

White House Ashwell Road, Newham, SG7 5JU

Date 23rd October 2025
Rev: P02
Author: RJ

This technical note has been produced to address comments received in a letter from Bedfordshire and River Ivel Drainage Board dated 19th June 2025 with regards to planning application number 25/01361/FP for the change in use and conversion of barn to provide a self-contained two bed dwelling including single story front and rear extension and associated parking and hard landscaping

In response to the comments raised we can confirm the following:

1) Inadequate surface water drainage strategy and soakaway viability

There are no existing public surface water or foul water sewers surrounding the site.

BGS Records for the site indicate that the site is underlain by superficial deposits of Alluvium, clay, silt and gravel over bedrock of Melbury Marly Chalk. Borehole records for a site 0.7 miles away indicated that the site was underlain by chalky silty clay for 0.3 m over weak white chalk for 2.44m over hard white chalk with soft patches. Please refer to the borehole log in appendix E.

Given the site is underlain by chalk a drainage solution employing infiltration should be viable.

A conservative infiltration rate of 1×10^{-5} m/s has been used for the design and will be verified on site via further infiltration testing.

A copy of the proposed drainage strategy is included in appendix A and surface water calculations are included in appendix B.

The proposed soakaway has been sized to cater for all storm events up to and including the 100 year plus 40% climate change event.

2) Lack of Flood Plain compensation

A Flood Risk Assessment and Hydraulic Modelling Report has been prepared for the site by UK Flood Risk.

The hydraulic modelling assessment indicates that the site is not at risk of flooding during the 1 in 30 year, 1 in 100 year, and 1 in 100 year plus climate change flood events from the watercourse. Also, the site is not at risk of flooding during the 1 in 30 year, 1 in 100 year, and 1 in 100 year plus climate change flood events under the most critical scenario of culvert blockage scenarios.

The report concludes that the site is considered suitable for the proposed residential development from a fluvial flood risk perspective.

Given that the modelling concludes that the site is not at risk of flooding, the proposed building does not remove any flood plain volume and therefore flood plain compensation is not required.

Technical Note

3) Foul Water disposal Unspecified

Referring to the Anglian Water public sewer records it can be seen that there are no public foul water sewers in the area. It is proposed that the foul discharge from the site is to a Klargester BA Package sewage plant with an outfall to the adjacent ditch. The sewage treatment plant has been sized for a population equivalent of 6 people.

Please refer to a copy of the proposed drainage GA included in appendix A and information on the Klargester Biodisc in appendix D

4) Proximity to IDB Watercourse

The existing barn is a minimum of 9m from the existing boundary fence and 10m from the watercourse and therefore as the proposed scheme will comply with this requirement. Please see plan included with this report in appendix D.

5) Surface water Discharge –

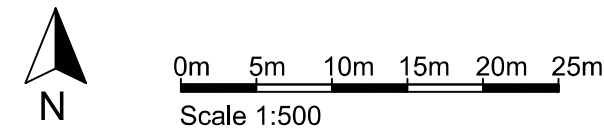
Please see the response to item 1)

6) Safe access and Egress

The Flood Risk Assessment and Hydraulic Modelling Report prepared for the site by UK Flood Risk concludes that the site is not at risk of flooding during the 1 in 30 year, 1 in 100 year, and 1 in 100 year plus climate change flood events from the watercourse.

Safe access and egress is therefore not affected and readily available.

Appendix A – Proposed Drainage Layout



- Surface Water Drainage
- Foul Water Drainage
- Proposed Soakaway
- Flood evacuation route

Project:

Lambing Barn
conversion at The White
House, Newnham

Drawing
Title:

DRAINAGE STRATEGY

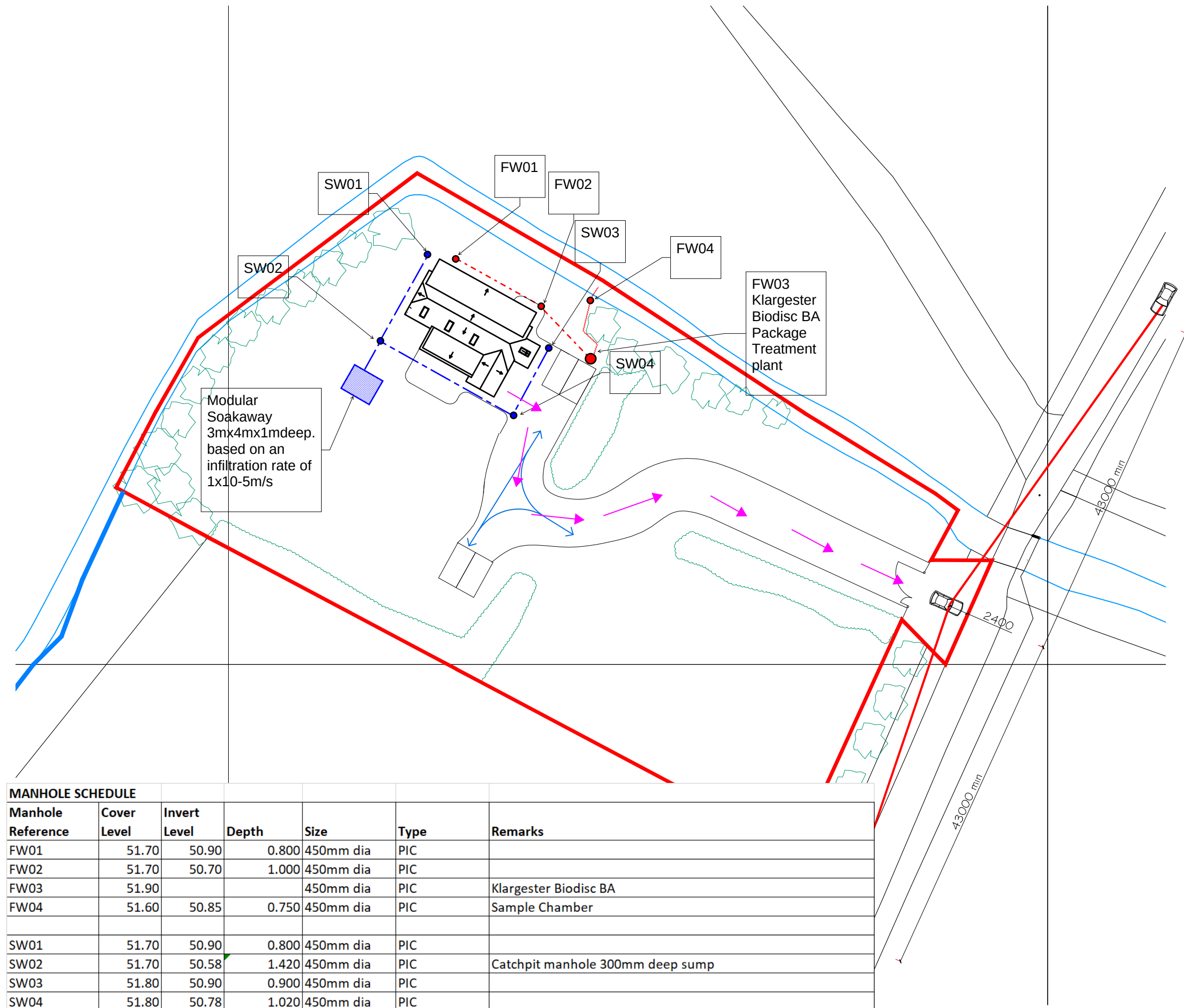
Dwg no.

SK001

Drawn: RJ Date: OCT 25 Checked:

Scale: 1:500 @ A3

Revisions:



MANHOLE SCHEDULE						
Manhole Reference	Cover Level	Invert Level	Depth	Size	Type	Remarks
FW01	51.70	50.90	0.800	450mm dia	PIC	
FW02	51.70	50.70	1.000	450mm dia	PIC	
FW03	51.90			450mm dia	PIC	Klargester Biodisc BA
FW04	51.60	50.85	0.750	450mm dia	PIC	Sample Chamber
SW01	51.70	50.90	0.800	450mm dia	PIC	
SW02	51.70	50.58	1.420	450mm dia	PIC	Catchpit manhole 300mm deep sump
SW03	51.80	50.90	0.900	450mm dia	PIC	
SW04	51.80	50.78	1.020	450mm dia	PIC	

Appendix B – Surface Water Calculations

13/10/2025

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	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	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
SW01	0.004	5.00	51.700	450	0.800
SW02	0.004	5.00	51.700	450	1.120
SW03	0.004	5.00	51.800	450	0.900
SW04	0.004	5.00	51.800	450	1.020
Dummy			51.650	450	1.155

