

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

March 10, 2011

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

**APPLICATION FOR A DLNR DAM SAFETY  
CONSTRUCTION/ALTERATION PERMIT  
PERMIT NO. 39 – OMAO RESERVOIR (HI00113)  
DAM REMOVAL, OMAO, KAUAI, HAWAII**

The Engineering Division hereby submits an application for your approval and authorization for the Chairperson and Department to stipulate conditions and issue a Dam Safety Construction/Alteration Permit for the subject application, "Removal of the OMAO RESERVOIR", pursuant to Chapter 179D Hawaii Revised Statutes and current Administrative Rules.

APPLICANT:

Mr. Richard Stack, Jr.  
A&B Properties, Inc.  
P.O. Box 3440  
Honolulu, HI 96801-3440

LANDOWNERS:

Mr. Paul Ito  
Assistant Treasurer  
McBryde Sugar Co., Ltd  
822 Bishop Street  
Honolulu, HI 96813

Mr. Tom Shigemoto  
Project Manager  
A&B Properties  
4353 Waialo Road, Suite #10B  
Eleele, HI 96705

Mr. Stacey Wong  
Eric A. Knudsen Trust  
P.O. Box 759  
Kalaheo, HI 96741

SUMMARY OF REQUEST:

Application for a Dam Safety Construction/Alteration Permit for the removal of the Omao Reservoir, Omao, Kauai, Hawaii, See Exhibit 1.

LOCATION: Omao, Koloa District, Kauai, Hawaii, TMK: (4) 2-7-006:011, (4) 2-7-002:002. See Exhibit 2.

**BACKGROUND:**

An application for the removal of the Omao Reservoir was filed on October 22, 2009 by A&B Properties, Inc. The proposed work includes constructing a breach channel through the embankment to prevent water from being retained by the existing dam.

**DESCRIPTION:**

The Omao Reservoir Dam is approximately 35-ft. high, 454-ft. long. The reservoir impounds a maximum of 194.4 ac-ft. The existing outlet works consist of a 24-inch ductile iron pipe with a trashrack over the inlet and a control valve on the upstream side of the embankment that has been permanently left in the open position. There is an unlined earthen spillway at the left abutment with a control section of approximately 29-feet and conveyance channel that leads to a rocky area where the spillway drops off about 40-ft to Omao Stream.

The owner is proposing to excavate a trapezoidal-shaped channel through the existing embankment of the Omao dam. The breach will be between the bedrock knoll and existing spillway. The breach will be approximately 85-ft wide at the base of the trapezoid, 220-ft wide at the top of the trapezoid and up to 34-ft deep. The base of the breach channel will be at an elevation of 358-ft msl at the upstream end and at an elevation of 352-ft msl at the downstream end. A broad sill at the upstream end will allow normal stream flow to follow the current stream channel through the reservoir to the existing outlet while the breach channel will act as an overflow structure during storm events. See Exhibit 3

**CHAPTER 343 – 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.

**REMARKS:**

A&B Properties, Inc and the Eric A. Knudsen Trust and their consultant, ARCADIS Inc., have completed a basis of design, plans and specification and requests for the approval of a dam safety construction/alteration permit. The Department and its engineering consultant, Kleinfelder, Inc. have reviewed the documents and concluded that it is sufficient for its intended purposes. Staff recommends approval of this permit application. See Exhibit 5.

**RECOMMENDATION:**

That the Board:

1. Authorize the approval and issuance of the Dam Safety Construction/Alteration Permit for this project; and
2. Direct the Chairperson to issue a dam safety permit for the remediation of the Omao Reservoir (DLNR Dam Safety Construction/Alteration Permit No. 39) subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.

March 10, 2011

3. Authorize the Department to monitor performance of the permitted work and take appropriate action including but not limited to issuance of fines and /or revocation of the permit, if necessary.
4. Authorize the Department to remove this dam from dam safety regulatory oversight and the requirements of Chapter 179D Hawaii Revised Statute, upon satisfactory completion of the construction project.

