

Water Neutrality Statement Lock House

8 January 2025

Introduction

1.1 This Water Neutrality Statement (WNS) has been prepared on behalf of Cosmo Empire Limited to demonstrate how the proposed development at Lock House, Partridge Green, will achieve water neutrality.

1.2 Following the issue of Natural England's (NE's) Position Statement on Water Neutrality within the Sussex North Water Supply Zone (SNWSZ) it is understood that Horsham District Council (HDC) require all new and reserved matters planning applications to demonstrate that a development within the SNWSZ can be water neutral.

1.3 The SNWSZ covers part of the Horsham District, as well as parts of the neighbouring Chichester, Arun and Crawley Districts. A plan showing the supply area can be found in Appendix A.

1.4 This WNS sets out the following:

- a. Baseline calculations for the existing development;
- b. Additional demand as a result of the proposed development;
- c. What water reduction measures have been employed, such as water efficient fixtures and fittings

Background

2.1 The proposed development is located at Lock House, Lock Lane, Partridge Green (RH13 8EG).

2.2 The site currently consist of a fourteen-bed house with an exterior one-bed studio-garage, plus an outdoor and indoor swimming pool and surrounding land.

2.3 The housing mix of the proposed redevelopment will provide 4no. total units. 3no. units from the existing fourteen-bed house, consisting of 1no. three-bed dwellings and 2no. five-bed+ houses. It will also provide 1no. unit from the existing one-bed studio garage, consisting of 1no. three-bed house. A copy of the proposed site layout can be seen in Appendix B.

Baseline Calculations

3.1 The existing unit including the interior swimming pool will be redeveloped, therefore, prior to the development there will be 2,275.61 litres per day reduction in mains water consumption within the SNWSZ. Because the supply to Lock House is not metered this is based in accordance with Horsham District Council's on a survey to determine Part G Flow rates and utilising actual occupancy of 11 family occupants, plus partners, plus domestic staff and workers in a 14 bedroom house with offices. The stated reduction can be offset against the future water demand of the proposed development. The existing Part G Calculation can be found in full in Appendix C.

Additional Demand

4.1 As previously defined, the proposed redevelopment of the site will provide 2no. three-bed dwellings and 2no. five-bed dwellings.

4.2 Part G of the current Buildings Regulations recommends that all developments achieve a 'water efficient' consumption of 125 litres per person per day. This water consumption figure can be used with the population of the proposed development to calculate what the future demand is likely to be.

The occupancy levels for the development have been drawn from local census data (as recommended by HDC in their water neutrality methodology guidance) and this is summarised in Table 4.1 below.

1 Bed	2 Bed	3 Bed	4 Bed	5 Bed
1.32	1.88	2.47	2.86	3.09

Table 4.1 – Average district occupancy levels per dwelling size

4.4 Using the above census data and the housing mix defined above, the population of the proposed development is estimated to be 11.12 persons.

4.5 Using the Building Regulations water consumption figure of 125 litres per person per day and population size of 11.12, it is estimated that the total water usage per day for the proposed development would be 1,390 litres per day.

4.6 Therefore, following the redevelopment of the existing development, there will be a net decrease in water demand of 885.60 litres per day. At this stage, the proposed development can be considered to be water neutral.

Water Reduction Measures

5.1 To further minimise the demand on the mains water, it is proposed that the new dwellings will achieve a water efficiency of less than 110 litres per person per day of water, which will be in accordance with the optional water efficiency target set out in the Building Regulations Part G. This will be achieved through the use of water efficient fixtures and fittings.

