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DRAINAGE AND SUDS STRATEGY

**Keep Hatch Primary School, Ashridge Rd, Wokingham
RG40 1PG**

Report Title: Drainage and SUDS Strategy for Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG

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Quality Standards Control

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This document must only be treated as a draft unless it has been signed by the originators and approved by a director.

<i>Revision</i>	<i>V02</i>
Date	05/02/2026
Prepared by	A Wallace
Checked by	A Alsop
Authorised by	A Wallace

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EXECUTIVE SUMMARY

This Drainage Assessment reviews the existing drainage arrangement at the application site and proposes a surface water drainage strategy in line with Local Authority and Lead Local Flood Authority (LLFA) guidance.

The site is located at Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG.

The proposed development comprises the construction of a new SEND classroom and associated external works.

Surface Water Drainage

It is proposed to reduce surface water discharge from the site to no greater than 3.5l/s. Attenuation is provided within cellular storage below the external area. Discharge will be to the Thames Water sewer in the street via a new connection. Discharge will be subject to Thames Water approval and confirmation of the outfall location.

An additional 10% allowance for urban creep has been included in the sizing of surface water storage by adding 10% to the areas in the modelled calculations.

Maintenance/management of all onsite drainage infrastructure has been considered within a separate maintenance plan appended to this report. This will be updated through the development process.

The proposed drainage strategy is entirely based on-site with the exception of the new connections to the Thames Water sewer in the street.

Overall, the proposed development has an acceptable flood risk within the terms and requirements of the NPPF. The proposals provide a high level of water treatment, runoff reduction and flooding protection for the proposed development and are in accordance with all requirements of the Lead Local Flood Authority (LLFA).

Foul Drainage

It is proposed to discharge the foul drainage from the site into the existing Thames Water sewer in the street via a new connection.

1 INTRODUCTION

1.1 Background

1.1.1 Jomas was commissioned to undertake a Drainage Assessment for the proposed development of land located at Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG

1.1.2 The proposed development comprises the construction of a new SEND classroom and associated external works.

1.1.3 This Drainage Assessment has been produced in support of a planning application and should be read in conjunction with the other planning documents.

2 SITE DESCRIPTION

2.1.1 The development site red line boundary is approximately 2260 square metres in size and is mainly hardstanding with an area of grass/garden.

2.1.2 The bulk of the area will remain as existing with the total development area being 807 square metres. Pre-development, the site is 65% impermeable (521 square metres of hardstanding). Post development, the impermeable area increases to 71% of the site area (575 square metres).

2.1.3 The site location information is as follows:

- Nearest Postcode: RG40 1PG

2.2 Topography

Site Topography

2.2.1 A survey of the site has been completed. The site is irregular in shape and falls towards the southwest. The survey is provided in Appendix A.

3 DESIGN PRINCIPLES AND POLICY REQUIREMENTS

3.1.1 Since April 2015, Lead Local Flood Authorities (LLFA's) have become a statutory consultee on surface water drainage for many planning applications. For this site, the following is considered to be the required level of detail required for planning approval:

3.1.2 Report to be prepared in accordance with the National Planning Policy Framework (NPPF), the accompanying Planning Practice Guidance (PPG), Local Authority and Lead Local Flood Authority (LLFA) guidance and Strategic Flood Risk Assessments.

3.2 General Principles for Surface Water Drainage

3.2.1 The DEFRA Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems, the Local Authority Flood Risk Management Strategy, Level 2 Strategic Flood Risk Assessment and the Local Flood Risk Management Strategy require sustainable drainage systems in all development to reduce surface water runoff and provide water treatment on site. This includes but is not limited to addressing the following issues in order of preference:

- Store rainwater for later use.
- Use infiltration techniques, such as porous surfaces in non-clay areas.
- Attenuate rainwater in ponds or open water features for gradual release.
- Attenuate rainwater by storing in tanks or sealed water features for gradual release.
- Discharge rainwater direct to a watercourse.
- Discharge rainwater to a surface water sewer/drain.
- Discharge rainwater to the combined sewer.

3.2.2 Consideration must be given to the direction of water flow across the site and where this may be dispersed and incorporating any features that will help reduce surface water run-off. All developments should follow the drainage hierarchy and aim to achieve greenfield run off with at least a 50% reduction in surface water discharge and this needs to be demonstrated as part of the planning submission.

4 SITE DRAINAGE INFORMATION

4.1.1 The DEFRA Sustainable Drainage Systems Non-Statutory Technical Standards for Sustainable Drainage Systems states that the following options must be considered for disposal of surface water runoff in order of preference:

- Discharge to ground
- Discharge to a surface water body
- Discharge to a surface water sewer
- Discharge to a combined sewer

4.1 Discharge to Ground

4.1.1 The potential for surface water to discharge to ground has been assessed through a review of the likely ground conditions and possible infiltration structures.

4.1.2 The British Geological Survey indicates the following geology for the area:

Bedrock: London Clay Formation - Clay and silt. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.

Superficial: None recorded

4.1.3 The geology indicates that the ground is likely to be impermeable and so infiltration is not likely to be possible. This will be confirmed via testing prior to detailed design.

4.2 Discharge to Surface Water Body

4.2.1 There nearest watercourse is too far from the site to be used for discharge of surface water.

4.3 Discharge to Surface Water Sewer/Combined Sewer

4.3.1 Discharge to the public sewer network should only be considered once all other options for draining surface water from the site have been exhausted.

4.3.2 As there is an existing surface water sewer in the street. It is proposed to connect into this sewer via a new connection. This will be confirmed via survey prior to detailed design.

4.4 Sustainable Drainage Systems (SuDS)

4.4.1 To maximise the potential use of SuDS at the site, a review has been undertaken as shown in Table 1 in accordance with the SuDS Hierarchy. This review highlights the components referenced in the SuDS Hierarchy and provides recommendations on whether the components could be incorporated into the development.

Table 1: SuDS Selection Based on the SuDS Hierarchy

Component	Recommendation
Green/Blue roofs	Whilst the use of green and blue roofs provides additional environmental benefits such as enhanced aesthetics and ecology, its exposure to wind and orientation must be considered. Access to undertake the construction and maintenance easily and safely is also a high priority. If feasible, depending on the roof design, a green/blue roof will provide water quality, biodiversity and aesthetic benefits to the site. Additionally, the green/blue roof/s will offer some attenuation for run-off, reducing volumes of run-off and in higher frequency events (i.e. 1in2 year storms) will result in no run-off for the building. There are no green roofs proposed.
Basins and Ponds	Ponds and attenuation basins can provide overland storage of surface water whilst also providing additional biodiversity and aesthetic/amenity value. There are no open areas on the site which are suitable for basins or ponds.
Filter Strips and Swales	Swales are linear vegetated drainage features, which provide overland conveyance and storage of surface water whilst trapping sediments and hydrocarbons within run-off. They also create biodiverse areas for planting and habitat. Swales are not considered suitable for this site due to the urban setting restricting the availability of space.
Infiltration Devices	Infiltration devices are not suitable for the main drainage system due to the impermeable nature of the existing ground.
Permeable Paving	Whilst incorporating attenuation storage, permeable paving also provides treatment through filtration of silt (and attached pollutants), settlement and retention of solids, adsorption of pollutants and biodegradation of organic pollutants, including petrol and diesel. There are no suitable external areas for permeable paving.
Tanked Systems	This is the least sustainable option in terms of the SuDS Hierarchy. However, the use of tanked systems would still be of benefit compared to traditional drainage systems as it does allow run-off to be slowed down to an acceptable discharge rate. There is a single tank proposed.

5 SURFACE WATER DRAINAGE DESIGN

5.1 Site Areas

5.1.1 The development area currently comprises hardstanding and a grass/garden area. The existing and proposed areas are summarised below.

Table 2: Site Areas

Parameter	Existing (m2)	Existing (%)	Proposed (m2)	Proposed (%)
Impermeable area	521	65	575	71
Permeable area	286	35	232	29
Total area	807	100	807	100

5.1.2 It is assumed that the surface water runoff from the site currently discharges to the sewer.

5.2 Design Considerations

5.2.1 Consideration has been given to the following when calculating the proposed impermeable areas.

- The 2013 EA 'Rainfall Run-off Management for Developments' Report (SC030219) states that urban creep, the process of gradually increasing impermeable area within an urban area (through paving soft landscaped surfaces and constructed outbuildings etc), is an acknowledged issue. To include an allowance for urban creep, the impermeable area used in the drainage calculations has been increased by 10% in accordance with the recommendation made in SC030219.

5.2.2 The climate change allowance used in the Drainage Strategy is in line with updated EA guidance values published in February 2016 for increased rainfall intensities by 2115.

5.3 Greenfield Run-Off Rates

5.3.1 The greenfield run off rates have been calculated using the Wallingford method. Calculations are provided in Appendix B and summarised in the table below.

5.4 Existing Run-Off Rates

5.4.1 The existing run-off rates for a variety of return periods have been calculated using the Wallingford method.

5.4.2 The total site area is 807 square metres and is 65% impermeable, resulting in an impermeable area of 521 square metres. Taking conservative peak 1 year, 30 year and 100 year rainfall rates of 50mm/hr, 125mm/hr and 185mm/hr respectively, the maximum existing peak discharge rates have been calculated as follows.

Contributing Area (ha) x 1 yr Rainfall (mm/hr) x 2.78

521/1000 x 50 x 2.78 = **7.2 l/s**

Contributing Area (ha) x 30 yr Rainfall (mm/hr) x 2.78

521/1000 x 125 x 2.78 = **18.1 l/s**

Contributing Area (ha) x 100yr Rainfall (mm/hr) x 2.78

521/1000 x 185 x 2.78 = **26.8 l/s**

5.4.3 The discharge rates for the existing and proposed site are summarised below.

Table 3: Existing Run-off Rates

Parameter	Greenfield Discharge (l/s)	Existing Discharge (l/s)	Proposed Discharge Total (l/s)
QBAR	NA	-	NA
1 year	0.3	7.2	3.5
30 year	0.8	18.1	3.5
100 year	1.2	26.8	3.5
100 year +40%	NA	NA	3.5

5.5 Drainage Design

5.5.1 As infiltration is not be possible on this site and as greenfield rates are low, it is proposed to restrict discharge half the existing 1 year discharge rate and no greater than 3.5l/s. Reducing the post development run-off discharge rate to the existing rate less than 3.5l/s is achieved through attenuation. Discharge will be to the existing TW sewer in the street.

5.5.2 The attenuation will be within a storage system below the sports court area.

5.5.3 By controlling run-off rates and providing attenuation for all storm events up to and including a 1 in 100-year storm plus 40% climate change allowance, the risk of downstream flooding will be minimised.

5.5.4 The total volume of attenuation across the site is sufficient to cater for the 100 year +40% storm event with no overflow.

5.5.5 Discharge will be restricted by a pumped outfall to the existing TW sewer at 3.5l/s. Drainage design details are provided in Appendix B.

5.6 Consents, Offsite Works and Diversions

5.6.1 The proposed surface water drainage strategy is accommodated entirely on site.

5.6.2 Consent will be required from Thames Water for the discharge.

5.7 Maintenance

- 5.7.1 A SuDS maintenance plan has been prepared to outline the management of the potential SuDS features. The maintenance plan is provided in Appendix C.

5.8 Exceedance Flooding and Overland Flow

- 5.8.1 Thus, the overland flow route for the site drainage will only be in use in the event of drainage network failure, and will follow the existing route. See Appendix B for overland flow plan.

5.9 Foul Drainage

- 5.9.1 Thames Water are the foul sewerage suppliers for the area.
- 5.9.2 The identified point of connection from the site is into the TW sewer in the street.

6 DRAINAGE DURING CONSTRUCTION

6.1 Construction Run-off Management

6.1.1 Installing the surface water and foul drainage system, whilst managing temporary run-off, are key aspects of the construction works involved in any development. The information provided below is in accordance with the 'C698 Site handbook for the construction of SUDS' (CIRIA, 2007).

6.1.2 Please note that the measures recommended below are recommendations only and need to be confirmed at the construction stage by the client and the contractor.

6.2 Management of Construction (Including Drainage)

6.2.1 Drainage is typically an early activity in the construction stage of a development, taking form during the earthworks phase. However, final construction i.e. piped drainage system connections to the SuDS devices, should not take place until the end of site development work, unless a robust strategy for silt-removal is implemented prior to occupation of the site.

6.2.2 A plan for the management of construction (including phasing of works, details of any offsite works etc.) cannot be provided at this early stage, as construction work plans are not yet known. However, the following key points are general construction issues associated with SuDS which will be addressed when these plans are complete:

- Silt-laden waters from construction sites represent a common form of waterborne pollution;
- These silt-laden waters cannot enter SUDS drainage systems unless specifically designed to accept this as it can clog the systems and pollute receiving waters. Therefore, piped drainage systems should not be connected to the attenuation SuDS devices until the late stages of construction.
- Any gullies and piped systems should be capped off during construction and fully jetted and cleaned prior to connection to the attenuation SuDS devices.

