

**34-38 Southampton Street  
Reading, Berkshire**

## **Sustainable Drainage: Implementation, Maintenance and Management Plan**

**Project No. W01869**

Discharge of Condition 19, Planning Application No: 181117



**Prepared by: .....**

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Structural  
Engineering



Civil  
Engineering



CDM  
Consultants



Sustainability  
and BREEAM



Traffic and  
Transport



Flood Risk  
Assessments



Highway  
Engineering



Event  
Engineering

## Issue and Amendment Record:

| Revision | Comment/Amendment            | Prepared | Reviewed | Approved | Date      |
|----------|------------------------------|----------|----------|----------|-----------|
| -        | Initial Issue                | RDH      | RH       | RDH      | 21/2/2020 |
| A        | Incorporated Client Comments | RDH      | RH       | RDH      | 25/2/2020 |
|          |                              |          |          |          |           |
|          |                              |          |          |          |           |
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## 1.0 Introduction

- 1.1** Planning Permission 181117 for the redevelopment of 34-38 Southampton Street approved a Drainage Statement (Ref: W01869 Rev A) for the site, authored by Scott White and Hookins LLP. This report has been written to discharge condition 19 of the planning permission dated 12<sup>th</sup> August 2019 which states:

1. No development (barring demolition) shall take place until details of the implementation, maintenance and management plan of the sustainable drainage scheme (in accordance with the submitted and approved strategy details within the Drainage Statement by Scott White and Hookins Ref W01869 Rev A dated and received 22/06/18) have been submitted to and approved by the Local Planning Authority. The details shall include:

- i. a timetable for its implementation, and
- ii. a management and annual maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

The approved sustainable drainage scheme shall be completed prior to the first occupation of any residential unit hereby approved and thereafter managed and maintained in accordance with the approved plan/details.

Reason: To ensure that the development contributes adequately towards environmental sustainable urban drainage, in accordance with Policy CS1 of the

Reading Borough LDF Core Strategy 2008 (Altered 2015) and Policy DM1 of the Sites and Detailed Policies Document 2012 (Altered 2015).

- 1.2** This report has been prepared in accordance with the NPPF and the accompanying Planning Practice Guidance.

## **2.0 Site Proposals**

- 2.1** The site is located close to the centre of Reading.
- 2.2** The site comprises of the former Red Lion Public House, and a residential unit at no. 38.
- 2.3** The proposal is to demolish the existing buildings and redevelop with a new block of residential apartments.

## 3.0 Implementation

### 3.1 Onsite Drainage

- 3.1.1 The existing site has drainage connected to the adopted Thames Water drain in Southampton Street.
- 3.1.2 The proposal is to renew all the drainage within the site, and connect to the existing off-site drainage network, utilising Sustainable Drainage techniques, in accordance with the approved Drainage Strategy (W01869 Rev A) for the planning permission 181117

### 3.2 Build Programme

- 3.2.1 It is proposed, that following discharge of conditions, demolition of the existing buildings on site will commence late spring 2020.
- 3.2.2 New build construction will likely commence in mid to late summer 2020
- 3.2.3 As part of the works the appointed contractor will need to consider the sequencing of the works to ensure that the tasks undertaken on site do not detrimentally affect the operation of the SUDS systems to be installed.
  - 1. Coordinating installation of the tank to avoid loading and potentially damaging the structural integrity from scaffolding and deliveries.
  - 2. Install the permeable paving and sub-base at the appropriate time within the programme to ensure site debris does not contaminate the build-up.
  - 3. Suitable protection is provided to any installed SUDS apparatus, ie RWP stub stacks are capped until final connection to avoid debris entering the attenuation tank, piped network and hydrobrake flow control.
- 3.2.4 All works will be installed in accordance with the drainage layout submitted as part of planning application 181117. Please see **Appendix A** for this layout.
- 3.2.5 It is anticipated that the new build construction will take approximately 15 months on site.

