



BellamyRoberts

Technical Note

SITE: Heathlands Farm, Honey Hill, Wokingham RG4 3BG
OUR REF: TN.2/6178/GDB
PROPOSAL: Further Clarification Requested by WBC Drainage re Surface Water Drainage
APPLICATION REF: 251260
DATE: 23rd July 2025

1. The WBC Drainage Department memorandum produced following consultation regarding the above application, requested clarification in relation to the flood attenuation storage requirements as set out in the submitted Flood Risk Assessment and Surface Water Drainage Strategy report.
2. The third paragraph of that memorandum requested clarification regarding a number of figures contained in the submitted FRA report and/or shown on the Drainage Strategy drawing. We produced a Technical Note TN.1/6178/GDB in response to that request.
3. Subsequently, the Drainage Department has raised a further request for additional information, relating to the capacity of the attenuation crates. The department's request is reproduced below.

"I have reviewed technical note TN.1/6178/GDB dated 09/07/2025 and are satisfied with the clarification it provides about storage volumes.

The 170m³ provided for attenuation did not take into consideration the void ratio of the crates which is 95%. That is how the actual storage volume provided of 161.5m³ came about and that is less than the required storage of 163.22m³.



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We could condition this but it is an easy fix that the developer can address before the application is determined."

4. It is the case that the storage capacity of the crates is marginally below that which results from the calculations once the 95% void factor is taken into account (161.55m^3 compared with a requirement for 163.22m^3). We have therefore re-run the calculations with a small increase in the number of standard crates, which results in a usable capacity of 166.85m^3 . A copy of those calculations is attached at [Appendix 1](#), and shows a maximum required capacity of 164.911m^3 , which is less than the increased usable capacity.
5. The Drainage Strategy drawing has been revised and a copy of that drawing (6178-001B) is attached at [Appendix 2](#).

APPENDICES

APPENDIX 1

Attenuation Calculations

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
Report Details: Type: Stormwater Controls Storm Phase: Phase		Designed by: JCB	Checked by: GDB		Approved By: GDB
		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



Cellular Storage

Type : Cellular Storage

Dimensions

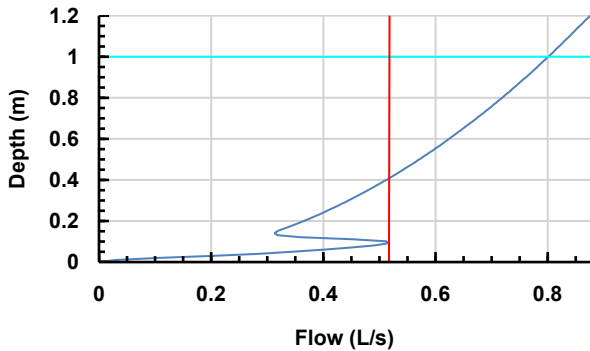
Exceedance Level (m)	61.600
Depth (m)	1.000
Base Level (m)	60.000
Number of Crates Long	35
Number of Crates Wide	20
Number of Crates High	2
Porosity (%)	95
Crate Length (m)	0.5
Crate Width (m)	0.5
Crate Height (m)	0.5
Total Volume (m³)	166.850

Outlets

Outlet

Outgoing Connection	(None)
Outlet Type	Hydro-Brake®
Invert Level (m)	60.000
Design Depth (m)	1.000
Design Flow (L/s)	0.8
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☐

Unit Reference	CHE-0041-8000-1000-8000
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Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: JCB	Checked by: GDB		Approved By: GDB
		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Cellular Storage		Time of Concentration	0.244	100	0	100	0.244
TOTAL		0.0		0.244				0.244

Project: Heathlands Farm Surface Water Attenuation Ref: 6178	Date: 22/07/2025		
	Designed by: JCB	Checked by: GDB	Approved By: GDB
Report Title: Rainfall Analysis Criteria	Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Project: Heathlands Farm Surface Water Attenuation Ref: 6178	Date: 22/07/2025	
Report Title: UK and Ireland Rural Runoff Calculator	Designed by: JCB Checked by: GDB Approved By: GDB	
Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU		

