

# SUDS MAINTENANCE MANUAL FOR PROPOSED DEVELOPMENT AT THE STEDDLES YAPTON

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## 1. Introduction

- 1.1. This document has been prepared by Cowan Consultancy Limited (CCL) on behalf of Elberry Properties for the proposed development to the land at The Steddles in Yapton.
- 1.2. This document sets out the principles for the long term management and maintenance of the proposed surface water Sustainable Drainage Systems (SuDS) installed at the residential development.
- 1.3. The purpose of this document is to ensure that the Management Company and managing agent entrusted with the inspection and maintenance of the SuDS will adopt the measures and programme set out in this document to ensure the optimum operation of the surface water drainage network and as such will form part of the brief provided to the managing agents. The SuDS are to be continuously maintained over the lifetime of the development to prevent the increased risk of flooding both on and off site.
- 1.4. On completion of the development, a Management Company will be formed, with residents of the development making up the board of directors. The Management Company will appoint a managing agent who will be responsible for maintaining SuDS and all other communal aspects of the development. The Management Company will be funded by an annual contribution from the residents of the development the amount of which will be calculated by the managing agent. Components of the SuDS system will be replaced in line with manufacture's recommendations at the Management Company's.
- 1.5. The guidance notes here provided have been comprised of and are directly referenced from the latest technical SuDS guidance within the CIRIA C753 Report *The SuDS Manual* (2015) and other applicable guidance. This document sets out specific sections applicable to the relevant SuDS type itemising:
1. A description of the SuDS component and its use;
  2. The maintenance requirements and frequencies; and
  3. The inspection requirements and frequencies.

1.6. The activities listed are generic to the relative SuDS types and represent the minimum maintenance and inspection requirements, however additional tasks or varied maintenance frequency may be instructed by the maintenance company as required. Rubbish and debris removal is also an integral part of SuDS maintenance, especially with regards to surface features and the reduction of the risks of inlet and outlet blockages.

1.7. Specific maintenance needs of the SuDS elements should be monitored and maintenance schedules adjusted to suit requirements.

1.8. All those responsible for maintenance should follow relevant health and safety legislation for all activities listed within this report (including lone working, if relevant) and risk assessments should always be undertaken.

1.9. This report is to read in conjunction with CCL drawing '424795/01 and 02: Drainage GA layout and details for the location of all SuDS on this site.

1.10. There are three categories of maintenance activities referred to in this report:

- **Regular maintenance** (including inspections and monitoring) – consisting of basic tasks done on a frequent and predictable schedule, including inspections and monitoring, silt or oil removal if required more frequently than once per year, vegetation management, rubbish and debris removal, and sweeping of surfaces. Regular maintenance/inspections of SuDS will help to:

- determine optimum future maintenance;
- establish ongoing hydraulic, water quality, amenity and biodiversity performance of the system; and
- allow for the identification of potential performance failures, such as blockage, reduced infiltration and poor water quality resulting from lack of maintenance.

- **Occasional maintenance** – comprising tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks such as sediment management/removal; and

- **Remedial maintenance** – comprising of intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by regular and adequate maintenance activities. Remedial maintenance is likely to comprise of activities such as:

- erosion repairs which can include inlets and outlets;
- reinstatement or realignment of edgings, barriers, rip-rap or other erosion control;
- infiltration surface rehabilitation;
- replacement of blocked filter materials/fabrics;
- construction stage sediment removal (although this activity should have been undertaken before the start of the maintenance contract); and
- system rehabilitation (although unlikely) immediately following a pollution event.

Remedial activities are not expected to be required for all systems, however, for the purpose of estimating whole life maintenance costs, a contingency sum of 15–20% should be added to the annual regular and occasional maintenance costs to cover the risk of these activities being required. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.

- 1.11. During the first year of operation inspections should usually be carried out at least monthly to all types of SuDS, and after significant storm events, to ensure that the system is functioning as designed and that no damage is evident.

## 2. SuDS Layout and Design

SuDS are an environmentally friendly approach to managing rainfall through the use of landscape features to conceal the surface water and its surroundings. The use of SuDS aims to: control the flow, volume and frequency of water leaving a development area; prevent pollution by intercepting silt and cleaning runoff from hard surfaces; provide attractive surroundings for the community, and; create, whenever possible, opportunities for wildlife.

