

Hilo Medical Center
We Care for Our Community

September 14, 2012

Gary Hooser, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 South Beretania Street, Room 702
Honolulu, Hawai'i 96813

Dear Mr. Hooser:

Subject: Draft Environmental Assessment for Linear Accelerator Vault at Hilo Medical Center Oncology Unit, TMK (3rd) 2-3-031:003 South Hilo District, Island of Hawai'i

With this letter, the Hilo Medical Center hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA-FONSI) for the subject project for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word.

Please contact Julie-Beth Ako at (808) 932-3108 if you have any questions.

Sincerely,



Julie-Beth Ako
Hospital Systems Services Director

Enclosures as noted above

cc: Howard N. Ainsley, East Hawaii Region CEO (w/o enclosures)
Ron Terry, Ph.D., Project Environmental Consultant (w/o enclosures)
Boyd Murayama, Medical Group Practice Manager (w/o enclosures)

OCT 08 2012

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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

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**OEQC Publication Form
The Environmental Notice**

Name of Project: Linear Accelerator Vault at Hilo Medical Center Oncology Unit
Applicable Law: Chapter 343, HRS

Type of Document: Draft EA and Anticipated Finding of No Significant Impact (FONSI)

Island: Hawai'i

District: South Hilo

TMK: TMK (3rd.) 2-3-031:003

Permits Required: State Department of Health: UIC Permit (potential); County of Hawai'i, Department of Public Works: Grubbing and Grading Permits, Building Division Approval; County of Hawai'i, Planning Department Plan Approval

DEPT. OF ENVIRONMENTAL QUALITY CONTROL
12 SEP 19 P 3:30
RECEIVED

Name of Applicant or Proposing Agency: Hilo Medical Center
Address 1190 Waiuanue Avenue
City, State, Zip Hilo HI 96720
Contact and Phone Julie-Beth Ako, 932-3108



Approving Agency: Hilo Medical Center
Address 1190 Waiuanue Avenue
City, State, Zip Hilo HI 96720
Contact and Phone Julie-Beth Ako, 932-3108

OCT 08 2012

Consultant Geometrician Associates
Address PO Box 396
City, State, Zip Hilo HI 96721
Contact and Phone Ron Terry 969-7090

Project Summary. Hilo Medical Center (HMC), a State agency, seeks to construct a new building to house a Varian TrueBeam Linear Accelerator, which it would purchase and install in a specially built vault in order to improve radiation treatment for cancer at its Hawaii Pacific Oncology Center. The center currently uses an older model Linear Accelerator within the existing two-story 1285 Waiuanue building, which is immediately south of the subject property and also houses a Department of Veteran Affairs Clinic. The project site is a 10,001-square foot State property currently occupied by a 25-space, unpaved employee parking lot. It is directly across the emergency entrance to HMC.

The building to house the Linear Accelerator has not yet been designed but is expected to be one-story, with approximately 4,000 square feet of floor space accommodating the vault, control room, waiting area, changing room, and office/exam space. The appearance would match other facilities at the HMC campus. The final design will include walkways between the new building and the main Hawaii Pacific Oncology Center facilities, as well as landscaping and limited parking if they can be accommodated on the small lot. The parking spaces displaced by the building would be compensated for by adjacent HMC parking.

If archaeological resources are encountered during land-altering activities associated with construction, work in the immediate area of the discovery will be halted and the State Historic Preservation Division will be contacted. Sensitive receptors to noise are present and the contractor will be required to consult with the Department of Health, and, if appropriate, obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction, which may include various mitigation measures.

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**Distribution List for Linear Accelerator Vault
at Hilo Medical Center Oncology Unit Draft EA
(will be sent EA or letter announcing availability)**

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Hilo HI 96720

LIBRARY COPY

Librarian
Hilo Public Library
300 Waianuenue Avenue
Hilo HI 96720

Dear Participant:

Attached for your review is a Draft Environmental Assessment (DEA) and Anticipated Finding of No Significant Impact (FONSI) prepared pursuant to the EIS law (Hawaii Revised Statutes, Chapter 343) and the EIS rules (Administrative Rules, Title 11, Chapter 200).

Your comments must be received or postmarked by: **TBD**

Name of Project: Linear Accelerator Vault at Hilo Medical Center Oncology Unit

Island: Hawai`i

District: South Hilo

TMK: TMK (3rd.) 2-3-031:003

Please send original comments to:

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

If desired, send a With a copy to:

Hilo Medical Center
1190 Waianuenue Avenue
Hilo HI 96720
Julie-Beth Ako, 932-3108

If you no longer need the Draft EA, please recycle it. Thank you for your participation in the Environmental Assessment process.

DRAFT ENVIRONMENTAL ASSESSMENT

Linear Accelerator Vault at Hilo Medical Center Oncology Unit

TMK (3rd): 2-3-031:003
Pi'ihonua, South Hilo District, Hawai'i Island, State of Hawai'i

October 2012

Prepared for:

Hilo Medical Center
1190 Waianuenue Avenue
Hilo, Hawai'i 96720

DRAFT ENVIRONMENTAL ASSESSMENT

Linear Accelerator Vault at Hilo Medical Center Oncology Unit

TMK (3rd) 2-3-031:003 (por.)
Pi‘ihonua, South Hilo District, Island of Hawai‘i, State of Hawai‘i

**PROPOSING/
APPROVING AGENCY:**

Hilo Medical Center
Hawaii Health Systems Corporation
1190 Waiianuenue Avenue
Hilo, Hawai‘i 96720

CONSULTANT:

Geometrician Associates LLC
PO Box 396
Hilo, Hawai‘i 96721

CLASS OF ACTION:

Use of State Land and State funds

This document is prepared pursuant to:

The Hawai‘i Environmental Protection Act,
Chapter 343, Hawai‘i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai‘i Department of Health Administrative Rules (HAR).

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SUMMARY OF THE PROPOSED ACTION ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Hilo Medical Center (HMC), a State agency, seeks to construct a new building to house a Varian TrueBeam Linear Accelerator, which it would purchase and install in a specially built vault in order to improve radiation treatment for cancer at its Hawaii Pacific Oncology Center. The center currently uses an older model Linear Accelerator within the existing two-story 1285 Waianuenue building, which is immediately south of the subject property and also houses the Department of Veteran Affairs Community Based Outpatient Clinic. The project site is a 10,001-square foot State of Hawai'i property currently occupied by a 25-space, unpaved parking lot serving employees at 1285 Waianuenue. It is directly across the emergency entrance to HMC.

The building that would house the Linear Accelerator has not yet been designed but is expected to be one-story, with approximately 4,000 square feet of floor space accommodating the vault, control room, waiting area, changing room, and office/exam space. The appearance would match and blend in with other facilities at the HMC campus. The final design will include walkways between the new building and the main Hawaii Pacific Oncology facilities, as well as landscaping and limited parking if they can be accommodated on the small lot.

The approximately 25 employee parking spaces displaced by the building would be compensated for by adjacent HMC parking, including a lot built five years ago *makai* of the main HMC parking lot, where there is adequate space.

If archaeological resources are encountered during land-altering activities associated with construction, work in the immediate area of the discovery will be halted and the State Historic Preservation Division will be contacted. Sensitive receptors to noise are present and the contractor will be required to consult with the Department of Health, and, if appropriate, obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction, which may include various mitigation measures.

PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description and Location

Hilo Medical Center (HMC), a State agency, seeks to construct a new building to house a Varian TrueBeam Linear Accelerator, which it would purchase and install in a specially built vault in order to improve radiation treatment for cancer at its Hawaii Pacific Oncology Center. The center currently uses an older model Linear Accelerator within the existing two-story 1285 Waianuenue building, which is immediately south of the subject property and also houses the Department of Veteran Affairs Community Based Outpatient Clinic. The project site is a 10,001-square foot State of Hawai'i property currently occupied by a 25-space, unpaved parking lot serving employees at the 1285 Waianuenue Building (Figures 1-2). It is directly across the emergency entrance to HMC.

