

Draft Drainage Maintenance and Management Schedule



The Civil Engineering Practice
11 Tungsten Building
George Street
Fishersgate
Sussex
BN41 1BA

Project	Stakers Farm, 3 Dwelling Barn Conversions
Project Number	23452
By	Stuart Magowan
Date	30 October 2024

1 Introduction

- 1.1 This draft Drainage Management and Maintenance Schedule has been prepared as the initial draft of the Document that will become the Drainage Maintenance and Management Manual.
- 1.2 The Drainage Maintenance and Management Manual will be completed as part of the Operation and Maintenance Manual to be provided by the Principal Contractor on completion of construction.
- 1.3 This is a live document and will be added to through the final design, construction and handed over to the Management company on completion where it will be used to guide and record the maintenance and management of the site surface water SuDS system.

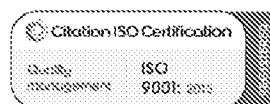
2 The Site Sustainable Urban Drainage System (SuDS)

2.1 Overview

- 2.1.1 The SuDS system for this development collects surface water from the roofs, access, hardstanding and parking areas and provides storage within a voided stone layer below the hardstanding and parking areas.
- 2.1.2 The discharge from the site is restricted to a maximum of 1litre per second for all storm events up to a 100 year return period event with a 45% increase to allow for the future affects of climate change.

2.2 How the system functions

- 2.2.1 The hardstanding and parking areas are proposed as permeable gravel restraint system with voided stone beneath, this is typically referred to as a permeable paving system. The voided stone is lined to prevent any groundwater ingress to the voided stone layer and ensure the storage volume is available for rainfall events.



- 2.2.2 The surface water falling on the permeable area is filtered through the gravel and permeable membrane into the voided stone layer beneath.
- 2.2.3 Surface water falling on the roofs is collected in the gutters and channelled to rainwater pipes which convey the water to ground level and into catchpits. The catchpits trap silt and debris and provide a point of access for maintenance. The catchpits are connected to distribution tanks located within the voided stone beneath the hardstanding and parking areas.
- 2.2.4 The distribution tanks provide a large surface area for water to be filtered into the voided stone storage area beneath the hardstanding and parking areas.
- 2.2.5 Fin drains, a permeable pipe system located within the voided stone, collect the surface water at the east of the hardstanding and parking area and a 150mm diameter drain conveys the collected surface water to a hydrobrake manhole which restricts the discharge from the system to a maximum of 1l/s. From the hydrobrake manhole the surface water is conveyed through a section of further private drainage pipework and manhole to a connection with the lateral public sewer connection manhole in the entrance to the site.
- 2.2.6 The permeable paving system provides filtration and water quality improvement to the surface water ensuring that at the point of discharge the surface water has received suitable mitigation against the low risk of pollution from the site use.
- 2.2.7 A plan detailing the proposed drainage system is attached to the rear of this schedule.

3 Schedule of Maintenance

- 3.1 Once appointed the Contractor will prepare a site specific method statement for the control of silt and other pollutants during construction. CIRIA Report C532, Control of water pollution from construction sites, provides further guidance on this.
- 3.2 The Contractor will maintain the proposed drainage system during construction and until the handing over of the site.
- 3.3 Upon completion the Principal Contractor will collate the data sheets, operation and maintenance details of all materials and components used in the construction of the site drainage system and they will be incorporated into this document.
- 3.4 Upon completion management of shared drainage will be passed on to a Management Company appointed by the Developer on behalf of the Residents.
- 3.5 In the event that the Management Company becomes unable to discharge its duties within two years of first appointment the Developer will endeavour to appoint an alternative on behalf of the Residents.

