

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawaii

File No: HA-3865
180-Day Exp. Date: July 29, 2020

July 10, 2020

**Board of Land and
Natural Resources
State of Hawai'i
Honolulu, Hawai'i**

REGARDING: Conservation District Use Application (CDUA) HA-3865 for the Wright/Bentley Single Family Residence, Removal of Invasive Species, and Related Improvements.

**APPLICANT/
LANDOWNER:** J. Spencer Wright & M. Ellen Bentley

AGENT: J. Spencer Wright

LOCATION: Kaiwiki Road, Kaiwiki, South Hilo, Hawai'i

**TAX MAP KEYS
(TMKs):** (3) 2-6-011:033

AREA OF PARCEL: 19.00 acres

USE: Structures – 3,342 square feet; Removal of Invasive Species & Related Improvements

SUBZONE: Resource

DESCRIPTION OF AREA/CURRENT USE

The subject property is an undeveloped parcel located in the Resource Subzone of the State Land Use Conservation District (see **Exhibit 1**). The parcel appears to have been used for cattle grazing during the first half of the 20th century but has since re-grown to be primarily covered in a mixed native – non-native forest. The Holdridge Life Zones system locates the property within the Subtropical Rain Forest Zone or Lowland Wet Forest and vegetation consists of koa trees, 'ōhi'a, strawberry guava, uluhe fern, melastoma, and clidemia (see **pages 4 to 16 of Exhibit 1**). The property is located on Kaiwiki Road on the east/southeast facing slopes of Mauna Kea in the South Hilo District of the Island of Hawai'i (see **Exhibit 2**). The surrounding properties consist of several scattered single-family residences (SFR) in a rural residential area of Hilo.

The approximately 19.00-acre property sits at an elevation range of about 1,850 feet to 1,970 feet above mean sea level. Annual rainfall for the area and property is approximately 240 inches per year and experiences an average temperature around 68 degrees Fahrenheit. The parcel is bordered on the south by Mā'ili Stream.

The lava flows that underlie the parcel are Hāmākua Volcanics dated from 65,000 to 250,000 years before present. The soil at the project site consists of ash deposits lying on weathered basalt flows of the Hāmākua Volcanics which have formed a layer of clay that is approximately 18 feet deep. This soil is listed as the Akaka Series and is moderately well-drained, runoff is medium, and the erosion hazard is moderate.

Hazards

The volcanic hazard mapping produced by the U.S. Geological Survey places the property in Lava Flow Hazard Zone 8 on a scale of ascending risk from 9 (low) to 1 (high). The relatively low hazard risk is due to Mauna Kea being an inactive volcano. Zone 8 includes areas that have had no lava flows in the last 750 years and only a low percentage of areas covered by lava in the past 10,000 years. Volcanic hazards near the property are thus very low.

On the other hand, the island of Hawai'i experiences high seismic activity and structures that are poorly designed or built are at risk from major earthquake damage. The entire island of Hawai'i is within the Earthquake Zone 4 according to the County Building Codes. The applicants understand that there are hazards associated with homes in this geologic setting and have made the decision that a residence in the subject area is not imprudent to construct or inhabit. They also understand and accept that there may be added structural requirements to address potential seismic hazards for any new construction.

A Flood Zone Map obtained from the State's Flood Hazard Assessment Tool website shows that the subject property is in Flood Zone X which is defined as areas that are outside of the 500-year floodplain. There is no risk of tsunami inundation as the parcel is outside both the tsunami evacuation and dam evacuation zones. The parcel is bordered on the south by Mā'ili Stream. In addition to Mā'ili Stream, there is a gully that runs during rainfall approximately 315 feet south of the proposed project site. This area, like nearly all the lot, is covered in very dense vegetation which arches over the gully rendering it invisible to all but ground inspection. Some early maps do indicate the presence of a gully, but do not accurately locate it.

The topography of the parcel affords adequate drainage during heavy rainfall and flooding conditions are not expected. The proposed home site and driveway are located a distance away in order to avoid Mā'ili Stream and gully, and there does not appear to be any potential for flood hazard.

Flora and Fauna

No prior botanical surveys are known to have been conducted on the property. The *Manual of the Flowering Plants of the Hawaiian Islands* by Gagne and Cuddihy (1990) has classified the natural vegetation in areas with similar geology, elevation, and rainfall as Lowland Wet Forest. Lowland Wet Forests are typically dominated by 'ōhi'a trees, uluhe, hapu'u ferns, and a large variety of trees, shrubs, ferns, and herbs.

The vegetation presently found on the project site is a mixed native and non-native low stature forest. The approximately 200 feet of the property closest to Kaiwiki Road is dominated by invasive non-native species. Thickets of strawberry guava (*Psidium cattleianum*) occupy the site of the proposed driveway and home and are accompanied by Asian melastome (*Melastoma candidum*), clidemia (*Clidemia hirta*), and uluhe fern (*Diacranopteris*). The project site also contains a few surviving 'ōhi'a trees (*Metrosideros polymorpha*) among the strawberry guava and there appears to be a large deceased koa tree (*Acacia koa*) near the proposed house site. Moving away from the propose house site, the strawberry guava shares the landscape of the property more equitably with 'ōhi'a, uluhe, koa, and rose-apple (*Syzygium jambos*). The petition states that many of the large deceased rose-apple trees have fallen creating piles of downed branches that have inhibited travel on the lot. To date, the applicants have not been able to access the portions of the property towards Mā'ili Stream beyond the proposed project site. According to the applicants, no rare, threatened or endangered plant species have been observed or are present on the parcel.

Rapid 'Ōhi'a Death (Ceratomyces huliohia and Ceratomyces lukuohia)

The applicants note that Rapid 'Ōhi'a Death (R.O.D.) has been confirmed on a nearby lot approximately 1000 feet east of the proposed building site. On Hawai'i Island, hundreds of thousands of 'ōhi'a have already died from this fungus. It has killed trees in all districts of Hawai'i Island, has been detected on Maui, O'ahu, and Kaua'i, and has the potential to kill 'ōhi'a trees statewide. As such, R.O.D. poses an immediate threat to the forest on the subject property.

During the survey for animal species on the property in 2017, the applicant's agent identified six (6) bird species. These included the common myna (*Acridotheres tristis*), northern cardinal (*Cardinalis cardinalis*), Japanese bush warbler (*Cettia diphone*), zebra dove (*Guopelia striata*), spotted dove (*Streptopelia chinensis*), and Japanese white-eye (*Zosterops japonicus*). No native birds were identified, but it is likely that the project site is occasionally utilized by the Hawai'i 'amakihi (*Hemignathus virens*) as some populations of this native honeycreeper appear to have adapted to the mosquito borne diseases of the Hawaiian lowlands.

As with all of East Hawai'i, several endangered native terrestrial vertebrates may be present in the general area and may overfly, roost, nest, or utilize resources of the property. These include the endangered Hawaiian hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the endangered band-rumped storm petrel (*Oceanodroma castro*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*). Of these, only the Hawaiian hoary bat is likely to have any substantial presence on the project site as the nesting requirements for the other species are not present.

The parcel is bordered on the south by Mā'ili Stream which is a perennial stream with a length of 12.8 miles and max elevation of 2,838 feet. As mentioned above, the stream has not been accessed before by the applicant via his property due to dense vegetation and associated debris. Mā'ili Stream has previously been surveyed in 1967 and 1989 at three (3) different survey points. Six (6) native and three (3) introduced species of fauna were found at one of the survey points closest to and likely present in the section of Mā'ili Stream adjacent to the applicant's property. The

native species identified in these previous studies were ‘o‘opu nākea (*Awaous guamensis*), ‘o‘opu ‘alamo‘o (*Lentipes concolor*), ‘ōpae kala‘ole (*Atyoida bisulcata*), pinao 'ula (*Megalagrion* sp.), *Telmatogeton* sp., and *Amphipod* sp. Due to the abundance of native species, Mā‘ili Stream has been ranked Outstanding in the Aquatic Resources category of the Hawai‘i Stream Assessment of 1990. No waterbirds were observed during the survey for flora and fauna on the property.

Aside from the Hawaiian hoary bat, all mammals in the project area are all introduced species, including feral pigs (*Sus scrofa*), small Indian mongooses (*Herpestes a. auropunctatus*) and various species of rats (*Rattus* spp.). Several species of non-native reptiles and amphibians are also likely present. Coqui frogs (*Eleutherodactylus coqui*) were heard and other species of frog may be present. None of these non-native vertebrates are of conservation concern and all are deleterious to native flora and fauna.

Historic/Cultural

An archeological field inspection and a cultural impact assessment were prepared for the property. No gathering of plant or animal material was noted from the property. No consulted individuals with ties to and history with the area had any specific information concerning this area and no archaeological features were present. No specific traditional cultural sites or practices were identified to exist or have taken place within the property.

Part of the CDUA process requires that the applicant submit a Hawai‘i Revised Statutes (HRS), 6E form developed by the State Historic Preservation Division (SHPD). Pursuant to HRS, §6E-42, prior to any agency or officer of the State [in this case the Board] approves any project involving a permit, license, certificate, land use change, subdivision, or other entitlement for use, which may affect historic property, aviation artifacts, or a burial site, the agency or office [OCCL] shall advise SHPD prior to any approval and allow SHPD an opportunity to review and comment on the effect of the proposed project on historic properties.

The County of Hawai‘i Planning Department submitted the Chapter 6E-42 Historic Preservation Review form on behalf of the applicant which was received by SHPD on June 18, 2018. On August 10, 2018, SHPD issued the property owner a Chapter 6E-42 Historic Preservation Review letter (Log No. 2018.01436, Doc No. 1808SN06). The letter from SHPD found the field inspection involved a pedestrian survey of 100% of the project area. No archaeological historic properties were identified. Based on the field inspection findings, SHPD’s determination was “no historic properties affected” for the subject project and permitting for the subject project may proceed.

PROPOSED USE

The applicants are proposing to construct a one story single-family residence that will consist of 3 bedrooms, 2 bathrooms, a great room including the kitchen, dining area, and living area, a laundry room, a carport, storage and utility rooms, and front and back lanais (see page 1 of Exhibit 3). The proposed home will have an enclosed living area of 1,920 sq. ft, an attached carport and utility/accessory area of 800 sq. ft, and front and back lanais totaling 440 sq. ft for a total footprint of 3,160 sq. ft. The maximum height of the single-family residence from finished grade to top of

roof peak will be 25 feet. The proposed residence is planned to be a wood frame structure with metal roof utilizing post-and-pier construction. The foundation would consist of concrete grade beams supported on drilled piers that extend to bearing on firm soil.

The home will feature rooftop solar photovoltaic panels with a battery storage system and back-up generator for electricity and a 10,000-gallon rainwater catchment tank for domestic water use and Hawai'i Fire Code requirements. Propane will be used for the kitchen, laundry, and hot water. Wastewater from the home will be treated with a septic system that meets or exceeds all regulatory requirements from the Department of Health. The applicants are planning to use cellular telephone service for telecommunications as well as satellite for internet services.

Access to the parcel is off Kaiwiki Road. The applicants are proposing to cover the driveway with gravel which will approximately measure 10 feet wide and 240 feet in length. An enclosure fence of 4 feet high field fencing is proposed to surround an area of 0.45-acres of the property that would include the proposed home and approximately 0.15 acres of forest. The home would not be visible from Kaiwiki Road or any of the neighboring residences. The home would be set approximately 161 feet back from Kaiwiki Road, 185 feet from the eastern lot line, 442 feet from the western lot line, and 908 feet from Mā'ili Stream and southern lot line. The house site has been chosen to displace much of the strawberry guava thickets while also minimizing the impacts to the property's native forest. The proposed site of the single-family residence also utilizes the most level topography available on the lot to help minimize grading.

