



Shadow Habitat Regulation Assessment (HRA) Screening Report and Appropriate Assessment

Prepared for:

Simply Planning

Local Planning Authority	Wiltshire Council
Application Reference	TBC
Application Address	Land off Southampton Road, Alderbury, SP5 3AG
Application Description	Outline planning for 47 residential dwellings

Revision 2

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1 Introduction

This sHRA has been prepared due to an identified hydrological link between the proposed development and the River Avon SAC and the Solent Marine Sites which has the potential to cause adverse impacts with regard to nutrient pollution.

1.1 HRA Requirement

Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), a Competent Authority is required to conduct a Habitat Regulations Assessment (HRA) for any plans or projects that could impact on a European Site. However, a 'shadow' HRA can be completed by the applicant and adopted by the competent authority. In this case Wiltshire Council is the competent authority responsible for undertaking the HRA.

This report will mainly reference the regulations set out by the Wiltshire Council, as this is the competent authority. Wiltshire Council is required to assess the Local Plan through the HRA process as policies and site allocations in the Local Plan can potentially affect the national site network of European sites in the UK, as well as Ramsar sites.

1.2 European sites of Potential Impact

The proposed site is located on the water divide of two catchments: the River Test to the east and the River Avon to the west. Therefore, the sHRA needs to consider European sites within both catchments; principally the River Avon SAC, the New Forest SPA and the Solent Marine Habitats sites.

The River Avon is one of the most diverse chalk streams in the UK, with over 180 species of plants, one of the most diverse fish faunas, and a wide range of aquatic invertebrates. The River Avon is a Site of Special Scientific Interest (SSSI) and therefore forms part of the nation's finest natural heritage. The site is also internationally recognised, and was confirmed as a Special Area of Conservation (SAC) in 2000. The SAC includes a number of rivers and adjacent. The lower reaches of the Avon Valley are also internationally designated as a Special Protection Area (SPA), for its bird interest.

The New Forest's unique mix of landscapes including ancient woodlands, wetlands and bogs, and open heathlands means it is home to many rare species of plants and wildlife long since lost from the UK and Europe. The significance of the New Forest is reflected in the fact that it has the highest possible conservation status and is legally protected.

The Solent Marine Sites (SEMS) is a collective name which covers internationally important areas in the Solent. It includes areas designated under the EU Habitats Directive as Special Areas of Conservation (SAC), areas designated under the EU Birds Directive as Special Protection Areas (SPAs) and areas designated as Ramsar sites. The Directive requires that all European sites are managed sustainably in order to protect the features for which the sites have been designated. SEMS covers the harbours, estuaries, areas of open coast and inshore water around the Solent.

Two joined European Union Court of Justice cases (C-293/17 and C-294/17) relating to the Habitats Directive, were decided. In summary, this judgment concludes that, where a European protected site is in unfavourable condition, permitting additional nutrient loads is

‘necessarily limited’ and would need careful justification to ensure that it is compatible with the Habitats Directive.

1.3 Data sources

- All references in this assessment to the ‘Habitats Regulations’ refer to The Conservation of Habitats and Species Regulations 2017 (and as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019).
- **This report should be read in conjunction with the Nutrient Neutral Assessment and Mitigation Strategy (NNAMS) Report. Revision 1, Nutrient Neutral Ltd, February 2025**
- The Defra MAGIC website [www.magic.defra.gov.uk], accessed **February 2025**
- Information on European sites from the JNCC website [www.jncc.defra.gov.uk], accessed **February 2025**
- Wiltshire Local Plan Review Habitats Regulations Assessment Scoping Report (LUC, January 2021)

2 Stage 1 – HRA Screening Assessment

Screening under Regulation 63(1)(a) of the Habitats Regulations. The purpose is to provide evidence so that a judgement can be made as to whether there could be any potential significant impacts of the development on the integrity of the River Avon SAC, the New Forest SPA, SAC and Ramsar, and the Solent Marine Habitats sites.

2.1 Likely Significant Effects definition

The significance of potential effects was assessed in the absence of mitigation measures other than those which are standard construction practices, such as pollution control or those incorporated into the scheme. The assessment has been made with awareness of the conservation objectives for the features of the European sites.

2.2 Current condition of designated sites

Natural England has advised that based on the best available up-to-date evidence the River Avon SAC and Solent Marine Sites are in an unfavourable condition.

2.3 European sites potentially impacted by this proposed development

Below is a list of the designated sites, reason for their designation and distance from the site, at their nearest point. The sites are listed in order of proximity from the proposed development site.

Table 1-6: European sites subject to HRA screening assessment

Site Name	Designation	Approx distance and direction from site
River Avon	SAC	1.2km W
Reasons for designation		
Annex I: habitats that are a primary reason for selection of this site	Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitriche – Batrachion vegetation	
Annex 1: habitats present as a qualifying feature, but not a primary reason for selection of this site	N/A	
Annex II species that are a primary reason for selection of this site	Desmoulin's whorl snail – <i>vertigo moulinsiana</i> Sea lamprey – <i>Petromyzon marinus</i> Brook lamprey – <i>lampetra planeri</i> Atlantic salmon – <i>salmo salar</i> Bullhead – <i>cottus gobio</i>	
<i>Annex II species present as a qualifying feature, but not a primary reason for site selection</i>	N/A	

Site Name	Designation	Approx distance and direction from site
New Forest	SAC	7.4km SE
Reasons for designation		
Annex I: habitats that are a primary reason for selection of this site	Oligotrophic waters containing very few minerals of sandy plains Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea North Atlantic wet heaths with Erica tetralix European dry heaths Molinia meadows Depressions on peat substrates of the Rhynchosporion Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrub layer Asperulo-Fagetum beech forests Old acidophilous oak woods with Quercus robur on sandy plains Bog woodland Alluvial forests with Alnus glutinosa and Fraxinus excelsior	
Annex 1: habitats present as a qualifying feature, but not a primary reason for selection of this site	Alkaline fens Transition mires and quaking bogs	
Annex II species that are a primary reason for selection of this site	Southern damselfly Stag beetle	
<i>Annex II species present as a qualifying feature, but not a primary reason for site selection</i>	Great crested newt	

Site Name	Designation	Approx distance and direction from site
Solent Marine Sites – Solent Maritime SAC	SAC	21km SE
Reasons for designation		
Annex I: habitats that are a primary reason for selection of this site	Estuaries Spartina swards Atlantic salt meadows	
Annex 1: habitats present as a qualifying feature, but not a primary reason for selection of this site	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons * Priority feature Annual vegetation of drift lines Perennial vegetation of stony banks Salicornia and other annuals colonizing mud and sand Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")	
Annex II species that are a primary reason for selection of this site		
<i>Annex II species present as a qualifying feature, but not a primary reason for site selection</i>	Desmoulin's whorl snail	

2.4 Screening Assessment

2.4.1 Physical loss of habitat

The proposed development is beyond the boundary of the River Avon SAC, which is the closest European site. Therefore, **there will be no likely significant effect on the designated sites and this effect can be screened out.**

2.4.2 Recreation and urban impacts

Recreational activities and human presence can result in significant effects on European sites as a result of erosion and trampling, associated impacts such as fire and vandalism or disturbance to sensitive features, such as birds through both terrestrial and water-based forms of recreation.

Each European site will typically have a 'Zone of Influence' (ZOI) within which increases in population would be expected to result in likely significant effects. ZOIs are usually established following targeted visitor surveys and the findings are therefore typically specific to each European site (and often to specific areas within a European site). The findings are likely to

be influenced by a number of complex and interacting factors and therefore it is not always appropriate to apply a generic or non-specific ZOI to a European Site.

