:	Agricultural	0.15
	$C_{(Lilikoi\ Gulch)}$ =	0.22

B. DEVELOPED RUNOFF

Determine 10-year recurrence interval runoff for developed conditions.

Drainage Area $_{(Kokomo\ Road)}$ = 7.3 acres
Drainage Area $_{(Lilikoi\ Gulch)}$ = 10.0 acres
Total Park Drainage Area (A) = 17.3 acres

Rainfall (I_{10}) = 2.6 inches (From Plate III-14, Ref. 1)

Time of Concentration $(T_c)_{Kokomo\ Road}$ = 36 minutes
Time of Concentration $(T_c)_{Lilikoi\ Gulch}$ = 35 minutes

Rainfall Intensity $(i_{10})_{Kokomo\ Road}$ = 3.4 inches/hour (From Plate 4, Ref. 1)
Rainfall Intensity $(i_{10})_{Lilikoi\ Gulch}$ = 3.5 inches/hour (From Plate 4, Ref. 1)

$Q_{10\ (Kokomo\ Road)}$ = CiA = 0.23 x 3.4 x 7.3 = 5.7 cfs
$Q_{10\ (Lilikoi\ Gulch)}$ = CiA = 0.22 x 3.5 x 10.0 = 7.7 cfs

3. INCREASE DUE TO DEVELOPMENT

Runoff flowing towards Kokomo Road:
5.7 cfs - 5.4 cfs = 0.3 cfs

Runoff flowing into Lilikoi Gulch:
7.7 cfs - 8.0 cfs = (-)0.3 cfs

APPENDIX B

DRAINAGE COMPUTATIONS
(34.7-ACRE PARK DEVELOPMENT)

PURPOSE: To calculate the existing and developed on-site surface runoff generated by the (34.7-acre) 4th Marine Division Memorial Park development. The runoff computations are based on the rational method using a 10 year, 1-hour rainfall recurrence interval.

1. EXISTING CONDITIONS:

A. RUNOFF COEFFICIENT

From Table 1, Ref. 1:

Infiltration:	Medium		0.07
Relief:	Flat (3%)		0.01
Vegetal Cover:	High		0.00
Development Type:	Agricultural		0.15
		$C_{(Kokomo\ Road)}$ =	0.23

Infiltration:	Medium		0.07
Relief:	Flat (5%)		0.03
Vegetal Cover:	High		0.00
Development Type:	Agricultural		0.15
		$C_{(Lilikoi\ Gulch)}$ =	0.25

B. EXISTING RUNOFF

Determine 10-year recurrence interval runoff for existing conditions.

Drainage Area $_{(Kokomo\ Road)}$ = 16.1 acres
Drainage Area $_{(Lilikoi\ Gulch)}$ = 18.6 acres
Total Park Drainage Area (A) = 34.7 acres

Rainfall (I_{10}) = 2.6 inches (From Plate III-14, Ref. 1)

Time of Concentration $(T_c)_{Kokomo\ Road}$ = 45 minutes
Time of Concentration $(T_c)_{Lilikoi\ Gulch}$ = 46 minutes

Rainfall Intensity $(i_{10})_{Kokomo\ Road}$ = 3.1 inches/hour (From Plate 4, Ref. 1)
Rainfall Intensity $(i_{10})_{Lilikoi\ Gulch}$ = 3.0 inches/hour (From Plate 4, Ref. 1)

$Q_{10\ (Kokomo\ Road)}$ = CiA = 0.23 x 3.1 x 16.1 = 11.5 cfs
$Q_{10\ (Lilikoi\ Gulch)}$ = CiA = 0.25 x 3.0 x 18.6 = 14.0 cfs

2. DEVELOPED CONDITIONS:

A. RUNOFF COEFFICIENT

Infiltration:	Medium	0.07
Relief:	Flat (2.5%)	0.01
Vegetal Cover:	High (A.C. pavement)	0.01
Development Type:	Agricultural	0.15
	$C_{(Kokomo\ Road)}$ =	0.24

Infiltration:	Medium	0.07
Relief:	Flat (2.5%)	0.01
Vegetal Cover:	High	0.00
Development Type:	Agricultural	0.15
	$C_{(Lilikoi\ Gulch)}$ =	0.23

B. DEVELOPED RUNOFF

Determine 10-year recurrence interval runoff for developed conditions.

