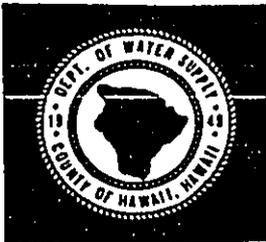


Keaau-Paho 12"
Waterline Ext.



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) 961-8660 • FAX (808) 961-8657

RECEIVED

October 7, 1997

'97 OCT 14 P2:19

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King Street
Honolulu, HI 96813

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

FINAL ENVIRONMENTAL ASSESSMENT FOR KEAAU-PAHOA 12-INCH WATERLINE EXTENSION

The Department of Water Supply has reviewed the comment letters received during the 30-day public comment period which began on August 22, 1997. We have subsequently determined that this project will not have significant environmental effects and have issued a Finding of No Significant Impact (FONSI). Please publish this notice in the next edition of the OEQC Environmental Notice.

We have enclosed a completed OEQC Environmental Notice Publication Form and four (4) copies of the Final EA.

Should you have any questions, please call our Water Resources and Planning Branch at 961-8660.

A handwritten signature in black ink, appearing to read "M. Pavao".

Milton D. Pavao, P.E.
Manager

KKO:dms

Enc.

... Water brings progress...

104

1997-11-08-HI-*FEA*-Keaau-Pahoa
12 Inch Waterline Extension

NOV 8 1997

FILE COPY

**FINAL ENVIRONMENTAL ASSESSMENT
AND FINDING OF NO SIGNIFICANT IMPACT
KEAAU-PAHOA 12-INCH WATERLINE EXTENSION**

Ahupua'a of Waikahekahe, Maku'u, Popoki, Halona, Keonepoko
Puna District, Hawaii Island, State of Hawaii

October 1997

County of Hawaii
25 Aupuni Street
Hilo Hawaii 96720

**FINAL ENVIRONMENTAL ASSESSMENT
AND FINDING OF NO SIGNIFICANT IMPACT
KEAAU-PAHOA 12-INCH WATERLINE EXTENSION**

**AHUPUA'A OF WAIKAHEKAHE, MAKU'U, POPOKI, HALONA & KEONEPOKO
PUNA DISTRICT, HAWAII ISLAND, STATE OF HAWAII**

APPLICANT:

Hawaii County Department of Water Supply
25 Aupuni Street
Hilo, Hawaii 96720

CONSULTANTS:

William L. Moore Planning
159 Halai Street
Hilo, Hawaii 96720

and

Ron Terry Ph.D.
HCR 9575
Keaaui, Hawaii 96749

APPROVING AGENCY:

Office of the Mayor
Hawaii County
25 Aupuni Street
Hilo, Hawaii 96720

CLASS OF ACTION:

Use of State Lands
Use of County funds

This document is prepared pursuant to the Hawaii Environmental Protection Act,
Chapter 343, Hawaii Revised Statutes (HRS), and
Title 11, Chapter 200, Hawaii Department of Health Administrative Rules (HAR).

SUMMARY OF PROJECT, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Project Summary

The Hawaii County Department of Water Supply (DWS) plans to install a 12-inch waterline to connect the Keaau and Pahoa water systems. The connection would extend 17,750 feet between Paradise Drive in Hawaiian Paradise Park to the Keonepoko Nui Tank and Pump Station. This connection would provide system back-up and thus increase reliability and simplify maintenance on components of both systems. It would also provide water service along the only section of the 11 mile frontage of Highway 130 between Keaau and Pahoa currently lacking service. The Department of Hawaiian Home Lands (DHHL) has built a portion of this waterline (6,350 feet) as part of their Makuu Agricultural and Farm Lots subdivision.

Short Term Impacts

Construction Impacts and Mitigation: Landclearing and construction activities will produce short-term minor impacts to noise, air quality, traffic, access and scenery. Traffic impacts are mitigable through standard traffic control procedures. The other impacts in general will not require mitigation because of their low intensity, short duration, and the location in a highway right-of-way, away from populated or occupied areas. Adherence to dust control measures implemented as part of the NPDES permit should prevent substantial impacts to air quality.

Noise impacts may occur during construction near residential areas. Upon reviewing the activity prior to construction, the Hawaii State Department of Health (HDOH) may issue a permit. HDOH will review the type of activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures. Possible measures include restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers. The precise combination of mitigation measures, if any, shall be specified by HDOH prior to construction.

The project will proceed simultaneously with the highway improvements on the Keaau-Pahoa Road, avoiding disrupting the highway more than once.

Long Term Impacts

Potential Impacts to Lava Tubes and Historic Sites. Lava tubes may be disturbed by the road and/or waterline project. Some lava tubes are large enough and have openings for human entry, and may thus be classified as caves. Some caves in the project area are known to contain burials or other historic sites. Because the proposed project crosses essentially perpendicular to the gradient of an extensive field of pahoehoe lava flows, many lava tubes are probably crossed.

It is likely that known caves containing significant historic sites or recreational caving potential are too deep to be disturbed by the project. In case a lava tube is breached during construction, DWS has developed an action plan in coordination with the State Historic Preservation Division and the Hawaii Speleological Society:

- o Contractors will be supplied with maps identifying general areas where lava tubes are known to exist;
- o If a lava tube is encountered, all construction with the potential to impact the lava tube will immediately cease;
- o The appropriate personnel at DWS and State DOT, Highways Division, will be contacted;
- o These personnel will contact SHPD to determine whether historic sites are present, and, if so, the appropriate mitigation;
- o The Hawaii Speleological Society will also be contacted.

In addition, if any artifacts, charcoal deposits, or human remains are discovered during construction, work will immediately cease and SHPD will be consulted to determine the appropriate mitigation.

Potential Impacts Related to Construction Staging Area. In conformance with the recommendation from the U.S. Fish and Wildlife Service, the staging areas for project construction will be located in areas that have been previously disturbed in order to avoid further disturbance to native forests, which are present adjacent to the right-of-way along certain segments of the road.

Other Long Term Impacts. No other adverse long-term impacts are expected. Water service will provide beneficial impacts to public health and safety.

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PART 1: ACTION DESCRIPTION

1.1 Project Location

The proposed project is within the Puna District on the Island of Hawaii (Fig. 1). Specifically, the project is located in the right-of-way of the Keaau-Pahoa Road (State Highway 130) between Paradise Drive and the Pahoa Landing Strip, a distance of approximately 3.4 miles (Fig. 2).

1.2 Need for Project

Currently, residents along and adjacent to Highway 130 in the 3.4-mile gap between the Keaau and Pahoa Water systems do not have access to water service from the Hawaii County Department of Water Supply (DWS). Consequently, they must rely on rainwater catchment systems. If not maintained properly, such systems are susceptible to microbiological and chemical contamination. Sources of these contaminants vary from dead animals in the storage tank, to roof and gutter materials, to air particulates causing acid rain. The State Department of Health (HDOH) recommends using catchment water for non-consumptive needs and using water for drinking or cooking from regulated public water systems and/or purchased bottled drinking water.

Residents between the two existing water system also lack access to fire hydrants. Fire protection is therefore limited to individual water systems and fire truck capacities.

In addition, the lack of connection between the Keaau and Pahoa water systems makes the systems more vulnerable to disruption and customer inconvenience during repairs, routine maintenance and system upgrades

1.3 Project Description, Purpose and Objectives

Project Description

The Hawaii County Department of Water Supply (DWS) plans to install a 12-inch waterline that would connect the Keaau and Pahoa water service systems. The connection would extend 17,750 feet between Paradise Drive in Hawaiian Paradise Park to the Keonepoko Nui Tank and Pump Station. The waterline would also provide water service along the only section of the 11-mile frontage of Highway 130 between Keaau and Pahoa currently lacking service. The Department of Hawaiian Home Lands (DHHL) has already built a substantial portion (6,350 feet) of this waterline in the Makuu Agricultural and Farm Lots subdivision.

