Drainage Management and Maintenance Plan

ZMQL Ltd

East Court, East Grinstead 10056

15/04/25

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Quality Assurance

Site:	East Court, East Grinstead
Client:	ZMQL Ltd
Report:	Drainage Management and Maintenance Plan
Job Reference	10056
Report Prepared By:	Oliver Shaw
Signed:	
Date:	15/04/25
Report Checked By:	John Russell
Signed:	[redacted]
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Consulting Structural & Civil Engineers

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10056-BHP-XX-XX-DR-C-1001 Drainage Layout

1 Introduction

1.1 Barter Hill Partnership have been commissioned by ZMQL Ltd to prepare a Management and Maintenance Plan to support planning application DM/24/1340 for 33 residential apartments at East Court, East Grinstead. This report seeks to address Condition 5 of the planning application:

"Condition 5.

The development hereby permitted shall not commence unless and until details of the proposed foul and surface water drainage and means of disposal have been submitted to and approved in writing by the local planning authority. No building shall be occupied until all the approved drainage works have been carried out in accordance with the approved details. The details shall include a timetable for its implementation and a management and maintenance plan for the lifetime of the development which shall include arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime. Maintenance and management during the lifetime of the development should be in accordance with the approved details.

Reason: To ensure that the proposal is satisfactorily drained and to accord with Policy DP41 of the District Plan (2014 - 2031) and national policy contained within the National Planning Policy Framework."

1.2 This Drainage Maintenance and Management Plan explains how the proposed development's surface water and Sustainable Drainage Systems (SuDS) shall be maintained and managed after completion for the lifetime of the development.

1.3 The stakeholders involved in the management and maintenance of the various SuDS drainage components for the site are outlined below:

- Private Management Company (PMC) will be responsible for the management and maintenance of the private SuDS components. No adopting authorities will be responsible for the site's drainage proposals.

1.4 A summary of the management and maintenance responsibilities for each stakeholder in relation to the aspects of the surface water drainage are summarised in Table 1.1 below:

Table 1.1 – Management and Maintenance Responsibilities

Category	Drainage Component	Stakeholder to Management Component
Surface Water Sewers	Private Drainage (pipes, manholes, gullies, flow controls)	PMC
Category	Drainage Component	Stakeholder to Management Component
SuDS Attenuation Features	Attenuation Crates	PMC

2 Surface Water Drainage Strategy

2.1 The surface water and foul drainage strategy for the site is included in Drawing 10056-BHP-XX-XX-DR-C-1001. The drainage proposals comprise a series of private pipes, inspection chambers, manholes, orifice plate, and areas of crates.

2.2 Private surface water networks serving the development convey flows to the proposed discharge location on the northern boundary of the site.

2.3 Three areas of crates are proposed for attenuation on the site. The product specified at this stage is Aquacell however other similar products would be suitable for the design.

3 Stakeholder Responsibilities

3.1 The surface water drainage strategy consists of a number of components already identified in Table 1.1.

3.2 For the surface water drainage system to operate as originally designed, it is necessary to ensure that they are adequately maintained and managed throughout the lifetime of the development.

3.3 The following sections identifies the stakeholders, and their responsibility associated with each drainage component in terms of operational, maintenance and management requirements.

Drainage Components Operated and Maintained by PMC or Private Property Owners

3.4 A PMC appointed by the developer and subsequently by the residents of the development (via a yearly management fee) will be responsible for the maintenance and management of the surface water drainage components for the site.

Private Pipes

3.5 Private pipes are to be inspected as required. The pipe is to be inspected if there is thought to be damage. Dig down or non-intrusive techniques (i.e. pipe lining) to secure repairs will be implemented to ensure the sewer functions as designed. Any blockages within a pipe are to be removed by rodding or high-pressure water jetting to clear the debris.

Private Gullies

3.6 Trapped gullies located within the private access road or on path areas where required are to be inspected as required if there is thought to be a blockage. Any blockages within gullies and connection pipes are to be removed by rodding or high-pressure water jetting to clear the debris.

Manholes

3.7 All manholes are to be inspected annually and accumulated sediment or blockage is to be removed and manholes hosed down if required.

Flow Controls/Orifice Plates

3.8 The Flow Control Orifice Plates (located at the downstream end of the network) are to be inspected annually in accordance with manufacture's recommendations. Accumulated sediment or debris buildup which could result in blockage is to be removed and hosed down if required.

