

Technical Note

Project:	The Old Forge, Upper Woodford, Salisbury, SP4 6NU	Date:	24 th March 2025
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Subject:	Nutrient budget	Author:	Nicola French
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1.0 Background

- 1.1. This Technical Note has been prepared to provide information to Wiltshire Council (WC) in support of a Planning Application for the conversion of former Smithy to a single residential dwelling and associated works at The Old Forge, Upper Woodford, Salisbury, SP4 6NU. The information is provided under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).
- 1.2. In January 2024, Defra issued a policy paper¹ notifying the designation of sensitive river catchments sensitive to nutrient pollution. This includes the River Avon Special Area of Conservation (SAC), identified as being in unfavourable condition on account of phosphorous pollution². The implication of this is that any local planning authority within the catchment of the Hampshire Avon cannot grant consent for new residential development unless it can be shown to be net phosphorous neutral. A phosphorous calculation is therefore required to ensure that WC has sufficient information to carry out an appropriate assessment to consider impacts of the application on the River Avon SAC, required to approve the RMA.
- 1.3. This note takes full account of all information provided by WC on the Council's dedicated nutrient neutrality website³ and draws on the calculator and guidance resources on the Government website *Tools and resources for calculating nutrient neutrality*⁴, most recently updated on 24th May 2024.

¹ January 2024, DEFRA. The Designation of Sensitive Catchment Areas Notice 2024

² <https://www.gov.uk/government/publications/notice-of-designation-of-sensitive-catchment-areas-2024/notice-of-designation-of-sensitive-catchment-areas-2024>

³ <https://www.wiltshire.gov.uk/planning-bio-phosphorous-nitrogen-mitigation>

⁴ <https://www.gov.uk/government/collections/tools-and-resources-for-calculating-nutrient-neutrality>

2.0 Nutrient neutrality calculations

2.1. **Box 1** on the following page sets out the parameters and assumptions used to assess the additional phosphorous loading that the new dwelling will generate.

Box 1: Assumptions relevant to the assessment of additional nutrient loading for conversion of the Old Forge, Upper Woodsford

- **Residential occupancy for the new dwellings:** 2.4 occupants
- **Total wastewater produced by single person:** 120 litres per day. The applicant does not wish to progress using the smaller 85 litres per day water consumption rate offered as an option by Wiltshire Council.
- **Method of waste processing:** foul waste will be processed at Amesbury Sewage Treatment Works (STW)
- **Total plot area:** The total area of the plot is 975m² (0.0975ha).
- **Land use:** the area of the red line comprises the curtilage of the derelict smithy in the residential setting of Upper Woodsford. The nutrient calculator does not include a category for a derelict site of this nature, but government guidance for use of the calculator states '*If there is a land use within the development area that is not in the list, select the most similar land use type.*' The two most relevant land use categories identified as **residential urban land** or **open urban land** defined within the guidance as follows:

Residential urban land	Areas of houses and associated infrastructure. This is inclusive of roads, driveways, grass verges and gardens.
Open urban land	Area of land in urban areas used for various purposes such as leisure and recreation, may include open land. For example, sports fields, playgrounds, public squares or built facilities such as sports centres.

Of these two, **open urban land** offers the smallest loading and is therefore the most precautionary of the two to use as a baseline position.

- **Soils:** The plot is unusual because it includes 2 soil types within the red line boundary (see screenshot on the following page). The blue land identifies Naturally Wet soils, whilst the yellow land identifies Freely Draining soils, with the following split:
 - 0.0154ha freely draining (shallow lime rich soil over chalk/limestone)
 - 0.0821ha Naturally wet (loamy and clayey floodplain soil with naturally high groundwater)



Screenshot to show split of soil types (Naturally Wet and Freely Draining) across the site.

This split has the potential to complicate the nutrient calculation, but interrogation of the calculator shows that the two soil types leach phosphorous at the same rate (0.83kg TP per hectare).

Current land use information			
Description of required information	Data entry column - user inputs required		
Operational catchment:	Avon Hampshire		
Soil drainage type:	Freely draining		
Annual average rainfall (mm):	750.1 - 800		
Within nitrate vulnerable zone (NVZ):	Yes		
Current land uses			
Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)	
Open urban land	1.00	0.83	

Screenshot from the calculator showing leachate of 0.83kg TP per hectare of Open Urban land on **Freely Draining** soils

Current land use information			
Description of required information	Data entry column - user inputs required		
Operational catchment:	Avon Hampshire		
Soil drainage type:	Naturally wet		
Annual average rainfall (mm):	750.1 - 800		
Within nitrate vulnerable zone (NVZ):	Yes		
Current land uses			
Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)	
Open urban land	1.00	0.83	

Screenshot from the calculator showing leachate of 0.83kg TP per hectare of Open Urban land on **Naturally Wet** soils

Therefore, although different, the two soil types can be treated as the same for purposes of the calculation. As the predominant soil type within the site, the Naturally Wet soil type is assumed for purpose of the calculation.

- **Proposed development:** The scheme, once developed, is classed as **residential urban land** (0.0975ha). It is best described **residential urban land**.

- 2.2. The most recent Natural England Phosphorous Calculator for the River Avon has been used to calculate the nutrient load generated by the treated foul from the new residential unit.