Respectfully submitted,



CARTY CHANG  
Chief Engineer

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR.  
Interim Chairperson

- |             |   |                                                                                         |
|-------------|---|-----------------------------------------------------------------------------------------|
| Exhibit(s): | 1 | Owner Permit Application                                                                |
|             | 2 | Location Map and Picture of location                                                    |
|             | 3 | Construction Drawing pages                                                              |
|             | 4 | Chapter 343 Review                                                                      |
|             | 5 | Kleinfelder, Inc. correspondence on approval of plans (to be provided at Board meeting) |
|             | 6 | General permit conditions (to be provided at Board meeting)                             |

March 10, 2011

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**TECHNICAL INFORMATION:**

DLNR-Dam Safety-Sheet 2

1. Drainage Area 1.17 sq. miles or 749 acres
2. Classification of Dam High-Hazard, Small-Sized Dam
3. Type of Structure Earthen Embankment
4. Elevation-Area-Capacity Data:
 

	Elevation	Surface Area (acres)	Total Storage Volume (acre-feet)
Natural Streambed	351 ft msl	N/A	0
Primary Spillway <sup>(1)</sup>	379 ft msl	7.5	138.8
Secondary Spillway	N/A	N/A	N/A
Top of Dam <sup>(2)</sup>	386 ft msl	8.04	194.4
Design Water Level <sup>(3)</sup>	371 ft msl	5.0	83
Invert of Drain	351 ft msl	N/A	0
5. Spillway Details (Type, Dimensions, Material)
 

Primary:	<u>Open channel, 122-ft-wide at control point, earthen</u>
Secondary:	<u>None</u>

Note 1- 2009 Lidar Estimate- 88 ac-ft  
 Note 2- Top of dam varies from 380 to 386 ft msl  
 Note 3- Estimated at -50% of capacity
6. Purpose of Structure Formerly: Agricultural water supply; Currently - None  
(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) See Table 1 and Appendices D and E in Design Report.

**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 Mr. Jeffrey C. Morrell  
 Mailing Address 220 S. King St., Suite 1290, Honolulu, HI 96813  
 Registration No. 8426-C  
 Telephone: 808 522 0321 Fax: 808 522 0366 Email: jeff.morrell@ifr.com
3. Registered Professional Engineer to be responsible for inspection during construction  
Mr. Jeffrey C. Morrell
4. Contractor (If known) Unknown at this time  
 Mailing Address \_\_\_\_\_  
 Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_
5. List all other permits applications submitted to other governmental agencies:  
Kauai County Grubbing & Grading Permit; NPDES General Permit; State Historic Preservation Notification  
(Waived Permits: State Water Commission, Water Use; Waiver under consideration: USACOE 404 permk)
6. Anticipated effect of proposed structure on natural environment: Minor sediment transport and erosion may occur during construction.

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, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

Stacy J. Wong P.O. Box 759  
 (Signature of Owner) Kalaheo, HI 96741 50%  
 (Address / Interest in Dam or Reservoir)

Paul J. [Signature] Trustee  
 (Signature of Owner) Encl. A. Knudsen Trust  
 (Address / Interest in Dam or Reservoir)  
822 Bishop St.  
Honolulu HI 96813 50%  
 (Address / Interest in Dam or Reservoir)  
Asst. Treasurer  
PicBryde Sugar Co. Ltd.

