

STATE OF HAWAII
Department of Land and Natural Resources
Engineering Division

January 24, 2014

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

**Approval to Execute a Use and Access Agreement with the
U.S. Fish and Wildlife Services for the Hanalei Stream Bank Restoration Project,
Kauai, Hawaii**

The Engineering Division desires to execute a Use and Access Agreement (UAA) (Exhibit 1), between the Department of Land and Natural Resources (Department) and the United States Fish and Wildlife Service (USFWS).

BACKGROUND:

During a large flood event in November 1995, the Hanalei River breached its left bank and created a split flow condition between the river and breach channel. Downstream of the breach channel, the USFWS maintains an irrigation diversion structure designed to supply water to the Hanalei National Wildlife Refuge. Through subsequent flooding events on the river, the breach channel has captured a larger portion of the flow in the Hanalei River, limiting supply to this diversion structure.

On March 3, 2012, Hanalei Valley was adversely affected by the heavy wind and rains, which caused extreme flooding and subsequent damages to the breached stream bank. The runoff through the breach has created a deep and wide footprint that continues to move laterally towards the adjacent residential buildings, while continuing to wash away valuable groundcover and transporting sediment into Hanalei Bay. Also, the worsened condition of the breach has resulted in substantial loss of water in the main stream where the diversion structure sends needed water to the Hanalei taro farmers and the USFWS refuge grounds.

On March 6, 2012, Governor Neil Abercrombie signed a Proclamation which “determined that a major disaster and catastrophe” occurred on Oahu and Kauai due to heavy rains, high winds, and flooding that started on March 3, 2012. On March 8, 2012 and March 22, 2012, the Governor signed Supplemental Proclamations. The Proclamation and Supplemental Proclamations exempts this project from the State of Hawaii, Hawaii Revised Statutes, Chapter 343.

The Department is currently in the planning and design phase of a project that will repair this portion of the Hanalei River stream bank and plans to advertise and bid the project for construction in January 2014 and start construction in April 2014. CIP funding from Act 164 SLH 2011 D-3, Act 160 SLH 2012 D-3, and Act 134 SLH 2013 H-5 will be used for the construction of the project. The funds from Act 164 SLH 2011 D-3 will lapse at the end of June 2014, thus the importance of awarding a construction contract in early 2014.


Upon completion of the project, USFWS has verbally agreed to monitor, maintain, and repair this restored portion of the river bank, which is located on state-owned land to prevent future breaching of the bank. A final draft of the UAA was reviewed and approved by the State Attorney General's office. The final UAA was sent to USFWS on December 23, 2013 for their review and signature. The construction of the project is contingent upon USFWS signing and agreeing to the terms in the UAA by January 31, 2014.

The UAA places ownership of the reinforced earthen berm structure under the USFWS, who shall be solely responsible for any repair and maintenance. The USFWS shall also be responsible for conducting regular monitoring of the structure. However, since USFWS personnel do not have any experience with such structures, the Department through its contractor will provide assistance to the USFWS in monitoring the structure for a three year period. Any assistance provided will be done at the sole discretion of the Department and is subject to funds available from Act 134, SLH 2013.

RECOMMENDATION:

1. That the Board authorize the Chairperson, subject to review and approval by the USFWS, to enter into a Use and Access Agreement with the USFWS as it pertains to the project.
2. That the Board authorize the Chairperson, subject to the mutual agreement of terms between the Department and the USFWS and the review and approval by the Department of the Attorney General, to enter into supplemental agreements to the UAA with the USFWS to address unforeseen conditions and sign the necessary documents as it pertains to the project.

Respectfully submitted,



CARTY S. CHANG
Chief Engineer

Exhibit 1

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR., Chairperson
Board of Land and Natural Resources

in Exhibit "B". Any actions by the Grantor pursuant to this section shall be:

- 1) Undertaken at its sole discretion;
- 2) Conducted within a period of no longer than three years commencing from the completion of the construction of the Reinforced Earthen Berm Structure, after which the USFWS shall assume full responsibility for the monitoring of the Reinforced Earthen Berm structure; and
- 3) Subject to the availability of funds appropriated from Act 134, Session Law of Hawaii 2013.

Notwithstanding any action undertaken by the Grantor pursuant to this section, the USFWS shall, at its sole cost and expense, inspect and monitor the reinforced earthen berm structure, maintain the structure and assist in keeping the Premises in a safe, clean, sanitary, and orderly condition. The USFWS shall not make or knowingly permit or suffer any waste, strip, spoil, nuisance or unlawful, improper, or offensive use of the Premises, nor damage, undermine or otherwise destroy any portion of the Property and the Premises, including, without limitation, the Reinforced Earthen Berm structure or any of Grantor's improvements situated on or near the Premises or any equipment or appurtenances relating thereto. The USFWS shall, at its sole cost and expense, repair, restore and reconstruct that portion of said Property and Premises so damaged, undermined or

Premises area; and 2) any failure on the part of the USFWS to maintain the Premises and areas adjacent thereto in the USFWS's use and control, and including any accident, fire or nuisance, growing out of or caused by any failure on the part of the USFWS to maintain the Premises in a safe condition; and 3) from and against all actions, suits, damages, and claims by whomsoever brought or made by reason of the USFWS's non-observance or non-performance of any of the terms, covenants, and conditions of this Agreement or the rules, regulations, ordinances, and laws of the federal, state, municipal or county governments.

5. **Work within or Affecting the Premises.** If the Grantor decides to perform work of any kind within, on, over, under, across, near, or affecting the Premises, the Grantor will coordinate such work with the USFWS. The USFWS shall not unreasonably prevent the Grantor from performing such work, provided, however, that the Grantor will take certain protective measures to assure that such work does not unreasonably interfere with the USFWS's use of the Premises.

6. **Assignment.** The USFWS's rights under this Agreement shall not be sold, assigned, conveyed, leased, mortgaged, or otherwise transferred or disposed of, directly or by operation of law, except with the prior written consent of the Grantor.

reasonable costs and expenses incurred in performing said cure or remedy to the USFWS, who shall pay said costs and expenses to the Grantor within 60 days after receiving notice from the Grantor. If the USFWS fails to cure said defaults or failures to perform within the required time period, the Grantor may terminate this Agreement and the USFWS's rights under this Agreement to use the Premises. If the USFWS defaults or fails to perform as required under this Agreement, the Grantor shall be entitled to all remedies available under this Agreement and by law, which remedies shall be cumulative and not exclusive.

8. **Termination.** This Agreement may be cancelled in whole or in part at any time by mutual written agreement of the parties hereto.

9. **Hazardous Materials.**

a. **Grantor's pre-approval required.** The USFWS shall not cause or permit the presence, escape, disposal, discharge or release of any hazardous materials except as permitted by law. The USFWS shall not allow the storage or use of such materials in any manner not sanctioned by law or by the highest standards prevailing in the industry for the storage and use of such materials, nor allow to be brought onto and/or into the Premises any such materials except to use in the ordinary course of the USFWS's business, and then only after written notice is given to the Grantor of the identity of such materials and upon the

Grantor or existing on the Premises prior to the effective date of this Agreement, upon termination of this Agreement, the USFWS shall, at its sole cost and expense, if required by law, clean up and decontaminate the Premises and remove all hazardous materials therefrom, including, without limitation, clean-up of surface and ground waters and making the soil free and clear of all such contaminants and hazardous material.

10. **Compliance With Laws.** The USFWS, at all times during the term of this Agreement, shall comply with all of the requirements of the federal, state, and county laws, statutes, ordinances, rules and regulations, now in force or which may hereafter be in force.

11. **Binding Effect.** All provisions contained in this Agreement shall be binding upon and inure to the benefit of the respective parties, their successors and permitted assigns, and officers, agents, and employees.

12. **Singular, Plural.** All words used herein in the singular number shall extend to and include the plural. All words used in any gender shall extend to and include all gender.

13. **Headings.** The headings and captions herein are for convenience of reference only and are not intended to fully describe, define or limit the provisions of this Agreement of which they may pertain.

14. **Attorney's Fees and Expenses.** In case the Grantor

this failure shall continue for a period of more than sixty (60) calendar days after delivery by the Grantor of a written notice of breach or default, by personal service, registered mail or certified mail to the USFWS at its last known address and to each mortgagee or holder of record having a security interest in the Premises, the Grantor may, subject to the provisions of section 171-21, Hawaii Revised Statutes, at once re-enter the Premises, or any part, and upon or without the entry, at its option, terminate this Agreement without prejudice to any other remedy or right of action for any preceding or other breach of contract; and in the event of termination, at the option of Grantor, all improvements shall remain and become the property of the Grantor or shall be removed by USFWS.

17. **Withdrawal.** The Grantor reserves the right to withdraw the Reinforced Earthen Berm structure for public use or purposes, at any time during this Agreement upon the giving of reasonable notice by the Grantor and without compensation.

18. **No Mortgage.** The USFWS shall not mortgage or pledge the Premises, any portion, or any interest in this Reinforced Earthen Berm structure without the prior written approval of the Chairperson of the Board of Land and Natural Resources and any mortgage or pledge without such approval shall be null and void.

19. **Environmental Impact Regulations.** The USFWS shall comply with all applicable federal and state environmental impact regulations.

