

SS26011 – Drainage Technical Note in Support for Planning Application 221510

Wick Road, Langham





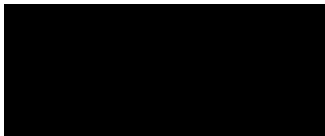
Report No.: SUS-XX-XX-RP-C-00001
Site: Wick Road, Langham
Title: Technical Note

Client: Park Lane Business Centre
Date: January 2026
Status: Issue

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Signature

Technical ApproverGeorge Westgarth

Signature

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1. Introduction

- 1.1. Superstructures have been appointed by Park Lane Business Centre to provide a technical note to supplement the original drainage design completed by others at Wick Road, Langham (planning reference number 221510).
- 1.2. The local planning authority applied the following comments on the proposed drainage arrangements on the site:
- 1.3. “No development above slab level shall be undertaken until the developer has either: (a) acquired and provided to the local Planning Authority written confirmation from the Environment Agency and from the relevant statutory provider that adequate waste water and sewage treatment capacity is available to serve the development. Such details shall be submitted to and agreed in writing by the Local Planning Authority prior to works above slab level. Or **(b) has provided on site adequate waster water and sewage treatment capacity, the details of which shall have been submitted to and agreed in writing by the Local Planning Authority.**
- 1.4. Reason: In order to achieve full compliance with Local Plan policy SS9, to prevent pollution of the water environment and to protect the groundwater quality in the area in the interest of Health and Safety.”
- 1.5. This technical note seeks to investigate option (b) of the above condition by proposing an on-site foul water treatment solution designed to provide adequate wastewater treatment capacity without reliance on off-site public foul sewer infrastructure. This will be include allowance and capacity for additional units to the west.

2. Site Location and Context

- 2.1. The site is located adjacent to Wick Road within the rural settlement of Langham, Essex.
- 2.2. Although there is a confirmed point of connection within Wick Road, it is understood the local water authority infrastructure is not capable of increasing their networks flows into the foul system. Therefore an alternative discharge method is required.
- 2.3. There is a surface water pipe north of the site, within landownership, which ultimately discharges into the local watercourse. It is determined once foul water has been sufficiently treated, this option would be the most practical for the site.



3. Proposed Foul Water Drainage Strategy

- 3.1. It is proposed foul water generated by the development will be collected via a private foul drainage network and conveyed to a localised package foul water treatment plant located within the site boundary.
- 3.2. Treated effluent from the package treatment plant will be discharged to a pumped surface water system, flowing northwards to connect into an existing surface water drainage asset which ultimately discharges to the local watercourse.
- 3.3. A proprietary package sewage treatment plant will be provided to accommodate the anticipated foul water loading from the development.
- 3.4. The treatment plant should be installed in accordance with BS EN 12566 and to manufacturers specifications.
- 3.5. The treatment process will ensure effluent quality is suitable for discharge to surface water, meeting applicable Environment Agency standards for biochemical oxygen demand (BOD), suspended solids and ammoniacal nitrogen. Final treatment plan selection, pollution equivalent sizing and performance specifications will be confirmed at detailed design stage.
- 3.6. Due to local topography and the relative levels of the receiving drainage infrastructure, treated effluent will be pumped from the treatment plan via a rising main.
- 3.7. The rising main will convey the treated effluent northwards a localised gravel strip where flows will be treated once more.
- 3.8. The pumping station will incorporate telemetry and emergency storage capacity in accordance with industry best practice.
- 3.9. The point of discharge will be to connect into existing surface water assets north of the site which ultimately drains to a local watercourse.
- 3.10. The discharge will be restricted to the treated foul effluent flow only and will not adversely affect the hydraulic or environmental performance of the receiving system.
- 3.11. Confirmation of discharge acceptability will be sought from the relevant drainage authority when required at detailed design.



4. Environmental Protection and Compliance

- 4.1. The proposed on-site treatment system eliminates reliance on off-site foul sewer capacity and provides full control over wastewater treatment performance.
- 4.2. The strategy ensures no untreated foul water is discharged to the ground or watercourse, ground water quality is protected and pollution risk is minimised through controlled treatment and discharge.
- 4.3. Maintenance and access, desludging arrangements and long term management responsibilities will be secured privately via a suitable management plan provided at detailed design stage.

5. Conclusion

- 5.1 This technical note demonstrates adequate on-site waste water and sewage treatment capacity can be provided to serve the development in accordance with Part (b) of the planning condition.
- 5.2 The proposed foul drainage strategy complies with local planning policy SS9, protects the water environment and groundwater quality, and meets the intent of the planning condition. Subject to agreement of detailed design, it is considered the requirements of the planning condition have been satisfactorily addressed.



Appendix A – Proposed Site Layout



Appendix B – Indicative Treatment Unit Manufacturer Specifications

ENSIGN[®]

Package sewage treatment plants



Intensive biological processing for off-mains wastewater

Overview

The Marsh Ensign is widely regarded as one of the most efficient, reliable and economical sewage treatment plants on the market.

The standard Ensign has been adapted to improve reliability and the Ensign:Ultra now brings unique enhancements to further improve noise level, treatment efficiency and final effluent quality.

Class leading performance

Tested and approved to BSEN12566-3/A1:2009 all Ensign units provide treatment well within national consent requirements. Published test results of 11.5:19.2:8.4mg/ltr (BOD:suspended solids:ammonia), with influent concentrations on test higher than those chosen by most competitor plants, effectively equates to 97% pollutant removal.

Unrivalled choice

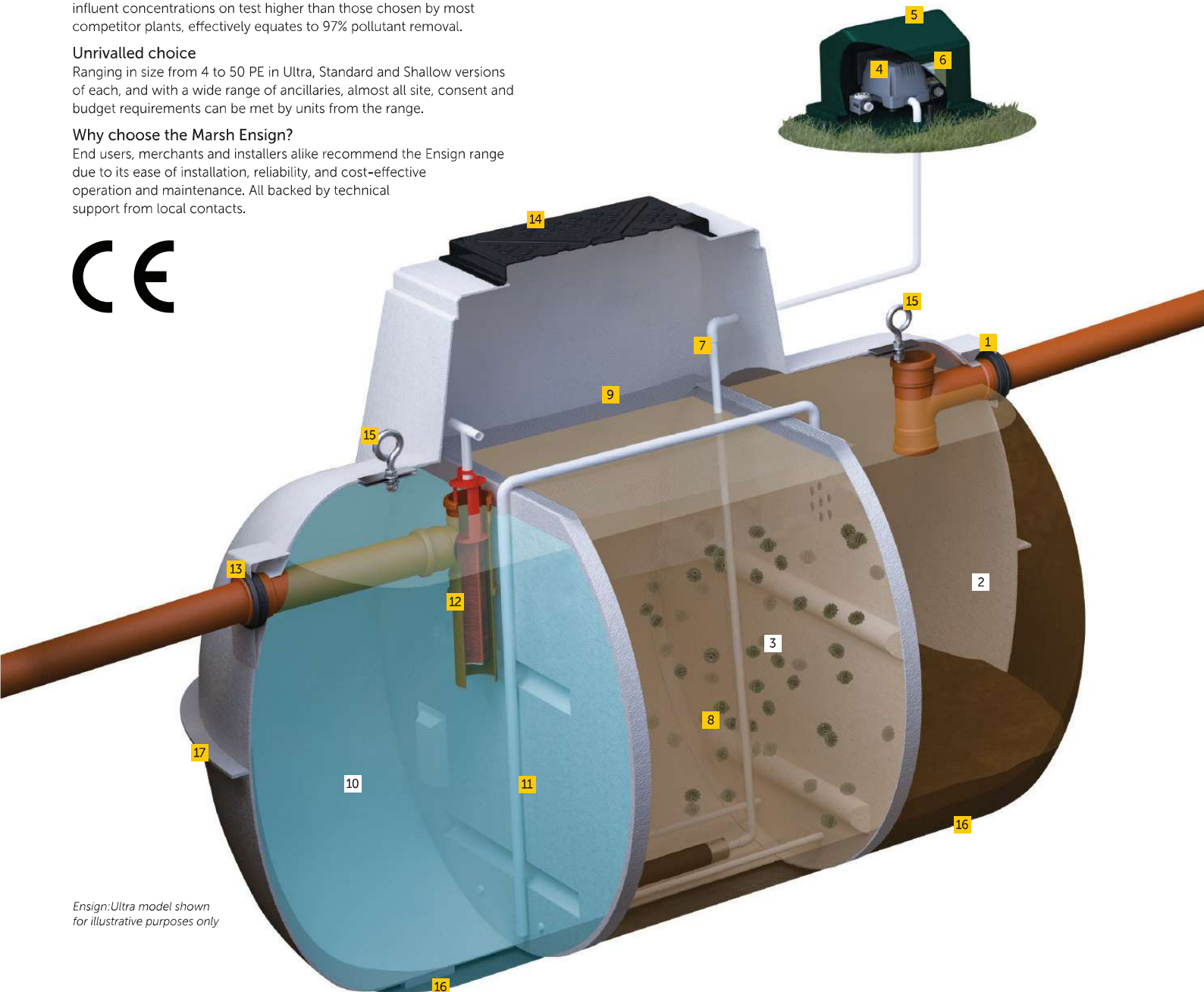
Ranging in size from 4 to 50 PE in Ultra, Standard and Shallow versions of each, and with a wide range of ancillaries, almost all site, consent and budget requirements can be met by units from the range.

