Final Environmental Assessment

In Support of

Applications for a Community Plan Amendment, Change in Zoning and Special Management Area Use Permit

E PAEPAE KA PŪKO`A
16-LOT RURAL SUBDIVISION, OPEN SPACE CONSERVATION EASEMENT AND COUNTY DONATION PROJECT

Prepared for: Old Stable LLC and Accepting Authority, Maui Planning Commission

November 2004
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Executive Summary

Applicant: Old Stable LLC
Type of Document: Final Environmental Assessment
Legal Authority: Chapter 343, Hawaii Revised Statutes
Agency Determination: Anticipated Finding of No Significant Impact
Applicable Environmental Assessment review “trigger”: Amendment to County General Plan
Location: Maui Island
   Spreckelsville, Paia
   TMK: 3-8-001:por.003, 3-8-002:009 and 010

Applicant: Old Stable LLC
   P.O. Box 790829
   Paia, Hawaii 96779

Accepting Authority: Maui Planning Commission
   250 South High Street
   Wailuku, Hawaii 96793
   Contact: Kivette Calgoy
   Phone: (808) 270-7735

Consultant: Munekiyo & Hiraga, Inc.
   305 High Street
   Wailuku, Hawaii 96793
   Contact: Daren Suzuki
   Phone: (808) 244-2015

Project Summary: The applicant is proposing a 16-lot rural
subdivision consisting of 0.5 to 1 acre lots. Also proposed is the dedication of 20.93 acres
as an open space conservation easement, donation to the County/State of approximately
one (1) acre for the Kaunaoa Senior Center future expansion and donation of a bike path.
Chapter I

Project Overview
I. PROJECT OVERVIEW

A. PROPERTY LOCATION, BACKGROUND, AND LAND OWNERSHIP

The applicant, Old Stable LLC, proposes the development of a 16-lot rural subdivision, open space conservation easement, and County/State donation project located in Paia, Spreckelsville, Maui. The name of the subdivision is called, "E Paepae Ka Pūko‘a", translated, "Laying the Foundation". The project site is located off of Hana Highway along Stable Road, identified as TMK Nos. 3-8-001:por.003; 3-8-002:009 and 010, and consists of approximately 40.52 acres total. See Figure 1.

The subject properties are currently undeveloped. A portion of the property was previously used as a stable and rodeo operation, which was recently vacated and moved to another location. Although some vacated stable-related structures still exist on the property, for the most part, the property is overgrown with trees, weeds and shrubs. Other existing uses of the property include vacant lands consisting of natural vegetation with a non-dedicated beach access/parking area and a bike path along the western and southern boundaries of the property.

The project site is bordered by the Pacific Ocean, single-family residences, and Laulea Place to the north; vacant State-owned lands and Hana Highway to the south; Stable Road, agricultural lands, and airport lands to the west; and Kaunoa Senior Center, single-family residences and Alakapa Place to the east.

The applicant is the current landowner of the property which was formerly owned by Alexander & Baldwin, Inc.
Figure 1  
E Paepae Ka Pūkoʻa  
Site Location Map
B. PROPOSED ACTIONS

The applicant is requesting a community plan amendment, change in zoning, and special management area (SMA) use permit in order to implement the following proposals.

1. Rural Subdivision (TMK 3-8-001:por. 003)

   The applicant proposes to develop a 16-lot rural subdivision and related subdivision improvements on an approximately 14.86-acre portion of TMK 3-8-001:003. Lots will be offered for sale, fee simple, ranging from approximately 0.5 acre to 1+ acres. See Figure 2. Associated improvements include paved roadways with concrete curb, gutter, and sidewalk, as well as drainage, water, sewer, and electrical distribution systems and landscaping.

   In connection with the subdivision proposal, the applicant is requesting a community plan amendment from Open Space to Rural and a change in zoning from the R-3, Residential District to the RU-0.5, Rural District. See Figure 3. (Refer to light-blue shaded area). The RU-0.5 County zoning district is being requested to reflect the proposed 0.5-acre minimum lot sizes of the subdivision, as well as to be compatible with the existing lot sizes of the surrounding residential area. It is noted that through deed restrictions, further subdivision of the lots and accessory "Ohana" dwellings will not be allowed. In order to ensure these deed restrictions are not amended, the applicant also has no objections to the County imposing these restrictions as a condition of zoning or SMA use permit.
Figure 2

E Paepae Ka Pūkoʻa
Subdivision Site Plan

Prepared for: Old Stable LLC
E Paepae Ka Puko`a
Subdivision Site Plan

NOT TO SCALE

MUNEKITO M. HIRAGA, INC.
Figure 3

E Paepae Ka Pūko`a
Proposed Changes to Land Use Design

Source: Lundahl & Associates

Prepared for: Old Stable LLC
Ka Pūkoʻa
and Use Designations

### Proposed Changes to Land Use Designations

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<th>PROPOSED</th>
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</tr>
<tr>
<td>County: R-3</td>
<td>RU-0.5 Rural</td>
</tr>
<tr>
<td>Community Plan: Open Space</td>
<td>Rural</td>
</tr>
</tbody>
</table>

| State: Urban | No change |
| County: R-3 | No change |
| Community Plan: Open Space | No change |

| State: Urban | No change |
| County: R-3 | OS-2 Open Space |
| Community Plan: Open Space | No change |

| State: Urban | No change |
| County: R-3 | OS-2 Open Space |
| Community Plan: Single Family | Open Space |

| State: Urban | No change |
| County: R-3 | P-1 Public/Quasi-Public |
| Community Plan: Open Space | Public/Quasi-Public |

| State: Agriculture | No change |
| County: Agriculture | No change |
| Community Plan: Agriculture | No change |
2. **Common Area Park Space (TMK 3-8-001:por. 003)**

   Two (2) common areas will be located within the 16-lot subdivision consisting of approximately 3.57 acres total. (Refer to light-green shaded area in Figure 3). Therefore, the applicant is requesting a change in zoning from R-3, Residential District to OS-2, Open Space District. The common area located adjacent to Old Stable Road will be developed as a park for the subdivision. The common area located on the makai portion of the project site is intended to be left in its present state, with the exception of providing a 30-foot wide beach access along the western boundary of this area. The proposed zoning designation permits park uses and reflects the existing open space community plan designation. Rezoning this portion of the property to OS-2 is also intended to prevent future urban encroachment into these areas.

3. **Open Space Conservation Easement (TMKs 3-8-001:por. 003, 3-8-002:009 and 010)**

   Approximately 20.93 acres, which include two (2) oceanfront parcels, will be left in its natural state to be dedicated as a conservation easement to the Maui Coastal Land Trust (or other nonprofit organization). To accomplish this dedication, the applicant is requesting a change in zoning from the R-3, Residential District to OS-2, Open Space District, consistent with the Open Space designation of the Community Plan (affecting approximately 17.93 acres). (Refer to dark green shaded area in Figure 3.) In addition, a community plan amendment from Single-Family to Open Space and a change in zoning from R-3, Residential to OS-2, Open Space for the two (2) oceanfront parcels consisting of approximately 3 acres total is being requested. (Refer to pink shaded area in Figure 3.)
4. County/State Donation (TMK 3-8-001:por. 003)

Approximately 1.16 acres for the future expansion of Kaunoa Senior Center will be donated to the County of Maui/State of Hawaii. In order to assist the County for the future expansion of the center, the applicant is requesting a community plan amendment from Open Space to Public/Quasi-Public and a change in zoning from R-3, Residential to P-1, Public/Quasi-Public. These actions would permit additional government facilities and assist the County by bringing consistency with the community plan and County zoning when filing for SMA permits for any future development. (Refer to dark blue shaded area in Figure 3.)

Another project element includes donating to the County the existing paved bike path along the western and southern boundaries of the property. (Refer to blue dashed line in Figure 3.)

Areas to be dedicated to the County of Maui/State of Hawaii will be subdivided as part of the 16-lot rural subdivision process.

The total acreage for TMK 3-8-001:003 is approximately 67 acres, which includes a portion of Laufea Place, a portion of Old Stable Road, and approximately 28 acres located west of Stable Road presently in agricultural use. This 28-acre area is not part of the proposed action. (Refer to gray/brown shaded area in Figure 3.) This portion of the property is currently being leased to Alexander & Baldwin, Inc. for sugar cane production.
Table 1 summarizes the proposed land use amendments described above:

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<td>State Land Use</td>
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<tr>
<td>County Zoning</td>
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<td>Open Space</td>
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*This dedication excludes the 30-ft. wide beach access on the eastern boundary of Parcel 009.

| Approx. 1.16 acres (Donation to Kaunaoa Senior Center) affecting TMK 3-8-001:por. 003 |             |              |
| State Land Use              | Urban        | No change    |
| County Zoning               | R-3, Residential | P-1, Public/Quasi-Public |
| Community Plan              | Open Space   | Public/Quasi-Public |
C. **PROJECT SCHEDULE AND COST**

Construction of the proposed project is anticipated to commence upon the receipt of all applicable permits and approvals, and completed within six (6) months. Estimated cost of construction is approximately $1.4 million.

D. **REGULATORY PROCESSING CONTEXT**

The proposed project will involve an amendment to the Wailuku-Kahului Community Plan which is a component of the County General Plan. Therefore, an Environmental Assessment (EA) has been prepared in accordance with Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 200, Title 11, Department of Health Administrative Rules, Environmental Impact Statement Rules. The accepting authority for this Environmental Assessment is the Maui Planning Commission.

Applications for a community plan amendment and change in zoning have also been prepared in accordance with Chapters 2.80A and 19.510 of the Maui County Code, respectively, to establish the appropriate County land use designations. After the requirements of Chapter 343, HRS have been met, the land use applications will be noticed and scheduled for a public hearing with the Maui Planning Commission. The Commission will then transmit a recommendation to the Maui County Council for consideration.

Finally, the subject properties are located within the limits of the County’s SMA boundaries. Accordingly, an SMA Use permit application has been prepared in accordance with Chapter 205A, HRS and Chapter 202, SMA Rules for the Maui Planning Commission. It is anticipated that concurrent SMA notice and public hearing with the community plan amendment and change in zoning requests will be processed with the Maui Planning Commission. Typically, action on an SMA application is bifurcated by the
Commission until the Council takes action on the community plan amendment and change in zoning requests, and subsequent approval by the mayor.
Chapter II

Description of Surrounding Land Uses, Climate and Topography
II. DESCRIPTION OF SURROUNDING LAND USES, CLIMATE AND TOPOGRAPHY

A. SURROUNDING LAND USES
The project site is approximately three (3) miles east of Kahului, the island of Maui’s center of commerce. Surrounding land uses include the Pacific Ocean, Laulea Place, and single-family residences to the north; Kaunaoa Senior Center and single-family residences to the east; Hana Highway, vacant State-owned lands, and agricultural lands to the south; and agricultural lands, single-family residences and Kahului Airport to the west.

B. CLIMATE
Like most areas of Hawaii, Maui’s climate is relatively uniform year-round. Characteristic of Hawaii’s climate, the project site experiences mild and uniform temperatures year round, moderate humidity and a relatively consistent northeasterly tradewind. Variation in climate on the island is largely left to local terrain.

Average temperatures at the project site (based on temperatures recorded at Kahului Airport) range from lows in the 60’s to highs in the 80’s. August is historically the warmest month, while January and February are the coolest. Rainfall at the project site averages approximately 20 inches per year. Winds in the Kahului region are predominantly out of the north-northeast and northeast.

C. TOPOGRAPHY
The project site is currently undeveloped and is covered with various trees, grasses, weeds and shrubs. With the exception of coastal sand dunes along the beach on the northwesterly end of the property, the
project site is generally flat, sloping in the southerly to northerly direction with an average slope of 2 percent.
Chapter III

Description of the Affected Environment, Potential Impacts and Mitigation Measures
III. DESCRIPTION OF THE AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Agriculture

   a. Existing Conditions

   The subject properties are currently undeveloped with no associated agricultural uses. Again, the 28-acre portion west of Old Stable Road currently in sugar cane cultivation is not part of the proposed actions set forth herein.

   According to the "Soils Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (August 1972)", prepared by the United States Department of Agriculture Soil Conservation Service, the soils within the project site are within the Pulehu-Ewa-Jaucas association, encompassing soil types identified as Jaucas sand (JaC), Jaucas sand, saline (JcC), Molokai silty clay loam (MuA), Dune land (DL), and Beaches (BS). See Figure 4 and Figure 5.

   The majority of the subdivision site is located in the Jaucas series area, consisting of Jaucas Sand (JaC) 0 to 15 percent slope and Jaucas Sand, Saline 0 to 12 percent slope (JcC). The Jaucas series is characterized as having slow to very slow runoff, rapid permeability, slight erosion hazard with severe wind erosion hazard where vegetation is removed. There is a sliver of Molokai Silty Loam (MuA), 0 to 3 percent slope located along Hana Highway. Molokai series consists of well-drained soils on upland areas. Dune Land (DL) consists of hills and ridges of sand-sized particles drifted and piled by wind. Beaches (BS) consist mainly of light-colored sands derived from coral and seashells.
Figure 4  E Paepae Ka Pūko`a
Soil Association Map

Source: U. S. Department of Agriculture, Soil Conservation Service

Prepared for: Old Stable LLC

NOT TO SCALE

MUNEKIYO & HIRAGA, INC.
According to the Detailed Land Classification - Island of Maui, Land Study Bureau, 1967, the project site has an overall rating of "E" and land type of "E3" which is the lowest agricultural productivity rating. Although the land type selected crop productivity ratings are also within the "E" category, major existing uses include grazing, recreation and forest.

b. Potential Impacts and Mitigation Measures
Based on the Soils Survey and Land Classification, the subject property is unsuited for agricultural productivity. In addition, the subject property is not designated by the County for agricultural use in the community plan or by zoning. To mitigate impacts to existing agricultural resources, the 28 acres of agricultural designated lands located to the west of Stable Road will be retained as agricultural land and is not the subject of the proposed actions. Therefore, there will be no adverse impacts to existing agricultural resources.

2. Flood and Tsunami Hazards.
a. Existing Conditions
As indicated by the Flood Insurance Rate Map for this part of the island, the project site is situated in Zone C, A4, and V23. Zone C is situated on the mauka side of the property adjacent to Hana Highway. This zone is an area of minimal flooding. Zone A4 is a strip which runs through the middle of the property, located on the makai half of the subdivision site. This zone is an area of the 100 year flood, with a base flood elevation of 15 to 18 feet. Zone V23 is located along
the coastline on the makai edge of the subject property. This zone is an area of the 100 year coastal flood with velocity. See Figure 6.

b. **Potential Impacts and Mitigation Measures**
To mitigate impacts within the V23 Zone area, no development is proposed within this location. All residential development will take place behind existing developed single-family properties. Residential lots located within the A4 zone will be graded, and houses will be constructed in accordance with County standards above determined base flood elevations. Therefore, minimal impacts on flood and tsunami hazards are anticipated.

3. **Wetlands**
   a. **Existing Conditions**
   A wetland delineation survey was conducted and prepared by Vuich Environmental Consultants, Inc. See Appendix "A". The purpose of this survey was to delineate areas determined to have wetland type conditions. Three (3) separate potential wetland areas were delineated on the subject property. Thirty-two (32) boreholes were excavated in these three (3) areas. See Figure 7.

   - **Area 1** covers approximately 9,960 square feet. No obligate wetland plants were noted in this area. Evidence of human manipulation (grading) was evident in this area.

   - **Area 2** covers approximately 35,075 square feet. No obligate wetland plants were noted in this area. Evidence of human manipulation (grading, road building and refuse dumping) was evident in this
Figure 6
E Paepae Ka Pūkoʻa
Flood Insurance Rate Map

Prepared for: Old Stable LLC
area.

- **Area 3** covers approximately 9,696 square feet. This area appears to be the most representative of a natural wetland area. The obligate wetland plant, "makaloe" was noted in this area. The Hawaiian Stilt was observed in this area after a period of abnormal consistent rainfall, which resulted in significant water ponding. Evidence of human manipulation (grading and limited dumping) was evident in this area.

A final determination as to whether an area is a wetland and whether activities require jurisdictional permits is made by the U.S. Army Corps of Engineers.

**b. Potential Impacts and Mitigation Measures**

Fill activities are proposed within the subdivision development site as follows:

- **Area 1**: This wetland area will be fully impacted (filled in) by the proposed development (9,960 square feet).

- **Area 2**: This wetland area will be partially impacted (filled in) by the proposed development. Area to be filled in would be approximately 10,923 square feet.

Therefore, the proposed subdivision development will impact approximately 20,883 square feet in total. It is noted that Areas 1 and 2 consist of wetland habitats that have been significantly altered by historic human activities. Additionally, these areas do not appear to be productive as habitat for endangered Hawaiian waterbirds due to both excessive amounts of decaying woody debris and a dense overhead tree canopy (Area 1), and virtually impenetrable thickets of
Pluchea indica (Area 2). No obligate wetland species are located in these areas. Refer to Figure 7.

A wetland enhancement and mitigation plan was prepared by Vuich Environmental Consultants, Inc., for Area 3. This wetland area is situated at a significant distance from the proposed development site and would not be directly impacted by the proposed subdivision. Also, it is the only area with obligate wetland plant species; significant amounts of adjacent, low-lying land that could be utilized to increase the size of this wetland area; and where Hawaiian Stilt was observed after a period of consistent rainfall. As such, Area 3 is well-suited for mitigation and enhancement activities to compensate for the permanent loss of wetlands of Area 1 and a portion of Area 2. See Appendix "B".

The wetland enhancement and mitigation within and adjacent to Area 3 will be achieved by increasing the extent of low-lying areas to compensate for the 20,883 square feet of permanent loss of wetlands of Area 1 and a portion of Area 2. Other enhancement/mitigation methods include lowering the grade to enhance the potential for wetland conditions to develop; removing old animal pen structures, debris and trash; closing off vehicle trails; removing woody vegetation and invasive alien plant species; maintaining existing and promoting new wetland plant species; and constructing a fence sufficient to inhibit the entry of predators and unauthorized persons onto the mitigation site.
To further ensure the long-term healthiness and success of the vegetation located in both the enhanced and expanded Area 3, the property owner will employ the subdivision's landscape personnel to regularly inspect and maintain the wetland area. This program will consist of regular manual weed control, removal of excessive decaying woody debris, and thinning of facultative woody shrubs. In order to undertake this often labor-intensive (and financial) commitment, the property owner may also employ the assistance of a non-profit organization of volunteers that are dedicated to wetland enhancement activities on Maui.

Depending on a final determination by the US Army Corps of Engineers, wetland enhancement/mitigation activities may be subject to Section 404 Clean Water Act and Section 404 Permits for Placement of Fill Materials. Other reviewing agencies include the U.S. Fish and Wildlife Service and the State Department of Health. All required permits will be processed concurrently with these applications, but through separate permit actions.

4. **Flora and Fauna**

   a. **Existing Conditions**

   A Flora and Fauna survey was done for the subject property by Hank Oppenheimer and Bob Hobdy, respectively. See Appendix "C".

   **Flora:** According to the flora survey, 71 plant species were identified in Class Magnoliopsida and Liliopsida. Refer to Appendix "C" for specific plant species. According to the
survey, some taxa are listed as cultivated, although they are known to be sparingly naturalized on Maui and other islands. The plants in the survey area are believed to be deliberate plantings, or a result of discarded yard trimmings.

**Fauna:** According to the fauna survey, a variety of mammal and bird species were identified. Refer to Appendix "C" for specific fauna types. Ten non-native bird species identified are widespread and quite common in diverse lowland sites throughout Hawaii. Three migratory birds found include the migratory golden plover, migratory ruddy turnstone, and migratory wandering tattler. One endemic species found include the Hawaiian Stilt which is also considered an endangered species.

While no insects in general were tallied, they were abundant throughout the area. Although the endangered Blackburn's sphinx moth occurs on Maui in an area less than two miles from the site, it was not observed in this area.

**b. Potential Impacts and Mitigation Measures**

**Flora:** Of the flora identified in the survey, none of them are listed as rare, threatened or endangered. As such, no impacts on existing flora are anticipated.

**Fauna:** The According to the Fauna survey, the Hawaiian Stilt is considered both an endemic Hawaiian subspecies as well as an endangered species under Federal law. These birds are obligate water birds that require permanent shallow water ponds for core habitat feeding and breeding. Both
Kealia Pond and Kanaha Pond are large well-managed wetlands that are ideal habitats which support the majority of Maui's stilts. Plantation reservoirs provide a second-tier of habitat with their near-permanent water supply and wide distribution. Temporary ponds, such as the one on the project site, provide a third-tier of habitat. The main value of these temporary ponds lies in their providing an opportunistic alternate foraging area that allows core habitat recovery. Stilts quickly disperse following major rain events to locate and utilize temporary ponds, even flying between islands in their quest. Thus, while not a major component of the stilt habitat, the importance of this small, temporary pond cannot be ignored. This referenced temporary pond where the stilts were observed is located outside of the subdivision development area (refer to Figure 7, Area 3).

In order to mitigate this essential wetland habitat for the endemic and endangered Hawaiian Stilt, a wetland mitigation and enhancement plan has been prepared as described in Appendix "B". This mitigation/enhancement plan recommends expansion of the existing wetland area by grading the adjacent areas at similar contours as the existing wetlands in order to increase surface water ponding. This increase will provide additional and favorable conditions for use by waterbirds, including the Hawaiian Stilt.

5. Archaeological Resources
   a. Existing Conditions
      The subject property is currently undeveloped, consisting of trees, weeds, and shrubs. Historic period occupation,
including a horse stable and associated structures and a staging area, occurred in the project area since the early 20th century (which have since moved to another location).

An Archaeological Inventory Survey of the subject property was prepared by Archaeological Services Hawaii, LLC, in March 2004. See Appendix "D". Results of the archaeological testing in the project area produced no evidence for sedentary cultural activities during the prehistoric period. No prehistoric surface cultural remains were present, and backhoe testing showed that subsurface cultural remains were also absent.

A total of 18 backhoe trenches were excavated and showed that subsurface cultural remains were absent in all exposed stratigraphic layers. Two (2) to four (4) stratigraphic layers were revealed, consisting of various layers of sand and silty sand. Dark reddish-brown silty clay underlying sand was exposed in the northeastern portion of the project area, and water was encountered in the majority of the trenches at relatively shallow depths. Although previously recorded Site No. 1777 appeared to be located outside the development portion of the project area, several trenches were excavated in this vicinity where this site may be located. Site No. 1777 generally consisted of cultural material and deposits including volcanic glass, basalt and coral artifacts, charcoal, and midden. No evidence of this site was found as a result of the trenching.
b. **Potential Impacts and Mitigation Measures**

The archaeological inventory survey recommended that archaeological monitoring take place during all ground-altering activities to ensure that any unanticipated subsurface remains or deposits encountered are properly documented. In the event portions of Site No. 50-50-05-1777 or any other significant subsurface cultural remains or deposits are encountered during construction activities, all work in the immediate vicinity shall be halted, and a data recovery plan shall be formulated and submitted to the Department of Land and Natural Resources, State Historic Preservation Division (SHPD) for approval. If human skeletal remains are encountered during monitoring, all work in the immediate vicinity shall be halted, and SHPD and the Maui/Lana'i Islands Burial Council shall be notified.

6. **Cultural Resources**

a. **Existing Conditions**

As previously mentioned, the subject property is currently undeveloped, consisting of trees, weeds, and shrubs. Historic period occupation, including a horse stable and associated structures and a staging area, occurred in the project area since the early 20th century (which have since moved to another location).

To analyze the impact on cultural practices and features associated with the project area, a Cultural Assessment Report was prepared by CKM Resources, in February 2004. See Appendix "E".
This report states that this area was once called Kapukaulua which is a small land district or 'īli on the northern shores of Maui, the area that is now called Spreckelsville. Its shoreline is also named Kapukaulua, meaning the *ulua (certain species of jack or crevalle fish) pit. It was given this name because of the abundance of *ulua during the certain fishing season.

Since Kapukaulua consists mainly of shoreline property, not much has been written about this area. Another area near Kapukaulua was a place named Wawa'u. Due to the lack of indepth recorded historical facts of these areas, the majority of the report came from recorded information of the adjacent 'īli Pa'ia.

The report concludes that Pa'ia, Kapukaulua, and Wawa'u were full of life with different plants and people to *malama (care for) the 'aina (land). Today, many generations of families have resided near these areas and have found solace and joy in the surrounding shoreline. The extensive shoreline in this area provided for many generations of people who lived on this northern coastline. Various species of native fauna inhabited the area, and quite possibly, some plants that grew there no longer exist in Hawai'i. It is important to stress the sanctity of these areas: Pa'ia, Kapukaulua and Wawa'u, respectively. Pa'ia is an extremely diverse *ahupua'a, reaching from Ku'au to Pualani, and back down to Spreckelsville. Thus, the *ahupua'a covered vast lands and different landscapes. Today, the majority of Pa'ia land is now covered by sugar
cane crops. Kapukaulua was once home to traditional farmers and fishermen, and historically, home to generations of plantation workers.

The Cultural Assessment Report also documents interviews and statements of various people who have historical & cultural knowledge of the Spreckelsville area. (Refer to Appendix "E").

b. Potential Impacts and Mitigation Measures
To mitigate any impacts on cultural resources, the assessment recommends that full-time archaeological monitoring take place during all ground-altering activities, similar to the recommendations of the Archaeological Inventory Survey.

7. Air Quality
a. Existing Conditions
Air quality in the Wailuku-Kahului region is considered good as emissions from point sources, including Maui Electric Company's power plant and Hawaiian Commercial & Sugar Company's sugar mill, as well as non-point sources such as automobile emissions do not generate problematic concentration of pollutants. The relatively high quality of air can also be attributed to the region's constant exposure to the trade winds which quickly disperse concentrations of emissions.
b. **Potential Impacts and Mitigation Measures**

In the short term, construction related activities will be the primary source of airborne pollutants. Site work involving clearing, grubbing, and grading operations will generate fugitive dust. Emissions from construction vehicles may also temporarily affect ambient air quality within the immediate vicinity.

Fugitive dust generated during construction can be mitigated by utilizing dust barriers, waterwagons and/or sprinklers. Grassing immediately after finished grading activities can also help stabilize soils and control dust generated from the project site. Emissions can be mitigated through proper maintenance of construction equipment and vehicles.

On a long-term basis, the proposed project is not anticipated to result in adverse air quality impacts.

8. **Noise Characteristics**

a. **Existing Conditions**

Aircraft noise is the predominant source of background noise around the vicinity of the project site. Traffic noise from nearby Hana Highway can also add to the background noise levels of the surrounding areas.

b. **Potential Impacts and Mitigation Measures**

In the short-term, construction related activities will be the primary source of noise. This short-term impact can be mitigated by limiting construction activities to daylight hours only. To further mitigate short-term construction noise
impacts to the residents along Laulea Place, the applicant is proposing to construct a berm with a low wall along Laulea Place. This measure would prohibit construction vehicles from accessing the subdivision along Laulea Place during the construction of individual homes. This berm/wall will be retained to prohibit automobile access from Laulea Place.

In the long-term, the applicant will disclose that this area is within the airport zone and is subject to airport related noise and activities. This disclosure will be addressed through an "aviation easement agreement" that all future landowners must acknowledge and sign. Essentially, this agreement discloses existing airport operations, associated flight patterns and noise impacts. It is noted that this agreement acknowledges existing conditions, and does not preclude owners from objecting to future airport operations or expansions.

9. **Scenic and Open Space Resources**
   
a. **Existing Conditions**
   
   Scenic resources in the vicinity of the project site from Hana Highway include open space agricultural lands and Haleakala to the south of the project site. More open agricultural lands and the West Maui Mountains can be viewed to the west of the project site. Immediately adjacent to the southern border of the property is a line of mature monkeypod trees which contribute to the scenic beauty of the Spreckelsville area. No ocean views are visible from Hana Highway.
Scenic resources in the vicinity of the project site from Stable Road include open agricultural and airport lands to the west and open vacant lands consisting of trees, grasses, and shrubs to the east. A sliver of the ocean can be viewed to the east of Stable Road over existing vegetation.

There are coastal scenic resources on the project site along the shoreline area. A non-dedicated beach access road leads to the shoreline area and consists of coastal sand dunes and an undeveloped beach area presently used for ocean recreation activities.

b. **Potential Impacts and Mitigation Measures**

Scenic resources from Hana Highway (fronting the project site) to Haleakala and the West Maui Mountains will not be affected as a result of this project. Scenic open-space resources from Old Stable Road will be retained by designating approximately 20.93 acres of land to an Open-Space Land Use designation. Scenic open-space resources from Old Stable Road (fronting project subdivision site) will be enhanced with an open-space park area located between Old Stable Road and the subdivision site. It is noted that the subdivision development site was strategically placed mauka of existing single-family lots along the shoreline to further address impacts on scenic resources.

In order to preserve the character of the Spreckelsville area, the existing monkeypod trees located on the subject property will be preserved and maintained throughout its lifespan. Security fencing/walls along Hana Highway will be
designed to blend in with proposed landscaping and the existing mature monkey pod trees. It is proposed that any fence/wall structure be constructed in back of any privacy-type landscaping such as wiliwili or other tall hedge material. A view analysis was prepared for the applicant showing before-and-after views from Hana Highway. See Appendix "F". As such, existing conditions can be preserved with minimal impacts anticipated.

10. **Shoreline Character**
   
a. **Existing Conditions**
   The shoreline area consists of a natural coastal sand dune system and pristine white sand beach. Unfortunately over the years, the sand dune has been degraded as foot and vehicular traffic, along with cutting of vegetation has caused "blow-out" areas of dunes. This beach area is used for ocean recreation activities, including fishing, diving, surfing, windsurfing and sunbathing.

b. **Potential Impacts and Mitigation Measures**
   In order to mitigate impacts to the coastal dune area, a dune restoration plan was drafted with the assistance of the University of Hawaii, Sea Grant Extension program. See Appendix "G". Dune plantings, temporary fencing, and educational signage are proposed to further mitigate impacts on this natural feature. Access to the beach, as well as the dune area will be by way of the existing sand parking area. The applicant has been in contact with the Maui Coastal Land Trust, and is in the process of negotiating a
conservation easement, which would implement a dune restoration plan and protect the entire open space area.

The conservation easement area consisting of approximately 20.93 acres, which include the coastal dunes and approximately 1,300 linear feet of shoreline, will be left in its natural state. Again, the applicant is requesting land use amendments to change the zoning and community plan in this area to an open space designation to ensure that this beach resource is preserved in perpetuity. The proposed open space designations would also prevent any future urban-type development.

Finally, the subdivision development is proposed behind existing single-family homes and outside of the V23 zone as designated by FIRM maps. Although coastal erosion rates range from 1 foot to 3 feet per year, the rural subdivision site is located approximately 500 feet from the shoreline which is beyond the maximum shoreline setback requirements. See Appendix "H". Given the distance from the shoreline to the subdivision development site, the open space dedication area, and the proposed dune restoration plan, impacts on shoreline resources are anticipated to be minimal.
11. **Marine Environment**
   
a. **Existing Conditions**
   
   Based on field observations, the water quality in the area appears to be relatively clean. Recreational activities such as swimming, fishing, diving, surfing, and windsurfing were observed in this area. There are no known turtle habitat in this area.

b. **Potential Impacts and Mitigation Measures**
   
The drainage system for the project will be designed and constructed, to produce no adverse effects to adjacent and downstream properties, and will be designed and reviewed in accordance with applicable governmental standards. Best Management Practices and appropriate erosion control measures will be implemented to minimize the effects of runoff during construction of the project. Since no development is proposed within 500 feet from the shoreline, impacts to coastal ecosystems and marine resources would be minimal.

12. **Hazardous Wastes**
   
a. **Existing Conditions**
   
   A Phase I Environmental Site Assessment (ESA) was prepared for the applicant by Vuich Environmental Consultants, Inc. See Executive Summary in Appendix "I". The purpose of a Phase I ESA is to determine if a site may be contaminated with hazardous or toxic substances or wastes resulting from current or past site activities, unauthorized dumping or disposal, or migration of contaminants from adjacent or nearby properties. Another
function of an ESA is to provide the buyer, receiver, or lender making a loan secured by the subject real property with a basis to qualify for the *innocent landowner defense* should any legal action be initiated for environmental impairment to the property.

The services of Environmental Data Resources, Inc., were utilized to obtain and review records that will help identify recognized environmental conditions in connection with the subject property. Records review did not discover any current investigation of the subject site under any programs conducted by a federal, state, or local environmental agency.

A site investigation in accessible areas was conducted by Vuich personnel. The following are significant observations of field conditions:

1. Significant quantities of refuse dumping
2. Two (2) non-operational storage tanks
3. Regulated items such as limited quantities of household-sized petroleum-based liquids and pesticides; derelict vehicles, automobile tires and batteries; and white goods (refrigerators)
4. Two (2) containers with unidentifiable liquids
5. A moderate portion of the property's surface soils may have been impacted at times (saturated) by the diversion of HC&S's south adjacent property's agricultural irrigation "backflush" water onto the subject site.
b. **Potential Impacts and Mitigation Measures**

The ESA was performed in conformance with the scope, limitations, and guidelines of the American Society of Testing and Materials Publication for the project site. The assessment revealed no evidence of recognized environmental conditions in connection with the property. The ESA concludes that all regulated items and storage tanks should be managed and disposed of properly to avoid any possible future releases onto surface soils, in accordance with applicable governmental standards. A limited soil sampling survey may be performed in suspect locations to determine the residual levels, if any, of chemicals of potential concern. There is however, no regulatory requirement to conduct such sampling. The limited petroleum-stained area noted should be excavated and properly managed in accordance with applicable governmental standards. Prior to the demolition of the existing structures, further sampling of asbestos-containing material and lead-based paints shall be conducted. All demolition work shall be in accordance with Department of Health and Occupational Safety and Health Administration (OSHA) standards relating to worker safety and waste management. Refer to Section A.3 of this Chapter for discussion on wetlands.
B. SOCIO-ECONOMIC CONDITIONS

1. Population
   a. Existing Conditions
      The population of the island of Maui has exhibited relatively strong growth over the past decade with the 2000 population of 117,644 reflecting a 28.8 percent increase over the 1990 population of 91,361 (SMS, June 2002). Growth on the island is expected to continue with population forecasts for 2010 and 2020 estimated to be 138,665 and 160,090, respectively (SMS, June 2002). These projections reflect gains of 17.9 percent and 36.1 percent over the historical 2000 population.

   b. Potential Impacts and Mitigation Measures
      The proposed 16-lot residential subdivision is not expected to have an adverse effect on short- or long-term population parameters.

2. Economy
   a. Existing Conditions
      The Kahului region is the island's center of commerce. Combined with neighboring Wailuku, the region's economic character encompasses a broad range of commercial, service, and governmental activities. In addition, the region is surrounded by significant agricultural acreages which include sugar cane fields and pineapple fields. The vast expanse of agricultural land, managed by HC&S and Wailuku Agribusiness Company, is considered a key component of the local economy.
b. *Potential Impacts and Mitigation Measures*

On a short-term basis, the proposed project will support construction and construction-related employment through the payment of wages and salaries, the contribution of taxes and benefits, and purchase of goods and services.

From a long-term point of view, the provision of 16 rural residential lots will provide increased property tax revenues, as well as provide for an ongoing source of demand for services to support the project's residents. Moreover, the provision of the 1.16-acre site for the expansion of the Kaunoa Senior Center will provide similar future economic benefits to the County by enabling the provision of new facilities and expanded services to the island's growing elderly population. There are no long-term adverse impacts to the local economy anticipated as a result of the proposed actions.

3. **Housing**

a. *Existing Conditions*

According to the SMS Socio-Economic Forecast for Maui County, the island of Maui's housing supply in the year 2000 totaled 40,041 units, of which 32 percent, or 12,852, were located in the Wailuku-Kahului Community Plan region. It is noted that the project location is within this region. This area accounts for the largest percentage of housing units on the island. Demand for housing in this region in year 2000 was 13,528 units. Housing demand in the Wailuku-Kahului area is projected to grow to 16,826 units in the year 2010, while the expected number of households is estimated at
15,985 units. By the year 2020, the housing demand is expected to reach 20,054 units compared to the projected household count of 19,051 units (SMS, June 2002).

Within the Paia-Haiku Community Plan region, demand for housing in year 2000 was 4,234 units. Housing demand in this region is projected to grow to 5,257 units in the year 2010, while the expected number of households is estimated at 4,994 units. By the year 2020, the housing demand is expected to reach 6,259 units compared to the projected household count of 5,946 units (SMS, June 2002).

Current median sales price for homes in Central Maui were noticeably lower than the county-wide median. During the months of January through February 2004, the median sales price of a Central Maui home was $362,500.00 compared to a county-wide median of $530,000.00. Current median sales price for homes in the Spreckelsville/Paia/Kuau area for the months of January through February 2004 was $577,500.00 compared to the county-wide median of $530,000.00 (Source: Realtors Association Maui).

b. **Potential Impacts and Mitigation Measures**

The proposed subdivision will provide an increase in choice and supply of land areas for residential growth and opportunities. In lieu of providing affordable housing units as may be required by the Department of Housing and Human Concerns, the applicant will be donating approximately 1.16 acres of land for the future expansion of
Kaunaoa Senior Center. Although the project will not be providing affordable housing units, it can be viewed that a greater public benefit will be achieved through this 1.16-acre donation and the approximately 20.93-acre conservation area dedication.

C. PUBLIC SERVICES AND FACILITIES

1. Police and Fire Protection Services

   a. Existing Conditions
      
      Police protection for the Wailuku-Kahului region is provided by the Maui Police Department headquartered in Wailuku, about 4.0 miles to the west of the project site. The region is served by the department's Central Maui patrol.

      Fire prevention, suppression, and protection services for the Wailuku-Kahului region are provided by the County Department of Fire and Public Safety's Kahului Station, approximately 2.5 miles west of the project site. In addition, the department's Paia Station is located about 2.75 miles to the east of the project site along the Hana Highway in Paia Town.

   b. Potential Impacts and Mitigation Measures
      
      Police and fire services are not expected to be adversely impacted by the proposed project. The project location will not extend existing service area limits for these services.
2. **Health Facilities**
   a. **Existing Conditions**
      Maui Memorial Medical Center, the only major medical facility on the island, services the Wailuku-Kahului region. Acute, general and emergency care services are provided by the facility, which is licensed for about 196 beds and is located in Wailuku, approximately 4.5 miles to the west of the project site. In addition, numerous privately operated medical/dental clinics and offices are located in Kahului and Paia Town to serve the region's residents.

   b. **Potential Impacts and Mitigation Measures**
      Health care services are not expected to be adversely impacted by the proposed project. The project location will not extend existing service area limits for emergency services.

3. **Recreational Facilities**
   a. **Existing Conditions**
      The Wailuku-Kahului region provides a full range of recreational opportunities, including shoreline and ocean recreation activities such as boating, fishing, tdiving, surfing, canoeing, kayaking, picnicking, kite surfing, and windsurfing at Kahului Harbor and nearby beach parks. Individual and organized athletic activities are held at numerous County parks and the War Memorial Sports Complex. County parks in the vicinity include Kanaha Beach Park and the H.A. Baldwin Park.
Along the shoreline area, recreational activities such as swimming, fishing, diving, surfing, and windsurfing were observed.

b. **Potential Impacts and Mitigation Measures**
One (1) park totaling approximately 2.0 acres will be provided for the residents of the subdivision. The proposed development will have minimal impacts on existing shoreline recreational activities as the subdivision will be located approximately 500 feet from the shoreline, and no other development is proposed within the 20.73 acre conservation easement area.

4. **Educational Facilities**
   a. **Existing Conditions**
   The Wailuku-Kahului region is served by the State Department of Education’s public school system as well as several privately operated schools accommodating elementary, intermediate and high school students. Department of Education facilities in the Kahului area include Lihikai and Kahului Schools (Grades K to 5), Maui Waena Intermediate School (Grades 6 to 8), and Maui High School (Grades 9 to 12). Existing facilities in the Wailuku area include Wailuku Elementary School (Grades K to 5), Iao Intermediate School (Grades 6 to 8), and Baldwin High School (Grades 9 to 12). Paia Elementary School, covering kindergarten to grade 5, is the only public school facility in nearby Paia Town.
b. **Potential Impacts and Mitigation Measures**
The proposed project is not expected to create a need for additional school facilities. The proposed 16-lot subdivision consisting of no ohana units is under the current policy of the Department of Education which requires a fair share contribution for educational facilities if the total number of units is 50 or more.

5. **Solid Waste**
   a. **Existing Conditions**
   Single-family residential solid waste collection service is provided by the County of Maui on a once-a-week basis. Residential solid waste collected by County crews is disposed of at the County's 55-acre Central Maui Landfill, located approximately 4.0 miles southeast of the subject site.

   b. **Potential Impacts and Mitigation Measures**
   Clearing and grubbing activities will require disposal of construction-related waste material. As required by the Department of Public Works and Environmental Management, a Solid Waste Management Plan will be submitted to include composting of cleared and grubbed material and recycling/disposal of construction waste.

D. **INFRASTRUCTURE**

1. **Roadways**
   a. **Existing Conditions**
   Access to and egress from the project will be via Old Stable Road and Hana Highway. All traffic will use the intersection
of Old Stable Road at Hana Highway. Hana Highway is a two-lane State Highway. The posted speed limit is 55 miles per hour for westbound traffic and 45 miles per hour for eastbound traffic.

The section of Old Stable Road that is contiguous to the project is a two-lane private roadway. The intersection of Old Stable Road at Hana Highway is a stop sign controlled intersection and there are no separate left turn lanes along Hana Highway in the vicinity of the study intersection.

"Level-of-Service", or "LOS", is a term which denotes any of a multiple number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. 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 (6) levels of service, A through F, which relate to the driving conditions from best (little or no delay) to worst (extreme delays), respectively.

According to the Traffic Impact Assessment Report prepared for the project, existing levels-of-service along Hana Highway operate at a LOS A during the morning and afternoon peak hour as determined from the traffic counts performed at the intersection. See Appendix "J". Traffic along the northbound approach of Old Stable Road operates at LOS B (short traffic delays) during the afternoon peak hour. No LOS was calculated for the morning peak hour.
because no traffic was observed during the survey. Traffic along the southbound approach of Old Stable Road operates at LOS C (average traffic delays) during the morning and afternoon peak hours.

b. Potential Impacts and Mitigation Measures

Subdivision Roadway Improvements:
The subject subdivision will consist of a single cul-de-sac which connects to Old Stable Road and extends towards the east. The street within the subdivision will have a 48-foot right-of-way with a curb to curb width of 32 feet with 8-foot shoulders on each side. The cul-de-sac will have an edge of pavement radius of 40 feet. The larger traffic lanes and cul-de-sac pavement radius are designed to accommodate the larger fire trucks in this district. The subdivision roadway will have concrete curbs and gutters with a 4-foot wide sidewalk along one side of the street in compliance with ADA standards. Although the Department of Public Works and Environmental Management comments that two (2) vehicular accesses are required to service this subdivision, it is noted that the applicant will be either seeking a variance to this requirement or providing an emergency only access through Laulea Place.

Old Stable Road will also be improved to County standards in accordance with the requirements of the Department of Public Works and Environmental Management.
Traffic Impact Assessment:
The Traffic Impact Assessment Report used 2008 background traffic conditions plus project-generated traffic to calculate future LOS. The proposed project will generate three (3) inbound and nine (9) outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate ten (10) inbound and six (6) outbound trips.

The traffic using the study intersection will increase by 12 vehicles per hour, or 0.81 percent during the morning peak hour and 16 vehicles per hour or 0.94 percent during the afternoon peak hour.

The Institute of Transportation Engineers recommends that a traffic impact study should be performed, if, in lieu of another locally preferred criterion, development generates an additional 100 vehicle trips in the peak direction (inbound or outbound) during this site’s peak hour. Based on the criterion, the report concludes that a traffic impact study is not warranted.

Based on the findings of the level-of-service analysis for 2008 background plus project conditions, traffic generated by the project has an insignificant impact on traffic operation at the intersection of Old Stable Road at Hana Highway. All traffic movements are expected to operate at level-of-service C or better for existing roadway conditions. Traffic generated by the project did not result in a change in delay or level-of-service and therefore has no impact.
At the time of the drafting of this report, the State Department of Transportation, Maui Highways Division, has indicated that funding has been secured for the design of Hana Highway roadway improvements in 2004. Roadway improvements include provisions of a separate left turn lane along Hana Highway for eastbound to northbound left turns, refuge and acceleration lanes for left turns onto Hana Highway, acceleration lanes for right turns onto Hana Highway and separate left and right turn lanes from Old Stable Road at Hana Highway.

Although not recommended by the traffic report, it is noted that the applicant acknowledges that these roadway improvements will provide safer road conditions. Therefore, the applicant has agreed to participate with the State Department of Transportation in the intersection improvements on Hana Highway and Old Stable Road.

2. Water/Fire Flow
   a. Existing Conditions
      The project area is served by the Central Maui Water System. The main sources for this system are the Iao and Waihee aquifers, the Iao tunnel and the Iao-Waikapu ditch. There is an existing 12-inch waterline within Hana Highway to provide potable water for the project.

   b. Potential Impacts and Mitigation Measures
      Domestic water and fire flow for the proposed project will be provided by the County's water system. In accordance with the Department of Water Supply's Domestic Consumption...
Guidelines for single-family residential development, the average daily demand for the subdivision is approximately 51,000 gallons per day. Fire flow demand for single-family residential development is 1,000 gallons per minute for a 2-hour duration. Fire hydrants will be installed with a maximum spacing of 350 feet.

Potable water for the project will be serviced by an existing 12-inch waterline within Hana Highway. A new 12-inch waterline will be installed along Old Stable Road and into the project site to service each of the 16 lots of the subdivision. As part of the building permit process, domestic water and fire flow calculations will be provided to determine the adequacy of the existing water system. See Appendix "K".

In accordance with standard comments provided by the Department of Water Supply, the applicant is aware that water for this project may not be available until new sources are brought on-line.

3. **Wastewater**

   a. **Existing Conditions**

   The project area is served by an existing gravity flow system which transports wastewater to the existing Spreckelsville Pump Station, adjacent to the eastern boundary of the project site. An existing 12-inch force main, which traverses through the project site then along Old Stable Road, transports wastewater to the Wailuku-Kahului Wastewater Reclamation Facility.
b. **Potential Impacts and Mitigation Measures**

The proposed subdivision will generate approximately 5,950 gallons per day of wastewater when all homes are constructed. The onsite sewerage collection system will be designed to accommodate this flow. The existing collection and transmission systems, pumping facilities and treatment plant have the capacity to handle the anticipated wastewater generated by the subdivision. An 8-inch sewerline will be installed to collect the wastewater generated from this project. It will connect to an existing sewer manhole at the end of Laulea Place which transports the wastewater to the Spreckelsville Pump Station along the eastern boundary of the project site. An existing 12-inch force main, which traverses through the project site then along Old Stable Road, transports wastewater to the Kahului Wastewater Treatment Plant. Refer to Appendix "K".

Although the Department of Public Works and Environmental Management indicates that wastewater system capacity is currently available as of February 20, 2004, the applicant is aware that wastewater system capacity cannot be ensured until the issuance of the building permit. In addition, the applicant is aware of assessment fees for treatment plant expansion costs and required funding of necessary offsite improvements to the collection system and wastewater pump stations.
4. **Drainage**

a. **Existing Conditions.**

According to the Preliminary Drainage Report prepared for the project, runoff sheet flows across the parcel in the southerly to northerly direction towards the ocean. It is estimated that the existing 50-year storm runoff from the project site is 17.8 cfs. See Appendix "L".

An existing 24-inch culvert crosses Hana Highway approximately 350 feet west of the property line between the project site and the Kaunoe Senior Center. The existing culvert conveys approximately 24 cfs of surface runoff from the existing sugar cane fields mauka of the highway to the makai side onto the project site. This offsite runoff also sheet flows across the parcel to the ocean. Approximately 20 feet into the property is a bikeway constructed by the County of Maui. Two 18-inch culverts have been constructed under the bikeway to allow the runoff from the existing 24-inch culvert to continue downstream in the same direction.

b. **Potential Impacts and Mitigation Measures.**

After the development of the proposed project, it is estimated that the 50-year storm runoff will be approximately 26.6 cfs, a net increase of 8.8 cfs.

Surface runoff from the project will be allowed to sheet flow towards the proposed subdivision roadway where runoff will be captured and conveyed by the underground drainage system to a proposed retention basin. This retention basin
will be located to the west of the subdivision, between the common area open space and the subdivision road. See Appendix "M", Grading Plan.

The retention basin has been sized to accommodate all the additional onsite surface runoff generated by the proposed 16-lot subdivision. A proposed drainline will be connected to the existing drainage culverts beneath the existing bikeway. The drainline will outlet into the proposed retention basin. The surface runoff generated makai of the proposed improvements will be allowed to continue downstream towards the ocean.

5. Electrical and Communication Systems
   a. Existing Conditions
      The existing electrical distribution system in the Speckelsville area is overhead. Existing overhead utility lines are located along Hana Highway fronting the project site. See Appendix "K".

   b. Potential Impacts and Mitigation Measures
      The proposed electrical, telephone and cable TV distribution systems in the subject subdivision will be installed underground. Street lights will be installed along the subdivision street at regular intervals. The installation of electrical, telephone and cable TV systems for the project will be coordinated with Maui Electric Company, Verizon Hawaii, and Hawaiian Cablevision, respectively. No impacts are anticipated on electrical and communication systems.
E. **CUMULATIVE AND SECONDARY IMPACTS**

A cumulative impact is defined as an impact to the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Some actions may also stimulate secondary impacts such as increases in population and growth, or increases in the demand for public services.

Recognizing current land use designations of State Urban classification and County R-3, Residential zoning, foreseeable actions to develop a residential community appear reasonable. By re-designating the subdivision development site to rural residential and re-designating the conservation easement area to open space, future cumulative impacts of additional residential use on the subject property would be limited. Given the project density of 16 single-family homes on approximately 40 acres (0.4 dwellings units/acre), cumulative and secondary impacts to the environment and surrounding areas are considered minimal.

Although there will be cumulative and secondary impacts by re-designating and donating approximately one (1) acre to the County, Kaunaoa Senior Center for future facility expansion, these impacts are anticipated to be minimal. The public benefit of this future expansion will enhance public services for seniors, as well as the community who utilizes the facilities.

F. **SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED**

The proposed action will result in unavoidable construction related impacts, which include noise-generated impacts occurring from the proposed improvements. In addition, there may be temporary air quality impacts associated with dust generated from exhaust emissions
discharged by construction equipment. Appropriate mitigation measures will be implemented to minimize these construction related impacts.

G. **IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

The proposed project would involve the commitment of land for the proposed residential subdivision, conservation easement, and Kaunaoa Senior Center expansion. This commitment of land is consistent with the State Land Use Classification which designates the property for “Urban” type uses. Land use amendment actions would bring the project into conformance with land use policies and plans within the region. The proposed project is also designed to be compatible with existing land uses surrounding the project site. In this context, the proposed action is not considered to have a negative effect on land resource commitment or place significant additional requirements upon public services and infrastructure.
Chapter IV

Relationship to Governmental Plans, Policies and Controls
IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, establishes the four (4) major land use districts in which all lands in the State are placed. These districts are designated "Urban", "Rural", "Agricultural", and "Conservation". The project site is situated within the "Urban" district. See Figure 8. The proposed use of the project site for this purpose is consistent with "Urban" district standards.

B. HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan which serves as a guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. The proposed action is in concert with the following goals of the Hawaii State Plan.

- A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii’s present and future generations.

- A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

- Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life.

1. Objectives and Policies of the Hawaii State Plan

The proposed action is in conformance with the following objectives and policies of the Hawaii State Plan:
Figure 8

E Paepae Ka Pūko’a
State Land Use Classifications

Prepared for: Old Stable LLC
Chapter 226-5, HRS, Objectives and Policies for Population

226-5(a), HRS: It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter.

226-5(b)(1), HRS: Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.

226-5(b)(3), HRS: Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.

Chapter 226-6, HRS, Objective and Policies for the Economy - in General

226-6(b)(b), HRS: Strive to achieve a level of construction activity responsive to, and consistent with, State growth objectives.

Chapter 226-11, HRS, Objectives and Policies for the Physical Environment - Land-Based, Shoreline, and Marine Resources.

226-11(a)(2), HRS: Effective protection of Hawaii's unique and fragile environmental resources.

226-11(b)(3), HRS: Take into account the physical attributes of areas when planning and designing activities and facilities.

226-11(b)(8), HRS: Pursue compatible relationships among activities, facilities, and natural resources.
Chapter 226-12, HRS, Objective and Policies for the Physical Environment - Scenic, Natural Beauty, and Historic Resources.

226-12(b)(5), HRS: Encourage the design of developments and activities that complement the natural beauty of the islands.


226-13(b)(2), HRS: Promote the proper management of Hawai‘i’s land and water resources.

226-13(b)(6), HRS: Encourage design and construction practices that enhance the physical qualities of Hawai‘i’s communities.

226-13(b)(7), HRS: Encourage urban developments in close proximity to existing services and facilities.

Chapter 226-19, HRS, Objectives and Policies for Socio-Cultural Advancement - Housing.

226-19(a)(2), HRS: The orderly development of residential areas sensitive to community needs and other land uses.

226-19(b)(1), HRS: Effectively accommodate the housing needs of Hawai‘i’s people.

226-19(b)(3), HRS: Increase home ownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

226-19(b)(5), HRS: Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.

226-19(b)(7), HRS: Foster a variety of lifestyles traditional to Hawaii through the design and
maintenance of neighborhoods that reflect the culture and values of the community.

Chapter 226-23, HRS, Objective and Policies for Socio-Cultural Advancement - Leisure.

226-23(b)(4), HRS: Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.

2. Priority Guidelines of the Hawaii State Plan

The proposed action is in keeping with the following priority guidelines of the Hawaii State Plan:

Chapter 226-103, HRS, Economic Priority Guidelines:

226-103(1), HRS: Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.

a. Encourage investments which:

(i) Reflect long term commitments to the State;

(ii) Rely on economic linkages within the local economy;

(iii) Diversify the economy;

(iv) Reinvest in the local economy;

(v) Are sensitive to community needs and priorities; and

(vi) Demonstrate a commitment to management opportunities to Hawaii residents.

Chapter 226-104, HRS, Population Growth and Land Resources Priority Guidelines:

226-104(a)(1), HRS: Encourage planning and resource management to ensure that population growth rates throughout the
State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii’s people.

226-104(b)(1), HRS: Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.

226-104(b)(2), HRS: Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

226-104(b)(12), HRS: Utilize Hawaii’s limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline conservation lands, and other limited resources for future generations.

Chapter 226-106, HRS, Affordable Housing Priority Guidelines

226-106(1), HRS: Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.

226-106(8), HRS: Give higher priority to the provision of quality housing that is affordable for Hawaii’s residents and less priority to development of housing intended primarily for individuals outside of Hawaii.

C. MAUI COUNTY GENERAL PLAN

The 1990 update of the Maui County General Plan establishes broad objectives and policies to guide the long-range development of the County. As indicated by the Maui County Charter:

The general plan shall indicate desired population and physical development patterns for each island and region within the county; shall address the unique problems and needs of each island and region; shall explain the opportunities and the social, economic, and environmental consequences related to potential developments; and shall
set forth the desired sequence, patterns, and characteristics of future developments.

The Maui County General Plan advances five (5) major themes that focus on the overall goals of the plan. The proposed project responds to the following General Plan theme:

Theme Number 5
Provide for needed resident housing

- Amendments to the General Plan address the development of resident housing as a major social need in our community.

The proposed action is in keeping with the following General Plan objectives relating to population, land use, economic activity, housing and urban design:

POPULATION
Objective
To plan the growth of resident and visitor population through a directed and managed growth plan so as to avoid social, economic and environmental disruptions.

Policies

a. Manage population growth so that the County's economic growth will be stable and the development of public and private infrastructures will not expand beyond growth limits specified in the appropriate community plans or negatively impact our natural resources.

b. Balance population growth by achieving concurrence between the resident employee work force, the job inventory created by new industries, affordable resident/employee housing, constraints on the environment and its natural
resources, public and private infrastructure, and essential social services such as schools, hospitals, etc.

**LAND USE**

**Objective**

1. To preserve for present and future generations existing geographic, cultural and traditional community lifestyles by limiting and managing growth through environmentally sensitive and effective use of land in accordance with the individual character of the various communities and regions of the County.

**Policy**

b. Provide and maintain a range of land uses districts sufficient to meet the social, physical, environmental and economic needs of the community.

**Objective**

2. To use the land within the County for the social and economic benefit of all the County's residents.

**Policy**

c. Encourage land use methods that will provide a continuous balanced inventory of housing types in all price ranges.

**ECONOMIC ACTIVITY (General)**

**Objective**

Utilize an equitable growth management program which will guide the economic well-being of the community.
HOUSING

Objective
To provide a choice of attractive, sanitary and affordable homes for all our residents.

Policy
b. Encourage the construction of housing in a variety of price ranges and geographic locations.

Objective
2. Provide affordable housing to be fulfilled by a broad cross-section of housing types.

URBAN DESIGN

Objective
2. To encourage developments which reflect the character and the culture of Maui County's people.

Policy
b. Encourage community design which establishes a cohesive identity.

D. WAILUKU-KAHULUI COMMUNITY PLAN

Nine (9) community plans have been established in Maui County. Each region's growth and development is guided by a community plan, which contains objectives and policies drafted in accordance with the County General Plan. The purpose of the community plan is to outline a relatively detailed agenda for carrying out these objectives. According to the land use map of the Wailuku-Kahului Community Plan, the subject property is designated for open space and single family use. See Figure 9. It is noted that during the community plan review process in 1993, the Wailuku-Kahului Citizen Advisory Committee (CAC) recommended
Figure 9
E Paepae Ka Pūkoʻa
Wailuku-Kahului Community Plan
Land Use Designations

Source: County of Maui, Department of Planning

Prepared for: Old Stable LLC
approximately 36 acres within the project site to be re-designated from open space to multi-family use. At the time, the CAC felt that multi-family housing could provide opportunities for elderly housing in close proximity to the existing Kaunoa Senior Center and the coastal recreational resources. However, the Planning Department felt at the time that there were already sufficient lands available for such development within the community plan region and recommended keeping this area under an open space designation. The Maui County Council subsequently adopted the community plan in 2002 with the open space designation.

A community plan amendment is being requested for approximately 14.86 acres from open space to rural for the subdivision development site and approximately one (1) acre from open space to public/quasi-public for donation to the Kaunoa Senior Center. The applicant will also be facilitating land use consistency by requesting a down-zoning for approximately 24.50 acres from R-3, Residential to OS-2, Open Space to bring this area in line with the Open Space designation of the community plan. Refer to Figure 3.

The proposed actions creates a desirable design and land use pattern as follows:

- Recognizes existing residential land uses by creating low-density rural lots consistent with surrounding areas, and locating the subdivision lots mauka of existing single-family lots and mauka of the tsunami inundation limits;

- Protects the natural environment by future dedication of a conservation easement area. (It is noted that this area contains environmentally sensitive areas such as the shoreline, wetlands conducive to wetland habitat, and coastal sand dunes); and

- Provides a public benefit by donating the bike path and land for the Kaunoa Senior Center future expansion.
The proposed action is also in keeping with the following goals, objectives and policies of the Wailuku-Kahului Community Plan:

**Goal (Housing):**
A sufficient supply and choice of attractive, sanitary and affordable housing accommodations for the broad cross section of residents, including the elderly.

**Objectives and Policies:**

2. Provide sufficient land areas for new residential growth which relax constraints on the housing market and afford variety in type, price, and location of units. Opportunities for the provision of housing are presently constrained by a lack of expansion areas. This condition should be relieved by a choice of housing in a variety of locations, both rural and urban in character.

3. Seek alternative residential growth areas within the planning region, with high priority given to the Wailuku and Kahului areas. This action should recognize that crucial issues of maintaining important agricultural lands, achieving efficient patterns of growth, and providing adequate housing supply and choice of price and location must be addressed and resolved.

8. Promote efficient housing designs in order to reduce residential home energy and water consumption.

**Goal (Social Infrastructure):**
Develop and maintain an efficient and responsive system of public services which promotes a safe, healthy and enjoyable lifestyle, accommodates the needs of young, elderly, disabled and disadvantaged persons, and offers opportunities for self-improvement and community well-being.
Objectives and Policies:

16. Ensure that adequate regional/community park facilities are provided to service new residential developments.

Goal (Urban Design):
An attractive and functionally integrated urban environment that enhances neighborhood character, promotes quality design, defines a unified landscape planting and beautification theme along major public roads and highways, watercourses and at major public facilities and recognizes the historic importance and traditions of the region.

E. COUNTY ZONING
The proposed project site is zoned "R-3", "Residential" by Maui County Zoning. As mentioned previously, the applicant will be requesting a down-zoning for approximately 24.50 acres from "R-3", "Residential" to "OS-2", "Open Space" to bring consistency with the "Open Space" designation of the community plan. To be consistent with the proposed rural community plan designation of the subdivision development area, a zoning change is being requested from the "R-3, Residential" to "RU-0.5, Rural" district. This zoning change would lessen the potential density of the project from a minimum lot size of 10,000 square feet to 21,780 square feet, (or 0.5 acres). A change in zoning for approximately one (1) acre is also being requested from the "R-3, Residential" to "P-1, Public/Quasi-Public" for donation to the County of Maui (State of Hawaii), Kaunaoa Senior Center for future expansion capabilities. Refer to Figure 3.

