William P. Kenoi
Mayor

Duane Kanuha
Director

Bobby Command
Deputy Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

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SEP 23 2015

County of Hawai'i
PLANNING DEPARTMENT

August 26, 2015

Jessica E. Wooley, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Ms. Wooley:

SUBJECT: **Final Environmental Assessment (EA)**
Applicant: **Towne Development of Hawai'i, Inc.**
Request: **Parcel 26 at Kahaluu – A Residential Project for Towne Development of Hawai'i**
TMK: **(3)7-8-010:004 & 7-8-014:013, Kahalu'u, North Kona, Hawai'i**

The County of Hawai'i Planning Department has reviewed the comments received during the 30-day comment period on the draft environmental assessment that ended on September 22, 2013. We have determined that the project will not have significant environmental effects and have issued a Finding of No Significant Impact (FONSI).

Please publish notice of availability for this project in the next available OEQC Environmental Notice. We have enclosed the following:

- One copy of the Final EA
- A CD containing the .pdf files for the EA and .doc file with the OEQC transmittal documents, including project summary
- A completed OEQC Environmental Notice Publication Form and associated material.

Please contact April Surprenant of this department at (808) 961-8131 if you have any questions.

Sincerely,

DUANE KANUHA
Planning Director

AJS:cs
P:\Wpwin60\CH343\2013\Towne Kahaluu\Parcel 26 At Kahaluu FONSI.Doc

Enclosures: Final EA (1 copy)
Completed OEQC Publication Form
Final EA and Project Summary (on disk)

cc ltr only: Mr. Ron Terry, Geometrician Associates

RECEIVED
'15 AUG 27 P2:41
OFC. OF ENVIRONMENTAL QUALITY CONTROL

APPLICANT ACTIONS
SECTION 343-5(C), HRS
PUBLICATION FORM (JULY 2012 REVISION)

Project Name: Parcel 26 at Kahaluʻu - A Residential Project for Towne Development of Hawaiʻi
Island: Hawaiʻi
District: North Kona
TMK: (3rd) 7-8-010:004, 7-8-014:013
Permits:

County of Hawaiʻi, Leeward Planning Commission, Special Management Area Major Permit
County of Hawaiʻi, Planning Department: Plan Approval
County of Hawaiʻi, Department of Public Works, Engineering Division: Grading Permit; Approval for Work Within County Right-of-Way
State of Hawaiʻi, Department of Health: Underground Injection Control (UIC) permits; National Pollutant Discharge Elimination System (NPDES) permits, Community Noise Control permits
County of Hawaiʻi, Department of Public Works: Building Permits
State of Hawaiʻi, Real Estate Commission, Condominium Property Regime Final Public Report

Approving Agency:

Hawai`i County Planning Department
101 Aupuni Street, Suite 3
Hilo HI 96720
Esther Imamura 808-961-8139

Applicant:

Towne Development of Hawaii, Inc.
220 S. King Street, Suite 960
Honolulu, Hawaii 96813
William L. Moore 808-987-7336

Consultant:

Geometrician Associates
PO Box 396
Hilo HI 96721
Ron Terry 808-969-7090

Status (check one only):

__DEA-AFNSI	Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day comment period ensues upon publication in the periodic bulletin.
_x_FEA-FONSI	Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov; no comment period ensues upon publication in the periodic bulletin.
__FEA-EISPN	Submit the approving agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov; a 30-day consultation period ensues upon publication in the periodic bulletin.
__Act 172-12 EISPN	Submit the approving agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov. NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
__DEIS	The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.

__FEIS	The applicant simultaneously transmits to both the OEQC and the approving agency, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqc@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
__ Section 11-200-23 Determination	The approving agency simultaneous transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the applicant. No comment period ensues upon publication in the periodic bulletin.
__Statutory hammer Acceptance	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it failed to timely make a determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and that the applicant's FEIS is deemed accepted as a matter of law.
__Section 11-200-27 Determination	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.
__Withdrawal (explain)	

Summary:
Towne Development of Hawai‘i, Inc., proposes a residential project with approximately 306 multi-family time share units on a 42-acre property known as Parcel 26, located mauka of Ali‘i Drive, in Kahalu‘u, Kona. The project will be developed as CPR units and sold as time share units, which depending on market conditions may be sold instead as whole units.The project includes internal utilities and driveways, swimming pools and recreational facilities, and landscaping. Connections to wastewater systems will occur on Ali‘i Drive.

There are no threatened or endangered plant species, with vegetation consisting mainly of introduced species. Implementation of already approved archaeological preservation preserve plans, data recovery, burial treatment and monitoring plans will mitigate impacts to historic sites. There is no known current use of the portion of the property proposed for development for gathering, ceremonial or other cultural purposes, and the project would not affect shoreline uses.

The three-story multi-family structures will not interfere with views to or from the shoreline, as the project site is situated in a topographic hollow behind one to four rows of properties already developed with one to four-story structures and mature landscaping. The required adherence to the Keauhou Village & Kahalu‘u Village Residential Design Guidelines will ensure conformance with the cohesive vision for the physical appearance of Keauhou and ensure high-quality, culturally vibrant and sustainable community development. Traffic on Ali‘i Drive will increase as a result of the project but congestion will not significantly increase. The project is not expected to have a negative impact on groundwater, coastal water resources or biology. The property is located outside the flood zone.

FINAL ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahaluʻu - A Residential Project For Towne Development of Hawaiʻi

TMK: (3rd) 7-8-010:004, 7-8-014:013
Kahaluʻu, North Kona District, Hawaiʻi Island, State of Hawaiʻi

September 2015

Prepared for:
County of Hawaiʻi
Planning Department
Aupuni Center, Suite 3
101 Pauahi Street
Hilo, Hawaiʻi 96720

FINAL ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahaluʻu - A Residential Project For Towne Development of Hawaiʻi

TMK: (3rd) 7-8-010:004, 7-8-014:013

Kahaluʻu, North Kona District, Hawaiʻi Island, State of Hawaiʻi

APPLICANT:

Christopher L. Lau, Executive Vice President
Towne Development of Hawaii, Inc.
220 S. King Street, Suite 960
Honolulu, Hawaii 96813
Chris.Lau@TowneHawaii.com

APPROVING AGENCY:

County of Hawaiʻi
Planning Department
101 Pauahi Street, Suite 3
Hilo HI 96720

CONSULTANT:

Geometrician Associates LLC
PO Box 396
Hilo HI 96721
rterry@hawaii.rr.com

CLASS OF ACTION:

Use of Land in Historic District

This document is prepared pursuant to:
The Hawaiʻi Environmental Policy Act,
Chapter 343, Hawaiʻi Revised Statutes (HRS), and
Title 11, Chapter 200, Hawaiʻi Department of Health Administrative Rules (HAR).

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APPENDIX 3 Cultural Impact Assessment
APPENDIX 4 Traffic Impact Analysis Report

SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Towne Development of Hawai‘i, Inc., is proposing to develop a residential project consisting of approximately 306 multi-family units on a 42-acre +/- property known as Parcel 26 located *mauka* of Ali‘i Drive, in the Kahalu‘u area of Kona on the Island of Hawai‘i. Driveway access will be from a separate lot on Ali‘i Drive. The project will be developed as Condominium Property Regime (CPR) units and will include internal utilities and driveways, amenities such as swimming pools and recreational facilities, and landscaping. The multi-family CPR units are currently proposed to be developed and sold as time share units, but depending on market conditions they may be sold as whole units. Connections to wastewater systems will involve work on a portion of Ali‘i Drive. Several archaeological preservation areas will be protected as part of the plan of development.

A botanical survey conducted on the project site found no threatened or endangered plant species, with vegetation consisting of introduced species except for several common roadside plants indigenous to Hawai‘i. Implementation of already approved archaeological preservation, data recovery, burial treatment and monitoring plans will mitigate impacts to historic sites. There is no known current use of the portion of the property proposed for development for gathering, ceremonial or other cultural purposes, and the project would not affect shoreline uses.

The three-story multi-family structures will not interfere with views to or from the shoreline, as the project site is situated in a topographic hollow behind one to four rows of properties already developed with one to four-story structures and mature landscaping. The required adherence to the Keauhou Village & Kahalu‘u Village Residential Design Guidelines will ensure conformance with the cohesive vision for the physical appearance of Keauhou and ensure high-quality, culturally vibrant and sustainable community development. Traffic on Ali‘i Drive will increase as a result of the project but congestion will not significantly increase. The project also offers a potential emergency evacuation route to La‘aloa Avenue via the Kahului to Keauhou Parkway right-of-way. The project is not expected to have a negative impact on groundwater, coastal water resources or biology. The property is located outside the flood zone. All construction will conform with County, State and federal regulations, including County drainage requirements.

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PART 1: PROJECT DESCRIPTION, LOCATION, AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Property Ownership and Project Location and Description

Towne Development of Hawai‘i, Inc. (Towne) is proposing to develop a residential project consisting of approximately 306 multi-family units on a 42-acre +/- property known as Parcel 26 (TMK: 7-8-010:004) located *mauka* of Ali‘i Drive, in the Kahalu‘u area of Kona on the Island of Hawai‘i (Figures 1-3). The project will be developed as Condominium Property Regime (CPR) units and will include internal utilities and driveways, amenities such as swimming pools and recreational facilities, and landscaping. The multi-family CPR units are currently proposed to be developed and sold as time share units, but depending on market conditions they may be sold as whole units. Connections to wastewater systems will involve work on a portion of Ali‘i Drive. Several archaeological preservation areas will be protected as part of the plan of development.

As a result of community discussions after the release of the Draft EA in 2013, the planned residential density has been reduced from the originally proposed 338 units (321 multifamily units and 17 single-family) to 306 units, which accommodates a buffer area around the Kahulamu family cemetery lot[1]. With the reduction in residential density as well as the establishment of a buffer area around the Kahulamu family cemetery, over 44 percent (18+ acres) of the total project area will be in permanent open space, including drainage, archaeological preservation and buffer area. An additional 13+ acres (31%) are planned for landscaping, including open yard areas.

Street and utility access will be through a new driveway created on a portion of TMK 7-8-014:013, a 0.36-acre lot between Parcel 26 and Ali‘i Drive. If and when the Kahului to Keauhou Parkway (formerly known as Ali‘i Highway) is constructed, that highway will become the major access to the development. The project will be provided with water, electrical, cable TV and telephone service from existing lines located within Ali‘i Drive. The project will connect to Keauhou Community Services, Inc.’s wastewater treatment plant at He‘eia.

The property is owned by Kamehameha Investment Corporation (KIC), a wholly owned subsidiary of Bishop Holdings Corporation (BHC). It is split-zoned for Resort (V-1.25), Multi-family Residential (RM-3.5) and Single-family Residential (RS-7.5), and the project is consistent with this zoning. The scale and density of the project match that found on many other properties in the Kailua to Keauhou area. The property is located in the Special Management Area (SMA), and an application for an SMA Major Permit will be undertaken after the Environmental Assessment (EA).

An important element of project design is conformance with the design guidelines developed by KIC/BHC for property developed within their holdings. Compliance with the *Keauhou Village &*

1 The environmental analyses for viewplanes, water quality, traffic, and other resources have considered the original higher density site plan in order to be conservative.

Figure 1a General Location Map

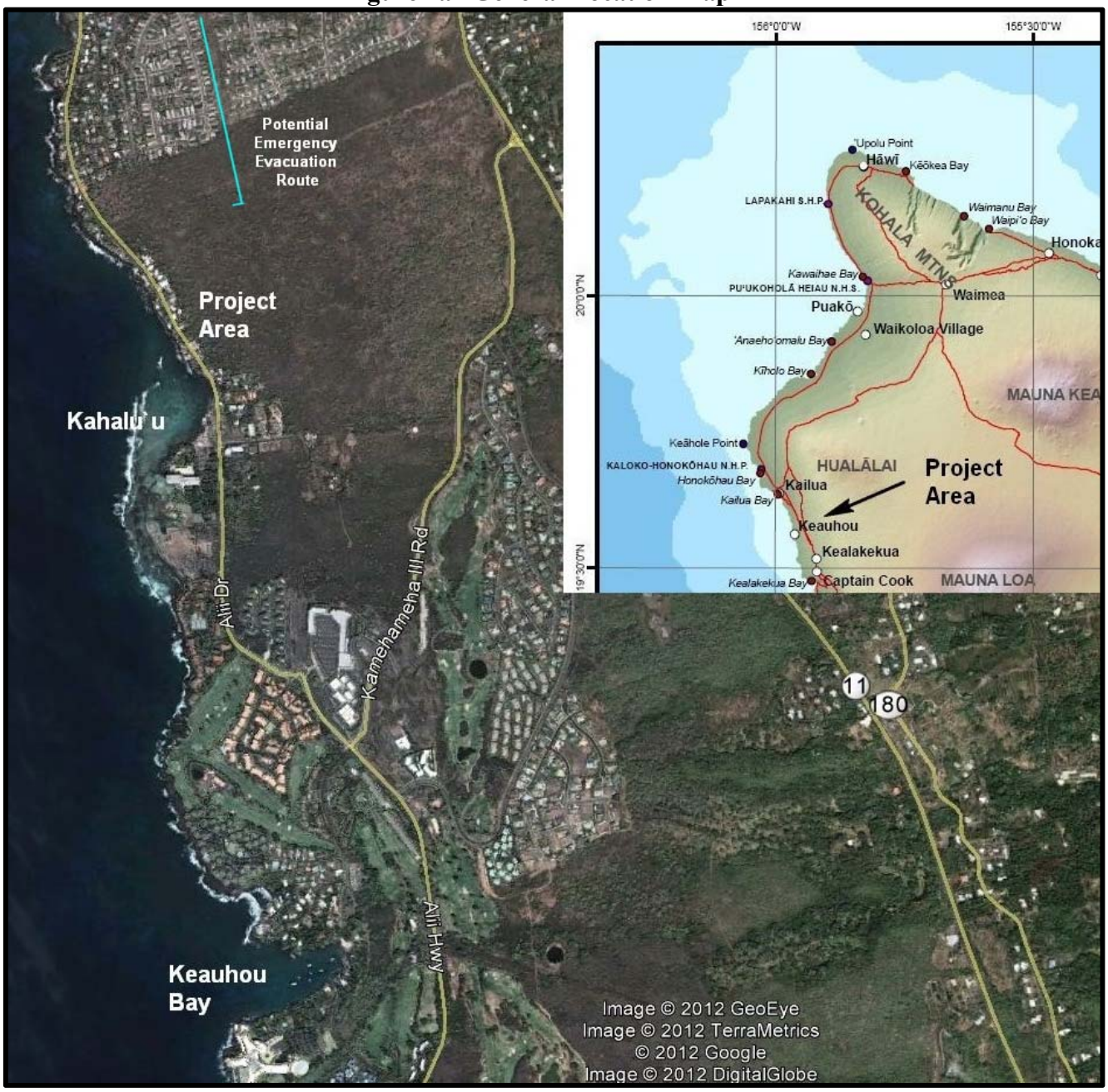

Figure 1b USGS Map

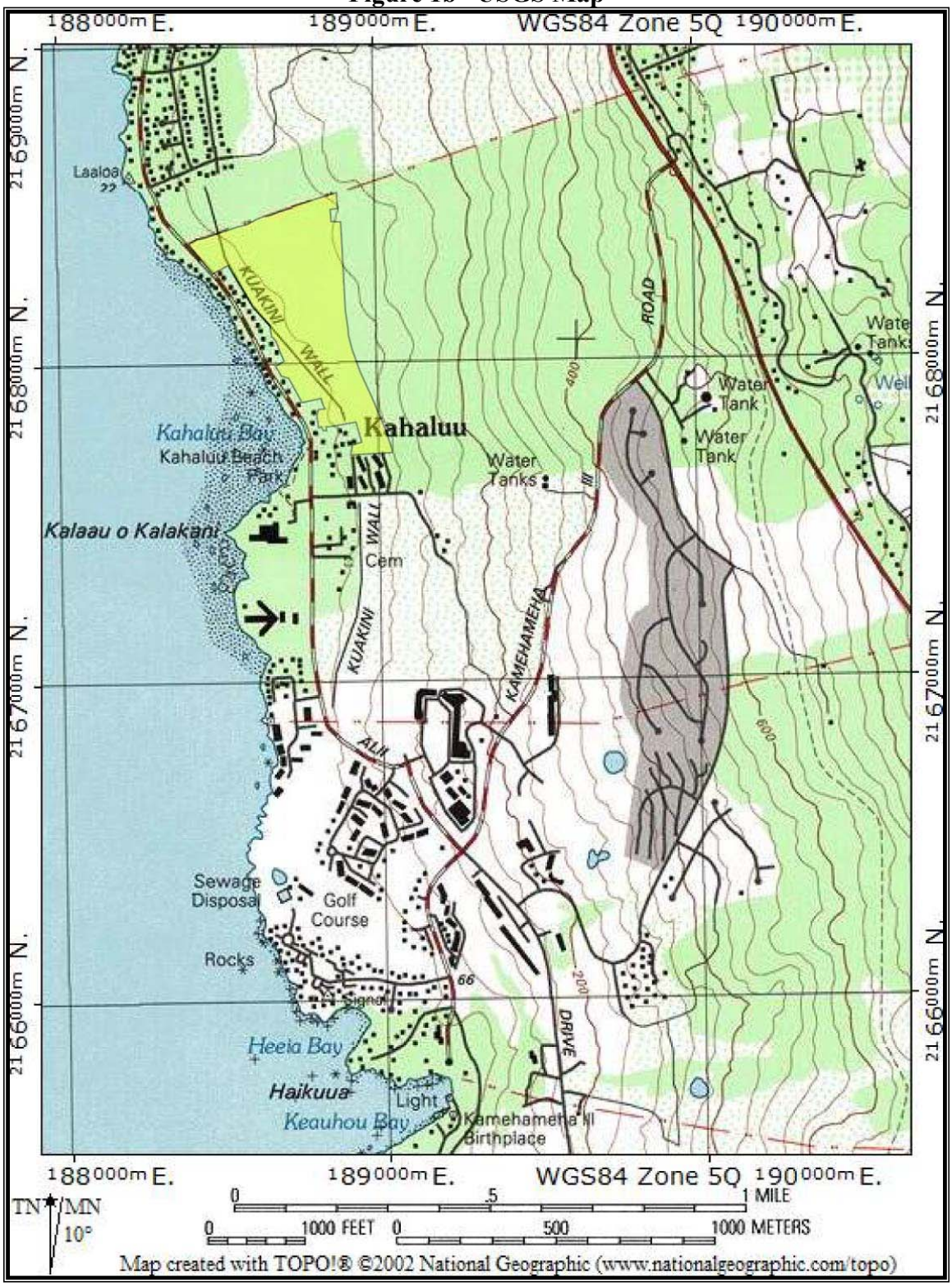

Figure 1c TMK Map

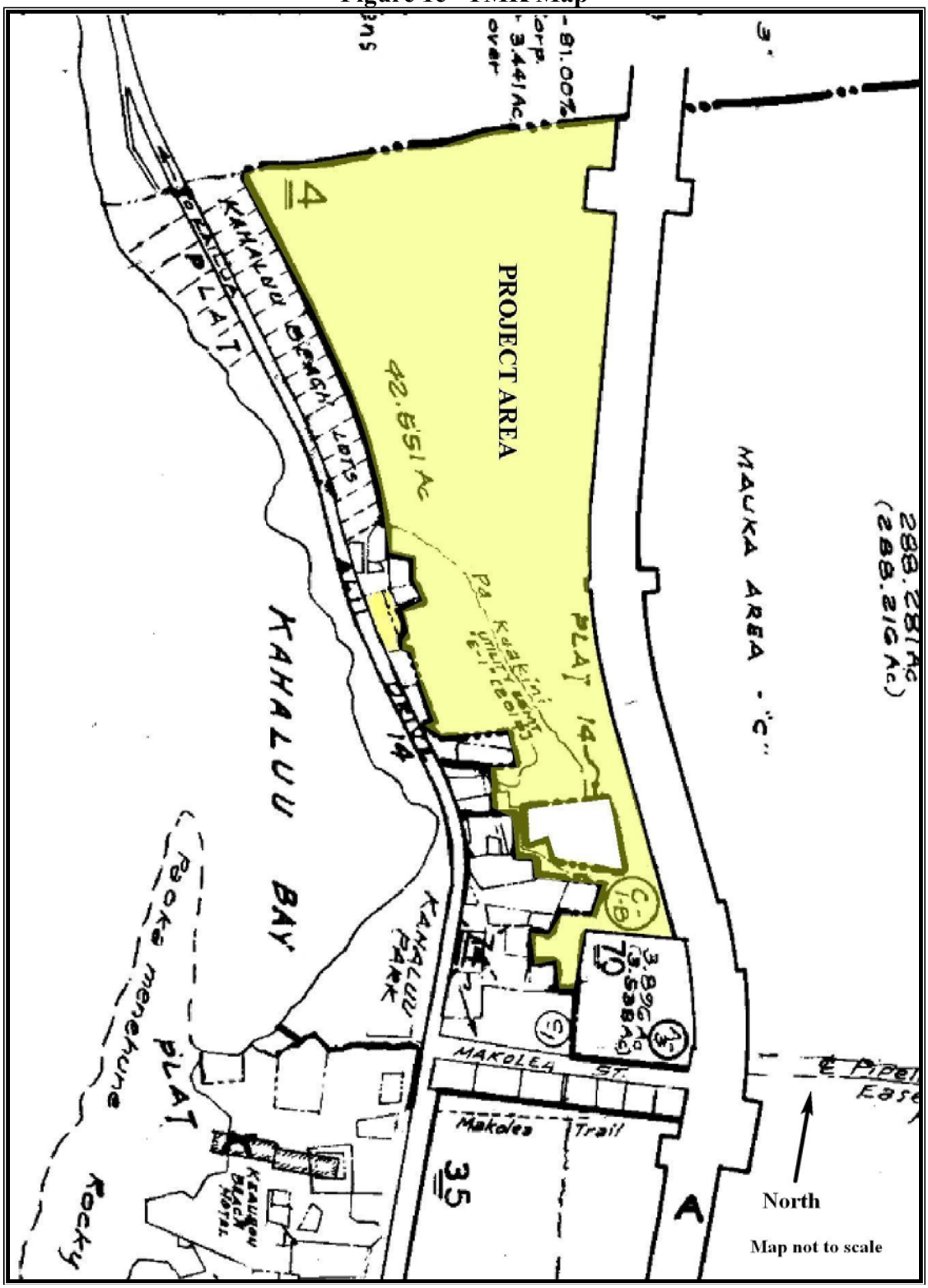

Figure 2 Project Site Photographs

2a Koa Haole Landscape Found on Project Site ▲ ▼2b Kahalu‘u Beach Park

Figure 2 Project Site Photographs

2c Typical Development Fronting Ali‘i Drive ▲
▼2d Project Site Lies Behind Kahalu‘u Bay and Ali‘i Drive Development

PROPOSED KAHULUI TO KEAUHOU PARKWAY

PROPOSED EMERGENCY ACCESS TO LAALOA AVENUE

MAKOLEA STREET

20' HELCO EASEMENT

20' HELCO EASEMENT

SITE 7874

SITE 11872

SITE 7875

SITE 7911

SITE 6302

SITE 7876

SITE 7905

SITE 7869

SITE 7903
SITE 11863

SITE 7871

SITE 6302

NORTH PRESERVATION AREA
SITES 7861 - 7868, 7901

ALI'I DRIVE

SITE 6302

KAHALU'U BEACH LOTS

KAHALU'U BAY

Master Plan

N

0' 50' 100' 200'

Scale 1" = 100' - 0"

8.16.15

LEGEND

- MULTI-FAMILY/ UNITS THREE STORY
- OFFICE/CLUB HOUSE POOL
- BUFFER AREA
- ARCHAEOLOGICAL PRESERVATION AREA
- DRAINAGE AREA
- PROJECT AREA

PROJECT CALCULATIONS

MULTI-FAMILY/TIME SHARE UNITS (CPR)	306
PARKING ON SITE	425
PARKING REQUIRED MULT-FAMILY/TIME SHARE	383

PROJECT INFORMATION

PROJECT TMK	TMK: (3) 7-8-10: POR 4
COUNTY ZONING	RS-7.5 & RM-3.5
GROSS ACRES	42.55

Riehm Owensby

PLANNERS
ARCHITECTS

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P.O. BOX 390747 KAILUA-KONA HAWAII 96739 TEL. 808-322-6115

Parcel 26 at Kahalu'u – A Residential Project for Towne Development of Hawai'i

At Kahalu'u, North Kona, Island & County of Hawai'i

Sheet No: A - 1.1

Exterior Elevations

0' 2' 4' 8'

Scale 1/4" = 1' - 0" 12.4.14

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Parcel 26 at Kahalu'u – A Residential Project for Towne Development of Hawai'i

At Kahalu'u, North Kona, Island & County of Hawai'i

Sheet No: A - 4.1

Kahaluʻu Village Residential Design Guidelines will help ensure that new residential development is consistent with the overall vision for the physical appearance of Keauhou and ensure quality, culturally vibrant and sustainable community development. New projects must undergo a design review process and incorporate Covenants, Conditions and Restrictions (CC&Rs) to ensure that designs conform to the resort community design philosophy. Summarizing and paraphrasing the guidelines, critical elements include:

- Protecting cultural significant sites and areas through professional archaeological surveys and carefully implemented plans approved by the State Historic Preservation Division.
- Disturbances to the natural character or topography of the lands within Keauhou will avoid significant impacts on Hawaiian cultural and spiritual elements. No natural lava formations shall be disturbed unless for approved finish landscaping, hardscape or construction. Natural ʻaʻa lava areas that are not improved are be left undisturbed during grading and construction.
- Grading of developable areas shall blend into existing grades along all property boundaries except where retaining walls are used.
- To encourage a gently sloping character, minimize site grading and maximize view potential, split-level and terraced construction are encouraged where appropriate.
- Drainage patterns will be designed so that the natural flow of surface water is maintained and dispersed without causing erosion or damage to developed areas and adjacent properties.
- There shall be landscaped setbacks from the property line along roadway frontages.
- Keauhou will be a relatively low-density resort and residential community with an abundance of open space. Natural open spaces and density buffers will be prominent throughout Keauhou and be utilized to protect significant cultural features, maintain the rural character of mauka areas and sustain prominent makai view corridors.
- Residential clusters are to be separated by open space corridors that contribute to an overall connectivity of open areas across the Resort Community. "No-Build" buffer areas shall be left undisturbed with no structures or alterations of any kind. These areas are intended to protect surrounding residences from construction noise and visual impacts and to protect designated cultural sites from disruption.
- Exterior lighting is to provide a nighttime environment pleasant to visitors and residents and highlight the surrounding landscape in soft muted lights. Bright direct lighting will be avoided. Exterior lighting shall conform to the Hawaiʻi County lighting ordinance, which is intended to mitigate atmospheric glare affecting Island observatories.
- All permanent electrical power and telephone lines, water and wastewater pipelines and other utility lines in Keauhou shall be installed underground. All sewage hookups shall be to the Heʻeia Wastewater Treatment Plant located at the Kona Country Club Golf Course.
- Architectural design within Kahaluʻu Village and Keauhou Village will combine harmoniously with the natural terrain and ocean orientation of Keauhou through individual expressions of architecture of traditional or contemporized Hawaiian styles. Incorporation of this approach may involve homes with dual or split-pitch roofs, generous use of natural materials, and provisions for generous outdoor spaces such as patios, courtyards, and lanais.

- Residential structures at Keauhou will be designed appropriately to assist in perpetuating a unique and sustainable sense of place. Dwelling design shall reflect the tropical island lifestyle, climate and natural beauty of the land with residences configured to preserve view corridors and to avoid the appearance of a wall when viewed from adjacent properties and at a distance. Designs will incorporate varied building heights, rooflines and projections with special attention paid to roof characteristics and materials.
- Lot coverage area shall not exceed 35% of the land area for single-family residential and 50% of the land area for multi-family residential lots. Lot coverage area includes building footprints, parking lots, pools, paved paths or other impervious surfaces.
- All building materials will reflect a high standard of quality appropriate to Keauhou. Natural materials should be favored over manufactured materials when possible.
- The color palette for residential structures shall be of harmonious composition to integrate with the surrounding natural landscape. Subtle earth colors and tones shall be used, with accents of brighter colors for architectural features.
- All residential developments at Keauhou are subject to the Hawai‘i Model Energy Code to ensure the application of cost-effective design practices and technologies which minimize energy consumption without sacrificing the comfort or productivity of the occupants, including Lighting, Heating, Venting and Air Conditioning (HVAC), Hot Water, and Energy Management. To the extent practicable and aesthetically reasonable, residences are encouraged to use solar water heating equipment, and solar heating and photovoltaic panels are to be integrated into the roof design.
- The landscape design of the public areas will use of native Hawaiian and Polynesian-introduced plants which are naturally occurring, adapted to the environment, have lower watering requirements, and are lower maintenance.
- Lava fields are to be protected and left undisturbed as much as possible. Disturbed edges of lava areas will be re-naturalized to help transition these lava areas to the landscaped, developed areas. Lava rocks and boulders in varying shapes and sizes may be used to blend these areas by creating gradual, natural-appearing transitions.
- For parking lots, trees will be provided to provide shade for at least 50 percent of the parking lot.

In addition to the required adherence to the *Keauhou Village & Kahalu'u Village Residential Design Guidelines*, Ordinance 820, which changed the zoning district of the property in 1982, requires that the siting and development of all projects shall be in compliance with the guidelines outlined in the report entitled *Comprehensive Design Principles for Keauhou Kona*, dated December 1980. Although this design document was internal to KIC and not a government plan, and has since been superseded by the *Keauhou Village & Kahalu'u Village Residential Design Guidelines*, the project is also in compliance with the earlier design guidelines. Specifically, the following were identified as priority principles:

- Prominent outcrops of lava rock should be preserved and incorporated wherever possible into landscape schemes to emphasize the natural topography of the area. Landscaping is to be simple, using broad masses of a few selected flowering species for color. Landscaping

should be installed concurrently with development. Of particular concern will be the early beautification and landscaping of major collector roads and intersections such as the Kamehameha III roadway and Ali‘i Drive. Finally, landscaping will serve as a buffer, where required, between uses.

- The Kamehameha Investment Corporation encourages the development of individual identities for the separate project areas at Keauhou. However, the objective is to create a desirable environment within the framework of Keauhou’s overall resort identity, quality, and continuity of style. Towards this end, a Project Review Board will have the responsibility of reviewing the physical development of Keauhou. Their responsibility will be to ensure conformance with the comprehensive design principles and standards presented herein.
- Sites of minor archaeological importance will be retained wherever possible in areas not directly impacted by major development or not otherwise affected.
- The timely maintenance of both private development areas and public spaces shall be ensured. Each project owner will be responsible at all times for keeping the buildings and premises clean and neat. All laws, ordinances, and regulations pertaining to health and safety shall be complied with, including those concerning the removal of trash and rubbish from the premises. All landscaping shall be irrigated regularly. Any unsightly refuse such as weeds or dry plant materials should be removed. KIC shall retain the right of access to private property required to clean up unsightly areas and shall assess negligent owners for the costs of such maintenance.

Pertinent development concepts and comprehensive design standards pursuant to the above principles included:

- *Master Plan*. This graphic plan element allocated undeveloped areas to various uses, including open reserves, historic parks, plant nurseries, golf courses, residential, resort-hotel, and commercial. The project site was identified as residential, which is consistent with the proposed use.
- *Circulation*. The primary circulation plan consisted of arterials, collectors, neighborhood streets, and pedestrian/bicycle pathways. This plan has since been superseded by County plans that have designated such roads, including the Kahului-Keauhou Parkway, which the 1980 Plan did not envision.
- *Landscape*: The primary concept was to preserve the informal character of the site and to accent its inherent natural beauty. The use of color based on a few selected flowering species was emphasized. Prominent outcrops of lava rock shall be preserved and incorporated into landscape schemes. Other important visual attributes of Keauhou-Kona are the wide panoramic views of the shoreline and ocean. Particular attention shall also be given to establishing appropriate settings for various types of development, relating building masses to the scale of the landscape, and developing contrasts between concentrated activity areas and informal tropical settings. Major landscape features were to be planned to coincide with land use organization and open space patterns, and elements such as wind control, shade, buffer and screen areas shall relate to adjacent land uses. These elements have been

incorporated, where appropriate and feasible, into the development plan. The *Comprehensive Design Principles for Keauhou Kona* described landscape details for specific use areas, including road intersections, golf courses, parking lots, major streets, private roads, historic sites, parks, and fringes. The landscape plan for the residential development is consistent with this, with the proviso that some of plant palettes listed in the 1980 plan incorporated plants now considered invasive and inappropriate for planting.

- *Architectural.* Although the principles stated that each project's individual identity and visual separation will be encouraged, its design should fall within the framework of the total development so that an overall resort identity will be maintained. Architectural forms should respond to the topography, climatic conditions and views of each site; the buildings should visually intrude as little as possible on the natural landscape. Although building design is to take into consideration the typical characteristics of the Hawaiian climate, contrived Hawaiian styles, decorations, and ornaments must be avoided. Further, a well-balanced relationship between buildings and the people using them should be achieved to create a warm and friendly atmosphere conducive to social interaction. The current design, which provides attractive, low-key architecture and landscape buffers to adjacent uses and virtually no interference with key view corridors, would satisfy this goal. Site standards for uses varying from refuse containers to exterior lighting were listed; no element of the proposed design would run contrary to such standards.
- *Utilities and Drainage*. Specifications for water systems, wastewater collection, undergrounded electrical utilities, drainage studies and facilities were detailed, and all such specifications are met in the proposed design.

1.2 Environmental Assessment Process

According to Hawai‘i's Environmental Impact Statement law (Chapter 343, Hawai‘i Revised Statutes [HRS]), an Environmental Assessment (EA) is required for actions (programs or projects) that "propose any use within any historic site as designated in the National Register or Hawai‘i Register"). Because most of the project site is situated within the Kahalu‘u Historic District, which is listed on the Registers, an EA is required.

This EA process is being conducted in accordance with HRS Chapter 343. This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai‘i Administrative Rules (HAR), is the basis for the environmental impact process in the State of Hawai‘i. According to HRS Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria.

Part 4 of this document states the findings that no significant impacts are expected to occur; Part 5 lists each criterion and presents the preliminary findings for each made in consultation with the County of Hawai‘i Planning Department, the approving agency. If, after considering comments to the Draft EA, the approving agency concludes that, as anticipated, no significant impacts would be expected to occur, the agency will issue a Finding of No Significant Impact (FONSI), and the action

will be permitted to occur. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, an Environmental Impact Statement (EIS) will be prepared.

1.3 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the environmental assessment:

State:

Department of Land and Natural Resources
Department of Health, Environmental Planning Office
Hawai‘i Housing Authority
Office of Hawaiian Affairs, Honolulu and West Hawai‘i
State Historic Preservation Division

County:

Civil Defense Agency
County Council
Department of Public Works
Department of Environmental Management
Department of Parks and Recreation
Department of Water Supply
Fire Department
Planning Department
Police Department

Private:

Sierra Club, Moku Loa Group
Kona Hawaiian Civic Club
Kona Outdoor Circle
Kona-Kohala Chamber of Commerce
39 Adjacent Property Owners

Copies of communications received during early consultation along with selected additional correspondence are contained in Appendix 1a. Comments to the Draft EA and responses to these comments are contained in Appendix 1b. Various places in the EA have been modified to reflect input received in the comment letters; additional or modified non-procedural text is denoted by double underlines, as in this sentence.

PART 2: ALTERNATIVES

2.1 Proposed Project

As described in detail in Section 1 and depicted in Figures 3a-b, the *proposed project* consists of development of approximately 306 multi-family units on the 42-acre +/- Parcel 26 property, with driveway access through a separate lot on Ali‘i Drive. The project will be developed as Condominium Property Regime (CPR) units and would include internal utilities and driveways, amenities such as swimming pools and recreational facilities, and landscaping. Several archaeological preservation areas will be protected as part of the plan of development.

2.2 No Action

Under the No Action Alternative, development of the property would not occur. This would avoid any adverse environmental impacts related to the development. It would also preclude benefits including housing, jobs, income, and tax revenues associated with the development. The No Action Alternative forms the baseline against which environmental impacts associated with the proposed action are measured.

2.3 Alternatives Evaluated and Dismissed from Further Consideration

The purchase agreement between Towne and KIC/BHC requires that any development within the project site be consistent with the existing zoning and the overall master plan for the Keauhou area. Towne has reviewed the option of developing the project site as a single family residential subdivision. However, the RM and V zoned areas require a minimum lot size of 7,500 square feet and 15,000 square feet, respectively. With the limitations on usable areas in order to protect the historic sites, the single family residential development option was determined to not be feasible based on the potential reduction in unit count in relationship to the land value and development cost.

Towne Development does not envision any other development scenarios that could reasonably satisfy its objectives and vision for the property, and therefore none are advanced or analyzed.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The 42.551-acre Parcel 26 property (TMK 7-8-010:004), as well as a portion of the property owned by the 0.36-acre Alex H. and Helen L. Pollak Trust (TMK 7-8-014:013), which will be acquired to provide driveway access to Ali‘i Drive, are referred to jointly throughout this EA as the *project site*. The term *subject area* is used to describe the general environs in this area of Kona.

The project site is located in the *ahupua‘a* of Kahalu‘u. It extends from about 12 to about 104 feet above sea level, *mauka* of Ali‘i Drive and Kahalu‘u County Beach Park. Except for the vacant Pollak property, there are between one and four rows of single family homes and condominiums between the property and Ali‘i Drive (see Figures 1-4). Nearby land use is primarily single and multi-family residential. The one hotel in the area, the Keauhou Beach Resort, has been closed and is slated for demolition by the landowner, Kamehameha Schools, with the property to be used for cultural and educational purposes.

The surface of the project site has seen limited disturbance from ranching and it still contains a number of archaeological sites, many of which have been determined by the State Historic Preservation Division to be significant for preservation and which will be preserved, along with the documented burials on the property, as part of the development plan (see Figure 3a).

3.1 Physical Environment

3.1.1 Climate, Geology, Soils and Natural Hazards

Environmental Setting

The climate in the subject area is mild and arid, with a mean annual rainfall of about 40 inches and a mean annual temperature is 75 degrees (UH Hilo-Geography 1998:57). Geologically, the project site is located on the flanks of Hualalai Volcano. The surface of the project site consists of a pahoehoe lava flow from about 10,000 years before the present (Wolfe and Morris 1996).

The project site soil is classified by the U.S. Natural Resources Conservation Service (formerly Soil Conservation Service) as Punaluu Extremely Rocky Peat. This soil is rapidly permeable in the peat layer but very slowly permeable within the pahoehoe. Because of rapid water movement through cracks, it generally has slow runoff and slight erosion hazard. It is in Capability Subclass VIIs, which is often considered unsuitable for cultivation but may have small areas in coffee, macadamia nuts, and other crops (U.S. Soil Conservation Service 1973). It is not classified as Important Agricultural Land in the Agricultural Lands of Importance in the State of Hawai‘i maps, and the Land Study Bureau does not classify the land for reasons of urban development.

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the U.S. Geological Survey at the project site is Zone 4, on a scale of ascending risk from 9 to 1 (Heliker 1990:23). The hazard risk is based on the fact that Hualālai has steep slopes and is the third most historically active volcano on the island. Volcanic hazard Zone 4 areas have about 5 percent of their land area covered by lava or ash flows since the year 1800 and less than 15 percent of their land area covered by lava in the past 750 years. They are at lower risk than Zone 3 areas because the frequency of Hualālai eruptions is lower than that of Kilauea or Mauna Loa. In terms of seismic risk, the entire Island of Hawai‘i is rated Zone 4 Seismic Hazard (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

While the project site is not subject to tsunami inundation according to the Flood Insurance Rate Map (see Section 3.1.2), most of the project site, including the proposed access on Ali‘i Drive, is within a tsunami evacuation area. Pacific Tsunami Warning Center and County Civil Defense Agency maps indicate that all area *makai* and some area directly *mauka* of Ali‘i Drive should be evacuated during tsunami warnings (http://www5.hawaii.gov/tsunami/maps.asp). Large extents of Hawai‘i Island, including parts of the Kahalu‘u area, have been struck by highly destructive tsunami in historic times. The April 1, 1946 tsunami had a runup in the Keauhou-Kahalu‘u area of as high as 13 feet above sea level (U.H. Hilo-Geography 1998:77). The March 11, 2011 tsunami caused some damage at Kahalu‘u Beach Park.

The National Weather Service of the National Oceanic and Atmospheric Administration operates the Pacific Tsunami Warning Center and Alaska Tsunami Warning Center, which monitors sudden earth movements throughout the Pacific Basin. A tsunami from earth movements in South America would allow for as much as 15 hours warning time and events in the Aleutian Islands, 4.5 hours, providing sufficient time for evacuation of island residents. Warning sirens are present in several locations nearby and are readily audible at the project site. The Hawai‘i County Civil Defense Agency recommends that residents in areas of the island where sirens are not audible sign up for mobile alerts. Sudden movement along faults close to Hawai‘i are unpredictable, and would allow for a few minutes to perhaps an hour of warning time, and evacuation would be more problematic.

Wildfire is also of concern in this part of North Kona, where fires started by arson, motor vehicles and firecrackers may burn in brushy areas such as the project site and areas upslope.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the area, and the proposed action is not imprudent to construct. Appropriate seismic standards would be followed during any building construction, per building codes

As shown in Figure 3a, the minimum current elevation for all proposed residential structures is 15 feet above sea level, with the great majority at 30 feet in elevation or higher. This would prevent

exposure to any tsunami of the scale experienced in human history, although residents would be obliged to leave the area during evacuations. Towne is working with the County concerning the possible establishment of an emergency access route from the project to La‘aloa Avenue via the Kahului to Keauhou Parkway right-of-way (see Figure 1a). If established, the route would provide an alternative *mauka/makai* access for use during times of emergency. Subject to approval by the County of Hawai‘i, Towne is willing to provide an unpaved route upon occupancy of the first unit within the RM/V zoned lands. Towne would improve this emergency access route with a 10-foot wide asphalt concrete pavement upon occupancy of the 100th residential unit with the RM/V zoned lands.

The potential for wildfire during construction will be addressed by including contract conditions that require the contractor to adhere to construction practices that reduce the likelihood of fire, including prohibiting smoking during landclearing construction, strict fuel storage and refueling protocol, and creation of temporary fuel breaks when and where appropriate, particularly if working during the winter dry season. Upon development of the project, the landscape areas and road/ driveway improvements will provide additional protection against wildfire for the development and surrounding areas.

3.1.2 Drainage, Water Features and Water Quality

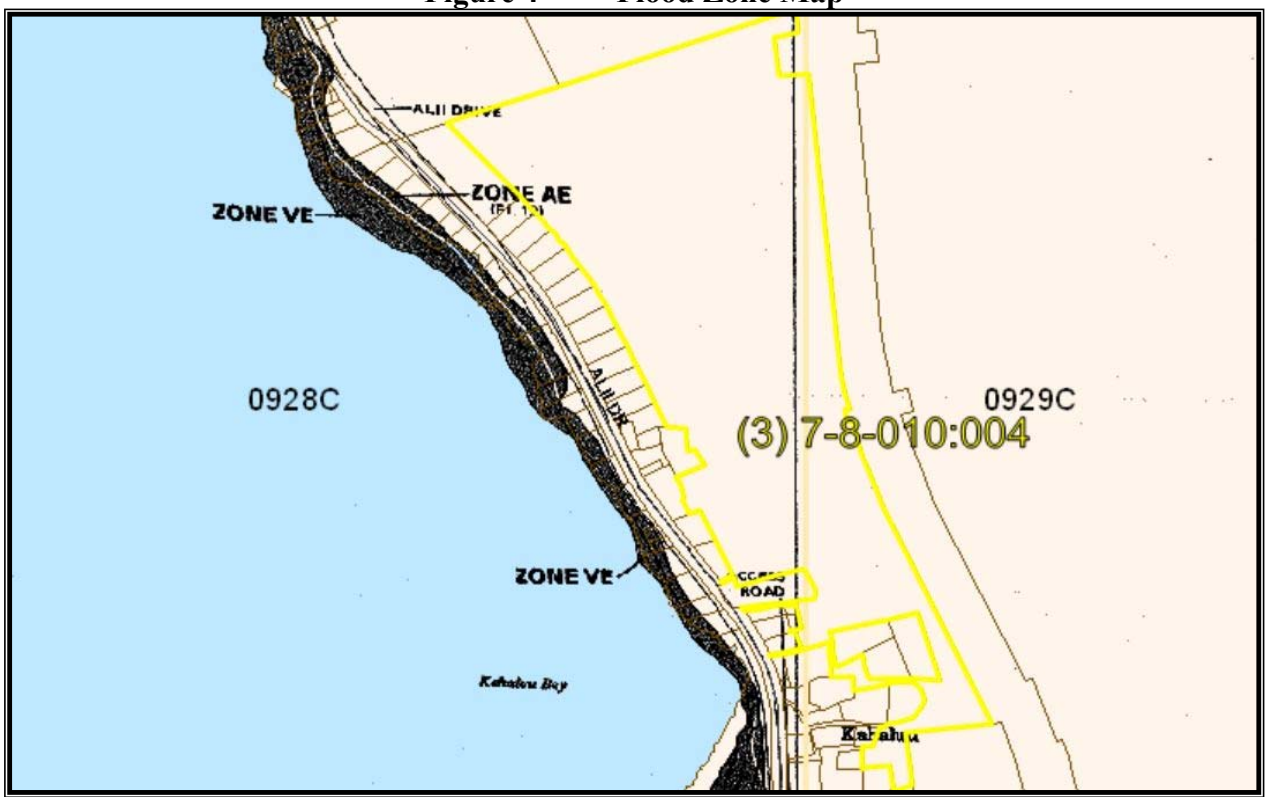
Existing Environment

The subject area has no perennial freshwater bodies, as the lava landscape is too young to have formed overland drainages. Flooding is thus confined to the shoreline areas during storms and tsunami. The Federal Emergency Management Agency’s Flood Insurance Rate Map (FIRM) FM1551660929C (6/2/1995) indicates that the entire project site is in Flood Zone X, outside of the 500-year floodplain (Figure 4). The project site is *mauka* of the existing VE designated zone, which includes areas subject to coastal flooding from wave action.

The County is currently updating the FIRM maps. The proposed revisions include an 18-foot base flood elevation for the VE zone in the areas *makai* of the project site. While a small portion of the project site may be situated within the revised VE zone, no residential or related structures are proposed within this area. In any event, all applicable requirements related to flood hazard will be complied with as part of the development activities.

Marine Research Consultants performed an evaluation of existing nearshore water chemistry and biology in the Kahalu‘u area *makai* of the project site as well as an assessment of impacts from the proposed project. The report, which also incorporated research from Tom Nance Water Resource Engineering, is included as Appendix 2 and briefly summarized below. [The marine biotic community was also analyzed based on fieldwork carried out in association with the water quality research, as described below in Section 3.1.3.]

Figure 4 Flood Zone Map



Source: http://gis.hawaiinfip.org/fhat/

Water chemistry samples were collected in August 2012 from three transect survey sites oriented perpendicular to the shoreline, generally at two depths. Water samples were taken from 11 to 14 locations on each transect. In addition, samples were taken from five wells located *mauka* of the project site.

These samples were assessed for the water quality parameters included in the Hawai‘i State Department of Health (DOH) Water Quality Standards, including: (i) total dissolved nitrogen (TDN); (ii) nitrate + nitrite nitrogen (NO_3^-); (iii) ammonium nitrogen (NH_4^+); (iv) total dissolved phosphorus (TDP); (v) orthophosphate phosphorus (PO_4^{-3}); (vi) Chlorophyll a (Chl *a*); (vi) turbidity; (vii) temperature; (viii) pH; (ix) salinity; and (x) silica (Si). Silica was reported because this parameter is a sensitive indicator of biological activity and the degree of groundwater mixing.

Several dissolved nutrients (Si, NO3-, PO43-, TN and TP) displayed strong horizontal gradients at all three transect sites, with the highest values closest to shore and the lowest values at the most seaward sampling locations. Correspondingly, salinity was lowest closest to the shoreline, and increased with distance from shore. These patterns are indicative of groundwater efflux at the shoreline, producing a zone of mixing where nearshore waters are a combination of ocean water and groundwater. During the August 2012 sampling, physical forces (waves) were minimal, resulting in

a surface layer of low salinity-high nutrient water that was detectable throughout the sampling range.

The mix of groundwater and ocean water creates a buoyant surface lens of low salinity, high nutrient water that is evident throughout the nearshore waters fronting the project site. Water chemistry constituents that are not major components of groundwater (TON, TOP) did not display discernible gradients with respect to distance from the shoreline, or depth in the water column. Chl a and turbidity were generally elevated in nearshore samples with decreasing values moving seaward.

The western shore of the Island of Hawai‘i has area specific water quality standards under Hawai‘i Administrative Rules §11-54-6(d) of DOH. The major difference between these specific criteria and the general criteria for open coastal waters for the rest of the State is the consideration that high nutrient groundwater mixes with oceanic water within the nearshore zone. As a result, area-specific criteria for nutrients that occur in high concentrations in groundwater relative to ocean water (NO_3^-, TDN, PO_4^+, and TDP) are evaluated differently depending on salinity. In areas where nearshore marine water salinity is greater than 32‰ (parts per thousand), specific criteria for geometric means apply. Geometric means are calculated at each sampling station by using three values collected on three sampling dates spaced within a 14-day period. For samples with salinity below 32‰, compliance with the DOH criteria is defined by the slope of the regression line of the nutrient concentration as a function of salinity.

Application of a hydrographic mixing model to the water chemistry data was used to indicate if increased nutrient concentrations are the result of mixing of natural groundwater with oceanic water, or are the result of inputs from activities on land. For technical details on how the sample data were analyzed in conformance with these models, the reader is referred to Appendix 2. The model indicates that at the time of sampling there was a substantial external subsidies of NO3- nitrogen to the ocean at Transect 2 and 3 within Kahalu‘u Bay. This subsidy represents an increase of NO3- on the order of 18-30% of natural groundwater. Similar subsidies of NO3- were not evident at Transect 1. There is a small input of PO4-3 from activities on land that subsidize groundwater nutrient concentrations at Transect 1, but not at Transects 2 and 3.

Evaluating water chemistry from the single sampling in August 2012 using DOH area specific criteria for West Hawai‘i and applying the mixing criteria specified for water with salinity less than 32‰ indicates that that NO3- exceeds the criterion at Transects 2 and 3. However, using the mixing criteria, TN, PO4-3 and TP are out of compliance at all three transects. To actually apply the DOH area-specific standards, three samplings are required during a fourteen day period. Should future sampling require compliance with the specific criteria specified for West Hawai‘i, the data collected during this baseline assessment can provide an indication of existing conditions prior to any construction activity related to the proposed residential project on Parcel 26.

Research for the water quality report by Tom Nance Water Resources Engineering (TNWRE; second report in Appendix 2) evaluated existing groundwater conditions as well as impacts.

There is significant existing groundwater discharge off the southern end of the project site, within Kahalu‘u Bay, on the order of 2 million gallons per day. However, this input is limited in distribution to a narrow zone that extends less than 50 meters from the shoreline. In addition, the input of groundwater is contained in a surface lens that has limited contact with the reef surface.

Impacts and Mitigation Measures: Short-Term

Construction has the potential to produce uncontrolled excess sediment from soil erosion during and after clearing and excavation that may impact natural watercourses, water quality and flooding. Contaminants associated with heavy equipment and other sources during construction can impact surface water and groundwater if not mitigated effectively. In order to minimize the potential for sedimentation and erosion of shoreline areas, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai‘i County Code.

Because infrastructure development for the project will disturb more than one acre of soil, a National Pollutant Discharge Elimination System (NPDES) permit must be obtained by the contractor before the project infrastructure construction commences. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the project. These BMPs may include, but will not be limited to, the following:

- Minimization of soil loss and erosion by revegetation and stabilization of slopes and disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences, gravel bags, sediment ponds, check dams, and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Phasing of the project in order to disturb a minimum necessary area of soil at a particular time;
- Application of protective covers to soil and material stockpiles;
- Construction and use of a stabilized construction vehicle entrance, with designated vehicle wash area that discharges to a sediment pond;
- Washing of vehicles in the designated wash area before they egress the project site;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel; and
- Clean-up of significant leaks or spills and disposal at an approved site, if they occur.

Impacts and Mitigation Measures: Long-Term

To mitigate for impacts to drainage, culverts are expected to be emplaced in two locations on the property. Preliminary engineering indicates that the 100-year discharge at one location is 2,766 cubic feet per second (cfs) and 270 cfs at the other. These quantities will be re-examined as part of final engineering, and the design and sizing of the culverts and/or other drainage mitigation measures will be coordinated with the Department of Public Works.

To evaluate long-term water quality impacts, Tom Nance Water Resources Engineering estimated changes to groundwater flux and composition that might result from the project and thus alter the chemistry of marine waters. The project may have an impact on groundwater as a result of: 1) withdrawal of groundwater from the County Department of Water Supply wells for the project's potable uses and landscape irrigation; 2) disposal of domestic wastewater generated by the project; 3) collection and disposal of storm water runoff in onsite drywells; and 4) percolation of excess landscape irrigation water to the underlying groundwater. Changes in groundwater quantity and quality for each of these four components were estimated.

Pumpage from Department of Water Supply wells would reduce groundwater flow to the ocean by about 0.136 MGD (million gallons per day), resulting in decreased discharge to the ocean of 1.41 pounds per day of nitrogen and 0.186 pounds per day of phosphorus. Percolating landscape irrigation would result in an increase in groundwater flowrate to the ocean of 0.0045 MGD and an addition of 0.56 pounds per day of nitrogen, and 0.007 pounds per day of phosphorus. Rainfall and surface runoff from impervious surfaces will be directed into dry wells for disposal, with the runoff ultimately reaching the underlying groundwater. No runoff will cross Ali‘i Drive and move toward the shoreline as surface runoff. There will be little or no change to existing groundwater quality from the percolation of rainwater falling directly on the project site.

The analysis indicated that there will be a potential decrease in groundwater flow of 6.6% over present conditions along the coastal segment off the project site. Accompanying the decrease in flow rate would be relatively small decreases in nutrient loading of 2.9% and 8.0% for N and P, respectively. These decreases are of such a small magnitude that it is likely that there will be no detectable changes in nearshore waters. However, the elevation in NO3- of 18-30% measured during the water quality sampling within Kahalu‘u Bay as compared to normal Kona background conditions may be mitigated in part by the projected decreases from the proposed residential project on Parcel 26. In any event, the region of nearshore waters where nutrient subsidies from land occur are so restricted in horizontal and vertical extent that there is little likelihood that the changes in concentrations will result in any changes in water quality beyond several meters of the shoreline. As a result, nutrients and other dissolved materials present in groundwater have little potential for producing any negative or positive effects to the marine community. The lack of any such effects is evident in coral community structure which can be considered essentially pristine, as discussed in Section 3.1.3, below.

Overall, results of the water chemistry analysis indicate little or no potential for substantial project-related adverse impacts to marine waters off the project site. Changes in land use associated with the proposed residential project on Parcel 26 should not change water quality of the offshore area to any discernible extent.

3.1.3 Flora, Fauna and Ecosystems

A botanical survey of the project site was conducted by Ron Terry, Ph.D. in September 2012, the results of which are presented below. Marine Research Consultants performed an evaluation of existing nearshore water chemistry and biology in the Kahalu‘u area as well as an assessment of impacts. The report is included as Appendix 2 and briefly summarized below and in the previous section.

Existing Biology: Flora

As is typical of the region, the property is thickly covered with alien vegetation. Virtually the entire site is dominated by a low forest of scattered *koa haole* (*Leucaena leucocephala*), with a variable understory composed mainly of pigweed (*Portulaca oleracea*) and/or guinea grass (*Panicum maximum*), plus a variety of other herbs, vines and shrubs. Scattered *kiawe* (*Prosopis pallida*), *opiuma* (*Pithecellobium dulce*) and occasional monkeypod trees (*Samanea saman*) protrude above the low canopy of *koa haole*.

A full botanical survey was conducted despite the known domination by alien plants because of the documented presence, within one mile and at similar elevations on a substrate of ‘a‘a, of rare plants such as *‘ohe makai* (*Reynoldsia sandwicensis*) and *maiapilo* (*Capparis sandwichiana*) (Geometrician 2004). The Kahalu‘u site substrate is pahoehoe rather than ‘a‘a, and native plants are much scarcer. Only one native plant, the herb *‘uhaloa* (*Waltheria indica*), is present in areas such as the HELCO easement that are kept open and experience light ground disturbance. All plant species observed in the survey are listed in Table 1 below, which excludes some informal plantings and escapes from cultivation that are found only on the border or residential properties, an area that was not surveyed systematically in order to avoid disturbance to neighbors. No threatened or endangered plant species (USFWS 2013) are present or would be expected on the project site.

Existing Biology: Fauna

The mammalian fauna of the subject area is composed of mainly introduced species, including small Indian mongooses (*Herpestes a. auropunctatus*), feral cats (*Felis cattus*), roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*). None are of conservation concern and all are deleterious to native flora and fauna. The only native Hawaiian land mammal, the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), may also be present in the area, as it is present in many areas on the island of Hawai‘i. Observation took place in daylight, and therefore the lack of bat observations does not signify an actual absence of bats. Although the scrubby *koa haole* vegetation of the site

would not be expected to represent essential habitat for this endangered species, they have been frequently observed in *kiawe* scrub vegetation in other parts of West Hawai‘i.

Table 1. Plant Species on Project Site

Scientific Name	Family	Common Name	Life Form	Status*
Abutilon grandifolium	Malvaceae	Hairy abutilon	Herb	A/VC
Acacia farnesiana	Fabaceae	Klu	Shrub	A/U
Aleurites moluccana	Euphorbiaceae	Kukui	Tree	A/VU
Asystasia gangetica	Acanthaceae	Chinese violet	Vine	A/C
Chamaesyce hirta	Euphorbiaceae	Garden spurge	Herb	A/VU
Clusia rosea	Clusiaceae	Autograph tree	Tree	A/VU
Coccinia grandis	Cucurbitaceae	Ivy gourd	Vine	A/VU
Commelina benghalensis	Commelinaceae	Hairy honohono	Herb	A/C
Desmanthus pernambucanus	Fabaceae	Virgate mimosa	Herb	A/C
Ficus microcarpa	Moraceae	Chinese banyan	Tree	A/VU
Furcraea foetida	Agavaceae	Mauritius hemp	Shrub	A/VU
Hylocereus undatus	Cactaceae	Night blooming cereus	Shrub	A/U
Indigofera suffruticosa	Fabaceae	Indigo	Shrub	A/VU
Ipomoea obscura	Convolvulaceae	Morning glory	Vine	A/U
Kalanchoe pinnata	Crassulaceae	Air Plant	Herb	A/C
Leucaena leucocephala	Fabaceae	Koa haole	Shrub	A/VC
Momordica charantia	Cucurbitaceae	Bitter gourd	Vine	A/VU
Panicum maximum	Poaceae	Guinea grass	Herb	A/VC
Pithecellobium dulce	Fabaceae	Opiuma	Tree	A/VC
Portulaca oleracea	Portulacaceae	Pigweed	Herb	A/VC
Prosopis pallida	Fabaceae	Kiawe	Tree	A/VC
Rivina humilis	Phytolaccaceae	Coral berry	Herb	A/VC
Samanea saman	Fabaceae	Monkeypod	Tree	A/C
Sansevieria trifasciata	Agavaceae	Mother-in-law’s tongue	Shrub	A/U
Schefflera actinophylla	Araliaceae	Octopus tree	Tree	A/VU
Senna occidentalis	Fabaceae	Coffee senna	Shrub	A/C
Stapelia gigantea	Asclepediaceae	Giant toad plant	Herb	A/C
Waltheria indica	Sterculiaceae	‘Uhaloa	Shrub	I/U

A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species
VC=Very common, C=Common, U=Uncommon, VU=Very Uncommon (on property)

Alien bird species noted during the survey included Yellow-billed Cardinal (*Paroaria capitata*), Saffron Finch (*Sicalis flaveola*), Java Sparrow (*Padda oryzivora*), House Finch (*Carpodacus mexicanus*), Spotted Dove (*Streptopelia chinensis*), Zebra Dove (*Geopelia striata*), and Common Myna (*Acridotheres tristis*). Systematic observation would undoubtedly record other alien birds. A resident reported in response to early consultation that wild turkeys are present. Some native forest birds could utilize or fly over the project site, but it is unlikely that threatened or endangered birds would find it suitable habitat or be affected by activities that occur on the project site. The two Hawaiian raptors, the Hawaiian Hawk or ‘Io (*Buteo solitarius*), and the Hawaiian Owl or Pueo

(*Asio flammeus sandwichensis*), may make some use of the area. Although the Hawaiian Hawk is an endangered species, the subject property is not considered to be part of its essential habitat. No hawk nests were observed, and the small stature trees are not the type utilized by hawks.

However, like all areas on the island of Hawaiʻi, it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened Newell's Shearwater (*Puffinus auricularis newelli*) over-fly the subject area between the months of May and November. Hawaiian Petrels were formerly common on the Island of Hawaiʻi. This pelagic seabird reportedly nested in large numbers on the slopes of Mauna Loa and in the saddle area between Mauna Loa and Mauna Kea. It has within recent historic times been reduced to relict breeding colonies in a few locations. Hawaiian Petrels were first listed as an endangered species by the USFWS in 1967 and by the State of Hawaiʻi in 1973. Newell's Shearwaters were also once common on the Island of Hawaiʻi. This species breeds on Kauaʻi, Hawaiʻi, and Molokaʻi. Newell's Shearwater populations have dropped precipitously since the 1880s (Banko 1980, Day et al., 2003). This pelagic species nests high in the mountains in burrows excavated under thick vegetation, especially *uluhe* (*Dicranopteris linearis*) fern. Newell's Shearwater was listed as a threatened species by the USFWS in 1975 and by the State of Hawaiʻi in 1973.

Impacts and Mitigation Measures to Terrestrial Biology

For context regarding impacts to flora and fauna, the project site is land that was historically used for ranching, now zoned for residential use. It has likely been affected by wildfire and is dominated by introduced plant species. From this perspective, the development will produce almost no impacts to any species of flora and fauna other than alien species already present. The project will undertake several mitigation measures that protect wide-ranging endangered animal species.

To minimize impacts to the endangered Hawaiian hoary bat, construction contract conditions should prohibit removal or trimming of woody plants taller than 15 feet from June 1 to September 15 each year. This period is the most vulnerable time in the bat birthing and pup rearing season, and refraining from vegetation removal or trimming is recognized as appropriate by the U.S. Fish and Wildlife Service in recent Endangered Species Act consultations (e.g., see HDOT 2012).

As the project incorporates outdoor lighting, it may attract Hawaiian Petrels and Newell's Shearwaters, which may become disoriented by the lighting, resulting in birds being downed. To avoid the potential downing of Hawaiian Petrels and Newell's Shearwaters by their interaction with outdoor lighting, no construction or unshielded equipment maintenance lighting should be permitted after dark between the months of April and October. All permanent lighting will be shielded in conformance with Hawaiʻi County Outdoor Lighting Ordinance (Hawaiʻi County Code Chapter 9, Article 14), which requires shielding of exterior lights so as to lower the ambient glare caused by unshielded lighting.

Existing Marine Biota

A marine biological survey area encompassing about 5,000 linear feet coastline off the project site and extending from the shoreline to a water depth about 45 feet indicated that the nearshore marine biotic communities consist of a well-developed and relatively undisturbed Hawaiian coral reef habitat. Details of the survey methods and results, including photographs, are contained in Appendix 2.

All fieldwork was carried on August 24-25, 2012 by divers working from a 21-foot boat using SCUBA equipment. In-water surveys of the reef consisted of a diver traversing the reef in a zigzag pattern extending from the shoreline to the seaward limit of reef growth at each of three transects.

The main structural composition of the marine environment here generally conforms to the pattern that has been documented as characterizing much of the west coast of the Island of Hawaiʻi (Dollar 1982). The zonation scheme consists of three predominant regions. Beginning at the shoreline and moving seaward, the shallowest zone is comprised of a seaward extension of the basaltic shoreline benches, along with scattered basaltic boulders that have entered the ocean after breaking off from the shoreline. *Pocillopora meandrina*, a sturdy hemispherical coral, is the dominant colonizer of the nearshore area, where wave stress is intense. Seaward of the nearshore boulder zone, in depths of 6 to 18 feet, is an area ideal for colonization by attached benthos, particularly reef corals. Generally, the widest assortment of species and growth forms are encountered in this region. *Pocillopora meandrina* is present, as well as sturdy lobate and encrusting colonies of *Porites lobata* and *P. lutea*. The outer areas of the lava shelves are likely below the damaging effects of most storm waves, and as a result are essentially completely covered with living coral colonies. The predominant coral cover consists of mats of interconnected branches of the species *Porites compressa*, and large lobed colonies of *Porites* spp. The seaward edge of the basaltic reef platform (at a depth of about 33 feet) is marked by a sharp juncture between the reef structure and a sandy plain that extends seaward to abyssal depths. The predominant coral cover in the sloped zone is typically interconnected mats of *Porites compressa*, which grows laterally over unconsolidated substrata, along with other corals. Inspection of the entire reef tract fronting the project site reveals no indication of coral disease or stress-related effects. Such observations indicate that at present there are no apparent negative impacts to the coral communities owing to anthropogenic (man-made) activities that are ubiquitous in the developed shoreline areas of Kahaluʻu and Keauhou.

Various sea urchins, sea cucumbers, starfish, worms and sponges are common. Frondose benthic algae are conspicuously rare on the reefs of West Hawaiʻi, but encrusting red calcareous algae are common.

The reef fish community off the project site is typical of that found along most of the Kona Coast. Reef fish were not quantitatively evaluated, but qualitative observations of reef fish community structure indicated that abundance was largely determined by the topography and composition of the benthos. Fish community structure can be divided into six general categories: juveniles, planktivorous damselfishes, herbivores, rubble-dwelling fish, swarming tetrodonts, and

surge-zone fish. As detailed in Appendix 2, a very wide variety of these fishes indicating a diverse structure is present. “Food fish” (taken by subsistence and/or recreational fishermen) of several species were observed during the survey, but not in great quantities.

Impacts and Mitigation Measures to Marine Biota

The health of the marine community is directly tied to water quality. The small predicted changes in water quality constituents are well within the natural variability of the groundwater-marine water mixing regimes on the coast of West Hawai‘i. The total projected changes to groundwater flowrate and quality resulting from the project are a *net decrease* in groundwater flowrate to the ocean of about 6.6%, an *increase* in salinity of about 6.4%, and *decreases* in nitrogen and phosphorus loading of about 2.9% and 8.0%. This will not have a significant negative effect on water quality in the coastal ocean offshore of the project. The estimated changes for nitrogen and phosphorus are decreases from the present situation, indicating that there is no possibility of impacts to the nearshore marine systems as a result of nutrient enrichment. The estimated increase in salinity of 6.4% is equivalent to an increase in salinity of less than 0.5‰ for the lowest salinity measured at the shoreline. With the observed steep horizontal gradients within 10 meters of the shoreline, such an increase in salinity would likely be undetectable in the marine environment. In addition, all of the organisms that occur off the project site are marine, indicating that they are adapted to live in waters of oceanic salinity. Hence, the slight increase in salinity in the nearshore zone would not have any effect on these biotic communities.

In addition to consideration of the effects from nutrient additions, it is also important to consider the potential effect of sedimentation that may occur as a result of construction activities. The project site is presently comprised of extensive areas of soil and rock, with relatively little vegetative groundcover. As discussed above in Section 3.1.2, Best Management Practices in association with grading and NPDES permits will limit the area of excavation at any one time, control sediment on site, and require dust control measures. Potential impact is further mitigated by the location of the project area *mauka* of Ali‘i Drive It is unlikely that construction sediment will reach the ocean.

All of these considerations indicate that the proposed project will not have any significant negative or likely even measurable, effect on marine biota in the coastal ocean offshore of the property. Changes to the marine environment as a result of the project will likely be undetectable, with no change from the present conditions.

3.1.4 Air Quality and Noise

Environmental Setting

Air pollution in West Hawai‘i is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze (vog) that persistently blankets North and South Kona.

Noise on the project site is low to moderate and is derived principally from roadway noise on Ali‘i Drive and from adjacent single and multi-family housing and activities at Kahalu‘u County Beach Park. The undeveloped project site, the only active land use for which appears to be light grazing, currently generates little or no noise.

Impacts and Mitigation Measures

Construction of the condominium project will involve excavation, grading, compressors, vehicle and equipment engine operation, and construction of new infrastructure. These activities can generate noise exceeding 95 decibels at times, impacting nearby sensitive noise receptors on the margins of the development. Whenever construction noise is expected to exceed the Department of Health's (DOH) "maximum permissible" property-line noise levels, contractors will be required to consult with DOH per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would then review the proposed activity, location, equipment, project purpose and timetable in order to decide whether a permit is necessary and what conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers, will be necessary. The contractor would consult with DOH to determine whether permit restrictions would consist of construction being limited to daylight hours.

On a permanent basis, future legal uses of the properties for multi-family residences will also generate noise consistent with expectations and allowable limits in areas zoned for these uses, which is thus not considered an impact.

3.1.5 Scenic Resources

Environmental Setting

At present, the scenic values of the general Kahalu‘u area are derived from onshore and offshore views of the ocean and shoreline. Chapter 205A, Hawai‘i Revised Statutes, expresses the intent of the State's Coastal Zone Management program to protect, preserve, and where desirable, restore or improve the quality of scenic and open space resources. The guidelines contained in Rule 9 of the Hawai‘i County Planning Commission Rules (which govern County-regulated development in the Special Management Area or SMA) seek to minimize development that would substantially interfere with or detract from the line of site toward the sea from the State Highway nearest the coast or from other scenic areas identified in the General Plan. The discussion below identifies and evaluates scenic resources in the context of these regulations and guidelines.

The Hawai‘i County General Plan identifies areas of natural beauty and important viewplanes for various places in Hawai‘i County (Table 2). Although no specific scenic views are identified in the subject area, the entire shoreline in the Kahalu‘u and Keauhou areas is considered scenic. Views of the shoreline from motorists going *mauka* or *makai* on Kuakini Highway (the State highway nearest the coast) and Kamehameha III Road in TMK 7-7 and 7-8 are also noted as important in the General Plan. In this area, Kuakini Highway (State Highway 11 at this location) is about 0.9 miles

feet *mauka* of the shoreline, and Kamehameha III Road is between 0.5 and 0.8 miles *mauka* (see Figure 1).

Table 2. County General Plan Sites of Natural Beauty in Subject Area

Site	Tax Map Key	Ahupuaʻa or Region
Viewplane from Kuakini Highway going mauka & makai	7-7 and 7-8	Holualoa-Keauhou
Viewplane from Kamehameha III Road going mauka & makai	7-8-10	Kahaluu-Keauhou
Keauhou	7-8-12	Keauhou 1 & 2
Kahaluu Bay Area	7-8-14	Kahaluu 2
Viewplane along Queen Ka'ahumanu Highway going mauka and makai	Various	Various

Existing development and vegetation along with topography allow only intermittent views of the shoreline from Kuakini Highway. Motorists on Kamehameha III Road have sweeping views of coastal areas, which includes some views of the shoreline, especially at the scenic lookout at the 320-foot elevation on Kamehameha III Road. In general, however, trees and the two and three-story structures on Makolea Street block direct views. Although views of the ocean are present, the shoreline itself is generally not visible. A combination of structures and dense tree cover obscure the lava shoreline in most areas, with the conspicuous exception of parts of Kahaluʻu Beach Park. Landscaping on developed parcels and *kiawe* scrub on undeveloped parcels overtop the roof lines of most structures less than three stories in height.

As discussed previously, some of the surface and all of the vegetation of the roughly 43 acres comprising the Parcel 26 property appear to have been altered through prehistoric and historic use of various kinds, followed by growth of alien, weedy vegetation. Most of the site dominated by a low forest of *koa haole* with scattered *kiawe*, *opiuma* and monkeypod trees protruding above this. The project site has a generally moderate slope of about 5 percent, which contrasts to the 15 percent slope of the area perched *mauka*. No structures or other land uses are apparent on the project site or the land extending *mauka* all the way to Kamehameha III Road and Kuakini Highway.

Between the Parcel 26 property and the shoreline are from one to four rows of single family homes and condominiums, generally on both the *mauka* and *makai* sides of Aliʻi Drive, as illustrated in the aerial image in Figure 1a and photographs of Figure 2, above. This existing development varies in height from one to four stories (Figure 2b shows typical development *mauka* of Aliʻi Drive) and includes the Kahaluʻu Reef Condominiums and several smaller complexes. Currently, there are few ocean views and no shoreline views from ground level on any portion of the property because of intervening development. Particularly important is that there is a line of large trees present at the *makai* boundary of the property, where the developed properties all have mature landscaping. *Mauka* views are generally of the slopes directly *mauka* of the property, with some more distant views of Hualalai.

Impacts and Mitigation Measures

Mauka-makai profiles that include the existing topography and buildings along with the development's proposed structures along key view corridors were developed in order to assess the impacts that the project will have on the visual resources in the area. The Site Plan for the proposed project, which consists of 306 multi-family units, is shown above in Figure 3-1. Sample elevation views of the proposed three-story buildings are shown in Figure 3-2.

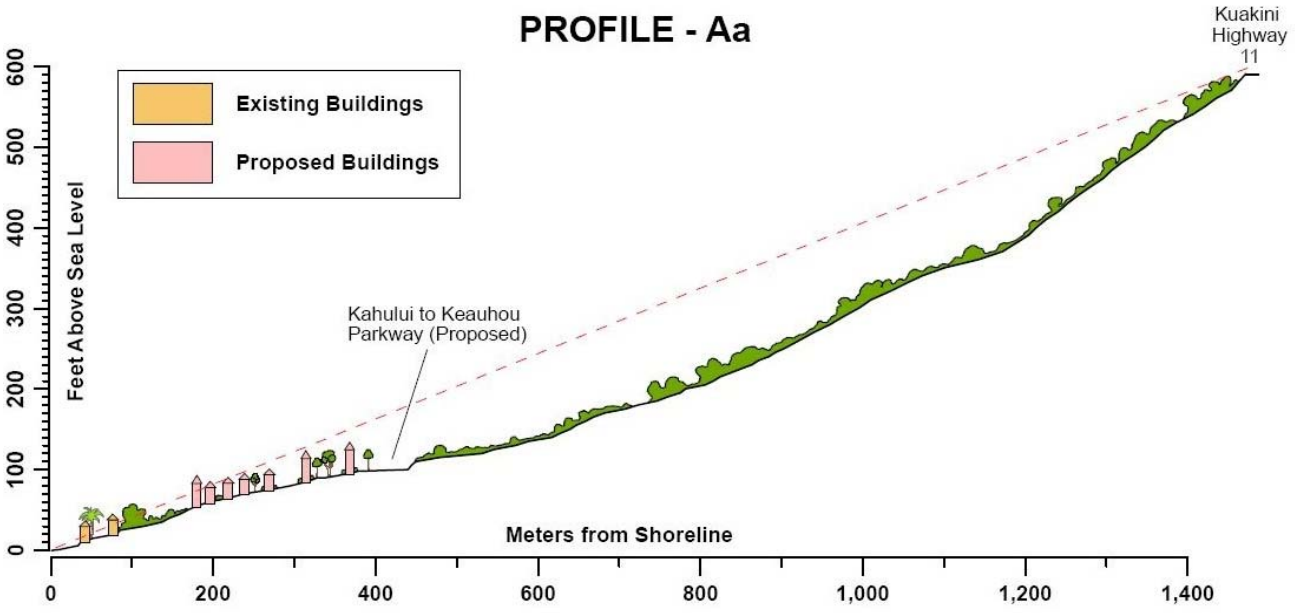
Figures 5a-f illustrate the position and height of the ground surface as well as existing and proposed structures along six lines extending between Kuakini Highway and/or Kamehameha II Road and the shoreline. The future path of Kahului to Keauhou Parkway (formerly Ali‘i Highway) is also shown. The location of the project structures are shown in their correct positions; adjacent structures are conservative approximations based on field and airphoto analysis. The locations of the profiles are illustrated on a USGS topographic map (Figure 5g). For each profile, elevations were derived from 5-foot/10-foot topographic data from a 1970s-era survey performed as part of a wastewater infrastructure study, contours were digitized, and profiles were generated using an ARC-VIEW© Geographic Information System (GIS) routine.

The purpose of the profiles is to illustrate the elevations of the land surface with vegetation, Kuakini Highway, Kamehameha III Road, and certain structures in order to determine direct lines of sight. It is important to note that for ease of interpretation, these profiles incorporate significant vertical exaggeration. Slopes are not as steep and structures are not as tall and narrow in reality as they appear on the profile. Sightlines, however, are not distorted by vertical exaggeration. The profiles demonstrate the following:

- View from shoreline and Ali‘i Drive mauka. For the most part, other lots with structures and dense landscaping are present between the shoreline and Ali‘i Drive and shoreline areas at Kahalu‘u County Beach Park. Due to this context, the relatively low slope of the property, and the low (3-story) limit of the proposed development, the project would not interfere with views *mauka*.

- Views of the shoreline from Kuakini Highway and Kamehameha III Road. As illustrated in the profiles, the project site lies in a topographic "dip" situated below a steep slope, which would conceal much of the development from views from the *mauka* side, even without vegetation. *Makai* of the project site, rows of one to four-story buildings and vegetation block views of the shoreline or nearshore area from Kuakini Highway and Kamehameha II Road. In total, little visual impact for the viewplanes from these roads towards the shoreline is expected.

Figure 5a-b Visual Impact Profiles
(for profile location, see key in Figure 5g)



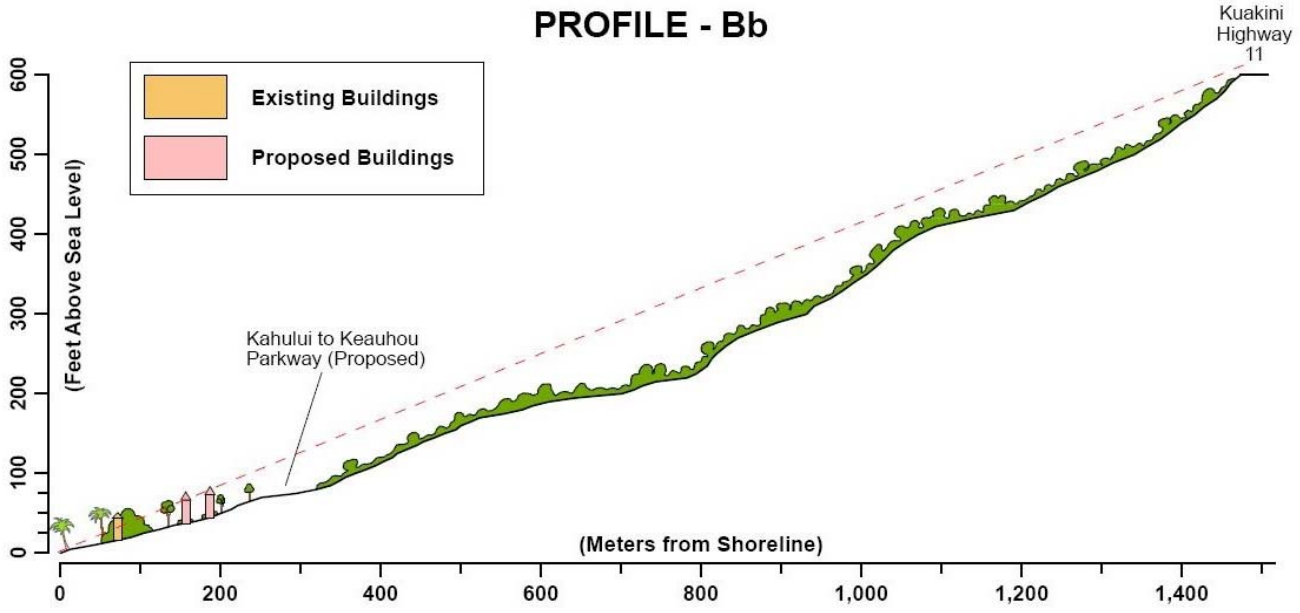
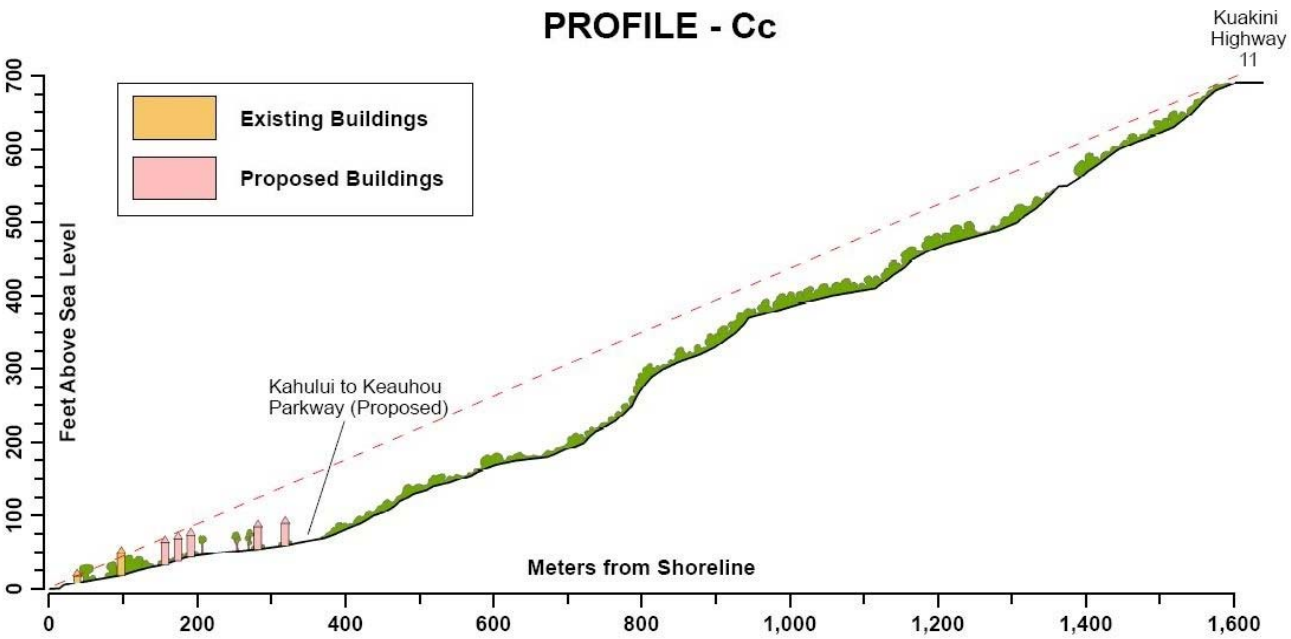


Figure 5c-d Visual Impact Profiles
(for profile location, see key in Figure 5g)



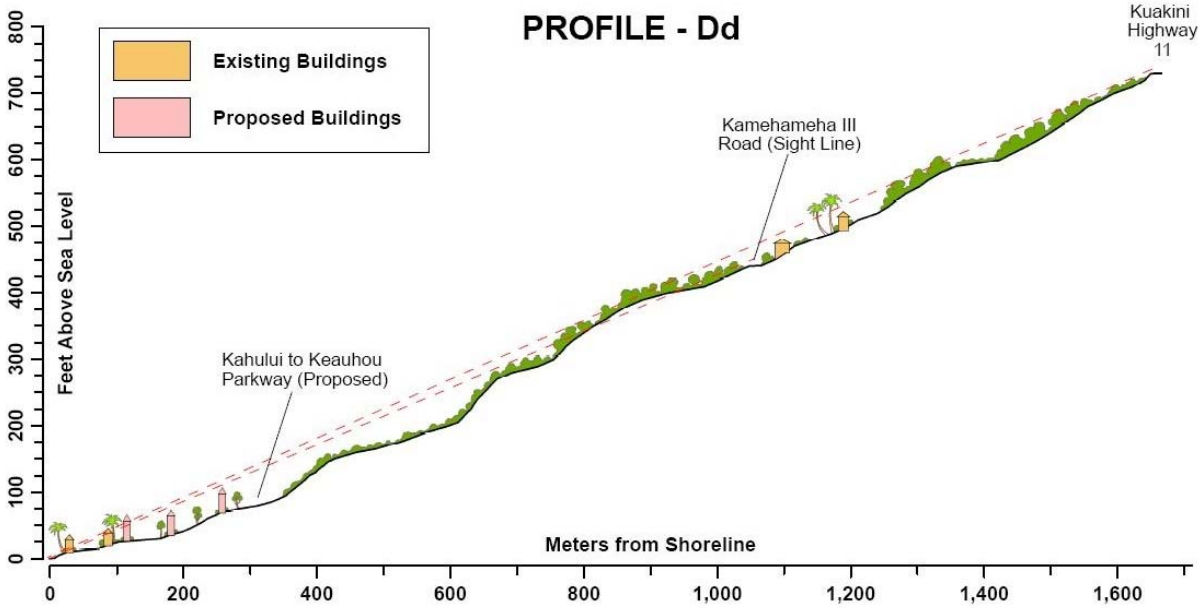
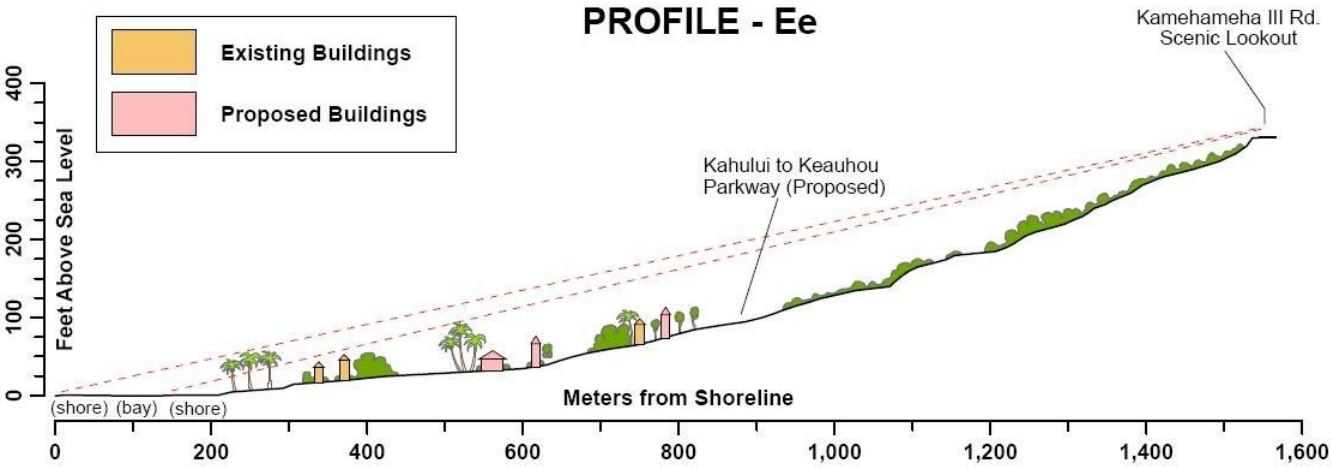


Figure 5e-f Visual Impact Profiles
(for profile location, see key in Figure 5g)



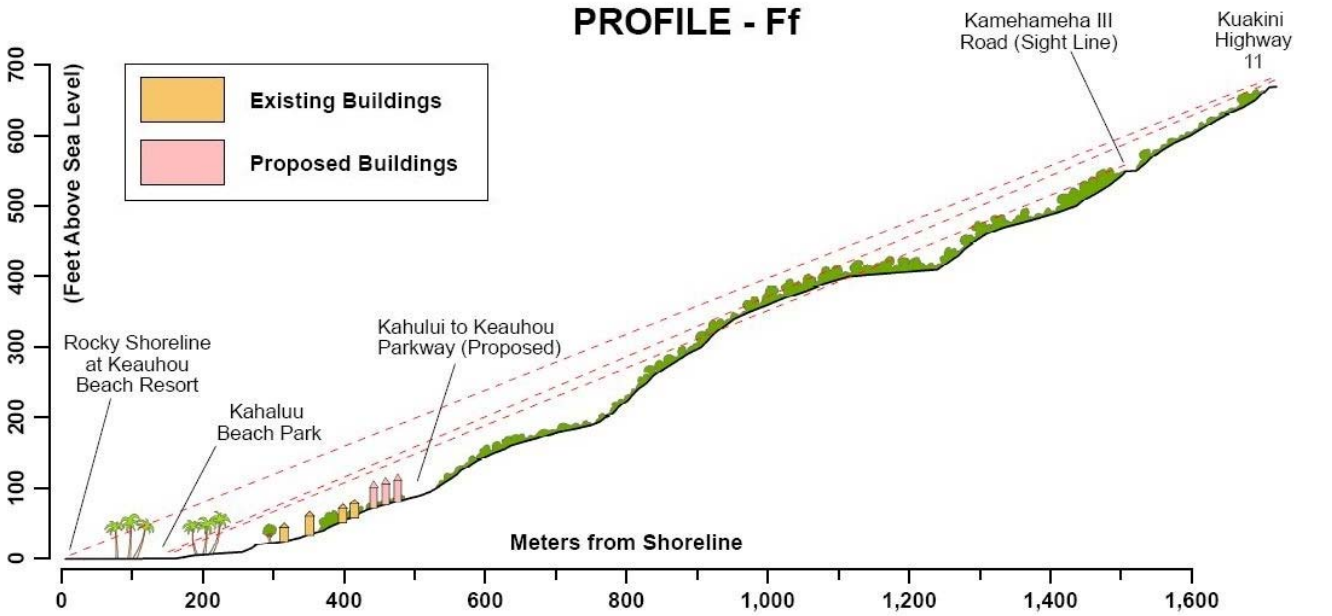


Figure 5g Visual Impact Profiles Key Map

In summary, the visual impacts of the project for the general public would be very minor. Views to and from the shoreline and mountains would be minimally affected. The general area contains many one- to four-story resort and residential developments with similar mass, density and roof lines. Basically, the proposed units would insert a moderate-density, moderate-height development in a neighborhood of uses that are of roughly the same density and height. Some neighbors directly adjacent to the subject area would lose their views of the adjacent scrub forest in some areas. However, large archaeological preserves would be present between the development and about half of the adjacent lots with single and multiple family residential uses. These would effectively buffer views of the development from roughly half the lots that actually border the property. All edges of the proposed development will include landscaping that will soften the visual impact on those developed uses that are adjacent.