The Wiltshire local plan HRA states that development in close proximity to the River Avon SAC could result in damage/degradation to habitats during the construction phase and increased pollution from urban run-off in the long term. However, the proposed development is not within a 20m radius of the River Avon SAC. **Therefore, there will be no likely effect and this can be screened out.**

2.4.3 Physical loss of functionally linked habitat

Functional linkage occurs where land beyond the boundary of a European Site fulfils a crucial role in ecologically supporting the populations of species for which the site is designated. The development site does not provide a functional link to any of the notified features of the designated sites due to the distance from the designated site and lack of pathways.

Therefore, **no likely significant effect** is concluded on the River Avon SAC, Mottisfont SAC, the New Forest SAC/Ramsar or the Solent Marine Sites and this **can be screened out**.

2.4.4 Water Quality

Features for which a European Site is designated are often sensitive to changes in water balances and water quality. Therefore, urbanisation affecting drainage streams which flow through, or groundwater which feeds into, a European Site, has the potential to adversely affect the features for which it is designated.

With respect to water quality, a likely significant effect (LSE) is considered where a hydrological connection exists.

The proposed site is located on the water divide of two catchments: the River Test to the east and the River Avon to the west. Therefore, the proposed development has a hydraulic connection to both catchments. The River Avon SAC and the Solent Marine Sites, within the River Test catchment, both have qualifying features that have potential to be sensitive to changes in water quality.

Therefore, there is a likely significant effect, and this cannot be screened out at this stage.

2.4.5 Air pollution

Air pollution can affect a European Site if it has an adverse effect on its features of qualifying interest. The main mechanisms through which air pollution can have an adverse effect is through eutrophication (nitrogen), acidification (nitrogen and sulphur) and direct toxicity (ozone, ammonia and nitrogen oxides). Deposition of air pollutants can alter the soil and plant composition and species which depend upon these.

Excess atmospheric nitrogen deposition within an ecosystem or habitat can disrupt the delicate balance of ecological processes interacting with one another. As the availability of nitrogen increases in the local environment, some plants that are characteristic of that ecosystem may become competitively excluded in favour of more nitrophilic plants. It also

upsets the ammonium and nitrate balance of the ecosystem, which disrupts the growth, structure and resilience of some plant species.

However, air quality impacts are greatest within 200m of a road source, decreasing with distance. The proposed development does not include the construction of a road source within 200m of any of these sites.

Therefore, this is beyond the 200m buffer zone so there will not be a likely significant impact on the River Avon SAC and **this can be screened out.**

2.4.6 Non-physical disturbance

Noise and vibration effects, e.g. during the construction of new housing or other development, are most likely to disturb bird species and are thus a key consideration with respect to European sites where birds are the qualifying features, although such effects may also impact upon some mammals and fish species. Artificial lighting at night (e.g. from street lamps, flood lighting and security lights) is most likely to affect bat populations and some nocturnal bird species, and therefore have an adverse effect on the integrity of European sites where bats or nocturnal birds are a qualifying feature.

It has been assumed (on a precautionary basis and based on our experience of previous HRAs and consultation with Natural England) that the effects of noise, vibration and light pollution can cause an adverse effect if development takes place within 500m of a European site (or functionally linked habitat) with qualifying features sensitive to these disturbances.

The closest designated site is the River Avon SAC (1.2km) which is outside of the buffer zone. **Therefore, there is no likely significant effect to be had and this can be screened out.**

2.4.7 Potential in-combination effects

Any plan or project likely to have a significant effect on a European site, either individually or in-combination with other plans or projects, shall undergo an Appropriate Assessment to determine its implications for the site. This is to prevent sites, which would not have a significant effect on a site, combining with other plans or projects to the point where an in-combination effect of all of these plans or projects, which would otherwise not be assessed, becoming significant.

The requirement for Appropriate Assessment in respect to water quality cannot be screened out.

2.5 Conclusion of Screening Assessment

Table 7: provides a summary of the Screening Assessment of the proposed development in isolation and in-combination

Site	Likely Significant Effect?					Non - physical disturbance
	Physical loss of habitat	Recreation and urban impacts	Physical loss of functionally-linked habitat	Water quality	Air pollution	
River Avon SAC	No	No	No	Yes	No	No
Avon Valley SPA/Ramsar	No	No	No	Yes	No	No
Solent Marine Sites SAC	No	No	No	Yes	No	No

Would the proposal lead to a likely significant effect on European site integrity? Yes

3 Stage 2 – Appropriate Assessment

3.1 Site description and background

The proposed development comprises 47 residential dwellings with associated gardens and parking. The site is located within the village of Alderbury, some 5.5km south-east of Salisbury and is centred around National Grid Reference (NGR) SU 19070 27029. The application area extends to approximately 1 hectare and the current land use is greenspace.

3.2 Nutrient calculations

The site is located within the catchment of the River Test, which is nitrogen sensitive. However, wastewater discharges to the catchment of Salisbury (Petersfinger) WwTW, which is located within a phosphorus sensitive area.

Therefore, wastewater calculations have been undertaken using the River Avon SAC nutrient calculator (Natural England/Ricardo). Calculations regarding land use change have been undertaken as per the Solent Marine Sites nutrient calculator (Natural England/Ricardo).

A detailed assessment of the phosphorus and nitrogen export from the proposed development is provided in the Nutrient Neutral Assessment and Mitigation Strategy (NNAMS) in [Appendix 1](#). The calculations are summarised below.

3.2.1 Wastewater discharge

Wastewater from site will discharge to Salisbury (Petersfinger) WwTW. Calculations are based on an assumed average occupancy rate of 2.4 per dwelling and an average water usage of 120 litres/person/day.

Pre-2030 TAL upgrade

Total phosphorus = **4.45 kg TP/yr**

Post-2030 TAL upgrade

Total phosphorus = **1.11 kg TP/yr**

3.2.2 Land use change

The current land use at site is classified as lowland grazing (4.9 ha).

Total Nitrogen export = **35.75 kg TN/yr**

The post-development land use at site is classified as residential urban (4.9 ha).

Total Nitrogen export = **75.35 kg TN/yr**

3.2.3 Summary of nutrient budget

The overall phosphorus and nitrogen budget for this site is provided below:

<i>Phosphorus budget</i>		
Description	Pre 2030 Value (kg TP/yr)	Post 2030 Value (kg TP/yr)
Wastewater, post-treatment	4.45	1.11
Pre-development land use	-	-
Post-development site loss	-	-
Land use net change	-	-
Nutrient budget	4.45	1.11
20% buffer	1.33	0.22
Nutrient budget + 20% buffer	5.34	1.33

<i>Table 2: Nitrogen budget</i>	
Description	Value (kg TN/yr)
Wastewater, post-treatment	-
Pre-development land use	35.75
Post-development site loss	75.35
Land use net change	39.60
Nutrient budget	39.60
20% buffer	7.92
Nutrient budget + 20% buffer	47.52

The total nutrient budget for the site is **47.52 kg TN/yr** and **5.34 kg TP/yr** pre-2030, **1.33 kg TP/yr** post-2030.

4 Mitigation Strategy

As the mitigation for this development is split across the River Avon SAC catchment and the River Test catchment, there will be two separate solutions to address this development.

The proposed mitigation for the phosphorus load generated in the River Avon Catchment involves upgrading a septic tank, already identified by the client, to one with high efficacy phosphorus capture, such as the Klargester BioDisc, which has a phosphorus discharge limit of 1 mg/l.

The proposed package treatment plant upgrade will generate 13.59 kg TP, this more than exceeds the 5.34 kg TP/yr which is needed before 2030 and the 1.33 kg TP/yr and needed. This therefore generates an additional benefit of 8.25kg TP which can be used for future developments.

In order to mitigate the 47.52 kg TN that is generated in the River Test catchment, it is proposed to purchase credits from Wiltshire Council. Interest has been expressed and when the confirmation certificate is received this will be included in the report.

The full explanations, references, location and calculations are presented within **NNAMS, [Appendix 1](#)**.

5 Mechanisms for delivery

For proposals that involve private drainage, a detailed management plan for the onsite sewage treatment is required in order to provide certainty to the HRA. The management and maintenance to the septic tank upgrades will be secured through a s106.