FIGURE 1

ISLAND OF HAWAII LOCATION MAP

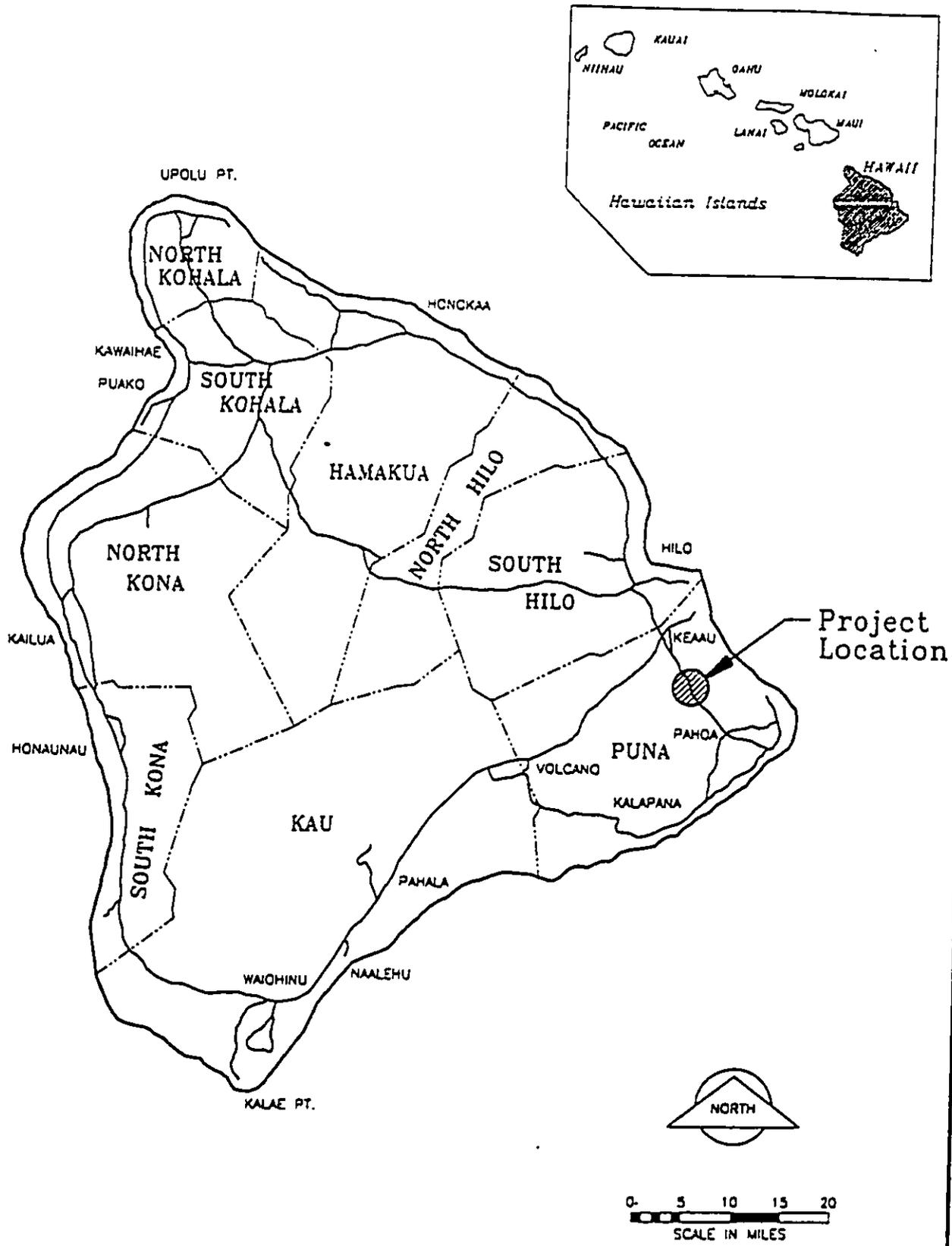
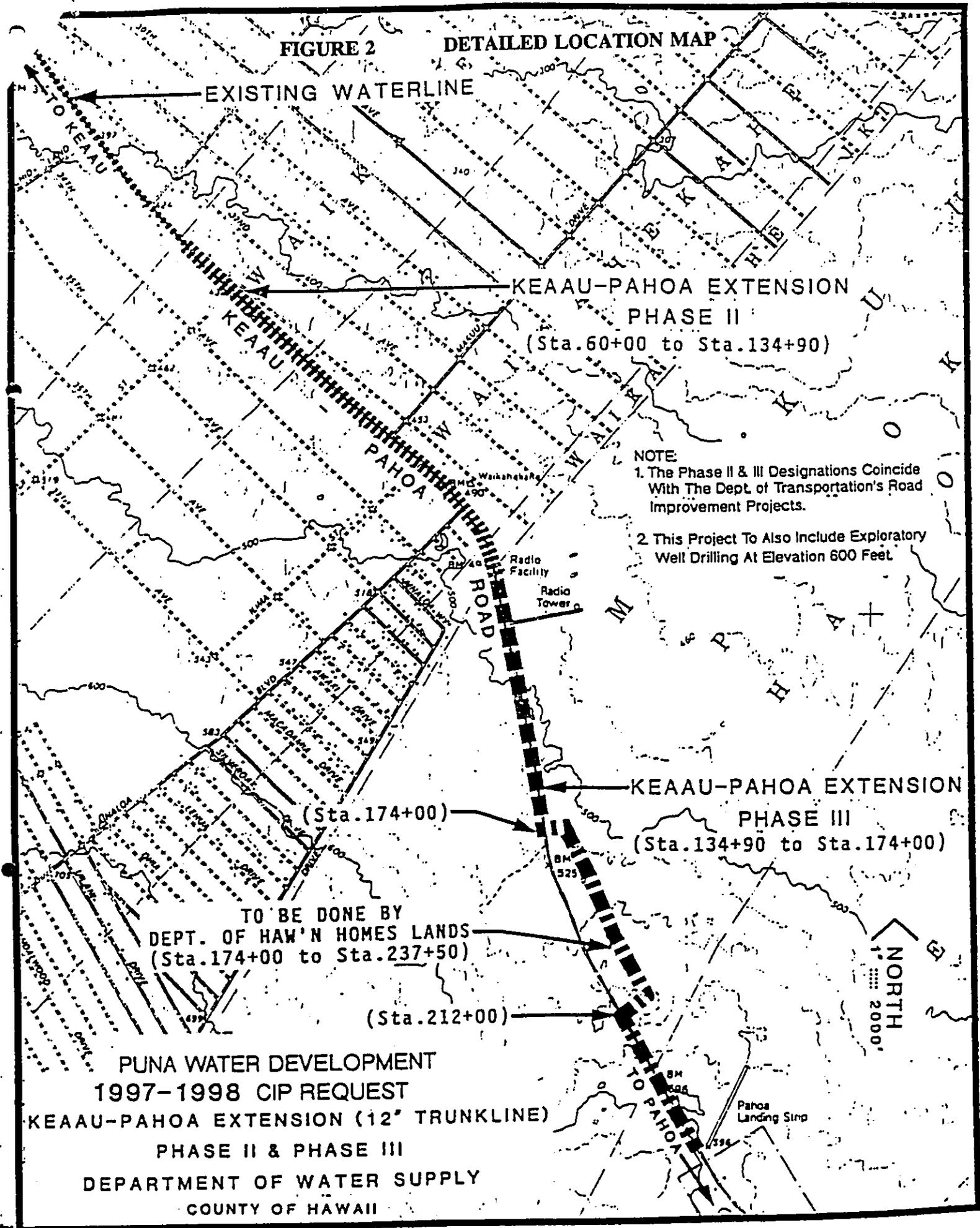


FIGURE 2 DETAILED LOCATION MAP



The waterline will be installed on the northeast (makai) side of Highway 130, and for most of its length will run approximately six feet outside the improved road's paved travelway. Along the entire route it will remain within the 100 foot right-of-way. The waterline will be installed with its top 3 feet below grade. The lowest limit of trenching will be approximately 5 feet below grade.

The cost of the water project is estimated at \$1.85 million. DWS is seeking funding from federal and state sources, and \$1.5 million has been appropriated by the State legislature.

DWS plans to install the waterline at the same time the Hawaii State Department of Transportation's (HDOT) Keaau-Pahoa Highway Improvement Project (FAP No. RS-0130(24)). The road improvements will widen the existing 11-foot lanes to 12 feet and provide 8-foot shoulders, between mileposts 5.82 and 9.18 of Highway 130 (i.e., the same segment as the waterline). Also included are channelized intersections at Makuu Drive, Ilima Street, Ainaloa Boulevard, and the two DHHL Makuu Subdivision roads. The cost of the road improvement project is approximately \$4.3 million.

Construction for both the highway and the water projects is scheduled to begin in late 1997 or early 1998 and both will be finished within approximately 18 months.

Project Objectives

The objectives of the project are to: 1) upgrade system reliability, and 2) extend the service area of the DWS.

An important benefit of the interconnection is the ability to provide system back-up. This would increase the reliability of the system and simplify maintenance on components of both systems. Although all customers served by the Keaau and Pahoa systems would benefit through improvements to system reliability, the primary beneficiaries would be the current and future residents of Hawaiian Paradise Park, Orchidland Estates and Ainaloa subdivisions. These lots will be provided the opportunity to access public water service for domestic use and fire protection. The current and future residents of these lots must otherwise rely on rainwater catchment systems. There are currently 117 lots in these subdivisions that are located directly on Highway 130. These lots would have immediate access to DWS water service upon completion of the project. Additional lots further within the subdivisions may be able to run private waterlines from the project, but these would be evaluated on a case-by-case basis for adequate water supply and pressure. The Hawaii State Department of Hawaiian Home Lands (DHHL) Makuu subdivision (177 lots) will also benefit from the project.

Additional projects by DHHL will provide adequate sources of water by building separate high service and low service 12-inch waterlines from the Makuu Subdivision to the Keonepoko Nui well and reservoir site. Another project will provide an additional well and support facilities at the Keonepoko Nui Site, for which a separate EA will be conducted.

1.4 Alternatives

1.4.1 No Action

If no action is taken to connect the water systems, users along the affected service area would continue to lack a source of domestic water other than rainwater catchment systems. In addition, the improved reliability that could be achieved because of system redundancy will not be realized.

1.4.2 Alternative Site Locations/Phasing

Both the Keaau and Pahoa systems terminate on Highway 130. A connection along this route is the only reasonable and feasible choice in terms of logistics, cost and environmental consequences. A possible alternative would be to complete the system in phases. Although this could incrementally satisfy the goal of extending DWS service to customers, it would not achieve the vital objective of interconnecting the two water systems. Phasing the project would also prolong construction, inconveniencing motorists to a greater degree.

1.5 Ownership and Land Use Designation and Controls

The area in which the activity will take place is within the right-of-way of State Highway 130 and is owned by the State of Hawaii. It is not identified by a Tax Map Key. County zoning and State Land Use Districts in streets and rights-of-ways share the same designations as adjacent properties, which in this case are Agriculture. The proposed water lines are permitted uses pursuant to Section 25-4-11(a), which states that "Communication, transmission, and power lines... are permitted uses within in any [zoned] district."

According to the Hawaii County Planning Department (HCPD) (see Appendices 1 and 3 for correspondence), areas served by the project are zoned A-1a (Agriculture, minimum lot size 1 acre) and are within the State Agricultural Land Use District. The General Plan designation is Orchards, Urban Expansion (Low, Medium, and High Density), Industrial, and Open. HCPD's analysis of the consistency of the project with applicable land use regulations has determined that the project is consistent with both County zoning and State Land Use District, and supports the goals of the Hawaii County General Plan. HCPD noted that the General Plan specifies standards for public utility design in order to fit facilities in with their

surroundings and/or conceal facilities from public view. Conformance with this and other aspects of the General Plan are discussed in Section 2.6.4.

1.6 Consultation With Agencies, Organizations and Individuals

The following agencies, organizations and individuals have been consulted during the Environmental Assessment Process:

County:

Planning Department
County Council
Police Department

Department of Public Works
Fire Department
Civil Defense Agency

State:

Department of Land & Natural Resources, Historic Preservation Division
Department of Transportation, Highways Division
Department of Hawaiian Home Lands
Office of Hawaiian Affairs

Federal:

Department of the Interior, Fish and Wildlife Service

Private:

Hawaii Speleological Survey

A joint public meeting on the proposed project and the Keaau-Paho Road Improvements was held on 15 April 1997 in Hawaiian Paradise Park (see Appendix 2 for meeting notice). The purpose of the meeting was to provide information about the project and an opportunity to apply for water service. The meeting also allowed the public to comment about the project and its impacts. Approximately 50 members of the public attended. In general, the project received a very favorable response. Input from the meeting is discussed in appropriate sections of the text.

Notice of the availability of the Draft EA was published by the Hawaii State Office of Environmental Quality Control (OEQC) in the *Environmental Notice* of 23 July 1997. This initiated a 30-day comment period during which the public was invited to respond to the Draft EA with comments or questions. Four comment letters were received. These letters and the responses to them are included as Appendix 3. The Final EA was revised in portions to incorporate corrections or clarifications supplied by these comment letters.

