

Sustainable Drainage Strategy (SuDS)

Site Address: 43 Beechwood Drive, Meopham, Kent, DA13 0TX

Proposal: Demolition of existing bungalow and erection of replacement dwelling

1. Introduction

This document sets out the sustainable drainage strategy for the proposed redevelopment at 43 Beechwood Drive, Meopham. The strategy has been prepared to ensure that surface water and foul drainage from the development are managed in a sustainable manner in accordance with national SuDS guidance and the Non-Statutory Technical Standards for Sustainable Drainage Systems.

Following consultation comments from the Upper Medway Internal Drainage Board, this report has been updated to clarify that no surface water or treated foul water from the development will discharge to a watercourse. All drainage will be managed within the site through infiltration-based solutions.

2. Existing Site Context

The site currently accommodates a single bungalow and associated hardstanding areas. The proposal seeks to demolish the existing building and construct a replacement dwelling and detached garage.

The site is not served by mains sewerage and therefore an on-site drainage solution is required. The proposed drainage strategy has been designed to manage both foul and surface water entirely within the site boundary.

3. Foul Water Drainage

Foul drainage from the proposed dwelling will be managed through the installation of a **Klargester BioDisc package treatment plant**.

The BioDisc system utilises Rotating Biological Contactor technology and is specifically designed for small domestic applications where connection to mains drainage is not available.

Key Features

- Certified to European Standard EN12566-3
- CE marked
- Suitable for domestic properties of up to 18 persons
- Low operational and maintenance costs
- Low noise and odour emissions
- Low carbon footprint

The treatment plant is capable of producing high-quality treated effluent with typical performance values of:

- Biological Oxygen Demand (BOD): 8 mg/l
- Suspended Solids: 13 mg/l

- Ammonia: 4 mg/l
- Phosphate: 2 mg/l

Following treatment, the effluent will be discharged to a sub-surface drainage field / soakaway located within the application site in accordance with the Environment Agency General Binding Rules.

Importantly, no treated foul water will discharge to any watercourse.

4. Surface Water Drainage

Surface water from the development will be managed through a series of sustainable drainage measures designed to encourage infiltration and minimise runoff.

Permeable Surfaces

The access and driveway areas will utilise permeable paving systems which allow rainwater to infiltrate naturally into the ground beneath the surface. This approach reduces runoff and prevents surface water accumulation.

Permeable paving grids will be used to retain gravel surfaces while maintaining permeability and structural stability for vehicle loading.

Key benefits include:

- Reduction of surface water runoff
- Natural infiltration of rainfall
- Reduced risk of surface water flooding
- Low maintenance requirements

Soakaway System

Surface water not absorbed through permeable paving will be directed to a soakaway system constructed from modular attenuation crates.

The proposed soakaway system will comprise:

- Rainsmart Ellipse soakaway crates
- Dimensions: approximately 1430mm (L) x 800mm (W) x 860mm (D)
- Void ratio of approximately 95%
- Storage capacity of approximately 935 litres

The crates will be wrapped in a non-woven geotextile membrane to allow the free passage of water while preventing the ingress of soil particles. Surface water will enter the system via a 110mm drainage pipe.

This system allows rainwater to be temporarily stored and gradually infiltrated into the surrounding ground.

Permeable Asphalt Construction

At the entrance area, porous asphalt will be used. This construction typically includes:

1. Geotextile membrane
2. Granular sub-base reservoir layer
3. Permeable asphalt binder course
4. Permeable asphalt surface course

This layered construction allows rainfall to pass through the surface and infiltrate naturally into the ground below.

5. Rainwater Harvesting System

To further reduce surface water runoff and promote water efficiency, the development will incorporate a rainwater harvesting system.

Roof water will be collected, filtered and stored within an underground storage tank. The stored rainwater will then be reused for non-potable household purposes such as:

- Toilet flushing
- Washing machines
- Garden irrigation
- Vehicle washing

The proposed system is expected to significantly reduce mains water consumption and reduce the volume of surface water leaving the roof areas.

6. Drainage Strategy Summary

The drainage strategy for the site follows the SuDS hierarchy and prioritises infiltration and water reuse. Key principles include:

- Surface water managed through permeable surfaces and soakaway infiltration
- Installation of a rainwater harvesting system to reduce runoff
- Foul drainage treated via a package treatment plant
- Treated effluent discharged to an on-site drainage field

Critically:

No surface water or treated foul water will discharge to a watercourse. All drainage will be contained and managed within the application site boundary.

7. Conclusion

The proposed drainage strategy ensures that both surface water and foul drainage are managed sustainably and in accordance with current SuDS best practice.

The use of permeable surfaces, soakaway systems and rainwater harvesting will significantly reduce runoff and allow water to infiltrate naturally into the ground.

The installation of a package treatment plant ensures foul drainage is treated to a high standard before being discharged to a subsurface drainage field within the site.

The strategy therefore ensures that:

- No discharge to a watercourse occurs;
- Flood risk is not increased on or off site; and
- The development follows sustainable drainage principles.

As such, the drainage proposals are considered appropriate for the scale and nature of the development.