The building that would house the Linear Accelerator has not yet been designed but is expected to be one-story, with approximately 4,000 square feet of floor space accommodating the vault, control room, waiting area, changing room, and office/exam space. The appearance would match and blend in with other facilities at the HMC campus. The design contract is expected to be awarded in late 2012. The final design will include walkways between the new building and the main Hawaii Pacific Oncology facilities, as well as landscaping and limited parking if they can be accommodated on the small lot.

The approximately 25 employee parking spaces displaced by the building would be compensated for by adjacent HMC parking, including a lot built five years ago *makai* of the main HMC parking lot, where there is adequate space.

1.2 Purpose and Need

The Hawaii Pacific Oncology Center at Hilo Medical Center treats approximately 200 radiation oncology patients a year with 4,000-5,000 treatments for a variety of forms of cancer. Treatment facilities include oncologist consultation, radiation oncology, and chemotherapy. A critical component of dealing with many cancers is radiation treatment. A Linear Accelerator is the device most commonly used for external beam radiation treatments for patients with cancer. A Linear Accelerator is used to treat all parts/organs of the body. It delivers high-energy x-rays to the region of the patient's tumor. These x-ray treatments can be designed in such a way that they destroy the cancer cells while sparing the surrounding normal tissue. Current models now make it possible to offer greater patient comfort by shortening treatments and improve precision by leaving less time for tumor motion during dose delivery. "Intelligent" automation further speeds treatments with an up to five-fold reduction in the number of steps needed for image guidance and dose delivery. Linear Accelerator vaults are typically engineered with heavy layers of lead, steel plate and/or high-density concrete to contain the high-energy radiation produced by the accelerator, and no radioactive material is involved.

Figure 1. Project Location Map

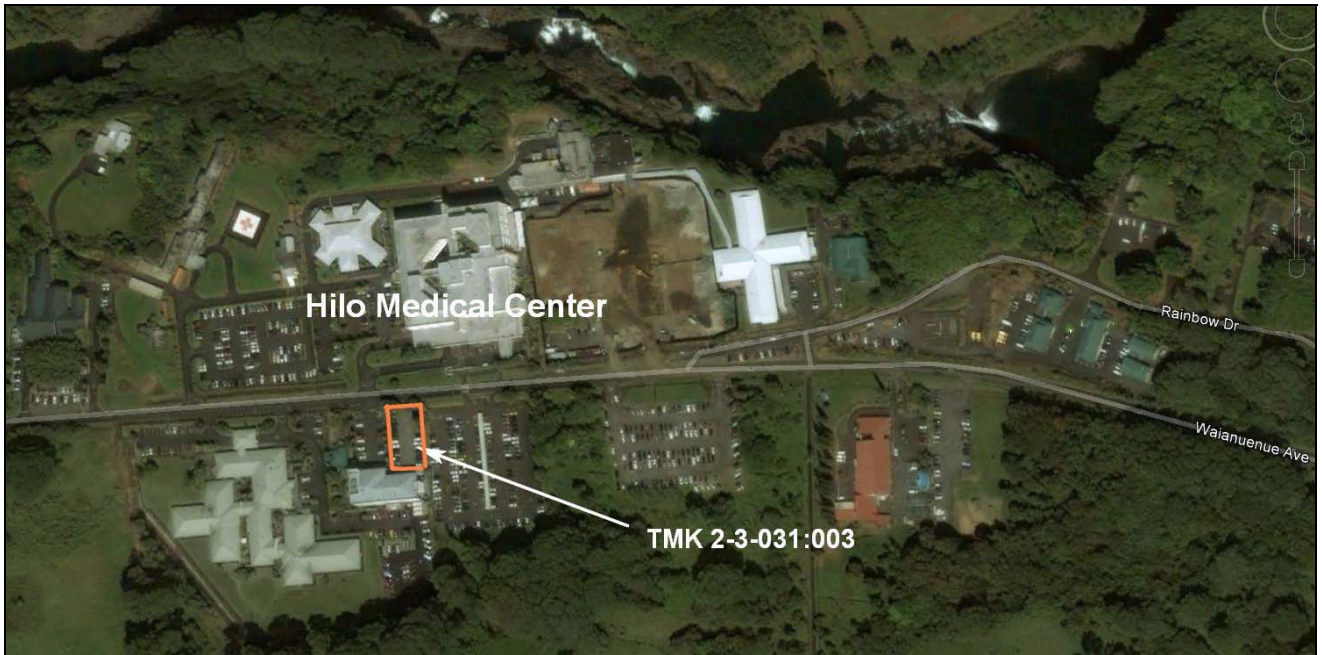
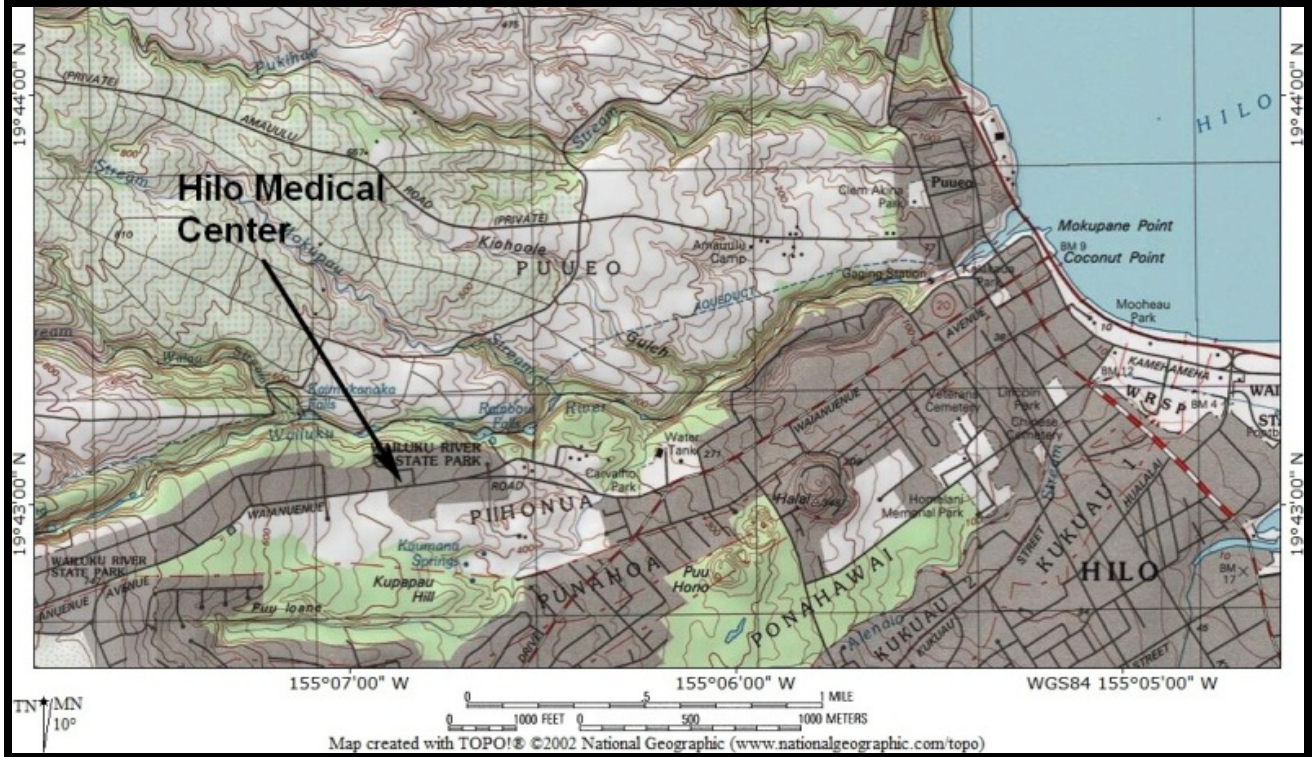


Figure 2. Project Site Photos



The Linear Accelerator at the Hawaii Pacific Oncology Center has been in operation since 2001. In March of 2011, HMC officials discovered a leak in the ceiling of the radiation vault around the existing Linear Accelerator at the back of the center. HMC administrators subsequently closed three small office spaces in the Veterans Affairs clinic directly upstairs from the leak. Subsequent independent testing by both the Veterans Affairs office and HMC determined that workers in the Veterans Affairs offices would not have been exposed to dangerous levels of radiation from the Linear Accelerator, from which radiation is emitted in brief bursts and which is usually inactive. During additional surveys to ensure the safety of the unit, they discovered an area in the rear of the building facing the parking lot that could also potentially leak radiation.

