



**O'AHU
RESOURCE
CONSERVATION &
DEVELOPMENT COUNCIL**

PO Box 209, KUNIA, HAWAII 96759 ♦ 808-622-9026 ♦ WWW.OAHURCD.ORG

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January 11, 2019

Mr. Alec Y. Wong, Professional Engineer, Chief
Clean Water Branch
2827 Waimano Home Road, Rm 225
Pearl City, HI 96782

ASO Log No. 17-059

**EXECUTIVE
DIRECTOR**

Jean Brokish

Dear Mr. Wong,

Enclosed please find the quarterly status report for O'ahu Resource Conservation & Development Council's project entitled "Agriculture Stewardship in the Ma'ili'ili Watershed." This report covers activities completed between October 1, 2018 and December 31, 2018. Per contract agreement, we are submitting an invoice with the quarterly status report.

The O'ahu RC&D appreciates the opportunity to work with the Department of Health and our partners to improve water quality in the Ma'ili'ili Watershed.

If you have any questions or concerns, please don't hesitate to contact me at jean.brokish@oahurcd.org or by phone at 808-728-9903.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jean Brokish".

Jean Brokish
Executive Director

cc: Michael Burke and Joanna Yeh, via email

Department of Health
Clean Water Branch - Polluted Runoff Control Program

Quarterly Status Reporting Form
Clean Water Act 319(h) NPS Implementation Program

Quarterly Status Reports are required per contract terms. If no work was done during the reporting period, the CONTRACTOR must provide an explanation of the circumstances.

This Quarterly Status Report is for the period indicated below (check only one and insert year):

<input type="checkbox"/> January 1 - March 31,	(Due April 15 th)
<input type="checkbox"/> April 1 - June 30,	(Due July 15 th)
<input type="checkbox"/> July 1 - September 30,	(Due October 15 th)
<input checked="" type="checkbox"/> October 1 - December 31, 2018	(Due January 15 th)

Project Title: Agriculture Stewardship in the Ma'ili'ili Watershed

Project Start/Completion Date: December 19, 2016 / June 18, 2019 (per approved extension)

Estimated % of Project Completed: 75 %

Estimated % of Grant Funds Previously Requested: 75 %

Quarterly Status Report Number: 9

Name, telephone number, and e-mail of person to be contacted for questions regarding this report:

Jean Brokish 808-622-9026 jean.brokish@oahurcd.org

Please provide the following information for this reporting period. Additional sheets may be attached:

1. Progress/tasks started and/or completed as defined in the Contract's Scope of Services during current reporting period.

a) Summary of work completed (list all tasks and deliverables)

See attached list of tasks and deliverables completed to date.

b) GRTS Load Reductions -

	Estimated Load Reduction
Nitrogen (lbs / yr)	197 (as of 12/31/18)
Phosphorus (lbs / yr)	84.8 (as of 12/31/18)
Sediment (tons / yr)	84.8 (as of 12/31/18)

c) **Narrative Progress Report -**

Conservation Plan Development –

A conservation plan was developed and approved for Aika Makaula (Aloha Aina Farms LLC). *A copy is provided in this report.*

Through community outreach presentations, new potential cooperators have been identified. A total of three plans have been identified for the area. Two other plans will be in process and hope for completion for early 2019.

BMP Implementation –

Progress continues on BMP implementation, please see details below.

Implementation activities this quarter:

Tolentino Farms	Cover crops were installed between crop schedules.
Kahumana Organic Farm	Stream stabilization progress near completion. Farm manager continues to maintain contoured orchard with vetiver and mulching.
Naked Cow Dairy	Farm manager began work for conservation cover in the back area of the property. Final purchase of pasture grass is in process and soon to be installed.
MA‘O Organic Farms	Windbreak area was cleared and drip irrigation in place.



Photo above: Naked Cow Dairy installed irrigation and protective fencing for the installment of their pasture grasses for the final stage of their BMP project.



Photo above: Kahumana Organic Farms is in the final stages of BMP installment near the stream bank. After brush management, vegetative barriers conservation cover, and conservation crop rotation are being utilized to maintain and cultivate the area.

