

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

March 23, 2018

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

APPLICATION FOR A DLNR DAM SAFETY PERMIT
PERMIT NO. 72 – OPAEULA RESERVOIR NO. 15 (OA-0020), TMK: 6-2-010:001
DAM REMOVAL, HALE'IWA, HAWAII

The 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, "OPAEULA RESERVOIR NO. 15 – DAM REMOVAL", pursuant to Hawaii Revised Statutes (HRS) Chapter 179D and current Administrative Rules.

APPLICANT:

Kamehameha Schools
567 South King Street, Suite 617
Honolulu, HI 96813

LAND OWNER:

Same as Applicant

SUMMARY OF REQUEST:

Application for a Dam Safety Permit for the REMOVAL of the Opaepala Reservoir No. 15, Hale'iwa, Hawaii. (See Exhibit 1)

LOCATION: Hale'iwa, Oahu, Hawaii, TMK: 6-2-010:001 (See Exhibit 2)

BACKGROUND:

Opaepala Reservoir No. 15 was constructed around 1910 for storage of irrigation water for Waialua Sugar Company sugarcane plantation. It is an off-stream reservoir consisting of a 21-foot high crescent-shaped earthen embankment with a 2,200-foot crest length. Appurtenances to the dam include an intake structure, outlet works, and a pipe spillway. The main inflow is from a ditch which originates from Opaepala 1 Reservoir. The owner has reconfigured the ditch and is now using PVC pipe to divert the water from Opaepala 1 Reservoir to a new non-regulated reservoir to supply water for downstream users. No loss of water supply from the removal of this storage facility is anticipated. Photos of the existing structure are shown in Exhibit 8.

ITEM L-1

DESCRIPTION:

The Opaepa Reservoir No. 15 will be breached by the removal of a portion of the embankment with a bottom width of 55 feet with side slope gradients of 3 horizontal to 1 vertical (3H:1V). The breach will result in an approximately 14-foot long channel. The longitudinal slope at the bottom of channel will be approximately 1.3 percent. The excavated soil will be placed as compacted on-site fill material. The graded areas will be stabilized with grassing. Kamehameha Schools will be responsible to maintain this site after the dam is removed. This is an off-stream reservoir which was only filled via a ditch system that has been altered and no longer services this reservoir. The removal of the embankment will result in the addition of approximately 1 acre to the existing 8,567,680-acre drainage area of the nearest downstream development and the increase risk to downstream flooding from this additional area is minimal. (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 for evaluation)

STATE HISTORIC PRESERVATION DIVISION (SHPD) – HRS 6E - REQUIREMENTS:

SHPD required Kamehameha Schools to complete an Architectural Inventory Assessment for this removal project. SHPD stipulates that during construction, the owner shall provide “recording of the reservoir’s cross-section during demolition (to be submitted as an addendum to the AIA)”. The final AIA was accepted by SHPD on January 29, 2018 (LOG NO: 2017.00992; DOC NO: 1801TGM15) (See Exhibit 5)

AGENCY CONSULTATION:

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

REMARKS:

The applicant (Kamehameha Schools) and their Engineering consultant, Belt Collins Hawaii LLC, have completed a basis of design, plans and specifications and requests for the approval of a dam safety construction/alteration permit. The Division has reviewed the documents and concluded that it satisfies the permit requirements stipulated in HRS 179D and any special conditions deemed appropriate by the Division. Staff recommends approval of this permit application with the Dam Safety General Permit 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 removal of the Opaepa Reservoir No. 15 (DLNR Dam Safety Permit No. 72) 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 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.

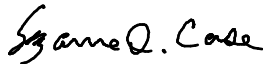
4. Delegate authority to the Chairperson to approve time extension for the dam safety permit when requested and deemed appropriate.
5. Authorize the Department to remove this dam from dam safety regulatory inventory and the requirements of Hawaii Revised Statutes Chapter 179D, upon satisfactory completion of the construction project.

Respectfully submitted,



CARTY S. CHANG
Chief Engineer

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE
Chairperson

- Exhibit(s):
1. Owner Permit Application
 2. Location map
 3. Construction Drawing pages
 4. Chapter 343-HRS Review
 5. General Permit Conditions
 6. SHPD approval
 7. Agency Consultation
 8. Photos

State of Hawaii
BOARD OF LAND AND NATURAL RESOURCES Department of Land and Natural Resources
Engineering Division

DAM SAFETY PERMIT APPLICATION FOR APPROVAL OF PLANS AND SPECIFICATIONS
FOR CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF A
DAM

Date of Application: October 9, 2015

Applicant:
Contact Name: Jo Anne Hanada Firm / Company: Kamehameha Schools

Mailing Address 567 South King Street, Suite 617, Honolulu, HI 96813

Telephone: (808) 534-3977 Fax: (808) 534-3848 Email: johanada@ksbe.edu

The Applicant hereby applies to the Board of Land and Natural Resources for the approval of the attached plans and specification for the Opaepa Reservoir No. 15, ID No. HI00020, Dam Decommissioning (construction, etc.) in accordance with Chapter 179D HRS (as amended by Act 262, SLH 2006), and subject to the provisions, conditions, and limitations of the current Hawaii Administrative Rules and various DLNR dam safety guidelines.

Accompanying this application are:

(please check)

- | | |
|--|-------------------|
| 1. Filing fee equal to 2% of the Detailed Cost Estimate + Eng costs w/ calculation | <u> x </u> |
| 2. Two (2) copies of the Detailed Cost Estimate | <u> x </u> |
| 3. Two (2) copies of the Final Design Report | <u> x </u> |
| 4. Two (2) copies of the Plans | <u> x </u> |
| 5. Two (2) copies of the Specifications | <u> x </u> |
| 6. Proposed Construction Schedule | <u> x </u> |
| 7. Supporting documents: | <u> </u> |
| 8. One (1) electronic copy of all the above | <u> x </u> |

NAME OF STRUCTURE: Opaepa Reservoir No. 15, ID No. HI00020

DAM OR RESERVOIR LOCATION: 5 miles southeast of the town of Hale'iwa on Opaepa road

Island: O'ahu Tax Map Key: 6-2-010:001

Attach USGS topographic map (scale 1" = 2000') and property tax map (showing location access to site, proposed work)

State Land Use District: x Agriculture Urban Rural Conservation

BRIEF DESCRIPTION OF WORK TO BE PERFORMED

Breach of the earthen dam structure by excavating and removing a section of the embankment and decommissioning of the associated reservoir.

EXHIBIT 2-1

TECHNICAL INFORMATION:

DLNR-Dam Safety-Sheet 2

1. Drainage Area 0.007 sq. miles or 4.48 acres
2. Classification of Dam (Hazard/Size) Hazard Potential: High; Size Classification: Small
3. Type of Structure Earthen Dam
4. Elevation-Area-Capacity Data:

	Elevation	Surface Area (acres)	Total Storage Volume (acre-feet)
Natural Streambed	<u>~730'</u>		
Primary Spillway	<u>749.6'</u>	<u>3.4</u>	<u>64</u>
Secondary Spillway	<u>N/A</u>		
Top of Dam	<u>758'</u>	<u>4.8</u>	<u>85</u>
Design Water Level	<u>745'</u>		
Invert of Drain	<u>731.5'</u>		
5. Spillway Details (Type, Dimensions, Material)
Primary: Concrete Pipe with Headwall and Wingwalls, 27-Inch Diameter
Secondary: N/A
6. Purpose of Structure Impoundment of Irrigation Water
(water supply, irrigation, recreation, real estate development, etc.)
7. Attach rainfall and stream flow records, and flood-flow records and estimates (as accurately as may be readily obtained)

ADDITIONAL INFORMATION

1. Primary Owner Contact (if different from applicant) (Same as Applicant)
Owner Company or Entity: _____
Mailing Address _____
Telephone: _____ Fax: _____ Email: _____
2. Registered Hawaii Professional Engineer who prepared the plan Eric H. Tamashiro, P.E.
Mailing Address 2153 North King Street, Suite 200, Honolulu, HI 96819
Registration No. 9787-C, Hawai'i
Telephone: 808-521-5361 Fax: 808-538-7819 Email: etamashiro@bchdesign.com
3. Registered Professional Engineer to be responsible for inspection during construction _____
Eric H. Tamashiro, P.E.
4. Contractor (If known) TBD
Mailing Address _____
Telephone: _____ Fax: _____ Email: _____
5. List all other permits applications submitted to other governmental agencies:
Grading Permit (DPP, City & County); NPDES NOI-C (Dept. of Health, CWB)
6. Anticipated effect of proposed structure on natural environment: N/A