STATE OF HAWAII

APPROVED AS TO FORM:


Deputy Attorney General

Dated: 12-9-13

Approved by the Board of
Land and Natural Resources
at its meetings held on

By _____
Name: William J. Aila, Jr.
Title: Chairperson, Board of
Land and Natural Resources

**THE UNITED STATES FISH AND
WILDLIFE SERVICE**

**APPROVED AS TO FORM
AND LEGALITY:**

Deputy Corporation Counsel

Dated: _____

By _____
Name: _____
Title: Director

Exhibit A
Site Access & Staging Plan

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF ENGINEERING

JOB NO. 500CK54A

HANAIEI STREAM BANK RESTORATION

HANAIEI, KAUAI, HAWAII

TAX MAP KEY 4-5-002:034

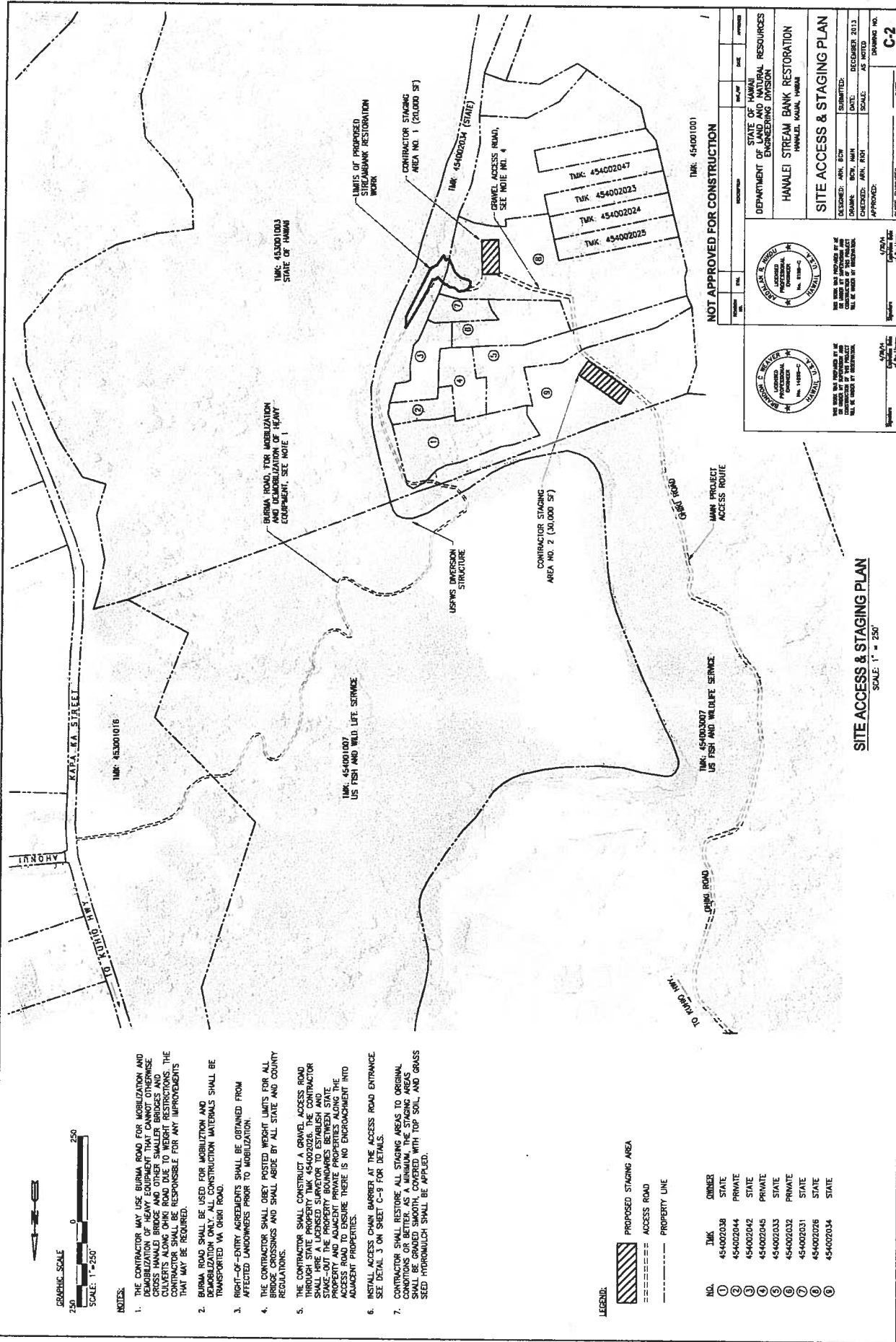
PREPARED BY:



1001 BERKELEY BLVD. SUITE 1000
 HONOLULU, HAWAII 96813

NOT APPROVED FOR CONSTRUCTION 12/4/2013

LOCATION MAP		INDEX TO DRAWINGS		APPROVALS
		DWG. NO.	DESCRIPTION	<p>CHRYL A. CHANG, P.E. ENGINEERING DIVISION DEPARTMENT OF LAND AND NATURAL RESOURCES STATE OF HAWAII</p> <p>DATE _____</p>
		SHT. NO.	TITLE SHEET	
T-1	1	GENERAL NOTES		
C-1	2	SITE ACCESS & STAGING PLAN		
C-2	3	SITE PLAN		
C-3	4	PROFILES		
C-4	5	CROSS SECTIONS		
C-5	6	CROSS SECTIONS		
C-6	7	CROSS SECTIONS		
C-7	8	TYPICAL SECTIONS & DETAILS		
C-8	9	DETAILS		
C-9	10	DETAILS		
C-10	11	EROSION CONTROL PLAN		
C-11	12	EROSION CONTROL DETAILS		
C-12	13	BORING LOGS		
C-13	14	LANDSCAPE PLAN		
L-1	15			



- NOTES:**
1. THE CONTRACTOR MAY USE BURMA ROAD FOR MOBILIZATION AND DEMOBILIZATION OF HEAVY EQUIPMENT. OTHERWISE, CROSS HAWAII BRIDGE AND OTHER SMALLER BRIDGES AND CULVERTS ALONG OHKI ROAD DUE TO WEIGHT RESTRICTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY IMPROVEMENTS THAT MAY BE REQUIRED.
 2. BURMA ROAD SHALL BE USED FOR MOBILIZATION AND DEMOBILIZATION ONLY. ALL CONSTRUCTION MATERIALS SHALL BE TRANSPORTED VIA OHKI ROAD.
 3. RIGHT-OF-ENTRY AGREEMENTS SHALL BE OBTAINED FROM AFFECTED LANDOWNERS PRIOR TO MOBILIZATION.
 4. THE CONTRACTOR SHALL OBEY POSTED WEIGHT LIMITS FOR ALL BRIDGES AND SHALL ABIDE BY ALL STATE AND COUNTY REGULATIONS.
 5. THE CONTRACTOR SHALL CONSTRUCT A GRAVEL ACCESS ROAD ALONG BURMA ROAD AND A GRAVEL DIVERSION STRUCTURE TO BE LOCATED AT THE POINT OF ACCESS TO THE STAGING AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND AGREEMENTS FROM THE STATE AND ADJACENT PRIVATE PROPERTIES ALONG THE BURMA ROAD TO ENSURE THERE IS NO ENCROACHMENT INTO ADJACENT PROPERTIES.
 6. INSTALL ACCESS CHAIN BARRIER AT THE ACCESS ROAD ENTRANCE. SEE DETAIL 3 ON SHEET C-9 FOR DETAILS.
 7. CONTRACTOR SHALL RESTORE ALL STAGING AREAS TO ORIGINAL CONDITIONS OR BETTER. AS A MINIMUM, THE STAGING AREAS SHALL BE GRADED SMOOTH, COVERED WITH TOP SOIL, AND GRASS SEED HYDROMULCH SHALL BE APPLIED.

LEGEND:

	PROPOSED STAGING AREA
	ACCESS ROAD
	PROPERTY LINE

NO.	T.M.K.	OWNER
1	45-0002038	STATE
2	45-0002044	PRIVATE
3	45-0002042	STATE
4	45-0002045	PRIVATE
5	45-0002033	STATE
6	45-0002032	PRIVATE
7	45-0002031	STATE
8	45-0002026	STATE
9	45-0002034	STATE

NOT APPROVED FOR CONSTRUCTION

T.M.K. 45-0001001

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

HAWAII STREAM BANK RESTORATION
HAWAII, MAUI, MOLOKAI

SITE ACCESS & STAGING PLAN

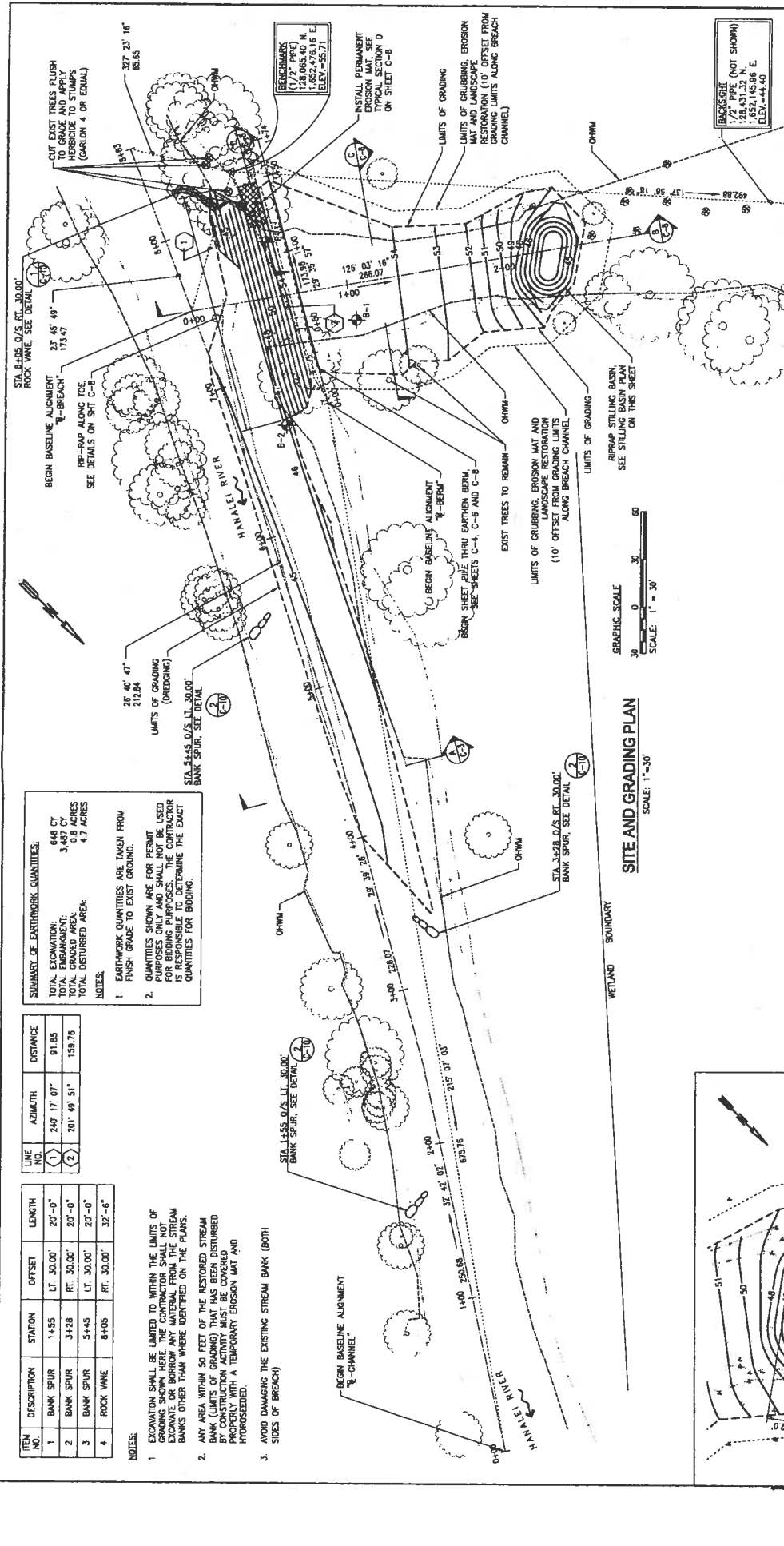
DESIGNED: APR. 2013
DRAWN: BOB, AMY
CHECKED: APR. 2013
SCALE: AS NOTED
DATE: DECEMBER 2013

APPROVED: _____ DATE: _____
CREW ENGINEER: _____ DRAWING NO. **C-2**

THE WORK HAS BEEN REVIEWED BY ME AS A PROFESSIONAL ENGINEER AND I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY OF ANY KIND FOR THE WORK OR THE RESULTS THEREOF.