3.6 Maintenance of individual property drainage connections is the responsibility of the individual property owners.

3.7 There are three categories of maintenance activities:

- **Regular maintenance** consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.
- **Occasional maintenance** comprises 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). The table below summarises the likely maintenance activities required for each SUDS component and specific maintenance activities is given in the following sections.
- **Remedial maintenance** comprises intermittent tasks that may be required to rectify faults associated with the system. 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. Remedial maintenance items can comprise items such as:
 - inlet/outlet repairs
 - reinstatement or realignment of edgings, or other erosion control
 - infiltration surface rehabilitation
 - construction stage sediment removal (although this activity should have been undertaken before the maintenance contract)

3.8 The following maintenance schedule details the tasks to be undertaken at different intervals.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Manage vegetation and remove nuisance plants – aesthetics	As required
	Litter and debris removal – catchpits	Monthly or as required
	Cleaning of gutters and any filters on downpipes	3 Monthly and after leaf fall in autumn
	Remove sediment and debris from silt trap chambers and manholes	6 monthly
	Rake gravel surface	6 monthly
	Inspect hydrobrake flow control manholes and clear any debris	6 monthly
	Visual inspection of permeable paving / gravel restraint system for defects and settlement	Annually
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
Corrective Maintenance	Remove debris / nuisance plant growth	As required
	Repairs to access chambers / manhole covers	As required

Maintenance Schedule	Required Action	Frequency
	Replace any broken section of the gravel restraint system, remedial works to any depressions or rutting	As required
Monitoring	Inspect catchpits and note the rate sediment has accumulated	Monthly in the first year and then annually

Indicative Schedule of Maintenance for the Proposed Drainage System

Component	Inspection Frequency					
	1 Month	3 Months	6 Months	1 Year	After leaf fall in Autumn	2 Years
Gutters		✓			✓	
Catchpits	✓				✓	
Surface and Foul Water Pipework						✓
Permeable Paving				✓		
Flow Controls			✓			

Inspection Frequency Summary

4 Regular Maintenance Procedures

4.1 It is recommended the Management Company employ a suitably qualified company to undertake the maintenance works on site for all shared drainage. The following procedures provide a guide to the two most common maintenance items, jetting and silt removal, to be undertaken on site.

4.2 Jetting

4.2.1 Equipment Required:

- High-pressure water jetting equipment
- Personal protective equipment (PPE) for operators

4.2.2 Typical Procedure:

- Perform a pre-jetting inspection to assess the level of sedimentation
- Insert the jetting hose into the pipe, starting from the upstream end
- Gradually move the jetting hose downstream, ensuring the entire pipe length is cleaned
- Monitor the process to avoid any damage to the pipe structure.
- Collect dislodged silt and debris at the downstream end using a vacuum or manual removal

4.3 Silt Removal and Disposal

4.3.1 Equipment Required:

- Vacuum truck or manual removal tools

- Containers for temporary storage of silt and debris

4.3.2 Typical Procedure:

- Collect the dislodged silt and debris from the downstream end of the pipe
- Transfer the collected material to the containers
- Dispose of the collected silt and debris following local regulations and environmental guidelines

5 Financing

5.1 The regular maintenance of all private drainage, channels, gutters, rainwater pipes and connections will be the responsibility of the individual property owners.

5.2 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents.

6 Health and Safety

6.1 Designers Residual Risks

6.1.1 There are no significant residual risks associated with the construction of the propose surface or foul water drainage network or permeable paving system beyond common site risks that would reasonably be anticipated by a competent Civil Engineering Contractor.

6.2 Construction Phase

6.2.1 The Principal Contractor will undertake a construction Phase Health and Safety Plan for the site.

6.2.2 Prior to handover the Principal Contractor will undertake a review of maintenance activities required and prepare suitable Health and Safety documentation as part of the site hand over documents.

7 Design Life

7.1 The design life of the development is likely to exceed the design life of the components within the SuDS network. During the routine drainage inspections it may be determined that some components have reached the end of their functional life cycle.

7.2 Where possible repairs should be the first option considered however if repairs are unviable it will be necessary for the property owner / Management Company to replace the faulty component.