PART 2: ENVIRONMENTAL SETTING, IMPACTS AND PROPOSED MITIGATION MEASURES

2.1 Basic Geographic Setting

The project is located on very gently sloping land within the right-of-way of State Highway 130 between 2 and 5 miles northwest of Pahoa (Fig. 1). The elevation of the road climbs from about 430 feet near Paradise Drive to 590 feet near the Pahoa Landing Strip. The geologic substrate is pahoehoe lava flows from Kilauea aged 750 years or younger. Most of the area is part of the 'Ai La'au lava flow of approximately 350 years ago (Wolfe and Morris 1996). Such lands are classified as Lava Flows, Pahoehoe by the U.S. Natural Resources Conservation Service (formerly Soil Conservation Service). Soil on such lava flows is not well developed (U.S. Soil Conservation Service 1973). Despite an annual rainfall of about 150 inches (UH Manoa Dept. of Geography 1983:63), no streams or watercourses are located in the project area because of the high permeability of the lava flows.

Land uses in the project area are residential and agricultural subdivisions along with forest reserve.

2.2 Physical Environment

2.2.1 Drainage

Environmental Setting

No Flood Insurance Rate Maps (FIRM) are published for the area. The area is classified as Zone X, or an areas identified in the community flood insurance study as areas of moderate or minimal hazard from the principal source of flood in the area and outside the 100-year flood plain. No known areas of problem flooding exist along the project corridor.

Impacts and Mitigation Measures

Road and utility construction projects have the potential, if unmitigated, to adversely and permanently impact drainage. Construction activities such as clearing and grubbing, excavation, and paving alter the natural hydrology. Earthwork may leave soils susceptible to erosion due to rainfall runoff and can cause erosion and sediment pollution. Roadway paving increases the amount of impervious surface area, which has the potential to increase rainfall runoff.

Properly executed construction techniques can usually mitigate impacts to essentially zero. Government agencies regulate road construction through various permits to ensure that adverse effects are avoided or mitigated. The following permit procedures

will ensure proper mitigation of drainage impacts during construction of the Keaau-Pahoia Road Improvements and the Keaau-Pahoia Waterline Extension:

County Approval of Drainage Plan. The drainage plan for the road and waterline will undergo review, revision and approval by the Hawaii County Department of Public Works (DPW) to ensure compliance with standards related to storm runoff containment. The review will require that all storm runoff is contained onsite as required in the County's *Storm Drainage Standards* (1970).

NPDES. The National Pollutant Discharge Elimination System permit, which would be issued by the Hawaii State Department of Health, would include specific and enforceable conditions to reduce sediment pollution. Temporary mitigation measures such as silt fencing, temporary channels, and sedimentation ponds can minimize such impacts.

Because of the context within an area of no known drainage problems, highly permeable substrate and little sediment, potential impacts are expected to be very slight and completely mitigable by adherence to conditions contained within these permits and approvals.

2.2.2 Geology and Hazards

The Keaau-Pahoia area is rated Lava Flow Hazard Zone 3 on a scale of ascending risk 9 to 1. Zone 3 is considered "less hazardous than [Z]one 2 [which is adjacent to and downslope of active risk zones] because of greater distance from recently active vents and/or because the topography makes it less likely that flows will cover these areas" (Heliker 1990).

The entire island of Hawaii is in Zone 3 on a scale of ascending risk 1 to 4 in the Seismic Probability Rating (Furumoto et al 1973:34). Major damage corresponding to a score of 7 or above on the Modified Mercalli Scale is possible.

Lava tubes may be disturbed by the road and/or waterline project. Lava tubes are an integral and common element of extrusive volcanic landscapes in shield volcanoes such as Kilauea and Mauna Loa. They are formed by the crusting over of active surface flows and provide an efficient means to transfer molten lava from the flow source to its terminus. After the molten lava drains away, an open segment of a roofed lava tube is often left behind. These caves vary in diameter from inches to tens of feet, and in length from several feet to over ten miles. Some lava tubes are large enough and have openings for human entry, and may thus be classified as caves. Some caves in the project area are known to contain burials or other historic sites. Because the proposed project crosses essentially perpendicular to the gradient of an extensive field of pahoehoe lava flows, many lava tubes are probably crossed.

Impacts and Mitigation Measures

Geologic hazards impose no constraints on the project. Waterlines of this size are built to withstand substantial seismic stress. The project is a community facility that will be utilized by those already inhabiting an area at risk from lava inundation, and thus will not unreasonably expose people or property to risk. The waterline may play a key role in assisting in disasters related to earthquakes and lava flows.

If a lava tube is encountered during construction, DWS will coordinate with the State Historic Preservation Division and the Hawaii Speleological Society (see Section 2.3.3, below).

2.2.3 Flora, Fauna and Ecosystems

Environmental Setting

The vegetation affected by the project is within the right-of-way of Highway 130 and is for the most part already severely disturbed by road or utility activities. Vegetation outside the corridor is in some areas dominated by alien plants as part of residences or in patches of weeds or ornamentals. In other sections of the route the vegetation is a native scrub forest composed principally of 'ohi'a (*Metrosideros polymorpha*) and uluhe fern (*Dicranopteris linearis*). A low forest of scattered 'ohi'a trees surrounded by uluhe (often an indicator of fire) is typical, interrupted by more disturbed vegetation emanating from the roadside verge. Additional prominent floristic elements include native and alien sword ferns (*Nephrolepis* spp.), the native species 'uki'uki (*Dianella sandwicensis*), and the aliens guava (*Psidium guajava*), wai'awi (*Psidium cattleianum*), mango (*Mangifera indica*), autograph tree (*Clusia rosea*), bamboo orchid (*Arundina graminifolia*), broomsedge (*Andropogon virginicus*), California grass (*Brachiara mutica*), elephant grass (*Pennisetum purpureum*), and numerous others. Large monoculture patches of melastoma (*Melastoma candidum*) also dominate some of the right-of-way areas.

Several agencies and organizations, including the Hawaii State Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW), the U.S. Fish and Wildlife Service (USF&WS), and the Nature Conservancy, were contacted as part of the consultation process for the EA (see Appendix 1 for letters). According to these agencies, there have been two recordings of two federally listed endangered species in the project area: the Hawaiian raptors hawk or 'io (*Buteo solitarius*), and the Hawaiian hoary bat 'ope'ape'a (*Lasiurus cinereus semotus*). Both species range widely. The general area is not considered essential habitat for either species.

Other than these, no listed, candidate or proposed endangered animal or plant species are found on or near the property. In terms of conservation value, no botanical or zoological resources requiring special protection are present.

Impacts

Under Section 7 of the Endangered Species Act, the USF&WS has the responsibility to consult with federal agencies proposing activities that may pose an impact to listed threatened or endangered species. After reviewing the subject project and its potential impacts, the USF&WS stated in a 27 May 1997 letter that:

“...the proposed project is not likely to adversely affect the referenced species because of the project's location and previous disturbance. We request that the project's staging area also be placed in a previously disturbed location” (for full text of letter, see Appendix 1).

Mitigation Measures

It is unlikely that any adverse impact upon bats or hawks would result from the project. However, should 'io nests or bat roosts be found during construction, activities in the immediate area will be suspended until contact is made with the Protection Forester, Division of Forestry and Wildlife (DOFAW) in Hilo and the Endangered Species Office of the U.S. Fish and Wildlife Service (FWS) in Honolulu. Construction activity will not resume until mitigation efforts are completed.

In conformance with the recommendation from the USF&WS, the staging areas for project construction will be located in areas that have been previously disturbed.

2.2.4 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air pollution on the Big Island is minimal. Volcanic emissions of sulfur dioxide convert into particulate sulfate which causes a volcanic haze (vog) to blanket the area when during occasional episodes when trade winds are not present. Air quality in the project area is affected by proximity to the State Highway 130.

Ambient noise along the project area is high because it is adjacent to a busy highway. The value of the scenery is low to moderate due to the presence of multiple utility lines, residential/agricultural landscapes and short vistas with few distant landmarks. The visual landscape is best along the area fronting the DHHL Maku'u lots, where a native forest of 'ohi'a and uluhe provide interest.

Impacts

The project will cause no long-term air quality impacts and only minor potential for impacts during construction. Adherence to control measures implemented as part of the NPDES permit should prevent substantial impacts.

Construction would result in noise from grading, blasting, compressors, vehicle and equipment engines, and other sources. Construction activities may exceed 95 decibels (dB) at the project boundary lines at times.

Mitigation Measures

The State of Hawaii requires contractors engaged in many construction activities to conform with Title 11, Chapter 46, HAR (Community Noise Control). The Hawaii State Department of Health's (HDOH) Noise, Radiation and Indoor Air Quality Branch issues permits for construction activities which may generate noise. The permit is applied for during the construction phase by the contractor. HDOH will review the type of activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures. Possible measures include restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers. The precise combination of mitigation measures, if any, shall be specified by HDOH prior to construction.

2.3 Social, Cultural and Economic Setting

2.3.1 Population

Environmental Setting

Data from the 1990 Census of Population showed a total of approximately 16,000 persons living in Lower Puna outside of Keaau. Lower Puna has shown growth rates of over 50 percent per decade in the last twenty years. By 1996, it is likely that the population of this section of Lower Puna will exceed 20,000.

The areas most directly involved are Hawaiian Paradise Park with 8,843 lots, Orchidland Estates (2,491 lots), and Ainaloa (3,683 lots). Using estimates by Community Management Associates of growth rates and proportion of lots built on along with census data for average household value and vacancy rates, the Department of Water Supply has arrived at estimates of current and future populations. The number of residents in Hawaiian Paradise Park, Ainaloa and Orchidland Estates is expected to grow from an estimated 8,000 in 1995 to over 12,800 by the year 2005, a total growth of 60 percent and an average annual growth rate of 4.8 percent. In addition, the DHHL Makuu subdivision contains 177 lots, with a potential population of at least 530 (based on 3 residents per lot).

The remaining highway frontage potentially served by the waterline belongs to large parcels belonging to the State of Hawaii. Thus, all private parcels along the route are already small and zoned for residential or residential/agricultural uses, and no large private parcels with rezoning/subdivision potential are present.

Impacts and Mitigation Measures

The continuing growth in population in this (and many other) areas of Puna brings with it a demand for upgraded water services. As mentioned earlier, it is expensive and difficult for residents to maintain the quality and quantity of catchment water that is optimum for domestic use, especially consumptive use. Most residents, when given the option, will choose to connect to a public water system. The proposed project would allow a small but not insubstantial proportion of existing and future residents this opportunity.