2. **Description of any major issues/problems encountered and/or resolved that may affect the Contractor's ability to complete the project as required (i.e., weather, personnel, equipment, etc.). If there is a change in the project timeline or budget, provide an explanation, revised timeline, budget, and completion schedule. (Please note that no-cost extensions must be applied for through the Department, and will only be granted when the Contractor has demonstrated unforeseeable setbacks.)**

Project leaders reviewed the budget expenditures to date and anticipate needing minor revisions to some of the budget categories. Information to be provided in January 2019.

BMP installation on three of the farms required additional time and we amended agreements with these farms. Farms are expected to have BMPs installed by 1/31/19.

3. **Description of any significant findings, results, or conclusions. If none, please indicate so.**

We have established fixed photo points on each of the four farms receiving cost-share. As installations are completed, photo points continue to be recorded for future results.

RUSLE2 is being used to evaluate implemented projects. Two awarded farms have results utilizing the model for sediment reductions. Naked Cow Dairy projected 27.3 tons/acre/year of sediment reduced through the implementation of best management practices installed through the cost-share program. 57.5 tons/acre/year of sediment were reduced through BMPs installed at Kahumana Organic Farm. Load reductions for Nitrogen and Phosphorus are shown in the table above. The next quarter will show the total result of load reductions for remaining projects.

4. **Based on the Scope of Services, a description of tasks expected to be completed in the next reporting period.**

Continued work with awardees to ensure completion of BMP's.

Continue reporting load reductions on completed BMP's.

Continued tracking and conducting site visits.

Develop at least one conservation plan.

Complete fourth and final outreach field day.

Secure signed O&M agreements with participating farms.

Quarterly Status Reporting Form

ASO LOG NO. 17-059
10/01/2018 - 12/31/2018

GRANT FUNDS

No.	Description	Original Contract Amount	Contract Amounts from Preceding QSR	Expenditures during this Quarterly Reporting Period	Current Contract Amount (Remaining Funds)
A	Personnel Services	\$104,052.00	\$26,931.65	\$10,437.29	\$16,494.35
B	Travel	\$2,808.00	\$98.92	\$415.32	-\$316.40
C	Operating Expenses	\$4,852.00	\$2,212.77	\$124.30	\$2,088.47
D	Equipment	\$0.00	\$0.00	\$0.00	\$0.00
E	Professional Services	\$9,475.00	\$9,245.77	\$15.00	\$9,230.77
F	Materials & Supplies	\$65,098.51	\$35,955.02	\$16,770.20	\$19,184.82
G	Other Miscellaneous Expenses	\$3,750.00	\$0.00	\$450.00	-\$450.00
Total		\$190,035.51	\$74,444.12	\$28,212.11	\$46,232.01

IN-KIND CONTRIBUTIONS (MATCHING FUNDS)

No.	Description	Original Contract Amount	Contract Amounts from Preceding QSR	Expenditures during this Quarterly Reporting Period	Current Contract Amount (Remaining Funds)
A	Personnel Services	\$16,528.00	\$5,348.28	\$1,689.84	\$3,658.44
B	Travel	\$0.00	-\$126.39	\$0.00	-\$126.39
C	Operating Expenses	\$750.00	\$556.40	\$0.00	\$556.40
D	Equipment	\$0.00	\$0.00	\$0.00	\$0.00
E	Professional Services	\$14,000.00	\$287.50	\$4,312.50	-\$4,025.00
F	Materials & Supplies	\$27,899.36	\$14,635.90	\$13,117.64	\$1,518.26
G	Other Miscellaneous Expenses	\$2,500.00	-\$1,225.83	\$403.73	-\$1,629.56
Total		\$61,677.36	\$19,475.85	\$19,523.71	-\$47.85