6.3 Temporary Drainage During Construction

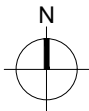
6.3.1 The three principal aspects of drainage control during construction are trapping sediment, conveying run-off, and controlling run-off.

6.3.2 Sediment traps and barriers can include basin traps and sediment fences (with any necessary boundary controls). The principal basins are to be installed after the construction site is accessed. Sediment fences and barriers will then be installed as needed during grading.

6.3.3 Conveyance of run-off can be achieved through small ditches/stream, storm drains, channels and sloped drains with sufficient inlet/outlet protection.

- 6.3.4 Slope stability needs to be considered when using any channels to convey run-off across the site into any basins etc.
- 6.3.5 Run-off control measures will need to be implemented in order not overwhelm the temporary system and cause flooding issues. Run-off rates from the site will be managed so they are no greater than pre-development or in keeping with the best practice guidance to minimise risk of blockage. Any additional conveyance measures are to be installed as needed during grading.
- 6.3.6 Run-off control to include provision of perimeter ditches or appropriate levels grading to direct any water from the construction site to remain on site.
- 6.3.7 Any necessary surface stabilisation measures are to be applied immediately on all disturbed areas where construction work is either delayed or incomplete.
- 6.3.8 Maintenance inspections are to be performed weekly, and maintenance repairs to be made immediately after periods of rainfall.
- 6.4 Protection of Drainage Infrastructure during Construction**
 - 6.4.1 All drainage infrastructure should be protected from damage by construction traffic and heavy machinery through the implementation of measures such as protective barriers, and storing construction materials away from the drainage infrastructure.

APPENDIX A: PROPOSED DEVELOPMENT DETAILS



DRAWING NOTES

1. filename: 1129 Existing Site Plan Keep Hatch.dwg
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REVISIONS

REV	DATE	STATUS
-	-	-

Changes since last issue:

-

KEYS

- Site Boundary
2,261m²
- Keep Hatch Site Boundary

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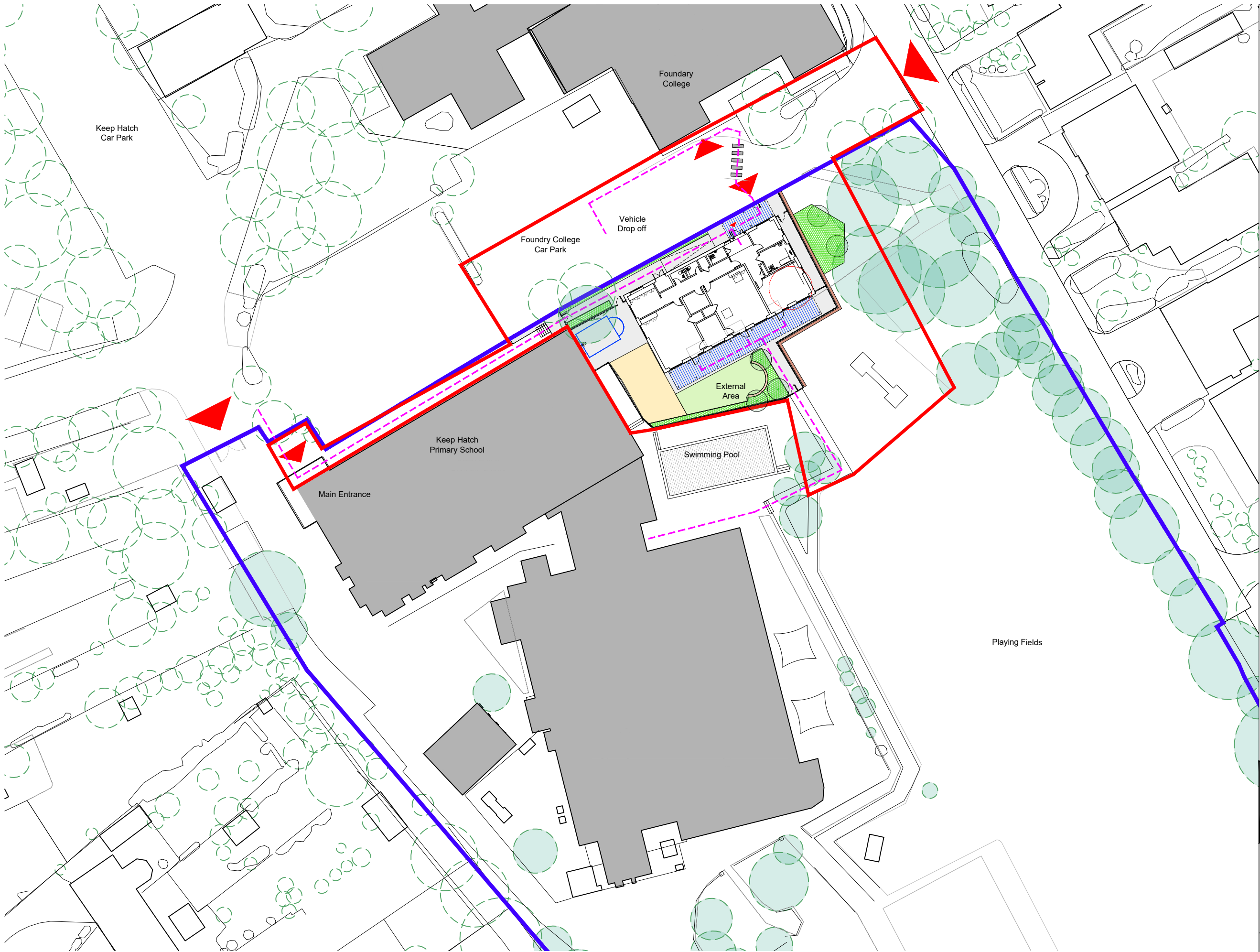
job title **Wokingham SEND Resource
Keep Hatch Primary School SEMH**

drawing title **Existing Site Location Plan**

scale **1:1000@A3**

drawn by	job no.	suitability	revision
JY	1129	S3	D01

PROJECT	ORIGIN	VOLUME	LEVEL	TYPE	ROLE	NUMBER
WSR	RSS	02	00	DR	A	1001



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REVISIONS

REV	DATE	STATUS
D03	06.01.26	For Comment

Changes since last issue:

-

Site Boundary
2,261m2

Keep Hatch
Site Boundary

Pedestrian
Route

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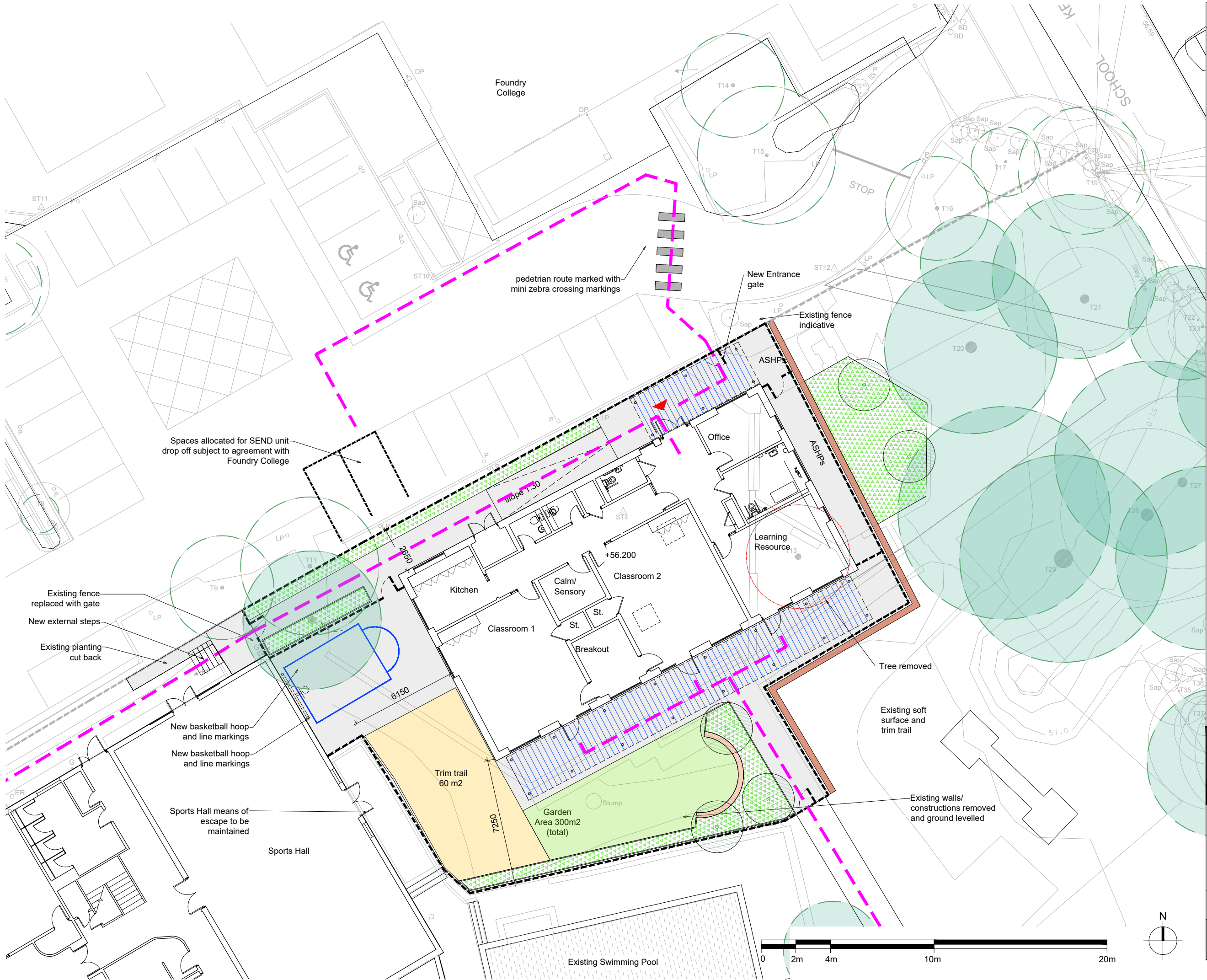
drawing title Proposed Site Plan

scale 1:500@A3

drawn by	job no.	suitability	revision
JY	1129	S3	D03

PROJECT	ORIGIN	VOLUME	LEVEL	TYPE	ROLE	NUMBER
WSR	RSS	02	00	DR	A	1201





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REVISIONS

REV	DATE	STATUS
D05	12.01.26	For Comment

Changes since last issue:

Location of proposed parking spaces updated

----- New Fence & gates

■ New grass

■ New planting

■ New Tarmac

■ Rubber crumb sof surface

■ Canopy

■ Retaining Wall

--- Pedestrian route

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job title **Wokingham SEND Resource
Keep Hatch Primary School SEMH**

drawing title **Proposed External Works Plan**

scale 1:200@A3

drawn by	job no.	suitability	revision
JY	1129	S3	D05

PROJECT	ORIGIN	VOLUME	LEVEL	TYPE	ROLE	NUMBER
WSR	RSS	_ 02	_ 00	_ DR	_ A	_ 1202

APPENDIX B: DRAINAGE DRAWINGS AND CALCULATIONS

Wallace Engineering
22 PARK RISE,
HARPENDEN
AL5 3AL

Search address supplied School Bungalow
Ashridge Road
Wokingham
RG40 1PG

Your reference Jomas

Our reference ALS/ALS Standard/2026_5277059

Search date 21 January 2026

Keeping you up-to-date

Notification of price changes

We're changing our report prices from 4th June 2025. The price will increase by 3.5% based on Retail Price Index (RPI).

Find our new prices on our website thameswater.co.uk/property-searches

Any Questions? We're happy to talk through the changes with you – give our Property Searches team a call on 0800 009 4540 .



Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB



property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



0800 009 4540

Search address supplied: School Bungalow, Ashridge Road, Wokingham, RG40 1PG

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk

Web: thameswater.co.uk/propertysearches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority. Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners. The public sewer map relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus. The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

South East Water
Rocfort Road

Asset Location Search



Property Searches

Snodland
Kent
ME6 5AH

Tel: 0845 301 0845

www.southeastwater.co.uk.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over issues please direct them to our service desk which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

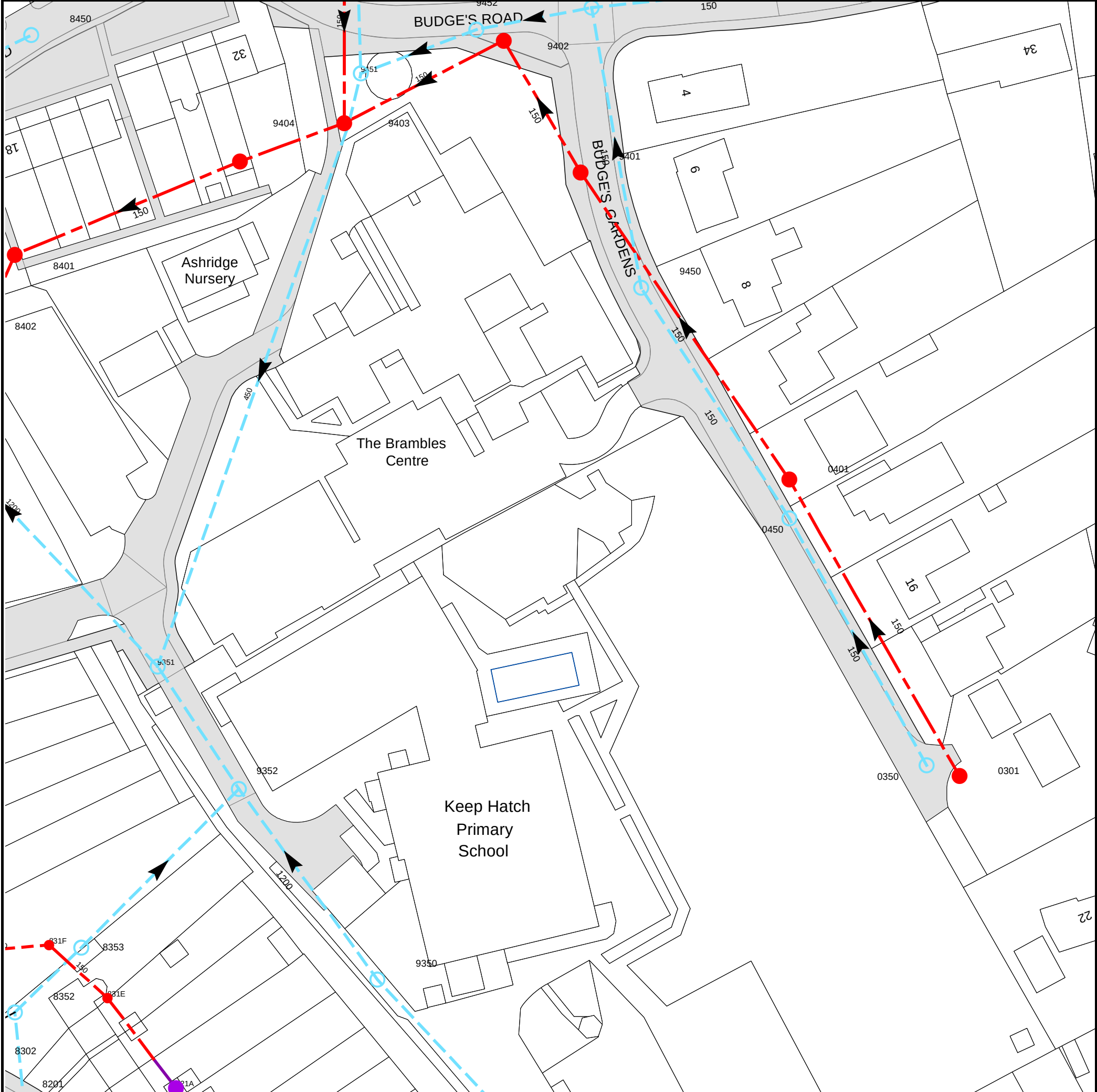
Clean Water queries

Should you require any advice concerning clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2026_5277059



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 481973,169398

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2024) with the Sanction of the controller of H.M. Stationery Office, License no. AC0000849556 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9404	n/a	n/a
9403	55.56	53.76
9451	55.68	54.38
9452	55.89	54.21
9402	56.13	54.13
9401	56.41	54.55
9453	56.16	54.49
9450	56.46	55.11
0401	n/a	n/a
0450	n/a	n/a
0350	n/a	n/a
0301	n/a	n/a
8450	55.91	54.52
9350	54.63	51.93
831F	n/a	n/a
8353	n/a	n/a
831E	n/a	n/a
921A	n/a	n/a
8352	54.48	53.37
8401	54.7	52.81
9351	53.99	51.59
9352	n/a	n/a
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Storm Sewer
	Sludge Sewer
	Foul Trunk Sewer
	Surface Trunk Sewer
	Combined Trunk Sewer
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Vacuum
	Thames Water Proposed
	Vent Pipe
	Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer		Culverted Watercourse
	Proposed		Decommissioned Sewer
	Content of this drainage network is currently unknown		Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Ancillary		Drop Pipe
	Control Valve		Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Inlet		Outfall
	Undefined End		

Other Symbols

Symbols used on maps which do not fall under other general categories.

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

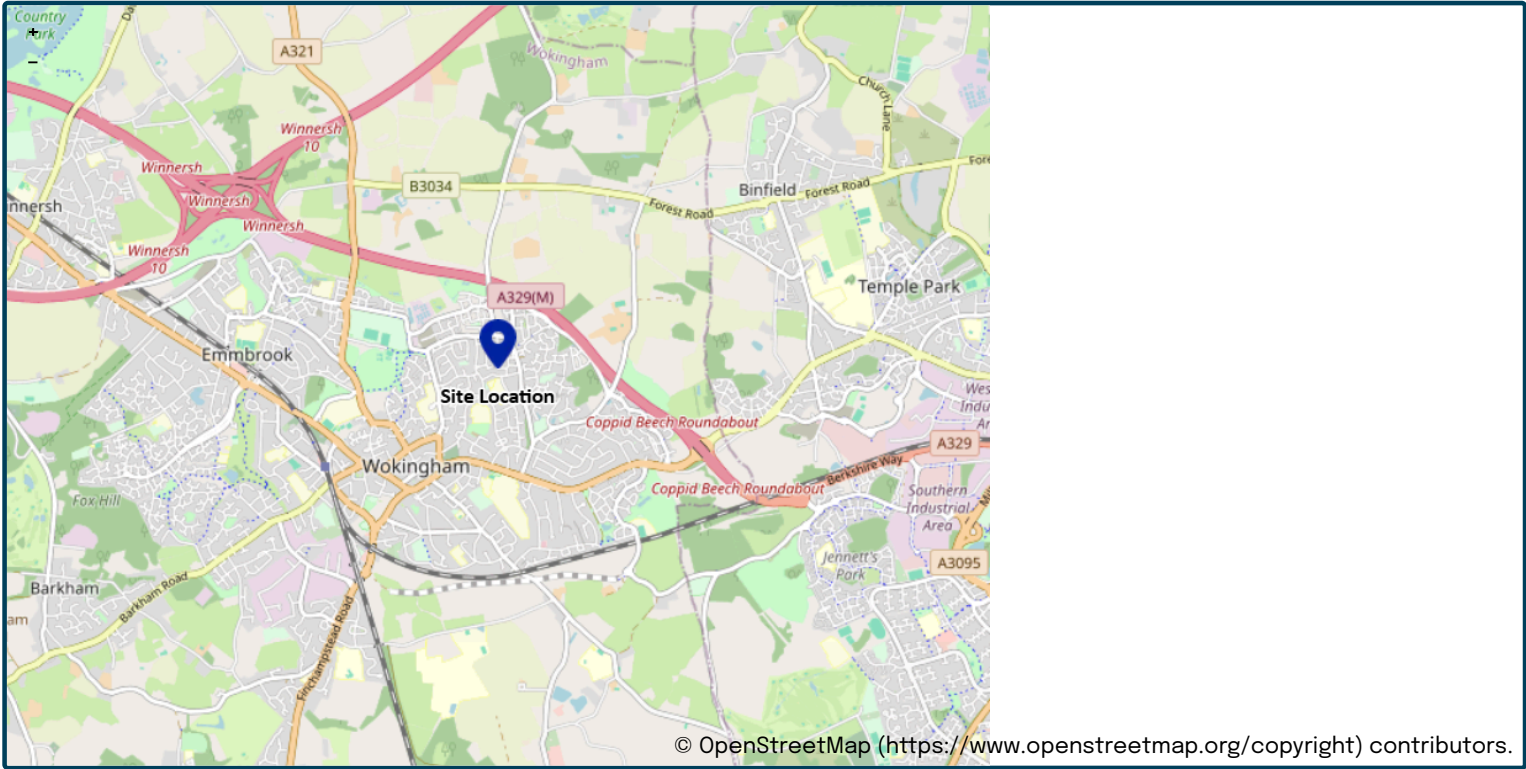
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	22/01/2026
Calculated by	AW
Reference	
Model version	2.2.2

Location

Site name	Keep Hatch
Site location	



Site easting (British National Grid)	481956
Site northing (British National Grid)	169381

Site details

Total site area (ha)	.0807	ha
----------------------	------------------------------------	----

Greenfield runoff

Method

Method	IH124
--------	-------

IH124

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	657	mm	657
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	0.4	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	6		6
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	IH124	
Flow rate 1 year (l/s)	0.3	l/s
Flow rate 2 year (l/s)	0.3	l/s
Flow rate 10 years (l/s)	0.6	l/s
Flow rate 30 years (l/s)	0.8	l/s
Flow rate 100 years (l/s)	1.2	l/s
Flow rate 200 years (l/s)	1.4	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.2) developed by HR Wallingford and available at uksuds.com (<https://www.uknuts.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uknuts.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

DRAINAGE KEY

0xx@1:xx> Stormwater Pipe - Diameter and fall

0xx@1:xx> Perforated Pipe - Diameter and fall

0xx> Rising Main

SMH
Ø1200
CL 80.90
IL 80.00

Manhole type - SMH Surface Water
Diameter
Cover Level
Invert Level

SWIC
Ø450

Surface Water Polypropylene Inspection Chamber (PPIC)

RWP

Rain Water Pipe

0xx@1:xx> Foul Pipe - Diameter and fall

0xx> Rising Main

FMH
Ø1200
CL 80.90
IL 80.00

Manhole type - FMH Foul Water
Diameter
Cover Level
Invert Level

FWIC
Ø450

Foul Polypropylene Inspection Chamber (PPIC)

FO

Sewer Vent Pipe/Sub Stack/Foul Outlet

CWIC
Ø450

Combined Polypropylene Inspection Chamber (PPIC)

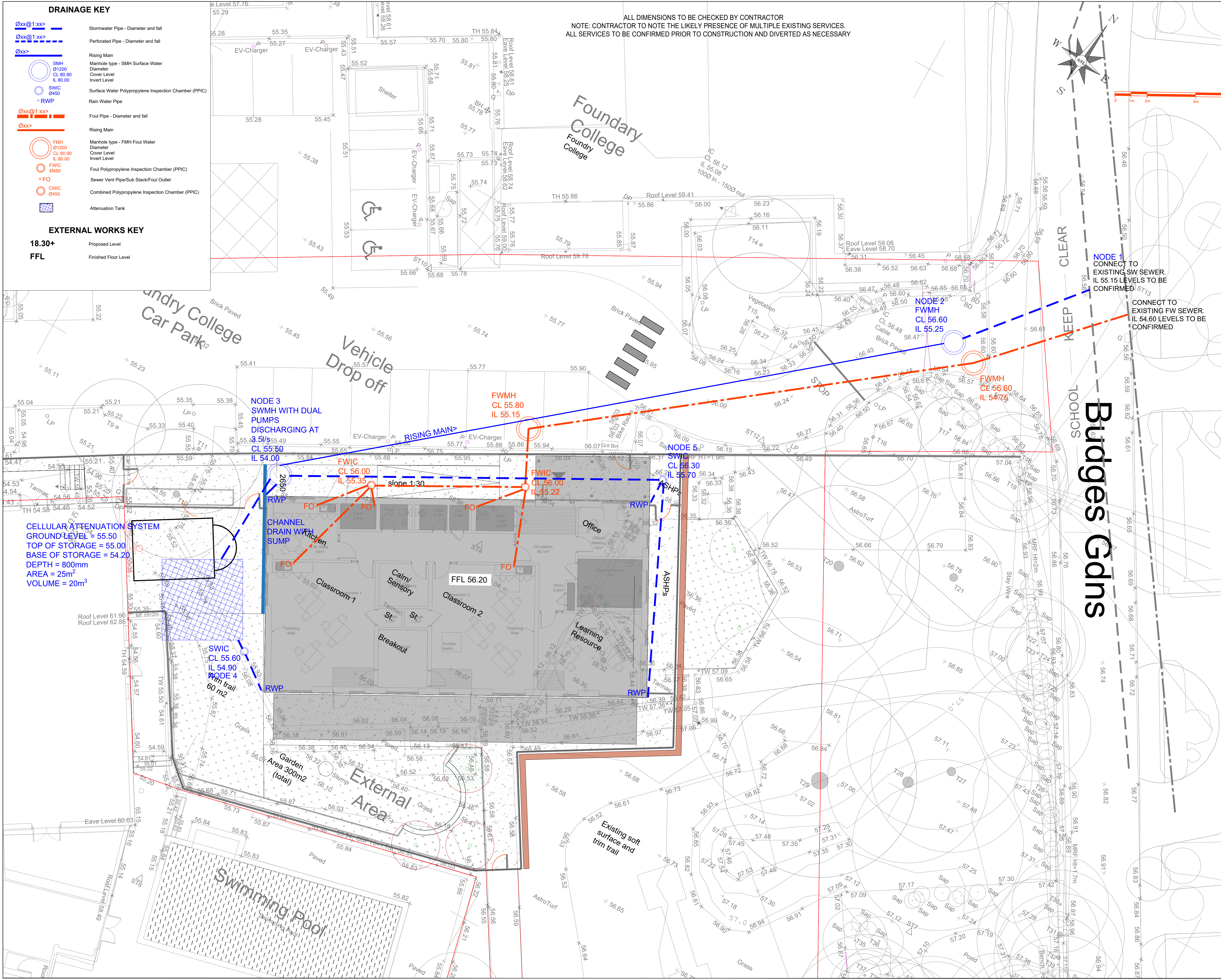
Attenuation Tank

EXTERNAL WORKS KEY

18.30+ Proposed Level

FFL Finished Floor Level

ALL DIMENSIONS TO BE CHECKED BY CONTRACTOR
NOTE: CONTRACTOR TO NOTE THE LIKELY PRESENCE OF MULTIPLE EXISTING SERVICES.
ALL SERVICES TO BE CONFIRMED PRIOR TO CONSTRUCTION AND DIVERTED AS NECESSARY



Job. No.

