

Application Reference: WA/28/26/DOC Site Name: Stoneybrook Farm Eastergate Lane Walberton BN18 0BA	Initial Issue Date: 30/04/2026 Issue Date: 30/04/2026 Reviewer Reference: ADC/EXT5/AF
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Summary and Recommendation:

Condition 3: **Objection**

Please note: Any DOC application should only have a maximum of two consultation responses. If this is the second response for an open application and there are still comments outstanding, then please object to the application.

	ADC Drainage Comments	Designer Response			
Date:	30/04/2026	03/06/206			
Condition Number: 3					
Comment Number					
1.	Designs, sizing and details for the proposed rainwater harvesting should be provided.	1,000ltr water tank located to the rear of the building to pick up rainwater for reuse as part of the business operation.			
2.	Greenfield runoff calculations should be provided for the drained area.	Greenfield calculations attached. For the whole drained site an area of 0.201ha has been used which generates 0.5l/s.			
3.	The use of the pond for interception drainage is not suitable as the top water level would be at the overflow level during winter.	The groundwater level is recorded at 10.333m, the outfall level is 10.383m allowing for 50mm of be retained in the pond and allowed to infiltrate through the sides. The interception volume will be 12.5m ³ .			

4.	The full ground investigation report should be provided.	Groundwater site investigation has been carried out to determine the viability for infiltration as the primary discharge of surface water. The investigation found groundwater to be within 1m of the existing ground level and therefore compliance with the design standards could not be achieved, making infiltration not viable. BGS mapping shows Head Deposits-Gravel, Sand, Silt and Clay over a bedrock of London Clay. Plans attached. The immediate neighbouring site during their site investigation correlated with the BGS and groundwater monitoring confirming groundwater within 1m of existing ground level.			
5.	Anti-floatation calculations should be provided for the basin.	The base of the basin will remain as dug material to allow the ground water to rise into the pond during the winter time and allow some infiltration during			

		periods where no groundwater is present			
6.	Construction details should be provided for the basin construction and liner.	Details have been provided.			
7.	Measures to mitigate blockage of the flow control device should be incorporated at the basin headwall and flow control chamber.	Gabion cage is proposed in front of the outlet headwall to provide a filter process and remove debris that could cause blockages. Construction detail provided.			
8.	The diversion of the existing system into the basin/pond increases the drained area beyond the development boundary. The drained areas should be clarified on plan. The area of the basin should also be included in the drained areas.	Catchment plan has been provided. The total drained area is 2,904m ² , however for the greenfield rate only the pavement and buildings has been used at 2,137m ² .			
9.	Due to the low discharge rate, the half-drain time for the basin during the 3.3% AEP + CC should be demonstrated to be less than 24 hours.	The half drain time for 3.3% AEP +CC is calculated at 1140 minutes			
10.	The surcharged outfall should be clarified in the calculations.	A surcharged model has been provided with the groundwater set at 10.333m			
11.	Can the flooding from existing the chamber shown in the calculations be alleviated or contained within the design?	The existing flooding will be contained within the design. It will be allowed to infiltrate, flow over ground to the permeable			

		parking area and collected at this point into the new system.			
12.	Evidence of Ordinary Watercourse Consent from the LLFA or Land Drainage Bylaw Consent from ADC will be required. Website link here: Land drainage byelaws for landowners Arun District Council	Application with Arun District Council under reference 257-752-519			
13.	A Maintenance Plan should be provided.	A maintenance plan is attached.			

If a designer would like a .docx version of this document to aid administration of responses, please request this by email to land.drainage@arun.gov.uk.

Point 1



1,000 litre tank located to the rear of the building as shown on the attached layout



KEY		Private Surface Water ditch
		Private Surface Water perforated pipe
		Private Surface Water pipe
		Private 600mm Inspection Chamber (Surface Water)
		Private Rodding Eye (Surface Water)
		Sandbag Headwall
		Gabion Cage
		Proposed Paved Levels
		Permeable Paving - Gravel Finished
		Drainage Easement

- General Notes:
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 10. All road markings and signs are to be in accordance with the traffic signs regulations and directions' 2016.
 11. All private connections to adoptable sewers should be a minimum of 100mm diameter (foul) and 150mm diameter (surface) made in vitrified clay connecting soffit to soffit.

G	03.06.26	Tank added	MJ	MJ	MJ
F	10.04.26	Headwall and drainage updated for construction	MJ	MJ	MJ
E	25.09.25	Basin Note added	MJ	MJ	MJ
D	23.07.25	Watercourse details added	MJ	MJ	MJ
C	31.03.25	Easement added	MJ	MJ	MJ
B	11.11.24	Electric Cable added, Basin location revised	MJ	MJ	MJ
A	18.10.24	Basin location revised	MJ	MJ	MJ
Rev'n	Date	Description	Drawn	Check	App'd
Status					

Client

New City Joinery

Project

Land at Stoney Brook Farm, Walberton

Drawing title

Proposed Surface Water Drainage

Drawn	MJ	Checked	MJ	Approved	MJ	Date	10/24
Scale at A1	Drawing no.					Revision	
1:200	A001-013/101					G	

Point 2

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	02/06/2026
Calculated by	Mark Jones
Reference	A001-013
Model version	2.2.3

Location

Site name	Stoney Brook Farm
Site location	Walberton



Site easting (British National Grid)	496068
Site northing (British National Grid)	106001

Site details

Total site area (ha)	0.201	ha
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Greenfield runoff

Method

Method	FEH statistical (2025)
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FEH statistical (2025)

	My value		Map value
SAAR9120 (mm)	817		mm
BFIHOST19scaled	0.61		
QMed-QBar conversion	1.136	☐	1.136
QMed (l/s)	0.5		l/s
QBar (FEH statistical 2025) (l/s)	0.6		l/s

Growth curve factors

	My value		Map value
Hydrological region	7	☐	7
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	FEH statistical (2025)	
Flow rate 1 year (l/s)	0.5	l/s
Flow rate 2 year (l/s)	0.5	l/s
Flow rate 10 years (l/s)	0.9	l/s
Flow rate 30 years (l/s)	1.3	l/s
Flow rate 100 years (l/s)	1.9	l/s
Flow rate 200 years (l/s)	2.2	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.

Point 3 - Point noted.

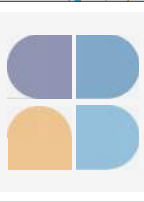
Point 4

NOTES

1. This design is to be used in conjunction with all other flight line C/A drawings, and use of relevant hardware and support's drawing and load cases. Any discrepancies found are to be reported immediately to the C/A engineer.
2. Flight line C/A access to responsibility for inaccuracies in data provided by third parties such as topographic or weather or clearance survey mapping.
3. Do not scale, work to figured dimensions only. All dimensions are to be taken from the drawings and all lengths are in metres from the bearing point survey datum.
4. Any information given regarding existing underground services is given in accordance with the relevant authority. The user is advised to check all records.

Key	This map is based on a reproduced from Ordnance Survey material with the permission of Ordnance Survey or part of the copyright of Her Majesty's Stationery Office (H. M. Stationery Office). This drawing is based upon Ordnance Survey mapping - © Crown Copyright 2018. All rights reserved. Licence number: 100023432
B	Revised Layout - production of 892 items
A	Original Layout
1	Original Issue
Key	Accidents
	14/01/2022
	07/06/2021
	Date

PRELIMINARY
NOT FOR CONSTRUCTION

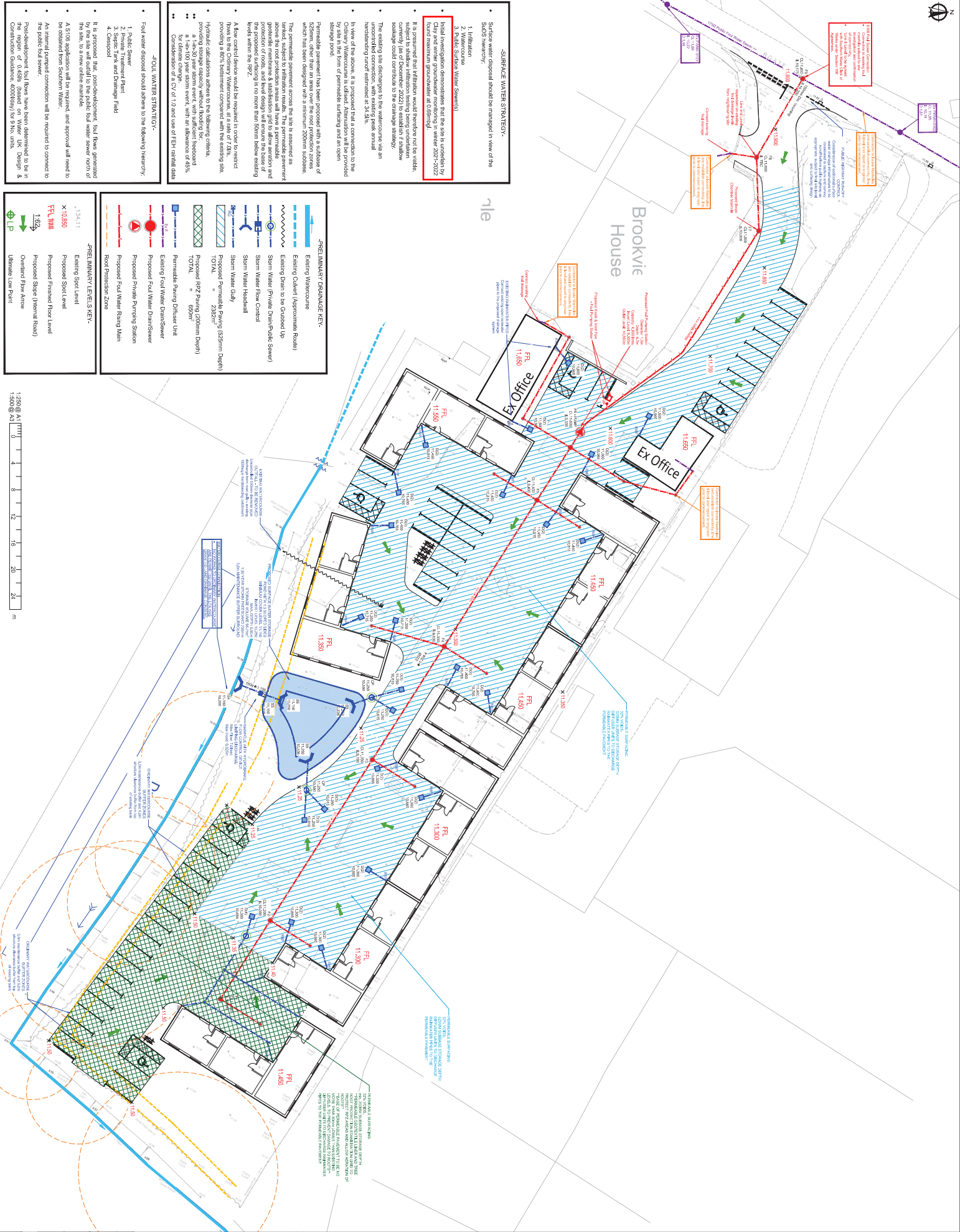


BRIGHT PLAN CIVILS
Transport Planning and Infrastructure Design Consultants
2 Metal Farm, Norton Lane, Chalfonts, West Sussex PO20 3JF
Tel: 01243 210418
Email: brights@brightplan.co.uk, enquiries@brightplan.co.uk