In addition to the single-family residence, the applicants are proposing to restore the native vegetation to the impacted areas of the property by the proposed home through the removal of invasive species (**see Exhibit 4**). The total area of forest to be restored is less than 0.5-acres. The methodology for the proposed restoration work developed by the applicants includes first positively identifying non-native invasive species in and adjacent to the disturbed areas of the proposed home and associated construction activities. Second, the applicants intend to remove identified non-native invasive species by hand with the use of tools such as pruning shears, machete, and chainsaw. The types of non-native invasive trees or plants that are planned to be removed after being positively identified include strawberry guava, rose apple, clidemia, and tibouchinia. Third, the applicant intends to propagate native species from specimens located on the subject property as well as on neighboring lots with permission from the owners from seed or cuttings while non-native invasive trees or plants are being removed by hand by the applicant. Finally, the applicant plans to plant native species in the disturbed area and adjacent locations previously occupied by non-native species. The native plants that the applicants intend to propagate and plant are kāwa'u (*Ilex anomala*), 'ōhi'a lehua (*Metrosideros polymorpha*), 'ōlapa (*Cheirodendron trigynum*), 'uki (*Machaerina mariscoides*), 'ama'u (*Sadleria cyatheoides*), hapu'u 'i'i (*Cibotium menziesii*), hapu'u pulu (*Cibotium glaucum*), and pala'a (*Sphenomeris chinensis*). Additional native ferns such as uluhe are anticipated to naturally regenerate in disturbed areas as well. The native forest restoration work will be performed by the applicants after their proposed single-family residence has been built and occupied.

The Best Management Practices (BMPs) that the applicants plan to implement during the removal of invasive species while restoring the native forest include the following:

1. No grubbing or grading.
2. Leaving the soil surface unbroken to avoid runoff.

3. Avoiding removal of plants where erosion may be expected to result.
4. Positively identifying individual plants as non-native invasive species prior to removal.
5. Removed plants to be kept on site and allowed to decompose to restore nutrients to soil.
6. Re-growth of removed invasive plants are to be prevented using sheet mulching, maintenance removal by hand, and such techniques as recommended by the Big Island Invasive Species Committee.
7. Propagate only disease-free native plants from subject lot and adjacent lots.
8. Examine seedlings and cuttings for evidence of disease as they mature.
9. Seedlings and cuttings to be grown in native on-site soil and/or sterile commercial mix to avoid the introduction of diseases or pests.
10. Propagated plants to be out-planted in sites appropriate to their species' horticultural requirements.

The applicants are aware and concerned about the presence of Rapid 'Ōhi'a Death (ROD) in the immediate neighborhood and its potential impact to the property's forest as well as to all of Hawai'i. With regards to the potential removal of 'ōhi'a trees during construction of the proposed residence, the applicants will follow the Hawai'i Island Staff Sanitation Protocol to help prevent the spread of ROD as specified by the University of Hawai'i College of Tropical Agriculture and Human Resources (CTHAR). These commitments include paying particular attention to educating all individuals entering the project site regarding decontamination, avoiding injury to 'ōhi'a trees, sealing any 'ōhi'a injuries that occur, and the importance of not transporting any 'ōhi'a materials from the site. Additional actions will include the setting up of a decontamination station with necessary decontamination supplies (including 70% isopropyl alcohol, brushes, and receptacles) with full decontamination instructions and informational pamphlets. Tree seal (pruning seal) will be supplied on site. Heavy equipment operators will be asked to pressure wash their equipment with detergent prior to arrival on site, and bonuses will be paid for compliance. Per recommendations by CTHAR, the applicants will ensure that all felled 'ōhi'a will be retained on site under tarp cover.

OTHER ALTERNATIVES CONSIDERED:

Alternative 1: No Action. Under the No Action Alternative, the residence would not be built. The lot would remain unused except in the case that the property was sold by the owner in which case a future owner might choose to build a residence or make other use. The Environmental Assessment considers the No Action Alternative as the baseline by which to compare environmental effects from the project.

Alternative 2: Proposed Project, Alternative House Sites, and Alternative Uses. The proposed project and its location are described above. The location of the home site was chosen to minimize impacts to the native forest as well as to displace much of the strawberry guava thickets. Additionally, the site utilizes the most level topography available on the lot so as to minimize soil disturbance.

Many other locations on the property could also theoretically serve as the site for a residence, but all would require a longer driveway, and some would involve forest clearing or closely approaching or even crossing the gully that bisects the property. There is no known environmental or other reason for seriously considering other sites on the property.

No other alternative uses for the property that are identified in the Conservation District Rules (HAR 13-5) as allowable uses in the Conservation District, such as a commercial tourist nature park, are desired by the applicants, and thus none are addressed in the Environmental Assessment.

SUMMARY OF COMMENTS

The Office of Conservation and Coastal Lands referred the application, as well as the Draft Environmental Assessment (EA) to the following agencies and organizations for review and comment:

State Agencies:

DLNR, Division of Conservation and Resource Enforcement
DLNR, Division of Aquatic Resources
DLNR, Engineering Division
DLNR, Division of Forestry and Wildlife
DLNR, Hawai'i District Land Office
DLNR, Na Ala Hele
Office of Hawaiian Affairs

County Agencies:

County of Hawai'i, Department of Planning
County of Hawai'i, Fire Department

In addition, this application was also sent to the nearest public library, the Hilo Public Library, to make this information readily available to those who may wish to review it.

Comments were received by the following agencies and individuals and summarized by Staff as follows:

THE STATE

DEPARTMENT OF LAND AND NATURAL RESOURCES

Division of Aquatic Resources:

Comments: No Comments.

Engineering Division:

Comments: The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations

as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (<http://gis.hawaiiinfip.org/FHAT/>).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4896.

Applicant's response: Thank you for your review of the Conservation District Use Application (CDUA) and Draft Environmental Assessment (DEA) for the Wright/Bentley Single Family Residence, and for your feedback regarding research for the Flood Hazard Zone designation for this project.

The EA for the project discusses this in Section 3.1.6. The subject parcel is on FEMA FIRM Panel 1551660675F, which is located within Zone X on the FIRM map. Zone X applies to areas of low to moderate risk, and that are determined to be outside the 0.2% annual chance floodplain. The parcel is not within a tsunami evacuation zone, nor within a dam evacuation zone. Site inundation from heavy rainfall is not expected to create flooding conditions, as the topography of the parcel affords adequate drainage.

If you have any questions, please contact me at my postal or email address below.

Hawai'i District Land Office:

Comments: No Comments.

Nā Ala Hele:

Comments: No Comments.

Office of Conservation and Coastal Lands (OCCL):

Comments: Please add an architectural scale to SFR site plans. Please clarify the design and operation of the rainwater catchment system. Will it be attached to the roof of the SFR or stand-alone tank? What type of water storage tank will be used? Do you have an estimate of how many 'ōhi'a and koa trees will be impacted by the proposed activities and if or how they will be replaced? Please note that HAR §11-200 has been replaced by HAR §11-200.1. Please ensure the Final Environmental Assessment (EA) conforms and cites HAR §11-200.1. Please double check the

citations in the CDUA and Draft EA specifically regarding identified uses in the Conservation District in HAR §13-5 as they currently appear to be incorrect.

Applicant's response: I have received your April 10, 2020 letter discussing Final EA processing with comment letters on the Draft EA. I gratefully acknowledge receipt of comments from DLNR and the other agencies to which the DEA and CDUA were circulated by your office. I note here the no-comment remarks of the Division of Aquatic Resources; the County of Hawai'i Planning Department; Land Division, Hawaii District Branch; Division of Forestry And Wildlife; and Na Ala Hele.

I also acknowledge the comment from the Engineering Division that the property owner must research the flood hazard of the property and associated ordinances. The EA for the project discusses this in Section 3.1.6.

Also appreciated is the Hawai'i Fire Department's comment regarding section 18.3.8 of the Hawaii State Fire Code. To address this I have added, to the Final EA, Figure 3C: Proposed Wright/Bentley residence FDC detail, which specifies the Fire Department Connection (FDC) requirements laid out in section 18.3.8 and illustrates their proposed implementation. Additionally, the proposed location of the FDC has been added to the Site Plan (figure 3D) and the Landscape Plan (figure 3E). A letter has been sent to the Hawai'i Fire Department regarding these additions to the EA.

Consideration has also been taken regarding the OCCL's comments:

- An architectural scale has been added to the Site Plan (figure 3D), the Floor Plan (figure 3B), and the Elevations (figure 3A).
- Regarding the Rainwater Catchment System, Section 3.2.5 of the Final EA has been revised as follows:
"All water for domestic use and Hawai'i Fire Code requirements would be supplied by rainwater catchment. A 10,000 gallon rainwater catchment tank would be used, comprising both the 6000 gallons required for firefighting and emergency purposes and the 4000 gallons required for domestic use. The water tank would be of the "doughboy" type, with galvanized steel construction, a food grade liner, and an arched cover. Water for domestic use would be filtered through 5 micron, carbon block, and 1 micron filters; and purified through ultraviolet sterilization. The tank would be connected to the residence's gutters with a below-grade pipe. Another below grade pipe would connect the tank to the Fire Department Connection hook-up. The location and capacity of the emergency water system, including the necessary compatible connector system, would meet the approval of the Hawai'i County Fire Department. Please see Figure 3C for additional Fire Department Connection details."
- Regarding the removal of koa and 'ōhi'a trees, as discussed in section 3.1.5 of the EA no live koa trees will be removed. Also as discussed, some koa seedlings have sprung up in trails made by the survey crews. Upon last visit I recall seeing no more than 6, though careful inspection may reveal more. And as noted in the EA, it is anticipated that some of

these koa seedlings can be retained and transplanted into areas disturbed by the proposed construction. Also as noted, there is a large but entirely deceased koa a little to the north of the proposed house site. This kupuna koa is within the guava thicket and is entirely surrounded by guava, most of its large branches have fallen. It is on the edge of the area that is likely to be disturbed by construction activity, and so will likely be removed. Note that removal of this deceased tree would not occur within 'io nesting season or 'ope'ape'a pupping season as discussed within section 3.1.5.

There are four 'ōhi'a trees within the proposed footprint of the residence and driveway, and an additional five 'ōhi'a trees that may be within the area that is likely to be disturbed by construction activity. These trees are all less than 5 inches of trunk diameter, indicative of the slow growth of 'ōhi'a and perhaps also of the competition for nutrients from the surrounding guava. As noted, there are several 'ōhi'a with guava growing directly against their trunks. Again, removal of these trees would not occur within 'io nesting season or 'ope'ape'a pupping season as discussed within section 3.1.5. Also as noted, all felled 'ōhi'a would be retained on site under tarp cover to avoid Rapid 'Ōhi'a Death transmission.

As discussed in preliminary correspondence with the OCCL, the disturbed area will be replanted with native species propagated from specimens located on this and neighboring lots and will include 'ōhi'a. It is anticipated that more 'ōhi'a would be planted than would be removed. Please note that the slow growth rate of 'ōhi'a and the presence of Rapid 'Ōhi'a Death in the area indicates that, though started as soon as possible, the propagation and replanting effort will occur over the long term and without immediately dramatic results.

- The change from HAR 11-200 to 11-200.1 has been accounted for in the Final EA, as has the citation error regarding identified uses in the Conservation District in HAR 13-5. Changes have been made to the cover page, section 1.2, section 2.1, and section 13.5.3.

Thank you for circulating the EA and CDUA for review by DLNR and other agencies. If there are any questions, please contact me at (808) 345-4234 or by email at kaleo@olapanoe.net.

COUNTY OF HAWAI'I

COUNTY OF HAWAI'I PLANNING DEPARTMENT

Comments: No Comments.