THE WORK HAS BEEN REVIEWED BY ME AS A PROFESSIONAL ENGINEER AND I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY OF ANY KIND FOR THE WORK OR THE RESULTS THEREOF.

SITE ACCESS & STAGING PLAN
SCALE: 1" = 250'



SUMMARY OF EARTHWORK QUANTITIES:

TOTAL EXCAVATION:	644 CY
TOTAL EMBANKMENT:	3,487 CY
TOTAL DISTURBED AREA:	4.7 ACRES

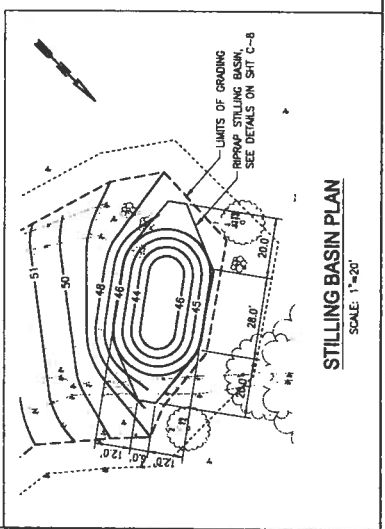
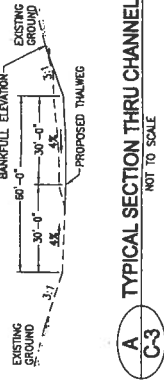
NOTES:

- EARTHWORK QUANTITIES ARE TAKEN FROM FINISH GRADE TO EXIST GROUND.
- QUANTITIES SHOWN ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT BE USED FOR BIDDING PURPOSES. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE EXACT QUANTITIES FOR BIDDING.

LINE NO.	AZIMUTH	DISTANCE
1	247° 17' 07"	91.85
2	201° 49' 51"	159.76

ITEM NO.	DESCRIPTION	STATION	OFFSET	LENGTH
1	BANK SPUR	1+55	LT. 30.00'	20'-0"
2	BANK SPUR	3+28	RT. 30.00'	20'-0"
3	BANK SPUR	5+45	LT. 30.00'	20'-0"
4	ROCK VANE	8+05	RT. 30.00'	32'-6"

- NOTES:**
- EXCAVATION SHALL BE LIMITED TO WITHIN THE LIMITS OF EXCAVATE OR BORROW ANY MATERIAL FROM THE STREAM BANKS OTHER THAN WHERE IDENTIFIED ON THE PLANS.
 - ANY AREA WITHIN 50 FEET OF THE RESTORED STREAM BANK (LIMITS OF GRADING) THAT IS DISTURBED BY CONSTRUCTION ACTIVITY MUST BE COVERED PROPERLY WITH A TEMPORARY EROSION MAT AND HYDROSEDED.
 - AVOID DAMAGING THE EXISTING STREAM BANK (BOTH SIDES OF BREACH)



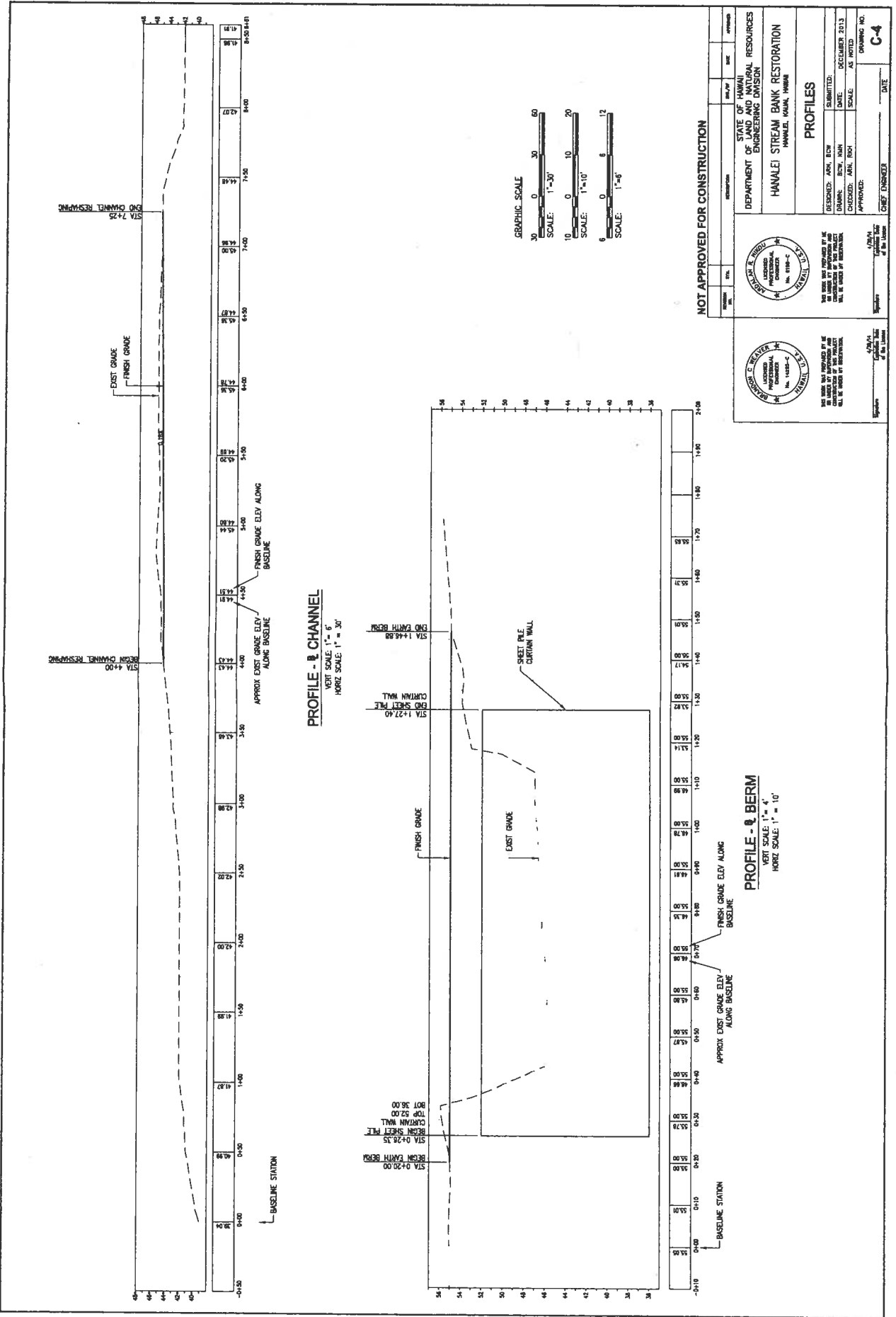
APPROVED FOR CONSTRUCTION

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 ENGINEERING DIVISION
HANALEI STREAM BANK RESTORATION
 HANALEI, MAUI, HAWAII

SITE AND GRADING PLAN

DESIGNED: AMN, BCW
 DRAWING: BCW, AMN
 CHECKED: AMN, ROSE
 APPROVED: [Signature]

DATE: DECEMBER 2013
 SCALE: AS NOTED
 DRAWING NO. **C-3**
 SHEET NO. 4 OF 15 SHEETS



NOT APPROVED FOR CONSTRUCTION

DESIGNED: ARN, BOW	SUBMITTED:
DRAWN: BOW, NAKH	DATE: DECEMBER 2013
CHECKED: ARN, ROH	SCALE: AS NOTED
APPROVED:	DRAWING NO. C-4
DATE:	

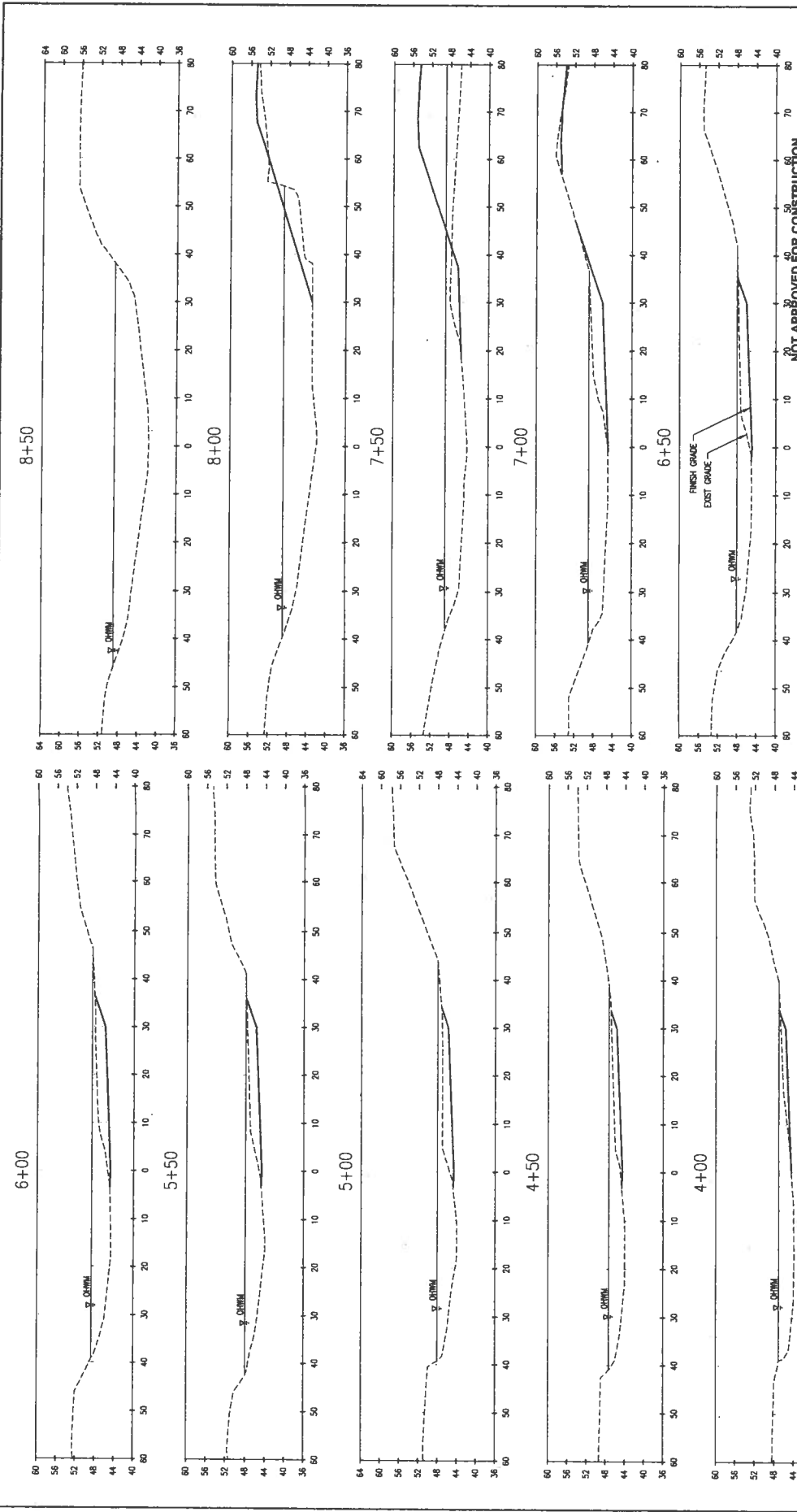
STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 ENGINEERING DIVISION
 HANAIEI STREAM BANK RESTORATION
 HANAIEI, MAUI, HAWAII

PROFILES

THE SEAL AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER ARE REQUIRED FOR ALL WORKS OF RESTORATION.

