State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Engineering Division
Honolulu, Hawaii 96813

July 12, 2024

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Request Approval of Oahu Reservoir 155 (OA-0137) Dam Safety Permit Application and Authorization for the Chairperson and Department to Issue the Dam Safety Permit No. 68 for Improvements with Stipulated Terms and Conditions Pursuant to Hawaii Revised Statutes Chapter 179D and Applicable Chapter 13-190.1, Hawaii Administrative Rules, Kunia, Hawaii, TMK (1) 9-2-001:020 por.

The Engineering Division (Division) recommends approval of the subject Dam Safety permit application and authorization for the Chairperson and Department to issue the Dam Safety Permit No. 68 with stipulated terms and conditions for the Oahu Reservoir No. 155 (also known as the Waiahole Reservoir 155) improvement project, pursuant to Hawaii Revised Statutes Chapter 179D and current Administrative Rules.

APPLICANTS and LAND OWNERS
State of Hawaii, Agribusiness Development Corporation (ADC)
235 S. Beretania St., Rm. 205
Honolulu, HI 96813

Monsanto Technology, LLC
P.O. Box 200
Kunia, HI 96759

SUMMARY OF REQUEST
The project proposes to improve the Oahu Reservoir 155 (OA-0137) by rebuilding the dam embankments, installing a new spillway structure, new inlet and outlet works, new HDPE liner in the reservoir basin, new filtered internal drainage system, and removing sediment in the basin. The reservoir will be reduced in storage capacity, but will remain an irrigation reservoir, regulated by the Division. (See Exhibit 1 for the dam safety permit application.)

LOCATION
Kunia, Oahu, TMK: 9-2-001:020. (See Exhibit 2 for maps.)

BACKGROUND
Oahu Reservoir 155 is located approximately 2.7 miles northwest of Waipahu, Hawaii, on the island of Oahu. Oahu 155 is an off-channel reservoir located along a small sub-drainageway of Honouliuli Gulch and was constructed in 1916 to store irrigation water from Waiahole Ditch for the sugarcane industry. The dam and its appurtenant structures were constructed by the Oahu Sugar Company. The dam continues to be used for irrigation and is operated and maintained by the ADC.

Oahu Reservoir 155 is classified as a HIGH hazard potential dam due to probable downstream impacts and loss of life associated with failure of the dam. An Individual Assessment Report dated October 1, 2018 states that approximately 150 people would be at risk as a result of a dam failure, assuming the reservoir level is at the dam crest at the time of the breach. The dam is classified as SMALL in size, with a maximum dam height of 25 feet and maximum reservoir storage capacity of 37 acre-feet (or approximately 12 million gallons).

The dam has been evaluated and classified with a POOR overall condition. The POOR rating was is because it is unknown whether the existing spillway can safely pass the probable maximum flood (PMF) without overtopping the dam. In addition, the upstream and downstream embankment slopes are considered steep and would generally not be acceptable for modern earthfill embankment design.

DESCRIPTION

The owners propose to make improvements to the dam structure to address existing deficiencies and bring the dam into compliance with state dam safety requirements. The reservoir embankments will be excavated and reconstructed to meet dam safety requirements; new inlet and outlet piping, spillway structure, basin liner, and a filtered internal drainage system will be installed; and sediment from the reservoir basin will be removed. The storage capacity and embankment height will be reduced from the existing, but the dam will remain a regulated structure and be subject to DLNR dam safety requirements. (See Exhibit 3 for construction plans.)

CHAPTER 343 - HRS – ENVIRONMENTAL ASSESSMENT

In 2019, the ADC completed a final environmental assessment and an anticipated finding of no significant impact (FEA-FONSI) for the project. (See Exhibit 4.)

HAWAII REVISED STATUTES CHAPTER 6E-8 HISTORIC PRESERVATION REVIEW

The Division consulted with the State Historic Preservation Division (SHPD) for compliance with Chapter 6E-8 requirements. SHPD reviewed the proposed project, designated as SHPD Project No. 2022PR01315 named Waiahole Reservoir System – Reservoirs No. 155 and 225 Improvements Project. SHPD concurred with effect determinations for the project and notified both DLNR Engineering and USACE the project initiation may begin. (See Exhibit 5 for SHPD's letter).

AGENCY CONSULTATION

The Division distributed notices to various agencies for their comments on this application. A summary of their responses is included in Exhibit 6. The Commission on Water Resource Management (CWRM) confirmed the proposed work will not impact any natural waterways in the surrounding area.

KA PA'AKAI ANALYSIS

In consultation with Ahu Moku, the Division conducted a Ka Pa'akai Pre-Assessment analysis of the proposed project and determined the project will not impact Native Hawaiian traditional cultural resources or practices. Aha Moku confirmed a more detailed DLNR Ka Pa'akai Consultation Assessment is not required. (See Exhibit 7.)

REMARKS

The applicant/owner completed a design report, construction plans, and an environmental assessment, and requests approval of a dam safety permit. The Division has reviewed the documents and concluded it is sufficient for its intended purposes. Staff recommends approval of this permit application with the Dam Safety General Permit Conditions. (See Exhibit 8.)

RECOMMENDATION

1. Authorize the approval and issuance of Dam Safety Permit No. 68 for the Waiahole Reservoir System, Reservoir 155 Improvement Project at the Oahu Reservoir 155 (OA-0137).
2. Authorize the Chairperson to issue a Dam Safety Permit for improvements to the Oahu Reservoir 155 (OA-0137), subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.
3. Authorize the Department to oversee performance of the permitted work and take appropriate action including, but not limited to, amending the permit, issuance of fines and/or revocation of the permit, if necessary.

Respectfully submitted,

CARTY S. CHANG
Chief Engineer

APPROVED FOR SUBMITTAL:

DAWN N.S. CHANG, Chairperson
Board of Land and Natural Resources

Exhibits:
1. Owner's dam safety permit application
2. Location map
3. Construction drawing pages

4. Chapter 343-HRS compliance – Letter from James Nakatani on final environmental assessment (EA) and anticipated finding of no significant impact (2019) and EA summary (2017)
5. HRS Chapter 6E-8 Historic Preservation review
6. Agency consultation summary
7. Ka Pa'akai Pre-Assessment Form
8. General permit conditions
9. Oahu Reservoir 155 dam safety overview summary

APPLICATION FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR THE CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF DAMS IN THE STATE OF HAWAII

Introduction

The Department of Land and Natural Resources (DLNR) Engineering Division administers the State Dam and Reservoir Program as authorized under Hawaii Revised Statutes Chapter 179D (HRS) and Hawaii Administrative Rules Title 13, Department of Land and Natural Resources, Sub-Title 7 – Water and Land Development, Chapter 190.1 – Dams and Reservoirs, (HAR). Requirements for obtaining an approval for the construction, enlargement, repair, alteration, or removal of dams and reservoirs are derived from the (HRS) and Hawaii Administrative Rules (HAR) and the steps for obtaining a dam safety permit are outlined in this application form. Any omissions or errors in this document do not relieve the Applicant from complying with applicable sections of the HAR.

All applications should be addressed to:

Chairperson, Board of Land and Natural Resources
Department of Land and Natural Resources
Engineering Division
P.O. Box 373
Honolulu, Hawaii 96809
Telephone: (808) 587-0230

Instructions

An Applicant is encouraged to contact the Department to if they are interested in a pre-application meeting. The pre-application meeting allows for discussion of the Applicants conceptual plan and the requirements of the Board for specific applications and gives the Applicant an opportunity to ask questions.

A separate project dam safety permit application form shall be used for each dam structure. All information on the application form should be typed or printed. If a specific item does not apply it should be marked NA (not applicable). All owners of the facility shall sign an "Owners Signature" page for this site and project.

The Department shall accept and take action on applications only if the fee for the application is paid. The fee is based upon two percent of the total project costs associated with the design and construction of the dam and appurtenant works as in accordance with Chapter 13-190.1-50.

Review steps:
1. Administrative completeness review
2. Permit technical review
3. Approval by Board of Land and Natural Resources
4. Issuance of Permit

Any questions pertaining to completion of this form should be directed to the Engineering Division, Dam Safety Program at (808) 587-0254.

Exhibit 1

Hawaii Dam and Reservoir Safety Program
DAM SAFETY PERMIT

Dam Name: Project Type:

DAM SAFETY PERMIT APPLICATION FORM

Fill in the following information for the specified dam safety permit project. One application shall be used for each dam or reservoir structure.

Project Information	*Application Date*	September 6, 2022
	Applicant Name (Attachment 1)	Aaron Kreitzer
Dam Name	Waiahole Reservoir 155	
Dam ID No. (State) (if New Dam enter N/A)	HI00137	
Type of Project (check one)	_____ New Construction __X__ Improvement (repair/rehabilitation/alteration) _____ Reduction (alteration to below regulatory jurisdiction) _____ Removal (breach, no pond)	
Dam/Reservoir Location (City)	Kunia, Oahu	
Dam/Reservoir Location (Latitude/Longitude)	21° 24' 25" N 158° 03' 24" W	
TMK(s)	9-2-01:001	
Island/County	Oahu / Honolulu	
State Land Use District (check all applicable)	__X__ Agriculture _____ Rural _____ Urban _____ Conservation	

Application Package	Included (Y/N)
1. Dam Safety Permit Application Form (with each owner's signature page) [Ref. 13-190.1-20(d)(1)]	Y
2. Design Report(s) [Ref. 13-190.1-20(d)(2)]	Y
3. Documentation for compliance with Chapter 343 Environmental Review	Y
4. Documentation for compliance with State Historic Preservation Division (SHPD) See SHPD website for HRS 6E Intake form to be submitted with backup documentation and determination. Government entities shall complete the 6E-08 review. (http://dlnr.hawaii.gov/shpd/review-compliance/forms/)	Y
5. Construction Plans (2 sets) [Ref. 13-190.1-20(d)(3)]	Y
6. Construction Specifications (2 sets) [Ref. 13-190.1-20(d)(3)]	Y
7. Construction Quality Assurance Plan [Ref. 13-190.1-20(d)(4)]	Y
8. Detailed Cost Estimate [Ref. 13-190.1-20(d)(5)]	Y
9. Filing fee calculation [Ref. 13-190.1-20(d)(6)]	Y
10. Filing fee (check) [Ref. 13-190.1-20(d)(6)]	Y
11. Other Supporting Documents	Y
12. Electronic copy of all of the above on CD/DVD/USB flash drive/other	Y

Hawaii Dam and Reservoir Safety Program
DAM SAFETY PERMIT

Dam Name: Project Type:

Technical Information	
Drainage Area (sq. miles/acres)	0.077 SM 49.3 AC
Type of Structure (Earthen/Concrete, etc.)	Earthen Embankment
Size Classification of Dam	Small
Hazard Classification	High
Purpose of Structure (Water supply, irrigation, recreation, real estate development, etc...)	Irrigation
Maximum Capacity (existing volume)	37-55 ac-ft
Maximum Capacity (revised volume after project completed)	44.6 ac-ft
Year completed/last modified	Completed in 1916

Description of Work to be performed (describe construction work to be done on dam and reservoir facility)
Reservoir embankment will be excavated and rebuilt to meet dam safety requirements. Capacity will be reduced to below 50 ac-ft and 25-ft height. The dam will remain as a regulated structure.