HAWAI'I FIRE DEPARTMENT

Comments: The Hawai'i Fire Department's comments have been attached as **Exhibit 5**. In summary, the Hawai'i Fire Department's comments center around the applicants' use of a rainwater catchment system and the need to reserve 6,000 gallons of water in a 10,000-gallon tank for Fire Department emergency use as well as the associated regulations for appropriate Fire Department connection to the rainwater catchment tank.

Applicant's response: Thank you for your review of the Conservation District Use Application (CDUA) and Draft Environmental Assessment (DEA) for the Wright/Bentley Single Family Residence, and for your feedback regarding section 18.3.8 of the Hawai'i State Fire Code.

To address this I have added a Fire Department Connection Detail to the Final EA as Figure 3C. Figure 3C specifies the Fire Department Connection (FDC) requirements laid out in section 18.3.8 and illustrates their proposed implementation. This Detail specifies that 6000 gallons of a 10,000 gallon water tank be reserved for Fire Department use, that this water be taken in through a screened orifice into a 4" diameter PVC pipe, that this pipe be embedded 12 inches below finished grade, that the pipe feed a Fire Department Connection made of galvanized steel with a gated valve with a 2.5" NST fitting and cap, that the center of the FDC orifice is to be between 24 inches and 36 inches above finished grade, and that the FDC is to be located between 8 feet and 16 feet from the driveway. These specifications meet section 18.3.8 of the Hawai'i State Fire Code and meet or exceed the specifications accepted for recent single-family residence Conservation District Use Applications.

Additionally, the proposed location of the FDC has been added to the Site Plan (figure 3D) and the Landscape Plan (figure 3E).

I am enclosing a copy of these revisions to the Environmental Assessment: figures 3C, 3D, and 3E. If you have any questions, please contact me at my postal or email address below.

ANALYSIS

Following review and acceptance for processing, the Applicant was notified, by correspondence dated January 30, 2020 that:

1. The proposed uses are identified land uses in the Resource subzone of the Conservation District, pursuant to the Hawai'i Administrative Rules (HAR), §13-5-22 P-4 **REMOVAL OF INVASIVE SPECIES (A-1)** Removal of invasive species including chemical and mechanical control methods, not to exceed one acre, in accordance with state and federal laws and regulations, for the purpose of protecting, preserving, or enhancing native species, native habitat, or native ecosystem functions that results in no, or only minor ground disturbance. The department or board reserves the right to require site plan approval, departmental or board approval if it is determined that the proposed action may cause significant negative secondary impacts on natural or cultural resources, or the surrounding community. Any replanting shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to the State. For existing developed lots, compliance with section 13-5-23 (L-2) satisfies the requirements of this section.; HAR, §13-5-22 P-13 **LAND AND RESOURCE MANAGEMENT (A-2)** Planting of native and endemic plants and fence maintenance. New fence ex-closures for small native plants or wildlife communities, in an area less than one acre. The department or board reserves the right to require a site plan approval or a departmental permit or a board permit if it is determined that the proposed action may cause secondary impacts on natural or cultural resources; and HAR, §13-5-24, R-7, **SINGLE FAMILY RESIDENCE (D-1)** A single family residence that conforms to design standards as outlined in HAR,

§13-5. Please be advised, however, that this finding does not constitute approval of the proposal;

2. Pursuant to HAR §13-5-40 HEARINGS, a Public Hearing will not be required;
3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200.1, HAR, a finding of no significant impact to the environment (FONSI) is anticipated for the proposed project; and
4. The subject area is not located in the Special Management Area (SMA).

The Final EA/Finding of No Significant Impact (FONSI) was issued by the DLNR Chairperson and published in the May 23, 2020 edition of the Office of Environmental Quality Control's "*The Environmental Notice.*"

CONSERVATION CRITERIA

The following discussion evaluates the merits of the proposed land use by applying the criteria established in §13-5-30, HAR.

- 1) *The proposed use is consistent with the purpose of the Conservation District.*

The objective of the Conservation District is to conserve, protect, and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. The applicants have stated that they are committed to management of the site in a manner that will support this objective.

The development of the single-family residence as well as the removal of invasive species and native forest restoration work are in conformance with the purpose of the Conservation District. The single-family residence and removal of invasive species are identified land uses within the Resource Subzone of the Conservation District. The single-family residence requires a Board Permit for such use while the removal of invasive species on the scale proposed by the applicants requires consultation with the Department which the applicants did prior to submitting their application for their proposed activities. The applicants' proposed uses will impact approximately 3% of the lot leaving most of the parcel in its natural state.

No Archaeological and cultural resources have been identified on the property. The applicants' proposed land uses should not impact the public's ability to utilize resources in the vicinity of this property. Due to the careful and limited nature of the proposed development, there will be no significant impacts to natural or cultural resources in the general area of the property.

- 2) *The proposed land use is consistent with the objectives of the Subzone of the land on which the use will occur.*

The objective of the Resource Subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. A Single-Family Residence is an identified land use pursuant to HAR, §13-5-24, R-7, SINGLE FAMILY RESIDENCE (D-1) A single family residence that conforms to design standard as outlined in Chapter 13-5. The removal of invasive species is also an identified land use pursuant to HAR, §13-5-22 P-4 REMOVAL OF INVASIVE SPECIES (A-1) Removal of invasive species including chemical and mechanical control methods, not to exceed one acre, in accordance with state and federal laws and regulations, for the purpose of protecting, preserving, or enhancing native species, native habitat, or native ecosystem functions that results in no, or only minor ground disturbance. The department or board reserves the right to require site plan approval, departmental or board approval if it is determined that the proposed action may cause significant negative secondary impacts on natural or cultural resources, or the surrounding community. Any replanting shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to the State. For existing developed lots, compliance with section 13-5-23 (L-2) satisfies the requirements of this section.

The design and construction of the single-family residence conforms to the design standards set forth in §13-5, HAR. As stated above, the applicants have consulted with the Department with regards to their plans to remove invasive species and conduct native forest restoration work on the impacted areas of the parcel. The applicants are committed to managing their property in a manner that is protective of the natural resources present. The proposed uses are similar to the land uses found on surrounding parcels. Staff believes the proposed land uses are consistent with the objectives of the subzone, provided identified mitigation and best management practices are adhered to.

- 3) *The proposed land use complies with the provisions and guidelines contained in Chapter 205A, HRS entitled "Coastal Zone Management", where applicable.*

The objectives, policies, and guidelines of the Coastal Zone Management (CZM) program contained in Chapter 205A, Hawai'i Revised Statutes (HRS), are focused on the preservation, protection, and where possible, the restoration of the natural resources of the coastal zone in Hawai'i. The proposed land use is outside the Special Management Area (SMA) that lies near the shoreline and is thus not subject to County SMA rules. Furthermore, the use complies with all CZM provisions and guidelines. The property approximately 1,900 feet above sea level and well removed from the coast and will not affect beaches, recreation, or access. The house will be set back approximately 908 feet from Mā'ili Stream providing a large vegetative buffer area from any potential impacts to the stream. Best Management Practices to avoid polluted runoff will protect streams and any indirect impact to coastal biota, water quality, or ecosystems. No impact to economic uses or management of the coastal zone would occur. Based on the lack of impact to any aspect of coastal resources, the proposed action would be fully compliant with the provisions and guidelines contained in Chapter 205A pertaining to Coast Zone Management.

- 4) *The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.*

Because of the relatively minor nature of the project and the lack of threatened or endangered plant species or pristine native ecosystems, Staff believes that the proposed single-family residence is not likely to cause adverse biological impacts. The applicants have identified a number of mitigation measures that will be implemented during the construction and duration of the proposed land uses that should minimize or eliminate the interference, nuisance, harm, or hazard that the project may cause. Additionally, the applicants intend to restore the area impacted by their proposed home with appropriate native vegetation.

The applicants' proposed land uses should not impact the public's ability to utilize resources in the vicinity of this property. Although the endangered Hawaiian hoary bat and Hawaiian Hawk have not been observed on the project site, negative impacts to these species will be avoided through timing of vegetation removal and/or a nest survey. Through the careful site planning and design of the proposed home along with the applicants' commitment towards responsible management of the site, the implementation of the applicants' proposed uses will help to conserve, protect, and preserve the natural resources of the area.

- 5) *The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.*

The proposed use is consistent with single-family residential uses in the area. The lot across Kaiwiki Road to the north of the property is occupied and contains a two-story single-family residence. The parcels to the west and south are heavily vegetated and covered with mixed native – non-native Lowland Wet Forest. A Conservation District Use Permit for a single-family residence and similar landscaping improvements was issued to the landowners two parcels to the east of the subject property earlier this year. The applicants' proposed land uses are compatible with the area as there are scattered single-family residences with similar landscaping improvements on nearby lots on Kaiwiki Road as well.

The proposed residence is designed as a one-story dwelling with an enclosed living area of 1920 sq. ft, an attached carport and utility/accessory area of 800 sq. ft, and front and back lanais totaling 440 sq. ft for a total footprint of 3,160 sq. ft. The home has been designed to fit to the existing topography and in accordance with the criteria of the Single-Family Residential Standards HAR, §13-5 and Exhibit 4 and to be compatible with its environs and appropriate to the existing conditions of the property. The single-family residence would not be visible to the public from any public road or any other public vantage point. The proposed action would allow for the residential use of the property in a manner that would be compatible with the character of the surrounding area and appropriate to the capabilities of the parcel.

- 6) *The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.*

The site does not contain unique features either topographically or geologically. The proposed use of the subject property for a single-family residence, removal of invasive species, and associated improvements will help conserve, protect, and preserve the natural features of the area. The natural beauty of the land and the existing ecosystems would be preserved as the proposed project would leave over 97% of the subject property untouched and restore native plant species to the impacted area of the parcel.

- 7) *Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.*

No subdivision of land is proposed for this project.

- 8) *The proposed land use will not be materially detrimental to the public health, safety and welfare.*

Staff believes the proposed land use will not be materially detrimental to the public health, safety, and welfare as mitigated. With the incorporation of an appropriately designed and operated individual wastewater system, combined with other BMPs identified, the proposed residential land use will not result in materially detrimental impacts to public health, safety, and welfare.

CULTURAL IMPACT ANALYSIS:

The subject property does not contain any springs, land features, caves, or other features that might be of cultural importance. An archaeological survey of the property found no evidence of archaeological resources on the site or features that might be of cultural significance. No gathering of plant material has been documented from the property. The native vegetation on the property will not be disturbed during the proposed project.

A Cultural Impact Assessment of the property that was based on archival research on the history of the property, region, and oral consultations did not reveal any cultural resources or practices being associated with the property. As part of the Cultural Impact Assessment, consulted individuals with family ties and personal knowledge of the area were able to provide information concerning the prior ownership and uses on the property. These individuals were not aware of any use of the property for cultural practices. The lack of information regarding cultural practices in upland Kaiwika could be attributed to the upland region being far from known habitation centers along the coast. No party reviewing the Draft EA and CDUA supplied any cultural information.

The applicants have stated that they are committed to respecting, protecting, and advancing native Hawaiian cultural practices and will not restrict access for cultural gathering practices. The applicants understand that native Hawaiian gathering rights are protected by law. In the unlikely

event that important archaeological, historical or cultural features are discovered, all work will stop, and immediate archaeological consultation will be sought with the State Historic Preservation Division in accordance with applicable regulations.

DISCUSSION

The proposed one story 3,160 sq. ft single-family residence consists of 3 bedrooms, 2 bathrooms, a great room including the kitchen, dining area, a laundry room, a sewing/storage room, a carport with utility room, and front and back lanais. The applicants are also proposing a driveway that will be covered with gravel which will approximately measure 10 feet wide and 240 feet in length. An enclosure fence of 4 feet high field fencing will surround an area of 0.45-acres of the property that will include the proposed home and approximately 0.15 acres of forest. The home would not be visible from Kaiwiki Road or any of the neighboring residences. The home would be set approximately 161 feet back from Kaiwiki Road, 185 feet from the eastern lot line, 442 feet from the western lot line, and 908 feet from Mā'ili Stream and southern lot line.