4 Maintenance Categories

Operation and maintenance Activity Categories

4.1 There are three main categories of maintenance activities:

- Regular maintenance (including inspections and monitoring)
- Occasional Maintenance
- Remedial Maintenance

4.2 Regular maintenance consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections. More frequent monitoring is required in the first year of a SuDS component as it establishes itself.

4.3 Occasional maintenance comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the regular tasks (sediment removal is an example).

4.4 Remedial maintenance comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design, construction and general maintenance. 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.

Regular Maintenance Activities

4.5 The regular maintenance activities for the SuDS components on site are outlined in the following sections.

Inspections and Reporting

4.6 Regular SuDS scheme inspections are required to:

- Help determine optimum future maintenance activities.
- Confirm hydraulic, water quality, amenity and ecological performance allow identification of potential system failures, e.g. blockage, poor infiltration, poor water quality etc.

4.7 Inspections can generally be required at monthly site visits (e.g. for grass cutting) for little additional cost, and should, therefore, be subsumed into regular maintenance requirements. During the first year of operation, inspections should ideally be carried out after every significant storm event to ensure proper functioning, but in practice this may be difficult or impractical to arrange.

Litter/debris removal

4.8 This is an integral part of SuDS maintenance and reduces the risks of inlet and outlet blockages, retains amenity value and minimises pollution risks.

Occasional Maintenance Activities

4.9 The occasional maintenance activities for the SuDS components on site are outlined in the following sections.

Sediment Removal

4.10 To ensure long-term effectiveness, the sediment that accumulates in SuDS components should be removed periodically. The required frequency of sediment removal is dependent on many factors including:

- Design of upstream drainage system
- Type of system
- Design storage volume
- Characteristics of upstream catchment area (e.g., land use, level of imperviousness, upstream construction activities, erosion control management and effectiveness of upstream pretreatment).

4.11 Sediment accumulation will typically be rapid for the entire construction period (including time required for the building, turfing and landscaping of all upstream development plots). Once a catchment is completely developed and all vegetation is well established, sediment mobility and accumulation are likely to drop significantly.

Remedial Maintenance

4.12 The remedial maintenance activities for the SuDS components on site are outlined in the following sections.

Structure Rehabilitation/Repair

4.13 In some cases, a major overhaul of the drainage system is required to remove headwalls and control structures etc. This will typically be between 10 and 25 years, depending on the technique and factors such as the type of catchment and sediment load. The SuDS design allows for access to undertake this work and consider the need for the overhaul without causing major disruption.

4.14 Other SuDS techniques are unlikely to need major overhaul if routine maintenance is undertaken as required.

5 Management and Maintenance Plan

Reporting

5.1 A report shall be prepared and issued to Mid Sussex District Council by the PMC on the condition of the SuDS scheme every 6 months or at an alternative interval agreed by both parties.

SuDS Owner's Manual

5.2 An owner's manual will be prepared and includes the following:

- Details of the design concepts and criteria for the SuDS scheme.
- Location of all SuDS techniques in a site
- Brief summary of how the techniques work, their purpose.
- How they can be damaged by any subsequent works undertaken on a development.
- Maintenance requirements (a maintenance plan) and a maintenance record.
- Explanation of the consequences of not carrying out the maintenance that is specified.
- Identification of areas where certain activities are prohibited (for example stockpiling materials on pervious surfaces).
- An action plan for dealing with accidental spillages.
- Advice on what to do if alterations are to be made to a development, if service companies undertake excavations or other similar works carried out that could affect the SuDS.

Emergency Response Action Plan

5.3 In the event of an extreme spill/pollution event a response action plan will be developed and communicated to all those involved in the operation of a site, so that if a spillage occurs it can be prevented from causing pollution to receiving waters. While the risk is low on a residential site, a response plan should be developed and agreed by the various stakeholders.

5.4 A vital part of dealing with a spill is being able to quickly identify the watercourse, groundwater and drainage systems that may be affected by a spill. This is part of the pollution risk response plan.

5.5 The following maintenance regime has been prepared based on the criteria within The SuDS Manual for the proposed surface water drainage and is set out in Tables 4.1 – 4.3 below:

Table 4.1 – Private Drainage Pipes Maintenance Schedule

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove sediment and debris from inspection chambers and flow control chambers.	Annually
	Cleaning of gutters and any filters on downpipes.	Annually
	Remove any root ingress.	As required
Occasional Maintenance	CCTV survey of drains to check alignment, cracking and joint displacement.	10-year intervals

Table 4.3 – Attenuation Crates Maintenance Schedule (Table 21.3 SuDS Manual)

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify possible maintenance issues	Monthly (or annually after 3 months)
	Remove debris from system	Monthly
	Remove sediment from pre-treatment structures	Annually
Remedial Actions	Repair pipe inlets, outlets and vents	Annually, or as required
Monitoring	Inspect all inlets, outlets and vents for maintenance issues	Annually
	Survey tank for sediment build up and remove if necessary	Every 5 years or as required

5.6 The maintenance regime recommended above is put in place to minimise the risk of blockages occurring and to prevent water surcharging from the inspection chambers and manholes. If flooding from the drainage system occurs, then the cause should be identified immediately and dealt with by the maintenance company and if considered appropriate, the maintenance regime should be adapted to ensure the cause of flooding does not occur again in the future.

