

Water Neutrality Report

Froggats, Rosemary Lane, Alfold, Cranleigh, GU6 8EY

Proposed Extension to Existing Barn to Provide Ancillary Facilities, and Relocation of Existing Staff/Guest Accommodation to Courtyard Barn

September 2023

GENESIS
T O W N P L A N N I N G

Application	Proposed extension to existing barn to provide ancillary facilities and relocation of existing staff/guest accommodation to courtyard barn
Site Address	Froggats Rosemary Lane Alfold Cranleigh GU6 8EY
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1.0 INTRODUCTION

- 1.1 This water neutrality statement has been prepared to support a planning application for the extension of an existing barn to provide ancillary facilities to include a home gym, rehearsal room, recording studio/editing suite, personal treatment room/sauna, meeting room and home office, and the relocation of existing accommodation into the courtyard barn.
- 1.2 The Statement sets out how the proposals proactively address the issue of sustainable water use, describing how they respond to the requirement for water neutrality in line with Natural England's Position Statement, subsequent updates and Chichester District advice. The statement explains how the water supply strategy for the extension of the existing building will have no impact on the existing public water supply system.

2.0 THE ISSUE OF WATER NEUTRALITY

Natural England's Position Statement for Applications within the Sussex North Water Supply Zone (September 2021 Interim Approach)

- 2.1 Natural England's Position Statement was produced following concerns over the adverse effects of existing groundwater abstraction on the integrity of the Arun Valley, specifically Arun Valley Special Conservation Area, Arun Valley Special Protection Area and Arun Valley Ramsar site, and the potential impacts of further development.
- 2.2 To ensure that new developments do not exacerbate this situation, Natural England advised that all new development proposals within the Sussex North Water Supply Zone must demonstrate water neutrality. Within the Statement, Natural England defined water neutrality as follows:
- “For every new development, total water use in the region after the development must be equal to or less than the total water use in the region before the new development.”
- 2.3 The local authorities within the area are working with Natural England to secure water neutrality through a water neutrality strategy. In the interim, Natural England has advised the following approach:

Minimising water use of new builds.

- Complete a water budget (based on occupancy)
- All new builds to demonstrate that they can achieve strict water targets (e.g., 85L/pp/day*)

This can be achieved by measures such as:

- Grey water recycling (advantage of being reliable in hot dry weather);
- Rainwater harvesting;
- Water efficient fixings (such as shower aerators) to demonstrably reduce demand-this would need to be suitably certain.

In addition, water offsetting is required

- One way to achieve this is retrofitting of council owned properties/commercial buildings-located within Sussex North. Examples include:
 - Grey water recycling- (for example there are clear opportunities for commercial properties).
 - Rainwater harvesting of commercial settings;
 - Installation of water reduction fittings in Council-owned buildings.

These measures need to be implemented until such time as a more sustainable water supply has been secured.

It will also need to be ensured that measures are not already proposed (for example in Southern Water's Management Plan) to avoid double-counting.

Any mitigation must be suitably certain in order to comply with the Habitats Regulations and Caselaw.

2.4 Achieving water neutrality involves using a three-step approach. First the demand for water from the new development must be reduced as much as possible, 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. This is noted within the Waterwise neutrality definition, which defines the three steps, and which should be undertaken in accordance with their recent review dated January 2021.

Step 1: Reduce water demand in the new development through improvement in efficiency.

Step 2: Re-use water, wherever possible.

Step 3: Offset the remaining water demand from the new development if required.

Water Neutrality in Chichester District

2.5 Chichester District Council now requires applications for developments that fall within the affected area as identified by Natural England to be accompanied by a statement setting out the strategy for achieving water neutrality, including through significant water efficiency measures and by providing offsetting solutions where required.

3.0 SITE DESCRIPTION AND LOCATION

- 3.1 Froggats comprises a detached Grade II listed Hall House which was rebuilt in the 1990's and is located to the southwest of the village of Alfold. In addition to the existing dwelling the site comprises of two existing ancillary barns, one of which is currently used as annexed accommodation and the other for storage purposes.
- 3.2 The existing dwelling has the benefit of planning permission (LX/22/02226/DOM) to be extended and altered to provide an enlarged kitchen/dining area, a new study and remodelled interior to provide improved bedroom and bathroom accommodation.
- 3.3 The existing dwelling comprises 5 bedrooms, a ground floor cloakroom, kitchen, utility area and two bathrooms at first floor level. The existing outbuilding also includes a 1-bedroom annex which comprises a bathroom, kitchen, sitting/dining area and a bedroom at first floor.
- 3.4 The approved alterations to the existing house propose enhancements to the existing accommodation through the remodelling of rooms and improvements to bathrooms, kitchen and utility areas. The proposed changes retain two bathrooms at first floor level and add a shower room at second floor level. The existing house is occupied by two adults and two children and will continue to be so occupied.