According to Chapter 19.510.040, the following addresses criteria that the County Council would consider when granting a change in zoning:
The proposed request meets the intent of the general plan and the objectives and policies of the community plans of the county.

The proposed request is consistent with the applicable community plan land use map of the county, provided that the requested community plan amendment is granted.

The proposed request meets the intent and purpose of the district being requested.

The application, if granted would not adversely affect or interfere with public or private schools, parks, playgrounds, water systems, sewage and solid waste disposal, drainage, roadway and transportation systems, or other public requirement, conveniences and improvements.

The application, if granted would not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the surrounding area.

F. SPECIAL MANAGEMENT AREA

The subject property is located within the County of Maui's Special Management Area (SMA). Pursuant to Chapter 205A, Hawaii Revised Statutes (HRS), and the Rules and Regulations of the Maui Planning Commission, actions proposed within the SMA area evaluated with respect to SMA objectives, policies and guidelines. This section addresses the project's relationship to applicable Coastal Zone Management (CZM) considerations as set forth in Chapter 205A, HRS and the Rules and Regulations of the Maui Planning Commission.

(1) Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

(A) Improve coordination and funding of coastal recreational planning and management; and
(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of Section 46-6, HRS.

Response: The proposed action is not anticipated to adversely affect existing public access to the beach area and ocean recreational resources. Public access to the beach will continue to be provided within the conservation easement dedication area. Re-
designating land uses to open space use in this area will ensure that public access, and recreational/open space resources are preserved. It is noted that the subdivision development site is located approximately 500 feet inland from the shoreline area.

(2) **Historic Resources**

**Objective:**
Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

**Policies:**
(A) Identify and analyze significant archeological resources;
(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and
(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

**Response:** In accordance with the Archaeological Inventory Survey and the Cultural Assessment Report prepared for the project, no impacts are anticipated on archaeological or cultural resources. To mitigate any potential impacts, archaeological monitoring will be conducted during ground altering activities. Should any artifacts or human remains be encountered during construction, work will stop in the immediate vicinity of the find and the State Historic Preservation Division and/or the Maui/Lana'i Islands Burial Council will be appropriately and immediately notified to establish an appropriate mitigation strategy.

(3) **Scenic and Open Space Resources**

**Objective:**
Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.
Policies:

(A) Identify valued scenic resources in the coastal zone management area;
(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Response: There will be no impacts on existing mountain and ocean views from Hana Highway and Stable Road as a result of the proposed action. As mentioned previously, the subdivision development site is located directly mauka of the developed single-family lots along the shoreline. Also, by designating approximately 24.50 acres of land to open space, existing open space and scenic resources will be preserved.

In order to preserve the character of the Spreckelsville area, the existing monkeypod trees located on the subject property will be preserved and maintained. Security fencing/walls along Hana Highway will be designed to blend in with the existing mature monkey pod trees. It is proposed that any fence/wall structure will be constructed in the back of privacy-type landscaping, such as wiliwili or other tall hedge material. See Appendix "F". As such, existing conditions can be preserved with minimal impacts anticipated.
(4) **Coastal Ecosystems**

**Objective:**
Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

**Policies:**

(A) Improve the technical basis for natural resource management;
(B) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
(C) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
(D) Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

**Response:** The drainage system for the project will be designed and constructed to produce no adverse effects to adjacent and downstream properties, and will be designed and reviewed in accordance with applicable governmental standards. Best management practices (BMPs) and appropriate erosion control measures will be implemented, to minimize the effects of runoff during construction of the project. Since no development is proposed within 500 feet from the shoreline, impacts to coastal ecosystems would be minimal.
(5) Economic Uses

Objective:
Provide public or private facilities and improvements important to the State’s economy in suitable locations.

Policies:

(A) Concentrate coastal dependent development in appropriate areas;
(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
   (i) Use of presently designated locations is not feasible;
   (ii) Adverse environmental effects are minimized; and
   (iii) The development is important to the State’s economy.

Response: The proposed project would have a direct beneficial effect on the local economy during construction. In the long term, the proposed project will support the local economy through homeowners’ need for goods and services. The additional housing inventory will benefit the social welfare for the community. The economic and social welfare needs of the community will not be adversely impacted by the proposed subdivision. Community needs will be enhanced by proposed dedication of the conservation easement area, donation of the bike path, and donation of approximately one (1) acre to the Kaunoa Senior Center, County of Maui, State of Hawaii.
(6) Coastal Hazards

Objective:
Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program;
(D) Prevent coastal flooding from inland projects; and
(E) Develop a coastal point and nonpoint source pollution control program.

Response: The proposed subdivision site is located outside the tsunami inundation limits. Also, it is located approximately 500 feet away from the shoreline. Therefore, there will be minimal impacts on coastal hazards. It is noted that a dune restoration plan was prepared for the project to better mitigate "human-induced" impacts on this natural coastal ecosystem. The proposed drainage system will be designed to produce no adverse effects on adjacent and downstream properties.

(7) Managing Development

Objective:
Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
(B) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Response: All aspects of the project will be conducted in accordance with applicable State and County requirements. Opportunities for public review and consideration of the proposed action is offered through the SMA permitting process.

8 Public Participation

Objective:
Stimulate public awareness, education, and participation in coastal management.

Policies:

(A) Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;
(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and
(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Response: A public hearing is required as part of the SMA review process. As such, the proposed project addresses the SMA objective of stimulating public awareness, education and
participation in coastal management. In addition, neighborhood and group meetings were conducted prior to the preparation of the Draft Environmental Assessment to further facilitate public participation. Refer to Chapter VIII.

(9) **Beach Protection**

**Objective:**
Protect beaches for public use and recreation.

**Policies:**

(A) Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;

(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

**Response:** As previously noted, the subdivision development site is located approximately 500 feet inland from the shoreline and outside of the Maui County’s shoreline setback area. A dune restoration plan was prepared for the project to better mitigate “human-induced” impacts on this natural coastal ecosystem.
(10) **Marine Resources**

**Objective:**
Implement the State's ocean resources management plan.

**Policies:**

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(C) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;

(D) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(E) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(F) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

**Response:** As previously noted, BMPs will be implemented to minimize construction-related impacts to marine resources. Also, the proposed drainage system will be designed to produce no adverse effects on adjacent and downstream properties. Adverse impacts to marine resources are not anticipated as a result of the proposed action.
Chapter V

Alternative Analysis
V. ALTERNATIVE ANALYSIS

A. NO ACTION ALTERNATIVE
The no action alternative would keep this area undeveloped. This alternative would not recognize the underlying State "Urban" Land Use designation of the project site. Although beach use and open space benefits would continue, it is noted that the illegal trash dumping, (including abandoned cars), sand mining, and drug activity has occurred on the project site when under current and previous ownership.

B. DEVELOPMENT UNDER EXISTING CONDITIONS ALTERNATIVE
Under current county zoning, each of the shoreline lots could be developed with a single-family dwelling plus one ohana unit, provided it is determined to be an exempt action under Special Management Area Rules. In addition, one (1) single-family dwelling plus one (1) ohana unit may be constructed on the larger parcel, again, provided that it is determined to be an exempt action under Special Management Area Rules. Although not part of these applications, the 28-acre agriculturally zoned portion located to the west of Old Stable Road could be further subdivided into seven, 2-acre agricultural lots.

C. DESIGN ALTERNATIVES
1. Full Build out alternative was considered for the entire 40.52 acre area zoned R-3, Residential. Approximately 26 ±1 acre single-family lots with a potential of 26 homes plus 26 ohana units were considered. This alternative was not viewed as a desired project density when considering the impacts of 50+ single-family homes on surrounding areas.

2. Developing only the two (2) shoreline properties was an alternative suggested at a neighborhood meeting conducted on April 26, 2004.
This alternative was not considered as it would limit public access and use of the shoreline area.

3. Subdividing only 14.86 acres consisting of 16 lots, including ohanas was looked at. This alternative was not considered because the inclusion of ohana units could potentially double the project density.

4. Subdividing 14.86 acres consisting of 16 lots prohibiting ohanas with nine (9) lots abutting Laulea Place was viewed. This alternative was considered, however, the project has been reconfigured to reduce the number of lots abutting Laulea Place. Fewer lots abutting Laulea Place (6 lots) may reduce potential impacts to neighbors who reside along this private roadway.

5. Roadway Alternatives
   a. A through street from Old Stable Road to Alakapa Place was considered. This alternative was not considered due to overwhelming concerns raised by neighbors along Laulea Place and Alakapa Place relative to an increase in traffic impacts.
   b. Utilizing the County's Flexible Roadway Design standards was considered to construct a roadway with a more "rural" character of the Spreckelsville area (narrower pavement widths with no curb-cuts). This alternative was not considered as it was recently determined that the Director of Public Works and Environmental Management does not have the authority to deviate from typical county standards for roadways. As such, the subdivision roadway will be constructed to county standards, consisting of curb, gutter, and sidewalks.
   c. The preferred Roadway alternative would be to construct a cul-de-sac roadway which restricts access to Laulea Place and Alakapa Place. This alternative would address the concerns raised by the surrounding neighbors regarding additional traffic impacts. If required by the Department of
Public Works and Environmental Management, constructing a gated emergency access to Laulea Place can be accommodated.

D. **OPEN SPACE ZONING ALTERNATIVES**
An OS-1 zoning designation was considered for environmentally sensitive areas, such as the wetlands and coastal sand dunes to better protect and preserve these features. However, it is noted that preservation of these features are already regulated through existing legislation, jurisdictional review, and applicable governmental rules/regulations (i.e., Grading Ordinance, Department of the Army Permits, Shoreline Setback Rules). In addition, split zoning designations of OS-1 and OS-2 on one (1) lot can get rather cumbersome and complicated from a land use zoning perspective. Additional preservation controls can be incorporated into the project through conditional zoning, or SMA conditions.

E. **PREFERRED ALTERNATIVE**
The proposed action represents the preferred alternative. Larger lots prohibiting ohana units are proposed to lessen project density and minimize impacts on surrounding properties. The size of the lots are also compatible with the lots sizes of the surrounding areas. The residential lots are situated behind established single-family residences in order to minimize impacts to coastal recreational resources. The subdivision design also reduces the number of lots abutting Laulea Place, thus reducing potential impacts to residents along this roadway. Not providing a through access from the subdivision to Alakapa Place addresses concerns of the neighbors regarding additional traffic impacts on Alakapa Place. The open space land use amendments of the conservation easement area would further preserve coastal recreational resources in perpetuity.
Chapter VI

Findings and Conclusions
VI. FINDINGS AND CONCLUSIONS

The "Significance Criteria", Section 12 of the Administrative Rules, Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed to determine whether the proposed action will have significant impacts to the environment. The following analysis is provided:

1. **No Irrevocable Commitment to Loss or Destruction of any Natural or Cultural Resource Would Occur as a Result of the Proposed Project**

   The project will not result in any significant adverse environmental impacts. Although wetland areas will be filled within the subdivision development site, these areas were determined not to be significant from a wetland habitat perspective. More importantly, a more suited wetland area in the conservation easement area will be expanded and enhanced to better support wetland habitat. Wetland mitigation/enhancement is subject to review by the U.S. Fish and Wildlife Service and the Department of Army Corps of Engineers to ensure proper mitigation and maintenance.

   In accordance with the Archaeological Inventory Survey and the Cultural Assessment Report prepared for the project, no impacts are anticipated on archaeological or cultural resources. To mitigate any potential impacts, archaeological monitoring will be conducted during ground altering activities. Should any artifacts or human remains be encountered during construction, work will stop in the immediate vicinity of the find and the State Historic Preservation Division and/or the Maui/Lanai Island Burial Council will be appropriately and immediately notified to establish an appropriate mitigation strategy.
2. \textbf{The Proposed Action Would Not Curtail the Range of Beneficial Uses of the Environment}

The use of the subject property for rural residential use is deemed appropriate as it provides for new housing inventory adjacent to other single-family uses. In addition, this use recognizes the underlying residential zoning. Public open space, shoreline access, and coastal recreational resources will be retained with the proposed open space land use designations and the dedication of this area as a conservation easement. The proposed project and the commitment of land resources will not curtail the range of beneficial uses of the environment.

3. \textbf{The Proposed Action Does Not Conflict With the State's Long-Term Environmental Policies or Goals or Guidelines as Expressed in Chapter 344, Hawaii Revised Statutes}

The State's Environmental Policy and Guidelines are set forth in Chapter 344, HRS, and were reviewed in connection with the proposed action. The purpose of this chapter is to establish a state policy, which will encourage productive and enjoyable harmony between people and their environment, promote efforts which will prevent or eliminate damage to the environment and biosphere, and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawaii.

The proposed action is not contrary to these policies and guidelines.

4. \textbf{The Economic or Social Welfare of the Community or State Would Not Be Substantially Affected}

The proposed project would have a direct beneficial effect on the local economy during construction. In the long-term, the proposed project will support the local economy through homeowners' need for goods and
services. The additional housing inventory will benefit the social welfare for the community. The economic and social welfare needs of the community will not be adversely impacted by the proposed subdivision. Community needs will be enhanced by proposed dedication of the conservation easement area, donation of the bike path, and donation of approximately one (1) acre to the Kaunoa Senior Center, County of Maui, State of Hawaii.

5. **The Proposed Action Does Not Affect Public Health**
No impacts on public health and welfare are anticipated as a result of the proposed project.

6. **No Substantial Secondary Impacts Such as Population Changes or Effects on Public Facilities are Anticipated**
No significant population changes are anticipated as a result of the proposed project.

The proposed subdivision development area will include tie-in to existing water and wastewater systems. Appropriate design coordination will be undertaken with responsible State and County agencies to ensure service availability. The proposed action is within the urban core where public services such as police, fire, schools, and medical facilities are available. No significant impacts are anticipated on these public facilities.

7. **No Substantial Degradation of Environmental Quality is Anticipated**
During the construction phase of the project, there will be short-term air quality and noise impacts as a result of the project. In the long term, effects upon air quality and ambient noise levels should be minimal. The proposed project is not anticipated to significantly affect the open space and scenic character in the area.
8. **The Proposed Project Does Not Involve a Commitment to Larger Actions, Nor Would Cumulative Impacts Result in Considerable Effects on the Environment**

The proposed action as described herein, represents the entire project. Accordingly, there are no cumulative impacts, which would result in larger effects on the environment.

9. **No Rare, Threatened or Endangered Species or Their Habitats Would Be Adversely Affected by the Proposed Action**

Potential wetland areas are found on the property. As mentioned previously, a wetland mitigation/enhancement plan has been developed for this property. This plan would provide additional wetland area and suitable enhancement of the Area 3 wetland as mitigation for the loss of the Area 1 and portion of Area 2 wetlands.

10. **Air Quality, Water Quality or Ambient Noise Levels Would Not Be Detrimentally Affected by the Proposed Project**

No substantial long-term impacts on air, water, or noise quality are anticipated. Short-term impacts relative to construction activities will be mitigated through standard construction practices (i.e., dust screen as appropriate, silt fences, and limiting construction to normal daylight hours). Site preparation and construction activities will require the design and implementation of Best Management Practices to mitigate other construction activity impacts.
11. *The Proposed Project Would Not Affect Environmentally Sensitive Areas, Such as Flood Plains, Tsunami Zones, Erosion-prone Areas, Geologically Hazardous Lands, Estuaries, Fresh Waters or Coastal Waters*

The project development site is located outside the tsunami inundation limits. Also, it is located approximately 500 feet away from the shoreline.

12. *The Proposed Action Would Not Substantially Affect Scenic Views and Viewplanes Identified in County Plans or Studies*

The project site is not identified as a scenic vista or viewplane. The proposed project will not significantly affect public scenic corridors, coastal scenic and open space resources.


The proposed project will involve short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long term, the project will create an additional demand for electricity. However, its demand is not deemed substantial or excessive within the context of the region's overall energy consumption.

Based on the foregoing findings, and proposed mitigation measures, it is anticipated that the proposed action will result in a Findings of No Significant Impact. See Site Photographs, Appendix "N".
Chapter VII

List of Permits and Approvals
VII. LIST OF PERMITS AND APPROVALS

The following permits and approvals will be required prior to implementation of the project.

Federal
1. Army Corps of Engineer’s Section 404 permits for filling of wetlands
2. U.S. Fish and Wildlife Services, wetland enhancement/mitigation review

County
1. County Community Plan Amendment
2. County Change in Zoning
3. County Special Management Area Use Permit
4. Subdivision approval
5. Grading and building permits.
Chapter VIII

Neighborhood/Group Information Meetings
SUMMARY OF MEETINGS
E Paepae Ka Puko'a

1. Date: March 15, 2004 (See Exhibit "A")
   Location: MOA Center
   Present: Maui Tomorrow Board Meeting:
            Ron Sturtz
            Lucienne DeNaie
            Lance Holter
            Sean Lester
            Ed Lindsey,
            Mark Sheehan
            Judith Michaels
            Richard Michaels
            Maile Luuwai
   Staff:
            Marty McMahon
            Katie Romanchuk
   Guests:
            Marcia Godinez
            Dale Bonar
            Dick Mayer
            Jamei
            Glen Shepherd
            Kathy McDuff
            Henry Spencer

2. Date: April 7, 2004 (See Exhibit "B")
   Location: 451 Laukea Street
   Present: Jim Bendon
            Susan Bendon
            Alec McBarrett
            Mary Jane McBarrett
            Pete Siracusa
            Barbara Woods
            Cathy Williams
            Lynn Keller
            Ken Horizons
            Henry Spencer
            Daren Suzuki
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<td>April 12, 2004</td>
<td>Country Club</td>
<td>Jack Thompson</td>
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<td>Jane Thompson</td>
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<td>Daren Suzuki</td>
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<td>April 13, 2004</td>
<td>Paia Main Street Association</td>
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<td>April 14, 2004</td>
<td>Country Club</td>
<td>Doug McFetridge</td>
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<td>Henry Spencer</td>
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<td>April 15, 2004</td>
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<td>Daren Suzuki</td>
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<td>(No one attended)</td>
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<td>7</td>
<td>April 18, 2004</td>
<td>Haynes Residence, Stable Road</td>
<td>Eric Pung</td>
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<td>Kim Pung</td>
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<td>Jim Riley</td>
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<td>Glen Beadles</td>
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<td>Ann Perlman</td>
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<td>Henry Spencer</td>
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8. **Date:** April 22, 2004 (See Exhibit "G")  
**Location:** Kaunoa Sr. Center  
**Present:** Sierra Club Members:  
   - Lance Holter  
   - Dan Grantham  
   - Dot Buck  
   - David M. Johnston  
   - Ann Fielding  
   - Henry Spencer  
   - Daren Suzuki

9. **Date:** April 26, 2004 (See Exhibit "H")  
**Location:** Country Club  
**Present:** Barbara Woods  
   - Sheri Thorson  
   - Louise Severson  
   - Kurt Ulmer  
   - Annie Nelson  
   - Henry Spencer  
   - Daren Suzuki
INDIVIDUAL MEETINGS WITH RESIDENTS OF
SPRECKELSVILLE BETWEEN DECEMBER 2003
AND MAY 2004

Greg Chisholm
Beirne Chisholm
Phillip Golm
Lauren Golm
Michael Ruben
Eric Golting
Mrs. Eric Golting
Jeff Henderson
Peter Martin
Jimmy Diaz
Albert Zeman
Robert Merriman
Cynthia Merriman
Sam Grossman
Mrs. Sam Grossman
Doug Gallant
Rob Kaplan
Tom Welch
Claudia Welch
Dick Emery
Chris Appleton
John Stemet
David Spee
Pia Spee
Peter Merriman
Glen Kunihisa
Fred Haywood
Mercer Vicens
Dorene Vicens
Darlene Vicens
Ron Dahlquist
Scott Sanchez
Rhonda Smith
Daniel Sayles
EXHIBIT “A”

March 15, 2004 Meeting
Maui Tomorrow Board Meeting Minutes
March 15, 2004

Board Members: Ron Sturtz, Lucienne DeNaie, Lance Holter, Sean Lester, Ed Lindsey, Mark Sheehan, Judith and Richard Michaels, Maile Luuawai
Staff: Marty McMahon, Katie Romanchuk
Guests: Marcia Godinez, Henry Spencer, Dale Bonnar, Dick Mayer, Jamei, Glen Shepherd, Kathy McDuff

Ron called meeting to order at 5:40 pm at the Moa Center and welcomed guests. He thanked Marcia and Malia for excellent job on Makena Video Contest, and also thanked Media Committee and others for fine job on Makena hearing.

Guest Presenter: Harry Spencer, landowner of Sprecklesville Subdivision, proposed project. He has revised the proposal from 26 lots with ohanas fairly close to shore, to 16 with no ohanas, 400' from shore, behind tsunami flood zone line. He passed around maps with breakdown of existing and proposed zoning designations for State, County and Community Plan for his subdivision. He plans to donate one acre to Kaunao Sr. Center, have 23-acre conservation easement, county bike path and two common areas. Dale Bonnar from MCLT spoke also and said he is advising that the project move forward. Harry has gotten input from many, including Hugh Star, Bob Horcajo, MT, planning and public works depts.

Dale announced that Inouye will be in Maui, Wed. March 17, 3-4 pm. Million dollar grant from NOAA will be discussed.

Meeting with David Cole CEO of ML&P, March 29, 11 am, corporate headquarters.

Fundraising Committee report: Marty: $220 in pledges since last meeting and more on the way including $1000 from Margaret Hecht. Marty will email us re: upcoming fundraiser. He will strategize with Lucienne re: 2 grants.

Executive Session: (including Kathy, Dick and Marcia)
1) E Maui stream lawsuit updates: Lucienne: Kapua Sproat from Earth Justice plans to file a petition to appeal stream flow standards, to increase stream flows and not divert stream water to Makena developments. The Duesy’s are eager to get things going. The original plan was to petition to return water to 3 streams: Waie’e, Waiheu and Iao. The new idea is to jump on Iao Stream first, before County cuts deal which could be soon (April). Paul from Earth Justice felt the original plan would be better. MT discussed pros and cons of both plans. Ron and Lucienne felt it would probably be better to keep the 3 streams together though it is not an easy choice. This issue will be on agenda for Mayor’s Mtg. MOTION: Ron: MT will support action as outlined by Ed, Lucienne and Kapua who will talk with the Duesys regarding what is best plan to protect E Maui Stream flows re: 3
streams together v starting with Iao Stream. Sean seconded the motion and all were in favor, motion passed.

2) E Maui Lawsuits, Na Wai Eha streams: Lucienne: Water has been released already to a number of E Maui stream users to show good faith, however they are trying to release as little as possible. Wailua and Keanae people are getting more water in their pipes. We still want actual increased stream flows, not just more piped in water to individuals. Isaac working on this. Lucienne questioned at what point should this issue become public, in the media.

3) Makena Resort Rezoning and building bridges with Hawaiian community: ACTION: Ron and Lucienne will put together a Viewpoint article re: history of Makena etc. MT accused of being late to jump in. Marcia suggested obtaining a report of what actually happened with Pa'ulauea, where historical sites were moved or obliterated in contrast to Community Plans. MT is concerned that Makena residents including Hawaiian community are being hoodwinked to believe that all the historical and cultural sites will be protected. MT discussed how to bridge gap between Hawaiian community and others who really have same ultimate goal of keeping open space, coastal access, protecting sites etc.

ACTION PLAN:
Maile will talk to Aunty Patty
Ed will call Bumpy to get info so he can relay it to Patty
Kathy will research historical preservation and comments on any of the 10 surveys.

Channel 4 tomorrow, opportunity to discuss Seibu scandal and say our side. ACTION Maile, Richard and Judith will participate.

Next Meeting: MARCH 29, 2004, MONDAY 2 pm at the MOA Center

Minutes by Katie Romanchuk, Aloha.
MT Minutes

Hi Daren-
Here is the info from my meeting with Maui Tomorrow.
Thanks
Henry

----- Original Message ----- 
From: "Katie Romanchuk" <cohialani@verizon.net>
To: <henspen@hawaii.rr.com>
Sent: Saturday, May 01, 2004 5:14 PM
Subject: MT mtg attendees

Hi Henry

Here are the names of people who attended and the minutes from the
meeting (see attachment). Hope this is helpful. Good luck, Katie, Maui
Tomorrow Admin. Assistant

Board Members: Ron Sturts, Lucienne DeNaie, Lance Holter, Sean Lester,
Ed Lindsey, Mark Sheehan, Judith and Richard Michaels, Maile Luuwai
Staff: Marty McMahon, Katie Romanchuk
Guests: Marcia Godinez, Henry Spencer, Dale Bonnar, Dick Mayer, Jamei,
Glen Shepherd, Kathy McDuff

>
EXHIBIT "B"

April 7, 2004 Meeting
Informal Laulea Street Neighborhood Informational Meeting
451 Laulea Street (Jim Bendon Residence)
Spreckelsville, Maui

April 7, 2004

Attendance:  Henry Spencer, Applicant
Daren Suzuki, Munekiyo & Hiraga, Inc.

Jim Bendon
Susan Bendon
Alec Mc Barnett
Mary Jane Mc Barnett
Pete Siracusa
Barbara Woods
Cathy Williams
Lynn Keller
Ken Horiszney

10:05 a.m.

Mr. Spencer gave a brief overview of the project history. A colored site map consisting of proposed land use amendments was provided. Mr. Spencer and Mr. Suzuki provided overview of the project describing existing uses and proposed uses in accordance with the colored site map.

Questions were raised about the project density. Mr. Spencer responded that no ohanas will be permitted through CC & R’s or deed restrictions. Also, that if the County feels that the density should not exceed the represented 16 single family homes, then there will be no objections to incorporating a “no ohana” condition in the change in zoning request.

Concerns were raised about the potential increase in vehicular traffic from the lots abutting Laulea Place. Mr. Spencer responded that access to Laulea will be controlled through deed restrictions. Mr. Suzuki responded that this prohibition can also be incorporated as a condition of zoning. Concerns were still raised that individual lot owners along Laulea can still access this roadway. Therefore, constructing a wall along Laulea Place to prohibit vehicular access was proposed. Also, the wall should continue from the Galant property to the end of the roadway to prevent vehicles from accessing the common area. Mr. Spencer indicated he had no objections to constructing a short wall on top of a berm in this area.

Liability issues were raised on the ownership of Laulea Place. Currently, Mr. Spencer owns this private roadway. It was suggested that residents along Laulea be given “first right of refusal” to purchase this roadway. Mr. Spencer indicated
that ownership will remain under his name until the subdivision is complete because only then will it become a separate parcel with a separate deed that can be transferred. At that time Mr. Spencer would gladly transfer the deed or give a first right of refusal for the acquisition of Laulea Place to the property owners on Laulea.

Mr. Spencer represented that the County may require an access for emergency vehicles from the subdivision roadway to Laulea. This access will be gated at both ends to ensure only emergency vehicles can access this area. Mr. Spencer indicated that access to the subdivision from Stable Road will not be gated.

Issue raised on preserving the existing Monkeypod trees along Hana Highway. It was indicated that they will be preserved, and that this preservation was also a concern of the Planning Department.

Due to the residential nature of Laulea Place a concern was raised that construction vehicle access should also be limited to Stable Road. No objection by Mr. Spencer.

It was suggested that another neighborhood meeting be held to follow up on issues raised at this meeting. Also to include Annie, Kurt, and Sam and others in this meeting.

Meeting ended at approximately 11:20 a.m.
henry spencer

From: "Lynn Keller" <lynn@hkadesign.com>
To: "Tammy Bexton" <bexton@hawaii.rr.com>
Cc: <jmaui@maui.net>; <jamesbendon@aol.com>; <nelson@maui.net>; <sevsurf@maui.net>; <siracusa@aol.com>; <williams@maui.net>; <henspen@hawaii.rr.com>
Sent: Thursday, April 08, 2004 2:52 PM
Subject: Laulea Neighborhood meeting report

Thank you Henry for the prompt reply. We appreciate your clarifying these specifics. Thank you also for your verbal notice today of the next Laulea neighborhood meeting on Monday April 20. Lynn Keller

Hi Lynn and Ken-

1. I did agree to no ohana's as part of the zoning request.

2. I will not be including a commitment to a beach replenishment plan as part of my zoning request.

3. I will make the commitment to building a berm with a wall on top a part of the zoning request.

4. After the property is subdivided so that Laulea Pt is a separate parcel I will promptly transfer an undivided interest in the deed to the property owners who abut the road or I will do whatever the majority of property owners want including a right of first refusal to acquire title at a future date.

5. I did agree to building the berm/rock wall prior to any construction commencing.

6. I did not agree to notice the next meeting two weeks in advance but I will definitely do that, probably in the next couple of days.

Thank you for the comments.

Please e-mail me or call me (280-4130) with any additional comments or questions.

Thank you,

Henry

-----Original Message-----
From: Lynn Keller [mailto:lynn@hkadesign.com]
Sent: April 8, 2004 11:21 AM
To: Tammy Bexton
Cc: jmaui@maui.net; jamesbendon@aol.com; mbarnet@maui.net; nelson@maui.net; sevsurf@maui.net; siracusa@aol.com; williams@maui.net; henspen@hawaii.rr.com; douggalttattak@aol.com

4/28/2004
Dear Tommy and Henry:

There are a few items that we understood differently. We have marked those items with ********and underline to make it easy to see our comments. We would appreciate your review and comment, or inclusion in revised notes.

Thank you for the timely report.

Lynn Keller and Ken Horiszny

Informal Laulea Street Neighborhood Informational Meeting
451 Laulea Street (Jim Bendon Residence)
Spreekelsville, Maui

April 7, 2004

********PLEASE SEE NOTES ADDED BY LYNN KELLER AND KEN HORISZNY********

Attendance: Henry Spencer, Applicant

Daren Suzuki, Munekiyo & Hiraga, Inc.

Mr. Spencer gave a brief overview of the project history. A colored site map consisting of proposed land use amendments was provided. Mr. Spencer and Mr. Suzuki provided overview of the project describing existing uses and proposed uses in accordance with the colored site map.

Questions were raised about the project density. Mr. Spencer responded that no ohanas will be permitted through CC & R's or deed restrictions. Also, that if the County feels that the density should not exceed the represented 16 single family homes, then there will be no objections to incorporating a "no ohana" condition in the change in zoning request.

**************It was our understanding that Henry agreed to include the no ohanas in the change in zoning request - regardless of County perspective.

It was requested that access to the shoreline be provided from the Stable Rd. beach

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access for any sand replenishment projects in the future. Mr. Spencer responded that the access will be available.

***************Mr Spencer also said that he is working on a beach replenishment plan. It is our perspective that this beach replenishment plan should be presented to the County as part of the change in zoning request. Is Henry open to this?

Concerns were raised about the potential increase in vehicular traffic from the lots abutting Laulea Place. Mr. Spencer responded that access to Laulea will be controlled through deed restrictions. Mr. Suzuki responded that this prohibition can also be incorporated as a condition of zoning. Concerns were still raised that individual lot owners along Laulea can still access this roadway. Therefore, constructing a wall along Laulea Place to prohibit vehicular access was proposed. Also, the wall should continue from the Galant property to the end of the roadway to prevent vehicles from accessing the common area. Mr. Spencer indicated he had no objections to constructing a short wall on top of a berm in this area.

***************It is our understanding this wall will be included in plans submitted for the change in zoning request. The wall would be 3-4 foot high berm with rock wall above. There would be pathways for each property, each path not wide enough for a vehicle to pass through.

Liability issues were raised on the ownership of Laulea Place. Currently, Mr. Spencer owns this private roadway. It was suggested that residents along Laulea be given "first right of refusal" to purchase this roadway. Mr. Spencer indicated that ownership will remain under his name until the subdivision is complete because only then will it become a separate parcel with a separate deed that can be transferred. At that time Mr. Spencer would gladly transfer the deed or give a first right of refusal for the acquisition of Laulea Place to the property owners on Laulea.

***************It was brought up that most residents who would most be affected by and may want to own the Laulea roadway were not invited to the meeting including Kurt Ulmer, Louise and John Severson, Annie and Will Nelson, Grossmans.

***************Henry said that if this group wanted to discuss buying the road from him, he would sell the road for $1.00. Henry agreed to discuss this with residents not present at the meeting.

Mr. Spencer represented that the County may require an access for emergency vehicles from the subdivision roadway to Laulea. This access will be gated at both ends to ensure only emergency vehicles can access this area. Mr. Spencer indicated that access to the subdivision from Stable Road will not be gated.

Issue raised on preserving the existing Monkeypod trees along Hana Highway. It was indicated that they will be preserved, and that this preservation was also a concern of the Planning Department.

Due to the residential nature of Laulea Place a concern was raised that construction vehicle access should also be limited to Stable Road. No objection by Mr. Spencer.

***************It was agreed that this would be controlled by Henry's building the berm/rock wall prior to the commencement of any residential construction. Henry
agreed.

It was suggested that another neighborhood meeting be held to follow up on issues raised at this meeting. Also to include Annie, Kurt, and Sam and others in this meeting.

Residents requested written notification of the meeting, at least two weeks in advance so that they can make plans to attend.

Meeting ended at approximately 11:20 a.m.
EXHIBIT “C”

April 12, 2004 Meeting
NEIGHBORHOOD INFORMATIONAL MEETING
COUNTRY CLUB
SPRECKELSVILLE, MAUI

April 12, 2004
7:00 p.m.

Attendance:  Henry Spencer, Applicant
              Daren Suzuki, Munekiyo & Hiraga, Inc.

              Jack Thompson
              Jane Thompson
              Linda Wassen
              Fiona Leigh

Mr. Spencer and Mr. Suzuki gave a brief overview of the project history and proposed project. Mr. Spencer also mentioned the concerns raised at the April 7th meeting with some of the Laulea Street residences.

It was suggested that a public informational meeting inviting the entire neighborhood may be better than several small group meetings. Mr. Spencer and Mr. Suzuki acknowledged that although there are advantages to holding large neighborhood group meetings, holding smaller group meetings may be more conducive to individual participation.

Concerns were raised if there will be guarantees that representations made by Mr. Spencer will be followed through (i.e., impacts along Laulea Street). Mr. Spencer and Mr. Suzuki discussed the approval process and offered guarantees by way of deed restrictions and conditions of zoning or SMA. Conditions could include restricting vehicular access to the subdivision along Laulea Street, and constructing a berm along Laulea Place to further ensure vehicular access is restricted.

Various other issues were raised and clarified relative to the bike path dedication, subdivision requirements, airport noise aviation agreement, and the findings of the archaeological inventory survey.

spencersprech413041104
NEIGHBORHOOD INFORMATIONAL MEETING
COUNTRY CLUB
SPRECKELSVILLE, MAUI

April 12, 2004
7:00 p.m.

Attendance: Henry Spencer, Applicant
Daren Suzuki, Munekiyo & Hiraga, Inc.
Jack Thompson
Jane Thompson
Linda Wassen
Fiona Leigh

Mr. Spencer and Mr. Suzuki gave a brief overview of the project history and proposed project. Mr. Spencer also mentioned the concerns raised at the April 7th meeting with some of the Laulea Street residences.

It was suggested that a public informational meeting inviting the entire neighborhood may be better than several small group meetings. Mr. Spencer and Mr. Suzuki acknowledged that although there are advantages to holding large neighborhood group meetings, holding smaller group meetings may be more conducive to individual participation.

Concerns were raised if there will be guarantees that representations made by Mr. Spencer will be followed through (i.e., impacts along Laulea Street). Mr. Spencer and Mr. Suzuki discussed the approval process and offered guarantees by way of deed restrictions and conditions of zoning or SMA. Conditions could include restricting vehicular access to the subdivision along Laulea Street, and constructing a berm along Laulea Place to further ensure vehicular access is restricted.

Various other issues were raised and clarified relative to the bike path dedication, subdivision requirements, airport noise aviation agreement, and the findings of the archaeological inventory survey.
Henry Spencer

From: "Henry Spencer" <henspen@hawaii.rr.com>
To: "Thompson/Maui" <jjmaui@maui.net>
Sent: Thursday, April 08, 2004 10:08 AM
Subject: Re: presentations

Thank you.

--- Original Message ---
From: Thompson/Maui
To: Henry Spencer
Sent: Thursday, April 08, 2004 9:36 AM
Subject: Re: presentations

Henry,
I have scheduled the downstairs of the Country Club for 7:00 pm, Monday, April 12. I will invite all residents in the Country Club neighborhood - that's Nonohe, Paani and Kealakai. See you there.
Jack

--- Original Message ---
From: Henry Spencer
To: Thompson/Maui
Sent: Thursday, April 08, 2004 8:01 AM
Subject: Re: presentations

Hi Jack-
A neighborhood meeting at the Country club sometime next week would be good.
I will copy you with the e-mails that I send to the individuals on the list below.
Thank you,
Henry

--- Original Message ---
From: "Thompson/Maui" <jjmaui@maui.net>
To: "henspen@telus.net"<jjmaui@maui.net>
Sent: Wednesday, April 07, 2004 12:54 PM
Subject: presentations

> Henry,
> Here is the list of Association, neighborhood representatives. I
> suggest that you contact them about their interests in hosting a
> group for your presentation. I will write them and let them know
> about your plans and your search for hosts.
> I understand that you held such a meeting today and there were
> several people who should have been invited who weren't. This
> bothers me because each resident in that neighborhood deserves to
> hear your plans and question those plans. Your answer to that
> concern I expressed this morning was that anyone can call you and set
> that up. I don't see that as answering my concern. I have changed
> my mind about hosting such a group as you would wish. What I will do
> is call a neighborhood meeting and hold it at the Country Club. If

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> this doesn't work for you, please let me know and I won't call the
> meeting.
> >
> > Jeanne Riley <riley@aloha.net> Claudia Welch <cmarvilene@aol.com>
> > Jill Monroe <kuleana@maui.net> John Gilmor <emryplmr@earthlink.net>
> > Wendy Sayles <dano@maui.net> Patti Cadiz <hstcadiz@maui.net>
> > Susan Bendon <jamesbendon@aol.com>
> >

4/28/2004
EXHIBIT "D"

April 14, 2004 Meeting
NEIGHBORHOOD INFORMATIONAL MEETING
COUNTRY CLUB
SPRECKELESVILLE, MAUI

April 14, 2004

Attendance:  Henry Spencer, Applicant
             Doug McFetridge
             Lisa McFetridge
             Martin Lenny
             Paula Lenny
             Jill Monroe

Summary:  Presentation made by Henry Spencer that covered existing circumstances, development plan, permitting process and community issues. Jill Monroe expressed concern regarding car access onto Laulea Place. Other comments were generally positive regarding density, the conservation land and maintaining public beach access.
Hi Jill-

As the community representative for Cane Place, Makahiki Street and Sugar Cove would you be interested in helping me to coordinate an informational meeting regarding the proposed subdivision on Wednesday April 14th on the Lanai at the Country Club at 7pm? What I would need would be for you to e-mail everyone in your neighborhood with the date and time of the meeting. Jack Thompson has scheduled a meeting on Monday April 12th at the Country Club for Noono, Paani and Keliakai and I have tentatively reserved the lanai at the Country Club on Thursday April 15th at 7 pm for Waipua and Ulupua. I have tentatively scheduled a meeting for Stable Rd. on Sunday April 18th at 9 am at Honeybun's on Stable Rd.. You can e-mail me or call me on my cell 280-4130.

Thank you,

Henry Spencer

28/04/2004
Hi Henry,

I will inform the Cane Pl., Makahiki St. and Sugar Cove residents concerning the April 14th meeting at the Country Club. Please go ahead and reserve the club and I will inform those in my area. See you then.

Aloha, JILL
Hi Jill,
Thank you.
Henry

-----Original Message-----
From: Cyrus Monroe [mailto:kuleana@maui.net]
Sent: April 8, 2004 1:47 PM
To: Tammy Bexton
Subject: Re: sprecks meeting

Hi Henry,
I will inform the Cane Pl., Makahiki St. and Sugar Cove residents concerning the April 14th meeting at the Country Club. Please go ahead and reserve the club and I will inform those in my area. See you then.
Aloha, JILL
Hi Patti and Wendy-

I have tentatively scheduled an informational meeting for the old stable subdivision at the Country club on Thursday April 15th at 7 pm. As the representatives for your community (Waipua and Ulupua) would you and Wendy please e-mail or phone your community residents the date, place and time for the meeting. If this is a problem would you please provide the e-mail addresses to me so that I can inform them.

Any questions call me (280-4130) or e-mail me.

Thank you,

Henry
Hi Henry,

I just forwarded your email to the 17 or so addresses that I have for Spreckels V (Ulupau and Waipaua.)
Here is a complete copy of the announcement as it was printed. Alan rode his bike around and passed them out to everyone that didn't get an email.

Henry Spencer will host an informational meeting regarding his Old Stable subdivision plans. The meeting will be at the Maui Country Club on Thursday April 15th at 7 p.m.

His email address is: henspen@hawaii.rr.com if you cannot attend and have questions or concerns.

Also, I would like to invite you to provide your email address for notification of matters like this that may interest residents our Spreckelsville V community. If you would like to be included, please email to me: patti@hstwindsurfing.com

Don't forget: Sprecks V Homeowners Association Annual Meeting May 6, at 6 p.m. also at the CC.

Hope this helps. I saw another BAD accident at stable road today. I hope no one was seriously hurt. Looked like newer cars, so hopefully airbags deployed and all ok. Several cars - at least two looked totaled.

Aloha and let me know if there is anything else we can do to help.

-Patti

HST, Inc.
P.O. Box 791199, Paia, HI 96779
1-800-968-5423 (1-800-YOU-JIBE)
from outside the US: 808 871-5423
Fax 808-877-3061
www.hstwindsurfing.com

--- Original Message ---
From: Henry Spencer
To: hstcrew@maui.net
Sent: Wednesday, April 28, 2004 4:15 PM
Subject: Fw: sprecks meeting

Hi Patti-
As part of my environmental assessment I am documenting the meetings that I held in the different neighborhoods of Spreckelsville. With that in mind would you mind forwarding to me a copy of the e-mail that

4/29/2004
EXHIBIT "F"

April 18, 2004 Meeting
NEIGHBORHOOD INFORMATIONAL MEETING
COUNTRY CLUB
SPRECKELSVILLE, MAUI

April 18, 2004

Attendance:
Henry Spencer
Eric Pung
Kim Pung
Jim Riley
Jeanne Riley
Honeybun Haines
Jim Haines
Glen Beadles
Renata Foster-Au
Bob Perlman
Ann Perlman

Meeting Summary:
Presentation made by Henry Spencer that covered existing circumstances, development plan, permitting process and community issues. Security for the general neighborhood and the opportunity for Stable Road residents to access my waterline were concerns that were expressed. Traffic impact, density and continued public beach access were received with positive comments from the group.
Hi Jeanne-
As you and I discussed, I have scheduled an informational meeting for the subdivision on Sunday April 18th at 9 am at Honeyburn's house on Stable Rd. Jack Thompson has recommended to me that I coordinate this meeting with you since you are the community representative and you have the e-mail addresses of the residents of Stable Road. Would you mind e-mailing everyone on Stable Rd. with the date, time and place for the meeting?

Thank you,
Henry
Henry Spencer

From: "Jeanne Riley" <riley@aloha.net>
To: <hot@hotsailsmaui.com>; <glenn@cnloc.com>; <dchrist@maui.net>; <renata1@hawaii.rr.com>
<plm@maui.net>; <olma@hawaii.rr.com>; <info@maulsurfandturf.com>
<robyroberts@comcast.net>; <abmichael@msn.com>; <alanalani@maui.net>; <NPu8@aol.com>
<Mauimaude@aol.com>; <beilne@chisco.com>; <gregg@chisco.com>
<ray@friendlybeach.com>; <henspen@telus.net>
Cc: <maui@maui.net>
Sent: Thursday, April 08, 2004 3:34 PM
Subject: Spreckelsville Stable Road Meeting

Aloha Stable Road Residents and Owners

Sunday April 18th 9:00 am at Hale Ola
(Honeybun and Jimmy Hayne’s house)

Informational meeting on the
Stable Road subdivision
(up by the old stable)

Each area of Spreckelsville is having their own Informational meeting. Some meetings have
already been held. Please forward this to any Stable Road resident that is not on my list or
anyone on Stable Road with a new e-mail address. I’ll bring coffee! See you there.

4/28/2004
From: "Jeanne Riley" <riley@aloha.net>
To: <hol@hotsailsmaui.com>; <glenn@onloc.com>; <dcrist@maui.net>; <renata1@hawaii.rr.com>
       <pkm@maui.net>; <elma@hawaii.rr.com>; <info@maulsurfandturf.com>
       <rob@robmerriman.com>; <abmichel@msn.com>; <ainaani@maui.net>; <NPu8@aol.com>
       <maulmaude@aol.com>; <beirme@chisco.com>; <gregg@chisco.com>
       <ray@fRIENDYbeach.com>; <henspen@telus.net>
Sent: Sunday, April 18, 2004 8:18 AM
Subject: Today-Sunday-9:00

Aloha Stable Road Residents and Owners

Today
coffee and snacks

Sunday April 18th 9:00 am at Hale Ola
(Honeybun and Jimmy Hayne's house)

Informational meeting on the
Stable Road subdivision
(up by the old stable)
by Henry Spencer and

Daren Suzuki (Firm of Munekiyo and Hiraga)
Exhibit "G"

April 22, 2004 Meeting
SIERRA CLUB INFORMATIONAL MEETING
KAUNOA SENIOR CENTER
SPRECKELSVILLE, MAUI

April 22, 2004

Attendance: Henry Spencer, Applicant
Daren Suzuki, Munekiyo & Hiraga, Inc.

Sierra Club Members:
Lance Holter
Dan Grantham
Dot Buck
David M. Johnston
Ann Fielding

Summary: Presentation made by Henry Spencer and Daren Suzuki covering existing circumstances, development plan, permitting process and community issues.

Comments were raised and issues clarified relative to drainage plan, runoff into the ocean, use of pesticides and fertilizers, and wetland areas. Other comments made were generally positive relative to project design, density, the open space/conservation land dedication, coastal dune preservation, and maintaining public beach access.

A site visit along the shoreline and the property followed the meeting.
Exhibit “H”

April 26, 2004 Meeting
Neighborhood Informational Meeting
Country Club
Spreckelsville, Maui
April 26, 2004

Attendance:  Henry Spencer, Applicant
             Daren Suzuki, Munekiyo & Hiraga, Inc.

            Barbara Woods  461 Laulea Pl
            Sheri Thorson    207 Kealakai Pl
            Louise Severson  475 Laulea Pl
            Kurt Ulmer       473 Laulea Pl
            Annie Nelson

Approx 7:15 p.m.

Mr. Spencer gave a brief overview of the project. A colored site map consisting of
proposed land use amendments was provided. Mr. Spencer and Mr. Suzuki
provided overview of the project describing existing uses and proposed uses in
accordance with the colored site map.

Impacts on traffic accessing Laulea Place were brought up by neighbors. Mr.
Spencer represented that a berm and low wall will be constructed along the
boundaries of the lots abutting Laulea Place. This berm and low wall will permit
pedestrian, bicycle, and perhaps golf carts to access Laulea Place, but no automobile
vehicle access. To ensure vehicular access is prohibited throughout the life of the
project, Mr. Spencer represented that such access will be prohibited through the
CC&R's and also through conditions imposed by the county as part of conditional
zoning and SMA permit.

The neighbors raised credibility issues of Mr. Spencer as to whether these
representations will be followed through. Neighbors also mentioned that the
County is too busy to enforce applicable laws and conditions of permits/zoning.
Concerns over parking on Laulea to access the abutting lots were raised.

Concerns were raised that 16 lots is too dense. 16 additional homes will cause major
impacts to the existing neighborhood in regards to traffic and beach usage.
Potential privacy and trespassing issues were also raised as a result of the project.
The need for a traffic light at the intersection of Stable Road and Hana Highway
was mentioned as a result of this project. Mr. Spencer and Mr. Suzuki responded
that no ohanas will be permitted through CC&R's or deed restrictions and
conditions of zoning or SMA. The zoning request essentially down zones the
property from R-3 Residential (10,000 sf) to RU-0.5 (1/2 acre). Also, the down
zoning from R-3 to OS-2 in the conservation dedication area would ensure no
further development can take place in these areas. Mr. Spencer gave a summary of the findings of the Traffic Impact Analysis Report.

As an alternative, neighbors recommended subdividing property into perhaps 4 lots. This would make for a nicer less dense project and would be more desirable for people to live. Another alternative recommended is for the applicant to sell the entire parcel to a "hui" which would preserve the land from future development. Another alternative mentioned was to only develop the two oceanfront parcels and leave the rest of the property alone.

Neighbors were concerned how Laulea Place was sold by A&B without notification to the abutting land owners. Mr. Spencer responded that he was willing to sell Laulea Street for $1,00 to all abutting landowners. Neighbors still shared concerns over the sale of Laulea.

Neighbors concerned that single family homes will be developed for transient rental accommodations. Made reference to a lot along Alakapa that rents out to several short-term renters and impacts on street parking. Mr. Spencer represented that under existing county law, transient accommodations are not permitted. The neighbors didn't feel that this response was a reality as there are transient rentals all over the place. They felt that county enforcement was lacking.

Concerns were raised on how all neighbors were notified of these neighborhood meetings and why not everyone invited. Mr. Spencer explained his notification procedures. Concerns still expressed that not everyone was invited.

Mr. Suzuki explained the process of the EA, Community Plan Amendment, Change in Zoning and SMA requests. Notification, public hearing, and public meetings for all planning commission and council actions were mentioned. It was recommended that neighbors read the Draft EA. Comments can be provided at public meetings. When the EA is prepared and submitted to Planning, interested neighbors will be notified via email.

Meeting ended at approximately 8:35 p.m.
Tammy Bexton

From: Tammy Bexton [bexton@hawaii.rr.com]
Sent: April 9, 2004 9:04 AM
To: 'lynn@hkadesign.com'
Cc: 'Ken@hkadesign.com'; 'jmuni@maui.net'; 'jamesbendon@aol.com'; 'amcbsmr@cs.com';
'mcbamet@maui.net'; 'douggallantak@aol.com'; 'pegarini2@aol.com'; 'Nelson@maui.net';
'sevsurf@maui.net'; 'siracusa@aol.com'; 'TDW@mrnlaw.com'; 'cmarvilenec@aol.com';
' WILLIAMS@maui.net'; 'Williamsb097@hawaii.rr.com'; 'henspen@hawaii.rr.com'
Subject: RE:Laulea Street Neighborhood Informational Meeting

There will be an informational meeting regarding the old stable development for everyone who lives on
Laulea Place on Monday April 26th at 7 pm at the country club.
Please pass this information on to anyone you might talk to that is residing on Laulea that is not on the e-
mail list.
Thank you,
Henry

28/04/2004
Chapter IX

Agencies Consulted During the Preparation of the Draft Environmental Assessment; Letters Received and Responses to Substantive Comments
AGENCIES CONSULTED DURING THE PREPARATION OF
THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS
RECEIVED AND RESPONSES TO SUBSTANTIVE
COMMENTS

The following agencies were consulted during the preparation of the Draft
Environmental Assessment. Agency comments and responses to substantive
comments are also included in this section.

1. Neal Fujiwara, Soil
   Conservationist
   Natural Resources Conservation
   Service
   U.S. Department of Agriculture
   210 Imi Kila Street, Suite 209
   Wailuku, Hawaii 96793-2100

2. George Young, P.E.
   Department of the Army
   U.S. Army Engineer District, Hnl.
   Attn: Operations Division
   Bldg. T-1, Room 105
   Fort Shafter, Hawaii 96850

3. Robert P. Smith
   Pacific Islands Manager
   U. S. Fish and Wildlife Service
   P.O. Box 50167
   Honolulu, Hawaii 96850

4. Chiyoome L. Fukino, M.D., Director
   State of Hawaii
   Department of Health
   P.O. Box 3378
   Honolulu, Hawaii 96801

5. Peter T. Young, Chairperson
   State of Hawaii
   Department of Land and Natural
   Resources
   P.O. Box 921
   Honolulu, Hawaii 96809

6. P. Holly McElowney, Administrator
   State of Hawaii
   Department of Land and Natural
   Resources
   State Historic Preservation Division
   602 Kamokila Blvd., Room 555
   Kapolei, Hawaii 96707

7. Fred Cale, Maui District Engineer
   State of Hawaii
   Department of Transportation
   Highways Division
   650 Palapala Drive
   Kahului, Hawaii 96732

8. Clyde Nakamura, Administrator
   Office of Hawaiian Affairs
   711 Kapili Lane, Suite 500
   Honolulu, Hawaii 96813

9. Carl Kaupololo, Chief
   County of Maui
   Department of Fire Control
   200 Dairy Road
   Kahului, Hawaii 96732

10. Alice Lee, Director
    Department of Housing and
    Human Concerns
    200 South High Street
    Wailuku, Hawaii 96793

11. Michael W. Foley, Director
    County of Maui
    Department of Planning
    250 South High Street
    Wailuku, Hawaii 96793
12. Glenn Correa, Director  
County of Maui  
Department of Parks and Recreation  
1550 C. Kauhimanu Avenue  
Wailuku, Hawaii 96793

13. Tom Phillips, Chief  
County of Maui  
Police Department  
55 Mahalani Street  
Wailuku, Hawaii 96793

14. Gilbert Coloma-Agaran, Director  
County of Maui  
Department of Public Works and Waste Management  
200 South High Street  
Wailuku, Hawaii 96793

15. George Tengan, Director  
County of Maui  
Department of Water Supply  
200 South High Street  
Wailuku, Hawaii 96793

16. Paia Main Street Association  
P.O. Box 906  
Paia, Hawaii 96779-0905

17. Jimmy Lawrence  
Kahului Town Association  
117 West Papa Avenue  
Kahului, Hawaii 96732

P.O. Box 398  
Kahului, Hawaii 96732

19. Jack Thompson, President  
Spreckelsville Community Association  
204 Kealakai Place  
Paia, Hawaii 96779
February 23, 2004

Regulatory Branch

Mr. Daren Suzuki
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

This letter is written in regards to our letter dated February 11, 2004 commenting on the 16-Lot Subdivision on a parcel identified as TMK: 3-8-01:03, 3-8-02:09 and 10 located in Spreckelsville, Maui. Based on new information received, we would like to rescind our letter. It is my understanding that the Draft Environmental Assessment (EA) is being prepared and a final determination regarding waters of the U.S., to include wetlands will be made after our office has had the opportunity to review the draft EA. When the draft EA is available for distribution, please provide our office with a copy.

In future correspondence with our office, please correct our mailing address by replacing “Operations Division” with “Regulatory Branch”.

Should you have questions, you may contact Ms. Lolly Silva of my staff at (808) 438-7023 or by fax at (808) 438-4060. Please reference file number 200400064 in all future correspondence with our office regarding this project.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch
February 11, 2004

Mr. Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

This letter responds to your request for comments on the Environmental Assessment Preparation Notice for a 16-Lot Subdivision at Spreckelsville, Maui, dated February 9, 2004. Based on the information you provided and a site visit by a member of my staff on November 5, 2003, I have determined there are no waters of the U.S., including wetlands at the site and therefore a Department of the Army (DA) permit will not be required for this project. This does not relieve the applicant from obtaining other authorizations from the State of Hawaii or the County of Maui.

If you have any questions concerning this determination, please contact Mr. William Lennan of my staff at 808-438-6986 or FAX 808-438-4060, and reference File No. 200400064.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch
June 10, 2004

George Young, P.E.
Chief, Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440

SUBJECT: Pre-Consultation for the Preparation of a Draft Environmental Assessment (DEA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:009 and 3-8-002:010, Sprecklesville, Maui

Dear Mr. Young:

This letter responds to your letter dated February 23, 2004, providing comment for the preparation of a Draft Environmental Assessment (DEA) for the proposed 16-lot subdivision and related improvements.

Please be advised that a wetland delineation study will be carried out for the subject property and the results will be included in the DEA. As requested, the DEA will be transmitted to you for review a comment when completed.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Staff Planner

DS: yp
cc: Henry Spencer
spencer@spreckleline.com
Mr. Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK: 3-8-001:003, 3-8-002:009, and 3-8-002:010, Spreckelsville, Maui

Thank you for allowing us to review and comment on the subject document. We have the following comments to offer:

Wastewater Branch

We have reviewed the subject document, which requests an early consultation for the preparation of an environmental assessment (EA) for a 16-lot subdivision and related improvements. The proposed action is a 16-lot residential subdivision and related improvements on approximately 21 acres where the minimum lot size will be 0.5 acre.

The subject project is located in the Critical Wastewater Disposal Area (CWDA) as determined by the Maui County Wastewater Advisory Committee where no new cesspools will be allowed. For the EA, we will review wastewater treatment and disposal plans — whether the intent is to connect to the County fields. In a related matter, we will also be checking on the means of potable water being supplied to the project as it relates to wastewater disposal.

All wastewater plans must conform to applicable provisions of the Department of Health’s Administrative Rules, Chapter 11-62, “Wastewater Systems.” We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Sincerely,

June F. Harrigan-Lum, Manager
Environmental Planning Office

c: WWB
March 11, 2004

Mr. Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK: 3-8-001:003, 3-8-002:009, and 3-8-002:010, Spreckelsville, Maui

Thank you for allowing us to review and comment on the subject document. We have the attached standard comments to offer. If you have any questions about the attached standard comments please contact Ryan Davenport at 586-4346.

Sincerely,

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Enclosures

c: CAB
EPO
SHWB
NRAIQ
CWB
WWB
HEER
Standard Comments

**Environmental Planning Office** Dated 3/2/04

The Environmental Planning Office (EPO) is responsible for several surface water quality management programs mandated by the federal Clean Water Act or dictated by State policy. [http://www.state.hi.us/doh/epo/wqm/wqm.htm](http://www.state.hi.us/doh/epo/wqm/wqm.htm). Among these responsibilities, EPO:

- maintains the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* [http://www.state.hi.us/doh/epo/wqm/303dpcfinal.pdf](http://www.state.hi.us/doh/epo/wqm/303dpcfinal.pdf);
- develops and establishes Total Maximum Daily Loads (TMDLs) for listed waters (suggesting how much existing pollutant loads should be reduced in order to attain water quality standards, please see [http://www.epa.gov/owow/tmdl/intro.html](http://www.epa.gov/owow/tmdl/intro.html));
- writes TMDL Implementation Plans describing how suggested pollutant load reductions can be achieved; and
- conducts assessments of stream habitat quality and biological integrity.

To facilitate TMDL development and planning, and to assist our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses:

**Waterbody type and class**

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 [http://www.state.hi.us/doh/rules/11-54.pdf](http://www.state.hi.us/doh/rules/11-54.pdf), of all potentially affected water bodies.

**Existing water quality management actions**

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.

3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the
potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d) including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 7 at http://www.state.hi.us/eb/epwq/303dpsf.pdf).

5. If the proposed project involves potentially affected water bodies that appear on the current List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d), identify and quantify expected changes in the following site and watershed conditions and characteristics:
   - surface permeability
   - hydrologic response of surface (timing, magnitude, and pathways)
   - receiving water hydrology
   - runoff and discharge constituents
   - pollutant concentrations and loads in receiving waters
   - aquatic habitat quality and the integrity of aquatic biota

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to reducing the polluted discharge and runoff entering the receiving waters, including plans for additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering consider the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the consideration of "alternative," "soft," and "green" engineering solutions for channel
modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If you have any questions about these comments or EPO programs, please contact Ryan Davenport at 586-4346.

1"Potentially affected waterbodies" means those in which proposed project activity would take place and any that could receive water discharged by the proposed project activity or water flowing down from the proposed project site. These waterbodies can be presented as a chain of receiving waters whose top link is at the project site upslope and whose bottom link is in the Pacific Ocean, and can be named according to conventions established by Chapter 11-54 and the List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d). For example, a recent project proposed for Nuhelewai Stream, Oahu might potentially affect Nuhelewai Stream, Kapalama Canal, and Honolulu Harbor and Shore Areas.

[OTHER EXAMPLES OR DIAGRAM??]

Solid and Hazardous Waste Branch Dated 3/2/04

1) The OSWM recommends the development of a solid waste management plan that encompasses all project phases including demolition, construction, and occupation/operation of the completed project.

Specific examples of elements that the plan should address include:
- The recycling of green-waste during clear and grub activities;
- Recycling construction and demolition wastes, if appropriate;
- The use of locally produced compost in landscaping;
- The use of recycled content building materials;
- The provision of recycling facilities in the design of the project.

2) The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

3) The developer should consider providing space in the development for recycling activities. The provision of space for recycling bins for paper, glass, and food/wet waste would help to encourage the recycling of solid waste(s) generated by building occupants.