HMC had been planning for several years to upgrade its Linear Accelerator because it is beyond its normal useful life of seven years, and models with features that will improve treatment and comfort are now available. However, obtaining funding, identifying the proper location, and designing and building the facility is a multi-year process. As an interim solution to these issues, in August 2012 HMC placed an 8-foot-wide, by 8-foot-deep, by 20-foot-long shipping container filled with high-density, specially formulated concrete block adjacent to the exterior wall of the vault.

HMC officials have obtained funding and determined the most appropriate brand and model for the new unit – a Varian TrueBeam Linear Accelerator, the same model recently installed at Tripler Army Hospital in Honolulu. HMC also worked with neighboring medical facility users to identify the best location for the new facility, and are now ready purchase and install it in a vault inside a new building. As in other locations, the facility will be designed to determine the exact amounts and kinds of shielding materials needed to ensure the vault protects health and safety and complies with federal and state regulations.

As cancer treatment is a vital service of Hilo Medical Center, one of the most important medical facilities on the island, there is a critical need to provide a modern, effective Linear Accelerator, designed within a facility that will be engineered and managed to fully protect the safety of patients, workers, nearby uses and the general public.

1.3 Environmental Assessment Process

The project involves the use of State of Hawai‘i funds and land and thus requires compliance with Chapter 343, Hawai‘i Revised Statutes (HRS), the Hawai‘i Environmental Policy Act (HEPA). The Hawai‘i Medical Center (HMC) is both the proposing and approving agency for this Environmental Assessment (EA).

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

Part 4 of this document states the finding (anticipated in the Draft EA) that no significant impacts are expected to occur, based on HMC's findings for each significant criterion. In the EA process, if the approving agency determines after considering comments to the Draft EA that no significant impacts would likely occur, then it issues a FONSI (Finding of No Significant Impact), and the action is permitted to occur. If the agency concludes that significant impacts are expected, then an Environmental Impact Statement (EIS) is prepared.

1.4 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the Environmental Assessment.

State:

Department of Health, Environmental Planning Office
Department of Land and Natural Resources, Land Division
Department of Land and Natural Resources, Historic Preservation Division

County:

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

Organizations and Individuals:

American Cancer Society
Hale Anuenue Restorative Care Center
Hawai'i Island Chamber of Commerce
Hawaii Pacific Oncology Center
Hilo Medical Investors Ltd.
Life Care Centers of American
Neighboring Resident
Sierra Club

Copies of communications received during preconsultation are contained in Appendix 1a.

PART 2: ALTERNATIVES

2.1 No Action

Under the No Action Alternative, the Linear Accelerator facility would not be built. The temporary solution for the radiation leak issue at the existing Hawaii Pacific Oncology Center (HPOC) would remain in place for only as long as the adjacent landowner allowed and until such time that a permanent solution for its mitigation is found and implemented. The expanded and improved cancer treatment planned for patients at Hilo Medical Center would not be possible. The 25-space, unpaved parking lot would remain in place to serve employees of the HPOC and the Department of Veteran Affairs Community Based Outpatient Clinic.

2.2 Alternative Locations

Hilo Medical Center officials determined that for a number of reasons, cancer treatment should remain in close proximity to Hilo Medical Center as the preferred method of the delivery of health care is to locate “like kind” services as close to one another as possible for patients’ ease of use. As oncology consultations and chemotherapy treatment would continue in the existing HPOC, the most efficacious location of the Linear Accelerator facility is adjacent to the HPOC. During early phases of project planning, Hilo Medical Center officials examined and analyzed a number of locations in the general the area and determined that expansion of the HPOC into the existing 1285 Waianuenue Building parking lot site would provide the best overall location for the required function, as it is directly across Waianuenue Avenue from the Medical Center and adjacent to the HPOC and its existing parking lot. As there do not appear to be any environmental or other disadvantages associated with the proposed site, and no other vacant land is available nearby, no alternative sites have been advanced for study in the Environmental Assessment. The proposed site also has the advantage of being State property and will thus be available to the Hilo Medical Center for negligible or no cost, and acquisition will therefore not impose a financial burden on the public.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The property upon which the Linear Accelerator vault and building would be built is referred to throughout this EA as the *project site*. The term *project area* is used to describe the Hilo Medical Center campus, associated facilities, and surrounding areas.

The proposed project site is located at approximately 480 feet in elevation on Waianuenue Avenue, across the street from the main buildings of Hilo Medical Center and adjacent to the Hawaii Pacific Oncology Center and its existing paved parking lot (see Figs. 1-2). The vegetation of the general area has been extensively modified by sugar cane agriculture, and later medical facility construction, including parking lots. The entire project site is occupied by a gravel-covered parking lot of 25 spaces used by employees at the 1285 Waianuenue Avenue building.

The average maximum daily temperature in the project area is approximately 75 degrees F., with an average minimum of 65 degrees, and annual rainfall averages approximately 200 inches (U.H. Hilo-Geography 1998:57). Adjacent land is primarily utilized by medical facilities, including the Hale Anuenue Restorative Care Center, the Hawaii Pacific Oncology Center and the Department of Veteran Affairs Community Based Outpatient Clinic. Directly across Waianuenue Avenue from the proposed project area are the main facilities of the Hilo Medical Center campus, and *makai* of this is the Yukio Okutsu State Veterans Home, a long-term care facility.

3.1 Physical Environment

3.1.1 Geology, Soils and Geologic Hazards

Environmental Setting

Geologically, the project site is located on the lower flank of Mauna Loa near Wailuku Stream (commonly called the Wailuku River). The surface consists of weathered ash soils on Pleistocene-era (greater than 10,000 years old) lava flows from Mauna Loa. The project site soil is classified by the U.S. Natural Resources Conservation Service (formerly Soil Conservation Service) as Hilo silty clay loam, which forms on layers of volcanic ash. Permeability is rapid, runoff moderate, and erosion hazard slight to moderate (U.S. Soil Conservation Service 1973).

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the U.S. Geological Survey in this area of Hilo is 3 on a scale of ascending risk 9 to 1 (Heliker 1990:23). The high hazard risk is based on the fact Mauna Loa is presently an active volcano. Volcanic hazard zone 3 areas have had 1-5 percent of the land area covered by lava or ash flows since the year 1800, and are at lower risk than zone 2 areas because

of their greater distances from recently active vents and/or because the local topography makes it less likely that flows will cover these areas.

In terms of seismic risk, the entire Island of Hawai‘i is rated Zone 4 Seismic Hazard (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the proposed project and it is not imprudent to implement.

