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Mayor



BRIAN W. MISKAE
Director

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Deputy Director

COUNTY OF MAUI
PLANNING DEPARTMENT
250 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RECEIVED

94 JUL 22 P12:34
OFFICE OF ENVIRONMENTAL
QUALITY CONTROL
July 20, 1994

Mr. Bruce S. Anderson, PhD.
Interim Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street Fourth Floor
Honolulu, Hawaii 96813

Dear Mr. Anderson:

Subject: Negative Declaration for Owa Subdivision, TMK: 3-8-07: 38, Wailuku, Maui, Hawaii.

The County of Maui Planning Department has reviewed the comments received during the 30-day public comment period which began on the May 8, 1994 OEQC Bulletin Publication Date. This agency has determined that this project will not have significant environmental effect and has issued a negative declaration. Please publish this notice in the next available OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final EA.

Please contact Mr. Clayton Yoshida of this office at 243-7735 if you have any questions.

Very truly yours,

Gwen Y. Ohashi

Brian Miskae
Planning Director

Encl.

cc: Robert Sasaki, A&B Properties
Marie Kimmey, AIA
Project File
Colleen Suyama
Clayton Yoshida, AICP

1994-08-08-MA-FEA-Owa Subdivision

AUG 8 1994

OWA SUBDIVISION

KAHULUI • MAUI • HAWAII

A & B PROPERTIES INC.

(A WHOLLY OWNED SUBSIDIARY OF A & B INC.)

**FINAL
ENVIRONMENTAL ASSESSMENT**

**CHANGE IN ZONING
AND
COMMUNITY PLAN AMENDMENT
APPLICATION**

**RIECKE
SUNNLAND
ARCHITECTS
LTD. KONO**

305 E. WAKEA AVENUE
PO BOX 1627
KAHULUI, MAUI, HAWAII 96732
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JULY 1994

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I.

INTRODUCTION

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OWA SUBDIVISION
FINAL ENVIRONMENTAL ASSESSMENT
JULY 15, 1994

I. INTRODUCTION

A. INTRODUCTION

This environmental assessment (EA) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS), and is intended to fulfill the environmental requirements for a Change in Zoning (CIZ) and a Community Plan Amendment (CPA) filed with the County of Maui Planning Department.

The EA presents information required by Chapter 200 of Title 11, Administrative Rules, entitled "Environmental Impact Statement Rules", prepared by the State Department of Health. This includes: identification of the petitioner; identification of the approving agency; identification of agencies consulted in preparing the assessment; a general description of the action's technical, economic, social and environmental characteristics; a summary description of the affected environment; identification and summary of major impacts and alternatives considered; proposed mitigation measures; and a determination of the significance of the proposed action.

B. BACKGROUND

In September 1992 a joint application for a Change in Zoning and a Community Plan Amendment, including a Draft EA, were submitted to the County of Maui Planning Department.

In April 1994 the Maui County Planning Department sent copies of the CIZ/CPA application and Draft EA to the Office of Environmental Quality Control (OEQC). Notice of the availability of the draft EA was published in the May 8 and May 23, 1994 editions of the OEQC Bulletin, commencing a 30-day public comment period which ended on June 7, 1994. During this period, written comments were received from a number of federal, state and county agencies as well as one public comment. These comment letters are reproduced in Appendix E.

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C. DEVELOPMENT INFORMATION

Applicant/ Property Owner	A & B Hawaii, Inc. P. O. Box 156 Kahului, Hawaii 96732 (808) 877-5523 Attention: R.K. Sasaki
Preparers of Environmental Assessment	Riecke Sunnland Kono Architects, Ltd. P. O. Box 1627 Kahului, Hawaii 96732 (808) 877-7688 Attention: Marie Kimmey, AIA
Property Location:	Kahului Beach Road and Kanaloa Avenue Kahului, Maui, Hawaii
Tax Map Key:	2nd Division 3-8-07:38
Site Area:	4.041 acres
Existing Land Use Regulations:	State Land Use District: Urban Wailuku-Kahului Community Plan: Open Space County Zoning: R-3 Residential Special Management Area: Entire Site Flood Zone: Entire site is within 100 year flood plain and portions are in Tsunami Zones V23, 17 and 15
Existing Land Use:	Open Space. Unimproved land with overgrowth of tall shrubs and grass and five abandoned concrete walls (remains of former Makaweli Rock Crusher).
Proposed Action:	Change current land zoning to R-O Zero Lot Line Residential and PK-1 Neighborhood Park in order to construct a 28 unit affordable subdivision and a small park.

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Requested Permits:

Change in Zoning (CIZ)
Community Plan Amendment (CPA)
[Application for Special Management
Area Use Permit (SMA) will be submitted
upon approval of CIZ and CPA]

Accepting/
Approving Agencies:

Maui County Planning Department
Maui County Planning Commission

Agencies Consulted/
Commenting

- County of Maui, Wailuku-Kahului
Community Plan/Planning Dept.
- County of Maui, Dept. of Water
Supply, availability of water.
- County of Maui, Wastewater Division,
availability of sewer.
- County of Maui, Dept. of Public
Works
- Darby and Associates, Traffic Noise
Impact Assessment
- Hawaiian Telephone Company,
availability of telephone service.
- Maui Electric Company, availability
of electricity.
- Maui Police Department, traffic
patterns.
- Parsons Brinkerhoff Quade and
Douglas Inc., Traffic Impact
Assessment
- State of Hawaii, Dept. of Accounting
and General Services,
Survey Division
- State of Hawaii Department of Health

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- State of Hawaii, Dept. of Land and Natural Resources, State Historic Preservation Division.
- State of Hawaii, Department of Education
- State of Hawaii, Department of Transportation
- University of Hawaii, Environmental Center
- U.S. Department of Commerce Bureau of Census; population, rainfall and climate information.
- U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of the State of Hawaii, drainage comments.
- U.S. Army Corps of Engineers, flood elevation data and wetlands review.
- Xamanek Researches, Archaeological Inventory Survey.

D. IDENTIFICATION AND SUMMARY OF PROBABLE IMPACTS AND MITIGATING MEASURES

1. Archaeological and Historic Resources

The subject parcel lies within the large prehistoric ahupua'a of Wailuku, in the coastal zone. Here one would expect to find housing in dry area "living zones", particularly if there was a freshwater source nearby. There is a possible stream bed on the southern side of the parcel.

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Prehistoric land use also may have been for activity areas associated with the sea and shoreline utilization. A site suggesting the latter kind of prehistoric land use was located three-quarters of a kilometer west of this parcel, as well as on the adjacent Nisei Veterans Memorial Center site.

Human burials have been discovered in other sand dune areas on Maui, and the potential for such finds is present at this site.

An archaeological inventory survey, including subsurface investigation, did not find any subsurface pre-contact Hawaiian cultural deposits, burials or human remains. The study concluded that the proposed action did not affect archaeological sites. As requested by DLNR State Historic Preservation Division, a preservation plan for the Makaweli Rock Crusher site will be submitted to the State Historic Preservation Division for review and approval. In addition, an archaeologist will be on-site during construction excavation to monitor any construction activities.

2. Traffic Circulation

The proposed project site is located on Kahului Beach Road north of Kanaloa Avenue. Public access is not currently provided to the project site. Traffic on the local roadways and regional highway system would increase with the proposed project.

The unsignalized intersections formed by the Proposed Subdivision Road at Kahului Beach Road and at Kanaloa Avenue would experience acceptable Levels-of-Service with the proposed project. The signalized intersections along Kahului Beach Road at Kanaloa Avenue and at Lower Main Street/Waiehu Beach Road would also experience acceptable Levels-of-Service during both the a.m. and p.m. peak hours with the proposed project.

Roadway widening and right-of-way improvements, as agreed upon with the County of Maui Public Works Department, will be constructed by the owner.

3. Noise Impacts Analysis

Various federal agencies specify guidelines and standards in assessing environmental noise and set noise limits as a function of land use. For instance, noise exposure at the residence may become a factor influencing eligibility for HUD/FHA financing. HUD assistance for the construction of housing is prohibited generally for projects within the Unacceptable Noise Zone and is discouraged for projects within the Normally Unacceptable Noise Zone.

Ambient sound level measurements were conducted on August 9, 1993 to assess the existing acoustical environment within and adjacent to the project site. It was determined that the 90-foot minimum setback of the homes from the center line of Kahului Beach Road should limit the traffic noise level exposure at these homes adequately to meet the standards and guidelines established by HUD, FHWA, and EPA.

4. Drainage

Estimated runoff from the project site under present conditions are approximately 4.5 cfs. Storm water runoff from the developed site will be about 5.9 cfs, an increase of about 1.4 cfs. to the existing. The additional storm water generated from the site due to development will be collected by a drainage sump. The runoff amount presently being collected by an existing 36" drain pipe crossing Kahului Beach Road will continue to flow through this existing facility.

The final storm water collection system will be adequate to contain the anticipated increase in runoff generated from the site due to development, with no adverse effects to adjacent and downstream properties. The existing storm drain facilities will continue to carry an equal or lesser amount of storm water runoff than it is presently handling.

5. Infrastructure

The existing water supply in Maui is limited and the applicant has been advised that water for construction and domestic purposes of the project may not be available until such time as new sources have been developed to service the Central Maui/Kihei area. The applicant will cooperate with the Board of Water Supply and meet all

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of its requirements at such time as application for water service is approved.

Wastewater capacity in Maui is also limited and the applicant will pay all fees and meet all off-site requirements needed to provide wastewater service to the site.

The applicant will work closely with Maui Electric Company and Hawaiian Telephone Company to ensure that adequate electrical power and communication service will be provided to the site.

E. ALTERNATIVES CONSIDERED

Alternatives to the project which were considered included a "no action" alternative and a build-out phasing alternative. Both these alternatives were judged to be less favorable than the proposed project. The no action alternative was eliminated because of market demands, based upon the owners desire to make use of the property. The phasing alternative was eliminated because of its longer construction period and resulting higher development costs.

F. DETERMINATION

Under the provisions of Chapter 200 of Title 11, Hawaii Administrative Rules, prepared by the Department of Health, which establish criteria for determining significant environmental impact and based on the analysis contained herein, the proposed action will not have any substantial adverse effect on the environment and a negative declaration relating to the need for an Environmental Impact Statement (EIS) is requested.

II.

**DESCRIPTION OF
PROPOSED PROJECT**

II. DESCRIPTION OF THE PROPOSED PROJECT

A. LOCATION

The proposed project will be located at the boundary of Kahului and Wailuku, Maui, adjacent to the intersection of Kanaloa Avenue and Kahului Beach Road, at TMK: 3-8-07:38. The entire 4.041 acre site is in the Special Management Area.

B. OWNERSHIP

A & B Hawaii, Inc. Owner.
P.O. Box 156
Kahului, Hawaii 96732

C. PROPOSED ACTION (hereinafter called "the project")

To construct a subdivision with 28 affordable homes, in the 80% - 140% range of Maui County median income, with 3,000 sq. ft. minimum lots on 2.993 acres of land. In addition, the project will set aside 1.48 acres of land for a neighborhood park.

The proposed development will be in compliance with Section 20.12.640 Objectives of the Special Management Area Rules and Regulations of the Maui County Code. The structures that will be built on the proposed lots will comply with the coastal high hazard ordinance.

D. DESCRIPTION OF THE PROJECT

The project provides a Zero Lot Line subdivision with 28 parcels of 3,000 square feet minimum area. Three two-bedroom, two bath 966 sq. ft units and 25 two-bedroom, one bath 760 sq. ft. units are proposed. Both unit types will also include covered lanais of approximately 125 sq. ft.

The buildings will be wood frame with cement finish. Lower level portions at some units will consist of prefabricated concrete wall sections. Earth tone colors and materials will be used throughout.

A small park area will be located at the south east corner of the property, with a green buffer area between the units and the beach road. A new roadway with a 44'-0" right-of-way, which is acceptable by the County of Maui, will provide access to the lots. Xeriscape landscaping will be provided on the lots as well as within the Park.

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The project will also consist of construction of subdivision improvements required by the Subdivision Ordinance of the County of Maui. These improvements will include water, sewage, storm drainage, electrical, telephone and cable television systems. The street will be constructed to the standard for roadways in a residential district and dedicated to the County upon completion. The improvements will be completed in one phase.

E. EXISTING LAND USE

The parcel currently is unused, unimproved land with an overgrowth of tall grass and non-native shrubs. Five abandoned concrete pillars and arches which are all that remains of the former Makaweli Rock Crusher are located on the northeast portion of the site. At one time the site was traversed by Kahului Railroad tracks, which were finally dismantled and removed in 1967. An existing 8-inch waterline and an existing 30-inch sewerline run through the property. Both lines are owned by the County of Maui.

F. ADJACENT LAND USE

The surrounding properties include; a developed R-3 Residential Subdivision, developed light industrial properties, the future Nisei Veterans Memorial Center parcel, Rose of Sharon Church, undeveloped County of Maui property, the Ocean (across Kahului Beach Road from the site), and on the South, the Kahului Town Development's 5th Increment and Puuone Tract Unit II.

G. ACCESS

Vehicular access to the site will be provided by a new 44 foot right-of-way through the parcel from Kanaloa Avenue and Kahului Beach Road.

Kanaloa Avenue is a two-lane roadway that provides access to residential neighborhoods. It intersects Kahului Beach Road on its eastern (makai) terminus forming the stem of a signalized T-intersection. All approaches at the Kahului Beach Road/Kanaloa Avenue intersection provide separate lanes for turn movements. The posted speed limit on Kanaloa Avenue is 30 miles per hour.

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Kahului Beach Road is a two-lane highway which provides access from Kahului toward Waiehu. Kahului Beach Road terminates on its northern end at its intersection with Waiehu Beach Road. West of Waiehu Beach Road, Kahului Beach Road becomes Lower Main Street. All approaches at the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection provide separate lanes for turn movements. The posted speed limit on all approaches to the intersection is 30 miles per hour.

H. PARKING

Each of the 28 residences will be provided with parking for two vehicles, for a total of 56 dedicated parking spaces. Ten of the units will include covered parking.

I. SOCIAL - ECONOMIC

The proposed project will add to the economic base of Kahului by generating additional revenues to the community through an increase in the County's overall tax base. The improved lots will be sold to individuals for single family residential use, thereby increasing the housing stock on Maui.

There is a proven need for residential units for buyers in the 80% - 140% range of Maui County median income.

This quality residential project will provide much needed housing in the affordable range. These units will be in demand for "first-time" buyers as well as for retirees desiring to move into a compact, low maintenance residence. Kahului and Wailuku comprise the commercial center of Maui. Many people prefer to live in close proximity to their place of employment and major shopping districts. Owa subdivision will satisfy these needs.

III.

**INFRASTRUCTURE/
EXISTING CONDITIONS**

III. INFRASTRUCTURE / EXISTING CONDITIONS

A. UTILITIES

1. Water

The Department of Water Supply (DWS) utilizes a consumption standard for the new residential developments of 600 gallons per units per day (average demand). The average daily demand of the proposed 28 houses will therefore be approximately 16,800 gallons of water per day (gpd).

Since 1975, A&B Properties, Inc. has participated in the Central Maui Water Joint Venture with other private parties to develop water sources in the Iao aquifer. To date, 13.4 mgd of pumping capacity is in place. A&B Properties, Inc.'s allocation of this source development is 2.8 mgd, with current usage of about 500,000 gpd for existing A&B developments.

The Central Maui Source Joint Venture continues in existence and proposes to cooperate with the Board of Water Supply to develop additional water sources. A&B Properties, Inc. is a participant with the County and other private parties, in the East Maui Water Joint Venture, which has investigated water development in East Maui.

Potable water for the development will be provided by an existing Department of Water Supply 8-inch waterline in the proposed subdivision and on Kanaloa Avenue. The onsite system will provide an adequate domestic supply and fire protection.

The applicant has been advised by David Craddick, Director of Maui County Water Department, that water for the construction and domestic purposes of the project may not be available until such time as new sources have been developed to service the Central Maui/Kihei area. The Water Department will determine if water is available at such time as an application for water service is approved.

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Fire, domestic, cooling and irrigation water calculations will be provided during the building permit process. The applicant will provide water system improvements, fire protection and water service in accordance with County standards. The County by Ordinance 2108 would require that the developer install low-flow fixtures, for example 1.6 maximum gallon toilets.

The applicant will provide recirculating air conditioning systems where cooling is intended. Non-potable water will be used for the grading and construction of the project. Native strand and coastal species will be used wherever possible in the proposed xeriscape landscaping to support the unique, natural history of the Kahului Beach neighborhood.

2. Sewage

An 8-inch sewerline and laterals to each lot will be constructed. The sewerline will be connected to the existing County sewage system. An existing 30-inch county sewer trunkline runs across the property in an easement.

The applicant has been advised that the County of Maui Wastewater Reclamation Division cannot insure that wastewater system capacity will be available for the project.

The applicant will pay assessment fees for treatment plant expansion costs in accordance with the ordinance setting forth such fees. At the present time, wastewater assessment fees are only utilized in Kihei. The applicant is aware that other areas may be subject to fees at a later time.

The applicant will also fund any necessary off-site improvements to collection system and wastewater pump stations, as agreed upon with the County Wastewater Reclamation Division.

3. Electrical, Telephone and Cable Television

Electrical and telephone services will be provided through underground extensions of the overhead systems that exist on Kahului Beach Road. These systems will be designed to meet the requirements of Maui Electric Company and Hawaiian Telephone Company.

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Underground ductlines and handholds for future cable television service will be installed within the subdivision.

The applicant will provide specific electrical data (load, voltage, etc.) to determine the probable impact to the MECO electrical system. The applicant's consultant will meet with MECO to plan for the project's electrical requirements. MECO has electrical facilities near the project location.

4. Solid Waste

The applicant, the contractors and future homeowners will implement solid waste reduction, re-use and recycling programs to reduce the amounts of solid waste to be disposed of at the County landfills.

Alternative means of disposal of grubbed material and rock will be utilized other than disposing material at the County landfills.

Solid waste will eventually be collected by either the County of Maui or a private company, and ultimately disposed of at the County operated sanitary landfill.

B. PUBLIC PROTECTION

The development will be serviced by the Maui Police Department, whose headquarters is located approximately two miles away in Wailuku. Fire protection will be provided by the County Fire Station in Wailuku, which is about 3 miles from the site.

C. SOILS

According to the United States Department of Agriculture, Soil Conservation Services, Soil Survey of the State of Hawaii, the majority of the soil on the subject site is Puuone sand (PZUE). This soil is characterized by rapid permeability and low runoff potential. It is subject to moderate to severe erosion if not protected.

Lowland oxisols (highly stable), volcanic entisols, and aeolian sands are also present on the site.

IV.

**DESCRIPTION OF
THE ENVIRONMENT**

IV. DESCRIPTION OF THE ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATING MEASURES

A. HISTORICAL, ARCHAEOLOGICAL OR CULTURAL

The project is located on property, owned by A & B - Hawaii, Inc., which has been vacant for many years. Archaeological research work performed on the property adjacent to the A & B parcel discussed here, the site of the future Nisei Veterans Memorial Center, produced three significant sites (Fredericksen, October 1992). The occurrence of these sites in such close proximity increased expectations for further archaeological discoveries on the Owa Subdivision parcel. This expectation was not sustained by the on-site work.

Although some historic artifacts affiliated with the Kahului Railroad trackbed/complex are present, (the old Kahului Railroad bed, extends across the subject parcel from its south through its north border), no clearly pre-contact Hawaiian artifacts were discovered. Additionally, no identifiable Hawaiian cultural layers, indicating either permanent or temporary land use, were discovered.

Sizable portions of this parcel had been previously disturbed by various construction projects. Whether or not existing possible sites were destroyed during this process will probably never be known. Since major grubbing and land sculpting are planned as preliminary tasks to actual on-site construction of the housing development, monitoring will be provided by archaeological personnel. This will enable observation for possible archaeological materials (including human burial sites) to take place during land removal.

Should evidence of historic sites be located or uncovered during earthmoving or construction, activity in the area of the find will cease and the monitoring archaeologist will be provided sufficient time to assess the significance of the site and complete data recovery. At the completion of the monitoring, a report of findings and activities shall be submitted to the State Historic Preservation Division for review and approval.

In addition, prior to the initiation of vegetation grubbing, earthmoving, or excavation on the project site, a preservation plan for Site 50-04-3135 (the Makaweli Rock Crusher) shall be submitted to the State Historic Preservation Division for review and approval. This plan will be included in the subsequent contract for the site work.

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An archaeological inventory survey prepared by Xamanek Researches, is submitted as Appendix "A".

B. TRAFFIC

Traffic on the local roadways and regional highway system would nominally increase with the proposed project. Project generated traffic would increase at the Kahului Beach Road/Kanaloa Avenue intersection and the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection by less than one percent during both the a.m. and p.m. peak hours.

The unsignalized intersections formed by the Proposed Subdivision Road at Kahului Beach Road and at Kanaloa Avenue would experience acceptable Levels-of-Service with the proposed project. The signalized intersections along Kahului Beach Road at Kanaloa Avenue and at Lower Main Street/Waiehu Beach Road would also experience acceptable Levels-of-Service during both the a.m. and p.m. peak hours with the proposed project.

The applicant will work closely with the County of Maui Department of Public Works and will construct all agreed upon roadway widening and right-of-way improvements as required.

A Traffic Impact Assessment for Owa Subdivision, prepared by Parsons Brinkerhoff Quade & Douglas, Inc., is submitted as Appendix "B".

C. NOISE

Various federal agencies specify guidelines and standards in assessing environmental noise and set noise limits as a function of land use. The U.S. Department of Housing and Urban Development (HUD) has established Environmental Criteria and Standards for interior and exterior noise impacting housing sites, the Federal Highway Administration (FHWA) has established a set of design goals for traffic noise exposure and the U.S. Environmental Protection Agency (EPA) has identified a range of yearly day-night average sound levels, Ldn, sufficient to protect public health and welfare from the effects of environmental noise.

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Ambient sound level measurements were conducted on August 9, 1993 to assess the existing acoustical environment within and adjacent to the project site. The project site and vicinity experience ambient sound levels (L_{90}) of approximately 51 to 62 dBA, which is typical of urban areas. The higher ambient noise levels were measured near Kahului Beach Road and can be attributed to traffic noise. A 90-foot minimum setback of the homes from the center line of Kahului Beach Road should limit the traffic noise level exposure at these homes adequately to meet the standards and guidelines established by HUD, FHWA, and EPA.

No major noise impacts are anticipated other than temporarily during the period of construction. These impacts, however, will be limited to normal daylight working hours.

A Traffic Noise Impact Assessment prepared by Darby and Associates Acoustical Consultants in 1993 is submitted as Appendix "C".

D. STORM DRAINAGE

1. Existing Conditions

The ground adjacent to the developed residential area along the south side of the site slopes down at about 15% from 40 feet elevation to a depressed area at about 6 feet elevation. This depressed area collects runoff from the site and adjacent areas then deposits it into the Pacific Ocean through an existing 36-inch pipe. Estimated runoff from the project site under present conditions is approximately 4.5 cfs. From the depressed area, the ground slopes up on the north side of the project to Kahului Beach Road at an elevation of 10 to 12 feet.

The site is presently covered with grass and brush. The soil is generally Puuone Sand (PZUE) and is characterized by rapid permeability and low runoff potential. It is subject to moderate to severe erosion if not protected.

2. Proposed Improvements

The project will consist of twenty-eight zero-lot line residential lots, each with areas of 3,000 square feet or greater, and one road lot for access purposes. Improvements will include water, sewer, storm drainage, electrical, telephone and cable television systems. Storm water runoff from the developed site will be about 5.9 cfs, an

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increase of about 1.4 cfs. to the existing. The additional storm water generated from the site due to development will be collected by a drainage sump. The runoff amount presently being collected by the existing 36" drain pipe crossing Kahului Beach Road will continue to flow through this existing facility.

3. Theoretical Flood Inundation

The Owa Subdivision is located in the 100 year flood area and is within theoretical tsunami inundation Zones 15, 17 and 23. This determination was made from the Flood Insurance Rate Map (Firm) No. 190 of the Kahului - Wailuku area, provided by the Federal Emergency Management Agency and dated June 1, 1981.

The regulatory flood elevation requirement for the residential portion of the parcel is approximately 17 feet above sea level. Living areas in the subdivision have finished floor elevations of 18 feet minimum based on mean sea level.

4. Water Quality

Due to the very slight increase of surface runoff volume generated by the project site and the existence of drainage systems already in place, the effects of the project will not be detrimental to the water quality of adjacent and downstream properties.

5. Conclusion

A storm water collection system will be constructed to adequately contain the anticipated increase in runoff generated from the site due to development, with no adverse effects to adjacent and downstream properties. The existing storm drain facilities will continue to carry an equal or lesser amount of storm water runoff as it is presently handling.

A Storm Drainage Report prepared by A & B Properties, Inc. in June, 1994 is submitted as Appendix "D".

E. RAINFALL AND CLIMATE

The Kahului area is arid, with an average of approximately 20 inches of rainfall annually. The climate of the area is determined for the most part by northeasterly tradewinds. The mean annual temperature is 75 degrees F.

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Periods of hot and dry weather can be expected on Maui during the months of April to September, while cool and wet periods normally occur during the months of January through March.

Precipitation measurements taken at the Kahului Airport from 1984-1988 showed the following:

<u>Year</u>	<u>Total Annual Rainfall in inches</u>	<u>Departure from norm</u>
1984	8.56	-11.28
1985	20.90	0.16
1986	18.39	-1.45
1987	37.00	17.16
1988	26.70	6.86

The temperature records from Kahului WSD (No. 398 AP) showed the following monthly average temperature from 1983-1986:

<u>Year</u>	<u>Average Temperature in F°</u>	<u>Departure from norm</u>
1983	75.3	-0.2
1984	77.6	+2.1
1985	74.00	+1.5
1986	75.8	+0.3

Tropical storms and hurricanes and the waves and storm surge they generate are significant causes of property damage in the Hawaiian Islands. Historically only one hurricane has actually touched land on Maui. This direct hit occurred in the late 1800's on the northern side of the island near the Kanae peninsula. However, high winds and driven rain associated with off-shore hurricanes have affected Maui from time to time.

New construction techniques and regulations put into effect since the September 1992 devastation of Hurricane Iniki will be followed in the construction of Owa Subdivision. The buildings will be solidly tied together to resist wind forces. All connection points will be considered from roof to foundation. The buildings will also resist lateral wind forces that can wrack structures out of shape or blow them over. Lateral forces are resisted by shear walls and by the shear resistance of floors and roofs.

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These construction guidelines will insure superior performance of the Owa Subdivision homes in the event hurricane force winds and rain strike the Kahului Beach area.

F. AIR QUALITY

The annual arithmetic averages for total suspended particulates from a State Department of Health air sampling station that was located in the Kahului Shopping Center approximately one mile east of subject site are as follows:

<u>Year</u>	<u>TSP (ug/m3)</u>
1981	76
1982	70
1983	69
1984	64
1985	57

No permanent impact on air quality from the subdivision development is anticipated. There will be some temporary effect from the construction of the subdivision improvements, and the construction of the houses in the future when the lots are developed. The effect of construction should be minimal because dust controlling measures by the contractors will be required.

G. VEGETATION

The site is covered with grass and brush. There are no rare or endangered species of vegetation known to be existing on the property. Planting of native shoreline and water resistant species will provide an attractive vista and enhance views in this important Kahului/Wailuku corridor.

H. ANIMAL LIFE

There appears to be no rare or endangered species on the subject property or in the general vicinity of the proposed project.

I. VISUAL

View corridors of the ocean from the adjoining residential subdivision will be reduced but not totally eliminated when houses are constructed in this subdivision.

V.

**CHANGE IN ZONING
SUMMARY**

V. CHANGE IN ZONING SUMMARY

- A. Policies and objectives of the general plan, the provisions of the community plan applicable to the application, the provisions of the applicable district and an analysis of the extent to which the application, if granted, conforms to these policies, objectives, and provisions.

Although the current Wailuku - Kahului Community Plan indicates open space for the subject parcel, the General Plan indicates Urban use and the underlying zoning designation is residential. The proposed project, by providing for both Residential and Park (open space) uses, provides a logical synthesis of State and County Policies.

Location Maps are included as EA/Fig. 1 and EA/Fig. 2.

- B. Detailed land use history of the parcel which includes, but which is not limited to, former and existing state and county land use designations, violations, and uses.

The subject parcel lies within the large prehistoric ahupua'a of Wailuku, in the coastal zone. Prehistoric land use may have been for activity areas associated with the sea and shoreline utilization as well as housing. A site suggesting prehistoric land use was located three-quarters of a kilometer west of this parcel, as well as on the adjacent future Nisei Veterans Memorial Center site.

In historic time, the present study parcel was leased to Kahului Railroad for development of a commercial network between the various sugar mills and Kahului Harbor. Kahului Beach Road and Lower Main Street follow the former Kahului Railroad track line that ran from Kahului Harbor to a junction near Waihe'e Beach Road, where one spur ran to Paukukalo, and the other continued to Wailuku Sugar Mill, Wailuku and Waikapu. The railroad and the associated Makaweli Rock Crusher Mill constitute the most significant land use of the parcel in historic times.

The Wailuku Sugar Company closed railroad operations in 1947, initiating sugarcane hauling by truck. This shift closed the railroad spur to Wailuku Mill. Only one steam engine, Engine No. 12, remained in service by the mid-1950's. During the 1960's railroad enthusiasts were treated to excursions pulls by No. 12. In 1967, 88 years after the first tracks were laid, the railroad line was dismantled and the hardware was salvaged and sold.

FINAL ENVIRONMENTAL ASSESSMENT
JULY 15, 1994

During the Railroad era, if underlying Zoning and Community Plan designations had been in place they would have been Industrial in nature. The modern "down-zoning" to Residential indicates a better use for the parcel.

- C. Preliminary archaeological and historical data and comments from the Department of Land and Natural Resources and Office of Hawaiian Affairs of the State of Hawaii. If applicable, a preservation/mitigation plan which has been reviewed and approved by the Department of Land and Natural Resources and Office of Hawaiian Affairs.

The State Historic Preservation Division of the DLNR has recommended the following conditions be attached to CIZ/CPA approval to ensure "no adverse effect" to the significant historic site:

1. Prior to the initiation of vegetation grubbing, earthmoving, or excavation on the project site, a preservation plan for Site 50-04-3135 (Makaweli Rock Crusher) shall be submitted to the State Historic Preservation Division for review and approval.
2. Vegetation grubbing and all earthmoving activities on the project site shall be monitored by a qualified archaeologist. Should evidence of historic sites be located or uncovered during earthmoving or construction, activity in the area of the find will cease and the monitoring archaeologist will be provided sufficient time to assess the significance of the site and complete data recovery. At the completion of the monitoring, a report of findings and activities shall be submitted to the State Historic Preservation Division for review and approval.

The applicant will abide by both of these recommendations. An Archaeological Inventory Survey is included as Appendix "A".

- D. Analysis of the secondary impacts of the proposed use on surrounding uses which includes, but which is not limited to, increases in population value, population, housing, community services and facility needs, secondary jobs and employment generated, and compatibility with surrounding uses. If applicable, affordable housing program and comments from the Department of Human Concerns of the County and other mitigation plans and comments from the respective governmental and community services agencies.

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There is a proven need for residential units for buyers in the 80% - 140% range of Maui County median income.

This quality residential project will provide much needed housing in the affordable range. These units will be in demand for "first-time" buyers as well as for retirees desiring to move into a compact, low maintenance residence. Kahului and Wailuku comprise the commercial center of Maui. Many people prefer to live in close proximity to their place of employment and major shopping districts. Owa subdivision will satisfy these needs.

- F. Traffic impact analysis and, if applicable, a traffic master plan, which includes, but which is not limited to, comments from the Department of Transportation of the State of Hawaii and the Department of Public Works of the County.

Traffic on the local roadways and regional highway system would nominally increase with the proposed project. Project generated traffic would increase at the Kahului Beach Road/Kanaloa Avenue intersection and the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection by less than one percent during both the a.m. and p.m. peak hours. A Traffic Impact Assessment is included as Appendix "B".

The applicant will work closely with the County of Maui Department of Public Works and will construct all agreed upon roadway widening and right-of-way improvements as required, and as outlined in preliminary comment letters included in Appendix "E".

- F. If applicable, an assessment of the impact which the proposed use may have on agricultural use of the parcel which includes, but which is not limited to, a feasibility analysis of potential agricultural uses suited to the site and written comments from the Department of Agriculture of the State of Hawaii and the U.S. Soil Conservation Service.

The project site is currently not under agricultural activity and is not expected to adversely impact agricultural production.

- G. Water source, supply and distribution system analysis which includes, but is not limited to, methods of irrigation existing on the parcel and proposed for the application, location and use of groundwater and nonpotable water sources. If applicable, a water master plan, which includes but which is not limited to, comments from the Department of Land and Natural Resources of the State of Hawaii and the Departments of Water Supply and Public Works of the County.

FINAL ENVIRONMENTAL ASSESSMENT
JULY 15, 1994

There is no existing water or irrigation system serving the project site. Installation of future water systems will be done in accordance with low-flow fixture and Xeriscape restrictions as outlined by David Craddick, Director of Maui's Department of Water Supply.

- H. Sewage disposal analysis, a description of a proposed method of sewage disposal and comments, if applicable, from the Departments of Health and Land and Natural Resources of the State of Hawaii and Departments of Public Works and Water Supply of the County.

The applicant will coordinate on-site sewage design with the Wastewater Reclamation Division of the Maui County Department of Public Works. Required fees and/or off-site improvements to the collection system and wastewater pump stations will be taken care of during development of the parcel.

- I. Solid waste disposal analysis, a description of a proposed method of solid waste disposal and comments, if applicable, from the Departments of Health and Land and Natural Resources of the State of Hawaii and the Departments of Public Works and Water Supply of the County.

