

Report Title

Drainage Technical Note

Project

CLFA142-Court Farm, Trowbridge

Report Reference

CLFA142-CLFA-00-XX-DR-0661

Client

Wainhomes Severn Valley

Date

November 2025

REPORT CONTROL SHEET

Client: Wainhomes Severn Valley

Project: Court Farm, Trowbridge

Job Number: CLFA142

Report Title: Drainage Technical Note

Report Reference: CLFA142-CLFA-00-XX-DR-0661

Prepared By: C LEDOUX

Reviewed and Authorised By: F ALGUACIL MEng (Hons)

Revision	Date	Description	Prepared By	Authorised By
P01	10/11/25	FIRST ISSUE	C LEDOUX	F ALGUACIL

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1. INTRODUCTION

Wainhomes Severn Valley have commissioned CLFA Design to produce a Drainage Technical Note to support the submission of a Reserved Matters (RM) Application for the proposed residential development at Court Farm, Trowbridge. The Drainage Strategy has been based upon Teignconcul FRA Addendum (Report Ref. 447/FRA2/ADDM3 V2-17.05.22)

This information has been provided so that Lead Local Flood Authority (LLFA) can better understand the reasoning behind some slight changes to the approved drainage strategy.

2. PROPOSED DRAINAGE STRATEGY

1.1. FLOOD ALLEVIATION STRATEGY

Teignconcul Drawing FRA22 showed three flood alleviation (cut off) ditches to the north-east of the site with a total capacity for 348l/s. These discharged to a piped system under the roads and eventually to the attenuation ponds to the south of the site. It is the Client's intention to offer the drainage network for adoption, however the water incumbent would not accept flood flows into their system, so these flows need to be separated.

In addition to this, the Highways Authority would not accept a private drainage system in public roads, so this flood alleviation network needs to be laid in private areas.

Total volume of water from these ditches is also unknown (only flows -348l/s- are known), so it is recommended these flows don't discharge to the proposed basins.

It is therefore proposed these swales run along the site's northern development edge and discharge directly into the stream. This would mimic the existing situation. The swale details are as follows:

- Bottom width: 1.1m
- Top width: 6.5m
- Depth: 0.9m
- Side slopes 1:3
- Min. gradient: 1:500

The alignment of the cut-off swale can be seen on the Drainage Strategy drawings attached to Appendix A.

In addition to this cut-off swale, the flood alleviation strategy also includes flood compensation works around the road over the stream. Road levels and flood compensation contours in this area are as per the approved Teignconcul consult drawing FRA10 from July 2022. The RM Drawing is attached to Appendix B.

1.2. SURFACE WATER PROPOSAL

The proposed Drainage Strategy is as per the approved Outline drawings, with a slight deviation in discharge rates to comply with new Wiltshire Council Drainage and Betterment Strategy (June 2024) and with a new attenuation pond to the north-west of the site to drain the access road, which was not considered at outline Stage.

As it can be seen from the contours shown on the Teignconcult drawings, the access road from approximately Chainage +138m felt back towards the site access with no attenuation at this location.

Flows from this section of road were discharged (unattenuated) onto the main road at the front of the site, which is not considered acceptable and it is likely to increase flood risk on the main road. It is therefore proposed to construct a new attenuation pond to deal with these flows.

Wiltshire's Council requirements regarding discharge rates and volumes are as follows:

- 1) Post development discharges from greenfield sites to provide 30% betterment over pre-development discharges for all storm events between the 1 in 1year and 1 in 100year return period.
- 2) The runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.
- 3) Attenuation features to either have 50% capacity available 24 hours after a 1 in 30-year + climate change storm event (i.e., half drain time < 1440mins) or have the capacity to store a subsequent 1 in 10-year storm event after a 1 in 30-year+ climate change storm event.

A comparison of the approved flows against the RM proposal is shown below. As it can be seen, the betterments are significant.

Table 1. Approved discharge rates comparison

Storage feature	Previous rate 1 in 1 year event	Previous rate 1 in 100 year event	New rate 1 in 1 year event	New rate 1 in 100 year event
Highways Attenuation Pond 1	N/A	N/A	0.5 l/s	0.5 l/s
Highways Attenuation Pond 2	N/A	2.5 l/s	0.5 l/s	0.5 l/s
Attenuation Ponds 3 - 5	N/A	38.5 l/s	5.4 l/s	7 l/s
Total		41 l/s		8 l/s

A copy of the 1 in 1 year, 1 in 100 year and 1 in 100cc calculations can be found in Appendix C.

Compliance with Wiltshire Council Guidance has been checked below:

Table 2. Condition 1 – 30% betterment over greenfield rates

Storage feature	Greenfield rate 1 in 1 year event	Greenfield rate 1 in 100 year event	Discharge rate 1 in 1 year event	Discharge rate 1 in 100 year event	Betterment provided 1 in 1 year event	Betterment provided 1 in 100 year event
Highways Attenuation Pond 1	0.3 l/s	1.1 l/s	0.5 l/s	0.5 l/s	-66%	54%
Highways Attenuation Pond 2	0.6 l/s	2 l/s	0.5 l/s	0.5 l/s	18%	75%
Attenuation Ponds 3-5	13.2 l/s	41 l/s	5.4 l/s	7 l/s	59%	73%
Total	14.1 l/s	44.1 l/s	6.4 l/s	8 l/s	55%	81%

As it can be seen, the discharge from Attenuation Pond 1 during the 1 in 1 year event would be in excess of the greenfield rate for that same event, however the discharge cannot be reduced further due to potential blockages issues. It should be noted that the overall betterment provided is well in excess of the required 30%.

A copy of the greenfield runoff calculations can be seen in Appendix D.

Table 3. Condition 2 – Greenfield Volume

Storage feature	Greenfield Volume (m ³)	Discharged volume 1 in 100 year, 6 hour rainfall event (m ³)	Condition met?
Highways Attenuation Pond 1	6.242	7.031	X
Highways Attenuation Pond 2	11.750	7.574	✓
Attenuation Ponds 3-5	243.147	215.636	✓
Total	261.139	230.241	✓

A copy of the greenfield volume calculations can be seen in Appendix E and a copy of the 1 in 100 year, 6 hour rainfall event calculations are shown in Appendix F.

Table 4. Condition 3 – Half Drain Times

Storage feature	Half Drain Time < 1440mins for a 1 in 30cc event (cc-Climate change 45%)
Highways Attenuation Pond 1	✓
Highways Attenuation Pond 2	✓
Attenuation Pond 4	✓
Attenuation Pond 5	✓
Attenuation Pond 6	✓

A copy of the 1 in 30cc year calculations can be found in Appendix G.

It is recommended that the drainage system is maintained following the recommendations in the table below.

Maintenance Schedule	Required Action	Typical Frequency	Maintenance Responsibilities
1 - Attenuation Ponds	Remove litter and debris	Monthly	By Management Company (TBC)
	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 the 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 mechanical devices	Annually	
	Tidy all dead growth before start of growing season	Annually	
	Remove sediments from inlets and outlet	Annually (or as required)	
	Reseed areas of poor vegetation growth	As required	
	Prune and trim any trees and remove cuttings	Every 2 years, or as required	
	Remove sediments from inlets, outlets and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream sources control is provided)	
	Repair erosion or other damage by reseeded re-turfing	As required	
	Repair/rehabilitation of inlets, outlets and overflows	As required	
	Relevel uneven surfaces and reinstate design levels	As required	

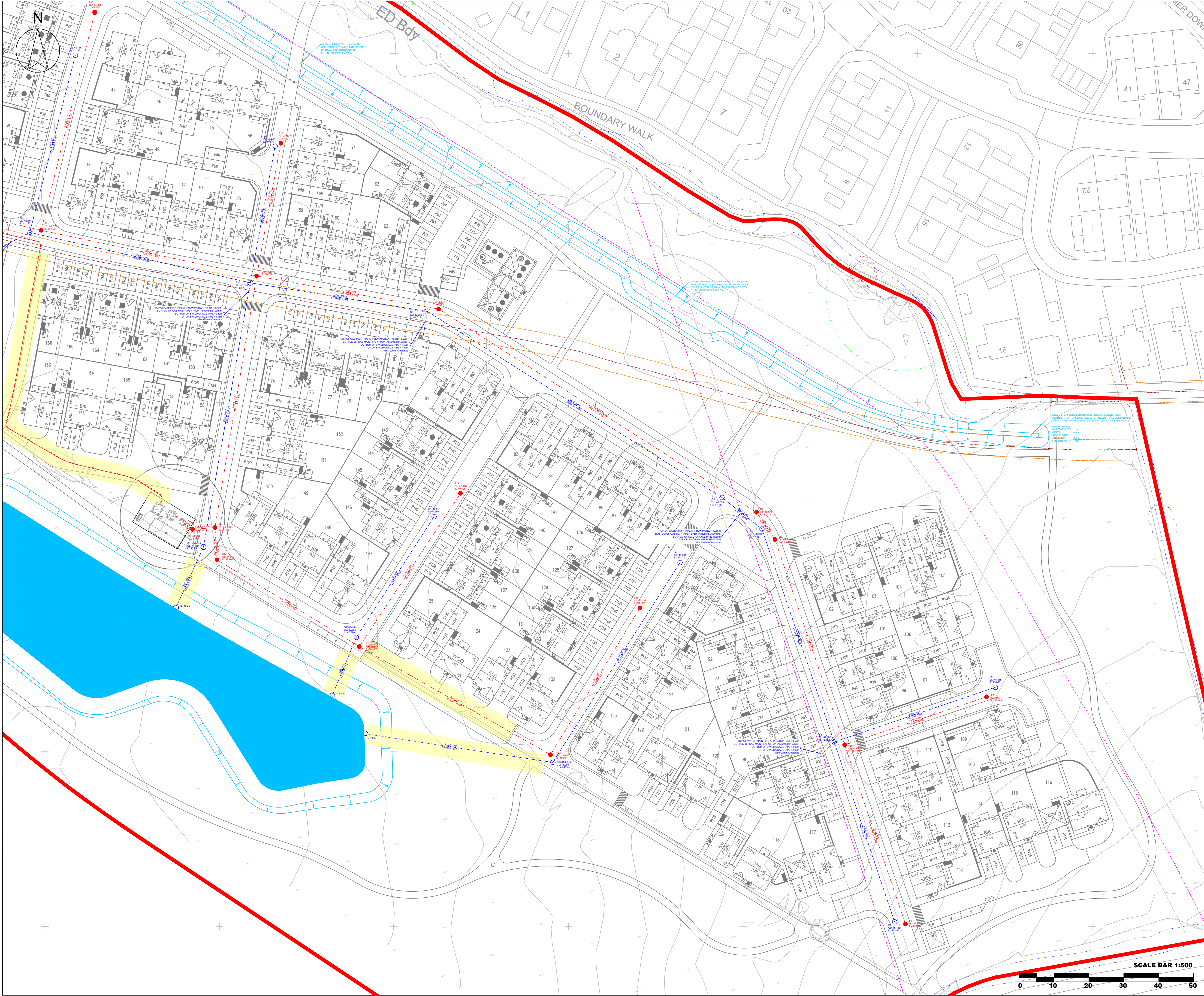
Maintenance Schedule	Required Action	Typical Frequency	Maintenance Responsibilities
2 –Drainage runs, chambers and flow control structures	Remove weeds and clear obstructions	Once a year or as required	Water Authority
	Monitor inspection chambers. Inspect silt accumulation rates and determine cleaning frequencies	Once a year or as required	

1.1. FOUL WATER PROPOSAL

A new pumping station will be required and it will be located to the south of the site. A rising main will discharge via a break chamber to the existing Wessex Water network near the site entrance.

A copy of the Wessex Water Maps can be seen in Appendix H.

APPENDIX A – PROPOSED DRAINAGE STRATEGY



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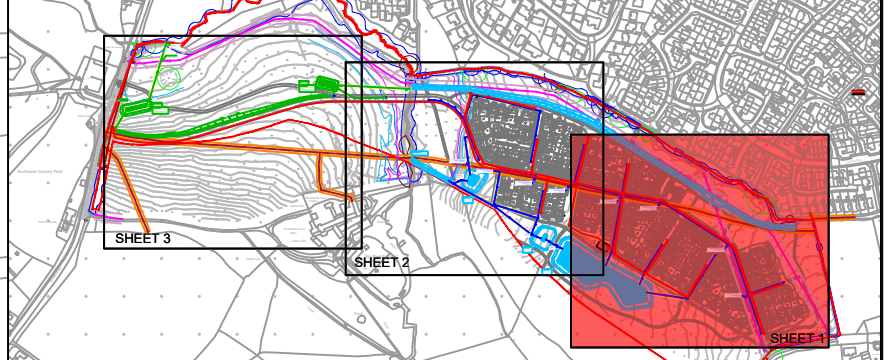
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KEY PLAN 1:10000

GENERAL NOTES:

- Do not scale this drawing.
- All levels are shown in metres above Ordnance Datum (m AOD).
- Contractor to verify dimensions on site.
- This drawing is to be read in conjunction with the relevant Architect's, Engineer's and specialist manufacturer's drawings, reports and specifications.

LEGEND:

-  PROPOSED ADOPTABLE S104 FOUL DRAINAGE
-  PROPOSED ADOPTABLE S104 FOUL RISING MAIN
-  PROPOSED ADOPTABLE S104 SURFACE WATER DRAINAGE
-  PROPOSED PRIVATE SURFACE WATER DRAINAGE
-  PROPOSED HIGHWAYS SURFACE WATER DRAINAGE
-  EXISTING GAS MAIN AND EASEMENT
-  EXISTING WATER MAIN AND EASEMENT
-  EXISTING FW DRAINAGE
-  FLOOD ZONE 3B
-  FLOOD ZONE 3A
-  FLOOD ZONE 2
-  SITE BOUNDARY
-  ADOPTABLE SEWER EASEMENT (3m min unless otherwise shown)
-  EXISTING TREE RPA (CAT A)
-  EXISTING TREE RPA (CAT B)
-  EXISTING TREE RPA (CAT U)

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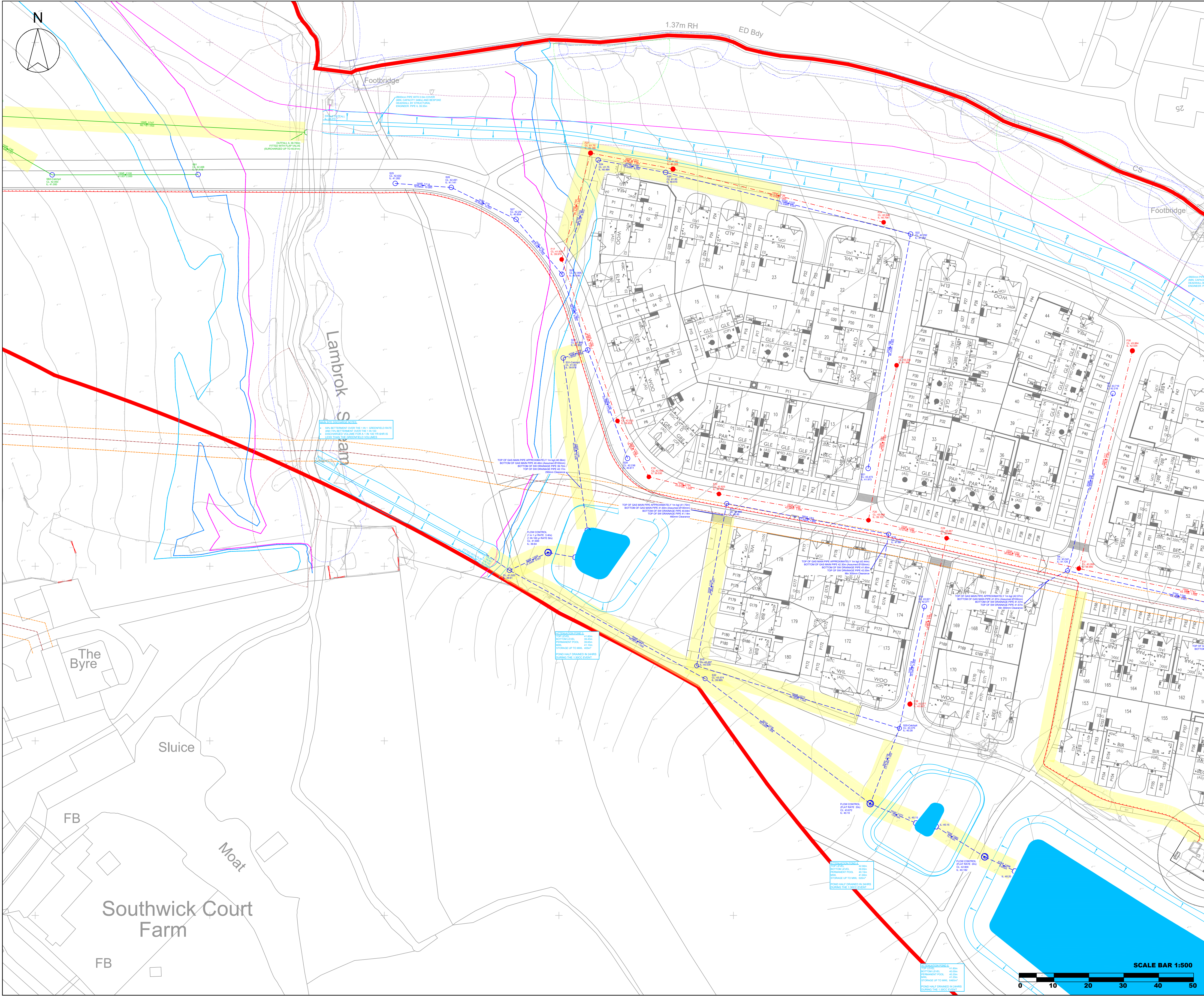
CLIENT:



PROJECT:
SOUTHWICK COURT FARM
TROWBRIDGE

DRAWING:
DRAINAGE STRATEGY FOR PLANNING
SHEET 1

PROJECT NUMBER: CLFA142	DRAWING NUMBER: CLFA142-CLFA-00-XX-DR-C-0512.1
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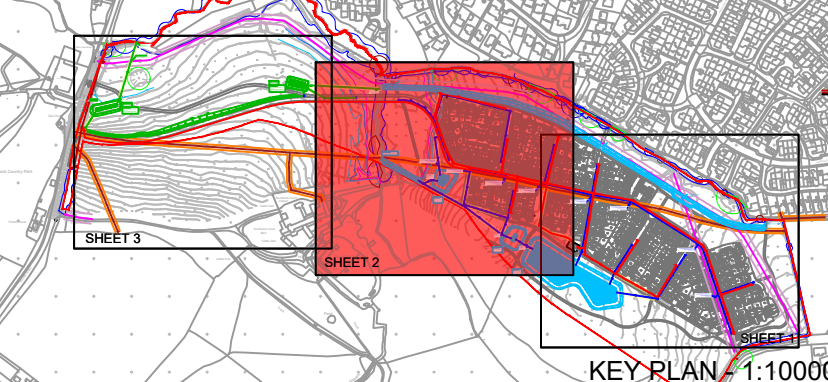
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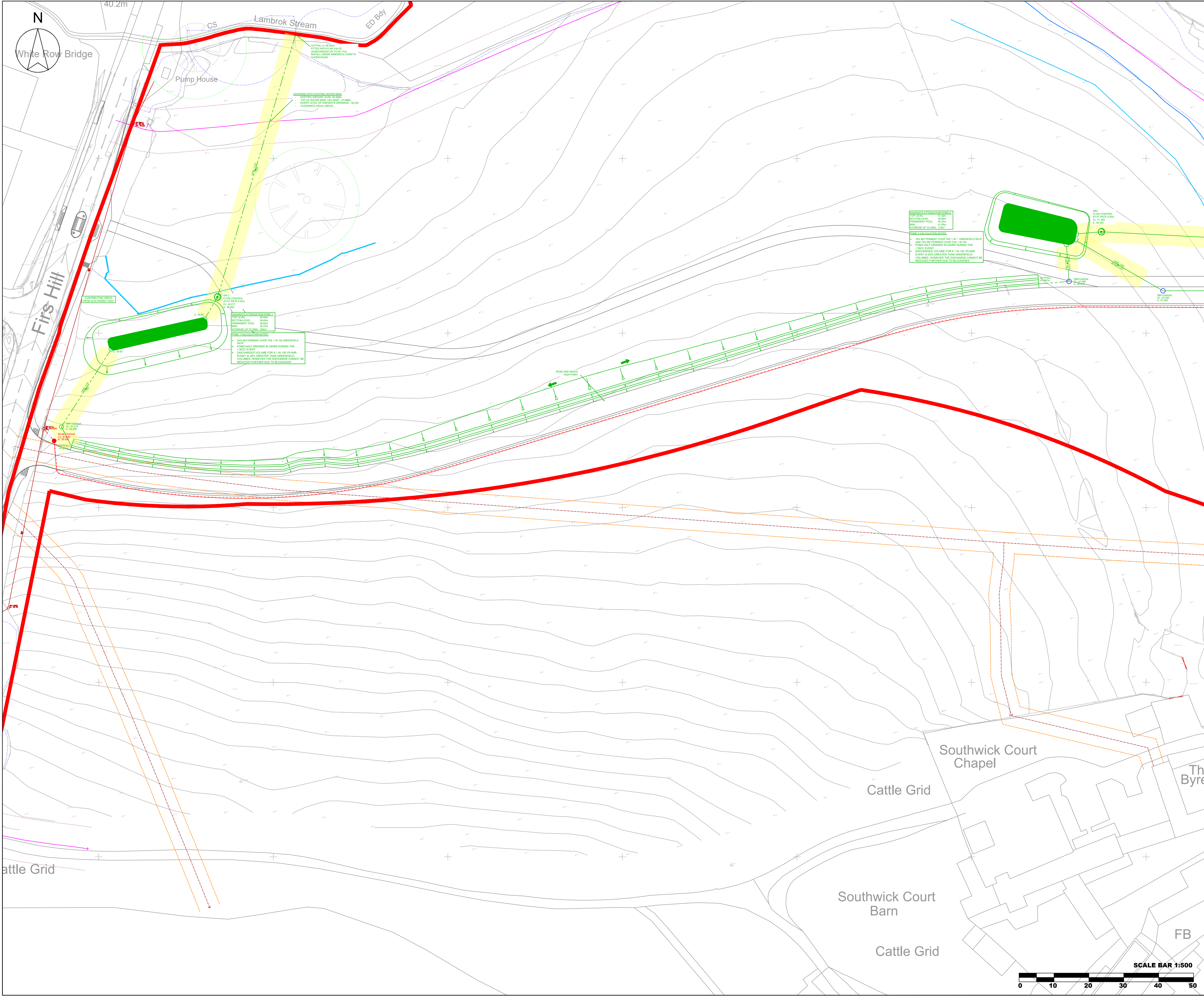
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PROJECT:
SOUTHWICK COURT FARM
TROWBRIDGE