3.1.2 Drainage, Water Features and Water Quality

Existing Environment

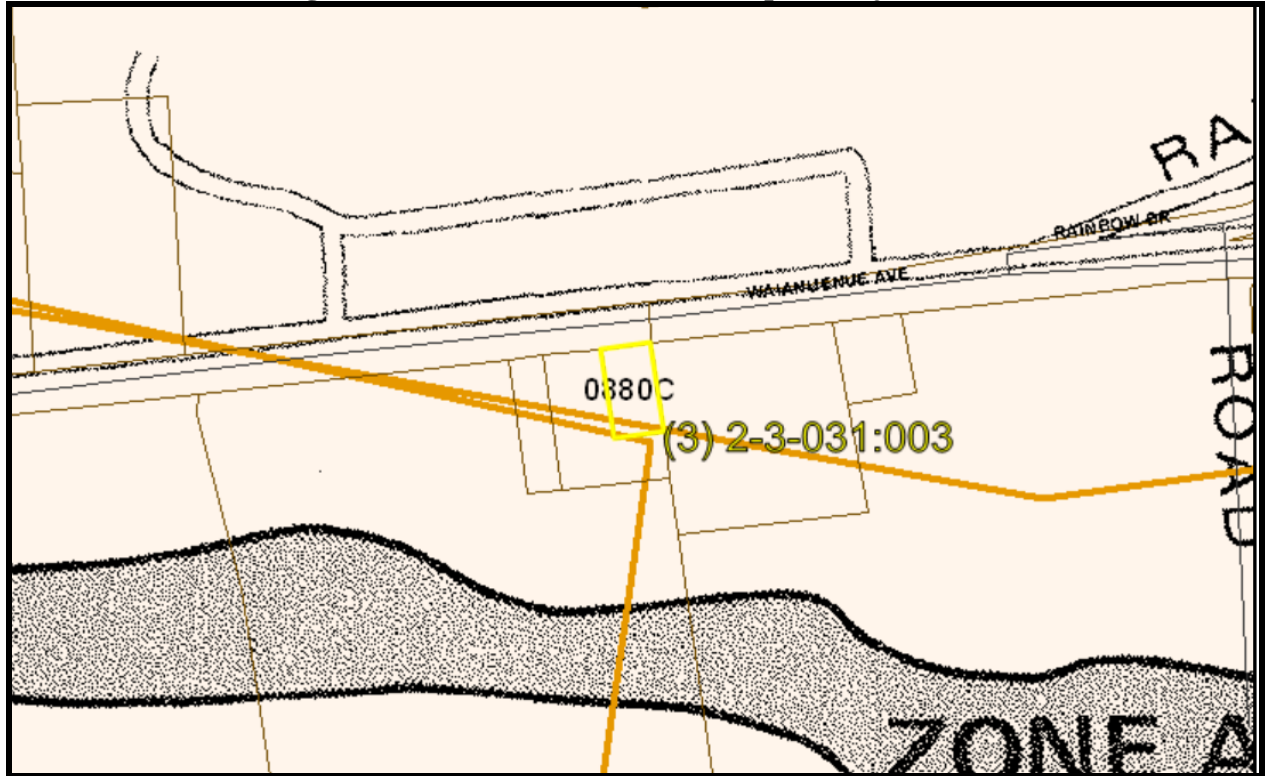
The Pi‘ihonua district has a number of surface water bodies, including Wailuku Stream, which is located about 0.2 miles north of the project site (see Figure 1). A small perennial tributary stream also flows about 0.2 miles south of the project site and merges with Wailuku Stream near Carvalho Park at the intersection of Kaumana Drive and Waianuenue Avenue. Additionally, a number of springs are found approximately 0.2 miles south of the project site. No streams or springs are present on or within 500 feet of the fully developed site itself. The *Hawai‘i Stream Assessment* (Hawai‘i State CWRM 1990) inventoried streams statewide (including over a hundred on the Hilo/Hamakua coast) for their water quality/supply, habitat, cultural and recreational resource value. Streams are ranked in various resource categories. Of particular importance are the *Candidate Streams for Protection*, which meet the criteria for either diversity of outstanding resources or “blue-ribbon resources.” Four such streams are present on the Hamakua/Hilo coast: Waikoloa, Kolekole, Honoli‘i, and Wailuku Streams. Wailuku Stream is listed as a candidate for both its scenic and recreational characteristics.

No stream poses a flooding hazard to the project site. The Flood Insurance Rate Map (FIRM) 880C (9/16/88) maps the project site within Zone X, outside the 500-year floodplain (Figure 3).

Impacts and Mitigation Measure

Because of the scale of the proposed project and the environmental setting, very little potential for impacts to water quality exist. The project will disturb much less than one acre and no other triggering conditions are present, and thus no National Pollutant Discharge Elimination System permit will be required. However, in order to minimize the potential for sedimentation and erosion, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai‘i County Code. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the project. These BMPs may include, but will not be limited to, the following:

Figure 3 Flood Insurance Rate Map of Project Site



Source: Hawai'i State Department of Land and Natural Resources: <http://gis.hawaiiifip.org/fhat/>

- Minimization of soil loss and erosion by stabilization of disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Application of protective covers to soil and material stockpiles;
- Construction and use of a stabilized construction vehicle entrance;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel; and
- Cleanup and disposal at an approved site of significant leaks or spills, if they occur.

The improvements will include engineered drainage, in conformance with applicable regulations, that will promote infiltration of storm water runoff and will therefore both protect surface water quality and prevent storm water runoff from leaving the site. The Hawai'i County Department of Public Works will be consulted during design and all applicable regulations will be adhered to.

3.1.3 Flora and Fauna

Existing Environment

The natural vegetation of this part of Hilo was most likely lowland rain forest dominated by 'ōhi 'a (*Metrosideros polymorpha*) and koa (*Acacia koa*) (Gagne and Cuddihy 1990). These original communities, however, have been destroyed or heavily degraded by sugarcane cultivation, cattle grazing, and clearing for farms and residences, and the vegetation of the project area is now either managed vegetation (i.e., farms, pasture or landscaped grounds) or adventive "communities" of various alien weeds. Inspection of the site in June 2012 indicated that the area is mostly paved and there was limited vegetation, all of it non-native. There are a few ornamental plants including croton (*Codiaeum variegatum*) and ti (*Cordyline fruticosa*) on the border. There are also various weeds periodically managed by cutting and herbicides, primarily hairy horseweed (*Conyza bonariensis*), Flora's paintbrush (*Emilia fosbergii*), Hilo grass (*Paspalum conjugatum*) and *Crassocephalum crepidioides*.

No listed, candidate or proposed endangered plant species were found or would be expected to be found on the project site. In terms of conservation value, no botanical resources requiring special protection are present.

The urban habitat of a small parking lot surrounded by buildings is not suitable for most native birds, although some common non-native birds such as Common Myna (*Acridotheres tristis*) are occasionally present. Hawaiian Hawks (*Buteo solitarius*) and Hawaiian hoary bats (*Lasiurus cinereus semotus*) are often seen in the area. Both are listed endangered species, and both are commonly observed in many parts of East Hawai'i. Hawks nest in tall trees between March and October. Bats roost in woody vegetation taller than 15 feet, and female bats while caring for their young in summer months are extremely vulnerable to disturbance. No vegetation suitable for hawk nests or bat roosts is present on or near the project site.

The endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*) may overfly the general project area. The primary cause of mortality in Hawai'i for both Hawaiian Petrels and Newell's Shearwaters is predation by alien mammalian species at the nesting colonies, followed by collision with man-made structures. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with manmade structures and, if not killed outright, become easy targets of predatory mammals.

Impacts and Mitigation Measures

Because of the lack of native ecosystems, or threatened or endangered plant species, no adverse impacts to botanical resources would occur as a result of clearing and improvements. All lighting installed for either construction or use of the road will be required to be shielded in conformance with the Hawai'i County Outdoor Lighting Ordinance (Hawai'i County Code, Article 9) to reduce the risk that seabirds may be attracted to and then disoriented by the lighting. Additionally, no nighttime construction work will be allowed during the seabird-fledging season,

which runs from September 15 through December 15 each year. Best Management Practices to prevent sedimentation and erosion that will be required during construction will prevent offsite impacts to water quality and aquatic habitat.

3.1.4 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air pollution in East Hawai‘i is minimal, and is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze (vog) that occasionally blankets the district. Persistent tradewinds keep the project area free of vog for most of the year.

Noise at the project site is moderate and derived mainly from motor vehicles, residential and maintenance activities. HMC in general and the Hawaii Pacific Oncology Center in particular, as well as the Hale Anuenue Restorative Care Center and an adjacent residence, are sensitive receptors to potential noise from construction and operation of the facility.

The project area contains several sites that are considered significant for their scenic character in the Hawai‘i County General Plan. Rainbow Falls and Kaimukanaka Falls are each located 0.3 miles north, beyond Hilo Medical Center. Boiling Pots is a mile *mauka* of the project site. The project site is not visible from these sites or lookouts for these sites, and is at a sufficient distance so that it will not affect the character or visual quality of these resources.