4.0 CALCULATION OF ESTIMATED WATER USAGE FROM THE EXISTING & PROPOSED DEVELOPMENT

- 4.1 Opportunities to achieve water neutrality can be delivered in a variety of ways. These include:
- Step 1: Reduce water use by installing
 - a. Water efficient devices
 - b. Smart metering
 - c. Water saving culture
 - Step 2: Reuse water by
 - a. Rainwater harvesting
 - b. Greywater recycling
 - c. Blackwater recycling
 - Step 3: Offset water

- 4.2 Before any necessary steps to achieve water neutrality can be determined, the total water demand for the existing and proposed development must first be calculated.
- 4.3 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 135l/p/d. Homes without a water meter consume on average 160l/p/d and for homes with a water meter, consumption is 131l/p/d on average. The existing property is a five-bedroom dwelling, but it is only occupied by two adults and two children. The property does not have a water meter fitted. Based on the consumption of 160l/p/d the existing water use of the property is 640 litres per day (2 adults and 2 children). If the property and bedrooms were fully occupied, the water usage would be 960 litres per day (2 adults and 3 children). Taken together with the existing one bedroom annex would add an additional 320 litres per day (2 adults) taking the total potential consumption of the property to 1280 litres per day.
- 4.4 Part G of the Building regulations currently states that new build housing should achieve a minimum of 125l/p/d. A tighter target of 110l/p/d can be requested if the local authority can establish a clear need based on available evidence. This application relates to alterations to an existing dwelling which currently has access to the mains water supply. As such these requirements do not apply.
- 4.5 In the light of the above the actual water consumption of the property should be 1000 litres per day, based on a maximum capacity of 8 people occupying the property (including the annex). At a daily consumption of 640 litres per day, the site's water consumption already falls well below that deemed the minimum necessary based on 125 l/p/d.
- 4.6 As proposed, the new development will not accommodate more people within the household given that the total number of bedrooms remain the same. Furthermore, both the existing house and the present outbuildings are served by the same domestic water supply. Natural England's Advice Note – February 2022 V2 confirms that "...new development' is considered to be any relevant project requiring a public water supply from Southern Water's Sussex North Water Supply Zone but is likely to be dominated by large planning applications...water neutrality requirements would not apply to existing public water supply use (save in respect to their potential for off-setting)." Accordingly, no new supply is required to serve the proposed outbuilding alterations.

5.0 IDENTIFICATION OF MEASURES THAT CAN BE USED TO REDUCE DEMAND

5.1 The 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.

5.2 Water neutrality measures are proposed through ensuring that the overall water consumption of the site as a whole 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 energy 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 homes to encourage water saving behaviours. This can also help reduce water use and ensure that other measures that are put in place are effective.

5.3 Practical steps that can be taken to reduce water consumption at the existing dwelling include:

- Toilets: Cistern displacement devices (toilet hippos), retrofit flush devices to dual flush, fix leaky toilets
- Taps: Tap inserts (aerators), Low flow restrictors, push taps, infrared taps
- Showers/Baths: Low flow shower heads (less than 8l/min), shower timers, reduced bath frequency and volume.
- Outdoors: Hosepipe flow restrictors, hosepipe siphons, water butts, mulches and composting to keep soil moist.
- Smart Metering: Leakage information, Encourage behavioural changes, Innovative tariffs, Savings estimates.

5.5 By installing the water efficient devices listed above it is possible to reduce the water demand on site. All of the above requirements can be delivered both as part of the

extension and internal remodelling proposals for the main house, as well as the current enlargement of the outbuildings.

6.0 IDENTIFICATION OF MEASURES THAT CAN BE IMPLEMENTED TO RE-USE WATER

6.1 Once the water demand has been reduced by installing the water efficient measures listed above, water re-use should be considered. The term 'water reused' refers to the capture, treatment (if required) and the use of alternative water supplies for non-potable purposes. It normally includes:

- Rainwater and surface water harvesting
- Greywater recycling (typically the used water from baths, showers and hand basins)
- Wastewater recycling

7.0 OFFSETTING REMAINING WATER DEMAND

7.1 The remaining water requirements for new homes or developments which cannot be satisfied with non-potable sources must be offset. Offsetting can be done by investing in schemes that save water within the site such as retrofitting the existing building with water efficient devices or water reuse systems.

7.2 As has been demonstrated above the property already consumes less than the minimum level specified under Part G of the Building Regulations. Further savings can be delivered by the use of water saving features both within the main house and the new extension to the outbuildings.

7.3 The proposed water saving devices can include:

Showerheads: The property currently has four showers (permitted), each of which uses 15-20 litres of water per minute. A water saving showerhead reduces water consumption by up to 60% and therefore could use between 6 and 11 litres of water per minute or less. A single water efficient showerhead can save more than 63 litres of water for an average seven-minute shower which is more than 22,000 litres of water per person in the household per year.

Aerated taps: All existing and proposed fittings will utilise aerated taps which on average consume 6 litres of water per minute compared with non-aerated taps which consume up to 15 litres of water per minute.

Rainwater Harvesting: Rainwater harvesting is an efficient way to recycle non-potable water for use in gardens and can be stored either above or below ground level in containers or tanks. The proposed development could provide the opportunity to capture rainwater which can also be used for grey water recycling for use in flushing toilets.

- 7.4 The above measures can be secured through the imposition of suitable conditions on the grant of any planning permission.

7.0 CONCLUSION

- 7.1 The proposed development will not entail the existing water usage of the property exceeding the minimum level permitted under Part G of the Building Regulations.
- 7.2 Opportunities exist to maximise the opportunity to collect rainwater for use within the garden or as part of a grey water recycling strategy where new toilets are proposed within the development.
- 7.3 The existing house is the subject of a planning permission to be altered, extended and remodelled and presents the opportunity for water efficient fixtures to be incorporated into the existing house through a process of retrofitting. In addition, similar features can be appropriately incorporated into the proposed outbuilding extension.
- 7.4 The proposal will not entail an increase in demand on the public water supply network. The submitted statement has demonstrated that pro-active measures are available to ensure that water saving features can be appropriately incorporated into the development proposals thus ensuring that the scheme is water neutral.

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