

## Appendix L

### SW Drainage Maintenance Schedule

This schedule sets out the inspection and maintenance requirements for long term management of the development's surface water drainage system. This work is to be undertaken by the Client.

All those responsible for maintenance should take appropriate health, safety and welfare precautions for all activities including lone working, if relevant, and risk assessments should always be undertaken. The site's infrastructure Health and Safety File should be consulted before carrying out any works either inside or outside of the development's boundary and information regarding the location of existing utilities passed on to operatives.

The requirements of the Health and Safety at Work Act 1974 and The Construction (Design and Management) Regulations 2015 should be adhered to and any residual risks identified in the Health and Safety File should be managed and information passed on to maintenance operatives through task specific risk assessments.

There are three types of maintenance activities associated with surface water drainage systems.

The SuDS Manual, CIRIA C753, defines these as:

- Regular Maintenance – *'basic tasks undertaken on a frequent and predictable schedule' including vegetation management, litter and debris removal, and inspections.'*
- Occasional Maintenance – *'tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).'*
- Remedial Maintenance – *'intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. 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.'*

## SuDS Components Operation and Maintenance Activities

| Operation and Maintenance activity   | SuDS component                                                                                               |         |                 |                    |          |                     |              |                 |                   |                          |              |             |                               |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------|---------|-----------------|--------------------|----------|---------------------|--------------|-----------------|-------------------|--------------------------|--------------|-------------|-------------------------------|
|                                      | (Components shown thus 'Wetland' are not relevant to the project for which this schedule has been compiled.) |         |                 |                    |          |                     |              |                 |                   |                          |              |             |                               |
|                                      | Pond                                                                                                         | Wetland | Detention basin | Infiltration basin | Soakaway | Infiltration Trench | Filter Drain | Modular Storage | Pervious Pavement | Swale/bioretention/trees | Filter Strip | Green Roofs | Proprietary Treatment Systems |
| Regular maintenance                  |                                                                                                              |         |                 |                    |          |                     |              |                 |                   |                          |              |             |                               |
| Inspection                           | ■                                                                                                            | ■       | ■               | ■                  | ■        | ■                   | ■            | ■               | ■                 | ■                        | ■            | ■           | ■                             |
| Litter and debris removal            | ■                                                                                                            | ■       | ■               | ■                  | □        | ■                   | ■            | □               | ■                 | ■                        | ■            |             | □                             |
| Grass cutting                        | ■                                                                                                            | ■       | ■               | ■                  | □        | ■                   | ■            | □               | □                 | ■                        | ■            |             |                               |
| Weed and invasive plant control      | □                                                                                                            | □       | □               | □                  |          | □                   | □            |                 | □                 |                          | □            | ■           |                               |
| Shrub management (including pruning) | □                                                                                                            | □       | □               | □                  |          |                     |              |                 | □                 | □                        | □            |             |                               |
| Shoreline vegetation management      | ■                                                                                                            | ■       | □               |                    |          |                     |              |                 |                   |                          |              |             |                               |
| Aquatic vegetation management        | ■                                                                                                            | ■       | □               |                    |          |                     |              |                 |                   |                          |              |             |                               |
| Occasional maintenance               |                                                                                                              |         |                 |                    |          |                     |              |                 |                   |                          |              |             |                               |
| Sediment management <sup>1</sup>     | ■                                                                                                            | ■       | ■               | ■                  | ■        | ■                   | ■            | ■               | ■                 | ■                        | ■            |             | ■                             |
| Vegetation replacement               | □                                                                                                            | □       | □               | □                  |          |                     |              |                 |                   | □                        | □            | ■           |                               |
| Vacuum sweeping and brushing         |                                                                                                              |         |                 |                    |          |                     |              |                 | ■                 |                          |              |             |                               |
| Remedial maintenance                 |                                                                                                              |         |                 |                    |          |                     |              |                 |                   |                          |              |             |                               |
| Structure rehabilitation /repair     | □                                                                                                            | □       | □               | □                  | □        | □                   | □            | □               | □                 | □                        | □            | □           |                               |
| Infiltration surface reconditioning  |                                                                                                              |         |                 | □                  | □        | □                   | □            |                 | □                 | □                        | □            |             |                               |

■ Will be required      □ May be required

<sup>1</sup> Sediment should be collected and managed in pre-treatment systems, upstream of the main device.

## Piped Network / Chambers

| Piped Network/Chambers Maintenance Schedule | Required Action                                                                                                                         | Typical Frequency                          |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Regular Maintenance                         | Inspect and identify any features that are not operating correctly. If required take remedial action                                    | Monthly for three months, then six monthly |
|                                             | Debris removal from catchment surface / gratings (where may cause risks to performance)                                                 | Monthly (and after large storms)           |
|                                             | Remove sediment from trapped sumps, manholes and catchpits.                                                                             | Annually or as required                    |
| Remedial Maintenance                        | Repair / rehabilitation of gratings, inlets and outlets                                                                                 | As required                                |
| Monitoring                                  | Inspect / check all gratings, trapped sumps, manholes and catchpits to ensure that they are in good condition and operating as designed | Annually and after large storm events      |
| Structure Rehabilitation / Repair           | Regular Maintenance and Monitoring to identify if repair and / or replacement of features or pipework is required.                      | As required                                |

