

564/793

12th April 2012

Waikato Regional Council

P O box 4010

HAMILTON EAST

Attention: Trisha Simonson

Dear Trisha,

Application Details:

Application number:	
Applicant:	Inspired Properties
Activity Type:	Wastewater Discharge
Location:	Hikuai Settlement Rd, Pauanui

Further to your email dated 23rd March 2012 to Trisha Simonson from Waikato Regional Council regarding the proposed wastewater management for the proposed Camp Ground, Hikuai Settlement road, Pauanui, we provide the following information.

1. Design Wastewater Production Rate**1.1 Site 1 Orere Point Campground, Orere Point**

Water use was monitored over the busy summer period (December/January) and daily occupancy also recorded to allow assessment of the per capita water use (wastewater production).

Facilities provided comprise 3 x ablutions blocks, 1 x kitchen block, cabins, campsites and permanent caravan sites plus the managers dwelling including the site office.

The water use data is collated in the table below.

TABLE 1 Orere Point Campground Summary of 2008/2009 Metered Water Consumption			
Date	Metered water Consumption (m ³ /day)	Number of Campers (campers/day)	Per Capita Water Use (litres/person/day)
18/12/2008	11	64	172
19	12	102	118
20	8	93	86
21	10	96	104
22	19	93	204
23	9	99	91
24	(0)	130	Pump Turned Off
25	9	147	61
26	19	210	90
27	23	302	76
28	25	314	80
29	(56)	312	Pipe Burst
30	25	312	80
31	24	308	78
1/1/2009	15	342	44
2/1	33	338	98
3/1	29	331	88
4/1	27	347	78
5/1	29	318	91
6/1	27	317	85
7/1	25	326	77
8/1	28	319	88
9/1	29	329	88
10/1	24	269	89
11/1	23	233	99
12/1	23	230	100
Average	17.7	251	94
Maximum	33	347	204
Minimum	8	64	44
Note. 1. Maximum occupancy does not correspond with highest daily water use.			

Review of the metered water consumption indicates that a realistic per capita water consumption for all occupants is 90 litres/person per day. This includes campers, permanent occupants and managers dwelling occupants. Actual per capita water use is highly variable ranging from 44 litres to 207 litres per person. The maximum metered water use was 33,000 litres (excluding a higher use day when a water main rupture occurred) with an occupancy of 338 campers. In general the higher the occupancy the lower the per capita water use. This lower water use during high occupancy might be explained by campers taking shorter showers and spending less time in kitchens etc when there are a large number of people wanting to use the facilities compared with less pressure on people when occupancy is low and having longer showers.

1.1 Site 2 Goat Island Campground, Leigh.

Wastewater discharge water meter results were collected for the period December 12th 2004 to 16th February 2005 and the meter was read to the nearest 500 litres. Results of the 2004/2005 summer daily wastewater discharge, camper occupancy and dwelling residents are summarised in the table below. We point out that the discharge includes campers plus the owners dwelling and therefore the camper wastewater flow rates would appear higher than if the dwelling were separate. The facilities provided include, ablutions block, kitchen, laundry but as discussed above includes wastewater from the managers dwelling.

Date	Metered water Consumption (m ³ /day)	Number of Campers (campers & Residents/day)	Per Capita Water Use (litres/person/day)
12/12/2004			
13	4.0	20	200
14	2.0	20	100
15	3.0	32	94
16	2.0	40	50
17	3.0	60	50
18	5.0	80	62
19	6.0	44	136

20	3.0	40	75
21	5.0	39	128
22	4.0	51	78
23	5.0	45	111
24	5.0	38	131
25	4.0	40	100
26	5.0	40	125
27	4.0	35	114
28	5.0	43	116
29	6.0	56	107
30	6.0	70	86
31	4.5	85	53
1/1/2005	6.5	82	79
2	6.0	86	70
3	6.0	84	71
4	6.0	80	75
5	6.0	80	75
6	6.5	85	76
7	6.5	89	73
8	6.0	82	73
9	6.0	82	73
10	6.0	80	75
11	6.0	80	75
12	5.0	76	66
13	5.0	72	69
14	6.5	72	90
15	6.5	76	86
16	6.0	75	80
17	6.0	72	83
18	6.0	69	87
19	6.0	72	83
20	6.5	80	81
21	6.5	86	76
22	6.5	88	73
23	6.5	80	81
24	6.0	75	80