4) The discussion of solid waste issues contained in the document is restricted to activities within the completed project. The OSWM recommends the development of a solid waste management plan that encompasses all project phases, from construction (and or demolition) to occupation of the project.
Specific examples of plan elements include: the recycling of green-waste during clear and
grub activities; maximizing the recycling of construction and demolition wastes; the use
of locally produced compost in the landscaping of the project; and the provision of
recycling facilities in the design of the project.

5)
Hawaii Revised Statutes Chapter 103D-407 stipulates that all highway and road
construction and improvement projects funded by the State or a county or roadways that
are to be accepted by the State or a county as public roads shall utilize a minimum of ten
per cent crushed glass aggregate as specified by the department of transportation in all
base-course (treated or untreated) and sub-base when the glass is available to the quarry
or contractor at a price no greater than that of the equivalent aggregate.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808)
586-4240.

Noise, Radiation & Indoor Air Quality Branch  Dated 3/2/04

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-39  Air Conditioning and Ventilating.
- Chapter 11-45  Radiation Control.
- Chapter 11-46  Community Noise Control.
- Chapter 11-501 Asbestos Requirements.
- Chapter 11-502 Asbestos-Containing Materials in Schools.
- Chapter 11-503 Fees for Asbestos Removal and Certification
- Chapter 11-504 Asbestos Abatement Certification Program

Should there be any questions, please contact Russell S. Takata, Environmental
Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at
586-4701."

Clean Water Branch  Dated 3/2/04

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify
whether a Federal license or permit (including a Department of Army permit) is
required for this project. Pursuant to Section 401(a)(1) of the Federal Water
Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water
Quality Certification 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...."

2. A National Pollutant Discharge Elimination System (NPDES) general permit
coverage is required for the following activities:

a. Storm water associated with industrial activities, as defined in Title 40, Code
of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix)
and 122.26(b)(14)(xi).
b. 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. An NPDES permit is required before the commencement of the construction activities.

c. Discharges of treated effluent from leaking underground storage tank remedial activities.

d. Discharges of once through cooling water less than one (1) million gallons per day.

e. Discharges of hydrotesting water.

f. Discharges of construction dewatering effluent.

g. Discharges of treated effluent from petroleum bulk stations and terminals.

h. Discharges of treated effluent from well drilling activities.

i. Discharges of treated effluent from recycled water distribution systems.

j. Discharges of storm water from a small municipal separate storm sewer system.

k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.state.hi.us/health/eh/cwb/forms/genl-index.html.

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA receiving waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at http://www.state.hi.us/health/eh/cwb/forms/indiv-index.html.

4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. Please submit a copy of the request for review by SHPD or SHPD’s determination letter for the project.
If you have any questions, please contact the CWB at 586-4309.

**Waste Water Branch** Dated 3/2/04

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

**Clean Air Branch** Dated 3/2/04

**Construction/Demolition Involving Asbestos:**

Since the proposed project would entail renovation/demolition activities which may involve asbestos, the applicant should contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch at 586-5800.

**Control of Fugitive Dust:**

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to existing residences, businesses, public areas and thoroughfares, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;

b) Provide an adequate water source at the site prior to start-up of construction activities;

c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;

d) Minimize dust from shoulders and access roads;

e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f) Control dust from debris being hauled away from the project site.
Hazard Evaluation and Emergency Response Office (HEER) Dated 3/2/04

1. A phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

2. All lands formerly in the production of sugarcane should be characterized for arsenic contamination. If arsenic is detected above the US EPA Region (preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

3. If the land has a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants, we recommend that the applicant request a "no further action" (NFA) letter from the Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response (HEER) Office prior to the approval of the land use change or permit approval.
March 8, 2004

Darren Suzuki  
Munekiyo & Hiraga, Inc  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Mr. Suzuki,

Subject: Early Consultation for Draft Environmental Assessment 16-lot Subdivision Project, Spreckelsville, Maui.

The State of Hawaii Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) has received your request for early consultation on a Draft Environmental Assessment (DEA) for a 16-lot subdivision project at Spreckelsville, Maui. Although the Department asserts no regulatory jurisdiction in this county land use matter the Department offers the following comments and suggestions in the hopes that the state’s beaches are protected for present and future generations:

1. It is understood that two ocean-front parcels (3-8-002:009 & :010) with an area of approximately 3 acres, will be donated to the Maui Coastal Land Trust or other non-profit organization. Will these parcels remain undeveloped in perpetuity?

2. Given the complex nature of coastal processes in this area, it is advisable that potential impacts to the coastal processes be addressed and that erosion mitigation plans be discussed. The Department would like to see discussion of the erosion hazards and what erosion control measures could be implemented to mitigate erosion, such as appropriate shoreline setbacks or other proactive hazard avoidance measures. Public access to the shoreline should be addressed as well.

3. The coastal parcels contain fast migrating coastal dunes that play an important part on the local coastal processes. A coastal management plan should be developed for these dunes with some discussion of management of the dunes and coastal system and what responsibilities the non-profit group will play in the
management of the area. There is a good selection of coastal management guidelines specific to Maui that can be applied to the DEA. Contact Zoe Norcross, Coastal Processes Extension Agent for the University of Hawaii, Sea Grant, for more information on these references (984-3335).

4. Erosion maps for the Spreckelsville area indicate the average erosion since 1912 to be approximately 1.5 feet per year. Potential erosion hazard and coastal process interference in relation to historical shoreline trends and dominant sediment transport should be discussed in the DEA.

Thank you for the opportunity to comment on the proposed project. Should you have any questions, please contact Sam Lemmo of the Office of Conservation and Coastal Lands at 587-0381 or Dolan Eversole of the University of Hawaii Sea Grant Program 587-0439.

Alaka\(^{i}\)  \[signature\]
Sam Lemmo, Administrator  
Office of Conservation and Coastal Lands

CC: Maui District Land Office  
County of Maui, Planning Department  
Zoe Norcross University of Hawaii, Sea Grant Hawai'i Community College 310 Kaahumanu Ave  
Kahului, HI 96732
June 14, 2004

Sam Lemmo, Administrator  
Department of Land and Natural Resources  
Office of Conservation and  
Coastal Lands  
P.O. Box 621  
Honolulu, Hawaii 96809

SUBJECT: Pre-Consultation for the Preparation of a Draft Environmental Assessment (DEA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spracklesville, Maui

Dear Mr. Lemmo:

This letter responds to your letter dated March 8, 2004, providing comments for the preparation of a Draft Environmental Assessment (DEA) for the proposed 16-lot subdivision and related improvements.

1. The two (2) oceanfront parcels to be either donated to a nonprofit organization or dedicated as a conservation easement are proposed to be county zoned OS-2, Open Space district. Areas zoned OS-2 are intended to primarily recognize scenic and recreational resources; hazardous areas; drainage ways; and open space greenbelts that provide visual relief from building mass and buffer sensitive ecological resources or agricultural activities from urbanized areas. If the zoning change to OS-2, Open Space is approved, then the two (2) ocean front parcels will remain undeveloped in perpetuity.

2. Coastal processes will be discussed in the DEA. It is noted that the 16-lot development site is located beyond the coastal erosion hazard zone as defined by the County shoreline setback rules and outside of the shoreline setback area. In addition, the development site is located mauka of developed single-family uses along the shoreline, as well as located mauka of the V-23 tsunami flood zone line. Public shoreline access within the area proposed to be county zoned OS-2 will be maintained and addressed in DEA.
3. Ms. Zoe Norcross, Coastal Processes Extension Agent, has been contacted to provide recommendations on coastal dune restoration/preservation. Findings and recommendations from her review will be incorporated into the DEA.

4. The DEA will reference the coastal erosion hazard study developed for the County as part of its shoreline setback rules. Again, it is noted that the 16-lot development site is located beyond the coastal erosion hazard zone as defined by the County shoreline setback rules, outside of the shoreline setback area and mauka of the V-23 tsunami flood zone line.

The DEA will be transmitted to your office for review and comment when completed.

Should you have any questions, please contact me at 244-2015.

Very truly yours,

[Signature]

Daren Suzuki, Staff Planner

DS:yp
cc: Henry Spencer
     Zoe Norcross, Coastal Processes Extension Agent

spencer@hawaii.edu
March 2, 2004

LD-NAV
SPENCER16LOTSUB.RCM

Munekiyo and Hiraga, Inc.
Daren Suzuki, Planner
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

SUBJECT: Early Consultation, for Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelville, Island of Maui, Hawaii

Thank you for the opportunity to review and comment on the subject matter.

The Department of Land and Natural Resources' (DLNR) Land Division distributed a copy of your letter (summary of the project) and site map to the following DLNR Divisions for their review and comment:

- Division of Forestry and Wildlife
- Division of State Parks
- Division of Boating and Ocean Recreation
- Engineering Division
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land Division Maui District Land Office
- Land-Planning and Development

Enclosed please find a copy of the Commission on Water Resource Management and Engineering Division comment.

Based on the attached responses, the Department of Land and Natural Resources has no other comment to offer.

If you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: MDLO
MEMORANDUM:

TO:
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Division of Boating and Ocean Recreation
XXX Engineering Division
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Mauai District Land Office
XXX Land-Planning and Development

FROM: Deirdre S. Mamiya, Administrator
Land Division

SUBJECT: Early Consultation for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelsville, Maui, Hawaii
Consultant: Muneikiyo and Hiraga, Inc.

Please review the attached letter (project description) dated February 9, 2004, pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.  Comments attached.

Division: Engineering  Signed: ____________________________
Date: FEB 24 2004  Title: Chief Engineer
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LANAY
Ref: manekin/p/maa/SP/007/14 letter 007

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 Zone C.A and V29.

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

X 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. Robert Sumimoto at (808) 523-4254 or Mr. Mario Sia Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.

() Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

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

() Mr. Mario Antonio at (808) 241-6620 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. Andrew Moonen of the Planning Branch at 587-0229.

Signed: [Signature]

ERIC T. HIRANO, CHIEF ENGINEER

Date: 2/24/04
MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
    XXX Division of State Parks
    XXX Division of Boating and Ocean Recreation
    XXX Engineering Division
    XXX Commission on Water Resource Management
    XXX Office of Conservation and Coastal Lands
    XXX Land-Maui District Land Office
    XXX Land-Planning and Development

FROM: Deirdre S. Mamiya, Administrator
      Land Division

SUBJECT: Early Consultation for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelsville, Maui, Hawaii

Consultant: Munekiyo and Hiraga, Inc.

Please review the attached letter (project description) dated February 9, 2004, pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

We have no comments.  Comments attached.

Division: [Signature]
Date: 2/15/04
Title: [Signature]

Signed: [Signature]
Title: [Signature]
MEMORANDUM:

TO: 

XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Division of Boating and Ocean Recreation
XXX Engineering Division
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Maui District Land Office
XXX Land-Planning and Development

FROM: Deirdre S. Mamiya, Administrator
Land Division

SUBJECT: Early Consultation for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelsville, Maui, Hawaii
Consultant: Munekiyo and Hiraga, Inc.

Please review the attached letter (project description) dated February 9, 2004, pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

[Signature]

Comments attached

We have no comments.

Division

Date: FEB 19 2004

Title: MICHAEL C. BUCK, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE
MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
   XXX Division of State Parks
   XXX Division of Boating and Ocean Recreation
   XXX Engineering Division
   XXX Commission on Water Resource Management
   XXX Office of Conservation and Coastal Lands
   XXX Land-Maui District Land Office
   XXX Land-Planning and Development

FROM: Deirdre S. Mamiya, Administrator
      Land Division

SUBJECT: Early Consultation for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelsville, Maui, Hawaii
Consultant: Munekiyo and Hiraga, Inc.

Please review the attached letter (project description) dated February 9, 2004, pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) Comments attached.

Division: [Division Name]
Date: [Date]

Signed: [Signature]
Title: [Title]
MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
    XXX Division of State Parks
    XXX Division of Boating and Ocean Recreation
    XXX Engineering Division
    XXX Commission on Water Resource Management
    XXX Office of Conservation and Coastal Lands
    XXX Land-Maui District Land Office
    XXX Land-Planning and Development

FROM: Deirdre S. Mamiya, Administrator
      Land Division

SUBJECT: Early Consultation for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelsville, Maui, Hawaii Consultant: Munekiyo and Hiraga, Inc.

Please review the attached letter (project description) dated February 9, 2004, pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

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

Division_________________ Signed:_________________

Date:_________________ Title:_________________
February 24, 2004

TO: Ms. Dede Mamiya, Administrator
    Land Division

FROM: Ernest Y.W. Lau, Deputy Director
       Commission on Water Resource Management (CWRM)

SUBJECT: Spreckelsville 16-lot Subdivision

FILE NO.: SPENCER16LOTSUB.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[ ] OTHER: Water use should be estimated, and expected source identified. Potential sources of water supply for this project are limited, with many similar projects relying on new source.

If there are any questions, please contact Charley Ice at 587-0251.
MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
   ✔ XXX Division of State Parks
   XXX Division of Boating and Ocean Recreation
   XXX Engineering Division
   XXX Commission on Water Resource Management
   XXX Office of Conservation and Coastal Lands
   XXX Land-Maui District Land Office
   XXX Land-Planning and Development

FROM: Deirdre S. Mamiya, Administrator
      Land Division

SUBJECT: Early Consultation for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements at Spreckelsville, Maui, Hawaii

Consultant: Munekiyo and Hiraga, Inc.

Please review the attached letter (project description) dated February 9, 2004, pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

If you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

✔ We have no comments.

Division State Parks

Date: 2/26/04

Signed: [Signature]

Title: State Parks Administrator
Mr. Darren Suzuki  
Munekiyo & Hiraga, Inc  
305 High St. Suite 104  
Wailuku, HI 96793

Dear Mr. Suzuki,

I have reviewed a general plan for your early consultation request for a 16 lot subdivision in Spreckelsville, Maui TMK 3-8-001-003, 3-8-002-009, 3-8-002-010. We have no comments or objections at this time. We will be looking at the following in the future:

1. Roadway width  
2. Fire Apparatus turnaround requirements  
3. Fire hydrant locations and adequacy

This is a very short list. A complete review will be done when stamped plans are submitted with the permit application. Please feel free to contact Lt. Scott English, in writing, for future assistance.

Sincerely,

Valeriano F. Martin  
Captain  
Fire Prevention Bureau
February 17, 2004

Mr. Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

SUBJECT: EARLY CONSULTATION REQUEST FOR THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT FOR A 16-LOT SUBDIVISION AND RELATED IMPROVEMENTS, TMK 3-8-001:003, 3-8-002:009 AND 3-8-002:010, SPRECKELSVILLE, MAUI

The subject project does not involve a County change-in-zoning which will establish land use designations under which a residential housing project will be developed. Therefore, the provisions of the County's affordable housing policy does not apply to the project. In addition, the applicant will be donating approximately one acre to the County of Maui for the expansion of the Kaunoa Senior Center. Therefore, please be advised that we support the proposed 16-lot subdivision.

Thank you for the opportunity to comment.

Very truly yours,

ALICE L. LEE
Director

ETO: hs

c: Housing Administrator
Senior Services Administrator

TO SUPPORT AND ENHANCE THE SOCIAL WELL-BEING OF THE CITIZENS OF MAUI COUNTY
June 10, 2004

Alice Lee, Director
Department of Housing
and Human Concerns
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK 3-8-001-003, 3-8-002-009 and 3-8-002-010, Spreckelsville, Maui

Dear Ms. Lee:

This letter responds to your letter dated February 17, 2004. Upon consultation with the County Planning Department, a zoning change is now proposed for the project. As you are aware, the applicant will be donating to the County approximately one (1) acre next to the Kaunoa Senior Center for future expansion of the facility. Recognizing this public benefit, we hope that your department will accept this donation in lieu of providing affordable housing units.

A copy of the Draft Environmental Assessment will be circulated to your office for further review and comment.

Very truly yours,

Daren Suzuki, Staff Planner

cc: Henry Spencer
spencer@spreckells.com

105 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph. (808)244-2015 · fax: (808)244-8729 · planning@mckinseyline.com
Mr. Daren Suzuki  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793  

Dear Mr. Suzuki:

RE: Pre-Consultation Comments for the Preparation of a Draft  
Environmental Assessment for the Proposed 16-Lot Subdivision and  
Related Improvements Located at TMK 3-8-001: 003, 3-8-002: 009,  
and 3-8-002: 010, Sprecklesville, Island of Maui, Hawaii  
(LTR 2004/0537)

The Maui Planning Department (Department) received your request for the above referenced project on February 11, 2004. Based on further discussions on February 25, 2004, the Department recommends the land use designations for the proposed action as follows:

- **16-Lot Subdivision** (approximate 21 acres)

  State - No Change  
  Community Plan - Rural and Open Space (clarify acreage for each)  
  County Zoning - Rural District (RU-0.5)

  The purpose and intent of this district is to provide low density development preserving the rural character of the area and to serve as a transition between standard residential or other urban density development and agricultural lands. This district preserves the 0.5 acre lot size and permits one (1) single-family dwelling and one (1) ohana unit per one-half acre lot size. The Department concludes that this zoning designation would appropriately preserve the intent of the proposed action as indicated in discussions with you and your client. Although you indicate there will be no ohanas, the report should discuss the impacts of full build-out.
• **Adjacent Lot to Kaunoa Senior Center**

  State - No Change  
  Community Plan - Public  
  County Zoning - Public/Quasi Public District

  As indicated by you, the intent is to donate this lot to Kaunoa Senior Center for future expansion purposes. As such, the Public/Quasi Public designations would be consistent with the proposed intent. Without the re-zoning, the Center would be required to obtain Special Use Permits for expansion activities.

• **Two (2) "Common Areas" (adjacent to 16-lot Subdivision)**

  State - No Change  
  Community Plan - No Change  
  County Zoning - Open Space District

  Per our discussions, you indicate the intent of the two (2) areas designated as "Common Area" are to preserve potential archaeologically significant features and public access for one area and to serve as a park for the other area. The Department concludes that these proposed uses are consistent with the purpose and intent of the Open Space Zoning District and should be re-zoned as such in lieu of the present R-3, Residential District.

In addition to the content requirements listed in Section 11-200-10, HAR, the Department requests that the following items be addressed in the Draft EA (DEA):

1. The Alternatives Section of the report should address, at a minimum, the following:
   
   a. The pre-consultation request indicates the zoning designation for the proposed 16-lot subdivision will remain R-3, Residential, and the minimum lot size will measure 0.5 acres. No chanas are proposed. However, this alternative should include a discussion of the full build-out potential indicating the potential for a minimum of 32 lots, if re-subdivided, and a total of 64 dwelling units, one main and one chana dwelling per lot.

   b. The Zoning designation of the approximate 20 acres of land is proposed to change from R-3, Residential, to OS-2, Open Space. The Department supports this land use designation.
However, as you have indicated there are several locations that can potentially be characterized as environmentally sensitive areas, specifically wetlands and sand dunes. The DEA should analyze designating these environmentally sensitive areas as OS-1, Open Space, to further preserve and protect these locations.

c. The plans indicate one access point at Stable Road. The DEA should address the construction of a second accessway for safety purposes should Stable Road be blocked. Secondary access points could be located either at Laulea Place or across the Kaunoe Senior Center to Alakapa Place.

d. Development potential for no changes to existing land use designations.

2. Roadway improvements along Hana Highway should be discussed with the State Department of Transportation (DOT), Honolulu and Maui offices. Please note that any improvements within the State right-of-way will trigger the Chapter 343, HRS, review process. These improvements should be included within the scope of this document unless otherwise conducted and determined exempt by DOT.

3. Based on further discussion, you have indicated the following technical studies will be included within the DEA:

   a. Phase I, Environmental Site Assessment (ESA)
   b. Flora and Fauna Analysis for wetland areas
   c. Dune Restoration Plan
   d. Traffic Impact Assessment Report
   e. Cultural Assessment
   f. Archaeological Assessment
   g. Engineering Report
   h. Drainage Analysis and Plan

4. Discuss potential impacts on the proposed subdivision from the Kahului Airport.

5. Discuss methods for maintaining and formalizing public access to the shoreline.

6. Discuss proposed landscape features, buffers, berms, streetscapes, and boundary walls for the subdivision, of particular concern is the
frontage along Hana Highway and the impact of urban development on the existing open space character of the area. The analysis should address significant landscaping features such as the existing Monkey Pod trees.

7. Provide the flora and fauna analysis and further consult with the U.S. Fish and Wildlife Service and Army Corp of Engineers regarding the wetland areas, sensitive habitats, etc.

8. Include pre-consultation comments from other agencies and community groups.

9. View analysis from Hana Highway to the ocean. The site layouts of future houses and other vertical structures that may impact the area.

10. Impacts of agricultural operations on future residential uses, such as prescribed burning on cane fields.

11. The Engineering Report should address alternative street and infrastructure designs that may be more in character with the Sprecklesville area. Such alternative street designs shall address, in addition to vehicular movement, both bicycle and pedestrian movements through the subdivision from the Sprecklesville area, especially access to the shoreline.

Please remit two (2) copies of the DEA upon completion. The DEA will be reviewed for consistency with the foregoing comments, Chapter 11-200, HAR, and Chapter 343, HRS, prior to transmittal.

Thank you for your cooperation. Should you need additional clarification on these comments or the DEA process, please contact Ms. Kivette A. Calgoy, Environmental Planner at 270-7735. Any questions regarding the permit applications should be referred to Mrs. Colleen Suyama, Staff Planner, at 270-7735.

Sincerely,

MICHAEL W. FOLEY
Planning Director
Mr. Daren Suzuki
February 27, 2004
Page 5

MWF:KAC:jar
c: Wayne Boteilho, Deputy Planning Director
Clayton Yoshida, AICP, Planning Program Administrator
Kivette Caigoy, Environmental Planner
Colleen Suyama, Staff Planner
General File
K:\WP_DOCS\PLANNING\EA\2004\foo0_16LedaSpencer\PreConsultationComments.wpd
June 10, 2004

Mr. Michael W. Foley, Director
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Pre-Consultation for the Preparation of a Draft Environmental Assessment (DEA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Foley:

This letter responds to your letter dated February 27, 2004 providing comments for the preparation of a Draft Environmental Assessment (DEA) for the proposed 16-lot subdivision and related improvements.

The applicant, Mr. Henry Spencer, agrees that a rural community plan designation and a rural district zoning (RU-O.5) is appropriate for the 16-lot development area. As such, the DEA will reflect these land uses including a discussion on not allowing chanas. Impacts on full build-out will be discussed in the alternative section of the DEA.

In order to assist the Department of Housing and Human Concerns in future expansion of the Kaunoa Senior Center property, the applicant is willing to redesignate the 1-acre parcel adjacent to the Kaunoa property to Public/Quasi-Public use in the community plan and P-1, Public/Quasi-Public district zoning. These actions will bring consistency with the community plan, zoning, and any future expansion activities of the Kaunoa Senior Center. Discussions on the community plan amendment and change in zoning pursuant to Maui County Code, Section 2.80A.060 and 19.510.040 will be included in the DEA.

The applicant has no objections to rezoning the two (2) common areas within the 16-lot development site to OS-2, Open Space district, consistent with the existing Open Space designation of the community plan. It is agreed that this Open Space category is consistent with the intended use of the area which is to serve as a park, provide shoreline access, and to preserve potential archaeological features. It is noted that the easement area along the western boundary of the common area is to be used as a shoreline access for residents that reside within the subdivision. The DEA will discuss public shoreline access on the adjacent

105 High Street, Suite 104 · Wailuku, Hawaii 96793 · ph: (808)244-8015 · fax: (808)244-8729 · planning@ahcnenl.k12.hi.us
area located to the west of the subdivision site. This area is proposed to be re-zoned to OS-2, Open Space district, consistent with the existing Open Space designation of the community plan, and will be dedicated as a conservation easement to ensure that public access is preserved.

The following responses are provided in the same order as your specific comments relative to additional content requirements of the DEA.

1. a. The DEA will discuss various alternatives including various full build-out alternatives within existing zoning and various other land use districts.

   b. The DEA will analyze designating environmentally sensitive areas including wetlands, coastal sand dunes, and significant archaeological features within the Open Space designated areas as OS-1. Included in this discussion will be the option of preserving these areas through conditional zoning within the OS-2 district.

   c. Alternatives on secondary access to the 16-lot development site will be discussed.

   d. Development potential for no changes to existing land use designations will be discussed in the Alternatives section of the DEA.

2. All roadway improvements will be discussed in the DEA, including improvements to Hana Highway. The traffic impact assessment report will identify if project related improvements are recommended.

3. The DEA will append the various technical studies indicated on your letter dated February 27, 2004.

4. Potential impacts from airport operations will be discussed in the DEA. Specifically, there will be full disclosure of noise impacts generated from airport operations prior to sale, and included in covenants and sales documents.

5. Existing public shoreline access will be maintained by way of zoning the open space designated area to OS-2 and by dedication of a conservation easement. This land use designation would ensure that the area will remain undeveloped, thereby preserving public access in perpetuity.
6. Landscape features, streetscapes, boundary walls, and preservation of significant open space landscaping features (i.e., Monkey Pod trees), will be discussed in the DEA. Since the proposed development is for vacant lots, there will not be any conceptual renderings to submit to the Maui Urban Design Review Board.

7. Flora and fauna analysis will be conducted by Vuich Consulting, and their findings will be incorporated into the DEA. Both the U.S. Fish & Wildlife and the Army Corps have been consulted with regards to identifying and delineating the wetland areas of the property.

8. Pre-consultation comments will be included in the DEA.

9. A view analysis from Hana Highway will be incorporated in the DEA.

10. Potential impacts from agricultural operations on future residential uses will be discussed in the DEA. Specifically, there will be full disclosure of potential dust, noise and odor impacts generated from agricultural operations prior to sale and included in covenants and sales documents.

11. Alternative street design will be analyzed in the DEA. Alternatives will include, designs for preserving the character of the area, bicycle and pedestrian movements, and access to shoreline areas.

Thank you for your comments and participation in the early consultation for the preparation of the Draft Environmental Assessment.

Should you have any questions, please contact me at 244-2015

Very truly yours,

Darep Suzuki, Staff Planner

DS:yp
cc: Henry Spencer

spencer@panamahal.com
March 10, 2004

Mr. Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

We have reviewed the Early Consultation Request for the subject project and find that we have no comments at this time.

Thank you for the opportunity to review and comment. Should there be any questions, please contact Mr. Patrick Matsui, Chief of Parks Planning and Development, at 270-7387.

Sincerely,

GLENN T. CORREA
Director

c: Patrick Matsui, Chief of Planning and Development
Mr. Daren Suzuki, Planner  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, HI 96793

Dear Mr. Suzuki:

SUBJECT: Early Consultation Request for the preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:009, and 3-8-002:010, Spreckelsville, Maui

We reviewed the proposal and have no recommendation or comments to offer at this time.

As always, thank you for giving us the opportunity to comment on this project.

Very truly yours,

[Signature]

Assistant Chief Sidney Kikuchi
for: Thomas M. Phillips
Chief of Police

c: Michael Foley, Planning Department
Mr. Daren Suzuki, Planner  
Munekyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Maui, Hawaii 96793

Dear Mr. Suzuki:

SUBJECT: EARLY CONSULTATION REQUEST FOR THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT FOR A 16-LOT SUBDIVISION AND RELATED IMPROVEMENTS  
TMK: 3-8-001:003, 009, & 010

We reviewed the subject application and have the following comments:


2. Although wastewater system capacity is currently available as of February 20, 2004, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit.

3. Wastewater contribution calculations are required before building permit is issued.

4. Developer shall pay assessment fees for treatment plan expansion costs in accordance with ordinance setting forth such fees.

5. Developer is required to fund any necessary off-site improvements to the collection system and wastewater pump stations.
Mr. Daren Suzuki, Planner  
March 30, 2004  
Page 2

6. Plans should show the installation of a single service lateral and advance riser for each lot.

7. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.

8. Vehicular access shall be provided to all subdivided and "land locked" land.

9. Two (2) vehicular accesses are required to service this subdivision.

10. All standard County "urban" street design standards shall be imposed and all streets shall be constructed to County standards.

11. Radius returns shall be required for all intersections.

12. "Stable Road" shall be improved to County standards for Hana Highway to end of property limits.

13. The existing bike route shall be maintained to provide continuous access.

14. The proposed project shall comply with Title 18 (Subdivision Ordinance) of the Maui County Code.

If you have any questions regarding this letter, please call Milton Arakawa at 270-7845.

Very truly yours,

GILBERT S. COLOMA-AGARAN  
Director

GSCA:MA:sw  
S:\\UC\AALL\PERMITS\SMWComments16-Lot_Subd_etc_sw.wpd
June 10, 2004

Gilbert Coloma-Agaran, Director
Department of Public Works
and Environmental Management
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:008 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Coloma-Agaran:

This letter responds to your letter dated March 30, 2004.

The applicant acknowledges all standard comments provided in your letter and will address them more specifically during the Draft Environmental Assessment (EA) and subdivision review. It is noted that the applicant will either be seeking a variance to the length of the proposed subdivision cul-de-sac, or providing an emergency access to Laulea Place or Alakapa Place. These alternatives will be discussed in applicable sections of the Draft EA.

It is further noted that the existing bike route is proposed to be donated to the County.

A copy of the Draft EA will be circulated to your office for further review and comment.

Very truly yours,

Daren Suzuki, Staff Planner

DS:yp
cc: Henry Spencer
spencer@planning.mauicounty.gov
February 23, 2004

Mr. Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High Street Suite 104
Wailuku HI 96793

Subject: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-lot Subdivision and Related Improvements, TMK 3-8-01:003, 3-8-02:009 and 3-8-02:010, Spreckelsville, Maui

Dear Mr. Suzuki:

Thank you for the opportunity to provide comments on the preparation of this Environmental Assessment (EA). The Department of Water Supply provides the following information:

The project area is served by the Central Maui System. The main sources of water for this system are the Iao and Waiehu aquifers, the Iao tunnel and the Iao-Waikapu Ditch. As of July 21, 2003, the Commission on Water Resource Management (CWRM) has designated Iao aquifer as Groundwater Management Area. DWS will not issue reservations for future meters until new sources are brought on-line. Although the Department continues to issue meters for those ready to receive service at this time, it may also become necessary to stop issuing new meters altogether. Water for this project may not be available until new sources are on-line. Water use for the 21-acre single-family development would be about 13,000 gallons per day (GPD) based on empirical use for Spreckelsville.

The subject property is served by an 8-inch and a 12-inch water line along Hana Highway, an 8-inch water line along the West end of Laulea Place and a 4-inch water line at the West border of the property. The existing easements for the 8-inch line and appurtenances West of Laulea Place must be maintained and easement for the portion of the 12-inch line that is located within parcel 3-8-01:003 must be provided. Please find attached a copy of the fire protection map section for this area. Fire flow requirements for the residential subdivision is 1000 gallons per minute per 2 hours with fire hydrants installed at 350 ft spacing.

The project overflies the Kahului and Paia aquifers. The Department of Water Supply strives to protect the integrity of surface and groundwater resources by encouraging the applicant to adopt best management practices (BMPs) designed to minimize infiltration and runoff from all construction and vehicle operations. We have attached sample BMPs for principle operations for reference. Additional information can be obtained from the State Department of Health.

We recommend that the following water conservation measures be included in the EA and implemented in project design and construction:

Eliminate Single-Pass Cooling: Single-pass, water-cooled system should be eliminated per Maui County Code

By Water All Things Find Life
Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air-conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.660 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.

Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan" - Plant Zone 5. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the attached brochure: "Saving Water In The Yard - What and How to Plant In Your Area" for landscaping of common areas and for distribution to future homeowners.

Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers in common areas. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

[Signature]

George Tengan
Director

Attachments:

- Section of DWS fire protection map
- "The Costly Drip"
- "Saving Water In the Yard - What and How to Plant In your Area"
- "Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters"
- Ordinance 2108 - An Ordinance Amending Chapter 16.20 of the Maui County Code, Pertaining to the Plumbing Code

CC: engineering division

C:\WP\docs\EAs Ellis\Spreckelsville 16-1st SD DEA.wpd

By Water All Things Find Life
"THE COSTLY DRIP"

Slowly Dripping Spigot Wastes 15 Gallons a day.

1/32" Leak Wastes 25 Gallons a day.
1/16" Stream Wastes 100 Gallons a day.
1/8" Stream Wastes 400 Gallons a day.
ORDINANCE NO. 2108

BILL NO. 6 (1992)

Draft 1

A BILL FOR AN ORDINANCE AMENDING
CHAPTER 16.20 OF THE MAUI COUNTY
CODE, PERTAINING TO THE PLUMBING CODE

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Title 16 of the Maui County Code is amended by adding
a new section to Chapter 10 of the Uniform Plumbing Code to be
designated and to read as follows:

"16.20.675 Section 1050 added. Chapter 10 of the
Uniform Plumbing Code is amended by adding a new section,
pertaining to low-flow water fixtures and devices, to be
designated and to read as follows:

Sec. 1050 Low-flow water fixtures and devices. (a) This
section establishes maximum rates of water flow or discharge
for plumbing fixtures and devices in order to promote water
conservation.

(b) For the plumbing fixtures and devices covered in
this section, manufacturers or their local distributors shall
provide proof of compliance with the performance requirements
established by the American National Standards Institute
(ANSI) and such other proof as may be required by the
director of public works. There shall be no charge for this
registration process.

(c) Effective December 31, 1992, only plumbing fixtures
and devices specified in this section shall be offered for
sale or installed in the County of Maui, unless otherwise
indicated in this section. All plumbing fixtures and devices
which were installed before December 31, 1992, shall be
allowed to be used, repaired or replaced after December 31,

(1) Faucets (kitchen): All kitchen and bar sink
faucets shall be designed, manufactured, installed or
equipped with a flow control device or aerator which
will prevent a water flow rate in excess of two and two-
tenths gallons per minute at sixty pounds per square
inch of water pressure.

(2) Faucets (lavatory): All lavatory faucets shall
be designed, manufactured, installed or equipped with a
flow control device or aerator which will prevent a
water flow rate in excess of two and two tenths gallons
per minute at sixty pounds per square inch of water
pressure.

(3) Faucets (public rest rooms): In addition to the lavatory requirements set forth in paragraph (2), lavatory faucets located in rest rooms intended for use by the general public shall be of the metering or self-closing types.

(4) Hose bibbs: Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum three gallons per minute.

EXCEPTIONS: (A) Hose bibbs or valves not used for fixtures or equipment designated by the director of public works.

(B) Hose bibbs, faucets, or valves serving fixed demand, timing, or water level control appliances, and equipment or holding structures such as water closets, pools, automatic washers, and other similar equipment.

(5) Showerheads: Showerheads, except where provided for safety or emergency reasons, shall be designed, manufactured, or installed with a flow limitation device which will prevent a water flow rate in excess of two and one-half gallons per minute at eighty pounds per square inch of water pressure. The flow limitation device must be a permanent and integral part of the showerhead and must not be removable to allow flow rates in excess of two and one-half gallons per minute or must be mechanically retained requiring force in excess of eight pounds to remove.

(6) Urinals: Urinals shall be designed, manufactured, or installed so that the maximum flush will not exceed one and six tenths gallons of water.

(7) Water closets (toilets): Water closets shall be designed, manufactured, or installed so that the maximum flush will not exceed one and six tenths gallons of water.

(d) Beginning December 31, 1992, it is unlawful to sell or install any plumbing fixtures or devices not specified in this section, except as permitted under this section.

(e) The director of public works may exempt the use of low-flow water fixtures and devices if there is a finding that the use of such fixtures and devices would not be detrimental to the public health, safety and welfare.
(f) Any person violating this section shall be fined $250 for each violation and shall correct all instances of non-compliance for which a citation is issued. Violation of this section shall constitute a violation as defined in section 701-107 Hawaii Revised Statutes and shall be enforceable by employees of the department of public works. The foregoing fine may also be imposed in a civil, administrative proceeding pursuant to Rules and Regulations adopted by the department of public works in accordance with chapter 91 Hawaii Revised Statutes.

SECTION 2. New material is underscored. In printing this bill, the County Clerk need not include the underscoring.

SECTION 3. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY:

[Signature]
HOWARD M. FUKUSHIMA
Deputy Corporation Counsel
County of Maui

c:\wp51\ords\flows4\pk
HEREBY CERTIFY that the foregoing BILL NO. 6, (1992), Draft 1

1. Passed FINAL READING at the meeting of the Council of the County of Maui, State of Hawaii, held on the 1st day of May, 1992, by the following votes:

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<th>Name</th>
<th>Vote</th>
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<tr>
<td>Howard S. Kihune 1st</td>
<td>Aye</td>
<td>Excused</td>
<td>Excused</td>
<td>Aye</td>
<td>Aye</td>
<td>Aye</td>
<td>Aye</td>
<td>Aye</td>
</tr>
<tr>
<td>Patrick S. Kawano Vce-Chair</td>
<td>Aye</td>
<td></td>
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<tr>
<td>Vino G. Badoyo, Jr.</td>
<td></td>
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<tr>
<td>Gordon Hokama</td>
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<tr>
<td>Alice L. Lee</td>
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<tr>
<td>Ricardo Medina</td>
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<td></td>
</tr>
<tr>
<td>Wayne K. Nishiki</td>
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<td></td>
<td></td>
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<tr>
<td>Joe G. Tahaka</td>
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<td></td>
</tr>
<tr>
<td>Teruya Drummond</td>
<td></td>
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</tr>
</tbody>
</table>

2. Was transmitted to the Mayor of the County of Maui, State of Hawaii, on the 1st day of May, 1992.

DATED AT WAILEHU, MAUI, HAWAII, this 1st day of May, 1992.

Howard S. Kihune, Chair
council of the County of Maui

Daryl T. Yamamoto, County Clerk
county of Maui

THE FOREGOING BILL IS HEREBY APPROVED THIS 5th DAY OF MAY, 1992.

Linda Crockett Lingle, Mayor
county of Maui

I HEREBY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of Maui, the said BILL was designated as ORDINANCE NO. 2108 of the County of Maui, State of Hawaii.

Daryl T. Yamamoto
COUNTY CLERK
county of Maui

Passed First Reading on January 17, 1992.

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 2108, the original of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii,

Dated at Wailehu, Hawaii, on
Saving Water in The Yard
What and How to Plant in Your Area

- Wet Windward Areas
- Cool Dry Upper Elevations
- Warm to Hot Low Elevations
- Wetter Low Areas Near Mountains
- Windward Coastal Salt Spray Zones

Tips From The Maui County Department of Water Supply
By Water All Things Find Life
Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival. When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and maile will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as williwilli and Kou require abundant sunshine and porous soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large. Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopied tree such as the kukui is a good shade tree for a lawn. However, its canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round. Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitat must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- Collect sparingly from each plant or area.
- Some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A,B)

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1 K. Nagata, P.6
2 K. Nagata, P.9
3 Nagata, P.9
Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which perform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost. A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes. Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, How To Plant A Native Hawaiian Garden:

<table>
<thead>
<tr>
<th>WATER REQUIREMENT</th>
<th>WATERING FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy</td>
<td>3x / week</td>
</tr>
<tr>
<td>Moderate</td>
<td>2x / week</td>
</tr>
<tr>
<td>Light</td>
<td>1x / week</td>
</tr>
</tbody>
</table>

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

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4 Nagata, p. 6
5 Nagata, p. 8
6 Nagata, p. 8
Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.7

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic composts and aged animal manures is suggested instead of chemical fertilizers. In addition, use of cinders for providing trace minerals is strongly recommended.8

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

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7 Bornhorst, p. 19-20
8 Nagata, p. 6
Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thorough and helpful book is Heidi Bornhorst’s book, *Growing Native Hawaiian Plants*. The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in
2. Get your potting medium ready

Good potting medium is a ½, ½ mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from ¼ to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trim off some of the leaves to compensate for the loss.9

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep.

If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

9 Bornhorst, p.20-21
coarse compost. Place some slow-release fertilizer at the bottom of the hole.

3. Carefully remove the plant from the container and place it in the hole. The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.

4. Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii’s hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.\textsuperscript{10} Macadamia nut hulls are also easy to find and can make a nice mulch.\textsuperscript{11}

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

\textsuperscript{10} Bornhorst, p. 24

\textsuperscript{11} Nagāta, p. 7
ZONES

The Maui County Planting Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

Zone 1:
Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

Zone 2:
Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

Zone 3:
Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

Zone 4:
Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

Zone 5:
Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and function.
PLACES TO SEE NATIVES ON:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

**Maui:**

1. Hoolawa Farms, P.O. Box 731, Haiku, Hawaii, 96708  
   572-4835

2. The Hawaiian Collection, 1127 Manu St., Kula, Hawaii, 96790  
   878-1701

3. Kula Botanical Gardens, RR 4, Box 228, Kula, Hawaii, 96790  
   878-1715

4. Maui Botanical Gardens, Kanao Avenue across from stadium  
   243-7337

5. Kula Forest Reserve, access road at the end of Waiopouli Rd.  
   Call the Maui District Forester  
   984-8100

6. Wailea Point, Private Condominium residence, 4000 Wailea Alanui,  
   public access points at Four Seasons Resort or Polo Beach  
   875-9557

7. Kahanu Gardens, National Tropical Botanical Garden,  
   Alau Pl, Hana, Hawaii, 96713  
   248-8912

8. Kahului Library Courtyard, 20 School Street, Kahului, Hawaii  
   873-3097
# Zone-specific Native and Polynesian Plants for Maui County

## Zone 5

<table>
<thead>
<tr>
<th>TYPE</th>
<th>F. Farm</th>
<th>G. Grass</th>
<th>Gr. Ground Cover</th>
<th>Sh. Shrub</th>
<th>P. Palm</th>
<th>S. Sedge</th>
<th>Tr. Tree</th>
<th>V. Vine</th>
<th>Height</th>
<th>Spread</th>
<th>Elevation</th>
<th>Water req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr.</td>
<td>Gomphrena elegans</td>
<td>'enepapapa</td>
<td>3'</td>
<td>10'</td>
<td>sea to 1,000'</td>
<td>Dry to Wet</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Erechites variabilis</td>
<td>'emo-loa'</td>
<td>1'</td>
<td>2'</td>
<td>sea to 3,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Erodium cymbalaria var. scapiformis</td>
<td>mauu 'ake 'ake iaoleia</td>
<td>0.5'</td>
<td>1'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Dichondra repens</td>
<td>'iana</td>
<td>0.5'</td>
<td>3'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Chloris arundinacea var. nashiana</td>
<td>'ekoko</td>
<td>2'</td>
<td>3'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Pennisetum purpureum</td>
<td>'grassa</td>
<td>0.5'</td>
<td>1'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gr.</td>
<td>Heliotropium anomalum var. argenteum</td>
<td>mihina 'ku kanaka'i</td>
<td>1'</td>
<td>2'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gr.</td>
<td>Jacquinionea ovalifolia spp. sandwicensis</td>
<td>pa'oo hiriaka</td>
<td>0.5'</td>
<td>6'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Lipocolea integrifolia</td>
<td>'heke</td>
<td>1'</td>
<td>5'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Casuarina portulacastrum</td>
<td>'ekuliku, sea-puralana</td>
<td>0.5'</td>
<td>2'</td>
<td>sea to 1,000'</td>
<td>Dry to Wet</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>pata lai'a</td>
<td>liina</td>
<td>0.5'</td>
<td>3'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Teucrium purpureum var. purpureum</td>
<td>'ahu'ahu</td>
<td>2'</td>
<td>2'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Hibiscus caryophyllus</td>
<td>ma'o hui he'e, Rock's hibiscus</td>
<td>3'</td>
<td>2'</td>
<td>sea to 3,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr.</td>
<td>Eutrochium sandwicense</td>
<td>'hala-kai, 'ae 'ae</td>
<td>2'</td>
<td>2'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.</td>
<td>cocos nucifera</td>
<td>coconut, nui</td>
<td>100'</td>
<td>30'</td>
<td>sea to 1,000'</td>
<td>Dry to Wet</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.</td>
<td>Enocarpus bonplandii</td>
<td>lo'iu, fan palm</td>
<td>25'</td>
<td>15'</td>
<td>sea to 1,000'</td>
<td>Dry to Wet</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>S.</td>
<td>Matricaria longa</td>
<td>marah kōpū, 'ahu'awa</td>
<td>0.5'</td>
<td>0.5'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Artemisia frigida</td>
<td>'shiihehina</td>
<td>3'</td>
<td>2'</td>
<td>sea to 3,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Artemisia gumi</td>
<td>'shiihehina</td>
<td>3'</td>
<td>2'</td>
<td>sea to 3,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Bidens frondosa var. frondosa</td>
<td>ko'oko'o hula</td>
<td>1'</td>
<td>2'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Bidens frondosa</td>
<td>ko'oko'o hula</td>
<td>1'</td>
<td>2'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Chrysanthemum coccineum</td>
<td>'ēhāheā, 'aweawea</td>
<td>6'</td>
<td></td>
<td>sea to higher</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Chrysanthemum frondosum</td>
<td>'ukī</td>
<td>2'</td>
<td>2'</td>
<td>sea to 1,000' to higher</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sh.</td>
<td>Gossypium hirsutum</td>
<td>'ae 'ae, Hawaiian cotton</td>
<td>5'</td>
<td>3'</td>
<td>sea to 1,000'</td>
<td>Dry to Medium</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
## Zone-specific Native and Polynesian plants for Maui County

### Zone 5

<table>
<thead>
<tr>
<th>Type</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Elevation</th>
<th>Water req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sh</td>
<td>Hedyotis spp.</td>
<td>'au, plume</td>
<td>3'</td>
<td>2'</td>
<td>1,000' to 3,000'</td>
<td>Dry to Wet</td>
</tr>
<tr>
<td>Sh</td>
<td>Lipochaeta laevum</td>
<td>neire</td>
<td>3'</td>
<td>3'</td>
<td>sea to 3,000'</td>
<td>Dry to Medium</td>
</tr>
<tr>
<td>Sh</td>
<td>Osteomeles anthyllidifolia</td>
<td>'alii, aliihe</td>
<td>4'</td>
<td>5'</td>
<td>sea to 3,000'</td>
<td>Dry to Medium</td>
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<tr>
<td>Sh</td>
<td>Scyosia sericea</td>
<td>naupaka, naupaka-kahakai</td>
<td>6'</td>
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<td>sea to 3,000'</td>
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<tr>
<td>Sh</td>
<td>Senecio geudchaudi</td>
<td>kolomane</td>
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<tr>
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<td>Solanum nelsonii</td>
<td>'akia, beach solanum</td>
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<td>3'</td>
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<td>Vitis rotundifolia</td>
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<td>Volschienia uva-ursi</td>
<td>kaualii, kaualiihala</td>
<td>'akia, Molokai campanula</td>
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<td>Myoporum sandwicense</td>
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<td>Dodonaea viscosa</td>
<td>'oohi</td>
<td>50'</td>
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<td>'olihau</td>
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<td>Castilia elaica</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoebuton ardisa</td>
<td>Ardisia elegante</td>
<td>Myristaceae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banana poke</td>
<td>Passiflora molestima</td>
<td>Passifloraceae</td>
<td></td>
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</tr>
</tbody>
</table>
Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters

Issued Under the Authority of Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990
III. CONSTRUCTION ACTIVITIES

A. Construction Site Erosion and Sediment Control Management Measure

(1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and

(2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

1. Applicability

This management measure is intended to be applied by States to all construction activities on sites less than 5 acres in areas that do not have an NPDES permit\(^1\) in order to control erosion and sediment loss from those sites. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in Coastal Nonpoint Pollution Control Programs: Program Development and Approval Guidance, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The goal of this management measure is to reduce the sediment loadings from construction sites in coastal areas that enter surface waterbodies. This measure requires that coastal States establish new or enhance existing State erosion and sediment control (ESC) programs and/or require ESC programs at the local level. It is intended to be part of a comprehensive land use or watershed management program, as previously detailed in the Watershed and Site Development Management Measures. It is expected that State and local programs will establish criteria determined by local conditions (e.g., soil types, climate, meteorology) that reduce erosion and sediment transport from construction sites.

Runoff from construction sites is by far the largest source of sediment in urban areas under development (York County Soil and Water Conservation District, 1990). Soil erosion removes over 90 percent of sediment by tonnage in urbanizing areas where most construction activities occur (Canning, 1988). Table 4-14 illustrates some of the

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\(1\) On May 27, 1992, the United States Court of Appeals for the Ninth Circuit invalidated EPA's exemption of construction sites smaller than 5 acres from the storm water permit program in Natural Resources Defense Council v. EPA, 965 F.2d 739 (9th Cir. 1992). EPA is conducting further rulemaking proceedings on this issue and will not require permit applications for construction activities under 5 acres until further rulemaking has been completed.
measured sediment loading rates associated with construction activities found across the United States. As seen in Table 4-14, erosion rates from natural areas such as undisturbed forested lands are typically less than one ton/acre/year, while erosion from construction sites ranges from 7.2 to over 1,000 tons/acre/year.

<table>
<thead>
<tr>
<th>Location</th>
<th>Problem</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Sediment loading rates vary from 36.5 to 1,000 tons/yr. These are 5 to 500 times greater than those from undeveloped land. Approximately 600 million tons of soil erodes from developed sites each year. Construction site sediment in runoff can be 10 to 20 times greater than that from agricultural lands.</td>
<td>York County Soil and Water Conservation District, 1990</td>
</tr>
<tr>
<td>Franklin County, FL</td>
<td>Sediment yield (ton/acre/yr): forest &lt; 0.5 range &lt; 0.5 tilled 1.4 construction site 30 established urban &lt; 0.5</td>
<td>Franklin County, FL</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>Erosion rates range from 30 to 200 ton/acre/yr (10 to 20 times those of cropland).</td>
<td>Wisconsin Legislative Council, 1991</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>Erosion rates range from 35 to 45 ton/acre/yr (10 to 100 times greater than agriculture and stabilized urban land uses).</td>
<td>MWCOG, 1987</td>
</tr>
<tr>
<td>Anacostia River Basin, VA, MD, DC</td>
<td>Sediment yields from portions of the Anacostia Basin have been estimated at 75,000 to 132,000 ton/yr.</td>
<td>U.S. Army Corps of Engineers, 1990</td>
</tr>
<tr>
<td>Washington</td>
<td>Erosion rates range from 50 to 500 ton/acre/yr. Natural erosion rates from forests or well-sodded prairies are 0.01 to 1.0 ton/acre/yr.</td>
<td>Washington Department of Ecology, 1989</td>
</tr>
<tr>
<td>Anacostia River Basin, VA, MD, DC</td>
<td>Erosion rates range from 7.2 to 100.8 ton/acre/yr.</td>
<td>USGS, 1978</td>
</tr>
<tr>
<td>Alabama</td>
<td>1.4 million tons eroded per year.</td>
<td>Woodward-Clyde, 1991</td>
</tr>
<tr>
<td>North Carolina</td>
<td>6.7 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Louisiana</td>
<td>5.1 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Oklahoma</td>
<td>4.2 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Georgia</td>
<td>3.8 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td>3.5 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>3.3 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>3.1 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>3.0 million tons eroded per year.</td>
<td></td>
</tr>
<tr>
<td>Kentucky</td>
<td>3.0 million tons eroded per year.</td>
<td></td>
</tr>
</tbody>
</table>
Eroded sediment from construction sites creates many problems in coastal areas including adverse impacts on water quality, critical habitats, submerged aquatic vegetation (SAV) beds, recreational activities, and navigation (APWA, 1991). For example, the Miami River in Florida has been severely affected by pollution associated with upland erosion. This watershed has undergone extensive urbanization, which has included the construction of many commercial and residential buildings over the past 50 years. Sediment deposited in the Miami River channel contributes to the severe water quality and navigation problems of this once-thriving waterway, as well as Biscayne Bay (SFWMD, 1988).

ESC plans are important for controlling the adverse impacts of construction and land development and have been required by many State and local governments, as shown in Table 4-13 (in the Site Development section of this chapter). An ESC plan is a document that explains and illustrates the measures to be taken to control erosion and sediment problems on construction sites (Connecticut Council on Soil and Water Conservation, 1988). It is intended that existing State and local erosion and sediment control plans may be used to fulfill the requirements of this management measure. Where existing ESC plans do not meet the management measure criteria, inadequate plans may be enhanced to meet the management measure guidelines.

Typically, an ESC plan is part of a larger site plan and includes the following elements:

- Description of predominant soil types;
- Details of site grading including existing and proposed contours;
- Design details and locations for structural controls;
- Provisions to preserve topsoil and limit disturbance;
- Details of temporary and permanent stabilization measures; and
- Description of the sequence of construction.

ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development and provide for the reduction of erosion and sediment problems and accountability if a problem occurs (York County Soil and Water Conservation District, 1990). An effective plan for urban runoff management on construction sites will control erosion, retain sediments on site, to the extent practicable, and reduce the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation will affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989). An effective ESC plan includes both structural and nonstructural controls. Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control both erosion and sediment movement.

Typical nonstructural erosion controls include (APWA, 1991; York County Soil and Water Conservation District, 1990):

- Planning and designing the development within the natural constraints of the site;
- Minimizing the area of bare soil exposed at one time (phased grading);
- Providing for stream crossing areas for natural and man-made areas; and
- Stabilizing cut-and-fill slopes caused by construction activities.

Structural controls include:

- Perimeter controls;
- Mulching and seeding exposed areas;
- Sediment basins and traps; and
- Filter fabric, or silt fences.

Some erosion and soil loss are unavoidable during land-disturbing activities. While proper siting and design will help prevent areas prone to erosion from being developed, construction activities will invariably produce conditions where erosion may occur. To reduce the adverse impacts associated with construction, the construction management measure suggests a system of nonstructural and structural erosion and sediment controls for incorporation into an
III. Construction Activities

Chapter 4

ESC plan. Erosion controls have distinct advantages over sediment controls. Erosion controls reduce the amount of sediment transported off-site, thereby reducing the need for sediment controls. When erosion controls are used in conjunction with sediment controls, the size of the sediment control structures and associated maintenance may be reduced, decreasing the overall treatment costs (SWRPC, 1991).

3. Management Measure Selection

This management measure was selected to minimize sediment being transported outside the perimeter of a construction site through two broad performance goals: (1) reduce erosion and (2) retain sediment onsite, to the extent practicable. These performance goals were chosen to allow States and local governments flexibility in specifying practices appropriate for local conditions.

While several commenters responding to the draft (May 1991) guidance expressed the need to define "more measurable, enforceable ways" to control sediment loadings, other commenters stressed the need to draft management measures that do not conflict with existing State programs and allow States and local governments to determine appropriate practices and design standards for their communities. These management measures were selected because virtually all coastal States control construction activities to prevent erosion and sediment loss.

The measures were specifically written for the following reasons:

(1) Predevelopment loadings may vary greatly, and some sediment loss is usually inevitable;

(2) Current practice is built on the use of systems of practices selected based on site-specific conditions; and

(3) The combined effectiveness of erosion and sediment controls in systems is not easily quantified.

4. Erosion Control Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Erosion controls are used to reduce the amount of sediment that is detached during construction and to prevent sediment from entering runoff. Erosion control is based on two main concepts: (1) disturb the smallest area of land possible for the shortest period of time, and (2) stabilize disturbed soils to prevent erosion from occurring.

a. Schedule projects so clearing and grading are done during the time of minimum erosion potential.

Often a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (May 1 - October 31), temporary erosion and sediment controls may not be needed. In addition, in some parts of the country erosion potential is very high during certain parts of the year such as the spring thaw in northern areas. During this time of year, melting snowfall generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed offsite. Therefore, in the north, limitations should be placed on grading during the spring thaw (Goldman et al., 1986).
b. Stage construction.

Avoid areawide clearance of construction sites. Plan and stage land disturbance activities so that only the area currently under construction is exposed. As soon as the grading and construction in an area are complete, the area should be stabilized.

By clearing only those areas immediately essential for completing site construction, buffer zones are preserved and soil remains undisturbed until construction begins. Physical markers, such as tape, signs, or barriers, indicating the limits of land disturbance, can ensure that equipment operators know the proposed limits of clearing. The area of the watershed that is exposed to construction is important for determining the net amount of erosion. Reducing the extent of the disturbed area will ultimately reduce sediment loads to surface waters. Existing or newly planted vegetation that has been planted to stabilize disturbed areas should be protected by routing construction traffic around and protecting natural vegetation with fencing, tree armoring, retaining walls, or tree wells.

c. Clear only areas essential for construction.

Often areas of a construction site are unnecessarily cleared. Only those areas essential for completing construction activities should be cleared, and other areas should remain undisturbed. Additionally, the proposed limits of land disturbance should be physically marked off to ensure that only the required land area is cleared. Avoid disturbing vegetation on steep slopes or other critical areas.

d. Locate potential nonpoint pollutant sources away from steep slopes, waterbodies, and critical areas.

Material stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

a. Route construction traffic to avoid existing or newly planted vegetation.

Where possible, construction traffic should travel over areas that must be disturbed for other construction activity. This practice will reduce the area that is cleared and susceptible to erosion.

b. Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells.

Tree armoring protects tree trunks from being damaged by construction equipment. Fencing can also protect tree trunks, but should be placed at the tree’s drip line so that construction equipment is kept away from the tree. The tree drip line is the minimum area around a tree in which the tree’s root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well should be used to minimize the cutting of the tree’s roots or the quantity of fill placed over the tree’s root.

g. Stockpile topsoil and reapply to revegetate site.

Because of the high organic content of topsoil, it cannot be used as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards and topsoil may need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.
h. **Cover or stabilize topsoil stockpiles.**

Unprotected stockpiles are very prone to erosion and therefore stockpiles must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles should be stabilized by erosion blankets, seeding, and/or mulching.

i. **Use wind erosion controls.**

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barriers block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fences, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion [Delaware DNREC, 1989]; however, applications must be monitored to prevent excessive runoff and erosion.

j. **Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain.**

Earth dikes, perimeter dikes or swales, or diversions can be used to intercept and convey runoff above disturbed areas. An earth dike is a temporary bench or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale [Delaware DNREC, 1989]. These practices should be used to intercept flow from denuded areas or newly seeded areas to keep the disturbed areas from being eroded from the upland runoff. The structures should be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion [Delaware DNREC, 1989].

k. **On long or steep, disturbed, or man-made slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff.**

Bridges, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet, such as a sediment basin or trap. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice should be used if there is a potential for erosion along the slope.

l. **Use retaining walls.**

Often retaining walls can be used to decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

m. **Provide linings for urban runoff conveyance channels.**

Often construction increases the velocity and volume of runoff, which causes erosion in newly constructed or existing urban runoff conveyance channels. If the runoff during or after construction will cause erosion in a channel, the channel should be lined or flow control BMPs installed. The first choice of lining should be grass or sod since this reduces runoff velocities and provides water quality benefits through filtration and infiltration. If the velocity in the channel would erode the grass or sod, then riprap, concrete, or gabions can be used.

n. **Use check dams.**

Check dams are small, temporary dams constructed across a swale or channel. They can be constructed using gravel or straw bales. They are used to reduce the velocity of concentrated flow and, therefore, to reduce the erosion in...
a swale or channel. Check dams should be used when a swale or channel will be used for a short time and therefore it is not feasible or practical to line the channel or implement flow control BMPs. (Delaware DNREC, 1989).

- **Seed and fertilize.**

Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once a dense vegetative cover has been established. However, often seeding and fertilizing do not produce as thick a vegetative cover as do seed and mulch or netting. Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Care should be taken when fertilizing to avoid unneeded or excessive application. Since the practice of seeding and fertilizing does not provide any protection during the time of vegetative establishment, it should be used only on favorable soils in very flat areas and not in sensitive areas.

- **Use seeding and mulch/mats.**

Seeding establishes a vegetative cover on disturbed areas. Seeding is very effective in controlling soil erosion once the vegetative cover has been established. The mulching/mats protect the disturbed area while the vegetation becomes established.

The management of land by using ground cover reduces erosion by reducing the flow rate of runoff and the raindrop impact. Bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Demud areas that are inactive and will be exposed to rain for 30 days or more should also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established.

In the very flat, non-sensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erosive, and as areas become more sensitive.

- **Use mulch/mats.**

Mulching involves applying plant residues or other suitable materials on disturbed soil surfaces. Mulches/mats used include tacked straw, wood chips, and jute netting, and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but is approximately 2 to 6 months. Figure 4-5 shows water velocity reductions that could be expected using various mulching techniques. Similarly, Figure 4-6 shows reductions in soil loss achievable using various mulching techniques. During times of year when vegetation cannot be established, soil mulching should be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, multiple mulching treatments should be used. On a high-elevation or desert site where grasses cannot survive the harsh environment, native shrubs may be planted. Interlocking ceramic materials, filter fabric, and netting are available for this purpose. Before stabilizing an area, it is important to have installed all sediment controls and diverted runoff away from the area to be planted. Runoff may be diverted away from denuded areas or newly planted areas using dikes, swales, or pipe slope drains to intercept runoff and convey it to a permanent channel or storm drain. Reserved topsoil may be used to revegetate a site if the stockpile has been covered and stabilized.

Consideration should be given to maintenance when designing mulching and matting schemes. Plastic mats are often used to cover the mulch or mats; however, they can foul lawn mower blades if the area requires mowing.
### Figure 4-5. Water velocity reductions for different mulch treatments (adapted from Harding, 1990).

