



- KEY:**
- PROPOSED FOUL NETWORK
 - POTENTIAL PUMPING STATION
 - PROPOSED FOUL RISING MAIN
 - EXISTING FOUL SEWER
 - PROPOSED SOUTHERN WATER FOUL PUMPED MAIN

G	DRAWING TITLE AMENDED	JHW	10.12.19	IJF
F	FOUL AMENDED TO SUIT NEW MASTERPLAN PS3 RELOCATED	JNC	29.11.19	IJF
E	RISING MAIN ROUTE AMENDED	RVH	30.10.19	IJF
D	REVISIONS TO PS1 + 4 LOCATIONS & PHASE 1. AND COMMERCIAL LAYOUT	RMLM	25.10.19	IJF
C	AMENDED TO SUIT NEW MASTERPLAN 2153-160	JC	28.06.19	IJF
B	AMENDED TO SUIT NEW MASTERPLAN 2153-150Q	JW	26.05.16	IJF
A	NEW MASTERPLAN BASE	JW	03.02.16	IJF
Mark	Revision	Drawn	Date	Chkd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.

Drawing Issue Status
FOR PLANNING

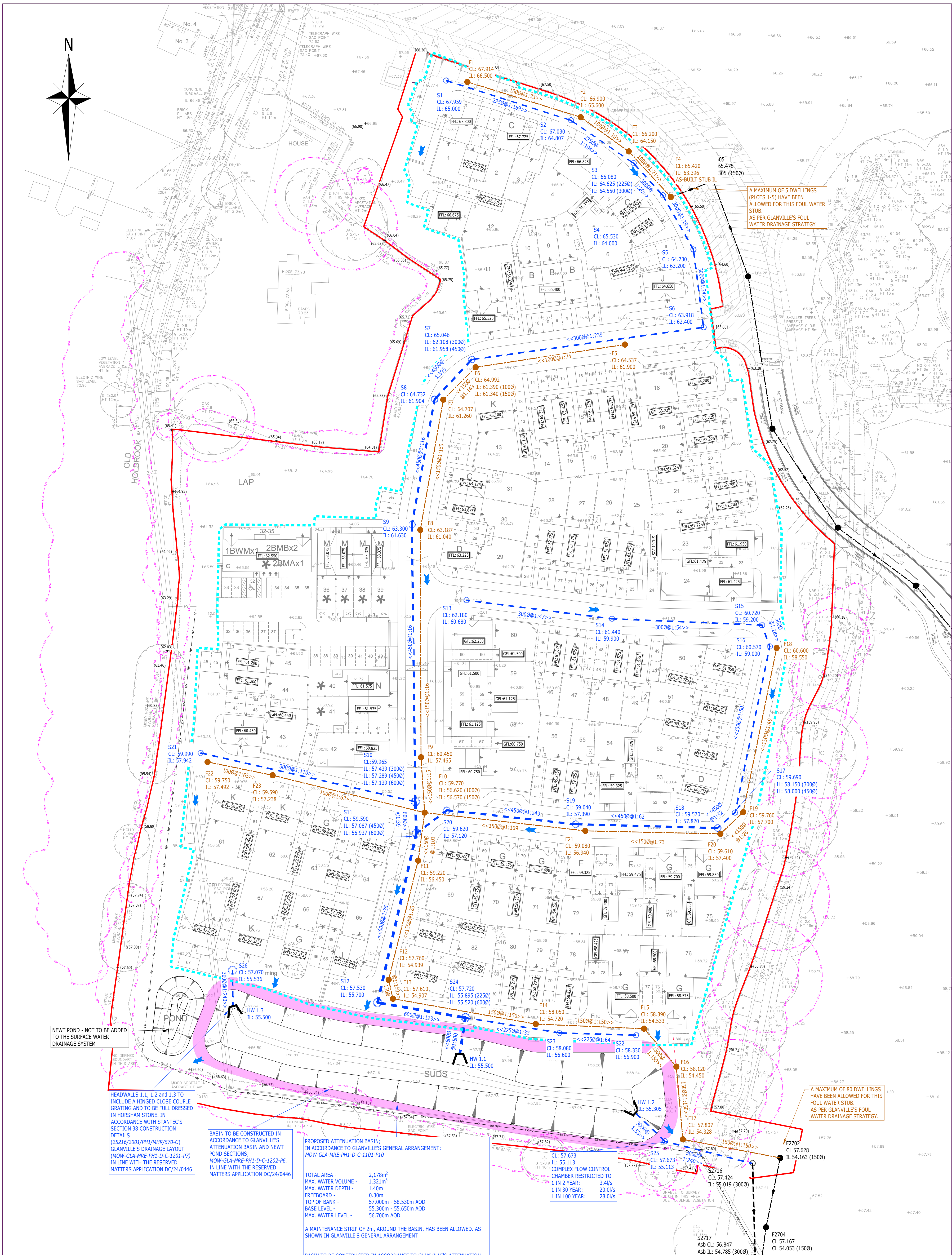
LAND NORTH OF HORSHAM
PLANNING APPLICATION
INDICATIVE FOUL DRAINAGE NETWORK

Client		 STRATEGIC LAND NORTH HORSHAM LTD		 Offices throughout the UK and Europe www.peterbrett.com © Peter Brett Associates LLP READING Tel: 0118 950 0761	
Date of 1st Issue	17.07.15	Drawn by	JW	Checked by	IJF
A2 Scale	nts	Revision	G	Drawing Number	25216/2007/SK06

Location	Peak Pumped Flow	
PS1	32.7	Excludes PS4 flow
SW Faygate pumped flow	8.0	
PS2	8.0	
PS3	9.3	
PS4	8.0	
PS5	8.0	
Rusper Road South Gravity outfall	56.7	

