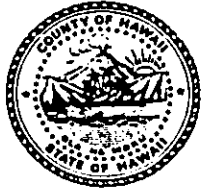


Stephen K. Yamashiro
Mayor



George Yoshida
Director

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County of Hawaii

DEPARTMENT OF PARKS AND RECREATION
25 Aupuni Street, Room 210 • Hilo, Hawaii 96720-4252
(808) 961-8311

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

May 7, 1993

Mr. Brian Choy, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

Subject: Final EA/Negative Declaration Determination for Kamehameha
Park Multi-purpose Athletic Field, North Kohala, Hawaii
TMK: 5-4-09:04

Dear Mr. Choy:

The Department of Parks and Recreation, County of Hawaii, has received no comments on the draft EA during the thirty day public comment period and is submitting this notification of a negative declaration determination for publication in the OEQC Bulletin.

Thank you for your agency's assistance throughout the EA process.

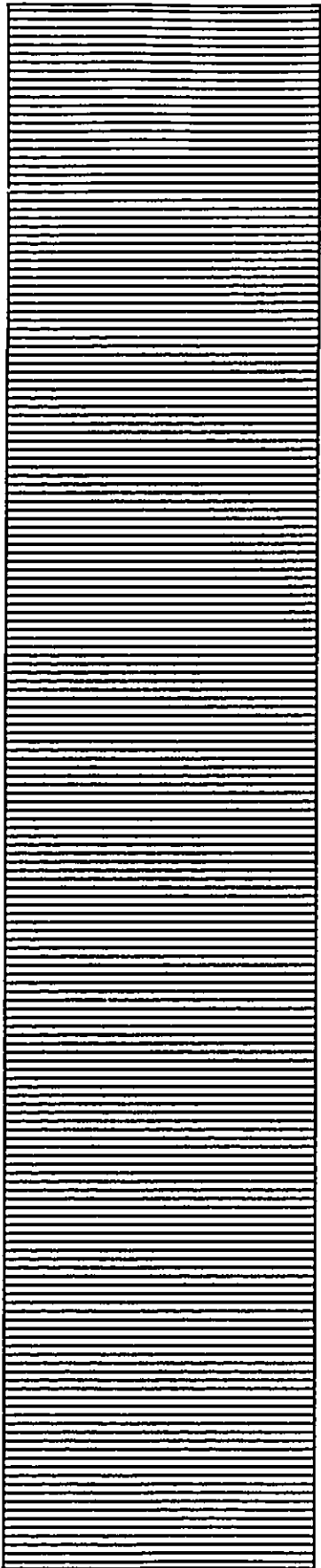
Sincerely,


George Yoshida
Director

encl-publication form/final EA (4 copies)

cc Office of the Mayor (w/final EA)

1993-06-08-HI-FAA-Kamehameha Park Multi-Purpose Athletic Field JUN - 8 1993



Final Environmental Assessment for Kamehameha Park Multipurpose Athletic Field

Kapa'au, North Kohala, Hawaii

TMK: 5-4-9:04

Prepared for:
Department of Parks and Recreation
County of Hawai'i

Prepared by:
Okahara and Associates

May 1993

FINAL ENVIRONMENTAL ASSESSMENT

FOR

KAMEHAMEHA PARK

MULTIPURPOSE ATHLETIC FIELD

KAPA'AU, NORTH KOHALA, HAWAI'I

TMK: 5-4-9:04 LOT A

PROPOSING AGENCY: DEPARTMENT OF PARKS AND RECREATION
COUNTY OF HAWAI'I

Prepared By:

Grant Gerrish
Y.K. Hahn and Associates
Okahara and Associates, Inc.

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I. PROPOSING AGENCY

Department of Parks and Recreation, County of Hawai'i

II. AGENCIES CONSULTED

County of Hawai'i Planning Department
State Historical Preservation Office
U. S. Fish and Wildlife Service

III. DESCRIPTION OF PROPOSED ACTION AND STATEMENT OF OBJECTIVES

The proposed action involves the clearing, grading and landscaping of 5.018 acres of vacant land to develop a multipurpose athletic field for open recreational uses as an extension to Kamehameha Park. The project site, TMK 5-4-09:04, lot A, is adjacent to the east side of the existing Kamehameha Park grounds and facilities (Fig. 1).

Construction of the project would require the clearing of the existing vegetation from the site, grading to create a smooth surface and grassing of the site. Large windbreak trees on the periphery of the site would not be removed.

The purpose of the proposal is to augment the open space available at Kamehameha Park. It is anticipated that the space would be used for athletic field activities, which may include organized soccer and baseball.

IV. DESCRIPTION OF AFFECTED ENVIRONMENT

A. PROJECT SITE

The project site is located makai of the Hawi-Niuli'i Road on the west side of the Village of Kapa'au, North Kohala District, Hawai'i County. (Figs. 2, 3, & 4)

The project site is 5.018 acres adjoining the existing Kamehameha Park facilities (Figs. 1 and 2). The site is bounded by the park and a National Guard facility on the south and east sides, by Waikaulapala Gulch on the west, and by former sugar cane fields to the north. The site is owned by the county of Hawai'i.

B. EXISTING PARK FACILITIES

Kamehameha Park is a "district park" near Kapa'au Village, North Kohala consisting of 17.34 acres (TMK 5-4-05:16 - 7.09 acres, TMK 5-4-09:04 - 10.25 acres). Approximately half of TMK 5-4-09:04, that parcel designated as Lot A, is the proposed project site. Lot A is now vacant land.