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)
1.000	SW01	SW02	12.000	0.600	50.900	50.580	0.320	37.5	100	5.16	50.0
2.000	SW03	SW04	12.000	0.600	50.900	50.780	0.120	100.0	100	5.26	50.0
2.001	SW04	SW02	20.000	0.600	50.780	50.580	0.200	100.0	100	5.69	50.0
1.001	SW02	Dummy	5.000	0.600	50.580	50.495	0.085	58.8	100	5.78	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)
1.000	1.263	9.9	0.5	0.700	1.020	0.004	0.0	16	0.673
2.000	0.769	6.0	0.5	0.800	0.920	0.004	0.0	21	0.479
2.001	0.769	6.0	1.1	0.920	1.020	0.008	0.0	29	0.579
1.001	1.006	7.9	2.2	1.020	1.055	0.016	0.0	36	0.855

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)
1.000	12.000	37.5	100	Circular	51.700	50.900	0.700	51.700	50.580	1.020
2.000	12.000	100.0	100	Circular	51.800	50.900	0.800	51.800	50.780	0.920
2.001	20.000	100.0	100	Circular	51.800	50.780	0.920	51.700	50.580	1.020
1.001	5.000	58.8	100	Circular	51.700	50.580	1.020	51.650	50.495	1.055

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SW01	450	Manhole	Adoptable	SW02	450	Manhole	Adoptable
2.000	SW03	450	Manhole	Adoptable	SW04	450	Manhole	Adoptable
2.001	SW04	450	Manhole	Adoptable	SW02	450	Manhole	Adoptable
1.001	SW02	450	Manhole	Adoptable	Dummy	450	Manhole	Adoptable

13/10/2025

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SW01	51.700	0.800	450				
				0	1.000	50.900	100
SW02	51.700	1.120	450		1	2.001	50.580
				2	1.000	50.580	100
				0	1.001	50.580	100
SW03	51.800	0.900	450				
				0	2.000	50.900	100
SW04	51.800	1.020	450		1	2.000	50.780
				0	2.001	50.780	100
Dummy	51.650	1.155	450		1	1.001	50.495
							100

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	20.0
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	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node SW02 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Safety Factor	2.0	Invert Level (m)	49.570
Side Inf Coefficient (m/hr)	0.03600	Porosity	1.00	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	12.0	0.0	1.000	12.0	0.0	1.001	0.0	0.0

13/10/2025

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
15 minute winter	SW01	10	50.916	0.016	0.6	0.0042	0.0000	OK
360 minute winter	SW02	312	49.778	-0.802	0.4	2.4929	0.0000	OK
15 minute winter	SW03	10	50.921	0.021	0.6	0.0051	0.0000	OK
15 minute winter	SW04	11	50.809	0.029	1.2	0.0068	0.0000	OK
15 minute summer	Dummy	1	50.495	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW01	1.000	SW02	0.6	0.675	0.056	0.0098	
15 minute summer	SW02	1.001	Dummy	0.0	0.000	0.000	0.0000	0.0
15 minute summer	SW02	Infiltration		0.0				
15 minute winter	SW03	2.000	SW04	0.6	0.381	0.092	0.0179	
15 minute winter	SW04	2.001	SW02	1.1	0.579	0.178	0.0372	

13/10/2025

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 winter	SW01	10	50.926	0.026	1.4	0.0066	0.0000	OK
960 minute winter	SW02	705	50.110	-0.470	0.4	6.4769	0.0000	OK
15 minute winter	SW03	10	50.932	0.032	1.4	0.0080	0.0000	OK
15 minute winter	SW04	11	50.828	0.048	2.8	0.0113	0.0000	OK
15 minute summer	Dummy	1	50.495	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW01	1.000	SW02	1.4	0.876	0.138	0.0187	
15 minute summer	SW02	1.001	Dummy	0.0	0.000	0.000	0.0000	0.0
15 minute summer	SW02	Infiltration		0.0				
15 minute winter	SW03	2.000	SW04	1.4	0.472	0.227	0.0350	
15 minute winter	SW04	2.001	SW02	2.7	0.740	0.446	0.0727	

13/10/2025

Results for 100 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 winter	SW01	10	50.929	0.029	1.8	0.0076	0.0000	OK
1440 minute winter	SW02	1020	50.290	-0.290	0.4	8.6368	0.0000	OK
15 minute winter	SW03	10	50.937	0.037	1.8	0.0092	0.0000	OK
15 minute winter	SW04	11	50.836	0.056	3.6	0.0133	0.0000	OK
15 minute summer	Dummy	1	50.495	0.000	0.0	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW01	1.000	SW02	1.8	0.941	0.178	0.0226	
15 minute summer	SW02	1.001	Dummy	0.0	0.000	0.000	0.0000	0.0
15 minute summer	SW02	Infiltration		0.0				
15 minute winter	SW03	2.000	SW04	1.8	0.501	0.293	0.0425	
15 minute winter	SW04	2.001	SW02	3.5	0.788	0.578	0.0886	