REGISTERED PROFESSIONAL ENGINEER
 LICENSE NO. 10385-C
 SERIAL

REGISTERED PROFESSIONAL ENGINEER
 LICENSE NO. 10385-C
 SERIAL



CROSS SECTIONS - 8" CHANNEL
SCALE: 1"=10'

NOT APPROVED FOR CONSTRUCTION

DESIGNED: AMN, BSW	SUBMITTED:
DRAWN: BSW, AMN	DATE: DECEMBER 2013
CHECKED: AMN, RCH	SCALE:
APPROVED:	DRAWING NO. C-5
CHIEF ENGINEER	DATE:

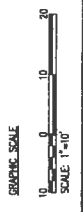
CROSS SECTIONS

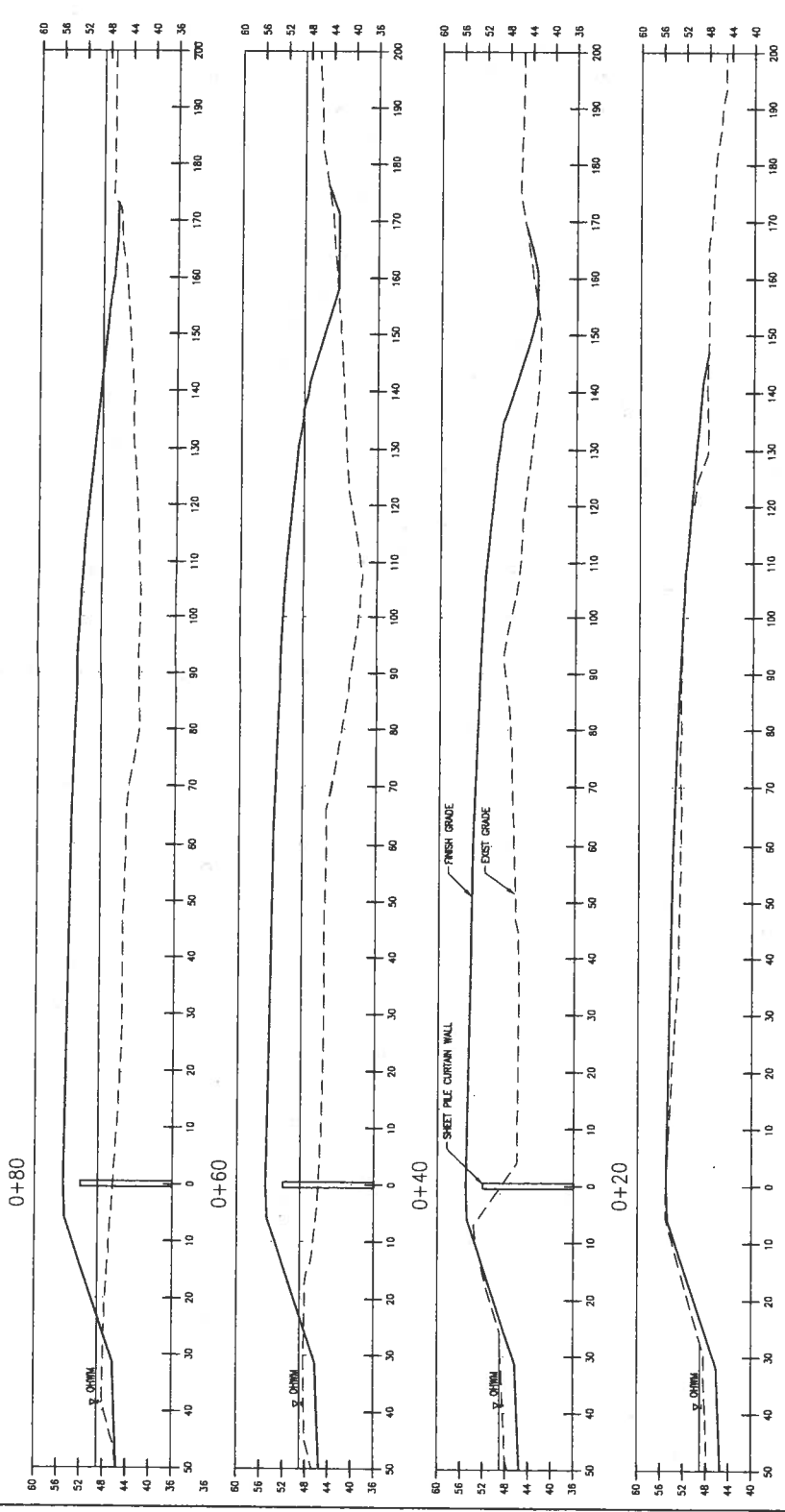
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
HANAIEI STREAM BANK RESTORATION
HANAIEI, MAUI, HAWAII

AMN
Professional Engineer
No. 11252-C

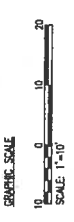
BSW
Professional Engineer
No. 8184-C

THE WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII. I HEREBY CERTIFY THAT I AM THE AUTHOR OR DESIGNER OF THE WORK AND THAT I AM NOT PROVIDING ENGINEERING SERVICES TO ANY OTHER PARTY.



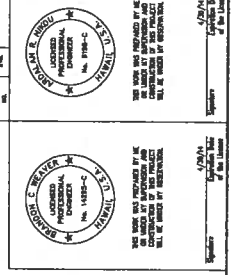


CROSS SECTIONS - 4' BERM
SCALE: 1"=10'



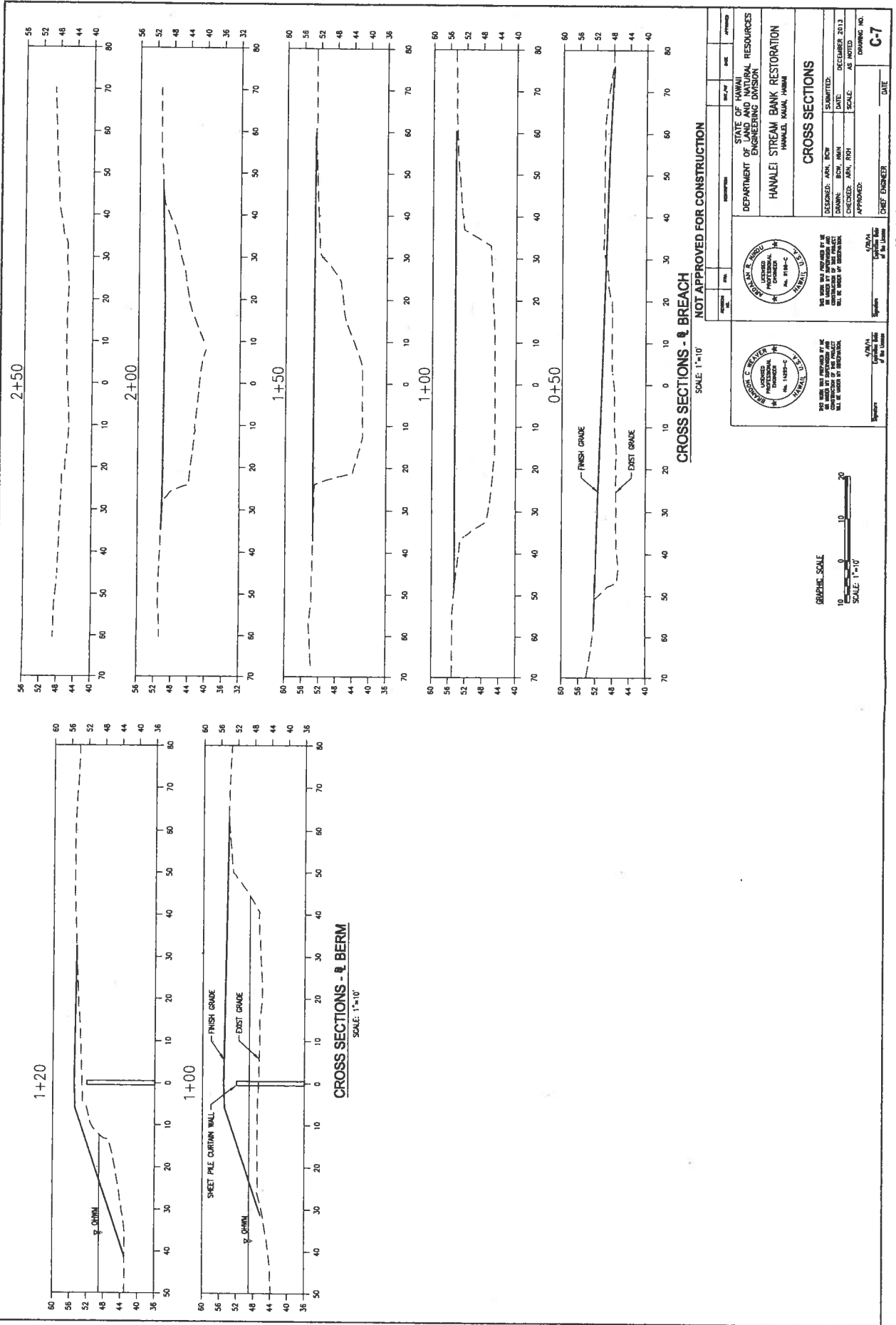
NOT APPROVED FOR CONSTRUCTION

DESIGNED: AHN, BTV	SUBMITTED:
DRAWN: BCTW, INAN	DATE: DECEMBER 2013
CHECKED: AHN, BTV	SCALE: AS NOTED
APPROVED:	DRAWING NO. C-8
CHIEF ENGINEER	DATE:



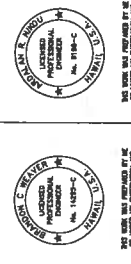
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
HANAIEI STREAM BANK RESTORATION
HANAIEI, MAUI, HAWAII

CROSS SECTIONS



CROSS SECTIONS - @ BREACH
SCALE: 1"=10'

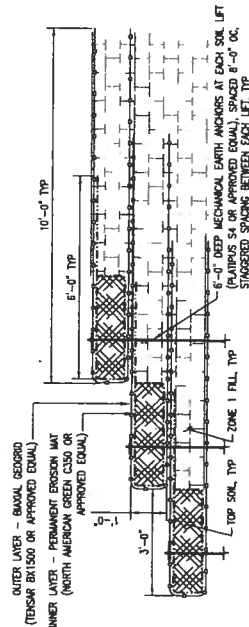
CROSS SECTIONS - @ BERM
SCALE: 1"=10'



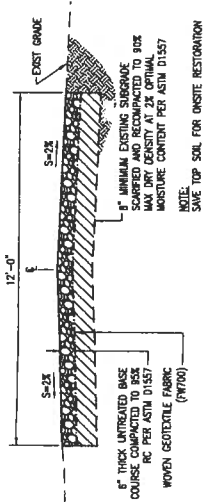
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
HAWAII STREAM BANK RESTORATION
HAWAII, MAUI, HAWAII

DESIGNED: AMN, BCF
DRAWN: BCF, AMN
CHECKED: AMN, ROY
APPROVED:
SUBMITTED: _____ DATE: _____
DECEMBER 2013
SCALE: AS NOTED
DRAWING NO. **C-7**

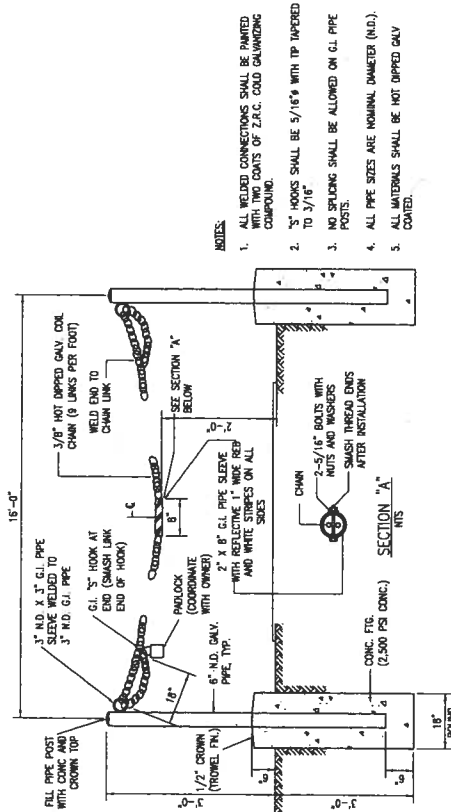




1 LIFT DETAIL
NOT TO SCALE
C-9



2 GRAVEL ROAD TYPICAL SECTION
NOT TO SCALE
C-9



3 ACCESS CHAIN BARRIER DETAIL
NOT TO SCALE
C-9

- NOTES:**
1. ALL WELDED CONNECTIONS SHALL BE FINISHED WITH TWO COATS OF Z.A.C. COLD GALVANIZING COMPOUND.
 2. 5" HOOKS SHALL BE 5/16" WITH TP IMPERED TO 3/16"
 3. NO SPACING SHALL BE ALLOWED ON G.I. PIPE POSTS.
 4. ALL PIPE SIZES ARE NOMINAL DIAMETER (N.D.).
 5. ALL MATERIALS SHALL BE HOT DIPPED GALV COATED.

NOT APPROVED FOR CONSTRUCTION

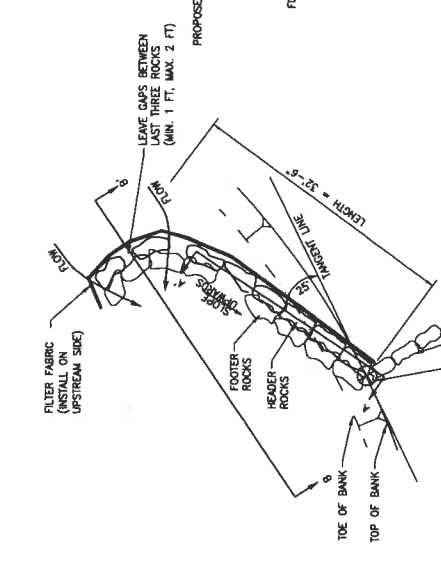
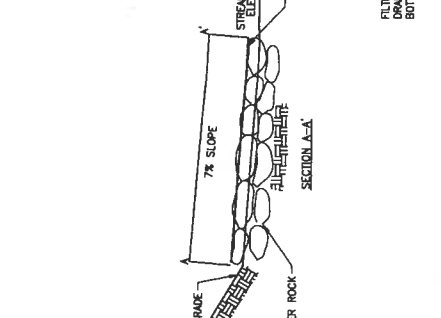
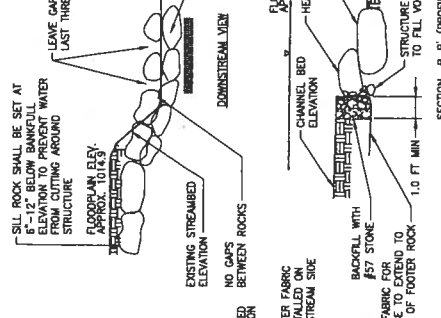
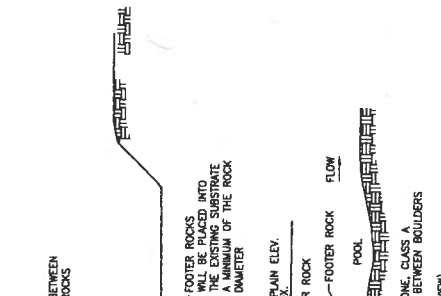
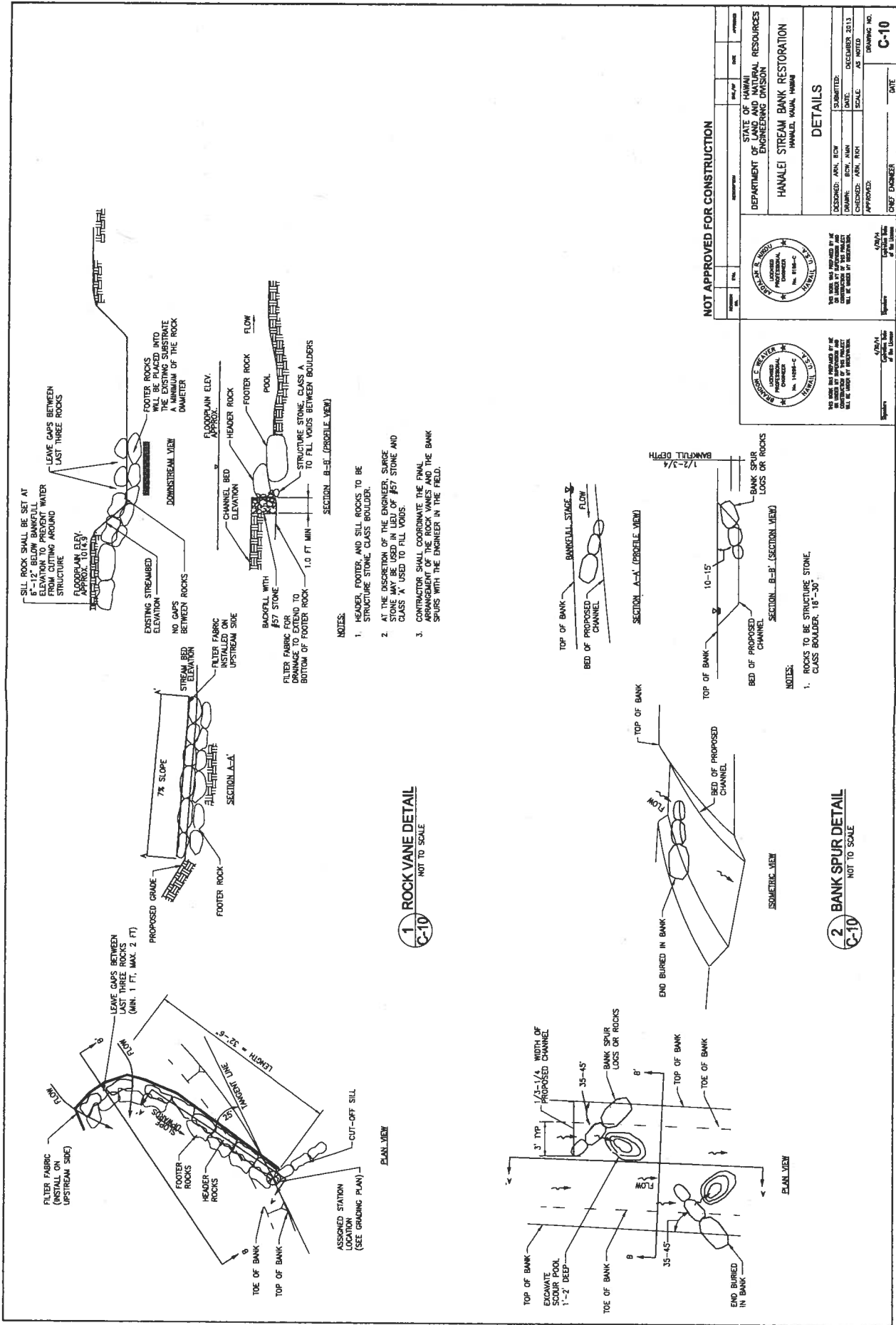
DESIGNED: ARN, BOW	DATE: DECEMBER 2013
DRAWN: BOW, HAN	SCALE: AS NOTED
CHECKED: ARN, BOW	APPROVED:
SUBMITTED: _____ DATE: _____	
DRAWING NO. _____	
DRAFTING NO. _____	
DATE: _____	
CHIEF ENGINEER _____	

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
HANAIEI STREAM BANK RESTORATION
HANAIEI, HAWAII, HAWAII

DETAILS

THE USER OF THIS DRAWING IS RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION AND THE RESULTS OF ANY INVESTIGATION OR TESTS THAT MAY BE REQUIRED BY REGULATORY AGENCIES.

