

I. INTRODUCTION: DRAFT ENVIRONMENTAL ASSESSMENT

Project Name: Erosion Control & Slope Stabilization Plan
Wichman Residence on Tantalus

Proposing Agency: Department of Land and Natural Resources (DLNR)
Office of Conservation and Coastal Lands

Approving Agency: Department of Land and Natural Resources (DLNR)
Office of Conservation and Coastal Lands

Project Location: Tantalus Residential Community
Honolulu, Hawaii
Tax Map Key: (1) 2-5-014:012

Property Owner: Charles R. Wichman

Applicant: Charles R. Wichman

SLU Classification: Conservation, Limited Subzone

Anticipated Determination of Environmental Assessment:

A Finding of No Significant Impact (FONSI) is expected for the project.

II. SUMMARY OF PROPOSED ACTIONS

A. Project Purpose and Need

The Applicant, Charles R. Wichman, owner of Tax Map Key: (1) 2-5-014:012, is proposing to repair and stabilize the slope below his driveway in order to prevent eroding soils from blocking Kalaiopua Place thereby obstructing the neighboring residents from accessing their properties.

The Applicant has lived at this location since 1966 and the home on this property was built in 1952. The Applicant accesses his property via a private concrete driveway that comes off of Kalaiopua Place (a county owned road). The private concrete driveway runs parallel to and above lower Kalaiopua Place. At the location of the slope repair and stabilization project the driveway is about 30 feet above the county road (see plans in Exhibit 6). The slope between the driveway and the county road is steep and is covered with various forms of non-native vegetation. Several sections of the adjacent slope are supported by rock retaining walls that were built when the driveway and home was constructed in 1952.

The proposed erosion control and stabilization project is now required due to several factors which have each contributed to the current situation. These factors are described below.

In July 2005, a storm with high winds and heavy rains hit Oahu and a large kukui tree growing near the top of the slope adjacent to the Applicant's driveway was uprooted. The tree fell down the slope taking down power and telephone lines with it and blocking lower Kalaiopua Place. This problem was exacerbated by a landslide of dirt that was dislodged when the root system of the tree was ripped out. The dislodged dirt slid down the slope and blocked lower Kalaiopua Place.

The blockage of Kalaiopua created an immediate crisis, as the residents living at the lower end of this small road could not get in and out of their homes except by walking over the landslide and fallen tree. Emergency City & County road crews eventually responded and cleared the debris and utility crews restored both power and telephone service.

Over the next six months the slope began to heal itself where the landslide had occurred. New volunteer vegetation started to fill in over the large erosion scar. Then, in early 2006, the area received an unprecedented 60 inches of rain (January to March). Simultaneously, feral pigs, which are abundant on the top of Tantalus, began digging up the new vegetation on the slope creating a very unstable situation. Unsuccessful efforts to keep the feral pigs out of the area resulted in the slope becoming more and more unstable. During this period on a regular basis eroded dirt kept sliding down onto lower Kalaiopua Place, forcing the elderly residents to personally shovel the dirt off the road so that they could have access to and from their homes.

In May 2006, as an emergency measure, the Applicant hired a contractor to construct a CRM rock wall to prevent any more dirt from the Applicant's property from accumulating on lower Kalaiopua Place below. The wall was constructed prior to obtaining any permits due to the immediate nature of the crisis. There was a real sense of urgency and the Applicant felt that it was their responsibility to begin construction as quickly as possible to ensure continued access for the residents on lower Kalaiopua Place. The mason retained by the Applicant to build the CRM wall assured the Applicant that the work being done would meet all structural and engineering guidelines of the County building codes so that an after-the-fact building permit could be obtained if necessary. The mason also assured the Applicant that the various stages of the project would be photo-documented to further assist with the after-the-fact permit.

In June 2006, the Applicant was notified by the City and County (C&C) that the wall, which had been constructed, required a building permit. When the contractor was asked for construction plans for the wall he was unable to produce any. Furthermore, he did not have any digital images of how the wall had been constructed. When a physical inspection of the wall by County inspectors took place, it indicated that the wall was not built to county code and would therefore have to be removed.

The C&C then issued a cease and desist order and requested that an engineered set of plans be prepared and submitted for permitting. However, while the C&C required that the wall be removed, they also understood the need to leave the wall in place until a properly permitted wall could be built since the temporary wall was effective at stopping soil erosion from blocking lower Kalaiopua.

In July 2006, the Applicant retained Hawaiian Engineering Group Inc. (HEGI) to come up with a plan to stabilize the slope and remedy the permit violation. HEGI determined that the slope failure was resulting from fill material that was deposited on the slope when the road was initially constructed in 1952. The solution that HEIG proposed was to encapsulate this non-native fill material with a concrete gunnite shell and nail it to the underlying cinders. This design solution was not only cost-prohibitive but it was totally incompatible aesthetically with the very

natural looking landscape that occurs along the rest of Kalaiopua. A massive concrete wall with protruding anchor bolts would have given this beautiful mountain landscape a very industrial look and would have irreparably altered the environment of the project area.

The Applicant shared the HEIG plan with the neighbors living on Kalaiopua and they all felt that the plan would be an environmental disaster that would ruin the natural beauty of the neighborhood. As a result, the Applicant asked HEIG to come up with new design. However, after a year of drawn-out discussions and negotiations, it became clear that HEIG were not interested in developing a design solution that was compatible with the beauty of this mountain area.

In September 2007, the Applicant retained Wagner Engineering Services, Inc. (Wagner) to replace HEIG in order to develop an alternative manner of slope stabilization. After researching several design options, and consulting with a soils engineer (Appendix 3) in December 2007, Mr. Brian M. Hennessy, P.E. of Wagner contacted the Applicant to advise him that Wagner felt confident that they could come up with a design solution that would stabilize the slope and allow for a landscaping element that would be compatible with the existing slope along Kalaiopua Place.

The Applicant is seeking a Board Permit for the Wagner proposed plan as depicted in Exhibit 6 attached hereto. The Wagner plan seeks to maintain the entire length of the existing CRM rock wall at the base of the slope, but to shorten it to a maximum height of 59" so as to bring it into compliance with the City & County's building codes. The CRM rock wall will act as an erosion control barrier between the slope above and the adjacent Kalaiopua Road at the base of the slope. The inherent instability of the slope will be addressed by removing the loose fill that was apparently deposited on the slope in 1952 when the Wichman driveway was originally excavated. The loose fill will be removed, and the slope will be taken down to the underlying native cinders, which, according to the soils engineers' reports, are a stable substrate (see Appendix 3). Approximately 118 yards of loose fill will be excavated and hauled off site. Thereafter the slope will be stabilized with a long-term erosion control blanket and the reestablishment of permanent vegetation.

B. Project Description and Location

Project Location

Kalaiopua Place is a small one-lane road located on Tantalus just above the city of Honolulu. This small road is at the very top of Tantalus Drive where it turns into Round Top Drive (see attached location map). It is about a 15 minute drive from Makiki Pumping Station which is where Round Top Drive begins.

The actual Project Area is a small section of the slope on the mauka side of lower Kalaiopua that measures 60 feet long by 30 feet wide for a total of 1,800 sq. ft. It is bordered on the top by the Applicant's concrete driveway and on the bottom by the asphalt paved Kalaiopua Place.

Project Description

A through review of the situation by both soil and civil engineers has indicated that the failure of the slope in the project area is a result of the surface of the slope being composed of the fill material that was deposited there as a result of the original road cut made to create the private driveway in 1952. Over the past 50 years, after this fill material was deposited on the

slope, it was stabilized by the lush vegetation that grew on it.