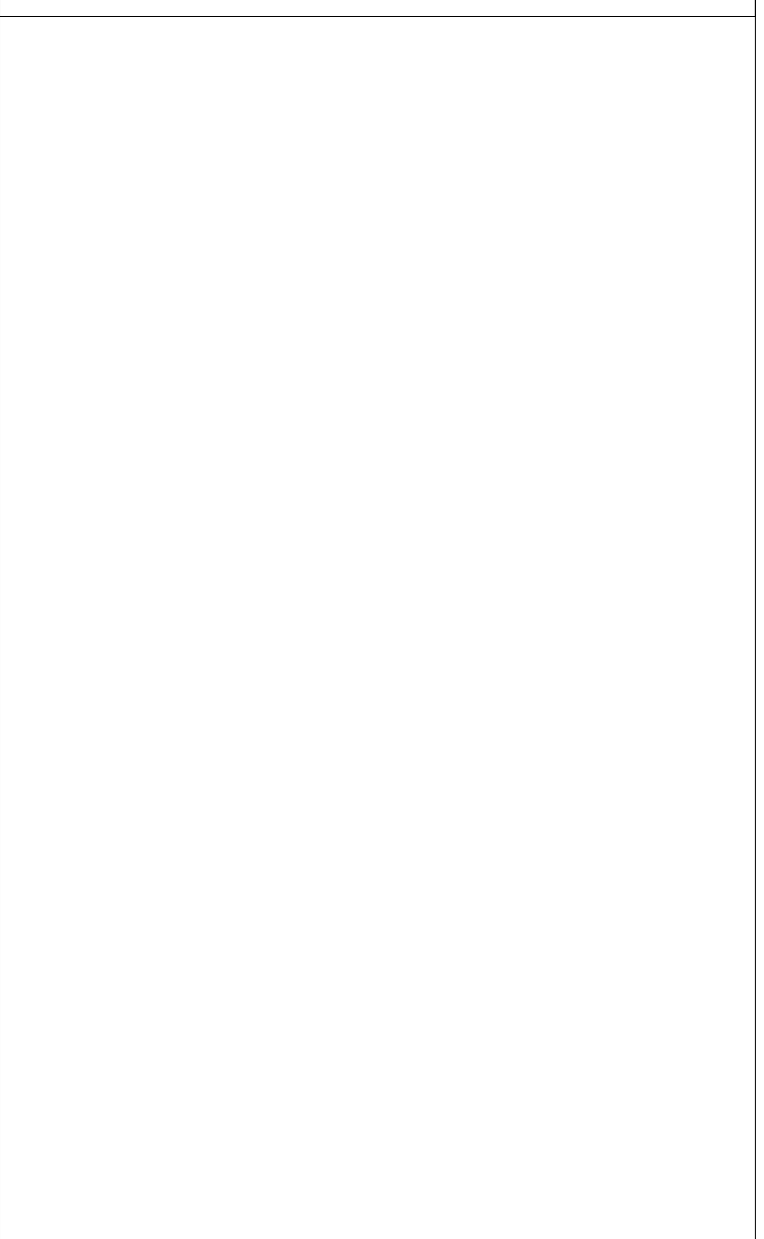


Appendix E
Proposed Drainage Strategy

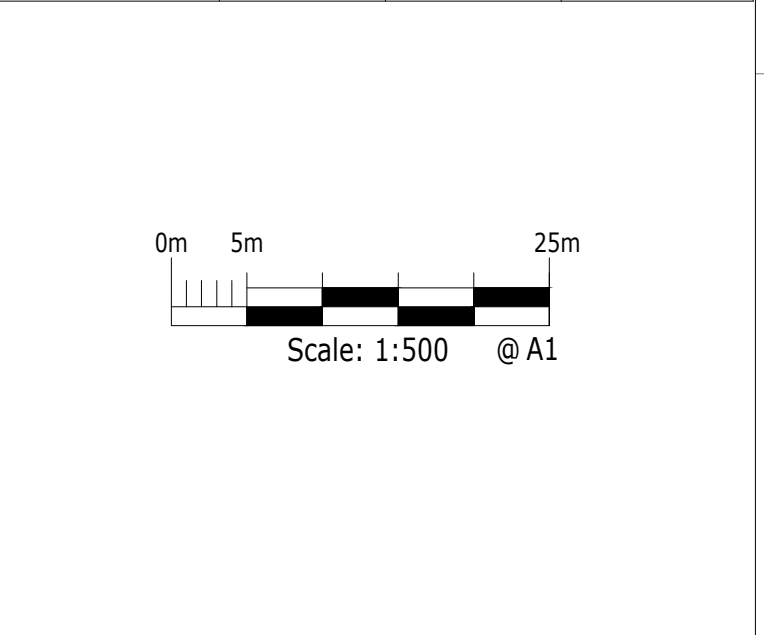


- NOTES:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - ANY WORKS OUTSIDE RED SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.

- KEY
- SITE BOUNDARY
 - PROPOSED DEVELOPABLE AREA
 - PROPOSED FOUL WATER SEWER
 - PROPOSED SURFACE WATER SEWER
 - EXISTING FOUL WATER SEWER
 - EXISTING SURFACE WATER SEWER
 - ROOT PROTECTION AREA
 - PROPOSED HEADWALL
 - FLOODED EXCEEDANCE ROUTE ARROWS
 - FINISHED FLOOR LEVEL
 - GARAGE FLOOR LEVEL
 - DIVERTED HV CABLES
 - EXISTING HV CABLES
 - MAINTENANCE STRIP



INFORMATION SUMMARY			
INFORMATION TYPE	SOURCE	REFERENCE	REVISION & DATE
SITE LAYOUT	MDD	BSL-010-SL-01	14/05/26 Rev. A
TOPOGRAPHICAL SURVEY	MKSURVEYS	27971 001-006	JAN 2020 REV. -
ROOT PROTECTION AREA	PJC	PJC/S265/20/A 002-003	13/07/2020 REV. 2
MOAT ROAD AS-BUILT SURVEY	VENDOR PACK	31246-R1 MOAT ROAD AND SLR	-
STRATEGIC SURFACE WATER DRAINAGE	GLANVILLE	MOW-GLA-PH1-RM4-1104	14.06.2024 REV. FC1
STRATEGIC FOUL WATER DRAINAGE	GLANVILLE	MOW-GLA-PH1-RM4-1105	14.06.2024 REV. FC1
RESERVED MATTERS DRAINAGE STATEMENT	GLANVILLE	119_8220585_JD_Drainage_Statement_MRE	06.03.2024 REV. 3
LAND TO BE TRANSFERRED	GLANVILLE	MOWBRAY-GL-A-PH1-RM4-1102	APRIL 2024 REV. FC1
ATTENUATION BASIN & NEWT POND SECTIONS	GLANVILLE	MOWBRAY-GL-A-PH1-RM4-1202	10/06/2024 REV. P6
GENERAL ARRANGEMENT	GLANVILLE	MOWBRAY-GL-A-PH1-RM4-1101	10/06/2024 REV. P10



HEADWALLS 1.1, 1.2 AND 1.3 TO INCLUDE A HINGED CLOSE COUPLE GRATING AND TO BE FULL DRESSED IN HORSHAM STONE. IN ACCORDANCE WITH STANTEC'S SECTION 38 CONSTRUCTION DETAILS (25216/2001/PH1/MHR/570-C) GLANVILLE'S DRAINAGE LAYOUT (MOW-GLA-MRE-PH1-D-C-1201-P7) IN LINE WITH THE RESERVED MATTERS APPLICATION DC/24/0446

NEWT POND - NOT TO BE ADDED TO THE SURFACE WATER DRAINAGE SYSTEM

BASIN TO BE CONSTRUCTED IN ACCORDANCE TO GLANVILLE'S ATTENUATION BASIN AND NEWT POND SECTIONS; MOW-GLA-MRE-PH1-D-C-1202-P6. IN LINE WITH THE RESERVED MATTERS APPLICATION DC/24/0446

PROPOSED ATTENUATION BASIN; IN ACCORDANCE TO GLANVILLE'S GENERAL ARRANGEMENT; MOW-GLA-MRE-PH1-D-C-1101-P10

TOTAL AREA - 2,178m²
MAX. WATER VOLUME - 1,321m³
MAX. WATER DEPTH - 1.40m
FREEBOARD - 0.30m
TOP OF BANK - 57.00m - 58.53m AOD
BASE LEVEL - 55.30m - 55.65m AOD
MAX. WATER LEVEL - 56.70m AOD

A MAINTENANCE STRIP OF 2m, AROUND THE BASIN, HAS BEEN ALLOWED. AS SHOWN IN GLANVILLE'S GENERAL ARRANGEMENT

BASIN TO BE CONSTRUCTED IN ACCORDANCE TO GLANVILLE'S ATTENUATION BASIN AND NEWT POND SECTIONS; MOW-GLA-MRE-PH1-D-C-1202-P6. IN LINE WITH THE RESERVED MATTERS APPLICATION DC/24/0446

BELLWAY IS RESPONSIBLE FOR DETAILED DESIGN AND CONSTRUCTION OF THIS INFRASTRUCTURE AS WELL AS THE ADOPTION OF THE SEWER INLETS AND THE SEWER OUTFALL TO MANHOLE S2716 AND F2702. A LOW FLOW CHANNEL IS REQUIRED IN THE BOTTOM OF THE ATTENUATION BASIN BETWEEN HW1.1 - HW1.2 AND ALL HEADWALLS MUST BE DRESSED IN HORSHAM STONE.