Anticipated effect of proposed structure on natural environment:
No significant impact

List all parties who share ownership of the parcels where the dam and reservoir are located and identify their interest in the property. All owners herein listed below shall sign **Attachment 2 – Owner Signature** and concur with the work proposed within this application by the applicant.

Owner Information		
Owner 1 Name: James J. Nakatani Company: State of Hawaii Agribusiness Development Corp.		TMK: Reservoir Owner
Owner 2 Name: Amy Martens Company: Bayer U.S. / Land Owner		TMK: (1) 9-2-001:001
Owner 3 Name: Company:		TMK:
Owner 4 Name: Company:		TMK:

Hawaii Dam and Reservoir Safety Program
DAM SAFETY PERMIT

Dam Name: Project Type:

Attachment 1

APPLICANT CONTACT INFORMATION

Applicant Information (primary contact for Dam Safety Permit process)	
Applicant Contact Name	Aaron Kreitzer
Firm/Company	HDR Engineering
Mailing Address	1001 Bishop Street, Suite 400, Honolulu, HI 96813
Telephone	(808) 697-6200
Fax	(808) 697-6201
Email	Aaron.Kreitzer@hdrinc.com

I, Aaron Kreitzer, the applicant, hereby certify that the information herein is
(print name)
true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within five (5) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

A M. K

Applicant Signature

Date: 9/27/2022

Senior Project Manager

Applicant Title

ENGINEER CONTACT INFORMATION

Licensed Engineer Contact Information	
Registered Hawaii Professional Engineer	Aaron Kreitzer
Registration No.	PE-12835
Firm/Company	HDR Engineering
Mailing Address	1001 Bishop Street, Suite 400, Honolulu, HI 96813
Telephone	(808) 697-6200
Mobile/Other	(808) 202-4954
Fax	(808) 697-6201
Email	Aaron.Kreitzer@hdrinc.com

Hawaii Dam and Reservoir Safety Program
DAM SAFETY PERMIT

Dam Name: Project Type:

Attachment 2

OWNER INFORMATION/SIGNATURE

A separate signature page is required for each and all owners of the dam and reservoir for the subject project. The Owner herein listed below concurs with the work proposed within this application by the applicant and by signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190.1, Hawaii Administrative Rules. (Submit copies of this sheet for each owner)

Owner Information	
Owner Contact Name	James J. Nakatani
Firm/Company	State of Hawaii Agribusiness Development Corporation
Mailing Address	235 South Beretania Street, Room 205, Honolulu, HI 96813
Telephone	(808) 586-0186
Mobile/Other	
Fax	(808) 586-01889
Email	James.Nakatani@hawaii.gov
TMK for dam/reservoir property	9-2-01:001

Owner Signature

James J. Nakatani

Print Name of Owner

Signature of Owner

Sep 27, 2022

Date

Dam Name: Project Type:

Attachment 3

FEE REQUIREMENTS/FILING FEE CALCULATION

Payment of the filing fee is required pursuant to HRS §179D-6 and §13-190.1-50 for all applications. The Department shall accept and take action on the following applications and filings only if the fee shown for the application or filing is paid at the time the application or filing is submitted. The fee is based upon two percent of the total project costs associated with construction of the dam and appurtenant works integral to the design and safe operation of the dam.

The applicant or owner shall submit with the application for construction, enlargement, alteration, repair, or removal a fee calculation sheet and the application fee in the amount equal to two per cent of the estimated cost of construction including engineering costs. The estimated cost of the construction, enlargement, alteration, repair, or removal shall include the cost of all labor and materials entering into the construction of the dam and appurtenant works or reservoir, the cost of preliminary investigations and surveys, the cost of the construction plans properly chargeable to the cost of the dam or reservoir, and any and all other items entering directly into the cost of the construction, enlargement, alteration, repair or removal. The costs of right-of-way, detached powerhouses, electrical generating machinery, and roads and railroads affording access to the dam or reservoir shall not be included among the items used in the determination of cost.

An application shall not be considered by the department until the application fee is received. In the event the actual cost exceeds the estimated cost by more than 15 percent, a further fee shall be required by the board before final approval and shall be two per cent of the amount the actual cost exceeded the estimated cost of the construction, enlargement, alteration, repair, or removal. No further fee shall be required, if such fee is to be computed at less than twenty dollars ($20).

FILING FEE CALCULATION

Engineering costs (studies, plans, specifications, etc…)	$616,000.00
Estimated Construction cost	$2,915,574.00
Total estimated costs	$3,531,574.00
Initial Application fee = 2% x Total estimated costs	$70,631.48

Hawaii Dam and Reservoir Safety Program
DAM SAFETY PERMIT

Dam Name: Project Type:

CONDITIONS OF APPROVAL

Construction work shall commence within five years of the date of the approved application.
A licensed engineer in the State of Hawaii shall be in charge of the inspection of the construction.

One set of final plans and specifications with the County approval (signature) shall be submitted to the Department prior to the start of the work.

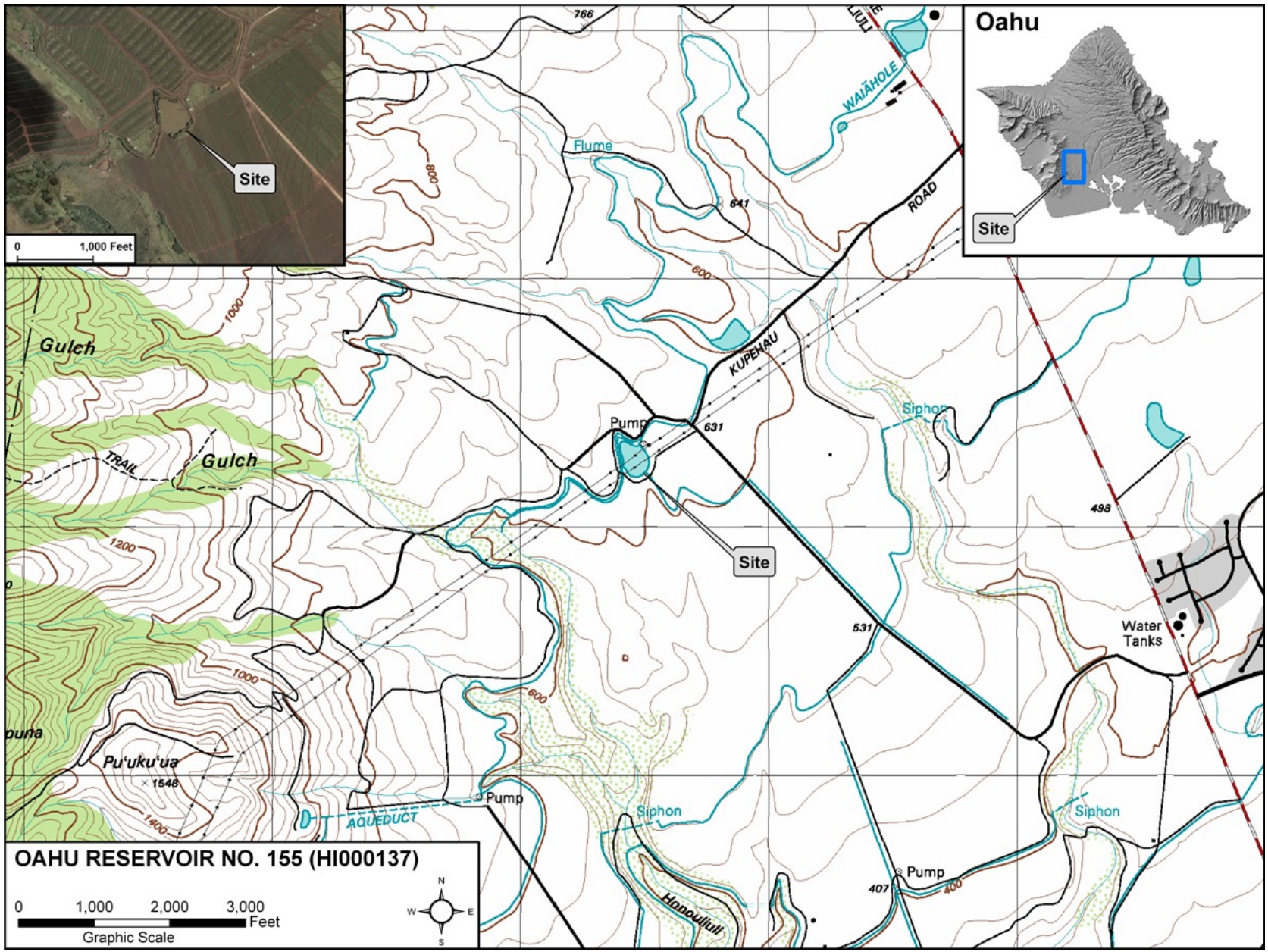
The Department shall be notified five (5) calendar days prior to the commencement of the construction, and a construction schedule shall be provided, which includes the notice to proceed date and estimated project duration.