Impacts and Mitigation Measures

There may be short-term impacts to air quality and noise levels during construction. Due to the sensitive nature of nearby facilities, care will be taken to minimize these short-term impacts. There is potential for fugitive dust emissions during dry periods due to disturbance of soil. Adherence to best management practices (BMPs), including, but not limited to, covering stockpile materials and routine watering of bare, disturbed soil and fill/stockpile materials during dry periods may minimize this potential.

Development would entail limited excavation, grading, compressors, vehicle and equipment engine operation, and construction of new infrastructure. These activities could generate noise exceeding 95 decibels at times, impacting nearby sensitive noise receptors. If construction noise is expected to exceed the Department of Health’s (DOH) “maximum permissible” property-line noise levels, the contractor would be required to consult with DOH and may need to obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would review the proposed activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers.

Final design may include landscaping using native Hawaiian and Polynesian introduced flora, if sufficient room exists on the small site after meeting other needs. No important viewplanes or scenic sites recognized in the Hawai‘i County General Plan would be affected.

3.1.5 Hazardous Substances, Toxic Waste, and Hazardous Conditions

Based upon prior and present use of the project site, no hazardous substances or toxic materials are expected to be present on or beneath the parking lot that is the project site.

The project involves production and use of ionizing radiation. Not all radiation interacts with matter in the same way. Radiation that has enough energy to move atoms in a molecule around or cause them to vibrate, but not enough to remove electrons, is referred to as non-ionizing radiation. Examples of this are sound waves, visible light, and microwaves. Radiation types such as alpha rays, beta rays, gamma rays and X-rays fall within the ionizing radiation range and have enough energy to remove tightly bound electrons from atoms, thus creating ions. These are useful in diagnostic imaging, to kill cancer cells, and in many manufacturing processes. Care must be taken in any facility utilizing ionizing radiation to insure that it does not create potentially hazardous situations for personnel who work within the hospital, for patients or for the general public.

A Linear Accelerator is the device most commonly used for external beam radiation treatments for patients with cancer. The Linear Accelerator is used to treat all parts/organs of the body. It delivers high-energy x-rays to the region of the patient’s tumor. These x-ray treatments can be designed in such a way that they destroy the cancer cells while sparing the surrounding normal tissue. The Linear Accelerator uses microwave technology (similar to that used for radar) to accelerate electrons in a part of the accelerator called the “wave guide,” then allows these electrons to collide with a heavy metal target. As a result of the collisions, high-energy x-rays are produced from the target. These high energy x-rays are shaped as they exit the machine to conform to the shape of the patient’s tumor, and the customized beam is directed to the patient’s tumor.

The patient’s radiation oncologist prescribes the appropriate treatment volume and dosage. The medical radiation physicist and the dosimetrist determine how to deliver the prescribed dose and calculate the amount of time it will take the accelerator to deliver that dose. Radiation therapists operate the Linear Accelerator and give patients their daily radiation treatments.

Quality control of the Linear Accelerator is very important. There are several systems built into the accelerator so that it will not deliver a higher dose than the radiation oncologist has prescribed. Safety of the staff operating the Linear Accelerator is also important. The Linear Accelerator sits in a room with lead, steel and/or concrete walls so that the high-energy x-rays are shielded. The radiation therapist must turn on the accelerator from outside the treatment room. Because the accelerator only gives off radiation when it is actually turned on, the risk of accidental exposure is extremely low.

The design for the radiation therapy facility must be approved by a qualified physicist before construction following the rules above and has to be thoroughly surveyed by a qualified physicist after the construction and the installation of radiation machine before it can be licensed to treat patients. The State of Hawai‘i regulates the practice. Furthermore, the design is required to follow the rules set by the Department of Health to insure safety of the public, the worker and the patient (Title 11, Hawai‘i Administrative Rules, Chapter 45, “Radiation Control”).

The Linear Accelerator at the Hawaii Pacific Oncology Center will also install warning or caution signs as necessary and where appropriate, to warn unauthorized or unsuspecting personnel of a hazard and to remind authorized personnel. The amount of radiation outside of the building will be well below all state and federal guidelines for the general public. No warnings or precautions will be required outside of the vault, with the possible exception of occupying the roof for extended periods. Personnel monitoring is also conducted utilizing film badges that measure the radiation dose that workers receive while attending patients undergoing therapeutic or diagnostic procedures with radionuclides or radiation generation devices, such as fluoroscopes or the Linear Accelerator. This provides early notice if a worker’s exposure is not below the limits prescribed by law, and also provides a permanent record of the individual’s exposure.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic and Health Characteristics

The project would benefit the population of the County of Hawai‘i, in particular East Hawai‘i and Hilo, the largest population center on the island and a microcosm of the island’s demographics. Table 1 provides data on the socioeconomic characteristics of Hilo from the 2010 U.S. Census of Population.

Hilo has a diverse population with over 80 percent minorities, mainly Asian and Pacific Islanders, within one of the 100 fastest-growing counties in the U.S. It has a median age of over 40 years and more than 37 percent of the population is 65 or older, one of the oldest populations in the State of Hawai‘i. Several segments of the population that typically exhibit disadvantaged measures of social welfare are disproportionately represented in the population of Hilo as compared to the County or State of Hawai‘i. Median family income is 10 percent less than that of the County as a whole. More than 15 percent of individuals have income below the poverty level, double the statewide rate. Similar patterns pertain to households receiving welfare, food stamps, and disability payments.

According to the Hawai‘i State Department of Health (DOH) (<http://www.hhdw.org>), cancer is the second leading cause of death in Hawai‘i and in the U.S. From 2001 to 2005 there were almost 4,600 cancer deaths in Hawai‘i. Lung cancer was the leading cause of cancer mortality (36.8/100,000 population, age-adjusted), followed by cancer of the colon and rectum (21.1). Among men, the age-adjusted prostate cancer death rate was 18.8, and among women, the female breast cancer age-adjusted death rate was 18.0. During the same period, incidence of

Table 1. Selected Socioeconomic Characteristics of Hilo

SUBJECT	NUMBER	PERCENT
SEX AND AGE		
Total population	43,263	100.0
Median age (years)	40.5	(X)
16 years and over	35,193	81.3
65 years and over	7,807	18.0
RACE		
Total population	43,263	100.0
One Race	29,199	67.5
White	7,617	17.6
Black or African American	227	0.5
American Indian and Alaska Native	132	0.3
Asian	14,833	34.3
Asian Indian	49	0.1
Chinese	645	1.5
Filipino	2,637	6.1
Japanese	9,550	22.1
Korean	419	1.0
Native Hawaiian	4,467	10.3
Two or More Races	14,064	32.5
HOUSEHOLDS BY TYPE		
Total households	15,483	100.0
Family households (families)	10,287	66.4
With own children under 18 years	3,766	24.3
Female householder, no husband present	2,278	14.7
With own children under 18 years	1,027	6.6
Nonfamily households	5,196	33.6
Householder living alone	3,992	25.8
Households with individuals under 18 years	4,770	30.8
Households with individuals 65 years and over	5,386	34.8
Average household size	2.69	(X)
Average family size	3.20	(X)
HOUSING OCCUPANCY		
Total housing units	16,905	100.0
Occupied housing units	15,483	91.6
Vacant housing units	1,422	8.4
Rental vacancy rate (percent)	6.9	(X)

Source: 2010 U.S. Census of Population (<http://2010.census.gov/2010census/data/>)

cancer was considerably higher: 129.3/100,000 for prostate cancer, 126.0 for female breast cancer, 51.9 for lung cancer, 51.7 for cancer of the colon or rectum and 26.8 for cancer of the uterus. Continued advances in cancer research, detection, and treatment have resulted in a decline in both incidence and death rates for all cancers. Among people who develop cancer, more than half will be alive in five years (DOH: *Hawaii's Healthy People*, Ibid.).

According to the Hawai'i Cancer Society:

“Factors such as poverty, poor nutrition, lower education levels, limited access to health care and language barriers are known to influence the early detection of cancer and outcomes. Toxic environmental exposures, risky health behaviors, geographic isolation and genetics also play a role. Less understood factors perpetuate cancer health disparities among Native Hawaiians, Filipinos, Samoans, Pacific Islanders and people with lower income or lower educational attainment. Individuals in these groups are more likely to be underinsured or lack health insurance and could be disadvantaged by long distances to health services or a lack of culturally sensitive health care.

