

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

September 22, 2017

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

**APPLICATION FOR A DLNR DAM SAFETY  
PERMIT NO. 79 – OPAEULA RESERVOIR #1 (OA-0018)  
IMPROVEMENT, HALEIWA, OAHU**

The Department of Land and Natural Resources (Department), Engineering Division (Division) hereby submits an application for your approval and authorization for the Chairperson and Department to stipulate conditions and issue a Dam Safety Permit for the subject application, "Opaepala Reservoir #1 (OA-0018) - Improvement", pursuant to Chapter 179D Hawaii Revised Statutes and current Administrative Rules.

**APPLICANT:**

Mr. Jesse Frey  
Kamehameha Schools  
567 South King Street,  
Honolulu, HI 96813

**LANDOWNER**

Kamehameha Schools  
567 South King Street  
Honolulu, HI 96813

**SUMMARY OF REQUEST:**

Application for a Dam Safety Permit to repair existing outlet pipe at the intake structure. (See Exhibit 1)

**LOCATION:** Haleiwa, Oahu, Hawaii, TMK: 6-2-11:01. (See Exhibit 2)

**BACKGROUND:**

Opaepala Reservoir #1 was originally constructed in 1910 for storage of irrigation water for the Waiialua Sugar Company. Since the closure of Waiialua Sugar Company, the stored water continues to provide irrigation water for local farmers. The contributing drainage area for the reservoir is approximately 0.23 square miles. Supplemental water is from diverted flows from the Kawaiiki and Opaepala streams via the Opaepala Ditch Tunnel.

**PROJECT DESCRIPTION:**

The project proposes to remove the existing vertical riser pipe and connect a new vertical riser pipe to the existing horizontal outlet pipe with an elbow and an electrofusion coupling. (See Exhibit 3)

CHAPTER 343-HRS – ENVIRONMENTAL ASSESSMENT:

The project is entirely on privately owned lands and does not trigger the requirement for completion of an environmental assessment. (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 the Chapter 6E-8 requirements. A review of SHPD records indicates that no archaeological inventory survey has been conducted for the subject project area and that no historic properties have been identified. Based on the information provided and due to the minimal ground disturbance associated with this project, SHPD determined that no historic properties are affected. SHPD requested to attach the following condition to the permit: 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.

(See Exhibit 5)

AGENCY CONSULTATION:

The Division sent out notices to various agencies for their comments on this application. A completion of the comments from the agencies are posted on Exhibit 6.

REMARKS:

The owner, Kamehameha Schools, and its consultant, ITC Water management, Inc., have completed a basis of design, plans and specifications and requests for the approval of a dam safety permit. The Division and its engineering consultant, Gannett Fleming, have reviewed the documents and the Division concluded that it is sufficient for its intended purposes. Staff recommends approval of this permit application with the Dam Safety Permit General Conditions. (See Exhibit 7)

RECOMMENDATION:

That the Board:


1. Authorize the approval and issuance of the Dam Safety Permit for this project.
2. Authorize the Chairperson to issue a Dam Safety Permit for the Opaepa Reservoir #1 (OA-0018), Improvement (DLNR Dam Safety Permit No. 79) 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 selecting and procuring testing or professional services to verify the integrity of the construction work, approval of minor revisions and changes, issuance of fines and/or revocation of the permit, if necessary.

Respectfully submitted,



CARTY S. CHANG  
Chief Engineer

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE  
Chairperson

- Exhibit(s):
- 1 Dam Safety Permit Application
  - 2 Location map
  - 3 Construction Drawing pages
  - 4 Chapter 343 Environmental Assessment evaluations
  - 5 HRS Chapter 6E-8 Review
  - 6 Agency Consultation
  - 7 Dam Safety Permit General Conditions

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

**DAM SAFETY PERMIT APPLICATION FORM**

Dam Name: Opaepa Res., #1	Project Type: Repair
---------------------------	----------------------

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

<b>Project Information</b>	<i>Application Date</i>	
	<i>Applicant Name</i>	Kamehameha Schools
	<i>Licensed Engineer's Name</i>	Donald McDonald
	<i>Engineering Company</i>	ITC Water Management, Inc.
Dam Name	Opaepa Reservoir #1	
Dam ID No. (State) (if New Dam enter N/A)	HI 018	
Type of Project (check one)	<input type="checkbox"/> New Construction <input checked="" type="checkbox"/> Improvement (repair/rehabilitation/alteration) <input type="checkbox"/> Reduction (alteration to below regulatory jurisdiction) <input type="checkbox"/> Removal (breach, no pond)	
Dam/Reservoir Location (City)	Approximately 5.5 miles east-southeast of Haleiwa town on the Island of Oahu, Hawaii	
Dam/Reservoir Location (Latitude/Longitude)	(21 degree 34.4' N. 158 degree 1.8' W)	
TMK(s)	6-2-11:01	
Island/County	Oahu	
State Land Use District (check all applicable)	<input checked="" type="checkbox"/> Agriculture <input type="checkbox"/> Rural <input type="checkbox"/> Urban <input type="checkbox"/> Conservation	

Application Package	Included (Y/N)
1. Dam Safety Permit Application form (with each owners signature page)	Y
2. Design Report(s)	Y
3. Documentation for compliance with Chapter 343 Environmental Review	N/A
4. Documentation for compliance with State Historic Preservation Division (SHPD)	N/A
5. Construction Plans (2 sets)	Y
6. Construction Specifications (2 sets)	Y
7. Construction Quality Assurance Plan	Y
8. Detailed Cost Estimate	Y
9. Filing fee calculation	Y
10. Filing fee (check)	Y
11. Other Supporting Documents	
12. Electronic copy of all of the above on CD/DVD	Y

**EXHIBIT** 1

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaepala Res,#1	Project Type: Repair
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<b>Technical Information</b>	
Drainage Area (sq. miles/acres)	.23 SQ mi.
Type of Structure (Earthen/Concrete, etc.)	Earthen
Size Classification of Dam	Small
Hazard Classification	High
Purpose of Structure (Water supply, irrigation, recreation, real estate development, etc...)	Irrigation
Maximum Capacity (existing volume)	400 acre-feet
Maximum Capacity (revised volume after project completed)	400 acre-feet (Design 188 ac-
Year completed/last modified	2012

<b>Description of Work to be performed</b> (describe construction work to be done on dam and reservoir facility)
Repair Existing Outlet Pipe

<b>Anticipated effect of proposed structure on natural environment:</b>
No Change

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.

<b>Owner Information</b>	
<b>Owner 1 Name:</b> Kamehameha Schools Company:	TMK: 6-2-11:01
<b>Owner 2 Name:</b> Company:	TMK:
<b>Owner 3 Name:</b> Company:	TMK:
<b>Owner 4 Name:</b> Company:	TMK:

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

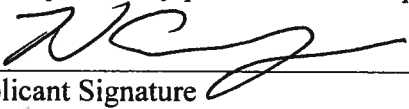
Dam Name: Opaepa Res, #1	Project Type: Repair
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**Attachment 1**

**CONTACT INFORMATION**

<b>Applicant Information (primary contact for Dam Safety Permit process)</b>	
Applicant Contact Name	Harold Edwards
Firm/Company	ITC Water Management, Inc.
Mailing Address	P.O. Box 458 Haleiwa, HI 96712
Telephone	808-637-5078
Fax	808-637-4779
Email	harold@itcwater.com

I, Harold Edwards, 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.

  
\_\_\_\_\_  
Applicant Signature

Date: 3-31-17

\_\_\_\_\_  
President  
Applicant Title

<b>Licensed Engineer Contact Information</b>	
Registered Hawaii Professional Engineer	Donald R. McDonald
Registration No.	8099 AG
Firm/Company	Ag Tech Pacific
Mailing Address	P.O. Box 1246, Haleiwa, HI 96712
Telephone	(808) 636-2020
Mobile/Other	(808) 330-2335
Fax	(808) 636-2020
Email	agtech@hawaii.rr.com

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaepala Res, #1	Project Type: Repair
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**Attachment 2**

**OWNER 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)

<b>Owner Information</b>	
Owner Contact Name	Jesse Frey, Senior Capital Program Manager
Firm/Company	Kamehameha Schools
Mailing Address	567 South King St., Suite Honolulu, HI 96813
Telephone	523-6200
Mobile/Other	Direct line - 534-3977
Fax	523-6374
Email	jefrey@ksbe.edu
TMK for dam/reservoir property	6-2-11:01

**Owner Signature**

Therese H. Rosier  
Print Name of Owner

Therese H. Rosier  
Signature of Owner

4-3-17  
Date

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaeha Res, #1	Project Type: Repair
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**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...)	<u>\$61,500.00</u>
Estimated Construction cost	<u>\$227,500.00</u>
Total estimated costs	<u>\$289,000.00</u>
Initial Application fee = 2% x Total estimated costs	<u>\$5,780.00</u>



**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaepala Res, #1	Project Type: Repair
----------------------------	----------------------

**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.

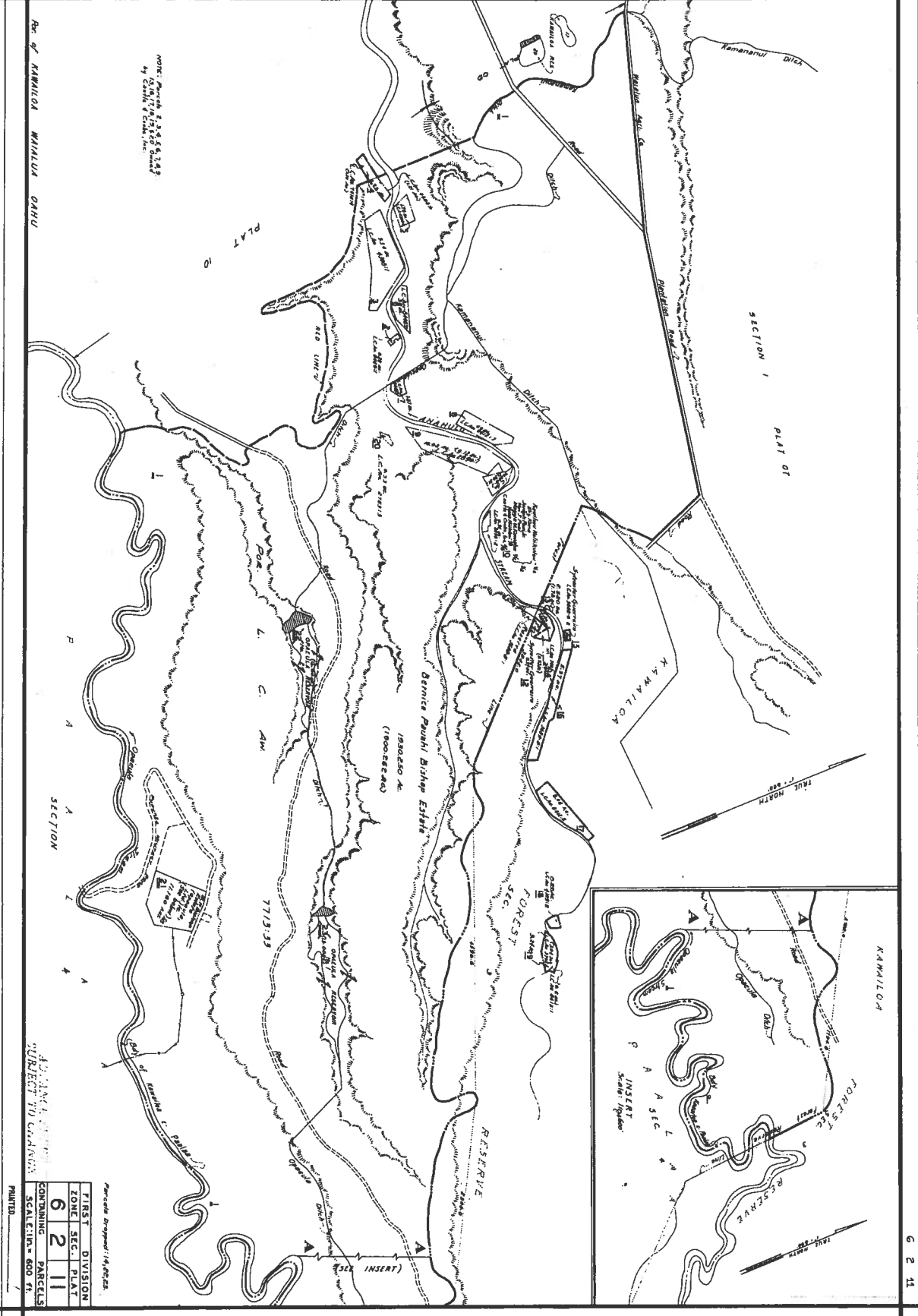
The owner or owner's representative shall submit a copy of the dam safety application and the plans and specifications of the proposed improvements to the County Engineer of the County for which the dam resides for compliance with County codes.

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

Dwg. No. 1050  
 By R.C.M.M. 9/8/31  
 Source: Top Maps Bureau - k  
 Survey Dept.

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For of KAMAULUA MAHALUA OAHU

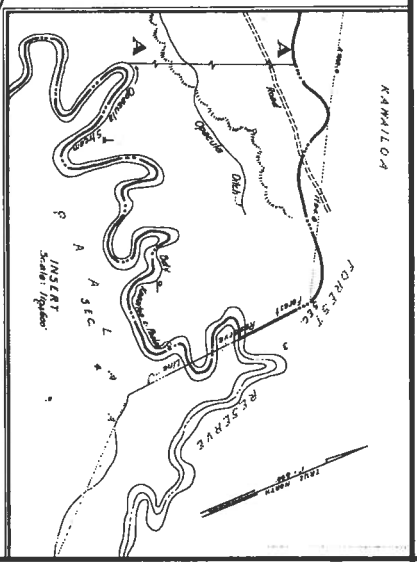
Note: Contour 500 ft. & 525 ft.  
 by C.M.M. & Co., Inc.