Existing facilities include:

1. Lighted football and baseball fields with a covered grandstand.
2. Two lighted tennis courts.
3. A small restroom building.
4. A concession booth.
5. Several standard items of children's play equipment.
6. Gym and community center.
7. Swim complex with locker/showers.

Major uses of the park are the baseball and football facilities with attendance often as high as 1000 spectators. Informal activities include picnicking, swimming, tennis and use of playground equipment and open space.

Access from the Hawi-Niuli'i Road is by a road right-of-way, which also serves the National Guard facility adjacent to the north side of the park.

C. ADJACENT AREAS

The south and east sides of the project site are bordered by the developed portion of Kamehameha Park and the National Guard facility (Figs. 1 & 2). Kapa'au Gulch separates Kamehameha Park from the central business district of Kapa'au farther to the east. Waikaulapala Gulch, steep-sided and heavily vegetated, borders the western side of the project site. The land west of the gulch is open agricultural land. The northern side of the project site was formerly sugar cane land, now owned by Chalon Corp. and is currently being developed as a golf driving range.

D. REGIONAL SETTING

Kapa'au is 4.2 miles east-southeast of 'Upolu Point, the northernmost point on the island of Hawai'i (Fig. 4). Kamehameha Park is between 440 and 480 feet above sea level on the north-northeastern slope of the Kohala Mountains (Fig. 3).

The region was formerly utilized for large-scale sugar cane production. At the present time, grazing and other

agricultural uses are the dominant land use of the region.

E. CLIMATE

Kapaau's physiographic position near the northern end of the Kohala Mountains receives limited exposure to the rain-bearing northeast trade winds. As such, the median annual rainfall is a moderate 40 to 60 inches. September is usually the warmest month with a mean maximum temperature of about 82° F; December and January are the coolest months with mean minimum temperatures of about 63° F.

F. GEOLOGY, SOILS AND TOPOGRAPHY

Kapa'au is situated on the slope of the extinct Kohala shield volcano. This slope is designated the "Hawi Dissected Upland," because it is marked by many well-developed streams and gulches.

The soil is classified as Kohala silty clay with 3 to 12 per cent slope. Actual surveyed slope averages 12.5 percent. The surface layer of a representative Kohala Series soil is 14 inches of silty clay over 25 inches silty clay loam or silty clay subsoil. The substratum is weathered basic igneous rock; parent material is basalt and volcanic ash. Permeability is moderately rapid, runoff is slow to medium, and erosion hazard is slight to moderate.

G. LAND USE

The State Land Use Classification of the project site is Agriculture and the County zoning is AG-20a. The General Plan of the County of Hawai'i shows all of Kamehameha Park, including the project site, zoned Open reflecting recreational use. The North Kohala Community Development Plan (1984) calls for the implementation of the Master Plan for Kamehameha Park, including the development of the multipurpose athletic field currently proposed.

The project site is currently vacant land. Until recently, livestock was grazed on the site. Prior to 1976 sugar cane was cultivated on the site for many years. The prior use of the site for sugar cane is evidenced by 1) aerial photographs, 2) the appearance of the site, including volunteer sugar cane, and 3) a Special Permit issued by the County of Hawai'i Planning Department on 30 November, 1984 for use of the National Guard Armory, also on TMK 5-4-09:04, stating that the parcel had been so used until approximately 1976.

H. FLORA AND FAUNA

A study of the flora and fauna of the project site was conducted in September, 1992, to support this environmental assessment. The following description is extracted from that report (Appendix A).

" The field-survey and background research revealed that the site is a former agricultural site, recently abandoned. The vegetation is dominated by tall grass with many scattered, short trees. The most abundant trees are common guava (Psidium guajava) and

Christmasberry (Schinus terebinthifolius). The vegetation is almost entirely made up of alien (introduced) plants. Three common indigenous plant species were found, but no endemic plants. No rare plants were found on the site and, considering the former agricultural use of the site, it is extremely unlikely that any undetected rare plants occur on the site.

"All of the birds and mammals observed on the site are alien. It is unlikely that any native birds or mammals make significant use of this site."

It is concluded on the basis of this study that the site has no significant biological conservation value because it lacks native plant communities and it does not provide habitat for any rare or endangered plants or animals.

I. HISTORICAL AND CULTURAL SITES

The State Historic Preservation Office reports that there are no known historical sites on the project site. However, no surveys of the project site are known to have been conducted.

It is unlikely that any undetected historical sites are within the project area for the following reasons:

- 1) An intensive search throughout the site found no structural ruins or artifacts on the surface.
- 2) The project site is not on a floodplain subject to alluvial soil movement nor is the gentle slope of the site conducive to coluvial soil movement that could cover a cultural deposit.

3) The site had been cultivated for sugar cane for many years making it unlikely that any historical deposits remain. The prior use of the site for sugar cane is evidenced by 1) aerial photographs, 2) the appearance of the site, including volunteer sugar cane, and 3) a Special Permit issued by the County of Hawai'i Planning Department on 30 November, 1984 for use of the National Guard Armory, also on TMK 5-4-09:04, stating that the parcel had been so used until approximately 1976.

The State Historical Preservation Office determined that an archaeological survey was unnecessary for the development of a golf driving range by Chalon Corp. on adjacent portions of TMK 5-4-09:01 because of that parcel's similar history of sugar cane cultivation.

J. DRAINAGE AND HYDROLOGY

The project site has a moderate, uniform slope to the north-northeast. No streams, gulches or washes are visible on the site. Waikaulapala gulch borders the site on the west side. No problems with drainage are anticipated.