6 Monitoring and Management Plan

The proposed management and monitoring plan for the new package treatment plants is detailed below. The management and monitoring below is applicable to the installed Klargestar.

6.1.1 Management

The treatment system will be managed in accordance with the Environment Agency's "General binding rules: small sewage discharge to ground". Should this guidance be revoked or changed over the period of the systems' use the management will adhere to the new guidance or regulations that replace them.

The plants will be maintained and serviced according to the manufacturer's requirements and will be replaced by one of at least the same, if not better, nutrient removal performance when it reaches end of life.

6.1.2 Desludging

The treatment plant will be desludged as per manufacturer's instructions. Desludging will be carried out by a registered waste carrier.

At the time of desludging, in line with the manufacturer's instructions, the package treatment plant will be inspected to ensure it is in good working order. This inspection will include, but is not limited to: leaks, cracks, blockages, smells and operation of motor, pump, or other features. Inspections will be carried out by a competent person, ideally an individual or company registered on the British Water's list of accredited service engineers.

6.1.3 Recording

A record of all maintenance and management works will be kept by the operator of the package treatment plant (homeowner) and the local authority. Data will be supplied to the Environment Agency on request.

6.1.4 New Ownership

If the properties are sold, the new operator (the owner or person responsible for the sewage treatment plant) will be informed in writing that a sewage discharge is in place and is related to a nutrient mitigation strategy.

The details to be passed on will include:

- A description of the treatment plant and drainage system
- The location of the main parts of the treatment plant, drainage system and discharge point
- Details of any changes made to the treatment plant and drainage system
- Details of how the treatment plant should be maintained and the maintenance manual, if relevant to the package treatment plant
- The maintenance records
- Any communication with the Local Authority relevant to the treatment system

7 Test of site integrity

The proposed mitigation measures would ensure that there would be no adverse effect on the conservation objectives of the River Avon SAC and the Solent Marine Sites, either alone or in-combination with other plans or projects, as a result of water quality (nitrogen and phosphorus) impacts. Accordingly, it can be concluded that there would be no adverse effect on the integrity of the site in respect of this impact pathway.

8 Conclusion

A likely significant effect on the River Avon SAC and the Solent Marine Sites has been identified as a result of water quality (phosphorus and nitrogen) impacts. The development will result in a net increase in phosphorus and nitrogen loading. Mitigation for the additional phosphorus and nitrogen can be secured through the upgrades of existing septic tanks within the River Avon SAC and the purchase of credits in the Solent Catchment. This would ensure that additional nutrients generated by the application will be mitigated.

It can be concluded that there will be no adverse effect on the integrity of conservation objectives of the River Avon SAC and Solent Marine Sites, either in-isolation or in-combination.

Appendix 1

Nutrient Neutral Assessment and Mitigation Strategy – February 2025

**NUTRIENT NEUTRAL ASSESSMENT AND MITIGATION STRATEGY****Report Ref: NNAMS/222**

**Southampton Road,
Alderbury,
Wiltshire
SP5 3AG**

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Version	Date	Issued to
Revision R1	October 2024	Simply Planning
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This report does not represent advice to third parties and no reliance is offered to third parties. No liability is accepted regarding third parties. Reliance required by any specific Third Party must be agreed in writing with Nutrient Neutral.

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222/NNAMS/D4	Soils at the site
222/NNAMS/D5	Aquifer designations
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222/NNAMS/T1	Phosphorus budget
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222/NNAMS/T3	Septic tank upgrade benefit

APPENDICES

222/NNAMS/A1	Site plan & location plans
222/NNAMS/A2	Nutrient calculations
222/NNAMS/A3	Septic tank upgrade calculations

1. Introduction

Nutrient Neutral have been commissioned by Simply Planning to undertake an assessment of the nutrients generated by a proposed development (pre-planning stage) and to develop a mitigation strategy for any residual nutrient load. The site is located on the boundary of two hydrological catchments: the River Test to the east and the River Avon to the west. Foul water will discharge to Salisbury (Petersfinger) Wastewater Treatment Works (WwTW) in the River Avon Special Area of Conservation (SAC) Nutrient Neutrality catchment and will therefore need to demonstrate phosphorus neutrality. The surface water will drain to the River Test in The Solent Nutrient Neutrality catchment and will need to demonstrate nitrogen neutrality.

To ensure compliance with the requirements of the Habitats Regulation and Water Framework Directive, new development within both catchments must not, alone or in-combination, result in the non-compliance with the River Avon SAC or The Solent catchment water quality targets or compound existing problems of target exceedance in those parts of the catchments already failing standards. Furthermore, new developments must not prejudice achievement of Conservation Objectives for the River Avon or The Solent catchments over the long-term.

The nutrient load generated by the proposed development has been calculated according to the generic nutrient methodology and a mitigation solution developed to ensure the proposed development is neutral.

The assessment has been prepared in accordance with the Natural England River Avon SAC and The Solent Marine Sites nutrient budget calculators (Ricardo Energy).

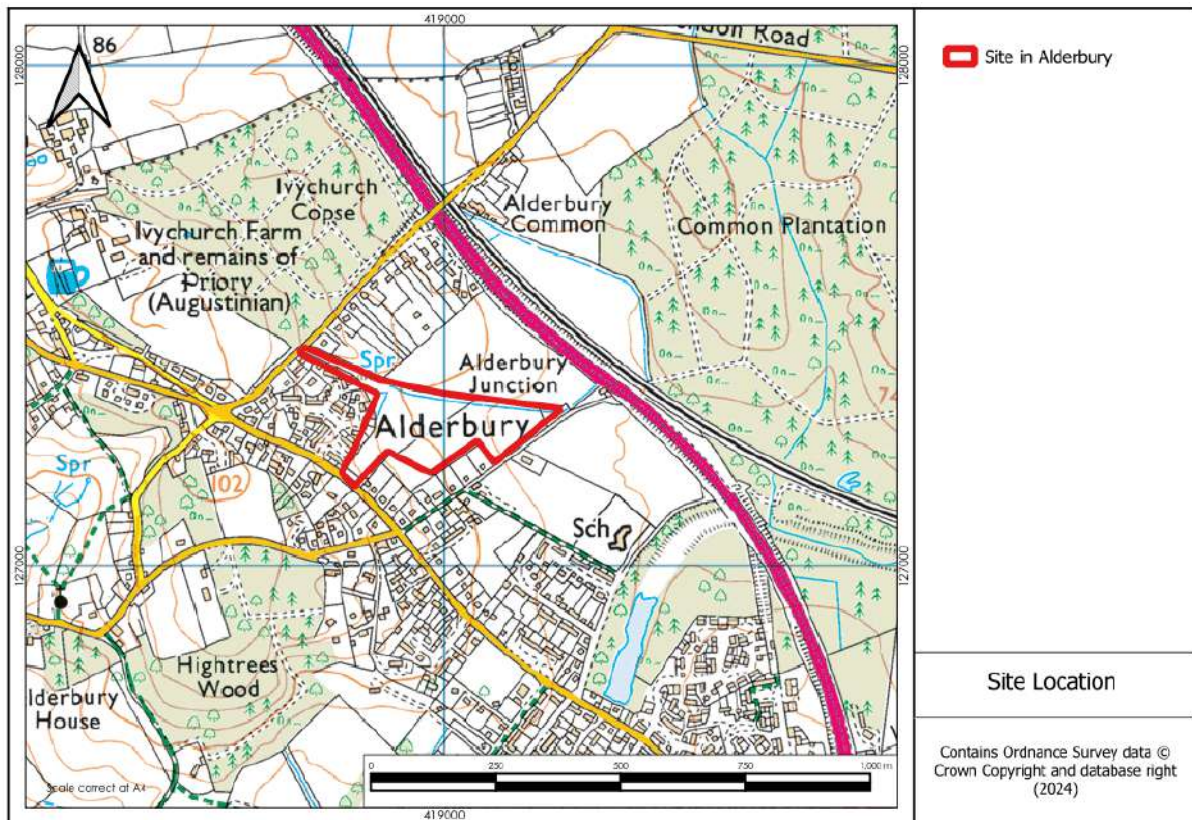
2. Site characteristics

2.1 Site location

The site is located in the village of Alderbury, Wiltshire, some 5.1 km southeast of Salisbury city centre, and is centred around National Grid Reference (NGR) SU 18976 27270. The application area extends to approximately 4.9 hectares (ha). The site currently comprises lowland grazing. The site location is presented on 222/NNAMS/D1.