Ma'ili'iili Watershed Project
October 1, 2018 to December 31, 2018
QSR No. 9

Complete	Task / Deliverable	Timeline	Due Date	Status / Date Task Completed / Deliverable Submitted
Note: Items in bold are newly completed.				
x	Submit a list of name and credentials of personnel hired.	QSR No 1	Dec 16	resumes submitted for F. Koethe, J. Brokish and S. Mock with QSR 12.31.16
x	Submit the draft monitoring plan	NTP +1	JAN 17	plan submitted at start of April
x	Submit the draft QAPP	NTP +1	JAN 17	plan submitted at start of April
x	Submit the final monitoring plan	NTP +3	MAR 17	approved 5/18/17, sent with 9/30 QSR
x	Submit the final QAPP	NTP +3	MAR 17	approved 5/18/17, sent with 9/30 QSR
x	Begin tracking and conducting a minimum of forty site visits	NTP +3	MAR 17	Site visits to farms in the watershed are underway.
x	Draft and release the first of two press releases	NTP +3	MAR 17	press release approved August 24 and sent August 28, 2017
x	Begin sediment monitoring	NTP +6	JUN 17	Monitoring visits have been done to select photo points; RUSLE Analysis underway
x	Begin nutrient monitoring	NTP +6	JUN 17	Monitoring visits have been done to select photo points; RUSLE Analysis underway
x	Begin photo-point monitoring	NTP +6	JUN 17	Photos taken at initial site visits for all funded farms (4 total)
x	Begin conservation plan and BMP tracking	NTP +6	JUN 17	Initiated conservation plan assessments.
x	Begin conducting outreach effectiveness monitoring	NTP +6	JUN 17	Conducted with 3 of 4 field days.
x	Begin developing a minimum of ten (10) new conservation plans	NTP +6	JUN 17	5 conservation plans approved 1. Naked Cow Dairy, 2. Tolentino Farms, 3. Kahumana Organic Farm 4. Kahumana Organic Farm second property 5. MA'O Organic Farms
x	Begin submitting lists of farms with new conservation plans	NTP +6	JUN 17	2 new potential farmers for conservation plans.
x	Begin submitting lists of farms with approved conservation plans	NTP +6	JUN 17	6 plans approved with conservation plans.
x	Establish BMP investment fund	NTP +6	JUN 17	established BMP investment fund.
x	Begin soliciting applications for BMP investment fund assistance	NTP +6	JUN 17	Subawards complete for 4 applicants.
x	Begin submitting names of farmers and the BMPs selected to receive funds	NTP +6	JUN 17	4 farms with approval, MA'O Exhibit A sent in 12/31 QSR
x	Begin developing and executing O&M agreements with participating farms.	NTP +6	JUN 17	Agreements developed and pending signatures.
x	Begin providing BMP funding	NTP +6	JUN 17	6 funding PRF completed

Complete	Task / Deliverable	Timeline	Due Date	Status / Date Task Completed / Deliverable Submitted
Note: Items in bold are newly completed.				
x	Begin submitting a summary of implemented BMPs	NTP +6	JUN 17	In process, via narrative
x	Conduct the first of four field days	NTP +6	JUN 17	Field day held 2/3/17.
x	Conduct the second of four field days	NTP +9	SEP 17	Field day held 10/7/17.
x	Conduct the third of four field days	NTP +15	MAR 18	Field day held 2/9/18.
	Conduct the fourth of four field days	NTP +24	<i>DEC 18</i>	Field day scheduled for 1/28/2019.
	Complete sediment monitoring	NTP +27	<i>MAR 19</i>	In process, via narrative
	Complete nutrient monitoring	NTP +27	<i>MAR 19</i>	In process, via narrative
	Complete photo point monitoring	NTP +27	<i>MAR 19</i>	
	Complete tracking the number of site visits	NTP +27	<i>MAR 19</i>	
	Complete conservation plan and BMP tracking	NTP +27	<i>MAR 19</i>	
	Complete conducting outreach effectiveness surveys	NTP +27	<i>MAR 19</i>	
	Complete developing a minimum of ten (10) new conservation plans	NTP +27	<i>MAR 19</i>	6 of 10 complete
	Complete submitting list of farms with new plans	NTP +27	<i>MAR 19</i>	
	Complete submitting list of farms with approved plans	NTP +27	<i>MAR 19</i>	
x	Complete conducting applications for BMP funds	NTP +27	<i>MAR 19</i>	all funds allocated for BMP funds
	Complete submitting names of farmers and BMPs	NTP +27	<i>MAR 19</i>	
	Complete executing O&M agreements	NTP +27	<i>MAR 19</i>	
	Complete providing BMP funding	NTP +27	<i>MAR 19</i>	
	Complete submitting summary of implemented BMPs	NTP +27	<i>MAR 19</i>	
	Complete conducting a minimum of 40 site visits	NTP +27	<i>MAR 19</i>	
	Draft and release the second of two press releases	NTP +27	<i>MAR 19</i>	
	Submit the draft final report.	NTP +28	<i>APR 19</i>	
	Submit the final report.	NTP +30	<i>JUN 19</i>	