As discussed in Section 1.1, all aspects of project design, including architecture, internal roads, fences and walls, and landscaping utilizing native and Polynesian species will be conducted in conformance with *Keauhou Village & Kahalu'u Village Residential Design Guidelines*. Furthermore, all plans will be reviewed and approved by the Planning Department through the Plan Approval process and the project must obtain a Special Management Area Permit that will examine, among other issues, scenic impacts.

3.1.6 Hazardous Materials, Toxic Substances and Hazardous Conditions

Environmental Setting, Impacts and Mitigation Measures

A Phase I Environmental Site Assessment was performed for the Parcel 26 property by Bureau Veritas North America, Inc., in October 2010, at which time there was no evidence of recognized environmental conditions such as hazardous materials or toxic substances. No conditions or activities that would lead to such are known to have occurred on the Parcel 26 or Pollak properties. The project site is vacant and does not appear to have undergone any active land use aside from ranching in modern times. Although the project site has been grazed, no farming has been conducted in modern times, and there is no known use that would have involved pesticides. A small amount of litter is present, but the use history of the site and its surroundings as understood by the owner does not suggest the presence of hazardous materials or toxic substances. The project site does not contain quarries, former explosives sites, or other hazardous conditions.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

Existing Environment

Kona was an important region in pre-Western Contact Hawai'i, a center of political power and population. After 1850 it became a sleepy rural district of scattered coffee farms and cattle ranches. Tourism was quite modest until the 1960s, when resort hotels and vacation homes began to dot the coastline. Today, the primary economic activities in Kona are tourism (hotels, condominium rentals, and tourism services, concentrated near the coast); industry, retail and service activities; and agriculture concentrated in the uplands, where large coffee farms, ranches, and macadamia nut and avocado orchards are present.

Population has grown rapidly in all of West Hawai'i and particularly in North Kona (Table 3), where the number of inhabitants increased from 4,832 in 1970 to 22,284 in 1990, and to an estimated 37,875 in 2010. Of the nine districts on the Big Island, North Kona has sustained the second largest rate of growth (after Puna) since 1970, at 784 percent. High growth since 1960s has resulted from the steady stream of new residents lured by Kona's attractions and the employment and entrepreneurial opportunities of the tourism industry. The prevalence of tourism has also

increased the visitor share of the de facto population (those actually present on any given day) to about one-fourth of the resident population. Both resident and de facto populations are expected to keep rising, although less sharply, into the foreseeable future.

Table 3
Resident Population Growth in North Kona and Hawai‘i County, 1970-2010

District/Period	1970	1980	1990	2000	2010	% Growth 1970-2010
North Kona	4,832	13,898	22,284	28,543	37,875	784%
Hawai‘i County	64,468	92,053	120,317	148,677	185,079	287%

Sources: U.S. Bureau of the Census web site; Hawai‘i State DBEDT: *Hawai‘i State Data Book, var. years*

Along with increasing population in North Kona have come changes in social characteristics. The housing stock includes many newer condominium complexes providing short-term rentals, time shares for visitors, and retiree housing. Many permanent residents today are affluent, older (often retired), relative newcomers from the mainland. The proposed project would most directly affect the portions of urban Kailua-Kona and Keauhou along Ali‘i Drive. Table 4 provides 2010 U.S. Census of Population data on the socioeconomic characteristics of Census Tract 215.09 (which is centered on Kahalu‘u-Keauhou but includes areas to the north and south as well), along with that of North Kona as a whole for comparison.

In general, the tract reflects the diverse population of Hawai‘i but with a heavy representation of U.S. mainland retirees. The tract’s population is considerably older (48.0 years median age versus 41.4 for North Kona; 20.5% over 65 years in age versus 13.7%), with more whites (52.4% versus 45.6% for North Kona). The contrast with the County of Hawai‘i as a whole (with a median age of 40.9 years and 33.7% white) on these measures is even greater. Native Hawaiians make up only 4.6% of the population in this tract, versus 6.7% in North Kona (and 8.5% for Hawai‘i County). Household sizes and family sizes are low, and there are very high vacancy rates (21.7%), typical of areas with much resort housing, which tend to be second or third homes. Education levels and proportion of veterans are high, but due to the presence of many retirees, participation in the labor force is low (54.8% versus 70.1% for North Kona). Median household income in the tract is very close to that of North Kona, but poverty rates are high (12.7% versus 8.5%), which together indicate a bimodal population of retirees and upper middle-class residents concentrated near the coast and lower-income families in older residential and rural areas *mauka*.

Table 4. Selected Socioeconomic Characteristics

SUBJECT	NUMBER	PERCENT	NUMBER	PERCENT
	North Kona		Keauhou/Kahalu‘u Area (Census Tract 215.09)	
Total population	37,875	100.0	5,154	100.0
Median age (years)	41.4	(X)	48.0	(X)
16 years and over	30,676	81.0	4,286	83.2
65 years and over	5,192	13.7	1.059	20.5
One Race	28,842	76.2	4,237	82.2
White	17,282	45.6	2,699	52.4
Black or African American	200	0.5	27	0.5
American Indian and Alaska Native	177	0.5	26	0.5
Asian	5,783	15.3	688	13.3
Chinese	293	0.8	33	0.6
Filipino	2,414	6.4	181	3.5
Japanese	2,085	5.5	372	7.2
Korean	285	0.8	7	0.1
Native Hawaiian	2,548	6.7	238	4.6
Two or More Races	9,033	23.8	917	17.8
Total households	13,966	100.0	1,992	100.0
Family households (families)	9,154	65.5	1,330	66.8
With own children under 18 years	3,543	25.4	415	20.8
Female householder, no husband present	1,314	9.4	166	8.3
With own children under 18 years	677	4.8	79	4.0
Nonfamily households	4,812	34.5	662	33.2
Householder living alone	3,320	23.8	470	23.6
Households with persons under 18 years	4,255	30.5	487	24.4
Households with persons 65 years and over	3,755	26.9	691	34.7
Average household size	2.67	(X)	2.52	(X)
Average family size	3.12	(X)	2.92	(X)
Total housing units	18,642	100.0	3,326	100.0
Occupied housing units	13,966	74.9	1,992	59.9
Vacant housing units	4,676	25.1	1,334	40.1
Rental vacancy rate (percent)	19.5	(X)	21.7	(x)
Percent high school graduate	(X)	92.2	(X)	94.2
Civilian veterans	3,517	11.4	558	13.9%
Percent in Labor Force	(X)	70.1	(X)	54.8
Median Household Income	63,711	(X)	63,929	(X)
Poverty rate	(X)	8.5%	(X)	12.7%

Source: U.S. Census Bureau, 2010 Census. 2010 Census Redistricting Data (Public Law 94-171) Summary File, Tables P1, P2 P3, P4, H1; and American Community Survey (U.S. Census Bureau American Factfinder Webpage. (http://2010.census.gov/2010census/data/). Notes: (X) data not available or applicable. For small populations such as the geographic areas above, error estimates are often large.

The economic base of West Hawai‘i underwent a major transition in the last half century. Fifty years ago West Hawai‘i was a stable agrarian society, with scattered villages, a resident population of about 14,000, little tourism, and limited commercial and industrial development. All finished products were shipped from O‘ahu, there was a relatively simple financial structure with few major retailers, and most of the island's businesses were located on the Hilo side. The last five decades have seen a steady, if somewhat cyclical, trend towards an urban economy, echoing the transitions seen on O‘ahu in the 1940s through 1960s, and on Maui in recent years. Today, most of the State's major businesses are represented in West Hawai‘i with independent major facilities. Where few base businesses once existed and consumer options were limited, there is now competition and an expanding spirit of local entrepreneurship. While agriculture remains one of the island's prime economic industries – with coffee, macadamia nuts, fruit, foliage and flowers prominent in Kona – tourism remains the prime economic engine and employer for West Hawai‘i. Population growth and business diversification have resulted in a multi-faceted and flexible labor pool in West Hawai‘i, although workers are not always fully employed. Table 5 provides statistics on unemployment over the last 6 years for Hawai‘i County.

Table 5
Unemployment Rate, Hawai‘i County, 2007-2012

Unemployment Rate in January of Year					
2007	2008	2009	2010	2011	2012
2.8%	3.2%	8.4%	9.3%	9.5%	8.8%

In the Kailua-Kona area, the visitor industry dominates not only the economy but also land use and results in large numbers of visitors. Visitor statistics collected and analyzed by the State of Hawai‘i (Hawai‘i Tourism Authority 2011) provide data on this. In 2010, six out of ten visitors to Kona stayed in hotels, 19.9% stayed in condominiums, 12.3% stayed in time shares, 9.6% stayed with friends or relatives and 9% stayed on cruise ships. The average daily census of visitors was 19,958, composing about a third of those present in North Kona at any given time. The largest share of visitors to Kona was from the U.S. West (43.6%), while 27.9 percent was from U.S. East, 12.1% was from Japan and 6.3% was from Canada. Repeat visitors made up 67.7% of the Kona visitors in 2010. Only about half of repeat visitors to Hawai‘i tend to stay in hotels, with the rest in condos (19.9%), timeshares (12.3%), other visitor units, cruise ships, or with friends and relatives.

For visitors who stayed only in condominiums, the average party size was 2.32 persons, and their average length of stay was 10.65 days on the Big Island. Time share-only visitors were fairly similar, with an average party size of 2.31 persons and a shorter average stay of 8.3 days.

Impacts and Mitigation Measures

The development of a housing complex involving 306 condominium units would likely lead to only a minor increase in resident population, as very few condominium occupants at any given time would be actual residents, and the great majority of units would be occupied part-time by off-island residents, generally on vacation. Information from similar developments in Kona and Kohala indicate that only 5 to 10 percent of condominiums end up being occupied by Hawai‘i residents. Using average household figures and vacancy rates cited above, this would generate a maximum additional resident population of 75 people. This very minor increase in resident population would result in a very small additional demand for resident services. Any increase is consistent with General Plan urban designations for the area.

However, it would increase the daily de facto population of Kona by about 620 persons, based on an average occupancy of 2.3 persons and a vacancy rate of 20 percent (per average figures from Hawai‘i Tourism Authority and U.S. Census of Population cited above). While there are many government services that visitors do not typically require – education, social services, etc. – they do place demands on police, fire, emergency medical, transportation, recreational and other services and facilities. These issues are discussed in Section 3.3 below.

The project will also generate economic benefits in the form of jobs, purchases and tax revenues, both during construction and operation of the development. Based on the unemployment rate over the last four years and the forecasts for slow growth in the U.S. and Hawai‘i over the next three years, these jobs would almost certainly be fillable by local residents within the existing labor pool.

3.2.2 Cultural Resources

A Cultural Impact Assessment (CIA) conducted by Scientific Consultant Services, Inc. (SCS), is included in this EA as Appendix 3 and summarized below. In the interest of readability, the summary, which also is derived from other sources, has eliminated most scholarly references; readers interested in sources, as well as background and methodology, may consult the appendix.

Several commenters requested corrections, changes and expansions of scope for the Cultural Impact Assessment (see Appendix 1b for comments and applicant responses). The applicant and SCS worked in an iterative process with Mr. Curtis Tyler and the entire Kahulamu ‘Ohana to address these concerns. Although not all requested changes were made, the process resulted in a much more accurate and comprehensive discussion of cultural resources and impacts, with more emphasis on the ongoing cultural practice of guarding and honoring burials. The consultant team is grateful for the input provided by these parties.

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps (including the Kekahuna maps of Kahalu‘u) and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

Individuals and/or groups who were believed or reported to have knowledge of traditional practices and beliefs associated with the subject area were consulted about the project by letter and phone calls. Consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on Oʻahu; Ruby McDonald, Coordinator of the Hawaiʻi branch of the Office of Hawaiian Affairs; Kauanoe Hoʻomanawanui, SHPD Hawaiʻi Island Cultural Historian; Rick Gmirkin, Ala Kahakai National Historic Trail, NPS Archaeologist; Joseph Spencer, Director of the Keauhou Cultural Advisory Committee; Hannah Reeves; Willie Kahulamu; Uilani Kapu; Kuʻulei McCarthy; and Justin Asing. Public Notices were placed in the Office of Hawaiian Affairs (OHA) *Ka Wai Ola* Newspaper, the *Honolulu Star-Advertiser*, and the *West Hawaiʻi Today*. Consulted parties were invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. If they were able to offer information about cultural practices or resources, they were invited to be interviewed.

Cultural Background: Pre-Western Contact

Kona is divided into two sections: North Kona or *Kona ʻakau*, and; South Kona, or *Kona hema*. *Kona ʻakau* was further subdivided into north (called *Kekaha*) and south (called *Konakaiʻōpua*) areas, with the division between the two at the *ahupuaʻa* of Keahuolu. The subject area is in Kahuluʻu within the area of *Konakaiʻōpua* in *Kona ʻakau*. Kahaluʻu means (literally) "diving place" (Pukui et al 1974:62).

Kahaluʻu is a traditional *ahupuaʻa* stretching from the ocean to the foot of Hualālai in the uplands. The *ahupuaʻa* has a sandy beach at Kahaluʻu Bay, and another at Kapukini Cove. The remainder of its roughly one mile long coastline is rocky. There are several freshwater springs that mix with the seawater along the shoreline. Two large fishponds called Waikuʻaʻala and Poʻo Hawaiʻi were built along the shore at Kahaluʻu. Waikuʻaʻala was a well-known bathing spot of the *aliʻi.* Additional ponds in coastal Kahaluʻu are known to have been used by *aliʻi* and *makaʻāinana* for bathing.

The region of Kahaluʻu developed into a sociopolitical center that included *ʻaliʻi* and *konohiki* residences and numerous religious sites. There were at least 37 *heiau* located in the lower elevations of Kahaluʻu. The majority of the *heiau* were constructed along or near the coast, while a smaller number were built further inland, at higher elevations. The more prominent *heiau* are Kuʻemanu, ʻOhiamukumuku, Mokukeole, Kapuanoni, Hapaialiʻi, and Keʻeku, Makolea, Pao ʻUmi, and Keahiolo.

A number of *aliʻi* are associated historically with and lived in the Kahaluʻu area. Kalaniʻōpuʻu (ruler, 1760-1782) lived in the region of Kahaluʻu and Keauhou. Kamehameha I and his retinue stayed for periods of time at Kahaluʻu and repaired several area *heiau*. Keʻeaumoku Pāpaʻiahiahi was awarded Kahaluʻu and Keauhou after Kamehameha I united the Hawaiian Islands. His daughter Queen Kaʻahumanu, and his son, Governor John Adams Kiʻiapalaoku Kuakini, were born in Kahaluʻu. Kauikeaouli Kamehameha III was born in Kahaluʻu. King David Kalākaua had a residence alongside Poʻo Hawaiʻi Pond.

Kahaluʻu, Kona, and much of the leeward side of Hawaiʻi Island, while well populated at the time of European Contact, were settled later than the windward side. Archaeological evidence suggests Hawaiʻi Island was first settled over a thousand years ago by people sailing from the Marquesas. Early settlers founded settlements on the windward shores in likely places such as Waipiʻo, Waimanu, and Hilo Bay. The windward, or *koʻolau*, shores receive abundant rainfall and had numerous streams such as the Wailuku, Waiolama, ʻAlenaio, and Wailoa that facilitated agricultural and fishpond production. The windward shores also provided rich benthic and pelagic marine resources.

The dry leeward shores of Hawaiʻi Island presented a very different environment requiring a modified set of subsistence strategies. Archaeologists and historians are uncertain about the exact motives that lead to the establishment and spread of settlements on the leeward side of Hawaiʻi, but some suggest population pressure, dwindling fertile land, growing socio-political stratification, or simply the opportunity for a new start might have led to new communities developing on the drier west side of the island.

During this period, areas of permanent habitation were established in Kona. Habitation was concentrated along the shoreline and lowland slopes, and informal fields were cleared at higher elevations where rainfall was higher. Agricultural fields and habitation areas expanded across the slopes and coastal area of Hualālai during the period between AD 1100 and 1400.

The development of the extensive formal walled fields likely began sometime around AD 1400 to 1600. This period marks the initiation of the Kona Field System. The development of the fields may be, in part, a by-product of the need to extract more subsistence resources from an increasingly limited agricultural base. The population in Kona increased dramatically during this period, as reflected in the abundant radiocarbon dates from habitation structures, shelter caves, and agricultural soils of this period. During this period, the stratified chiefdom structure becomes clearly developed in the archaeological record. Large residential complexes and *heiau* reflect the segregation of places and power for the growing hierarchy of high and lower chiefs, and ceremonial stewards. The produce from the formal walled fields were distributed to higher chiefs through a hierarchy of lower chiefs responsible for management and collection of the cultivated and wild resources.

By the time of the Competition Period (AD 1600 to 1800), the royal centers and larger *heiau* were in place, reflecting the growth in power of the rulers and chiefs in the region. Resources may have reached their maximum carrying capacity, resulting in social stress between neighboring groups. Hostility between groups is reflected archaeologically with the development of refuge caves during this period. This volatile period was probably accompanied by internal rebellion and territorial annexation. Royal centers are located at Kailua, Hōlualoa, Kahaluʻu, Kealakekua, and Honaunau.

Gardens fenced with low stone walls made of lava removed from the surface and planted with bananas, sweet potatoes, mountain taro, tapa trees, melons and sugar cane were ubiquitous in many

areas of Kona. These gardens are often referred to as the "Kona Field System," extends north at least to Kau Ahupuaʻa and south to Honaunau, west from the coastline and east to the forested slopes of Hualālai. A large portion of this area is designated in the Hawaiʻi SIHP (State Inventory of Historic Places) as Site 50-10-37-6601.

The *kula* zone of the Kona Field System is the area from sea level to about 500 feet in elevation. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes (*uala*), paper mulberry (*wauke*), and gourds (*ipu*). Agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common throughout much of this zone. Many of the archaeological sites documented in the project site are associated with agriculture.

Dwellings were scattered throughout the agricultural portion of the *kula*, but concentrated along the shoreline area of the *kula* zone. The shoreline zone, extending inland approximately 700 feet, was used primarily for permanent habitation and other non-agricultural activities, such as canoe storage, ceremonial and burial practices, recreation, and fishing-related activity. Of the 58 archaeological sites documented on Parcel 26, thirty had habitation components (Berrigan *et al* 2010:4).

Royal centers and high chiefly centers were also situated within the shoreline of the *kula*. These complexes include dwellings for rulers, chiefs, and the supporting populace, places of refuge, and other structures. Single, or clustered, burials are also situated in the shoreline, and near-shore *kula*. Burials occur in caves, within finely built platforms, cruder rock mounds, and houses in the shoreline, and are more often in the near-shore *kula*. Of the 58 archaeological sites documented on Parcel 26, 15 had possible burial components (Berrigan *et al*. 2010:4).

The large, and densely populated, royal centers were situated at several locations along the shoreline between Kailua and Honaunau, <u>including at Kahaluʻu. One major criteria for the significance of the resources in the modern Kahaluʻu Historic District is their association with the royal center in this location, including the large concentration of *heiau* within the district. Several maps drawn by Henry E.P. Kekahuna in the early 1950s depict the structures that existed at that time along the shoreline (see Figures 10-13 in Appendix 3).</u> The residential areas, large and small *heiau*, sporting areas, and burial clusters, are present continuously farther inland than the usual 700 feet for the shoreline habitation portion of the *kula*. Consequently, a variety of non-agricultural features are present in the *kula* near royal centers.

Cultural and Historical Background: Post-Western Contact

The extensive features of the Kona Field System were exploited and altered during the post-contact era. Walls, *kuaʻiwi*, springs, and pathways created generations earlier were used and planted with alien cultigens (coffee, cotton, sugar, and sisal) and ultimately used as pastures for cattle.

By the 1825, there were roughly five hundred residents in the area of Kahaluʻu Ahupuaʻa. Though Kahaluʻu did not possess a deep water harbor for large draught vessels, some trade was conducted

at Keauhou Bay to the south. Trade and crops included firewood, sandal wood, yams, coffee, melons, potatoes, corn, beans, cotton, figs, oranges, guavas, and grapes.

Sugar was a major crop in Hawai‘i as early as signing of the Reciprocity Treaty in 1876. The sugar industry grew rapidly, and by 1899 the one and only sugar mill in the Kona area was built by the Kona Sugar Company. Chinese worked on the sugar plantations. They built a railroad in 1901 to haul cane from the fields to their mill site in Wai‘aha. The sugar company failed in 1903, and was bought out by a Japanese company that continued the sugar cultivation and processing until 1926. The railroad was bought by Kona Development Company, and was used for freight, sugarcane and by the Hawaiian Lumber Company. Sugar was grown above the railroad line. Cut sugar was delivered to the tracks with wire cables and flumes. Cotton was grown on lands below the railroad tracks. Cotton gins were located south of the subject area. Cotton was being picked as late as the 1930s. Other plants grown below the tracks in the drier lands were sisal and tobacco.

Formal cattle ranching began in the Kailua-Kona region in the early 1900s, but wild cattle may have been in the area as early as the late 1700s. The *pā ‘āina* (‘walls of the land’), native tenants’ wall enclosures, were prevalent in the area, as indicated by their inclusion in many local Māhele testimonies. These were used to mark the boundary of properties and to keep livestock out of crop areas. Later, cattle ranchers built walls to control their cattle.

In the early 1840s, cattle were said to be maintained about a mile from the coast in heavily vegetated areas. Cattle, introduced to Kona by Vancouver in 1794, became a nuisance later, when their numbers increased. They fed on the grass of the *kula* and from time to time on the thatch of Hawaiians’ homes and on vegetables in their gardens. The open upland fields, bounded only by low earth and stone walls, were in full cultivation in the 1850s. Ranchers leased land below the railroad to graze cattle that they owned. Higher walls were built in the 1920s and 1930s to control animals. According to Joe Gomes, a longtime rancher in the area,

> “Walls about 3 ft high can keep donkeys penned. The usual wall is about 4 ½ ft high and keeps cattle in. For goats you need a wall 6 to 8 ft high. For wild pigs you need a 6 to 8 ft-high wall. They climb over lower walls easily. They come down from the mountains for macadamia nuts and also in mango season for mangoes” (Kelly 1983:112).

The Great Wall of Kuakini (Ka Pā Nui O Kuakini) was constructed by the first royally appointed Governor of Hawai‘i Island, John Adams Ki‘iapalaoku Kuakini (1789-1844), to prevent cattle from destroying the agricultural plots in the Kona-Kailua region. Construction of the wall began in the early 1800s and was completed by the mid-1850s. The wall is approximately five miles long and extends from Palani Road in Kailua-Kona to Kahalu‘u Bay south of Kailua-Kona. It roughly marked the boundary between the *kula* and the *kalu‘ulu* zones. It may have been built to keep cattle away from the coastal homes and garden plots or the upland gardens in the *kalu‘ulu* region and above. The wall has been extensively breached in many locations by modern development and other forces but remains a powerful reminder of a large 19th century public works project of the Kingdom of Hawai‘i.

Kahaluʻu Ahupuaʻa was granted to Victoria Kamamalu during the Māhele as Land Commission Award 7713:6, Royal Patent 6856. LCA 7713:6 was for 5,443 acres. Fifty-six smaller LCAs, for 83 smaller parcels ranging in size from 0.07 to 4.4 acres were also awarded throughout Kahaluʻu Ahupuaʻa. Twenty-eight of those were for parcels along the north side of Kahaluʻu Bay. Fifteen additional LCAs were situated just south of the bay. Though pre-Contact settlements were known to exist in the upland *kula* zone of Kahaluʻu Ahupuaʻa, no LCA claims were made for land there.

The changing subsistence and trade regimes developed by incoming European and American settlers, as well as other historical factors, caused a depopulation of the coastal areas of Kona. Ranches and farms were established in the uplands where rainfall was higher, and the temperatures were cooler. Schools, churches, stores, and other businesses were also established in the uplands. During the late 1800s and early 1900s, Kahaluʻu was no longer the densely populated sociopolitical center it once was. Kahaluʻu had become a small cluster of houses along the trail from Kailua to Keauhou.

Since that time, the Kailua-to-Keauhou region has become the center of the resort residential visitor industry in West Hawaiʻi, with hundreds of condominium complexes taking advantage of the warm, sunny weather, the spectacular ocean conditions, and cultural attractions. Directly adjacent to the project site is the Keauhou Beach Resort (closed in October 2012 and slated for demolition) and a number of rental homes and condominiums. One of the most popular visitor attractions, Kahaluʻu County Beach Park, famous for snorkeling, is also present directly *makai* of the project site.

Despite the utter transformation of the area as part of the visitor industry, the deeper cultural heritage is still cherished. Kamehameha Schools owns much of the land in the area and in addition to developing resort residential properties for revenue to support its educational mission, it is preserving and restoring much of the area as a living cultural landscape. Notable efforts include the major project of totally restoring Hapaialiʻi Heiau using modern-day technology coupled with ancient techniques, completed in 2007. Experts in the Hawaiian art of dry stack masonry rebuilt the massive stone platform. Keʻeku Heiau is the site, according to oral traditions, where Lonoikamakahiki sacrificed the invading Chief Kamalalawalu of Maui. Restoration work is often done with students, such as when students from Kealakehe High School and Ke Kula ʻo ʻEhunuikaimalino Charter School helped archaeologists research and map Kapuanoni Heiau.

Cultural Resources and Practices Present at Project Site

The Kahaluʻu area is highly culturally significant. As discussed in detail in Section 3.2.3, below, the project site shares in some of these significant resources, in the form of inventoried archaeological sites, including agricultural, habitational, ceremonial and burial sites. A large number of these sites have been proposed for preservation in extensive areas identified in Site Preservation and Burial Treatment Plans (see Figure 3a) that have been reviewed and approved by the Hawaiʻi Island Burial Council and the State Historic Preservation Division. A task for the Cultural Impact Assessment has been to determine what other resources or practices present on the project site have cultural value

that might be impacted by the proposed development.

As discussed above, SCS, Inc., contacted ten individuals who either work for the Office of Hawaiian Affairs, the State Historic Preservation Division, the National Park Service, the Keauhou Cultural Advisory Committee, or have a long-standing *'ohana* connections to Kahalu'u, or are familiar with the subject area lands through cultural and historical work they conduct on the Island of Hawai'i. Although some responded to the request, only the Kahulamu family indicated knowledge of ongoing cultural activities or resources aside from those protected by the plans mentioned above. In addition to this outreach, early consultation for the EA was conducted by mail and email with a number of agencies and all of the dozens of neighboring property owners, and public notices for the CIA were published in the Office of Hawaiian Affairs *Ka Wai Ola* newspaper, the *Honolulu Star-Advertiser* and the *West Hawai'i Today.*

In response to this outreach, the CIA preparers were contacted by Willy Kahulamu of Kahalu'u. Mr. Kahulamu's family has a long-time connection with the lands of Kahalu'u, and the Kahulamu *'ohana* has lived there for many generations. Mr. Kahulamu's property abuts that of the project site. SCS, Inc. sent maps and project information to Mr. Kahulamu. After meeting with his family members to consult, Mr. Kahulamu sent a letter (dated September 27, 2012 – see Appendix 1a) expressing his concern over the possibility that the project might impact burials on the project site and those of his family graveyard located on his property. In November 2012, the CIA preparers met with members of the Kahulamu family, including Mitchell Fujisaka, who is also part of the Keauhou Cultural Advisory Committee, who discussed their concerns about the project and in particular the potential to impact burials on their property and in lava tubes on Parcel 26. In response to these concerns, project archaeologist Alan Haun subsequently met with the family. He explained that Towne would seek to avoid inadvertently disturbing the burial caves if they extended under areas planned for development; however, his work on Parcel 26, the Kahului to Keauhou Parkway and the KIC lands that lie mauka had not found any other entrances to such caves. Dr. Haun offered to inspect the area to determine if there was a potential for impact, but because the cave housing at least some of the burials has been sealed, the family declined to allow this inspection. Dr. Haun suggested that they may wish to contact the SHPD Archaeology Branch Chief Theresa Donham regarding the extent of their burial caves to ensure they were provided appropriate treatment.

As stated above, after the Kahulamu family members reviewed the Draft EA and the CIA, they continued to have a number of concerns, as stated in several letters in the Appendix 1b. Part of this related to the manner in which cultural resources of the Kahalu'u Historic District were discussed and valued, which led to substantive changes in the final version of the CIA contained in Appendix 3. The main concern was that the Kahulamu family is engaged in the traditional cultural practice of protecting and maintaining burials on their property and in the project area. Additional meetings were held with Willie Kahulamu, Gerry Kahulamu, and Curtis Tyler to address potential impacts to these practices.

Impacts and Mitigation Measures

Aside from the archaeological and burial sites that have both scientific-historic and cultural value, no Hawaiian customary and traditional rights or practices such as gathering are known to be associated with the property. The vegetation of almost the entire property, and all areas potentially affected by construction, is heavily disturbed, alien *koa haole* shrubland, as discussed in Section 3.1.3, above. This vegetation does not include the quality and quantity of botanical resources that would be important for native gathering. No springs, *pu'u*, native forest groves, gathering resources or other natural features are present on or near the project site that would support any traditional resource uses.

The CIA published in the Draft EA concluded preliminarily that no cultural activities were identified within the project site, and that the proposed undertaking would not produce adverse effects to any Native Hawaiian cultural practices. The Draft EA, including the Cultural Impact Assessment, was supplied to various parties including the Office of Hawaiian Affairs, the Kamehameha Investment Corporation Cultural Advisory Group and Mr. Kahulamu, for their comments on these findings. A series of discussions with various members of the Kahulamu family following up on comments to the Draft EA (see Appendix 1b) made it apparent that cultural resources and practices did exist, which research to date had not been able to identify, that required identification and assessment.

The issues related to cultural resources centered on four main points. The first point is related to the Kahulamu family cemetery. The family is concerned that any development in close proximity to the cemetery will alter the character of the cemetery. The cemetery is now a secluded, peaceful place where family members spend private time with their deceased family members. They are concerned that nearby development will disrupt privacy and could promote an environment that is not respectful to the family members buried in the cemetery, including unauthorized visitation by the occupants of the residence or their visitors.

The second point is the family members' concern that there are unmarked burials on the Towne property. Several family members recalled that a grandfather of Willy Kahulamu had blocked off and concealed the entrances to burial caves that he knew of. The lava tubes containing the burials were described as running *mauka/makai* under the Towne property and the Kahulamu property. The lava tubes were ran from the mountain to below the sea. The Kahulamu 'Ohana consider the protection and preservation of Hawaiian burials to be a long-standing and ongoing cultural practice. As discussed in Section 3.2.3 below, archaeologists have not been able to verify the existence and location of these burials as being on the Towne property through surface surveys or through lava tube openings on or near the property into which they have been allowed to enter (the archaeologists have not been allowed access to certain areas). Towne has expressed its wishes to honor and respect the desire for privacy of these areas.

The third point is related to the broader Kahalu‘u area development, population increase, and their impacts on the traditional Hawaiian cultural perspective of the natural world. The Kahulamu family discussed the importance of resource zones and sustainability to Hawaiian cultural practices. Each region of the land, from the coast to the mountains, has unique resources that were cultivated and harvested by Hawaiians. Development has constricted the size, or restricted access to, many of these resource base areas. The overall process has prevented the continuation of many of the traditional cultural practices centered around gathering, fishing, and hunting. For example, the current generations of the Kahulamu family can remember that in their youth they were able to throw net at Kahalu‘u Bay and catch fish. With the onset of development, increased population, and increased shoreline traffic, the reef has been damaged and the numbers of fish have diminished. Development on the Towne property would not restrict or further affect these practices. Water quality studies discussed in Section 3.1.2 demonstrate that there will be no adverse effects to water quality. The proposed undertaking will not produce adverse effects to any other specific Native Hawaiian cultural practices in the area.

The fourth and final point discussed was the fact that the project site is within the Kahalu‘u Historic District. There is a feeling that the Historic District has certain values that are compromised whenever development occurs within it.

To address cultural concerns presented by the Kahulamu family and Curtis Tyler, representatives of Towne held additional meetings and talks in 2014 with the Kahulamu family to determine if there were ways to minimize these identified cultural impacts to acceptable levels and still permit development on the property. In recognition of the Kahulamu *‘Ohana’s* cultural practice of protecting burial sites, Towne revised its development plan to create a buffer area around the Kahulamu *kuleana* lots (Figure 6). Based on this buffer, no development activities will occur within the area approximately 150 feet north of the Kahulamu *kuleana* and no development activities will occur in any portion of the Towne property south of the Kahulamu properties. This measure ensures that construction will not take place near to the Kahulamu graveyard, and will not encroach upon or diminish the character of those burials. In addition, construction will not be conducted in areas that may contain unidentified burials, and the Kahulamu family will have continued access to the burial areas so that they can continue to care for them.

To mitigate potential impacts to the cultural value of archaeological and burial sites that have been conclusively identified within the current project site, preservation and burial treatment plans prepared in compliance with HAR 13§13-300 have been implemented, as discussed in the next section. In terms of cultural resources and practices, these plans have made it possible to preserve sites for current and future use by cultural practitioners and lineal and cultural descendants. Measures are being taken to ensure that construction will not take place near to the Kahulamu graveyard, and will not encroach upon or diminish the character of those burials.

Figure 6. Kahulamu Properties, No-Build Buffer Areas, and Preservation Areas

Based on the current development plan, as modified through consultation of individuals with close cultural ties to this area, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel.

3.2.3 Archaeological Resources

Existing Studies and Archaeological Resources

Various archaeological investigations had worked on at least parts of the project site prior to 1989, including Hammatt and Folk 1980, Hammatt et al 1981, Allen 1984 and Henry et al 1997. Starting in 1989, a series of archaeological reports were conducted specifically to document resources that would require consideration as part of development of the property, a portion of which is within the Kahalu‘u Historic District, as part of the Kamehameha School's Keauhou-Kahalu‘u resort complex. These included inventory surveys, data recovery plans, preservation plans, and burial treatment plans, which were conducted by several archaeologists. Because of the large volume of the seven reports covering the project site, they are not reproduced as part of the EA, but the major findings are summarized below and illustrated in a map and table. A CD-ROM containing .pdf files of all reports is available upon request of the project developer via the contact information provided on the inside cover page of the EA.

In 1989 and 1990 International Archaeological Research Institute, Inc. (IARII) conducted an archaeological inventory survey and prepared a draft report (Tomonari-Tuggle 1990) for 48 acres of TMK 7-8-010:004. Although prepared in 1990, the report was not submitted to the SHPD for review until 2003. Standards had changed over the intervening 13 years, and new surveys and reports were required by the State Historic Preservation Division (SHPD).

Two subsequent SHPD-approved inventory surveys cover the project site. Cultural Surveys Hawai‘i (Jones et al 2004) conducted an archaeological inventory survey of TMK: 7-8-010:004 (por.), and Archaeological Consultants of the Pacific, Inc. (Moore et al 2004) conducted an archaeological inventory survey of TMK: 7-8-010:004 (por.) and TMK: 7-8-10:056. Inventory surveys of the KIC Development Parcel 26 documented 58 sites consisting of 247 features (Figure 7, Table 6). The features consist of 59 platforms, 44 mounds, 43 modified outcrops, 31 enclosures, 21 terraces, 10 lava blisters, eight swales, seven other walls, five lava tubes, four pavements, four midden deposits, three alignments, two historic wall segments, two cairns, a sinkhole, a burial crypt, a petroglyph, and a ranch gate. Functional classifications consist of permanent and temporary habitation, ceremonial, burial, agriculture, transportation, ranching, marker, and activity area.

All 58 sites identified during the inventory surveys were evaluated as significant using supporting criteria established in rules governing historic sites at Hawai‘i Administrative Rules (HAR) 13-284-

Figure 7. Archaeological Sites (TMK 7-8-010:004)

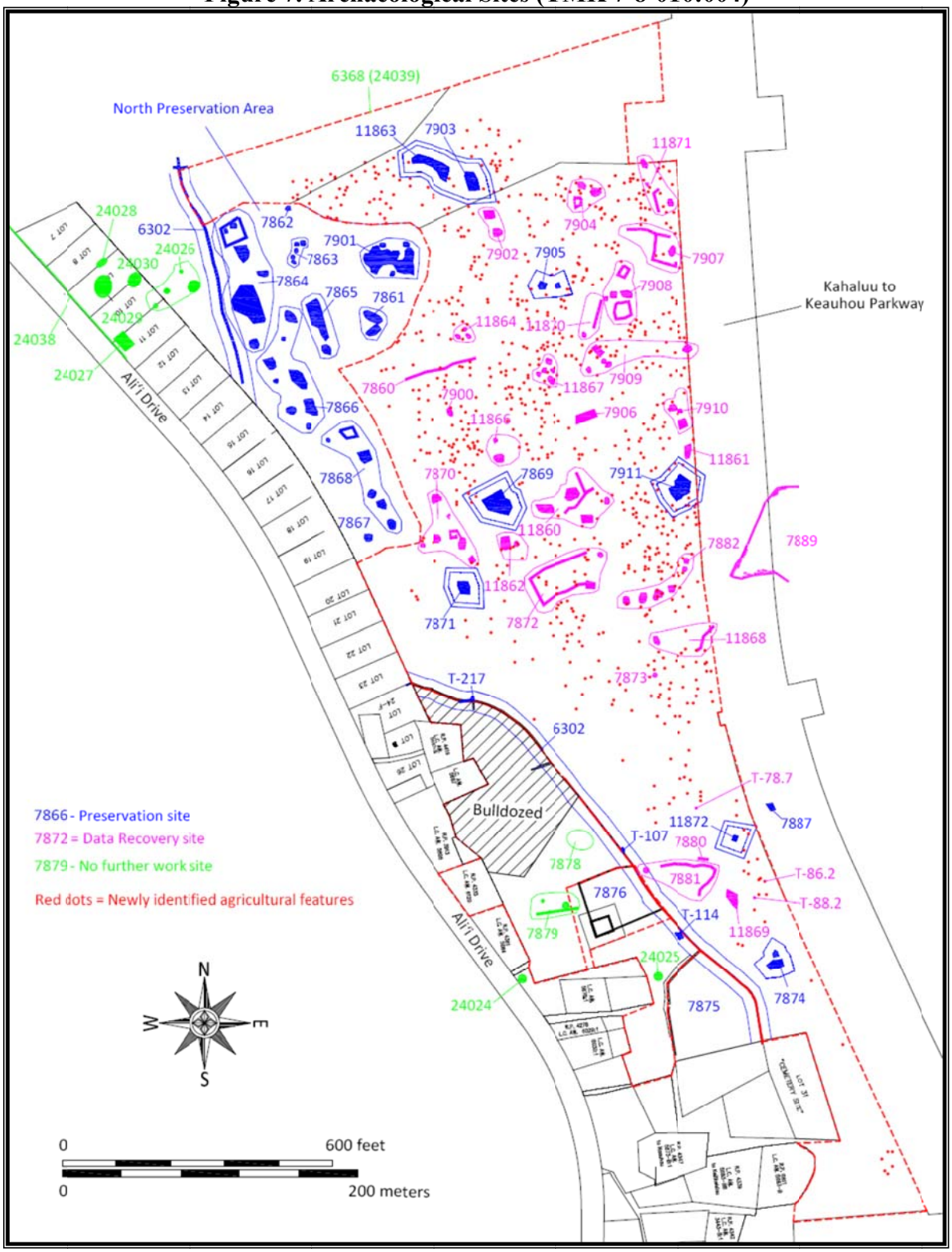


Table 6. Archaeological Sites (TMK 7-8-010:004)

SITE	Formal Type	Inferred Function	Signifi-cance*	Treatment	Inventory Report	Tested
6302	Kuakini Wall	Livestock Control	A, B, C, D, E	Preserve	J; M	
7860	Complex (2)	Agriculture	D	Data Recovery	J	
7861	Complex (2)	Habitation, Agriculture	D	Preserve	J	
7862	Complex (2)	Habitation, Agriculture	D	Preserve	J	
7863	Complex (5)	Possible Burial	D, E	Preserve	J	
7864	Complex (7)	Ceremonial, Habitation	D, E	Preserve	J	H&F
7865	Complex (2)	Ceremonial, Agriculture	D, E	Preserve	J	
7866	Complex (6)	Possible Burial	D, E	Preserve	J	
7867	Platform	Possible Burial	D, E	Preserve	J	
7868	Complex (16)	Habitation, Burial	D, E	Preserve	J	J
7869	Complex (5)	Burial	D, E	Preserve	J	J
7870	Complex (10)	Habitation	D	Data Recovery	J	
7871	Platform	Possible Burial, Habitation	D, E	Preserve	J	
7872	Complex (5)	Agriculture	D	Data Recovery	J	
7873	Complex (2)	Habitation	D	Data Recovery	J	
7874	Complex (2)	Ceremonial	D, E	Preserve	J	
7875	Complex (11)	Habitation, Burial	D, E	Preserve	M	M
7876	Complex (5)	Habitation, Burial	D, E	Preserve	M	M
7878	Complex (7)	Habitation, Agriculture	D	No Further Work	M	M
7879	Complex (3)	Habitation	D	No Further Work	M	M
7880	Complex (2)	Unknown	D	Data Recovery	J	
7881	Complex (2)	Habitation Complex	D	Data Recovery	J	
7882	Complex (13)	Habitation Complex	D	Data Recovery	J	
7887	Complex (2)	Burial	D, E	Preserve	J	J; He
7889	Complex (67)	Habitation, Agriculture, Possible Burial	D, E	Preserve	J	
7900	Platform	Habitation	D	Data Recovery	J	
7901	Complex (5)	Ceremonial, Habitation	C, D, E	Preserve	J	H&F
7902	Complex (2)	Habitation	D	Data Recovery	J	
7903	Complex (2)	Habitation, Ceremonial, Possible Burial	D, E	Preserve	J	
7904	Complex (8)	Habitation	D	Data Recovery	J	
7905	Complex (2)	Burial	D, E	Preserve	J	J
7906	Platform	Habitation	D	Data Recovery	J	J
7907	Complex (5)	Agriculture	D	Data Recovery	J	
7908	Complex (8)	Habitation (AD 1410-1640)	D	Data Recovery	J	J
7909	Complex (6)	Habitation, Agriculture	D	Data Recovery	J	

Table 6, continued						
SITE	**Formal Type**	**Inferred Function**	**Signifi-cance***	**Treatment**	**Inventory Report**	**Tested**
7910	Complex (4)	Habitation, Agriculture, Refuge Cave	D	Data Recovery	J	H&F
7911	Complex (2)	Burial	D, E	Preserve	J	J
11860	Complex (5)	Habitation	D	Data Recovery	J	
11861	Terrace	Habitation	D	Data Recovery	J	
11862	Complex (8)	Habitation	D	Data Recovery	J	J
11863	Complex (5)	Agriculture, Possible Burial	D, E	Preserve	J	
11864	Complex (5)	Agriculture	D	Data Recovery	J	
11866	Complex (5)	Agriculture	D	Data Recovery	J	
11867	Complex (3)	Habitation, Agriculture	D	Data Recovery	J	
11868	Complex (3)	Agriculture	D	Data Recovery	J	
11869	Complex (4)	Habitation, Agriculture	D	Data Recovery	J	
11870	Complex (3)	Habitation	D	Data Recovery	J	
11871	Complex (7)	Agriculture	D	Data Recovery	J	
11872	Mound	Probable Burial Site	D, E	Preserve	J	
24024	Complex (3)	Agriculture	D	No Further Work	M	
24025	Terrace	Agriculture	D	No Further Work	M	
24026	Complex (5)	Habitation, Agriculture	D	No Further Work	M	M
24027	Complex (2)	Habitation	D	No Further Work	M	M
24028	Complex (2)	Agriculture	D	No Further Work	M	M
24029	Complex (11)	Agriculture	D	No Further Work	M	
24030	Complex (4)	Agriculture	D	No Further Work	M	
24038	Boundary Wall	Livestock Control	D	No Further Work	M	
24039	Boundary Wall	Livestock Control	D	No Further Work	M	
T-78.7	Terrace	Permanent Habitation	D	Data Recovery	Ha	
T-86.2	Terrace	Permanent Habitation	D	Data Recovery	Ha	
T-88.2	Terrace	Permanent Habitation	D	Data Recovery	Ha	
T-107	Lava Tube	Temporary Habitation	D	Preserve (within 6302 buffer)	Ha	
T-114	Lava Tube	Temporary Habitation	D	Preserve (within 6302 buffer	Ha	
T-217	Lava Tube	Temporary Habitation	D	Preserve (within 6302 buffer	Ha	
Num-erous	Complex (853)		D	Data Recovery	Ha	

Significance Criteria: A= events associated with broad patterns of history; B= associated with lives of important people; C= distinctive characteristics of site type; D= information content; E= cultural value
Report Code: H&F= Hammatt & Folk 1980; M=Moore et al 2004; J=Jones et al 2004; He=Henry et al 1997; Ha=Haun 2012 (unpublished)
**Source: (Berrigan et al 2010b, Table 6)*

6(b) (see Table 6). Thirty-nine sites were assessed as significant under Criterion "d" for their information content. These sites have yielded or are likely to yield information important for understanding prehistoric to historic land use in the subject area. Seventeen sites were assessed as significant under Criteria "d" and "e" for their information content and for their cultural significance to the Hawaiian people. These sites include features interpreted as shrines, *heiau* or burials. One site was assessed as significant under Criteria "c", "d", and "e" (Site 7901) for its distinctive characteristics of a site type, its information content, and its cultural significance to the Hawaiian people. The Great Wall of Kuakini (Site 6302) previously had been determined by R-SHPD to be significant under Criteria "a", "b", "c", "d" and "e", for its additional association with broad patterns of our history and association with a person important in our past, in addition to the other criteria previously described.

No further work was recommended for 11 sites (7878, 7879, 24024-24030, 24038, 24039; Moore *et al*. 2004:89-92). Additional data recovery was recommended for 25 sites (7860, 7870, 7872, 7873, 7880-7882, 7900, 7902, 7904, 7906-7910, 11860-11862, 11864, and 11866-11871; Jones et al 2004: 196-202). Preservation was recommended for 22 sites, including 14 burial sites (6302, 7861-7869, 7871, 7874-7876, 7887, 7889, 7901, 7903, 7905, 7911, 11863 and 11872; Moore et al 2004:89; Jones et al 196-202). SHPD concurred with the significance assessments and recommendations for the Cultural Surveys Hawai'i inventory (Jones et al 2004; see SHPD letter of February 6, 2006 in Appendix 1a) and with the significance assessments and recommendations for the Moore et al. 2004 inventory (see SHPD letter of July 22, 2005 in Appendix 1b).

It is important to note that in 2010, the land surveyors Towill, Shigeoka & Associates, Inc and a Haun & Associates staff member relocated and plotted the locations of the 22 sites approved for preservation and plotted the County-owned right-of-way (ROW) for the planned Kahalu'u to Keauhou Parkway, also referred to as the Ali'i Highway or Parkway on older maps, as part of the Parcel 26 lease. Previous archaeological maps had been drafted without the use of GPS co-ordinates and relied on development maps produced in the 1990s. Since the early 1990s, the planned highway ROW has been realigned. Currently, two of the 22 preservation sites are within the planned highway ROW and beyond the boundary of Parcel 26. One is a burial site (7887) and the other is a large permanent habitation, burial and agricultural complex (7889) that also encompasses five adjacent sites.

A Burial Treatment Plan (Haun et al 2008) for 14 of the 22 preservation sites (7863, 7866, 7867, 7868, 7869, 7871, 7875, 7876, 7887, 7903, 7905, 7911, 11863 and 11872), which includes provisions for buffer zones and set-backs, was prepared and subsequently reviewed and approved by SHPD and the Hawai'i Island Burial Council (see SHPD letter of May 12, 2008 in Appendix 1b).

<u>In accordance with the Burial Treatment Plan, access to the burial sites for appropriate cultural activities would be permitted to any lineal and/or cultural descendant formally recognized by the HIBC or DNLR-SHPD in accordance with the administration procedures contained within Section 13-300-35: "Recognition of lineal and cultural descendants" (DLNR 1996). The provisions for</u>

access, including parking will be made by direct, mutual agreement between the landowner and recognized lineal and/or cultural descendants. The agreed upon provisions will be recorded as a deed covenant that runs with land prior to occupancy of any units within the Project Area.

A Site Preservation Plan for 20 sites detailing prescribed short-term and long-term preservation methods and structures was prepared October 2010 (Berrigan et al 2010a) and approved by SHPD (see SHPD letter of February 24, 2012, in Appendix 1b).

A Data Recovery Plan (Berrigan et al 2010b) provides guidelines for additional data collection at 25 sites identified in previous inventory survey reports. All 25 sites are located inland of the Kuakini Wall. This plan describes standardized data collection procedures, documentation requirements at individual sites, and a theoretical framework within which the sites will be analyzed. The Plan was approved by SHPD by letter of February 24, 2012 (see Appendix 1b). Data recovery was begun in October 2012 (Haun 2012, unpublished), resulting in reassignment of certain features to six new temporary sites and mapping of miscellaneous agricultural features that had been noted but not mapped (Figure 7, Table 6). There have been no significant additional findings during data recovery.

The archaeological tasks that remain are to implement all elements of the Data Recovery Plan, Burial Treatment Plan and Site Preservation Plan prior to disturbance of the property, and to implement the Archaeological Monitoring Plan during site development. The data recovery plan is currently in the early fieldwork stages of implementation.

The 0.361-acre lot that would be used to connect the KIC property with Aliʻi Drive (TMK 7-8-14:13) was investigated in a separate archaeological study (Clarke and Rechtman 2001). In May of 2001, archaeologists with Rechtman Consulting performed a surface reconnaissance of Parcel 13 and mapped and evaluated archaeological features. They also conducted limited subsurface testing at features requiring further investigation in order to accurately interpret function, or to rule out the possibility of human burials. One archaeological site was identified (Site 23005), which was associated with the *kuleana* house site award of Peʻekoa from the mid-19th century. The site was enclosed by a core-filled, dry stacked wall that had been broken in several places by modern activities. Other dry-stacked non-core filled walls were also present. Features that were in disrepair and obscured by modern cultural material were identified as the remains of houses stated to be on the lot during Mahele testimony. It appears that the property was surveyed in 1925 and reoccupied, as the majority of the cultural debris found at the site dated from the first half of the twentieth century, and the archaeological remains on the parcel had been badly further disturbed from a recent homeless camp. Site 23005 was considered significant under Criterion d for the archaeological information that it has yielded concerning the middle nineteenth to early twentieth century transition in Hawaiian land tenure and residential patterns. The archaeologist determined that adequate and reasonable amount of the significant information at this site thus was documented during the survey, and that no further mitigation work or preservation was required. The Mahele age features have lost most of their integrity. By letter of February 4, 2002 (see Appendix 1b), SHPD concurred with the findings.

Impacts and Mitigation Measures

As stated in the SHPD letters contained in Appendix 1b, given the extensive mitigation in the form of large preservation areas for multiple sites with protective measures; burial treatment plans to ensure preservation of burials and accessibility for lineal descendants; and data recovery that will gather additional information valuable for the study of culture and history, development of the remaining areas of the project site will have no adverse impact on significant historic properties.

A Final Archaeological Monitoring Plan for TMKs: 7-8-010: Por. 004 and 7-8-014: 056 (Berrigan et al 2010c) has also been prepared because of the potential for the discovery of remnant subsurface cultural deposits and human burials. Such remains are potentially present throughout the parcel at variable depths. An archaeological construction monitor is recommended within the entire parcel to protect the 20 preservation sites and to identify undocumented sites or features that might be exposed as result of earth moving activities. The developer will be responsible for archaeological monitoring associated with all grading, grubbing and planned infrastructure development. An archaeologist will ensure that provisions for the interim protection of the 20 preservation sites are in place prior to construction. Controlled destruction of the other 38 sites will be monitored to ensure that significant data is collected, if encountered. All earth disturbing activities within the parcel will be monitored to ensure that significant subsurface cultural deposits or features are evaluated, treated and documented in consultation with SHPD. The Plan was approved by SHPD by letter of February 24, 2012 (see Appendix 1b).

Detailed monitoring objectives will be as follows:

1. Ensure that the Preservation Sites are appropriately protected during construction as stipulated in the Site Preservation and Burial Treatment Plans;
2. Document the controlled destruction of the 11 sites where no further work was recommended to recover any significant data that might be exposed during construction;
3. For sites where no further work was recommended, obtain complete dimensions of features currently obscured by dense vegetation as they are exposed during construction;
4. Identify and evaluate the significance of any archaeological remains revealed during construction activity;
5. Notify DLNR-SHPD and the landowner upon discovery of any potentially significant undocumented archaeological, historical or cultural resources and, in consultation with SHPD personnel, determine appropriate data recovery or preservation measures;
6. Conduct data recovery fieldwork including documentation (mapping, profiles, written description, and photography), collect portable remains (artifacts, food remains, dating samples, etc.), and undertake controlled excavation to evaluate significance;
7. Analyze field data and any collected materials; and
8. Prepare and submit a report meeting the DLNR-SHPD requirements.

Archaeological monitoring personnel will normally consist of one archaeologist, who will be present whenever any phase of the ground surface disturbance is in progress. The archaeologist will monitor all work within the project site to identify any discovered cultural remains. Additional monitors will be mobilized if construction activities involve multiple pieces of equipment at widely spaced locations, or if the scale of documentation and data recovery is beyond the capacity of a single archaeologist.

If archaeological remains are identified during the course of monitoring, the archaeologist will document and collect portable remains as appropriate. Any identified remains will be evaluated for significance based on the criteria outlined in SHPD Rules, Chapter 284. All recovered materials will be temporarily curated at the archaeological contractor's office. Following completion and acceptance of the monitoring report, permanent curation facilities will be determined in consultation with Towne Development and the SHPD.

If human remains are encountered during construction, then the remains will be treated following the procedures outlined in HAR 13-13- Chapter 6E-43. Work in the area of the discovery will be halted, the remains stabilized if necessary, and SHPD will be contacted for guidance.

- In response to the Draft EA, SHPD provided a letter dated September 20, 2013 (see Appendix 1b for letter and response of applicant). In the letter, SHPD stated it was unable to concur with the conclusion that no traditional cultural practices take place in the project area, and thus it could not at that time concur with the statement that the proposed mitigation measures in the form of burial treatment, preservation, data recovery, and archaeological monitoring plans will, by themselves mitigate the impacts to this project area, for a number of reasons.

- SHPD was concerned about "new information" that the Kahulamu 'Ohana have ongoing cultural practices of caring for family burial sites, some of which are located in the project area, burials that were not recorded in the AIS and not protected in the burial plan. SHPD stated that an effort must be made to work with the Kahulamu 'Ohana to ensure that their family burial sites, and their ability to care for these burial sites, are protected. Concerning this issue, both the project archaeologist and the cultural impact assessment specialist requested the Kahulamu 'Ohana to share information on the location of these potential sites, but were told that this would not be allowed. The area has been thoroughly surface surveyed a number of times and no burials were identified in this area. Searches offsite for cave openings that could lead to burials onsite were also conducted. No such openings were identified. Towne Development subsequently learned through a number of meetings with the family that the general area is also important for caring for family burial sites that are **outside** the development property on a family cemetery. Towne then agreed to prohibit any development or disturbance within this area, adding to the already considerable area that has been set aside for preservation.

- SHPD was concerned that the data recovery plan's requirement to resurvey the area to identify historic and pre-contact agricultural features that were not recorded in the earlier AIS would not be conducted, and that the many features indicated that this was a cohesive landscape, not a collection of individual features, which might be expected given the location within the Kahalu'u Historic District, a historic landscape that might be adversely affected by the project. In response, the archaeologist notes that the undocumented features were identified during the **first phase** of field work conducted in accordance with an SHPD-approved data recovery plan (DRP) for the project. The presence of these primarily agricultural features was described in the two SHPD-approved archaeological inventory surveys for the property, but the features were not systematically documented. The lack of documentation was specifically addressed in the DRP that proposed survey work to document them. The features will be fully reported and evaluated in the data recovery report following completion of the fieldwork. SHPD will be consulted regarding site significance and treatment prior to the next phase of data recovery work. With respect to the historic landscape, the current Site Plan includes almost 19 acres (31% of the project area) as permanent preservation areas and/or open space, including the buffer around the Kahulamu family cemetery. These permanent open spaces will help protect and preserve the historic landscape and ensure that long term impacts to the historical significant sites are mitigated.

- SHPD requested an opportunity to conduct a field visit to the project area to adequately assess the newly identified historic properties and features, which the archaeologist will arrange as part of completion of the data recovery report.

- SHPD expressed concern that the AIS report for parcel (3) 7-8-0]4:013 was prepared in 2001, prior to the acceptance of the Hawai'i Administrative Rules that govern the standards for archaeological inventory surveys and reports. They therefore requested the opportunity to conduct a field visit to determine if this survey was adequate to today's standards, or whether an updated inventory survey needs to be prepared. In response, the archaeologists stated that the AIS reports were reviewed and approved by SHPD under draft rules that are essentially the same rules that were subsequently adopted. SHPD subsequently approved the burial treatment plan (January 19, 2012), a site preservation plan (February 12, 2014), data recovery plan (February 12, 2014), and a monitoring plan (February 12, 2014). All of these approved plans are based on the original AIS reports. The data recovery and preservation plans contain explicit methods to address any data deficiencies in the SHPD-approved AIS report.

3.3 Infrastructure and Services

3.3.1 Utilities, Public Facilities and Public Services

Existing Utilities, Impacts and Mitigation Measures

Electrical power would be supplied to the project site by the Hawai‘i Electric Light Company (HELCO), a privately owned utility company regulated by the State Public Utilities Commission, via its island-wide distribution network. In the subject area the network utilizes overhead lines in a utility easement that traverses the northern boundary of the project site and connects from Kuakini Highway to Ali‘i Drive through an existing 70-foot wide breach in the Kuakini Wall. Telephone service from Hawaiian Telcom and cable TV service from Time Warner Oceanic Cable are also available via lines and poles on this utility easement. All electrical, telephone and CATV utility lines will be underground. As detailed in Section 1.1, above, the *Keauhou Village & Kahalu‘u Village Residential Design Guidelines* require that all residential developments at Keauhou are subject to the Hawai‘i Model Energy Code to minimize energy consumption by facilities, including Lighting, Heating, Venting and Air Conditioning (HVAC), Hot Water, and Energy Management. Residences are encouraged to use solar water heating and photovoltaic panels that are to be integrated into the roof design. The proposed development would not have any substantial impact on existing electricity, telephone or cable TV systems.

Water would be provided by the County Department of Water Supply. KIC/BHP has paid all applicable service fees in full, and two services have been installed for Parcel 26. According to a letter from the Hawai‘i County Department of Water Supply (DWS) of November 7, 2012 (see Appendix 1a), there is a total water allocation of 349 units of water. In order to the owner to use these services, some facilities must be relocated to front the property. Therefore, water is available to the proposed development.

Many Kona residents are concerned about increasing salinity in Kona potable wells due to over-pumping of the Kahalu‘u shaft, which was long the primary source of water in the Kailua-Keauhou urban area. The County is currently developing additional *mauka* sources, including wells at Waiaha and Palani, and also restructuring transmission systems to direct water from *mauka* sources to *makai* uses, in order to address this problem. Furthermore, as detailed in Section 1.1, above, the Keauhou Village & Kahalu‘u Village Residential Design Guidelines require that landscape design of public areas use native Hawaiian and Polynesian-introduced plants that have lower watering requirements. The design for the project will utilize such species, which is also in keeping with the natural vegetation of this part of Kona.

Wastewater service in the area is available from Keauhou Community Services, Inc., (KCS), a privately owned wastewater service provider that is regulated by the Hawai‘i Public Utilities Commission. All wastewater within the service area, which includes KIC-owned property within Keauhou and Kahalu‘u is piped to the KCS’s He‘eia Wastewater Treatment Plant via a system of sewer lines. The existing sewer system currently ends at Kahalu‘u Road. The project will either

construct a sewer line within this road to connect to the existing improvements, or extend the sewer line within Ali‘i Drive a distance of approximately 350 feet to connect to the proposed project access location. KCS has available capacity for the proposed project (see letter in Appendix 1b).

Solid waste from the development will be collected by a commercial hauler for disposal at the County’s West Hawai‘i Sanitary Landfill in Pu‘uanahulu, which has several decades of capacity. A Solid Waste Management Plan will be submitted to the County Department of Environmental Management prior to the issuance of a Certificate of Occupancy.

In sum, the proposed action would not have any adverse impact on existing utilities and is being developed with energy efficiency, low water use, and pollution minimization in mind.

3.3.2 Public Facilities and Public Services

Fire, Police and Emergency Services

The Kailua Police Station is located in Kealakehe and the Kailua Fire Station is located on Palani Road. Emergency medical services are provided by the Hawai‘i County Fire Department. Acute care services are available at Kona Hospital. All facilities are located within 10 road miles of the project site.

Educational Facilities

Schools serving the project site include Kahakai Elementary, Kealakehe Intermediate School and Kealakehe High School. The Hawai‘i Department of Education has noted in comments in response to recent development proposals in Kona that new housing may have an impact on Kona area schools, and that the DOE anticipates the need for new or expanded schools to serve the growing area. Act 245 empowers the Board of Education to identify and adopt school impact districts for areas requiring new or expanded facilities in the future. Although the nature of the proposed project would not likely add any significant number of permanent school-age residents, the project will comply with the requirements of Act 245 as applicable.

Recreational Facilities and Services

Recreational facilities in the Kailua to Keauhou area include at Old Kona Airport Park an Olympic swimming pool, a large pavilion, a gymnasium, baseball, football and soccer fields, a skateboard facility, ballfields, a community center and other active components. Numerous State and County beach parks are located with 10 miles, including White Sands, Kahalu‘u, and Pahoehoe County Beach Parks, all within a mile of the project site. Keolonahihi State Historical Park, which is largely undeveloped, is located about two miles north of the project site. A recreational boat harbor is present at Keauhou about two miles south, while eight miles north, Honokohau Harbor is a major facility for not only commercial but also recreational fishing, with about 450 berthing slips and also on-land boat storage. Kaloko-Honokohau National Historical Park, which contains various

significant archaeological, cultural, hydrological and biological resources, lies just north of the harbor on a 1,178-acre site.

The most important recreational facility in terms of project impact is Kahalu‘u County Beach Park, which is directly downhill and within easy walking distance (see photos in Figure 2). This 4.2-acre park opened in 1953 is centered on a bay sheltered by a partially submerged historic rock wall. It is flanked by other significant historic sites, including fishponds, bathing ponds, royal house sites, and several *heiau*, as discussed in Sections 3.2.2 and 3.2.3, above.

The park is open from 7 to 11 daily, with lifeguards on duty 7 days a week, from 9:45 AM to 4:45 PM. The park is highly popular with snorkelers, especially visitors, who fill the several dozen parking spaces every day by mid-morning, after which parking spills out onto the street and across Ali‘i Drive. The key factor in the site’s popularity is the shallow, calm water, which teems with tame, colorful reef fish, coral heads and turtles. The park is also adjacent to a surf site that attracts locals and visitors alike. There are only a few narrow, sand covered water entries, and a typical day sees multiple minor injuries to visitors from coral cuts, slips on the rock and sea urchin spines. There are occasional drownings, often triggered by heart attacks in visitors not used to the exertion of snorkeling, including one as recently as April 2012, and the County lifeguards are normally quite busy.

The Kohala Center sponsors the ReefTeach program, in which volunteers educate visitors about marine life and water quality in order to minimize damage to the natural resources and injuries to visitors, who otherwise will often handle sea turtles, feed reef fish and touch coral. This program has helped reduce the impact to the heavily used bay, which has managed to maintain outstanding resources in the face of heavy human use. Park attendance data compiled during lifeguard hours over the last three years indicates that, on average, more 1,000 to 1,200 people visit the park daily (pers. comm. Clayton Honma, Hawai‘i County P&R, and Gerald Kosaki, Hawai‘i Fire Department, to Ron Terry September 2012). Observation during the research for this EA has counted several hundred people at least occasionally sharing less than two acres of beach. This density approaches the National Recreation and Park Association’s recommended density standards of 50 square feet of water and 50 square feet of land per user (Lancaster 1990). These standards may be excessively generous considering the small sandy beach resources of the rocky Kona Coast, but they point out the sometimes crowded conditions at the park.

Impacts and Mitigation Measures to Public Facilities and Services

The project will have an effect on public services and facilities through additional demand for fire, police, and emergency services, solid waste services, recreational facilities and other miscellaneous government facilities services. Negligible to minimal effects to schools are expected. <u>The proposed development will include recreational facilities available to the residents/owners. While the development plan is still conceptual and subject to change, the recreational amenities are anticipated to include two swimming pools/community center complexes that will be available for group functions/meetings/gatherings. The facilities will be maintained by the homeowners association that</u>

will be established to oversee the maintenance of all common areas, including landscaping, paved areas and building exteriors.

It should be noted that resort-residential condominium projects in the County of Hawai‘i tend to provide a significant net benefit in terms of public services and facilities. A 2003 economic study of resort-residential housing (Decision Analysts Hawai‘i, Inc. 2003) in West Hawai‘i determined that on balance it provides substantial economic benefits to the Big Island. Construction and occupant expenditures are important for employment and economic growth, and the support services required by those occupying the homes and condominiums cost far less to the County and State than the large amount of property taxes they pay. Revenues are high and steady because of the large numbers of very high value units, the low percentage of homeowners who qualify for homeowner exemptions, and the high property tax rate for properties that are not occupied by homeowners. Government costs are low because developers fund most or all of the infrastructure and amenity construction costs, and often much of the operating costs. Also, low occupancy rates mean lower demand for County services, and as most residents are well-off, they require little if any government assistance. According to the report:

> “Thus, property-tax revenues from resort-residential projects exceed support expenditures by $20.8 million per year for existing projects ($22.2 million – $1.4 million) and $25 million per year for planned projects ($26.7 million – $1.7 million). In effect, resort-residential projects provide substantial tax revenues to subsidize support services to other Big Island residents and visitors” (Ibid: 6).

In general, significant real property and other tax contributions would more than compensate for extra costs of public services and would also enable agencies to improve and expand their services.

However, developments of the size proposed may pose a risk to specific, local facilities, such as local roads (discussed in Section 3.3.3, below) and nearby recreational facilities. The most noticeable impact may be on Kahalu‘u County Beach Park, where the development would essentially double the number of residences within walking distance of the park. It should be noted, however, that the closure and planned demolition of the adjacent Keauhou Beach Resort Hotel will also substantially reduce the number of visitors to the park.

Maintaining the quality of the park experience and resources is important to local residents, who swim, dive, surf and hold parties at the park. The Hawai‘i State Department of Land and Natural Resources (DLNR) conducted a statewide public recreation user survey of residents in 2008. The most popular recreation activity was visiting a beach, which 90% of residents said they did at least once a year (Hawai‘i DLNR 2008), closely followed by ocean swimming (86%). Of the top ten 14 recreational activities, three others also involved beach parks (snorkeling, bodysurfing and surfing/bodyboarding).

Beaches are also highly important in terms of visitor satisfaction and spending. The 2006 Visitor Satisfaction and Activity Report by the Hawai‘i Tourism Authority utilized surveys to measure

satisfaction levels for different components of the visitor experience (accommodations, attractions/ dining, shopping, etc.), and also to provide data on what activities visitors engaged in during their vacation. According to the 2006 survey, the most popular outdoor recreational activity among visitors was swimming/sunbathing/beach activities (Hawai‘i DBEDT 2006).When asked to rate satisfaction with parks and beaches during their vacations, visitors were overwhelmingly pleased, with over 90% responding positively.

As noted in the *Hawai‘i State Comprehensive Outdoor Recreation Plan (SCORP) 2008 Update* (Hawai‘i DLNR 2008):

> "Because visitors are drawn to our State's natural scenery and outdoor recreational opportunities, an increasing visitor population affects the demand on the outdoor recreation resources…. Where tourism and outdoor recreation overlap, the tourism providers and outdoor recreation providers must work with the same resources and attractions and serve the same people. Recreation-based tourism industry businesses depend upon desirable public lands' aesthetics and amenities."

It is likely that many of the occupants of the time share units will avail themselves of the amenities at Kahalu‘u Beach Park, and there will be an increase in use that may impact the resources and the enjoyment of the park by other visitors and residents. New property tax revenues will make it possible to improve the park to partially mitigate this impact.

To further mitigate for adverse effects to Kahalu‘u Beach Park, Towne has committed to provide street crossing improvements consisting of a crosswalk and pavement markings on Ali‘i Drive at a location to be determined in consultation with the County Department of Public Works, the Department of Parks and Recreation and the Kohala Center. In addition, Towne is committed to working with to working with the Department of Parks and Recreation and the Kohala Center to mitigate in other ways, including the option of providing funding support for the Kahalu‘u Bay Education Center and/or Ranger Program at the park.

3.3.3 Roadways and Traffic

In order to quantify and describe the traffic-related characteristics and determine if traffic operations in the vicinity would be impacted, Phillip Rowell and Associates prepared a Traffic Impact Assessment (TIAR) for the project. The full report (revised from the report in the Draft EA) is contained in Appendix 4 and summarized below.

Methodology

The TIAR began with a field reconnaissance to identify existing roadway cross-sections, intersection lane configurations, traffic control devices, and surrounding land uses. Next, current weekday peak hour traffic volumes were obtained from manual traffic counts along Ali‘i Drive in the vicinity of the proposed project driveway. The traffic engineer then conducted a trip generation

analysis to determine how many vehicles would enter and leave the project driveway on Ali‘i Drive during typical peak morning and afternoon traffic hours. Project-generated traffic was then “assigned” to the adjacent roadway network, and a level-of-service analysis for future traffic conditions with traffic generated by the project was performed, which included determining the lane configuration required to provide acceptable levels-of-service.

Existing and Proposed Facilities and Traffic Levels

Ali‘i Drive is a two-lane, two-way roadway with a north-south orientation connecting Keauhou and Kailua Town. The posted speed limit adjacent to the proposed project’s driveway is 30 miles per hour in the northbound direction and 25 miles per hour in the southbound direction. In the vicinity of Makolea Street, the next intersection south of the project driveway, the posted speed limit is 25 miles per hour. Ali‘i Drive at the project site is basically flat but curves around Kahalu‘u Bay, with no sidewalks. Instead, there are roughly 4-foot wide paved shoulders that are used intensively by walkers, joggers, and bicyclists. Peak hour traffic counts taken on Friday, September 7, 2012, showed a two-way total of 443 vehicles (and 34 pedestrians) during the peak AM hour, and 630 vehicles (and 26 pedestrians) during the peak PM hour.

Impacts and Mitigation Measures

Traffic associated with the project would enter and exit via one new driveway that would be constructed through a vacant lot on Ali‘i Drive (see Figure 3a) that connects to the *makai* portion of Parcel 26 through an existing 70-foot wide breach in the Kuakini Wall. In addition to access from Ali‘i Drive, Towne is proposing that driveway connections be provided to future road improvements adjacent to the project site, including the Kahului-Keauhou Parkway (formerly Ali‘i Highway) and/or to a new *mauka/makai* collector road immediately to the north of the project site as identified on the North Kona Community Development Plan’s (NKCDP) Official Transportation Network Map – Kahalu’u Area (Figure 4-2c). However, there is no schedule of completion for these long-planned projects. Should the portion of the Parkway *mauka* of the project site be completed and open for use prior to the that the building permit for the project’s last unit is obtained Towne is willing to improve the access segment from the main project driveway to the Parkway to County dedicable standards and dedicate that improved road segment to the County. In addition, Towne is working with the County concerning the possible establishment of an emergency access route from the project to La‘aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative *mauka/makai* access for use during times of emergency.

In the Draft EA, the year 2017 was used as the horizon year for the traffic projections, i.e., the date for which projections of future background traffic and background plus project traffic were estimated. In response to a request from the Planning Department in a comment to the Draft EA, the traffic projections were extended to 10 years from the date of the TIAR, i.e., 2023. No substantial approved new residential, commercial or industrial projects are known to be occurring in the project vicinity that could impact traffic conditions in this section of Ali‘i Drive. It is understood that the Keauhou Beach Resort Hotel will be demolished and replaced by less intensive land uses. Although

this will probably slightly decrease in traffic in the near future, to be conservative, it was not factored in.

The traffic counts performed in 2012 are significantly lower than those performed in 2005. However, it is not likely that traffic volumes along Ali‘i Drive will continue to decrease between 2012 and 2023. Therefore, a realistic growth rate cannot be estimated from historical traffic data. A review of population forecasts for North Kona indicates a population growth of 2.2% per year between 2010 and 2020, which was used in the TIAR as an estimate of background traffic growth between 2012 and 2023. Future traffic volumes generated by proposed project were estimated using the methodology described in the *Trip Generation Handbook* and data provided in *Trip Generation* (see Appendix 4 for references and calculations) (Table 7).

Table 7. Summary of Trip Generation Calculations

Period & Direction		Single Family	Multi-family	Total Trips
		17 Units	321 Units	
AM Peak Hour	Total	22	185	207
	Inbound	6	123	129
	Outbound	16	62	78
PM Peak Hour	Total	21	233	254
	Inbound	13	96	109
	Outbound	8	137	145

(Note: While the total unit count has been reduced, the original unit counts were utilized in the TIAR to ensure that project impacts were fully assessed.)

Project trips were distributed and assigned based on existing traffic approach and departure patterns of traffic into and out of the residential area (see Table 7 of Appendix 4 for details). Background plus project traffic projections were estimated by superimposing the peak hourly traffic generated by the proposed project on the background (without project) peak hour traffic projections. This represents a worse-case condition that assumes that the peak hourly trips generated by the project coincide with the peak hour of the adjacent street.

“Level-of-service” (LOS) is a term that expresses traffic operating conditions that occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience. There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively.

A level-of-service analysis for the intersection of Ali‘i Drive at the project driveway was performed for “with-project” conditions only, since the driveway does not yet exist and would be constructed as part of the project. The purpose of the analysis is to confirm that the intersection will operate at an acceptable level-of-service and that there are no traffic operational deficiencies. The results of the level-of-service analysis for the intersection of Ali‘i Drive at the project driveway are summarized in Table 8.

Table 8. Future (2023) Levels-of-Service – Ali‘i Drive at Project Driveway

Intersection and Movement	AM Peak Hour			PM Peak Hour		
	Delay (1)	LOS(2)	Queue(3)	Delay (1)	LOS(2)	Queue(3)
Overall Intersection	3.1	A	NC	4.4	A	NC
Westbound Left & Right	16.9	C	<1	26.4	D	<3
Southbound Left & Thru	2.6	A	<1	1.7	A	<2

NOTES:
(1) Delay is in seconds per vehicle. (2) LOS denotes Level-of-Service.
(3) See Attachment E of Appendix 4 for Level-of-Service Worksheets.
(4) 95th percentile queue as reported by Synchro. Queue lengths are not calculated for the overall intersection
NC = not calculated

The conclusion of the level-of-service analysis is that the overall intersection of Ali‘i Drive at the project driveway will operate at LOS A during both peak hours, and traffic exiting the project will operate at LOS C at AM and D at PM peak hour. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service. The level-of-service analysis also concluded that southbound traffic along Ali‘i Drive will operate at LOS A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Ali‘i Drive. It is acknowledged that on some high surf days, traffic along Ali‘i Drive becomes very congested, and turning movements into any driveway or street further delay traffic.

In terms of mitigation, because level-of-service would remain well above LOS F, there is no requirement for signalization or turn lanes at the project driveway. As discussed above, it is possible that the project may ultimately also have a driveway onto the Kahului-to-Keauhou Parkway right-of-way, which would relieve traffic on Ali‘i Drive. The traffic engineer recommended that the project driveway be designed to provide sufficient sight distance and sufficient turning radii to accommodate turning vehicles with minimal deceleration along northbound Ali‘i Drive. This will be a goal during project design.

In addition, Towne and its successors or assign, have agreed to be responsible for the payment of its “fair share” for road improvements for the residential units within those areas rezoned pursuant to Change of Zone Ordinance No. 820, which rezoned a portion of the subject area along with other areas owned by Kamehameha Investment Corporation (KIC), including a portion of the Keauhou Shopping Center. These payments, which will be made at time of building permit issuance, can be used by the County to address regional traffic impacts. As part of an agreement between the County of Hawai‘i and KIC in 1998, the County acknowledged it was responsible for the construction of the Ali‘i Highway (Kahului – Keauhou Parkway) through this portion of Kahalu‘u/Keauhou, provided that KIC be responsible for certain intersection improvements allowed within the Parkway. The County has determined that in lieu of contributions for these future intersection improvements, the imposition of the Road Fair Share requirement would satisfy this requirement for the subject area.

3.4 Secondary and Cumulative Impacts

Somewhat distinct from the direct effects that construction and occupation of a housing project can have on the environment are secondary impacts. These can include economic impacts; although generally positive, increased economic activity resulting from the expenditures of new residents or visitors can draw in workers who add to the existing demand for affordable housing. In the case of the subject project, its modest scale in relation to the existing population of the island indicates that any such secondary impacts would generally be negligible. The issue of secondary impacts to public facilities and services is covered above in Section 3.3.2.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The special case of long-term traffic has been discussed in Section 3.3.3, as the Traffic Impact Assessment Report analyzed traffic from a cumulative impact perspective by considering background growth and new projects as well as the proposed project.

Most of the other adverse effects of the project are related to construction – short-term disturbance to air quality, traffic, noise and visual quality – and are thus somewhat limited in severity, nature and scale. According to current schedules and anticipated market conditions, most of the construction activity on the project site would occur during 2016-2020.There are a number of construction projects that may occur nearby within this five-year timeframe that could generate similar construction impacts, with which these very minor and temporary effects could accumulate. These interactions thus require attention.

There are a number of planned or ongoing projects in North Kona. Table 9 summarizes these projects and their potential interaction with the proposed residential project, focusing on large regional projects and those smaller projects in the Kahaluʻu area or nearby. Most major projects planned for North Kona are centered in the growing Kailua to Keahole area. These include improvements to Queen Kaʻahumanu Highway and related roads, Kona International Airport, energy, aquaculture and other facilities at the Natural Energy Laboratory of Hawaii (NELHA), Honokohau Harbor improvements, the Kona Judiciary Complex and various minor road and sewer improvements. To the south, and crossing into South Kona, the County has recently announced that it will attempt to complete the Mamalahoa Highway Bypass from Kealakekua to Napoʻopoʻo. Because of the five to twelve mile distance of each of these projects to the Kahaluʻu project site, in addition to non-overlapping timing in some cases, it is unlikely that there will be any interaction concerning construction, or any other, adverse impacts.

Most projects in the Keauhou to Holualoa *makai* area that have undergone the EIS or Special Management Area review process are very minor activities such as stone walls or structure additions. The exceptions are the Kahului to Keauhou Parkway (aka Aliʻi Highway), and the demolition of the Keauhou Beach Resort along with the repurposing of the Kamehameha School property that houses both it and the former Kona Lagoon Hotel, a project that is in planning.