Philip Sowden

Project	Land at Brookview Nursery
Location	Eastergate Lane, Walberton BN18 0BA
Drawings	Preliminary Levels & Drainage

Scob	Date	Drawn By	Checked By
1:250	Dec 2022	DIL	MIA
Drawing No.			Pay.
D19663-PL300			B





MAP LAYERS

☐ Superficial Geology

☒ Bedrock Geology

About this layer:

Bedrock geology is a term used for the main mass of rocks forming the Earth that are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.



Info



Opacity



Legend

0%  100%

☐ London Clay Formation-Clay, silt and sand

☐ Combined Geology

OPTIONS





MAP LAYERS



Superficial Geology



About this layer:

Superficial deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present.



Info



Opacity



Legend

0%  100%



Head-Gravel, sand, silt and clay



River Terrace Deposits (Undifferentiated)-S...



Bedrock Geology



Combined Geology



OPTIONS



Groundwater Monitoring

Hole Size

L (m): 0.5

W (m): 0.5

D (m): 1

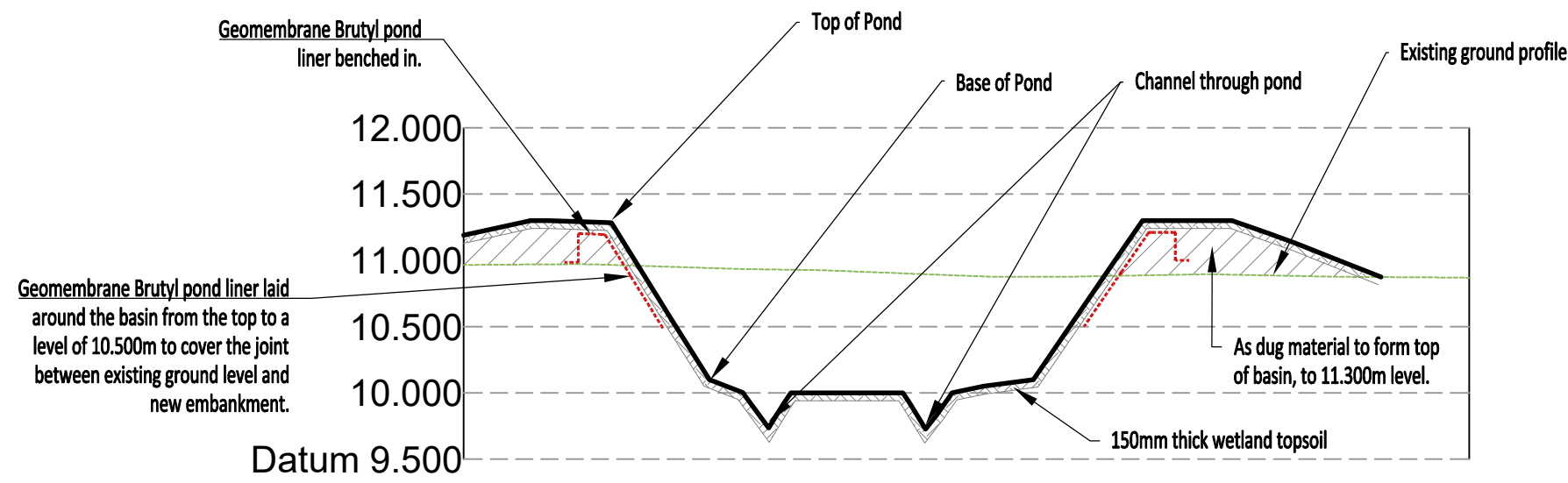
Existing Ground Level – 10.68m

Monitoring Record

Date	Depth to Water (mm)	Comments/Water level
17/11/2025	602	Date hole dug./ 10.078m
24/11/2025	408	10.272
01/12/2025	448	10.232
08/12/2025	509	10.171
15/12/2025	415	10.264
22/12/2025	356	10.324
29/12/2025	363	10.317
05/01/2026	357	10.323
12/01/2026	423	10.257
19/01/2026	478	10.202
26/01/2026	447	10.233
02/02/2026	347	10.333
09/02/2026	416	10.264
16/02/2026	555	10.125
23/02/2026	598	10.082
02/03/2026		
09/03/2026		
16/03/2026		
23/03/2026		
30/03/2026		
06/04/2026		
13/04/2026		
20/04/2026		
27/04/2026		

