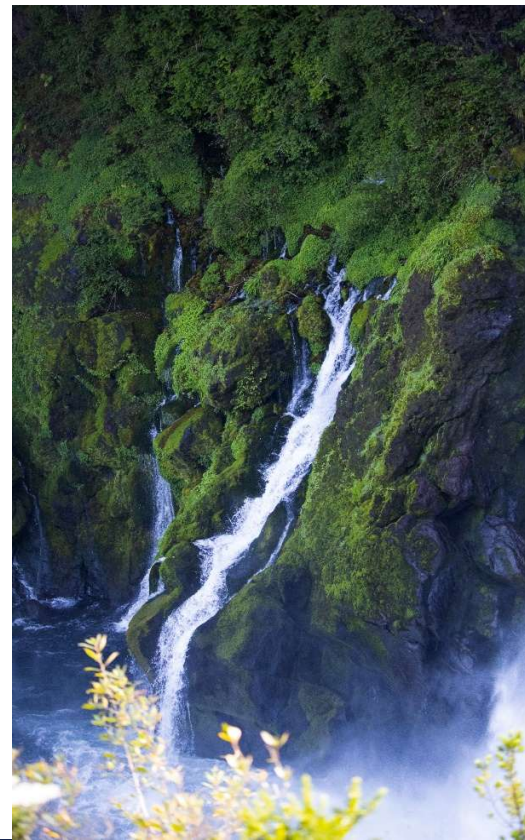




Beversbrook Farm

Surface Water Drainage Strategy

degadea
water, civils and environment

Site Address: Beversbrook Farm
Calne Road (A3102)
Wiltshire
SN11 8RX

UK Experts in Flood Modelling, Flood Risk
Assessments, and Surface Water Drainage Strategies

degadea
water, civils and environment

Document Issue Record

Project: Surface Water Drainage Strategy

Prepared for: Haines Construction (Southern) Ltd.

Reference: 10966_SN8_Beversbrook Farm_06

Site Location: Beversbrook Farm, Caine Road (A3102), Wiltshire, SN11 8RX

Issue	Date	Author	Check	Authorised	Comments
1	05/06/2026	Alix Rouvrais	Victoria Walker	Victoria Walker	First issue
2	03/07/2026	Alix Rouvrais	Victoria Walker	Victoria Walker	Point of discharge amended and appendix updated.

Please Note:

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1. Introduction

- 1.1. Aegaea were commissioned by Haines Construction (Southern) Ltd. (the Client) to prepare a Drainage Strategy to support a planning application at the below address.

Site Overview

- 1.2. The site of the proposed development is Beversbrook Farm, Caine Road (A3102), Wiltshire, SN11 8RX.



Figure 1: Site Layout

- 1.3. The proposed development site is situated and accessed from Caine Road (A3102) to the East of the site.
- 1.4. The site comprises of various industrial buildings, farm buildings and associated yards.
- 1.5. The area of the proposed development is currently hard paved/impermeable surfacing used for storage.
- 1.6. Lidar level information illustrates that existing site levels vary between 79.00m Above Ordnance Datum (AOD) to the North of the site and 75.80m AOD to the south.

- 1.7. Wiltshire Council is the Local Planning Authority (LPA) and designated Lead Local Flood Authority (LLFA) for the site.
- 1.8. Wessex Water are the Sewerage Undertaker for the area although there are no Wessex water assets within proximity to the development. Wessex Water's asset mapping is included within Appendix A.

Development Proposals

- 1.9. It is proposed to extend an existing building for storage purposes.
- 1.10. The proposed development layout can be seen in Figure 2 below and is contained within Appendix B.



Figure 2: Proposed Site Plan

Ground Conditions

- 1.11. A review of readily available information indicates that the site is in an area of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage (Soilscapes soil types viewer). British Geological Survey (BGS) data indicates that the bedrock underlying the site is Kimmeridge Clay Formation-Mudstone.
- 1.12. Based on the above, it is considered that the disposal of surface water via infiltration is not feasible and an alternative strategy in line with the SuDS hierarchy is to be sought.
- 1.13. It is recommended that Infiltration testing to BRE365 is undertaken on site prior to the detailed design stage to be definitive.

2. Surface Water Drainage Strategy

Existing Drainage System

- 2.1. It is believed that the existing on-site surface water drainage is discharges directly to the watercourse/Fisher's Brook. located to the West of the site.