Cancer incidence and mortality rates...vary widely. The lowest incidence rates are seen among Filipino and Chinese females. Among females, Native Hawaiians have the highest incidence rate, followed by Whites. Among males, Whites have the highest incidence rates followed by Native Hawaiians and Japanese. In terms of cancer deaths, among both males and females, Native Hawaiians and Whites have the highest mortality for all cancer sites combined.”

The North Hawaii Outcomes Project reports in its *Community Health Profile, Hawaii County, Report 2012* (p. 35), that overall cancer death rates in the County of Hawai'i are generally higher than statewide rates, averaging over 160 incidences per 100,000 population from 1999-2009 compared to less than 150 for the State as a whole. According to the report:

“Higher overall cancer rates in Hawai'i County are likely to be related to higher smoking rates and may be related to inadequate access to primary care and lower cancer screening rates, as well as economic and social determinants of health .” (p. 35).

Impacts

Many cancer deaths can be prevented, particularly through lifestyle adjustments, regular health care, screening and early detection. Also important is the advanced treatment such as that offered by the proposed Linear Accelerator at Hilo Medical Center.

3.2.2 Cultural and Historic Resources

Existing Environment

The material in this section is based on previous archaeological reports and environmental assessments for Hilo Medical Center and other medical and recreational facilities nearby (Hilo Medical Center 2005; Sinoto 1978; Spear 1992), as well as a study of nearby Waiākea Ahupua‘a conducted by Maly (1996).

The purpose of the study was to document the presence of any historic properties or traditional cultural properties that might exist on the project site. Research and consultation were restricted because the activities are limited to a 10,001-square foot parking lot that is part of Hilo Medical Center. No undeveloped land or land with any cultural resources is involved.

The earliest historical knowledge of Hilo comes from legends written by Kamakau (1961) of a 16th century chief ‘Umi-a-Liloa (son of Liloa), who at that time ruled the entire island of Hawai‘i. Descendants of Umi and his sister-wife were referred to as “Kona” chiefs, controlling Ka‘ū, Kona, and Kohala, while descendants of Umi and his Maui wife were “Hilo” chiefs, controlling Hāmākua, Hilo, and Puna (Kelly 1981:1). According to Kamakau (1961), both sides fought over control of the island, desiring access to resources such as feathers, *māmaki* tapa, and canoes on the Hilo side, and *wauke* tapa, and warm lands and waters on the Kona side (c.f. Kelly 1981:3).

Sometime near the end of the 16th century or early in the 17th century, the lands of Hilo were divided into *ahupua‘a*, which till today retain their original names (Kelly 1981:3). These include the *ahupua‘a* of Pu‘u‘eo, Pi‘ihonua, Punahoa, Pōnohawai, Kūkūau and Waiākea. The design of these land divisions was such that residents could have access to all that they needed to live, with ocean resources at the coast, and agricultural and forest resources in the interior. However, only Pi‘ihonua and Waiākea provided access to the full range of resources stretching from the sea up to 6,000 feet along the slopes of Mauna Kea (Kelly 1981:5).

Historical accounts (McEldowney 1979) place the current study area in a zone of agricultural productivity. As Isabella Bird recorded upon arriving in Hilo in 1873:

“Above Hilo, broad lands sweeping up cloudwards, with their sugar cane, *kalo*, melons, pine-apples, and banana groves suggest the boundless liberality of Nature” (Bird 1964:38).

Handy and Handy (1972) also describe the general region as an agricultural area:

“On the lava strewn plain of Waiakea and on the slopes between Waiakea and Wailuku River, dry taro was formerly planted wherever there was enough soil. There were forest plantations in Panaewa and in all the lower fern-forest zone above Hilo town along the course of the Wailuku River” (Handy and Handy 1972:539).

Maly (1996) refers to a 1922 article from the Hawaiian Language newspaper, *Ka Nupepa Kū'oku'a*, where planting on *pāhoehoe* lava flats is described:

“There are *pahoehoe* lava beds walled in by the ancestors in which sweet potatoes and sugar cane were planted and they are still growing today. Not only one or two but several times forty (*mau ka'au*) of them. The house sites are still there, not one or two but several times four hundred in the woods of the Panaewa. Our indigenous bananas are growing wild, these were planted by the hands of our ancestors” (Maly 1996:A-2).

Pi'ihonua Ahupua'a

As part of an archaeological assessment study, Maly (1996) conducted historical research for the lands of Wainaku, Pōnohawai, Waiākea, and Pi'ihonua. He discusses the significance of the use of the Hawaiian word *wai* in the placenames: Pōnohawai, Waiākea, Wainaku, and Wailuku (River). According to Maly, the word *wai* (water) has strong metaphorical associations with the Hawaiian concept of wealth (*waiwai*), stressing its cultural importance (Maly 1996:A-2). In this context, the importance of Hilo can be better understood, with its copious streams that fed taro pondfields and its numerous fishponds. Maly refers to the origins of the names Waiākea and Pi'ihonua in the Hawaiian legend of Ka'ao Ho'oniua Pu'uwai no Ka-Miki. Pi'ihonua literally translates to: “Ascending Earth,” and the *ahupua'a* is named for Pi'ihonua-a-ka-lani, the brother of Waiākea and Pana'ewa, and the father of the chiefesses 'Ohele and Waiānuenue (Maly 1996:A-4).

Pi'ihonua along with Punahoa and Waiākea were held by Kamehameha I until the time of his death in 1819, at which time his holdings, including Pi'ihonua, were passed down to his son, Liholiho. Kelly (1981) speculates that Pi'ihonua may have been given to Chief Kalaeokekio by Kauikeaouli or Boki in 1828. Pi'ihonua was surrendered at the time of the *Māhele* and classified as Crown Land (Kelly 1981); no *kuleana* claims were registered for lands in the vicinity of the current subject property (Maly 1996). Following the *Māhele*, the population of Hilo grew and the scattered upland habitations gave way to sugar cultivation (McEldowney 1979:37). At the turn of the century, there were remnants of *heiau* and at least one intact *heiau* within Pi'ihonua. Thrum (1907) describes a *heiau* named Kaipālaloa that had been destroyed and another called Papio, which was purportedly for bird catchers and canoe builders. Stokes (1991) reported another *heiau* in Pi'ihonua called Pinao that was once located near the intersection of Waiānuenue and Ululani Streets (Maly 1996).

Beginning in the late 1880s Pi'ihonua was home to the Hawaii Mill Company, built on the Alenaio Stream (Kelly 1981). By 1905, according to Thrum (1923) the Hawaii Mill Company had 10 miles of cane flumes and produced twenty-five tons of sugar per day. In 1920 Hawaii Mill Company was taken over by the Hilo Sugar Company (Kelly 1981). Commercial sugar production lasted in Pi'ihonua until the mid-twentieth century, at which time many of the fields were converted to pasturage associated with cattle ranching.

The 10,001-square foot project site was extensively disturbed by mechanized sugar cane agriculture and then later bulldozed and surfaced as a parking lot. As discussed in the next section, no significant archaeological remains reflecting cultural history or supporting cultural values are present. Furthermore, no caves, springs, *pu'u*, native forest groves, gathering resources or other natural features are present on or near the project site. Vegetation is mostly absent and does not contain the quality and quantity of resources that would be important for native gathering.

Impacts and Mitigation Measures

As part of the current study an effort was made to obtain information about any potential traditional cultural properties and associated practices that might be present, or have taken place in upper Pi'ihonua Ahupua'a. The Office of Hawaiian Affairs was contacted but had no information relative to the existence of traditional cultural properties at the parking lot that comprises the small project site; nor did they provide any information indicating current use of the area for traditional and customary practices.

As no resources or practices of a potential traditional cultural nature (i.e., landform, vegetation, etc.) appear to be present on or near the project site, and there is no evidence of any traditional gathering uses or other cultural practices, the proposed construction and use of the Linear Accelerator would not appear to impact any culturally valued resources or cultural practices.