<table>
<thead>
<tr>
<th>Mulch Material</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100% wheat straw/wool</td>
</tr>
<tr>
<td>2</td>
<td>100% wheat straw/two sets</td>
</tr>
<tr>
<td>3</td>
<td>70% wheat straw/50% coconut fiber</td>
</tr>
<tr>
<td>4</td>
<td>70% wheat straw/50% coconut fiber</td>
</tr>
<tr>
<td>5</td>
<td>100% coconut fiber</td>
</tr>
<tr>
<td>6</td>
<td>Nylon monofilament/two sets</td>
</tr>
<tr>
<td>7</td>
<td>Nylon monofilament/rigid/bonded</td>
</tr>
<tr>
<td>8</td>
<td>Vinyl monofilament/flexible/bonded</td>
</tr>
<tr>
<td>9</td>
<td>Curled wood fiber/wool</td>
</tr>
<tr>
<td>10</td>
<td>Curled wood fiber/two sets</td>
</tr>
<tr>
<td>11</td>
<td>Antiwash netting (jute)</td>
</tr>
<tr>
<td>12</td>
<td>Interwoven paper and thread</td>
</tr>
<tr>
<td>13</td>
<td>Uncrimped wheat straw — 2.242 kg/ha</td>
</tr>
<tr>
<td>14</td>
<td>Uncrimped wheat straw — 4.484 kg/ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mulching Material Number</th>
<th>% Reduction Relative to Bare Soil Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>78</td>
</tr>
<tr>
<td>2</td>
<td>77</td>
</tr>
<tr>
<td>3</td>
<td>74</td>
</tr>
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<td>14</td>
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</table>
Figure 4-6. Actual soil loss reductions for different mulch treatments (adapted from Harding, 1990).

<table>
<thead>
<tr>
<th>Mulch Material</th>
<th>Characteristics</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>100% wheat straw/top net</td>
</tr>
<tr>
<td>2</td>
<td>100% wheat straw/two nets</td>
</tr>
<tr>
<td>3</td>
<td>70% wheat straw/30% coconut fiber</td>
</tr>
<tr>
<td>4</td>
<td>70% wheat straw/30% coconut fiber</td>
</tr>
<tr>
<td>5</td>
<td>100% coconut fiber</td>
</tr>
<tr>
<td>6</td>
<td>Nylon monofilament/two nets</td>
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<tr>
<td>7</td>
<td>Nylon monofilament/rigid/bonded</td>
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<tr>
<td>8</td>
<td>Vinyl monofilament/flexible/bonded</td>
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<td>9</td>
<td>Curled wood fibers/top net</td>
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</tr>
<tr>
<td>14</td>
<td>Uncrimped wheat straw – 4,484 kg/ha</td>
</tr>
</tbody>
</table>
Sodding permanently stabilizes an area. Sodding provides immediate stabilization of an area and should be used in critical areas or where establishment of permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is a high erosion potential during the period of vegetative establishment from seeding.

Use wildflower cover.

Because of the hardy drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. While not as dense as turfgrass, wildflower thatches and associated grasses are expected to be as effective in erosion control and contaminant absorption. Because thatches of wildflowers do not need fertilizers, pesticides, or herbicides, and watering is minimal, implementation of this practice may result in a cost savings (Brash et al., undated). In 1987, Howard County, Maryland, spent $690.00 per acre to maintain turfgrass areas, compared to only $31.00 per acre for wildflower meadows (Wilson, 1990).

A wildflower stand requires several years to become established; maintenance requirements are minimal once the area is established (Brash et al., undated).

5. Sediment Control Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

Sediment controls capture sediment that is transported in runoff. Filtration and detention (gravitational settling) are the main processes used to remove sediment from urban runoff.

a. Sediment Basins

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portion of the drainage area are fully stabilized. They are generally located at the low point of sites, away from construction traffic, where they will be able to trap sediment-laden runoff.

Sediment basins are typically used for drainage areas between 5 and 100 acres. They can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as “temporary”; otherwise, they are considered permanent structures. Temporary sediment basins can also be converted into permanent urban runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds.

b. Sediment Trap

Sediment traps are small impoundments that allow sediment to settle out of runoff water. Sediment traps are typically installed in a drainageway or other point of discharge from a disturbed area. Temporary diversions can be

*Adapted from Goldman (1986).
used to direct runoff to the sediment trap. Sediment traps should not be used for drainage areas greater than 5 acres and typically have a useful life of approximately 18 to 24 months.

c. Filter Fabric Fence

Filter fabric fence is available from many manufacturers and in several mesh sizes. Sediment is filtered out as urban runoff flows through the fabric. Such fences should be used only where there is sheet flow (i.e., no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. Filter fabric fences have a useful life of approximately 6 to 12 months.

d. Straw Bale Barrier

A straw bale barrier is a row of anchored straw bales that detain and filter urban runoff. Straw bales are less effective than filter fabric, which can usually be used in place of straw bales. However, straw bales have been effectively used as temporary check dams in channels. As with filter fabric fences, straw bale barriers should be used only where there is sheet flow. The maximum drainage area to the barrier should be 0.25 acre or less per 100 feet of barrier. The useful life of straw bales is approximately 3 months.

e. Inlet Protection

Inlet protection consists of a barrier placed around a storm drain drop inlet, which traps sediment before it enters the storm sewer system. Filter fabric, straw bales, gravel, or sand bags are often used for inlet protection.

f. Construction Entrance

A construction entrance is a pad of gravel over filter cloth located where traffic leaves a construction site. As vehicles drive over the gravel, mud, and sediment are collected from the vehicles' wheels and offsite transport of sediment is reduced.

g. Vegetated Filter Strips

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaha et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. Maintenance of these structures is discussed in Section II.A of this chapter.

6. Effectiveness and Cost Information

a. Erosion Control Practices

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than can a single system. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly
erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

Table 4-15 contains the available cost and effectiveness data for some of the erosion controls listed above. Information on the effectiveness of individual nonstructural controls was not available. All reported effectiveness data assume that controls are properly designed, constructed, and maintained. Costs have been broken down into annual capital costs, annual maintenance costs, and total annual costs (including annualization of the capital costs).

b. Sediment Control Practices

Regular inspection and maintenance are needed for most erosion control practices to remain effective. The effectiveness of sediment controls will depend on the size of the construction site and the nature of the runoff flows. Sediment basins are most appropriate for drainage areas of 5 acres or greater. In smaller areas with concentrated flows, silt traps may suffice. Where concentrated flow leaves the site and the drainage area is less than 0.5 ac/100 ft of flow, filter fabric fences may be effective. In areas where sheet flow leaves the site and the drainage area is greater than 0.5 acre/100 ft of flow, perimeter dikes may be used to divert the flow to a sediment trap or sediment basin. Urban runoff inlets may be protected using straw bales or diversions to filter or route runoff away from the inlets.

Table 4-16 describes the general cost and effectiveness of some common sediment control practices.

c. Comparisons

Figure 4-7 illustrates the estimated TSS loading reductions from Maryland construction sites possible using a combination of erosion and sediment controls in contrast to using only sediment controls. Figure 4-8 shows a comparison of the cost and effectiveness of various erosion control practices. As can be seen in Figure 4-8, seeding or mulching provide the highest levels of control at the lowest cost.
<table>
<thead>
<tr>
<th>Practice</th>
<th>Design Constraints or Purpose</th>
<th>Percent Removal of TSS</th>
<th>Useful Life (years$^{a}$)</th>
<th>Construction Cost</th>
<th>Annual Maintenance Cost (as % construction cost)</th>
<th>Total Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sod</td>
<td>Immediate erosion protection where there is high erosion potential during vegetative establishment.</td>
<td>Average: 99%&lt;br&gt;Observed range: 95% - 99%&lt;br&gt;References: Minnesota Pollution Control Agency, 1989; Pennsylvania, 1983 cited in USEPA, 1991</td>
<td>2</td>
<td>Average: $0.2 per ft$^{2}$&lt;br&gt;[$11,300 per acre]&lt;br&gt;Range: $0.1 - $1.1&lt;br&gt;References: SWRPC, 1991; Schueler, 1987; Virginia, 1980</td>
<td>Average: 5%&lt;br&gt;Range: 5%&lt;br&gt;Reference: SWRPC, 1991</td>
<td>$0.20 per ft$^{2}$&lt;br&gt;$7,500 per acre</td>
</tr>
<tr>
<td>Seed and Mulch</td>
<td>Establish vegetation on disturbed area.</td>
<td>After vegetation established:&lt;br&gt;Average: 90%&lt;br&gt;Observed range: 50% - 100%&lt;br&gt;References: SCS, 1985 cited in EPA, 1991; Minnesota Pollution Control Agency, 1989; Oberta, 1984 cited in City of Austin, 1988; Delaware Department of Natural Resources, 1989</td>
<td>2</td>
<td>Average: $1,500 per acre&lt;br&gt;Range: $500 - $3,500 per acre&lt;br&gt;References: Goldman, 1986; Washington DOT, 1980; NC State, 1980; Schueler, 1987; Virginia, 1980; SWRPC, 1991</td>
<td>Average: NA$^{b}$&lt;br&gt;Range: NA&lt;br&gt;References: None</td>
<td>$1,100 per acre</td>
</tr>
<tr>
<td>Practice</td>
<td>Design Constraints or Purpose</td>
<td>Percent Removal of TSS</td>
<td>Useful Life (years)</td>
<td>Annual Maintenance Cost (as % construction cost)</td>
<td>Total Annual Cost</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mulch</td>
<td>Temporary stabilization of disturbed area.</td>
<td>Observed range: sand:</td>
<td>Straw mulch: 20% slope 0.25</td>
<td>Average: $1,700 per acre</td>
<td>Straw mulch: $7,500 per acre</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>wood fiber @ 1500 lb/ac 50-60% 50-85%</td>
<td></td>
<td>Range: $500 - $5,000 per acre</td>
<td>References: Wisconsin DOT cited in SWRPC, 1991; Washington DOT, 1990; Virginia, 1980</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>wood fiber @ 3000 lb/ac 50-85%</td>
<td></td>
<td>Range: $100 - $2,000 per acre</td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>straw @ 3000 lb/ac 80-95%</td>
<td></td>
<td>References: None</td>
<td>References: None</td>
<td></td>
</tr>
<tr>
<td>Silt-loam</td>
<td></td>
<td>Wood fiber mulch: 20% slope 0.33</td>
<td></td>
<td>Average: $1,000 per acre</td>
<td>Wood fiber mulch: $3,500 per acre</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>wood fiber @ 1500 lb/ac 20-60% 50-60%</td>
<td></td>
<td>Range: $100 - $2,000 per acre</td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>wood fiber @ 3000 lb/ac 60-80% 70-90%</td>
<td></td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silt-clay-loam</td>
<td></td>
<td>Jute netting: 10-30% 10-50%</td>
<td></td>
<td>Average: $3,700 per acre</td>
<td>Jute netting: $12,500 per acre</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>wood fiber @ 1500 lb/ac 5%</td>
<td></td>
<td>Range: $3,600-$4,100 per acre</td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>wood fiber @ 3000 lb/ac 40%</td>
<td></td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>jute netting: 30-60%</td>
<td></td>
<td></td>
<td>Average: $3,700 per acre</td>
<td>Jute netting: $12,500 per acre</td>
<td></td>
</tr>
<tr>
<td></td>
<td>wood chips @ 1500 lb/ac 60-80% 50-60%</td>
<td></td>
<td></td>
<td>Range: $4,000-$6,000 per acre</td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mulch blanket @ 10,000 lb/ac 60-80% 50-60%</td>
<td>Straw</td>
<td></td>
<td>References: Washington DOT, 1990; Virginia, 1980</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>excelsior blanket @ 10,000 lb/ac 60-80% 50-80%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>multiple treatment (straw and jute)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: Minnesota Pollution Control Agency, 1989; Key, 1993 cited in Goldman, 1988
<table>
<thead>
<tr>
<th>Practice</th>
<th>Design Constraints or Purpose</th>
<th>Percent Removal of TSS</th>
<th>Useful Life (years)(^b)</th>
<th>Construction Cost</th>
<th>Annual Maintenance Cost (as % construction cost)</th>
<th>Total Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terraces</td>
<td>Break up long or steep slopes.</td>
<td>Observed range:</td>
<td>2</td>
<td>Average: $5 per lin ft</td>
<td>Average: 20%</td>
<td>$4 per lin ft</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Range: $1 - $12</td>
<td>Range: 20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Slope Reduction in Erosion</td>
<td></td>
<td></td>
<td>70%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-12%</td>
<td></td>
<td></td>
<td>60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12-18%</td>
<td></td>
<td></td>
<td>55%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Additionally, if the slope steepness is halved, while other factors are held constant, the soil loss potential decreases 2-1/2 times. If both the slope and length are halved, the soil loss potential is decreased 4 times. References: Goldman, 1986; Beasley, 1972.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All Erosion Controls</th>
<th>Reduce amount of sediment entering runoff.</th>
<th>Varies but typically low</th>
<th>Varies but typically low</th>
<th>Varies but typically low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed range: 85%</td>
<td></td>
<td>Reference: Schueler, 1990</td>
<td></td>
</tr>
</tbody>
</table>

NA - Not available.

\(^a\) Useful life estimated as length of construction project (assumed to be 2 years).

\(^b\) For Total Annual Cost, assume Annual Maintenance Cost = 2% of construction cost.
Table 4-16. ESC Quantitative Effectiveness and Cost Summary for Sediment Control Practices

<table>
<thead>
<tr>
<th>Practice</th>
<th>Design Constraints or Purpose</th>
<th>Percent Removal of TSS</th>
<th>Useful Life (years)*</th>
<th>Construction Cost</th>
<th>Annual Maintenance Cost (as % construction cost)</th>
<th>Total Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment Basin</td>
<td>Minimum drainage area = 5 acres, maximum drainage area = 100 acres</td>
<td>Average: 70% Observed range: 55% - 100% References: Schueler, 1990; Engle, BW and Jarrett, AR, 1990; Baumann, 1990</td>
<td>2</td>
<td>Less than 50,000 ft³ storage Average: $0.60 per ft³ storage ($1,100 per drainage acre) Range: $0.20 - $1.30 per ft³</td>
<td>Average: 25% Range: 25% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991</td>
<td>Less than 50,000 ft³ storage $0.40 per ft³ storage $700 per drainage acre</td>
</tr>
<tr>
<td>Sediment Trap</td>
<td>Maximum drainage area = 5 acres</td>
<td>Average: 60% Observed range: (7%) - 100% References: Schueler, et al., 1990; Tahoe Regional Planning Agency, 1989; Baumann, 1990</td>
<td>1.5</td>
<td>Less than 50,000 ft³ storage Average: $0.60 per ft³ storage ($1,100 per drainage acre) Range: $0.20 - $2.00 per ft³</td>
<td>Average: 20% Range: 20% References: Denver COG cited in SWRPC, 1991; SWRPC, 1991; Goldinan, 1990</td>
<td>$0.70 per ft³ storage $1,300 per drainage acre</td>
</tr>
<tr>
<td>Filter Fabric Fence</td>
<td>Maximum drainage area = 0.5 acre per 100 feet of fence. Not to be used in concentrated flow areas.</td>
<td>Average: 70% Observed range: 0% - 100% sand: 60% - 90% silt-loam: 50% - 80% silt-clay-loam: 0% - 20% References: Munson, 1991; Faher et al., 1994; Minnesota Pollution Control Agency, 1989</td>
<td>0.5</td>
<td>Less than 50,000 ft³ storage Average: $3 per lin ft ($700 per drainage acre) Range: $1 - $8 per lin ft</td>
<td>Average: 100% Range: 100% References: SWRPC, 1991</td>
<td>$7 per lin ft $850 per drainage acre</td>
</tr>
<tr>
<td>Practice</td>
<td>Design Constraints or Purpose</td>
<td>Percent Removal of TSS</td>
<td>Useful Life (years)*</td>
<td>Construction Cost</td>
<td>Annual Maintenance Cost (as % construction cost)</td>
<td>Total Annual Cost</td>
</tr>
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</tr>
<tr>
<td>Straw Bale Barrier</td>
<td>Maximum drainage area = 0.25 acre per 100 feet of barrier, Not to be used in concentrated flow areas.</td>
<td>Average: 70% Observed Range: 70% References: Virginia, 1980 cited in EPA, 1991</td>
<td>0.25</td>
<td>Average: $4 per lin ft ($1,500 per drainage acre) References: SWRPC, 1991</td>
<td>Average: 100% Range: 100% References: SWRPC, 1991</td>
<td>$17 per lin ft $6,800 per drainage acre</td>
</tr>
<tr>
<td>Construction Entrance</td>
<td>Removessediment from vehicles wheels.</td>
<td>Average: NA Observed Range: NA References: None</td>
<td>2</td>
<td>Average: $2,000 each Range: $1,000 - $4,000 References: Goldman, 1986; NC State, 1990</td>
<td>Average: NA Range: NA References: None</td>
<td>$1,500 each</td>
</tr>
</tbody>
</table>

*With washrack: Average: $3,000 each Range: $1,000 - $5,000 References: Virginia, 1991
<table>
<thead>
<tr>
<th>Practice</th>
<th>Design Constraints or Purpose</th>
<th>Percent Removal of TSS</th>
<th>Useful Life (years)*</th>
<th>Construction Cost</th>
<th>Annual Maintenance Cost (as % of construction cost)</th>
<th>Total Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative Filter Strip</td>
<td>Must have sheet flow.</td>
<td>Average: 70%</td>
<td>Observed Range: 20% - 80%</td>
<td>Established from existing vegetation</td>
<td>Average: NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

NA - Not available.

* Useful life estimated as length of construction project (assumed to be 2 years)

* For Total Annual Cost, assume Annual Maintenance Cost=20% of construction cost.

* Assumes trap volume = 1800 c/ft (0.5 inches runoff per acre).

* Assumes drainage area of 0.5 acre per 100 feet of fence (maximum allowed).

* Assumes drainage area of 0.25 acre per 100 feet of barrier (maximum allowed).
Figure 4-7. TSS concentrations from Maryland construction sites (Schueler, 1997).
Figure 4-8. Comparison of cost and effectiveness for erosion control practices (based on information in Tables 4-15 and 4-16).
B. Construction Site Chemical Control
Management Measure

1. Limit application, generation, and migration of toxic substances;
2. Ensure the proper storage and disposal of toxic materials; and
3. Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

1. Applicability

This management measure is intended to be applied by States to all construction sites less than 5 acres in area and to new, resurfaced, restored, and reconstructed road, highway, and bridge construction projects. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site. (NOTE: All construction activities, including clearing, grading, and excavation, that result in the disturbance of areas greater than or equal to 5 acres or are a part of a larger development plan are covered by the NPDES regulations and are thus excluded from these requirements.) Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformance with this management measure and will have flexibility in doing so. The application of management measures by States is described more fully in Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, published jointly by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.

2. Description

The purpose of this management measure is to prevent the generation of nonpoint source pollution from construction sites due to improper handling and usage of nutrients and toxic substances, and to prevent the movement of toxic substances from the construction site.

Many potential pollutants other than sediment are associated with construction activities. These pollutants include pesticides (insecticides, fungicides, herbicides, and rodenticides); fertilizers used for vegetative stabilization; petrochemicals (oils, gasoline, and asphalt degreasers); construction chemicals such as concrete products, sealers, and paints; wash water associated with these products; paper; wood; garbage; and sanitary wastes (Washington State Department of Ecology, 1991).

The variety of pollutants present and the severity of their effects are dependent on a number of factors:

1. The nature of the construction activity. For example, potential pollution associated with fertilizer usage may be greater along a highway or at a housing development than it would be at a shopping center development because highways and housing developments usually have greater landscaping requirements.

2. The physical characteristics of the construction site. The majority of all pollutants generated at construction sites are carried to surface waters via runoff. Therefore, the factors affecting runoff volume,
III. Construction Activities

such as the amount, intensity, and frequency of rainfall; soil infiltration rates; surface roughness; slope length and steepness; and area denuded, all contribute to pollutant loadings.

(3) The proximity of surface waters to the nonpoint pollutant source. As the distance separating pollutant-generating activities from surface waters decreases, the likelihood of water quality impacts increases.

a. Pesticides

Insecticides, rodenticides, and herbicides are used on construction sites to provide safe and healthy conditions, reduce maintenance and fire hazards, and curb weeds and woody plants. Rodenticides are also used to control rodents attracted to construction sites. Common insecticides employed include synthetic, relatively water-insoluble chlorinated hydrocarbons, organophosphates, carbamates, and pyrethriats.

b. Petroleum Products

Petroleum products used during construction include fuels and lubricants for vehicles, for power tools, and for general equipment maintenance. Specific petroleum pollutants include gasoline, diesel oil, kerosene, lubricating oils, and grease. Asphalt paving also can be particularly harmful since it releases various oils for a considerable time period after application. Asphalt overloads might be dumped and covered without inspection. However, many of these pollutants adhere to soil particles and other surfaces and can therefore be more easily controlled.

c. Nutrients

Fertilizers are used on construction sites when revegetating graded or disturbed areas. Fertilizers contain nitrogen and phosphorus, which in large doses can adversely affect surface waters, causing eutrophication.

d. Solid Wastes

Solid wastes on construction sites are generated from trees and shrubs removed during land clearing and structure installation. Other wastes include wood and paper from packaging and building materials, scrap metals, sanitary wastes, rubber, plastic and glass, and masonry and asphalt products. Food containers, cigarette packages, leftover food, and aluminum foil also contribute solid wastes to the construction site.

e. Construction Chemicals

Chemical pollutants, such as paints, acids for cleaning masonry surfaces, cleaning solvents, asphalt products, soil additives used for stabilization, and concrete-curing compounds, may also be used on construction sites and carried in runoff.

f. Other Pollutants

Other pollutants, such as wash water from concrete mixers, acid and alkaline solutions from exposed soil or rock, and alkaline-forming natural elements, may also be present and contribute to nonpoint source pollution.

Revegetation of disturbed areas may require the use of fertilizers and pesticides, which, if not applied properly, may become nonpoint source pollutants. Many pesticides are restricted by Federal and/or State regulations.

Hydrosedding operations, in which seed, fertilizers, and lime are applied to the ground surface in a one-step operation, are more conducive to nutrient pollution than are the conventional seedbed-preparation operations, in which fertilizers and lime are tilled into the soil. Use of fertilizers containing little or no phosphorus may be required by
local authorities if the development is near sensitive waterbodies. The addition of lime can also affect the pH of sensitive waters, making them more alkaline.

Improper fueling and servicing of vehicles can lead to significant quantities of petroleum products being dumped onto the ground. These pollutants can then be washed off site in urban runoff, even when proper erosion and sediment controls are in place. Pollutants carried in solution in runoff water, or fixed with sediment crystalline structures, may not be adequately controlled by erosion and sediment control practices (Washington Department of Ecology, 1991). Oils, waxes, and water-insoluble pesticides can form surface films on water and solid particles. Oil films can also concentrate water-soluble pesticides. These pollutants can be nearly impossible to control once present in runoff other than by the use of very costly water-treatment facilities (Washington Department of Ecology, 1991).

After spill prevention, one of the best methods to control petroleum pollutants is to retain sediments containing oil on the construction site through use of erosion and sediment control practices. Improved maintenance and safe storage facilities will reduce the chance of contaminating a construction site. One of the greatest costs related to use of petroleum products is the method for waste disposal. The dumping of petroleum product wastes into sewers and other drainage channels is illegal and could result in fines or job shutdown.

The primary control method for solid wastes is to provide adequate disposal facilities. Erosion and sediment control structures usually capture much of the solid waste from construction sites. Periodic removal of litter from these structures will reduce solid waste accumulations. Collected solid waste should be removed and disposed of at authorized disposal areas.

Improperly stored construction materials, such as pressure-treated lumber or solvents, may lead to leaching of toxics to surface water and ground water. Disposal of construction chemicals should follow all applicable State and local laws that may require disposal by a licensed waste management firm.

3. Management Measure Selection

This management measure was selected based on the potential for many construction activities to contribute to nutrient and toxic NPS pollution.

This management measure was selected because (1) construction activities have the potential to contribute to increased loadings of toxic substances and nutrients to waterbodies; (2) various States and local governments regulate the control of chemicals on construction sites through spill prevention plans, erosion and sediment control plans, or other administrative devices; (3) the practices described are commonly used and presented in a number of best management practice handbooks and guidance manuals for construction sites; and (4) the practices selected are the most economical and effective.

4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

a. Properly store, handle, apply, and dispose of pesticides.

Pesticide storage areas on construction sites should be protected from the elements. Warning signs should be placed in areas recently sprayed or treated. Persons mixing and applying these chemicals should wear suitable protective clothing, in accordance with the law.
local authorities if the development is near sensitive waterbodies. The addition of lime can also affect the pH of sensitive waters, making them more alkaline.

Improper fueling and servicing of vehicles can lead to significant quantities of petroleum products being dumped onto the ground. These pollutants can then be washed off site in urban runoff, even when proper erosion and sediment controls are in place. Pollutants carried in solution in runoff water, or fixed with sediment crystalline structures, may not be adequately controlled by erosion and sediment control practices (Washington Department of Ecology, 1991). Oils, waxes, and water-insoluble pesticides can form surface films on water and solid particles. Oil films can also concentrate water-soluble insecticides. These pollutants can be nearly impossible to control once present in runoff other than by the use of very costly water-treatment facilities (Washington Department of Ecology, 1991).

After spill prevention, one of the best methods to control petroleum pollutants is to retain sediments containing oil on the construction site through use of erosion and sediment control practices. Improved maintenance and safe storage facilities will reduce the chance of contaminating a construction site. One of the greatest concerns related to use of petroleum products is the method for waste disposal. The dumping of petroleum product wastes into sewers and other drainage channels is illegal and could result in fines or job shutdown.

The primary control method for solid wastes is to provide adequate disposal facilities. Erosion and sediment control structures usually capture much of the solid waste from construction sites. Periodic removal of litter from these structures will reduce solid waste accumulations. Collected solid waste should be removed and disposed of at authorized disposal areas.

Improperly stored construction materials, such as pressure-treated lumber or solvents, may lead to leaching of toxics to surface water and ground water. Disposal of construction chemicals should follow all applicable State and local laws that may require disposal by a licensed waste management firm.

3. Management Measure Selection

This management measure was selected based on the potential for many construction activities to contribute to nutrient and toxic NPS pollution.

This management measure was selected because (1) construction activities have the potential to contribute to increased loadings of toxic substances and nutrients to waterbodies; (2) various States and local governments regulate the control of chemicals on construction sites through spill prevention plans, erosion and sediment control plans, or other administrative devices; (3) the practices described are commonly used and presented in a number of best management practice handbooks and guidance manuals for construction sites; and (4) the practices selected are the most economical and effective.

4. Practices

As discussed more fully at the beginning of this chapter and in Chapter 1, the following practices are described for illustrative purposes only. State programs need not require implementation of these practices. However, as a practical matter, EPA anticipates that the management measure set forth above generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices set forth below have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measure described above.

- a. Property store, handle, apply, and dispose of pesticides.

Pesticide storage areas on construction sites should be protected from the elements. Warning signs should be placed in areas recently sprayed or treated. Persons mixing and applying these chemicals should wear suitable protective clothing, in accordance with the law.
III. Construction Activities

Application rates should conform to registered label directions. Disposal of excess pesticides and pesticide-related wastes should conform to registered label directions for the disposal and storage of pesticides and pesticide containers set forth in applicable Federal, State, and local regulations that govern their usage, handling, storage, and disposal. Pesticides and herbicides should be used only in conjunction with Integrated Pest Management (IPM) (see Chapter 2). Pesticides should be the tool of last resort; methods that are the least disruptive to the environment and human health should be used first.

Pesticides should be disposed of through either a licensed waste management firm or a treatment, storage, and disposal (TSD) facility. Containers should be triple-rinsed before disposal, and rinse waters should be reused as product.

Other practices include setting aside a locked storage area, tightly closing lids, storing in a cool, dry place, checking containers periodically for leaks or deterioration, maintaining a list of products in storage, using plastic sheeting to line the storage area, and notifying neighboring property owners prior to spraying.

b. Property store, handle, use, and dispose of petroleum products.

When storing petroleum products, follow these guidelines:

+ Create a shelter around the area with cover and wind protection;
+ Line the storage area with a double layer of plastic sheeting or similar material;
+ Create an impervious berm around the perimeter with a capacity 110 percent greater than that of the largest container;
+ Clearly label all products;
+ Keep tanks off the ground; and
+ Keep lids securely fastened.

Oil and oily wastes such as crankcase oil, cans, rags, and paper dropped into oils and lubricants should be disposed of in proper receptacles or recycled. Waste oil for recycling should not be mixed with degreasers, solvents, antifreeze, or brake fluid.

c. Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff.

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Stream crossings should be minimized through proper planning of access roads. Refer to Chapter 3 for additional information on stream crossings.

d. Provide sanitary facilities for construction workers.

e. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water.

f. Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan.
Chapter 4

III. Construction Activities

Post spill procedure information and have persons trained in spill handling on site or on call at all times. Materials for cleaning up spills should be kept on site and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed of. Spill control plan components should include:

- Stop the source of the spill.
- Contain any liquid.
- Cover the spill with absorbent material such as kitty litter or sawdust, but do not use straw. Dispose of the used absorbent properly.

- Maintain and wash equipment and machinery in confined areas specifically designed to control runoff.

Thinners or solvents should not be discharged into sanitary or storm sewer systems when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes, or steam cleaning. Equipment-washing detergents can be used, and wash water may be discharged into sanitary sewers if solids are removed from the solution first. (This practice should be verified with the local sewer authority.) Small parts can be cleaned with degreasing solvents, which can then be reused or recycled. Do not discharge any solvents into sewers.

Washout from concrete trucks should be disposed of into:

- A designated area that will later be backfilled;
- An area where the concrete wash can harden, can be broken up, and then can be placed in a dumpster; or
- A location not subject to urban runoff and more than 50 feet away from a storm drain, open ditch, or surface water.

Never dump washout into a sanitary sewer or storm drain, or onto soil or pavement that carries urban runoff.

- Develop and implement nutrient management plans.

Properly time applications, and work fertilizers and liming materials into the soil to depths of 4 to 6 inches. Using soil tests to determine specific nutrient needs at the site can greatly decrease the amount of nutrients applied.

- Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction.

- Educate construction workers about proper materials handling and spill response procedures. Distribute or post informational material regarding chemical control.
June 10, 2004

George Tengan, Director  
Department of Water  
200 South High Street  
Wailuku, Hawaii 96793

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for a 16-Lot Subdivision and Related Improvements, TMK 3-8-001:003, 3-8-002:009 and 3-8-002:010, Sprackelsville, Maui

Dear Mr. Tengan:

This letter responds to your letter dated February 23, 2004.

The applicant acknowledges that water for the project may not be available until new water sources are online. Best management practices and water conservation measures will be incorporated in the project design and construction plans.

The applicant further acknowledges the existing easements for the 8-inch line west of Laulea Place will be maintained. An easement for the portion of the 12-inch line that is located within Parcel 3-8-01:003 will be provided. Fire flow requirements and provision of fire hydrants will be submitted for review during the building permit application process.

A copy of the Draft Environmental Assessment will be circulated to your office for further review and comment.

Very truly yours,

[Signature]

Daren Suzuki, Staff Planner

c: Henry Spencer

305 High Street, Suite 104 • Wailuku, Hawaii 96793 • ph: (808) 244-2015 • fax: (808) 244-8729 • planning@kooconf.com
April 14, 2004

TO: Mr. Henry Spencer

Daren Suzuki, Planner
Munekiyo & Hiraga, Inc.
305 High St. Suite 104
Wailuku, HI 96793
244-2015
fax: 244-8729

RE: Early consultation request for the preparation of an Environmental Assessment for a 16 lot Subdivision and related improvements. TMK 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

The Paia Main Street Board of Directors and Officers thank you for your informative presentation on April 14 at our board meeting. We also appreciate the deadline extension for comment from March 1st to April 16, 2004. We reviewed the documents dated February 9, 2004 at the conclusion of our April Board Meeting.

The sensitive issues are Sprecklesville Beach, the access to the beach and the land surrounding it, the beautiful monkeypods along the Hana Hwy, the bike path right of way, Kaunoa senior center expansions, and a left hand turn lane on Hana Highway.

Sprecklesville Beach and surrounding land.
We are very grateful Mr. Spencer has respected the land and generously is proposing to protect the beach front and the land just mauka forever. The dirt beach access road will also continue to be accessible to the public.

Monkeys.
The monkeypods will not be displaced and will be protected for their lifetime.

Bike Path.
Mr. Spencer is donating the existing bike path land to the proper authority.

Kaunoa Senior Center
Mr. Spencer is donating 1 acre of land for future expansion for the Senior Center.

Left turn Hana Highway
Mr. Spencer is working with the state to provide a left turn lane for Stable road access.
In addition, 27 other acres will remain Agriculture/Sugar cane.

The 16 .5 acre lots to be sold will have deed restrictions which will allow one structure with no Ohana and will also restrict future sub division of the individual .5 acres. Low density helps the impact on all resources.

Drainage of the sub division will need further review but seems to have been resolved with the natural setting of the open space area designated in green.

Water is easily accessible for the properties.

Mr. Henry Spencer and his planner Daren Suzuki have addressed all of the Boards concerns and then some.

We unanimously support this project and hope it to be a model for future developers to help protect the natural assets of the North Shore of Maui.

We appreciate the opportunity to review the project.

Sincerely,
Paia Main Street Association

Debra Schonewill
Chairperson, Paia Main Street

Jocelyn Perreira, Executive Director
Tri-Isle Main Street Program Coordinator

P.O. BOX 995, PAIA, MAUI, HI 96779-0995
Chapter X
Letters Received During the Draft Environmental Assessment Public Comment Period and Responses to Substantive Comments
A Draft Environmental Assessment for the subject project was filed and published in the Office of Environmental Quality Control's The Environmental Notice on September 8, 2004. During the 30-day public comment period, agencies were provided the opportunity to comment on the proposed action. This section incorporates the comments received during the 30-day comment period between September 8, 2004 and October 8, 2004. Responses to the substantive comments are also incorporated herein.
Mr. Michael W. Foley  
Director  
Department of Planning  
County of Maui  
250 South High Street  
Wailuku, Hawai‘i 96793  

Attention: Kvette A. Calgoj  

Dear Mr. Foley:  

Subject: E Paepae Ka Puko‘a 16 Lot Rural Subdivision  
TMK: (2) 3-8-001: 003 por., 3-8-002: 009 & 010  

Thank you for the opportunity to comment on the proposed E Paepae Ka Puko‘a project. The following comments are offered:  

1. National Pollutant Discharge Elimination System (NPDES) permit coverage is required for this project. The Clean Water Branch should be contacted at 808 586-4309.  

2. The property may be harboring rodents that will be dispersed to the surrounding areas when any buildings are demolished or the site is cleared. The applicant is required by Hawaii Administrative Rules (HAR), Chapter 11-28, “Vector Control” to eradicate any rodents prior to demolition or site clearing activities and to notify the Department of Health by submitting Form VC-12 to the Maui Vector Control program when such action is taken. Rodent traps and/or rodenticides should be set out on the project site for at least a week or until the rodent activity ceases. The Maui Vector Control program phone number is 873-9560.  

3. The retention basin shall be designed, built, and maintained in such a way as to prevent and/or facilitate the control of mosquito breeding.  

4. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in HAR, Chapter 11-48 “Community Noise Control”. A noise permit may be required and should be obtained before the commencement of work.
Should you have any questions, please call me at 984-8230.

Sincerely,

Herbert S. Matubayashi
District Environmental Health Program Chief
October 26, 2004

Mr. Herbert Matsubayashi, Chief
District Environmental Health Program
Department of Health
54 High Street
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-6-001:003, 3-6-002:009 and 3-6-002:010, Spreckelsville, Maui

Dear Mr. Matsubayashi:

Thank you for your letter to Mr. Michael Foley dated October 11, 2004, providing comments on the subject Draft Environmental Assessment (EA). On behalf of Old Stable LLC, we offer the following responses:

1. It is acknowledged that a National Pollutant Discharge Elimination System (NPDES) permit coverage is required for the project. Compliance with applicable permit requirements will be done prior to initiation of construction.

2. The applicant will comply with the Hawaii Administrative Rules (HAR), Chapter 11-26, pertaining to Vector Control.

3. The soils within the project site are classified as having different types sands. According to the soil classification index, these sands are classified as having rapid permeability. The bottom of the retention basin is at elevation 4.0 feet above mean sea level. At high tide, the bottom of the retention basin will be designed to be approximately 18" higher than the water table and at low tide, the bottom of the basin will be approximately 4' lower than the water table. Because of the close proximity of the ground water and the permeability of the soil, it is anticipated that any retained water after a storm will not stand in the basin for a long period of time. In addition, due to the surface area of the basin, some of the retained water will be subject to evaporation. The basin will be also be regularly maintained to prevent mosquito breeding.
4. It is acknowledged that noise created during construction may exceed the maximum allowable levels as set forth in HAR, Chapter 11-46, pertaining to Community Noise Control. As such a noise permit will be obtained prior to commencement of work, as applicable.

Thank you for your comments. Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Kivette Caigoy, Department of Planning
    Henry Spencer
    spencer@spencer hecticmail.com
August 30, 2004

Mr. Daren Suzuki  
Planner  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Mr. Suzuki:

Subject: 16-lot Subdivision and Related Improvements  
Environmental Pre-Assessment Consultation  
TMK: 3-8-001: 003, 3-8-002: 009 and 3-8-002: 0010, Spreckelsville, Maui

Thank you for your transmittal requesting our comments on the subject project.

The following are our comments:

1. A traffic assessment should be submitted, addressing the impact to the intersection of Stable Road and Hana Highway. The applicant should meet with our Highways Division, Maui District Office to discuss any operational and safety concerns.

2. No driveways will be allowed direct access on to Hana Highway.

3. The applicant must prepare a drainage report for our review and approval.

4. Plans for construction work within/or adjoining the highway right-of-way must be submitted for review and approval to our Highways Division, Maui District Office. This shall also include obtaining required permits from our Highways Division and other appropriate government agencies.

5. The proposed development is within the Kahului Airport’s 65-70 DNL noise contour, making it incompatible for residential use. We recommend that the single-family residences be constructed for sound attenuation to provide interior noise levels of 45 DNL or less.

6. The applicant should disclose to the potential homeowners the potential noise, fumes, smoke, vibrations and overflights from aircraft flying into and out of the Kahului Airport.
7. We request that an avigation and noise easement be granted to the Department of Transportation, Airports Division.

8. We request that the applicant file Form 7460-1 (Notice of Proposed Construction or Alteration) with the FAA District Office if it has not been already completed.

9. The applicant should disclose to the potential homeowners that the Airports Division has a future project for a parallel runway in its twenty (20) year Master Plan, which would be south of runway 2-23. Although this would not occur for some time, if in the future it is built, it may impact the development further, as the runway will be significantly closer to the development.

We appreciate the opportunity to provide our initial comments to you and look forward to more definitive plans in the DEIS.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation
October 26, 2004

Mr. Rodney Haraga, Director  
Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

SUBJECT: Pre-Consultation for the Preparation of a Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Haraga:

Thank you for your letter dated August 30, 2004, providing comments on the subject pre-assessment consultation for a Draft EA. Please be advised that your comments were received after the Draft EA was initially filed with the Planning Department on August 2, 2004. As such, your comments were not incorporated into this document, but will be incorporated into the Final EA document.

On behalf of Old Stable LLC, we offer the following responses:

1. The Draft EA and Applications for a Community Plan Amendment, Change in Zoning, and Special Management Area Use Permit was submitted to your office for review and comment via transmittal from the Planning Department on September 9, 2004. This document appended a traffic assessment report for your review and comment. It is noted that the applicant, Mr. Henry Spencer has been in contact with Mr. Fred Cajigal of the Maui District Office to discuss operational and safety concerns. As represented in the Draft EA, discussions included provisions of a separate left-turn lane along Hana Highway for eastbound to northbound left turns, refuge and acceleration lanes for left-turns onto Hana Highway, acceleration lanes for right-turns onto Hana Highway, and separate left- and right-turn lanes from Old Stable Road at Hana Highway.

Although, not recommended by the traffic report based on negligible trips generated during peak hour traffic, the applicant acknowledges that these roadway improvements will provide safer road conditions. Therefore, the applicant has agreed to participate
with the State Department of Transportation in the intersection improvements on Hana Highway and Old Stable Road.

2. It is confirmed that no driveways are proposed or will be allowed to have direct access onto Hana Highway.

3. A drainage report was appended to the Draft EA. It is noted that existing and proposed drainage conditions directs post-development runoff towards an onsite retention basin, and not onto State highway facilities.

4. It is acknowledged that plans for construction work within or adjoining the highway right-of-way will be submitted to the Maui District Office for review and approval, as applicable.

5. Your recommendation on incorporating sound attenuation measures in the construction of the single-family residences are noted. This recommendation will be passed on the individual lot owners who will be constructing these homes.

6. A disclosure statement to all homeowners on potential noise, fumes, smoke, vibrations and overflights from aircraft operations will be provided in all ownership deeds.

7. An avigation and noise easement agreement will be granted to the Department of Transportation, Airports Division for every homeowner.

8. We acknowledge filing a Notice of Proposed Construction or Alteration with the FAA District Office.

9. Similar to Item No. 6, a disclosure statement to all homeowners on the future plans of a parallel runway will be provided in all ownership deeds.
Mr. Rodney Haraga, Director
October 26, 2004
Page 3

Thank you for the opportunity to comment. Should you have any questions, please contact me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Philip Rowell, Phillip Rowell & Associates
    Ferdinand Cajigal, Department of Transportation, Maui District
    Henry Spencer

"signature"
September 24, 2004
CIZ 2004-0015.RCMZ

Honorable Michael W. Foley
Planning Director
County of Maui, Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Foley:

Subject: I.D. No.: CIZ 2004-0015/CIZ
Applicant: Old State Road, LLC/16-lot subdivision
Authority: County of Maui Department of Planning
TMK: (2) 3-8-001: 003 (portion) — 3-8-2: 009 & 010

Thank you for the opportunity to review and comment on the subject matter.

The Department of Land and Natural Resources' (DLNR) Land Division made available or distributed a copy of the document pertaining to the subject matter to the following DLNR Divisions for their review and comment:

- Division of Forestry and Wildlife
- Engineering Division
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land-Maui District Land Office

Enclosed please find a copy of the Engineering Division comment and Division of Forestry and Wildlife response. The Department of Land and Natural Resources has no other comment to offer on the subject matter. If you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: MDLO
MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
    XXX Engineering Division
    XXX Commission on Water Resource Management
    XXX Office of Conservation and Coastal Lands
    XXX Land-Maui District Land Office

FROM: Dierdre S. Mamiya, Administrator
      Land Division

SUBJECT: Change In Zoning

I. D. No.: CIZ 2004-0015
Applicant: Old Stable Road LLC
Project: 16 Lot Rural Subdivision
TMK: 2nd/3-8-1: 003 (portion), 3-8-2: 009 & 010
Authority: County of Maui Department of Planning

Please review the attached document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext. 7-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments. 

Comments attached.

Division: Engineering

Date: 9/18/04

Signed: [Signature]

Print Name: ERICT. HIRANO, CHIEF ENGINEER
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LAN/NAV

Ref.: SM1 CIZ 2004-0015.CMT2

COMMENTS

(X) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zones C, A4 and V23. National Flood Insurance Program (NFIP) does not regulate development within Zone C, however, it does regulate development within Zones A4 and V23 as indicated in bold letters below.

($) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in ______.

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

(X) 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 Tsau-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. Robert Sumimoto at (808) 523-4254 or Mr. Mario Shi Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.

($) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kien Emler at (808) 327-3530 (Kona) 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. Mario Antonio at (808) 241-6620 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. Andrew Monden of the Planning Branch at 587-0229.

Signed: [Signature]

ERIC T. HIRANO, CHIEF ENGINEER

Date: 9/18/04
September 15, 2004
LD/NAV
SM1 CIZ 2004-0015.CMT2
SPENCER16LOTSUB
Suspense Date: 9/25/04

MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
    XXX Engineering Division
    XXX Commission on Water Resource Management
    XXX Office of Conservation and Coastal Lands
    XXX Land Maui District Land Office

FROM: Dieirdre S. Mamiya, Administrator
      Land Division

SUBJECT: Change In Zoning

I. D. No.: CIZ 2004-0015
Applicant: Old Stable Road LLC
Project: 16 Lot Rural Subdivision
TMK: 3-8/3-8-1: 003 (portion). 3-8-2: 009 & 010
Authority: County of Maui Department of Planning

Please review the attached document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

[ ] We have no comments.   ( ) Comments attached.

Division: _____________________________ Signed: _____________________________
Date: SEP 20 2004
Print Name: PAUL J. CONRY, ADMINISTRATOR
            DIVISION OF FORESTRY AND WILDLIFE
Ms. Dierdre Mamiya, Administrator
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Ms Mamiya:

Thank you for your letter to Mr. Michael Foley dated September 24, 2004, providing comments on the subject Draft EA. On behalf of Old Stable LLC, we offer the following response to your comments.

Engineering Division

We acknowledge and concur that the project site is located in Flood Zones C, A4, and V23. It is noted that the subdivision development site is located outside the V23 zone. All development within the A4 zone will comply with the rules and regulations of the National Flood Insurance Program, as set forth in Section 19.82, Flood Hazard Areas, Maui County Code, as amended.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Kivette Cagoy Department of Planning
Henry Spencer

J05 High Street, Suite 104 Wailuku, Hawaii 96791 ph (808)244-3015 fax (808)244-8729 planning@mkinconline.com
May 17, 2004

Jeffrey Pantaleo
Archaeological Services Hawaii, LLC
18 South Market Street, Suite G
Wailuku, Hawaii 96793

Dear Mr. Pantaleo,

SUBJECT: Chapter 6E-42 Historic Preservation Review - Archaeological Inventory Survey of a 30-Acre Parcel of Land in Sprecksville, prepared for Mr. Henry Spencer

Wailuku Ahuapua'a, Wailuku District, Maui
TMK 01-3-8-001: por. of 003

Thank you for the opportunity to review this report which our staff received on March 20, 2004 (Pantaleo 2004, Archaeological Inventory Survey of a 30-Acre Parcel of Land, Sprecksville, Wailuku District, Maui Island, TMK 3-8-001: por. 003. Archaeological Services Hawaii, LLC, ms). Our review is late, and we apologize for any inconvenience this may have caused you or your client.

We would like to request some clarification on what property or properties were actually surveyed. According to the title of the report, the survey area was 30.0 acres, but it appears that the proposed residential development constitutes only 21.0 acres. We understand from the discussion under Project Area on page 1 that 23 acres (TMKs 3-8-001: por. 003 and 3-8-002:009 & 010) are to remain in conservation or as open space, and that another 27 acres (TMK 3-8-001: por. 003) are to remain in its existing agricultural use. Although our review is overdue, we would appreciate it if you could clarify these matters for the record and for future reference by submitting revised descriptions of the project area. We note that any lands that did not undergo survey during this study — such as the 23 acres said to be proposed for conservation or the 27 acres of agricultural land — may need to have an inventory survey with subsurface testing, should there be any plans for future development. By copy of this letter, we request the opportunity to review all future applications and proposals for these properties.

The background section acceptably establishes the ahupua'a settlement pattern and predicts the likely site pattern in the project area. The historical information provided summarizes the history of the post-contact period land uses. The summary of previous archaeological work in the area provides a baseline for the current work.
The survey appears to have adequately covered the project area, documenting no historic properties in the project area. Subsurface testing (eighteen backhoe trenches) were also negative for evidence of cultural deposits. The trenches were placed fairly systematically across the parcel in an effort to document the nature and distribution of subsurface deposits, especially any remnant of Site 50-50-05-1777, previously documented during archaeological monitoring. No cultural properties were identified during the current study. Water was encountered in the trenches at depths between one and two meters below surface.

Although no finds were made during the survey, you have recommended that archaeological monitoring be conducted during any ground disturbance associated with future development on the subject property. We concur that archaeological monitoring is warranted during all phases of the proposed development and ground disturbing activities. The backhoe trenches, while sterile, exhibited a sandy and silty clay deposit, and cultural materials, including subsurface cultural layers and human burials, may be encountered in future work.

We find this report to be adequate, and can accept it as final. We will await a monitoring plan, submitted in response to permit applications for the development. As always, if you disagree with our comments or have questions, please contact Dr. Melissa Kirkendall (Maui/Lana'i SHPO 243-5168) as soon as possible to resolve these concerns.

Aloha,

P. Holly McEl Downey, Administrator
State Historic Preservation Division

MK

Michael Foley, Director, Department of Planning, County of Maui, FAX 270-7834
Bert Reda, County of Maui, Land Use and Codes, FAX 270-7972
Glen Ueno, County of Maui, Land Use and Codes, FAX 270-7972
Lance Nakamura, County of Maui, Land Use and Codes, FAX 270-7972
Maui Cultural Resources Commission, Dept of Pint, 250 S. High St, Wailuku, HI 96793
Chair, Maui/Lana'i Islands Burial Council
Kumu Kapilahi, Burial Sites Program

MAY 19 2004
Ms. Melanie Chinen, Administrator  
Department of Land and Natural Resources  
Historic Preservation Division  
Kakuhiheawa Building, Room 555  
601 Kamokila Boulevard  
Kapolei, Hawaii 96707

SUBJECT: Historic Preservation Review - Archaeological Inventory Survey  
prepared for Mr. Henry Spencer at TMK 3-8-001:por. 003,  
Spreckelsville, Maui

Dear Ms. Chinen:

Thank you for your letter to Mr. Jeffrey Pantaleo dated May 17, 2004, providing comments on  
the subject Archaeological Inventory Survey. On behalf of Old Stable LLC, we offer the  
following response.

Based on conversation with Jeffrey Pantaleo, Archaeological Services Hawaii, LLC,  
clarification on what property was actually surveyed was provided to your office. We  
acknowledge that you find this report adequate for final acceptance. An archaeological  
monitoring plan will be prepared for review and approval prior to any ground altering activities.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp

cc: Jeffrey Pantaleo, Archaeological Services Hawaii, LLC  
Melissa Kirkendall, State Historic Preservation Division, Maui  
Kivette Caigoy, Department of Planning  
Henry Spencer

305 High Street, Suite 104  
Waikoloa, Hawaii 96793  
ph: (808)244-2015  
fax: (808)244-8729  
planning@mhno.org
MEMORANDUM

TO: Michael W. Foley, Planning Director
    Maui County Planning Department

ATTN: Kivette A. Caigoy, Environmental Planner

FROM: Melvin M. Masuda, Acting State Land Surveyor
       DAGS, Survey Division

          TMK: (2) 3-8-001:003 (portion), 3-8-002:009 & 010
          Project Name: E Peepae Ka Puko’a 16 Lot Rural Subdivision,
                         Open Space Conservation Easement and County/State
                         Donation Project
          Applicant: Old Stable Road, LLC, c/o Munekiyo & Hiraga, Inc.

The subject proposal has been reviewed and confirmed that no
Government Survey Triangulation Stations or Benchmarks are affected. Survey has no
objections to the proposed project.
Mr. Michael W. Foley, Director  
County of Maui  
Department of Planning  
250 South High Street  
Wailuku, Hawaii 96793

Attention:  Kivette A. Caigoy, Environmental Planner

Dear Mr. Foley:

Subject: Draft Environmental Assessment and Applications for a Community Plan Amendment  
Change in Zoning and Special Management Area Use Permit for E Paepae Ka Poko'a, Speeckesville, Paia, TMK: 3-8-1; por 3; 3-8-2; 9 & 10

Old Stable LLC is proposing a 16-lot rural subdivision. The Department of Education (DOE) notes that the proposed project is less than the 50-unit minimum trigger for a request for a school fair-share contribution.

The DOE has no further comment on the resolution but appreciates the opportunity to review the plans. If you have any questions, please call me at 586-3444 or Heidi Meeker of the Facilities and Support Services Branch at 733-4862.

Sincerely,

[Signature]

Rae M. Loui  
Assistant Superintendent

RML:mp

c: Ken Nomura, CAS, Baldwin/Kekaulike/Maui Complex Area

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER
Ref. No. P-10657

October 20, 2004

Mr. Michael W. Foley
Planning Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Attention: Ms. Kivette Caigoy
Environmental Planner

Dear Mr. Foley:

Subject: ID: EA 2004/0013, CPA 2004/0007, CIZ 2004/0015,
SM1 2004/0021
TMK: (2) 3-8-001: 003 (por.), 3-8-002: 009 & 010
Project Name: E Paepae Ka Puko’a
Applicant: Old Stable Road LLC

We have reviewed the above referenced draft environmental assessment and concurrent applications and offer the following comments.

The proposed 16-lot subdivision on a 14.80-acre portion of TMK: 3-8-001: 003 will not be in the tsunami inundation zone and will be situated 500 feet mauka of the shoreline.

The State Department of Transportation (DOT) is promoting the transportation planning principle of "Connectivity." We ask that you discuss your roadway design with DOT. The proposed cul-de-sac design with a single entry/exit onto Old Stable Road does not distribute traffic as well as an additional through connection to Alakapa Place.

The proposed project’s existing Urban District designation and County R-3 zoning require a minimum lot size of 10,000 square feet with curbs, gutters and sidewalks as well as drainage, water, sewer, electrical distribution systems and landscaping. The proposed RU-0.5 County zoning district will allow the applicant to subdivide the
property into house lots ranging in size from .5 acres to greater than 1 acre with applicant-proposed curbs, gutters and sidewalks.

Rural lot developers should consider use of the State Rural District and the County RU-0.5 zoning district for low-density, reasonably-priced residential communities without streets that are built to urban standards.

Due to the project’s close proximity to Kahului Airport, and the potential for lawsuits due to noise and other airport-related hazards, we recommend that you work with DOT on airport issues.

Thank you for the opportunity to comment. If you have any questions, please contact Mary Alice Evans at (808) 587-2802.

Sincerely,

Mary Lou Kobayashi
Administrator

cc: Anthony Ching, LUC
✓ Daren Suzuki, Munekiyo & Hiraga, Inc.
      Julia Tsumoto, DOT-Planning
October 26, 2004

Ms. Mary Lou Kobayashi  
Department of Business,  
Economic Development and Tourism  
Office of Planning  
P.O. Box 2359  
Honolulu, Hawaii 96804

SUBJECT: Draft Environmental Assessment (DEA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Ms. Kobayashi:

Thank you for your letter to Mr. Michael Foley dated October 20, 2004, providing comments on the subject Draft Environmental Assessment (EA). On behalf of Old Stable LLC, we offer the following response to your comments.

1. We acknowledge the planning principle of "connectivity" in roadway design to better distribute traffic patterns off of State Highway facilities. This roadway alternative was mentioned in the Draft EA (page 78), but was not considered due to overwhelming concerns raised by neighbors along Laulea Place and Alakapa Place relative to an increase in traffic impacts.

2. Utilizing the State Rural District for the 16-lot rural subdivision development was not considered. Since Maui County has a RU-0.5, Rural zoning district, a change to the State Land Use Boundaries from Urban to Rural would be unwarranted.

3. The applicant is working with the State Department of Transportation, Airports Division relative to noise and other airport related hazards. An avigation and noise easement will be granted to the State which discloses existing airport operations, associated flight patterns and noise impacts to all future landowners (page 30).
Ms. Mary Lou Kobayashi
October 26, 2004
Page 2

Thank you for your comments. Should you have any questions, please contact me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc:  Kivette Caigoy, Department of Planning
     Henry Spencer
     spannpresident.com
MEMO TO: MICHAEL W. FOLEY, PLANNING DIRECTOR
FROM: GILBERT S. COLOMA-AGARAN, DIRECTOR OF PUBLIC WORKS AND ENVIRONMENTAL MANAGEMENT
SUBJECT: APPLICATIONS FOR COMMUNITY PLAN AMENDMENT, CHANGE IN ZONING, SPECIAL MANAGEMENT AREA USE PERMIT, AND ENVIRONMENTAL ASSESSMENT
E PAEPAE KA PUKO'A - 16 LOT RURAL SUBDIVISION
TMK: (2) 3-8-001; POR 003, 3-8-002; 008, 010

We reviewed the subject application and have the following comments:

1. Although wastewater system capacity is currently available as of October 5, 2004, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit.

2. Wastewater contribution calculations are required before building permit is issued.

3. Developer shall pay assessment fees for treatment plant expansion costs in accordance with ordinance setting forth such fees.

4. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.

5. Plans should show the installation of a single service lateral and an advance riser for each lot.
6. Non-contact cooling water, condensate, etc. should not drain to the wastewater system.

7. It is proposed that the subdivision road and a portion of Old Stable Road will be constructed to County standards. Please clarify whether the intent is to dedicate the roads and drainage systems to the County. However, please note that we will not accept any drainage facilities that are located outside of the road right-of-way (such as the drainage retention basin) and these facilities shall remain under private ownership and maintenance.

8. A detailed and final drainage report and a Best Management Practices Plan (BMP) shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The drainage report shall include hydrologic and hydraulic calculations and the schemes for disposal of runoff waters. It must comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" and must provide verification that the grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The BMP plan shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.

9. Comply with the requirements of Title 18 (Subdivision Ordinance) of the Maui County Code. These requirements will be established during the subdivision process.

10. All grading/grubbing work for the subject project shall comply with Chapter 20.08 (Soil Erosion and Sedimentation Control) of the Maui County Code. Best Management Practices shall be implemented to the maximum extent practicable to prevent pollutants including dust and sediment from discharging off the project site.

If you have any questions regarding this memorandum, please call Milton Arakawa at 270-7845.

GSCA:MA:da
S:\LUCAGDN\Paapae_Ka_Puko's\cma_ciz_smt1_ea_38001003_da.wpd
October 26, 2004

Gilbert Coloma-Agaran 
Department of Public Works 
and Environmental Management 
200 South High Street 
Wailea, Hawaii 96793

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMIK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Coloma-Agaran:

Thank you for your letter to Mr. Michael Foley dated October 21, 2004, providing comments on the subject Draft Environmental Assessment. On behalf of Old Stable LLC, we acknowledge your standard comments pertaining to wastewater, roadways, drainage, and grading. These conditions will be addressed during the subdivision and building permit review process, as applicable.

Please note that it is the applicant’s current intent to maintain the subdivision roadway under private ownership and dedicate the a portion of Old Stable Road to the County. It is also acknowledged that the drainage improvements and retention basin will remain under private ownership and maintenance.

Thank you for your comments. Should you have any questions, please contact me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:y
cc: Kivette Caigoy, Department of Planning
    Henry Spencer

305 High Street, Suite 104 
Wailea, Hawaii 96791 
Ph: (808)244-2015 
Fax: (808)244-8729 
planning@mhonline.com
DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAIIKU, MAUI, HAWAII 96793-2155
www.mauiwatea.org

September 27, 2004

Ms. Kivette Caigoy
Department of Planning
County of Maui
250 South High Street
Waikiki HI 96793

TMK: 3-8-01:003 (por), 3-8-02:009 & 010
Project Name: Paepoe Ka Puko'a 16 lot Rural SD, Open Space Conservation Easement and County/State Donation Project

Dear Ms. Caigoy:

Thank you for the opportunity to comment on this application. We note that our comment letter to this project of February 23, 2004 is included in the application material. We provide the following additional information:

Source Availability and Consumption

There is currently no moratorium on issuance of meters in Central Maui. However, from now on the Department will not issue temporary construction meters for Central Maui projects. Reclaimed water is readily available from the Department of Public Works and Environmental Management Wastewater Division. The Department does not guarantee that water will be available for this project. The applicant should be made aware that the Department will continue to monitor withdrawals, demands, meter issuance and pending projects closely.

The applicant's water use estimate of 51,000 gallons per day (gpd) is consistent with system per acre standards. Based on current empirical use for single family services in Spreckelsville averaging 1,532 gpd, water use for the 16 home-lots and park portion would be about 30,600 gpd.

Conservation

No water conservation measures are proposed in the application material. We strongly encourage the applicant to include the following measures in project design and implementation to alleviate demand from the Central Maui system:

Use Non-potable Water: We encourage the applicant to use brackish irrigation well water for all landscaping purposes, where feasible. Brackish or reclaimed water should be used for dust control during construction.

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. The applicant should establish a regular maintenance program.

Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan" - Plant Zone 5. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the attached brochure: "Saving Water In The Yard - What and How to Plant In Your

"By Water All Things Find Life"
Kiveta Calgo
Peepae Ka Puk'o'a 16 lot Rural SD
Page 2

Area* and distribute it to future homeowners.

Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers in common areas. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

Should you have any questions, please contact our Water Resources and Planning Division at 270-7199.

Sincerely,

[Signature]
George M. Tengan
Director

C: engineering division
applicant

C:\WR\docs\Permcmt\E Peepae Ka Puk'o'a 16 lot Rural SD EA CPA CIZ SM1.wpd
Mr. George Tengan, Director  
Department of Water Supply  
200 South High Street  
Wailuku, Hawaii 96793  

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Tengan:

Thank you for your letter to Ms. Kivette Caigoy dated September 27, 2004, providing comments on the subject Draft Environmental Assessment (EA). On behalf of Old Stable LLC, we offer the following response to your comments:

**Source Availability and Consumption**

The applicant acknowledges that the Department will not issue temporary construction meters for Central Maui projects and that water for the project may not be available until new water sources are brought online. We concur with the water use estimate of 51,000 gallons per day based on a per acre standard.