\_\_\_\_\_  
 (Signature of Owner) (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner) (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner) (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner) (Address / Interest in Dam or Reservoir)

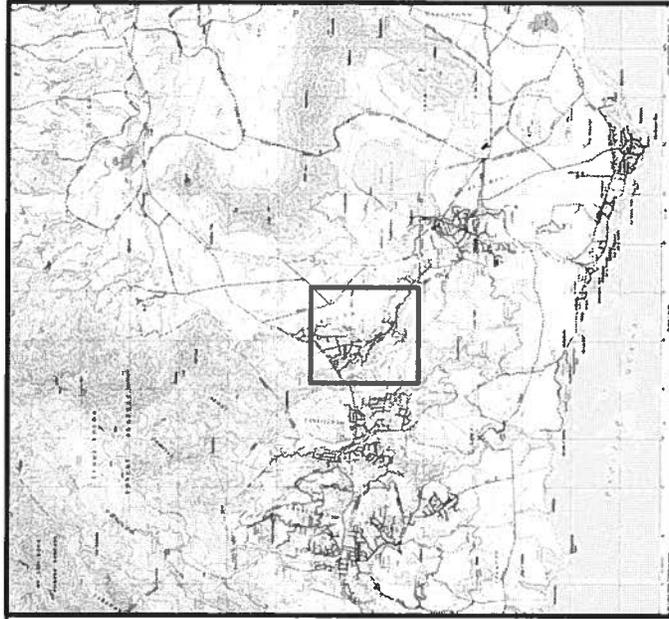
\_\_\_\_\_  
 (Signature of Owner) (Address / Interest in Dam or Reservoir)

\_\_\_\_\_  
 (Signature of Owner) (Address / Interest in Dam or Reservoir)

I, Richard Stack, Jr., 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 two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