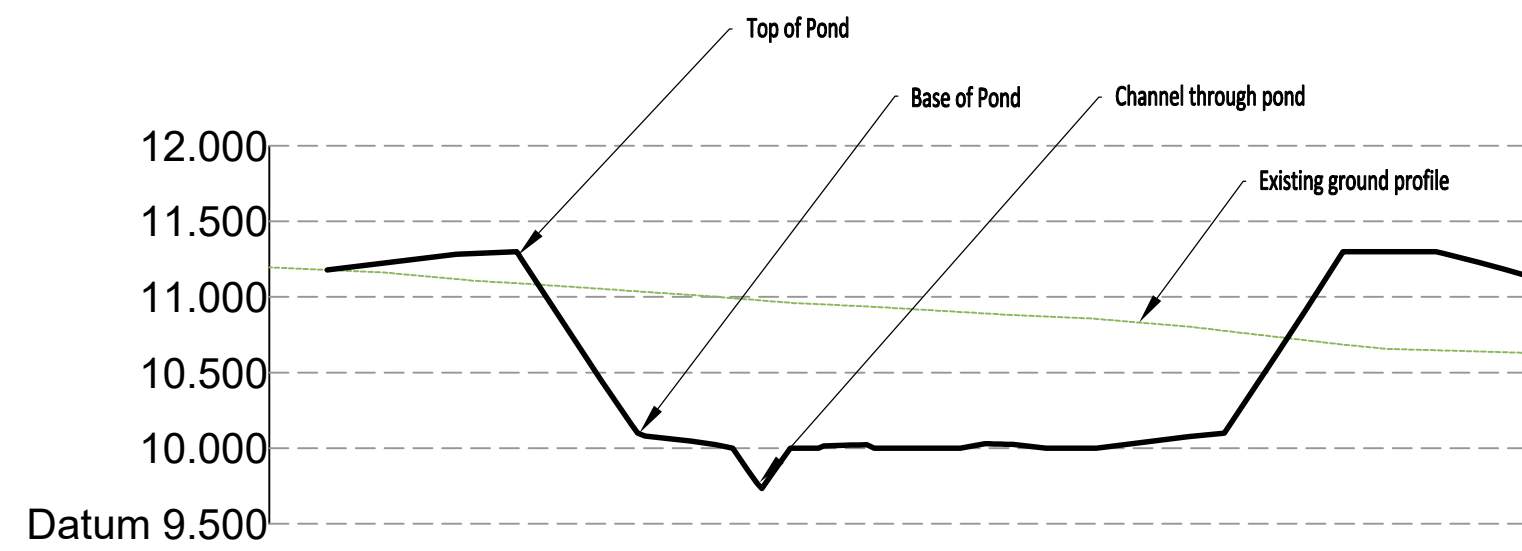
Point 5 - Refer to construction details

Point 6



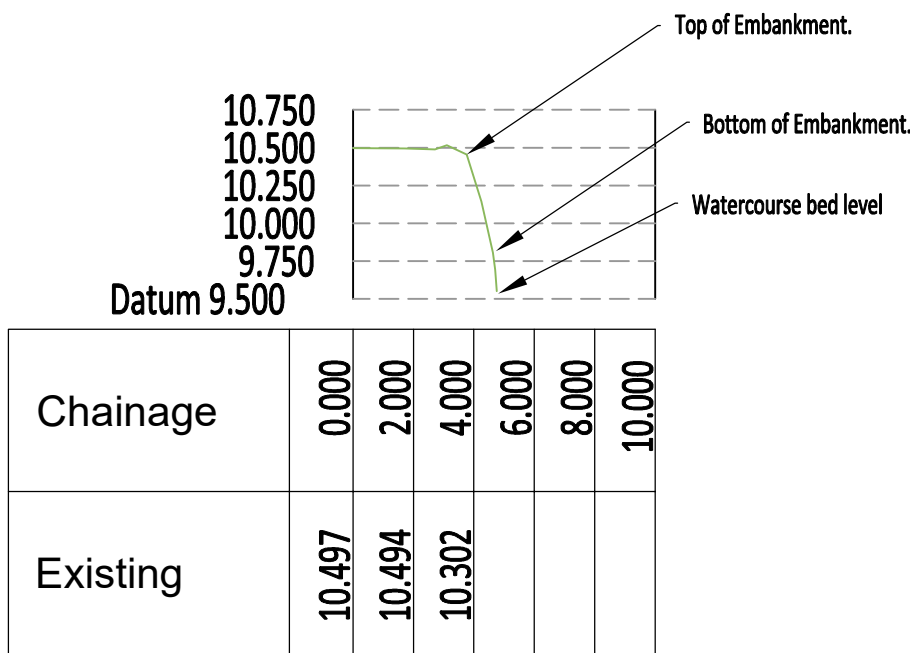
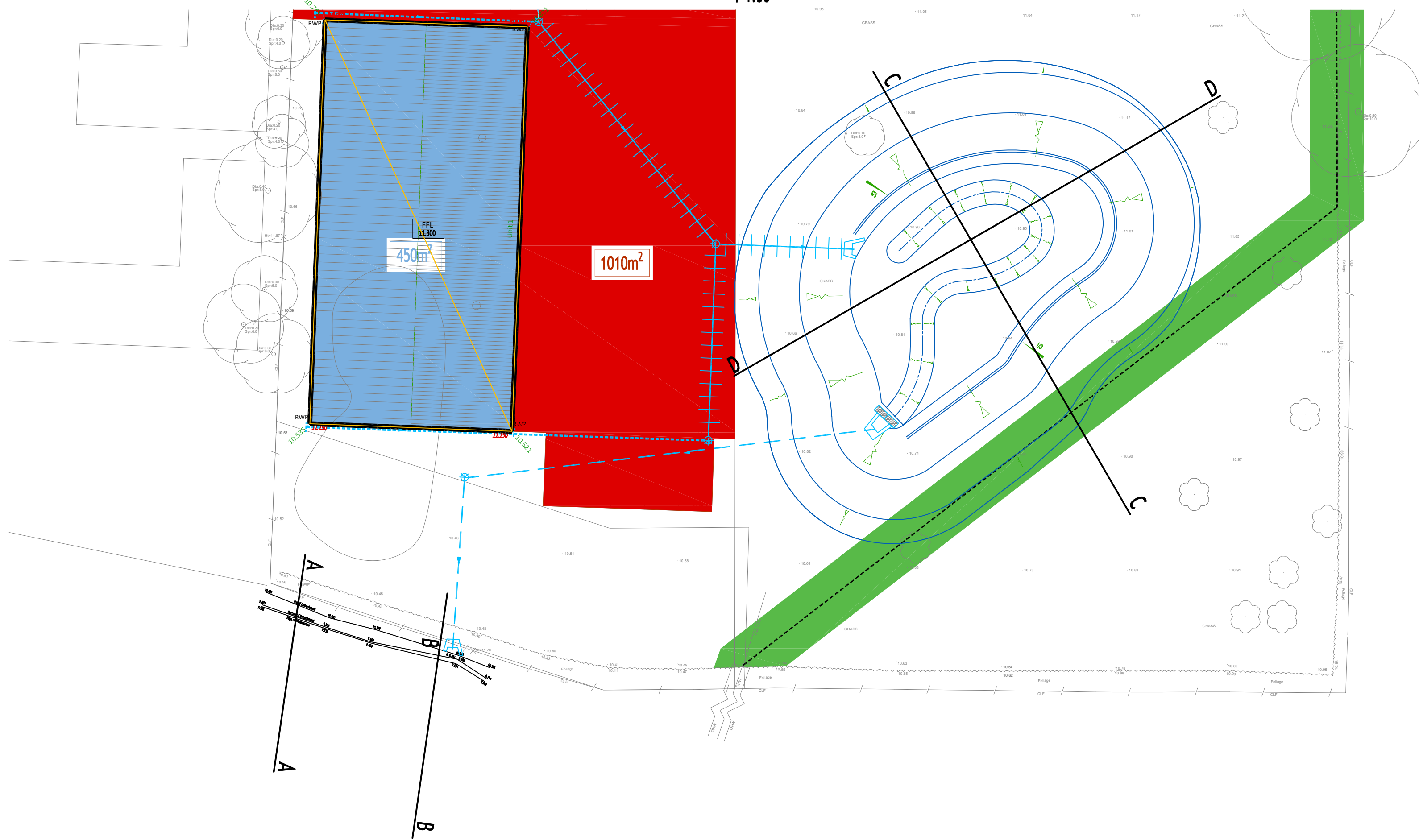
Chainage	0.000	2.000	4.000	6.000	8.000	10.000	12.000	14.000	16.000	18.000	20.000	22.000	24.000	26.000	28.000	30.000	32.000	34.000	36.000	37.916
Existing	10.965	10.968	10.971	10.962	10.950	10.937	10.930	10.921	10.906	10.891	10.876	10.877	10.880	10.888	10.895	10.887	10.879	10.874	10.872	10.868
Proposed	11.188	11.277	11.294	11.148	10.504	10.043	9.897	10.000	10.000	9.880	10.060	10.252	10.836	11.300	11.300	11.228	11.079	10.921	10.872	10.868

Section C-C
Scale H 1:250
V 1:50



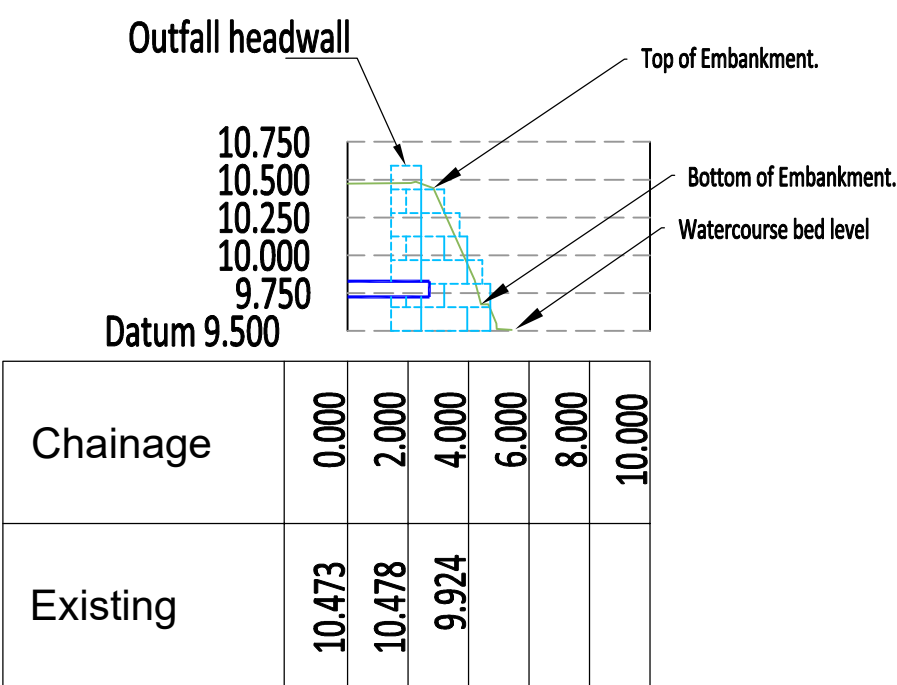
Chainage	0.000	2.000	4.000	6.000	8.000	10.000	12.000	14.000	16.000	18.000	20.000	22.000	24.000	26.000	28.000	30.000	32.000	34.000	36.000	38.000	40.000	41.587
Existing	11.196	11.178	11.158	11.121	11.093	11.067	11.039	11.012	10.981	10.953	10.935	10.911	10.887	10.868	10.844	10.810	10.766	10.720	10.675	10.651	10.639	10.630
Proposed	11.265	11.275	11.290	11.284	11.298	10.745	10.149	10.045	9.804	10.000	10.000	10.000	10.027	10.000	10.016	10.066	10.226	10.831	11.300	11.300	11.229	11.137

Section D-D
Scale H 1:250
V 1:50



Chainage	0.000	2.000	4.000	6.000	8.000	10.000
Existing	10.497	10.494	10.302			

Section A-A
Scale H 1:250
V 1:50



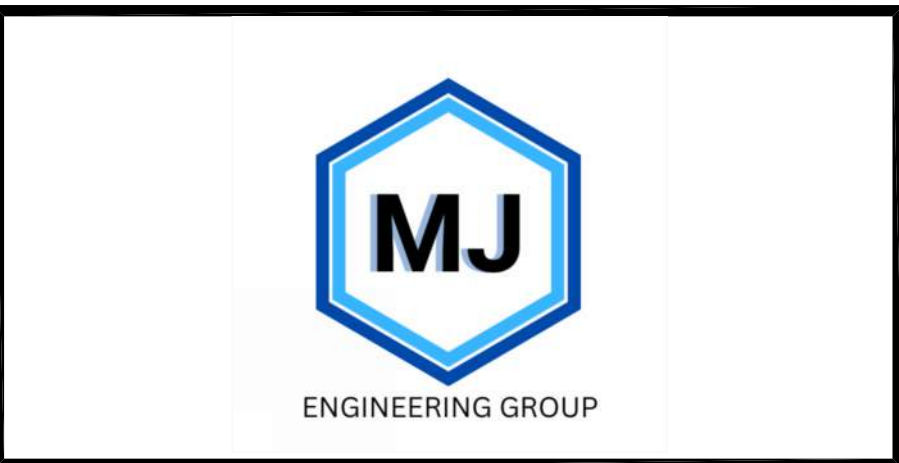
Chainage	0.000	2.000	4.000	6.000	8.000	10.000
Existing	10.473	10.478	9.924			

Section B-B
Scale H 1:250
V 1:50

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Rev'n	Date	Description	Drawn	Checked	App'd
B	02.06.26	Notes added to section C-C	MJ	MJ	MJ
A	10.04.26	Basin location revised	MJ	MJ	MJ