8 Emergency Plan

8.1 Potential flood and maintenance indicators:

- Manholes or inspections chambers overflowing
- Gullies overflowing or ponding
- Channel drains overflowing or ponding
- Other visual indicators of the drainage system not performing as it should

8.2 Should any of the items above occur then immediate action as outlined below should be undertaken:

- Inspect for blockages in the problem area
- Should the problem not be identified via an initial inspection:
 - For unadopted onsite drainage the Management Company should appoint a suitable drainage engineer to inspect and survey the system and jet any blockages
 - For adopted onsite drainage the relevant statutory undertaker should be alerted
 - Where it is suspected that there is a problem with the downstream drainage network the Owner or relevant statutory undertaker of that system should be alerted

8.3 Emergency Contact Information

8.3.1 Management Company	TBC
8.3.2 Maintenance Team	TBC

9 Appended Documents

Drainage Management Plan

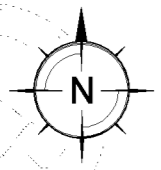
Approved Drainage Drawings and Construction Details (to be added once approved)

Pre Handover Inspection Checklist (to provided by Principal Contractor)

Maintenance Checklist (to provided by Principal Contractor at handover)

Maintenance Record Pro Forma (to provided by Principal Contractor at handover)

DRAFT



Drainage Legend:	
	Existing Foul Sewer
Private Drainage	
	Storm Water Drainage
	Storm Water Rodding Eye
	Foul Water Drainage
	Foul Water Inspection Chamber
Private Drainage to be maintained by the estates company	
	Storm Water Drainage
	Storm Water Inspection Chamber
	Storm Water Catchpit
	Storm Water Diffuser tanks
	Voids subbase for attenuation and filtration 955m²
	Fin Drain from voided subbase
	Hydrobrake Reference: CTL-SHE-0064-2000-1250-2000
	Non return Valve
	Foul Water Drainage
	Foul Water Inspection Chamber
	Site boundary
	Adjacent Site in client ownership

Surface Finishes Legend:	
	Block paving: impermeable with falls to landscaping areas
	Permeable paving with voided subbase beneath
Note: Surface finishes are shown for illustrative purposes only. See architect's design and details	

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 - All pipes, bends and junctions shall be vitrified clay to BS EN 295-1, with flexible joints and kitemark certified. Alternatively all pipes and fittings can be UPVC conforming to BS EN 1401-1 and shall be laid in accordance with the manufacturers specification. If UPVC pipes are to be used then the manufacturer shall be approved by the Engineer prior to construction.
 - All adoptable sewers shall be in strict accordance with the current edition of Sewers For Adoption. Unless otherwise stated adoptable sewers shall be 150mm diameter and shall be laid in a class 2 bedding. Where the depth to soffit is less than 1.2m under a public highway or 0.9m elsewhere the pipe shall be laid with a class 2 bedding.
 - All private building drainage shall be constructed in strict accordance with BS EN 752:1996. Unless otherwise specified building drainage shall be 100mm diameter and shall be laid at a minimum gradient of 1 in 40 for foul drains and 1 in 80 for surface water drains. All building drains shall be laid in class B bedding unless otherwise specified.
 - Where the service trench is near to the foundation of any building, refer to the guidance in Approved Document H, Building Regulations Part H1.
 - Where pipes, external to the structures, have a depth to soffit from ground level of less than 450mm they shall have a class GEN 3 concrete encasement (150mm thick). In all other cases the pipes shall be bedded and surrounded with 100mm thick granular material.
 - In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 6m centres (coinciding with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section. A board thickness of 18mm for pipes up to 450mm nominal diameter and 36mm for pipes over 450mm nominal diameter.
 - All svsps shall have rodding access plates fitted at their bases (ground floor level).
 - Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.

REV	DATE	BY	DESCRIPTION	CHK

Issue Status **FOR APPROVAL**

The Civil Engineering Practice
 11 Tungsten Building
 George Street
 Fishergate
 SUSSEX
 BN41 1RA
 01273 454424
 reception@cepd.co.uk
 www.cepd.co.uk

