

## BELLWAY HOMES (WESSEX)

## LAND AT PALK ROAD, HAVANT

## NUTRIENT BUDGET AND MITIGATION STATEMENT

**REPORT REF.  
2108040-03**

**December 2022**

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| <b>REV</b> | <b>ISSUE PURPOSE</b> | <b>AUTHOR</b> | <b>CHECKED</b> | <b>APPROVED</b> | <b>DATE</b> |
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## **1. INTRODUCTION**

- 1.1. Ardent Consulting Engineers (hereafter referred to as "Ardent") has been commissioned by Bellway Homes to undertake a Nutrient Budget and Mitigation Statement for the proposed development at Palk Road, Havant, Hampshire (hereafter referred to as 'the site'). The application site lies within the administrative boundary of Havant Borough Council (HBC).
- 1.2. This Statement supports a Full Planning Application for the redevelopment of a brownfield site to include the provision of 90 residential dwellings (including affordable units) (C3 use), parking, public open space, landscaping and other associated works, including demolition of existing building on site, with access from Palk Road.
- 1.3. This Statement has been prepared in accordance with Natural England's 'Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impacts on habitats sites' (March 2022) and Havant Borough Council's Position Statement and Mitigation Plan for Nutrient Neutral Development (published August 2020 and updated May 2022).

## 2. SITE LOCATION AND DEVELOPMENT PROPOSALS

### *Site Location*

- 2.1. The Site is located at Palk Road, Bedhampton Havant, to the southwest of West Street, centred on National Grid Reference 470727,106435. The nearest postcode to the Site is PO9 1NLJ. The development Site is approximately 1.3 ha in area and currently comprises commercial uses. **Figure 1-1** below shows the Site location plan.
- 2.2. The Hermitage Stream bounds the site to the south. Bedhampton Station is located to the north of the Site with the railway line running along its northern boundary. The remainder of the Site is surrounded by open green space to the west and commercial premises to the east. The surrounding settings are largely residential and commercial.



**Figure 2-1: Site Location Plan**

- 2.3. The application site is located approximately 1.2. km to the north of the Chichester and Langstone Harbours Sites of Special Scientific interest (SSSI) and Special Protection Areas (SPA) of the Solent, and is within Nutrient Neutrality SSSI Catchment established by Natural England.
- 2.4. The site is within the wastewater catchment of the Budds Farm Wastewater Treatment Works (WWTW) which discharges treated effluent into designated European Sites within the Solent area, and has been identified by Havant Borough Council and Natural England as likely to lead to a significant effect on these sites.

### ***Development Proposals***

- 2.5. The proposals comprise the redevelopment of a brownfield site to include the provision of 90 residential dwellings (including 27 affordable units) (C3 use), parking, public open space, landscaping and other associated works, including demolition of existing buildings on site, with access from Palk Road. A ground floor plan is included in **Figure 2-2** below and **Appendix A**.



**Figure 2-2: Development Proposals**

### **3. NITROGEN BUDGET CALCULATION**

3.1. Under the Conservation of Habitats and Species Regulations (2017), Havant Borough Council require that planning applications that have the potential to result in an increase in nutrients entering European Sites are supported by a nutrient neutrality assessment. The following evidence is included in the application:

- Havant Borough Council's 'European site avoidance and mitigation checklist' is included as part of the application.
- Solent Nutrient Budget calculator (and associated HBC Occupancy calculator) is included in **Appendix B**.

3.2. To calculate the nutrient load of the proposed development site, Natural England's methodology and associated nutrient budget calculator (Solent Nutrient Budget calculator) have been used in this assessment. The full set of Calculator inputs and outputs is included in **Appendix B**. Key inputs and maps used in the Nutrient Budget Calculator are included in this section for ease of reference.

3.3. The assessment concludes that the development will result in a total increase in nitrogen discharge of 67.69 kg/yr, relative to the baseline scenario.

