

|                            |                                       |
|----------------------------|---------------------------------------|
| <b>Project Name:</b>       | 187.5016- Bryanston Road, Southampton |
| <b>Document Reference:</b> | 187.5016/NNS/1                        |
| <b>Document Name:</b>      | Nutrient Neutrality Statement         |
| <b>Prepared By:</b>        | Beth Gifford (July 2023)              |
| <b>Checked By:</b>         | Rob Wilson (July 2023)                |
| <b>Approved By:</b>        | Rob Wilson (July 2023)                |

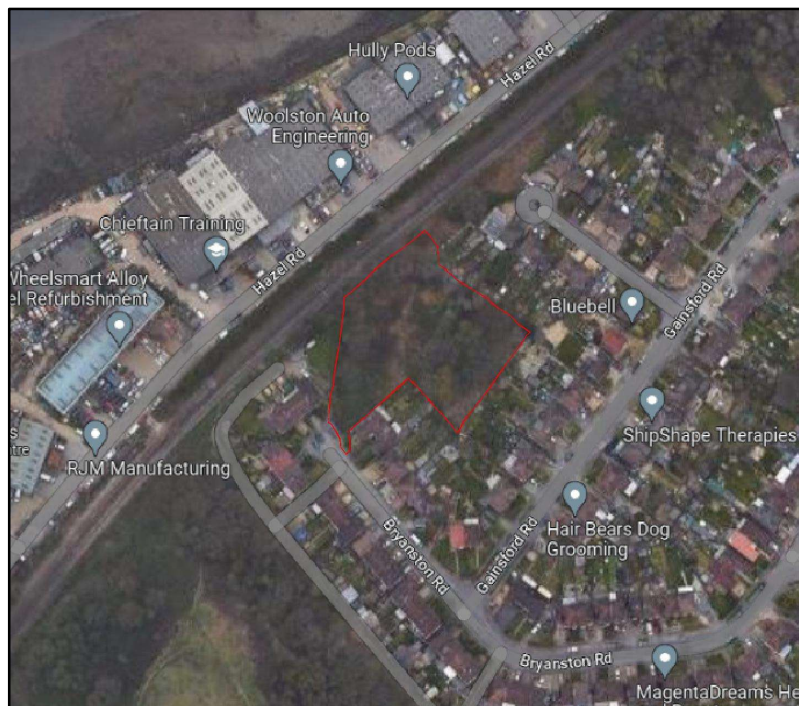
**Disclaimer**

This document has been prepared in accordance with the scope of Paul Basham Associates Ltd's appointment with its client and is subject to the terms of that appointment. It is addressed to and for the sole use and reliance of Paul Basham Associates clients. Paul Basham Associates accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part), use or rely on the contents of this document, without the prior written permission of a Director of Paul Basham Associates. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The content of this document is not to be construed as providing legal, business or tax advice or opinion.

© Paul Basham Associates Limited

## 1. INTRODUCTION

- 1.1 This Nutrient Statement has been prepared by Paul Basham Associates on behalf of Abri to support a planning application for a new development consisting of 8 properties at land off Bryanston Road, Southampton. The proposed layout can be found in MH Architect layout 23-018 BRS MHA ZZ ZZ DR A SK04
- 1.2 The land is accessed off the head of Bryanston Road, Southampton. The nearest postcode is SO19 7AQ. The site location is demonstrated within **Figure 1**.



**Figure 1: Site Location**

- 1.3 Based on Natural England's (NE) catchment plans, the site falls within the Southampton Solent Catchment and therefore requires the catchment specific nutrient calculation.
- 1.4 The closest wastewater treatment works is Woolston WWTW on Victoria Road, Southampton, SO19 9EG. Further investigation of the downstream network will be required to confirm this outfall route for the development foul drainage.
- 1.5 Using the Solent Nutrient occupancy rate calculator, the nitrate levels for the proposed residential development have been calculated based on a change in number of dwelling and occupancy rate.

## 2. EXISTING NUTRIENT LOADING ASSESSMENT FOR OCCUPANCY

- 2.1 The existing development consists of an undeveloped heavily vegetated scrubland with an area of 3820 m<sup>2</sup>. The existing plot does not shed any wastewater or surface runoff to the wastewater treatment works.
- 2.2 As the existing area is undeveloped there will be no nitrates generated from foul or surface flows from existing developments within the plot area.

### 3. PROPOSED NUTRIENT LOADING ASSESSMENT FOR OCCUPANCY

3.1 The proposed development will involve clearing much of the dense vegetation on the existing site and to build 4 number two bedroom and 4 number three-bedroom units with a floor area of 415 m<sup>2</sup> and a positively drained hardstanding and access road with an area of 1000 m<sup>2</sup>. Total positively drained impermeable area is equal to 1415 m<sup>2</sup>. Existing areas of scrub and rough vegetation will be transformed to an area of high quality enhanced ecological woodland to the East of the dwellings and along the west as a linear buffer zone with an area of 1915 m<sup>2</sup>. Rear gardens will comprise lawn and amenity planting and occupy 490 m<sup>2</sup>. There will be no increase in site area from pre to post development.

|  |                           |
|--|---------------------------|
| Impermeable roof area                            | 415 m <sup>2</sup>        |
| Impermeable drives, access road and hardstanding | 1000 m <sup>2</sup>       |
| <b>Total impermeable positively drained area</b> | <b>1415 m<sup>2</sup></b> |
| Permeable gardens (grass and amenity planting)   | 490 m <sup>2</sup>        |
| High quality enhanced woodland                   | 1915 m <sup>2</sup>       |
| <b>Total permeable area not drained</b>          | <b>2405 m<sup>2</sup></b> |
| <b>Total site area</b>                           | <b>3820 m<sup>2</sup></b> |