The applicant, contractors and future homeowners shall implement solid waste reduction, re-use and recycling programs to reduce the amount of solid waste to be disposed of at the County landfills. In addition alternative means of disposal of grubbed material and rock shall be utilized other than disposal at the County landfills as recommended by the County Department of Public Works.

- J. Identification of environmentally sensitive areas, habitat, and botanical features which includes, but which is not limited to, wetlands, streams, rock outcroppings, endangered plants and animals, and exceptional trees. If applicable, baseline study and preservation/mitigation plan, and comments, if applicable, from the Department of Land and Natural Resources of the State of Hawaii, U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers.

There appears to be no environmentally sensitive areas, inhabitants or botanical features located on the project site. No permit will be required from the Army Corps of Engineers.

FINAL ENVIRONMENTAL ASSESSMENT
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- K. Identification of the topographical and drainage patterns existing on the subject parcel and any proposed alterations to these patterns.

The ground adjacent to the developed residential area along the south side of the site slopes down at about 15% from 40 feet elevation to a depressed area at about 6 feet elevation. This depressed area collects runoff from the site and adjacent areas which then deposits it into the Pacific Ocean through an existing 36-inch pipe. Estimated runoff from the project site under present conditions is approximately 4.5 cfs. From the depressed area, the ground slopes up on the north side of the project to Kahului Beach Road at an elevation of 10 to 12 feet.

Storm water runoff from the developed site will be about 5.9 cfs., an increase of about 1.4 cfs. to the existing. The additional storm water generated from the site due to development will be collected by a drainage sump. The runoff amount presently being collected by the existing 36" drain pipe crossing Kahului Beach Road will continue to flow through this existing facility.

The Owa Subdivision is located in the 100 year flood area and is within theoretical tsunami inundation Zones 15, 17 and 23. This determination was made from the Flood Insurance Rate Map (Firm) No. 190 of the Kahului - Wailuku area, provided by the Federal Emergency Management Agency and dated June 1, 1981.

The regulatory flood elevation requirement for the residential portion of the parcel is approximately 17 feet above sea level. Living areas in the subdivision have finished floor elevations of 18 feet minimum based on mean sea level. Flood zone information is included in the Flood Zone Map (EA/Fig. 3) and on the Site Plan (Z-1).

- L. Identification of all meetings held between the applicant and any community or residential group which may be impacted by the applicant's request, the issues raised by these meetings, and any measures proposed by the applicant to deal with or to mitigate these issues.

The applicant and applicant's architect met several times with County Planning Department officials, before submittal of the CIZ/CPA application and in year after submittal during which no action was taken. To date no community meetings or public hearings have been held in this matter.

FINAL ENVIRONMENTAL ASSESSMENT
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M. Provide a Development Schedule.

Upon approval of the CIZ/CPA submittal the applicant will apply for a Shoreline Management Area Use Permit, which will reiterate the environmental and other issues outlined in this report. Assuming normal time taken for review and approval of that application, time required for design, building permit approval and construction contract negotiation, construction on the project is not likely to begin until the summer or fall of 1995. Completion of construction is thus anticipated to be in 1996.

N. Operations and management of the proposed use which includes, but is not limited to, number of employees, proposed employee housing plan, hours of operation, fees charged to residents and visitors, provisions for off-site parking.

The proposed residences will be sold on a fee simple basis and the homes are envisioned for owner occupancy or long term rentals. The project will not be used as a Vacation Rental property and there will be no employees. Off-street parking for 2 vehicles per house lot are provided in the plan. Preliminary plans of the proposed development as included as Figures Z-1 through Z-5.

O. Identification of traditional beach and mountain access trails and additional trails which may be required for public access to the beaches and mountains, and if applicable, preservation/mitigation plan, and comments from the Departments of Land and Natural Resources and Office of Hawaiian Affairs.

Existing terrain and thick grown of grasses and scrub brush prohibit use of the property for access trails. No public access to the beaches and mountains will be affected by the proposed development.

P. Identification and assessment of chemicals and fertilizers used, including but not limited to, detailing effects upon surface, underground, and marine water resources and neighboring properties and surrounding flora and fauna. If applicable, a mitigation plan and maintenance program and schedule, and comments from the Departments of Health and Land and Natural Resources of the State of Hawaii, U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency.

There is no record of the use of chemicals and/or fertilizers on the subject parcel.

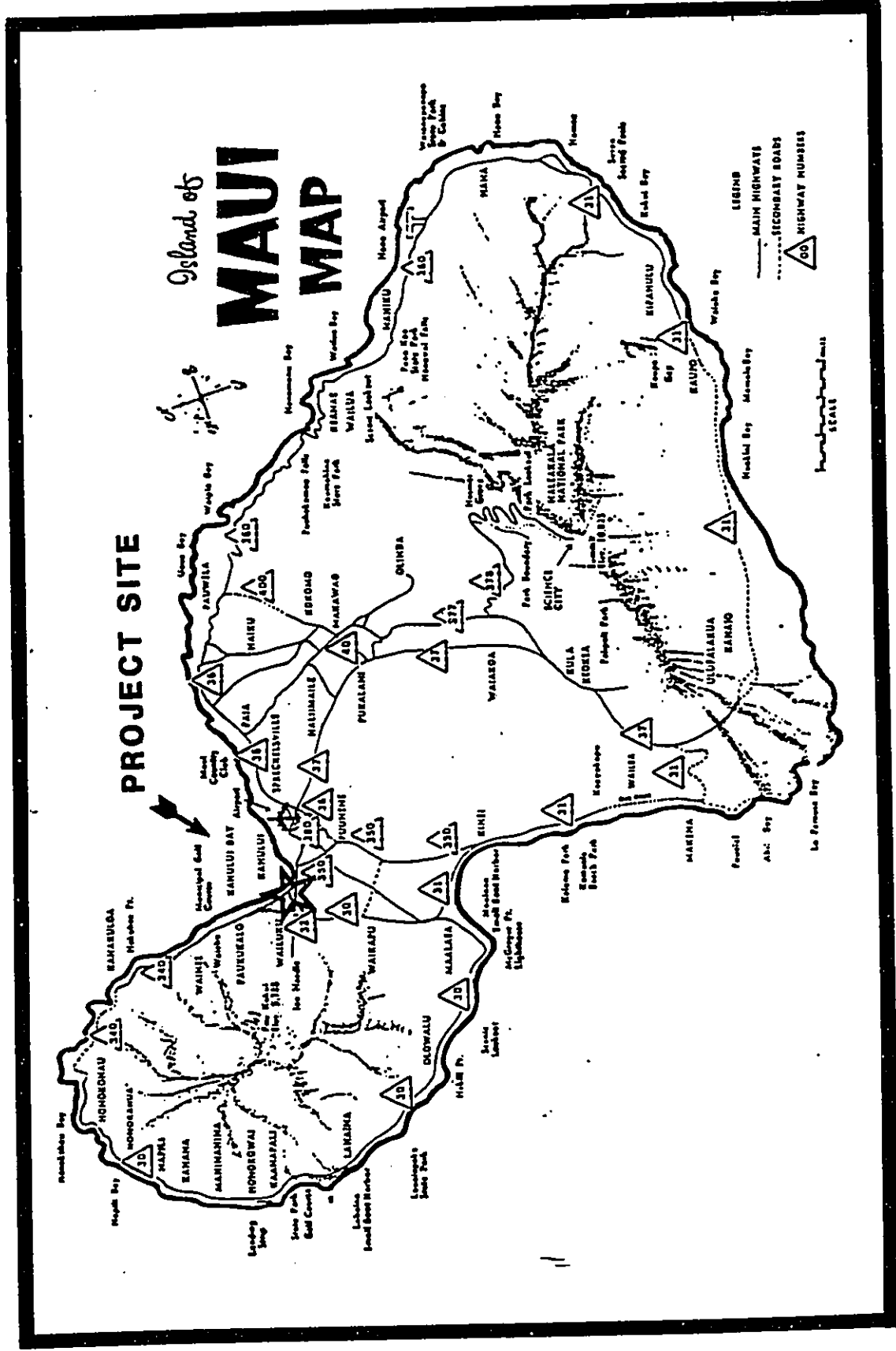
FINAL ENVIRONMENTAL ASSESSMENT
JULY 15, 1994

CONCLUSION

Under the provisions of Chapter 200 of Title 11, Hawaii Administrative Rules, prepared by the Department of Health, which establish criteria for determining significant environmental impact, pursuant to Chapter 343 Hawaii Revised Statutes (HRS), Title 19 of the Maui County Code and, based on the analysis contained in this report, we have shown that, the proposed action will not have any substantial adverse effect on the environment and a negative declaration relating to the need for an Environmental Impact Statement (EIS) is requested.

VI.

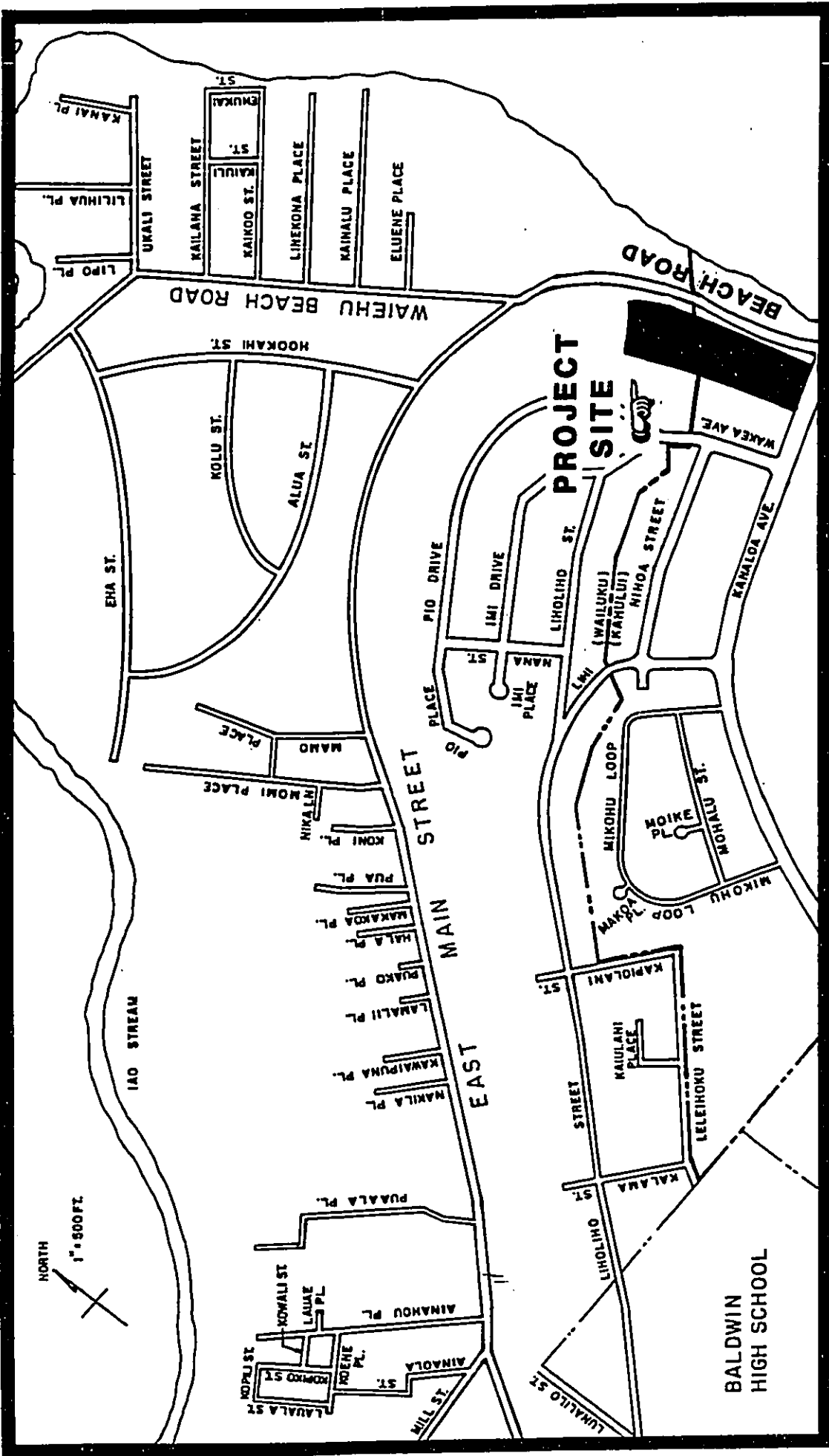
FIGURES



PROJECT LOCATION

EA/FIG. 1

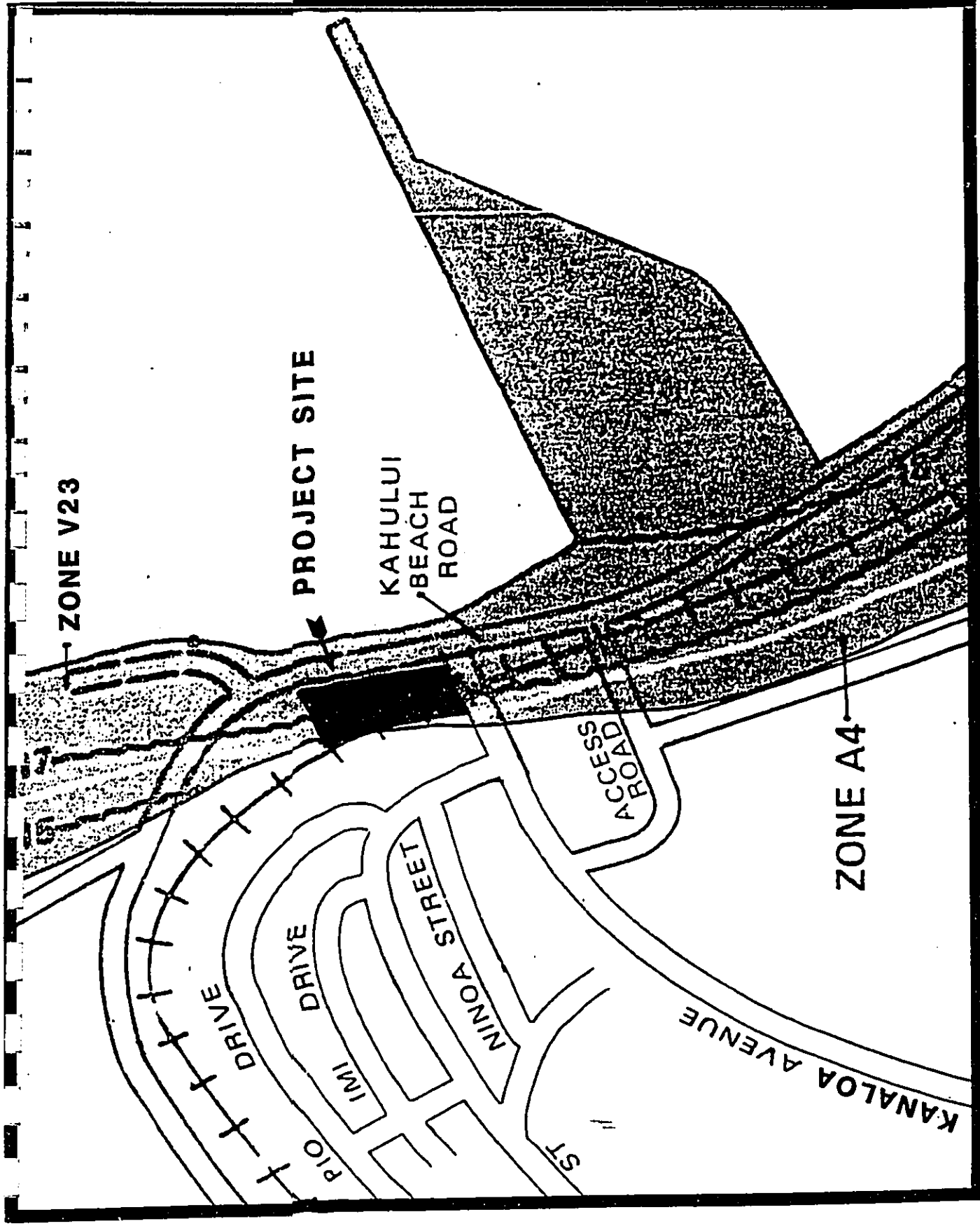
LOCATION MAP



OWA SUBDIVISION EA/FIG. 2

KAHULUI • MAUI • HAWAII

TMK: 3-8-07:38



FLOOD ZONE MAP EA/FIG. 3

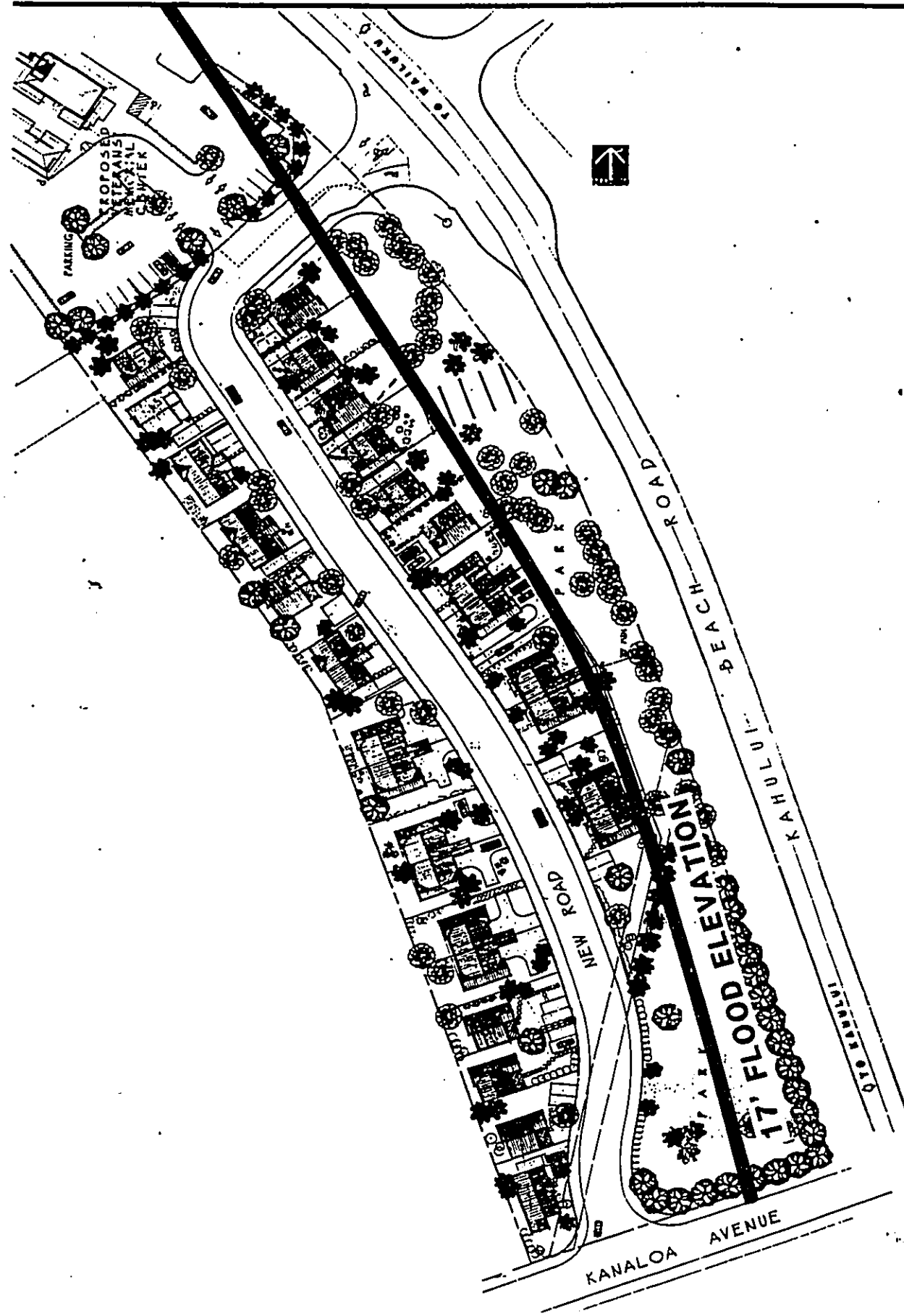
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RECEIVED
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MAY 15 1974

OWNER
DEVELOPER
ARCHITECT
ENGINEER
PLANNING
SURVEYOR
LAND
AND
WATER

OWA SUBDIVISION
KAHULUI HAWAII
TALK: 3-8-07:38

DATE: 5/15/74
SHEET: 2-1



PROPOSED ZERO LOT LINE - OWA SUBDIVISION
SCALE: 1/8" = 1'-0"

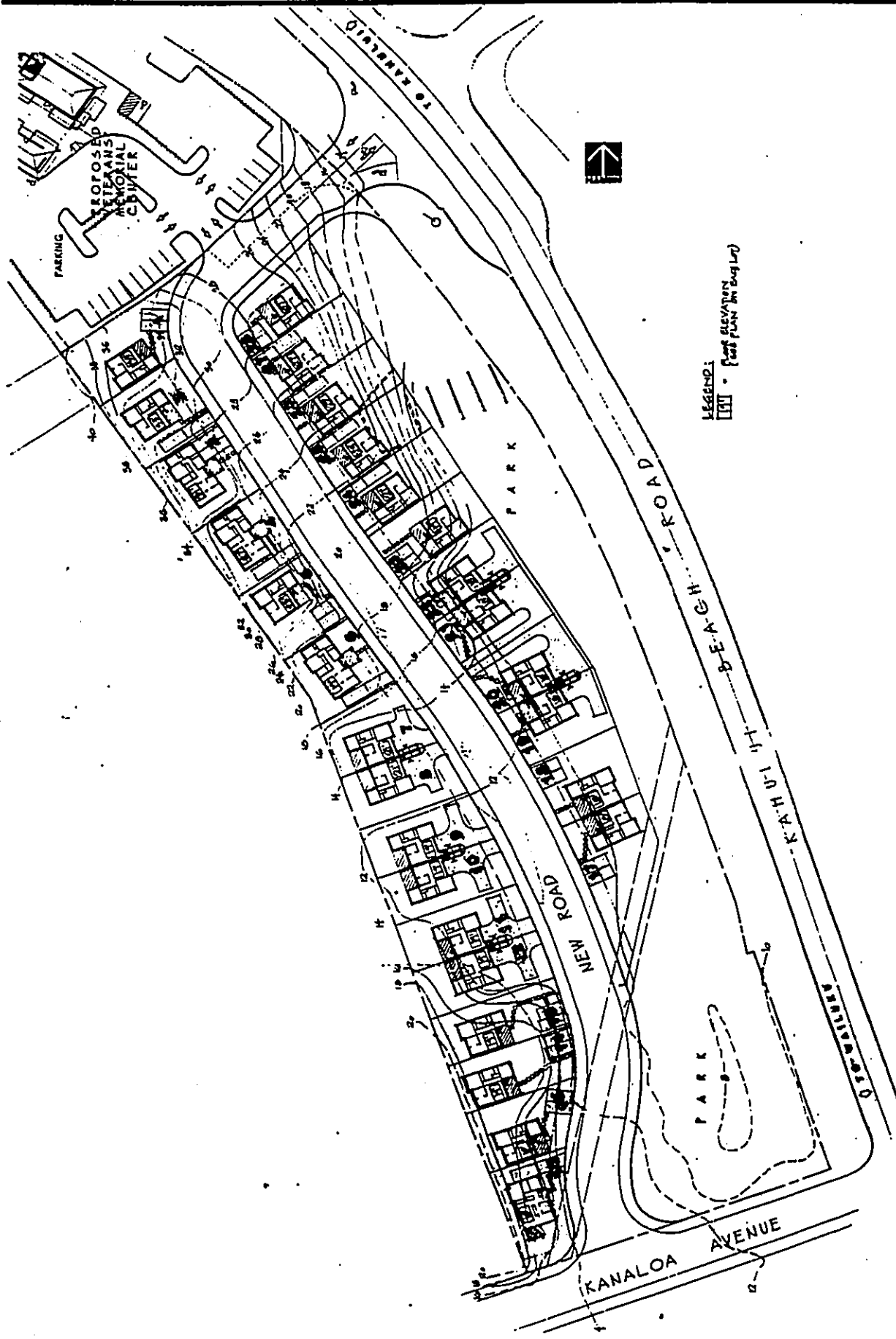
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RIECKE
SUNLAND
ARCHITECTS
KONO

PROPOSED
VETERANS
MEMORIAL
CENTER

OWA SUBDIVISION
KAHULU HAWAII
T.M.K.: 3-8-07:35

2-2
SHEET
NO. 2
OF 2
DATE: 11/11/78



PROPOSED ZERO LOT LINE - OWA SUBDIVISION GRADING PLAN

SCALE: 1"=30'

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SUNLAND
ACQUISITION
KONO

THE WORK
SHOWN
HEREIN
IS THE
PROPERTY
OF SUNLAND
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AND IS NOT
TO BE
REPRODUCED
OR
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OWA SUBDIVISION
KAHULUI MAHI HAWAII
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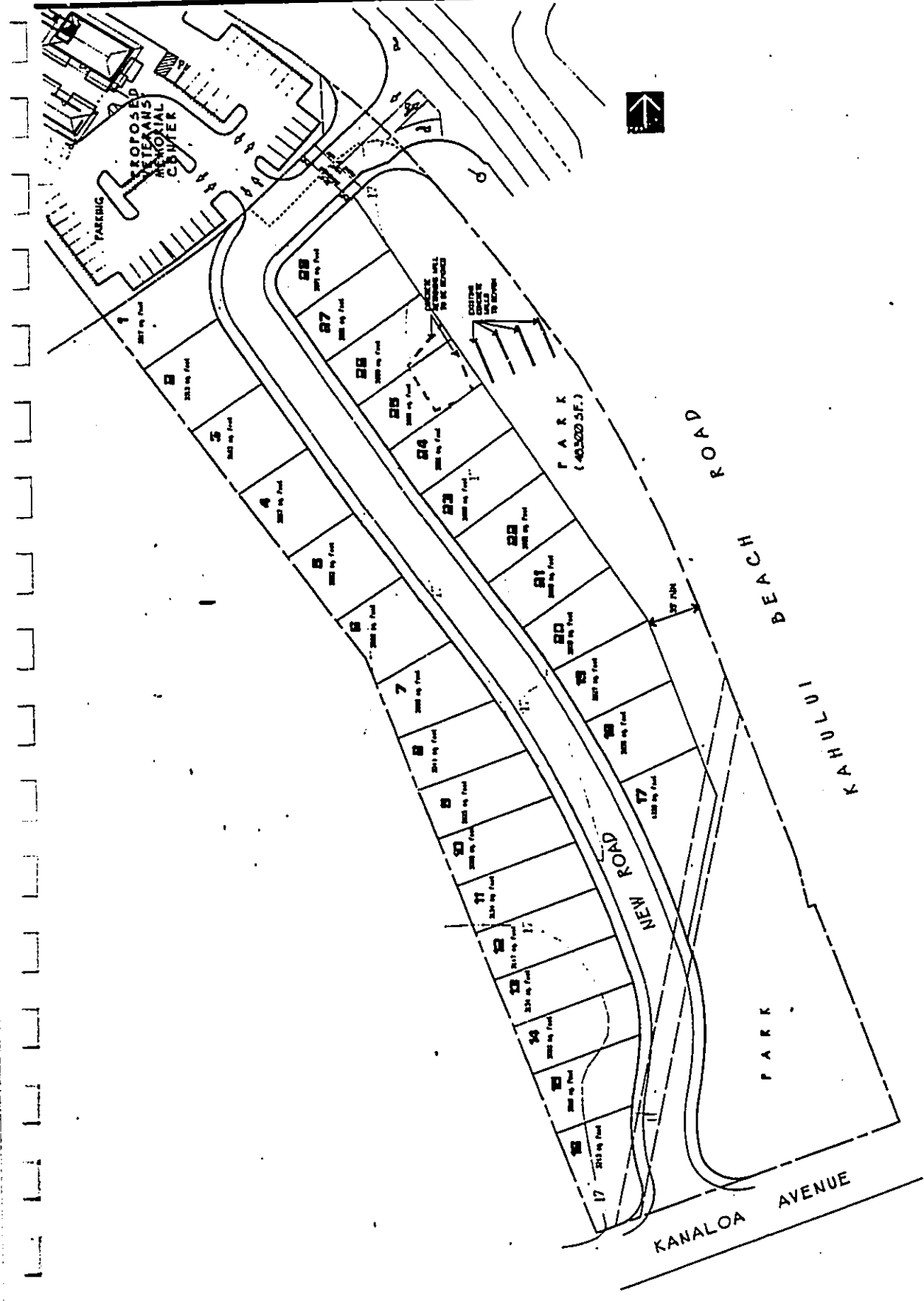
Z-3

SITE PLAN

PROPOSED ZERO LOT LINE - OWA SUBDIVISION

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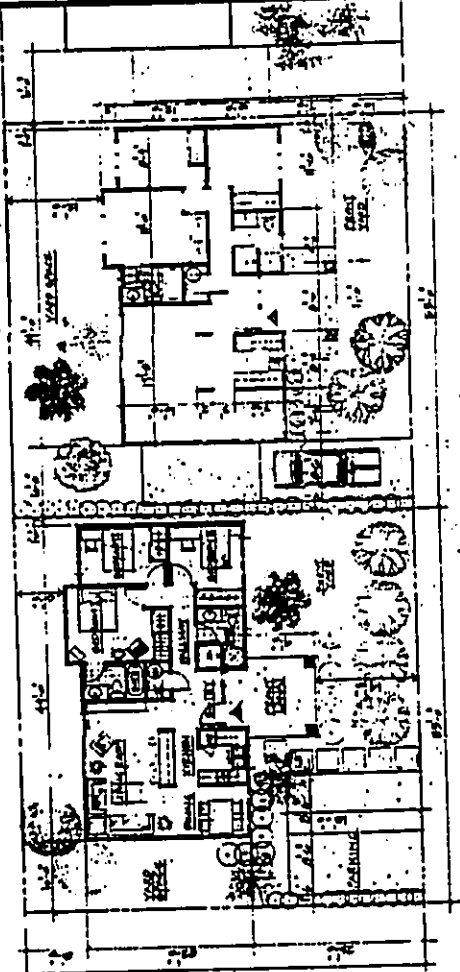
PLACKET 10, 1982



RIECKE
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ARCHITECTS
1001 KALANIANA'OHU
DRIVE, SUITE 200
HONOLULU, HAWAII 96813
PHONE: 808-943-1111

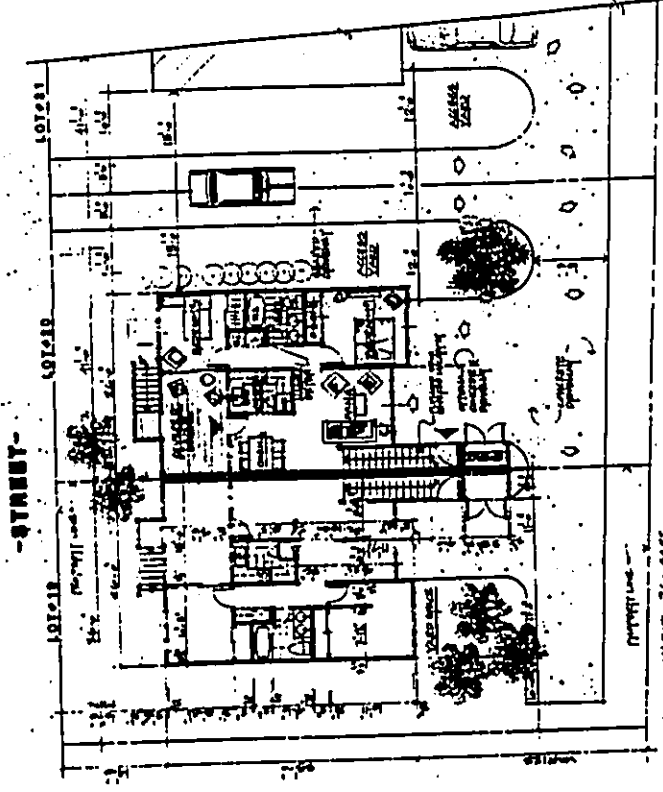
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KAHULUI MAUI HAWAII
T.M.C. : 3-B-07:3B

Z-4
NO. 0
DATE: 10/15/12
BY: A.H.H.12



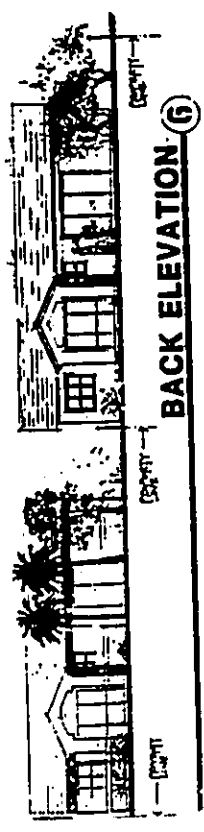
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DATE: 10/15/12
BY: A.H.H.12
PROJECT: OWA SUBDIVISION

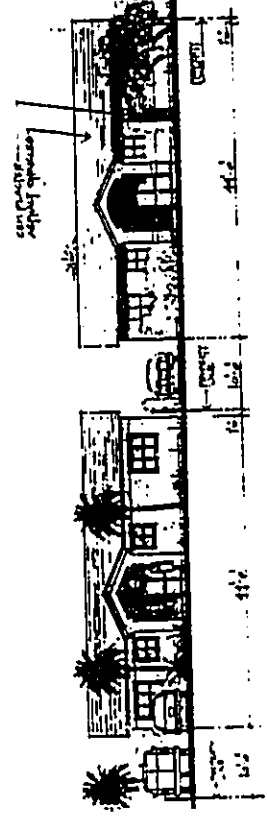


FLOOR PLAN ①

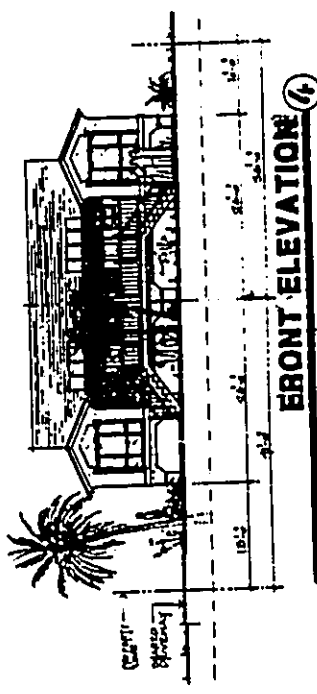
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PROJECT: OWA SUBDIVISION



