

Technical Note 1 - Water Neutrality Statement

Site: Land adjacent to Redlands Farm, Washington, RH20 3BQ
Prepared by: Ella Harrop
Approved by: Laura Jagiela
Date: 5th September 2025

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1.0 Introduction

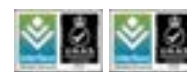
- 1.1 This Water Neutrality Statement (WNS) has been prepared on behalf of Mr G Thurgood to demonstrate how the proposed forestry building at Redlands Farm, Washington, will achieve water neutrality. The location plan can be found in **Appendix A**.
- 1.2 Horsham District Council (HDC) as the Local Planning Authority (LPA) wish to know whether the proposed development will result in an increase in mains water consumption as it is within the Sussex North Water Supply Zone (SNWSZ). The SNWSZ covers Horsham District, as well as parts of the neighbouring Chichester and Arun Districts as well as part of Crawley District and South Downs National Park. A plan showing the SNWSZ area can be found in **Appendix B**.
- 1.3 Following the issue of Natural England's (NE's) Position Statement on Water Neutrality within the SNWSZ, HDC require all new, reserved matters, conditions discharge and Section 73 planning applications to demonstrate that the development is water neutral. NE's Position Statement can be found in full within **Appendix C**.
- 1.4 To satisfy NE's and HDC's requirements on water neutrality, this WNS will set out the following:
 - ▶ The existing, baseline water demand for the site of the development;
 - ▶ What changes in water demand will occur as a result of the proposed development;
 - ▶ If there are any changes in water demand as a result of the proposed development, how these will be offset so that there is no additional mains water draw within the SNWSZ.

2.0 Background

- 2.1 It is proposed to construct a barn for forestry use on the site of Redlands Farm, Rock Road, Washington, RH20 3BQ. The proposed development plans can be seen in **Appendix D**.
- 2.2 The site currently consists of 200 dead fruit trees and 15 mature Scottish pine trees.
- 2.3 Prior approval has already been secured for a barn on the site (DC/24/1892). The proposed development site will be used for growing saplings and the storage of machinery and felled trees. There are no proposed facilities on site such as bathrooms or kitchens that require mains water supply.

3.0 Existing Water Demand

- 3.1 To determine the existing water demand, it was initially proposed to analyse meter readings or conduct a flow survey. However, since there are no water meters or plumbing fixtures on site, an alternative approach was required. In the absence of any other data sources, the existing water usage has been estimated, as outlined below.
- 3.2 The client states that the existing site currently consists of 200 various dead fruit trees and 15 diseased mature Scottish pine trees. These trees would've previously had a water usage on the site. All referenced trees will be removed from site at a convenient time, not limited to or conditional of the development.
- 3.3 Scottish Pine trees require very little water at maturity. They only require an inch of water per week which doesn't add much to the sites water usage. Therefore, they are not considered in the existing water demand calculations.



3.4 Fruit trees require 20 litres/week according to the Orchard Project UK¹, which equals 2.85 litres/tree/day. For 200 fruit trees, this equals 571.42 litres/day.

3.5 Therefore, the existing water demand will be taken forward in calculations as **571.42 litres/day**.

4.0 Future Water Demand

4.1 As previously stated, it is proposed to construct a barn for the storage of machinery and felled trees, as well as an area for growing saplings of common oak and chestnut trees.

4.2 The development has no proposed facilities that require mains water and therefore, the water demand would primarily be from the planting and maintenance of saplings. The building will house machinery, which will not require frequent cleaning. The water demand for machinery washing purposes is discussed further in section 5 of this WNS.

4.3 The proposed development will be growing saplings of common oak and chestnut trees. The proposed number of saplings is up to 300 plants. The plants are proposed to grow inside the proposed building until they reach maturity, where they will then be relocated.

4.4 According to best practice of the Arboricultural Association on watering young trees, it is estimated that at least 50 litres are required per tree per week. This equals 7.14 litres/tree/day. For the proposed 300no. trees, the total proposed water demand equals to 2,142.86 litres/day (300 trees x 7.14 litres/tree/day). A factsheet from the organization on watering young trees can be found in **Appendix E**.

4.5 The Arboricultural Association states young trees should receive at least 50 litres/week in May, June, July and August which equals to a total of 123 days. Therefore, the water demand is estimated to be 263,571.43 litres for 123 days or when averaged over a whole year equals **722.11 litres/day**.

4.6 Therefore, the proposed water demand of the young common oak and chestnut trees equals 722.11 litres/day.

4.7 As stated in section 3, there is an existing water demand of 571.42 litres/day which will be removed from site. The reduction in water demand in the SNWSZ this represents can be put towards the proposed development.

4.8 Therefore, the proposed water demand equals 150.69 litres/day (722.11 – 571.42).

5.0 Rainwater Harvesting

5.1 To mitigate the increase in water demand as a result of the development, it is proposed to incorporate a rainwater harvesting system. As the proposed water demand does not require a supply of 'wholesome water', it is proposed for collected rainwater water to be used for the proposed 300no. saplings.

5.2 It is proposed to install a rainwater harvesting system to the pitched roof of the proposed building.

5.3 The rainwater harvesting demand for the development is 150.69 litres/day for the proposed 300no. saplings. To check that the proposed building can supply 150.69 litres/day of rainwater, a calculation in accordance with BS EN 16941-1:2024 has been carried out. The AAR is taken from the nearest Met Office weather station, North Heath, which provides the average rainfall for the area from 1991 – 2020. This is 858.70mm/year. The rainwater harvesting calculations is summarised in Table 5.1 on the next page and can be found in full, with the MET data, in **Appendix F**.

1 - Watering Fruit Trees, The Orchard Project (https://www.theorchardproject.org.uk/guides_and_advice/watering-fruit-trees/#:~:text=How%20much%20water%3F,where%20we%20plant%20our%20orchards.)

Table 5.1 – Rainwater Harvesting Calculations

Unit	Roof Area (m ²)	9.6% Annual Rainwater Yield (litres)	9.6% Annual Water Demand (litres)	Daily Yield (litres)	Daily Demand (litres)	Tank Size (litres)
Forestry Building	450	30,057.63	5,270.02	857.52	150.40	5,600

5.4 The calculation is as follows:

$$AAR \times e \times h \times A$$

Where:

AAR = Annual Average Rainfall (mm)

e = Yield Coefficient (0.9 for pitched, smooth surface)

h = Hydraulic Filter Efficiency (a constant of 0.9)

A = Roof area of the building (450m²)

5.5 It can be seen that the proposed building provides a daily yield of 857.52 litres/day. The proposed development had a water demand of 150.69 litres/day. Therefore, the proposed roof can provide the required rainwater, with a surplus of 706.83 litres/day.

5.6 The minimum required tank size for the development is 5,600 litres, this is to meet the demand for watering the saplings. The dimensions of an example 5,600 litres tank can be found in **Appendix G**. To store a greater surplus of rainwater for external use, a larger tank can be recommended.

5.7 The rainwater harvesting systems will be managed and maintained in accordance with the attached Management and Maintenance Plan, as shown in **Appendix H**.

5.8 In total, the mains water demand for the proposed development is 150.69 litres/day. The inclusion of rainwater harvesting on the roof has been calculated to provide water for the development, with a surplus of 706.83 litres/day for external water usage.

6.0 Offsetting Measures

6.1 The development has demonstrated above that it can offset the proposed water demand of 150.69 litres/day through onsite offsetting measures, such as rainwater harvesting systems.

6.2 Therefore, no further offsetting measures are required.

7.0 Summary

7.1 This Technical Note sets out the water usage strategy for the proposed development at Redlands Farm, Washington.

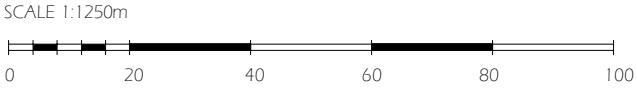
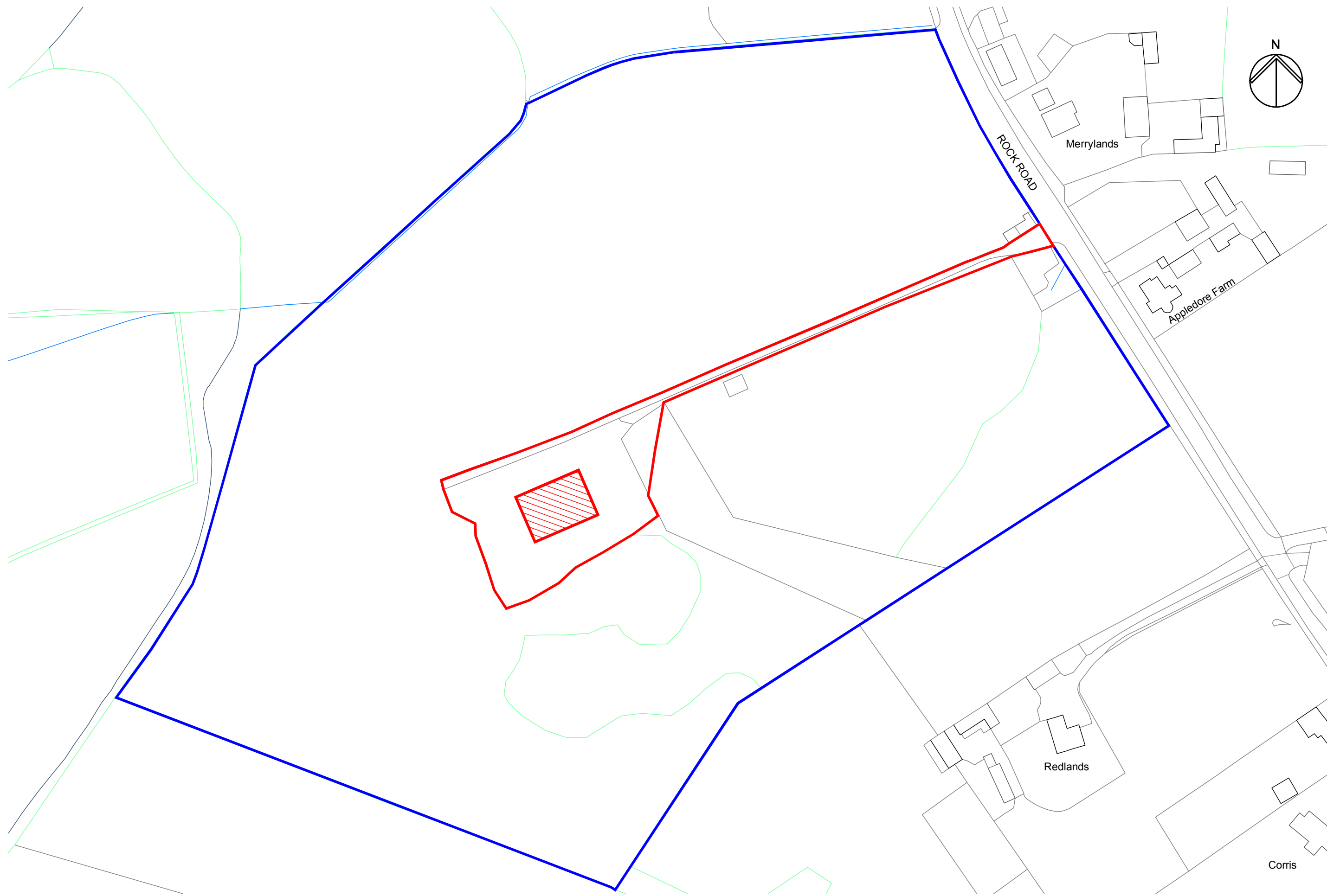
7.2 The proposal is to construct one barn for the storage of machinery and felled trees, and growing a proposed 300no. saplings. To mitigate the increase in water demand, rainwater harvesting is proposed to provide water for both watering the saplings and machinery washdown.

7.3 The residual mains water requirement of the development of 150.69 litres/day has been fully offset and there is no additional mains water requirements within the SNWSZ as a result of the development.

- 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 A

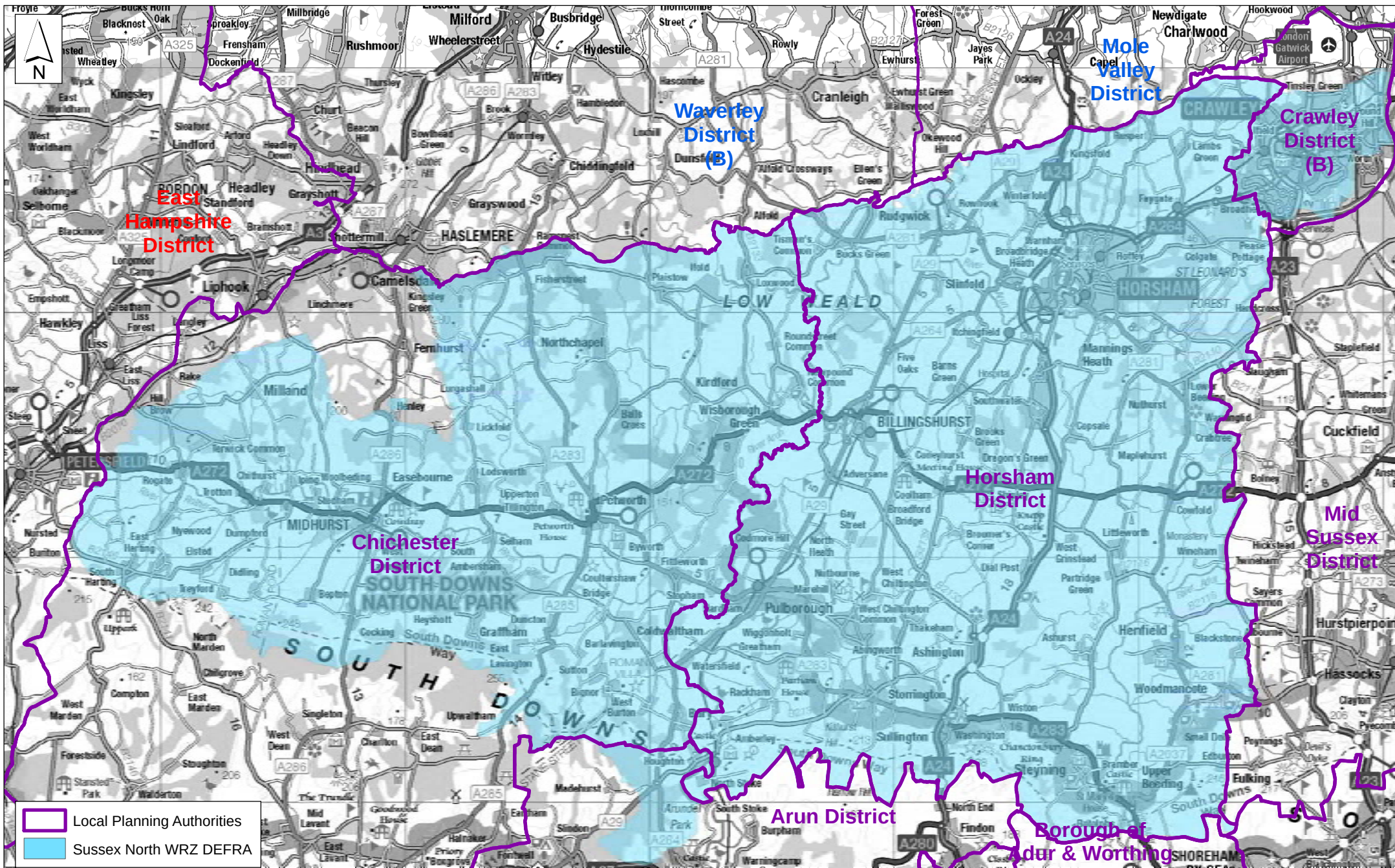
Location Plan



job		Redlands Farm, Rock Road Washington, Pulborough West Sussex RH20 3BQ		scale(s)	1:50	☐	job no.	dwg no.	
					1:100	☐		LOC1	
					1:200	☐			
					1:500	☐	drawing size	date	rev
dwg		PROPOSED BARN LOCATION PLAN			1:1250	☒	A3	02 Dec 2024	C

Appendix B

Sussex North Water Supply Zone



Horsham District Council

Parkside, Chart Way, Horsham
West Sussex RH12 1RL
Barbara Childs : Director of Place

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Sussex North Water Resource Zone

Chichester Horsham Crawley

Reference No :	Date : 23 November 2021	Scale : 1:3,000 at A2
Drawing No :	Drawn :	Checked :
		Revisions :

Appendix C

Natural England's Position Statement



Natural England's Position Statement for Applications within the Sussex North Water Supply Zone

September 2021 – Interim Approach

Please take the following as Natural England's substantive advice for all applications which fall within Sussex North's Water Supply Zone.

Sussex North Water Supply Zone

Arun Valley SPA, SAC and Ramsar Site- Sussex North Water Supply Zone

The Sussex North Water Supply Zone includes supplies from a groundwater abstraction which cannot, with certainty, conclude no adverse effect on the integrity of;

- Arun Valley Special Area Conservation (SAC)
- Arun Valley Special Protection Area (SPA)
- Arun Valley Ramsar Site.

As it cannot be concluded that the existing abstraction within Sussex North Water Supply Zone is not having an impact on the Arun Valley site, we advise that developments within this zone must not add to this impact. This is required by recent caselaw, [Case C-323/17 People over wind and Sweetman. Ruling of CJEU](#) (often referred to as sweetman II) and [Coöperatie Mobilisatie for the Environment and Vereniging Leefmilieu Case C-293/17](#) (often referred to as the Dutch Nitrogen cases).

Between them these cases require Plans and Projects affecting sites where an existing adverse effect is known (i.e. the site is failing its conservation objectives), to demonstrate certainty that they will not contribute further to the existing adverse effect or go through to the latter stages of the Regulations (no alternatives IROPI etc).

Developments within Sussex North must therefore must not add to this impact and one way of achieving this is to demonstrate water neutrality.

In addition, the Gatwick Sub regional Water Cycle Study concluded that water neutrality is required for Sussex North to enable sufficient water to be available to the region.

The definition of water neutrality is the use of water in the supply area before the development is the same or lower after the development is in place.

Strategic approach

Natural England has advised that this matter should be resolved in partnership through Local Plans across the affected authorities, where policy and assessment can be agreed and secured to ensure water use is offset for all new developments within Sussex North. To achieve this Natural England is working in partnership with all the relevant authorities to secure water neutrality collectively through a water neutrality strategy.

Whilst the strategy is evolving, Natural England advises that decisions on planning applications should await its completion. However, if there are applications which a planning authority deems critical to proceed in the absence of the strategy, then Natural England advises that any application needs to demonstrate water neutrality. We have provided the following agreed interim approach for demonstrating water neutrality;

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.

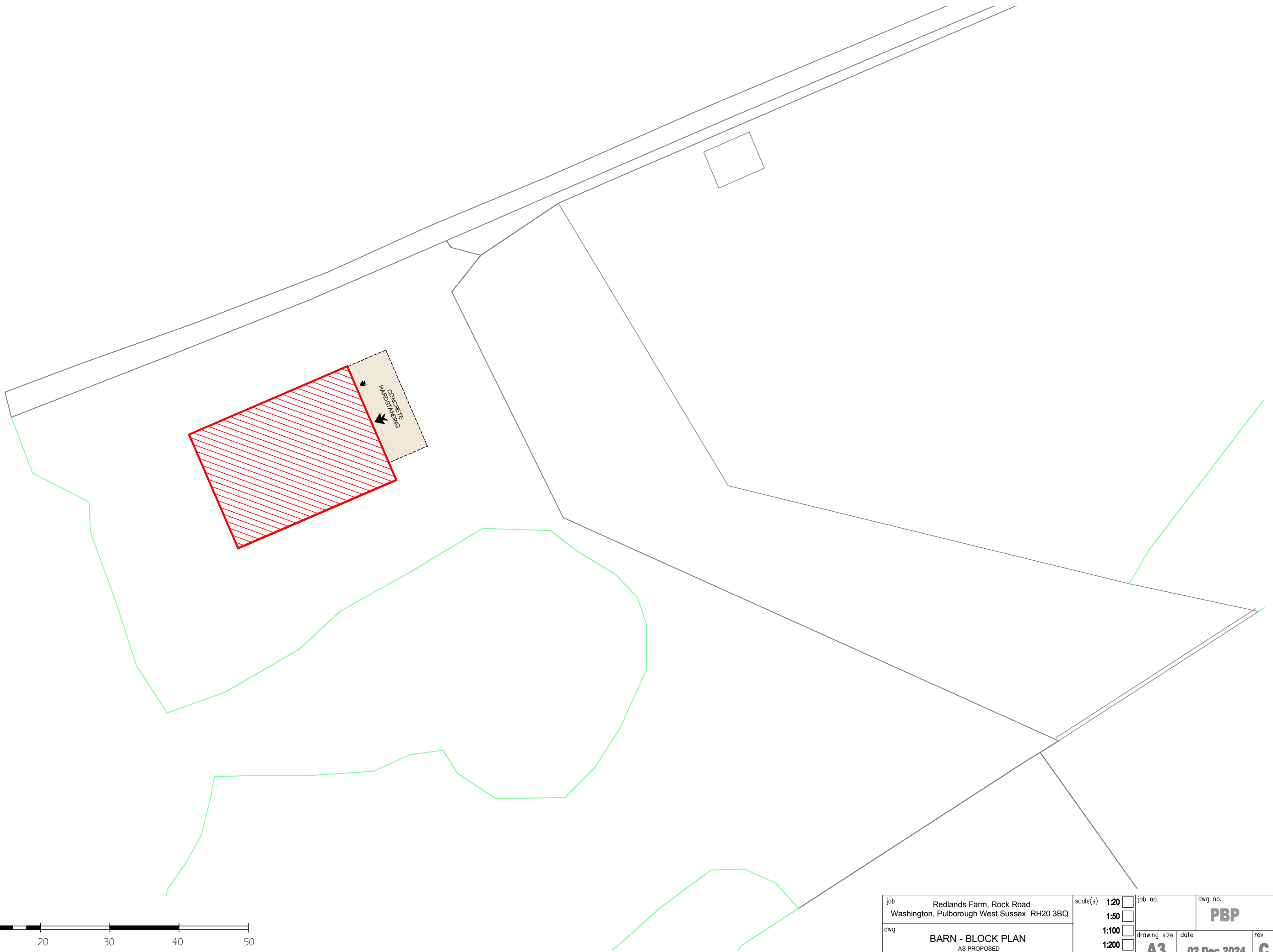
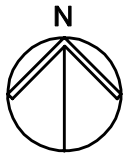
If the application cannot demonstrate, through an appropriate assessment, the required water neutrality, we advise that it is either revised to achieve this in line with the above or awaits completion of the strategic approach.

The securing of water neutrality is a matter which needs to be resolved at a strategic level and Natural England is working with the relevant authorities and the water company to achieve this. In light of this, Natural England will not be engaging with individual planning applications whilst the strategy is evolving.

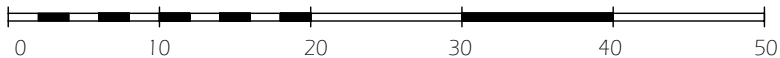
***This this is the reasonably achievable figure with the above measures based on the early data from the strategic solution and may be subject to change as the strategic solution evolves.**

Appendix D

Proposed Development Plans

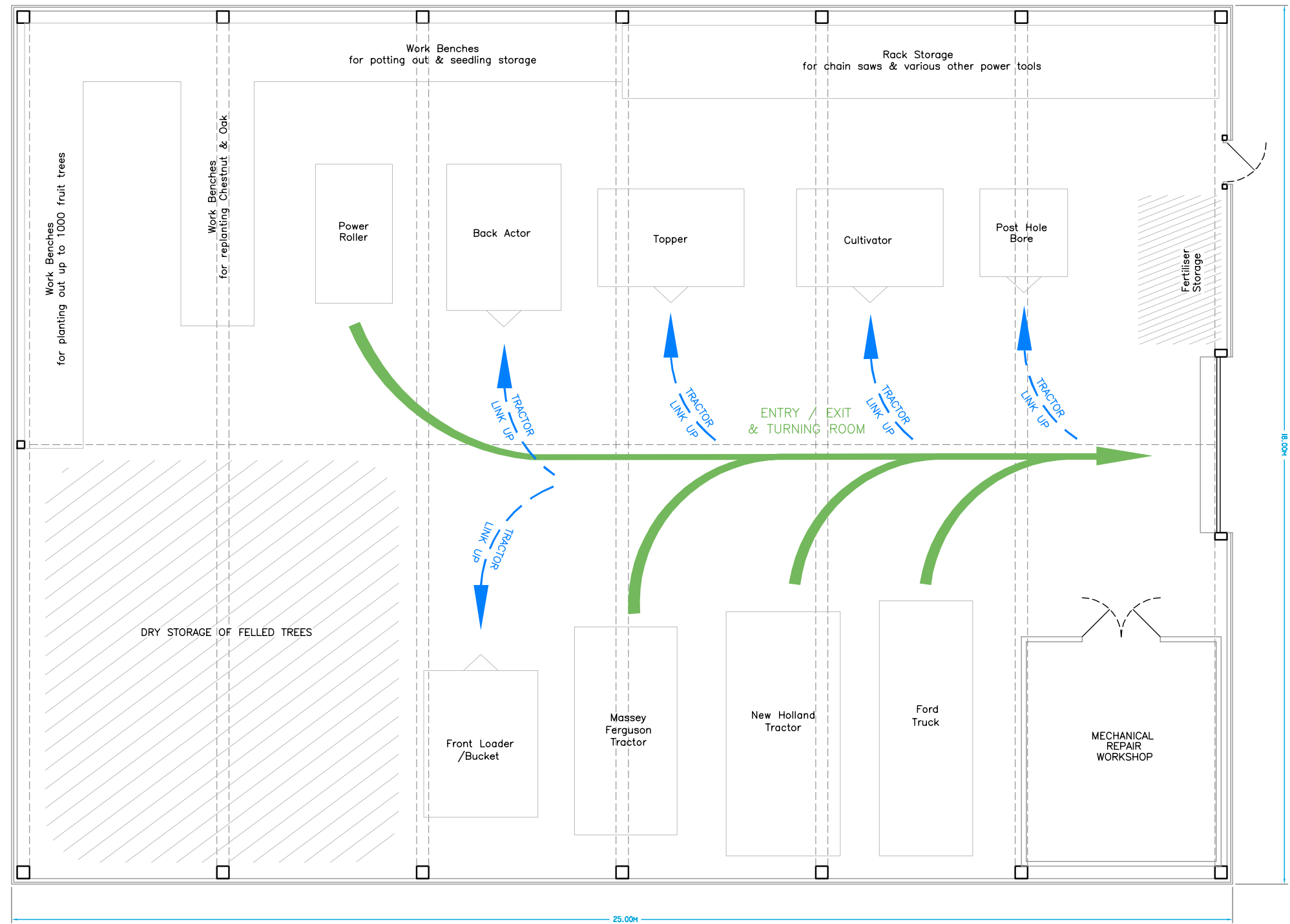
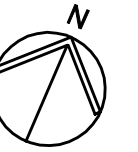