CLIENT
 Granite Gate Ltd

PROJECT
 Stakers Farm, North End Road, Yapton

TITLE
 Proposed Drainage Management Plan

DRAWN
 M Pacifico

DATE
 Feb 2021

PROJECT NO
 2345

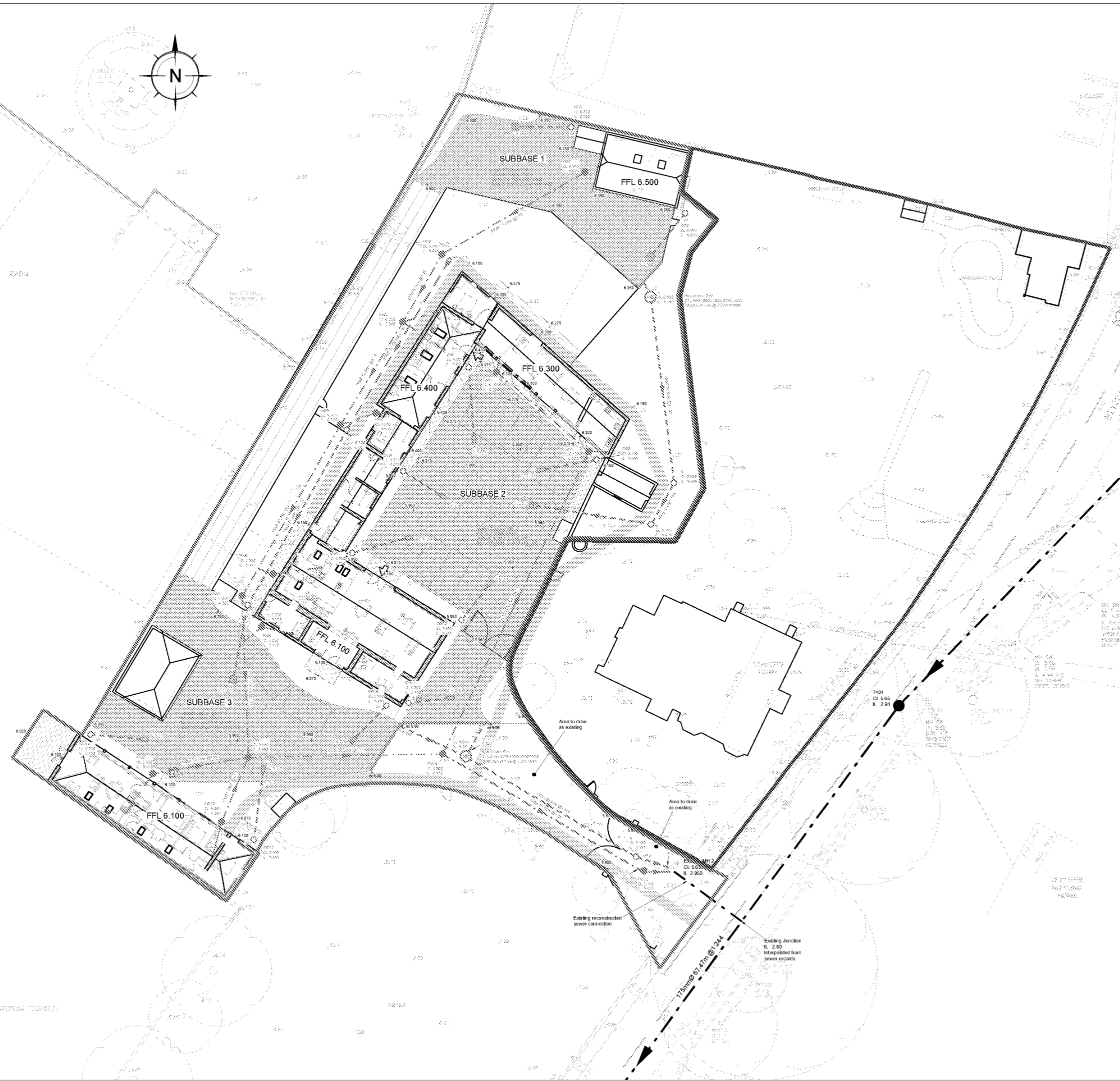
ENGINEER
 S Magowan

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Drainage Legend:

- Existing Foul Sewer
- Storm Water Drainage
- ⊙ Storm Water Rodding Eye
- ⊙ Storm Water Inspection Chamber
- ⊙ Storm Water Catchpit
- ⊙ Storm Water Diffuser tanks
- ▨ Voids subbase for attenuation and filtration
- Fin Drain from voided subbase
- ⊙ Hydrobrake with Reference:
- ⊙ Non return Valve
- Foul Water Drainage
- ⊙ Foul Water Inspection Chamber

Surface Finishes Legend:

- ▨ Block paving, impermeable with falls to landscaping areas
- ▨ Permeable paving with voided subbase beneath.