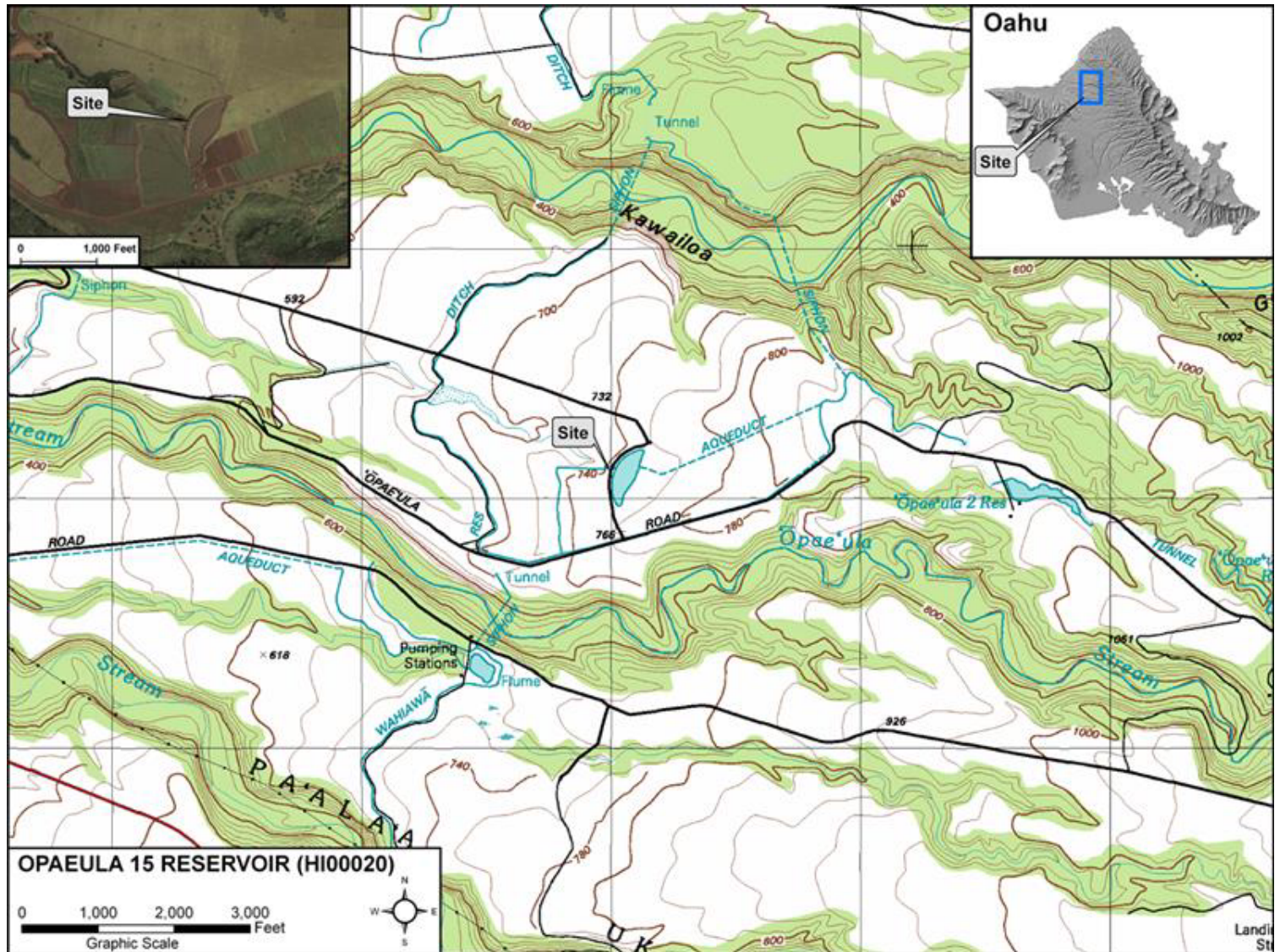
DLNR-Dam Safety-Sheet 3

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her 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 additional copies of this sheet should there be more owners)

<u>See Attached</u>	
(Printed Name & Signature of Owner)	(Address / TMK/Interest in Dam or Reservoir)
(Printed Name & Signature of Owner)	(Address / TMK/Interest in Dam or Reservoir)
(Printed Name & Signature of Owner)	(Address / TMK/Interest in Dam or Reservoir)
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(Printed Name & Signature of Owner)	(Address / TMK/Interest in Dam or Reservoir)

I, Jo Anne Hanada, the applicant, hereby certify that the information herein is 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.

Jo Anne Hanada, Sr. Capital Program Manager
 (Signature of Applicant & Title) 11/09/15
 Date: owner's Representative



1. General Information

a. State Dam ID	OA-0020
b. National ID	HI00020
c. Dam Name	OPAEULA 15 RESERVOIR
d. Other Name(s)	
e. Longitude / Latitude	-158.0534 / 21.5754
f. County / Island	Honolulu / Oahu
g. Type of Dam	Earthen
h. Purpose	Irrigation
i. Completed / Last Modified	1910 / -
j. Nearest City / Town	HALEIWA (3 miles)
k. Water Body Type	State Regulated Dam
l. Dam Height	21 ft
m. Dam Length	2,200 ft
n. Drainage Area	0.01 sq. miles / 4 acres
o. Size Classification	Small

2. Owner Information

a. Name of Owner	Kamehameha Schools
b. TMK(s):	(1) 6-2-010:001

3. Hazard Potential Classification

a. Hazard Classification	High
b. Emergency Action Plan	Yes



Aerial Photo (12/07/2009)

4. Reservoir

a. Normal Storage	64 ac-ft / 21 MG
b. Maximum Storage	85 ac-ft / 28 MG
c. Surface Area	

5. Primary Spillway

a. Minimum Spillway Width	3 ft
b. Spillway Length	90 ft
c. Spillway Type	Pipe
d. Protection	Concrete
e. Maximum Discharge	

6. Primary Outlet Works

a. Works Type	Downstream Control
b. Maximum Discharge	
c. Size	20in
d. Control Description	Downstream

7. Embankment

a. Type of Dam	Earthen
b. Minimum Crest Width	13 ft
c. Upstream Slope Grade	40° / 1.2:1
d. Upstream Slope Protection	Bare Soil
e. Downstream Slope Grade	35° / 1.4:1
f. Downstream Slope Protection	Vegetation
g. Dam Height	21 ft
h. Dam Length	2,200 ft

8. Inflow Works

Type	Name	Controlled	Size
None Specified			

GENERAL NOTES

1. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. WORK INCIDENTAL TO THE CONTRACT AND NECESSARY TO COMPLETE THE PROJECT, ALTHOUGH NOT SPECIFICALLY REFERRED TO ON THE CONTRACT DOCUMENTS, SHALL BE FURNISHED AND PERFORMED BY THE CONTRACTOR.
3. IN PERFORMING ALL WORK, THE CONTRACTOR SHALL EXERCISE DUE CARE AND CAUTION NECESSARY TO AVOID ANY DAMAGE TO AND IMPAIRMENT IN THE USE OF ANY EXISTING UTILITY LINE. ANY DAMAGE INFLECTED ON EXISTING UTILITY LINES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR RESTORED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
5. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM APPROPRIATE GOVERNMENT AGENCIES.

CONSTRUCTION NOTES

1. ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986 AND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII.
2. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA, WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
3. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL, OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING CITY DRAINAGE SYSTEMS, OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
4. THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL BE RESPONSIBLE FOR CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS," AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.

THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:

1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
2. DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH AT <http://health.hawaii.gov/cwb>. THE OWNER/DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.

5. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015).
6. FOR PROJECTS ABUTTING STATE HIGHWAYS' RIGHTS-OF WAY, THE OWNER OR HIS AUTHORIZED REPRESENTATIVE SHALL NOTIFY THE STATE DEPARTMENT OF TRANSPORTATION, HIGHWAYS DIVISION, OAHU DISTRICT, DRAINAGE DISCHARGE UNIT AT 831-6793 FOR AN ASSESSMENT OF STATE HIGHWAYS PERMIT REQUIREMENTS.
7. FOR BENCH MARK, SEE SHEET C-2.