Proposed Drainage Hierarchy

- 2.2. Current guidance indicates that the following surface water disposal options should be considered, listed in order of preference:
- i. **Disposal via rainwater harvesting:** There are some opportunities for rainwater Butts to be located at the base of RWP's but due to the nature of the development there is likely to be no demand for water re-use.
 - ii. **Disposal via on-site infiltration systems:** As mentioned above, infiltration has been discounted due to unfavourable ground conditions.
 - iii. **Disposal to a watercourse/surface water body:** There is an existing watercourse that runs along the western boundary of the site, which is understood to be a tributary to Fishers Brook.
 - iv. **Disposal to surface water sewer:** There is a private surface water sewer on site of which discharges to Fishers Brook.
 - v. **Disposal to combined sewer:** There are no public combined sewers within the vicinity of the site.
- 2.3. In accordance with the SuDS hierarchy, it is proposed that surface water flows from the proposed development are to discharge at a controlled rate into the existing on-site surface water sewer which discharges to the watercourse along the western site boundary.

Runoff Rates

- 2.4. The development area is currently 100% hard paved/impermeable.
- 2.5. Using the Modified Rational Method to calculate the Brownfield runoff rate (as set out in CIRIA C753), the brownfield runoff rate for the area of the proposed extension is 1.557 l/s. Brownfield runoff calculations can be found in Appendix C
- 2.6. An assessment of greenfield runoff rates has been undertaken, based on the proposed development drainage catchment area (circa 600m²) using HR Wallingfords Greenfield Runoff Rate tool, Greenfield runoff rate calculations are included within Appendix C.
- 2.7. The greenfield runoff rates for the proposed development site are set out in the Table 1 below.

Return Period	Greenfield Runoff Rate
Q_{BAR}	0.3 l/s
1 in 1 Year	0.2 l/s
1 in 30 Year	0.6 l/s
1 in 100 Year	0.7 l/s

Table 1: Greenfield Runoff Rates

- 2.8. The table above shows that due to the small nature of the proposed development and the associated soil class type, greenfield runoff rates are extremely low.
- 2.9. Where a site is below 1ha and greenfield runoff rates are low, it is considered that 1 l/s forms a practical minimum flow rate that balances and mitigates both the increased flood risk and blockage risk to the proposed drainage system. It is therefore proposed to restrict flows to 1 l/s as an appropriate minimum flow for small sites.

Proposed Drainage Strategy

- 2.10. Lined filter drains around the proposed building have been proposed to collect and convey flows from the roof rainwater down pipes.
- 2.11. A cellular attenuation crate system is proposed to the south of the development to attenuate flows up to and including the 1:100 yr + 45% climate change event.
- 2.12. All flows discharging to the existing on-site surface water sewer to the watercourse are to be limited to 1 l/s via a hydro-brake flow control.
- 2.13. All existing external areas outside of this development are to remain unchanged and shall continue to drain as per the existing arrangement.
- 2.14. The proposed drainage layout can be found within Appendix D with supporting drainage calculations can be found in Appendix E.

3. Future Maintenance Strategy

Sustainable Drainage (SuDS) features checklist

3.1. SuDS techniques include landscape features and control structures to manage runoff as it flows to site outfalls. The following lists the features which may be found on a site.

- **Filter drains** clean, store and convey water to another feature or allow it to soak into the ground. They are stone filled trenches, sometimes with a perforated pipe in the bottom. These may be enlarged to treat dirty water, as treatment trenches, or increase soakage into the ground, as infiltration trenches.
- **Cellular attenuation tank** will accept surface water runoff from roofs, car park access road and hard paved areas.
- **Catchpits** will provide surface water treatment by allowing silt and other particles to settle in their bases, limiting ingress into the system.
- **Hydro-Brake (Vortex Flow Control)** is a self-activating vortex flow control with no moving parts and no power requirement. It is used to control the forward flow of water in surface water applications. Hydro-Brake's balance flow rates and attenuation, according to project priorities.
- **Flow routes (exceedance routes) allow water volumes exceeding the capacity of the SUDS system to escape from the site without causing damage to property. This route must be clear of obstructions at all times.**

General Maintenance

- 3.2. The surface water drainage network will be managed throughout the lifetime by the owners of the proposed development in accordance with details set out below.
- 3.3. All drainage, whether piped or SuDS require regular maintenance. The tables below provide an overview of general maintenance tasks and frequency of which they need to be undertaken.