When the large kukui tree was uprooted in 2005 it exposed this fill material to the eroding effects of the rain. Subsequently the feral pigs further destabilized the slope by digging up the new recruiting vegetation and the vegetation adjacent to the erosion scar created by the fallen kukui tree. The result of this disturbance is that the original fill material is now eroding and slumping down onto Kalaiopua Place.

After researching several design options, in December 2007, Mr. Brian M. Hennessy, P.E. of Wagner Engineering Services Inc (Wagner) advised the Applicant that Wagner felt confident they could come up with a design solution that would stabilize the slope and allow for a landscaping element that will be compatible with the look of the rest of the existing the slope along Kalaiopua Place.

The design solution that has been developed by Mr. Hennessy was described by him in an email he sent in April 2008 in which he said: "Our proposal is to remove, by excavation, the old fill material which for the most part remains along and under the edge of the Wichman concrete driveway." Mr. Hennessy spoke with a grading contractor who felt that it would be feasible for a small excavator to sit on the Wichman driveway and excavate the slope below (a portion of the excavation work will likely have to be done by hand as well). The total excavation will be approximately 118 cubic yards.

The final plans which are shown in Exhibit 6 indicate a total of 118 cubic yards of the original fill will need to be excavated and hauled off site by the contractor. The total graded area is estimated at only 1,400 square feet. The erosion control wall that was built by the Applicant in 2006 without permits will be remain as an integral part of the design solution but it will be reduced in height to a maximum of 59 inches so that it meets with the county building code.

The engineered construction plans dictate erosion control steps that will prevent sedimentation and erosion during construction. The existing erosion control wall will also facilitate the prevention of any soil form the slope degrading the environment during construction.

C. Schedule

The Applicant will proceed as soon as the necessary permits are obtained form the DLNR and the City and County of Honolulu and a qualified contractor can be retained.

D. Funding Sources

The Applicant will fund this project.

III. SUMMARY DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. General

Tantalus is a small rural community that exists within the Forest Reserve mauka of the city of Honolulu. It is a close knit community with an active community association. There are several important recreational hiking trails on the mountain and the winding road that climbs that mountain is a favorite for both residents and tourists who like to look over the city at nights

admiring the views and the city lights.

Kalaiohua Place is a small one-lane road located at the very top of Tantalus Drive where it turns into Round Top Drive. It is about a 15 minute drive from Makiki Pumping Station which is where Round Top Drive begins. The actual Project Area is a small section of the slope on the mauka side of lower Kalaiohua that measures 60 feet long by 30 feet wide for a total of 1,800 sq. ft. It is bordered on the top by the Applicant's concrete driveway and on the bottom by the asphalt paved Kalaiohua Place.

B. Flora

There are no native species growing or living in the project area on the subject property. The entire forest surrounding the project area is dominated by alien vegetation, which was planted in the watershed reforestation projects in the early 1900s. The vegetation that currently exists in the project area includes Ape *Alocasia macrorrhiza*, Blue Ageratum *Ageratum conyzoides*, Jasmine *Jasminum multiflorum*, Yellow Ginger *Hedychium flavescens*, Shell ginger *Alpinia speciosa*, Avocado *Persea americana*, Bracken Fern *Pteridium aquilinum*, red and green Ti *Cordyline terminalis*, Epipremnum *Epipremnum pinnatum*, White Thunbergia *Thunbergia fragrans*, and grassy weeds.

C. Fauna

There are no native fauna that inhabit or visit the project area. Avian species commonly encountered are all introduced species common to lowland area across Hawai'i. These include Japanese white-eye (*Zosterops japonicus*), common myna (*Acridotheres tristis*), red-crested cardinal (*Paroaria coronata*), and house sparrow (*Passer domesticus*). Feral cats and feral pigs are common visitors to the project area and the feral pigs are a major contributor to the need for the project. No State or Federal Listed Threatened or Endangered species inhabit or utilize the project area.