25	6.0	72	83
26	6.0	60	100
27	5.0	73	68
28	6.0	62	97
29	6.0	84	71
30	5.0	80	63
31	5.0	80	63
1/2/2005	5.0	40	125
2	4.0	46	87
3	5.0	4.0	125
4	5.0	38	132
5	5.0	35	143
6	5.0	45	111
7	5.0	58	86
8	5.5	78	71
9	3.5	49	71
10	3.5	30	116
11	1.5	20	75
12	2.0	15	133
13	2.0	18	111
14	2.0	10	100
15	2.0	11	182
16	20	10	200

Note.

1. Maximum occupancy does not correspond with highest daily water use.

TABLE 2 GOAT ISLAND CAMPGROUND WASTEWATER FLOW SUMMARY						
No of Readings	Max Discharge Volume (litres/day)	Max Occupancy Campers Plus House (No people)	Max Per Capita Flow (L/p/d)	Av Flow Per capita/d (67 days) (L/p/d)	Av Flow/capita/d (>50p onsite) (L/p/d)	Peak Occupancy (93p) per Capita Flow (L/p/d)
67	6,500	89p + 4p (93p)	200	79	72	70
Notes.						
<ol style="list-style-type: none"> All flows include wastewater from the 2 bedroom dwelling and Camper facilities. Per capita rates allow for 4 dwelling occupants as well as campers onsite per day. Maximum per capita flow and maximum occupancy do not coincide. 14 person occupancy with 200 l/d water discharge. 93 person occupancy with 70 l/p/d water discharge. Lowest per capita flow rate of 47 L/p/d occurred with an occupancy of 44 to 64 campers and residents. 						

Analysis of the wastewater discharge meter readings indicate that the highest daily discharge of 6,500 litres had a per capita wastewater production rate of 70 l/p/d. The highest per capita flow rate of 200 l/p/d occurred with a camp occupancy of 10 people plus the dwelling or 14 people in total. This would reflect the higher impact of wastewater production from the dwelling that does not include coin operated showers etc which we would be expected to result in a higher pre capita wastewater production rate than for campers.

1.3 Discussion

Flow records sourced from the two operating campgrounds show that the proposed design flow allowance of 90 l/camper/day is realistic at high occupancy. However we have conservatively used a design flow allowance of 130 l/p/d for occupants of cabins and the managers dwelling as these facilities have self contained facilities and therefore occupants are likely to use more water than campers using shared facilities with coin operated showers.

2.0 Campground Utilisation

As detailed in our report accompanying the application we anticipate the campground having maximum use (full or close to full occupancy) from Christmas day through to the end of January then slowly reducing during February to about 50% occupancy. Long

weekends/public holidays throughout the year are also expected to have high occupancy and possibly maximum occupancy. We anticipate low use (less than 50%) occupancy for the remainder of the year.

3.0 Buffer Capacity

The system is designed for the maximum occupancy of 722 people including the managers dwelling but has capacity to treat occasional flows of up to approximately 85,000 litres per day although not for every day of the entire year. There is also an additional 24 hours design flow emergency storage provided in all pump chambers. In the event of higher wastewater production the systems modular design allows for expansion to accommodate such flow.

4.0 Boat Wash Water

It is proposed to provide a hard stand area for washing boats. In order to minimise potable water use it is proposed to collect all wash water in a sump and recycle this. There will be losses requiring the sump to be topped up from time to time and this would be managed via float switch. It is not anticipated that any discharge will be necessary.

Should you have any queries or require clarification please contact the undersigned.

Yours faithfully,

ORMISTON ASSOCIATES LTD.



A. W. Ormiston
Director

cc Inspired Properties
PO Box 71
Hamilton 3240

Planners Plus
PO Box 218
Whitianga 3542