Changes and/or modifications to the plans shall be sent to DLNR Dam Safety Program in the form of shop drawings and/or plans that are approved and stamped by a licensed engineer. Changes and/or modifications shall not be implemented until approved by DLNR Dam Safety Program.

The owner or owner's representative shall submit a copy of the dam safety application and the plans and specifications of the proposed improvements to the County Engineer of the County for which the dam resides for compliance with County codes.

This permit does not relieve the owner or owner's representative of their obligations to comply with all applicable Federal, State, and County regulations. These may include but may not be limited to:

- **National Pollution Discharge Elimination System (NPDES) Permit** – Department of Health (DOH), Environmental Management Division, Clean Water Branch (CWB), Engineering Section.
- **US Army Corps of Engineers Permits (404 Permit)** – USACE, DOH, CWB, Engineering Section
- **Threatened and Endangered Species Review Request** – U.S. Fish and Wildlife Service
- **'No Effects' Letter** – DLNR, State Historic Preservation Division (SHPD)
- **DLNR Stream Channel Permit** – DLNR, Commission on Water Resource Management
- **DOH 401 Permit** – DOH, CWB, Engineering Section
- **Grading Permit** – County, Department of Public Works (DPW), Engineering Division
- **Grubbing Permit** – County, Department of Public Works (DPW), Engineering Division
- **Work Within the County Right-of-Way** – County, Department of Public Works (DPW), Engineering Division
- **Stockpiling Permit** – County, Department of Public Works (DPW), Engineering Division
- **Private Waterline Permit** – County, Department of Public Works (DPW), Engineering Division
- **Building Permit** – County, Department of Public Works (DPW), Building Division
- **Planning Approval** – County, Planning Division
- **Community Noise Permit** – State of Hawaii, DOH, Environmental Management Division, Indoor and Radiological (IRH) Branch



Location map of Oahu Reservoir 155.

Exhibit 2

WAIAHOLE RESERVOIR SYSTEM
RESERVOIR 155 IMPROVEMENT PLANS
HONOLULU COUNTY, KUNIA, OAHU, HAWAII

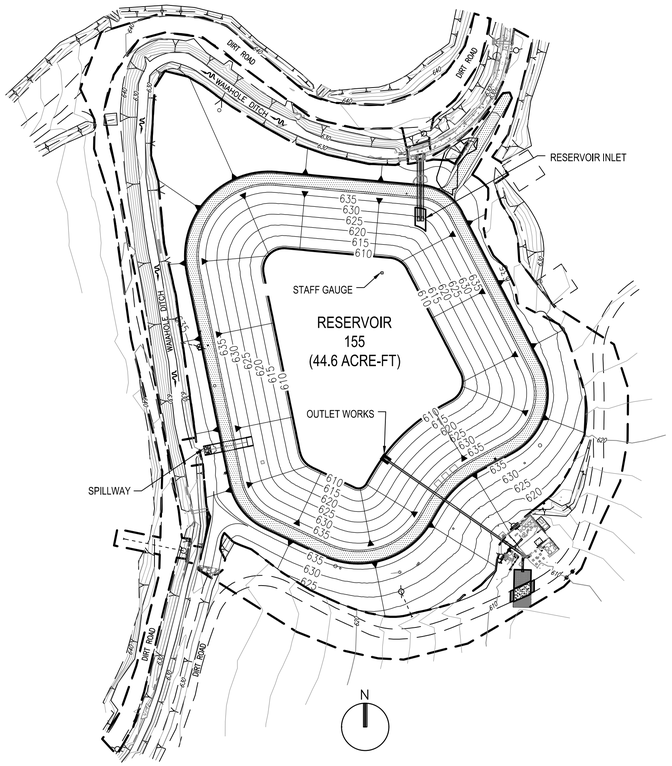
U.S. ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT

DLNR NID ID HI00137

P2 102705

FY-2013

TAX MAP KEY: 9-2-001:020



US Army Corps of Engineers®
Honolulu District

Rev.	Description	Date	Approved

Date: 01 DEC 2023
Design file no:
Drawing Code: CWK01
File name: G-001
Plot date:
Plot scale: AS_NOTED

Designed by: HDR
Dwn by: HDR
Spec No.:
Reviewed by: HDR
Submitted by: HDR ENGINEERING, INC.

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

1132 BISHOP STREET, SUITE 1200
HONOLULU, HAWAII 96813 – 2830
PHONE: (808) 697-4200

HDR Engineering, Inc.

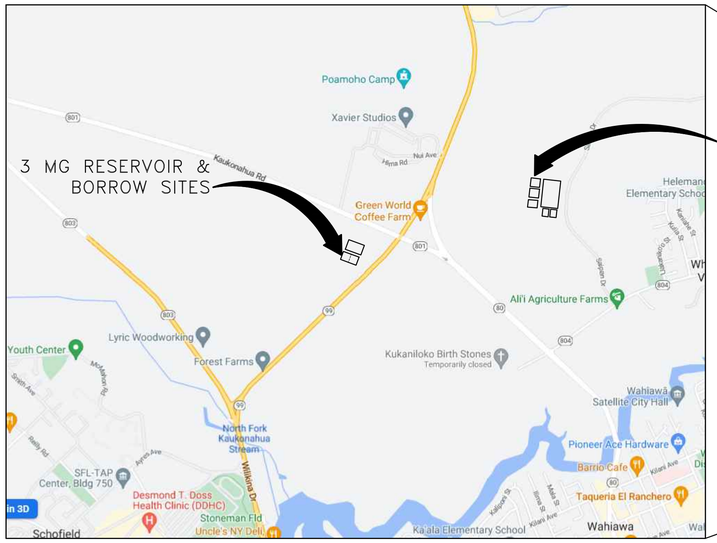
WAIAHOLE RESERVOIR SYSTEM
RESERVOIR 155 IMPROVEMENT PLANS
COUNTY OF HONOLULU, OAHU, HAWAII

TITLE SHEET

SHEET IDENTIFICATION
G–001
Sheet 1 of 50

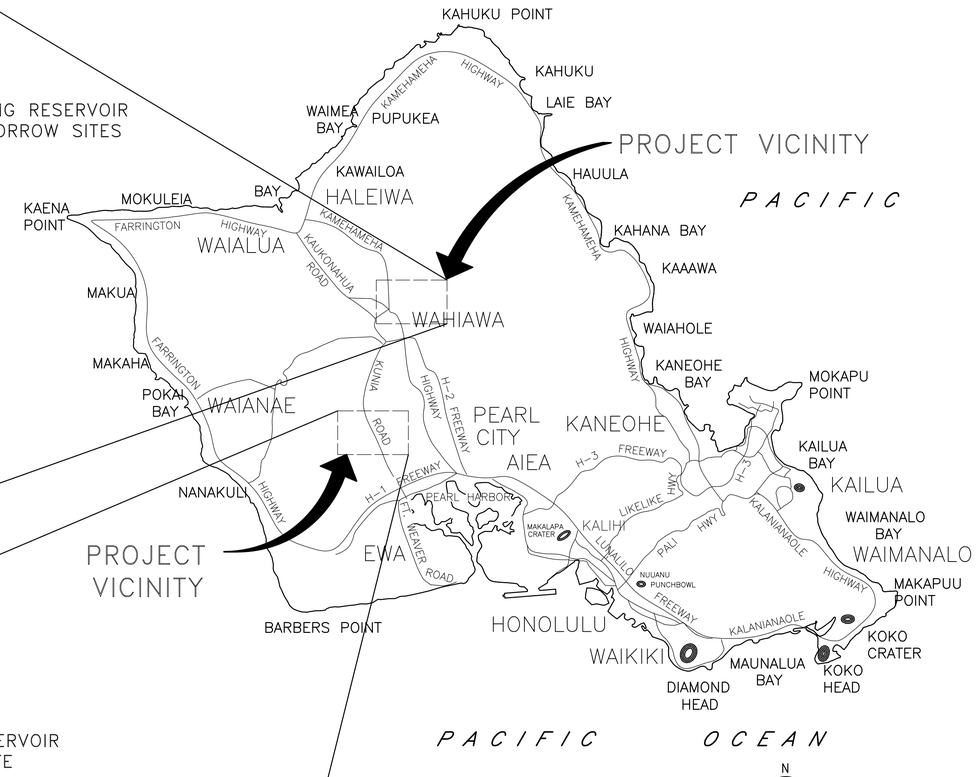
8.1.1

Exhibit 3



VICINITY MAP - BORROW SITES

SCALE: NTS



LOCATION MAP

SCALE: NTS

ANTICIPATED CONSTRUCTION SEQUENCE:

1. INSTALL CONSTRUCTION ACCESS AND BMPs.
2. SITE GENERAL DEMOLITION AND PREPARE CONTRACTOR'S OPERATIONS AND STAGING AREA.
3. DRAIN RESERVOIR 155.
4. CLEAR AND GRUB RESERVOIR SITE.
5. GRADING INCLUDING RESERVOIR SEDIMENT REMOVAL, EMBANKMENT EXCAVATION AND EMBANKMENT FILL ACTIVITIES.
6. INSTALL EROSION CONTROL MEASURES.
7. INSTALL CONCRETE STRUCTURES INCLUDING INLET AND OUTLET WORKS AND SPILLWAY.
8. INSTALL HDPE LINER.
9. FILL RESERVOIR AND REMOVE CONSTRUCTION ACCESS AND BMPs.

VICINITY MAP - RESERVOIR 155

SCALE: NTS

NOTE. THIS PLAN SUPERSEDES PREVIOUSLY APPROVED 2016/CP-13 PLAN.

APPROVED:

DIRECTOR, DEPARTMENT OF PLANNING & PERMITTING (FOR SITE GRADING ONLY) — DATE

AARON M. KREITZER
LICENSED PROFESSIONAL ENGINEER
No. 12835-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 4/30/2024 LICENSE EXP.

