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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

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

ref:OCCL:MC

File No: Loko Iʻa: HA-21-03

Lauren Roth Venu
Roth Ecological Design Int. LLC
1164 Bishop St. Suite 614
Honolulu, HI 96813

Dear Ms. Venu,

Subject: Loko Iʻa Permit HA-21-03
Kaʻūpūlehu Fishpond Restoration
Kaʻūpūlehu, North Kona, Hawaiʻi
TMKs (3) 7-2-010:010

The Office of Conservation and Coastal Lands (OCCL) has reviewed the information you sent regarding proposed rehabilitation work on the Kaʻūpūlehu Fishpond system on the above subject parcel. The system is composed of one main three-acre pond and a network of 22 anchialine ponds which are connected through the groundwater. The system is in the Protective Subzone of the State Land Use Conservation District.

Kaʻūpūlehu is a puʻone-style pond formed by a natural sand dune separating it from the ocean. It is the largest of nine anchialine ponds located inland of Kahuwai Bay. The historic name for the pond is not documented, though it is believed that the populace raised awa (milkfish, Chenos chenos) in the local ponds. The eruption of Hualalai in 1801 severely impacted the area, and may have destroyed a portion of the original pond. According to the historian Samuel Kamakau, "the people believed [the 1801 flow] came because of Pele's desire for the awa fish from the ponds of Kiholo and Kaʻūpūlehu."

The coastal settlements in the area were abandoned in 1946 when a tsunami swept over the coast. It remained relatively unpopulated following the eruption until 1961, when the Kona Village Resort was built in the area. The area was significantly modified by the resort, with artificial islands, pedestrian bridges, tiki torches, and a performance stage built.

There is no evidence that Kaʻūpūlehu was actively managed as a loko iʻa after 1801, although local residents would gather ʻopaeʻula (Hawaiian red shrimp, *Halocaridna rubra*) from the anchialine ponds for use as chum while fishing for ʻōpelu (mackerel scad, *Decapterus spp*.) offshore.

The Resort closed after the 2011 tsunami, and the property has not been maintained. The tsunami deposited a significant amount of silt and sediment into the pond.

A 2019 assessment by Roth Ecological Design found that the water quality in the system was significantly degraded, with brackish conditions even under high tidal conditions. There are high levels of nitrogen, large numbers of invasive species such as tilapia and guppies, and occasional algae blooms which indicate eutrophic conditions. The assessment found stagnant areas with significant organic debris. Dead fish were observed in some areas. Their recommendations to restore integrity to the system were to reduce the nitrogen levels in the system, to remove organic sediment, and to reduce the invasive fish populations.

The proposal to 'reset' the ecological system involves dredging the accumulated sediment in the pond, laying gravel filters in the wetland areas, installing a circulation system, and replacing invasive species with native herbivores such as milkfish and mullet.

The project will involve the following elements:

Remove sediment: A hand-held wet vacuum will be used to remove accumulated muck. The removed sediment will be placed in a water-tight container and taken off-site. Maintenance dredging will occur as needed using a hand-held wet vacuum that can remove approximately 40 cubic yards of sediment at a time.

Native species restoration: Five areas have been targeted for native plant restoration, with a combined area of 15,034 square feet. The primary target species will be the following wetland plants: ʻaeʻae (water hyssop, *Bacopi monnieri*), ʻakulekule (sea purslane, *Sesuvium portulacastrym*), ʻakaʻakai (bulrush, *Schoenoplectus tabernaemontani*), and ʻahuʻawa (sedge, *Cyperus javanicus*). If other native Hawaiian plant species grow from natural recruitment, they will be considered part of the restoration project.

The goal is to have 60% of the targeted areas covered in native wetland plants by the end of the first year, and 90% by the second year. If the targets are not met the pond manager will remove non-native plants and plant new natives. The adaptive management techniques will be followed each year for the first five years, or until the target metric is achieved.

To prepare the area, gravel fill will be used to create media for the plans. The fill will be composed of approximately 234 cubic yards of washed lava rock, sourced from the property. The beds will be secured with a lava rock berm. Approximately 4,0222 feet of pipe will be laid down to assist with circulation between the pond and the wetland restoration area.

The project received compliance certifications from the US Army Corps of Engineers for Aquatic Habitat Restoration (Nationwide Permit #27) and Maintenance (Nationwide Permit #3) on April 7, 2021 (File No. POH-2019-00117)

Yearly monitoring reports will be provided to the US Army Corps of Engineers.

Rock wall: Approximately 484 linear feet out of the total 1800-foot long wall contains rocks which have become dislodged. These rocks will be placed back within the wall using dry stack techniques. Stone will be primarily used from the existing walls; if replacement rocks are needed they will be sourced from the property itself. Work will be done manually. Mortar will not be used within the fishpond.

Infrastructure: An over-water performance stage and its associated concrete footings will be completely removed. Five concreted pedestrian bridges that connect several small islands that lie within the main pond will be repaired or replaced to bring them up to current codes and standards. The bridges will occupy the same footprint and be of the similar dimensions to the existing ones.

Invasive Species: Dead and diseased trees surrounding the pond will be trimmed down to the stumps.

Tilapia in the pond will be removed by injecting the ponds with carbon dioxide, which temporarily lowers the pH of the water and stuns the fish. Native species are collected and kept in a tank until the pH of the pond returns to normal, which can take up to ten hours. Invasive species will be removed using nets. The applicant proposes to work with staff from The Nature Conservancy, who have practiced the technique in other parts of the State.