R. Stack, Sr. VP  
 (Signature of Applicant & Title)

Date: 10/21/09



Site Location Map



0 1000 Feet

Site Vicinity Map

A&B Properties, Kauai County, Hawaii

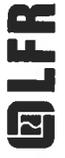
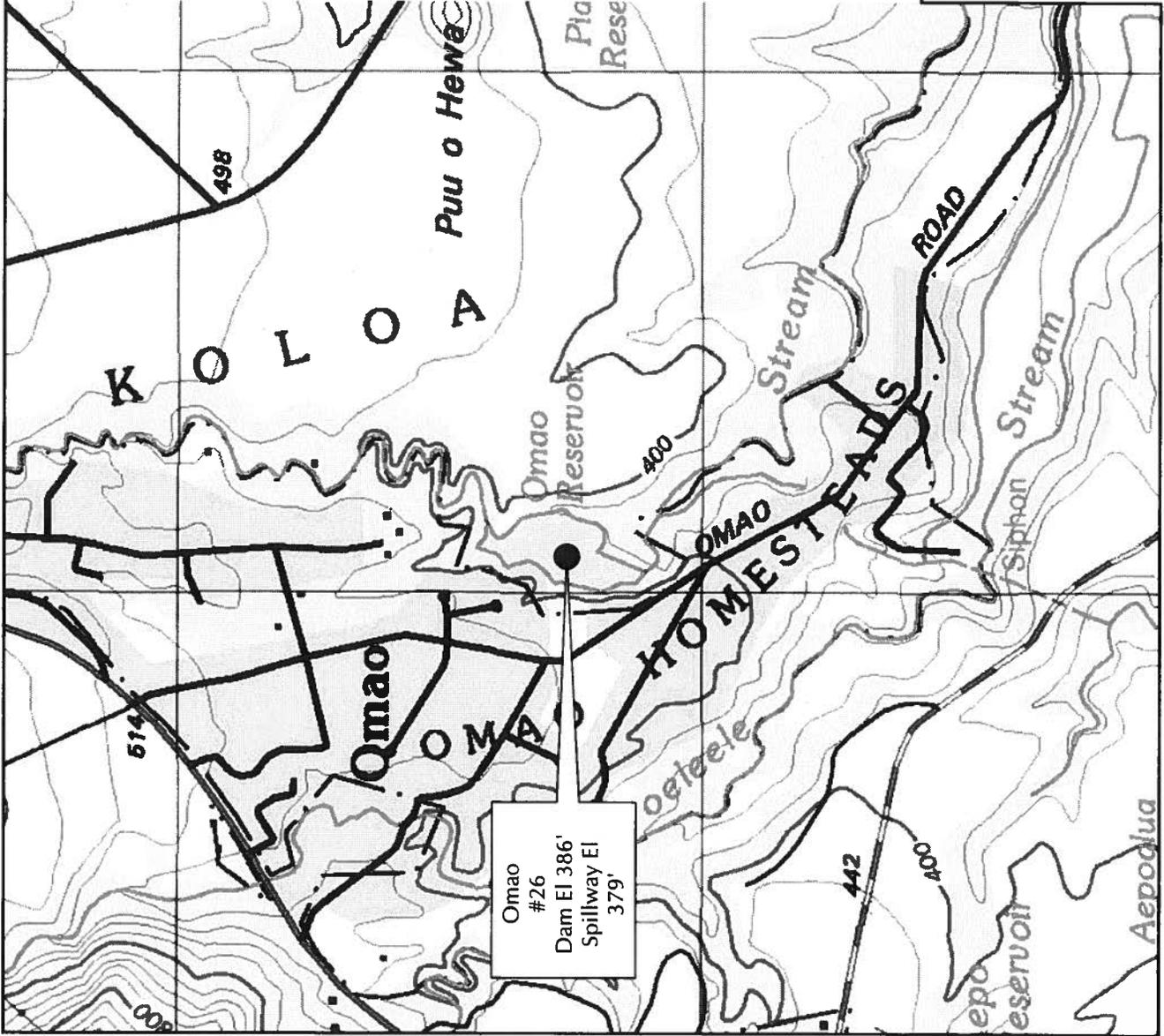
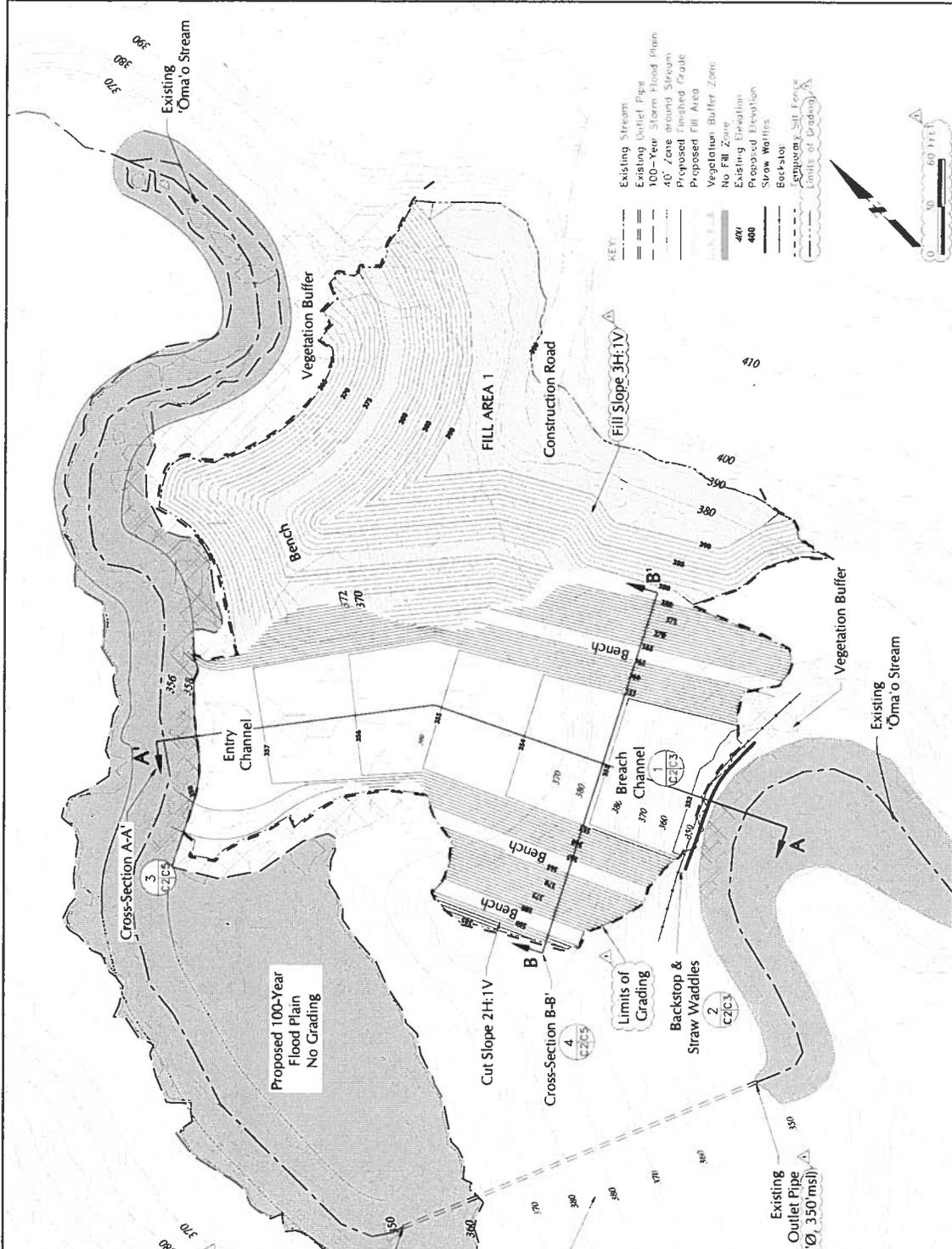