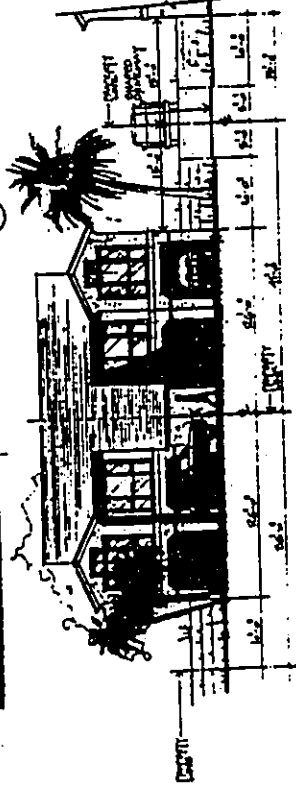
BACK ELEVATION ⑥



FRONT ELEVATION ⑤



FRONT ELEVATION ④



BACK ELEVATION ③

RIECKE
ARCHITECTS
SUNLAND
KONO

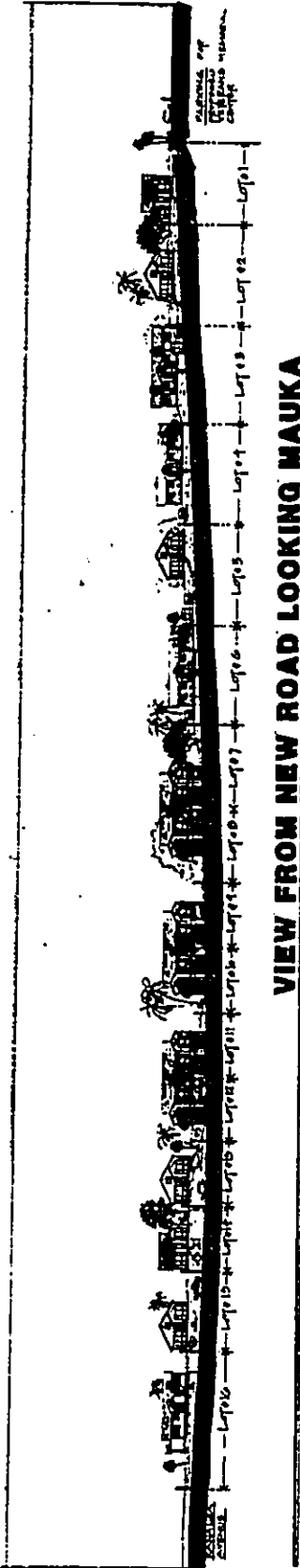
NO. 9 WINDY AVENUE
KONO, HAWAII 96751
PHONE 935-5511

DATE: 11-15-73
BY: R. M. RIECKE
CHECKED: J. M. RIECKE
SCALE: AS SHOWN
PROJECT: SUNLAND
SHEET: 2-15

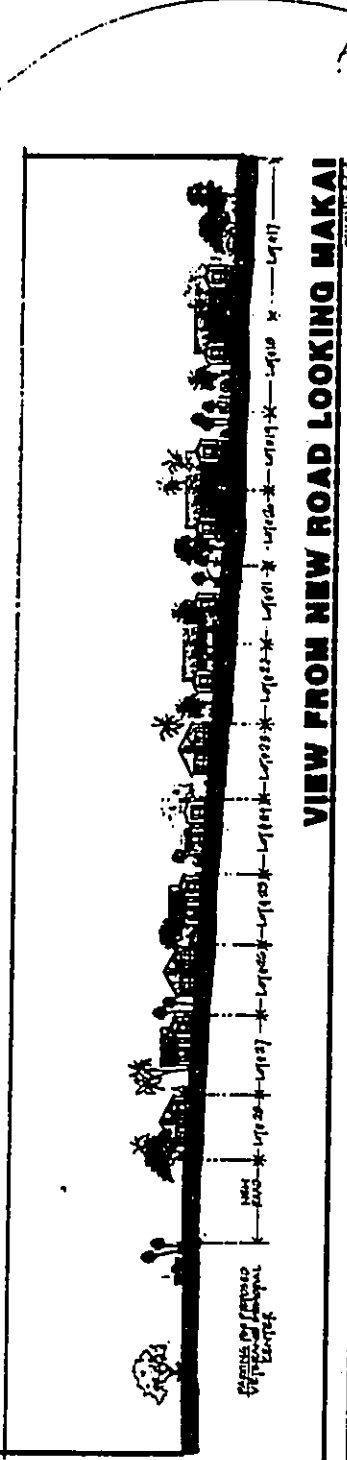
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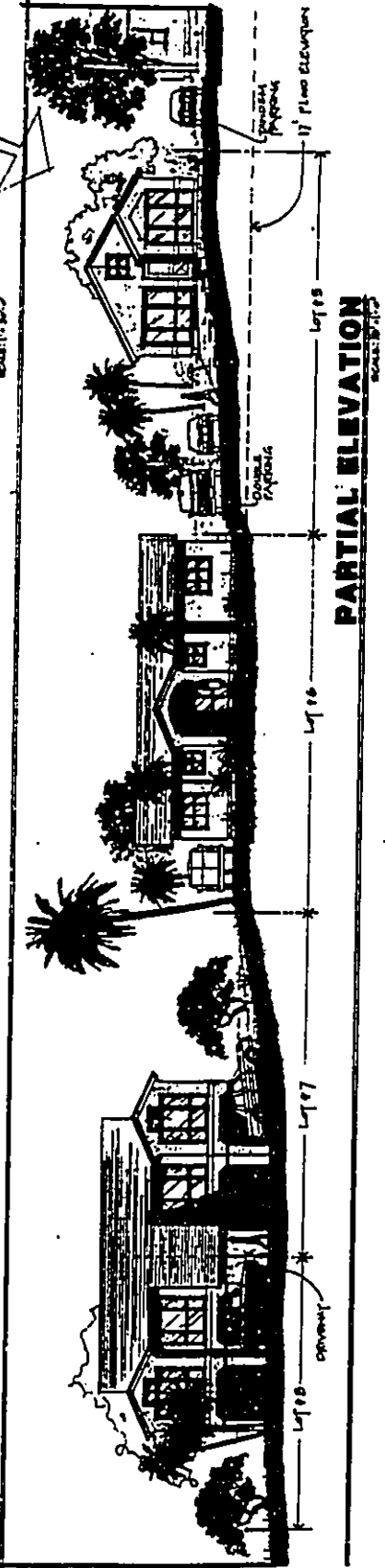
2-15



VIEW FROM NEW ROAD LOOKING MAUKA



VIEW FROM NEW ROAD LOOKING HAKAI



PARTIAL ELEVATION

APPENDICES

APPENDIX A

AN ARCHAEOLOGICAL INVENTORY
SURVEY FOR OWA SUBDIVISION, A & B
PROPERTIES, INC., KAHULUI, MAUI, HAWAII
(TMK 3-8-07: 38)

Prepared for:
Hideo Kawahara
A & B Properties, Inc.
Kahului, Hawaii

Prepared by:
Xamanek Researches
P.O. Box 131
Pukalani, Hawaii, 96788

Walter M. Fredericksen
Demaris L. Fredericksen

November, 1992

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- Photo 7 - Painting by Edward Bailey, showing railroad construction in the 1880's. (Maui Historical Society Archives)

INTRODUCTION

In July, 1992, Linda Lange, of Riecke, Sunnland and Kono, Architects, Ltd., contacted us regarding an A & B project, the OWA Subdivision, proposed for TMK 3-8-07:38. This parcel of land borders the Kahului Beach Road about 200 meters south of the Lower Main/Waiehu intersection traffic light. The parcel is contiguous to the Nisei Veterans Memorial Center (TMK 3-8-07: 123) parcel along its northern property line. The two parcels mentioned above were originally one property, subdivided into the present two parcels. The A & B parcel is to be developed for affordable housing lots and house-units.

Following our initial assessment survey of the parcel and consultation with Ms. Annie Griffin of the Historic Sites Section we submitted a proposal on July 24, 1992. Our research strategy included a walk-over reconnaissance surface survey for planning a series of subsurface tests for backhoe as well as manual excavation. The field research would be recorded in field notes and photographic documentation. The report would then summarize the data.

We were then put into contact with Mr. Hideo Kawahara, A & B Properties, Kahului, Maui, for authorization to begin the archaeological inventory survey. Field work began on September 4, 1992, continuing on the 5th, 6th, 10th, 16th and 24th of that month.

As with the Nisei Veterans Memorial Center parcel bordering the subject parcel, considerable land disturbance will occur during development preparation, which will include extensive grubbing and grading of the present topography. Because the parcel contains portions of a sand dune presently heavily overgrown with kiawe, koa haole, and the like, monitoring should be done during site building preparation. Human burials are sometimes found in dune areas and subsurface testing will not always lead to the discovery of random, isolated burials. Monitoring will help insure that any burials which may be present are discovered and properly treated according to State regulations.

The subject parcel has undergone considerable land disturbance in historic and recent times. The preparation of a railroad bed and tracks on the dune crest required stabilizing the crest for supporting the weight and strain of such a complex.

Several major water line pipes (up to 16" in diameter) and sewage lines border and cross the subject parcel, all requiring deep trenching for their placement. Further excavation for road protection along the parcel's border and excavation for retention of storm/flood water runoff and under-the-road drainage culverts accessing the ocean only ca. 25 to 50 meters away, also contribute further to land disturbance on the subject parcel. An access road on the mauka border of the parcel, running along the Rose of Sharon Church property border, was bulldozed and filled in for elevation also. Home construction along the mauka border contributed to considerable earth-fill and modification of the parcel. These disturbances were factors in the design strategy for subsurface backhoe and manual excavation on the site.

Concrete, arched piers dated "1921" on the pier nearest the Kahului Beach Road still stand, and were part of the Makaweli Rock Crusher operation (See Map 3; Photos 3-6). A & B Properties Ltd. have stated they intend to leave these structures standing "as is", as part of their development scheme.

SURVEY AREA

The survey parcel (TMK 3-8-97:38) consists of ca. 4.03 acres of land located near the northeast shoreline of the coast of Maui Island, Hawaii (See Map 2). Kahului Beach Road runs along the northeast border, while Kanaloa Avenue borders the parcel to the south. The Rose of Sharon Church property and other Puuone subdivision residential properties border the subject parcel along its western side. The northwest border abuts the Nisei Veteran's Memorial Center property. An access path bifurcates the Nisei Veterans Memorial Center and the A & B parcels along their mutual border, and nearly falls on the easement for a planned future roadway.

The old Kahului Railroad track traversed the subject parcel from its south to and through its north border, as it continued onward through the Nisei Veterans Memorial Center parcel and to Wailuku town. Track-bed retaining walls of drystone masonry construction are still visible at several points along the track bed, which forms the highest feature on the two parcels.

NATURAL HISTORY

The subject parcel generally parallels Kahului Bay beach shoreline which lies ca. 25 to 50 meters north and east of its border. It is geologically included in the ancient Kula series of lava flows. Lowland oxisols (highly stable) and volcanic entisols

(ash/sand derived soils) are dominant soil types (University of Hawaii, 1983, pp. 39-41). According to Foote et. al. (1972, p. 117), on sandhills near the ocean, with 7 to 30 percent slopes, Puuone Sand (PZUE) prevails. This is described as having a grayish-brown surface layer of calcareous sand about 20 inches thick, underlain by grayish-brown cemented sand. This soil is moderately alkaline. Permeability is rapid above the cemented layer. Runoff is slow, and wind erosion moderate to severe.

Aeolian sands have formed a prominent dune running the length of the south/north axis of the parcel. Maximum elevation is ca. 30 feet above sea level. A lower, depression zone about 20 feet above sea level lies mauka of the sand dune. Lithified sand is apparent in some surface outcrops and in subsurface excavations.

Flora on the parcel include the exotics Sea Grape (Coccoloba uvifera), Indian Pluchea (Pluchea indica), Tree Heliotrope (Messerschmidia argentea), and False Kamani (Terminalia catappa). Indigenous species include Milo (Thepesia populnea), and Beach Naupaka (Scaevola taccada).

Eroded, exposure-faded African snail shells are strewn over the surface of the site area.

BACKGROUND HISTORICAL RESEARCH

Land Use: Historic

The study parcel is included in the large ahupua'a of Wailuku. This land division stretched from Wailuku to Paia, and nearly halfway across the isthmus. Its population in 1831-32 was listed as 2,256 (Cordy, 1978, pg. 59). After the Great Mehele in 1848, it was declared to be Crown Land, set off for the support of the "royal state and dignity". After the death of the last Kamehameha (Lot, or Kamehameha V) in 1872, the land went to his sole heir, his sister Ruth. In 1878 the Crown Lands Commissioners leased the eastern 16,000 acres to Claus Spreckels. In September of 1880 he purchased the claim of Princess Ruth Ke'elikolani to a one-half interest in the Crown Lands of Hawaii, worth approximately \$750,000. He paid her \$10,000 and also loaned her \$60,000 at 6% interest enabling her to pay off 12% notes held by other people. Many in government worried that Spreckels might exercise his claim to nearly one-half million acres of Crown Land. To settle the Crown Lands title for all time, the Legislature in 1882 authorized the conveyance of the entire ahupua'a of Wailuku (24,000 acres) to Spreckels in exchange for his complete surrender to the claim he had acquired to one-half of the Crown Lands of Hawaii. This was Grant (Royal Patent Number) 3343, signed by King Kalakaua on July 21, 1882 (Adler, 1966, pp. 62-64).

In 1885, Spreckels and his wife Anna sold the property to Hawaiian Commercial and Sugar Company, a California corporation which he owned, for the sum of five dollars (Fredericksen, September 1988, p. 8). After a number of years of stock purchasing and manipulation, the controlling interest in the company went to Alexander and Baldwin, and in January of 1899, this new partnership was established. Prior to this, the portion containing the OWA subdivision had transferred to Hattie P. Parker, wife of Samuel Parker, "a Honolulu businessman and landowner who inherited a large cattle ranch on the island of Hawaii...." and "a poker playing crony of Spreckels and Kalakaua" (Adler, 1966, p. 292).

In a title document, provided by Alexander and Baldwin Properties, Inc., the purchase of this portion by Hawaiian Commercial Sugar Company is recorded as follows:

"This indenture made this 30th day of March, 1899, between Hattie P. Parker, in her own right, and by and with the consent of her husband Samuel Parker, signified by his execution of these presents, and the said SAMUEL PARKER, in his own right, of Mana in the Island of Hawaii, the parties of the first part, and the HAWAIIAN COMMERCIAL SUGAR COMPANY, a foreign corporation doing business on the Island of Maui, the party of the second part:

WITNESSETH:- That the said parties of the first part, for and in consideration of the sum of FIFTEEN THOUSAND AND FIVE HUNDRED DOLLARS to them in had paid by the said party of the second part, the receipt whereof is hereby acknowledged, have granted, bargained and sold, and by these presents do grant, bargain, sell and convey unto the party of the second part all that tract of land situate in the District of Wailuku, Island of Maui.....Area 920 acres, more or less."

A total of 9 leases went with the sale of the property, 7 commencing on July 16, 1892, for 15 years hence, to private individuals including E. H. Bailey. One was held by Hawaiian Fruit and Taro Company for 10 years from November 1, 1892. The ninth lease was held by Kahului Railroad Company for 75 years from August 1, 1884.

The present study parcel lies within that portion leased to Kahului Railroad for development of a commercial network between the various sugar mills and Kahului Harbor.

Presently, Kahului Beach Road and Lower Main Street follow the former Kahului Railroad track line that ran from Kahului Harbor to a junction near Waihe'e Beach Road, where one spur ran to Paukukalo, and the other continued to Wailuku Sugar Mill, Wailuku and Waikapu. The railroad and the associated Makaweli

Rock Crusher Mill constitute the most significant land use of the parcel in historic times. The track apparently ran along the highest part of the subject parcel at an elevation of ca. 30 feet above sea level. Dry masonry stone retaining walls are still intact and visible along both the mauka and makai portions of the former railroad bed (Photo 1). The route of the former railroad is shown on the 1955 USGS Topographic Map (Map 4).

The most striking architectural remnants of the railway system located on the subject parcel are the 5 concrete pillars and arches, the most visible makai one impressed with the date, "1921". A wooden frame building rested on these pillars, serving as the housing for the Makaweli Rock Crusher apparatus (Photos 5, 6). It was constructed so the train carrying rock could off-load from the track-bed into the crusher. The concrete pilings elevated the crusher adequately above ground level so trucks could be drive in and be filled with crushed rock. In a Maui News article (April 15, 1925), it was reported that newly developed building materials, Hollow Concrete Bricks, were being produced at the Kahului Railroad Company's Makaweli Rock Crusher.

The Maui News contains several other articles dealing with activities in the general vicinity of the subject parcel. An article dated February 8, 1902, describes a problem and potential solution resulting from the railroad:

"Superintendent R. W. Fuller of the Kahului Railroad Company in preparing to make some important changes in the line of railroad track between Kahului and Wailuku. At present the sharp turn and the railroad crossing at the beach is extremely dangerous on account of the sand dunes that shut out the approaching trains from the view of those approaching the crossing with teams, especially when the wind is blowing a gale.

The track will be moved some hundreds of feet south of its present location, so that the point where it crosses the road as well as the approaching trains themselves can be seen for quite a distance. On crossing the road, the track will skirt the pasture at greater distance from the public road."

And on June 8, 1907, another reference describes plans for improving the land for further residential use in the future:

"The Kahului Railroad Company is filling in the lowlands in and about Kahului and will in time raise the level of the "

entire town site. When the work is completed and proper drains provided, the town should be free of mosquitos and the place a most desirable locality in which to live."

The Wailuku Sugar Company closed railroad operations in 1947, initiating sugarcane hauling by truck. This shift closed the railroad spur to Wailuku Mill. Only one steam engine, Engine No. 12, remained in service by the mid-1950's. During the 1960's railroad enthusiasts were treated to excursions pulled by No. 12. The railroad continued to serve the Libby, McNeill and Libby pineapple cannery in Haiku, until the latter was sold to Haserot Pineapple Company. Haserot gave notice that future pineapple shipments would be by truck. On April 28, 1965, The Kahului Railroad Company applied to the Interstate Commerce Commission for permission to close railroad operations. On May 24, 1966, the last train ride was made for the company's retired employees and their guests. During 1967, 88 years after the first tracks were laid, the railroad line was dismantled and the hardware was salvaged and sold (Best, pp. 31-33).

A painting by Edward Bailey, a missionary to the Islands, between 1840 and 1885, shows the parcel as it appeared in the 1880's. The railroad can be seen atop the sand dune (Photo 7).

Land Use: Prehistoric: Settlement Patterns

The subject parcel lies within the large prehistoric ahupua'a of Wailuku, in the coastal zone. Here one would expect to find housing in dry area "living zones" (Kirch, 1985, p. 4), particularly if there was a freshwater source nearby. There is a possible stream bed on the southern side of the parcel (See Figure 3, Test Trench #11).

Prehistoric land use also may have been for activity areas associated with the sea and shoreline utilization. A site suggesting the latter kind of prehistoric land use was located three-quarters of a kilometer west of this parcel (Site 1172, referred to in discussion below), as well as on the adjacent Nisei Veterans Memorial Center site.

Human burials have been discovered in other sand dune areas on Maui, and the potential for such finds is present at this site.

BACKGROUND ARCHAEOLOGICAL RESEARCH

A perusal of the literature and discussion with staff at SHPD shows that no previous archaeological work has been undertaken on the subject parcel. The authors, however, have conducted two

inventory surveys in the general area adjacent to Lower Main Street (December, 1990; January, 1992). The first of these two studies was on TMK 3-4-39:77, a parcel ca. 1.25 kilometers mauka of the present A & B study parcel. No archaeological artifacts or features were discovered during this study. Most of the sand dune and Kahului Railroad bed had been removed prior to the study (December 1990).

The second of the two studies was on TMK 3-4-39:82, ca. 1.75 kilometers mauka of the present A & B study parcel. As with the first discussed study above, no prehistoric artifacts or features were discovered. It should be stated that no subsurface testing was done on that site. One historic feature, part of the old Kahului Railroad bed, contained a concentration of water-worn stones, and was located adjacent to the Lower Main Street border of the parcel. It is elevated ca. one meter above present street level and is the only remaining portion of the railroad bed in that area, since other parcels have already been excavated to street level.

During a Bernice P. Bishop Museum survey in 1971-72, site 1172 was discovered and recorded on TMK 3-8-36:94. It was named the Lower Main Street Midden Site. It lies ca. one kilometer mauka of the present study parcel. It is described as having at least one cultural layer with glass and metal sherds, water-worn stones, charcoal, coral and a number of shell remnants, e.g., cowrie, nerita, drupe, ophihi and land shells. Three pre-contact artifacts were found in the face of the cliff, including the end of a hammerstone, a possible triangular shaped hammerstone and a coral file. As stated in the report, "The research potential of this site is good. Excavation could yield information on diet, tool making, and possible length of occupation. The presence of charcoal means that it may be possible to date the occupation by the radiocarbon dating technique." (Connolly, 1973).

The authors performed an inventory survey on the parcel contiguous to the subject parcel, TMK: 3-8-07:123, which will be the future site of the Nisei Veterans Memorial Center. Work on that parcel initially identified the railroad bed which now bears the State site number 3112. Two additional sites, one a historic refuse area (Site 3119), and one subsurface site (Site 3120) were identified. Material cultural deposits and a tentative early radiocarbon date of 1790 +/- 70 RCYBP make this site valuable in terms of data recovery on early Hawaiian habitation /activity sites. The discoveries from these sites helped set the strategy for work on the subject parcel (Fredericksen, October 1992).

Mr. Charles Keau, an informant knowledgeable of the prehistory of Wailuku, provided some data on the archaeology of the area. According to Mr. Keau, there were 3 heiau located on the large Wailuku dune. One was situated across from the Maui Soda Company, fronting on Lower Main Street. A second one was located in the vicinity of the power transformer near the Mill and

Lower Main Street intersections. A third one may have been located near the present Home Maid Bakery. During construction of the parking lot next to the bakery, a local antiquity collector, Wesley Wong, found 5 "Tahitian style" adzes. Mr. Keau also commented there might well be human burials in the remaining dune area. This notion is supported by human burial discoveries in other sand dune areas of Maui.

ARCHAEOLOGICAL FIELD SURVEY

From two to six field personnel were involved in the field survey. Principal investigators were Walter M. Fredericksen, MA, PhD (ABD), and Demaris L. Fredericksen, MA, PhD (ABD). The Field Director was Erik M. Fredericksen, MA. The initial strategy included an on-site surface survey and background orientation research. The on-site surface survey closely examined the parcel for any surface indications. Heavy undergrowth made access to many parts of the parcel extremely difficult.

Three manual test pits and 14 backhoe test trenches were excavated. The pits and trenches were situated on dune areas, and in relatively undisturbed portions of the parcel.

SURVEY FINDINGS

Site 50-50-04-3112

The most significant historic feature of the site is the remnant of the Kahului Railroad complex. The railroad bed that lies atop the sand dune at about 30 feet elevation, is designated as Site 50 (State of Hawaii), 50 (Island of Maui), 04 (Quadrangle), 3112 (Number) on the contiguous property (TMK: 3-8-07: 123), the future site of the Nisei Veterans Memorial Center. It bears the same site number on this property, and is hereafter referred to as Site 3112.

Site 50-50-04-3135

In addition to the railroad bed, 5 intact concrete/masonry pillar and arch structures are located on the parcel, remnants of the Makaweli Rock Crusher. The one nearest to and most visible from the Kahului Beach road is engraved with the date "1921". These five support structures served as the base for a large wooden building in which rock was crushed and off-loaded into waiting trucks for transport to areas having use for the material. The 5 pillars are each 30 feet 6 inches long and 1 foot wide.

Each has an arched doorway 8 feet in from the ends, which are 3 feet wide. They are 15 feet apart, and about 12 feet in height, and are made of reinforced concrete. On the mauka side there are several buttresses and substantial reinforced concrete walls, which are part of a concrete chute system which drops from the railroad bed to ground level (Photos 3 and 4). This complex has been designated as Site 50-50-04-3135, and hereafter referred to as 3135.

Numerous portions of rotted railroad track ties were discovered, some on and some beneath the surface of present ground level. A number of the ties still had iron railroad spikes in place. The iron tracks were salvaged during the 1960's after the closing of the railroad.

TEST EXCAVATIONS

Three manually excavated test pits were placed in mauka areas of the site to determine productive locations for the Backhoe test excavations (Map 3). All three tests were ca. .5 m. square and excavated to a depth of ca. .5 m. All tests were sterile below the first ca. 10 cm., which contained occasional recent materials such as bottles, plastic remnants, toy remnants, and similar types of artifacts. The soil was aeolian sand, much of which had been disturbed by relatively recent assaults on the parcel with heavy earthmoving construction equipment. Bits of recent construction lumber, PVC and galvanized pipe, and like materials were mixed below surface in the sand. The pits were sterile of midden or other types of cultural material, other than the recent, above-described discarded materials. Shell fragments and coral bits were occasionally discovered as part of recent disturbed fill/matrix.

The preliminary results from these test pit excavations indicated the site had been disturbed during construction of residential housing and trenching for a number of sewage and water pipes. Major earth removal from the makai border area of the site for an apparent storm floodwater retention basin has also taken place. Some of these features are shown as they exist on the site topographic map (Map 3).

Random backhoe trenching seemed to give the greatest probability of survey success. The strategy called for backhoe trenches placed in such a way as to provide a maximum sample of the accessible parts of the site.

A total of thirteen (13) backhoe test trenches were excavated throughout the parcel (See Map 3). Initially, a rough access road had to be cleared by backhoe. During this process, the backhoe suffered a major breakdown, and several days were required for its repair. The access area was cleared on the mauka side of the existing railroad bed, since a level area about 3

meters wide existed along that side of the railroad bed. On the makai side of the railroad bed, the dune face drops away at an angle of ca. 60 degrees, to the lower land surface along Kahului Beach Road. This lower land area has been excavated for water and sewage pipelines and a retention basin and berm build-up.

The dense undergrowth (haole koa, seagrape, Indian pluchea, heliotrope, beach naupaka, etc.) has caused considerable soil disturbance through root displacement and penetration of the porous, sandy soil. Some historic materials, such as bottle glass and pottery sherds were found in the numerous rotted-out root impressions and the many rodent burrows taking advantage of the root system maze.

All backhoe test trenches were excavated to the same basic dimensions. The width of the backhoe bucket was ca. .5 meter, which was wide enough for any necessary inspection of the profiles. Length was normally 3 meters, and depth varied, but was usually ca. 2 meters. The unstable nature of the soil made profile preparation and reading difficult, and impossible at some times. If archaeological personnel had to descend into a trench, they usually did so on the backhoe shovel for safety and to facilitate escape if a cave-in occurred.

Eight backhoe trenches were excavated along the cleared access road (TT # 1 through 7, and TT #13, the railroad bed profile). With the exception of TT #13 they were all at approximately the same magnetic bearing and were spaced ca. 20-25 meters apart. Two backhoe trenches were excavated extending downslope on the makai side of the railroad bed. Test trench #9 was excavated ca. 27 meters NE (047 degrees Mag.) from Test trench #7 (the last one along the cleared access road) and Test trench #8 was excavated along the same magnetic bearing as TT #9, but was moved upslope to within ca. 7 meters of TT#7 (as shown on Map 3). One backhoe trench #10 was excavated downslope and toward the concrete pillar/arch complex. Two backhoe trenches #11 & 12 were excavated alongside a rough access road bordering the Rose of Sharon Church property and the property borders of several residential developments. These latter two trenches were dominated by recent construction detritus and the earth was very disturbed (See Map #3)

No clearly pre-contact Hawaiian artifacts were recovered from any of the test trenches. In some instances, primarily TT #13 (the transect of Site 3112), historic artifacts were recovered. Some were late 19th to early 20th century in origin, i.e., porcelain sherds from jugs, cups and plates and/or saucers, buttons and bottle fragments, and some whole, heavily patinated bottles, usually vials for medications and/or fragrances and potions. Others were clearly recent historic, e.g., identifiable beer bottles, plastic fragments, tool and fastener remnants. Coal fragments and oxidized railroad spikes, rail clamps and related materials were also discovered. In this test trench provenience

was mixed, with artifacts located throughout the 1.5 meter depth of the transect profile. The most interesting historic artifact was a small glass bottle, clearly embossed, "Kickapoo Indian Oil -- Healy and Bigalow".

Test trench #10 produced dressed stone, train ash deposits and mixed fill nearby the site of the former rock-crusher pillar/arch structures. There were no artifacts, however.

In the other trenches, numbers 1 through 12 mixed fill predominated, mostly composed of sandy soils, some apparent lensing of varicolored sands, probably caused by oxidation of intrusive ferrous metals of various types and mineral leaching in other instances. Lithified sand was discovered in a number of the tests, usually at depths greater than 20 cm. below surface, and oftentimes, where located, would present a lens of 20 or more cm. in thickness. Water-worn beach pebbles and larger stones were found intermittently in most of the trenches. They were not found in apparent patterned forms, but were seemingly random and part of the fill.

SUMMARY OF TEST TRENCHES

Test Trench #1: Located ca. 25 meters east of Rose of Sharon Church concrete tile wall. Dimensions: 3 m. x .5 m. x 2.5 m. in depth. Yellowish sand (10 YR 8/2), Sterile, no artifacts.

Test Trench #2: Located ca. 20 meters northwest (330 mag.) of TT #1. Dimensions: 3 m. x .5 m. x 2.2 m. in depth. At 10 cm. below surface, a lens of red, clayey soil (10 R 3/6), underlain with lenses of alternating dark gray sand (10 YR 6/1), yellowish sand, (10 YR 8/2), dark gray sand (10 YR 7/1), yellowish sand, (10 YR 8/2), sterile gray sand with rounded coral, (10 YR 6/2--See Figure 2). Some water-worn stones (10 to 20 cm.), sparsely intermittent, and some small coral pieces (under 10 cm.) were found in the trench. Generally, the banded dune sand seemed to be sterile, with no artifacts.

Test Trench #3: Located ca. 20 meters northwest of TT #2. Dimensions: 3 m. x .5 m. x 2 m. in depth. This trench was similar to TT #2, with mixed surface fill and red soil and gravel under the fill. Homogeneous sand beneath the red soil/gravel lens is followed by alternating lensing, similar to, but not as pronounced as in TT #2. Sterile, no artifacts.

Test Trench #4: Located ca. 20 meters northwest (330 mag) of TT #3. Dimensions: 3 m. x .5 m. x 1.75 m. in depth. Surface lens of red soil, underlain with crushed coral lens, with some large angular pieces of gray quarried rock and some water-worn beach

stones. Some variable lensing (as in TT #2 - 3)--gray/yellow/gray sands. Sterile, no artifacts.

Test Trench #5: Located ca. 20 meters northwest of TT #4. Dimensions: 3 m. x .5 m. x 2 m. in depth. This trench is similar to TT #2, 3, 4, with less-pronounced lensing. Sterile, no artifacts.

Test Trench #6: Located ca. 20 meters from TT #5 (225 mag). Dimensions: 3 m. x .5 m. x 2 m. in depth. Ca. 15 cm. mixed, recent overburden, with striated, lithified sand from ca. 20 cm. below surface to nearly depth of trench. Sparse, intermittent water-worn pebbles and stones, but mostly fine, light sand (10 YR 8/3). Sterile, no artifacts.

Test Trench #7: Located ca. 17 meters from TT #6 (320 mag), in line and ending at parcel border pathway. Dimensions: 3 m. x .5 m. x 2 m. in depth. Ca. 15 cm. surface fill, underlain with sand. Sparse water-worn pebble and stones occurring intermittently in homogeneous sand. Sterile, no artifacts.

Test Trench #8: Located ca. 17 meters (047 mag), from TT 7. Dimensions: 3 m. x .5 m. x 2 m. in depth. Mixed surface overburden to ca. 15 cm. below surface, underlain by amorphous, sandy fill similar to other trenches. At ca. 75 cm. below surface, a 10 cm. thick red earth lens is apparent. Sterile, no artifacts.

Test Trench #9: Located ca. 10 m. from TT #8 (047 mag), and ca. 20 m. from Kahului Beach Road. Dimensions: 3 m. x .5 m. x 2 m. in depth. Amorphous sand fill, as in other trenches, with intermittent stones. Sterile, no artifacts.

Test Trench #10: Located off parcel border path, ca. 10 m. from TT #8 (140 mag), near rock crusher ruins. Dimensions: 3 m. x .5 m. x 1 m. in depth. Encountered quantities of dressed stone (similar to materials in existing ruins), beach water-worn stones and ash. All materials were randomly occurring, with no apparent pattern. Proximity to the existing ruins leads to the conclusion that these materials were related to the ruins, either during construction, repair, or as a by-product of rock crushing activity. There were no artifacts recovered.

Test Trench #11: Located ca. 20 meters west (080 mag) of backhoe cleared road and at right angles to it. Dimensions: 3 m. x .5 m. x 2 m. in depth. This trench bisected what appeared at the surface to be a former intermittent stream bed or erosional storm runoff channel. At ca. 90 cm. below surface, under the mixed overburden, a reddish/brown, clayey material occurred, which

continued to a depth of 2 m. below surface (Figure 3). The clayey material is ca. 1 m. in width, and is likely the remains of a streambed/runoff channel, as speculated above. There were no artifacts recovered.