US Army Corps of Engineers®
Honolulu District

Symbol	Description	Date	Approved

Date: 01 DEC 2023 | Rev.
Designed by: HDR | Spec No.:
Dwn. by: HDR | Design file no:
Reviewed by: DR | Drawing Code: CWU01
Submitted by: HDR ENGINEERING, INC. | File name: G-101
Plot date: | Plot scale: AS NOTED

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

HDR
1001 BISHOP STREET, SUITE 400
HONOLULU, HAWAII 96813-3550
PHONE: (808) 697-4200
HDR Engineering, Inc.

WAHIOLE RESERVOIR SYSTEM
RESERVOIR 155 IMPROVEMENT PLANS
COUNTY OF HONOLULU, OAHU, HAWAII

LOCATION MAPS

SHEET IDENTIFICATION
G-101
Sheet 5 of 50

2023/CP-170

8.1.1

AERIAL PHOTO

SCALE: 1"=50'

GENERAL NOTES:

A. AERIAL PHOTO PROVIDED FOR REFERENCE ONLY. CONTRACTOR SHALL SATISFY THEMSELVES TO THE EXISTING FEATURES BEFORE STARTING THE WORK.

B. CONTROL POINT CP-314 TO BE USED AS BENCHMARK.

PROJECT CONTROL

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-13	86403.64	1620203.74	632.88	STA CP-100 IRON PIN
CP-16*	76239.16	1631356.26	93.81	STA HCTC-12 BRASS DISK
CP-17*	76715.06	1632610.44	33.52	STA HCTC-13 BRASS DISK
CP-314	86863.35	1620144.39	633.93	STA CP-101 "Y" CUT
CP-315	86642.23	1619906.35	636.18	STA CP-102 IRON PIN

* CONTROL POINTS NOT SHOWN ON AERIAL PHOTO

N

50 25 0 50 100

HORIZ SCALE: 1"=50'

AARON M. KREITZER
LICENSED PROFESSIONAL ENGINEER
No. 12835-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4/30/2024 LICENSE EXP.

US Army Corps of Engineers®
Honolulu District

Rev.	Description	Date	Approved	Symbol

Date: 01 DEC 2023
Designed by: HDR
Drawn by: HDR
Reviewed by: HDR
Submitted by: HDR ENGINEERING, INC.
Design file no:
Spec No.:
Drawing Code: CWU01
File name: G-102
Plot date:
Plot scale: AS NOTED

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

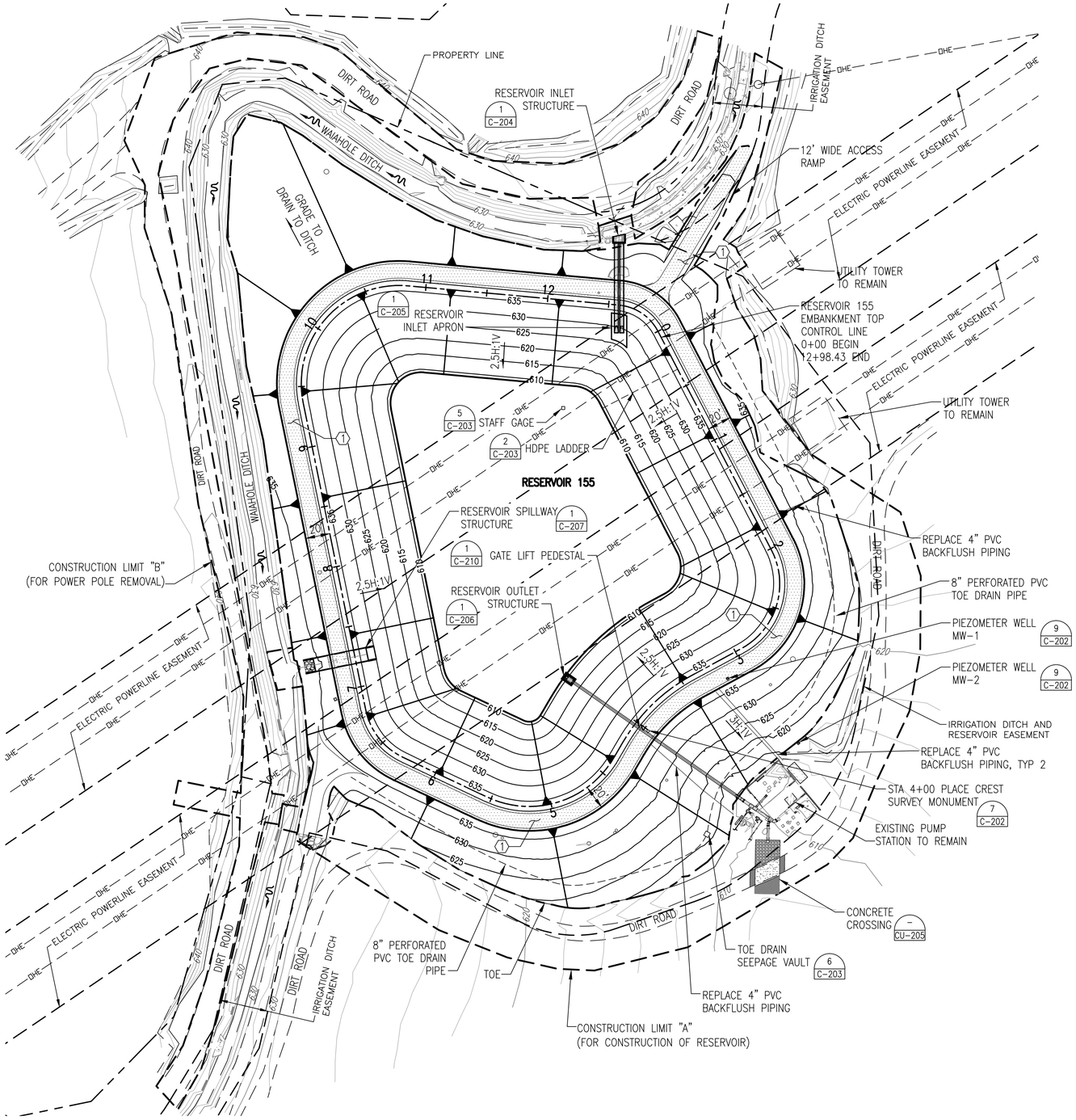
HDR
1001 BISHOP STREET, SUITE 400
HONOLULU, HAWAII 96813 - 3550
PHONE: (808) 697-6200
HDR Engineering, Inc.

WAIAHOLE RESERVOIR SYSTEM
RESERVOIR 155 IMPROVEMENT PLANS
COUNTY OF HONOLULU, OAHU, HAWAII

AERIAL PHOTO, EXISTING EASEMENTS AND CONTROL

SHEET IDENTIFICATION
G-102
Sheet 6 of 50

8.1.1



SITE PLAN

SCALE: 1"=50'

GENERAL NOTES:

A. EXISTING EASEMENTS ARE SHOWN ON SHEET G-102.

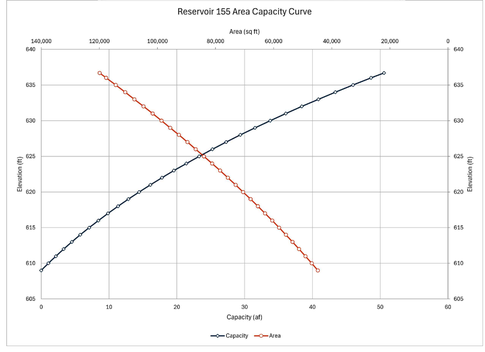
B. POWER POLES AND OVERHEAD LINES TO BE REMOVED ARE SHOWN ON SHEET CD-101.

C. RESERVOIR 155 DATA:
TOP OF EMBANKMENT ELEVATION: 636.70 FT
BOTTOM OF EMBANKMENT (INSIDE OF RESERVOIR) ELEVATION: 609.00 FT
CAPACITY AT MAXIMUM SURCHARGE POOL (634.5 FT):
14.5 MG (44.6 ACRE-FEET)
CAPACITY AT SPILLWAY ELEVATION (630.00 FT);
11.0 MG (33.0 ACRE-FEET)

CONSTRUCTION NOTE ⓧ :

1. PLACE 4" OF NO.3 AGGREGATE SURFACING ON EMBANKMENT CREST AND RAMP PER DETAIL 3, SHEET C-202.

Reservoir 155 HEC-RAS Storage Area Data		
Elevation (ft)	Volume (acre-ft)	Area (sq ft)
609	0.000	44,796
610	1.053	46,907
611	2.154	49,063
612	3.306	51,264
613	4.508	53,510
614	5.763	55,802
615	7.071	58,139
616	8.433	60,520
617	9.850	62,948
618	11.324	65,420
619	12.854	67,937
620	14.443	70,500
621	16.092	73,108
622	17.801	75,760
623	19.571	78,459
624	21.403	81,202
625	23.300	83,990
626	25.260	86,824
627	27.287	89,703
628	29.379	92,627
629	31.540	95,596
630	33.769	98,610
631	36.068	101,670
632	38.438	104,774
633	40.879	107,924
634	43.393	111,120
635	45.982	114,359
636	48.645	117,644
636.7	50.553	119,906
637	51.449	140,157



AREA-CAPACITY CURVE & TABLE

N

50 25 0 50 100

HORIZ SCALE: 1"=50'

AARON M. KREITZER
LICENSED PROFESSIONAL ENGINEER
No. 12835-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4/30/2024 LICENSE EXP.