## 4.0 Maintenance

- 4.1** This section 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 a private maintenance company.
- 4.2** 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.
- 4.3** 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.
- 4.4** 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).*  
The frequencies will in accordance with detail provided in the following tables.
  - 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).'*  
Occasional maintenance frequency is dependent on many environmental factors and will be identified by the regular inspection/maintenance process.
  - 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.'*

| Operation and Maintenance Activity                                                                         | SuDs Component                      |                            |                    |
|------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------|--------------------|
|                                                                                                            | Piped Network / Inspection Chambers | Cellular / Modular Storage | Permeable Pavement |
| <b>Regular Maintenance</b>                                                                                 |                                     |                            |                    |
| Inspection                                                                                                 | ■                                   | ■                          | ■                  |
| Litter and debris removal                                                                                  | ■                                   | □                          | ■                  |
| Grass cutting                                                                                              |                                     | □                          | □                  |
| Weed and invasive plant control                                                                            |                                     |                            | □                  |
| <b>Occasional Maintenance</b>                                                                              |                                     |                            |                    |
| Sediment management                                                                                        | ■                                   | ■                          | ■                  |
| Vacuum sweeping and brushing                                                                               |                                     |                            | ■                  |
| <b>Remedial Maintenance</b>                                                                                |                                     |                            |                    |
| Structure rehabilitation/ repair                                                                           | □                                   | □                          | □                  |
| Infiltration surface reconditioning                                                                        |                                     |                            | □                  |
| <div> <span>■ Will be required</span> <span>□ May be required</span> </div>                                |                                     |                            |                    |
| Extract from The SuDs Manual Table 32.1 : Typical key SuDs components operation and maintenance activities |                                     |                            |                    |

| 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                                |

| <b>Permeable Pavement Maintenance Schedule</b>                                             | <b>Required Action</b>                                                                                                                                                                                                 | <b>Typical Frequency</b>                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                        |

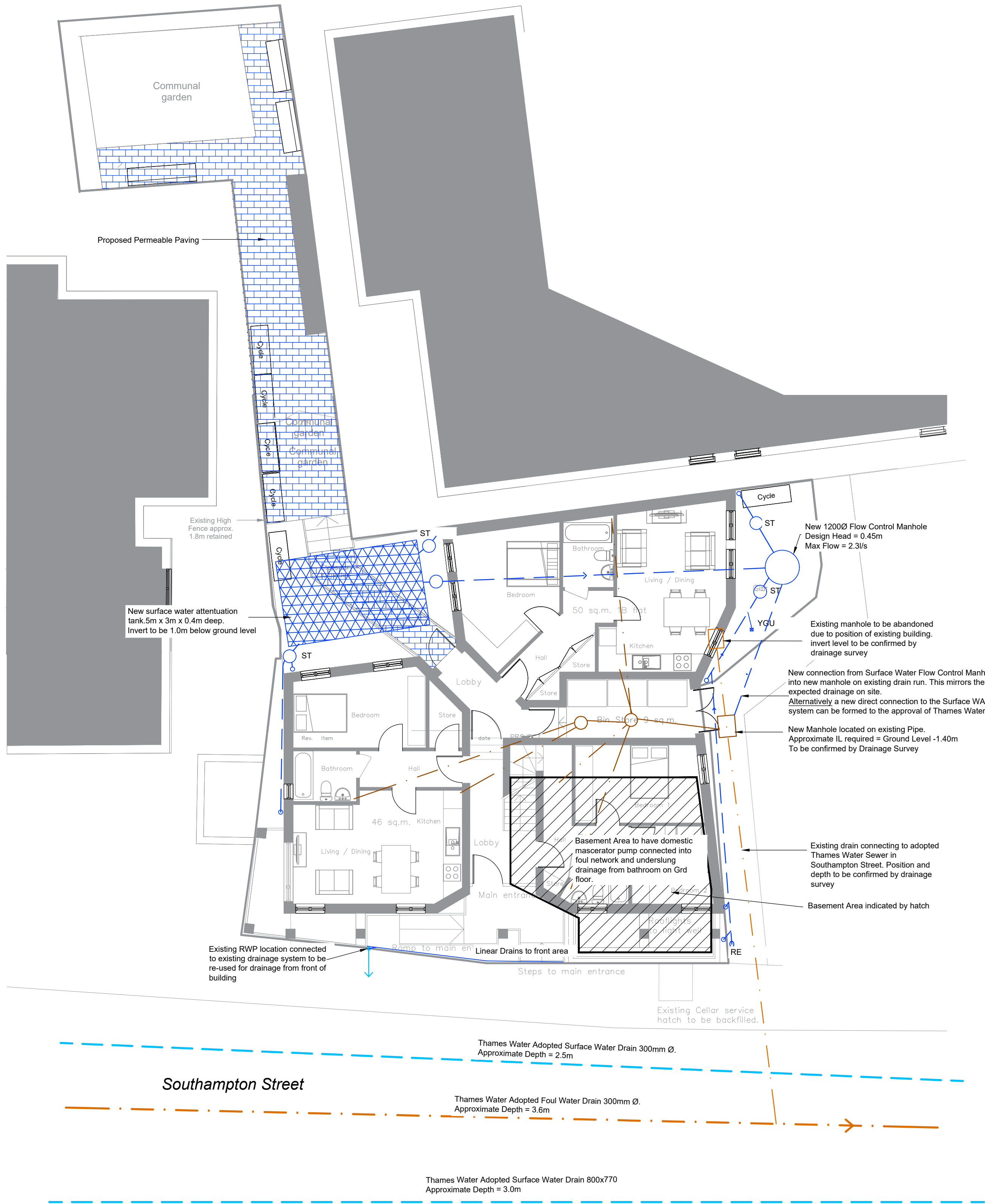
| <b>Cellular Storage Maintenance Schedule</b>                                                     | <b>Required Action</b>                                                                                                       | <b>Typical Frequency</b>                 |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Regular Maintenance                                                                              | Inspect and identify any features that are not operating correctly. If required take remedial action                         | Monthly for three months, then annually. |
|                                                                                                  | Remove debris from catchment surface (where may cause risks to performance)                                                  | Monthly                                  |
|                                                                                                  | Remove debris from catchment surface (where may cause risks to performance)                                                  | Annually or as required                  |
| Remedial Maintenance                                                                             | Repair / rehabilitate inlets, outlets, overflows and vents                                                                   | As required                              |
| Monitoring                                                                                       | Inspect / check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed | Annually and after large storm events    |
|                                                                                                  | Survey inside of tank for sediment build-up and remove if necessary                                                          | Every 5 years or as required             |
| Structure Rehabilitation / Repair                                                                | Regular Maintenance and Monitoring to identify if repair and / or replacement of storage units is required.                  | As required                              |
| The SuDS Manual Table 21.3: Operation and maintenance requirements for attenuation storage tanks |                                                                                                                              |                                          |