The pond will be restocked with pāpio (trevally, *Caranx melampygus*) and nenue (chub, *Kyphosus hawaiiensis*).

Utility Replacement: The project will involve replacing buried utilities that run under the island within the pond. The utility lines for propane, electric, and water will be replaced via open trenching. Trenches will be excavated by hand and the utility lines and excavated material will be replaced on the same day, temporarily impacting a total of 421 linear feet of wetlands. Biosocks will be temporarily deployed around the open trenches.

The following best-management practices will be followed during the work:

1. Staff and contractors will be educated on the potential ESA-listed species that might be present on site, and trained in the protocols that will be followed.
2. Prior to construction, a biological monitor will conduct a nest survey for ESA-listed waterbirds. If active nests with eggs or fledglings are found the Corps and USFWA will be contacted within 48 hours. A 100-foot buffer will be maintained around all nests or broods until the chicks have fledged. A biological monitor will be present during all construction or earth moving activities until the chicks have fledged.
3. If ESA-listed waterbird individuals are observed then speed limits will be limited to 10 mph within the project area.
4. A five-year monitoring program will be followed for at least two and up to five years to document the progress of the native species restoration.

5. All equipment and project material will be staged and stored outside of the Conservation District. No construction material will be deposed into pond waters.
6. Erosion control methods, such as silt fences, bio socks, or approved equals, will be used to prevent runoff into the pond during construction activities.
7. As the pond is tidally influenced, work will be done at low tide to the extent possible, and will be halted during periods of intense rainfall, storm surges, or high surf conditions.
8. Equipment will be inspected daily for leaks and cleanliness; leaking equipment will be repaired and cleaned prior to work operations in a designated area at least fifty feet from the aquatic environment.
9. The contractor will notify construction personnel of the presence of archaeological sites adjacent to the property, and will flag the buffer zones associated with the sites; Encroachment into the buffer zone will be prohibited.

A number of archaeological sites exist in the vicinity of the project area. Within the larger 80-plus acre property there are remnants of temporary habitation structures, quarries, burial features, trails, a possible hōlua slide, salt pans, and petroglyphs. The State Office of Historic Preservation has reviewed the Archaeological Inventory Survey, and found that sufficient buffers existed between grading work at the resort and the historic properties. SHPD found that no historic properties would be affected by the redevelopment of the Kona Village Resort (Log No: 2017.01837).

An assessment of the cultural significance of the pond itself was conducted by Thomas Dye, PhD in 2012 as part of the archaeological monitoring plan for the Resort. The only surviving feature of the pond that was possibly related to its use as a loko iʻa prior to 1801 were two submerged walls. The damage to the pond system by the 1801 lava flow, the separation of the pond from the coast by the same flow, and the subsequent dredging of the pond and it's extensive modification by the Kona Village Resort, led the report to conclude that the pond itself did not qualify as a significant historic property.

OCCL has reviewed the project against the standard best management practices developed in the Hoʻāla Loko Iʻa program and discussed in the Hoʻāla Loko Iʻa permit application guidebook.

Activities that are covered by the Hoʻāla Loko Iʻa program include:

1. Repair, restoration, maintenance, and operation of fishpond walls and sluice gates, including but not limited to the placement, movement, manipulation and temporary stockpiling of necessary materials;
2. Placement, movement, manipulation and temporary stockpiling of small stones or rubble for interior wall fill (ʻiliʻili);

3. Silt removal by hand and/or mechanized equipment from within fishponds to restore original fishpond depth;
4. Vegetation removal by hand and/or mechanized equipment from within the fishpond and from fishpond walls;
5. Periodic post-restoration maintenance activities required to facilitate the long-term use, management and operation of fishponds;
6. Use of hand and/or mechanized equipment to conduct fishpond restoration activities;
7. Placement of temporary structures within fishponds, which are necessary to conduct restoration;
8. Placement and use of aquaculture pens, nets, and/or cages within fishponds; and
9. Use of harvesting equipment within fishponds.

Activities related to water resources would include, but not be limited to, the following:

1. Clearing of ʻauwai, or traditional waterways, to allow for restoration of freshwater flow into the loko iʻa, thus restoring functional integrity and ecosystem services;
2. Removal of invasive species from loko iʻa that diminish oxygen and other ecosystem services to the pond system;
3. Restoration of pūnāwai, wai hū, waipuna, kele, ʻele, kahawai and/or other fresh water sources for the purpose of restoring functional integrity to the system and ecosystem services; and/or
4. Stocking and breeding native species of flora and fauna using traditional methods for the purpose of restoring functional integrity and ecosystem services to the system.

OCCL staff notes that the Hoʻāla Loko Iʻa program was designed to look at Hawaiian fishpond systems in their entirety. The proposal to restore the wetlands surrounding Kaʻūpūlehu is consistent with the goals of the program, and the proposed best management practices are in line with the guidelines established by the program.

Projects that involve dredging or the use of mechanized equipment, or those that trigger the need for Section 10 review by the US Corps of Engineers, are considered "Tier 2" permits. The Board of Land and Natural Resources has delegated the authority to the Chair to sign Second Tier permits

Excluded activities that are not covered by the Loko Iʻa include new fishpond construction; activities that are likely to have significant, long-term negative impacts on marine life, water quality, or coastal processes, or coastal access; activities that are likely to result in significant damage to special aquatic sites such as wetlands, vegetated shallows, mudflats, coral reefs, and sea grass beds; and the introduction or culture of alien species.