GRADING NOTES

1. ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16, AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND SOILS REPORT BY HIRATA & ASSOCIATES, INC., DATED JULY 17, 2015.
2. NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL".
4. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA, WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE SOODED OR PLANTED AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL GRADING WORK HAS BEEN COMPLETED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE PLANTED.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
8. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
9. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, D.P.P., PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL".
10. THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
11. THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL BE RESPONSIBLE FOR ALL GRADING OPERATIONS TO BE PERFORMED IN CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS," AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.

THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:

1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
2. DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH AT <http://health.hawaii.gov/cwb>. THE OWNER/DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.

12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH MOVING PHASE OF THE GRADING IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
15. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, D.P.P. AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK. FOR CITY PROJECTS, THE CONTRACTOR SHALL COORDINATE INSPECTIONAL SERVICES WITH THE RESPONSIBLE CITY AGENCY.
17. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CIVIL ENGINEERING BRANCH, D.P.P. (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.
18. FOR ALL PROJECTS, WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND, THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL A NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII, AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM. ALSO, FOR NON-CITY AND OTHER NON-GOVERNMENTAL AGENCY PROJECTS, THE CONTRACTOR SHALL PROVIDE A WRITTEN COPY OF THE NGPC TO THE PERMITTING AND INSPECTION SECTION, CIVIL ENGINEERING BRANCH, D.P.P., AT LEAST SEVEN (7) CALENDAR DAYS BEFORE THE START OF THE CONSTRUCTION. FOR CITY OR OTHER GOVERNMENTAL PROJECTS, THE CONTRACTOR SHOULD PROVIDE A WRITTEN COPY OF THE NGPC TO THE APPROPRIATE CITY DEPARTMENT OR GOVERNMENTAL AGENCY PER THEIR REQUIREMENTS.
19. ALL GRADING AND CONSTRUCTION WORK SHALL IMPLEMENT MEASURES TO ENSURE THAT THE DISCHARGE OF POLLUTANTS FROM THE CONSTRUCTION SITE WILL BE REDUCED TO THE MAXIMUM EXTENT PRACTICABLE AND WILL NOT CAUSE OR CONTRIBUTE TO AN EXCEEDANCE OF WATER QUALITY STANDARDS.
20. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
21. FOR BENCH MARK, SEE SHEET C-2.

TOPOGRAPHIC SURVEY NOTES

1. TOPOGRAPHIC SURVEY WORK COMPLETED BY GROUND SURVEYS BY HAWAII LAND CONSULTANTS, MAP ENTITLED "KAWAIOA PLANTATION, TOPOGRAPHIC SURVEY OF OPAEULA 15 RESERVOIR INTERIOR AND NORTHWEST FACE AT OPAEULA, KAWAIOA, WAIALUA, OAHU, HAWAII, TMK (1) 6-2-10: PORTION OF 1", DATED JUNE 23, 2009. GROUND SURVEY FIELD INSPECTION PERFORMED BY HAWAII LAND CONSULTANTS ON JUNE 27, 2015.
2. ALL COORDINATES AND AZIMUTHS ARE REFERRED TO HAWAII STATE PLANE COORDINATE SYSTEM, ZONE 9, NAD83.
3. ELEVATIONS ARE REFERENCED TO NGVD29 (MSL DATUM).
4. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY AND ARE BASED ON RECORD INFORMATION.
5. ALL ELEVATIONS AND DISTANCES SHOWN ARE IN FEET.
6. BENCH MARK IS SHOWN ON SHEET C-2.

PUBLIC HEALTH, SAFETY AND CONVENIENCE NOTES

1. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF THE PUBLIC HEALTH AND SAFETY AND ENVIRONMENTAL QUALITY.
2. THE CONTRACTOR, AT HIS OWN EXPENSE SHALL KEEP THE PROJECT AND ITS SURROUNDING AREAS FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH. THE CITY MAY REQUIRE SUPPLEMENTARY MEASURES AS NECESSARY.
3. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION ACTIVITY SO AS TO CAUSE FALLING ROCK, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
4. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC. THE CONTRACTOR SHALL APPLY FOR A CONSTRUCTION PERMIT WITH A NOISE POLLUTION CONTROL PLAN.

ABBREVIATIONS

AC	ACRES
APPROX	APPROXIMATE
BMP	BEST MANAGEMENT PRACTICES
CY	CUBIC YARDS
DPP	DEPARTMENT OF PLANNING AND PERMITTING
E	EAST
ELEV	ELEVATION
EXIST	EXISTING
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
OC	ON CENTER
POR	PORTION
S	SLOPE
SHT	SHEET
STA	STATION
TMK	TAX MAP KEY

△					
△					
Rev	Date	Description	Eng	App	

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

APRIL 30, 2016
EXPIRATION DATE OF THE LICENSE

ERIC H. TAMASIRO
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No. 9787-C
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Consultant

Client:

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OPAEOULA 15 RESERVOIR
DAM DECOMMISSIONING

CONSTRUCTION NOTES AND ABBREVIATIONS

Designed By: EHT
Project No: 2015.43.0200

Drawn By: BHK
Date: October 26, 2015

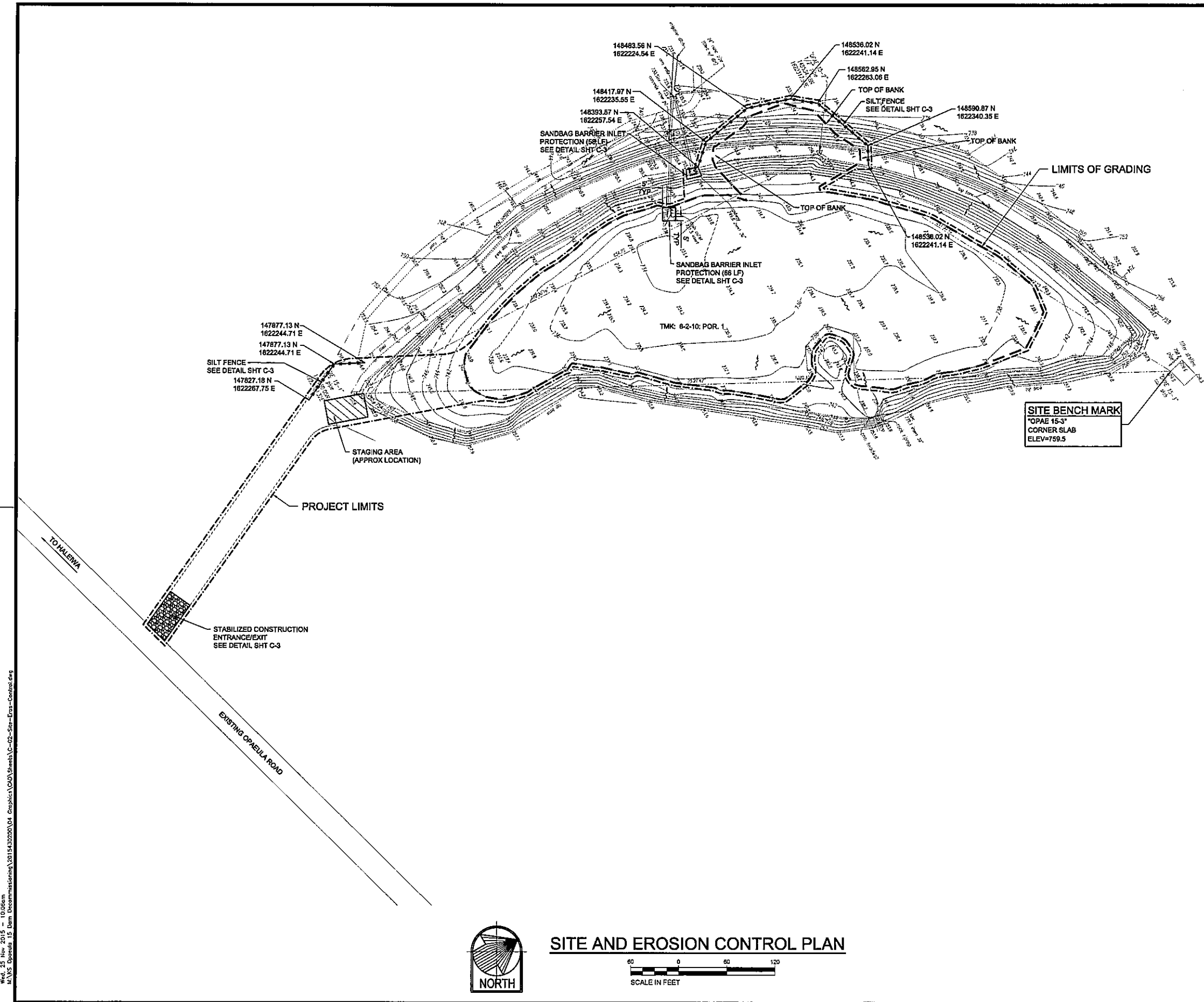
Approved By: _____ Date: _____

CHIEF CIVIL ENGINEERING BRANCH, DPP
CITY AND COUNTY OF HONOLULU
(FOR GRADING ONLY)

