

14th April 2025

Our Ref: 23-1079

Your ref: 250335

Emma Jones
Senior Planning Officer North Team
Planning Services
PO Box 4
Hereford
HR4 0XH

Dear Emma

250335/F Woolaway Bungalows, Norton Canon, Herefordshire, HR4 7BQ

Thank you for your email and for forwarding the consultee response from the Senior Ecologist.

He has requested further details and information regarding the proposed drainage strategy for the above application.

Please find enclosed a fully detailed proposal with supporting information and test certificates to demonstrate there will be 'no likely significant adverse effects' on the River Wye due to additional nutrient pathways as created by the proposed development.

The amended scheme incorporates tertiary treatment through phosphate removal without chemical dosing to achieve levels well under 1mg/litre of phosphorous at outfall, thereby demonstrating a low phosphorus concentration at the final discharge to the watercourse.

Although phosphorous is an essential nutrient for both animal and plant growth and a key ingredient in fertilisers, in excessive amounts in rivers it causes eutrophication. Humans, on average, produce around 2g of phosphorus per day, with human waste and detergent the main sources of phosphate pollution from development.

The existing package treatment plant, is a WTE Vortex 12, which reduces phosphorous levels in the raw sewage to an average of 2.9mg/litre as recorded during the EN12566-3 test.

Tertiary Treatment as proposed is the Marsh Industries Limited Phos-Lite PE12 module, which in combination with the Vortex gravity operated plant, can reduce phosphorous at outfall to an ultra-low level below 0.28mg/litre without the need for chemical dosing.

The Phos-Lite module is tested to 'EN 12566-7:2013 Annex A: Tertiary treatment efficiency test procedure' and achieved 0.2 mg/litre phosphorous level at outfall without chemical dosing. It is certified by PIA GmbH Certificate Number 469.0ICI and included in the list of British Water Certified Small Wastewater Treatment Systems Up to 50PT under 'EN 12566 - Part 7 'Part 7: Prefabricated tertiary treatment units'.



Phos-Lite media is composed of naturally occurring, mineral-based elements in pellet form that capture and retain phosphates by binding phosphorus to its surface. This non-dosing approach removes the need for chemical adjustment and ensures long-term efficiency. In terms of performance, the longevity of the media is influenced by actual flows and loads entering the plant, however the pellets are designed to retain up to 8.5kg of phosphorus over five years (based upon tests of a 6PE domestic plant aligning with British Water Flows and Loads 4 standards). For the 12PE module, the Phos-Lite Pellets could offer reliable performance over an initial period of 2.5 years, subject to monitoring, providing assurance of its long-term performance across varying flow rates and influent concentrations.

Eliminating chemical reliance simplifies maintenance and lowers environmental impact, with the frequency of the waste removal subject to professional guidance, depending upon the influent quality and the required effluent quality to ensure continuing optimal performance.

In combination, the WTE Vortex 12 and the Phos-Lite module demonstrate they would deliver ultra-low phosphate levels at outfall below 0.28mg/litre to help mitigate phosphorus pollution at levels well under 1mg/litre at outfall.

To address ongoing maintenance and management elements of the system and ensure it performs for the lifetime of the development it supports, the performance would be reassessed and media replaced when necessary as part of a professional service and maintenance contract. The Vortex 12 is currently professionally managed and the proposed Phos-Lite would similarly be managed on a contract.

Manufacturer's information and the test certifications are supplied for both the Vortex and the Phos-Lite to provide the Local Authority with the necessary scientific data to evidence that the proposed system would perform as stated for the lifetime of the development.

The following supporting documents are provided:

23-1079-25B Proposed Foul and Storm Water Drainage Layout
Brochure_VORTEX_S___H.pdf
Certificate_VORTEX_EN12566-3.pdf
Marsh-Natural-Solutions Phos-Lite.pdf
Marsh-Phos-Lite-Certificate.pdf

We understand that if the system is acceptable, this revised drainage strategy will be subject to a full HRA appropriate assessment as completed by the LPA and to approval by Natural England

Yours sincerely



Lorraine Whistance

Enc.