The project will probably exercise some influence on the distribution, but not the rate, of growth in these subdivisions. Currently, water service is expected to be provided only to the 177 lots in the DHHL project and the 117 lots with Highway 130 frontage in the three private subdivisions. In the context of the almost 15,000 lots in the three subdivisions - which jointly construction on at least 100 lots/year - this is not a substantial factor. Lots fronting or very near the highway will have an advantage over other lots in terms of water supply - which is already true for highway lots northwest of Paradise Drive. This advantage will be added to the existing benefit of easy access to Paho, Keaau and Hilo. However, the growth pattern in both subdivisions - fairly evenly spread throughout - suggests that highway frontage is not an overwhelming factor in the decision of the potential home builder about where to build. Lower lot prices, seclusion, preferred vegetation, and proximity to the ocean also appear to play large roles.

Thus, although water projects often involve the potential for substantial secondary impacts associated with induced population growth, in this case the scale of the project set in the context of the existing rate of growth means that secondary impacts would be unlikely or negligible.

2.3.2 Socioeconomic

Environmental Setting

The economic structure of the Puna District has changed greatly since the era when sugar cane plantations dominated the landscape. The *Technical Reference Report, Puna Community Development Plan* (Community Management Associates, Inc. 1992) showed that in 1980, 36.3 percent of the Puna population were in the labor force. Of the total, 15.4 percent were managerial, 21.6 percent were involved in technical, sales, or administrative work, 13.0 percent were in service occupations, 15.8 percent in farming, forestry, or fishing, 15.1 percent in precision production, crafts, or repair work, and 6.2 percent were operators, fabricators, or laborers. Government workers made up 19.0 percent of the total, self-employed workers were 14.6 percent, and the remainder, 65.9 percent, were private wage and salary workers. Puna had and continues to have a diverse economy, even if many of the jobs are actually situated in

Hilo. In contrast with former years, small businesses employ more workers than any large concerns.

Puna displays many of the characteristics of a disadvantaged region in its census statistics. The Keaau-Mt. View Division (which includes most of the study area) in 1989 had a median household income of only \$24,149, compared to \$29,712 for the County as a whole. Twenty percent of individuals had income below the poverty level, a rate nearly a third larger than Hawaii County. More than 27 percent of those age 25 years or over have less than a high school education, and almost 13 percent have a work disability, compared to 22.3 percent and 9.6 percent, respectively, for the County as a whole.

Many of Puna's problems are related to the rudimentary infrastructure of its sprawling subdivisions, which was well-suited for speculation but inadequate to serve the needs of the low and middle income families who have come to occupy the district. Other problems often cited by Puna residents are typical of disadvantaged communities: crime, unemployment, and lack of public amenities such as recreational facilities.

Impacts

The proposed project represents another beneficial step in the gradual upgrading of infrastructure in the Puna District.

2.3.3 Archaeology and Historic Sites

Environmental Setting

The DWS has consulted with the State Historic Preservation Division (SHPD) and knowledgeable individuals to determine resources of and impacts to historic sites that might be encountered along the route. The project area has been studied as part of the earlier road and utility projects and no documented historic sites are known from the area. The extensive disturbance of the right-of-way makes it unlikely that any further surface sites will be found.

According to a letter of 22 January 1997 from SHPD Director Don Hibbard (see Appendix 1 for full text):

"We have no record of any significant historic sites located on the surface within the project area, and it is unlikely that any surface site would remain within the alignment because of past highway construction. However, there are significant historic sites known under the Keaau-Paho Highway in the project area -- lava tubes with habitation areas, refuge fortifications, and burials....."

Two major tube systems, with several branches, are known to cross under the highway; these are known locally as Jim Martin's Cave...and Pahoa Cave...The locations of these known tubes are approximate and reflect only those segments of the tube system where there is currently access which enabled them to be entered and mapped. It is very likely that other, unknown tube segments may be present near the larger tubes. Also, the entire project crosses the 'Ai La'au pahoehoe lava flow which is known to contain numerous other small isolated tubes and lava blisters. These also may be encountered during excavation for the waterline extension."

Impacts and Mitigation Measures

The SHPD letter addressed potential impacts:

"At this point in time we believe that the proposed project will probably have 'no effect' on significant historic sites because of the location in an already disturbed area. It seems likely that the lava tube sites probably are deep enough, so that they will not be broken into by the project."

SHPD recommended the following contingency plan for mitigation:

"....[A]s part of the project plan, may we suggest that an action plan be included which would clearly state the procedures to be followed if a lava tube is encountered. We recommend the action plan include consultation with the Historic Preservation Division to determine the presence of any significant historic sites near the break in. Also, the Division should be consulted in developing a mitigation plan should significant sites be present."

DWS will adopt this proposal for mitigation in full. The following actions will be taken:

- o Contractors will be supplied with maps identifying general areas where lava tubes are known to exist;
- o If a lava tube is encountered, all construction with the potential to impact the lava tube will immediately cease;
- o The appropriate personnel at DWS and State DOT, Highways Division, will be contacted;
- o These personnel will contact SHPD to determine if historic sites are present and appropriate mitigation.
- o The Hawaii Speleological Society will also be contacted.

In addition, if any artifacts, charcoal deposits, or human remains are discovered during construction, work will immediately cease and SHPD will be consulted to determine the appropriate mitigation.

2.4 Public Facilities and Services

2.4.1 Roads and Traffic

Existing Facilities

The project is located within the right-of-way of State Highway 130, and crosses or affects several private subdivision roads including Maku'u Drive, Ainaloa Boulevard and two roadways accessing the DHHL subdivision.

Impacts and Mitigation Measures

The waterline will be constructed at the same time as an extensive project to upgrade the Keaau-Pahoa Road. No additional traffic impacts during construction would be expected. The road construction project will involve lane closures and delays. Standard road construction mitigation measures will be employed, including safety markings, professional traffic control, and restrictions on construction hours.

No long term impacts are expected.

2.4.2 Overhead Utilities

Existing Facilities

Electricity and phone lines, including the major distribution lines in Lower Puna, are located on the edge of the right-of-way in which the proposed project would be located.

Impacts and Mitigation Measures

Care will be taken during construction to ensure that no unnecessary disruption to utility services will occur.

2.4.3 Water Supply

Existing Facilities

The Keaau water system (also known as the Olaa-Mountain View water system) originated as a plantation system that was acquired by DWS during the early 1950s. DWS subsequently built two wells at the Puna Sugar Company and extended the system with storage tanks and water lines to include the Mountain View and greater Keaau community. During the 1960s the system was extended to Glenwood. In 1985, the system was extended southeast towards Pahoa with a 12-inch waterline to Kaloli Drive. In 1990 the system was extended another 6,000 feet to the southeast to

beyond Paradise Drive. The last major improvement was the 1993 construction of a third well and additional reservoir in Kurtistown. The current system consists of three deep wells, 25 booster pumps, 12 reservoirs totaling 2.57 million gallons, and pipelines. The present capacity is 2.34 million gallons per day (mgd). There are approximately 2,100 users on the system consuming an average of 0.79 mgd. The quantity of water is adequate to meet existing demands.

The Pahoia water system was developed in the 1960s. The system started with two wells near Pahoia High School and extended from Keonepoko Homesteads to Kaniahiku Village. In the early 1980s, the Keonepoko Nui deep well and reservoir was constructed along with a 12-inch waterline extending 6,500 feet toward Pahoia town. The Keonepoko Nui site is currently the northern extent of the Pahoia water system. In 1994, the system was extended eastward toward Pohoiki. From there, the water system continues north and now connects with the Kapoho system. The current system consists of three deep wells, 1 booster pump, 4 reservoirs totaling 1.2 million gallons, and pipelines. The present capacity is 0.86 mgd. Approximately 890 users consume an average of 0.40 mgd. The quantity of water is adequate to meet existing demands.

The Hawaii State Department of Hawaiian Home Lands (DHHL) is in the process of completing water infrastructure improvements for their Makuu agricultural subdivision that would add to the capacity of the Pahoia system. This includes installation of a portion of the 12-inch waterline from Keonepoko Nui site through their subdivision, a distance of 6,350 feet. DHHL is also building an exploratory well at the Keonepoko site in anticipation of a permanent well to provide water for the Makuu subdivision.

All systems comply with the Safe Drinking Water Act and State Department of Health requirements. The systems have excellent water quality with chloride contents of less than or equal to 7 milligrams per liter.

Impacts and Mitigation Measures

No adverse impacts to the ability of the DWS to supply adequate quantities of high-quality water to its customers will occur. The Keaau and Pahoia water systems obtain water from a total of six deep well sources, and an additional source is being developed at Keonepoko. The quantity of water is adequate for the number of existing users according to design requirements for domestic and fire flow demands. Hydraulic calculations show that there are adequate water quantities at acceptable pressure along the proposed 12-inch waterline extension. The proposed project represents an orderly extension and integration of a system that has gradually expanded to meet demand associated with the growth of population in the Puna District.

In summary, no adverse impacts and considerable benefits related to the integration of the two systems and the fulfillment of DWS's charter to meet the demands of the public will result.

2.5 Required Permits and Approvals

Two permits from the State Department of Health would be required to implement this project:

- a. National Pollutant Discharge Elimination System Permit (NPDES)
- b. Construction Noise Permit

2.6 Consistency With Government Plans and Policies

2.6.1 Hawaii State Plan

The Hawaii State Plan was adopted in 1978. It was revised in 1986 and again in 1991 (Hawaii Revised Statutes, Chapter 226, as amended). The Plan establishes a set of goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The proposed project is consistent with State goals and objectives that call for increases in employment, income and job choices, and a growing, diversified economic base extending to the neighbor islands.

The sections of the Hawaii State Plan most relevant to the proposed project are centered on the theme of facility systems. The following objectives and policies are taken from the section dealing with water development.

- o Objective a): Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational and other needs within resource capacities.
- o Objective b): To achieve the facility systems water objective, it shall be the policy of this State to:
 - (1) Coordinate development of land use activities with existing and potential water supply.
 - (2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.
 - (3) Reclaim and encourage the productive use of runoff water and wastewater discharges.
 - (4) Assist in improving the quality, efficiency, service and storage capabilities of water systems for domestic and agricultural use.

- (5) Support water supply services to areas experiencing critical water problems.
- (6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.

The proposed project supports all relevant objectives and policies of the Hawaii State Plan.

2.6.2 Water Master Plan, Island of Hawaii

This County DWS plan dates from 1980. Its purpose was to provide a long-range plan for public water systems on the Island of Hawaii. Included among its proposed improvements to the subject area were:

- o Various pipeline improvements with the existing system;
- o Additional wells at Keonepoko Nui
- o Reservoir at Keonepoko Iki
- o Keaau-Pahoa Trunk Line extensions

Although connecting the Keaau and Pahoa systems was not among the specific goals, the proposed project serves the goals of the plan.