Test Trench #12: Located ca. 75 meters from Kanaloa Road opposite the Rose of Sharon Church. This trench was excavated at right angles to the access road. Dimensions: 3 m. x .5 m. x 2 m. in depth. Surface fill heavily intruded by dense Koa haole roots and other dense undergrowth. Fine sand with sparse water-worn pebble intrusions to ca. 25 cm. below surface, with lithified sand to ca. 1 m. below surface, and reddish sand from there to the depth of the excavation. Sterile, no artifacts.

Test Trench #13: Cross-section of Site 3112. Located makai of TT #2 and at right angles to it (065 mag), this trench bisects the railroad bed, and reveals a profile of the railroad bed (See Figure 1). Dimensions: 6.1 m. x .5 m. x 1.5 m. in depth. All material recovered from this trench was historic in nature and was randomly occurrent throughout the 1.5 m. depth of the trench. A metal bottle cap, for example, was recovered from 1.10 m. below surface, nearly the maximum depth of the excavation. Surface to 20 cm. was mixed, sandy fill. From 20 to 40 cm. below surface, a dark grey sand lens predominated, with beach fill of pebbles and stones dominating the western side of the excavation. Lenses of light to dark sand alternated from 40 cm. to 1 m. below surface, where large rounded beach stones, and angular quarried rocks, were prevalent to 1.5 m. below surface, which was the bottom of the raised railroad bed and the top of the underlying sand dune.

Historic artifacts discovered included ceramic sherds, broken glass sherds throughout, iron spikes from the railroad, porcelain bowl sherds and a bowl base (from 1.16 m BS), brass closure lips from a purse, an older metal bottle cap with raised chain-eye, and the previously mentioned intact glass bottle, embossed with "Kickapoo Indian Oil, Healy and Bigalow".

Beach pebbles, broken shells, and packed stones (rounded and angular) on the lowest stratum, all in a matrix of sand and randomly deposited, strongly imply the material was in fact intentionally deposited as part of the building of the railroad bed.

SUMMARY AND CONCLUSION

Archaeological research work performed by the authors on the property adjacent to the A & B parcel discussed here, the Nisei Veterans Memorial Center (TMK: 3-8-07: 123), produced three significant sites (Fredericksen, October 1992). The Hawaii State

Preservation Division assigned site numbers to them: 3112 (Kahului Railroad Bed), 3119 (Historic Refuse deposition) and 3120 (Subsurface Site). A tentative date of 1790 +/-70 years RCYBP was recovered from subsurface charcoal samples. The occurrence of these sites in such close proximity increased expectations for further archaeological discoveries on the OWA Subdivision parcel. This expectation was only partly sustained by the on-site work.

Results from the test trench and manual excavations throughout the parcel indicate that some historic artifacts affiliated with the Kahului Railroad trackbed/complex are present. In fact, site 3112, Kahului Railroad bed, extends across the subject parcel from its south through its north border, continuing through the Nisei Veterans Memorial Center site parcel.

No clearly pre-contact Hawaiian artifacts were discovered. Additionally, no identifiable Hawaiian cultural layers, indicating either permanent or temporary land use, were discovered in any of the test trenches.

Initial Significance Assessment

Site 3112 (Kahului Railroad bed) presents the potential for recovery of useful information on 19th and 20th century railroad construction in Hawaii. Also, the presence of related historic artifacts are of interest. We recommend that Criterion D be used to assess the significance of this site.

The developer has stated that portions of Site 3135 (concrete pillars) will be preserved. However, the concrete chute mauka will be removed along with the railroad bed.

Sizeable portions of this parcel had been previously disturbed by various construction projects, as outlined in the narrative introducing this report. Whether or not existing possible sites were destroyed during this process will probably never be known. Since major grubbing and land sculpting are planned as preliminary tasks to actual on-site construction of the housing development, we recommend that monitoring be required by archaeological personnel. This will enable observation for possible archaeological materials (including human burial sites) to take place during land removal.

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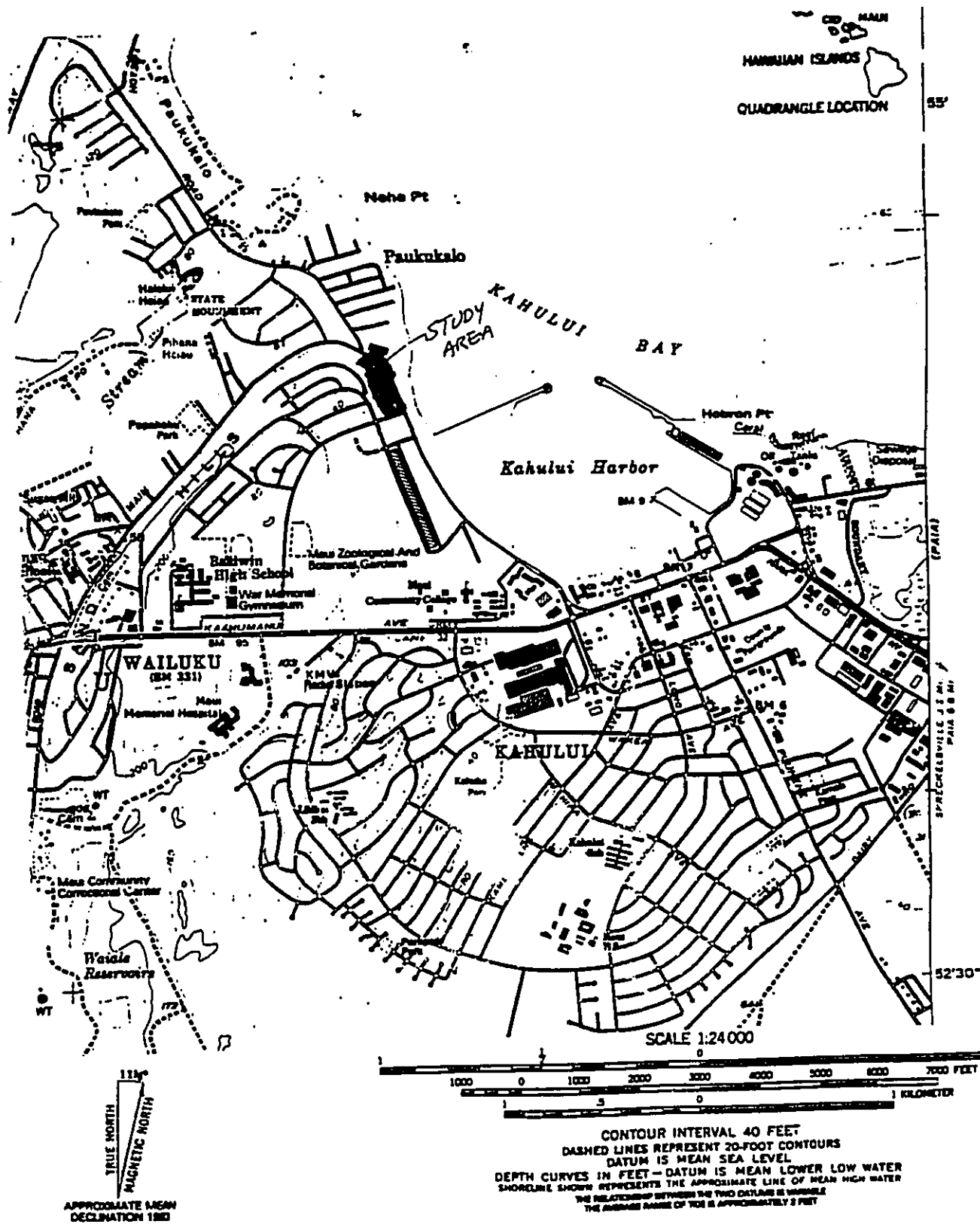
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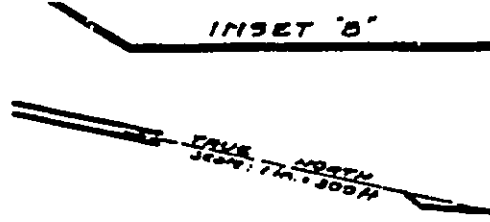
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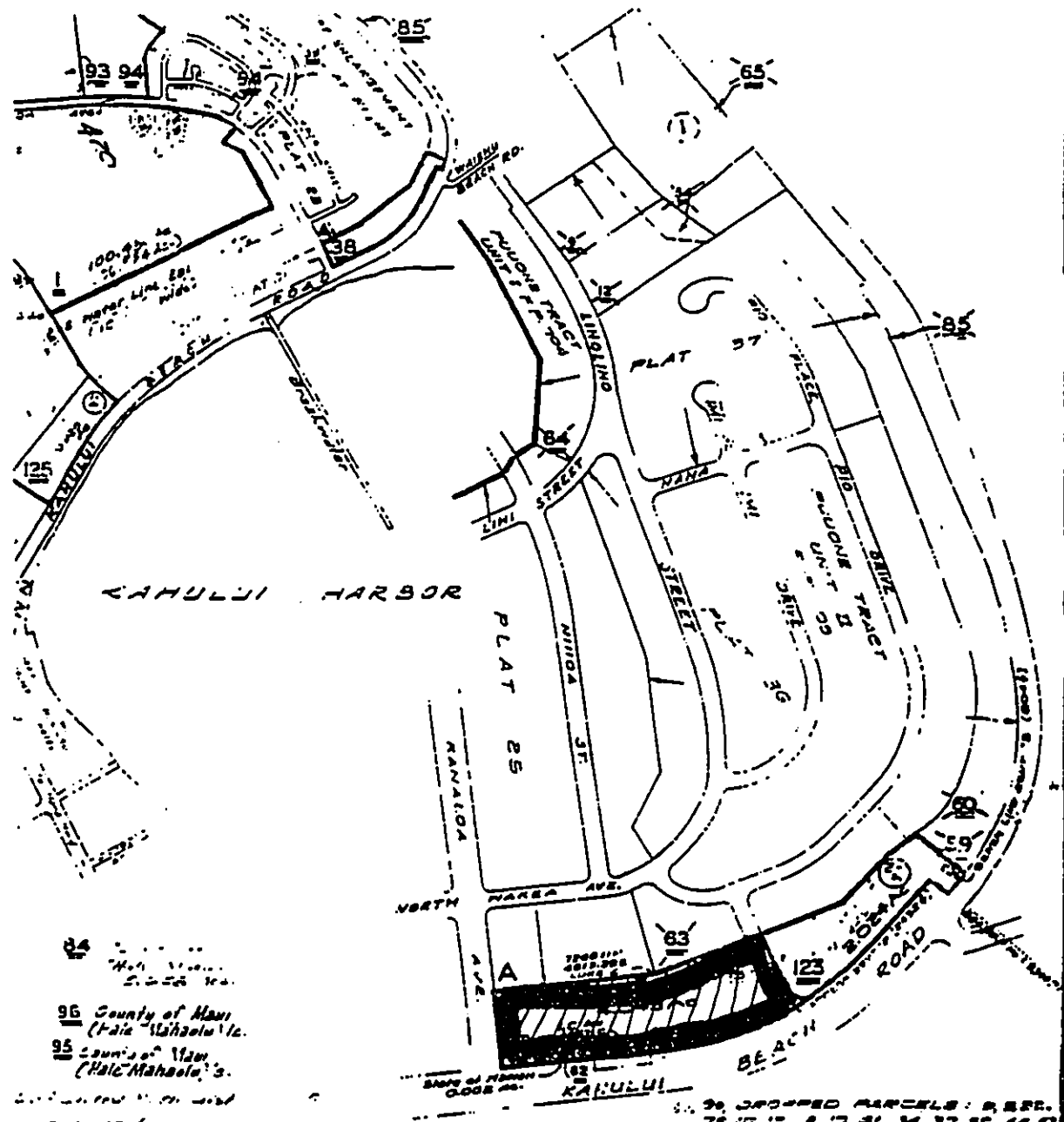
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Map 1 - Topographic Map, U.S.G.S., Wailuku Quadrangle, Scale 1:24,000, 1983.



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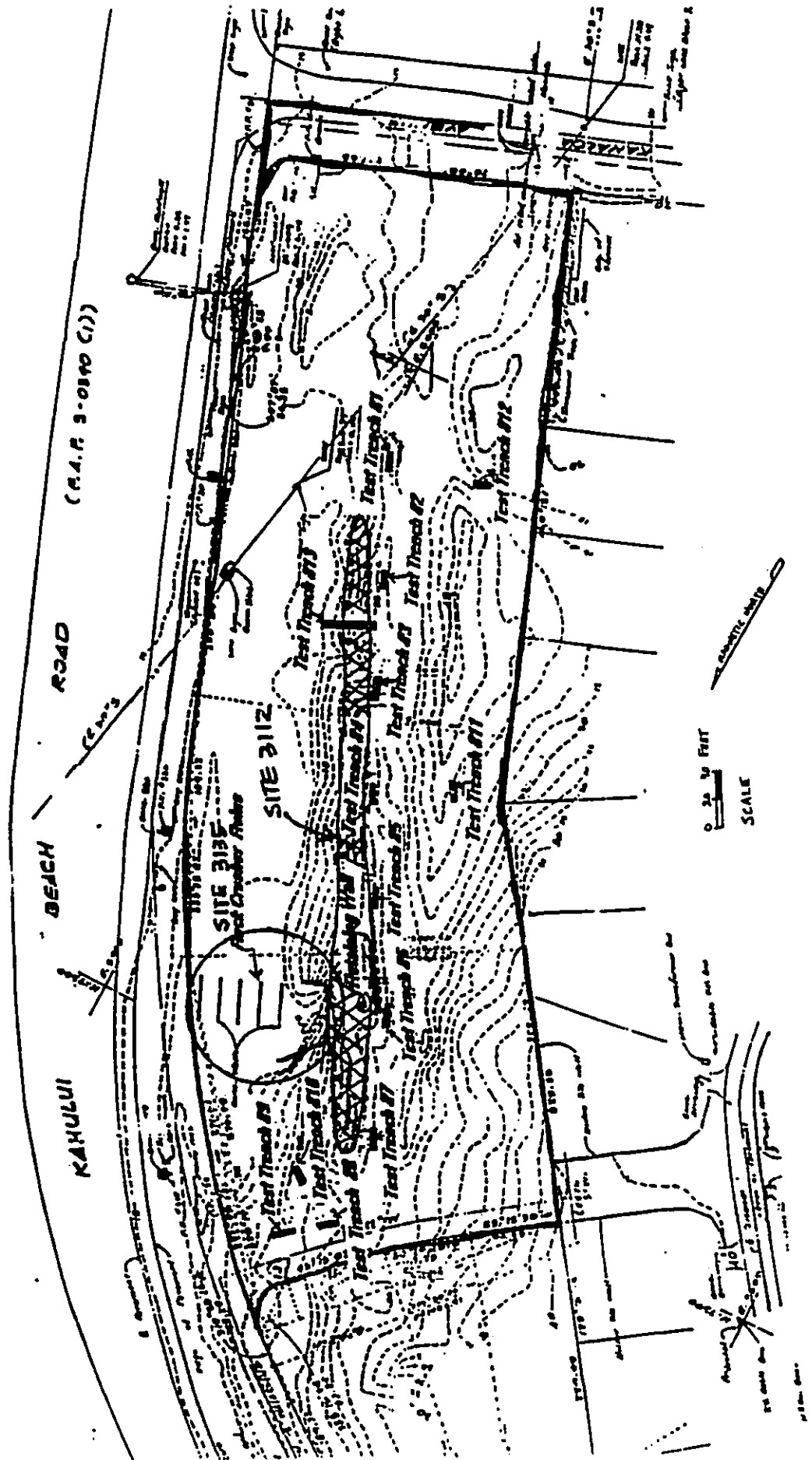


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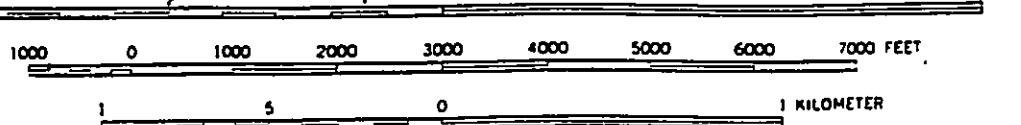
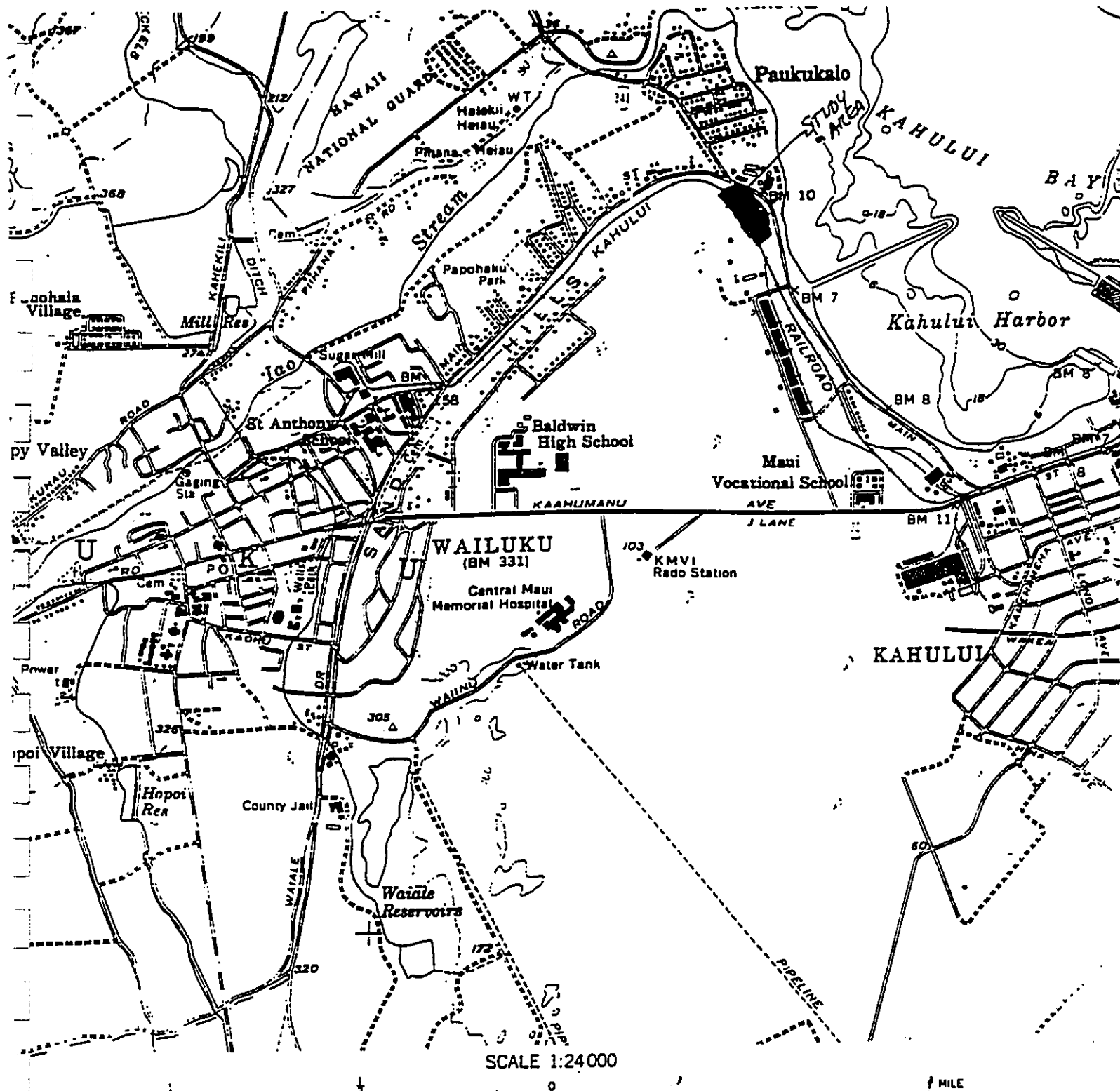
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TAX MAPS BUREAU
STATE OF HAWAII
TAX MAP
SECOND DIVISION
ZONE | SEC | DI | 27

Map 2 - Tax Map, Zone 3, Section 8, Tax Maps Bureau, State of Hawaii.



Map 3 - Topographic Survey Map, showing locations of Sites 3112, 3135, and test excavations.



CONTOUR INTERVAL 40 FEET
 DASHED LINES REPRESENT 20-FOOT CONTOURS
 DATUM IS MEAN SEA LEVEL
 DEPTH CURVES IN FEET - DATUM IS MEAN LOWER LOW WATER
 SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
 THE AVERAGE RANGE OF TIDE IS APPROXIMATELY 2 FEET

Map 4 - Topographic Map, U.S.G.S., Wailuku Quadrangle, Scale 1:24,000, 1955, showing railroad line.

114

TRUE NORTH

MAGNETIC

APPROXIMATE DECLINATION.

Figure 1: East Profile - Railroad Bed

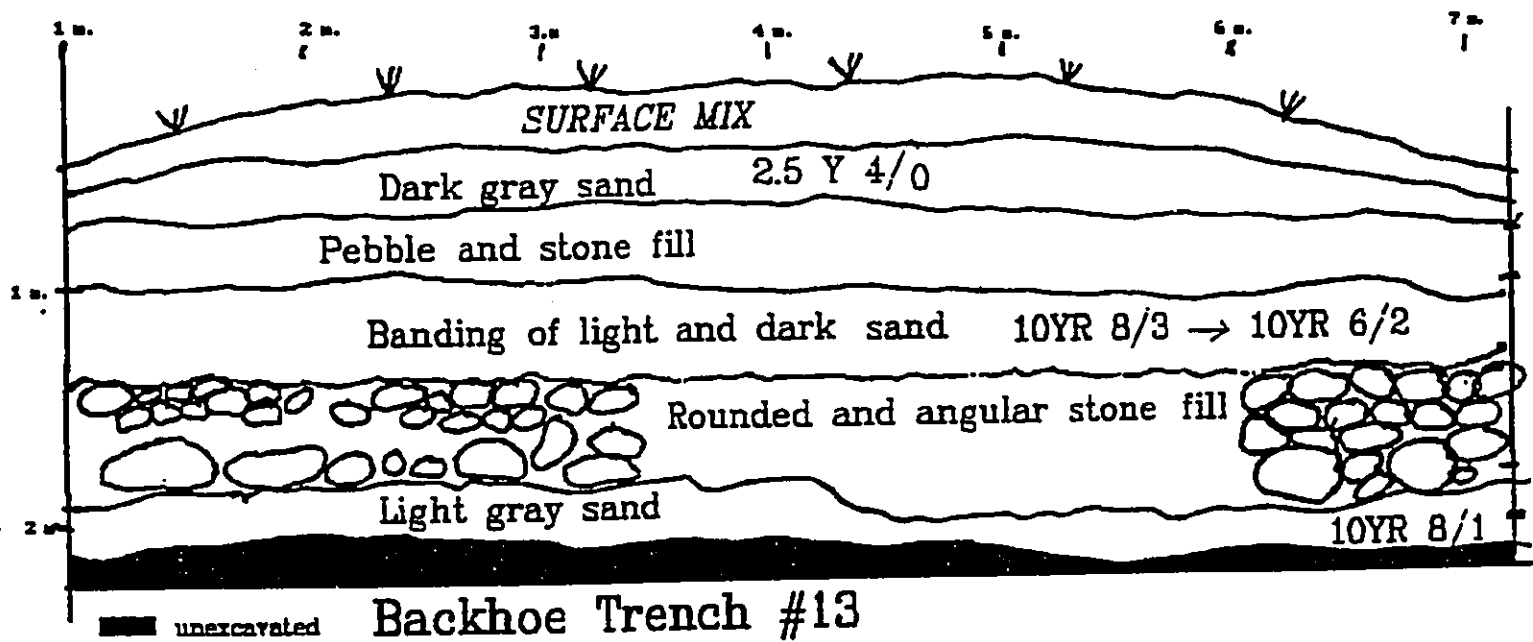


Figure 1 - East face profile of Backhoe Trench #13, cross-section of railroad bed (Site 3112).

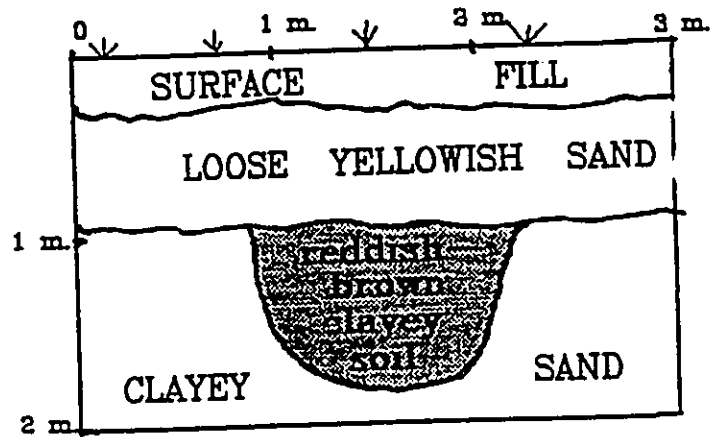


FIGURE 3: SE FACE PROFILE
BACKHOE TRENCH #11

Figure 3 - Southeast face profile of Backhoe Trench #11.

FIGURE 2: NORTH FACE BACKHOE TRENCH #2

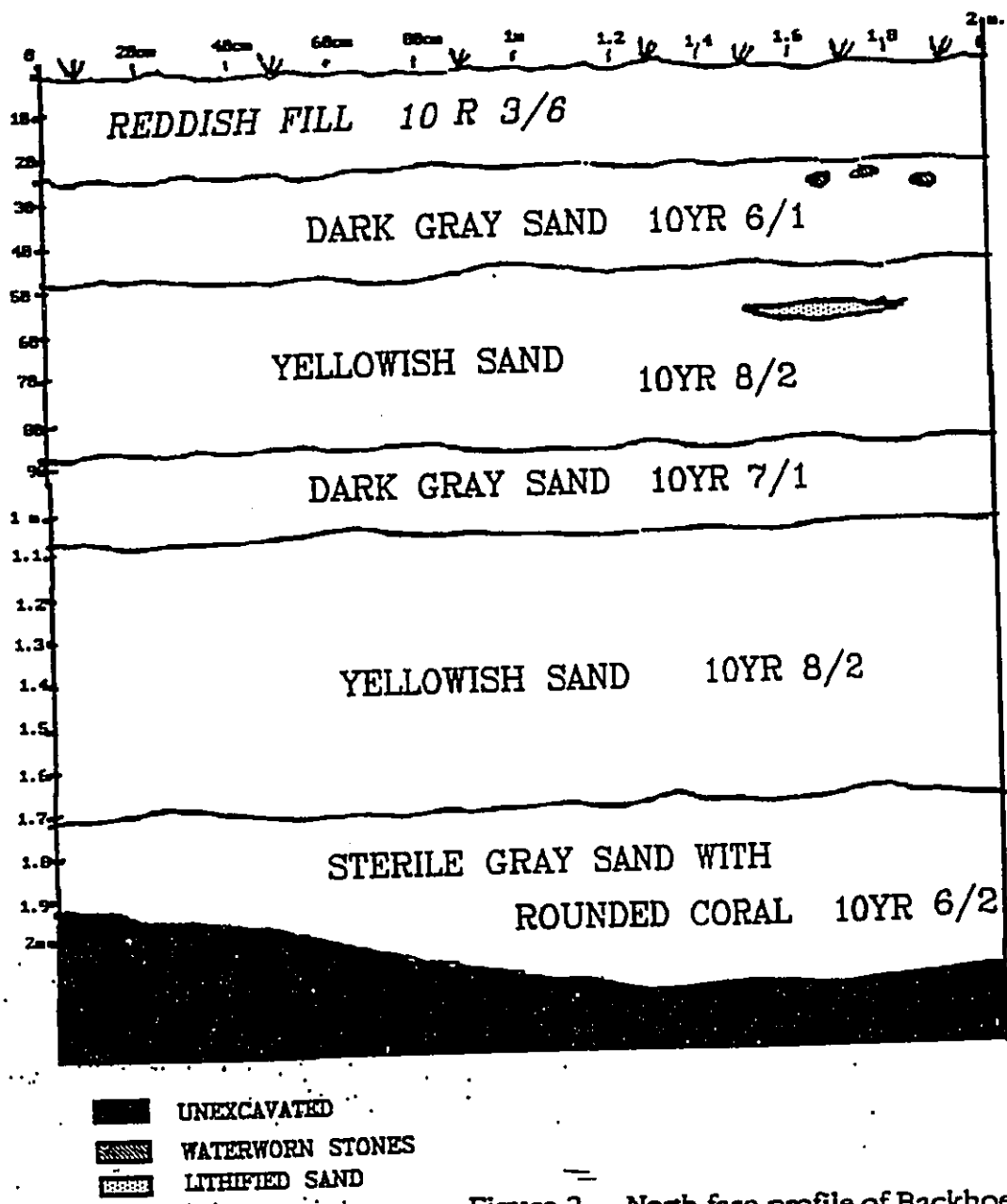


Figure 2 - North face profile of Backhoe Trench #2.

DOCUMENT EDGE CUT OFF



Photo 1 - South face of railroad bed retaining wall (part of Site 3112).



Photo 2 - View of Site 3135 from the railroad bed, showing concrete pillars, buttresses and chute.



Photo 3 - Backhoe testing amidst dense vegetation.

DOCUMENT EDGE CUT OFF



Photo 4 - View of what remains of Malakawell Rock Crusher, Site 3135, from Kahului Beach Road, showing pilings with "1921" date..

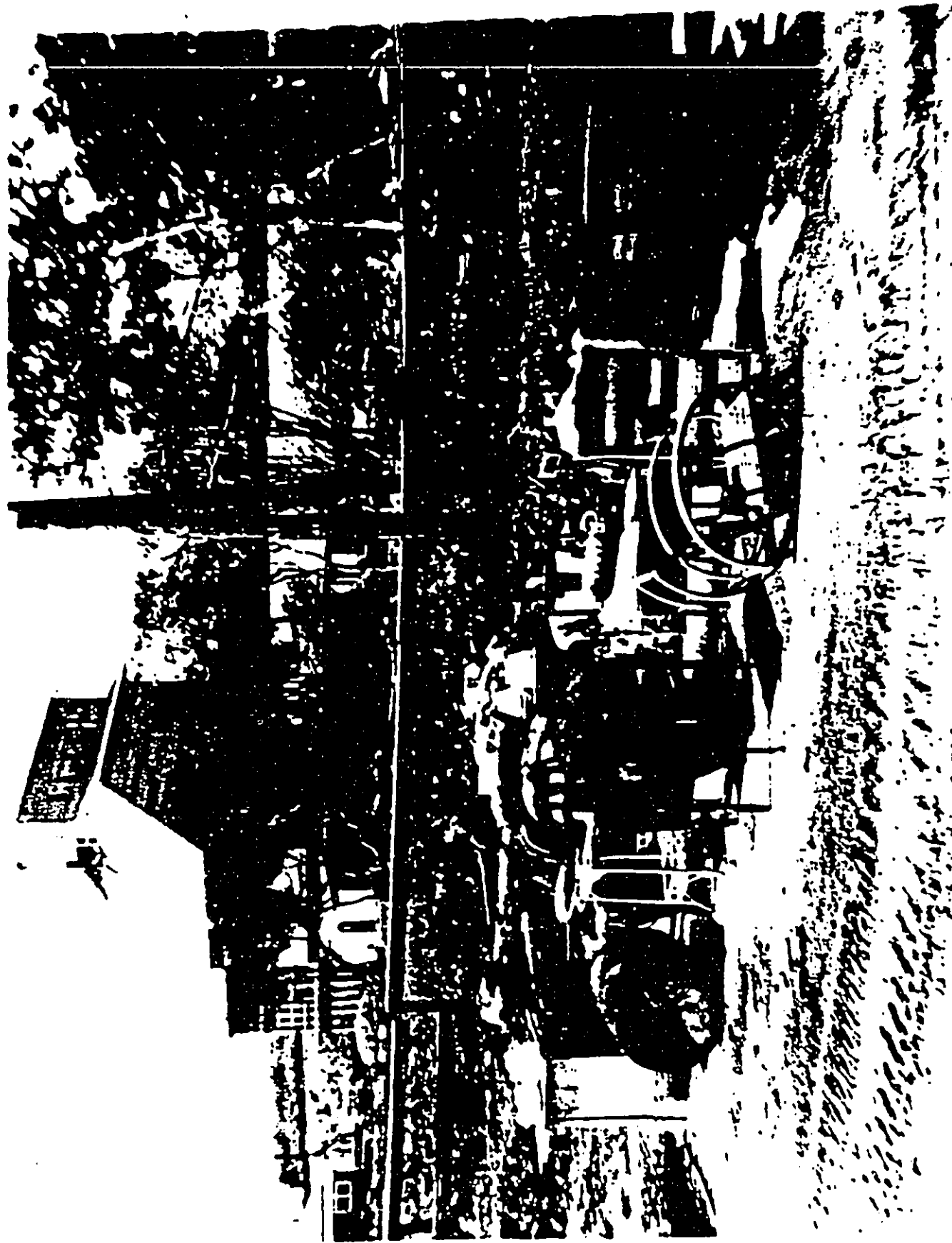


Photo 5 - View of Makawell rock crusher mill taken in 1946, showing various structures associated with it. Furniture in foreground salvaged from tidal wave damaged buildings. (Maui Historical Society)



Photo 6 - Photo of Makawell mill taken in 1946, showing railroad bed directly behind. (Mau Historical Society Archives)

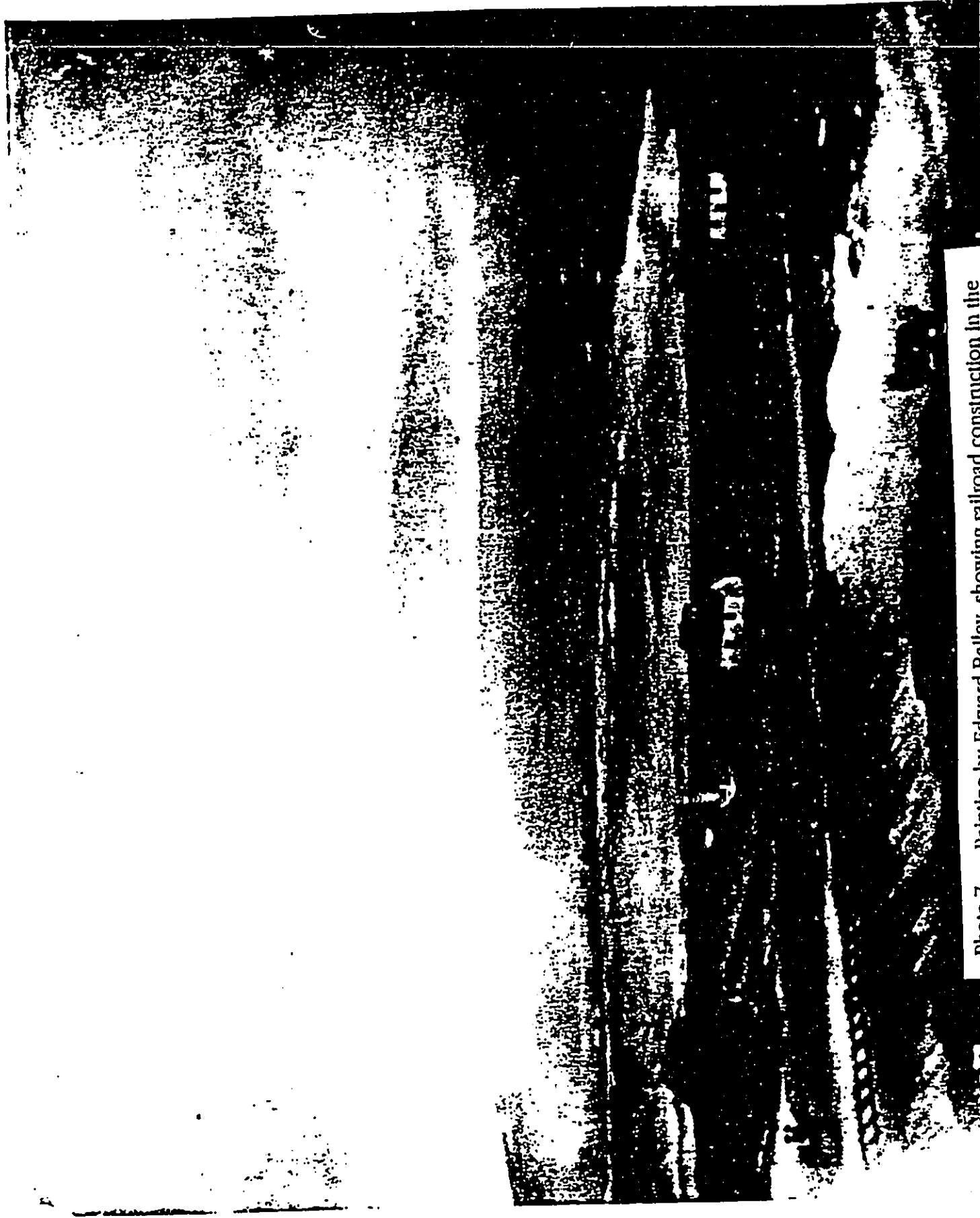


Photo 7 - Painting by Edward Bailey, showing railroad construction in the 1880's (Maui Historical Society Archives)

APPENDIX B
TRAFFIC IMPACT ASSESSMENT
FOR
OWA SUBDIVISION

Kahului, Maui

Prepared for:
A & B Properties

Prepared by:
Parsons Brinckerhoff Quade & Douglas, Inc.