For utilities, the home will feature rooftop solar photovoltaic panels with a battery storage system and back-up generator for electricity as well as 30-pound propane tanks for the kitchen, laundry, and hot water use. Water will be provided by a 10,000-gallon rainwater catchment tank for domestic water use and Hawai'i Fire Code requirements, and wastewater from the home will be treated with an individual wastewater system meeting or exceeding all regulatory requirements. The applicants are planning to use cellular telephone service for telecommunications as well as satellite for internet services. The proposed residence will be built as a single structure that will support the efficient use of energy and materials and will be designed in a manner that will allow for use of natural ventilation and lighting.

The proposed residence is consistent with Chapter 13-5, Hawaii Administrative Rules, Exhibit 4, Single Family Residential Standards. Compatibility provisions such as the use of earth toned or compatible colors with the surrounding area will be utilized on the exterior of the residence.

As part of their proposed project, the applicants plan to remove some of the site's invasive plant species and restore the disturbed areas with appropriate native vegetation. The site of the single-family residence has been chosen to displace much of the strawberry guava thickets and to minimize the impact to the parcel's native forest. The applicants have developed their methodology and plan for the removal of invasive plant species and native forest restoration work in consultation with a certified Master Gardener, the College of Tropical Agriculture and Human Resources at the University of Hawai'i, and the Office of Conservation and Coastal Lands prior to submitting a Conservation District Use Application for their proposed land uses. The methodology and BMPs that the applicants intend to implement throughout the duration of the proposed project have been mentioned above. The applicants have stated that they shall observe Rapid 'Ōhi'a Death (ROD) Protocol given the presence of the disease on nearby parcels and their concerns for protecting the property's native forest.

The areas grading or grubbing will be confined to those areas required for construction of the single-family residence and driveway. The location of all improvements has been planned to

minimize disturbance of native vegetation and maintain a wide setback to a nearby gulch and Mā'ili Stream. The removal of invasive plant species and land clearing activities will be minimal in depth and will cover approximately half an acre of the property leaving the majority of the parcel undisturbed and in its current natural state. The land clearing activities will also be in compliance with Federal, State and Hawaii County laws. Within the Environmental Assessment, the applicant has identified a number of mitigative measures, conditions, and practices to ensure that the proposal will have minimal effect on the natural resources that may be impacted by the proposed project. These proposed measures, conditions, and practices are incorporated into the permit.

Based on the information provided, staff believes that the project will have negligible adverse environmental or ecological effects provided that best management practices and mitigation measures as described in the application and environmental assessment, and as required by rule or laws, are fully implemented. In addition, the proposed development of the property with one (1) single-family residence is similar to the use of other properties along Kaiwiki Road and in the Kaiwiki Homesteads for single-family residential use.

RECOMMENDATION

Based on the preceding analysis, staff recommends that the Board of Land and Natural Resources APPROVE Conservation District Use Application HA-3865 for a Single Family Residence, Removal of Invasive Species, and Associated Improvements located at Kaiwiki Road, Kaiwiki, South Hilo, Hawai'i, TMK (3) 2-6-011:033 subject to the following conditions:

1. The permittee shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of this chapter;
2. The permittee, its successors and assigns, shall indemnify and hold the State of Hawai'i harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;
3. The permittee shall comply with all applicable Department of Health administrative rules;
4. The single family residence shall not be used for rental or any other commercial purposes unless approved by the board. Transient rentals are prohibited, with the exception of wilderness camps approved by the board;
5. The permittee shall provide documentation (e.g., book and page or document number) that the permit approval has been placed in recordable form as a part of the deed instrument, prior to submission for approval of subsequent construction plans;
6. Before proceeding with any work authorized by the department or the board, the permittee shall submit four copies of the construction plans and specifications to the

chairperson or an authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Three of the copies will be returned to the permittee. Plan approval by the chairperson does not constitute approval required from other agencies;

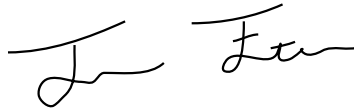
7. Unless otherwise authorized, any work or construction to be done on the land shall be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and shall be completed within three years of the approval of such use. The permittee shall notify the department in writing when construction activity is initiated and when it is completed;
8. All representations relative to mitigation set forth in the accepted application and environmental assessment or impact statement for the proposed use are incorporated as conditions of the permit;
9. The permittee shall plan to minimize the amount of dust generating materials and activities. Material transfer points and on-site vehicular traffic routes shall be centralized. Dusty equipment shall be located in areas of least impact. Dust control measures shall be provided during weekends, after hours and prior to daily start-up of project activities. Dust from debris being hauled away from the project site shall be controlled. Landscaping and dust control of cleared areas will be initiated promptly;
10. The permittee shall notify the Office of Conservation and Coastal Lands (OCCL) in writing prior to the initiation and upon completion of the project;
11. Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact SHPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;
12. The permittee shall utilize Best Management Practices for the proposed project;
13. During construction, appropriate mitigation measures shall be implemented to minimize impacts to the aquatic environment, off-site roadways, utilities, and public facilities;
14. The single-family residence shall conform to the single-family residential standards included as Exhibit 4 of the Hawai'i Administrative Rules, Chapter 13-5;
15. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;
16. In issuing the permit, the department and board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or

inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;

17. When provided or required, potable water supply and sanitation facilities shall have the approval of the department of health and the county department of water supply;
18. Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;
19. Obstruction of public roads, trails, and pathways shall be avoided or minimized. If obstruction is unavoidable, the permittee shall provide alternative roads, trails, or pathways acceptable to the department;
20. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;
21. The permittee shall obtain a county building or grading permit or both for the use prior to final construction plan approval by the department;
22. Artificial light from exterior lighting fixtures, including but not limited to floodlights, uplights, or spotlights used for decorative or aesthetic purposes, shall be prohibited if the light directly illuminates or is directed to project across property boundaries toward the shoreline and ocean waters, except as may be permitted pursuant to section 205A-71, HRS. All exterior lighting shall be shielded to protect the night sky;
23. The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawai'i, and by Hawai'i statutory and case law;
24. Any landscaping shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to Hawai'i. The introduction of invasive plant species is prohibited;
25. Trees taller than 15 feet shall not be removed or trimmed during the Hawai'i Hoary bat birthing and pup rearing season from June 1st to September 15th;
26. If land clearing occurs between March 1 and September 30, a pre-construction hawk nest search by a qualified ornithologist using standard methods will be conducted. If Hawaiian Hawks are present, no land clearing will be allowed until October, when hawk nestlings will have fledged;
27. Rapid 'Ōhi'a Protocol shall be observed. There shall be no transport of 'ōhi'a to and from the property as well as no soil transport from the property;

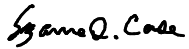
28. Other terms and conditions as may be prescribed by the Chairperson; and
29. Failure to comply with any of these conditions shall render this Conservation District Use Permit void under Chapter 13-5, as determined by the chairperson or board.

Respectfully submitted,



Trevor Fitzpatrick, Staff Planner ^{SL}
Office of Conservation and Coastal Lands

Approved for submittal:



SUZANNE D. CASE., Chairperson
Board of Land and Natural Resources

TMK: (3) 2-6-011:033 Wright/Bentley Parcel

0 187.5 375 750 Feet

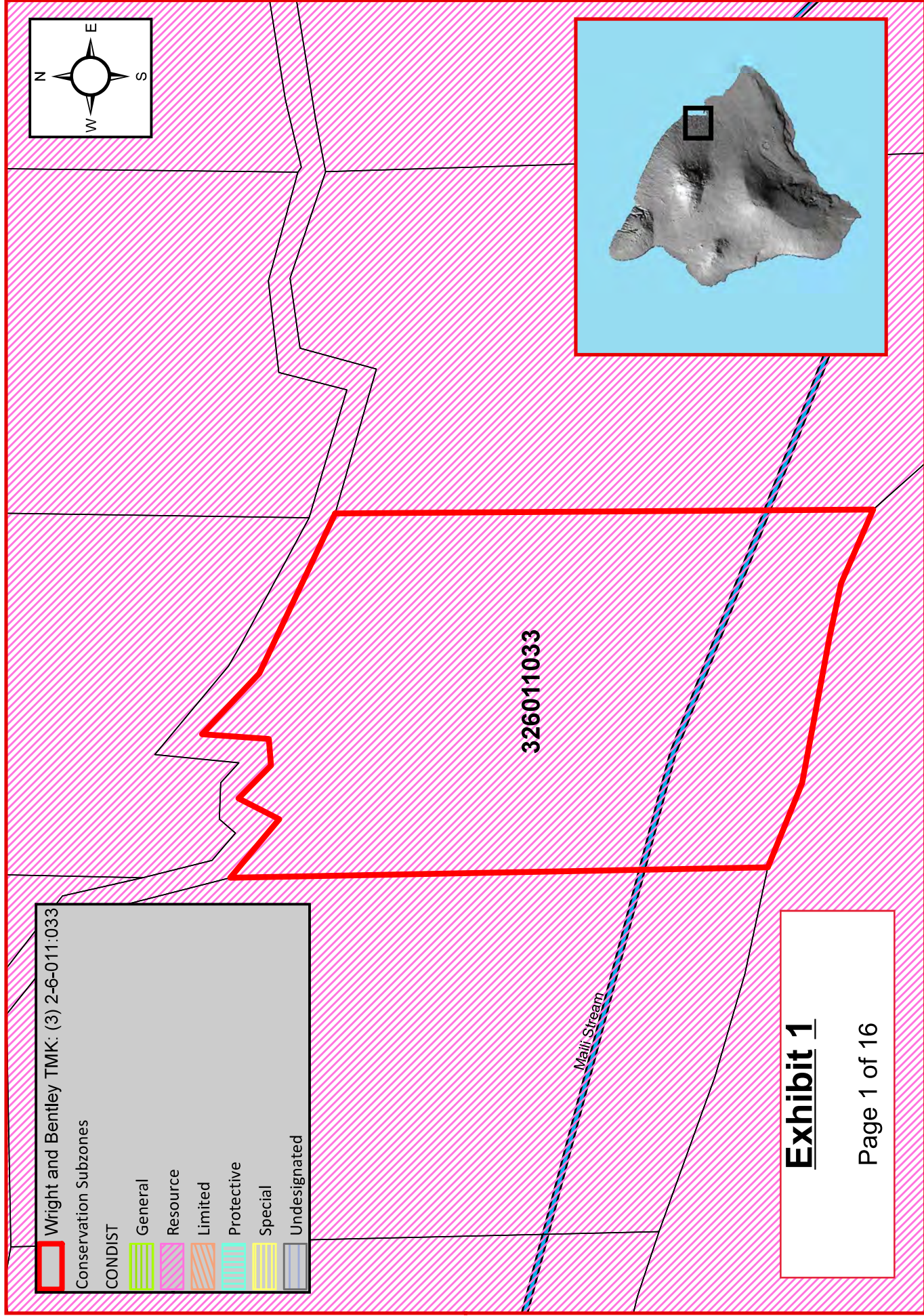
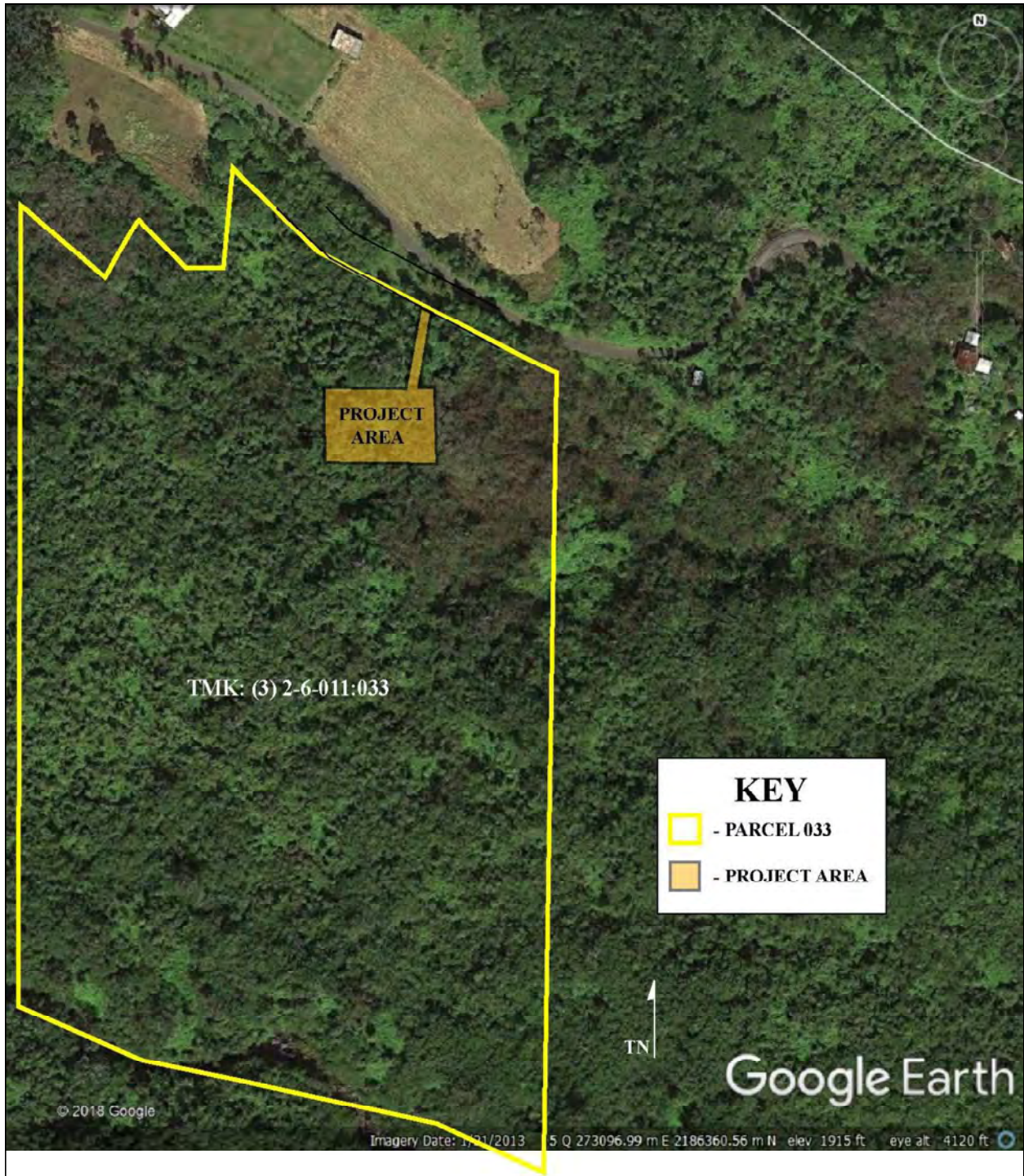