_____ Date: _____

_____ Date: _____

FILE	PROJECT	FOUNDER	NO



- LEGEND:**
- 750 EXISTING CONTOUR
 - EXISTING DRAIN INLET PIPE
 - PROJECT LIMITS
 - LIMITS OF GRADING
 - DIRECTION OF FLOW
 - STAGING AREA
 - STABILIZED CONSTRUCTION ENTRANCE

- NOTES:**
- SEE SHEET C-1 FOR ABBREVIATIONS.
 - SEE SHEET C-2 FOR EROSION CONTROL NOTES AND DETAILS.

Rev	Date	Description	Eng	App

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

ERIC H. TAMASHIRO
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HAWAII, U.S.A.
APRIL 30, 2016
EXPIRATION DATE OF THE LICENSE

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HONOLULU, HAWAII 96813

**OPAEULA 15 RESERVOIR
DAM DECOMMISSIONING**

SITE AND EROSION CONTROL PLAN

Designed By: EHT
Project No: 2015.43.0200
Date: October 26, 2015
Drawn By: BHK
Date: October 26, 2015
Approved By: _____
Date: _____
CHIEF, CIVIL ENGINEERING BRANCH, DPP
CITY AND COUNTY OF HONOLULU

FILE	POCKET	FOLDER	NO.

Wed, 25 Nov 2015 - 10:06am
M:\K5 Opa'e 15 Dam Decommissioning\2015\2020\04 Graphics\DWG\Sheets\C-02-Site-Eros-Control.dwg

NAME SIZE TRIM USE FOR 11"x17"

Trim: 22"x36"

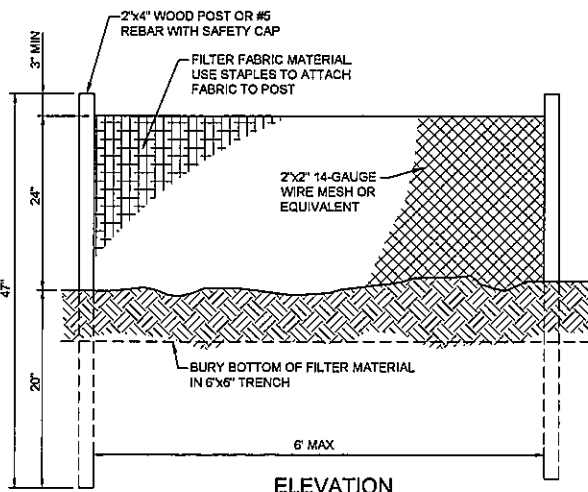


SITE AND EROSION CONTROL PLAN

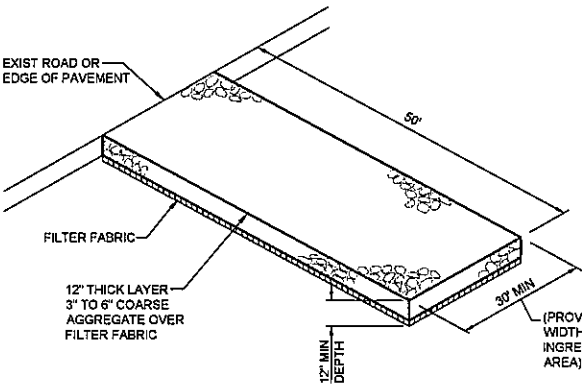
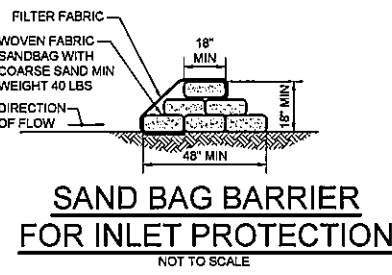
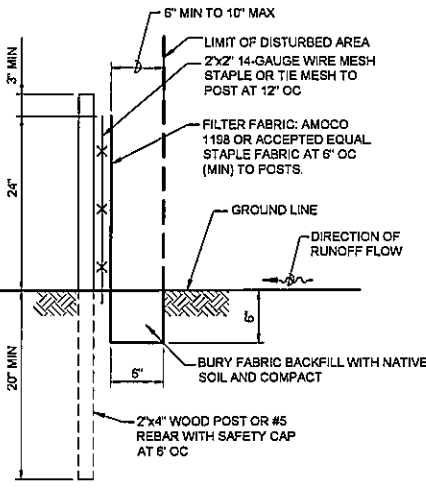


EROSION CONTROL AND BEST MANAGEMENT PRACTICE (BMP) NOTES:

- MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY DEMOLITION OR EARTH MOVING WORK IS INITIATED. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- INSTALL PERIMETER PROTECTION (SILT FENCE) AS SHOWN ON THE EROSION CONTROL PLAN. PERIMETER PROTECTION MAY BE ADJUSTED TO FIT THE CONTRACTOR'S OPERATIONS.
- CONSTRUCT TEMPORARY STABILIZED CONSTRUCTION ENTRANCE/EXIT AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. ALL VEHICLES EXITING THE SITE ARE TO SUFFICIENTLY CLEANED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE. CONSTRUCTION ENTRANCE/EXIT MAY BE ADJUSTED TO FIT THE CONTRACTOR'S OPERATIONS.
- STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES, AS PRACTICAL.
- LOCATE STOCKPILES, INCLUDING WASTE AND SOIL, AWAY FROM CONCENTRATED DRAINAGE FLOWS, DRAINAGE SWALES AND INLETS. INSTALL PERIMETER PROTECTION (SILT FENCE), BERMS OR TRENCHES AROUND ERODIBLE MATERIAL STOCKPILES.
- ALL EROSION CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN 24-HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24-HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE CONTRACTOR SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.
- IF HEAVY RAINS ARE PREDICTED DURING A WORKDAY, ALL CONTROL MEASURES WILL BE INSPECTED IMMEDIATELY AND REINFORCED AS NECESSARY.
- GRADING SHALL BE HELD TO THE MINIMUM NECESSARY. GRADING SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF THE CLEARED SURFACE AREA.
- THE FINAL LIFT OF EACH DAY'S WORK SHALL BE COMPACTED TO PREVENT EROSION OF FILL MATERIAL.
- DUST CONTROL WITH WATER SPRAY (BY TRUCK OR TEMPORARY SPRINKLERS) SHALL BE APPLIED AS NEEDED. DO NOT OVERWATER.
- A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE.
- GOOD HOUSE KEEPING BEST MANAGEMENT PRACTICES:
 - MATERIAL MANAGEMENT PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
 - ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER COVER OR IN AN ENCLOSURE.
 - PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
 - SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
 - WHENEVER POSSIBLE, THE ENTIRE CONTAINER CONTENTS WILL BE USED UP PRIOR TO DISPOSAL OF THE CONTAINER.
 - MANUFACTURER'S RECOMMENDATION FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
 - ALL HAZARDOUS MATERIALS, FUEL, OIL AND CHEMICAL SPILLS SHALL BE STOPPED AND CLEANED UP WITH PROPER ABSORBENT MATERIALS. ABSORBENT MATERIAL SPILL KITS SHALL BE MAINTAINED ON-SITE.
 - THE CONTRACTOR SHALL CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ON-SITE.
- SANITARY AND SEPTIC WASTES SHALL BE COLLECTED FROM ON-SITE FACILITIES ON A REGULAR BASIS BY A LICENSED HAULER. SANITARY AND SEPTIC FACILITIES SHALL NOT BE LOCATED IN OR NEAR WATERCOURSES.
- VEHICLE AND EQUIPMENT MAINTENANCE AND FUELING SHALL BE DONE OFF-SITE (WHERE AT ALL POSSIBLE).
- THE CONTRACTOR AND SUBCONTRACTORS SHALL BE TRAINED ON THE BEST MANAGEMENT PRACTICES.
- PERIMETER PROTECTION (SILT FENCE) SHALL BE CLEARED OF SILT IMMEDIATELY FOLLOWING THE END OF ANY RAINFALL THAT CAUSES SILT BUILDUP OR WHEN DEPTH REACHES 1/3 OF PERIMETER PROTECTION HEIGHT.
- STABILIZATION SHALL BE ACCOMPLISHED BY TEMPORARILY OR PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF WITH PLANTING, GEOTEXTILE FABRICS OR COMPOST BLANKETS. FOR STABILIZATION WITH PLANTING, TEMPORARY IRRIGATION SHALL BE INSTALLED TO FACILITATE GROWTH. DO NOT OVERWATER.
- FERTILIZER AND PESTICIDE APPLICATION SHALL NOT OCCUR IF HEAVY RAINS ARE ANTICIPATED DURING THE WORKDAY, OR DURING HEAVY RAINS.
- EROSION CONTROL AND BMPs ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT.
- FOR ADDITIONAL EROSION CONTROL AND BEST MANAGEMENT PRACTICE REQUIREMENTS, REFER TO THE PROJECT'S NPDES PERMIT.