The State Historic Preservation Division (SHPD) was contacted by letter on July 27, 2012, and asked to concur on the determination that the proposed action would have no effect on historic properties. As of September 10, 2012, no response has been received. The Final EA will report on the response of SHPD.

In the unlikely event that archaeological resources are encountered during grading or construction, work in the immediate area of the discovery will be halted and DLNR-SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

3.3 Infrastructure

3.3.1 Utilities

Existing Facilities and Services

Electrical power to the project site is supplied by Hawai'i Electric Light Company (HELCO), a privately owned utility company regulated by the State Public Utilities Commission, via their island-wide distribution network.

Potable water, telephone/Cable TV service is available at the project site. Wastewater from HMC is treated in Hilo's municipal wastewater system.

Impacts and Mitigation Measures

The project imposes only modest demands on most utility services and does not require any mitigation or special planning. Project design, which is not yet underway, will include utility services. A Linear Accelerator requires considerable electrical power when operating, although they only operate a small percentage of the time. Average power consumption for the proposed model is estimated at 45kVA. This would not have any substantial impact on existing electrical facilities or HELCO's ability to provide electricity. Appropriate coordination with HELCO will be conducted during the design and construction of the improvements.

3.3.2 Roads and Parking

Existing Facilities

Waianuenue Avenue, which provides access to the project site (see Figure 1), is a relatively narrow two-lane road with only intermittent shoulders, maintained by the County of Hawai'i. The project site is accessed by a driveway *mauka* of the main parking area for Hilo Medical Center, which has a pedestrian crosswalk with a signal and warning lights.

Impacts and Mitigation Measures

In the short-term, construction has at least some potential to cause traffic congestion. However, as little of this work will require obstruction of traffic on Waianuenue Avenue, impacts on traffic will be minimal. Furthermore, the contractor will be required to develop a traffic control plan during the design phase of the project that will outline the steps necessary to minimize congestion and maintain access to adjacent properties at all times during construction, with particular attention to access for emergency vehicles. This traffic control plan will be coordinated with HMC to ensure that it does not interfere with the facility's essential operations, particularly emergency services, the driveway for which is directly across Waianuenue Avenue.

The approximately 25 employee parking spaces displaced by the building would be compensated for by adjacent HMC parking, including a lot built five years ago *makai* of the main HMC parking lot, where there is adequate space.

3.4 Secondary and Cumulative Impacts

The proposed project will not involve any long-term secondary impacts, such as population changes or effects on public facilities, because it simply enables Hilo Medical Center to provide greater access to health care. Although the project will provide some short-term construction jobs, these would almost certainly be filled by local residents and would not induce in-migration.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. No known projects with substantial construction or other impacts are known to be in progress or planning for the project area, although there is a slight possibility that renovation of the second

floor of the 1285 Waianuenue Building could occur within a portion of the timeframe at which the new facility is being built. HMC officials will be able to coordinate tasks to ensure that if there is schedule overlap, minimal disruption to traffic and staging logistics occur.

3.5 Required Permits and Approvals

- Hawai‘i County Building Division Approval
- Hawai‘i County Planning Department Plan Approval
- Hawai‘i State Department of Health Underground Injection Control Permit (potential)

3.6 Consistency With Government Plans and Policies

3.6.1 Hawai‘i State Plan

Adopted in 1978 and last revised in 1991 (Hawai‘i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State’s long-run growth and development activities. The three themes that express the basic purpose of the *Hawai‘i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The proposed project would promote these goals by assisting Hilo Medical Center to better treat cancer, which will benefit Hawai‘i County and the Hilo community.

3.6.2 Hawai‘i County General Plan and Zoning

The *General Plan* for the County of Hawai‘i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai‘i. The current plan was adopted by ordinance in 2005. The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai‘i. Most relevant to the proposed project are the following Standard and Course of Action:

Policies, Public Facilities, Health and Sanitation

- (a) Encourage the development of new health care facilities or the improvement of existing health care facilities to serve the needs of Hamakua, North and South Kohala, and North and South Kona.

Standards, Public Facilities (1): Health and Sanitation

Hospitals should be on sites capable of handling moderate expansion of facilities. Quiet surroundings, convenient and adequate access, and compatibility with adjoining uses shall be required.

Courses of Action: South Hilo: Public Facilities: Health and Sanitation:

Improvement and expansion of hospital facilities shall be undertaken as the need arises.

Discussion: The proposed project satisfies relevant standards and courses of action related to Public Health and Sanitation Facilities in Hawai‘i County and the South Hilo District. Other relevant aspects of the General Plan relate to protection of natural and cultural resources and public safety and facilities. The proposed project will not adversely affect any natural or cultural resources or involve public safety or facility impacts.

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

Hawai‘i County Zoning and SMA. The project site is zoned single family residential (RS-10) by the County. Section 25-4-11 of the County Zoning Code allows for public uses that fulfill a government function within this zone, and the proposed facility is a permitted use. According to the County Planning Department (letter of August 15, 2012, in Appendix 1a), the Zoning Code specifies that Plan Approval shall be required for all public uses permitted under 25-4-11. The property is not situated within the County’s Special Management Area (SMA).

3.6.3 Hawai‘i State Land Use Law

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

PART 4: DETERMINATION , FINDINGS AND REASONS

4.1 Determination

Based on the findings below, Hilo Medical Center expects that the proposed project will not have any significant effect in the context of Chapter 343, Hawai‘i Revised Statutes and Chapter 11-200-12 of the State Administrative Rules, and intends to issue a Finding of No Significant Impact (FONSI). This conclusion will be finalized after review of comment letters on the Draft EA.

4.2 Findings and Supporting Reasons

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

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resources would be committed or lost.
2. *The proposed project will not curtail the range of beneficial uses of the environment.* No restriction of beneficial uses would occur.
3. *The proposed project will not conflict with the State’s long-term environmental policies.* The State’s long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project is minor, environmentally beneficial, and fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State’s long-term environmental policies.
4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The project would improve the social welfare of the community and State by improving access to cancer care and the improvement of health care facilities.
5. *The proposed project does not substantially affect public health in any detrimental way.* The project would affect public health and safety in only beneficial ways by providing a facility to improve cancer treatment at Hilo Medical Center.
6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* No secondary effects are expected to result from the proposed action, which would simply provide a facility to improve cancer treatment at Hilo Medical Center.
7. *The proposed project will not involve a substantial degradation of environmental quality.* The project is minor and environmentally benign, and would thus 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.* The project site is a 10,001-square foot parking lot with no natural vegetation or habitat. Impacts to rare, threatened or endangered species of flora or fauna will not occur.
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.* No known projects with substantial construction or other impacts are known to be in progress or planning for the project area, although there is a slight possibility that renovation of the second

floor of the 1285 Waiuanue Building could occur within a portion of the timeframe at which the new facility is being built. HMC officials will be able to coordinate tasks to ensure that if there is schedule overlap, minimal disruption to traffic and staging logistics occur.

10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No adverse effects on these resources would occur. Mitigation of construction-phase impacts will preserve water quality. Sensitive receptors to noise exist and the contractor will be required to consult with the Department of Health, and, if appropriate, obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction, which may include various mitigation measures.

11. *The project does not affect nor would it likely be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai'i shares this risk, and the project is not imprudent to construct.

12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic vistas and viewplanes will be adversely affected by the project.

13. *The project will not require substantial energy consumption.* With the decommissioning of the existing Linear Accelerator and the commissioning of the new Linear Accelerator, average energy consumption from the installation of the new unit will be net neutral. No adverse effects would be expected.