SECTION 1  
 PLAT OF

TRUE NORTH  
 1" = 500'

SUBJECT TO CONDITIONS  
 PRINTED

SCALE: 1" = 500'	CONTAINING PARCELS
6 2 11	FIRST DIVISION
	ZONE SEC. PLAT



G 2 11



# OPAEULA RESERVOIR

PROJECT LOCATION

existing reservoir overflow structure

existing 6" ridge vent pipe

existing gate valve shaft operator

existing gate valve control station

existing vault

OPAEULA ROAD

OPAEULA ROAD

**DMC Water Management, Inc.**  
1785 KEOKEA RD / 15-001 KEOKEA VILLAGE, WAIALA, HI 96797

DOAN H. WOODWARD  
PROFESSIONAL ENGINEER  
No. 50975  
STATE OF HAWAII  
Mechanical  
Expiration 6/30/2025

NORTH

GRAPHIC SCALE  
1" = 300' DEEPEST

KAMEHAMEHA SCHOOLS  
367 SOUTH KING STREET  
HONOLULU, OAHU, HAWAII 96813

PROJECT  
**OPAEULA RESERVOIR #1  
IMPROVEMENTS EMERGENCY REPAIRS**  
KAWAIOA AHUPUA'A WAIALUA DISTRICT, OAHU  
T.M.K. 8-2-11:001

NO.	DATE	BY	DESCRIPTION

SHEET NAME: SITE PLAN

RECORDED BY: DN    DRAWN BY: CP    DATE: 8/10/2017  
PROJECT NO.:  
APPROVED BY:

DWG. NO. **C1**

SHEET **2** OF **9**

FILE	POCKET	FOLDER	NO.



DATE: 1/27/07

SCALE: 1/2" = 1'-0"

USE OF 3/8" X 3/8" X 1/2" GALV. SHEET  
 1/2" X 3/8" X 3/8" X 1/2" GALV. SHEET

**KAMEHAMEHA SCHOOLS**  
 587 SOUTH KING STREET  
 HONOLULU, OAHU, HAWAII 96813

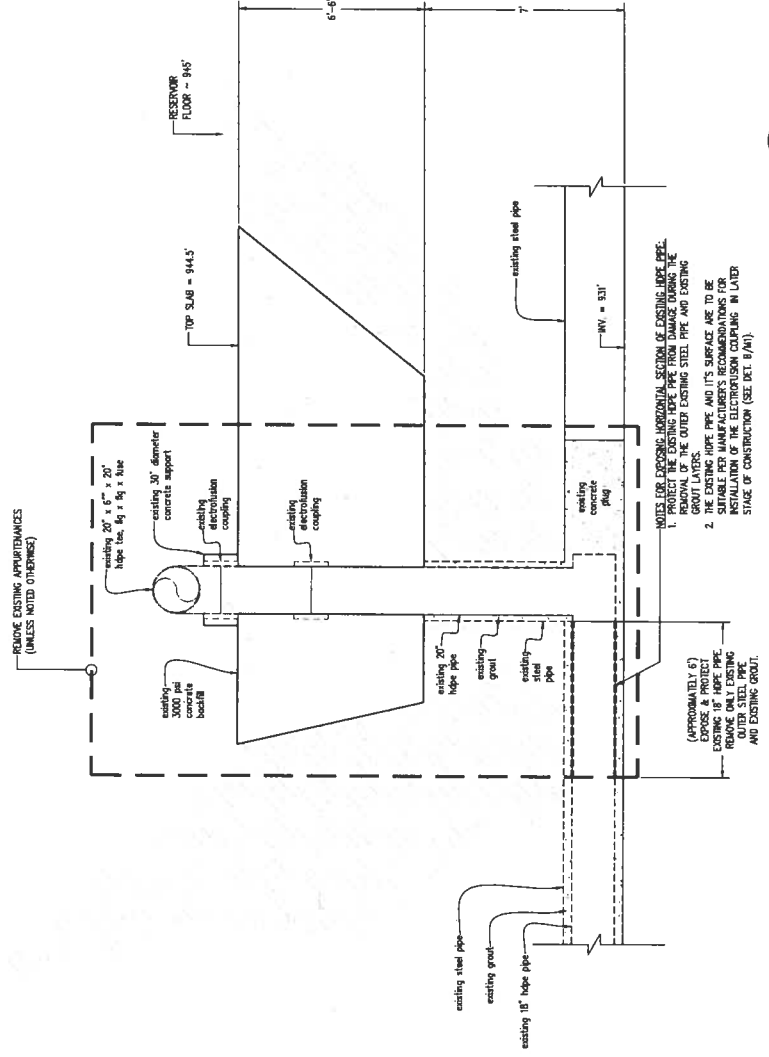
**PROJECT:** OPAE'ULA RESERVOIR #1  
 IMPROVEMENTS EMERGENCY REPAIRS  
 KAWALOA AHUPUA'A WAIALUA DISTRICT, OAHU  
 T.M.K.: 6-2-11-001

**DEMOLITION DETAILS**

NO.	DATE	BY	DESCRIPTION


DESIGNED BY: DM	DRAWN BY: CP	DATE: 6/1/2007
PROJECT NO.:	#11242	

DWG. NO.:	C3
SHEET NO.:	9
POCKET:	
FOLDER:	
NO.:	




**RESERVOIR OUTLET EXISTING APPURTENANCES DEMO DETAIL - ELEVATION VIEW**  
 SCALE: 1/2" = 1'-0"







DTC Water Management, Inc.  
1400 W. 10th St. / Suite 100  
Honolulu, HI 96819



Professional Engineer  
No. 6066  
Date: 4/10/2017



1" = 1'-0"



KAMEHAMEHA SCHOOLS  
1000 KALANIANA'OHU DRIVE  
HONOLULU, HAWAII 96813

PROJECT: OPAEULA RESERVOIR 1  
EMERGENCY REPAIR  
KAWAHOLO AVENUE / WAIKUKA STREET  
TABLE: 6.8-PROT

DATE: 1/17/17

DESIGNED BY: LM    DRAWN BY: OK    DATE: 8/20/17

PROJECT NO.: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

FIGS. 1.0

SHEET 8 OF 9

### STRUCTURAL NOTES

**C. AFTER REPLACING RISER AND PIPING ASSEMBLIES, THE ENTIRE RISER SHALL BE COMPLETELY JACKETED WITH CLSM FILL. THE SURFACE PIPING SUPPORT PAD SHALL BE SUPPORTED ON CLSM FILL. THIS IS BEING DONE TO PREVENT POTENTIAL SETTLEMENT OF THE RISER AND PIPING ASSEMBLIES. A MINIMUM OF 1'-0" BELOW PIPE AND BEAR 1'-0" INTO THE STIFF MEDIUM HARD WEATHERED ROCK OR 6" INTO BASALT. PRIOR TO POURING CLSM FILL, CLEAN BOTTOM OF TRENCH OF ALL DEBRIS, LOOSE SOIL AND MUD.**

**REINFORCING STEEL:**

- ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, EPOXY COATED BARS.
- WELDING TO REINFORCING BARS SHALL BE PROHIBITED EXCEPT BY SPECIFIC AUTHORIZATION OF THE STRUCTURAL ENGINEER.
- MINIPIRI CONCRETE COVER FOR REINFORCING BARS SHALL BE 3 INCHES FOR ALL CONCRETE.

