



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

**FIELD INVESTIGATION REPORT**  
**FI2008111904 (East Maui, Huelo IIFS Site A)**

<b>Date of Field Investigation:</b>	November 19, 2008	<b>Time (24-hour):</b>	1315 - 1400
<b>CWRM Staff:</b>	Ed Sakoda, Dean Uyeno, and Chui Ling Cheng		
<b>Individuals Present:</b>	Ernie Schupp (Huelo farmer)		
<b>Hydrologic Unit:</b>	Hanehoi (6037)		
<b>Stream Name:</b>	Puolua (Huelo) Stream		

**Findings:**

On the way to IIFS Site A on the Puolua (Huelo) Stream, CWRM staff saw that Hanehoi Stream was flowing. During the previous field visit on Oct. 24, 2008, Hanehoi Stream was dry (refer to FI2008102401 for more information). Although not planned in the trip schedule, CWRM staff was prepared to conduct a field visit on Hanehoi Stream and possibly estimate discharge in the stream.

At approximately 1315 hours, CWRM staff arrived at IIFS Site A on the Puolua (Huelo) Stream. Despite the heavy rain\*, the stream had relatively low flow. This is because the stream is still diverted at Lowrie Ditch upstream.

CWRM staff prepared the IIFS site for flow measurement. Flow measurement was completed in 30 minutes. Gage height readings were not recorded as a reference point was not established during the field investigation on October 23, 2008 (refer to Field Investigation Report FI2008102303 for more information). CWRM staff recorded wind velocity, air temperature, water temperature and weather conditions. The weather was overcast with no rain. As computed back in the Honolulu Office, the flow at IIFS Site A was 0.244 cubic feet per second (0.158 million gallons per day).

Staff left the IIFS Site A on Puolua (Huelo) Stream at approximately 1400 hours, and continued to Hanehoi Stream to take flow measurements. Refer to Field Investigation Report FI2008111905 (East Maui, Hanehoi IIFS Site B) for more information.

\*Heavy rain fell on East Maui on the 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)

**File Name:**                      **Brief Description:**

**GPS Listing:**

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

**File Name:**                      **Brief Description:**  
 East\_Maui\_POI.shp              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.

**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>
18	20.903285	-156.225661	Haiku Ditch on Huelo Stream
19	20.903252	-156.225375	IIFS Site A Measurement Site on Huelo Stream

**Attachments:**

**Brief Description:**

1. Discharge Measurement and Gage Inspection Notes

**Recommendations:**



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	
							AT POINT	MEAN IN VER- TICAL				
	LEW	@ 13	40									.80
												.85
	0.65	.075	0									
	0.80	.125	0.13			EST =	$\frac{1}{2}(.36) = 0.18$			.016	.003	
	0.90	.10	0.20			40	0.36			.020	.007	.90
	1.00	.10	0.24			40	0.39			.024	.009	.92
	1.10	.10	0.30			40	0.41			.030	.012	
	1.20	.10	0.40			40	0.38			.040	.015	.94
	1.30	.10	0.47			40	0.41			.047	.019	.96
	1.40	.10	0.47			40	0.40			.047	.019	.97
	1.50	.10	0.48			40	0.38			.048	.018	.98
	1.60	.10	0.49			40	0.34		.321	.049	.017	.99
	1.70	.10	0.50			40	0.36			.050	.018	
	1.80	.10	0.50			40	0.31			.050	.016	
0	1.90	.10	0.52			40	0.32		.473	.052	.017	1.00
	2.00	.10	0.50			40	0.33			.050	.017	
	2.10	.10	0.47			40	0.32			.047	.015	
	2.20	.10	0.45			40	0.30		.615	.045	.014	.99
	2.30	.10	0.39			40	0.28			.039	.011	.98
	2.40	.10	0.38			40	0.25			.038	.010	.97
	2.50	.075	0.36			40	0.27			.027	.007	.96
	2.55	.025	0									.94
	1.9	1.9					AVE = 0.34			0.719	0.244	.92
												.90
	REW	@ 14	07									.85
												.80

.119

.17

.216