November 1992

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INTRODUCTION

A & B Properties has proposed to develop 28 single-family residential lots in the Kahului area on the Island of Maui. This traffic assessment evaluates roadway conditions at the intersections of Kahului Beach Road/Kanaloa Avenue, Kahului Beach Road/Proposed Subdivision Road, Kahului Beach Road/Lower Main Street/Waiehu Beach Road, and Kanaloa Avenue/Proposed Subdivision Road.

EXISTING ROADWAYS

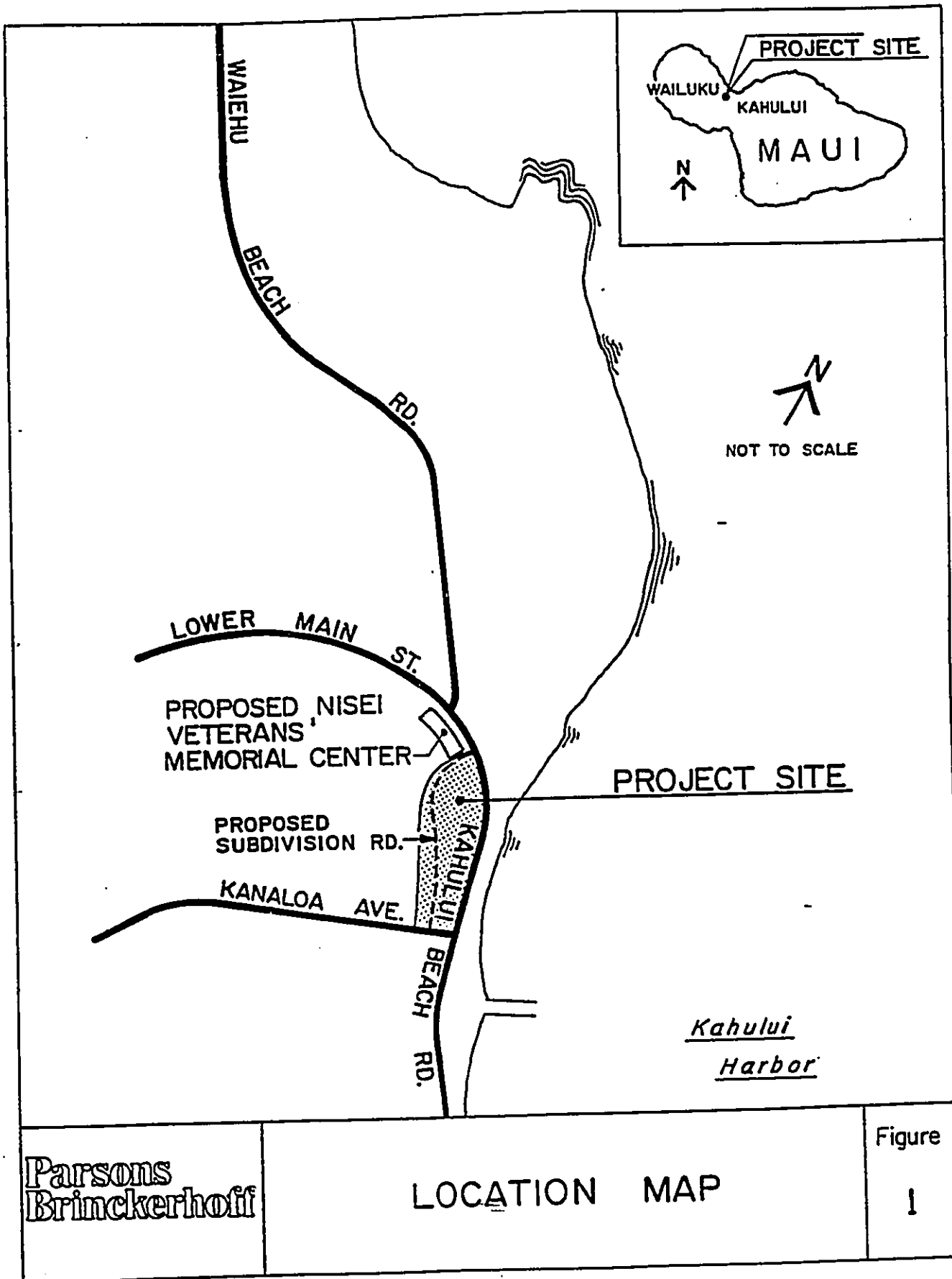
The proposed project site is located on Kahului Beach Road north of Kanaloa Avenue as shown in Figure 1. Public access is not currently provided to the project site.

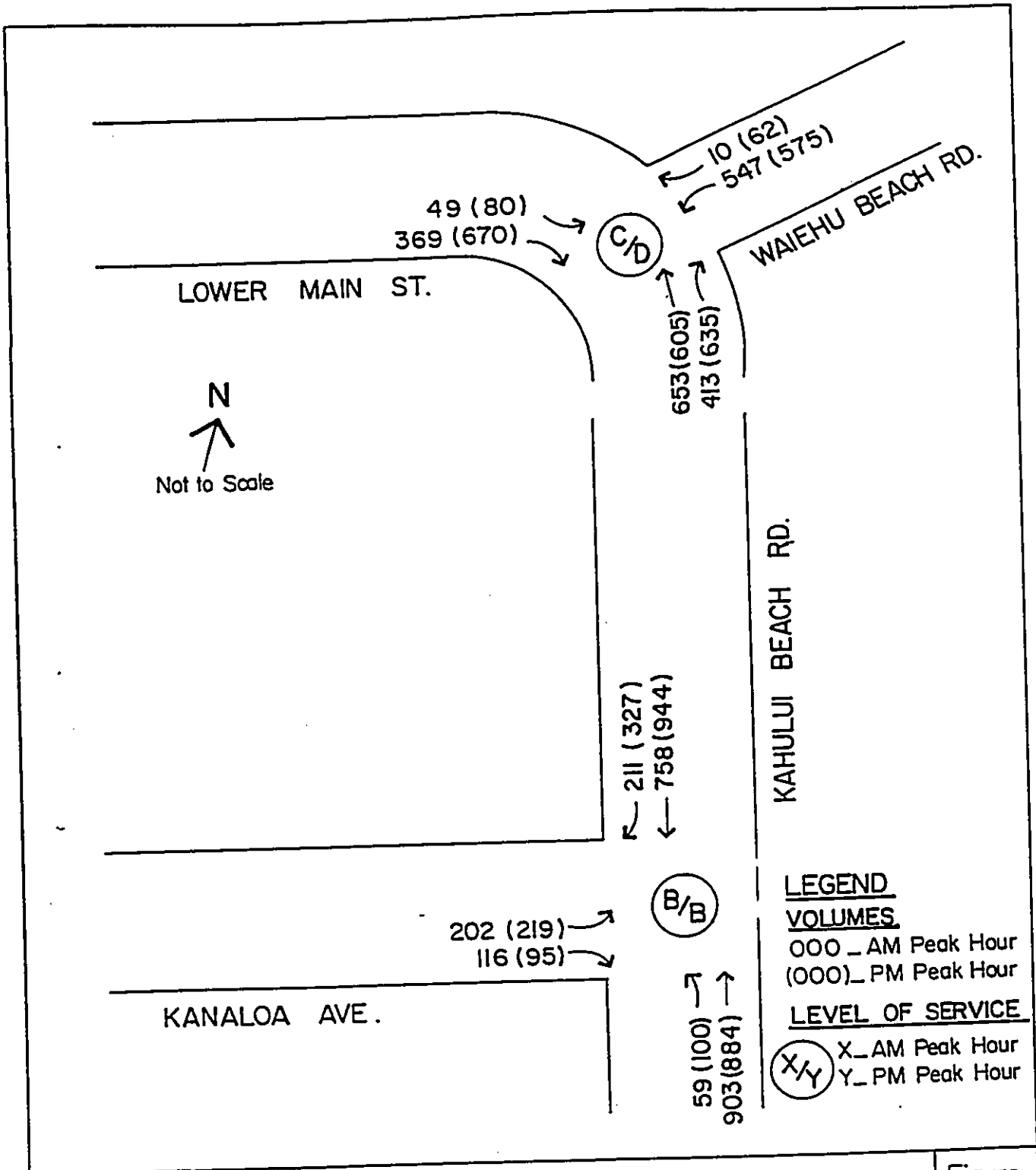
Kahului Beach Road is a two-lane highway which provides access from Kahului towards Waiehu. Kahului Beach Road terminates on its northern end at its intersection with Waiehu Beach Road. West of Waiehu Beach Road, Kahului Beach Road becomes Lower Main Street. All approaches at the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection provide separate lanes for turn movements. The posted speed limit on all approaches to the intersection is 30 miles per hour.

Kanaloa Avenue is a two-lane roadway that provides access to residential neighborhoods. It intersects Kahului Beach Road on its eastern (maka'i) terminus forming the stem of a signalized T-intersection. All approaches at the Kahului Beach Road/Kanaloa Avenue intersection provide separate lanes for turn movements. The posted speed limit on Kanaloa Avenue is 30 miles per hour.

EXISTING TRAFFIC CONDITIONS

Descriptions of existing conditions are based on manual turn movement counts and field observations taken on an average weekday at the Kahului Beach Road/Kanaloa Avenue intersection on August 18 and 19, 1992, and on an average weekday at the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection on June 24 and 25, 1992. Figure 2 shows the existing morning (a.m.) and afternoon (p.m.) peak hour traffic volumes. The count data are summarized in Appendix A.





Parsons Brinckerhoff	EXISTING 1992 TRAFFIC VOLUMES	Figure 2
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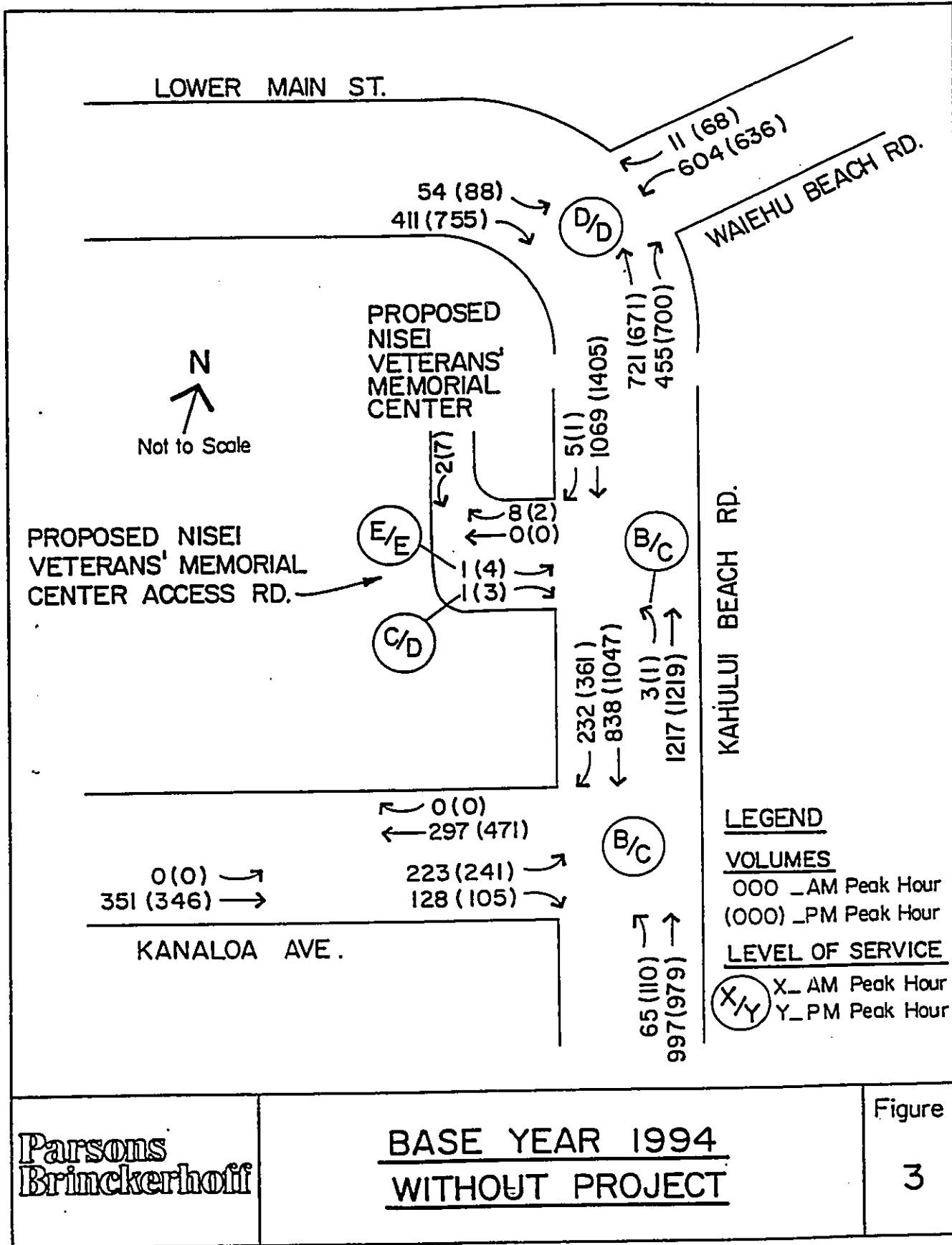
The analyses presented in this traffic assessment follow the procedures outlined in the 1985 Highway Capacity Manual¹ (HCM). Capacities were evaluated at the critical intersections of Kahului Beach Road/Kanaloa Avenue, Kahului Beach Road/Proposed Subdivision Road, Kahului Beach Road/Lower Main Street/Waiehu Beach Road, and Kanaloa Avenue/Proposed Subdivision Road using the HCM - "Unsignalized Intersection Methodology" and "Signalized Intersection Methodology". Operating conditions at an intersection are expressed as a qualitative measure known as Level-of-Service (LOS). These Levels-of-Service are expressed as letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst conditions (over-capacity). Level-of-Service criteria is described in Appendix B.

Signalized intersection capacity analysis conducted at the Kahului Beach Road/Kanaloa Avenue intersection revealed that this intersection currently operates at LOS B during both the a.m. and p.m. peak hours. Analysis also revealed that the signalized Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection currently operates at LOS C during the a.m. peak hour and at LOS D during the p.m. peak hour.

BASE YEAR TRAFFIC CONDITIONS

The proposed project is anticipated to be completed in 1994. Review of historic traffic data collected at the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection by the State Department of Transportation (SDOT) indicates an average annual growth rate of approximately five percent per year. The 1992 turn movement counts taken at the Kahului Beach Road/Kanaloa Avenue intersection and the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection were factored by this growth rate to forecast year 1994 traffic volumes.

Other developments, in the vicinity of the proposed project area, expected to be completed by the base year 1994 are the proposed Nisei Veterans' Memorial Center² located along Kahului Beach Road, across Waiehu Beach Road, and the Shell Oil Service Station³ expansion, located at the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection. Access to the Memorial Center will be provided by the Kahului Beach Road/Proposed Nisei Veterans' Memorial Center Access Road intersection. Traffic generated by these developments were, therefore, included in the base year conditions. The forecast 1994 traffic volumes are shown in Figure 3.



For base year 1994 traffic conditions, the signalized Kahului Beach Road/Kanaloa Avenue intersection would operate at LOS B during the a.m. peak hour and at LOS C during the p.m. peak hour. The signalized Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection would operate at LOS D during both the a.m. and p.m. peak hours.

At the unsignalized Kahului Beach Road/Proposed Nisei Veterans' Memorial Center Access Road, the left-turn movement from Kahului Beach Road onto the Proposed Nisei Veterans' Memorial Center Access Road would operate at LOS B during the a.m. peak hour and at LOS C during the p.m. peak hour. The shared left-turn and right-turn lane from the Proposed Nisei Veterans' Memorial Center Access Road onto Kahului Beach Road would operate at LOS D during both the a.m. and p.m. peak hours. Providing separate turn lanes on the Proposed Nisei Veterans' Memorial Center Access Road would minimize delay for the right-turn movement and would improve overall operations. The right-turn movement from the Proposed Nisei Veterans' Memorial Center Access Road onto Kahului Beach Road would operate at LOS C during the a.m. peak hour and at LOS D during the p.m. peak hour. The left-turn movement would operate at LOS E during both the a.m. and p.m. peak hours.

FUTURE YEAR WITH PROJECT CONDITIONS

Proposed for development are 28 single-family residential units. The project site would be served by a new two-lane subdivision road that would connect to the Proposed Nisei Veterans' Memorial Center Access Road on its eastern end and terminate at Kanaloa Avenue forming the south stem of a T-intersection.

Trip Generation

Trip generation determines the vehicular trip ends generated by the proposed project. Trip generation rates published by the Institute of Transportation Engineers (ITE) in Trip Generation, Fifth Edition⁴ were used to estimate the trips generated by the proposed subdivision. The vehicular trip generation rates were based on the number of proposed dwelling units (DU). The trip generation rates and the number of trips generated by the proposed project are presented in Table 1.

**TABLE 1
TRIP GENERATION**

<u>Single-family</u>	<u>Units</u>	<u>Number</u>	<u>Rate In</u>	<u>Rate Out</u>	<u>Project Traffic In Trips</u>	<u>Project Traffic Out Trips</u>	<u>Total Trips</u>
Average Daily Traffic	DU	28	4.78	4.78	134	134	268
AM Peak Hour	DU	28	0.19	0.55	5	16	21
PM Peak Hour	DU	28	0.65	0.36	18	10	28

DU = dwelling unit

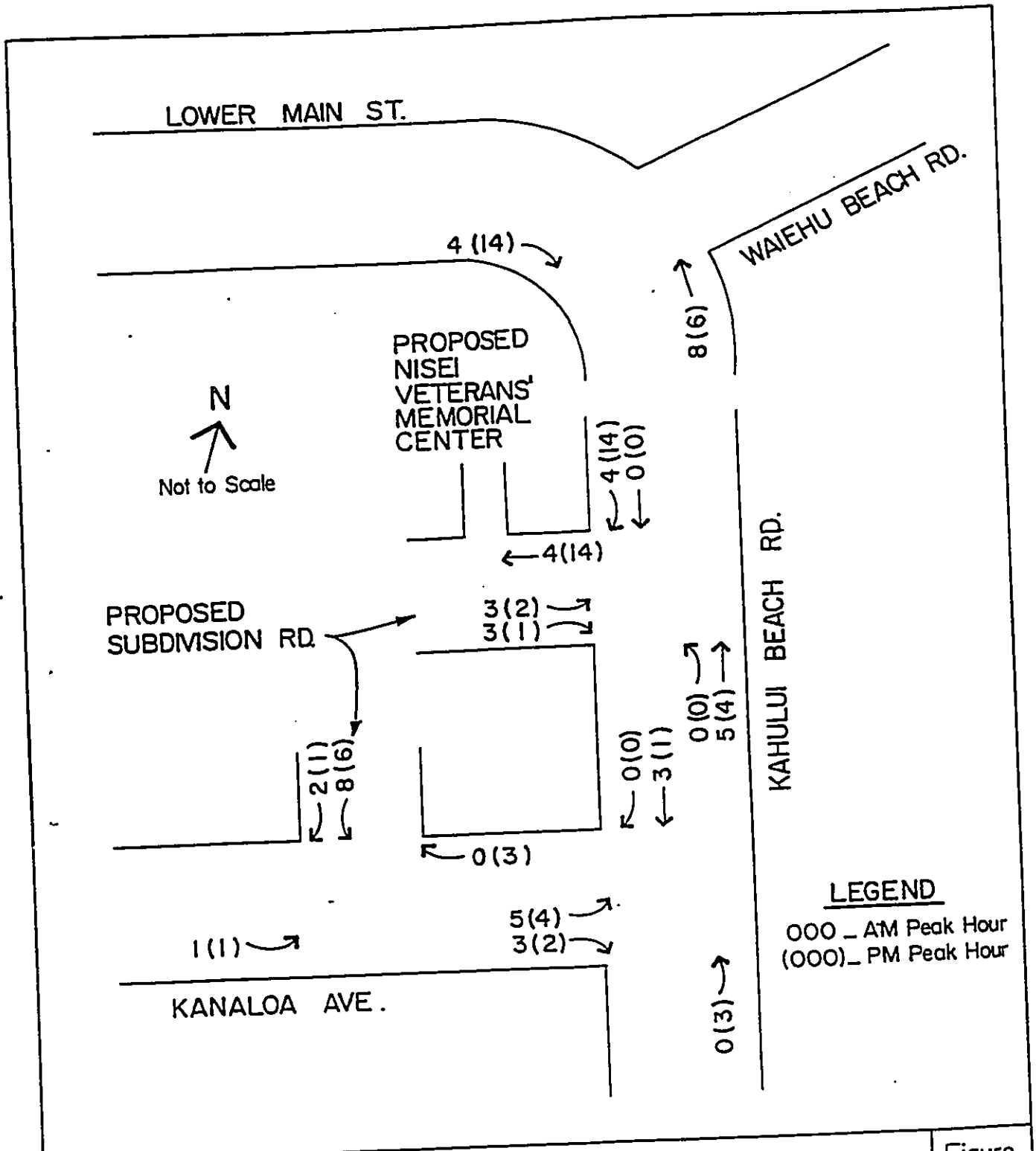
Trip Distribution/Traffic Assignment

Trip distribution factors were derived from existing turn-movement traffic count data. The study assumed that traffic to/from Wailuku would be served by Lower Main Street and traffic to/from Kahului would be served by Kahului Beach Road. The assignment of project generated traffic onto the surrounding roadway system is shown in Figure 4.

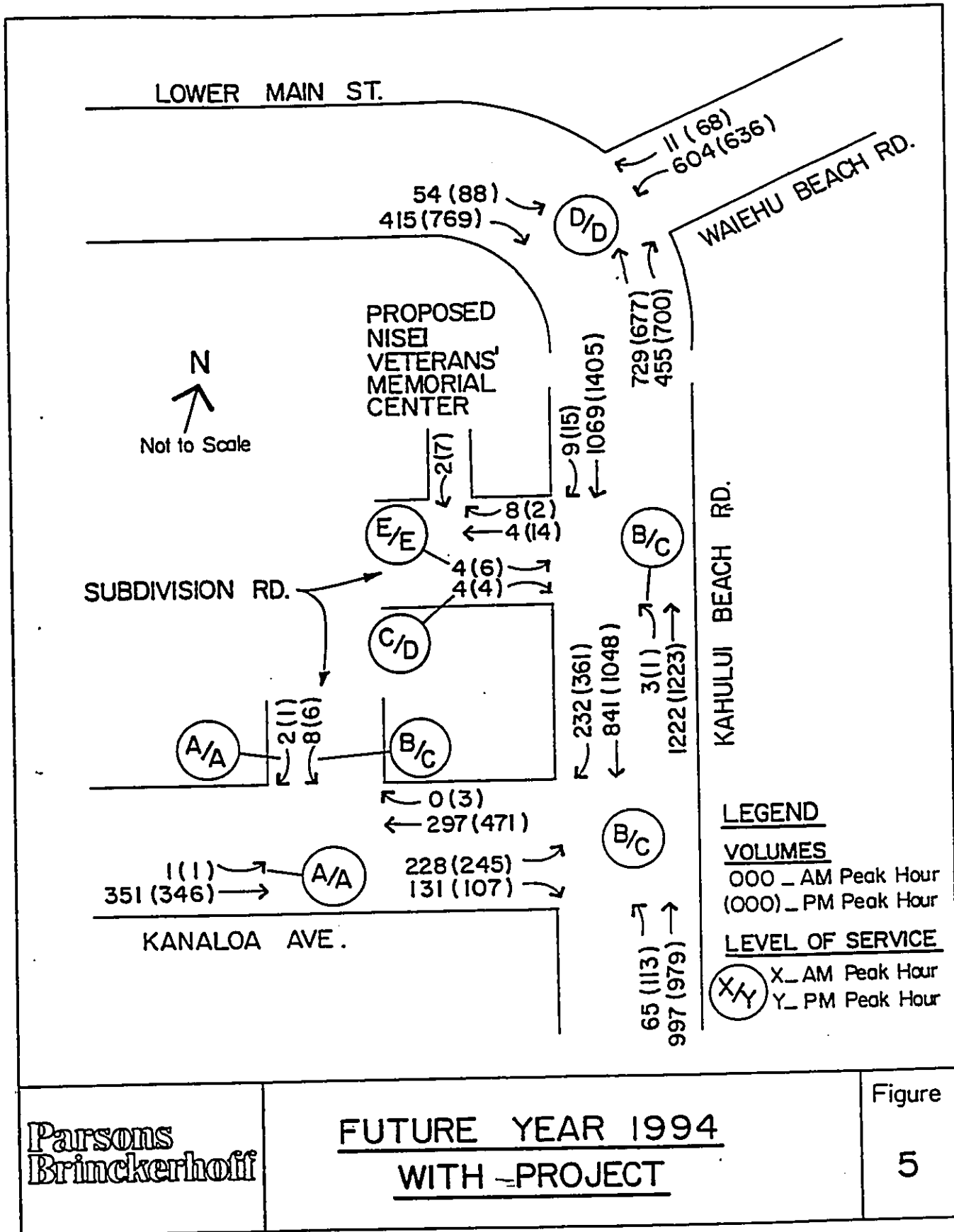
Project Impacts

The proposed project is estimated to increase base year traffic volumes by approximately 21 vehicles during the a.m. peak hour and 28 vehicles during the p.m. peak hour. Project generated traffic would increase traffic volumes at the Kahului Beach Road/Kanaloa Avenue intersection and the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection by less than one percent during both the a.m. and p.m. peak hours. Traffic impacts to the surrounding roadway network were assessed by re-evaluating intersection capacities at each of the critical intersections within the study area for both the a.m. and p.m. peak hours. Future year 1994 traffic volumes with project traffic are shown in Figure 5.

In the future year 1994 with project conditions, the Kahului Beach Road/Kanaloa Avenue intersection would continue to operate at LOS B during the a.m. peak hour and at LOS C during the p.m. peak hour. The Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection would also continue to operate at LOS D conditions during both the a.m. and p.m. peak hours.



Parsons Brinckerhoff	<u>PROJECT GENERATED TRAFFIC</u>	Figure 4
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At the unsignalized Kahului Beach Road/Project Subdivision Road intersection, the left-turn movement from Kahului Beach Road onto the Project Subdivision Road would continue to operate at LOS B during the a.m. peak hour and at LOS C during the p.m. peak hour. As previously stated, providing separate turn lanes on the Proposed Subdivision Road would improve overall intersection operations. The right-turn movement from the Proposed Subdivision Road onto Kahului Beach Road would continue to operate at LOS C during the a.m. peak hour and at LOS D during the p.m. peak hour. The left-turn movement would also continue to operate at LOS E during both the a.m. and p.m. peak hours.

The unsignalized intersection capacity analyses revealed that the left-turn movement from Kanaioa Avenue onto the Proposed Subdivision Road would operate at LOS A during both the a.m. and p.m. peak hours. Separate left-turn and right-turn lanes should also be considered at this intersection to minimize delay for the right-turning vehicles. With separate turn lanes, the right-turn movement from the Proposed Subdivision Road onto Kanaioa Avenue would operate at LOS A during both the a.m. and p.m. peak hours. The left-turn movement would operate at LOS B during the a.m. peak hour and at LOS C during the p.m. peak hour. The results of the analyses are summarized in Table 2.

**TABLE 2
LEVEL OF SERVICE SUMMARY**

	Existing		1994 W/O Project		1994 W/Project	
	AM	PM	AM	PM	AM	PM
<u>SIGNALIZED INTERSECTION</u>						
Kahului Beach Rd/Kanaloa Ave	B	B	B	C	B	C
Kahului Beach Rd/Lower Main St/ Waiehu Beach Rd	C	D	D	D	D	D
<u>UNSIGNALIZED INTERSECTION</u>						
Kanaloa Ave/Proposed Subdivision Rd						
Kanaloa Ave LT	-	-	-	-	A	A
Subdivision Rd RT	-	-	-	-	A	A
Subdivision Rd LT	-	-	-	-	B	C
Kahului Beach Rd/Proposed Subdivision Rd						
Kahului Beach Rd LT	-	-	B	C	B	C
Subdivision Rd RT	-	-	C	D	C	D
Subdivision Rd LT	-	-	E	E	E	E

Abbreviations:

LT = left-turn
RT = right-turn

CONCLUSIONS AND RECOMMENDATIONS

Traffic on the local roadways and regional highway system would nominally increase with the proposed project. Project generated traffic would increase volumes at the Kahului Beach Road/Kanaloa Avenue intersection and the Kahului Beach Road/Lower Main Street/Waiehu Beach Road intersection by less than one percent during both the a.m. and p.m. peak hours.

The unsignalized intersections formed by the Proposed Subdivision Road at Kahului Beach Road and at Kanaloa Avenue would experience acceptable Levels-of-Service with the proposed project. The signalized intersections along Kahului Beach Road at Kanaloa Avenue and at Lower Main Street/Waiehu Beach Road would also experience acceptable Levels-of-Service during both the a.m. and p.m. peak hours with the proposed project.

It is recommended that dedicated left-turn and right-turn lanes be provided on the Proposed Subdivision Road at its intersections with Kahului Beach Road and Kanaloa Avenue. Separate turn lanes would minimize delay for the right-turn movement and would improve overall intersection operations.

REFERENCES

1. National Research Council, Transportation Research Board, Special Report 209, Highway Capacity Manual, Washington, D.C., 1985.
2. Parsons Brinckerhoff Quade & Douglas, Inc., Nisei Veterans' Memorial Center, July 1992.
3. Parsons Brinckerhoff Quade & Douglas, Inc., Shell Oil Service Station, September 1992.
4. Institute of Transportation Engineers, Trip Generation, Fifth Edition, Washington, D.C., January, 1991.