6 Waste Requirements

6.1 There are usually three types of waste arising from regular SuDS maintenance: litter, green waste (vegetation) and sediment.

Litter Waste

6.2 Litter will be disposed of as for any open space in the site. As there are no open space SuDS on site (such as swales or basins) this is not required.

Sediment Management

6.3 Silt/sediment collected from a SuDS component will often contain low levels of metals, hydrocarbons and other pollutants.

6.4 Any sediment removed from SuDS must meet the requirements of relevant waste management legislation.

6.5 The Environment Agency has adopted a risk-based approach in relation to removal of sediment from sites. To assess whether the silt/sediment collected in the system is likely to have a high risk of being defined as "hazardous waste" will mainly be based on the land use within the catchment (e.g., residential, industrial or heavy vehicle management areas or end-of-pipe ponds without source control; swales etc without source control.

6.6 However, sediments excavated from upstream pre-treatment devices that receive runoff from residential or standard road and roof areas are generally not toxic or hazardous material and can therefore be safely disposed of by either land application or landfilling.

6.7 However, consultation will take place by the PMC with the environmental regulator to confirm appropriate waste management protocols and compliance with legislation. Sediment testing may be required before sediment excavation to determine its classification and appropriate disposal methods. Where there is low risk of pollution, this will allow sediment removal and land application to suitable vegetated surfaces outside the SuDS design profile but still close by (e.g. within 20 m of the SuDS component).

6.8 If land application is not appropriate for low-risk sites, the sediment will have to be disposed of offsite. If material is removed offsite, the PMC and those carrying out the work must comply with the required legislation and secure the relevant Environment Agency permits.

6.9 Final implementation of the sediment waste management strategy is to be confirmed by the PMC.

ZMQL Ltd
East Court, East Grinstead 10056

barter hill

Drawings

DRAINAGE KEY

PRIVATE SURFACE WATER

- SURFACE WATER MANHOLE TEXT — S01 / CL.00.000 / IL.00.000
- SURFACE WATER PIPE-RUN DIAMETER/GRADIENT — 100Ø 80 / 1.001
- PRIVATE ROAD GULLY — RG
- CHANNEL DRAIN — CD
- RODDING EYE — RE / IL.00.000
- RAINWATER PIPE
- 450mmØ INSPECTION CHAMBER (>1200mm DEEP)
- 1200mmØ MANHOLE WITH ORIFICE PLATE DIAMETER SHOWN (>1200mm DEEP) — 100Ø
- 1500mmØ DOWNSTREAM DEFENDER
- INSPECTION CHAMBER WITH CATCHPIT (CP) 450mm SUMP — S01 / CP / CL.00.000 / IL.00.000
- CELLULAR ATTENUATION TANK — CRATES / CL: 00.000 / SL: 00.000 / IL: 00.000