2.6.3 Hawaii County Water Use and Development Plan

This plan fulfills the portion of the mandate of the State Water Code (Chapter 174C, HRS) to provide an integrated program for the protection, conservation, and management of the waters of the State. The current draft dates from 1992 and has not yet been officially adopted. The plan calls for completion of the transmission line between Keaau and Pahoa as part of its regional development plan. Thus, the proposed project is completely consistent with and fulfills the Hawaii County Water Use and Development Plan.

2.6.4 Hawaii County General Plan

The General Plan for the County of Hawaii is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawaii. The plan was adopted by ordinance in 1989. The General Plan is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawaii. Among the goals, policies and standards for water and development in the Puna District are:

J. Public Utilities: Goals:

- o Ensure that adequate, efficient and dependable public utility services will be available to users.
- o Maximize efficiency and economy in the provision of public utility services.
- o To have public utility facilities which are designed to fit into their surroundings or be concealed from public view.

J. Public Utilities: Water Policies:

- o Water system improvements and extensions shall promote the County's desired land use development pattern.
- o All water systems shall be designed and built to Department of Water Supply standards.
- o Water system improvements should be first installed in areas which have established needs and characteristics, such as occupied dwellings and other uses, or in areas adjacent to them if there is need for urban expansion, or to further the expansion, of the agricultural industry.
- o The fire prevention systems shall be coordinated with water distribution system in order to ensure water supplies for fire protection purposes.

Courses of Action: Puna: Public Utilities: Water

- o Improve inadequate water system facilities.

Courses of Action: Puna: Land Use: Single-Family Residential

- o Improve and develop roadways, water and sewerage systems, and other basic facilities necessary to encourage development of lands suitable for residential use.

Discussion: The proposed project satisfies the goals and objectives related to efficient and economic expansion of water service to meet public needs in areas zoned for and with existing land use in agriculture and residential uses. All standards related to water quality, appropriate design, facilities and fire protection would be met.

2.6.5 Puna Water Master Plan

Currently in the early stages of development, this plan will guide integration of source development and storage and distribution systems in Puna. The plan is being funded by a federal Community Development Block Grant to the DWS. The majority of Puna residents (and buildable lots) are in substandard subdivisions, which present special problems to both DWS and residents in extending the domestic water supply system. The plan, which is being developed in close coordination with community groups, targets the optimal, orderly development of water to benefit Puna. It is likely that the proposed waterline will be highly consistent with the plan's broad and specific goals.

PART 3: DETERMINATION

The Hawaii County Mayor's Office has determined that impacts from the proposed project will be minimal and that the project will not significantly alter the environment. Therefore, the Mayor's Office has issued a Finding of No Significant Impact (FONSI), which means that an Environmental Impact Statement is not warranted and will not be prepared (see cover letter).

PART 4: FINDINGS AND REASONS

Chapter 11-200-12, Hawaii Administrative Rules, outlines those factors agencies must consider when determining whether a project has significant effects:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* The area to be affected by the proposed project consists of highway right-of-way which has been and will be disturbed by other projects. No valuable natural or cultural resources are present.
2. *The proposed project will not curtail the range of beneficial uses of the environment.* The proposed project would make joint use of an area dedicated to other uses including transportation and utility and thus promotes efficient use of limited space. This helps prevent restriction of beneficial uses in adjacent areas.
3. *The proposed project will not conflict with the State's long-term environmental policies.* The State's long term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. A number of specific guidelines support these goals. No aspect of the proposed project conflicts with these guidelines. The project is environmentally benign and is consistent with all elements of the State's long-term environmental policies.
4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The only marked effect of the project will be to improve the water supply for residents of a portion of Puna.
5. *The proposed project does not substantially affect public health in any detrimental way.* The project improves public health by providing a reliable source of sanitary domestic water in areas that otherwise must rely on rainwater catchment systems. No other effects would occur.
6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* The project will probably exercise some influence on the distribution, but not the rate, of growth in the subdivisions which would be partially served by the water improvements. The growth pattern in

both subdivisions - fairly evenly spread throughout - suggests that highway frontage, even when served by water, is not an overwhelming factor in the decision of the potential home builder about where to build. . Thus, although water project often involve the potential for substantial secondary impacts associated with induced population growth, the scale of the project in this case set in the context of the existing rate of growth means that secondary impacts are unlikely or negligible

7. *The proposed project will not involve a substantial degradation of environmental quality.* The project would not contribute to environmental degradation.
8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* No rare, threatened or endangered species of flora or fauna are known to exist on the project site, other than the possibility of use by the wide-ranging species Hawaiian hawk or 'io (Buteo solitarius), and the 'ope'ape'a or Hawaiian hoary bat. (Lasiurus cinereus semotus), which would not be affected by any project activities.
9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions. The project will be conducted at the same time and in the same right-of-way as improvements to State Highway 130. Although both projects will improve the infrastructure of the area, they will not contribute to unplanned growth because surrounding areas have an oversupply of lots zoned for building. The project does not open up new areas for growth.
10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* The proposed project will produce only minor and temporary impacts to noise and air quality during construction. No impacts to water quality are expected.
11. *The project does not affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* The project is not located near coastal or inland waters. Although the proposed project is located in an zone exposed to some earthquake and volcanic hazard, there are no reasonable alternatives.

For the reasons above, the proposed project will not have any significant effect in the context of Chapter 343, Hawaii Revised Statutes and section 11-200-12 of the State Administrative Rules.

REFERENCES

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APPENDIX 1

COMMENT LETTERS

**FROM AGENCIES AND ORGANIZATIONS
IN RESPONSE TO PRE-CONSULTATION**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
PACIFIC ISLANDS ECOREGION
300 ALA MOANA BOULEVARD, ROOM 3108
BOX 50088
HONOLULU, HAWAII 96850
PHONE: (808) 541-3441 FAX: (808) 541-3470

In Reply Refer To: KAJ

MAY 27 1997

Ron Terry, Ph.D
HCR 1 Box 9575
Keaau, HI 96749

Dear Dr. Terry:

The U.S. Fish and Wildlife Service (Service) has reviewed the information provided in your letter dated March 19, 1997, and received by us on March 25, 1997. The proposed project by the Hawaii County Department of Water Supply (DWS) following federal guidelines contained in the U.S. Department of Agriculture Rural Development Program, is to connect the Keaau and Pahoa water service systems via a 12 inch water main. This water main would extend between Paradise Drive in Hawaiian Paradise Park to the Keonepoko Nui Tank and Pump Station, an approximate 3.5 mile distance. The water line will be installed at the same time as the Hawaii State Department of Transportation's Keaau-Pahoa Highway Improvement Project. The project area is within the right-of-way of State Highway 130, which has been previously cleared.

The Service reviewed the provided information as well as other information contained in our files, including maps prepared by The Nature Conservancy's Hawaii Natural Heritage Program. To the best of our knowledge, there are no federally endangered, threatened, or candidate species directly within the project site. The federally endangered Hawaiian hawk (*Buteo solitarius*) and the federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) is known from the general vicinity and may occur at the project site. However, the Service believes that the proposed project is not likely to adversely affect the referenced species because of the project's location and previous disturbance. We request that the project's staging area also be placed in a previously disturbed location.

The requirements of section 7 of the Endangered Species Act (Act) have been satisfied. However, obligations under section 7 of the Act must be reconsidered, if 1) new information reveals impacts of this defined action that may affect listed species or critical habitat in a manner that was not previously considered; 2) this action is subsequently modified in a manner not previously considered in this assessment; or 3) a new species is listed or critical habitat determined that may be affected by the identified action.

If you have questions or comments please contact Program Coordinator for Interagency Cooperation, Ms. Margo Stahl or Fish and Wildlife Biologist Karen (Kitti) Jensen at the above telephone number. Please provide us with a copy of the Environmental Assessment when completed.

Sincerely,

Donald Palanski
for Brooks Harper
Field Supervisor
Ecological Services



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY & WILDLIFE

P.O. BOX 4849
HILO, HAWAII 96720
PHONE: 933-1621
FAX: 933-4455

January 8, 1997

Mr. Milton D. Pavao, Manager
Department of Water Supply
25 Aupuni Street
Hilo, HI. 96720

Dear Mr. Pavao:

Subject: Endangered Species Determination Request
Keaau-Paho Highway Waterline Extension

We are responding to your request for a determination of endangered species occurrence within the proposed Keaau-Paho Highway waterline extension corridor.

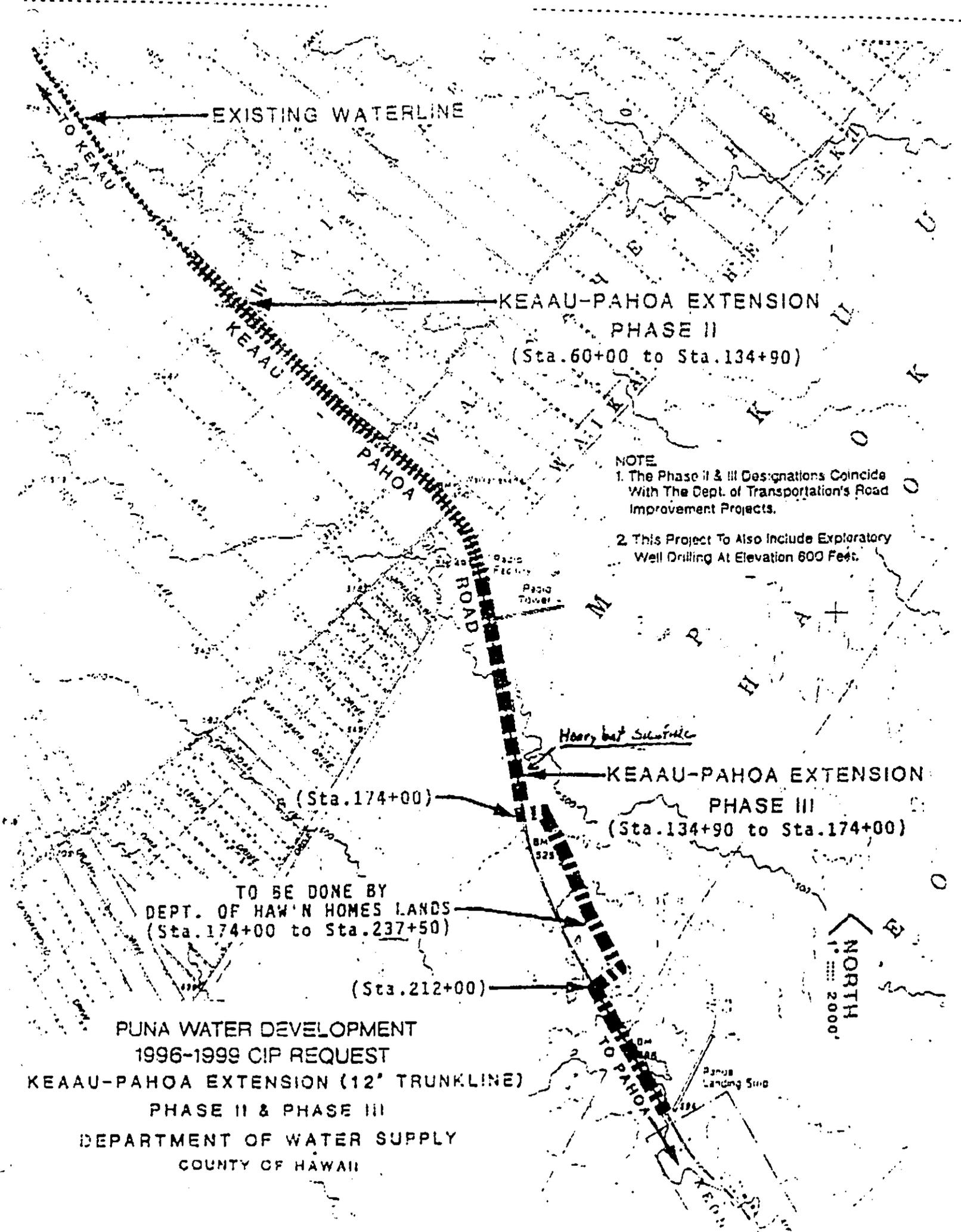
Based upon our review, we find no records of any endangered plant or animals sightings along the highway corridor. However, The Nature Conservancy (TNC), Hawaii Heritage Program, reported a single Hawaiian bat (*Lasiurus cinereus semotus*) sighting at this location in 1992 (plotted on enclosed map). I recommend that you consult with them to assist you with your determination.