5.2 A water calculation in accordance with Buildings Regulations Part G has been carried out and confirms that the proposed dwellings will achieve a water consumption of 84.45 litres per person per day, which includes an allowance of 5 litres per person per day for external water usage. A copy of the Part G calculation can be found in Appendix D and is summarised in Table 5.1, below:

	Total Water Usage (l/p/day)
WC (full flush)	5.84
WC (part flush)	5.92
Taps (Excluding Kitchen)	5.85
Shower	26.22
Bath	14.30
Kitchen Taps	12.12
Washing Machine	13.50
Dishwasher	3.56
Total	87.31
Normalisation Factor	0.91
Total	79.45
External Water Use	5
Total	84.45

Table 5.1 – Water Usage

5.3 A copy of the proposed fixtures and fittings to achieve the above water consumption can be found in Appendix D.

5.4 Using the Part G water consumption figure of 84.45 litres per person per day and the census-based development population of 11.12 it is estimated that the mains water demand per day for the proposed development can be reduced to 939.08 litres per day.

5.5 Therefore, following the redevelopment of the site, there will be a net decrease in mains water demand of 1,336.53 litres per day. At this stage, the proposed development can be considered to be water neutral.

Summary and Conclusions

7.1 This Technical Note sets out the water usage strategy for the proposed development at Lock House, Lock Lane, Partridge Green.

7.2 The proposal is to incorporate water efficient fixtures and in the proposed dwellings, in order to minimise the mains water demand of the proposed development.

7.3 The proposed development represents a net decrease in water demand within the SNWSZ.

7.4 This strategy will minimise the impact of the new development on the SNWSZ. This WNS confirms the proposal will be water neutral once complete and therefore satisfying NE's requirements.

Appendix B – Proposed site layout

Main building – 3 units

PROPOSED GROUND

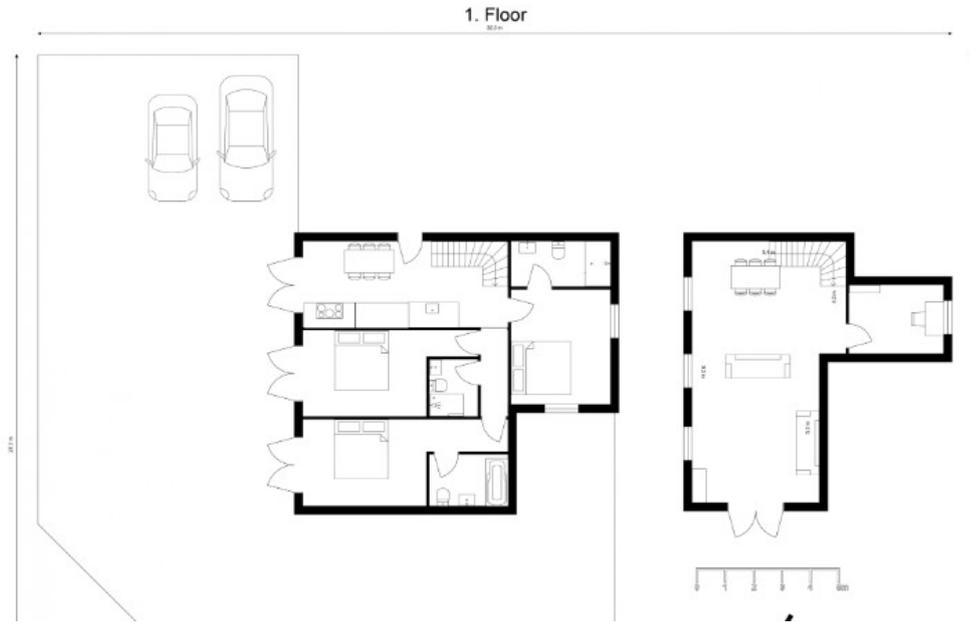


PROPOSED FIRST



Proposed cottage

Proposed garage and flat (1:100)



Appendix C – Part G Calculations

LOCK HOUSE

Main house occupants (residents)

Ayse Sutton	1
Nicholas Sutton	1
Maximilian Sutton	1
Maximilian Sutton partner (4 years)	1
Cosmo Sutton	1
Lysander Sutton	1
Lysander Sutton partner (1 year)	1
Tatyana Sutton	1
Ferdinand Sutton	1
Guests	2