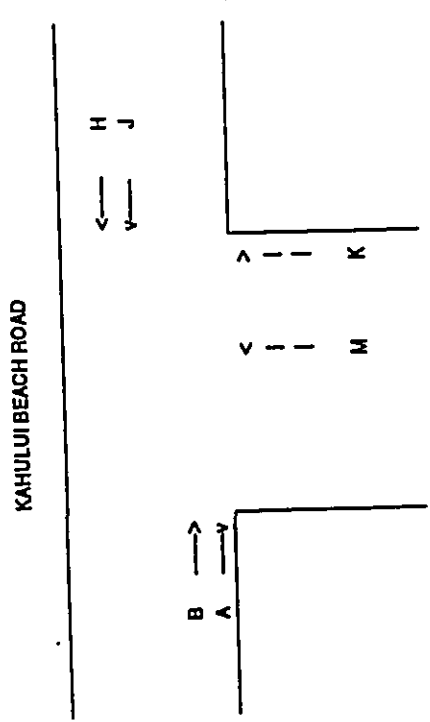
APPENDIX A

MANUAL TRAFFIC COUNTS

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NAME: OWA SUBDIVISION
 LOCATION: KAHULUI BEACH RD./KANALOA AVE.
 DATE: AUGUST 19, 1992
 BY: N. KASAMOTO/W. HIGASHIHARA

File Name: KAHULUIAM



COUNT READINGS

TIME	A	B	C	D	E	F	J	H	G	M	L	K
6:00-6:15 AM	19	101					9	93		20		8
-6:30	51	221					15	203		46		31
-6:45	81	376					23	351		81		53
-7:00	111	549					33	525		125		79
-7:15	137	689					43	732		166		103
-7:30	193	865					55	1008		213		130
-7:45	235	1050					68	1215		268		158
-8:00	297	1276					90	1458		322		193
-8:15	348	1447					102	1635		368		219
-8:30	382	1620					116	1809		404		247
-8:45	414	1821					127	2007		432		274
-9:00 AM	430	1921					134	2107		459		285

COUNT VOLUMES

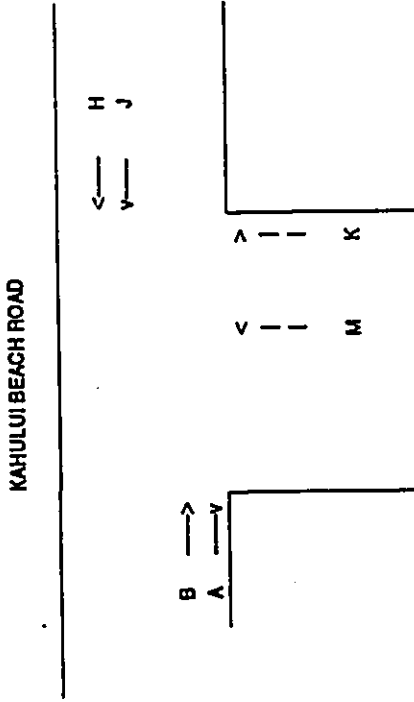
TIME	A	B	C	D	E	F	J	H	G	M	L	K	TOTAL
6:00-6:15 AM	19	101	0	0	0	0	9	93	0	20	0	8	250
-6:30	32	120	0	0	0	0	6	110	0	26	0	23	317
-6:45	30	155	0	0	0	0	8	148	0	35	0	22	398
-7:00	30	173	0	0	0	0	10	174	0	44	0	26	457
-7:15	28	140	0	0	0	0	10	207	0	41	0	24	448
-7:30	56	176	0	0	0	0	12	276	0	47	0	27	594
-7:45	42	185	0	0	0	0	13	207	0	53	0	28	528
-8:00	62	226	0	0	0	0	22	241	0	56	0	35	642
-8:15	51	171	0	0	0	0	12	179	0	46	0	26	485
-8:30	34	173	0	0	0	0	14	174	0	36	0	28	459
-8:45	32	201	0	0	0	0	11	198	0	28	0	27	497
-9:00 AM	16	100	0	0	0	0	7	100	0	27	0	11	261
6:00-9:00 TOTAL	430	1921	0	0	0	0	134	2107	0	459	0	285	5338
7:15-8:15 HOUR	211	758	0	0	0	0	59	803	0	202	0	110	2249

APPROACH/DEPARTURE VOLUMES

TIME	ABC	DEF	GHJ	KLM	AEJ	BFI	CGL	DHM
6:00-6:15 AM	120	0	102	28	28	10	0	113
-6:30	152	0	116	49	38	143	0	136
-6:45	185	0	158	57	38	177	0	183
-7:00	203	0	184	70	40	199	0	218
-7:15	168	0	217	65	36	184	0	248
-7:30	232	0	288	74	68	203	0	323
-7:45	227	0	220	81	55	213	0	260
-8:00	288	0	263	91	84	261	0	297
-8:15	222	0	191	72	63	197	0	225
-8:30	207	0	188	64	48	201	0	210
-8:45	233	0	209	55	43	228	0	226
-9:00 AM	116	0	107	38	23	111	0	127
6:00-9:00 TOTAL	2351	0	2241	744	564	2208	0	2566
7:15-8:15 HOUR	989	0	982	318	270	874	0	1105

NAME: OWA SUBDIVISION
 LOCATION: KAHULUI BEACH RD./KANALOA AVE.
 DATE: AUGUST 18, 1992
 BY: N. KASAMOTOW, HIGASHIHARA

File Name: KAHULUIPM



COUNT READINGS

TIME	A	B	C	D	E	F	J	H	G	M	L	K
3:00-3:15 PM	45	212	0	0	0	0	22	233	0	40	0	22
-3:30	81	406	0	0	0	0	44	457	0	79	0	40
-3:45	140	823	0	0	0	0	68	718	0	138	0	69
-4:00	190	847	0	0	0	0	94	943	0	178	0	69
-4:15	248	1088	0	0	0	0	123	1176	0	244	0	90
-4:30	327	1300	0	0	0	0	152	1389	0	291	0	112
-4:45	408	1537	0	0	0	0	170	1615	0	328	0	138
-5:00	517	1791	0	0	0	0	184	1827	0	397	0	164
-5:15	589	1985	0	0	0	0	222	2066	0	455	0	190
-5:30	654	2212	0	0	0	0	242	2268	0	510	0	204
-6:45	723	2421	0	0	0	0	269	2463	0	570	0	220
-6:00 PM	784	2583	0	0	0	0	288	2641	0	631	0	234

COUNT VOLUMES

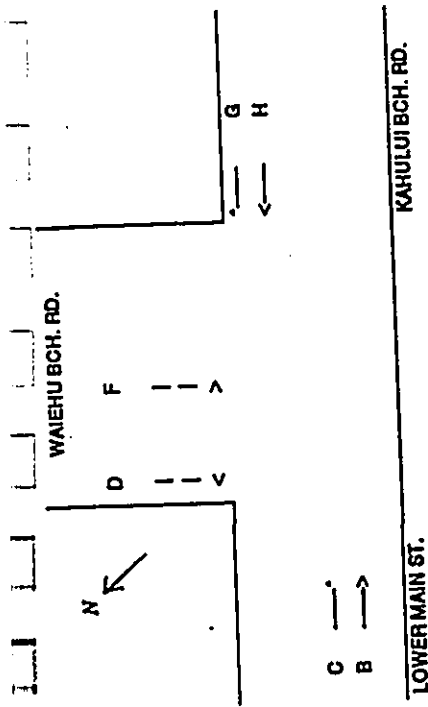
TIME	A	B	C	D	E	F	J	H	G	M	L	K	TOTAL
3:00-3:15 PM	45	212	0	0	0	0	22	233	0	40	0	22	574
-3:30	38	194	0	0	0	0	22	224	0	39	0	18	533
-3:45	59	217	0	0	0	0	24	261	0	57	0	19	637
-4:00	50	224	0	0	0	0	26	225	0	42	0	10	577
-4:15	58	241	0	0	0	0	29	233	0	69	0	21	646
-4:30	81	212	0	0	0	0	29	213	0	47	0	22	604
-4:45	70	237	0	0	0	0	18	228	0	37	0	28	623
-5:00	111	254	0	0	0	0	24	212	0	69	0	26	696
-5:15	72	194	0	0	0	0	28	239	0	58	0	28	617
-5:30	65	227	0	0	0	0	20	202	0	55	0	14	583
-5:45	69	209	0	0	0	0	27	195	0	60	0	16	578
-6:00 PM	41	162	0	0	0	0	19	178	0	61	0	14	475
3:00-6:00 TOTAL	764	2583	0	0	0	0	288	2641	0	631	0	234	7141
4:00-5:00 HOUR	327	944	0	0	0	0	100	884	0	219	0	95	2589

APPROACH/DEPARTURE VOLUMES

TIME	ABC	DEF	GHJ	KLM	A EJ	B FK	C GL	D HM
3:00-3:15 PM	257	0	255	62	67	234	0	273
-3:30	230	0	248	57	58	212	0	263
-3:45	276	0	285	76	83	238	0	318
-4:00	274	0	251	62	76	234	0	267
-4:15	297	0	262	87	85	262	0	299
-4:30	293	0	242	69	110	234	0	290
-4:45	316	0	244	63	97	263	0	283
-5:00	365	0	236	95	135	280	0	281
-5:15	289	0	207	84	100	220	0	297
-5:30	292	0	222	69	85	241	0	257
-5:45	278	0	222	76	86	225	0	255
-6:00 PM	203	0	197	75	60	176	0	239
3:00-6:00 TOTAL	3347	0	2928	885	1052	2817	0	3272
4:00-5:00 HOUR	1271	0	984	314	427	1039	0	1103

File Name: LMAINAM.WK1

NAME: SHELL OIL COMPANY TRAFFIC ASSESSMENT
 LOCATION: LOWER MAIN ST/KAHULUI BCH. RD/WAIEHU BCH. RD
 DATE: JUNE 25, 1992
 BY: SKL/IRM



COUNT READINGS

TIME	A	B	C	D	E	F	J	H	G	M	L	K	TOTAL
6:00-6:15 AM	34	8	9	71	63	42							227
-6:30	88	13	15	190	146	119							344
-6:45	135	17	23	331	242	197							374
-7:00	185	33	27	449	381	299							419
-7:15	254	39	28	576	477	302							372
-7:30	331	47	30	713	620	463							468
-7:45	422	61	32	853	779	581							524
-8:00	538	74	32	1009	968	687							576
-8:15	623	88	38	1123	1130	775							471
-8:30	704	101	41	1245	1252	851							417
-8:45	787	113	48	1364	1390	946							1890
-9:00 AM	912	128	50	1458	1536	1010							1920

COUNT VOLUMES

TIME	A	B	C	D	E	F	J	H	G	M	L	K	TOTAL
6:00-6:15 AM	0	34	8	9	0	71	0	63	42	0	0	0	227
-6:30	0	54	5	6	0	110	0	83	77	0	0	0	344
-6:45	0	47	4	8	0	141	0	96	78	0	0	0	374
-7:00	0	60	16	4	0	118	0	119	102	0	0	0	419
-7:15	0	58	6	1	0	127	0	116	63	0	0	0	372
-7:30	0	77	8	2	0	137	0	143	101	0	0	0	468
-7:45	0	91	14	2	0	140	0	158	118	0	0	0	524
-8:00	0	114	13	0	0	158	0	189	106	0	0	0	576
-8:15	0	87	14	6	0	114	0	162	88	0	0	0	471
-8:30	0	81	13	3	0	122	0	122	76	0	0	0	417
-8:45	0	83	12	7	0	119	0	138	95	0	0	0	1890
-9:00 AM	0	125	13	2	0	94	0	146	64	0	0	0	444
6:00-9:00 TOTAL	0	912	128	50	0	1458	0	1536	1010	0	0	0	5092
7:15-8:15 HOUR	0	368	48	10	0	547	0	653	413	0	0	0	2041

APPROACH/DEPARTURE VOLUMES

TIME	ABC	DEF	GHJ	KLM	AEJ	BFK	CGL	DHM	TOTAL
6:00-6:15 AM	42	80	105	0	0	105	50	72	227
-6:30	59	125	160	0	0	173	82	89	344
-6:45	51	149	174	0	0	188	82	104	374
-7:00	76	222	221	0	0	178	118	123	419
-7:15	65	128	178	0	0	166	69	117	372
-7:30	85	139	244	0	0	214	109	145	468
-7:45	105	142	277	0	0	231	132	161	524
-8:00	127	156	295	0	0	270	119	189	576
-8:15	101	120	250	0	0	201	102	168	471
-8:30	94	125	198	0	0	203	89	125	417
-8:45	85	128	233	0	0	202	107	145	1890
-9:00 AM	138	99	210	0	0	219	77	148	1920
6:00-9:00 TOTAL	1038	1508	2546	0	0	2370	1138	1586	5092
7:15-8:15 HOUR	418	557	1066	0	0	916	462	663	2041

File Name: LMAINPM.WKI

NAME: SHELL OIL COMPANY TRAFFIC ASSESSMENT
 LOCATION: LOWER MAIN ST/KAHULUI BCH.RD/WAIEHU BCH. RD.
 DATE: JUNE 24, 1982
 BY: SKL/RM

COUNT READINGS

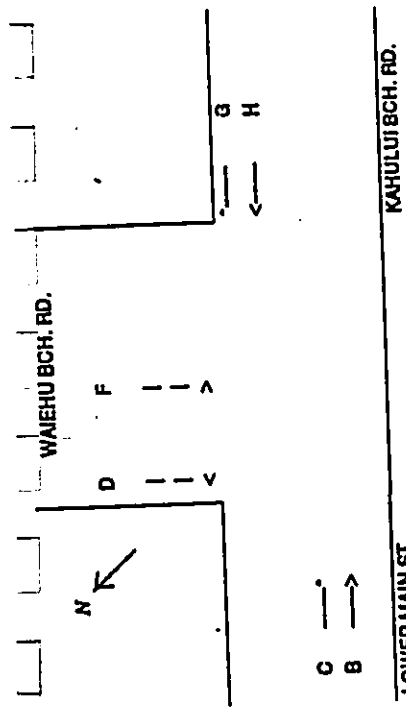
TIME	A	B	C	D	E	F	J	H	G	M	L	K
3:00-3:15 PM	164	18	18	16	88	88	0	163	134	0	0	0
-3:30	303	38	30	30	214	214	0	289	258	0	0	0
-3:45	480	51	50	50	380	380	0	452	441	0	0	0
-4:00	630	76	68	68	522	522	0	628	579	0	0	0
-4:15	812	99	79	79	665	665	0	776	738	0	0	0
-4:30	973	116	92	92	789	789	0	894	893	0	0	0
-4:45	1175	141	99	99	952	952	0	1031	1035	0	0	0
-5:00	1384	156	108	108	1108	1108	0	1184	1187	0	0	0
-5:15	1543	180	111	111	1248	1248	0	1286	1341	0	0	0
-5:30	1674	194	116	116	1373	1373	0	1421	1449	0	0	0
-5:45	1809	199	121	121	1496	1496	0	1544	1627	0	0	0
-6:00 PM	1865	209	126	126	1657	1657	0	1666	1750	0	0	0

COUNT VOLUMES

TIME	A	B	C	D	E	F	J	H	G	M	L	K	TOTAL
3:00-3:15 PM	0	164	18	18	0	88	0	163	134	0	0	0	583
-3:30	0	139	18	14	0	128	0	128	124	0	0	0	547
-3:45	0	177	15	20	0	166	0	163	183	0	0	0	724
-4:00	0	150	25	18	0	142	0	176	138	0	0	0	649
-4:15	0	182	23	11	0	143	0	148	157	0	0	0	684
-4:30	0	161	17	13	0	124	0	118	157	0	0	0	690
-4:45	0	202	25	7	0	163	0	137	142	0	0	0	676
-5:00	0	189	16	7	0	156	0	133	152	0	0	0	652
-5:15	0	179	24	6	0	140	0	122	164	0	0	0	624
-5:30	0	131	14	5	0	125	0	135	108	0	0	0	518
-5:45	0	135	5	5	0	123	0	123	178	0	0	0	569
-6:00 PM	0	156	10	5	0	161	0	122	123	0	0	0	577
3:00-6:00 TOTAL	0	1865	209	126	0	1657	0	1666	1750	0	0	0	7373
3:30-4:30 HOUR	0	670	80	62	0	575	0	605	635	0	0	0	2627

APPROACH/DEPARTURE VOLUMES

TIME	ABC	DEF	GHJ	KLM	AEJ	BFK	CGL	DHM
3:00-3:15 PM	182	104	297	0	0	25	152	179
-3:30	157	140	250	0	0	26	142	140
-3:45	192	188	346	0	0	343	198	183
-4:00	175	160	314	0	0	282	163	194
-4:15	205	154	305	0	0	325	180	159
-4:30	178	137	275	0	0	285	174	131
-4:45	227	170	279	0	0	365	167	144
-5:00	204	163	265	0	0	345	167	140
-5:15	203	145	276	0	0	319	178	127
-5:30	145	130	243	0	0	256	122	140
-5:45	140	128	301	0	0	258	183	128
-6:00 PM	166	168	245	0	0	317	133	127
3:00-6:00 TOTAL	2174	1783	3416	0	0	3622	1659	1782
3:30-4:30 HOUR	750	637	1240	0	0	1245	715	667



APPENDIX B

The Highway Capacity Manual defines six Levels of Service, labelled A through F, from best to worst conditions. Levels of Service for signalized and unsignalized intersections are defined in terms of average user delays. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Unsignalized Intersections

For unsignalized intersections, the Highway Capacity Manual evaluates gaps in the major street traffic flow and calculates available gaps for left turns across oncoming traffic and for the left and right turns onto the major roadway from the minor street.

LEVEL OF SERVICE A:	Little or no delay.
LEVEL OF SERVICE B:	Short traffic delays.
LEVEL OF SERVICE C:	Average traffic delays.
LEVEL OF SERVICE D:	Long traffic delays.
LEVEL OF SERVICE E:	Very long traffic delays.
LEVEL OF SERVICE F:	Demand volume exceeds capacity, resulting in extreme delays with queuing that may cause severe congestion and affect other movements at the intersection.

Signalized Intersections

For signalized intersections, the Operational Analysis measures signal operations by two separate indicators, volume-to-capacity ratios (v/c) and Level of Service. The v/c ratios provide a comparison of the traffic demands to the theoretical capacity of the intersection while Levels of Service are determined from the estimated delay. These two indicators do not necessarily correlate to each other.

LEVEL OF SERVICE A: This level describes operation with very low delay, i.e., less than 5.0 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LEVEL OF SERVICE B: This level describes operation with delays in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than at Level of Service A, causing higher delays.

LEVEL OF SERVICE C: This level describes operations with delays in the range of 15.1 to 25.0 seconds per vehicle. These higher delays may result from fair progression and/or cycle lengths. Individual cycle failures (queued vehicles do not clear in one cycle) may begin to appear as the number of vehicles stopping is significant; many vehicles, however, still pass through the intersection without stopping.

LEVEL OF SERVICE D: This level describes operations with delays in the range of 25.1 to 40.0 seconds per vehicle. At Level of Service D, the influence of congestion becomes more noticeable. Longer delays may result from a combination of unfavorable congestion, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LEVEL OF SERVICE E: This level describes operation with delays in the range of 40.1 to 60.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LEVEL OF SERVICE F: This level describes operation with delay in excess of 60.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle length may also be major contributing causes to such delay levels.

APPENDIX C

Project No. 93-27

**OWA SUBDIVISION
TRAFFIC NOISE IMPACT ASSESSMENT**

**BY DARBY & ASSOCIATES
ACOUSTICAL CONSULTANTS**

August 1993

**Prepared for
A&B PROPERTIES
Honolulu, Hawaii**

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**OWA SUBDIVISION
TRAFFIC NOISE IMPACT ASSESSMENT**

1.0 PROJECT DESCRIPTION

The proposed Owa Subdivision includes approximately 28, single-family residential lots in Kahului, Maui, Hawaii. The project site is adjacent to and mauka of Kahului Beach Road, as shown in Figure 1. It is bordered to the south by Kanaloa Avenue, to the east by an existing residential area, and to the north by vacant land proposed for a future veterans center. Currently, the project site is vacant, undeveloped land.

2.0 EXISTING ACOUSTICAL ENVIRONMENT

Ambient sound level measurements were conducted on August 9, 1993 to assess the existing acoustical environment within and adjacent to the project site. Sound level measurements were taken using a Larson-Davis Laboratories, Model 700, sound level meter. The measured sound levels are expressed in terms of the 90-Percentile Exceedence Sound Level, L_{90} , which represents a measure of the residual or background noise minimally influenced by nearby discrete events. A brief description of statistical sound levels commonly used to describe environmental noise is presented in Appendix A.

The project site and vicinity experience ambient sound levels (L_{90}) of approximately 51 to 62 dBA, which is typical of urban areas. The higher ambient noise levels were measured near Kahului Beach Road and can be attributed to traffic noise.

3.0 NOISE STANDARDS

Various federal agencies specify guidelines and standards in assessing environmental noise and set noise limits as a function of land use. A brief explanatory description of acoustic terminology is presented in Appendix A.

3.1 U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) has established Environmental Criteria and Standards for interior and exterior noise impacting housing sites [Reference 1]. These standards are based on day-night average sound levels, L_{dn} , and identify the need for noise abatement, either at the property line or in the building construction. HUD's Site Acceptability Standards rank exterior environmental noise within either the Acceptable Noise Zone, Normally

Unacceptable Noise Zone, or Unacceptable Noise Zone. The Acceptable Noise Zone includes housing sites exposed to exterior noise levels not exceeding Ldn of 65 dBA and, therefore, do not require additional noise attenuation other than that provided in customary building techniques. The Normally Unacceptable Noise Zone includes housing sites exposed to exterior noise levels greater than Ldn of 65 dBA, but not exceeding Ldn of 75 dBA. Housing within the Normally Unacceptable Noise Zone requires some means of noise abatement, either at the property line or in the building construction, to assure the interior noise levels are acceptable. Finally, the Unacceptable Noise Zone includes housing sites exposed to exterior noise levels greater than Ldn of 75 dBA. Housing within this zone requires more sophisticated noise abatement measures with approval on a case-by-case basis.

Noise exposure at the residence may become a factor influencing eligibility for HUD/FHA financing. HUD assistance for the construction of housing is prohibited generally for projects within the Unacceptable Noise Zone and is discouraged for projects within the Normally Unacceptable Noise Zone [Reference 1]. Also, environmental noise is a marketability factor which HUD will consider in determining the amount of insurance or other assistance that may be given for the resale and purchase of existing buildings.

3.2 U.S. Federal Highway Administration

The Federal Highway Administration (FHWA) has established a set of design goals for traffic noise exposure [Reference 2]. The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, Leq. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior Leq of 67 dBA and a maximum interior Leq of 52 dBA. These limits are viewed as design goals, and all projects which are developed to meet these limits are deemed in conformance with the FHWA noise standards.

3.3 U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has identified a range of yearly day-night average sound levels, Ldn, sufficient to protect public health and welfare from the effects of environmental noise [Reference 3]. The EPA has established a goal to reduce exterior environmental noise to an Ldn not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an Ldn not exceeding 55 dBA. The EPA has also established a long-range goal to reduce interior noise to an Ldn not exceeding 45 dBA. Additionally, the EPA states that to protect against hearing damage, a person's 24-hour equivalent sound level exposure, Leq, at the ear should not exceed 70 dBA. The

EPA emphasizes that these goals are not intended as regulations as they have no authority to regulate noise levels, but rather these goals are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

4.0 TRAFFIC NOISE IMPACT ON PROJECT

Measured traffic noise levels and predicted traffic volumes [Reference 4] were used in conjunction with the Federal Highway Administration (FHWA) Traffic Noise Prediction Model [Reference 5] to estimate future traffic noise levels along Kahului Beach Road. Future traffic noise levels along Kahului Beach Road were based on the predicted peak hour traffic volumes [Reference 4] with a 3.9% medium truck and 1.1% heavy truck mix, and a 30 mph posted speed limit. The day-night average sound levels, L_{dn} , were estimated from the peak hour equivalent-continuous noise levels, L_{eq} , as specified by HUD [Reference 1]. The proposed site plan, see Figure 2, indicates that the homes nearest Kahului Beach Road will be approximately 90 feet from the center line of the road. Results indicate that the residences at distances of approximately 90 feet and greater from the center line of Kahului Beach Road will be exposed to L_{dn} levels of less than 65 dBA.

As previously discussed in Section 3.1, this corresponds to HUD's Acceptable Noise Zone for housing areas. Housing within HUD's Acceptable Noise Zone does not require additional noise attenuation other than that provided in customary building techniques. However, if plans are changed and housing does occur less than 90 feet from the center line of Kahului Beach Road, noise mitigation measures should be implemented to reduce traffic noise exposure and meet HUD Site Acceptability Standards. Noise mitigation measures would include properly constructing a sound barrier along the roadway, such as a noise barrier wall or a landscaped earth berm, which clearly blocks the line-of-sight to the traffic from the homes.

Similar results indicate that the single residence proposed approximately 45 feet from the center line of Kanaloa Avenue will be exposed to an L_{dn} level of approximately 65 dBA which similarly corresponds to HUD's Acceptable Noise Zone.

5.0 CONCLUSION

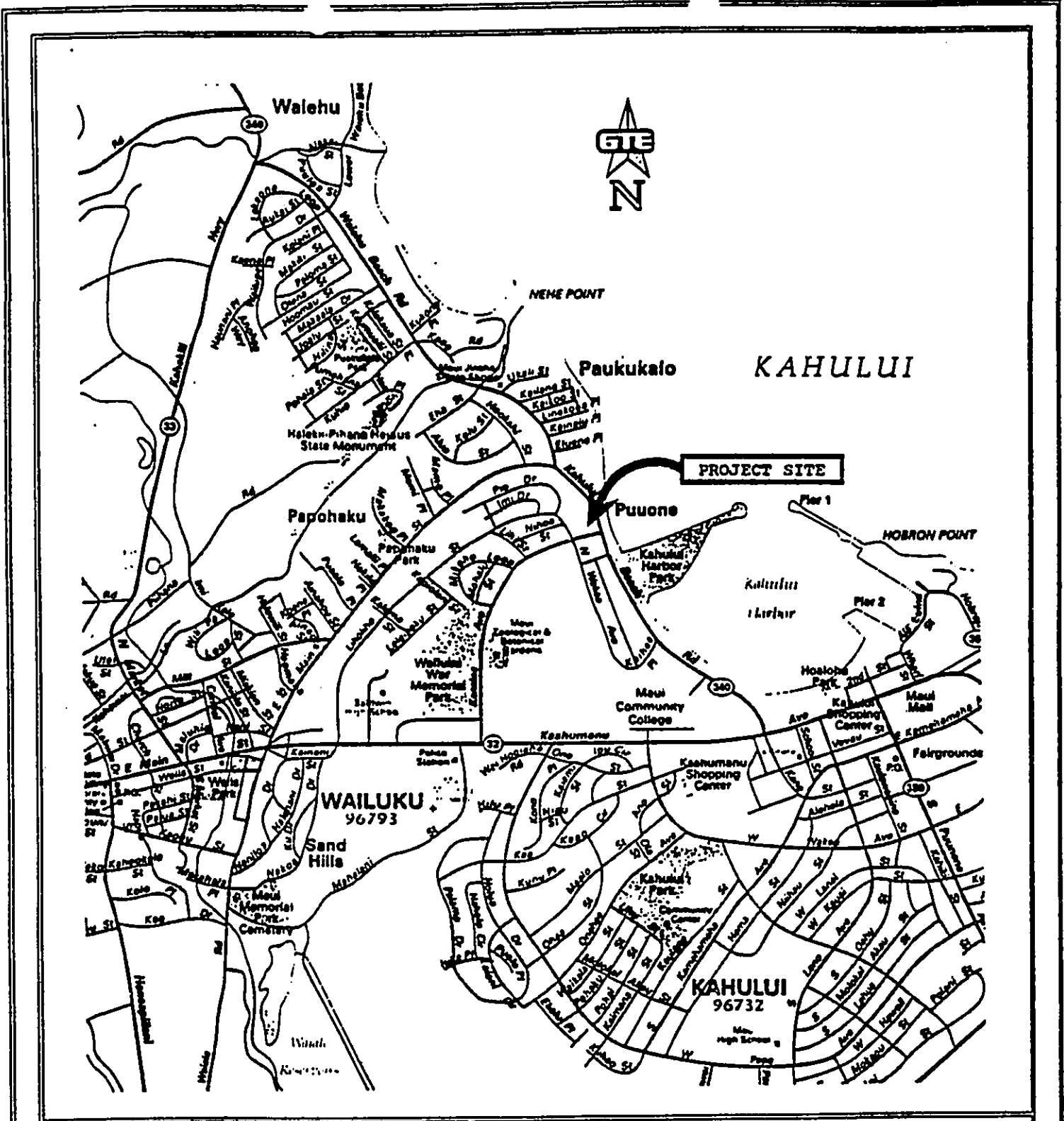
The proposed Owa Subdivision is bordered on its makai side by Kahului Beach Road. A 90-foot minimum setback of the homes from the center line of Kahului Beach Road should limit the traffic noise level exposure at these homes adequately to meet the standards and guidelines established by HUD, FHWA, and EPA.

A&B Properties
August 17, 1993

#93-27
Page 4

REFERENCES

1. *HUD Environment Criteria and Standards*, 24 CFR 51, Federal Register, Volume 44, No. 135, July 12, 1979; Amended 49 FR 880, January 6, 1984.
2. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise*, Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973, Revised at 47 FR 29654, July 8, 1982.
3. *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.
4. *Final Report Traffic Impact Assessment for Owa Subdivision*, Parsons Brickerhoff Quade & Douglas, Inc., November 1992.
5. *FHWA Highway Traffic Noise Prediction Model*, FHWA - RD - 77 - 108; U.S. Department of Transportation, December 1978.



D.L. ADAMS ASSOCIATES, LTD.



FIGURE 1. PROJECT SITE LOCATION

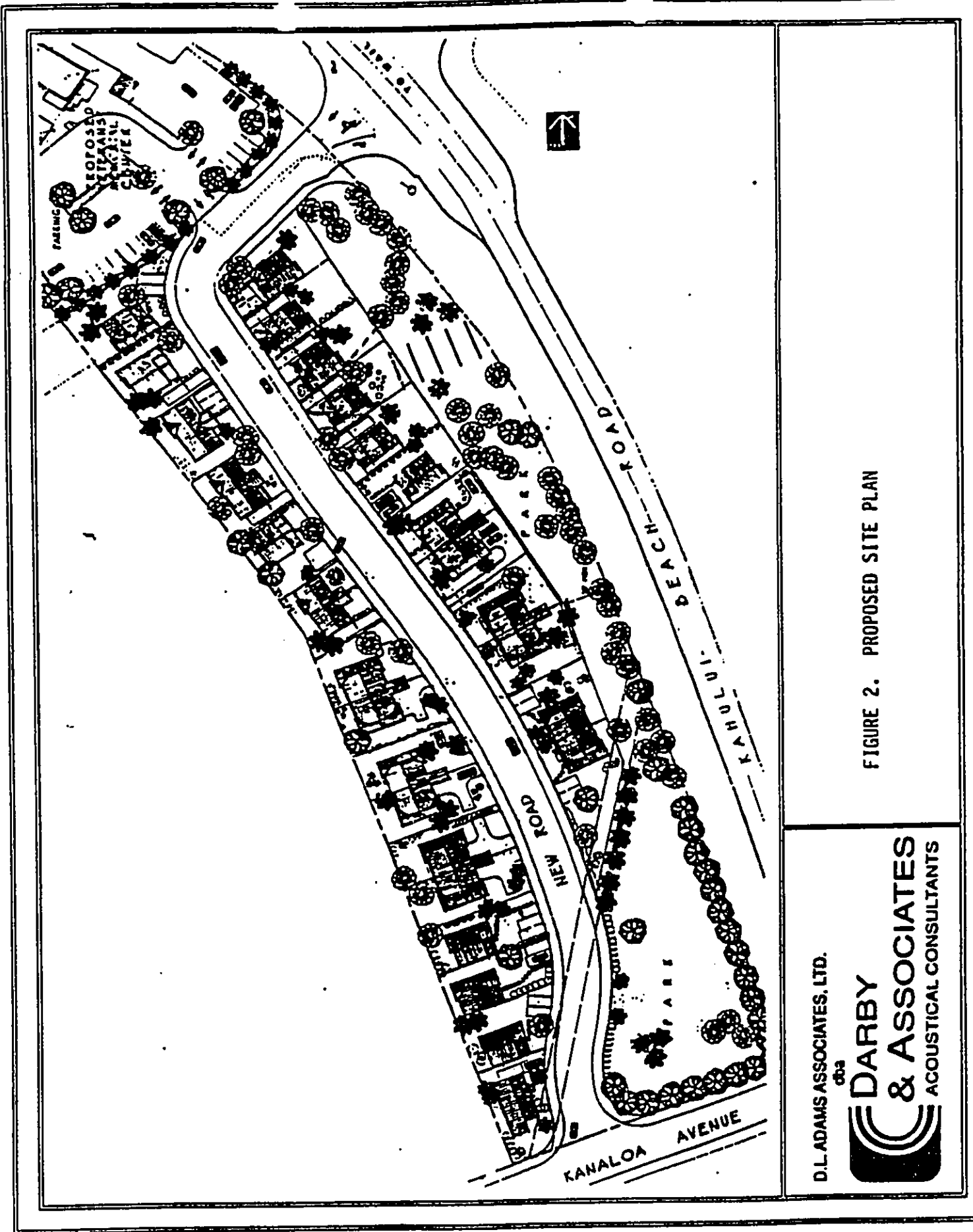


FIGURE 2. PROPOSED SITE PLAN

D.L. ADAMS ASSOCIATES, LTD.

DARBY
dba
& ASSOCIATES
 ACOUSTICAL CONSULTANTS

APPENDIX A
ACOUSTICAL TERMINOLOGY

Sound (Noise) Level

Sound or noise consists of minute fluctuations in atmospheric pressure capable of evoking the sense of hearing. It is measured using precision instruments known as sound level meters, in terms of decibels (dB). Sound Level or Sound Pressure Level is defined as:

$$\text{SPL} = 20 \log (P/\text{Pref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and Pref is 20 micropascals, which is approximately the lowest sound pressure that can be detected by the human ear. For example, if P is 20 micropascals, then SPL = 0 dB, or if P is 200 micropascals, then SPL = 20 dB. The relation between sound pressure in micropascals and sound pressure level in decibels (dB) is shown in Figure A-1.