#### **Nitrogen Budget methodology**

##### Stage 1- Nutrient Loading from additional wastewater

**Table 3-1: Stage 1 inputs**

| <b>Inputs</b>                     |            | <b>Notes/ Maps</b>                                                                                                               |
|-----------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of first occupancy</b>    | 01/10/2024 | Estimated.                                                                                                                       |
| <b>Average occupancy rate</b>     | 1.83       | Refer to Havant Borough Council's Occupancy calculator in <b>Appendix B</b> . Proposed development layout in <b>Appendix A</b> . |
| <b>Water usage (l/person/day)</b> | 120        | As per NE's advice and guidance within 'Havant Borough Council's Position Statement and                                          |

|                                                      |                 |                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      |                 | Mitigation Plan for Nutrient Neutral Development' (May 2022).                                                                                                                                                                                                                                                                                                  |
| <b>Development Proposal</b>                          | 90 units        | Refer to Proposed development layout in <b>Appendix A.</b>                                                                                                                                                                                                                                                                                                     |
| <b>Include deductible acceptable loading</b>         | Yes             | As per advice within 'Havant Borough Council's Position Statement and Mitigation Plan for Nutrient Neutral Development' (May 2022).                                                                                                                                                                                                                            |
| <b>Wastewater treatment works</b>                    | Budds Farm WwTW | -                                                                                                                                                                                                                                                                                                                                                              |
| <b>Wastewater treatment works N permit (mg TN/l)</b> | 7.7             | The development is located within the wastewater treatment catchment of the Budds Farm WwTW, which has a Total Nitrogen (TN) permit level of 9.7 mg/l. After discounting the deductible acceptable loading to account for the amount of nitrogen concentration that would be present in ground and river water in natural conditions, the N limit is 7.7 mg/l. |

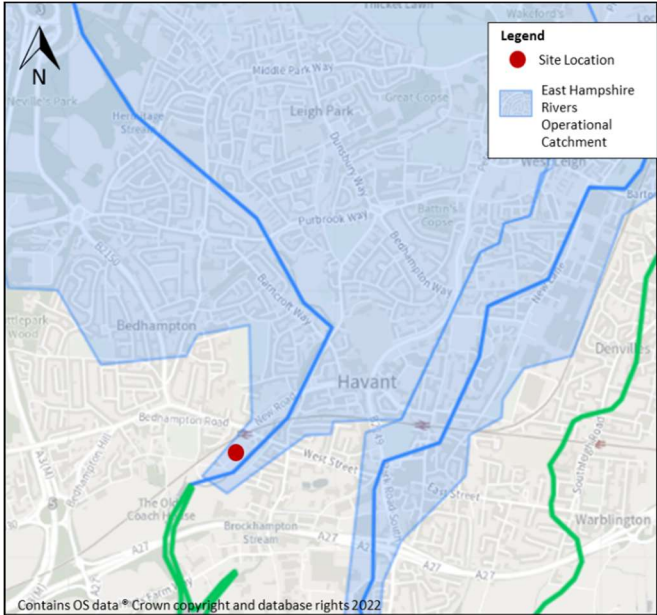
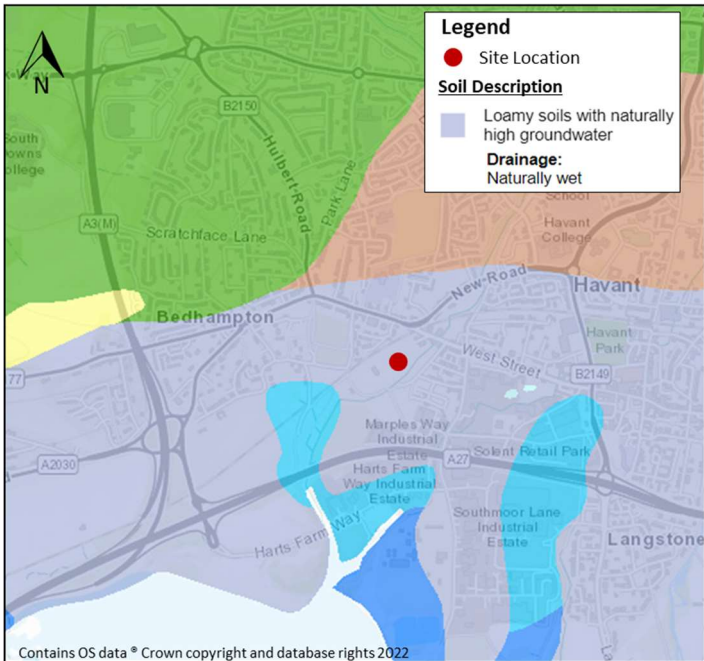
3.4. Total Nitrogen loading from additional wastewater discharge is 53.31 kg as shown in **Figure 3-1** below.