**CONCRETE:**

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318-05. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE POURING OF ANY STRUCTURAL CONCRETE SO AN INSPECTION CAN BE CONDUCTED. THE CONTRACTOR SHALL PROCEED WITHOUT THE CONSENT OF THE STRUCTURAL ENGINEER.
- CONCRETE SUPPORT PAD SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
  - 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI
  - USE 1 INCH AGGREGATE MAX
- CONTROLLED LOW STRENGTH MATERIAL (CLSM) FILL SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
  - BATCHED WITH TYPE I OR II CONCRETE, SUITABLE AGGREGATE, WATER AND ADMIXTURES AS REQUIRED.
  - MAXIMUM SETTING TIME SHALL BE 120 MINUTES.
  - WITHOUT SEGREGATION, ACCESSIBLE FOR MEASUREMENT AS MEASURED PER ASTM D6103 SHOULD PRODUCE A SPREAD OF 8 INCHES IN DIAMETER WITHOUT SEGREGATION OF AGGREGATE.
  - 28 DAY COMPRESSIVE STRENGTH SHALL BE 300 PSI MINIMUM.
  - CLSM DENSITY SHALL BE 115 PCF OR LESS.

**STRUCTURAL INSPECTION REQUIREMENTS:**

- NO SPECIAL INSPECTIONS ARE REQUIRED FOR THIS PROJECT. PROJECT GEOTECHNICAL ENGINEER WILL MONITOR CLSM PLACEMENT.

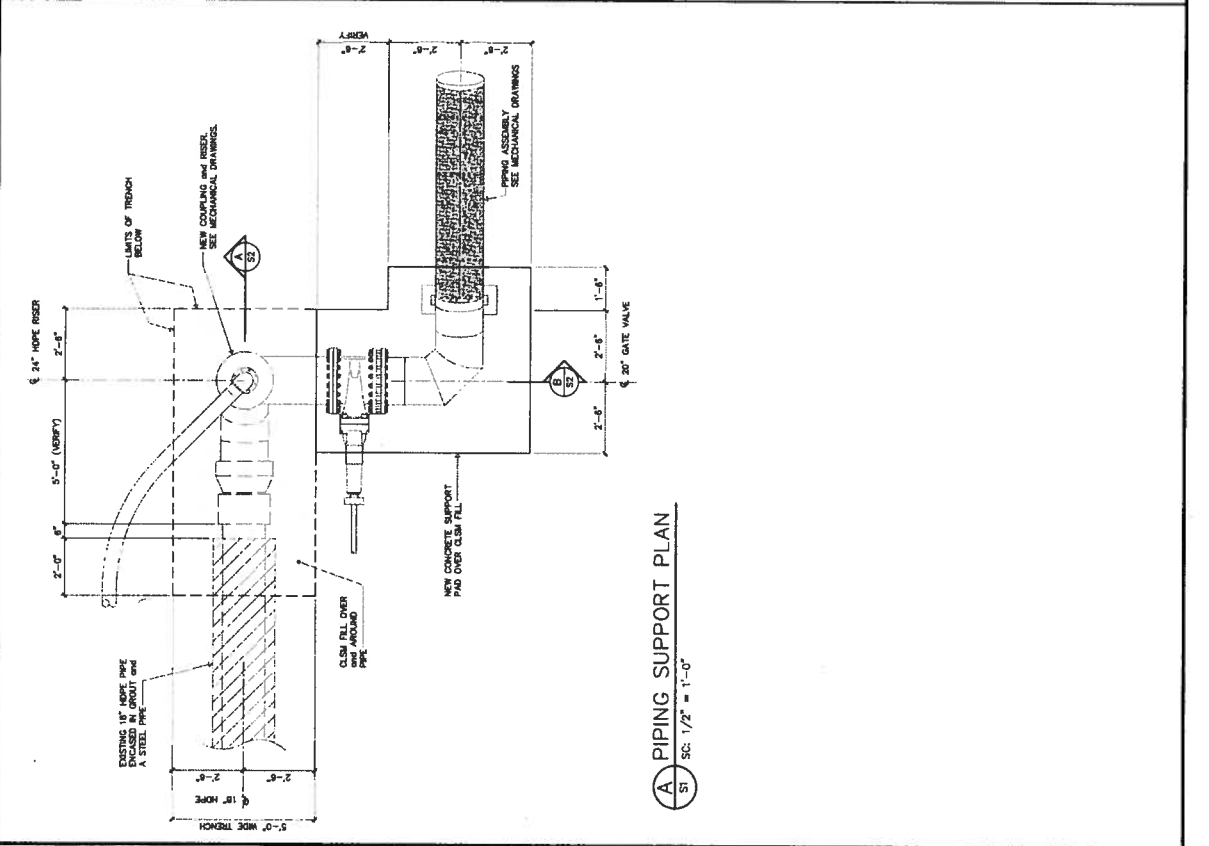
**REQUIRED STRUCTURAL SUBMITTALS DURING CONSTRUCTION:**

- THE FOLLOWING ARE REQUIRED STRUCTURAL SUBMITTALS DURING CONSTRUCTION OF THIS PROJECT. ALL OTHER SUBMITTALS MADE WILL BE RETAINED FOR RECORD ONLY AND WILL NOT NECESSARILY BE REVIEWED.
- SUBMITTAL SCHEDULE:
 

ITEM	STATUS
CONCRETE MIX DESIGN	REQUIRED
CLSM MIX DESIGN	REQUIRED
CONCRETE REINFORCING SHOP DRAWINGS	NOT REQUIRED
EMERGENCY REPAIR SHOP DRAWINGS	REQUIRED
SHORING PLAN AND PROCEDURES	REQUIRED
DEWATERING PLAN AND PROCEDURES	REQUIRED

**STRUCTURAL DESIGN CRITERIA:**

- GRAVITY LOADS: DENSITY: 63.4 PCF
- WIND AND SEISMIC LOADS: NOT APPLICABLE
- FOUNDATION DESIGN CRITERIA:
  - NORMAL LOADS: 3000 PSF BEARING
  - 7 DAY LOAD DURATION: 5000 PSF BEARING
- GOVERNING CODE: 2006 INTERNATIONAL BUILDING CODE (IBC) AND THE CITY AND COUNTY OF HONOLULU AMENDMENTS



**A PIPING SUPPORT PLAN**  
SC 1/2" = 1'-0"



A SECTION at RISER  
 SC: 1/2" = 1'-0"

B SECTION at PIPING SUPPORT PAD  
 SC: 1/2" = 1'-0"

**drc** Water Management, Inc.  
 7400 CH / 8-180 GARDEN BLDG. SUITE 110 RTZ  
 CONSULTING

Professional Engineer  
 No. 6566  
 License Number 038  
 State of Michigan  
 04/20/17

GRAPHIC SCALE  
 1" = 1'-0" (SEE NOTES)  
 1/4" = 1'-0" (SEE NOTES)

PROJECT: OPABELLA RESERVOIR 1  
 EMBROIDERY ROAD  
 KAWAROA ARMY/VA WASSILLA DISTRICT, O'HAU  
 HONOLULU, O'HAU, HAWAII 96701  
 SHEET TITLE: STRUCTURAL SECTIONS

REV.	DATE	BY	CHK	DESCRIPTION

DESIGNED BY: UN DRAWN BY: DK DATE: 08/20/17  
 PROJECT NO.:  
 APPROVED BY:

DWG. NO. **S2**  
 SHEET 9 OF 9  
 FILE: FSCALE: PSCALE: NO.