Figure 1



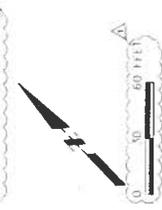
**Pertinent Information about Proposed Breach Channel**

- Approximate width of channel at top 220 ft
- Approximate width of channel at base 85 ft
- Approximate length of channel 330 ft
- Estimated gradient of channel 1.8%
- Maximum depth of flow in breach channel during 24-hour 100-year storm event 2.2 ft
- Maximum storage volume in reservoir during 24-hour PMF 7.9 ac-ft
- Maximum storage volume in reservoir during 6-hour PMF 8.6 ac-ft
- Estimated cut volume 19,950 cy
- Estimated fill volume in Fill Area 1 18,140 cy
- Estimated fill volume in Fill Area 2 1,810 cy



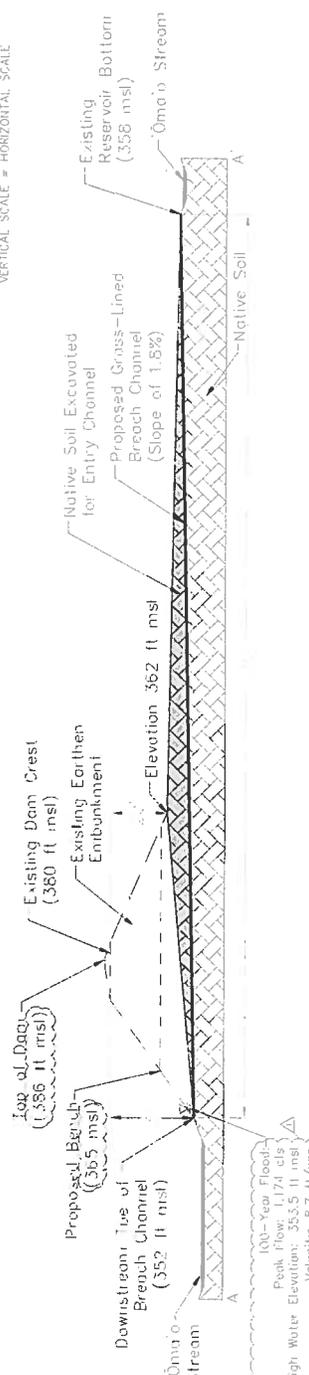
**KEY:**

- Existing Stream
- Existing Outlet Pipe
- 100-Year Storm Flood Plain
- 40' Zone around Stream
- Proposed Finished Grade
- Proposed Fill Area
- Vegetation Buffer Zone
- No Fill Zone
- Existing Elevation
- Proposed Elevation
- Stow Waddles
- Backstop
- Temporary Salt Fence
- Limit of Grading