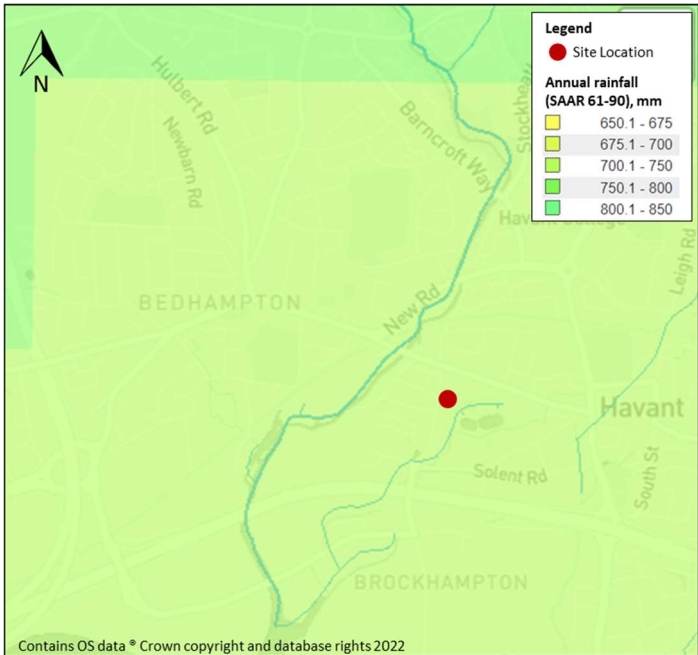
| <b>Stage 1 Calculated Loading</b> |              |                 |
|-----------------------------------|--------------|-----------------|
| Stage 1 Nutrient Loading          |              |                 |
| Additional population             | 164.7        | people          |
| Wastewater by development         | 19764        | litres/day      |
| <b>Annual wastewater TN load</b>  | <b>50.03</b> | <b>kg TN/yr</b> |

**Figure 3-1: Nutrient loading from additional wastewater**

Stage 2- Nutrient loading from current land use

**Table 3-2: Stage 2 inputs**

| Inputs                    |                       | Notes/ Maps                                                                                                                                             |
|---------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Catchment</b>          | East Hampshire Rivers |  <p>Contains OS data * Crown copyright and database rights 2022</p>  |
| <b>Soil drainage type</b> | Naturally wet         |  <p>Contains OS data * Crown copyright and database rights 2022</p> |

|                                             |           |                                                                                    |
|---------------------------------------------|-----------|------------------------------------------------------------------------------------|
| <b>Annual average rainfall (mm)</b>         | 700.1-750 |  |
| <b>Within Nitrate Vulnerable Zone (NVZ)</b> | Yes       | Eutrophic Water                                                                    |

3.5. The planning redline boundary equates to 1.3 ha of which 0.2 ha is grassed, and 1.1 is occupied by commercial premises (builder's merchants). Existing land uses and associated nitrogen loadings are shown in **Figure 3-2** below. Total Nitrogen loading from existing land uses is 9.52 Kg/yr.