BELLWAY ARE RESPONSIBLE TO TRANSFER THIS LAND BACK TO THE ESTATE MANAGEMENT COMPANY, WHICH IS OUTLINED IN GLANVILLE CONTRACTUAL PLAN; MOWBRAY-GLA-PH1-RM4-1102

STORAGE SUMMARY

TOTAL SITE AREA:
IMPERMEABLE AREA:

USING THE FLOW SOFTWARE AND BASED ON THE IMPERMEABLE AREA, THE FOLLOWING STORAGE VOLUMES WILL BE REQUIRED FOR THE FOLLOWING CLIMATE CHANGE ALLOWANCES:

- 20%: 931m³ (at 1.123m DEPTH)
- 40%: 1103m³ (at 1.239m DEPTH)

A SENSITIVITY ANALYSIS WAS UNDERTAKEN WITH 45% CLIMATE CHANGE AND A CV VALUE OF 1. THE FOLLOWING STORAGE IS REQUIRED:

- 45%: 1,404m³ (at 1.452m DEPTH)

STORAGE PROVIDED FROM BASIN A

TOTAL DEPTH: 1.700m (INCL. 300mm FREEBOARD)
TOTAL VOLUME: 1,321m³ (at 1.400m DEPTH)
1,800m³ (at 1.700m DEPTH)

THEREFORE THESE IS SUFFICIENT VOLUME PROVIDED WITHIN BASIN A, EXCLUDING THE 300mm FREEBOARD.

B	UPDATED TO REVISED LAYOUT	JTM	DC	JM	25.05.26
A	FOR SUBMISSION	DC	TR	JM	20.02.26
Rev	Description	Drn	Chk	App	Date
Purpose:	PRELIMINARY	Status:	NOT YET APPROVED		

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SSIP
SAFETY PARTNER
MEMBER SINCE 2019

BELLWAY HOMES

Project Title:

RM4, LAND NORTH OF HORSHAM

Drawing Title:

PROPOSED DRAINAGE STRATEGY

Drawn by: DC
Checked by: TR
Approved by: JM
Revision: B

A1 Scale: 1:500@A1
Date: FEB 2026

Drawing Number: 2500120_A-ACE-XX-XX-DR-C-0601

Appendix F
Flow Network Calculations

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	32.700	169.4	225	Circular	67.916	65.000	2.691	67.030	64.807	1.998
1.001	18.963	104.2	225	Circular	67.030	64.807	1.998	66.085	64.625	1.235
1.002	10.843	19.7	300	Circular	66.085	64.550	1.235	65.528	64.000	1.228
1.003	15.533	19.4	300	Circular	65.528	64.000	1.228	64.733	63.200	1.233
1.004	19.594	24.5	300	Circular	64.733	63.200	1.233	63.934	62.400	1.234
1.005	58.436	200.1	300	Circular	63.934	62.400	1.234	65.044	62.108	2.636
1.006	13.581	251.5	450	Circular	65.044	61.958	2.636	64.729	61.904	2.375
1.007	31.341	114.4	450	Circular	64.729	61.904	2.375	63.330	61.630	1.250
1.008	70.841	16.3	450	Circular	63.330	61.630	1.250	60.004	57.289	2.265
2.000	36.619	46.9	300	Circular	62.211	60.680	1.231	61.461	59.900	1.261
2.001	37.482	53.5	300	Circular	61.461	59.900	1.261	60.730	59.200	1.230
2.002	5.696	28.5	300	Circular	60.730	59.200	1.230	60.581	59.000	1.281
2.003	42.346	49.8	300	Circular	60.581	59.000	1.281	59.699	58.150	1.249
2.004	5.820	38.8	450	Circular	59.699	58.000	1.249	59.572	57.850	1.272
2.005	35.479	77.1	450	Circular	59.572	57.850	1.272	59.041	57.390	1.201
2.006	32.313	398.9	450	Circular	59.041	57.390	1.201	59.678	57.309	1.919
2.007	10.415	306.3	450	Circular	59.678	57.309	1.919	59.685	57.275	1.960
3.000	55.298	109.9	300	Circular	59.989	57.942	1.747	60.004	57.439	2.265
1.009	6.745	481.8	600	Circular	60.004	57.139	2.265	59.685	57.125	1.960
1.010	44.422	33.5	600	Circular	59.685	57.125	1.960	57.644	55.800	1.244
1.011	25.601	213.3	600	Circular	57.644	55.800	1.244	58.088	55.680	1.808
1.012	8.831	49.1	600	Circular	58.088	55.680	1.808	57.000	55.500	0.900
1.013	5.000	25.6	600	Circular	57.000	55.500	0.900	57.000	55.305	1.095
4.000	20.748	60.5	225	Circular	58.388	56.943	1.220	58.088	56.600	1.263
4.001	20.718	29.8	225	Circular	58.088	56.600	1.263	58.088	55.905	1.958

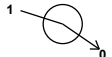
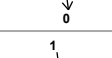
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1350	Manhole	Adoptable
1.002	S3	1350	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.003	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.004	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.005	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.006	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.007	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.008	S9	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
2.000	S13	1350	Manhole	Adoptable	S 14	1350	Manhole	Adoptable
2.001	S 14	1350	Manhole	Adoptable	S 15	1350	Manhole	Adoptable
2.002	S 15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
2.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
2.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
2.005	S18	1350	Manhole	Adoptable	S19	1350	Manhole	Adoptable
2.006	S19	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
2.007	S20	1350	Manhole	Adoptable	S11	1500	Manhole	Adoptable
3.000	S21	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
1.009	S10	1500	Manhole	Adoptable	S11	1500	Manhole	Adoptable
1.010	S11	1500	Manhole	Adoptable	S12	1500	Manhole	Adoptable
1.011	S12	1500	Manhole	Adoptable	S24	1500	Manhole	Adoptable
1.012	S24	1500	Manhole	Adoptable	HW 1.1		Junction	
1.013	HW 1.1		Junction		BASIN A		Junction	
4.000	S22	1350	Manhole	Adoptable	S23	1350	Manhole	Adoptable
4.001	S23	1350	Manhole	Adoptable	S24	1500	Manhole	Adoptable

Pipeline Schedule

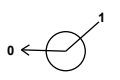
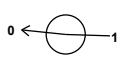
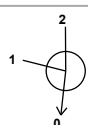
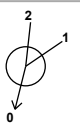
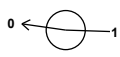
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.014	10.230	53.3	600	Circular	57.000	55.305	1.095	57.714	55.113	2.001
1.015	22.446	238.8	300	Circular	57.714	55.113	2.301	57.410	55.019	2.091

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.014	BASIN A		Junction		S25	1800	Manhole	Adoptable
1.015	S25	1800	Manhole	Adoptable	END OF PIPE	1200	Manhole	Adoptable