There is no current indication that the Kahului to Keauhou Parkway will begin construction in the foreseeable future, although an upturn in the economy could stimulate new interest. Although the schedule for demolition of the Keauhou Beach Resort Hotel and reuse of the property has not been made publicly available, it is assumed that it will be an ongoing process that will likely overlap construction of the proposed condominium project. Dust, noise, and particularly construction traffic from the two projects may accumulate, causing congestion on Ali‘i Drive. Although the likelihood, degree and timing of this accumulation cannot be predicted at this time, the County may consider requiring coordination of traffic control plans for the two projects, with review by the Department of Public Works, to minimize impacts.

Table 9. Projects with Potential for Cumulative Impacts

Project	Construction Timing	Location Relative to Project Site	Interaction Potential
Ōneo Lane (County road project)	2016-2017	Kuakini Highway to Ali‘i Drive	Low, due to distance and low magnitude of construction impacts
Keōpū Well #4 Pump and Transmission Lines	2015-2016	North of Kailua Town	Low, due to distance and low magnitude of construction impacts
Lono Kona Subdivision Sewer Lines	2016-2018	Within Kailua Town	Low, due to distance and low magnitude of construction impacts
Kahalu’u Ma Kai Project Demolition of Keauhou Beach Resort and Re-use of Site for Cultural Center	2015-?	*Makai* of Ali‘i Drive	High, due to proximity, timing and nature of activity
Kahului to Keauhou Parkway (Ali‘i Highway)	Timing uncertain	Directly *mauka*	Medium low, due to uncertainty of eventual completion
Kona International Airport Improvements	2015-2022	12 mi N	Low, due to distance
Kona Judiciary Complex	2015-2017	Off Ane Keohokalole Highway 10 mi N	Low, due to distance
Mamalahoa Highway Bypass	Timing uncertain	5 mi S	Medium low, due to distance and uncertainty of timing
Activities at NELHA	2015 on	12 mi N	Low, due to distance

Source: *OEQC Environmental Notice*; press reports.

3.5 Required Permits and Approvals

The following permits and approvals would be required:

- County of Hawai‘i, Leeward Planning Commission, Special Management Area Major Permit
- County of Hawai‘i, Planning Department: Plan Approval
- County of Hawai‘i, Department of Public Works, Engineering Division: Grading Permit; Approval for Work Within County Right-of-Way
- State of Hawai‘i, Department of Health: Underground Injection Control (UIC) permits; National Pollutant Discharge Elimination System (NPDES) permits, Community Noise Control permits
- County of Hawai‘i, Department of Public Works: Building Permits
- State of Hawai‘i, Real Estate Commission, Condominium Property Regime Final Public Report

3.6 Consistency With Government Plans and Policies

3.6.1 Hawai‘i State Plan

Adopted in 1978 and last revised in 1991 (Hawai‘i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The three themes that express the basic purpose of the *Hawai‘i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The proposed project would promote these goals by adding housing opportunities for the North Kona district, thereby enhancing quality-of-life and community and social well-being. At the same time, any residential construction project brings with it adverse short-term and long-term impacts that can affect these themes and must be carefully mitigated.

3.6.2 Hawai‘i State Land Use Law

All land in the State of Hawai‘i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The project site is in the State Land Use Urban District. The proposed use is consistent with intended uses for this land use district.

3.6.3 Hawai‘i County Zoning and General Plan

Hawai‘i County Zoning. According to the Hawai‘i County Planning Department (see letter of September 21, 2012 in Appendix 1a), the property is currently split-zoned for Resort (V-1.25), Multi-family Residential (RM-3.5) and Single-family Residential (RS-7.5, and the project is permissible with this zoning. The County has determined that time share units are permitted use with the within the Resort and RM zoned portions of the project site.

The *Hawai‘i County General Plan Land Use Pattern Allocation Guide (LUPAG)*. The LUPAG map component of the *General Plan* is a graphic representation of the Plan’s goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors., the project site is designated Low Density Urban and Medium Density Urban, with which the project is consistent.

The *General Plan* for the County of Hawai‘i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai‘i. The plan was adopted by ordinance in 1989 and revised in 2005 (Hawai‘i County Department of Planning). The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai‘i. Analysis for the EA confirms that it generally satisfies the following Goal and Policies, and Courses of Action of particular chapters of the General Plan:

ECONOMIC GOALS

Provide residents with opportunities to improve their quality of life through economic development that enhances the County’s natural and social environments.

Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.

Strive for diversity and stability in the economic system.

Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County’s cultural, natural and social environment.

Discussion: The proposed action is in balance with the natural, cultural and social environment of the County, and it will create temporary construction jobs for local residents and indirectly affect the economy through construction industry purchases from local suppliers, particularly for Kona merchants. A multiplier effect takes place when these employees spend their income for food, housing, and other living expenses in the retail sector of the economy. Such activities are in keeping with the overall economic development of the island.

ENVIRONMENTAL QUALITY GOALS

Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.

Maintain and, if feasible, improve the existing environmental quality of the island.

ENVIRONMENTAL QUALITY POLICIES

Take positive action to further maintain the quality of the environment.

ENVIRONMENTAL QUALITY STANDARDS

Pollution shall be prevented, abated, and controlled at levels that will protect and preserve the public health and well being, through the enforcement of appropriate Federal, State and County standards.

Incorporate environmental quality controls either as standards in appropriate ordinances or as conditions of approval.

Discussion: The proposed project, which occurs in an area designated by zoning for urban development, would not have a substantial adverse effect on the environment and would not diminish the valuable natural resources of the region. The project will obtain permits and follow the conditions designed to reduce or eliminate pollution and environmental degradation. Water quality will be preserved through adherence to Best Management Practices that will be required as part of construction and operation of the project.

HISTORIC SITES GOALS

Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaii.

Appropriate access to significant historic sites, buildings**,** and objects of public interest should be made available.

HISTORIC SITES POLICIES

Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.
Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

Public access to significant historic sites and objects shall be acquired, where appropriate.

Discussion: Archaeological resources have been properly inventoried. Extensive preserve areas for multiple archaeological sites and burials will be protected in conformance with already developed and approved preservation and burial treatment plans. Certain sites will

be subject to data recovery, as specified in approved data recovery plans. Archaeological monitoring in conformance with an approved monitoring plan will be conducted during initial earth-moving activities to ensure protection in the unlikely event that burials or significant historic properties are discovered during construction.

FLOOD CONTROL AND DRAINAGE GOALS

Conserve scenic and natural resources.

Protect human life.

Prevent damage to man-made improvements.

Control pollution.

Prevent damage from inundation.

Reduce surface water and sediment runoff

FLOOD CONTROL AND DRAINAGE POLICIES

Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.

Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works in compliance with all State and Federal laws.

FLOOD CONTROL AND DRAINAGE STANDARDS

Applicable standards and regulations of Chapter 27, "Flood Control," of the Hawaii County Code.

Applicable standards and regulations of the Federal Emergency Management Agency (FEMA).

Applicable standards and regulations of Chapter 10, "Erosion and Sedimentation Control" of the Hawaii County Code.

Applicable standards and regulations of the Natural Resources Conservation Service and the Soil and Water Conservation Districts.

Discussion: The property lies within Zone X, outside the 500-year flood zone. All standards regarding drainage, flooding and sedimentation will be adhered to and project design will be reviewed by and subject to permits from the Hawai‘i County Department of Public Works and the Hawai‘i State Department of Health.

NATURAL BEAUTY GOALS

Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.

Protect scenic vistas and view planes from becoming obstructed.

Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

NATURAL BEAUTY POLICIES

Increase public pedestrian access opportunities to scenic places and vistas.

Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.

Do not allow incompatible construction in areas of natural beauty.

Discussion: The visual impacts of the project for the general public would be very minor. Views to and from the shoreline and mountains would be minimally affected. The general area contains many one- to four-story resort and residential developments with similar mass, density and roof lines. The proposed units would insert a moderate-density, moderate-height development in a neighborhood of uses that are of roughly the same density and height.

NATURAL RESOURCES AND SHORELINES GOALS

Protect and conserve the natural resources of the County of Hawaii from undue exploitation, encroachment and damage.

Provide opportunities for the public to fulfill recreational, economic, and educational needs without despoiling or endangering natural resources.

Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.

Ensure that alterations to existing landforms and vegetation, except crops, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational

amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

NATURAL RESOURCES AND SHORELINES POLICIES

The County of Hawaii should require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.

Encourage the use of native plants for screening and landscaping.

Discussion: The proposed development is not located adjacent to the shoreline, which is separated from the development by Ali‘i Drive and one to five rows of homes or condominiums. Impacts to existing natural landforms and vegetation will be mitigated through permit-regulated Best Management Practices to avoid any impacts related to natural resource and hazards.

LAND USE GOALS

Designate and allocate land uses in appropriate proportions and mix and in keeping with the social, cultural, and physical environments of the County.

LAND USE POLICIES

Allocate appropriate requested zoning in accordance with the existing or projected needs of neighborhood, community, region and County.

LAND USE, OPEN SPACE GOALS

Provide and protect open space for the social, environmental, and economic well-being of the County of Hawaii and its residents.

Protect designated natural areas.

LAND USE, OPEN SPACE POLICIES

Open space shall reflect and be in keeping with the goals, policies, and standards set forth in the other elements of the General Plan.

Discussion: The residential project on an urban-designated parcel is in keeping with County and State land use plans and does not detract from important open space.

3.6.4 Kona Community Development Plan

The Kona Community Development Plan (CDP) encompasses the judicial district of North and South Kona, and was developed under the framework of the February 2005 County of Hawai‘i General Plan. Community Development Plans are intended to translate broad General Plan Goals, Policies, and Standards into implementation actions as they apply to specific geographical regions around the County. CDPs are also intended to serve as a forum for community input into land-use, delivery of government services and any other matters relating to the planning area. The version referenced in this Environmental Assessment is at: http://www.hcrc.info/community-planning/community-development-plans/kona/cdp-final-drafts/Final%20KCDP_Sept%202008_text.pdf.

The Plan has many elements and wide-ranging implications, but there are several major strategies that embody the guiding principles related to the economy, energy, environmental quality, flooding and other natural hazards, historic sites, natural beauty, natural resources and shoreline, housing, public facilities, public utilities, recreation, transportation and land use.

The Kona CDP's "Official Land Use Map" identifies the subject area as being within a neighborhood TOD (Transit Oriented Development Area). Neighborhood Village areas are intended for predominantly resident, public/civic uses, or small small-scale neighborhood-oriented commercial uses. The proposed residential project is consistent with the residential component of the intended uses.

With respect to the requirements of the Kona CDP, that Land Use section 4.2.2 states in part:

> The legally binding polices in this section, as defined in 4.0 Goals, Objectives, Policies and Actions, do not override or invalidate existing zoning. Such legally binding policies, however, shall be implemented with new change of zone, time extensions on existing zoning requiring County Council action, state land use boundary amendments and Special Management Area (SMA) permits, when applicable.

The proposed project is being developed in accordance with the existing zoning. However, an SMA permit is required for this project. In reviewing SMA permits, three Kona CDP Land Use Policies are potentially applicable. These are:

LU-1.5: Enhanced Shoreline Setback. This policy states in part that:

> It shall be a priority to maintain a minimum of 1,000-foot open space no-build setback for undeveloped lands adjacent to the shoreline on parcels that exceed 1,000 feet in depth in discretionary land use approvals such as SMA major permits, rezonings, and state land use boundary amendments.

LU-1.6 17-Mile Protected Coastline. This policy applies to the 17 mile stretch of shoreline that extends from Makaeo north to Kikaua Point at the Kuki‘o development.

Discussion: The project site is not adjacent to the shoreline, being situated mauka of Ali‘i Drive, and is not within the 17-mile shoreline area that extends from Makaeo to Kuki‘o. Accordingly, neither of these Kona CDP Land Use policies are applicable to the SMA permitting requirements for the project.

LU-1.5a This Policy requires that SMA applications be reviewed pursuant to Land Use Policy 1.4 relating to Consistency with Land Use Pattern Allocation Guide (LUPAG). This policy states:

The current LUPAG accommodates the vision and needs for the Kona CDP area planning horizon and should be amended only for compelling reasons. Any rezoning application shall be consistent with the LUPAG.

Discussion: In a letter dated May 13, 2009 (see Appendix 1a), the Planning Director has determined that the existing zoning is consistent with the LUPAG map.

Kona CDP Land Use Policy 2.8 identifies policies for development within the region pursuant to existing zoning. The following is a discussion of the applicability of the policies with the respect to the proposed project:

i. Parks (Policy PUB-6.2)

Policy PUB-6.2 Active Recreational Opportunities states in part that “subdividers shall provide neighborhood parks (including community gardens, community centers, pocket parks, and pet parks) ½ mile apart for area residents and provide for private maintenance or pay a fee pursuant to HCC Chapter 8.”

Discussion: The proposed project is proposed to be developed as a CPR and therefore will not be subdivided. In any event, the proposed development includes a number of recreational facilities including swimming pools, community center and passive recreational areas around a system of paths. In addition, a walking trail will be provided as part of preservation plans for the historic Kuakini Wall, which is being preserved as part of the historic resources.

ii. Affordable Housing (Policy HSG-5.2)

Policy HSG-5.2 - Privately Constructed Affordable Units relates to private projects subject to affordable housing requirements.

Discussion: Ordinance No. 820 rezoned a portion of Parcel 26 to Multi-Family Residential and Single Family Residential in 1982. This ordinance was approved subject to certain conditions, including Condition V, which required that the applicant shall be responsible for satisfying a basic housing requirement by providing or causing the provision of affordable housing units to meet the direct and indirect resort hotel employee housing demand generated by the resort hotel development. In that resort hotel units are not permitted within the RS and RM zoned portions of the project site and no such uses being proposed, Condition V is not applicable. Furthermore, the existing Resort zoned portions of the project site were in existence prior to the adoption of Ordinance No. 820 and therefore are not subject to the conditions of approval.

iii. Street Standards (Policies TRAN-2.1, TRAN-3.1 & TRAN 3.7

Transportation Policy 2.1 – Connectivity Standards requires that new developments meet the following standards:

1. Maximum Block Size. In lieu of HCC Section 23-29(c), the maximum length of blocks for predominately residential subdivisions shall be 800 feet, unless unfeasible due to natural topography, protected resources, or surrounding development patterns.
2. Connection to Adjoining Development. To supplement HCC Section 23-40, new subdivision shall incorporate and continue all collector streets and selected local streets adjoining the property.
3. Gate Entry. In the Kona Urban Area, gates will be prohibited across new roadways identified to service the location transportation network.
4. Cul-de-sacs discouraged. Cul-de-sacs are discouraged unless construction of a through street is found to be impractical.
5. Future Extensions. Applicants submitting preliminary development plans shall provide for extension of selected local streets to adjoin undeveloped properties and eventual connection with the existing street system.

Discussion: The project is being proposed to be developed under the CPR provisions. Accordingly, access in the project will be through a system of private driveways. No subdivision of the residential units will be undertaken, therefore the maximum block size or cul-de-sac provisions of the County Zoning Code are not applicable.

As part of the project circulation plan, future driveway connections will be provided to future road improvements adjacent to the Project Site, including the Kahului-Keauhou Parkway (formerly Ali‘i Highway) and/or to a proposed *mauka/makai* collector road immediately to the north of the Project Site as identified on the North Kona Community Development Plan (NKCDP)’s Official Transportation Network Map – Kahalu’u Area (Figure 4-2c). Furthermore, there are no roadways identified to service the location transportation located within the project area.

Transportation Policy 3.1 – Street Standards states that County street standards should be pedestrian friendly, safely accommodate bicycles, accessible to the disabled, and appropriate for its surrounding land use.

Discussion: The internal driveway and pedestrian network will be designed to ensure a safe transportation system appropriate to the proposed land uses.

Transportation Policy 3.7 – Traffic Calming Standards. In order to slow traffic for pedestrian safety or comfort, standards for traffic calming shall be included as part of the County of Hawaii Street Standards.

Discussion: The internal access to the project will be through private driveways. The internal roadway and pedestrian network will be designed to ensure a safe transportation system appropriate to the proposed land uses.

iv. Wastewater (Policy PUB-4.4);

Public Facilities Policy 4.4 requires that any new subdivision within one mile of shoreline within the Kona Urban Area shall either hook up to a public sewer system, or provide a private treatment system, and/or install dry sewers.

Discussion: The proposed project will connect to the private sewer system serving the Keauhou area.

v. Concurrency (Policy TRAN-6.1);

Kona Transportation Policy 6.1 relating to the Official Concurrency Map requires that rezonings within the Kona UA (Urban Area) shall comply with the Official Concurrency Map which identifies road segments to be constructed concurrent with occupancy of units as the minimum "area mitigation", as defined in HCC 25-2-46 (Zoning Code.)

Discussion: As noted above, the proposed project does not require a new change of zone or an amendment to the time conditions on existing zoning requiring County Council action.

vi. Sensitive Resources (Policy ENV-1.5). This any permit that encompasses any of the following resources shall strive to incorporate these resources as assets:

- Critical habitat areas as identified by the US Fish & Wildlife Service County General Plan.
- Predominantly native ecosystems, which may not be considered endangered but are valued because of their nearly pristine condition.

- Anchialine ponds subject to a management program;
- High-level groundwater recharge areas;
- Historic trails;
- Archaeological and historic sites subject to protection under HRS Chapter 6E, and
- Enhanced shoreline setbacks.

Discussion: The only applicable "Sensitive Resource" within the project area is archaeological sites. All of the significant sites will preserved within areas set aside as preservation areas per plans that have been approved by the State Historic Preservation Division, as discussed in Section 3.2.3.

3.6.4 Chapter 205a and Special Management Area

The property is situated within the County's Special Management Area (SMA) and an SMA Use permit will be applied for before the Hawai'i County Leeward Planning Commission. The criteria for review of development within the Special Management Area are stated in HRS, Chapter 205a-26(2) (Special Management Area guidelines) and Rule 9-11(E) in the Planning Commission Rules. Planning Commission Rule 9-11(E) states that the Authority may permit the proposed development only upon finding that:

1. The development will not have any substantial adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and is clearly outweighed by public health, safety, or compelling public interest;
2. The development is consistent with the objectives and policies and the Special Management Area guidelines as provided by Chapter 205A, HRS; and
3. The development is consistent with the General Plan, Zoning Code and other applicable ordinances.
4. The development will, to the extent feasible, reasonably protect native Hawaiian rights if they are found to exist, including specific factual findings regarding:
    a. The identity and scope of valued cultural, historical or natural resources in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the area;
    b. The extent to which those resources, including traditional and customary native Hawaiian rights, will be affected or impaired by the proposed action; and
    c. The feasible action, if any, to be taken by the Authority to reasonably protect any valued cultural, historical or natural resources, including any existing traditional and customary native Hawaiian rights.

Based on the resources and impacts described in previous sections, the proposed project would appear to be consistent with the above criteria. A brief summary for the basis of the consistency is provided below, which will be expanded upon as part of the SMA application.

3.6.4.1 Substantial Adverse Environmental or Ecological Effects

Systematic inventories and impact evaluations of flora, fauna, water resources and cultural resources discussed above have determined that the project would not have any substantial adverse environmental or ecological impacts. Vegetation consists of introduced species except for several common roadside plants indigenous to Hawai‘i. Effects to endangered Hawaiian hoary bats will be avoided by timing of vegetation removal. The project site is *mauka* of the existing VE designated zone which include areas subject to coastal flooding from wave action. Results of marine surveys and a groundwater flow model that accounted for potable water withdrawal, wastewater processing and irrigation water indicate that there is little potential for substantial project-related adverse impacts to marine waters or biology off the project site.

3.6.4.2 Consistency with Objectives and Policies of Chapter 205A

Recreational and Visual Resources: The proposed residential development on the project site is on the *mauka* side of Ali‘i Drive. It is separated from the coast by existing residential, recreational and open space uses. It is not tied directly with the recreational resources of the coastal areas. The visual impacts of the project for the general public would be very minor. Views to and from the shoreline and mountains would be minimally affected. The general area contains many one- to four-story resort and residential developments with similar mass, density and roof lines. The proposed units would insert a moderate-density, moderate-height development in a neighborhood of uses that are of roughly the same density and height. Large archaeological preserves and landscaping would effectively buffer views of the development from many of the adjacent residences. Viewplanes to and along the shoreline towards the project site will not be adversely impacted, as the lands along the shoreline in this area are developed with single and multi-family residences.

Historic Resources. Implementation of already approved archaeological preservation, data recovery, burial treatment and monitoring plans will mitigate impacts to archaeology and burials.

Scenic and Open Space Resources. The proposed development is similar in character to the surrounding area and is not likely to result in any substantial adverse impact on the surrounding environment. The maximum three-story height of the structures is equivalent to much of the adjacent residential development. The project will be fully landscaped to soften the impact of the structures and to blend them into an attractive residential complex in keeping with design guidelines for the Keauhou properties.

Coastal Ecosystems: The inland location of the project site and proper treatment of drainage and wastewater ensure that there will be no substantial impact on the biological or economic aspects of the coastal ecosystem. Groundwater and marine water quality will remain high and will not be materially affected by the project.

Economic Uses: The proposed development is located away from the shoreline and does not foreclose other shoreline area or coastal dependent uses. Private improvements are important to the economy of the State and County, as they provide jobs and tax revenues, with benefits far exceeding government expenditures.

Coastal Hazards: The project site is located *mauka* of Ali‘i Drive. Flood Insurance Rate Maps (FIRM) delineate the project site in Zone X, with all areas that will be developed with structures or fill above the newly proposed base flood elevation of 18 feet. The proposed development would not create an increase in coastal flooding, and on-site drainage systems will be developed to adequately dispose of project generated surface runoff.

Managing Development: During the Special Management Area process, the applicant will notify the surrounding property owners within 300 feet of the perimeter of the property as required by Planning Commission Rule No. 9 public hearing notification requirements. The applicant is required to serve a First Notice to the surrounding property owners of the proposed development at the time the Special Management Area Use Permit Application is submitted to the Planning Director. The First Notice informs the surrounding property owners the opportunity to participate in the evaluation of the Applicant's request in the Special Management Area Use Permit Application. The public participation process includes the Contested Case Hearing process. As such, the public's participation begins as soon as the Application is submitted to the Planning Department. The public is able to submit their comments, provide information to the Planning Director, prior to the scheduling of the Special Management Area Use Permit Application for a public hearing.
This initial and the subsequent public hearing process improves the development review process, communication, and public participation in the management of coastal resources and hazards.

Public Participation: Public participation has been initiated by early consultation during the Draft EA preparation and subsequent review of the Draft EA by individuals, organizations and agencies. The Draft EA is available for public review and comment, and the Finding of No Significant Impact or Requirement to Prepare an Environmental Impact Statement can be challenged by the public in circuit court. The County of Hawai‘i Planning Commission must hold a public hearing on the Applicant's SMA Use Permit Application. At the public hearing, the public is free to participate in this open hearing forum and to provide their comments to the Planning Commission. The Planning Commission public hearing and if required, the Contested Case Process provides the vehicle for stimulating public awareness, education of this process and more importantly participation in the coastal management decision making.

Beach Protection: The project site is located on the *mauka* side of Ali'i Drive and will not involve use or physical effects to any public beaches. Residents of the proposed project

would utilize Kahalu‘u County Beach Park, which is an important and highly used recreational resource.

Marine Resources: The project site is located on the *mauka* side of Ali‘i Drive and the proposed development would have no effect on marine resources, including shipping, ocean recreation, or fishing.

3.6.4.3 Consistency with the General Plan and Zoning Code

The project appears to be consistent the with the General Plan and Zoning Code and Kona Community Development Plan, as discussed in detail in Section 3.6.3, above.

3.6.4.4 Valued Cultural, Historical or Natural Resources

A Cultural Impact Assessment that evaluated historic records and sought and consulted with local residents and cultural experts knowledgeable about cultural resources and practices has concluded that there do not appear to be any cultural practices or cultural features aside from archaeological features on the site. No springs, *pu‘u*, native forest groves, gathering resources or other natural features are present on or near the project site that would support any traditional resource uses. There is no known current use of the portion of the property proposed for development for gathering, ceremonial or other cultural purposes, and the project would not affect shoreline uses. No cultural activities were identified within the project site. Implementation of already approved archaeological preservation, data recovery, burial treatment and monitoring plans will mitigate impacts to archaeology and burials.

PART 4: DETERMINATION

The applicant, Towne Development of Hawaii, Inc., expects that the Hawai‘i County Planning Department will determine, in consideration of the information presented in the EA and comments to the Draft EA, that the proposed action will not significantly alter the environment, as impacts will be minimal, and that this agency will accordingly issue a Finding of No Significant Impact (FONSI).

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai‘i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

1. The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.

No valuable natural or cultural resources would be committed or lost. Archaeological sites are being protected through preservation plans. The project site and surrounding areas support residential and open space uses that will not be affected by the proposed action.

2. The proposed project will not curtail the range of beneficial uses of the environment.

There are no beneficial uses of the project site aside from open space that is not accessed or used, and no beneficial uses will be curtailed in any way by the proposed project.

3. The proposed project will not conflict with the State's long-term environmental policies.

The State's long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The proposed action provides housing for residents of Hawai'i County in an area identified in the General Plan for such uses, fulfilling needed County and State goals while avoiding significant impacts to the environment. It is thus consistent with all elements of the State's long-term environmental policies.

4. The proposed project will not substantially affect the economic or social welfare of the community or State.

The project will not adversely affect the social welfare of the community and will contribute to the economy.

5. The proposed project does not substantially affect public health in any detrimental way.

No effects to public health are anticipated. Water quality will be protected through adherence to Best Management Practices that will be specified as part of NPDES and Grading permits.

6. The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.

Only modest secondary effects are expected to result from the residential subdivision project. Because of the nature of the project, real property and other tax contributions would more than compensate for extra costs of public services and would also enable agencies to improve and expand their services.

7. The proposed project will not involve a substantial degradation of environmental quality.

The proposed action is taking place in a general area already impacted by a history of ranching and is being regulated by permits to avoid environmental degradation and thus would not contribute to environmental degradation.

8. The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.

Operational traffic impacts have been quantitatively assessed with a cumulative perspective and there are no significant impacts individually or cumulatively. Cumulative construction impacts are unlikely because of the scale and timing of nearby projects, but coordination may be required by County agencies depending on timing.

9. The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.

The project site supports overwhelmingly alien vegetation. Impacts to rare, threatened or endangered species of flora or fauna will not occur.

10. The proposed project will not detrimentally affect air or water quality or ambient noise levels.

Due to the character of the proposed action and mitigation during construction, no adverse effects on these resources would occur.

11. The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.

Although the proposed action is located in an area with volcanic and seismic risk, the entire Island of Hawai‘i shares this risk, and the proposed action is not imprudent to construct.

12. The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.

The project is low-height and low-key and has been designed to minimize impacts on protected scenic viewplanes, including views from Kuakini Highway and Kamehameha III Road of the coast.

13. The project will not require substantial energy consumption.

Although the project’s infrastructure and dwelling units construction will require energy, the development’s electrical requirements are within HELCO’s capacity and no major adverse effects to energy consumption would be expected. There is no feasible way to provide housing without energy consumption. The project design will include energy efficient lighting fixtures and low water use landscaping, which reduce energy use.

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ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahalu‘u - A Residential Project for Towne Development of Hawai‘i

APPENDIX 1a
Comments in Response to Early Consultation and Selected Previous Letters

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William P. Kenoi
Mayor

William T. Takaba
Managing Director

Dora Beck, P.E.
Acting Director

County of Hawai'i

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street • Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
http://co.hawaii.hi.us/directory/dir_envmng.htm

August 23, 2012

Mr. Ron Terry, Ph.D.
Project Environmental Consultant
Geometrician Associates, LLC
P. O Box 396
Hilo, HI 96721

RE: Early Consultation on EA for Planned Unit Development for KIC Area 26
TMK: 7-8-01004
Kahalu'u, North Kona

Dear Mr. Terry,

We have no comments to offer on the subject project.

Thank you for allowing us to review and comment on this project.

Sincerely,

Dora Beck

Dora Beck, P.E.
ACTING DIRECTOR

Bonnie J. Eich
15401 E. Orchid Lane
Gilbert, AZ 85296-4415
e-mail: bonnieeich@yahoo.com
Cell Phone: (480) 567-6938

August 23, 2012

Mr. Ron Terry
GEOMETRICIAN ASSOCIATES
P.O. Box 396
Hilo, HI 96721

RE: Environmental Assessment for Planned Unit Development for KIC Area 26, TMK 7-8-010-040, Kahalu'u, North Kona, Island of Hawaii

Dear Mr. Terry:

My husband and I own property located at 78-6701A Alii Drive (TMK 7-8-014-040). This parcel was previously owned by my parents, and has been in our family for over 30 years. I have been visiting this area on a regular basis since 1982.

This particular area of the island is very crowded during certain times of the day due to having a very popular beach area accessible only by a 2-lane road. Limited parking at the beach already presents several safety hazards including bicyclists that are forced into the street because vehicles are encroaching into the bike lane, and restricted visibility for cars entering onto the road. The proposed ingress/egress is from Alii Drive, thereby adding to an already existing traffic problem. It would be much more acceptable to have the ingress/egress from the proposed Kahalu'u to Keauhou Parkway Phase II, and to hold off on your development until this parkway is completed. Ideally, your property would be best used for single family housing only, adding no more than 100 units to the area

Kahalu'u Beach is a relatively small area, and there are already a significant number of condominium developments. An additional 338 residences in your proposed location will result in massive overcrowding of both the road and the beach area. Kamehameha Schools is already planning an educational facility next door to the beach, and is currently in the process of obtaining an environmental impact study. It is imperative the impact of the Kamehameha Schools project be included in your environmental impact study. There is wildlife in the area that may be negatively impacted by a dense development including wild turkeys. There is marine life that may be negatively impacted by overcrowding the water including sea turtles.

I understand the desire to live in the area, but the most important consideration must always be to preserve the natural beauty and abundant plant and wild life of the island.

Regards,

Bonnie J. Eich

William P. Kenoi
Mayor

Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Room 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

August 28, 2012

Mr. Ron Terry
Geometrician Associates
PO Box 396
Hilo, HI 96721

Dear Mr. Terry,

SUBJECT: PUD FOR KIC AREA 26
TMK: 7-8-010:004, KAHALUU, NORTH KONA

The Hawai'i Fire Department does not have any comments to offer at this time regarding the above-referenced draft Environmental Assessment.

Thank you for the opportunity to comment.

Sincerely,

DARREN J. ROSARIO
Fire Chief

GA:lc

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
EMD/CWB

08026PMR.12

August 30, 2012

Mr. Ron Terry
Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

SUBJECT: Comments on the Early Consultation on Environmental Assessment for the Planned Unit Development for KIC Area 26, TMK 7-8-010:004 Kahaluu, North Kona, Island of Hawaii, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated August 13, 2012, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for an NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

b. Hydrotesting waters.

c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, an NPDES individual permit will need to be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html.

4. If your project involves work in, over, or under waters of the United States, it is highly recommend that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 438-9258) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

MR:jst

c: Mr. Ron Terry, Geometrician Associates, LLC [via email rterry@hawaii.rr.com]
DOH-EPO [via email only]

From: Inouye, Newton [mailto:Newton.Inouye@doh.hawaii.gov]
Sent: Friday, August 31, 2012 11:13 AM
To: rterry@hawaii.rr.com
Cc: McIntyre, Laura
Subject: FW: Early consultation on EA for Planned 42 acre (338 unit) Masster Development for North Kona

Hi Ron,

Comments I have for this proposed development is:

Construction activities must comply with the provisions of Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control."

a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules.

b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.

c. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit.

Newton Inouye
District Environmental Health Program Chief, Hawaii Island

Mr. Terry,

Thank you for the notification regarding the above proposed development.This letter is in opposition for the planned development of the above named property.

There are numerous negative impacts for the area and community at large. I will address the areas of investigation that your letter identifies:
*__Water Quality__; Recently I received a letter from the water district stating that our drinking water is safe but not up to preferred standards. If the water district is unable to assure safe drinking water to the existing residents, how will the development of 300+ homes make a positive impact on a the already failing water system? The development will aggravate a deteriorating system and accelerate the climbing levels of unsafe drinking water. Water usage is costly. Adding the 600+ residents (a minimum of 2 per home) will not only increase the cost of water but, also put a strain on a resource that is already limited. How many gallons of water will it take to maintain the proposed greens of the new development, the showers of the residents and the management of the wastewater?

*__Wastewater__; Again, the proposed development will tax an already fragile waste management system. As mentioned above, there is concern about our drinking water how will this project assure that the wastewater doesn't add to an already alarming health concern?

*__Flora, Fauna and Ecosystems__; All these systems will be altered and in some cases destroyed with the proposed development. The impact from this development will have more of a negative rippling affect than anyone might comprehend at this point. One system cannot be eliminated without hindering another. Kahalu'u snorkel beach is a beautiful site for people to witness the underwater world. Too many times the turtles have been touched and the coral stepped on by people that don't respect the sea life and the requests made/in place to maintain this ecosystem. With the proposed number of homes and vast number of people that will be occupying these homes, the beach may be ruined and the aquatic life gone because of our misuse. We really don't' need another 321 condos built. There are enough people at the beach any given time. Next there will be a charge for parking, then a limited number of visitors allowed on the beaches, then private beaches, etc...

*__Traffic__; Alii Drive is already a breeding ground for noise, pollution, hazardous accidents and foot traffic that is chaotic. At this point in time the foot traffic is not managed. We have tourists and locals that don't know the law (walk/run towards the traffic etc...). How are we going to maintain a safe walking/running environment with an additional populous of say 600+ at any given time when we can't get the law(s) already set in place implemented? I own my home and live on Alii. Watching the foot and vehicular traffic is scary. The cars are moving too fast (texting and looking at the sights). The pedestrian and bicycle traffic impulsive to say the least. By adding a minimum of 300+ autos (one for each home at any given time) and the additional foot traffic of say 600+ people at any given time is just unthinkable. This would result in "Ironman" traffic 24/7 year round. The traffic impact on Sunday mornings from the

Livingstones Church creates a standstill for those of us that travel to and from our homes on Alii. The infrastructure for the existing traffic flow is not working at multiple points on Alii Drive. There is absolutely no need to increase the number of people walking/running or driving along this road.

***Geology, Soils, Hazards, Flooding and Drainage**; The proposed development will ultimately impact the well being of our ocean. Flooding is a big concern as the land is turned into a concrete jungle. As we all know, everything runs downhill. The residents that live on Alii and back up to the proposed development plan are at the greatest risk for flooding and drainage damage. The flood zones are plentiful in the proposed site. Altering the water flow/run off from these flood zones may result in unforgiving damage to the exisitng structures, land, and ocean.

***Social, Cultural and Community**; Kona is known for its sense of community. Most drivers that live here "let the other driver cut in" so not to hinder the flow of traffic. The community takes care of each other. As you are aware, the population is small compared to the land mass. These factors and many more contirubute to Kona being such a great place to live. The beaches along Alii are maxed. Parking is nonexistent. Adding more people and traffic to the area will negetively impact our sense of community, increase the damage to our ocean, and potentially create more crime and homelessness. Lets not make Kona another Honolulu. If we continue to build/develop the land in Kona, our "spaces" to play/relax with our families and loved ones will disappear.

***Historic sites, Economic impacts**; As you are aware, the historic sites share the past and help keep the culture of the indigenous peoples alive. Even with the "protected" archaeological sites in place the land is altered and not always respected. Economically, the proposed development will offer the unemployed with work for just a short time. What happens when the condos don't rent and the few home owners that did purchase are left with such an incrediably high association fee in attempts to cover the maintenance of the entire development? More short sales and land that is deteriorating! This development has the potential of becoming another dilapidated project and ultimately imploded for failure to thrive. As we are currently witnessing in Kona, the hotels are not to capacity and the number of empty condos and homes are plentiful. I have a friend that purchased a condo for $360,000.00 and is unable to sell it today for $150,000.00. There is no reason to increase residential building/development when we are not able to utilize what is already in place. Lets occupy what is here, maintain an occupancy rate of 90% or higher consistently for a minimum of 5 years and then readdress new development. The housing/golf project out by Costco needs to be finished, 90% occupied, and sufficiently contributing to the economic well being of the Kona community. Please stop this development. Less is more for Kona!!!

Respectfully,
Robin Protzman
Box 390733 Keauhou, HI 96739
808 938-3844

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

LUD – 3 7 8 010 004-ID1050
Kam Invst Corp

August 29, 2012

Mr. Ron Terry, Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

Subject: Early Consultation on Environmental Assessment for Planned Unit Development for Kam Investment Corporation (KIC) Area 26
Kahaluu, North Kona, Island of Hawaii TMK (3) 7-8-010: 004

Thank you for the opportunity to comment on the Early Consultation on the Planned Unit Development for Kam Investment Corporation. We have the following comment to offer.

If connection to a private or County sewer system is not available, domestic and non-domestic wastewater generated by the project shall be handled by wastewater systems that comply with our chapter 11-62, Hawaii Administrative Rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at our direct toll free phone number 974-4000 ext. 64294 or fax to (808) 586-4300.

Sincerely,

MARSHALL LUM, P.E., ACTING CHIEF
Wastewater Branch

LM:mt

c: Mr. Dane Hiromasa – DOH/WWB – Kona Office
Environmental Planning Office – Ms. Laura McIntyre

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
EMD/CWB

08026PMR.12

August 30, 2012

Mr. Ron Terry
Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

SUBJECT: Comments on the Early Consultation on Environmental Assessment for the Planned Unit Development for KIC Area 26, TMK 7-8-010:004 Kahaluu, North Kona, Island of Hawaii, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated August 13, 2012, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for an NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

b. Hydrotesting waters.

c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, an NPDES individual permit will need to be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html.

4. If your project involves work in, over, or under waters of the United States, it is highly recommend that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 438-9258) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

MR:jst

c: Mr. Ron Terry, Geometrician Associates, LLC [via email rterry@hawaii.rr.com]
DOH-EPO [via email only]

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 7, 2012

Geometrician Associates
Attention: Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

via email: rterry@hawaii.rr.com

Dear Mr. Terry:

SUBJECT: Early Consultation on Environmental Assessment for Planned Unit Development for KIC Area 26, Geometrician Associates, LLC for Towne Development of Hawaii, Inc., Kahaluu, North Kona, Hawaii; TMK: (3) 7-8-010:004

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (i) the Engineering Division, and (ii) the Hawaii District Land Office on the subject matter. Should you have any questions, please feel free to call Kevin Moore at (808) 587-0426. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 16, 2012

RECEIVED
LAND DIVISION
2012 AUG 30 P 3:22
DEPT OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__ Div. of Boating & Ocean Recreation
X Engineering Division
__ Div. of Forestry & Wildlife
__ Div. of State Parks
__ Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation on Environmental Assessment for Planned Unit Development for KIC Area 26
LOCATION: Kahaluu, North Kona, Hawaii; TMK: (3) 7-8-010:004
APPLICANT: Towne Development of Hawaii, Inc.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by September 7, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 8/27/12

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/KevinMoore
RE:EAUnitDevKICArea26
Hawaii.578

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.

(X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The Flood Insurance Program does not have any regulations for developments within Flood Zone X.**

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of t he City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

( ) The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 8/29/12

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2012 AUG 21 P 2:59

RECEIVED
LAND DIVISION
HILO, HAWAII

August 16, 2012

MEMORANDUM

RECEIVED
LAND DIVISION
2012 AUG 27 A 10:59
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation on Environmental Assessment for Planned Unit Development for KIC Area 26
LOCATION: Kahaluu, North Kona, Hawaii; TMK: (3) 7-8-010:004
APPLICANT: Towne Development of Hawaii, Inc.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by September 7, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]
Print Name: GORDON C. HEU
Date: 8/23/12

cc: Central Files

MOKUAIKAUA CHURCH

CHURCH OF THE CHIMES

Established April 1820
75-5713 Alii Drive
Kailua-Kona, Hawaii 96740
808.329.0655

September 7, 2012

Mr. Ron Terry
Geometrician Associates, LLC
PO Box 396
Hilo, HI 96721

Dear Ron,

We acknowledge receipt of your letter dated August 13, 2012 regarding the preparation of an Environmental Assessment for the proposed project for Towne Development of Hawaii.

At this time, you letter has been forwarded to the Board of Trustees for questions, comments or objections regarding this project.

We do wish to receive a notice on the availability of the EA and kindly request to be kept up to date of any progress.

Sincerely,

Tanya Manasas
Administrator

Cc: BOT

MOKUAIKAUA CHURCH

CHURCH OF THE CHIMES

Established April 1820
75-5713 Alii Drive
Kailua-Kona, Hawaii 96740
808.329.0655

October 18, 2012

Mr. Ron Terry
Geometrician Associates, LLC
PO Box 396
Hilo, HI 96721

Re: Planned Unit Development for KIC Area 26

Aloha Ron,

This letter is to inform you that Board of Trustees met in September and acknowledge being informed of the Environmental Assessment and proposed project. Thank you in advance for to keeping us apprised.

Sincerely,

Tanya Manasas
Administrator

Cc: BOT

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai'i

POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

September 7, 2012

Mr. Ron Terry
Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawai'i 96721

Dear Mr. Terry:

SUBJECT: Early Consultation on Environmental Assessment for Planned Unit Development for KIC Area 26, TMK 7-8-010:004, Kahalu'u, North Kona, Island of Hawai'i

The above-referenced environmental assessment has been reviewed, and we have no comments or objections to offer at this time.

Should there be any questions, please contact Captain Richard Sherlock, Commander of the Kona District, 326-4646, ext. 299.

Sincerely,

HARRY S. KUBOJIRI
POLICE CHIEF

PAUL H. KEALOHA JR.
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

RS:dmv
RS120508

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

12-150
EA KIC Area 26

September 13, 2012

Mr. Ron Terry, Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

SUBJECT: Early Consultation on Environmental Assessment for Planned Unit Development for KIC Area 26, TMK: 7-8-010: 004, Kahuluu, North Kona, Island of Hawaii

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter, dated **August 13, 2012.** Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The United States Environmental Protection Agency (EPA) provides a wealth of information on their website including strategies to help protect our natural environment and build sustainable communities at: http://water.epa.gov/infrastructure/sustain/ . The DOH encourages State and county planning departments, developers, planners, engineers and other interested parties to apply these strategies and environment principles whenever they plan or review new developments or redevelopments projects. We also ask you to share this information with others to increase community awareness on healthy, sustainable community design. If there are any questions about these comments please contact me.

Sincerely,

Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office Manager
Environmental Health Administration
Department of Heath
919 Ala Moana Blvd., Ste. 312
Honolulu, Hawaii 96814
Phone: 586-4337
Fax: 586-4370
laura.mcintyre@doh.hawaii.gov

William P. Kenoi
Mayor

BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i

PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

September 21, 2012

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

Dear Mr. Terry:

SUBJECT: Pre-Consultation for Draft Environmental Assessment
Project: Planned Unit Development for KIC
TMK: (3) 7-8-010:004; Kahalu'u, North Kona, Hawai'i

Thank you for your letter dated August 13, 2012, requesting comments from this office regarding the preparation of a Draft Environmental Assessment (DEA) for the subject project.

Towne Development of Hawai'i, Inc. (Towne) is proposing a Condominium Property Regime (CPR) project consisting of approximately 321 multi-family units and 17 single-family detached units and related infrastructure on the subject property as a Planned Unit Development (PUD).

The subject property consists of 42.551 acres and is split zoned Single-Family Residential (RS-7.5), Multiple-Family Residential (RM 3.5), and Resort-Hotel (V-1.25) by the County. The property is situated within the State Land Use Urban District. In addition, the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the parcel as Low Density Urban and Medium Density Urban. Although the proposed project site is not located in a "shoreline area" as defined by Section 205A-41, Hawai'i Revised Statutes (HRS), the subject parcel is within the Special Management Area (SMA) and subject to review against SMA rules and regulations.

The Kona Community Development Plan (KCDP) was adopted by Ordinance No. 08-13, effective as of September 25, 2008. This parcel is identified within the KCDP as a part of the Kahalu'u Makai Village Transit Oriented Development (TOD). As such, please review and include discussion of the proposed project in relation to the applicability of the overall strategy, tools, goals, objectives, policies, and actions identified in Chapter 4, Section 2, Land Use, found on pages 4-27 through 4-50 in the KCDP.

We have no further comments to offer, at this time. However, please provide our department with a copy of the Draft Environmental Assessment for our review and comment.

If you have any questions, or if you need further assistance, please feel free to contact Bethany Morrison of this office at 961-8138.

Sincerely,

BJ LEITHEAD TODD
Planning Director

BJM:cs
P:\wpwin60\Bethany\EA-EIS Review\preconsultdraftea KIC PUD-amended.doc

cc: Planning Department- Kona Office

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

LUD – 3 7 8 010 004-ID1073
Early Cons Plnnd Unit Dev KIC 26

September 25, 2012

Mr. Ron Terry, Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

Subject: Early Consultation on Environmental Assessment for Planned Unit Development for KIC Area 26, Kahalu'u, North Kona TMK (3) 7-8-010: 004

Thank you for allowing us the opportunity to review the above subject project. We have the following information to offer you.

If connection to a Private or County sewer system is not available, domestic and non-domestic wastewater generated by the proposed project shall be handled by wastewater systems that comply with our Chapter 11-62, Hawaii Administrative Rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at our direct toll free phone number 974-4000 ext. 64294 or fax to (808) 586-4300.

Sincerely,

SINA PRUDER, P.E., ACTING CHIEF
Wastewater Branch

LM:mt

c: Mr. Dane Hiromasa – DOH/WWB – Kona Office
Environmental Planning Office (EPO-12-150)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
EMD/CWB

09010PST.12

September 26, 2012

Mr. Ron Terry
Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii

Dear Mr. Terry:

SUBJECT: Comments on the Early Consultation on Environmental Assessment for the Development for KIC Area 26, TMK 7-8-010:004, Kahalu'u, North Kona, Island of Hawaii, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated August 13, 2012, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

    a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

    b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

    c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for an NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

b. Hydrotesting waters.

c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, an NPDES individual permit will need to be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html.

4. If your project involves work in, over, or under waters of the United States, it is highly recommend that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 438-9258) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are

required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at: http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

ST:jst

c: DOH-EPO [via e-mail only]

September 27, 2012
CC: Glenn G. Escott
CC: Ron Terry
CC: Kauanoe Hoomanawanui

I happened to see a very very small announcement in West Hawaii Today, that a environmental assessment plan was being done with my son's tax key number. Upon calling, I was sent a map and information on Towne Development in Kahalu'u, more specifically, in my backyard. I have lived here my whole life. I was born in the house I live in, as was my mother. On my property, I have a family graveyard. In back of this is the historic Kuakini wall. In back of this, are numerous caves with burial remains. The caves run into the ones in my cemetery. THESE ARE MY LINEAL DESCENDANTS! It is known that Alii were buried back there. My grandfather, in his later years, blocked off the caves to keep them safe and to respect the Ohana to rest in peace. It is our heritage, culture and legacy to protect this very historic piece of land. It would be a shame on an unspeakable level, to build near or over these remains or move them for the sake of development. This is a very sacred place, which needs to be left untouched. For God's sake, let them rest in peace. These burials and caves were already recognized when Alii Highway was proposed. I have had a meeting with my Ohana. We are all sick at heart about this development. With your proposed development, I will then have people looking down at my family graveyard like it's a zoo.Why does this have to happen?..... it doesn't. Where is the respect for the Hawaiian family?

Willy Kahulamu
78-225 Kahalu'u Rd.
Kailua-Kona HI 96740

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

November 7, 2012

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
PLANNED UNIT DEVELOPMENT FOR KIC LAND AREA 26
TAX MAP KEY 7-8-010:004

Water can be made available, for the proposed 321 multi-family and 17 single-family detached units, from an existing 12-inch waterline within Ali'i Drive.

For your information, two (2) services were installed for the subject parcel with a total water allocation of 349 units of water (each unit of water is equal to an average daily usage of 400 gallons or a maximum daily usage of 600 gallons). As the existing services do not currently front the parcel, they will need to be relocated to front the property in order to utilize the water units allocated to the parcel.

We will request that estimated maximum daily water usage calculations, prepared by a professional engineer licensed in the State of Hawai'i, be submitted for review and approval. The water usage calculations shall include, but not be limited to, the estimated maximum daily water demand for all non-domestic water uses, such as landscaping/irrigation, swimming pools, and other water features. Each dwelling unit in the proposed development shall be assigned a minimum of one unit of water.

Upon review of the water usage calculations, we will determine the necessary water system improvements required to support the development.

Should there be any questions, or you need more information, please contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Quirino Antonio, Jr., P.E.
Manager-Chief Engineer

FM:dfg

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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ROBERT K. MASUDA
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DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

July 22, 2005

Mr. James Moore
Archaeological Consultants of the Pacific, Inc.
59-624 Pupukea Road
Haleiwa, Hawaii 96712

LOG NO: 2005.1574
DOC NO: 0507MM12

Dear Ms. Elmore:

SUBJECT: **Chapter 6E-42 Historic Preservation Review [County/Planning] Revised Archaeological Inventory Survey Report**
Kahalu`u Ahupua`a, North Kona District, Hawai`i Island
TMK: (3) 7-8-010:004 (por.)

Thank you for your cover letter which we received on July 26, 2004 with a copy of this revised report, which responded to our review comments dated February 4, 2004 (Log No. 2003.2716, Doc No. 0401PM16). The report was prepared for Kamehameha Investment Corporation.

All of the comments in our earlier review have been adequately addressed. Additional testing was undertaken at Sites 7876 Feature A, 7879 Feature A, Site 24027 and 25028. No additional testing was undertaken at Site 7875 Feature G, as we had suggested, instead your firm recommends preservation of Site 7876 in its entirety. This is acceptable.

In all, 14 sites comprised of 56 individual features are identified. Three sites are recommended for preservation: They are Site 6302, the Kuakini Wall; Site 7875, a complex of 11 features, three of which are burial features, and Site 7876, a complex of 5 features, one of which is a burial. No further work is recommended for the remaining 11 sites.

We agree with your significance assessments and recommended treatments. A Burial Treatment Plan will be prepared for the burial features, and a Preservation Plan for the three preserved sites in which they are located. Since the burial features are contained within site complexes to be preserved in their entirety, it may be advantageous to prepare a Burial Treatment Plan that acknowledges, and perhaps presents the overall site preservation measures (buffers, landscaping, etc.) such that the Hawaii Island Burial Council and any recognized descendants can consider the treatment proposals within the overall preservation context.

We appreciate your and your client's patience as we completed this long overdue review. Please feel free to contact either MaryAnne Maigret (327-3690) or Keola Lindsey (327-3692) in our Hawaii Island office if you or your client have any questions regarding the mitigation.

If you have any questions regarding our comments, please contact MaryAnne Maigret in our Hawaii Island office at 327-3690.

Aloha,

Melanie A. Chinen, Administrator
State Historic Preservation Division

MM:jen

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 6, 2006

Hallett Hammatt, PhD
Cultural Surveys Hawaii, Inc.
PO Box 1114
Kailua, Hawai'i 96734

LOG NO: 2006.0206
DOC NO: 0602MM01
Archaeology

Dear Dr. Hammatt:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Inventory Survey Report of Development Parcel 26
Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-8-010:004

Thank you for submitting the aforementioned report (Jones *et al.* 2004) for our review, which we received on December 3, 2004. We apologize for the extremely lengthy delay in providing our review comments, and for any inconvenience this may have caused you or your client, Kamehameha Investment Company. The report meets the requirements for Inventory Survey Reports in HAR 13-276 and is therefore considered adequate.

The report presents updated inventory survey findings for a total of 45 archaeological sites within a 48-acre area situated in the coastal lowlands of Kahalu'u in North Kona. The inventory survey fieldwork was undertaken in 2003 and 2004 to update previous inventory work conducted by Tomonari-Tuggle and Tuggle (1990), which followed earlier work on the subject property by Hammatt and Folk (1980), Hammatt (1981), Hommon and Rosendahl (1983), and Allen (1984).

Our review of the Tomonari-Tuggle (1990) report (LOG NO: 2003.0567, DOC NO: 0305PM06) found that although the report was complete in terms of the field survey, it was deficient in the amount of subsurface testing and the interpretation of site function. Several tasks were identified to bring the report up to the standards of the previous draft administrative rules governing inventory surveys, now referred to under HAR 13-276. These included requests for additional subsurface testing, review and verification of existing maps, addition of new maps if needed, updated historical background information, and additional descriptive/summary information in the survey report.

All of the previously identified 58 sites were re-identified in the current study, however, 13 of those sites identified in the Tomonari-Tuggle (1990) report, without their having had the benefit of a clearly defined property boundary, are now understood to lie outside Development Parcel 26. Therefore, 45 sites are now understood to lie within the project area. In the current study, additional site descriptions have been provided for 23 sites, and testing undertaken at 10 sites, bring the total tested sites to 13.

In our previous review, we believed that sufficient information had been obtained to evaluate the significance of all 58 sites described by Tomonari-Tuggle (1990), with the exception of those interpreted as possible burials (6388, 7863, 7866, 7867, 7868, 7869, 7871, 7887, 7892, 7893, 7905, 7911, 9822, 9823, 11862), where we believed further testing should be considered by your client, KIC. Additional testing confirmed the presence of human skeletal remains at five of these sites (7868, 7869, 7887, 7905, and 7911).

We now agree with your functional interpretations and recommended treatments. Site 6302, the Kuakini Wall, is significant under multiple criteria A, B, C, and D. Site 7901, a multi-feature residential and ceremonial complex, is assessed as significant under multiple criteria C, D, and E. Sites 7863, 7864, 7865, 7866, 7867, 7868, 7869, 7871, 7874, 7887, 7889, 7903, 7905, 7911, and 11863 are significant under criteria D and E because they either tested positive for burials (7868, 7869, 7887, 7905, and 7911), they possess the architectural characteristics of traditional burials within this area and are assumed to be burials (7863, 7866, 7867, 7871, 7903, 11863 and 11872), or they possess a ceremonial function (7864, 7865, and 7874).

Twenty (20) sites are recommended for preservation. These are Sites 6302, 7861, 7862, 7864, 7865, 7874, 7901, 7863, 7866, 7867, 7868, 7869, 7871, 7887, 7889, 7903, 7905, 7911, 11863 and 11872. Thirteen of these sites to be preserved are confirmed burials or possible burials. Twenty-five (25) sites are proposed for data recovery (7860, 7870, 7872, 7873, 7880, 7881, 7882, 7900, 7902, 7904, 7906, 7907, 7908, 7909, 7910, 11860, 11861, 11862, 11864, 11866, 11867, 11868, 11869, 11879 and 11871).

All of the requested supplemental inventory tasks outlined in our review letter dated May 22, 2003 (LOG NO: 2003.0567, DOC NO: 0305PM06) have been accomplished to our satisfaction. We understand that testing we asked you to conduct in swales was not undertaken since such deposits were not confirmed to be present in the current study. The report meets the requirements for Inventory Survey Reports in HAR 13-276 and is therefore considered adequate.

A final note in this review is that given the number of confirmed and possible burials on the subject property, we believe archaeological monitoring during the eventual development of this property would be prudent.

Aloha,

Melanie Chinen, Administrator
State Historic Preservation Division

MM:jen

LINDA LINGLE
GOVERNOR OF HAWAII

Rec'd 5/23/08

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

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DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

May 12, 2008

Alan E Haun, Ph.D., Principal Archaeologist
Haun & Associates
HCR 1 Box 4730
Kea'au, Hawai'i 96749

LOG NO: 2008.1358
DOC NO: 0805WM05

Dear Dr. Haun,

SUBJECT: Notice of Council Determination and Approval of a Burial Treatment Plan for Burials at Fourteen Historic Properties within KIC Development Parcel 26, Keauhou Resort Land of Kahalu'u, North Kona District, Island of Hawai'i
TMK: (3) 7-8-10: Por. 4

At a regularly scheduled meeting on January 17, 2008, the Hawai'i Island Burial Council (HIBC) voted to preserve in place seven previously identified burials (Sites 7868, 7869, 7875, 7887, 7905, 7911, 11872) and seven probable burials (Sites 7863, 7866, 7867, 7871, 7876, 7903, 11863) identified at fourteen historic properties within the above-mentioned 54.93-acre property.

Should your client disagree with the HIBC's determination, §13-300-38(c) of the Hawai'i Administrative Rules (HAR) provides an option to request reconsideration of the HIBC's determination upon submittal to the Department of Land and Natural Resources (DLNR) of a written request for reconsideration within ten (10) business days following receipt of this notice. Furthermore, §6E-43(c) of the Hawai'i Revised Statutes (HRS) provides that HIBC determinations may be administratively appealed as a contested case. Any appeal pursuant to §6E-43(c) must be submitted in writing to the DLNR within forty-five (45) days following receipt of this notice.

At the January 17, 2008 meeting, the HIBC also recommended the following revisions to the Burial Treatment Plan (BTP):

1) Include a statement to ensure that future property owners must follow the BTP.
2) Include provisions for archaeological monitoring during ground-disturbing activities.

The Historic Preservation Division (SHPD) concurs with these recommendations, and we are in receipt of your revised BTP. Your revisions, which include the phrase "or their successors'" added after the word "landowner" in the first sentence of the section titled "Ownership, Maintenance, and Security," and "Implementation of the Burial Treatment plan," fulfills the first recommendation. A provision for archaeological monitoring was added to the section titled "Short-Term Preservation", fulfilling the second recommendation. At this time, we accept the revised BTP as the final approved Plan.

If you have any questions or concerns, please contact Wendy Machado, Cultural Historian at (808) 981-2979.
Aloha,

Nancy McMahon, Archaeology and Historic Preservation Manager
State Historic Preservation Division

cc: Members, Hawai'i Island Burial Council

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 24, 2012

Dr. Alan Haun
Haun and Associates
73-1168 Kahuna A'o Road
Kailua Kona, Hawai'i 96740

LOG NO: 2010.4056
DOC NO: 1202MV14
Archaeology

Dear Dr. Haun:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Draft Archaeological Preservation Plan, Sites 6302, 7861-7869, 7871, 7874-7876, 7907, 7903, 7905, 7911, 11863, and 11872
Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-8-010:004 (portion) and 7-8-014:056

Thank you for the opportunity to review the draft report titled *Archaeological Site Preservation Plan Sites 6302, 7861-7869, 7871,7874-7876,7907, 7903, 7905, 7911, 11863, and 11872 Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i TMK: (3) 7-8-010:004 (portion) and 7-8-014:056* by D. Berrigan, A. Haun, and D. Henry (October 2010). This document was received by our office on October 25, 2010. We apologize for the delayed review and thank you for your patience.

This project area was initially surveyed by Moore et al. (2004) and Jones et al. (2004). These surveys identified a total of 58 archaeological and cultural sites with a total of 247 component features. This preservation plan outlines the proposed archaeological mitigation for 22 of these sites. The plan includes a proposal to continue data collection and site mapping for site monitoring purposes that will be presented in a conservation report for SHPD review. In addition, the plan identifies short term protection measures and long term buffer zones that will be implemented for these sites. Because the report is significantly past the allotted review period we will not request any revisions to this draft.

This plan meets the requirements of HAR 13-277 and is accepted by SHPD. Please send one hardcopy of the document, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

Please contact Mike Vitousek at (808) 652-1510 or Michael.Vitousek@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Archaeology Branch Chief

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 24, 2012

Dr. Alan Haun
Haun and Associates
73-1168 Kahuna A'o Road
Kailua Kona, Hawai'i 96740

LOG NO: 2010.3534
DOC NO: 1202MV13
Archaeology

Dear Dr. Haun:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Draft Archaeological Data Recovery Plan, Sites 7860, 7870, 7872, 7873, 7880-7882, 7900, 7902, 7904, 7906-7910, 11860-11862, 11864, 11866-11871
Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-8-010:004 (portion)

Thank you for the opportunity to review the draft plan titled *Archaeological Data Recovery Sites 7860, 7870, 7872, 7873, 7880-7882,7900, 7902, 7904, 7906-7910, 11860-11862, 11864, 11866-11871 Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i TMK: (3) 7-8-010:004 (portion)* by D. Berrigan, A. Haun, and D. Henry (October 2010). This document was received by our office on October 25, 2010. We apologize for the delayed review and thank you for your patience.

This project area was initially surveyed by Moore et al. (2004) and Jones et al. (2004). These surveys identified a total of 58 archaeological and cultural sites with a total of 247 component features. This data recovery plan outlines proposed archaeological mitigation for 25 of these sites. The proposed research objectives of this project are to establish the age of the sites, to enumerate the type and variety of activities conducted at each feature, and to analyze site function, land use and settlement patterns within the project area. We believe that the methods outlined in this plan will adequately address the stated research design. Because the report is significantly past the allotted review period we will not request any revisions to draft.

This plan meets the requirements of HAR 13-278-3 and is accepted by SHPD. Please send one hardcopy of the document, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library. Please contact Mike Vitousek at (808) 652-1510 or Michael.Vitousek@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Archaeology Branch Chief

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

February 24, 2012

Dr. Alan Haun
Haun and Associates
73-1168 Kahuna A'o Road
Kailua Kona, Hawai'i 96740

LOG NO: 2010.4057
DOC NO: 1202MV15
Archaeology

Dear Dr. Haun:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Monitoring Plan
Kahaluu Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-8-010:004 (portion) and 7-8-014:056

Thank you for the opportunity to review the draft report titled *Archaeological Monitoring Plan TMK: (3) 7-8-010:004 (portion) and 7-8-014:056 Land of Kahaluu North Kona District, Island of Hawai'i* by D. Berrigan, A. Haun, and D. Henry (October 2010). This document was received by our office on October 25, 2010. We apologize for the delayed review and thank you for your patience. This project was initially surveyed by Moore et. al. (2004) and Jones et al. (2004). These surveys identified a total of 58 archaeological and cultural sites with a total of 247 component features.

This Monitoring Plan outlines the proposed objectives and procedures that will be implemented to prevent damage to sites determined for preservation, and to identify and document any newly discovered archaeological and cultural sites. Because the report is significantly past the allotted review period we will not request any revisions to this plan. This plan meets the requirements of HAR 13-279 and is accepted by SHPD. Please send one hardcopy of the document, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

Please contact Mike Vitousek at (808) 652-1510 or Michael.Vitousek@Hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Archaeology Branch Chief

William P. Kenoi
Mayor

BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

County of Hawai'i

PLANNING DEPARTMENT
Aupuni Center • 101 Pauahi Street, Suite 3 • Hilo, Hawai'i 96720
Phone (808) 961-8288 • Fax (808) 961-8742

May 13, 2009

Mr. Christopher Lau
Towne Development of Hawaii
220 S. King Street, Suite 2170
Honolulu, HI 96813

Dear Mr. Lau:

Change of Zone Ordinance No. 820 (REZ 419)
TMK: (3) 7-8-10:4 (Portion)

This is in response to your question as to whether the current zoning of the above-captioned property is consistent with the General Plan land use designation of the area. According to the Planning Department's background report for the rezoning of the above-caption parcel, the General Plan land use designation was determined to be Medium Density Urban Development. Therefore, the rezoning of portion of TMK: 7-8-10:4 to a Multiple-Family Residential – 3,500 square foot (RM-3.5) district is consistent with the General Plan land use designation.

Should you have any questions, please feel free to Norman Hayashi of this office at 961-8288, x205.

Sincerely,

BJ Leithead Todd
Planning Director

P:wpwin60\norm\letters\2009\lau ord820 5-13-09
cc: Planning Department-Kona

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ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahalu‘u - A Residential Project for Towne Development of Hawai‘i

APPENDIX 1b
Comments to Draft EA and Responses

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NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

13-166
Parcel 26 at Kahalu`u

August 28, 2013

TO: Esther Imamura
Hawai`i County Planning Department

FROM: Laura McIntyre, Manager
Department of Health, Environmental Planning Office

SUBJECT: **EA for Parcel 26 at Kahalu`u – A Residential Project for Towne Development of Hawai`i, North Kona, Hawai`i, TMK: (3) 7-8-010: 004, 7-8-014: 013**

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your document regarding the above subject. Thank you for allowing us to review and comment on the subject project. The document was routed to the Department of Health's Wastewater Branch, as well the Hawai`i District Health Office. They will provide specific comments to you if necessary. EPO recommends that you review the Standard Comments found on our website: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. You are required to adhere to all Standard Comments specifically applicable to this application.

EPO suggests that you examine the many sources available on strategies to support the sustainable design of communities, including the following:

- U.S. Environmental Protection Agency's report, "Creating Equitable, Health and Sustainable Communities: Strategies for Advancing Smart Grants, Environmental Justice, and Equitable Development" (Feb. 2013), http://www.epa.gov/smartgrowth/pdf/equitable-dev/equitable-development-report-508-011713b.pdf;
- U.S. Environmental Protection Agency's sustainability programs: www.epa.gov/sustainability;
- U.S. Green Building Council's LEED program: www.new.usgbc.org/leed; and World Health Organization, www.who.int/hia

The DOH encourages everyone to apply these sustainability strategies and principles early in the planning and review of projects. We also request that for future projects you consider conducting a Health Impact Assessment (HIA). More information is available at: www.cdc.gov/healthyplaces/hia.htm. We request you share all of this information with others to increase community awareness on sustainable, innovative, inspirational, and healthy community design.

We request a written response confirming receipt of this letter and any other letters you receive from DOH in regards to this submission. You may mail your response to 919 Ala Moana Blvd., Ste. 312, Honolulu, Hawaii 96814. However, we would prefer an email submission to: epo@doh.hawaii.gov. We anticipate that our letter(s) and your response(s) will be included in the final document. If you have any questions, please contact me at (808) 586-4337.

✓ c: Mr. Ron Terry, Geometrician Associates

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Laura Leialoha Phillips McIntyre, AICP
Environment Planning Office Manager
Hawai'i DOH Environmental Health Administration
919 Ala Moana Blvd, Suite 312
P.O. Box 3378
Honolulu HI 96814

Dear Ms. McIntyre:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated August 28, 2013, indicating that the EA was routed to the DOH Wastewater Branch and Hawai'i District Health Office and referring us to websites providing sustainable design principles and strategies. As discussed on pages 1 and 9-12 of the EA, the project will conform with the entitled *Comprehensive Design Principles for Keauhou Kona*, dated December 1980, and the later *Keauhou Village & Kahalu'u Village Residential Design Guidelines.* These guidelines were developed, among other purposes, to ensure quality, culturally vibrant and sustainable community development. In addition, the development will incorporate a number of water and energy saving features in its buildings and grounds. The design will be consistent with the principles of sustainability.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. We will provide you notice of the publication of the Final EA via email, as indicated in your letter. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

William P. Kenoi
Mayor

BJ Leithead Todd
Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street • Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
https://www.hawaicounty.gov/environmental-management/

August 28, 2013

Ms. Esther Imamura
Planning Department
101 Pauahi Street, Suite 3
Hilo, HI 96720

RE: Parcel 26 at Kahalu'u – A Residential Project for Towne Devleopment of Hawai'i

We have no comments to offer on the subject project.

Thank you for allowing us to review and comment.

Sincerely,

BJ Leithead Todd
DIRECTOR

cc: Mr. Ron Terry
Geometrician Associates
P. O. Box 396
Hilo, HI 96721

County of Hawai'i is an Equal Opportunity Provider and Employer.

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Bobby-Jean Leithead-Todd, Director
Hawai'i County DEM
25 Aupuni Street
Hilo HI 96720

Dear Ms. Leithead-Todd:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter on the Draft EA dated August 28, 2013, in which you stated that your agency had no comment. We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai'i

POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

September 3, 2013

Mr. Ron Terry
Geometrician Associates
P.O. Box 396
Hilo, Hawai'i 96721

Dear Mr. Terry:

SUBJECT: ENVIRONMENTAL ASSESSMENT REVIEW FOR PARCEL 26 AT KAHALU'U RESIDENTIAL PROJECT FOR TOWNE DEVELOPMENT OF HAWAI'I, NORTH KONA
TMK: 7-8-010:004 AND 7-8-014:013

The above-referenced Draft Environmental Assessment (DEA) has been reviewed, and we have the following comments to offer at this time.

The main concern would be the congestion of traffic from a development of this size. A review of the DEA finds that the developer will prepare for future roadway infrastructure but the infrastructure will not be in place by the completion of the development. We request that the developer be required to complete the additional roadway infrastructure prior to the completion of the development as inadequate roadways for a development this size would hinder or cause a bottle neck type of situation should the need for emergency evacuation arise.

Should you have any questions, please contact Captain Randal M. Ishii, Commander of the Kona District, at 326-4646, extension 299.

Sincerely,

HARRY S. KUBOJIRI
POLICE CHIEF

PAUL H. KEALOHA JR.
ASSISTANT POLICE CHIEF
AREA II OPERATIONS

RMI/dmv
RS130585

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Harry Kubojiri, Chief
Hawai'i County Police Department
349 Kapiolani Street
Hilo HI 96720

Dear Chief Kubojiri:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 3, 2013, stating that the development should be required to complete additional roadway infrastructure prior to development, in order to prevent bottlenecks should the need for emergency evacuation arise. Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency. Subject to approval by County agencies, the developer will implement this improvement, satisfying your concern about evacuation.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:
LUD–3 7 8 010 004-ID1409
DEA Towne Dev

September 4, 2013

Mr. Ron Terry, Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

Subject: Draft Environmental Assessment for Towne Development of Hawaii, Inc. Parcel 26 at Kahaluu, A Residential Project for Towne (approximately 321 multi-family time share and 17 single family detached units) Mauka of Alii Drive, North Kona, Hawaii 96745 TMK (3) 7-8-010: 004 42 acres

Thank you for allowing us the opportunity to review the above subject project which requests for comments on the Draft Environmental Assessment for the above subject property.

The subject project is located in the critical wastewater disposal area as determined by the Hawaii Wastewater Advisory Committee. We have no objections to the proposed development as the domestic wastewater generated from the subject project will be handled by the Keauhou Community Services Inc., Heeia Wastewater Treatment Plant (WWTP) and the facility is capable of accommodating the additional wastewater flows from the proposed project.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." Should you have any questions, please contact Mr. Mark Tomomitsu of our office at phone (808) 586-4294 or fax (808) 586-4300.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:lmj

c: Ms. Laura McIntyre, DOH-Environmental Planning Office
Mr. Dane Hiromasa, DOH-WWB's Kona Staff
Mr. Duane Kanuha, County of Hawaii, Planning Director

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Sina Pruder, P.E., Chief
Hawai'i DOH Wastewater Branch
919 Ala Moana Blvd, Suite 312
P.O. Box 3378
Honolulu HI 96814

Dear Ms. Pruder:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 4, 2013, stating that the project site is located in the critical wastewater disposal area as determined by the Hawaii Wastewater Advisory Committee. We note your lack of objections to the proposed development given that the domestic wastewater generated from the subject project will be handled by the Keauhou Community Services Inc., He'eia Wastewater Treatment Plant (WWTP) and the facility is capable of accommodating the additional wastewater flows from the proposed project. The developer understands that all wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems".

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

9/14/2013
HAWAII COUNTY PLANNING DEPARTMENT
PARCEL 26 AT KAHALU'U
A RESIDENTIAL PROJECT FOR TOWNE DEVELOPMENT
HAWAII, NORTH KONA (7-8-010:004) 7-8-014:13)

PLANNING DEPARTMENT
2013 SEP 23 AM 10: 54

We are writing this letter to you because we are against this development.

We need to have a commitment to ensure safeguards through regulations that will protect the land and sacred sites from ravaging destruction of developers whose primary concerns is for revenues generated. My family is the 6th generation of Kahulamu's at Kahalu'u. My family has lived on this land for nearly 300 years. This proposed development will destroy all of the sacred, historic and burial sites behind my home where it is known Ali'i were buried back there. My grandfather in his later years, intentionally blocked off the caves, sealing them to keep them safe and undisturbed, protecting the Ohana to rest in peace. It is our heritage, culture and legacy to protect this very historic piece of land. It would be a shame on and unspeakable level to build near or over these remains or even move them for the sake of development. This is a very sacred place which needs to remain untouched.

We have our family cemetery on my property in which we still, to this day, bury family. With this proposed development, I will have 3-story condominiums looking down on my cemetery as if it were a zoo! The rich history of this area is the most sacred and historic area in Hawaii. That fact in itself should be enough to turn the whole area, which is now undeveloped, into a national treasure and protected.

A "mistake" was already made building Keauhou Beach Hotel on sacred grounds with Heiau's. In which it is now slated to be torn down and the grounds restored. It would not only be irresponsible, but reprehensible to destroy another sacred area across the street, repeating the same destruction as is now being corrected with the grounds Keauhou Beach Hotel sit upon. How are we Hawaiians to teach our children, my grandchildren, their heritage and culture when you destroy sacred places without regard?

In the DEA it states the burial council met with us about the burials behind my home. That is a blatant, outright lie! They took that paragraph from the 2004 Burial Council meeting concerning Ali'i Highway.

The traffic problem here is bad. When surf's up, it's wall to wall cars looking for a parking spot. Add all the surf schools and their clients and it's just ridiculous! Sometimes it has taken up to 10 minutes just to pull out of my driveway on to Ali'i Drive. Towne Development plans to build a driveway off Ali"i Drive for the 42 acres of people living back here on to Ali'i Drive. What a nightmare that would be! What happens when a tsunami warning happens where everyone on Ali'i Drive needs to flee to higher ground? Last year, a car accident on top of Kam III, everyone had to turn around back to Ali'i Drive. It took 45 minutes to get back to my driveway. When someone gets hurt at the beach, fire engines and ambulances stop traffic. This is the wrong area for this development on so many levels.

Furthermore, have any studies been made on how future development would impact the West Hawaii aquifer? NO! Not to mention the run off and potential impacts from pollution to Kahalu'u Bay and the ancient fish pond at Kahalu'u Beach Park.

Willy and Gerry Kahulamu

087665

Willy Kahulamu, Gerry Kahulamu

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Willie and Gerry Kahulamu
78-225 Kahalu'u Road
Kailua-Kona HI 96740

Dear Mr. and Mrs. Kahulamu:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter on the Draft EA. First of all, I would like to express appreciation for all of the time your family and friends have spent with project proponent Christopher Lau, project planner Bill Moore attempting to reach a solution that worked in all parties' interests. In answer to your specific comments:

1. *Project needs to make commitments to protect the land and sacred site, including inappropriate views of your family cemetery.*

The heritage of this area is acknowledged, and the revised CIA in the EA has expanded on the discussion of the importance of this area, including some of the concepts that your family has raised during meetings. The developer's goal has been to recognize the importance of cultural resources through the project's design and particularly in the extensive areas that have been set aside for preservation and use by current and future generations of lineal and cultural descendants. With the inclusion of an additional no-development area on the southern portion of the property, in conformance with the wishes of family members, a very substantial preservation area has been set aside.

2. *Meeting of burial council behind your home.*

I was unable to locate a reference in the EA to a meeting of the burial council behind your home in the EA or the appendices. In any case, we apologize if any meeting locations or groups were misrepresented in the EA, and we appreciate the time your family took on several occasions to meet with Glenn Escott, Bill Moore and Chris Lau.

3. *Traffic problem is bad, and what happens when a tsunami warning will occur?*

To address the potential for impact to the operating level-of-service (how congested the roadways might be), a Traffic Impact Analysis Report (TIAR) was conducted. The conclusion of the level-of-service analysis is that the overall intersection of Ali'i Drive at the project driveway will operate at LOS A (the best level) during both peak hours, and traffic exiting the project will operate at LOS C during both peak

hours. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service. The level-of-service analysis also concluded that southbound traffic along Ali'i Drive will operate at LOS A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Ali'i Drive. It is acknowledged that on some high surf days, traffic along Ali'i Drive becomes very congested, and turning movements into any driveway or street further delay traffic. Concerning emergency evacuations, as the EA states, Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency, and would be a significant benefit for all residents and visitors that would not be realized without the proposed project.

4. *Studies on aquifer.*

The Draft EA included a professional water quality study that included sampling at three transects makai of the project site. Application of a hydrographic mixing model to the water chemistry data was used to indicate if the slightly increased nutrient concentrations that were observed were the result of mixing of natural groundwater with oceanic water, or were the result of inputs from activities on land. The model indicated that at the time of sampling there was a substantial external subsidy of NO3- nitrogen to the ocean at Transect 2 and 3 within Kahalu'u Bay. This subsidy represents an increase of NO3- on the order of 18-30% of natural groundwater. Similar subsidies of NO3- were not evident at Transect 1. There is a small input of PO4-3 from activities on land that subsidize groundwater nutrient concentrations at Transect 1, but not at Transects 2 and 3. When the scientists evaluated the chemistry from the sample using DOH area specific criteria for West Hawai'i and applied the mixing criteria specified for water with salinity less than 32‰, it was observed that NO3- exceeded the criterion at Transects 2 and 3. However, using the mixing criteria, TN, PO4-3 and TP were out of compliance at all three transects. Additional sampling would be required to resolve whether the area is periodically or permanently out of compliance or not. Certainly, much of the existing development in Kona did not comply with the strict standards that are present today and to which the proposed project would be held. The project has been designed to avoid polluted runoff and non-point source pollution, and the careful analysis presented in Section 3.1.2 of the Draft EA indicated that the interaction of withdrawals of groundwater for project use, coupled with wastewater plant treatment of all wastewater, would actually decrease nutrient subsidies on a net basis, even after being offset to some degree by nutrient loading that would occur as part of irrigation. Overall, results of the water chemistry analysis indicate little or no potential for substantial project-related adverse impacts to marine waters off the project site. It is clear that changes in land use associated with the proposed residential project on Parcel 26 should not change water quality of the offshore area to any discernible extent.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

Hawaii County Planning Dept
9-14-2013

PLANNING DEPARTMENT
COUNTY OF HAWAII

2013 SEP 23 AM 10: 54

The proposed development by Towne Development of Hawaii is in total disrespect of the lands of Kahalu'u

Kamehameha Investment/ Bishop Holdings Corporation, has lobbied for years the families of Kahalu'u to right the wrong that they caused to this historical area. To accomplish this they demolished the Kona Lagoon Hotel and are in the process today of rebuilding the ancient heiau of old with their commitment to also demolish the Keauhou Beach Hotel and rebuild its ancient features. All of this was to right the wrongs that was done by their past trustee's.

Now comes the sale of Parcel 26 to Towne Development of Hawaii. Towne's proposal to build a (321) multi-family time share unit (three story buildings) and in addition of building (17) single family homes.

This project is totally out of place in Kahalu'u. This massive amount of people that will use Kahalu'u Bay and its park facilities will be over run. The additional traffic on Alii Drive will be impacted to unsafe conditions. This project will be a total invasion of privacy for all that live there today.

Kahalu'u is one of the most important historical areas of Hawaii and should remain as such. Kamehameha Investment/Bishop Holdings Corporation commitment to right the wrong that was done! To allow the sale of the property for this type of development is totally against what they are preaching to us.

Our family urges the general public to review the Draft Environmental Assessment. Those of you who live there, upon your reviews, you will see that Kahalu'u is being taken for granted. In the report Kahalu'u is not portrayed as an ancient historical area but as a prime development profit center with historical features. Towne has stated in their Environmental Assessment "With the limitations on usable areas in order to protect the historic sites, the single family residential development option was determined to not be feasible based on the potential reduction in unit count in relationship to the land value and development cost."

To Kamehameha Investment/Bishop Holdings Corp. right the wrong and rescind the sale.
To Towne Realty and future developers don't compromise ancient historical areas for monetary gains then leave town.
To Geometrician Associates LLC, who prepared the Environmental Assessment, for your findings of "NO SIGNIFICANT IMPACTS ARE EXPECTED TO OCCUR" Shame on you!!

Kahulamu Ohana

087665

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Kahulamu Ohana
C/o Willie and Gerry Kahulamu
78-225 Kahalu'u Road
Kailua-Kona HI 96740

Dear Kahulamu Ohana:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter on the Draft EA. In answer to your specific comments:

1. *Project is in conflict with the efforts of the landowners to right the wrongs they caused to this historical area through overdevelopment, and is totally out of place in Kahalu'u.*

The development plan recognizes the importance of cultural resources in its location and design and particularly in the extensive areas that have been set aside for preservation and use by current and future generations of lineal and cultural descendants. With the inclusion of an additional no-development area on the southern portion of the property, in conformance with the wishes of family members, a very substantial preservation area has been set aside. The revised development plan now includes over 32 acres (75%) of the 42.9-acre develop area in landscaping/open space, including archaeological preservation, drainage and buffer areas.

2. *Project DOES have significant impacts.*

Thank you for providing your judgment on this. We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

PO Box 437452 Kamuela Hawai'i 96743 | Tel 808 887 6411 | Fax 808-885-6707 | www.kohalacenter.org

THE KOHALA CENTER

William Moore
Towne Development of Hawai'i, Inc.
220 South King Street, Suite 3
Honolulu, Hawai'i 96813

September 19, 2013

Dear Mr. Moore:

We are responding to the request for comments regarding the environmental assessment for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i. Island: Hawai'i. District: North Kona. TMK: (3rd) 7-8-010:004, 7-8-014:013.

The Kohala Center is an independent, community-based center for research, conservation, and education. The Kohala Center's primary areas of interest are: energy self-reliance, food self-reliance, and ecosystem health. A significant effort of ours in the area of ecosystem health is the protection of the fragile coral reef environment of Kahalu'u Bay, which is located below the proposed residential project. In 2006, The Kohala Center was approached by Sara Peck, UH Sea Grant Extension Officer, and Roseanne Shank, leader of Hawai'i Girl Scout Troop 425, to assist in strengthening the ReefTeach Program at Kahalu'u Bay, which is a volunteer effort to educate users of the bay in ways to protect its coral reef environment. The work of the ReefTeach Program is critically important, since the small bay receives approximately 400,000 users per year.

When The Kohala Center began its work at Kahalu'u, an advisory board was established, which includes representation from the following organizations: National Park Service, Kamehemeha Investment Corporation, County of Hawai'i Department of Parks and Recreation, and UH Sea Grant. Although the work began with only a handful of volunteers, the effort has grown substantially: last year, over 400 volunteers with the support of full-time and part-time staff made direct educational contact with 52,000 users of the bay. Our studies show that human behavior is positively affected by the educational effort, thus reducing the trampling of live corals in the shallow bay. Local businesses, schools, and associations also participate in this educational effort by Adopting-a-Day, including: Starbucks, Fair Wind Cruises, Big Island Ocean Cruises, Jack's Diving Locker, University of the Nations Foundation School, and Kona-Kohala Chamber of Commerce. In addition, a Citizen Science Program was established in 2009 with the support of the Environmental Protection Agency to monitor water quality at the bay. From 2009 through 2011, the Hawai'i Institute for Marine Biology, in collaboration with the Center for Conservation Research and Training at the University of Hawai'i at Mānoa, established baselines for the monitoring of ecosystem health in the bay. Finally, The Kohala Center worked with the County of Hawai'i Department of Planning and the Department of Landscape Architecture at the University of Washington at Seattle in June 2008 to develop a conceptual master plan for the improvement of the Kahalu'u Bay Beach Park. Stakeholders involved in the planning process included: Kamehameha Investment Corporation, kupuna Mitchell Fujisaka, lineal descendant Tut Kamoku, Hawai'i County Councilperson Curtis Tyler, architect Michael Richm, kumu hula Tisha Kalili, ReefTeach volunteers, community

leader Nancy Pissichio, local families associated with Kahalu'u Bay, and the homeless who reside in the beach park. A subsequent meeting and workshop held on September 22, 2008 to discuss the next steps for the restoration of the park included Scott Sullivan (Sea Engineering), Chester Koga (R.M. Towill), Warren Bucher (Oceanit), Mitchell Fujisaka (kupuna), Greg Chun (President of Kamehameha Investments), Billy Fields (cultural mason), Captain Chris Stelfox (Department of Ocean Safety for West Hawai'i), Nancy Pissichio (community leader), Theresa Donham (lead archeologist for SHPD, Hawai'i Island), Curtis Tyler (Hawai'i County Councilperson), Michael Matsukawa (attorney), Pat Englehart (Hawai'i County Parks Director), and Michael Kido (Center for Conservation Research and Training, University of Hawai'i at Mānoa). The Kohala Center is now engaged in raising funds for the next phase of the planning process, which involves engineering studies.

Given the work accomplished by The Kohala Center and the community vision embedded in the conceptual master plan, the County of Hawai'i signed a ten-year memorandum of agreement on October 25, 2011 with The Kohala Center to: a) manage the Kahalu'u Bay Beach Park, b) create educational and research programs to protect the health of the bay's environment, c) move forward with plans to improve the park, and thus d) create a model program that exemplifies public-private partnerships. With this agreement, the Kahalu'u Bay Education Center, a collaborative program between The Kohala Center and the County of Hawai'i, was established.

It is in this spirit of collaboration that we submit the following comments:

1. We would like the developer to consider the following ways to mitigate the increased use of the beach park, which is already under pressure: provide environmental education opportunities for residents, support environmental education at the bay, support water quality monitoring at the bay, support ecosystem health monitoring at the bay, encourage residents to walk not drive to the beach park, provide parking stalls for cars and bicycle racks within the development for access to the beach park, and support beach park improvements.
2. Please describe the drainage area in the northern portion of the parcel and provide information on the proposed development's capacity to manage runoff.
3. Please describe cultural resources that may be present along the two potential wastewater connections, including whether or not these areas have been studied and how impacts to cultural resources will be mitigated.
4. Please provide information on how the impact on views (although possibly minimal) will be mitigated.
5. Please provide information on the impact on air quality.
6. Response to comments (Appendix 1a): please provide written responses to all comment letters.