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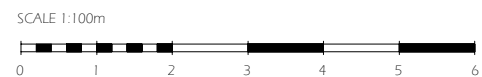


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						02 Dec 2024	C

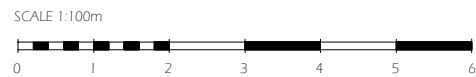
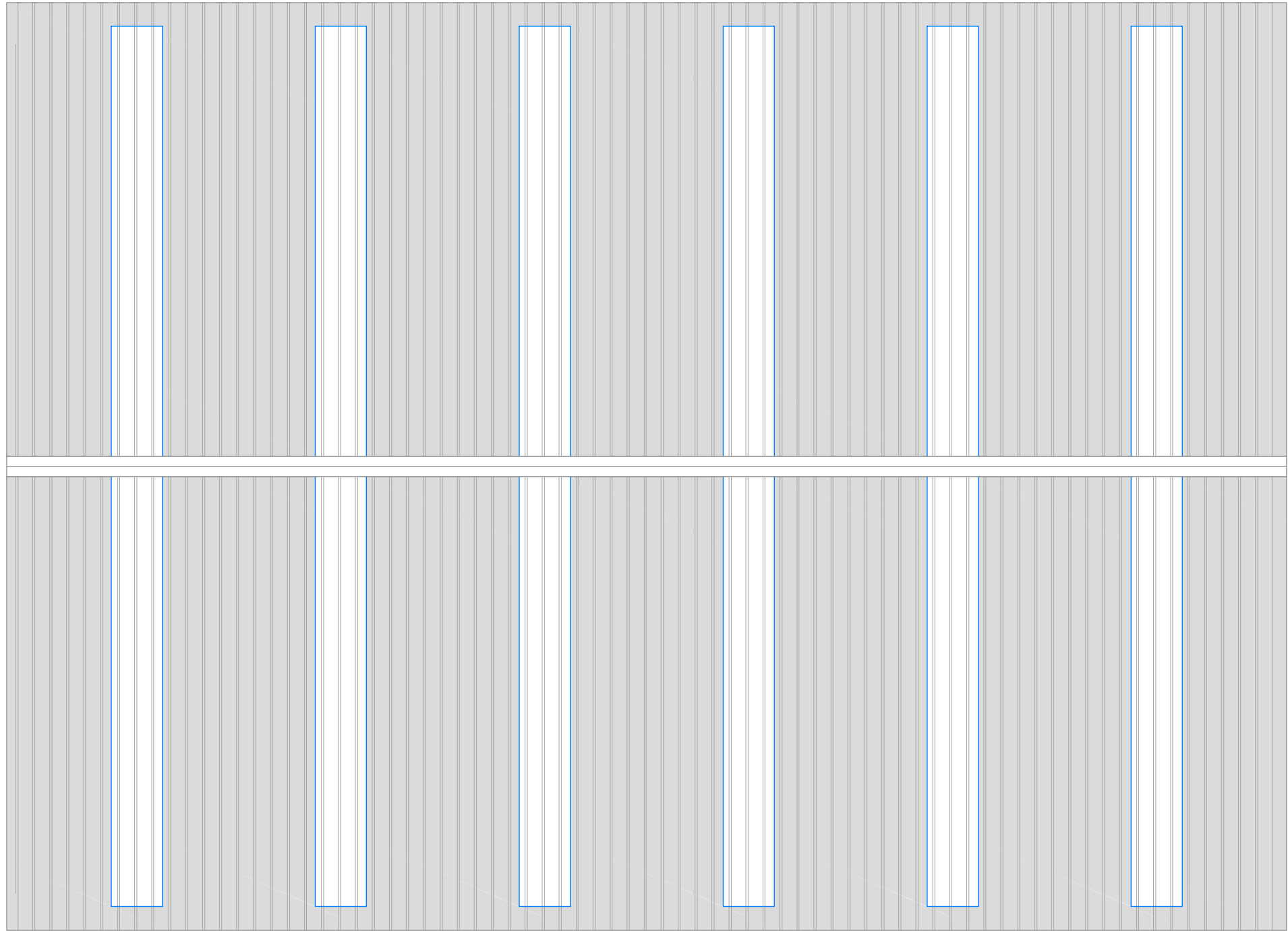
BARN - BLOCK PLAN
AS PROPOSED