US Army Corps of Engineers®
Honolulu District

Approved | Date | Description | Symbol

Rev. | Date: 01 DEC 2023 | Design file no: | Drawing Code: CMKU01 | File name: C-101 | Plot date: | Plot scale: AS NOTED

Designed by: HDR | Dwn by: HDR | Spec. No.: | Reviewed by: HDR | Submitted by: HDR ENGINEERING, INC

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

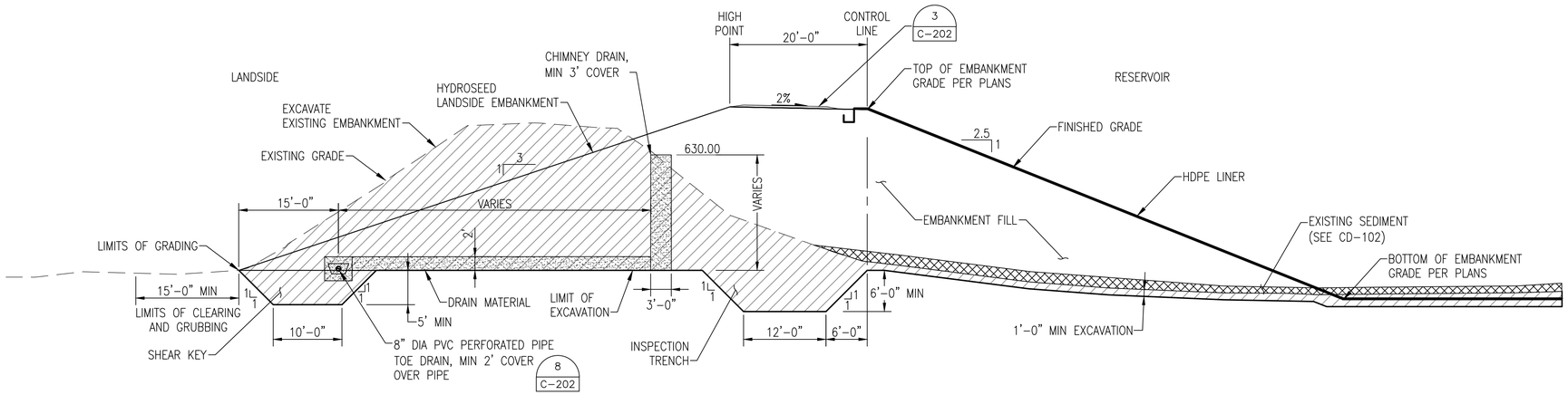
HDR Engineering, Inc.
1001 BISHOP STREET, SUITE 400
HONOLULU, HAWAII 96813-2830
PHONE: (808) 697-2200

WAIAHOLE RESERVOIR SYSTEM
RESERVOIR 155 IMPROVEMENT PLANS
COUNTY OF HONOLULU, OAHU, HAWAII

SITE PLAN

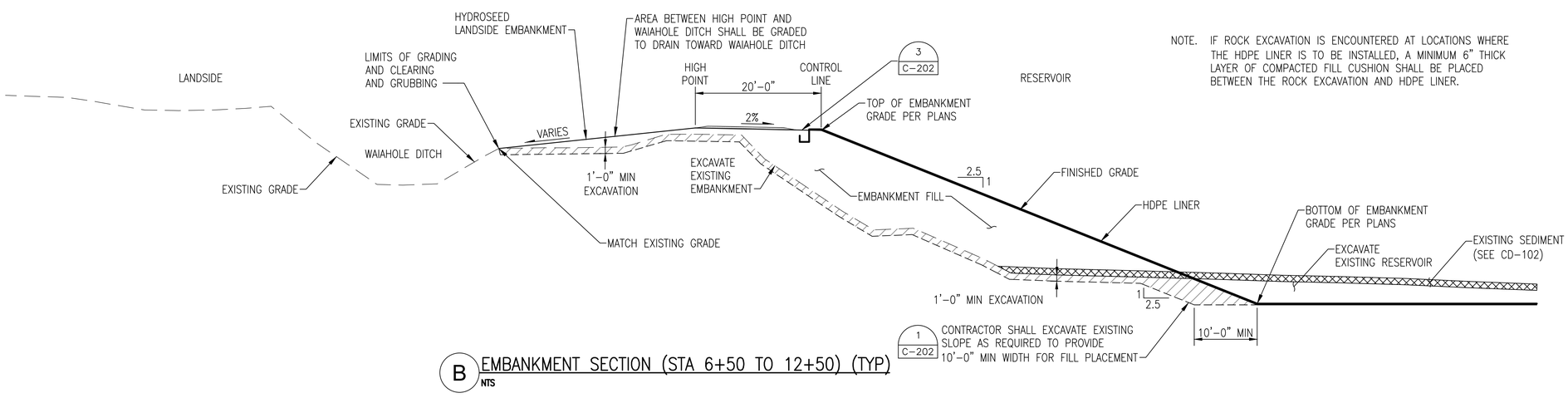
SHEET IDENTIFICATION
C-101
Sheet 20 of 49

8.1.1



NOTE. CHIMNEY DRAIN FROM STA 2+00 TO 6+00 ONLY.

A EMBANKMENT SECTION (STA 0+00 TO 6+50 AND 12+50 TO 12+98.43) (TYP)
NTS



NOTE. IF ROCK EXCAVATION IS ENCOUNTERED AT LOCATIONS WHERE THE HDPE LINER IS TO BE INSTALLED, A MINIMUM 6" THICK LAYER OF COMPACTED FILL CUSHION SHALL BE PLACED BETWEEN THE ROCK EXCAVATION AND HDPE LINER.

B EMBANKMENT SECTION (STA 6+50 TO 12+50) (TYP)
NTS

NOTE. THIS PLAN SUPERSEDES PREVIOUSLY APPROVED 2016/CP-13 PLAN.

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

AARON M. KREITZER
LICENSED PROFESSIONAL ENGINEER
No. 12835-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 4/30/2024 LICENSE EXP.

US Army Corps of Engineers®
Honolulu District

No.	Description	Date	Approved

Date: 01 DEC 2023
Design file no:
Drawing Code: CWKU01
File name: C-201
Plot date:
Plot scale: AS NOTED
Rev.

Designed by: HDR
Dwn by: HDR
Spec No.:
Reviewed by: HDR
Submitted by: HDR ENGINEERING, INC

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

HDR Engineering, Inc.
1001 BISHOP STREET, SUITE 400
HONOLULU, HAWAII 96813-2830
PHONE: (808) 697-2200

WAIAHOLE RESERVOIR SYSTEM
RESERVOIR 155 IMPROVEMENT PLANS
COUNTY OF HONOLULU, OAHU, HAWAII

TYPICAL SECTIONS

SHEET IDENTIFICATION
C-201
Sheet 24 of 50

8.1.1

DAVID Y. IGE
Governor

JOSH GREEN
Lt. Governor

JAMES J. NAKATANI
Executive Director

STATE OF HAWAII
AGRIBUSINESS DEVELOPMENT CORPORATION
235 S. Beretania Street, Room 205
Honolulu, HI 96813
Phone: (808) 586-0186 Fax: (808) 586-0189

January 29, 2019

Scott Glenn, Interim Director
Office of Environmental Quality Control
Department of Health, State of Hawaii
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Mr. Glenn:

RE: Environmental Assessment for the Waiahole Reservoir System
Reservoir 155 & 225 Improvement Project
located at TMK (1) 9-2-001: 001 and (1) 9-4-003:001

With this letter, the Hawaii Department of Agriculture (HDOA), Agribusiness Development Corporation (ADC) hereby transmits the final environmental assessment and anticipated finding of no significant impact (FEA-FONSI) for the Waiahole Reservoir System Reservoir 155 & 225 Improvement Project for publication in the next available edition of the *Environmental Notice*. The proposed improvement project will be located at TMK (1) 9-2-001: 001 and (1) 9-4-003:001 in the Ewa District on the Island of Oahu.

Enclosed is a completed OEQC Publication Form, a hard copy of the FEA-FONSI and a CD containing the electronic files (e.g., an Adobe Acrobat PDF file of the FEA-FONSI, the OEQC form in MS Word and the project summary).

If there are any questions, please contact Michael Wyatt, Chief, Civil Public Works Branch, U.S. Army Corps of Engineers at (808) 835-4031.

Sincerely,

James J. Nakatani
Executive Director

Enclosures: One (1) hard copy of FEA-FONSI
One (1) hard copy of OEQC Publication Form
One (1) CD containing the FEA-FONSI, OEQC Publication Form and summary

Exhibit 4

Finding of No Significant Impact for the U.S. Army Corps of Engineers

Waiahole Reservoir System – Reservoirs 155 and 225 Improvements Project,

April 2017

AUTHORITY: Pursuant to the National Environmental Policy Act (NEPA), as amended (42 USC 4347, Section 102 (2)(C), and the Hawaii Environmental Policy Act (HEPA), Chapter 343 of the Hawaii Revised Statutes (HRS); the implementing regulations issued by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508); and Environmental Analysis of Army Actions (32 CFR 651), the Department of the Army gives notice that an Environmental Assessment (EA) has been prepared for proposed Waiahole Reservoir System – Reservoirs 155 and 225 Improvements Project, Ewa District, O'ahu, Hawaii situated at TMK (1) 9-2-001:001 [por.] and (1) 9-4-003:001 [por.]), in the City and County of Honolulu on the island of O'ahu. This EA was prepared to comply with both the NEPA and HEPA process in determining whether or not the Proposed Action would have significant adverse effects on the human environment.

PROPOSED ACTION: Reservoirs 155 and 225, within the Waiahole Ditch Irrigation System, have lost holding capacity due to years of sediment accumulation. Both reservoirs are unlined, earthen storage basins used to store irrigation water for adjacent farmers. The 1999 Dam Safety Inspection of Reservoir 155 Report summarized a Phase 1 inspection by the U.S. Army Corps of Engineers (USACE) to determine the current state of the reservoir in meeting the State of Hawaii criteria. The results showed deficiencies associated with erosion at the stop logs, intakes, and spillway, excessive vegetation on the slopes and crown, and oversteepened slopes. In order to increase safety and reduce risk of failure, the Proposed Action would lower the reservoir to eliminate erosion sites at the dam crest, remove vegetation and fill any existing holes with compacted fill, and flatten the slopes. Reservoir 225 is assumed to have similar deficiencies as Reservoir 155 due to the proximity, size, and common history of both reservoirs; the Proposed Action includes the same recommendations for Reservoirs 155 and 225. The Proposed Action would include excavation of the existing embankments, removal of sediment from the interior of the reservoirs, reconstruction of the embankments, reduction in water storage capacities of both reservoirs, and lining the reservoirs to reduce water losses and leakage in the system.