SILT FENCE DETAIL
NOT TO SCALE



STABILIZED CONSTRUCTION
ENTRANCE/EXIT DETAIL
NOT TO SCALE

Rev	Date	Description	Eng	App

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

APRIL 30, 2016
EXPIRATION DATE OF THE LICENSE

ERIC H. TAMASHIRO
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Consultant:

Client:

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HONOLULU, HAWAII 96813

OPAUELA 15 RESERVOIR
DAM DECOMMISSIONING

EROSION CONTROL NOTES AND DETAILS

Designed By: EHT
Project No: 2015.43.0200
Drawn By: BHK
Date: October 26, 2015

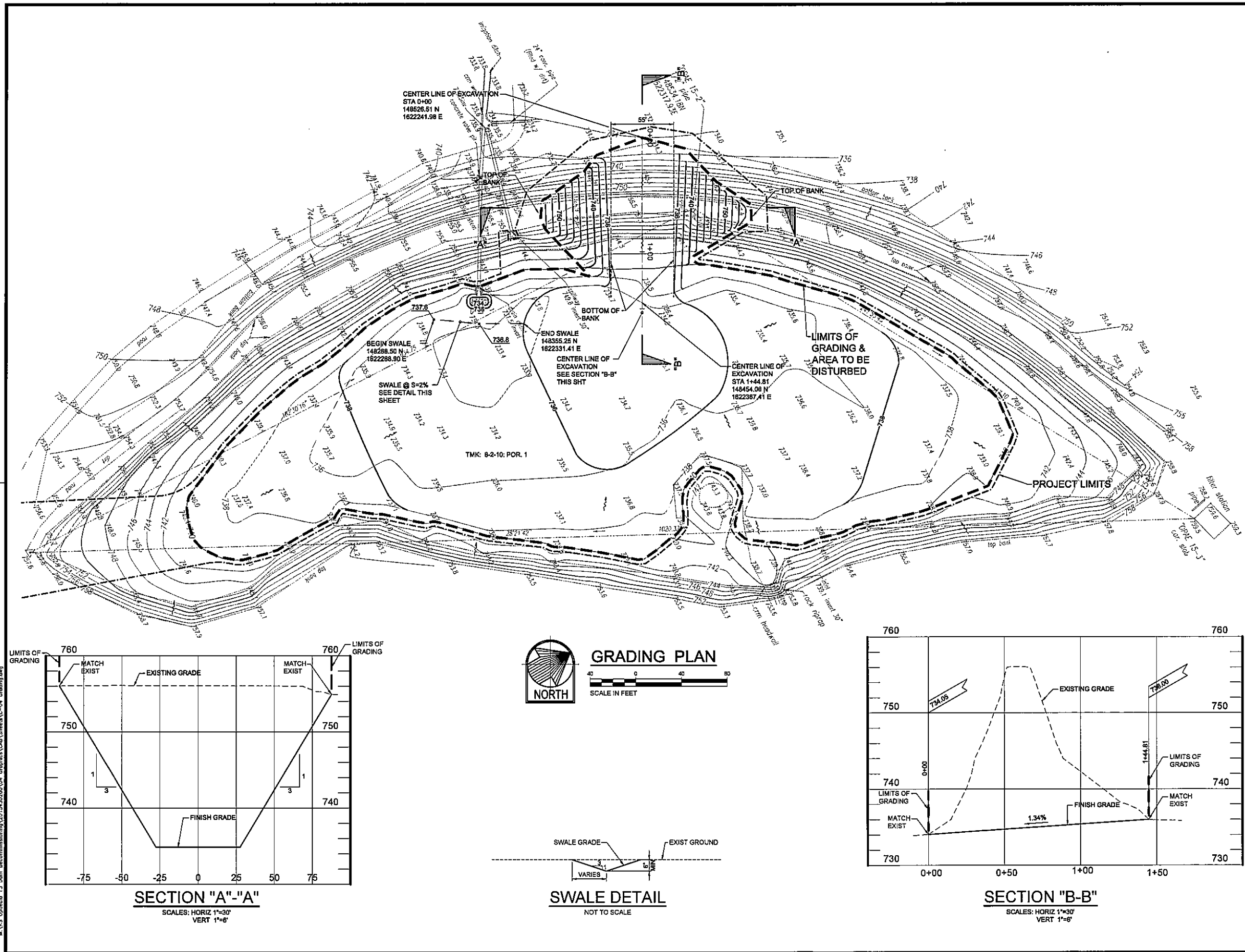
Approved By: _____
Date: _____

CHECK, CIVIL ENGINEERING BRANCH, DPP
CITY AND COUNTY OF HONOLULU

_____ Date: _____

_____ Date: _____

FILE	POCKET	FOUNDER	NO



LEGEND:

- 750 EXISTING CONTOUR
- 750 NEW CONTOUR
- PROJECT LIMITS
- LIMITS OF GRADING & AREA TO BE DISTURBED
- DIRECTION OF FLOW
- NEW SPOT GRADE
- SWALE

SUMMARY OF EARTHWORK CALCULATIONS

ESTIMATED EXCAVATION	= 4,700 CY
ESTIMATED EMBANKMENT	= 4,700 CY
AREA TO BE GRADED	= 3.4 AC
DISTURBED AREA	= 3.4 AC

NOTES:

- QUANTITIES SHOWN ARE FOR PERMIT ONLY AND SHALL NOT BE USED FOR BIDDING PURPOSES.
- CONTRACTOR SHALL BE RESPONSIBLE TO COMPLETE THE GRADING WORK TO THE GRADES AND DIMENSIONS SHOWN ON THE PLANS.
- DISTURBED AREA AS DEFINED BY HAWAII ADMINISTRATIVE RULES CHAPTER 11-55.
- ESTIMATED EARTHWORK BASED ON EXISTING AND FINISHED GRADES.

NOTES:

- SEE SHEET C-1 FOR ABBREVIATIONS.
- SEE SHEET C-2 AND C-3 FOR EROSION CONTROL.

Rev	Date	Description	Eng	App

E. H. TAMASHIRO
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
LICENSED PROFESSIONAL ENGINEER
No. 9787-C
HAWAII, U.S.A.
APRIL 30, 2016
EXPIRATION DATE OF THE LICENSE

BELT COLLINS
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Client: **KAMEHAMEHA SCHOOLS**
567 SOUTH KING STREET, SUITE 200
HONOLULU, HAWAII 96813

**OPAEULA 15 RESERVOIR
DAM DECOMMISSIONING
GRADING PLAN AND SECTIONS**

Designed By: EHT
Project No: 2015.43.0200
Approved By: _____
Date: October 26, 2015
Date: _____
Date: _____

CHEF, CIVIL ENGINEERING BRANCH, DPP
CITY AND COUNTY OF HONOLULU
(FOR GRADING ONLY)

FILE	PROJECT	FOLDER	NO.