3.2 Proposed occupancy rates have been calculated to be 2.435 based on 4 number two bedroom and 4 number three-bedroom units. The defined nature of the scheme has allowed an accurate assessment of the occupancy figures using Natural England’s and Southampton occupancy calculator.

|   | 1 bed | 2 bed | 3 bed | 4 bed | 5+ bed | Total        |
|---|-------|-------|-------|-------|--------|--------------|
| <b>Development proposal</b> (net change in dwellings units) | 0     | 4     | 4     |       |        | <b>8</b>     |
| <b>Occupancy rate:</b>                                      | 1.41  | 2.13  | 2.74  | 3.43  | 4.09   |              |
| <b>Average Number of People</b> (net change):               | 0     | 8.52  | 10.96 | 0     | 0      | <b>19.48</b> |
| <b>Average Occupancy Rate</b> (based on net change):        |       |       |       |       |        | <b>2.435</b> |

Figure 4-Post-development Occupancy rate calculator

3.3 Nutrient calculations have been carried out to determine the proposed Nitrate loading for this development occupancy. The calculator has determined that the loading for the proposed development occupancy is 11.53 kg total nitrogen/year.

| Stage 1  |                       |
|--|-----------------------|
| <b>User Inputs</b>                                 |                       |
| Date of first occupancy:                           | 01/01/2025            |
| Average occupancy rate:                            | 2.44                  |
| Water usage (litres/person/day):                   | 120                   |
| Development Proposal (dwellings/units):            | 8                     |
| Include deductible acceptable loading?             | No                    |
| Wastewater treatment works:                        | Woolston WwTW         |
| Wastewater treatment works N permit (mg TN/litre): | 15                    |
| <b>Stage 1 Calculated Loading</b>                  |                       |
| Stage 1 Nutrient Loading                           |                       |
| Additional population                              | 19.48 people          |
| Wastewater by development                          | 2337.6 litres/day     |
| <b>Annual wastewater TN load</b>                   | <b>11.53 kg TN/yr</b> |

Figure 5: Stage 1 Data Inputs and show total nitrate and Phosphate loading for the proposed development occupancy.

#### 4. NUTRIENT LOADING CAUSED BY CHANGE IN LAND AREA

- 4.1 Stages 2 and 3 calculate existing and proposed land use types and the annual nutrient load relating for each case.
- 4.2 Stage 2 calculates the Total Nitrates from predevelopment permeable areas. Based on 0.38Ha of shrub with slightly impeded drainage the existing development generated a total nitrate loading of 0.382kg TN/year.

| Stage 2                               |                           |   |
|---------------------------------------|---------------------------|---|
| <b>User Inputs</b>                    |                           |   |
| Catchment:                            | Itchen                    |   |
| Soil drainage type:                   | Slightly impeded drainage |   |
| Annual average rainfall (mm):         | 750.1 - 800               |   |
| Within Nitrate Vulnerable Zone (NVZ): | Yes                       |   |
| Existing land use type(s)             | Area (ha)                 | Annual nitrogen nutrient export (kg TN) |
| Shrub                                 | 0.38                      | 1.15                                    |
| Total:                                |                           | 0.382   1.15                            |

Figure 6: Extracts from Stage 2 Data Inputs and show total nutrient loading for the existing development permeable areas.

4.3 Stage 3 calculates the Total Nitrates from post development permeable areas. Based on 0.284Ha the existing development generated a total nitrate loading of 0.99 kg TN/year.

| Stage 3              |           |   |
|----------------------|-----------|---|
| User Inputs          |           |   |
| New land use type(s) | Area (ha) | Annual nitrogen nutrient export (kg TN) |
| Open urban land      | 0.05      | 0.42                                    |
| Woodland             | 0.19      | 0.57                                    |
| Total:               |           | 0.99                                    |

Figure 7: Extracts from Stage 3 Data Inputs and show total nitrate loading for the proposed development permeable areas.

## 5. STAGE 4 CALCULATION SUMMARY

- 5.1 Stage 4 summarises the calculated outputs based on the parameters input for the site. The value shown in stage 4 includes a 20% buffer to increase the Nitrate loading from the development.



Figure 8: Extract from Stage 4 Calculation Summary for the proposed development

- 5.2 The proposed development will increase total nitrate loading by 13.65 TN/year.
- 5.3 Natural England’s Position Statement on Nitrate neutral development- (Natural England’s advice for LPA’s dated June 2019):
- The achievement of nutrient neutrality, if scientifically and practically effective, is a means of ensuring that development does not add to existing nutrient burdens.
  - The methodology set out in Natural England’s advice sets out key stages, which include calculating the load from the proposed development and the load from the current land use.
  - If there is a nitrogen surplus (a positive figure) then mitigation is required to achieve nitrogen neutrality. If the calculation identifies a nitrogen reduction (a negative figure), no mitigation is required.

| Nutrients      | post-development  | Mitigation required |
|----------------|-------------------|---------------------|
|                |                   |                     |
| Total Nitrogen | +13.65 Kg TN/Year | yes                 |

- 5.4 Based on the calculations and the requirements from Natural England, the proposed development has shown an increase in nitrates entering the downstream catchment. **As such Nitrogen credits are required due to an increase in both nutrient values from a predevelopment discharge to a post development discharge.**

Ref:

<https://www.southampton.gov.uk/planning/planningpermission/sustainability-checklist/nitrogen-mitigation/>

<https://www.gov.uk/government/publications/natural-englands-nutrient-mitigation-scheme-for-developers/how-to-apply-for-nutrient-mitigation-credits-from-natural-england>