**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

**DAM SAFETY PERMIT APPLICATION FORM**

Dam Name: Opauala Res., #1	Project Type: Repair
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Fill in the following information for the specified dam safety permit project. One application shall be used for each dam or reservoir structure.

<b>Project Information</b>	<i>Application Date</i>	
	<i>Applicant Name</i>	Kamehameha Schools
	<i>Licensed Engineer's Name</i>	Donald McDonald
	<i>Engineering Company</i>	ITC Water Management, Inc.
Dam Name	Opauala Reservoir #1	
Dam ID No. (State) (if New Dam enter N/A)	HI 018	
Type of Project (check one)	<input type="checkbox"/> New Construction <input checked="" type="checkbox"/> Improvement (repair/rehabilitation/alteration) <input type="checkbox"/> Reduction (alteration to below regulatory jurisdiction) <input type="checkbox"/> Removal (breach, no pond)	
Dam/Reservoir Location (City)	Approximately 5.5 miles east-southeast of Haleiwa town on the Island of Oahu, Hawaii	
Dam/Reservoir Location (Latitude/Longitude)	(21 degree 34.4' N. 158 degree 1.8' W)	
TMK(s)	6-2-11:01	
Island/County	Oahu	
State Land Use District (check all applicable)	<input checked="" type="checkbox"/> Agriculture <input type="checkbox"/> Rural <input type="checkbox"/> Urban <input type="checkbox"/> Conservation	

Application Package	Included (Y/N)
1. Dam Safety Permit Application form (with each owners signature page)	Y
2. Design Report(s)	Y
3. Documentation for compliance with Chapter 343 Environmental Review	N/A
4. Documentation for compliance with State Historic Preservation Division (SHPD)	N/A
5. Construction Plans (2 sets)	Y
6. Construction Specifications (2 sets)	Y
7. Construction Quality Assurance Plan	Y
8. Detailed Cost Estimate	Y
9. Filing fee calculation	Y
10. Filing fee (check)	Y
11. Other Supporting Documents	
12. Electronic copy of all of the above on CD/DVD	Y

**EXHIBIT** 1

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaepala Res,#1	Project Type: Repair
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<b>Technical Information</b>	
Drainage Area (sq. miles/acres)	.23 SQ mi.
Type of Structure (Earthen/Concrete, etc.)	Earthen
Size Classification of Dam	Small
Hazard Classification	High
Purpose of Structure (Water supply, irrigation, recreation, real estate development, etc...)	Irrigation
Maximum Capacity (existing volume)	400 acre-feet
Maximum Capacity (revised volume after project completed)	400 acre-feet (Design 188 ac-
Year completed/last modified	2012

<b>Description of Work to be performed</b> (describe construction work to be done on dam and reservoir facility)
Repair Existing Outlet Pipe

<b>Anticipated effect of proposed structure on natural environment:</b>
No Change

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.

<b>Owner Information</b>	
<b><u>Owner 1 Name:</u></b> Kamehameha Schools Company:	TMK: 6-2-11:01
<b><u>Owner 2 Name:</u></b> Company:	TMK:
<b><u>Owner 3 Name:</u></b> Company:	TMK:
<b><u>Owner 4 Name:</u></b> Company:	TMK:



**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**


Dam Name: Opaepala Res, #1	Project Type: Repair
----------------------------	----------------------

**Attachment 1**

**CONTACT INFORMATION**

<b>Applicant Information (primary contact for Dam Safety Permit process)</b>	
Applicant Contact Name	Harold Edwards
Firm/Company	ITC Water Management, Inc.
Mailing Address	P.O. Box 458 Haleiwa, HI 96712
Telephone	808-637-5078
Fax	808-637-4779
Email	harold@itcwater.com

I, Harold Edwards, 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.

  
\_\_\_\_\_  
Applicant Signature

Date: 3-31-17

\_\_\_\_\_  
President  
Applicant Title

<b>Licensed Engineer Contact Information</b>	
Registered Hawaii Professional Engineer	Donald R. McDonald
Registration No.	8099 AG
Firm/Company	Ag Tech Pacific
Mailing Address	P.O. Box 1246, Haleiwa, HI 96712
Telephone	(808) 636-2020
Mobile/Other	(808) 330-2335
Fax	(808) 636-2020
Email	agtech@hawaii.rr.com

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaepala Res, #1	Project Type: Repair
----------------------------	----------------------

**Attachment 2**

**OWNER 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)

<b>Owner Information</b>	
Owner Contact Name	Jesse Frey, Senior Capital Program Manager
Firm/Company	Kamehameha Schools
Mailing Address	567 South King St., Suite Honolulu, HI 96813
Telephone	523-6200
Mobile/Other	Direct line - 534-3977
Fax	523-6374
Email	jefrey@ksbe.edu
TMK for dam/reservoir property	6-2-11:01