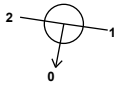
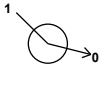
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	518572.340	134231.181	67.916	2.916	1200				
						0	1.000	65.000	225
S2	518603.495	134221.248	67.030	2.223	1200				
						0	1.001	64.807	225
						1	1.001	64.625	225
S3	518619.143	134210.535	66.085	1.535	1350				
						0	1.002	64.550	300
						1	1.002	64.000	300
S4	518626.443	134202.518	65.528	1.528	1350				
						0	1.003	64.000	300
S5	518634.092	134189.000	64.733	1.533	1350				
						0	1.004	63.200	300
						1	1.004	62.400	300
S6	518636.626	134169.571	63.934	1.534	1350				
						0	1.005	62.400	300
						1	1.005	62.108	300
S7	518578.746	134161.529	65.044	3.086	1350				
						0	1.006	61.958	450
S8	518569.478	134151.602	64.729	2.825	1350				
						0	1.007	61.904	450
						1	1.007	61.630	450
S9	518564.243	134120.701	63.330	1.700	1350				
						0	1.008	61.630	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S13	518577.429	134101.428	62.211	1.531	1350				
						0	2.000	60.680	300
S 14	518613.755	134096.814	61.461	1.561	1350		1	2.000	59.900
						0	2.001	59.900	300
S 15	518651.204	134095.241	60.730	1.530	1350		1	2.001	59.200
						0	2.002	59.200	300
S16	518653.158	134089.890	60.581	1.581	1350		1	2.002	59.000
						0	2.003	59.000	300
S17	518644.525	134048.434	59.699	1.699	1350		1	2.003	58.150
						0	2.004	58.000	450
S18	518640.162	134044.583	59.572	1.722	1350		1	2.004	57.850
						0	2.005	57.850	450
S19	518604.700	134045.686	59.041	1.651	1350		1	2.005	57.390
						0	2.006	57.390	450
S21	518511.050	134063.330	59.989	2.047	1350				
						0	3.000	57.942	300
S10	518564.682	134049.861	60.004	2.865	1500		1	3.000	57.439
						2	1.008	57.289	450
						0	1.009	57.139	600
S11	518563.944	134043.156	59.685	2.560	1500		1	2.007	57.275
						2	1.009	57.125	600
						0	1.010	57.125	600
S12	518553.198	134000.054	57.644	1.844	1500		1	1.010	55.800
						0	1.011	55.800	600
S22	518619.759	133992.622	58.388	1.445	1350				
						0	4.000	56.943	225
S23	518599.021	133993.291	58.088	1.488	1350		1	4.000	56.600
						0	4.001	56.600	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S24	518578.510	133996.210	58.088	2.408	1500		1 4.001 55.905 225		
							2 1.011 55.680 600		
							0 1.012 55.680 600		
HW 1.1	518576.866	133987.534	57.000	1.500			1 1.012 55.500 600		
							0 1.013 55.500 600		
BASIN A	518619.692	133973.522	57.000	1.695			1 1.013 55.305 600		
							0 1.014 55.305 600		
S25	518626.986	133966.349	57.714	2.601	1800		1 1.014 55.113 600		
							0 1.015 55.113 300		
END OF PIPE	518648.752	133960.867	57.410	2.391	1200		1 1.015 55.019 300		
S20	518572.558	134049.010	59.678	2.369	1350		1 2.006 57.309 450		
							0 2.007 57.309 450		

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	0.750	Drain Down Time (mins)	4320	Check Discharge Volume x
Winter CV	0.840	Additional Storage (m³/ha)	0.0	

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 %)
2	0	0	0
30	0	0	0
100	20	0	0
100	40	0	0

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	55.113	Product Number	CTL-SHE-0079-3400-1587-3400
Design Depth (m)	1.587	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.4	Min Node Diameter (mm)	1200

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	56.100	Product Number	CTL-SHE-0222-2460-0600-2460
Design Depth (m)	0.600	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	24.6	Min Node Diameter (mm)	1500

Node BASIN A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	55.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	435

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	40.6	0.0	0.500	876.0	0.0	1.000	1225.7	0.0	1.500	1590.7	0.0
0.100	173.1	0.0	0.600	944.8	0.0	1.100	1297.3	0.0	1.600	1665.2	0.0
0.200	368.4	0.0	0.700	1014.1	0.0	1.200	1369.6	0.0	1.700	1740.7	0.0
0.300	631.3	0.0	0.800	1084.1	0.0	1.300	1442.4	0.0			
0.400	807.8	0.0	0.900	1154.6	0.0	1.400	1515.8	0.0			

Results for 2 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.055	0.055	5.5	0.0625	0.0000	OK
15 minute winter	S2	11	64.879	0.072	10.8	0.0813	0.0000	OK
15 minute winter	S3	10	64.602	0.052	15.8	0.0742	0.0000	OK
15 minute winter	S4	10	64.059	0.059	21.2	0.0841	0.0000	OK
15 minute winter	S5	11	63.269	0.069	26.5	0.0982	0.0000	OK
15 minute winter	S6	11	62.552	0.152	39.7	0.2181	0.0000	OK
15 minute winter	S7	11	62.124	0.166	51.4	0.2369	0.0000	OK
15 minute winter	S8	11	62.055	0.151	64.1	0.2166	0.0000	OK
15 minute winter	S9	11	61.724	0.094	76.8	0.1347	0.0000	OK
15 minute winter	S13	10	60.738	0.058	13.5	0.0826	0.0000	OK
15 minute winter	S 14	10	59.984	0.084	26.8	0.1198	0.0000	OK
15 minute winter	S 15	10	59.302	0.102	39.8	0.1453	0.0000	OK
15 minute winter	S16	11	59.123	0.123	52.7	0.1753	0.0000	OK
15 minute winter	S17	11	58.129	0.129	65.2	0.1841	0.0000	OK
15 minute winter	S18	10	57.989	0.139	78.1	0.1987	0.0000	OK
15 minute winter	S19	11	57.647	0.257	91.1	0.3679	0.0000	OK
15 minute winter	S21	11	58.013	0.071	13.5	0.1022	0.0000	OK
15 minute winter	S10	11	57.352	0.213	101.8	0.3759	0.0000	OK
15 minute winter	S11	11	57.290	0.165	204.9	0.2909	0.0000	OK
15 minute winter	S12	11	56.095	0.295	216.8	0.5208	0.0000	OK
15 minute winter	S22	10	57.011	0.068	13.5	0.0977	0.0000	OK
15 minute winter	S23	10	56.685	0.085	26.9	0.1212	0.0000	OK
1440 minute winter	S24	1320	55.944	0.264	46.7	0.4666	0.0000	OK
600 minute winter	HW 1.1	465	55.989	0.489	245.8	0.0000	0.0000	OK
1440 minute winter	BASIN A	1350	55.944	0.639	178.9	376.8849	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 winter	S1	1.000	S2	5.3	0.584	0.134	0.2999	
15 minute winter	S2	1.001	S3	10.6	0.996	0.208	0.2013	
15 minute winter	S3	1.002	S4	15.7	1.774	0.063	0.0966	
15 minute winter	S4	1.003	S5	21.0	1.929	0.083	0.1694	
15 minute winter	S5	1.004	S6	26.2	1.155	0.116	0.4707	
15 minute winter	S6	1.005	S7	38.7	1.103	0.495	2.0529	
15 minute winter	S7	1.006	S8	51.4	1.033	0.253	0.6768	
15 minute winter	S8	1.007	S9	64.1	1.832	0.212	1.1094	
15 minute winter	S9	1.008	S10	76.1	3.215	0.095	1.6771	
15 minute winter	S13	2.000	S 14	13.3	1.055	0.082	0.4669	
15 minute winter	S 14	2.001	S 15	26.3	1.424	0.173	0.6935	
15 minute winter	S 15	2.002	S16	39.2	1.644	0.188	0.1362	
15 minute winter	S16	2.003	S17	52.5	1.991	0.333	1.1172	
15 minute winter	S17	2.004	S18	65.3	1.659	0.126	0.2293	
15 minute winter	S18	2.005	S19	78.4	1.187	0.213	2.3959	
15 minute winter	S19	2.006	S20	91.4	1.017	0.568	2.9036	
15 minute winter	S21	3.000	S10	13.0	1.025	0.123	0.7015	
15 minute winter	S10	1.009	S11	101.7	1.342	0.326	0.5128	
15 minute winter	S11	1.010	S12	204.1	2.059	0.171	4.4506	
15 minute winter	S12	1.011	S24	214.2	1.882	0.456	2.9505	
15 minute winter	S22	4.000	S23	13.4	1.125	0.200	0.2470	
15 minute winter	S23	4.001	S24	26.5	2.006	0.277	0.2735	
1440 minute winter	S24	1.012	HW 1.1	58.5	1.232	0.059	1.5315	
600 minute winter	HW 1.1	1.013	BASIN A	212.3	1.216	0.156	1.3191	
1440 minute winter	BASIN A	1.014	S25	38.5	-0.423	0.041	2.8816	