Exhibit 1

Page 1 of 16



Enclosure 6: Aerial Photograph Showing Location of Field Inspection Survey Areas (Google Earth 2018, Kaiwiki Homesteads, HI, 5Q 273097m E, 2186361m N, 2013 Image).

Exhibit 1

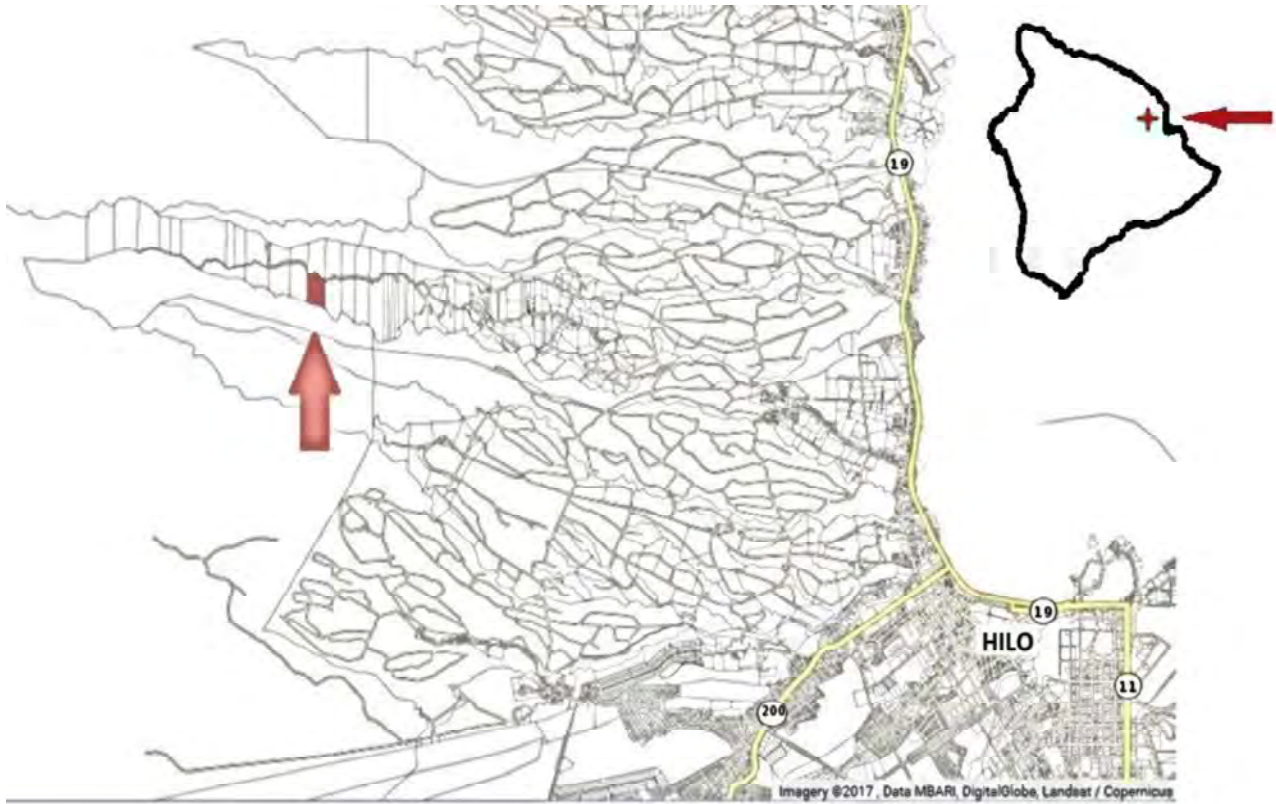


Figure 1A. Subject parcel location on Hawai'i Island

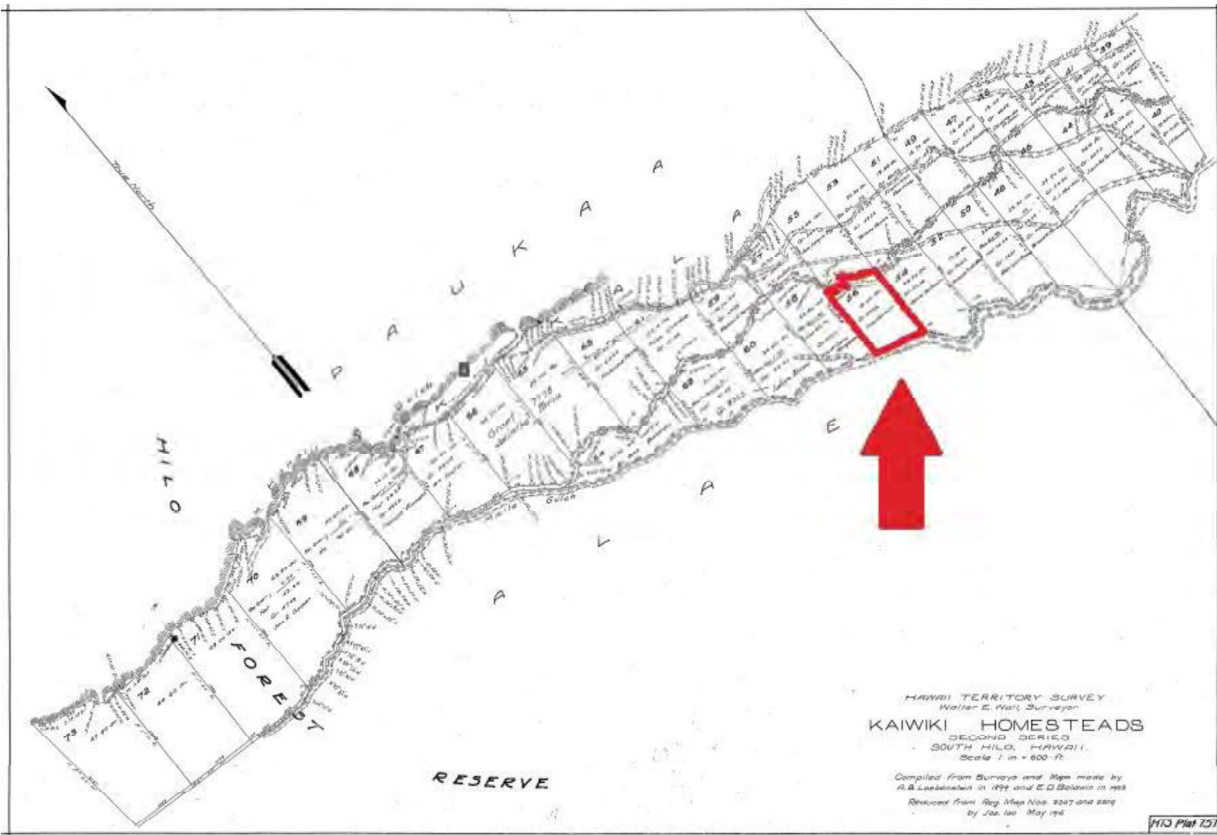


Figure 1B. Subject parcel location within Kaiwika 2 Homesteads.

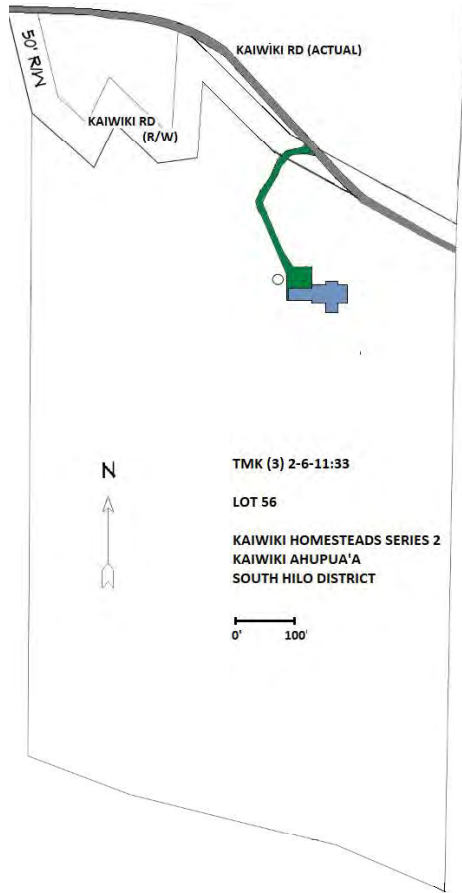


Figure 1C. Proposed project site on Kaiwīki 2 Homesteads lot 56



Figure 2A. Kaiwīki Road looking mauka. Subject parcel is on the left, lot 55 is on the right.



Figure 2B. The proposed driveway entrance on Kaiwiki Road.



Figure 2C. The proposed driveway.



