THOMAS CONSULTING
STRUCTURAL & CIVIL DESIGN ENGINEERS

T19360/2021/01

SUSTAINABLE URBAN DRAINAGE SYSTEM

MANAGEMENT & MAINTENANCE PLAN

AT

Land Adjacent ro Waters Edge
Whitehaven
CA28 9PD

LA1 1PB

FOR

Gleeson Homes

REPORT VERIFICATION

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1 INTRODUCTION

The proposed development at land adjacent Waters Edge, Whitehaven utilises a combination of conventional and Sustainable Drainage Systems (SuDS) as part of the overall surface water drainage strategy for the site.

The development of the site is for a residential end use.

The surface water drainage design for the site is based on the principals of current best practice for SuDS and is shown on the latest revision to Thomas Consulting's drainage drawings.

1.1 SuDS Components

All water from roofs, driveways and highways is to be collected via rainwater pipes, gullies and linear drainage channels and then transported by a network of underground pipes and attenuated in oversize pipes of 900mm diameter beneath the highway and an offline Geocellular Attenuation tank located beneath public open space at the west of the site.

The geocellular system is to be maintained by a maintenance company employed by the developer, while the oversize pipes and Hydrobrake beneath the highway are to be offered for adoption under a Section 104 agreement with United Utilities.

2 OPERATION AND MAINTENANCE REQUIREMENTS

As with all traditional drainage systems, SuDS need to be inspected and maintained regularly to ensure that they operate correctly and efficiently. If SuDS are not properly maintained, then there is a risk that the components become overloaded during periods of prolonged heavy rainfall potentially resulting in localised flooding within the development. Recommendations for the maintenance of the SuDS components are detailed in the following section.

As part of this process it is recommended that inspection and maintenance records are retained by the Management Company to track the progressive performance of the SuDS over time. The inspection records should include the following:

Sediment condition and depth

Water observations (sheen, smell, etc.)

Unscheduled maintenance needs

Components that do not meet performance criteria and require immediate maintenance

Common problem areas, solutions and general observations

Aesthetic conditions

For Health and Safety reasons as well as practicality, SuDS systems should be maintained during periods of dry weather wherever possible. Adhering to the recommended maintenance regimes outlined below will minimise the risk of maintenance activities being required when a fault becomes apparent, usually during a rainfall event.

2.1 Private Geocellular Attenuation System

All water from roofs, driveways and highways is to be collected via rainwater pipes, gullies and drainage channels transported by a network of underground pipes and attenuated in oversize pipes of 900mm diameter beneath the highway and an offline Geocellular Attenuation tank.

This tank will be protected from sediment loads by the use of sealed rainwater downpipes and an upstream proprietary silt trap with removable silt box. The geocellular tank will be wrapped in an impermeable geotextile.

The following operation and maintenance requirements refer to the recommendations in The SUDS Manual (CIRIA C753), Section 13 [1] and from the manufacturer. The maintenance of the system is to be maintained by a maintenance company employed by the property owner.

Table 2.1 Attenuation system maintenance activities and schedule

Maintenance Schedule	Required Action	Recommended Frequency
Regular maintenance	Inspect and identify any areas upstream of the system that are not operating correctly (i.e. rainwater pipe gullies, silt traps, inspection chambers, drainage channels). If required, take remedial action	Monthly for first 3 months, then six monthly thereafter
	Remove debris from any upstream catchment surfaces (may cause risks to performance)	Monthly for first 3 months, then six monthly thereafter (and after large storm events)
	Visual inspection of silt traps to ensure no obvious build-up of silt or other blockages. Remove silt box from silt trap and clean. Check to ensure there is no standing water in the chambers	Monthly for first 3 months, then six monthly thereafter (and after large storm events)
Remedial actions	Repair/rehabilitation of inlets, outlets and vents. De-silt as required.	As required
Monitoring	Inspect/check all upstream drainage inlets, outlets and gullies to ensure that they are in good condition and operating effectively	Annually and after large storm events
	Check tank to ensure emptying is occurring	Annually

3 REFERENCES

[1] CIRIA, *The SUDS Manual*, Report C753, 2015