**Owner Signature**

Therese H. Rosier

Print Name of Owner

Therese H. Rosier

Signature of Owner

4-3-17

Date

**Hawaii Dam and Reservoir Safety Program  
DAM SAFETY PERMIT**

Dam Name: Opaepala Res, #1

Project Type: Repair

**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.

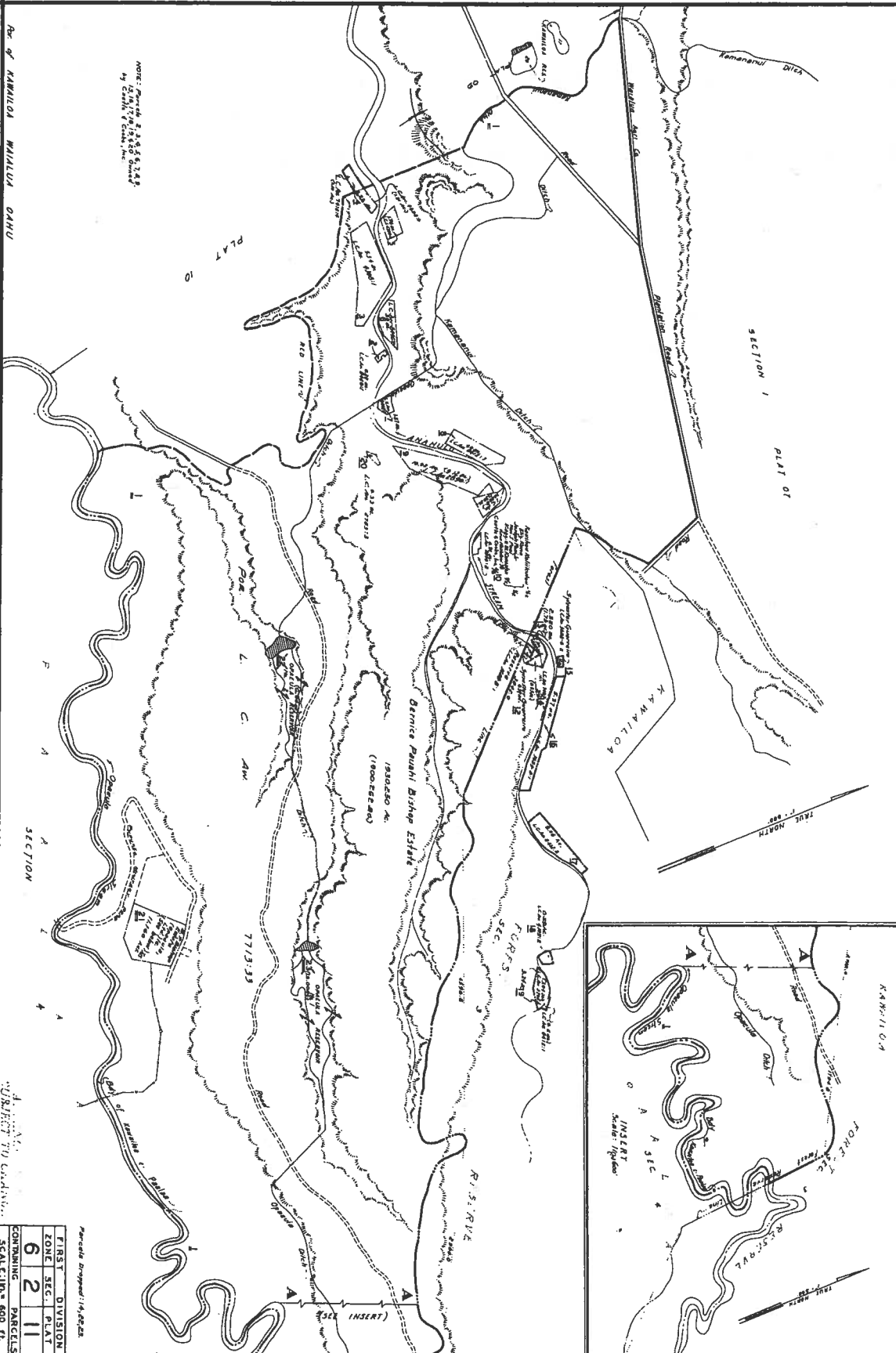
This permit does not relieve the owner or owner's representative of their obligations to comply with all applicable Federal, State, and County regulations. These may include but may not be limited to:

- **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

Dwg. No. J-1050 Appr. by \_\_\_\_\_  
 By P.K.H.H. Revised by \_\_\_\_\_  
 Source: Top Maps Bureau L. Appr. by \_\_\_\_\_  
 Survey Dept.

Part of KAWAIIA WAILUA OAHU

NOTE: Parcels 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



PLAT 10

Map scale Original: 1/4" = 100'
FIRST DIVISION
ZONE SEC PLAT
6 2 11
CONTAINING PARCELS
SCALE 1/4" = 600 FT.
PRINTED

G E 11

CHAPTER 343 ANALYSIS

Project Name: Opaeula Reservoir No. 1

Reviewer: Jimmy Leung

Date of Review: 10 August 2017

**TRIGGERS (HRS §343-5(a))**

Is there an "action" that triggers the need for an EA?

Action

An "action" is a program or project:

     Initiated by an agency

  X   Initiated by an "applicant"

Any person who, pursuant to statute, ordinance, or rule, officially requests "approval" for a proposed action (discretionary consent required from an agency prior to actual implementation of an action, distinguished from a ministerial consent)

     Statute

     Ordinance

     Rule

Triggers

Yes No

       X   Use of state or county lands or funds

       X   Use of conservation district lands

       X   Use within shoreline setback area

       X   Use of historic site designated on the National or Hawaii registers

       X   Use of land in the Waikiki Special District

       X   Amendment to county general plan which would result in designations other than agriculture, conservation, or preservation unless initiated by a county

       X   Reclassification of conservation lands by the Land Use Commission

       X   Construction or modification of helicopter facilities that may affect conservation district lands, a shoreline setback area, or a historic site

       X   Wastewater facilities, waste-to-energy facility, landfill, oil refinery, or power-generating facility

Triggers summary:

Is there a trigger? Yes      No   X  

If Yes, **Go to Exemptions**

If No, Environmental Assessment is NOT required. **Go to Summary.**

**EXEMPTIONS**

Two sources of exemptions: exemption lists or exemptions contained in HAR §11-200-8(a)

1. Exemption Lists

     Division exemption lists

     Department-wide exemption list

Explain (which exemption list, which exemption, how it applies):

## CHAPTER 343 ANALYSIS

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2. HAR §11-200-8(a) exemptions

- \_\_\_\_\_ Operations, repairs, or maintenance of existing structures, facilities, equipment, or topographical features, involving *negligible or no expansion or change of use* beyond that previously existing
  
- \_\_\_\_\_ Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have *substantially the same purpose, capacity, density, height, and dimensions* as the structure replaced
  
- \_\_\_\_\_ Construction and location of a single, *new, small facilities* or structures and the alteration and modification of the same and installation of new, small, equipment and facilities and the alteration and modification of same, including, but not limited to:
  - (a) *Single family residences less than 3,500 square feet* not in conjunction with the building of two or more such units;
  - (b) *Multi-unit structures designed for not more than four dwelling units* if not in conjunction with the building of two or more such structures;
  - (c) *Stores, offices, and restaurants designed for total occupant load of twenty persons or less per structure, if not in conjunction with the building of two or more such structures; and*
  - (d) *Water, sewage, electrical, gas, telephone, and other essential public utility services extensions to serve such structures* or facilities; accessory or appurtenant structures including garages, carports, patios, swimming pools, and fences; and acquisition of utility easements
  
- \_\_\_\_\_ *Minor alterations* in the conditions of land, water, or vegetation
  
- \_\_\_\_\_ Basic data collection, research, experimental management, and resource evaluation activities that *do not result in a serious or major disturbance* to an environmental resource
  
- \_\_\_\_\_ Construction or placement of *minor structures accessory* to existing facilities
  
- \_\_\_\_\_ *Interior alterations* involving things such as partitions, plumbing, and electrical conveyances

## CHAPTER 343 ANALYSIS

- \_\_\_ Demolition of structures, *except* those structures located on any *historic site* as designated on the National or Hawaii registers
- \_\_\_ Zoning variances *except shoreline* set-back variances
- \_\_\_ Continuing administrative activities including, but not limited to purchase of supplies and personnel related actions; and
- \_\_\_ Acquisition of land and existing structures, including single or multi-unit dwelling units, for the provision of *affordable housing*, involving *no material change of use* beyond that previously existing, and for which the *legislature has appropriated* or otherwise authorized *funding*

Explain (how the exemption indicated above applies):

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### Exemptions summary:

Does the Project qualify for an exemption? Yes \_\_\_ No \_\_\_

If Yes, Exemption noted above, No Environmental Assessment required

If No, Project does not qualify for exemption and requires an Environmental Assessment

### **CUMULATIVE IMPACT**

Exemptions are inapplicable when the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.