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Inspect for sediment and debris in catchpit manholes and gullies. Clean out as required	Twice Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional Maintenance	Remove sediment and debris in catchpits, gullies, attenuation devices and inside concrete manhole rings.	As required, based on inspections.
Remedial actions	Reconstruct and/or replace components, if performance deteriorates or failure/blockage occurs.	As required
	Replacement of clogged components (flow restriction)	As required
Monitoring	Inspect silt traps/gullies/catchpits and note rate of sediment accumulation.	Monthly in the first year and then annually
	Check attenuation devices	Annually

General maintenance for Surface Water Drainage Systems as per CIRIA C753.

- 3.4. The required maintenance for each component making up the drainage system is scheduled in the tables below, based on CIRIA report C753 – The SuDS manual.

Filter Drain

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Remove Litter and debris from filter drain surface, access chambers and pre-treatment devices.	Monthly (or as required)
	Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage.	Monthly
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate frequencies	Six monthly
	Remove sediment from pre-treatment devices	Six monthly or as required
Occasional Maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain using recommended methods (eg NJUG, 2007 or BS 3998:2010)	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlaying filter medium.	Five yearly, or as required
	Clear perforated pipework of blockages	As required

Specific maintenance needs of the filter drain should be monitored, and maintenance schedules adjusted to suit requirements. Sediment testing may be required.

Cellular Attenuation Tank

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings.	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)

Maintenance Schedule	Required Action	Typical Frequency
Occasional Maintenance	Remove sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings.	As required, based on inspections.
Remedial actions	Reconstruct tank and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of tank)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation.	Monthly in the first year and then annually
	Check tank to ensure emptying is occurring	Annually

General maintenance for a Cellular Attenuation Tank as per CIRIA C753.

Maintenance will usually be carried out manually, although a suction tanker can be used for sediment/debris removal for large systems. If maintenance is not undertaken for long periods, deposits can become hard packed and require considerable effort to remove

Hydro-Brake (Vortex Flow Control)

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Remove sediment and debris from flow control chambers and upstream manholes. Check for signs of damage, wear and tear. Check any visible fixing bolts.	Monthly (for the first 12 months, then 6 monthly).
Remedial Actions	Replace or clean hydrobrake if performance deteriorates or failure occurs. In the event of the blockage, the blockage/foreign material should be manually removed	As necessary.
Monitoring	Check flow control to ensure emptying is occurring.	Quarterly and post high intensity storm event.

Headwall (Outfall)

Maintenance Schedule	Required Action	Typical frequency
Regular Maintenance	Inspect inlets, outlets for blockages and clear if required	Monthly (for the first 12 months, then 6 monthly).
	Check for signs of damage, erosion of banks or scour.	
	Inspect structural integrity of head wall structure	
	Check integrity of metal work and replace when needed.	
Occasional Maintenance	In the event of the blockage, the blockage/foreign material should be manually removed	Annual/bi-annual visual checks are basic recommendation
	Galvanised Grates and Handrails	
Remedial Actions	In the event of damage, erosion of banks or scour, rehabilitate as required.	As required
	Repair/rehabilitation of inlets/outlets/overflows	As required
	Re-level uneven surfaces and reinstate design levels	As required

4. Pollution Prevention & Water Quality Management

SuDS Mitigation Indices

- 4.1. Chapter 26 of the CIRIA C753 The SuDS Manual, provides design advice to meet water quality standards by adopting the SuDS train treatment mechanism and thereby reduce the risk of pollution by evaluating potential pollution hazards at the outset.
- 4.2. The proposed site layout provides the opportunity to introduce SuDS into the scheme to reduce potential contaminant risk further.
- 4.3. Runoff from individual property driveways, residential car parks and low traffic roads are generally viewed as low risk (as per Table 26.2 of C753), shown in the tables below.

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Other Roofs (typically industrial / commercial roofs)	Low	0.3	0.2*	0.05

Pollutant Hazard Indices

* This figure can increase up to 0.8 where there is potential for metals to leach from the roof. For example, where a commercial/industrial roof is made of materials susceptible to metal leaching (such as certain unpainted or aging zinc, copper, or galvanised metal roofing), the pollution hazard index increases to 0.8. Modern building materials are proposed for this development.