Other Legend:

- Site Boundary
- Adjacent Site in client ownership
- ▨ Service Trench

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REV	DATE	BY	DESCRIPTION	CHK
C	01.11.24	MJP	Updated with enlarged viewport	SRM
B	01.06.23	PR	Hydrobrake references updated	KH
A	03.11.22	PR	New site layout added. Drainage updated to suit.	KH

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 Sussex
 BN41 1RA
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 reception@cepd.co.uk
 www.cepd.co.uk

CLIENT
Granite Gate Ltd

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TITLE
Proposed Drainage and Levels Layout Plan

DRAWN
M Pacifico

DATE
Feb 2021

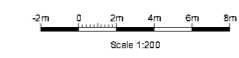
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ENGINEER
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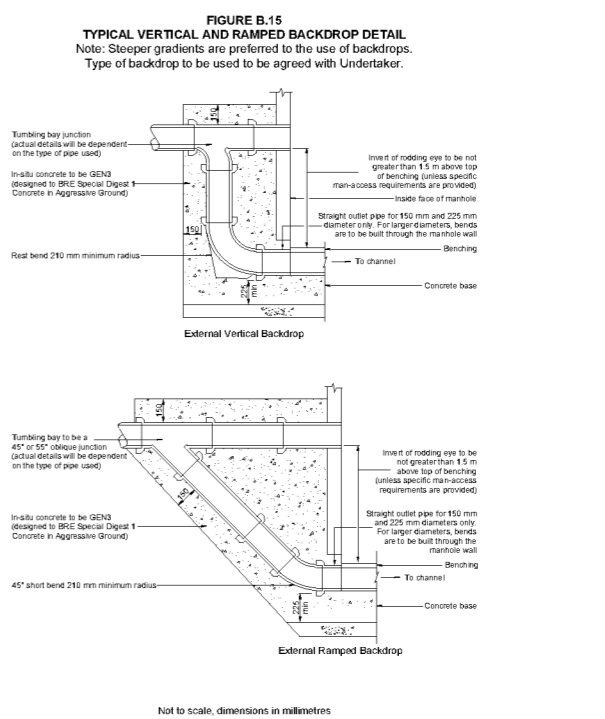
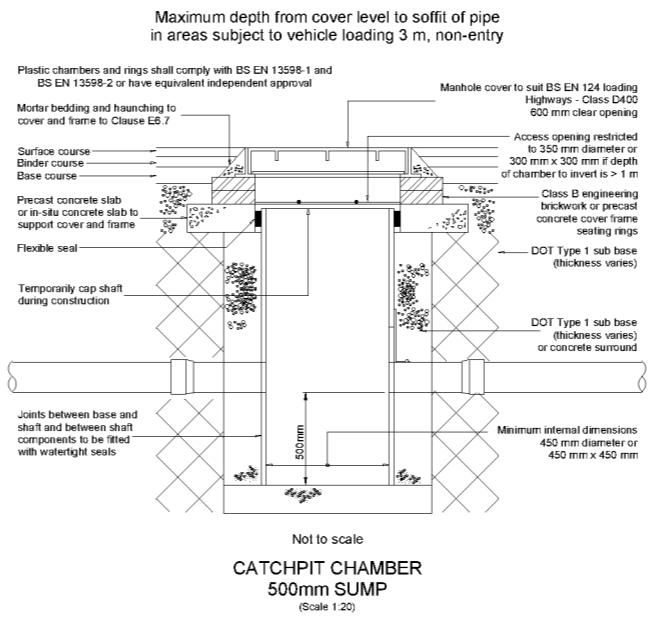
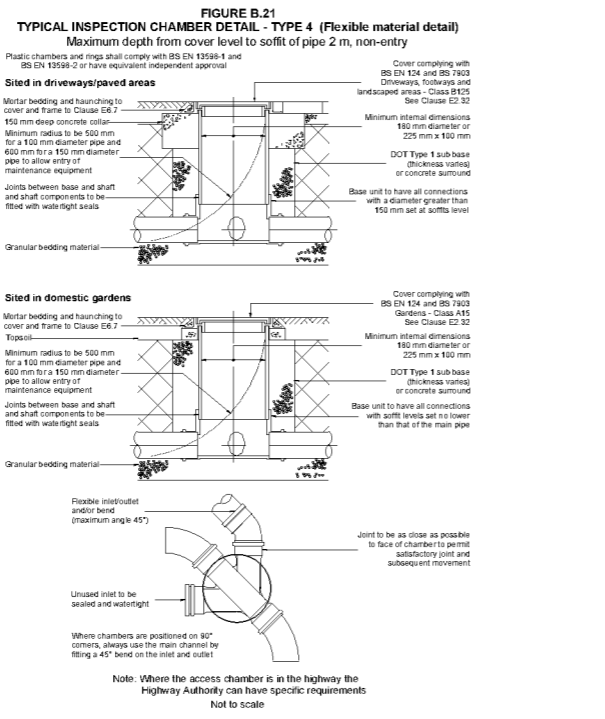
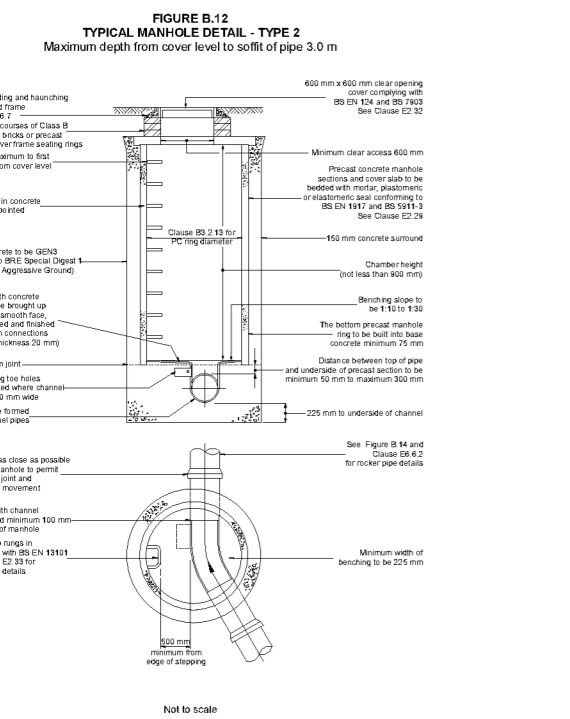
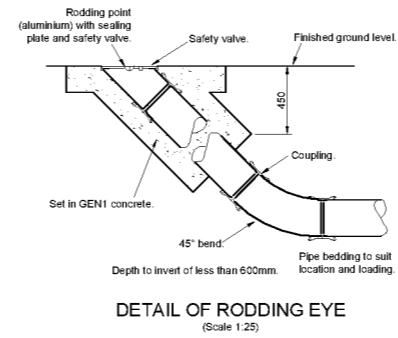
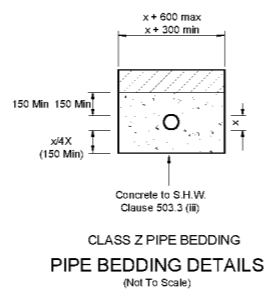
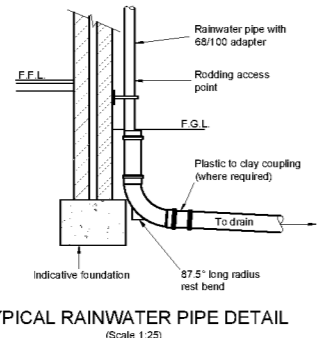
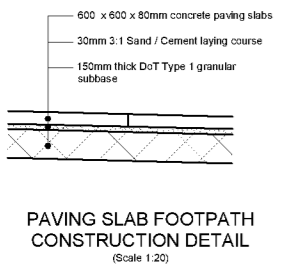
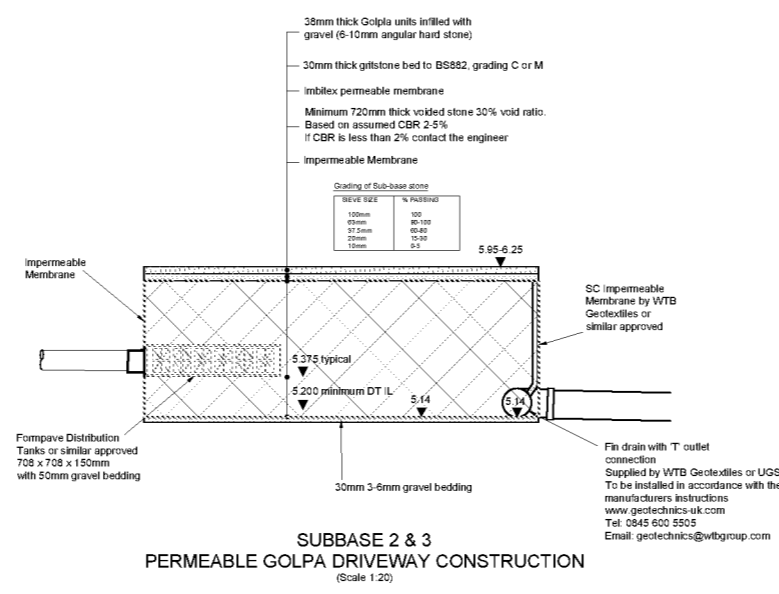
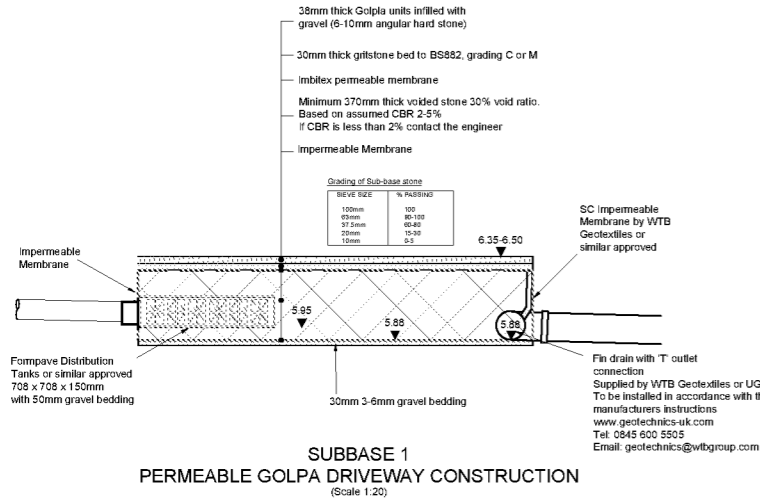
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C: 01.11.24 : MJP : Updated subbase depth and stone : SRM
 B: 08.11.22 : FR : Hydraulic Schedule added. : KH
 A: 03.11.22 : FR : Permeable detail updated. Block paving detail : KH
 added.

