WATER NEUTRALITY REPORT – BUCKS GREEN PIG FARM, BUCKS GREEN, RUDGWICK

The site falls within the Sussex North Water Supply Zone, in which Natural England have written to all authorities within the zone providing a position statement for applications which may place increased pressure on this zone. This explains that recent case law has established that abstraction from the Supply Zone may be having an impact on protected sites (Arun Valley Special Area of Conservations (SAC), Special Protection Area (SPA) and Ramsar site). As a result, developments within this zone must not add to this impact, as such, the purpose of this report is to therefore provide an overview on the potential water usage changes on the site as a result of the proposed development, and to confirm that the site is water neutral.

Achieving water neutrality involves using a three-step approach. First, the demand for water from the new development must be reduced as far as is practicable, followed by the re-use of water; then the remaining demand should be offset within the region. Following this three-step approach allows the volume that requires offsetting to be reduced which ultimately reduces the cost of the overall scheme.

Some increase in water demand within the region from planned development during the local plan period is inevitable. However, it can be minimised by making the site as water efficient as possible. Per Capita Consumption (PCC) is used as a measure of water use and is the volume of water that is used by one person in one day. It is usually measured in litres per person per day (l/p/d). The average PCC within Southern Water's 'Sussex North Water Resource Zones (WRZ)' is 135 l/p/d. Homes without a water meter consume on average 160 l/p/d and for homes with a water meter, consume on average 131 l/p/d. Part G of the Building regulations currently states that new build housing should achieve a minimum of 125 l/p/d. A tighter target of 110 l/p/d can be requested if the local authority can establish a clear need based on available evidence. Southern Water's Target 100 Ambition IS to achieve 100 l/p/d.

The proposal is for 6 dwellings, it is an outline application but assume 3 bedrooms per unit. In line with Horsham District Council's guidance, for where water bills are not available, alternative data using the Building Regulations Part G or BREAM water calculators should be used, along with appropriate occupancy rates.

A 3-bed house has an average occupancy of 2.47; total proposed occupancy would therefore be 2.47 x 6 = 14.82 persons.

The first and most important step in achieving water neutrality will be to ensure that the water used by the proposed development is used as efficiently as possible; the smaller the water demand of the building due to the design and fittings, the less water is needed to be reused and offset. There are a number of ways of achieving a smaller water demand:

• Fitting homes with efficient products, such as: - Aerated Taps - Aerated Shower heads - Low Flush Toilets, or air flush toilets - Water efficient white goods

• Installing Smart Meters, this allows the consumer to see how much water they are using, and how this affects their water saving bill. This can help consumers to reduce water usage, identify leaks, and meet water saving targets, with the bonus of reduced bills.

• Designing home to encourage water saving behaviours, this can also help reduce water use and help ensure that other measures that are put in place are effective. Education and awareness are important components of achieving water neutrality.

The proposal can implement the following measures in order to focus on becoming a water efficient development. By installing the following features, the development can achieve a water demand of around 85 l/p/d.

Water Fitting and Consumption Level

WC 4/2.6 litres dual flush

Shower 7 l/min

Bath 145 litres

Basin Taps 2.5 l/min

Sink Taps 5 l/min

Dishwasher 0.67 l/place setting

Washing Machine 5.5 l/kilogram

Water demand can also be reduced through fitting metres, which help to identify leaks and track water consumption as a way to support and encourage behavioural changes such as, not leaving the tap running when brushing teeth and using eco-settings on the washing machine and dishwasher. It

should be noted that behavioural changes have not been used within the calculations within this report as it is impossible to enforce.

At 85 l/p/d for each dwelling, over the course of a year this would total 76632 litres of demand (85x2.47x365). Each unit will therefore incorporate a 5000 litre rainwater harvesting tank to resolve matters in relation to water neutrality. The calculations overleaf demonstrate a demand for 81395 litres per year, which exceeds the 76632 above, and this can be achieved using a 5000 litre tank.

TANKS SIZE CALCULATOR

The tank size calculator service is provided by RainWater Harvesting so you can establish the size of tank you might decide to install. You will need to know the approximate dimensions of your house in metres. If in doubt, just pace out the house length and width.

COLLECTABLE ROOF AREA (M²)

Main Building	Width:	7	Length:	10	Rain Collection Area:	70	m²
Extension one	Width:		Length:		Rain Collection Area:	0	m²
Extension Two	Width:		Length:		Rain Collection Area:	0	m²
Extension Three	Width:		Length:		Rain Collection Area:	0	m²
Or the total roof area, if you already know it:				0	Total area of collectable roof space:	70	m²
Select Your Region		England SE & Central S			Average rainfall per year in your region:	64	L
Collectable rainwater per annum in litres - discounted by 20% to account for water loss						**35840**	**L**

USE OF RAINWATER IN THE BUILDING

	people:	*bedrooms:*	
Number of people or bedrooms in the building -	5	0	
☑ Number of clothes washing cycles per day (*50 litres each*)	1.25 Cycles	62.50	L
☑ Number of toilet flushes per day (*4.42 flushes per person, average 5 litres each*)	22.10 Flushes	110.50	L
Outdoor use in litres, per person per day (*recommended 5 litres per person per day*)	10	50.00	L
Amount of water you require every day		223	L
Amount of water you require every year	**DEMAND**	**81395**	**L**

FINAL FIGURES

How many days drought protection do you need? Typically 21 (18 minimum)	35	
Capacity of water storage in litres required for drought protection	7805.00	L
The lesser of YIELD (blue) or DEMAND (green) per annum	35840	L
Therefore, volume of rainwater storage required	**3436**	**L**

CONCLUSION

Is there sufficient roof water available:		NOT ENOUGH RAINWATER
Recommended tank size from our shallow dig range:	F-Line Range:	5000 LITRE F-LINE TANK