	Mitigation Indices				Indices for Calculation		
	TSS	Metals	Hydrocarbons		TSS	Metals	Hydrocarbons
Filter Drain	0.4	0.4	0.4	100%	0.4	0.4	0.4
Total Mitigation Indices score					0.4	0.4	0.4
Sufficiency of Pollution Mitigation Indices					Sufficient (No additional mitigation required)		

SuDS Mitigation Indices

- 4.4. The mitigation indices offered by the proposed SuDS features exceed the hazard indices from roof areas, therefore provides adequate mitigation. It is therefore considered that the proposed SuDS features on site are appropriate and acceptable in terms of water quality.

Appendix A - Wessex Water Asset Map

Wessex Water Network Map

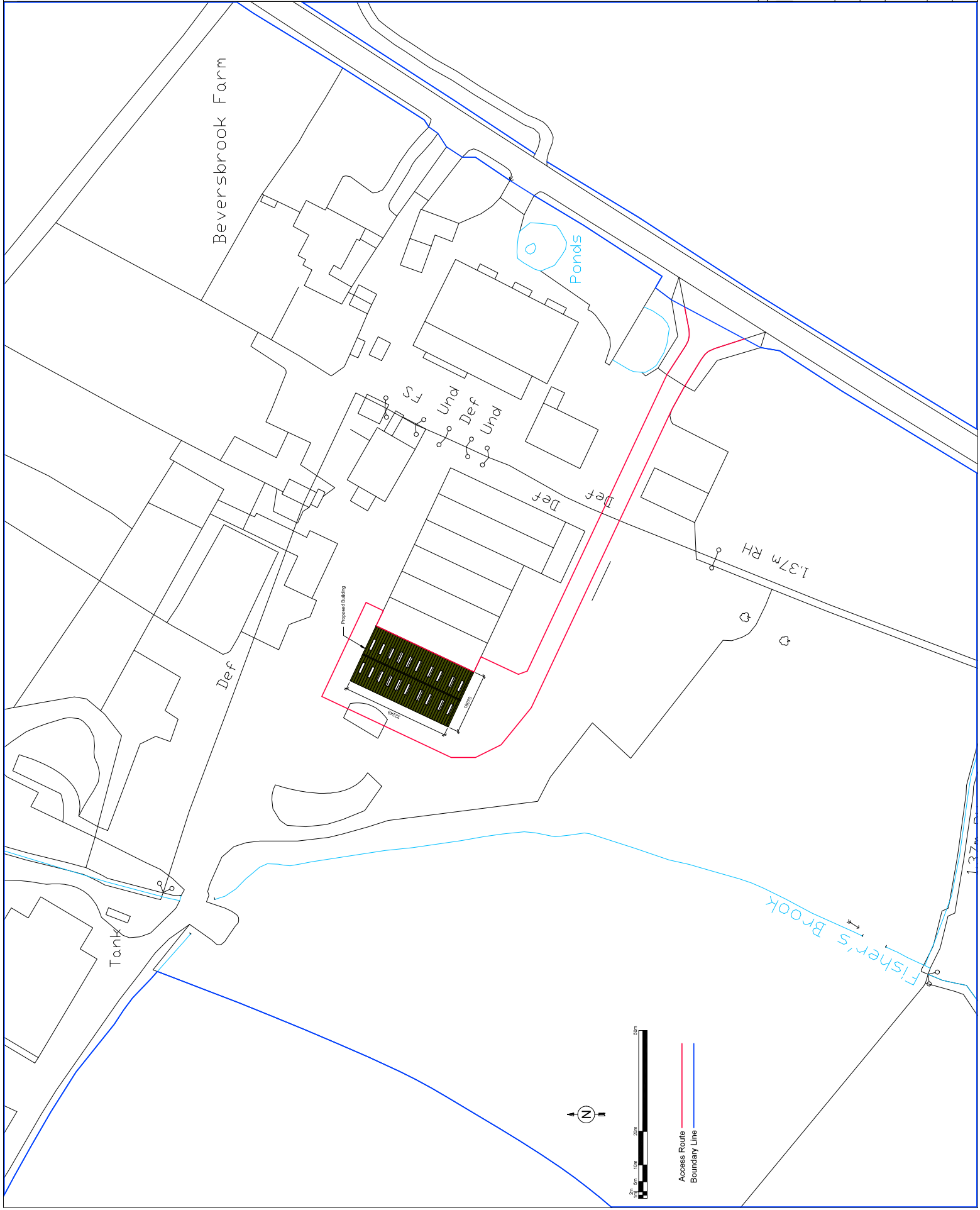


Reproduced from the Ordnance Survey map with the permission of the Controller of His Majesty's Stationery Office. © Crown copyright and database rights (2026) OS AC0000848304