Client

New City Joinery

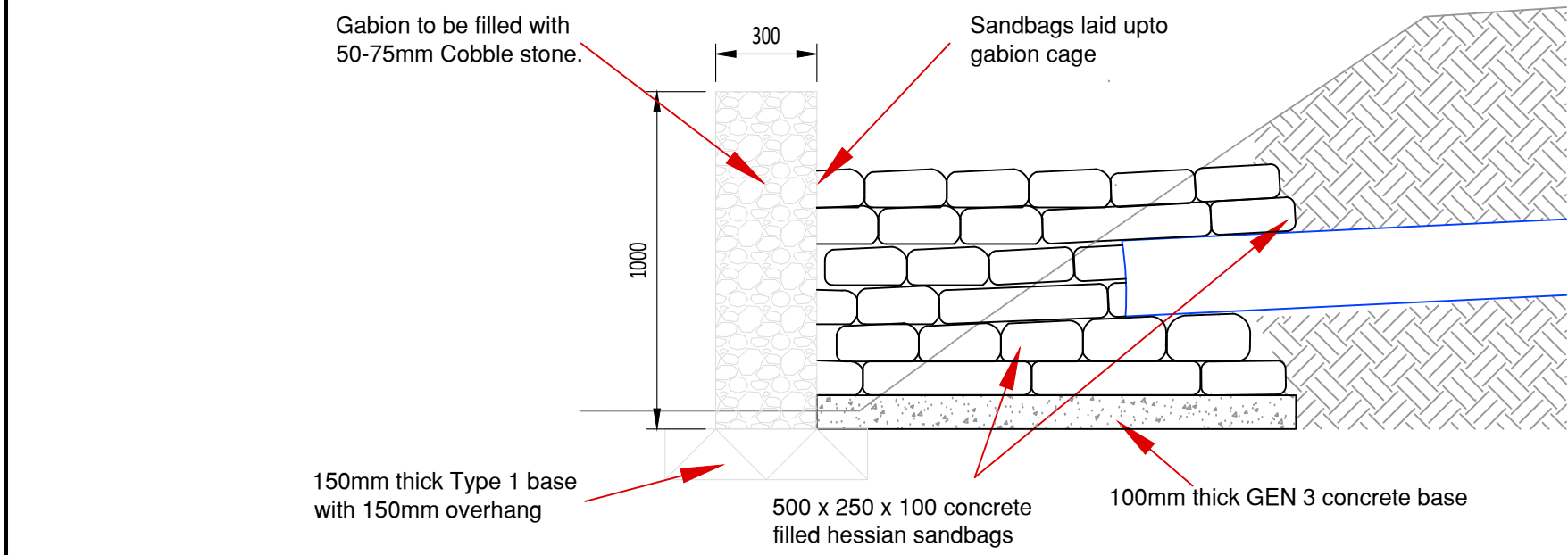
Project

Land at Stoney Brook Farm,
Walberton

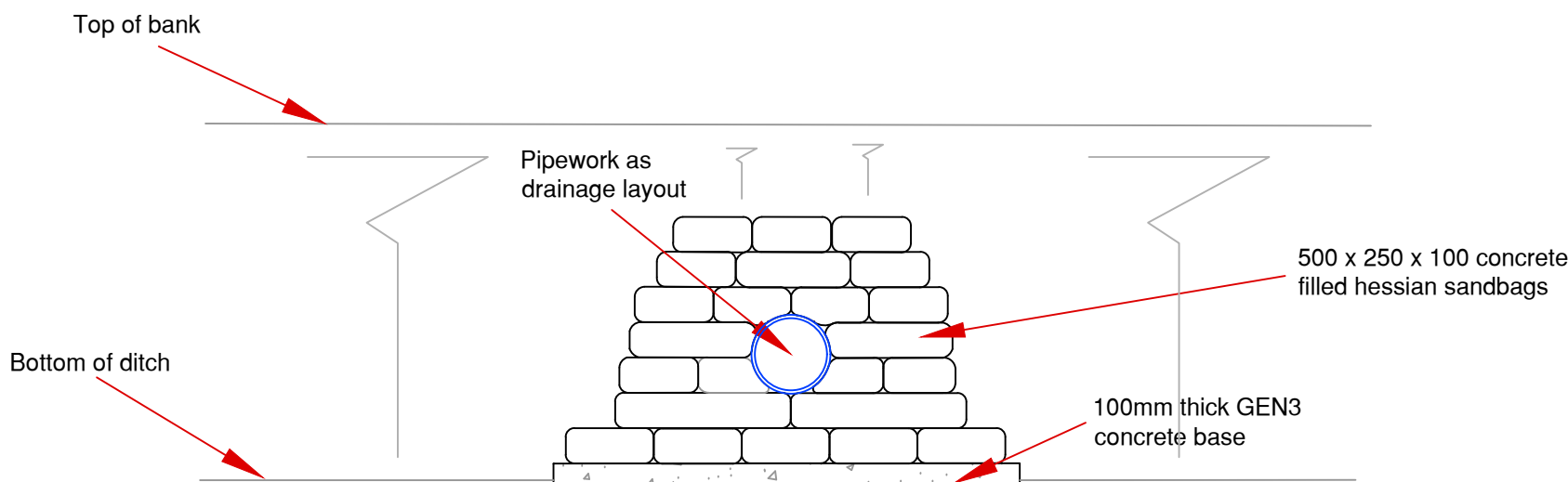
Drawing title

Proposed Surface Water Drainage
Watercourse and Pond Sections

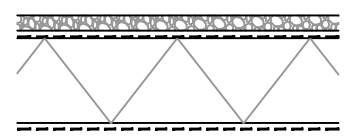
Drawn	MJ	Checked	MJ	Approved	MJ	Date	07/25
Scale at A1	Drawing no.					Revision	
As Shown	A001-013/300						B



Section - Headwall Gabion Cage Filter (Outlet)
Scale 1:20



Front Elevation - Basin Headwalls
Scale 1:20



Car Park Construction
Scale: 1:20

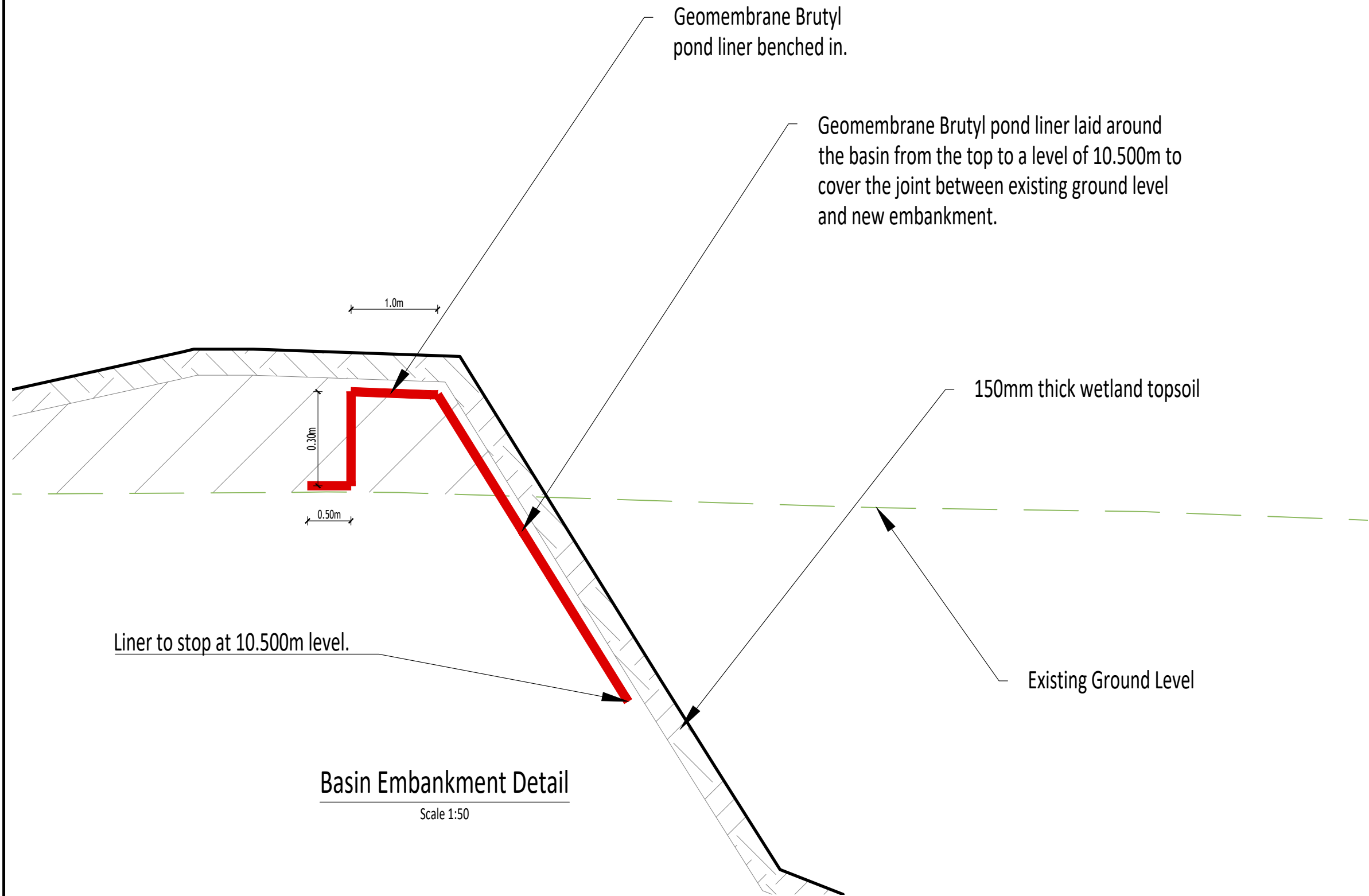
Bodpave 85 cellular crate or similar approved, with 6-10mm angular aggregate gravel chippings to BS EN 13242.

50mm laying bed angular aggregate gravel chippings within 6mm-10mm (Grading to BS EN 13242 - Gc 80/20 6/10)

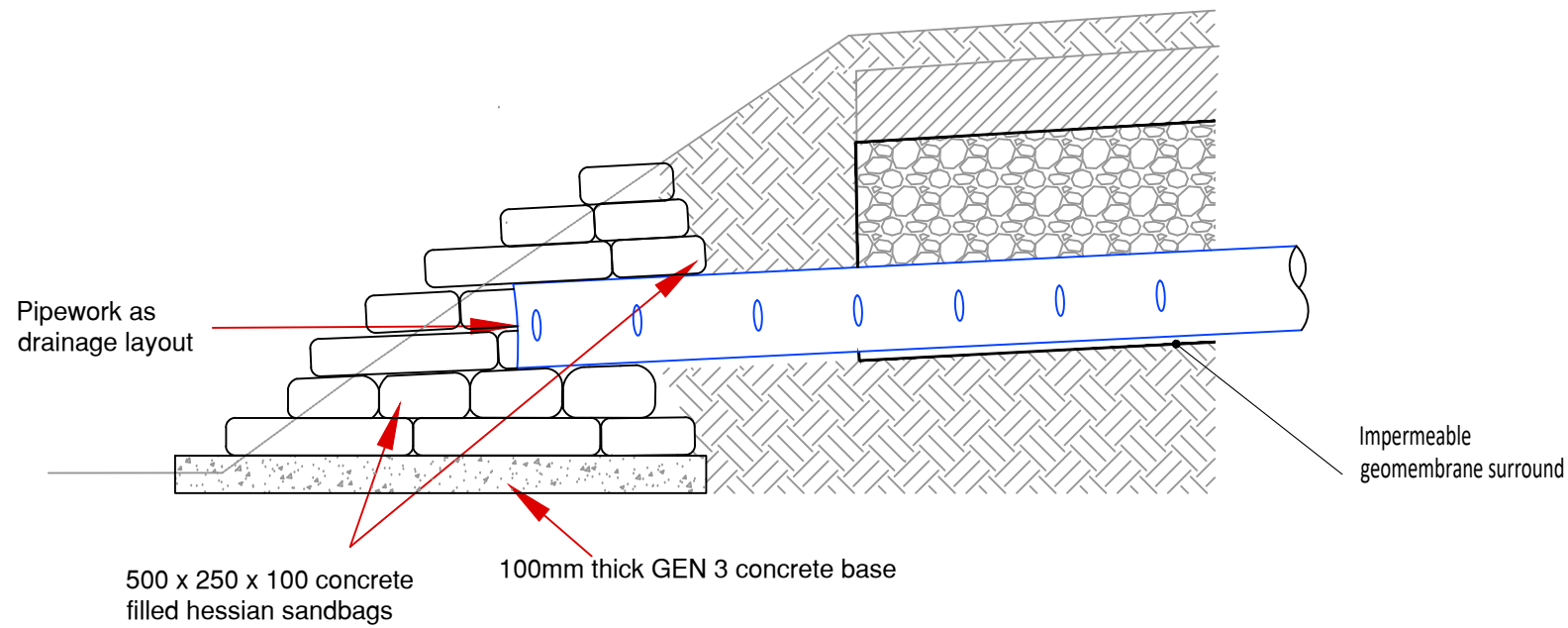
Geotrax T1000 Geotextile Laid under Laying bed overlap 500mm.