Thank you very much for your kind consideration.

Sincerely yours,

Cindi Punihaole, Director
Kahalu'u Bay Education Center

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Cindi Punihaole, Director
Kahalu'u Education Center
The Kohala Center
PO Box 437462
Kamuela HI 96743

Dear Ms. Punihaole:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 19, 2013, on the Draft EA. We appreciate your outline of the important work that the Center undertakes for Kahaluu and the wider community. In answer to your specific comments:

1. *Consider the following ways to mitigate the increased use of the beach park, which is already under pressure: provide environmental education opportunities for residents, support environmental education at the bay, support water quality monitoring at the bay, support ecosystem health monitoring at the bay, encourage residents to walk not drive to the beach pad:, provide parking stalls for cars and bicycle racks within the development for access to the beach park, and support beach park improvements.*

The developer is open to working with your organization to mitigate the potential impacts from the use of the beach park by the project residents. We look forward to continued discussion with you in this regard.

2. *Describe the drainage area in the northern portion of the parcel and provide information on the proposed development's capacity to manage runoff.*

The development must conform with County policy that requires post-development runoff to not exceed pre-development runoff. The design plans will ensure that *all* development-generated runoff is contained on the property. Under County, State and Federal requirements, the project is not allowed to increase runoff over that which currently existing in its natural condition.

3. *Please describe cultural resources that may be present along the two potential wastewater connections, including whether or not these: areas have been studied and how impacts to cultural resources will be mitigated.*

The extension of the sewer line to the project site will require some construction within the existing Ali'i Drive right-of-way. This will be in the road shoulder adjacent to the existing paved travelway. This area

has been extensively disturbed by prior construction activity. At the same time, in that subsurface work will be required, the developer is committed to having an archaeological monitor on site during all subsurface construction activity.

4. *Provide information on how the impact on views (although possibly minimal) will be mitigated.*

As you mention, the impacts on views are extremely minimal. None of the buildings will interfere with views of the coast from areas mauka, and the buildings will be minimally visible from Ali'i Drive or the coastal waters because of the several layers of existing buildings, some of them much taller than the proposed structures, along with existing trees. To further mitigate impacts to views, the proposed development would fully conform with the Keauhou Village & Kahalu'u Village Residential Design Guidelines, which will ensure conformance with the cohesive vision for the physical appearance of Keauhou and ensure high-quality, culturally vibrant and sustainable community development. This will involve the texture and colors of structures and signage, and landscaping with regionally appropriate vegetation.

5. *Provide information on the impact on air quality.*

Each residence in Kona has a real, but extremely minimal, impact on air quality, in both direct and indirect ways (primarily through use of fuels for electricity and transportation). These residences will be no exception. The Kona area is an attainment area for criteria pollutants of concern under the Clean Air Act and State regulations, with pollutants well below applicable State and federal air quality criteria, except for occasional violations of particulates due to vog. With the potential for 321 units, the project will add approximately 0.4 percent to the stock of 85,000 housing units in the County, which represents the airshed for island. Traffic studies indicate only minimal reduction in the Level of Service on Ali'i Drive, and there will be no substantial increase in micro-scale pollution that can occur during heavy traffic. Please note that the unit count has actually been reduced to 306.

6. *Provide written responses to all comment letters in Appendix 1a.*

The EA process does not require responses to these letters, which are solicited to provide initial information and concerns to help guide development of the EA. The information in the EA reflects the input received. If those who provided information in response to early consultation wish, they may provide comments on the Draft EA.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 20, 2013

Geometrician Associates
Attention: Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

via email: rterry@hawaii.rr.com

Dear Mr. Terry:

SUBJECT: Draft Environmental Assessment (DEA) Parcel 26 at Kahaluu – A Residential Project for Towne Development of Hawaii, Geometrician Associates for Towne Development of Hawaii, Inc., Applicant, Kahaluu, North Kona, Hawaii; TMKs: (3) 7-8-010:004; 7-8-014:013

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (i) Engineering Division, (ii) Hawaii District Land Office, and (iii) Division of Aquatic Resources on the subject matter. Should you have any questions, please feel free to call Kevin Moore at (808) 587-0426. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

'13 AUG 26 PM 03:55 ENGINEERING

RECEIVED
LAND DIVISION
2013 SEP -6 PM 1:49
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

August 26, 2013

MEMORANDUM

TO: FR.

DLNR Agencies:
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: TO: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) Parcel 26 at Kahaluu – A Residential Project for Towne Development of Hawaii
LOCATION: Kahaluu, North Kona, Hawaii; TMK: (3) 7-8-010:004; 7-8-014:013
APPLICANT: Geometrician Associates for Towne Development of Hawaii, Inc.

Transmitted for your review and comment is information on the above referenced project. A complete copy of the DEA is available in Land Division's Honolulu office, and on line in the August 23, 2013 edition of the Environmental Notice at:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Hawaii/2010s/2013-08-23-HI-5E-DEA-Parcel-26-at-Kahaluu-Residential-Project.pdf

We would appreciate your comments on this document. Please submit any comments by September 19, 2013. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Print Name: Carty S. Chong, Chief Engineer
Date: 9/5/13

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: DEA for Parcel 26 at Kahaluu – A Residential Project for Towne Development of Hawaii, Kahaluu, North Kona Hawaii.009

COMMENTS

(X) **We confirm that part of the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The National Flood Insurance Program does not have any regulations for developments within Zone X.**

( ) Please take note that the remainder of the project site according to the Flood Insurance Rate Map (FIRM), is located in Zones ___.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Mr. Carolyn Cortez at (808) 270-7813 of the County of Maui, Department of Planning.

( ) Mr. Stanford Iwamoto at (808) 241-4884 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 7/5/05

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2013 AUG 27 A 11:56

RECEIVED
LAND DIVISION
HILO, HAWAII

August 26, 2013

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

RECEIVED
LAND DIVISION
2013 SEP -6 PM 1:51
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: for Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) Parcel 26 at Kahaluu – A Residential Project for Towne Development of Hawaii
LOCATION: Kahaluu, North Kona, Hawaii; TMK: (3) 7-8-010:004; 7-8-014:013
APPLICANT: Geometrician Associates for Towne Development of Hawaii, Inc.

Transmitted for your review and comment is information on the above referenced project. A complete copy of the DEA is available in Land Division's Honolulu office, and on line in the August 23, 2013 edition of the Environmental Notice at:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Hawaii/2010s/2013-08-23-HI-5E-DEA-Parcel-26-at-Kahaluu-Residential-Project.pdf

We would appreciate your comments on this document. Please submit any comments by September 19, 2013. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed:
Print Name: GORDON C. HEIT
Date: 9/11/13

cc: Central Files

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2013 SEP 13 AM 10: 29
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 26, 2013

RECEIVED
AUG 27 2013
AQUATIC RESOURCES

DAR 4835

JK ✓
WW

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) Parcel 26 at Kahaluu – A Residential Project for Towne Development of Hawaii
LOCATION: Kahaluu, North Kona, Hawaii; TMK: (3) 7-8-010:004; 7-8-014:013
APPLICANT: Geometrician Associates for Towne Development of Hawaii, Inc.

Transmitted for your review and comment is information on the above referenced project. A complete copy of the DEA is available in Land Division's Honolulu office, and on line in the August 23, 2013 edition of the Environmental Notice at:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Hawaii/2010s/2013-08-23-HI-5E-DEA-Parcel-26-at-Kahaluu-Residential-Project.pdf

We would appreciate your comments on this document. Please submit any comments by September 19, 2013. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments. WW
( ) Comments are attached.

Signed: [signature]
Print Name: HIGUVRA
Date: 9-12-13

cc: Central Files

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Russell Y. Tsuji, Administrator
Hawai'i State DLNR Land Division
P.O. Box 621
Honolulu HI 96809

Dear Mr. Tsuji:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letters dated September 20, 2013, on the Draft EA. In regard to the memo from the Engineering Division, we appreciate the statement that the comments in response to early consultation, which consisted of confirmation of the Flood Zone X designation, still applied. We also acknowledge the no-comment memos by the Land Division, Hawai'i District and the Division of Aquatic Resources.

We very much appreciate your review of the document, including circulation to various DLNR agencies. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

PLANNING DEPARTMENT
COUNTY OF HAWAII
2013 SEP 23 AM 10: 54

Imamura, Esther

From: Theresa.K.Donham@hawaii.gov
Sent: Friday, September 20, 2013 4:43 PM
To: eimamura@co.hawaii.hi.us
Cc: Michael.Vitousek@hawaii.gov
Subject: SHPD letter, DEA for Towne Development, Kahaluu
Attachments: (3) 7-8-010 004 L2013 5049 D1309MV20 6E-42 DEA Towne Development Kahaluu More Info.pdf

Aloha Esther,
Please see attached.

087664

9/23/2013

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

PLANNING DEPARTMENT
2013 SEP 23 AM 10:54

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

September 20, 2013

Esther Imamura
Hawaii County Planning Department
101 Pauahu Street, Suite 3
Hilo, HI 96720
EIMAMURA@co.hawaii.hi.us

LOG NO: 2013.5049
DOC NO: 1309MV19
Archaeology

Dear Ms. Imamura:

SUBJECT: **Chapter 6E-42 Historic Preservation Review –**
Draft Environmental Assessment for Towne Development of Hawaii
Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i
TMK: (3) 7-8-010:004 and 7-8-014:013

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) that was prepared for the proposed Towne Development in Kahalu'u. This draft was received by our office on August 28, 2013. According to the DEA, this proposed project involves the construction of 321 multi-family time share units and 17 single-family detached units on an approximately 42-acre property known as Parcel 26 located mauka of Ali'i Drive in Kahalu'u. A review of our records indicates that an archaeological inventory survey of parcel 013 was conducted by Clark and Rechtman (2001) and a single historic property was identified (SIHP 50-10-37-23005). No further work was recommended for this site. Our records also indicate that the parcel 004 project area was initially subjected to archaeological inventory surveys by Moore et al. (2004) and Jones et al. (2004). These surveys identified a total of 58 archaeological and cultural sites with a total of 247 component features. Of these 58 sites, 25 were recommended for data recovery (SIHP sites 7860, 7870, 7872, 7873, 7880-7882,7900, 7902, 7904, 7906-7910, 11860-11862, 11864, and 11866-11871); 22 were recommended for preservation (SIHP sites 6302, 7861-7869, 7871, 7874-7876, 7907, 7903, 7905, 7911, 11863, and 11872); and no further work was recommended for 11 sites (SIHP 7878, 7879, 24024-24030, 24038, 24039). These treatment recommendations were accepted by SHPD in 2006 (Log 2006.0206, Doc 0602MM01).

Subsequently, archeological site preservation (Berrigan et al 2010a), archaeological data recovery (Berrigan et al 2010b), and archaeological monitoring (Berrigan et al 2010c) plans were prepared and accepted by SHPD. A burial treatment plan (BTP) was prepared for the 14 burial sites (SIHP 7863, 7866, 7867, 7868, 7869, 7871, 7875, 7876, 7887, 7903, 7905, 7911, 11863 and 11872) that were identified during the inventory surveys (Haun et al 2008). The BTP was recommended for approval by the Hawaii Island Burial Council (HIBC) at the January 17, 2008 meeting and subsequently accepted by SHPD (Log 2008.1358, Doc 0805WM05).

The DEA indicates that consultation was undertaken with various state and federal agencies as well as individuals knowledgeable about the project area. One response to this consultation comes from the Kahulamu 'Ohana who are descendants of a Kuleana Gant awardee adjacent to this proposed project area. Members of the Kahulamu 'Ohana indicated that they believe this development will impact their ability to care for family burials that are located on their property as well as unmarked burial sites that have not been identified during the archaeological surveys. The DEA claims that "no Hawaiian customary and traditional rights or practices are known to be associated with the property" and in order "to mitigate potential impacts to the cultural value of archaeological and burial sites identified within the current project site, preservation and burial treatment plans prepared in compliance with HAR 13§13-300 have been implemented," and data recovery and monitoring plans will be carried out.

We are unable to concur with the conclusion that no traditional cultural practices take place in the project area, and we cannot at this time concur with the statement that the proposed mitigation measures in the form of burial treatment, preservation, data recovery, and archaeological monitoring plans will, by themselves mitigate the impacts to this project area. SHPD's concerns are as follows:

1. Members of the Kahulamu 'Ohana have clearly communicated to our office that they have ongoing cultural practices of caring for family burial sites in this project area. They have also indicated that some of their family burial sites, which are located within the project area, were not recorded during the AIS and are not protected in the BTP. This is new information about significant cultural sites in the project area that was not adequately addressed in the accepted archaeological reports. Therefore, we believe that effort must be made to work with the Kahulamu 'Ohana to ensure that their family burial sites, and their ability to care for these burial sites, are protected.

2. The approved data recovery plan called for the resurvey of the project area in order to identify historic and pre-contact agricultural features that were not recorded in the earlier AIS. The result of this resurvey is briefly discussed in the DEA. Figure 6 on page 44 indicates that hundreds of undocumented features have been found throughout the project area. The volume and density of these cultural modifications throughout the project area indicates that this is not a collection of discreet sites, but rather large scale property comprised of multiple, linked features that form a cohesive landscape. Further justification that this is a cultural landscape comes from the fact that this proposed project is located within the Kahalu'u Historic District which is listed on the State Inventory of Historic Places (SIHP 50-10-37-4150). There is no mention of the effects of this development on the historic landscape or the Kahalu'u Historic District within the DEA. Therefore, we believe that these sites should be collectively assessed for their historic significance as a landscape pursuant to Hawai'i Administrative Rule (HAR) §13-284-6, and the effect of this project on the landscape, not just the individual sites, should be taken into account through the environmental and historic preservation review processes.

3. The DEA also indicates that as the resurvey during data recovery resulted in reassignment of certain features to six new temporary sites. The identification of new sites should be treated as a post review discovery; a State Inventory of Historic Places number should be assigned to the sites, and SHPD should be consulted on the significance assessment and mitigation recommendations. We look forward to the opportunity to review a report that details the findings of this resurvey prior to the commencement of any project activities.

4. We request the opportunity to conduct a field visit to the project area to adequately assess the newly identified historic properties and features.

5. The AIS report for parcel (3) 7-8-014:013 was prepared in 2001, prior to the acceptance of the Hawai'i Administrative Rules that govern the standards for archaeological inventory surveys and reports (HAR 13-276). Therefore, SHPD requests the opportunity to conduct a field visit to determine if this survey was adequate to today's standards, and whether an updated inventory survey needs to be prepared pursuant to HAR 13-284-5(b).

We look forward to the opportunity to continue consultation with the project proponents in order to adequately resolve the historic preservation concerns raised in this letter. As is suggested in the DEA, our office would be happy to work with the Kahulamu ohana to ensure that their family burials are adequately protected. Please contact Mike Vitousek at (808) 652-1510 or Michael.Vitousek@hawaii.gov for any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham
Archaeology Branch Chief

cc: Ron Terry, Geometrician Associates, PO Box 396, Hilo, HI 96721
DLNR Land Division, PO Box 62, Honolulu, HI 9680

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Theresa Donham, Archaeology Branch Chief
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei HI 96707

Dear Ms. Donham:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 20, 2013, on the Draft EA. In your letter, you stated that SHPD is unable to concur with the conclusion that no traditional cultural practices take place in the project site, and thus you cannot at this time concur with the statement that the proposed mitigation measures in the form of burial treatment, preservation, data recovery, and archaeological monitoring plans will, by themselves mitigate the impacts to this project site, for a number of reasons. In answer to your specific comments:

1. *Members of the Kahulamu 'Ohana have ongoing cultural practices of caring for family burial sites in this project site. They have also indicated that some of their family burial sites, which are located within the project site, were not recorded during the AIS and are not protected in the BTP. This is new information about significant cultural sites in the project site that was not adequately addressed in the accepted archaeological reports. Therefore, we believe that effort must be made to work with the Kahulamu 'Ohana to ensure that their family burial sites, and their ability to care for these burial sites, are protected.*

Concerning the potential burial sites within the development area, both the project archaeologist and the cultural impact assessment specialist requested the Kahulamu 'Ohana to share information on the location of these potential sites, but were told that this would not be allowed. The area has been thoroughly surface surveyed a number of times and no burials were identified in this area. Searches offsite for cave openings that could lead to burials onsite were also conducted. No such openings were identified. Towne Development subsequently learned through a number of meetings with the family that the general area is also important for caring for family burial sites that our outside the development property on a family cemetery. Towne then agreed to prohibit any development or disturbance within this area, adding to the already considerable area that has been set aside for preservation. Please see the attached revised Site Plan.

2. *The approved data recovery plan called for the resurvey of the project site in order to identify historic and pre-contact agricultural features that were not recorded in the earlier AIS. The result of this resurvey is briefly discussed in the DEA. Figure 6 on page 44 indicates that hundreds of undocumented features have been found throughout the project site. The volume and density of these cultural modifications throughout the project site indicates that this is not a collection of discreet sites, but rather large scale property comprised of multiple, linked features that form a cohesive landscape. Further justification that this is a cultural landscape comes from the fact that this proposed project is located within the Kahalu'u Historic District which is listed on the State Inventory of Historic Places (SIHP 50-10-37-4150). There is no mention of the effects of this development on the historic landscape or the Kahalu'u Historic District within the DEA. Therefore, we believe that these sites should be collectively assessed for their historic significance as a landscape pursuant to Hawai'i Administrative Rule (HAR) §13-284-6, and the effect of this project on the landscape, not just the individual sites, should be taken into account through the environmental and historic preservation review processes.*

The undocumented features were identified during the first phase of field work conducted in accordance with an SHPD-approved data recovery plan (DRP) for the project. The presence of these primarily agricultural features was described in the two SHPD-approved archaeological inventory surveys for the property, but the features were not systematically documented. The lack of documentation was specifically addressed in the DRP that proposed survey work to document them. The features will be fully reported and evaluated in the data recovery report following completion of the fieldwork.

3. *The DEA also indicates that as the resurvey during data recovery resulted in reassignment of certain features to six new temporary sites. The identification of new sites should be treated as a post review discovery; a State Inventory of Historic Places number should be assigned to the sites, and SHPD should be consulted on the significance assessment and mitigation recommendations. We look forward to the opportunity to review a report that details the findings of this resurvey prior to the commencement of any project activities.*

SHPD was supplied a copy of the end-of-fieldwork letter report prepared for the client following the resurvey work. SHPD will be consulted regarding site significance and treatment prior to the next phase of data recovery work.

4. *We request the opportunity to conduct a field visit to the project site to adequately assess the newly identified historic properties and features.*

We would assist and coordinate a field inspection by SHPD staff.

5. *The AIS report for parcel (3) 7-8-0]4:013 was prepared in 2001, prior to the acceptance of the Hawai'i Administrative Rules that govern the standards for archaeological inventory surveys and reports (HAR 13276). Therefore, SHPD requests the opportunity to conduct a field visit to determine if this survey was adequate to today's standards, and whether an updated inventory survey needs to be prepared pursuant to HAR 13-284-5(b).*

The AIS reports were reviewed and approved by SHPD under draft rules that are essentially the same rules that were subsequently adopted. SHPD subsequently approved the burial treatment plan (January 19, 2012), a site preservation plan (February 12, 2014), data recovery plan (February 12, 2014), and a monitoring plan (February 12, 2014). All of these approved plans are based on the original AIS reports. The data recovery and preservation plans contain explicit methods to address any data deficiencies in the SHPD-approved AIS report.

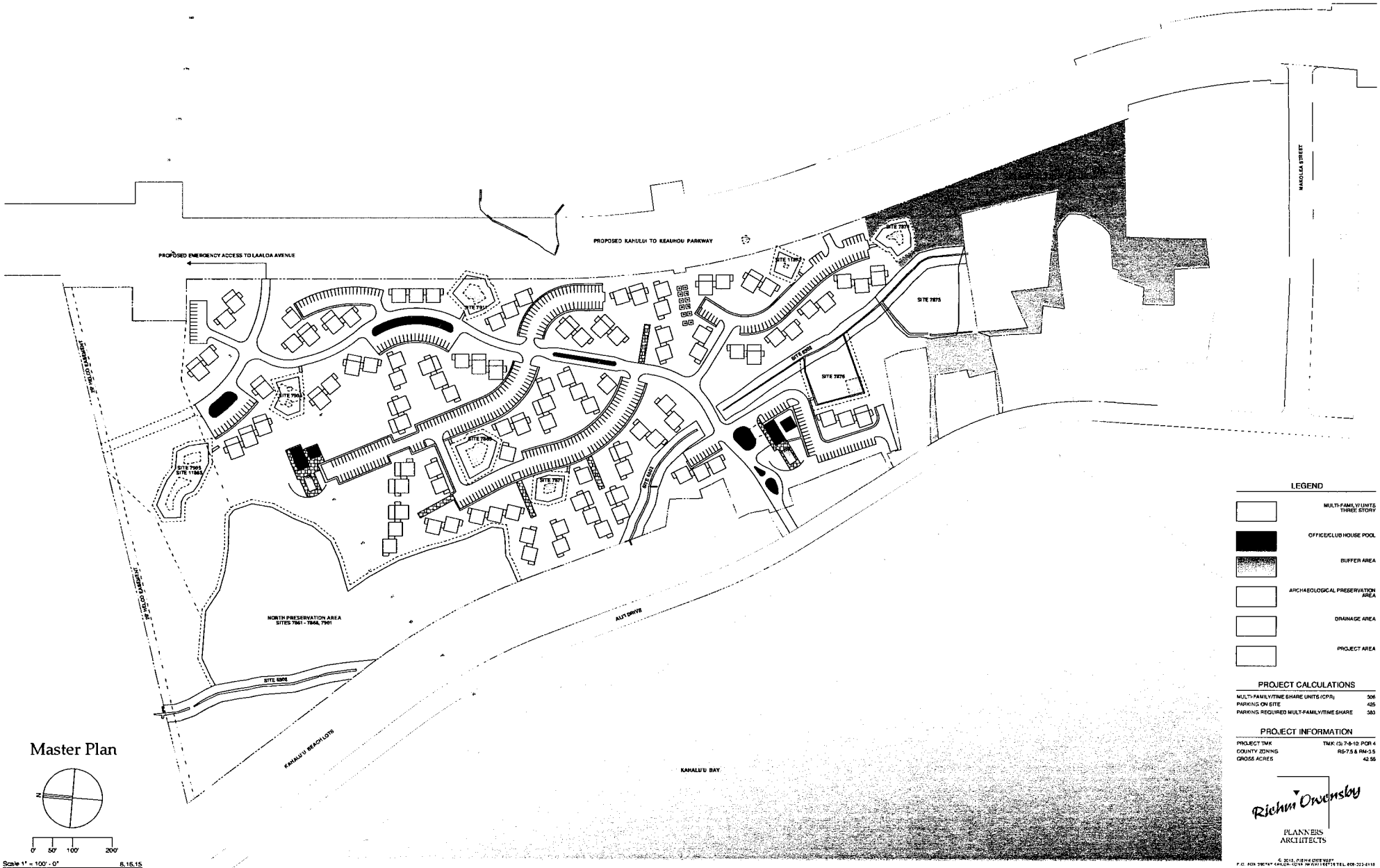
We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development



Parcel 26 at Kahalu'u – A Residential Project for Towne Development of Hawai'i

At Kahalu'u, North Kona, Island & County of Hawai'i

Sheet No: A - 1.1

7-8-10:04, 7-8-14:43
Towne Development

Dacayanan, Melissa

PLANNING DEPARTMENT
COUNTY OF HAWAII
2013 SEP 20 PM 12: 16

From: Shannon Rudolph [shannonkona@gmail.com]
Sent: Friday, September 20, 2013 11:43 AM
To: undisclosed-recipients:
Subject: NO on 300 Kahalu'u Time Shares

Aloha!

300 time shares at Kahalu'u? Bad idea. Ali'i Drive is ALREADY jammed with traffic even WITH the Keauhou Beach Hotel shut down. I'm also very concerned about cultural issues, runoff and water quality.
Please do not ok this development.

Mahalo,
Shannon Rudolph
P.O. 243 Holualoa, Hi. 96725

--
How wonderful it is that nobody need wait a single moment before starting to improve the world. ~ Anne Frank

087653

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Shannon Rudolph
shannonkona@gmail.com

Dear Ms. Rudolph:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 20, 2013, stating your belief that 300 additional timeshares on Alii Drive is a bad idea because of traffic, cultural issues, water quality and runoff. The Draft EA addressed each of these concerns. Runoff can be contained on the property, and the proper use of water can ensure that water quality is not degraded. The heritage of this area is acknowledged, and the revised CIA in the EA has expanded on the discussion of the importance of this area. The development plan recognizes the importance of cultural resources in its location and design and particularly in the extensive areas that have been set aside for preservation and use by current and future generations of lineal and cultural descendants. About 20 percent of the property was designated as archaeological preserves and burial protection areas. Subsequent to the Draft EA, Towne Development has been working with the members of a family with a particular connection to Kahalu'u to preserve an additional no-development area on the southern portion of the property, in conformance with the wishes of family members from this area based on cultural practices.

There is no question that traffic would increase. To address the potential for impact to the operating level-of-service (how congested the roadways might be), a Traffic Impact Analysis Report (TIAR) was conducted. The conclusion of the level-of-service analysis is that the overall intersection of Ali'i Drive at the project driveway will operate at LOS A (the best level) during both peak hours, and traffic exiting the project will operate at LOS C during both peak hours. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service. The level-of-service analysis also concluded that southbound traffic along Ali'i Drive will operate at LOS A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Ali'i Drive. It is acknowledged that on some high surf days, traffic along Ali'i Drive becomes very congested, and turning movements into any driveway or street further delay traffic. Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency, and would be a significant benefit for all residents and visitors that would not be realized without the proposed project.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

Victoria Orr
78-6911 Kia Aina Street
Kailua-Kona, HI 96740

September 21, 2013

Hawaii County Planning Department
101 Aupuni St.
Hilo, HI 96720
planning@co.hawaii.hi.us

Towne Development of Hawaii Inc.
220 S. King St. Suite 960
Honolulu, HI 96813

Geometrician Associates
P.O. Box 396
Hilo, HI 96721
rterry@hawaii.rr.com

I live in Keauhou Estates, and am in favor of the proposed condominium and time share project proposed for Kaualuu Bay, Mauka of Alii Drive.

My husband, Charles and I drive on Alii Drive on a regular basis and do not feel that added traffic will create a problem. The Outrigger hotel that is very near is closed, so any new traffic should not be any different than what existed when the hotel was open.

We shop at Keauhou Shopping center. We regularly played golf at Kona County Club mostly the Mountain course which is now closed. We are in support of a project that will help the businesses in our area.

The new project will generate much needed tax revenues for Hawaii property tax, income tax, excise tax and transient tax.

The prosperity that this project brings is important to sustaining the area.

Sincerely,

Victoria Orr

Victoria Orr
808-747-0935

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Victoria Orr
78-6911 Kia Aina Street
Kailua-Kona, HI 96740

Dear Ms. Orr:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 21, 2013, indicating that based on your experience living, driving and shopping in the area, the project will not cause any significant problems, and that the occupants will generate beneficial tax revenues and customers for local businesses.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

PLANNING DEPARTMENT
2013 SEP 23 PM 2:47

September 21, 2013

RE: Parcel 26 at Kahalu'u Residential project DEA (AFNSI)

To Whom It May Concern,

I am deeply sadden to hear that you are considering building more unnecessary residential housing in the Kahalu'u area, when as a community we already have an abundance of vacant housing on the island.

As a resident in the area, my initial thoughts are " have we not learned from all the development on our sister islands" and the damage and impact it has created in losing the island's identity, novelty and overall environmental impact it has on the land, so scared to Hawaiian culture.

Kahalu'u, specifically where you are considering building, is a very small community of local residence respectful of the land and the people that live in the area. To build in that area would create heavier traffic on Kahalu'u Road, severe damage to the environment and lose its sense of aloha. As it is the infrastructure within that community is not built to handle that type of impact.

I respectfully ask that you re-consider not developing the project, if only for profit, there are better ways of creating community like parks and outdoor common areas to enjoy what this island is known for...it's natural beauty.

Why is it so important to destroy places like this just for money vs. the quality of life we all appreciate and respect by living on this island?

If as Hawaiians or locals representing this development and supporting this to take place then it is unfortunate that you have lost the sense of aloha and heart that these islands are all about.

Respectfully,

Gigi Galang

Kahalu'u Resident

g2.galang@gmail.com

087674

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Gigi Galang
g2.galang@gmail.com

Dear Ms. Galang:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 21, 2013, on the Draft EA. We understand and acknowledge that you feel such a project should not be built in Kahalu'u, because you feel it is a small community with local residents respectful of the land.

However, the project in an area zoned for multi-family and resort uses and designated for such uses in the County's General Plan. It is behind an existing rows of homes, including a number of multi-family and/or multi-story developments, indicating that it can be an appropriate use. Very important considerations are preserving significant historic sites, properly dealing with drainage, scenic issues, water quality and traffic, all of which the developer has attempted to do. There are significant buffers for historic sites and landscaping between the development and existing homes. Towne is working with the County to provide a critical emergency route as well.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

Sept. 22, 2013

To: Hawaii County Planning Dept.
101 Aupuni St.
Hilo, Hi 96740

From: Simmy McMichael 75-5702 Likana Ln. # B Kailua Kona, HI 96740

Subject: Response to EA for Towne Development of Hawaii
TMK (3) 7-8-010-004, 7-8-014:013 Parcel 26 at Kahalu'u

I'am an adjacent owner to this proposed development.
Directly in front Makai of this project.

321 multi family units and 17 single family residential will definitely be a diaster of Congested Traffic in Kahalu'u , Alii Drive.
Mentioned was the closure of Keauhou Beach Resort, this hotel had private parking for their cars, and walked to the Adjacent Beach. Saying Towne guest will be walking to the Beach, I would say, very few?? They will be driving, and will add to whats already over capacity of cars, and not enough parking.
Even though Keauhou Beach Resort closed, Hokulia By Pass opened 2013 without the Alii Highway in place. Alii Drive once known as the scenic route beach road, is more like ...Alii Highway now! The traffic study is not updated to this factor.
There is a Significant increase of cars more than ever, and more during the peak hours of locals heading home from work. Traffic slows down, sometimes crawling.
The report states it did a traffic count Friday Sept 7, 2012 during the Peak AM hour, and PM peak hour. September is NOT the PEAK Month, but, the Slowest month.
Tourist are attracted to Kahalu'u Beach Park. Our busiest Peak season is December thru April. This report states, 1,000 to 1,200 people visit Kahalu'u Beach Park Daily.
The posted speed limit states here, its 25 miles per hour in the South bound direction. Adjacent to the proposed project driveway is 30 miles per hour in the northbound direction. Kahaluu Bay has roughly 4-foot wide shoulder, with no sidewalk. This is used by 10 licensed Surf Schools and local Surfers. Two have their business permanently located across the street, Mauka, of the Bay so pedestrians need to cross the street back and forth with surfboards and standup boards. So much people and cars, the new speed limit is now at 15 miles per hour!

9/22/2013

Its already dangerous when pedestrians, bicyclist, mothers with jogging strollers, are forced into the traffic to get around the cars. This is a mini Waikiki without any sidewalks. There is no space for handicap or wheel chairs, way to dangerous. During the Ironman Triathlon in Oct. there are increased amount of people running, since this is part of the run course and Kahalu'u Bay is the turn around.
Turning left into the project on Alii Drive will cause "MAJOR CONGESTION", on any day. I have a hard time getting out of my driveway, not only because of the amount of cars, but, because of the cars going over the speed limit. I recently put up gates because cars were using my driveways as a turn around everyday. Sometimes going all the way up. Now they are making U turns. Keep in mind your driveway will be the daily turn around without the gate.

Regards to the approved Historical Preservation, I had concerns before knowing what this area was all about. I called Towne Development because there is a huge rock behind my properties with a plumeria tree. I was told by the elders to be cautious because it would signify a grave. I had no idea how many graves there are, as the survey identified a total of 58 archaeological and cultural sites.
I read a report and it read "ubiquitous mounds and modified outcrops" in the project area were not mapped and that dense vegetation probably obscured the location of additional lava blisters.
Portions of many sites are obscured by dense vegetation and several features were only partially mapped. Condition indicate that the potential to encounter undocumented features is HIGH within the parcel inland of the "Kuakini Wall".
Several features were interpreted as "Historic" and some sites contain Traditional Hawaiian features that continued to be used into the Historic period. Early Historic Artifacts can be anticipated.
Portable remains will be collected and placed in "Paper Bags" recovered charcoal samples will be deposited in "Aluminum foil pouches" for analysis.
I called and spoke to Theresa Donham of State Historic Preservation division regards to her letter of Feb 24, 2012 stating the project area was initially surveyed, 2004....Because the report is significantly past the alloted review period we will NOT request any revisions to this draft.
Stating this plan meets the requirements of HAR 13-277 and is accepted by SHPD.
When I spoke to Theresa regarding this letter she was not familiar to what I was talking about. So, I went into details about the letter, and she said she did not write this letter and I should talk to Michael Vitousek. I gave her my cell number. Michael sent me an email saying Theresa must have given him a wrong number? I sent him my number via email and called his phone, left a message that I really didn't want to dig into this, but, the spirits keeps saying to do so. He never called ?
I have only some of the archaeological reports and reading the EA there is a CD ROM containing all the reports, so I have requested them containing seven reports. Mentioned was "because of the large volume of the Seven reports covering the project site, they are NOT reproduced

as part of the EA. I strongly believe they should and for Theresa to sign off a letter she did not write, which reads its was Past the Significantly Past Alloted Review period, so Not to request any revisons to this plan is irresponsible and disrespectful to a Historical Preservation.
From what I have read up until now, it is so wrong to build on sacred land knowingly its within the Kahalu'u Historical District. The RULING CHIEFS lived here, I'm amazed, and from what I have read already, no one should ever build here. Its needs to be preserved for the Hawaiians.
Historic Site Goals are meant to Protect, Restore and enhance the sites and objects of significant historical for cultural importance to Hawaii.
"Natural Beauty Goals", building 321 condos and 17 homes is Not ?
Mentioned was all permanent electrical power and telephone lines, water and wastewater pipelines and other untility lines shall be built underground.
This for sure will disturb the Natural character or topography of the lands and have a significant impact on Hawaiian Cultural and SPIRITUAL ELEMENTS!
(sounds like this is another Hokulia project going wrong) bones have been stored in a storage container for over a year, and now bulldozing over without monitoring when bones are discovered. This whole area should be PROTECTED DESIGNATED CULTURAL SITES FROM DISRUPTION. AND A COMPLETE AND OF THE ALL OF THE LARGE VOLUME OF THE SEVEN REPORTS COVERING THE PROJECT SITE, SHOULD BE REPRODUCED AS PART OF THE EA, NOT JUST THE MAJOR (SELECTIVE) FINDINGS, ONLY SUMMARIZED.

Page 49 mentioned, "The developer will be responsible for archaeological monitoring associated with all GRADING, GRUBBING, AND PLANNED INFRASTRUCTURE DEVELOPMENT". (Hokulia took the workers to blow the whistle, not the developer).

Lot 013 New Driveway...this is part of the broken Kuakini Wall.
And now knowing this, the wall should be restored, per Historic Sites Goal. Alii Highway mentioned, will become the major access to the development. Alii Highway is a dead subject because of all the same reasons. Wrong place for the entry for this subdivision.
Heading south bound, making a left turn into this driveway will halt traffic to a dead stop, and cause major CONGESTION.

Mentioned also was the Hawaiian Hoary Bat, the only Native Hawaiian land Mammal. Its states to minimize the impacts conditions should prohibit removal or trimming of woody plants taller than 15 feet?
The fact of all the building, noise, lights, use of pesticides will endanger this Hawaiian Hoary Bat. I have also seen Hawaiian hawks in this area. There are a number of birds in this area, each breed dominates a tree. Its also states, as the project incorporates outdoor lighting, it may attract Hawaiian Petrels and Newell's Shearwaters,

which may become disoriented by the lighting, resulting in birds being downed. Plans to shield all permanent lighting, what happens when the project is done and all the condo's light up? The birds are plentiful here , you can hear them, and they should be left alone. They are endangered and listed as a threatened species, birds should be protected.

Proposed developments should comply with state Land Use Commission requirements which protect public and the environment. It should be used for cultural and educational purposes like Keauhou Beach resort has been closed and demolition is slated by Kamehameha Schools. This should be included with the plan.

Mentioned, the potential exists, however, for the project to affect the composition and volume of groundwater that flows beneath the project site, as well as surface runoff emanating from the project. As all groundwater that could be affected by the project subsequently reaches the ocean, it is recognized that there is a potential for the project to affect the MARINE ENVIRONMENT. This concern is especially CRITICAL FOR KAHALU'U BEACH PARK, which lies directly MAKAI of the project site. The Beach Park is a recreational area that is heavily utilized for the water recreation, and is one of the Premier snorkeling areas in the State of Hawaii....there is the Potential for NEGATIVE EFFECTS to the aquatic environments from the proposed project.

Mentioned was the Tsunami's 1946 and 2011. Not mentioned was the worst storm doing the most damage on Alii Drive, January 1980's, 25 to 30 million dollars. Many homes were damaged extensively or taken down with no piece of lumber left on the property. These homes were directly Makai of this proposed project. Kahalu'u Beach Park parking lot was full of sand and rocks, and we could not drive on it.
Boulders flew into the condos into the second story, into the living room at the Surf and Racquet at Keauhou. Watching the Fukushima Tsunami should give all of us a New awakening, it will go inland, not by yards or feet, but MILES. Its scary how quickly this happens, and with only a two lane Alii Drive already congested at times, escaping from a Tidal Wave or Tsunami would be disastrous. Report reads sudden movement along the faults close to Hawai'I are unpredictable, and would allow for a FEW MINUTES to perhaps an hour of warning time, and evacuation would be more PROBLEMATIC. Towne is working with the County concerning

the possible establishment of an emergency access route for the project to La'aloa Avenue via the Kahului to Keauhou Parkway right of way. If established, the route would provide an alternative mauka/makai access for use during times of emergency.
Question Keauhou Parkway (Alii Highway) mentioned on another page 58, NO current indication will they begin construction in the foreseeble future.
Our sea level is changing, and all this should be taken into consideration. The public should be aware of these changes, as this affects all of us. Why isn't this included in this EA?
We need to know how is rises in the future. As, this project will take 5 years to build.

This project is strictly geared towards newcomers from the mainland. Affluent, older retired. Report reads upper middle class residents concentrated near the coast and lower income families in older residential and rural Mauka.
Finding a loop in the law, this project is not subject to providing affordable units. Locals would love to live near the ocean, they just cannot afford it. As our property taxes rise higher and higher, more and more the locals will be driven out. Our property taxes are not like California where the value stays the same as when it was first purchased, protecting the residence who have a set income. Here, you can guarantee it will go higher and higher but, not the wages. Here it states revenues are high and steady because of the large numbers of VERY HIGH VALUE UNITS., HIGH PROPERTY TAX.
"Our Children future" this does not look good at all.
What part of "Historical Preservations" doesn't anybody get?
Aloha, Simmy McMichael
Simmy McMichael

cc: Ron Terry
Geometrician Assoc.

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Simmy McMichael
75-5702 Likana Lane, #B
Kailua-Kona HI 96740

Dear Ms. McMichael:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 22, 2013, on the Draft EA. In answer to your specific comments:

1. *Project will be disaster in terms of traffic.* The Draft EA recognizes the fact that traffic is heavy in the area. Although the project would utilize the Kahului to Keauhou Parkway if it were constructed in this area, it does not require the Parkway to be completed in order to have acceptable traffic levels. The traffic analysis indicates that the scale of the project would not significantly affect existing infrastructure. As discussed in the EA, the project proponents are willing to construct additional emergency evacuation infrastructure that would have public benefits that far exceed the need created by the proposed project.

2. *Very few residents will walk to the beach.* We respectfully disagree. As you point out, parking is scarce, and the development is right next door. We observed that guests at the former Keauhou Beach Resort would almost always walk rather than drive to the park.

3. *Traffic report counts.* Traffic counts vary month by month, with tourist visitation and school attendance. The counts were taken at a time when school was in session, even if tourist visitation was not at its peak. We believe that the basic findings are correct.

4. *U-Turns at traffic driveway.* Thank for the tip that drivers may tend to use the driveway into the development as a U-turn area. The project team will consider how to deal with this situation so as to improve traffic flow and not inconvenience neighbors.

5. *Archaeological survey.* Our team also had concerns about the fact that an older archaeological study had not completely investigated the "ubiquitous" mounds, and we commissioned archaeologist Alan Haun, Ph.D., to conduct a full investigation of these features. The investigation did not reveal any burials or change the basic conclusions of earlier surveys. I am sorry that you had difficulties in contacting the State Historic Preservation Division. The Draft EA provides what we believe is a highly accurate summary of the number of sites, their nature, their significance and eligibility, and the most appropriate treatment. As part of submittal of the data recovery report, the archaeologist will fully document his

findings and submit them to SHPD for review and approval. If you would like to discuss the reports or the SHPD letters or the conclusions, please contact Bill Moore at 987-7336.

6. *It is so wrong to build on sacred land knowingly it's within the Kahalu'u Historical District.* Thank you for expressing your opinion on this. It is understood that many people, even those whose own homes were built within the district without full archaeological surveys, believe that no further development should be allowed on any vacant land. However, this was not the purpose for which the district was created, and the fact that numerous single-family homes and other facilities have been built within the district in the three decades since its designation indicates that State and County agencies have not interpreted the district as a no-development zone. The developer acknowledges and respects the values of the historic district, and believes that the preservation areas and activities that are part of the project (and in fact take up a very large portion of the land) will enhance those values. As detailed in the Final EA, consultation with a local family has resulted in another large portion of the property on the southern end being dedicated as a buffer for historic sites and burials.

7. *Archaeological monitoring.* It may be important to clarify that the statement about the developer being "responsible" was meant to convey the fact that they will be obligated to contract and pay for archaeological monitoring. The State Historic Preservation Division must approve the monitoring plan and will periodically check on activities.

8. *Driveway through gap in Kuakini Wall.* Thank you for sharing your opinion that the wall should be restored here and no access to the property should be allowed. The driveway will be planned with a radius such that traffic does not have to come to a dead stop to turn right into it. When there is oncoming traffic, left-turns will cause traffic to stop, just as they do for all the driveways in this area. Based on the number of expected vehicles, this is not expected to lower the overall level of service in any significant way.

9. *Hawaiian hoary bat and endangered seabirds.* The mitigation measures to avoid impacts to listed species, including the ones you mention, are those recommended by resource agencies for all projects, even those within areas with far more valuable habitat than the urban fringe of the subject property.

10. *Compliance with Land Use Commission requirements.* The project would be fully compliant with the regulations that govern uses with the State Land Use Urban district.

11. *Potential to affect groundwater.* This issue was fully studied; we would refer you to section 3.1.2 and Appendix 2.

12. *Damage from storm waves to go miles inland and the effects of sea level.* Because of the rapid elevation change, we respectfully disagree with your assessment that storm or tsunami waves can travel miles inland here. As stated in the EA, the minimum current elevation for all proposed residential structures is 15 feet above sea level, with the great majority at 30 feet in elevation or higher. This would prevent exposure to any tsunami of the scale experienced in human history, although residents would be obliged to leave the area during evacuations. No current scenario of sea level rise for the next fifty years is expected to have any effects on the project site. If the sea level rises 15 feet, the effects to the access for the proposed condominium project would be the least of the worries for the Big Island, the State and the world. As you mention, Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency, and it would be a substantial benefit for all residents and visitors in this area.

13. *Project is for mainlanders and will adversely affect tax rates for residents.* The County's Real Property Tax policies include a lower tax rate for homeowners as well as allowing additional exemptions.

Based on these policies, the project should not have an adverse impact on property taxes for existing homeowners.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

PLANNING DEPARTMENT
2013 SEP 24 PM 3:38

Nolen Kahulamu
78-227 Kahalu'u Road
Kailua-Kona, HI 96740

Phone (808) 322-9450
lkahulamu@hawaii.rr.com

September 22, 2013

Hawaii County Planning Department
Subject concerning: Residential project for Towne development at Kahalu'u, Kona (Parcel 26)

To Whom It May Concern:

I am not much of a writer. I would much rather sit and talk face to face with Bishop Estate and Towne Development in the same room. Not with a designated representative, but with the individuals who have masterminded this audacious and massive development on this historic site.

The first question I would ask them is, if their family had lived on this land for six generations and taken care of the historical sites surrounding this land, how would they feel about this development?

I know there are substantial amounts of money involved, as in all previous developments on Ali'i Drive. Over the past 15-20 years, I have watched the condominiums and housing projects creep their way from Kailua moving south. Even I knew it was inevitable that this would happen here one day.

What took me by surprise was the way this project came to be. Kamehameha Investment, also known as Bishop Estate, sold out this historical site to Towne development. I am sure lots of money will be made. This fact and the sheer size and proximity of this development, truthfully, makes me nauseous.

I realize writing this letter is futile in the shadow of this multi-million dollar transaction, but I feel I should go on record with my family's position on this development. I can only hope the organizations supporting this development fully comprehend the physical, cultural and ethical impacts.

Nolen Kahulamu

087722

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Nolen Kahulamu
78-227 Kahalu'u Rd.
Kailua-Kona HI 96740

Dear Mr. Kahulamu:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 22, 2013, on the Draft EA. In answer to your specific comments:

1. *Wish to sit down face to face with Towne Representatives,.*

Christopher Lau, Executive Vice President of Towne Development of Hawaii is willing to meet you as well as other Kahulamu family members at your convenience. We look forward to continuing discussions with the family.

2. *Futility of writing letter to alter development plans.*

As a result of a series of discussions with your family, the developer has agreed to establish an additional no-development area on the southern portion of the property, in conformance with the wishes of your family members. The revised development plan now includes over 32 acres (75%) of the 42.9-acre develop area in landscaping and/or open space, including archaeological preservation, drainage and buffer areas.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKUANAO'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

September 23, 2013

TO: Mr. Duane Kanuha, Director
ATTENTION: ESTHER IMAMURA
Planning Department

FROM: Quirino Antonio, Jr., Manager-Chief Engineer

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
PARCEL 26 AT KAHALU'U – A RESIDENTIAL PROJECT FOR TOWNE DEVELOPMENT OF HAWAI'I
TAX MAP KEY 7-8-010:004**

We have reviewed the subject Draft Environmental Assessment (DEA) and have the following comments.

We will request that estimated maximum daily water usage calculations, prepared by a professional engineer licensed in the State of Hawai'i, be submitted for review and approval. The water usage calculations shall include, but not be limited to, the estimated maximum daily water demand for all non-domestic water uses, such as landscaping/irrigation, swimming pools, and other water features. Each dwelling unit in the proposed development shall be assigned a minimum of one unit of water.

Upon review of the water usage calculations, we will determine the necessary water system improvements required to support the development.

Please also be informed that any meter(s) serving the proposed project will require the installation of a reduced principle type backflow prevention assembly within five feet of the meter on private property. The Department must inspect and approve the installation prior to commencement of water service.

Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Quirino Antonio, Jr., P.E.
Manager-Chief Engineer

RQ:dfg

copy Geometrician Associates, LLC

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Quirino Antonio, Manager
Hawai'i County Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo HI 96720

Dear Mr. Antonio:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 23, 2013. The developer understands that at the appropriate time your department will request that estimated maximum daily water usage calculations, after which you will determine the necessary water system improvements required to support the development. The development will include the installation of a reduced principle type backflow prevention assembly within five feet of the meter on private property. It is also understood that DWS must inspect and approve the installation prior to commencement of water service.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII
HILO, HAWAII

DATE: September 23, 2013

Memorandum

TO : Duane Kanuha, Planning Director
Planning Department

FROM : Ben Ishii, Division Chief
Engineering Division

SUBJECT : Draft Environmental Assessment
Parcel 26 at Kahalu'u
Applicant: Towne Development of Hawai'i
Location: Kahalu'u N. Kona, HI
TMK: 3/ 7-8-010:004 and 7-8-014:013 (Por.)

We reviewed the subject Draft Environmental Assessment and our comments are follows:

DPW defers to the Planning Director, conditions (if any) establishing the current zoning on the subject property as well as applicability of the Kona Community Development Plan.

DRAINAGE

1. All development-generated runoff shall be disposed of on-site and shall not be directed toward any adjacent properties. A drainage study shall be prepared, and the recommended drainage system shall be constructed meeting with the approval of DPW.

2. Construction plans for the proposed Kahului to Keauhou Parkway (Parkway), aka Alii Highway right-of-way show (2) culverts planned to discharge offsite flows from mauka of the Parkway for conveyance through the subject property. The project should be required to anticipate the discharge by designing any proposed improvements to be reasonably safe from flood damage. A hydraulic Analysis is recommended to determine the area inundated by the culvert design discharge. The culvert locations and boundaries of the areas of inundation should be identified by on any subdivision plat or site plans submitted for permit approvals as a recorded drainage easement or a "Flood Prone Area". Areas identified as "flood prone" are subject to regulation under the Chapter 27 of Hawaii County Code - Flood Plain Management.

3. The applicant shall be informed that if they include drywells in the subject development, an Underground Injection Control (UIC) permit may be required from the Department of Health, State of Hawaii.

EARTHWORK

1. All earthwork and grading shall conform to Chapter 10, Erosion and Sediment Control, of the Hawaii County Code.

2. The applicant shall comply with Chapter 11-55, Water Pollution Control, Hawaii Administrative Rules, Department of Health, which requires an NPDES permit for certain construction activity.

3. To avoid impacts of construction on residents occupying the subject property, DPW would prefer occupancy follow completion of the phase of Kahului to Keauhou Parkway fronting the subject parcel. At minimum, disclosure, by deed covenant, lease or rental agreement of the planned Kahului to Keauhou Parkway construction and its potential environmental impacts (dust, noise and ground vibration) should be a condition of conveyance, lease or rental of any portion or interest in the subject property. Provision for any sound attenuation barrier along future Kahului to Keauhou Parkway shall be the responsibility of subject property owner, successors and assigns. For example, see Ordinance 09-08 Condition M on the adjoining parcel to the North, TMK: (3)7-7-008:121

ROADWAYS

1. Access to Alii Drive, including but not limited to paved shoulder widening and transitions, utility relocations, and sight distances in accordance with AASHTO guidelines, shall meet with the approval of DPW and Chapter 22, Streets and Sidewalks, of the Hawaii County Code. Pedestrian safety should be thoroughly considered in the design of the driveway and approach to and within Alii Drive. (See TRAFFIC). Install street lights, signs and markings (including but not limited to cross walks) meeting with the approval of the DPW, Traffic Division. Submittal of plans for the proposed approach to the Disability and Communications Access Board (DCAB) is required under HRS 103-50. The DCAB's Final Document Review Letter shall be submitted with the application for a Permit to Work within the County Right-of-Way

2. The proposed project fronts on the proposed Kahului to Keauhou Parkway, a proposed major collector street. We concur with the proposal to provide a future access to the Parkway. Such access, including the location and design shall be subject to the approval of DPW. An agreement was made between the previous land owner and the Department of Public Works regarding the approximate locations of accesses to the Parkway. The northerly location is to be coordinated as a crossing intersection with Parcel 53 on the mauka side of the Parkway. Coordination with Parcel 53 owner and DPW to select the Parkway street station (of the intersection) must occur prior to DPW approval of any development plans within the subject parcel. The applicant should also consider a future public access pedestrian/bicycle path connection to the Parkway.

3. A Makolea Street connection to the Kahului to Keauhou Parkway is no longer being considered at this time. Laaloa Avenue is the only other connector street between Lako Street extension and the southern end of Alii Drive at its intersection with Alii Highway. An alternative public connector road is planned on the the Kona Community Development Plans Figure 4-2c and is identified as Connector 9 on the Concurrency Map Figure 4-3. See also Ordinance 09-08 Condition I(2), calling for a street stubbed out to and proposed to traverse, the subject property, mauka of the historical preserve area, before intersecting with Kahului to Keauhou Parkway. That stubbed out street is required to be dedicated to the County. Site Plan A1-1 to show a connector street but we found no explanation of this mentioned in the subject document. In the interest of street connectivity, the applicant should be required to provide a continuation of the proposed connector road, from the north boundary of the subject parcel to the proposed Kahului to Keauhou Parkway, within the subject property, as a public street, meeting with the approval of DPW.

3. Alii Drive may be inaccessible in the event of a local tsunami evacuation. We concur with the proposal to provide an emergency exit route to a mauka location from the proposed development.

4. DPW prefers recommends there be no vehicular security gate allowed at any project access approaches to any County street and the subject property open and available for an emergency tsunami evacuation. If otherwise allowed, any vehicular security gate shall be set back meeting with the approval of DPW including, if required by DPW, a vehicular turn around located on the County Road side of the gate.

5. The Laaloa Street Extension is presently under construction and the first phase is proposed to be completed by August 2014. Construction traffic will occur as a result of the subject project on Alii Drive and Laaloa Avenue.

6. Any utility poles in the County road right-of-way shall be installed as shown on DPW Standard Detail R-35 (Revised). The applicant shall provide any necessary easements for installation of such utilities.

TRAFFIC

We reviewed the TIAR dated October 3, 2012 and have the following comments: The consulting traffic engineer recommends the Alii Drive approach be designed with sufficient sight distance and with turning radius sufficient to allow for northbound right turns with minimal deceleration. We appreciate their concern for safety and efficiency. Critical in this area is the necessity to maximize safety for pedestrians, cyclists and scooters. A comprehensive design and review process of the proposed driveway intersection with Alii Drive should be anticipated by the applicant.

Should there be any questions concerning this matter, please feel free to contact Kiran Emler of our Kona Engineering Division office at 323-4851.

KE
copy: Geometrician Associates Atten: Mr. Ron Terry
ENG-HILO/KONA

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Ben Ishii, Engineering Division Chief
Hawai'i County Department of Public Works
101 Pauahi Street, Suite 7
Hilo HI 96720

Dear Mr. Ishii:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 23, 2013, on the Draft EA. In answer to your specific comments:

DRAINAGE

1. *All development-generated runoff shall be disposed of on-site and shall not be directed toward any adjacent properties. A drainage study shall be prepared, and the recommended drainage system shall be constructed meeting with the approval of DPW.*

The developer understands and will comply with these requirements.

2. *Construction plans for the proposed Kahului to Keauhou Parkway (Parkway), show two culverts planned to discharge offsite flows from mauka of the Parkway for conveyance through the subject property. Project should anticipate the discharge by designing any proposed improvements to be reasonably safe from flood damage. A hydraulic analysis is recommended to determine the area inundated by the culvert design discharge. The culvert locations and boundaries of the areas of inundation should be identified by on any subdivision plat or site plans submitted for permit approvals as a recorded drainage easement or a "Flood Prone Area". Areas identified as "flood prone" are subject to regulation under the Chapter 27 of Hawaii County Code - Flood Plain Management.*

The developer understands these constraints and will be planning for them as part of design for the project.

3. *An Underground Injection Control (UIC) permit may be required from DOH for drywells.*

The developer understands and will comply with UIC regulation requirements.

EARTHWORK

1. *All earthwork and grading shall conform to Chapter 10, Erosion and Sediment Control, of the Hawaii County Code.*

The developer understands and will comply with these requirements.

2. *The applicant shall comply with Chapter 11-55, Water Pollution Control, Hawaii Administrative Rules, Department of Health, which requires an NPDES permit for certain construction activity.*

The developer understands and will comply with these requirements.

3. *DPW prefers occupancy follow completion of the phase of Kahului to Keauhou Parkway fronting the subject parcel. At minimum, disclosure, by deed covenant, lease or rental agreement of the planned Kahului to Keauhou Parkway construction and its potential environmental impacts (dust, noise and ground vibration) should be a condition of conveyance, lease or rental of any portion or interest in the subject property. Provision for any sound attenuation barrier along future Kahului to Keauhou Parkway shall be the responsibility of subject property owner, successors and assigns. For example, see Ordinance 09-08 Condition M on the adjoining parcel to the North, TMK: (3)7-7-008:121.*

The developer would also prefer that the County construct the long-planned highway but understands that it may not occur prior to time frame of the proposed development. The developer understands that the road improvements may be constructed in the future. In this regard, it is willing to provide appropriate disclosure of potential impacts of the road, including noise, dust and ground vibrations.

ROADWAYS

1. *Access to Alii Drive, including but not limited to paved shoulder widening and transitions, utility relocations, and sight distances in accordance with AASHTO guidelines, shall meet with the approval of DPW and Chapter 22, Streets and Sidewalks, of the Hawaii County Code. Pedestrian safety should be thoroughly considered in the design of the driveway and approach to and within Alii Drive. (See TRAFFIC). Install street lights, signs and markings (including but not limited to cross walks) meeting with the approval of the DPW, Traffic Division. Submittal of plans for the proposed approach to the Disability and Communications Access Board (DCAB) is required under HRS 103-50. The DCAB's Final Document Review Letter shall be submitted with the application for a Permit to Work within the County Right-of-Way.*

The developer understands and will comply with these requirements.

2. *The proposed project fronts on the proposed Kahului to Keauhou Parkway, a proposed major collector street. We concur with the proposal to provide a future access to the Parkway. Such access, including the location and design shall be subject to the approval of DPW. An agreement was made between the previous land owner and the Department of Public Works regarding the approximate locations of accesses to the Parkway. The northerly location is to be coordinated as a crossing intersection with Parcel 53 on the mauka side of the Parkway. Coordination with Parcel 53 owner and DPW to select the Parkway street station (of the intersection) must occur prior to DPW approval of any development plans within the subject parcel. The applicant should also consider a future public access pedestrian/bicycle path connection to the Parkway.*

The Applicant will work with DPW and the owner of Parcel 53 to identify the future access point to the Kahului to Keauhou Parkway corridor.

3. *A Makolea Street connection to the Kahului to Keauhou Parkway is no longer being considered at this time. Laaloa Avenue is the only other connector street between Lako Street extension at its intersection with Alii Highway. An alternative public connector road is planned on the Kona Community Development Plans Figure 4-2c and is identified as Connector 9 on the Concurrency Map Figure 4-3. See also Ordinance 09-08 Condition 1(2), calling for a street stubbed out to and proposed to traverse, the subject property, mauka of the historical preserve area, before intersecting with Kahului to Keauhou Parkway. That stubbed out street is required to be dedicated to the County. Site Plan A1-1 to show a connector street but we found no explanation of this mentioned in the subject document. In the interest of street connectivity, the applicant should be required to provide a continuation of the proposed connector road, from the north boundary of the subject parcel to the proposed Kahului to Keauhou Parkway, within the subject property, as a public street, meeting with the approval of DPW.*

The Kona CDP does not identify any new roadways within the subject property. However, the developer understands that the CDP identifies roads to service the local transportations network adjacent to the subject property, including the Kahalu'u-Keauhou Parkway and Kona CDP Collector 9 on lands to the north.

The developer does not intend to subdivide any lots within the project site. All internal access will be through private driveways. At the same time, should a road through the adjacent property be constructed, the developer is willing to provide the necessary right-of-way to the County for the continuation of this road to the Kahului-Keauhou Parkway right-of-way.

3 (Second "3" in your letter). *Alii Drive may be inaccessible in the event of a local tsunami evacuation. We concur with the proposal to provide an emergency exit route to a mauka location from the proposed development.*

Towne looks forward to working with the County to provide this beneficial evacuation route. Subject to approval by the County of Hawai'i, the developer is willing to provide an unpaved route upon occupancy of the first unit within the RM/V zoned lands. Furthermore, the developer is willing to improve this emergency access route with a 10-foot wide asphaltic concrete pavement upon occupancy of the 100th residential unit within the subject residential development.

4. *DPW prefers there be no vehicular security gate allowed at any project access approaches to any County street and the subject property open and available for an emergency tsunami evacuation. If otherwise allowed, any vehicular security gate shall be set back meeting with the approval of DPW including, if required by DPW, a vehicular turn around located on the County Road side of the gate.*

The developer agrees with this recommendation.

5. *The Laaloa Street Extension is presently under construction and the first phase is proposed to be completed by August 2014. Construction traffic will occur as a result of the subject project on Alii Drive and Laaloa Avenue.*

The La'aloa Street Extension as well as improvements to the existing section of La'aloa Street are currently under construction and will be completed by the County in the near future. As such, there will not be any conflicts between the proposed project and the construction of these improvements.

6. *Any utility poles in the County road right-of-way shall be installed as shown on DPW Standard Detail R-35 (Revised). The applicant shall provide any necessary easements for installation of such utilities.*

The developer understands and will comply with these requirements.

TRAFFIC

1. *The consulting traffic engineer recommended in the TIAR that the Alii Drive approach be designed with sufficient sight distance and with turning radius sufficient to allow for northbound right turns with minimal deceleration. We appreciate their concern for safety and efficiency. Critical in this area is the necessity to maximize safety for pedestrians, cyclists and scooters. A comprehensive design and review process of the proposed driveway intersection with Alii Drive should be anticipated by the applicant.*

The developer acknowledges this and looks forward to working with DPW to provide a design that is safe and appropriate for all roadway users.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

AHU'ENA HEIAU • KAMAKAHONU, HAWAI'I

HĀLAU NO'EAU KAHELEMAUNA
HOUSE OF WISDOM OF THE MOUNTAIN – ROAMING CHIEF

September 23, 2013

Ms. Esther Imamura
Hawaii County Planning Department
101 Aupuni St
Hilo, HI 96720

eimamura@co.hawaii.hi.us

Mr. William L. Moore, consultant
Towne Development of Hawaii, Inc.
220 S. King St.
Honolulu, HI 96813

wlmoore@outlook.com

Ron Terry, Ph.D.
Geometrician Associates
P O Box 396
Hilo, HI 96721

rterry@hawaii.rr.com

FROM: L. Mikahala Roy, Kahu, Ahu'ena Heiau
Kamakahonu, Hawaii

Kamakahonu@gmail.com

RE: Draft Environmental Assessment: TMK (3) 7-8-010; 004 & 7 – 8 – 014: 013, Kahalu'u North Kona. Prepared for County of Hawai'i, Planning Department; Applicant Towne Development of Hawaii, Inc.; Consultant: William L. Moore; Geometrician Associates, Ron Terry, Ph.D.

P. O. BOX 596 • KAILUA-KONA, HI 96745

AHU`ENA HEIAU • KAMAKAHONU, HAWAI`I

HĀLAU NO`EAU KAHELEMAUNA
HOUSE OF WISDOM OF THE MOUNTAIN – ROAMING CHIEF

Aloha Kakou,

At the passing of my father Kahu David K. Roy, Jr. in April of 2005, I was named to take up the inheritance of the spiritual and physical care of Kamakahonu as Kahu of Ahu'ena Heiau. Regarding the title of Kahu, simply put:

It is a Kulana, a Station. It is a Kuleana, a Responsibility. It is a Kuleana for the Spiritual and Physical well-being of the Inheritance. It is a Kuleana to the Past, Present and Future.

The parameters of Kamakahonu are known to Kanaka Maoli descendants by family oral tradition. Like the Sun, the rays of power emanate from this place for the world. Can you imagine how powerful this area is if matters here affect the world's condition?

Before his passing, my father physically stabilized the foundations of Heiau along the Kona coast (please see relevant attachments). At any request, he was there to share along our Kona coast and throughout Hawaii. He taught Kamehameha Schools and KIC by his presence upon the Keauhou Advisory Committee. Whether the institution heeded his wisdom is demonstrated in their actions to date.

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The Gold Coast

The greatest treasures of man begin in the essence & wonder of nature. The Kona coast was named "the gold coast" for the occurrence of the brilliantly colored fishes named Lau'ipala (also La'ipala) that gain sustenance at the fringes of this coastline abiding in the Kona tides.

The Kona coast is the gold coast for the unique history of the Hawaiian people. The Kona coast is the gold coast for unique ecosystems that produce sea abundance. The Kona coast is a gold coast in Hawaii important land of ageless Spiritual Wisdom for World Healing.

For the County of Hawaii, my father stabilized Ku'emanu Heiau at Kahaluu. The Temple Ku'emanu lives in Spirit. It is fact that 'Oiwi have erected a lele, the station upon which offerings are presented upon Ku'emanu Heiau. 'Oiwi have demonstrated their ongoing spiritual practice there.

At one point in time, Kahaluu Bay was to become a loko 'i'a, (a fish pond) by the Hawaiian people of an earlier time. Here was a common custom of 'Oiwi who demonstrated their prowess in aquaculture. This fact supports the importance of the prolific fish abundance historically along the Kona coast.

Recent reports yield disturbing information such as the following account of Michael Kumukauoha Lee, *Kahuna o ke kai* (Spiritual Expert of the Sea):

The fishery decline on the Big Island is due to the long term drought and diverting fresh water away from natural flowing streams so the fish are unable to go into freshwater estuary's to spawn. This is Konohiki (*headman of an ahupua'a under a chief*) knowledge. With out fresh water the limu will not grow abundantly depriving the Hawaiian fishery the basic foundational food source limu / algae.

With out limu there is a limiting of the opportunity for abundance of the Big Island fishery.

Protect the fresh water resources flowing to the sea you create the basic food source for all the life in the Sea algae / limu that is the base of the entire Hawaiian archipelago fishery.

This is a value to all the people. It is not just a Hawaiian Cultural resource but a Public Trust resource protected by the Hawaii State Constitution and the Clean Water Act as well.

This is then real food sustainability.

P. O. BOX 596 • KAILUA-KONA, HI 96745

The lands of Kahaluu and along our Kona coast offer similar examples of what occurs in other locations such as in Ewa, Oahu. The fresh water of Kane flows upon the lands and in underground waterways. Those waterways occur at Kahaluu and all along all of Hawaii's coastal lands. They must be protected against harm for the health of our island fisheries and for the health of the people.

These significant cave systems are sacred realm for matters of spiritual practice. They may not be invaded. They are cared for in Spirit. Yet these realms ARE being invaded. This is desecration and is a PONO'OLE practice. Pono'ole means unrighteousness.

Kahaluu has been designated the Kahaluu Historic District and placed on the Hawaii Historic Register. These lands hold not only the memories and physical evidence of the memories of great value to history and to the Hawaiian people, they hold evidence of the hope that as we carefully *malama* these lands, we can *malama* our resources of land and sea as our precious resources for now & into the future.

The classification of urban status along the Kona coastline presents challenge to modern day residents. The proposed condominium project does not belong here. There are answers to be found by those who will roll up their sleeves or those who are courageous to return to the drawing boards of their project designs.

The Kona coastline is the largest area in all of Hawaii nei designated as a special management area (vital to the understanding and significance of history for the Hawaiian people). This is the reason there will always be vigilance by 'Oiwi to protect history and sacredness. Isn't this understandable? What is the lawful definition of special management area? Wouldn't you expect a healthy people to care about what is important to their history?

It is possible that the pono (in balance) use of the lands of the Kona coast may be realized – to the satisfaction of they who would like to care for their properties and they who would like to maintain the sacredness in the lands. It is possible – it just takes diligence and the spirit to achieve the objective.

Towne Development would be celebrated where their project brought forward the intention to help Kahaluu and all people who will one day swim in her waters of her Bay.

This design falls short for too many reasons and will meet with significant opposition.

'O wau no i ka 'ihi kau i ka la'i, (*in peaceful reverence I remain*)

Mikahala Roy

Mikahala Roy, Kahu
Ahu'ena Heiau, Kamakahonu

P. O. BOX 596 • KAILUA-KONA, HI 96745

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

L. Mikahala Roy, Kahu, Ahu'ena Heiau
P. O. BOX 596
Kailua-Kona HI 96745

Dear Ms. Roy:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 23, 2013, on the Draft EA. In answer to your specific comments:

1. *Introduction and explanation of your kuleana.* Thank you for the explanation of the basis of your interest and expertise. Our project team remembers working with your father on a number of issues that benefited historic preservation and cultural uses in Kona.

2. *Protection of water resources.* It is agreed that water resources, including groundwater, must be carefully protected. The Draft EA included a systematic analysis of the current situation and calculations of how the project could impact this. Development that adheres to regulations concerning water use, pesticide/herbicide/fertilizer use, and proper treatment of drainage can help maintain Kona's excellent water quality, and Towne Development has expressed that it is committed to complete compliance.

3. *Caves.* The sensitivity of caves is understood, and the development has sought to preserve cave areas with burials and provide buffers around them, even working with families who sought buffers additional to those required by SHPD to gain additional preservation space.

4. *Towne's plan has adverse impact on the historic resources of the area.* Towne has sought to balance the use of the land in accordance with its zoning with historic preservation uses. The total density of the design and the height of buildings are far less than what is actually permissible in this district. A large portion of the land has been set aside for preservation, which will significantly benefit resources that would otherwise eventually fall victim to tree roots, cattle and even vandalism. Towne welcomes the lineal and cultural descendants of the area to lead in the preservation and interpretation efforts. They believe it is possible to have development and historic preservation simultaneously. To this end, after the Draft EA came out, Towne met a number of times with the Kahulamu 'Ohana to address their concerns and provide even more preservation-buffer area for resources.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with

several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

September 23, 2013

Hawaii County Planning Department

Re: Parcel 26 at Kahalu'u

To all concerned,

It is with great disapproval that this project is being proposed for this historic area. It is also with deep disapproval with the finding of the draft environmental assessment of no significant impact to this area. Upon your review (Hawaii County Planning Department) of this EA, I respectfully request your close attention to the following.

1) Historical Impact: Kahalu'u is one of the most historical areas in Kona.

2) Visual Impact: These (3) story buildings will stand out when looking down from the mountain or looking up from the ocean.

3) Cultural: This project is totally against what Bishop Holdings Corporation (previous land owner) has pledged to do in Kahhalu'u. They dismantled Kona Lagoon Hotel and are in progress of removing Keauhou Beach Hotel. They have rebuilt the ancient Heiau and continue to this day right the wrong that they have done to Kahalu'u.

4) Traffic Impact: Ali'i Drive is already congested today without the Kona Lagoon and Keauhou Beach Hotel in operation.

5) Emergency Evacuation: In the event an emergency evacuation occurs, how will directing an additional 250 – 300 cars out of the area be of no impact.

6) Parks Services: Can the County of Hawaii afford to upgrade the Kahalu'u park facilities such as parking, comfort station, improvement to cross walks, trash disposal and man power to receive this amount of people.

7) Last of all is the simple fact that this project does not fit into this Historic area. If this project is allowed to be built on this site than all of you who has the ability to do so will make a decision that will impact Kona, Kahalu'u forever. This decision will prove if we all will live up to doing the right thing in the right place for the right reasons or let's do it because the law allows us to use our land for whatever make's money!

Sincerely,
Hiram Rivera

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Hiram Rivera
P O Box 9031
Kailua-Kona, HI 96745
Dear Mr. Rivera:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 23, 2013, on the Draft EA. First of all, we appreciate all the time you have spent since your comment letter was written with project proponent Christopher Lau, project planner Bill Moore, Curtis Tyler, and other members of the Kahulamu 'ohana attempting to reach a solution that worked in all parties' interests. In answer to your specific comments:

1. *Historical Impact: Kahalu'u is one of the most historical areas in Kona.*

The heritage of this area is acknowledged, and the revised CIA in the EA has expanded on the discussion of the importance of this area, including some of the concepts that you and the Kahulamu family have raised during meetings.

2. *Visual Impact: These (3) story buildings will stand out when looking down from the mountain or looking up from the ocean.*

The impacts on views are extremely minimal. None of the buildings will interfere with views of the coast from areas mauka. The buildings will be minimally visible from Ali'i Drive or the coastal waters because of the several layers of existing buildings, some of them much taller than the proposed structures, along with existing trees. To further mitigate impacts to views, the proposed development would fully conform with the *Keauhou Village & Kahalu'u Village Residential Design Guidelines*, which will ensure conformance with the cohesive vision for the physical appearance of Keauhou and ensure high-quality, culturally vibrant and sustainable community development. This will involve the texture and colors of structures and signage, and landscaping with regionally appropriate vegetation.

3. *Cultural: This project is totally against what Bishop Holdings Corporation (previous land owner) has pledged to do in Kahalu'u. They dismantled Kona Lagoon Hotel and are in progress of removing Keauhou Beach Hotel. They have rebuilt the ancient Heiau and continue to this day right the wrong that they have done to Kahalu'u.*

We have forwarded your comments to the KIC representatives. Towne has made attempts to mitigate development impacts in the southern area of the property, including establishment of a buffer area around the Kahulamu family cemetery. In addition, KIC has agreed to maintain the significant historic sites within the property and has excluded an approximately five acre historic preservation area from the sale to Towne.

4. *Traffic Impact: Ali'i Drive is already congested today without the Kona Lagoon and Keauhou Beach Hotel in operation.*

To address the potential for impact to the operating level-of-service (how congested the roadways might be), a Traffic Impact Analysis Report (TIAR) was conducted. The conclusion of the level-of-service analysis is that the overall intersection of Ali'i Drive at the project driveway will operate at LOS A (the best level) during both peak hours, and traffic exiting the project will operate at LOS C during both peak hours. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service. The level-of-service analysis also concluded that southbound traffic along Ali'i Drive will operate at LOS A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Ali'i Drive. It is acknowledged that on some high surf days, traffic along Ali'i Drive becomes very congested, and turning movements into any driveway or street further delay traffic.

5. *Emergency Evacuation: In the event an emergency evacuation occurs, how will directing an additional 250 - 300 cars out of the area be of no impact.*

This is acknowledged and discussed in the Draft EA. The minimum current elevation for all proposed residential structures is 15 feet above sea level, with the great majority at 30 feet in elevation or higher. This would prevent exposure to any tsunami of the scale experienced in human history, although residents would be obliged to leave the area during evacuations. Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency, and would be a significant benefit for all residents and visitors that would not be realized without the proposed project

6. *Parks Services: Can the County of Hawaii afford to upgrade the Kahalu'u park facilities such as parking, comfort station, improvement to cross walks, trash disposal and man power to receive this amount of people.*

Projects such as the one proposed generate substantial property tax revenues far in excess of the services they demand, and they end up providing a large net subsidy for residents paying lower taxes and receiving discounted services. The developer is willing to work with the Kohala Center to seek additional measures to address the potential impacts of the project guests, as well as other uses of the park area, both local and visitor.

7. *Last of all is the simple fact that this project does not fit into this Historic area. If this project is allowed to be built on this site than all of you who has the ability to do so will make a decision that will impact Kona, Kahaluu forever. This decision will prove if we all will live up to doing the right thing in the right place for the right reasons or let's do it because the law allows us to use our land for whatever make's money*!

The importance of this context in interpreting the significance and treatment of archaeological sites has been taken into account during the inventory surveys, burial treatment plans and preservation planning. In addition, it is very important to an assessment of the cultural resources of the area, which the amended

CIA has addressed. In addition, the development plan recognizes the importance of cultural resources in its location and design and particularly in the extensive areas that have been set aside for preservation and use by current and future generations of lineal and cultural descendants. With the inclusion of an additional no-development area on the southern portion of the property, in conformance with the wishes of family members from this area, a very substantial preservation area has been set aside. The revised development plan now includes over 32 acres (75%) of the 42.9-acre development area in landscaping/ open space, including archaeological preservation, drainage and buffer areas.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

On Sep 24, 2013, at 4:27 AM, "J. C. Tyler III" <jct3kona@gmail.com wrote:

Aloha Ron,

Thank you for providing me with a copy of the subject DEA. As previously discussed and in consideration of the stated response deadline being today, please consider this email as my current and preliminary comments to the information that document.

After having reviewed the subject DEA as well as current project files in the County Planning Department , I submit the following preliminary summary comments on this proposed development and aina on which it to be built:

1. Part of highly significant Hawaiian royal center with many valued, traditional and cultural resources.
2. In Kahaluu Historic District, registered on State and National
Historical Registers 3. Landowner has made and is undertaking significant land use revisions to protect cultural landscape.
4. Proposed project will be in opposition to these revisions and valued, traditional and customary practices.
5. With the exception noted in DEA, subject portion of parcel 004 has never been bulldozed.
6. Bounded on 3 sides by valued, traditional and cultural features, all of which will be significantly impacted.
7. Aina contains numerous and highly significant cultural sites, some of which are slated for "preservation."
8. Majority of cultural sites identified within Parcel 26 will be subject to "controlled destruction.
9. CIA does not comply with Act 50 and OEQC Guidelines for Assessing Cultural Impacts.
10. Contact with. consideration of, and input from recognized descendants inadequate and improper.
11. Impacts on the cultural landscape and psychographics not considered.
12. Located in tsunami inundation zone, where mandatory evacuation required.
13. No access to viable evacuation routes available.
14. Current public infrastructure serving project site is inadequate and unsafe.
15. Impacts of proposed development on public infrastructure not
adequately addressed 16. Reliance on future public works which are demonstrably not feasible and/or likely to occur is improper.
17. Exclusive use of the condominium property regime (CPR) is inconsistent with established land use plans.
18 Use of CPR will bypass important County Code requirements and create significantly greater impacts.
19. References to and use of a Planned Unit Development are unclear and need clarification.
20. AA waters may already be out of compliance. Non-point source pollution not considered.
21. Unknown capacity and impacts of sewage disposal private WWTP.
22. No consideration of viable alternative sites within Keauhou-Kona Resort area.
23. Current use of area water resources already exceed sustainable yields.
24. Current use of nearby beach park is unsustainable.
25. Scenic resources will be significantly impacted.
26. Cultural resources depicted on site are incomplete and/or inaccurate.
27. Existence of valued traditional and customary practices omitted and/or not recorded accurately.
28. Early consultations are inadequate, incomplete, and/or insensitive to cultural significance of area.
29. Statements of an anticipated FONSI do not comport with established case law.

30. Finding of FONSI will be contrary to the facts and impacts generated by this development.
31. FONSI will be inconsistent with spirit and intent of federal, state and county laws.
32. Given the potential for and number of significant impacts, a full
and complete EIS must be required 33. Alternatively, project could be re-located to more suitable location in Keauhou.
34. Based on current facts, the only viable course of action for aina is the "No action" alternative."
35. Strongly recommend landowner and developer agree to extend the comment period to allow for further public consideration and understanding of the highly significant impacts this development will create.
36. Before any further steps are taken to move this proposal forward, a joint meeting between both landowner and developer and concerned parties, including recognized descendants and their families, needs to be held in Kona to discuss individual concerns and to seek more sensitive solutions to protect and perpetuate the valued Hawaiian traditional cultural properties practices and beliefs extant throughout the Kahaluu Historic District and, more specifically within and adjacent to the subject parcel.

The foregoing comments are in summary form and not necessarily inclusive and/or reflective of other issues or concerns which exist now or in the future. They are based on my direct knowledge and life experiences as kamaaina a me kupa aina o Kona, a recognized descendant of ancestral families who once lived and, in some cases, continue to live in the Kahaluu ahupuaa, a 4-term member of the Hawaii County Council (1996-2004), and member of the Steering Committee for the Kona Community Development Plan (KCDP).

In an effort to gain a better understanding of and respect for the issues of the parties, a face-to-face meeting with two of the developer's agents and myself is scheduled for tomorrow.

Mahalo for the opportunity to provide this manao me ka oiaio a me ka
haahaa,

Curtis Tyler

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Curtis Tyler
jct3kona@gmail.com

Dear Mr. Tyler:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter email dated September 24, 2013. We appreciate all the time you have spent with project proponent Christopher Lau, project planner Bill Moore, and the Kahulamu family attempting to reach a solution that worked in all parties' interests. I understand that Bill Moore will be working to comprehensively address additional comments you have provided in the time since the Draft EA comment period. In answer to your specific comments contained in the September 24 email:

1. Part of highly significant Hawaiian royal center with many valued, traditional and cultural resources:

The heritage of this area is acknowledged, and the revised CIA in the EA has expanded on the discussion of the importance of this area, including some of the concepts that you and the Kahulamu family have raised during meetings.

2. Project is within the Kahalu'u Historic District, registered on State and National Historical Registers.

The importance of this context in interpreting the significance and treatment of archaeological sites has been taken into account during the inventory surveys, burial treatment plans and preservation planning. In addition, it is very important to an assessment of the cultural resources of the area, which the amended CIA has addressed.

3. Kamehameha Schools, the landowner, has made and is undertaking significant land use revisions to protect cultural landscape, and 4. Proposed project will be in opposition to these revisions and valued, traditional and customary practices.

The development plan recognizes the importance of cultural resources in its location and design and particularly in the extensive areas that have been set aside for preservation and use by current and future generations of lineal and cultural descendants. With the inclusion of an additional no-development area on the southern portion of the property, in conformance with the wishes of family members from this area, a very substantial preservation area has been set aside.

5. With the exception noted in DEA, subject portion of parcel 004 has never been bulldozed.

This is acknowledged. All areas that will be subject to disturbance have been surveyed for archaeological resources to ensure that significant resources are identified and protected.

6. The property is bounded on 3 sides by valued, traditional and cultural features, all of which will be significantly impacted.

Resources surrounding the area will not be substantially affected by the proposed project, which has been designed to avoid visual, water quality, noise and other impacts.

7. Aina contains numerous and highly significant cultural sites, some of which are slated for reservation.", but 8. Majority of cultural sites identified within Parcel 26 will be subject to "controlled destruction".

It is true that the entire landscape of the property – indeed virtually all of Kona below 3,000 feet in elevation – has traces of former land use from early to later eras. The historic preservation laws are designed to ensure that resources significant for preservation are identified and protected. All sites that have been determined to be significant will be subject to preservation.

9. CIA does not comply with Act 50 and OEQC Guidelines for Assessing Cultural Impacts; 10. Contact with, consideration of, and input from recognized descendants inadequate and improper; and 11. Impacts on the cultural landscape and psychographics not considered.

The developer believes that the Cultural Impact Assessment that was included in the Draft EA has complied with the technical requirements of Act 50 and the OEQC Guidelines. During the Draft EA review process, the developer became concerned that some of the cultural and lineal descendants were not satisfied with the extent of contact and identification and description of cultural resources present on or near the property. The process since that time has included an extensive series of meetings and substantial revisions to the CIA to attempt to address any deficiencies. The CIA has been revised to include more robust description of the Kahalu'u Historic District and its role as a royal center and documentation of the recent discussions regarding the Kahulamu family concerns.

12. Property is located in tsunami inundation zone, where mandatory evacuation required and 13. No access to viable evacuation routes available.

This is acknowledged and discussed in the Draft EA. The minimum current elevation for all proposed residential structures is 15 feet above sea level, with the great majority at 30 feet in elevation or higher. This would prevent exposure to any tsunami of the scale experienced in human history, although residents would be obliged to leave the area during evacuations. Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative *mauka/makai* access for use during times of emergency, and would be a significant benefit for all residents and visitors that would not be realized without the proposed project.

14. Current public infrastructure serving project site is inadequate and unsafe; 15. Impacts of proposed development on public infrastructure not adequately addressed, and 16. Reliance on future public works which are demonstrably not feasible and/or likely to occur is improper.

The project does not rely on any future infrastructure, although the project would utilize the Kahului to Keauhou Parkway if it were constructed in this area. The traffic analysis indicates that the scale of the project would not significantly affect existing infrastructure. And as discussed above, the project

proponents are willing to construct additional emergency evacuation infrastructure that would have public benefits that far exceed the need created by the proposed project. No public investment in water infrastructure is required.

17. Exclusive use of the condominium property regime (CPR) is inconsistent with established land use plans; 18 Use of CPR will bypass important County Code requirements and create significantly greater impacts; and 19. References to and use of a Planned Unit Development are unclear and need clarification.

Condominium property regime (CPR) is a form of land ownership and is not regulated by the Zoning Code (Chapter 25, HCC). The Subdivision Code (Chapter 23, HCC) regulates CPR in certain zoned districts, including single family residential (RS) and Agricultural (A), but such activities are not regulated by the County as part of a permitted use within Resort (V) zoned districts or Multifamily Residential (RM) districts. While a portion of the Project site is within the RS zoned district, no residential units are proposed within these areas and therefore they are not subject to review pursuant to Section 23-123 of the Subdivision Code. A Planned Unit Development (PUD) permit is not proposed for the project at this time.