Thank you for the opportunity to review the proposed project.

Sincerely yours,

A handwritten signature in cursive script that reads "Jon G. Giffin".

JON G. GIFFIN
Forestry and Wildlife Manager



EXISTING WATERLINE

KEAAU-PAHOA EXTENSION
 PHASE II
 (Sta. 60+00 to Sta. 134+90)

- NOTE
1. The Phase II & III Designations Coincide With The Dept. of Transportation's Road Improvement Projects.
 2. This Project To Also Include Exploratory Well Drilling At Elevation 600 Feet.

KEAAU-PAHOA EXTENSION
 PHASE III
 (Sta. 134+90 to Sta. 174+00)

TO BE DONE BY
 DEPT. OF HAWAIIAN HOMES LANDS
 (Sta. 174+00 to Sta. 237+50)

(Sta. 212+00)

PUNA WATER DEVELOPMENT
 1996-1999 CIP REQUEST
 KEAAU-PAHOA EXTENSION (12" TRUNKLINE)
 PHASE II & PHASE III
 DEPARTMENT OF WATER SUPPLY
 COUNTY OF HAWAII

NORTH
 1" = 2000'

The Nature
Conservancy
of Hawai'i
1111 Smith Street
Honolulu, Hawaii 96817
Phone (808) 537-4508
Facsimile (808) 541-2019

The Nature
Conservancy
of Hawai'i

February 1, 1997

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Hannah S. Springer

William P. Steyer

Milton Pavao
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Pavao

Enclosed is the information you requested for the Keaau-Paho Highway Waterline Extension project area. There has been recordings of 2 federal listed species in your project area. The Hawaiian Hawk was recorded at dot number 4, and the Hawaiian Hoary Bat was seen at dot number 8. I have enclosed copies the database records and map for your reference.

Unfortunately, my office is not a regulatory agency. We can't provide opinions or impacts due to development. The Natural Heritage Database can only provide factual data regarding rare species. Normally, developers and government agencies use our information as preliminary fact finding data. Therefore, it would be your best interest to contact the regulatory agency, U.S. Fish and Wildlife Service (USFWS), regarding any impacts on listed endangered species. You can contact them on Oahu at (808)541-3441. USFWS will provide any opinions and clarifications.

We do normally charge for information requests from the Heritage Database, but due to the minimal amount of data provided, the costs for this request has been waived.

Note that database information should not be regarded as final or be used in place of a biological survey required for impact statements. Please review the "Notice" provided in this packet.

If you have further questions, you may contact me at (808)537-4508. Thank you for using the Hawaii Natural Heritage Database.

Sincerely,

Roy Kam

Roy Kam

Database Coordinator

Hawaii Natural Heritage Program

The Nature
Conservancy

International

Headquarters

1415 North Lynn Street

Arlington, Virginia 22209

<http://www.tnc.org>

Stephen K. Yamashiro
Mayor



Donna Fay K. Kiyosaki
Chief Engineer

Jiro A. Sumada
Deputy Chief Engineer

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
25 Aupuni Street, Room 202 • Hilo, Hawaii 96720-4252
(808) 961-8321 • Fax (808) 961-8630

April 3, 1997

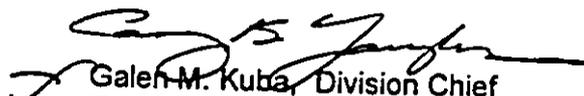
RON TERRY PHD
HCR 1 BOX 9575
KEAAU HAWAII 96749

SUBJECT : DRAFT ENVIRONMENTAL ASSESSMENT
Proposed Keaau-Pahoia 12-inch Waterline Extension

We acknowledge receipt of your letter concerning the subject matter, and provide you with our comments as follows:

1. All earthwork and grading shall be in conformance with Chapter 10, Erosion and Sediment Control, of the Hawaii County Code.
2. Any work within the County right-of-way shall be in conformance with Chapter 22, Streets and Sidewalks, of the Hawaii County Code.
3. Any construction within known watercourses shall be in conformance with Chapter 27, Flood Control, of the Hawaii County Code.
4. The Keaau-Pahoia Road is under the jurisdiction of the HDOT. Any improvements along this roadway should be directed to HDOT.

Should there be any additional questions concerning this matter, please feel free to contact Mr. Casey Yanagihara in our Engineering Division at (808)961-8327.


Galen M. Kuba, Division Chief
Engineering Division

CKY

PHONE (808) 594-1888

FAX (808) 594-1865



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

March 31, 1997

Dr. Ron Terry
HCR, 1 Box 9575
Keaau, HI 96749

Subject: Environmental Assessment (EA) Preparation Notice for Proposed
Keaau-Pahoah 12-inch Waterline Extension.

Dear Dr. Terry:

Thank you for the opportunity to review the Environmental Assessment (EA) Preparation Notice for Proposed Keaau-Pahoah 12-inch Waterline Extension, Keaau, Island of Hawaii.

The Office of Hawaiian Affairs (OHA) has no objections at this time to the EA Preparation Notice. However, OHA intends to thoroughly review the EA once the document is available for public review.

Please contact Lynn Lee, Acting Officer of the Land and Natural Resources Division, or Luis Manrique, should you have any questions on this matter.

Sincerely yours,

A handwritten signature in cursive script that reads "Martha Ross".

Martha Ross
Deputy Administrator

LM:lm

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 8TH FLOOR
HONOLULU, HAWAII 96813

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LAND DIVISION
STATE PARKS
WATER AND LAND DEVELOPMENT

January 22, 1997

Mr. Milton D. Pavao
Department of Water Supply
25 Aupuni Street
Hilo, Hawaii 96720

LOG NO: 18710 ✓
DOC NO: 9612MS10

Dear Mr. Pavao:

**SUBJECT: Historic Preservation Concerns for the Proposed Keaau-Pahoia Highway
Waterline Extension
Waikahekahe Iki - Keonopoko Nui, Puna, Hawaii Island
TMK: 1-5-10, 15, 16: highway alignment**

Thank you for the opportunity to comment on the proposed Keaau-Pahoia Highway Waterline extension. If federal grant money is used to fund this undertaking (Rural Development Agency-FHA), then compliance with Section 106 of the National Historic Preservation Act is required. If federal money is involved, please contact us right away, so we can help expedite that review process. Consultation with native Hawaiian groups would be required by the National Historic Preservation Act, as amended, given the types of sites that are in or close to the project area.

It is our understanding that the waterline extension will be within the existing Keaau-Pahoia Highway, and the project will be done concurrently with the proposed highway improvement project.

We have no record of any significant historic sites located on the surface within the project area, and it is unlikely that any surface sites would remain within the alignment because of past highway construction. However, there are significant historic sites known under the Keaau-Pahoia Highway in the project area -- lava tubes with habitation areas, refuge fortifications, and burials. Please find enclosed a copy of your proposed project map with the approximate locations of these known lava tubes.

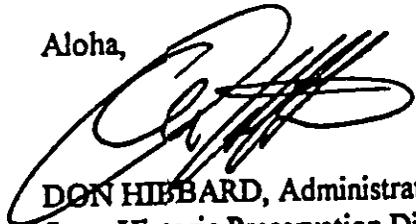
Two major tube systems, with several branches, are known to cross under the highway; these are known locally as Jim Martin's Cave (1A and 1B), and Pahoia Cave (2A and 2B). The locations of these known tubes are approximate and reflect only those segments of the tube system where there is currently access which enabled them to be entered and mapped. It is very likely that other,

unknown tube segments may be present near the larger tubes. Also, the entire project crosses the *Ai' La'au* pahoehoe lava flow which is known to contain numerous other small isolated tubes and lava blisters. These also may be encountered during excavation for the waterline extension.

At this point in time we believe that the proposed project will probably have "no effect" on significant historic sites because of the location in an already disturbed area. It seems likely that the lava tube sites probably are deep enough, so that they will not be broken into by the project. However, as part of the project plan, may we suggest that an action plan be included which would clearly state the procedures to be followed if a lava tube is encountered. We recommend the action plan include consultation with the Historic Preservation Division to determine the presence of any significant historic sites near the break-in. Also, the Division should be consulted in developing a mitigation plan should significant sites be present.

If further questions arise during the planning of this project, please contact Patrick McCoy at 587-0006 (Honolulu), or Marc Smith at 933-4346 (Hilo).

