Attachment A-2
Tables and Calculations

TABLE I – DISCHARGE POINT INFORMATION & DISCHARGE QUANTITY

Discharge Point	LOCATION	Longitude	Latitude	Class	C	I (in/hr)	A (Acres)	Q (cfs)
1	Waiawa Stream	157.97481	21.39133	2	0.89	3.2625	3.64	10.59
2	Waiawa Stream	157.97420	21.39025	2	0.66	3.2625	0.84	1.79

Note: The actual disturbed area for Discharge Point 1 is 3.68 Acres. The actual disturbed area for Discharge Point 2 is 1.32 Acres. Since a portion of the area is under the viaduct, the area discharging from H-1 Freeway Viaduct through downspouts to the disturbed area below will be used to calculate the flow during construction. Areas not under the viaduct will use the actual areas for disturbance. The total areas are 3.37 Acres and 0.84 Acres respectively. Areas 1-4, 1-7, and 2-2 are the sub areas under the viaduct. The areas discharging from H-1 Freeway are 1.74, 0.00 and 0.16 Acres. The actual disturbed areas are 1.67, 0.39, and 0.64 Acres.

RUNOFF CALCULATIONS

Given: Area Disturbed 1-1A = 0.14 Acres
Area Disturbed 1-2 = 0.11 Acres
Area Disturbed 1-3 = 0.61 Acres
Area Disturbed 1-4 = 1.74 Acres
Area Disturbed 1-5A = 0.18 Acres
Area Disturbed 1-6 = 0.72 Acres
Area Disturbed 1-7 = 0.00 Acres
Area Disturbed 1-8 = 0.14 Acres

Area Disturbed 2-1 = 0.18 Acres
Area Disturbed 2-2 = 0.16 Acres
Area Disturbed 2-3A = 0.38 Acres
Area Disturbed 2-4 = 0.09 Acres
Area Disturbed 2-5 = 0.03 Acres

C = 0.95 (AC Pavement/Concrete Sidewalk/Concrete Driveways)
C=0.3 (Grassed/Pervious areas)

I = (2-yr, 1-hr event) = 1.45 in./hr.

$tc_{1\text{-}1A}$ = 10 min. (minimum)
$tc_{1\text{-}2}$ = 10 min. (minimum)
$tc_{1\text{-}3}$ = 10 min. (minimum)
$tc_{1\text{-}4}$ = 10 min. (minimum)
$tc_{1\text{-}5A}$ = 10 min. (minimum)
$tc_{1\text{-}6}$ = 10 min. (minimum)
$tc_{1\text{-}7}$ = 10 min. (minimum)
$tc_{1\text{-}8}$ = 10 min. (minimum)

$tc_{2\text{-}1}$ = 10 min. (minimum)
$tc_{2\text{-}2}$ = 10 min. (minimum)
$tc_{2\text{-}3A}$ = 10 min. (minimum)
$tc_{2\text{-}4}$ = 10 min. (minimum)
$tc_{2\text{-}5}$ = 10 min. (minimum)

Cf_{All} = 2.25

I = i X Cf

Since project area is less than 100 acres, the Rational Formula will be used to calculate potential runoff.

Find: Runoff for a 2-yr 1-hr rainfall event (Q).

Solution: Q = C x I x A

$Q_{1\text{-}1A}$ = (0.30) x (3.2625 in/hr) x (0.14 Acs)
$Q_{1\text{-}1A}$ = 0.14 cfs
$Q_{1\text{-}2}$ = (0.95) x (3.2625 in/hr) x (0.11 Acs)
$Q_{1\text{-}2}$ = 0.34 cfs
$Q_{1\text{-}3}$ = (0.95) x (3.2625 in/hr) x (0.61 Acs)
$Q_{1\text{-}3}$ = 1.89 cfs
$Q_{1\text{-}4}$ = (0.95) x (3.2625 in/hr) x (1.74 Acs)
$Q_{1\text{-}5}$ = 5.40 cfs
$Q_{1\text{-}5A}$ = (0.30) x (3.2625 in/hr) x (0.18 Acs)
$Q_{1\text{-}5A}$ = 0.18 cfs
$Q_{1\text{-}6}$ = (0.95) x (3.2625 in/hr) x (0.72 Acs)
$Q_{1\text{-}6}$ = 2.22 cfs
$Q_{1\text{-}7}$ = (0.95) x (3.2625 in/hr) x (0.00 Acs)
$Q_{1\text{-}7}$ = 0.00 cfs
$Q_{1\text{-}8}$ = (0.95) x (3.2625 in/hr) x (0.14 Acs)
$Q_{1\text{-}8}$ = 0.43 cfs

$Q_{2\text{-}1}$ = (0.95) x (3.2625 in/hr) x (0.18 Acs)
$Q_{2\text{-}1}$ = 0.55 cfs
$Q_{2\text{-}2}$ = (0.95) x (3.2625 in/hr) x (0.16 Acs)
$Q_{2\text{-}2}$ = 0.50 cfs
$Q_{2\text{-}3A}$ = (0.30) x (3.2625 in/hr) x (0.38 Acs)
$Q_{2\text{-}3A}$ = 0.37 cfs
$Q_{2\text{-}4}$ = (0.95) x (3.2625 in/hr) x (0.09 Acs)

$Q_{2\text{-}4}$ = 0.28 cfs

$Q_{2\text{-}5}$ = (0.95) x (3.2625 in/hr) x (0.03 Acs)

$Q_{2\text{-}5}$ = 0.09 cfs