Attachment A

Additional Responses to CWB-NOI General Form Application for Rehabilitation of Iao Stream Bridge

CWB-NOI GENERAL FORM

5.a. **Receiving State Water(s) Information**

Receiving Waters Name: Iao Stream – Begin Receiving Water Point 4
Receiving Waters Classification: A
Latitude (N): 20°54'24"
Longitude (W): 156°29'21"

Receiving Waters Name: Iao Stream – End Receiving Water Point 4
Receiving Waters Classification: A
Latitude (N): 20°54'25"
Longitude (W): 156°29'19"

Receiving Waters Name: Iao Stream – Begin Receiving Water Point 5
Receiving Waters Classification: A
Latitude (N): 20°54'23"
Longitude (W): 156°29'20"

Receiving Waters Name: Iao Stream – End Receiving Water Point 5
Receiving Waters Classification: A
Latitude (N): 20°54'24"
Longitude (W): 156°29'19"

5.b. **Receiving Separate Drainage System**

Separate Drainage System Owner Name: County of Maui – Discharge Point 2
Latitude (N): 20°54'29"
Longitude (W): 156°29'26"

Separate Drainage System Owner Name: County of Maui – Discharge Point 4
Latitude (N): 20°54'23"
Longitude (W): 156°29'13"

Separate Drainage System Owner Name: County of Maui – Discharge Point 5
Latitude (N): 20°54'22"

Longitude (W): 156°29'14"

CWB-NOI FORM C

1.6.a. Quantity of Storm Water Discharge

Design runoff flows were determined by the Rational Method expressed as:

Q = C x I x A, where,
Q = Flow rate in cubic feet per second (cfs)
C = Runoff Coefficient = 0.90 for impervious areas
I = Rainfall Intensity in inches per hour
A = Drainage Area in acres

The storm water discharge from the project site is divided into seven areas: Discharge point 1 at Kaae Place, Discharge point 2 at Kuhio Place, Discharge point 3 at Iao Stream Bridge, Discharge Point 4 at Nukuwai Place, Discharge Point 5 at Eha Street, sheet flow discharge into Iao Stream to the west of the bridge, and sheet flow discharge into Iao Stream to the east of the bridge. The discharge points and points of receiving waters are explained as follows and shown in Figure 4, Discharge Points and Receiving Waters.

(1) Runoff from Waiehu Beach Road from Kaae Place to approximately STA. 11+50 will flow to the drain inlet at the intersection of Kaae Place and Waiehu Beach Road. Discharge Point 1 will enter the County of Maui's storm drainage system and ultimately flow into Receiving Water Point 1 (Pacific Ocean).

(2) Runoff from the mauka side of Waiehu Beach Road from Kuhio Place to approximately STA. 11+50 will flow to the catch basin at Kuhio Place. Discharge Point 2 will enter the County of Maui's storm drainage system and ultimately flow into Receiving Water Point 1 (Pacific Ocean).

(3) Runoff from Waiehu Beach Road along Iao Stream Bridge between STA. 13+22 and STA. 15+50 will flow towards the swale on the makai side of the bridge at the east end of the bridge. Discharge Point 3 will enter Iao Stream at Receiving Water Point 2.

(4) Runoff from Waiehu Beach Road from approximately STA. 15+50 to Nukuwai Place will flow towards the catch basin at Nukuwai Place. Discharge Point 4 will enter the County of Maui's storm drainage system and ultimately flow into Receiving Water Point 3 (Iao Stream).

(5) Runoff from the mauka side of Waiehu Beach Road from approximately STA. 17+00 to Eha Street will flow towards the catch basin at Eha Street.

Discharge Point 5 will enter the County of Maui's storm drainage system and ultimately flow into Receiving Water Point 3 (Iao Stream).

(6) Runoff from Waiehu Beach Road from approximately STA. 11+50 to STA. 13+22 will sheet flow away from the site and flow into Receiving Water Point 4 (Iao Stream).

(7) Runoff from the mauka side of Waiehu Beach Road from approximately STA. 15+50 to STA. 17+00 will sheet flow away from the site and enter Iao Stream at Receiving Water Point 5 (Iao Stream).

Discharge Points and Receiving Water Points are shown on the following figures and sheets:

1. Figure 4 – Discharge Points and Receiving Waters

Below are the hydrology calculations for the proposed areas:

(1) Waiehu Beach Road from Kaae Place to approximately STA. 11+50
C = 0.90
I = 4.0
A = 0.53 ac.
Q = 1.91 cfs

(2) Mauka side of Waiehu Beach Road from Kuhio Place to approximately STA. 11+50.
C = 0.90
I = 4.0
A = 0.19 ac.
Q = 0.68 cfs

(3) Waiehu Beach Road along Iao Stream Bridge between STA. 13+22 and STA. 15+50.
C = 0.90
I = 4.0
A = 0.26 ac.
Q = 0.93 cfs

(4) Waiehu Beach Road from approximately STA. 15+50 to Nukuwai Place.
C = 0.90
I = 4.0
A = 0.47 ac.
Q = 1.69 cfs

(5) Mauka side of Waiehu Beach Road from approximately STA. 17+00 to Eha Street.
C = 0.90

I = 4.0
A = 0.17 ac.
Q = 0.61 cfs

(6) Waiehu Beach Road from approximately STA. 11+50 to STA. 13+22.
C = 0.90
I = 4.0
A = 0.26 ac.
Q = 0.95 cfs

(7) Mauka side of Waiehu Beach Road from approximately STA. 15+50 to STA. 17+00.
C = 0.90
I = 4.0
A = 0.06 ac.
Q = 0.23 cfs

Total Q = 1.91 cfs + 0.68 cfs + 0.93 cfs + 1.69 cfs + 0.61 cfs + 0.95 cfs + 0.23 cfs = **7.0 cfs**