Trim: 22"x36"

CHAPTER 343 ANALYSIS

Project Name: Dam Decommissioning Opaepa Reservoir No. 15 (OA-0020)

Reviewer: Jimmy Leung

Date of Review: 16-Decemember-2015

EA Done with Finding of no Significant Impact (FONSI)

EIS Done with Finding of no Significant Impact (FONSI)

If FONSI has been issued no further analysis is required. Date of FONSI: _____

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)

HRS 179D 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 to determine if the program or project is exempt

If it is not exempt an Environmental Assessment is required

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

CHAPTER 343 ANALYSIS

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
- _____ Other exemption lists - _____

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

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;

CHAPTER 343 ANALYSIS

- (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

_____ 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):

CHAPTER 343 ANALYSIS

Exemptions summary:

Does the Project qualify for an exemption? Yes ____ No ____

If Yes, Exemption noted above, No Environmental Assessment Required

If No, Project requires 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.

Additional Notes

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

ROBERT K. MASUDA
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

January 29, 2018

Ms. Jo Anne Hanada
Kamehameha Schools
567 Siuth King Street
Honolulu, HI 96813

Dear Ms. Hanada:

IN REPLY REFER TO:

LOG NO: 2017.00992

DOC NO: 1801TGM15

Architecture

**SUBJECT: FINAL - Opae'ula 15 Reservoir Architectural Inventory Assessment
Opae'ula 15 Reservoir
Owner Name: Kamehameha Schools
Kawailoa Ahupua'a, Waiālua District, Island of O'ahu
TMK: (1)6-2-010:001**

Thank you for the submittal from Kamehameha Schools (KS) for the Final Architectural Inventory Assessment (AIA). The State Historic Preservation Division (SHPD) received this submittal on January 25, 2018.

The Opae'ula 15 Reservoir is a 4.48-acre earth-bermed reservoir originally constructed in 1910 to irrigate Waiālua Agricultural Company's sugarcane fields in the Opae'ula Plateau. The reservoir remained in use from 1910 until the final sugarcane harvest by Waiālua Sugar Company in 1996. The development of the sugar industry in Hawai'i allowed for agricultural and technological advances and socio-cultural changes.

On June 7, 2016, KS and SHPD agreed that an AIA be completed for the decommissioning of the reservoir which will involve excavation and removal of roughly 180 feet of the western embankment (LOG NO: 2016.01885; DOC. NO:1608GC19). Existing support infrastructure such as intake and outlet works, and spillways will not be affected.

On July 28, 2017, a draft AIA was accepted by SHPD (LOG NO: 2017.00992; DOC NO: 1707TGM15).

SHPD accepts the FINAL AIA.

Please contact Ms. Tanya Gumapac-McGuire, Architectural Historian, at (808) 692-8022 or at Tanya.Gumapac-McGuire@hawaii.gov regarding architectural resources or this letter.

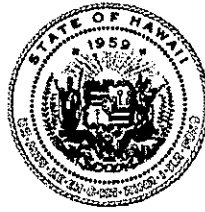
Aloha,

Alan Downer

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

cc: Mr. Michael Desilets, Garcia and Associates, mdesilets@garciaandasociates.com

DAVID Y. IGE
GOVERNOR OF
HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

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

AQUATIC RESOURCES
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ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

July 28, 2017

Ms. Jo Anne Hanada
Kamehameha Schools
567 South King Street
Honolulu, HI 96813

IN REPLY REFER TO:
LOG NO: 2017.00992
DOC NO: 1707TGM15
Architecture

Dear Ms. Hanada:

SUBJECT: Draft – Opae‘ula 15 Reservoir Architectural Inventory Assessment
Opae‘ula 15 Reservoir
Owner Name: Kamehameha Schools
Kawailoa Ahupua‘a, Waiālua District, Island of O‘ahu
TMK: (1)6-2-010:001

Thank you for the opportunity to comment on this request from Kamehameha Schools (KS) for the Draft Architectural Inventory Assessment (AIA). The State Historic Preservation Division (SHPD) received this submittal on May 10, 2017.

The Opae‘ula 15 Reservoir is a 4.48-acre earth-bermed reservoir originally constructed in 1910 to irrigate Waiālua Agricultural Company’s sugarcane fields in the Opae‘ula Plateau. The reservoir remained in use from 1910 until the final sugarcane harvest by Waiālua Sugar Company in 1996. The development of the sugar industry in Hawai‘i allowed for agricultural and technological advances and socio-cultural changes.

On June 7, 2016, KS and SHPD agreed that an AIA be completed for the decommissioning of the reservoir which will involve excavation and removal of, minimally, a 180-foot portion of the wester embankment (LOG NO: 2016.01885; DOC. NO:1608GC19). Existing support infrastructure such as intake and outlet works, and spillways will not be affected.

SHPD accepts the DRAFT AIA.

SHPD looks forward to reviewing the hardcopy and electronic FINAL AIA which will consist of the following: (1) development of a historic context study; (2) detailed description and dimensional measurements of the reservoir and associated engineering features such as gates, sluices and valves; (3) large-format HAER (level 2) photography of the reservoir and associated engineering features; (4) discussion of the reservoir’s role within the larger irrigation system; and (5) recordation of the reservoir’s cross-section during demolition (to be submitted as an addendum to the AIA).

Please contact Tanya Gumapac-McGuire, Architectural Historian, at (808) 692-8022 or at Tanya.Gumapac-McGuire@hawaii.gov regarding architectural resources or this letter.

Aloha,

Alan Downer

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

cc: Mr. Michael Desilets, Garcia and Associates, mdesilets@garciaandasociates.com

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
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ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

October 6, 2016

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. 2016.01885
Doc No. 1608GC19
Archaeology, Architecture

Dear Mr. Chang:

SUBJECT: Chapter 6E-42 Historic Preservation Review –
Opae‘ula Reservoir No. 15 (OA-0020)
Dam Safety Permit No. 72 – Dam Removal
Kawailoa Ahupua‘a, Waialua District, Island of O‘ahu
TMK: (1) 6-2-010:001

Thank you for the opportunity to review this submittal regarding the decommissioning of the Opae‘ula No. 15 Reservoir. The landowner, Kamehameha Schools, proposes to decommission the existing reservoir by removing a portion of the earthen embankment and using the removed fill material to fill the reservoir basin. The proposed project will not affect the existing reservoir infrastructure including the intake and outlet works, and the pipe spillway. Ground disturbing activities will involve the excavation of approximately 470 cubic yards for the removal of at least an 180-ft. portion of the western embankment. SHPD received this submittal on August 3, 2016.

The Opae‘ula 15 Reservoir was constructed in 1910 and is part of the agricultural infrastructure developed to support the sugarcane industry. The Opae‘ula 15 Reservoir was specifically constructed for storing irrigation water to be used on the Waialua Sugar Company sugarcane plantation. The reservoir itself is a 21-ft. high earthen dam with a 2,200-ft. total crest length, capable of storing up to 64 acre-ft. of water supplied by the neighboring, upstream Opae‘ula 2 Reservoir. The Opae‘ula 2 Reservoir was breached in 2013 and consequently the Opae‘ula 15 Reservoir has remained empty since that time. The Opae‘ula 15 Reservoir appears to be surrounded by largely, flat and graded areas.

A review of our records indicates that SHPD previously requested an archaeological inventory survey (AIS) be conducted to adequately document the Opae‘ula 15 Reservoir and any other historic properties within the project area, to assess their significance, and to ensure that appropriate mitigation is implemented (March 3, 2016; Log No. 2015.0437, Doc No. 1602KM27). On June 7, 2016, SHPD staff [Susan Lebo, Archaeology Branch Chief; Kaiwi Yoon, Architecture Branch Chief; and Kimi Matsushima, Oahu Archaeologist] met with Mike Desilets [Garcia and Associates, archaeological consultant hired by Kamehameha Schools for this project] to discuss the scope of work for the SHPD-requested AIS.