DRAWING:
DRAINAGE STRATEGY FOR PLANNING
SHEET 2

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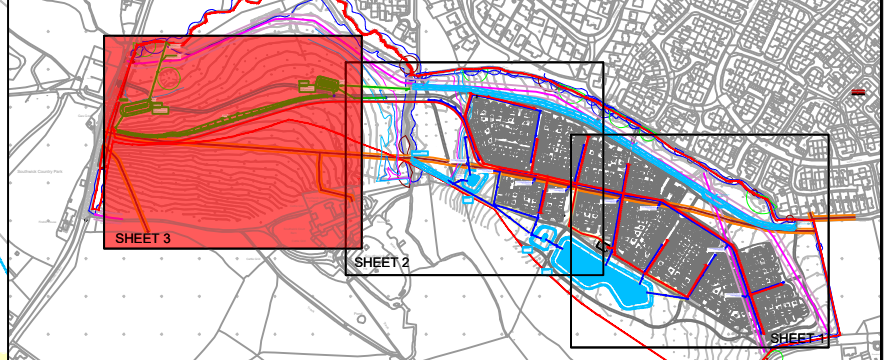
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CLIENT:



WAIN HOMES

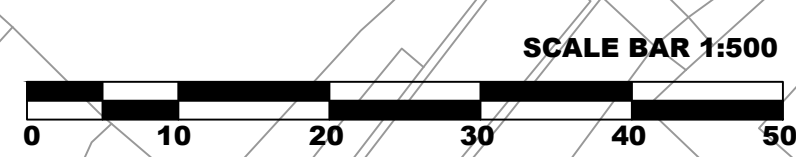
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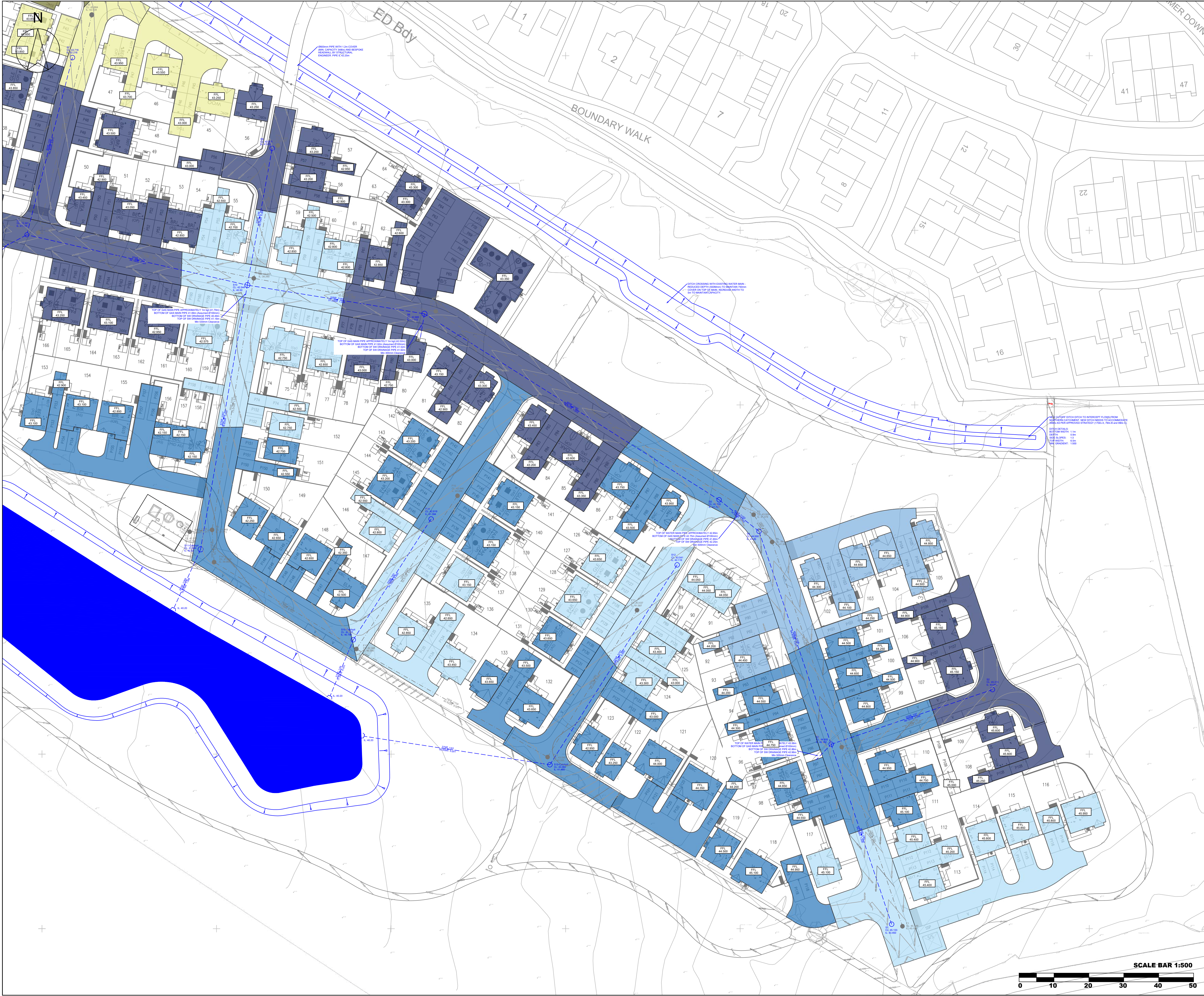
SOUTHWICK COURT FARM
TROWBRIDGE

DRAWING:

DRAINAGE STRATEGY FOR PLANNING
SHEET 2

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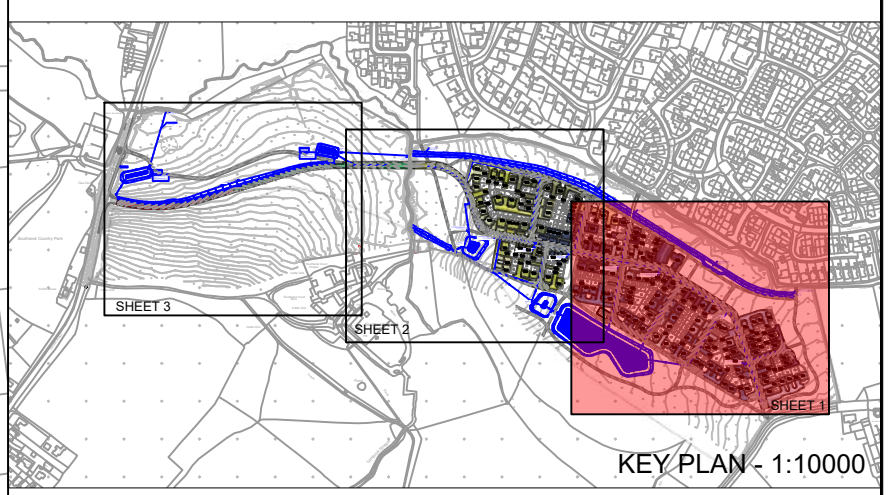
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MANHOLE CATCHMENT		
MANHOLE ID	IMPERMEABLE AREA (m²)	INCLUDING URBAN CREEP 10% (m²)
ACCESS ROAD		
SWALE	853	853
TOTAL		853
ROAD AND BRIDGE		
SB1	361	361
SB2	315	323
SWALE	922	933
TOTAL		1618
MAIN SITE		
S1	1626	1673
S2	953	984
S3	1877	1937
S4	1413	1450
S5	631	648
S6	2772	2855
S7	1105	1144
S8	3309	3435
S9	678	700
S10	1820	1878
S11	2144	2221
S12	1134	1183
S13	2032	2108
S14	1048	1092
S15	956	988
S16	1080	1125
S17	795	831
S18	366	383
S19	114	114
S20	1236	1270
S21	908	939
S22	1532	1582
S23	526	540
S24	0	0
S25	211	211
S26	150	150
S27	152	152
S28	608	631
S29	758	776
S30	1180	1208
S31	0	0
S32	0	0
TOTAL		34208

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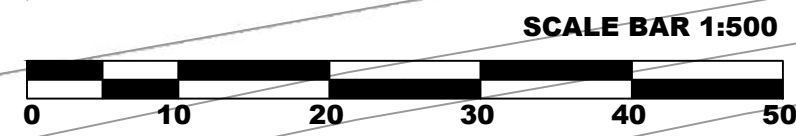
CLIENT:

Wain HOMES

PROJECT:
COURT FARM
TROWBRIDGE

DRAWING:
IMPERMEABLE AREAS PLAN
SHEET 1

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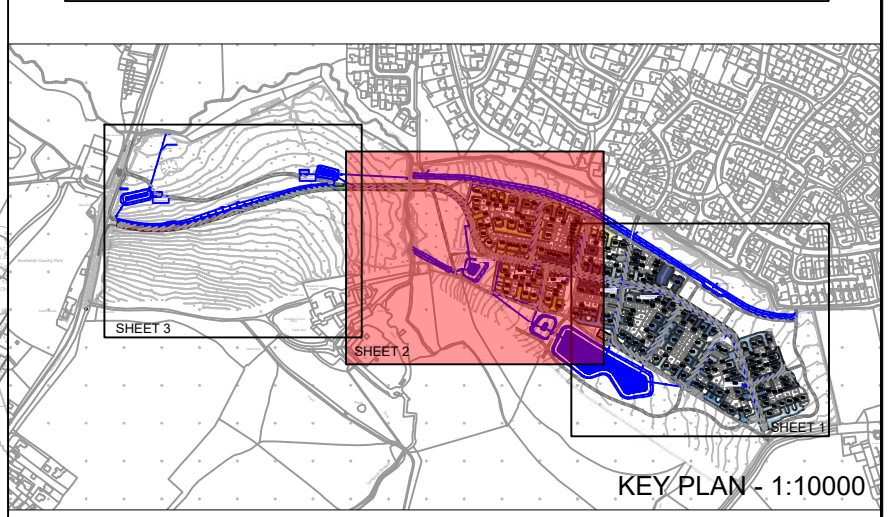
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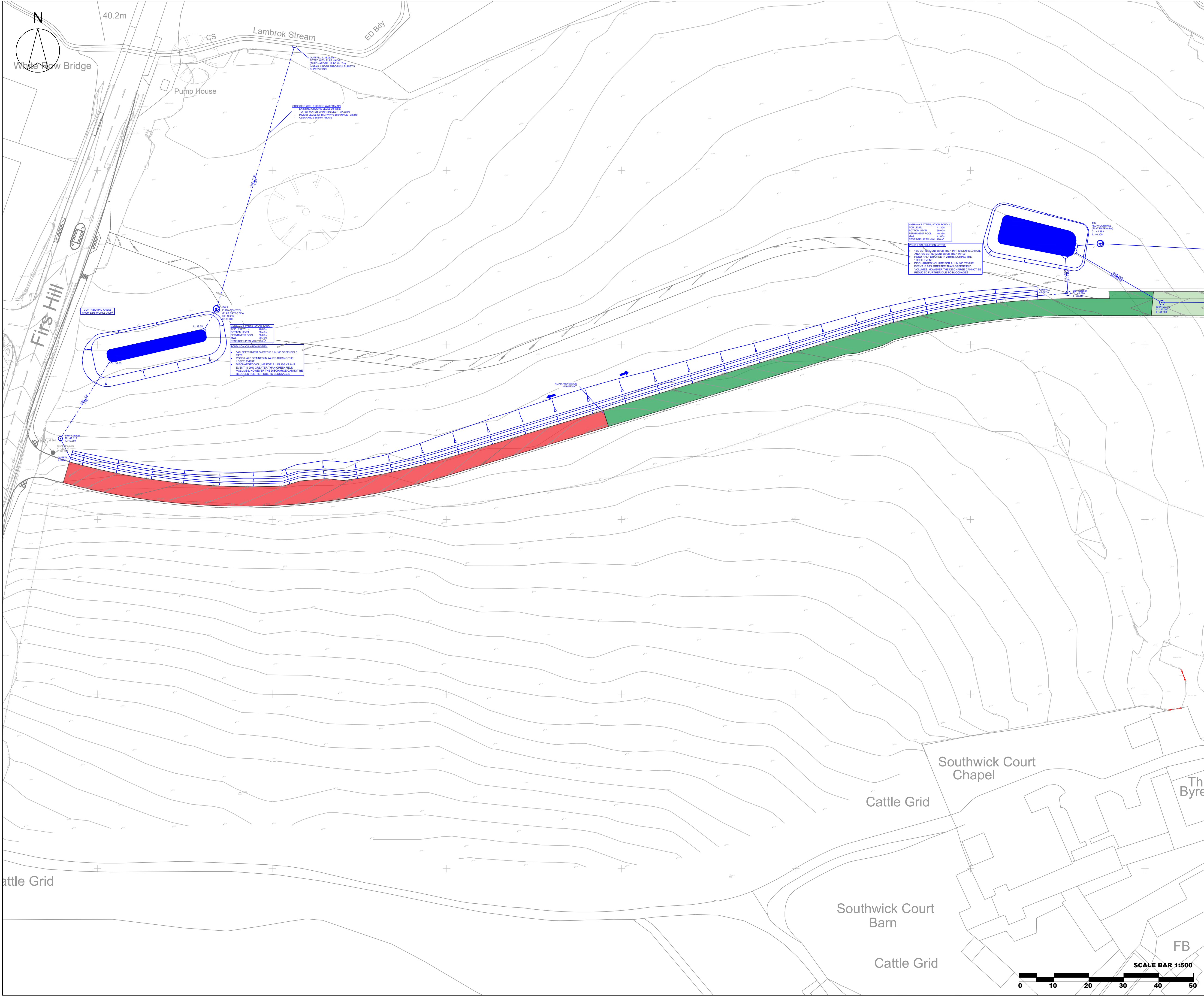
PROJECT:

COURT FARM
TROWBRIDGE

DRAWING:

IMPERMEABLE AREAS PLAN
SHEET 2

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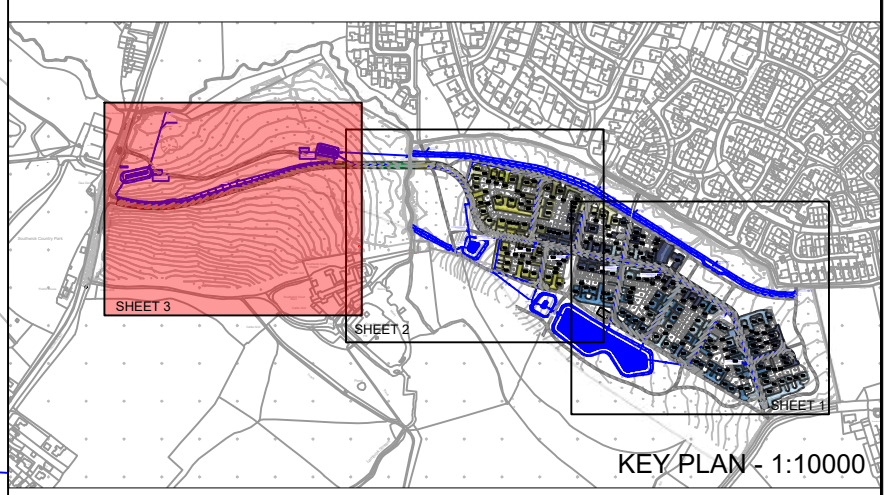
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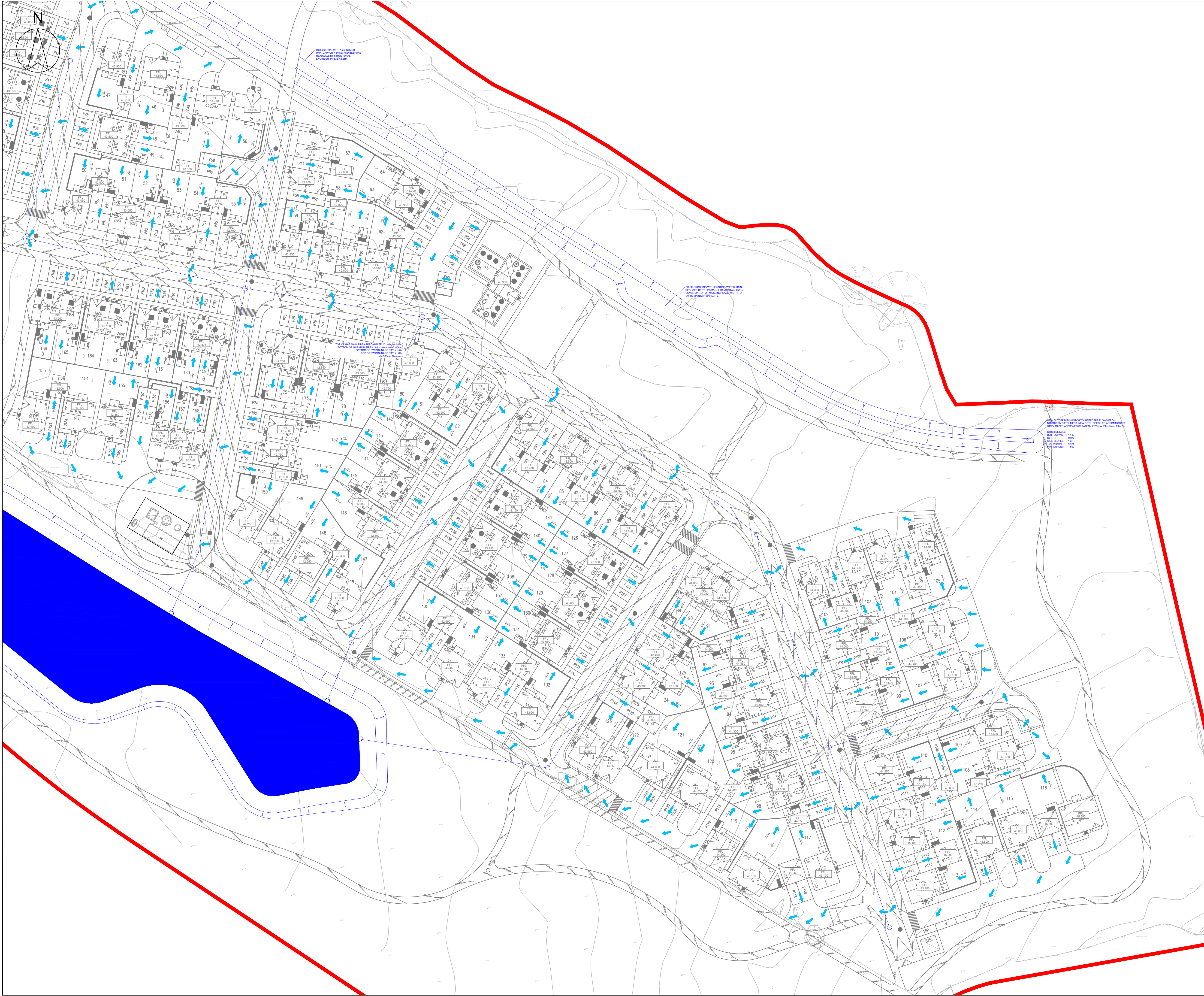
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DRAWING:
IMPERMEABLE AREAS PLAN
SHEET 3

