

Sewage System

Environmental Wastewater Solutions specialist package treatment plant unit based upon the following parameters:

Input Material – Domestic Sewage,

Max Inlet Flow:	33.3m ³ /d	
Peak flow rate:	4.16m ³ /hr	
BOD Load:	13.32 kg BOD/day	(400mg/l @ DWF)
NH ₄ -N load:	1.77 kg NH ₄ -N/day	(53mg/l @ DWF)

The above is confirmed via Flows and Loads calculations

However, it should be noted that the above is designed on the maximum theoretical occupancy of the site. However, the nature of the site is a holiday camp which does not have any permanent occupancy.

A calculation has been undertaken based upon typical occupancy levels from the existing site (Occupancy Calculation), which shows a typical average occupancy across the year of 42.2%.

Therefore, the average input levels across the whole year will be:

Max Inlet Flow:	14.06 m ³ /d	
BOD Load:	5.63 kg BOD/day	(400mg/l @ DWF)
NH ₄ -N load:	0.75 kg NH ₄ -N/day	(53mg/l @ DWF)

This is noted as being below the threshold of a discharge permit if the flow was continually at this rate.

Nature of the discharge

The Final Effluent Standard from EWwS is stated as:

Max Outlet Flow:	33.3m ³ /d	
BOD:	< 20mg/l	(0.666 kg BOD/day)
TSS:	< 30mg/l	(0.999 kg TSS/day)
NH ₄ -N:	< 20mg/l	(0.666 kg NH ₄ -N/day)

The discharge from the Package Treatment plant enters an infiltration field.

	Foul Flows & Loads	
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Treatment System Enquiry Sizing Sheet

Source of Waste Description					FLOW LITRE / DAY		BOD GRAMS / DAY		NH ₃	
	No Houses	No Bedrooms	P Eq	No.	Per Head	TOTAL	Per Head	TOTAL	Per Head	TOTAL
Amenity Sites										
Static Fully Serviced	45	2	4	180	150	27000	60	10800	8	1440
Static Fully Serviced	7	3	6	42	150	6300	60	2520	8	336
Static Not Serviced	0	2	4	0	100	0	44	0	8	0
Touring not serviced	0	2	4	0	100	0	44	0	8	0
TOTAL FOR PROJECT										
						33300		13320		1776
Population Equivelent (Based upon Domestic Values)						222		222		222

P Value to be used for Soakaway Sizing 222

Proposed Domestic Sewage Treatment Plant

Manufacturer: EWwS
Range:
Model: E-100 SHR RBC

Occupancy Calculation

Site Occupancy Calculation

Month	Comment	Weeks		Week Day	Week End	Total
				5 days	2 days	
Jan	Closed	4		0%	0%	0
Feb	Closed	2		0%	0%	0
Feb		2		15%	50%	3.5
Mar		5		15%	50%	8.75
Apr		2		30%	60%	5.4
Apr	Easter Holidays	2		75%	90%	11.1
May		3		45%	70%	10.95
May	Whit Holidays	1		90%	100%	6.5
Jun		5		60%	80%	23
Jul		2		60%	90%	9.6
Jul	Summer Holidays	2		90%	100%	13
Aug	Summer Holidays	4		90%	100%	26
Sep		5		50%	70%	19.5
Oct		3		25%	50%	6.75
Oct	Half Term Holiday	1		75%	90%	5.55
Nov		2		25%	50%	4.5
Nov	Closed	2		0%	0%	0
Dec	Closed	5		0%	0%	0

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Total equivalent days of full occupancy	97.5	56.6	154.1
Total days in 1 year	261	104	365
%age occupancy	37.4%	54.4%	42.2%

Therefore Average Daily Discharge over whole year

$$33.3 \text{ m}^3 \times 42.2\% = 14.05 \text{ m}^3/\text{d}$$

Re: Sewage Treatment Plant for Fir View Caravan Park

Thank you for giving EWwS this opportunity to offer our proposal for the wastewater treatment plant. We now enclose our proposal and comments for process related issues which we hope are useful.

We have sized the plants as per design parameters we derived from British Water Code of Practice Flows & Loads – 4

We have assumed that:-

1. Surface water will be excluded from the foul water drainage
2. Grease will be dealt with prior to entering the treatment plant.

Design Parameters

Temperature	12 ⁰ C – 20 ⁰ C (assumed wastewater temperature)
Flow (DWF)	33.3m ³ /d (Dry weather)
Peak Flow rate	4.16m ³ /hr (Dry weather)
BOD load	13.32kgBOD ₅ /day (400mg/l @ DWF)
NH ₄ -N load	1.77kgNH ₄ -N/day (53mg/l @ DWF)

Final Effluent Standard

BOD	< 20mg/l
TSS	< 30mg/l
NH ₄ -N	< 20mg/l

1 x RBC packaged plant 100 SHR as per drawing No GA0030 – 3

We offer our 100 SHR packaged RBC treatment plants in GRP casing with covers. The RBC will be driven by a 0.37 Kw close coupled shaft mounted geared motor.

The delivered units would be ready to be installed on a concrete slab for levelling and concrete backfilling. For this a suitable crane will be required to offload the unit from the lorry. EWwS have not included for a crane for offloading at site.

We trust the above meets with your requirements. Should you need to discuss any details above, please do not hesitate to contact us on +44 (0) 756 555 3944 or +44 (0) 1442 957 875 Yours sincerely



Carlos Mateus

Sales

EWwS Ltd