The proposed development comprises 47 residential dwellings with associated gardens and parking (Appendix 222/NNAMS/A1).

Drawing 222/NNAMS/D1: Site location



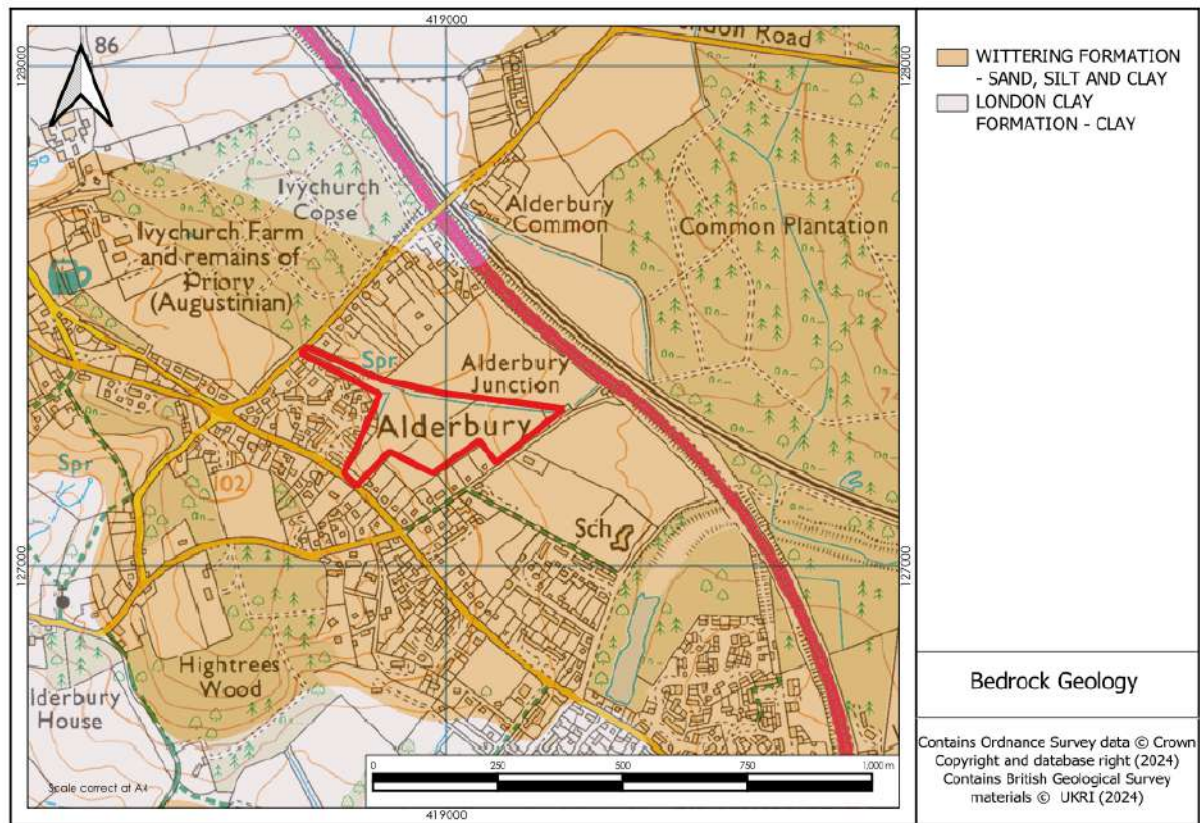
2.2 Topography

The site is located in an area of gently undulating topography. Within the site, elevations decrease gently north-eastwards. Elevations decrease from 80 metres Above Ordnance Datum (mAOD) in the southwest of the site to 74 mAOD in the northeast of the site. Beyond the site, elevations decrease to a local low of 64 mAOD some 0.4 km northeast of the site. Elevations increase westwards to a local high of 105 mAOD some 2.1 km west of the site.

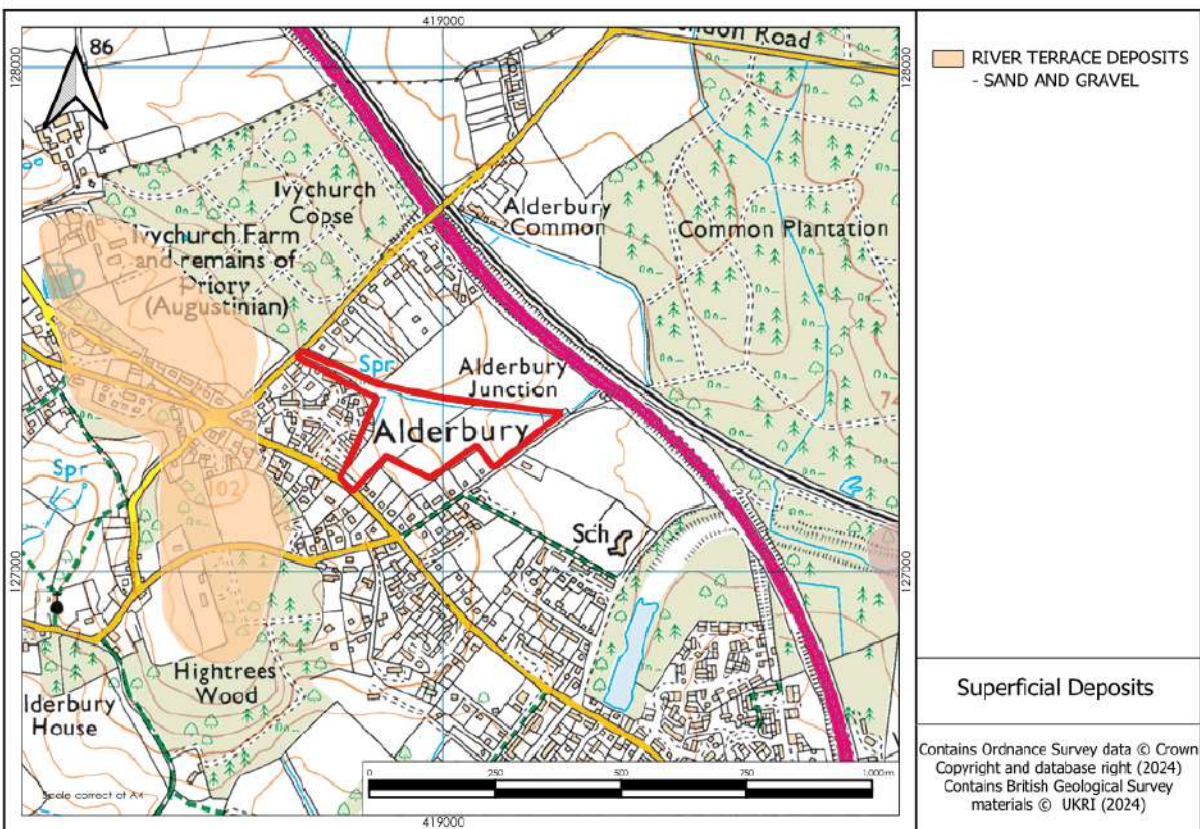
2.3 Geology

The bedrock geology at the site comprises Wittering Formation consisting of sand, silt and clay. Superficial deposits are absent at the site.