THE USER OF THIS DRAWING IS RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION AND THE RESULTS OF ANY INVESTIGATION OR TESTS THAT MAY BE REQUIRED BY REGULATORY AGENCIES.



NOTES:

1. HEADER, FOOTER, AND SILL ROCKS TO BE STRUCTURE STONE, CLASS BOULDER.
2. AT THE DISCRETION OF THE ENGINEER, SURGE STONE MAY BE USED IN LIEU OF #57 STONE AND CLASS 'A' USED TO FILL VOIDS.
3. CONTRACTOR SHALL COORDINATE THE FINAL ARRANGEMENT OF THE ROCK VANS AND THE BANK SPURS WITH THE ENGINEER IN THE FIELD.

1 ROCK VANE DETAIL
NOT TO SCALE

2 BANK SPUR DETAIL
NOT TO SCALE

NOT APPROVED FOR CONSTRUCTION

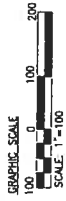
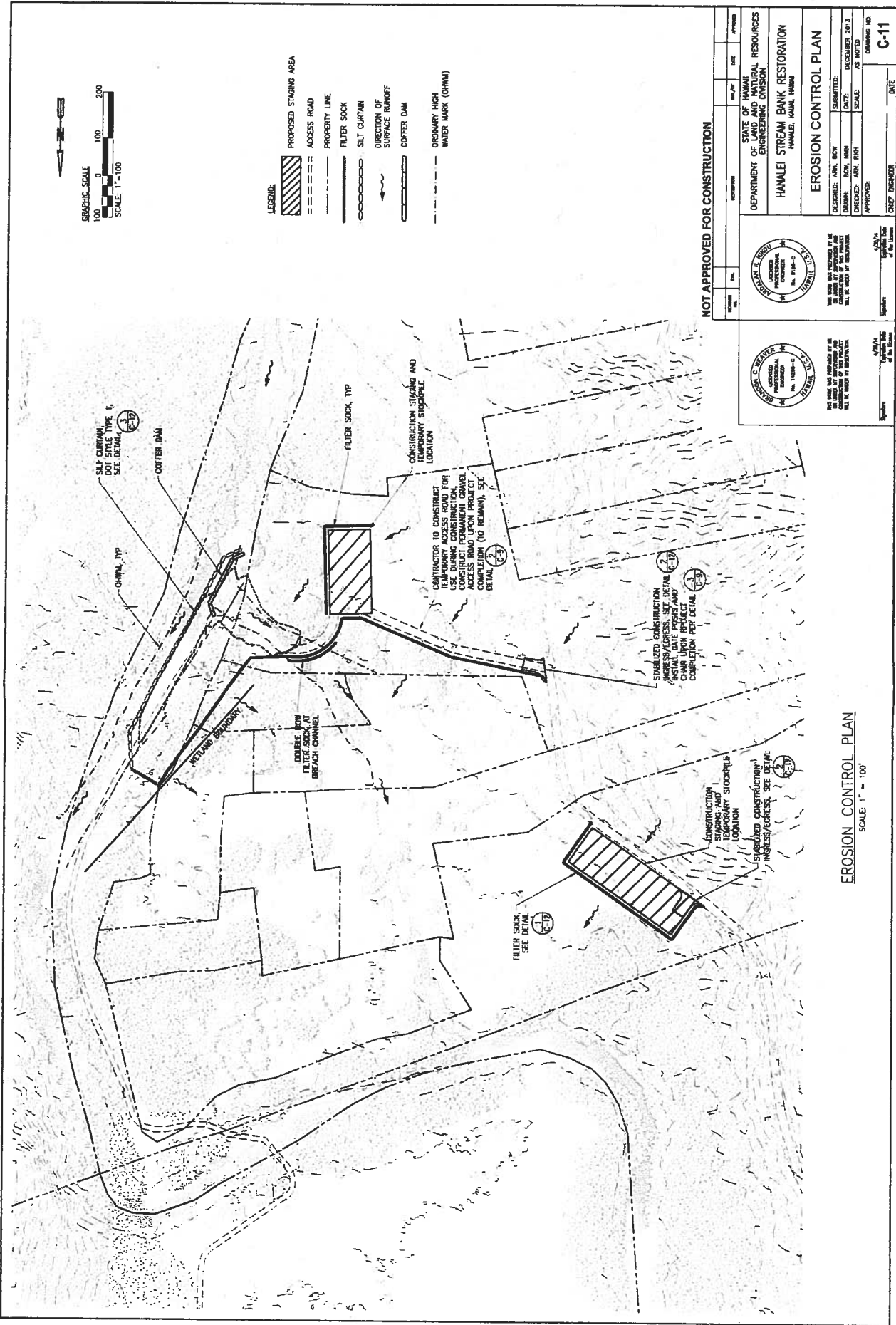
DESIGNED: APR, 02/09	DRAWN: BCW, ANAN	CHECKED: APR, 08/09	APPROVED: [Signature]
DATE: DECEMBER 2013	SCALE: AS NOTED	DRAWING NO. C-10	DATE: [Blank]

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
HANAIEI STREAM BANK RESTORATION
HANAUEL, HAWAII, HAWAII

DETAILS

REGISTERED PROFESSIONAL ENGINEER
No. 10001
Exp. 12/31/14

REGISTERED PROFESSIONAL ENGINEER
No. 10001
Exp. 12/31/14



- LEGEND:
- PROPOSED STAGING AREA
 - ACCESS ROAD
 - PROPERTY LINE
 - FILTER SOCK
 - SILT CURTAIN
 - DIRECTION OF SURFACE RUNOFF
 - COFFER DAM
 - ORDINARY HIGH WATER MARK (OHWM)

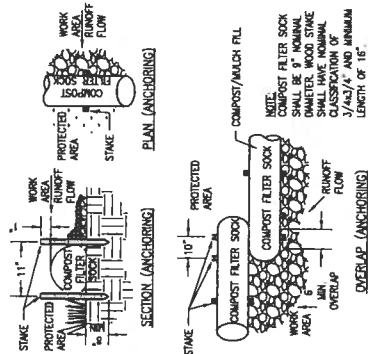
NOT APPROVED FOR CONSTRUCTION

STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION HAWAII STREAM BANK RESTORATION HAWAII, HAWAII	DATE	APPROVED
EROSION CONTROL PLAN		
DESIGNED: ANR, BOW	DATE: DECEMBER 2013	SUBMITTED:
DRAWN: BOW, MAN	SCALE: AS NOTED	CHECKED: ANR, BOW
APPROVED:		DRAWING NO. C-11
CHIEF ENGINEER		DATE

EROSION CONTROL PLAN
 SCALE: 1" = 100'

COMPOST FILTER SOCK NOTES:

- INSTALLATION:
 - FOR MULTI-SOCK USE, PLACE SOCKS END-TO-END AND INTERLOCK THE ENDS.
 - ANCHOR FILTER SOCKS TO GROUND USING STAKES AS SHOWN. IF SITE STAKING IS NOT POSSIBLE, HEAVY FILTER SOCKS FOR STABILIZATION DURING RAINFALL EVENTS.
- MATERIAL FOR COMPOST SOCKS MAY BE LEFT AT THE SITE AND USED AS A SOIL MEMBRANE.
- INSPECTION & MAINTENANCE:
 - PROPERLY MAINTAIN ALL EROSION CONTROL FEATURES. INSPECT, REMOVE DEBRIS COLLECTED, AND MAKE NECESSARY REPAIRS TO ALL EROSION CONTROL FEATURES DURING INTERVALS.
 - WEEKLY DURING DRY PERIODS.
 - WITHIN 24 HOURS OF ANY RAINFALL OF 0.5 INCH OR GREATER WHICH OCCURS IN A 24-HOUR PERIOD.
 - IF ANY UNUSUAL ACCUMULATED DEBRIS IS OBSERVED, DAMAGED OR NOT OPERATING PROPERLY AS SPECIFIED BY THE OFFICER-IN-CHARGE.
 - REMOVE ALL ACCUMULATED DEBRISH AND DEBRIS FROM VICINITY OF FILTER SOCK(S) AFTER EACH STORM EVENT OR WHENEVER THE SEDIMENT HAS ACCUMULATED MORE THAN 1/3 OF THE SOCK HEIGHT.



1. FILTER SOCK DETAIL

NOT TO SCALE

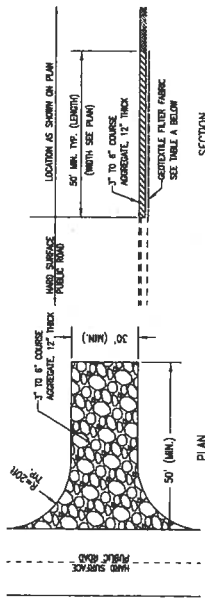
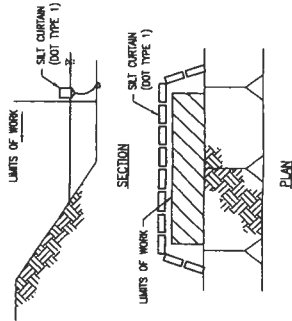


TABLE A. GEOTEXTILE REQUIREMENTS

PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLER BURST STRENGTH	4.30 LB (ASTM D3786)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-60 (U.S. STD. SIEVE, CW-02215)