No wetlands occur on the site. The permeable Inceptisol soil of the site is not indicative of a wetland. Furthermore, no standing water or any sign of intermittent water impoundment is visible on the site. The topography does not contain visible impoundments or flat, poorly drained areas. No characteristic wetland vegetation was found on the site (Appendix A). Plants, such as California grass (Brachiaria mutica) have the ability to grow in wetlands, however, they may be

equally common in dryland habitats. The presence of California grass on the project site, in the absence of soil or hydrologic indicators, does not indicate wetland conditions.

V. GENERAL DESCRIPTION OF THE ACTION'S TECHNICAL, SOCIAL, ECONOMIC AND ENVIRONMENTAL CHARACTERISTICS

A. TECHNICAL CHARACTERISTICS

The design and concept for the proposed multipurpose athletic field is presented in the Kamehameha Park Master Plan (Fig. 3). However, the design has been revised, eliminating the fish/waterfowl pond.

Construction of the open athletic field would require the clearing of all existing vegetation except the large trees around the perimeter of the site. The entire site would be graded to provide a smooth surface. A uniform slope of approximately 2 per cent is desired.

Existing site slope ranges from 5 to 30 percent, averaging 12.5 percent. Extensive grading, including cutting and filling and construction of retaining walls, would be required to achieve the desired slope.

The graded site would be prepared and seeded with grass to produce turf. These construction phase activities would require about three months and require the use of heavy equipment.

Following the construction phase, operation of this new park facility would require general maintenance, including garbage collection, grass mowing and possible

herbicide application. It is anticipated that the increased size of Kamehameha Park would require one new full-time maintenance worker for the Department of Parks and Recreation.

B. SOCIAL CHARACTERISTICS

The proposed project would provide increased recreational opportunities for county residents and visitors. Anticipated recreational activities include picnicking, unstructured play, and possibly organized field activities.

C. ECONOMIC CHARACTERISTICS

This expansion of Kamehameha Park would be funded by the County of Hawai'i. The cost has not yet been determined. The entire project site is presently owned fee-simple by the County of Hawai'i. Costs of maintenance, including a probable new full-time Parks and Recreation employee, would also be borne by the County.

The public is not charged admission to any part of Kamehameha Park.

D. ENVIRONMENTAL CHARACTERISTICS

The construction of this project would destroy the existing vegetation on the site and replace it with lawn grasses and, perhaps, other landscaping plants. Maintenance of the field would utilize mowing and herbicide application.

The project would not affect any endangered species of plants or animals, any significant habitat of native plants and animals, or any wetland area.

Completion of the project would not significantly affect view planes from adjacent properties or adversely affect aesthetics in any other way.

VI. IDENTIFICATION AND SUMMARY OF MAJOR IMPACTS AND PROPOSED MITIGATION MEASURES

A. PRIMARY SHORT-TERM IMPACTS

Construction-related impacts are the primary short-term impacts identified. These include production of noise, dust and emissions by heavy earth-moving equipment. Construction activities would have minimal effect on park users. Access and utility services to surrounding areas would not be affected.

B. PRIMARY LONG-TERM IMPACTS

No major long-term adverse impacts are foreseen.

Expansion of Kamehameha Park would increase maintenance cost, possibly including one new public employee.

No adverse social impact is foreseen because recreational use of the project site is in harmony with similar use in the adjoining part of Kamehameha Park and the private golf driving range makai of the proposed site. Other adjacent properties are agricultural lands.

No major adverse environmental impacts are foreseen because of the low conservation value of the flora and fauna of the site. No rare or endangered species are known to utilize the site. The vegetation is almost entirely made up of alien plants. No wetlands or other sensitive ecosystems are present.

The proposed use does not irretrievably commit the project site or any known natural resources on the site. An open field can readily be converted to other uses.

Increased space for recreational activities is a positive impact of this project.

C. MITIGATION MEASURES

Short-term construction-phase impacts of noise and dust can be mitigated by compliance with State Department of Health Administrative Rules governing production of these irritants. Mitigation of fugitive dust would include periodic watering of the site. These impacts are also mitigated by the absence of homes or businesses near the project area.

Potential erosion during the construction phase would be controlled by standard erosion and sedimentation control procedures by the contractor.

No mitigation of long-term impacts is required.

VII. ALTERNATIVES CONSIDERED: NO USE

A decision not to proceed with this project would deprive county residents of beneficial recreational opportunities. Since the project site was acquired for park development, a no use decision would leave this public asset with no known use.

VIII. FINAL DETERMINATION OF SIGNIFICANCE OF IMPACTS

No significant adverse impact of this project is foreseen.

IX. FINDINGS AND REASONS SUPPORTING THE DETERMINATION

1. This proposal is an implementation of the 1971 Kamehameha park Master Plan, in accordance with the General Plan of the County of Hawai'i and North Kohala Community Development Plan.
2. Former agricultural use eliminated the native flora and fauna and their habitat from this site. The remaining biological resources are of little conservation value. No endangered species of plants or animals utilize the site.
3. The proposal would not negatively affect environmentally sensitive areas such as wetlands, flood plains or coastal areas.

4. The proposed recreational use of the site is socially and aesthetically consistent with uses of adjacent lands. It would not negatively affect viewplanes or ambience of neighboring properties.

5. There are no known historical or cultural sites on the project site. History of past sugar cane cultivation makes it highly unlikely that any such sites exist.