### **SUMMARY**

Is Environmental Assessment required?

Yes \_\_\_\_\_  
No   X

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

KEKOA KALUHIWA  
FIRST DEPUTY

JEFFREY T. PEARSON  
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

May 22, 2017

Carty Chang, Chief Engineer  
Engineering Division  
Department of Land and Natural Resources  
P.O. Box 373  
Honolulu, HI 96809

IN REPLY REFER TO:  
Log No. 2017.00903  
Doc No. 1705GC06  
Archaeology, Architecture

Dear Mr. Chang:

**SUBJECT: Chapter 6E-42 Historic Preservation Review -  
Opae'ula Reservoir 1 (OA-0018), Dam Safety Permit No. 79, Dam Repair  
Kawailoa Ahupua'a, Waialua District, Island of O'ahu  
TMK: (1) 6-2-011:001 por.**

Thank you for the opportunity to review this submittal regarding the repair of an existing outlet pipe within Opae'ula Reservoir 1 (OA-0018). The applicant, ITC Water Management, Inc., proposes to conduct the repair and replacement of the existing outlet pipe within a 50-sq.-ft. portion of the 1,930-acre parcel owned by Bishop Estates. All repairs will be in-kind with minimum ground disturbance. The SHPD received this submittal on April 27, 2017.

The Opae'ula Reservoir 1 was constructed in 1910 and is part of the agricultural infrastructure developed to support the sugarcane industry. The reservoir itself is a 68-ft. high earthen dam with a 250-ft. total crest length, capable of storing up to a maximum of 400-ac-ft. of water. Opae'ula 1 Reservoir appears to be surrounded by largely vegetated areas.

A review of SHPD records indicates that no archaeological inventory survey has been conducted for the subject project area, and that no historic properties have been identified. The USDA identifies the soils as Helemano silty clay, with a slope of 30%-90% (Foote et al. 1972).

Based on the information provided and due to the minimal ground disturbance associated with this project, **SHPD's determination is no historic properties affected. The permit issuance process may proceed.**

Please attach to permit: 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.

Please contact Tanya Gumapac-McGuire, Architectural Historian, at [Tanya.Gumapac-Mcguire@hawaii.gov](mailto:Tanya.Gumapac-Mcguire@hawaii.gov) or at (808) 692-8022 for any architecture questions. Please contact me at [Susan.A.Lebo@hawaii.gov](mailto:Susan.A.Lebo@hawaii.gov) or at (808) 692-8019 for any questions regarding archaeological resources or this letter.

Aloha,

Handwritten signature of Susan A. Lebo in black ink.

Susan A. Lebo, PhD  
Archaeology Branch Chief

cc: Jimmy Leung, DLNR-Engineering ([jimmy.m.leung@hawaii.gov](mailto:jimmy.m.leung@hawaii.gov))  
Jesse Frey, Program Mgr., Kamehameha Schools ([jefrey@ksbe.edu](mailto:jefrey@ksbe.edu))



**Agency Consultation:**

Agency	Date Sent	Date Returned	No Comments	Comments	No Reply
Division of Aquatic Resources	4/24/17	6/15/17		X	
Commission on Water Resources Management	4/24/17				X
Division of Forestry and Wildlife	4/24/17	4/25/17	X		
Historic Preservation Division	4/24/17	5/22/17		X	
Land Division	4/24/17	4/26/17		X	
Office of Conservation and Coastal Lands	4/24/17	4/27/17	X		
Department of Agriculture	4/24/17				X
Department of Agriculture – ADC	4/24/17				X
City and County of Honolulu – NFIP	4/24/17				X
Hawaii EMA	4/24/17	5/4/17		X	
C&C of Honolulu Emergency Management	4/24/17				X

DAVID Y. IGE  
GOVERNOR OF HAWAII



17 JUN 16 PM 02:02 ENGINEERING

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

KEKO A KALUHIWA  
FIRST DEPUTY

JEFFREY T. PEARSON  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
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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  
DIVISION OF AQUATIC RESOURCES  
1151 PUNCHBOWL STREET, ROOM 330  
HONOLULU, HAWAII 96813

Date: June 14, 2017

DAR # 5527

MEMORANDUM

TO: Bruce S. Anderson, PhD  
DAR Administrator

FROM: Glenn Higashi *GRH*, Aquatic Biologist

SUBJECT: Request for Comments: Opaepala Reservoir 1 (OA-0018)  
Dam Safety Permit No. 79  
Dam Repair

Request Submitted by: Harold Edwards, ITC Water Management, Inc.

Location of Project: Haleiwa, Oahu; Tax Map Key: (1) 6-2-011:001

Brief Description of Project:

The applicant, Harold Edwards, ITC Water Management, Inc., representing Kamehameha Schools the owner, is requesting review and comments on the Dam Safety Permit No. 79 for Opaepala Reservoir 1. The permit is for repair of the existing outlet pipe.

The Opaepala 1 Reservoir is formed by an earthen dam built in 1910 and last modified in 2011 for irrigation purposes. It is located about 5 miles southeast of Haleiwa has a surface area of 6.5 acres and a maximum storage capacity of 400 ac-ft/130 MG. (continued on next page)

Comments:

No Comments  Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: Bruce S. Anderson Date: 6/15/17  
Bruce S. Anderson, PhD  
DAR Administrator

DAR # 5527

Comments

The proposed existing outlet pipe repair is not expected to have any significant impact on aquatic resources value in this area. BMPs should be implemented to prevent the possibility for pollution or fish and/or other aquatic animal mortality in the reservoir and any other connected water bodies.

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

APR 24 2017

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

KEKOA KALUHIWA  
FIRST DEPUTY

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

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
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

PK:  
TO:

	DLNR agencies		Other Agencies
X	Division of Aquatic Resources	X	Department of Agriculture
X	Commission on Water Resource Management	X	Department of Agriculture-ADC
X	Division of Forestry & Wildlife		County of Kauai - NFIP
X	Historic Preservation Division	X	City & County of Honolulu - NFIP
X	Land Division		County of Maui - NFIP
X	Office of Conservation & Coastal Lands		County of Hawaii - NFIP
		X	HI EMA
		X	Honolulu Emergency Management

TO: FROM: Carty Chang, Chief Engineer

SUBJECT: Opaepa Reservoir 1 (OA-0018)  
Dam Safety Permit No. 79  
Dam Repair

LOCATION: Oahu, TMK: Oahu, (1) 6-2-011:001

APPLICANT: Harold Edwards, ITC Water Management, Inc.

Transmitted for your review and information are the attached documents on the subject Dam Safety Permit application.