After reviewing the application, OCCL finds that

1. The proposal to dredge sediment, remove invasive species, conduct native species restoration, repair the pond walls, and conduct other related improvements is consistent with Conservation District Use Permit (CDUP) ST-3703 for the Hoʻāla Loko Iʻa program, as approved by the Board of Land and Natural Resources on June 27, 2014;
2. That the activities described were covered in the Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI) for the Hoʻāla Loko Iʻa program, which was published on October 23, 2013;
3. That the proposal requires the need for a Tier 2 Loko Iʻa permit signed by the Chair of the Board of Land and Natural Resources;
4. That the State Department of Health water quality certifications are waived pursuant to Hawaiʻi Revised Statutes (HRS) Chapter 342D WATER POLLUTION §6.5 Hawaiian loko iʻa (b) *The department shall waive the requirement to obtain water quality certification under this chapter for any person that has received notice of authorization to proceed from the Department of Land and Natural Resources Office of Conservation and Coastal Lands under the statewide programmatic general permit for the restoration, repair, maintenance, and operation of loko iʻa*; and
5. That the standard conditions found in Hawaiʻi Administrative Rules (HAR) §13-5-42 apply.

After careful review of the proposed project, the Department authorizes a Tier 2 Loko Iʻa permit the Kaʻūpūlehu Fishpond Restoration project in the Kaʻūpūlehu, North Kona, Hawaiʻi**,** TMK (3) 7-2-010:010, subject to the following standard 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 Hawaiʻi 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 obtain appropriate authorization from the department for the occupancy of state lands, if applicable;
4. The permittee shall comply with all applicable department of health administrative rules;
5. All representations relative to mitigation set forth in the application are incorporated as conditions of the permit;
6. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;

7. 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;
8. 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;
9. 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;
10. Should historic remains such as artifacts, burials or concentration of charcoal be encountered, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact HPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;
11. The permittee follow the Best Management Practices as described in current application;
12. Other terms and conditions as prescribed by the chairperson;
13. Failure to comply with any of these conditions shall render a permit void under the chapter, as determined by the chairperson or board.

Please acknowledge receipt of this approval, with the above noted conditions, in the space provided below. Please sign two copies. Retain one and return the other within thirty days. Should you have any questions feel free to contact Michael Cain at 587-0048.

Sincerely,

Suzanne D. Case

Suzanne D. Case, Chairperson
Board of Land and Natural Resources

Receipt acknowledged:

_____
Permittee's Signature

_____
Date

copy: Land Division, Hawaii County Planning, Division of Aquatic Resources
Admin Review: Sam Lemmo

Sam Lemmo


Honokaa
Waimea
Waikoloa Village
Hawaii
2019-00171
Kalaoa
19
190
Kailua-Kona
Kahaluu-Keauhou
Hawaii
Captain Cook
Island of Hawai'i
Honaunau-Napoopoo
11
Volcano
Data MBARI
© 2021 Google
Image Landsat / Copernicus
Data LDEO-Columbia, NSF, NOAA
Google Earth
19°31'26.54" N 156°02'33.75" W elev -6067 ft eye alt 71.32 mi


2/2021
Luahinewai
2019-00171
Kumukenu St
Paku'i St
Kahikole St
Waiulu St
A-1 Lot St
Ke Alaula St
Kukio Bay
Kakapa Bay
Kukio Nui Dr
Kakapa Pl
Kaueki St
Kaupulehu Dr
19
Queen Kaahumanu Hwy
Google Earth
Imagery Date: 6/16/2019 19°49'19.80" N 155°59'22.24" W elev 63 ft eye alt 20540 ft


2/2021
2019-00171
Google Earth
1985
Imagery Date: 6/16/2019 19°49'59.23" N 155°59'09.01" W elev 5 ft eye alt 1808 ft

TYPE	LENGTH OF PIPE WITHIN 2.26 WATER ELEVATION (FT)	TYPE	LENGTH OF PIPE WITHIN 2.26 WATER ELEVATION (FT)	LENGTH OF PIPE OUTSIDE OF 2.26 WATER ELEVATION (FT)	TYPE	LENGTH OF PIPE WITHIN 2.26 WATER ELEVATION (FT)	LENGTH OF PIPE OUTSIDE OF 2.26 WATER ELEVATION (FT)	TYPE	LENGTH OF PIPE WITHIN 2.26 WATER ELEVATION (FT)	LENGTH OF PIPE OUTSIDE OF 2.26 WATER ELEVATION (FT)
6" HDPE gravel filled with ½" holes drilled	— P —— P —	4" HDPE	— C —— C —	—— C ——	4" corrugated/ perforated	— D —— D —	—— D ——	4" HDPE	— I —— I —	—— I ——
P1	138	C1	130	5	D1	59	NA	I1	259	5
P2	131	C2	177	NA	D2	153	NA	I2	393	4
P3	134	C3	201	12	D3	105.5	41.5	I3	577	4
P4	65	C4	185	12	D4	NA	123	I4	104	12
P5	138	C5	138	12	D5	NA	110	I5	205	19
P6	96	C6	111	12						
P7	94	C7	113	5						
P8	111	C8	205	38						

TYPE	AREA (SF)	ROCK BERM VOLUME WITHIN 2.26 ELEVATION (CY)	ROCK BERM VOLUME OUTSIDE OF 2.26 ELEVATION (CY)	GRAVEL QUANTITY WITHIN 2.26 WATER ELEVATION (CY)	GRAVEL QUANTITY OUTSIDE OF 2.26 ELEVATION (CY)
Wetland					
W1	1,665	2.63	0	62	0
W2	5,074	4.89	0	187	0
W3	4,369	1.81	0	161	0
W4	2,332	0.85	0	86	0
W5	3,941	0.93	0	145	0

TYPE	TRENCHING VOLUME WITHIN 2.26 WATER ELEVATION (CY)
PUMP VAULT 1	13
PUMP VAULT 2	5

GENERAL NOTES - SITE PLAN

ALL MEDIA FOR THE WETLAND SYSTEM SHALL ORIGINATE FROM THE KONA VILLAGE SITE AND BE WASHED PRIOR TO INSTALLATION.