6. This proposal to create an open field does not irretrievably commit any valuable natural resources presently on the site.

MASTER DEVELOPMENT PLAN
Kamehameha Park
 Kapiolani North Avenue District, City of Honolulu

Prepared by
 Department of Parks and Recreation
 City of Honolulu
 Eric Dyer, Adam J. Wilson
 Landscape Architects / Partners

June 57



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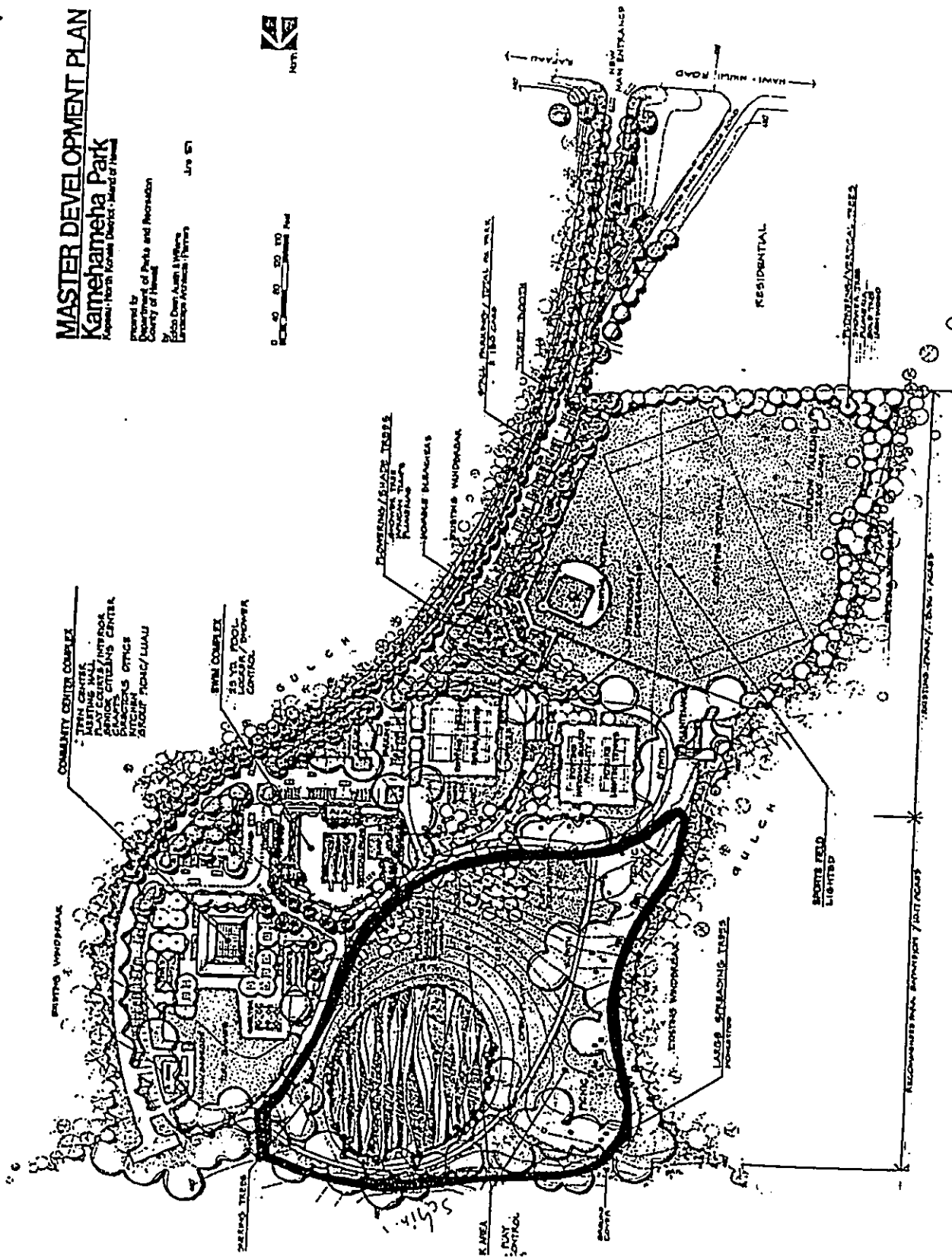


FIGURE 1. Master Plan for Kamehameha Park, prepared in 1971. Project site outlined. Other facilities shown have been completed, with modifications.