D. Cultural Resources:

There are no historic, archeological or cultural sites within or near the parcel. See attached *Archaeological Assessment and Cultural Impact Evaluation in Support of the Kalaiohua Place Road Improvements Projects*, which is adopted from the City & County's Environmental Assessment for work done on the Kalaiohua Place Roadway.

As mentioned earlier, the area is a steep slope located between the Applicant's driveway and the county owned Kalaiohua Place. The project area has been highly disturbed by both the construction of the county road in the mid 20th century and the Applicants driveway in 1952.

E. Sensitive Habitat

There are no Critical Habitats or wetlands located on the project area.

F. Other Uses

The project area is only used as a landscape area between the Kalaiopua Place and the Applicant's driveway.

IV. SUMMARY OF MAJOR IMPACTS

A. Positive Impacts

Slope Stabilization. Clearly the most significant impact from the proposed project is the repair and stabilization of the slope that occurs in the project area. Currently the soil in this area continues to slump with heavy rains and is undermining the Applicant's driveway and causing potential sedimentation into the valley below the project area.

Increased Security and Public Welfare. Currently the residents who use lower Kalaiopua to access their homes are subject to the risk of future landslides that could block their access when dirt from the project area is deposited on the road. The proposed project will eliminate this risk and increase their welfare and security.

B. Negative Impacts

No significant negative impacts are anticipated as result of the proposed project. The following are possible negative impacts that can be mitigated by the implementation of best management practices during the proposed project.

Increased Sedimentation. The use of the silt control fencing and the existing erosion control wall during construction will eliminate the possibility of increased sedimentation during construction.

Increased Noise. There will be a short-term increase in noise as a result of the proposed project. However, the contractor will abide by the County noise abatement regulations and allowable work hours.

Air quality. The proposed project is not anticipated to have any noticeable short-term or long-term impact on air quality.

Compatibility with the surrounding environment. The Applicant spent 18 months seeking an engineering solution that would be compatible with the surrounding environment. The proposed project has the strong support of the residents using lower Kalaiopua as it will be completely compatible with the surrounding environment.

Resident Access. The proposed project may require resident access on the narrow one-lane lower Kalaiopua Place to be restricted during parts of the work day but discussions with the affected residents indicate that this should not be a problem if closures are only conducted between the hours of 9:00 am and 3:00 pm Monday through Friday.

Public Services. The proposed project will have no significant impact on any of the public

services provided by the State or County governments. There is a potential for the project to require access on the narrow one-lane lower Kalaiopua Place to be restricted during parts of the work day, however this will not impact any of the public services provided to the residents on this road.

V. PROPOSED MITIGATION MEASURES

The above listed potential negative impacts can be avoided or mitigated by the following measures.

Best Management Practices. Best Management Practices including the use of silt control fencing, attention to weather forecasting and rain threats, communication with neighbors, and safety signage will all help to eliminate and negative impact that could result from the proposed project.

Use of Existing Erosion Control Wall. The use of the existing erosion control wall during the project will be an important factor in eliminating the treat of increased sedimentation and erosion resulting from the project. Over the past two years this wall has proven its effectiveness at preventing soil from the slope from proceeding further down the hill.

Limited Road Blockage. While it may become necessary to restrict access to lower Kalaiopua Place during parts of the work day discussions with the affected residents indicate that this should not be a problem if closures are only conducted between the hours of 9:00 am and 3:00 pm Monday through Friday. The Applicant will ensure that the contractor agrees to this condition and that neighboring residents are properly informed well in advance.

VI. ALTERNATIVES CONSIDERED

Alternative A: No Action

Under this alternative, the emergency erosion control wall built in 2006 without permits will have to be removed and increased soil erosion and sedimentation will occur with are damaging to the health of the environment. This option has been rejected, as it is unsafe for residents on Lower Kalaiopua and will eventually threaten the integrity of the Applicant's concrete driveway.