WATER MAINS		SEWERS		STRATEGIC PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul						Rising Mains		Private Rising Mains		Culverted Watercourse
	Washout		Surface						Standby Rising Mains		Highway Drain		Use Unknown
	Raw Water		Combined						EDM Effluent Disposal		Overflow		Syphon
	Abandoned		Abandoned										
	Private	Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow).											
Some styles of line and symbol are shown on the key in sample/typical colours.													
FITTINGS		STRUCTURES		PUMPING STATION - SURFACE		PUMPING STN - FOUL/COMBINED		GULLY		VENT COLUMN		RODDING EYE	
	Hydrant		Manhole - Foul										
	Other		Manhole - Surface										
			Manhole - Combined										
			Inlet										
			Outfall										
			Lamphole										
			Bifurcation - Foul										
			Bifurcation - Surface										
			Bifurcation - Combined										
			Combined Sewage Overflow										
			Air Valve										
			Hatch Box										
			Washout										
OTHER STRUCTURES Attenuation Tank Storage Tank Chamber Tunnel Interceptor													
Information in this map is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.													
Date: 05/06/2026 Centre: 400758E, 173527N Scale: 1:625 (when printed at A4 size)													

Appendix B - Proposed Site Layout

GENERAL NOTES:



Index	Date	Description	Author
HAINES Construction (Southern) Ltd.			
Beversbrook, Calne, Wiltshire, SN11 8PX T: 01249 812100 F: 01249 812101 Email: info@hainesconstruction.co.uk			
CLIENT: Haines Construction (Southern) Ltd			
PROJECT: Proposed Storage Building Extension			
DRAWING TITLE: Proposed Block Plan 1:500			
DRAWN BY: J.G.S.	CHECKED BY:	DATE: 02/06/2025	SCALE: 1:500 @ A1
PROJECT No: 11369	DRAWING No:	REV:	[G]-004

Appendix C - Brownfield & Greenfield Run off Rate Calculations

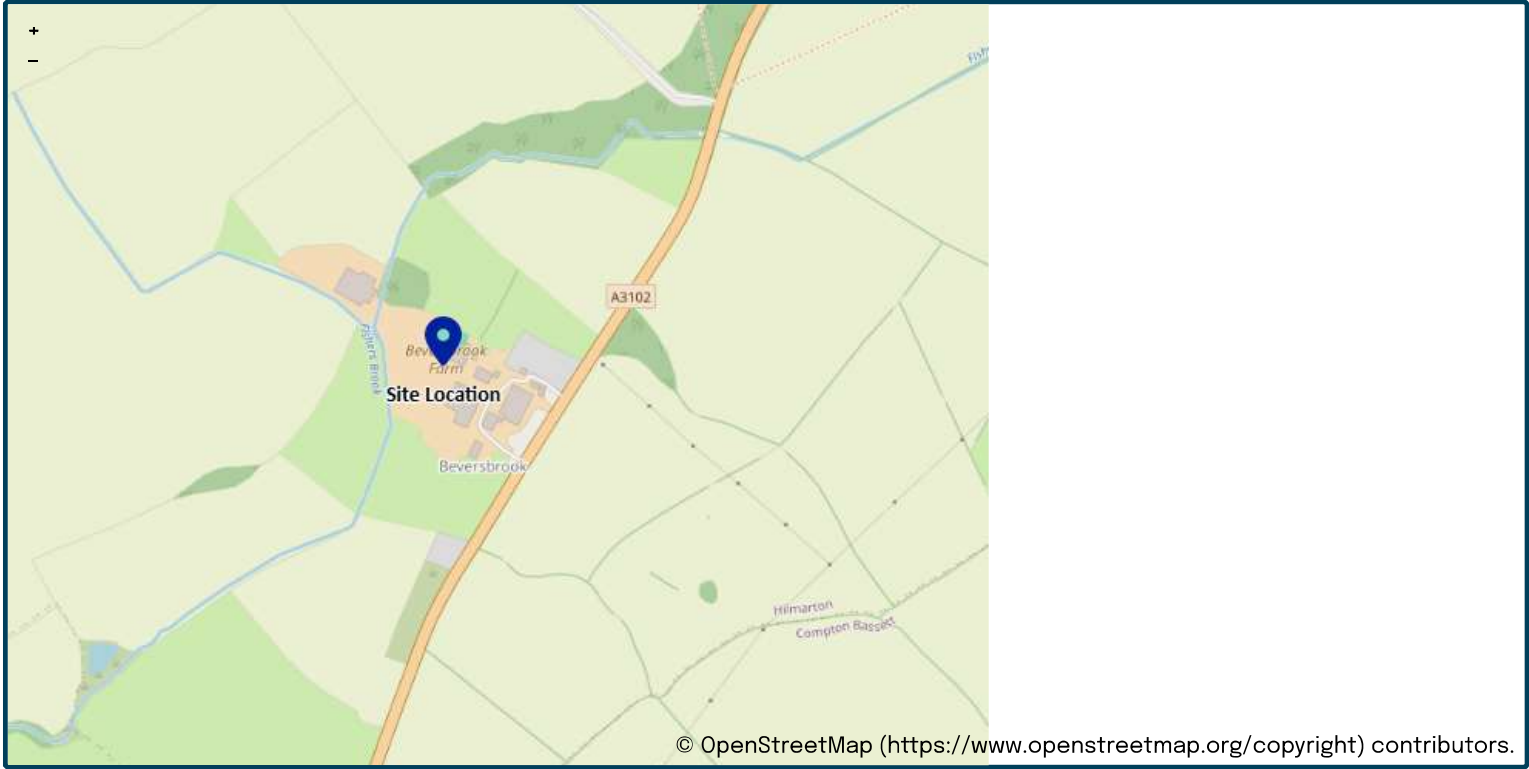
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	05/06/2026
Calculated by	AR
Reference	Beverbrook Farm
Model version	2.2.3