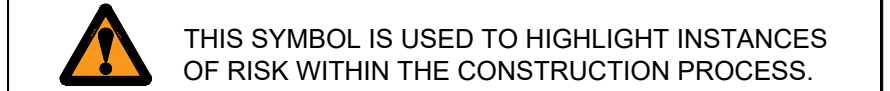
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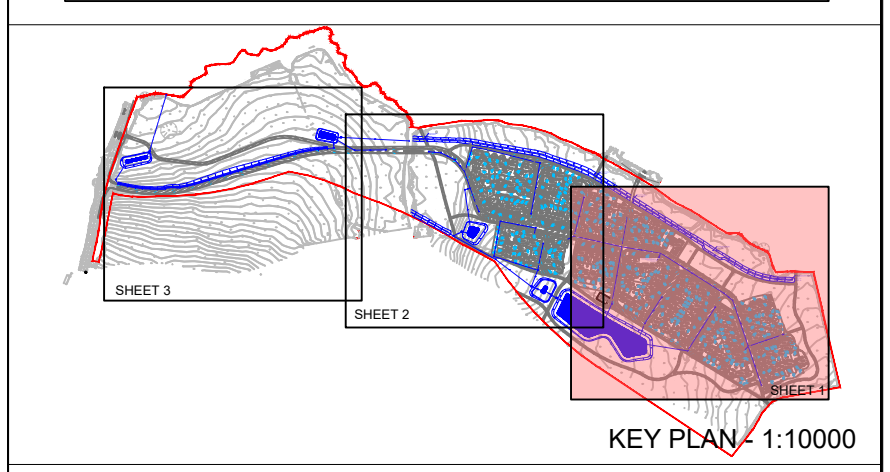
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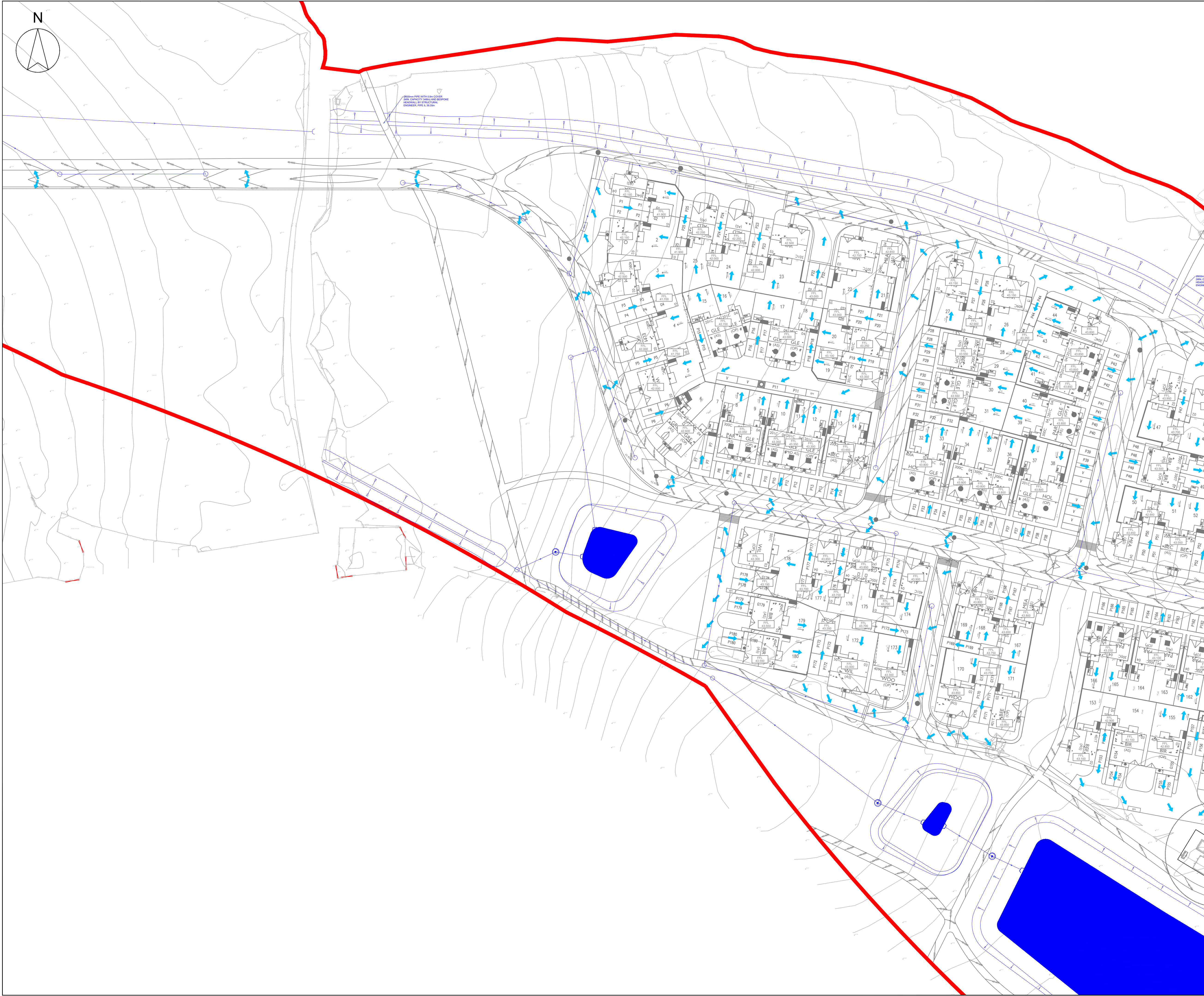
CLIENT:

Wain HOMES

PROJECT:
SOUTHWICK COURT FARM
TROWBRIDGE

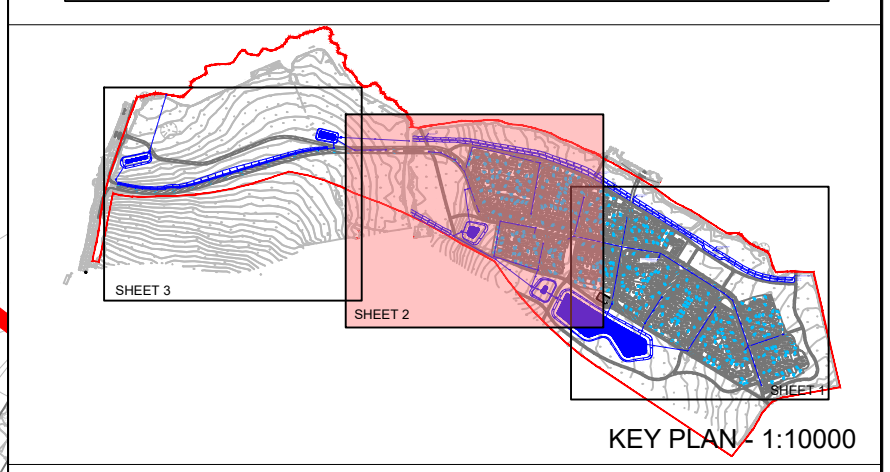
DRAWING:
DRAINAGE EXCEEDANCE PLAN
SHEET 1

PROJECT NUMBER: CLFA142	DRAWING NUMBER: CLFA142-CLFA-00-XX-DR-C-0505.1	REV: P01
STATUS: S2	SCALE @ A1 1:500	

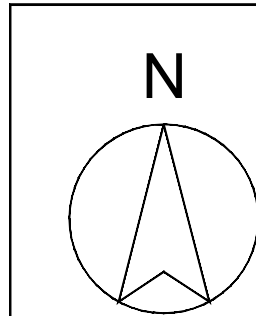
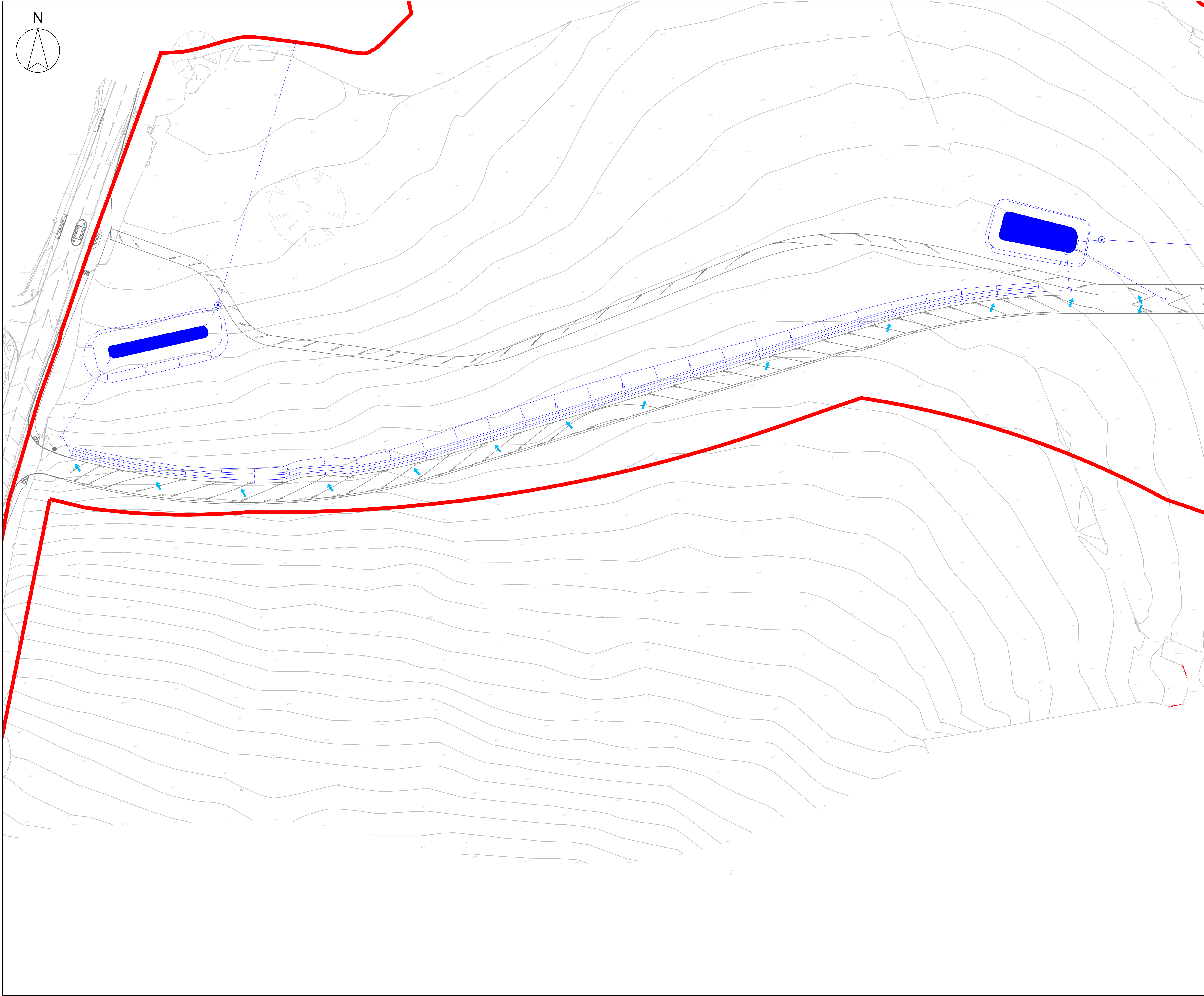


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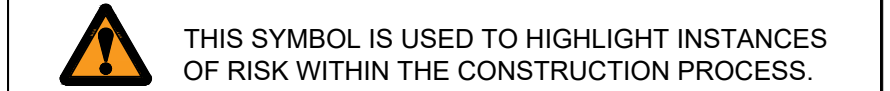
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REV	DESCRIPTION	BY	APP	DATE
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CLIENT: Wain HOMES				
PROJECT: SOUTHWICK COURT FARM TROWBRIDGE				
DRAWING: DRAINAGE EXCEEDANCE PLAN SHEET 2				
PROJECT NUMBER: CLFA142		DRAWING NUMBER: CLFA142-CLFA-00-XX-DR-C-0505.2		
STATUS: S2		SCALE @ A1: 1:500		REV: P01

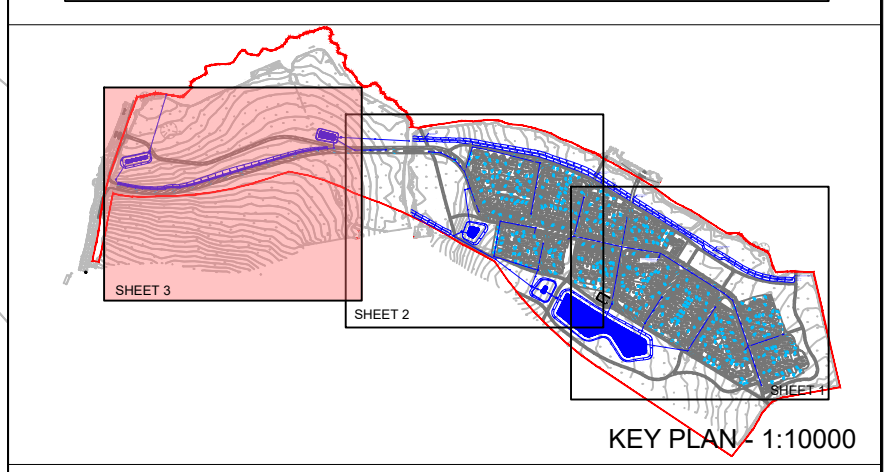


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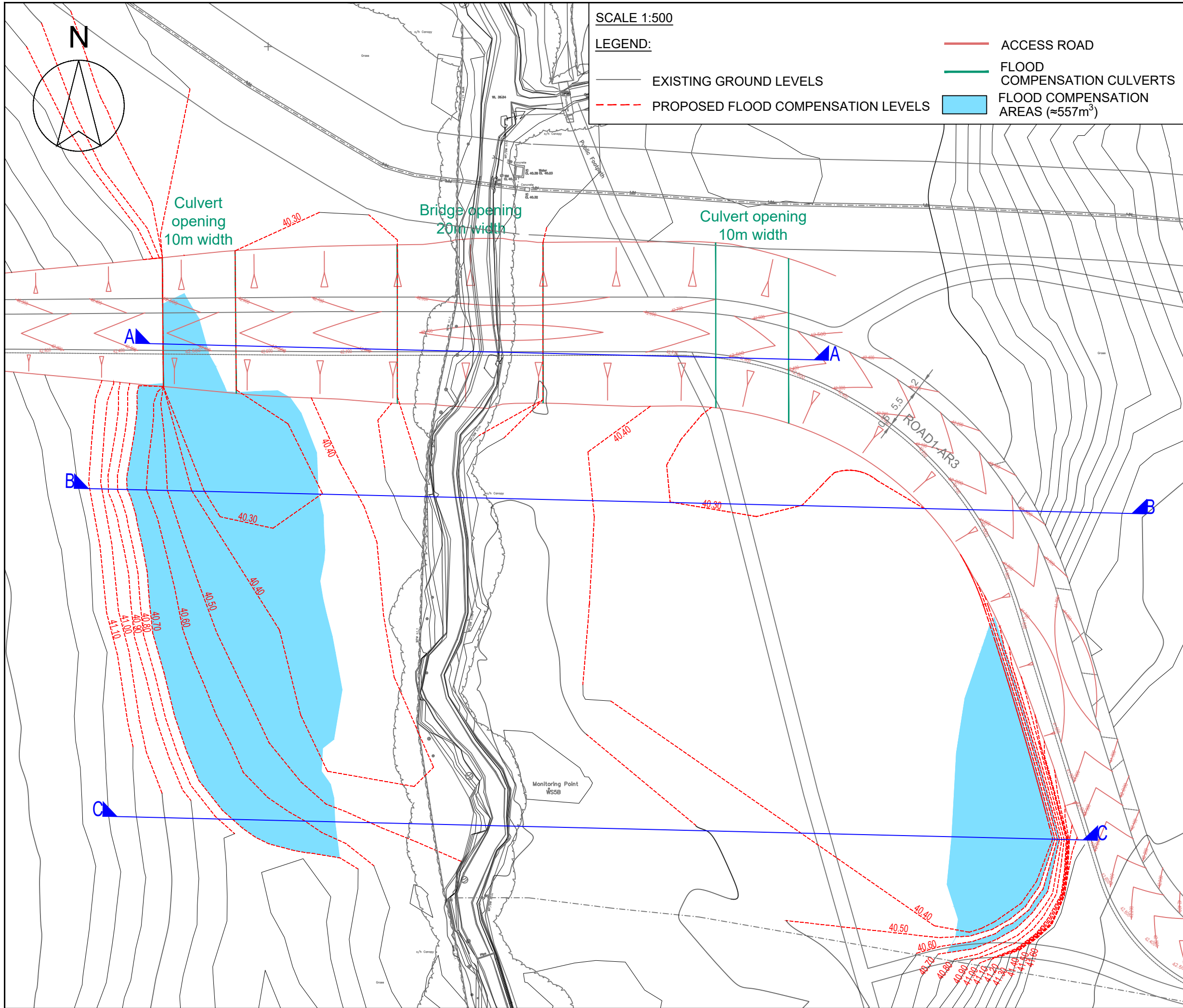
CLIENT:
Wain HOMES

PROJECT:
SOUTHWICK COURT FARM
TROWBRIDGE

DRAWING:
DRAINAGE EXCEEDANCE PLAN
SHEET 3

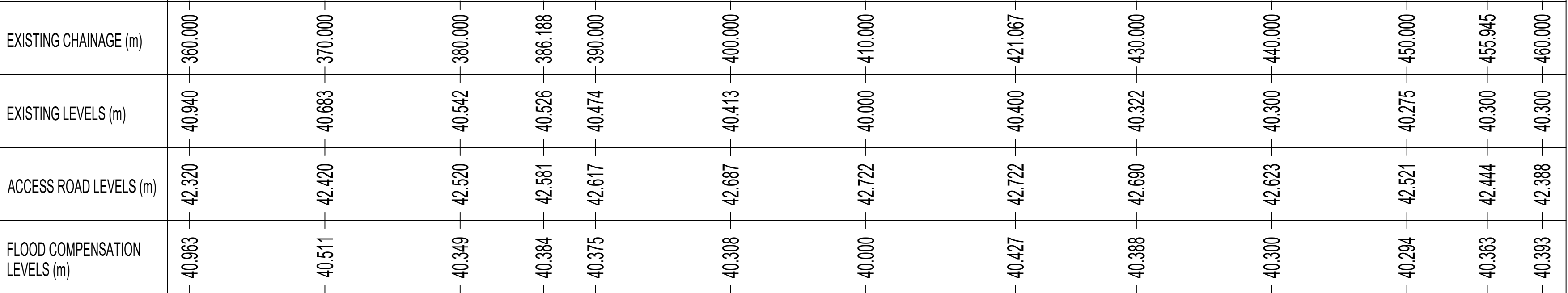
PROJECT NUMBER: CLFA142	DRAWING NUMBER: CLFA142-CLFA-00-XX-DR-C-0505.3
STATUS: S2	SCALE @ A1 1:500
	REV: P01