## Permeable Pavements

| Permeable Pavement Maintenance Schedule | Required Action                                                                                                                                                                                                        | Typical Frequency                                                                                                                                                                                                                                                                                      |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regular Maintenance                     | Brushing and vacuuming (standard cosmetic sweep over the whole surface). Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material if present. Any lost material should be replaced. | Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturers' recommendations – pay particular attention to areas where water runs from adjacent impermeable areas as this area is most likely to collect the most sediment |
| Occasional Maintenance                  | Stabilise and mow contributing and adjacent areas.                                                                                                                                                                     | As required.                                                                                                                                                                                                                                                                                           |
|                                         | Removal of weed or management using glyphosate applied directly to the weeds by an applicator rather than spraying.                                                                                                    | As required – once per year on less frequently used pavements                                                                                                                                                                                                                                          |
| Remedial Maintenance                    | Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.                                                                               | As required                                                                                                                                                                                                                                                                                            |
|                                         | Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structured performance or a hazard to users, and replace lost jointing material.                                  | As required                                                                                                                                                                                                                                                                                            |
|                                         | Rehabilitation of surface and upper substructure by remedial sweeping                                                                                                                                                  | Every 10 to 15 year or as required (if infiltration and                                                                                                                                                                                                                                                |

|                                                                                            |                                                                                                  |                                                                                      |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                                                                                            |                                                                                                  | filtration performance is reduced due to significant clogging)                       |
| Monitoring                                                                                 | Initial inspection                                                                               | Monthly for three months after installation                                          |
|                                                                                            | Inspect for evidence of poor operation and / or weed growth - If required, take remedial action. | Three-monthly, forty-eight hours after large rainfall events in the first six months |
|                                                                                            | Inspect silt accumulation rates and establish appropriate brushing frequencies                   | Annually                                                                             |
|                                                                                            | Monitor inspection chambers                                                                      | Annually                                                                             |
| The SuDS Manual Table 20.15: Operation and maintenance requirements for pervious pavements |                                                                                                  |                                                                                      |

## Appendix M

# Local Drainage Planning Policy applicable to the development

### National Guidance

- 2.1** The frequency and severity of river flooding is perceived to have increased in recent years and in an attempt to mitigate the flood risk the Government published Planning Policy Statement Note 25: Development and Flood Risk (PPS25) in December 2006. PPS25 detailed the importance of the effective management and reduction of flood risk in the land use planning process and attempted to address the issue of climate change. This has since been superseded by the National Planning Policy Framework and the supporting technical guidance.
- 2.2** Traditionally surface water runoff from developments has been conveyed by pipe systems to the nearest watercourse or sewer. This tends to increase the rate and volume of the run off often leading to flooding downstream of the new development. Latest policy promotes the use of sustainable urban drainage systems (SuDS) whereby the control of run off is to be as close to source as possible. This can be achieved by utilising techniques which mimic the natural drainage processes, the use of direct infiltration for example. The Environment Agency will, in general, seek to restrict the allowable discharge from a new development to that previously expected from the undeveloped land.
- 2.3** The requirements of the revised Building Regulations which came into force on 1st April 2002 are that adequate provision should be made for dealing with rainwater from the roofs of buildings and certain paved areas providing access to the buildings. Run off from such drainage systems are to be discharged to one of the following systems listed in order of priority:-
- A soakaway or other infiltration system
  - A watercourse
  - A sewer or drain
- 2.4** The revised Building Regulations were drafted to reinforce the requirements for SuDS wherever possible.
- 2.5** The Requirements of a Flood Risk Assessment:
- 2.5.1** A Flood Risk Assessment is required in order to ascertain whether a development will exacerbate the risk of flooding elsewhere in the catchment or is at risk of flooding itself.
- 2.5.2** A site specific FRA is required for: -
- Proposals of 1 Hectare or greater situated in Flood Zone 1

- New development (including minor development and change of use) located in areas of Flood Zone 1 that have critical drainage problems
- New development (including minor development and change of use) located in areas of Flood Zones 2 & 3.

## **Local Policies**

**2.6** The Borough of Havant Core Strategy (BHCS) dated March 2011 which forms part of the Local Plan outlines the different requirements of new developments. The requirements of the BHCS relating to flood risk (Policy CS15 Flood and Coastal Erosion Risk) states:

Development in areas at risk of flooding now and in the future as identified on the latest Environment Agency flood risk maps and Strategic Flood Risk Assessment climate change maps will only be permitted where:

1. It meets the sequential and exception test (where required) in relation to PPS25.
2. The site is located in a low hazard area as defined in the Strategic Flood Risk Assessment.
3. A site-specific flood risk assessment demonstrates that the development will be safe, including the access, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
4. The scheme incorporates flood protection, flood resilience and resistance measures appropriate to the character and biodiversity of the area and the specific requirements of the site.
5. Appropriate flood warning and evacuation plans are in place.
6. New site drainage systems are designed taking account of events which exceed the normal design standard.

All development will be required to ensure that there is no net increase in surface water run off. Priority should be given to incorporating Sustainable Drainage Systems (SuDS) to manage surface water drainage, unless it is proven that SuDS are not appropriate. Where SuDS are provided arrangements must be put in place for their whole life management and maintenance.

The council will work with partners to implement the Coastal Policy Zones in the North Solent Shoreline Management Plan to ensure that development avoids areas at risk from coastal erosion and coastal flooding and that areas required to offset coastal squeeze and prevent habitat fragmentation, to allow species to adapt to climate change, are identified and protected from development.