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BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN MEMORIAL LIFE PLAN, LTD. To Amend the Conservation Land Use District Boundary Into The Urban Land Use District for Approximately 53.449 Acres of Land At Kaneohe, Island of Oahu, State of Hawaii, Tax Map Key No: (1) 4-5-033: por. 001	DOCKET NO. A17-804 OFFICE OF PLANNING'S TESTIMONY IN SUPPORT OF PETITION WITH CONDITIONS, OP EXHIBIT 1

OFFICE OF PLANNING'S TESTIMONY IN SUPPORT OF THE PETITION WITH CONDITIONS

The Office of Planning ("OP") recommends approval of Hawaiian Memorial Life Plan, LTD.'s ("Petitioner's") request to reclassify approximately 53.449 acres of land from the State Conservation Land Use District to the Urban Land Use District, subject to conditions. OP's recommendation is based on the representations of the Petitioner and documents filed to date in these proceedings, consultation with affected government agencies, and the statutes and regulations applicable to these proceedings.

PETITION OVERVIEW

General Information

The Petitioner requests that the Land Use Commission ("Commission" or "LUC") reclassify approximately 53.449 acres of land from the State Conservation District to the State Urban District at Kaneohe, Island of Oahu.

The Petitioner is the fee owner of the parcel, Tax Map Key No. (1) 4-5-033: por. 1, being proposed for reclassification under this Petition.

Proposed Use of the Petition Area

Petitioner proposes to expand the existing Hawaiian Memorial Park Cemetery by a total of approximately 53.499 acres, by adding an additional 28.2 acres for new cemetery space, and to create a 14.5 acre Cultural Preserve northeast of the expansion area. An additional three (3) acres are proposed as internal roadways, as well as an additional 7.75 acres for open space buffer areas of 150 feet from the residential properties up to the cemetery. Some areas near the top (mauka) of the ridge would be in open space. The remainder of the Petition Area would remain undeveloped. Petitioner is proposing to enter into a Conservation Easement with the Hawaiian Islands Land Trust on approximately 156.5 acres, which would restrict future development of the property. An existing portion of the cemetery, the 7.9 acre Ocean View Garden, is also within this parcel but is not a part of the Petition Area because it is already within the State Land Use Urban District.

According to the Petition, the Petition Area is consistent with the City and County of Honolulu's Koolaupoko Sustainable Communities Plan, which designates the area for expanded cemetery use. Access to the site is through the existing cemetery driveway off Kamehameha Highway.

Petition Area Description

The Petition Area is shown in Petitioner's Exhibit 1, and OP Exhibit 2 and 2A. The Petition Area consists of approximately 53.449 acres. The Petition Area is bounded on the north by the Urban Land Use District and residential uses, on the east and south by the State Conservation Land Use District, and on the west side by the existing Hawaiian Memorial Park,

the Hawaii State Veterans Cemetery, Kamehameha Highway, and residential uses across Kamehameha Highway.

DISCUSSION OF ISSUES OF CONCERN TO THE STATE

The following discusses Project impacts and recommendations to avoid, minimize, or mitigate reasonably foreseeable impacts caused by the proposed Project with respect to areas of State concern under Hawaii Revised Statutes ("HRS") §§ 205-16 and 205-17.

Impacts on Areas of State Concern

Natural Systems and Habitats

Endangered Hawaiian Damselfly. According to the Final Environmental Impact Statement (FEIS) and Petitioner's Second Amendment to Petition for Land Use District Boundary Amendment, the Blackline or Rainbow-eye Hawaiian Damselfly is an endangered invertebrate species located within the Petition Area. The habitat is within a seep within the northwestern corner of the Petition Area that is fed from a well. The well may have been created during its former use as a dairy farm. The FEIS proposes various mitigation measures, as explained on pages 3-60-3-61. The Second Amendment document indicates that a portion of the habitat area may potentially extend into the cemetery expansion area based on preliminary grading plans. (Page 30) The document also notes that the final project design would contain a more accurate topographic survey that may result in the refinement of the habitat boundary.

In a letter dated August 22, 2019, the U.S. Fish and Wildlife Service (USFWS) also indicated that they had strong concerns regarding impacts to the endangered Hawaiian damselfly habitat, as follows. See OP Exhibit 6.

"The habitat where the blackline Hawaiian damselflies are found within [your] the proposed project area consists of a spring head contained in a damaged concrete box structure, with an interior water filled well approximately 9 feet deep. Water seeping out of the hillside to either side of this structure accumulates as shallow pools 1-3 inches deep in a small, muddy gully that gently descends for a distance of approximately 250 linear feet until being captured in a vertical concrete shaft that connects to the City and County of Honolulu storm sewer system. The blackline Hawaiian damselflies appear to be breeding along the length of this outflow between the spring heard and the storm sewer intake. Changes to the hydrology within this site

or upstream have the potential to threaten the habitat currently used by the blackline Hawaiian damselfly...

To reconfigure the site into topography suitable for a cemetery, the existing steep slopes within the Petition Area would need to be extensively altered..." Also, large retaining walls, labeled from Wall A through Wall G would need to be constructed.

The USFWS notes that much of the proposed terrain reconfiguration would occur at the western end of the Petition Area, which lies immediately upslope of the habitat supporting the population of the damselfly. As such, any impacts of such activities to the local hydrology feeding the spring at the site would be immediately detrimental to the integrity and potential long-term survival of this population.

According to the Petitioner's FEIS, the damselfly habitat is within the proposed open space and buffer area of the Petition area. However, according to the USFWS, the Hawaiian damselfly habitat and breeding area may be within the Petition Area where the actual cemetery is proposed. Petitioner should confirm the exact location of the endangered Hawaiian damselfly breeding and habitat area.

Another concern expressed by the USFWS is the potential for pesticides to impact the Hawaiian damselfly habitat. "...Research has demonstrated that aquatic insects such as damselflies are particularly vulnerable to lethal and sub-lethal effects when exposed to pollutants, such as pyrethrin-based pesticides and other chemicals that may be used in landscaping maintenance." The USFWS also notes that landscape maintenance chemicals will be used in the future within the proposed project footprint, and that some residues are already present in or adjacent to the proposed project area...it would seem likely that at least some level of contamination would inevitably be transported immediately downhill into the habitat currently occupied by the damselfly...an alternative under which no landscaped areas of any sort would be created on any of the slope draining into the damselfly habitat; this area ...roughly equivalent to the portion of the parcel lying southwest of the line labelled "site Section A" in the [D]FEIS Figure 2.4."

The USFWS also notes that "no substantive progress towards a Partners for Fish and Wildlife conservation project has been made to date in regard to an actual proposal detailing specific activities, timeline or budget" and they further recommend that this information should be provided in order to establish a habitat restoration and conservation plan for the damselfly's

habitat. The Second Amendment document indicates that the feasibility of initiating a habitat restoration and conservation plan should be evaluated. In a verbal discussion with the State Department of Land and Natural Resources ("DLNR") Division of Forestry and Wildlife, they indicate that a habitat restoration and conservation plan with the USFWS, would only be necessary if the proposed mitigation measures, as detailed below, are not sufficient to maintain and manage the habitat.

In a letter dated September 12, 2019, DLNR, indicated that they have strong concerns regarding the Petitioner's proposed mitigation measures, and recommended the following specific minimization measures be required of the Petitioners. See OP Exhibit 3. These measures are also discussed on pages 31-37 of the Second Amendment document.

1. A subsurface drainage system designed utilizing a herringbone configuration shall be implemented in the cemetery expansion area planned for fill activities above the seep. The system shall be comprised of three subsurface drainage mainlines with smaller subdrains branching laterally from them. This system will help ensure water flow to the well and seep is maintained.
2. A well monitoring gauge shall be installed inside the wall of the well, located upslope from the seep to monitor water levels prior to, during and after the project construction.
3. Before earthmoving activities begin, a temporary water line shall be extended to the well from the cemetery's irrigation system. This irrigation line will serve as a short-term means of ensuring continued water flow to the seep. If the gauge indicates water levels have declined to levels potentially affecting the seep, water from the irrigation line to the well will be provided to stabilize water levels.
4. Once earthmoving activities conclude, a permanent water line shall be extended to the well from the expanded cemetery's irrigation system. This irrigation line will serve as a long-term means of ensuring continued water flow to the seep. If the gauge indicates water levels have declined to levels potentially affecting the seep, water from the irrigation line to the well will be provided to stabilize water levels.
5. Small sticks upright and away from the edges of the waterlogged areas shall be placed along the seep to serve as molting safe zone for damselflies to avoid predation from crawling predators.

6. Habitat boundaries currently shown in the Final Environmental Impact Statement (FEIS) shall be reviewed during project final design based upon more accurate data collected from a topographic survey, and consultation with U.S. Fish and Wildlife Service. Habitat boundary shall be revised as appropriate. Fencing shall be constructed around the damselfly habitat boundary to protect the native damselfly from disturbance from feral pigs. Fencing will consist of livestock panels appropriate to exclude pigs, with lower barbed strand to resist digging.
7. Regular inspection of the seep shall occur to ensure the present flow of water is continued.
    a. Inspection of the seep shall be conducted at monthly intervals for one year prior to construction to establish baseline water flow conditions.
    b. Monitoring shall continue during construction, with the seep area inspected on a weekly basis to evaluate water flow in coordination with BMP (erosion control) measures.
    c. Once construction concludes, monitoring shall continue for six months to ensure continued water flow to the seep. Inspections shall occur weekly for the first three months, and every two weeks for the following three months.
    d. After the six-month monitoring period elapses, HMP staff shall conduct monthly water flow inspections.
    e. At any time, if water flow is documented to be outside of the range observed in the pre-construction monitoring phase, the temporary or permanent irrigation lines shall be used to provide supplemental water to the seep. Additional mitigation measures shall be determined through consultation between the contractor, design team, U.S. Fish and Wildlife Service and other specialists.
8. Regular inspections of the seep (at intervals described in 7a-f) shall also include surveys to ensure that non-native fish, specifically poecilid fish, are not present within this habitat area. If fish are observed, surveyors shall notify experienced biologists to ensure prompt identification, and the U.S. Fish and wildlife Service to consult on what control measures can be implemented.