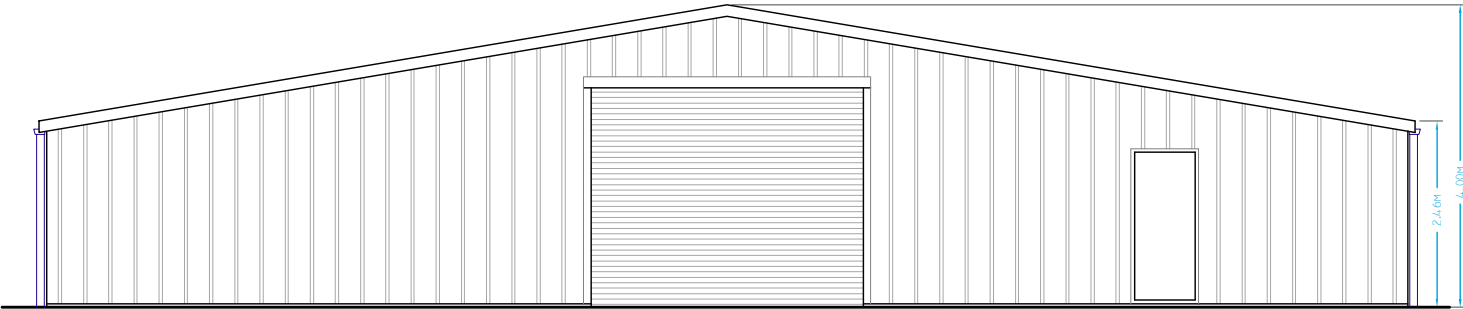
Ground Floor
Floor Area 450m²



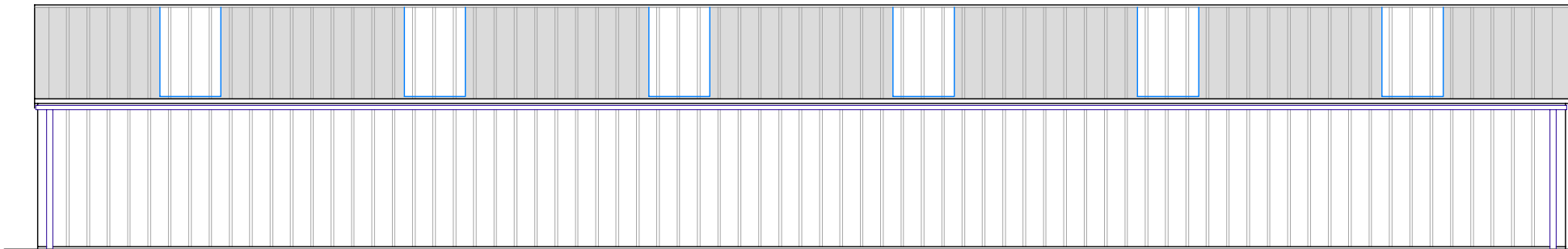
Revision		job Redlands Farm, Rock Road Washington, Pulborough West Sussex RH20 3BQ	scale(s) 1:20 ☐ 1:50 ☐ 1:100 ☒ 1:200 ☐ 1:500 ☐	job no.	dwg no.	
B. workshop & storage arrangement added 08.01.2025					PFP	
				dwg	drawing size	date
		BARN - FLOOR PLAN AS PROPOSED		A3	02 Dec 2024	B



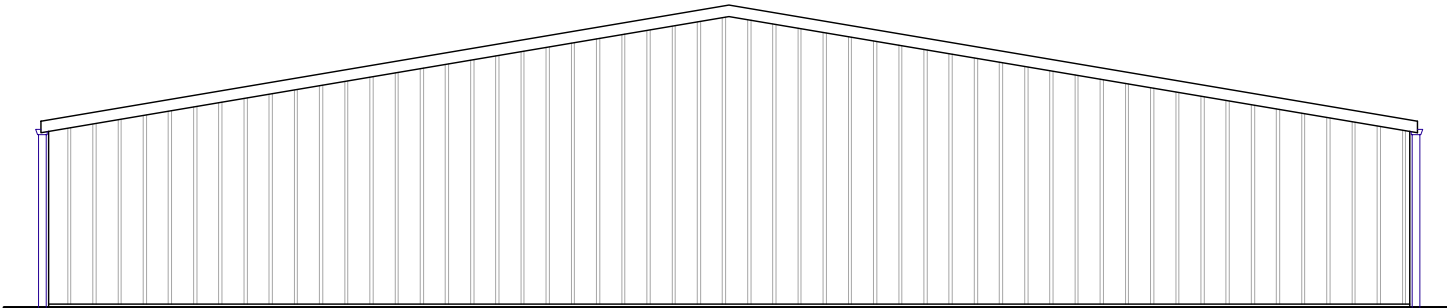
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					PRF	
dwg				BARN - ROOF PLAN AS PROPOSED	drawing size	date
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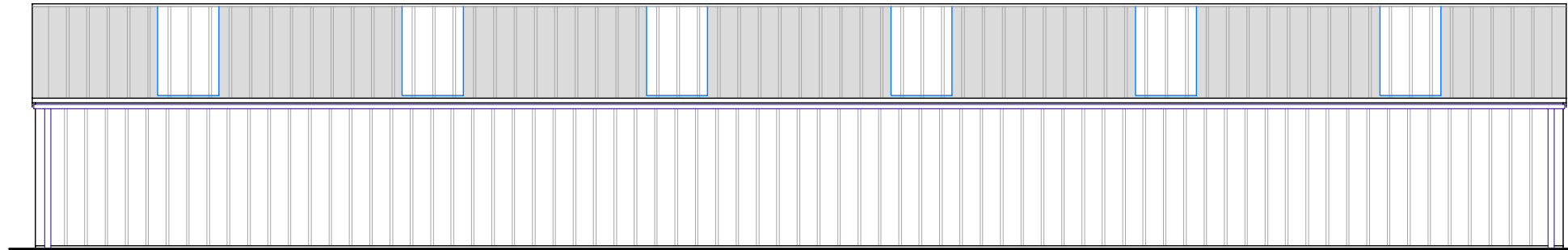
East Elevation



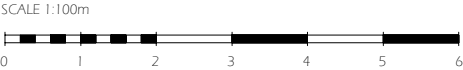
North Elevation



West Elevation



South Elevation



job	Redlands Farm, Rock Road Washington, Pulborough West Sussex RH20 3BQ	scale(s) 1:20 ☐ 1:50 ☐ 1:100 ☒ 1:200 ☐ 1:500 ☐	job no.	dwg no. PEV
dwg	BARN - ELEVATIONS AS PROPOSED		drawing size A3	date 02 Dec 2024
				rev B

Appendix E

Arboricultural Association Factsheet

PLEASE WATER YOUR TREES!



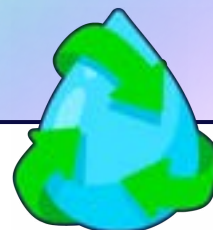
Watering should ideally be carried out in the early morning or evening.



It is good practice to water trees for the first three years after planting.



If the tree has a watering pipe, then half of the water should be poured down the pipe and the other half on the surface of the tree. If the tree has a watering bag, then fill that.



Where possible, water should be sustainably sourced. Harvested rainwater is ideal, but bath water, or water which has been used for the washing up, is also suitable.



Newly-planted trees need to be **watered** regularly over the **summer months** if they are going to become established and thrive.

Requirements vary depending on a number of factors such as species and location, but a general rule is that they should receive at least **50 litres** of water per week in May, June, July and August.

If you have a tree outside your house, or one that you pass on your daily walk, then you can help.

Please water regularly during dry periods with as much as you can.