1. Dam Safety Permit Application
2. Plan set (Selected sheets)
3. DLNR Dam Facility Data sheet

Please return to our office a signed copy of this transmittal with one of the choices below checked along with any comments by **June 15, 2017**. If no response is received by this date, we will assume your agency has no comments. If you have any questions, please contact Jimmy Leung of my staff at (808) 587-0238 or by email: jimmy.m.leung@hawaii.gov

- We have no comments
- Comments are attached

Signed:   
Print name: David G. Smith  
Organization: DLNR/DSEAW  
Date: 4/25/17

17 APR 27 AM 11:03 ENGINEERING

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

KEKOA KALUHIWA  
FIRST DEPUTY

JEFFREY T. PEARSON  
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

May 22, 2017

Carty Chang, Chief Engineer  
Engineering Division  
Department of Land and Natural Resources  
P.O. Box 373  
Honolulu, HI 96809

IN REPLY REFER TO:  
Log No. 2017.00903  
Doc No. 1705GC06  
Archaeology, Architecture

Dear Mr. Chang:

SUBJECT: **Chapter 6E-42 Historic Preservation Review -  
Opae'ula Reservoir 1 (OA-0018), Dam Safety Permit No. 79, Dam Repair  
Kawailoa Ahupua'a, Waialua District, Island of O'ahu  
TMK: (1) 6-2-011:001 por.**

Thank you for the opportunity to review this submittal regarding the repair of an existing outlet pipe within Opae'ula Reservoir 1 (OA-0018). The applicant, ITC Water Management, Inc., proposes to conduct the repair and replacement of the existing outlet pipe within a 50-sq.-ft. portion of the 1,930-acre parcel owned by Bishop Estates. All repairs will be in-kind with minimum ground disturbance. The SHPD received this submittal on April 27, 2017.

The Opae'ula Reservoir 1 was constructed in 1910 and is part of the agricultural infrastructure developed to support the sugarcane industry. The reservoir itself is a 68-ft. high earthen dam with a 250-ft. total crest length, capable of storing up to a maximum of 400-ac-ft. of water. Opae'ula 1 Reservoir appears to be surrounded by largely vegetated areas.

A review of SHPD records indicates that no archaeological inventory survey has been conducted for the subject project area, and that no historic properties have been identified. The USDA identifies the soils as Helemano silty clay, with a slope of 30%-90% (Foote et al. 1972).

Based on the information provided and due to the minimal ground disturbance associated with this project, **SHPD's determination is no historic properties affected.** The permit issuance process may proceed.

Please attach to permit: 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.

Please contact Tanya Gumapac-McGuire, Architectural Historian, at [Tanya.Gumapac-Mcguire@hawaii.gov](mailto:Tanya.Gumapac-Mcguire@hawaii.gov) or at (808) 692-8022 for any architecture questions. Please contact me at [Susan.A.Lebo@hawaii.gov](mailto:Susan.A.Lebo@hawaii.gov) or at (808) 692-8019 for any questions regarding archaeological resources or this letter.

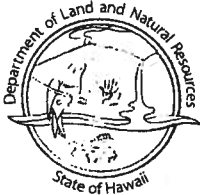
Aloha,

*Susan A. Lebo*

Susan A. Lebo, PhD  
Archaeology Branch Chief

cc: Jimmy Leung, DLNR-Engineering ([jimmy.m.leung@hawaii.gov](mailto:jimmy.m.leung@hawaii.gov))  
Jesse Frey, Program Mgr., Kamehameha Schools ([jefrey@ksbe.edu](mailto:jefrey@ksbe.edu))

DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

APR 24 2017

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

KĒKOĀ KALUHIWA  
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JEFFREY T. PEARSON, P.E.  
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HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

TO:

DLNR agencies		Other Agencies	
X	Division of Aquatic Resources	X	Department of Agriculture
X	Commission on Water Resource Management	X	Department of Agriculture-ADC
X	Division of Forestry & Wildlife		County of Kauai - NFIP
X	Historic Preservation Division	X	City & County of Honolulu - NFIP
X	Land Division		County of Maui - NFIP
X	Office of Conservation & Coastal Lands		County of Hawaii - NFIP
		X	HI EMA
		X	Honolulu Emergency Management

FROM: Carty Chang, Chief Engineer

SUBJECT: Opaepa Reservoir 1 (OA-0018)  
Dam Safety Permit No. 79  
Dam Repair

LOCATION: Oahu, TMK: Oahu, (1) 6-2-011:001

APPLICANT: Harold Edwards, ITC Water Management, Inc.

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- (x) We have no comments
- ( ) Comments are attached

Signed: Darlene Bryant Takamatsu

Print name: Darlene Bryant Takamatsu

Organization: DLNR-Land Division

Date: 4/26/17

2017 APR 25 11:25 AM  
RECEIVED  
LAND DIVISION  
1944271201 ENGINEERING

CA-17-196

DAVID Y. IGE  
GOVERNOR OF HAWAII



OFFICE OF THE ATTORNEY GENERAL

2017 APR 24 10:00

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

KEKOA KALUHIWA  
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.  
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STATE PARKS

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

APR 24 2017

TO:

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X	Office of Conservation & Coastal Lands		County of Hawaii - NFIP
		X	HI EMA
		X	Honolulu Emergency Management

FROM: Carty Chang, Chief Engineer

SUBJECT: Opaepala Reservoir 1 (OA-0018)  
Dam Safety Permit No. 79  
Dam Repair

LOCATION: Oahu, TMK: Oahu, (1) 6-2-011:001

APPLICANT: Harold Edwards, ITC Water Management, Inc.

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- We have no comments
- Comments are attached

\* Not in conservation District

Signed:

Print name: Liron Yasari

Organization: OCU

Date: 4/27/17

17 APR 28 PM 10:35 ENGINEER 1

DAVID Y. IGE  
GOVERNOR



\*17 MAY 04 PM 03:18 ENGINEERING  
MAJOR GENERAL ARTHUR J. LOGAN  
DIRECTOR OF EMERGENCY MANAGEMENT


VERN T. MIYAGI  
ADMINISTRATOR OF EMERGENCY MANAGEMENT

PHONE (808) 733-4300  
FAX (808) 733-4287

**STATE OF HAWAII**  
**DEPARTMENT OF DEFENSE**  
**OFFICE OF THE DIRECTOR OF EMERGENCY MANAGEMENT / CIVIL DEFENSE**  
3949 DIAMOND HEAD ROAD  
HONOLULU, HAWAII 96816-4495

May 4, 2017

TO: Carty Chang, Chief Engineer  
Department of Land and Natural Resources

FROM: Vern T. Miyagi   
Administrator of Emergency Management Agency

SUBJECT: Opaepa Reservoir 1 (OA-0018)  
Dam Safety Permit No. 79  
Dam Repair

In your letter dated April 24, 2017, you gave us the opportunity to provide comments on the subject application. In reviewing this application, we noted that the Reservoir does have an existing Emergency Action Plan (EAP). However, the most current plan that our office has on record is from 2010. We request an updated EAP to reflect any upgrades, repairs or other work that has been done or is planned.

If you have any questions, please have your staff contact Ms. Havinne Okamura at (808) 733-4300 extension 556.



## **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.

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.