2. CONSTRUCTION INGRESS/EGRESS DETAIL

NOT TO SCALE



3. SILT CURTAIN DETAIL

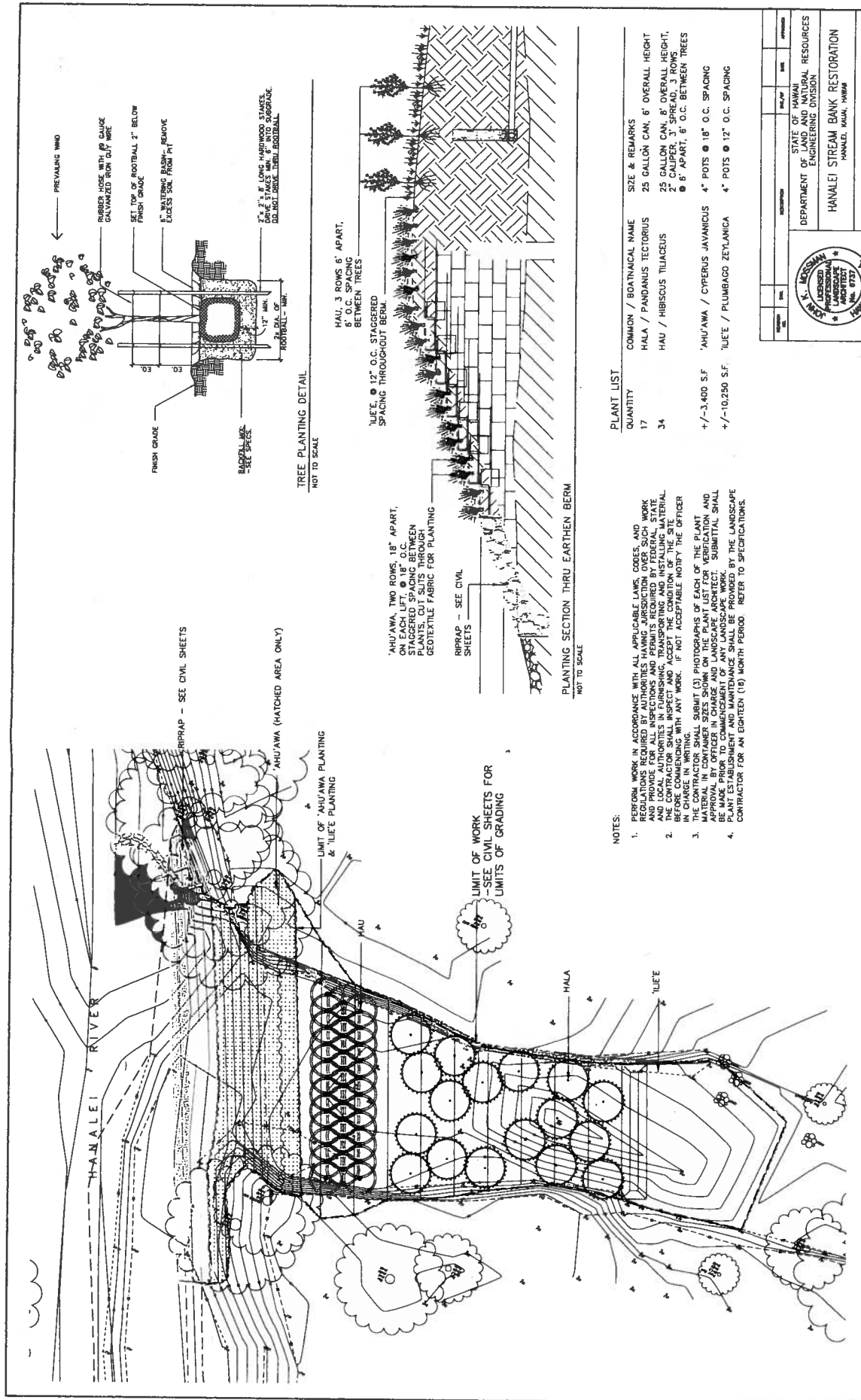
NOT TO SCALE

BEST MANAGEMENT PRACTICES (BMPs):

- THE EROSION CONTROL PLAN ILLUSTRATES MINIMUM/CONCEPTUAL MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS. THESE MEASURES ARE TO BE IMPLEMENTED PRIOR TO THE COMMENCEMENT OF ANY DISTURBANCE. ALL EROSION CONTROL MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- CONSTRUCTION WORK SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF CLEARED SURFACE AREA. PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED. TEMPORARY OR PERMANENT STABILIZATION SHALL BE APPLIED AS SOON AS PRACTICAL AFTER FINAL GRADING. TEMPORARY OR PERMANENT STABILIZATION SHALL BE APPLIED AS SOON AS PRACTICAL AFTER FINAL GRADING.
- ALL BMPs SHALL BE INSPECTED AT THE START AND END OF EACH WORK DAY AND REPAIRED AS NECESSARY.
- THE CONTRACTOR SHALL ENSURE THAT ALL TRUCKS OF CONSTRUCTION VEHICLES ARE SUFFICIENTLY CLEARED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE.
- THE CONTRACTOR SHALL ENSURE THAT ROADWAYS WILL BE PROTECTED FROM MUD, DIRT, AND DEBRIS.
- THE CONTRACTOR SHALL CONSTRUCT FACILITIES TO RETAIN ON-SITE WASTEWATER SUCH AS GROUND WATER, RAINWATER, AND WASTEWATER FROM CONSTRUCTION EQUIPMENT, VEHICLES AND CONCRETE TRUCK DRUMS, ETC. CONSTRUCTION WASTEWATER SHALL BE REMOVED AND DISPOSED OF OFF-SITE, OR ALLOWED TO EVAPORATE AND PERCOLATE INTO THE GROUND.
- STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES AS PRACTICAL.
- HEAVY EQUIPMENT OPERATING WITHIN THE WATER MUST BE CLEAN OF PETROLEUM RESIDUE, AND WATER LEVELS SHALL REMAIN BELOW THE FUEL TANKS, GEARBOXES, AND AXLES OF THE EQUIPMENT UNLESS THE EQUIPMENT IS OPERATING IN WATER. EQUIPMENT SHALL BE WASHED AND RINSED WITH WATER WILL NOT RESULT IN DISCHARGES OF FUELS, OILS, GREASES, OR HYDRAULIC FLUIDS.
- DUMP PANS SHALL BE PLACED UNDER ALL VEHICLES AND EQUIPMENT WITHIN THE CHANNEL. WHEN THE VEHICLE OR EQUIPMENT IS PLANNED TO BE IDLE FOR MORE THAN ONE (1) HOUR.
- CONSTRUCT TEMPORARY DIVERSION STRUCTURES WITH MATERIALS FREE OF POTENTIAL POLLUTANTS SUCH AS SOIL, SILT, SAND, CLAY, GREASE, OR OIL, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORK.
- ALL EMBANKMENT BANKS, TRAILS, BERMS, OVERSPILLS, WATERWAYS, SWALES, OFFICES AND RELATED STRUCTURES SHOULD BE STABILIZED IMMEDIATELY AFTER THEY ARE BUILT. BEFORE A STORMWATER CONVEYANCE STRUCTURE IS MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED LIVING SHALL BE INSTALLED OR ESTABLISHED.
- ALL BEST MANAGEMENT PRACTICES (BMPs) SHALL NOT BE REMOVED UNTIL PROJECT COMPLETION.
- AT THE CONCLUSION OF ALL PROJECT WORK, ALL BEST MANAGEMENT PRACTICES SHALL BE REMOVED AND THE AREA SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, UPON ACCEPTANCE OF THE PROJECT BY THE OFFICER-IN-CHARGE.

NOT APPROVED FOR CONSTRUCTION

STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION HANALEI STREAM BANK RESTORATION HAWAII, MAUI, HAWAII	DATE	NO.
DESIGNED: ARI, BSW DRAWN: BSW, HAW CHECKED: ARI, BSW APPROVED:	SUBMITTED: DECEMBER 2013 SCALE: AS NOTED	DRAWING NO. C-12
<p>THE SEAL AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER ARE REQUIRED FOR APPROVAL OF THIS PROJECT. THE SEAL AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER ARE REQUIRED FOR APPROVAL OF THIS PROJECT.</p>		



NOTES:

1. PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE LAWS, ORDINANCES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK AND PROVIDE FOR ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN PACKAGING, TRANSPORTING AND INSTALLING MATERIAL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS BEFORE COMMENCING WITH ANY WORK. IF NOT ACCEPTABLE NOTIFY THE OFFICER IN CHARGE IN WRITING.
3. MATERIAL IN CONTAINERS SHALL BE PLANTED WITHIN 14 DAYS OF THE PLANT APPROVAL BY OFFICER IN CHARGE AND LANDSCAPE ARCHITECT. SUBMITTAL SHALL BE MADE PRIOR TO COMMENCEMENT OF ANY LANDSCAPE WORK.
4. ALL PLANTING SHALL BE PERFORMED BY THE LANDSCAPE CONTRACTOR FOR AN EIGHTEEN (18) MONTH PERIOD. REFER TO SPECIFICATIONS.

PLANT LIST

QUANTITY	COMMON / BOTANICAL NAME	SIZE & REMARKS
17	HAU / PANDANUS TECTORIUS	25 GALLON CAN, 6' OVERALL HEIGHT
34	HALA / HIBISCUS TILIACEUS	25 GALLON CAN, 6' OVERALL HEIGHT, 2' CALIPER, 3' SPREAD, 3 ROWS @ 6' APART, 6' O.C. BETWEEN TREES
+/- 3,400 S.F.	'AHU'AWA / CYPERUS JAVANICUS	4" POTS @ 18" O.C. SPACING
+/- 10,250 S.F.	'ILE'E' / PLUMBAGO ZEYLANICA	4" POTS @ 12" O.C. SPACING

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

HANALEI STREAM BANK RESTORATION
HANALEI, MAUI, HAWAII

DESIGNED: JAM

DRAWN: JAC

CHECKED: JAM

APPROVED:

SUBMITTED: OCTOBER 2013

DATE: AS NOTED

SCALE:

DATE:

DRAWING NO. **L-1**

DATE

CHECK ENGINEER

Exhibit B

Hanalei – Monitoring Plan

This document is intended to outline a basic plan for monitoring the Hanalei River Streambank Restoration project, once construction is complete.

General- Monitoring Frequency and Methods

1. **Visual Monitoring-** The project site shall be visually monitored every six months and after every major storm event. A major storm event is one that produces a flow in the Hanalei River of 6000 cfs or greater (1.5 BKF/Channel Forming Flow), as measured at the USGS gaging station (USGS 16103000). Flows in the Hanalei River can be checked on the USGS National Water Information Website (NWIS) at http://waterdata.usgs.gov/hi/nwis/uv?site_no=16103000.

Visual monitoring shall be done of all components of the project, which include the following:

- The new embankment (Plug)/Restored Stream Bank
- Restored River Channel
- Intake
- Downstream breach channel/stilling basin

Visual monitoring shall consist of assessment documented with photographs. Walk each of the project areas thoroughly, noting any damage that may have occurred since the last monitoring visit. Photograph the damaged areas and record their position with a global positioning system (GPS).

2. **Geomorphic evaluation-** Perform a full geomorphic evaluation on annual basis for a period of three years. While it does not necessarily require extensive survey, it should use a local control point to evaluate sedimentation concerns at the intake as well as the 500', of restored channel. Typically the USACE uses 5 yes but the reality is after vegetation is well established at 3 years, the last 2 of the 5 yes do not normally provide value and survey becomes quite difficult. Of particular importance is checking the water intake to ensure that excess sedimentation has not occurred since the last site visit.

Exhibit C

Hanalei –Maintenance and Repair Plan

This document is intended to outline a basic plan for repairing and maintaining the Hanalei River Streambank Restoration project, once construction is complete.