305mm Type 3 Granular sub-base to Clause 805 based on CBR 2-4%. Depth designed to Bodpave 85 paving guidance. For alternative products, sub-base depth may alter.

Non-woven permeable geomembrane Geotrax T1500 laid to formation level overlap 500mm.



Basin Embankment Detail
Scale 1:50



Section - Headwall 1 & 2
Scale 1:20

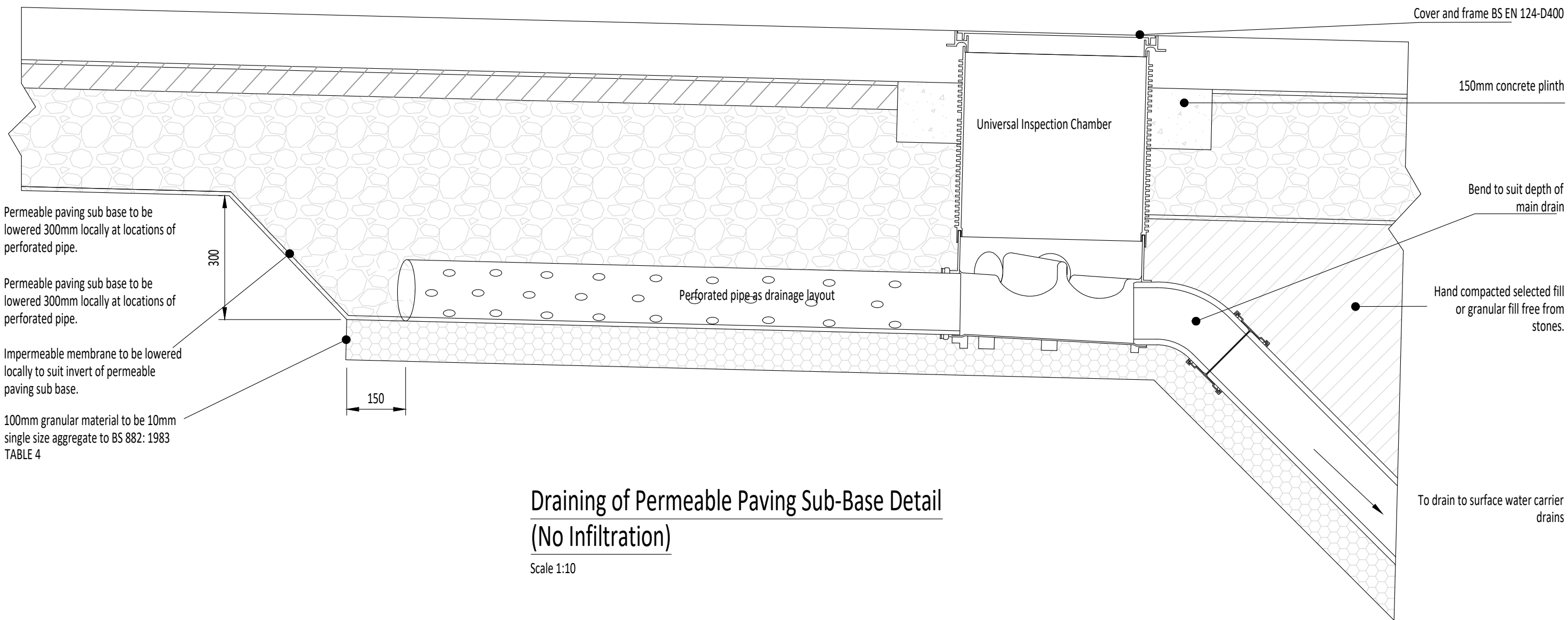
80mm Permeable block paving laid on 50mm laying bed angular aggregate within 4mm-15mm (BS EN 13242) .

Geotrax TS1000 Geotextile Laid under Laying bed.

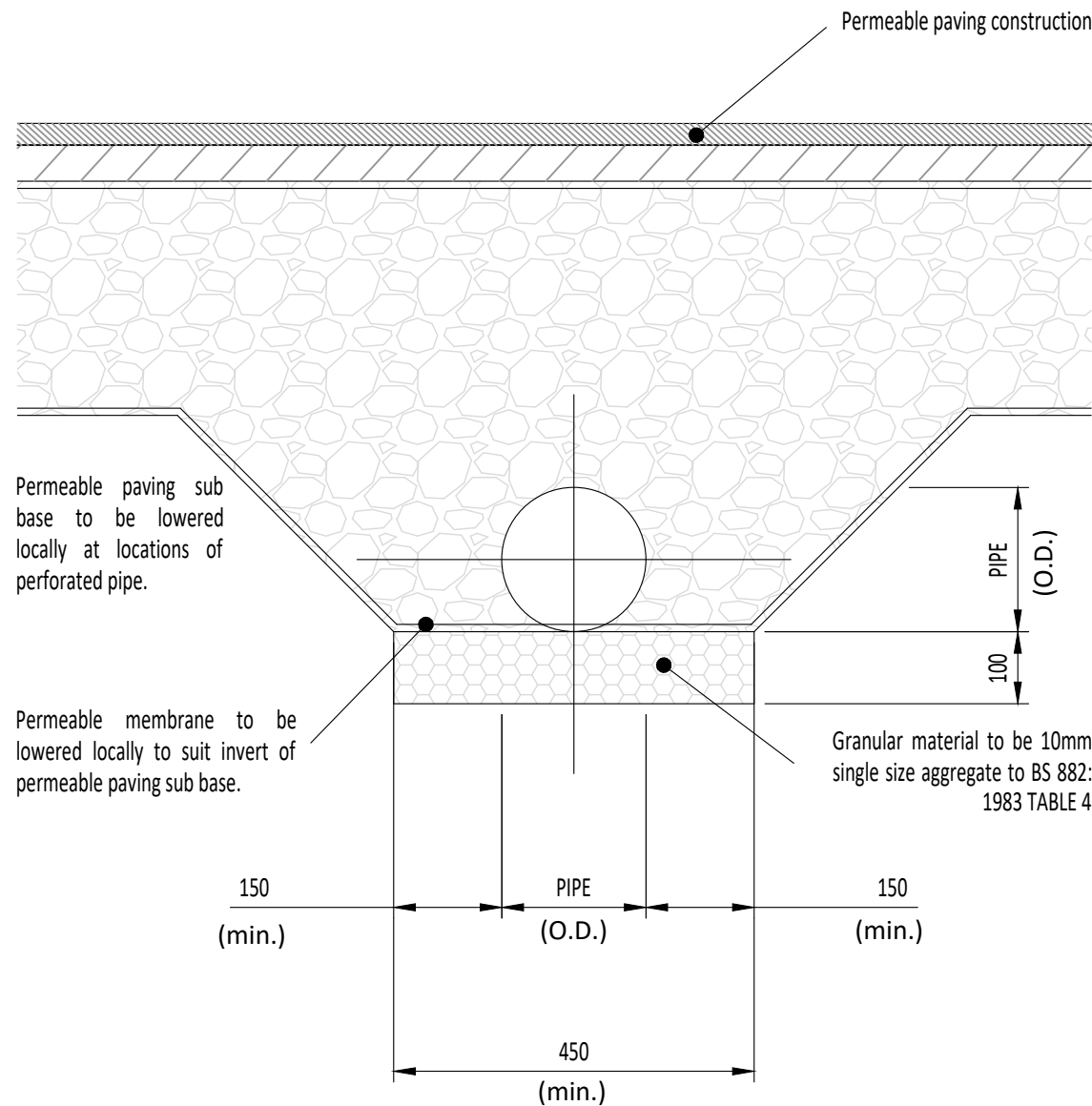
60mm Thk Binder Course AC32 Dense Bin 100/150 to BS EN 13108-1

305mm Type 3 Granular sub-base to Clause 805 based on water storage volume, to be increased to suit CBR percentage.