Figure 2D. The proposed house site.



Figure 2E. Guava, uluhe, and deceased (but still standing) rose-apple, looking south from the proposed project site.



Enclosure 8: Photograph of North End of Proposed Driveway Area Looking East.

Exhibit 1



Enclosure 15: Photograph of Proposed House Lot Area Looking Southeast.

Exhibit 1



Enclosure 16: Photograph of Proposed House Lot Area Looking South.

Exhibit 1

Page 9 of 16



Enclosure 17: Photograph of Proposed House Lot Area Looking South.

Exhibit 1

Page 10 of 16



Enclosure 18: Photograph of Proposed House Lot Area Looking North.

Exhibit 1



Enclosure 19: Photograph of Proposed House Lot Area Looking North.

Exhibit 1

Page 12 of 16



Enclosure 20: Photograph of Proposed House Lot Area Looking West.

Exhibit 1

Page 13 of 16



Enclosure 21: Photograph of Proposed House Lot Area Looking West.

Exhibit 1



Enclosure 22: Photograph of Proposed House Lot Area Looking East.

Exhibit 1



Enclosure 23: Photograph of Proposed House Lot Area Looking East.


Exhibit 1

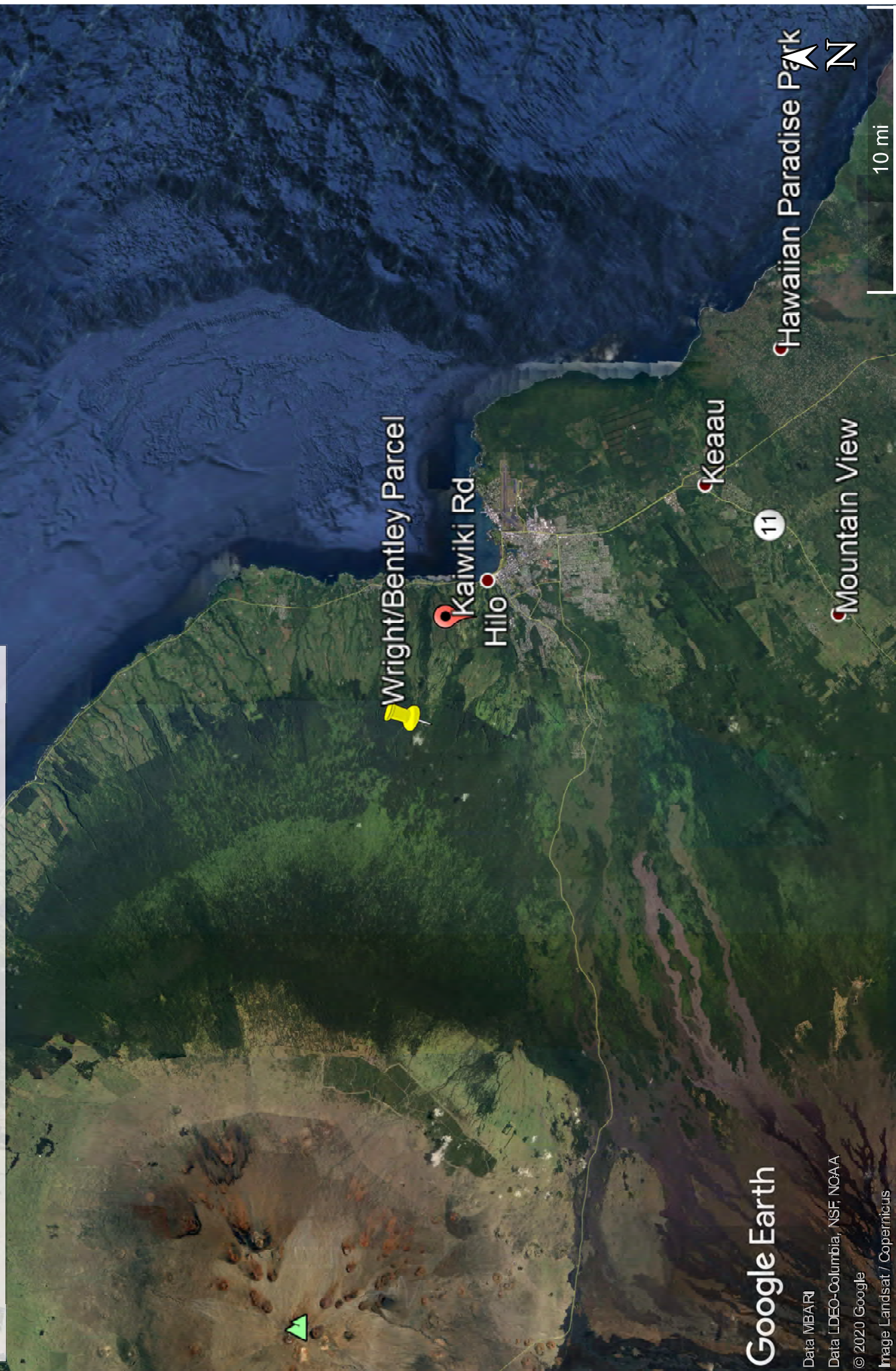
Exhibit 2 Location Map

Wright/Bentley SFR, Removal of Invasive Species, & Associated Improvements

Kaiwiki, South Hilo, Hawaii

Legend

-  Kaiwiki Rd
-  Wright/Bentley Parcel



Google Earth

Data: MBARI

Data: DEO-Columbia, NSF, NOAA

© 2020 Google

Image Landsat / Copernicus



Figure 3A. Proposed Wright/Bentley residence elevations.

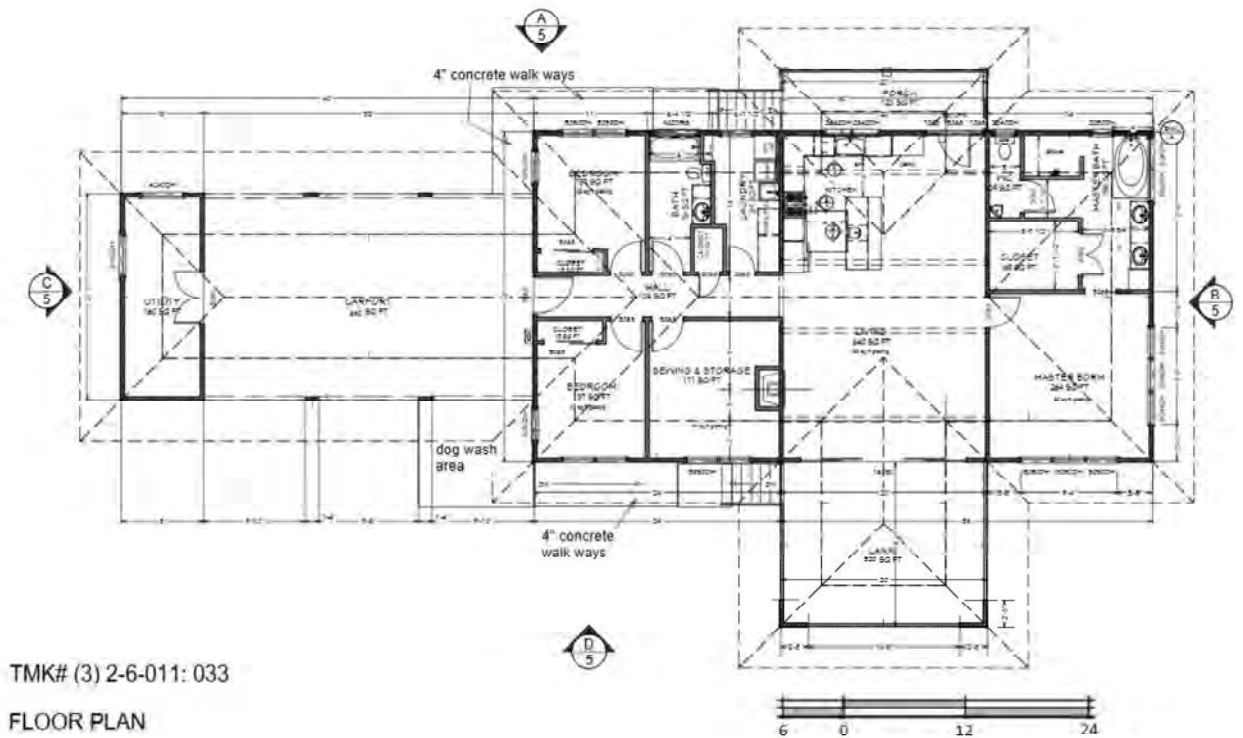


Figure 3B. Proposed Wright/Bentley residence floor plan.

Exhibit 3

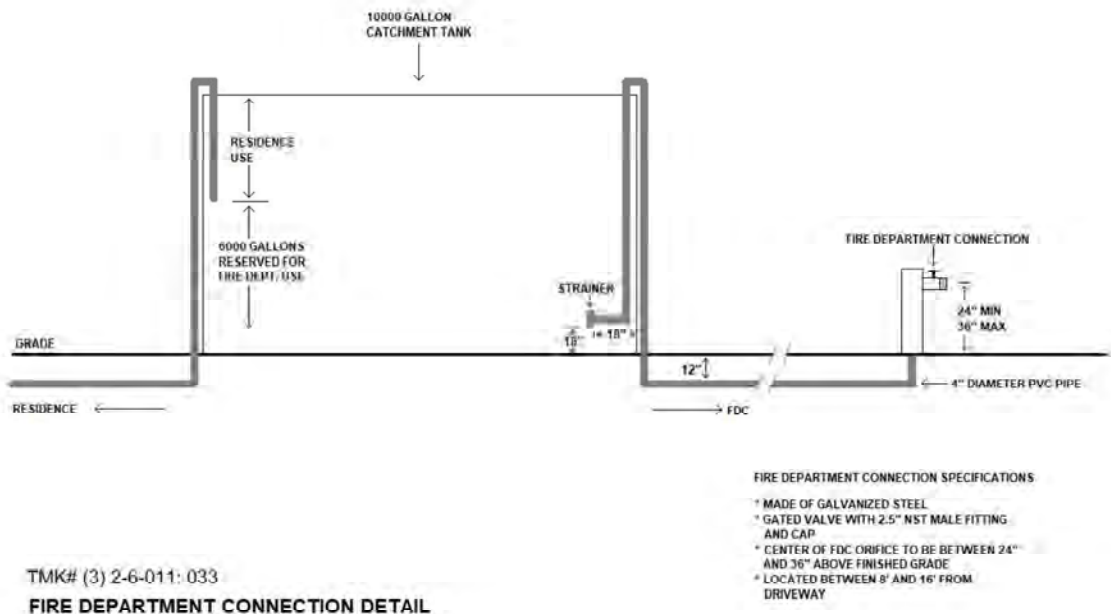


Figure 3C. Proposed Wright/Bentley residence FDC detail.