The sound level that results from a combination of noise sources is not the sum of the individual sound levels, but rather the result is the logarithmic sum. For example, two sound levels of 50 dB produce a combined level of 53 dB, not 100 dB; two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotion and expectations. However, in general, a change of 1 or 2 dB in the level of a sound is difficult for most people to detect, a 3 to 5 dB change corresponds to a small but noticeable change in loudness, and a 10 dB change corresponds to an approximate doubling or halving in loudness.

A-Weighted Sound Level

The human ear is more sensitive to sound with frequencies above 1000 Hertz (Hz), than with frequencies below 125 Hz. Due to this type of frequency response, a weighting system, A-weight, was developed to approximate the frequency response of the human ear. A-weighted sound level (dBA) de-emphasizes the low frequency portion of the spectrum of a signal. The A-weighted (dBA) level of a sound is a good measure of the loudness of that sound, and so different sounds having the same A-weighted level sound about equally as loud. Typical values of the A-weighted sound level of various noise sources are listed in Figure A-1.

Appendix A
Acoustical Terminology
(Continued)

Statistical Sound (Noise) Levels

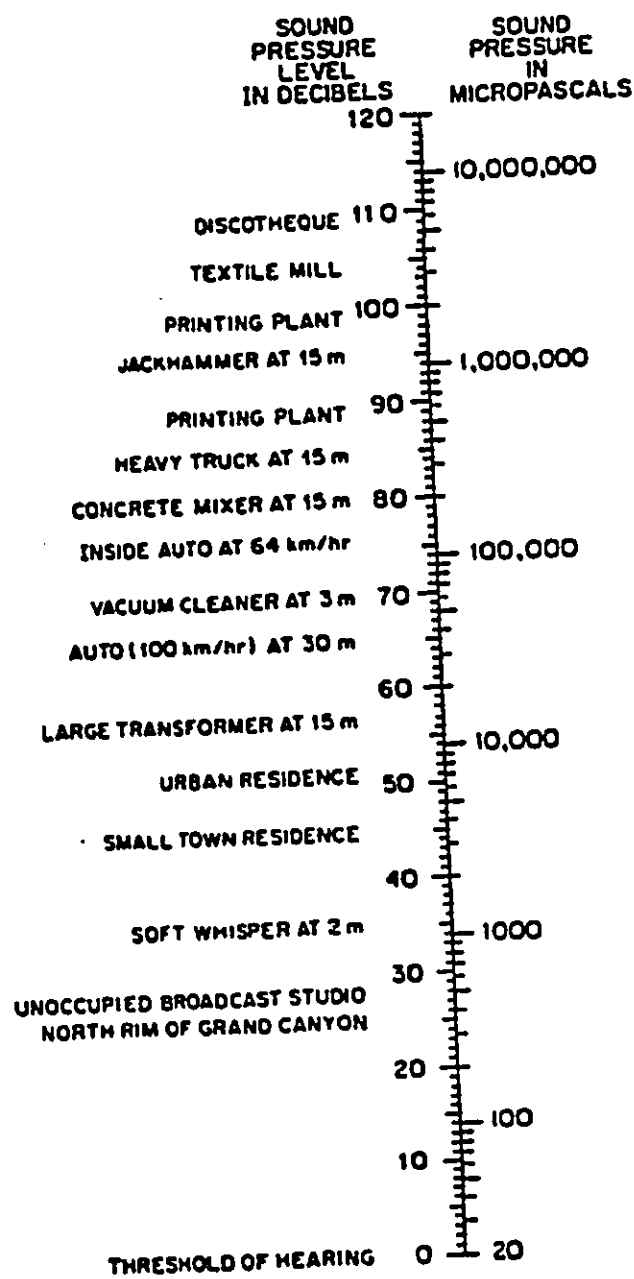
The sound levels of long-term noise producing activities, such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, several statistical noise levels have been developed and instrumentation are available to measure them. Common statistical sound levels include Equivalent Continuous Noise Level, L_{eq} , and Percentile Exceedence Level, L_x .

The Equivalent Continuous Noise Level, L_{eq} , represents a constant level with the same amount of total acoustic energy as that contained in the actual time-varying sound being measured over a specific time period. L_{eq} is commonly used to describe community noise, traffic noise, and hearing damage potential.

A Percentile Exceedence Level, L_x , represents the sound level which is exceeded for $x\%$ of the measured time period. For example, $L_{10} = 60$ dBA describes that over the measured time period, the measured noise exceeded 60 dBA for 10% of the time. Common Percentile Exceedence Levels include L_1 , L_{10} , L_{50} , and L_{90} , which are widely used to assess community and environmental noise.

Day Night Average Sound Level

The Day Night Average Sound Level, L_{dn} , is essentially the Equivalent Continuous Noise Level measured over a 24-hour period. However, in calculating the L_{dn} , 10 dBA is added to the noise levels recorded between 10 pm and 7 am to account for people's higher sensitivity to noise at night. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is used by federal and local agencies and standards organizations.



D.L. ADAMS ASSOCIATES, LTD.



FIGURE A-1

The relation between sound pressure, P, and sound pressure level, SPL. Also shown are typical values of A-weighted sound levels of various noise sources.

APPENDIX D

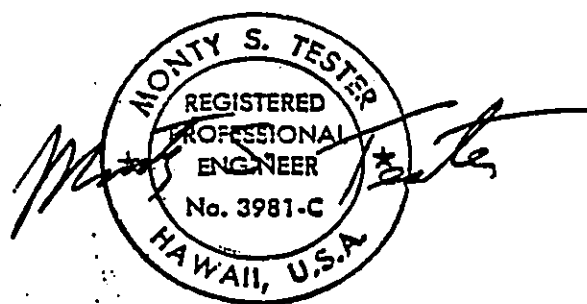
STORM DRAINAGE REPORT

FOR

OWA SUBDIVISION

Kahului, Maui, Hawaii

TMK: 3-8-07:38



Prepared By:

A&B Properties, Inc.
P.O. Box 156
Kahului, Maui, Hawaii 96732

June 1994

**STORM DRAINAGE REPORT
FOR
OWA SUBDIVISION**

I. PURPOSE AND SCOPE

This report estimates the amount of storm water runoff from the project site and studies the method for handling the additional runoff generated after development.

II. LOCATION

The project site is situated at Kahului, Maui, Hawaii, TMK: 3-8-07:38 containing an area of about 4.0 acres. The site is bordered on the north by Kahului Beach Road, on the south by single family residential homes, on the east by Kanaloa Avenue, and on the west by undeveloped land. See FIGURE 1 and LOCATION MAP.

III. EXISTING CONDITIONS

The ground adjacent to the developed residential area along the south side of the site slopes down at about 15% from 40 feet elevation to a depressed area at about 6 feet elevation. This depressed area collects runoff from the site and adjacent areas then deposits it into the Pacific Ocean through an existing 36-inch pipe. Estimated runoff from the project site under present conditions is approximately 4.5 cfs. (see "STORM WATER RUNOFF - EXISTING CONDITIONS" and FIGURE 2). From the depressed area, the ground slopes up on the north side of the project to Kahului Beach Road at an elevation of 10 to 12 feet.

The site is presently covered with grass and brush. The soil is generally Puuone Sand (PZUE) and is characterized by rapid permeability and low runoff potential. It is subject to moderate to severe erosion if not protected.

IV. PROPOSED IMPROVEMENTS

The project will consist of twenty-eight zero-lot line residential lots, each with areas of 3,000 square feet or greater, and one road lot for access purposes. Improvements will include water, sewer, storm drainage, electrical, telephone and cable television systems. Storm water runoff from the developed site will be about 5.9 cfs. (see "STORM WATER RUNOFF - DEVELOPED CONDITIONS" and FIGURE 3), an increase of about 1.4 cfs. to the existing. The additional storm water generated from the site due to development will be collected by a drainage sump. The runoff amount presently being collected by the existing 36" drain pipe crossing Kahului Beach Road will continue to flow through this existing facility.

V. REFERENCES

The drainage report is based on applicable formulas, charts, and tables from:

- A) "Rainfall-Frequency Atlas of the Hawaiian Islands", U.S. Department of Commerce, 1962.
- B) "Interim Drainage Standards for County of Maui", January 1994.
- C) "Drainage Master Plan for County of Maui", by R. M. Towill Corp., 1971.

VI. DESIGN CRITERIA

Run-off quantities were computed by the Rational Formula:

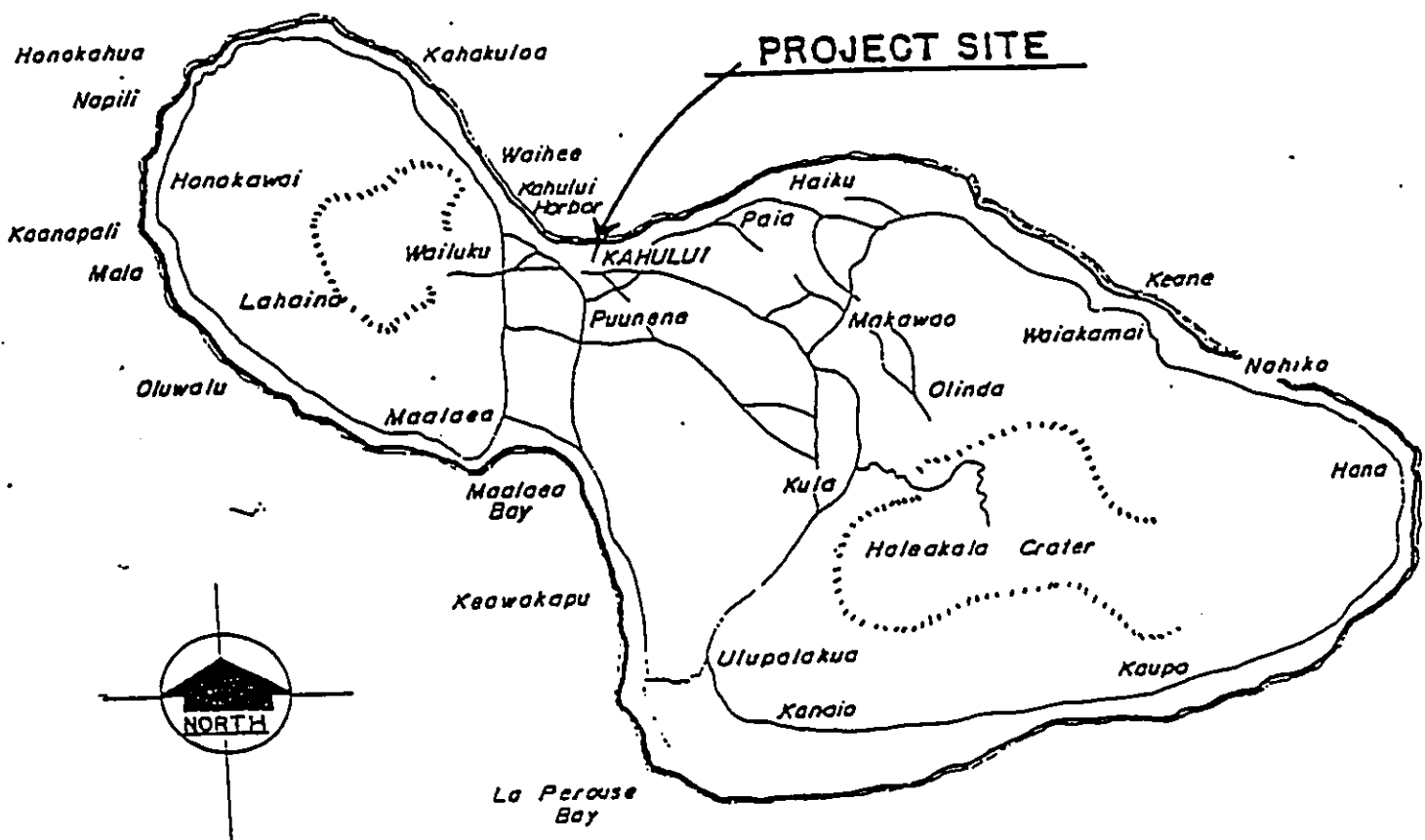
$$Q = CIA$$

Where:

- Q = Run-off in cfs
- C = Run-off Coefficient
- i = Rainfall Intensity (from Nomograph)
- Recurrence Interval, $T_m = 10$ yr.
- A = Drainage Area in Acres

VII. CONCLUSION

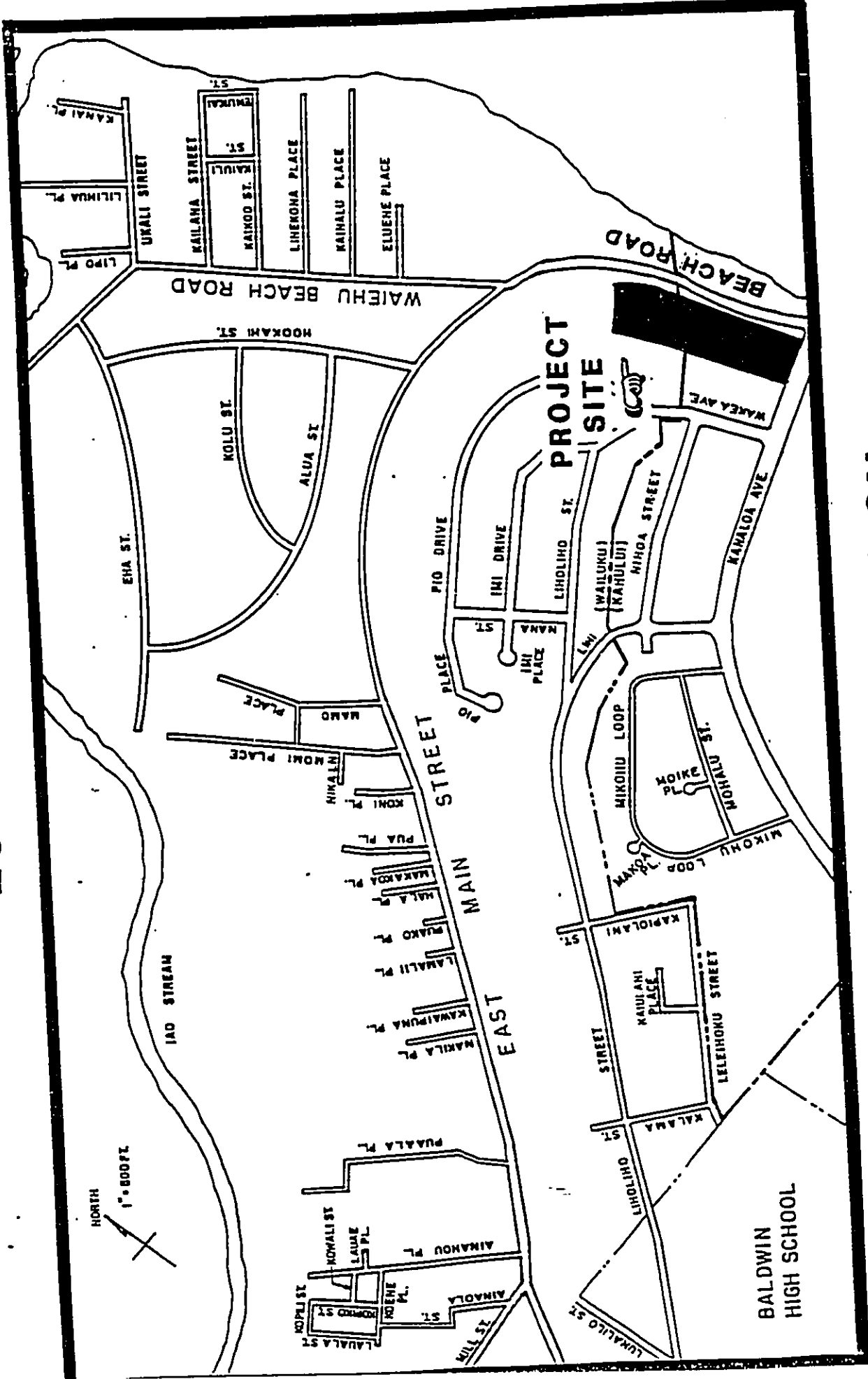
A storm water collection system will be constructed to adequately contain the anticipated increase in runoff generated from the site due to development, with no adverse effects to adjacent and downstream properties. The existing storm drain facilities will continue to carry an equal or lesser amount of storm water runoff as it is presently handling.



ISLAND OF
MAUI

FIGURE 1

LOCATION MAP



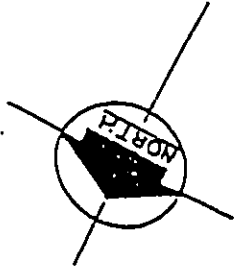
OWA SUBDIVISION

HAWAII

MAUI

KAHULUI

TMK: 3-8-07:38



KAHULUI BEACH ROAD (F.A.P. 5-0340 (1))

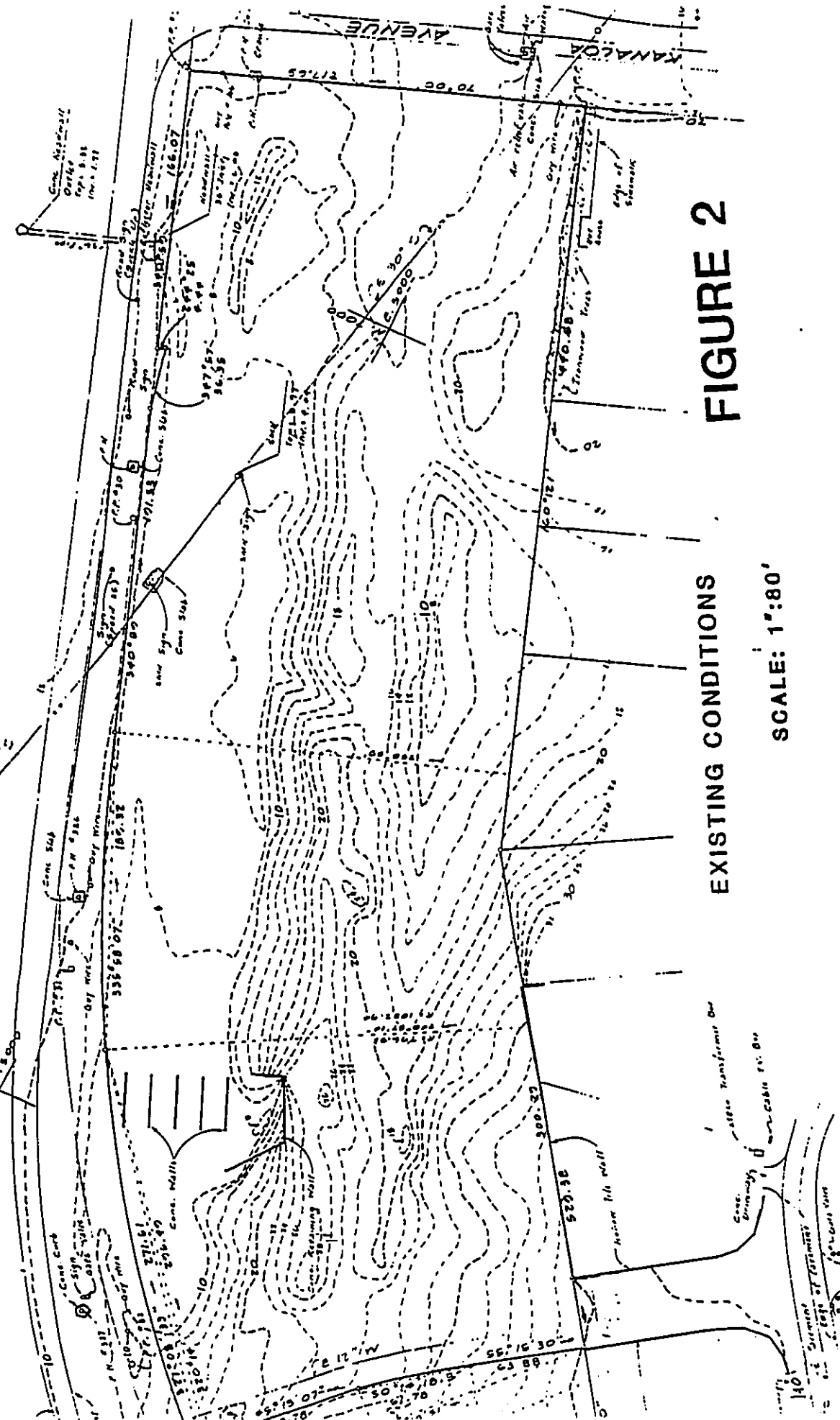


FIGURE 2

EXISTING CONDITIONS
SCALE: 1"=80'

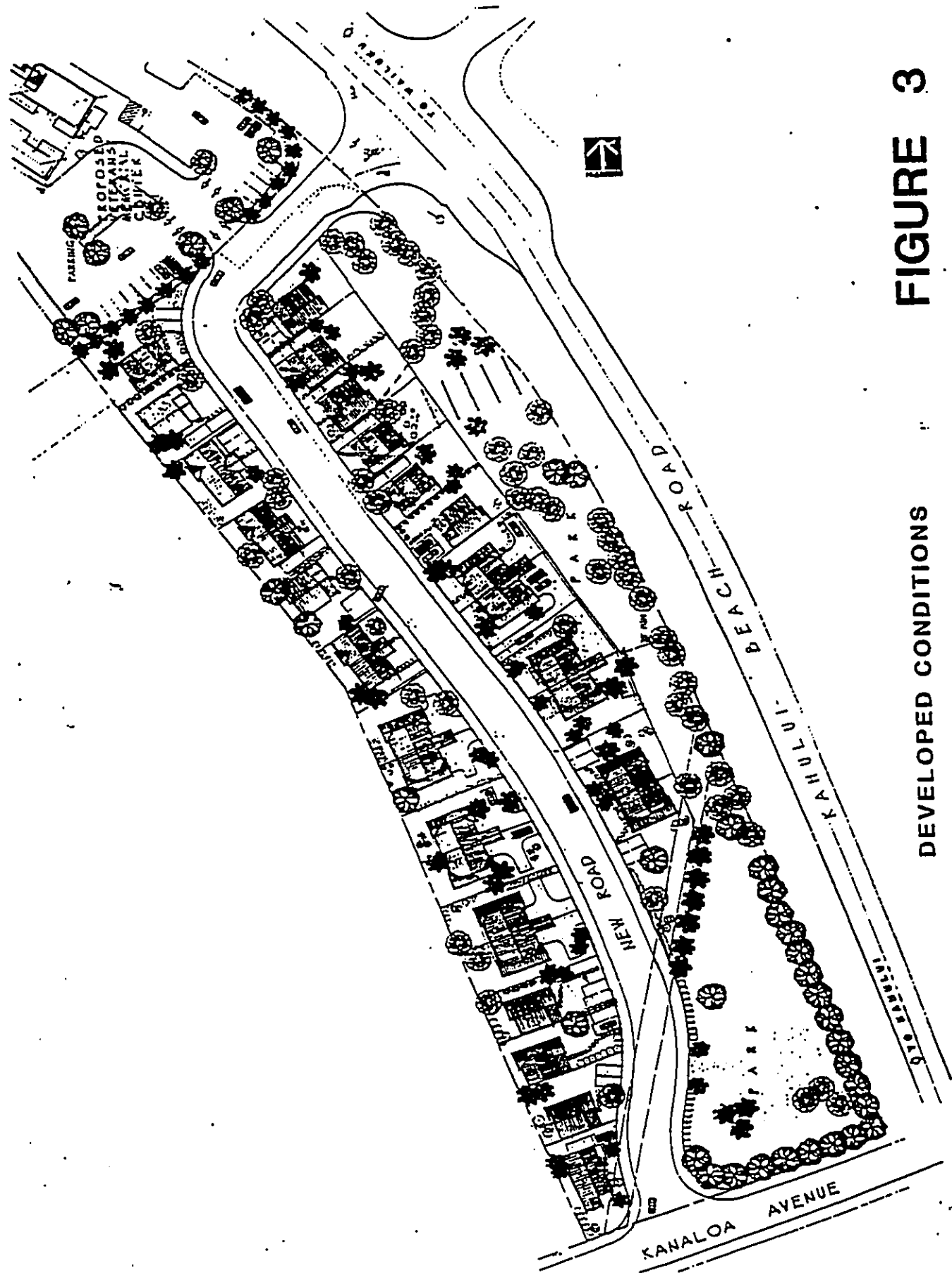


FIGURE 3

DEVELOPED CONDITIONS

SCALE: 1"=100'

STORM WATER RUNOFF

EXISTING CONDITIONS

I. Drainage Area = 4.0 acres

II. Runoff Coefficient, C:

Open Areas

Infiltration (high) =

0.00

Relief (rolling) =

0.03

Vegetal Cover (high) =

0.00

Development Type (residential) =

0.40

C =

0.43

Area =

4.0 acres

Coefficient, "C" =

0.43

III. Time of Concentration, t_c :
 $t_c = 40$ min.

IV. Rainfall Intensity, i :
One Hour Rainfall, for $t_m = 10$ years, = 2 inches
Therefore, $i = 2.6$ in./hr.

V. Runoff, Q :

$Q = CIA$

$Q = 0.43 \times 2.6 \times 4 = 4.5$

$Q = 4.5$ cfs.

STORM WATER RUNOFF
DEVELOPED CONDITIONS

I. Drainage Area = 4.0 acres

II. Runoff Coefficient, C:

a) Open Areas

Infiltration (high)	=	0.00
Relief (rolling)	=	0.03
Vegetal Cover (high)	=	0.00
Development Type (residential)	=	<u>0.40</u>
C	=	0.43
Area	=	2.59 acres

b) Paved Areas

Infiltration (negligible)	=	0.20
Relief (rolling)	=	0.03
Vegetal Cover (none)	=	0.07
Development Type (residential)	=	<u>0.40</u>
C	=	0.70
Area	=	0.83 acres

c) Roof Tops

Infiltration (negligible)	=	0.20
Relief (steep)	=	0.08
Vegetal Cover (none)	=	0.07
Development Type (residential)	=	<u>0.40</u>
C	=	0.75
Area	=	0.58 acres

$$\frac{0.43 \times 2.59}{4.0} + \frac{0.70 \times 0.83}{4.0} + \frac{0.75 \times 0.58}{4.0}$$

Weighted Coefficient, "C", = 0.53

III. Time of Concentration, t_c :
 $t_c = 30$ min.

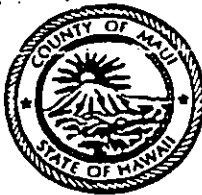
IV. Rainfall Intensity, i :
One Hour Rainfall, for $t_m = 10$ years, = 2 inches
Therefore, $i = 2.8$ in./hr.

V. Runoff, Q :
 $Q = CIA$
 $Q = 0.53 \times 2.8 \times 4.0$
 $Q = 5.9$ cfs.

APPENDIX E

COMMENTS

LINDA CROCKETT LINGLE
Mayor



COUNTY OF MAUI
PLANNING DEPARTMENT
250 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

BRIAN W. MISKAE
Director

GWEN Y. OHASHI
Deputy Director

RECEIVED
MAY - 5 1994

April 21, 1994 RIECKE SUNNLAND
KONO ARCHITECTS, LTD.

Mr. Brian J.J. Choy, Director
Office of Environmental Quality Control
220 S. King Street 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Draft Environmental Assessment (EA) for the
Community Plan Amendment from Open Space to
Single-Family Residential and Park for the
Proposed Owa Subdivision at TMK: 3-8-07: 38,
Kahului, Maui. (93/EA-003) (93/CPA-001)

We are submitting four (4) copies of the following:

1. Appendix A: An Archaeological Inventory Survey for
Owa Subdivision prepared by Kamanek Researches
(November 1992)
2. Appendix B: Traffic Impact Assessment for Owa
Subdivision prepared by Parsons Brinckerhoff Quade
& Douglas, Inc. (November 1992)

Please attach the above mentioned reports to the materials
transmitted to you by letter dated April 19, 1994.

Thank you for your cooperation. Should you have any
questions, please contact this office.

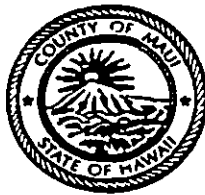
Very truly yours,


Brian Miskae
Planning Director

Encl.

cc: Hideo Kawahara, A&B Properties
Hans Riecke, AIA ✓
Gwen Ohashi, Deputy Director
Colleen Suyama
Clayton Yoshida, AICP

LINDA CROCKETT LINGLE
Mayor



COUNTY OF MAUI
PLANNING DEPARTMENT
280 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

BRIAN W. MISKAE
Director

GWEN Y. OHASHI
Deputy Director

April 19, 1994

APR 22 1994

RECEIVED
KONG ARCHITECTS LTD.

Mr. Brian J.J. Choy, Director
Office of Environmental Quality Control
220 S. King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

Subject: Draft Environmental Assessment (EA) for the
for the Community Plan Amendment from Open Space
to Single-Family Residential and Park for the
Proposed Owa Subdivision at TMK: 3-8-07: 38,
Kahului, Maui. (93/EA-003) (93/CPA-001)

The Maui Planning Department has reviewed the draft
environmental assessment for the subject project, revised April 14,
1994, and anticipates a negative declaration determination. Please
publish notice of availability for this project in the May 8, 1994
OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form
and four copies of the draft EA. Please contact Mr. Clayton
Yoshida at 243-7735 if you have any questions.

Very truly yours,

Gwen Y. Ohashi

Brian Miskae
Planning Director

Encl.

cc: Hideo Kawahara, A&B Properties
Hans Riecke, AIA
Gwen Ohashi, Deputy Director
Colleen Suyama
Clayton Yoshida, AICP

JOHN WAIHEE
GOVERNOR



'94 MAY 10 P2:11

DEPT OF ENVIRONMENTAL QUALITY CONTROL
COMMUNITY DEVELOPMENT

STATE OF HAWAII

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET

FOURTH FLOOR

HONOLULU, HAWAII 96813

TELEPHONE (808) 586-4185

FACSIMILE (808) 586-2452

RECEIVED
MAY 23 1994

BRUCE S. ANDERSON, Ph.D.
INTERIM DIRECTOR
RIECKE SUNNLAND
KONO ARCHITECTS, LTD.

May 6, 1994

Mr. Brian Miskae
Planning Director
County of Maui
250 S. High Street
Wailuku, Hawaii 96793

Attention: Mr. Clayton Yoshida

Dear Mr. Miskae:

Subject: Draft Environmental Assessment for the Proposed Owa Subdivision,
Kahului, Maui

Thank you for the opportunity to review the subject document. We have the following comment.

Please consult with the State Historic Preservation Division with regard to the archaeological inventory survey prepared for the project. Also, please list all the agencies consulted during the preparation of the environmental assessment.

If you have any questions, please contact Mr. Jeyan Thirugnanam at 586-4185.

Sincerely,

for BRUCE S. ANDERSON, Ph.D.
Interim Director

BSA/JT:kk

c: Mr. Robert Sasaki, A&B Hawaii, Inc.
Mr. Hans Riecke, Riecke Sunnland Kono Architects, Ltd.

JOHN WAIHEE
GOVERNOR



'94 MAY 12 P1:49

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING
AND GENERAL SERVICES
SURVEY DIVISION
P. O. BOX 119
HONOLULU, HAWAII 96810

RECEIVED
MAY 23 1994
ROBERT P. TAKUSHI
COMPTROLLER

RIECKE SUNNLAND
KONO ARCHITECTS, LTD.

FILE NO. _____

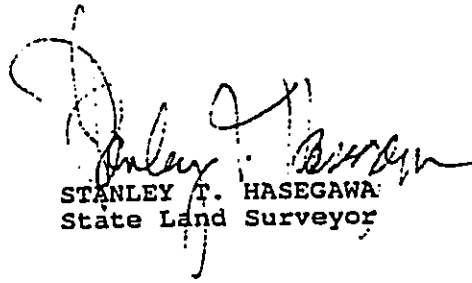
May 10, 1994

TRANSMITTAL

TO: Mr. Brian Miskae, Director
ATTN.: Mr. Clayton Yoshida
SUBJECT: I.D. No.: 93/EA-003, 93/CPA-001, 93/CIZ-004
TMK: 3-8-07:38
Project Name: Owa Subdivision
Applicant: A & B Properties, Inc.

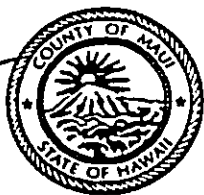
REMARKS:

The subject proposal has been reviewed and confirmed that no Government Survey Triangulation Stations and Benchmarks are affected. Survey has no objections to the proposed project.


STANLEY T. HASEGAWA
State Land Surveyor

LINDA CROCKETT LINGLE
Mayor

al Noh...



RECEIVED
MAY 25 1994
BRIAN W. MISKAE
Director
GWEN Y. OHASHI
Deputy Director

RIECKE SUNNLAND
KONO ARCHITECTS, LTD.

COUNTY OF MAUI
PLANNING DEPARTMENT
250 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

TRANSMITTAL:

- TO: State Agencies:
- Dept of Health, Maui
 - Dept of Health, Honolulu
 - Dept of Transportation (2)
 - Dept of Transportation, Harbors
 - Dept of Transportation, Airports
 - DLNR-Historic Preservation Div.
 - DLNR (2 copies)
 - DLNR, Maui Office
 - Dept of Agriculture, Maui
 - Dept of Agriculture, Honolulu
 - DOE, Office of Business Services
 - DAGS (Survey Division)
 - Hawaiian Home Lands
 - Office of State Planning
 - State Land Use Commission
 - Office of Hawaiian Affairs
 - Dept of Labor
 - DBEDT
 - Dept. of Human Services, Maui

- May 3, 1994
County Agencies:
- DPW, LUCA (3 copies)
 - Dept of Public Works
 - Water Department
 - Parks and Recreation
 - Fire Dept
 - Police Department
 - Human Concerns
 - Corporation Counsel
 - County Clerk
 - Mayor's Office
 - Finance Dept
- Federal:
- Soil Conservation Service
 - Army Corps of Engineers
 - Fish & Wildlife Service
- Others:
- Maui Electric Company

RECEIVED
94 MAY -9 P2:04
MAUI POLICE DEPARTMENT

SUBJECT: I.D. No.: 93/EA-003, 93/CPA-001, 93/CIZ-004
TMK: 3-8-07:38
Project Name: OWA SUBDIVISION
Applicant: A & B Properties, Inc.