**Conservation**

Utilizing brackish irrigation well water for all landscaping purposes is an option along with purchasing irrigation water from HC & S. Reclaimed water will be used for dust control during construction, if available. Other conservation measures such as eliminating single pass cooling systems, utilizing low flow fixtures, maintaining fixtures, and using climate adapted plant will be passed on to all future homeowners. Rain-sensors can be incorporated in the irrigation system of the common areas as a water conservation measure.
Thank you for the opportunity to comment. Should you have any questions, please contact me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS: yp
cc:  Kivette Calgoy, Department of Planning
     Henry Spencer

spencer@practicleaders.com
MEMO TO: Michael W. Foley, Director
Department of Planning

FROM: GLENN T. CORREA, Director

SUBJECT: E PAEPAE KA PUKO'A 15-LOT RURAL SUBDIVISION, OPEN SPACE
TMK: (2) 3-8-001:003 (POR), 3-8-002:009 & 010.

Our Department has reviewed the subject application and would like information on how
the applicant proposes to satisfy the parks and playgrounds requirements, pursuant to
Section 18.16.320 of the Maui County Code.

The applicant should schedule a meeting with our Department to discuss the parks and
playgrounds requirements for the subject project.

Thank you for the opportunity to review and comment on this matter. Should you have
any questions or concerns, please contact me, or Patrick Matsui, Chief of Parks
Planning and Development Division, at extension 7387.

c: Patrick Matsui, Chief of Planning and Development Division
Mr. Glenn Correa, Director  
Department of Parks and Recreation  
700 Hail'iaka Naka Street, Unit 2  
Wailuku, Hawai'i 96793

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:610, Spreckelsville, Maui

Dear Mr. Correa:

Thank you for your letter to Mr. Michael Foley received by the Maui Planning Department on October 14, 2004 (dated September 17, 2004), providing comments on the subject Draft Environmental Assessment (EA). On behalf of Old Stable LLC, we offer the following response.

On page 6 of the Draft EA, it states that the common area located adjacent to Old Stable Road will be developed as a park for the subdivision. This park area is approximately 2 acres, or approximately 87,000 square feet. The park area exceeds the minimum park dedication requirement of 500 feet for each lot or unit in excess of three (3) (13 x 500 = 6,500 square feet), pursuant to Maui County Code, Section 18.16.320.

As recommended in your letter, the applicant will schedule a meeting with department representatives to discuss specific park and playground requirements, as a result of this subdivision.

Thank you for your comments. Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Kivette Caigoy, Department of Planning  
Henry Spencer

305 High Street, Suite 104  
Wailuku, Hawai'i 96791  
ph: (808)244-2015  
fax: (808)244-8729  
planning@mhdonline.com
Colleen Suyama, Staff Planner
Department of Planning
County of Maui
250 South High Street
Wailuku, HI 96793

Subject: SM1 2004/0021 E Paepae Ka Puko’a Subdivision

Dear Colleen Suyama,

I would like to thank you for the opportunity to review the above subject. A thorough review will be completed when the permit & plans are submitted to our office. The review will include but not limited to water supplies for fire protection & road/access widths for fire apparatus and evacuation by residents. Please feel free to contact Lt. Scott English at 270-7122 if there are any questions.

Sincerely,

Jeff Drechsel
Fire Prevention Bureau
October 26, 2004

Mr. Jeff Drechsel
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawaii 96732

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Drechsel:

Thank you for your letter to Ms. Colleen Suyama dated September 15, 2004, providing comments on the subject Draft EA. On behalf of Old Stable LLC, we acknowledge that a thorough review of water supplies and road/access widths will be completed when they are submitted to your office during the building permit application process.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Kivette Caigoy, Department of Planning
    Henry Spencer

spencer@spreckelsville
MEMORANDUM

TO : MICHAEL W. FOLEY, PLANNING DIRECTOR
FROM : THOMAS M. PHILLIPS, CHIEF OF POLICE
TMK : (2) 3-8-001:003 (portion), 3-8-002: 009 & 010
Project Name : E Paepae Ka Puko'a 16 Lot Rural Subdivision, Open Space Conservation Easement and County/State Donation Project
Applicant : Old Stable Road LLC c/o Munekiyo & Hiraga, Inc.

___ No recommendation or comment to offer.
___ Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project.

[Signature]
Assistant Chief Sydney Kikuchi
For: THOMAS M. PHILLIPS
Chief of Police

Enclosure
TO: THOMAS PHILLIPS, CHIEF OF POLICE, MAUI POLICE DEPARTMENT

VIA: CHANNELS

FROM: JORGE MARZAN, CPO, KAHLULUI, DISTRICT I

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND SPECIAL MANAGEMENT AREA USE PERMIT APPLICATION FOR A 16 LOT SUBDIVISION AND RELATED IMPROVEMENTS, TMK 3-8-001:003, 3-8-002:009, AND 3-8-002:010, SPRECKELVILLE, MAUI

Assigned by Administrative Sergeant Mitchell PELLAZAR to review the above propose project.

SUMMARY OF PROJECT

The proposed project is for a 16-lot rural residential subdivision and related subdivision improvements on approximately 14.86 acres parcel identified as TMK 3-8-001:003. Related improvements include paved roadways with concrete curb, gutter, and sidewalk, as well as drainage, water, sewer, and electrical distribution systems and landscaping.

In addition with the project proposal, Old Stable LLC, who is the applicant, is requesting a community plan revision from open space to rural and a change in zoning from R-3, Residential District to the RU-0.5, Rural District.

INFRASTRUCTURE

1. Improvement of Stable Road

A review of the binder reiterates that Old Stable Road will be improved to county standards; however, it does not specify the plans of action. It is recommended that improvements to Stable Road should be noted on the application for review.

2. Improvement of Hana Highway and Old Stable Road Intersection

Upon review of this application, page #44, state that the Traffic Impact Assessment indicated that the existing LOS (level of service) (A) which denoted (best) along Hana Highway during the morning and afternoon peak hours. It was reported that the traffic along the northbound approach of Old Stable Road dictates at LOS (B) (short traffic delays) during the afternoon peak hours. In addition, traffic along the southbound approach of Old Stable Road operates at LOS (C) (average traffic delay) during the morning and afternoon hours.
The Traffic Impact Assessment findings of the level of service analysis for 2008 reveals that “background plus project conditions, traffic generated by the project has an insignificant impact on traffic operation at the intersection of Old Stable Road at Hana Highway. All traffic movements are expected to operate at level of service (C) or better for existing roadway condition. Traffic generated by the project did not result in a change in delay or level of service and therefore has no impact.”

3. COMMENTS REFLECTED ON #2

The level of service along Hana Highway during the morning and afternoon hours indicated as level (A). This evaluation does not reflect the time and day of the study. A true and accurate report study should be conducted at various time and day.

The same study should be conducted on the northbound approach of Old Stable Road and southbound of Old Stable Road. Both findings should reflect during morning and afternoon peak hours.

The level of service at the intersection of Hana Highway and Old Stable Road will create an adverse condition to traffic impact and traffic safety. Mitigating factors should include a separate left turn lane (northbound) and a separate right lane (southbound).

To this date, I have seen and experienced the traffic impact (Paia direction) to be level of service (F) (worst) during afternoon peak hours. I have seen vehicles traveling Paia direction deadlock past the Old Stable Road. Therefore, it is suggested that Hana Highway at the intersection of Old Stable Road be mitigated before the start of the proposed project.

DEPARTMENT OF TRANSPORTATION, MAUI HIGHWAY DIVISION

A funding to improve Hana Highway has been appropriated for 2004. Improvements include provisions of a separate left turn lane into Old Stable Road from Hana Highway. I contacted Maui Highway Division on Tuesday, October 5, 2004, to inquiry about the timeline provisions. The projected date of the improvement project is slated at the end of December 2004.

Submitted for your review.

[Signature]

JOSE MARZAN
CPD/ District I
10/5/04 1330 hrs
October 25, 2004

Henry A. Spencer
P.O. Box 790829
Pala, Maui, HI 96779

Re: Response to Comments from Maui Police Department
Impact Assessment for Proposed Single Family Residential Development
Spreckelsville, Maui, Hawaii

Dear Mr. Spencer:

The following are my responses to comments from the Maui Police Department dated October 6, 2004. I have attached a copy for the comment letter for reference.

Regarding the day and date of the traffic surveys, this information is provided in the Methodology section, page 1 of the report. The traffic count summary worksheets are provided as Attachment A, which also indicate the day, date and hours of the traffic counts. Traffic counts are performed during the morning and afternoon peak periods and summarized to determine the morning and afternoon peak hour traffic volumes. The morning and afternoon peak hour volumes are then used for the level-of-service analysis.

The objective of the level-of-service analysis is to assess traffic conditions during the peak hours (morning and afternoon) of a typical weekday. Accordingly, it should be no surprise that there are days when conditions are worse than those assessed, but there are also days when conditions are better.

The traffic surveys included Old Stable Road, both northbound and southbound. The reason that there is no analysis for the northbound approach during the morning peak hour is that no traffic was counted.

Mitigation measures for the intersection of Hana Highway at Old Stable Road have been discussed with Hawaii Department of Transportation and the developer has agreed to pay his pro rata share. These improvements include a separate left turn lane along Hana Highway and separate right and left turn lanes along southbound Old Stable Road. However, the timetable for these improvements is under the control of Hawaii Department of Transportation. Accordingly, the construction of the proposed project cannot be subject to implementation of the improvements by another agency such as Hawaii Department of Transportation.

Very truly yours,

PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell
Phillip J. Rowell, P.E.
Principal
September 14, 2004

TO: KIVETTE A. CAIGOY, Environmental Planner
    Department of Planning

FROM: ALICE L. LEE, Director
      Department of Housing and Human Concerns

SUBJECT: I.D.: EA 2004/0013, CPA 2004/0007,
        CIZ 2004/0015, SM1 2004/0021
        TMK: (2) 3-8-001:003 (por.), 3-8-002:009 & 010
        PROJECT NAME: E PAEPAE KA PUKO'A (16-LOT RURAL
        SUBDIVISION, OPEN SPACE CONSERVATION
        EASEMENT AND COUNTY/STATE DONATION
        PROJECT)
        APPLICANT: OLD STABLE ROAD LLC
                   C/O MUNEKIYO & HIRAGA, INC.

When I provided my February 17, 2004 comments to Mr. Daren Suzuki of Munekiyo and Hiraga, Inc., I stated that the project does not involve a County change-in-zoning that will establish land use designations under which a residential housing project may be developed, and that the provisions of the County’s affordable housing policy does not apply to the project. However, Mr. Suzuki, in his June 10, 2004 letter informed me that following consultation with the Planning Department, that the project will now involve a change-in-zoning which will establish, a zoning designation that will permit the development of residential housing.

That being the case, the Administration’s Recommended Affordable Housing Guidelines (copy attached) is now applicable to the subject project. However, please be advised that pursuant to Section IV.C.1 of the Administration’s Recommended
Memo to Kivette A. Caigoy
Page 2
September 14, 2004

Affordable Housing Guidelines, we have determined that the applicant's offer to donate 1.16 acres to the County of Maui/State of Hawaii for the expansion of the Kaunoa Senior Center will satisfy the requirements of the affordable housing guidelines.

Thank you for the opportunity to comment.

ETO: hs
Attachment

cc: Housing Administrator w/attachment
I. PURPOSE

The purpose of these guidelines is to enhance the public welfare by ensuring that the housing needs of Maui County's residents are addressed in accordance with the Maui County General Plan. The intent of these guidelines is to encourage the provision of housing units which will meet the needs of income qualified households.

II. DEFINITIONS

1. "Affordable Sales Price" means the following:

   For multi-family units - The sales price which the Department of Housing and Human Concerns, County of Maui, has determined is affordable to individuals or families whose gross annual income does not exceed one hundred and ten percent (110%) of the County's median annual income as shown in the County's "Affordable Sales Price Guidelines (HUD)" table for the applicable year and island/geographic region.

   For single-family units - The sales price which the Department of Housing and Human Concerns, County of Maui, has determined is affordable to individuals or families whose gross annual income does not exceed one hundred and twenty percent (120%) of the County's median annual income as shown in the County's "Affordable Sales Price Guidelines (HUD)" table for the applicable year and island/geographic region.

2. "Affordable Rent Price" means the monthly amount paid for housing rent and utilities (adjusting for unit size) which the Department of Housing and Human Concerns, County of Maui, has determined is affordable to individuals or families whose gross annual income does not exceed eighty (80%) of the County's median annual income as shown in the County's "Affordable Rent Guidelines" table for the applicable year and island/geographic region.

3. "County" means the County of Maui, State of Hawaii.

4. "Director" means the Director of the Department of Housing and Human Concerns.

5. "Dwelling Unit" means a room or group of rooms connected together constituting an independent housekeeping unit for family and containing a single kitchen.
6. "Income Qualified Households" means the following:

For rental units - Means an individual or family having a gross annual income that does not exceed eighty percent (80%) of the County’s median annual income (adjusted for family size) as shown in the County’s "Income Schedule By Family Size" table for the applicable year and island/geographic region.

For multi-family units - Means an individual or family having a gross annual income that does not exceed one hundred and ten percent (110%) of the County’s median annual income and/or meeting the specific eligibility criteria which may be established by the County.

For single-family units - Means an individual or family having a gross annual income that does not exceed one hundred and twenty percent (120%) of the County's median annual income and/or meeting the specific eligibility criteria which may be established by the County.

7. "Median Family Income" means the following:

For the island of Maui (except the region of Hana) - The median family income that is established annually by the U.S. Department of Housing and Urban Development (HUD).

For the region of Hana, island of Moloka‘i and regions of West Moloka‘i and East Moloka‘i - The median family income that is established by the Department of Housing and Human Concerns, County of Maui, by multiplying the Census Bureau’s 2000 median family income for the applicable geographic region or island by the rate of change in HUD's median family income between the year 2000 and the applicable year.

8. "Multi-Family Unit" means a building or portion thereof which consists of two or more dwelling units and which is designed for occupancy by two or more families living independently of each other and is intended for ownership.

9. "Rental Housing Unit" means one or more rooms with private bath and kitchen facilities comprising of an independent self-contained dwelling unit that may be attached or detached and intended for long-term rental purposes.

10. "Residential Housing Project" means a project which provides ten (10) or more long-term residential housing units or lots.

11. "Single-Family Unit" means a building consisting of only one dwelling unit designed for or occupied exclusively by one family and is intended for ownership.
III. **APPLICABILITY**

A. These guidelines shall apply to applications for County change in zoning which establish land use designations under which a residential housing project is developed. This trigger would enable the imposition of a housing condition on requests for change in zoning which currently allow for residential uses as permitted uses. Such condition may state that in the event any portion of a property which is the subject of the change in zoning request, is developed as a residential housing project, said project shall be subject to the provisions as provided in these guidelines. These guidelines may also be used in instances where the administration receives requests for comments and/or review concerning other land-use related requests, such as State land use district boundary amendments, where the County is called upon to effecuate an affordable housing requirement that may be imposed by the State Land Use Commission.

B. These guidelines shall not apply to housing projects involving the use of County lands or funds, and shall not apply to projects that are approved pursuant to Section 201G-118, Hawaii Revised Statutes.

IV. **AFFORDABLE HOUSING REQUIREMENTS**

A. The applicant for a change in zoning pursuant to Section III of these guidelines, shall offer for sale or rent, affordable housing units to income qualified households. The applicant may choose to provide either multi-family or single family units to satisfy these guidelines. The number of affordable units to be provided shall be calculated by multiplying the total number of units proposed in the residential housing project by 10 percent (i.e., 0.10). Thus, a residential housing project of 100 units shall be required to provide a total of 10 affordable units.

Affordable units shall be provided either within the same community plan region or subject to the approval of the Director of Housing and Human Concerns, outside of the community plan in which the proposed residential housing project is located. Units shall be sold at or below the applicable affordable sales price or rented at or below the applicable affordable rent.

Details of sales pricing and marketing shall be defined in the affordable housing agreement, as described in Section V of these guidelines.

B. In lieu of providing affordable units, the applicant may choose to pay a monetary contribution. The monetary contribution shall be based upon the equivalent number of affordable units which would have otherwise been provided by the
applicant (i.e., 10 percent of the total number of units proposed for the residential housing project). The per unit monetary contribution shall be calculated by multiplying the affordable sales price by 10 percent (i.e., 0.10).

1. For residential housing projects proposing single-family units and/or lots only, the contribution shall be calculated by multiplying the affordable sales price (at the 120% of the County's median income level) for a single-family unit by 10 percent.

2. For residential housing projects proposing multi-family units, the contribution shall be calculated by multiplying the affordable sales price (at 110% of the County's median income level) for a multi-family unit by 10 percent.

C. In lieu of providing affordable units, the applicant may also choose to provide land or in-kind services:

1. Provision of developable lands (i.e., lands physiographically usable for residential development) which may be used to address the housing needs of income qualified households and special needs groups. Such lands may be used by the County of Maui or others acceptable to the County to develop resource centers for the homeless, day care centers for seniors or other types of projects which address the housing or support service needs of income qualified households and special needs groups. If the appraised value of the land is less than the value of the in-lieu monetary contribution amount which would otherwise be required, the applicant may address the shortfall through the provision of units, through in-lieu monetary contribution, or a combination of both.

2. Provision of other in-kind services which are approved by the Director. In-kind services may include the provision of infrastructure to a proposed or existing affordable housing project, facility upgrades to existing affordable housing projects as approved by the Director. If the value of in-kind services is less than the in-lieu monetary contribution amount which would otherwise be required, the applicant may address the shortfall through the provision of units, through in-lieu monetary contribution, or a combination of both.

V. AFFORDABLE HOUSING AGREEMENT

A. Prior to the filing of a building permit application for a residential housing project, as set forth herein, or prior to the granting of final subdivision approval, the applicant or developer shall execute an affordable housing agreement with the County which shall set forth the detailed terms and conditions of compliance with these housing guidelines, which may include, but not be limited to:
1. Affordable sales periods for the affordable units;
2. Affordable sales prices for the affordable units;
3. Identification of the number, type and location of units;
4. Marketing process for the affordable units;
5. Eligibility criteria for income qualified households;
6. Provision for credits (including duration and assignment), as applicable; and
7. Terms and conditions relating to provision of in-lieu monetary contribution, land or in-kind services.

With regard to the affordable sales periods (item no. 1), the agreement shall specify offering durations, as well as procedures for the release of units from the affordable sales requirements should there be unsold units following the expiration of the sales periods.

B. The Director of Housing and Human Concerns may periodically adjust limits on sales prices, income and other requirements based on changes in interest rates and other relevant factors.

VI. CREDITS

A. An applicant for a change in zoning under which a residential housing project may be developed may receive credits for affordable units if the number of affordable units provided exceeds the requirement set forth in Section IV of these guidelines. Such credits shall be subject to execution of an affordable housing agreement.

B. Credits for affordable housing units may be granted in advance of the filing of a change in zoning application under which a residential housing project may be developed. Such credits shall be approved by the Director and subject to the execution of an affordable housing agreement.

C. As warranted through case-by-case evaluation, the Director, may grant enhancement credits to provide incentives to applicants to offer rental units which are affordable to families having incomes 60% or lower than the median family income. Such enhancement credits shall be in accordance with the following guidelines.

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<th>Family Income Range</th>
<th>Enhancement Credits</th>
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<tr>
<td>51% to 60% of Median Income</td>
<td>2.5</td>
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<td>up to 50% of Median Income</td>
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Thus, one (1) rental unit offered to families in the 51% to 60% median income range equals 2.5 enhancement credits, or 2.5 affordable units.

Any granting of approval for enhancement credits shall be subject to the execution
of an affordable housing agreement.
Ms. Alice Lee, Director  
Department of Housing and  
Human Concerns  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793  

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Ms. Lee:

Thank you for your letter to Ms. Kivette Calgoy dated September 14, 2004, providing comments on the subject Draft Environmental Assessment (EA). On behalf of Old Stable LLC, we offer the following response.

We acknowledge and confirm that the applicant will donate approximately one (1) acre of land to the County of Maui for the expansion of the Kaunaoa Senior Center, as a result of these applications. It is further noted that the applicant is requesting a change to the community plan and zoning to "public/quasi-public" designations to obtain land use consistency with any future expansion of Kaunaoa Senior Center.

Thank you for your determination that the applicant’s offer will satisfy the requirements of the affordable housing guidelines. Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp  
cc: Kivette Calgoy, Department of Planning  
Henry Spencer
October 14, 2004

MEMO TO: Kivette A. Caigoy
Environmental Planner

THRU: Michael W. Foley
Planning Director

FROM: Allan J. DeLima
Plans and Operations Officer

SUBJECT: CPA/CIZ APPLICATION REVIEW FOR E PAEPAE KA PUako' A 16 LOT
RURAL SUBDIVISION, OPEN SPACE CONSERVATION EASEMENT
AND COUNTY/STATE DONATION PROJECT (DATED SEPTEMBER
9, 2004)

Maui Civil Defense Agency has no comments and recommendations on the subject
matter. The original submittal is being returned to you.

AJD:mku
Attachments
September 20, 2004

Ms. Kvette Caigoy, Environmental Planner
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Ms. Caigoy,

TMK: (2) 3-8-001:003 (portion), 3-8-002:009 & 010
PROJECT NAME: E PAEPAE KA PUKOA 16 LOT Rural Subdivision
APPLICANT: Old Stable Road LLC C/O Munekiyo & Hiraga, INC.

We recommend identifying the drainage problems along Hana Highway from Stable Road to Paia. Inadequate outlets to the ocean are a major problem during rainstorms which creates flooding, silt, debris, and undesirable road conditions.

Thank you for the opportunity to comment.

Sincerely,

[Signature]
Hanae Ganske-Cerizo
District Conservationist
Ms. Ranae Ganske-Cerizo  
District Conservationist  
Natural Resources Conservation Service  
210 Imi Kala Street, Suite 209  
Wailuku, Hawaii 96793-2100

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

October 26, 2004

Dear Ms. Ganske-Cerizo:

Thank you for your letter to Ms. Kivette Calgo on September 20, 2004, providing comments on the subject Draft EA. On behalf of Old Stable LLC, the following information is provided in response to your comments.

We acknowledge the regional problem of inadequate outlets to the ocean from Stable Road to Paia during rainstorms which creates flooding, silt, debris, and undesirable road conditions. It is noted that the project site is located makai and downstream of Hana Highway. Therefore, existing runoff flows towards the ocean and not onto State Highway facilities. Post development runoff will be retained onsite as described below.

As mentioned in the drainage report appended to the Draft EA, an existing 24" culvert crosses Hana Highway approximately 350 feet west of the property line between the project site and the Kaunoa Senior Center. The existing culvert conveys approximately 24 cfs of surface runoff from the existing sugar cane fields mauka of the highway to the makai side on to the project site. This onsite runoff also sheet flows across the parcel to the ocean. Approximately 20 feet into the property is a bikeway constructed by the County of Maui. Two (2) 18" culverts have been constructed under the bikeway to allow the runoff from the existing 24" culvert to continue downstream in the same direction.

In order to better facilitate regional drainage runoff in the vicinity of the project site, a proposed drain line will be connected to the two (2) existing drainage culverts located under the bikeway, and tied into the underground drainage system along the subdivision roadway. This underground drainage system will outlet into the proposed retention basin located on the makai side of the subdivision roadway at the intersection of the Stable Road.
Ms. Ranae Ganske-Cerizo
October 26, 2004
Page 2

Thank you for the opportunity to comment. Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Kivette Calgoy, Department of Planning
    Henry Spencer
September 27, 2004

Civil Works Technical Branch

Mr. Kivette A. Calgoy, Staff Planner
County of Maui
Department of Planning
250 South High Street
Wailuku, Maui, Hawaii  96793

Dear Mr. Calgoy:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the E Paepae Ka ukoa Subdivision, Maui (TMKs 3-8-2: 9 and 10). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Our Regulatory Branch staff will be conducting a field investigation of the project site and will provide their comments under separate cover. For further information regarding the DA permit assessment, please contact Mr. Peter Galloway at (808) 438-8416.

b. We concur with the flood hazard information provided on page 16 of the DEA.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

[Signature]
James Pennaz, P.E.
Chief, Civil Works
Technical Branch
Mr. James Pennaz, P.E. Chief,
Civil Works Technical Branch
Department of the Army
U. S. Army Engineer District, Honolulu
Building 223
Fort Shafter, Hawaii 96858-5440

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Pennaz:

Thank you for your letter to Ms. Kivette Caigoy dated September 27, 2004, providing comments on the subject Draft Environmental Assessment (EA). On behalf of Old Stable LLC, we offer the following response to your comments.

The Draft EA included a "Wetland Delineation Survey" and a "Wetland Enhancement and Mitigation Plan" for your review. If it is determined that proposed actions within wetlands areas would be subject to Department of the Army permitting requirements, then we will work with your department, in collaboration the U.S. Fish and Wildlife Service and the Department of Health, to comply with said requirements through separate permit actions.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp

cc: Herbert Matsubayashi, Department of Health
Michael Molina, U.S. Fish and Wildlife Service
Kivette Caigoy, Department Of Planning
Henry Spencer
September 29, 2004

Michael Foley
Maui Planning Department
230 South High St.
Wailuku, Hi 96793

Attn: Kivette Caigoy

Dear Mr. Foley:

Subject: Draft environmental assessment (EA), Spreckelsville 16-lot rural subdivision

Cultural Impacts assessment: The draft EA describes the process you have gone through to elicit information about cultural practices from community members, but there is no "assessment." From the background information and informant interviews you need to draw a conclusion regarding impacts of the project (or lack thereof) on any existing cultural practices. Please include this in the final EA.

If you have any questions, please call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

cc: Daren Suzuki, Munekiyo & Hiraga
October 26, 2004

Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Ms. Salmonson:

Enclosed is a letter from CKM Cultural Resources, L.L.C. which addresses your comment letter dated September 29, 2004 to Mr. Michael Foley.

Should you have any questions, please call me at 244-2015.

Very truly yours,

[Signature]

Daren Suzuki, Planner

DS:yp
Enclosure
cc: Kivette Caigoy, Department of Planning (w/enclosure)
    Henry Spencer (w/out enclosure)
Aloha,

Based on the background information and informant interviews for the Spreckelsville subdivision, I conclude that there will be no negative impacts on any existing cultural practices.

Kaho Charles Kualwelih Maxwell Sr.
Mr. Daren Suzuki  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, HI 96793  

Dear Mr. Suzuki;  


The Maui Planning Department (Department) provides the following comments on the above referenced document:  

1. Section III.A.1 – Include the classification of the project site according to the Agricultural Lands of Importance designation.  

2. Section III.A.2 – Identify the proposed residential lots that will be located within the A4 flood zone area.  

3. Section III.D.4 – Discuss potential impacts, if any, the proposed drainage plan or grade alterations may have on the wetlands discussed in Section III.A.3.  

Further, the Department is in receipt of a copy of the Phase I Environmental Site Assessment referenced in the report.
Mr. Daren Suzuki  
September 16, 2004  
Page 2  

Thank you for the opportunity to comment. Should you require additional clarification, please contact Ms. Kivette A. Calgoy, Environmental Planner, at 270-7735.

Sincerely,  

MICHAEL W. FOLEY  
Planning Director  

MWF:KAC:dm  
c: Clayton Yoshida, Planning Program Administrator  
Kivette A. Calgoy, Environmental Planner  
Colleen Suyama, Staff Planner  
EA Project File  
General File  
K:\WP_Docs\PLANNING\EA2004\13_EPaepeaKapuleIDEA_DeptComments.wpd
September 30, 2004

Mr. Daren Suzuki
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Suzuki:


At its regular meeting on September 28, 2004, the Maui Planning Commission (Commission) reviewed the above-referenced document and provides the following comments:

1. Include a description of the boundary wall proposed along the perimeter of the Parcel 3 which abuts Laulea Place.
2. Clarify the dedication of land to the County/State for the Kaunaoa Senior Center.
3. Describe how shoreline access will be provided on the portion of Parcel 3 proposed for OS-2, Open Space, Zoning.
4. Discuss any potential impacts on existing drainage by filling in the two (2) wetlands described as “Area 1” and “Area 2.”
Thank you for your cooperation. If additional clarification is required, please contact Ms. Kivette A. Caigoy, Environmental Planner, of this office at 270-7735.

Sincerely,

[Signature]

MICHAEL W. FOLEY
Planning Director

MWF:KAC:do

c: Wayne A. Botelho, Deputy Planning Director
   Clayton I. Yoshida, AICP, Planning Program Administrator
   Kivette A. Caigoy, Environmental Planner
   Colleen Suyama, Staff Planner
   EA Project File
   General File

(K:\WP_DOCS\PLANNING\EA\2004\13_EPasepaKapukoaMPCDEAComments.wpd)
Mr. Michael Foley, Director  
Department of Planning  
250 South High Street  
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Foley:

Thank you for your letter dated September 16, 2004, providing comments on the subject Draft Draft EA. On behalf of Old Stable LLC, we offer the following responses:

1. Tax Map Key No. 3-8-001:003 is located within lands identified as “Prime Agricultural Land” according to the Agricultural Lands of Importance to the State of Hawaii. Tax Map Key Nos. 3-8-002:009 and 010 (two (2) shoreline parcels) are located within lands identified for “Urban” use.

   It is noted in the Draft EA, according to the “Detailed Land Classification - Island of Maui Land Study Bureau, 1967”, the project site has an overall rating of “E” and land type of “E3” which is the lowest agricultural productivity rating and unsuited for agricultural productivity. Further, that the property is not designated for agricultural use by the State or County.

2. The residential lots located makai of the subdivision roadway are located within the A4 zone, but outside the limits of the V23 zone. The residential lots located mauka of the subdivision roadway are located within the C zone. (Refer to Appendix M of the Draft EA).

3. As described in the Draft EA, page nos. 17 to 22, Wetland Area 1 and a portion of Wetland Area 2 (both located within the limits of the rural subdivision) will be filled and graded. To accommodate the potential loss of wetlands, a wetland enhancement and mitigation plan was prepared for Area 3 to essentially increase the extent of low-lying areas to compensate for the loss of wetlands of Area 1 and a portion of Area 2.

105 High Street, Suite 104  Wailuku, Hawaii 96793  ph: (808)244-2015  fax: (808)244-8795  planning@mhuonline.com
The surface runoff from the rural residential subdivision will be allowed to sheet flow towards the proposed subdivision roadway where the runoff will be captured and conveyed by the underground drainage system to the proposed retention basin (See Appendix M of the Draft EA). Since the retention basin will be sized to accommodate all the additional onsite surface runoff generated by the proposed subdivision, existing drainage patterns makai of the proposed improvements will be allowed to continue downstream towards the ocean. Similarly, existing drainage patterns to the enhanced Wetland Area 3 will remain unchanged as a result of this project.

On September 28, 2004, the Maui Planning Commission provided comments on the Draft EA. The following is a response to your letter dated September 30, 2004, which clarifies issues raised by the commission and other representations made by the applicant:

1. As part of these applications, the applicant represented that he will construct a three-foot high berm with a two-foot high boundary wall on top, along all lots abutting Laulea Place to prevent vehicular, bicycle and pedestrian traffic from accessing this private roadway. The applicant has no objections to such a condition being placed as a condition of zoning and/or Special Management Area Use permit.

2. The Kaunoa Senior Center site is owned by the State of Hawaii and is leased to the County through an Executive Order. Although it is yet to be determined whether the one (1) acre parcel of land will be donated to the State or the County, the purpose of this dedication is for the future expansion of the Kaunoa Senior Center, County of Maui.

3. There will be a private access to the beach for the subdivision residents along the 30 foot wide common area pathway (proposed for OS-2, Open Space) leading from the subdivision roadway to the ocean. The existing roadway to the beach provided off of Stable Road will remain unchanged. The applicant further noted that this existing roadway may be modified away from the active coastal dunes in the future.

4. Comments on potential impacts on existing drainage are addressed in the response to the Planning Department's letter dated September 16, 2004, Item No. 3 stated herein.

5. During the public testimony portion of the Planning Commission's deliberations, an issue was raised by a public testifier that a neighborhood meeting should consist of one large meeting. It was criticized that smaller meetings can be very limited when ideas are exchanged.
Upon review of the Draft EA, we realized that we erroneously did not mention that on June 25, 2003, a neighborhood meeting was conducted at Kaunaoa Senior Center with approximately 60 people attending (see attendance sheet attached). At this meeting, the applicant presented a plan which consisted of approximately 26 lots, with ohana units along the entire project area. This plan was not well received by the public due to infrastructural and environmental impacts related to project density and location. The information received at this meeting was used as a basis for formulating the current site plan.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
Enclosure
cc:  Kivette Caigoy, Department of Planning (w/enclosure)
     Henry Spencer (w/out enclosure)
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<td>Zoe Norcross</td>
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<tr>
<td>61</td>
<td>Sally Kyser</td>
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<td>62</td>
<td>J. Howard</td>
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<td>63</td>
<td>Barbara Woods</td>
</tr>
</tbody>
</table>
Aloha Members of the Planning Commission and Planning Department,

I am a 19 year resident of Spreckesleville writing to express my support of the Henry Spencer proposed 16 lot subdivision development in our neighborhood.

He has demonstrated an exemplary model for community based planning. He has held numerous meetings with small groups of interested parties and has invited input to ensure community support. I believe he has earned wide support for his efforts. We are lucky to have him in our community.

His awareness and respect for all of Maui is exemplified in numerous ways. He has given up the right to develop 2 oceanfront lots that have all land use designations in place. He has requested down zoning 20 acres including 1,300 feet of prime beachfront from R-3 (10,000 square foot minimum) to Open Space and placing a conservation easement on that land as well so that it can never built upon. He is donating 1 acre of land to the County of Maui for the much-needed expansion of the Kaunoe Senior Center.

It is my hope that you will not only grant his approvals but that you will do so expeditiously to demonstrate to other developers how attention to the greater good is rewarded.

Mahalo and aloha,

Patricia Cadiz

P.S. I have no financial interest in this or any other project of Mr. Spencer's.
September 22, 2004

RE: Henry Spencer/ Old Stable LLC

To the members of the Maui Planning Commission:

The purpose of this letter is to state my full support for Henry Spencer’s application for the development of a 16-lot subdivision in Sprecklesville. When you combine the facts that he is donating 1 acre to the Kamaole Senior Center, putting 20 acres, including 1,300ft of sandy shoreline, into conservation which can never be built upon and only developing 16 house lots with no Ohana’s the end result is the most responsible development project I have ever seen on Maui.

Please show your support for the preservation of the North Shore of Maui by approving this project.

Respectfully,

[Signature]

Dakley Baslin
Sprecklesville
DAVID R. SPEE
Attorney At Law
62 Baldwin Avenue, Suite 2B
P.O. Box 790478
Paia, Hawaii 96779

Home Office Phone & Fax: (808) 879-6500
E-Mail: DavidSpeeHawaii.com
Phone: (808) 579-8244
Fax: (808) 579-8600

VIA FACSIMILE ONLY: (808) 270-7634

September 22, 2004

Maui Planning Commission

RE: Old Stable LLC

To Whom It May Concern:

I am writing in support of Old Stable LLC’s application for its development of 16 residential lots off Old Stable Road in Spreckelsville, Maui, Hawaii. I am a resident of Spreckelsville and whole heartedly support this project. I am a real estate attorney and have lived on Maui for 15 years and I cannot remember a developer who has offered to give back so much at the beginning of the approval process.

The company’s offer to protect almost 1,300 feet of shoreline and 20 acres of land behind it, together with the donation of an acre of land to the County of Maui for the expansion of the Kaunoa Senior Center is very generous and an example of balanced sensible development for the future.

Very truly yours,

David R. Spee

cc: Henry Spencer
Via Hand Delivery

Chairperson Randy Piltz and Members
of the Maui Planning Commission
County of Maui
c/o Department of Planning
County of Maui
250 South High Street
Wailuku, Maui, HI 96793

Re: Comments Upon Draft Environmental Assessment for “E Paepae Ka Puko‘a”, a 16-Lot Rural Subdivision, Open Space Conservation Easement and County/State Donation Project Prepared for Old Stable LLC by Munekiyo & Hiraga, Inc.; TMK Nos. (II) 3-8-001:por. 003, 3-8-002:009 and 010 in Spreckelsville, Paia, Maui, Hawaii

Dear Chairperson Randy Piltz and Members of the Maui Planning Commission:

These comments and objections to the entry of a Finding of No Significant Impact ("FONSI") on the Draft Environmental Assessment ("DEA") for the "E Paepae Ka Puko‘a" a 16-Lot Rural Subdivision, Open Space Conservation Easement and County/State Donation Project Prepared for Old Stable LLC by Munekiyo & Hiraga, Inc.; TMK Nos. (II) 3-8-001:por. 003, 3-8-002:009 and 010 in Spreckelsville, Paia, Maui, Hawaii are submitted on behalf of John and Louise Severson, Jenna deRosnay and other owners of properties on Laulea Place which adjoin this proposed development. These commentors will be directly, immediately and adversely affected by the proposed project and, therefore, have standing to oppose the entry of any FONSI on this DEA.

I. STANDARD OF REVIEW

The Environmental Assessment ("EA") and Environmental Impact Statement process ("EIS") is described in Price v. Obayashi Haw. Corp. 81 Haw. 171, 914 P.2d 1364 (1996). An EA is prepared for non-exempt applicant or agency actions for which a "triggering" event is present, as here.
An EA is prepared for the limited purpose of determining whether, on a summary basis, the environmental process may be lawfully terminated, or whether a full-blown EIS must be prepared. A relatively low threshold test is applied.

If a proposed action "may" have a significant environmental impact, then a full-blown EIS must be prepared. See HRS § 343-5(b). In determining whether a proposed action "may" have a significant environmental effect, the "significance criteria" set out in the EIS Regulations must be properly applied. See HAR § 11-200-12. Stated conversely, if, in a short EA, it cannot be demonstrated on a summary basis that a proposed action will not have any significant adverse environmental impacts, then an EIS shall be prepared. An EA is not to be an attempted substitute for an EIS.

If substantial questions are raised regarding whether a proposed action may have a significant impact upon the environment, a decision not to prepare an EIS is unreasonable. Foundation For North American Wild Sheep v. United States Department of Agriculture, 681 F. 2d 1172, 1178 (9th Cir. 1982). The reasons given for why impacts are insignificant are crucial in determining whether the agency took the required "hard look" at the potential environmental impacts of the project. Kleppe v. Sierra Club, 427 U.S. 390, 410 (1976). Deference to a FONSI is only required when the agency decision is "fully informed and well-considered". Jones v. Gordon, 792 F. 2d 821, 828 (9th Cir. 1986).

The agency should have prepared an EIS where there are substantial questions on whether the project may have a significant effect on the environment. Public Citizen v. U.S. Department of Transportation, (9th Cir. 2003, not reported); Anderson v. Evans, (9th Cir. 2002, not reported).

As it will be demonstrated below an EIS is required, as a matter of fact and law, upon a correct application of the "significance criteria". A FONSI cannot be justified, if the legislative purposes of Chapter 343 are honored.

II. DEFICIENCIES IN THE DRAFT ENVIRONMENTAL ASSESSMENT

These commentors live along the westerly portion of Laulea Place which has for years been surrounded by undeveloped properties, sand dunes and wetlands. The developer offers a substantial area of land to be open to the public in perpetuity. If this is documented properly to assure the rights of the public to these beachfront properties forever, without interference, this is a substantial benefit. Still, the developed portion of this proposed project abuts the properties of these commentors, Intensifies uses and will potentially adversely affect the beneficial uses enjoyed by these commentors for many years. In order for this project not to have any adverse impact upon these commentors, mitigation measures including but not limited to the following must be incorporated into this project:
(1) This roadway area should be widened to include some of the proposed project in order to create a buffer between the proposed project and the properties of these commentors;

(2) Vehicular access to and from the proposed project shall not be from the westerly portion of Laulea Place;

(3) The proposed project already provides for pedestrian access to and from the shoreline in alternative fashions so that there shall not be any pedestrian outlets from the project to and from the westerly portion of Laulea Place;

(4) The developer, at his sole cost, as part of the proposed project, shall construct a rock wall, as high as will be allowed by the County of Maui, on the project side for the full length of the westerly portion of Laulea Place;

and

(5) The portion of Laulea Place westerly on Alakapa Place should be severed and sold to those owners who currently use this roadway, primarily these commentors.

The incompatibilities between the existing community and this proposed project can be mitigated if and only if these and other mitigations are incorporated into the project plans.

III. INCORPORATION BY REFERENCE OF OTHER COMMENTS

The commentors hereby incorporate by reference all other comments submitted by all others who commented on this DEA, in particular all other comments tending to indicate that the DEA is inadequate or that an EIS is required.

IV. THE DEA DOES NOT MEET THE TESTS FOR A FONSI

The authors of the EA improperly find that the proposed project meets the test for a FONSI in § 5.0 of the DEA.

V. CONCLUSION/DEA SHOULD BE WITHDRAWN

We trust that you will take seriously your responsibility to enforce the environmental laws of our state, and refuse to accept or approve this document until it has been adequately prepared to serve its intended purpose.

Thank you for the opportunity to oppose the entry of a FONSI on this DEA. I request that you find either that (a) this DEA is inadequate, or (b) that substantial questions have been raised about whether the proposed action may
have a significant effect on the environment and therefore require the preparation of an EIS.

Sincerely yours,

Isaac Hall

IH/sn

cc: Applicant, Old Stable LLC
    P.O. Box 790829
    Paia, Hawaii 96779
Consultant, Munekyo & Hiraga, Inc.
    305 High Street, Suite 104
    Wailuku, Maui, Hawaii 96793
Contact: Daren Suzukl
Office of Environmental Quality Control
Clients

nelson/letcoment
October 26, 2004

Mr. Randy Piltz, Chairperson
and Members of the Maui Planning Commission
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Mr. Chairperson Piltz and Members of the Maui Planning Commission:

We received a copy of Isaac Hall’s letter to Chairperson Randy Piltz and members of the Maui Planning Commission dated October 8, 2004, providing comments on the subject Draft Environmental Assessment. On behalf of Old Stable LLC, we offer the follow response.

As represented by Mr. Spencer at the Planning Commission meeting on September 28, 2004, a three-foot high berm with a two-foot high solid wall on its top will be constructed along along the entire southern and western boundaries of Laulea Place, throughout its length where it abuts the new subdivision. This representation would address proposed mitigation measures Nos. 1 through 4 of Mr. Hall’s letter.

Further, Old Stable LLC has previously stated its willingness to sell Laulea Place (to the west of the Alakaka intersection) as a separate parcel for $1.00 to the owners of all lots abutting Laulea Place (but not including the owners of any of the sixteen (16) residential lots in the development), or to any entity established by said lot owners for their mutual benefit for the purpose of owning and maintaining the road for the use and benefit of said lot owners. This offer was made as part of discussions with the neighbors to try to address their concerns. This representation would address proposed mitigation measure No. 5 of Mr. Hall’s letter.

Based on these proposed mitigation measures provided by Mr. Spencer, we respectfully request that the Findings of No Significant Impact determination be upheld.
Mr. Randy Piltz, Chairperson
and Members of the Maui Planning Commission
October 26, 2004
Page 2

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc:  Isaac Hall, Attorney at Law
     Kivette Caigoy, Department of Planning
     Henry Spencer

spencer@spencerfirm.com
October 29, 2004

Mr. Daren Suzuki, Project Planner
Munekiyo & Hiraga, Inc.
305 High Street Suite 104
Wailuku, Hawaii 96793

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Sprecklesville, Maui

Dear Mr. Suzuki,

Thank you for your letter October 26, 2004 providing clarification concerning the drainage problems in the area.

We highly recommend the proposed retention basin located on the makai side of the subdivision roadway at the intersection of Stable Road have an operation and maintenance plan developed by the landowner. This should assign responsibilities to whoever has the responsibility to clean the basin and periodic inspections need to be scheduled.

Thank you for the opportunity to comment.

Sincerely,

[Signature]
Ranae F. Ganske-Cerizo
District Conservationist

cc: Ms Kivette Caigoy, Department of Planning
November 23, 2004

Ms. Ranae Ganske-Cerizo  
District Conservationist  
Natural Resources Conservation Service  
210 Imi Kala Street, Suite 209  
Wailuku, Hawaii 96793-2100

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui

Dear Ms. Ganske-Cerizo:

Thank you for your letter dated October 29, 2004, in response to our letter to you dated October 2, 2004 on the subject Draft EA. On behalf of Old Stable LLC, it is acknowledged that the retention basin will be monitored and regularly maintained.

Should you have any questions, please call me at 244-2015.

Very truly yours,

Daren Suzuki, Planner

DS:yp
cc: Kivette Caigoy, Department of Planning  
    Henry Spencer  
    spencer@wmaonline.com  

MUNEKIYO & MIRAGA, INC.
Re: Draft Environmental Assessment and Applications for a Community Plan Amendment, Change in Zoning and Special Management Area Use Permit for the E Paepae Ka Pukoa 16-lot Rural Subdivision, Open Space Conservation Easement and County Donation Project

Thank you for the opportunity to comment on the above document. The plan is a refreshing example of a well-thought-out development that has placed environmental considerations and public concerns ahead of maximum economic returns to the developer.

The coastal parcels which will be dedicated as a conservation easement are extremely heavily used recreational areas which are suffering from rapid shoreline retreat, sand losses due to dune blowouts, unrestricted pedestrian and vehicular traffic across the dunes and sea level rise, as well as the long term effects of extensive sand mining that took place in the 1800s and 1900s. As the dune is migrating rapidly, it is critical that the dune has space in which to move, which the conservation easement will provide. The developer has expressed to me a keen and genuine interest in restoring both the beach and dunes on these parcels, which will add considerable benefits to the ecological and recreational uses of these areas, and I look forward to working with him on these projects.

The fact that no development will take place in the V23 zone is also excellent planning as this will greatly minimize storm and tsunami damage and potential threats to life and property from coastal hazards.

It is unfortunate that wetlands will be impacted. However, the commitment to expanding, improving, and maintaining one of the wetland area goes a long way toward minimizing the overall impact on wetland-dependent species.

My understanding of the drainage plan is that all the additional surface runoff from the proposed 16-lot subdivision will be captured by the proposed retention basin, and that while runoff makai of the subdivision will still sheet-flow toward the ocean, the amount of runoff toward the ocean will not be increased. If I did not understand this correctly
and runoff levels to the ocean will indeed be increased, I would make the
recommendation that the runoff to the ocean should not be increased, and that the
retention basin should be large enough to accommodate runoff from the 50-year storm.

In summary, as no development is proposed within 500 feet from the shoreline, impacts
to coastal ecosystems should be minimal. Plans to create a conservation easement,
restore the beach and dune, and restore and maintain wetlands, will be beneficial to
protection of the natural resources of this area. Thank you for your consideration.

Sincerely,

[Signature]

Zoe Norcross-Nu'u
Sea Grant Extension Agent
Ms. Zoe Norcross-Nu’u  
Sea Grant Extension Agent  
Maui Community College  
310 Kaahumanu Avenue  
Kahului, Hawaii 96732  

SUBJECT: Draft Environmental Assessment (EA) for the Proposed 16-Lot Subdivision and Related Improvements, TMK Nos. 3-8-001:003, 3-8-002:009 and 3-8-002:010, Spreckelsville, Maui  

Dear Ms. Norcross-Nu’u:  

Thank you for your letter to Mr. Michael Foley received on October 27, 2004, providing comments on the subject Draft EA. On behalf of Old Stable LLC, we verify that the proposed retention basin will be sized to accommodate the increase in runoff generated by the proposed project; therefore, not increasing the volume of runoff continuing downstream. In addition, the project drainage plan is designed for a 50-year storm.  

Thank you for your review of the subject Draft EA. Should you have any questions, please contact me at 244-2015.  

Very truly yours,  

Daren Suzuki, Planner  

cc: Kivette Caigoy, Department of Planning  
Henry Spencer
October 25, 2004
CIZ 2004-0015.RCM3

Honorable Michael W. Foley
Planning Director
County of Maui, Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Foley:

Subject: L.D. No.: CIZ 2004-0015
Applicant: Old State Road, LLC/16-lot subdivision
Authority: County of Maui Department of Planning
TMK: (2) 3-8-001: 003 (portion) — 3-8-2: 009 & 010

This is a follow-up to our letter to you dated September 24, 2004, pertaining to the subject matter.

Enclosed please find a copy of the Commission on Water Resource Management comment and Maui District Land Office response.

The Department of Land and Natural Resources has no other comment to offer on the subject matter. If you have any questions, please feel free to contact Nicholas A. Vacearo of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: MDLO
MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
XXX Engineering Division
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Land-Maui District Land Office

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Change In Zoning
I. D. No.: CIZ 2004-0015
Applicant: Old Stable Road LLC
Project: 16 Lot Rural Subdivision
TMK: 2nd, 3-8-1: 003 (portion). 3-8-2: 009 & 010
Authority: County of Maui Department of Planning

Please review the attached document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments. ( ) Comments attached.

Division: ___________________ Signed: ___________________

Date: ___________________ Print Name: ___________________
September 30, 2004

TO: Ms. Dede Mamiya, Administrator
    Land Division

FROM: Yvonne Y. Izu, Deputy Director
    Commission on Water Resource Management (CWRM)

SUBJECT: Old Stable Road 16-lot Rural Subn., Spreckelsville, Maui

FILE NO.: SM1 CIZ 2004-0015.CMT2

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation or contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER:

Water demand is estimated at 51,000 gpd. The primary water source for this project is now a ground-water management area under the State Commission on Water Resource Management (CWRM), and the current water supply infrastructure is maximized. Other water sources for the service area face full commitment as soon as they are available. Well owners in the lao Aquifer must apply for water use permit applications prior to pumping. Permits will initially be issued for uses existing as of July 21, 2003. Uses initiated after that will be addressed after existing uses are considered. If pumpage from lao is restricted, it could result in restrictions of use within the service area. New uses within the Central Maui Service Area not relying on lao sources may also be affected if lao sources are restricted.

If there are any questions, please contact Charley Iice at 587-0251.
September 15, 2004
LD/NAV
SM1 CIZ 2004-0015.CMT2

MEMORANDUM:

TO: XXX Division of Forestry & Wildlife
   XXX Engineering Division
   XXX Commission on Water Resource Management
   XXX Office of Conservation and Coastal Lands
   XXX Land-Maui District Land Office

FROM: Dierdre S. Mamiya, Administrator
       Land Division

SUBJECT: Change In Zoning

I. D. No.: CIZ 2004-0015
Applicant: Old Stable Road LLC
Project: 16 Lot Rural Subdivision
TMK: 2nd/3-8-1:003 (portion). 3-8-2:009 & 010
Authority: County of Maui Department of Planning

Please review the attached document pertaining to the subject matter and submit your comment (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nicholas A. Vaccaro at ext.: 7-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

( √ ) We have no comments.

Division: [ ]
Date: 10/12/04

( ) Comments attached
Signed: [ ]
Print Name: [ ]
References
References


County of Maui, General Plan of the County of Maui, (1990 Update).

County of Maui, Wailuku-Kahului Community Plan, (June 2002).

Federal Emergency Management Agency, Flood Insurance Rate Map, Community Panel No. 150003/0190D and 150003/0195C.


Appendix A

Wetland Delineation Survey
WETLAND DELINEATION SURVEY
SPRECKESVILLE, Lot 12 of the Ulmer Subdivision

Subject Site:

VACANT LAND
Ulmer Subdivision, Lot 12
Stable Road, Sprecksville
Maui, Hawaii 96732
T.M.K. (2) 3-8-1:3 (Portion)

Prepared for:

MR. HENRY SPENCER
P.O. Box 900129
Puna, Hawaii 96799

Conducted and Compiled by:

Vuich Environmental Consultants, Inc.
VEC Project Number #0403-479
June 8, 2004

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Sprecksville Wetland Delineation Summary

Prepared by
Vuich Environmental Consultants, Inc (VEC)
VEC Project # 0403-479

VEC conducted wetland delineation surveys on the subject property located at the intersection of Hana Highway and Stable Road (T.M.K. No. II-3-8-1:3(portion)). The property is also known as Lot 12 of the Ulmer Subdivision. The purpose of the survey was to delineate areas previously determined by VEC (November 2003) of having wetland conditions. Three (3) separate areas were delineated on the subject property by this investigation. (See attached maps, Appendix A). The wetland delineation work was conducted on April 8, 29 and 30, 2004. This work was conducted following a period of exceptionally heavy and consistent rainfall that impacted the island of Maui.

From the early 1900's to very recently the subject property has been used primarily for livestock and stable use. Earlier in the 19th century, the property was a plantation farm that included horses used in the cane industry. After horses were replaced with motorized vehicles, the property was used for riding purposes (grazing land, riding livestock, rodeo areas, and horse boarding). All three of the wetland areas have been negatively impacted by varying degrees over the years by grading activities, road building, and limited refuse disposal.

Thirty-two (32) separate boronites were excavated in the three areas. Soil types (profiles), hydrology, and vegetation were surveyed at all of these locations. The Corps of Engineers’ Routine Wetland Determination Forms were used at each boronite to assist in determining if wetland conditions existed. These forms are located in Appendix C.

Descriptions of the three separate areas and the wetland area coverage follows:

Area 1 – A complex of small-area wetlands surrounded by sandy berms, located in the northeast corner of the subject property closest to a road named Aikape Place. The delineation area was determined to cover approximately 9,960 square feet. The wetland boundary was basically determined to lie just outside the area of most recent ponding water. Beyond this area the surrounding land quickly gained elevation in very sandy soil where the required wetland characteristics ended. No obligate wetland plants were noted in this area. Additionally, this area consists of significant amounts of woody debris (dead kahau) and a dense overhead canopy. Evidence of human manipulation (grading) was evident in this area.

Area 2 – An area east of a former rodeo area that extends in an approximate west-east direction toward the paved private road located between Lot 7 and Lot 9 (See attached subdivision map, Figure 4, Appendix A). The delineation area was determined to cover approximately 33,075 square feet. However, within this area are several sections of raised dune sand (natural and human altered) that
run both north-south and east-west. The raised dune areas are not included in the definition of a wetland, however, due to the extremely dense thickets these areas were not delineated out of the main area. These raised dune areas that do not meet the wetland criteria likely comprise of up to 20% of the total area. No significant areas of surface water ponds were noted in this area. Area 2 had been taken over primarily by the woody shrub Plocos ink and has resulted in an impenetrable mass of vegetation. Trail cutting was required to survey the area. Evidence of human manipulation (grading, road building and refuse dumping) was evident in this area.

**Area 3** - This area is located north of the former rodeo area and adjacent to (south of) the unpruned beach access road and coastal sand dunes. The delineation area was determined to cover approximately 9,596 square feet. Limited areas of surface water ponding were noted in this area. The wetland boundaries were basically limited by the sand dunes where land quickly gained elevation in very sandy soil or in areas where the land was significantly altered by human activities (former rodeo and beach roads). Of the three (3) areas, Area 3 is the wetland that appears to be the most representative of a natural wetland area. The obligate wetland plant Cyperus leucas or "halakie" was noted in this area. This area is also where the bird species the Hawaiian Stilt was noted during a fauna survey. The fauna survey was conducted after a period of abnormal significant rainfall, which resulted in significant water ponding in this area. Evidence of human manipulation (grading and limited dumping) was evident in this area.

Areas 1, 2, and 3 were delineated based on the information collected at the sampling points. (See Figures 3 & 4, Appendix A).

On November 5, 2003, a field meeting was conducted between VEC, the property owner, and the Army Corps of Engineers (Mr. William Lerman, Honolulu Office). At that time, all three (3) wetland areas were considered by Mr. Lerman to be "isolated" wetlands, meaning that they are not connected to "waters of the United States". Therefore, this would mean these wetlands do not fall under the jurisdiction of the Army Corps of Engineers and are not subject to Section 404 of the Clean Water Act. Since this meeting, the Army Corps of Engineers has informed the property owner that they will be reassessing their original decision and will now review this delineation report to make a final decision.

If the Army Corps of Engineers is in agreement with the above-noted findings, and it is determined that Area 1, Area 2 or Area 3 are under the jurisdiction of the Army Corps of Engineers, the property owner may be subject to Section 404 of the Clean Water Act. "Activities in wetlands for which Section 404 permits may be required include, but are not limited to:

- Placement of fill and/or dredged material;
- Ditching activities when the excavated material is sidecast;
- Levee and dike construction;
- Mechanical land clearing;
- Land leveling;
- Most road construction;
- Dam Construction.

The final determination as to whether an area is a wetland and whether the activity requires a permit must be made by the appropriate Corps District Office. (Requiring Wetlands, US Army Corps of Engineers, 1995 Edition).

The proposed subdivision development will result in the filling in of Area 1 (9,060 sf) and a portion of Area 2, which is for a total of 20,831 sf. In order to effect these losses, the property owner proposes to set up a mitigation/erosion plan for Area 4. Area 3 is the best of the three areas to conduct such work for three reasons: 1) it has the only obligate wetland plant species present; and most closely resembles a productive natural wetland; 2) there is a significant amount of adjacent low-lying land that could be mitigated to increase the wetland resources of Area 3; and 3) the Hawaiian Stilt was observed in this area after a period of consistent rainfall.

**APPENDIX A** includes:

- A regional setting map; an aerial map with the wetland areas noted; a site survey plan with wetland areas delineated and borohole (sample points) plotted; and a subdivision plan with the wetland areas delineated and proposed areas of wetland impact noted.

**APPENDIX B** includes:

- The site photographs.

**APPENDIX C** includes the COE Routine Wetland Determination Forms.

**APPENDIX D** includes Statement of Qualifications.

- Mr. John Voich (soils and hydrology)
- Mr. Jeffrey Kemode (soils, hydrology and mapping)
- Mr. Jack Oppenhime (vegetation)
- Ken Novice of A&K Properties, Inc. (delinication mapping)
APPENDIX A

- Figure 1 - Regional Setting Map
- Figure 2 - Site Plan Aerial Photo
- Figure 3 - Survey Plan with Wetland Delineation
- Figure 4 - Subdivision Plan with Wetland Delineation
NOTES:

1. All lines and coordinates referred to Government Survey
   Township Section System (T/P/S).

2. Center of adjacent parcels taken from records of the Real
   Property Mapping Branch.

3. Location of Wetlands area based on a field survey
   performed on May 3 and 14, 2004.
FIGURE 3

PLAT SHOWING
WETLANDS LOCATION IN LOT 12
OF THE ULMER SUBDIVISION
Being a portion of Grant 3345 to Clays Spradale

SCALE: 1 inch = 200 feet
DATE: JUNE 4, 2004
Prepared by: J.B.B. Preparing, Inc.
333 Louis Avenue, Suite 400
Dubuque, IA 52001

Owner of Lot 12: Henry Spooner
P.O. Box 201
Pcola, IA 52779

This work was prepared by us in our professional capacity.
**PHOTO 4**
Wetland Area #1, Sampling point (dowel #2), showing the distance to the point where water is this area (approximately 4 feet away).

**PHOTO 5**
Wetland Area #1, View along the upper limit of the wetland boundary.

**PHOTO 6**
Wetland Area #1, View along the wetland boundary. Note the boundary markers (orange-white tape) marking the upper limit of the wetland area.

**PHOTO 7**
Wetland Area #2, The wetland limit of the wetland was determined to lie between sample area #3 and #4.

**PHOTO 8**
Wetland Area #2, Trail cutting was necessary in order to penetrate the very dense Phragmites australis (wetland reeds) in order to access sampling points for the wetland condition survey.

**PHOTO 9**
Wetland Area #2, Sampling point (dowel #2). This sampling point is located within the wetland fringe of Area #2. Note the grey colored soil, shallow groundwater level, and adjacent wetland vegetation.
PHOTO 10
Wetland Area #2, sampling point (borehole) #10 is in soil and hydrology wetland indicators evident. This sampling point was within a very dense thicket of swamp rose (Indian rosebay).

PHOTO 11
Wetland Area #2, sampling point (borehole) #11. This sampling point is located outside of the wetland area. Soil and hydrology indicators evident with the rise in elevation on an adjacent sand zone. The depth of this borehole is 37".

PHOTO 12
Wetland Area #2, sampling point (borehole) #12. This sampling point is located within the wetland; however, note the rapid rise in elevation on an adjacent sand zone. Wetland soil, hydrology, and vegetation indicators end abruptly on these zones.

PHOTO 13
Wetland Area #2, sampling point (borehole) #13, located near the eastern boundary of the wetland.

PHOTO 14
Wetland Area #2, sampling point (borehole) #14. Note the gray-colored sand and black vertical streaming of organics within the soil column.

PHOTO 15
Wetland view from the eastern boundary of the wetland, Area #2.
PHOTO 16
Wetland Area #3, showing a more open productive wetland area with both obligate and facultative wetland vegetation and surface water ponding.

PHOTO 17
Wetland Area #3, sampling point 1 (source) #4. Indicating shallow groundwater, hydro soils, and adjacent obligate vegetation. (Cyperus lavedus L. or "makaha").