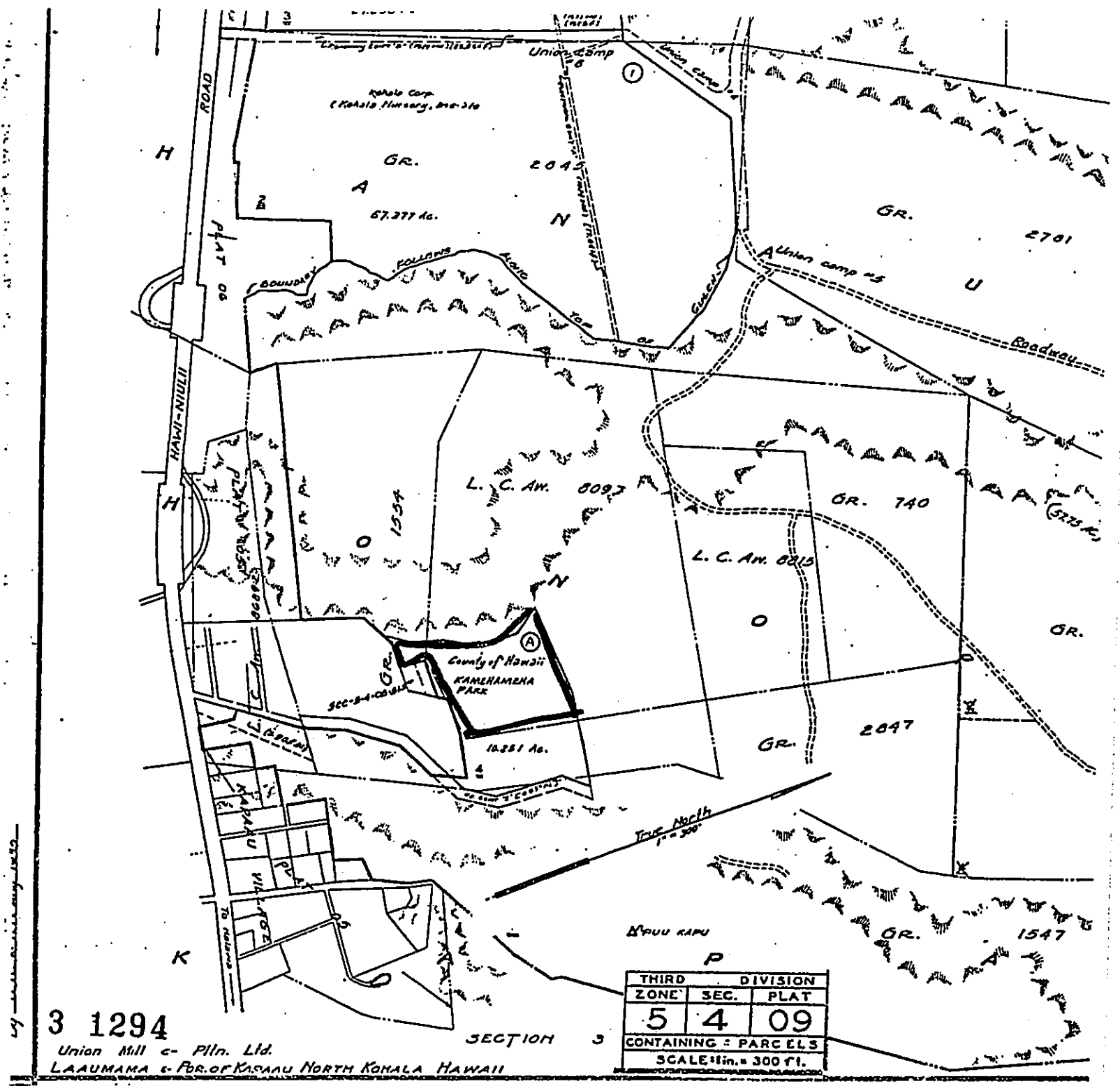


FIGURE 2. Portion of Tax Map for plat 5-4-09 showing project site outlined.