Results for 2 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	S25	1350	55.944	0.831	38.5	2.1150	0.0000	SURCHARGED
30 minute winter	END OF PIPE	649	55.059	0.040	2.9	0.0000	0.0000	OK
15 minute winter	S20	11	57.549	0.240	91.4	0.3440	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	S25	1.015	END OF PIPE	2.9	0.506	0.041	0.1296	602.1
15 minute winter	S20	2.007	S11	90.5	1.145	0.492	0.8230	

Results for 30 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.090	0.090	14.0	0.1023	0.0000	OK
15 minute winter	S2	10	64.931	0.124	27.8	0.1403	0.0000	OK
15 minute winter	S3	10	64.636	0.086	40.9	0.1233	0.0000	OK
15 minute winter	S4	10	64.098	0.098	54.8	0.1406	0.0000	OK
15 minute winter	S5	10	63.312	0.112	68.4	0.1603	0.0000	OK
15 minute winter	S6	11	62.821	0.421	102.6	0.6031	0.0000	SURCHARGED
15 minute winter	S7	11	62.248	0.290	129.8	0.4147	0.0000	OK
15 minute winter	S8	11	62.159	0.255	162.2	0.3655	0.0000	OK
15 minute winter	S9	11	61.778	0.148	194.6	0.2125	0.0000	OK
15 minute winter	S13	10	60.773	0.093	34.6	0.1327	0.0000	OK
15 minute winter	S 14	10	60.040	0.140	68.9	0.2000	0.0000	OK
15 minute winter	S 15	10	59.398	0.198	102.5	0.2833	0.0000	OK
15 minute winter	S16	11	59.228	0.228	135.6	0.3261	0.0000	OK
15 minute winter	S17	11	58.246	0.246	167.3	0.3513	0.0000	OK
15 minute winter	S18	11	58.118	0.268	200.6	0.3834	0.0000	OK
15 minute winter	S19	11	57.974	0.584	232.9	0.8352	0.0000	SURCHARGED
15 minute winter	S21	10	58.060	0.118	34.6	0.1689	0.0000	OK
15 minute winter	S10	11	57.495	0.356	260.4	0.6299	0.0000	OK
15 minute winter	S11	11	57.406	0.281	525.5	0.4957	0.0000	OK
15 minute winter	S12	11	56.350	0.550	558.0	0.9719	0.0000	OK
15 minute winter	S22	10	57.062	0.119	34.6	0.1701	0.0000	OK
15 minute winter	S23	10	56.754	0.154	68.9	0.2198	0.0000	OK
600 minute winter	S24	480	56.231	0.551	165.5	0.9730	0.0000	OK
480 minute summer	HW 1.1	256	56.277	0.777	309.7	0.0000	0.0000	SURCHARGED
600 minute winter	BASIN A	465	56.230	0.925	249.6	684.8099	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 winter	S1	1.000	S2	13.8	0.738	0.346	0.6105	
15 minute winter	S2	1.001	S3	27.2	1.264	0.534	0.4076	
15 minute winter	S3	1.002	S4	40.8	2.229	0.162	0.1992	
15 minute winter	S4	1.003	S5	54.4	2.474	0.215	0.3420	
15 minute winter	S5	1.004	S6	68.0	1.368	0.302	0.9248	
15 minute winter	S6	1.005	S7	97.3	1.405	1.243	3.8379	
15 minute winter	S7	1.006	S8	129.7	1.299	0.639	1.3632	
15 minute winter	S8	1.007	S9	162.1	2.353	0.537	2.1689	
15 minute winter	S9	1.008	S10	194.4	3.625	0.242	4.1257	
15 minute winter	S13	2.000	S 14	34.3	1.360	0.211	0.9277	
15 minute winter	S 14	2.001	S 15	67.9	1.662	0.446	1.5269	
15 minute winter	S 15	2.002	S16	101.0	1.894	0.483	0.3033	
15 minute winter	S16	2.003	S17	134.8	2.445	0.854	2.3329	
15 minute winter	S17	2.004	S18	167.6	1.957	0.322	0.5436	
15 minute winter	S18	2.005	S19	200.4	1.399	0.544	4.5562	
15 minute winter	S19	2.006	S20	232.9	1.470	1.448	5.1164	
15 minute winter	S21	3.000	S10	33.5	1.331	0.316	1.3908	
15 minute winter	S10	1.009	S11	260.4	1.714	0.835	1.0241	
15 minute winter	S11	1.010	S12	525.5	2.525	0.441	8.8799	
15 minute winter	S12	1.011	S24	555.9	2.357	1.182	5.9161	
15 minute winter	S22	4.000	S23	34.3	1.379	0.512	0.5201	
15 minute winter	S23	4.001	S24	68.3	2.455	0.714	0.5966	
600 minute winter	S24	1.012	HW 1.1	135.7	1.398	0.138	2.4394	
480 minute summer	HW 1.1	1.013	BASIN A	241.6	1.539	0.177	1.4084	
600 minute winter	BASIN A	1.014	S25	33.7	0.326	0.036	2.8816	

Results for 30 year Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S25	465	56.230	1.117	33.7	2.8434	0.0000	SURCHARGED
600 minute winter	END OF PIPE	480	55.110	0.091	14.5	0.0000	0.0000	OK
15 minute winter	S20	11	57.755	0.446	232.9	0.6380	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	S25	1.015	END OF PIPE	14.5	0.788	0.203	0.4147	919.8
15 minute winter	S20	2.007	S11	232.6	1.584	1.265	1.4934	