Hawaiian Hoary Bat. The Hawaiian Hoary bat was not observed, however, mitigation measures are outlined within the FEIS for the species. The DLNR noted that the proposed avoidance measure for this species is adequate as written.

Other Comments and Recommendations. The DLNR also indicated that Petitioner should avoid importing soil or other plant material from off-island. Also, that native plant species should be utilized as appropriate for landscaping.

Botanical Resources. According to the FEIS, no plant species found in the Petition Area are threatened, endangered or a species of concern.

Water Resources. According to the Second Amendment document, there are no intermittent or perennial streams within the Petition Area. Kawa Stream begins within the adjacent Hawaii State Veterans Cemetery, and flows downslope and crosses the access road to Ocean View Garden. The stream continues through residential areas with other tributaries merge and then subsequently discharge into Kaneohe Bay. There are two (2) existing drainageways within the Petition Area. The discharge from these drainageways enter two City catchbasins situated at the end of Ohaha street and Lipalu Street. Also, according to the Second Amendment document, the Lipalu Street drainageway or channel near to the Cultural Preserve is mostly unimproved. It may be a tributary to Kawa Stream, and runoff from the Petition Area flows into the Lipalu channel. The second drainageway is comprised of the endangered Hawaiian damselfly habitat area and is also referred to as the Ohaha Place channel.

Drainage and Stormwater Management. According to the Second Amendment document proposed retention/detention basins would be designed for a 100-year frequency, one hour duration storm event. The proposed drainage plan would have an overall beneficial impact on water quality.

Archaeological and Historic Resources

A letter dated April 8, 2019 from the State Historic Preservation Division, Department of Land and Natural Resources indicated that a full archaeological inventory survey (AIS) of the project area was completed and approved by the SHPD. This letter indicates that the Petitioner must submit a data recovery plan, preservation plan and an archaeological monitoring plan prior to permitting processes.

Cultural Resources. The Petition provides for the establishment of a 14.5 acre cultural preserve within the Petition Area. Cultural practices, restoration, preservation, management and

maintenance of the existing cultural sites present would be allowed within this preserve. The cultural preserve contains the Kawaewae Heiau, and other historic sites, plants used for cultural practices, and is a site of "wahi pana" (storied places or landscapes). According to the Second Amendment document cultural organizations are interested in conducting traditional native Hawaiian burials in the heiau vicinity. Members of the Koolaupoko Hawaiian Civic Club have been caretakers of this heiau and the surrounding area. Other cultural practices, such as collecting plants for hula activities and medicinal value have also occurred in this area. The Preserve would need a preservation plan to guide and regulate cultural activities, including information on access, management responsibilities, and coordination responsibilities with the Petitioner. This area is within the proposed reclassification Petitioner Area because these types of activities are not permitted within the State Conservation District.

Conservation Easement. Petitioner proposes a long term conservation easement for the 156.5 acre portion of the property to remain within the Conservation Land Use District. Petitioner proposes to establish a partnership with the Hawaiian Islands Land Trust for the long-term management of the remaining undeveloped areas. The Second Amendment document also notes that the conservation easement would also oversee the Cultural Preserve.

Commitment of State Funds and Resources

Transportation

The FEIS includes Appendix N, a Traffic Impact Analysis Report ("TIAR"), dated January 2019. The State Department of Transportation ("DOT") submitted a letter dated September 6, 2019 indicating that the TIAR remains valid. The DOT also commented that a condition should be included that the Petitioner should be required to participate in the construction of a traffic signal and associated improvements on a pro-rata basis, based on its percentage of estimated contribution of traffic, for the construction of a traffic signal at one of the entrance intersections to the cemetery. See OP Exhibit 7.

Wastewater. The State Department of Health's ("DOH") Wastewater Branch, provided comments dated August 23, 2019. The letter indicates that the project should not have any impacts on any individual wastewater systems in the area. See OP Exhibit 5. According to the Second Amendment document, no restrooms are planned for the Petition Area.

Water. Currently, the water serving the existing cemetery for the buildings and irrigation for the cemetery landscaping is provided by the City Board of Water Supply (BWS). According

to the Petition, the current usage is about 3,100 gallons per day for the buildings and about 10,000 gallons per day for irrigation, with a smaller portion used for visitors to the cemetery. The Petitioner typically has relatively low to moderate irrigation demand because of wetter climate conditions in the Windward area. Petitioner indicates that the water demand for the Petition Area should not increase significantly. However, the Petition indicates that BWS has commented that Petitioner should investigate the feasibility of using non-potable water to irrigate the cemetery. The Second Amendment document indicates that using non-potable water has been investigated and determined to be unfeasible.

Development Timetable. According to the FEIS, the Petitioner will begin design and construction of the backbone infrastructure for the entire Petition Area in a single integrated system when all permits and approvals have been obtained, possibly in 2020. Construction would consist of site grading activities, installation of roadway infrastructure and utilities, and landscaping. Site grading would occur in phases, possibly in five (5)-acre increments. Full construction would be completed in 10 years.

Petitioner has not provided a map or phasing information in either the FEIS or the Petition documents. There is no information on sequencing of grading and thus while adjacent landowners and uses may be affected at different intervals and timeframes, no information has been provided to indicate the timing and length of time the impacts will last.

SUMMARY DISCUSSION OF CONFORMITY WITH DECISION-MAKING CRITERIA FOR BOUNDARY AMENDMENTS

The following summarizes OP's assessment of the Petition's conformity with applicable district standards, planning statutes, plans, and other criteria the Commission must consider in decision-making for a district boundary amendment Petition.

Applicable District Standards

The Petition Area is currently located in the State Conservation District. OP finds that the property, for the most part, meets the standards set in section 15-15-18, Hawaii Administrative Rules, for determining State Urban District boundaries, in that the Project is adjacent to existing Urban development. Basic services are adequate for the proposed cemetery expansion in the general area. The proposed project is not within the Special Management Area.

However, OP is concerned that the habitat for the endangered Hawaiian damselfly should be managed and maintained.

According to the Second Amendment document, the Petitioner will record a conservation easement for the undeveloped portion of TMK No. 4-5-033: Por. 1, approximately 156.5 acres of land. The Petitioner is also proposing to retain this area within the State Conservation District.

Hawaii State Plan, Priority Guidelines, and State Functional Plans

With appropriate mitigation for the endangered Hawaiian damselfly habitat, the proposed reclassification from Conservation to Urban is generally consistent with the goals, objectives, and policies of the Hawaii State Plan.

Coastal Zone Management Objectives and Policies, Section 205A-2, HAR

The Petition lies within the State's Coastal Zone Management (CZM) Area, which includes all lands of the State and the area extending seaward from the shoreline to the territorial limit. The Petition Area is not within the Special Management Area. If the habitat for the endangered Hawaiian damselfly is properly managed and maintained, and with appropriate mitigation with respect to stormwater management, protection of endangered, threatened and candidate wildlife, archaeological, historic, and the establishment of a cultural preserve and conservation area, the Petition generally conforms to the State CZM objectives and policies.

City and County of Honolulu Plans

The Petition is consistent with the City's Koolaupoko Sustainable Communities Plan. The existing cemetery and Hawaii State Veterans Cemetery is designated as Preservation Areas, and are within the Community Growth Boundary. In 2017, the plan was revised to include the proposed cemetery expansion. The expansion was limited to 28.2 acres for cemetery use. The designation is Preservation, but is consistent and within the Community Growth Boundary.

RECOMMENDATION

Based on the foregoing information and analysis, OP recommends approval of the Petition Area, subject to the Petitioner's commitments to avoid, minimize, or mitigate Project impacts as represented herein and in this proceeding, and the imposition of the following conditions in addition to the standard conditions of the Commission.

1. Stormwater Management and Drainage Improvements. Notwithstanding other conditions related to the preservation of the habitat for the endangered Hawaiian damselfly, to the extent possible, Petitioners shall implement applicable BMPs to minimize infiltration and runoff from construction and vehicle operations, reduce or eliminate the potential for soil erosion and ground water pollution, and formulate dust control measures to be implemented during and after the development process in accordance with DOH guidelines and City ordinances and rules.
2. Air Quality Monitoring. Petitioners shall participate in an air quality monitoring program as required by the State Department of Health.
3. Transportation. Petitioners shall be required to participate in the construction of a traffic signal and associated improvements on a pro-rata basis, based on its percentage of estimated contribution of traffic, for the construction of a traffic signal at one of the entrance intersections to the cemetery, and to follow the recommendations in their TIAR, as reviewed and approved by the DOT.
4. Established Gathering and Access Rights Protected. Pursuant to Article XII, Section 7, of the Hawaii State Constitution, Petitioner shall preserve any established gathering and access rights of Native Hawaiians who have customarily and traditionally used the Petition Area to exercise subsistence, cultural and religious practice, or for access to other areas.
5. Previously Unidentified Burials and Archaeological/Historic Sites. In the event that historic resources, including human skeletal remains, are identified during construction activities, all work shall cease in the immediate vicinity of the find, the find shall be protected from additional disturbance, and SHPD shall be contacted immediately. Without any limitation to any other condition found herein, if any burials or archaeological or historic sites are discovered during the course of construction of the Project, all construction activity in the vicinity of the discovery shall stop until the issuance of an archaeological clearance from the SHPD that mitigation measures have been implemented to its satisfaction.
6. Petitioner shall establish the Cultural Preserve in conjunction with an appropriate Native Hawaiian group (Group). The Petitioner shall work with the community and the

Koolaupoko Hawaiian Civic Club in order to establish a preservation and working plan for the Cultural Preserve, in perpetuity.