Drawing 222/NNAMS/D2: Bedrock geology



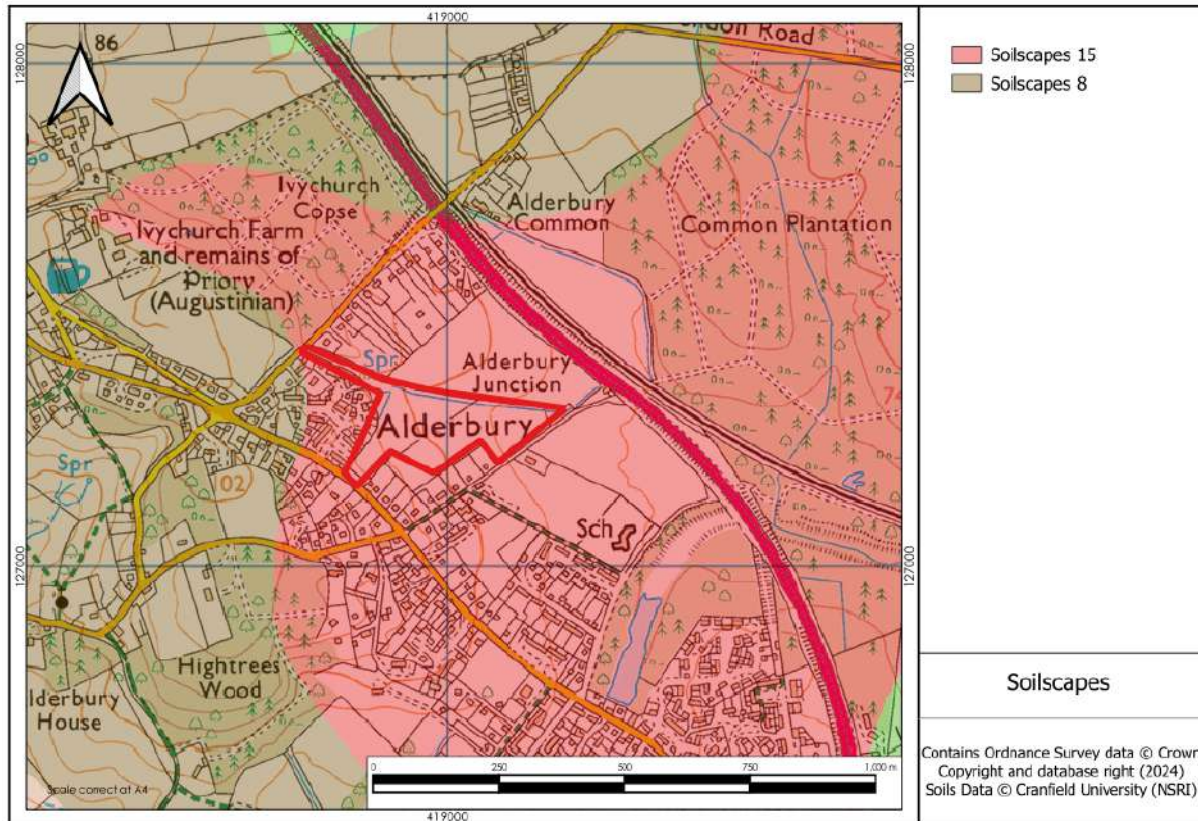
Drawing 222/NNAMS/D3: Superficial deposits



2.4 Soils

Based on the Cranfield University Soilscales webtool (<http://www.landis.org.uk/Soilscales>), the soils at the site are classified as 'Soilscales 15' which are described as naturally wet, very acid, sandy and loamy soils, with impeded drainage.

Drawing 222/NNAMS/D4: Soils at the site



2.5 Hydrology

The site is located on the water divide of two catchments: the River Test to the east and the River Avon to the west. Foul water is discharged to the River Avon. Surface water drains into the River Test catchment.

The nearest watercourse rises immediately north of the site and flows east along the northern boundary to an unnamed tributary of the River Dun, 500 m east of the site. This flows for 1.5 km east to its confluence with the River Dun at NGR SU 21179 27130. The River Dun then flows for an additional 12 km east and meets its confluence with the River Test at NGR SU 33144 26281

The site is located in Flood Zone 1, which means that there is a 'low' probability of flooding at the site.

2.6 Hydrogeology

2.6.1 Groundwater vulnerability

The groundwater vulnerability at the site is indicated as 'high' (Source: <https://magic.defra.gov.uk/magicmap.aspx>). This means that this area can easily transmit pollution to groundwater. Such areas are characterised by high-leaching soils and the absence of low-permeability superficial deposits.

2.6.2 Source Protection Zones and Nitrate Vulnerable Zones

The site is not located within a Source Protection Zone or a Nitrate Vulnerable Zone (Source: <https://magic.defra.gov.uk/magicmap.aspx>).

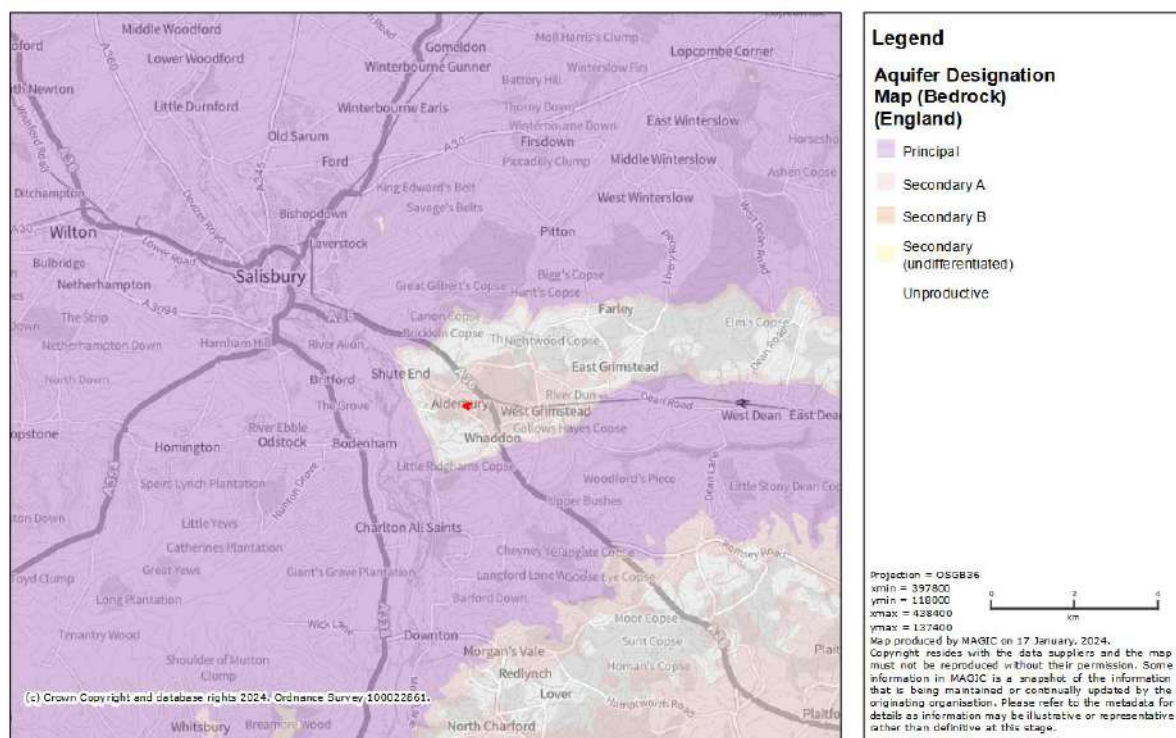
2.6.3 Aquifer Designations

Principal and Secondary aquifers provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes, and wetlands. The site is located in a Secondary A aquifer (Source: <https://magic.defra.gov.uk/magicmap.aspx>). This comprises permeable layers that can support local water supplies and may form an important source of base flow to rivers.