The agreed-upon AIS/Architectural documentation consists of the following: (1) development of a historic context study; (2) detailed description and dimensional measurements of the reservoir and associated engineering features such as gates, sluices, and valves; (3) large-format HAER (level 2) photography of the reservoir and associated engineering features; (4) discussion of the reservoir’s role within the larger irrigation system of which it is an integral part (however, documentation of connected system features is outside the scope); and (5) recordation of the reservoir’s cross-section during demolition (to be submitted in a letter report as an addendum to the AIS report). It was further agreed that the background section would begin with acquisition of the parcel by the current owner, Kamehameha Schools; inclusion of traditional Hawaiian mo‘olelo and archaeological background would not

be required, as the focus would be on documenting a specific historic property—Opae‘ula Reservoir No. 15—rather than on survey and documentation of a specific land parcel.

SHPD looks forward to receiving the requested AIS/Architectural documentation.

SHPD will notify you when the required documentation has been reviewed and accepted and the permit may be issued.

Please contact Kaiwi Yoon at (808) 692-8032 or at Kaiwi.N.Yoon@hawaii.gov for any questions regarding architectural resources, and me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov for any questions regarding archaeological resources or this letter.

Aloha,



Susan A. Lebo, PhD
Archaeology Branch Chief

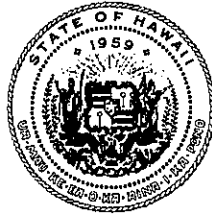
cc: Jimmy Leung, DLNR Engineering (jimmy.m.leung@hawaii.gov)
Michael Desilets, GANDA (mdesilets@garciaandassociates.com)
Jo Anne Hanada, Kamehameha Schools (johanada@ksbe.edu)

Permit #72
Opaeula 15 Reservoir
Dam Removal

Agency Consultation:

Agency	Date Sent	Date Returned	No Comments	Comments	No Reply
DLNR agencies					
Division of Aquatic Resources	7/17/16	8/29/16		See attached	
Commission on Water Resources Management	7/17/16		X		
Division of Forestry and Wildlife	7/17/16		X		
Historic Preservation Division	7/17/16	1/29/18		See attached	
Land Division	7/17/16	8/30/16	X		
Office of Conservation and Coastal Lands	7/17/16	8/11/16	X		
Other Agencies					
Department of Agriculture	7/17/16		X		
Department of Agriculture – ADC	7/17/16		X		
County of Kauai – NFIP					
City & County of Honolulu – NFIP	7/17/16		X		
County of Maui – NFIP					
County of Hawaii - NFIP					
Kauai Emergency Management Agency					
Dept of Emergency Mgt – City & County of Hon	7/17/16		X		
Maui County Emergency Management Agency					
County of Hawaii – Civil Defense					
HI EMA	7/17/16	8/22/16	X		

DAVID Y. IGE
GOVERNOR OF HAWAII



RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS

2016 JUL 28 A 9:01

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

JUL 27 2016

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

TO: From:

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 Dept. of Emergency Management

TO: FROM: Carty Chang, Chief Engineer

SUBJECT: Opaepa Reservoir No. 15 (OA-0020)
Dam Safety Permit No. 72
Dam Removal

LOCATION: Oahu, TMK: 6-2-10:001

APPLICANT: Arnulfo Castillo, Kamehameha Schools

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 **August 31, 2016**. 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.

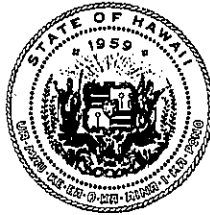
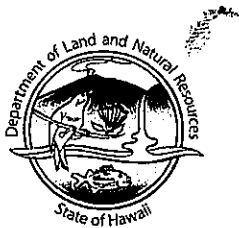
- (X) We have no comments
() Comments are attached

NOT IN
CONSERVATION

Signed: Jimmy Leung
Print name: SAM LEMMO
Date: 8.11.16

16 AUG 12 PM 11:51 ENGINEERING

DAVID Y. IGE
GOVERNOR OF HAWAII



RECEIVED

AUG 2 2016

Division of Aquatic Resources

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
KEKO KALUHIWA
FIRST DEPUTY
JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

JUL 27 2016

DAR 5354

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 Dept. of Emergency Management

FROM: Carty Chang, Chief Engineer

SUBJECT: Opauala Reservoir No. 15 (OA-0020)
Dam Safety Permit No. 72
Dam Removal

LOCATION: Oahu, TMK: 6-2-10:001

APPLICANT: Arnulfo Castillo, Kamehameha Schools

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2. Plan set (Selected sheets)
3. DLNR Dam Facility Data sheet

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() We have no comments

(X) Comments are attached

Signed: Bruce S. Anderson

Print name: Bruce S. Anderson, DAR Administrator

Date: Sept 2, 2016

JK ✓
GTH ✓
Bu ✓

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

August 29, 2016

Date: 8/29/16
DAR # 5354

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

MEMORANDUM

TO: Bruce Anderson, Administrator

DATE:

FROM: Glenn Higashi, Aquatic Biologist *GRH*

SUBJECT: Opauala Reservoir No. 15 (OA-0020)
Dam Safety Permit No. 72
Dam Removal

Comment	Date Request	Receipt	Referral	Due Date
	7/27/16	8/02/16	8/03/16	8/31/16

Requested by: Carty Chang, Chief Engineer

Summary of Proposed Project

Brief Description:

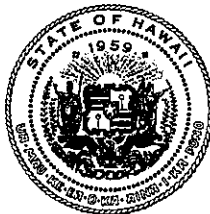
The applicant Kamehameha Schools is requesting review on the Dam Safety Permit application for the decommissioning of the Opauala Reservoir No. 15 (OA-0020) located at TMK: 6-2-010:001, containing 4.48 acres 5 miles southeast of the town of Haleiwa on Opauala Road, Oahu. The reservoir is for agricultural irrigation and has an earthen dam. The proposed activity involves breaching of the earthen dam structure by excavating and removing a section of the embankment and decommissioning of the associated reservoir.

Comments:

The proposed project is not expected to have adverse impacts on the aquatic environment. However, breaching of the earthen dam structure by excavating and removing a section of the embankment should be scheduled during periods of minimal rainfall to prevent runoff from carrying sediments into nearby streams. Any non-native or invasive aquatic biota in the reservoir should be removed and disposed of to prevent them from entering nearby streams. Embankment walls should be leveled and the reservoir basin should be filled in so as not to entrap water during heavy rains.

Thank you for providing DAR the opportunity to review and comment on the Dam Safety Permit application. Should there be any changes to the project plans, DAR requests the opportunity to review and comment on those changes.

DAVID Y. IGE
GOVERNOR OF HAWAII



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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 30, 2016

State of Hawaii
Department of Land and Natural Resources
Engineering Division
Attention: Mr. Carty Chang, Chief Engineer
P.O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Chang:

SUBJECT: Opaepa Reservoir No. 15 (OA-0020); Dam Safety Permit No. 72
Dam Removal

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Land Division's Oahu District for their review and comments.

At this time, enclosed are comments from the Land Division – Oahu District on the subject matter. Should you have any questions, please feel free to call Barry Cheung at 587-0430. Thank you.