APPENDIX B – RM FLOOD COMPENSATION DRAWING



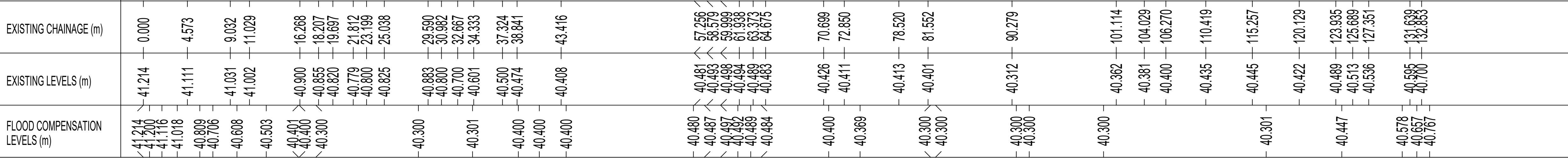
A-A

Vertical Exaggeration: 5
Datum: 35.000M AOD



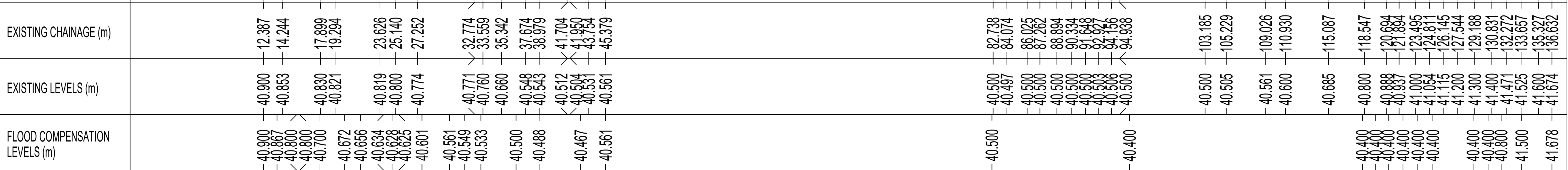
B-B

Vertical Exaggeration: 5
Datum: 38.000M AOD



C-C

Vertical Exaggeration: 5
Datum: 38.000M AOD



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REV	DESCRIPTION	BY	APP	DATE

CLFA DESIGN

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CLIENT:

Wain
HOMES

PROJECT:
SOUTHWICK COURT FARM
TROWBRIDGE

DRAWING:
FLOOD COMPENSATION
LEVELS AND SECTIONS

PROJECT NUMBER: CLFA142	DRAWING NUMBER: CLFA142-CLFA-00-XX-DR-C-0500
STATUS: S2	SCALE @ A1 AS SHOWN
	REV: P01

**APPENDIX C.1 – 1 IN 1, 1 IN 100 AND 1 IN 100CC CALCULATIONS
ACCESS ROAD**

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Time Area Diagram for Surface Network 1

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.059	4-8	0.094	8-12	0.002

Total Area Contributing (ha) = 0.155

Total Pipe Volume (m³) = 65.773

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Surface Network 1

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	150.863	1.536	98.2	0.085	5.00	0.0	0.600	-1	-1	Pipe/Conduit	
1.001	33.429	1.592	21.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	25.815	0.050	516.3	0.070	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	77.189	5.514	14.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	6.42	42.736	0.085	0.0	0.0	0.0	1.77	745.2	11.5
1.001	50.00	6.67	40.440	0.085	0.0	0.0	0.0	2.21	39.0	11.5
1.002	50.00	7.66	38.650	0.155	0.0	0.0	0.0	0.44	7.7«	21.0
1.003	50.00	8.13	38.600	0.155	0.0	0.0	0.0	2.71	47.8	21.0

Surcharged Outfall Details for Surface Network 1

Outfall Pipe Number	Outfall C. Name	Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.003	S7	39.150	33.086	38.050	5000	0

Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)
940	40.170	1880	40.170

Simulation Criteria for Surface Network 1

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

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Online Controls for Surface Network 1

Hydro-Brake® Optimum Manhole: S4, DS/PN: 1.003, Volume (m³): 2.4

Unit Reference	MD-SHE-0031-5000-1100-5000
Design Head (m)	1.100
Design Flow (l/s)	0.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	32
Invert Level (m)	38.600
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.100	0.5
Flush-Flo™	0.141	0.3
Kick-Flo®	0.282	0.3
Mean Flow over Head Range	-	0.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.3	1.200	0.5	3.000	0.8	7.000	1.1
0.200	0.3	1.400	0.6	3.500	0.8	7.500	1.2
0.300	0.3	1.600	0.6	4.000	0.9	8.000	1.2
0.400	0.3	1.800	0.6	4.500	0.9	8.500	1.3
0.500	0.4	2.000	0.7	5.000	1.0	9.000	1.3
0.600	0.4	2.200	0.7	5.500	1.0	9.500	1.3
0.800	0.4	2.400	0.7	6.000	1.1		
1.000	0.5	2.600	0.7	6.500	1.1		

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<u>1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1</u>																																																																				
<u>Simulation Criteria</u>																																																																				
Areal Reduction Factor		1.000		Additional Flow - % of Total Flow		0.000																																																														
Hot Start (mins)		0		MADD Factor * 10m³/ha Storage		2.000																																																														
Hot Start Level (mm)		0		Inlet Coeffiecient		0.800																																																														
Manhole Headloss Coeff (Global)		0.500		Flow per Person per Day (l/per/day)		0.000																																																														
Foul Sewage per hectare (l/s)		0.000																																																																		
Number of Input Hydrographs		0		Number of Storage Structures		1																																																														
Number of Online Controls		1		Number of Time/Area Diagrams		0																																																														
Number of Offline Controls		0		Number of Real Time Controls		0																																																														
<u>Synthetic Rainfall Details</u>																																																																				
Rainfall Model		FSR		Ratio R		0.360																																																														
Region England and Wales		Cv (Summer)		0.750																																																																
M5-60 (mm)		21.000		Cv (Winter)		0.840																																																														
Margin for Flood Risk Warning (mm)		300.0		DVD Status		OFF																																																														
Analysis Timestep		Fine		Inertia Status		OFF																																																														
DTS Status		ON																																																																		
Profile(s)				Summer and Winter																																																																
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080																																																																		
Return Period(s) (years)		1, 100																																																																		
Climate Change (%)		0, 0																																																																		
<table><tr><th></th><th>US/MH</th><th></th><th>Return</th><th>Climate</th><th>First (X)</th><th>First (Y)</th><th>First (Z)</th><th>Overflow</th><th>Water</th></tr><tr><th>PN</th><th>Name</th><th>Storm</th><th>Period</th><th>Change</th><th>Surcharge</th><th>Flood</th><th>Overflow</th><th>Act.</th><th>Level</th></tr><tr><td>1.000</td><td>Fake 1</td><td>15 Winter</td><td>1</td><td>+0%</td><td></td><td></td><td></td><td></td><td>42.771</td></tr><tr><td>1.001</td><td>SW1</td><td>15 Winter</td><td>1</td><td>+0%</td><td></td><td></td><td></td><td></td><td>40.499</td></tr><tr><td>1.002</td><td>Pond 1</td><td>2160 Winter</td><td>1</td><td>+0%</td><td>1/120 Winter</td><td></td><td></td><td></td><td>38.958</td></tr><tr><td>1.003</td><td>S4</td><td>2880 Winter</td><td>1</td><td>+0%</td><td>1/30 Winter</td><td></td><td></td><td></td><td>39.098</td></tr></table>										US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water	PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level	1.000	Fake 1	15 Winter	1	+0%					42.771	1.001	SW1	15 Winter	1	+0%					40.499	1.002	Pond 1	2160 Winter	1	+0%	1/120 Winter				38.958	1.003	S4	2880 Winter	1	+0%	1/30 Winter				39.098
	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water																																																											
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level																																																											
1.000	Fake 1	15 Winter	1	+0%					42.771																																																											
1.001	SW1	15 Winter	1	+0%					40.499																																																											
1.002	Pond 1	2160 Winter	1	+0%	1/120 Winter				38.958																																																											
1.003	S4	2880 Winter	1	+0%	1/30 Winter				39.098																																																											
<table><tr><th></th><th>US/MH</th><th>Depth</th><th>Volume</th><th>Flow /</th><th>Half Drain</th><th>Pipe</th><th></th><th>Level</th></tr><tr><th>PN</th><th>Name</th><th>(m)</th><th>(m³)</th><th>Cap.</th><th>Overflow</th><th>Time</th><th>Flow</th><th>Exceeded</th></tr><tr><td>1.000</td><td>Fake 1</td><td>-0.265</td><td>0.000</td><td>0.02</td><td></td><td></td><td>11.9</td><td>FLOOD RISK</td></tr><tr><td>1.001</td><td>SW1</td><td>-0.091</td><td>0.000</td><td>0.32</td><td></td><td></td><td>12.0</td><td>OK</td></tr><tr><td>1.002</td><td>Pond 1</td><td>0.158</td><td>0.000</td><td>0.11</td><td></td><td></td><td>0.8</td><td>SURCHARGED</td></tr><tr><td>1.003</td><td>S4</td><td>0.348</td><td>0.000</td><td>0.01</td><td></td><td></td><td>0.3</td><td>SURCHARGED</td></tr></table>										US/MH	Depth	Volume	Flow /	Half Drain	Pipe		Level	PN	Name	(m)	(m³)	Cap.	Overflow	Time	Flow	Exceeded	1.000	Fake 1	-0.265	0.000	0.02			11.9	FLOOD RISK	1.001	SW1	-0.091	0.000	0.32			12.0	OK	1.002	Pond 1	0.158	0.000	0.11			0.8	SURCHARGED	1.003	S4	0.348	0.000	0.01			0.3	SURCHARGED						
	US/MH	Depth	Volume	Flow /	Half Drain	Pipe		Level																																																												
PN	Name	(m)	(m³)	Cap.	Overflow	Time	Flow	Exceeded																																																												
1.000	Fake 1	-0.265	0.000	0.02			11.9	FLOOD RISK																																																												
1.001	SW1	-0.091	0.000	0.32			12.0	OK																																																												
1.002	Pond 1	0.158	0.000	0.11			0.8	SURCHARGED																																																												
1.003	S4	0.348	0.000	0.01			0.3	SURCHARGED																																																												
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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1</u>								
<u>Simulation Criteria</u>								
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000								
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000								
Hot Start Level (mm) 0 Inlet Coefficient 0.800								
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000								
Foul Sewage per hectare (l/s) 0.000								
Number of Input Hydrographs 0 Number of Storage Structures 1								
Number of Online Controls 1 Number of Time/Area Diagrams 0								
Number of Offline Controls 0 Number of Real Time Controls 0								
<u>Synthetic Rainfall Details</u>								
Rainfall Model FSR Ratio R 0.360								
Region England and Wales Cv (Summer) 0.750								
M5-60 (mm) 21.000 Cv (Winter) 0.840								
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF								
Analysis Timestep Fine Inertia Status OFF								
DTS Status ON								
Profile(s) Summer and Winter								
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080								
Return Period(s) (years) 1, 100								
Climate Change (%) 0, 0								

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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1</u>								
<u>Simulation Criteria</u>								
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000								
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000								
Hot Start Level (mm) 0 Inlet Coefficient 0.800								
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000								
Foul Sewage per hectare (l/s) 0.000								
Number of Input Hydrographs 0 Number of Storage Structures 1								
Number of Online Controls 1 Number of Time/Area Diagrams 0								
Number of Offline Controls 0 Number of Real Time Controls 0								
<u>Synthetic Rainfall Details</u>								
Rainfall Model FSR Ratio R 0.360								
Region England and Wales Cv (Summer) 0.750								
M5-60 (mm) 21.000 Cv (Winter) 0.840								
Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF								
Analysis Timestep Fine Inertia Status OFF								
DTS Status ON								
Profile(s) Summer and Winter								
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080								
Return Period(s) (years) 100								
Climate Change (%) 45								

**APPENDIX C.2 – 1 IN 1, 1 IN 100 AND 1 IN 100CC CALCULATIONS
ROAD AND BRIDGE**

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Time Area Diagram for Surface Network 2

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.036	4-8	0.098	8-12	0.000

Total Area Contributing (ha) = 0.134

Total Pipe Volume (m³) = 29.630

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Simulation Criteria for Surface Network 2

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type Summer
Return Period (years)	100	Cv (Summer) 0.750
Region England and Wales		Cv (Winter) 0.840
M5-60 (mm)	21.000	Storm Duration (mins) 30
Ratio R	0.360	

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Online Controls for Surface Network 2 Hydro-Brake® Optimum Manhole: SB3-FC, DS/PN: 1.003, Volume (m³): 1.7 Unit Reference MD-SHE-0035-5000-0700-5000 Design Head (m)0.700 Design Flow (l/s)0.5 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)35 Invert Level (m)40.300 Minimum Outlet Pipe Diameter (mm)75 Suggested Manhole Diameter (mm)1200 Control Points Head (m)Flow (l/s) Design Point (Calculated)0.7000.5 Flush-Flo™0.1550.4 Kick-Flo®0.3110.4 Mean Flow over Head Range-0.4 The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>0.4</td><td>1.200</td><td>0.6</td><td>3.000</td><td>0.9</td><td>7.000</td><td>1.4</td></tr><tr><td>0.200</td><td>0.4</td><td>1.400</td><td>0.7</td><td>3.500</td><td>1.0</td><td>7.500</td><td>1.4</td></tr><tr><td>0.300</td><td>0.4</td><td>1.600</td><td>0.7</td><td>4.000</td><td>1.1</td><td>8.000</td><td>1.5</td></tr><tr><td>0.400</td><td>0.4</td><td>1.800</td><td>0.8</td><td>4.500</td><td>1.1</td><td>8.500</td><td>1.5</td></tr><tr><td>0.500</td><td>0.4</td><td>2.000</td><td>0.8</td><td>5.000</td><td>1.2</td><td>9.000</td><td>1.6</td></tr><tr><td>0.600</td><td>0.5</td><td>2.200</td><td>0.8</td><td>5.500</td><td>1.2</td><td>9.500</td><td>1.6</td></tr><tr><td>0.800</td><td>0.5</td><td>2.400</td><td>0.9</td><td>6.000</td><td>1.3</td><td></td><td></td></tr><tr><td>1.000</td><td>0.6</td><td>2.600</td><td>0.9</td><td>6.500</td><td>1.3</td><td></td><td></td></tr></table>			Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	0.4	1.200	0.6	3.000	0.9	7.000	1.4	0.200	0.4	1.400	0.7	3.500	1.0	7.500	1.4	0.300	0.4	1.600	0.7	4.000	1.1	8.000	1.5	0.400	0.4	1.800	0.8	4.500	1.1	8.500	1.5	0.500	0.4	2.000	0.8	5.000	1.2	9.000	1.6	0.600	0.5	2.200	0.8	5.500	1.2	9.500	1.6	0.800	0.5	2.400	0.9	6.000	1.3			1.000	0.6	2.600	0.9	6.500	1.3		
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<u>Storage Structures for Surface Network 2</u> <u>Tank or Pond Manhole: Pond 2, DS/PN: 1.002</u> Invert Level (m) 40.350 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>168.9</td><td>0.950</td><td>368.3</td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	168.9	0.950	368.3
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Areal Reduction Factor		1.000		Additional Flow - % of Total Flow		0.000																																																																																										
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Number of Input Hydrographs		0		Number of Storage Structures		1																																																																																										
Number of Online Controls		1		Number of Time/Area Diagrams		0																																																																																										
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Rainfall Model		FSR		Ratio R		0.360																																																																																										
Region		England and Wales		Cv (Summer)		0.750																																																																																										
M5-60 (mm)		21.000		Cv (Winter)		0.840																																																																																										
Margin for Flood Risk Warning (mm)		300.0		DVD Status		OFF																																																																																										
Analysis Timestep		Fine		Inertia Status		OFF																																																																																										
DTS Status		ON																																																																																														
Profile(s)				Summer and Winter																																																																																												
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080																																																																																														
Return Period(s) (years)				1, 100																																																																																												
Climate Change (%)				0, 0																																																																																												
<table><tr><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td>Water</td></tr><tr><td>PN</td><td>US/MH Name</td><td>Storm</td><td>Return Period</td><td>Climate Change</td><td>First (X) Surge</td><td>First (Y) Flood</td><td>First (Z) Overflow</td><td>Overflow Act.</td><td>Level (m)</td><td></td></tr><tr><td>1.000</td><td>Fake 1</td><td>15 Winter</td><td>100</td><td>+0%</td><td></td><td></td><td></td><td></td><td>42.216</td><td></td></tr><tr><td>1.001</td><td>Fake 2</td><td>15 Winter</td><td>100</td><td>+0%</td><td></td><td></td><td></td><td></td><td>41.694</td><td></td></tr><tr><td>2.000</td><td>SB1</td><td>15 Winter</td><td>100</td><td>+0%</td><td></td><td></td><td></td><td></td><td>41.522</td><td></td></tr><tr><td>2.001</td><td>SB2</td><td>15 Winter</td><td>100</td><td>+0%</td><td></td><td></td><td></td><td></td><td>41.117</td><td></td></tr><tr><td>1.002</td><td>Pond 2</td><td>1440 Winter</td><td>100</td><td>+0%</td><td>100/30 Summer</td><td></td><td></td><td></td><td>40.759</td><td></td></tr><tr><td>1.003</td><td>SB3-FC</td><td>2160 Winter</td><td>100</td><td>+0%</td><td>1/180 Winter</td><td></td><td></td><td></td><td>40.800</td><td></td></tr></table>																			Water	PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)		1.000	Fake 1	15 Winter	100	+0%					42.216		1.001	Fake 2	15 Winter	100	+0%					41.694		2.000	SB1	15 Winter	100	+0%					41.522		2.001	SB2	15 Winter	100	+0%					41.117		1.002	Pond 2	1440 Winter	100	+0%	100/30 Summer				40.759		1.003	SB3-FC	2160 Winter	100	+0%	1/180 Winter				40.800	
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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2

Simulation Criteria

Areal Reduction Factor 1.000

Additional Flow - % of Total Flow 0.000

Hot Start (mins) 0

MADD Factor * 10m³/ha Storage 2.000

Hot Start Level (mm) 0

Inlet Coefficient 0.800

Manhole Headloss Coeff (Global) 0.500

Flow per Person per Day (l/per/day) 0.000

Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0

Number of Storage Structures 1

Number of Online Controls 1

Number of Time/Area Diagrams 0

Number of Offline Controls 0

Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR

Ratio R 0.360

Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 21.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0

DVD Status OFF

Analysis Timestep Fine

Inertia Status OFF

DTS Status ON

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Period(s) (years) 100

Climate Change (%) 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	Fake 1	15 Winter	100	+45%				
1.001	Fake 2	15 Winter	100	+45%	100/15	Winter		
2.000	SB1	15 Winter	100	+45%	100/15	Summer		
2.001	SB2	15 Winter	100	+45%	100/15	Summer		
1.002	Pond 2	2160 Winter	100	+45%	100/15	Summer		
1.003	SB3-FC	960 Summer	100	+45%	100/15	Summer	100/1440	Summer

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	Fake 1	42.234	-0.216	0.000	0.08			51.1	FLOOD RISK
1.001	Fake 2	41.745	0.000	0.000	1.00			46.2	FLOOD RISK
2.000	SB1	41.770	0.202	0.000	1.00			17.3	SURCHARGED
2.001	SB2	41.339	0.189	0.000	1.14			28.7	SURCHARGED
1.002	Pond 2	40.951	0.451	0.000	0.04			0.5	SURCHARGED
1.003	SB3-FC	40.992	0.542	0.000	0.03			0.4	SURCHARGED

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Innovyze Network 2020.1.3																										
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>																										
<table><thead><tr><th></th><th>US/MH</th><th>Level</th></tr><tr><th>PN</th><th>Name</th><th>Exceeded</th></tr></thead><tbody><tr><td>1.000</td><td>Fake 1</td><td></td></tr><tr><td>1.001</td><td>Fake 2</td><td></td></tr><tr><td>2.000</td><td>SB1</td><td></td></tr><tr><td>2.001</td><td>SB2</td><td></td></tr><tr><td>1.002</td><td>Pond 2</td><td></td></tr><tr><td>1.003</td><td>SB3-FC</td><td></td></tr></tbody></table>				US/MH	Level	PN	Name	Exceeded	1.000	Fake 1		1.001	Fake 2		2.000	SB1		2.001	SB2		1.002	Pond 2		1.003	SB3-FC	
	US/MH	Level																								
PN	Name	Exceeded																								
1.000	Fake 1																									
1.001	Fake 2																									
2.000	SB1																									
2.001	SB2																									
1.002	Pond 2																									
1.003	SB3-FC																									
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APPENDIX C.3 – 1 IN 1, 1 IN 100 AND 1 IN 100CC CALCULATIONS
MAIN SITE