Average occupancy (a) 11

Baseline water litres/person/day (b) 140.3

Total baseline use House a X b 1543.3

Indoor swimming pool

Length	15
Width	5
Average depth to overflow	1.5
Litres	112,500
Water lost through evaporation (mm)	2
Water lost per week through backwash (mm)	7
Water lost/day through bathing	15
Total baseline water use/day	240
Water use per day factor (Motion baseline 1/12/23)	0.2739%
Calculated baseline	0.2133%

Industry guidance is the swimming pools lose 5mm of water per day through evaporation

Measured drop in water level for weekly backwash and rinse procedure

Family bathing can remove 75 litres of water from swimming pool over weekend from splashing/ water on wet bathing suite

Total baseline use swimming pool/day 240.00

Office

Average number of workers (a) 4

Baseline water litres/person/day (b) 51.5

Total baseline use House a X b 206

Flat above garage

Vacant census occupation 1 bed (a) 1.32

Baseline water litres/person/day (b) 216.9

Total baseline use House a X b 286.308

TOTAL BASELINE WATER USE/PERSON/DAY 2275.608

APPENDIX C CONTINUED

HOUSE

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = ((1)x(2)) + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)		1.46	0.00	0
	Part flush Volume (litres)		2.96	0.00	0
WC (multiple fittings)	Average effective flushing Volume (litres)	6.98	4.42	0.00	30.85
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	8.00	1.58	1.58	14.22
Bath (where shower also present)	Capacity to overflow (litres)	250.00	0.11	0.00	27.50
Shower (where bath also present)	Flow Rate (litres / minute)	10.00	4.37	0.00	43.70
Bath Only	Capacity to overflow (litres)	2.00	0.50	0.00	1.00
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	8.00	0.44	10.36	13.88
Washing Machine	(Litres/kg dry load)	7.00	2.1	0.00	14.70
Dishwasher	(Litres/place setting)	0.80	3.6	0.00	2.88
Waste disposal unit	(Litres/use)	<input type="checkbox"/> Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
(5)		Total Calculated use (litres/person/day) = SUM(column 4)			148.73
(6)		Contribution from greywater (litres/person/day)			0
(7)		Contribution from rainwater (litres/person/day)			0
(8)		Normalisation factor			0.91
(9)		Total internal water consumption = ((5)-(6)-(7))x(8) (litres/person/day)			135.34
(10)		External water use			5.0
(11)		Total water consumption (Building Regulation 17.K) = (9) + (10) (litres/person/day)			140.3



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APPENDIX C CONTINUED

OFFICE

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)		1.46	0.00	0
	Part flush Volume (litres)		2.96	0.00	0
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	8.13	1.58	1.58	14.43
Bath (where shower also present)	Capacity to overflow (litres)		0.11	0.00	0
Shower (where bath also present)	Flow Rate (litres / minute)		4.37	0.00	0
Bath Only	Capacity to overflow (litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	8.52	0.44	10.36	14.11
Washing Machine	(litres/kg dry load)	8.17	2.1	0.00	17.157
Dishwasher	(litres/place setting)	1.90	3.6	0.00	5.40
Waste disposal unit	(litres/use)	<input type="checkbox"/> Present	3.08	0.00	0
Water Softener	(litres/person/day)		1.00	0.00	0
(5)		Total Calculated use (litres/person/day) =SUM(column 4)			51.10
(6)		Contribution from greywater (litres/person/day)			0
(7)		Contribution from rainwater (litres/person/day)			0
(8)		Normalisation factor			0.91
(9)		Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			46.50
(10)		External water use			5.0
(11)		Total water consumption (Building Regulation 17.K) = (9)+(10) (litres/person/day)			51.5