Location

Site name	Beverbrook Farm
Site location	Wiltshire



Site easting (British National Grid)	400750
Site northing (British National Grid)	173551

Site details

Total site area (ha)	0.06	ha
----------------------	-----------------------------------	----

Greenfield runoff

Method

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

IH124

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	712	mm	712
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	0.3	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	8		8
1 year growth factor	0.78		
2 year growth factor	0.93		
10 year growth factor	1.49		
30 year growth factor	1.95		
100 year growth factor	2.43		
200 year growth factor	2.78		

Results

Method	IH124	
Flow rate 1 year (l/s)	0.2	l/s
Flow rate 2 year (l/s)	0.3	l/s
Flow rate 10 years (l/s)	0.4	l/s
Flow rate 30 years (l/s)	0.6	l/s
Flow rate 100 years (l/s)	0.7	l/s
Flow rate 200 years (l/s)	0.8	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.

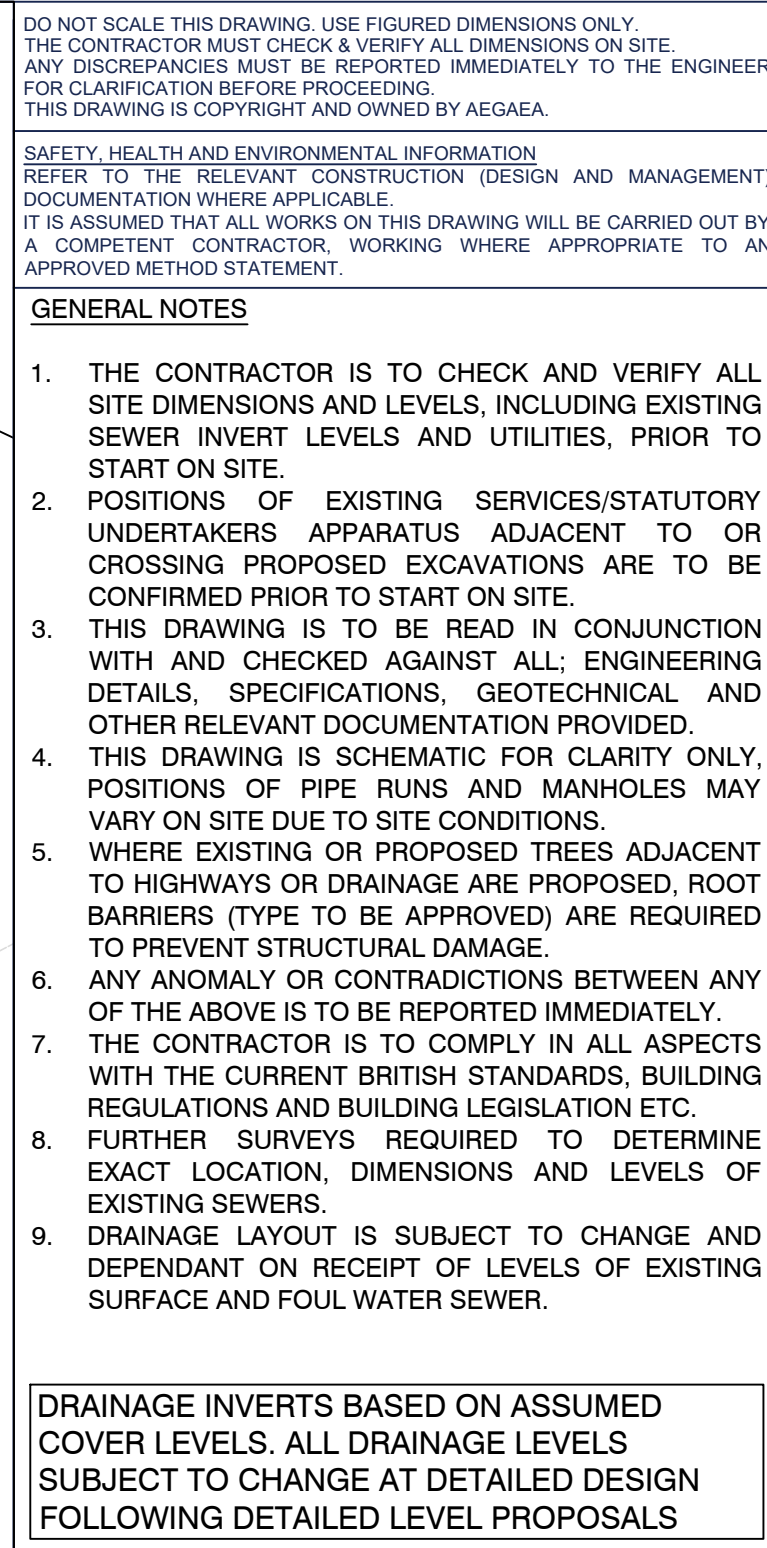
Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.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.uksuds.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.

Project	Beverbrook Farm		Job Ref. AEG10966	
Client	Chris Cary		Sheet 1	Rev. a
Element	Brownfield Runoff Calculations	Date 05/06/2026	Calc by AR	Check by VW

Ref	Calculations	Output