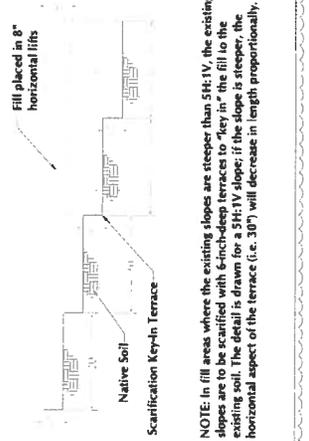


<p>ACADIA U.S., INC. 200 South King St. Salt Lake City, UT 84111 Phone: (801) 524-2121 Fax: (801) 524-2444</p>	<p><b>BREACH CONSTRUCTION PLAN</b></p> <p>'OMA'O DAM AND RESERVOIR ADJACENT AREAS</p>	<p>DATE: 11/12/2010 PROJECT NO: 090-111248</p> <p>SHEET NO: C-2</p>	<p>REVISION HISTORY</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Identified channels &amp; water resources; added grading lines; initial scale; added bench, vegetation buffer &amp; backstop waddles.</td> <td>09/27/10</td> <td>JCM</td> </tr> <tr> <td>2</td> <td>Added bench for its very reproduction scale.</td> <td>11/12/10</td> <td>JCM</td> </tr> </tbody> </table>	NO.	DESCRIPTION	DATE	APPROVED	1	Identified channels & water resources; added grading lines; initial scale; added bench, vegetation buffer & backstop waddles.	09/27/10	JCM	2	Added bench for its very reproduction scale.	11/12/10	JCM
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<p>THIS WORK WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTRACTORS OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p>DATE: 11/12/2010</p> <p><i>[Signature]</i></p>		<p>USE TO VERIFY REPRODUCTION SCALE</p> <p>THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION</p>													

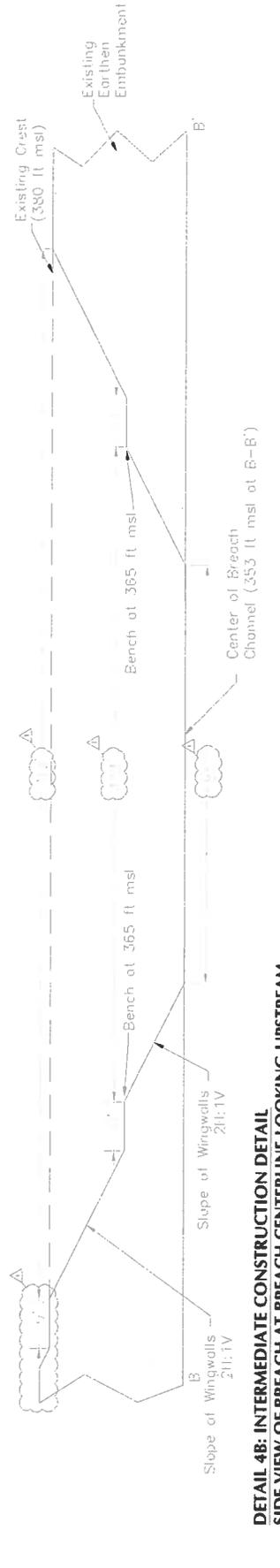
**3** **DETAIL 3: CROSS-SECTION A-A'**  
**PROFILE VIEW OF BREACH AT BREACH CENTERLINE**