ICP SUDS / IH 124

Details

Method	ICP SUDS
Area (ha)	0.222
SAAR (mm)	700.0
Soil	0.4
Region	Region 7
Urban	0
Return Period (years)	0

Results

Region	QBAR Rural (L/s)	QBAR Urban (L/s)	Q 1 (years) (L/s)	Q 30 (years) (L/s)	Q 100 (years) (L/s)
Region 7	0.8	0.8	0.6	1.7	2.4

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: JCB	Checked by: GDB		Approved By: GDB
		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FSR: 1 years: +0 %: 15 mins: Summer	0.24	29.5	13.297

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: JCB	Checked by: GDB		Approved By: GDB
		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



FSR: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FSR: 30 years: +35 %: 15 mins: Summer	0.24	97.6	43.992

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		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FSR: 100 years: +45 %: 15 mins: Summer	0.24	135.7	61.187

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: JCB	Checked by: GDB		Approved By: GDB
		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Status
Cellular Storage	FSR: 1 years: +0 %: 960 mins: Summer	60.205	60.205	0.205	0.205	3.3	34.105	0.000	0.000	0.5	35.297	592	OK

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
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Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



**FSR: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By:
Max. Avg. Depth**

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Status
Cellular Storage	FSR: 30 years: +35 %: 1440 mins: Winter	60.692	60.692	0.692	0.692	4.5	115.028	0.000	0.000	0.6	87.203	1777	OK

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
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		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By:
Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Status
Cellular Storage	FSR: 100 years: +45 %: 1440 mins: Winter	60.992	60.992	0.992	0.992	6.1	164.911	0.000	0.000	0.8	104.383	2113	OK

Project: Heathlands Farm Surface Water Attenuation Ref: 6178		Date: 22/07/2025			
Report Details: Type: Phase Management Storm Phase: Phase		Designed by: JCB	Checked by: GDB		Approved By: GDB
		Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU			

 **Phase**
FSR: 1 years: Increase Rainfall (%): +0: 30 mins: Summer

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
Cellular Storage			0.5	1.288
TOTAL	20.0	17.282	0.5	1.288

Project: Heathlands Farm Surface Water Attenuation Ref: 6178	Date: 22/07/2025		
	Designed by: JCB	Checked by: GDB	Approved By: GDB
Report Details: Type: Phase Management Storm Phase: Phase	Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU		



Phase
FSR: 30 years: Increase Rainfall (%): +35: 960 mins: Winter

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
Cellular Storage			0.6	59.308
TOTAL	6.1	139.974	0.6	59.308

Project: Heathlands Farm Surface Water Attenuation Ref: 6178	Date: 22/07/2025		
	Designed by: JCB	Checked by: GDB	Approved By: GDB
Report Details: Type: Phase Management Storm Phase: Phase	Company Address: Bellamy Roberts Clover House, Western Lane Odiham, Hampshire, RG29 1TU		