ALTERNATIVES CONSIDERED: The two alternatives considered are the Proposed Action and the No Action Alternative. The No Action Alternative would consist of keeping the reservoir embankments in their current alignment and making no improvements. The No Action Alternative would not reduce the risk of failure of the embankment slopes, and would provide no additional protection for populations potentially impacted in the event of a failure. In addition, the No Action Alternative would not correct the identified deficiencies at both reservoirs associated with erosion at the stop logs, intakes, and spillway, excessive vegetation on the slopes and crown, and oversteepened slopes.

SUMMARY OF FINDINGS: The EA analyzed the potential impacts resulting from implementation of the Proposed Action. The Proposed Action would result in less than significant impacts for the following resource areas analyzed in the EA: geology and soils; drainage and flooding; surface water, groundwater, and water quality; biological resources; historic and cultural resources; land use and agriculture; aesthetics; hazardous, toxic, and radioactive wastes; noise; air quality; long-term socioeconomics; public services and utilities; and traffic and circulation. Mitigation measures, and standard construction best management practices (BMPs), where applicable, have been incorporated into the Proposed Action to ensure that impacts remain less than significant. The Proposed Action would result in no impacts for climate and precipitation; and recreational resources. The Proposed Action would result in short-term, beneficial impacts for socioeconomics.

DECISION: Based on information compiled and analyzed during preparation of the EA, the U.S. Army Corps of Engineers finds that the Proposed Action would not result in significant adverse impacts on either the man-made or natural environment. Therefore, an environmental impact statement will not be required.

PUBLIC COMMENTS: A notice of availability of the Draft EA and Anticipated Finding of No Significant Impact (AFNSI) was published in the State of Hawai‘i Department of Health, Office of Environmental Quality Control publication, *The Environmental Notice*, on January 23, 2017, followed by a 30-day comment period (January 23, 2017 through February 22, 2017). Comments on the Draft EA and the AFNSI have been considered, addressed, and incorporated where applicable into this Final EA or Finding of No Significant Impact (FNSI).

Approved By:

James D. Hoyman
Lieutenant Colonel, U.S. Army
District Engineer

Executive Summary

In light of recent increased emphasis on dam safety, the United States Army Corps of Engineers (USACE) is proposing to improve the safety and operation of two reservoirs (Reservoir 155 and Reservoir 225) along the existing Waiahole Ditch Irrigation System in Oahu (Proposed Action, or project). In accordance with the Hawaii Dam Safety Act of 2007, the State of Hawaii Department of Land and Natural Resources (DLNR) has jurisdiction over the enlargement, repair, and alteration of jurisdictional dams, in order to protect the health, safety, and welfare of the citizens of the State of Hawaii by reducing the risk of failure of the dams and reservoirs. The USACE is working with the DLNR to ensure that all proposed modifications are consistent with state law.

The Proposed Action is authorized under Section 1(a)(4) of the Consolidated Appropriations Act of 2001 (Public Law 106-554, Appendix D, Chapter 5 (114 STAT 2763A-190)), which authorized and directed use of $2 million of appropriated Construction General Funds to initiate design and construction of the project. The 905(b) Report was approved by Headquarters USACE on 12 February 2003, allowing implementation of design and construction of repairs and rehabilitation of publicly owned irrigation systems to the extent of the funds appropriated.

The Waiahole Ditch Irrigation System was constructed between 1912 and 1916 to irrigate sugar cane fields on the western side of Oahu, and consists of a 26 mile-long transmission system of ditches, tunnels, siphons and reservoirs that provides a source of irrigation water to local farmers from the windward side of the island of Oahu. The State of Hawaii Agribusiness Development Corporation (ADC), an attached agency to the Hawaii Department of Agriculture (HDOA), operates and maintains the Waiahole Ditch Irrigation System, including two reservoirs within the system: Reservoirs 155 and 225, both of which are unlined, earthen storage basins used to store irrigation water for adjacent farmers and fed directly by the Waiahole Ditch. These reservoirs have lost holding capacity due to years of sediment accumulation.

Reservoir 155 is a regulated dam located within agricultural fields west of Kunia Road (State Route 750), approximately 1.0 miles from the roadway. Reservoir 155 is classified as a high hazard, small dam due to the following factors: a total height of 25 feet (ft), a holding capacity greater than 50 acre-feet (ac-ft), and potential downstream impacts in the event of a failure. Per the Hawaii Administrative Rules (HAR) Chapter 13-190.1, a "high hazard" dam classification is defined as that in which the failure of the dam or reservoir will result in probable loss of human life.

Reservoir 225 is located east of Kunia Road, adjacent to the roadway and is not currently listed as a regulated dam. However, recent calculations show that Reservoir 225 exceeds a capacity of 50 ac-ft, which would result in the reservoir being listed as a regulatory dam and require DLNR to take jurisdiction over the reservoir.

Several historic studies, reports and inspection forms were reviewed to determine the existing conditions of the two reservoirs for the purposes of project design. In general, the identified deficiencies include oversteepened slopes, uneven and marginal crown width, excessive vegetation, inadequate outlet and spillway works, and compaction/stability of the earthen embankment. Recent preliminary work performed in advance of the design has reinforced these identified deficiencies. The main purpose of the

Proposed Action is to ensure that each reservoir meets dam safety criteria. To meet this purpose the water storage capacities of Reservoir 155 and Reservoir 225 would both be reduced. In addition, the reservoirs would be lined to reduce water losses and leakage in the system.

This Environmental Assessment (EA) was originally published as a draft document (Draft EA or DEA) on January 23, 2017. After a 30 day public comment period, minor modifications in response to comments received on the Draft EA were made and a final version of the EA has been prepared (Final EA or FEA).

This EA was prepared to comply with both the National Environmental Policy Act (NEPA) and the Hawaii Environmental Policy Act (HEPA) process in determining whether or not the Proposed Action would have significant adverse effects on the human environment. The USACE is the lead agency for the Proposed Action under NEPA. This EA follows the guidance outlined in 33 Code of Federal Regulations (CFR), Part 230, for implementation of the procedural provisions of NEPA for the Civil Works Program of the USACE. Under HEPA, agency actions or government actions are carried about by the proposing agency, which in this case is HDOA. The proposing agency is responsible for preparing the EA and defining the reasons to support the determination on the EA.

This EA analyzes the potential impacts resulting from implementation of the Proposed Action. The Proposed Action would result in less than significant impacts for the following resource areas analyzed in the EA: geology and soils; drainage and flooding; surface water, groundwater, and water quality; biological resources; historic and cultural resources; land use and agriculture; aesthetics; hazardous, toxic, and radioactive wastes; noise; air quality; long-term socioeconomics; public services and utilities; and traffic and circulation. Mitigation measures, and standard construction best management practices (BMPs), where applicable, have been incorporated into the Proposed Action to ensure that impacts remain less than significant. . The Proposed Action would result in no impacts for climate and precipitation; and recreational resources. The Proposed Action would result in short-term, beneficial impacts for socioeconomics.

STATE OF HAWAII | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

April 22, 2024

IN REPLY REFER TO:
Project No. 2022PR01315
Doc. No. 2404MA04
Archaeology

Carty S. Chang, Chief Engineer
DLNR Engineering Division
Post Office Box 373
Honolulu, HI 96809
c/o Tony Koyamatsu
tony.koyamatsu@hawaii.gov

Michael E. Desilets, Archaeologist
Technical Integration Section
Environmental Branch
Programs and Project Management Division
Department of the Army
U.S. Army Corps of Engineers, Honolulu District
230 Otake Street, Building 230
Fort Shafter, Hawaiʻi 96858-5440
c/o Marian Dean
marian.dean@usace.army.mil

Dear Carty S. Chang and Michael E. Desilets:

SUBJECT: **Hawaii Revised Statutes (HRS) §6E-8 and NHPA Section 106 Historic Preservation Review – Waiahole Reservoir System Reservoirs No. 155 and 225 Improvements Project**
Dam Safety Permit 68 [for Oahu Reservoir 155 (OA-0137)]
Archaeological Monitoring Plan (AMP)
Honouliuli and Hōʻaeʻae Ahupuaʻa, ʻEwa District, Island of O'ahu
TMK: (1) 9-2-001:001 por. and (1) 9-4-003:001 por.

This letter continues the State Historic Preservation Division's (SHPD's) HRS §6E-8 Historic Preservation Review of the subject permits and proposed project titled *Oahu Reservoir 155 (OA-0137) Improvement Project*, which is a component of the larger *Waiahole Reservoir System Reservoirs 155 and 225 Improvements Project*. The scope of work for the *Oahu Reservoir 155 (Oa-0137) Project* is to cut a breach in the dam embankment in order to reduce the reservoir's capacity. This falls within the scope of work defined for the larger undertaking in a 2020 Memorandum of Agreement (MOA) developed for the *Waiahole Reservoir System Reservoirs 155 and 225 Improvements Project*. The larger project, covering Oahu Reservoirs 155 and 225, is a federal undertaking subject to NHPA Section 106 Consultation between the State Historic Preservation Officer (SHPO) and the United States Army Corps of Engineers (USACE). Work proposed for Oahu Reservoir 155 (Oa-0137) is on land co-owned by the State of Hawaii Agribusiness Development Corporation and Bayer U.S. Hawaii, who have been granted a Dam Safety Permit (No. 68) by the Department of Land and Natural Resources (DLNR), Engineering Branch.