## **5.0 Management**

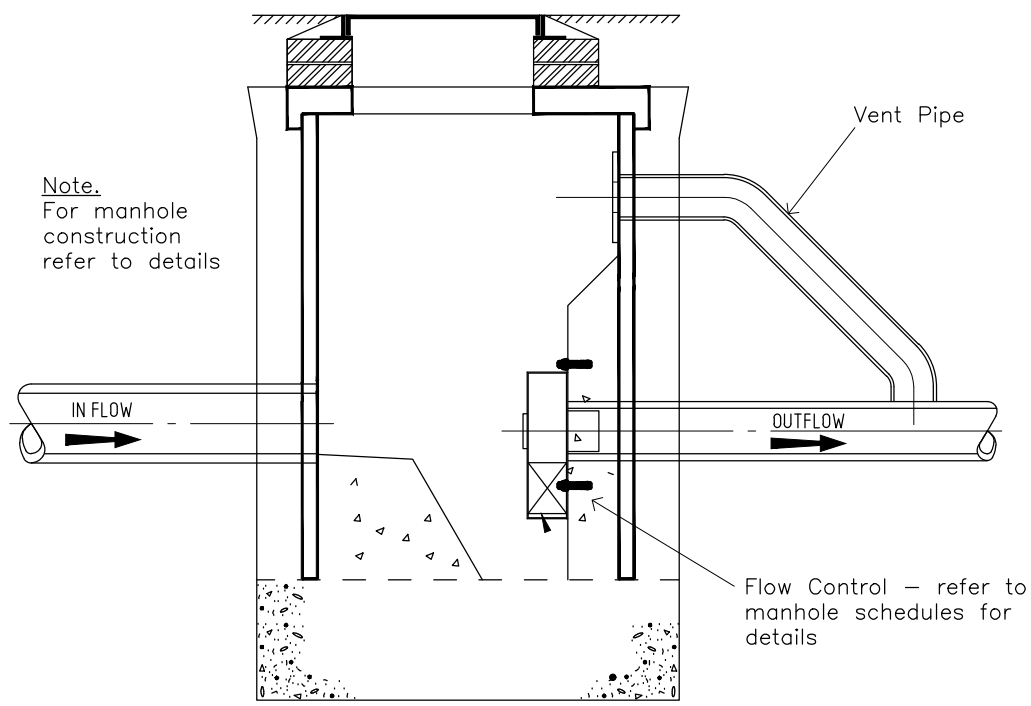
- 5.1** The development will be flats for rental, and therefore upon occupation the Client will coordinate with the residents a management strategy to provide upkeep and maintenance of the common areas of the site.
- 5.2** A management company will be created/appointed to oversee appropriate ongoing maintenance requirements.
- 5.3** This will include the ongoing maintenance of the below drainage systems, including the Sustainable Drainage apparatus, and should be scheduled as per the Maintenance Strategy as laid out in Section 4 of this document.
- 5.4** Final details of this management structure will not be known until occupation has occurred and agreed with the residents, The Client will ensure that any maintenance requirements will be undertaken prior to agreement of the final structure.