P6974J3321

Rev.

DRAINAGE NOTES

1. THIS DRAWING IS FOR PLANNING ONLY AND IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SERIES DESIGN DRAWINGS, SPECIFICATIONS AND DOCUMENTATION.

2. CONSTRUCTION TO BE IN ACCORDANCE WITH ALL BRITISH AND EUROPEAN STANDARDS AND BUILDING REGULATIONS.

3. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES ABOVE LOCAL DATUM.

4. ANY DISCREPANCIES IN THE DETAILS SHOWN ARE TO BE REPORTED TO THE EMPLOYER'S REPRESENTATIVE/ENGINEER PRIOR TO CONSTRUCTION.

5. ALL EXISTING SERVICES ARE TO BE LOCATED PRIOR TO THE COMMENCEMENT OF ANY WORKS. THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICT WITH THE PROPOSED WORKS.

6. THE GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIPS FOR THE CONSTRUCTION OF THE ACCESS ROAD, FOOTPATHS AND OTHER AREAS OF HARDSTANDING SHALL BE THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME 1, SPECIFICATION OF HIGHWAY WORKS (SHW) PUBLISHED BY THE STATIONARY OFFICE.

7. ALL LEVELS SHOWN ARE ASSUMED ONLY AND SUBJECT TO SURVEY AND DETAILED DESIGN.

8. ALL RWP AND FO SHOWN ARE INDICATIVE ONLY AND SUBJECT TO APPROVAL AND SETTING OUT BY THE ARCHITECT.

9. NODE NUMBERS REFER TO DRAINAGE MODEL.

10. UNLESS NOTED OTHERWISE, PIPES TO BE:
FOUL PIPES UNDER BUILDING Ø100@1:40;
FOUL PIPES EXTERNAL Ø100@1:80;
SURFACE WATER PIPES Ø150@1:100

Notes.

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Key dimensions to be checked by engineer before major structural works commence on site.

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2. All levels are in metres and relate to O S National Datum by GPS instruments.

3. This survey was measured for a scale of 1:100, any subsequent enlargements should be verified on site.

Amendments

Rev	Date		By	Chkd
A	05.02.26	TANK REVISED	AW	AW

JOMAS

ENGINEERING ENVIRONMENTAL

Jomas Associates Ltd.
Unit 24 Sarum Complex,
Salisbury Road,
Uxbridge, UB8 2RZ

Client

Rivington Street Studio

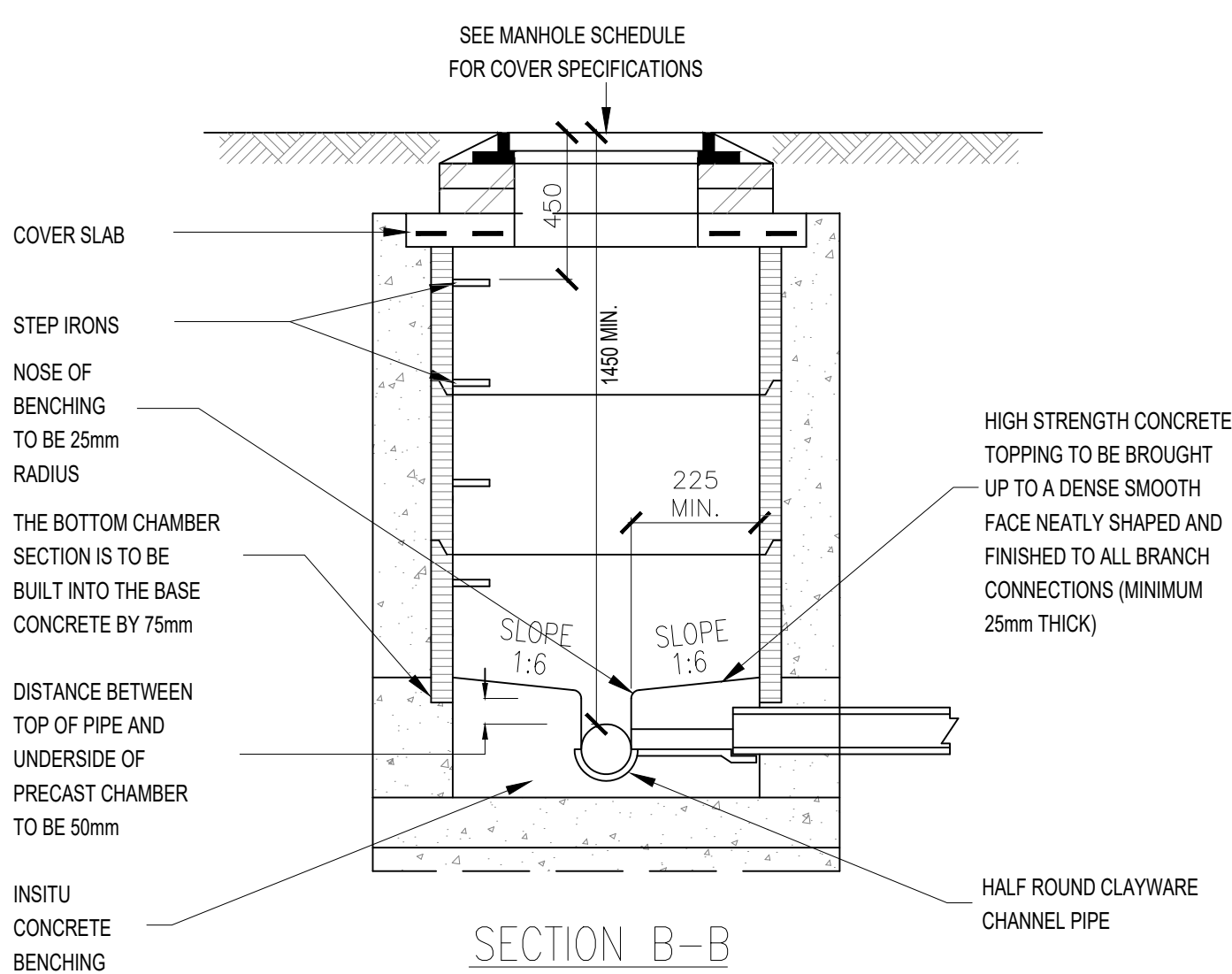
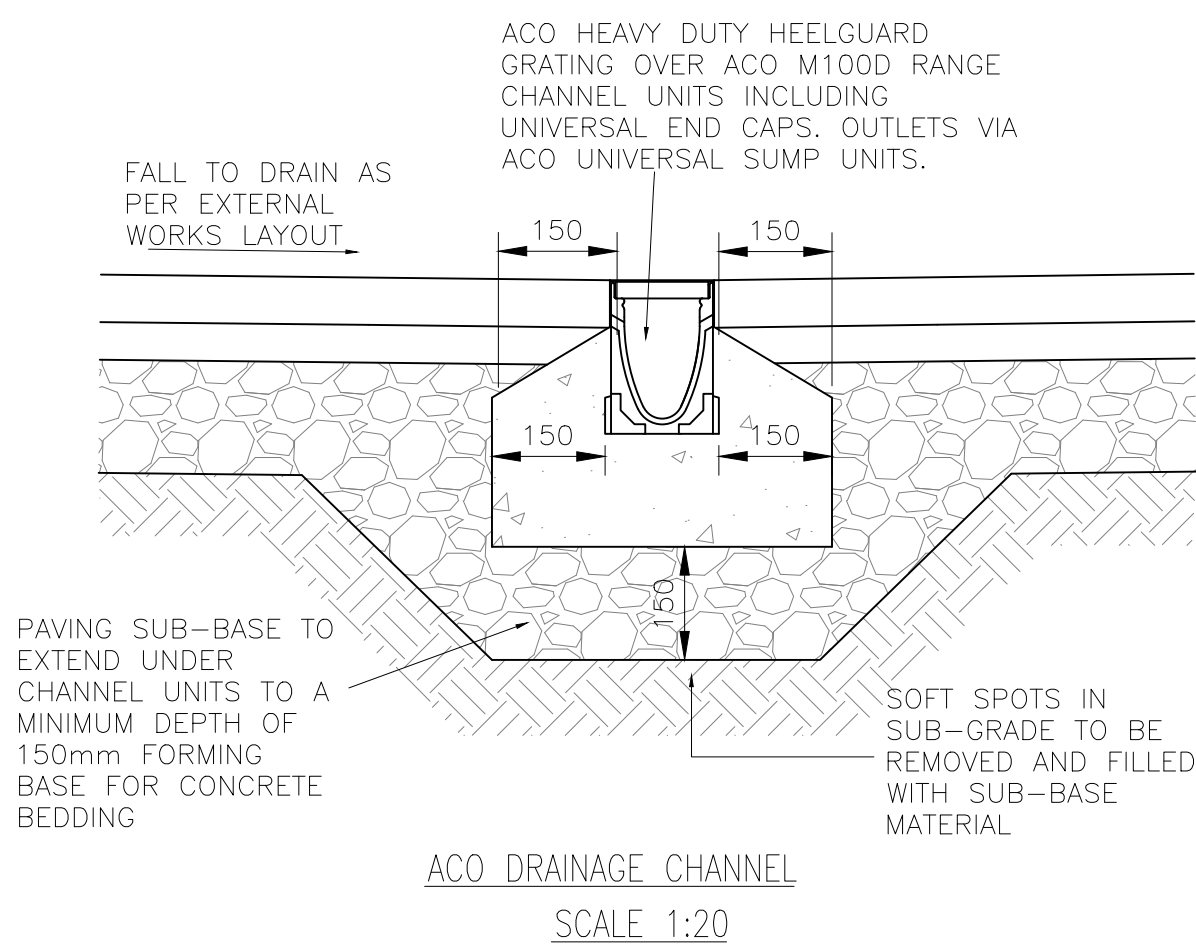
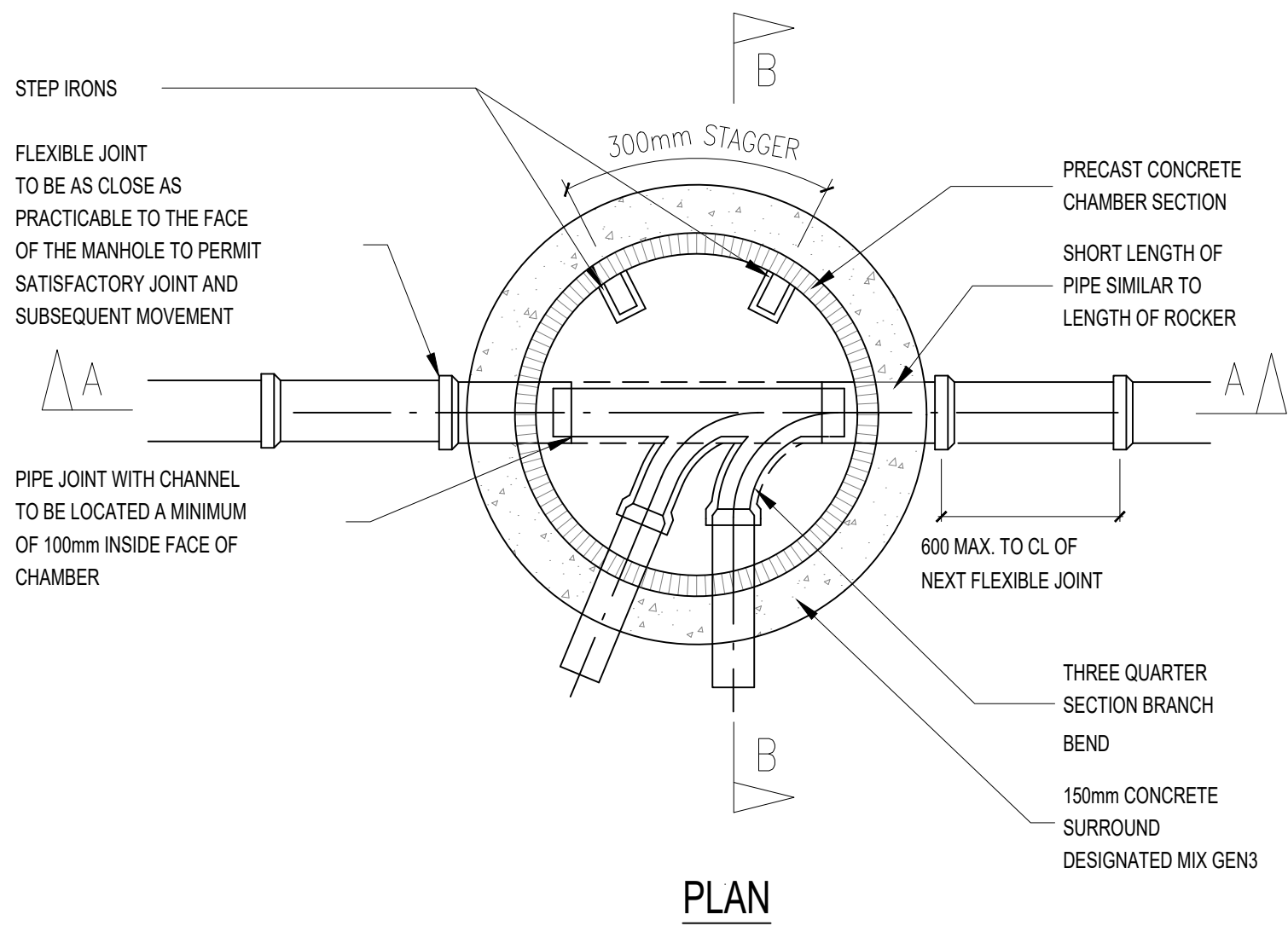
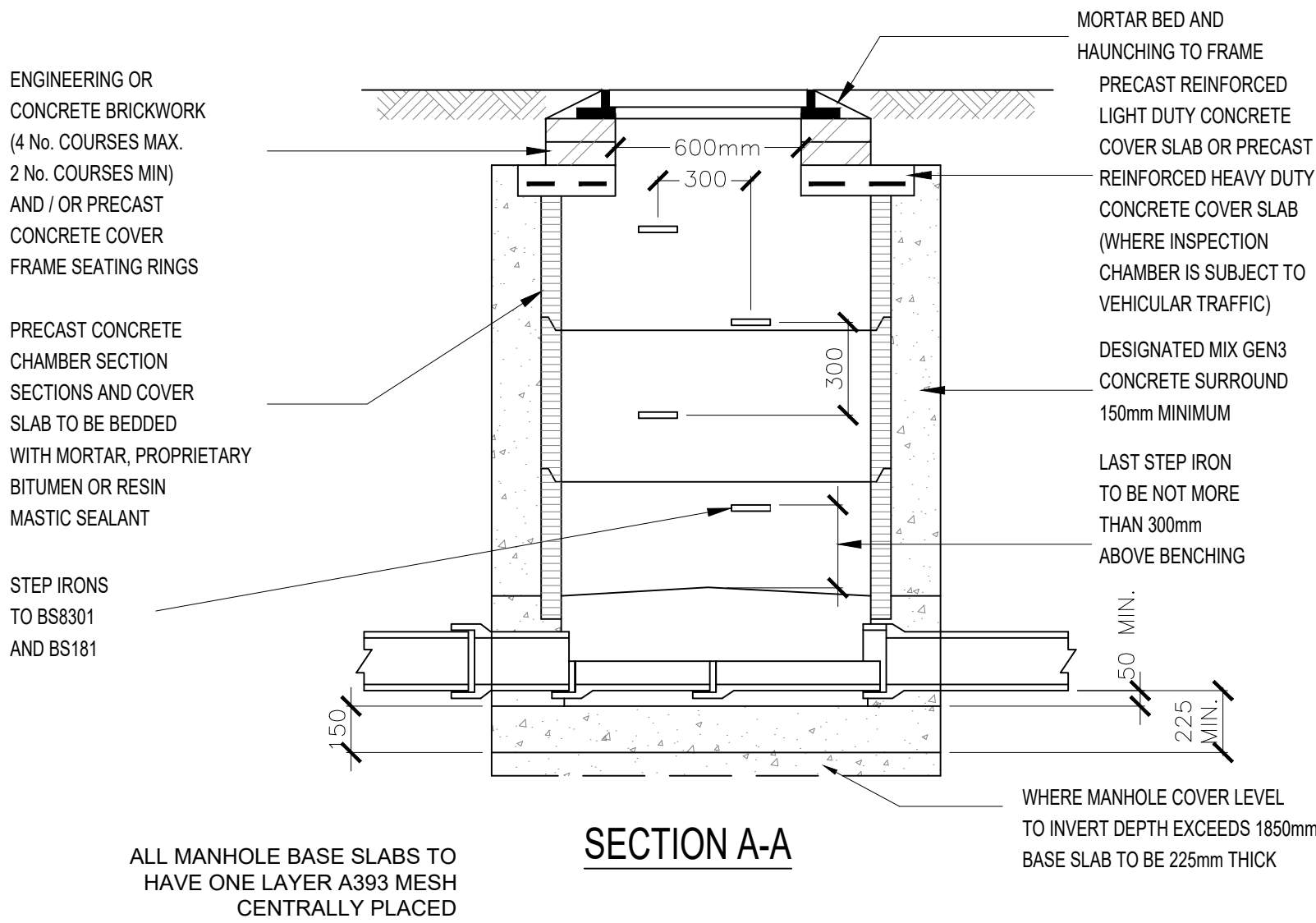
Project

Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG

Drawing

Proposed Drainage Plan

Dwg no	Checked	Surveyor
C01	AW	NA
Date	30.01.26	Scale 1:100 @ A1
Job No.	P6974J3321	Rev. A
Grid	Contours	Level Datum

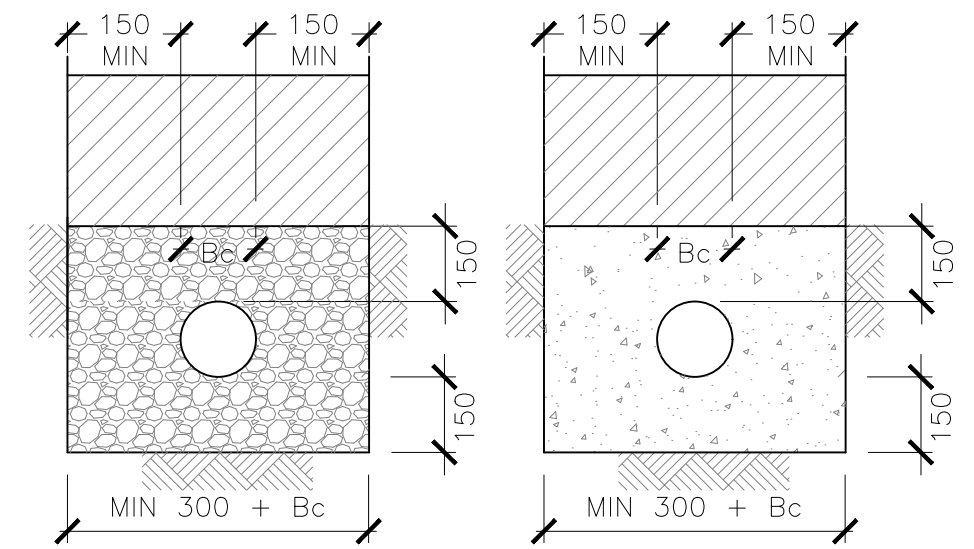


SCALE 1:20

PIPE DIAMETER	ROCKER PIPE * LENGTH
150mm-450mm	500mm-750mm
475mm-750mm	750mm-1000mm
OVER 750mm	1200mm

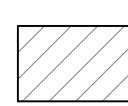
* OR LINTEL AND COMPRESSIBLE SEALANT IN ACCORDANCE WITH CLAUSE 689 OF THE SPECIFICATION.

NOTES:
CHAMBERS WITH OUTGOING PIPES GREATER THAN 600mm DIAMETER SHALL BE FITTED WITH GUARD BARS, SAFETY CHAINS OR OTHER SAFETY DEVICES. TOE HOLES TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 450mm DIAMETER FOR ACCESS TO INVERT. WHERE INTERNAL HEIGHT EXCEEDS 1800mm MANHOLE MAY BE PROVIDED WITH REDUCING COVER AND SHAFT. SHAFT DIAMETER TO BE 600mm DIAMETER OR 900mm DIAMETER IF LONGER THAN 900mm.

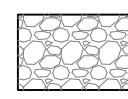


GENERAL PIPE BEDDING DETAIL

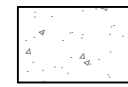
PIPE BEDDING DETAIL FOR ALL PIPES THAT PASS BELOW OR NEAR FOUNDATIONS, PIPES WITH LESS THAN 600mm COVER IN ALL EXTERNAL AREAS AND PIPES WITH LESS THAN 1200mm COVER BELOW ROADS AND DRIVEWAYS



SELECTED FILL: FREE FROM STONES LARGER THAN 40mm, LUMPS OF CLAY OVER 100mm, TIMBER, FROZEN MATERIAL, VEGETABLE MATTER.



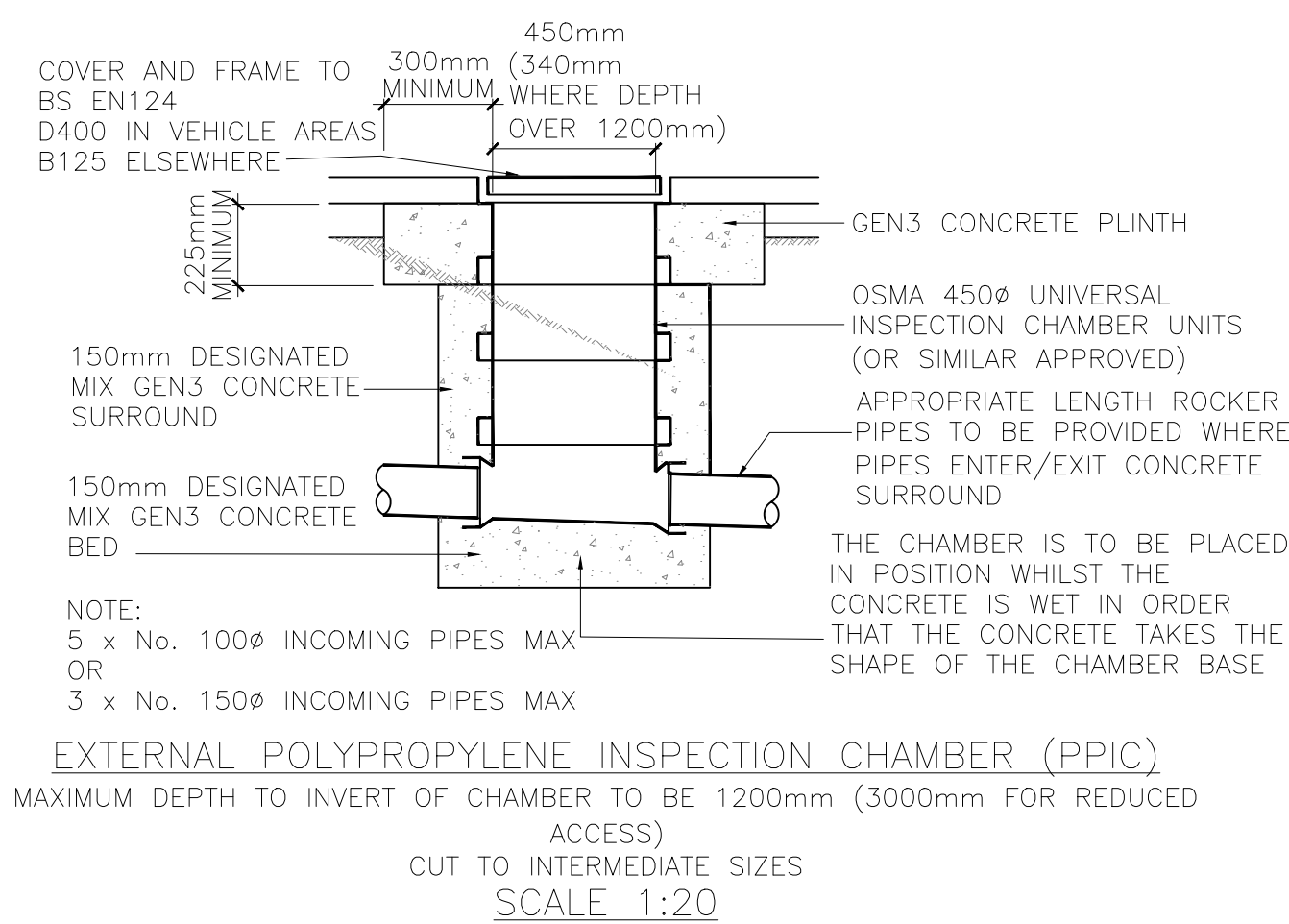
GRANULAR MATERIAL: TO CONFORM TO BS EN 1610 ANNEX B TABLE B.15 AND SHOULD BE SINGLE SIZE MATERIAL OR GRADED MATERIAL FROM 5mm UP TO A MAXIMUM SIZE OF 10mm FOR 100mm PIPES, 14mm FOR 150mm PIPES, 20mm FOR PIPES FROM 150mm UP TO 600mm DIAMETER AND 40mm FOR PIPES MORE THAN 600mm DIAMETER.