20. AA waters may already be out of compliance. Non-point source pollution not considered.

The Draft EA included a professional water quality study that included sampling at three transects makai of the project site. Application of a hydrographic mixing model to the water chemistry data was used to indicate if the slightly increased nutrient concentrations that were observed were the result of mixing of natural groundwater with oceanic water, or were the result of inputs from activities on land. The model indicated that at the time of sampling there was a substantial external subsidy of NO3- nitrogen to the ocean at Transect 2 and 3 within Kahalu'u Bay. This subsidy represents an increase of NO3- on the order of 18-30% of natural groundwater. Similar subsidies of NO3- were not evident at Transect 1. There is a small input of PO4-3 from activities on land that subsidize groundwater nutrient concentrations at Transect 1, but not at Transects 2 and 3. When the scientists evaluated the chemistry from the sample using DOH area specific criteria for West Hawai'i and applied the mixing criteria specified for water with salinity less than 32‰, it was observed that NO3- exceeded the criterion at Transects 2 and 3. However, using the mixing criteria, TN, PO4-3 and TP were out of compliance at all three transects. Additional sampling would be required to resolve whether the area is periodically or permanently out of compliance or not. Certainly, much of the existing development in Kona did not comply with the strict standards that are present today and to which the proposed project would be held. The project has been designed to avoid polluted runoff and non-point source pollution, and the careful analysis presented in Section 3.1.2 of the Draft EA indicated that the interaction of withdrawals of groundwater for project use, coupled with wastewater plant treatment of all wastewater, would actually decrease nutrient subsidies on a net basis, even after being offset to some degree by nutrient loading that would occur as part of irrigation. Overall, results of the water chemistry analysis indicate little or no potential for substantial project-related adverse impacts to marine waters off the project site. It is clear that changes in land use associated with the proposed residential project on Parcel 26 should not change water quality of the offshore area to any discernible extent.

21. Unknown capacity and impacts of sewage disposal private WWTP.

In response to your identification of the capacity as an unresolved issue, Towne consulted with Keauhou Community Services, Inc., and has received written confirmation that the development is within the service area and that the needed capacity exists. This documentation is provided in the Final EA.

22. No consideration of viable alternative sites within Keauhou-Kona Resort area.

Towne obtained the rights to purchase the property from a third party who had entered into a purchase contract with KIC in September 2003. Towne Development has been pursuing development of this area since that time. It does not have any rights to develop other areas within the Kahalu'u-Keauhou Resort area and therefore there are no viable alternative sites to consider.

23. Current use of area water resources already exceeds sustainable yields.

The Hualalai Aquifer Sector Area has a sustainable yield of 56 mgd. As reported in the official Hawai'i County Water Use and Development Plan, based on Commission on Water Resources Management database and additional updated information, there are 65 production wells in the sector area, including 21 municipal, 18 irrigation, 1 industrial and 25 other wells. There are also 24 wells drilled and categorized as "unused." Use was estimated at 16.33 mgd, a figure which would not be expected to be much higher in 2014. This represents less than 30 percent of sustainable yield.

24. Current use of nearby beach park is unsustainable.

As extensively discussed in the Draft EA, there is indeed heavy use of Kahalu'u Beach Park. The visitors to the time share units would undoubtedly add to the visitors and residents who stay near enough to walk to the park, although the closing of the Keauhou Beach Resort hotel recently caused some reduction in this number. Towne Development is working with the Kohala Center to mitigate the effects of additional use including possible funding of visitor education.

25. Scenic resources will be significantly impacted.

The proposed development will not be highly visible, because of both the natural terrain and the several rows of homes between Ali'i Drive and the property boundary. This is extensively discussed in Section. 3.1.5 of the EA.

26. Cultural resources depicted on site are incomplete and/or inaccurate; 27. Existence of valued traditional and customary practices omitted and/or not recorded accurately; 28. Early consultations are inadequate, incomplete, and/or insensitive to cultural significance of area.

These comments are addressed in responses to above comments 1, 2, 5 and 6-9. We would reiterate that the archaeological sites have been accurately recorded, and that even after an inventory survey had long been accepted, the developer chose on their own to fund a survey that would revisit the property and ensure that all agricultural features that had previously been addressed collectively were properly documented and mapped. The CIA made a sincere attempt to contact any parties who had cultural knowledge of the area and the preparer interviewed and discussed the project with all affected parties. Thanks to the subsequent involvement of you and others, some of the knowledge that underpinned the value of the cultural resources is now much more clearly understood, and positive steps have been taken to preserve even more of the cultural heritage that is present.

29. Statements of an anticipated FONSI do not comport with established case law; 30. Finding of FONSI will be contrary to the facts and impacts generated by this development; 31. FONSI will be inconsistent with spirit and intent of federal, state and county laws; 32. Given the potential for and number of significant impacts, a full and complete EIS must be required 33. Alternatively, project could be re-located to more suitable location in Keauhou.

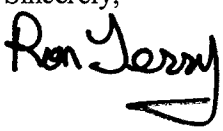
Our evaluation to date indicates that the project will not generate significant impacts in the context of Chapter 343, HRS, particularly given the additional preserve area that deals with an issue of cultural practices. However, it is the responsibility of the Hawai'i County Planning Department to make that determination, based on the EA and the comments received.

34. Based on current facts, the only viable course of action for aina is the "No action" alternative."; 35. Strongly recommend landowner and developer agree to extend the comment period to allow for further public consideration and understanding of the highly significant impacts this development will create, and 36. Before any further steps are taken to move this proposal forward, a joint meeting between both landowner and developer and concerned parties, including recognized descendants and their families, needs to be held in Kona to discuss individual concerns and to seek more sensitive solutions to protect and perpetuate the valued Hawaiian traditional cultural properties practices and beliefs extant throughout the Kahaluu Historic District and, more specifically within and adjacent to the subject parcel.

As you suggested, this process has taken place, and has improved both the project and the documentation of its impacts.

Again, we very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,



Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

Hawai'i County Planning Department
101 Pauahi Street, Suite3
Hilo HI 96720
Attention: Esther Imamura
Phone: 961-8139

&

Geometrician Associates
PO Box 396
Hilo HI 96721
Attention: Ron Terry
Phone: 969-7090

Regarding Project Name: Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i

TMK: (3rd.) 7-8-010:004, 7-8-014:013

Aloha Mrs. Imamura,

Mahalo to you & Mr. Terry for inviting us to comment on the impact of the proposed development on the proposed development project at Kahalu'u beach lots, Hawai'i District, North Kona.

We certainly understand why this project has been initiated by **Towne Development of Hawai'i**. The Kahalu'u Bay area is a extraordinarily beautiful. We understand that further development of this area would be profitable for **Towne Development** in that it's likely that many more people would like to live here. But as you undoubtedly know apart from being in the sensitive coastal region the area also contains many sites with historical significance.

While we understand the interest in developing this land, we also have serious concerns that expansion into this previously undeveloped areas may put new pressures on the area & it's fragile ecosystem. Unfortunately large development projects often have an adverse impact on precious Hawaiian lands & resources. We hope that any approved development will take the following concerns into consideration & thereby minimize the impact that it will have on the environment, significant Hawaiian cultural & historic sites in the area, as well as the impact the development will have on the surrounding local community.

This letter is in reply to your request. It lists some of my concerns & asks for the consideration of the developers, county & state in ensuring that the impact in as minimal as possible in all of the following aspects.

History

Native Hawaiian ancestral & historic sites as well as coastal lands form the Foundation of Hawaiian culture. There are literally thousands of historic sites (defined by the DLNR as places which are 50 or more years old) across the State of Hawaii, some of which provide valuable resources to the people of Hawaii, or are of traditional cultural value to Native Hawaiians. For example, significant historic sites may include places of archaeological interest (i.e. petroglyphs, heiau or other religious structures, trails, fishponds, irrigated taro fields, burial sites or areas associated with deities), sites associated with historic events (for instance battlefields), and areas associated with oral accounts. There is no site too small to be considered a historical site or too insignificant to get the appropriate attention.

Hawaii's landscape has experienced dramatic changes over the years due to economics, population growth and development. Consequently, many historic sites have been destroyed. In an effort to preserve significant historical sites of value to the people of Hawaii, Chapter 6E of the Hawaii Revised Statutes was created in 1976. HRS § 6E-1 provides that:

The constitution of the State of Hawaii recognizes the value of conserving and developing the historic and cultural property within the State for the public good. The historic and cultural heritage of the State is among its most important assets and that the rapid social and economic developments of contemporary society threaten to destroy the remaining vestiges of this heritage.

The area surrounding Kahalu'u Bay certainly has both significant historic & cultural significance for Hawaii. The Bay itself is enclosed by the Pa o ka menehune ("wall of the ancients") breakwater constructed by the ancient Hawaiians who lived in this area for over 500 years. The Ku'emanu Heiau is on the north end of the bay and was used by royalty in the 18th and 19th centuries both as a residence and to view surfing on the bays outer breaks. The historic Keawaiki canoe landing-site can be found here as well. The area around the bay was added to the National Register of Historic Places in 1974 as historic district number 74000713 in 1974. The state registry lists it as site 10-37-4150.

Striking a balance between new development and historical reverence is essential to any new development project in this area. We hope that the developers involved in the project be conscious of the vast historic significance held within the area and the impact that the development conscientious in the development process could have on significant historic sites.

Beyond the requirements mandated by the State we ask that the developers take a leadership role in preserving, restoring and maintaining historic and cultural property, to ensure the administration of such historic and cultural property in a spirit of stewardship and trusteeship for future generations, and to conduct activities, plans, and programs in a manner consistent with the preservation and enhancement of historic and cultural sites within the proposed development site. We ask that the developers respect the lands for what they were, and what they are. Above all, we ask that they preserve the history of this ancient part of Kahalu'u Bay.

Water Pollution

Hawaii's "mauka-to-makai" (mountains-to-sea) mentality is a manifestation of the understanding that activities on land impact life in the ocean. Pollutants, waste and litter that enter the water system along its path from the mountains, work their way down waterways, streams, and rivers before reaching the Pacific Ocean. Some pollutants - such as those used to maintain extensively manicured gardens & foliage that are common to often larger development projects in Hawaii can permeate the soil and contaminate ground water, eventually reaching the ocean.

We are concerned that pollutants used to maintain the gardens & grounds within the development will eventually reach the ocean. potentially damage the fragile coral reefs of Kahalu'u Bay. Kahalu'u Bay is one of few accessible coastal coral reefs remaining in Hawaii & one of it's most beautiful. In addition to damaging reefs, water pollution can also infect the fish upon which Hawaiians have relied for centuries. (http://www.kohalacenter.org/kahaluubay/news.html)

Noise Pollution

Because unwanted noise has no smell, texture or taste, the term "noise pollution" is not as common as "air pollution" or "water pollution." The U.S. Environmental Protection Agency has noted that loud, unwanted sounds can interfere with sleep, disrupt conversation and diminish one's quality of life. The agency adds that problems related to noise include "stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity."

The proposed development will pose significant concerns to residents of this area with respect to the noise pollution both during construction of the proposed 320+ units as well as increased population burden that these new residences will ultimately represent to the community.

In order to minimize the impact of this development we would request that construction be conducted with utmost respect for the surrounding community both in compliance with reasonable working hours (i.e. 9-5, Monday-Friday) & in time to completion of the project. In addition we ask that noise pollution barriers be constructed to minimize noise during the building process & that ample "greenways" be included in the development's design (i.e. wide foliage corridors to act as buffer zones between proposed construction & current residences within the community).

Kahalu'u Beach Lots is a quiet community with minimal artificial light or light pollution after sunset. We have concern that such a large development will carry a significant potential for excessive man-made light pollution and for the **impact that this light pollution might have on the well-being of the surrounding residential community.**

At present the minimal lighting in this area provides for a dark night-time ambience conducive to restful sleep. The pollution generated from this 320+ residential development stands to have a significant increase in the ambient light within the community. Streetlights, car headlights, and the lights from individual residences within this development will most certainly contribute to a dramatic increase in light pollution.

A growing body of scientific research suggests that light pollution can have lasting adverse effects on both human and wildlife health. (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2627884/).

There is a compelling amount of evidence that light pollution can cause health problems in humans as well. Light pollution has been linked to disruptions in circadian rhythm, brain wave patterns, hormone production, cell regulation, and other biologic activities. Disruption of the circadian clock is linked to several medical disorders in humans, including depression, insomnia, cardiovascular disease, and cancer, and disease such as breast cancer. (http://globalnews.ca/news/748109/light-pollution-cause-for-concern/).

It is imperative that the lighting from any development have a negligible impact on the existing homes within the Kahalu'u community. Low-level lighting, directed away from surrounding homes will help to minimize light pollution.

It is also well-known that light pollution has a dramatic impact on endangered seabirds that use light from the moon and stars to find their nests and are disoriented by artificial lighting.

Sea turtles provide one dramatic example of how artificial light on beaches can disrupt behavior. Many species of sea turtles lay their eggs on beaches, with females returning for decades to the beaches where they were born to nest. When these beaches are brightly lit at night, females may be discouraged from nesting in them; they can also be disoriented by lights and wander onto nearby roadways, where they risk being struck by vehicles.

Moreover, sea turtle hatchlings normally navigate toward the sea by orienting away from the elevated, dark silhouette of the landward horizon, according to a study published by Michael Salmon of Florida Atlantic University and colleagues in volume 122, number 1–2 (1992) of Behaviour. When there are artificial bright lights on the beach, newly hatched turtles become disoriented and navigate toward the artificial light source, never finding the sea.

Again we ask that the developers include wide greenways (i.e. buffer zones) with large amounts of foliage that will act as a barrier to light pollution from the proposed development. Without such foliage the light pollution stands to have a substantial adverse affect on the health of the existing residents & wildlife within the Kahalu'u community.

Traffic

Ali'i Drive is a single land road connecting Keahou to Kona. Residential communities and lower speed limits along this single lane road mean that flow along Ali'I Drive is inherently slow even at the best of times. An additional 320+ residential homes in this community will undoubtedly create excessive traffic in the Kahalu'u area affecting both the local community as well as traffic along Ali'I drive. While it will be up to the County & State of Hawaii to ultimately deal with congestion, promote safety and protect the environment from negative impacts from traffic, we hope that the developers will give careful consideration to this issue in order to ease the affects of such a large development

We understand the commercial interests of the development team. If this development is given approval we ask at the very least that they place the utmost care to have as minimal an impact on the ecosystem of Kahalu'u Bay, the existing residents of the Kahalu'u community and especially the ancient Hawaiian cultural sites within this historic area. We ask that an acceptable wide greenway or vegetation buffer zone be positioned between the proposed development and our residence as well as other existing residences within the existing community and that this greenway represent a substantial barrier to noise, light, and all other forms of pollution both during the construction and thereafter as well.

Once again we would like to express our sincere gratitude for the opportunity to address our concerns for the proposed development. We hope to work closely with the development team, the County & State of Hawaii to ensure that the development of this property is conducted with the utmost care and respect to Kahalu'u Bay itself and to the communities that have the privilege of living there – past and present.

Mahalo nui loa,

Lee & Rebecca Fineberg
78-6641 Ali'i Drive
e-mail: slfineberg@gmail.com -or- rebnicol73@hotmail.com

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Lee & Rebecca Fineberg
slfineberg@gmail.com and rebnicol73@hotmail.com

Dear Mr. and Mrs. Fineberg:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter concerning the project. In answer to your specific comments:

1. *Historical resources.* We agree with your statements. The project has sought throughout its history to properly inventory and care for the archaeological resources of the property, through inventory survey, burial treatment plans and preservation plans. The developer even voluntarily funded additional inventory surveys to better document agricultural features. A very large portion of the property is set aside to preserve archaeology and provide buffers. After the Draft EA came out, a kama'aina family expressed concern about archaeology and cultural practices in the southern side of the property, and a series of meetings ensued. The developer has agreed to dedicate even more land to preservation. As you are probably aware, simply refraining from development of a piece of land is no guarantee that the historic features there will be preserved. Plant roots and trunks, animal activities, vandalism and restacking, and even gravity dramatically affect features. The development plan will allow these features to be preserved and cared for.

2. *Water pollution.* Improper application and storage of herbicides, pesticides and fertilizers can have an adverse impact on water quality. A systematic evaluation of water quality conducted as part of the EA indicates that, in general, water quality remains good, despite the very large amount of existing development, some of which includes residences that do not always carefully store or apply household or yard chemicals. In the case of this development, there will be professional use of these substances that minimizes their application and properly stores them.

3. *Noise pollution.* As stated in the Draft EA, the developer will be required to consult with the Department of Health (DOH) per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would then review the proposed activity, location, equipment, project purpose and timetable in order to decide whether a permit is necessary and what conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers, will be necessary. The contractor would consult with DOH to determine whether permit restrictions would consist of construction being limited to daylight hours. Your suggestions that construction be limited to 9-5, Monday to Friday, and that noise barriers be installed, will be considered during this permit process. If you are interested, the developer will contact you at the time the contractor

begins to work with DOH. The development design includes landscaped space between the proposed development structures and existing developments, and the requirement that noise from the use of the condominiums does not exceed maximum values at the property line can easily be achieved.

4. *Light pollution.* Unlike certain older developments, the proposed project will be required to meet both Keauhou Village & Kahalu'u Village Residential Design Guidelines and County ordinances for new development. The guidelines require that exterior lighting must provide a nighttime environment pleasant to visitors and residents and highlight the surrounding landscape in soft muted lights. Bright direct lighting must be avoided. The Hawai'i County Outdoor Lighting Ordinance (Hawai'i County Code Chapter 9, Article 14) is intended to mitigate atmospheric glare affecting Island observatories, and it also protects seabirds. Landscaping between the development and the existing homes will further soften the light.

5. *Traffic.* We agree that traffic is an important issue, and that any new development brings with it more traffic and the potential for congestion. To address the potential for impact to the operating level-of-service (how congested the roadways might be), a Traffic Impact Analysis Report (TIAR) was conducted. The conclusion of the level-of-service analysis is that the overall intersection of Ali'i Drive at the project driveway will operate at LOS A (the best level) during both peak hours, and traffic exiting the project will operate at LOS C during both peak hours. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service. The level-of-service analysis also concluded that southbound traffic along Ali'i Drive will operate at LOS A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Ali'i Drive. It is acknowledged that on some high surf days, traffic along Ali'i Drive becomes very congested, and turning movements into any driveway or street further delay traffic. Emergencies can also create congested conditions. As discussed in the EA, Towne is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului to Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency, and it would be a substantial benefit for all residents and visitors in this area. Towne is hopeful that the County will be able to approve this connection. Furthermore, the project will utilize the Kahului to Keauhou Parkway if and when it is constructed in this area.

We very much appreciate your review of the document and your thoughtful analysis. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. If you have any questions about the EA, please contact me at (808) 969-7090. Chris Lau of Towne Development would also welcome any additional input or questions that you have. Please feel free to contact him at Chris.Lau@TowneHawaii.com or 808-537-5992.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

William P. Kenoi
Mayor

Walter K.M. Lau
Managing Director

Darryl J. Oliveira
Civil Defense Administrator

County of Hawaii
CIVIL DEFENSE AGENCY
920 Ululani Street • Hilo, Hawai'i 96720-3958
(808) 935-0031 • Fax (808) 935-6460

September 27, 2013

To: Duane Kanuha, Planning Director

From: Darryl Oliveira, Administrator

Subject: Draft Environmental Assessment Parcel 26 at Kahaluu

Having reviewed the Draft Environmental Assessment for the aforementioned development project I would like to submit to you the following comments:

- As noted in section 3.1.1, Climate, Geology, Soils and Natural Hazards; the proposed project does not appear to be situated within the Tsunami inundation area based on historical data and current modeling. However given its proximity to the inundation zone, points of entrance and egress, and location within the Tsuanmi Evacuation area I would like to request that consideration be given to the development of an Emergency Action and Evacuation Plan for the proposed project. More specifically, the proposed Multi-Family/Time Share Condominium element of the project.
- Also as noted in 3.1.1, the potential for a wildfire does exist given the wildland urban interface and will likely remain until such time that the adjacent lands are developed. Therefore it is requested that consideration be given to providing a defensible space or fire protection buffer around the perimeter of the project site to reduce the threat and impact of a wildfire. Although this may be an issue to be best addressed by the Fire Department, the Civil Defense Agency does have a vested interest in the issue of a wildfire hazard and the possible threat to life and property and supports effective risk management strategies.

I am hopeful that my comments are clear and provide sufficient detail to assist with the review and approval of the Draft Environmental Assessment. Please feel free to contact me at your convenience if you have any questions.

Thank you.

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geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Darryl Oliveira, Director
Hawai'i County Civil Defense Agency
920 Ululani Street
Hilo HI 96720

Dear Mr. Oliveira:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated September 27, 2013, on the Draft EA. In answer to your specific comments:

1. *Given proximity to the inundation zone, points of entrance and egress, and location within the Tsunami Evacuation area, consideration should be given to developing an Emergency Action and Evacuation Plan for the proposed project, specifically, the proposed Multi-Family/Time Share condominium element.*

Towne Development would agree to prepare such a plan, specifically as a condition of the SMA approval.

2. *It would be advisable to provide a defensible space or fire protection buffer around the perimeter of the project site to reduce the threat and impact of a wildfire.*

Although a major highway is expected to be constructed just mauka of the development, creating a hard, defensible space, in the interim, Towne would like to explore the idea of creating such a space. Towne will direct its architect to contact your office and discuss ideas.

We very much appreciate your review of the document. We apologize for the delay in the response to your letter, which occurred because of the time it took for the project proponents to carefully work with several neighbors to reduce impacts. For questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates
Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

William P. Kenoi
Mayor

PLANNING DEPARTMENT
COUNTY OF HAWAII
2013 SEP 30 PM 3:17

Clayton S. Honma
Director

Robert A. Fitzgerald
Deputy Director

County of Hawai'i

DEPARTMENT OF PARKS AND RECREATION
101 Pauahi Street, Suite 6 • Hilo, Hawai'i 96720
(808) 961-8311 • Fax (808) 961-8411

September 27, 2013

Ms. Esther Imamura
Hawai'i County Planning Department
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720

Dear Ms. Imamura:

Re: Draft Environmental Assessment (DEA)
Parcel 26 at Kahalu'u–A Residential Development for Towne Development of Hawai'i
TMK: (3)7-8-010:004 & 014:013
Kahalu'u, North Kona, Hawai'i

Thank you for the opportunity to review and provide comments on the proposed actions.

As is clearly represented in the subject DEA the proposed action will have a clear and direct impact on Kahalu'u Beach Park, a public recreational resource under our purview. It is our position, however, that the impacts presented and corresponding mitigation measures proposed are unsatisfactory. Additionally, there are other resources managed by our department that have not been satisfactorily addressed by the DEA.

Kahalau'u Beach Park is open to the public daily from 6 am (parking lot gates open at 7 am) through 11 pm and has a main pavilion that is available for exclusive use (7 am through 10 pm) via reservation through our department. It is the most popular park for snorkeling and sunbathing along the entire stretch of Ali'i Drive.

Kahalu'u Beach Park consists of approximately 1 to 1-1/4 acres of open area available for the public to utilize for beach-going and sunbathing purposes with approximately 500-525' of somewhat sandy shoreline. At the average daily use rates, which is supported by information provided by The Kohala Center, this translates into a density of less than 50 square feet per person per day and approximately 3 inches of shoreline per person per day. It is our position that Kahalu'u Beach Park is currently over utilized and any development that has an anticipated impact, especially a direct impact as the subject development does, must take measurable actions to mitigate its effects on this finite and fragile resource.

The draft EA makes three statements that we are in clear opposition to. First, the draft EA implies that the closure and demolition of the Keauhou Sheraton Beach Resort would substantially reduce the number of visitors to the park and thus allows for partial mitigation of

the anticipated impact from Towne's development. Second, based on the findings of a 2003 study, the "significant real and other tax contributions (of Towne's development) would more than compensate for extra costs of public services and would also enable agencies to improve and expand their services." Third, that while many of Towne's development's occupants would likely utilize Kahalu'u Beach Park negatively affecting its use and enjoyment by others, the new property tax revenues would make it possible to partially mitigate this impact.

In response to the first statement, the neighboring Keauhou Beach Resort has been closed for almost a year and the beach has been heavily used without much of a reduction in numbers. Towne also cannot assume the reduction in impact capacity from the actions of another property owner, especially in the absence of any discussion as to the plans that property owner has for the future of its lands. As stated above, it is our position that the park is already over-utilized and over capacity and any reduction could still result in resources that are overtaxed. Furthermore, approximately a year has passed since the park use figures were obtained; these numbers should have been updated.

In response to the second statement, citing a study that is over 10 years old and was conducted in significantly different economic times renders any such correlations and conclusions suspect. Changes in population (especially with such rapid growth rate in the area), changes in demographics (ethnicity, age, culture, length of residency, etc.) and changes in the economic drivers for this area are all causes to reassess the findings of such a study.

In response to the third statement, it is highly questionable to suggest that property tax revenues collected from Towne's development would be directly applied to mitigate the impacts of its development on the park. Property tax revenues are not tracked individually nor is there a process that allows for the earmarking of such revenues for such special purposes. It also overlooks the fact that there would be a gap between the realization of these revenues and the ability to implement mitigative measures. It unduly places the burden for addressing the development's impacts on the County, when it should be the developer's sole responsibility. It assumes that the cost to fully implement the mitigative measures will be on a one for one basis with projected revenues.

In response to all three statements, there is an absence of any clear description of what appropriate mitigation measures would be with respect to Kahalu'u Beach Park. However, the DEA does state a clear relationship between the proposed development and adverse impacts on Kahalu'u Beach Park. The DEA intimates but never describes what reasonable and appropriate mitigation measures are and what each would likely cost. The apparent avoidance of this conversation precludes any reasonable conclusion as to the acceptability of any proposed mitigation actions.

As stated earlier, the DEA does not go into detail about impacts on other Department of Parks and Recreation functions and programs. Per the DEA, the project proposes 321 time share units and 17 detached single-family structures. The DEA suggests that the time share units will be primarily tourists and states that this demographic does place demands on recreational amenities. The full-time residents, the DEA estimates to be 75 individuals, would place a demand on the recreational programs and resources provided by our department. It is our department's position that the recreational resources such as ball fields, gyms, kupuna programs, cultural programs, elderly services, youth services, etc would be impacted by this

project in the districts of North and South Kona, and those currently are and have long been over capacity. As such, both visitor and resident impacts associated with this development must be more clearly investigated and a clean nexus presented between impact and mitigation measure, with specific mitigation actions identified and detailed.

Finally, we have been working in concert with The Kohala Center for the betterment of Kahalu'u Beach Park through more active stewardship centered on education and preservation actions with the goals of making significant physical modifications/improvements to the site for the long term benefit of all. It would seem to be in the proposed development's interests to work in consultant with us and The Kohala Center on what the appropriate mitigation actions would be at Kahalu'u Beach Park and, even further, what would serve the best interests of our community via Kahalu'u Beach Park.

Should you have any questions or wish to discuss this further, please contact our Park Planner, James Komata at jkomata@hawaiicounty.gov.

Sincerely,

Clayton S. Honma
Director

cc: Ron Terry, Geometrician Associates
James Komata, Park Planner

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Clayton Honma, Director
Hawai'i County Department of Parks and Recreation
101 Pauahi Street, Suite 6
Hilo HI 96720

Dear Mr. Honma:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for the comment letter dated September 27, 2013, on the Draft EA, providing additional information on Kahalu'u County Beach Park. In answer to your specific comments:

1. *Any development that has an anticipated impact on a park resource must take measurable actions to mitigate its effects on this finite and fragile resource. It would seem to be in the proposed development's interests to work in consultant with P&R and The Kohala Center on what the appropriate mitigation actions would be at Kahalu'u Beach Park and, even further, what would serve the best interests of our community via Kahalu'u Beach Park.*

Until the County adopts an impact fee program, there is no specific mechanism to fairly assess and collect monies to mitigate impacts on parks for existing zoned lands. Towne Development is willing to address the project impacts provided it is consistent with other projects. With respect to the potential impacts to Kahalu`u Beach Park, the developer has agreed to work with Kohala Center to identify appropriate mitigation actions. We look forward to a continuing discussion on this matter. In this regard, Towne Development is working with the Kohala Center to mitigate the effects of additional use through possible funding of visitor education. Towne welcomes the involvement of the County Parks and Recreation Department to work out the specifics.

2. *The closure and demolition of the Keauhou Beach Resort would substantially reduce the number of visitors to the park and thus allows for partial mitigation of the development's impact.*

In the absence of detailed park census numbers before and after, it is not possible to determine whether the closure of this major hotel directly next door reduced the total number of park visitors on any given day. However, it is undeniably true that there used to be a considerable number of hotel guests who visited the park each day, and there are none now.

3. *Your agency disputes the idea that the findings of a 2003 study, the "significant real and other tax contributions (of Towne's development) would more than compensate for extra costs of public services and would also enable agencies to improve and expand their service...and your agency disputes the idea that while the occupants of the development would likely utilize Kahalu'u Beach Park negatively affecting its use and enjoyment by others, the new property tax revenues would make it possible to partially mitigate this impact.*

It is understood that your agency's revenues have fallen relative to the early 2000s because of the Great Recession of 2008. However, the findings of the 2003 study may be even more valid today, as the valuations for the majority of the island's housing fell considerably, while the resort residential component, particularly the extremely high-end properties, have increased their share of the residential units in the County and thus their property tax share.

4. *Property tax revenues are not tracked individually nor is there a process that allows for the earmarking of such revenues for such special purposes. There will be a gap between the realization of these revenues and the ability to implement mitigative measures. It unduly places the burden for addressing the development's impacts on the County, when it should be the developer's sole responsibility. It assumes that the cost to fully implement the mitigative measures will be on a one for one basis with projected revenues.*

The prioritization and/or earmarking of property taxes for park and recreation purposes is a matter that can only be addressed by the County. The project will be providing recreational facilities for its owners/residents, including **two (2) swimming pools,** walking paths and meeting facilities. While the developer acknowledges there are both benefits from and impacts to the Kahalu'u Beach Park resources, the area is a benefit to and used by the broader community, including residents and visitors. Accordingly, it is not the "developer's sole responsibility" to address these impacts. As cited above, the developer will be working with Kohala Center to identify appropriate mitigative measures.

5. *The time share units will be primarily tourists and states that this demographic does place demands on recreational amenities. The full time would place a demand on the recreational programs and resources provided by our department.*

It is agreed that the occupants of the units, whether full-time residents or visitors, will have an impact on the infrastructure of the County, including recreational services. While we respectfully disagree with your assessment that the additional tax revenues do not largely or completely offset the dollar value of services necessary to satisfy the increase in demand, we do understand that impacts can sometimes be focused on one individual resource. In this case, Kahalu'u Beach Park will indeed experience pressure from a new nearby development. It needs to be recognized that there are many condominium developments in this area that all utilize the park – to our knowledge, none of them make special contributions to the park. In this respect, Towne Development wishes to distinguish itself. In response to the specific concerns, Towne is willing to provide street crossing improvements (cross walk/pavement markings) on Ali'i Drive at a location to be determined in consultation with DPW, P&R and the Kohala Center. Towne is committed to working with the County Department of Parks and Recreation and the Kohala Center to mitigate possible impacts to Kahalu'u Beach Park from the proposed project, including providing funding support for the Kohala Center's Ranger program at the Park.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Duane Kanuha, Director, Planning Department, and Christopher Lau, Towne Development

William P. Kenoi
Mayor

Duane Kanuha
Director

Bobby Command
Deputy Director

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i

PLANNING DEPARTMENT

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

October 9, 2013

Dr. Ron Terry
Geometrician Associates
P.O. Box 396
Hilo, HI 96721

Dear Dr. Terry:

SUBJECT: Draft Environmental Assessment (August 2013)
PROJECT: Parcel 26 at Kahalu`u – A Residential Project for Towne Development of Hawai'i
TMK: (3) 7-8-010:004, 7-8-014:013; Kahalu`u, North Kona, Hawai'i

We are writing with comments on the subject Draft Environmental Assessment (DEA). Though the Hawai'i County Planning Department is the Approving Agency for the DEA, the Department also has a statutory obligation to review and comment on the DEA.

After we have had the opportunity to review all of the DEA comments, in our role as Approving Agency, we will follow-up with additional correspondence regarding public comments, any additional information required, and either a negative declaration determination or an environmental impact statement preparation notice, pursuant to Hawai'i Administrative Rules §11-200-9(B)(8) and (9).

Notwithstanding our responsibilities as Approving Agency, our comments specific to our land use planning responsibilities are as follows:

1. **Kona Community Development Plan (CDP) (Ordinance 08-131)**: Some central components of the CDP do not apply to the subject project:

   a. **TODs (Policy LU-2.3)**: The subject project is within the Kona Urban Area (Policy LU-1.2) and within the approximate location of the Kahalu`u Makai Neighborhood Transit-Oriented Development (TOD) area (Policy LU-2.3). However, TODs become fixed pursuant Project District rezoning procedures, and the subject project is not being pursued as a TOD.

OCT 10 2013

b. **Concurrency (Policy TRAN-6.1)**: As noted in the DEA, the subject project does not require a change of zone, so concurrency requirements do not apply.

According to sections 4.0 (p. 4-2) and 4.2.2 (p. 4-32), CDP policies do not override or invalidate existing zoning but are implemented through land use decisions and development permits issued after CDP adoption, including Special Management Area (SMA) permits and subdivision applications.

Hawai'i Revised Statutes (HRS) §205A identifies the Coastal Zone Management (CZM) objectives, policies, and guidelines to which the actions of all agencies are bound, including the Planning Commission's consideration of SMA permits. The objectives, policies, and guidelines are comprehensive in nature, covering ecological, cultural, historic, esthetic, recreational, scenic, and open space values, as well as coastal hazards and economic development. In addition, because a portion of the Condominium Property Regime (CPR) for the subject project is in the RS zone, the subdivision code applies, pursuant Hawai'i County Code (HCC) §23-123. Therefore, CDP policies will be implemented for the subject project through the SMA permit and subdivision application processes.

c. **Sewer Priorities (Policy PUB-4.4)**: In order to protect the nearshore water quality, the requirement to hookup to the County sewer system (HCC §21-5) shall be strictly enforced. Any new subdivision within 1 mile of the shoreline within the Kona Urban Area shall either hookup to the public sewer system, or provide a private treatment system, and/or install dry sewers. Private wastewater collection systems within the 1 mile zone shall be designed and constructed to County standards to enable potential connection to a County sewer system.

   The DEA states that the project will connect to the Keauhou Community Service, Inc.'s wastewater treatment plant, a privately owned wastewater service provider. The DEA also states that a sewer line will either be constructed within Kahalu`u Road or Ali'i Drive.

   However, the DEA does not include any confirmation from Keauhou Community Service, Inc. to that effect, also confirming that there is sufficient capacity of the wastewater treatment plant to handle the effluent generated by the subject project. The DEA also does not include confirmation that the required transmission lines can be run in the County right-of-way.

d. **Sensitive Resources (Policy ENV-1.5)**: Archaeological and historic sites shall be considered sensitive and therefore shall be inventoried, as part of any permit application to the County Planning Department. Any permit application shall strive to incorporate these resources as assets. If a proposed project will have significant, unavoidable, adverse impacts to any of the above resources, the presumption shall be denial of the application and the applicant will have the burden of explaining any overriding considerations. The presence of any of these resources shall qualify for density transfers based on potential gross density allowed by the prevailing zoning.

   The DEA states that implementation of archaeological preservation, data recovery, burial treatment, and monitoring plans approved by the State Historic Preservation Division will mitigate impacts to historic sites.

   However, the DEA does not describe how ongoing access to the sites will be managed, including parking reserved for the sites and differences in access protocols for lineal descendents and the general public.

e. **Official Transportation Network Map (Policy TRAN-1.1) and Connectivity Standards (Policy TRAN-2.1):** The subject project abuts a CDP Minor Collector Road to the north and a General Plan Major Collector to the east (Figure 4-2c).

   Within the Kona Urban Area, new development shall contribute to the interconnected transportation network of streets, pedestrian, and bicycle access that work to disperse traffic and connect and integrate new development with the existing fabric of the community. Among other things, this connected transportation system reduces emergency response times and provides increased emergency evacuation opportunities. Proposals for new development or redevelopment within Kona's Urban Area shall meet the following connectivity standards:

   1) <u>Maximum Block Size</u>. In lieu of HCC §23-29(c), the maximum length of blocks for predominantly residential subdivisions shall be 800 feet, unless unfeasible due to natural topography, protected resources, or surrounding development patterns.

      The DEA does not provide the length of blocks, and it is difficult to determine them from Figure 3a.

2) Connection to Adjoining Development. The road system for new development shall contribute to the local transportation network. To supplement HCC §23-40, at a minimum, new subdivisions shall incorporate and continue all collector streets, and selected local streets, to adjoining property. If a portion of the stub-out is not improved, the current developer shall improve the stub-out portion. Connection to adjoining properties may not be required if seriously constrained by topography or other physical hindrances, or in cases where through travel cannot occur because the property is bounded by development with private streets previously allowed.

   The DEA states that access in the project will be through a system of private driveways and that future driveway connections will be provided to future road improvements adjacent to the Project Site, including the Kahului-Keauhou Parkway (formerly Ali'i Highway) and/or to a proposed mauka/makai collector road immediately to the north of the Project Site.

   The DEA also states that the applicant is working with the County concerning the possible establishment of an emergency access route from the project to La'aloa Avenue via the Kahului-Keauhou Parkway right-of-way. If established, the route would provide an alternative mauka/makai access for use during times of emergency.

   Instead of driveways, the project should build streets that contribute to the local transportation network. Specifically, the streets connecting to the Kahului-Keauhou Parkway and the mauka/makai collector should be dedicated to the County, providing critical emergency access and evacuation routes as well as alternative access to Ali'i Drive and Kahalu'u Beach Park.

   Moreover, until the new collectors are established, alternative emergency and evacuation access should be provided using unpaved but maintained rights of way.

3) Gated Entry. In the Kona Urban Area, gates will be prohibited across new roadways identified to service the local transportation network.

   The DEA does not describe how access to the subject project will be managed from public roadways.

4) Cul-de-sacs Discouraged. Cul-de-sacs are discouraged based on Policy TRAN-2.1(1) Maximum Block Size and Policy TRAN-2.1(2) Connection to Adjoining Property unless construction of a through street is found to be impracticable. Where cul-de-sacs or dead-end streets are allowed, they shall meet the prevailing standards in the Chapter 23 Subdivision Code.

   As presented in Figure 3a, the project is one, large cul-de-sac with multiple branches and very limited inter-connectivity. For internal connectivity, some municipalities use a connectivity index ratio – the number of links (roadway sections) divided by the number of nodes (intersections). The higher the number, the better the internal connectivity. Targets are typically 1.5 to 1.8, with a threshold commonly set at 1.2.

5) Future Extensions. Roads serving future transportation interconnectivity will be identified for any proposed subdivision located adjacent to a vacant parcel. To supplement HCC §23-44, where necessary to give access to or permit a satisfactory future subdivision of adjoining land, or to conform with the Official Transportation Network Map, a street stub-out or pedestrian path improved to the boundary is required unless financially guaranteed to enable the County to coordinate the stub-out construction as a regional project or in coordination with the development of the adjoining property. Applicants submitting preliminary development plans shall provide for extension of selected local streets to adjoining undeveloped properties and eventual connection with the existing street system. Within phased subdivisions, temporary stub-outs shall be required.

   The DEA states that access in the project will be through a system of private driveways and that future driveway connections will be provided to future road improvements adjacent to the Project Site, including the Kahului-Keauhou Parkway (formerly Ali'i Highway) and/or to a proposed mauka/makai collector road immediately to the north of the Project Site.

   As noted above, instead of driveways, the project should build dedicable streets that contribute to the local transportation network.

6) Connectivity. In the Kona Urban Area, all new roads that will serve as part of the interconnecting roadway system shall be dedicated to the County.

See the discussion above.

f. **Street Standards (Policy TRAN-3.1)**: County street standards should be pedestrian-friendly, safely accommodate bicycles, accessible to the disabled, and appropriate for its surrounding land use context.

The DEA states that the internal driveway and pedestrian network will be designed to ensure a safe transportation system appropriate to the proposed land uses.

However, the DEA does not specifically describe how sidewalks, paths, bike lanes, and other features will facilitate non-motorized travel into, within, and through the project. This is particularly important because the Kahului-Keauhou Parkway will be a multi-modal collector.

g. **Active Recreation Opportunities (Policy PUB-6.2)**: Subdividers shall provide neighborhood parks (including community gardens, community centers, pocket parks, and pet parks) ½ mile apart for area residents and provide for private maintenance or pay a fee pursuant to HCC Chapter 8.

The DEA states that the proposed development includes a number of recreational facilities including swimming pools, a community center, and passive recreational areas around a system of paths.

However, the DEA does not describe in any detail the pools or community center, or plans for their maintenance.

2. **Ordinance 820 (REZ 419)**

a. **Condition F**: Ordinance 820 requires that the siting and development of all projects shall be in compliance with the guidelines outlined in the report entitled "Comprehensive Design Principles for Keauhou Kona," December 1980.

The DEA references the "Keauhou Village & Kahalu'u Village Residential Design Guidelines" but not the "Comprehensive Design Principles for Keauhou Kona." The DEA should address the landscaping, architectural, site planning, signage, KIC approval, and other guidelines referenced in Ordinance 820.

b. **Condition H**: As noted in our May 31, 2013 letter, Towne Development of Hawai'i, Inc. or its successors or assigns shall be responsibility for the payment of its "fair share" for road improvements for single family and multiple family residential units. Said fair share payments shall be made at the time of issuance of building permits on a unit-by-unit basis.

   The DEA does not address this requirement and its role in impact mitigation.

c. **Condition J**: Ordinance 820 requires that all other roadways within the proposed development shall be constructed with curbs, gutters, sidewalks, and underground utilities meeting with the approval of the Department of Public Works.

   The DEA does not specifically address this requirement, though it does state the all electrical, telephone, and CATV utility lines will be underground.

3. **Hawai'i County Code Chapter 25 (Zoning Code)**: In reviewing a plan approval application, the Planning Director shall consider the proposed development in relation to the surrounding property, improvements, streets, traffic, community characteristics, natural features, and may require conditions or changes to assure:

   a. Adequate light and air, and proper siting and arrangements are provided for all structures and improvements;
   b. Existing and prospective traffic movements will not be hindered;
   c. Proper landscaping is provided that is commensurate with the structure, development or use and its surroundings;
   d. Unsightly areas are properly screened or eliminated;
   e. Adequate off-street parking is provided to serve the development, regardless of the otherwise minimum requirements of the Zoning Code;
   f. Access to the parking areas will not create potential accident hazards;
   g. Within reasonable limits, any natural and man-made features of community value are preserved; and
   h. Dust, noise, and odor impacts are mitigated.

   The Director shall require any conditions or changes in the proposal which, in the Director's opinion, are necessary to address the considerations listed above and carry out the purposes of the Zoning Code.

Many of the plan approval considerations will be addressed with appropriate application of CDP policies, as discussed above.

We are particularly concerned about traffic impacts, given the project's proximity to the heavily used Ali'i Drive and Kahalu'u Beach Park. The Traffic Impact Assessment Report (TIAR) included in the DEA uses 2017 as the horizon year for traffic projections. However, to adequately assess the project's traffic impacts, a horizon of at least 10 years is necessary.

4. **Hawai'i County Code Chapter 23 (Subdivision Code)**: The DEA states that water would be provided by the County Department of Water Supply (DWS) and that water is available to the proposed development. However, the DEA does not include an estimate of maximum daily usage, which the DWS requires to determine the necessary water system improvements required to support the development.

   In addition, in the DEA pre-consultation letter, you indicated that the project would be developed as a Planned Unit Development (PUD). There is no reference to a PUD in the DEA, nor is there any reference to variances that may be requested. If variances are requested, they should be applied for as a PUD.

If you have any questions, please contact Ron Whitmore of this office at (808) 961-8137.

Sincerely,

DUANE KANUHA
Planning Director

RW:cs
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cc: Long Range Planning Division ✓
Planning Division
Kona Planning Office
Tom Yeh. Esq.
Mr. Christopher L. Lau, Executive Vice President
Towne Development of Hawai'i, Inc.

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

August 25, 2015

Duane Kanuha, Director
Hawai'i County Planning Department
101 Pauahi Street, Suite 3
Hilo HI 96720

Dear Mr. Kanuha:

Subject: Comment to Draft Environmental Assessment and Anticipated Finding of No Significant Impact (FONSI) for Parcel 26 at Kahalu'u - A Residential Project for Towne Development of Hawai'i, North Kona District, Island of Hawai'i

Thank you for your comment letter dated October 9, 2013, on the Draft EA. In answer to your specific comments:

1a. *Consistency of the proposed development with Kona Community Development Plan (CDP) (Ordinance 08-131): The project is within the approximate location of the Kahalu'u Makai Neighborhood Transit Oriented Development (TOD) area (Policy LU-2.3). However, TODs become fixed pursuant to Project District rezoning procedures, and the subject project is not being pursued as a TOD.*

The project is being developed in accordance with the existing zoning that was established prior to the adoption of the Kona CDP. With respect to the requirements of the Kona CDP, that Land Use section 4.2.2 states in part:

> The legally binding polices in this section, as defined in 4.0 Goals, Objectives, Policies and Actions, do not override or invalidate existing zoning. Such legally binding policies, however, shall be implemented with new change of zone, time extensions on existing zoning requiring County Council action, state land use boundary amendments and Special Management Area (SMA) permits, when applicable.

1b. *Kona CDP Concurrency (Policy TRAN-6.1): The subject project does not require a change of zone, so concurrency requirements do not apply. However, CDP policies will be implemented for the subject project through the SMA permit and subdivision application processes*

As noted above, while the legally binding Policies of the CDP do not override or invalidate existing zoning, and such policies shall be implemented with new changes of zone, time extensions on existing zoning requiring County Council action, state land use boundary amendments and Special Management Area (SMA) permits, **where** applicable. As stated in the Draft EA, the developer acknowledged that an SMA Use Permit is required for the proposed development, for which the developer will be the Applicant.

It is the Applicant's understanding that in reviewing SMA permits, three Kona CDP Land Use Policies are potentially applicable. These are:

LU-1.5 Enhanced Shoreline Setback. This policy states in part that:

It shall be a priority to maintain a minimum of 1,000-foot open space no-build setback for undeveloped lands adjacent to the shoreline on parcels that exceed 1,000 feet in depth in discretionary land use approvals such as SMA major permits, rezonings, and state land use boundary amendments.

LU-1.6 17-Mile Protected Coastline.

This policy applies to the 17 mile stretch of shoreline that extends from Makaeo north to Kikaua Point at the Kuki'o development.

LU-1.5a Review rezoning and SMA applications pursuant to Policy LU 1.4

This Policy requires that SMA applications be reviewed pursuant to Land Use Policy 1.4 relating to Consistency with Land Use Pattern Allocation Guide (LUPAG). This policy states:

> The current LUPAG accommodates the vision and needs for the Kona CDP area planning horizon and should be amended only for compelling reasons. Any rezoning application shall be consistent with the LUPAG.

The project site is not adjacent to the shoreline, being situated mauka of Ali'i Drive, and is not within the 17-mile shoreline area that extends from Makaeo to Kuki'o. Accordingly, neither of these Kona CDP Land Use policies are applicable to the SMA permitting requirements for the project. With respect to consistency with the LUPAG map, in a letter dated May 13, 2009, the Planning Director has determined that the existing zoning is consistent with the LUPAG map.

The Keauhou Area 26 development plan has been revised to exclude residential development within the Single Family Residential (RS) zoned area at this time. As previously stated, residential units with the Multifamily Residential (RM) and Resort (V) zoned areas will be developed under the Condominium Property Regime (CPR) concept. As such, **no subdivision action** is proposed or required as part of the initial development plans. The Applicant is aware that should development of the RS zoned lands be proposed in future development phases, the action will need to address the applicable provisions of the Kona CDP.

1c. *The Final EA should contain documentation confirming that there is sufficient capacity of the wastewater treatment plant to handle the effluent generated by the subject project and that the required sewer lines can be run in the County right-of-way.*

The Final EA contains a letter from Leslie Clark of Keauhou Community Services, dated December 17, 2013, confirming the project site is within their service area and that they have sufficient existing capacity (see attached).

1d. *The FEA should describe how ongoing access to archaeological sites will be managed, including parking reserved for the sites and differences in access protocols for lineal descendants and the general public.*

In accordance with the Burial Treatment Plan, access to the burial sites for appropriate cultural activities would be permitted to any lineal and/or cultural descendant formally recognized by the HIBC or DNLR-SHPD in accordance with the administration procedures contained within Section 13-300-35: "Recognition of lineal and cultural descendants" (DLNR 1996). The provisions for access, including parking will be made by direct, mutual agreement between the landowner and recognized lineal and/or cultural descendants. The agreed upon provisions will be recorded as a deed covenant that runs with land prior to occupancy of any units within the Project site."

Access to the preservation sites will be allowed on a case by case basis. These policies will be coordinated with the lineal and cultural descendants as well as Kamehameha Schools/Kamehameha Investment Corporation.

1e1. *The subject project abuts a CDP Minor Collector Road to the north and a General Plan Major Collector to the east. The CDP requires that new development should contribute to the interconnected transportation network of streets, pedestrian, and bicycle access that work to disperse traffic and connect and integrate new development with the existing fabric of the community. The FEA should describe how the development will meet minimum block standards for residential subdivisions of 800 feet.*

While the Kona CDP does not identify any new roadways within the subject property, the developer understands that the CDP identifies roads to service the local transportations network adjacent to the subject property, including the Kahului-Keauhou Parkway and Kona CDP Collector 9 on lands to the north. The developer does not intend to subdivide any lots within the project site nor develop any residential units within the RS zoned lands. All internal access will be through private driveways.

At the same time, should a road through the adjacent property be constructed, the developer is willing to provide the necessary right-of-way to the County for the continuation of this road to the Kahului-Keauhou Parkway right-of-way. In addition, should the portion of the Parkway fronting the project site be completed and open for use prior to the date that the building permit for the project's last unit is obtained, Towne is willing to improve the access segment from the main project driveway to the Parkway to County dedicable standards and dedicate that improved road segment to the County. The Final EA has been revised to include these mitigation measures.

The Developer is aware that should development of the RS zoned lands be proposed in future development phases, the action will need to address the applicable provisions of the Kona CDP.

With respect to potential future block lengths, Transportation Policy 2.1 1 states:

> Maximum Block Size. In lieu of HCC Section 23-29(c), the maximum length of blocks for predominately residential subdivisions shall be 800 feet, unless unfeasible due to natural topography, protected resources, or surrounding development patterns.

As noted above, the Keauhou Area 26 development plan has been revised to exclude residential development within the Single Family Residential (RS) zoned area at this time. As previously stated, residential units with the Multifamily Residential (RM) and Resort (V) zoned areas will be developed under the Condominium Property Regime (CPR) concept. As such, **no subdivision action** is proposed or required as part of the initial development plans. Therefore the requirements of Transportation Policy 2.11 are not applicable.

1e2. *Furthermore, the development should not build private driveways but streets that will contribute to regional connectivity. Specifically, the streets connecting to the Kahului-Keauhou Parkway and the mauka-makai collector should be dedicated to the County, providing critical emergency access and*

evacuation routes as well as alternative access to Ali'i Drive and Kahalu'u Beach Park. Until the new collectors are established, alternative emergency and evacuation access should be provided using unpaved but maintained rights of way.

The applicant has revised its development plans to exclude development of residential units within the RS zoned lands at this time. All internal access will be through private driveways. At the same time, should a road through the adjacent property be constructed, the developer is willing to provide the necessary right-of-way to the County for the continuation of this road to the Kahului-Keauhou Parkway right-of-way.

Development of the RS zoned lands with residential units may be considered only after completion of the Kahului-Keauhou Parkway and/or the adjacent RS zoned lands to the north. The Developer understands that that should subdivision or and/or development of residential units within RS zoned lands be proposed in future development phases, the action will need to address the applicable provisions of the Kona CDP.

With respect to the provision of an emergency and evacuation route from the subject property, the Applicant is willing to construct an emergency access route within the Kahului-Keauhou Parkway right-of-way, as shown on the attached Map Exhibit. Subject to approval by the County of Hawai'i, the Applicant is willing to provide an unpaved route upon occupancy of the first unit within the RM/V zoned lands. Furthermore, the Applicant is willing to improve this emergency access route with a 10-foot wide asphaltic concrete pavement upon occupancy of the 100th residential unit with the **RM/V** zoned lands.

1e3. *In the Kona Urban Area, gates will be prohibited across new roadways that have been identified to service the local transportation network. The FEA should describe how access to the subject project will be managed from public roadways.*

Transportation Policy 2.1(3) states:

> In the Kona Urban Area, gates will be prohibited across new roadways identified to service the local transportation network.

The RM and V zoned lands will be developed under the State of Hawai'i CPR provisions. As stated in the EA, access to these units will be from private driveways. The main entry to Ali'i Drive will be constructed meeting the requirements of DPW and in accordance with the recommendations of the TIAR. This entry may be gated as part of the internal driveway improvements.

The Kona CDP does not identify any new roadways within the subject property. However, the Applicant understands that CDP identifies roads to link the local transportations network adjacent to the subject property, including the Kahului-Keauhou Parkway and Kona CDP Collector 9 on lands to the north. Should a road through the adjacent property be constructed, the developer is willing to provide the necessary right-of-way to the County for the continuation of this road to the Kahului-Keauhou Parkway right-of-way.

1e4. *The development has too many cul-de-sacs, which the CDP discourages.*

Please see response to Comment 1e1 which notes that the Keauhou Area 26 development plan has been revised to exclude residential development within the Single Family Residential (RS) zoned area at this time. As previously stated, residential units with the Multifamily Residential (RM) and Resort (V) zoned areas will be developed under CPR concept. As such, no subdivision action is proposed or required as part of the initial development plans. All internal access will be through private driveways, which by definition are not cul-de-sacs.

1e5. *Applicants submitting preliminary development plans shall provide for extension of selected local streets to adjoining undeveloped properties and eventual connection with the existing street system. Within phased subdivisions, temporary stub-outs shall be required. As noted above, instead of driveways, the project should build dedicable streets that contribute to the local transportation network.*

Please see response to Comment 1e3.

1e6. *In the Kona Urban Area, all new roads that will serve as part of the interconnecting roadway system shall be dedicated to the County.*

Please see response to Comment 1e3.

1f. *The DEA does not specifically describe how sidewalks, paths, bike lanes, and other features will facilitate non-motorized travel into, within, and through the project. This is particularly important because the Kahului-Keauhou Parkway will be a multimodal collector.*

The RM/V zoned areas will be developed as CPR units. While still at a conceptual stage, the project amenities will include paths and bike lanes within the project site connecting the units to recreational areas, parking and community areas. The driveways will be typical of condominium developments, low speed, with speed humps, and adequate for bicycle use. Walking paths will generally be separate from driveways. The Applicant is supportive of constructing a paved pathway connecting the Multi-Family development area to the Parkway. The Planning Department will have an opportunity to review the precise details at Plan Approval.

1g. *Subdividers in Kona are required to provide neighborhood parks (including community gardens, community centers, pocket parks, and pet parks) ½ mile apart for area residents and provide for private maintenance or pay a fee pursuant to HCC Chapter 8. The DEA states that the proposed development includes a number of recreational facilities including swimming pools, a community center, and passive recreational areas around a system of paths. However, the DEA does not describe in any detail the pools or community center, or plans for their maintenance.*

As stated above, the development master plan has been revised to exclude development of residential units within the RS zoned lands at this time. The project is being proposed to be developed under the CPR provisions. As previously stated, residential units with the Multifamily Residential (RM) and Resort (V) zoned areas will be developed under the Condominium Property Regime (CPR) concept. As such, no subdivision action is proposed or required as part of the development plans. Therefore the requirements related to parks are not applicable.

However, the proposed development will include recreational facilities available to the residents/owners. While the development plan is still conceptual and subject to change, the recreational amenities are anticipated to include **two (2)** swimming pools/community center **complexes** that will be available for group functions/ meetings/gatherings. The facilities will be maintained by the homeowners association that will be established to oversee the maintenance of all common areas, including landscaping, paved areas and building exteriors. This information has been added to the Final EA. Should the Applicant subdivide the RS zoned areas in the future, it will comply with all applicable requirements related park facilities.

2a. *Ordinance 820 requires that the siting and development of all projects shall be in compliance with the guidelines outlined in the report entitled "Comprehensive Design Principles for Keauhou Kona," December 1980. The DEA references the "Keauhou Village & Kahalu'u Village Residential Design*

Guidelines" but not the "Comprehensive Design Principles for Keauhou Kona." The DEA should address the landscaping, architectural, site planning, signage, KIC approval, and other guidelines referenced in Ordinance 820.

A discussion of the conformance of the December 1980 guidelines has been added to the Final EA.

2b. *As noted in the Planning Dept. letter of May 31, 2013 letter, Towne Development of Hawai'i, Inc. or its successors or assigns shall be responsibility for the payment of its "fair share" for road improvements for single family and multiple family residential units. Said fair share payments shall be made at the time of issuance of building permits on a unit-by-unit basis. The DEA does not address this requirement and its role in impact mitigation.*

The Final EA has been revised to include a discussion of this requirement and its role in impact mitigation. Towne and its successors or assigns have agreed to be responsible for the payment of its "fair share" for road improvements for the residential units within those areas rezoned pursuant to Change of Zone Ordinance No. 820, which rezoned a portion of the subject area along with other areas owned by Kamehameha Investment Corporation (KIC), including a portion of the Keauhou Shopping Center. These payments, which will be made at time of building permit issuance, can be used by the County to address regional traffic impacts. As part of an agreement between the County of Hawai'i and KIC in 1998, the County acknowledged it was responsible for the construction of the Ali'i Highway (Kahului – Keauhou Parkway) through this portion of Kahalu'u/Keauhou, provided that KIC be responsible for certain intersection improvements allowed within the Parkway. The County has determined that in lieu of contributions for these future intersection improvements, the imposition of the Road Fair Share requirement would satisfy this requirement for the subject area.

2c. *Condition J: Ordinance 820 requires that all other roadways within the proposed development shall be constructed with curbs, gutters, sidewalks, and underground utilities meeting with the approval of the Department of Public Works. The DEA does not specifically address this requirement, though it does state the all electrical, telephone, and CATV utility lines will be underground.*

The applicant is not proposing to subdivide the RM/V zoned lands nor develop any residential units within the RS zoned lands. As such, no roads are proposed to be constructed within this area and the requirement for CGS is not applicable.

3. *Hawai'i County Code Chapter 2S (Zoning Code): In reviewing a plan approval application, the Planning Director shall consider the proposed development in relation to the surrounding property, improvements, streets, traffic, community characteristics, natural features, and may require conditions or changes to assure:*

a. Adequate light and air, and proper siting and arrangements are provided for all structures and improvements;

b. Existing and prospective traffic movements will not be hindered;

c. Proper landscaping is provided that is commensurate with the structure, development or use and its surroundings;

d. Unsightly areas are properly screened or eliminated;

e. Adequate off-street parking is provided to serve the development, regardless of the otherwise minimum requirements of the Zoning Code;

f. Access to the parking areas will not create potential accident hazards;

g. Within reasonable limits, any natural and man-made features of community value are preserved; and

h. Dust, noise, and odor impacts are mitigated.

The Director shall require any conditions or changes in the proposal which, in the Director's opinion, are necessary to address the considerations listed above and carry out the purposes of the Zoning Code.

Many of the plan approval considerations will be addressed with appropriate application of CDP policies, as discussed above.
We are particularly concerned about traffic impacts, given the project's proximity to the heavily used Ali'i Drive and Kahalu'u Beach Park. The Traffic Impact Assessment Report (TIAR) included in the DEA uses 2017 as the horizon year for traffic projections. However, to adequately assess the project's traffic impacts, a horizon of at least 10 years is necessary.

The TIAR has been supplemented by consideration of impacts that would occur at 10 years, at which time Level of Service is still calculated to remain acceptable. The revised TIAR is included in the Final EA. The Applicant will develop plans that ensure that traffic impacts are minimized and will work with the Planning Department and the Department of Public Works during the Plan Approval process.

4. *Hawai'i County Code Chapter 23 (Subdivision Code): The DEA states that water would be provided by the County Department of Water Supply (DWS) and that water is available to the proposed development. However, the DEA does not include an estimate of maximum daily usage, which the DWS requires to determine the necessary water system improvements required to support the development. In addition, in the DEA pre-consultation letter, you indicated that the project would be developed as a Planned Unit Development (PUD). There is no reference to a PUD in the DEA, nor is there any reference to variances that may be requested. If variances are requested, they should be applied for as a PUD.*

The developer understands that at the appropriate time DWS will request that estimated maximum daily water usage calculations, after which they will determine the necessary water system improvements required to support the development.

Based on the current master plan, no variances from the County Code are anticipated and therefore a PUD is not being contemplated at this time. Should a variance(s) be required as part of the final development plan, the Development will review his options provided by the Zoning and Subdivision Codes including the Planned Unit Development process.

The Final EA has also been revised to include Towne's commitment to provide street crossing improvements consisting of a crosswalk and pavement markings on Ali`i Drive at a location to be determined in consultation with the County and the Kohala Center. In addition, Towne is committed to working with the Department of Parks and Recreation and the Kohala Center to mitigate possible impacts to Kahalu`u Beach Park from the proposed project, including the option of providing funding support for the Kahalu`u Bay Education Center and/or Ranger Program at the park.

We very much appreciate your review of the document. If you have any questions about the EA, please contact me at (808) 969-7090.

Sincerely,

Ron Terry

Ron Terry, Principal
Geometrician Associates

Cc: Christopher Lau, Towne Development

KEAUHOU COMMUNITY SERVICES, INC.

December 17, 2013

Towne Development
Attn: Chris Lau
220 S. King Street, Suite 960
Honolulu Hawaii 96813

Dear Chris,

Per your inquiry regarding service by the Heeia Wastewater Treatment Plant (WWTP) for Keauhou Land Area 26, I am pleased to confirm the following:

1. Land Area 26 falls within the service area for the WWTP.
2. The WWTP currently has adequate capacity to service your proposed residential subdivision based on your current plan of 321 multi-family homes and 17 single family homes.

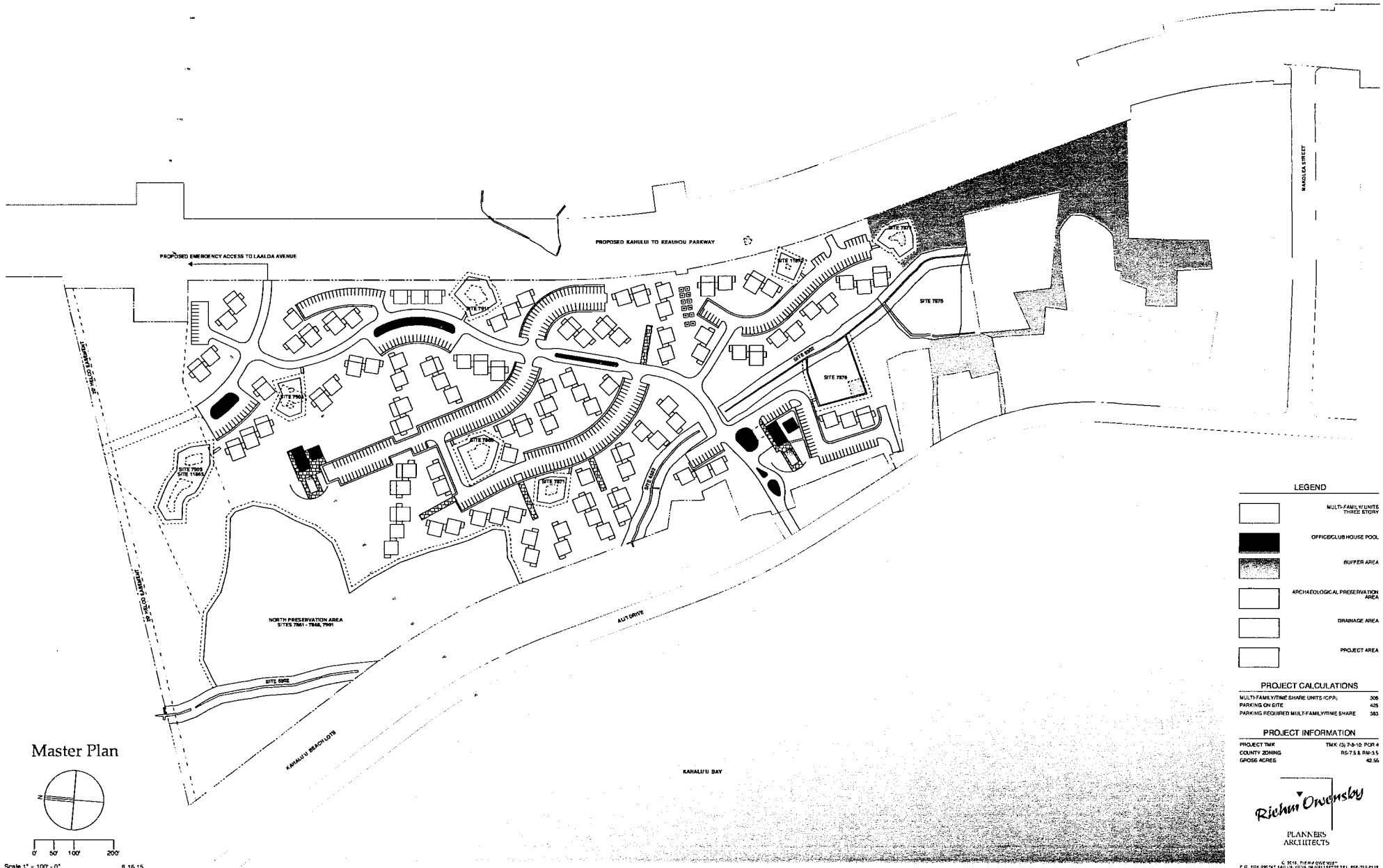
Please let me know if you have any further questions.

Best regards,

Leslie Clark
Vice-President
Keauhou Community Services, Inc.

cc: Bill Moore
Thomas Yeh

ADMINISTRATION: [illegible]
KONA OFFICE: [illegible]
PLANT OPERATIONS: [illegible]



Parcel 26 at Kahalu'u – A Residential Project for Towne Development of Hawai'i

At Kahalu'u, North Kona, Island & County of Hawai'i

Sheet No: A - 1.1

ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahalu‘u - A Residential Project for Towne Development of Hawai‘i

APPENDIX 2
Water Quality/Marine Biology Report

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ASSESSMENT OF THE IMPACT ON MARINE WATER CHEMISTRY

PARCEL 26 – A MULTI-FAMILY TIME SHARE CONDOMINIUM PROJECT FOR TOWNE DEVELOPMENT OF HAWAII
(TMK 7-8-10.4)

NORTH KONA, HAWAII

Prepared for:

Christopher L. Lau
Towne Development of Hawaii, Inc.
220 S. King St., Ste. 960
Honolulu, HI 97=6813

Prepared by:

Marine Research Consultants, Inc.
1039 Waakaua Pl.
Honolulu, HI 96822

October 2012

I. INTRODUCTION AND PURPOSE

Planning is underway for Parcel 26 by Towne Development of Hawaii for a Multi-Family Time Share Condominium Project directly above Kahaluu Bay in Keauhou, North Kona, Island of Hawaii (hereafter termed the Area 26 property). The roughly rectangular shaped 42.5 acre parcel is oriented with the long boundary parallel to the coastline, which extends approximately 1,500 feet parallel to and inland from Alii Drive, perpendicular to the shoreline (Figure 1). The project plan presently consists of 321 multi-family units, 17 single family units, archaeological preservation areas, and drainage-retention disposal features.

While all planning and construction activities will place a high priority on maintaining the existing relatively pristine nature of the marine environment, it is nevertheless important to address any potential impacts that may be associated with the planned project. None of the proposed land uses includes any direct alteration of the coastal areas or nearshore waters. The potential exists, however, for the project to affect the composition and volume of groundwater that flows beneath the project site, as well as surface runoff emanating from the project. As all groundwater that could be affected by the project subsequently reaches the ocean, it is recognized that there is potential for the project to affect the marine environment. This concern is especially critical for Kahaluu Beach Park, which lies directly makai of the project site. The Beach Park is a recreational area that is heavily utilized for water recreation, and is one of the premier snorkeling areas in the State of Hawaii. Therefore, important questions include the potential impacts from constituents added to groundwater which could cause alterations to water quality and marine life.

In the interest of addressing these concerns and assuring maintenance of environmental quality, a baseline marine environmental assessment and potential impact analysis of the nearshore areas off the Area 26 property was conducted in August 2012. The rationale of this assessment was to determine the contribution of groundwater to the marine environments in the vicinity of the project site, and to evaluate the effects that this input has on water quality at the present time, prior to the commencement of any new construction activities. Combining this information with estimates of changes in groundwater and surface water flow rates and chemical composition that could result from the project provides a basis to evaluate the potential effects to the marine environment. Predicted changes in groundwater and surface water flow rates have been supplied by Tom Nance Water Resource Engineering (TNWRE 2006). Results of the combined evaluation will indicate if, and to what degree, there is the potential for negative effects to the aquatic environments from the proposed project.

In addition to the evaluation of water quality, a baseline assessment was conducted of the existing marine biological structure of the area.

II. MARINE WATER CHEMISTRY

A. METHODS

Three transect survey sites were established downslope of the Area 26 property. Transect site 1 was located off the northern end of project site. Transect site 2 was located off the central region of the project site at the northern boundary of Kahaluu Beach Park, and Transect site 3 was located off the southern end of the project site, bisecting the central region of Kahaluu Beach Park (Figure 1).

Water quality was evaluated at each site on transects that were oriented perpendicular to the shoreline and depth contours. Water samples were collected at 11 to 14 locations on each transect from the highest wash of waves at the shoreline to distances of 300-400 meters (m) offshore. Sampling locations were determined by boat-mounted differential GPS. Such a sampling scheme was designed to span the greatest range of salinity with respect to potential freshwater efflux at the shoreline. Sampling was more concentrated in the nearshore zone because this area is most likely to show the effects of shoreline modification. With the exception of the samples located within 10 m of the shoreline, samples were collected at two depths; a surface sample was collected within approximately 10 centimeters (cm) of the sea surface, and a bottom sample was collected within 50 cm of the sea floor.

In order to determine chemical concentrations in unaltered groundwater, samples were also collected from five wells located upslope from the project site operated by the County of Hawaii. These data are included in an accompanying report entitled "Potential Impact on Water Resources of the Proposed Development on TMK 7-8-10:4 in North Kona, Hawaii" prepared by Tom Nance Water Resources Engineering in 2012.

Water quality parameters evaluated included the ten specific criteria designated for open coastal waters in Chapter 11-54, Section 06 (Open Coastal waters) of the State of Hawaii Department of Health (DOH) Water Quality Standards. These criteria include: total nitrogen (TN), nitrate + nitrite nitrogen (NO_3^- + NO_2^-, hereafter referred to as NO_3^-), ammonium nitrogen (NH_4^+), total phosphorus (TP), Chlorophyll a (Chl *a*), turbidity, temperature, pH and salinity. In addition, orthophosphate phosphorus (PO_4^{-3}) and silica (Si) were also reported because these parameters are sensitive indicators of biological activity and the degree of groundwater mixing.

All fieldwork was conducted on August 24, 2012 using a 21-foot boat. Samples from the shore to 10 meters offshore were collected by a swimmer working from the boat. All other samples were collected using a Niskin-type oceanographic sampling bottle. The bottle is lowered to the desired sampling depth with spring-loaded endcaps held open so water can

pass freely through the bottle. At the desired sampling depth, a weighted messenger released from the surface triggers closure of the endcaps, isolating a volume of water.

All water samples were collected in triple-rinsed one-liter linear polyethylene bottles. Subsamples for nutrient analyses were immediately placed in 125-milliliter (ml) acid-washed, triple rinsed, polyethylene bottles and stored on ice. Analyses for Si, NH_4^+, PO_4^{3-}, and NO_3^- were performed on filtered samples with a Technicon Autoanalyzer using standard methods for seawater analysis (Strickland and Parsons 1968, Grasshoff 1983). TN and TP were analyzed in a similar fashion following digestion. Total organic nitrogen (TON) and total organic phosphorus (TOP) were calculated as the difference between TN and dissolved inorganic N, and TP and dissolved inorganic P, respectively.

Water for other analyses was subsampled from 1-liter polyethylene bottles and kept chilled until analysis. Chl *a* was measured by filtering 300 ml of water through glass-fiber filters; pigments on filters were extracted in 90% acetone in the dark at -20° C for 12-24 hours. Fluorescence before and after acidification of the extract was measured with a Turner Designs fluorometer. Salinity was determined using an AGE Model 2100 laboratory salinometer with a readability of 0.0001‰ (ppt). Turbidity was determined in the field using a 90-degree nephelometer, and reported in nephelometric turbidity units (NTU) (precision of 0.01 NTU).

In-situ field measurements of continuous vertical profiles of water temperature and salinity were acquired using a RBR Model XR-640 CTD calibrated to factory standards (precision of 0.01ºC, and 0.001 parts per thousand [‰]).

All fieldwork was conducted by Dr. Steven Dollar. All laboratory analyses were conducted by Marine Analytical Specialists located in Honolulu, HI (Labcode: HI 00009). This analytical laboratory possesses acceptable ratings from EPA-compliant proficiency and quality control testing.

B. RESULTS

1. Horizontal Stratification

Tables 1 and 2 show results of all water chemistry analyses for samples collected off the Parcel 26 site on August 24, 2012. Table 1 shows concentrations of dissolved nutrients in micromolar (µM) units; Table 2 shows concentrations in micrograms per liter (µg/L). Concentrations of eight dissolved nutrient constituents in surface and deep samples are plotted as functions of distance from the shoreline in Figure 2. Values of salinity, turbidity, Chl *a,* and temperature as functions of distance from shore are shown in Figure 3.

Several patterns of distribution are evident in Tables 1 and 2 and Figures 2 and 3. It can be seen in Figure 2 that the dissolved nutrients Si, NO_3^-, NH_4^+, PO_4^{3-}, TP and TN display substantial elevation in concentration in the samples collected within 10 m of the shoreline on all three sampling transects. Salinity displays the opposite trend, with sharply lower concentrations in the samples within 10 m of the shoreline (Figure 3). While the steep gradients of nutrients and salinity occurred at all three sampling sites, the greatest peak in nutrients and lowest salinity of shoreline samples occurred at Transects 2 and 3. On transects 1 and 2, salinity reaches essentially oceanic values of 35$^{o}/_{oo}$ at a distance of about 10 m from shore. On Transect 3, salinity below 35$^{o}/_{oo}$ persists for a distance of approximately 50 m offshore (Tables 1 and 2).

These patterns of increasing salinity and decreasing nutrient concentrations with distance from shore are a result of concentrated input of groundwater to the ocean at or near the shoreline throughout the region fronting the Parcel 26 project site. Low salinity groundwater, which typically contains high concentrations of Si, NO_3^-, and PO_4^{3-} percolates to the ocean at the shoreline, resulting in a nearshore zone of mixing. In many areas of the Hawaiian Islands, particularly off the coast of West Hawaii, such groundwater percolation results in steep horizontal gradients of increasing salinity and decreasing nutrients with distance from shore.

Water chemistry parameters that are not associated with groundwater input (TON, TOP) do not show the same pattern of decreasing concentration with respect to distance from the shoreline as Si, NO_3^-, PO_4^{3-}, TP and TN. Contrary to horizontal gradients that peak at the shoreline and decrease with distance from shore, concentrations of TON and TOP are often lowest at the shoreline and elevated in samples collected at the seaward ends of the sampling transects (Figures 2 and 3, Tables 1 and 2).

Similar to the patterns of dissolved inorganic nutrients, the distribution of Chl *a* also displays peaks near the shoreline with steeply decreasing gradients with distance from shore on all three transects (Figure 3, Table 1). Beyond 10 m from the shoreline, the concentration of Chl *a* in surface waters remained relatively constant across the sampling scheme (Figure 3). With the exception of samples collected within 2 m of the shoreline on Transect 3, turbidity displays no clear pattern with respect to distance from shore, with all samples displaying relatively constant turbidity within the range of 0.1 to 0.3 NTU (Table 1, Figure 3). Temperature showed distinctly lower values in the samples closest to the shoreline, which is likely a result of mixing of cooler groundwater with warmer ocean water near the shoreline (Table 1, Figure 3).

2. Vertical Stratification

The mix of groundwater and ocean water creates a buoyant surface lens of low salinity, high nutrient water that is evident throughout the nearshore waters fronting the project site

(Tables 1 and 2). With the lack of physical mixing in terms of waves and currents, the stratified water column persists along the entire length of the sampling transects off of the Parcel 26 property. Tables 1 and 2 and Figures 2 and 3 show concentrations of water chemistry parameters as functions of distance from shore in samples collected from surface and bottom water just above the ocean floor. It can be seen in Tables 1 and 2 that for the inorganic nutrients that displayed distinct horizontal gradients (particularly Si, and NO_3^-), there is also distinct variation between surface and deep samples. Surface values of Si and NO_3^- were substantially higher than deep values, while salinity was lower in surface samples relative to deep samples from the same location. While the difference between surface and deep samples was clearly evident for Si and NO_3^-, there is no clearly distinguishable difference in surface and deep concentrations of PO_4^{3-}, TP and TN

Nutrient constituents not associated with groundwater input (NH_4^+, TON and TOP) do not exhibit any discernible relationship with respect to vertical stratification (Figure 3). Likewise, turbidity and Chl *a*, also showed no consistent trend with surface values not consistently elevated relative to bottom values (Figure 3).

3. Conservative Mixing Analysis

A useful treatment of water chemistry data for interpreting the extent of material input from land is application of a hydrographic mixing model. In the simplest form, such a model consists of plotting the concentration of a dissolved chemical species as a function of salinity (Officer 1979, Smith and Atkinson 1992, Dollar and Atkinson 1992). The concept of using such mixing models which scale nutrient concentrations to salinity has been recently used by the State of Hawaii Department of Health for establishing a unique set of water quality standards for the West Coast of the Island of Hawaii [Hawaii Administrative Rules, §11-54-06 (d)].

Comparison of the curves produced by the distribution of data with conservative mixing lines provides an indication of the origin and fate of the material in question. If the parameter in question displays purely conservative behavior (i.e., no input or removal from any process other than physical mixing), data points should fall on, or near, the conservative mixing line. If however, external material is added to the system through processes such as leaching of fertilizer nutrients to groundwater, data points will fall above the mixing line. If material is being removed from the system by processes such as biological uptake, data points will fall below the mixing line.

Figure 4 shows plots of the concentrations of Si, NO_3^-, PO_4^{3-}, and NH_4^+ as functions of salinity for the samples collected at each sampling station in August 2012. Each graph also shows conservative mixing lines constructed by connecting the end-member concentrations of open ocean water collected at the same time as the other water samples, and average groundwater concentration from the three DWS Kahaluu potable wells located upslope of the project area.
Dissolved Si represents a check on the model as this material is present in high

concentration in groundwater, but is not a major component of fertilizer. In addition, Si is not utilized rapidly within the nearshore environment by biological processes. It can be seen in Figure 4 that data points for all three transect sites fall in a linear array on the conservative mixing line. Linear regression of the concentrations of Si as a function of salinity indicates that for all three transects, there is a highly significant R^2 (proportion of variation explained) of 0.99 indicating that the concentration of Si is dependant on salinity. The Y-intercept of the regression of Si as a function of salinity can be interpreted as the expected concentration at a salinity of zero. As groundwater has salinity close to zero, the Y-intercept can be used to evaluate the relationship between upslope groundwater and groundwater that is entering the ocean at the shoreline. For the potable wells sampled upslope of Parcel 26, the average concentration of Si is 751 µM. The upper and lower 95% confidence limits of the Y-intercepts of the regression lines of Si vs. salinity for the three transects are 754-769 µM. Hence, it can be determined that for the three transects there is no alteration of groundwater Si relative to potable water. Such a pattern validates the hypothesis that Si is behaving as a conservative tracer and that well water sampled from the upslope well is similar in composition to groundwater entering the ocean off the Parcel 26 Project site.

The plots of NO_3^- versus salinity show a slightly different distribution as Si. In general, most of the data points for the three transects fall in a similar linear array. While data points from all three transects at salinities lower than 30‰ fall on the conservative mixing line, the data points for Transects 2 and 3 at salinities greater than 30‰ lie above the conservative mixing line. Linear regression of these data indicate significant R^2's of 0.99 for all data points indicating that the concentrations of NO_3^- are dependent on salinity. The upper and lower confidence limits of the Y-intercepts for the three transects are 103-106 µM, while the average concentration of NO_3^- in upslope potable water is 84 µM. Hence for combined data set, there is a subsidy of NO_3^- in groundwater entering the ocean of about 20 µM. When looking at each transect separately, the upper and lower confidence limits of the Y-intercept of Transect 1 are 75-78 µM, 99-101 µM on Transect 2, and 108-109 µM on Transect 3. From these analyses, it is clear that there is a substantial, but localized subsidy of NO_3^- from activities on land inland from Transects 2 and 3, but not Transect 1.

PO_4^{3-} is also a major component of fertilizer and sewage. However, PO_4^{-3} is usually not found to leach to groundwater to the extent of NO_3^-, owing to a high absorptive affinity of phosphorus in soils or rock. It can be seen in Figure 4 that most of the PO_4^{3-} data points fall in a linear array around the mixing line. The R^2 of regression of PO_4^{3-} vs. salinity is highly significant at 0.99. The average well water concentration of PO_4^{3-} in well water is 4.3 µM, while the confidence limits of the Y-intercepts for all three transects are 4.5-6.0 µM for Transect 1, 4.3-4.7 for Transect 2 and 4.0-4.3 for Transect 3. Hence, contrary to NO_3^- there are no subsidies of PO_4^{3-} entering the nearshore environment from sources other than naturally

occurring groundwater at Transects 2 and 3. However, there is a small subsidy of PO_4^{3-} to the nearshore ocean from groundwater input (~0.4 µM) at Transect 1.

The other form of dissolved inorganic nitrogen, NH_4^+, shows a different relationship than Si, NO_3^- and PO_4^{-3}. The mixing line for NH_4^+ is considerably flatter than for the other three nutrients owing to the low concentrations in naturally occurring groundwater. Plots of concentrations of NH_4^+ versus salinity exhibit no linear trends with respect to salinity (Figure 4). Linear regression of concentrations of NH_4^+ vs. salinity result in a considerably lower R^2 (0.56) than the other inorganic nutrients. The lack of an inverse relationship suggests that the source of most of the NH_4^+ in the nearshore ocean is not from the land but rather from biological processes occurring in the marine environment. The lack of a linear relationship between salinity and NH_4^+ also is a good indicator that there is little or no input to the ocean from leaching of cesspools or other sources of sewage that might occur in the upland coastal area.

5. Compliance with DOH Criteria

The West Coast of the Island of Hawaii has area specific Water Quality Standards (Chapter §11-54-6 (B)(3)(d) HAR). In areas where nearshore marine water salinity is greater than 32‰
Specific criteria for geometric means apply (Tables 1 and 2). As geometric means require multiple samplings at the same location, it is not technically possible to use the single sample set shown in this report to evaluate compliance of water quality off the Towne Parcel 26 Project with area specific DOH standards. However, comparison of the values shown in Tables 1 and 2 for the single sampling event off the project provide an estimate of compliance with area specific DOH water quality standards.

The latest version of Chapter §11-54, HAR (August 2004) also contains a set of criteria specifically applied to the West Coast of the Island of Hawaii [§11-54-06 6 (B) (3) (d)]. These conditions contain a linear regression based on scaling nutrient (NO_3^-, TN, PO_4^+, and TP) concentrations to salinity for samples with salinities below 32‰. These criteria for the four nutrients are shown in Table 3. Conditions for the linear regression included sample collection along horizontal transects at five distances from shore (1, 10, 50, 100, 500 m), that were generally met with the present sampling program. Compliance with the DOH criteria is defined by slope of the regression line of the nutrient concentration as a function of salinity. Slopes greater than the “not to exceed” values stated in the standards are deemed out of compliance. The prerequisite of the special conditions are partially met, as some samples collected on each transect had measured salinity less than 32‰. However, the standards also stipulate that the sampling protocol shall be replicated not less than three times on different days over a period not to exceed fourteen days during dry weather conditions. This criterion was not met for the present program as only one sample set was collected.

When linear regression analyses are performed, the slope of NO_3^- exceeded the specific criterion (-31.92) on Transects 2 and 3, while the slope from data on Transect 1 was below the specific criterion. These comparisons provide the same result as the mixing analysis discussed above. The slopes of TN, TP and PO_4^+ were above the DOH criteria on all three transects, indicating that concentrations of these constituents exceeded DOH standards.

Therefore, at the present time, while replicate data sets have not been collected in order to explicitly follow area specific DOH standards, it appears that existing baseline conditions of water quality off the Towne Parcel 26 site exceed DOH water quality standards for NO_3^-, TN, TP and PO_4^+. Should future sampling require compliance with the specific criteria specified for West Hawaii, the data collected during this baseline assessment can provide an indication of existing conditions prior to any construction activity related to the Towne Parcel 26 project.