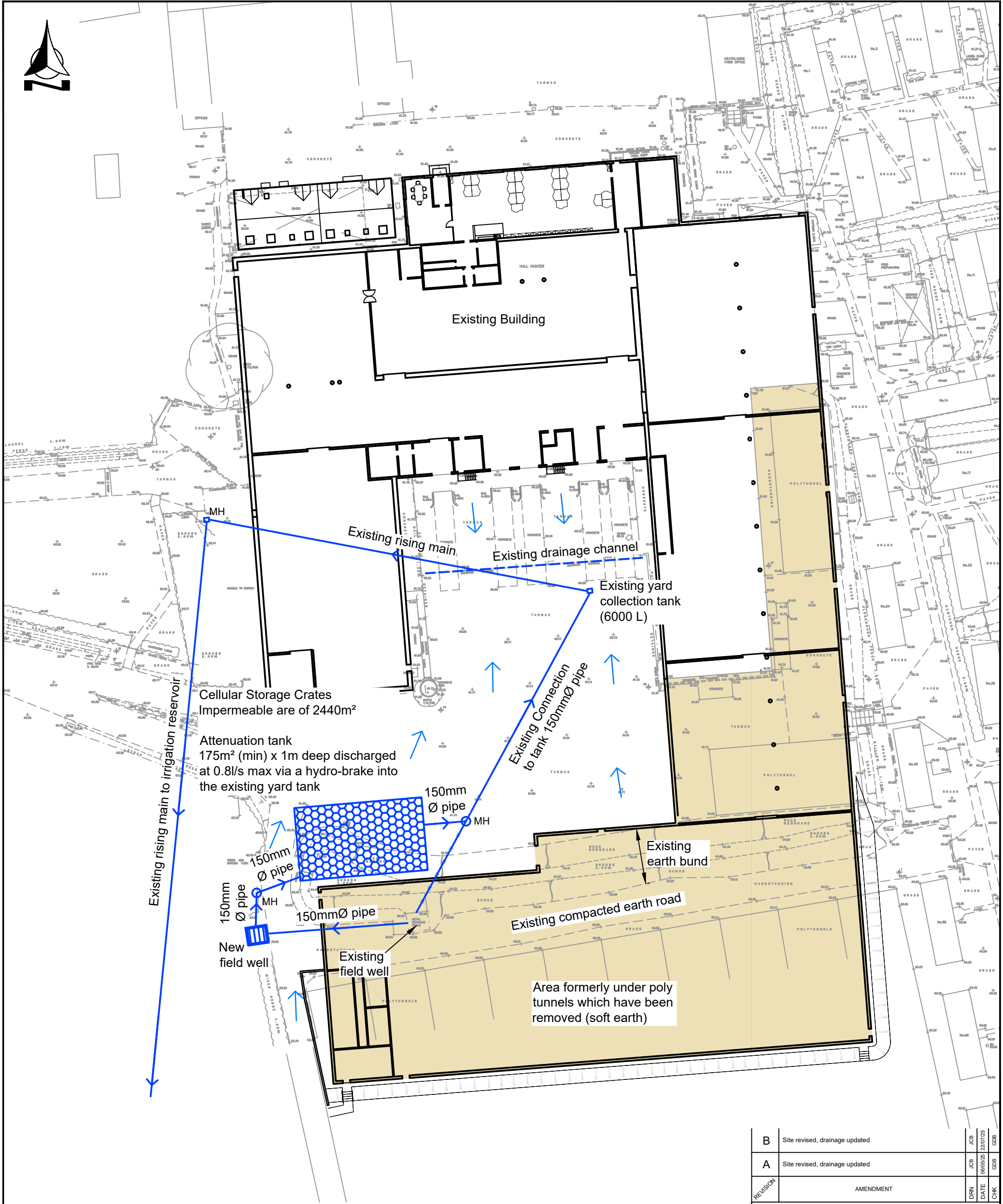

Phase
FSR: 100 years: Increase Rainfall (%): +45: 1440 mins: Winter

Tables

Name	Max. Inflow (L/s)	Total Inflow Volume (m³)	Max. Outflow (L/s)	Total Outflow Volume (m³)
Cellular Storage			0.8	104.383
TOTAL	6.1	209.232	0.8	104.383

APPENDIX 2

Drainage Strategy



Notes

Do not scale this drawing

This drawing shall be read in conjunction with all other relevant Engineering, Architectural, Landscaping details, drawings and specifications and all relevant Highway Authority Plans

Any works constructed prior to technical approval are at the contractors own risk

All surface water drainage pipes to be lightweight HDPE pipes or similar to comply with HAPAS BBA, 100mmØ unless otherwise stated

Total impermeable area 2215m²
(new building footprint over pervious permeable soil)

- Surface water drainage
- Surface water over ground flow route
- New building footprint

B	Site revised, drainage updated	JCB	GDB
A	Site revised, drainage updated	JCB	GDB
REVISION	AMENDMENT	DRN	CHK



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CLIENT
Hall Hunter Partnership

PROJECT
Heathlands Farm, Honey Hill, Wokingham

TITLE
Drainage Strategy

DRAWN BY
JCB

DESIGN BY
GDB

CHK BY
GDB

DATE
15/04/25

DRAWING No.
6178 / 001

REV No.
B

SCALE
1:500 @ A3