	Using the Modified Rational Method (as set out in CIRIA C753) to calculate the Brownfield runoff rate. $Q = 2.78 \times C \times i \times A$ (EQ. 24.5) i = Average rainfall intensity of the design storm in millimetres per hour, mm/hr. A = Effective impermeable area of the existing site in hectares, ha. Q = Rainfall runoff rate in litres per second, l/s. C = Dimensionless Runoff Coefficient. * 2.78 = Conversion factor to address the rainfall unit being in mm/hr. *Ciria C753 (Section 24.6.2), volumetric and routing coefficients CV & CR (CV of the order 0.6 and the routing coefficient, CR of the order of 1.3) the two coefficients are usually incorporated into a single term with a value of between 0.8 and 1.0 depending on how effectively the catchment is drained. A constant rainfall intensity of 35mm/hr has been assumed (24.6.2 – Rainfall intensity). The estimated brownfield rainfall rate has been based on the existing drainage systems draining a total area of 0.016 ha. $Q = 2.78 \times 1.0 \times 35 \times 0.016 = 1.557 \text{ l/s}$ The above calculation demonstrates that the development currently drains unrestricted at 1.556 l/s. The proposed restricted discharge rate is to be set at 1l/s which is a 36% betterment over the existing discharge rate on site	

Appendix D - Drainage Layout



 SITE BOUNDARY
 FILTER DRAIN
 SURFACE WATER SEWER
 EXISTING SURFACE WATER DRAIN
 CELLULAR ATTENUATION CRATES
 EXISTING OVERLAND FLOW ROUTE
 POST CONSTRUCTION OVERLAND FLOW ROUTE