General- Possible Maintenance Scenarios

The following discussion provides potential maintenance scenarios that could occur following a major storm event and provides recommended repairs. All components of the project should be checked for potential damage at every monitoring event. If damage is observed, repairs should be implemented as noted.

i. Maintenance Scenario- Geotextile Fabric Damaged, Rolled or Misplaced

Look for: Tearing, rolling or undermining of geotextile fabric, on banks of restored channel and on face of the plug (see example Photo 1 and Photo 2).

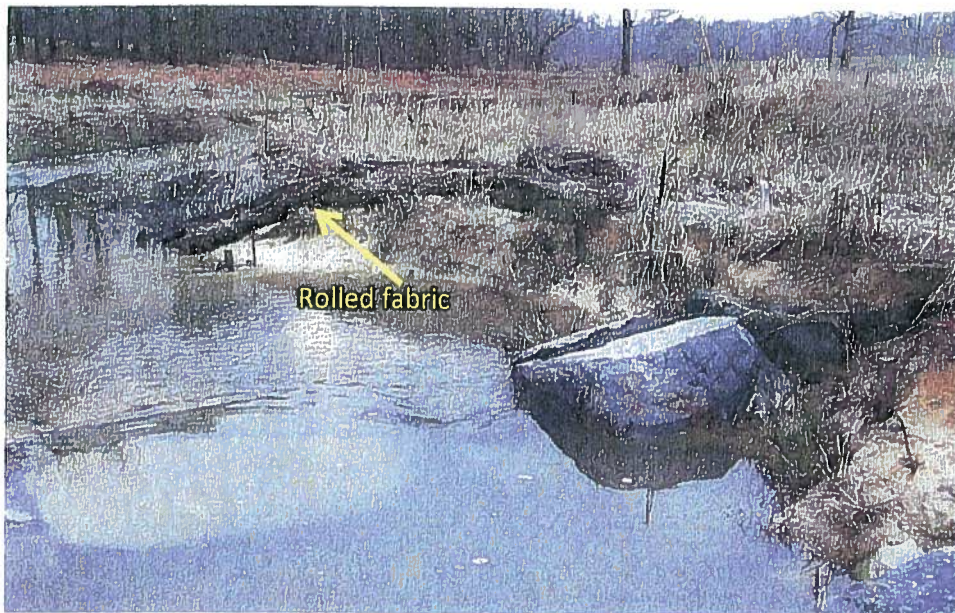


Photo 1- Rolled Geotextile Fabric

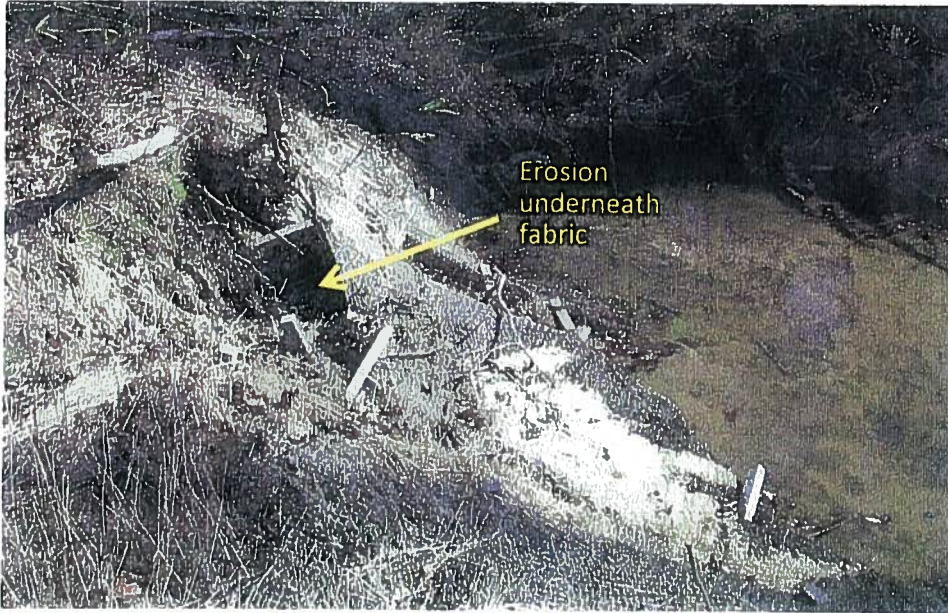


Photo 2- Erosion Taken Place below Erosion Mat

Recommended Repair/Maintenance:

Replace geotextile matting and secure to bank with landscape staples or wooden stakes. Ensure that no streambanks are bare or exposed underneath the geotextile fabric.

ii. Maintenance Scenario- Vegetation has Significant Bare Areas

Look for: Significant bare areas of vegetation on face or top of the plug, or along the stream banks of the restored channel (see example Photo 3 and Photo 4).



Photo3- Significant Bare Areas of Ground Cover

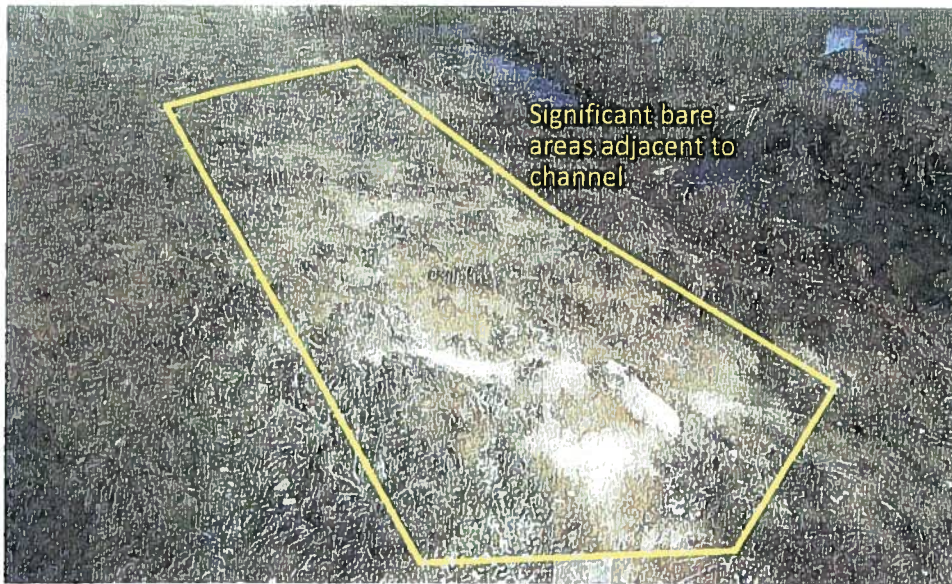


Photo 4- Bare Areas near Channel

Recommended Repair/Maintenance: Replant bare areas of vegetation with fast-growing, deep-rooted woody vegetation.

iii. Maintenance Scenario- Log Jams, Debris

Look for: Logs or other large debris jammed up or lodged against the restored streambank or intake (see example Photo 5).

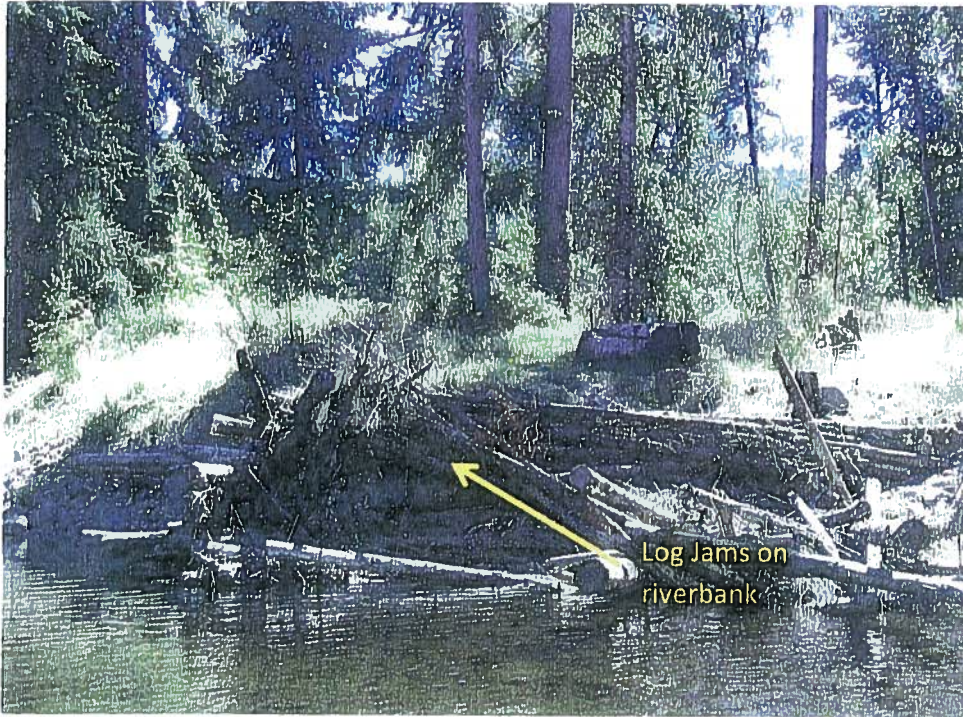


Photo 5- Log Jam along the Stream Bank

Recommended Repair/Maintenance: Remove log jams from affected areas using hand labor if possible or heavy equipment.

iv. Damage Scenario- Significant Erosion on the Plug, Restored River Channel

Look for: Erosion on restored channel reach, downstream breach channel, or plug area

Recommended Repair/Maintenance: Repair significant erosion areas with backfill graded to a slope to match upstream and downstream respectively. Plant the disturbed area with vegetation. If erosion is on river bed, use bed material type (river stone) to backfill scoured areas. Some erosion sensitive areas may need to be covered with geotextile fabric.

v. Maintenance Scenario- Significant Sedimentation at Intake

Look for: Significant deposits of rock or boulder material accumulating at location of intake since last monitoring visit (see example Photo 6).



Photo 6- Sediment collection at the Intake

Recommended Repair/Maintenance: Remove excess rock/boulders

vi. *Maintenance Scenario- Displacement of Rocks in Stilling Basin*

Look for: Significant amounts of armor stone in stilling basin have been moved or displaced since last monitoring visit.

Recommended Repair/Maintenance: Replace missing armor stones.

vii. *Maintenance Scenario- Structure Failure*

Look for: Bank erosion immediately up and downstream of rock spurs and J-hook. Look for boulders that have been displaced and water piping around boulders (see example Photo 7).



Photo 7- Erosion Downstream or Upstream of the Structure

Recommended Repair/Maintenance: Determine if structure is still functional, if only minor movement has occurred fill gaps with river stone and continue to monitor. If structure is no longer functional it may be necessary to rebuild.