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Surface Network 2

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
6.000	41.143	0.454	90.6	0.109	5.00	0.0	0.600	o	225	Pipe/Conduit	
6.001	53.647	0.590	90.9	0.099	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.007	102.100	0.050	2042.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
7.000	47.202	0.750	62.9	0.113	5.00	0.0	0.600	o	300	Pipe/Conduit	
7.001	47.267	0.315	150.1	0.083	0.00	0.0	0.600	o	300	Pipe/Conduit	
7.002	60.651	0.285	212.8	0.038	0.00	0.0	0.600	o	300	Pipe/Conduit	
8.000	35.587	1.873	19.0	0.011	5.00	0.0	0.600	o	150	Pipe/Conduit	
7.003	24.236	0.100	242.4	0.127	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.008	63.283	0.265	239.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.009	68.091	0.285	239.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
9.000	68.221	0.689	99.0	0.094	5.00	0.0	0.600	o	300	Pipe/Conduit	
9.001	72.296	0.593	121.9	0.158	0.00	0.0	0.600	o	375	Pipe/Conduit	
9.002	19.659	0.131	150.0	0.054	0.00	0.0	0.600	o	375	Pipe/Conduit	
9.003	34.331	0.229	150.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
6.000	50.00	5.50	41.394	0.109	0.0	0.0	0.0	1.37	54.6	14.8
6.001	50.00	5.97	40.790	0.208	0.0	0.0	0.0	1.90	209.9	28.2
1.007	50.00	16.72	40.200	2.428	0.0	0.0	0.0	0.21	3.8«	328.8
7.000	50.00	5.40	41.600	0.113	0.0	0.0	0.0	1.99	140.3	15.3
7.001	50.00	6.01	40.850	0.196	0.0	0.0	0.0	1.28	90.6	26.5
7.002	50.00	6.95	40.535	0.234	0.0	0.0	0.0	1.07	75.9	31.7
8.000	50.00	5.26	42.272	0.011	0.0	0.0	0.0	2.32	41.0	1.5
7.003	50.00	7.35	40.250	0.372	0.0	0.0	0.0	1.01	71.1	50.4
1.008	50.00	17.76	40.150	2.800	0.0	0.0	0.0	1.01	71.6«	379.2
1.009	50.00	18.89	39.885	2.800	0.0	0.0	0.0	1.01	71.6«	379.2
9.000	50.00	5.72	41.973	0.094	0.0	0.0	0.0	1.58	111.7	12.7
9.001	50.00	6.45	41.207	0.252	0.0	0.0	0.0	1.64	181.1	34.1
9.002	50.00	6.68	40.615	0.306	0.0	0.0	0.0	1.48	163.1	41.4
9.003	50.00	7.06	40.484	0.306	0.0	0.0	0.0	1.48	163.1	41.4

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Date 09/11/2025 19:11 File CLFA142-MAIN SITE - NEW...	Designed by Francisco Checked by																					
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<u>Simulation Criteria for Surface Network 2</u> Volumetric Runoff Coeff 0.750 Additional Flow - % of Total Flow 0.000 Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 2.000 Hot Start (mins) 0 Inlet Coefficient 0.800 Hot Start Level (mm) 0 Flow per Person per Day (l/per/day) 0.000 Manhole Headloss Coeff (Global) 0.500 Run Time (mins) 60 Foul Sewage per hectare (l/s) 0.000 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Storage Structures 3 Number of Online Controls 3 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Number of Real Time Controls 0 <u>Synthetic Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Profile Type</td> <td>Summer</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>21.000</td> <td>Storm Duration (mins)</td> <td>30</td> </tr> <tr> <td>Ratio R</td> <td>0.360</td> <td></td> <td></td> </tr> </table>			Rainfall Model	FSR	Profile Type	Summer	Return Period (years)	100	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	21.000	Storm Duration (mins)	30	Ratio R	0.360		
Rainfall Model	FSR	Profile Type	Summer																			
Return Period (years)	100	Cv (Summer)	0.750																			
Region	England and Wales	Cv (Winter)	0.840																			
M5-60 (mm)	21.000	Storm Duration (mins)	30																			
Ratio R	0.360																					
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Generator Building, Counterslip Redcliffe Bristol, BS1 6BX																																																																										
Date 09/11/2025 19:11 File CLFA142-MAIN SITE - NEW...	Designed by Francisco Checked by																																																																									
Innovyze Network 2020.1.3																																																																										
Online Controls for Surface Network 2 Hydro-Brake® Optimum Manhole: Pond 5, DS/PN: 1.007, Volume (m³): 28.9 Unit Reference MD-SHE-0072-3000-1800-3000 Design Head (m)1.800 Design Flow (l/s)3.0 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)72 Invert Level (m)40.200 Minimum Outlet Pipe Diameter (mm)100 Suggested Manhole Diameter (mm)1200 Control Points Head (m)Flow (l/s) Design Point (Calculated)1.8003.0 Flush-Flo™0.3192.3 Kick-Flo®0.6461.9 Mean Flow over Head Range-2.3 The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>0.100</td><td>1.9</td><td>1.200</td><td>2.5</td><td>3.000</td><td>3.8</td><td>7.000</td><td>5.6</td></tr><tr><td>0.200</td><td>2.2</td><td>1.400</td><td>2.7</td><td>3.500</td><td>4.1</td><td>7.500</td><td>5.8</td></tr><tr><td>0.300</td><td>2.3</td><td>1.600</td><td>2.8</td><td>4.000</td><td>4.3</td><td>8.000</td><td>6.0</td></tr><tr><td>0.400</td><td>2.3</td><td>1.800</td><td>3.0</td><td>4.500</td><td>4.6</td><td>8.500</td><td>6.2</td></tr><tr><td>0.500</td><td>2.2</td><td>2.000</td><td>3.1</td><td>5.000</td><td>4.8</td><td>9.000</td><td>6.4</td></tr><tr><td>0.600</td><td>2.0</td><td>2.200</td><td>3.3</td><td>5.500</td><td>5.0</td><td>9.500</td><td>6.5</td></tr><tr><td>0.800</td><td>2.1</td><td>2.400</td><td>3.4</td><td>6.000</td><td>5.3</td><td></td><td></td></tr><tr><td>1.000</td><td>2.3</td><td>2.600</td><td>3.6</td><td>6.500</td><td>5.5</td><td></td><td></td></tr></table> Hydro-Brake® Optimum Manhole: Pond 4, DS/PN: 1.008, Volume (m³): 6.5 Unit Reference MD-SHE-0054-2000-2450-2000 Design Head (m)2.450 Design Flow (l/s)2.0 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)54 Invert Level (m)40.150 Minimum Outlet Pipe Diameter (mm)75 Suggested Manhole Diameter (mm)1200			Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	1.9	1.200	2.5	3.000	3.8	7.000	5.6	0.200	2.2	1.400	2.7	3.500	4.1	7.500	5.8	0.300	2.3	1.600	2.8	4.000	4.3	8.000	6.0	0.400	2.3	1.800	3.0	4.500	4.6	8.500	6.2	0.500	2.2	2.000	3.1	5.000	4.8	9.000	6.4	0.600	2.0	2.200	3.3	5.500	5.0	9.500	6.5	0.800	2.1	2.400	3.4	6.000	5.3			1.000	2.3	2.600	3.6	6.500	5.5		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																			
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0.600	2.0	2.200	3.3	5.500	5.0	9.500	6.5																																																																			
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Hydro-Brake® Optimum Manhole: Pond 4, DS/PN: 1.008, Volume (m³): 6.5

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.450	2.0
Flush-Flo™	0.237	1.2
Kick-Flo®	0.486	1.0
Mean Flow over Head Range	-	1.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.1	1.200	1.4	3.000	2.2	7.000	3.2
0.200	1.2	1.400	1.5	3.500	2.4	7.500	3.4
0.300	1.2	1.600	1.6	4.000	2.5	8.000	3.5
0.400	1.1	1.800	1.7	4.500	2.6	8.500	3.6
0.500	1.0	2.000	1.8	5.000	2.8	9.000	3.6
0.600	1.1	2.200	1.9	5.500	2.9	9.500	3.7
0.800	1.2	2.400	2.0	6.000	3.0		
1.000	1.3	2.600	2.0	6.500	3.1		

Hydro-Brake® Optimum Manhole: Pond 3, DS/PN: 9.007, Volume (m³): 15.0

Unit Reference	MD-SHE-0079-3400-1650-3400
Design Head (m)	1.650
Design Flow (l/s)	3.4
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	79
Invert Level (m)	39.650
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.650	3.4
Flush-Flo™	0.346	2.8
Kick-Flo®	0.702	2.3
Mean Flow over Head Range	-	2.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.2	0.300	2.8	0.500	2.8	0.800	2.4
0.200	2.7	0.400	2.8	0.600	2.6	1.000	2.7

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Hydro-Brake® Optimum Manhole: Pond 3, DS/PN: 9.007, Volume (m³): 15.0

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.200	2.9	2.400	4.0	5.000	5.7	8.000	7.1
1.400	3.2	2.600	4.2	5.500	6.0	8.500	7.3
1.600	3.4	3.000	4.5	6.000	6.2	9.000	7.5
1.800	3.5	3.500	4.8	6.500	6.5	9.500	7.7
2.000	3.7	4.000	5.1	7.000	6.7		
2.200	3.9	4.500	5.4	7.500	6.9		

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Innovyze	Network 2020.1.3	
<u>1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Surface Network 2</u>		

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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>		
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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>																																																		
	<table><thead><tr><th>PN</th><th>US/MH Name</th><th>Level Exceeded</th></tr></thead><tbody><tr><td>1.008</td><td>Pond 4</td><td></td></tr><tr><td>1.009</td><td>S32</td><td></td></tr><tr><td>9.000</td><td>S21</td><td></td></tr><tr><td>9.001</td><td>S22</td><td></td></tr><tr><td>9.002</td><td>S23</td><td></td></tr><tr><td>9.003</td><td>S24</td><td></td></tr><tr><td>10.000</td><td>S25</td><td></td></tr><tr><td>10.001</td><td>S26</td><td></td></tr><tr><td>10.002</td><td>S27</td><td></td></tr><tr><td>9.004</td><td>S28</td><td></td></tr><tr><td>11.000</td><td>S29</td><td></td></tr><tr><td>9.005</td><td>S30</td><td></td></tr><tr><td>9.006</td><td>S31-Catchpit</td><td></td></tr><tr><td>9.007</td><td>Pond 3</td><td></td></tr><tr><td>1.010</td><td>Swale Inlet</td><td></td></tr></tbody></table>	PN	US/MH Name	Level Exceeded	1.008	Pond 4		1.009	S32		9.000	S21		9.001	S22		9.002	S23		9.003	S24		10.000	S25		10.001	S26		10.002	S27		9.004	S28		11.000	S29		9.005	S30		9.006	S31-Catchpit		9.007	Pond 3		1.010	Swale Inlet		
PN	US/MH Name	Level Exceeded																																																
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**APPENDIX D.1 – GREENFIELD RUNOFF CALCULATIONS
ACCESS ROAD**

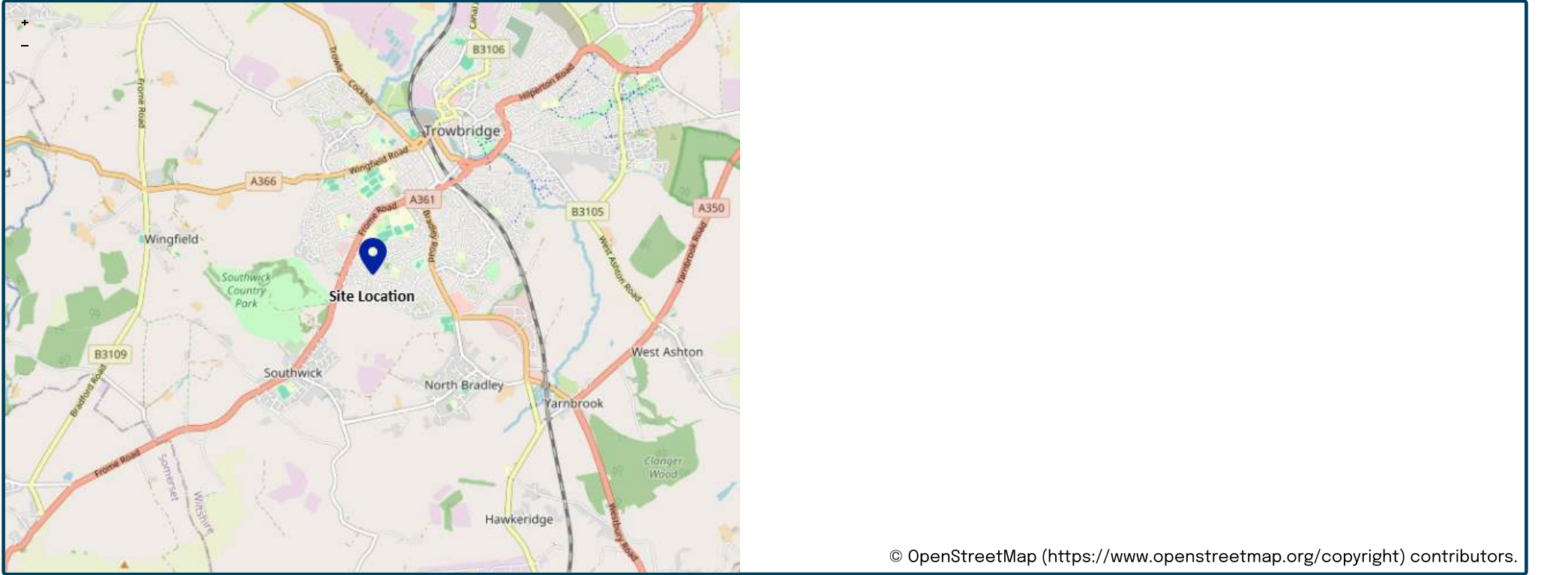
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	27/10/2025
Calculated by	
Reference	
Model version	2.2.1

Location

Site name	
Site location	trowbridge



Site easting (British National Grid)	384617
Site northing (British National Grid)	156164

Site details

Total site area (ha)	0.0852	ha
----------------------	-------------------	----

Greenfield runoff

Method

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

IH124

SAAR (mm)	733	mm	My value Map value 733
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	0.4	l/s	

Growth curve factors

Hydrological region	8	My value Map value 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)	0.3	l/s
Flow rate 2 year (l/s)	0.4	l/s
Flow rate 10 years (l/s)	0.6	l/s
Flow rate 30 years (l/s)	0.8	l/s
Flow rate 100 years (l/s)	1.1	l/s
Flow rate 200 years (l/s)	1.2	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 (2.2.1) 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.

**APPENDIX D.2 – GREENFIELD RUNOFF CALCULATIONS
ROAD AND BRIDGE**

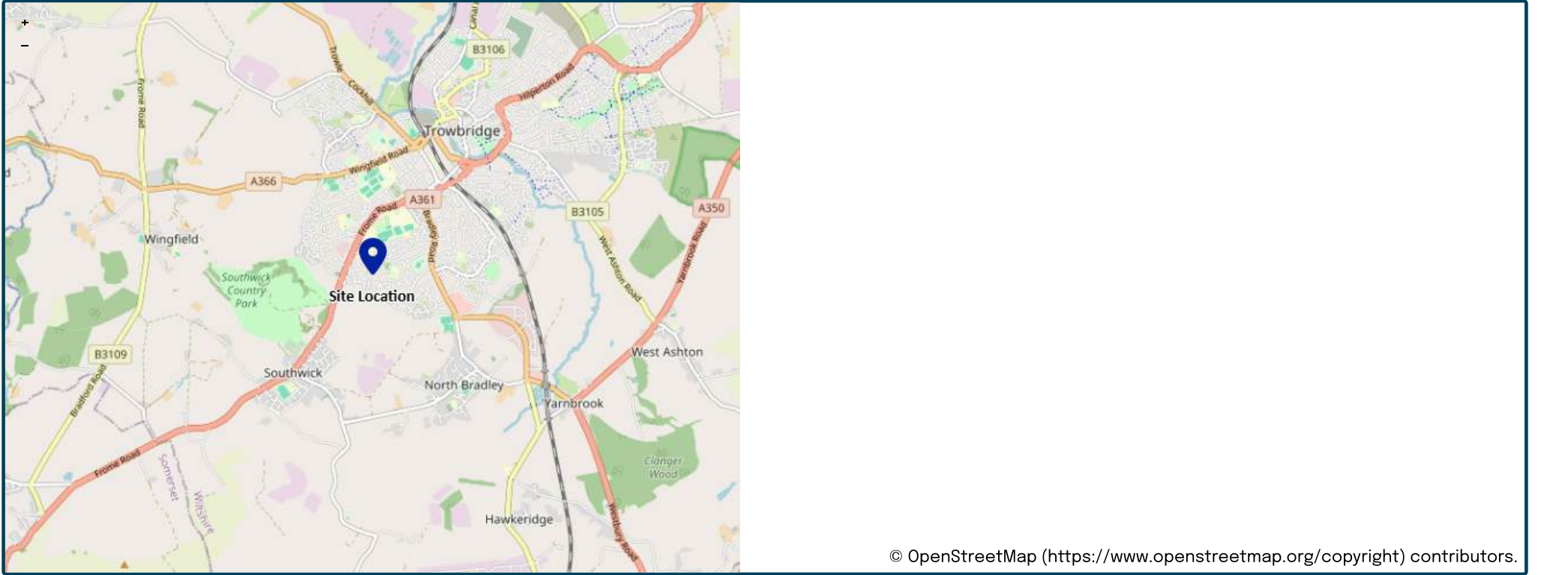
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). 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	27/10/2025
Calculated by	
Reference	
Model version	2.2.1

Location

Site name	
Site location	trowbridge



Site easting (British National Grid)	384617
Site northing (British National Grid)	156164

Site details

Total site area (ha)	0.1598	ha
----------------------	-------------------	----

Greenfield runoff

Method

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

IH124

SAAR (mm)	733	mm	My value Map value 733
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	0.8	l/s	

Growth curve factors

Hydrological region	8	My value Map value 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)	0.6	l/s
Flow rate 2 year (l/s)	0.8	l/s
Flow rate 10 years (l/s)	1.2	l/s
Flow rate 30 years (l/s)	1.6	l/s
Flow rate 100 years (l/s)	2.0	l/s
Flow rate 200 years (l/s)	2.3	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

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APPENDIX D.3 – GREENFIELD RUNOFF CALCULATIONS
MAIN SITE

Results

Method	IH124	
Flow rate 1 year (l/s)	13.2	l/s
Flow rate 2 year (l/s)	15.7	l/s
Flow rate 10 years (l/s)	25.1	l/s
Flow rate 30 years (l/s)	32.9	l/s
Flow rate 100 years (l/s)	41.0	l/s
Flow rate 200 years (l/s)	46.9	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 (2.2.1) 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.