GEN1 CONCRETE IN ACCORDANCE WITH BS 8500-1:2002.

NOTE:
PIPES LESS THAN 1200mm BELOW ROADS AND LESS THAN 600mm BELOW OTHER EXTERNAL AREAS SHALL HAVE A 150mm GEN1 CONCRETE SURROUND. OTHER THAN PIPES CAST WITHIN PILECAPS ALL PIPES BELOW SUSPENDED SLAB SHALL HAVE GRANULAR SURROUND AS SHOWN.

PIPE BEDDING DETAIL
SCALE 1:10

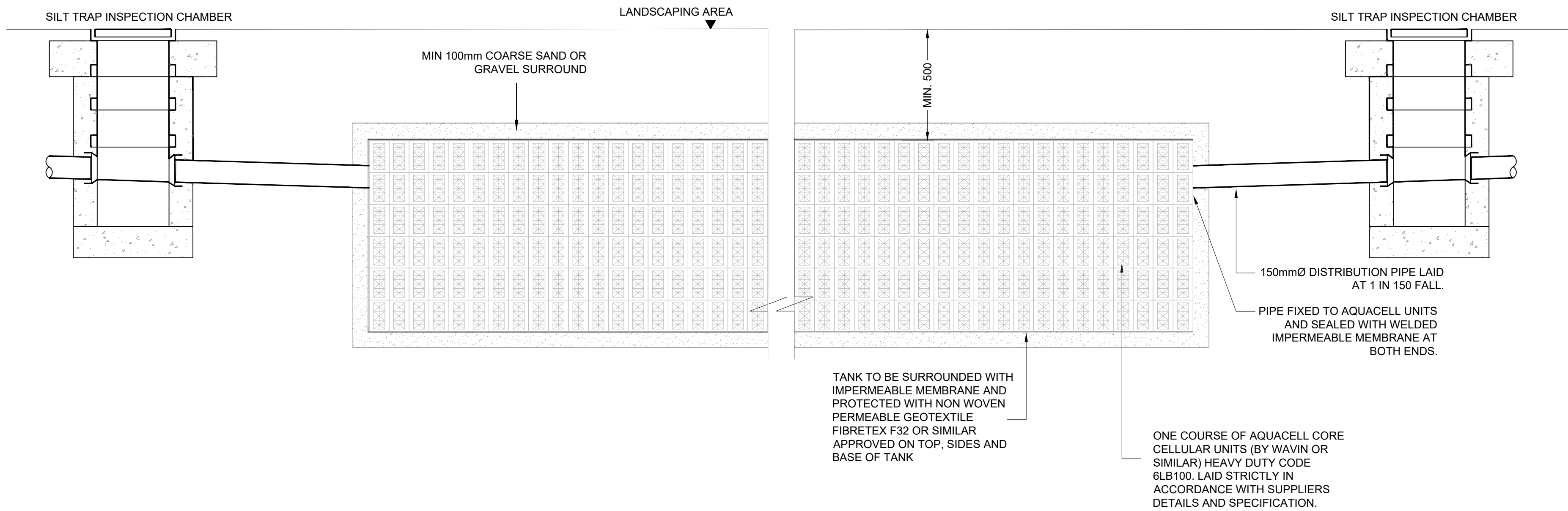


Job. No.	P6974J3321	Rev.
NOTES		
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5. FOR GRAVITY SEWERS, ALL DRAINAGE AND FITTINGS ARE TO BE FLEXIBLY JOINTED UPVC TO BS EN 1401-1 OR CLAYWARE TO BS EN295 OR CONCRETE TO BS5911 PART 100		
6. CHAMBER WALLS 225 THICK TO BE CONSTRUCTED IN CLASS B ENGINEERING BRICKS TO SHW SERIES 2400 IN DESIGNATION (I) MORTAR OR IN-SITU STRENGTH CLASS C16/20 CONCRETE TO CLAUSE 2602		
7. CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED IN PRECAST CONCRETE TO BS EN 1917 AND BS 5911-3.		
8. CONCRETE MIXES INDICATED ON THIS DRAWING ARE DESIGNATED MIXES IN ACCORDANCE WITH BS8500-1:2006. ALL CONCRETE TO BE SULPHATE RESISTANT		
9. BACKFILL TO ALL TRENCHES UNDER CARRIAGEWAYS TO BE TYPE 1 SUB-BASE MATERIAL, ELSEWHERE BACKFILL TO BE IN ACCORDANCE WITH THE SPECIFICATION, FREE DRAINING READILY COMPACTIBLE MATERIAL, FREE FROM RUBBISH AND ORGANIC MATTER, FROZEN SOIL, CLAY LUMPS AND LARGE STONES. TO BE COMPACTED IN LAYERS NOT EXCEEDING 150mm THICK.		
10. A FLEXIBLE JOINT SHALL BE PROVIDED AS CLOSE AS IS FEASIBLE TO OUTSIDE FACE OF ANY STRUCTURE INTO WHICH A PIPE IS BUILT, IN ACCORDANCE WITH THE DETAIL.		
11. THE GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIPS FOR THE CONSTRUCTION OF THE ACCESS ROAD FOOTPATHS AND OTHER AREAS OF HARDSTANDING SHALL BE THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME 1, SPECIFICATION OF HIGHWAY WORKS (SHW) PUBLISHED BY THE STATIONARY OFFICE.		
12. ALL PIPES TO BE LAID SOFFIT TO SOFFIT UNLESS NOTED OTHERWISE.		
13. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH BS EN124 AND SHALL BE OF A NON-ROCKING DESIGN WHICH DOES NOT RELY ON THE USE OF CUSHION INSERTS. CLASS D COVERS SHALL BE USED IN CARRIAGEWAYS, HARD SHOULDERS AND PARKING AREAS USED BY ALL TYPE OF ROAD VEHICLES. CLASS C SHALL BE USED IN FOOTWAYS, PEDESTRIAN AREAS AND ALL COMPARABLE LOCATIONS.		
Notes.		
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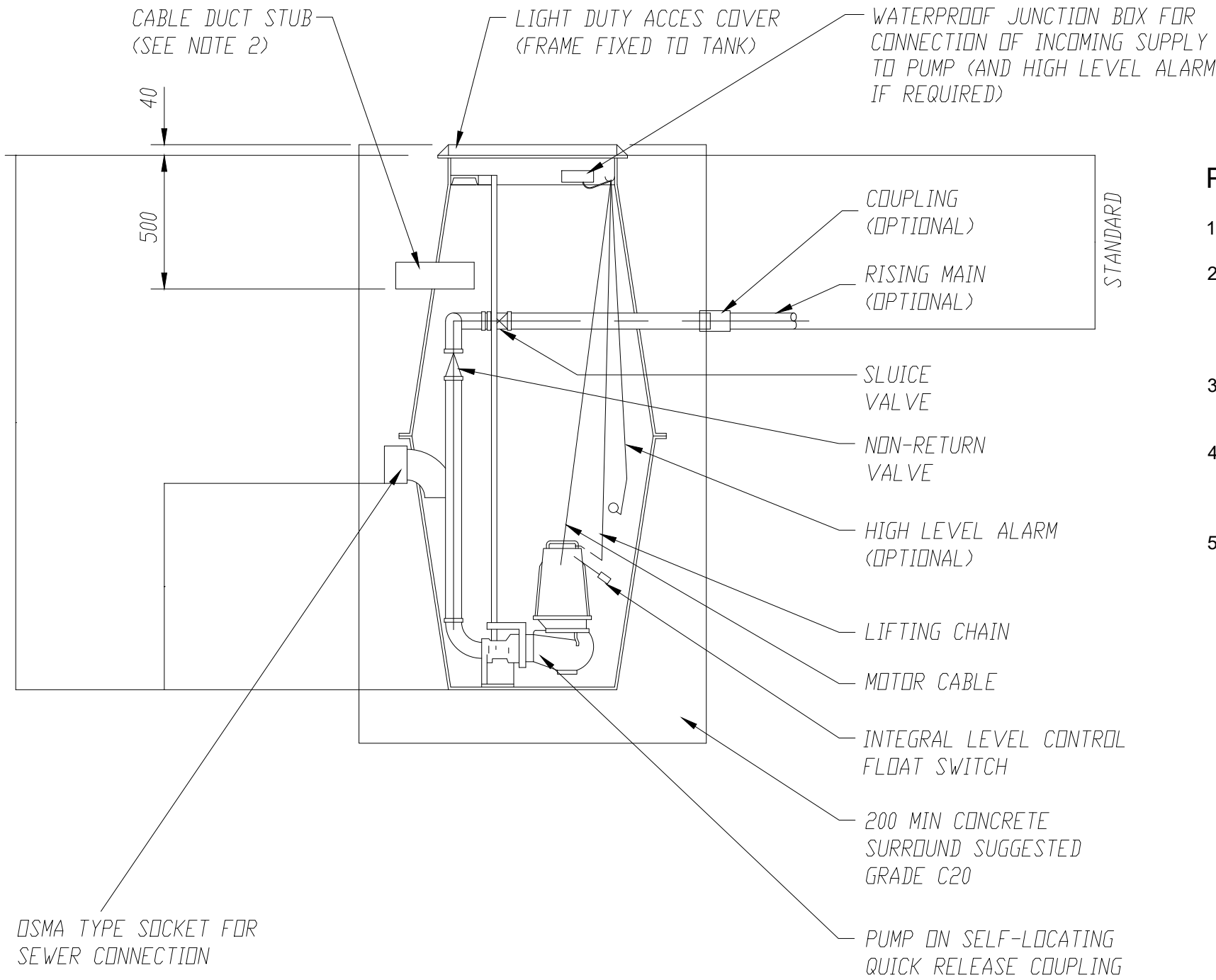
Amendments

Rev	Date	By	Chkd

JOMAS ENGINEERING ENVIRONMENTAL Jomas Associates Ltd. Unit 24 Sarum Complex, Salisbury Road, Uxbridge, UB8 2RZ		
Client	Rivington Street Studio	
Project	Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG	
Drawing	Proposed Drainage Details	
Dwg no	Checked	Surveyor
C02	AW	NA
Date	30.01.26	Scale AS SHOWN
Job No.	P6974J3321	
Grid	Contours	Level Datum