Non-woven permeable geomembrane Geotrax TS1000 laid to formation level



Draining of Permeable Paving Sub-Base Detail (No Infiltration)
Scale 1:10



Perforated Pipe Bedding
Scale 1:10

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A	02.06.26	Pond and gabion cage detail added	MJ	MJ	MJ
Rev'n	Date	Description	Drawn	Check'd	App'd
Status					



New City Joinery

Land at Stoney Brook Farm,
Walberton

Typical Construction Details
Sheet 2 of 2

Drawn	Checked	Approved	Date
MJ	MJ	MJ	07/25
Scale at A1	Drawing no.	Revision	
As Shown	A001-013/303	A	

Point 7 - Refer to Construction Detail

Point 8



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B	03.06.26	Existing catchment added	MJ	MJ	MJ
A	11.11.24	Electric Cable added,	MJ	MJ	MJ
		Basin location revised			
Rev'n	Date	Description	Drawn	Chkd	App'd
Status					



Client					
New City Joinery					
Project					
Land at Stoney Brook Farm, Walberton					
Drawing title					
Proposed Surface Water Impermeable Catchment Plan					
Drawn	MJ	Checked	MJ	Approved	MJ
Date	10/24				
Scale at A1	Drawing no.				Revision
1:200	A001-013/200				B

Point 9

**Node 6 Depth/Area Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 8 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 9 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 10 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 11 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

**Node 12 Depth/Area Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 13 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 14 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 15 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 16 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 17 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

**Node 18 Depth/Area Storage Structure**

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node 19 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Node IC04 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	10.695	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.305
Safety Factor	1.5	Width (m)	14.800	Inf Depth (m)	
Porosity	0.30	Length (m)	50.000		

Node 20 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	10.050
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	1140

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	14.9	14.9	1.250	32.7	42.6

Point 10

**Nodes**

Name	Area (ha)	Add Area (%)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
EX IC01	0.022		5.00	11.500	600	1873687.952	-215932.244	0.700	10.800
EX IC02	0.015		5.00	11.480	600	1873686.779	-215960.954	0.967	10.513
EX.IC03				11.100	600	1873685.842	-215992.049	0.944	10.156
IC04	0.022		5.00	11.150	600	1873688.606	-216020.080	1.088	10.062
5				11.300		1873715.268	-216037.046	1.353	9.947
20				11.300		1873713.507	-216050.271	1.349	9.951
IC07				11.015	1200	1873683.089	-216053.829	1.175	9.840
22				10.490		1873682.205	-216066.557	0.774	9.716
6	0.042		5.00	11.300		1873717.843	-216034.627	1.355	9.945
7				11.300		1873719.676	-216033.369	1.356	9.944
8				11.300		1873721.802	-216032.718	1.357	9.943
9				11.300		1873723.587	-216032.860	1.358	9.942
10				11.300		1873725.136	-216033.759	1.358	9.942
11				11.300		1873725.830	-216034.975	1.359	9.941
12				11.300		1873725.101	-216037.230	1.344	9.956
13				11.300		1873722.729	-216038.703	1.345	9.955
14				11.300		1873719.996	-216039.277	1.346	9.954
15				11.300		1873717.972	-216040.119	1.347	9.953
16				11.300		1873717.120	-216041.511	1.348	9.952
17				11.300		1873717.019	-216043.112	1.348	9.952
18				11.300		1873717.027	-216044.136	1.349	9.951
19				11.300		1873716.501	-216046.937	1.349	9.951
IC05	0.025		5.00	11.005	600	1873701.705	-216036.529	1.013	9.992
RE02	0.023	10	5.00	11.150	150	1873671.366	-216050.112	0.525	10.625
IC06	0.029		5.00	11.005	600	1873701.142	-216051.093	0.753	10.252
RE01	0.023	10	5.00	11.150	150	1873672.015	-216019.405	0.774	10.376

Links (Input)

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	EX IC01	EX IC02	28.734	0.600	10.800	10.513	0.287	100.1	100	5.62	50.0
1.001	EX IC02	EX.IC03	31.109	0.600	10.513	10.306	0.207	150.0	150	6.26	49.4
1.002	EX.IC03	IC04	28.167	0.600	10.156	10.062	0.094	300.0	300	6.78	47.5
1.003	IC04	IC05	21.027	0.600	10.062	9.992	0.070	300.0	300	7.17	46.2
1.006	6	7	2.223	0.012	9.945	9.944	0.001	2223.2	300	7.70	44.5
1.007	7	8	2.223	0.012	9.944	9.943	0.001	2223.4	300	7.82	44.2
1.004	5	6	3.297	0.012	9.947	9.945	0.002	1648.5	300	7.57	40.8
1.010	11	12	3.669	0.012	9.960	9.956	0.004	917.3	300	8.12	43.7
1.019	20	IC07	32.187	0.012	10.383	9.840	0.543	59.3	225	9.08	37.7
1.008	8	9	1.791	0.012	9.943	9.942	0.001	1790.6	300	7.91	43.9
1.009	9	10	1.000	0.012	9.942	9.942	0.000	0.0	300	7.92	43.9
1.010_1	10	11	1.400	0.012	9.942	9.941	0.001	1400.1	300	7.99	43.7
1.021	IC07	22	12.759	0.012	9.840	9.716	0.124	102.9	100	9.39	40.1
1.012	12	13	2.792	0.012	9.956	9.955	0.001	2792.2	300	8.29	42.8
1.013	13	14	2.793	0.012	9.955	9.954	0.001	2792.6	300	8.46	42.4
1.014	14	15	2.192	0.012	9.954	9.953	0.001	2192.2	300	8.58	42.1
1.015	15	16	1.632	0.012	9.953	9.952	0.001	1632.0	300	8.66	41.9
1.016	16	17	1.000	0.012	9.952	9.952	0.000	0.0	300	8.68	41.8
1.017	17	18	1.024	0.012	9.952	9.951	0.001	1024.0	300	8.71	41.7
1.018	18	19	1.000	0.012	9.951	9.951	0.000	0.0	300	8.73	41.7
1.019_1	19	20	1.000	0.012	9.951	9.951	0.000	0.0	300	8.75	41.6

**Links (Input)**

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)
1.004_1	IC05	5	13.573	0.600	9.992	9.947	0.045	300.0	300	7.42	45.4
3.000	RE02	IC06	29.792	0.600	10.625	10.252	0.373	79.9	225	5.34	50.0
3.001	IC06	IC05	14.575	0.600	10.252	10.067	0.185	78.8	225	5.50	50.0
2.000	RE01	IC04	16.605	0.600	10.376	10.210	0.166	100.0	150	5.28	50.0

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	✓	Check Discharge Rate(s)	x
Rainfall Events	Singular	Drain Down Time (mins)	10080	Check Discharge Volume	x
Summer CV	1.000	Additional Storage (m³/ha)	0.0		
Analysis Speed	Detailed	Starting Level (m)	10.333		

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	40	0	0
30	40	0	0
100	45	0	0

Node IC07 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	9.840	Product Number	CTL-SHE-0032-5000-1000-5000
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	0.5	Min Node Diameter (mm)	1200

**Results for 1 year Critical Storm Duration. Lowest mass balance: 99.18%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX IC01	10	10.846	0.046	2.7	0.0132	0.0000	OK
15 minute summer	EX IC02	11	10.571	0.058	4.6	0.0164	0.0000	OK
10080 minute summer	EX.IC03	5940	10.483	0.327	0.2	0.0925	0.0000	SURCHARGED
10080 minute summer	IC04	5940	10.483	0.421	0.4	0.1191	0.0000	SURCHARGED
10080 minute summer	5	5940	10.483	0.536	0.7	0.0000	0.0000	SURCHARGED
10080 minute summer	20	5940	10.483	0.532	0.7	7.7901	0.0000	OK
10080 minute summer	IC07	5940	10.483	0.643	0.7	0.7270	0.0000	SURCHARGED
15 minute summer	22	1	9.770	0.054	3.1	0.0000	0.0000	OK
10080 minute summer	6	5940	10.483	0.538	0.9	7.7901	0.0000	SURCHARGED
10080 minute summer	7	5940	10.483	0.539	0.9	7.7901	0.0000	SURCHARGED
10080 minute summer	8	5940	10.483	0.540	0.8	7.7901	0.0000	SURCHARGED
10080 minute summer	9	5940	10.483	0.541	0.8	7.7901	0.0000	SURCHARGED
10080 minute summer	10	5940	10.483	0.541	0.8	7.7902	0.0000	SURCHARGED
10080 minute summer	11	5940	10.483	0.542	0.8	7.7901	0.0000	SURCHARGED
10080 minute summer	12	5940	10.483	0.527	0.7	7.7901	0.0000	SURCHARGED
10080 minute summer	13	5940	10.483	0.528	0.7	7.7902	0.0000	SURCHARGED
10080 minute summer	14	5940	10.483	0.529	0.7	7.7902	0.0000	SURCHARGED
10080 minute summer	15	5940	10.483	0.530	0.7	7.7901	0.0000	SURCHARGED
10080 minute summer	16	5940	10.483	0.531	0.7	7.7901	0.0000	SURCHARGED
10080 minute summer	17	5940	10.483	0.531	0.7	7.7901	0.0000	SURCHARGED
10080 minute summer	18	5940	10.483	0.532	0.7	7.7901	0.0000	SURCHARGED
10080 minute summer	19	5940	10.483	0.532	0.7	7.7901	0.0000	SURCHARGED
10080 minute summer	IC05	5940	10.483	0.491	0.7	0.1389	0.0000	SURCHARGED
15 minute summer	RE02	10	10.660	0.035	3.2	0.0006	0.0000	OK
10080 minute summer	IC06	5940	10.483	0.231	0.2	0.0653	0.0000	SURCHARGED

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	EX IC01	1.000	EX IC02	2.7	0.653	0.442	0.1183	
15 minute summer	EX IC02	1.001	EX.IC03	4.5	0.718	0.308	0.1933	
10080 minute summer	EX.IC03	1.002	IC04	0.2	0.003	0.003	1.9835	
10080 minute summer	IC04	1.003	IC05	0.4	0.006	0.006	1.4807	
10080 minute summer	5	1.004	6	0.7	0.006	0.041	0.5067	
10080 minute summer	20	1.019	IC07	0.7	0.089	0.011	0.9135	
10080 minute summer	IC07	1.021	22	0.4	0.410	0.074	0.0128	73.0
10080 minute summer	6	1.006	7	0.9	0.007	0.059	0.3435	
10080 minute summer	7	1.007	8	0.8	0.007	0.057	0.3448	
10080 minute summer	8	1.008	9	0.8	0.007	0.049	0.2790	
10080 minute summer	9	1.009	10	0.8	0.007	0.016	0.1561	
10080 minute summer	10	1.010_1	11	0.8	0.007	0.041	0.2189	
10080 minute summer	11	1.010	12	0.7	0.007	0.033	0.5392	
10080 minute summer	12	1.012	13	0.7	0.007	0.057	0.4142	
10080 minute summer	13	1.013	14	0.7	0.007	0.056	0.4159	
10080 minute summer	14	1.014	15	0.7	0.007	0.049	0.3276	
10080 minute summer	15	1.015	16	0.7	0.007	0.042	0.2448	
10080 minute summer	16	1.016	17	0.7	0.007	0.015	0.1503	
10080 minute summer	17	1.017	18	0.7	0.007	0.033	0.1542	
10080 minute summer	18	1.018	19	0.7	0.006	0.014	0.1509	
10080 minute summer	19	1.019_1	20	0.7	0.006	0.014	0.1509	
10080 minute summer	IC05	1.004_1	5	0.7	0.010	0.011	0.9558	
15 minute summer	RE02	3.000	IC06	3.1	0.296	0.054	0.3394	
10080 minute summer	IC06	3.001	IC05	0.2	0.006	0.003	0.5797	