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.115	0.115	21.3	0.1298	0.0000	OK
15 minute winter	S2	10	64.973	0.166	42.2	0.1882	0.0000	OK
15 minute winter	S3	10	64.661	0.111	62.2	0.1582	0.0000	OK
15 minute winter	S4	11	64.120	0.120	83.2	0.1713	0.0000	OK
15 minute winter	S5	11	63.664	0.464	104.6	0.6644	0.0000	SURCHARGED
15 minute winter	S6	11	63.458	1.058	145.3	1.5146	0.0000	SURCHARGED
15 minute winter	S7	11	62.346	0.388	192.3	0.5559	0.0000	OK
15 minute winter	S8	11	62.234	0.330	241.5	0.4721	0.0000	OK
15 minute winter	S9	11	61.814	0.184	289.4	0.2628	0.0000	OK
15 minute winter	S13	10	60.796	0.116	52.4	0.1654	0.0000	OK
15 minute winter	S 14	12	60.476	0.576	104.4	0.8241	0.0000	SURCHARGED
15 minute winter	S 15	12	60.168	0.968	144.8	1.3851	0.0000	SURCHARGED
15 minute winter	S16	12	59.986	0.986	178.5	1.4105	0.0000	SURCHARGED
15 minute winter	S17	11	58.733	0.733	223.2	1.0495	0.0000	SURCHARGED
15 minute winter	S18	11	58.654	0.804	272.0	1.1511	0.0000	SURCHARGED
15 minute winter	S19	11	58.323	0.933	321.0	1.3354	0.0000	SURCHARGED
15 minute winter	S21	10	58.092	0.150	52.4	0.2140	0.0000	OK
15 minute winter	S10	11	57.670	0.531	388.8	0.9388	0.0000	OK
15 minute winter	S11	11	57.560	0.435	758.5	0.7686	0.0000	OK
15 minute winter	S12	11	56.766	0.966	807.4	1.7069	0.0000	SURCHARGED
15 minute winter	S22	11	57.329	0.386	52.4	0.5524	0.0000	SURCHARGED
15 minute winter	S23	11	57.101	0.501	97.8	0.7163	0.0000	SURCHARGED
600 minute winter	S24	450	56.429	0.749	96.6	1.3230	0.0000	SURCHARGED
600 minute winter	HW 1.1	450	56.429	0.928	132.9	0.0000	0.0000	SURCHARGED
600 minute winter	BASIN A	450	56.428	1.123	209.7	931.8120	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 winter	S1	1.000	S2	21.0	0.803	0.526	0.8475	
15 minute winter	S2	1.001	S3	41.3	1.376	0.810	0.5679	
15 minute winter	S3	1.002	S4	61.9	2.523	0.246	0.2677	
15 minute winter	S4	1.003	S5	83.3	2.512	0.329	0.7505	
15 minute winter	S5	1.004	S6	96.6	1.471	0.429	1.3798	
15 minute winter	S6	1.005	S7	143.0	2.031	1.827	4.0500	
15 minute winter	S7	1.006	S8	192.2	1.423	0.946	1.8336	
15 minute winter	S8	1.007	S9	240.1	2.574	0.794	2.9045	
15 minute winter	S9	1.008	S10	289.3	3.606	0.360	7.2256	
15 minute winter	S13	2.000	S 14	52.0	1.468	0.320	1.7322	
15 minute winter	S 14	2.001	S 15	95.5	1.675	0.628	2.6395	
15 minute winter	S 15	2.002	S16	135.2	1.920	0.647	0.4011	
15 minute winter	S16	2.003	S17	179.6	2.551	1.138	2.9820	
15 minute winter	S17	2.004	S18	223.7	1.957	0.430	0.9221	
15 minute winter	S18	2.005	S19	271.7	1.715	0.738	5.6214	
15 minute winter	S19	2.006	S20	321.0	2.026	1.996	5.1198	
15 minute winter	S21	3.000	S10	52.6	1.412	0.497	2.5320	
15 minute winter	S10	1.009	S11	388.1	1.746	1.245	1.6281	
15 minute winter	S11	1.010	S12	758.1	2.811	0.636	11.1169	
15 minute winter	S12	1.011	S24	806.7	2.885	1.716	6.8770	
15 minute winter	S22	4.000	S23	48.5	1.393	0.725	0.8252	
15 minute winter	S23	4.001	S24	97.2	2.509	1.017	0.8240	
600 minute winter	S24	1.012	HW 1.1	132.9	1.569	0.135	2.4875	
600 minute winter	HW 1.1	1.013	BASIN A	203.4	1.342	0.149	1.4084	
600 minute winter	BASIN A	1.014	S25	38.4	0.379	0.041	2.8816	

Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	S25	450	56.428	1.315	38.4	3.3470	0.0000	SURCHARGED
600 minute winter	END OF PIPE	450	55.146	0.127	27.5	0.0000	0.0000	OK
15 minute winter	S20	11	57.895	0.586	321.0	0.8386	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)
600 minute winter	S25	1.015	END OF PIPE	27.5	0.932	0.384	0.6629	1373.0
15 minute winter	S20	2.007	S11	321.1	2.033	1.746	1.5885	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	65.126	0.126	24.8	0.1426	0.0000	OK
15 minute winter	S2	11	64.999	0.191	49.2	0.2166	0.0000	OK
15 minute winter	S3	10	64.668	0.118	72.3	0.1691	0.0000	OK
15 minute winter	S4	11	64.221	0.221	97.1	0.3159	0.0000	OK
15 minute winter	S5	11	64.111	0.911	117.1	1.3039	0.0000	SURCHARGED
15 minute winter	S6	11	63.847	1.447	167.3	2.0713	0.0000	FLOOD RISK
15 minute winter	S7	11	62.406	0.448	222.9	0.6408	0.0000	OK
15 minute winter	S8	11	62.275	0.371	280.3	0.5308	0.0000	OK
15 minute winter	S9	11	61.830	0.200	337.9	0.2864	0.0000	OK
15 minute winter	S13	12	61.198	0.518	61.1	0.7419	0.0000	SURCHARGED
15 minute winter	S 14	12	61.110	1.210	120.6	1.7308	0.0000	SURCHARGED
15 minute winter	S 15	12	60.730	1.530	151.5	2.1894	0.5001	FLOOD
15 minute winter	S16	11	60.544	1.544	193.6	2.2095	0.0000	FLOOD RISK
15 minute winter	S17	11	59.044	1.044	248.8	1.4933	0.0000	SURCHARGED
15 minute winter	S18	11	58.948	1.098	304.4	1.5708	0.0000	SURCHARGED
15 minute winter	S19	11	58.545	1.155	359.8	1.6535	0.0000	SURCHARGED
15 minute winter	S21	10	58.102	0.160	61.1	0.2294	0.0000	OK
15 minute winter	S10	12	57.878	0.739	453.7	1.3062	0.0000	SURCHARGED
15 minute winter	S11	12	57.790	0.665	833.2	1.1754	0.0000	SURCHARGED
15 minute winter	S12	12	56.920	1.120	883.8	1.9796	0.0000	SURCHARGED
15 minute winter	S22	11	57.787	0.844	61.1	1.2082	0.0000	SURCHARGED
15 minute winter	S23	11	57.477	0.877	114.2	1.2549	0.0000	SURCHARGED
720 minute winter	S24	540	56.554	0.874	105.8	1.5450	0.0000	SURCHARGED
720 minute winter	HW 1.1	540	56.554	1.054	327.0	0.0000	0.0000	SURCHARGED
720 minute winter	BASIN A	540	56.554	1.249	169.5	1103.0850	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 winter	S1	1.000	S2	24.4	0.823	0.614	0.9611	
15 minute winter	S2	1.001	S3	48.1	1.402	0.946	0.6500	
15 minute winter	S3	1.002	S4	72.3	2.502	0.288	0.4334	
15 minute winter	S4	1.003	S5	92.3	2.593	0.364	0.9785	
15 minute winter	S5	1.004	S6	114.7	1.629	0.509	1.3798	
15 minute winter	S6	1.005	S7	165.4	2.348	2.112	4.1125	
15 minute winter	S7	1.006	S8	222.8	1.474	1.097	2.0238	
15 minute winter	S8	1.007	S9	280.4	2.649	0.928	3.2575	
15 minute winter	S9	1.008	S10	337.9	3.528	0.421	8.0247	
15 minute winter	S13	2.000	S 14	59.5	1.456	0.366	2.5787	
15 minute winter	S 14	2.001	S 15	103.8	1.679	0.682	2.6395	
15 minute winter	S 15	2.002	S16	145.5	2.066	0.696	0.4011	
15 minute winter	S16	2.003	S17	192.9	2.740	1.223	2.9820	
15 minute winter	S17	2.004	S18	246.9	1.902	0.475	0.9221	
15 minute winter	S18	2.005	S19	302.3	1.908	0.821	5.6214	
15 minute winter	S19	2.006	S20	356.6	2.251	2.217	5.1198	
15 minute winter	S21	3.000	S10	60.4	1.371	0.570	2.9778	
15 minute winter	S10	1.009	S11	437.3	1.724	1.403	1.8999	
15 minute winter	S11	1.010	S12	836.1	2.969	0.702	12.5127	
15 minute winter	S12	1.011	S24	885.0	3.142	1.882	7.2111	
15 minute winter	S22	4.000	S23	56.6	1.424	0.846	0.8252	
15 minute winter	S23	4.001	S24	113.2	2.846	1.184	0.8240	
720 minute winter	S24	1.012	HW 1.1	129.9	1.472	0.132	2.4875	
720 minute winter	HW 1.1	1.013	BASIN A	-197.1	1.342	-0.145	1.4084	
720 minute winter	BASIN A	1.014	S25	36.1	0.397	0.038	2.8816	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 96.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	S25	540	56.554	1.441	36.1	3.6668	0.0000	SURCHARGED
960 minute summer	END OF PIPE	720	55.146	0.127	27.5	0.0000	0.0000	OK
15 minute winter	S20	12	58.035	0.726	356.6	1.0393	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)
720 minute winter	S25	1.015	END OF PIPE	27.5	0.932	0.384	0.6629	1672.8
15 minute winter	S20	2.007	S11	352.6	2.225	1.918	1.6502	