| Existing land use type(s)        | Area (ha)  | Annual nitrogen nutrient export (kg TN) |
|----------------------------------|------------|-----------------------------------------|
| Commercial/industrial urban land | 1.10       | 7.93                                    |
| Open urban land                  | 0.20       | 1.59                                    |
| <b>Total:</b>                    | <b>1.3</b> | <b>9.52</b>                             |

**Figure 3-2: Nutrient loading from current land use**

### Stage 3- Nutrient loading from future land use

3.6. The proposals comprise of 1.3ha of residential-led development, of which 0.3ha will be open landscaped areas. Proposed land uses and associated nitrogen loadings are

shown in **Figure 3-3** below. Total Nitrogen loading from proposed land uses is 15.90 Kg/yr.

| User Inputs            |            |                                         |
|------------------------|------------|-----------------------------------------|
| New land use type(s)   | Area (ha)  | Annual nitrogen nutrient export (kg TN) |
| Residential urban land | 1.00       | 13.51                                   |
| Open urban land        | 0.30       | 2.39                                    |
| <b>Total:</b>          | <b>1.3</b> | <b>15.90</b>                            |

**Figure 3-3: Nutrient loading from proposed land use**

#### **Stage 4- Nutrient budget calculation**

- 3.7. Based on the above, the net change in Total Nitrogen loading as a result of the development will be:  $50.03 - 9.52 + 15.90 = 56.41$  kg/yr.
- 3.8. As recommended in Natural England's guidance (March 2022), a 20% precautionary buffer should be added onto the result, to account for uncertainty in the methodology. Therefore, the net total nitrogen load is given by:  $53.69 * 1.2 = 67.69$  Kg/yr. Refer to calculator output in **Figure 3-4** below:

| Calculated Outputs                             |                         |
|------------------------------------------------|-------------------------|
| Annual Nutrient Budget                         |                         |
| The total annual nitrogen load to mitigate is: | <b>67.69 kg TN/year</b> |

**Figure 3-4: Nutrient loading from proposed land use**

- 3.9. The assessment concludes that the development will result in a total increase in nitrogen discharge relative to the baseline scenario. A mitigation strategy is set out in **Section 4** below.

#### **4. MITIGATION STRATEGY**

- 4.1. The proposed redevelopment scheme will result in a total increase in nitrogen load of 67.69 kg TN/year.
- 4.2. Havant Borough Council's position statement indicates that developments on non-agricultural land will not be able to provide onsite mitigation, and an off-site land-based mitigation scheme should be sought instead. In such cases, a contribution is made towards a strategic mitigation project consisting of a change of use from a nitrogen intensive use (such as agricultural land) to a land use which removes nitrogen from the environment (e.g., a woodland, heathland, saltmarsh, wetland or conservation grassland).
- 4.3. It is proposed that the Meon Springs mitigation scheme is used to mitigate the effects of the proposed development.
- 4.4. Contribution will be based on the rates established by the scheme of £2,550/ kg TN discharged in a year, as reproduced in **Table 3-3** below. Contribution costs for the site have been calculated following the results of this assessment.

**Table 3-3: Meon Springs mitigation contribution costs**

|                          | <b>Total nitrogen discharged<br/>(kg per year)</b> | <b>Cost</b>       |
|--------------------------|----------------------------------------------------|-------------------|
| Per kilo contribution    | 1                                                  | £2,550            |
| For the development site | 67.69                                              | <b>£172,609.5</b> |

- 4.5. With the appropriate off-site mitigation strategy in place, the proposed development will be considered to be nitrogen neutral and in compliance with the requirements of the Conservation of Habitats and Species Regulations (2017).