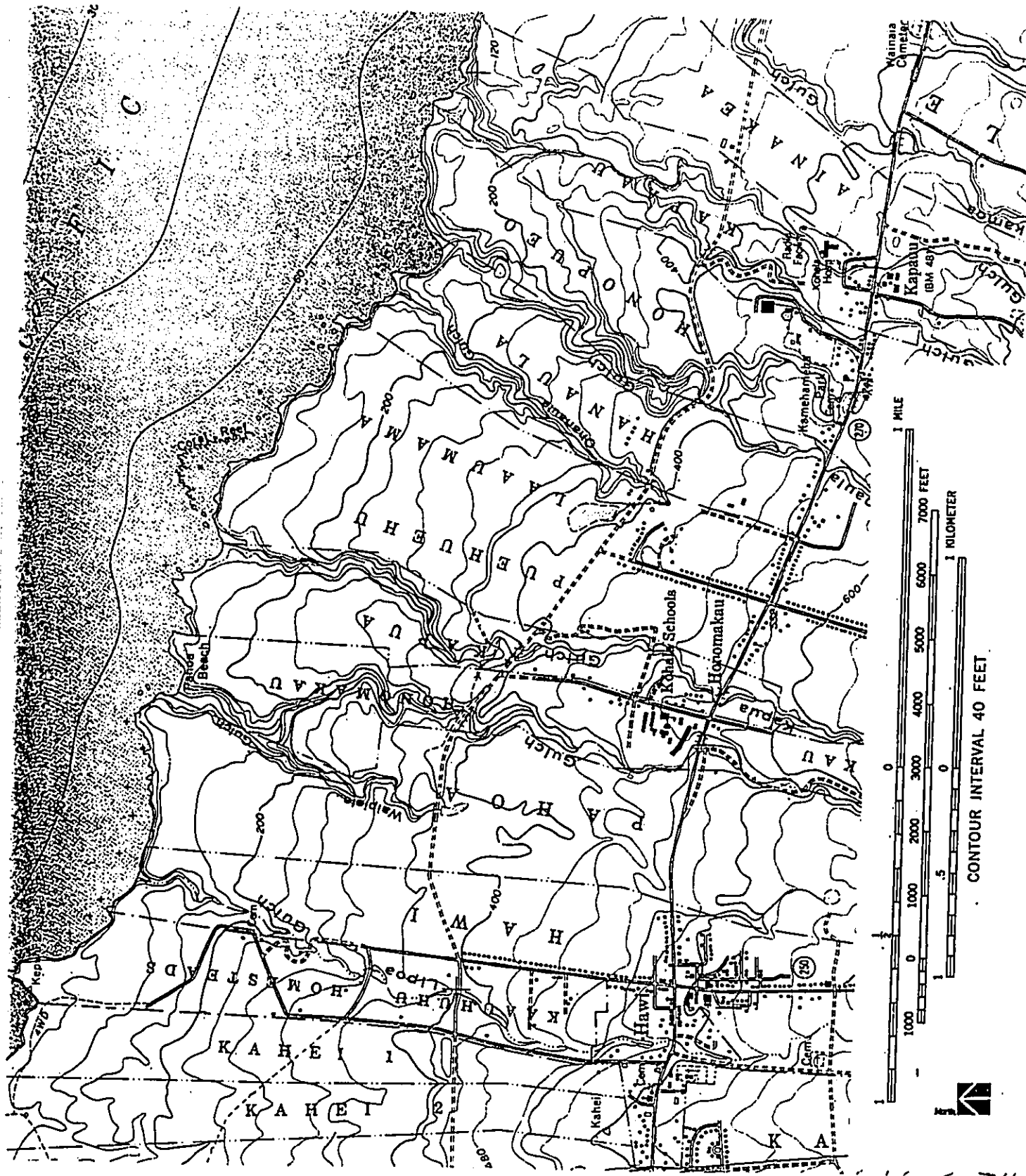


FIGURE 3. Portion of the Hawi quadrangle of the USGS topographic map showing Kapa'au, Kamehameha Park and the surrounding area.

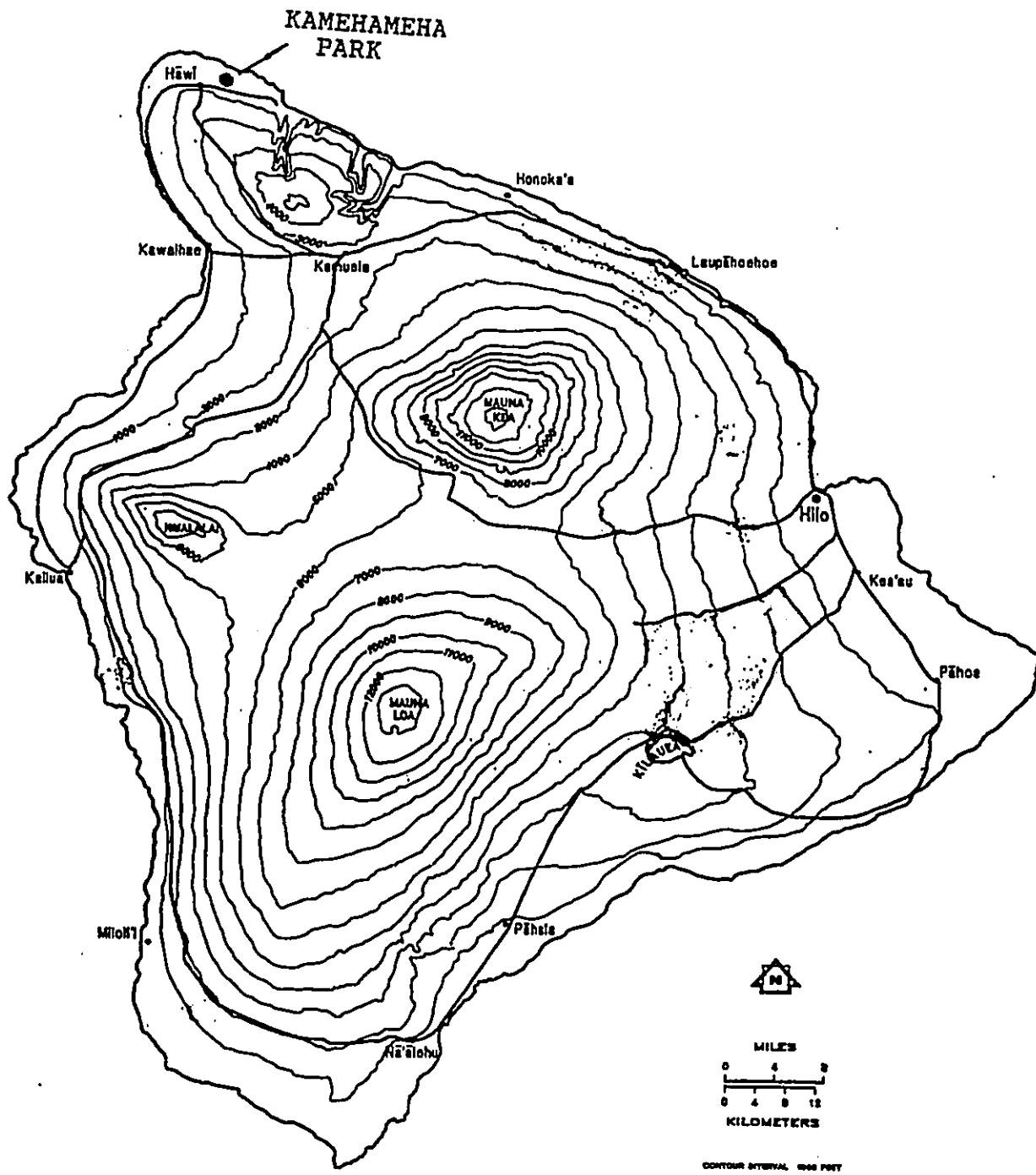


FIGURE 4. Map of the island of Hawai'i showing the location of Kamehameha Park.