Water infrastructure information	
Description of required information	Data entry column - user inputs required
Date of first occupancy (dd/mm/yyyy):	01/01/2026
Average occupancy rate (people/dwelling or people/unit):	2.40
Water usage (litres/person/day):	120
Development proposal (dwellings/units):	1
Wastewater treatment works:	Amesbury STW
Current wastewater treatment works P permit (mg TP/litre):	1.00
Not applicable	Not applicable
Post 2030 WwTW P permit (mg TP/litre):	0.25
Final calculation of nutrient load from wastewater	
Description of values generated	Values generated
Post-2030 wastewater nutrient Loading	
Additional population (people):	2.40
Wastewater by development (litres/day):	288.00
Annual wastewater TP load (kg TP/yr):	0.02
Pre-2030 wastewater nutrient loading	
Annual wastewater TP load (kg TP/yr):	0.09

- 2.3. The calculations show that the treatment of foul from the new residential unit will generate **0.09kg** of Total Phosphorous per year in the period up to 2030 prior to the upgrade of the Amesbury STW, and **0.02kg** TP per year thereafter. Note that the 20% buffer has not been applied at this stage. Rather it is applied to the final calculation once the overall budget for the site is established.
- 2.4. The pre and post loadings derive from the requirements of the Levelling up and Regeneration Act 2023, which imposes a new duty on Wessex Water to ensure wastewater treatment works serving populations of 2,000 or more meet specified nutrient removal standards. Local planning authorities considering planning proposals for development are required to consider that the nutrient pollution standard will be met by the upgrade date for the purposes of their Habitats Regulations Assessments⁵. It is therefore reasonable to assume that the loading will reduce on upgrade of Amesbury STW in 2030.
- 2.5. To address the overall net nutrient budget for the scheme, it is important to also consider how rates of phosphorous leaching from the ground will change in response to a changed land use. Stages 2 & 3 of the calculation assess the Total phosphorous loading to the water environment that is currently taking place and compares this to the loading that will occur once the site has been developed. Both stages are set out below, using the categorisations and land area set out in Box 1.

⁵ <https://www.gov.uk/guidance/nutrient-neutrality-update>

Current land use information		
Description of required information	Data entry column - user inputs required	
Operational catchment:	Avon Hampshire	
Soil drainage type:	Naturally wet	
Annual average rainfall (mm):	750.1 - 800	
Within nitrate vulnerable zone (NVZ):	Yes	
Current land uses		
Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)
Open urban land	0.10	0.08
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Future land uses		
New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual phosphorus export (kg TP/yr)
Residential urban land	0.10	0.15
		0.00
		0.00
		0.00
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Totals:	0.10	0.15

- 2.6. Finally, the calculator generates a net phosphorous loading for the scheme to take account of both loading from treated foul and the change of use of the land for development. This is set out in Stage 4, below.

Total nutrient budget calculations	
Description of values generated	Values generated
Wastewater TP load (kg TP/year):	0.02
Net land use TP change (kg TP/year):	0.07
TP budget:	0.09
TP budget + 20% buffer:	0.11
Annual nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	0.11
Pre-2030 nutrient budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	0.19

- 2.7. The calculations show that conversion of the Old Forge to a new residential unit will generate **0.19kg** of total phosphorous per year once built out and occupied pre 2030, dropping to **0.11kg** total phosphorous post 2030.
- 2.8. To ensure net nutrient neutrality, **mitigation is required** to address the additional phosphorous load that the new dwelling will generate.

3.0 Mitigation

- 3.1. A Council-led scheme to provide phosphorus credits is available for planned development. The credits can be purchased to offset the additional loading identified and demonstrate nutrient neutrality. Wiltshire Council must consider that development schemes are planned development to qualify for the scheme.
- 3.2. This scheme does not fall within the planned development category because it does not fall under Core Policy 2 as a proposal within a settlement boundary (Upper Woodford is not identified as a settlement within the Wiltshire Core Strategy). The site therefore falls within the countryside, with Core Policy 48: Supporting Rural Life the relevant policy. One of the key objectives of this policy is supporting the sensitive reuse of built assets to help meet local needs. The Pre-App advice provided by Wiltshire Council is clear that the Council will look favourably on this scheme because it meets the criteria to accord with this policy. Therefore, whilst not Planned Development in the sense of Core Policy 2, the scheme is consistent with Policy 48 and will therefore deliver against the aims and objectives of the Core Strategy. Accordingly, it is reasonable for the Council to exercise its discretion and allow

the scheme access to the Council-led scheme for phosphorous credits for purpose of securing an offset for the scheme.

- 3.3. As a minor application, guidance on the Wiltshire Council website states that consent can be granted through use of a Grampian condition. This will allow the application to be determined, with a payment due on commencement of the development. The charge covers the cost of delivery of the mitigation projects and is re-invested back into delivering further mitigation projects.

4.0 Conclusion & analysis

- 4.1. A nutrient budget calculated in line with the current Natural England guidance and calculator for conversion of the Old Forge in Upper Woodsford to a new residential dwelling shows that the proposed scheme will generate increased loading of 0.19kg TP per year prior to 2030 dropping to 0.11kg TP per year post 2030.
- 4.2. To offset this additional loading, consent can be granted with a Grampian condition precluding the start of development until mitigation has been secured from WC's own mitigation scheme, or other, alternative ratified scheme if it becomes available. With this condition in place, WC can conclude that conversion of the Old Forge to a residential property will not adversely affect the integrity of the River Avon SAC, either alone or in combination with other plans and projects.

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