LEGEND - ENLARGED SITE PLAN

2.26 WATER ELEVATION

CONSTRUCTED WETLANDS

ROCK BERM

Typical Pond Edge
Wetland Treaemwent

Bacopa Monnieri
(Ae'ae)

Sesuvium Portulacastrum
(Akulikuli)

Schoenoplectus Tabernaemontani
(Kaluha)

Cyperus Javanicus
(Ahu'awa)

A1 **ENLARGED SITE PLAN - FISH POND**

1" = 30'-0"

1515 Morena Blvd.
San Diego, CA 92110
(619) 299-6690
delawie.com

FRANK STEPHEN TERNASKY
LICENSED PROFESSIONAL ARCHITECT
No. 13299
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE EXPIRES : 04-30-22

KW KONA INVESTORS, LLC

KONA VILLAGE RESORT CP-1B

72-300 MAHEAWALU DR.
KAILUA KONA, HI

PROJECT NO. 17206

REV NO.	DATE ISSUED	REASON
	07.17.2020	ACOE SUBMITTAL

Sheet Title

CONSTRUCTED WETLANDS AND POND CIRCULATION

Sheet No.

AS-100-1B

GENERAL NOTES - SITE PLAN

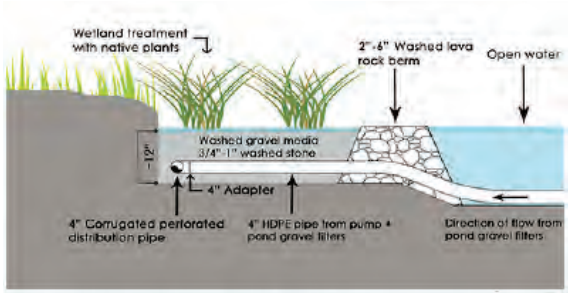
ALL MEDIA FOR THE WETLAND SYSTEM SHALL ORIGINATE FROM THE KONA VILLAGE SITE AND BE WASHED PRIOR TO INSTALLATION.

LEGEND - ENLARGED SITE PLAN

- 2.26 WATER ELEVATION
- CONSTRUCTED WETLANDS
- ROCK BERM

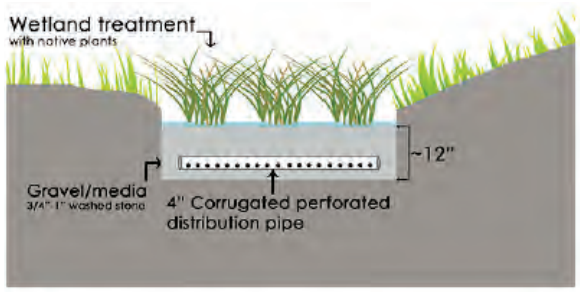
1 WETLAND INTAKE SECTION

SCALE: NOT IN SCALE



2 WETLAND DISTRIBUTION PIPE SECTION

SCALE: NOT IN SCALE



A1 ENLARGED SITE PLAN - FISH POND

1" = 30'-0"

1515 Morena Blvd.
San Diego, CA 92110
(619) 275-0600
delawie.com

LICENSED PROFESSIONAL ARCHITECT No. 13299 HAWAII, USA

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72-300 MAHEAWALU DR. KAILUA KONA, HI