Arboricultural
ASSOCIATION
The home of tree care



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Appendix F

Rainwater Harvesting Calculations & MET Data

Rainwater Harvesting System (BS EN 16941-1:2024 - Intermediate Approach)

AAR	858.7	Average Annual Rainfall
e	0.9	Yield Coefficient
h	0.9	Hydraulic Filter Efficiency
P _d	150.40	Daily Requirement (litres)

Unit	Roof Area (m ²)	9.6% Annual Rainwater Yield (litres)	9.6% Annual Water Demand (litres)	Total Storage Volume at 9.6% (litres)	Daily Yield (litres)	Daily Demand (litres)	Min. Tank Size (litres)
Forestry Building	450.00	30,047.63	5,270.02	5,270.02	857.52	150.40	5,600

MET Office Data - Average Annual Rainfall (1991-2020)

Station: North Heath							
Climate period:							
1991-2020							
Month	Maximum temperature (°C)	Minimum temperature (°C)	Days of air frost (days)	Sunshine (hours)	Rainfall (mm)	Days of rainfall ≥1 mm (days)	Monthly mean wind speed at 10 m (knots)
January	8.55	2.52	-	55.25	92.33	-	-
February	9.02	2.24	-	83.04	63.49	-	-
March	11.74	3.44	-	117.86	52.58	-	-
April	14.83	4.64	-	170.19	52.57	-	-
May	17.61	6.99	-	205.07	46.86	-	-
June	20.65	9.68	-	199.60	55.92	-	-
July	23.31	11.77	-	215.93	63.28	-	-
August	22.99	11.58	-	196.60	63.61	-	-
September	19.93	9.46	-	148.17	63.38	-	-
October	15.89	7.06	-	109.26	103.33	-	-
November	11.89	4.40	-	66.22	103.13	-	-
December	9.20	2.62	-	54.06	98.22	-	-
Annual	15.50	6.39	-	1621.25	858.70	-	-

Appendix G

Rainwater Harvesting SDS 5,600 litre Tank

ECO5600BLK

Product description: cylindrical storage tank, suitable for internal or external use



Product Information

Height	Diameter	Lid	Weight	Outlet
1885mm	2050mm	14" screw-down	140kg	2" BSP

PRODUCT NOTES:

- Tank must be sited on a level, fully supportive base leaving a gap of at least 50mm from walls or other tanks
- Additional fittings can be added as and where required without compromising tank's structural integrity
- Outlet not drilled unless requested

Sizes approximate, owing to shrinkage
Specification subject to change; please call to confirm details

PRODUCT DETAILS:

- Made from virgin polymer
- Approximate wall thickness: 5-6mm
- 14" screw-down lid as standard
- 2" brass threaded outlet moulded into the tank

OPTIONAL EXTRAS:

- 16" screw-down lid
- 1" threaded outlet, or moulded blank (no outlet)
- Brass tap
- Brass isolation valve with hose connector
- Tank connectors
- Ball cock and float valve
- Stainless steel outlet

BENEFITS:

- Suitable for internal and external use
- Frost proof; will not crack in cold
- Value for money, high capacity storage
- Ideal for domestic or commercial water storage
- Robust, heavy duty product; industrial strength
- Opaque plastic reduces algae growth in sunlight
- Rotationally moulded for strength and durability
- 10 year warranty against manufacturing defects



Scan to view our full range
of water tanks



Etills Ltd,
Unit 1 Whiting Way,
Melbourn,
Royston,
SG8 6NA



Call 01763 261781

Appendix H

Rainwater Harvesting Maintenance and Management Plan



Land adjacent to Redlands Farm
Washington, RH20 3BQ

**Rainwater Harvesting Management and
Maintenance Plan**

For

Mr G Thurgood

Document Control Sheet

Land adjacent to Redlands Farm

Washington, RH20 3BQ

Mr G Thurgood

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
04/09/2025	FINAL	EH	NJ



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1.0 Introduction

- 1.1 The report sets out the principles for the long-term management and maintenance of the rainwater harvesting systems at the proposed development.
- 1.2 The purpose of this report is to ensure that the client has a robust inspection and maintenance plan for the lifetime of the development. This will ensure the optimum operation of the rainwater harvesting systems and that they will be continually maintained. This will ensure that the proposed development will remain water neutral.
- 1.3 All those responsible for maintenance shall follow relevant health and safety legislation for all activities listed within this report (including lone working, if relevant). Method statements and risk assessments shall always be undertaken and made available, if requested.
- 1.4 Under Private Water Regulations 2016 the site is classed as a regulation 10 supply, as the water supply is $<10\text{m}^3$ per day to a single dwelling.
- 1.5 This report has been produced by Motion to describe the typical management and maintenance tasks that are known at the design stage (such as maintenance frequencies and typical tasks). These have been drawn from industry guidance such as BS EN 16941-1:2018, The SuDS Manual (CIRIA 753) and the manufacturer's own guidance.
- 1.6 Maintenance is considered as a construction activity under the CDM Regulations 2015. Under the CDM Regulations, it is a requirement that a competent person be appointed to carry out a required role. CDM defines a competent person as an individual with sufficient knowledge of the specific tasks to be undertaken, as well as sufficient experience and ability to carry out their duties in relation to the task in a way that secures health and safety on site.
- 1.7 In recognition of the requirements of the CDM Regulations 2015, this rainwater harvesting management and maintenance plan expects that the maintenance work will be carried out by a competent person who must have prior knowledge of the rainwater harvesting systems onsite.

2.0 Treatment

- 2.1 The rainwater harvesting system shall incorporate suitable treatment in accordance with BS EN 16941-1:2018, to ensure that the water quality is suitable for its intended end use.
- 2.2 The potential contaminants are listed below:
- ▶ pH
 - ▶ TOC
 - ▶ Colour
 - ▶ Turbidity
 - ▶ Suspended solids
 - ▶ Conductivity
 - ▶ Cl, No₃, SO₄
 - ▶ Na, Ca, Mg, Al
 - ▶ Ni, Cr, Cu, Pb
 - ▶ Total & Dissolved Fe
 - ▶ Mn
 - ▶ Ammonium/Ammonia
 - ▶ TVC, E.Coli, Coliforms, Pseudomonas aeruginosa, Enterococci, Clostridium Perfringens
- 2.3 The treatment, of the potential contaminants listed above, will cover the following:
- ▶ Removal of coarse particles, upstream of the storage;
 - ▶ Retention of fine particles by sedimentation and flotation in the storage tank; and
 - ▶ Filtration following the storage device, depending on the intended use.
- 2.4 Preliminary treatment will be provided in the form of filters and separators prior to the storage tank. This will include leaf guards on gutters and a leaf filter. A first flush diverter will be included to divert particles contained in rainwater away from the tank and to a suitable drain. These measures will prevent coarse solids and organic matter from entering the storage tank.
- 2.5 Any fine particles will then be separated either by sedimentation by settling out to the bottom of the tank, or flotation to the water surface.
- 2.6 A calmed inlet will be incorporated in the tank to prevent turbation of the sediment at the bottom of the tank by the inflow of water. Removal of the sediment will be carried out in accordance with Table 5.1 below.
- 2.7 Removal of floating particles will occur when the tank overflows, or when it is cleaned out in accordance with Table 5.1 below.
- 2.8 Water will be extracted from the tank via a floating pump, which will extract water from level that is above any sediment collected at the bottom of the tank and below any floating particles. This will help maintain the quality of harvested rainwater that is to be used in the property.