italics = revised per contract extension

Conservation Plan

for

Aloha 'Āina Farms LLC / Aika Makaula

Prepared in cooperation with the

O'AHU RESOURCE CONSERVATION AND DEVELOPMENT COUNCIL

&

808PLANNER.org



December 2018

Cooperator Information:

Operation Name & Operator: Aloha 'Āina Farms LLC / Aika Makaula

Mailing Address: 86-630 Puuhulu Road
Waianae, HI 96792

Phone: (808)-203-3844

Email: alohainafarmsllc@gmail.com

Site Description:

Property Address: 86-660 Puuhulu Road
Waianae, Hawaii 96792

Tax Map Key #(s): TMK: 8-6-008-021 (portion)

Size of Property: 1.1 acre (approx..)

Type of Operation: Diversified orchard, row crops, and microgreens.

Annual Precipitation: ~26 inches

Elevation: 50-55 ft.

Zoning: Country

Soils: Pulehu clay loam, 0 to 3 percent slopes (PsA)

Purpose:

The conservation plan is designed to document and address existing management practices and resource concerns involving soil, water, plants and air found on the property. The plan will aid the client in achieving sound use and management of the resources to prevent resource degradation and assure their sustained and productive use in the future.

Additional Notes:

Threatened and Endangered Species

The nearest occurrence of critical habitat for threatened and/or endangered species is 3.2 miles away from the operation.

Cultural Resources

The practices in this plan will not exceed the extent and depth of previous operations and therefore should not have an effect on archeological resources. However, in the event any artifacts or human remains are uncovered during construction operations, the operator shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015), and the Civil Engineering Branch, Department of Planning & Permitting (523-4881).

Aloha Aina Farms LLC

for

Aloha Aina Farms LLC

December 11, 2018

Operator

Aloha Aina Farms LLC
86-630 Puuhulu Road
Waiānae HI 96792

Resource objectives

- Improve Livestock Operations
- Improve crop health and productivity
- Reduce Soil Erosion

Plan comment:

Aloha Aina Farms LLC is a small local farm company, committed to producing fresh microgreens, fruits, and livestock to the local market.

Prepared using 808Planner.org

NOTE: All photos in this conservation plan are examples of the listed conservation practice, and are provided solely for reference.

Conservation practice implementation

Access Road

An access road is an established route for equipment and vehicles. (NRCS [Practice code 560](#))

Purpose

An access road is used to provide a fixed route for vehicular travel for resource activities involving the management of timber, livestock, agriculture, wildlife habitat, and other conservation enterprises.



Field	Planned		Installed		Notes
	Date	Qty (Number)	Date	Qty (feet)	
existing access road			11/1/2018	297	Maintained with gravel, access road is 10 feet wide and used for deliveries, pick ups, and access to farm head quarters.

Conservation Cover

Establishing and maintaining permanent vegetative cover (NRCS Practice code 327)

Purpose

This practice is applied to support one or more of the following purposes:

- Reduce sheet, rill, and wind erosion and sedimentation.
- Reduce ground and surface water quality degradation by nutrients and surface water quality degradation by sediment.
- Reduce emissions of particulate matter (PM), PM precursors, and greenhouse gases.
- Enhance wildlife, pollinator and beneficial organism habitat.
- Improve soil health.