PROJECT NO. 17206

REV NO.	DATE ISSUED	REASON
	07.17.2020	ACOE SUBMITTAL

Sheet Title: CONSTRUCTED WETLANDS AND POND CIRCULATION

Sheet No.: AS-100-1B

VIEW 1 - FOOTING UNDER STAGE

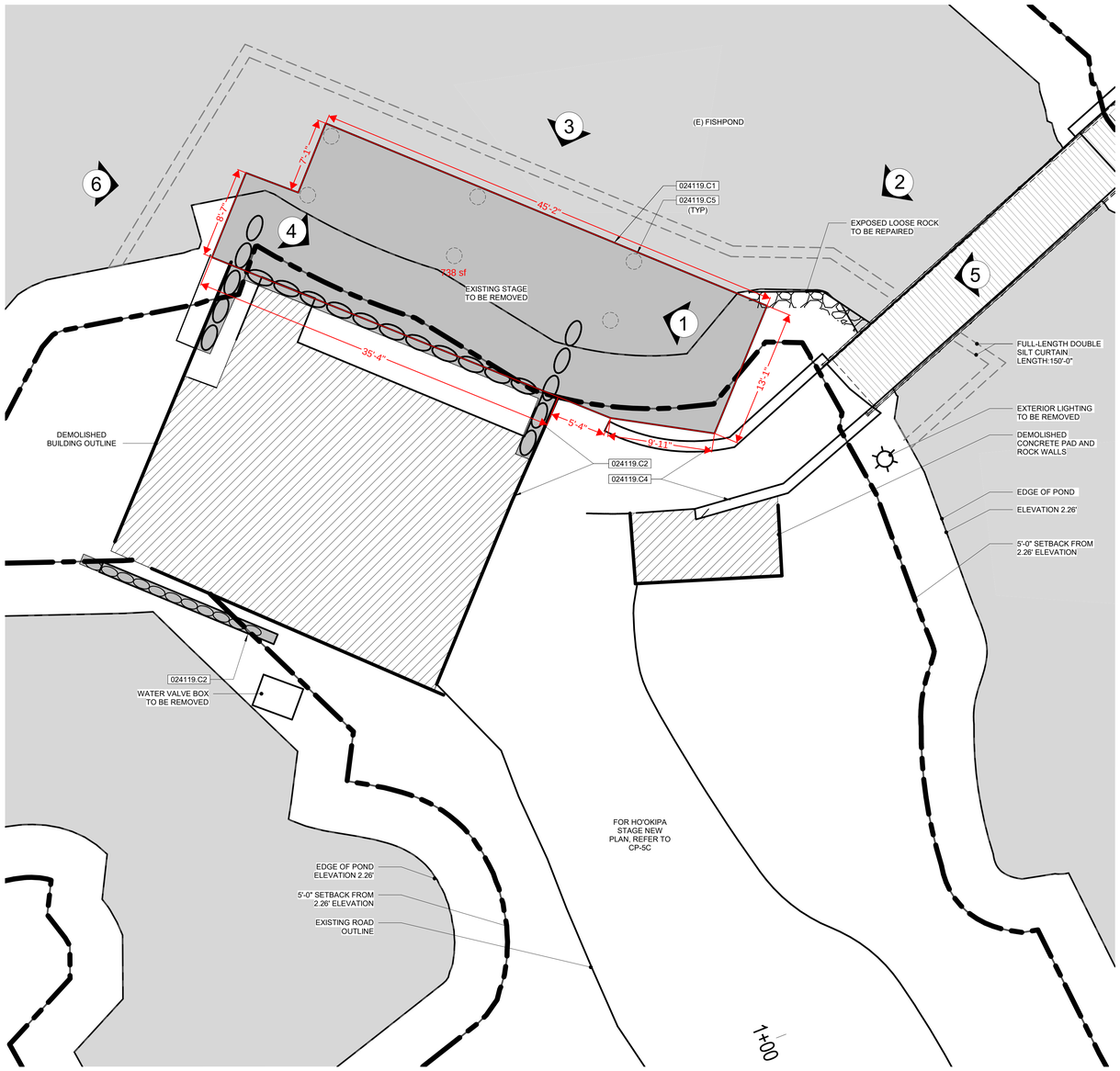
VIEW 2 - EXISTING STAGE

VIEW 3 - EXISTING STAGE

VIEW 4 - ELECTRICAL UNDER STAGE

VIEW 5 - EXPOSED LOOSE ROCK

VIEW 6 - EDGE OF DECK



1 **DEMOLITION PLAN - HO'OKIPA STAGE**

1 / 03 3/16" = 1'-0"

GENERAL NOTES DEMOLITION

1. ALL DEMOLITION TO BE PERFORMED WITH UTMOST CARE IN PROTECTING THE EXISTING POND PER NPDES PERMIT DOCUMENTS. SEE C100-1B FOR ADDITIONAL INFORMATION.
2. DOUBLE TURBIDITY SILT CURTAIN FROM BOTTOM OF POND TO SURFACE OF WATER (ALLOWING FOR TIDAL FLUCTUATIONS) TO BE INSTALLED AROUND ALL IN WATER REMOVAL OF STRUCTURES.

REFERENCE KEYNOTES

NUMBER	KEYNOTE TEXT
024119.C1	EXISTING WOOD FRAMED DECK AND FOUNDATION TO BE REMOVED. SEE GENERAL NOTES FOR PROTECTION OF POND.
024119.C2	EXISTING CONCRETE SLAB ON GRADE, FREE-STANDING ROCK WALL, AND FOUNDATION TO BE REMOVED
024119.C3	REMOVE AND ABANDON EXISTING EXPOSED ELECTRICAL AND GAS UTILITIES. CAP AND ABANDON ALL EXISTING UNDERGROUND UTILITIES THAT REMAIN.
024119.C4	EXISTING SITE WALLS TO BE REMOVED
024119.C5	EXISTING FOUNDATIONS TO BE REMOVED

LEGEND - DEMO

EXISTING STRUCTURE TO BE DEMOLISHED AND REMOVED

DEMOLISHED STRUCTURE

Plan North
Makai ← → Mauka
True North

delawie
Architecture • Experience • Integrity
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San Diego, CA 92110
(619) 299-6690
delawie.com

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SIGNATURE EXPIRES : 04-30-22