- 2.9 Where the water is being used for laundry, it is understood that the Council require an additional level of treatment. Therefore, it is proposed that a UV filter will be incorporated in advance of the washing machine and this will kill any microorganisms, prior to it being used in the washing machine.
- 2.10 A schematic showing the layout of the equipment used in a rainwater harvesting system is shown in Figure B.2 of BS EN 16941-1:2018.
- 2.11 All components used in the rainwater harvesting system shall be WRAS approved.

3.0 Water Quality Control

- 3.1 It is understood that the system will be considered as a private water supply and, therefore, will be governed by the Private Water Supply Regulations 2016. These are regulated by the local council's Environmental Health Officer or Pollution Control Officer.
- 3.2 The regulations in England and Wales do not require monitoring to be undertaken where the water supply is to a single domestic dwelling, unless the local authority is requested to do so by the owner or occupier of the dwelling, or if they are concerned that the supply presents a potential danger to human health.
- 3.3 NA.1 in BS EN 16941-1:2018 states that frequent testing will not normally be required for rainwater harvesting systems of a single domestic dwelling to ensure the water quality. It states that observations for water quality will be made during maintenance visits and testing will be carried out where the system is not operating satisfactorily. When sampling is required a sample will be taken and carried out in accordance with the guidance set out in NA.1 and Table NA.1 sets out the guideline values for bacteriological monitoring and Table NA.2 for non-bacteriological monitoring.
- 3.4 The Drinking Water Inspectorates (DWI's) guidance and regulations on Private Water Supplies recommends that for all water supplies of <10m³ per day that supplies water to more than one domestic dwelling must be monitored for five specific parameters once every five years. These parameters include: conductivity; Enterococci; E. coli; pH; and turbidity. The local authority can increase the frequency of sampling, and monitor other parameters, if they deem it to be necessary.
- 3.5 The guidance states that the sampling must be undertaken by an accredited sampler. These samplers must be certified by companies that are accredited to ISO 17024. Analysis must be carried out at a laboratory that is accredited to the ISO 17025 Drinking Water Testing Specification.
- 3.6 The water quality will need to be maintained at a suitable level commensurate with the end use and the treated water quality will have to meet those set out in the Private Water Supply Regulations.
- 3.7 The British Standard and DWI guidance, does not require water quality testing for systems serving one domestic unit. However, HDC has requested that testing is carried out in accordance with the standards set in paragraphs 3.4 and 3.5 above.

4.0 Continuity of Supply

- 4.1 To ensure that sufficient water is available for re-use, the storage tank will be sized so that it can provide 35 days of storage, which will provide sufficient supply during periods of drought.
- 4.2 Where drought periods extend beyond 35 days, the rainwater harvesting system will include an automatic mains backup. This will ensure that water is available at all times, even during extended periods of drought.

5.0 Maintenance Categories

5.1 There are three categories of maintenance activities referred to in this report. These are:

Inspection and Monitoring

- ▶ Inspection and monitoring tasks shall be carried out frequently, nominally once a month, and will include a visual inspection of all components including all inlets and outlets.

Regular Maintenance (Monthly)

- ▶ Regular maintenance consists of basic tasks done on a frequent and predictable schedule.

Seasonal Maintenance (Quarterly)

- ▶ Seasonal maintenance comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks.

Remedial Maintenance

- ▶ Remedial maintenance comprises of intermittent tasks that may be required to rectify faults associated with the system that have been identified through visual inspections. The likelihood of faults can be minimised by correct installation, regular inspection and timely maintenance.

6.0 The Rainwater Harvesting System

- 6.1 The proposed rainwater harvesting system will receive rainwater passing through and over several structures and will store rainwater within several items of infrastructure. These include:
- ▶ Roofs
 - ▶ Gutters
 - ▶ Filters;
 - ▶ Pumps;
 - ▶ Overflows; and
 - ▶ Storage tanks.
- 6.2 All components shall be installed in accordance with the manufacturer's instructions and to the levels/arrangements as defined on the designer's drawings.
- 6.3 This report shall be read in conjunction with the rainwater harvesting design, so that the location and type of each item of infrastructure can be recognised and understood.
- 6.4 Manufacturer's instructions are to be added to this document once specific products have been selected and installed as part of the detailed design. This document will subsequently form the basis for a maintenance regime for the rainwater harvesting system.

7.0 General Maintenance Principles

- 7.1 All rainwater harvesting systems require regular maintenance to keep them working at optimum efficiency and capacity. The maintenance of the rainwater harvesting systems shall be carried out alongside other regular maintenance tasks within the property.
- 7.2 Timely and adequate maintenance will increase the lifespan of the rainwater harvesting system. Inadequate maintenance will do the reverse.
- 7.3 The property owners are responsible for the monitoring and maintenance of the rainwater harvesting system for the lifetime of the development.

8.0 Inspection and Maintenance Frequency of Components

- 8.1 Table 8.1 below lists each of the components used within the development's rainwater harvesting systems. It suggests an indicative maintenance frequency for each component and ascribes typical maintenance tasks to them.
- 8.2 In accordance with the DWI's Private Water Supply regulations, it is the responsibility of the homeowner to ensure that all necessary maintenance activities are carried out in a timely manner and that the design performance of each drainage component is preserved. The homeowner may appoint a competent contractor to assist with the maintenance of their rainwater harvesting system. Additionally, the Council has a role to ensure the regulations are upheld by the homeowner.
- 8.3 If there is any uncertainty regarding the correct and safe methods of cleaning, or what equipment will be used, the manufacturer should be consulted.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspection of the tank for debris and sediment build-up	Annually
	Inspection of inlets/outlets and withdrawal devices	Annually
	Inspection of filters	Annually
	Inspection of Pumps	Annually
	Inspection of overflow areas	Annually
	Inspection of gutters	Annually
	Cleaning of tank	Annually
	Cleaning of inlets and outlets and withdrawal devices	Annually
	Cleaning of gutters and roof drain filters	Annually
	Check pump operation	Annually
Occasional Maintenance	Cleaning and/or replacement of any filters	Quarterly
	Sampling of water supply	Every five years
Remedial Actions	Repair of overflow erosion damage or damage to tank	As required
	Pump repairs	As required

Table 8.1 – Maintenance tasks and frequencies

- 8.4 Upon completion of maintenance activities, a record will be kept of the work carried out. This will be retained and an annual maintenance report will be compiled, which shall include the following:
- ▶ Observations resulting from inspections;
 - ▶ Maintenance and operation activities undertaken during the year; and

- ▶ Recommendations for inspections and maintenance programmes for the following year.

8.5 On the next page is a table with suggested information that will be recorded and included with the maintenance plan. As mentioned in the introduction to this document, this shall be a living document and regularly updated, as required and will be kept for the lifetime of the development.

Date	Component requiring maintenance	Issues prompting maintenance	Scheduled maintenance (Y/N)	Maintenance carried out	Additional works required (Y/N). If yes, please detail	Next scheduled date of inspection and maintenance