APPENDIX E.1 – GREENFIELD VOLUME CALCULATIONS
ACCESS ROAD

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Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	20.900
Ratio R	0.350
Areal Reduction Factor	1.00
Area (ha)	0.085
SAAR (mm)	733
CWI	109.258
Urban	0.000
SPR	10.000

Results

Percentage Runoff (%)	10.74
Greenfield Runoff Volume (m ³)	6.242

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APPENDIX E.2 – GREENFIELD VOLUME CALCULATIONS
ROAD AND BRIDGE

The Engineering Studio		Page 1
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Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	20.900
Ratio R	0.350
Areal Reduction Factor	1.00
Area (ha)	0.160
SAAR (mm)	733
CWI	109.258
Urban	0.000
SPR	10.000

Results

Percentage Runoff (%)	10.74
Greenfield Runoff Volume (m³)	11.750

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APPENDIX E.3 – GREENFIELD VOLUME CALCULATIONS
MAIN SITE

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Innovyze Source Control 2020.1.3		

Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	20.900
Ratio R	0.350
Areal Reduction Factor	1.00
Area (ha)	3.311
SAAR (mm)	733
CWI	109.258
Urban	0.000
SPR	10.000

Results

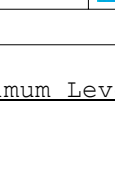
Percentage Runoff (%)	10.74
Greenfield Runoff Volume (m ³)	243.147

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**APPENDIX F.1 – 1 IN 100 YEAR, 6 HOUR EVENT CALCULATIONS
ACCESS ROAD**

**APPENDIX F.2 – 1 IN 100 YEAR, 6 HOUR EVENT CALCULATIONS
ROAD AND BRIDGE**

APPENDIX F.3– 1 IN 100 YEAR, 6 HOUR EVENT CALCULATIONS
MAIN SITE

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	3
Number of Online Controls	3	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.360
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	21.000 Cv (Winter)		0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s) Summer and Winter

Duration(s) (mins)	360
Return Period(s) (years)	100
Climate Change (%)	0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	S1	360 Summer	100	+0%				
2.000	S2	360 Summer	100	+0%				
1.001	S3	360 Summer	100	+0%				
1.002	S4	360 Summer	100	+0%				
1.003	S5	360 Summer	100	+0%				
1.004	S6	360 Summer	100	+0%				
3.000	S7	360 Summer	100	+0%				
3.001	S8	360 Summer	100	+0%				
4.000	S9	360 Summer	100	+0%				
1.005	S10	360 Summer	100	+0%				
1.006	S11-Catchpit	360 Winter	100	+0%				
5.000	S12	360 Summer	100	+0%				
5.001	S13	360 Summer	100	+0%				
6.000	S14	360 Summer	100	+0%				
6.001	S15-Catchpit	360 Summer	100	+0%				
1.007	Pond 5	360 Winter	100	+0%	100/360 Summer			
7.000	S16	360 Summer	100	+0%				
7.001	S17	360 Winter	100	+0%	100/360 Summer			
7.002	S18	360 Winter	100	+0%	100/360 Summer			
8.000	S19	360 Summer	100	+0%				
7.003	S20-Catchpit	360 Winter	100	+0%	100/360 Summer			

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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>									
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000		S1 43.517	-0.233	0.000	0.11			14.9	OK
2.000		S2 43.940	-0.175	0.000	0.11			8.7	OK
1.001		S3 42.573	-0.339	0.000	0.14			40.9	OK
1.002		S4 42.020	-0.280	0.000	0.31			53.9	OK
1.003		S5 41.901	-0.302	0.000	0.24			59.7	OK
1.004		S6 41.184	-0.354	0.000	0.23			85.1	OK
3.000		S7 42.268	-0.248	0.000	0.07			10.2	OK
3.001		S8 41.267	-0.233	0.000	0.31			40.8	OK
4.000		S9 41.711	-0.259	0.000	0.04			6.2	OK
1.005		S10 40.756	-0.419	0.000	0.31			148.9	OK
1.006	S11-Catchpit	40.597	-0.328	0.000	0.38			125.5	OK
5.000		S12 42.192	-0.149	0.000	0.25			10.5	OK
5.001		S13 41.579	-0.281	0.000	0.14			29.3	OK
6.000		S14 41.459	-0.160	0.000	0.19			9.7	OK
6.001	S15-Catchpit	40.867	-0.298	0.000	0.10			18.6	OK
1.007	Pond 5	40.597	0.247	0.000	0.00			0.0	SURCHARGED
7.000		S16 41.655	-0.245	0.000	0.08			10.1	OK
7.001		S17 41.318	0.168	0.000	0.15			12.8	SURCHARGED
7.002		S18 41.314	0.479	0.000	0.19			13.9	SURCHARGED
8.000		S19 42.288	-0.134	0.000	0.02			1.0	OK
7.003	S20-Catchpit	41.311	0.761	0.000	0.36			22.7	SURCHARGED
PN	US/MH Name	Level Exceeded							
1.000		S1							
2.000		S2							
1.001		S3							
1.002		S4							
1.003		S5							
1.004		S6							
3.000		S7							
3.001		S8							
4.000		S9							
1.005		S10							
1.006	S11-Catchpit								
5.000		S12							
5.001		S13							
6.000		S14							
6.001	S15-Catchpit								
1.007	Pond 5								
7.000		S16							
7.001		S17							
7.002		S18							
8.000		S19							
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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>								
	<table><thead><tr><th>PN</th><th>US/MH Name</th><th>Level Exceeded</th></tr></thead><tbody><tr><td>7.003</td><td>S20-Catchpit</td><td></td></tr></tbody></table>	PN	US/MH Name	Level Exceeded	7.003	S20-Catchpit		
PN	US/MH Name	Level Exceeded						
7.003	S20-Catchpit							
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Innovyze						Network 2020.1.3			
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>									
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	
1.008	Pond 4	360 Winter	100	+0%	100/360 Summer				
1.009	S32	360 Winter	100	+0%					
9.000	S21	360 Summer	100	+0%					
9.001	S22	360 Summer	100	+0%					
9.002	S23	360 Summer	100	+0%					
9.003	S24	360 Winter	100	+0%					
10.000	S25	360 Summer	100	+0%					
10.001	S26	360 Summer	100	+0%					
10.002	S27	360 Summer	100	+0%					
9.004	S28	360 Winter	100	+0%	100/360 Winter				
11.000	S29	360 Summer	100	+0%					
9.005	S30	360 Winter	100	+0%	100/360 Summer				
9.006	S31-Catchpit	360 Winter	100	+0%	100/360 Summer				
9.007	Pond 3	360 Winter	100	+0%	100/360 Summer				
1.010	Swale Inlet	360 Winter	100	+0%					
PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.008	Pond 4	41.307	0.857	0.000	0.02			1.4	SURCHARGED
1.009	S32	39.914	-0.271	0.000	0.02			1.4	OK
9.000	S21	42.029	-0.244	0.000	0.08			8.4	OK
9.001	S22	41.297	-0.285	0.000	0.13			22.5	OK
9.002	S23	40.728	-0.262	0.000	0.20			27.3	OK
9.003	S24	40.693	-0.166	0.000	0.14			20.3	OK
10.000	S25	41.317	-0.115	0.000	0.12			1.9	OK
10.001	S26	41.181	-0.110	0.000	0.16			3.2	OK
10.002	S27	40.899	-0.105	0.000	0.20			4.5	OK
9.004	S28	40.691	0.061	0.000	0.13			27.5	SURCHARGED
11.000	S29	40.862	-0.174	0.000	0.12			7.0	OK
9.005	S30	40.690	0.213	0.000	0.23			39.1	SURCHARGED
9.006	S31-Catchpit	40.689	0.261	0.000	0.17			38.7	SURCHARGED
9.007	Pond 3	40.687	0.737	0.000	0.11			4.6	SURCHARGED
1.010	Swale Inlet	39.703	-0.047	0.000	0.82			5.8	OK
	PN	US/MH Name	Level Exceeded						
	1.008	Pond 4							
	1.009	S32							
	9.000	S21							
	9.001	S22							
	9.002	S23							
	9.003	S24							
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<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>		
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**APPENDIX G.1 – 1 IN 30CC CALCULATIONS
ACCESS ROAD**

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Generator Building, Counterslip Redcliffe Bristol, BS1 6BX		
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Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 1

Simulation Criteria

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Rainfall Model	FSR	Ratio R	0.360
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	21.000	Cv (Winter)	0.840

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	30
Climate Change (%)	45

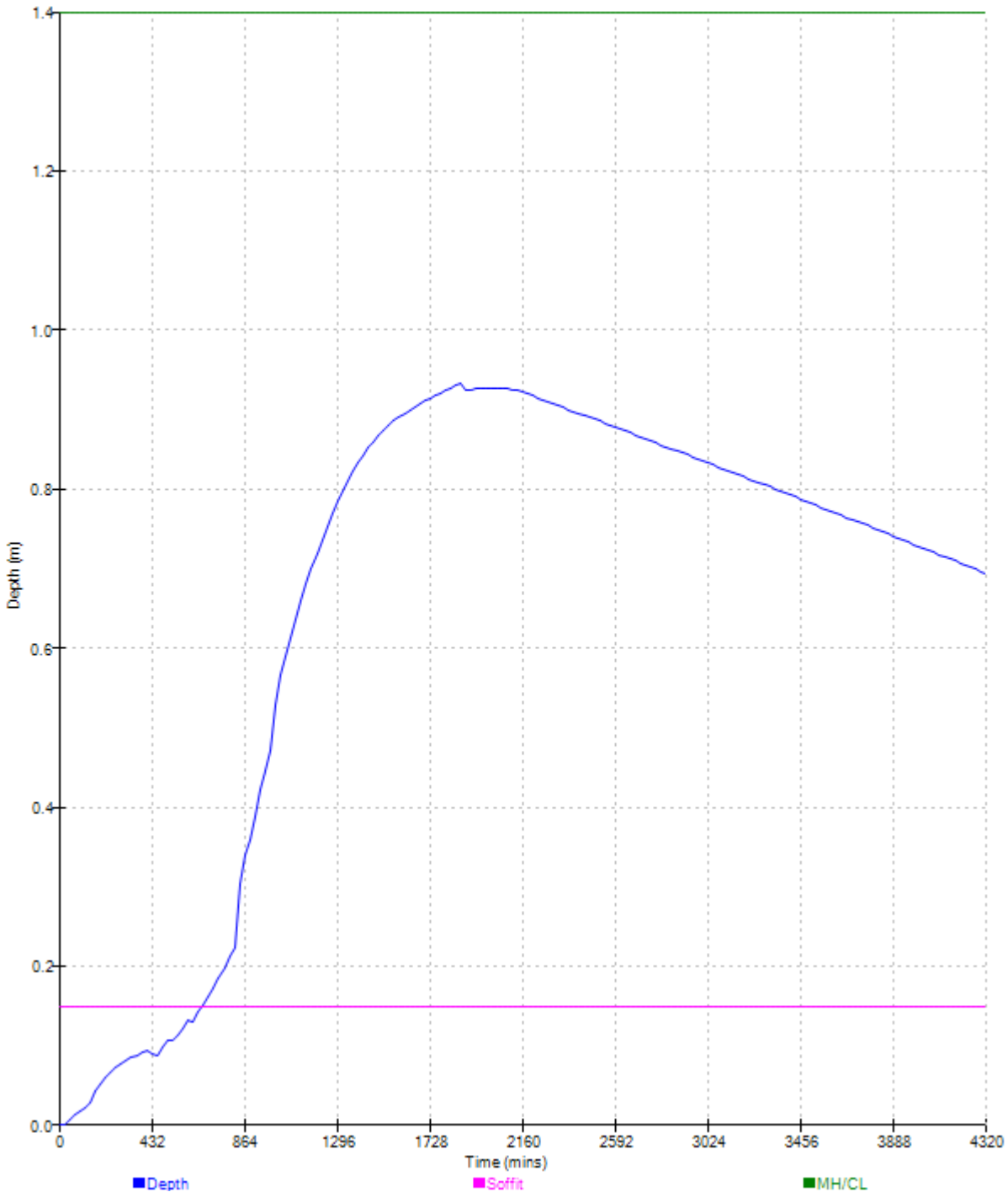
PN	Surcharged				Flooded	Half Drain	Pipe	Status	Level Exceeded
	US/MH	Depth	Volume	Flow /	Overflow	Time	Flow		
	Name	(m)	(m³)	Cap.	(l/s)	(mins)	(l/s)		
1.000	Fake 1	-0.230	0.000	0.06			42.3	FLOOD RISK	
1.001	SW1	0.255	0.000	1.08			40.4	SURCHARGED	
1.002	Pond 1	0.586	0.000	0.06			0.4	SURCHARGED	
1.003	S4	0.783	0.000	0.01			0.4	SURCHARGED	

Rainfall Hyetograph for 15 minute 30 year Winter I+45%
for Pipe 1.000 (Surface Network 1)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	26.673	4	64.174	7	239.200	10	168.063	13	50.695
2	48.674	5	103.874	8	277.849	11	103.874	14	48.674
3	50.695	6	168.063	9	239.200	12	64.174	15	26.673

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Generator Building, Counterslip Redcliffe Bristol, BS1 6BX																																																																																																																																																																																																			
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<u>Rainfall Hyetograph for 2160 minute 30 year Winter I+45%</u> <u>for Pipe 1.003 (Surface Network 1)</u> <table><tr><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th></tr><tr><td>24</td><td>0.138</td><td>456</td><td>1.597</td><td>888</td><td>6.152</td><td>1320</td><td>5.766</td><td>1752</td><td>1.533</td></tr><tr><td>48</td><td>0.470</td><td>480</td><td>1.676</td><td>912</td><td>6.496</td><td>1344</td><td>5.410</td><td>1776</td><td>1.493</td></tr><tr><td>72</td><td>0.738</td><td>504</td><td>1.776</td><td>936</td><td>6.828</td><td>1368</td><td>5.054</td><td>1800</td><td>1.468</td></tr><tr><td>96</td><td>0.952</td><td>528</td><td>1.898</td><td>960</td><td>7.141</td><td>1392</td><td>4.704</td><td>1824</td><td>1.454</td></tr><tr><td>120</td><td>1.116</td><td>552</td><td>2.042</td><td>984</td><td>7.431</td><td>1416</td><td>4.362</td><td>1848</td><td>1.449</td></tr><tr><td>144</td><td>1.240</td><td>576</td><td>2.209</td><td>1008</td><td>7.691</td><td>1440</td><td>4.031</td><td>1872</td><td>1.449</td></tr><tr><td>168</td><td>1.329</td><td>600</td><td>2.400</td><td>1032</td><td>7.915</td><td>1464</td><td>3.715</td><td>1896</td><td>1.452</td></tr><tr><td>192</td><td>1.389</td><td>624</td><td>2.614</td><td>1056</td><td>8.097</td><td>1488</td><td>3.415</td><td>1920</td><td>1.452</td></tr><tr><td>216</td><td>1.426</td><td>648</td><td>2.850</td><td>1080</td><td>8.230</td><td>1512</td><td>3.133</td><td>1944</td><td>1.446</td></tr><tr><td>240</td><td>1.446</td><td>672</td><td>3.133</td><td>1104</td><td>8.230</td><td>1536</td><td>2.850</td><td>1968</td><td>1.426</td></tr><tr><td>264</td><td>1.452</td><td>696</td><td>3.415</td><td>1128</td><td>8.097</td><td>1560</td><td>2.614</td><td>1992</td><td>1.389</td></tr><tr><td>288</td><td>1.452</td><td>720</td><td>3.715</td><td>1152</td><td>7.915</td><td>1584</td><td>2.400</td><td>2016</td><td>1.329</td></tr><tr><td>312</td><td>1.449</td><td>744</td><td>4.031</td><td>1176</td><td>7.691</td><td>1608</td><td>2.209</td><td>2040</td><td>1.240</td></tr><tr><td>336</td><td>1.449</td><td>768</td><td>4.362</td><td>1200</td><td>7.431</td><td>1632</td><td>2.042</td><td>2064</td><td>1.116</td></tr><tr><td>360</td><td>1.454</td><td>792</td><td>4.704</td><td>1224</td><td>7.141</td><td>1656</td><td>1.898</td><td>2088</td><td>0.952</td></tr><tr><td>384</td><td>1.468</td><td>816</td><td>5.054</td><td>1248</td><td>6.828</td><td>1680</td><td>1.776</td><td>2112</td><td>0.738</td></tr><tr><td>408</td><td>1.493</td><td>840</td><td>5.409</td><td>1272</td><td>6.496</td><td>1704</td><td>1.676</td><td>2136</td><td>0.470</td></tr><tr><td>432</td><td>1.533</td><td>864</td><td>5.766</td><td>1296</td><td>6.152</td><td>1728</td><td>1.597</td><td>2160</td><td>0.138</td></tr></table>						Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	24	0.138	456	1.597	888	6.152	1320	5.766	1752	1.533	48	0.470	480	1.676	912	6.496	1344	5.410	1776	1.493	72	0.738	504	1.776	936	6.828	1368	5.054	1800	1.468	96	0.952	528	1.898	960	7.141	1392	4.704	1824	1.454	120	1.116	552	2.042	984	7.431	1416	4.362	1848	1.449	144	1.240	576	2.209	1008	7.691	1440	4.031	1872	1.449	168	1.329	600	2.400	1032	7.915	1464	3.715	1896	1.452	192	1.389	624	2.614	1056	8.097	1488	3.415	1920	1.452	216	1.426	648	2.850	1080	8.230	1512	3.133	1944	1.446	240	1.446	672	3.133	1104	8.230	1536	2.850	1968	1.426	264	1.452	696	3.415	1128	8.097	1560	2.614	1992	1.389	288	1.452	720	3.715	1152	7.915	1584	2.400	2016	1.329	312	1.449	744	4.031	1176	7.691	1608	2.209	2040	1.240	336	1.449	768	4.362	1200	7.431	1632	2.042	2064	1.116	360	1.454	792	4.704	1224	7.141	1656	1.898	2088	0.952	384	1.468	816	5.054	1248	6.828	1680	1.776	2112	0.738	408	1.493	840	5.409	1272	6.496	1704	1.676	2136	0.470	432	1.533	864	5.766	1296	6.152	1728	1.597	2160	0.138
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)																																																																																																																																																																																										
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Graphs for Pipe 1.003 US/MH S4 (Surface Network 1)
2160 minute 30 year Winter I+45%
Status: SURCHARGED