Drainage Area $_{(Kokomo\ Road)}$ = 17.2 acres
Drainage Area $_{(Lilikoi\ Gulch)}$ = 17.5 acres
Total Park Drainage Area (A) = 34.7 acres

Rainfall (I_{10}) = 2.6 inches (From Plate III-14, Ref. 1)

Time of Concentration $(T_c)_{Kokomo\ Road}$ = 41 minutes
Time of Concentration $(T_c)_{Lilikoi\ Gulch}$ = 37 minutes

Rainfall Intensity $(i_{10})_{Kokomo\ Road}$ = 3.2 inches/hour (From Plate 4, Ref. 1)
Rainfall Intensity $(i_{10})_{Lilikoi\ Gulch}$ = 3.4 inches/hour (From Plate 4, Ref. 1)

$Q_{10\ (Kokomo\ Road)}$ = CiA = 0.23 x 3.2 x 17.2 = 12.7 cfs
$Q_{10\ (Lilikoi\ Gulch)}$ = CiA = 0.25 x 3.4 x 17.5 = 14.9 cfs

3. INCREASE DUE TO DEVELOPMENT

Runoff flowing towards Kokomo Road:
12.7 cfs - 11.5 cfs = 1.2 cfs

Runoff flowing into Lilikoi Gulch:
14.9 cfs - 14.0 cfs = 0.9 cfs

APPENDIX C

SOIL EROSION CONTROL MEASURES

1. SITE CONDITIONS DURING CONSTRUCTION:

The project limits will be cleared, grubbed, and graded in one increment. Exposed areas will be grassed or paved immediately after grading work.

2. UNCONTROLLED EROSION RATE:

Erosion rate as set forth by the Maui County Code:

$E = R \times K \times LS \times C \times P$

Where:

E	=	Uncontrolled Erosion Rate (Soil Loss) in tons/acre/year
R	=	Rainfall Factor = 248 tons/acre/year
K	=	Soil Erodibility Factor (Haiku) = 0.10
L	=	Slope Length = 1,475 feet
S	=	Slope Gradient = 3.04%
LS	=	Topographic Factor = 0.65
C	=	Cover Factor (to be determined if necessary) use bare soil factor = 1.0
P	=	Control Factor (to be determined if necessary) use non-agricultural land = 1.0
E	=	248 tons/acre/year x 0.10 x 0.65 x 1.0 x 1.0
	=	16 tons/acre/year

3. ALLOWABLE EROSION RATE:

Coastal Water Hazard (D) = 2

Downstream Hazard (F) = 4

Duration of Site Work (T) = 1/2 year

Maximum Allowable Construction Area x Erosion Rate = 5,000 ton/year

Project Construction Area (A) = 17.3 acres

Allowable Erosion Rate: $\frac{5{,}000 \text{ tons/year}}{17.3 \text{ acres}} = 289 \text{ tons/acre/year}$

4. REDUCTION IN EROSION RATE:

$$\frac{\text{Allowable Erosion Rate}}{\text{Uncontrolled Erosion Rate}} = \frac{289 \text{ tons/acre/year}}{16} = 18 > 1.0$$

Therefore, no reduction in erosion is required.

5. SEVERITY NUMBER (H) = (2 F T + 3 D) A E

H = Severity Number

F = Downstream Hazard = 4

D = Coastal Water Hazard = 2

T = Duration of Site Work (years) = 1/2

A = Project Construction Area (acres) = 17.3

E = Uncontrolled Erosion Rate (tons/acre/year) = 16

H = (2 x 4 x 1/2 + 3 x 2) x 17.3 x 16 = 2,768 < 50,000

6. CONCLUSION:

Normal construction erosion control measures are sufficient for this project with no excessive soil loss occurring.