EXISTING PRIVATE SURFACE WATER

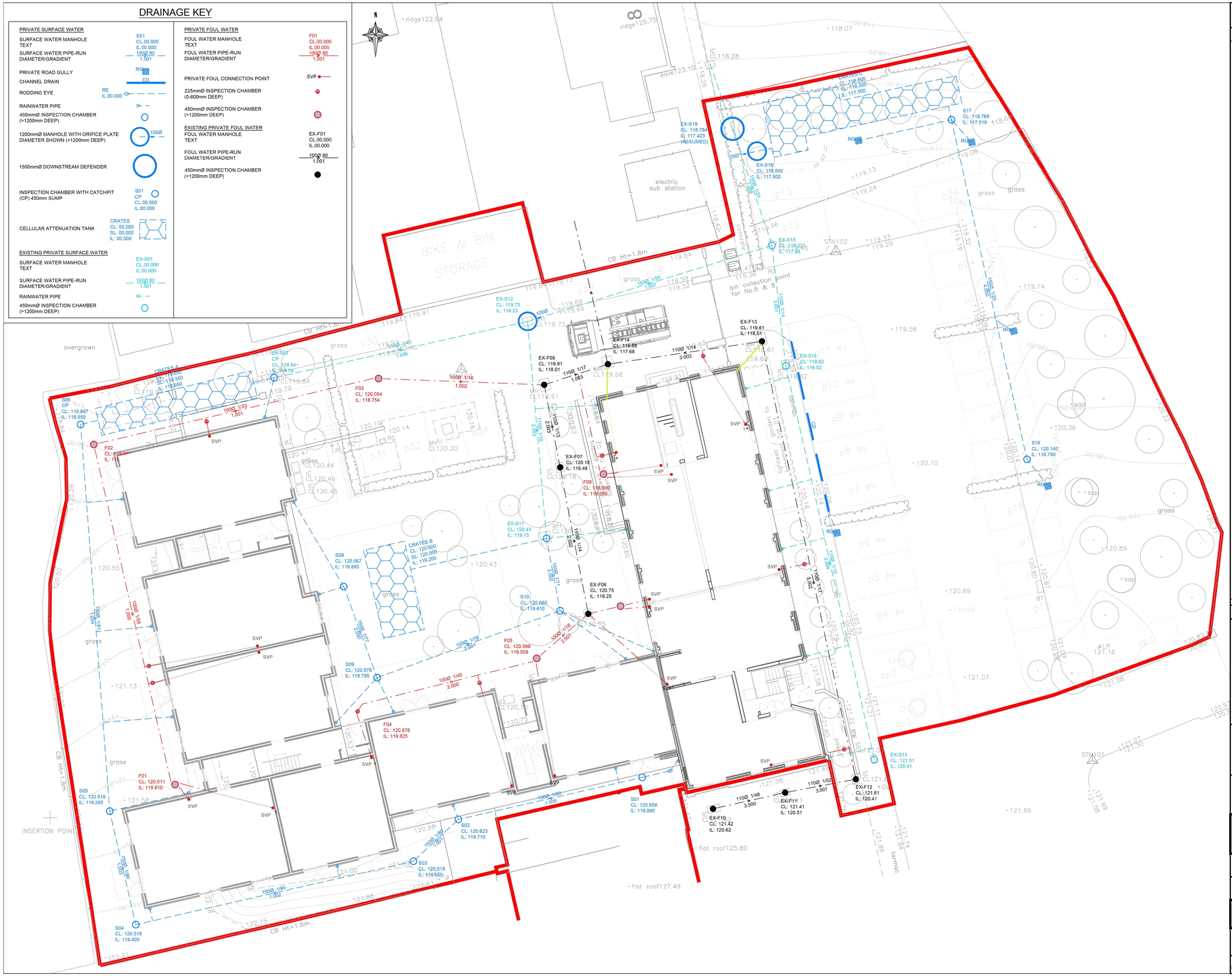
- SURFACE WATER MANHOLE TEXT — EX-S01 / CL.00.000 / IL.00.000
- SURFACE WATER PIPE-RUN DIAMETER/GRADIENT — 100Ø 80 / 1.001
- RAINWATER PIPE
- 450mmØ INSPECTION CHAMBER (>1200mm DEEP)

PRIVATE FOUL WATER

- FOUL WATER MANHOLE TEXT — F01 / CL.00.000 / IL.00.000
- FOUL WATER PIPE-RUN DIAMETER/GRADIENT — 100Ø 80 / 1.001
- PRIVATE FOUL CONNECTION POINT — SVP
- 225mmØ INSPECTION CHAMBER (0-600mm DEEP)
- 450mmØ INSPECTION CHAMBER (>1200mm DEEP)

EXISTING PRIVATE FOUL WATER

- FOUL WATER MANHOLE TEXT — EX-F01 / CL.00.000 / IL.00.000
- FOUL WATER PIPE-RUN DIAMETER/GRADIENT — 100Ø 80 / 1.001
- 450mmØ INSPECTION CHAMBER (>1200mm DEEP)



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Barter Hill Partnership Limited
Office 40, The Stansted Centre
Parsonage Road
Takeley CM22 6PU
t: 01279 430888
e: mail@barterhill.co.uk

Consulting Structural & Civil Engineers
15 Meridian Way
Meridian Business Park
Norwich NR7 0TA
t: 01603 300360
e: mail@barterhill.co.uk

Client: ZMQL LTD

Project: EAST COURT, EAST GRINSTEAD RH19 3LT

Drawing Title: DRAINAGE LAYOUT

Designed by	Drawn by	Checked by
OCS	OCS	JR

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