Aloha,

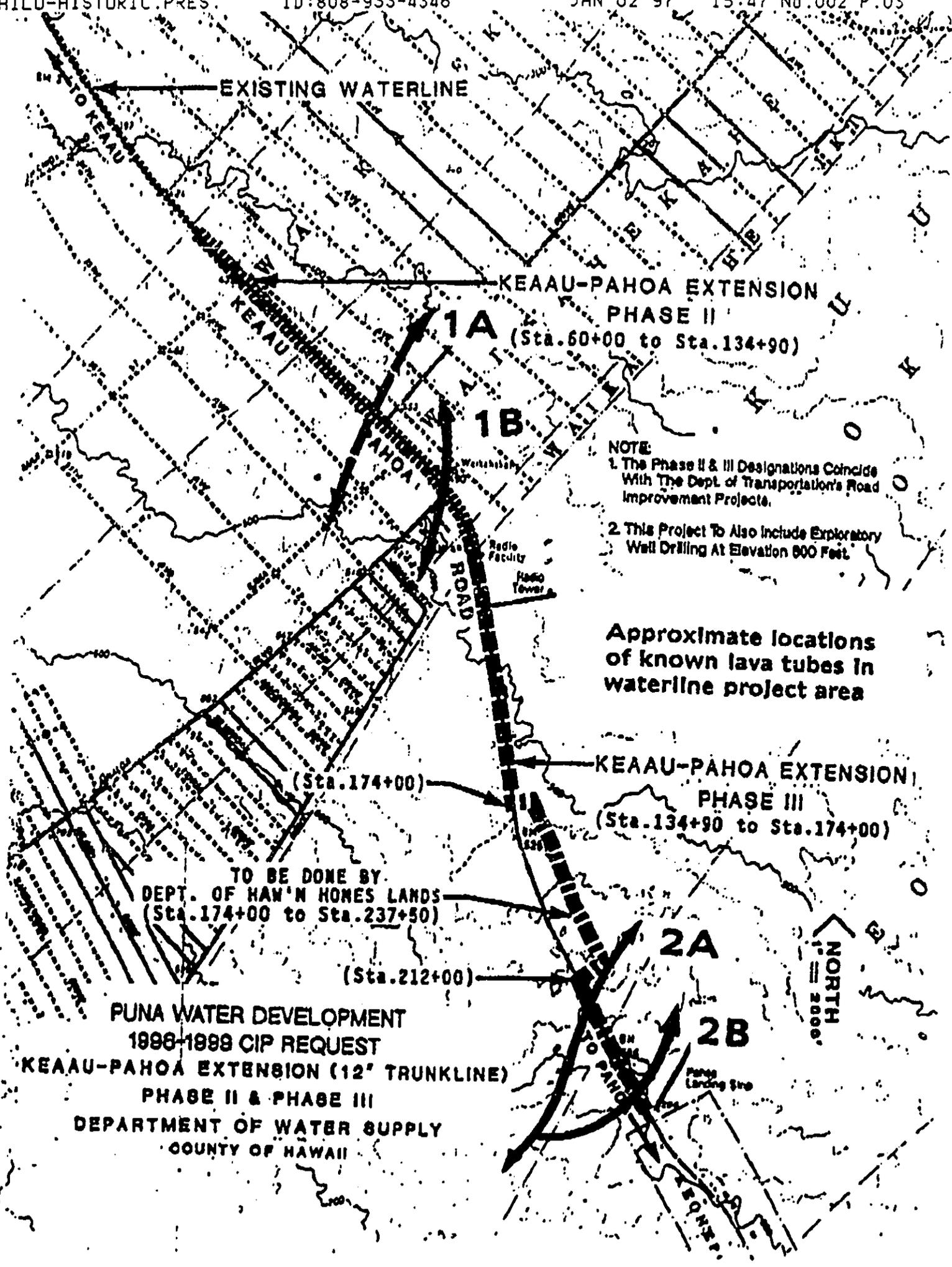


DON HIBBARD, Administrator
State Historic Preservation Division

MS:amk

attachment: proposed project map with known lava tube locations

JAN 23 1997



NOTE:
 1. The Phase II & III Designations Coincide With The Dept. of Transportation's Road Improvement Projects.
 2. This Project To Also Include Exploratory Well Drilling At Elevation 600 Feet.

Approximate locations of known lava tubes in waterline project area

**PUNA WATER DEVELOPMENT
 1998-1999 CIP REQUEST
 KEAU-PAHOA EXTENSION (12" TRUNKLINE)
 PHASE II & PHASE III
 DEPARTMENT OF WATER SUPPLY
 COUNTY OF HAWAII**

Stephen K. Yamashiro
Mayor



Wayne G. Carvalho
Police Chief

James S. Correa
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2702

April 8, 1997

Mr. Ron Terry, Ph.D.
HCR 1, Box 9575
Keaau, HI 96749

Dear Dr. Terry:

**SUBJECT: ENVIRONMENTAL ASSESSMENT FOR PROPOSED KEAAU-PAHOA
12-INCH WATERLINE EXTENSION**

This is in response to your March 19, 1997, request for comments on any special environmental conditions or impacts related to the proposed Keaau-Pahoa 12-inch waterline extension project.

We have no comments or objections to offer at this time.

Please send us a copy of the environmental assessment upon its completion.

Thank you for the opportunity to comment.

Sincerely

WAYNE G. CARVALHO
POLICE CHIEF


JAMES S. CORREA
DEPUTY POLICE CHIEF
ACTING POLICE CHIEF

JK:lk

Stephen K. Yamashiro
Mayor



Virginia Goldstein
Director

Norman Olesen
Deputy Director

County of Hawaii

PLANNING DEPARTMENT

25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-9615

May 1, 1997

Mr. Ron Terry, Ph.D.
HCR 1, Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Request for Comments

**RE: Preparation of Draft Environmental Assessment for Proposed
Keaau-Pahoia 12-inch Waterline Extension (3/19/97)**

TMK: 1-5-17 thru 15 & 1-5-10: 3, 4, 17, & 13

Thank you for the above-referenced letter requesting comments on any special environmental conditions or impacts that may arise from the development of the proposed waterline extension. Our comments are given below pursuant to Hawaii Administrative Rule 11-200-9(a)(1) as the county agency responsible for implementing the Hawaii County General Plan (GP).

General Project Description According to the County's Department of Water Supply (DWS), the extension will be within and on the makai side of the state highway right-of-way; the extension will be 3.5 miles long, more or less; beginning approximately 500 feet south of Paradise Drive - Hawaiian Paradise Park subdivision extending until the Keonepoko Nui Tank and Pump Station.

A. Land Use Zonings & Designations

According to the departments' zoning maps, the extension will be across the plats or parcels listed below. The following land use information pertains to the plats or parcels: County Zoning Code, State Land Use, and the County's GP land use map designation.

| | | |
|-----------------------------------|-------------------|---|
| <u>TMK: 1-5-17, 16, 15</u> | - County Zoning: | A-1a |
| | - State Land Use: | "Agricultural" |
| | - GP Designation: | Orchards & Urban Expansion (Low, Medium, & High Density, Industrial & Open) |

Mr. Ron Terry, Ph.D.
Page 2
May 1, 1997

(1) County Zoning: Permitted Use According to the County Zoning Code, a public utility transmission line is a permitted use within any district; in addition, any DWS substation used for the purpose of furnishing water is a permitted use in any district, provided, that the Planning Director has issued plan approval for the substation use and it is not hazardous or dangerous to the surrounding area. Sec. 25-4-11(a) & (b).

* If this project will include substation structures then development plans will need to comply with Zoning Code requirements and obtain plan approval for the substation.

(2) State "Ag" District: Permitted Use The proposed project is a permitted use in the state "Ag" district and does not require a special permit.

Permitted Uses: In the state "Ag" district that are likely to pertain to this project are public utility lines and roadways, transformer stations, major water storage tanks, and appurtenant small buildings (e.g., booster pumping stations); permitted uses also include buildings and uses that are normally considered directly accessory to the permitted uses but are not limited to storage and processing facilities, maintenance facilities, and vehicle and equipment storage areas. Hawaii Revised Statutes sec. 205-4.5(a)(7) & (10).

Not Permitted: A sole baseyard use that is not accessory to any of the above permitted uses.

(3) Conforms to GP Designations: Orchards & Urban Expansion The proposed water service extension within the state highway right-of-way is consistent with the County's GP land use designation of Orchard/ Important Agricultural Lands (IAL) and Urban Expansion. The Puna Water Development site plan and the GP map indicates that most of the Keaau-Pahoa extension will be on designated Orchard lands with a portion in the designated Urban Expansion lands. Orchard lands are defined by the GP land use element of *Important Agricultural Lands (IAL)*. GP Support Document at 82. Although the lands within the project scope are designated for Orchard use, IA lands, however, are not characterized by agricultural productivity. IA lands have been designated by county policy or plans to be of greater benefit to the general public in some current or potential nonagricultural use.

Mr. Ron Terry, Ph.D.
Page 3
May 1, 1997

The County GP and the DWS plans to extend and connect water line service in the Puna district are the county policies and plans designating the Orchard lands within the project scope to be of greater benefit to the general public for nonagricultural use. The greater nonagricultural benefit is the existing highway right-of-way and for public utility water development to improve the Puna district's inadequate water system facilities.

(4) Consistent with GP Development Goals, Policies, Standards The proposed extension is consistent with the GP's development goals, policies, and standards and the Puna course of action for the public utility water element of that district. GP at 9-10, sec. 4J(1) & at 22, sec. 5A(5)(a).

(a) Public Utilities Water Development Goals, Policies Standards The extension project is consistent with the GP goals and policies to ensure that public utility services will be available to users; it will improve the existing utility service and effectively service the community need for public water; and, the extension improvements promotes the county's desired land use development pattern of that district as well as being installed in an area of established needs and characteristics, the Puna subdivisions of Hawaiian Paradise Park, Orchid Land Estates, and the Makuu subdivision.

(1) Public Utility Goals & Policies for Project Plans The development will need to incorporate in its design plans several of the GP's public utility water goals and policies.

Design It is a GP goal to have public utility facilities designed to fit into their surroundings or be concealed from public view. GP policy require public facilities to be designed to complement adjacent land uses, to minimize conflict with the natural environment and natural resources, and the facility is be operated so as to minimize pollution or disturbance.

These issues can be addressed in the preliminary plan approval process (before building permit approval) where design considerations can be reviewed with the project's elevation, site, and landscaping plans.

Supplemental Open Space Where practical, the county encourages that the development's public easement, the state highway right-of-way, be used as supplemental open space.

Mr. Ron Terry, Ph.D.
Page 4
May 1, 1997

Construction Standards The GP requires water systems to be designed and built to Department of Water Supply and Subdivision Control Code standards.

Fire Water distribution systems shall be coordinated with fire prevention systems to ensure water supplies for fire protection purposes.