III. BIOTIC COMMUITY STRUCTURE

A. METHODS

The nearshore marine biotic communities off the Towne Development Parcel 26 site consist of a well-developed and relatively undisturbed Hawaiian coral reef habitat. The intent of the present study was to characterize the overall physical and biotic setting of the marine environment in order to evaluate the potential for impacts from the Towne Parcel 26 project. The survey area encompassed approximately 5,000 feet [1,500 m] of linear coastline, and extended from the shoreline to a water depth of approximately 45 ft (~14 m), which is the depth that major reef development ceased. The resulting characterization is intended to provide an overview of the habitat characteristics of the region in order to provide information that might be of value relating to the future uses of the area. The purpose of the study was not to generate a quantitative evaluation of all species biota occupying the area.

All fieldwork was carried on August 24-25, 2012 by divers working from a 21-ft. boat using SCUBA equipment. In-water surveys of the reef consisted of a diver traversing the reef in a zigzag pattern in the manner of a random swim extending from the shoreline to the seaward limit of reef growth at each of the three transect locations shown in Figure 1. Along the swim all species observed were recorded on underwater writing slates. Following completion of the field survey, each species was classified in one of three abundance classes for each transect site depending on the number of organisms observed. For macro-invertebrates, abundance classes were as follows: Abundant (A) = greater than 50 individuals or colonies; Common (C) = less than 50 and greater than or equal to 10 individuals or colonies; and Rare (R) = less than 10 individuals or colonies. For fish, abundance classes were as follows: Abundant (A) = greater than 50 individuals; Common (C) = less than 50 and greater than or equal to 10 individuals; and Rare (R) = less than 10 individuals.

All fieldwork and analysis was conducted by Dr. Steven Dollar, Ms. Leigh Krueger and Mr. Steven Matadobro. The latter two investigators are graduates of the Quantitative Underwater Ecological Surveying Techniques Program.

B. RESULTS

1. Coral Community Structure

The main structural composition of the marine environment off of the Towne Parcel 26 site generally conforms to the pattern that has been documented as characterizing much of the west coast of the Island of Hawaii (Dollar 1982). The zonation scheme consists of three predominant regions. Beginning at the shoreline and moving seaward, the shallowest zone is comprised of a seaward extension of the basaltic shoreline benches, along with scattered basaltic boulders that have entered the ocean after breaking off from the shoreline (Figure 5). *Pocillopora meandrina*, a sturdy hemispherical coral is the dominant colonizer of the nearshore area. This species is able to flourish in areas that are physically too harsh for most other species, particularly due to wave stress. Along the central portion of the survey area, a somewhat unusual characteristic of the nearshore boulder zone was a ubiquitous cover of the purple octocoral *Sarcothelia edmondsoni* (Figure 5).

Seaward of the nearshore boulder zone, bottom structure is composed predominantly of a gently sloping shallow reef bench composed of basalt, interspersed with lava extrusions and sand channels (Figures 6 and 7). In some areas, the bench is characterized by high relief in the form of undercut ledges and basaltic knolls and pinnacles. Fine-grained calcareous sediment also comprises a component of bottom cover. Water depth in this mid-reef zone ranges from about 2 to 5 m (6-18 feet). As wave stress in this region is substantially less than in the shallower areas, and suitable hard substrata abound, the area provides an ideal locale for colonization by attached benthos, particularly reef corals, and generally the widest assortment of species and growth forms are encountered in this region. *Pocillopora meandrina* is also a dominant coral in this area, as well as sturdy lobate and encrusting colonies of *Porites lobata* and *P. lutea*. Flat encrustations of *Montipora capitata* and *M. patula* are also abundant in this zone.

The outer areas of the lava shelves are likely below the damaging effects of most storm waves, and as a result are essentially completely covered with living coral colonies. The predominant coral cover consists of mats of interconnected branches of the species *Porites compressa*, and large lobed colonies of *Porites* spp. The seaward edge of the basaltic reef platform (at a depth of about 10 m) is marked by a sharp juncture between the reef structure and a sandy plain that extends seaward to abyssal depths (Figure 8). The predominant coral cover in the slope zone is typically interconnected mats of *Porites compressa*, which grows laterally over unconsolidated substrata. Cover of *P. compressa* along with *P. lobata* results in near

complete cover of the bottom cover. Throughout the region of study, the growth of *P. compressa* presently shows virtually no indication of breakage from the concussive force of waves.

A unique area along the west coast of Hawaii occurs within the region of the present survey. The area offshore of Kahaluu Beach Park is characterized by a wide shallow reef flat bounded along the seaward edge by a linear array of basaltic boulders that are emergent during all but the highest tidal stands. The outer edge of the boulder rampart consists of a sloping face colonized predominantly by *Pocillopora meandrina* (Figure 9). The boulder rampart protects the inner reef flat from the destructive forces of waves, resulting in a well-developed coral community consisting of large colonies of a variety of species. Of particular note is a region on the inner area of the reef flat where numerous large hemispherical colonies of *Porites lutea* and *P. lobata* occur. These colonies are somewhat unique in that their upward growth appears to be limited by proximity to the surface of the ocean. The upper surfaces of these colonies are uniformly discolored relative to the sides of the colonies, likely as a result of exposure to environmental conditions that are limiting to further upward growth (likely light and exposure to the atmosphere) (Figure 10). In a similar shallow wave-protected reef in West Maui at Olowalu, similar growth forms of large colonies of *Porites* form what is termed "micro-atolls" in that the center of large colonies is devoid of living coral tissue, while the vertical sides of the colonies continue to grow and accrete in a lateral direction.

Inspection of the entire reef tract fronting the Towne Development Parcel 26 site reveals no indication of coral disease or stress-related effects. Such observations indicate that at present there are no apparent negative impacts to the coral communities owing to anthropogenic (man-made) activities.

2. Other Benthic Macrofauna

The other dominant group of macroinvertebrates observed on the reef are the sea urchins (Class Echinoidea). The most common urchin is *Echinometra matheai*, which occurred in all reef zones. *E. matheai* are small urchins that are generally found within interstitial spaces bored into basaltic and limestone substrata. *E. matheai* were most abundant at the mid-reef *Echinostrephus aciculatus* is another small urchin with thin spines that is found in bored holes on the reef surface. *Tripneustes gratilla* and *Heterocentrotus mammillatus* are other species of urchins that occurred across the reef face. Both of these urchins occur as larger individuals (compared with *E. matheai*) that are generally found on the reef surface, rather than within interstitial spaces.

Sea cucumbers (Holothurians) observed during the survey consisted of three species, *Holothuria atra, H. nobilis*, and *Actinopyga obesa*. Individuals of these species were distributed sporadically across the mid-reef and deep reef zones. The most common starfish (Asteroidea) observed on the reef surface were *Ohiocoma* spp. Several

crown-of-thorns starfish (*Acanthaster planci*) were observed feeding on colonies of *Pocillopora meandrina*. Numerous sponges were also observed on the reef surface, often under ledges and in interstitial spaces.

Other common invertebrates include the annelid *Spirobranchus giganteus,* commonly called Christmas tree worms. Numerous mollusks were also observed over the reef surface, the most common being the false opihi *Siphonaria normalis*.

Frondose benthic algae are conspicuously rare on the reefs of West Hawaii. Several plants were observed, however, off Parcel 26. Most common were the encrusting red calcareous algae (e.g., *Porolithon spp., Peysonellia rubra, Hydrolithon* spp.). These algae were abundant on bared limestone surfaces, and on the nonliving parts of coral colonies. Frondose algae were limited to a single species (*Cladophora* spp.) which was generally rare on the reef surface.

The design of the reef survey was such that no cryptic organisms or species living within interstitial spaces of the reef surface were enumerated. However, no dominant communities of these classes of biota were observed during the reef surveys along any of the survey transects.

3. Reef Fish Community Structure

The reef fish community off Parcel 26 is typical of that found along most of the Kona Coast, as described by Hobson (1974), and Walsh (1984). Reef fish were not quantitatively evaluated, but qualitative observations of reef fish community structure indicated that abundance was largely determined by the topography and composition of the benthos. Fish community structure can be divided into six general categories: juveniles, planktivorous damselfishes, herbivores, rubble-dwelling fish, swarming tetrodonts, and surge-zone fish.

Juvenile fish belonged mostly to the family Acanthuridae (surgeon fish), with representatives from the families Labridae (wrasses), Mullidae (goat fish) and Chaetodontidae (butterfly fish). Juveniles were most abundant in areas dominated by finger coral (*P. compressa*), and between basalt boulders. The complex habitat created by the spreading growth form of *P. compressa* provides shelter for small fish. Planktivorous damselfish, principally of the genus *Chromis* were abundant in all areas surveyed. Agile chromis (*Chromis agilis*) were very abundant along the outer edge of the shelf and in deeper water, whereas blackfin chromis (*C. vanderbilti*) was the primary shallow water species.

Herbivores, primarily the yellow tang (lau'i-pala, *Zebrasoma flavescens*) and goldring surgeonfish (kole, *Ctenochaetus strigosus*) were also abundant. On the shallower reef terrace, adult whitebar surgeonfish (maikoiko, *Acanthurus leucopareius*), orangeband surgeonfish (na'ena'e, *A. olivaceus*), brown surgeonfish (ma'i'i'i, *A. nigrofuscus*) and parrotfish (uhu, *Scarus* spp.) were also common.

The inner surge zone along the wave-swept basalt terraces supported a large number of fish, principally herbivores such as rudderfish (nenue, *Kyphosus bigibbus*), surgeonfish (*Acanthurus* spp.), and unicornfish (mostly umaumalei, *Naso lituratus*). Saddle wrasses (hinalea lau-wili, *Thalassoma duperrey*) were also abundant in the surge zone. Black durgons (humuhumu-ele'ele, *Melanichthys niger*) were also observed congregating in the water column over the reef platform.

Several species of "food fish" (taken by subsistence and/or recreational fishermen) were observed during the survey. Individuals of goatfish (weke, *Mulloidichthys flavolineatus)* and squirrelfish (u'u, *Myripristes berndti*) were observed on the mid-reef. Other food fishes including parrotfish (uhu, *Scarus spp.*), goatfish (moana kea and malu, *Parupaneus* spp.), jacks (papio, *Caranx melamphygus*), and grouper (roi, *Cephalopholus argus*) were also observed. None of these species were particularly abundant. Orange-eyed surgeonfish (kole, *Ctenochaetus strigosus*), while abundant, were generally not large enough to be considered suitable as "food fish." Overall, fish community structure off Parcel 26 is fairly typical of the assemblages found in relatively undisturbed Hawaiian reef environments.

IV. DISCUSSION and CONCLUSIONS

The purpose of this baseline survey is to provide the information to make valid evaluations of the potential for impact to the marine environments from the proposed Towne Development Parcel 26 Project. The information collected for this study provides the basis to understand the processes operating in the nearshore ocean that affect water chemistry and marine biotic community structure. As a result, it is possible to address any concerns that might be raised in the planning process.

In summary, results of these investigations reveal significant groundwater discharge off the southern end of the project site, within Kahaluu Bay. However, this input is limited in distribution to a narrow zone that extends less than 50 m from the shoreline. In addition, the input of groundwater is contained in a surface lens that has limited contact with the reef surface. As a result, nutrients and other dissolved materials present in groundwater have little potential for producing any negative effects to the marine community. The lack of any such effects is evident in coral community structure which can be considered essentially pristine.

The proposed Parcel 26 Project does not include plans for any direct alteration of the shoreline or offshore areas. Therefore, potential impacts to the marine environment can only be considered from activities on land that may result in delivery of materials (fresh water, sediment, nutrients, and potentially toxic materials) to the ocean through infiltration to groundwater, surface runoff and wind transport. The project may have an impact on groundwater as a result of: 1) withdrawal of

groundwater from the County Department of Water Supply wells for the projects potable uses and landscape irrigation; 2) disposal of domestic wastewater generated by the project; 3) collection and disposal of storm water runoff in onsite "drywells"; and 4) percolation of excess landscape irrigation water to the underlying groundwater. TNWRE (2012) has estimated the changes in groundwater quantity and quality for these four components owing to the project.

Utilizing a one-half mile section of shoreline downgradient from the project site as the portion of the basal aquifer that would be affected, the following summary conclusions were made:

- At present, the net flow of groundwater discharging into the marine environment along the coastal section is on the order of 2 MGD (million gallons per day).

- Pumpage from DWS wells would reduce groundwater flow to the ocean by about 0.136 MGD, resulting in decreased discharge to the ocean of 1.41 pounds per day of nitrogen and 0.186 pounds per day of phosphorus.

- Percolating landscape irrigation results in an increase in groundwater flowrate to the ocean of 0.0045 MGD and an addition of 0.56 pounds per day of nitrogen, and 0.007 pounds per day of phosphorus.

- Rainfall and surface runoff from impervious surfaces will be directed into dry wells for disposal, with the runoff ultimately reaching the underlying groundwater. No runoff will cross Alii Dr. and move toward the shoreline as surface runoff. There will be little of no change to existing groundwater quality from the percolation of rainwater falling directly on the site.

- The total pojected changes to groundwater flowrate and quality resulting from the project are calculated as a net decrease in groundwater flowrate to the ocean of about 6.6%, and increase in salinity of about 6.4%, and decreases in nitrogen and phosphorus loading of about 2.9% and 8.0%, respectively.

These projections indicate that the proposed Towne Development Parcel 26 project will not have a significant negative effect on water quality in the coastal ocean offshore of the project. The estimated changes for nitrogen and phosphorus are decreases from the present situation, indicating that there is no possibility of impacts to the nearshore marine systems as a result of nutrient enrichment. The estimated increase in salinity of 6.4% is equivalent to an increase in salinity of less than 0.5‰ for the lowest salinity measured at the shoreline. With the observed steep horizontal gradients within 10 m of the shoreline, such an increase in salinity would likely be undetectable in the marine environment. In addition, all of the organisms that occur

off the project site are marine, indicating that they are adapted to live in waters of oceanic salinity. Hence, the slight increase in salinity in the nearshore zone would not have any effect on these biotic communities.

V. SUMMARY

1. Evaluation of nearshore water chemistry and marine biotic community structure off the proposed Towne Development Parcel 26 site mauka of Alii Dr. in North Kona Hawaii was carried out in August 2012. Fifty-seven marine water samples were collected at three sites located in the vicinity of the project. Water samples were collected on transects perpendicular to shore, extending from the shoreline to a distance of approximately 300-400 m offshore. Samples were also collected from potable wells upslope of the project site in order to determine chemical composition of unaltered groundwater. Analysis of thirteen water chemistry constituents included specific constituents in DOH water quality standards.

2. Several dissolved nutrients (Si, NO_3^-, PO_4^{3-}, TN and TP) displayed strong horizontal gradients at all three transect sites with highest values closest to shore and lowest values at the most seaward sampling locations. Correspondingly, salinity was lowest closest to the shoreline, and increased with distance from shore. These patterns are indicative of groundwater efflux at the shoreline, producing a zone of mixing where nearshore waters are a combination of ocean water and groundwater. During the August 2012 sampling, physical forces (waves) were minimal resulting in a surface layer of low salinity-high nutrient water that was detectable throughout the sampling range.

3. Water chemistry constituents that are not major components of groundwater (TON, TOP) did not display discernible gradients with respect to distance from the shoreline, or depth in the water column. Chl *a* and turbidity were generally elevated in nearshore samples with decreasing values moving seaward.

4. Application of a hydrographic mixing model to the water chemistry data was used to indicate if increased nutrient concentrations are the result of mixing of natural groundwater with oceanic water, or are the result of inputs from activities on land. The model indicates that at the time of sampling there was a substantial external subsidies of NO_3^- nitrogen to the ocean at Transect sites 2 and 3 within Kahaluu Bay. This subsidy represents an increase of NO_3^- on the order of 18-30% of natural groundwater. Similar subsidies of NO_3^- were not evident at Transect 1. There is a small input of PO_4^{-3} from activities on land that subsidize groundwater nutrient concentrations at the site of Transect 1, but not at Transects 2 and 3.

5. Evaluating water chemistry from the single sampling in August 2012 using DOH area specific criteria for West Hawaii using the mixing criteria specified for water with salinity less than 32‰ indicates that that NO_3^- exceeds the criterion at Transect sites 2

and 3. However, using the mixing criteria, TN, PO_4^{-3} and TP are out of compliance at all three transect sites.

To actually apply the DOH area specific standards, three samplings are required during a fourteen day period.

6. Evaluations of changes to groundwater and stormwater flow rates resulting from the project performed by Tom Nance Water Resources Engineering indicate that there will be a potential decrease in groundwater flow of 6.6% over present conditions along the coastal segment off the project site. Accompanying the decrease in flow rate are relatively small decreases in nutrient loading of 2.9% and 8.0% for N and P respectively. These decreases are of such a small magnitude that it is likely that there will be no detectable changes in nearshore waters. However, the detected increases in NO_3^- of 18-30% over background conditions within Kahaluu Bay may be mitigated in part by the projected decreases from the Parcel 26 project. In any event, the region of nearshore waters where nutrient subsidies from land are so restricted in horizontal and vertical extent that there is little likelihood that the changes in concentrations will result in any changes in water quality beyond several meters of the shoreline.

7. Results of qualitative surveys of the marine biotic communities off the Towne Development Parcel 26 project site reveal essentially pristine coral assemblages that occur in the typical zonation pattern found throughout West Hawaii. Assemblages of non-coral invertebrates and reef fish also represent typical community composition. No aspect of the biotic setting appears to reveal any significant impacts from human activities or major storm events.

8. Overall, results of the water chemistry analysis, along with an evaluation of potential changes to groundwater quality and flux, indicate changes in land use associated with the project should not change water quality to any discernible extent. As the marine area within the influence of the Parcel 26 project includes Kahaluu Beach Park, which is one of the premier shallow water recreational areas within the entire State, the projected lack of potential impacts to water quality and hence biotic community structure represents an important finding from these analyses.

9. The water quality study conducted for this report can serve as an initial baseline for any monitoring programs that may be required for the project.

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FIGURE 1. Aerial image of section of North Kona shoreline containing Kahaluu Bay and the Towne Development Parcel 26 property boundaries. Also shown are the locations of three sampling transects along which water samples were collected from the shoreline to the open coastal ocean.

TABLE 1. Water chemistry measurements on three transects offshore of the proposed Towne Development Parcel 26 collected on August 24, 2012. Nutrient concentrations are shown as micromoles (µM). "S" indicates surface sample; "B" indicates bottom sample. For transect locations, see Figures 1 and 2.

TRANSECT	DFS (m)	DEPTH (m)	PO_4^{3-} (µM)	NO_3^- (µM)	NH_4^+ (µM)	Si (µM)	TOP (µM)	TON (µM)	TP (µM)	TN (µM)	TURB (ntu)	SALT (o/oo)	pH (rel)	Chl-a (µg/l)	TEMP. deg C.
T-1 NORTH	0 S	0.2	0.80	9.80	1.04	98.80	0.12	9.96	0.920	20.80	0.04	31.18	8.04	0.33	25.74
	1 S	0.1	0.48	6.16	0.88	74.32	0.28	8.52	0.760	15.56	0.05	32.13	8.26	0.23	25.99
	2 S	0.2	0.52	6.32	1.00	71.40	0.24	12.56	0.760	19.88	0.04	32.31	8.25	0.60	26.03
	3 S	0.2	0.44	5.68	0.48	67.72	0.32	13.04	0.760	19.20	0.02	32.49	8.24	0.37	21.67
	5 S	0.3	0.40	2.40	0.84	34.64	0.28	9.80	0.680	13.04	0.08	34.00	8.25	0.30	26.11
	10 S	0.2	0.12	0.20	0.01	2.45	0.27	7.62	0.390	7.83	0.07	35.18	8.16	0.06	26.26
	10 B	5	0.09	0.10	bdl	2.26	0.26	7.50	0.350	7.60	0.13	35.19	8.19	0.06	26.44
	25 S	0.2	0.11	0.16	0.12	2.59	0.28	6.75	0.390	7.03	0.10	35.17	8.18	0.05	26.26
	25 B	5	0.09	0.12	0.11	1.68	0.28	7.89	0.370	8.12	0.08	35.20	8.19	0.06	26.40
	50 S	0.2	0.19	0.35	0.15	3.17	0.26	6.60	0.450	7.10	0.09	35.15	8.16	0.05	26.30
	50 B	6	0.13	0.05	0.05	1.62	0.27	6.66	0.400	6.76	0.07	35.20	8.20	0.05	26.36
	100 S	0.2	0.08	0.33	0.02	3.91	0.27	6.72	0.350	7.07	0.10	35.13	8.15	0.13	26.26
	100 B	7	0.15	0.03	0.08	1.85	0.28	6.54	0.430	6.65	0.12	35.19	8.19	0.08	26.29
	200 S	0.2	0.11	0.30	0.09	3.08	0.27	5.43	0.380	5.82	0.11	35.15	8.16	0.08	26.45
	200 B	13	0.15	0.08	0.10	1.64	0.28	6.06	0.430	6.24	0.12	35.20	8.20	0.05	26.26
	300 S	0.2	0.13	0.19	0.04	2.59	0.33	6.70	0.460	6.93	0.08	35.15	8.17	0.06	26.41
	300 B	21	0.06	0.01	0.05	1.47	0.30	6.35	0.360	6.41	0.09	35.19	8.20	0.08	26.02
T-2 CENTER	0 S	0.1	3.40	80.08	1.36	595.7	0.16	16.00	3.560	97.44	0.15	7.15	8.08	0.33	23.10
	1 S	0.1	2.88	62.64	1.04	472.7	0.16	13.72	3.040	77.40	0.07	13.13	8.12	0.46	23.53
	2 S	0.1	2.44	48.36	1.68	378.5	0.12	9.32	2.560	59.36	0.10	18.36	8.13	1.01	24.02
	3 S	0.2	1.80	39.84	1.28	319.1	0.44	10.60	2.240	51.72	0.04	21.06	8.12	0.74	24.98
	4 S	0.2	1.24	23.96	1.04	202.7	0.20	8.64	1.440	33.64	0.04	26.40	8.08	0.34	25.19
	5 S	0.3	1.08	15.28	0.44	141.0	0.32	11.16	1.400	26.88	0.07	29.39	8.04	0.36	25.30
	10 S	0.2	0.12	1.50	0.04	26.04	0.26	6.18	0.380	7.72	0.14	34.13	8.06	0.07	25.54
	10 B	3	0.10	0.14	0.12	2.15	0.27	6.52	0.370	6.78	0.08	35.17	8.19	0.05	26.37
	25 S	0.2	0.09	0.85	0.34	14.47	0.28	5.86	0.370	7.05	0.11	34.62	8.12	0.07	26.37
	25 B	4	0.09	0.07	0.25	1.71	0.29	6.69	0.380	7.01	0.09	35.17	8.19	0.06	26.35
	50 S	0.2	0.10	1.35	0.18	23.27	0.27	6.31	0.370	7.84	0.11	34.26	8.08	0.09	26.44
	50 B	5	0.12	0.17	0.10	2.36	0.28	6.30	0.400	6.57	0.09	35.18	8.19	0.08	26.33
	100 S	0.2	0.14	0.44	bdl	8.20	0.28	6.99	0.420	7.43	0.07	34.94	8.16	0.05	26.53
	100 B	8	0.17	0.04	0.10	2.23	0.26	5.94	0.430	6.08	0.09	35.19	8.20	0.05	26.29
	200 S	0.2	0.16	0.56	0.13	9.43	0.26	6.90	0.420	7.59	0.08	34.88	8.16	0.05	26.51
	200 B	12	0.06	0.01	0.28	2.22	0.25	5.21	0.310	5.50	0.19	35.19	8.20	0.06	26.21
	300 S	0.2	0.04	0.52	0.18	9.81	0.26	5.90	0.300	6.60	0.08	34.87	8.17	0.07	26.49
	300 B	23	0.06	0.02	0.17	2.26	0.30	5.84	0.360	6.03	0.20	35.18	8.20	0.06	25.98
T-3 KAHALUU PARK	0 S	0.1	3.28	90.80	5.96	621.0	0.16	14.04	3.440	110.80	0.22	5.51	8.11	2.56	23.86
	1 S	0.1	2.84	71.96	1.12	510.0	0.16	9.92	3.000	83.00	0.59	11.98	7.96	2.78	24.33
	2 S	0.2	2.80	65.80	1.00	460.6	0.12	7.40	2.920	74.20	0.38	14.25	8.00	1.08	24.36
	3 S	0.2	1.68	43.24	1.04	316.6	0.44	12.92	2.120	57.20	0.14	21.34	8.04	0.52	24.55
	5 S	0.3	1.16	22.00	1.80	174.1	0.24	14.96	1.400	38.76	0.08	28.05	8.04	0.55	24.75
	10 S	0.5	0.68	11.24	1.00	99.84	0.24	8.04	0.920	20.28	0.08	31.37	8.04	0.62	25.02
	25 S	0.2	0.18	0.44	0.19	11.16	0.37	11.39	0.550	12.02	0.24	34.66	8.35	0.19	25.25
	25 B	1	0.11	0.34	0.21	9.37	0.31	8.48	0.420	9.03	0.20	34.78	8.33	0.41	25.29
	50 S	0.2	0.12	0.63	0.07	12.94	0.31	10.48	0.430	11.18	0.20	34.61	8.34	0.12	25.34
	50 B	1	0.16	0.43	0.12	6.79	0.38	7.83	0.540	8.38	0.16	34.94	8.31	0.12	25.39
	75 S	0.2	0.15	0.25	0.28	2.83	0.27	7.26	0.420	7.79	0.09	35.13	8.25	0.09	25.44
	75 B	2	0.07	0.18	0.06	2.72	0.32	6.95	0.390	7.19	0.11	35.13	8.25	0.17	25.73
	100 S	0.2	0.10	0.26	0.05	2.89	0.28	7.03	0.380	7.34	0.25	35.12	8.25	0.09	25.92
	100 B	2	0.13	0.26	0.10	3.28	0.28	6.63	0.410	6.99	0.16	35.10	8.25	0.19	26.15
	200 S	0.2	0.09	0.23	0.12	4.25	0.28	6.12	0.370	6.47	0.10	35.09	8.18	0.07	26.41
	200 B	4	0.11	0.19	0.17	2.83	0.27	5.49	0.380	5.85	0.13	35.15	8.19	0.05	26.33
	250 S	0.2	0.12	0.19	0.28	3.78	0.25	5.76	0.370	6.23	0.09	35.11	8.19	0.10	26.53
	250 B	9	0.12	0.15	0.23	2.69	0.27	6.34	0.390	6.72	0.10	35.15	8.19	0.05	26.28
	300 S	0.2	0.14	0.28	0.10	5.43	0.27	6.42	0.410	6.80	0.08	35.04	8.18	0.04	26.27
	300 B	10	0.11	0.08	0.01	2.27	0.27	5.71	0.380	5.80	0.10	35.15	8.20	0.06	26.36
	400 S	0.2	0.15	0.54	0.07	8.88	0.30	8.58	0.450	9.19	0.27	34.89	8.15	0.07	26.16
	400 B	23	0.12	0.12	0.16	2.37	0.27	7.19	0.390	7.47	0.13	35.16	8.20	0.09	26.05

TABLE 2. Water chemistry measurements on three transects offshore of the proposed Towne Development Parcel 26 collected on August 24, 2012. Nutrient concentrations are shown in units of micrograms per liter (µg/L). "S" indicates surface sample; "B" indicates bottom sample. For transect locations, see Figures 1 and 2.

TRANSECT	DFS (m)	DEPTH (m)	PO_4^{3-} (µM)	NO_3^- (µM)	NH_4^+ (µM)	Si (µg/L)	TOP (µg/L)	TON (µg/L)	TP (µg/L)	TN (µg/L)	TURB (ntu)	SALT (o/oo)	pH (rel)	Chl-a (µg/l)	TEMP. deg C.
T-1 NORTH	0 S	0.2	24.80	137.2	14.56	2766	3.72	139.4	28.52	291.2	0.04	31.184	8.039	0.325	25.74
	1 S	0.1	14.88	86.24	12.32	2081	8.68	119.3	23.56	217.8	0.05	32.126	8.259	0.231	25.99
	2 S	0.2	16.12	88.48	14.00	1999	7.44	175.8	23.56	278.3	0.04	32.309	8.252	0.598	26.03
	3 S	0.2	13.64	79.52	6.72	1896	9.92	182.6	23.56	268.8	0.02	32.492	8.240	0.367	21.67
	5 S	0.3	12.40	33.60	11.76	969.9	8.68	137.2	21.08	182.6	0.08	34.003	8.249	0.304	26.11
	10 S	0.2	3.72	2.80	0.14	68.60	8.37	106.7	12.09	109.6	0.07	35.180	8.163	0.063	26.26
	10 B	5	2.79	1.40	bdl	63.28	8.06	105.0	10.85	106.4	0.13	35.194	8.186	0.063	26.44
	25 S	0.2	3.41	2.24	1.68	72.52	8.68	94.50	12.09	98.42	0.10	35.168	8.175	0.052	26.26
	25 B	5	2.79	1.68	1.54	47.04	8.68	110.5	11.47	113.7	0.08	35.196	8.193	0.063	26.40
	50 S	0.2	5.89	4.90	2.10	88.76	8.06	92.40	13.95	99.40	0.09	35.145	8.163	0.052	26.30
	50 B	6	4.03	0.70	0.70	45.36	8.37	93.24	12.40	94.64	0.07	35.201	8.195	0.052	26.36
	100 S	0.2	2.48	4.62	0.28	109.5	8.37	94.08	10.85	98.98	0.10	35.127	8.151	0.126	26.26
	100 B	7	4.65	0.42	1.12	51.80	8.68	91.56	13.33	93.10	0.12	35.192	8.193	0.084	26.29
	200 S	0.2	3.41	4.20	1.26	86.24	8.37	76.02	11.78	81.48	0.11	35.149	8.155	0.084	26.45
	200 B	13	4.65	1.12	1.40	45.92	8.68	84.84	13.33	87.36	0.12	35.196	8.195	0.052	26.26
	300 S	0.2	4.03	2.66	0.56	72.52	10.23	93.80	14.26	97.02	0.08	35.152	8.165	0.063	26.41
	300 B	21	1.86	0.14	0.70	41.16	9.30	89.04	11.16	89.74	0.09	35.193	8.195	0.084	26.02
T-2 CENTER	0 S	0.1	105.40	1121	19.04	16680	4.96	224.0	110.36	1,364	0.15	7.145	8.076	0.325	23.10
	1 S	0.1	89.28	877.0	14.56	13236	4.96	192.1	94.24	1,084	0.07	13.125	8.116	0.462	23.53
	2 S	0.1	75.64	677.0	23.52	10597	3.72	130.5	79.36	831.0	0.10	18.358	8.133	1.007	24.02
	3 S	0.2	55.80	557.8	17.92	8934	13.64	148.4	69.44	724.1	0.04	21.057	8.116	0.745	24.98
	4 S	0.2	38.44	335.4	14.56	5675	6.20	121.0	44.64	471.0	0.04	26.403	8.076	0.336	25.19
	5 S	0.3	33.48	213.9	6.16	3948	9.92	156.2	43.40	376.3	0.07	29.386	8.035	0.357	25.30
	10 S	0.2	3.72	21.00	0.56	729.1	8.06	86.52	11.78	108.1	0.14	34.128	8.064	0.073	25.54
	10 B	3	3.10	1.96	1.68	60.20	8.37	91.28	11.47	94.92	0.08	35.170	8.185	0.052	26.37
	25 S	0.2	2.79	11.90	4.76	405.2	8.68	82.04	11.47	98.70	0.11	34.619	8.116	0.073	26.37
	25 B	4	2.79	0.98	3.50	47.88	8.99	93.66	11.78	98.14	0.09	35.174	8.190	0.063	26.35
	50 S	0.2	3.10	18.90	2.52	651.6	8.37	88.34	11.47	109.8	0.11	34.263	8.081	0.094	26.44
	50 B	5	3.72	2.38	1.40	66.08	8.68	88.20	12.40	91.98	0.09	35.178	8.186	0.084	26.33
	100 S	0.2	4.34	6.16	bdl	229.6	8.68	97.86	13.02	104.0	0.07	34.944	8.161	0.052	26.53
	100 B	8	5.27	0.56	1.40	62.44	8.06	83.16	13.33	85.12	0.09	35.191	8.198	0.052	26.29
	200 S	0.2	4.96	7.84	1.82	264.0	8.06	96.60	13.02	106.3	0.08	34.882	8.158	0.052	26.51
	200 B	12	1.86	0.14	3.92	62.16	7.75	72.94	9.61	77.00	0.19	35.191	8.203	0.063	26.21
	300 S	0.2	1.24	7.28	2.52	274.7	8.06	82.60	9.30	92.40	0.08	34.871	8.165	0.073	26.49
	300 B	23	1.86	0.28	2.38	63.28	9.30	81.76	11.16	84.42	0.20	35.180	8.200	0.063	25.98
T-3 KAHALUU PARK	0 S	0.1	101.68	1271	83.44	17387	4.96	196.6	106.64	1,551	0.22	5.505	8.107	2.559	23.86
	1 S	0.1	88.04	1007	15.68	14280	4.96	138.9	93.00	1,162	0.59	11.984	7.960	2.780	24.33
	2 S	0.2	86.80	921.2	14.00	12898	3.72	103.6	90.52	1,039	0.38	14.254	7.997	1.080	24.36
	3 S	0.2	52.08	605.4	14.56	8866	13.64	180.9	65.72	800.8	0.14	21.341	8.044	0.524	24.55
	5 S	0.3	35.96	308.0	25.20	4875	7.44	209.4	43.40	542.6	0.08	28.050	8.037	0.545	24.75
	10 S	0.5	21.08	157.4	14.00	2796	7.44	112.6	28.52	283.9	0.08	31.374	8.039	0.619	25.02
	25 S	0.2	5.58	6.16	2.66	312.5	11.47	159.5	17.05	168.3	0.24	34.657	8.348	0.189	25.25
	25 B	1	3.41	4.76	2.94	262.4	9.61	118.7	13.02	126.4	0.20	34.782	8.328	0.409	25.29
	50 S	0.2	3.72	8.82	0.98	362.3	9.61	146.7	13.33	156.5	0.20	34.613	8.336	0.115	25.34
	50 B	1	4.96	6.02	1.68	190.1	11.78	109.6	16.74	117.3	0.16	34.941	8.306	0.115	25.39
	75 S	0.2	4.65	3.50	3.92	79.24	8.37	101.6	13.02	109.1	0.09	35.133	8.252	0.094	25.44
	75 B	2	2.17	2.52	0.84	76.16	9.92	97.30	12.09	100.7	0.11	35.129	8.252	0.168	25.73
	100 S	0.2	3.10	3.64	0.70	80.92	8.68	98.42	11.78	102.8	0.25	35.116	8.247	0.094	25.92
	100 B	2	4.03	3.64	1.40	91.84	8.68	92.82	12.71	97.86	0.16	35.102	8.249	0.189	26.15
	200 S	0.2	2.79	3.22	1.68	119.0	8.68	85.68	11.47	90.58	0.10	35.093	8.175	0.073	26.41
	200 B	4	3.41	2.66	2.38	79.24	8.37	76.86	11.78	81.90	0.13	35.152	8.185	0.052	26.33
	250 S	0.2	3.72	2.66	3.92	105.8	7.75	80.64	11.47	87.22	0.09	35.111	8.185	0.105	26.53
	250 B	9	3.72	2.10	3.22	75.32	8.37	88.76	12.09	94.08	0.10	35.148	8.193	0.052	26.28
	300 S	0.2	4.34	3.92	1.40	152.0	8.37	89.88	12.71	95.20	0.08	35.035	8.176	0.042	26.27
	300 B	10	3.41	1.12	0.14	63.56	8.37	79.94	11.78	81.20	0.10	35.151	8.198	0.063	26.36
	400 S	0.2	4.65	7.56	0.98	248.6	9.30	120.1	13.95	128.7	0.27	34.889	8.151	0.073	26.16
	400 B	23	3.72	1.68	2.24	66.36	8.37	100.7	12.09	104.6	0.13	35.164	8.197	0.094	26.05

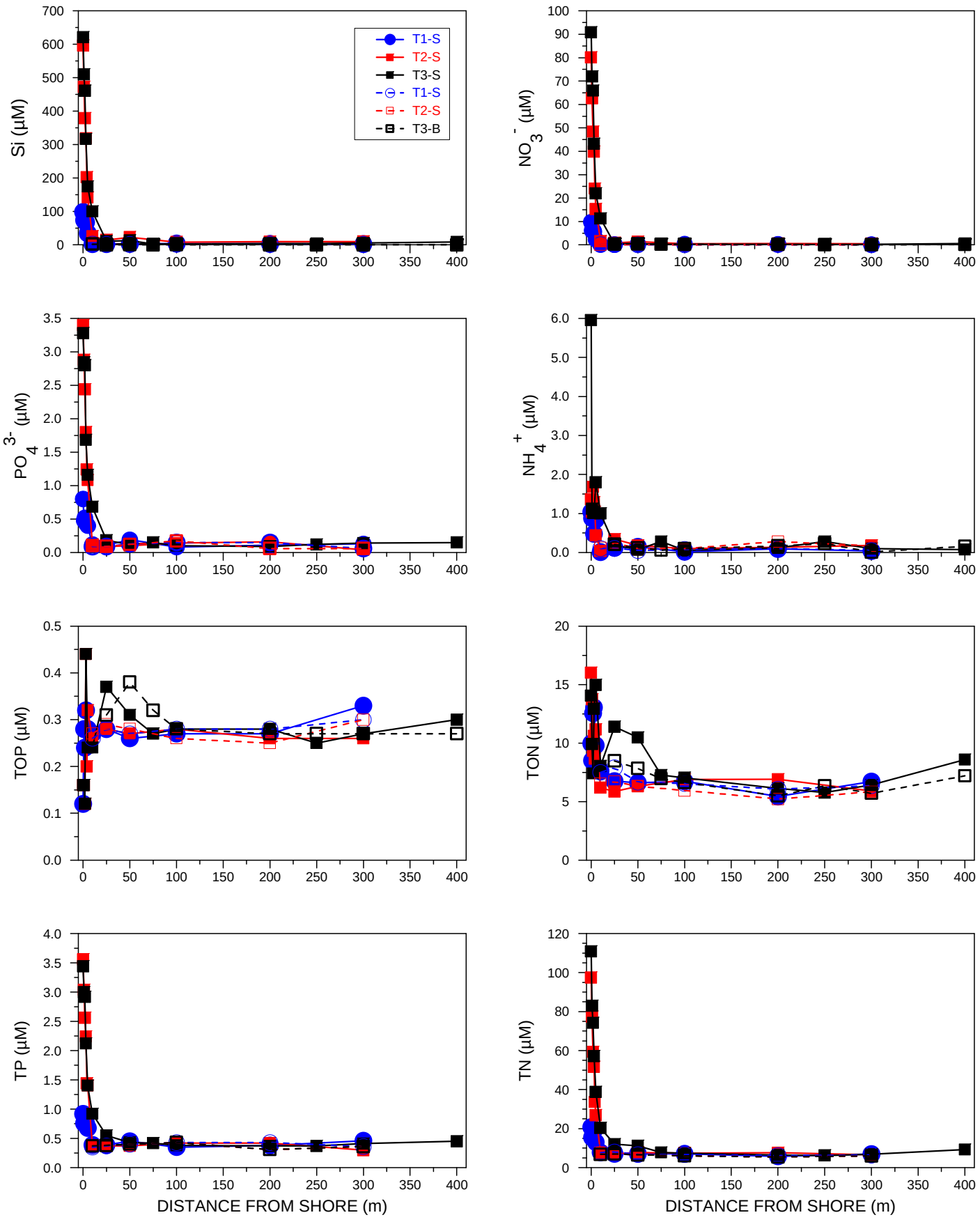


FIGURE 2. Plots of dissolved nutrients in surface (S) and bottom (B) samples collected along three transects offshore of the Kamehameha Investment Corp. Area-26 project in North Kona, Island of Hawaii on August 24, 2012 as functions of distance from the shoreline. For transect locations, see Figure 1.

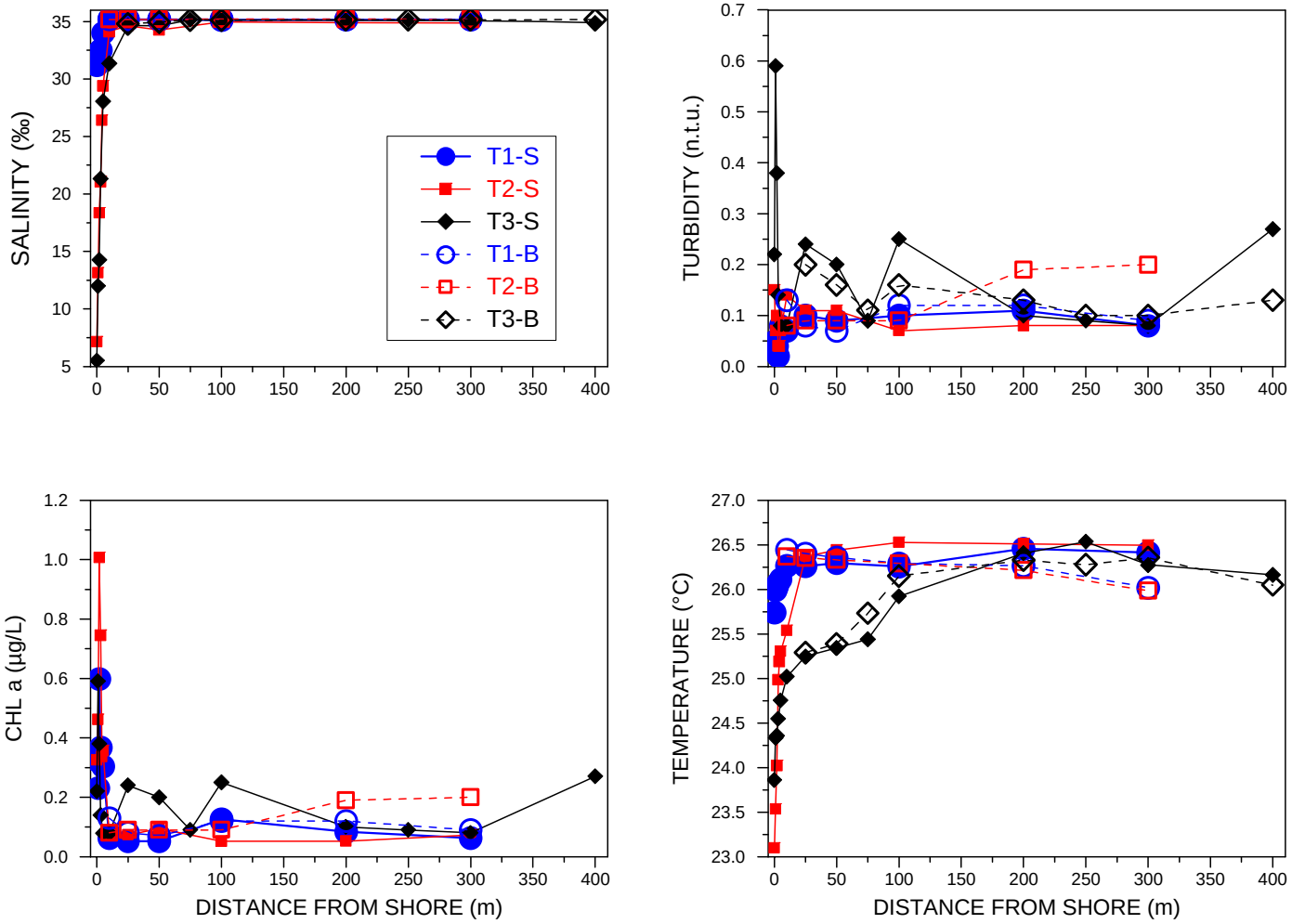


FIGURE 3. Plots of physical properties in surface (S) and bottom (B) samples collected along three transects offshore of the Kamehameha Investment Corp. Area-26 project in North Kona, Island of Hawaii on August 24, 2012 as functions of distance from the shoreline. For transect locations, see Figure 1.

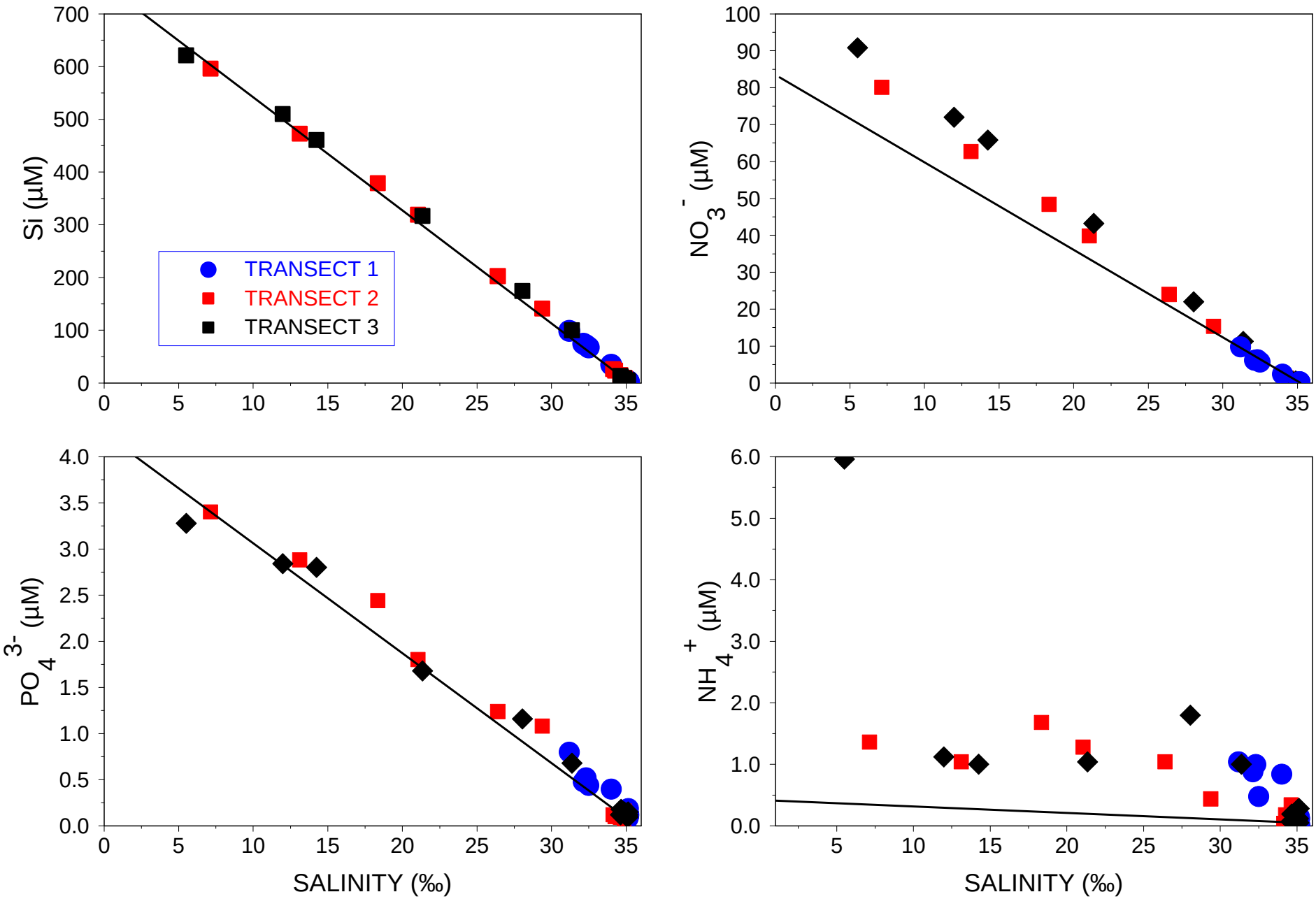


FIGURE 4. Mixing diagram showing concentration of dissolved nutrients from samples collected along transects offshore of the Towne Development Parcel 26 in Kahauluu, North Kona Hawaii as functions of salinity. The straight line in each plot is the conservative mixing line constructed by connecting the concentrations in open ocean water with the average concentration measured in DWS Kahaluu Wells A, B and C upslope of the sampling area. For transect locations, see Figure 1.

TABLE 3. Upper and lower 95% confidence limits of slopes of linear regressions of geometric mean values of NO_3^-, TN, PO_4^{3-} and TP as functions of salinity from three ocean transects offshore of the Towne Development Parcel 26 site in North Kona Hawaii. Also shown are slopes specified in DOH Water Quality Standards for West Hawaii as limiting criteria. Shaded slopes indicater that the absolute value of the upper confidence limit exceed the DOH WH compliance slope.

		NO_3^-	TN	PO_4^{3-}	TP
DOH WH stds		**-31.92**	**-40.35**	**-3.22**	**-2.86**
T-1	upper 95%	-29.13	-44.89	-3.92	-3.46
	lower 95%	-32.54	-59.24	-5.19	-4.58
T-2	upper 95%	-39.63	-44.58	-3.65	-3.49
	lower 95%	-40.51	-46.11	-4.08	-4.02
T-3	upper 95%	-43.05	-45.77	-3.41	-3.26
	lower 95%	-43.82	-49.26	-3.68	-3.59

Table 4. List of invertebrate species observed on three transect swims located offshore of the Towne Development Parcel 26 Project site in North Kona Hawaii. Each species is assigned an abundance class as follows: A = abundant (greater than) 50 individuals or colonies observed); C = common (10-50 individuals or colonies observed; R = rare (less than 10 individuals or colonies observed. Empty cells indicate no observations. For locations of transects, see Figure 1.

PHYLUM	SPECIES	Transect 1	Transect 2	Transect 3
Porifera	*Mycale armata*		R	
	Phorbas amaranthus	R		
	Dactylospongia sp.	R	C	C
	Tetrapocillon sp.	R		
Annelida	*Loimia medusa*	C	C	C
	Sabellastarte spectabilis		R	
	Spirobranchus giganteus	A	A	A
Echinodermata	*Holothuria atra*	R	C	C
	Holothuria nobilis			R
	Acanthaster planci		R	R
	Echinometra mathaei	A	A	A
	Echinometra aciculatus	A	A	a
	Echinothrix calamaris	C	C	A
	Echinothrix diadema	C	C	A
	Heterocentrotus mammilla	C	A	A
	Diadema paucispinum	C	C	A
	Tripneutes gratilla	C	C	A
	Ophiocoma sp.	R	R	
	Actinopyga sp.		R	
Mollusca	*Cypraea caputserpentis*			R
	Conus sp.	R		
	Drupa sp.	C	C	C
	Morula sp.	C	R	
	Plakobranchus ocellatus			R
	Cellana sp.	A	A	A
	Siphonaria normalis	A	A	A
Chlorophyta	*Cladophora sp.*	R	R	C
Bryozoa	*Reteporellina denticulata*	R	R	R
Ascidia	*Ascidia sydneisis*			R
Cnideria	*Fungia scutaria*			R
	Pocillopora meandrina	A	A	A
	Pocillopora damicornis	C	C	C
	Porites compressa	A	A	C
	Porites lutea	A	A	C
	Porites lobata	A	A	A
	Montipora capitatata	A	A	A
	Montipora patula	A	A	A
	Leptastrea purpurea	C	A	A
	Sarcothelia edmondsoni	R	C	A

Table 5. List of fish species observed on three transect swims located offshore of the Towne Development Parcel 26 Project site in North Kona Hawaii. Each species is assigned an abundance class as follows: A = abundant (greater than 50 individuals observed); C = common (10-50 individuals observed; R = rare (less than 10 individuals observed. Empty cells indicate no observations. For locations of transects, see Figure 1.

Species	Transect 1	Transect 2	Transect 3
Abudefduf vaigiensis	R	C	
Acanthurus blochii			R
Acanthurus dussumieri			R
Acanthurus lecuoperientus	C	C	C
Acanthurus olivaceus	C	C	C
Acanthurus triostegus		R	C
Acanthurus unicornis	C	R	R
Acanthurusnigrofuscus	C	A	A
Alustomus chinneniss			R
Canthecaster jactator	R	R	R
Caranx melampygus			R
Cephalopagus argus			R
Chaetodon auriga			R
Chaetodon ephippium		R	
Chaetodon lunula	R		R
Chaetodon lunulatus	R		
Chaetodon multicinctus	C		
Chaetodon ornatissimus	R		R
Chaetodon quadrimaculatus	C	R	
Chaetodon reticulatus			R
Chaetodon unimaculatus	R		
Chlorurus spilurus	R	C	R
Choris gimard		R	
Choris venusta			R
Chromis agilis	A	A	A
Chromis hanui	C		
Chromis vanderbuilti	A	A	A
Ctenochaetus strigosus	A	A	A
Dascyllus albisella	R	R	C

Species	Transect 1	Transect 2	Transect 3
Diodon histrix	R	R	R
Diodon holocanthus		R	
Fistularia commersonii			R
Forcipiger longirostris			R
Gomphosus varius	R	R	R
Kyphosus spp.	C	C	C
Labrodies pthirophagus	C		
Lutjanus fulvus	R		
Melichthys niger	C	A	C
Mulloidichthys flavolineatus			C
Myripristis kuntee	R		R
Myripristis berndti	R		
Naso hexacanthus	R		
Naso lituratus	C	R	R
Ostracion meleagris	R	R	R
Parachirrhites arcatus	R		
Plectroglyphidodon imparipennis		R	R
Plectroglyphidodon johnstonianus	R		
Pseudocheilinus octotaenia	R		R
Rhinecanthus aculeatus		R	R
Scarus spp.	C	C	C
Sphyraena barracuda	R		
Stegastes fasciolatus		R	
Stegastes marginatus	C		
Sufflamen bursa	C		
Synodus dermatogenys		R	
Thalassoma duperrey	A	A	C
Zanclus cornutus		R	R
Zebrasoma flavescens	A	A	A

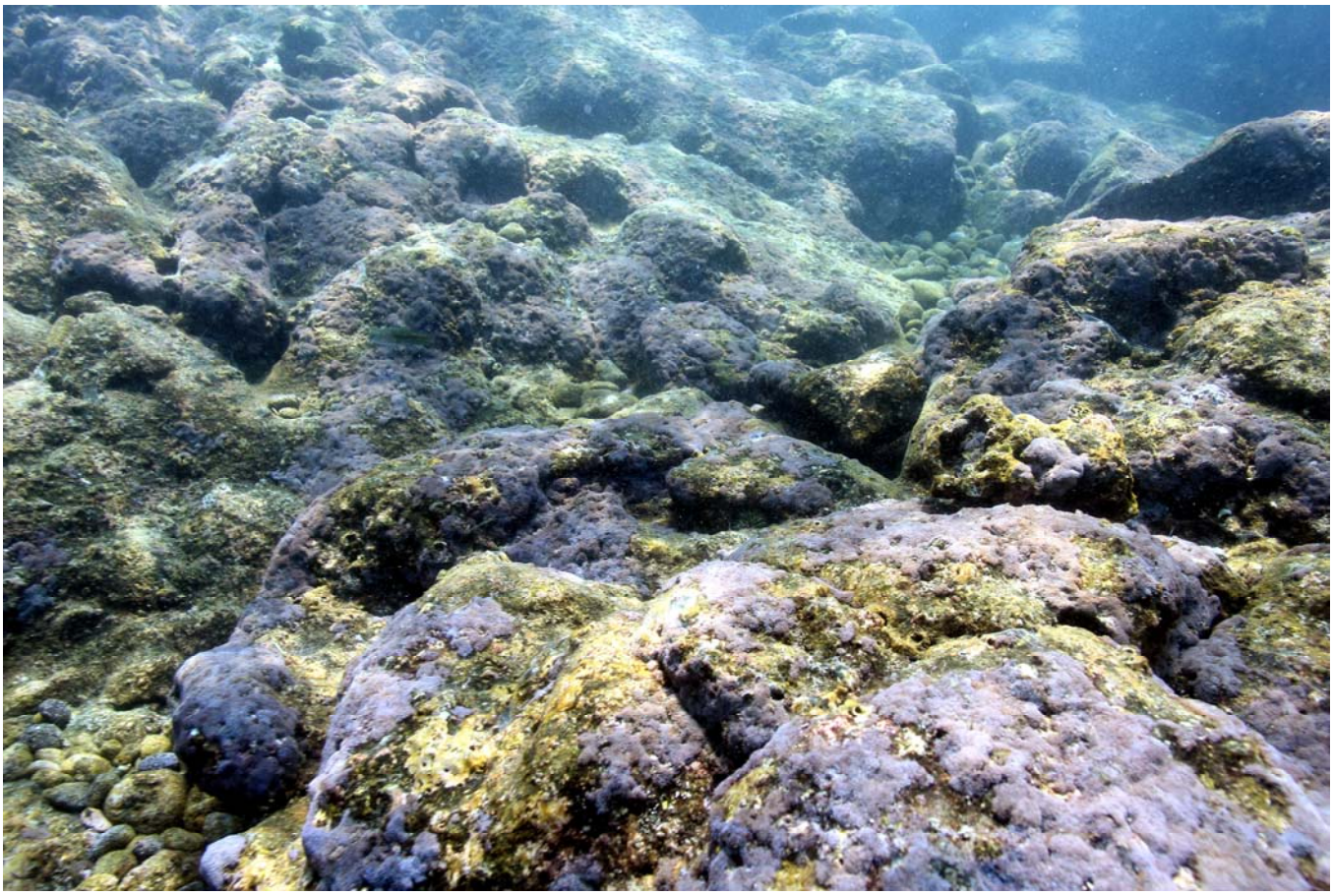


FIGURE 5. Nearshore boulder platform in the vicinity of northern region of Kahaluu Bay downslope from the Towne Development Parcel 26, North Kona Hawaii. The upper photo is off Transect 1. Purple coating of boulders in lower photo is the octocoral *Anthelia edmonsoni*. The soft coral blankets much of the inshore boulders throughout the middle portion of the survey area in the vicinity of Transect 2. Water depth is approximately 1 meter in both photos.

FIGURE 6. Reef flat in outer Kahaluu Bay (Transect 1) downslope from the Towne Development Parcel 26 in North Kona Hawaii. Live corals cover most of the bay floor, consisting primarily of the knobby lobed species *Porites lobata* and *P. lutea*. Water depth is approximately 1.5 meters in both photos .

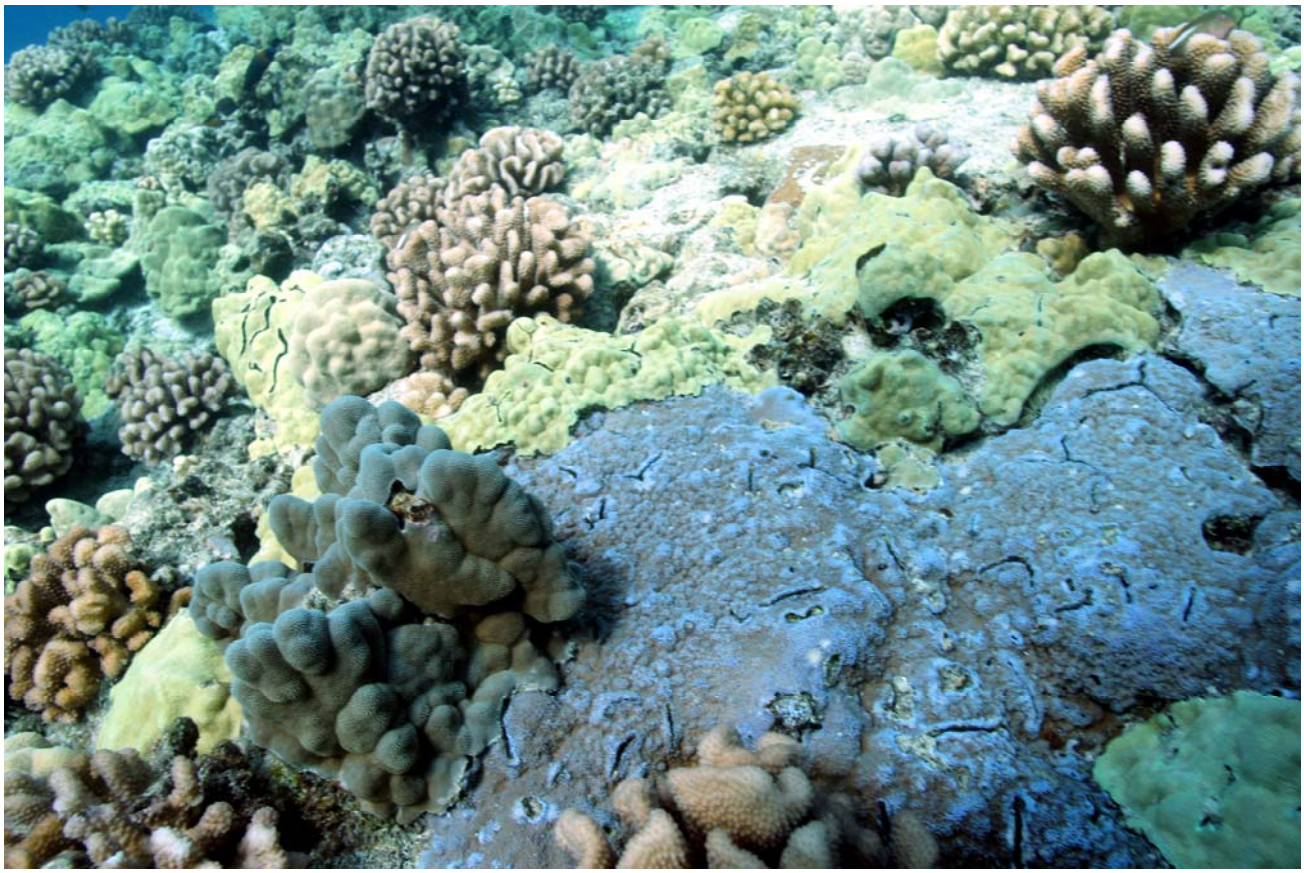
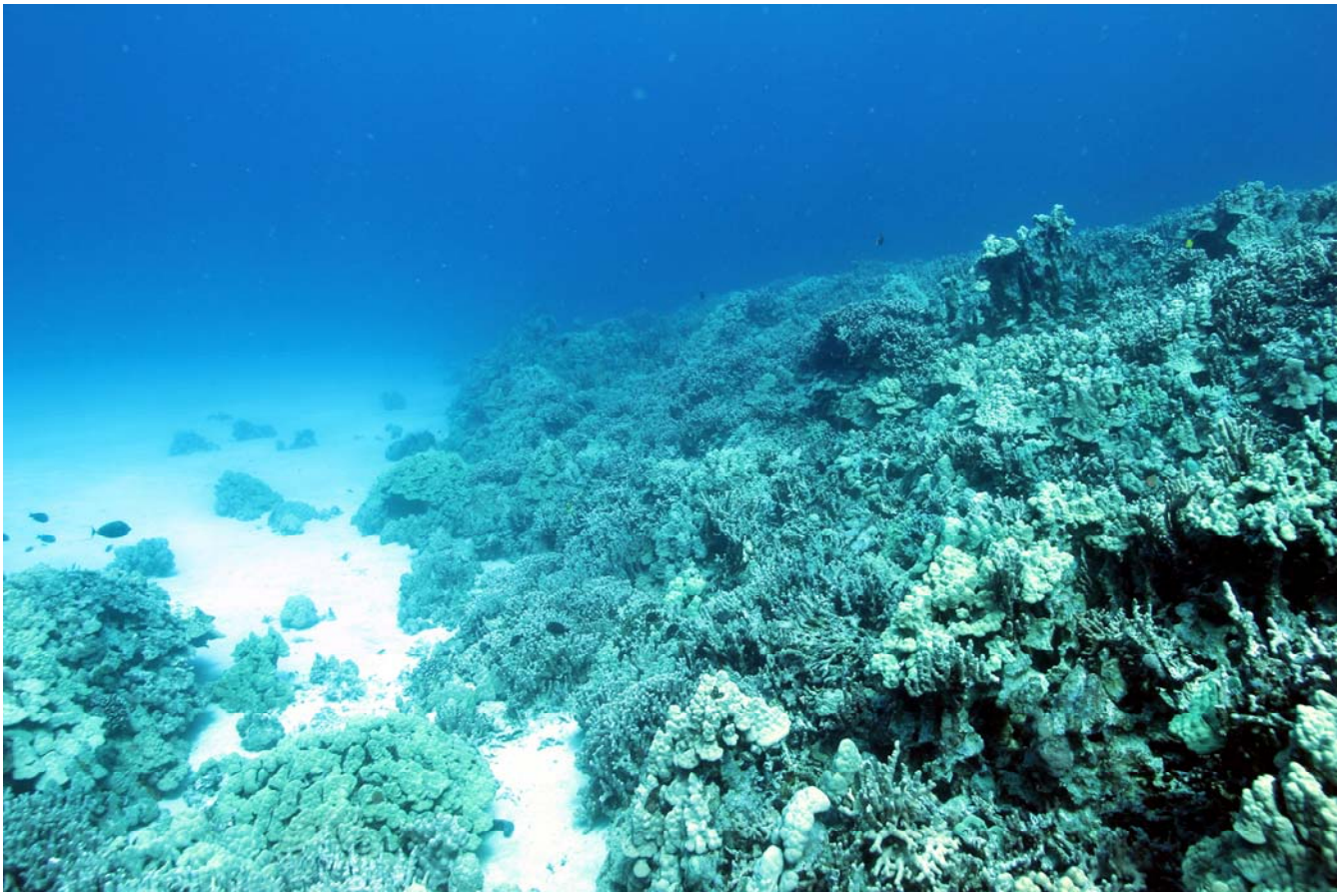


FIGURE 7. Two views of central reef platform between the nearshore boulder zone and the reef slope zone in the central region of the area downslope from the Towne Development Parcel 26 project site. Primary corals in upper photo are massive forms of *Porites* spp. Fluorescent blue coral in lower photo is *Montipora flabellata.* Tan colored round branching corals in lower photo are colonies of *Pocillopora meandrina*. Water depth is approximately 6 meters.



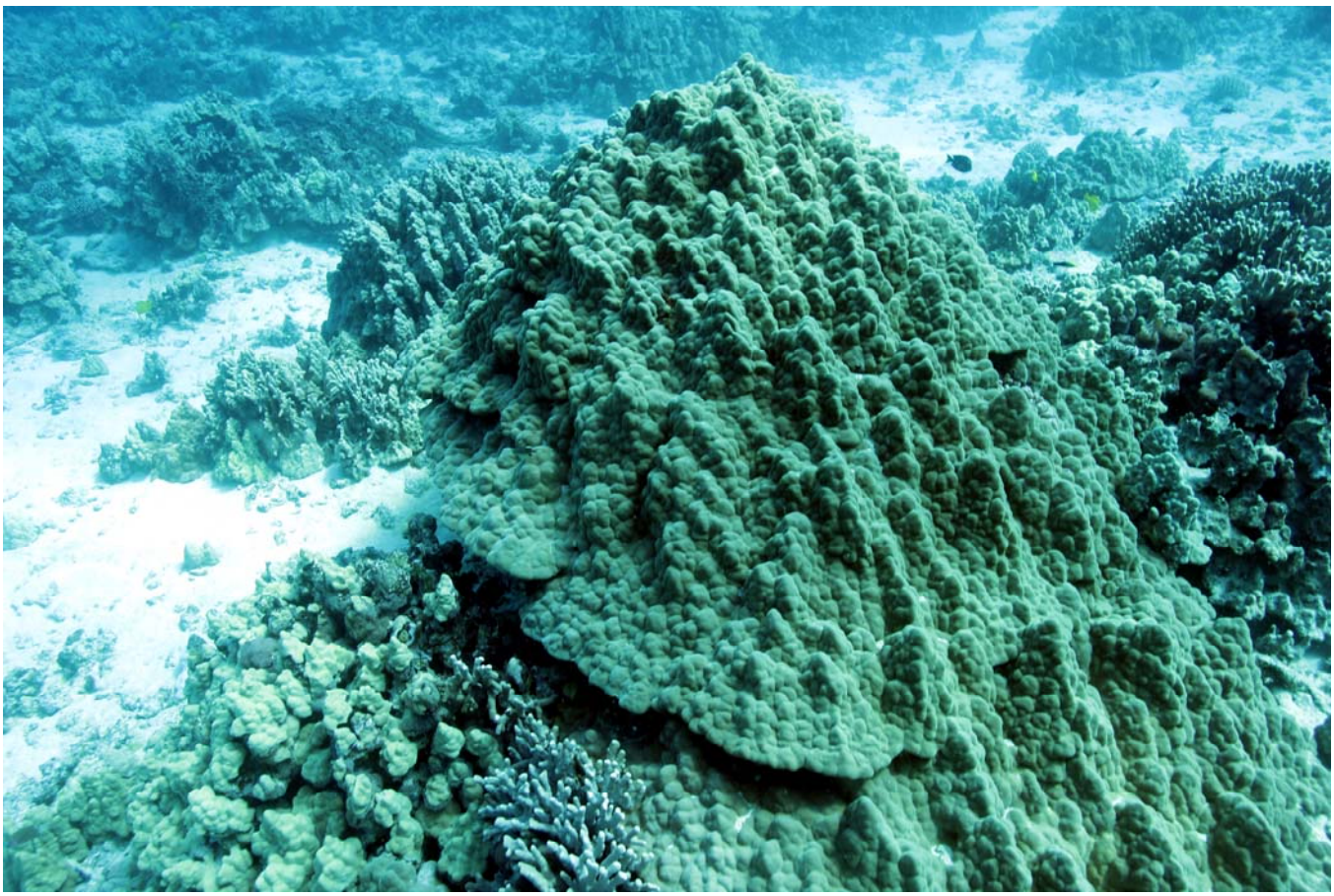


FIGURE 8. Two views of seaward edge of reef platform at the juncture of the reef slope zone and the sand plain downslope from the Towne Development Parcel 26 project site. Primary corals in upper photo are interconnected mats of finger coral (*Porites compressa*). Large colony in lower photo is *Porites lutea*, which measures approximately 2 meters in diameter. Water depth is approximately 10 meters.

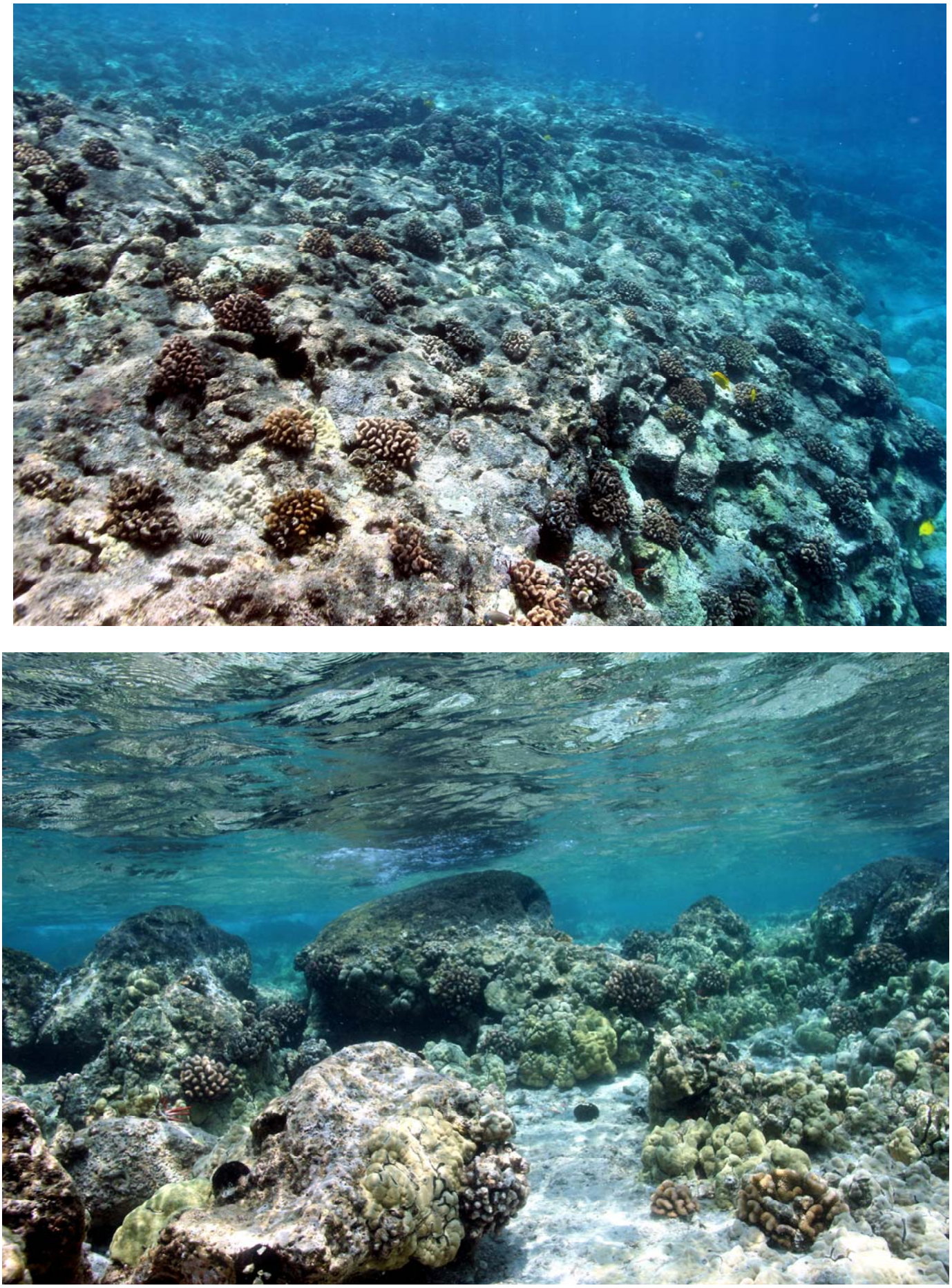


FIGURE 9. Top photo shows outer edge of wall that forms outer face of boulder rampart separating Kahaluu Bay from open ocean. Bottom photo shows boulders and associated corals growing on upper surface of rampart. Water depth in upper photo is approximately 2 meters, and 1 meter in lower photo.

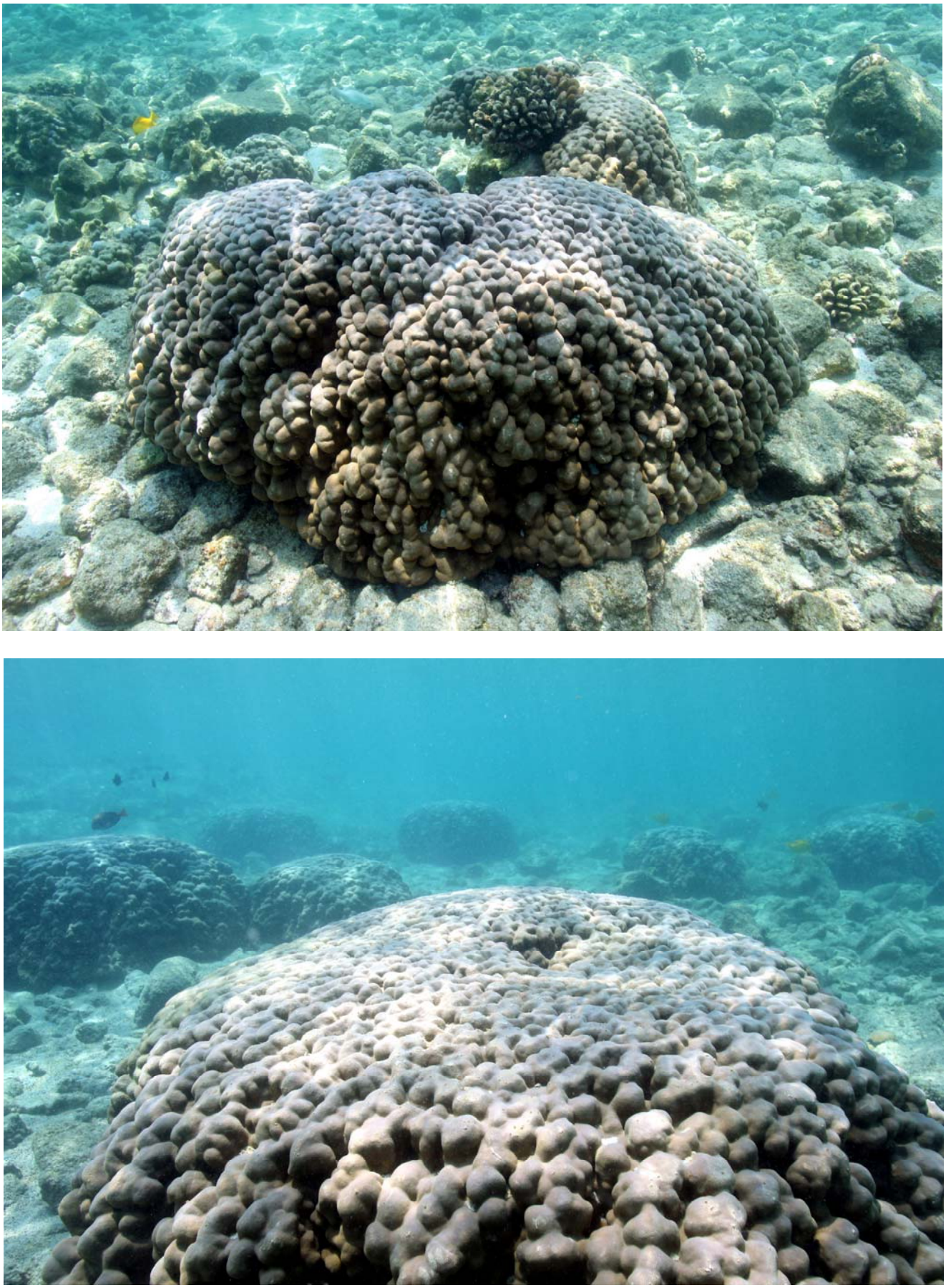


FIGURE 10. Two views of large circular heads of *Porites lutea* growing on sand-rubble flats in the southern region of inner Kahaluu Bay. At low tide, it is likely that the tops of these colonies are very close to the surface of the ocean, resulting in restriction of upward growth. As a result, many of these colonies have flattened tops that are discolored compared to the sides of the colonies. In other wave protected shallow environments in Hawaii, such large colonies eventually become "microatolls" with dead centers surrounded by a ring of living coral that continue to expand laterally, but not vertically. Water depth is approximately 0.3 meters at the tops of the colonies.

Potential Impact on Water Resources of the Proposed Development on TMK 7-8-10:4 in North Kona, Hawaii

Prepared for:

Marine Research Consultants
1039 Waakaua Place
Honolulu, Hawaii 96822

Prepared by:

Tom Nance Water Resource Engineering
560 N. Nimitz Hwy. - Suite 213
Honolulu, Hawaii 96817

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Introduction

This report presents an assessment of the potential impact on water resources of a proposed multi-family/time share condominium project that would be located on a 42.5-acre parcel behind Kahaluu Bay in North Kona, Hawaii. Figure 1 identifies the project's location on TMK 7-8-10:4. Figure 2 depicts the proposed development plan which would consist of 321 multi-family and 17 single family residential units, archaeological preservation areas, and drainage retention/disposal areas.

Identification of the Project's Potential Impacts on Water Resources

The project site consists of unweathered lava flows with minimal ash-deposited soil and scrub growth consisting primarily of haole koa trees. In general, the ground surface is very permeable and the site is not crossed by any defined waterways. Further, development of the project will include retention/detention features which will capture and dispose of all surface runoff onsite. Since the project site is devoid of surface water resources, all of its potential impacts on water resources will be on the groundwater beneath the site. These potential impacts are identified in the paragraphs following.

Water Supply. Water supply for the project will be provided by the Hawaii County Department of Water Supply (DWS). Given the project's location, water from the DWS system will come from its five wells in Kahaluu which are located almost directly upgradient of the project site (refer to Figure 1). According to DWS records, the project parcel already has a 6-inch service lateral, two 3-inch compound meters, and an allocation from DWS of 349 equivalent units of water. If the project's 338 residential units utilize 338 equivalent units of this allocation and another two equivalent units are assigned to the project's entry feature, the project's average water use according to DWS' design standards would amount to 136,000 gallons per day (GPD). Although actual water use in Kona often exceeds DWS' design standards where landscape irrigation is the dominant component of water use, this is not anticipated for this project. The DWS design standard appears to be a reasonable approximation of the expected actual water use and is used for the assessment herein.

Wastewater Generation, Treatment, and Reuse. Anticipated actual wastewater generation (as opposed to a design rate used to size infrastructure) is on the order of 250 GPD per residential unit or about 85,000 GPD for the project's 338 residential units. Wastewater would be conveyed via the force main in Alii Drive to the Heeia wastewater treatment plant (WWTP) located on the north side of Keauhou Bay. The WWTP's treated effluent is used to irrigate portions of the Kona Country Club's two 18-hole golf courses.

Generation, Collection, and Disposal of Surface Runoff. Development of the project site will create impervious surfaces (roof tops, pavement, and other hardscape areas) which will produce surface runoff during rainfall events. This runoff will be conveyed to onsite sumps and dry wells for retention and

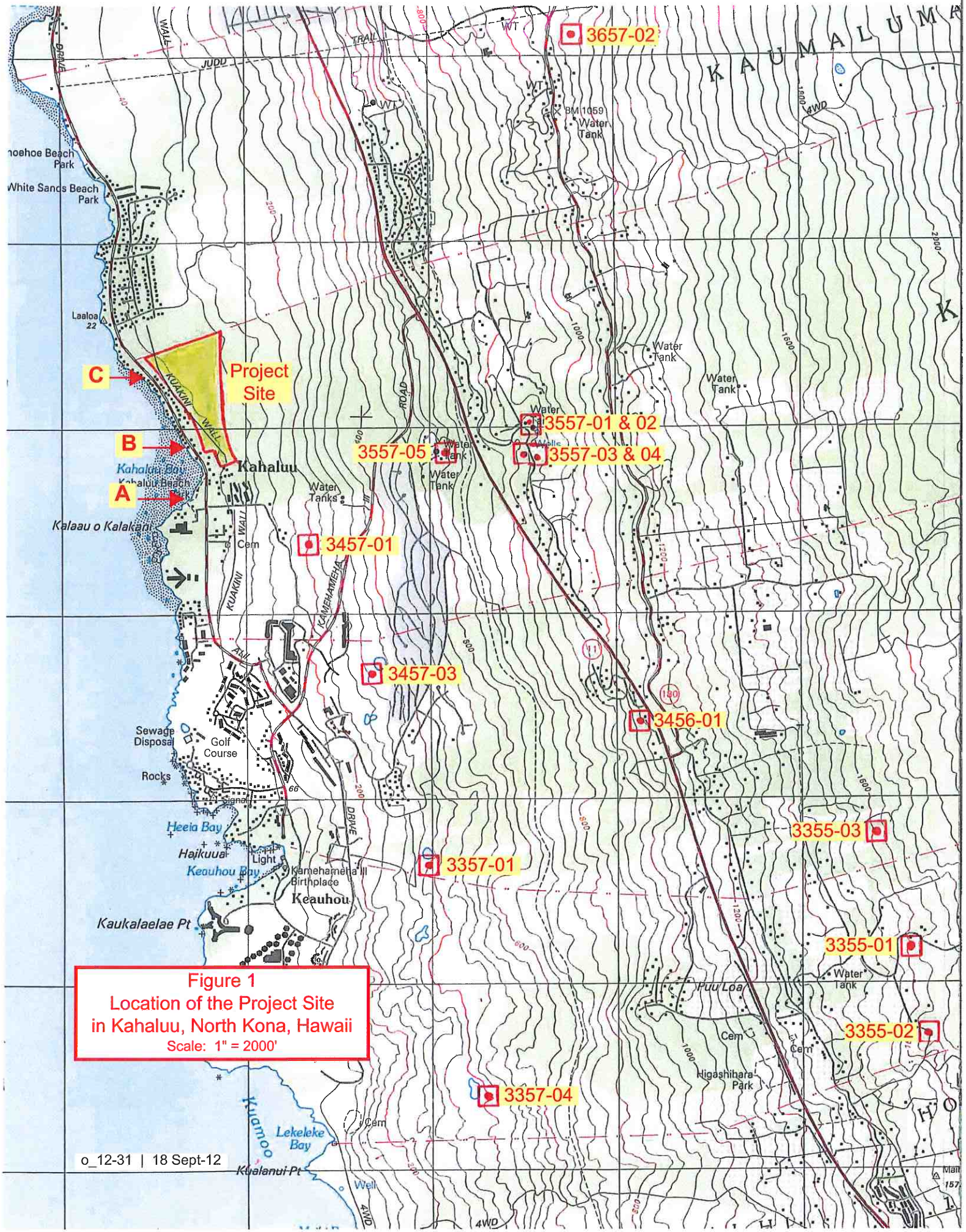

Figure 1
Location of the Project Site
in Kahaluu, North Kona, Hawaii
Scale: 1" = 2000'

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PROPOSED KAHALUU TO KEAUHOU PARKWAY PHASE II
MAKOLEA STREET
OPEN SPACE
ALII DRIVE
KAHALUU BEACH LOTS
KAHALUU BAY
LEGEND
MULTI-FAMILY/TIME SHARE UNITS (CONDOMINIUM PROPERTY REGIME)
SINGLE FAMILY UNITS (CONDOMINIUM PROPERTY REGIME)
ARCHAEOLOGICAL PRESERVATION
ARCHAEOLOGICAL PRESERVATION AREAS
ARCHAEOLOGICAL ACCESS EASEMENT
DRAINAGE AREAS
PROJECT CALCULATIONS
MULTI-FAMILY/TIME SHARE UNITS (CPR) 321
SINGLE FAMILY UNITS (CPR) 17
TOTAL UNITS 338
PARKING ON SITE MULTI-FAMILY/TIME SHARE 404
PARKING REQUIRED MULT-FAMILY/TIME SHARE 402
PROJECT INFORMATION
PROJECT TMK TMK: (3) 7-6-10: POR 4
COUNTY ZONING RS-7.5 & RM-3.5
GROSS ACRES 42.55
Riehm Owensby
PLANNERS
ARCHITECTS
© 2019, RIEHM OWENSBY
P.O. BOX 390747 KAILUA-KONA HAWAII 96739 TEL 808-322-5115
Master Plan
N
0' 50' 100' 200'
Scale 1" = 100' - 0"
5.20.12
o_12-31 | 19 Sept-12
Parcel 26 – A Multi-Family/Time Share Condominium Project For Towne Development of Hawaii
At Kahaluu, Keauhou 1st, North Kona, Island & County of Hawaii
Sheet No: A - 1.1

Figure 2

subsequent subsurface disposal. Runoff created by the development will not leave the project site. Rather, it will percolate to the underlying groundwater.