Why choose the Marsh Ensign?

End users, merchants and installers alike recommend the Ensign range due to its ease of installation, reliability, and cost-effective operation and maintenance. All backed by technical support from local contacts.

Operating principle

In addition to anaerobic digestion taking place in the primary settlement chamber [2] the Ensign:Ultra unit allows the clarified water to pass into a second 'aeration' chamber [3] where it is treated to remove the dissolved constituents. Here aerobic bacteria, supported by diffused air and mobile media, ensures full treatment is achieved before the treated effluent and 'sloughed off' bacteria flows to a final settlement chamber [10]. The final effluent is then discharged to the drainage field or watercourse via a Polylok filter.



Ensign:Ultra model shown for illustrative purposes only



The Marsh Ensign is widely regarded as one of the most efficient, reliable and economical sewage treatment plants on the market

Benefits

- 1 Inlet with 'Forsheda seal'**
Forsheda seal provides flexibility in the joint for easier installation. *Optional risers to increase invert depth are available.*
- 2 Primary settlement chamber**
- 3 Aeration chamber**
- 4 Advanced compressor with alarm (Ensign:Ultra units only)**
Near silent compressor ensures minimal running, maintenance and servicing costs. Integral alarm detects low pressure in air line. (Regular Low-energy compressor on Ensign:Standard models).
- 5 Compressor housing – internal or external options available**
The compressor can be housed internally or externally with no difference in cost. *External recommended to increase compressor life, and supplied as standard on 4PE, shallow and pumped outlet versions.*
- 6 RCD/Electrical connection (Ensign:Ultra units only)**
The RCD box provides easier installation and provides a higher degree of safety. (Regular plug/socket connection on Ensign:Standard models).
- 7 PVC pressure pipe/diffuser(s)**
Provides a protective conduit for the air diffuser line. Can be easily removed for maintenance and cleaning.
- 8 Bio-media**
High specification bio-media (310m³ per m²) and membrane diffusers ensure even circulation to eliminate 'dead spots'. The bio-media is contained by a stainless steel securing mesh to ensure no migration during handling or potential flooding.
- 9 Stainless steel mesh (Ensign:Ultra units only)**
Retains media in aeration chamber during transportation and handling, and in the event of flooding.
- 10 Final settlement chamber**
- 11 32mm sludge return**
Larger diameter sludge return prevents the possibility of blockages and improves system circulation. Provides higher effluent quality whilst balancing flow over a 24 hour period or periods of intermittent use.
- 12 Unique Polylok tertiary filter (Ensign:Ultra units only)**
The Polylok tertiary filter reduces suspended solids and BOD by a further 40% helping to extend drainage field life.
- 13 Outlet with 'Forsheda seal'**
Forsheda seal provides flexibility in the joint for easier installation. *Optional pumped outlets are available.*
- 14 Impermeable lid (Ensign:Ultra units only)**
Heavy duty lid/frame improves strength and durability whilst blending into the surrounding environment. (Regular lid on Ensign:Standard models).
- 15 Integral lifting eyes**
For safe and secure on-site handling.
- 16 Stabilising feet**
Stabilising feet prevents the tank from rolling and allows safe and steady transportation and installation.
- 17 Unique 'keying-in' lip**
Assists anchoring into granular or concrete surrounds.