Planned		Installed		Notes
Field	Date	Qty (Acre)	Date	
orchard 1			11/1/2018	0.190
orchard 2	11/1/2019	0.22		

Contour Orchard and Other Perennial Crops

Planting orchards, vineyards, or other perennial crops so that all cultural operations are done on or near the contour. (NRCS [Practice code 331](#))



Purpose

- Reduce soil erosion
- Reduce transport of sediment and other associated contaminants
- Increase infiltration

Field	Planned		Installed		Notes
	Date	Qty (Acre)	Date	Qty (Acre)	
orchard 1			11/1/2018	0.190	
orchard 2	2/1/2019	0.22			

Heavy Use Area Protection

Heavy Use Area Protection is used to stabilize a ground surface that is frequently and intensively used by people, animals, or vehicles. (NRCS Practice code 561)

Purpose

Heavy Use Area Protection is used:

- To provide a stable, non-eroding surface for areas frequently used by animals, people or vehicles
- To protect or improve water quality



Field	Planned		Installed		Notes
	Date	Qty (Sq. Feet)	Date	Qty (Sq. Feet)	
Existing Grow Room 1			11/1/2018	2106	This is a concrete foundation. The area is our office and main grow room for a variety of micro greens.
Existing Workshop/Storage			11/1/2018	1032	Our main office and headquarters.
Proposed Grow Room 1	2/1/2020	1794			
Proposed Office / Grow Room 2	11/1/2019	1390			

Irrigation System, Microirrigation

An irrigation system for frequent application of small quantities of water on or below the soil surface, as drops, tiny streams or miniature spray through emitters or applicators placed along a water delivery line. (NRCS [Practice code 441](#))

Purpose

This practice may be applied as part of a conservation management system to achieve one or more of the following purposes:

- Efficiently and uniformly apply irrigation water and maintain soil moisture for plant growth.
- Prevent contamination of ground and surface water by efficiently and uniformly applying chemicals.
- Establish desired vegetation.
- Reduce energy use.



Field	Planned		Installed		Notes
	Date	Qty (Acre)	Date	Qty (Acre)	
orchard 1			11/1/2018	0.190	
orchard 2	1/1/2020	0.22			

Mulching

Applying plant residues or other suitable materials produced off site, moved and placed onto the land surface. (NRCS Practice code 484)

Purpose

This practice supports one or more of the following purposes:

- Conserve soil moisture
- Reduce energy use associated with irrigation (inefficient moisture management).
- Provide erosion control
- Facilitate the establishment of vegetative cover
- Improve soil health
- Reduce airborne particulates



Field	Planned		Installed		Notes
	Date	Qty (Acre)	Date	Qty (Acre)	
proposed mulching 1	2/1/2019	0.014			

Conservation Practices not scheduled for fields

Practices selected for the plan, but not planned or implemented on any plan fields.

Vegetative Barrier

Permanent strips of stiff, dense vegetation established along the general contour of slopes or across concentrated flow areas. (NRCS [Practice code 601](#))

Purpose

- Reduce sheet and rill erosion.
- Reduce ephemeral gully erosion.
- Manage water flow.
- Stabilize steep slopes.
- Trap sediment.



General Stewardship Recommendations

Agriculture Production and Soil Conservation

Appropriate land management practices allow you to keep your farm profitable while reducing soil erosion and minimizing environmental risks.

To minimize soil erosion and potential for polluted runoff from agriculture operations:

- farm across the slope (on the contour) instead of up and down the slope
- maintain cover on the soil surface to reduce erosion from wind and water (e.g. utilize cover crops or add mulch / plant residue)
- reduce tillage frequency and intensity
- improve soil health and structure through increased soil organic matter (utilize cover crops or additions of plant residues)
- maintain vegetated buffer areas between cultivated fields and all water bodies

Irrigation Management

Many areas of Hawaii lack adequate rainfall for good crop growth and irrigation is required. Protecting irrigation sources and applying the right amount of water at the right time are keys to good irrigation management.

