FORM C ATTACHMENT A-2

Tables and Calculations

TABLE 1 – DISCHARGE POINT INFORMATION AND DISCHARGE QUANTITY

Discharge Point	Location	Latitude	Longitude	Class	C	I (in/hr	A (Acres)	Q (cfs)
Outfall 1	Nawiliwili Stream	N21.9706872D	W159.3672817D	2	0.85	5.52	1.75	8.21
Outfall 2	Nawiliwili Stream	N21.9660977D	W159.3626433D	2	0.85	5.52	2.60	12.20
Outfall 3	Nawiliwili Stream	N21.9642176D	W159.3616816D	2	0.85	5.52	1.44	6.76
Outfall 4	Puali Stream	N21.9523912D	W159.3660036D	2	0.85	5.52	5.47	25.67
Outfall 5	Nawiliwili Bay	N21.9548910D	W159.3542227D	2	0.85	5.52	5.31	24.92
Outfall 6	Nawiliwili Bay	N21.9574295D	W159.3522093D	2	0.85	5.52	0.66	3.10

Total Discharge (Q_{total}) = 80.86 cfs

Runoff Calculations

Q = CIA

where: Q = quantity of storm water runoff in cu. ft/sec.

C = runoff coefficient

A = disturbed area in acres

Tc = Rainfall intensity for the duration equal to time of concentration

= 10 min (minimum)

For this project:

C = 0.87 for paved areas

C = 0.80 for unpaved shoulders

(Using composite drainage areas, a weighted value runoff coefficient shall be computed. The weighted value of runoff coefficient for this project, C = 0.85)

I = 5.52 (see calculations below)

A = varies (see table below)

I = I x Cf

i = 2.4 (intensity of a 2-yr 1-hr rainfall)

Cf = 2.30 (correction factor)

I = 2.40 x 2.30 = 5.52

Disturbed Area: (Includes Staging/Storage Areas, see note below)

I-1 = 0.11 Acs

I-2 = 0.11 Acs

I-3 = 0.11 Acs

I-4 = 0.11 Acs

I-5 = 1.31 Acs

I-6 = 1.75 Acs

I-7 = 0.31 Acs

I-8 = 0.05 Acs

I-9 = 0.70 Acs

I-10 = 0.74 Acs

I-11 = 0.80 Acs

I-12 = 1.64 Acs

I-13 = 2.15 Acs

I-14 = 0.21 Acs

S-1 = 0.85 Acs

S-2 = 2.67 Acs

S-3 = 1.16 Acs

S-4 = 1.08 Acs

S-5 = 0.71 Acs

S-6 = 0.66 Acs

NOTE: Since this is a linear project, there will be several locations of Staging/Storage Areas. Probable Storage/Staging Areas will be located along the unpaved shoulder within the state right of way.

Discharge (Q) to Outfall 1 (Nawiliwili Stream)

Q_{I-1} = (0.85) x (5.52 in/hr) x (0.11 Acs)

Q_{I-1} = 0.52 cfs

Discharge (Q) to Outfall 1 (Nawiliwili Stream)

Q_{I-2} = (0.85) x (5.52 in/hr) x (0.11 Acs)

Q_{I-2} = 0.52 cfs

Discharge (Q) to Outfall 1 (Nawiliwili Stream)

Q_{I-3} = (0.85) x (5.52 in/hr) x (0.11 Acs)

Q_{I-3} = 0.52 cfs

Discharge (Q) to Outfall 1 (Nawiliwili Stream)

Q_{I-4} = (0.85) x (5.52 in/hr) x (0.11 Acs)

Q_{I-4} = 0.52 cfs

Discharge (Q) to Outfall 1 (Nawiliwili Stream)

Q_{I-5} = (0.85) x (5.52 in/hr) x (1.31 Acs)

Q_{I-5} =6.15 cfs

Discharge (Q) to Outfall 2 (Nawiliwili Stream)

Q_{I-6} = (0.85) x (5.52 in/hr) x (1.75 Acs)

Q_{I-6} = 8.21 cfs

Discharge (Q) to Outfall 4 (Puali Stream)

Q_{I-7} = (0.85) x (5.52 in/hr) x (0.31 Acs)

Q_{I-7} = 1.45 cfs

Discharge (Q) to Outfall 4 (Puali Stream)

Q_{I-8} = (0.85) x (5.52 in/hr) x (0.05 Acs)

Q_{I-8} = 0.23 cfs

Discharge (Q) to Outfall 3 (Nawiliwili Stream)

Q_{I-9} = (0.85) x (5.52 in/hr) x (0.70 Acs)

Q_{I-9} = 3.28 cfs

Discharge (Q) to Outfall 3 (Nawiliwili Stream)

Q_{I-10} = (0.85) x (5.52 in/hr) x (0.74 Acs)

Q_{I-10} = 3.47 cfs

Discharge (Q) to Outfall 4 (Puali Stream)

Q_{I-11} = (0.85) x (5.52 in/hr) x (0.80 Acs)

Q_{I-11} = 3.75 cfs

Discharge (Q) to Outfall 4 (Puali Stream)

Q_{I-12} = (0.85) x (5.52 in/hr) x (1.64 Acs)

Q_{I-12} = 7.69 cfs

Discharge (Q) to Outfall 5 (Nawiliwili Bay)

Q_{I-13} = (0.85) x (5.52 in/hr) x (2.15 Acs)

Q_{I-13} = 10.09 cfs

Discharge (Q) to Outfall 5 (Nawiliwili Bay)

Q_{I-14} = (0.85) x (5.52 in/hr) x (0.21 Acs)

Q_{I-14} = 0.99 cfs

Discharge (Q) to Outfall 1 (Nawiliwili Stream)

Q_{S-1} = (0.85) x (5.52 in/hr) x (0.85 Acs)

Q_{S-1} = 3.99 cfs

Discharge (Q) to Outfall 4 (Puali Stream)

Q_{S-2} = (0.85) x (5.52 in/hr) x (2.67 Acs)

Q_{S-2} = 12.53 cfs

Discharge (Q) to Outfall 5 (Nawiliwili Bay)

Q_{S-3} = (0.85) x (5.52 in/hr) x (1.16 Acs)

Q_{S-3} = 5.44 cfs

Discharge (Q) to Outfall 5 (Nawiliwili Bay)

Q_{S-4} = (0.85) x (5.52 in/hr) x (1.08 Acs)

Q_{S-4} = 5.08 cfs

Discharge (Q) to Outfall 5 (Nawiliwili Bay)

Q_{S-5} = (0.85) x (5.52 in/hr) x (0.71 Acs)

Q_{S-5} = 3.33 cfs

Discharge (Q) to Outfall 6 (Nawiliwili Bay)

Q_{S-6} = (0.85) x (5.52 in/hr) x (0.66 Acs)

Q_{S-6} = 3.10 cfs