## **6.0 Appendices**

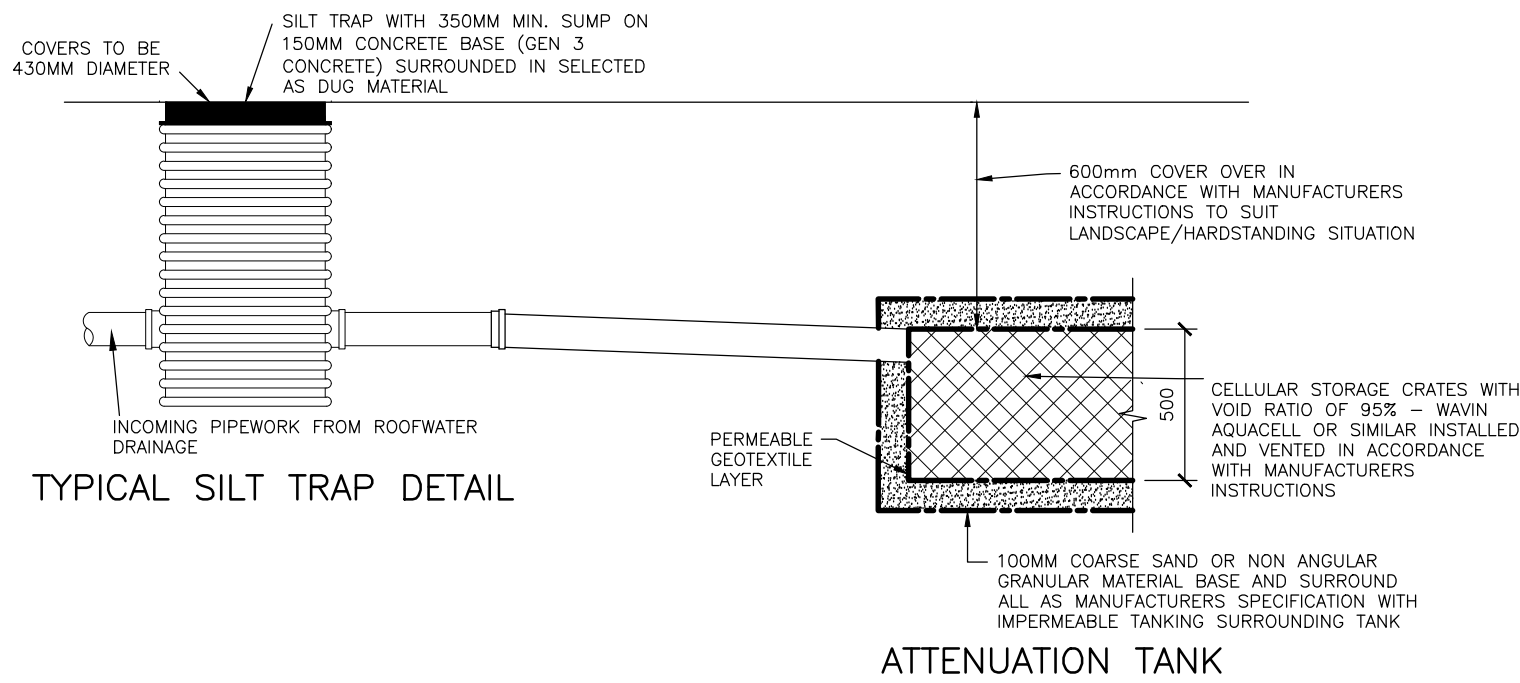
### **Appendix A** **Drainage Layout**



Proposed Drainage Strategy Layout  
Scale 1:100