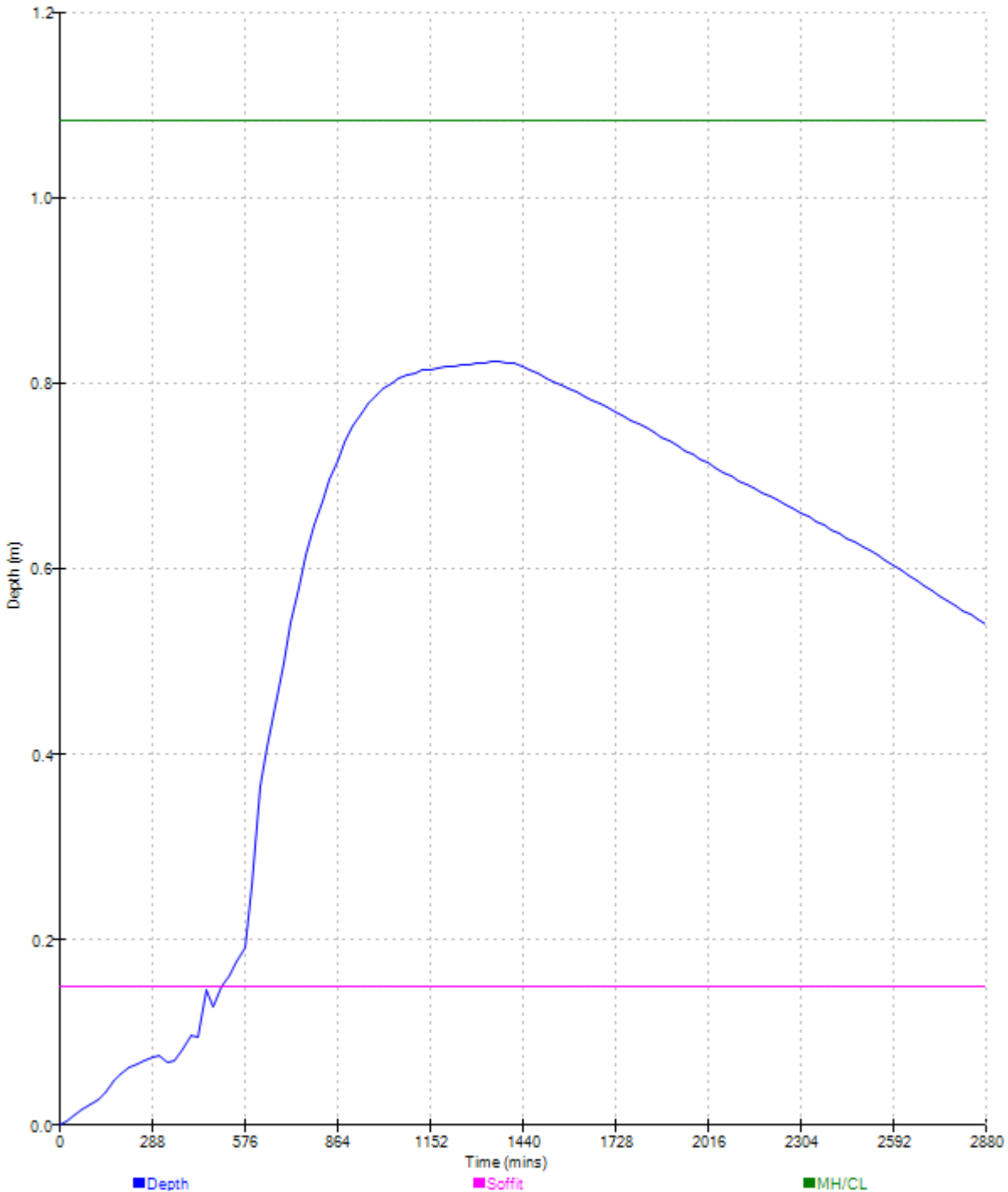


**APPENDIX G.2 – 1 IN 30CC CALCULATIONS
ROAD AND BRIDGE**

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Date 09/11/2025 19:20 File CLFA142-ROAD AND BRIDGE...	Designed by Francisco Checked by	
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<u>Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>		
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<u>Rainfall Hyetograph for 1440 minute 30 year Winter I+45%</u> <u>for Pipe 1.003 (Surface Network 2)</u> <table><tr><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th></tr><tr><td>24</td><td>0.316</td><td>312</td><td>2.208</td><td>600</td><td>8.524</td><td>888</td><td>7.736</td><td>1176</td><td>2.077</td></tr><tr><td>48</td><td>0.909</td><td>336</td><td>2.386</td><td>624</td><td>9.195</td><td>912</td><td>7.029</td><td>1200</td><td>2.012</td></tr><tr><td>72</td><td>1.344</td><td>360</td><td>2.623</td><td>648</td><td>9.820</td><td>936</td><td>6.333</td><td>1224</td><td>1.982</td></tr><tr><td>96</td><td>1.665</td><td>384</td><td>2.971</td><td>672</td><td>10.435</td><td>960</td><td>5.582</td><td>1248</td><td>1.977</td></tr><tr><td>120</td><td>1.836</td><td>408</td><td>3.354</td><td>696</td><td>10.870</td><td>984</td><td>4.957</td><td>1272</td><td>1.982</td></tr><tr><td>144</td><td>1.933</td><td>432</td><td>3.800</td><td>720</td><td>11.184</td><td>1008</td><td>4.379</td><td>1296</td><td>1.976</td></tr><tr><td>168</td><td>1.976</td><td>456</td><td>4.379</td><td>744</td><td>11.184</td><td>1032</td><td>3.800</td><td>1320</td><td>1.933</td></tr><tr><td>192</td><td>1.982</td><td>480</td><td>4.957</td><td>768</td><td>10.870</td><td>1056</td><td>3.354</td><td>1344</td><td>1.836</td></tr><tr><td>216</td><td>1.977</td><td>504</td><td>5.582</td><td>792</td><td>10.435</td><td>1080</td><td>2.971</td><td>1368</td><td>1.665</td></tr><tr><td>240</td><td>1.982</td><td>528</td><td>6.333</td><td>816</td><td>9.820</td><td>1104</td><td>2.623</td><td>1392</td><td>1.344</td></tr><tr><td>264</td><td>2.012</td><td>552</td><td>7.029</td><td>840</td><td>9.195</td><td>1128</td><td>2.386</td><td>1416</td><td>0.909</td></tr><tr><td>288</td><td>2.077</td><td>576</td><td>7.736</td><td>864</td><td>8.524</td><td>1152</td><td>2.208</td><td>1440</td><td>0.316</td></tr></table>						Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	24	0.316	312	2.208	600	8.524	888	7.736	1176	2.077	48	0.909	336	2.386	624	9.195	912	7.029	1200	2.012	72	1.344	360	2.623	648	9.820	936	6.333	1224	1.982	96	1.665	384	2.971	672	10.435	960	5.582	1248	1.977	120	1.836	408	3.354	696	10.870	984	4.957	1272	1.982	144	1.933	432	3.800	720	11.184	1008	4.379	1296	1.976	168	1.976	456	4.379	744	11.184	1032	3.800	1320	1.933	192	1.982	480	4.957	768	10.870	1056	3.354	1344	1.836	216	1.977	504	5.582	792	10.435	1080	2.971	1368	1.665	240	1.982	528	6.333	816	9.820	1104	2.623	1392	1.344	264	2.012	552	7.029	840	9.195	1128	2.386	1416	0.909	288	2.077	576	7.736	864	8.524	1152	2.208	1440	0.316
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)																																																																																																																														
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Graphs for Pipe 1.003 US/MH SB3-FC (Surface Network 2)
1440 minute 30 year Winter I+45%
Status: FLOOD RISK



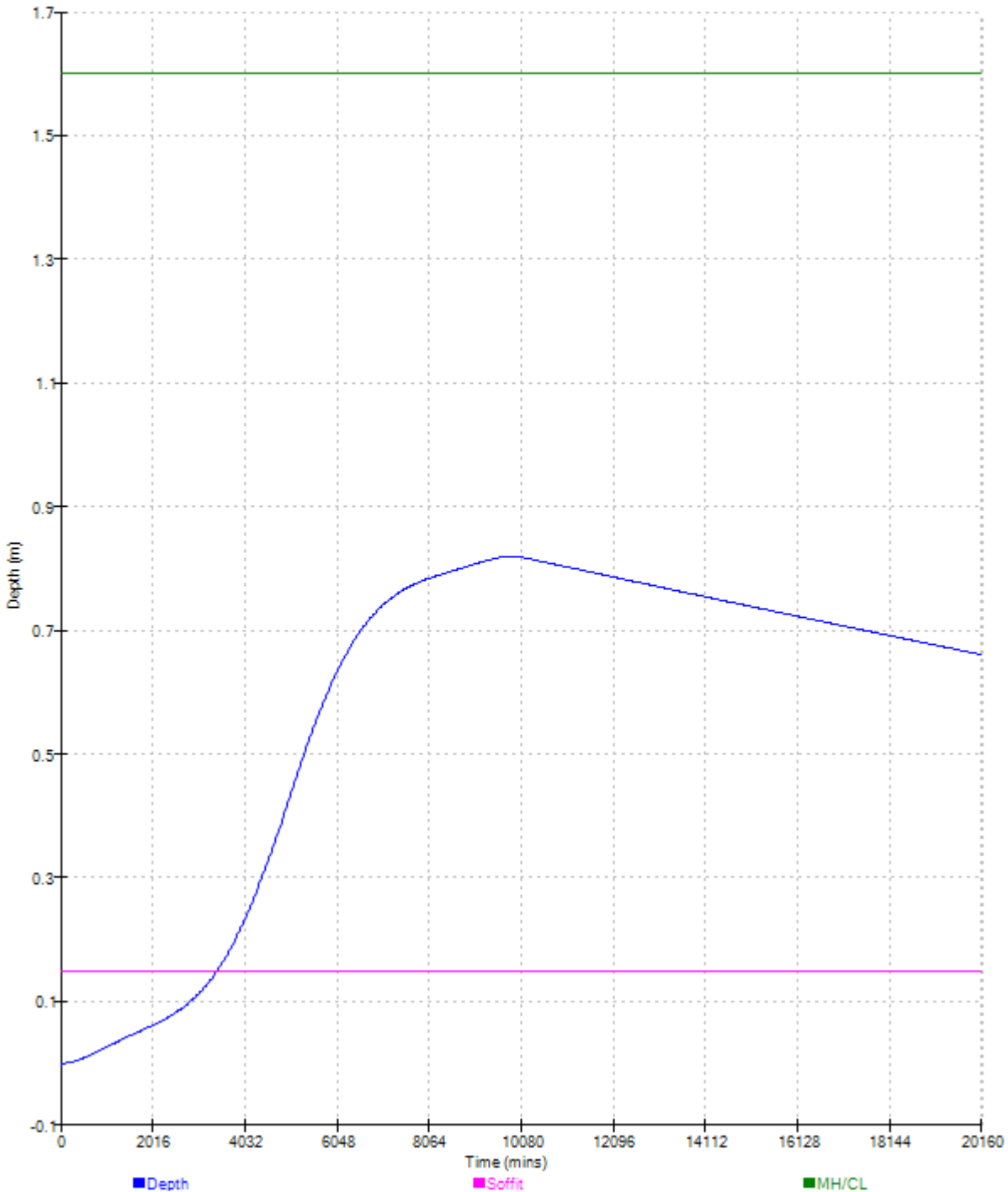
**APPENDIX G.3 – 1 IN 30CC CALCULATIONS
MAIN SITE**

The Engineering Studio								Page 1	
Generator Building, Counterslip Redcliffe Bristol, BS1 6BX									
Date 09/11/2025 19:23 File CLFA142-MAIN SITE - NEW...					Designed by Francisco Checked by				
Innovyze					Network 2020.1.3				
<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 2</u>									

The Engineering Studio		Page 3																																																			
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	<table><tr><td></td><td>US/MH</td><td>Level</td></tr><tr><td>PN</td><td>Name</td><td>Exceeded</td></tr><tr><td>1.008</td><td>Pond 4</td><td></td></tr><tr><td>1.009</td><td>S32</td><td></td></tr><tr><td>9.000</td><td>S21</td><td></td></tr><tr><td>9.001</td><td>S22</td><td></td></tr><tr><td>9.002</td><td>S23</td><td></td></tr><tr><td>9.003</td><td>S24</td><td></td></tr><tr><td>10.000</td><td>S25</td><td></td></tr><tr><td>10.001</td><td>S26</td><td></td></tr><tr><td>10.002</td><td>S27</td><td></td></tr><tr><td>9.004</td><td>S28</td><td></td></tr><tr><td>11.000</td><td>S29</td><td></td></tr><tr><td>9.005</td><td>S30</td><td></td></tr><tr><td>9.006</td><td>S31-Catchpit</td><td></td></tr><tr><td>9.007</td><td>Pond 3</td><td></td></tr><tr><td>1.010</td><td>Swale Inlet</td><td></td></tr></table>		US/MH	Level	PN	Name	Exceeded	1.008	Pond 4		1.009	S32		9.000	S21		9.001	S22		9.002	S23		9.003	S24		10.000	S25		10.001	S26		10.002	S27		9.004	S28		11.000	S29		9.005	S30		9.006	S31-Catchpit		9.007	Pond 3		1.010	Swale Inlet		
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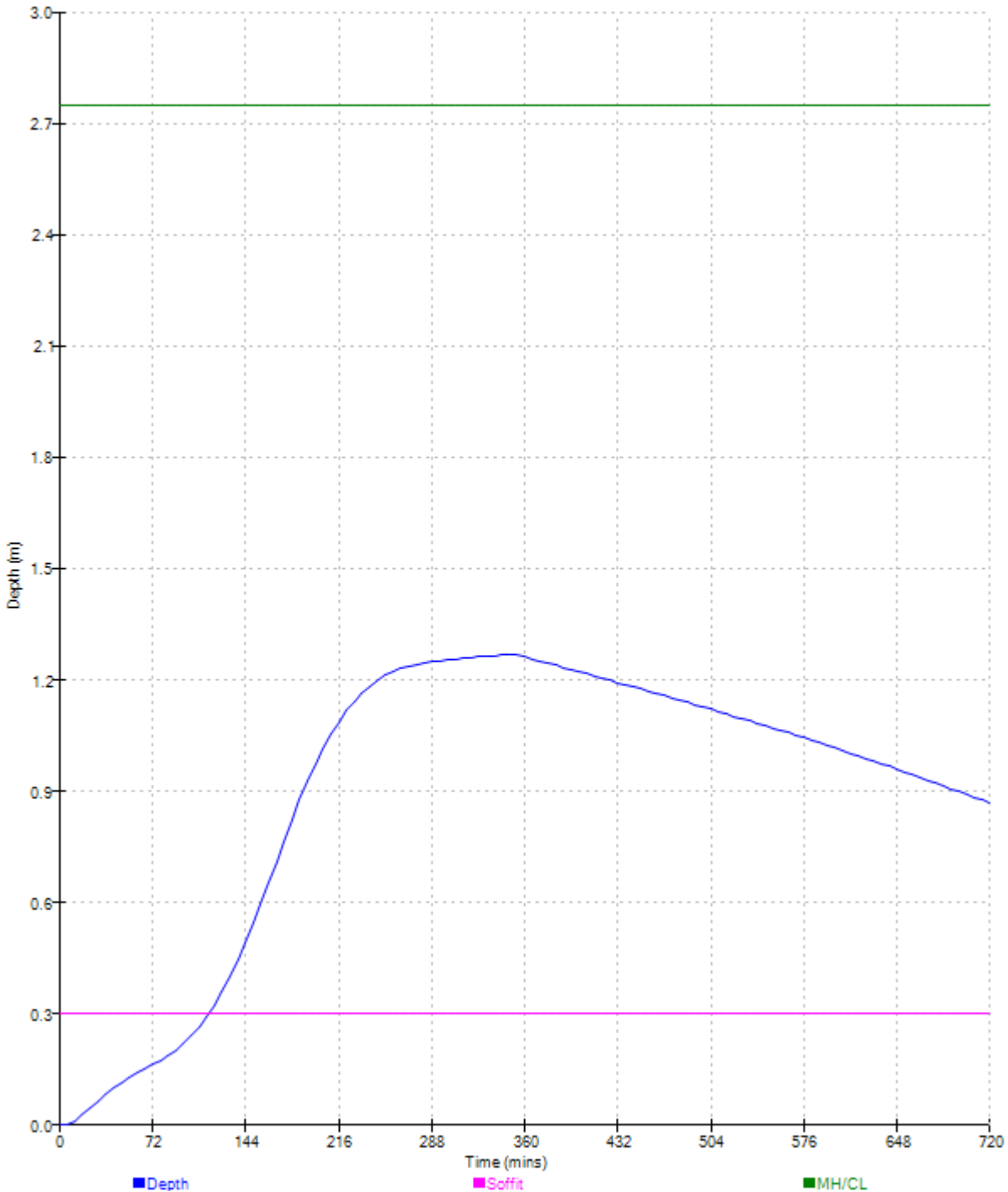
The Engineering Studio				Page 36					
Generator Building, Counterslip Redcliffe Bristol, BS1 6BX									
Date 09/11/2025 19:23 File CLFA142-MAIN SITE - NEW...									
Innovyze				Network 2020.1.3					
<u>Rainfall Hyetograph for 10080 minute 30 year Winter I+45%</u> <u>for Pipe 1.007 (Surface Network 2)</u>									
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
5904	1.959	6744	1.191	7584	0.600	8424	0.443	9264	0.426
5928	1.959	6768	1.139	7608	0.600	8448	0.443	9288	0.417
5952	1.940	6792	1.105	7632	0.600	8472	0.443	9312	0.411
5976	1.863	6816	1.105	7656	0.600	8496	0.441	9336	0.411
6000	1.863	6840	1.105	7680	0.570	8520	0.441	9360	0.411
6024	1.863	6864	1.072	7704	0.563	8544	0.441	9384	0.402
6048	1.863	6888	1.023	7728	0.563	8568	0.441	9408	0.389
6072	1.765	6912	1.023	7752	0.563	8592	0.441	9432	0.389
6096	1.765	6936	1.023	7776	0.544	8616	0.441	9456	0.389
6120	1.765	6960	1.008	7800	0.531	8640	0.441	9480	0.383
6144	1.765	6984	0.946	7824	0.531	8664	0.441	9504	0.360
6168	1.686	7008	0.946	7848	0.531	8688	0.441	9528	0.360
6192	1.667	7032	0.946	7872	0.521	8712	0.441	9552	0.360
6216	1.667	7056	0.946	7896	0.505	8736	0.441	9576	0.360
6240	1.667	7080	0.874	7920	0.505	8760	0.441	9600	0.320
6264	1.607	7104	0.874	7944	0.505	8784	0.442	9624	0.320
6288	1.568	7128	0.874	7968	0.501	8808	0.442	9648	0.320
6312	1.568	7152	0.874	7992	0.484	8832	0.442	9672	0.320
6336	1.568	7176	0.821	8016	0.484	8856	0.442	9696	0.280
6360	1.529	7200	0.808	8040	0.484	8880	0.442	9720	0.269
6384	1.470	7224	0.808	8064	0.484	8904	0.442	9744	0.269
6408	1.470	7248	0.808	8088	0.468	8928	0.442	9768	0.269
6432	1.470	7272	0.771	8112	0.468	8952	0.442	9792	0.231
6456	1.451	7296	0.747	8136	0.468	8976	0.442	9816	0.206
6480	1.374	7320	0.747	8160	0.468	9000	0.440	9840	0.206
6504	1.374	7344	0.747	8184	0.459	9024	0.440	9864	0.206
6528	1.374	7368	0.725	8208	0.456	9048	0.440	9888	0.174
6552	1.374	7392	0.692	8232	0.456	9072	0.440	9912	0.127
6576	1.281	7416	0.692	8256	0.456	9096	0.435	9936	0.127
6600	1.281	7440	0.692	8280	0.451	9120	0.435	9960	0.127
6624	1.281	7464	0.682	8304	0.448	9144	0.435	9984	0.108
6648	1.281	7488	0.643	8328	0.448	9168	0.435	10008	0.033
6672	1.209	7512	0.643	8352	0.448	9192	0.428	10032	0.033
6696	1.191	7536	0.643	8376	0.446	9216	0.426	10056	0.033
6720	1.191	7560	0.643	8400	0.443	9240	0.426	10080	0.033
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Graphs for Pipe 1.007 US/MH Pond 5 (Surface Network 2)
10080 minute 30 year Winter I+45%
Status: SURCHARGED



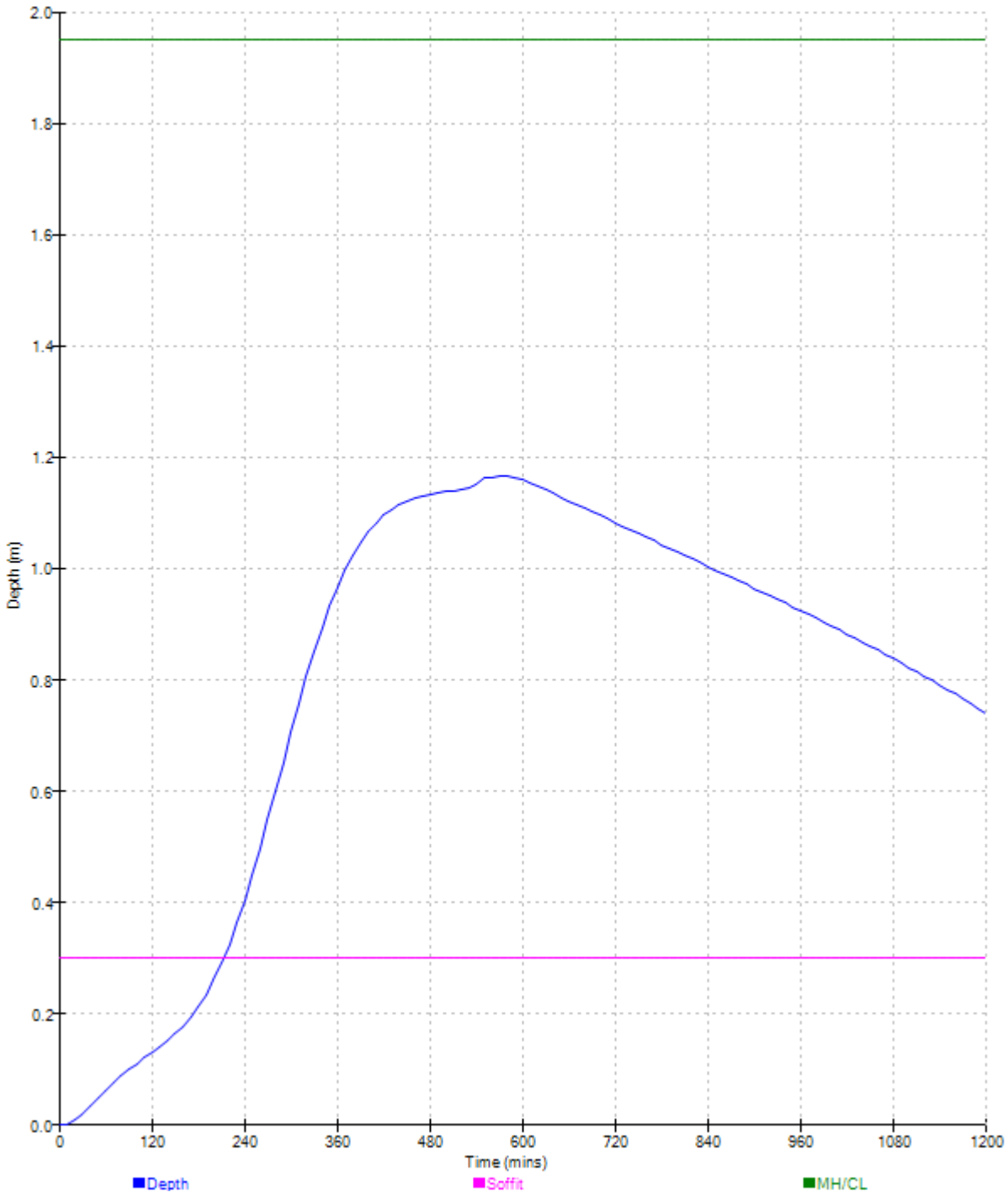
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Generator Building, Counterslip Redcliffe Bristol, BS1 6BX									
Date 09/11/2025 19:23 File CLFA142-MAIN SITE - NEW...									
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Network 2020.1.3									
<u>Rainfall Hyetograph for 360 minute 30 year Winter I+45%</u> <u>for Pipe 1.008 (Surface Network 2)</u>									
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
6	0.905	78	6.318	150	24.391	222	22.136	294	5.942
12	2.601	84	6.828	156	26.311	228	20.114	300	5.757
18	3.846	90	7.506	162	28.100	234	18.122	306	5.671
24	4.766	96	8.501	168	29.858	240	15.972	312	5.658
30	5.254	102	9.597	174	31.105	246	14.185	318	5.670
36	5.532	108	10.873	180	32.004	252	12.531	324	5.655
42	5.655	114	12.531	186	32.004	258	10.873	330	5.532
48	5.670	120	14.185	192	31.105	264	9.597	336	5.254
54	5.658	126	15.972	198	29.858	270	8.501	342	4.766
60	5.671	132	18.122	204	28.100	276	7.506	348	3.846
66	5.757	138	20.114	210	26.311	282	6.828	354	2.601
72	5.942	144	22.136	216	24.391	288	6.318	360	0.904
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Graphs for Pipe 1.008 US/MH Pond 4 (Surface Network 2)
360 minute 30 year Winter I+45%
Status: SURCHARGED