Drawing 222/NNAMS/D5: Aquifer designations

MAGiC

Magic Map



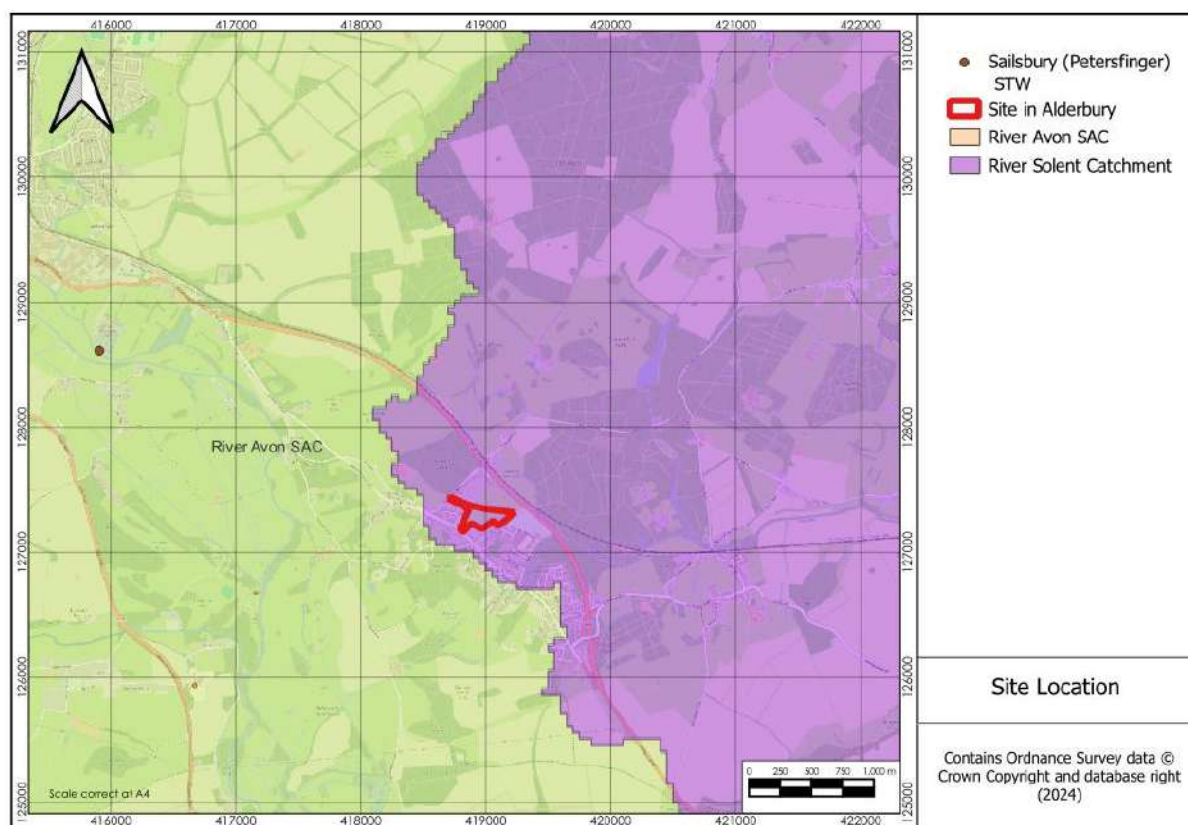
2.6.4 Rainfall

The 1961-1990 annual average rainfall was sourced from the National River Flow Archive (<https://nrfa.ceh.ac.uk/data/search>). The site falls in the category of 800.1 – 850 mm/yr.

3. Calculation of nutrient export from proposed development

The site is located within the hydrological catchment of the River Test in The Solent Nutrient Neutrality catchment, which is nitrogen sensitive. However, wastewater discharges to the Salisbury (Petersfinger) WwTW, which discharges in the River Avon SAC Nutrient Neutrality catchment and is a phosphorus sensitive area.

Drawing 222/NNAMS/D6: Catchment areas



Preliminary calculations have been undertaken to assess the likely nutrient export from the site and consider the potential mitigation options.

3.1 Proposed development

The proposed development comprises 47 residential dwellings with associated gardens and parking.

3.2 Calculation of wastewater load

As the site will discharge to Salisbury (Petersfinger) WwTW, which is in the River Avon catchment, the site will have to mitigate the associated wastewater phosphorus load. This calculation has been undertaken using the Natural England River Avon SAC nutrient calculator (Ricardo) (Appendix 222/NNAMS/A2).

The Salisbury (Petersfingers) WwTW currently has a discharge consent limit for phosphorus set at 1 mg/l. The Levelling-Up and Regeneration Act (LURA) requires all sewage treatment works serving populations greater than 2,000 people to upgrade to the Technically Achievable Limit (TAL) by 2030. The phosphorus limit will reduce to 0.25 mg/l post-2030.

Based on an assumed average occupancy rate of 2.4 per dwelling and an average water usage of 120 litres/person/day, the associated annual phosphorus generated by wastewater is **4.45 kg TP/yr**.

However, after the TAL upgrade, the associated annual phosphorus generated by wastewater is **1.11 kg TP/yr**.

3.3 Land use change

Calculations regarding land use change have been undertaken as per the Natural England The Solent Marine Sites nutrient calculator (Ricardo) whereby pre- and post-development land use is considered.

The current site comprises approximately 4.9 ha of lowland grazing. This has an associated total nitrogen load of 35.75 kg TN/yr.

The post-development site comprises approximately 4.9 ha residential urban land. This has an associated total nitrogen load of 75.35 kg TN/yr.

Therefore, the total land use net change is **39.60 kg TN/yr**.

4. Summary of nutrient balance for this development

<i>Table 222/NNAMS/T1: Phosphorus budget</i>		
Description	Pre 2030 Value (kg TP/yr)	Post 2030 Value (kg TP/yr)
Wastewater, post-treatment	4.45	1.11
Pre-development land use	-	-
Post-development site loss	-	-
Land use net change	-	-
Nutrient budget	4.45	1.11
20% buffer	1.33	0.22
Nutrient budget + 20% buffer	5.34	1.33

<i>Table 222/NNAMS/T2: Nitrogen budget</i>	
Description	Value (kg TN/yr)
Wastewater, post-treatment	-
Pre-development land use	35.75
Post-development site loss	75.35
Land use net change	39.60
Nutrient budget	39.60
20% buffer	7.92
Nutrient budget + 20% buffer	47.52

The total phosphorus budget for the site is **5.34 kg TP/yr** pre 2030 and **1.33 kg TP/yr** post 2030. The nitrogen budget is **47.52 kg TN/yr**.

5. Mitigation

As the mitigation for this development is split across the River Avon and the River Test catchments, there will be two separate solutions to address this development.

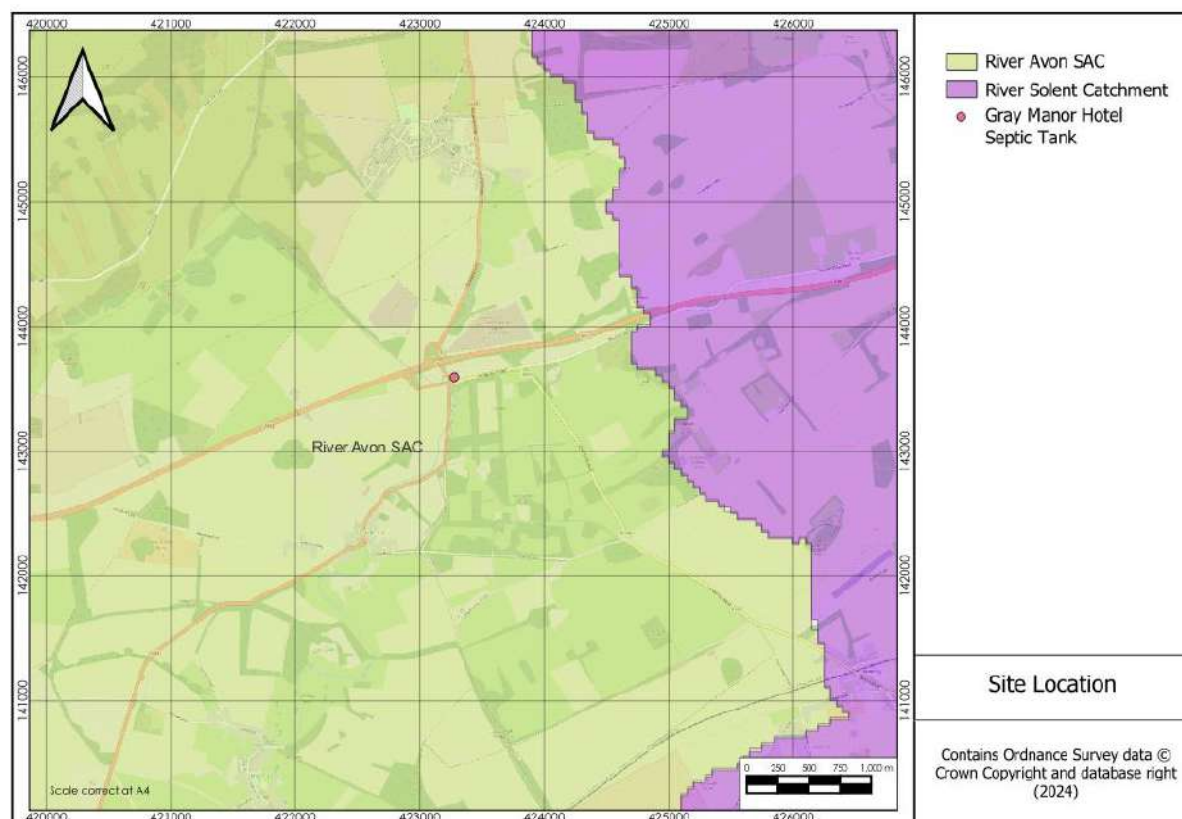
The proposed mitigation for the phosphorus load generated in the River Avon SAC catchment involves upgrading a septic tank, already identified by the client, to one with high efficacy phosphorus capture, such as the Klargester BioDisc, which has a phosphorus discharge limit of 1 mg/l.

Nutrient credits can be generated through the upgrading of existing septic tank systems. The magnitude of savings per upgrade is calculated and presented in Table 3 below. Full upgrade calculations are provided in Appendix 222/NNAMS/A3.

A private package treatment plant has been located at Gray Manor Hotel, Salisbury, SP4 0EG. The exact location is shown in Drawing 7. The hotel has 27 bedrooms at an occupancy rate of 1.6 per double room (this value has been confirmed by John Stobart at Natural England as per Somerset guidance). Full upgrade calculations are provided in Appendix 222/NNAMS/A3. The existing package treatment plant currently doesn't have a phosphorus consent limit and therefore 9.7 mg/l has been assumed for phosphorus. This is based on the default concentrations provided within the generic nutrient budget calculator guidance document (Natural England 2022).

Table 222/NNAMS/T3: Septic tank upgrade benefit	
Item	P Load mg/l
Standard Package Treatment Plant	9.7
Klargester Bio Disc	1.0
Saving due to upgrade	P export reduction
Standard PTP to Klargester	13.59

Drawing 222/NNAMS/D7: Location of ST upgrade



The proposed package treatment plant upgrade will generate 13.59 kg TP/yr. This more than exceeds the pre-2030 requirement of 5.34 kg TP/yr and the post-2030 requirement of

1.33 kg TP/yr. This therefore generates an additional benefit of 8.25 kg TP which could be used for mitigation of future developments.

In order to mitigate the 47.52 kg TN that is generated in the River Test catchment, it is proposed to purchase credits from Wiltshire Council. An application will be submitted and a credit allocation certificate will be supplied to the Local Planning Authority once obtained.

6. Conclusion

It is proposed to construct 47 residential dwellings on land in Alderbury, Wiltshire. Wastewater will discharge to the River Avon SAC Nutrient Neutrality catchment and surface water will drain to The Solent Nutrient Neutrality catchment.

The nutrient mitigation requirement for the River Avon SAC is 5.34 kg TP/yr pre-2030 and 1.33 kg TP/yr post-2030. For The Solent catchment, the mitigation is 47.52 kg TN/yr. This will be mitigated via an upgrade of a septic tank and the purchase of nutrient credits respectively.

Therefore, it can be concluded that this proposed development will not prevent the Conservation Objectives of the River Avon SAC or The Solent Marine Sites.

APPENDIX 222/NNAMS/A1

Site plans and location plans

Notes

To be read in conjunction topographical and arboricultural survey and associated drawings/reports.

KEY

Development boundary

Other land owned by applicant

P5	23-09-2024	Planning issue	SL	SH
P4	16-08-2024	Planning issue	SL	SR
P3	04-07-2024	Red line updated	SL	SH
P2	30-01-2024	Re-issue	SR	SH
P1	08-01-2024	First issue	SL	SH
Rev	Date	notes	Drawn	Chkd

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Project
Land off Southampton Road
Alderbury

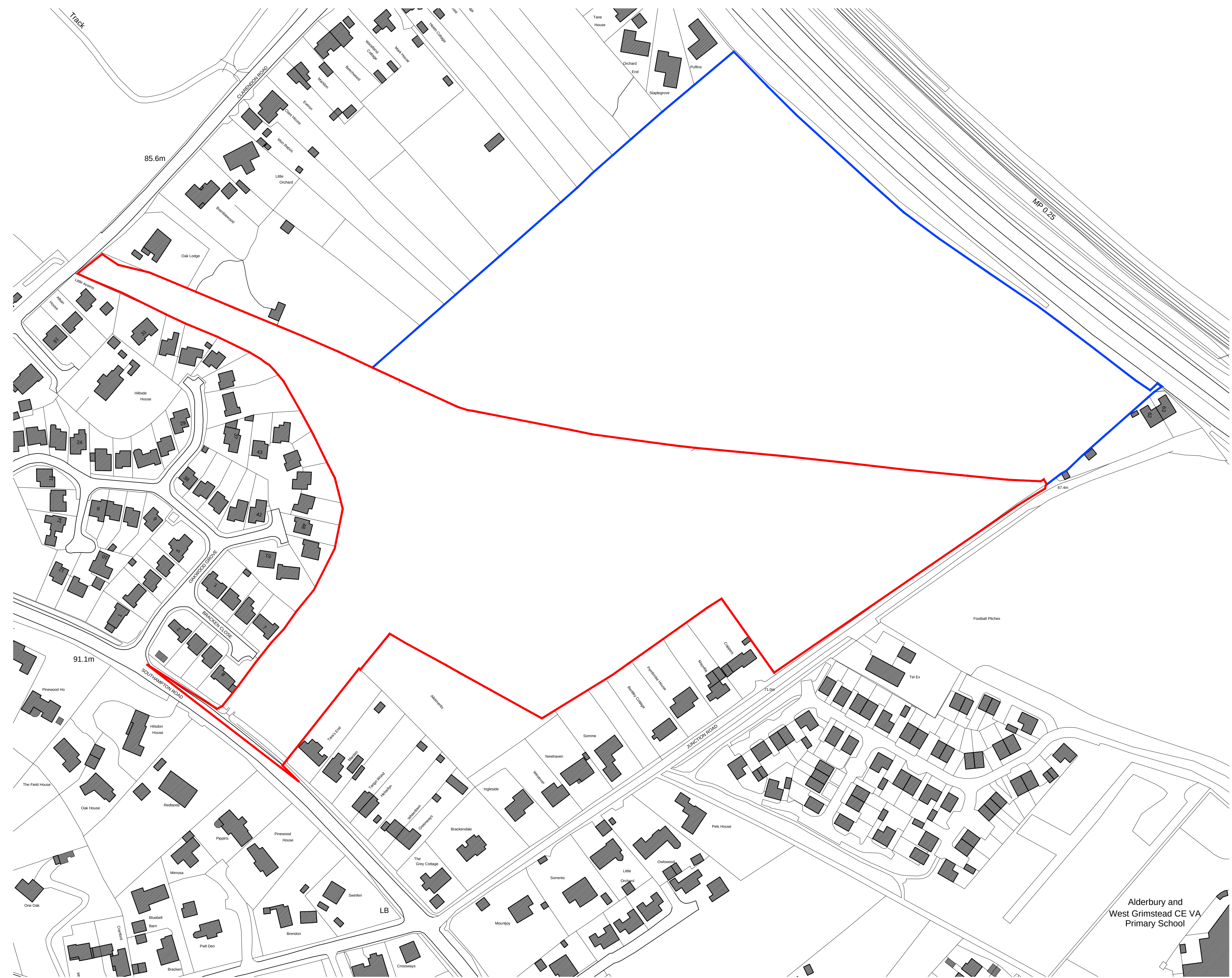
Drawing
Site Location Plan

Project	originator	volume	level	type	role	number	revision
P1365-RHP-ZZ-00-DR-A-1015	P5						
Scale(s) @ A1	RHP Project	Drawn	Chkd				
1:1250	P1365	SR	SH				

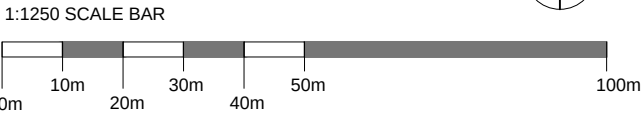
Status
Planning

Suitability
S0

File Location: R:\Projects\P1365-P1365 Southampton Road Alderbury\BMA01-WP\Sheet_Plan\1000-1999 Site\deg\P1365-RHP-ZZ-00-DR-A-1015-03 Site Location Plan.dwg Last Plotted: 23/9/2024 12:19PM



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Proposed Dwellings	
2B4P Bungalow	4
2B4P Dwelling Houses	9
3B5P Dwelling Houses	32
4B6P Dwelling Houses	2
Total Units	47

P4	24.09.2024	Planning Issue	SL	SH
P3	23.09.2024	Planning Issue	SL	SH
P2	16.08.2024	Planning Issue	SL	SR
P1	08.01.2024	First Issue	SL	SR
Rev Date = notes			Drawn	Checked

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Project
Land off Southampton Road
Alderbury

Drawing
Indicative Proposed Site Plan

Project	originator	volume	level	type	size	number	revision
P1365-RHP-ZZ-00-DR-A-1200-P4							
Scale(s)  A0	RHP Project			Drawn	Child		
1:600	P1365			SL	SR		
Status						Suitability	
Planning						S0	

APPENDIX 222/NNAMS/A2

Nutrient calculations

River Avon calculator for wastewater

Solent Marine Sites calculator for land use change

Nutrients from wastewater		
This sheet contains 2 tables. The tables are separated by a heading, which describes the following table. Note: You will need to fill in cells B5 to B9 in the first table 'Water infrastructure information'. Cells B10 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A11 to A12 and B11 to B12 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B9. You may need to fill in cell C10 depending on the information you entered in cell B9. Cells C5 to C9 and cells C11 to C12 are intentionally blank cells. You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B16 to B18 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A19 to A22, cells B20 and B22 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B15, cell B19 and cell B21 are intentionally blank cells. How to fill in the table 'Water infrastructure information' Cell B5: Enter the date of first occupancy. Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence. Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used. Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date. Cell B9: Choose the receiving wastewater treatment works (WwTW) from the dropdown list. If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total phosphorus (TP) in cell C10. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater. Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B10 to B12. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B18, B20 or B22.		
Water infrastructure information		
Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	47	
Wastewater treatment works:	Salisbury (Petersfinger)	
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):	112.80	
Wastewater by development (litres/day):	13536.00	
Annual wastewater TP load (kg TP/yr):	1.11	
Pre-2030 wastewater nutrient loading		
Annual wastewater TP load (kg TP/yr):	4.45	
Not applicable		
Not applicable	Not applicable	

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.

Note: You will need to fill in cells B5 to B8 in the first table "Current land use information". You will need to fill in cells A11 to A27, and B11 to B27 in the second table "Current land uses". Cells B28 and C11 to C28 are automatically calculated and will state 0.00 unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state Not Available. Cells E11 to E27 are automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states "Totals," in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.

How to fill in the table "Current land use information"

Cell B5: Choose the operational catchment site location within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list.
If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.

How to fill in the table "Current land uses"

Cells A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.

The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	Lower Test and Southampton Streams
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	800.1 - 850
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Lowland	4.90	35.75	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	4.90	35.75	

Nutrients from future land use

This sheet contains one table.

Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'

Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list

Cells B5-B21: Enter the area in hectares of each land use type.

The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).

The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Residential urban land	4.90	75.35
Greenspace		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	4.90	75.35

APPENDIX 222/NNAMS/A3

Septic Tank Upgrade Calculations

Phosphorus

Septic tank current

Step	Measurement	Value	Unit	Explanation/ info source
Development Proposal	Development Type	27		
Step 1	population	44.55	persons	
Step 2	Wastewater volume generated	5346	litres / day	141 l/p/d
Step 3	Receiving treatment	9.7	mg/l	Septic tank
Step 4	TP discharged after treatment	51856.2	mg/TP/day	Concentration * volume day
Step 5	Convert mg/TP to kg/TP per day	0.051856	kg/TP/day	Divide by 1,000,000
Step 6	\\	18.94048	kg/TP/yr	x 365.25 days
Wastewater total Phosphate load		18.940	kg/TP/yr	
80% of wastewater load		15.15238		

Klargester Bio Disc

Step	Measurement	Value	Unit	Explanation/ info source
Development Proposal	Development Type	27		
Step 1	population	44.55	persons	
Step 2	Wastewater volume generated	5346	litres / day	120 l/p/d
Step 3	Receiving treatment	1	mg/l	Klargester
Step 4	TP discharged after treatment	5346	mg/TP/day	Concentration * volume day
Step 5	Convert mg/TP to kg/TP per day	0.005346	kg/TP/day	Divide by 1,000,000
Step 6	Convert kg/TP per day to kg/ TP per year	1.952627	kg/TP/yr	x 365.25 days
Wastewater total Phosphate load		1.953	kg/TP/yr	
80% of wastewater load		1.562101		

Phosphorus

ST to HABA

saving:

13.590

Nitrogen

Step	Measurement	Value	Unit	Explanation/ info source
Development Proposal	Development Type	1		
Step 1	population	2.4	persons	
Step 2	Wastewater volume generated	288	litres / day	132.2 l/p/d
Step 3	Receiving treatment	96.2	mg/l	Septic tank
Step 4	TP discharged after treatment	27705.6	mg/TP/day	Concentration * volume day
Step 5	Convert mg/TP to kg/TP per day	0.0277056	kg/TP/day	Divide by 1,000,000
Step 6	Convert kg/TP per day to kg/ TP per year	10.1194704	kg/TP/yr	x 365.25 days
Wastewater total Nitrogen load		10.119	kg/TP/yr	

HABA

Step	Measurement	Value	Unit	Explanation/ info source
Development Proposal	Development Type	1		
Step 1	population	2.4	persons	
Step 2	Wastewater volume generated	288	litres / day	132.2 l/p/d
Step 3	Receiving treatment	5.6	mg/l	HABA
Step 4	TP discharged after treatment	1612.8	mg/TP/day	Concentration * volume day
Step 5	Convert mg/TP to kg/TP per day	0.0016128	kg/TP/day	Divide by 1,000,000
Step 6	Convert kg/TP per day to kg/ TP per year	0.5890752	kg/TP/yr	x 365.25 days
Wastewater total Nitrogen load		0.589	kg/TP/yr	

Nitrogen

ST to HABA

saving:

9.530