7. Endangered Species. Petitioners shall undertake the following:
    a. A subsurface drainage system designed utilizing a herringbone configuration shall be implemented in the cemetery expansion area planned for fill activities above the seep. The system shall be comprised of three subsurface drainage mainlines with smaller subdrains branching laterally from them. This system will help ensure water flow to the well and seep is maintained.
    b. A well monitoring gauge shall be installed inside the wall of the well, located upslope from the seep to monitor water levels prior to, during and after the project construction.
    c. Before earthmoving activities begin, a temporary water line shall be extended to the well from the cemetery's irrigation system. This irrigation line will serve as a short-term means of ensuring continued water flow to the seep. If the gauge indicates water levels have declined to levels potentially affecting the seep, water from the irrigation line to the well will be provided to stabilize water levels.
    d. Once earthmoving activities conclude, a permanent water line shall be extended to the well from the expanded cemetery's irrigation system. This irrigation line will serve as a long-term means of ensuring continued water flow to the seep. If the gauge indicates water levels have declined to levels potentially affecting the seep, water from the irrigation line to the well shall be provided to stabilize water levels.
    e. Small sticks upright and away from the edges of the waterlogged areas shall be placed along the seep to serve as molting safe zone for damselflies to avoid predation from crawling predators.
    f. Habitat boundaries currently shown in the Final Environmental Impact Statement (FEIS) shall be reviewed during project final design based upon more accurate data collected from a topographic survey, and consultation with U.S. Fish and Wildlife Service. Habitat boundary shall be revised as appropriate. Fencing shall be constructed around the damselfly habitat boundary to protect the native

damselfly from disturbance from feral pigs. Fencing shall consist of livestock panels appropriate to exclude pigs, with lower barbed strand to resist digging.

g. Regular inspection of the seep shall occur to ensure the present flow of water is continued.

h. Inspection of the seep shall be conducted at monthly intervals for one year prior to construction to establish baseline water flow conditions.

i. Monitoring shall continue during construction, with the seep area inspected on a weekly basis to evaluate water flow in coordination with BMP (erosion control) measures.

j. Once construction concludes, monitoring shall continue for six months to ensure continued water flow to the seep. Inspections shall occur weekly for the first three months, and every two weeks for the following three months.

k. After the six-month monitoring period elapses, HMP staff shall conduct monthly water flow inspections.

l. At any time, if water flow is documented to be outside of the range observed in the pre-construction monitoring phase, the temporary or permanent irrigation lines shall be used to provide supplemental water to the seep. Additional mitigation measures shall be determined through consultation between the contractor, design team, State Department of Land and Natural Resources, U.S. Fish and Wildlife Service and other specialists.

m. Regular inspections of the seep (at intervals described in 7a-k) shall also include surveys to ensure that non-native fish, specifically poecilid fish, are not present within this habitat area. If fish are observed, surveyors shall notify experienced biologists to ensure prompt identification, and the U.S. Fish and wildlife Service shall be consulted on what control measures can be implemented.

8. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation, including woody plants greater than 15 feet, along the periphery of the Petition Area shall not occur between June 1 to September 15 when bats may be carrying young and potentially could be at risk by such clearing activities.

9. Conservation Easement. Petitioner shall establish the conservation easement and file this with the State Bureau of Conveyance for the 156.5 acre portion of the parcel. Petitioner

shall formulate the easement and stewardship of the easement with an appropriate entity for the long-term management of the area.

10. Development Timetable. Petitioner shall provide the Commission with a development timetable prior to obtaining grading permits from the City.
11. Compliance with Representations. Petitioner shall develop the Petition Area in substantial compliance with the representations made to the Commission as reflected in the Findings of Fact, Conclusions of Law, and Decision and Order. Failure to so develop the Petition Area may result in reversion of the Petition Area to its former classification, or change to a more appropriate classification.
12. Infrastructure Deadline. Petitioners shall complete construction of the proposed backbone infrastructure, which consists of the primary roadways and access points, internal roadways, on- and offsite water and electrical system improvements, and stormwater/drainage and other utility system improvements, within ten (10) years from the date of the Decision and Order approving the Petition.

DATED: Honolulu, Hawaii, December 23, 2019.

OFFICE OF PLANNING
STATE OF HAWAII

Mary Alice Evans

MARY ALICE EVANS
Director

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BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN MEMORIAL LIFE PLAN, LTD. To Amend the Conservation Land Use District Boundary Into The Urban Land Use District for Approximately 58.449 Acres of Land At Kaneohe, Island of Oahu, State of Hawaii, Tax Map Key No: (1) 4-5-033: por. 001	DOCKET NO. A17-804 OFFICE OF PLANNING'S FIRST AMENDED EXHIBIT LISTS; EXHIBITS 1, 2, 2A, 3, 4, 5, 6, 7, 8 AND 9; CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served upon the following by either hand delivery or depositing the same in the U.S. Postal Service by regular mail.

BENJAMIN M. MATUBARA, #993-0
CURTIS T. TABATA, #5607-0
Matubara, Kotake & Tabata
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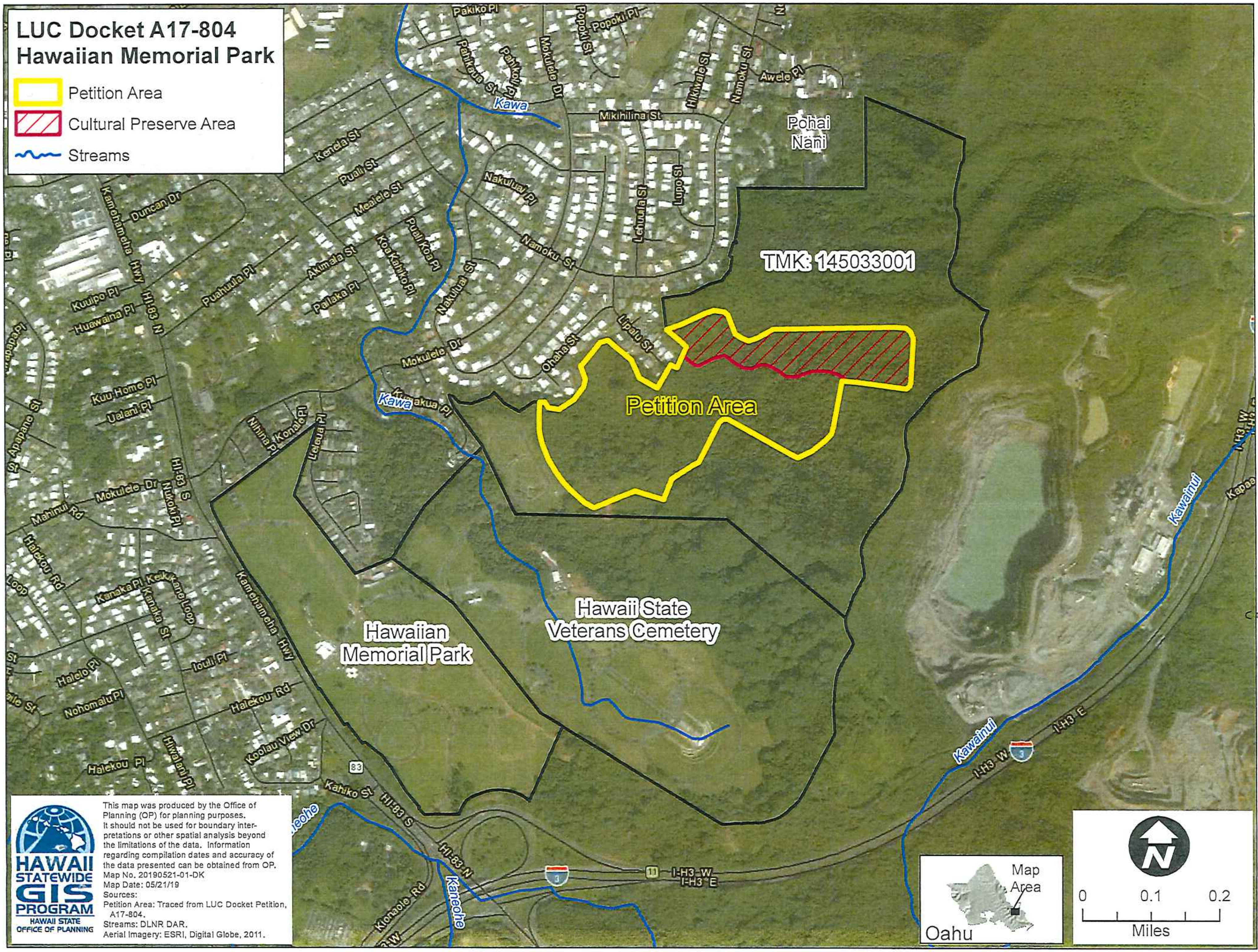
Honolulu, Hawaii 96813