REV	DATE	BY	DESCRIPTION	CHK

Issue Status FOR APPROVAL

CLIENT
 Granite Gate Ltd
 PROJECT
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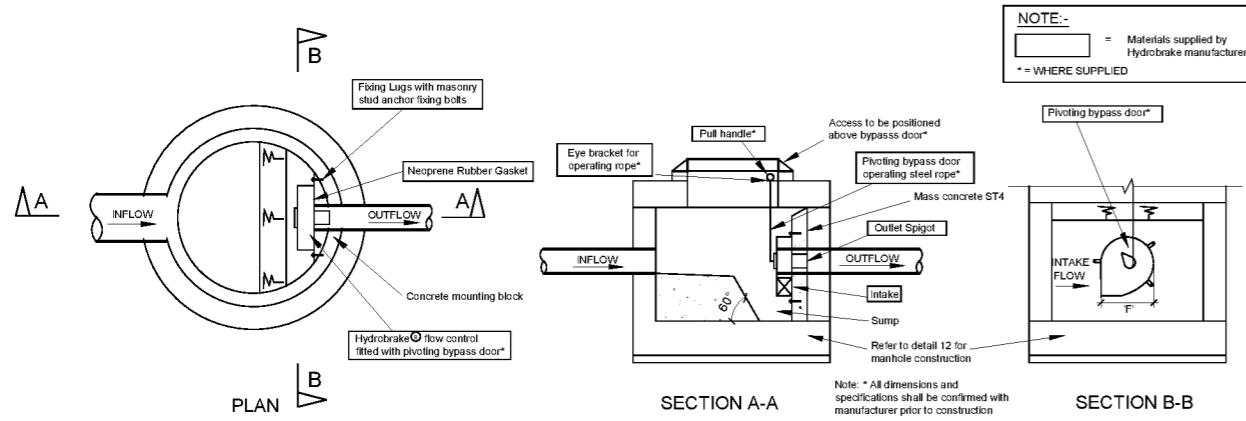
TITLE
 Proposed Construction Details