PHOTO 18
Wetland Area #2, view of (source) sampling point #24 same as above. Note the abundance of the obligate wetland plant, Cyperus lavedus L. or "makaha".

PHOTO 19
Wetland Area #3, sampling point (source) #37. This sampling point is located outside of the wetland area. Notice the very sandy soils and lack of groundwater in the excavation pit. This sampling point is located in very close proximity to the wetland boundary, however, it situated at a slightly elevated position on an adjacent sand dune.

PHOTO 20
Wetland Area #3, sampling point (source) #27. Note the very shallow groundwater level located in this area.

PHOTO 21
Wetland Area #3, southern view towards the southern boundary of the wetland. The wetland area diminishes further to the south with the presence of the nodes that had been active in the area for several decades denuding the area of vegetation by regular grading activities. Sampling point #20 is marked by the pink flag in the foreground.
APPENDIX C

DOE Wetland Determination Data Forms

[Thirty-two (32) Separate Survey Locations]
**SOILS**

<table>
<thead>
<tr>
<th>Depth (in.)</th>
<th>Material</th>
<th>Gravel, C11, %</th>
<th>Organic, %</th>
<th>Texture, Consistency, Grading, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>C11</td>
<td>100</td>
<td>0</td>
<td>Clayey, firm</td>
</tr>
<tr>
<td>4-12</td>
<td>A1</td>
<td>100</td>
<td>0</td>
<td>Clayey, firm</td>
</tr>
<tr>
<td>12-20</td>
<td>A2</td>
<td>100</td>
<td>0</td>
<td>Clayey, firm</td>
</tr>
<tr>
<td>20-30</td>
<td>B1</td>
<td>70%</td>
<td>30%</td>
<td>Dark Brown</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Forest Groundwater
- High Organic Content
- Organic Streaking in Sandy Soil
- Ayer Moisture Regime
- Principal Hydrologic Factor: Listed on local Hydric Soil List

Remarks:
- Groundwater at 22" (after 50-year storm).
- All types wet from recent rains.
- Sandy to silty, no odor.
- 1/2" from standing water.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? **Yes**
Hydric Soil Present? **Yes**
Is this Sampling Point Within a Wetland? **Yes**

Remarks:
- Slightly raised ground above ponding water with grasses approximately 2' and 1' above ponding water.

**DATA FORM**

<table>
<thead>
<tr>
<th>Project Site</th>
<th>PERSONAL DATA SHEET</th>
<th>Date: 8/94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant/Owner:</td>
<td>N. SPENCER</td>
<td>County: WASHINGTON</td>
</tr>
<tr>
<td>Investigator:</td>
<td>J. K. RICHMOND</td>
<td>Site: 315-001</td>
</tr>
</tbody>
</table>

Do Normal Circumstances Exist on the Site? **Yes**
Is the site significantly disturbed? **Yes**
Is the area a potential Problem Area? **Yes**

**VEGETATION**

<table>
<thead>
<tr>
<th>Dominant Plant Species</th>
<th>Common Name</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedgegrass</td>
<td>Sedgegrass</td>
<td>Park</td>
</tr>
<tr>
<td>Peatbog sedge</td>
<td>Sedgegrass</td>
<td>True</td>
</tr>
<tr>
<td>Sphagnum moss</td>
<td>Moss</td>
<td>True</td>
</tr>
</tbody>
</table>

**HYDROLOGY**

Recorded Data (Describe in Remarks):
- Stream, Lake, or Hole Gauge
- Wetland Hydrology
- No Recorded Data Available

Field Observations:
- Depth of Free Water: **NONE**
- Depth of Saturated Soil: **20"**

Remarks:
- Slightly raised ground above ponding water with grasses approximately 2' and 1' above ponding water.
### Soils

**Map Unit Name**: B12  
**Drainage Class**:  
**Taxonomy (Subgroup)**:  
**Profile Description**:  

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Horizon</th>
<th>Material Code</th>
<th>Material Description</th>
<th>Material Color</th>
<th>Texture, Conformation, Structure, etc.</th>
<th>Depth (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1'</td>
<td>01</td>
<td>19YR 6/4</td>
<td>Brown</td>
<td>Loose</td>
<td>0'</td>
<td></td>
</tr>
<tr>
<td>1-12'</td>
<td>A1</td>
<td>7.5YR 2.5/2</td>
<td>Silt loam</td>
<td>Light brown</td>
<td>Transition color from light gray to yellow</td>
<td>12'</td>
</tr>
<tr>
<td>12-18'</td>
<td>A3</td>
<td>19YR 6/4</td>
<td>Brown</td>
<td>Loose</td>
<td>18'</td>
<td></td>
</tr>
<tr>
<td>18-24'</td>
<td>B0</td>
<td>7.5YR 2.5/1</td>
<td>Gray</td>
<td>Loose</td>
<td>24'</td>
<td></td>
</tr>
</tbody>
</table>

**Hydric Soil Indications**:  

- [ ] Historical  
- [ ] Field Observation  
- [ ] Public Data  
- [ ] Organic Soils  
- [ ] Organic Soils in Sandy Soils  
- [ ] Other  

**Remarks**:  
- Ground water is at 1' below surface.  
- Soil is saturated.  
- Silt loam color at bottom = 24'.  
- Beach sand color to medium grain.

### Wetland Determination

**Hydrophytic Vegetation Present?**: Yes  
**Hydrophytic Vegetation Present at Site Sampling Point Within a Wetland?**: No  
**Hydric Soil Present?**: No  

**Remarks**:  
- This sampling point is on the fringe of the wetland.  
- Wetland vegetation is present but not completely dominant.

Approved by: [Signature]

### Data Form

**Property Site**:  
**Applicant Owner**: B. SCHEER  
**Investigator**:  
**County**:  
**Community ID**:  
**ID**:  
**Part ID**:  

**Vegetation**

1. **Dominant Plant Species**: Chama bidens  
2. **Primary Indicator**: Acrotrichia  
3. **Secondary Indicator**:  
4. **Advanced Phase**:  

### Hydrology

**Water Collection Data**:  
**No Data Available**

**Field Observations**:  
- **Depth of Water**:  
- **Depth of Free Water**:  
- **Depth of Saturated Soil**:  

**Remarks**:  
- **From ponding water:**

---

**Declaration**

[Declaration]

[Date: [Date]]
SOILS

Max Unit Name: (Site and Phase): BLK 4
Taxonomy (Subgroup): Field Observation: Contains Mapped Type: Yes No

Profile Description:

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Matrix Fines</th>
<th>Matrix Loose/Control</th>
<th>Texture, Consistency, Structure, Top</th>
<th>Hydraulic Soil Indicators:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-8'</td>
<td>A1</td>
<td>10% Red-6% Black</td>
<td>Dark Red</td>
<td>Exposed</td>
<td>10% Sand, 30% Clay</td>
<td>Groundwater</td>
</tr>
<tr>
<td>8'-17'</td>
<td>A2</td>
<td>7.5% Red-8% Black</td>
<td>Dark Brown</td>
<td>Well Drained</td>
<td>7% Clay, 3% Sand</td>
<td>Other</td>
</tr>
<tr>
<td>17'-20'</td>
<td>B1</td>
<td>25% Red-5% Black</td>
<td>Very Light</td>
<td>Poorly Drained</td>
<td>4% Clay, 3% Sand</td>
<td>Other</td>
</tr>
<tr>
<td>20'-25'</td>
<td>B2</td>
<td>25% Red-5% Black</td>
<td>Very Light</td>
<td>Poorly Drained</td>
<td>3% Sand, 3% Clay</td>
<td>Other</td>
</tr>
</tbody>
</table>

Remarks: 4' from ponding water, 6' above ponding water. Digged 2' deep at 13'-18' only. Dirt was moist at 3' depth. 4' from ponding water, 6' above ponding water. Digged 2' deep at 13'-18' only. Dirt was moist at 3' depth.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Explain)
Wetland Hydrology Present? Yes No (Explain)
Hydraulic Soils Present? Yes No (Explain)

Comments: This area is located on the wetland border.

DATA FORM

Project Site: KAPUKAUA SUBDIVISION
Applicant/Owner: M. SPENCER
Investigator: J. KINNOCK, J. YUDE, M. OFFFFFFER

Sediment: No
Organic: Yes
Sedimentary: No
Arid: No
Vegetation: Yes
Vegetation: Yes

No Fossiliferous Rock

Hydrology:

No Recorded Data Available

Field Observations:

Depth of Surface Water: 0' (m)
Depth to Free Water in Ft: 0' (m)
Depth to Saturated Soil: 0' (m)

Site: ARIZ
County: HAWAI
Community ID: 10-AAA-2
Plot ID: 382

REMARKS:

These remarks are for wetland determination.

SUMMARY

Indicate:

1. Parent Material: Yes
2. Parent Pint: No
3. Parent Material: No
4. Parent Pint: Yes
5. Parent Material: No
6. Parent Pint: No
7. Parent Material: No
8. Parent Pint: No

Porosity of Dewatered Soils that are OBS, FADW, FAP (Including FAC): 50% FAC

Remarks:

Acreage by HOAGLE 307

[Diagram and text related to wetland determination and soil profile]
SOILS

Map Unit Name: (Soils and Plants): BCS

Drainage Class: Field Observations: Condemn Hauled Type? Yes

Taxonomy (Subgroup):

Profile Description:

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Horizon</th>
<th>Horizon Color (Manuel Name)</th>
<th>Horizon Color (Manuel Name)</th>
<th>Horizon Color (Manuel Name)</th>
<th>Horizon Color (Manuel Name)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0&quot; - 3&quot;</td>
<td>B1</td>
<td>70.50%, Rl</td>
<td>Brown/Red</td>
<td>Brown/Red</td>
<td>Brown/Red</td>
</tr>
<tr>
<td>3&quot; - 6&quot;</td>
<td>A1</td>
<td>70.50%, Rl</td>
<td>Dark Brown</td>
<td>Dark Brown</td>
<td>Dark Brown</td>
</tr>
<tr>
<td>6&quot; - 12&quot;</td>
<td>A2</td>
<td>100%, Rl</td>
<td>Brown</td>
<td>Brown</td>
<td>Brown</td>
</tr>
<tr>
<td>12&quot; - 18&quot;</td>
<td>B1</td>
<td>225%, Rl</td>
<td>Light brown</td>
<td>Light brown</td>
<td>Light brown</td>
</tr>
<tr>
<td>18&quot; - 36&quot;</td>
<td>B2</td>
<td>0.0%, Rl</td>
<td>Gray</td>
<td>Gray</td>
<td>Gray</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Saturated
- High Organic Content in Surface Layer
- Organic Staining in Soils
- Reduced Conditions
- Gray or Low-Cone Colors

Hydric Soil Indicators:
- Saturated
- High Organic Content in Surface Layer
- Organic Staining in Soils
- Reduced Conditions
- Gray or Low-Cone Colors

Remarks:
Field soil from 14"-24".

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Gaps)

Vegetation:
- Yes

Hydrophytic Vegetation Present? Yes No (Gaps)

Vegetation:
- Yes

Is the Sampling Point Within a Wetland? Yes No

Remarks:
Vegetation is marginal. This point is at the wetland edge.

WETLAND HYDROLOGY

Wetland Hydrology:
- Yes

Wetland Hydrology:
- Yes

Wetland hydrology indicators:
- Elevated in Upper 12 inches at 12"
- Water Halts
- Cline Lines
- Sediment Deposits
- Drainage Patterns in Wetlands
- Secondary Indicators (2 or more required)
- Ditched Road Channels in Upper 12"
- additional Road Channels
- FAE-Related Test
- Other (Explain in Remarks)

Wetland hydrology indicators:
- Elevated in Upper 12 inches at 12"
- Water Halts
- Cline Lines
- Sediment Deposits
- Drainage Patterns in Wetlands
- Secondary Indicators (2 or more required)
- Ditched Road Channels in Upper 12"
- additional Road Channels
- FAE-Related Test
- Other (Explain in Remarks)

Remarks:
Located 2 miles west of C.G.C.E.

PROJECT/REVIEW SHEET

Date: 6/8/04

Appraiser/Owner: J. C. Speicher

Investigator: J. A. Rives, J. M. Oppenheimer

County: Harris

State: Texas

Vegetation:
- Grasses
- Shrubs
- Trees
- Large trees

Percent of Vegetation that are 120, 90 or 120 (including FAEs):

Remarks:
Located 2 below edge of drift line.

HYDROLOGY

- Depth of Surface Water: 0 (ft)
- Depth of Inflow Water: 0 (ft)
- Depth to Bedrock: 0 (ft)

Remarks:
Located 2 from ponding water.
Located 14" above ponding water.

11/25/2004 Document 3 Form Prepr 8 J. Rives Prepr 8 J. C. Speicher 8 Y. Lam 8 FAEs Sheet 1 Document 1 8 S. Baldwin 8 S. Ballo
SOILS

Map Unit Name (Stakes and Phases):  SOLB

Drainage Class: Field Observations: Conformed Mapped Type? Yes

Taxonomy (Subgroup): Color

Conformed Mapped Type: Yes

Profile Description:

<table>
<thead>
<tr>
<th>Depth (Inches)</th>
<th>Horizon</th>
<th>Mixture Color (Percent Tone)</th>
<th>Mixture Color (Percent Tone)</th>
<th>Mixture Color (Percent Tone)</th>
<th>Mixture Color (Percent Tone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-4'</td>
<td>A1</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
</tr>
<tr>
<td>4'-10'</td>
<td>A2</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
</tr>
<tr>
<td>10'-22'</td>
<td>B1</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
</tr>
<tr>
<td>22'-30'</td>
<td>B2</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
<td>7.07% 4%</td>
</tr>
</tbody>
</table>

Hydraulic Soil Indicators:

- [ ] Total Organic Content
- [ ] Organic Carbon in Soil Layers
- [ ] Organic Carbon in Soils
- [ ] Organic Carbon in Soils
- [ ] Organic Carbon in Soils
- [ ] Other (Specify)

Remarks:

- Dark gray sand at 12'-13'.
- 30'-34' broken cobbles.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes

Wetland Hydrology Present? Yes

Hydric Soils Present? Yes

Remain:

- Wetland vegetation marginal. Sampling point is at wetland fringe.

Approved by: [Signature]

DATA FORM

Routine Wetland Determination

1997 CC COE Wetlands Determination Manual

Project/Place: BOWIE ELEVATION EXPANSION

Appraiser/Owner: J. F. FREDERICK

Investigator: J. FREDERICK

County: MUR

Date: 10/15/99

Do Normal Circumstances Exist on the Site?

- [ ] Yes

Is the site significantly disturbed (e.g., slope, vegetation, etc.)?

- [ ] Yes

Is the area a potential Problem Area?

- [ ] Yes

COMMUNITY: [Area]

Plot ID: [Plot ID]

VEGETATION

- [ ] Dominant Plant Species
- [ ] Annual
- [ ] Perennials
- [ ] Shrubs
- [ ] Tress

- [ ] Percent of Dominant Species that are C4L, C4W, or FAC (excluding FAC)

Rationale:

- [ ] Dominant plant species

HYDROLOGY

- [ ] Reported Data (Include in Remarks)
- [ ] Stream, Lake, or Pond Group
- [ ] Field Observation
- [ ] Other

- [ ] Other (Include in Remarks)

- [ ] Field Observation
- [ ] Depth of Surface Water
- [ ] Depth to Free Water in PC
- [ ] Depth to Saturated Soil

Rationale:

- [ ] From surface water
- [ ] Above surface water

H:\[Your Document Path]\[File Name].doc

Date: [Date]

[Your Name]
### SOILS

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Texture/Consistency</th>
<th>Test Name</th>
<th>Percent Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1&quot;</td>
<td>A1</td>
<td>70% Clay, 30% Silt</td>
<td>HC4414</td>
<td>40% Clay, 60% Silt</td>
</tr>
<tr>
<td>1-2&quot;</td>
<td>A2</td>
<td>70% Clay, 30% Silt</td>
<td>HC4414</td>
<td>40% Clay, 60% Silt</td>
</tr>
<tr>
<td>2-4&quot;</td>
<td>B1</td>
<td>60% Sand, 20% Clay</td>
<td>HC4414</td>
<td>40% Clay, 60% Silt</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicator**:
- **Class**: Hydric
- **Affiliation**: High Organic Content in Surface Layer
- **Site Description**: Organic horizons in underlying sands
- **Vegetation**: Upland Forest

### VEGETATION

- **Dominant Plant Species**: None
- **Soil Indicator**: None

### HYDROLOGY

- **Found Data (Describe in Remarks)**:
  - Field Observations:
    - Depth to Surficial Water: None
    - Depth to Free Water: None
    - Depth to Saturated Soil: None

- **Wetland Hydrology Indicator**:
  - Primary Indicator: None
  - Secondary Indicator: None

**Remarks**:
- 10' from standing water.
- 1' above standing water.

### WETLAND DETERMINATION

- **Hydric Vegetation Forecast**: No (Glide)
- **Wetland Hydorlogy Present?**: Yes
- **Hydric Soil Present?**: Yes

**Remarks**:
- Wetland vegetation marginal. Sampling point is at wetland edge.

**Approved by**: R. D. C. 3-17

---

### DATA FORM


**Property**: SPENCER, LAKE

**Applicant/Owner**: H. SPENCER

**Investigator**: J. KEYSER

**County**: MAR

**Date**: 4-19-84

**Do Normal Groundwater Ebb from the site?**: Yes

**Is the site significantly disturbed (Agricultural Situation)?**: Yes

**Is the area a potential Problem Area**: Yes (1)

**Plot ID**: 01-04-04

---

**Hydrology**

- **Depth to Surficial Water**: None
- **Depth to Free Water**: None
- **Depth to Saturated Soil**: None

**Wetland Hydrology Indicators**: None

**Secondary Indicators**: None

**Remarks**: None
SOILS

<table>
<thead>
<tr>
<th>Map Unit Name</th>
<th>GIS ID</th>
<th>Onsrage Class</th>
<th>Field Observations</th>
<th>Confirm Mapped Type?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>812</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Taxonomy (Subgroup):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Profile Description:

<table>
<thead>
<tr>
<th>Depth (Inch)</th>
<th>Horizon</th>
<th>Mark Color</th>
<th>Matte Color</th>
<th>Matte Amount/Granul.</th>
<th>Texture, Consistence, Structure, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-10'</td>
<td>D1</td>
<td>2.5YR. 7.5</td>
<td>Reddish brown</td>
<td></td>
<td>Crystals</td>
</tr>
<tr>
<td>10'-20'</td>
<td>D3</td>
<td>10YR. 7.5</td>
<td>Red</td>
<td></td>
<td>Silty clay</td>
</tr>
<tr>
<td>20'-30'</td>
<td>D4</td>
<td>10YR. 5/4</td>
<td>Yellow gray</td>
<td></td>
<td>Silt with some clay, slight silt clay.</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:

- Historical Processes:
  - Historic Exploitation: High Organic Content in Surface Layer
  - Subaqueous Conditions: Organic Deposition in Sandy Soils
  - Aquatic Moisture Regimes: Listed on Local Hydric Soils List
  - Sedimentary Processes: Not Applicable

- Clayed or Low-Chroma Colors: Other (Explain in Remarks)

Remarks:

- Light yellowish color.

WETLAND DETERMINATION

Hydric Vegetation Present: No (Circle)

Wetland Hydrology Present: No (Circle)

Hydric Soils Present: Yes (Circle)

In this Sampling Point Within a Wetland? Yes (Circle)

Remarks:

- Wetland Hydrology.

DATA FORM

ROUTES WETLAND DETERMINATION

Prepared by: SHAYNE MURPHY

Applicant/Draft: J. SPENCER

Investigator: J. MURPHY, J. VADOL, H. MENDEHALL

Is the area a potential Problem Area? Yes (Circle)

Do Normal Circumstances Exist on the site? Yes (Circle)

Vegetation

- Dominant Plant Species: Indian Paintbrush

- Hydrology:
  - Recorded Data: None (Circle)
  - No Recorded Data Available

- Field Observations:
  - Depth of Surface Water: None (Circle)

- Wetland Hydrology Indicators:
  - Primary Indicators: Groundwater
    - Saturation in Upper 12 inches
    - Water Mats
    - Ridge Lines
    - Soil Traps
    - Seasonal Flushing
    - Sediment Deposition

- Secondary Indicators: None (Circle)

- Other (Explain in Remarks):
  - Ephemeral Flushing
  - Fluctuation in Upper 12 inches
  - Water-Splashed Leaves
  - FAC (Areal Test)
  - Other (Explain in Remarks)

Remarks: None (Circle)
SOILS

Map Unit Name: Site 10

Drainage Class: None

Taxonomy (Subgroup): Field Observations: Confirm Mapped Type? Yes No

Profile Description:

|---------------|----------------|----------------|----------------|----------------|-------------------------|
| 0-1\
| 1-10 |
| 10-12 | 2 | 3 | 4 | 5 | 6 |

Hydraulic Soil Indicators:

- High Organic Content in Surface Layer
- Organic Enveloping in Sandy Soil
- Large Number of Vegetation
- Vegetation Indicator
- Pasture and Hayland Soil
- High pH Water

Result:

Vegetation

- Dominant Species:
  1. Phragmites australis
  2. Typha latifolia
  3. Chara

Hydrology

- Recorded Data:
  - Depth of Surface Water:
  - Depth to Free Water in Ft:
  - Depth to Saturated Soil:

- Hydrologic Data:
  - No Recorded Data Available

Remarks:

- Sampling point is at wetland edge.

Vegetation

<table>
<thead>
<tr>
<th>Project Site</th>
<th>RUTHERFORD'S WETLAND DETERMINATION (1987 COE Wetland Determination Manual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>FOKEES</td>
</tr>
<tr>
<td>Applicant/Owner:</td>
<td>J. KENNER</td>
</tr>
<tr>
<td>Inspector:</td>
<td>J. BEAVER, J. VOGEL, H. ONEN</td>
</tr>
<tr>
<td>Do Normal Circumstances Exist on the Site?: No</td>
<td></td>
</tr>
<tr>
<td>Is the Site Significantly Disturbed (Typical Situation)? Yes</td>
<td></td>
</tr>
<tr>
<td>Area:</td>
<td>MILE 2</td>
</tr>
<tr>
<td>Phd ID:</td>
<td>BE 11</td>
</tr>
</tbody>
</table>

Hydrology

- Reynolds (Define): |  |
- Aerial Photography: |  |
- Depth of Surface Water: |  |
- Depth to Free Water in Ft: |  |
- Depth to Saturated Soil: |  |

Remarks:

- Sampling point is at wetland edge.

Hydrologic Data:

- No Recorded Data Available

- Field Observations:
  - Depth of Surface Water:
  - Depth to Free Water in Ft:
  - Depth to Saturated Soil:

- Wetland Hydrology Indicators:
  - Wetland Hydrology Indicators:
    - Vegetation:
      - No Recorded Data Available
    - Field Observations:
      - Depth of Surface Water:
      - Depth to Free Water in Ft:
      - Depth to Saturated Soil:

- Remarks:

- Sampling point is at wetland edge.
### SOILS

- **Map Unit Name:** [Details and Photo] 6H11
- **Drainage Class:**
- **Taxonomy (Subgroup):** Field Observation
- **Profile Description:**
  - Depth
  - Hydric Code
  - Undrained (A2)
  - Drainable (A1)
  - 0'-2' 2.29% red
  - 2'-12' 2.29% red
  - 12'-18' 30.1% red
- **Hydric Soil Indication:**
  - Hydric
  - Field Observation
  - High Organic Content in Surface Layer
  - Organic Soils
  - Claypan
  - Clayey or Loamy Clay
- **Vegetation:**
  - Dominant Plant Species:
    1.rushes
    2. sedges
    3. grasses
   - Percent Dominant Species that are OBL, FAD or FAC:
   - Indicator: 100%
- **WETLAND DETERMINATION:**
  - Hydrophytic Vegetation Present: Yes
  - Wetland Hydrology Present: Yes
  - Hydric Soil Present: Yes
  - Is this Sampling Point Within a Wetland? Yes
- **Remarks:** No odor.

---

### DATA FORM

**RUTINE WETLAND DETERMINATION** *(1987 Cost Sharing Determination Manual)*

- **Primary Investigator:** J. Knapik, J. V. Martin
- **County:** HAWAII
- **Date:** 12/04/94
- **State:** HAWAII
- **Do Normal Circumstances Exist on the Site?** Yes
- **Is the Site Significantly Disturbed?** Yes
- **Is the Site a Potential Problem Area?** Yes

**Vegetation:**
- **Dominant Plant Species:**
  1. rushes
  2. sedges
  3. grasses
- **Percent Dominant Species that are OBL, FAD or FAC:**
  - Indicator: 100%

**Hydric Soil Indication:**
- Hydric
- Field Observation
- High Organic Content in Surface Layer
- Organic Soils
- Claypan
- Clayey or Loamy Clay

**Wetland Hydrology:**
- Yes
- No

**Hydric Soil Present:**
- Yes
- No

**Wetland Vegetation Present:**
- Yes
- No

**Remarks:**
- No odor.

---

**Hydrology:**
- **Recorded Data:**
  - Date of Field Observation:
  - Depth of Surficial Water:
  - Depth to Free Water in Pit:
  - Depth to Saturated Soil:
- **Wetland Hydrology Indicators:**
  - Primary Indicator:
    - Yes
    - No
  - Secondary Indicator:
    - Yes
    - No

**Vegetation:**
- Dominant Plant Species:
  1. rushes
  2. sedges
  3. grasses
- **Percent Dominant Species:**
  - Indicator: 100%

**Remarks:**
- No odor.
DATA FORM
ROUTE WETLAND DETERMINATION
(1987 COE Wetlands Definition Manual)

PROJECT: SPENCERVILLE SUBDIVISION
Applicant/Owner: H. SPENCER
Investigator: J. RUSKIL, J. VIECHL, C. OPPENHEIMER

Do normal observances conflict on the site? Yes [X] No [ ]
Is the site significantly disturbed (Mudflap Situation)? Yes [X] No [ ]
Is the area a potential Problem Area? Yes [X] No [ ]
If needed, explain on reverse.

VEGETATION

Wetland Plant Species

1. Perotted Sedge: Indian Rushes: Smooth Sedge:
2. Perorrhiza scabra: Zizania Speciosa: Carex sp.
3. Sedges of Calamus: Wetland: Sedge:

Percent of Dominant Species that are C3E, FACI or FAC
Including FACI: EAG EPA

Remarks:

HYDROLOGY

Field Observations:

Depth of Surface Water: [ ] Inches [X] Feet
Depth to Free Water in Ft: [ ] Inches [X] Feet

Sediments:

Depth to Sunset: [ ] Inches [X] Feet
Silt [ ] Clay [ ] Mud [X]

Sediments:

Water Content: [ ] Loamy [ ] Sandy [X]
Water Starch: [ ] None [X] Low [ ] High

Vegetation:

Sedges of Calamus: Wetland: Sedge:

Remarks:

Approved by: HENDRICKS, W. D.
SOLDS

May Unit Name: BIL 12A
(Series and Phase): 
Drainage Class: 
Taxonomy (Subgroup): Field Observation: Confirm Mapped Type? Yes No
Profile Description:

F - W
21 2.5:1 - 6

F - 1' A6 2.5:1 - 6

F - 1.5' B2 2.5:1 - 6

F - 17' C 2.5:1 - 6

Hydric Soil Indicators:


Note: 

Convolutions 

Sulfate Crust 

Potential Water Table 

Reducing Conditions 

Chemical Inundation 

Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle) 
Wetland Hydrology Present? Yes No (Circle) 
Hydric Soils Present? Yes No (Circle) 
This Sampling Point within a Wetland? Yes No

Remarks:

Approved by: 

DATA FORM

ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Determination Manual)

Project Number: 
Applicant/Owner: N. SPENCER
Investigator: J. KROHMER, J. JUDD, H. OPPENHEIMER
County: 
State: 
Community ID: 
Plot ID: 

Do normal circumstances exist on the site? 
Yes No
Is the site significantly disturbed (physical disturbance)? 
Yes No
Is the area a potential problem area? 
Yes No

VEGETATION

Dominant Plant Species

1. Phaeothele ind. fearless Woody shrub
2. etc. etc.
3. etc.

Per cent of Dominant Species that are CRH, FAC or FAC (excluding FAC): 

Remarks:

HEDROLOGY

Recorded Data (Describe in Remarks): 

Wetland Hydrology Indicators:

Primary Indicators:

Canalized: 

Reaects in Upper 12 inches 

Water Mark: 

DRII Lines: 

Sediment Deposits: 

Drainage Pattern in Wetland: 

Secondary Indicators: 

Critical Root Channels in Upper 12": 

Critical Root Channels in Lower 12": 

Critical Root Channels in Lower 12": 

FAC-Volume Test: 

Other (Explain in Remarks): 

Remarks:

If Left Transparent: 

Project: 

If Left Transparent: 

Author: 

If Left Transparent: 

Date of Completion: 

If Left Transparent: 

Page Number: 1

If Left Transparent: 

Form Number: 1
SOILS

Map Unit Name: (Stakes and Phase): 
Drainage Class: 
Taxonomy (Subgroup): Field Observations: 
Profile Description:

<table>
<thead>
<tr>
<th>Depth (Feet)</th>
<th>Horiz</th>
<th>Matrix Core</th>
<th>Matrix Core</th>
<th>Matrix Core</th>
<th>Matrix Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 1'</td>
<td>A1</td>
<td>OA10</td>
<td>OA10</td>
<td>OA10</td>
<td>OA10</td>
</tr>
<tr>
<td>1' - 2'</td>
<td>A2</td>
<td>OA10</td>
<td>OA10</td>
<td>OA10</td>
<td>OA10</td>
</tr>
<tr>
<td>2' - 3'</td>
<td>A3</td>
<td>OA10</td>
<td>OA10</td>
<td>OA10</td>
<td>OA10</td>
</tr>
</tbody>
</table>

Hydric Soil Indicators:
- Hydric Soil
- Indicators

Remarks:
No hard pan or ledges.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? 
Yes No (Crich) 
Crich

Wetland Hydrology Present? 
Yes No (River) 
River

Is this Sampling Point Within a Wetland? 
Yes No

Remarks:
Just outside wetland boundary.

DATA FORM
ROUTINE WETLAND DETERMINATION
(SR 79, CCE Wetland Definiton Manual)

Project Date: 
Applicant/Owner: 
County:

Incident: 
Community ID:

Drainage Channel Data:
Transect:

Is the site significantly disturbed (Applicable Situation)?
Yes No
Is the area a potential Problem Area?
(Filled, explain on reverse)

VEGETATION

Dominant Plant Species:

Determine

Indicator

HYDROLOGY

Recorded Data (Describe in Remarks):

Primary Indicators:

Field Observations:

Secondary Indicators (2 or more required):

Remarks:

Wetland hydrology indicators:

Primary Indicators:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Photography</td>
<td>1</td>
<td>&gt;2</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>&gt;3</td>
</tr>
<tr>
<td>Sediment Deposit</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Drainage Return in Wetlands</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Width of drainage ditch</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Flow velocity in ditches</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>杨树速度的流速在渠道中</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other (Explain in Remarks)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Remarks:

Wetland hydrology indicators:

Primary Indicators:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerial Photography</td>
<td>1</td>
<td>&gt;2</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>&gt;3</td>
</tr>
<tr>
<td>Sediment Deposit</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Drainage Return in Wetlands</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Width of drainage ditch</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Flow velocity in ditches</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>杨树速度的流速在渠道中</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other (Explain in Remarks)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Remarks:
SOILS

Map Unit Name:
State and Parish: AL 14
Drainage Class:
Field Observations:
Concentrated Water Flow, Yes No

Taxonomy (Subtype):

Profile Description:

Depth (in.) Texture, Composition
6-9 Ery, Rhy brown
9-12 Fh, Rhy brown
12-14 Ery, Rhy red

Hydrologic Soil Indicators:

Concentrated Water Flow, Yes No

Hydrogeologic Setting:

Remarks:
Strong acidity odor at 2-4
foot zone.
Field at 16 with large cobbled
substrate (cemented sand with
calcium).

WETLAND DETERMINATION

Hydrophobic Vegetation Present: No, Yes
Hydrophytic Vegetation Present: Yes, No

Hydrophytic Vegetation Present: Yes, No

Hydrophytic Vegetation Present: Yes, No

Remarks:

Approved by TOYAMA 1988

DATA FORM

ROUNDTWervention DETERMINATION

(Product/Use: SPRECKELS SILO BANK

Applicant/Owner: H. B. SCHEID

Investigator: J. T. BURDICE, J. T. BURDICE

Date: 1989

County: HAN

On Normal Drainage (on the side)

No Yes

Is the site significantly disturbed? Yes No

Is the area a potential Problem Area? Yes No

Remarks:

VEGETATION

Vegetation Present

System

1. Floristic Info
2. Plant Growth
3. Floristic Society

Paradigm of Dominant Species that are DDBL, FAD IS, or FAC

(REMARKS)

HYDROLOGY

Recorded Data (Describe in Remarks)

Water Hydrology Indicators:

Primary Indicators

Secondary Indicators

Remarks:

Field Observations:

Depth of Surface Water:

Water Stained Leaves

To Field Observations:

Depth to Free Water in Ft:

FAC-Matched Test

Remarks:

(1907 CDS Wetland Determination Form)}
### SOILS

Map Unit Name: B11.13  
Drainage Class: G
Field Observation: 
Contains Mapped Type: Yes

**Profile Description:**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Horizon</th>
<th>Color Code</th>
<th>Color Description</th>
<th>Textural Composition</th>
<th>% Bulk Density</th>
<th>% Skew Sand</th>
</tr>
</thead>
<tbody>
<tr>
<td>0' - 6'</td>
<td>A1</td>
<td>215</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6' - 12'</td>
<td>A2</td>
<td>215-245</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12' - 20'</td>
<td>C</td>
<td>725-115</td>
<td>Peach gray</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20' - 30'</td>
<td>C</td>
<td>725-115</td>
<td>Peach gray</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydro Soil Indicators:

- Yes
- No

Remarks:

No soils

### WETLAND DETERMINATION

Hydrophyte Vegetation Present? Yes  
Hydrophyte Vegetation Present? No (Circle)  
Wetland Hydrology Present? Yes  
Wetland Hydrology Present? No (Circle)  
Hydrologic Soil Present? Yes  
Hydrologic Soil Present? No (Circle)

Remarks:

North of wetland boundary by 10'

### DATA FORM

**Routine Wetland Determination**

Date: 12/29/94  
Community ID: 45  
Area: 1.3

Do Normal Circumstances Exist on the site? Yes  
Is the site significantly disturbed? Yes

**Vegetation**

Dominant Plant Species:

- Red maple
- Swamp willow

Remarks:

### HYDROLOGY

Recorded Data (Describe in Remarks):

- Depth of Surface Water: Yes
- Depth to Free Water in Ft: Yes
- Depth to Water Inft: Yes
- Other:

Remarks:

- Sediment Deposition
- Drainage Patterns In Wetlands
- Other:

Approved by MONTOON 12/29/94
### SOILS

<table>
<thead>
<tr>
<th>Map Unit Name</th>
<th>Drained or Present</th>
<th>Drainage Class</th>
<th>Field Observations</th>
<th>Geological Mapped Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile Descriptions</th>
<th>Depth (inches)</th>
<th>Horizon</th>
<th>Material Color</th>
<th>Material Color</th>
<th>Organic Content</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- Vegetation:
  - Vegetation:
  - High Organic Content
  - Organic Horizon
- Subsurface Drainage:
  - Organic Soils
- Soil Moisture Regime:
  - Organic Soils
- Hydrological Conditions:
  - Organic Soils

**Remarks:**

Conventions at 12".

### WETLAND DETERMINATION

**Hydrophytic Vegetation Present?**

- No (Clone)  
- No (Clone)  
- No (Clone)  

**Vegetation Hydrology Present?**

- No (Clone)  
- No (Clone)  
- No (Clone)  

**Hydric Soil Present?**

- No (Clone)  
- No (Clone)  
- No (Clone)  

**Remarks:**

Vegetation Rings.

---

### DATA FORM

<table>
<thead>
<tr>
<th>Project/Map</th>
<th>BURLINGTON (SCENIC)</th>
<th>Date</th>
<th>Nature of Debris</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data/Information:**

- Date: 12096
- County: MAUI
- Study: 1218

**Vegetation:**

- Dominant Plant Species:
  - *M. alterniflora*
  - *M. nodiflora*
  - *S. alterniflora*
- Percentage of Dominant Species that are DUL, FAC or FAC:
  - *FAC-05%
**Remarks:**

**Hydrology:**

- Recorded Data:
  - Stream, Lake, or Pond Water
  - Soil Moisture
  - Sediment

**Field Observations:**

- Depth to Surface Water
- Depth to Free Water
- Depth to Saturation

**Hydrological Indicators:**

- Primary Indicator:
  - Estimated in Upper 12 inches
- Secondary Indicator:
  - Water-DepRESSions
- Other:
  - FAC-05%

**Remarks:**

PEC not encountered (growing slightly moist at 24%).
### Soil

<table>
<thead>
<tr>
<th>Map Unit Name:</th>
<th>B11E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxonomy (Subgroup):</td>
<td>Radial Reynolds</td>
</tr>
<tr>
<td>Field Observations:</td>
<td>Confirm Mapped Type? Yes No</td>
</tr>
<tr>
<td>Profile Description:</td>
<td>Depth (ft)</td>
</tr>
<tr>
<td></td>
<td>0-1'</td>
</tr>
<tr>
<td></td>
<td>1-3'</td>
</tr>
<tr>
<td></td>
<td>3-5'</td>
</tr>
</tbody>
</table>

### Hydric Soil Indicators:
- High Organic Content in Surface Layer
- Organic Soils in Sandy Soil
- Organic Soils in Sandy Soil
- Flooded Conditions
- Water-logged or Low-Chrome Colors

### Remarks:
- Funded and Located on edge of rising sand dune.
- Change in vegetation.

---

### Wetland Determination

<table>
<thead>
<tr>
<th>Wetland Vegetation Present?</th>
<th>Yes (code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland Hydric Present?</td>
<td>Yes (code)</td>
</tr>
<tr>
<td>Hydric Soils Present?</td>
<td>Yes (code)</td>
</tr>
</tbody>
</table>

### Geological Survey

- Reference:
- Final Report - DNR
- Final Report - DNR
- Field Observations
- Confirm Mapped Type
- Hydric Soil Indicators
- Wetland Vegetation

---

### Data Form - Routine Wetland Determination

<table>
<thead>
<tr>
<th>Project Site:</th>
<th>SPOOKSDALE RESERVOIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant/Organizer:</td>
<td>H. REYNOLDS</td>
</tr>
<tr>
<td>Investigator:</td>
<td>J. REYNOLDS</td>
</tr>
<tr>
<td>Community ID:</td>
<td>250</td>
</tr>
<tr>
<td>Vegetation:</td>
<td></td>
</tr>
</tbody>
</table>
SOILS

Map Unit Name: D148

Drainage Class: Drainage

Taxyonomy (Subgroup):

Profile Description:

---|---|---|---|---|---|---|---
6'-10' | A1 | Silt loam | 7-10% | 5-10% | None
6'-10' | B1 | Clay loam | 10-15% | 7-10% | None

Vegetation:

Hydrologic Soil Indicators:

- Moisture Condition: High Organic Content in Surface Layer
- Organic Loaming in Sandy Soils
- Organic Loaming in Sandy Soils
- Organic Loaming in Sandy Soils
- Reduced Conditions
- Hostile to Low-Chrome Colors

Remarks:

Sulfide odor at 6'.

WETLAND DETERMINATION

Hydrophytic Vegetation Present: No

Hydrophytic Soil Present: No

Hydrology:

- Recorded Data (Describe in Remarks):
  - Aerial Photographs
  - Other

Data Form:

Routine Wetland Determination

1987 COG Wetlands Demonstration Manual

M1/84 Document/1984 Form/1984 Form/1984 Form/Exclusion Rules 1.22.11.28.18
**SOILS**

Map Unit Name: BHT 20

Drainage Class: Perched

Texture (Subgrade): Sandy Loam

Cornet Mapped? Yes No

Profile Description:

<table>
<thead>
<tr>
<th>Depth (Feet)</th>
<th>Horizon</th>
<th>Matrix Color</th>
<th>Matrix Texture</th>
<th>Horizon Color</th>
<th>Horizon Texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>A</td>
<td>Gray brown</td>
<td>sandy loam</td>
<td>gray brown</td>
<td>sandy loam</td>
</tr>
<tr>
<td>4 - 8</td>
<td>B</td>
<td>red brown</td>
<td>sandy loam</td>
<td>red brown</td>
<td>sandy loam</td>
</tr>
<tr>
<td>8 - 12</td>
<td>C</td>
<td>red brown</td>
<td>sandy loam</td>
<td>red brown</td>
<td>sandy loam</td>
</tr>
</tbody>
</table>

Hydrangea Soil Indications:

- Histosol
- Fresh Explosion
- Organic Content in Surface Layer
- Organic Soils in Sandy Soils
- Active Meteoric Polygons
- Unlined in Lined Hydrangea Soil
- Glazed or Low-chroma Colors
- Other (Explain in Remarks)

Hydrangea Soil Present? Yes No

Remarks:

- Histosol
- Fresh Explosion
- Organic Content in Surface Layer
- Organic Soils in Sandy Soils
- Active Meteoric Polygons
- Unlined in Lined Hydrangea Soil
- Glazed or Low-chroma Colors
- Other (Explain in Remarks)

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? Yes No

Wetland Hydrology Present? Yes No

Hydrangea Soil Present? Yes No

Is this Sampling Point Visible a Wetland? Yes

Remarks:

- 30' east of private paved road.
- Out of wetland zone.

Approved by: [Signature]

---

**DATA FORM**

ROUITE WETLAND DETERMINATION

(1987 CO wetland delineation Manual)

Project Site: ESPERDELE SUBDIVISION

Applicant/Owner: [Name]

Investigator: [Name]

Do Normal Circumstances Dictate the site? Yes No

Is the site significantly disturbed? Yes No

Is the area a potential Problem Area? Yes No

Plat ID: [ID]

**VEGETATION**

Established Plant Species: [List]

Status: [Indicate]

Remarks: [Additional notes]

**HISTORY**

Date: [Date]

Community ID: [ID]

**WETLAND HYDROLOGY**

Recorded Data (Describe in Remarks): [Data]

Wetland hydrology Indicators:

- Primary Indicators:
  - Submerged Vegetation
  - [Other indicators]
- Secondary Indicators:
  - [Other indicators]

Field Observations:

- Depth of Surface Water: [Depth]
- Depth to Free Water: [Depth]
- Depth to Saturated Soil: [Depth]

Remarks: [Additional notes]

------------------------------------------
SOILS

Profile Description:

Depth

Depth

[Data]

Hydric Soil Indicators:

[Data]

Remarks:

[Data]

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes

Hydric Soil Present? Yes

Is this Sampling Point Wetland? Yes

Remarks:

[Data]

HYDROLOGY

Recorded Data (Describe In Paragraphs)

Field Observations:

Depth of Surface Water: [Data]

Depth to Free Water In Ft: [Data]

Depth to Saturated Soil: [Data]

Remarks:

[Data]
SOILS

Map Unit Name: [Silt and Pocks]

Drainage Class: [Stem and Base]

Taxonomy (Subgroup): [Leaf and Leaf Stem]

Profile Description:

Depth (inches) | Horizon | Color Code | Color Description | Horizon | Color Code | Color Description | Texture, Consistency, Micron, etc.
---|---|---|---|---|---|---|---
0 - 7 | A1 | 5YR 5/4 | Medium Gray | C1 | 5YR 6/3 | Medium Gray | Clay and silt organics
7 - 10 | B1 | 5YR 6/1 | Medium Gray | C2 | 5YR 6/1 | Medium Gray | Sandy clay organics
10 - 16 | C | 2.5Y 6/2 | Gray | C3 | 2.5Y 6/2 | Gray | Clay sand

Hydric Soil Indicators:

- Histosol
- Organic Horizon
- High Organic Content in Surface Layer
- Organic Soils in Sandy Soils
- Organic Horizon
- Organic Horizon
- Organic Horizon
- Organic Horizon
- Other (Explain in Remarks)

Remarks:

- B1 = possible organic hard pan. Photo of hard pan (thin layer) at 12" depth.
- Delta fragments @ 12"

WETLAND DETERMINATION

Hydrophytic Vegetation Present? [Circle] Yes No

Hydric Soil Present? [Circle] Yes No

Is this Sampling Point Within a Wetland? [Circle] Yes No

Wetland Hydrology?

- Amended
- Sealed
- Fertilized

Vegetation:

- Dominant Plant Species
  1. [Plant 1] [Species 1]
  2. [Plant 2] [Species 2]
  3. [Plant 3] [Species 3]
  4. [Plant 4] [Species 4]
  5. [Plant 5] [Species 5]

- Preferred Index Species that are OSM, FAND, or FAC (excluding FAC)

- FAC 0%

- Other (Explain in Remarks)

- Hydrology:
  - Water Hydrology Indicators:
    - Primary Indicators:
      - Flooded 0.1
      - Flooded in Upper 12 inches
      - Flooded in Lower 12 inches
      - Fertilized
      - Fertilized in Upper 12 inches
      - Fertilized in Lower 12 inches
      - Other (Explain in Remarks)

- Sampling Point:
  - Depth to Free Water in Pit: [FEET]
  - Depth to Saturated Soil: [FEET]

- Other (Explain in Remarks)

- Remarks:
  - ME = not encountered.
**SOILS**

- **Soil Unit Name**
  - (Series and Phase): 80-26

- **Taxonomy (Subgroup):**

- **Profile Description:**
  - **Depth (ft/m):**
    - 0-2
      - A1
      - 50% Dark brown
      - 2-7
        - A2
        - 50% Dark brown
      - 7-10
        - C
        - 50% Pink

- **Hydric Soil Indicators:***
  - **Natural:**
    - High Organic Content in Surface Layer
    - Organic Soils
    - Organic Soils (Grassy or Low-Chroma Colors)
  - **Other:**
    - Other (Explain in Remarks)

- **Vegetation:**
  - **Dominant Plant Species:**
    - Understory: Hops
    - Shrubs: Hops, Hops
  - **Status:**
    - Wetland: Wet
    - Rating: 85%
  - **Remarks:**
    - High area of hard pan within wetland area.

- **Wetland Hydrology Present?**
  - Yes

- **Hydric Soil Present?**
  - Yes

- **Is this Sampling Point Inside a Wetland?**
  - Yes

- **WETLAND DETERMINATION**
  - Sampling Point on Wetland
  - Sampling Point on Road

- **DATA FORM**
  - **Routine Wetland Determination**
  - **Project Site:**
    - 80-26
  - **Applicant/Owner:**
    - R. Spencer
  - **Investigator:**
    - R. Spencer, H. Spencer
  - **Date:**
    - 00/01/99
  - **County/WMU:**
    - Weymouth
  - **Date:**
    - 00/01/99
  - **Do Normal Observations Fail on the Day?**
    - Yes
  - **Are the Site Significantly disturbed (Any Physical Alteration)?**
    - Yes
  - **Is the Area a Potential Problem Area?**
    - Yes
  - **Community ID:**
    - 0001
  - **Field ID:**
    - 0001
  - **Plot ID:**
    - 0002

- **VEGETATION**
  - **Dominant Plant Species:**
    - Hops
  - **Rating:**
    - Wetland: Wet
    - Rating: 85%

- **Remarks:**
  - High area of hard pan within wetland area.

- **HYDROLOGY**
  - **Recorded Data (Describe in Remarks):**
    - Stream, Lake, or Tidal Creek
  - **Field Observations:**
    - Depth of Free Water: (x) in
    - Depth of Saturated Soil: (x) in

  - **Wetland Hydrology Indicators:**
    - Stream
    - Lake
    - Tidal Creek
    - Other (Explain in Remarks)

  - **Remarks:**
    - High area of hard pan within wetland area.

---

*Image courtesy of USFWS FWS Osprey Project & USFWS Wornall Wetlands Assessment FILE NAME: 1 and 2 Deformation Planets/1-3 Data Files/1-20/10/14.*
### SOILS

**Map Unit Name:**

**Drainage Class:**

**Taxonomy:**

**Profile Description:**

<table>
<thead>
<tr>
<th>Depth (Inches)</th>
<th>Organic Matter</th>
<th>Texture, Color, Structure, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1&quot;</td>
<td>7.0%</td>
<td>Gray</td>
</tr>
<tr>
<td>1-2&quot;</td>
<td>12.7%</td>
<td>Gray</td>
</tr>
<tr>
<td>2-4&quot;</td>
<td></td>
<td>Gray</td>
</tr>
<tr>
<td>4-10&quot;</td>
<td></td>
<td>Gray</td>
</tr>
</tbody>
</table>

**Hydrated Soil Indicators:**

- Hydrated by Capillary Action
  - High Organic Content in Surface Layer
  - Organic Sogginess in Sandy Soils
  - Drop on Vertical Hydrated Soil Line
  - Drops in Low-Crumb Colors

**Vegetation:**


**WETLAND DETERMINATION**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>No (Circle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland Hydrology Present?</td>
<td>No</td>
</tr>
<tr>
<td>Hydrated Soil Present?</td>
<td>No</td>
</tr>
</tbody>
</table>

**Remarks:**

Approved by HOLDING

---

### DATA FORM

**Routine Wetland Determination**

**Project/Study:**

**Applicant/Owner:**

**Investigator:**

**Do Normal Circumstances Influence the site?**

**Is the area a Potential Problem Area?**

**Vegetation:**

**Dominant Plant Species:**

1. Sedum palmeri
2. Phlox caroliniana
3. Phlox subulata

**Hydrology:**

**Wetland Hydrology Indicators:**

- No Uplift
- Elevations in Upper 12"

**Field Observations:**

- Depth of Surface Water
- Depth to Free Water in Pit
- Depth to Saturated Soil

**Remarks:**

Approved by HOLDING
SOILS

Map Unit Name (Series and Phase):  SN 24
Drainage Class: Field Observation

Soil Taxonomy (Subgroup): Clay type?

Profile Description:

Depth (ft.)       Horizon     Matrix Color     Matrix Color     Matrix Color     Texture, Consequence, Width

0 - 4'       A1       50% Light Gray      30% Black        20% Black    Clay to the sand, near wet

4' - 10'      A2       50% Light Gray      30% Black        20% Black    Sand to the sand, near wet

10' - 20'     B       50% Light Gray      30% Black        20% Black    Clay to the beach sand

20' - 30'     C       50% Black            30% Black        20% Black    Sand to the beach sand

Hydric Soil Indicators:

- Haustoria
- High Redoxation
- Organic Matt
- Dark-meat Regime
- Reduced Conditions
- Glazed or Low-Chroma Colors

Conclusions

- Haustoria
- High Redoxation
- Organic Matt
- Dark-meat Regime
- Reduced Conditions
- Glazed or Low-Chroma Colors

Remarks:

Roots to A1, slight color below 20'.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? 

Wetland Hydrology Present? 

Hydric Soil Sinks? 

Remarks:

Example point located on beginning of raised sand dune (human altered).

WETLAND HYDROLOGY

Recorded Data (Describe In Remarks):

Wetland Hydrology Indicators:

- Primary Indicators:
  - Depth to Surficial Water: 
  - Depth to Top Water: 
  - Depth to Saturated Soil: 

Secondary Indicators (2 or more required):

- Vegetation Patterns
- Ditch Lines
- Sediment Drainage
- Ditch Line Patterns in Wetlands

Remarks:
### Soils

<table>
<thead>
<tr>
<th>Depth (Inches)</th>
<th>Horizon</th>
<th>Map Unit Name (Series and Phase)</th>
<th>Drainage Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GL-28</td>
<td></td>
</tr>
</tbody>
</table>

**Taxonomy (Subgroup):**

**Profile Description:**

- **0-1'**: A1
  - Neutral
  - Media Color: Medium Gray (10YR 5/4)
  - Media Colors (Shade Notes): Medium Gray (10YR 5/4)

- **0-2'**: A1
  - Neutral
  - Media Color: Medium Gray (10YR 5/4)

- **2-4'**: B1
  - Neutral
  - Media Color: Dark Gray (10YR 5/8)

- **4-8'**: C
  - Neutral
  - Media Color: Pale gray (10YR 5/1)

**Hydric Soil Indicators:**

- **Histosol**: Organic matter in upper 12 inches
- **Hydropsol**: Organic matter in upper 12 inches
- **Saturated**: Saturated in upper 12 inches
- **Reducing Conditions**: Reducing conditions
- **Gleyed or Low-Oxygen Colors**: Low-oxygen colors

**Remarks:**

- gravel fragment at 10-12', minor mounding.

---

### Data Form

**Project/Study:**

**ESPECHEN WETLAND DETERMINATION**

**Site:**

**Map Unit Name:**

**Draftsman:**

**Scale:**

**County:**

**Community ID:**

**Site Excavation:**

**Field Observations:**

- Depth to Free Water in Pts: 1.5 (ft)
- Saturated Soil: 6 (ft)

**Remarks:**

---

### Vegetation

**Deciduous Tree Species:**

1. *Quercus rubra* - Oak
2. *Populus deltoides* - Poplar
3. *Salix spp.* - Willows

**Shrub Species:**

- *Vitis spp.* - Vines
- *Rubus spp.* - Thorns

**Fern Species:**

- *Polypodium spp.* - Polypods

**Grass Species:**

- *Bromus spp.* - Bromes

**Ruminants of Dominant Species that are DEC, FADW or FAC (excluding FAC):**

**Remarks:**

---

### Hydrology

**Wetland Hydrology Indicators:**

- **Primary Indicator:**
  - Saturated in upper 12 inches
  - Drainage Patterns in Wetland

**Secondary Indicator:**

- **Drainage Patterns in Wetland:**
  - Saturated in upper 12 inches
  - Water-Logged Areas

**Remarks:**

---

**Acknowledgment:**

Hawaii Department of Forestry and Wildlife Wetlands Division: WDEGUGU Files/23 and 12443

*DEGUGU Files/23 and 12443*
SOLIS

Map Unit Name: \\
(Delineation Phase): \\

taxonomy (Subgroup): \\

Profile Description:

Depth (Foot) | Textural Group | Organic Matter | Matelic Colors | Parent Material | Texture Classification

0-1/4 | 61 | 261.0% | Red | Stud Hill
1/4-1 | 62 | 261.0% | Red | Stud Hill
1-3 | 63 | 261.0% | Red | Stud Hill
3-20 | 64 | 261.0% | Red | Stud Hill

Hydrric Soil Indicators:

Motile
Variable Water Table
Saturated
Unsaturated

Remain:

No significant organic layer at surface or lower at the water table. No organic pen. Smear streaking of black organic at 15-17.

WETLAND DETERMINATION

Hydric Soil Vegetation Present? No (Circle) Yes (Circle)
Hydric Soil Hydrology Present? No (Circle) Yes (Circle)

No Reported Data Available

Field Observations:

Depth of Surface Water: FDR 0 ft

Infiltration: {}

Field Vegetation:

Vegetation:

Percent of Dominant Species that are OSH, FACCH, or FAC (excluding FAC): FACC 0%}

Soil is marshy. Southern Hope area of most northern portion of Area 3.

Approved by: H. S. 12

HYDROLOGY

Map Unit Name: \\
(Delineation Phase): \\

taxonomy (Subgroup): \\

Profile Description:

Depth (Foot) | Textural Group | Organic Matter | Matelic Colors | Parent Material | Texture Classification

0-1/4 | 61 | 261.0% | Red | Stud Hill
1/4-1 | 62 | 261.0% | Red | Stud Hill
1-3 | 63 | 261.0% | Red | Stud Hill
3-20 | 64 | 261.0% | Red | Stud Hill

Hydrric Soil Indicators:

Motile
Variable Water Table
Saturated
Unsaturated

Remain:

No significant organic layer at surface or lower at the water table. No organic pen. Smear streaking of black organic at 15-17.

WETLAND DETERMINATION

Hydric Soil Vegetation Present? No (Circle) Yes (Circle)
Hydric Soil Hydrology Present? No (Circle) Yes (Circle)

No Reported Data Available

Field Observations:

Depth of Surface Water: FDR 0 ft

Infiltration: {}

Field Vegetation:

Vegetation:

Percent of Dominant Species that are OSH, FACCH, or FAC (excluding FAC): FACC 0%}

Soil is marshy. Southern Hope area of most northern portion of Area 3.

Approved by: H. S. 12

HYDROLOGY

Map Unit Name: \\
(Delineation Phase): \\

taxonomy (Subgroup): \\

Profile Description:

Depth (Foot) | Textural Group | Organic Matter | Matelic Colors | Parent Material | Texture Classification

0-1/4 | 61 | 261.0% | Red | Stud Hill
1/4-1 | 62 | 261.0% | Red | Stud Hill
1-3 | 63 | 261.0% | Red | Stud Hill
3-20 | 64 | 261.0% | Red | Stud Hill

Hydrric Soil Indicators:

Motile
Variable Water Table
Saturated
Unsaturated

Remain:

No significant organic layer at surface or lower at the water table. No organic pen. Smear streaking of black organic at 15-17.

WETLAND DETERMINATION

Hydric Soil Vegetation Present? No (Circle) Yes (Circle)
Hydric Soil Hydrology Present? No (Circle) Yes (Circle)

No Reported Data Available

Field Observations:

Depth of Surface Water: FDR 0 ft

Infiltration: {}

Field Vegetation:

Vegetation:

Percent of Dominant Species that are OSH, FACCH, or FAC (excluding FAC): FACC 0%}

Soil is marshy. Southern Hope area of most northern portion of Area 3.

Approved by: H. S. 12
### SOILS

**Map Unit Name:** Soil

**Color and Phase:**

**Text:**

### Profile Description:

| Depth (inches) | Hydric | Material Color | Material Color | Material Color | Texture, consistency, 
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 15</td>
<td>A1</td>
<td>PI 1/2</td>
<td>PI 1/2</td>
<td>PI 1/2</td>
<td>Clay loam or silt loam</td>
</tr>
<tr>
<td>15 - 20</td>
<td>A1</td>
<td>PI 1/2</td>
<td>PI 1/2</td>
<td>PI 1/2</td>
<td>Clay loam or silt loam</td>
</tr>
<tr>
<td>20 - 40</td>
<td>B2</td>
<td>PI 1/2</td>
<td>PI 1/2</td>
<td>PI 1/2</td>
<td>Clay loam or silt loam</td>
</tr>
<tr>
<td>4 - 12</td>
<td>C</td>
<td>GLEY 1 1/2</td>
<td>GLEY 1 1/2</td>
<td>GLEY 1 1/2</td>
<td>Clay loam or silt loam</td>
</tr>
<tr>
<td>12 - 18</td>
<td>C</td>
<td>GLEY 1 1/2</td>
<td>GLEY 1 1/2</td>
<td>GLEY 1 1/2</td>
<td>Clay loam or silt loam</td>
</tr>
</tbody>
</table>

**Hydric Soil Indicators:**

- [ ] Hydroelectric
- [ ] Paludal (swampy)
- [ ] Alluvial (floodplain)
- [ ] Peat

**Concordant:**

- [ ] High Organic Content in Surface Layer
- [ ] Organic Mattering in Surface Layer
- [ ] Organic Mattering in Less Than Surface Layer
- [ ] Listed on National Hydric Soil List
- [ ] Other (Explain in Remarks)

**Remarks:**

B3 - partially hydrologic. Organic visible with minor mounding. Color strongest at 0'.

### WETLAND DETERMINATION

- Hydrophytic Vegetation Present: [ ] Yes (Circle)
- Wetland Hydrology Present: [ ] Yes
- Hydric Soil Presence: [ ] Yes
- Is this Sampling Point Within a Wetland?: [ ] Yes

**Remarks:**

If you or an assistant of beach access road, VEC used the beach road as non-harbor boundary.
APPENDIX D

Statement of Qualifications of Environmental Professionals

JOHN S. VUICH
President & CEO

STATEMENT OF QUALIFICATIONS:

M.S. Geological Engineering, University of Arizona
B.S. Geological Engineering, University of Arizona
Registered Geologist (California)
Registered Environmental Assessor (California)
Certified Environmental Manager (Nevada)

AREAS OF EXPERTISE

ENVIRONMENTAL
- Site Assessments, Phase I, II, III Investigations
- Underground Storage Tank Closure
- Asbestos Inspection and Mitigation, Management Planning, and Abatement Project Design and Removal
- Lead-Contaminating Paint Surveys and Inspections, and Disturbance Design and Removal
- Site Characterization for Remedial Investigations
- Facility Operation Compliance Audits-ISO 14000 Audits
- Soils/Groundwater Remediation
- Hazardous Waste Management
- Risk Assessment Investigations
- RCRA Compliance and Closure Projects
- Expert Witness/Litigation Support
- Industrial Hygiene Qualified/Competent Person
- Mold/Fungi Sampling, Remediation and Abatement Design and Removal

GEOLOGICAL
- Hydrogeology
- Geologic Hazards Analysis
- Landslide Planning
- Subsurface Excavations and Drilling Investigations and Sampling

MANAGEMENT
- Program Director - Project Management
- Client - Agency Liaison
- Field Supervision - Administrative Supervisor
RELEVANT EXPERIENCE

Owner-President * Volk Environmental Consultants, Inc.
Wallace, Mau, and Hofscho, Oahu * (March, 1994 - Present)
Consulting services and project management for Abatement / Remediation Projects property transfers, sampling and site characterization plans, hazardous and toxic waste management, underground storage tanks, regulatory compliance, landfill sites, site remediation and closure plans, permit applications, litigation support, feasibility planning and contingency and emergency response plans.

