



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
 Stream Protection and Management Branch

**FIELD INVESTIGATION REPORT**  
**FI2008111905 (East Maui, Hanehoi IIFS Site B)**

<b>Date of Field Investigation:</b>	November 19, 2008	<b>Time (24-hour):</b>	1420 - 1610
<b>CWRM Staff:</b>	Ed Sakoda, Dean Uyeno, Chui Ling Cheng		
<b>Individuals Present:</b>	Skippy Hau (DAR staff)		
<b>Hydrologic Unit:</b>	Hanehoi (6037)		
<b>Stream Name:</b>	Hanehoi Stream		

**Findings:**

At approximately 1420 hours, CWRM staff and Skippy arrived at the Haiku Ditch diversion intake on Hanehoi Stream. Staff had previously informed Garret Hew (EMI Water Resource Manager) that staff would be hiking from the EMI gate on Hana Highway to the stream. During the previous field visit on Oct. 24, 2008, Hanehoi Stream was dry (refer to FI2008102401 for more information). At this field visit, Hanehoi Stream was flowing due to the heavy rain\*.

CWRM staff and Skippy hiked downstream to the IIFS Site B established on Oct. 24, 2008 (refer to FI2008102401 for more information). Water level at the measurement location and the gage pool was over 3 feet deep. Water was dirty so the reference point in the gage pool was barely visible underwater. Staff was scheduled to meet with a resident in Honopou at 1600 hours. Due to time limitations, staff took a rough measurement immediately upstream of the Haiku Ditch bypass sluice gate. This location was selected for flow measurement because flow was confined to a 4 feet long concrete channel before flowing through the bypass sluice gate. However, the turbulent flow observed at the sluice gate may have resulted in errors in velocity measurements.

CWRM staff prepared the site for flow measurement. The entire flow measurement was completed in 30 minutes. Staff also recorded wind velocity, air temperature, water temperature and weather conditions. The weather was overcast with rain near the end of the measurement. As computed back in the Honolulu Office, the flow was 4.711 cubic feet per second (3.045 million gallons per day).

Staff left Hanehoi at 1600 hours, and continued to document high flows at the Haiku Ditch diversion intake on Honopou Stream. Refer to Field Investigation Report FI2008111906 (East Maui, Honopou Haiku Ditch) for more information.

\*Heavy rain fell on East Maui on the early morning of Nov. 18. USGS rain gage (Station 204916156083701) in West Wailuaiki near Keanae recorded 1.8 inches of rain on Nov 18, and 0.82 inches on Nov. 19. Most of the rain fell on the early morning of Nov. 18, between 12AM and 3:30AM. The nearest USGS active streamgage with real-time data is located on West Wailuaiki Stream (Station 16518000). At approximately 12:00AM on Nov. 18, discharge in West Wailuaiki Stream began to increase from 2.7CFS to a peak flow of 2,010 CFS at 9:45AM. By Nov. 26, streamflow returned to 3.7 CFS. Refer to FI2008111801 (East Maui, Palauhulu, high flow) for real-time rainfall and discharge graphs.

**Image Listing:** (Attach PDF of image contact sheet)

<b>File Name:</b>	<b>Brief Description:</b>
20081119064	Haiku Ditch on Hanehoi Stream.
20081119065	Hanehoi Stream upstream of Haiku Ditch.
20081119066	Hanehoi Stream upstream of Haiku Ditch.
20081119067	Haiku Ditch diversion intake on Hanehoi Stream.
20081119068	Haiku Ditch on Hanehoi Stream.

**GPS Listing:**

**Shapefiles:** (List file names of all shapefiles created and a brief description of each)

<b>File Name:</b> East_Maui_POI.shp	<b>Brief Description:</b> Points of interest (POI) recorded with the GPS unit during the field visit. The file includes POI recorded from all the East Maui field investigations.
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**Waypoints:** (List all waypoints in decimal degrees and provide a brief description of each)

<b>WP No.</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Brief Description:</b>
25	20.902082	-156.223372	IIFS Site B Measurement Site on Hanehoi Stream
24	20.901837	-156.223664	IIFS Site B Reference Point on Hanehoi Stream
23	20.901496	-156.224056	Haiku Ditch on Hanehoi Stream

**Attachments:**

**Brief Description:**

1. Image Contact Sheet
2. Discharge Measurement and Gage Inspection Notes

**Recommendations:**

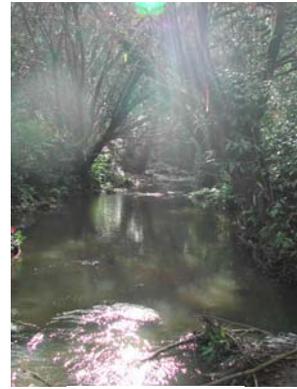
# IMAGE CONTACT SHEET



**20081119064.JPG**



**20081119065.JPG**



**20081119066.JPG**



**20081119067.JPG**



**20081119068.JPG**



ANGLE COEF. FICIENT	DIST. FROM INITIAL POINT	WIDTH	DEPTH	OBSERVA- TION DEPTH	REVO- LUTIONS	TIME IN SEC- ONDS	VELOCITY		ADJUST- ED FOR HOR. ANGLE OR	AREA	DISCHARGE	.80
							AT POINT	MEAN IN VER- TICAL				
	LEW	@ 1544										
												.85
	1.1	.05	0.70					0		.035	0	
	1.2	.10	0.70			40		0.13		.070	.009	
	1.3	.10	0.70			40		0.50		.070	.035	.90
	1.4	.10	0.75			40		1.02		.075	.077	.92
	1.5	.10	0.75			40		1.56		.075	.117	.94
	1.6	.10	0.80			40		2.09		.080	.167	
	1.7	.10	0.80			40		2.06		.080	.165	.96
	1.8	.10	0.80			40		2.57		.080	.206	.97
	1.9	.10	0.80			40		3.16		.080	.253	.98
	2.0	.10	0.85			40		3.05		.085	.259	.99 <u>1.283</u>
	2.1	.10	0.80			40		2.92		.080	.234	
	2.2	.10	0.80			40		3.05		.080	.244	
0	2.3	.10	0.80			40		3.44		.080	.275	1.00
	2.4	.10	0.80			40		3.61		.080	.289	
	2.5	.10	0.80			40		3.73		.080	.298	
	2.6	.10	0.80			40		3.66		.080	.293	.99
	2.7	.10	0.80			40		3.45	1.29	.080	.276	.98 <u>3.197</u>
	<del>2.8</del>	<del>.10</del>	<del>0.85</del>			<del>40</del>		<del>2.87</del>		<del>.085</del>	<del>.244</del>	.97
	<del>2.9</del>	<del>.10</del>	<del>0.85</del>			<del>40</del>		<del>2.14</del>		<del>.085</del>	<del>.182</del>	.96 <u>3.623</u>
	<del>3.0</del>	<del>.10</del>	<del>0.85</del>			<del>40</del>		<del>2.25</del>		<del>.085</del>		.94
	<del>3.1</del>	<del>.10</del>	<del>0.85</del>			<del>40</del>		<del>2.21</del>		<del>.085</del>		.92
	<del>3.2</del>											
	2.8	.10	0.85			40		3.09		.085	.263	.90
	2.9	.10	0.85			40		2.52		.085	.214	
	3.0	.10	0.85			40		2.42		.085	.206	<u>3.89</u>
	3.1	.10	0.85			40		2.48	1.63	.085	.211	.85
	3.2	.10	0.85			40		2.24		.085	.190	
	3.3	.10	0.85			40		1.49		.085	.127	.80