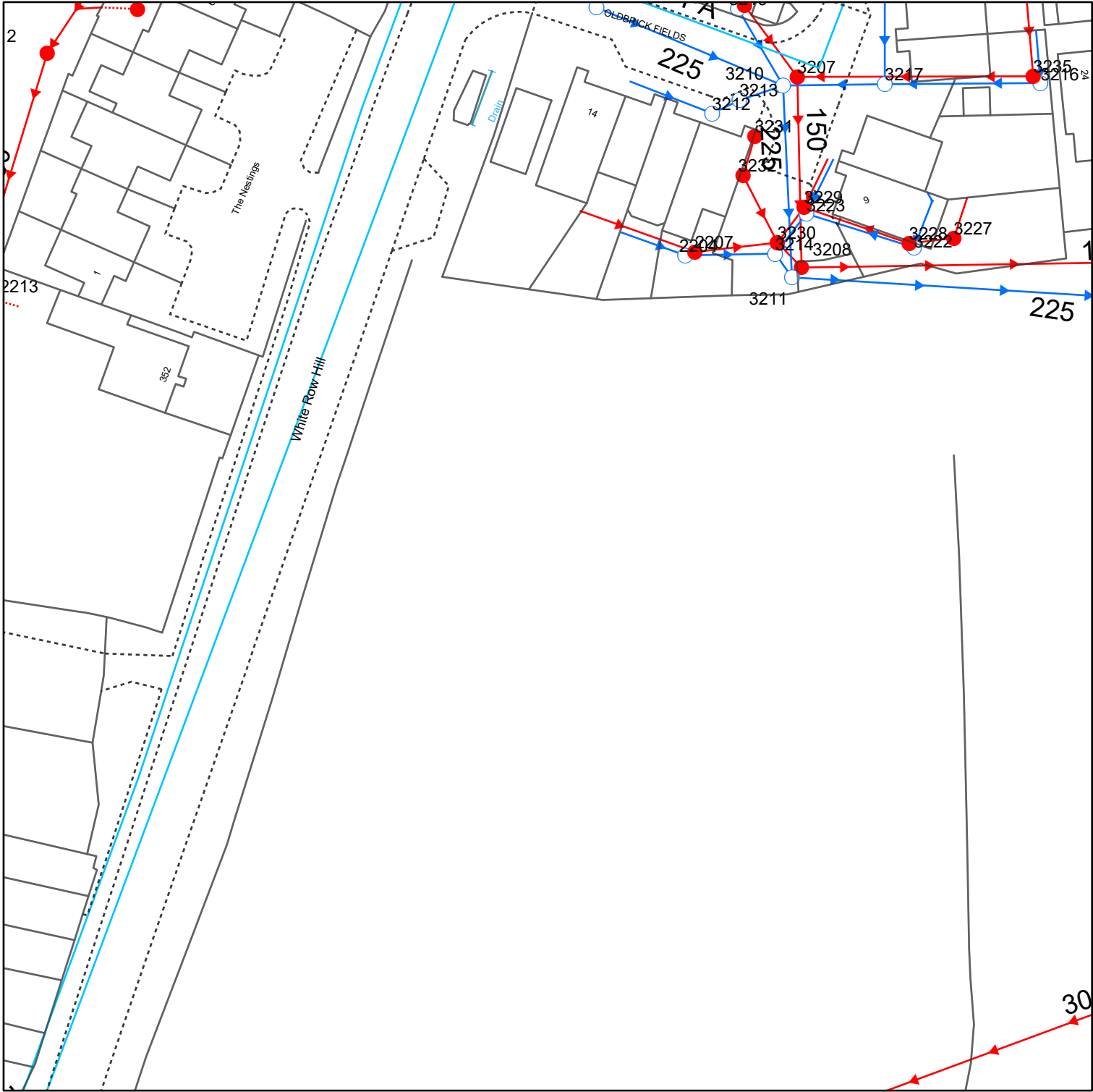
The Engineering Studio				Page 74																																																																																																																																			
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<u>Rainfall Hyetograph for 600 minute 30 year Winter I+45%</u> <u>for Pipe 9.007 (Surface Network 2)</u> <table><tr><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th><th>Time (mins)</th><th>Rain (mm/hr)</th></tr><tr><td>10</td><td>0.615</td><td>130</td><td>4.298</td><td>250</td><td>16.595</td><td>370</td><td>15.061</td><td>490</td><td>4.043</td></tr><tr><td>20</td><td>1.769</td><td>140</td><td>4.646</td><td>260</td><td>17.902</td><td>380</td><td>13.686</td><td>500</td><td>3.917</td></tr><tr><td>30</td><td>2.617</td><td>150</td><td>5.107</td><td>270</td><td>19.119</td><td>390</td><td>12.330</td><td>510</td><td>3.859</td></tr><tr><td>40</td><td>3.243</td><td>160</td><td>5.784</td><td>280</td><td>20.315</td><td>400</td><td>10.868</td><td>520</td><td>3.850</td></tr><tr><td>50</td><td>3.575</td><td>170</td><td>6.530</td><td>290</td><td>21.164</td><td>410</td><td>9.651</td><td>530</td><td>3.858</td></tr><tr><td>60</td><td>3.764</td><td>180</td><td>7.398</td><td>300</td><td>21.775</td><td>420</td><td>8.526</td><td>540</td><td>3.847</td></tr><tr><td>70</td><td>3.847</td><td>190</td><td>8.526</td><td>310</td><td>21.775</td><td>430</td><td>7.398</td><td>550</td><td>3.764</td></tr><tr><td>80</td><td>3.858</td><td>200</td><td>9.651</td><td>320</td><td>21.164</td><td>440</td><td>6.530</td><td>560</td><td>3.575</td></tr><tr><td>90</td><td>3.850</td><td>210</td><td>10.868</td><td>330</td><td>20.315</td><td>450</td><td>5.784</td><td>570</td><td>3.243</td></tr><tr><td>100</td><td>3.859</td><td>220</td><td>12.330</td><td>340</td><td>19.119</td><td>460</td><td>5.107</td><td>580</td><td>2.617</td></tr><tr><td>110</td><td>3.917</td><td>230</td><td>13.686</td><td>350</td><td>17.902</td><td>470</td><td>4.646</td><td>590</td><td>1.769</td></tr><tr><td>120</td><td>4.043</td><td>240</td><td>15.062</td><td>360</td><td>16.595</td><td>480</td><td>4.298</td><td>600</td><td>0.615</td></tr></table>						Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	10	0.615	130	4.298	250	16.595	370	15.061	490	4.043	20	1.769	140	4.646	260	17.902	380	13.686	500	3.917	30	2.617	150	5.107	270	19.119	390	12.330	510	3.859	40	3.243	160	5.784	280	20.315	400	10.868	520	3.850	50	3.575	170	6.530	290	21.164	410	9.651	530	3.858	60	3.764	180	7.398	300	21.775	420	8.526	540	3.847	70	3.847	190	8.526	310	21.775	430	7.398	550	3.764	80	3.858	200	9.651	320	21.164	440	6.530	560	3.575	90	3.850	210	10.868	330	20.315	450	5.784	570	3.243	100	3.859	220	12.330	340	19.119	460	5.107	580	2.617	110	3.917	230	13.686	350	17.902	470	4.646	590	1.769	120	4.043	240	15.062	360	16.595	480	4.298	600	0.615
Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)																																																																																																																														
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Graphs for Pipe 9.007 US/MH Pond 3 (Surface Network 2)
600 minute 30 year Winter I+45%
Status: SURCHARGED



APPENDIX H – WESSEX WATER ASSET MAPS

Wessex Water Network Map



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WATER MAINS	SEWERS	STRATEGIC PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES	NON-WESSEX / UNKNOWN
Distribution	Foul	Surface	Surface	Combined	Rising Mains	Private Rising Mains
Washout	Surface	Surface	Surface	Combined	Standby Rising Mains	Culverted Watercourse
Raw Water	Combined	Combined	Combined	Combined	EDM Effluent Disposal	Highway Drain
Abandoned	Abandoned	Abandoned	Abandoned	Abandoned	Overflow	Use Unknown
Private	Private	Private	Private	Private	Syphon	Status Unknown
FITTINGS	STRUCTURES	Pumping Station - Surface	Pumping Stn - Foul/Combined	Gully	Vent Column	Rodding Eye
Hydrant	Manhole - Foul	Manhole - Surface	Manhole - Combined	Inlet	Outfall	Lamphole
Other	Bifurcation - Foul	Bifurcation - Surface	Bifurcation - Combined	Combined Sewage Overflow	Air Valve	Hatch Box
	X Washout					

OTHER STRUCTURES

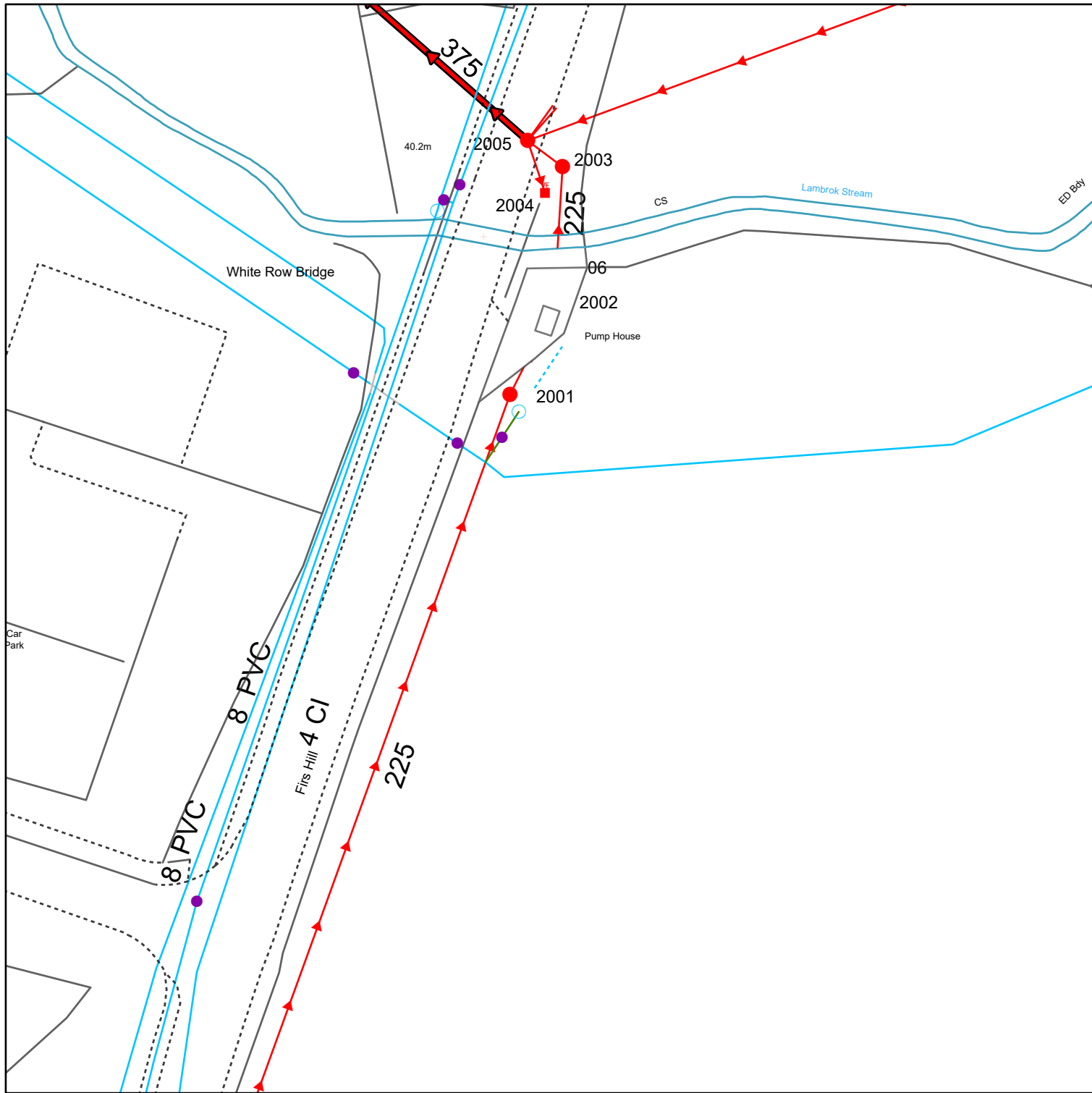
Attenuation Tank	Chamber
Storage Tank	Tunnel
	Interceptor

Wessex Water
YTL GROUP

Date: 06/10/2025
Centre: 384283E, 156196N
Scale: 1:625
(when printed at A4 size)

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Wessex Water Network Map



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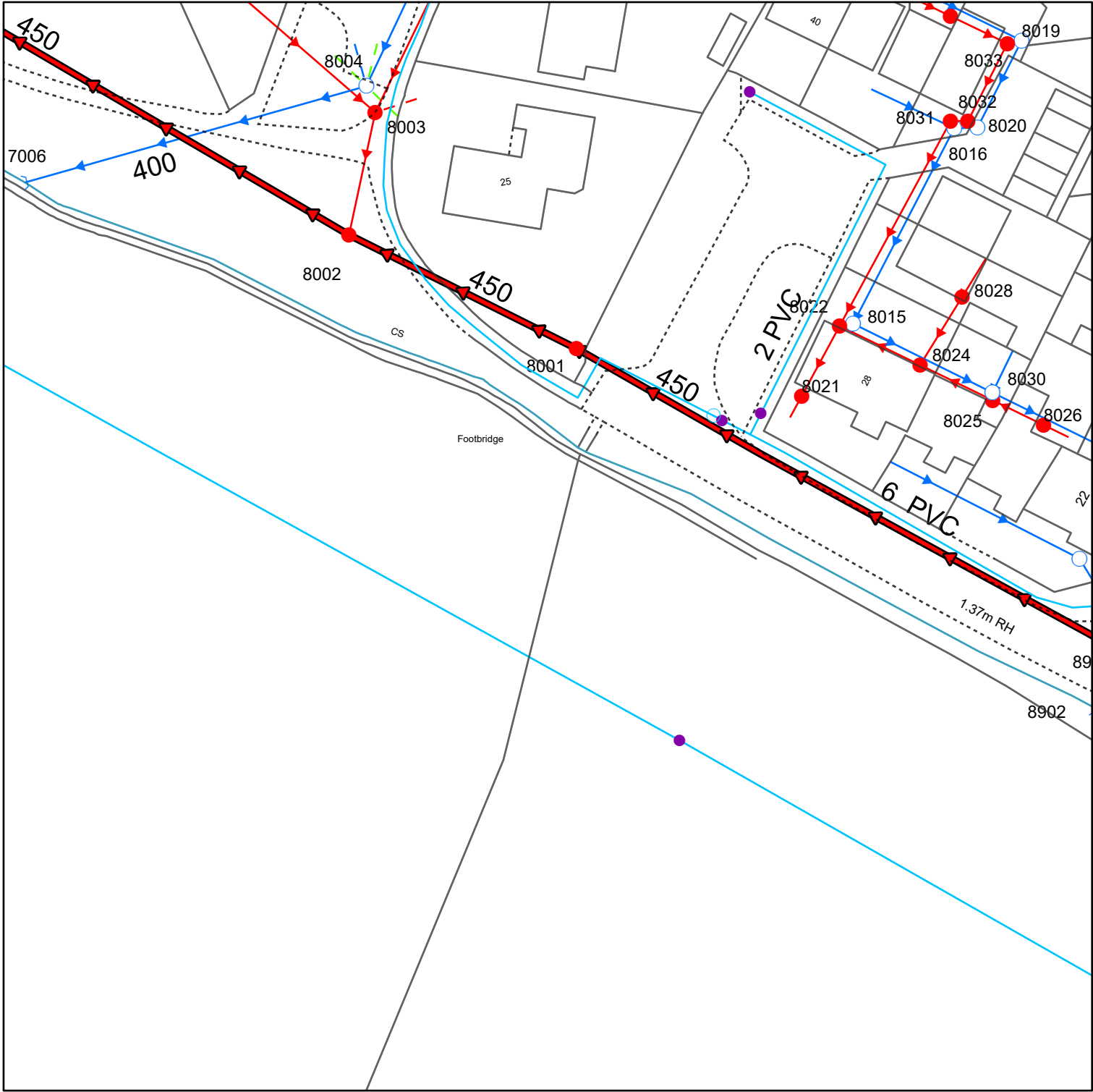
WATER MAINS		SEWERS		STRATEGIC		PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul		Surface								Rising Mains		Private Rising Mains
	Washout		Surface										Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined										Effluent Disposal		Highway Drain
	Abandoned		Abandoned										Overflow		Use Unknown
	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).													
FITTINGS		Some styles of line and symbol are shown on the key in sample/typical colours.													
	Hydrant	STRUCTURES			Pumping Station - Surface		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
	Other		Manhole - Foul		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Manhole - Surface		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Manhole - Combined		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Inlet		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Outfall		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Lamphole		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Bifurcation - Foul		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Bifurcation - Surface		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Bifurcation - Combined		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
			Combined Sewage Overflow		Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
					Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
					Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
					Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		Tunnel
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					Pumping Stn - Foul/Combined		Pumping Stn - Foul/Combined		Gully		Storage Tank		Chamber		

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Date: 06/10/2025
Centre: 384220E, 156048N
Scale: 1:625
(when printed at A4 size)



Wessex Water Network Map



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WATER MAINS		SEWERS	STRATEGIC PUBLIC	PRIVATE	SECTION 104	OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
Distribution	Washout	Foul	Surface	Combined	Abandoned	Rising Mains	Standby Rising Mains	Private Rising Mains	Culverted Watercourse
Raw Water	Abandoned	Abandoned	Abandoned	Abandoned	Abandoned	EDM	Effluent Disposal	Highway Drain	Use Unknown
Private						Syphon	Overflow	Status Unknown	
FITTINGS		STRUCTURES		OTHER STRUCTURES		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
Hydrant	Other	Manhole - Foul	Manhole - Surface	Manhole - Combined	Manhole - Abandoned	Pumping Station - Surface	Pumping Stn - Foul/Combined	Chamber	Tunnel
		Inlet	Outfall	Vent Column	Rodding Eye	Catchpit	Flushing Chamber	Soakaway	Non Return Valve
		Bifurcation - Foul	Bifurcation - Surface	Bifurcation - Combined	Bifurcation - Abandoned	Air Valve	Hatch Box	Washout	
		Combined Sewage Overflow							
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						OTHER STRUCTURES		Date: 06/10/2025	
						Attenuation Tank	Storage Tank	Centre: 384833E, 155989N	
						Scale: 1:625		(when printed at A4 size)	