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ENVIRONMENTAL ASSESSMENT

Linear Accelerator Vault at Hilo Medical Center Oncology Unit

Hilo Medical Center

Appendix 1a Responses to Early Consultation

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NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 7, 2012

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

via email: rterry@hawaii.rr.com

Dear Mr. Terry:

**SUBJECT: Early Consultation for Linear Accelerator Vault at Hilo Medical Center
Oncology Unit, South Hilo, Hawaii; TMK: (3) 2-3-031-003**

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

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

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)



12 JUL 18 2012
WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 17, 2012

MEMORANDUM

RECEIVED
LAND DIVISION
2012 AUG --2 P 1:52
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Hawaii District
- Historic Preservation

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Early Consultation for Linear Accelerator Vault at Hilo Medical Center Oncology Unit

LOCATION:

South Hilo, Hawaii; TMK: (3) 2-3-031-003

APPLICANT:

Geometrician Associates, LLC for Hilo Medical Center

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

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

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Carty Chang*

Print Name: CARTY CHANG, CHIEF ENGINEER

Date: 7/31/12

cc: Central Files

**DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION**

LD/KevinMoore

RE: EarlyConsultAcceleratorVaultHiloMedCenter
Hawaii.574

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The Flood Insurance Program does not have any regulations for developments within Flood Zone X.**
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

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

- () Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.
 - () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
 - () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
 - () Mr. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.
- () The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.
 - () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
 - () Additional Comments: _____

 - () Other: _____

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

Signed: 
CARTY S. CHANG, CHIEF ENGINEER

Date: 1/31/12



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION

2012 JUL 24 A 10:11

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
LAND DIVISION
HILO, HAWAII

2012 JUL 19 A 11:51

July 17, 2012

MEMORANDUM

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

FROM: *[Signature]* Russell Y. Tsuji, Land Administrator

SUBJECT: Early Consultation for Linear Accelerator Vault at Hilo Medical Center Oncology Unit

LOCATION: South Hilo, Hawaii; TMK: (3) 2-3-031-003

APPLICANT: Geometrician Associates, LLC for Hilo Medical Center

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

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

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *[Signature]*

Print Name: GORDON C. HEIL

Date: 7/20/12

cc: Central Files

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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



RECEIVED
STATE PARKS DIV



'12 JUL 18 12:01

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DEPT OF LAND &
NATURAL RESOURCES

July 17, 2012

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – Hawaii District
- Historic Preservation

RECEIVED
LAND DIVISION
2012 JUL 24 P 3 01
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Early Consultation for Linear Accelerator Vault at Hilo Medical Center
Oncology Unit

LOCATION:

South Hilo, Hawaii; TMK: (3) 2-3-031-003

APPLICANT:

Geometrician Associates, LLC for Hilo Medical Center

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

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

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *[Signature]*
Print Name: David S. Quinn
Date: 7/23/12

cc: Central Files

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

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

In reply, please refer to:
File:

July 26, 2012

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

Dear Mr. Terry:

This correspondence is in response to your request for comments to the pre-Environmental Assessment for the Hilo Medical Center Oncology Unit Project (TMK: (3) 2-3-031: 003), Hilo, Hawaii.

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

- Chapter 11-39 Air Conditioning & Ventilating
- Chapter 11-45 Radiation Control
- Chapter 11-46 Community Noise Control

Should you have any questions, please contact me at (808) 586-4700.

Sincerely,

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

Jeffrey M. Eckerd
Program Manager
Indoor and Radiological Health Branch

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

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

In reply, please refer to:
File:

12-129
Linear Accelerator

July 23, 2012

Ron Terry, Ph.D.
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Dr. Terry:

**SUBJECT: Early Consultation for Linear Accelerator Vault at Hilo Medical Center
Oncology Unit, Hilo, Island of Hawaii, TMK: (3) 2-3-031: 003**

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter, dated **July 12, 2012**. Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Laura Leialoha Phillips McIntyre".

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

William P. Kenoi
Mayor



Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

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

July 24, 2012

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

Dear Mr. Terry,

**SUBJECT: EARLY CONSULTATION FOR LINEAR ACCELERATOR
VAULT AT HILO MEDICAL CENTER ONCOLOGY UNIT
TMK: (3RD) 2-3-031:003**

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

Thank you for the opportunity to comment. A copy or Notice of Availability of Environmental Assessment is not needed when completed.

Sincerely,

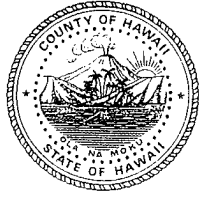
A handwritten signature in black ink, appearing to read "DR".

DARREN J. ROSARIO
Fire Chief

RP:lc



William P. Kenoi
Mayor



Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai'i

POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-8865

August 1, 2012

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

Dear Mr. Terry:

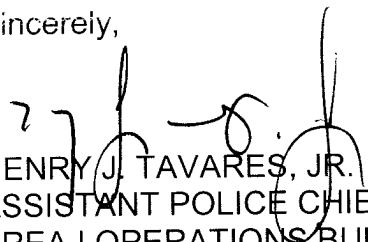
SUBJECT: EARLY CONSULTATION FOR LINEAR ACCELERATOR VAULT AT
HILO MEDICAL CENTER ONCOLOGY UNIT, HILO, ISLAND OF
HAWAII: TMK: (3rd)2-3-031:003

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or other public safety concerns. We are not requesting a copy of the Draft EA when completed.

Thank you for allowing us the opportunity to comment.

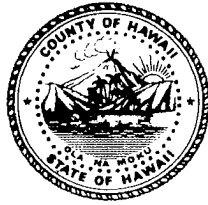
If you have any questions, please contact Captain Robert Wagner, S. Hilo Patrol Commander, at 961-2214.

Sincerely,


HENRY J. TAVARES, JR.
ASSISTANT POLICE CHIEF
AREA I OPERATIONS BUREAU

RW:lli
120433

William P. Kenoi
Mayor



BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

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

County of Hawai'i
PLANNING DEPARTMENT

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

August 15, 2012

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

Dear Mr. Terry:

Subject: Pre-Consultation for Draft Environmental Assessment
Project: Linear Accelerator Vault at Hilo Medical Center
TMK: (3) 2-3-031:003; Pi'ihonua, South Hilo, Hawai'i

Thank you for your letter dated July 12, 2012, requesting comments from this office regarding the preparation of a Draft Environmental Assessment (DEA) for the subject project.

The Hilo Medical Center, a State agency, proposes to construct a Varian TrueBeam Linear Accelerator Vault at the Hilo Medical Center Oncology Unit to improve its cancer treatment services. The project would take place on the subject property currently being used as a parking lot.

The subject property consists of 10,001 square feet and is zoned Single-Family Residential (RS-10) by the County. The property is situated within the State Land Use Urban District. In addition, the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the parcel as Low Density Urban. The subject parcel is not located within the Special Management Area (SMA).

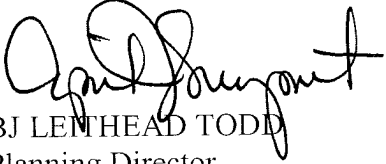
Please note that Section 25-2-71(c)(2) of the Hawai'i County Code (Zoning) states that Plan approval shall be required for all public uses, structures and buildings and community buildings, as permitted under section 25-4-11. Therefore, Plan approval will be required for the proposed Varian TrueBeam Linear Accelerator Vault and related improvements.

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

Mr. Ron Terry
Geometrician Associates, LLC
Page 2
August 15, 2012

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

Sincerely,


BJ LENTHEAD TODD
Planning Director

BJM:bjm

P:\wpwin60\Bethany\EA-EIS Review\preconsultdraft\Linear Accelerator Vault Hilo Medical Center.doc

Re: Early Consultation for Linear Accelerator Vault at Hilo Medical Center
Oncology Unit, Hilo, Island of Hawai'i: TMK: 2-3-031:003

Ron,

Sorry – Lyle just uncovered your July 12, 2012 communication on the above project.

DEM has no comments to offer on this project.

Aloha,

Sharron Henry
Secretary to the Director
County of Hawai'i
Department of Environmental Management
Mailing Address: 25 Aupuni Street
Physical Address: Puainako Town Center,
2100 Kanoelehua
Hilo, HI 96720

Phone: 808.961.8083 or 808.981.8398

Fax: 808.961.8086 or 808.981.2092

Email: schenry@co.hawaii.hi.us

cohdem@co.hawaii.hi.us

<http://www.hawaiicounty.gov/environmental-management>

Hawai'i County is an equal opportunity provider and employer