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	32.700	169.4	225	Circular	67.916	65.000	2.691	67.030	64.807	1.998
1.001	18.963	104.2	225	Circular	67.030	64.807	1.998	66.085	64.625	1.235
1.002	10.843	19.7	300	Circular	66.085	64.550	1.235	65.528	64.000	1.228
1.003	15.533	19.4	300	Circular	65.528	64.000	1.228	64.733	63.200	1.233
1.004	19.594	24.5	300	Circular	64.733	63.200	1.233	63.934	62.400	1.234
1.005	58.436	200.1	300	Circular	63.934	62.400	1.234	65.044	62.108	2.636
1.006	13.581	251.5	450	Circular	65.044	61.958	2.636	64.729	61.904	2.375
1.007	31.341	114.4	450	Circular	64.729	61.904	2.375	63.330	61.630	1.250
1.008	70.841	16.3	450	Circular	63.330	61.630	1.250	60.004	57.289	2.265
2.000	36.619	46.9	300	Circular	62.211	60.680	1.231	61.461	59.900	1.261
2.001	37.482	53.5	300	Circular	61.461	59.900	1.261	60.730	59.200	1.230
2.002	5.696	28.5	300	Circular	60.730	59.200	1.230	60.581	59.000	1.281
2.003	42.346	49.8	300	Circular	60.581	59.000	1.281	59.699	58.150	1.249
2.004	5.820	38.8	450	Circular	59.699	58.000	1.249	59.572	57.850	1.272
2.005	35.479	77.1	450	Circular	59.572	57.850	1.272	59.041	57.390	1.201
2.006	32.313	398.9	450	Circular	59.041	57.390	1.201	59.678	57.309	1.919
2.007	10.415	306.3	450	Circular	59.678	57.309	1.919	59.685	57.275	1.960
3.000	55.298	109.9	300	Circular	59.989	57.942	1.747	60.004	57.439	2.265
1.009	6.745	481.8	600	Circular	60.004	57.139	2.265	59.685	57.125	1.960
1.010	44.422	33.5	600	Circular	59.685	57.125	1.960	57.644	55.800	1.244
1.011	25.601	213.3	600	Circular	57.644	55.800	1.244	58.088	55.680	1.808
1.012	8.831	49.1	600	Circular	58.088	55.680	1.808	57.000	55.500	0.900
1.013	5.000	25.6	600	Circular	57.000	55.500	0.900	57.000	55.305	1.095
4.000	20.748	60.5	225	Circular	58.388	56.943	1.220	58.088	56.600	1.263
4.001	20.718	29.8	225	Circular	58.088	56.600	1.263	58.088	55.905	1.958

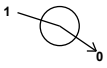
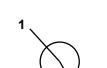
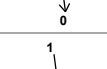
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.001	S2	1200	Manhole	Adoptable	S3	1350	Manhole	Adoptable
1.002	S3	1350	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.003	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.004	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.005	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.006	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.007	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.008	S9	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
2.000	S13	1350	Manhole	Adoptable	S 14	1350	Manhole	Adoptable
2.001	S 14	1350	Manhole	Adoptable	S 15	1350	Manhole	Adoptable
2.002	S 15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
2.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
2.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
2.005	S18	1350	Manhole	Adoptable	S19	1350	Manhole	Adoptable
2.006	S19	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
2.007	S20	1350	Manhole	Adoptable	S11	1500	Manhole	Adoptable
3.000	S21	1350	Manhole	Adoptable	S10	1500	Manhole	Adoptable
1.009	S10	1500	Manhole	Adoptable	S11	1500	Manhole	Adoptable
1.010	S11	1500	Manhole	Adoptable	S12	1500	Manhole	Adoptable
1.011	S12	1500	Manhole	Adoptable	S24	1500	Manhole	Adoptable
1.012	S24	1500	Manhole	Adoptable	HW 1.1		Junction	
1.013	HW 1.1		Junction		BASIN A		Junction	
4.000	S22	1350	Manhole	Adoptable	S23	1350	Manhole	Adoptable
4.001	S23	1350	Manhole	Adoptable	S24	1500	Manhole	Adoptable

Pipeline Schedule

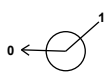
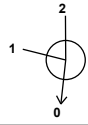
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.014	10.230	53.3	600	Circular	57.000	55.305	1.095	57.714	55.113	2.001
1.015	22.446	238.8	300	Circular	57.714	55.113	2.301	57.410	55.019	2.091

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.014	BASIN A		Junction		S25	1800	Manhole	Adoptable
1.015	S25	1800	Manhole	Adoptable	END OF PIPE	1200	Manhole	Adoptable