- (2) Puna Water Course of Action The proposed water line extension and connection is consistent with the Puna course of action to improve inadequate water system facilities.

On behalf of my staff, I would like to thank you for this opportunity to offer comments on the pending Draft Environmental Assessment. Any clarification or discussion of questions that you may have on these comments can be made with Daryn Arai or Earl Lucero at 961-8288.

Sincerely,


VIRGINIA GOLDSTEIN
Planning Director

EML:mlm
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cc: Department of Water Supply
State of HI - Dept. of Transportation - Highway Division
Subdivision 3609

APPENDIX 2

NOTICE OF PUBLIC MEETING:

6 APRIL 1997 HAWAII TRIBUNE HERALD

NOTICE

**INFORMATIONAL MEETING
KEAAU-PAHOA ROAD PARADISE PARK SECTION
ROAD IMPROVEMENT AND WATERLINE EXTENSION
ATTENTION RESIDENTS OR LOT OWNERS IN PUNA,
ALONG OR ADJACENT TO THE KEAAU-
PAHOA ROAD FROM PARADISE DRIVE TO
THE VICINITY OF THE PAHOA LANDING STRIP**

An informational meeting will be held at 8:00 p.m. on Tuesday, April 15, 1997, at the Paradise Hul Hanalike Activity Center for those residents or lot owners along or adjacent to the area mentioned above who are interested in obtaining water service from the new water main to be installed as part of the State Highway's road improvement project, within the limits mentioned above.

The Paradise Hul Hanalike Activity Center is located within the Hawaiian Paradise Park Subdivision along Makuu Drive between 16th Avenue and 17th Avenue.

Items to be discussed at the meeting include a description of the road improvement and waterline extension projects, and also procedures and fees for water service application and schedule for installations.

**DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII**

in conjunction with

**STATE OF HAWAII DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

(9383—Hawaii Tribune-Herald: April 6, and 8, 1997)

APPENDIX 3

COMMENT LETTERS TO DRAFT EA

AND RESPONSES

Stephen K. Yamashiro
Mayor



Wayne G. Carvalho
Police Chief

James S. Correa
Deputy Police Chief

County of Hawaii
POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2702

August 1, 1997

Mr. Ron Terry, Ph.D.
HCR 1 Box 9575
Keaau, HI 96749

Dear Dr. Terry:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR KEAAU-PAHOA
WATERLINE EXTENSION EXPANSION, PUNA DISTRICT, ISLAND
OF HAWAII

This is in response to your July 23, 1997, request for comments on the draft environmental assessment for the above-proposed project..

We have reviewed the assessment and have no comments or objections to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

Wayne G. Carvalho
WAYNE G. CARVALHO
POLICE CHIEF

EO:lk

Stephen K. Yamashiro
Mayor



Virginia Goldstein
Director
Russell Kokubun
Deputy Director

County of Hawaii
PLANNING DEPARTMENT

25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-9615

August 13, 1997

Mr. Ron Terry, Ph.D.
HCR 1 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Draft Environmental Assessment for the Proposed Keaau-Pahoia 12-inch
Waterline Extension
Waikahekahe, Maku'u, Popoki, Halona and Keonepoko, Puna, Hawaii

Thank you for your July 23, 1997, letter requesting our review and comments of the above-described environmental assessment.

We have no objections to the information contained with the document or the action being proposed. However, we would like to take this opportunity to clarify a statement made within the draft EA. In Section 1.5 - Ownership and Land Use Designation and Controls on Page 5, the draft EA states that *"The area in which the activity will take place is within the right-of-way of State Highway 130 and is owned by the State of Hawaii. It is not identified by a Tax Map Key. County zoning and State Land Use Districts are not pertinent or applicable in such areas."* This statement is not correct with regards to zoning. Section 25-3-7 of the Zoning Code (Chapter 25) states that *"Unless otherwise designated in this chapter, the area of any street, right-of-way or easement is considered to be and shall be classified within the immediately adjacent [zone] district and if there be more than one district, then each [district] shall extend to the center of the street, right-of-way or easement."* Therefore, Highway 130 does maintain the zoning of adjacent zoned districts.

The proposed waterline improvements are defined as permitted uses by the Zoning Code pursuant to Section 25-4-11(a) which states that *"Communication, transmission, and power lines of public and private utilities and governmental agencies are permitted uses within any [zoned] district."*

Mr. Ron Terry, Ph.D.
Page 2
August 13, 1997

We hope the above clarifies zoning and its applicability to streets. Should you have any questions, please feel free to contact Daryn Arai of this office at 961-8288.

Sincerely,


for VIRGINIA GOLDSTEIN
Planning Department

DSA:cjf
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xc: Mr. Glen Ahuna, Dept. of Water Supply
Mr. Gary Gill, Office of Environmental Quality Control



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) ~~961-8660~~ • FAX (808) ~~961-8657~~
961-8660 961-8657

September 17, 1997

TO: Planning Department
FROM: Milton D. Pavao, Manager
SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR KEAAU-PAHOA 12-INCH WATERLINE
EXTENSION
PUNA DISTRICT, HAWAII ISLAND, STATE OF HAWAII

Thank you for your comments dated August 13, 1997 on the Draft EA for the subject project.

The EA has been amended to state that the subject streets and rights-of-way are classified in the immediately adjacent zone, and that the proposed waterlines are permitted uses pursuant to Section 25-4-11(a). We appreciate your clarification on this matter.

Should you have further questions, please call our Water Resources and Planning Branch at 961-8660.

Milton D. Pavao, P.E.
Manager

KKO:gms

copy - Mr. Ron Terry

... Water brings progress...



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813-5249
PHONE (808) 594-1888
FAX (808) 594-1885

August 19, 1997

Dr. Ron Terry
HCR, 1 Box 9575
Keaau, HI 96749

Subject: Draft Environmental Assessment (DEA) for Keaau-Pahoia 12-inch Waterline Extension., Island of Hawaii.

Dear Dr. Terry:

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for Keaau-Pahoia 12-inch Waterline Extension., Island of Hawaii.

The Office of Hawaiian Affairs (OHA) has no objections at this time to the proposed waterline. The project is located in the right-of-way of State Highway 130 and appears to bear no significant long-term adverse impacts on adjacent areas.

OHA cautions, however, that although there are no known archaeological sites reported on the project surface area, underground lava tubes with vestiges of human activity have been reported. OHA concurs with the applicant's comprehensive mitigation plan (page 14 of DEA) addressing the likelihood of finding archaeological remains. OHA also concurs with mitigation plans (page 10 of DEA) to minimize disruption in the event that Hawaiian bats (*Lasiurus cinereus semotus*) are spotted.

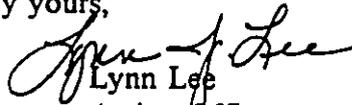
Letter to Dr. Terry
Page two

Please contact Lynn Lee, Acting Officer of the Land and Natural Resources Division, or Luis Manrique, should you have any questions on this matter.



Randall Ogata
Administrator

Sincerely yours,



Lynn Lee
Acting Officer,
Land and Natural
Resources Division

LM:lm

cc Trustee Clayton Hee, Board Chair
Trustee Abraham Aiona, Board Vice-Chair
Trustee Rowena Akana, Land & Sovereignty Chair
Trustee Haunani Apoliona
Trustee Billie Beamer
Trustee Frenchy DeSoto
Trustee Moses Keale
Trustee Colette Machado
Trustee Hannah Springer
CAC, Island of Hawaii



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) 961-8660 • FAX (808) 961-8657

September 17, 1997

Ms. Lynn Lee, Acting Officer
State of Hawaii
Office of Hawaiian Affairs
Land and Natural Resources Division
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR KEAAU-PAHOA 12-INCH WATERLINE EXTENSION
PUNA DISTRICT, HAWAII ISLAND, STATE OF HAWAII

Thank you for your comments dated August 19, 1997 on the Draft EA for the subject project. Your office may be assured that the Department of Water Supply shares your concern with protecting our natural and cultural resources and will fully implement the mitigation plan proposed in the Draft EA.

Should you have any further questions, please call our Water Resources and Planning Branch at 961-8660.

Milton D. Pavao, P.E.
Manager

KKO:gms

copy - Mr. Ron Terry

... Water brings progress...

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



KALI WATSON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879
HONOLULU, HAWAII 96805

August 22, 1997

Ron Terry, Ph.D
HCR 1 Box 9575
Keaau, Hawaii 96749

Subject: Draft Environmental Assessment
Keaau-Pahoia 12-inch Waterline Extension

Thank you for the opportunity to comment on the Draft Environmental Assessment (EA).

We believe that there will be no adverse long-term impacts to the environment due to this project.

For your information, a portion of the waterline, from Station 174+00 to Station 212+00 as shown on Figure 2, has been constructed as part of the Makuu Farm and Agricultural Lots: Phase 1 Subdivision.

In addition, we would like to clarify the last paragraph of Section 1.3: PROJECT DESCRIPTION, PURPOSE AND OBJECTIVES. The Department of Hawaiian Home Lands (DHHL) has provided the Hawaii County Department of Water Supply (DWS) with construction plans for building a high service 12-inch waterline and a low service waterline from the Makuu Subdivision at Station 212+00 to the Keonepoko Nui Well and reservoir site. Also, under a separate project, DHHL will construct an additional production well and supporting facilities at the Keonepoko Nui site. A separate Environmental Assessment will be provided for the well project.

Again, we appreciate the opportunity to comment on the Draft EA, and should you have any questions, please call Mr. Gerald Lee of our Land Development Division, at 586-3815.

Aloha,

A handwritten signature in cursive script, appearing to read "Kali Watson".

KALI WATSON, Chairman
Hawaiian Homes Commission

cc: Keith Okamoto (Department of Water Supply)



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) ~~961-8660~~ • FAX (808) ~~961-8657~~
961-8660 961-8657

September 17, 1997

Mr. Kali Watson, Chairman
State of Hawaii
Department of Hawaiian Home Lands
Hawaiian Homes Commission
P.O. Box 1879
Honolulu, Hawaii 96805

DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR KEAAU-PAHOA 12-INCH WATERLINE EXTENSION
PUNA DISTRICT, HAWAII ISLAND, STATE OF HAWAII

Thank you for your comments dated August 22, 1997 on the Draft EA for the subject project. Section 1.3 has been amended per your clarification.

Should you have any further questions, please call our Water Resources and Planning Branch at 961-8660.

A handwritten signature in black ink, appearing to read "M. Pavao", with a horizontal line extending to the right.

Milton D. Pavao, P.E.
Manager

KKO:gms

copy - Mr. Ron Terry

... Water brings progress...