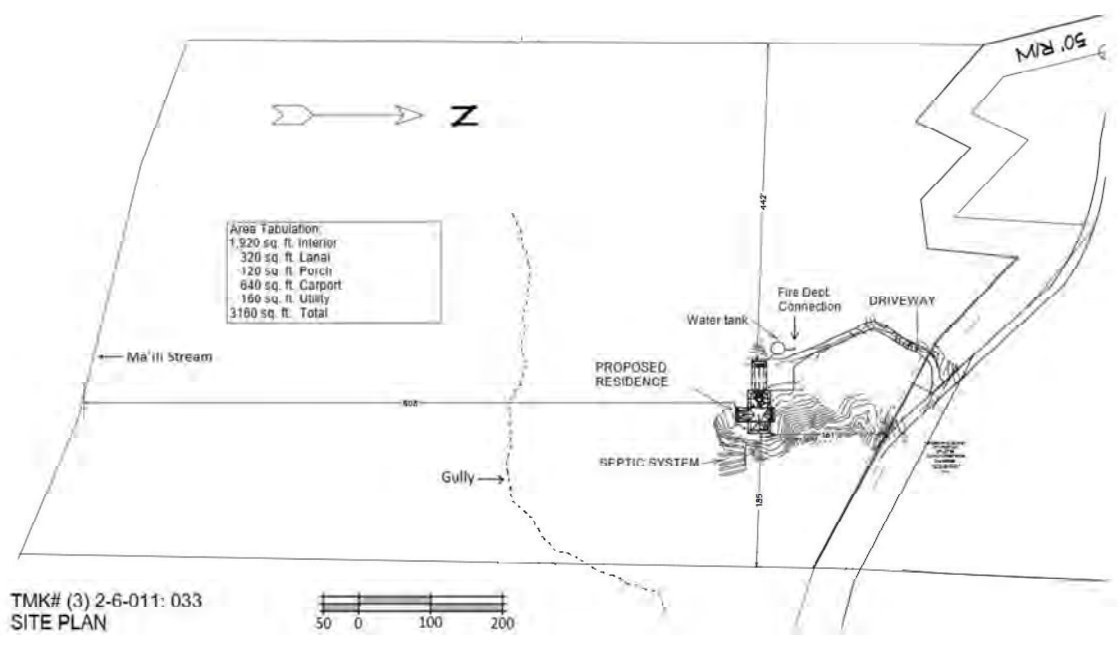


Figure 3D. Proposed Wright/Bentley residence site plan.

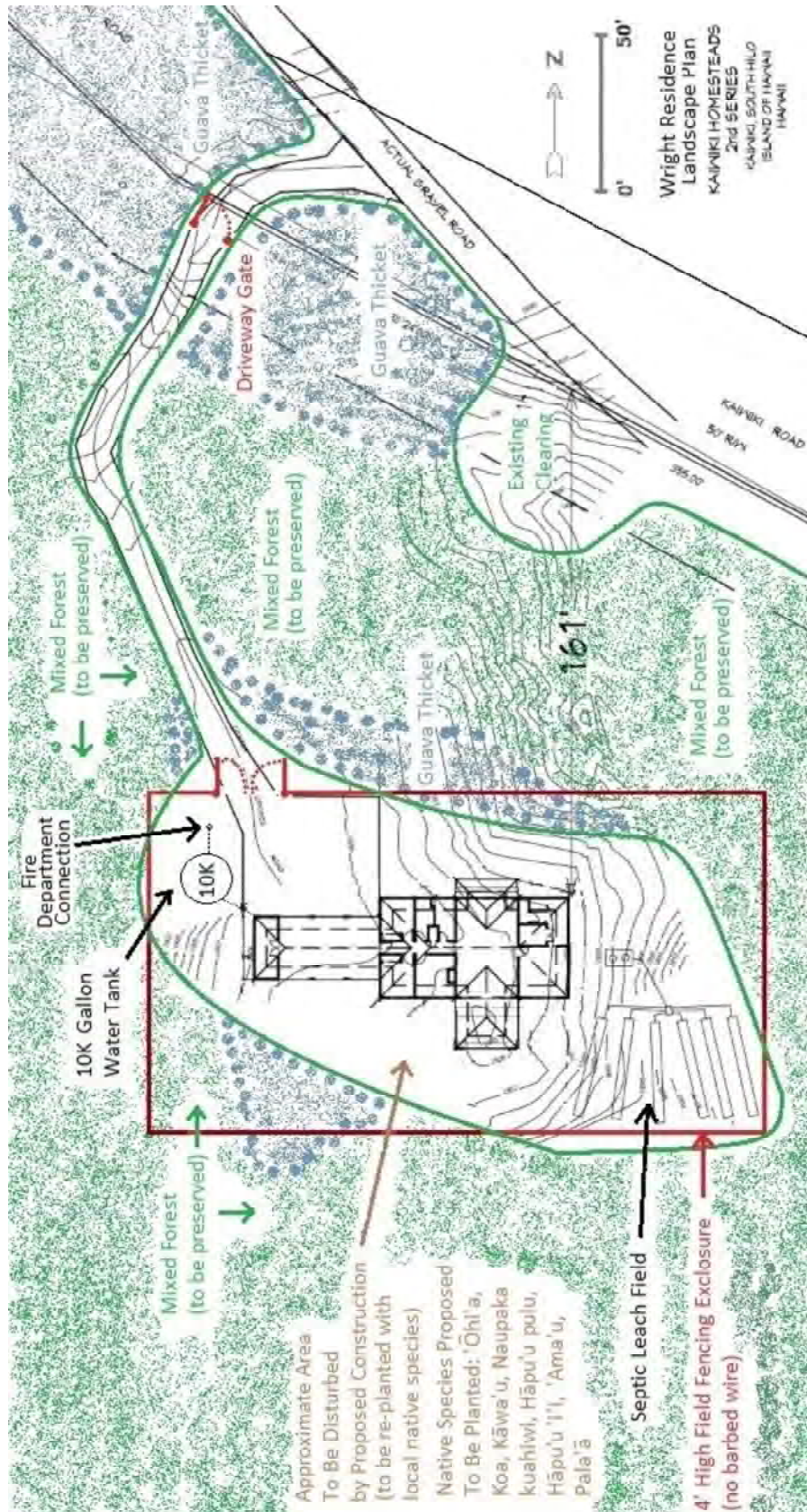


Figure 3E. Proposed Wright/Bentley residence landscape plan.

Mr. Samuel J. Lemmo
Office of Conservation and Coastal Lands
Kalanimoku Building
1151 Punchbowl St., Room 131
Honolulu, HI 96813

9/6/2016

Aloha Mr. Lemmo,

I am hoping to build a modest single family residence on my lot on upper Kaiwiki Road in the South Hilo District. It is in the Resource subzone of the Conservation District, at TMK# 3-2-6-11-33
http://qpublic9.qpublic.net/hi_hawaii_display.php?county=hi_hawaii&KEY=260110330000
Could you please advise me of the permitting requirements and application process that I'll need to follow?

As an aside, I should mention that I intend to minimize the impact of this project on the forest. The house site will displace a grove of invasive strawberry guava (waiawi), and I hope to have a net positive impact by planting site-specific native species. I hope that the Office of Conservation and Coastal Lands will affirm my notion of a restored native forest on this site.

I should also note that I am sending this same message via email, as I'm not sure which method is preferred.

Mahalo no,

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

kaleo@olapanoe.net

Ph. 408 314-9584

Exhibit 4

Page 1 of 11

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKO KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVIYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Ref: OCCL:LY

CORR: KA 17-58

Mr. J. Spencer Wright
P.O. Box 843
Mountain View, HI 96711

SEP 16 2016

SUBJECT: Request to Construct a Single Family Residence on Conservation Land Located in
Kawaiki, Hilo, Hawai'i
Tax Map Key: (3) 2-6-01:033

Dear Mr. Wright:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your inquiry to construct a modest single family residence (SFR) at the subject location. The OCCL notes that the subject property is located in the Resource Subzone of the State Land Use Conservation District.

Regarding construction of a SFR on the subject property, pursuant to HAR § 13-5-24, R-7 SINGLE FAMILY RESIDENCE (D-1) *A single family residence (SFR) that conforms to the design standards outlined in this chapter¹*, is an identified land use within the Resource subzone. The proposed land use would require the filing of a Conservation District Use Application (CDUA) and all required attachments, such as an Environmental Assessment. To allow, modify or deny the proposed land use would be at the discretion of the Board of Land and Natural Resources (BLNR). A copy of the CDUA can be found on our website at <http://dlnr.hawaii.gov/occl/forms-2/>. Details regarding our application process can also be found on our website at <http://dlnr.hawaii.gov/occl/application-process/>. For more information regarding the preparation of an Environmental Assessment, please contact the State Department of Health, Office of Environmental Quality Control.

Regarding your proposal to restore the native forest at the project site, more information is needed prior to us providing you with a permit determination. Please provide the following:

- Purpose for the restoration work;
- The total area of forest proposed to be restored;
- The methodology for the restoration work;
- The types of trees and/or plants proposed to be removed;

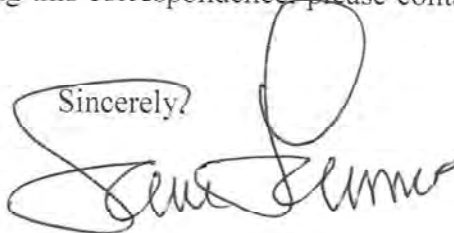
¹ The design standards can be found in HAR Chapter 13-5 as Exhibit 4, Single Family Residential Standards.

Exhibit 4

Page 2 of 11

- The types of trees and/or plants proposed to be planted and how they will be promulgated (i.e. will the plants be produced from an onsite nursery, purchased from a commercial nursery, or some other method?);

Should you have any questions regarding this correspondence, please contact Lauren Yasaka of our Office at (808) 587-0386.

Sincerely,


Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
CoH, Planning Dept.

Exhibit 4

Page 3 of 11

Mr. Samuel J. Lemmo
Office of Conservation and Coastal Lands
Kalanimoku Building
1151 Punchbowl St., Room 131
Honolulu, HI 96813

10/11/2016

Dear Mr. Lemmo,

Thank you for your reply to my letter of September 6 regarding my hopes to build a single family residence on upper Kaiwiki Road at TMK# 3-2-6-11-33. The information you provided was very helpful, I hope to follow this process in a manner to thoroughly satisfy all concerned.

Regarding my aside about restoring native species to the house site area, I should note that this is to be a personal hand gardening project. The entire area impacted by this single family residence project, including driveway and house site, will be approximately $\frac{1}{2}$ acre. So the area to be restored will be less than $\frac{1}{2}$ acre, primarily in the area disturbed by construction. All work will be performed by the landowner (me) after we have built and occupied the house.

To answer your queries specifically:

- The purpose of the restoration work is to enhance the native forest habitat by removing invasive species and increasing the presence of plants and trees native (indigenous and endemic) to the immediate area.
- The total area of forest to be restored is less than $\frac{1}{2}$ acre.
- The methodology for the restoration work will be to
 - 1) Positively identify non-native, invasive species in and adjacent to the disturbed area;
 - 2) Remove identified non-native species by hand;
 - 3) Concurrently, propagate native species from specimens located on this lot and (with permission from the owners) on neighboring lots, from seed and/or cuttings;
 - 4) Plant native species in the disturbed area and adjacent locations previously occupied by non-native species.
- The types of trees and/or plants to be removed will be those species positively identified as non-native: primarily strawberry guava, rose apple, clidemia, and tibouchinia.
- The types of trees and/or plants to be planted will be entirely native species, propagated on-site from specimens located on this lot and on neighboring lots, from seed and/or cuttings.

Thank you,

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

kaleo@olapanoe.net
Ph. 408 314-9584

Exhibit 4

Page 4 of 11

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

SUZANNE D. CASE
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DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Ref: OCCL:LY

CORR: OA 17-58

Mr. J. Spencer Wright
P.O. Box 843
Mountain View, HI 96711

NOV 10 2016

SUBJECT: Restoration of Native Species on Land Located in Kawaiki, Hilo, Hawai'i
Tax Map Key: (3) 2-6-01:033

Dear Mr. Wright:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your additional information regarding your request to conduct native forest restoration at the subject property.

According to the information you have provided, the restoration would be less than half an acre and would involve the removal of non-native species, primarily strawberry guava, rose apple, clidemia, and tibouchinia. Once cleared, the area would be re-vegetated with native species propagated from seeds and/or cuttings from specimens located on the subject property and from neighboring lots (with permission for the landowners).