APPENDIX A

FLORA AND FAUNA SURVEY REPORT
FOR PROPOSED EXPANSION OF KAMEHAMEHA PARK

TMK 5-4-9:04 Lot A
KAPA'AU, NORTH KOHALA, HAWAI'I

Prepared for:

Department of Parks and Recreation
County of Hawai'i

Prepared by:

Grant Gerrish

Y.K. Hahn and Associates
1180 Kumuwaina Pl.
Hilo, Hawaii 96720

October 5, 1992

FLORA AND FAUNA SURVEY REPORT
FOR PROPOSED EXPANSION OF KAMEHAMEHA PARK

TMK 5-4-9:04 Lot A
KAPA'AU, NORTH KOHALA, HAWAI'I

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FLORA AND FAUNA SURVEY REPORT
FOR PROPOSED EXPANSION OF KAMEHAMEHA PARK

TMK 5-4-9:04 Lot A
KAPA'AU, NORTH KOHALA, HAWAI'I

EXECUTIVE SUMMARY

This flora and fauna study was prepared as supporting documentation for a proposed expansion of the National Guard facility on an approximately 5-acre site at Kamehameha Park in Kapa'au, North Kohala. The proposal includes development of a picnic area, playground, and open space for public recreation. The proposal is an increment of the Master Development Plan for Kamehameha Park which was prepared in 1971 for the Department of Parks and Recreation, County of Hawai'i.

The objectives of this study are to characterize the vegetation and animal life of the proposed site and to identify any biological resources that might require protection or mitigative planning.

The field-survey and background research revealed that the site is a former agricultural site which was recently abandoned. The vegetation is dominated by tall grass with many scattered, short trees. The most abundant trees are common guava (Psidium guajava) and Christmas berry (Schinus terebinthifolius). The vegetation is almost entirely made up of alien (introduced) plants. Three common indigenous plant species were found, but no endemic plants. No rare plants were found on the site and, considering the former agricultural use of the site, it is extremely unlikely that any undetected rare plants occur on the site.

All of the birds and mammals observed on the site are alien. It is unlikely that any native birds or mammals make significant use of this site.

It is concluded that there are no biological resources on the site that warrant protection during the development of this project.

GENERAL SITE DESCRIPTION

The site, approximately 5 acres in size, is on the north (makai) side of the village of Kapa'au and is adjacent to Kamehameha Park. The site is roughly triangular, with the southeast side of the triangle bounded by existing park facilities and a National Guard facility; the west side is defined by a steep gulch; and the north side (makai) is bounded by a row of trees and a large, mown field.

The vegetation of the site is typical of land that has been cleared and then abandoned for several years. Tall, dense patches of grass surround the scattered, low trees that are invading the site. In a few places, trees form small thickets. Well-developed rows of Christmas berry line the north and west sides of the site. Although the vegetation is dense in places, the entire site is accessible.

The elevation of the site is approximately 400 feet (125 meters) (USGS 1975 1:250,000 Topographic Map). The slope of the site is gentle to moderate. Median annual rainfall is between 40 and 60 inches (1000 and 1500 millimeters) (DLNR 1986). The soil is classified as Kohala series silty clay, developed from basic igneous rock with some influence of volcanic ash; Kohala soils are classified as Low Humic Latosols (Sato et al. 1973).

METHODS

The objectives of the flora and fauna study were to characterize the vegetation and animal life of the site and to identify biological resources, if any, that might require protection or mitigative planning. For the purpose of this study, biological resources with conservation value are ecosystems dominated by native plants and animals, and any rare, endangered, or threatened plant or animal.

The study consisted of a walk-through survey of the site and a literature review. The walk-through survey of the site was conducted on September 28, 1992. All parts of the site were visited. All plants, birds and mammals observed on the site were recorded, as well as notes detailing the general nature of the vegetation. Plants were collected for identification as necessary and a checklist of all species present was prepared. Plant taxonomy follows Wagner et al. (1990). A checklist of birds seen or heard during the survey (between 2:00 and 4:00 PM) was prepared. Observations were aided by 7 x 35 Bushnell field glasses. Bird identifications and taxonomy are based on Hawaii's Birds (HAS 1989). Mammals seen on the site were also recorded. No attempt was made to characterize the invertebrate fauna of the site.

Knowledgeable people were interviewed to provide further background information concerning the biological resources of the site.

FINDINGS

FLORA

VEGETATION The vegetation of the site is typical of a field or pasture no longer used for agricultural purposes. The site is covered with tall grasses with low trees scattered throughout. It appears that these trees and some shrubs are invading the grassy areas. Rows of mature Christmas berry form windbreaks on the north and west sides.

Approximately 60 percent of the site is dominated by grasses. The more abundant grasses include guinea grass (Panicum maximum) which reaches ten feet (3 meters) in height, and California grass (Brachiaria mutica) which forms thick mats 3 feet (1 meter) or more deep. Molassesgrass (Melinis minutiflora) and Hilo grass (Paspalum conjugatum) are also common but do not grow as tall as the guinea grass or California grass. Other abundant herbs, mixed with the grasses, include Spanish clover (Desmodium sandwicense) and wedelia (Wedelia trilobata). Lantana (Lantana camara), sourbush (Pluchea odorata), and indigo (Indigofera suffruticosa) are common shrubs.

The most abundant tree species within the site is common guava. Guava trees, up to about 20 feet (6 meters) in height are spread singly or in small clumps throughout the site. Christmas berry trees of about the same height are also common. The Christmas berry sometimes forms small thickets that are very difficult to penetrate. A few other trees of various species are found mixed with the tall grasses. These include haole koa (Leucaena latisiliqua), Java plum (Syzygium cumini), and African tulip tree (Spathodea campanulata). Approximately 40 percent of the site is covered with trees.