KATHY K. SOKUGAWA
Acting Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813


LUC Docket A17-804
Hawaiian Memorial Park
Petition Area
Cultural Preserve Area
Streams
TMK: 145033001
Petition Area
Hawaii State Veterans Cemetery
Hawaiian Memorial Park
Pohai Nani
Kawa
Kawainui
Kaneohe
Kamehameha Hwy
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I-H3 W
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Namoku St
Mikihilina St
This map was produced by the Office of Planning (OP) for planning purposes. It should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data. Information regarding compilation dates and accuracy of the data presented can be obtained from OP.
Map No. 20190521-01-DK
Map Date: 05/21/19
Sources:
Petition Area: Traced from LUC Docket Petition, A17-804.
Streams: DLNR DAR.
Aerial Imagery: ESRI, Digital Globe, 2011.
HAWAII STATEWIDE GIS PROGRAM
HAWAII STATE OFFICE OF PLANNING
Map Area
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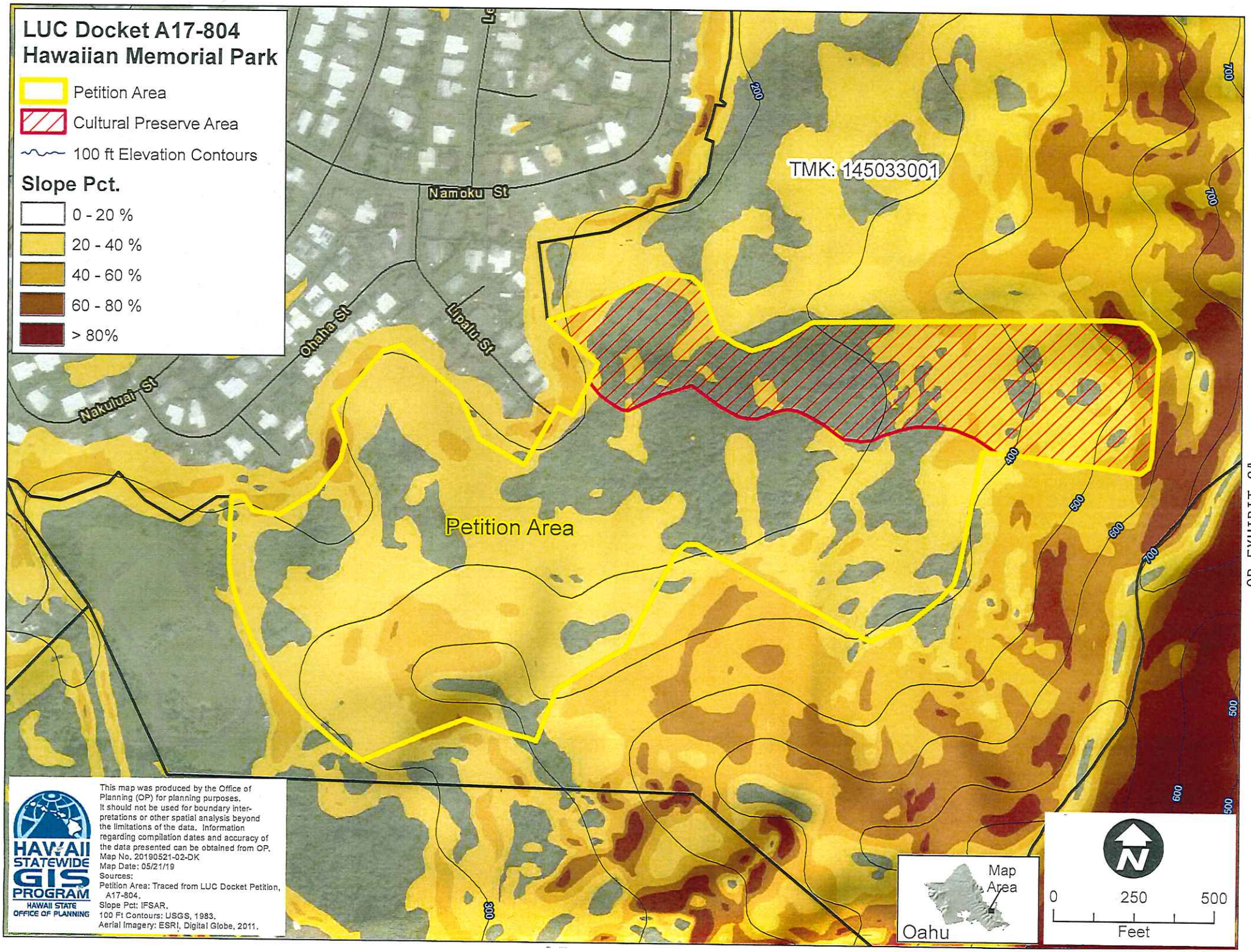
OP EXHIBIT 2



OP EXHIBIT 2A

2192

DAVID Y. IGE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
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

RECEIVED
SEP 17 2019
OFFICE OF PLANNING

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813
SEP 12 2019

Mary Alice Evans, Director
Special Plans Branch, Office of Planning
State of Hawaii
PO. Box 2359
Honolulu, Hawaii 96804-2359

Dear Ms. Evans:

SUBJECT: Petition for Amendment of the State Land Use District Boundaries: Land Use Commission Docket No. A17-804, Hawaiian Memorial Life Plan, Ltd.

Protected Species

Black-line Damselfly Habitat Requirements

The black-line damselfly (*Megalagrion nigrohamatum nigrolineatum*) inhabits a seep within the project area. This species is one of 23 damselfly species endemic to Hawai'i. It is a single-island endemic, found only on the island of O'ahu. The species inhabits stream corridors, as well as springs and seeps near streams. Populations of black-line damselfly previously occurred in both the Waianae and Ko'olau mountains, and while they remain in low abundance in Ko'olau streams, the species is now considered extirpated from the Waianae Mountains. Habitat loss and habitat alteration, and the introduction of non-native species (introduced fish and amphibian predators) have resulted in dramatic declines in populations of Hawaiian damselflies across their historic ranges.

Springs and seeps represent integral habitat for declining damselfly species. Aquatic invasive predators typically travel in surface waters to disperse across the landscape, therefore streams are corridors in which these predators become established and expand their ranges. In contrast, seeps and springs have only intermittent or no connectivity to other bodies of water. As a result, these habitats often remain refuges for threatened species which would otherwise be subject to high mortality from introduced predators. An example of a damselfly which has been extirpated from nearly its entire native range on O'ahu by aquatic invasive predators is the orange-black damselfly (*M. xanthomelas*). That species is now found in just a single 100-meter stretch of artificial habitat that is maintained and the population persists because the habitat has no surface-water connection to any stream. At the proposed Hawaiian Memorial Park expansion, the seep (also referred to as a spring) in question also has no direct surface-water connection and is therefore crucial for the conservation of *M. nigrohamatum nigrolineatum*.

Hydrology Assessment for Impacts to the Black-line Damselfly

Appendix H of the DEIS is a subcontractor report *Assessment of the Potential Impact on*

Groundwater of the Proposed Expansion of the Hawaiian Memorial Park. This report describes the groundwater seep habitat that supports the damselfly as emanating in part from approximately four feet downslope from a dug well. This source is further described as follows: "The groundwater seep is maintained by the natural discharge of groundwater moving downslope through the poorly permeable residual soils overlying the unweathered Kailua volcanics at depth" (p. 21).

The general description of the proposed action which is described in the subcontractor report is that the project would involve "installation of retaining walls and fill of tens of feet in depth in the area upslope from the well and seep" (p. 13). The report states "Loading by the fill behind the retaining walls does have the potential to compress the soils below through which the groundwater is moving downslope." (p. 22). The proposed solution to alleviate this potential compression and ensure that the quantity and direction of groundwater flow is maintained is to construct "at least two and possibly three deeper subsurface drains" (p. 22).

DOFAW agrees that the proposed solution may help maintain flow characteristics that support the endangered blackline damselfly habitat but does not provide the degree of certainty necessary that there would be no impacts to the damselfly habitat. A description of the full length of the seep flow is described as follows in the subcontractor plan: "Based on results of the well test, flow in the upper one third to one half of the linear seep is maintained by subsurface leakage from the well" then "Further downslope, flow in the seep increases continuously to its ultimate discharge into the Ohaha Place drainage system" (pp. 21-22). This description indicates that subsurface groundwater in other areas of the site, other than from the groundwater in the area of the dug well, may be important to maintain the habitat in the lower one-half of the seep area. This indication of complexity is supported in the discussion of soils in the DEIS which notes the complex terrain and surface hydrology in the area of the seep: "The spring area contains multiple swale alignments and localized standing water" (p. 3-11 of the DEIS main text). The overall complexity and uncertainty of groundwater discharge along the entire length of the seep flow that is supporting the endangered damselfly is a significant consideration.

The DEIS does recognize the importance of the seep habitat and discusses management actions under the proposed action for the area. There is a commitment to fence the area to keep out pigs, monitor water flow and the presence of non-native fish predators, and work with the U.S. Fish and Wildlife Service to establish a habitat restoration and conservation program (p. 3-56).