Guidance notes

Package Sewage Treatment Plant's (or PSTP's) are often a suitable option where groundwater in the surrounding environment is vulnerable, drainage field percolation values are restrictive, or direct discharge to a water course or surface water sewer is the preferred discharge method.

- *PSTP's should be sized using the latest version of British Water Flows & Loads which provides detailed information on sewage production figures and sizing calculations*
- *Regulatory authorities for the control of pollution in the UK normally require treatment plants conforming to BSEN12566:3 to be demonstrated as capable of producing a minimum effluent discharge quality of 20:30:20 (Biochemical Oxygen Demand; Suspended Solids; Ammoniacal Nitrogen in mg/ltr), although in certain areas more stringent site-specific qualities may be required*
- *No surface water should enter the system as this can reduce the system's capacity and cause solids to be flushed out which may prematurely block drainage field or cause pollution*
- *As with septic tanks sludge should be removed annually or in line with manufacturers instructions*

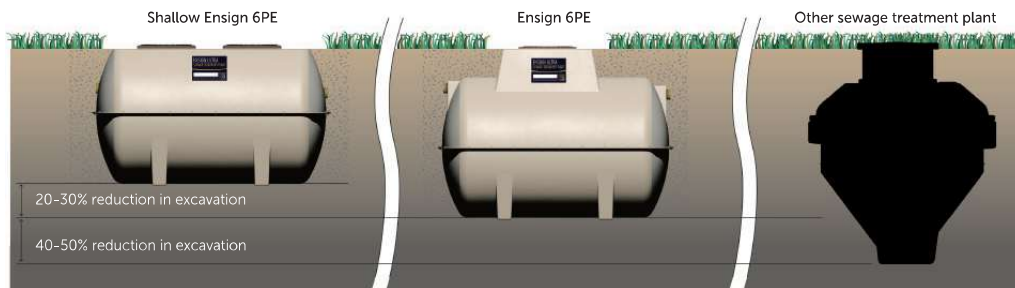
Many domestic sewage treatment plants offered by "internet resellers" claim to hold EN12566-3 compliance. This does not necessarily mean compliance with the UK National Forward, May 2007.

These plants may have been tested in their country of origin but not tested to the same criteria as Marsh Industries, where we strictly adhere to the UK National Forward. Contact contracts@marshindustries.co.uk for more information.

Shallow units

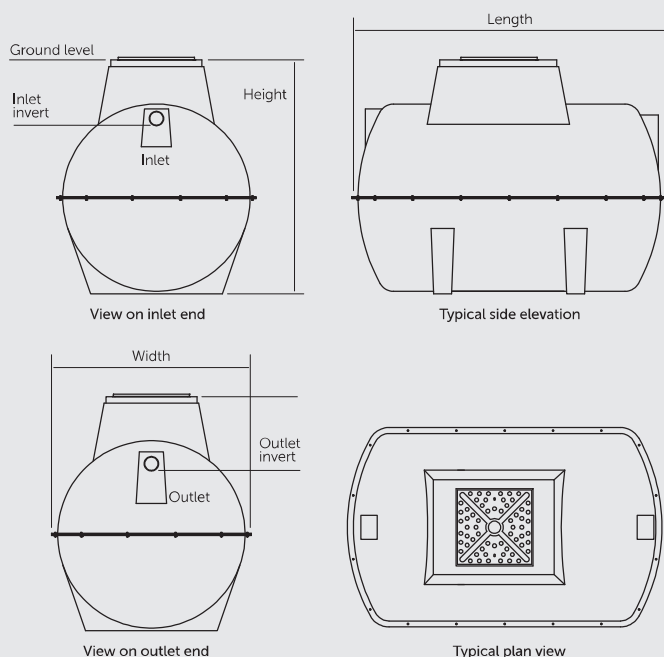
Common sewage treatment plants on the market often exceed 2.3m high. Marsh Industries offer a range of shallow plants from 4-35PE that are only 1.6m in height, meaning installation is not only possible*, but easier and safer too.