13/10/2025

Results for 100 year +40% CC 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	SW01	10	50.935	0.035	2.5	0.0091	0.0000	OK
360 minute winter	SW02	344	50.589	0.009	1.2	12.0081	0.0000	OK
15 minute winter	SW03	10	50.945	0.045	2.5	0.0110	0.0000	OK
15 minute winter	SW04	11	50.851	0.071	5.0	0.0167	0.0000	OK
360 minute winter	Dummy	344	50.504	0.009	0.1	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	SW01	1.000	SW02	2.5	1.031	0.249	0.0288	
360 minute winter	SW02	1.001	Dummy	0.0	0.361	0.015	0.0016	0.1
15 minute summer	SW02	Infiltration		0.0				
15 minute winter	SW03	2.000	SW04	2.5	0.541	0.410	0.0553	
15 minute winter	SW04	2.001	SW02	4.9	0.844	0.809	0.1158	

Appendix C – Anglian Water Sewer Records



This plan is provided by Anglian Water pursuant to its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2025 Ordnance Survey AC0000813445. This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer		
Surface Sewer		Outfall*
Combined Sewer		
Final Effluent		Inlet*
Rising Main*		
Private Sewer*		Manhole*
Decommissioned Sewer*		

	Sewage Treatment Works
	Public Pumping Station
	Decommissioned Pumping Station
*(Colour denotes effluent type)	

	elaineandrichard.james@ntlworld.com
	White house



Appendix D – Klargestar Biodisc Information

Water Management Solutions

7 YEAR
WARRANTY

Klargester

BioDisc® BA-BC Domestic Sewage Treatment Plant Range



klargester.co.uk

Klargester BioDisc®

Domestic Sewage Treatment Plant

Support from start to finish from our in-house team



Step 1

Free survey

Contact us and we'll arrange for a local Klargester Area Sales Manager to visit your home for a full site assessment, should you need it.



Step 2

Choice

Our professional team will work with you to help choose the correct BioDisc model.



Step 3

Set up

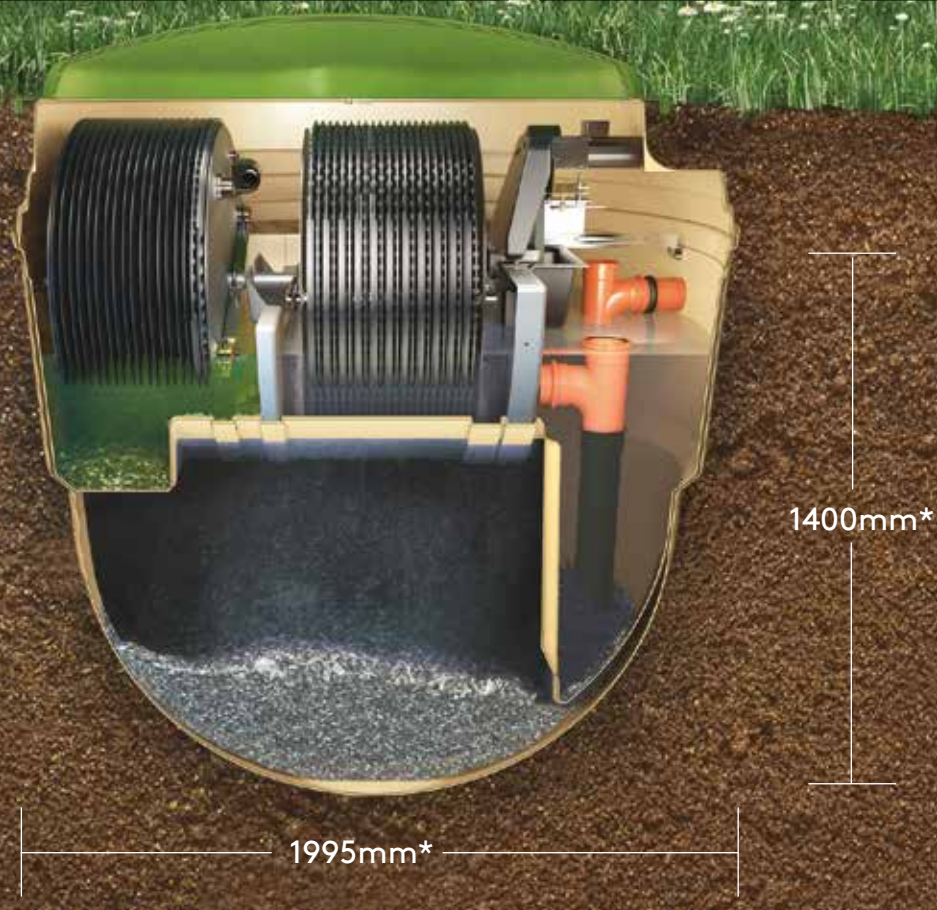
We offer full commissioning and activation for your BioDisc, ensuring it runs optimally right from the start.