Director * CEO Haile Environmental Systems
Tucson, AZ * (July 1988 - February 1994)
Founder of professional environmental engineering and geological consulting firm. Services included site assessments, site contamination characterizations, facility audits, RCRA closure investigations and hazardous waste management, remediation projects, and advance surveys. Prepared regulatory documentation and permitting for Federal, state and local regulatory agencies on all projects. Supervised professional, technical, sales and administrative/ clerical staff.

Project Explorer * Haile Environmental Services
Tucson, AZ * March 1987 - June 1988
Performed and supervised RCRA remedial projects and waste management projects.

Independent Consultant Geologist
Las Vegas, CA and Tucson, AZ * 1982 - 1987
Conducted geological investigations in western United States and Mexico. Performed geochanical sampling and geologic mapping. Prepared technical reports for clients and regulatory agencies.

Environmental/Geotechnical Section Supervisor * TRW Systems Engineering
Redondo Beach, CA * 1978 - 1982
Directed environmental project management for Department of Defense and Department of Energy related projects in Western U.S. Projects, including site selection, planning and environmental impact statements. Supervised staff consisting of geologists and environmental scientists.

Assistant Geologist * Arizona Geological Survey
Tucson, AZ * 1973-1978
Participated in environmental impact studies, geologic hazards analysis, land use planning. Author of several land use planning technical publications.

Project Geologist and Staff Geologist * Various Geological Consulting & Mining Companies
Southwestern United States * 1968-1972
Performed geochanical sampling, subsurface investigations including drilling, mineral property valuation and geologic mapping. Prepared geologic reports and maps.

OTHER CERTIFICATIONS, TRAINING AND SECURITY CLEARANCES

- Arsenic & Dioxin Consultant (C-19, C-34) H12C #11112
- Certified Hazardous Materials First Responder, FEMA and Atomic Division of Emergency Services.
- OSHA Hazmat Worker and Supervisor
- Accredited Asbestos Building Inspector, Accredited Contractor / Supervisor, Project Monitor, and Asbestos Abatement Project Designer.
- Accredited Lead Inspector and Lead Contractor Supervisor
- Certifying Education in Hazardous Materials Management, Environmental Studies and Environmental Regulations: 628 Classroom Hours since 1987 - Arizona State University, Tempe, AZ; Pima Community College, Tucson, AZ. & The Environmental Training Center Tucson, AZ.
- Security Clearance: Department of Defense, TOP SECRET (1990)
- Licensed Private Pilot - 1400 Hours, Single Engine, Land

John S. Volk
Continued
STATEMENT OF QUALIFICATIONS
for
Jeffrey E. Kermode, B.A., B. Tech.

Company Position: Vice President/Environmental Projects Manager

Responsibilities and Duties:
- Phase I, II Environmental Site Assessments/Investigations
- Phase III Remediation Projects
- Underground Storage Tank (UST) Closure
- Asbestos Inspections, Air Monitoring and Supervision of Removal
- Lead-Based Paint Inspections, Risk Assessments and Supervision of Removal
- Indoor Air Quality Investigations and Mold Remediation Project Management
- Erosion Control Plan (ECP) Development
- Site Safety Officer for Sampling/Remediation Projects

Experience:
- Soil and Groundwater Investigations/Remediation
- UST Removal and Closure
- Hazardous Materials Management
- Asbestos and Lead-Based Paint Projects (Inspections, Monitoring, Removal)
- Air Quality Sampling for Particulate and Microbiological Contaminants
- Wetland Delineation
- Erosion Control and Pollution Prevention Planning and Implementation for Large-Scale Construction Projects
- Underground Injection Control (UIC) Permitting
- Environmental Impact Statement (EIS) Preparation and Compliance
- Conducted On-Site Oil Spill Response Training Courses, Assessed Clients' Response Preparedness, and Assisted in the Development of Oil Spill Contingency Plans
- Oil Spill Clean-Up Operations
- Pelagic and Coastal Fisheries Research as a Scientific Observer

Training & Education:
- Bachelor of Technology, Environmental Engineering, B.C.L.T., Burnaby, B.C., 1990
- Bachelor of Arts, Geography, University of B.C., Vancouver, Canada, 1989
- AHERA (Asbestos Hazard Emergency Response Act) Inspector for Asbestos, US EPA Certified
- AHERA Asbestos Contractor Supervisor, US EPA Certified
- AHERA Project Monitor for Asbestos, US EPA Certified
- OSHA MWDK/OSHA Certification (40 hr)
- On-Site Incident Commander Certification (44 hr), US EPA Certified
- Lead-Based Paint Inspector, US EPA Certified
- Lead-Based Paint Risk Assessor, US EPA Certified
- Lead-Based Paint Contractor Supervisor, US EPA Certified

Rev. 5/03

VUICH
Environmental, Inc.

STATEMENT OF QUALIFICATIONS
for
Hank Oppenheimer, Vegetation Specialist

Hank Oppenheimer is currently employed full-time by Maui Pineapple Co. as a Watershed Field Technician. He has held this position since 1993. In this capacity Hank is responsible for surveying, identifying, and maintaining a complete inventory of the plants that occur in the Company's Pu'u Kukui Preserve. At 8,661 acres, it is the largest privately owned nature reserve in the State of Hawaii. He also conducts surveys and maintains a database of flowering plants, both native and alien, on all Company lands. He has documented over 200 new distributional records for plants on all the main Hawaiian Islands, publishing his findings annually, and has recently been co-author describing two new species in the endemic Hawaiian gooseberry genus

Hank sits on the Board of Directors of the Native Hawaiian Plant Society, a local non-profit, all volunteer organization dedicated to the preservation of Hawaiian plants and the habitats in which they occur. He is the Project Leader for the NHPG Mea'o awa hele (Hibiscus hekealaniensis) exclosure, protecting one of the last remaining wild populations of our critically endangered State Flower.

Hank occasionally leads hikes for The Nature Conservancy of Hawaii and other entities, explaining the local flora to a broad audience.
Appendix B
Wetland Enhancement and Mitigation Plan
WETLAND ENHANCEMENT & MITIGATION PLAN
Spreckelsville Subdivision

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3-B-001-003 (Portion)
Stable Road, Hana Highway,
Spreckelsville, Maui, Hawaii
June 2004

98 Lower Main Street, Suite C ~ Walluku, Hawaii 96793 ~ 808.249.2777 Phone ~ 808.249.2778 Fax
The proposed Sprecksville Subdivision development covers an area of approximately 21.0 acres. It has been determined that this development would impact wetland areas located on the project site. These impacts consist of the following: (See attached Figures 1, 2, 3 & 4, Appendix B).

- Area 1 - this wetland area covers approximately 9,960 square feet and will be fully impacted (filled in) by the proposed development.
- Area 2 - this wetland area covers approximately 35,075 square feet and will be partially impacted (filled in) by the proposed development. The area to be filled in would be approximately 10,923 square feet.

Therefore, the proposed development will impact approximately 20,883 square feet in total, of wetland habitat. (See Figure 3, Appendix B for the areas to be impacted by the proposed development). Areas 1 and 2 contain of wetland habitats that have been significantly altered by historic human activities (grading activities and limited dumping). Additionally, these areas do not appear to be very productive as habitat for endangered Hawaiian waterbirds due to excessive amounts of decaying woody debris and a dense overhead tree canopy (Area 1), and visually impenetrable thickets of Puahehe leaves (Area 2). No obligate wetland species are located in these areas.

The third wetland area located on the subject property, Area 3, is located closest to the coastline. This area is situated at a significant distance from the proposed development and would not be directly impacted by the proposed project activities.

As designed, the proposed subdivisions would result in the filling in of Area #1 (9,960 ft²) and a portion of Area #2 (10,923 ft²). In other words, the property owner proposes to implement both a mitigation and enhancement plan for Area #2. Area #3 is the area of the three areas to conduct such work for two reasons: 1) it has the only obligate wetland plane species and most closely resembles a productive natural wetland and 2), there is a significant amount of adjacent, low-lying land that could be mitigated to increase the size of Area #3. See Figures 2 & 3, Appendix B, for the planned areas of mitigation and enhancement.

The following plan represents wetland enhancement and mitigation activities sufficient to compensate for the permanent wetland losses at the proposed Sprecksville Subdivision. This will be achieved by increasing the extent of low-lying areas; lowering the grade to enhance the potential for wetland conditions to develop; removing old animal pen structures, debris and trash; closing off vehicle trails; removing woody vegetation and invasive alien plant species; and constructing a fence sufficient to inhibit the entry of predators and unauthorized persons onto the mitigation site.

Area 3 consists of a small low-lying wetland area generally surrounded by adjacent dunes or areas that have been subjected to human activities (roads and roads areas). The actual wetland area, however, supports both obligate (Opuntia stricta or "makalos") and facultative (Sesuvium portulacastrum or "halahoilua") and other wetland vegetation species. (See Photo #4, Appendix A). Stands of Puahehe (Puahehe) are also in abundance. According to survey data provided to the property owner, the frequently wetted areas are at an elevation of approximately three to four feet above sea level (a.s.l.). VEC recommends grading of areas located possibly within and immediately adjacent to Area 3 in order to expand the flood-prone areas within the three to four-foot elevation contour. This action will increase the flood storage capacity of Area 3. Additionally, the increased area of potential surface water pooling will provide favorable conditions for use by waterbirds, including the Hawaiian Stilt. Grading activities can be conducted within and adjacent to the delineated wetland perimeter, including a portion of the former roads area. It is possible that runoff from the proposed subdivision area could also be directed toward Area #3. A retention basin is planned slightly upgradient of Area #3. This basin could be moved into the former roads area area where grade lowering is planned. If the retention basin remains at its designated location, the overflow could be directed to the wetland area. These options must be thoroughly analyzed prior to commitment. See Figure 3, Appendix B, for the planned areas of mitigation and enhancement, including grading activities.

Additionally, a livestock corral just outside of Area 3 (located adjacent to the former roads area) has a significant measure concentration in the surface soils. Runoff from this area may negatively impact the water quality of Area 3. VEC proposes to excavate this area of highly concentrated organic and spread it over a surface area away from any potential drainage into Area 3. See Photo #6, Appendix A.

**Mitigation**

All woody, decaying debris will be manually cleared from Area #3. See Photo 5, Appendix A. Any significant amounts of aggressive alien vegetation species will be manually removed by laborers under the supervision of a vegetation specialist. Woody vegetation, including the stands of P. indica, other woody shrubs and small trees that are located on the adjacent elevated and dunes will be thinned to appropriate levels. Certain kaua trees may be removed to encourage groundwater levels to rise. Excess vegetation will be removed and disposed of off-site or chipped on-site landscape use. To the best extent possible, the obligate wetland plant (Opuntia stricta or "makalo") will not be disturbed by grading activities in or adjacent to Area 3.

**Enhancement**

All woody, decaying debris will be manually cleared from Area #3. See Photo 5, Appendix A. Any significant amounts of aggressive alien vegetation species will be manually removed by laborers under the supervision of a vegetation specialist. Woody vegetation, including the stands of P. indica, other woody shrubs and small trees that are located on the adjacent elevated and dunes will be thinned to appropriate levels. Certain kaua trees may be removed to encourage groundwater levels to rise. Excess vegetation will be removed and disposed of off-site or chipped on-site landscape use. To the best extent possible, the obligate wetland plant (Opuntia stricta or "makalo") will not be disturbed by grading activities in or adjacent to Area 3.

**Fencing**

The area of land to be mitigated that lies adjacent to Area #3 will be low-lying in nature and will support herbaceous vegetation. The plants that will be encouraged in this area will be the
WETLAND ENHANCEMENT & MITIGATION PLAN
Spreckelsville Subdivision

obligate plant (Cyperus leucozus or "malaga") and facultative plant (Glyceria spathacea or "ahulani"). See Plate 4A, Appendix A. Woody shrubs will not be encouraged in the newly
migrated area in order to maximize the area of open surface water during flood conditions.
Plants from Area 3 and Area 2 will be used whenever possible to promote new vegetation in the
expanded Area 3. Replanting will be supervised by a vegetation specialist.

To ensure the long term healthiness and success of the vegetation located in both the enhanced
Area 3 and expanded (migrated) Area 3, the property owner will employ the subdivision’s
landscape personnel to regularly inspect and maintain the wetland area. This will consist of
regular manual weed control (invasive species), removal of excessive decaying woody debris,
and thinning of facultative woody shrubs. In order to undertake this often labor intensive (and
financial) commitment, the property owner may also employ the assistance of a non-profit
organization of volunteers that are dedicated to wetland enhancement activities on Maui.

A five-foot-high link fence shall be constructed to enclose the newly expanded (migrated)
and enhanced Area 3. It will be designed to limit entry by vehicles, pedestrians and predators
such as dogs and cats. The bottom six inches of the fence shall be buried below grade to
eliminate the possibility of predators gaining access by crawling or digging under the fence.
At least one gate shall be constructed along an upland portion of the fence with a width sufficient
to allow the entrance of maintenance personnel and equipment. The bottom margin of the gate
shall be constructed in such a way as to exclude entry by mammalian predators.

To ensure the effectiveness of this fence system, the property owner will employ the subdivision
maintenance personnel to regularly inspect and repair, when necessary, the perimeter fence.

Because endangered waterbirds are known to utilize the site during periods of inundation and
saturated soil conditions, enhancement activities including woody debris and waste removal,
vegetation control, and fence construction shall be undertaken only during dry soil conditions.
Mitigation activities (Area 3 expansion) will take place when it is most appropriate for both new
plant establishment and when it will cause minimal disturbance to the wetland environment.

Best management practices (BMP) shall be employed to minimize damage to adjacent
drainageways and coastal marine environments downstream of the project site. VEC
recommends that the following measures be incorporated into the project to minimize the
degradation of water quality and impacts to fish and wildlife resources:

WETLAND ENHANCEMENT & MITIGATION PLAN
Spreckelsville Subdivision

a) The wetland areas that will be located immediately adjacent to and downstream in the
proposed subdivision activities will be protected by silt fencing and/or other appropriate
BMPs;
b) No project-related materials, including petroleum products or fertilizers, will be
stockpiled within existing or enhanced wetlands;
c) All project-related equipment will be free of pollutants;
d) A contingency plan to control petroleum products accidentally spilled during the project
will be developed. Containment equipment such as absorbent pads will be available on-
site to facilitate immediate clean up of accidental petroleum spills.

VEC believes the implementation of these measures into the project will minimize the potential
for project-related adverse impacts to fish and wildlife resources.

Achieving the goal of wetland enhancement and mitigation by undertaking the specified
activities should be measured against criteria that indicate success of the project in adequately
compensating for the permanent loss of wetlands at the location of the proposed subdivision fill
area. These criteria include:
a) An increase in the duration and extent of saturated and ponded conditions on
approximately 21,000 square feet of Area 3;
b) Continued or increased use of the area by Hawaiian stilts and other native waterbirds as
foraging habitats;
c) A permanent reduction in the extent of invasive woody vegetation, and an increase in the
extent of native obligate wetland vegetation;
d) Exclusion of feral dogs and cats, and elimination of unauthorized use by humans.

If any of the above criteria are not met, the permittee shall, in consultation with the Corps of
Engineers and any other significant involved parties, take corrective action.

The goal of this mitigation and enhancement plan is to enhance wetland ecosystem functions and
increase wetland habitat. Enhancement activities generally involve the removal of invasive
vegetation, predator exclusion, removal of debris, and minimization of human disturbances.
Mitigation activities include providing an expanded habitat for at least one species of endangered
Hawaiian waterbird, and increasing the flood storage capacity of this wetland area. Other
benefits of increasing the flood storage capacity are to retain sediment, turbidity reduction, and
WETLAND ENHANCEMENT & MITIGATION PLAN
Spreckelsville Subdivision

provide an area of groundwater recharge. The application of design criteria, methods, and management practices proposed in this document, with site and project-specific modifications, for the wetland as a whole, are to be effectively implemented by the property owner and any other participating parties upon the acceptance by the U.S. Army Corps of Engineers and any other involved regulatory agencies.

References:
Wetland Enhancement Guidance, Waihe'e-Kuapapa Marsh Homefields
U.S. Fish and Wildlife Service, Division of Ecological Services
Pacific Islands Fish and Wildlife Office
Environmental Review Program

APPENDIX A

Site Photographs
PHOTO 7
Refuse material will be manually removed from Area #3 to improve wetland conditions and esthetic appeal.

PHOTO 8
Former rodeo arena fencing structures will be dismantled during the mitigation (expansion) of wetland Area #3.

PHOTO 9
Beach access road located along the northern boundary of wetland Area #3 (right side of road). An improved fence design will be installed around Area #3's perimeter to reduce both human and animal disturbances.
APPENDIX B

Figure 1 - Regional Setting Map
Figure 2 - Site Plan Aerial Photo
Figure 3 - Survey Plan Showing Areas of Wetland Losses and Planned Enhancement and Mitigation Efforts
Sprecksville vascular plant inventory

compiled by Hank Oppenheimer
Surveys conducted September 29, 2003 & March 30, 2004

* Alien species: naturalized
+ Alien species: cultivated
* Alien species: Polynesian introduction
# Native species: Indigenous

Class Magnoliopsida

Acanthaceae
* Acanthus gregorii (L.) T. Anderson Chinese violet

Aizoaceae
+ Kalanchoe portulacaceae (L.) L. 'akulikuli
+ Portulaca oleracea (L.) Kuntze New Zealand spinach

Amaranthaceae
* Alternanthera pungens Ksch. khaki weed
* Amaranthus spinosus L. spiny amaranth

Aquifoliaceae
* Schinus terebinthifolius Raddi Brazilian pepper tree, Christmasberry

Aplacaceae
* Citruss pumilla (Perr.) Sprague er-leaved crericy

Apocynaceae
* Kokia triphylla (Radd.) Hama octopus tree

Asclepiadaceae
* Aristolochia phoebe (E. Mey.) Schlumber balloon plant

Asteraceae
* Achyranthes aspera L. maile honehono
* Ageratum conyzoides L. maile honehono
* Arctium lappa L. Spanish noodle; beggars tick
* Calystegia sepium L. ivy Lees.
* Conyza bonariensis (L.) Cronq. hairy honeysuckle
* Coreopis diantha (L.) H. Rob. little ironweed
* Coreopsis graminifolia (L.) L. tall daisy
* Eupatorium coelestinum L. wild lettuce
* Eupatorium cannabinum (T AccessToken) G. Don seakrush
* Eupatorium odoratum (T AccessToken) G. Don seakrush
* Eupatorium odoratum (T AccessToken) G. Don seakrush
* Eupatorium odoratum (T AccessToken) G. Don seakrush

Prepared for: Valih Environmental Consultants Inc.
**Compositae**
- *Eremochloa ophiuroides* (L.) Steud. - common everlasting
- *Eucalyptus tereticornis* (F. Muell.) F. Muell. - gum tree

**Euphorbiaceae**
- *Euphorbia cyparissias* L. - cypress spurge
- *Euphorbia helioscopia* L. - sun spurge

**Faberaceae**
- *Faba sativa* L. - broad bean
- *Ferula communis* L. - common fennel

**Gentianaceae**
- *Gentiana lutea* (L.) L. - yellow gentian

**Gentianaceae**
- *Gentianella amarella* L. - common gentian

**Irisaceae**
- *Iris pseudacorus* L. - yellow flag

**Jasminaceae**
- *Jasminum officinale* L. - common jasmine

**Lamiaceae**
- *Lamiopsis calluna* (L.) Willd. - bog leaf
- *Lamium galeobdolon* L. - peach-leaved lamium

**Lamiaceae**
- *Lavandula angustifolia* L. - English lavender
- *Lavandula multifida* L. - narrow-leaved lavender

**Lamiaceae**
- *Leptosa nepetifolia* (L.) R. Br. - lion's ear

**Malvaceae**
- *Malvaviscus arboreus* L. - abutilon
- *Malvaceae* - mallow family

**Mangiferae**
- *Mangifera indica* L. - mango

**Maritimeaceae**
- *Mariscus angustifolius* L. - narrow-leaved marisa

**Myrtaceae**
- *Myrtus communis* L. - myrtle

**Nyctaginaceae**
- *Nyctaginaceae* - nightshade family

**Orobanchaceae**
- *Orobanchus tuberosus* L. - broomrape

**Olacaceae**
- *Olacaceae* - oleander family

**Oleaceae**
- *Olea europaea* L. - European olive

**Onagraceae**
- *Onagraceae* - evening primrose family

**Oxalidaceae**
- *Oxalis stricta* L. - wood sorrel

**Papaveraceae**
- *Papaver somniferum* L. - opium poppy

**Passifloraceae**
- *Passiflora edulis* F. Muell. - passion fruit

**Peganum**
- *Peganum harmala* L. - Syrian rue

**Piperaceae**
- *Piper nigrum* L. - black pepper

**Polygonaceae**
- *Polygonum persicaria* L. - red goosefoot

**Ranunculaceae**
- *Ranunculus acris* L. - meadow buttercup

**Rosaceae**
- *Rosaceae* - rose family

**Rutaceae**
- *Rutaceae* - rue family

**Salicaceae**
- *Salix alba* L. - white willow

**Santalaceae**
- *Santalum album* L. - sandalwood

**Saxifragaceae**
- *Saxifraga crenata* (L.) D. Don - crenate saxifrage

**Scrophulariaceae**
- *Scrophularia nodosa* L. - figwort

**Simaroubaceae**
- *Simaroubaceae* - simaroubaceae family

**Solanaceae**
- *Solanum nigrum* L. - black nightshade

**Spermacoceae**
- *Spermacoce reniformis* (L.) L. - round-leaved spermacoce

**Tamaricaceae**
- *Tamarix ramosissima* L. - tamarisk

**Umbelliferae**
- *Umbelliferae* - carrot family

**Verbenaceae**
- *Verbena officinalis* L. - common vervain

**Vitaceae**
- *Vitis vinifera* L. - grape

**Zingiberaceae**
- *Zingiber officinale* Rosc. - ginger

**Zygophyllaceae**
- *Zygophyllum dumosum* (L.) S. Wats. - dumosa

**Zygophyllaceae**
- *Zygophyllum gummiferum* L. - gumweed
Some taxa, (Stenolophus, Sarcostema, Aloe) are here listed as cultivated, although they are known to be sparsely naturalized on Maui and other islands. The plants in the survey area are believed to be deliberate plantings (Sesbania), or a result of discarded yard trimmings.

In summary, no plants at the site are listed as Threatened or Endangered by the U.S. Fish and Wildlife Service. None are considered rare, and no species observed during the survey is currently considered a Candidate for listing by USFWS, nor listed as a Species of Concern. The native taxa all have a widespread distribution in the Hawaiian Islands, and elsewhere in the tropical Pacific.

FAUNA RESOURCES SURVEY

for the

SPENCER SPRECKELSVILLE SUBDIVISION

STABLE CAMP, SPRECKELSVILLE, MAUI

by

ROBERT W. HOBBS
ENVIRONMENTAL CONSULTANT

Kahului, Maui

March, 2004

Prepared for: Voich Environmental Consultants Inc.
FAUNA RESOURCES SURVEY
SPENCER SPRECKELSVILLE SUBDIVISION
STABLE CAMP, SPRECKELSVILLE, MAUI

INTRODUCTION
The Spencer Spreckelsville Subdivision lies on approximately 21 acres of presently undeveloped land below Hana Highway in Spreckelsville between Stable Road and the Kaunoa Senior Center. It is lower boundary about a strip of coastal homes that separate the project from the ocean. The site was formerly a stable and pasture for plantation horses and mules and then it was a private stable until early 2004.

SITE DESCRIPTION
The project area is a low lying coastal plain. Soils are all derived from sand and may be low-unconsolidated dunes, slightly profiled loamy sand or saline flats with water table close to the surface (Foote et al., 1972). Elevations range from sea level to 16 feet and rainfall averages 20-30 inches per year (Armstrong, 1983). Most of the area is a forest composed of kiawe (Prosopis paludosa) trees with openings densely filled with shrubs and tall grasses. Small saline areas are the open ground and are occupied by low halophytic plants. These saline areas are dry most of the year, but may flood for brief periods following substantial winter rains.

BIOLOGICAL HISTORY
Early accounts of this area from the 1800’s describe it as being nearly devoid of vegetation with active sand dunes shaped by strong coastal winds such that horseback travelers had to shield their faces from its stingy effect. Vegetation would have consisted of low growing coastal species that could tolerate this harsh environment. During early plantation days the project area was used as a dumping area for excess boulders from adjacent cane fields which still lie in low piles in the center of the parcel. The area was developed into a stable and pasture for plantation horses and mules that were extensively used as beasts of burden. This use over about five decades has resulted in the colloquial name for this area. Under this intensive grazing use the sparse native vegetation was decimated and replaced by hardy non-native species, most notably by kiawe which was valued for live stock for its edible beans and shade. Since the use of the area as a stable and pasture has diminished over the past twenty (20) years, it has become slowly forested with kiawe with a few small openings. Originally native wildlife use would likely have consisted of some nesting by seabirds and seasonal foraging by native and migratory shoreline and water birds during brief periods of winter flooding.

SURVEY OBJECTIVES
This report summarizes the findings of a fauna survey of the proposed Spencer Spreckelsville Subdivision project area which was conducted in March 2004. The objectives of the survey were to:
1. Document what bird or mammal species occur on the property or may likely occur in the existing habitats.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential to these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for wildlife and recommend measures that would mitigate or avoid these problems.

FAUNA SURVEY REPORT

SURVEY METHODS
A walk-through survey method was conducted following a predetermined route to ensure that all parts of the project area were covered. Twenty five stations were established along this route (see attached map). Field observations were made at each station with the aid of binoculars and by listening to vocalizations. Notes were made on species abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an early morning visit was made to the area to record crepuscular activities and vocalizations and a see if there was any evidence of occurrence of the Hawaiian hoary bat (Lasiurus cinereus adustus) in the area. The survey was conducted closely following a major late-winter rainfall event. The vegetation was green and dense with an abundance of flowering and seeding. Insect life was abundant.
RESULTS

MAMMALS

Only one species of feral mammal was observed in the project area during three site visits. Taxonomy and nomenclature follow Tomich (1986).

Domestic cat (Felis domesticus) – One feral cat was observed in kiawe forest. These animals, descendants of domestic pets gone wild, are major predators of ground nesting birds and rodents.

Deep dense grass cover prevented good visibility of other ground dwelling animals, but a significant population of mongoose, rats, and mice would be expected. Mongoose feed on rats and mice as well as ground nesting birds. Mice and rats were not seen but their presence is virtually guaranteed by the abundant food supply in the form of grass seed and herbaceous vegetation.

A special effort was made to look for the native Hawaiian hoary bat by making an early morning survey of the area. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent and plenty of flying insects were seen. There is no record of bat activity in this part of Maui.

BIRDS

There was a high level of birdlife abundance and diversity in this normally dry area. An ample supply of grass and herbaceous plant seeds were available following a good winter wet season. Adult insects and caterpillars were also seen especially on the kiawe trees. Ten species of non-native, three species of indigenous and one endemic bird species were seen taking advantage of this seasonal food supply or feeding in the shallow temporary ponds created by the recent heavy rains. Taxonomy and nomenclature follow American Ornithologist’s Union (1988), Berger (1981), Pratt et al. (1987) and Hawaii Audubon Society (1989).

Barred dove (Geopelia striata) – Many barred doves were seen and heard in the kiawe trees or feeding in forest openings. Their smaller size, streaked body and white flashing tail feathers when taking flight distinguish this species from the spotted dove. This was the most abundant bird species encountered.

Spotted dove (Streptopelia chinensis) – This large dove was seen frequently throughout the area and transiting overhead. Their smooth flight and evenly modulated cooing are distinctive.

Gray francolin (Pternochroa penicillata) – A few gray francolins were seen in ground openings and in kiawe trees, but their loud and distinctive calls were heard frequently throughout the area indicating a larger population than seen.

American cardinal (Cardinalis cardinalis) – Both sexes of this species were seen individually or in pairs throughout the area. Their bright color and distinctive calls are unmistakable.

Japanese white-eye (Zosterops japonica) – Many white-eyes were seen feeding in the kiawe and their high-pitched calls were frequently heard.

House finch (Carpodacus mexicanus) – A few pairs of these moderately-sized, light brown finches were seen in the kiawe trees, but their high-pitched, twittering calls were commonly heard, especially in the early morning.

Common mynah (Acridotheres tristis) – Mynahs were seen throughout the area, feeding in the kiawe trees or transiting the area high above the trees. They are confident and assertive birds.

Golden plover (Pluvialis dominica) – Several of these migratory birds congregated at the temporary pond created by recent rains to exploit numerous insects stranded on branch tips by the rising water.

House sparrow (Passer domesticus) – A few groups were seen throughout the area feeding in the kiawe trees. Their persistent chirping and twittering are distinctive.

Cattle egret (Bubulcus ibis) – About eight of these large white birds, like the plovers, had congregated to take advantage of the bumper crop of insects.

Spotted junco (Lonchura punctulata) – One flock of these small brown birds was seen resting in a kiawe tree.

Hawaiian skylark (Heteroscelis montana) – Two of these long-legged, endemic water birds were seen in the temporary pond in the saline clearing. This saline clearing is located well outside of the proposed subdivision area. These opportunistic birds are quick to spot new ponds following heavy rains and to take advantage of the temporary bounty of insects.

Ruddy turnstone (Arenaria interpres) – Two of these migratory birds stopped by briefly at the temporary pond to check out the opportunities.

Wandering tattler (Heteroscelis incanus) – One of these migratory birds spent considerable time foraging for insects in the temporary pond.
**ANIMAL SPECIES LIST**

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals and Birds. For each species the following information is provided:

1. Common name / Hawaiian name
2. Scientific name
3. Bio-geographical status. The following symbols are used:
   - endemic = native only to Hawaii, not naturally occurring anywhere else in the world.
   - indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
   - non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   - migratory = spending a portion of the year in Hawaii and a portion elsewhere.
   - In Hawaii the migratory birds are usually engaged in the overwintering / non-breeding portion of their life cycle.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Observed Abundance On-site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAMMALS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic cat</td>
<td>Felis domesticus</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td><strong>BIRDS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barred dove</td>
<td>Geopelia striata</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>Spotted dove</td>
<td>Streptopelia chinensis</td>
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<td>common</td>
</tr>
<tr>
<td>Gray francolin</td>
<td>Fringillaria montifringilla</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>American cardinal</td>
<td>Cardinalis cardinalis</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>Japanese white-eye</td>
<td>Zosterops japonica</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>House finch</td>
<td>Carpodacus mexicanus</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>Common mynah</td>
<td>Acridotheres tristis</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
<tr>
<td>Golden plover / Kolea</td>
<td>Pluvialis dominica fulva</td>
<td>indigenous/migratory</td>
<td>uncommon</td>
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<tr>
<td>House sparrow</td>
<td>Passer domesticus</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
<tr>
<td>Cattle egret</td>
<td>Bubulcus ibis</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
<tr>
<td>Spotted munia</td>
<td>Lonchura punctulata</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
<tr>
<td>Hawaiian stilt / Ae'o</td>
<td>Himantopus mexicanus</td>
<td>endemic/endangered</td>
<td>rare</td>
</tr>
<tr>
<td>Ruddy turnstone / Akakeke</td>
<td>Arenaria interpres</td>
<td>indigenous/migratory</td>
<td>rare</td>
</tr>
<tr>
<td>Wandering tattler / U'ilii</td>
<td>Heteroscelus incanus</td>
<td>indigenous/migratory</td>
<td>rare</td>
</tr>
</tbody>
</table>
FIGURE 1: SPRECKELSVILLE SUBDIVISION FAUNA SURVEY
Appendix D

Archaeological Inventory Survey
ARCHAEOLOGICAL INVENTORY SURVEY
OF A 20-ACRE PARCEL OF LAND
SPECKELSVILLE, WAILUKU DISTRICT MAUI ISLAND
TMR 3-91-0010 parcel 003

by

Jeffrey Passion, M.A.

for

Mr. Henry Sponsor
P.O. Box 195829
Pahoa, HI 96799

March 2004

ARCHAEOLOGICAL SERVICES HAWAII, LLC
14 South Market Street, Suite G
Wailuku, Hawaii 96793

ABSTRACT

Archaeological Services Hawaii, LLC, of Wailuku, conducted an archaeological inventory survey of an approximate 20-acre residentially zoned portion of a 74-acre parcel of land in Speckelsville, Wailuku, Kahului, Wailuku District, Maui Island. The purpose of this investigation was to determine the presence/absence, extent, and significance of cultural resources in the project area. Fieldwork for this parcel was originally completed in February of 2003, as a due diligence task requiring only a post-field summary letter. The previously completed fieldwork was adequate, and no further fieldwork was necessitated during the current procedure.

No intact surface cultural remains or areas of exposed deposits were identified during the surface survey. Due to extensive previous disturbance from the future stable and staging area, subsurface sampling through backhoe trenching was implemented. Eighteen trenches ranging in length from 3.8 to 11.7 meters were excavated until sterile subsoil or water was reached. No significant cultural remains were encountered during trenching. Representative stratigraphic profiles were recorded from each trench.

Based on the negative results of fieldwork, no further work is recommended prior to commencing construction activities. However, due to the presence of numerous archaeological sites in Speckelsville, archaeological monitoring during all construction related activities (access roads, base yards, dust fences, grading, and utility installation) is recommended. Prior to commencing any construction related activities, an archaeological monitoring plan that includes provisions for conducting data recovery in the event portions of Site 1777 or any other subsurface cultural features are encountered shall be prepared for approval by the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD-DLNR). In the event human burials are encountered, all work in the immediate vicinity shall be halted, and SHPD-DLNR shall be notified.
INTRODUCTION
At the request of the landowner, Mr. Henry Spencer, Archaeological Services Hawaii, LLC (ASH) conducted an archaeological inventory survey of an approximate 30-acre residentially zoned portion of a 71-acre parcel land in Spreckelsville, Wailuku, South Maui District, Maui Island. The purpose of this investigation was to determine the presence/absence, extent, and significance of cultural resources in the project area. The survey was conducted on February 4 and 5, 2003, by Mr. Jeffrey Patsale, M.A. and Mr. Ian Rainford, B.A.

PROJECT AREA
The project area is located along the northern coast of Maui Island at the base of the northeastern slopes of Haleakula on the isthmus between East and West Maui in Wailuku, South Maui District, Maui Island (Fig. 1). It is located along the shoreline of Spreckelsville and bounded by Hana Highway to the north, Stable Road to the west, the Kaanapali Senior Wellness Center to the east, and Lawler Place and the Pacific Ocean to the north (Fig. 2). Of the 71 acres (TM 3-8-011, 3-8-021 9 and 10, only approximately 21 acres (TM 3-8-0013) located behind the V23 (tumenu) flood designation line and existing development are proposed for residential development (Fig. 2). The 22 acres along the coast will have either a conservation easement placed upon it, or it may be donated to the Maui Coastal Land Trust. The remaining 27 acres is leased to HC & S for agricultural cultivation.

ENVIRONMENT
The terrain of the project area is level and consists of open areas and secondary vegetation, including ferns (Pulchraria polystichum), makahiki (Pharbitis pumila var. wilsonii), and various grasses. Elevation ranges from sea level to 14 feet above sea level. Rainfall averages below 10 inches per year, predominantly occurring during the winter months between November and February (Armstrong 1973). An abandoned horse stable with associated structures (Fig. 3) and a staging area (Fig. 4) are located along the western portion of the project area, and modern refuse is scattered throughout the project area.

Soils in the project area include Molokai silty clay loam, 0-3% slope; Jicadas sand, 0-15% slope; saline, 0-15% slope; Dune sand, and Brahms. Molokai silty clay loam, 0-3% slope, consists of well-drained soils on upland areas formed in material weathered from basaltic igneous rock, and used for sugarcane. Permeability is moderate, runoff is slow, and erosion hazard is slight.
Jauca Sand consists of extensively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean, and developed in wind and water deposited sand from coral and seashells. Jauca Sand, 0-15% slopes, occurs on slopes ranging from 0-15%, but in most places the slope does not exceed 7%. Permeability is rapid; runoff is very slow to slow, and hazard of water erosion is slight, but wind erosion is severe where vegetation has been removed. This soil is used for pasture, sugarcane, truck crops, and urban development. Jauca Sand, salina, 0-12% slopes, occurs near the ocean in areas where the water table is near the surface and saline water accumulates. This soil is poorly drained in depressions, but excessively drained on knolls, and used for pasture, wildlife habitat, and urban development.

Dune Land consists of hills and ridges of sand-size particles drifted and piled by wind. These hills and ridges are actively shifting. The soil is dominantly from coral and seashells, and used for wildlife habitat and recreation. Vegetation is sparse, but may include scrub, dune moss, tropical arid, kiawe, and various grasses. Beaches occur as sandy, gravelly, or cobble areas along the coast. Beaches consist of light-colored sands derived from coral and seashells, and used for recreation and resort development.

HISTORY
Historical background data regarding Wailuku obsowania and the Wailuku District has been summarized in Clark et al. (1977), Koleh (1991), and McGerty et al. (2003). The reader is referred to these studies for detailed information.

Initial settlement on Maui Island is presumed to have occurred between A.D. 300-600 along the windward regions (Kitch 1943), Cooly and Arno (1982), including Wailuku on the windward leeward between East and West Maui, and Ulum on the windward coast of East Maui (Olinger 1995). These areas provided abundant rainfall and fertile soils to support intensive agriculture. Population expansion into the drier, leeward areas likely took place by A.D. 1000-1200 when population growth and polity expansion forced agricultural expansion into marginally productive areas (Koleh 1991).

According to oral traditions, Ho'ola was one of the first chiefs of Maui who ruled the Wailuku District. By A.D. 1500 East Maui was ruled by a line of independent ali'i na. Other lines of chiefly hierarchies emerged at this time, resulting in a rise in conflicts and competition. By A.D. 1600 Maui was unified by the Wailuku chief Pi'ilani (Fernandez 1969-87). During the eighteenth century, the ma'ohi Keliihihe underwent raids against Hawaiian Islands. Following the annexation of Hana and Kipahulu districts to Kamehameha, Kabehili II first captured Hana and Kipahulu from Kamehameha and then conquered O'ahu and Molokai. Kamehameha also annexed O'ahu through marriage. At the time of European Contact in A.D. 1778, Maui was unified under a single political pote under the rule of the ma'ohi Keliihihe. By A.D. 1795, Kabehili ruled all of the islands except Hawai'i Island. Kamehameha, son of Hawai'i Island, invaded Maui, Molokai, and O'ahu islands. Koleh, brother of Kamehameha I of Hawaii Island, unsuccessfully attempted to resist Hana and Kipahulu. In 1798, Kamehameha defeated Kalanikupola's forces at the battle of the Valley on Maui. Kalanikupola's eventual defeat of the Battle of Nu'uanu on O'ahu established Kamehameha as absolute ruler of the islands, with the exception of Kauai. Kaʻauwai, brother of Kamehameha's wives Kekahemana and Kaʻaʻuuhohea of Maui, governed Maui until his death in 1824. Kaʻauwai was succeeded by Wahinepio's sister of Chief Boki. Hoʻopiʻi succeeded Wahinepio and ruled Maui between 1826-1840, and was succeeded by Koaʻalu (John Young III). Lahaina on West Maui was the center of power of the kingdom, where Kamehameha III resided between 1837-1845.

The current project area is located in Wailuku obsowania, in the district of Wailuku. The literal meaning of Wailuku is "water of killing" (Pukui et al. 1974-1975). Wailuku was the center of political and military power on Maui during the seventeenth and eighteenth centuries. Legendary battles were fought in Wailuku, including battles involving Kipahulu, son of Pi'ilani, and Kalani'opu'u's, Kipahulu's brother. Lonoʻe-Pi'ilani, for political control of Maui. This battle ended with Kipahulu barely escaping with his life. Kipahulu, with the assistance of Hawaii Island forces, deposed his opposition and eventually became ruler of Maui. Another battle was fought in Wailuku during the 1700s when Kalani'opu'u was defeated by O'ahu and Maui warriors.

During the Mobs of 1848, lands that had formerly been under the guardianship of chiefs were available for private ownership, changing the traditional land tenure to a system of private ownership based on Western law. The Board of Commissioners to Quiet Land Titles received applications for land, and decided these claims. When a land claim was validated, a Land Commission Award (L.C.A.) was awarded. Following payment, a Royal Patent (R.P.) was issued.
Land conveyance records show that the entire plantation of Wailehua was awarded as Crown Land (L.C.A. 7713:22) to Kamehameha (Kamehameha IV). Princess Ruth Ke'elikōlani, the great-granddaughter of Kamehameha I and Kamemali, inherited this land following the death of her brother, Kamehameha V. Victoria Kamemali received 390 acres in Wailehua (L.C.A. 7713:11). No L.C.A.'s were awarded in the current project area.

The earliest commercial sugar production on Maui Island began in Wailehua in 1823 when Huihal Sugar Works was founded by Chinese merchants (Glover 1941:23). Wailehua Sugar Company was formed in November of 1852 by James Robinson and Company, Thomas Caning, J. Fuller, and C. Brewer and Company. In 1865, C. Brewer and Company acquired controlling interest, with Robinson and Company and Caning as minority stockholders.

In 1876, when the Reciprocal Trade Treaty was signed in Washington D.C., Alexander and Baldwin purchased land east of Kahului for sugar cane production. In 1878, they acquired the Paia Plantation and incorporated the Maui Plantation the following year (Best 1978:13). The majority of central and eastern Maui was cultivated in sugarcane. In 1882, Clara Spencek was awarded the eastern portion of Wailehua plantation as Great 3343, totaling 24,000 acres, and established the Hawaiian Commercial and Sugar Company (Alder 1960). In 1926, Alexander and Baldwin bought Spencek's Hawaiian Commercial and Sugar Company, which resulted in the intensification of the sugar industry in Wailehua.

The growth of the sugar industry required an influx of foreign laborers to work in the fields. Immigrant groups, including Russians, Spanish, Hawaiian, Chinese, Portuguese, and Japanese, established camps along railroad spur lines throughout the cane areas and towns appeared at Puʻunēnē and Specksville. The railroads, established by the sugar companies, were built to facilitate the transportation of sugar by horsepower. The first common carrier and steam-powered railroad in the Hawaiian Islands was the 3½-mile long Kahului and Wailehua railroad built in 1879 to connect sugar mills and canneries (Best 1978:13). The track later extended to the north shore of Maui, a total of 24 miles including sidings. By 1947, the railroad was replaced by a system of roadways.

Modern activities, including horse stables and staging areas, and installation of a sewer line, have extensively altered the current project area.

Previous Archaeology

Winnow Waller (1931) provided the first archaeological survey of prominent heiau sites on Maui Island. Previous archaeological work conducted within the current project area included Clark and Towner (1987), and pertinent projects conducted in the vicinity included Folk et al. (1993, 2000), McGee et al. (2003), Towner et al. (1991), and Welch (1991) (fig. 5).

Bishop Museum (Clark and Towner 1987) conducted archaeological testing of several sites constructed from Specksville to Kāʻana. Sites S6-55-53-100-13, 103, 123, 171, 172, 173, 1978 (Bishop Museum 55-53, 53-13, 53-12, 53-11, 53-9, 53-3, 53-2, 53-1, 53-20) were recorded. All these sites consisted of subsurface cultural layers and features such as pits, hearths, human burials, and charcoal concentrations. Radiocarbon and radiocarbon age determinations placed these sites between the 11th and 18th centuries. It appears Site 1777 may be located outside the development portion of the project area. This site, located on an sandy coastal flat approximately 250 meters west of the Specksville Pump Station, consisted of a cultural deposit (Layer II) and a hearth. Layer II contained abundant cultural material including volcanic glass, haole and native artifacts, chalcedony, and sherd. A charcoal sample and four volcanic glass flakes from Layer II were dated using a date range between 1420-1810. The hearth, measuring approximately 1.0 by 0.5 m, was oval shaped and consisted of charcoal-raised basalt and with burnt fragments of coral and haole and charcoal. A charcoal sample and four volcanic glass flakes from the hearth returned a date range between AD 1340-1685.

Cultural Surveys Hawaii (Towner et al. 1991) conducted surface testing at Site 53-50-04-2840, a cultural deposit, for the proposed approach “clear zone,” north end of runway 2-20 at Kahului Airport. Radiocarbon dating of this site yielded an age range between A.D. 1250-1745. A radiocarbon sample from a cultural deposit from the shoreline yielded a date range between A.D. 410-615, one of the oldest dates recovered from an archaeological site in Hawaii, if deemed reliable.

International Archaeological Research Institute, Inc. (Welch 1993) conducted subsurface testing for Kahului Beach Park addition and Kahului airport transient agreement, Kahului Airport. A total of 32 backhoe trenches were excavated throughout the project area, and no subsurface cultural remains or deposits were encountered.
Cultural Survey Hawaii (Folk et al. 1993) conducted testing for subsurface deposits in the Federal Aviation Administration Votus Site, Kahului Airport. A total of twelve backhoe trenches were excavated throughout the project area, and no subsurface cultural remains or deposits were exposed.

Cultural Survey Hawaii (Folk et al. 2000) conducted an inventory survey on sugarcane lands proposed for development at Spekeville. Subsurface testing was deemed unwarranted in the sugarcane fields. No sites were identified in the 200-acre project area.

Scientific Consultant Services, Inc. (McGerty et al. 2003) conducted an inventory survey for Phase II of the Spekeville-Baldwin Park bikeway. No surface structures or areas of exposed deposits or features were identified during the survey. Since Phase II of the bikeway corridor extends along previously developed areas, subsurface testing was deemed unwarranted.

**SETTLEMENT PATTERNS AND SITE EXPECTABILITY**

A settlement pattern for Wallaku ahepu'a can be inferred from information obtained from previous historical and archaeological studies. Initial prehistoric settlement is postulated to have occurred between A.D. 300-400 along the windward areas, and by A.D. 1000, populations expanded into the leeward areas. Permanent settlements in the windward areas occurred along coastal side of sand dunes near freshwater resources. These coastal settlements probably clustered around marine resources, fishponds, protected bays, and religious structures. Island settlement probably occurred in the Līpo Valley and other areas where upland panioloites have been identified.

The current project area is situated along the northern coast of Maui Island. Sites recorded in this area indicate permanent and temporary habitation, marine exploitation, and religious activities. Clark et al. (1987) established pre-Contact cultural deposits dating to the 13th Century, and Tonnies et al. (1991) dated a cultural deposit to possibly the 9th Century.

Based on previous archaeological work in the area, types of prehistoric sites expected in the current project area include burials, cultural deposits, pits, hearths, and human burials. Site 1777, a cultural deposit and hearth, was recorded by Clark et al. (1987) within and/or adjacent to the current project area. This site contained abundant cultural materials, and dated between A.D. 1440 and 1485. Portions of this site may be encountered during the current investigation.
Remains from the sugarcane period may also be encountered. Several workers' camps were established in Spreckelsville, and a railroad extended through the area. Historic activities during the 20th Century included a home stable and staging area. Structural remains from these activities are expected in the project area.

METHODS
A brief literature search of previous archaeological studies was conducted at the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD-DLRN) in Kapolei. One previously recorded site (Site 1777) may be located in or near the current project area. This site, a traditional Hawaiian cultural deposit consisting of a platform, mound, and heiau, was found during archaeological monitoring during construction of the sewer line extending from Sprecklesville to Koloa (Clark and Tongues 1987). Based on available maps, this site may be located outside or along the southwestern boundary of the 21-acre project area.

The survey was conducted by walking systematic transects at 5-10 meter intervals throughout the project area. Any potential feature was traced of vegetation and mapped. Feature recording included plan and location mapping, narrative description, and photography. Current and standard archeological techniques and practices were followed for all recording and other data gathering procedures.

Due to the nature and extent of previous disturbances in the area, subsurface examination of the project area was conducted by backhoe to determine provenience/keouhi and extent of buried cultural remains or deposits. A CAT machinery backhoe with a 2-3 ft. wide bucket was used to excavate the trenches. Trench locations were selected based on possible prior disturbance and areas considered the most potential for intact deposits. The trenches were plotted on a project area map, and since no cultural remains were encountered, representative stratigraphic columns were recorded for each trench. Self-descriptions using black and color designations were completed for each trench, and color photographs were taken.

During the initial inventory survey, approximately 10 acres of land along the coast was intended to have a conservation easement placed upon it or to be donated to the Maui Coast Land Trust. According to Dr. Melissa Kinkaden, Maui Island archaeologist for SHPD-DLRN, since this approximate 10 acres of land will be placed in conservation, archaeological testing in this area was deemed unnecessary. Currently the 10 acres has been increased to approximately 23 acres.

RESULTS OF SURVEY
No surface cultural remains were identified during the surface survey of the project area. Due to the absence of surface features and extensive previous surface disturbances, backhoe trenching was conducted to determine provenience/keouhi and extent of subsurface cultural remains. A total of 18 backhoe trenches (T1 through T18) were excavated in selected areas throughout the parcel that exhibited minimal previous disturbances and potential for intact subsurface deposits. Several of these trenches (T11 through T13) were excavated in the vicinity of Site 1777 to determine if this subsurface cultural deposit was present in the current project area. Table 1 presents directional and stratigraphic information for each trench. Representative stratigraphic columns are depicted in Figure 6. Figures 3-5 show photographs of various profiles of selected trenches.

No cultural remains or deposits were encountered in any of the trenches. Generally, two to four stratigraphic layers and lenses were observed in the trenches. The water table was exposed in all the trenches, except Trenches 10 and 11. The stratigraphic component in all trenches were:

Layer I: dark brown (7.5YR 3/10, 10YR 3/4) to very dark brown (7.5YR 2.5/3) to gray brown (7.5YR 4/6, 5/6, 10YR 4/6) to pale brown (10YR 6/2) to light gray (10YR 7/4), fine to medium-grain, loose, non-sticky, silty sand with abundant charcoal and modern refuse.

Layer II: yellow brown (7.5YR 4/4) to yellowish brown (7.5YR 5/8) to very pale brown (10YR 5/4) to reddish-yellow (7.5YR 7/6) to black (7.5YR 2/1), fine to medium-grain, loose, non-sticky, non-plastic, non-cultural, homogeneous sandy loam with moderate amount of charcoal. This layer was absent in T5, T14, T13, and T18.

A thin consisting of very pale brown (10YR 3/4) to yellowish red (7.5YR 4/6), coarse sand with abundant organic material was encountered in T6 and 12.

Layer III: yellow brown (7.5YR 4/4) to pale brown (10YR 7/2, 8/2, 8/3) to very pale brown (10YR 7/6, 8/4) to light gray (10YR 7/4), compact, medium to coarse-grain, non-sticky, non-plastic, non-cultural, homogenous sand.

Layer IV in T9 and T10 was a dark red (2.5YR 3/6), compact, fine-grain, sticky, slightly plastic, non-cultural, homogeneous, silty clay.

Layer IV in T1, T3, and T5 was a light gray (10YR7/2) to very pale brown (7.5YR 4/2), compact, fine to medium-grain, coarse, moist, non-sticky, non-plastic, non-cultural, sand.
Table 1. Dimensions and Stratigraphic Information for T1 through T18

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<th>T11</th>
<th>Length</th>
<th>Width</th>
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<th>Orient</th>
<th>Layer I</th>
<th>Layer II</th>
<th>Lens</th>
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<td>sand</td>
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</tr>
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<td>cera sand</td>
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</table>
RECEIVED AS FOLLOWS

Figure 11. Overview of H4, View as East

Figure 20. Overview of T12, View to North
DISCUSSION

Results of archaeological testing in the 3D area portion of the project area proposed for residential development produced no evidence for precontact cultural activities during the prehistoric period in the subject project area. No prehistoric surface cultural remains were present, and backhoe testing showed that subsurface cultural remains were also absent. Historic period occupation, including a house stable and associated structure and a staging area, occurred in the project area since the early 20th century. The stable is currently abandoned.

Backhoe testing showed that subsurface cultural remains were absent in all exposed stratigraphic layers. Two to four stratigraphic layers were revealed, consisting of various layers of sand and silty sand. Dark red-brown silty clay underlying sand was exposed in the northeastern portion of the project area, and water was encountered in the majority of the trenches at relatively shallow depths. Several trenches were excavated in the area where Site 1777 may be located; however, no evidence of this site was found.

RECOMMENDATIONS

Archaeological monitoring is recommended during all ground disturbing activities to ensure that any unexcavated subsurface remains or deposits are properly documented. In the event portions of Site 58-30-05-1777 or any other significant subsurface cultural remains or deposits are encountered during construction activities, all work in the immediate vicinity shall be halted, and a data recovery plan shall be formulated and submitted to SHPO-DNAP for approval. If human skeletal remains are encountered during monitoring, all work in the immediate vicinity shall be halted, and SHPO shall be notified.

REFERENCES


Folk, W., and H. Hannan. 1991 Archeological Survey and Subsurface Testing for the Kahului Airport, Kahului, Maui. Cultural Surveys Hawaii

Folk, W., V. Cream, D. Shidler, and H. Hannan. 2009 Archaeological Inventory Survey of the Sweetwater Estates Proposed for Development at Speckleville, Wailuku/Ahu'ula, Wailuku District, Maui Island. Cultural Surveys Hawaii


Kling, P. 1995. *Aleluia's History and Archaeological Excavations at the Private Palace of King Kamehameha III in Lahaina, Maui.* Anthropology Department, Bishop Museum, Honolulu


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Appendix E

Cultural Assessment Report
E Paepae Ka Pāko‘a
(Laying the foundation)

TITLE PAGE

SPRECKELSVILLE PROJECT
Kapukauku, Maui

TMK 3-8-01E – Approximately 21 acre proposed for residential development.
TMK 3-8-02E & 10 – Approximately 23 acres (including beachfront) in public trust,
and approximately 77 acres to remain in agriculture.
Spreckelsville, Maui, Hawaii.

MITIGATING MEASURES
Full-time archeological monitoring

FINAL REPORT
February 2004

Prepared for:
Mr. Henry A. Spencer
P.O. Box 20039
P.O. Maui, Hawaii 96779

Prepared by:
CKM Resources, 157 Ala Pau, Pukalani, Maui, Hawaii 96768

E Paepae Ka Pāko‘a
(Laying the foundation)

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E. Paepae Ka Pūkō'a
(Laying the foundation)

ABSTRACT

This study is in accordance with the Office of Environmental Quality Control; it will describe potential impacts from further development, along with measures that could possibly be employed to mitigate those impacts. This study will evaluate the cultural significance of house sites and cultural resources identified during an archeological survey, and assist in the preparation of an archeological survey plan. It will also address the requirements of the Office of Hawaiian Affairs, in accordance with cultural impacts on the Hawaiian Cultural and Specificaly, the document will address potential impacts on the Hawaiian and native Hawaiian and other cultural groups.

A Hawaiian cultural resource evaluation revealed that the project site is located on Hana Highway, toward the Kahului side of the Kapalana Senior Citizens Center in Hana Highway. This area was once called Kukahikaua, which began on Hana Highway and extended south at the ocean. The area in question encompasses a total of approximately 70 acres. Approximately 40 acres will be designated for residential development, approximately 20 acres for agricultural production, and approximately 20 acres for non-agricultural uses. The remaining area will continue to be used for the primary use of agriculture. The proposed development will be located south of the Hana Sugar cane on this parcel. The proposed development will be located south of the Hana Sugar cane on this parcel. The proposed development will be located south of the Hana Sugar cane on this parcel.

The area is designated. The access to the house lots will be from Stable Road, with a road running down the center of the development, ending in a cul-de-sac on the front of the subdivision. This road has been named by the author of this report "Kukahikaua," the subdivision. This road has been named by the author of this report "Kukahikaua," the subdivision. This road has been named by the author of this report "Kukahikaua," the subdivision.

Clara Spalding settled in Hawaii on August 24, 1876. In a matter of years he acquired vast areas of land with the intention of planting sugar cane. Knowing that the area of Maui was dry, he realized that he had no access to water. He established a central area of Maui where he had access to water from the cistern. In 1881, Spalding built the largest sugar mill on Maui, which was called the Spaldingville Mill. It was located across Hana Highway, in the Kula district. Its production halted in 1905 as a result of the depression. It was replaced by a now-closed plant on Oahu by 1913. In 1955, Spalding was also responsible for the construction of the sugar mill on Maui. The sugar mill was closed in 1976 because the need for sugar cane and sugar. Another first was the use of steam to power the mill in Hawaii in order to cultivate the vast fields.

The archaeological study done on this project (see Archeological Report) revealed no cultural or archeological findings. Because of the similarity to the surrounding area, evidence of pre-contact use, and the extensive period of occupation, it is strongly suggested that habitat monitoring occur during construction.

Note: As much as possible, throughout this report, the spelling of Hawaiian vocabulary and place names has been standardized to present spelling.


2 The Hawaiian word for "sugar cane" is Kauai. The Hawaiian word for "sugar cane" is Kauai. The Hawaiian word for "sugar cane" is Kauai. The Hawaiian word for "sugar cane" is Kauai.
Section I. The District (Ahuapu'a)  
Kapukaulua is a small land district (or ahu) on the northern shore of Maui. It's shoreline is also named Kapukaulua, meaning the blue (certain species of jack or crevalle fish) pit. It was named this because of the abundance of fish during the certain fishing season.

The Kapukaulua 'ili resides in the ahuapu'a of Waialua and is bordered by Hānauma Lao. Since Kapukaulua consists mainly of shoreline property, not much has been written about Kapukaulua. However, as this report will later explain, some history of Kapukaulua can be found in written memories. Another area near Kapukaulua was a place named Wawau'a. Due to the lack of in-depth recorded historical facts of Kapukaulua or Wawau'a, the majority of information will come from recorded information of the adjacent 'ili, Pā'a.

In this particular ahuapu'a there are many 'ili. The main east end border for this ahuapu'a is Kā'ana. Near the entrance, Kā'ana sets one line for the ahuapu'a. Another point in the border system is Kā'auwai. From here, the border extends to Puka'alei (adj. Pe'ukalei) on the slopes of Maui's eastern mountain, Hāna'ākula. From Puka'alei the border extends back down to the sea to where the Kahului airport currently resides. In the traditional ahuapu'a system, this wai'ali (area) is known as Pā'a.

These are the different 'ili contained within the Kapukaulua, Wawau'a and Pā'a areas:

- Kē'oke'a, Kā'ana, Kōhoku, Kī'akane, Hāna'ūwai, Puka'alei (adj. Pe'ukalei), Kē'oke'a, Spreckelsville, Wawau'a and Kapukaulua - shoreline.

In line of the U.S. Census, the change of land zoning for these tracts of lands may appear differently as compared to the traditional ahuapu'a system. The topography of Kapukaulua and Pā'a were changed when the areas were re-zoned due to reappropriation. Therefore, this report has combined both traditional land uses of this area (i.e. traditional names) and the current topography that this area is currently used as.

The land in this area is dry, yet fertile. One 'Aha na'au (Hawaiian proverb) says, “Ka maka i ka laapa'au o Po'ina.” This literally means, “Dust blowing wind of Po'ina.” The land is also at a bit of an elevation, as mentioned earlier. This elevation, the slightly acidic topography, and the dry plains make the area perfect for growing 'ulu (sweet potato - sweet potatoe).

Many individuals profoundly commented on Kapukaulua's wealth of sea life during certain seasons. In the "Ka Nōpea Kō'ula'a" (Hawaiian Language Newspaper - 1884) a resident by the name of "Polena" commented on the abundance of marine life in the Kapukaulua area. "Polena" also commented on the disparities that may have happened at times:

1 The term Wawau'a is perhaps a Proto-Polynesian linguistic retention of other places in the Pacific. It may well be a Proto-Polynesian or Proto-Hawaiian Polynesian term. Wawau'a could be a replaced name in Wai'ana, Tahi'ana. Pū'ukalii in the Society Islands or Wawau'a, a Tongan island in the Pacific.

Section II. Hawaiian Fauna (Lī‘ī Hawai‘i)

These lands rarely made perfect Lī‘ī kalo (lava patches) because of the dry conditions. Therefore, sweet potato may have been a large source of carbohydrates sufficiently because of the lack of water in the area. Although the fact is recognized that Hawaiians would traditionally trade, swap, and share various foods, kalo (taro — Colocasia esculenta) was not commonly available, due to the fact that it’s kalo was not always present in the immediate vicinity.

Another plant that may have grown in this area, to supplement the need of kalo, is ‘ula (Ananas comosus — breadfruit).

According to a book titled, “Native Plants in Old Hawai‘i: Their Life, Use, and Environment”, written by E.S. Handy et al., he explicates, “early voyagers noted extensive planting of breadfruit along the southern and eastern coast.” Although this statement singles out the Southern and Eastern coastlines, which are generally the dryer areas on the island, ‘ula is still made a perfect place for ‘ula to grow because of it’s dry dusty plains. ‘Ula also grew in many of the bordering districts that were near the Pola and Wawa’s areas.