The SHPD previously provided a concurrence on both HRS §6E-8 and Section 106 effect determinations for this project undertaking (Doc. No. 1610JLP08). Pursuant to HAR §13-275-7, the SHPD's determination was "Effect, with proposed mitigation commitments". Pursuant to 36 CFR 800.4(d)(2), the SHPO concurred with the USACE's

Exhibit 5

determination of *adverse effect*. A MOA was signed by USACE and the SHPO in 2020 that established Section 106-compliant mitigation measures to address the adverse effect that this undertaking would have on National Register of Historic Places (NRHP)-eligible historic properties. The AMP currently under review was submitted towards fulfillment of stipulation I(B) of the 2020 MOA. In October 2023 an Amendment to the 2020 MOA was executed, which amended the duration of the MOA and replaced an Area of Potential Effect (APE) map with the updated APE map.

SHPD accepts the revised AMP (McElroy and McElroy 2024) as meeting the requirements of HAR §13-279-4, pursuant to the historic preservation review process outlined in HAR §13-275. Please send one hard copy of the AMP, clearly marked FINAL, along with a copy of this acceptance letter and a text-searchable PDF version of the AMP to the Kapolei SHPD office, Attn: SHPD Library. Please upload a text-searchable PDF copy of the FINAL AMP to HICRIS Project No. 2022PR01315 in reponse to the relevant request, and email a text-searchable PDF copy of the FINAL AMP to Lehua.K.Soares@hawaii.gov.

SHPD hereby notifies both DLNR Engineering and USACE that project initiation may begin.

SHPD requests to be notified in writing, via email and HICRIS, of initiation of archaeological monitoring, which must coincide with the commencement of ground-disturbing activity within the project area. Within 30 days of completion of archaeological monitoring fieldwork, **SHPD looks forward to receiving** for review and acceptance a brief archaeological monitoring letter report of findings as specified in HAR §13-282-3(f)(1). Subsequently, within 60 days of completion of monitoring fieldwork, **SHPD looks forward to receiving** for review and acceptance an archaeological monitoring report (AMR) meeting the requirements of HAR §13-279-5.

USACE is the office of record for this undertaking per NHPA Section 106. Please maintain a copy of this letter with your environmental review record for this undertaking.

Please contact Megan E. Alvarez, Oʻahu Island Lead Archaeologist, at megan.alvarez@hawaii.gov, for any matters concerning archaeological resources or this letter.

Aloha,

Alan Downer

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Khoa Truong, USACE, khoa.d.truong@usace.army.mil

DAM SAFETY PERMIT AGENCY CONSULTATION SUMMARY

PERMIT NO. 68 – OAHU RESERVOIR 155 (OA-0137) – Dam Improvements

Agency	**Date Sent** by Dam Safety	**Date Returned**	**No Comments**	**Comments**	**No Reply**
DLNR Division of Aquatic Resources	3/22/2023	4/25/23		See Note 1	
DLNR Commission on Water Resource Mgt	3/22/2023	5/4/23		See Note 2	
DLNR Division of Forestry & Wildlife	3/22/2023				X
DLNR Historic Preservation Division	10/24/2022	4/22/2024		Concurs with effect determination	
DLNR Land Division	3/22/2023				X
DLNR Office of Conservation & Coastal Lands	3/22/2023	4/18/23		See Note 3	
Department of Agriculture	3/22/2023				X
DOA Agribusiness Development Corporation	3/22/2023				X
C&C of Honolulu, National Flood Insurance Program	3/22/2023				X
C&C of Honolulu, Dept of Emergency Management	3/22/2023				X
Hawaii Emergency Management Agency	3/22/2023				X

Notes:

1. Comment from The Division of Aquatic Resources (DAR): DAR recognizes the importance of the Waiahole Ditch Irrigation System, including Reservoir 155, to agricultural operations in the ʻEwa moku of Oʻahu. DAR also recognizes that water taken from the Windward Oʻahu Waiahole drainage to fill these agricultural needs holds great importance to the terrestrial and marine environments and farmers of Koʻolaupoko. Native aquatic life in the irrigation ditches and reservoirs

Exhibit 6

is likely limited due to lack of open passage to the marine environment to complete life cycles. However, because water is taken from intact freshwater ecosystems on the Windward side of the Koʻolau mountains where native aquatic life is present, inefficiencies in the irrigation systems of central Oʻahu can have far-reaching negative impacts. DAR supports improvements to existing irrigation systems to improve both efficiency and safety. DAR requests that they be kept informed regarding all further project actions, including any deviations from current plans.

2. Comment from the Commission on Water Resource Management (CWRM): The Commission on Water Resource Management considers the Waiahole Reservoir No. 155 a non-stream reservoir, which is located in Kunia between two tributaries of Honouliuli Stream. However, the reservoir does not receive water from Honouliuli Stream, rather it receives water from Waiahole Ditch. Thus, the proposed rehabilitation of this reservoir will not require a Stream Diversion Works Permit or a Stream Channel Alteration Permit from the Commission.
3. Comment from Office of Conservation & Coastal Lands (OCCL): Not in conservation district.

Enclosure

DLNR Dam Safety

Ka Pa'akai Pre-Assessment Form (Revised 11/8/23)

PROJECT INFORMATION (To be completed by the dam owner)

Dam Name: Oahu Reservoir 155

Dam ID No.: OA-0137

Dam Owner (name, title, company): Hawaii Dept of Agriculture, Agribusiness Development Corporation

Type of Project (e.g., removal, reduction, improvement): Improvement

Brief Description of Project (as needed, attach diagrams, maps, etc.): The reservoir embankments will be excavated and reconstructed to meet dam safety requirements, sediment from the reservoir basin will be removed, and new inlet and outlet piping, spillway structure, and basin liner will be installed.

TMK(s): (1) 9-2-001:020

Ahupua'a: Honouliuli

PRE-SCREENED COMPLIANT ACTIVITIES (To be completed by the dam owner)

Yes	No	Compliant Activity
	✓	Repair and maintenance
✓		Removing trees or vegetation
	✓	Valve replacement
✓		Outlet modification
	✓	Perimeter fence installation
	✓	Service roadway installation
✓		Embankment repair or improvement

Does the permit activity meet any of the pre-screened compliant activities? Yes ✓ No ____

If Yes, DLNR Dam Safety will evaluate the compliant activities.

Please continue with the SCREENING ANALYSIS section below.

Exhibit 7

SCREENING ANALYSIS (To be completed by the dam owner)

Provide responses to the following four screening questions:

1. Upon completion, will the proposed project result in a physical change of the geographical landscape in the area?

   No. Relative to the size of the dam structure, the improvements to the embankment and other components will not change the overall geographic landscape of the area.

2. Upon completion, will the proposed project result in changes to the water flow frequency, volume, or path upstream of the dam facility, through the project site, or downstream of the project site? Include impacts during conditions such as severe storm events.

   No. The project is not expected to change the water flow characteristics in the area. The improvements will help prevent a dam failure and flooding during severe storm events.

3. Upon completion, is there a possibility the project may impact "valued cultural, historical, or natural resources in the petition area?"

   No. An Archaeological Inventory Survey was completed on the project by Cultural Surveys Hawaii (Apr 2017) and determined no cultural, historical, or natural resources in the petition area will be impacted.

4. Upon completion, is there a possibility the project may change public accessibility to the dam facility or surrounding area?

   No, public access to the site or surrounding area will not be affected by the project.

_____ If AT LEAST ONE of the four questions above were answered Yes, Dam Safety will consult Aha Moku and/or the Po'o of the respective island to determine the likelihood of the proposed permit activity to affect the Ka Paakai Framework. If it is deemed that further investigation is required, the dam owner will conduct a Ka Pa'akai Consultation Assessment (KPCA). Otherwise, no further analysis will be required.

✓ If ALL of the four questions above were answered "No," no further analysis will be required and the dam owner will NOT need to perform a KPCA, subject to review and concurrence by DLNR and the Aha Moku Council.

SCREENING ANALYSIS RECOMMENDATIONS (To be completed by DLNR Dam Safety)

Is a Ka Pa'akai Consultation Assessment recommended?

Yes _____ Recommend the dam owner to perform a Ka Pa'akai Consultation Assessment

No ✓ Subject to approval by the Aha Moku Council.

Comments:

_____

_____

_____

_____

Dam Safety Reviewer Name (Printed): Tony Koyamatsu / Edwin Matsuda

Dam Safety Reviewer Signature: _____

CONCURRENCE & ACCEPTANCE OF SCREENING ANALYSIS RECOMMENDATIONS (To be processes by DLNR Dam Safety)

☑ Concur with the Ka Pa'akai Screening Analysis Recommendation

☐ Do not concur with the Ka Pa'akai Screening Analysis Recommendation

DLNR Chief Engineer Name (Printed): Carty S. Chang

DLNR Chief Engineer Signature: _____

Gayson Ching

☑ Concur with the Ka Pa'akai Screening Analysis Recommendation

☐ Do not concur with the Ka Pa'akai Screening Analysis Recommendation

Aha Moku Executive Director (Printed): Leimana K. DaMate

Aha Moku Executive Director Signature: Leimana DaMate 5/2/24

✓ Attachments (Ka Pa'akai Pre-Assessment supporting documents)

DAM SAFETY PERMIT GENERAL CONDITIONS

APPROVAL OF PLANS AND SPECIFICATIONS FOR DAM AND RESERVOIR CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION OR REMOVAL

The following General Conditions shall be adhered to for all Dam Safety permits unless otherwise authorized in writing.