Step 4

Service

We offer tailored service and maintenance packages for your BioDisc treatment plant.



*Dimensions illustrated here are applicable to the BA and BB models only.

Choosing the right sewage treatment plant for your home with Klargester

I'm a homeowner - what do I need to consider before choosing my treatment plant?

Klargester provides relevant advice and support throughout the wastewater treatment purchasing process based on our in-depth local knowledge and expertise. We offer comprehensive free site visits, professional installation options (optional extra) and aftersales care through our national network of accredited installers and engineers.

BioDisc is Third Party Tested to EN 12566-3 (GB & NI) and SR66:2025* (IE)

The Klargester BioDisc sewage treatment system is available to suit all types of domestic applications, catering for single and multi-house properties. BioDisc is engineered to treat wastewater to a very high standard and offers affordable lifetime costs compared to other treatment processes.

Our team will guide you through:

- Size of treatment plant required
- Ground conditions around the plant
- Wastewater discharge options
- Invert level options

Why BioDisc®?

With strict Environment Agency standards, it's more important than ever to choose a sewage treatment plant that delivers peace of mind with reliable treatment of wastewater.

The Klargester BioDisc is built on the back of 70 years' experience and offers the following benefits:



Affordable lifetime running costs



Odour free



Trusted and reliable performance



Silent Operation

At a recent site, our team concluded that the domestic BioDisc has the same level of noise as the average ambient background noise outside (between 40-55 decibels).*



40-55 DECIBELS



75-80 DECIBELS

Typical aerated system
Decibel equivalent to a coffee grinder machine

Domestic BioDisc
Decibel equivalent to a modern refrigerator

*This is a representative figure based on a Large BioDisc plant.

7 YEAR WARRANTY**

Register your guarantee online at kingspan.co.uk/klargesterguarantee to arrange your service and enjoy an extended seven year guarantee period.**
** For BA and BB BioDisc models only, when registered online - terms and conditions apply.
Visit: kingspan.com/gb/en-gb/products/wastewater-management/warranty-terms

*BA and BC models only in IE

How it works



Control panel and beacon featuring alarm* and digital display to signal that your system is working optimally (beacon and alarm optional extras).

SmartServ Pro

Ask us about our SmartServ Pro remote monitoring solution (optional extra). With early fault detection, SmartServ Pro lets you know when your system needs serviced, giving you peace of mind. Find out more at helpingyou@kingspan.com



Integrated Pump System also available (for pumped systems only). Our technical team will guide you through the best options for your site.

Book your free site visit from our in-house Klargester team at klargester@kingspan.com or visit klargester.co.uk

Silent operation

Odour Free

Trusted and reliable performance

Technical Specification

Unit Reference	BA	BAx	BB	BC
Population Equivalent (Std Flow)	6	9	12	18
Maximum Daily BOD (kg)	0.36	0.54	0.72	1.08
Maximum Daily Flow (m3)	1.2	1.8	2.4	3.6
Ø/Width (mm)	1995	1996	1995	2450
Length (mm)	-	-	-	-
Inlet Invert depth (mm)	450/750/1250	450/750/1251	450/750/1250	600/1100
Depth Below Inlet Invert (mm)	1400	1400	1400	1820
Outlet Invert Depth (mm)	1315	1315	1315	1735
Overall Height (mm)	2160/2460/2960	2160/2460/2960	2160/2460/2960	2825/3325
Height to Rim of Cover (mm)	1945/2245/2745	1945/2245/2745	1945/2245/2745	2485/2985
Empty Weight (kg)	310/325/380	310/325/380	335/350/405	650/750
Standard Power Supply	1 phase	1 phase	1 phase	1 phase
Motor Rating - 1 Phase (Watts)	50	50	50	75
Full Load Current 1 Phase (amps)	0.51	0.51	0.51	1,1
Optional Power Supply	3 phase	3 phase	3 phase	3 phase
Motor Rating - 3 Phase (Watts)	N/A	N/A	N/A	90
Full Load Current 3 Phase (amps)	N/A	N/A	N/A	0.38
Sludge Return Pump Rating (watts)	250	250	250	250