## **5. SUMMARY AND CONCLUSIONS**

- 5.1. Ardent Consulting Engineers has been appointed by Bellway Homes (Wessex) to prepare a Nutrient Budget and Mitigation Statement for the proposed development for the proposed development at Palk Road, Havant, Hampshire (hereafter referred to as 'the site'). The application site lies within the administrative boundary of Havant Borough Council (HBC).
- 5.2. The site is within the wastewater catchment of the Budds Farm Wastewater Treatment Works (WWTW) which discharges treated effluent into designated European Sites within the Solent area, and has been identified by Havant Borough Council and Natural England as likely to lead to a significant effect on these sites.
- 5.3. As part of this assessment, the nitrogen budget for the site has been calculated in accordance with Natural England's 'Advice for development proposals with the potential to affect water quality resulting in adverse nutrient impacts on habitats sites' (March 2022). The calculations concluded that the development will result in a total increase in nitrogen discharge into the Solent when compared to the baseline scenario of 67.69 kg TN/year. Mitigation measures will need to be put in place in order to achieve nitrogen neutrality.
- 5.4. According to HBC's Position Statement and Mitigation Plan for Nutrient Neutral Development (published August 2020 and updated May 2022), the only eligible mitigation option for the site is an off-site solution, whereby a contribution is made towards a strategic mitigation project consisting of a change of use from a nitrogen intensive use (such as agricultural land) to a land use which removes nitrogen from the environment.
- 5.5. It is proposed that the Meon Springs mitigation scheme is used to mitigate the effects of the proposed development.
- 5.6. Contribution will be based on the rate established by the mitigation scheme (2,550 per kg TN discharged per year). A contribution cost for the site has been included in this report following the results of this assessment.
- 5.7. With the appropriate off-site mitigation strategy in place, the proposed development will be considered to be nitrogen neutral and in compliance with the requirements of the Conservation of Habitats and Species Regulations (2017).

## **Appendix A**



PORTSMOUTH WATER PROPOSED UNDERGROUND SHAF AND ASSOCIATED PIPES (PURSUANT TO OUTLINE PERMISSION APP/20/08991/OUT - HAVANT THICKET RESERVOIR PROJECT)

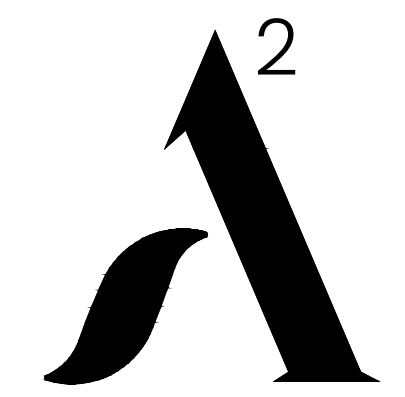
APARTMENT A  
3 X 18WC 7 X 182P  
1 X 28WC 1 X 283P  
1 X 38WC 5 X 284P  
1 X 386P

APARTMENT B  
7 X 182P 13 X 284P  
2 X 283P 1 X 386P

APARTMENT C  
10 X 182P 13 X 284P  
3 X 283P 5 X 386P

APARTMENT D  
5 X 182P 13 X 283P  
13 X 284P

| SITE PLAN LEGEND |                                                                   |
|------------------|-------------------------------------------------------------------|
|                  | Application Boundary Line                                         |
|                  | Existing Water Pipe                                               |
|                  | Existing Surface Water Sewer                                      |
|                  | Existing Trees                                                    |
|                  | Existing Trees Removed                                            |
|                  | Proposed Trees / Planting<br>(See ACD landscape plan for details) |
|                  | Apartment Reference                                               |
|                  | Plot Number                                                       |
|                  | Parking Space                                                     |
|                  | Cycle Hoops                                                       |
|                  | Main Entrance                                                     |
|                  | Secondary Entrance                                                |
|                  | Refuse Store                                                      |
|                  | Cycle Store                                                       |
|                  | Storey Heights                                                    |
|                  | Pergola                                                           |



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Fareham PO15 5SJ

CLIENT:

Bellway Homes (Wessex)

PROJECT:

Land Off Palk Road,  
Bedhampton, Havant  
PO9 1NL

DRAWING:

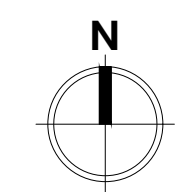
Proposed Site Layout

STATUS:

Planning

Do not scale for any other purpose than stated in title, use annotated dimensions only. All dimensions to be checked on site & any discrepancies/ errors to be reported to A2 before work commences. This drawing is to be read in conjunction with all other relevant materials.