DOFAW supports the following specific minimization measures to account for potential impacts to the groundwater flow as conditions of approval of the petition:

1. A subsurface drainage system designed utilizing a herringbone configuration will be implemented in the cemetery expansion area planned for fill activities above the seep. The system will be comprised of three subsurface drainage mainlines with smaller subdrains branching laterally from them. This system will help ensure water flow to the well and seep is maintained.
2. A well monitoring gauge will be installed inside the wall of the well, located upslope from the seep to monitor water levels prior to, during, and after the project construction.
3. Before earthmoving activities begin, a temporary water line will be extended to the well from the cemetery's irrigation system. This irrigation line will serve as a short-term means of ensuring continued water flow to the seep. If the gauge indicates water levels

have declined to levels potentially affecting the seep, water from the irrigation line to the well will be provided to stabilize water levels.

4. Once earthmoving activities conclude, a permanent water line will be extended to the well from the expanded cemetery's irrigation system. This irrigation line will serve as a long-term means of ensuring continued water flow to the seep. If the gauge indicates water levels have declined to levels potentially affecting the seep, water from the irrigation line to the well will be provided to stabilize water levels.
5. Small sticks upright and away from the edges of the waterlogged areas will be placed along the seep to serve as molting safe zones for damselflies to avoid predation from crawling predators.
6. Habitat boundaries currently shown in the final EIS will be reviewed during project final design based upon more accurate data collected from a topographic survey, and consultation with U.S. Fish and Wildlife Service. Habitat boundary would be revised as appropriate. Fencing would be constructed around the damselfly habitat boundary to protect the native damselfly from disturbance from feral pigs. Fencing will consist of livestock panels appropriate to exclude pigs, with lower barbed strand to resist digging.
7. Regular inspection of the seep will occur to ensure the present flow of water is continued.
    a. Inspection of the seep will be conducted at monthly intervals for one year prior to construction to establish baseline water flow conditions.
    b. Monitoring will continue during construction, with the seep area inspected on a weekly basis to evaluate water flow in coordination with BMP (erosion control) measures.
    c. Once construction concludes, monitoring will continue for six months to ensure continued water flow to the seep. Inspections will occur weekly for the first three months, and every two weeks for the following three months.
    d. After the six-month monitoring period elapses, HMP staff will conduct monthly water flow inspections.
    e. At any time, if water flow is documented to be outside of the range observed in the pre-construction monitoring phase, the temporary or permanent irrigation lines will be used to provide supplemental water to the seep. Additional mitigation measures would be determined through consultation between the contractor, design team, U.S. Fish and Wildlife Service, and other specialists.
8. Regular inspections of the seep (at intervals described in 7a-f) will also include surveys to ensure that non-native fish, specifically poecilid fish, are not present within this habitat area. If fish are observed, surveyors will notify experienced biologists to ensure prompt identification, and the U.S. Fish and Wildlife Service to consult on what control measures can be implemented.

Hawaiian Hoary Bat

The proposed avoidance measure for this species to avoid disturbance of trees greater than 15 feet in height during the bat breeding and pupping season of June 1 to September 15 is adequate as written.

Seabirds

DOFAW agrees that seabirds are not expected to be impacted based on the project proposed action: "The project should not impact protected seabirds because: 1) no night-time construction is planned, and 2) no exterior lighting is planned as part of site improvements" (p. ES-6).

Vegetation and Landscaping

If the proposed action for the project is approved, DOFAW has the following recommendations regarding vegetation:

- Avoid importing to Oahu soil or other plant material from off-island. Soil and plant material may contain invasive fungal pathogens (e.g. Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g. Little Fire Ants, Coqui Frogs), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the O'ahu Invasive Species Committee at (808) 266-7994 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of harmful fungal pathogens.
- Use native plant species for landscaping that are appropriate for the area (i.e. climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Invasive plant species should be avoided. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (https://sites.google.com/site/weedriskassessment/home).

We appreciate the opportunity to provide comments on the proposed action. Please contact James Cogswell, Wildlife Program Manager, at (808) 587-4187 or James.M.Cogswell@hawaii.gov if you have any questions.

Sincerely,

DAVID G. SMITH
Administrator

cc: Chairperson, Board of Land and Natural Resources
DLNR Land Division

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

August 22, 2019

REF: RFD.1969.3

TO: Ms. Mary Alice Evans, Director
Office of Planning

FROM: M. Kaleo Manuel, Deputy Director
Commission on Water Resource Management

SUBJECT: Petition for Amendment of the State Land Use District Boundaries: Land Use Commission Docket No. A17-804, Hawaiian Memorial Life Plan, Ltd.

FILE NO.: RFD.1969.3
TMK NO.: (1) 4-5-033:001

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://dlnr.hawaii.gov/cwrm.

Our comments related to water resources are checked off below.

- [ ] 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- [X] 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- [X] 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
- [ ] 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EAP as having high water efficiency can be found at http://www.epa.gov/watersense.
- [ ] 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://planning.hawaii.gov/czm/initiatives/low-impact-development/
- [ ] 6. We recommend the use of alternative water sources, wherever practicable.
- [ ] 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.
- [ ] 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at

http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf.

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.

☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER: We reiterate our October 18, 2018 comments on the Draft EIS regarding Well 2347-010 and a possibly additional source.

If you have any questions, please contact Lenore Ohye of the Planning Branch at 587-0216 or W. Roy Hardy of the Regulation Branch at 587-0225.

DAVID Y. IGE
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

LUD – 1 4 5 033 001 Petition
Amndmnt Hawn Mem Life Plans
ID4761

August 23, 2019

To: Mary Alice Evans, Director
Office of State Planning, State of Hawaii

From: Sina Pruder, Branch Chief
Wastewater Branch, Environmental Management Division
Department of Health, State of Hawaii

Subject: Petition for Amendment of the State Land Use District Boundaries: Land Use Commission Docket No. A17-804, Hawaiian Memorial Life Plans, Ltd.
45-425 Kamehameha Highway, Kaneohe 96744 TMK (1) 4-5-033: 001 Por.

Thank you for allowing us the opportunity to provide comments on the expansion of the Hawaiian Memorial Park Cemetery Uses and Cultural Preserve.

Based on the information that was provided in the Final Environmental Impact Statement, it does not appear that the expansion project will have an impact on the individual wastewater systems that are regulated by the Wastewater Branch. Based on this information, we have no comments to offer for the subject petition.

Should you have any questions, please call Mr. Mark Tomomitsu of my staff at 586-4294.

c: Ms. Lorene Maki (email: Lorene.k.maki@hawaii.gov)

OP EXHIBIT 5

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai'i 96850

In Reply Refer to:
01EPIF00-2018-TA-0435

22 August, 2019

Mary Alice Evans, Director
Office of State Planning
P. O. Box 2359
Honolulu, HI 96804

Subject: Petition for Amendment of the State Land Use District Boundaries: Land Use Commission Docket No. A17-804, Hawaiian Memorial Life Plan, Ltd.

Dear Ms. Evans:

The U.S. Fish and Wildlife Service (Service) received your letter of 30 July, 2019, requesting our comments on the Petition for Amendment of the State Land Use District Boundaries: Land Use Commission Docket No. A17-804, Hawaiian Memorial Life Plan, Ltd., relevant to a parcel located in Kāne'ohe, on the island of O'ahu [TMK: (1) 4-5-033: por. 001]. This letter has been prepared under the authority of and in accordance with the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*), and other authorities mandating Service concern for environmental values.

The Service has commented previously on this proposed action, in the context of the Draft Environmental Impact Statement prepared by the applicant pursuant to the requirements of HRS 343. As per the request in your letter, we are providing you with these same comments for your consideration. We would also note that the Service did not consider the applicant's response to our comments as reflected in the final EIS to be entirely acceptable. In particular, we retain concerns that extent and depth of slope grading, trenching, and filling upslope of the endangered damselfly habitat at this site has the potential to alter the local hydrology, potentially reducing or eliminating the outflow from the small spring on which the damselfly population depends.

The previous Service comments, submitted on October 24, 2018 were as follows:

Project Description

Hawaiian Memorial Life Plan, Ltd. (Petitioner) owns and manages the Hawaiian Memorial Park (HMP), a full service cemetery that provides the community with burial plots and a variety of interment options. The Petitioner is proposing to expand HMP because of growth in O'ahu's aging population and demand for ground interment and inurnment spaces. Currently, less than 6% of individual plots at HMP are available for families. Therefore, the Petitioner is asking the State of Hawai'i (State), Land Use Commission (LUC) to reclassify a portion (53.45 acres) of

their larger 164.4 acre property from the State Conservation District to the Urban District, allowing for the expansion of the cemetery to meet future burial plot needs. This expansion project is referred to as the Hawaiian Memorial Park Cemetery Expansion Project ("Project" or "Proposed Action"). The property the Petitioner intends to reclassify is referred to as the "Petition Area."

The Proposed Action consists of two components: 1) expansion of the HMP cemetery to include 28.2 acres of new cemetery space; and 2) creation of a 14.5-acre cultural preserve immediately northeast of the cemetery expansion area. Remaining portions of the larger 164.4 acre property surrounding the Petition Area would remain undeveloped. A conservation easement with the Hawaiian Islands Land Trust would be placed on 156.5 acres of the larger parcel (less HMP's 7.9-acre Ocean View Garden section), restricting future development of the property except for execution of the Proposed Action.