It might be noted that the planning for the Kahului to Keauhou Parkway, which would run along the mauka perimeter of the project site (refer back to Figure 2), includes a number of drywells which would dispose of the roadway's runoff. Two culverts along the stretch of the highway above the project site are also planned. However, there is no field evidence that concentrated surface runoff has ever flowed at the proposed culvert locations and there are no culverts in Kuakini Highway and Kamehameha III Road above to pass such concentrated flows downslope.

Landscape Irrigation. About 15 acres of the site would consist of irrigated landscaping. The irrigation supply, estimated at 3000 GPD per acre as a year-round average, would be from the DWS system. Inevitably, some of the applied irrigation would be in excess of plant evapotranspiration requirements and would percolate to the underlying groundwater.

Groundwater Occurrence

General Overview. In the Kona area, extending from Kalaoa on the north end to Kealakekua on the south end, well development has demonstrated that groundwater occurs in two distinctly different regimes. With only a single exception over this 20-mile long section of Kona, wells drilled inland of Mamalahoa Highway have encountered high level groundwater with static water levels standing from as low a 40 to as high as 490 feet above sea level. Also with only two exceptions, wells drilled makai of Mamalahoa Highway have tapped into basal groundwater with levels between one and five feet above sea level and susceptible to salinity intrusion.

Results of two deep monitor wells in the Keopu-Kealakehe area have indicated that the geologic feature which creates the high level groundwater appears to be layers of poorly permeable lava flows which confine fresh groundwater beneath them. These layers appear to prevent most or even all of the leakage of high level groundwater into the downgradient basal lens. This limitation of recharge to the basal lens results in higher salinities than would otherwise be expected and substantially colder water, the latter resulting from seawater circulation below the basal lens.

Groundwater Occurrence Beneath and Directly Inland of the Project Site. Groundwater beneath the project site and for at least 1.2 miles inland occurs as a basal lens in hydraulic contact with seawater offshore. As one of the few exceptions in the 20-mile long area from Kalaoa to Kealakekua, the groundwater toward the inland end of the basal lens in this location is of potable quality. DWS has five active wells directly upgradient of the project site from which it draws an average of about 5.7 MGD (the well locations are shown on Figure 1 and their pumpage is tabulated below).

DWS' Use of its Kahaluu Wells for the Three-Year Period From 2009 through 2011

State No.	Well Name	Year-Round Average Use (MGD)		
		2009	2010	2011
3557-01	Kahaluu A	0.404	0.602	0.682
3557-02	Kahaluu B	0.860	0.897	0.919
3557-03	Kahaluu C	0.400	0.638	0.363
3557-04	Kahaluu D	0.841	0.291	0.852
3557-05	Kahaluu Shaft	3.349	3.341	2.875
Total Use		5.854	5.769	5.691

Quality of the Groundwater Flowing Beneath the Project Site. Well locations in the vicinity of the project site are shown on Figure 1. Information on these wells is presented in Table 1. Table 2 is a compilation of laboratory results for samples collected from some of these wells and for groundwater mixed with and discharging into the ocean water at shoreline Sample Sites A, B, and C (their locations are also shown on Figure 1).

It is of interest to document the progressive change in water quality of groundwater as it moves from the inland location of DWS' Kahaluu wells to discharge along the shoreline fronting the project site. This is done with the mixing line analyses depicted on Figures 3, 4, and 5. Silica is a conservative tracer and its concentration in the groundwater samples appears to be a straight dilution of seawater and groundwater. As such, the silica values plot right on the conservative mixing line on Figure 3. In contrast to this, nitrate has clearly been added to groundwater over its route from the inland wells to shoreline discharge, as all the sample concentrations are above the conservative mixing line on Figure 4. Phosphorus, which is not nearly as mobile as nitrate, shows very limited additions to groundwater (Figure 5).

Other aspects of the groundwater discharged at the shoreline downgradient of the project site are worth noting. First, the samples collected on August 29, 2012 were in the early morning at low tide. There was visually obvious groundwater discharge at Shoreline Sites A and B which is reflected in the low salinities and high nitrate concentrations of these samples. These sites are along Kahaluu Bay in a relatively protected area during low tide from the mixing of waves, wind, and currents. Site C is an exposed rock shoreline with high mixing energy at all phases of the tide. Sampling of shoreline Sites A and B on September 14, 2012 was in the early afternoon at high tide and with substantial wave energy reaching the shoreline. Groundwater discharge was not observable and its presence is also not evident in the water quality results.

Table 1

Information on Wells in the Kahaluu-Keauhou Aquifer

Well		Year Drilled	Casing Diameter (Inches)	Ground Elevation (Feet MSL)	Depth (Feet)	Elevation at Bottom (Feet MSL)	Water Level (Feet MSL)	Initial Chlorides (MG/L)	Temperature (Deg. F.)	Hydraulic Performance (Feet @ GPM)	Installed Pump (GPM)	Present Use
State No.	Name											
Wells Tapping Basal Groundwater												
3357-01	Keauhou 2	1966	10	385	430	-45		1600		5.0 @ 700	None	Not in Use
3357-04	Keauhou-Kona GC	1990	12	397	415	-18	2.0	1160		0.2 @ 430	470	GC Irrigation
3456-01	Keauhou B	1989	14	1018	1047	-29	3.5	477		2.9 @ 368	None	Not in Use
3457-01	Keauhou 1	1956	10	175	193	-18		1140		13.2 @ 600	600	GC Irrigation
3457-02	Keauhou A	1985	16	723	765	-42	2.9	270	70.0	1.9 @ 580	None	Not in Use
3457-03	Keauhou Irrigation 3	1985	12	366	387	-21		1240		2.4 @ 705	700	GC Irrigation
3457-04	Kahaluu Deep Mon.	2000	8	308	738	-430	1.9				None	Monitoring
3557-01	Kahaluu A	1959	12	833	878	-45	4.3	40	69.1	3.7 @ 368	700	DWS Municipal
3557-02	Kahaluu B	1959	12	840	881	-41	3.2	13		11.5 @ 700	700	DWS Municipal
3557-03	Kahaluu C	1969	12	838	868	-30	4.6	8		3.1 @ 670	700	DWS Municipal
3557-04	Kahaluu D	1970	14	855	905	-50	4.0	8	69.1	3.3 @ 1600	1000	DWS Municipal
3557-05	Kahaluu Shaft	1976	Tunnel	590	595	-5	4.0	34	68.0		4200	DWS Municipal
3657-02	Pahoehoe	1990	16	1146	1180	-34	4.3	400		1.2 @ 400	None	Sealed
Wells Tapping High Level Groundwater												
3355-01	Keauhou-Kona 2	1991	18	1618	1585	33	278	5		8.3 @ 1480	None	Not in Use
3355-02	Keauhou-Kona 3	1992	18	1658	1658	0	386	5		6.7 @ 1450	None	Not in Use
3355-03	Keauhou-Kona 4	1994	18	1650	1650	0	228	6		6.9 @ 1450	None	Not in Use

Notes: 1. Information from the files of the State Commission on Water Resource Management.
2. Blanks in the table indicate that the inforrmation is not available.

Table 2. Quality of Water From Wells and Shoreline Samples Taken in the Vicinity of the Project Site

Well		Sample Date	Salinity (PPT)	Silica (μM)	Forms of Nitrogen				Forms of Phosphorus		
State Number	Name				NO_3 (μM)	NH_4 (μM)	TON (μM)	TN (μM)	PO_4 (μM)	TOP (μM)	TP (μM)
3557-01	DWS Kahaluu A	8-29-12	0.329	751	82.0	0.70	4.50	87.2	4.20	1.10	5.30
3557-01	DWS Kahaluu A	914-12	0.422	744	84.0	2.20	3.20	89.4	4.20	0.50	4.70
3557-02	DWS Kahaluu B	8-29-12	0.209	750	86.2	0.20	3.10	89.5	4.30	1.00	5.30
3557-03	DWS Kahaluu C	8-29-12	0.409	750	84.2	0.50	5.20	89.9	4.20	1.10	5.30
3557-03	DWS Kahaluu C	9-14-12	0.407	759	85.0	1.90	11.10	98.0	4.70	0.60	5.30
3557-05	DWS Kahuluu Shaft	8-29-12	0.393	756	83.8	0.60	3.80	88.2	4.00	1.20	5.20
3657-01	DWS Holualoa	8-29-12	0.125	742	77.8	0.10	9.10	87.0	4.40	1.00	5.40
3457-01	Keauhou 1	8-29-12	3.341	721	108.6	0.70	8.40	117.7	3.70	0.50	4.20
3457-01	Keauhou 1	9-14-12	3.391	752	115.8	1.70	6.90	124.4	4.30	0.50	4.80
Shoreline Site A	: 1	8-29-12	5.505	621	90.8	5.96	14.04	110.8	3.28	0.16	3.44
	: 1	9-14-12	34.665	30.7	0.90	2.70	30.2	33.8	1.00	0.10	1.10
	: 2	8-29-12	11.984	510	72.0	1.12	9.92	83.0	2.84	0.16	3.00
	: 3	8-29-12	14.254	461	65.8	1.00	7.40	74.2	2.80	0.12	2.92
Shoreline Site B	: 1	8-29-12	7.145	596	80.1	1.36	16.0	97.4	3.40	0.16	3.56
	: 1	9-14-12	34.552	31.9	0.70	2.00	21.9	24.6	0.70	0.30	1.00
	: 2	8-29-12	13.125	473	62.6	1.04	13.7	77.4	2.88	0.16	3.04
	: 3	8-29-12	18.358	378	48.4	1.68	9.32	59.4	2.44	0.12	2.56
Shoreline Site C	: 1	8-29-12	32.126	74.3	6.16	0.88	8.52	15.6	0.48	0.28	0.76
	: 2	8-29-12	32.309	71.4	6.32	1.00	12.6	19.9	0.52	0.24	0.76
	: 3	8-29-12	32.492	67.7	5.68	0.48	13.0	19.2	0.44	0.32	0.76

Figure 3. Mixing Line Analysis of Silica in Groundwater from Inland Wells to Shoreline Discharge

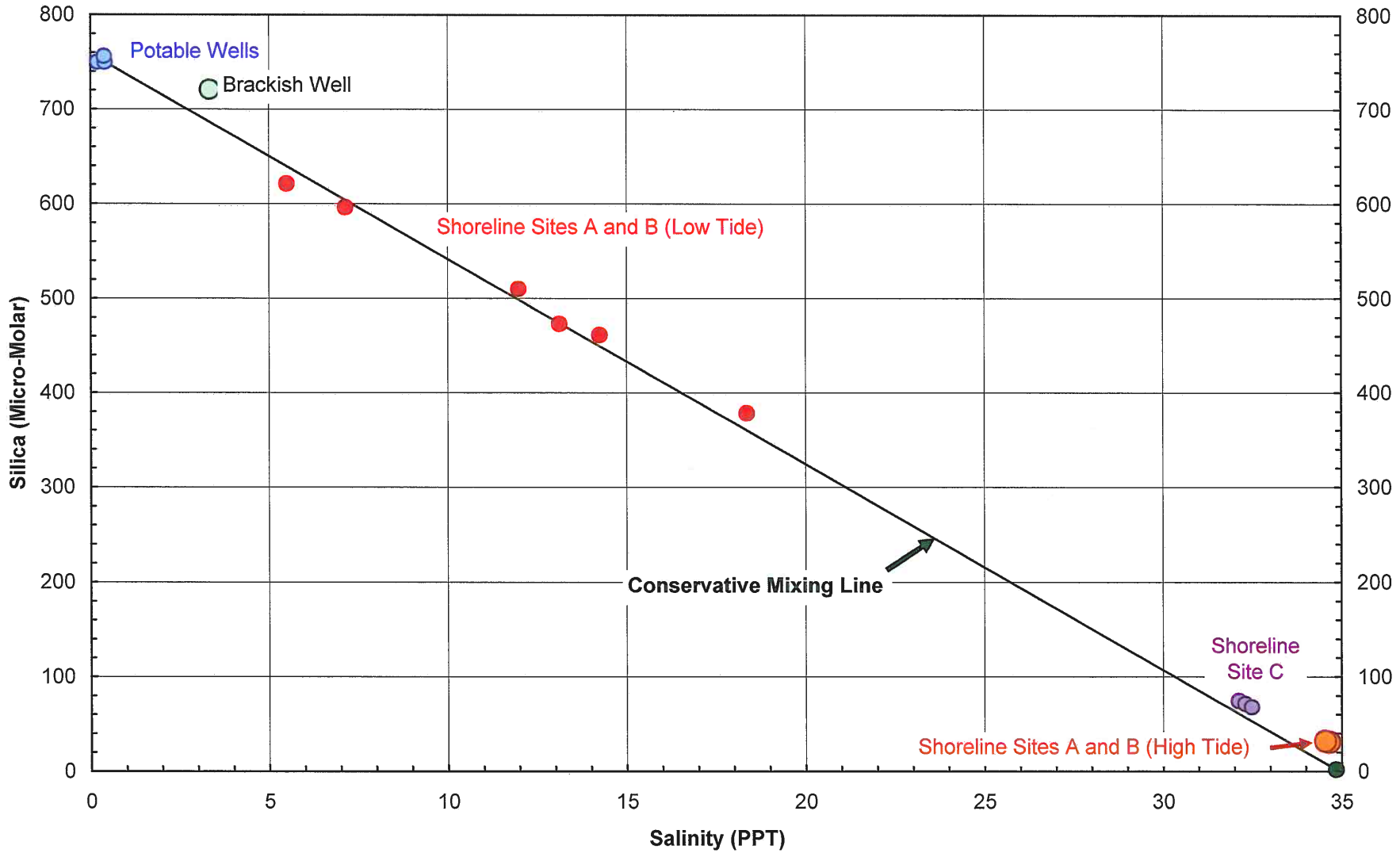


Figure 4. Mixing Line Analysis of Nitrate in Groundwater from Inland Wells to Shoreline Discharge

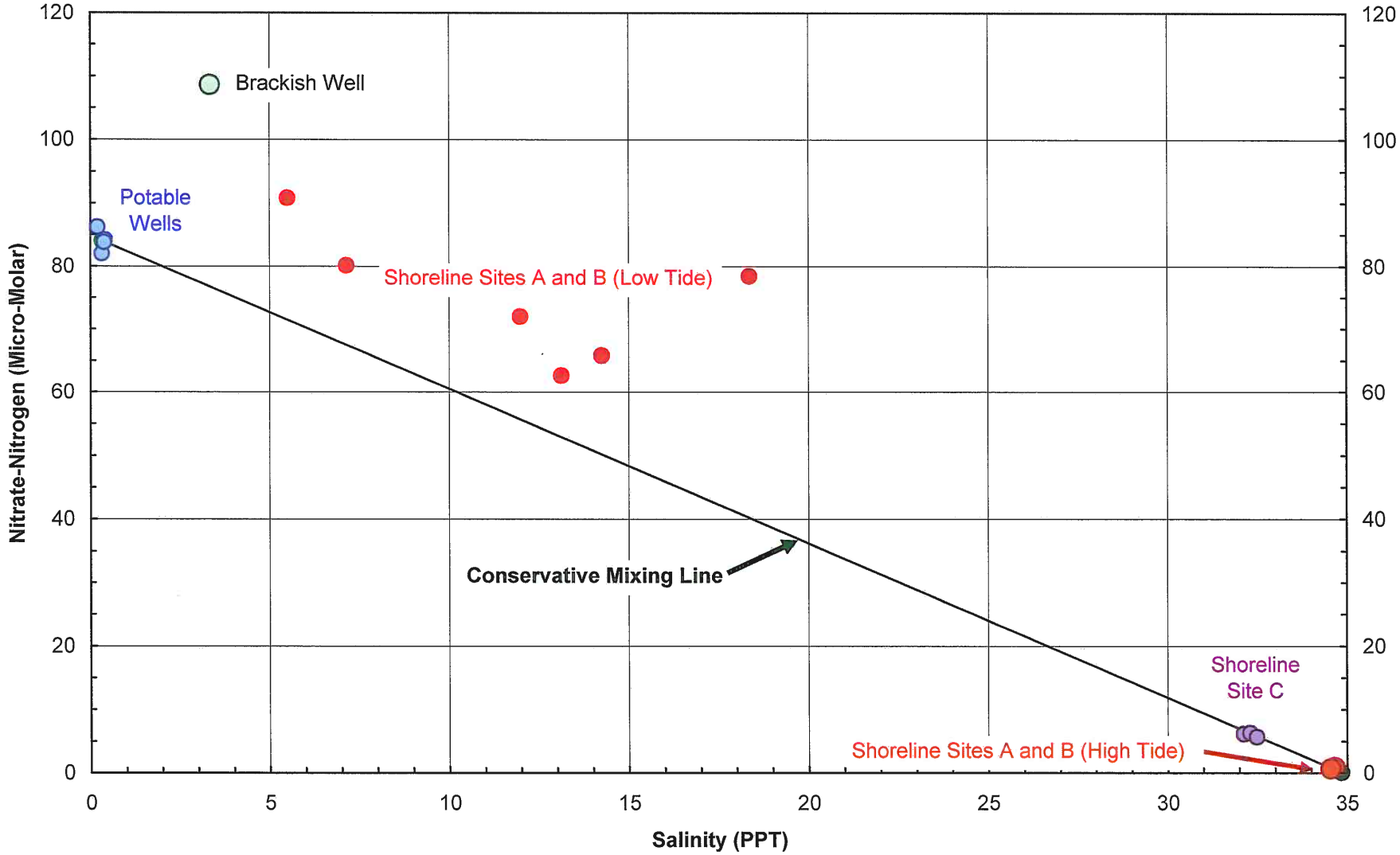
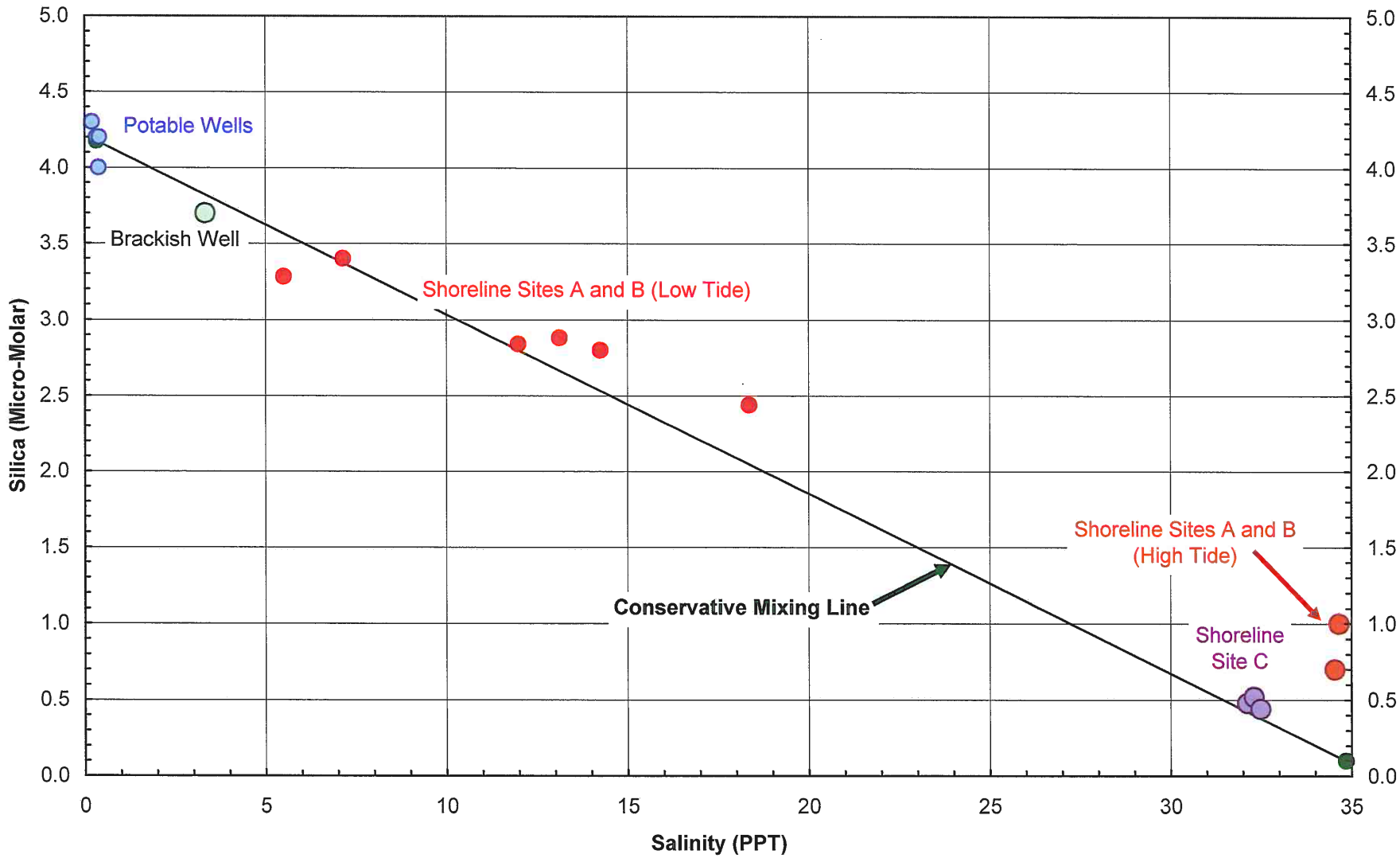


Figure 5. Mixing Line Analysis of Phosphate in Groundwater from Inland Wells to Shoreline Discharge



Groundwater directly beneath the project site is actually too saline for irrigation or other salinity dependent uses. That means the assessment of the project's potential impact on water resources focuses on the changes in the quantity or quality of groundwater discharging along the shoreline where such changes may have an impact on the nearshore marine environment.

Quantity of Groundwater Flowing Beneath the Project Site. Calculations in Engott (2011) provide the best available estimate of groundwater recharge. For the Keauhou Aquifer, estimated recharge is equivalent to 8.6 MGD along the aquifer's coastal length. Due to inland extent and variation of rainfall, the recharge rate is greater toward the south end of the aquifer where the project site is located. A reasonable approximation would be 10 MGD per coastal mile. For the impact assessment that follows, the following series assumptions and conclusions about groundwater beneath the project site are made:

- Groundwater beneath the project site occurs as a brackish basal lens. This groundwater, which is too saline for irrigation use, freely discharges into the marine environment along the shoreline directly downgradient of the project site.

- Over a one-mile wide mauka-to-makai corridor center on the project site, total groundwater recharge is 10 MGD. As an exception to the general occurrence of groundwater in Kona demonstrated by DWS' Kahaluu wells, all upgradient recharge into the high level aquifer leaks into the downgradient basal lens.

- Total pumpage in this one-mile wide corridor is 6.0 MGD from the five DWS wells and one golf course irrigation well (No. 3457-01 on Figure 1). This leaves a net discharge along the one-mile shoreline segment of four MGD.

- The project site spans half of this one-mile wide corridor, meaning the groundwater flow directly beneath it is approximately two (2.0) MGD.

Quantification of Potential Impacts to Groundwater

As described previously, the project will potentially impact groundwater in the following four ways: (1) drawing 0.136 MGD from DWS' Kahaluu wells for the project's water supply; (2) generating 0.085 MGD of domestic wastewater which would be treated at the Heeia WWTP and reused for golf course irrigation; (3) percolation of excess applied irrigation water from the project's 15 irrigated acres; and (4) generation of surface runoff which will be disposed of in onsite sumps and drywells. Each of these is quantified below.

Supply From DWS' Kahaluu Wells. The project's average supply of 0.136 MGD would be provided from DWS' Kahaluu wells. Since these wells are essentially directly upgradient of the project

site, it is assumed that this groundwater pumpage would result in a 1:1 reduction of the groundwater flowing beneath the project site and ultimately discharging along the shoreline.

Wastewater Generation. The project's 0.085 MGD of domestic wastewater would, after treatment, be reused for golf course irrigation. Although this reuse will take place to the south of the project's half-mile wide mauka-to-makai corridor, it will enable a 1:1 reduction of the use of the golf course's brackish wells which are also south of the project's mauka-to-makai corridor.

Landscape Irrigation. For this evaluation, it is assumed that applied irrigation averages 3000 GPD per acre or 0.045 MGD over the project's 15 irrigated acres. Other assumptions are: 10 percent of the applied irrigation percolates below the plant root zone to the groundwater below; fertilizers would be applied on the landscaped areas at six (6) pounds per year 1000 ft^2 as nitrogen and 0.75 pounds per year per 1000 ft^2 as phosphorus; and 10 percent of the applied nitrogen and two percent of the applied phosphorus would be carried below the plant root zone in the excess applied irrigation water.

Onsite Surface Runoff. Rainfall on the site averages 35 inches per year. This is equivalent to a year-round average of about 0.11 MGD per day on the 42.5-acre site. As first order approximations, the following assumptions are made: 50 percent of the rainfall under existing conditions percolates to groundwater, the balance being lost to evaporation and plant evapotranspiration; owing to onsite collection and subsurface disposal, the volume of percolation to groundwater after development will remain the same; post-development percolating rainfall and runoff would have increases of 20 and 2 μM of nitrogen and phosphorus, respectively, in comparison to present conditions.

Computed Changes to Groundwater Flowing Beneath the Project Site and Discharging Along the Shoreline. Table 3 presents the computed changes to the quantity, salinity, and nitrogen and phosphorus content to groundwater moving beneath the project site and discharging along the shoreline. The one assumption incorporated into the calculations but not yet discussed is the removal of nutrients that occurs naturally as groundwater percolates downward through the unsaturated zone to reach the groundwater below and then moves laterally with groundwater to discharge into the marine environment. In Kona, the best opportunity to quantify these natural removal rates is provided by the disposal of effluent from the County's Kealakehe WWTP into an excavated pit on the mauka side of Queen Kaahumanu Highway. The pit is nominally 3700 feet upgradient of the upper end of Honokohau Harbor. The shape of the excavated harbor enables it to act as a point sink for groundwater discharge. Using samples collected of the WWTP effluent and of the visible groundwater discharge at the inland end of the harbor, the author of this report has calculated removal rates to consistently be 90± 2 percent for nitrogen and 95± 3 percent for phosphorus. To be conservative for this report, natural removal rates of 50 and 80 percent have been assumed for nitrogen and phosphorus, respectively.

Table 3

Potential Changes to Groundwater
Flowing Beneath the Half-Mile Wide Project Site

I t e m	Flowrate (MGD)	Salinity (o/oo)	Nutrient (LBS / DAY)	
			Nitrogen	Phosphorus
Pre-Development Conditions				
• Groundwater Flowing Beneath the Site and Discharging Along the Shoreline	2.0	4.1	27.57	2.173
Changes Resulting From Project's Development				
• Pumpage by DWS' Kahaluu Wells	-0.136	0.36	-1.41	-0.186
• Percolating Landscape Irrigation	+0.0045	0.36	0.56	0.007
• Onsite Rainfall Recharge	No Change	No Change	0.06	0.006
Net Changes	-0.1315	0.36	-0.79	-0.173
Post-Development Groundwater Discharging Along the Shoreline Makai of the Project Site				
• Quantities	1.8685	4.256	26.77	1.999
• % Change	-6.6%	+6.4%	-2.9%	-8.0%

Based on the assumptions and calculations described above, the bottom line on Table 3 shows the project's potential changes to groundwater discharging at the shoreline directly downgradient of the project site to be: a reduction of the present 2.0 MGD shoreline discharge of 0.1315 MGD, a 6.6 percent change; a 6.4 percent increase in the salinity of this discharge; and reductions of nitrogen and phosphorus in this shoreline discharge amounting to 2.9 and 8.0 percent, respectively.

Impacts to Groundwater Beyond the Project Site. As indicated previously, the project is anticipated to generate 0.085 MGD of domestic wastewater which would be delivered to and treated at the Heeia WWTP on the north side of Keauhou Bay. The treated effluent would be reused to irrigate the Kona Country Club golf courses. To assess this impact, the following assumptions are made:

- Of the 0.085 MGD of domestic wastewater, 0.080 MGD is ultimately applied on the golf course. The other 0.05 MGD is lost to evaporation and leakage.
- Nitrogen and phosphorus concentrations in the treated effluent applied on the golf course are 1000 and 160 μM, respectively.
- With the addition of 0.08 MGD of treated wastewater from the project, Kona Country Club's use of its brackish irrigation wells would be reduced by an identical amount.
- Nutrient concentrations in this reduced use of brackish groundwater would be as shown in Table 2 for Well 3457-01, one of the course's three active irrigation wells.
- Ten percent of the applied irrigation water, either as brackish groundwater or treated effluent, percolates below the plant root zone, reaches the groundwater below, and ultimately discharges into the marine environment along the shoreline to the south of the project site.
- Natural removal of nutrients from the percolating excess applied irrigation are as assumed previously, 50 percent of the nitrogen and 80 percent of the phosphorus.

For these assumptions, present pumpage of 0.080 MGD of brackish groundwater for golf course irrigation would result in a 0.072 MGD reduction of groundwater discharging at the shoreline and reductions of nitrogen and phosphorus in this shoreline discharge of 0.99 and 0.078 lbs/day, respectively. When this portion of the golf course's irrigation is converted to an identical amount of R-1 effluent, the net change to groundwater discharging along the shoreline would be an increase of 0.08 MGD over present conditions. The net increases of nitrogen and phosphorus delivered into the marine environment would amount to 1.46 and 0.14 lbs/day, respectively. To put these numbers in perspective, Kona Country Club's two golf courses span a 2-mile long section of the coastline. If we assume these quantified changes only impact half of the courses' shoreline extent, then the increase in shoreline discharge of groundwater would be 0.8 percent. The nitrogen and phosphorus additions would amount to 1.4 and 0.8 percent, respectively.

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ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahalu‘u - A Residential Project for Towne Development of Hawai‘i

APPENDIX 3
Cultural Impact Assessment

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SCS Project Number 1329-CIA-2

A CULTURAL IMPACT ASSESSMENT OF LANDS AT KAHALU‘U FOR PROPOSED DEVELOPMENT LOCATED IN KAHALU‘U AHUPUA‘A, KAHALU‘U, NORTH KONA DISTRICT, ISLAND OF HAWAI‘I

[TMK: (3) 7-8-010: 004 (por.) and (3) 7-8-014:013 (por.)]

Prepared By:
Glenn G. Escott, M.A.

September 2014
DRAFT

Prepared For:
Towne Development of Hawai‘i, Inc.
220 South King St., Suite 960
Hilo, HI 96813

SCIENTIFIC CONSULTANT SERVICES Inc.

1347 Kapi‘olani Boulevard, Suite 408 Honolulu, HI 96814

Hawai‘i Island Office: PO Box 155 Kea‘au, HI 96749

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INTRODUCTION

At the request of Towne Development of Hawai‘i, Inc., Scientific Consultant Services, Inc. (SCS) conducted a Cultural Impact Assessment of the proposed 42-acre Towne Development project at Kahalu‘u (Figures 1, 2, and 3). The project area is *mauka* of Ali‘i Drive at Kahalu‘u Bay in Kahalu‘u Ahupua‘a, North Kona District, Island of Hawai‘i [TMK: (3) 7-8-010: 004 (por.) and (3) 7-8-014:013 (por.)]. The project area extends from 15ft to 80ft above mean sea level (amsl). The property was formerly listed as the Kamehameha Investment Corporation's Keauhou Resort Development Parcel 26.

Towne Development of Hawai‘i, Inc. is proposing to build a Multiple-Family residential project consisting of approximately 303 Multi-Family units and related infrastructure on the 42-acre property.

The Constitution of the State of Hawai‘i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by *ahupua‘a* tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778” (2000). In spite of the establishment of the foreign concept of private ownership and western-style government, Kamehameha III (Kauikeaouli) preserved the people’s traditional right to subsistence. In 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua‘a* tenants to gather specific natural resources for customary uses from undeveloped private property and waterways, codified now under the Hawai‘i Revised Statutes (HRS) 7-1. In 1992, the State of Hawai‘i Supreme Court reaffirmed HRS 7-1 and expanded it by stating “native Hawaiian rights…may extend beyond the *ahupua‘a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawai‘i (2000) with House Bill 2895, relating to Environmental Impact Statements, stated that:

> …there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii’s culture, and traditional and customary rights… [H.B. NO. 2895].

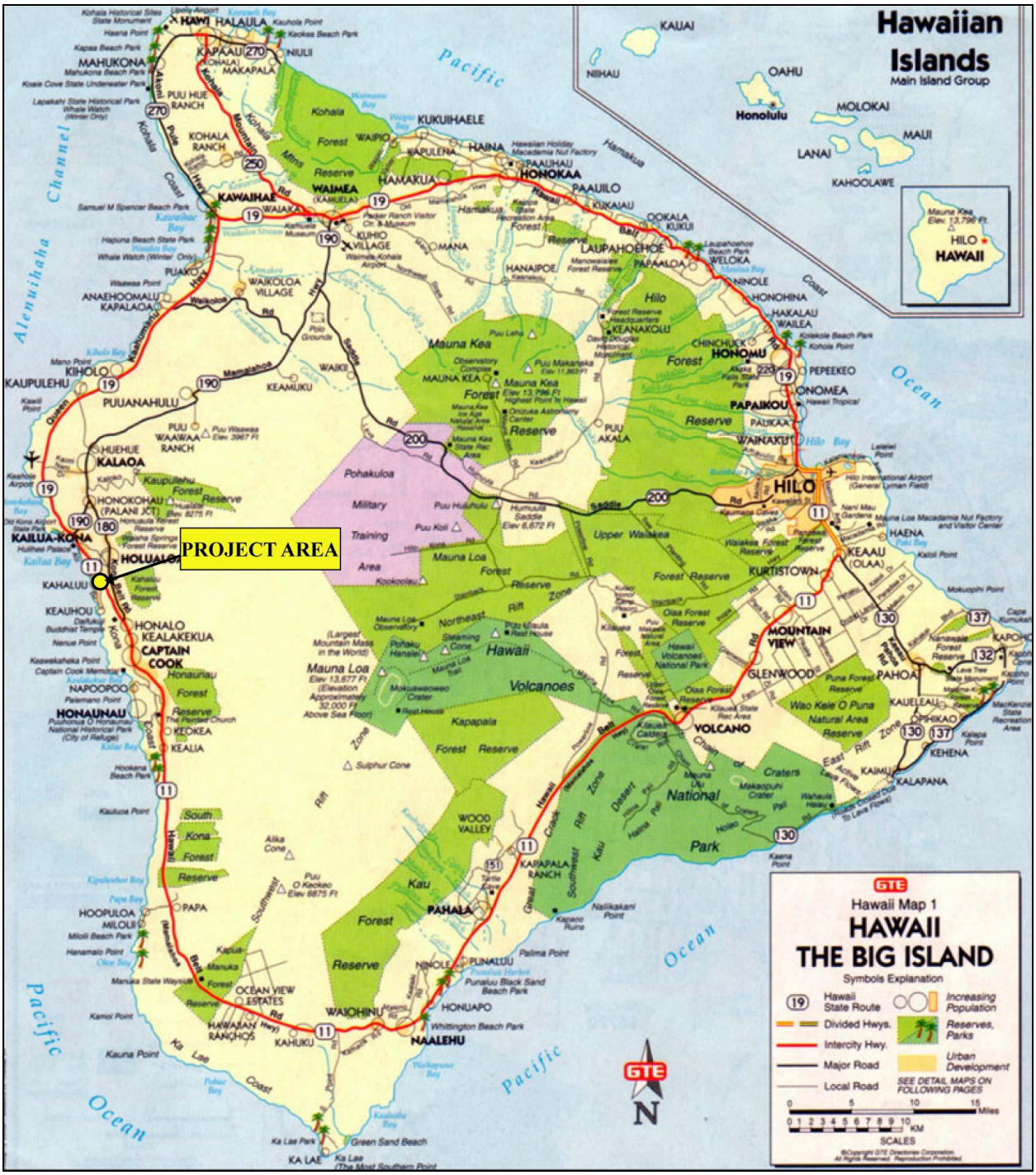

Figure 1: Hawai‘i Island Map Showing Project Area Location.

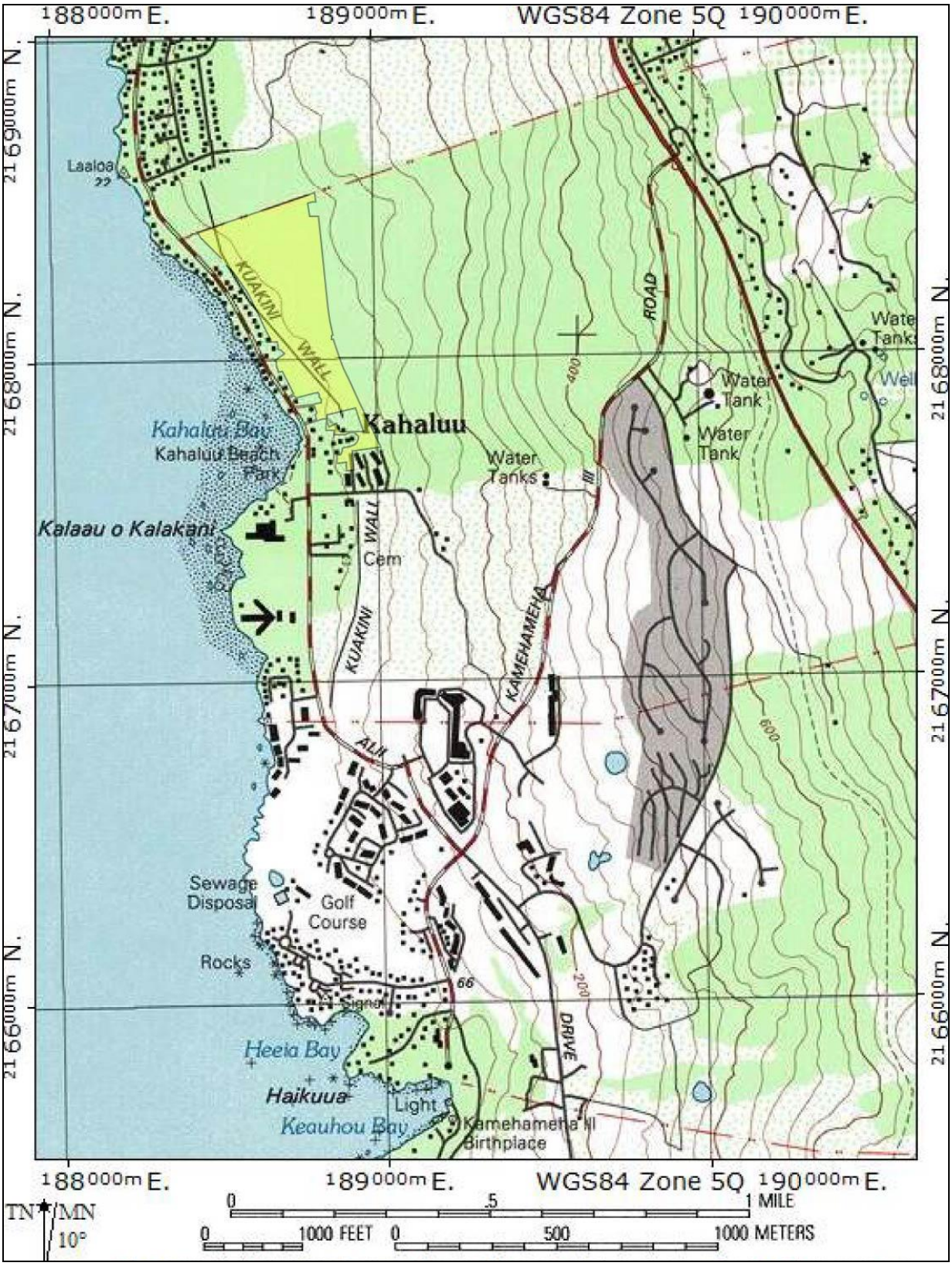

Figure 2: 7.5-Minute Series USGS Topographic Map Showing Project Area Location in Yellow (Kealakekua Quad, 2001).

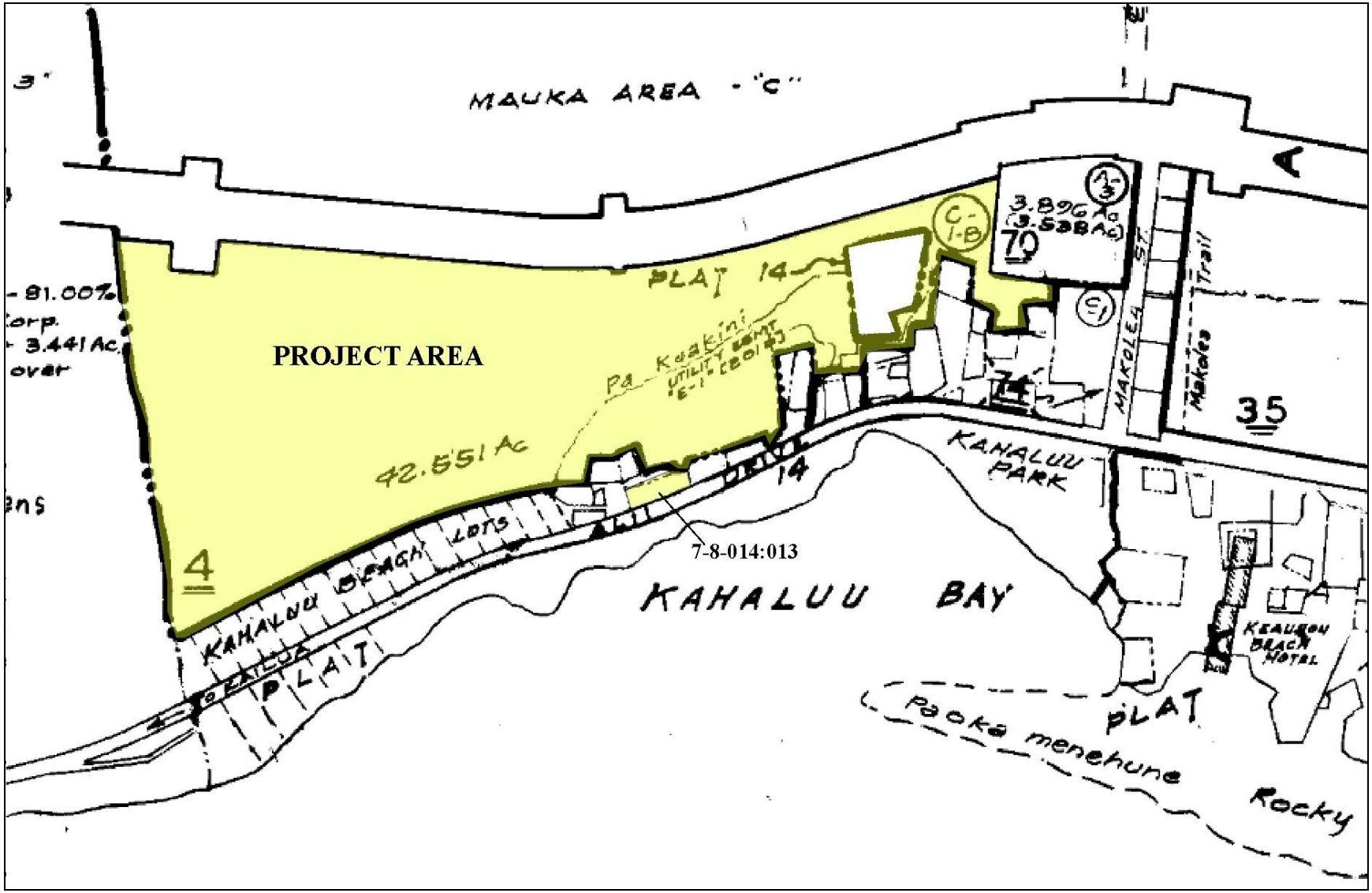

Figure 3: Portion of TMK: (3) 7-8-010 Map Showing Location of Project Area (Hawai‘i County Planning Department, 2013).

Act 50 requires state agencies and other developers to assess the effects of proposed developments subject to the HRS Chapter 343 environmental review process on the "cultural practices of the community and State" (2001).

The purpose of HRS 343 has broadened, "to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of 'significant effect' to be re-defined as "the sum of effects on the quality of the environment including actions that are…contrary to the State's environmental policies…or adversely affect the economic welfare, social welfare, or cultural practices of the community and State" (H.B. 2895, Act 50, 2000). The *ahupua'a* or district is recognized as a culturally appropriate geographic unit of study, depending on the scale of the project.

The process distinguishes 'anthropological' cultural practices from 'social' cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

> According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997): The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural, which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on identified cultural resources, including values, rights, beliefs, objects, records, properties, and stories occurring within the project area and its vicinity (H.B. 2895, Act 50, 2000). The vicinity can be defined as "the broad geographical area, e.g. district or *ahupua'a*" (QEQC 1997).

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC state: …information may be obtained through scoping, community meetings, ethnographic interviews and oral histories… (1997).

The report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). According to these Guidelines, the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

(1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations with might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews, which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research involved study of both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports. Such scholars as Iʻi, Kamakau, Chinen, Kameʻeleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Pukuʻi and Elbert, Thrum, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawaiʻi, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona ʻĀina 2014 Data Base. Historical and cultural source materials were extensively used and can be found listed in the *References Cited* portion of the report.

INTERVIEW METHODOLOGY

Interviews were conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with the project area or who know of historical properties within the project area were sought

for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area were invited to share their relevant information. Organizations including the Kona Hawaiian Civic Club and the Island Branch of Office of Hawaiian Affairs were asked for their recommendations of suitable informants. These groups were invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview.

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (OEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be, in itself, a "good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the current project, letters of inquiry briefly outlining the development plans along with maps of the project area were sent to individuals and organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. In 2012 consultation was sought from Kai Markell, the Director of Native Rights, Land and Culture, Office of Hawaiian Affairs on Oʻahu; Ruby McDonald, Coordinator of the Hawaiʻi branch of the Office of Hawaiian Affairs; Kauanoe Hoʻomanawanui, SHPD Hawaiʻi Island Cultural Historian; Rick Gmirkin, Ala Kahakai National Historic Trail, NPS Archaeologist; Joseph Spencer, Director of the Keauhou Cultural Advisory Committee; and Kahaluʻu and Hawaiʻi Island *ʻohana* members Willy Kahulamu, Gerry Kahulamu, Henry Kahulamu, Nolan Kahulamu, Mitchell Fujisaka, Hiram Rivera, Velma Alapai, Ron Mitchell, J. Curtis Tyler III, Lesley Tyler, Hannah Reeves, Uilani Kapu, Kuʻulei McCarthy, and Justin Asing.

Public notices were published in the Office of Hawaiian Affairs Ka Wai Ola Newspaper, the Honolulu Star-Advertiser and the West Hawaiʻi Today (see Appendix A).

Personal interviews with knowledgeable individuals were written out in summary form and were returned to each of the participants for their review and comments.

Key topics discussed with the interviewees included personal association to the *ahupuaʻa*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; and evidence of previous activities identified while in the project vicinity.

CULTURAL AND HISTORICAL BACKGROUND

Kona is divided into two traditional cultural land units: North Kona or *Kona ʻakau*, and; South Kona, or *Kona hema* (Maly 1996). *Kona ʻakau* was further subdivided into north (called *Kekaha*) and south (called *Konakaiʻōpua*) areas, with the division between the two at the *ahupuaʻa* of Keahuolu. The project area is in Kahaluʻu within the area of *Konakaiʻōpua* in *Kona ʻakau*. Kahaluʻu means (literally) "diving place" (Pukui *et al*. 1974:62).

Kahaluʻu is a traditional *ahupuaʻa* stretching from the ocean to 4,500 feet (1,372 m) amsl at the foot of Hualālai in the uplands (Figure 4). The *ahupuaʻa* has a sandy beach at Kahaluʻu Bay, and another at Kapukini Cove (Figure 5). The remainder of its roughly one mile long coastline is rocky. There are several freshwater springs that mix with the seawater along the shoreline (Reinecke 1930). Two large fishponds called Waikuʻaʻala and Poʻo Hawaiʻi were built along the shore at Kahaluʻu. Waikuʻaʻala was a well-known bathing spot of the *aliʻi.* Additional ponds in coastal Kahaluʻu are known to have been used by *aliʻi* and *makaʻāinana* for bathing.

The region of Kahaluʻu, Keauhou 1st, and Keauhou 2nd developed into a sociopolitical center that included *ʻaliʻi* and *konohiki* residences and numerous religious sites. There were at least 37 *heiau* located in the lower elevations of Kahaluʻu (see Figure 5). The majority of the *heiau* were constructed along or near the coast, while a smaller number were built further inland, at higher elevations. The more prominent *heiau* are Kuʻemanu, ʻŌhiʻamukumuku, Mokukeole, Kapuanoni, Hāpaialiʻi, and Keʻekū, Mākoleʻā, Pā-o-ʻUmi, and Keahiolo. There are two sites within preservation areas on the project area that were interpreted as possible *heiau* (Site 7864 and 7874). Three additional sites within preservation areas on the project property were interpreted as having possible ceremonial functions (7865, 7901, and 7903).

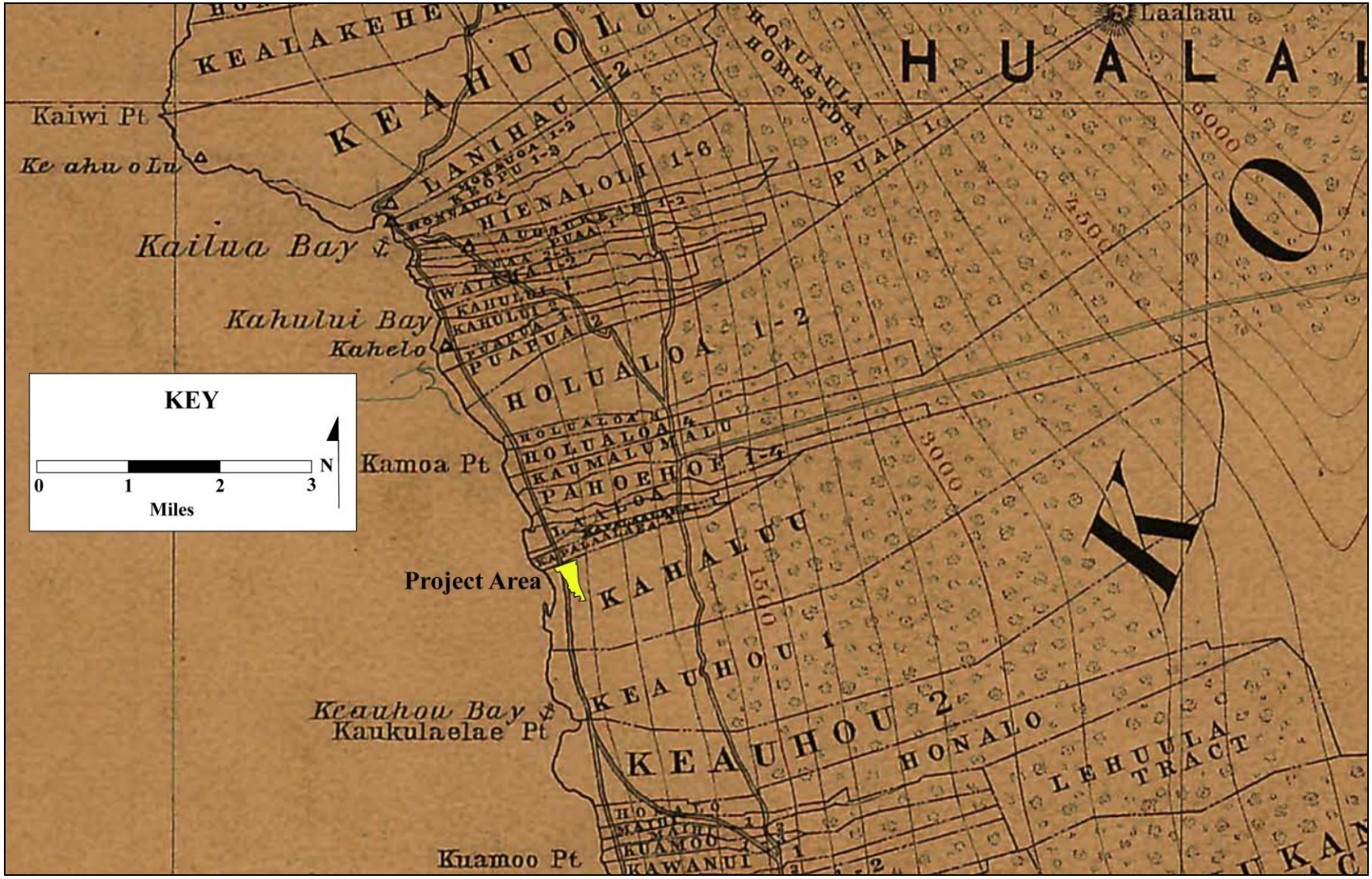

Figure 4: Historic Map Showing Location of Kahaluʻu Ahupuaʻa (Donn 1901).

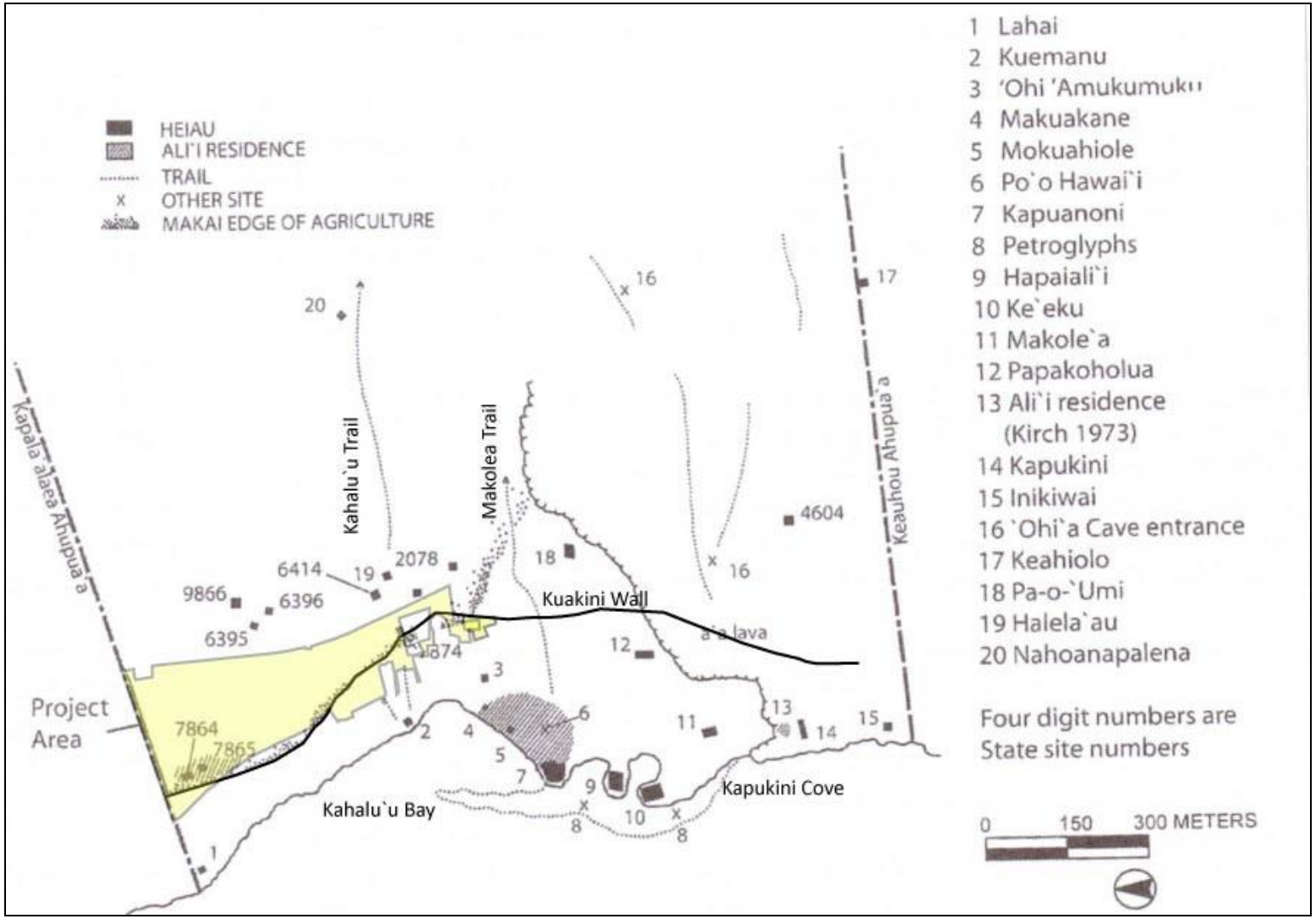

Figure 5: Map Showing the Locations of Historic Kahaluʻu Sites (Adapted from Berrigan et al. 2010:7).

A number of *ali‘i* are associated historically with and lived in the Kahalu‘u area. Kalani‘ōpu‘u (ruler, 1760-1782) lived in the region of Kahalu‘u and Keauhou. Kamehameha I and his retinue stayed for periods of time at Kahalu‘u and repaired several area *heiau*. Ke‘eaumoku Pāpa‘iahiahi was awarded Kahalu‘u and Keauhou after Kamehameha I united the Hawaiian Islands. His daughter Queen Ka‘ahumanu, and his son, Governor John Adams Ki‘iapalaoku Kuakini were born in Kahalu‘u. King David Kalākaua had a residence alongside Po‘o Hawai‘i Pond.

PRE-CONTACT ERA

Kahalu‘u, Kona, and much of the leeward side of Hawai‘i Island, while well populated at the time of European Contact, were settled later than the windward side. Archaeological evidence suggests Hawai‘i Island was first settled between A.D. 0 and 700 by people sailing from the Marquesas (Cordy 2000:104-109). Early settlers founded settlements on the windward shores in likely places such as Waipi‘o, Waimanu, and Hilo Bay. The windward, or *ko‘olau* shores receive abundant rainfall and have numerous streams such as the Wailuku, Waiolama, ‘Alenaio, and Wailoa that facilitated agricultural and fishpond production (Maly 1996:3). The windward shores also provide rich benthic and pelagic marine resources.

The dry leeward shores of Hawai‘i Island presented a very different environment requiring a modified set of subsistence strategies. Archaeologists and historians are uncertain about the exact motives that led to the establishment and spread of settlements on the leeward side of Hawai‘i, but some suggest population pressure, dwindling fertile land, growing socio- political stratification, or simply the opportunity for a new start might have led to new communities developing on the dryer west side of the island (Cordy 2000:130). Evidence suggests the process was underway between the A.D. 900s and 1100s (*ibid.*).

During this period, areas of permanent habitations were established along the Kona coast (Cordy 1981, 1995; Schilt 1984). Habitation was concentrated along the shoreline and lowland slopes. Villages were first established along the coast in areas with easy ocean access to fishing and other forms of marine resources extraction, as well as fishpond construction. They were also located near sources of potable water, a scarcity in Kona (Maly and Maly 2001:6).

As villages became larger population centers, informal fields were cleared at higher elevations where rainfall was higher and where food crops that required more rainfall could be grown. Crops such as sweet potato and gourds that could be grown in the lower, drier coastal

region were supplemented by crops like taro, sugar cane, bananas, and *ʻawa* that grew well in the wetter upland regions of Kona. Agricultural fields and habitation areas expanded across the Kona coast and up the slopes of Hualālai during the period between AD 1100 and 1400 (Burtchard 1995; Cordy 1995).

The development of an extensive formal, walled field system (the Kona Field System) likely began sometime around AD 1400 to 1600. This period marks the initiation of the Kona Field System (Schilt 1984). The development of the fields may be, in part, a by-product of the need to extract more subsistence resources from an increasingly limited agricultural base. The population in Kona increased dramatically during this period, as reflected in the abundant radiocarbon dates from habitation structures, shelter caves, and agricultural soils of this period (Burtchard 1995; Haun *et al*. 1998; Schilt 1984).

During this period, the stratified chiefdom structure becomes clearly developed in the archaeological record. Large residential complexes and *heiau* reflect the segregation of places and power for the growing hierarchy of high and lower chiefs, and ceremonial stewards (Cordy 1981; Haun *et al*. 1998; Hommon 1986). The produce from the formal walled fields were distributed to higher chiefs through a hierarchy of lower chiefs responsible for management and collection of the cultivated and wild resources.

By the time of the Competition Period (AD 1600 to 1800), the royal centers and larger *heiau* were in place, reflecting the growth in power of the rulers and chiefs in the region (Barrera 1971; Hammatt and Folk 1980). Resources may have reached their maximum carrying capacity, resulting in social stress between neighboring groups. Hostility between groups is reflected archaeologically with the development of refuge caves during this period (Schilt 1984). This volatile period was probably accompanied by internal rebellion and territorial annexation (Hommon 1986; Kirch 1985). Large royal centers associated with extensive architectural complexes developed at Kailua, Hōlualoa, Kahaluʻu-Keauhou, Kaʻawaloa-Kealakekua, and Honaunau (Cordy 1995, Maly and Maly 2001:6). The Kona Field System provided food for both the *makaʻāinana* who cultivated the fields, and for the *konohiki* and *aliʻi* who lived in the royal centers and were fed by the *makaʻāinana*.

The Kona Field System

During his travels in the region in 1823 William Ellis noted that the area above and south of Kailua was:

> quite a garden compared with that through which they had passed on first leaving the town. It was generally divided into small fields, about fifteen rods square, fenced with low stone walls, made of fragments of lava which had been gathered from the surface of the enclosures. These fields were planted with bananas, sweet potatoes, mountain taro, tapa trees, melons and sugar cane, flourishing luxuriantly in every direction [Handy 1940:114 and 162].

> Rocky lands in the olden days were walled up all around with big and small stones of the patch until there was a wall about 2 feet high and in the enclosure were but weeds of every kind, amaʻu tree ferns and so on, and then topped well with soil taken from the patch itself to enrich it [Handy 1940:147].

The gardens have been studied in detail, and are often referred to as the Kona Field System (KFS). Many of the archaeological projects conducted within Kona deal with components of the Kona Field System (Cordy 1995; Newman 1970; Schilt 1984). The KFS area extends north at least to Kau Ahupuaʻa and south to Honaunau, west from the coastline and east to the forested slopes of Hualālai (Cordy 1995). A large portion of the KFS is designated in the Hawaiʻi SIHP (State Inventory of Historic Places) as Site 50-10-37-6601. The basic characteristics and general locations of the zones within the system as presented in Newman (1970) have been confirmed and elaborated on by more intensive and extensive ethno historical investigations (Kelly 1983).

The *kula* zone of the Kona Field System is the area from sea level to 150 m amsl. The kula zone is dry with shallow soils. Cultivation was primarily conducted in pockets of deeper soil, within man-made rock mounds, and mulched gardens. This lower elevation zone is traditionally associated with habitation and the cultivation of sweet potatoes (*uala*), paper mulberry (*wauke*), and gourds (*ipu*). Agricultural features, such as clearing mounds, planting mounds, planting depressions, modified outcrops, and planting terraces, are common throughout much of this zone (Hammatt and Clark 1980; Hammatt and Folk 1980; Haun *et al*. 1998; Schilt 1984). Of the 58 archaeological sites documented on the project area, twenty

three were determined to be associated with agriculture (Berrigan *et al*. 2010:5). Roughly two thirds (n=16) of the agricultural sites were recorded *mauka* of the Kuakini Wall.

Dwellings are often scattered throughout the *kula* zone, but they are commonly concentrated along the shoreline subdivision of the *kula* zone (Cordy 1981). The shoreline zone, extending inland approximately 200 m, was used primarily for permanent habitation and other non-agricultural activities, such as canoe storage, ceremonial and burial practices, recreation, and fishing-related activity. Of the 58 archaeological sites documented on the project area, thirty had habitation components (Berrigan *et al*. 2010:4).

Royal centers and high chiefly centers were also situated within the shoreline of the *kula*. These complexes include dwellings for rulers, chiefs, and the supporting populace, places of refuge, and other structures. Single, or clustered, burials are also situated in the shoreline, and near-shore *kula* (Han *et al*. 1986; Hammatt and Clark 1980; Hammatt and Meeker 1979).

Burials occur in caves, within finely built platforms, cruder rock mounds, and houses in the shoreline, and are more often in the near-shore *kula* (Cordy 1995; Han *et al*. 1986; Schilt 1984; Tainter 1973; Tomonari-Tuggle 1993). Of the 58 archaeological sites documented on the project area, 15 had possible burial components (Berrigan *et al*. 2010:4).

The large, and densely populated, royal centers were situated at several locations along the shoreline between Kailua and Honaunau (Cordy 1995; Tomonari-Tuggle 1993). The residential areas, large and small *heiau*, sporting areas, and burial clusters, are present continuously farther inland than the usual 150 meters for the shoreline habitation portion of the *kula*. Consequently, a variety of non-agricultural features are present in the *kula* near royal centers.

The *kalu'ulu zone* above 150 m amsl is a wetter region above the kula where bread fruit and other arboreal crops were cultivated (Kelly 1983). Sweet potatoes (*Ipomoea batatas*), *ti*, (*Cordyline fruticosa*) *wauke* (*Broussonetia papyrifera*), *taro* (*Colocasia esculenta*), and sugar cane (*Saccharum* sp.), planted among the arboreal crops, were mulched with grass (Menzies:1920:75-76).

Above the *kula* zone, in the *ʻapaʻa* zone, fields with low stone walls were cultivated with bananas, sweet potatoes, *taro*, *wauke*, melons, *ti* and sugar cane. The *ʻapaʻa* zone was notable for fresh water springs. Above the *ʻapaʻa* zone was the *ʻamaʻu* zone where walled fields were created to grow plantains and bananas. Timber from various tree species were collected from the *ʻapaʻa* zone and the *ʻamaʻu* zone. Bird catching and other forest resources extraction activities were conducted in these upper two zones. Temporary habitations were constructed to be used seasonally when working in the uplands.

POST-CONTACT ERA

The extensive features of the Kona Field System were exploited and altered during the post-contact era. Walls, *kuaʻiwi*, springs, and pathways created generations earlier were used and planted with alien cultigens (coffee, cotton, sugar, and sisal) and ultimately used as pastures for cattle.

By the first quarter of the nineteenth century, there were roughly five hundred residents in the area of Kahaluʻu Ahupuaʻa (Bishop 1892:18). Though Kahaluʻu did not possess a deep water harbor, for large draught vessels, some trade was conducted at Keauhou Bay to the south. Trade and crops included firewood, sandal wood, yams, coffee, melons, potatoes, corn, beans, cotton, figs, oranges, guavas, and grapes (Kelly and Barrère 1980:24).

Sugar was a major crop in Hawaiʻi as early as signing of the Reciprocity Treaty in 1876 (Kelly 1983:90). The sugar industry grew rapidly, and by 1899 the one and only sugar mill in the Kona area was built by the Kona Sugar Company. Chinese were the primary laborers on the sugar plantation (*ibid*:111). The Sugar Company built a railroad in 1901 to haul cane from the fields to their mill site in Waiʻaha. The sugar company failed in 1903, and was bought out by a Japanese company that continued the sugar cultivation and processing until 1926.

The railroad was bought by Kona Development Company, and was used for freight, sugarcane and by the Hawaiian Lumber Company. Sugar was grown above the railroad line. The cut sugar was delivered to the tracks with the assistance of gravity by wire cables and flumes. Cotton was grown on lands below the railroad tracks (*ibid*:111). Cotton gins were located south of the project area. Cotton was being picked as late as the 1930s. Other plants grown below the tracks in the dryer lands were sisal and tobacco (*ibid*:112).

Formal cattle ranching began in the Kailua region in the early 1900s, but wild cattle may have been in the area as early as the late 1700s. The *pā ʻāina* (ʻwalls of the landʼ), native tenantsʼ wall enclosures, were prevalent in the area, as indicated by their inclusion in many local Māhele testimonies. These were used to mark the boundary of properties and to keep livestock out of crop areas (Kuykendall 1957:318 note 76). Later, cattle ranchers built walls to control their cattle.

> In the early 1840s, cattle were said to be "maintained on the *kula*," a mile from the coast where the ground was "covered with herbage" (Wilkes 1845:4, 95). Cattle, introduced to Kona by Vancouver in 1794, became a nuisance later, when their numbers increased. They fed on the grass of the kula and from time to time on the thatch of Hawaiiansʼ homes and on vegetables in their gardens. The open upland fields, bounded only by low earth and stone walls, were in full cultivation in the 1850s [Kelly 1983:76].

Ranchers leased land below the railroad to graze cattle that they owned (Kelly 1983:111). Higher walls were built in the 1920s and 1930s to control animals. According to Joe Gomes, a longtime rancher in the area,

> Walls about 3 ft high can keep donkeys penned. The usual wall is about 4 ½ ft high and keeps cattle in. For goats you need a wall 6 to 8 ft high. For wild pigs you need a 6 to 8 ft-high wall. They climb over lower walls easily. [Kelly 1983:112].

The developments of plantation agriculture and large-scale cattle ranching removed many natural resources from the landscape that were vital to conducting traditional cultural practices. These developments and legalization of private land ownership restricted and prevented many Hawaiians from continuing and passing on cultural practices and cultural knowledge associated with natural resources.

The Great Wall of Kuakini

The Great Wall of Kuakini (Ka Pā Nui O Kuakini) was constructed by the first royally appointed Governor of Hawaiʻi Island, John Adams Kiiapalaoku Kuakini (1789-1844), to prevent cattle from destroying the agricultural plots in the Kailua region. Construction of the wall began in the early 1800s and was completed by the mid-1850s. The wall is approximately five miles long and extends from Palani Road in Kailua to Kahaluʻu Bay

south of Kailua (Kelly 1983:75). It roughly marked the boundary between the *kula* and the *kalu'ulu* zones. Some historians suggest the wall was constructed to keep cattle away from the coastal homes and garden plots (Kelly 1983:75), while others suggest the garden walls, and perhaps the Kuakini Wall, prevented cattle from damaging the upland gardens in the *kalu'ulu* region and above (Handy and Handy 1991:526).

The Māhele (1848-1850)

Kahalu'u Ahupua'a was granted to Victoria Kamamalu during the Māhele as Land Commission Award 7713:6, Royal Patent 6856. LCA 7713:6 was for 5,443 acres. Fifty-six smaller LCAs, for 83 smaller parcels ranging in size from 0.07 to 4.4 acres were also awarded throughout Kahalu'u Ahupua'a (Tomonari-Tuggle 1990:8). Twenty-eight of those were for parcels along Kahalu'u Bay (Figure 6). Kuleana awardees adjacent to the project area include Kuaana ma, Kauahulimoana, Papa, Kaukihelani, Peekoa, Nawaimaka, Kelaihue, Nakea, Noholowaa, Malaihi, Kaulike, Kualu, Hoopale, Kahalela-haole, Pio, and Napipi. Fifteen additional LCAs were situated just south of the bay. Though pre-Contact settlements were known to exist in the upland *kula* zone of Kahalu'u Ahupua'a, no LCA claims were made for land there. See Appendix B for a complete list of Land Commission claims made in Kahalu'u Ahupua'a.

LCA documents recorded during the Māhele list a number of plants cultivated on the awards in Kahalu'u. They include *kou* (*Cordia subcordata*), *hala* (*Pandanus tectorius*), *hau* (*Hibiscus* sp.), papaya (*Carica papaya*), *loulu* (*Pritchardia* sp.), pineapples (*Ananas comosus*, *noni* (*Morinda citrifolia*), and coconut (*Cocos nucifera*).

The changing subsistence and trade regimes developed by incoming European and American settlers, as well as other historical factors, caused a depopulation of the coastal areas of Kailua and Kahalu'u. Ranches and farms were established in the uplands where rainfall was higher, and the temperatures were cooler. Cattle ranching and clearing for sugar cane and coffee removed many of the endemic species of plants. The suite of vegetation that existed prior to the pre-Contact era were replaced by *koa haole* (*Leucaen*a *leucocephala*), kiawe (*Prosopis pallida*), and other newly introduced invasive plant species.

Schools, churches, stores, and other businesses were also established in the uplands. During the late 1800s and early 1900s, Kahalu'u was no longer the densely populated sociopolitical center it once was. Kahalu'u had become a small cluster of houses along the trail from Kailua to Keauhou (Tomonari-Tuggle 1993:15).

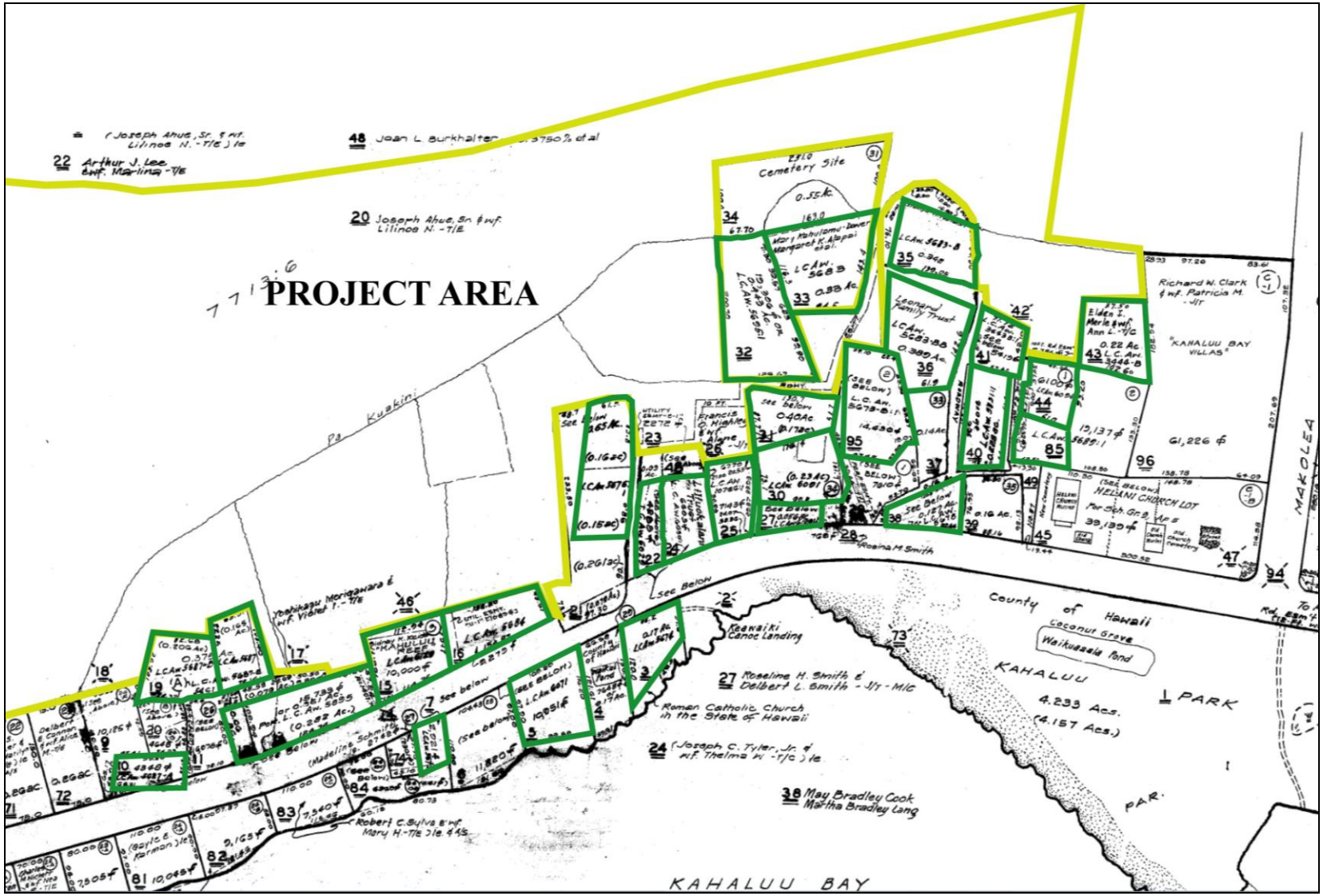

Figure 6: Portion of TMK: (3) 7-8-014 Map Showing Project Area Boundary (Yellow) and LCA Parcel Boundaries (Green).

KAHALUʻU HISTORIC DISTRICT

The Kahaluʻu-Keauhou region was, for a long time, a sizeable population center with associated agricultural fields, sacred religious sites, and the homes of numerous *aliʻi* and *konohiki*, as well as *makaʻāinana*. An archaeological map created by Tomonari-Tuggle in the early 1990s is a good depiction of the density of site remains within the Kahaluʻu-Keauhou region (Figure 7). As a result of the large number of significant historic properties in the region, more than twenty sites have been listed on the National Register of Historic Places, including the Kahaluʻu Historic District.

The Kahaluʻu Historic District (Site 50-10-37-4150) nomination documentation identified more than twenty archaeological sites and historic properties (Figure 8, Figure 9, and Table 1). The district is listed on the National Register of Historic Places, and is associated with historic and prehistoric activities in Kahaluʻu and Keauhou Ahupuaʻa. One major criteria for the significance of the resources in the historic district is their association with the royal center in this location, including the large concentration of *heiau* within the district. Several maps drawn by Henry E.P. Kekahuna in the early 1950s depict the structures that existed at that time along the shoreline (Figures 10, 11, 12, and 13).

There are also a number of habitation sites, burial areas in caves and platforms, petroglyph fields, wells, and agricultural features. A number of these site types have been preserved in the ʻŌhiʻa Preserve (see Figure 7). The various religious, domestic, and economic features demonstrate the wide range of activities that occurred in the settlement-subsistence system of the region. The continuity of the system through historic times is reflected in the inclusion of historic buildings in the District, such as the Helani Church (Site 7277) and the Saint Peter by the Sea Catholic Church (Site 7235).

There are eleven *heiau* sites within the Kahaluʻu Historic District. A brief description of the more prominent among them is listed below:

Inikiwai *Heiau* - a *heiau* for prayers to the fish god Kuʻula for abundant catches.
Kaualiʻiliʻi *Heiau* - a *heiau* for prayers to replenish sweet potatoes.
Kuʻemanu *Heiau* - a *heiau* dedicated to surfing.
Hāpaialiʻi *Heiau* - a *heiau* built by Kamehameha I in 1782.
Keʻekū *Heiau* - a *heiau* built or dedicated by Lono-i-ka-makahiki.

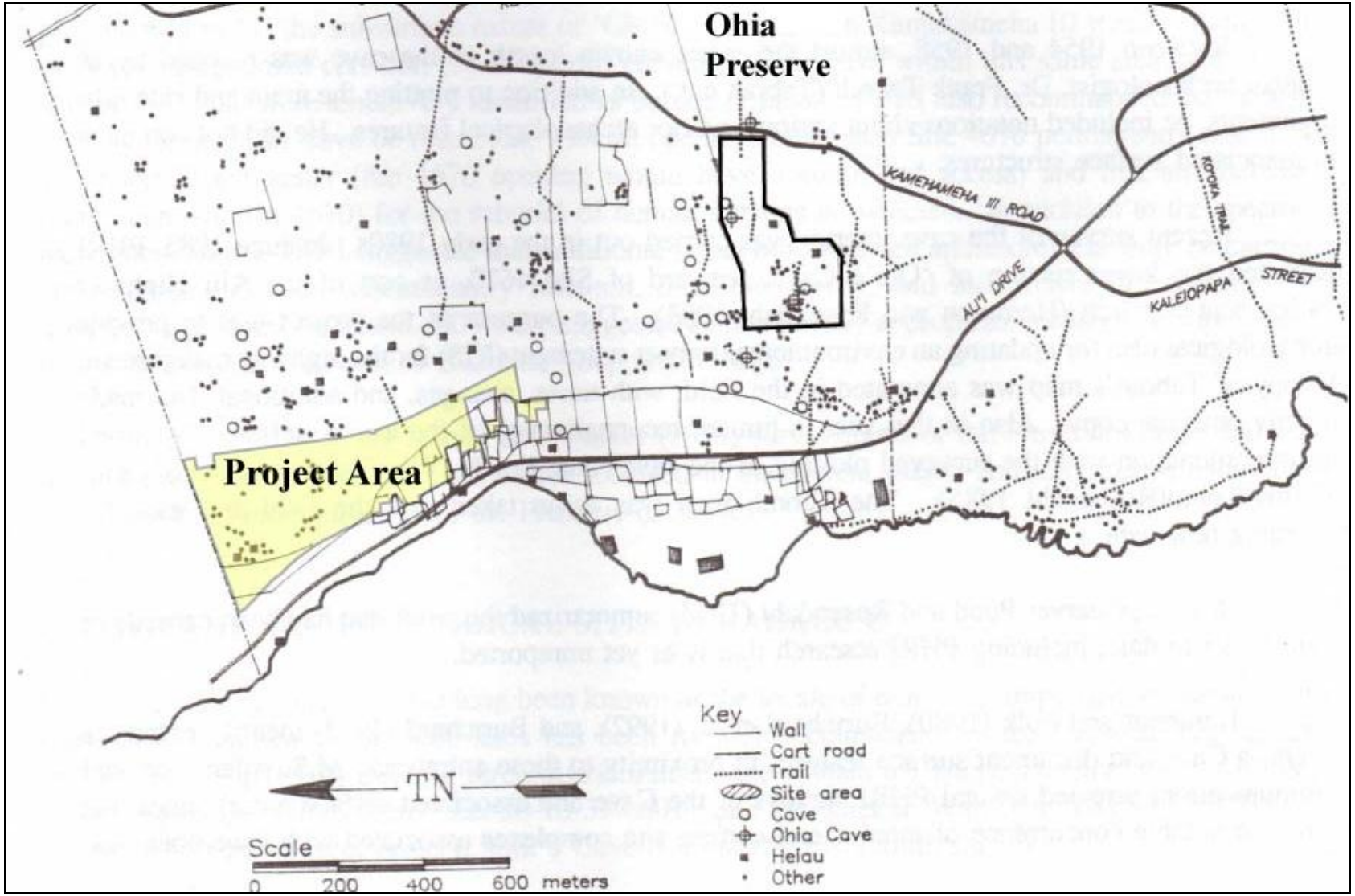

Figure 7: Map of Project Area and Archaeological Sites in the Kahalu‘u-Keauhou Region (Adapted from Tomonari-Tuggle 1993: 21).