Alternative B: Stabilization of the Slope via Concrete Encapsulation

In July 2006, the Applicant retained Hawaiian Engineering Group Inc. (HEGI) to come up with a plan to stabilize the slope. HEGI produced a design solution that they felt would address the problem. They had determined that the slope failure was resulting from the original fill material deposited when the road was initially constructed in 1952. The solution that HEIG proposed was to encapsulate the material with a concrete shell and nail it to the underlying cinders with long

steel soil-bolts.

While this design solution met the County building and engineering codes and would achieve the goal of stabilizing the slope, it was soundly rejected by the Kalaiopua community for being totally incompatible aesthetically with the very natural looking landscape that occurs along the rest of Kalaiopua Place. A massive concrete wall with protruding anchor bolts would have given this beautiful mountain landscape an industrial look and irreparably harmed the setting of this area.

VII. ANTICIPATED DETERMINATION

Based on the above environmental assessment it is concluded that the proposed project to repair and stabilize the slope on Tax Map Key: (1) 2-5-014:012 will not have any significant adverse impacts on the environment. In fact, the proposed project will result in less soil erosion and uses an engineering solution that is compatible with the surround environment. As a result, it is anticipated that a 'Finding of No Significant Impact' (FONSI) will be issued by the accepting agency.

VIII. FINDINGS AND REASONS SUPPORTING THE DETERMINATION

The environmental impacts of the proposed slope repair and stabilization project on Tax Map Key: (1) 2-5-014:012 have been evaluated in relation to the thirteen significance criteria listed in the Guidebook for the State Environmental Review Process. The criteria and the effects this project will have are listed below:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.

The proposed 1,800 sq. ft. slope repair and stabilization project will not result in the loss or destruction of any natural or cultural resources.

2. Curtails the range of beneficial uses of the environment.

The proposed 1,800 sq. ft. slope repair and stabilization project will not curtail the range of beneficial uses of the environment.

3. Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revision thereof and amendments thereto, court decisions, or executive orders.

The proposed 1,800 sq. ft. slope repair and stabilization project does not conflict with the state's long-term environmental policies and goals that promote understanding and protection of Hawai'i's natural resources.

4. Substantially affects the economic, social welfare, and cultural practices of the community or state.

The proposed 1,800 sq. ft. slope repair and stabilization project does not negatively impact either the economic or the social welfare, or the cultural practices of the community or state.

5. Substantially affects public health.

The proposed 1,800 sq. ft. slope repair and stabilization project will not substantially impact public health. In fact, the project will result in a safer environment for the community living on lower Kalaiopua Place.

6. Involves substantial secondary impacts, such as population changes or effects on public facilities.

No impacts on population or public facilities will result from the proposed project.

7. Involves a substantial degradation of environmental quality.

This project will cause no degradation of environmental quality.

8. Is individually limited but has considerable effect upon environment or involves a commitment for larger actions.

This project is very small and does not involve a commitment to larger actions.

9. Substantially affects a rare, threatened, or endangered species or its habitat.

The proposed project will not adversely impact any endangered species or its habitat.

10. Detrimentally affect air or water quality or ambient noise levels.

The proposed project will have no significant increase in noise level and will have not impact on water or air quality.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, and estuary, freshwater, or coastal waters.

This project is not located in an environmentally sensitive area and will not negatively affect an environmentally sensitive area or damage a flood plain, tsunami zone, beach, erosion-prone area, or geologically hazardous land.

12. Substantially affect scenic vistas and view planes in county or state plans or studies.

The proposed project will not impact a scenic vista or view plane and has been designed to be compatible with the surrounding area.

13. Requires substantial energy consumption.

No additional energy consumption is expected as a result of this project.

IX. EA PREPARATION

This Environmental Assessment was prepared primarily by:

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X. REFERENCES CITED

Wagner, W.L., Herbst, D.R., and Sohmer, S.H. 1999. Manual of the Flowering Plants of Hawai'i--Revised Edition. Honolulu, HI: University of Hawaii Press and Bishop Museum Press. 1853p.