AO1	29.05.26	FIRST ISSUE	AR
Rev	Date	Description	
Client			
WOOLLEY AND WALLIS			
Project			
BEVERSBROOK FARM			
DRAINAGE STRATEGY			
Project No.		Drawing No.	Revision
AEG10966		CIV-001	A01
Drawn	Checked	Approved	Date
AR	VW	JM	MAY 26
Drawing Status			Scale (@ A0)
PLANNING			1:200

Appendix E - Surface water Calculations

Existing Pipe Outfall to Dry Pond

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	10	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	0.0
Ratio-R	0.400	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	10	0
30	0	10	0
100	45	10	0

Node S4 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	75.495	Product Number	CTL-SHE-0041-1000-1700-1000
Design Depth (m)	1.700	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.0	Min Node Diameter (mm)	1200

Node S4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	75.495
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	50.0	50.0	1.000	50.0	75.1	1.001	0.0	75.1

Results for 1 year +10% A 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 winter	FD1	10	77.986	0.036	2.3	0.0000	0.0000	OK
15 minute winter	S1	11	77.821	0.059	4.6	0.0094	0.0000	OK
15 minute winter	S2	10	77.439	0.020	9.0	0.0032	0.0000	OK
15 minute winter	FD2	10	77.980	0.030	2.3	0.0000	0.0000	OK
15 minute winter	S3	10	75.661	0.084	9.0	0.0239	0.0000	OK
240 minute winter	S4	180	75.633	0.138	2.0	6.7261	0.0000	OK
240 minute winter	OUTFALL	180	75.219	0.019	0.6	0.0000	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	FD1	1.000	S1	2.3	0.477	0.128	0.0907	
15 minute winter	S1	1.001	S2	4.5	1.213	0.253	0.1341	
15 minute winter	S2	1.002	S3	9.0	1.698	0.037	0.0058	
15 minute winter	FD2	2.000	S2	2.3	1.191	0.076	0.0364	
15 minute winter	S3	1.003	S4	9.0	1.420	0.507	0.0609	
240 minute winter	S4	1.004	OUTFALL	0.6	0.467	0.034	0.0377	10.0

Results for 30 year +10% A 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 winter	FD1	10	78.008	0.058	5.7	0.0000	0.0000	OK
15 minute winter	S1	10	77.863	0.101	11.4	0.0161	0.0000	OK
15 minute winter	S2	10	77.450	0.031	22.4	0.0049	0.0000	OK
15 minute winter	FD2	10	77.998	0.048	5.7	0.0000	0.0000	OK
240 minute winter	S3	232	75.862	0.285	4.4	0.0807	0.0000	SURCHARGED
240 minute winter	S4	232	75.862	0.367	4.3	17.8464	0.0000	SURCHARGED
30 minute summer	OUTFALL	78	75.219	0.019	0.6	0.0000	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	FD1	1.000	S1	5.7	0.599	0.318	0.1764	
15 minute winter	S1	1.001	S2	11.1	1.495	0.624	0.2607	
15 minute winter	S2	1.002	S3	22.4	1.838	0.092	0.0101	
15 minute winter	FD2	2.000	S2	5.7	1.543	0.189	0.0696	
240 minute winter	S3	1.003	S4	4.3	0.761	0.241	0.1450	
240 minute winter	S4	1.004	OUTFALL	0.6	0.471	0.035	0.0384	14.6

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.38%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	FD1	11	78.143	0.193	10.7	0.0000	0.0000	SURCHARGED
15 minute winter	S1	11	78.081	0.319	20.0	0.0507	0.0000	SURCHARGED
15 minute winter	S2	11	77.470	0.051	39.5	0.0081	0.0000	OK
15 minute winter	FD2	10	78.016	0.066	10.7	0.0000	0.0000	OK
600 minute winter	S3	555	76.277	0.700	4.0	0.1981	0.0000	SURCHARGED
600 minute winter	S4	555	76.277	0.782	3.9	38.0177	0.0000	SURCHARGED
600 minute winter	OUTFALL	555	75.220	0.020	0.7	0.0000	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	FD1	1.000	S1	9.9	0.663	0.557	0.3287	
15 minute winter	S1	1.001	S2	19.0	1.613	1.068	0.3914	
15 minute winter	S2	1.002	S3	39.2	2.909	0.161	0.0114	
15 minute winter	FD2	2.000	S2	10.7	1.720	0.355	0.1169	
600 minute winter	S3	1.003	S4	3.9	0.673	0.221	0.1450	
600 minute winter	S4	1.004	OUTFALL	0.7	0.490	0.039	0.0421	28.2