**Shallow Ensign's are often favoured when hard rock site conditions mean deeper alternatives, involving costly and time-consuming excavation.*

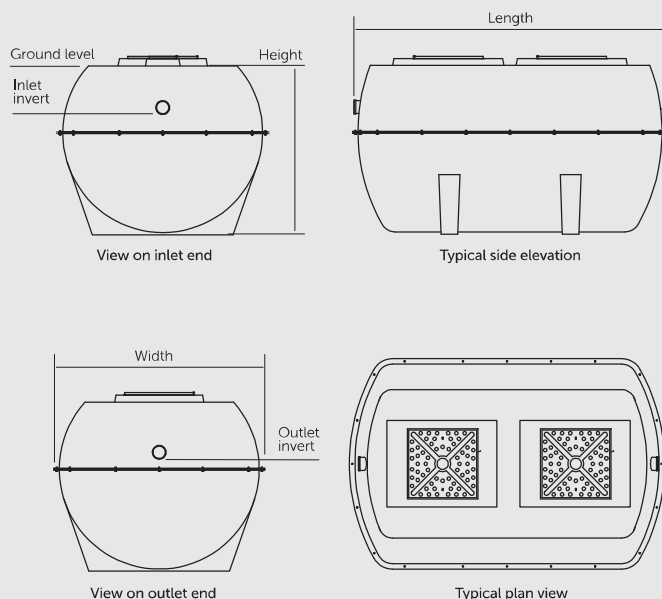


Specifications

Ensign:Ultra and Ensign:Standard



Shallow Ensign:Ultra and Shallow Ensign:Standard



Ensign:Ultra and Ensign:Standard

Model (Pop)	Length +/-50mm	Width +/-50mm	Height +/-50mm	Inlet		Outlet	
				Invert	Ø	Invert	Ø
4	1600	1332	1575	540	110	600	110
6	2602	1650	1935	550	110	625	110
8	2602	1650	1935	550	110	625	110
10	2602	1650	1935	550	110	625	110
12	2860	1912	2139	550	110	625	110
16	2860	1912	2284	720	110	800	110
20	3650	1912	2284	720	160	800	160
25	3650	1912	2284	770	160	850	160
30	4200	1912	2284	770	160	850	160
35	4200	1912	2284	770	160	850	160
40	5200	1912	2284	770	160	850	160
45	5200	1912	2284	770	160	850	160
50	5200	1912	2284	770	160	850	160

Shallow Ensign:Ultra and Shallow Ensign:Standard

Model (Pop)	Length +/-50mm	Width +/-50mm	Height +/-50mm	Inlet		Outlet	
				Invert	Ø	Invert	Ø
6	2860	1912	1600	500	110	575	110
8	2860	1912	1600	500	110	575	110
10	2860	1912	1600	500	110	575	110
12	2860	1912	1600	500	110	575	110
16	3400	1912	1600	500	110	575	110
20	4200	1912	1600	500	160	575	160
25	4200	1912	1600	500	160	575	160
30	5200	1912	1600	500	160	575	160
35	5200	1912	1600	500	160	575	160

Notes:

- > Larger population sewage treatment plants may be supplied as multiple tank configurations.
- > For precise tank sizes and configurations, please contact Marsh Industries
- > All dimensions in mm



GENERAL NOTE:



-0.770

- 2.284
(APPROX)

SIDE ELEVATION

REV	
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Appendix C – Indicative Foul Water Arrangement