**Results for 1 year Critical Storm Duration. Lowest mass balance: 99.18%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
10080 minute summer	RE01	5940	10.483	0.107	0.1	0.0019	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
10080 minute summer	RE01	2.000	IC04	0.1	0.012	0.006	0.2575	

**Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 99.43%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX IC01	11	11.500	0.700	11.3	0.1981	0.1413	FLOOD
15 minute summer	EX IC02	11	10.832	0.319	16.0	0.0903	0.0000	SURCHARGED
10080 minute summer	EX.IC03	6720	10.727	0.571	0.3	0.1615	0.0000	SURCHARGED
10080 minute summer	IC04	6720	10.727	0.665	0.7	2.4047	0.0000	SURCHARGED
10080 minute summer	5	6720	10.727	0.780	1.4	0.0000	0.0000	SURCHARGED
10080 minute summer	20	6720	10.727	0.776	0.6	13.3477	0.0000	SURCHARGED
10080 minute summer	IC07	6720	10.727	0.887	0.6	1.0027	0.0000	FLOOD RISK
15 minute summer	22	1	9.770	0.054	3.1	0.0000	0.0000	OK
10080 minute summer	6	6720	10.727	0.782	1.8	13.3477	0.0000	SURCHARGED
10080 minute summer	7	6720	10.727	0.783	1.7	13.3477	0.0000	SURCHARGED
10080 minute summer	8	6720	10.727	0.784	1.6	13.3477	0.0000	SURCHARGED
10080 minute summer	9	6720	10.727	0.785	1.5	13.3477	0.0000	SURCHARGED
10080 minute summer	10	6720	10.727	0.785	1.4	13.3477	0.0000	SURCHARGED
10080 minute summer	11	6720	10.727	0.786	1.3	13.3477	0.0000	SURCHARGED
10080 minute summer	12	6720	10.727	0.771	1.2	13.3477	0.0000	SURCHARGED
10080 minute summer	13	6720	10.727	0.772	1.1	13.3477	0.0000	SURCHARGED
10080 minute summer	14	6720	10.727	0.773	1.1	13.3477	0.0000	SURCHARGED
10080 minute summer	15	6720	10.727	0.774	1.0	13.3477	0.0000	SURCHARGED
10080 minute summer	16	6720	10.727	0.775	0.9	13.3477	0.0000	SURCHARGED
10080 minute summer	17	6720	10.727	0.775	0.8	13.3477	0.0000	SURCHARGED
10080 minute summer	18	6720	10.727	0.776	0.7	13.3477	0.0000	SURCHARGED
10080 minute summer	19	6720	10.727	0.776	0.6	13.3477	0.0000	SURCHARGED
10080 minute summer	IC05	6720	10.727	0.735	1.4	0.2079	0.0000	FLOOD RISK
10080 minute summer	RE02	6720	10.727	0.102	0.2	0.0018	0.0000	OK
10080 minute summer	IC06	6720	10.727	0.475	0.5	0.1343	0.0000	FLOOD RISK

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	EX IC01	1.000	EX IC02	8.7	1.117	1.448	0.2248	
15 minute summer	EX IC02	1.001	EX.IC03	15.6	0.884	1.076	0.5477	
10080 minute summer	EX.IC03	1.002	IC04	0.3	0.004	0.005	1.9835	
10080 minute summer	IC04	1.003	IC05	0.7	0.010	0.011	1.4807	
10080 minute summer	5	1.004	6	1.4	0.008	0.081	1.0713	
10080 minute summer	20	1.019	IC07	0.6	0.091	0.010	1.2801	
10080 minute summer	IC07	1.021	22	0.5	0.428	0.086	0.0141	218.6
10080 minute summer	6	1.006	7	1.7	0.009	0.115	0.7250	
10080 minute summer	7	1.007	8	1.6	0.009	0.109	0.7269	
10080 minute summer	8	1.008	9	1.5	0.008	0.093	0.5875	
10080 minute summer	9	1.009	10	1.4	0.008	0.029	0.3284	
10080 minute summer	10	1.010_1	11	1.3	0.007	0.072	0.4604	
10080 minute summer	11	1.010	12	1.2	0.007	0.055	1.1564	
10080 minute summer	12	1.012	13	1.1	0.007	0.088	0.8856	
10080 minute summer	13	1.013	14	1.1	0.007	0.081	0.8882	
10080 minute summer	14	1.014	15	1.0	0.006	0.066	0.6989	
10080 minute summer	15	1.015	16	0.9	0.006	0.052	0.5216	
10080 minute summer	16	1.016	17	0.8	0.006	0.016	0.3200	
10080 minute summer	17	1.017	18	0.7	0.006	0.033	0.3281	
10080 minute summer	18	1.018	19	0.6	0.006	0.013	0.3209	
10080 minute summer	19	1.019_1	20	0.6	0.006	0.013	0.3209	
10080 minute summer	IC05	1.004_1	5	1.4	0.019	0.021	0.9558	
10080 minute summer	RE02	3.000	IC06	0.2	0.012	0.003	0.8514	
10080 minute summer	IC06	3.001	IC05	0.5	0.012	0.008	0.5797	

**Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 99.43%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
10080 minute summer	RE01	6720	10.727	0.351	0.2	0.0063	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
10080 minute summer	RE01	2.000	IC04	0.2	0.013	0.011	0.2923	

**Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.47%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	EX IC01	10	11.500	0.700	14.7	0.1981	1.0149	FLOOD
15 minute summer	EX IC02	11	10.985	0.472	17.9	0.1335	0.0000	SURCHARGED
2160 minute summer	EX.IC03	2160	10.785	0.629	1.1	0.1780	0.0000	SURCHARGED
2160 minute summer	IC04	2160	10.785	0.723	2.5	14.6369	0.0000	SURCHARGED
2160 minute summer	5	2160	10.785	0.838	4.9	0.0000	0.0000	SURCHARGED
2160 minute summer	20	2160	10.785	0.834	0.8	14.8052	0.0000	SURCHARGED
2160 minute summer	IC07	2160	10.785	0.945	0.8	1.0687	0.0000	FLOOD RISK
15 minute summer	22	1	9.770	0.054	3.1	0.0000	0.0000	OK
2160 minute summer	6	2160	10.785	0.840	6.1	14.8052	0.0000	SURCHARGED
2160 minute summer	7	2160	10.785	0.841	5.7	14.8052	0.0000	SURCHARGED
2160 minute summer	8	2160	10.785	0.842	5.3	14.8052	0.0000	SURCHARGED
2160 minute summer	9	2160	10.785	0.843	4.9	14.8052	0.0000	SURCHARGED
2160 minute summer	10	2160	10.785	0.843	4.6	14.8052	0.0000	SURCHARGED
2160 minute summer	11	2160	10.785	0.844	4.2	14.8052	0.0000	SURCHARGED
2160 minute summer	12	2160	10.785	0.829	3.8	14.8052	0.0000	SURCHARGED
2160 minute summer	13	2160	10.785	0.830	3.4	14.8052	0.0000	SURCHARGED
2160 minute summer	14	2160	10.785	0.831	3.0	14.8052	0.0000	SURCHARGED
2160 minute summer	15	2160	10.785	0.832	2.7	14.8052	0.0000	SURCHARGED
2160 minute summer	16	2160	10.785	0.833	2.3	14.8052	0.0000	SURCHARGED
2160 minute summer	17	2160	10.785	0.833	1.9	14.8052	0.0000	SURCHARGED
2160 minute summer	18	2160	10.785	0.834	1.6	14.8052	0.0000	SURCHARGED
2160 minute summer	19	2160	10.785	0.834	1.2	14.8052	0.0000	SURCHARGED
2160 minute summer	IC05	2160	10.785	0.793	4.9	0.2244	0.0000	FLOOD RISK
2160 minute summer	RE02	2160	10.785	0.160	0.8	0.0029	0.0000	OK
2160 minute summer	IC06	2160	10.785	0.533	1.7	0.1508	0.0000	FLOOD RISK

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	EX IC01	1.000	EX IC02	8.5	1.088	1.411	0.2248	
15 minute summer	EX IC02	1.001	EX.IC03	17.1	0.969	1.180	0.5477	
2160 minute summer	EX.IC03	1.002	IC04	1.1	0.015	0.017	1.9835	
2160 minute summer	IC04	1.003	IC05	2.5	0.036	0.040	1.4807	
2160 minute summer	5	1.004	6	4.9	0.022	0.289	1.2376	
2160 minute summer	20	1.019	IC07	0.8	0.093	0.012	1.2801	
2160 minute summer	IC07	1.021	22	0.5	0.431	0.088	0.0144	212.2
2160 minute summer	6	1.006	7	5.7	0.026	0.392	0.8374	
2160 minute summer	7	1.007	8	5.3	0.024	0.366	0.8394	
2160 minute summer	8	1.008	9	4.9	0.022	0.305	0.6783	
2160 minute summer	9	1.009	10	4.6	0.021	0.095	0.3792	
2160 minute summer	10	1.010_1	11	4.2	0.019	0.230	0.5314	
2160 minute summer	11	1.010	12	3.8	0.018	0.169	1.3388	
2160 minute summer	12	1.012	13	3.4	0.016	0.265	1.0249	
2160 minute summer	13	1.013	14	3.0	0.014	0.235	1.0277	
2160 minute summer	14	1.014	15	2.7	0.013	0.182	0.8085	
2160 minute summer	15	1.015	16	2.3	0.011	0.135	0.6034	
2160 minute summer	16	1.016	17	1.9	0.009	0.040	0.3701	
2160 minute summer	17	1.017	18	1.6	0.007	0.073	0.3795	
2160 minute summer	18	1.018	19	1.2	0.007	0.025	0.3710	
2160 minute summer	19	1.019_1	20	0.8	0.007	0.017	0.3710	
2160 minute summer	IC05	1.004_1	5	4.9	0.069	0.076	0.9558	
2160 minute summer	RE02	3.000	IC06	0.8	0.033	0.014	1.0423	
2160 minute summer	IC06	3.001	IC05	1.7	0.042	0.029	0.5797	

**Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.47%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	RE01	11	10.813	0.437	16.9	0.0079	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	RE01	2.000	IC04	16.2	0.920	0.912	0.2923	

**Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.51%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	EX IC01	16	11.500	0.700	17.5	0.1981	2.7559	FLOOD
15 minute summer	EX IC02	11	11.133	0.620	19.9	0.1754	0.0000	SURCHARGED
4320 minute summer	EX.IC03	3900	10.878	0.722	0.9	0.2043	0.0000	FLOOD RISK
4320 minute summer	IC04	3900	10.878	0.816	2.0	35.3218	0.0000	FLOOD RISK
4320 minute summer	5	3900	10.878	0.931	3.8	0.0000	0.0000	SURCHARGED
4320 minute summer	20	3900	10.878	0.927	0.8	17.2275	0.0000	SURCHARGED
4320 minute summer	IC07	3900	10.878	1.038	0.6	1.1740	0.0000	FLOOD RISK
15 minute summer	22	1	9.770	0.054	3.1	0.0000	0.0000	OK
4320 minute summer	6	3900	10.878	0.933	4.8	17.2275	0.0000	SURCHARGED
4320 minute summer	7	3900	10.878	0.934	4.5	17.2275	0.0000	SURCHARGED
4320 minute summer	8	3900	10.878	0.935	4.2	17.2275	0.0000	SURCHARGED
4320 minute summer	9	3900	10.878	0.936	3.9	17.2275	0.0000	SURCHARGED
4320 minute summer	10	3900	10.878	0.936	3.6	17.2275	0.0000	SURCHARGED
4320 minute summer	11	3900	10.878	0.937	3.3	17.2275	0.0000	SURCHARGED
4320 minute summer	12	3900	10.878	0.922	3.0	17.2275	0.0000	SURCHARGED
4320 minute summer	13	3900	10.878	0.923	2.7	17.2275	0.0000	SURCHARGED
4320 minute summer	14	3900	10.878	0.924	2.5	17.2275	0.0000	SURCHARGED
4320 minute summer	15	3900	10.878	0.925	2.2	17.2275	0.0000	SURCHARGED
4320 minute summer	16	3900	10.878	0.926	1.9	17.2275	0.0000	SURCHARGED
4320 minute summer	17	3900	10.878	0.926	1.6	17.2275	0.0000	SURCHARGED
4320 minute summer	18	3900	10.878	0.927	1.3	17.2275	0.0000	SURCHARGED
4320 minute summer	19	3900	10.878	0.927	1.0	17.2275	0.0000	SURCHARGED
4320 minute summer	IC05	3900	10.878	0.886	3.8	0.2508	0.0000	FLOOD RISK
4320 minute summer	RE02	3900	10.878	0.253	0.6	0.0046	0.0000	FLOOD RISK
4320 minute summer	IC06	3900	10.878	0.626	1.3	0.1772	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	EX IC01	1.000	EX IC02	8.0	1.021	1.324	0.2248	
15 minute summer	EX IC02	1.001	EX.IC03	18.9	1.075	1.309	0.5477	
4320 minute summer	EX.IC03	1.002	IC04	0.9	0.013	0.014	1.9835	
4320 minute summer	IC04	1.003	IC05	2.0	0.028	0.031	1.4807	
4320 minute summer	5	1.004	6	3.8	0.013	0.224	1.5274	
4320 minute summer	20	1.019	IC07	0.6	0.086	0.009	1.2801	
4320 minute summer	IC07	1.021	22	0.5	0.436	0.092	0.0148	326.7
4320 minute summer	6	1.006	7	4.5	0.015	0.309	1.0331	
4320 minute summer	7	1.007	8	4.2	0.014	0.289	1.0353	
4320 minute summer	8	1.008	9	3.9	0.013	0.242	0.8364	
4320 minute summer	9	1.009	10	3.6	0.012	0.075	0.4675	
4320 minute summer	10	1.010_1	11	3.3	0.011	0.183	0.6552	
4320 minute summer	11	1.010	12	3.0	0.011	0.135	1.6571	
4320 minute summer	12	1.012	13	2.7	0.010	0.212	1.2678	
4320 minute summer	13	1.013	14	2.5	0.009	0.190	1.2709	
4320 minute summer	14	1.014	15	2.2	0.008	0.148	0.9996	
4320 minute summer	15	1.015	16	1.9	0.007	0.111	0.7458	
4320 minute summer	16	1.016	17	1.6	0.006	0.033	0.4575	
4320 minute summer	17	1.017	18	1.3	0.006	0.061	0.4689	
4320 minute summer	18	1.018	19	1.0	0.006	0.021	0.4584	
4320 minute summer	19	1.019_1	20	0.8	0.006	0.016	0.4584	
4320 minute summer	IC05	1.004_1	5	3.8	0.054	0.059	0.9558	
4320 minute summer	RE02	3.000	IC06	0.6	0.021	0.010	1.1849	
4320 minute summer	IC06	3.001	IC05	1.3	0.032	0.021	0.5797	

**Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.51%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	RE01	11	11.003	0.627	21.9	0.0113	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
15 minute summer	RE01	2.000	IC04	21.1	1.200	1.190	0.2923	

Point 11 - As noted

Point 12 - As noted

Point 13



ENGINEERING GROUP

Stoney Brook Farm, Walberton

SURFACE WATER MANAGEMENT PLAN

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Revisions and Additional Material

Document History and Status

Revision	Date	Purpose/Status
-	03.06.2026	First Issue

Document Details

Project Director	Mark Jones
Report Author	Mark Jones
Project Number	A001-013
Project Name	Stoney Brook Farm, Walberton

1 Introduction and Limitation

1.1 Introduction

- 1.1.1 MJ Engineering Group (MJEG) has been appointed to prepare a Surface Water Management Plan (SWMP) for Land at Stoney Brook Farm, Walberton, BN18 0BA.

1.2 Limitation

- 1.2.1 This Report has been prepared by MJ Engineering Group Ltd (MJEG) for the sole use of the “client”. This Report is confidential and may not be disclosed by the client nor relied upon by any other party without the prior and express written agreement of MJEG.
- 1.2.2 The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by MJEG has not been independently verified unless otherwise stated in this Report.
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2 Site Description

- 2.1.1 The site is located off Eastergate Lane in the village of Walberton at grid reference SU960060.
- 2.1.2 The ground conditions according to the British Geological Society across the site reports Head deposits comprising of Gravel, Sand, Silt and Clay, over a bedrock of London Clay.
- 2.1.3 The immediate neighbouring site has been subject of a planning application that reported Clay to be present across the site, with a groundwater level at 0.69m below existing ground level.
- 2.1.4 Groundwater monitoring has been carried out between November 2025 to February 2026 in the area of the proposed basin. The monitoring recorded groundwater at 0.347m below existing ground level making the use of infiltration as the primary means of discharging surface water not viable.
- 2.1.5 The surface water drainage will outfall to the existing watercourse, using the existing outfall pipe.
- 2.1.6 Sustainable Drainage Systems (SuDS) features will manage rainfall to deal with Surface Water. The SuDS features will control the flow rate to greenfield run-off rate and volume of water leaving the development area. The drainage system will also provide provision for collecting and reusing surface water on the site and allow for surface water to infiltrate/feed the landscape areas from the basin.

3 Roles and Responsibilities

- 3.1.1 This section identifies the key roles and responsibilities for the drainage features.

SuDS Features	Company Responsible
Above ground storage tank	Landowner
Catchpit chambers	Landowner
Surface Water pipework	Landowner
Control Chamber	Landowner
Basin Headwalls	Landowner
Outfall Headwall	Landowner
Surface Water basin	Landowner
Permeable Paving	Landowner
Landscape areas	Landowner

4 Managing SuDS

- 4.1.1 With all drainage systems, SuDS components require regular inspection and maintenance to ensure the operational efficiency and reduce the risk of failure. The level of inspection and maintenance will vary depending on the type of SuDS component. The maintenance schedules set out in **Appendix A** reflects the guidance set out in The SuDS Manual (CIRIA publication C753).
- 4.1.2 The SuDS Maintenance Schedules, as set out in The SuDS Manual, are designed for easy maintenance comprising of:
- Regular daily – Litter collection and clearing inlets and outlets.
 - Occasional tasks – removing silt that builds up, clearing excessive vegetation, etc.
 - Remedial Work – Repairing damage to the features as required.

5 Appendices

Appendix A – Management, Maintenance and Remediation Schedule

Operation and Maintenance requirements for Control Chamber

Responsible for Maintenance	Landowner	
Maintenance Schedule	Required Action	Typical Frequency
Routine maintenance	Inspection of chamber and removal of debris when necessary	Quarterly or as required following monitoring
Remedial actions	Check for blockages in manholes and pipes. Rodding and jetting of pipes to be carried out. CCTV survey can be carried out to inspect condition of pipework.	Quarterly or as required following monitoring
Monitoring	Inspect outfall pipework for consistency in flow. Inspect manholes and catchpits for debris and litter. Remove where necessary to prevent blockages in the system.	Monthly or after periods of heavy rainfall

Operation and Maintenance requirements for Detention Basins		
Responsible for Maintenance	Landowner	
Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass-for spillways and access routes	Monthly (during growing season), or as required
	Cut grass-meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlets and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)

Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

Operation and Maintenance requirements for Pervious Pavements

Responsible for Maintenance	Landowner	
Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – Once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 hrs after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Operation and Maintenance requirements for SW Pipes and Chambers

Responsible for Maintenance	Landowner	
Maintenance Schedule	Required Action	Typical Frequency
Routine maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation	Six monthly
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill
Remedial actions	Replace damaged guttering, and pipework	As required
	Cleanout guttering of debris	Annually or as required
Monitoring	Inspect for guttering and pipework for debris and blockages	Six monthly

Operation and Maintenance requirements for Storage Tanks

Responsible for Maintenance	Landowner	
Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial actions	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
Remedial Actions	Repair/rehabilitate inlets, outlets and overflows	As required
Monitoring	Inspect/check all inlets, outlets and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required by manufacturers specification

Operation and Maintenance requirements for Swales

Responsible for Maintenance	Landowner	
Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for .48hrs	Monthly, or when required
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, after plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial Actions	Repair erosion or other damage by re-turfing or reseedling	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

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