Kona Village Resort

KW KONA INVESTORS, LLC

KONA VILLAGE RESORT
CP-1B

72-300 MAHEAWALU DR.
KAILUA KONA, HI

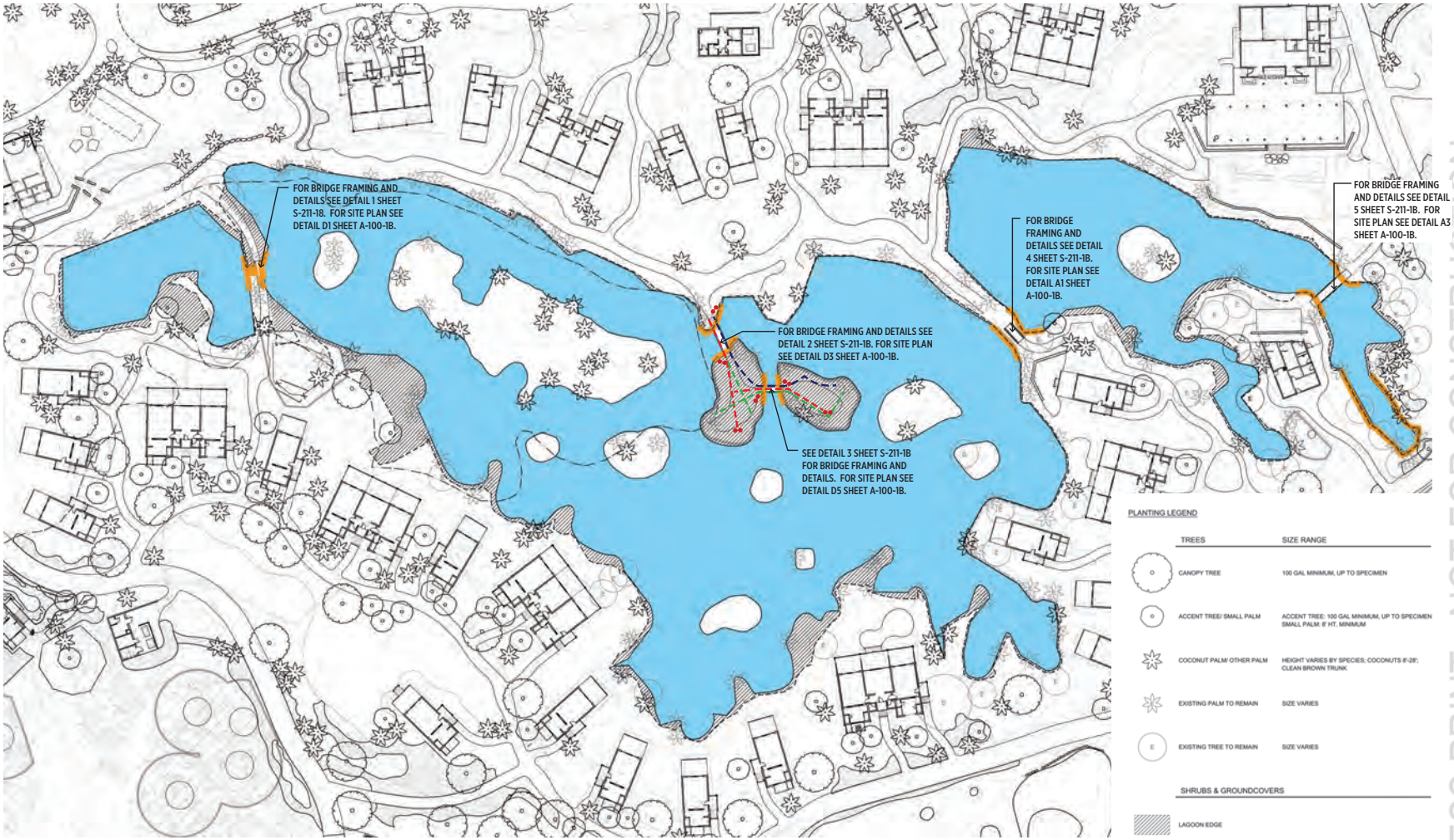
PROJECT NO. 17206

REV NO.	DATE ISSUED	REASON

ACOE SUBMITTAL
09.30.2020

Sheet Title
HO'OKIPA DEMOLITION PLANS

Sheet No.
AD-101-1B



LEGEND

- ROCK WALL - WALL REPAIR ASSOCIATED WITH BRIDGE REPLACEMENT AND POND EDGE STABILIZATION (454 LF)
- EXISTING GAS LINE TO BE REPLACED. GAS LINE TO BE ATTACHED TO BRIDGE.
- EXISTING ELECTRICAL LINE TO BE REPLACED. ELECTRICAL LINE TO BE ATTACHED TO BRIDGE.
- EXISTING IRRIGATION LINE TO BE REPLACED. IRRIGATION LINE TO BE ATTACHED TO BRIDGE.
- FISH POND
- 2.26 WATER ELEVATION
- TIKI TORCH
- FEMA AE ZONE BOUNDARY

CONCEPTUAL PLANT LIST

TREES AND PALMS	
BOTANICAL NAME	**COMMON NAME**
SMALL/MEDIUM CANOPY TREES	
Cordia subcordata	Kou
Thespesia populnea	Milo
PALMS	
Coco nucifera	Coconut
Pritchardia hillebrandii	Loulu Palm

LAGOON EDGE SHRUB AND GROUNDCOVER PLANTING	
Bacopa monnieri	Ae'ae
Cordyline terminalis	Ti Green
Dodonea viscosa	A'ali'i
Cyperus javanicus	Ahu'awa
Lipochaeta integrifolia	Nehe
Senna gaudichaudii	Kolomona
Scavaeola frutescens	Naupaka
Sesuvium portulacastrum	Akulikuli
Vitex rotundifolia	Pohinahina
Wikstroemia uva-ursi	Akia
Cyperus laevigatus	Makoloa sedge