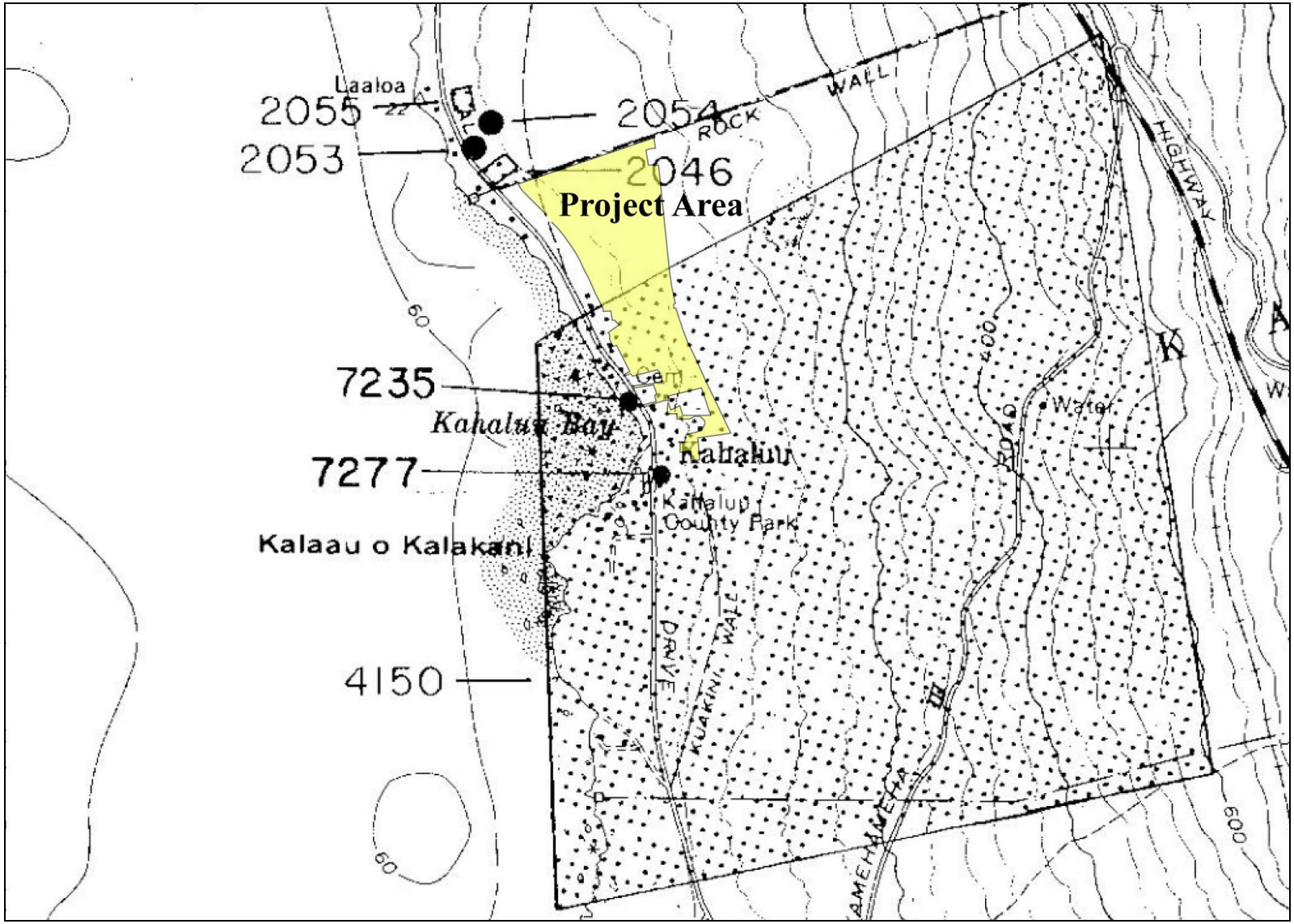

Figure 8: 7.5-Minute USGS Topographic Map Showing Location of Project Area and Kahalu‘u Historic District Site 4150 (Kealakekua Quad, 1990).

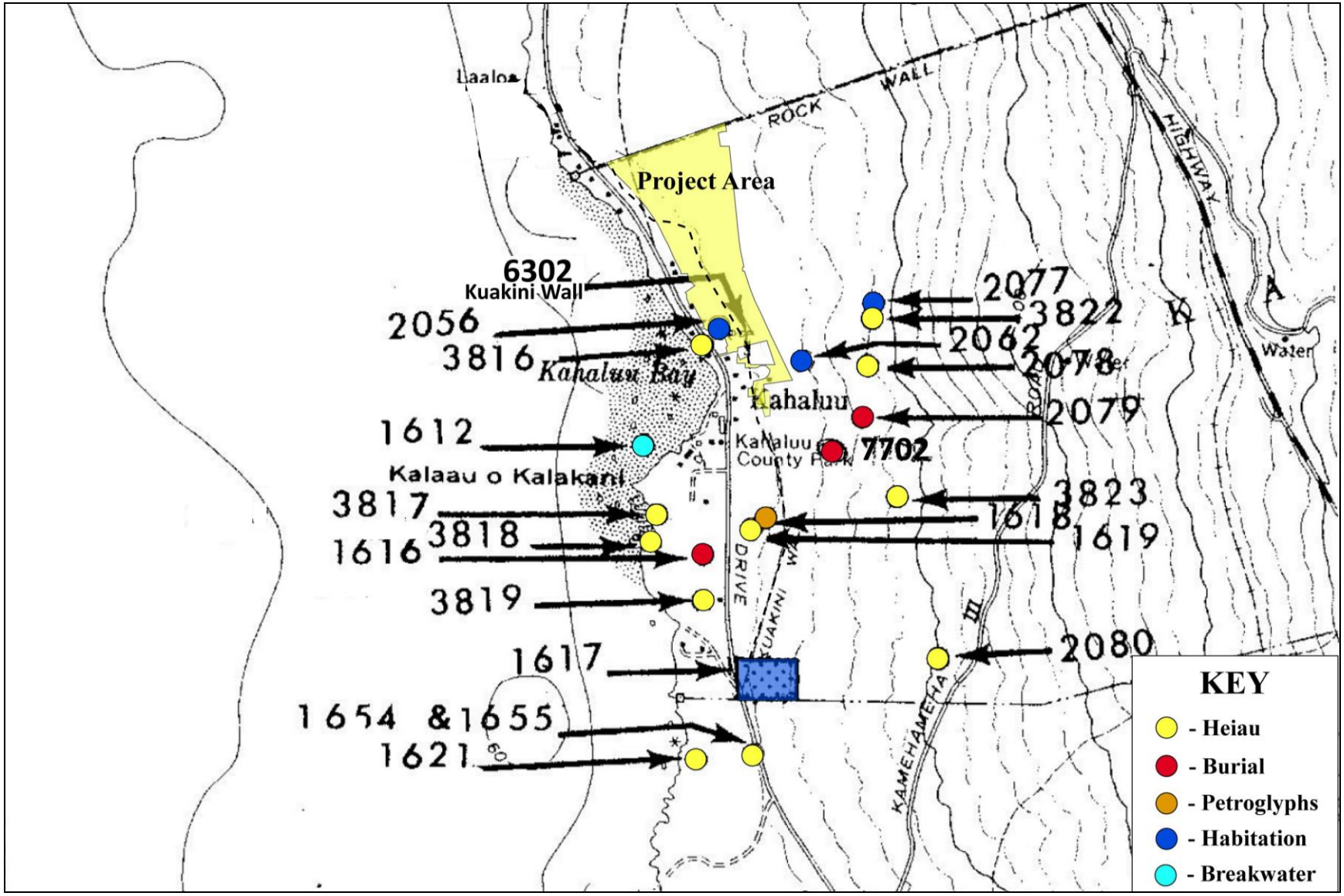

Figure 9: 7.5-Minute USGS Topographic Map Showing Location of Project Area and National Register of Historic Places Sites (Kealakekua Quad, 1990).

Table 1: Inventory of National Register of Historic Places Sites in Kahaluʻu.

Site Number (50-10-37-####)	Site Name	Site Type	Preservation Themes
4150	Kahaluʻu Historic District	Historic District	Hawaiian Cultural Site, Religion, Agriculture, Settlement, Recreation
1612	Kahaluʻu Breakwater	Stone Breakwater	Hawaiian Cultural Site, Engineering
1616	Burial Platform	Burial	Hawaiian Cultural Site, Religion
1617	Platform Complex	Habitation	Hawaiian Habitation Site
1618	Petroglyphs	Petroglyphs	Hawaiian Site, Art
1619	Papakoholua *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
1621	Inikiwai *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
1654	Kaualiʻiliʻi *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
2056	Enclosure Platform	Enclosure Platform	Hawaiian Site
2062	Platform	Possible Habitation	Hawaiian Site
2077	Halelaʻau Cave	Cave -Refuge, Tapa	Hawaiian Site
2078	*Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
2079	Caves and Platforms	Burials	Hawaiian Cultural Site, Religion
2080	*Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
3816	Kuemanu *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
3817	Hāpaialii *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
3818	Keʻekū *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
3819	Mākoleʻāa *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
3822	Halelaʻau *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
3823	Pā-ʻo-ʻUmi *Heiau*	*Heiau*	Hawaiian Cultural Site, Religion
7235	Helani Church	Church	Religion, Architecture
7277	St. Peter by the Sea Church	Church	Religion, Architecture

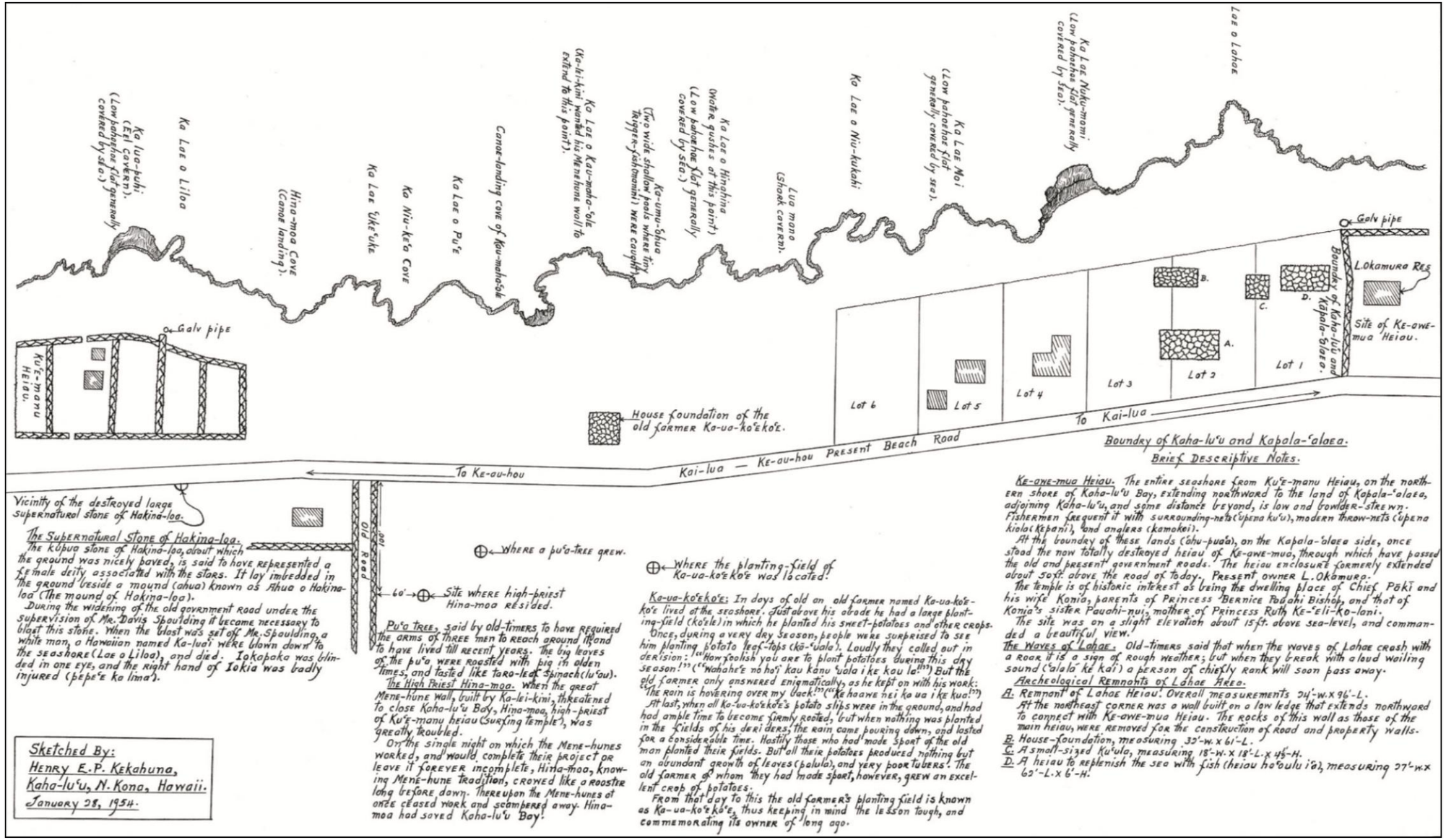

Figure 10: Drawing of Historic Properties Located Along the Shoreline in Northern Kahaluʻu Ahupuaʻa (Kekahuna 1954, Bishop Museum SP201863).

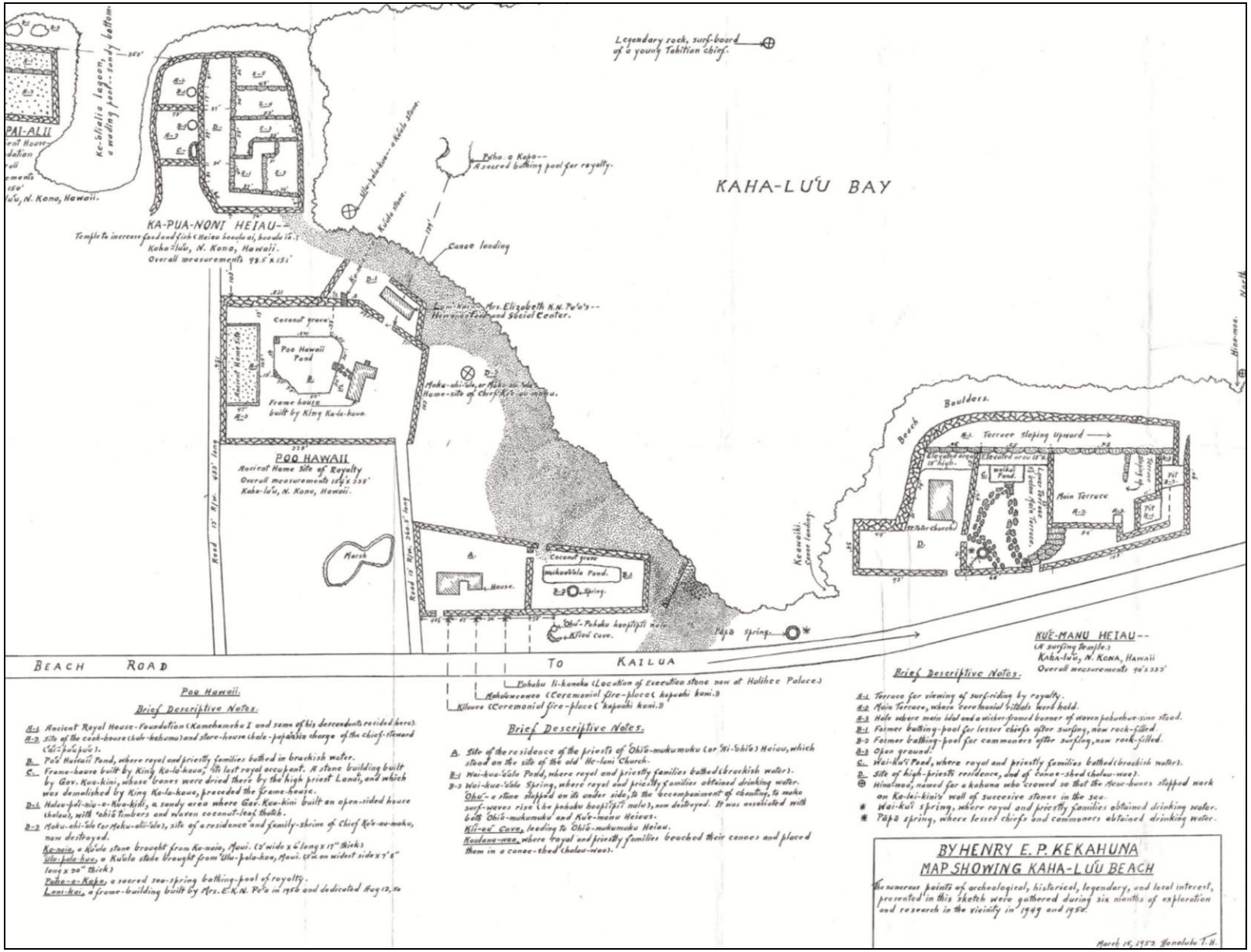

Figure 11: North Portion of Kahalu'u Beach Map Showing Location of Historic Properties (Kekahuna 1952, Bishop Museum SP201869).

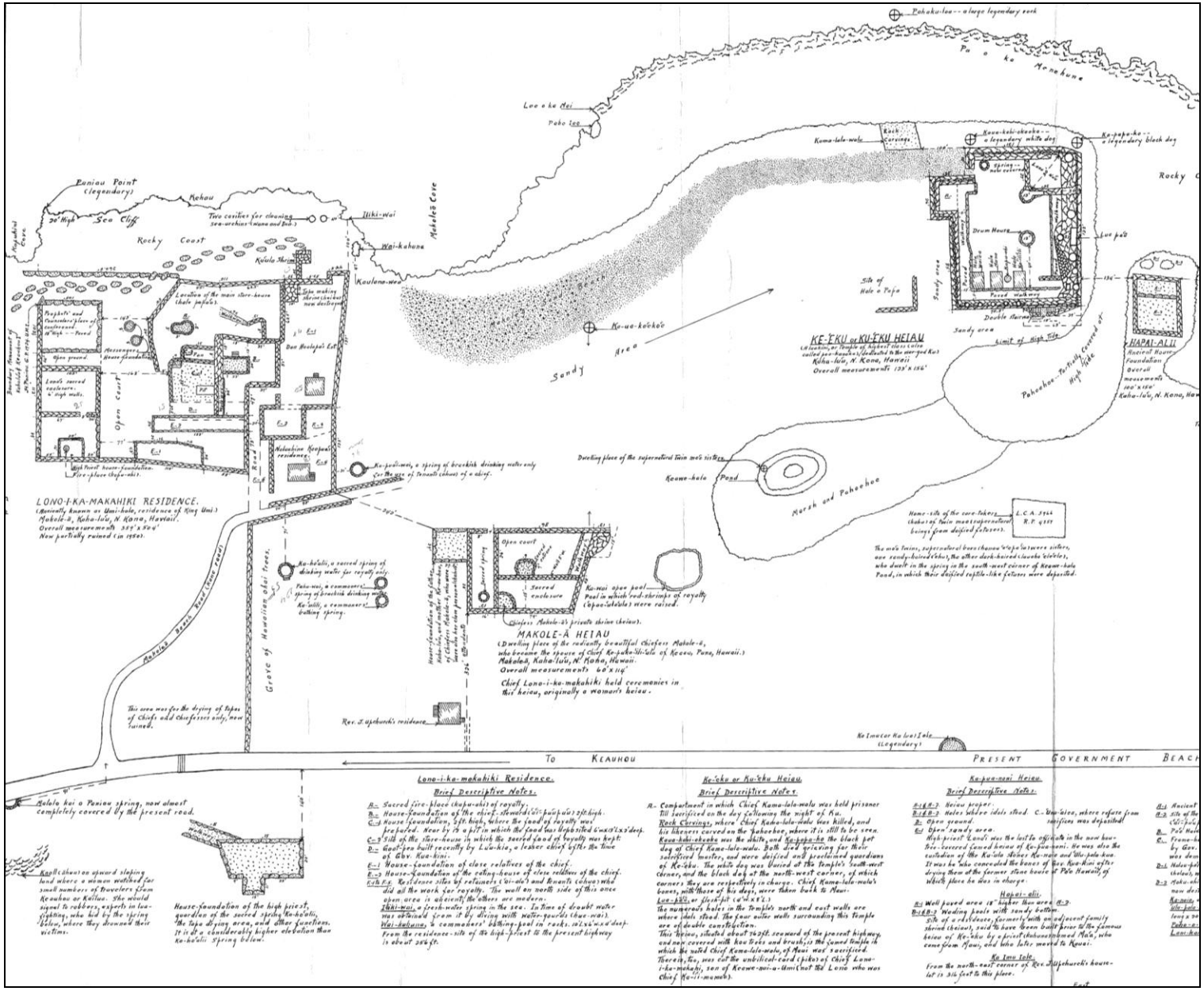

Figure 12: South Portion of Kahalu‘u Beach Map Showing Location of Historic Properties (Kekahuna 1952, Bishop Museum SP201869).

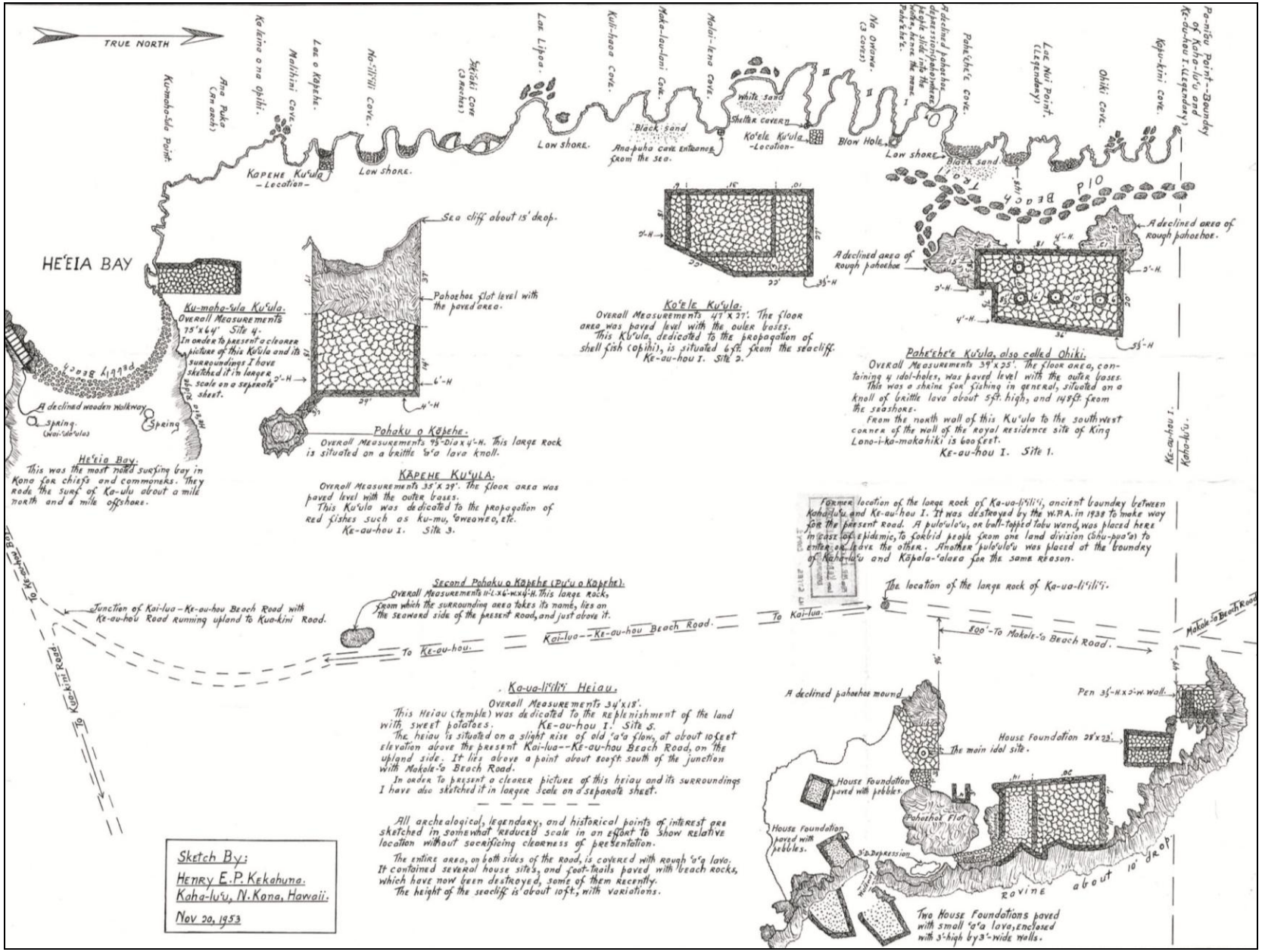

Figure 13: Drawing of Historic Properties Located Along the Shoreline in Southern Kahalu‘u Ahupua‘a (Kekahuna 1953, Bishop Museum SP201866).

Mākoleʻā *Heiau* - a *heiau* built or dedicated by Lono-i-ka-makahiki.
Halelaʻau *Heiau* - a *heiau* where residents prayed and took care of family matters
Pā-ʻo-ʻUmi *Heiau* - a *heiau* built by ʻUmi-a-Līloa dedicated to the abundance of agriculture.
ʻŌhiʻamukumuku - a *heiau* built or dedicated by Lono-i-ka-makahiki.

There are no large, named *heiau* present on the subject property. There are two *heiau* (Site 3822 and Site 2078) listed on the National Register of Historic Places (NRHP) located to the east inland of the property, and one *heiau* (Site 3816) located west of the property along the coast (see Figure 9). There are three nearby habitation sites listed on the NRHP, one located along the coast (Site 2056) and two inland (Site 2062 and Site 2077). There are two burial sites listed on the NRHP located to the southwest of the property (Site 7702 and 2079). The Kahaluʻu Breakwater (Site 1612) is located some distance southwest of the property.

Archaeological sites recorded on the project area through the archaeological inventory surveys suggest the lands of the project area were used primarily for agriculture and habitation. Of the 58 archaeological sites documented on the project area, twenty three were determined to be associated with agriculture (Berrigan *et al*. 2010:5). Agricultural sites include rock clearing mounds, planting mounds, modified outcrops, and planting terraces. At least thirty of the sites contained habitation features, including terraces, platforms, rock walls, and enclosure walls. Burials associated with the habitation sites were also recorded on the project area. At least five sites contained possible ceremonial features, including platforms, walls, and other smaller related features. All of the burials and ceremonial sites will be preserved in place in accordance with a SHPD-approved preservation plan. The Kahaluʻu Trail likely crossed the southern end of the project area (see Figure 5). The area of the trail is located within no-build buffer and preservation areas (see below).

There are numerous natural resource and historic sites that are located within Kahaluʻu Ahupuaʻa. Along the coast, they include Waikuʻi Pond, Keawaiki Canoe Landing, Waikuaʻala Pond, Poʻo Hawaiʻi Pond, the King Kalākaua Beach House, and Keawehala Pond. The inland portion of the *ahupuaʻa* contains a large number of agricultural features, including terraces and rock mounds. The high density of religious sites and natural sites, such as ponds, canoe landings, and agricultural features, within the *ahupuaʻa* is not arbitrary. The importance of Kahaluʻu Ahupuaʻa as a sociopolitical center is partially dependent on the natural resources within the *ahupuaʻa*.

TRADITIONAL HAWAIIAN CULTURAL PERSPECTIVES ON NATURAL RESOURCES AND THE AHUPUA‘A

From a traditional Hawaiian cultural point of view, the *ahupua‘a* can be understood as a most basic land-use unit. Families and individuals felt they were deeply connected to the *ahupua‘a* that they lived in (Handy *et al*. 1972:42). There was not so much a sense that people owned the land, but that people belonged to the land in which they lived and had a responsibility to nurture it. It was this deep connection to the land that informed each individual's right to collect the produce of their *ahupua‘a*.

Each *ahupua‘a* was administered by a *konohiki*, or lesser chief-landlord who was subject to an *ali‘i ‘ai ahupua‘a*, or the chief who controlled the resources of an *ahupua‘a* (Maly and Maly 2001:7). The *maka‘āinana* tended the fields and collected the abundance of their *ahupua‘a* for their own needs, as well as those of the *konohiki* and the *ali‘i*. Those who lived in each *ahupua‘a* had claim to the differing resources from all elevations of their *ahupua‘a*. The timing of planting and harvesting, the timing and quotas for fishing, the religious rituals and ceremonies that promoted the abundance of natural resources, and the cultural mores that laid out how food was distributed to all members of Hawaiian society were regulated by traditional cultural and religious practices so that all members of each *ahupua‘a* shared in the bounty of the *ahupua‘a*.

The natural environment and resources within the *ahupua‘a* were imbued with sacredness and were the focus of the traditional Hawaiian religious and social practices (Maly and Maly 2001:5). Many of the religious rituals, practices, and ceremonies centered on maintaining the fertility and abundance of the natural resources. Maly and Maly, pointing to the work of Handy, Handy, and Pukui (1972), write,

> the worship of Lono was centered in Kona. Indeed, it was while Lono was dwelling at Keauhou, that he is said to have introduced taro, sweet potatoes, yams, sugar cane, bananas, and ‘awa to Hawaiian farmers (Handy et al. 1972:14). The rituals of Lono "The father of waters" and the annual Makahiki festival, which honored Lono and which began before the coming of the kona (southerly) storms and lasted through the rainy season (the summer months), were of great importance to the native residents of this region (Handy et al. 1972: 523). The significance of rituals and ceremonial observances in cultivation and indeed in all

> aspects of life was of great importance to the well-being of the ancient Hawaiians, and cannot be over-emphasized, or overlooked when viewing traditional sites of the cultural landscape [Maly and Maly 2001:6].

With the coming of the Great Māhele (1848), the Alien Land Ownership Act and the Kuleana Act of 1850, the traditional Hawaiian archetype of land-use was essentially deconstructed and replaced with the European concept of fee-simple land ownership. Traditional Hawaiian subsistence practices, including the rights to collect resources from all ecological zones of one's *ahupuaʻa*, were challenged, restricted, or prevented. As private land owners considered their property off limits to others, cultivation and collection of resources on private land diminished. Individual Hawaiian cultural beliefs, specialized knowledge, and practices associated with the use of the different ecological resource zones also diminished. The development of cattle ranching and commercial crops, such as sugar cane and coffee, removed traditional cultigens and resources from large swaths of the lands of Kona.

The traditional Hawaiian cultural beliefs of nurturing the land are still held by many Hawaiians and are protected by the Hawaiʻi State Constitution. Cultural practices, including the gathering of plant resources from a variety of ecological regions, is still continued today. Kamehameha Schools, the Hawaiian Studies Program at the University of Hawaiʻi, as well as other private groups and cultural practitioners, are teaching cultural beliefs and practices informed by the natural landscape and resources of Hawaiʻi. The natural landscape, plants, and animals are important educational resources to teach traditional Hawaiian cultural values.

TRADITIONAL BURIAL PRACTICES

Hawaiians have traditionally buried their *kūpuna* in different ways. Burials were often interred in lava tubes or in graves constructed in the ground. Burial locations were sometimes marked with rock mounds or by well-faced rectangular platforms. At other times, burials were interred under the stone foundations of homes, or under rock-paved terraces. During the Historic era, burials were often marked with cement monuments. There is also the Hawaiian tradition of burying secretly in unmarked locations. Burials in lava tubes might be sealed, or those in the ground were often not marked.

In either case, Hawaiians consider the protection of *iwi kūpuna* to be a sacred responsibility. It is common that burial locations will be kept secret and that family

members will take care of the graves. Protecting the bones of the deceased is a traditional Hawaiian cultural practice with a long history.

Today, it is common to make burial locations known to the Hawai‘i Island Burial Council (HIBC) for official preservation. During this process, the location of burial sites is made known to the HIBC members and cultural and lineal descendants. The HIBC and the Hawai‘i State Preservation Division (SHPD) determine proper preservation treatments necessary to prevent impacts to the burial. While this is the common modern practice, many people do not feel comfortable discussing the location of burials with others, and they often prefer to protect the burials themselves.

Whether a person decides to participate in the official burial treatment process, or decides to protect a burial on their own, they are still practicing a traditional Hawaiian cultural practice.

CULTURAL INFORMANT INTERVIEWS

As part of the methodology for consultation discussed above, SCS, Inc. consulted with twenty individuals who either work for the Office of Hawaiian Affairs, the State Historic Preservation Division, the National Park Service, the Keauhou Cultural Advisory Committee, or have a long-standing *‘ohana* connections to Kahalu‘u, or are familiar with the project area lands through cultural and historical work they conduct on the Island of Hawai‘i (Table 2). All of the organizations and individuals listed in Table 2, except for OHA, responded to our request for information concerning ongoing cultural practices. It is regrettable that Ruby McDonald passed away during the preparation of this CIA. This report would have undoubtedly benefitted from her knowledge.

SCS, Inc. consulted with Joseph K. Spencer, Director of the Keauhou Cultural Advisory Committee to request information from its members. SCS, Inc. initially contacted Mr. Spencer by telephone. Per Mr. Spencer's request, maps and project information were emailed to him so that he could pass them on to the Keauhou Cultural Advisory Committee members. A second phone call was made three weeks later to follow up, since none of the members had come forward with information. The Director made a second attempt to locate any members who might have information of ongoing cultural practices on the project area. One member, Mitchell Fujisaka came forward and was interviewed as a member of the Kahulamu Family (see below).

Table 2: Results of CIA Consultation.

Name	Affiliation (Family/Agency)	Response (Written/Oral)	Knowledge (Yes/No)	Practices & Beliefs (Yes/No)
Kai Markell	Office of Hawaiian Affairs	No	-	-
Ruby McDonald	Office of Hawaiian Affairs	No	-	-
Kauanoe Hoʻomanawanui	State Historic Preservation Division Cultural Historian	Oral	Yes	No
Rick Gmirkin	Ala Kahakai National Historic Trail, NPS Archaeologist	Oral	Yes	No
Joseph K. Spencer	Director, Keauhou Cultural Advisory Committee	Oral	Yes	No
Willy Kahulamu	Kahaluʻu ʻOhana	Written & Oral	Yes	Yes
Gerry Kahulamu	Kahaluʻu ʻOhana	Written & Oral	Yes	Yes
Mitchell Fujisaka	Kahaluʻu ʻOhana	Oral	Yes	Yes
Hiram Rivera	Kahaluʻu ʻOhana	Written & Oral	Yes	Yes
Henry Kahulamu	Kahaluʻu ʻOhana	Oral	Yes	Yes
Nolen Kahulamu	Kahaluʻu ʻOhana	Oral	Yes	Yes
Velma Alapai	Kahaluʻu ʻOhana	Oral	Yes	Yes
Daisy Mitchell	Kahaluʻu ʻOhana	Written & Oral	Yes	Yes
Ron Mitchell	Kahaluʻu ʻOhana	Oral	Yes	Yes
Curtis Tyler	Kahaluʻu ʻOhana	Written & Oral	Yes	Yes
Lesley Tyler	Kahaluʻu ʻOhana	Oral	Yes	Yes
Hannah Reeves	Kailua ʻOhana	Oral	Yes	No
Uilani Kapu	Cultural Practitioner	Oral	Somewhat	No
Kuʻulei McCarthy	Hawaiʻi Island ʻOhana	Oral	Somewhat	No
Justin Asing	Hawaiʻi Island ʻOhana	Oral	Somewhat	No

Willy Kahulamu responded to the public notice and called SCS, Inc. Additional project information and maps were mailed to Willy Kahulamu. Willy and Gerry Kahulamu hosted a family meeting with SCS staff at their home on their family *kuleana* property adjacent to the project area. J. Curtis Tyler III and Lesley Tyler attended the meeting as well. At this meeting, specific cultural information and concerns were provided by all of the Kahulamu family members present and by both members of the Tyler family (see Table 2).

The Kahulamu family owns two parcels (TMK: (3) 7-8-014:33 and 34) *makai* of the southern tip of the project area (Figure 14). The Kahulamu *ʻohana* has lived there for many generations. A portion of parcel 34 contains the family cemetery. The Kahulamu property was owned by Willy Kahulamu's grandfather, and Willy's mother was born there.

On Saturday, November 3, 2012, SCS associates Glenn Escott, M.A. and Suzan Keris, B.A. met with eleven individuals who are or have direct connections to previously

known and recognized descendants of ancestors who once lived in Kahalu‘u. This meeting took place on the ancestral and *kuleana* lands of Kahalu‘u (LCA 5683), from which the meeting's attendees are descended or otherwise are connected to by marriage. The meeting was held to discuss and record the family members' knowledge of the property’s use, the presence of cultural and historic properties known to them on the land, and cultural practices associated with the land.

There were four main points discussed concerning the project area lands. The first point is related to the Kahulamu family cemetery. The family is concerned that any development in close proximity to the cemetery will alter the character of the cemetery. The cemetery is now a secluded, peaceful place where family members spend private time with their deceased family members. They are concerned that nearby development will disrupt privacy and could promote an environment that is not respectful to the family members buried in the cemetery. Willy stated that with increased development and more people coming into the area, there are already pedestrians who have wandered over to his property to catch a glimpse of the cemetery.

The second point discussed is the family members’ concern that there are unmarked burials on the project area. Both Willy and Mitchell remembered that Willy’s grandfather blocked off and concealed the entrances to burial caves that he knew of. The lava tubes containing the burials were described as running *mauka/makai* under the project area and under the Kahulamu property. The lava tubes were long and ran from the under the mountain to below the sea. Willy's grandfather and the Kahulamu *‘Ohana* consider the protection and preservation of Hawaiian burials to be a long-standing and ongoing cultural practice.

The third point discussed is related to the broader Kahalu‘u area development, population increase, and their impacts on the traditional Hawaiian cultural perspective of the natural world. The Kahulamu family discussed the importance of resource zones and sustainability to Hawaiian cultural practices. Each region of the land, from the coast to the mountains, has unique resources that were cultivated and harvested by Hawaiians. Development has constricted the size, or restricted access to, many of these resource base areas. The overall process has prevented the continuation of many of the traditional cultural practices centered around gathering, fishing, and hunting.

This generation of the Kahulamu family can remember that in their youth they were able to throw net at Kahalu‘u Bay and catch fish. With the onset of development, increased population, and increased shoreline traffic, the reef has been damaged and the numbers of fish have diminished

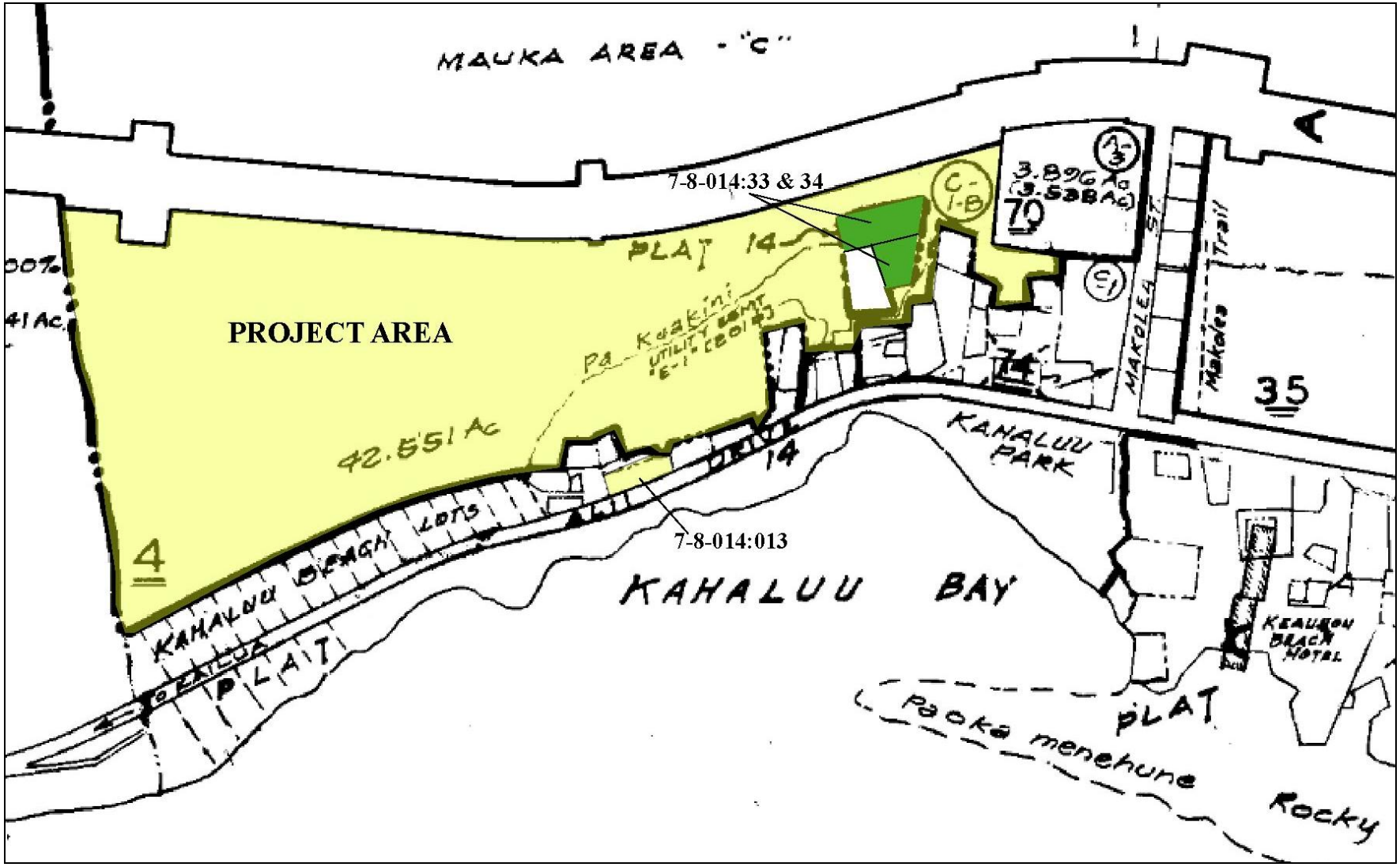

Figure 14: Location of Project Area (Yellow) and Kahulamu Property (Green) on TMK: (3) 7-8-010 Map.

as a direct result. The Kahulamu family members stated that further development would add to the process of resource loss, and further loss of cultural practice.

The fourth and final point discussed was the fact that the project site is within the Kahalu‘u Historic District, which requires consideration.

After meeting with his family members to consult, Mr. Kahulamu sent a letter dated September 27, 2012 expressing his concern over the possibility that the project will impact burials on the project area and those of his family graveyard located on his property.

On November 12, 2013, Curtis Tyler and Willy and Gerry Kahulamu met with SCS, Inc. Senior Archaeologist Glenn Escott, M.A. and members of the proposed project team, Chris Lau and Bill Moore, to review the first draft CIA, to receive additional information and direction regarding the project area cultural landscape and potential impacts to cultural practices, and to discuss mitigation of potential impacts. Curtis Tyler provided important review comments that significantly improved the second draft CIA. Revisions were made to the first draft CIA to address the concerns presented in Curtis Tyler's review comments.

To address cultural concerns presented by the Kahulamu family and by Curtis Tyler, representatives of Towne Development held additional meetings and talks with the Kahulamu family to determine if there were ways to minimize impacts.

In recognition of the Kahulamu *‘Ohana's* cultural practice of protecting burial sites, Towne Development of Hawaii has revised its development plan to create a buffer area around the Kahulamu *kuleana* lots (Figure 15). Based on this buffer, no development activities will occur within the area approximately 150 feet north of the Kahulamu *kuleana* and no development activities will occur south of the properties. This measure ensures that construction will not take place near to the Kahulamu graveyard, and will not encroach upon or diminish the character of those burials. In addition, construction will not be conducted in areas that may contain unidentified burials, and the Kahulamu family will have continued access to the burial areas so that they can continue to care for them. In addition, the likely location of the former Kahalu‘u Trail falls within the no-build buffer and archaeological preservation areas within the southern portion of the project area.

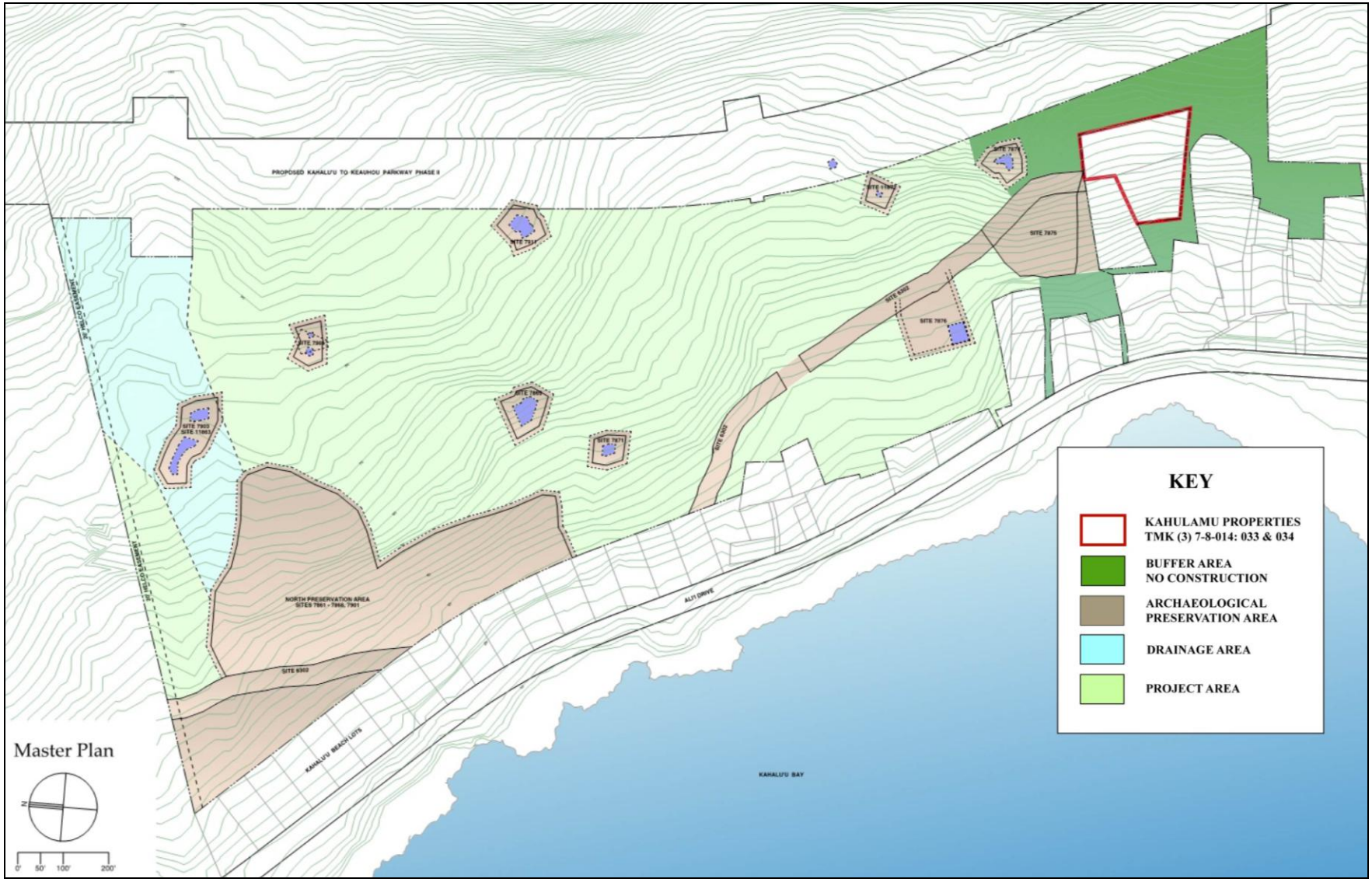

Figure 15: Master Plan Showing Locations of Kahulamu Properties, No-Build Buffer Areas, and Archaeological Preservation Areas.

Additional consultation was provided by J. Curtis Tyler III in the form of review comments of the second draft CIA reports. This CIA report includes his suggested revisions and has greatly benefitted from his consultation input.

CULTURAL ASSESSMEMNT

Based upon an evaluation of responses to inquiries, individual cultural informant interviews, and archival research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on this parcel, given the establishment of a buffer area around the Kahulamu *kuleana* lots. The protection of Hawaiian burials was identified as an ongoing cultural practice within the project area, with the implementation of the buffer area, this cultural practice will be fully protected.

The cultural values of the Kahalu‘u Historic District are primarily related to the royal residences and ceremonial structures on the landscape, which are not present on or near the subject property and will not be affected. The project includes substantial preservation areas for ceremonial sites, burials, trails, and habitation sites that will be left completely undisturbed and will offer an opportunity for care by lineal and cultural descendants.

With respect to the Kahulamu family’s statement that development in general has restricted access to many of the resources that were cultivated and harvested by Hawaiian, it is important to note that no hunting, fishing or gathering of resources has been identified on or associated with the project area. Water quality studies conducted for the project and contained in Appendix 2 of the Environmental Assessment demonstrate that there will be no adverse effects to water quality. The proposed undertaking will not produce adverse effects to any other specific Native Hawaiian cultural practices in the area.

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Waihona 'Āina

2014 Māhele online database. www.waihona.com.

APPENDIX A: PUBLIC NOTICES

AFFIDAVIT OF PUBLICATION

State of Hawaii)
) SS:
County of Hawaii)

M. R. Chavez, being first duly sworn, deposes and says:

1. That she is the Classified Accountant of WEST HAWAII TODAY, a newspaper published in the City of Kailua Kona, State of Hawaii.

2. That "**CULTURAL IMPACT ASSESSMENT NOTICE** Information requested by Scientific Consultant Services, Inc." of which a clipping from the newspaper is attached hereto, was published in said newspaper on the following date(s) August 5, 8 and 9, 2012 (etc.)

M. R. Chavez

Subscribed and sworn to before me
This 9th day of August, 2012

Henriann P. Kahananui

HENRIANN P. KAHANANUI NOTARY No. 11-188 PUBLIC STATE OF HAWAII

Notary Public, Third Circuit
State of Hawaii

Henriann P. Kahananui

My Commission expires: June 6, 2015
Page(s): 1

West Hawai'i Today Public Notice Affidavit.

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF
SCS1329 Kahaluu
CULTURAL IMPACT ASSESSMENT NOTICE

STATE OF HAWAII
City and County of Honolulu } SS.

Doc. Date: AUG - 9 2012 **# Pages:** 1
Notary Name: Patricia K. Reese First Judicial **Circuit**
Doc. Description: Affidavit of Publication
Notary Signature AUG - 9 2012 Date

PATRICIA K. REESE NOTARY PUBLIC Comm. No. 86-467 STATE OF HAWAII

CULTURAL IMPACT ASSESSMENT NOTICE

Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices at lands mauka of Ali'i Drive at Kahalu'u, in Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i, TMK: (3) 7- 8-10: 04. Please respond within 30 days to Glenn Escott at (808) 938-0968. (SA440102 8/5, 8/8, 8/9/12)

Rose Rosales being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser and MidWeek, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

Honolulu Star-Advertiser 3 times on:
08/05, 08/08, 08/09/2012

Midweek Wed. 0 times on:

_____ times on:

And that affiant is not a party to or in any way interested in the above entitled matter.

Rose Rosales

Subscribed to and sworn before me this 9th day
of August A.D. 20 12

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct 07 2014

PATRICIA K. REESE NOTARY PUBLIC Comm. No. 86-467 STATE OF HAWAII

Ad # 0000440102

LN:_____

Honolulu Star-Advertiser Public Notice Affidavit.

and other actions to support Hawai'i in achieving its goal of 70% clean energy by 2030. The PEIS will analyze, at a programmatic level, the potential environmental impacts of activities in the categories of energy efficiency, distributed renewables, utility-scale renewables, alternative transportation fuels and modes, and electrical transmission and distribution.

Comments can be submitted through Oct. 9, 2012, at a public meeting or via:

- Internet - http://www.hawaiicleanenergypeis.com
- Email - hawaiicleanenergypeis@ee.doe.gov
- Fax - (808) 541-2253, Attention: Hawai'i Clean Energy PEIS
- U.S. mail addressed to: Jim Spaeth, U.S. Department of Energy, 300 Ala Moana Blvd., P.O. Box 50247, Honolulu, HI 96850-0247

The Amended Notice of Intent and information about the 60-day public scoping period can be found at http://www.hawaiicleanenergypeis.com.

CULTURAL IMPACT ASSESSMENT NOTICES

> Kawaihae 1st Ahupua'a

Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices within the Kawaihae Harbor Facilities, Kawaihae 1st Ahupua'a, South Kohala District, Island of Hawai'i, TMK: (3) 6-1-003: 026 (por.), 047 (por.), and 055 (por.). Please respond within 30 days to Glenn Escott at (808) 938-0968.

> Kahalu'u Ahupua'a

Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices at lands mauka of Ali'i Drive at Kahalu'u, in Kahalu'u Ahupua'a, North Kona District, Island of Hawai'i, TMK: (3) 7- 8-10: 04. Please respond within 30 days to Glenn Escott at (808) 938-0968.

> Pu'u Anahulu Ahupua'a

Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices within the Pu'u Anahulu Game Management Area, mauka of Queen Ka'ahumanu Highway, immediately adjacent to the West Hawai'i Sanitary Landfill, in Pu'u Anahulu Ahupua'a, North Kona District, Island of Hawai'i, TMK: (3) 7-1-003:001. Please respond within 30 days to Glenn Escott at (808) 938-0968.

> Waiakahiula Ahupua'a

Information requested by Scientific Consultant Services, Inc. of cultural resources or ongoing cultural practices within the Pahoa Park area, Waiakahiula Ahupua'a, Puna District, Island of Hawai'i, TMK: (3) 6- 1-005: 020. Please respond within 30 days to Glenn Escott at (808) 938-0968.

> Wai'anae Ahupua'a

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources or ongoing cultural activities on or near the proposed Mullen's Solar Farm located in Wai'anae Ahupua'a, Wai'anae District, O'ahu Island [TMK: (1) 8-5-014:010 and 8-5-016:014)]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182.

> Wailuku Ahupu'a

Information requested by Scientific Consultant Services, Inc. (SCS) on cultural resources or ongoing cultural activities on or near the proposed consolidated rental car facility and associated improvements at Kahului Airport in Kahului, Wailuku Ahupua'a, Wailuku District, Maui Island, Hawai'i [TMK: (2) 3-8-001:123, 239 and 3-8-079:021]. Please respond within 30 days to Cathleen Dagher at (808) 597-1182. ■

Ka Wai Ola Public Notice (September 2012 Issue).

APPENDIX B: KAHALU‘U LAND COMMISSION AWARDS

(Source: Waihona.com 2014)

LCA	Claimant	Island	District	Ahupuaa	Ili	Awarded
08454	Kahananui	Hawaii	Kona, North?	Kahaluu?	Kihikihi?	0
10258	Maikai	Hawaii	Kona, North	Kahaluu	Kaohia, Haleape, Waipio, Haliipalala	1
10137	Makia	Hawaii	Kona, North	Kahaluu	Kamakalaauiki, Makakiloia	0
10452	Nakuaua	Hawaii	Kona, North	Kahaluu	Kealaehu, Kamuku	0
10766	Pio	Hawaii	Kona, North	Kahaluu	Kamuki,Ioaie	1
00125B	Kaanaana	Hawaii	Kona, North	Kahaluu		0
00127B	Kaniaa	Hawaii	Kona, North	Kahaluu		0
00128C	Kuia	Hawaii	Kona, North	Kahaluu	Koaie 3	0
00130B	Kapihe	Hawaii	Kona, North	Kahaluu	Koaie 3	0
00133B	Kanalu	Hawaii	Kona, North	Kahaluu		0
02659*H	Kanoa, Paulo	Hawaii	Kona, North, Puna	Kahaluu, Hanepuaa		0
03440B	Kaluahinui	Hawaii	Kona, North	Kahaluu	Pakii 2	1
03441B	Naaho	Hawaii	Kona, North	Kahaluu	Makoha	1
03441B!	Kaniaa	Hawaii	Kona, North	Kahaluu	Pahoa	x
03442B	Kaniaa?	Hawaii	Kona, North	Kahaluu		0
03443B	Kuia	Hawaii	Kona, North	Kahaluu	Koaie 3	1
03444B	Kapihe	Hawaii	Kona, North	Kahaluu	Koaie 3	1
03445B	Kahananui	Hawaii	Kona, North	Kahaluu	Kihikihi	1
03446B	Kahue	Hawaii	Kona, North	Kahaluu	Kukuihaa	0
03447B	Palaukae	Hawaii	Kona, North	Kahaluu	Kukuihaa 5	1
03449B!	Luukia	Hawaii	Kona, North	Kahaluu	Kahiamoe	x
03455B	Maikeiki, wahine	Hawaii	Kona, North	Kahaluu	Kukuihaa 3	0
05632	Keikihookama	Hawaii	Kona, North	Kahaluu	Makolea, Lehuakona, Pakii 1, Ulumoe	1
05635	Holoholoku	Hawaii	Kona, North	Kahaluu		0

05635CC	Kaliai, D.	Hawaii	Kona, North	Kahaluu		0
05635E	Keomano	Hawaii	Kona, North	Kahaluu	Kumuhawane	1
05635H	Naaho	Hawaii	Kona, North	Kahaluu	Makolea	0
05635I	Opahu	Hawaii	Kona, North	Kahaluu		0
05635K	Kapihe	Hawaii	Kona, North	Kahaluu		0
05635L	Kaapa	Hawaii	Kona, North	Kahaluu	Kapalaalaea 2	0
05635N	Haki	Hawaii		Kahaluu?		0
05635P	Maiikeiki	Hawaii	Kona, North	Kahaluu	Kukuihaa 3	1
05635Q	Kauiaa	Hawaii	Kona, North	Kahaluu	Pahoa 2	1
05635R	Keaupuni	Hawaii	Kona, North	Kahaluu	Pahoa 3	0
05635S	Piho	Hawaii		Kahaluu?		0
05635T	Kaliai	Hawaii		Kahaluu?		0
05635U	Kapa	Hawaii	Kona, North	Kahaluu		0
05635V	Kanehewahewa	Hawaii	Kona, North	Kahaluu 1	Kaliipalala 5, Hokio	0
05642	Kokuahine	Hawaii	Kona, North	Kahaluu	Haliipalala	1
05671	Kahuhu	Hawaii	Kona, North	Kahaluu	Hokio, Haliipalapala	0
05671B	Kanehewahewa	Hawaii	Kona, North	Kahaluu	Haliipalapala 3	1
05672	Kahalelahaole	Hawaii	Kona, North	Kahaluu	Pahauopu	1
05673	Kamalo	Hawaii	Kona, North	Kahaluu	Hokio 2	1
05673B	Naahau	Hawaii	Kona, North	Kahaluu	Kamuku	1
05673C	Naahau	Hawaii	Kona, North	Kahaluu	Puekahi	0
05676	Keliaihue, W.H.	Hawaii	Kona, North	Kahaluu	Puuhinahina	1
05677	Kauwa	Hawaii	Kona, North	Kahaluu	Kamuku	1
05678	Kauwale	Hawaii	Kona, North	Kahaluu	Pamaki	1
05681	Keliihelelau	Hawaii	Kona, North	Kahaluu		0
05682	Keaupuni, wahine	Hawaii	Kona, North	Kahaluu	Umihale	1

05683	Kualu	Hawaii	Kona, North	Kahaluu		1
05683B	Kamauhili	Hawaii	Kona, North	Kahaluu		1
05683B!	Keliihelelau	Hawaii	Kona, North	Kahaluu		x
05683BB	Keliihelelau	Hawaii	Kona, North	Kahaluu	Hokio	1
05684	Kauahulimoana	Hawaii	Kona, North	Kahaluu		1
05685	Keakahaapoli	Hawaii	Kona, North	Kahaluu		0
05686	Keau	Hawaii	Kona, North	Kahaluu		1
05687	Kuaana ma	Hawaii	Kona, North	Kahaluu		1
05687A	Papa	Hawaii	Kona, North	Kahaluu	Ililoa	1

LCA	Claimant	Island	District	Ahupuaa	Ili	Awarded
05687E	Moeloa	Hawaii	Kona, North	Kahaluu		1
05688	Leleola	Hawaii	Kona, North	Kahaluu	Lehuakona, Makakiloia	1
05688B	Kameeui	Hawaii	Kona, North	Kahaluu	Makakiloia	1
05689	Nahoounauna	Hawaii	Kona, North	Kahaluu	Kukuihaa, Koaie, Lehuakona	1
05690	Kanakole	Hawaii	Kona, North	Kahaluu	Kihikihi 2, Pakii, Pahoa	1
05691	Kamaui	Hawaii	Kona, North	Kahaluu, Kaue	Makolea, Pakii 1	1
05693	Koolau	Hawaii	Kona, North	Kahaluu		1
05694	Kauakoekoe	Hawaii	Kona, North	Kahaluu	Hokio	1
05695	Kaulike	Hawaii	Kona, North	Kahaluu	Haliipalala 5	1
05791	Kalaikuiha	Hawaii	Kona, North	Kahaluu	Kalaeohe, Ohiki, Haleopele, Koloalu	0
05831	Kaeha	Hawaii	Kona, North	Kahaluu	Kukuihaa 4	1
05831B	Kanalu	Hawaii	Kona, North	Kahaluu	Kukuihaa 1, Kaunamoa	1
05895	Peekoa	Hawaii	Kona, North	Kahaluu		1
05915	Pawai	Hawaii	Kona, North	Kahaluu	Hapaialii	1
05966	Maheu	Hawaii	Kona, North	Kahaluu		1
05966B	Imakakoloa	Hawaii	Kona, North	Kahaluu	Kukuiokahinu	1
05970	Malaihi	Hawaii	Kona, North	Kahaluu		0
06001	Luukia	Hawaii	Kona, North	Kahaluu		0
06026	Lanai, Ikaaka	Hawaii	Kona, North, Kau	Kahaluu, Honokohauiki, Kapua, Pakini nui	Poohawaii, Hanapouli, Waioha	1

LCA	Claimant	Island	District	Ahupuaa	Ili	Awarded
06029	Nakea	Hawaii	Kona, North	Kahaluu	Paulu?	1
06030	Noholowaa	Hawaii	Kona, North	Kahaluu	Paulu?	1
06032	Napio	Hawaii	Kona, North	Kahaluu	Makailoia, Makolea, Ulumoe, Pakii 6, Pahoa	1
06071	Hoopale	Hawaii	Kona, North	Kahaluu		1
06091	Malaihi	Hawaii	Kona, North	Kahaluu	Kaloaulu	1
06094	Umiumi	Hawaii	Kona, North	Kahaluu	Kamuku 1	1
06128	Napipi	Hawaii	Kona, North	Kahaluu	Kukuiohaa	1
06129	Nawaimaka	Hawaii	Kona, North	Kahaluu		1
06139	Nakowana	Hawaii	Kona, North	Papuaa 3, Kahaluu	Ililoa	1
06141	Naholowaa	Hawaii	Kona, North	Kahaluu		0
06143	Naauhau	Hawaii	Kona, North	Kahaluu	Kealaehu	0
07644	Kuanea	Hawaii	Kona, North	Kahaluu	Puekahi	0
07645	Keaweopulaau	Hawaii	Kona, North	Kahaluu		0
07713*H	Kamamalu, Victoria	Hawaii	Kau, Hamakua, Hilo, Kona, North, Kohala, North, Puna	Kahua, Honokane, Holualoa 1,2, Kahaluu, Keopunui, Keauhou, Honuaino, Honokua 2, Haukalua 1, 2, Pakini, Kahuai, Kauhaleau, Kauaea, Kalalau, Pahoehoe, Onomea, Alae, Kuilei	Keauhou, Piopio, Honohononui, Kekelani	1

ENVIRONMENTAL ASSESSMENT

Parcel 26 at Kahalu‘u - A Residential Project for Towne Development of Hawai‘i

APPENDIX 4
Traffic Impact Analysis Report

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Phillip Rowell and Associates
47-273 'D' Hui Iwa Street Kaneohe, Hawaii 96744 Phone: (808) 239-8206 FAX: (808) 239-4175 Email:prowell@hawii.rr.com

October 1, 2013

Mr. Chris Lau
Towne Development
220 South King Street, Suite 2170
Honolulu, HI 96813

Re: Traffic Impact Assessment Report
KIC Land Area 26
Kailua-Kona, Hawaii
TMK: (3) 7-8-10:por 4

Dear Chris:

Phillip Rowell and Associates have completed the following Traffic Impact Assessment Report (TIAR) for KIC Land Area 26. The report is presented in the following format:

A. Project Location and Description
B. Purpose and Objective of Study
C. Study Approach
D. Description of Existing Streets and Intersection Controls
E. Existing Peak Hour Traffic Volumes
F. Public Transportation
G. Level-of-Service Concept
H. Existing Levels-of-Service
I. Background Traffic Projections
J. Project Trip Generation
K. Background Plus Project Projections
L. Traffic Impact Assessment
M. Mitigation
N. Summary and Recommendations

A. Project Location and Description

1. The proposed project is located east side of Alii Drive north of Makolea Street in the Kailua-Kona area of the Island of Hawaii.

2. The project will consist of 17 single-family dwelling units and 321 time share units. Attachment A is the project's site plan.

3. Access to and egress from will be via a new driveway along the east side of Alii Drive approximately 1,350 feet north of Makolea Street.

4. Estimated completion date is 2023.

B. Purpose and Objective of Study

1. Quantify and describe the traffic related characteristics of the proposed project.

2. Identify potential deficiencies adjacent to the project that will impact traffic operations in the vicinity of the proposed project.

C. Study Approach

A trip generation analysis was performed to define the scope of work. The trip generation analysis estimated that the proposed project will generate 207 trips during the morning peak hour and 354 trips during the afternoon peak hour. Attachment B indicates the requirements of a traffic impact study for a project that will generate this number of peak hour trips.

1. A field reconnaissance was performed to identify existing roadway cross-sections, intersection lane configurations, traffic control devices, and surrounding land uses.

2. Current weekday peak hour traffic volumes were obtained from manual traffic counts along Alii Drive in the vicinity of the proposed project driveway.

3. Existing intersection levels-of-service were determined using the methodology described in the *Highway Capacity Manual*.

4. Peak hour traffic that the proposed project will generate was estimated using trip generation analysis procedures recommended by the Institute of Transportation Engineers. Project generated traffic was distributed and assigned to the adjacent roadway network.

5. A level-of-service analysis for future traffic conditions with traffic generated by the study project was performed.

6. The impacts of traffic generated by the proposed project were quantified and summarized. Since the intersection of Alii Drive at the project driveway will be a new intersection, the lane configuration required to provide acceptable levels-of-service was determined. A level-of-service analysis was performed to confirm that the new intersection will operate at an acceptable level-of-service.

D. Description of Existing Streets and Intersection Controls

Alii Drive is a two-lane, two-way roadway with a north-south orientation. Alii Drive is a County roadway connecting Keauhou and Kailua-Kona Town. The posted speed limit adjacent to the proposed project is 30 miles per hour along the northbound direction and 25 miles per hour along the southbound direction.

E. Existing Peak Hour Traffic Volumes

Current weekday peak hour traffic volumes were obtained from manual traffic counts along Alii Drive in the vicinity of the proposed project driveway. The traffic counts were performed Thursday, September 12, 2013. These counts are compared to counts at the same location performed in 2005 and 2012 in Table 1.

Table 1 Summary of Traffic Counts Along Alii Drive at Proposed Project Driveway

Day	Date	AM Peak Hour			PM Peak Hour		
		From North (Southbound)	From South (Northbound)	Total	From North (Southbound)	From South (Northbound)	Total
Tuesday	3-1-05	282	267	549	327	456	783
Thursday	9-6-12	218	196	414	299	322	621
Friday	9-7-12	246	197	443	309	321	630
Thursday	9-12-13	217	208	425	358	308	666

It should also be noted that the 2012 and 2013 peak hour traffic counts are significantly lower than the 2005 counts.

Attachment C is a summary of the peak hour traffic volumes.

F. Public Transportation

HeleOn operates along Alii Drive. There is a bus stop for northbound travel south of Makolea Street, approximately 1400 feet south of the project driveway. There is a bus stop of southbound travel approximately 850 feet south of the project driveway.

G. Level-of-Service Concept

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 2. In general, LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents severe congestion with stop-and-go conditions. *Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.*[1]

Corresponding to each level-of-service shown in the table is a volume/capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

[1] Institute of Transportation Engineers, *Transportation Impact Analyses for Site Development: A Recommended Practice*, 2006, page 60

Table 2 Level-of-Service Definitions for Signalized Intersections[1]

Level of Service	Interpretation	Volume-to-Capacity Ratio[2]	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 3 summarizes the definitions for level-of-service and the corresponding delay.

Table 3 Level-of-Service Definitions for Unsignalized Intersections[1]

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little or no delay	<10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

H. Existing Levels-of-Service

Existing levels-of-service are typically calculated to establish a base for quantifying the impacts of the proposed project. In this case, existing level-of-service could not be calculated as the proposed project driveway does not yet exist.

I. Background Traffic Projections

The year 2023 was used as the horizon year for the traffic projections. The horizon year represents a date for which future background and background plus project traffic projections were estimated. These projections include traffic generated by other planned projects within and adjacent to the study area and background traffic growth, for which a future year must be selected. For projects that will generate less than 500 peak hour trips, the suggested horizon year is the "anticipated opening year, assuming full buildout and occupancy."[2] It is anticipated that this project will be completed and 100% occupied within ten (10) years. Therefore, 2023 is the appropriate horizon year for this traffic impact assessment.

We are not aware of any approved projects in the vicinity that will impact traffic conditions along Alii Drive in the vicinity of the project before the design year of this project. It is understood that the Keauhou Resort Hotel will be demolished, which will likely result in a slight decrease in traffic in the near future.

As noted earlier in this report, the traffic counts performed in 2012 and 2013 are significantly lower than those performed in 2005. It is not likely that traffic volumes along Alii Drive will continue to decrease between 2013 and 2023. Therefore, a growth rate cannot be estimated from historical traffic data. A review of population forecasts for North Kona indicates a population growth of 2.2% per year between 2010 and 2020. Therefore, it was assumed that traffic growth in the area would increase proportionally. Accordingly, a growth rate of 2.2% per year was assumed to estimate the background growth between 2013 and 2023.

J. Project Trip Generation

Future traffic volumes generated by proposed project were estimated using the methodology described in the *Trip Generation Handbook*[3] and data provided in *Trip Generation*[4]. This method uses trip generation equations or rates to estimate the number of trips that the project will generate during the peak hours of the project and along the adjacent street.

Single-Family Detached Dwelling Units

There will be 17 single-family detached dwelling units. The Institute of Transportation Engineers defines single-family detached dwelling units as follows:

> *Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.*[5]

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[2] Institute of Transportation Engineers, *Transportation and Land Development*, Washington, D.C., 2002, page 3-13

[3] Institute of Transportation Engineers, *Trip Generation Handbook*, Washington, D.C., 2004, p. 7-12

[4] Institute of Transportation Engineers, *Trip Generation, 8th Edition,* Washington, D.C., 2008

[5] Institute of Transportation Engineers, *Trip Generation 8th Edition*, Washington, D.C., 2008, p 289

The trip generation equations are based on the number of proposed single-family dwelling units. The trip generation equations and estimated number of peak hour trips for the single-family portion of the project are provided as Table 4.

Table 4 Trip Generation Calculations - Single-Family Residential

Period	Equation 17 Units	Trips
AM Peak Hour Adj Street	T = 0.70(X) + 9.74	22
AM In	25%	6
AM Out	75%	16
PM Peak Hour Adj Street	Ln(T) = 0.90Ln(X) +0.51	21
AM In	63%	13
AM Out	37%	8

Notes:
(1) T = Trips
(2) X = Number of dwelling units

Timeshares

There will be 321 timeshare units. *Trip Generation* contains trip generation data for the total weekday trips and AM and PM peak hours of the adjacent street. Timeshare units are defined as follows:

> *Timeshares are developments where multiple purchasers buy interestts in the same property and each purchaser receives the right to use the facility for a period of time each year. The shared property is commonly a vacation or recreational condominium.*[6]

The trip generation equations are based on the number of proposed timeshare units. The trip generation equations and estimated number of peak hour trips for the timeshare portion of the project are provided as Table 5. No directional data for timeshares are provided in *Trip Generation*. Since timeshares are typically a vacation condominium, the directional data for recreational homes were used.

Table 5 Trip Generation Calculations - Timeshare

Period	Equation 321 Units	Estimated Trips
AM Peak Hour Adj Street	Ln(T) = 1.16Ln(X) - 1.48	185
AM In	67%	123
AM Out	33%	62
PM Peak Hour Adj Street	Ln(T) = 1.01Ln(X) -0.38	233
AM In	41%	96
AM Out	59%	137

Notes:
(1) T = Trips
(2) X = Number of timeshare units

[6] Institute of Transportation Engineers, Trip Generation 8th Edition, Washington, D.C., 2008, p 548

In case the timeshare units are sold as condominium units, a review of trip generation data for condominiums was performed. This review confirmed that use of condominium trip generation equations would result in significantly less trips being generated during both peak hours. As condominiums, the project would generate 131 trip during the morning peak hour and 156 trips during the afternoon peak hour.

Total Project

The results of the trip generation analysis are summarized in Table 6. The conclusion of the trip generation analysis is that proposed project will generate a total of 207 trips during the morning peak hour and 254 trips during the afternoon peak hour.

Table 6 Summary of Trip Generation Calculations

Period & Direction		Single Family 17 Units	Timeshares 321 Units	Total Trips
AM Peak Hour	Total	22	185	207
	Inbound	6	123	129
	Outbound	16	62	78
PM Peak Hour	Total	21	233	254
	Inbound	13	96	109
	Outbound	8	137	145

Project trips were distributed and assigned based on existing traffic approach and departure patterns of traffic into and out of the residential area served by Makolea Street. The approach and departure distribution is summarized as Table 7. The project trip assignments are shown on Attachment C.

Table 7 Trip Distribution and Assignment Table

Direction and Approach	AM Peak Hour		PM Peak Hour	
	%	Trips	%	Trips
Inbound From North	65%	84	55%	60
Inbound From South	35%	45	45%	49
Total Inbound	100%	129	100%	109
Outbound To North	50%	39	60%	87
Outbound To South	50%	39	40%	58
Total Outbound	100%	78	100%	145

K. Background Plus Project Projections

Background plus project traffic projections were estimated by superimposing the peak hourly traffic generated by the proposed project on the background (without project) peak hour traffic projections. This assumes that the peak hourly trips generated by the project coincide with the peak hour of the adjacent street. This represents a worse-case condition as it assumes that the peak hours of the

intersection approaches and the peak hour of the study project coincide. The resulting background plus project peak hour traffic projections are shown in Attachment C.

L. Traffic Impact Assessment

A level-of-service analysis for the intersection of Alii Drive at the project driveway was performed for "with project" conditions only since the driveway is new and will be constructed as part of the project. The purpose of the analysis is to confirm that the intersection will operate at an acceptable level-of-service and that there are no traffic operational deficiencies.

The results of the level-of-service analysis for the intersection of Alii Drive at the project driveway are summarized in Table 8. The *Highway Capacity Manual* methodology for analysis of unsignalized intersections does not calculate volume-to-capacity ratios. The methodology only calculates delays and levels-of-service for controlled lane groups only. Delays are then referenced to the level-of-service definitions for unsignalized intersections to determine the level-of-service of each approach. A separate calculation for the overall intersection delay is performed to confirm that none of the individual lane groups will adversely impact operation of the overall intersection.

Table 8 Future (2023) Levels-of-Service - Alii Drive at Project Driveway

	AM Peak Hour			PM Peak Hour		
Intersection and Movement	Delay (1)	LOS(2)	Queue(3)	Delay	LOS	Queue(3)
Overall Intersection	3.1	A	NC	4.4	A	NC
Westbound Left & Right	16.9	C	<1	26.4	D	<3
Southbound Left & Thru	2.6	A	<1	1.7	A	<1

NOTES:
(1) Delay is in seconds per vehicle.
(2) LOS denotes Level-of-Service.
(3) See Attachment D for Level-of-Service Worksheets.
(4) 95th percentile queue as reported by Synchro. Queue lengths are not calculated for the overall intersection.
(5) NC = Not calculated

The conclusion of the level-of-service analysis is that the overall intersection of Alii Drive at the project driveway will operate at Level-of-Service A during both peak hours. Traffic exiting the project will operate at Level-of-Service C during the morning peak hour and Level-of-Service D during the afternoon peak hour. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service.

The level-of-service analysis also concluded that southbound traffic along Alii Drive will operate at Level-of-Service A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Alii Drive.

M. Mitigation

The Institute of Transportation Engineers has not established a standard for unsignalized intersections. In order to assess the impacts at unsignalized intersections, we have used the signalized intersection standard that Level-of-Service D is an acceptable level-of-service for any major controlled lane groups, such as left turns from a major street to a minor street. Side street approaches may operate at Level-of-Service E or F for short periods of time. This is determined

from the delays of the individual lane groups. If the delay of any of the side street approaches appears to be so long that it will affect the overall level-of-service of the intersection, then mitigation measures should be accessed.

Using this standard, no mitigation is recommended.

N. Summary and Recommendations

1. The proposed project is located east side of Alii Drive north of Makolea Street in the Kailua-Kona area of the Island of Hawaii. The project will consist of 17 single-family dwelling units and 321 time share units. Access to and egress from will be via a new driveway along the east side of Alii Drive approximately 1,350 feet north of Makolea Street.

2. The conclusion of the trip generation analysis is that the proposed project will generate 207 trips during the morning peak hour and 254 trips during the afternoon peak hour.

3. The level-of-service analysis concluded the following:

    a. The overall intersection of Alii Drive at the project driveway will operate at Level-of-Service A during both AM and PM peak hours.

    b. Traffic exiting the project will operate at Level-of-Service C during the morning peak hour and Level-of-Service D during the afternoon peak hour. This confirms that one driveway will provide sufficient capacity to accommodate project generated traffic at an acceptable level-of-service.

    c. Southbound Alii Drive will operate at Level-of-Service A during both peak hours. This confirms that traffic turning left into the project will have a minimal impact on northbound and southbound traffic flow along Alii Drive.

4. The project driveway should be designed to provide sufficient sight distance and sufficient turning radii to accommodate turning vehicles with minimal deceleration along northbound Alii Drive.

Respectfully submitted,
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell, P.E.
Principal

PHILLIP JAMES ROWELL
LICENSED PROFESSIONAL ENGINEER
No. 6676 - C
HAWAII U.S.A.

EXPIRATION DATE: 30 APRIL 2014

THIS WORK WAS PREPARED BY
ME OR UNDER MY DIRECT SUPERVISION

List of Attachments

A. Project Master Plan

B. Suggested Requirements for Various Types of Traffic Impact Analyses

C. 2023 Background Traffic Projections, Project Trip Assignments and 2017 Background Plus Project Traffic Projections

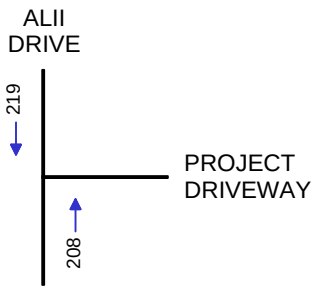
D. Level-of-Service Analysis Worksheets

Attachment A
PROJECT MASTER PLAN
(Provided By Others)

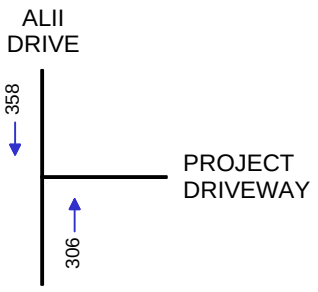
	Trip Generation Threshold			
	Access Location & Design Review	Small Development: Traffic Impact Assessment	Medium Development: Traffic Impact Statement	Large Development: Regional Traffic Analysis
	T ≤ 100 Peak Hour Trips	100 < T ≤ 500 Peak Hour Trips	500 < T ≤ 1000 Peak Hour Trips	T > 1000 Peak Hour Trips
Pre-application meeting or discussion	✔	✔	✔	✔
Analysis of Roadway Issues				
Existing condition analysis within study area	✔	✔	✔	✔
Sight distance evaluation	✔	✔	✔	✔
Nearby driveway locations	**?**	✔	✔	✔
Existing traffic conditions at nearby intersections and driveways		✔	✔	✔
Future road improvements		**?**	✔	✔
Crash experience in proximity to site	**?**	✔	✔	✔
Trip generation of adjacent development		**?**	✔	✔
Trip distribution analysis		✔	✔	✔
Background traffic growth		**?**	✔	✔
Future conditions analysis at nearby intersections		**?**	✔	✔
Mitigation identification and evaluation		**?**	**?**	✔
Site Issues				
Traffic generation	✔	✔	✔	✔
Traffic distribution	**?**	✔	✔	✔
Evaluate number, location & spacing of access points	**?**	✔	✔	✔
Evaluate access design, queuing, etc.	✔	✔	✔	✔
Evaluate site circulation	✔	✔	✔	✔
Other Analyses				
Gap analysis for unsignalized locations		**?**	**?**	✔
TSM/TDM Mitigation measures (car- or van-pooling, transit, etc.)- transit agency participation	(2)		**?**	✔
Effect on traffic signal progression, analysis of proposed signal locations		(3)	**?**	✔

Notes:
1. Source: Institute of Transportation Engineers, *Transportation and Land Development*, Washington, D.C., 2002, p.3-6
2. TSM/TDM = Transportation System Management/Transportation Demand Management
3. A traffic signal should not be permitted.
4. Key: ✔ = required, **?** = may be appropriate on a case-by-case basis

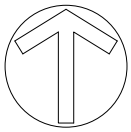
Attachment B
Suggested Requirements for Various Types of Traffic Impact Analyses (1)



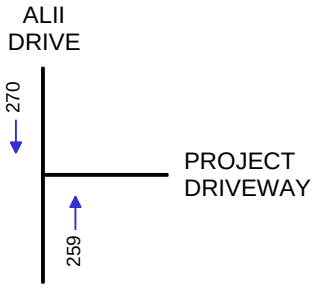
2013 TOTAL VEHICLES
AM PEAK HOUR



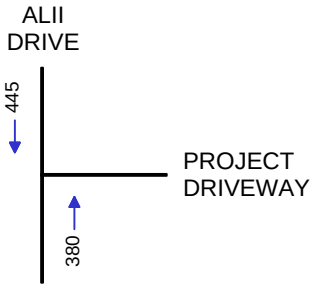
2013 TOTAL VEHICLES
PM PEAK HOUR



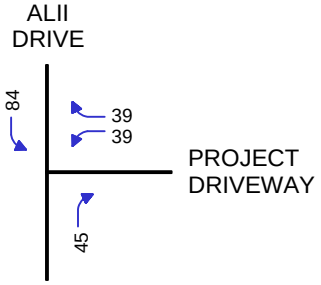
NOT TO SCALE



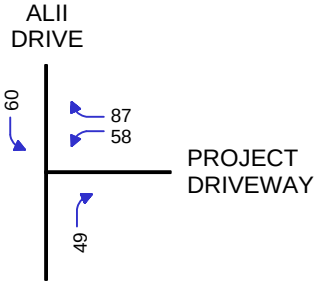
BACKGROUND WITHOUT PROJECT
AM PEAK HOUR



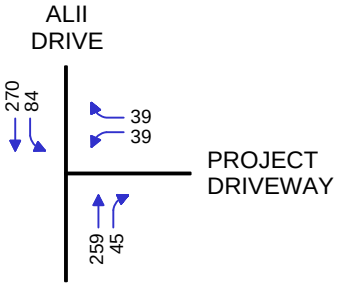
BACKGROUND WITHOUT PROJECT
PM PEAK HOUR



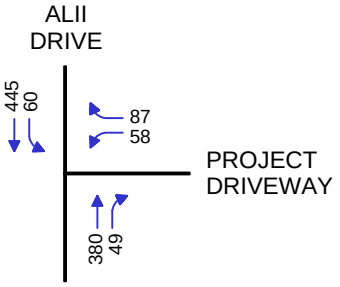
PROJECT TRIP ASSIGNMENTS
AM PEAK HOUR



PROJECT TRIP ASSIGNMENTS
PM PEAK HOUR



BACKGROUND PLUS PROJECT
AM PEAK HOUR



BACKGROUND PLUS PROJECT
PM PEAK HOUR

Attachment C
2023 BACKGROUND TRAFFIC PROJECTIONS,
PROJECT TRIP ASSIGNMENTS AND
2023 BACKGROUND PLUS PROJECT TRAFFIC PROJECTIONS

Appendix D
Level-of-Service Analysis Worksheets

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	39	39	259	45	84	270
Peak Hour Factor	0.86	0.86	0.90	0.90	0.82	0.82
Hourly flow rate (vph)	45	45	288	50	102	329
Pedestrians	21		21			21
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	889	355			359	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	889	355			359	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	93			91	
cM capacity (veh/h)	279	670			1190	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	91	338	432
Volume Left	45	0	102
Volume Right	45	50	0
cSH	394	1700	1190
Volume to Capacity	0.23	0.20	0.09
Queue Length 95th (ft)	22	0	7
Control Delay (s)	16.9	0.0	2.6
Lane LOS	C		A
Approach Delay (s)	16.9	0.0	2.6
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	58	87	380	49	60	445
Peak Hour Factor	0.88	0.88	0.90	0.90	0.87	0.87
Hourly flow rate (vph)	66	99	422	54	69	511
Pedestrians	20		20			20
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1139	489			497	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1139	489			497	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	82			93	
cM capacity (veh/h)	203	564			1060	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	165	477	580
Volume Left	66	0	69
Volume Right	99	54	0
cSH	330	1700	1060
Volume to Capacity	0.50	0.28	0.07
Queue Length 95th (ft)	66	0	5
Control Delay (s)	26.4	0.0	1.7
Lane LOS	D		A
Approach Delay (s)	26.4	0.0	1.7
Approach LOS	D		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		