

Site:	Moorhill Road, West End
Client:	Highwood Homes Ltd
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INTRODUCTION

Tetra Tech was appointed by Highwood Homes Ltd in April 2021 to calculate the change in nutrient outputs from existing to future use associated with the proposed development in West End, Hampshire.

The proposed development comprises a 70-unit residential care home, parking, access and landscaping.

The calculations are required in response to recent consultation with Natural England on residential projects in the vicinity of the Solent following the findings of the Integrated Water Management Study for South Hampshire, published by the Partnership for Urban South Hampshire¹. The calculator was used to establish the Total Nitrogen (TN) for the proposed development and also the maximum TN load as a result of land use changes associated with the development proposals.

Due to the uncertainty over whether new development can be accommodated by existing wastewater treatment infrastructure without causing harm to coastal European sites, Natural England advise that all residential development should achieve nitrogen neutrality.

This report has been prepared by Project Ecologist Ben Cooke and the conditions pertinent to it are provided in Appendix A.

METHODOLOGY

To make the assessment, the following guidance documents were used:

- Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impacts on habitats sites (Natural England, 16th March 2022).
- Nutrient Neutrality Generic Methodology Issue 1 (Natural England and Ricardo Energy and Environment, February 2022).
- Nutrient Budget Calculator Guidance Document (Natural England and Ricardo Energy and Environment, March 2022); and
- Nutrient Neutrality Budget Calculator Solent v2 (Natural England and Ricardo Energy and Environment, April 2022).

¹ PUSH, (2018), Integrated Water Management Study, [online] Available at <https://www.push.gov.uk/wp-content/uploads/2018/07/IWMS-Appendix-1.pdf>, Accessed October 2022.

ASSESSMENT

The assumptions relevant to this project in addition to those included in the updated Natural England methodology are provided in Table 1.

Table 1: Project Assumptions

Number of proposed units:	70
Occupancy rate:	0.9
Water consumption:	120 l/person
The total site area:	0.72 ha
The current land uses are:	Open Urban Land – 0.72
The future land uses will be:	- Greenspace – 0.33 - Residential Urban Land – 0.39
The wastewater from the site will be treated at this wastewater treatment works (WwTW):	Portswood
The consent limit for the WwWT is:	27 mg/l TN
Surface water catchment:	Lower Test and Southampton Streams
Standard annual average rainfall:	800.1 – 850 mm
Soilscape category:	Naturally Wet
Nitrate Vulnerable Zone:	Yes

As the proposed development is a care home (class C2, residential institution), the average 2.4 persons per dwelling figures in Natural England's calculator is not considered appropriate. An occupancy figure has been used based on all units being occupied by single individuals, given that these are single-bed units and the residential classification of the development. These figures are provided in Appendix B and give the occupancy rate for the development.

The figures also take into account the number of vacant units (net voids) in a calendar year in order to calculate accurate population figures. This calculation takes into account that at a certain number of units are expected to be vacant at any one time (due to deaths) and will be undergoing a process of renovation before being available for occupation again.

The results using the method for determining the nitrogen budget for the proposals are provided in Table 2.

Table 2: Summary of the results

Calculating Total Nitrogen (TN) Load From Development Wastewater	Calculating TN Load From Current Land Use	Calculating TN Load From Future Land Uses	Calculating Net Change in TN From the Development	Apply 20% Buffer
69.03 Kg/TN/yr	6.53 Kg/TN/yr	6.99 Kg/TN/yr	69.49 Kg/TN/yr	83.39 Kg/TN/yr

The calculations show that the development would result in an increased TN budget of **83.39** Kg/TN/yr.

It is therefore considered that in the absence of mitigation or amendments to the scheme, the development proposals would still have the potential to result in an adverse effect on the integrity of the Solent European sites.

The approach to mitigation will be to purchase nutrient credits from the nutrient offset scheme at Eastleigh Borough Council. This will deliver a reduction in total nitrogen to offset the increases from the proposed development. Provided the required number of credits are appropriately secured by a suitable legal agreement this will result in a net decrease in TN and avoid an adverse effect on the integrity of the Solent European sites.

Document Control			
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Prepared by:		Checked & Approved By:	
Ben Cooke, Project Ecologist		Kevin Wood, Associate Ecologist	
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APPENDIX A: REPORT CONDITIONS

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APPENDIX B: POPULATION FORECAST

Table 3: Population Forecast

Expected Population	Units	Gross Population Estimate	Net of Voids	Population Estimate Net of Voids
Care Bed Occupancy expected at 100 % single individuals	70 x 1 bed	70	90%	63

APPENDIX C: SOLENT NUTRIENT BUDGET CALCULATIONS

See 784-B029375 Moorhill Road, West End Solent-Nutrient-Budget-Calculator-Version-2.1