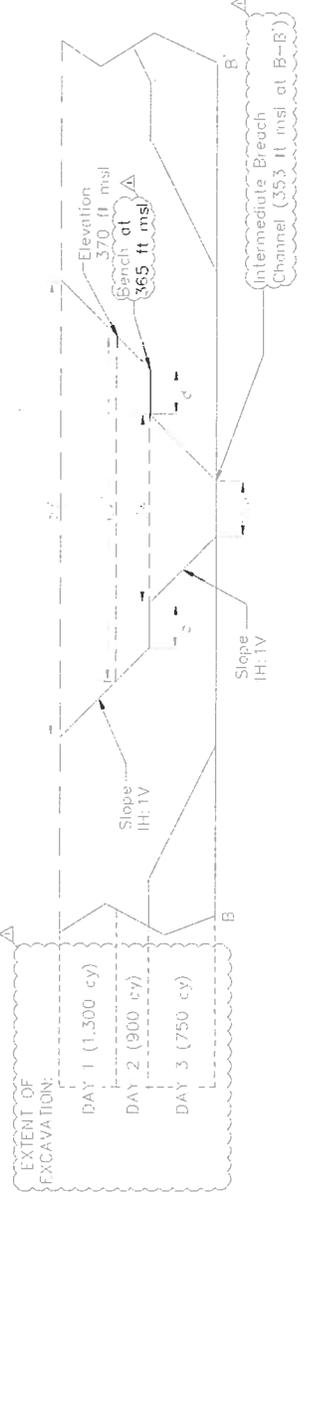
**8** **DETAIL 8: SCARIFICATION KEY-IN DETAIL**



**4** **DETAIL 4A: CROSS-SECTION B-B'**  
**SIDE VIEW OF BREACH AT BREACH CENTERLINE LOOKING UPSTREAM**



**4B** **DETAIL 4B: INTERMEDIATE CONSTRUCTION DETAIL**  
**SIDE VIEW OF BREACH AT BREACH CENTERLINE LOOKING UPSTREAM**



THIS WORK WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. DATE: 11/15/2019 SIGNATURE: [Signature] TITLE: [Title]		REVISION HISTORY <table border="1"> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPROVED</th> </tr> <tr> <td>1</td> <td>Added specifications for bridge, added measurement of breach channel, added intermediate breach channel, added bench for to verify construction plan.</td> <td>09/27/2019</td> <td>JCA</td> </tr> <tr> <td>2</td> <td></td> <td>11/12/2019</td> <td>JCA</td> </tr> <tr> <td>3</td> <td>Added bench for to verify construction plan.</td> <td></td> <td></td> </tr> </table>		NO.	DESCRIPTION	DATE	APPROVED	1	Added specifications for bridge, added measurement of breach channel, added intermediate breach channel, added bench for to verify construction plan.	09/27/2019	JCA	2		11/12/2019	JCA	3	Added bench for to verify construction plan.			BREACH CROSS-SECTIONS ŌMA'O DAM AND RESERVOIR KŌLOA, MAUI		DRAWN BY: [Name] APPROVED BY: [Name] REVISION NO.: [Number] DATE: [Date] PROJECT NO.: [Number] SHEET NO.: C-5	
NO.	DESCRIPTION	DATE	APPROVED																				
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2		11/12/2019	JCA																				
3	Added bench for to verify construction plan.																						
SCALE: 1" = 20 FEET VERTICAL SCALE = HORIZONTAL SCALE		ARCADE U.S., INC. 230 South King St. Suite 170 Honolulu, HI 96813 Phone: (808) 533-8313 Fax: (808) 533-8966		REGISTERED PROFESSIONAL ENGINEER No. 17161 Exp. 12/31/2021 JCA		SHEET NO.: C-5 Exhibit 3																	

CHAPTER 343 ANALYSIS

Project Name: Omao Reservoir (HI00113) – Dam removal

Dam Safety Construction/Alteration Permit No. 39

Reviewer: Denise Manuel

Date of Review: February 22, 2011

**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

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