DRAWN
 M Pacifico
DATE
 Feb 2021
PROJECT NO
 2345

ENGINEER
 S Magowan
CHECKED
 (Signature)
PROJ NO
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REV
 (Signature)

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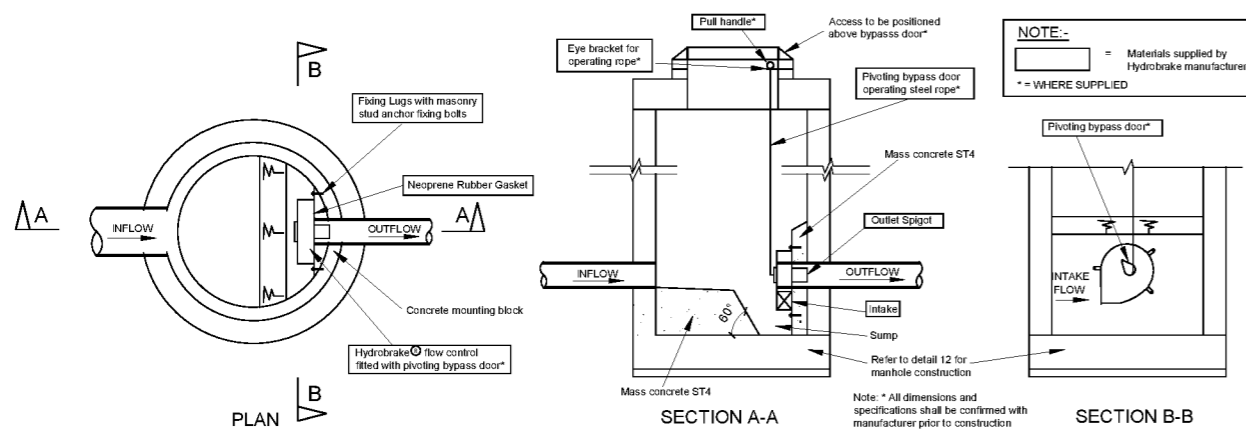
ARUN DISTRICT COUNCIL V15/25/PL



NOTE:-
 [Symbol] = Materials supplied by Hydrobrake manufacturer
 * = WHERE SUPPLIED

MH Ref	CL	IL	Base	Dia	Cover Grade	Cover Opening	Ref	Discharge l/s
4	6.500	5.750	5.250	1.000	B125	1.22 x 0.685 Multiple Ductile Iron	CTL-SHE-0050-1000-0750-1000	1 l/s

MANHOLE 4 WITH HYDROBRAKE
 (Scale 1:25)



NOTE:-
 [Symbol] = Materials supplied by Hydrobrake manufacturer
 * = WHERE SUPPLIED

MH Ref	CL	IL	Base	Dia	Cover Grade	Cover Opening	Ref	Discharge l/s
7	5.860	4.540	4.040	1.000	B125	1.22 x 0.685 Multiple Ductile Iron	CTL-SHE-0045-1000-1200-1000	1 l/s

MANHOLE 7 WITH HYDROBRAKE
 (Scale 1:25)

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 Fishergate
 SUSSEX
 BN41 1RA
 01293 424424
 reception@cep.co.uk
 www.cep.co.uk

CLEAR
 Granite Gate Ltd
 PROJECT
 Stakers Farm, North End Road, Yapton
 TITLE
 Proposed Construction Details
 DRAWN
 M Pacifico
 DATE
 Nov 2024
 PROJECT NO.
 2345
 ENGINEER
 S Magowan
 CHECKED
 PRO No.
 502
 SCALE
 As Shown@A1

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