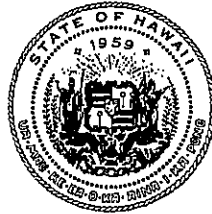
Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: Central Files

16 AUG 30 PM 10:47 ENGINEERING

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

JUL 27 2016

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

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 Dept. of Emergency Management

FROM: Carty Chang, Chief Engineer

SUBJECT: Opaepa Reservoir No. 15 (OA-0020)
Dam Safety Permit No. 72
Dam Removal

LOCATION: Oahu, TMK: 6-2-10:001

APPLICANT: Arnulfo Castillo, Kamehameha Schools

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2. Plan set (Selected sheets)
3. DLNR Dam Facility Data sheet

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- (☒) We have no comments
(☐) Comments are attached

Signed: T. Chee
Print name: Jimmy Leung
Date: 8/2/2016

RECEIVED
LAND DIVISION
JUL 27 AM 10:56
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
RECEIVED
LAND DIVISION
AUG 3 AM 9:51
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

ENGINEERING DIVISION
POST OFFICE BOX 373
HONOLULU, HAWAII 96809

JUL 27 2016

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

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BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIKOLA WE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

TO:

DLNR agencies	Other Agencies
<input checked="" type="checkbox"/> Division of Aquatic Resources	<input checked="" type="checkbox"/> Department of Agriculture
<input checked="" type="checkbox"/> Commission on Water Resource Management	<input checked="" type="checkbox"/> Department of Agriculture-ADC
<input checked="" type="checkbox"/> Division of Forestry & Wildlife	<input type="checkbox"/> County of Kauai - NFIP
<input checked="" type="checkbox"/> Historic Preservation Division	<input checked="" type="checkbox"/> City & County of Honolulu - NFIP
<input checked="" type="checkbox"/> Land Division	<input type="checkbox"/> County of Maui - NFIP
<input checked="" type="checkbox"/> Office of Conservation & Coastal Lands	<input type="checkbox"/> County of Hawaii - NFIP
<input type="checkbox"/>	<input checked="" type="checkbox"/> HI EMA
<input type="checkbox"/>	<input checked="" type="checkbox"/> Honolulu Dept. of Emergency Management

FROM: Carty Chang, Chief Engineer

SUBJECT: Opaeha Reservoir No. 15 (OA-0020)
Dam Safety Permit No. 72
Dam Removal

LOCATION: Oahu, TMK: 6-2-10:001

APPLICANT: Arnulfo Castillo, Kamehameha Schools

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

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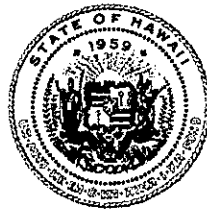
- (☒) We have no comments
(☐) Comments are attached

Signed:

Print name: Vern T. Miyagi

Date: August 22, 2016

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

ROBERT K. MASUDA
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
KAIKOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

January 29, 2018

Ms. Jo Anne Hanada
Kamehameha Schools
567 Siuth King Street
Honolulu, HI 96813

IN REPLY REFER TO:
LOG NO: 2017.00992
DOC NO: 1801TGM15
Architecture

Dear Ms. Hanada:

SUBJECT: FINAL - Opae'ula 15 Reservoir Architectural Inventory Assessment
Opae'ula 15 Reservoir
Owner Name: Kamehameha Schools
Kawailoa Ahupua'a, Waiālua District, Island of O'ahu
TMK: (1)6-2-010:001

Thank you for the submittal from Kamehameha Schools (KS) for the Final Architectural Inventory Assessment (AIA). The State Historic Preservation Division (SHPD) received this submittal on January 25, 2018.

The Opae'ula 15 Reservoir is a 4.48-acre earth-bermed reservoir originally constructed in 1910 to irrigate Waiālua Agricultural Company's sugarcane fields in the Opae'ula Plateau. The reservoir remained in use from 1910 until the final sugarcane harvest by Waiālua Sugar Company in 1996. The development of the sugar industry in Hawai'i allowed for agricultural and technological advances and socio-cultural changes.

On June 7, 2016, KS and SHPD agreed that an AIA be completed for the decommissioning of the reservoir which will involve excavation and removal of roughly 180 feet of the western embankment (LOG NO: 2016.01885; DOC. NO:1608GC19). Existing support infrastructure such as intake and outlet works, and spillways will not be affected.

On July 28, 2017, a draft AIA was accepted by SHPD (LOG NO: 2017.00992; DOC NO: 1707TGM15).

SHPD accepts the FINAL AIA.

Please contact Ms. Tanya Gumapac-McGuire, Architectural Historian, at (808) 692-8022 or at Tanya.Gumapac-McGuire@hawaii.gov regarding architectural resources or this letter.

Aloha,

Alan Downer

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

cc: Mr. Michael Desilets, Garcia and Associates, mdesilets@garciaandasociates.com

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.

UPSTREAM SLOPE



1. View of upstream slope looking right near Station 13+00. Several trees growing on slope above normal pool (see inset photo).



2. View of upstream slope looking right near Station 8+50.

UPSTREAM SLOPE



3. View of erosion at top of upstream slope at Station 8+30.



4. View of upstream slope looking right from Station 8+50. Note erosion at top of slope at Station 8+30 (see Photo 5). Range pole placed near top of slope.

UPSTREAM SLOPE



5. View of 4-foot high scarp at top of upstream slope looking left from Station 5+00.



6. View of upstream slope looking right from Station 4+00. Slope is very steep (~1V:1H).

UPSTREAM SLOPE



7. View of upstream slope from top of dam at Station 6+00 looking left.



8. View of scour hole at pump station outfall at right abutment near Station 1+00.

DAM CREST



9. View of dam crest looking left from Station 7+50. Dam crest is 16 feet wide.



10. View of dam crest looking right from left abutment near Station 13+00.

DAM CREST



11. View of dam crest looking left from left abutment. Note dip in dam crest between Stations 10+00 and 12+00.



12. View of dam crest looking right from Station 6+50.

DOWNSTREAM SLOPE



13. View of downstream slope looking left from right abutment near Station 1+00.



14. View of downstream slope looking left from top of dam near Station 3+50. Note dense woody vegetation on downstream slope.

DOWNSTREAM SLOPE



15. View of downstream slope looking right from toe of dam near Station 6+80. Note dense woody vegetation on downstream slope.



16. View of downstream slope looking right from access road at toe of dam near Station 8+50. Note dense woody vegetation on downstream slope.

DOWNSTREAM SLOPE



17. View of downstream slope looking left from access road at toe of dam near Station 8+50. Note dense woody vegetation on downstream slope.



18. View of downstream slope looking right from left abutment near Station 12+50.

SPILLWAY



19. View of spillway inlet structure. Note deteriorated concrete wing walls. For close up see Photo 20.

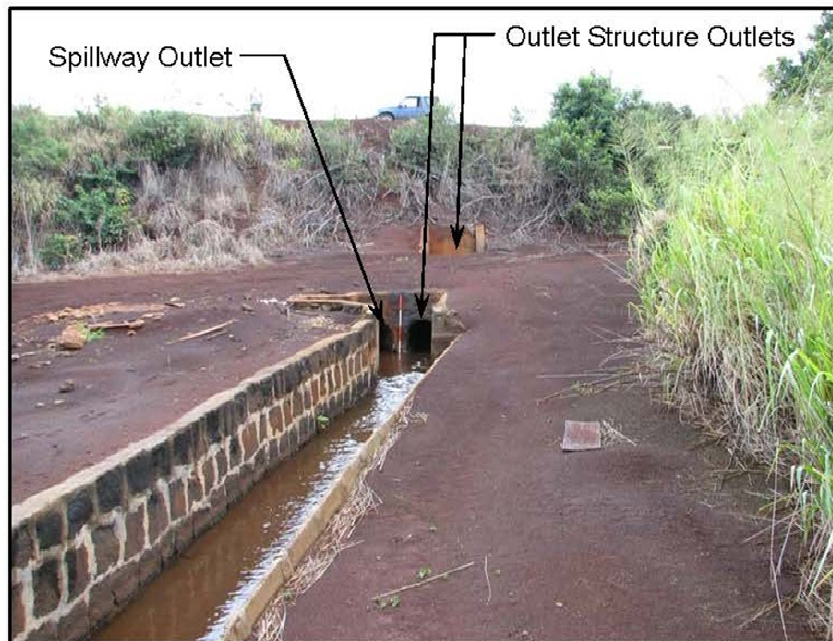


20. View of spillway inlet structure. Note deteriorated concrete wing walls.

SPILLWAY



21. View inside of spillway conduit looking upstream from downstream end. Note crack in conduit at top.



22. View downstream of toe of dam looking upstream at spillway and outlet structure outlets.

OUTLET WORKS



23. Upstream end of outlet structure looking at intake structure. Top of intake structure is exposed above reservoir level. Bottom of intake structure is approximately 7.7 feet below water level. Staff gage mounting pole located adjacent to inlet structure.



24. View of outlet works inlet structure. Depth of water to bottom of inlet structure is approximately 7.7 feet.



Opaepala 15 Reservoir - Current Condition of Basin (8/31/2017)



Opaepala 15 Reservoir – Current Condition of Upstream Embankment and Crest
(12/19/2017)



New Non-regulated Reservoir that replaces the storage of Opauala 15 Reservoir
(10/29/2015)