1. Actual construction, enlargement, repair, alteration or removal shall be completed within 5 years of issuance of the permit application approval unless an extension authorized in writing by the Board is issued.
2. Prior to the start of work the owner or applicant shall provide a construction engineer to ensure compliance with the approved plans and specifications and who shall have ultimate responsibility for the supervision of all inspection tasks. The construction engineer may assign some inspection tasks to a duly authorized agent under the construction engineer's supervision. The engineer shall be licensed in the State of Hawaii.
3. The construction engineer shall maintain a record of construction that at a minimum, shall include, daily activity, and progress reports, all test results pertaining to construction; photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion, all geologic information obtained; and construction problems and remedies.
4. A construction quality assurance plan shall be prepared and submitted to the Department for approval prior to the start of construction, which details the minimum requirements of the construction engineer's observation of construction.
5. A construction schedule, which includes the notice to proceed date and estimated project duration and a construction emergency action plan shall be submitted prior to the preconstruction meeting.
6. A preconstruction meeting shall be held subsequent to submitting the quality assurance plan, construction schedule and construction emergency action plan, but not later than 14 days prior to the start of construction. All parties actively involved in the construction should be requested to attend, such as the dam owner, the design engineer, the construction engineer, the contractor and the Department.
7. The Department shall be notified 5 calendar days prior to the commencement of construction.
8. Any changes from the approved plans and specifications shall be approved by the design engineer and a change order, including details and supporting calculations, must be provided to the Department. Major changes must be submitted in writing with supporting documentation and approved in writing by the Department. No work shall be initiated until the approval by the Department or Board is received. Minor changes may be transmitted verbally and approved by the Department verbally provided that documentation of the change is provided to the Department within 10 days of the approval.

Exhibit 8

9. For new dam construction and for dams and reservoirs that have lowered the water level or have been drained to facilitate construction, the construction engineer shall file and obtain approval of a filling plan with the Department. The applicant/owner shall not proceed with the filling of the reservoir until it receives permission from the Department. The construction engineer shall provide documentation of monitoring during the filling operation.
10. Prior to the filling of the reservoir, the construction engineer shall submit one copy each of the approved Operations Manual and the approved Emergency Action Plan for the facility upon completion of the project as applicable.
11. The construction engineer shall give the Department at least ten days advanced notice of initial materials placement of the dam's foundation, in the cutoff trench, outlet backfill, outlet foundation, and any appurtenance requested by the Department in the approval of the plan for construction observation, to allow for observation by the Department.
12. Notice of substantial completion shall be issued by the construction engineer to the Department stating that the permitted improvements are functionally complete such that filling of the reservoir can be initiated with an approved filling plan.
13. The construction engineer shall give the Department fifteen (15) calendar days advance written notice prior to the project's final construction inspection. The construction engineer shall coordinate with the Department to conduct this inspection in the presence of the Department's dam safety personnel.
14. The construction engineer shall provide notice at least ten (10) days prior to initiating filling the reservoir, unless agreed at the final inspection.
15. If conditions are revealed which will not permit the construction, enlargement, repair, alteration, or removal of a safe dam or reservoir, the application for approval for construction, enlargement, repair, alteration, or removal shall be revoked.
16. A topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features, when required by the Department shall be completed.
17. The applicant/owner shall utilize appropriate erosion control best management practice measures during construction to minimize turbidity (such as scheduling of work during period of low stream flow) and prevent debris and construction materials, including concrete, petroleum products, and other pollutants from enter the waters of the State. Construction related water and debris should be properly disposed of in a legal and environmentally safe manner and in accordance with the Department of Health and other Federal regulations.
18. The applicant/owner shall submit a copy of the dam safety application and the plans and specifications of the proposed improvements to the County Engineer of the County for which the dam resides for compliance with County codes.
19. Within fifteen (15) calendar days of completing the project, the applicant/owner or its representative shall provide the Department with a confirmation letter of compliance, signed and stamped by the construction engineer, indicating that the construction

was completed in accordance to approved plans and specifications including any field changes. The construction engineer shall submit the remaining construction completion documents which may include, but not be limited to, as-constructed drawing, final construction report, topographic survey, record of the location of permanent monuments, log of recorded water levels and other readings from the refilling operation, long-term instrumentation monitoring plan, and affidavit showing the actual cost of construction including engineering costs, within 60 calendar days of the submittal of the final construction inspection.

20. Construction completion documents and the construction engineer's certification shall be provided to the Department within 60 days of the final construction inspection. The Department will review the submitted items and furnish acceptance or denial within 60 days of receipt of satisfactorily completed construction completion documents and close out the dam safety permit.
21. This permit does not relieve the applicant/owner of their obligations to comply with all applicable Federal, State, and County regulations.
22. In the unlikely event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes are identified during the demolition and/or construction work, cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division at (808) 692-8015.
23. Compliance with Hawaii Revised Statutes 179D, and Hawaii Administrative Rules 13-190.1.

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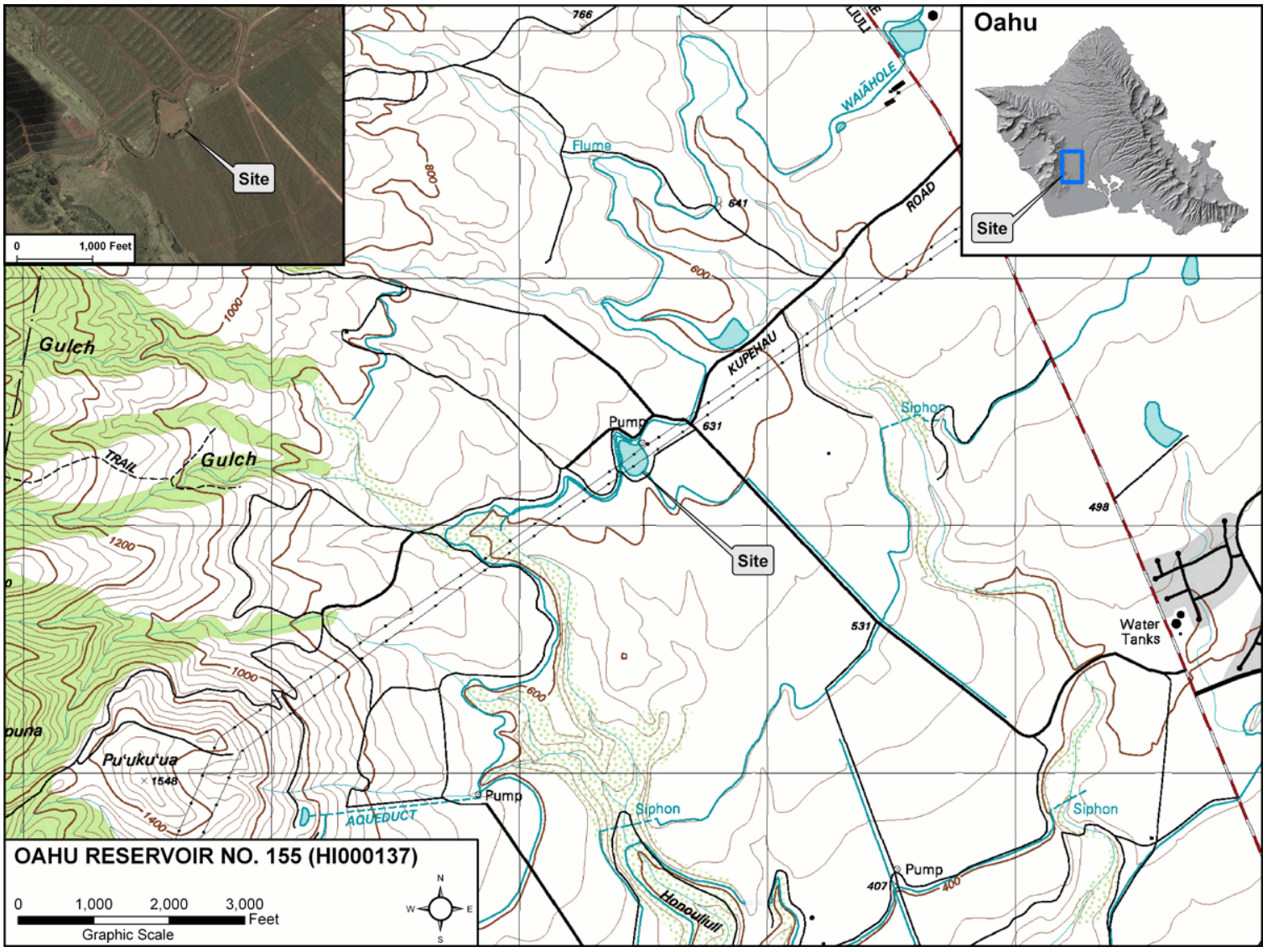

1. General Information	
a. State Dam ID	OA-0137
b. National ID	HI00137
c. Dam Name	OAHU RESERVOIR 155
d. Other Name(s)	Reservoir #155
e. Longitude / Latitude	-158.0593 / 21.4046
f. County / Island	Honolulu / Oahu
g. Type of Dam	Earthen
h. Purpose	Irrigation
i. Completed / Last Modified	1916 /
j. Nearest City / Town	Waipahu (2.7 miles)
k. Water Body Type	State Regulated Dam
l. Dam Height	25 ft
m. Dam Length	900 ft
n. Drainage Area	0.00 sq. miles / 3 acres
o. Size Classification	Small

2. Owner Information	
a. Name of Owner	Agribusiness Development Corporation (ADC), Bayer U.S. - Crop Science, Monsanto Company, Monsanto Company
b. TMK(s)	(1) 9-2-001:020

3. Hazard Potential Classification	
a. Hazard Classification	High
b. Emergency Action Plan	Yes
c. Date of Last EAP	05/05/2023

Exhibit 9

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Aerial Photo (03/14/2008)

4. Reservoir

a. Normal Storage	/
b. Maximum Storage	37 ac-ft / 12 MG
c. Surface Area	2.6 acres

5. Primary Spillway

a. Minimum Width	2 ft
b. Length	36 ft
c. Type	Channel
d. Protection	Concrete
e. Maximum Discharge	110 cfs

6. Primary Outlet Works

a. Works Type	Valve
b. Maximum Discharge	8
c. Size	24 Inch
d. Control Description	Downstream

7. Embankment

a. Type of Dam	Earthen
b. Minimum Crest Width	21 ft
c. Upstream Slope Grade	34° / 1.5:1
d. Upstream Slope Protection	Ungrouted Riprap
e. Downstream Slope Grade	60° / 0.6:1
f. Downstream Slope Protection	Bare Soil
g. Dam Height	25 ft
h. Dam Length	900 ft

8. Inflow Works

Type	Name	Controlled	Size
Pipe	Waiahole Ditch	Yes	2 @ 30 Inches