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED
94 MAY 11 P3:30

TRANSMITTED TO YOU ARE THE FOLLOWING:

- Application
- Project Plans
- Environmental Assessment
- Revised EA dated 4/14/94
- Traffic Report
- Archaeological Report
- Infrastructure Report
- Soils Report

THESE ARE TRANSMITTED AS CHECKED BELOW:
 For Your Comment/Recommendation

Please Submit Your Comments/Recommendations By June 7, 1994
If additional clarification is required please contact me at 243-7735.

We urge local design as recommended in Appendix B - Traffic Impact Assessment be adopted.

HC Noh...
5/11/94
Clayton Yoshida
Staff Planner
For BRIAN MISKAE, Planning Director

CY:osy
cc: Gwen Ohashi, Deputy Planning Director
Colleen Suyama, Planning Dept.
Clayton Yoshida, AICP
Charles Jencks, DPW
A & B Properties, Applicant
Project File a:owa.subd.trans

UNITED STATES
DEPARTMENT OF
AGRICULTURE

SOIL
CONSERVATION
SERVICE

70 S. HIGH STREET, RM. 215
WAILUKU, HAWAII
96793

Date: May 12, 1994

Mr. Brian Miskae, Planning Director
Maui Planning Department
250 S. High Street
Wailuku, Hawaii 96793

RECEIVED
MAY 25 1994

Dear Brian,

RIECKE SUNNLAND
KONO ARCHITECTS, LTD.

RE: Owa Subdivision; 3-8-07:38
I.D. No. 93/EA-003, 93/CPA-001, 93/CIZ-004

The drainage information within the infrastructure report was insufficient to comment on the project. The area, however, receives heavy runoff from Lower Main and Kahului Beach Road which ponds along Kahului Beach Road.

Does the existing runoff drain into Kahului Harbor as stated in the infrastructure report or outside the harbor jetty?

Sincerely,

Neal S. Fujiwara
Neal S. Fujiwara
District Conservationist

'94 MAY 16 P12:59

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Maul Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96732-0398 • (808) 871-846



'94 MAY 26 P11:57

DEPT. OF PL. & ZONING
COUNTY OF MAUI
RECEIVED

May 23, 1994

Mr. Brian Miskae
Planning Director
County of Maui
Maui Planning Department
250 S. High Street
Wailuku, HI 96793

Dear Mr. Miskae:

Subject: Owa subdivision
Change in Zoning & Community Plan Amendment
(TMK: 3-8-7:38)

Thank you for allowing us to comment on the above subject.

In reviewing the information transmitted and our records, Maui Electric Company (MECO) at this time has no comments on the proposed project. MECO will require specific electrical data (load, voltage, etc.) to determine the probable impact to our electrical system. We encourage the project's consultant to meet with us as soon as practical to plan for the project's electrical requirements. MECO has electrical facilities near the project location.

If you have any questions or concerns, please call Fred Oshiro at 872-3202.

Sincerely,

Neal Slyn

for
Edward Reinhardt
Manager, Engineering

FO:rt

MAUI
PLANNING
DEPARTMENT
MAY 26 1994

COMMENTS

sl27



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

May 23, 1994

'94 MAY 25 A3:23

Planning Division

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

Mr. Clayton Yoshida, Project Planner
Maui Planning Department
County of Maui
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Yoshida:

Thank you for the opportunity to review and comment on the Environmental Assessment for the Owa Subdivision, Kahului, Maui (TMK: 3-8-7: 38). The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

- a. Review of the project does not indicate any anticipated impact to waters or wetlands under Corps jurisdiction; therefore, a DA permit will not be required.
- b. The flood hazard information provided on page 3 is correct.

Sincerely,

Ray H. Jyo, P.E.
Director of Engineering



'94 MAY 27 A4:16

BOARD OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1108
WAILUKU, MAUI, HAWAII 96793-7108

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED
May 23, 1994

Mr. Brian W. Miskae, Director
Maui County Planning Department
250 South High Street
Wailuku, HI 96793

Dear Mr. Miskae,

Re: Proposed 28-lot, zero-lot-line residential subdivision and 1-acre park at TMK: 3-8-7:38, Kahului; Applications for Environmental Assessment, Community Plan Amendment and Change-In-Zoning Nos. 93/EA-3, 93/CPA-1, 93/CIZ-4 submitted by R.K. Sasaki on behalf of A & B Properties

The applicant should be advised that water for the construction and domestic purposes of the project may not be available until such time as new sources have been developed to service the Central Maui/Kihei area. No guarantee of water for the project is granted or implied as a result of these comments or the approval of the subject discretionary permits. The department would determine if water is available at such time as an application for water service is approved and the subject fee is paid.

Fire, domestic, cooling and irrigation calculations would be required during the building permit process. The applicant would be required to provide water system improvements, fire protection and water service in accordance with the standards. The county by Ordinance 2108 would require that the developer install low-flow fixtures, for example 1.6-gal. toilets.

The project site with low-rainfall warrants water-saving measures. The applicant and their mechanical engineer are advised to eliminate single-pass systems and provide recirculating ones where cooling is intended. Non-potable water should be used for the grading and construction of the project. Native strand and coastal species should be used wherever possible in the proposed xeriscapes to support the unique, natural history of the Kahului Beach neighborhood.

Sincerely,

David R. Craddick, Director

"Run Water All Things Find Life"

JOHN WAIHEE
GOVERNOR OF HAWAII

'94 MAY 26 12:55



DEPT OF PLANNING
COUNTY OF MAUI
STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

JOHN C. LEWIN, M.D.
DIRECTOR OF HEALTH

Lawrence Hart, M.D., M.P.H.
DISTRICT HEALTH SERVICES ADMINISTRATOR (H.O.)

May 24, 1994


Mr. Brian Miskae
Director
Department of Planning
County of Maui
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Miskae:

Subject: 93/EA-003, 93/CPA-001, 93/CIA-004, Owa Subdivision, TMK: 3-8-07: 38,
Boundary of Kahului and Wailuku, Maui, Hawaii

Thank you for the opportunity to review and comment on the subject application. We have no comments to offer at this time.

Sincerely,


DAVID H. NAKAGAWA
Chief Sanitarian, Maui

JOHN WAIHEE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

KETH ANNE CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTIES
JOHN P. KEPPER II
DONA L. HANAKI
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

June 3, 1994

Mr. Brian Miskae, Director
Maui Planning Department
250 South High Street
Wailuku, Maui, Hawaii 96793

LOG NO: 11627 ✓
DOC NO: 9405YD24

Dear Mr. Miskae:

SUBJECT: County of Maui, Historic Preservation Review of a Change in Zoning and Community Plan Amendment for the Owa Subdivision, Wailuku, Maui (I.D. Nos. 93/EA-003; 93/CPA-001; 93/CIZ-004) TMK: 3-8-07: 38

Thank you for the opportunity to review this subdivision application, which requests rezoning to permit a zero lot line housing development on a c. 4.0 acre parcel. The development is located along Kahului Beach Road, near Kanaloa Avenue in Kahului.

An archaeological inventory survey was conducted of the project area (An Archaeological Inventory Survey for Owa Subdivision, A & B Properties, Inc., Kahului, Maui, Hawaii. W. M. Fredericksen and D. L. Fredericksen 1992). Two historic sites were identified within the project area, including the old Kahului Railroad bed (50-04-3112) and remains of the Makaweli Rock Crusher (50-04-3135). Subsurface testing was conducted, however no evidence of buried cultural deposits or features was encountered.

The State Historic Preservation Division has reviewed the archaeological report and found it acceptable (letter to W. Fredericksen April 6, 1992). The Division has also concurred with the consultant's recommendation that earthmoving within the project area be monitored by a qualified archaeologist. ✓

According to the inventory survey report (p. 14), the applicant intends to preserve a portion of the Makaweli Rock Crusher site. The application document has not, however, been updated since the completion of the archaeological report. In order to clarify the applicant's intentions regarding the Makaweli Rock Crusher, we request that a preservation plan regarding this site be submitted to the State Historic Preservation Division for review and

Mr. Brian Miskae
Page 2

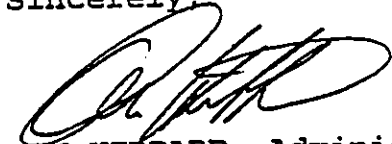
approval. Minimally, the plan should specify what portion of the site is to be preserved, and how the preserved area will be maintained and landscaped.

If the Owa Subdivision is given the approvals which will allow the project to proceed, we recommend that the following conditions be attached to approval to ensure "no adverse effect" to the significant historic site:

- 1) Prior to the initiation of vegetation grubbing, earthmoving, or excavation on the project site, a preservation plan for Site 50-04-3135 shall be submitted to the State Historic Preservation Division for review and approval.
- 2) Vegetation grubbing and all earthmoving activities on the project site shall be monitored by a qualified archaeologist. Should evidence of historic sites be located or uncovered during earthmoving or construction, activity in the area of the find will cease and the monitoring archaeologist will be provided sufficient time to assess the significance of the site and complete data recovery. At the completion of the monitoring, a report of findings and activities shall be submitted to the State Historic Preservation Division for review and approval.

Please contact Ms. Theresa Donham at 243-5169 if you have any questions.

Sincerely,



DON HIBBARD, Administrator
State Historic Preservation Division

KD:jen

c: Roger Evans, OCEA (File No.94-634)



University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawai'i 96822
Telephone: (808) 956-7361 • Facsimile: (808) 956-3980

RECEIVED
JUN 13 1994

RIECKE SUNNLAND
KONO ARCHITECTS, LTD.

June 6, 1994
EA:00061

Mr. Clayton Yoshida
Planning Department
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Yoshida:

Draft Environmental Assessment (EA)
OWA Subdivision
Wailuku, Maui

The applicant proposes to build 28 houses in a subdivision of approximately 4 acres area, with 1.05 acres set aside for a neighborhood park. The site is in the Special Management Area.

The Environmental Center has reviewed the Draft EA with the assistance of Eric Pearthree, Anthropology; and Huilin Dong, Environmental Center.

Our reviewers note that the Draft EA fails to meet content requirements specified in Title 11, Sections 200-9,10, DOH Administrative Rules. In addition, information provided in the Draft EA is inadequate to meet the express purpose of an EA, which is the reliable determination of the potential significance of impacts of a proposed project. For example, the proposed project is located in an archaeologically sensitive area; however, the archeological survey appended to the document insufficiently addresses archaeological issues. Furthermore, the project area is within both the 100 year flood area and tsunami inundation zone. In light of the threats posed by flood and tsunami inundation, more consideration needs to be given to the desirability of rezoning the site in question from Open Space to Single Family Residential and Park. Even if such rezoning is desired, more consideration needs to be given to the housing design to better protect the future residents' welfare and safety.

Mr. Clayton Yoshida
June 6, 1994
Page 2

Natural Hazards

Since the proposed OWA Subdivision is located in the 100 year flood area, and a large area of the project is within the tsunami high hazard flood zone, data on the frequency of such events should be included in the EA. In the absence of such data, proposed mitigation, such as raising the elevation level of the living areas cannot be adequately evaluated. In the event of flood or tsunami inundation, how would emergency access to the area be secured? Has the subject site been in any hurricane path in the past? Will the "wood frame with cement finish" building design (page 1) withstand prospective hurricane winds?

Archaeology

Background Historical Research:

Although our reviewers felt that the appended archaeological study sufficiently covered the historical properties from the time of the lease to Claus Spreckles in 1878, we note that there is no mention of claims from the Native Testimonies on this parcel or adjacent parcels. Such claims, if recorded, may shed light on earlier uses of the land. There may be oral traditions that relate to land tenure among Maui families. No mention is made of attempts to contact families that may have had claims to this land.

The coverage of prehistoric land use was very cursory. The only discussion of prehistoric settlement patterns in the report is a citation of Kirch (1985). Much archaeological work relating to settlement patterns has been done on Maui and other analogous regions of Hawaii since Kirch's introductory synthesis.

Archaeological Field Survey:

This section appears to be vague and inadequate. No description of methodology or the scope of the coverage was given. Presumably 100% coverage would have been possible, but there is no way of knowing if this was done. The 3 manual test pits and 14 backhoe test trenches were all situated on dune areas (Appendix A, page 8). However, surface indications of sites on sand dunes are not always very evident. References to the heavy vegetation leads our reviewers to conclude that these areas did not receive adequate coverage.

Inventory Survey:

The heavy vegetation and the historic and recent disturbance of significant portions of the site would limit the likelihood that there would be surface indications of

Mr. Clayton Yoshida
June 6, 1994
Page 3

archaeological sites. This disturbance and especially the fact that portions of the project area have been filled suggest that a serious effort at subsurface testing would be required to determine if there were intact subsurface deposits. One nearby subsurface site is mentioned (50-04-1172, page 15) which gave a very early radiocarbon date. A local informant also suggested that there "might well be human burials in the remaining dune area" (page 8). This also suggests that a concerted effort be made to discover buried deposits and pit features. Many other burials have been discovered in nearby dunes, but no mention of these findings accompanied this report. Indeed, the authors only cited their own reports and did not attempt to synthesize previous work in the area.

The filling of the lowlands that is mentioned from circa 1907 on pages 5 and 6 would have significantly impacted the parcel and may well have capped existing archaeological properties with sterile overburden.

Shallow test pits (0.5 m deep) like those discussed on page 9 would only be informative on the surface strata. If there were any buried occupation deposits, a shallow pit would be unlikely to discover them. Coring would have been a better method of discovering extensive buried deposits, but only extensive trenching has proven successful at discovering discontinuous and deeply buried deposits. The trenching program that was undertaken was extensive, but it appears that many of their short trenches did not extend deep enough to determine whether or not there were buried deposits. Trenches primarily are dug to determine stratigraphy. They can be used to determine the presence or absence of cultural layers and especially of pit features but are not very useful for the recovery of portable artifacts. In this light, the findings as reported ("Sterile, no artifacts") suggest that presence or absence of artifacts were criteria for assessing cultural content. No mention is made of survey methodology or criteria for assessment, and no mention is made of screening the excavated material.

Only three profiles are included with the report, one of which (Backhoe Trench #13, see Figure 1) doesn't extend below modern disturbance. The descriptions of the others and the lack of explanation of the criteria used for judging presence of cultural remains are problematic.

In summary, the conclusions in the study are not very convincing in light of the deficiencies in reporting the historical documentation, the absence of survey methodology and criteria for assessment, and the limited area that was trenched to prehistoric sediment.

The recommendation that monitoring be conducted during grading is proper. Numerous other construction projects in the area have encountered human burials, sometimes many burials. It is quite likely that there are also burials on this parcel. It would be much better to find them before construction starts than by monitoring during grading. A synthetic look at spatial patterning of burials in the region and more extensive test

Mr. Clayton Yoshida
June 6, 1994
Page 4

trenching would allow a more valid assessment of the probability of inadvertent discovery of burials during construction work.

Other Inadequacies

The EA conclusively asserts that there are no rare or endangered fauna or flora in the subject area. However, the basis of such assertions is not given. More information is needed to satisfactorily address the safety concerns. Furthermore, no substantive description of even general aspects of the project's social and economic characteristics is provided, other than vague and self-serving references to tax base increment and "quality housing project" satisfaction of local housing needs. A "suitable and adequate location and site map" (Section 11-2---10(5), HAR) is not included. Technical project information (eg., water, sewage, etc.) is incorporated by reference only; the EA thus is not a self-contained document.

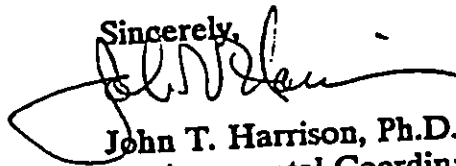
Summary

The purpose of an EA is to evaluate the significance of potential environmental impacts of a proposed projects. Because of the many inadequacies of content and detail noted relative to this draft EA, a reliable determination of significance based upon the information provided cannot be made.

Furthermore, our reviewers have identified areas of high probability of significant impacts (i.e., archaeology and natural hazards) which this proposed project will engender. Consequently, we strongly suggest that the EA be revised and that the approving agency take the identified concerns into consideration in determining the potential significance of the proposed projects impacts.

Thank you for the opportunity to review and comment on the document.

Sincerely,



John T. Harrison, Ph.D.
Environmental Coordinator

cc: OEQC
A & B Hawaii, Inc.
Riecke Sunnland Kono Architects Ltd. ✓
Roger Fujioka
Eric Pearthree
Huilin Dong

JOHN WAIHEE
GOVERNOR

HERMAN M. AIZAWA, PH.D.
SUPERINTENDENT



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

June 14, 1994

Mr. Brian Miskae
Planning Director
County of Maui
250 South High Street
Wailuku, Hawaii 96793

DEPT. OF EDUCATION
COUNTY OF MAUI
RECEIVED
94 JUN 21 AM 1:33

Dear Mr. Miskae:

SUBJECT: Owa Subdivision
I.D. No. 93/EA-003, 93/CPA-001, 93/CIZ-004
TMK: 3-8-07: 38

We have reviewed the subject application and have determined that the proposed 28-unit residential subdivision will have a minor enrollment impact on the schools in the area.

Thank you for the opportunity to comment.

Sincerely,

Herman M. Aizawa, Ph.D.
Superintendent

HMA:hy

cc: A. Suga
R. Murakami

JOHN WAIHEE
GOVERNOR



94 JUN 20 P3:35
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
DEPT OF PLANNING 869 PUNCHBOWL STREET
COUNTY OF MAUI HONOLULU, HAWAII 96813-5097
RECEIVED

June 15, 1994

REX D. JOHNSON
DIRECTOR

DEPUTY DIRECTORS
KANANI HOLT
GLENN M. OKIMOTO
JOYCE T. OMINE
CALVIN M. TSUDA

IN REPLY REFER TO:
STP 8.6104

Mr. Brian Miskae, Director
Planning Department
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Miskae:

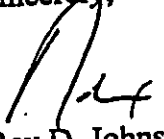
Subject: Application for Change in Zoning and Community
Plan Amendment for Owa Subdivision, Kahului, Maui
ID No. 93/EA-003, 93/CPA-001, 93/CIZ-004
TMK: 3-8-07: 38

We support the roadway improvements recommended by the Traffic Impact Assessment Report that dedicated left-turn and right-turn lanes be provided on the proposed subdivision access road where it intersects Kahului Beach Road. The developer must coordinate the access plans for this intersection with our Highways Division. In addition, construction plans must be submitted for our review and approval for all work within our State highway right-of-way. Roadway improvements will be provided at no cost to the State.

For safety reasons, left turns onto Kahului Beach Road from the proposed subdivision access road will not be allowed.

We appreciate the opportunity to provide comments.

Sincerely,


Rex D. Johnson
Director of Transportation

LINDA CROCKETT LINGLE
Mayor
GEORGE N. KAYA
Director
CHARLES JENCKS
Deputy Director
AARON SHINMOTO, P.E.
Chief Staff Engineer



'94 JUN 22 10:06
COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
DEPT. OF LAND AND WASTE MANAGEMENT
COUNTY LAND USE AND CODES ADMINISTRATION
250 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

EASSIE MILLER, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

DAVID WISSMAR, P.E.
Solid Waste Division

BRIAN HASHIRO, P.E.
Highway Division

GWEN
COLLEEN
CLAYTON
JULIE
BILL
SECRETARY

ASSIGN TO

TODAY'S DATE

DATE

By

	COMMENTS	ASSIGN	SEE ME
GWEN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLLEEN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLAYTON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
JULIE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BILL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SECRETARY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

June 20, 1994

MEMO TO: Brian W. Miskae, Planning Director
F R O M: *George N. Kaya*, Public Works & Waste Management Director
SUBJECT: Environmental Assessment, Community Plan Amendment and
Change in Zoning Applications
OWA SUBDIVISION
TMK: 3-8-7:38
93/EA-003, 93/CPA-001, 93/CIZ-004

We reviewed the subject application and have the following comments:

1. Comments from the Engineering Division:
 - a. The architect and owner are advised that the project is subject to possible tsunami and flood inundation. As such, said project must conform to Section 19.62 of the Maui County Code pertaining to flood hazard districts.
 - b. Road widening lots be provided for the adjoining halves of Kanaloa Road and Lower Main Street to provide for future right-of-way and improved to County standards, to include but not be limited to, pavement widening construction of curb, gutter and sidewalk, and relocation of utilities underground. Said lot shall be dedicated to the County upon completion of the improvements.
 - c. All structures, such as walls, trees, etc., shall be removed or relocated from the road widening strip. The rear boundaries of the road widening strip shall be clearly marked to determine if said structures have been properly removed and relocated.
 - d. A 30' radius be provided at the intersection of Kanaloa Road and the proposed subdivision road.



Mr. Brian Miskae
Page 2 of 4
June 20, 1994
93/EA-003, 93/CPA-002, 93/CIZ-004

- e. The existing Lower Main Street and Kanaloa Road do not meet County standards based on roads located in "urban" zoning.
- f. A final detailed drainage and erosion control plan including, but not limited to, hydrologic and hydraulic calculations and scheme for controlling erosion and disposal of runoff water be submitted to the Department of Public Works, Engineering Division for our review and approval. The plan shall provide verification that the grading and runoff water generated by the project will not have an adverse effect of the adjacent and downstream properties. In addition, the developer shall contribute his pro-rata share to drainage improvements to be determined by the County and the drainage master plan. An agreement to the above prepared for filing with the State's Bureau of Conveyances shall be submitted by the applicant.
- g. The applicant construct road improvements at the intersection of Lower Main Street/Kahului Beach Road/Waiehu Beach Road to include, but not limited to modification of the existing traffic signals, widening of Lower Main Street and Kahului Beach Road, etc.
- h. The applicant shall contribute his pro-rata share to traffic improvements to be determined by the County and traffic master plans. An agreement of conveyances shall be submitted by the developer.
- i. A copy of the approved water quality report including project mitigation measures (acceptable to the State Department of Health) which evaluates the quality of the storm water discharging into the ocean receiving waters be provided to the County of Maui, Department of Public Works and Waste Management. The report should include a discussion on sediment and nutrient loadings at all drainage outlets.
- j. All existing features, such as, structures, driveways, drainageways, edge of pavement, etc. shall be shown on the project site plan.
- k. Site plan and a "sight distance" report to determine required sight distance and available sight distance at existing and proposed street intersections be provided for our review and approval (i.e. Kanaloa Road and Lower Main Street).

Mr. Brian Miskae
Page 3 of 4
June 20, 1994
93/EA-003, 93/CPA-001, 93/CIZ-004

- l. The applicant obtain street name approvals from the Street Naming Commission and show street names on map.
- m. The 100-year flood inundation limits, if applicable, be shown on the project site plans.
- n. In accordance with Section 12.24a.070 of the Maui County Code, submit three (3) sets of the street tree planting and irrigation plan and a completed "Maui County Arborist Committee Plans Review Form".
- o. An updated Traffic Impact Analysis Report be submitted for our review and approval. This existing report reflects 1992 traffic counts and estimated subdivision construction to be completed by 1994. These assumptions and traffic counts are no longer valid.

The applicant is requested to contact the Engineering Division at 243-7745 for additional information.

2. Comments from the Wastewater Reclamation Division:

- a. The developer should be informed that Wastewater Reclamation Division cannot insure that wastewater system capacity will be available for the project.
- b. Wastewater contribution calculations are required before building permit is issued.
- c. Developer shall pay assessment fees for treatment plant expansion costs in accordance with the ordinance setting forth such fees. As the present time, wastewater assessment fees are only utilized in Kihei. Other areas may be subject to fees at a later time.
- d. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.
- e. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.

The applicant is requested to contact the Wastewater Reclamation Division at 243-7417 for additional information.

Mr. Brian Miskae
Page 4 of 4
June 20, 1994
93/EA-003, 93/CPA-001, 93/CIZ-004

3. Comments from the Solid Waste Division:

- a. The owners and their contractors shall implement solid waste reduction, re-use and recycling programs to reduce the amount of solid waste to be disposed of at the County landfills.
- b. Alternative means of disposal of grubbed material and rock shall be utilized other than disposed of at the County landfills.

The applicant is requested to contact the Solid Waste Division at 243-7875 for additional information.

4. Comments from the Land Use and Codes Administration:

- a. A site plan prepared for recording with the Bureau of Conveyances shall be part of the change in zoning application and shall include all information required to show compliance with Maui County Zoning Ordinance Chapter 19.09 in regards to lot area, lot width, setback line and yard requirements and design standards.

The applicant is requested to contact the Land Use and Codes Administration at 243-7373 for additional information.

RMN:ey
xc: Engineering Division
Solid Waste Division
Wastewater Reclamation Division

a:owa

APPENDIX F

RESPONSES

**RIECKE
SUNNLAND
ARCHITECTS LTD. KONO**

HANS RIECKE, FAIA
WARREN SUNNLAND, AIA
EARL H. KONO, AIA

June 3, 1994

ROBERT HARTMAN, AIA
ANTHONY A. RIECKE-GONZALES, AIA
MARIE KIMMEY, AIA
BRIAN G. BOELTER, AIA

Mr. Bruce Anderson, Ph.D.
State of Hawaii
Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

RE: Draft Environmental Assessment for the
Proposed Owa Subdivision, Kahului, Maui

Dear Mr. Anderson:

This is written in reference to your letter of May 6, 1994, in which you requested additional information regarding the Environmental Assessment prepared for the proposed Owa Subdivision.

The State Historic Preservation Division has been contacted by A & B Properties with regard to the archaeological inventory survey prepared for the project. A & B will follow up on any recommendations made by that office.

The draft Environmental Assessment was prepared in September of 1992 by Riecke Sunnland Kono Architects and updated at the suggestion of the Maui County Planning Department in April, 1993 and again in April 1994.

The Environmental Assessment was based on information obtained from the following sources:

1. County of Maui, Wailuku - Kahului Community Plan.
2. U.S. Department of Commerce Bureau of Census; population, rainfall and climate information.
3. Xamanek Research, Archaeological Inventory Survey.
4. Parsons Brinkerhoff Quade and Douglas, Inc., Traffic Impact Assessment.
5. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of the State of Hawaii.
6. U.S. Army Corps of Engineers, flood elevation data.

RIECKE
SUNNLAND
ARCHITECTS
LTD. KONO

Mr. Bruce Anderson
June 3, 1994
Page 2 of 2

7. Maui County Department of Water Supply, availability of water.
8. County of Maui, Wastewater Division, availability of sewer.
9. Maui Electric Company, availability of electricity.
10. Hawaiian Telephone Company, availability of telephone service.
11. Darby and Associates, Traffic Noise Impact Assessment.

If you have any additional questions regarding preparation of the Environmental Assessment please contact this office.

Sincerely,

Marie Kimmey, AIA

Marie Kimmey, AIA

MK/sgc

cc: Clayton Yoshida
Hideo Kawahara

\\word6\anderson.owa

July 6, 1994

Mr. Brian Miskae, Planning Director
Planning Department
County of Maui
250 So. High Street
Wailuku, Maui, HI 96793

Dear Mr. Miskae:

Subject: Owa Subdivision; TMK: 3-8-07:38
I.D. No. 93/EA-003, 93/CPA-001, 93/CIZ-004

This is in response to the June 29, 1994 letter you received from Neal S. Fujiwara of the Soil Conservation Service.

The storm drainage sump will be located in the park area near the intersection of Kahului Beach Road and Kanaloa, as shown on the attached map. We have a preliminary drainage study for this project, with a conceptual drainage system described in Section IV, "Proposed Improvements," of the Storm Drainage Report for Owa Subdivision, dated June 1994. A copy of the report is enclosed for your information.

Since we will not be increasing the storm run off from this project to the existing 36-inch culvert crossing Kahului Beach Road, the size of the culvert should be adequate.

A final design of the drainage system will be submitted for review in the future when we do the engineering for the subdivision improvements. This will be done after our requests for the change in zoning and community plan amendment are approved.

Please contact us should you have any further questions.

Sincerely,

A&B PROPERTIES, INC.



H. Kawahara, Manager
Engineering & Construction

HK:lmc
Enclosures

cc: Properties, Honolulu (w/map)
Hans Riecke (w/o enclosures)

**RIECKE
SUNNLAND
ARCHITECTS LTD. KONO**

HANS RIECKE, FAIA
WARREN SUNNLAND, AIA
EARL H. KONO, AIA

July 8, 1994

ROBERT HARTMAN, AIA
ANTHONY A. RIECKE-GONZALES, AIA
MARIE KIMMEY, AIA
BRIAN G. BOELTER, AIA

State of Hawaii
Department of Health
Environmental Management Division
Clean Water Branch
P.O. Box 3378
Honolulu, HI 96801

RE: Environmental Assessment,
Community Plan Amendment and Change in Zoning Applications
OWA SUBDIVISION
TMK: 3-8-7:38

Dear Sirs:

In a memo dated June 20, 1994, George Kaya, Public Works and Waste Management Director of Maui County, made a specific comment regarding an approved water quality report (acceptable to the State Department of Health) for the above referenced project.

The proposed OWA SUBDIVISION will consist of 28 affordable house lots and a small park. The total area of the site is 4.041 acres. Review of a fact sheet on the NPDES General Permit authorizing discharges of storm water associated with construction activities, indicates that site disturbances of less than five (5) acres of total land area, which are not part of a larger common plan of development or sale, are exempted from NPDES permit requirements.

We would appreciate written verification of this exemption and/or information on any State Health Department Clean Water Branch regulations which may be anticipated for the OWA SUBDIVISION.

Sincerely,

Marie Kimmey, AIA

Marie Kimmey, AIA

cc: Hideo Kawahara, A & B Properties, Maui

cnv88.078

**RIECKE
SUNNLAND
ARCHITECTS
LTD. KONO**

HANS RIECKE, FAIA
WARREN SUNNLAND, AIA
EARL H. KONO, AIA

July 11, 1994

ROBERT HARTMAN, AIA
ANTHONY A. RIECKE-GONZALES, AIA
MARIE KIMMEY, AIA
BRIAN G. BOELTER, AIA

John T. Harrison, Ph.D.
Environmental Coordinator
University of Hawaii at Manoa
Environmental Center
Crawford 317, 2550 Campus Road
Honolulu, Hawaii 96822

RE: Environmental Assessment (EA)
Owa Subdivision
Kahului, Maui
TMK: 3-8-07:38

Dear Dr. Harrison:

This is written in reply to your June 6, 1994 review of the Draft Environmental Assessment for the Owa Subdivision. We enclose a copy of the Final Environmental Assessment which will be submitted to the Maui County Planning Department on July 15, 1994.

A number of your concerns have been addressed in the Final EA document. We have followed the requirements for the EA as outlined in Title II, Sections 200 - 9, 10, DOH Administrative Rules.

Natural Hazards

Tsunami high hazard flood zone data on the site is shown in the Flood Zone Map included as EA/Fig. 3 and on Sheet Z-1, Site Plan. All living area floor elevations will be located above the 17 foot flood elevation. As indicated in the EA, the site has not been in any hurricane path in the past.

Archaeology

Your in-depth discussion of the Archaeological Inventory Survey prepared by Xamanek Researches has been reviewed. Upon consulting with County of Maui Planning Department personnel and our consultants, and reviewing other agency comments, we feel that the Survey is adequate for the purposes of the EA.

According to correspondence from Don Hibbard, Administrator of the State Historic Preservation Division of the Hawaii Department of Land and Natural Resources, addressed to Brian Miskae, Director of the Maui Planning Department and dated June 3, 1994, the State Historic Preservation Division had reviewed the Archaeological Survey report and found it acceptable (letter to W. Fredericksen, April 6, 1992).

The State Historic Preservation Division recommended that the following two conditions be placed upon the approval of the project to ensure "no adverse effect" to the significant historic site:

1. Prior to the initiation of vegetation grubbing, earthmoving, or excavation on the project site, a preservation plan for Site 50-04-3135 (Makaweli Rock Crusher) shall be submitted to the State Historic Preservation Division for review and approval.
2. Vegetation grubbing and all earthmoving activities on the project site shall be monitored by a qualified archaeologist. Should evidence of historic sites be located or uncovered during earthmoving or construction, activity in the area of the find will cease and the monitoring archaeologist will be provided sufficient time to assess the significance of the site and complete data recovery. At the completion of the monitoring, a report of findings and activities shall be submitted to the State Historic Preservation Division for review and approval.

The applicant has agreed to abide by these two requirements and will authorize Mr. Fredericksen to proceed with the preservation plan for Site 50-04-3135 and to be available to monitor all sitework activities.

Other Inadequacies

Comments from the many agencies involved in the review process of the Draft Environmental Assessment have been incorporated into the Final EA and bring to it the depth you felt was lacking in the Draft version. A Project Location map has also been included as EA/Fig. 1. This, in combination with other maps in the report provide a "suitable and adequate location and site map".

RIECKE
SUNNLAND
ARCHITECTS
LTD. KONO

Mr. John Harrison
July 11, 1994
Page 3 of 3

Summary

We feel that the Final Environmental Assessment document adequately evaluates the significance of potential environmental impacts of the proposed project and offers sufficient mitigative relief.

We appreciate your comments and trust that the revised EA will be satisfactory.

Sincerely,

Marie Kimmey, AIA

Marie Kimmey, AIA

MK/sgc

cc: Hideo Kawahara

\\word6\harrison.owa