<u>Appendix 7.4 Detailed estimation of sewage flow generated from project Sewage Discharge Estimation</u>

Based on the architectural layout plan received from Aedas on 3 April 2014.

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1. Sewage Discharge Estimation for Waterpark & Existing Ocean Park Facilities

1. Jewage Distila	ige Latillation it	n vvaterpark	& Existing Ocean Par	K Facilities			
			Discharge From Populat	ion			
Building /			Population	Daily Water Dis	charge Rate	Daily	Water
Activity Area	Source		(person)	(I/person	ı/day)	Discharge	(m ³ /day)
Waterpark	Guest	*Note 10	10500	*Note 1	20		210.00
	Staff	*Note 8	500	*Note 2	80		40.00
					Sub-total		250.00

Discharge From F&B						
	` '	` '	No. of Guest	No. of Employee		Daily Water
Source			*Note 12			Discharge (m3/day)
L1 - F&B	625	500	333	67	1580	105.33
L1 - Canteen	270	216	144	29	1580	45.50
L1 - F&B	1255	1004	669	134	1580	211.51
L2- F&B	460	368	245	49	1580	77.53
L2- F&B	93	74	50	10	1580	15.67
					Sub-total	455.55

	Demand From Cleansing Water		
		Water	
	No. of Cleansing	Consumption of	
	Point	Each Point	Daily Water
Source	*Note 8	(L/ Point)	Discharge (m³/day)
Cleansing Water	100	45	4.5
		Sub-total	4.50

	Discharge From Existing TSW Facilities					
Source	Meter No.	Existing Meter Rea		Estimated Daily Water Discharge due to extended opearting hours (m3/day)		
Development Headland &						
Inter-Mediate Rides	M10-600668	*Note 6	0.40	0.47		
Headland and Intermediate		* A1-1-7	50.00	70.00		
Rides Flume Ride	M11-480038	*Note 7	60.00	70.00		
			Sub-total	70.47 (

Opening Hours	No. of Opening Hour (Hours)
14	9am - 11pm
14	9am - 11pm

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Date: 22-Apr-14

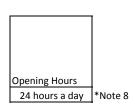
Opening Hours	No. of Opening Hour (Hours)
14	9am - 11pm

	No. of Opening Hour (Hours)
14	9am - 11pm

Opening Hours	No. of Opening Hour (Hours)
14	9am - 11pm
14	9am - 11pm

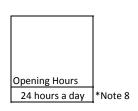
2. Sewage Discharge Estimation for Fisherman's Wharf Hotel

2. Sewage Discharge Es	timation for F	<u>isherman's whart Hotel</u>						
Discharge From Future Hotel - Fisherman's Wharf Hotel								
	No. of	Population Density				(7) 7 77	Daily Wa	
Source	Guestroom	(No. of Employee/ room)		No. of Employee		*Note 5	Discharge (m3/da	ıy)
Fisherman's Wharf Hotel	460	*Note 8	0.5		230	1580	363.	.40
						Sub-total	363.	.40 (



3. Sewage Discharge Estimation for Spa Hotel

		Discharge From Future Ho	otel -	Spa Hotel			
						Daily Water	
						Discharge Rate	
	No. of	Population Density				(I/person/day)	Daily Water
Source	Guestroom	(No. of Employee/ room)		No. of Employee		*Note 5	Discharge (m3/day)
Spa Hotel	180	*Note 8	0.5		90	1580	142.20
	•					Sub-total	142.20



4. Total Discharge from Ocean Park to 450mm diameter Sewer

4. Total Discharge Hom Ocean Park to 430mm di		
Source	Total Flow	
Water Park (a) + (b) + (c)	710.05	
Discharge From Existing TSW Facilities (d)	70.47	
Fisherman's Wharf Hotel (e)	363.40	
Spa Hotel (f)	142.20	
Total Average Daily Flow (m³/day)	1286.11	
Contributing Population	4763.38	*Note 14
Peaking Factor	6.00	*Note 14
Total Peak Flow (L/s)	153.11	*Note 11

*Note 1: Data taken from "Plumbing Engineering Services Design Guide - Hot and cold water supplies",

Table 2: Daily Water Demand - Sports Changing - Swimming Pool: 20L/ person.

- *Note 2: Data taken from "EPD/TP 1/05 Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning", Table T-2 Commercial Employee: 80 L/day.
- *Note 3: Data taken from "EPD/TP 1/05 Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning", Table T-5 Peaking Factors.
- *Note 4: Assume 80% of the GFA is UFA.
- *Note 5: Data taken from "EPD/TP 1/05 Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning",

Table T-2: J10 - Restaurants & Hotels 1.500 m3/day and Commercial Employee 0.080 m3/day.

- *Note 6: By referring to the Meter Reading in April of "Average Daily Consumption" table of the bill (Charge No.: 90930800009) for "Development Headland & Inter-Mediate Rides" and taking the peak value in the entire year.
- *Note 7: By referring to the Meter Reading in January of "Average Daily Consumption" table of the bill (Charge No.: 74650000008) for "Headland and Intermediate Rides Flume Ride" and taking the peak value in the entire year.
- *Note 8: Figures estimated by Meinhardt.
- *Note 9: Data taken from the architectural layout plan received from Aedas on 3 April 2014'
- *Note 10: Figures taken from "100% Schematic Design Report" received on 7 Feb 2014 From Aedas.
- *Note 11: Peak Flow is calculated according to the 14 working hours per day.
- *Note 12: Assume 1 guest occupies 1 $.5 \, \text{m}^2$ of the seating area.
- *Note 13: Assume 1 employee serves 5 guests.
- *Note 14: According to Clause 12.1 of "EPD/TP 1/05 Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning",