



Foul Drainage Strategy & Nutrient Assessment In support of Residential Development at

Upper Otterpool
Sellindge
Kent
TN25 6DD

Luke Shaw AMIHE

July 2025

Revision [0]

Job No: 6189



Foul Drainage Strategy & Nutrient Assessment At Upper Otterpool, Sellindge, Kent

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Foul Drainage Strategy & Nutrient Assessment
At
Upper Otterpool, Sellindge, Kent

Amendments

Revision	Date	Description
0	14 th July 2025	Planning Issue

References

Reference	Title
A	CIRIA Publication 753 – The SUDS Manual (2015)
B	Sewers for Adoption 7 th Edition (Wrc 2012)
C	Part H of the Building Regulations (2015)
D	The Soakaway Design Guide (KCC 2000)
E	NPPF (2025)
F	Drainage and Planning Policy Statement (KCC 2017)
G	Planning Practice Guidance (2016)
H	Advice on Nutrient Neutrality for New Development in the Stour Catchment in relation to Stodmarsh Designated Sites (Natural England 2020 & 2022)



Foul Drainage Strategy & Nutrient Assessment At Upper Otterpool, Sellindge, Kent

Introduction

This Foul Drainage & Nutrient Assessment has been developed in support of a change of use application for one new residential dwelling, at Upper Otterpool, Sellindge, Kent, TN25 6DD.

A layout of the proposed scheme can be found in the appendices of this document.

Development Description and Location

The development proposals are for the change of use of an existing barn to one new residential dwelling. The proposals are located in Sellindge, which is in the planning district of Folkestone & Hythe.

The location of the proposed site is at grid reference 611289, 136211 as shown in the location plans in the appendices.

Existing Drainage

As the properties on the land at Upper Otterpool are served by a septic tank, it would be reasonable to assume that there are no existing public foul sewers near the 2 dwellings on Upper Otterpool.

Site Geology

The site is underlain by the Hythe Formation, which is typically described by the British Geological Survey as, mainly fine- to medium-grained, sparsely glauconitic sands, sandstones and silts, locally pebbly, with calcareous or siliceous cement in beds or lenses in some areas. Some clay interbeds, including Fuller's Earth. In Kent and eastern Sussex the formation comprises, alternating sandy limestones ("Ragstone") and glauconitic sandy mudstones (Hassock).



Foul Drainage Strategy & Nutrient Assessment At Upper Otterpool, Sellindge, Kent

Development Drainage Proposals

Foul Water Drainage

As there is no public foul sewer within the vicinity of the development, a Marsh Nutra/Phos Lite treatment plant has been proposed to treat the foul sewage produced by the new development.

The treated effluent will then pass through a sampling chamber before infiltrating to ground via a drainage field. The proposed position of the Marsh Nutra/Phos Lite sewage treatment plant and drainage field can be reviewed on the foul drainage layout for the scheme (RSPD 6189-01 Foul Drainage Strategy).

A higher performing treatment system has been selected (Marsh Nutra/Phos Lite), which reduces the Nutrient output to 0.2mg/l of phosphorus and 11.1mg/l of Nitrogen.

Product information and certification for this system can be reviewed in the appendices at the end of this document.

Assessment of Nutrient Neutrality

Recent changes to the local planning policy have placed a significant focus on the level of nutrients in the Stour catchment and the effects this may have on internationally important Sites of Special Scientific Interest (SSSI). This specifically relates to the levels of Nitrogen and Phosphorous in the water environment and how this has been scientifically linked to eutrophication in parts of these designated protected sites.

Guidance on the Advice on Nutrient Neutrality for New Development in the Stour Catchment in relation to Stodmarsh Designated Sites – For Local Planning Authorities has been published by Natural England in July 2020 and updated in June 2022. This provides new guidelines for new housing development to ensure any nutrients being released by the occupancies of new housing developments can demonstrate a zero detriment to the Stour Catchment.



Foul Drainage Strategy & Nutrient Assessment At Upper Otterpool, Sellindge, Kent

Nutrient calculations have been conducted to assess the nutrient savings achieved by upgrading the septic tank currently serving Upper Otterpool Cottage and the adjacent two-bedroom barn.

Calculations using the Natural England nutrient neutrality calculator indicate that the existing septic tank serving the dwelling at Upper Otterpool generates an annual nutrient loading of 1.22kg of Total Phosphorus (TP) and 10.13kg of Total Nitrogen (TN).

Following the proposed upgrade to a higher-performing package treatment plant, —specifically, the Marsh Nutra/Phos Lite system, which is proposed to serve both the new barn conversion and the existing dwelling at Upper Otterpool, generating an annual nutrient loading of 0.04kg of Total Phosphorus (TP) and 2.34kg of Total Nitrogen (TN).

This represents a significant betterment on the current situation, with the proposed upgrade resulting in a substantial reduction in nutrient loading to the environment. The decrease from 1.22kg TP and 10.13kg TN per year to just 0.04kg TP and 2.34kg TN per year clearly demonstrates the effectiveness of the proposed package treatment plant in reducing nutrient discharge and supporting compliance with nutrient neutrality objectives.

This proposed mitigation is able to successfully demonstrate that the required nutrient headroom is achievable and provides a betterment to the existing situation.

On this basis, no objections should be raised regarding unacceptable levels of nutrients (Phosphorous & Nitrogen) in the Stour Catchment.



Foul Drainage Strategy & Nutrient Assessment At Upper Otterpool, Sellindge, Kent

Appendices

- Site Location Plan
- Flood Maps for Planning
- Geoindex Map
- Public Sewer Records
- RSPD Foul Drainage Strategy
- Site Proposed Block Plan
- Natural England Nutrient Budget Calculator
- Marsh Nutra/Phos Lite Product Information/Certification



Flood map for planning

Your reference
Unspecified

Location (easting/northing)
611302/136228

Created
7 July 2025 14:04

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)

611302/136228

Scale

1:2,500

Created

7 Jul 2025 14:04

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

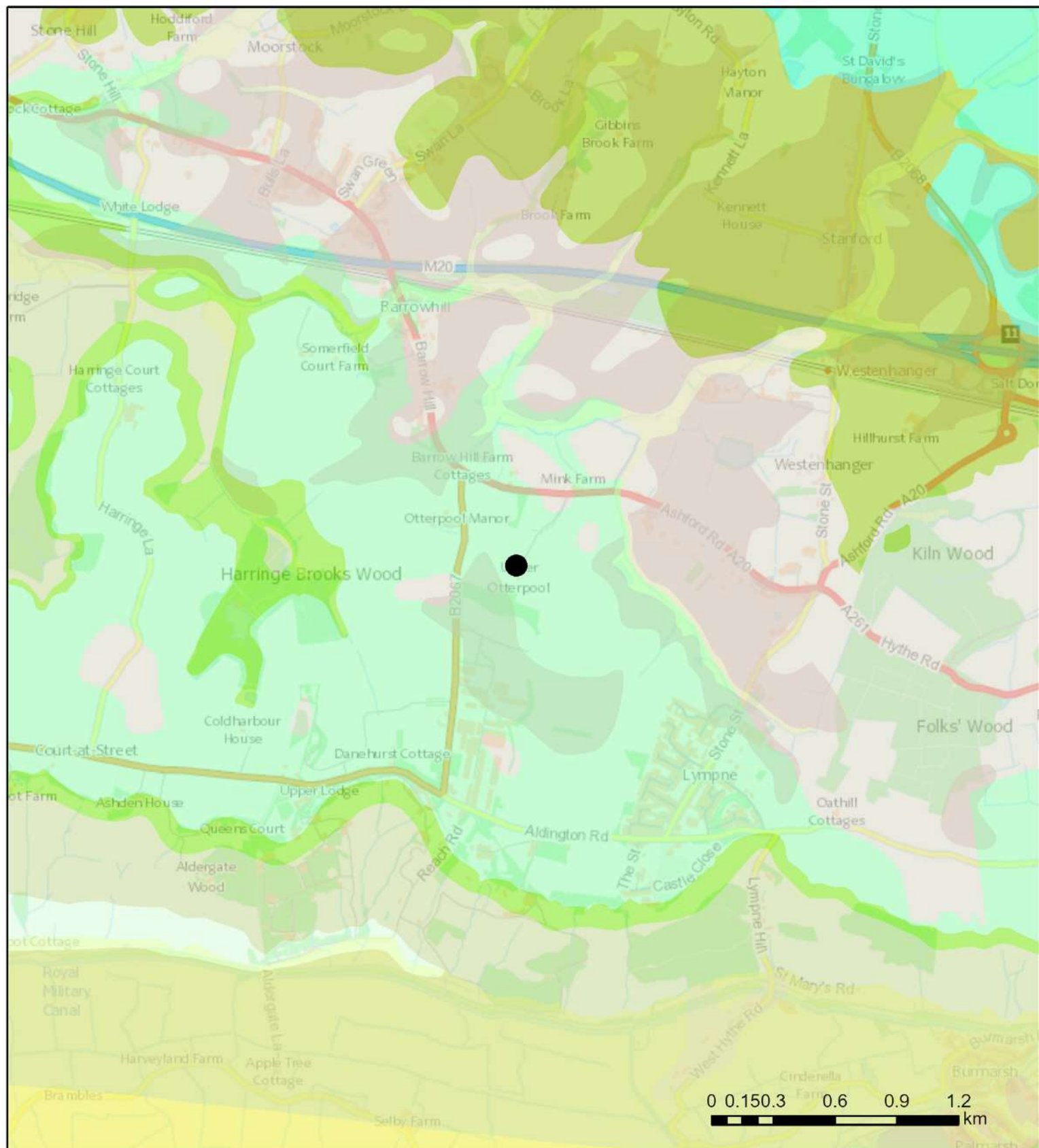


0 20 40 60m

GeoIndex Report



British
Geological
Survey



Contains OS data © Crown Copyright and database right 2020

GeoIndex Onshore Data Sources: NERC, Natural England, English Heritage and Ordnance Survey

Map Key

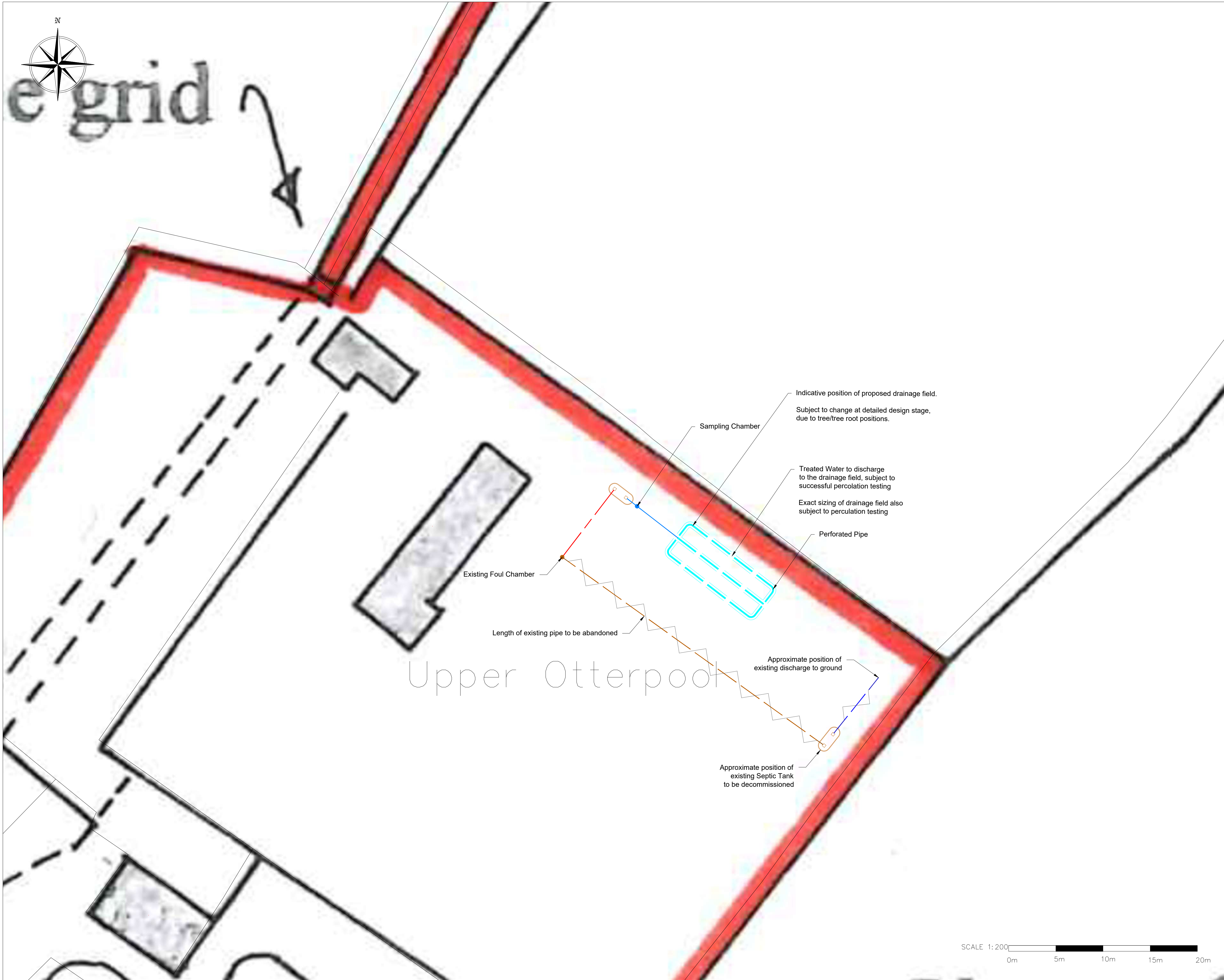
Superficial deposits 1:50,000 scale

	<u>ALLUVIUM - CLAY, SILT, SAND AND GRAVEL</u>
	<u>BLOWN SAND - SAND</u>
	<u>HEAD - CLAY AND SILT</u>
	<u>HEAD - CLAY, SILT, SAND AND GRAVEL</u>
	<u>RIVER TERRACE DEPOSITS, 4 - SAND AND GRAVEL</u>
	<u>STORM BEACH DEPOSITS - GRAVEL</u>
	<u>BEACH AND TIDAL FLAT DEPOSITS (UNDIFFERENTIATED) - SAND, SILT AND CLAY</u>
	<u>TIDAL FLAT DEPOSITS - SAND</u>
	<u>TIDAL FLAT DEPOSITS - CLAY AND SILT</u>
	<u>PEAT - PEAT</u>
	<u>CLAY-WITH-FLINTS FORMATION - SAND</u>
	<u>CLAY-WITH-FLINTS FORMATION - CLAY, SILT, SAND AND GRAVEL</u>

Bedrock geology 1:50,000 scale

	<u>WEALD CLAY FORMATION - SANDSTONE</u>
	<u>SANDGATE FORMATION - SANDSTONE, SILTSTONE AND MUDSTONE</u>
	<u>HYTHE FORMATION - SANDSTONE AND [SUBEQUAL/SUBORDINATE] LIMESTONE, INTERBEDDED</u>
	<u>GAULT FORMATION - MUDSTONE</u>
	<u>WEALD CLAY FORMATION - MUDSTONE</u>
	<u>TUNBRIDGE WELLS SAND FORMATION - SANDSTONE</u>
	<u>ZIG ZAG CHALK FORMATION - CHALK</u>
	<u>WEST MELBURY MARLY CHALK FORMATION - CHALK</u>
	<u>HOLYWELL NODULAR CHALK FORMATION - CHALK</u>
	<u>FOLKESTONE FORMATION - SANDSTONE</u>
	<u>ATHERFIELD CLAY FORMATION - MUDSTONE, SANDY</u>
	<u>WEALD CLAY FORMATION - LIMESTONE</u>

Selection Results



General Notes

KEY:

- Application Site Boundary
- Surface Water Drain
- Foul Water Drain
- Linear Drainage
- Pipe Protection
- SW Rising Main
- FW Rising Main
- French Drain/Perforated Pipe
- Surface Catch Pit/Manhole
- Foul Water Manhole
- Surface Water Soakaway
- Gully & Lead
- Waste Water Package Treatment Plant
- Retaining Wall
- Spot Levels
- Direction of Flow
- Embankment
- Brick Headwall

FOR PLANNING

No.	Revision/Issue	Date

RSPD

Roads & Sewers for Planning & Design Ltd

www.roadssandsewers.co.uk

07876 573377

Project Name and Address

UPPER OTTERPOOL,
SELLINDGE,
KENT, TN25 6DD.

Description

FOUL DRAINAGE
STRATEGY

Project	6189	Sheet
Date	14/07/2025	
Scale	1:200 @ A1	

01

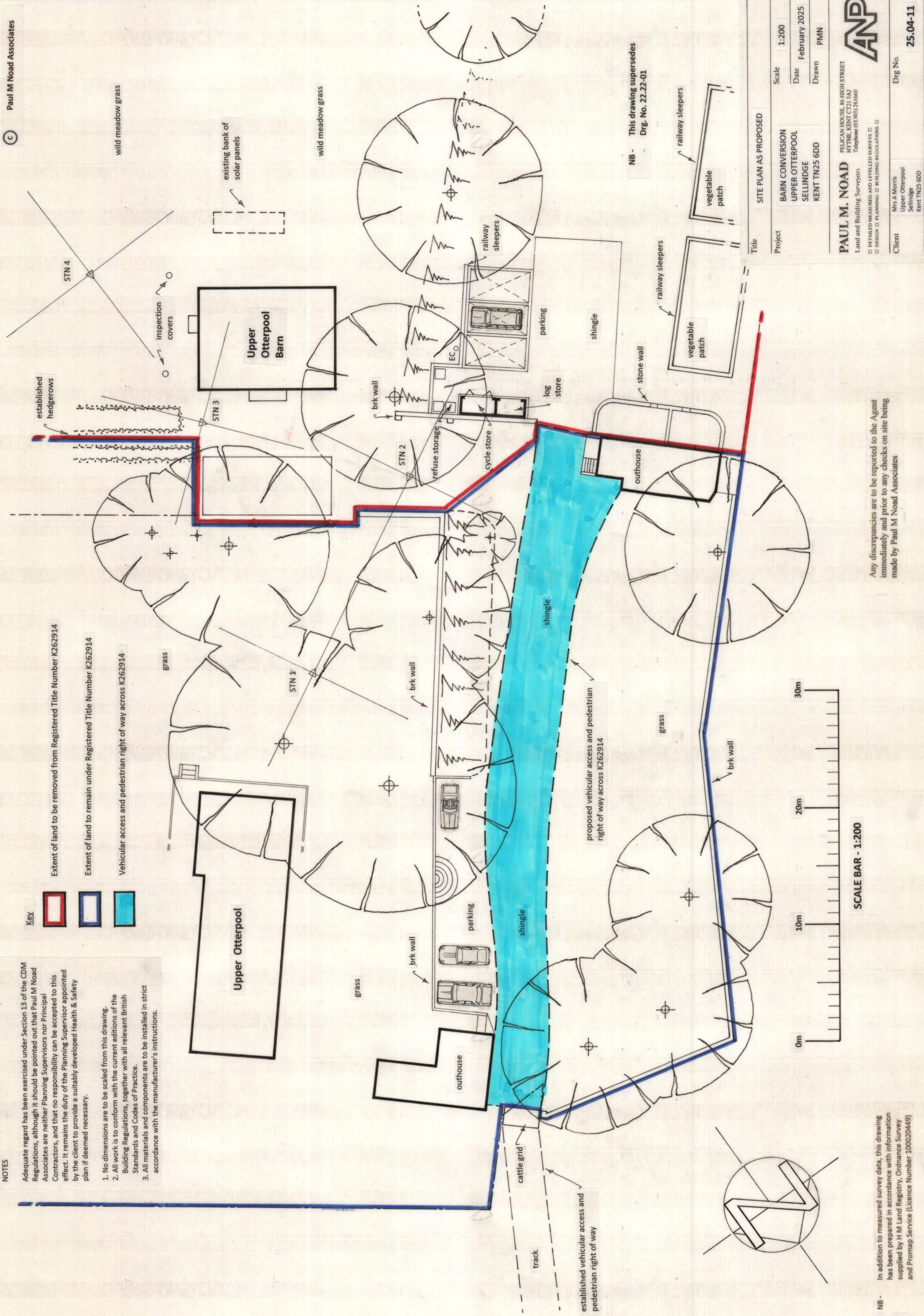
NOTES

Adequate regard has been exercised under Section 13 of the CDM Regulations, although it should be pointed out that Paul M Noad Associates are neither Planning Supervisors nor Principal Contractors, and that no responsibility can be accepted to this effect. It remains the duty of the Planning Supervisor appointed by the client to provide a suitably developed Health & Safety plan if deemed necessary.

1. No dimensions are to be scaled from this drawing.
2. All work is to conform with the current editions of the Building Regulations, together with all relevant British Standards and Codes of Practice.
3. All materials and components are to be installed in strict accordance with the manufacturer's instructions.



- Extent of land to be removed from Registered Title Number K262914
- Extent of land to remain under Registered Title Number K262914
- Vehicular access and pedestrian right of way across K262914



NB - This drawing supersedes
Drg. No. 22.22-01

Title SITE PLAN AS PROPOSED

Project	BARN CONVERSION UPPER OTTERPOOL SELLINDGE KENT TN25 6DD	Scale	1:200
Date	February 2025	Drawn	PMN

PAUL M. NOAD

PELICAN HOUSE, 86 HIGH STREET
HYTHE, KENT CT21 5AJ
Land and Building Surveyors
Telephone (01303) 261660

□ DETAILED MEASURED AND LEVELLED SURVEYS □
□ DESIGN □ PLANNING □ BUILDING REGULATIONS □

Client Mrs A Morris
Upper Otterpool
Sellindge
Kent TN25 6DD

Drg No.

25.04.11

SCALE BAR - 1:200

NB - In addition to measured survey data, this drawing has been prepared in accordance with information supplied by H M Land Registry, Ordnance Survey and Promap Service (Licence Number 100020449)

Any discrepancies are to be reported to the Agent immediately and prior to any checks on site being made by Paul M Noad Associates

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 to B11 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A15 and B12 to B15 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 and cell C11 depending on the information you entered in cell B9. Cells C5 to C9 and cells C12 to C15 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 B19 to B22 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A23 to A28, cells B24 to B25 and cells B27 to B28 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B18, cell B23 and cell B26 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 and their certified value of total nitrogen (TN) in cell C11. 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 B15. If applicable, up to 6 values for the nutrient loading associated with wastewater will be presented in cell B21, B22, B24, B25, B27 or B28.		
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):	14/07/2025	
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	1	
Wastewater treatment works:	Septic Tank default	
Current wastewater treatment works P permit (mg TP/litre):	11.60	
Current wastewater treatment works N permit (mg TN/litre):	96.30	
Not applicable	Not applicable	
Not applicable	Not applicable	
Not applicable	Not applicable	
Not applicable	Not applicable	
Final calculation of nutrient load from wastewater		
Description of values generated	Values generated	
Wastewater nutrient loading		
Additional population (people):	2.40	
Wastewater by development (litres/day):	288.00	
Annual wastewater TP load (kg TP/yr):	1.22	
Annual wastewater TN load (kg TN/yr):	10.13	
Not applicable		
Not applicable	Not applicable	
Not applicable	Not applicable	
Not applicable		
Not applicable	Not applicable	
Not applicable	Not applicable	

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 to B11 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A15 and B12 to B15 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 and cell C11 depending on the information you entered in cell B9. Cells C5 to C9 and cells C12 to C15 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 B19 to B22 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A23 to A28, cells B24 to B25 and cells B27 to B28 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B18, cell B23 and cell B26 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 and their certified value of total nitrogen (TN) in cell C11. 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 between changing permit dates, multiple permit limits may be automatically generated in cells B10 to B15. If applicable, up to 6 values for the nutrient loading associated with wastewater will be presented in cell B21, B22, B24, B25, B27 or B28.

Water infrastructure information

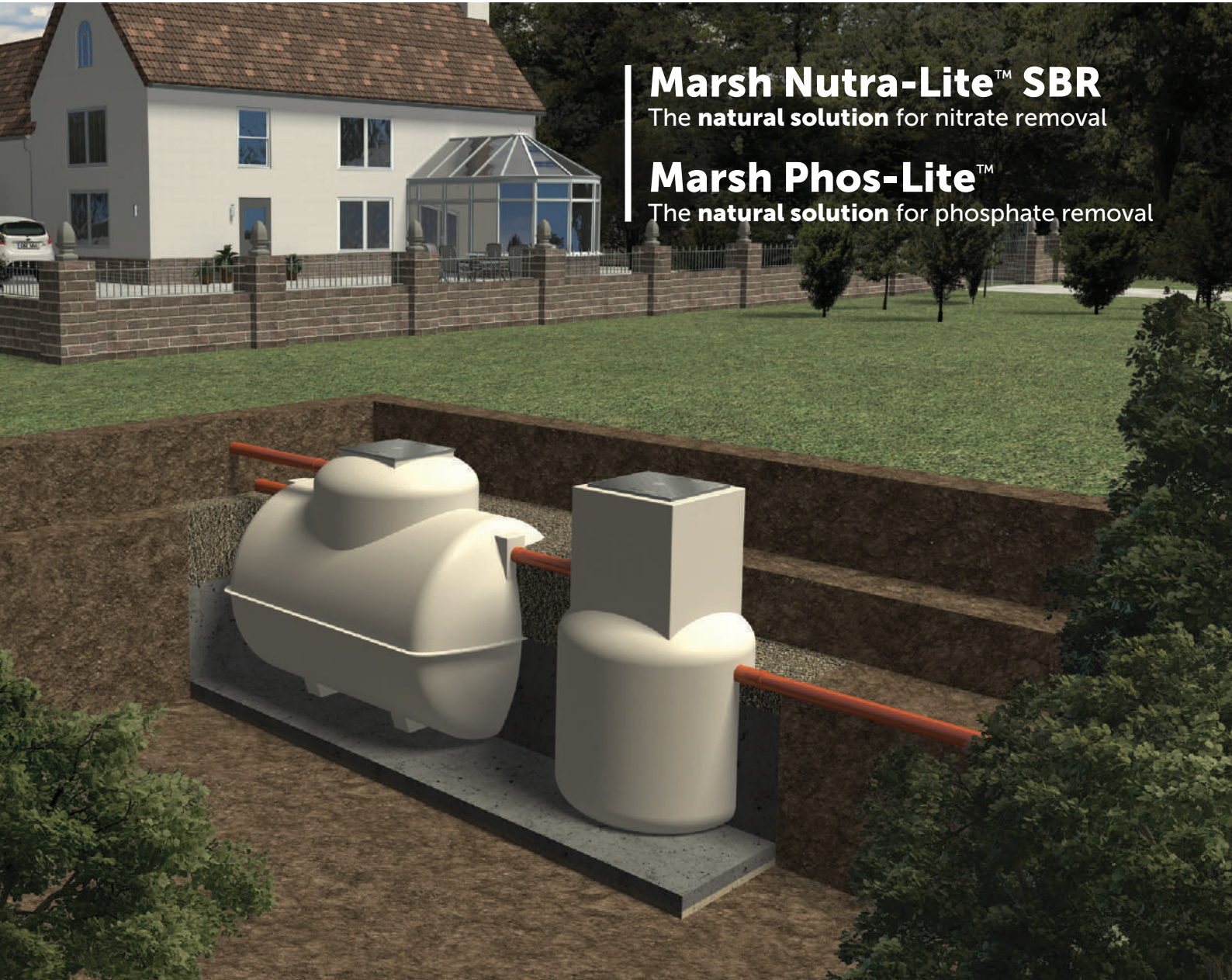
Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):	14/07/2025	
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	2	
Wastewater treatment works:	Package Treatment Plant user defined	
Current wastewater treatment works P permit (mg TP/litre):	Enter value in cell C10	0.2
Current wastewater treatment works N permit (mg TN/litre):	Enter value in cell C11	11.1
Not applicable	Not applicable	
Not applicable	Not applicable	
Not applicable	Not applicable	
Not applicable	Not applicable	
Final calculation of nutrient load from wastewater		
Description of values generated	Values generated	
Wastewater nutrient loading		
Additional population (people):	4.80	
Wastewater by development (litres/day):	576.00	
Annual wastewater TP load (kg TP/yr):	0.04	
Annual wastewater TN load (kg TN/yr):	2.34	
Not applicable		
Not applicable	Not applicable	
Not applicable	Not applicable	
Not applicable		
Not applicable	Not applicable	
Not applicable	Not applicable	

Marsh Natural Solutions™

For phosphate and nitrate reduction

Marsh Nutra-Lite™ SBR
The **natural solution** for nitrate removal

Marsh Phos-Lite™
The **natural solution** for phosphate removal



Environmental compliance
without chemical dosing



Marsh Nutra-Lite SBR

The **natural solution** for advanced sewage treatment, phosphate and nitrate removal

Marsh Nutra-Lite SBR
Advanced sewage treatment plant

Key benefits

- 84% biological reduction of nitrates
- Exceeds nitrate targets to enable site development
- Certified performance in reducing COD, BOD, and Suspended Solids



SBR technology for superior nitrate reduction

Overview

Marsh Industries proudly presents the Marsh Nutra-Lite, an advanced Sequential Batch Reactor (SBR) sewage treatment plant designed to enhance effluent quality for off-mains wastewater systems and significantly reduce biological nitrates.

The Nutra-Lite is available in capacities catering to sites for up to 50 people. With state-of-the-art technology and rigorously tested, the Nutra-Lite sets a new standard for sustainable wastewater management.

Can be supplied as a complete system, combined with the Marsh Phos-Lite. See page 5 for Phos-Lite details.

Features

Outstanding discharge quality

The Nutra-Lite boasts the highest overall discharge quality of any plant available today. A unique self-cleaning, self-sealing sediment reduction valve ensures total control over suspended solids. No mechanical parts provide reliability and efficiency.

Nutra-Lite not only excels in phosphate and nitrate removal but also significantly reduces other key effluent constituents:

COD	95.8%	33mg/l
BOD	98.7%	4 mg/l
TNb	83.9%	11.1mg/l
NH ₄ n	99.1%	0.5mg/l
Ptot	34.3%	6mg/l
SS	97.1%	11mg/l

SBR technology for superior nitrate reduction

The Nutra-Lite harnesses SBR technology, achieving an impressive 84% biological reduction in nitrates. Unlike traditional methods, no chemicals or carbon are used – just biological processes.

Remote configuration and adaptability

Unique to Marsh Industries, the Nutra-Lite can be adapted to seasonal changes in biological treatment, ensuring optimal year-round performance. Remote configuration allows adjustments based on ongoing nitrate reduction research.

Secure telemetry and alarm monitoring

All Nutra-Lite plants feature bi-directional communication for maintenance and monitoring. Telemetry options include mobile connectivity or homeowner Wi-Fi/internet.

Efficiency and cost savings

A single compressor minimises electrical power consumption without compromising performance. Economy mode further reduces running costs during process changeovers.

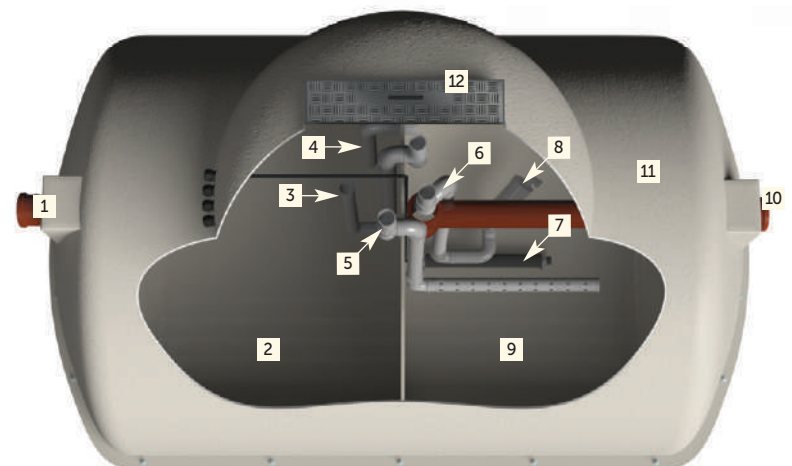
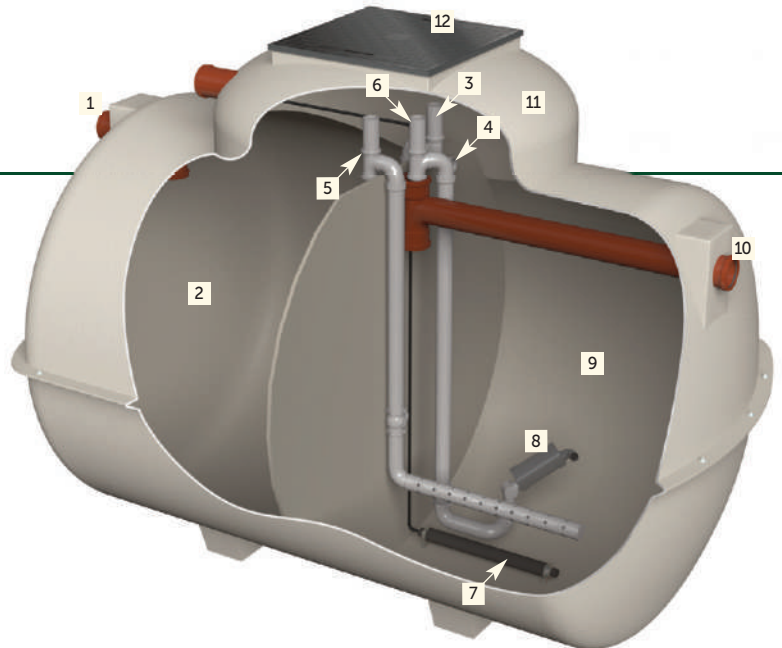
Certified performance

Rigorously tested at the world-leading notified test centre, PIA GmbH, in Aachen, Germany, the Nutra-Lite is certified to BS EN 12566-3 after 50 weeks of continuous testing. This system holds accreditation to EN12566-3 Annex B for systems of up to 50 Population Equivalent (PE) and complies with the UK Forward for BSEN12566-3, demonstrating its reliability and effectiveness.

Material strength and fire safety

Marsh Industries' GRP material successfully meets the requirements of EN ISO 11925-2:2010 standards and is tested for direct flame impingement. All units come with a 25-year structural guarantee.

Tank configurations and components are shown for illustration purposes only



Key

- | | |
|-----------------------------------|----------------------------|
| 1 Inlet | 7 Air diffuser |
| 2 Primary chamber | 8 Sediment reduction valve |
| 3 Inflow air-lift pipework | 9 Secondary chamber |
| 4 Overflow pipework | 10 Outlet |
| 5 Recirculation air-lift pipework | 11 Heavy duty GRP shell |
| 6 Outflow air-lift pipework | 12 Access cover |

Specifications

Model (Pop)	Length +/-50mm	Width +/-50mm	Height +/-50mm	Inlet		Outlet	
				Invert	Ø	Invert	Ø
NL 4	2602	1650	1935	550	110	625	110
NL 6	2602	1650	1935	550	110	625	110
NL 8	2902	1650	1935	550	110	625	110
NL 10	2902	1650	1935	550	110	625	110
NL 12	3202	1650	1935	550	110	625	110
NL 16	3202	1650	1935	550	110	625	110

Marsh Phos-Lite

The **natural solution** for phosphate removal

Addressing critical environmental concerns

Phosphate pollution leads to harmful algal blooms that deplete oxygen and disrupt aquatic ecosystems. Marsh Industries' state-of-the-art Phos-Lite system reduces phosphate levels to 0.2mg/l, far exceeding current standards. This solution was rigorously tested and certified at PIA GmbH test facility in Aachen, Germany.

Any existing sewage
treatment plant

Marsh Phos-Lite
Phosphate reduction unit

Key benefits

- Phosphate reduction without chemical dosing
- Achieves phosphate levels of 0.2mg/l
- Exceeds phosphate targets to enable development
- Certified performance in reducing COD, BOD, and Suspended Solids



Innovative technology for cleaner water

Overview

Marsh Phos-Lite is a groundbreaking product designed to efficiently remove phosphate from wastewater. Utilising a unique adsorption process, Phos-Lite binds phosphorus to the surface of its media, which is composed of naturally occurring elements. This ensures long-term performance across varying flow rates and influent concentrations.

Recommended for up to 35PE (population equivalent), Phos-Lite is fully scalable to meet larger demands. The plant is engineered for maximum retention time, guaranteeing stable, low effluent phosphorus concentrations certified by PIA GmbH at 0.2mg/l.

With an electrical consumption of just 0.03 kWh/d, Phos-Lite operates at very low cost. This innovative tertiary treatment solution seamlessly connects to the outlet of both new and existing treatment plants.

Features

Enhanced effluent quality

Phos-Lite not only excels in phosphate removal but also significantly reduces other key effluent constituents:

- COD reduction by 56.1%
- BOD reduction by 59.5%
- Suspended Solids reduction by 61.1%
- Total phosphate (P_{tot}) efficiency at 95.9%, achieving 0.2mg/l

Long-term performance

Designed to retain up to 8.5kg of phosphorus over five years for a 6PE domestic plant (British Water Flows and Loads 4), Phos-Lite offers reliable performance. After this period, media performance can be reassessed and replaced if necessary, representing approximately 50% of the tested capacity.

Natural, non-dosing solution

The plant uses Phos-Lite pellets, a natural mineral media, to reduce phosphate levels, simplifying operations and reducing the environmental impact of chemical use.

Cost-effective and low maintenance

The non-dosing approach minimises the need for frequent maintenance and chemical adjustments, leading to cost savings over the plant's lifetime.

Enhanced compliance

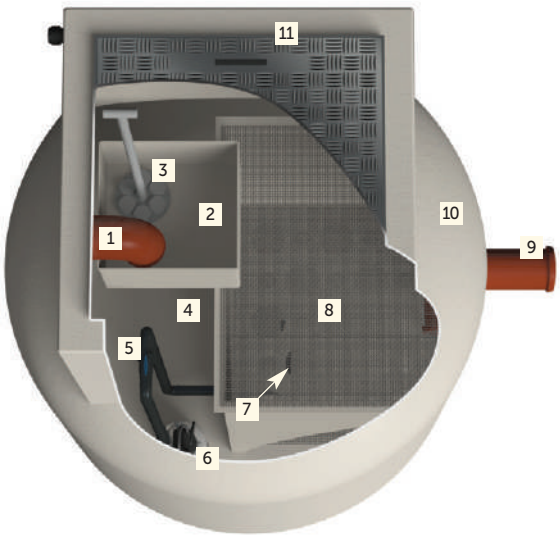
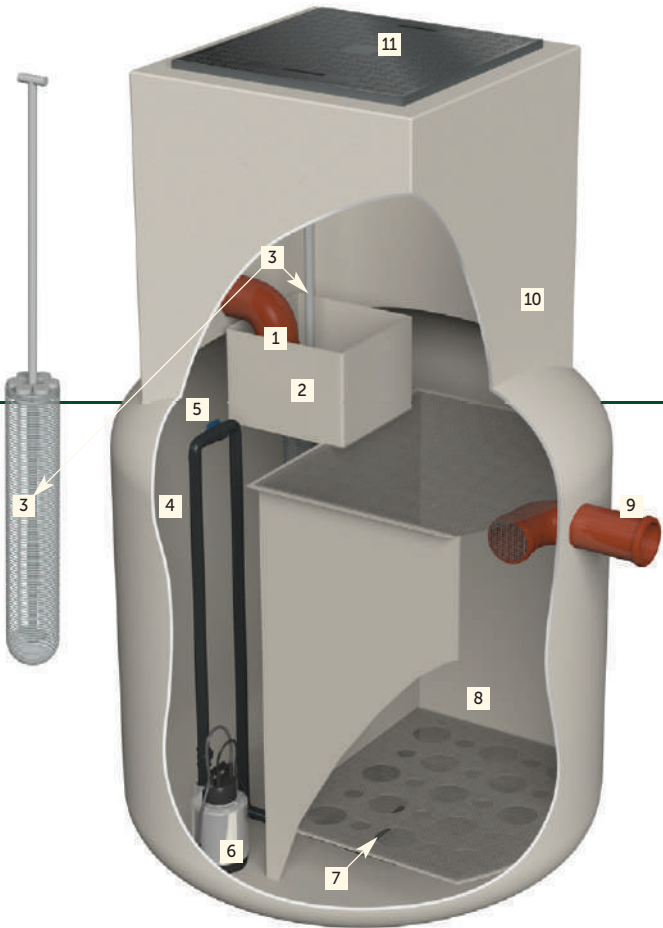
By achieving phosphate levels of 0.2mg/l, the plant ensures compliance with the tightest environmental standards, allowing water companies to meet regulatory obligations.

Ease of integration

The plant is designed for seamless integration into existing systems, making it versatile for new installations and retrofits. Builders' merchants will find this product a valuable addition to their offerings, catering to the growing demand for environmentally responsible wastewater treatment solutions.

Material strength and fire safety

Marsh Industries' GRP material successfully meets the requirements of EN ISO 11925-2:2010 standards and is tested for direct flame impingement. All units come with a 25-year structural guarantee.



Key

- | | |
|----------------------------------|--|
| 1 Inlet | 7 Pipework outflow (beneath lower shelf) |
| 2 Inlet chamber | 8 Phos-Pellet chamber |
| 3 Filter sock (hidden from view) | 9 Outlet |
| 4 Primary chamber | 10 Heavy duty GRP shell |
| 5 Flow control valve | 11 Access cover |
| 6 Submersible pump | |

Specifications

Model	Length	Width	Height	Inlet		Outlet	
				Invert	Ø	Invert	Ø
PL 1	Ø1200	Ø1200	2010	650*	110	1085	110

Tank configurations and components are shown for illustration purposes only

* Inlet invert subject to outlet invert on preceding sewage treatment plant

Testing and certification

Reliable, tested and trusted

The Marsh Nutra-Lite has undergone rigorous testing and earned accreditation in line with EN12566-3 Annex B standards, while Phos-Lite has achieved accreditation in accordance with EN12566-7 test Annex A. These comprehensive assessments were conducted by Prüfinstitut für Abwassertechnik (PIA) GmbH in Aachen, Germany, for wastewater treatment systems accommodating up to 50 PE. This certification confirms the reliability and effectiveness of the products in meeting the demands of wastewater treatment systems for environmentally sensitive sites. All Marsh systems comply with the UK Forward for BSEN12566-3.

The Marsh Nutra-Lite has achieved accreditation in accordance with EN12566-3 Annex B

the Marsh Phos-Lite has achieved accreditation in accordance with EN12566-7 test Annex A.



Enhanced structural integrity

40% Stronger GRP Material

Marsh Industries places a significant emphasis on the durability and reliability of its products, as evidenced by the meticulous assessment of structural integrity. In line with the testing protocol outlined in ENISO 179-1/1eA: 2010-11, comprehensive evaluations were conducted to gauge the robustness of Marsh Industries' glass reinforced plastic (GRP) materials in comparison to similar materials used by competing manufacturers.

To establish a comprehensive benchmark, three distinct material samples were subjected to rigorous impact testing. These samples included Marsh GRP material in its original form (consisting of virgin unfilled resin), a variant incorporating calcium fillers, and another variant enriched with sand filler. The testing process involved analysing 12 samples of each material, all measuring 80x10x5mm. The pendulum energy utilised for impact assessment was set at 15J, with an accompanying impact velocity of 3.8m/s.

The findings were resoundingly in favour of Marsh Industries' GRP material, showcasing an impressive 40% increase in strength when compared to the other materials under scrutiny. This outcome underscores the superior quality and structural resilience inherent in Marsh's GRP material.

Material fire safety

Marsh Industries upholds the highest standards in product safety and adherence to regulations, as demonstrated by its material fire resistance testing. The focus of this evaluation was to ascertain the ignitability of products when exposed to direct flame impingement. Rigorous testing procedures were carried out to ensure compliance with EN ISO 11925-2:2010 standard.

The testing regimen encompassed practical scenarios designed to gauge the material's response to flame exposure. Marsh Industries' GRP material successfully passed all aspects of the fire resistance tests, achieving EN ISO 11925-2:2010 standard.

Natural England and the Environment Agency's guide to nutrient neutrality

Nutrient neutrality

Nutrient neutrality is a policy aimed at controlling the levels of nutrients, particularly nitrogen and phosphorus, entering water bodies from human activities. Excessive nutrients from agriculture, wastewater, and urban runoff can cause environmental issues such as eutrophication, leading to algal blooms that damage water quality, biodiversity and ecosystems.

In the UK, this issue has become particularly important in areas with protected habitats, like Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which are governed by the Habitats Regulations. Natural England and the Environment Agency are key regulatory bodies involved in ensuring that new developments do not increase nutrient pollution in sensitive areas.

Natural England's role

Natural England is responsible for advising local planning authorities on protecting natural environments, particularly designated sites. It provides guidance on nutrient neutrality for new housing and other developments near sensitive water bodies.

Key points

- **Guidance to Local Planning Authorities (LPAs):** Natural England advises LPAs to ensure that development projects demonstrate nutrient neutrality, especially near vulnerable habitats.
- **Nutrient budgeting:** Developers must calculate the nutrient load (nitrogen and phosphorus) that their project will contribute to the water system. Natural England provides frameworks and tools to help assess these impacts.
- **Mitigation:** If nutrient neutrality cannot be demonstrated directly, mitigation measures must be proposed. This can include creating wetlands, woodland planting, or upgrading wastewater treatment processes to reduce nutrient runoff.

The Environment Agency's role

The Environment Agency is responsible for monitoring and regulating water quality in rivers, lakes, and coastal waters. It oversees how water companies, agriculture and urban areas contribute to nutrient pollution, and works to limit these impacts.

Key points

- **Water quality regulation:** The Environment Agency sets and enforces limits on nutrient levels entering water bodies through permits for discharges (eg, from sewage treatment plants).
- **Catchment-based approach:** It often takes a catchment-based approach, focusing on the health of entire river systems to manage nutrient levels.
- **Agricultural regulation:** The Agency also regulates nutrient management in farming, providing guidance on land use and fertiliser application, and promoting sustainable practices to limit runoff into water bodies.

Nutrient neutrality in planning

In areas where nutrient pollution is an issue, new developments must not increase the nutrient load on the environment. LPAs, supported by Natural England's guidance, are required to ensure that planning permissions are granted only if projects can prove nutrient neutrality.

Key points

- **Nutrient Neutrality assessments:** Developers must submit assessments to prove their developments won't add to nutrient levels.
- **Mitigation measures:** If developments would add nutrients to the environment, they must propose mitigations such as buffer zones, sustainable drainage systems (SuDS), or contributions to strategic mitigation schemes.

Impacts on development

Nutrient neutrality has had a significant impact on housing developments in certain regions, particularly around the Solent, Somerset Levels and the River Wye. Delays and increased costs can occur due to the need for nutrient assessments and mitigation strategies.

Long-term goals

Both Natural England and the Environment Agency aim to:

- Improve water quality and protect vulnerable habitats.
- Ensure sustainable development without compromising environmental health.
- Support the creation of mitigation solutions that balance development needs with environmental protection.

Overall, nutrient neutrality regulations, enforced by Natural England and the Environment Agency, play a crucial role in safeguarding sensitive ecosystems from the harmful effects of nutrient pollution.

Marsh Natural Solutions

Enabling development in environmentally sensitive areas

Marsh Industries provides innovative, sustainable, wastewater treatment solutions to support nutrient neutrality. Our 'Natural Solutions' range effectively reduces pollutants and nutrients, such as nitrate, phosphate and ammonia, ensuring compliance with strict standards set by environmental regulators.

As industry leaders, we develop cutting-edge products that meet and exceed regulatory requirements, ensuring cleaner and safer water. Our commitment to research and development keeps us at the forefront of wastewater treatment technology.

Choose **Marsh Natural Solutions** for efficient, sustainable, and compliant wastewater management. Together, we can create cleaner, healthier waterways.

Contact our eco-friendly team on

01933 654582

nat-solutions@marshindustries.co.uk

to discuss your project's unique requirements

Other products *from* Marsh Industries

- Sewage treatment plants
- WellWater™ pump stations
- Septic tanks and cesspools
- Uni:Gem★ septic conversion
- Marsh GMS★ grease traps
- Degrilleur™ trash/debris barrier
- Agri-silage tanks
- Water attenuation systems
- Rainwater harvesting systems
- Oil separators and more...

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MI-NatSol-1024-A

Proudly made in the United Kingdom





Certificate

Nr. 420.01C03

MI Nutra-Lite

Plant with active sludge in Sequencing Batch Reactor (SBR) and primary settlement

Marsh Industries Limited

Units 3-13 Addington Park Industrial Est., NN14 4AS Northants, UK

EN 12566-3:2005+A2:2013, Annex B: Treatment efficiency test

Small wastewater treatment systems for up to 50 PT – Part 3:
Packaged and/or site assembled domestic wastewater treatment plants

Detailed results and information on the test are provided in test report PIA2024-420B06.

Extract of performance details (EN 12566-3, Annex B: Treatment efficiency test)

Organic daily load (influent, nominal) 0.20 kg BOD₅/d

Hydraulic daily load (nominal) 0.6 m³/d

Treatment efficiency (nominal)	Efficiency	Effluent
COD	95.8 %	33 mg/l
BOD ₅	98.7 %	4 mg/l
TN _b *	83.9 %	11.1 mg/l
NH ₄ -N*	99.1 %	0.5 mg/l
P _{tot}	34.3 %	6.0 mg/l
SS	97.1 %	11 mg/l

Electrical consumption (nominal) 0.7 kWh/d

Number of desludging (30 weeks testing EN 12566-3 without desludging) 2 after 30 week test cycle

Number of maintenance operations during the test (without start-up phase) 0

* determined for temperatures $\geq 12^{\circ}$ C in the bioreactor

Tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
Hergenrather Weg 30
52074 Aachen, Germany

This certificate is for information purposes only and replaces neither the related test report nor the declaration of performance or the CE marking. The results relate only to the tested object.

PIA – Sustainable Certification

geprüft – tested – teste

September 2024, Dipl.-Ing. Gabriel Schatzki
Head of department "Wastewater Treatment"



Notified Body
No.: 1739



Certified according to
ISO 9001:2015

Certificate

Nr. 469.01C1

MI Phos-Lite

Module for chemical-physical after-treatment of sewage, tested in combination by use of a gravity operated plant

Marsh Industries Limited

Units 3-13 Addington Park Industrial Est., NN14 4AS Northants, UK

EN 12566-7:2013, Annex A: Tertiary treatment efficiency test

Small wastewater treatment systems for up to 50 PT – Part 7:
Prefabricated tertiary treatment units, chemical / electrical

Detailed results and information on the test are provided in test report PIA2024-T7-469S14.



Extract of performance details (EN 12566-7, Annex A: Tertiary treatment efficiency test)

Organic daily load (influent, nominal)	0.01 kg BOD ₅ /d		
Hydraulic daily load (nominal)	0.9 m ³ /d		
Treatment efficiency (nominal)		Efficiency	Effluent
	COD	56.1 %	23 mg/l
	BOD ₅	59.5 %	4 mg/l
	TN _b *	5.5 %	29.6 mg/l
	NH ₄ -N*	24.0 %	0.4 mg/l
	P _{tot}	95.9 %	0.2 mg/l
	SS	61.1 %	4 mg/l
Electrical consumption (nominal)	0.03 kWh/d		
Number of desludging (complete test – 7 weeks)	0		

* determined for temperatures $\geq 12^{\circ}\text{C}$ in the bioreactor

Tested by:
PIA – Prüfinstitut für Abwassertechnik GmbH
Hergenrather Weg 30
52074 Aachen, Germany

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