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APPENDIX C CONTINUED

GARAGE FLAT

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = ((1)x(2)) + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	6	1.45	0.00	8.76
	Part flush Volume (litres)	4.5	2.95	0.00	13.32
WC (multiple fittings)	Average effective flushing volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	8.13	1.58	1.58	14.43
Bath (where shower also present)	Capacity to overflow (litres)		0.11	0.00	0
Shower (where bath also present)	Flow Rate (litres / minute)		4.37	0.00	0
Bath Only	Capacity to overflow (litres)	320.00	0.50	0.00	160.00
Shower Only	Flow rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	8.57	0.44	10.36	14.13
Washing Machine	(Litres/kg dry load)	8.00	2.1	0.00	16.80
Dishwasher	(Litres/place setting)	1.50	3.6	0.00	5.40
Waste disposal unit	(Litres/use)	<input type="checkbox"/> Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
(5)		Total Calculated use (litres/person/day) = SUM(column 4)			232.04
(6)		Contribution from greywater (litres/person/day)			0
(7)		Contribution from rainwater (litres/person/day)			0
(8)		Normalisation factor			0.91
(9)		Total internal water consumption = ((5)-(6)-(7))x(8) (litres/person/day)			211.08
(10)		External water use			5.0
(11)		Total water consumption (Building Regulation 17.K) = (9) + (10) (litres/person/day)			216.0



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Appendix D – Proposed water usage

Part G - Proposed Water Usage

Fixture	Capacity/Flow Rate	Use Factor	Fixed Use	litres/person/day
WC (Single Flush)		4.42		0.00
WC (Dual Flush)	4	1.46		5.84
WC (Dual Flush) Part	2	2.96		5.92
Taps (excluding kitchen)	2.7	1.58	1.58	5.85
Bath (where shower present)	130	0.11		14.30
Shower (where bath present)	6	4.37		26.22
Bath Only		0.5		0.00
Shower Only		5.6		0.00
Kitchen Sink	4	0.44	10.36	12.12
Washing Machine	6.43	2.1		13.50
Dishwasher	0.99	3.6		3.56
Total calculated use (litres/person/day)				87.31
Normalisation Factor				0.91
Total Water Consumption (CSH) (litres/person/day)				79.45
External Water Use				5.00
Total Water Consumption (Part G) (litres/person/day)				84.45

	Units	Census	Population	Mains Water usage		
Proposed 2 bed dwelling	0	1.88	0	0		
Proposed 3 bed dwelling	2	2.47	4.94	417.18		
Proposed 5 bed dwelling	2	3.09	6.18	521.90		
Totals	4		11.12	939.08		

Kitchen Sink	4 litres/minute	<p>Tap with flow regulator - Affinity by Moores</p>  <p>Utility</p> <p>Chrome utility lever sink mixer tap</p> <p>Tap Height: 380mm Order code: 805 56</p> <p>Flow Regulator:</p>  <ul style="list-style-type: none"> Tap height 380mm (to the top of the spout) - 380mm (to the top of the tap) Spouting capacity 1.2 litres per minute (l/min) Water saving capacity 0.8 litres per minute (l/min) Flow saving capacity 0.6 litres per minute (l/min) Flow saving capacity 0.4 litres per minute (l/min) Flow saving capacity 0.2 litres per minute (l/min) <table border="1"> <thead> <tr> <th>Flow</th> <th>Flow saving capacity</th> <th>Order code</th> </tr> </thead> <tbody> <tr> <td>1.2</td> <td>0.8</td> <td>805 56</td> </tr> <tr> <td>1.0</td> <td>0.6</td> <td>805 57</td> </tr> <tr> <td>0.8</td> <td>0.4</td> <td>805 58</td> </tr> <tr> <td>0.6</td> <td>0.2</td> <td>805 59</td> </tr> </tbody> </table>	Flow	Flow saving capacity	Order code	1.2	0.8	805 56	1.0	0.6	805 57	0.8	0.4	805 58	0.6	0.2	805 59
Flow	Flow saving capacity	Order code															
1.2	0.8	805 56															
1.0	0.6	805 57															
0.8	0.4	805 58															
0.6	0.2	805 59															