PLANT PALETTE - TREES & PALMS

Native Trees


CORDIA SUBCORDATA
KOU


THESPESIA POPULNEA
MILO

Native Palms


COCO NUCIFERA
NIU/COCONUT


PRITCHARDIA AFFINIS
LOULU PALM

LAGOON EDGE Native Shrubs, Groundcovers, and Grasses


SENNA GAUDICHAUDII
KOLOMONA


SCAEVOLA FRUTESCENS
NAUPAKA


DODONEA VISCOSA
A'ALI'I


CORDYLINE FRUTICOSA
GREEN TI


BACOPA MONNIERI
AE'AE / WATERHYSSOP


LIPOCHAETA INTEGRIFOLIA
NEHE


SESUVIUM PORTULACASTRUM
AKULIKULI


VITEX ROTUNDIFOLIA
POHINAHINA


WIKSTROEMIA UVA-URSI
AKIA


CYPERUS JAVANICUS
AHU'AWA


CYPERUS LAEVIGATUS
MAKOLOA SEDGE

Scale: 1"=30'-0"
0 15 30 60 90

PROGRESS PRINT - NOT FOR CONSTRUCTION

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PROJECT NO.
17206

REV NO.	DATE ISSUED	REASON
	11.06.2020	ACOE SUBMITTAL

FISH POND IMPROVEMENTS

07.17.2020
Sheet Title

LANDSCAPE SITE PLAN

Sheet No.
L-100-1B

GENERAL NOTES:

1. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS ON THE DRAWINGS FOR ANY DISCREPANCY. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. WORK INCIDENTAL TO THE CONTRACT AND NECESSARY TO COMPLETE THE PROJECT, ALTHOUGH NOT SPECIFICALLY REFERRED TO ON THE CONTRACT DOCUMENTS, SHALL BE FURNISHED AND PERFORMED BY THE CONTRACTOR.
3. IN PERFORMING ALL WORK, THE CONTRACTOR SHALL EXERCISE DUE CARE AND CAUTION NECESSARY TO AVOID ANY DAMAGE TO AND IMPAIRMENT IN THE USE OF ANY EXISTING UTILITY LINE. ANY DAMAGE INFLICTED ON EXISTING UTILITY LINES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR RESTORED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACT SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL PERFORM APPLICABLE CONSTRUCTION WORK ALL IN ACCORDANCE WITH THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" DATED SEPTEMBER 1986 OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII AND THE REVISED ORDINANCES AS AMENDED.
2. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR THE THE START OF CONSTRUCTION. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
3. ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THE PLANS SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION AND ANY DAMAGE SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES TO VERIFY THE ACTUAL LOCATION OF ALL UTILITIES IN THE PROJECT AREA PRIOR TO EXCAVATION. THE CONTRACTOR SHALL COORDINATE ALL WORK.
5. WHEN TRENCH EXCAVATIONS ARE PERFORMED ADJACENT TO OR UNDER EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENTS, AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS, OR UNDERPINNING TO FULLY PROTECT IT FROM DAMAGE.
6. BACKFILL UNDER EXISTING STRUCTURES OR FACILITIES SHALL BE SANDY OR GRANULAR MATERIAL COMPLETELY PLACED AS SOON AS THE PIPE IS LAID AND TESTED. THE BACKFILL MATERIAL SHALL BE RAMMED WITH PROPER TOOLS UNTIL COMPACTED FROM 90% TO 95% OF ITS MAXIMUM DENSITY
7. ALL WORK CALLED FOR ON THE PLANS AND NOT ITEMIZED IN THE PROPOSAL SHALL BE INCIDENTAL AND INCLUDED WITHIN THE AMOUNT PAID FOR UNCLASSIFIED TRENCH EXCAVATION.
8. NO STOCKPILING OF MATERIALS WILL BE PERMITTED ON STATE RIGHT-OF-WAYS.
9. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, PAVEMENT MARKINGS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC., UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL. DEMOLITION AND RESTORATION OF EXISTING ITEMS SHALL BE INCIDENTAL AND INCLUDED WITHIN THE AMOUNT PAID FOR UNCLASSIFIED TRENCH EXCAVATION.
10. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH THE PUBLIC HEALTH REGULATIONS TITLE 11, CHAPTERS 42, 43, 44A AND 44B, REGARDING NOISE CONTROL FOR HAWAII.
11. THE UNDERGROUND PIPES, CABLES, OR DUCT LINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA, WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLAN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL". BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
13. NO CONTRACTOR SHALL PERFORM ANY TRENCHING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION SHALL BE PAYABLE BY THE CONTRACTOR.
14. THE CONTRACTOR SHALL FOLLOW THE CONDITIONS OF THE PROJECTS NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NUMBER HI S000016.

GRADING NOTES:

1. ALL GRADING WORK SHALL CONFORM TO CHAPTER 10 OF THE HAWAII COUNTY CODE AND GEOTECHNICAL EXPLORATION KONA VILLAGE, NORTH KONA, ISLAND OF HAWAII W.O. 7581-00, DATED OCTOBER 2, 2017, BY GEOLABS. SHOULD A GRADING PERMIT BE REQUIRED, NO WORK SHALL COMMENCE UNTIL THE DEPARTMENT OF PUBLIC WORKS (DPW) APPROVES A GRADING PERMIT.
2. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS RESULTING FROM HIS WORK. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE DPW SHALL BE PAYABLE BY THE CONTRACTOR.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, FUGITIVE DUST.
4. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, WATER POLLUTION CONTROL AND CHAPTER 54, WATER QUALITY STANDARDS, AND TO THE EROSION AND SEDIMENTATION CONTROL STANDARDS AND GUIDELINES OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII.
5. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
6. THE CONTRACTOR SHALL INFORM THE DPW OF THE LOCATION OF THE DISPOSAL AND/OR BORROW SITE(S) REQUIRED FOR THIS PROJECT WHEN AN APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL AND/OR BORROW SITE(S) MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
7. FILLS SHALL BE COMPACTED TO 90 PERCENT (90%) OF MAXIMUM DENSITY PER ASTM D-1557 TEST.
8. THE CONTRACTOR SHALL REMOVE ALL VEGETATION BEFORE PLACING FILLS ON NATURAL GROUND SURFACE.
9. CONTRACTOR SHALL HARVEST THE UPPER LAYER OF LAVA ROCK AND STORE ON SITE FOR FUTURE "RE-NAT" USE.