Service Comments

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program as it pertains to listed species and designated critical habitat. The federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) may occur and also be impacted by components of the Proposed Action. Therefore, we appreciate your proposed avoidance and minimization measures for the Hawaiian hoary bat. Please note our comment letter dated February 5, 2018 for specific dates to avoid disturbance during the bat breeding and pupping season. Additionally, the federally endangered blackline Hawaiian damselfly (*Megalagrion nigrohamatum nigrolineatrum*) has been documented on the HMP property and may be impacted by components of the Proposed Action. We offer the following comments to assist you in your proposed project.

Blackline Hawaiian damselfly

The blackline Hawaiian damselfly occurs in the slow sections or pools along mid-reach and headwater sections of perennial upland streams and in seep-fed pools along overflow channels bordering such streams. All colonies of the blackline Hawaiian damselfly are constrained to portions of streams not occupied by nonnative predatory fish—that is, stream portions above geologic or manmade barriers (e.g., waterfalls, steep gradients, dry stream midreaches, or constructed diversions).

Blackline Hawaiian damselfly adults are predacious and feed on small flying insects, such as midges; immatures require pools until their adult in upland streams, as well as seepage-fed pools that border them, and some degree of riparian tree cover. Threats to the current existence of this species include severe alteration and degradation of freshwater habitats due to past and present land use and water management practices, including agriculture, urban development, and development of ground water, perched aquifer and surface water resources, as well as accidental and deliberate introduction of alien species, such as fish, backswimmers, California grass and fire ants.

The habitat where the blackline Hawaiian damselflies are found within your proposed project area consists of a spring head contained in a damaged concrete box structure, with an interior water-filled well approximately 9 feet deep. Water seeping out of the hillside to either side of this structure accumulates as shallow pools 1-3 inches deep in a small, muddy gully that gently descends for a distance of approximately 250 linear feet until being captured in a vertical concrete shaft that connects to the City and County of Honolulu storm sewer system. The blackline Hawaiian damselflies appear to be breeding along the length of this outflow between the spring head and the storm sewer intake. Changes to the hydrology within this site or upstream have the potential to threaten the habitat currently used by the blackline Hawaiian damselfly.

In general, the Service finds that the DEIS underestimates or fails to adequately analyze certain risks to the habitat supporting a local population of the blackline Hawaiian damselfly inherent in the development of the Petition Area for a cemetery expansion. In particular, the Service's concerns center on impacts to hydrology and spring discharge, and on water-borne or wind-borne transport of environmental contaminants, in the form of landscaping chemicals or their residues, into the damselfly habitat. The Service also notes that additional discussion is encouraged in regard to potential coordination with its Partners for Fish and Wildlife Program. We recommend a revised EIS be prepared that addresses these deficiencies.

Hydrology

On Page 2-24, the DEIS states that "The majority of the approximately 53.45-acre Petition Area would be used for expansion of the cemetery by 28.2 acres (53% of total Petition Area). The cemetery expansion would involve the construction of landscaped areas for burial space. Small private structures could also be placed throughout the cemetery grounds with special features, garden walls, walkways, and monuments similar to that present within other areas of HMP. After grading to establish appropriate slopes, the majority of the land would be landscaped with turf and would match the appearance of the existing cemetery. An internal roadway system encompassing about 3 acres would be constructed to provide access to various areas..."

To reconfigure the site into topography suitable for a cemetery, the existing steep slopes within the Petition Area would need to be extensively altered. As explained on Page 2-25 of the DEIS "In order to achieve the desired finish grades, the lower flank slopes of the Oneawa hillside on the western end of the site would need to be cut...The majority of the hillside on the western end of the expansion site would be excavated reducing it up to 40 feet in height; however, the areas near the top of the hillside would reduce it up to 100 feet in height. A smaller ridge line below this hillside in the area generally between Lipalu Street and Ohaha Place would also be excavated. Excavations would extend up to 60 feet for this smaller ridge."

The DEIS further states that "The excess soil from excavation activities would be used to fill the lower portions of the basin areas within the cemetery expansion site... these areas proposed for fill generally include areas below the current hillside, and the majority of the eastern half of the cemetery expansion site. The majority of fill activities would increase the existing height of the basin less than 20 feet; however, a section would fill up to 40 feet in height."

In addition to grading and filling, construction of large retaining walls are also proposed. On Page 2-25 the DEIS notes that "The roadways alignment and earthwork balance requirements under the preliminary grading plan necessitate the need for constructed retaining walls at various locations within the cemetery site. A total of seven retaining walls (labelled Walls A to G) are planned... These retaining walls would be utilized within the central and western areas of the Petition Area, and most are associated with the excavation of the hillside. The keystone designed retaining walls would average about 10 feet in height, with some sections having a maximum height of 25 feet due to terrain. The use of walls taller than 10 feet tall is planned to be kept to a minimum. However, where taller wall sections are required, the keystone would be terraced to provide for a more aesthetic view complete with landscaping."

The Service notes that much of the proposed terrain reconfiguration would occur at the western end of the Petition Area, which lies immediately upslope of the habitat supporting the population of the ESA-listed blackline Hawaiian damselfly. As such, any impacts of such activities to the local hydrology feeding the spring at the site would be immediately detrimental to the integrity and potential long-term survival of this population. On Page 3-64 of the DEIS, it is explained that a consultant was hired to assess the nature of groundwater flows in this area. It states "Two types of field investigation were undertaken to assess whether the well and seep are from a shallow perched water source. This investigation consisted of: 1) drilling four boreholes directly upslope of the well and seep; and 2) conducting a siphon and pump test of the well to determine if subsurface leakage from the well is creating the seep that emerges just four feet downslope." The studies concluded that "the seep is maintained by the natural discharge of groundwater moving downslope through the poorly permeable residual soils overlying the unweathered Kailua volcanics. In the vicinity of the well and four test boreholes upslope from the well, the groundwater is actually semi-confined. The groundwater movement is through underlying soils at depths of 10 feet or more rather than through the surface soils."

On subsequent pages, the DEIS does not seem to be internally consistent in its conclusions regarding potential construction impacts to this groundwater flow supporting the blackline Hawaiian damselfly habitat. On page 3-66 the DEIS states that "Based on these tests, it was determined that grading improvements should not have a significant impact on the Petition Area's underlying groundwater conditions or the well and seep." However, on page 3-67 the DEIS states that "The weight of the fill material has the potential to compress existing soils and interrupt or redirect groundwater migration that is moving downslope. This could reduce the permeability of these already poorly permeable soils, impeding or re-routing the downslope direction of groundwater flow." These two statements appear to be at odds with each other, one asserting no impacts, the other admitting that impacts might well occur. We believe that impacts have a reasonable likelihood of occurring, due to both excavation into slopes above the spring habitat that may penetrate bedrock, and soil compaction impacts, as described above.

Furthermore, on Page 2-30, it is observed that, "Excavation work may encounter stiff to hard residual and saprolitic soils and the underlying basalt rock formation. In addition, some of the excavations may encounter boulders, clusters of cobbles, and hard basalt rock formation. It is anticipated that most of the materials may be excavated using normal heavy excavation equipment. However, deep excavations, boulder excavations, and excavations into the underlying basalt rock formation may require the use of hoe rams." This seems to be a direct

acknowledgement that excavation activities associated with terrain reconfiguration could indeed penetrate the entire overlying soil horizon and into the underlying basalt bedrock, which would have to potential to impact the groundwater flow at levels below the surface soils. As discussed previously, the DEIS indicates that the most extensive excavation of this type will occur at the western end of the Petition Area, directly above the damselfly habitat. No mention is made of how such excavation impacts might be mitigated.

The proposed solution to the soil compaction issue presented in the DEIS is to install deeper subsurface drains to route groundwater flow, but it is not specified how far below the existing surface such drains would need to be. If they were deep enough to penetrate whatever underlying aquifer is feeding the present spring (10 feet or deeper, according to the information in the DEIS) and served to change the direction of subsurface groundwater flow, then they themselves could represent potential impacts to the damselfly population.

The Service also has concerns about the proposed mitigation measures related to the spring habitat. On Page 3-56, one of the measures proposed to minimize potential effects on the damselfly population is to "Conduct regular inspection of the seep to ensure the present low trickle flow of water is continued." However, the DEIS does not also describe what the response would be if the water flow is observed to be declining, or ceases. This possible scenario could result in significant habitat modification or degradation that results in death or injury to the blackline Hawaiian damselfly by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

In summary, the DEIS fails to document how groundwater inputs are currently arriving at the current spring head, fails to analyze how the proposed grading, filling and road or retaining wall construction may alter the flow, or how an interruption in such flow would be addressed. If the flow is interrupted, this could have significant impacts to the listed damselfly by leading to partial or complete loss of spring-fed habitat. The Service therefore recommends that a revised EIS also evaluate an alternative under which no significant grading, excavation or construction would occur on any of the slopes above the spring along the plausible flow path of the source groundwater, this area being roughly equivalent to that lying southwest of the line labelled "Site Section A" in the DEIS Figure 2.4. Under such an alternative, significant development and ground disruption would be limited to the areas east of the spring, with access obtained by using existing road grades left over from the former dairy farming operation in the area to the best extent possible.

Environmental contaminants

On Page 3-87, the DEIS states that "Herbicide, and to a lesser extent pesticide, usage may occur as a result of landscaping maintenance activities associated with cemetery expansion area." It is further stated that "With the extensive grading improvement planned at the site, the trace concentrations of pesticides such as Diuron detected that may be potentially located in alluvial deposits adjacent to drainage ways may become buried within fill material or removed as part of excess material from cutting activities. These pesticides may still be present within the Petition Area from its prior historic use for agriculture and ranching activities."