Invert level options

Three standard drain invert level options are available from stock to match the site topography and where applicable, minimise the excavation depth. The BA, BB and BA-X models are available with an integral pump to move the effluent from the point of treatment, if site level demands.

Environment Agency regulations

As an off-mains homeowner, you must comply with the General Binding Rules by ensuring your treatment system is maintained properly and does not cause pollution. These rules state that you must arrange

regular maintenance for your system, via a trusted service provider. Kingspan Service can help with servicing and alarm packages –email helpingyou@kingspan.com.

Protect your investment with our Service and Maintenance Plans

We recommend that you service your BioDisc sewage treatment plant **once a year**. Under Environment Agency regulations, it's now your responsibility to ensure smooth running of your plant.

Our in-house Service department offer a range of service packages including Gold, Silver and Bronze

to cater for all homeowners' needs.

To find out more about how you could benefit from a tailored service package from Kingspan, call us on **+44 (0)28 3026 6799 (NI)** or **0818 544 500 (ROI)** or email helpingyou@kingspan.com

For further technical information & videos on the BioDisc treatment plant visit our website at klargester.co.uk

Appendix E – Borehole Log



LOG FOR BOREHOLE, No. 82C Fig. 111

Location No. 4168 BALDOCK BY-PASS

TL23NW/6

Carried out for Hertfordshire County Council

N.G.R. - 2385 3822
Equipment - Mobile Boring Rig Hole diameter 8 inch

Date: 5.2.63

Description	Reduced Level	Legend	Sample	Depth	Thickness	Standard Penetration test, m	%
Ground Level (Ft. above N.D.)	216.6			0'0"			
TOPSOIL - Chalky silty clay	215.0		1	1'0"		25	
Clayey			2	0'20"		15	
Fairly weak yellowish white CHALK, rather easily shattered.			3			24	
			4		7'0"	24	
			5	8'0"			
			6	2'44"		26	
Medium hard white CHALK with occasional fairly soft patches.			7				
	210.4		8		14'0"	27	
	Form.		10		penetrated		
			9			25	
	204.0		11	22'0"		27	
				6'71"			
END OF BOREHOLE							
Borehole dry throughout boring.							

No record for pit J.

Scale: 1 in. = 5 ft

o Disturbed Sample
+ Bulk sample

▬ Tube or Core
• Sample (length as indicated)

Δ Water Sample

FORM No. F.1.A. COPYRIGHT OF SOIL MECHANICS LTD., 65, OLD CHURCH ST., LONDON, E.C.4.

FORM No. F.1.A. COPYRIGHT OF SOIL MECHANICS LTD.



LOG FOR BOREHOLE No. 82aC FIG. 112

Location No. 4168 BALDOCK BY-PASS

Carried out for Hertfordshire County Council

NGR. 2385. 3822

Date: 5.4.63

Equipment - Mobile Boring Rig Hole diameter 8 inch.

TL23NW/6

Description	Reduced Level	Log. Sample	Depth	Thickness	Standard Penetration Test: m %
Ground Level (Fr. above N.D.)	230.0		0'0"	1'-0"	23
TOPSOIL, gravelly silty clay.	229.10m	• 1	1'10"		20
	229.0	• 2	0.20m	2'-6"	
Firm weathered brownish chalky CLAY with flint fragments.					
Friable	226.5	• 3	3'5"		30
		• 4	1.07m		28
Medium hard yellowish white CHALK containing some soft patches. Iron staining marked at about 10 ft.		• 5		10'-6"	21
		• 6		penetrated	22
		• 7			
	216.0		14'0"		24
			4.27m		

END OF BOREHOLE

Borehole dry throughout boring.

Scale: 1 inch = 5 ft.

o Disturbed Sample
+ Bulk Sample

• Tube or Core Sample (length marked) Δ Water Sample

SOLE MINING LTD., 45, OLD CHURCH ST., LONDON.

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