To maximize benefits of irrigation:

- develop an irrigation schedule based on soil moisture conditions; plant needs; weather conditions; and water application rates.
- reduce irrigation during periods with natural rainfall or cooler temperatures
- employ drip- or micro-irrigation to maximize water delivered to the root zone
- if using sprinkler irrigation, avoid irrigating during windy periods
- regularly monitor system for flow volume and distribution
- repair leaks immediately
- calibrate nozzles and replace as needed

Stockpiles (soil, soil amendments, green waste)

Temporary stockpiling of soil, soil amendments, or green waste is a common occurrence on many Hawaii farms. Proper storage and handling of stockpiled materials will minimize risks to nearby water resources and preserve the quality of stockpiled materials.

To minimize runoff and potential pollution from stockpiled materials:

- limit stockpiles to a height of no greater than 15 ft
- locate stockpiles away from waterways
- use a tarp or fast growing vegetation to cover stockpiles
- place erosion socks or silt fencing around the perimeter of stockpiles

Reference documents

- [Minimizing Pollution Risk from Land Management](#)
- [Minimizing Pollution Risk from Irrigation Management](#)
- [Construction BMPs for Protecting Stockpiles](#)
- [Stockpile Management](#)

Documents from:

Hawaii Department of Transportation Storm Water Management Program

The City and County of Honolulu Storm Water Best Management Practice Manual, fact sheet WM-3, Nov 2011

University of Hawaii College of Tropical Agriculture and Human Resources, Hawaii Pollution Prevention Information (HAPPI) project, Dec 2000

CERTIFICATION

I certify that I have been involved in the planning process and agree to the practices listed in this plan. I intend to apply the practices as described within and follow all federal, state, and local regulation in its implementation.

This plan was developed based on current NRCS practice standards and current applicable federal, state, or local regulations and policies. Any changes in these standards, regulations, and/or policies may require plan revision.


Aika Makaula

12/18/18
Date

Note for future: Conservation Plan should be amended when Cooperator aims to install different practices than listed in the Schedule of Practices above and/or five (5) years after Conservation Plan approval.

This plan consists of general guidelines which were developed from Natural Resources Conservation Service conservation planning directives, standards, and specifications for the Pacific Islands Area. These can be accessed at: <http://efotg.sc.egov.usda.gov>. O'ahu RC&D has provided these recommendations in good faith based on information provided by the Cooperator and field observations made during one or more site visits.

It is the managerial and financial responsibility of the Cooperator to decide to accept and implement the recommended conservation practices. To ensure compliance with NRCS standards, guidance from a qualified engineer is recommended for the installation of structural practices, e.g., diversions, waterways and sediment basins.

O'ahu RC&D is not responsible for implementation and/or enforcing compliance with local ordinances of conservation practice installation.

O'AHU RESOURCE CONSERVATION AND DEVELOPMENT COUNCIL


Frankie Koethe, Conservation Planner

12/11/18
Date


Jean Brokish, Executive Director

12/11/18
Date

WEST O'AHU SOIL AND WATER CONSERVATION DISTRICT


Signature
Larry Jeffs, Chair of West Oahu SWCD

12/11/18
Date

District: West O'ahu SWCD
Client: Aika Makaula
TMK 1: 8-6-008-021 (portion)
Approximate size: 1.1 acres

Location Map
Aloha Aina Farms LLC
Aika Makaula

O'ahu RC&D
Assisted by: F. Koethe,
J. Brokish
Date: December 2018



0 0.1 0.2 0.4 Miles

District: West O'ahu SWCD
Client: Aika Makaula
TMK 1: 8-6-008-021 (portion)
Approximate size: 1.1 acres

Conservation Practices Map

Aika Makaula
Aloha Aina Farms LLC

O'ahu RC&D
Assisted by: F. Koethe,
J. Brokish
Date: December 2018