Cemeteries are intensively managed landscapes, and as such make use of a wide array of landscape maintenance chemicals including herbicides, pesticides, and fertilizers. The DEIS acknowledges that such chemicals will be used in the future within the proposed project footprint, and that some residues are already present in or adjacent to the proposed project area. Although the DEIS takes into account the potential delivery of such chemicals into the main Kāwā Stream channel in the context of a Clean Water Act Section 303(d) assessment of Total Maximum Daily Load (TMDL), it does not assess the potential for more local transport of such chemicals downslope from the proposed new cemetery development into the spring head and outflow area at levels below TMDL via shallow groundwater percolation or sheet flow during heavy rainstorms. It would seem likely that at least some level of contamination would inevitably be transported immediately downhill into the habitat currently occupied by the damselfly. Peer-reviewed research has demonstrated that aquatic insects such as damselflies are particularly vulnerable to lethal and sub-lethal effects when exposed to pollutants, such as pyrethrin-based pesticides and other chemicals that may be used in landscaping maintenance. The revised EIS should therefore analyze this possibility in greater detail. Consistent with the hydrology concerns stated above, the Service recommends that the revised EIS also evaluate an alternative under which no landscaped areas of any sort would be created on any of the slopes draining into the damselfly habitat; this area again being roughly equivalent to the portion of the parcel lying southwest of the line labelled "Site Section A" in the DEIS Figure 2.4.

The Service also notes that the majority of the area proposed for cemetery development lies east of the damselfly habitat. As such, it does not present the same risks from direct runoff of landscaping chemicals or residues, but it is directly upwind of the spring habitat under normally prevailing tradewind conditions, and the potential thus exists for airborne drift of pesticides into the spring area, which could affect damselfly adults, as well as settle into the spring water, thus exposing earlier life stages to toxic effects. The revised EIS should therefore assess this risk also and indicate how it might best be mitigated.

Partnership

On Page ES-7, the DEIS states that in regard to the damselfly habitat "Coordination would be conducted with the U.S. Fish and Wildlife Service to establish a habitat restoration and conservation program for this damselfly's habitat under the Partners for Fish and Wildlife program." The Service acknowledges that some initial conceptual discussions have occurred, and the DEIS does mention certain mitigating measures, including construction of fencing around the damselfly habitat, monitoring for invasive aquatic species, and providing molting perches in aquatic areas away from introduced ants, all of which would be useful and beneficial components of such a habitat restoration and conservation plan. However, we still have concerns for the potential impacts resulting from the proposed changes in hydrology upslope and the environmental contaminants on the damselfly and its habitat. We recommend that a habitat restoration and conservation plan for the blackline Hawaiian damselfly include actions to avoid or minimize changes of the hydrology upslope and increase use of contaminants. Lastly, no substantive progress towards a Partners for Fish and Wildlife conservation project has been made to date in regard to an actual proposal detailing specific activities, timeline or budget. Therefore, we recommends that a timeline should be provided in the revised EIS in regard to how coordination on this matter will proceed.

Although we encourage continued coordination with the Partners for Fish and Wildlife program in order to establish a habitat restoration and conservation program for the damselfly's habitat, please note that the successful development of a habitat restoration plan may not necessarily relieve the project proponent from compliance with the ESA. If the final proposed action still includes potential changes in the hydrology or use of landscaping chemicals that may result in take of the endangered blackline Hawaiian damselfly, we recommend you contact our office early in the planning process so that we may assist you with the ESA compliance. If no Federal agency is involved with the proposed project, we recommend the Petitioner request an incidental take permit under section 10(a)(1)(B) of the ESA. The section 10 permit application must include a habitat conservation plan that identifies the effects of the action on listed species and their habitats, and defines measures to minimize and mitigate those adverse effects.

Summary

In summary, we recommend that the revised EIS address in more detail the potential threats to the local population of blackline Hawaiian damselfly specifically in regard to hydrology and environmental contaminants, and also analyze an alternative under which no cemetery development or major land disturbance would occur on any slopes directly above or draining into the damselfly habitat. The Service also encourages the Petitioner to engage at their earliest opportunity with the Partners for Fish and Wildlife Program, and for the revised EIS to provide a timeline for implementation of such a partnership and its associated mitigation activities. If incidental take of the blackline Hawaiian damselfly cannot be avoided, we also recommend the Petitioner request an incidental take permit under section 10(a)(1)(B) of the ESA.

We appreciate your efforts to conserve Hawai'i's native species. If you have any questions or concerns regarding our letter, please contact Dr. Dan A. Polhemus, Aquatic Ecosystem Conservation Program Manager (email: Dan_Polhemus@fws.gov). When referring to this project, please include this reference number: 01EPIF00-2018-TA-0435.

Sincerely,

GREGORY KOOB

Digitally signed by GREGORY KOOB
Date: 2019.08.22 15:44:37 -10'00'

Gregory Koob
Deputy Field Supervisor, Programmatic Operations

cc:
Ms. Cynthia King – State of Hawai'i, Department of Land and Natural Resources – Division of Forestry & Wildlife

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

IN REPLY REFER TO:
DIR 0777
STP 8.2741

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

September 6, 2019

TO: MARY ALICE EVANS, DIRECTOR
OFFICE OF STATE PLANNING

FROM: JADE T. BUTAY
DIRECTOR OF TRANSPORTATION

SUBJECT: HAWAIIAN MEMORIAL PARK CEMETERY EXPANSION PROJECT
PETITION FOR AMENDMENT OF THE STATE LAND USE DISTRICT BOUNDARIES: LAND USE COMMISSION (LUC) DOCKET NO. A17-804,
HAWAIIAN MEMORIAL LIFE PLAN, LTD.
KANEOHE, OAHU, HAWAII
TMK: (1) 4-5-033:001 (POR.)

The Department of Transportation (DOT) previously commented on the subject project during the Hawaii Revised Statutes, Chapter 343 Environmental Impact Statement (EIS) review process. A Traffic Impact Analysis Report (TIAR) by Austin Tsutsumi and Associates, Inc. dated August 8, 2018 included in the EIS was reviewed. DOT is satisfied that the proposed action has not changed with the Petition filing and the TIAR remains valid.

Our previous comments on the subject project in our letter STP 8.2544 dated October 23, 2018 (copy attached) to the LUC remains applicable and valid.

In addition, DOT requests consideration for a condition that the petitioner should be required to participate in the construction of a traffic signal and associated improvements on a pro-rata basis, based on its percentage of estimated contribution of traffic if DOT were to construct a traffic signal at one of the entrance intersections to the cemetery.

If there are any questions, please contact Mr. Blayne Nikaido of the DOT Statewide Transportation Planning Office at (808) 831-7979 or via email at blayne.h.nikaido@hawaii.gov.

Attachment

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
DIR 1029
STP 8.2544

October 23, 2018

TO: THE HONORABLE LUIS P. SALAVERIA, DIRECTOR
DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT
AND TOURISM

ATTN: SCOTT DERRICKSON
LAND USE COMMISSION

FROM: JADE T. BUTAY
DIRECTOR OF TRANSPORTATION

SUBJECT: HAWAIIAN MEMORIAL PARK (HMP) CEMETERY EXPANSION PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
KANEOHE, OAHU, HAWAII
TMK: (1) 4-5-033:001 (POR.)

The applicant, Hawaiian Memorial Life Plan, Ltd., which owns and manages HMP, proposes an expansion to ensure that a sufficient supply of burial plots can be maintained. The applicant proposes reclassification of a 53.45 acres portion of Parcel 001 (164.4 acres) from Conservation District to Urban District. The reclassified area will consist of 28.2 acres for cemetery use, 14.5 acres for cultural preserve and the remainder for open space and internal roadways. The Department of Transportation (DOT) offer the following comments:

Highways Division

Kamehameha Highway in the project vicinity is a four-lane facility and HMP has two stop-controlled driveways across from Mahinui Road and from Halekou Road. The Traffic Impact Analysis Report (TIAR) noted that DOT was evaluating the Halekou Road intersection for possible signalization but, no decision had been made. The TIAR included two alternatives: one with a traffic signal, and one without a traffic signal.

1. Based on the TIAR, the proposed expansion is not anticipated to have a significant impact to our State highways; therefore, HMP has no transportation improvements to the State Highway System. HMP should implement the TIAR recommendation for restriping the HMP approaches to Kamehameha Highway to provide for better exiting traffic flow.

2. HMP should provide for appropriate traffic control plans in the event some activity within HMP and/or areas contained with its boundaries may cause traffic issues at access driveways.

3. If there should be unexpected traffic issues not provided for in the TIAR that can be attributed to HMP, the traffic issues should be mitigated to the satisfaction of the DOT.