Palo (Pandanus odoratissimus) or Pandanus may have also been plans that were used to construct comfortable hovens in Pola, more specifically the land area of Wawa’s near Kapualii. Helia has been very successful in its ability to grow near the ocean. This is still evident in the abundance of balsa near the shorelines throughout Hawai‘i. Helia was known to grow vigorously in the bordering areas, mentioned earlier. This would have been useful to construct needed objects in the home, farm, and family settings.

Pili (Hippocratea escallonioides) was also quite common in these areas because of the climate conditions. Pili liked to grow in arid and dusty conditions. This grass was useful to Hawaiians in that the dried grass would be made into butches and used to reach the mouths of their homes.

One of the ground covers used to keep some of the dirt from blowing in the wind was ‘ala o Hi‘iaka (Hippocratea escallonioides). This was a ground-covering vine with abundant white flowers that ranged in color from light bluish-purple to white. This plant did not need much water, which in turn would make Pola a perfect area of growth for the ‘ala o Hi‘iaka.

While Hawaiians of the past used ‘ala o Hi‘iaka for curing kūkui (children) of te (throat — a mouth disease), this plant was better known for the merrie little story that explains its name. Long ago, Pele, the volcano goddess, took her youngest sister, Hi‘iaka, to the ocean. As Pele was out amongst the waves fishing, or some say surfing, the sister climbed higher and higher in the sky. Meanwhile, Hi‘iaka waited patiently on the shoreline for her sister. A plant near Hi‘iaka, seeing that she sister was crying was being burned by the sun’s merciless rays, took pity upon Hi‘iaka and extended six vines to shield her. When Pele returned from the ocean, she discovered Hi‘iaka covered and protected by the plant. In gratitude, Pele gave the plant her name, ‘ala o Hi‘iaka (of Hi‘iaka).

Kahului: A major Hawaiian god, responsible for all of the life in the ocean.

Another blossoming plant that has resided in this area is the 'a'alo'i (Dodonaea) bush. This hardwood native shrub is indigenous to the islands. This plant also grows well in dryer climates. Ranging in heights of one to thirty feet, this shrub will still grow at elevations up to 8,000 feet, and in wind-swept open country. In today's day and age, 'a'alo'i is being used to reforest the island of Kaho'olawe. This island's water plant is cracked in half due to multiple testing by the U.S. government in the late 1960's and 70's. Kaho'olawe is not able to remain water because of the cracked water plant, yet the 'a'alo'i is doing well in growing and flourishing on the island.

One plant that has proven itself is kalo (Saccharum officinarum - sugar cane). Kalo is an extremely low maintenance plant that is easy to maintain when water is readily available. Alexander and Baldwin found this to be true and later built an empire with this cultural knowledge. The sugar cane, up until the late 1980's, put Hawai'i at the forefront of the sugar cane industry. Today, this industry struggles to survive among top competitors. However, this industry has left many historic marks in the history of Hawai'i and the lives of many families, both native and non-native.
ZONES

The Maui County Planning Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

**Zone 1:** Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

**Zone 2:** Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

**Zone 3:** Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

**Zone 4:** Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

**Zone 5:** Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be placed in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and function.

Descriptions of Various Maui County Planning Zones
# Zone-specific Native and Polynesian plants for Maui County

## Zone 3

### Type: F Fern G Grass G1 Ground Cover Shr Shrub P Palm S Sedge T Tress V Vine

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<th>Generic Name</th>
<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Exposition</th>
<th>Water req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ficus nitida</td>
<td>Indian fig</td>
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<td>Full Sun</td>
<td>Very Dry</td>
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<td>Cyrtosperma</td>
<td>C. mediterraneum</td>
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<td>3'</td>
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<td>Gossypium</td>
<td>G. hirsutum</td>
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<td>2'</td>
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<td>Very Dry</td>
</tr>
<tr>
<td>Solanum</td>
<td>S. tuberosum</td>
<td>3'</td>
<td>1'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Chenopodium</td>
<td>C. album</td>
<td>2'</td>
<td>4'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Convolvulus</td>
<td>C. althaea</td>
<td>3'</td>
<td>2'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
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<td>Very Dry</td>
</tr>
<tr>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
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<tr>
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<td>Z. fulgens</td>
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<td>5'</td>
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<td>Ipomoea</td>
<td>I. quamoclit</td>
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<td>3'</td>
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</tr>
<tr>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
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<tr>
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<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
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</tr>
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<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
<td>Very Dry</td>
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### Recommended Plants for Zone 3

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<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Exposition</th>
<th>Water req.</th>
</tr>
</thead>
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<td>Century plant</td>
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<td>3'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Gymnocalycium</td>
<td>G. mihanum</td>
<td>6'</td>
<td>2'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Cycas revoluta</td>
<td>Palm tree</td>
<td>10'</td>
<td>4'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Licaria species</td>
<td>Fan palm</td>
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<td>2'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>Phylodoce species</td>
<td>Beach</td>
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<td>Very Dry</td>
</tr>
</tbody>
</table>

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### Zone 3

<table>
<thead>
<tr>
<th>Type</th>
<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Exposition</th>
<th>Water req.</th>
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</thead>
<tbody>
<tr>
<td>F</td>
<td>Ficus nitida</td>
<td>8'</td>
<td>1'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>G</td>
<td>Cyrtosperma</td>
<td>C. mediterraneum</td>
<td>2'</td>
<td>3'</td>
<td>Half Shade</td>
</tr>
<tr>
<td>G1</td>
<td>Solanum</td>
<td>S. tuberosum</td>
<td>3'</td>
<td>1'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G2</td>
<td>Chenopodium</td>
<td>C. album</td>
<td>2'</td>
<td>4'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G3</td>
<td>Convolvulus</td>
<td>C. althaea</td>
<td>3'</td>
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<td>Full Sun</td>
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<td>4'</td>
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<td>Full Sun</td>
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<td>Z. fulgens</td>
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<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G7</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
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<td>Full Sun</td>
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<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G12</td>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G13</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G14</td>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G15</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
</tbody>
</table>

---

### Recommended Plants for Zone 3

<table>
<thead>
<tr>
<th>Type</th>
<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Exposition</th>
<th>Water req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Agave salmiana</td>
<td>Century plant</td>
<td>15'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G</td>
<td>Gymnocalycium</td>
<td>G. mihanum</td>
<td>6'</td>
<td>2'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G1</td>
<td>Cycas revoluta</td>
<td>Palm tree</td>
<td>10'</td>
<td>4'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G2</td>
<td>Licaria species</td>
<td>Fan palm</td>
<td>8'</td>
<td>2'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G3</td>
<td>Phylodoce species</td>
<td>Beach</td>
<td>12'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
</tbody>
</table>

---

### Zone 3

<table>
<thead>
<tr>
<th>Type</th>
<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Exposition</th>
<th>Water req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Ficus nitida</td>
<td>8'</td>
<td>1'</td>
<td>Full Sun</td>
<td>Very Dry</td>
</tr>
<tr>
<td>G</td>
<td>Cyrtosperma</td>
<td>C. mediterraneum</td>
<td>2'</td>
<td>3'</td>
<td>Half Shade</td>
</tr>
<tr>
<td>G1</td>
<td>Solanum</td>
<td>S. tuberosum</td>
<td>3'</td>
<td>1'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G2</td>
<td>Chenopodium</td>
<td>C. album</td>
<td>2'</td>
<td>4'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G3</td>
<td>Convolvulus</td>
<td>C. althaea</td>
<td>3'</td>
<td>2'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G4</td>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G5</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G6</td>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G7</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G8</td>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G9</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G10</td>
<td>Ipomoea</td>
<td>I. quamoclit</td>
<td>4'</td>
<td>3'</td>
<td>Full Sun</td>
</tr>
<tr>
<td>G11</td>
<td>Zephyrion</td>
<td>Z. fulgens</td>
<td>2'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
<tr>
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<td>3'</td>
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</tr>
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<td>3'</td>
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</tr>
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<td>Beach</td>
<td>12'</td>
<td>5'</td>
<td>Full Sun</td>
</tr>
</tbody>
</table>
### Zone-specific Native and Polynesian plants for Maui County

<table>
<thead>
<tr>
<th>#</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Height</th>
<th>Form</th>
<th>Elevation</th>
<th>Water resp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>M. boerhaviae</td>
<td>Panele</td>
<td>30</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
<tr>
<td>12</td>
<td>M. trifida</td>
<td>Kauamakulana</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry</td>
</tr>
<tr>
<td>13</td>
<td>M. palmeri</td>
<td>Paleme</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
<tr>
<td>14</td>
<td>M. palmeri</td>
<td>Paleme</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
<tr>
<td>15</td>
<td>M. palmeri</td>
<td>Paleme</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
<tr>
<td>16</td>
<td>M. palmeri</td>
<td>Paleme</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
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<td>M. palmeri</td>
<td>Paleme</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
<tr>
<td>18</td>
<td>M. palmeri</td>
<td>Paleme</td>
<td>15</td>
<td>IV</td>
<td>600-2,000</td>
<td>Dry to Wet</td>
</tr>
</tbody>
</table>

**Zone 3**
### Places to Buy Natives On:

**Maui:**

1. Hoolawa Farms  
   P O Box 731  
   Haiku HI 96708  
   The largest and best collection of natives in the state. They will deliver, but it's worth the drive to go and see!  
   Will propagate upon request  
   - **575-5099**

2. Kula True Value Nursery  
   Many natives in stock  
   Get most of their plants from Hoolawa Farms  
   They take special requests  
   - **878-2551**

3. Kihel Garden and Landscape  
   - **244-3804**

4. Kihana Nursery, Kihel  
   - **879-1165**

5. The Hawaiian Collection  
   Specialize in Sandalwood propagation  
   Will propagate special requests  
   - **878-1701**

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**Section III: The Lifestyle (Ke Ola Nei)**

As “Polena” later explained, there seemed to be tension between the kama‘aina and those who had business interests in the area of Kapakulama/Pa‘ia.

Upon the introduction of the sugar cane industry, there was a shift in the treatment of the land and other resources contained in these areas. Land divisions were plowed, unearthed, and made into fields to plant the profitable crop of sugar cane. No doubt, this industry employed generations of people. In a matter of years, the planting and cropping system of plants in the area of Pa‘ia went from culturally based farms to crops of mass production. This is predominantly evident in a glimpse of life by “Polena.”

Land titles were lost to quid pro quo deals and nepotistic actions taken by officials who were friends with sugar cane tycoons. As the behent of all of this, was the traditional lifestyle of native Hawaiians, the native wildlife, and the native and indigenous flora. A lifestyle of its own accelerated the lives of the natives of the area to quickly assimilate to a system unfamiliar to their own.

Stories like “Polena” were not uncommon to the major newspapers throughout the kingdom at that time. The concept of proving land still had not been realised and digested enough to be understood by native Hawaiians. They continued the decrease of subsistence living in rural communities such as Pa‘ia and Kapakulama.

In the wake of this paradigm, native Hawaiians fared poorly if they chose to live a cultural lifestyle in this atuple’s of Pa‘ia.

As more continental Americans migrated to the islands in search of employment, either as military personnel or to fill vacancies in other industries, they brought with them ideals and a way of life that made impronta on the island populace. Like the missionaries before them, their ideologies assisted in the Americanization of Hawai‘i’s. However, while other ethnicities seemed to prosper in the wake of the paradigm, the native Hawaiians did not. (Keshini, 219)

As Dr. Walter Keshini explains in his doctoral dissertation, it was difficult if one kept to their cultural ways. The native Hawaiians had not assimilated fast enough, which caused the paradigm shift and the change of the landscape, from cultural farms to mass producing crops.

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Section IV. Interviews and Interview Consent Forms

STATEMENT OF:
Clarence Masai Maui
Retired Fireman - Maui County Fire Department
222 Aa Road, Lower Paia, Maui

Interviewed on 02/01/04 at 10:15 a.m., Paliuli Community Center.

He related that he was born on July 26, 1920 in Upper Paia and raised there. Before retirement, he was a fireman at the Paliuli Fire Station. He remembered the Sprecksville area and knew many people that lived in the camps that were there, in an area across from the project. He recalled that there was a photo studio, a Catholic Church, Korean Church, baseball field, and a movie theater. Below the road, next to the proposed project area, there was a stable belonging to H.C. & S Company. He also stated that across this project site, on the road opposite of Stable Road, there was a boxing arena and an abandoned house which everyone used to call an "obake" (haunted) house.

STATEMENT OF:
Mrs. Flores Melendez
Housewife
200 Hana Ave., E-6, Kahului, Maui

Interviewed on 02/01/04 at 10:30 a.m., Paliuli Community Center.

She was born in Kahului on January 16, 1928. Her family moved to Maui around 1940 and settled in Sprecksville Village. They lived in what was called "Cod Fish Row", which was located on the road that went to the airport. She started to work at the Dairy in Kahului on Duke Road. She later worked in the same fields around Paia and the Sprecksville area. She also worked on the Naval Base located in NASA. She does not remember going onto the subject property but remembers the Kahului School. She had nothing further to add.

STATEMENT OF:
Mr. Lisa Retnam-Haaske
Archaeologist-Antropologist Services Hawaii, LLC
16 South Makena Stree, Suite G
Wailuku, Hawaii 96793

Interviewed on 02/13/04 at 2:40 p.m., Wells Park, Wailuku.

She related that her associate, Mr. Jeffrey Patehau, had previously done archeological studies on the subject property. Jeffrey had dug numerous trenches on the property and had not come up with any cultural or archeological sites. The location of the site was 50-50-50-17771 was discovered to be adjacent to a residential bypassed road constructed during sewer line construction on Mauka Street. This site is located on an area that will be kept in open space and will not be impacted by any development. As far as the sand dunes which are in the area are made of volcanic ash. These were conducted for the secondary dune and nothing was found. The reason she recommends full-time monitoring is because this area is in the same general location as the Maui County Club, Baldwin Park, and Kanahele in Ka'anapali which is where burials were found. Also, this area contains pueo'ome (sand dunes) which was favored for burials by the ancient Hawaiian people.
STATEMENT OF:
John Han
Union Representative – I.B.E.W.
272 Holi`ilani St., Pukalani, Maui 96768

Interviewed on 02/14/01 at 10:20 a.m., at his home:

John was born in Pā‘ia in 1927. He grew up by the Makawanui Union Church, which was located on Baldwin Ave. above the present Pā‘ia School. He stated that he attended Kaunao School and had many friends in Speecksville. He spent a lot of time with his friends who attended Speecksville Elementary School, which was located on the road side of Stable Road, in what was known as "coolish row". There was also a boxing ring, and all the children used to "bang out there". The people of Speecksville were known to be very competitive in Maui sports. He recalls an incident where one of his playmates was killed when he went in "pull cane" from a passing train car. It was common for the children to chase the cane cars, as the train passed, to "pull cane". They did this because they liked to eat the burnt cane by chewing on the inside, which was referred to as "Hawaiian candy". He has been to the beach roles of the subject property and remembers a lot of the people from the surrounding camps going to the beach for fishing and swimming.

Almost all of the residents lived on the makua side of Speecksville (where the subject property is located), with the exception of 2 camps that were located on the Kaunao side of Stable Road. He recalls that the road intersecting Stable Road led to the back of the present airport. Also, he related that the old Speecksville Sugar Mill was located at the intersection of Hana Highway and the road that led to the upper Speecksville Village, on the Pu`u o Umi (mountain) side of Hana Highway.

He does not remember going onto the property and can only remember going to the Cameron's home, which was located just before the driveway to the Kaunao Senior Citizens Center. He also stated that he owned to go to public schools in the late 30's and 40's, and the mode of transportation was by foot. He later bought a bicycle which allowed him to travel all over Maui.
Section V. Conclusion (Ua Pau)

Pā‘ina, Kapakaulua, and Wāwā‘a were full of life with different plants and people to cultivate (care for) the ‘‘kū‘ū‘au (land). Today, many generations of families have settled near these areas and have found solace and joy in the surrounding landscapes. The extensive shoreline in this area provided for many generations of people who lived on this northern coastline. Kapakaulua and Wāwā‘a consisted of many living areas, and as made poignant by “Po‘ohau,” provided great catches of fish.

Various species of native fauna inhabited the area, and quite possibly, some plants that grew there no longer exist in Hawai‘i. It is important to stress the sanctity of these areas - Pā‘ina, Kapakaulua and Wāwā‘a, respectively. Pā‘ina is an extremely diverse ati no‘eau, reaching from Ko‘olau to Pokai‘alii, and back down to Spaldingville. Thus, the ati no‘eau covered vast lands and different landscapes.

Today, the majority of Pā‘ina’s land is now covered by sugar cane crops. Kapakaulua, which was once home to traditional farmers and fishermen, is now home to generations of plantation workers.

State Historic Preservation Division

PROTECTING NATIVE HAWAIIAN BURIALS

For at least two thousand years, native Hawaiians have placed the earthly remains and spirits of their __kupuna__, ancestors, within the landscapes of Hawai‘i.

When a departing kupuna was laid to rest there was never a doubt that their remains would remain in their domain until they themselves were restored to earth. Some kupuna were covered by stacked stones while others were buried with no surface markers at all, frequently in sand dunes.

Remains of high chiefs or those kupuna of high honor often were located at night to conceal their location from evil kāhili who might steal and degrade or otherwise use the spiritual power of the remains for personal gain.

Because of these cultural practices, ancestral homes can be found almost anywhere in Hawai‘i today. Burial sites are often accidentally disturbed either by nature (high surf or storms) or by human activity through aspects that involve excavation.

If you discover a burial site, stop activity in the immediate area, make reports in place, contact the State Department of Land and Natural Resources, __Hawai‘i State Parks Division__ and your County Police Department. Reporting a burial site disturbance is required by law (Hawai‘i Revised Statutes, Chapter 68) and severe penalties could result when SHPD is not notified of such disturbance.

Let us all continue to give these ancestors the dignity and respect they deserve. Become a partner in preserving and protecting Hawaiian burial sites.
BIBLIOGRAPHY


Wise, John H. "Food and Its Preparation." Ch. 8 in *Ancient Hawaiian Civilization: A series of lectures delivered at the Kamehameha Schools* by E.S. Hendy et al. 1933. Rutland, VT and Japan: C.E. Tuttle, 1963 (rev. ed.)
Abandoned buildings from former stable

*Quai (rubbish) from former residents."
Spreckelsville mills about 1885. The mills set an example for the Hawaiian sugar industry.
Appendix F
Scenic Opportunities
Proposed View
Looking West along Hana Highway at project (fronting Kaunoa Senior Center)
Existing View
Proposed View
Looking West along Hana Highway (fronting project site)
Proposed View
Looking West along Hana Highway (fronting project site)
Existing View
Proposed View
Looking North across Hana Highway to project site
Looking North East at Hana Highway/Stable Road intersection towards project site
Proposed View
Looking North East along Hana Highway towards project site
Appendix G

Dune Restoration Plan
Possible steps to be taken:

1. Irrigation lines will need to be placed over the entire restoration area.
2. Ironwood trees *may* need to be removed if they prohibit growth of ground cover.
3. Educational signs will need to be installed: possibly one bigger sign by turn off of stable road, with smaller signs around project area.
4. Low post-and-rail fences should be placed around high-traffic areas to confine traffic to designated places.
5. Maintenance of irrigation, vegetation, fences, signs will be required indefinitely; however, after plants are established, irrigation requirements will be reduced.
6. Replenishment of the dunes and/or beach with sand fill if necessary.
The Restoration Plan

Not to scale

To commencement of work

1. (i.e. pohuehue, akulikuli, aki aki, etc.)

2. (i.e. naupaka, hau, milo, etc.)

3. E奥

4. Fencing
Appendix H

Annual Erosion Hazard Rates
Appendix I

Phase I Environmental Site Assessment Executive Summary
Executive Summary

Introduction
This Phase 1 Environmental Site Assessment (ESA) has been prepared for Mr. Henry Spencer and was conducted pursuant to Vuich Environmental Consultants, Inc.'s (VEC's) written proposal and contract accepted by Mr. Spencer on February 5, 2003. This investigation and report format follows the guidelines of the American Society of Testing and Materials (ASTM) Publication E1527-00.

Site Description
The subject site is located on the northwest shore of Ewa Maui at the intersection of Hana Highway and Stable Road. The property is within the community of Spreckelsville and is situated approximately 3.0 miles northeast of the town of Kahului. The subject site is further described on the Tax Maps of the State of Hawaii as Division 2, Zone 3, Section 6, Plat 01, Parcel 13.

The subject site consists of one parcel of land, irregular in shape, and measures approximately 63 acres in total area. However, for this Phase 1 ESA, only a portion of Parcel 13 (19 acres) is included in the investigation. The remainder of the parcel (not to be investigated) may be donated to interested parties. Currently, the subject property consists of unoccupied stable ground/terrain and heavily vegetated undeveloped land. The main access onto the property is from Stable Road.

The subject site is bordered by agricultural land (sugarcane) to the south and west, undeveloped beach coastline and residential land to the north, and residential and commercial land to the east. Hana Highway borders the subject site to the south and Stable Road borders a portion of the subject site to the west.

Records Review
The purpose of a records review is to obtain and review records that will help identify recognized environmental conditions in connection with the subject property. The services of Environmental Data Resources, Inc., were utilized to compile the database listings.

Our records review did not discover any current investigation of the subject site under any programs conducted by a federal, state, or local environmental agency.

Site Reconnaissance
A site investigation focuses on obtaining information indicating the likelihood of identifying physical recognized environmental conditions in connection with the property and assessing the subject property in relation to surrounding land uses and natural surface features. It includes a physical inspection of the real property and any on-site facilities.

On February 5, 12, 13, 16, and 17, 2003, VEC personnel, Mr. Jeffrey Kermeche, conducted an overall site inspection of the subject site. Accessible areas of the property were visually and physically inspected. Over 60% percent of the subject site's total surface soils were not observable due to extremely dense vegetation (high grass and shrubs), the subject site's building structures and refuse and soil stockpiles. There were several shed structures and two (2) residential structures located on the subject site at the time of the site visit.

The following are significant observations of field conditions:
- Significant quantities of refuse dumping (household waste, construction debris) has taken place at different locations within the property boundaries.
- Two (2) non-operational, storage tanks were identified during the site visit.
• Regulated items such as limited quantities of household-sized petroleum-based liquids and pesticides, diesel vehicles, automobile tires and batteries, and white goods (refrigerator) remain on-site from former site operations;

• Two (2) containers with undetectable liquids were noted; and

• A moderate portion of the property’s surface soils (10 to 15%) may be impacted at times (saturated) by the diversion of HCA’s south adjacent property’s agricultural irrigation “backflow” water onto the subject site. In addition, a limited area along the northern property boundary appears to have wetland characteristics.

Conclusions

Recognized environmental conditions, as defined by ASTM Standard E1527-00, are the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. Recognized environmental conditions are described with regard to (1) the nature and extent of the environmental condition, (2) potential or actual environmental threat, (3) potential for transport (migration) of any environmental conditions, and (4) consideration for further investigation. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

VEC has performed this Phase I Environmental Site Assessment in conformance with the scopes and limitations of the ASTM Practice E 1527-00 for the subject property located at the intersection of Hana Highway and Stable Road, Spreckelsville, Maui, HI 96757 (Tax Map No. (3)-4-8-001; 01), the property. This assessment has revealed no evidence of recognized environmental conditions in connection with the property, except for the following:

• Database Listings

  The Spreckelsville Sewer Pump Station (SPS) Facility ID 9-503144 is listed with the State of Hawaii, Department of Health as a UST site with a confirmed release. This site is located adjacent to the subject site’s northern boundary, however, the site is listed as “Site Cleanup Completed” as per State regulations and is unlikely a concern to the subject site.

• Historic Use of Hazardous and Regulated Substances

  There is no evidence of any historic misuse, bulk storage, or significant spills of hazardous or regulated substances on the subject property. One (1) area of limited surface staining (4’ x 3’ surface area) was noted by VEC in the vicinity of the northern-tipped residential dwelling. Additionally, according to the archaeologist/consultant for the subject site, Jeffrey Pastale, a “graceful-like” substance was encountered while trenching in the upper surface soils on the southeastern edge of the former rodeo area. VEC field checked this area and determined that it was likely related to an area of heavy organic dumping (measures) located along the east side of the former rodeo area. No petroleum-like odor was associated with the substance.

  The historical waste disposal methods for regulated items on the subject site are unknown. A limited soil sampling survey may be performed in suspect locations (suspicious) to determine the residual levels, if any, of chemicals of potential concern. There is, however, no regulatory requirement to conduct this sampling. The limited petroleum-stained area noted above should be excavated and properly managed.

  There remains a limited amount of regulated items such as oil, gas, resin, pesticides, and unidentified substances on the subject site. Due to the vacant nature of the property, these items should be managed properly to avoid any future releases onto the surface soils. At the time of the site visit, all liquid substances were in secure containers and no leaking was noted onto the surface soils.

• Storage Tanks

  Two (2) possible former fuel storage tanks were located on-site, however, neither was operational at the time of inspection. It is unlikely that these tanks were used at three current locations. No odors or staining were associated with these tanks. The former farm manager confirmed that these tanks were not used for fuel storage for at least the last twenty-nineteen years. It is unlikely that soil contamination exists at the UST locations; however, a limited soil sampling survey may be performed if client concerns remain. There is, however, no regulatory requirement to conduct this sampling.

The concerns listed below may not be considered recognized environmental conditions by ASTM definition, however, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.

• Waste Management

  A significant amount of historical dumping activity (refuse and construction debris) is evident on the subject property. Some of the materials identified were regulated items (diesel automobiles and parts; white good appliances; intact automobile batteries and tires) that require proper management and disposal procedures. Any waste disposal should be in a permitted solid waste landfill or recycled in a manner that complies with all local, state, and federal regulations as applicable to the specific waste type.

  Due to some waste stacking and heavily vegetated areas on the subject property, the entire subject site was not visually inspected. Therefore, it is important to note that if additional cleaning of the property occurs and large amounts of construction debris or unidentified substances (containers) are discovered, proper waste identification, testing, and applicable waste handling/disposal procedures are followed.

• Surface Waters and Area Aquifer Protection

  Currently, the subject property is vacant, however, if the future land use includes developing the land for residential use, the future developer and property owner should be aware of the potential for contaminants to run-off-site and into nearby watercourses. Products of concern relating to any future development project would be earth material (soil), piles, ashes, and other solid bodies from automobile or on-site machinery, or leaks from on-site stocked items.

  In order to minimize the regulatory profiling of the subject site as a potential responsible party for any newly discovered groundwater or surface water contamination, future developers should consider implementing conservative, proactive environmental policies during the development planning phase.

  The developer for any proposed residential development will likely require both a National Pollution Discharge Elimination System (NPDES) General Permit (State of Hawaii, Department of Health) and a County of Maui grading/permit due to the size of the proposed project.

• Special Management Area

  According to the Maui County Planning Department as of February 14, 2003, the subject site is located within the Special Management Area (SMA). These areas are subject to additional regulations, special permitting and county scrutiny during development. This Phase I Investigation will contain some of the elements of a SMA permit.

• Asbestos-Containing Materials (ACM)

  The building structures remaining are greater than 30 years old and there may be the presence of asbestos-containing building materials. Limited amounts of suspect materials were identified during the site reconnaissance.
Suspect materials should be presumed ACM until further sampling and laboratory analysis is conducted. An asbestos sampling survey should be conducted prior to any demolition activities. State and federal rules have established standards for the use and control of ACM.

- **Lead-Based Paint**
  Most of the structures remaining contain no painted surfaces, however, a few of the building structures likely contain painted surfaces with measurable lead levels. Lead paint becomes a concern for the building owner/operator if renovation or demolition work is undertaken that will disturb any painted surfaces. Lead paint concerns (worker safety and waste management) should be addressed prior to any future demolition activities.

- **Wetland Determination**
  Limited areas on the subject property appear to have wetland characteristics. A relatively small portion of the wetland site located along the northern property boundary appears to be naturally derived under the hydrological conditions in this area. However, the wetland-like area located in the southern portion of the property is most likely the result of HC&S diverting significant amounts of irrigation water into this area over the last several decades. This additional surface water may have resulted in the southern portion of the subject property to take on wetland characteristics. This excess water source is to be terminated in the near future by HC&S and will no longer impact the subject property. This will likely remove any wetland-like characteristics from this area. The Army Corp of Engineers does not take jurisdiction over man-made wetland sites and the property owner has the right to remove any unnatural water source. However, if the subject property does contain wetland characteristics (wetland vegetation, soil & hydrology) it is necessary to determine if any of the wetland characteristics are derived from natural on-site hydrological conditions. VEC recommends this be determined and documented prior to development activities. This will likely be a requirement in the SCE permit process with the County of Madera.

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The conclusions stated above should not be construed to mean that any regulatory agency would have the same opinion as this writer, nor is any implication provided therewith.

The results of this environmental assessment are intended for general reference purposes only and are not intended to become a part of any permit application. The advice of legal counsel should be sought in regards to individual facts, circumstances and interpretation of environmental liability.
Appendix J

Traffic Impact Assessment Report
June 1, 2004
Mr. Henry A. Spencer
P.O. Box 79023
Pahia, HI, 96779

Re: Traffic Impact Assessment Report
Proposed Single-Family Subdivision
Spaakville, Maui, Hawaii

Dear Mr. Spencer:

Phillip Rowell and Associates have prepared the following Traffic Impact Assessment Report for your proposed subdivision in Spaakville. The purpose of the traffic assessment is to identify and assess the traffic impacts of the proposed project.

Project Location and Description
The proposed project is located along Old Stable Road north of Hana Highway in the Spaakville area of Maui. The project is a subdivision for 16 single-family detached housing units. There will be no share units. All access to and from the subdivision will be via the intersection of Old Stable Road and Hana Highway.

Purpose and Objective of Study
1. Estimate the amount of traffic that the proposed project will generate during the peak hours.
2. Determine if a Traffic Impact Analysis Report for the proposed project is warranted.
3. Identify potential deficiencies that will impact traffic operations in the vicinity of the proposed project.

Methodology
1. Analyze Existing Traffic Conditions
Existing traffic volumes at the intersection were obtained from manual traffic counts performed on Friday, May 20, 2003 and Monday, July 14, 2003. The intersection configuration and right-of-way controls were determined at the time of the surveys. Existing traffic operating conditions of the study intersection were determined using the methodology for unopened intersections outlined in the 1996 Highway Capacity Manual (HCM). Following review of the final report, it was determined that an intersection delay survey should be performed to determine a more realistic afternoon level-of-service.

2. Estimate Design Year Background Traffic Projections
The year 2003 was used as the design year. This does not necessarily represent the project completion date. Input data for which future background traffic projections are estimated. Background traffic conditions are defined as future traffic conditions without the proposed project. Background traffic volumes are estimated by superimposing background traffic growth and traffic generated by related projects in the vicinity onto existing traffic volumes.

3. Estimate Project-Related Traffic Characteristics
The real step was to estimate the peak-hour traffic that the proposed project will generate. This was done using standard trip generation procedures outlined in the Trip Generation Handbook. These trips were then distributed and assigned based on the observed approach and departure routes.

4. Analyze Project-Related Traffic Conditions
The project-related traffic was then superimposed on 2003 background traffic volumes at the study intersections. The HCM methodology was used again to conduct a LOS analysis for background plus project conditions. The purpose of this analysis was to identify potential operational deficiencies in the vicinity of the proposed project.

Description of Existing Streets and Intersection
Access to and from the project will be via Old Stable Road and Hana Highway. All traffic will use the intersection of Old Stable Road and Hana Highway.

Existing Peak Hour Traffic Volumes
The hours for the traffic surveys were determined from the State Department of Transportation (HDOOT) 24-hour traffic counts data for the intersection of Hana Highway and Old Stable Road. This is the ranked HDOOT survey station for the study intersection. The data provide a 24-hour profile of traffic along Hana Highway adjacent to the proposed project since there are no major intersections between Hana Highway and Old Stable Road. The traffic characteristics of this section of Hana Highway is summarized in Table 1.

| Table 1: Traffic Characteristics of Hana Highway Adjacent to Old Stable Road |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Location        | Direction       | Eastbound       | Westbound       | Northbound     | Southbound     |
| Roadway         | Intersection    |                |                |                |                |
| Hana Highway    | Old Stable Road |                |                |                |                |
|                  |                  | All Peak Hour   | Day Peak Hour   | PM Peak Hour   | PM Peak Hour   |
| All Peak Hour Volume | Eastbound | 620             | 410             | 564            | 564            |
| All Peak Hour Volume | Westbound      | 750             | 450             | 586            | 586            |
| PM Peak Hour Volume | Northbound     | 650             | 450             | 594            | 594            |
| PM Peak Hour Volume | Southbound     | 750             | 450             | 600            | 600            |
| Total Weekday Traffic Volume | Eastbound | 1,850           | 1,070           | 1,158          | 1,158          |
| Total Weekday Traffic Volume | Westbound | 1,850           | 1,070           | 1,158          | 1,158          |
| Based on the data presented in Table 1, it was determined that the traffic counts should be performed from 6:00 AM to 8:00 AM and from 3:00 PM to 6:00 PM. Traffic counts performed during these periods would include the respective peak hour volumes. The traffic count summary worksheets are presented as Attachment A. Existing and afternoon peak hour traffic volumes at the study intersection are summarized in Attachment B. The traffic volumes include large trucks, buses and motorcycles.

1 Highway Capacity Manual, Institute of Transportation Engineers, Washington, D.C., 2000

Level-of-Service Concepts

"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. A Level-of-Service (LOS) is a qualitative measure of the effect of a particular lane on the stability, flow, and serviceability of the roadway. 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, below. LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents severe congestion with stop-and-go conditions.

Table 2  Level-of-Service Definitions for Unsignalized Intersections

<table>
<thead>
<tr>
<th>Level-of-Service</th>
<th>Expected Delay to Senior Driver</th>
<th>Traffic Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>None</td>
<td>100%</td>
</tr>
<tr>
<td>B</td>
<td>Light traffic delays</td>
<td>10%</td>
</tr>
<tr>
<td>C</td>
<td>Average traffic delays</td>
<td>15%</td>
</tr>
<tr>
<td>D</td>
<td>Long traffic delays</td>
<td>25%</td>
</tr>
<tr>
<td>E</td>
<td>Very long traffic delays</td>
<td>50%</td>
</tr>
<tr>
<td>F</td>
<td>See note (i) below</td>
<td></td>
</tr>
</tbody>
</table>

Data from: Highway Capacity Manual, 1995

Note: (i) Traffic volume exceeding the capacity of a lane means delay will occur, even when many lanes are available. This delay will cause severe congestion on the highway.

Existing Level-of-Service

The existing level-of-service was established using the methodology for unsignalized intersections described in the Highway Capacity Manual. The calculated results were consistent with the observed conditions for the morning peak hour and the afternoon peak hours on Old Stable Road and Stable Road during the morning peak hours. However, the calculated results also indicated that on Old Stable Road were much longer than the observed delays for the afternoon period. Therefore, a delay study was performed for traffic along Old Stable Road to determine the actual delay and the actual level-of-service.

This delay study was performed using the procedure described in the American Association of Transportation Engineering (AAOTE) Highway Capacity Manual. The survey was performed from 6:00 AM to 9:00 AM, with the peak hour as determined from the traffic counts performed at the intersection.

The results of the level-of-service analysis of existing conditions are summarized in Table 3. Traffic along Stable Road operates at a Level-of-Service B during the morning and afternoon peak hours. This indicates minimal delays in traffic along the major highway during the peak hours.

Traffic along the northbound approach of Old Stable Road operates at a Level-of-Service B during the afternoon peak hour. No Level-of-Service was calculated for the morning peak hour because traffic was counted during the survey.

Table 3  Existing Level-of-Service

<table>
<thead>
<tr>
<th>Intersection and Movement</th>
<th>Time of Day</th>
<th>Level of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Stable Road</td>
<td>AM Peak Hour</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>PM Peak Hour</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Background Traffic Growth

Data provided in the Multi-Long Range Transportation Plan was used to estimate background traffic growth. The study estimated that traffic along the major roadways on Maui would increase an average of 1.5% per year between 1990 and 2025. The growth rate was used to estimate the background growth for the year that traffic counts were performed, and in 2004, the design year for the project. This growth factor was calculated to be 1.0501 using the following formula:

\[ F = (1 + r)^n \]

where

- \( F \) = Growth Factor
- \( r \) = Average annual growth rate, or 0.015
- \( n \) = Growth period, or 5 years

This growth factor was applied to through traffic along Hana Highway.

2008 Background Traffic Projections

2008 background traffic projections are defined as future background traffic conditions without the proposed project and are calculated by applying the background traffic growth rates existing traffic volumes. The 2008 background traffic projections are shown in Annex B.

Project Trip Generation

Future traffic volumes generated by the project were estimated using the procedures described in the Trip Generation Handbook. This method calculates the number of trips that a proposed project will generate during the peak hours of the project and along the adjacent street.
The Institute of Transportation Engineers references certain trip generation data for single-family detached housing. These rates were applied to the proposed number of dwelling units. The results of the trip generation calculations are shown on Table 4. The estimated number of peak hour trips shown in the table are the peak hour trips of the generator. It is generally accepted that the peak hour of residential development coincides with the peak hour of the adjacent roadway network.

<table>
<thead>
<tr>
<th>Trip Generation Calculations for Proposed Subdivision</th>
<th>Single Family Detached Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Period</td>
<td>Total</td>
</tr>
<tr>
<td>All Peak Hour</td>
<td>2.27</td>
</tr>
<tr>
<td>% Inbound</td>
<td>64%</td>
</tr>
<tr>
<td>% Outbound</td>
<td>36%</td>
</tr>
</tbody>
</table>

Notes:

As shown in the proposed project will generate 3 inbound and 8 outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate 10 inbound and 9 outbound trips. The traffic using the study intersection will increase by 12 vehicles per hour, or 0.81%, during the morning peak hour and 18 vehicles per hour, or 1.03%, during the afternoon peak hour.

The Institute of Transportation Engineers recommends that a traffic impact study should be performed if it is determined that certain criteria have not been met. Based on the criteria, a traffic impact study is not warranted since the project will generate only 18 vehicles per hour during the afternoon peak hour.

2008 Background Plus Project Projections

Background plus project traffic conditions are defined as 2008 background traffic conditions plus project generated traffic. The project generated traffic was distributed and assigned based on the existing approach and traffic pattern of traffic at the intersection of Old Stabler Road at Hana Highway. The project trip assignments are shown in Attachment B.

2008 Background plus Project Traffic Volumes

The peak hour traffic volumes for the project were estimated by superimposing the peak hour traffic generated by the proposed project on the 2008 background (without project) peak hour traffic projections. This resulted in the peak hour volume of the project plus project with the peak hour of the adjacent street. This represents a worst-case condition. The resulting 2008 background plus project peak hour traffic volumes are shown in Attachment B.

The Level-of-Service Analysis of 2008 Conditions

The average vehicle delay increases by 1.5 seconds, which implies that the impact of project generated traffic is minimal. The Level-of-Service along Hana Highway will be B or better during the morning and afternoon peak hours. The Level-of-Service analysis for traffic conditions along Old Stabler Road is expected to operate at Level-of-Service C, which is an acceptable Level-of-Service, without and with the project. The delay increases only 1.2 seconds, which implies that the impact of project generated traffic is minimal.

All the existing lane configurations of the study intersections and driveways are unchanged.
Summary and Conclusions

The conclusions of the traffic impact analysis for 2008 cumulative plus project conditions are:

1. The proposed project will generate 3 inbound and 9 outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate 10 inbound and 8 outbound trips.

2. The traffic on the study intersection will increase by 12 vehicles per hour, or 0.81%, during the morning peak hour and 10 vehicles per hour, or 0.61%, during the afternoon peak hour.

3. The Institute of Transportation Engineers recommends that a traffic impact study should be performed if, in lieu of another locally preferred criterion, development generates an additional 120 vehicular trips in the peak direction (inbound or outbound) during the six peak hours. Based on the criterion, a traffic impact study is not warranted.

4. Based on the findings of the level-of-service analysis for 2008 background plus project conditions, traffic generated by the project has an insignificant impact on traffic operation at the intersection of Old Sadie Road at I-95 Highway. All traffic movements are expected to operate at Service C or better for existing roadway conditions. Traffic generated by the project did not result in a change in delays or level of service and therefore has no impact.

Respectfully submitted,
PHILLIP ROWELL AND ASSOCIATES
Phillip J. Rowell
Philo J. Rowell, P.E.
Principal

Attachment A
TRAFFIC COUNT WORKSHEETS
### TRAFFIC COUNT SUMMARY WORKSHEET

**PROJECT:** 1006

**INTERSECTION:** NEAR HIGHWAY AT OLD STABLE ROAD

**DATE:** MAY 30, 2005

**START TIME:** 8:30 am

**END TIME:** 8:30 am

#### 15-Minute Volume Beginning at:

<table>
<thead>
<tr>
<th>Time</th>
<th>East</th>
<th>North Approach</th>
<th>South</th>
<th>West Approach</th>
<th>Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>519</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>8</td>
</tr>
<tr>
<td>1.0</td>
<td>438</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>1.5</td>
<td>236</td>
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<td>0</td>
<td>8</td>
</tr>
<tr>
<td>2.0</td>
<td>238</td>
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<td>0</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

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<tr>
<td>4.5</td>
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<td>0</td>
<td>8</td>
</tr>
<tr>
<td>5.0</td>
<td>157</td>
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<td>0</td>
<td>8</td>
</tr>
<tr>
<td>5.5</td>
<td>156</td>
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<td>8</td>
</tr>
<tr>
<td>6.0</td>
<td>154</td>
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<td>0</td>
<td>0</td>
<td>8</td>
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</tbody>
</table>

#### Maximum Hourly Volume of Each Movement

<table>
<thead>
<tr>
<th>Volume</th>
<th>11</th>
<th>0</th>
<th>11</th>
<th>373</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>481</th>
<th>13</th>
<th>134</th>
</tr>
</thead>
<tbody>
<tr>
<td>Par Car</td>
<td>79%</td>
<td>0%</td>
<td>21%</td>
<td>89%</td>
<td>0%</td>
<td>0%</td>
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<td>0%</td>
<td>0%</td>
<td>67%</td>
<td>3%</td>
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<tr>
<td>P&amp;H</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
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</table>

Philip Rowell and Associates

44 Ave & 64th

Count, typewritten
Attachment B
PROJECT TRIP ASSIGNMENTS AND PEAK HOUR TRAFFIC PROJECTIONS

Attachment B
PEAK HOUR TRAFFIC VOLUMES
AND TRAFFIC ASSIGNMENTS

EXISTING AM PEAK HOUR
EXISTING PM PEAK HOUR

BACKGROUND AM PEAK HOUR
BACKGROUND PM PEAK HOUR

AM TRIP ASSIGNMENT
PM TRIP ASSIGNMENT

BACKGROUND PLUS PROJECT
AM PEAK HOUR
BACKGROUND PLUS PROJECT
PM PEAK HOUR
### LEVEL-OF-SERVICE ANALYSIS CASE LIST

<table>
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<td>Case 3</td>
<td>2008 Background Plus Project, Existing Roadway Conditions</td>
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<td>Case 4</td>
<td>2008 Background Plus Project With Proposed Improvements</td>
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**Attachment C**

**LEVEL-OF-SERVICE WORKSHEETS**
### TWO-WAY STOP CONTROL SUMMARY

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### TWO-WAY STOP CONTROL SUMMARY

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### Other Information

- **Approach Length and Land of Delineation**
  - EB: 100, YSB: 100, YSE: 100
  - Movement: 1, 2, 3, 4, 5, 6
  - Lane Configuration: LTR, LTR, LTR

- **Approach Delay**
  - Approach Delay: 20.3
  - Approach LOS: A
### TWO-WAY STOP CONTROL SUMMARY

**General Information**
- **Analyst:** PUR
- **Agency:** MTA
- **Date:** 12/10/2003

**Site Information**
- **Intersection:** 36.25
- **Location:** 250th St
- **Analysis Year:** 2003
- **Background:**
  - **Type:** 36.25
  - **Volume:** 2000
  - **Peak Hour Factor:** 0.50
  - **Maximum Veh Flow Rate, MPH:** 0
  - **Average Veh Flow Rate, MPH:** 0
  - **Traffic Flow Rate, VTR:** 0
  - **Number of Veh Flows:** 0

**Vehicle Volumes and Adjustments**

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- **Volume:** 2000
- **Peak Hour Factor:** 0.50
- **Maximum Veh Flow Rate, MPH:** 0
- **Average Veh Flow Rate, MPH:** 0
- **Traffic Flow Rate, VTR:** 0
- **Number of Veh Flows:** 0

**Lanes**
- **Number of Lanes:** 2
- **Type:** Right Channelized

**Configuration**
- **Configuration:** Right Channelized

**Delay, Queue Length and Level of Service**

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**Two-Way Stop Control Summary (continued)**

- **Volume:** 2000
- **Peak Hour Factor:** 0.50
- **Maximum Veh Flow Rate, MPH:** 0
- **Average Veh Flow Rate, MPH:** 0
- **Traffic Flow Rate, VTR:** 0
- **Number of Veh Flows:** 0

**Lanes**
- **Number of Lanes:** 2
- **Type:** Right Channelized

**Configuration**
- **Configuration:** Right Channelized

**Delay, Queue Length and Level of Service**

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**Vehicle Volume and Adjustment**

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**Traffic Control Devices**

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**Other Information**

- Comments: Performance of the two-way stop control needs to be monitored over the next few years.
# Two-Way Stop Control Summary

## General Information
- **Analyst**: Full
- **Agency/Co.**: PRA
- **Date Performed**: 7/20/2003

## Site Information
- **Interception**: Caret-1
- **Jurisdiction**: PRA

## Analysis Time Period
- **Time Period**: AM Peak Hour

## Street Description
- **North-South Street**: Corinth St
- **East-West Street**: Sentlich St

## Intersection Details
- **Intersection**: Corinth & Sentlich Sts
- **Volume (Veh/Day)**: 24
- **Peak Hour Factor (PHF)**: 0.92
- **Hourly Flow Rate (VPH)**: 24

## Vehicle Volumes and Adjustments

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<th>Westbound</th>
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</thead>
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<tr>
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<td><strong>Hourly Flow Rate (VPH)</strong></td>
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## Lane Configuration
- **Lane Configuration**: 1 LTH

## Traffic Counts
- **Traffic Volume (Veh/Day)**: 24
- **Peak Hour Factor (PHF)**: 0.92

## Lane Delay
- **Lane Delay (Sec)**: 10.2

## Summary

**Approach 1**
- **Volume**: 24
- **Peak Hour Factor (PHF)**: 0.92
- **Hourly Flow Rate (VPH)**: 24
- **Delay (Sec)**: 10.2

**Approach 2**
- **Volume**: 24
- **Peak Hour Factor (PHF)**: 0.92
- **Hourly Flow Rate (VPH)**: 24
- **Delay (Sec)**: 10.2
Appendix K

Preliminary Engineering Report
# PRELIMINARY ENGINEERING REPORT

**FOR**

E PAEPAE KA PUKO'A

Pala, Maui, Hawaii

T.M.K.: (2) 3-8-001: 003 and (2) 3-8-002: 009 & 010

---

Prepared For:

Henry Spencer
P.O. Box 768229
Pala, Maui, Hawaii 96770

---

Prepared By:

OTOMO
ENGINEERING, INC.

*Consulting Civil Engineers*

305 South Kihei Road Suite 100
Kihei, Maui, Hawaii 96753

*P.O. Box 8562

March 2004

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2.2 DRAINAGE

2.3 SEWER

2.4 WATER

2.5 ELECTRIC, TELEPHONE AND CABLE TV

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS

3.1 ROADWAYS

3.2 DRAINAGE

3.3 SEWER

3.4 WATER

3.5 ELECTRIC, TELEPHONE AND CABLE TV
PRELIMINARY ENGINEERING REPORT
FOR
E PÆPAE KA PUKO'A

1.0 INTRODUCTION

The purpose of this report is to provide information on the existing infrastructure which will be serving the proposed project. It will also evaluate the adequacy of the existing infrastructure and anticipated improvements which may be required for the proposed project.

The subject parcels are identified as T.M.K.; 3-8-001; 003, 3-8-002; 009 & 010 and encompasses an area of approximately 71 acres of which approximately 21 acres will be part of the proposed development. The project is bordered by the ocean to the north, Hana Highway to the south, Stable Road to the west, and the Kaunoe Senior Center and Alakapa Place to the east.

The proposed project consists of subdividing the proposed parcel into 17 lots for single family homes averaging in size of approximately one acre each. A one acre lot will be subdivided for the Kaunoe Senior Center along the eastern boundary of the parcel. A portion of the parcel along the Stable Road will be used as the on-site retention basin. Associated improvements include asphalt paved roadways with concrete curb, gutter, and sidewalk, as well as drainage, water, sewer, and electrical distribution systems and landscaping.

2.0 EXISTING INFRASTRUCTURE

2.1 ROADWAYS

The major roadway into the area is Hana Highway. Access to the project site will be provided by the existing Stable Road.

2.2 DRAINAGE

Runoff from the subject parcel sheet flows across the parcel in the southerly to northerly direction towards the ocean. It is estimated that the existing 50-year storm runoff from the project site is 17.6 cfs. An existing 24" culvert crosses Hana Highway approximately 350 feet west of the property line between the project site and the Kaunoe Senior Center. The existing culvert conveys approximately 24 cfs of surface runoff from the existing sugarcane fields to makai of the highway to the makai side on to the project site. Approximately 20' into the property is a bikeway constructed by the County of Maui. Two 18" culverts have been constructed under the bikeway to allow the runoff from the existing 24" culvert to continue downstream in the same direction. This offsite runoff also sheet flows across the parcel to the ocean.

According to Panel Number 150003 0190 D of the Flood Insurance Rate Map, March 16, 1985, prepared by the United States Federal Emergency Management Agency, the project site is situated in Flood Zone C, Zone A4, and Zone V23. Flood Zone C represents areas of minimal flooding. Flood Zone A4 represents areas of 100-year flood with base flood elevations and flood hazard factors determined. Flood Zone V23 represents areas of 100-year coastal flood with velocity. Base flood elevations and flood hazard factors have been determined for this zone.

2.3 SEWER

The area is served by an existing gravity flow system which transports wastewater to the existing Spreckelsville Pump Station, adjacent to the eastern boundary of the project site. An existing 12-inch force main, which traverses through the project site then along Stable Road, transports wastewater to the Kahului Wastewater Treatment Plant.

2.4 WATER

Domestic water and fire flow for the for the proposed project will be provided by the County’s water system. Potable water for the project will be serviced by an existing 12-inch waterline within Hana Highway.

2.5 ELECTRIC, TELEPHONE AND CABLE TV

The existing electrical distribution system in Spreckelsville is overhead. Existing overhead utility lines are located along Hana Highway fronting the project site.

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS

3.1 ROADWAYS

The subject subdivision consists of a single cul-de-sac which connects to Stable Road and extends towards the east. The street within the subdivision
will have a 48 foot right-of-way with a curb to curb width of 32 feet with 6 foot shoulders on each side. The cul-de-sac will have an edge of pavement radius of 40 feet. The larger traffic lanes and cul-de-sac pavement radius is to accommodate the larger fire trucks in this district.

The subdivision roadway will have concrete curb and gutters with a four foot wide sidewalk along one side of the street. In addition, concrete wheelchair ramps will be constructed at appropriate locations to comply with ADA standards. Appropriate striping and signage will be installed in accordance with the Department of Public Works and Environmental Management standards.

3.2 **DRAINAGE**

After the development of the proposed project, it is estimated that the 50-year storm runoff will be approximately 26.6 cfs, a net increase of 8.8 cfs.

Surface runoff from the project will be allowed to sheet flow towards the proposed drain inlets where the runoff will be captured and conveyed to the proposed retention basin. The retention basin has been sized to accommodate all the additional onsite surface runoff generated by the proposed development. A proposed drain line will be connected to the existing drainage culverts beneath the existing County hwyway. The drain line will outlet into the proposed retention basin. Overflow from the retention basin and weir will be allowed to continue downstream along the pattern of the existing surface runoff. This plan meets the drainage criteria set forth in Chapter 4 - Rules for the Design of Storm Drainage Facilities in the County of Maui.

The drainage design criteria shall be to minimize any alterations to the natural pattern of the existing onsite surface runoff.

3.3 **SEWER**

The proposed 17-lot subdivision will generate approximately 5,950 gallons per day of wastewater when all homes are constructed. The onsite sewerage collection system will be designed to accommodate this flow. The existing collection and transmission systems, pumping facilities and treatment plant have the capacity to handle the anticipated wastewater generated by the subdivision.

An 8-inch sawline will be installed to collect the wastewater generated from this project. It will connect to an existing sewer manhole at the end of Laulea Place which transports the wastewater to the Spreckelsville Pump Station along the eastern boundary of the project site. An existing 12-inch force main, which traverses through the project site then along Stable Road, transports wastewater to the Kahului Wastewater Treatment Plant.

According to the Wastewater Reclamation Division, County of Maui, the County is assessing sewer fees of $1,095.90 per single family unit.

3.4 **WATER**

In accordance with the Department of Water Supply's Domestic Consumption Guidelines for single family residential development, the average daily demand for the 17-lot subdivision is approximately 1,000 gallons per day.

Fire demand for single family residential development is 1,000 gallons per minute for a 2 hour duration. Fire hydrants will be installed with a maximum spacing of 350 feet.

Domestic water and fire flow for the for the proposed project will be provided by the County's water system. Potable water for the project will be serviced by an existing 12-inch waterline within Hana Highway. A new 12-inch waterline will be installed along Stable Road and into the proposed project to service each lot of the subdivision.

As part of the building permit process, domestic water and fire flow calculations will be provided to determine the adequacy of the existing water system, in accordance with the rules of the Department of Water Supply.

3.5 **ELECTRIC, TELEPHONE AND CABLE TV**

The proposed electrical, telephone and cable TV distribution systems in the subject subdivision will be installed underground. Street lights will be installed along the subdivision streets at intervals to be determined by the electrical engineer.

Existing overhead utility lines are located along Hana Highway fronting the project site. The installation of electrical, telephone and cable TV systems for the project will be coordinated with Maui Electric Company, Verizon Hawaii, and Hawaiian Cablevision.
Appendix L

Preliminary Drainage Report
PRELIMINARY DRAINAGE REPORT
FOR
E PAEPAE KA PUKO'A
Pala, Maui, Hawaii
T.M.K.: (2) 3-8-001: 003 and (2) 3-8-002: 009 & 010

Prepared For:
Harry Spencer
P.O. Box 796529
Pala, HI 98779

Prepared By:
OTOMO
ENGINEERING, INC.
March 2004

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PRELIMINARY DRAINAGE REPORT
EPAPEA IKA PU'OKA
Paia, Maui, Hawaii

I. INTRODUCTION
The purpose of this report is to examine both the existing and proposed drainage conditions for the proposed project.

II. SITE LOCATION AND PROJECT DESCRIPTION
The subject parcel is identified as T.M.K.: 3-8-001: 009, 3-8-002: 009 & 010 and encompasses an area of approximately 71 acres of which approximately 21 acres will be part of the proposed development. The project is bordered by the ocean to the north, Hana Highway to the south, Stable Road to the west, and the Keaoua Senior Center and Aikupa Place to the east.

The proposed project consists of subdividing the proposed parcel into 17 lots for single family homes averaging in size of approximately one acre each. A one acre lot will be subdivided for the Keaoua Senior Center along the eastern boundary of the parcel. A portion of the parcel along the Stable Road will be used as the onsite retention basin. Associated improvements include asphalt paved roadways with concrete curbs, gutters, and sidewalks as well as drainage, water, sewer, and electrical distribution systems and landscaping.

III. EXISTING TOPOGRAPHY AND SOIL CONDITIONS
The project site currently undeveloped and is covered with various grasses and weeds. The project site generally slopes in the southern to northerly direction with an average slope of 2%.

According to the "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (August, 1972)," prepared by the United States Department of Agriculture Soil Conservation Service, the soils within the project site are classified as Kaunakai sand (Kc) and Kaunakai sand, saline (Kc), Molokai silty clay loam (Mu), and Dunes land (KdL). The Kaunakai series is characterized as having slow to very slow runoff, rapid permeability, slight erosion hazard with severe wind erosion hazard where vegetation has been removed. The Molokai silty clay loam is characterized as having slow to moderate runoff and a slight to moderate erosion hazard. The Dunes land consists of hills and ridges of sand-size particles that were diffused and piled by wind.

IV. EXISTING DRAINAGE CONDITIONS
Runoff from the subject parcel sheet flows across the parcel in the southerly to northerly direction towards the ocean. It is estimated that the existing 50-year storm runoff from the project site is 17.8 cfs.

An existing 24" culvert crosses Hana Highway approximately 350 feet west of the property line between the project site and the Keaoua Senior Center. The existing culvert conveys approximately 24 cfs of surface runoff from the existing sugar cane fields, ma'ili of the highway to the ma'ili sites on to the project site. This siltate runoff also sheet flows across the parcel to the ocean. Approximately 20' into the property is a bikeway constructed by the County of Maui. Two 16" culverts have been constructed under the bikeway to allow the runoff from the existing 24" culvert to continue downstream in the same direction.

V. FLOOD AND TSUNAMI ZONE
According to Panel Number 15003 0190 D of the Flood Insurance Rate Map, March 16, 1995, prepared by the United States Federal Emergency Management Agency, the project site is situated in Flood Zone C, Zone A4, and Zone V53. Flood Zone C represents areas of minimal flooding. Flood Zone A4 represents areas of 100-year flood with base flood elevations and flood hazard factors determined. Flood Zone V53 represents areas of 100-year coastal flood with velocity. Base flood elevations and flood hazard factors have been determined for this zone.

VI. PROPOSED DRAINAGE PLAN
After the development of the proposed project, it is estimated that the 50-year storm runoff will be approximately 26.6 cfs, a net increase of 8.8 cfs.

Surface runoff from the project will be allowed to sheet flow towards the proposed roadways where the runoff will be captured and conveyed by the underground drainage system to the proposed retention basin. The retention basin has been sized to accommodate all the additional onsite surface runoff generated by the proposed development. A proposed drainline will be connected to the existing drainage culverts beneath the existing County bikeway. The drainline will outfall into the proposed retention basin. The surface runoff generated ma'ili of the proposed improvements will be allowed to continue downstream towards the ocean.

VII. HYDROLOGIC CALCULATIONS

Rational Formula Used: Q = CIA
Where Q = rate of flow (cfs)
C = rainfall coefficient
I = rainfall intensity for a duration equal to the time of concentration (inches/hour)
A = drainage area (Acres)
See Appendix A for Hydrologic Calculations.

VIII. CONCLUSION

The proposed development is expected to generate a 50-year storm runoff of approximately 26.8 cfs, producing an increase of 8.6 cfs from the existing conditions. The proposed project will include an underground drainage system which will capture and convey the crocks surface runoff to the proposed retention basin. The proposed basin will be sized to accommodate the increase in runoff generated by the proposed project, therefore not increasing the volume of runoff continuing downstream.

Therefore, it is our professional opinion that the proposed development will not have an adverse effect on the adjoining properties downstream.

IX. REFERENCES


D. Flood Insurance Rate Maps of the County of Maui, June, 1981.

E. Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, prepared by the Department of Public Works and Waste Management, County of Maui, 1985.
APPENDIX A
HYDROLOGIC CALCULATIONS

Hydrologic Calculations

Purpose: Determine the increase in surface runoff from the development of the proposed project based on a 50-year storm.

A. Determine the Runoff Coefficient (C):

**EXISTING CONDITIONS:**

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**DEVELOPED CONDITIONS:**

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Pavement Areas = 0.8 Acres
Roof Areas = 1.8 Acres
Landscaped Areas = 18.4 Acres
WEIGHTED C = 0.34
B. Determine the 50-year 1-hour rainfall:

\[ i_{50} = 2.5 \text{ inches} \]

Adjust for time of concentration to compute Rainfall Intensity (I):

Existing Condition:

\[ T_e = 32 \text{ minutes} \]
\[ I = 3.40 \text{ inches/hour} \]

Developed Condition:

\[ T_e = 25 \text{ minutes} \]
\[ I = 3.73 \text{ inches/hour} \]

C. Drainage Area (A) = 21 Acres

D. Compute the 50-year storm runoff volume (Q):

\[ Q = CIA \]

Existing Conditions:

\[ Q = (0.25)(3.40)(21) \]
\[ = 17.6 \text{ cfs} \]

Developed Conditions:

\[ Q = (0.34)(3.73)(21) \]
\[ = 26.5 \text{ cfs} \]

The increase in runoff due to the proposed development is 26.5 - 17.8 = 8.8 cfs.
Appendix M

Preliminary Grading Plan
Appendix N

Site Photographs
Photograph No. 3

Photograph No. 4
Photograph No. 5

Photograph No. 6
Photograph No. 11

Photograph No. 12
RECEIVED AS FOLLOWS

Photograph No. 13

Photograph No. 14