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21085 101 -

## **Appendix B**

## Development site details

**Date (dd/mm/yyyy):**

13/10/2022

**Site Name:**

Land at Palk Road, Palk Rd, Bedhampton, Havant PO9 1NL

**Planning Application number:**

**Site Address:**

Land at Palk Road OS Grid Reference mN 470807, mE106483, NGR 470727,106435

# Stage 1

## User Inputs

|                                                    |                 |
|----------------------------------------------------|-----------------|
| Date of first occupancy:                           | 01/11/2026      |
| Average occupancy rate:                            | 1.83            |
| Water usage (litres/person/day):                   | 120             |
| Development Proposal (dwellings/units):            | 90              |
| Include deductible acceptable loading?             | Yes             |
| Wastewater treatment works:                        | Budds Farm WwTW |
| Wastewater treatment works N permit (mg TN/litre): | 7.7             |

## Stage 1 Calculated Loading

### Stage 1 Nutrient Loading

|                           |       |            |
|---------------------------|-------|------------|
| Additional population     | 164.7 | people     |
| Wastewater by development | 19764 | litres/day |
| Annual wastewater TN load | 50.03 | kg TN/yr   |

## Stage 2

**User Inputs**

|                                              |                       |
|----------------------------------------------|-----------------------|
| <b>Catchment:</b>                            | East Hampshire Rivers |
| <b>Soil drainage type:</b>                   | Naturally wet         |
| <b>Annual average rainfall (mm):</b>         | 700.1 - 750           |
| <b>Within Nitrate Vulnerable Zone (NVZ):</b> | Yes                   |

| Existing land use type(s)        | Area (ha)  | Annual nitrogen nutrient export (kg TN) |
|----------------------------------|------------|-----------------------------------------|
| Commercial/industrial urban land | 1.10       | 7.93                                    |
| Open urban land                  | 0.20       | 1.59                                    |
| <b>Total:</b>                    | <b>1.3</b> | <b>9.52</b>                             |

## Stage 3

## User Inputs

| New land use type(s)   | Area (ha)  | Annual nitrogen nutrient export (kg TN) |
|------------------------|------------|-----------------------------------------|
| Residential urban land | 1.00       | 13.51                                   |
| Open urban land        | 0.30       | 2.39                                    |
| <b>Total:</b>          | <b>1.3</b> | <b>15.90</b>                            |

## Stage 4

### Calculated Outputs

#### Annual Nutrient Budget

The total annual nitrogen load  
to mitigate is:

**67.69 kg TN/year**

## Occupancy calculator

Date 13/10/2022

Site name Land at Palk Road, Havant

Site address Land at Palk Road, Palk Rd, Bedhampton, Havant PO9 1NL

|        | Gross new homes<br>proposed | Gross losses<br>proposed | Net new homes<br>proposed |
|--------|-----------------------------|--------------------------|---------------------------|
| 1 bed  | 37                          | 0                        | 37                        |
| 2 bed  | 55                          | 0                        | 55                        |
| 3 bed  | 8                           | 0                        | 8                         |
| 4 bed  | 0                           | 0                        | 0                         |
| 5+ bed | 0                           | 0                        | 0                         |
| Total  | 100                         | 0                        | 100                       |

**Average occupancy to include in Solent  
Nutrient Calculator:**

**1.83**