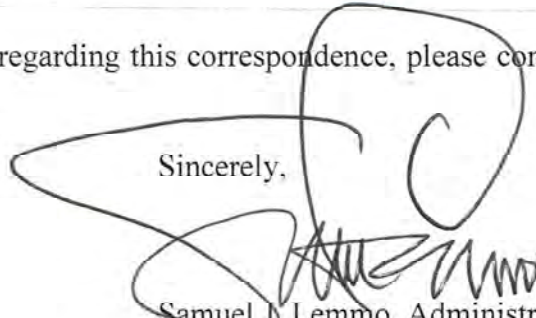
Based on your description, it would appear that the restoration work is consistent with Hawai'i Administrative Rules (HAR) §13-5-22, P-4, REMOVAL OF INVASIVE SPECIES (A-1) *Removal of invasive species including chemical and mechanical control methods, not to exceed one acre, in accordance with state and federal laws and regulations, for the purpose of protecting, preserving, or enhancing native species, native habitat, or native ecosystem functions that results in no, or only minor ground disturbance. The department or board reserves the right to require site plan approval, departmental or board approval if it is determined that the proposed action may cause significant negative secondary impacts on natural or cultural resources, or the surrounding community. Any replanting shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to the State. For existing developed lots, compliance with section 13-5-23 (L-2) satisfies the requirements of this section.* However, as your proposal is rather preliminary at this time, we ask that before pursuing such work in the Conservation District, you provide us with more information regarding the method in which you propose to conduct your invasive species removal work, as well as a specific list of best management practices (BMPs) and a list of proposed native plants to be propagated and planted so that we can better determine if any permits or approvals from the department will be required.

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Should you have any questions regarding this correspondence, please contact Lauren Yasaka of our Office at (808) 587-0386.

Sincerely,

A large, stylized handwritten signature in black ink, appearing to read 'Samuel J. Lemmo'. The signature is written over the word 'Sincerely,' and extends upwards and to the left.

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
CoH, Planning Dept.

Exhibit 4

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Mr. Samuel J. Lemmo
Office of Conservation and Coastal Lands
Kalanimoku Building
1151 Punchbowl St., Room 131
Honolulu, HI 96813

2/10/2017

Dear Mr. Lemmo,

Thank you for your reply to my letter of October 11, which was in response to your request for information regarding my aside about restoring native species to the proposed house site area of my lot on Kaiwiki Road at TMK# 3-2-6-11-33. Thank you, also, for your response that it appears that this restoration work is consistent with HAR 13-5-22, P-4, Removal Of Invasive Species (A-1).

Please forgive the lateness of this response. In order to better answer your questions I have consulted with a certified Master Gardener, and a biological survey has now been completed on the lot. I have attached copies of our previous correspondence for reference.

To answer your additional questions,

The method in which I propose to conduct invasive species removal work is by hand, with the use of tools such as pruning shears, machete, and chainsaw. The intent is to leave the soil surface unbroken.

The best management practices will include

- 1) No grubbing or grading.
- 2) Leave soil surface unbroken to avoid runoff.
- 3) Avoid removal of plants where erosion may be expected to result.
- 4) Positively identify individual plants as non-native invasive species prior to removal.
- 5) Removed plants to be kept on site and allowed to decompose to restore nutrients to soil.
- 6) Re-growth of removed invasives to be prevented through the use of sheet mulching, maintenance removal by hand, and such techniques as recommended by the Big Island Invasive Species Committee.
- 7) Propagate only disease-free native plants from subject lot and adjacent lots.
- 8) Examine seedlings and cuttings for evidence of disease as they mature.
- 9) Seedlings and cuttings to be grown in native on-site soil and/or sterile commercial mix, to avoid introduction of diseases or pests.
- 10) Propagated plants to be outplanted in sites appropriate to their species' horticultural requirements.

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[Type the company name]

The native plants proposed to be propagated and planted are as follows:

kāwa'u (*Ilex anomala*)
koa (*Acacia koa*)
'ōhi'a lehua (*Metrosideros polymorpha*)
'ōlapa (*Cheirodendron trigynum*)
'uki (*Machaerina mariscoides*)
'ama'u (*Sadleria cyatheoides*)
hapu'u 'i'i (*Cibotium menziesii*)
hapu'u pulu (*Cibotium glaucum*)
pala'a (*Sphenomeris chinensis*)

Additional native ferns such as uluhe are anticipated to naturally regenerate in disturbed areas.

Thank you,

J. Spencer Wright
P.O. Box 843
Mountain View, HI 96771

kaleo@olapanoe.net
Ph. 408 314-9584

Exhibit 4

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DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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LAND
STATE PARKS

Ref: OCCL:LY

CORR: OA 17-58

Mr. J. Spencer Wright
P.O. Box 843
Mountain View, HI 96711

APR - 4 2017

SUBJECT: Restoration of Native Species on Land Located in Kawaiki, Hilo, Hawaii
Tax Map Key: (3) 2-6-01:033

Dear Mr. Wright:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your additional information regarding your request to conduct native forest restoration at the subject property.

According to the information you have provided, the restoration would be less than half an acre and would involve the removal of non-native species by hands. Species primarily include strawberry guava, rose apple, clidemia, and tibouchinia. Best management practices (BMPs) proposed include the following:

- No grubbing or grading;
- Soil surface to remain unbroken to avoid runoff;
- Plant removal in areas where erosion may be expected will be avoided;
- Plants to be removed will be positively identified as non-native, invasive species prior to removal;
- Removed plants will remain on site and allowed to decompose;
- Re-growth of invasive plant species will be prevented through the use of sheet mulching, maintenance removal by hand, and other techniques as recommended by the Big Island Invasive Species Committee;
- Propagate only disease-free native plants from subject property and adjacent properties;
- Examine seedlings and cuttings for evidence of disease as they mature;
- Seedlings and cuttings will be planted in on-site soil and/or with sterile commercial soil mix to avoid introduction of diseases or pests; and
- Propagated plants will be out planted in site appropriate the their species' horticultural requirements.

Once cleared, the area would be re-vegetated with native species propagated from seeds and/or cuttings from specimens located on the subject property and from neighboring lots (with

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permission for the landowners). Species to be planted include kāwa'u, koa, 'ōhi'a lehua, 'ōlapa, 'uki, 'ama'u, hapu'u i'i, hapu'u pulu, and pala'a. Additional native ferns such as uluhe are anticipated to naturally regenerate in disturbed areas. The OCCL notes that all of the proposed species for planting are listed on the University of Hawai'i's Native Plants Hawai'i website (nativeplant.hawaii.edu).

The OCCL also notes that you are proposing to propagate 'ōhi'a lehua. As the island of Hawai'i is currently dealing with the problem of Rapid 'Ōhi'a Death, a fungal pathogen that is quickly killing 'ōhi'a trees, we have consulted with the Division of Forestry and Wildlife (DOFAW) regarding best management practices (BMPs) when dealing with 'ōhi'a plants. DOFAW recommended that all boots and tools should be cleaned using rubbing alcohol before leaving an area. In addition, should the need arise to remove any 'ōhi'a trees (i.e. dead trees), they recommend that any trees removed should be kept on site. The main tree log should be kept as a whole as it will reduce the number of cuts to the tree. The cuts are where the fungus attacks and infects the tree. If there are any branches sticking up, they ask that you please cut them and store them as close to the ground as possible. This reduces the possibility of the ambrosia beetle boring into the branches and creating sawdust. The sawdust is one of the spreading mechanisms for the fungus as the fungal spores attach to the sawdust and then travel in the wind or on shoes/equipment. You may also wish to tarp any 'ōhi'a logs in an effort to keep the beetles from accessing the logs. They also suggested that you contact Mr. James Boyd "J.B. Friday" of the University of Hawai'i, Department of Natural Resources and Environmental Management. He is the point of contact for the public who has questions regarding Rapid 'Ōhi'a Death. He can be reached via e-mail at jbfriday@hawaii.edu.

The OCCL has no objections to your proposed project. The proposed restoration work is consistent with Hawai'i Administrative Rules (HAR) §13-5-22, P-4, REMOVAL OF INVASIVE SPECIES (A-1) *Removal of invasive species including chemical and mechanical control methods, not to exceed one acre, in accordance with state and federal laws and regulations, for the purpose of protecting, preserving, or enhancing native species, native habitat, or native ecosystem functions that results in no, or only minor ground disturbance. The department or board reserves the right to require site plan approval, departmental or board approval if it is determined that the proposed action may cause significant negative secondary impacts on natural or cultural resources, or the surrounding community. Any replanting shall be appropriate to the site location and shall give preference to plant materials that are endemic or indigenous to the State. For existing developed lots, compliance with section 13-5-23 (L-2) satisfies the requirements of this section and no permit is required by the Department.* The OCCL requests that the correspondent adhere to the following general conditions:

1. That in issuing this letter, the Department and Board has relied on the information and data that the correspondent has provided in connection with the letter. If, subsequent to this letter, such information and data prove to be false, incomplete or inaccurate, this letter may be modified, suspended or revoked;
2. The proposed project is minor in scope and may be considered an exempt action pursuant to Hawaii Revised Statutes (HRS), §343, as amended, and Hawaii Administrative Rules (HAR), Exempt Classes of Action §11-200-8(a) (2) Replacement or reconstruction of

Exhibit 4

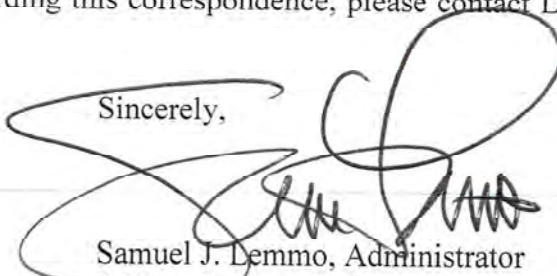
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existing structures and facilities or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification;

3. If the scope of the project changes or the cumulative impacts is perceived to be moderate or major, the department may require additional authorizations or approvals for the proposed land use; and
4. The correspondent shall implement Best Management Practices (BMP) while conducting any land use in the conservation district.

Should you have any questions regarding this correspondence, please contact Lauren Yasaka of our Office at (808) 587-0386.

Sincerely,



Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: HDLO
CoH, Planning Dept.

Exhibit 4

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Harry Kim
Mayor



Darren J. Rosario
Fire Chief

Lance S. Uchida
Deputy Fire Chief

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

February 20, 2020

Mr. Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawai'i 96809

Dear Mr. Lemmo,

SUBJECT: Conservation District Use Application (CDUA) HA-3865 for a Single Family Residence; Removal of Invasive Species; and Related Improvements. TMK: (3) 2-6-011:033

In regards to the above-referenced Conservation District Use Application, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION

Note: Hawai'i State Fire Code, National Fire Protection Association 2006 version, with County of Hawaii amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

Exhibit 5



18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures 400ft² (37 m²) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ 18.2.3.4.1.1 FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ 18.2.3.4.1.2 FDAR shall have an unobstructed vertical clearance of not less than 13ft 6 in.

C~ 18.2.3.4.1.2.1 Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1 The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curb cuts extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other access ways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C- 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001- 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code*.

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

- 1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;
- 2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
 - a) 4" for C900 PVC pipe;
 - b) 4" for C906 PE pipe;
 - c) 3" for ductile Iron;
 - d) 3" for galvanized steel.
- 3) The Fire Department Connection (FDC) shall:
 - a) be made of galvanized steel;
 - b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
 - c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
 - d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
 - e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;
 - f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
 - g) also comply with section 13.1.3 and 18.2.3.4.6.1 of *this code*.
- 4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus' conducting drafting operations at once, in mind.
- 5) Inspection and maintenance shall be in accordance to NFPA 25.
- 6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

- 1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.
- 2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.

Samuel J. Lemmo
February 20, 2020
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- 3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.
- 4) For one and two family dwellings, agricultural buildings, and storage sheds greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.
- 5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact the Fire Prevention Bureau at (808) 932-2911.



DARREN J. ROSARIO
Fire Chief

CB:ds