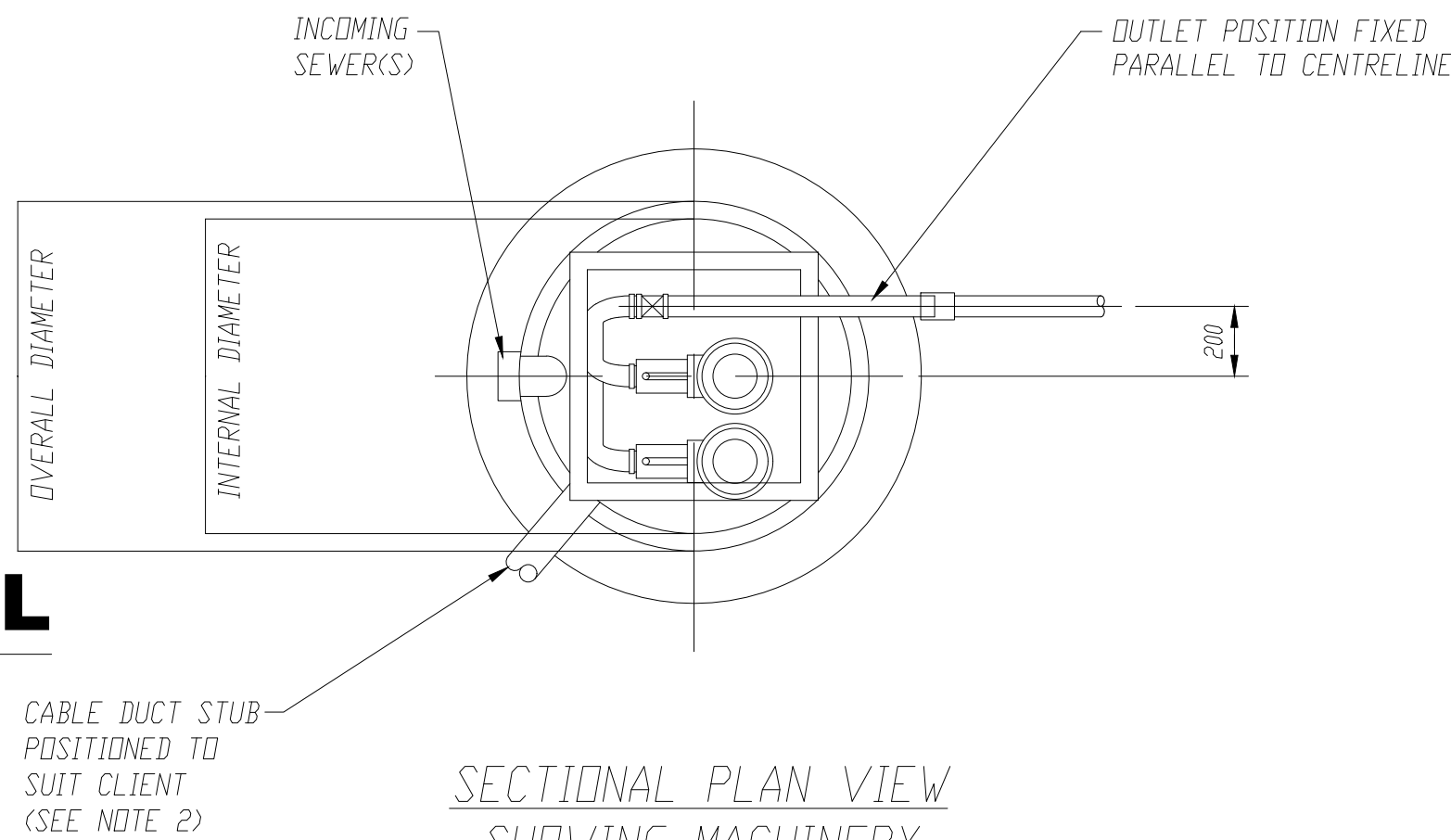


TYPICAL SECTION THROUGH
ATTENUATION TANK
SCALE 1:20



PUMP NOTES

- ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED.
- CABLE DUCT AND INLET SEWER(S) MAY BE POSITIONED AROUND PERIPHERY TO SUIT CLIENTS REASONABLE REQUIREMENTS. WHERE A PIPE POSITION COINCIDES WITH A STRUCTURAL JOINT IT WILL BE PLACED IN THE NEAREST POSSIBLE LOWER AND/OR ADJACENT LOCATION.
- THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATIVELY SO AS TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
- A HIGH WATER LEVEL FLOAT SHALL BE PROVIDED AT A HIGH LEVEL WHICH IS APPROXIMATELY 300mm BELOW THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING
- AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED WITHIN A COMMON AREA. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE. CONTACT DETAILS FOR THE ORGANISATION RESPONSIBLE FOR MAINTAINING THE PUMP TO BE PROVIDED NEARBY TO THE ALARM SYSTEM



SECTIONAL PLAN VIEW
SHOWING MACHINERY

TYPICAL PACKAGE PUMP STATION DETAIL

SCALE 1:20
NOTE: PUMP DETAILS SHOWN INDICATIVELY ONLY
AND DETAILED DESIGN SHOULD BE BY A
SPECIALIST PUMP ORGANISATION SUCH AS DUTY
POINT PUMPS

Job No.	P6974J3321	Rev.	
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10. A FLEXIBLE JOINT SHALL BE PROVIDED AS CLOSE AS IS FEASIBLE TO OUTSIDE FACE OF ANY STRUCTURE INTO WHICH A PIPE IS BUILT, IN ACCORDANCE WITH THE DETAIL.			
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Client			
Rivington Street Studio			
Project			
Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG			
Drawing			
Proposed Drainage Details 2			
Dwg no	Checked	Surveyor	
C03	AW	NA	
Date	30.01.26	Scale	AS SHOWN
Job No.	P6974J3321	Rev.	-
Grid	Contours	Level Datum	

Job. No.

P6974J3321

Rev

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2. CONSTRUCTION TO BE IN ACCORDANCE WITH ALL BRITISH AND EUROPEAN STANDARDS AND BUILDING REGULATIONS.

3. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES ABOVE LOCAL DATUM.

4. ANY DISCREPANCIES IN THE DETAILS SHOWN ARE TO BE REPORTED TO THE EMPLOYER'S REPRESENTATIVE/ENGINEER PRIOR TO CONSTRUCTION.

5. ALL EXISTING SERVICES ARE TO BE LOCATED PRIOR TO THE COMMENCEMENT OF ANY WORKS. THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICT WITH THE PROPOSED WORKS.

6. THE GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIPS FOR THE CONSTRUCTION OF THE ACCESS ROAD, FOOTPATHS AND OTHER AREAS OF HARDSTANDING SHALL BE THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, VOLUME 1, SPECIFICATION OF HIGHWAY WORKS (SHW) PUBLISHED BY THE STATIONARY OFFICE.

7. ALL RWP AND FO SHOWN ARE INDICATIVE ONLY AND SUBJECT TO APPROVAL AND SETTING OUT BY THE ARCHITECT.

8. UNLESS NOTED OTHERWISE, PIPES TO BE:
FOUL PIPES UNDER BUILDING @100@1:40,
FOUL PIPES EXTERNAL @100@1:80,
SURFACE WATER PIPES @150@1:100

STORMWATER CONCEPT
LEGEND

Overland flow

Notes.

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Key dimensions to be checked by engineer before major structural works commence on site.

1. This survey has been computed and drawn about O S National Grid.

2. All levels are in metres and relate to O S National Datum by GPS instruments.

3. This survey was measured for a scale of 1:100, any subsequent enlargements should be verified on site.

Amendments

Rev	Date	By	Chk

JOMAS

ENGINEERING
ENVIRONMENTAL

Jomas Associates Ltd.
Unit 24 Sarum Complex,
Salisbury Road,
Uxbridge, UB8 2RZ

Client

Rivington Street Studio

Project

Keep Hatch Primary
School, Ashridge Rd,
Wokingham RG40 1PG

Drawing

Proposed Overland Flow

Dwg no	Checked	Surveyor
C04	AW	NA
Date	30.01.26	Scale 1:100 @ A1
Job No.	P6974J3321	
Grid	Contours	Level Datum

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	10	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	2.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

Circular Link Type

Template	Freeform Carrier	Auto Increment (mm)	75
Shape	Circular	Follow Ground	x
Barrels	1		

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1			56.600	1200	100.000	100.000	1.450
2			56.600	1200	92.000	97.000	1.350
3	0.025	2.00	55.500	1200	50.000	90.000	1.500
4	0.017	2.00	55.600	450	50.000	80.000	0.700
5	0.018	2.00	56.300	450	75.000	90.000	0.600

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.002	2	1	8.544	0.600	55.250	55.150	0.100	85.4	100	30.00	44.4
1.001	3	2	42.579	0.600	54.000	55.250	-1.250	-34.1	150	30.00	44.4
2.000	4	3	10.000	0.600	54.900	54.000	0.900	11.1	150	2.05	50.0
1.000	5	3	25.000	0.600	55.700	54.000	1.700	14.7	150	2.16	50.0

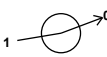
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.002	0.833	6.5	7.2	1.250	1.350	0.060	0.0	100	0.855
1.001	0.007	0.1	7.2	1.350	1.200	0.060	0.0	150	0.000
2.000	3.039	53.7	2.3	0.550	1.350	0.017	0.0	21	1.528
1.000	2.640	46.7	2.4	0.450	1.350	0.018	0.0	23	1.394

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.002	8.544	85.4	100	Circular	56.600	55.250	1.250	56.600	55.150	1.350
1.001	42.579	-34.1	150	Circular	55.500	54.000	1.350	56.600	55.250	1.200
2.000	10.000	11.1	150	Circular	55.600	54.900	0.550	55.500	54.000	1.350
1.000	25.000	14.7	150	Circular	56.300	55.700	0.450	55.500	54.000	1.350

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.002	2	1200	Manhole	Adoptable	1	1200	Manhole	Adoptable
1.001	3	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
2.000	4	450	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.000	5	450	Manhole	Adoptable	3	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	MH Type	Connections	Link	IL (m)	Dia (mm)
1	100.000	100.000	56.600	1.450	1200	Adoptable	1 	1.002	55.150	100
2	92.000	97.000	56.600	1.350	1200	Adoptable	1 	1.001	55.250	150
3	50.000	90.000	55.500	1.500	1200	Adoptable	0 1 2 	1.002 2.000 1.000	55.250 54.000 54.000	100 150 150
4	50.000	80.000	55.600	0.700	450	Adoptable	0 	1.001	54.000	150
5	75.000	90.000	56.300	0.600	450	Adoptable	0 	2.000	54.900	150
							0 	1.000	55.700	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
10	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node 3 Online Depth/Flow Control

Flap Valve x | Replaces Downstream Link ✓ | Invert Level (m) 54.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.500	2.000	3.500

Node 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr) 0.00000 | Safety Factor 2.0 | Invert Level (m) 54.200
Side Inf Coefficient (m/hr) 0.00000 | Porosity 0.95 | Time to half empty (mins) 56

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	25.0	0.0	0.800	25.0	0.0	0.801	0.1	0.0

Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m³)	
Full Bore Velocity	✓		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	79.762	22.570
1 year 15 minute winter	55.973	22.570
1 year 30 minute summer	50.483	14.285
1 year 30 minute winter	35.427	14.285
1 year 60 minute summer	33.021	8.727
1 year 60 minute winter	21.939	8.727
1 year 120 minute summer	23.540	6.221
1 year 120 minute winter	15.640	6.221

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 180 minute summer	19.074	4.908
1 year 180 minute winter	12.399	4.908
1 year 240 minute summer	15.445	4.082
1 year 240 minute winter	10.261	4.082
1 year 360 minute summer	11.948	3.075
1 year 360 minute winter	7.766	3.075
1 year 480 minute summer	9.415	2.488
1 year 480 minute winter	6.255	2.488
1 year 600 minute summer	7.697	2.105
1 year 600 minute winter	5.259	2.105
1 year 720 minute summer	6.844	1.834
1 year 720 minute winter	4.599	1.834
1 year 960 minute summer	5.606	1.476
1 year 960 minute winter	3.713	1.476
1 year 1440 minute summer	4.063	1.089
1 year 1440 minute winter	2.731	1.089
1 year 2160 minute summer	2.927	0.809
1 year 2160 minute winter	2.017	0.809
1 year 2880 minute summer	2.462	0.660
1 year 2880 minute winter	1.655	0.660
1 year 4320 minute summer	1.926	0.504
1 year 4320 minute winter	1.268	0.504
1 year 5760 minute summer	1.647	0.422
1 year 5760 minute winter	1.066	0.422
1 year 7200 minute summer	1.459	0.372
1 year 7200 minute winter	0.942	0.372
1 year 8640 minute summer	1.327	0.339
1 year 8640 minute winter	0.857	0.339
1 year 10080 minute summer	1.232	0.314
1 year 10080 minute winter	0.795	0.314
10 year 15 minute summer	246.485	69.747
10 year 15 minute winter	172.972	69.747
10 year 30 minute summer	156.910	44.400
10 year 30 minute winter	110.112	44.400
10 year 60 minute summer	102.685	27.137
10 year 60 minute winter	68.222	27.137
10 year 120 minute summer	62.424	16.497
10 year 120 minute winter	41.473	16.497
10 year 180 minute summer	47.163	12.137
10 year 180 minute winter	30.657	12.137
10 year 240 minute summer	36.693	9.697
10 year 240 minute winter	24.378	9.697
10 year 360 minute summer	27.208	7.001
10 year 360 minute winter	17.686	7.001
10 year 480 minute summer	20.879	5.518
10 year 480 minute winter	13.872	5.518
10 year 600 minute summer	16.738	4.578
10 year 600 minute winter	11.437	4.578
10 year 720 minute summer	14.656	3.928
10 year 720 minute winter	9.850	3.928
10 year 960 minute summer	11.717	3.085
10 year 960 minute winter	7.762	3.085

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
10 year 1440 minute summer	8.230	2.206
10 year 1440 minute winter	5.531	2.206
10 year 2160 minute summer	5.740	1.586
10 year 2160 minute winter	3.955	1.586
10 year 2880 minute summer	4.711	1.262
10 year 2880 minute winter	3.166	1.262
10 year 4320 minute summer	3.542	0.926
10 year 4320 minute winter	2.332	0.926
10 year 5760 minute summer	2.934	0.751
10 year 5760 minute winter	1.899	0.751
10 year 7200 minute summer	2.526	0.644
10 year 7200 minute winter	1.630	0.644
10 year 8640 minute summer	2.242	0.572
10 year 8640 minute winter	1.447	0.572
10 year 10080 minute summer	2.036	0.519
10 year 10080 minute winter	1.314	0.519
30 year 15 minute summer	331.574	93.824
30 year 15 minute winter	232.684	93.824
30 year 30 minute summer	212.425	60.109
30 year 30 minute winter	149.071	60.109
30 year 60 minute summer	138.857	36.696
30 year 60 minute winter	92.253	36.696
30 year 120 minute summer	82.237	21.733
30 year 120 minute winter	54.636	21.733
30 year 180 minute summer	61.546	15.838
30 year 180 minute winter	40.007	15.838
30 year 240 minute summer	47.587	12.576
30 year 240 minute winter	31.616	12.576
30 year 360 minute summer	34.934	8.990
30 year 360 minute winter	22.708	8.990
30 year 480 minute summer	26.682	7.051
30 year 480 minute winter	17.727	7.051
30 year 600 minute summer	21.331	5.835
30 year 600 minute winter	14.575	5.835
30 year 720 minute summer	18.644	4.997
30 year 720 minute winter	12.530	4.997
30 year 960 minute summer	14.881	3.918
30 year 960 minute winter	9.857	3.918
30 year 1440 minute summer	10.388	2.784
30 year 1440 minute winter	6.981	2.784
30 year 2160 minute summer	7.177	1.983
30 year 2160 minute winter	4.945	1.983
30 year 2880 minute summer	5.842	1.566
30 year 2880 minute winter	3.926	1.566
30 year 4320 minute summer	4.329	1.132
30 year 4320 minute winter	2.851	1.132
30 year 5760 minute summer	3.545	0.907
30 year 5760 minute winter	2.294	0.907
30 year 7200 minute summer	3.025	0.772
30 year 7200 minute winter	1.952	0.772
30 year 8640 minute summer	2.665	0.680
30 year 8640 minute winter	1.720	0.680