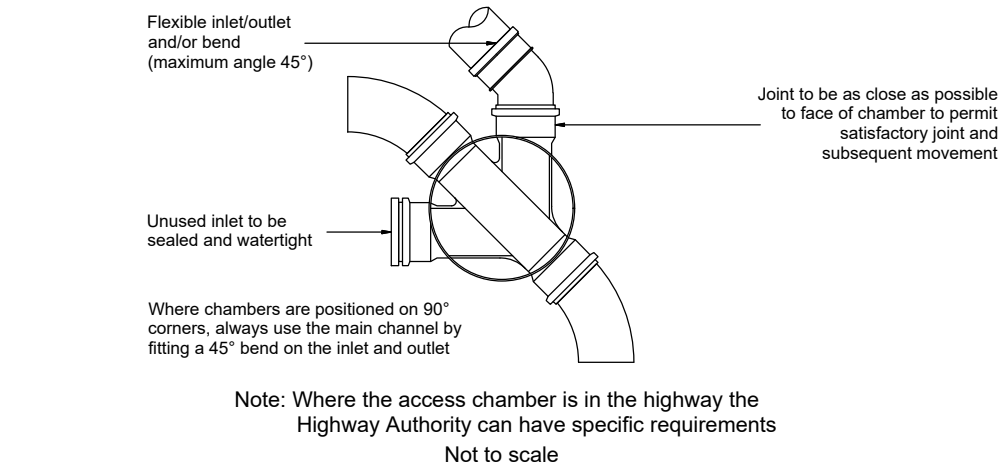
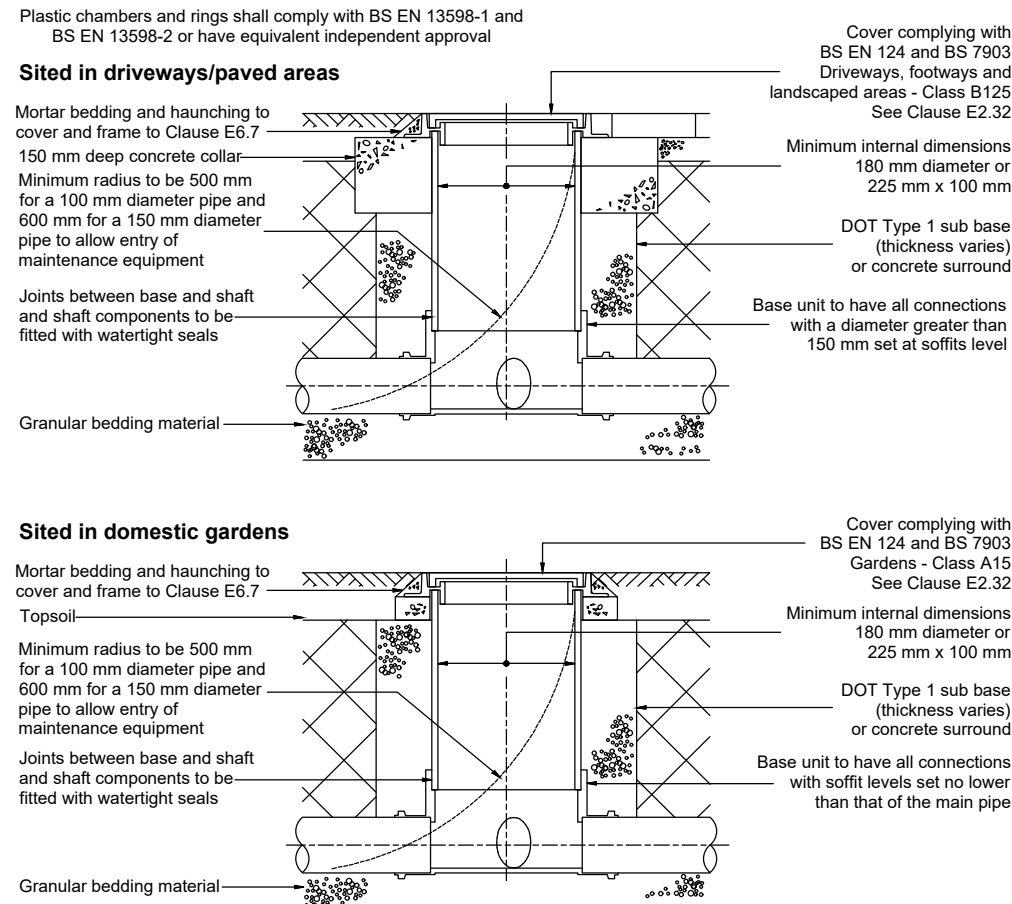
SECTION  
PRECAST CONCRETE FLOW CONTROL  
CHAMBER WITH HIGH LEVEL OVERFLOW