The SuDS at The Steddles were designed to prevent flooding of Land on the site itself and adjacent areas and control discharge via underground drainage systems. There are four main SuDS components incorporated within the surface water drainage strategy:

1. Permavoid Stormwater units (Soakaway)
2. Permeable parking areas

2.1. The Permavoid soakaway *tanking*, positioned within the driveway area will be used as the main SuDS system catering for the surface water of the building roof and the road hard standing. Stormwater systems do not provide direct treatment of surface water runoff, therefore, the system will be combined in a Management Train with other methods to provide suitable treatment.

- Drainage will be carried via drain pipe connected to manholes and subsequently to the soakaways;
- Storage will be provided by Permavoid units (or similar approved voided units);
- Surface water treatment will be carried out on the sump manhole preceding the soakaway;
- All manholes preceding the soakaway will incorporate a silt trap;
- The system has been designed for the 1 in 100 years, including extra 40% allowance for climate change, design storm as required by current regulations.

2.2. The permeable surfacing on the site will be constructed using a permeable block system incorporating permeable concrete Aquaflo blocks. These permeable areas will be utilised to drainage the access roads into the site and between the permeable gravel surfaced parking bays. The attenuation of this system including the calculated depth of voided storage will provide adequate surface water treatment levels as detailed within the drainage assessment report.

### 3. SuDS Maintenance and Management

#### 3.1. SUDS items

3.1.1. Rubbish, debris and gravel removal should be undertaken as part of general pavement maintenance for the site.

3.1.2. Replacement of the aggregate or Permavoid units will be necessary if the system becomes blocked with silt, monitoring will give information on possible changes.

3.1.3. Table 3.2 provides guidance on the type of operational and maintenance requirements. The list of actions is not exhaustive and some actions may not always be required.

3.1.4. Specific maintenance needs of the SUDS should be monitored, and maintenance schedules adjusted to best suit site requirements.

3.1.5. Maintenance responsibility for systems should be placed with either a responsible organisation such as a management company or property owners served by the so

#### *Soakaway tanking operation and Maintenance Requirements*

| <i>Maintenance Schedule</i>   | <i>Required action</i>                                                                                                              | <i>Typical frequency</i>                    |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <b>Regular maintenance</b>    | Inspect for sediment and debris in pre-treatment components and floor of inspection tube, sump or chamber and inside of crate units | Annually                                    |
|                               | Cleaning of gutters and any filters on downpipes                                                                                    | Annually or as required                     |
|                               | Trimming any roots that may be causing blockages                                                                                    | Annually or as required                     |
| <b>Occasional maintenance</b> | Remove sediment and debris from pre-treatment components and floor of inspection tube, sump or chamber and inside of crate units    | As required, based on inspections           |
| <b>Remedial actions</b>       | Reconstruct attenuation unit / soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs            | As required                                 |
| <b>Monitoring</b>             | Inspect silt traps and note rate of sediment accumulation                                                                           | Monthly in the first year and then annually |
|                               | Check Attenuation tank to ensure emptying is occurring                                                                              | Annually                                    |

*Permeable Pavement operation and Maintenance Requirements*

| <i>Maintenance Schedule</i>   | <i>Required action</i>                                                                                                                                                               | <i>Typical frequency</i>                                      |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>Regular maintenance</b>    | Remove rubbish and debris                                                                                                                                                            | Monthly, or as required                                       |
|                               | Remove any vegetation growth                                                                                                                                                         | Monthly (during growing season), or as required               |
|                               | Manage other vegetation and remove nuisance plants                                                                                                                                   | Monthly at start, then as required                            |
|                               | Inspect inlets, outlets and overflows for blockages, and clear if required                                                                                                           | Monthly                                                       |
|                               | Inspect vegetation coverage                                                                                                                                                          | Monthly for 6 months, quarterly for 2 years, then half yearly |
|                               | Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies                                                                            | Biannual                                                      |
| <b>Occasional maintenance</b> | Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying                                                                | As required - once per year on less frequently used pavements |
| <b>Remedial actions</b>       | Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving                                             | As required                                                   |
|                               | Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material | As required                                                   |
|                               | Rehabilitation of surface and upper substructure by remedial sweeping                                                                                                                | As required                                                   |
|                               | Remove build-up of sediment on areas running off into permeable areas                                                                                                                | As required                                                   |
|                               | Remove and dispose of oils or petrol residues using safe standard practices                                                                                                          | As required                                                   |

Prepared by:

Elvin Gomery | BEng (Hons)

Senior Structural Engineer

Approved by:

David Button BSc CEng MICE

Principal Engineer

Managing Director

Ref.: 424795

Proposed Development The Steadies, Yapton

SuDS Maintenance &amp; Management Plan

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