If there are any questions, please contact Mr. Blayne Nikaido of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7979 or by email at blayne.h.nikaido@hawaii.gov.

c: Ronald A. Sato, HHF Planners

RESUME

Rodney Funakoshi

Planning Program Administrator, Land Use Division
State of Hawaii Office of Planning

Employment:

- Planning Program Administrator, Land Use Division, Office of Planning, 2011-present
- Senior Project Manager, Planning and Development, Castle & Cooke Hawaii, 2007 - 2011
- Senior Project Manager – Planning, Wilson Okamoto Corporation, 1987 – 2007
- Planner IV-VI, State of Hawaii Department of Planning and Economic Development, 1979 – 1987

Education:

- Master of Urban and Regional Planning, University of Hawaii at Manoa
- Bachelor of Arts, Sociology, University of Hawaii at Manoa

Expertise:

- Hawaii land/water use development permits
- Community master plans
- Public awareness and involvement
- Infrastructure & erosion control plans
- Environmental assessments/EISs
- Water quality and wetlands permits
- Land use development plans
- Airport and military master plans

Experience:

Mr. Funakoshi has managed a wide range of government and private sector planning and development projects in Hawaii and the Pacific. As a consulting planner he has represented major land owners and developers including Castle & Cooke Hawaii, Alexander and Baldwin, Stanford Carr Development, Haseko, Gentry Hawaii, Ko Olina Resort, TSA International, Outrigger Resorts, Kamehameha Schools, and Kauai Lagoons. Development approvals processed include State land use boundary amendment petitions, Conservation District Use, Special Management Area permits, county zoning, variance and subdivision approvals, and Federal and State water quality permits.

Major public sector projects managed include the Aiea-Pearl City Livable Communities Plan, Hawaii State Airport Systems Plan, Kailua-Kaneohe-Kahaluu Wastewater Facilities Plan, Waipahu Town Plan, Maui Land Use Technical Study and Infrastructure Assessment, Kawainui Marsh Master Plan, Hilo International Airport Master Plan, Camp H.M. Smith Master Plan, Hawaii Water Resources Protection Plan, Oahu Water Master Plan, Five-Year Boundary Review/Affordable Housing Study, Grading/Erosion Control Ordinance Revision for Maui and Hawaii County, and Marine Education and Training Center at Sand Island.

Mr. Funakoshi has supervised the preparation of over 50 environmental assessments and environmental impacts statements under Hawaii and Federal EIS laws for airports, highways, harbors, schools, military, land use, infrastructure, resort, commercial-industrial, residential, and master planned communities. He has coordinated hundreds of environmental technical and scientific studies including engineering, archaeology, botany, ornithology, traffic, air, noise, socio-economic and water quality.

Professional Associations:

- American Planning Association, Hawaii Chapter

OP EXHIBIT 8

Cogswell, James M.

James Cogswell
1676 Ala Moana Blvd., #1108 Honolulu, HI
96815, USA Cell: +1(808)542-9312,
E-mail: cogswellj@hotmail.com

Skills: Program Design and Management; Strategic Planning; Grant Management; T&E Species Management; Climate Change Adaptation; Conflict Analysis and Mediation; Wildlife Management; Fluent in French

Education and Training:

Hawaii Pacific University, Honolulu, Hawaii - Graduate Certificate in Environmental Policy

The School for International Training, Brattleboro, Vermont - MA Program in International Management (PIM)

Humboldt State University, Arcata, California - BS Wildlife Management

Professional Experience:

April 2015 – Present, USA
DLNR/Division of Forestry and Wildlife, 1151 Punchbowl St., Honolulu, HI 96813
Supervisor: David Smith, Phone: (808) 978-9786, david.g.smith@hawaii.gov
Job Title: Wildlife Program Manager/Wildlife Chief, *(GS-13 equivalent)*

- Senior Management Team member, establishing Division's strategic goals, organizational structure and efficiency measures
- Represent the Department of Land and Natural Resources (DLNR) and the Division of Forestry and Wildlife to state legislators, state and federal agencies, partners and the public
- Develop and approve threatened and endangered (T&E) species recovery plans and habitat restoration goals across all the major Hawaiian islands stretching to the Kure atoll
- Develop and approve game management plans, balancing the public's right to substance and recreational hunting with adequate control of exotic/invasive game species and the recovery of Hawaii's 530 T&E species
- Review and analyze development projects statewide to assure regulatory compliance with the state's T&E laws to determine their likelihood to impact threatened and endangered species
- Provide specialized technical advice and review of Habitat Conservation Plans to assure adequate minimization and mitigation for the take of T&E species
- Manage over $26M in state and federal funds, developing budgets, assuring projects are focused, achievable and integrated into the Hawaii State Wildlife Action Plan as well as assuring timely reporting, objectives are met and accounting meets state and federal standards
- Provides leadership, strategic direction, management and supervision to wildlife program staff statewide (56 staff working on 9 islands across 4 districts)
- Develop legislation and administrative rules impacting wildlife in Hawaii

October 2012 – April 2015, USA
DLNR/Division of Forestry and Wildlife, 2135 Makiki Heights Drive, Honolulu, HI 96822
Supervisor: Jason C. Misaki, Phone: (808) 973-9786, jason.c.misaki@hawaii.gov
Job Title: Wildlife Biologist IV, *(GS-9/11 equivalent)*

- Provide specialized technical advice on T&E species recovery, appropriate human/wildlife interface, educational and cultural components, appropriate infrastructure design and assuring community ownership of the Kawainui-Hamakua Wetland Complex Integrated Resource Management Plan (http://www.hhf.com/kawainui/index.html)
- Assure endangered species recovery, wetland restoration, invasive species control, and predator control targets are being met across the district and within budget
- Liaison with community and partner organizations, nurturing partnerships, organizing volunteer opportunities, developing materials and leading outreach events

October 2006 – June 2008, GUINEA
USDA Forest Service - International Program (USFS-IP), 1099 14th St. NW, Suite 5500W, Washington DC 20005
Job Title: Chief of Party/Principal Advisor, Sustainable and Thriving Environments for West African Regional Development" (STEWARD) Program, *(GS-13 equivalent)*

- Coordinated with high-level officials of Guinea, Liberia, Ivory Coast and Sierra Leon to establish a trans-boundary protected area conservation and livelihoods improvement project https://rmportal.net/library/content/steward-program-sustainable-and-thriving-environments-for-west-african-regional-development/view
- Coordinated/Facilitated high-level forest policy reform in Guinea, developed National Participative Forestry Strategy and a reformed Agricultural Development Policy in French
- Instigated performance-based administrative reform within Guinea's Forest Department, improving Human Resource Management, transparency, data management, and public relations on the national and international levels
- Facilitated a multi-national conference on sustainable forestry in West Africa - involving high-level officials from ten nations - which developed partnerships, harmonized visions and increased dialogue/sharing
- Managed USFS-IP programs in West Africa by developing strategies, work-plans, budgets, financial oversight (>$2M), evaluations and writing progress reports
- Developed long-term and fruitful relations between the USFS-IP and local, national and regional partners

November 2004 – January 2006, GABON

World Wildlife Fund, Central African Regional Office (WWF-CARPO), Gabon Country Office, Montée de Louis, B.P. 9144, Libreville, Gabon

Job Title: Conservation Advisor, Minkébé Project, *(GS-12 equivalent)*

- Subject Matter Expert, providing specialized advice to high-level National Park Officers on developing conservation strategies, park management plans, wildlife protection and handling human-wildlife conflicts in French
- Provides leadership, strategic direction, management and supervision to 35 local field staff, developing monthly and annual work-plans, developing training programs, assuring financial accountability (>$2 million)
- Developed strategic visions, goals and basic management plans for three newly formed National Parks in Gabon
- Facilitated/negotiated conflict resolutions and solid collaboration between local, national and international stakeholders for the shared use of natural resources and the equitable division of responsibilities and benefits
- Contributed the development of the strategic framework for the management of a tri-national network of protected areas between Cameroon, Gabon and Congo-Brazzaville, http://www.wwf-congobasin.org/where_we_work/tridom___tri_national_dja_odzala_minkebe/

September 2001 – March 2004, TOGO

US Peace Corps, 1111 19th Street, NW, Washington DC, 20526

Job Title: Associate Peace Corps Director, **FP 3-05** *(GS-13 equivalent)*

- Represented the US Peace Corps and the United States in meetings with high-level Togolese government officials, senior Foreign Service Officers and community leaders throughout Togo
- Subject Matter Expert, providing specialized advice to staff, community leaders and Peace Corps Volunteers on natural resource management, sustainable agriculture and small business development
- Evaluated and revised two Peace Corps programs' visions, goals and performance-based objectives, which resulted in harmonizing Peace Corp's programs with Togo's national strategies and the needs of local communities hosting Volunteers as well as improving the understanding of the programs and increasing job satisfaction
- Provided leadership to Volunteers, specifically specialized technical training and advice, logistical support and performance evaluations, which significantly increased productivity and decreased Early-Terminations from the programs
- Administered two programs with a focus on impact monitoring, modifying program approach, policy review and recommendations, annual work-plan development, reporting and financial management
- Managed Peace Corps Grant program in Togo reviewing and approving proposals, recommending changes, authorizing fund distributions, monitoring implementation and assuring fiscal accuracy

April 1997- May 2001, MADAGASCAR

Conservation International (CI), 2011 Crystal Dr # 500, Arlington, VA 22202-3787, Telephone: (703) 341-2400

Job Title: Conservation Technical Advisor for the *Projet de Conservation et Développement Intègre d'Ankarafantsika (GS-12 equivalent)*

- Subject Matter Expert, providing specialized advice to high-level National Park Officers on developing conservation strategies, park management plans, wildlife protection and handling human-wildlife conflicts in French
- Programmed, monitored and documented field activities within Ankarafantsika National Park (ANP) and the surrounding communities, including alternative livelihood development, agricultural intensification, environmental restoration, reforestation/afforestation, participative mapping, fire control and prevention, tourism development, and scientific research.
- Provided leadership and trained 35 Malagasy field agents and 4 middle management staff members
- Spearheaded the process to change the classification of the Ankarafantsika Reserve into a National Park
- Led teams in the development of the Ankarafantsika National Park Management Plan and the Tourism Development Plan