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year 10080 minute summer	2.405	0.614
30 year 10080 minute winter	1.552	0.614
100 year 15 minute summer	430.183	121.727
100 year 15 minute winter	301.883	121.727
100 year 30 minute summer	278.294	78.748
100 year 30 minute winter	195.294	78.748
100 year 60 minute summer	182.728	48.290
100 year 60 minute winter	121.400	48.290
100 year 120 minute summer	106.459	28.134
100 year 120 minute winter	70.729	28.134
100 year 180 minute summer	79.131	20.363
100 year 180 minute winter	51.437	20.363
100 year 240 minute summer	61.001	16.121
100 year 240 minute winter	40.528	16.121
100 year 360 minute summer	44.736	11.512
100 year 360 minute winter	29.080	11.512
100 year 480 minute summer	34.207	9.040
100 year 480 minute winter	22.726	9.040
100 year 600 minute summer	27.356	7.483
100 year 600 minute winter	18.692	7.483
100 year 720 minute summer	23.901	6.406
100 year 720 minute winter	16.063	6.406
100 year 960 minute summer	19.003	5.004
100 year 960 minute winter	12.588	5.004
100 year 1440 minute summer	13.162	3.528
100 year 1440 minute winter	8.846	3.528
100 year 2160 minute summer	8.999	2.487
100 year 2160 minute winter	6.200	2.487
100 year 2880 minute summer	7.258	1.945
100 year 2880 minute winter	4.878	1.945
100 year 4320 minute summer	5.297	1.385
100 year 4320 minute winter	3.488	1.385
100 year 5760 minute summer	4.283	1.096
100 year 5760 minute winter	2.772	1.096
100 year 7200 minute summer	3.619	0.923
100 year 7200 minute winter	2.336	0.923
100 year 8640 minute summer	3.162	0.807
100 year 8640 minute winter	2.041	0.807
100 year 10080 minute summer	2.833	0.723
100 year 10080 minute winter	1.828	0.723
100 year +40% CC 15 minute summer	602.257	170.418
100 year +40% CC 15 minute winter	422.636	170.418
100 year +40% CC 30 minute summer	389.612	110.247
100 year +40% CC 30 minute winter	273.412	110.247
100 year +40% CC 60 minute summer	255.819	67.606
100 year +40% CC 60 minute winter	169.960	67.606
100 year +40% CC 120 minute summer	149.043	39.388
100 year +40% CC 120 minute winter	99.021	39.388
100 year +40% CC 180 minute summer	110.784	28.508
100 year +40% CC 180 minute winter	72.012	28.508
100 year +40% CC 240 minute summer	85.402	22.569
100 year +40% CC 240 minute winter	56.739	22.569

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +40% CC 360 minute summer	62.631	16.117
100 year +40% CC 360 minute winter	40.712	16.117
100 year +40% CC 480 minute summer	47.889	12.656
100 year +40% CC 480 minute winter	31.817	12.656
100 year +40% CC 600 minute summer	38.299	10.476
100 year +40% CC 600 minute winter	26.168	10.476
100 year +40% CC 720 minute summer	33.461	8.968
100 year +40% CC 720 minute winter	22.488	8.968
100 year +40% CC 960 minute summer	26.604	7.006
100 year +40% CC 960 minute winter	17.623	7.006
100 year +40% CC 1440 minute summer	18.427	4.939
100 year +40% CC 1440 minute winter	12.384	4.939
100 year +40% CC 2160 minute summer	12.598	3.482
100 year +40% CC 2160 minute winter	8.680	3.482
100 year +40% CC 2880 minute summer	10.162	2.723
100 year +40% CC 2880 minute winter	6.829	2.723
100 year +40% CC 4320 minute summer	7.415	1.939
100 year +40% CC 4320 minute winter	4.883	1.939
100 year +40% CC 5760 minute summer	5.996	1.535
100 year +40% CC 5760 minute winter	3.881	1.535
100 year +40% CC 7200 minute summer	5.066	1.292
100 year +40% CC 7200 minute winter	3.270	1.292
100 year +40% CC 8640 minute summer	4.427	1.129
100 year +40% CC 8640 minute winter	2.857	1.129
100 year +40% CC 10080 minute summer	3.966	1.012
100 year +40% CC 10080 minute winter	2.560	1.012

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	1	16	55.202	0.052	3.5	0.0000	0.0000	OK
15 minute winter	2	8	55.305	0.055	3.5	0.0622	0.0000	OK
15 minute winter	3	11	54.213	0.213	7.3	0.5603	0.0000	SURCHARGED
15 minute summer	4	9	54.921	0.021	2.3	0.0034	0.0000	OK
15 minute summer	5	9	55.724	0.024	2.5	0.0038	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	2	1.002	1	3.5	0.822	0.535	0.0364	2.8
15 minute winter	3	Depth/Flow	2	3.5				
15 minute summer	4	2.000	3	2.3	0.600	0.043	0.0956	
15 minute summer	5	1.000	3	2.5	0.553	0.054	0.2422	

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	6	55.202	0.052	3.5	0.0000	0.0000	OK
15 minute winter	2	5	55.305	0.055	3.5	0.0622	0.0000	OK
30 minute winter	3	24	54.407	0.407	15.3	5.3786	0.0000	SURCHARGED
15 minute summer	4	9	54.937	0.037	7.2	0.0059	0.0000	OK
15 minute summer	5	9	55.741	0.041	7.6	0.0065	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	2	1.002	1	3.5	0.822	0.535	0.0364	8.8
30 minute winter	3	Depth/Flow	2	3.5				
15 minute summer	4	2.000	3	7.2	0.570	0.134	0.1050	
15 minute summer	5	1.000	3	7.6	0.589	0.163	0.2688	

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	5	55.202	0.052	3.5	0.0000	0.0000	OK
15 minute summer	2	5	55.305	0.055	3.5	0.0622	0.0000	OK
30 minute winter	3	28	54.539	0.539	20.8	8.6746	0.0000	SURCHARGED
15 minute summer	4	9	54.943	0.043	9.7	0.0069	0.0000	OK
15 minute summer	5	9	55.748	0.048	10.2	0.0076	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	2	1.002	1	3.5	0.822	0.535	0.0364	10.5
30 minute winter	3	Depth/Flow	2	3.5				
15 minute summer	4	2.000	3	9.7	0.744	0.181	0.1090	
15 minute summer	5	1.000	3	10.2	0.764	0.219	0.2802	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.55%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	4	55.202	0.052	3.5	0.0000	0.0000	OK
15 minute summer	2	4	55.305	0.055	3.5	0.0622	0.0000	OK
30 minute winter	3	30	54.712	0.712	27.2	12.9700	0.0000	SURCHARGED
15 minute summer	4	9	54.949	0.049	12.5	0.0078	0.0000	OK
15 minute summer	5	9	55.755	0.055	13.3	0.0087	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	2	1.002	1	3.5	0.822	0.535	0.0364	13.6
30 minute winter	3	Depth/Flow	2	3.5				
15 minute summer	4	2.000	3	12.5	0.929	0.233	0.1132	
15 minute summer	5	1.000	3	13.3	0.962	0.285	0.2929	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.61%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	1	8	55.202	0.052	3.5	0.0000	0.0000	OK
120 minute winter	2	34	55.305	0.055	3.5	0.0622	0.0000	OK
60 minute winter	3	58	55.247	1.247	23.7	20.4576	0.0000	FLOOD RISK
60 minute winter	4	58	55.247	0.347	6.7	0.0552	0.0000	SURCHARGED
15 minute summer	5	9	55.766	0.066	18.6	0.0105	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	2	1.002	1	3.5	0.822	0.535	0.0364	39.6
60 minute winter	3	Depth/Flow	2	3.5				
60 minute winter	4	2.000	3	6.7	0.695	0.125	0.1760	
15 minute summer	5	1.000	3	18.6	1.279	0.399	0.3131	

APPENDIX C: MAINTENANCE REPORT

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Geotechnical Engineering and Environmental Services across the UK

DRAINAGE MAINTENANCE PLAN

**Keep Hatch Primary School, Ashridge Rd, Wokingham
RG40 1PG**

Report Title: Drainage Maintenance Report for Keep Hatch Primary School, Ashridge Rd, Wokingham RG40 1PG

Report Status: Final

Job No: P6974J3321

Date: January 2026

Control: Previous Release

Version	Date	Issued By
V1.0	30/01/2026	A Wallace

Prepared by: **JOMAS ASSOCIATES LTD** For: **Rivington Street Studio**

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1.1 General

1.1.1 Sustainable Drainage Systems (SuDS) are an environmentally friendly approach to managing rainfall. SuDS techniques use landscape features to deal with surface water with the aim to:

- Control the flow, volume and frequency of water leaving a development.
- Prevent pollution by intercepting silt and cleaning runoff from hard surfaces.
- Provide attractive surroundings for the community.

1.1.2 The surface water drainage strategy for this development utilises an attenuation tank as the main SUDS feature. The following sections provides a brief description of these features and outlines the maintenance programme that should be adopted.

1.2 Cleaning of the Drainage System

1.2.1 Drainage systems should be inspected at regular intervals and where necessary, thoroughly cleaned out at the same time. Any defects discovered should be made good.

1.2.2 The following operations should be carried out during the periodic cleaning of a drainage system.

Table 1: Drainage Maintenance

Product Type	Period	Responsibility	Maintenance Methods
Silt Trap	As necessary and before wet season	Site Owner	• Sediment and debris that accumulated during summer needs to be removed before the wet season. • Inspect and clean out routinely prior to inlet pipework to minimise debris reaching the tank. • Conduct inspections more frequently during the wet season for the area where sediment or trash accumulates more often. Clean and repair as needed.
Standard Manholes/ Inspection Chambers	As necessary	Site Owner	• Remove and clean any soil and vegetation that covers the manhole cover to prevent blockage of the drainage system at the manhole. • Renew/replace any damaged/missing bolts and damaged/missing manhole covers.
Drainage Pipes	Six monthly interval	Site Owner	• Inspect underground drainage pipes to ensure that the distribution pipework arrangement is operational and free from blockages. If required, take remedial action.

Product Type	Period	Responsibility	Maintenance Methods
Pumps	As required	Site Owner	• Inspection/check of all inlets to ensure that they are in good condition and operating as designed. • Debris removal from catchment surface (where may cause risks to performance). • Renew/replace any damaged/missing bolts and damaged/missing manhole covers. • Conduct inspections more frequently during the wet season for the area where sediment or trash accumulates more often. Clean and repair as needed. • Regular pump maintenance as recommended by pump manufacturer
Attenuation tank	Six monthly (Ideally, this activity to be carried out in spring and autumn seasons)	Site Owner	• Debris removal from catchment surface (where may cause risks to performance).
	Annually and after large storms	Site Owner	• Inspection/check of all inlets to ensure that they are in good condition and operating as designed
	As required (minimum annually)	Site Owner	• CCTV survey of tank and cleaning as required

1.3 Sketches and Plans

1.3.1 The locations of the above features can be found by examining Drawing P6974J3321-C01

1.4 Maintenance Checklist

1.4.1 As well as the above checklist, the below Inspection Regime should be completed on a 6 monthly basis and the above inspection checklist table updated as required.

Inspection date								
	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date Completed
General inspection items								
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours or nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Is there any deterioration in the surface of permeable or porous surfaces (eg rutting, spreading of blocks or signs of ponding water)?								

Silt/sediment accumulation								
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent.								
Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?								

Does permeable or porous surfacing require sweeping to remove silt?								
System blockages and litter build-up								
Is there evidence of litter accumulation in the								
Is there any evidence of any other clogging or								
Vegetation								
Is the vegetation condition satisfactory								
Does any part of the system require weeding, pruning or mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species								
Infrastructure								
Are any check dams or weirs in good condition?								
Is there evidence of any accidental damage to the system (eg wheel ruts?)								
Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the flow controls?								
Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								
Other observations								
Information appended (eg photos)								

Suitability of current maintenance regime								
Continue as current								
Increase maintenance								
Next inspection								
Proposed date for next inspection								

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