TYPICAL SILT TRAP DETAIL

ATTENUATION TANK

FIGURE B.21  
TYPICAL INSPECTION CHAMBER DETAIL - TYPE 4 (Flexible material detail)  
Maximum depth from cover level to soffit of pipe 2 m, non-entry



## Notes

### DRAINAGE

- Any information given on this drawing regarding existing services is believed to be correct. The contractor must check this information and determine the nature and location of other existing services from the various statutory authorities before commencing excavation works.
- Drainage works to be constructed in accordance with BS EN 752 and Approved Document H
- All soft spots and unacceptable material encountered in drainage excavations is to be removed and replaced with granular material to the requirements of the building control officer.
- Pipes to be installed to manufacturers recommendations.
- Pipes under buildings to be laid to a fall of 1:40 minimum unless noted otherwise.
- Plastic plain wall pipes to be PVC-U to BS EN 1401-1, class SN4, with flexible joints, Kitemark certified. Structured wall plastic pipes to be WIS 04-35-01, Kitemark certified
- Clay pipes to be vitrified clay to BS EN 295-1, with flexible joints, Kitemark certified. Clayware pipes must be extra strength classification protected in accordance with the specified details.
- Concrete pipes to be precast concrete to BS 5911-1 and BS EN 1916, with flexible joints.
- Bedding of pipes to be in accordance with approved document H1.
- Rocker pipes with flexible joints are to be provided at a distance of 150mm and 750mm from the face of construction to manholes, where pipes pass above, below or through ground beams or foundations; at gully connections and soil stack ends.
- Manhole access covers are to be located at the outgoing side of manholes.
- Cover levels are to be fixed on site to suit finished levels. Covers and frames to BS EN124, Grade D to be used in areas subject to heavy vehicular loading, Grade C in areas subject to light vehicular loading and Grade B to be used elsewhere.

RE = Rodding Eye  
ST = Silt Trap Manhole  
YGU = Yard Gully

## HAZARDS LEADING TO UNUSUAL OR SIGNIFICANT RISKS DURING THE CONSTRUCTION PROCESS ARE IDENTIFIED ON THIS DRAWING AS:

NOTE: THE LIST BELOW IDENTIFIES CERTAIN RISKS WHICH ARE DEEMED TO BE UNUSUAL, ABNORMAL OR UNEXPECTED TO A COMPETENT CONTRACTOR CARRYING OUT WORK OF THIS NATURE BUT DOES NOT COVER ALL POSSIBLE SITUATIONS WHICH MAY BE ENCOUNTERED DURING THE CONSTRUCTION PROCESS. IT IS THEREFORE THE MAIN CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ANY FURTHER RISKS/HAZARDS AND TAKE APPROPRIATE ACTION.

### RISKS/HAZARDS SPECIFIC TO THIS DRAWING:

- All services to be located prior to any excavation works

## PRELIMINARY - NOT FOR CONSTRUCTION

|      |                           |      |       |       |          |
|------|---------------------------|------|-------|-------|----------|
| P02  | Ground Floor Plan Amended | RDH  | RH    | RDH   | 22.06.18 |
| P01  | Initial Issue             | RDH  | RH    | RDH   | 21.06.18 |
| Rev. | Amendment                 | Orn. | Chkd. | Appd. | Date     |

Project

## 34-38 Southampton Street Reading

Drawing

## Drainage Strategy Drawing

Client  
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Scale at A1 - 1:2

**W01869-SWH-ZZ-EA-DR-C-0100-P02**  
Project | Originator | Zone | Level | Type | Role | Number | Rev.

CP004-01\_FM\_ST\_008\_0

DO NOT SCALE FROM THIS DRAWING