Tall trees grow along the boundary with the existing park. These include ironwood (Casuarina equisetifolia), monkeypod (Samanea saman), and shower tree (Cassia javanica). The gulch

on the west side of the site is filled with Christmas berry and a dense row of these trees marks the western boundary. Similarly, a hedgerow or windbreak of Christmas berry marks the northern boundary.

RARE OR ENDANGERED PLANTS Nearly all of the plant species on the site are common alien species (Table 1). Three indigenous species were recorded; these are Spanish clover, hau (Hibiscus tiliaceus), and morning glory (Ipomoea indica). No plants endemic to the Hawaiian Islands were found.

No plants listed by the U.S. Fish and Wildlife as threatened or endangered or proposed for listing were found on the site (Federal Register 1990a, 1990b); nor were any plants that are considered "rare" (Fosberg and Herbst 1975) encountered on the site. A literature review of the three sources cited above indicate that no listed endangered species or species proposed for listing is known to occur in the vicinity of the site. Furthermore, the agricultural use history of the site and the general lack of native vegetation in the vicinity make it very unlikely that rare or endangered native plants occur on the site.

FAUNA

BIRDS Five common species of alien birds were seen on the site (Table 2). Most numerous of these was the Japanese White-Eye (Zosterops japonicus).

No endemic bird species were seen or heard. Literature review reveals that it is unlikely that endemic birds utilize this site. Endemic forest birds, including several endangered species, are found only above 975 feet elevation (300 meters) and in forests dominated by native plants (Scott et al. 1986). Neither of these conditions is met by the study site.

The 'Io or Hawaiian Hawk (Buteo solitarius) is the endemic bird most likely to be seen in the vicinity of the site. This endangered species (Federal Register 1984) is reported to occur in the Kohala Mountains (Berger 1983), but it is much more abundant in other districts on the island (Griffin 1985, HAS 1989). Historically, no nests have been reported in Kohala (Griffin 1985). Although it is possible that 'Io forage above or near the site, it is very unlikely that this species nests on the site because of the nearness to human activity and the lack of trees of a suitable height (Griffin 1985). Only the tall trees on the boundary of the existing park would be of suitable size.

Information is scarce about the distribution of two night-flying seabirds, the 'A'o or Newell's Shearwater (Puffinus newelli) and the 'Ua'u or Dark-Rumped Petrel (Pterodroma phaeopygia sandwichensis). Both of these are listed by the U.S. Fish and Wildlife Service as endangered species (Federal Register 1984). These birds nest on steep, heavily vegetated slopes. Although the study site is completely unsuitable for nesting sites, there is a possibility that either or both species fly across the site when returning from the sea to their nests. However, there is no known evidence to indicate that these endangered species utilize the Kapa'au area (Personal

Communication, Jack Jefferies, U.S. Fish and Wildlife Service; Personal Communication, John Giffin, Division of Forestry and Wildlife; Personal Communication, Reggie David, Hawai'i Audubon Society).

MAMMALS Two species of alien mammals were seen on the site. Feral pigs (Sus scrofa) were seen and heard. Abundant signs of rooting in the soil were also seen. A single mongoose (Herpestes auropunctatus auropunctatus) was seen on the site. It is likely that domestic or feral cats and dogs, as well as rats and mice, utilize the site.

DISCUSSION AND RECOMMENDATIONS

PLANTS In terms of conservation of biological resources, the flora and vegetation of the site are of little value. The native vegetation of the site was cleared long ago for agricultural use. The vegetation is now dominated by alien plant species. No rare or endangered plants occur on the site. Recommendation #1: No special protective or mitigative planning is recommended for the vegetation of this site.

BIRDS No native birds were seen on the site. The alien bird species observed utilizing the site are not rare and are considered to have no conservation value.

Recommendation #2: The alien bird species observed on the site warrant no protective or mitigative planning.

It is possible that the 'Io or Hawaiian Hawk, an endangered species, may forage in the area. It is considered extremely unlikely that the 'Io nests on the site.

Recommendation #3: In the unlikely event that an 'Io is found defending a nest on the site, clearing and construction activities should be halted. Both the U.S. Fish and Wildlife Service and the State Division of Forestry and Wildlife should be contacted. It may be necessary to postpone site clearing and construction until the completion of the nesting season.

Little information is available concerning the flyways of two endangered seabirds, the 'A'o or Newell's Shearwater and the 'Ua'u or Dark-Rumped Petrel. These two night-flying species return to their nests well after dark and can become disoriented by artificial lights. Immature 'A'o are especially vulnerable. Disoriented birds fly into the ground or other objects and may be killed or injured.

Recommendation #4: Any proposed outdoor lighting at Kamehameha Park will have little added effect on the night sky compared to the existing outdoor lighting in Kapa'au. However, as a precautionary measure, any outdoor lighting that is installed should be shielded to minimize the amount of light shining upwards.

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Table 2. Birds observed on the site of the proposed expansion of Kamehameha Park, Kapa'au, Hawai'i. All species listed are alien.

COMMON NAME	SCIENTIFIC NAME
Japaneses White-eye	<u>Zosterops japonicus</u>
Common Myna	<u>Acridotheres tristis</u>
Northern Cardinal	<u>Cardinalis cardinalis</u>
House Finch	<u>Carpodacus mexicanus</u>
Nutmeg Mannikin	<u>Lonchura punctulata</u>