ARCHAEOLOGICAL SITE PRESERVATION NOTES:

1. THE CONTRACTOR SHALL NOTIFY ALL CONSTRUCTION PERSONNEL, PRIOR TO INITIATION OF CONSTRUCTION WORK, OF THE PRESENCE OF THE ARCHAEOLOGICAL SITES ON AND ADJACENT TO THE PROPERTY, OF THE MEASURES TO BE TAKEN TO PROTECT THE SITES (FENCING AND FLAGGING OF THE BUFFER ZONE PERIMETERS), AND OF THE NEED TO STRICTLY PROHIBIT ENCROACHMENT INTO THE FENCED AND FLAGGED SITE PERIMETERS.
2. THE CONTRACTOR SHALL NOTIFY ALL CONSTRUCTION PERSONNEL OF ARCHAEOLOGICAL CONSULTATION REQUIREMENTS (IMMEDIATE STOPPAGE OF WORK AND NOTIFICATION OF A PROFESSIONAL ARCHAEOLOGIST FOR FIELD INSPECTION) IN THE EVENT THAT ADDITIONAL CULTURAL DEPOSITS (MIDDEN, CHARCOAL, ARTIFACTS) OR HUMAN SKELETAL REMAINS ARE ENCOUNTERED DURING ANY CONSTRUCTION WORK RELATED TO THE PROJECT.
3. PROTECT EXISTING PONDS, TRAILS AND ARCHAEOLOGICAL SITES AS SHOWN ON PLAN OR AS INSTRUCTED BY THE OWNER'S REPRESENTATIVE.
4. ARCHAEOLOGICAL MONITORING WILL BE REQUIRED DURING INITIAL PHASES OF EARTHWORK TO OBSERVE EARTHMOVING ACTIVITIES.

BEST MANAGEMENT PRACTICES:

1. EROSION AND SEDIMENT RUNOFF SHALL BE KEPT TO A MINIMUM.
2. TO THE MAXIMUM EXTENT PRACTICABLE, WORK SHALL BE CONDUCTED DURING THE DRY SEASON. SITE SHALL BE STABILIZED TO PREVENT EROSION AND RUNOFF. WORK SHALL STOP DURING FLOODING, INTENSE RAINFALL, STORM SURGE OR HIGH SURF CONDITION. WORK SHALL BE CONDUCTED DURING LOW TIDES
3. NO PROJECT RELATED MATERIAL SHALL BE STOCKPILED IN THE AQUATIC ENVIRONMENT OR IN CLOSE PROXIMITY SUCH THAT MATERIAL COULD BE CARRIES INTO WATERS BY WIND, RAIN, OR HIGH SURF.
4. ALL DEBRIS AND MATERIAL SHALL BE DISPOSED OF IN AN APPROVED UPLAND OR ALTERATIVE DISPOSAL SITE.
5. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. ALL DISTURBED AREAS MUST BE STABILIZED DURING PERIODS OF NON-ACTIVITY OF 4 DAYS OR MORE.
6. SILT FENCES, BIO SOCKS, SILT CURTAINS, OR APPROVED EQUALS SHALL BE INSTALLED PARALLEL TO AND WITHIN 10 FEET OF THE TOE OR ANY FILL OR EXPOSED SOIL AND ADJACENT TO A FILL PLACED OR SOIL EXPOSED WITHIN AN AQUATIC SITE. CONTAINMENT STRUCTURES SHALL REMAIN IN PLACE UNTIL TURBIDITY LEVELS RETURN TO AMBIENT CONDITIONS.
7. A SPILL PROTECTION PLAN SHALL BE DEVELOPED AND APPROPRIATE SPILL KITS AND MATERIALS SHALL BE STORED ON SITE.
8. DAILY PER WORK CONDITION OR EQUIPMENT SHALL BE CONDUCTED FOR LEAKS AND CLEANLINESS. LEAKING EQUIPMENT SHALL BE REPAIRED AND CLEANED PRIOR TO WORK OPERATIONS. FUELING OF VEHICLES AND EQUIPMENT SHALL BE DONE IN A DESIGNATED AREA AT LEAST 50 FEET FROM THE AQUATIC AREA LIMITS OF WORK.
9. A TRASH REMOVAL AND PREVENTION PLAN SHALL BE DEVELOPED TO MINIMIZE DEBRIS FROM ENTERING THE MARINE ENVIRONMENT.
10. ALL CONSTRUCTION DISCHARGE MUST BE TREATED PRIOR TO DISCHARGE.

EARTHWORK

EARTHWORK COVERED UNDER A SEPARATE PERMIT.

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DENNIS I. HIROTA
LICENSED PROFESSIONAL ENGINEER
No. 3377-C
HAWAII, U.S.A.
EXP 04-30-2022
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SAM O. HIROTA, INC.
ENGINEERS AND SURVEYORS

KW KONA INVESTORS, LLC

KONA VILLAGE RESORT-CP-1B

KA'UPULEHU, NORTH KONA, HAWAI'I

PROJECT NO. 17206

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ACOE SUBMITTAL
09.30.2020

Sheet Title
CONSTRUCTON NOTES

Sheet No.
C001-1B

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