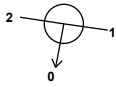
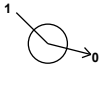
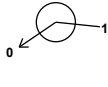
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	518572.340	134231.181	67.916	2.916	1200		0	1.000	65.000	225
S2	518603.495	134221.248	67.030	2.223	1200		1	1.000	64.807	225
						0	1.001	64.807	225	
S3	518619.143	134210.535	66.085	1.535	1350		1	1.001	64.625	225
						0	1.002	64.550	300	
S4	518626.443	134202.518	65.528	1.528	1350		1	1.002	64.000	300
						0	1.003	64.000	300	
S5	518634.092	134189.000	64.733	1.533	1350		1	1.003	63.200	300
						0	1.004	63.200	300	
S6	518636.626	134169.571	63.934	1.534	1350		1	1.004	62.400	300
						0	1.005	62.400	300	
S7	518578.746	134161.529	65.044	3.086	1350		1	1.005	62.108	300
						0	1.006	61.958	450	
S8	518569.478	134151.602	64.729	2.825	1350		1	1.006	61.904	450
						0	1.007	61.904	450	
S9	518564.243	134120.701	63.330	1.700	1350		1	1.007	61.630	450
						0	1.008	61.630	450	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S13	518577.429	134101.428	62.211	1.531	1350				
						0	2.000	60.680	300
S 14	518613.755	134096.814	61.461	1.561	1350		1	2.000	59.900
						0	2.001	59.900	300
S 15	518651.204	134095.241	60.730	1.530	1350		1	2.001	59.200
						0	2.002	59.200	300
S16	518653.158	134089.890	60.581	1.581	1350		1	2.002	59.000
						0	2.003	59.000	300
S17	518644.525	134048.434	59.699	1.699	1350		1	2.003	58.150
						0	2.004	58.000	450
S18	518640.162	134044.583	59.572	1.722	1350		1	2.004	57.850
						0	2.005	57.850	450
S19	518604.700	134045.686	59.041	1.651	1350		1	2.005	57.390
						0	2.006	57.390	450
S21	518511.050	134063.330	59.989	2.047	1350				
						0	3.000	57.942	300
S10	518564.682	134049.861	60.004	2.865	1500		1	3.000	57.439
						2	1.008	57.289	450
						0	1.009	57.139	600
S11	518563.944	134043.156	59.685	2.560	1500		1	2.007	57.275
						2	1.009	57.125	600
						0	1.010	57.125	600
S12	518553.198	134000.054	57.644	1.844	1500		1	1.010	55.800
						0	1.011	55.800	600
S22	518619.759	133992.622	58.388	1.445	1350				
						0	4.000	56.943	225
S23	518599.021	133993.291	58.088	1.488	1350		1	4.000	56.600
						0	4.001	56.600	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S24	518578.510	133996.210	58.088	2.408	1500		1 4.001	55.905	225
							2 1.011	55.680	600
							0 1.012	55.680	600
HW 1.1	518576.866	133987.534	57.000	1.500			1 1.012	55.500	600
							0 1.013	55.500	600
BASIN A	518619.692	133973.522	57.000	1.695			1 1.013	55.305	600
							0 1.014	55.305	600
S25	518626.986	133966.349	57.714	2.601	1800		1 1.014	55.113	600
							0 1.015	55.113	300
END OF PIPE	518648.752	133960.867	57.410	2.391	1200		1 1.015	55.019	300
S20	518572.558	134049.010	59.678	2.369	1350		1 2.006	57.309	450
							0 2.007	57.309	450

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	1.000	Drain Down Time (mins)	4320	Check Discharge Volume x
Winter CV	1.000	Additional Storage (m³/ha)	0.0	

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 %)
100	45	0	0

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	55.113	Product Number	CTL-SHE-0079-3400-1587-3400
Design Depth (m)	1.587	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	3.4	Min Node Diameter (mm)	1200

Node S25 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	56.100	Product Number	CTL-SHE-0222-2460-0600-2460
Design Depth (m)	0.600	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	24.6	Min Node Diameter (mm)	1500

Node BASIN A Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	55.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	705

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	40.6	0.0	0.500	876.0	0.0	1.000	1225.7	0.0	1.500	1590.7	0.0
0.100	173.1	0.0	0.600	944.8	0.0	1.100	1297.3	0.0	1.600	1665.2	0.0
0.200	368.4	0.0	0.700	1014.1	0.0	1.200	1369.6	0.0	1.700	1740.7	0.0
0.300	631.3	0.0	0.800	1084.1	0.0	1.300	1442.4	0.0			
0.400	807.8	0.0	0.900	1154.6	0.0	1.400	1515.8	0.0			

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	11	65.301	0.301	32.6	0.3400	0.0000	SURCHARGED
15 minute summer	S2	11	65.160	0.353	62.4	0.3992	0.0000	SURCHARGED
15 minute summer	S3	11	64.814	0.264	93.7	0.3784	0.0000	OK
15 minute summer	S4	11	64.717	0.717	122.4	1.0259	0.0000	SURCHARGED
15 minute summer	S5	11	64.444	1.244	153.3	1.7798	0.0000	FLOOD RISK
15 minute summer	S6	10	63.934	1.534	229.7	2.1952	10.1057	FLOOD
15 minute summer	S7	10	62.477	0.518	243.8	0.7420	0.0000	SURCHARGED
15 minute summer	S8	10	62.339	0.435	323.8	0.6221	0.0000	OK
15 minute summer	S9	10	61.851	0.221	402.5	0.3161	0.0000	OK
15 minute summer	S13	10	61.708	1.028	80.3	1.4704	0.0000	SURCHARGED
15 minute summer	S 14	10	61.461	1.561	156.1	2.2338	1.7038	FLOOD
30 minute summer	S 15	17	60.730	1.530	215.0	2.1894	16.6549	FLOOD
15 minute summer	S16	10	60.581	1.581	202.6	2.2624	6.4237	FLOOD
15 minute summer	S17	10	59.570	1.570	254.5	2.2465	0.0000	FLOOD RISK
15 minute summer	S18	10	59.483	1.633	319.2	2.3368	0.0000	FLOOD RISK
15 minute summer	S19	10	59.041	1.651	388.4	2.3626	6.4369	FLOOD
15 minute summer	S21	11	58.852	0.910	80.3	1.3023	0.0000	SURCHARGED
15 minute summer	S10	11	58.556	1.417	549.4	2.5043	0.0000	SURCHARGED
15 minute summer	S11	11	58.418	1.293	942.1	2.2839	0.0000	SURCHARGED
30 minute summer	S12	19	57.314	1.514	985.1	2.6758	0.0000	SURCHARGED
15 minute summer	S22	10	58.388	1.445	80.3	2.0678	2.6752	FLOOD
15 minute summer	S23	10	58.088	1.488	137.3	2.1293	0.2330	FLOOD
960 minute summer	S24	660	56.758	1.078	142.3	1.9044	0.0000	SURCHARGED
960 minute summer	HW 1.1	660	56.758	1.258	262.7	0.0000	0.0000	FLOOD RISK
960 minute summer	BASIN A	660	56.757	1.452	251.6	1404.7790	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	S1	1.000	S2	31.3	0.844	0.787	1.3005	
15 minute summer	S2	1.001	S3	62.6	1.575	1.230	0.7344	
15 minute summer	S3	1.002	S4	91.3	2.421	0.363	0.7382	
15 minute summer	S4	1.003	S5	122.2	2.475	0.482	1.0938	
15 minute summer	S5	1.004	S6	153.1	2.174	0.679	1.3798	
15 minute summer	S6	1.005	S7	170.3	2.419	2.175	4.1150	
15 minute summer	S7	1.006	S8	243.5	1.537	1.199	2.1410	
15 minute summer	S8	1.007	S9	322.2	2.672	1.066	3.6707	
15 minute summer	S9	1.008	S10	401.3	3.497	0.499	8.3537	
15 minute summer	S13	2.000	S 14	76.8	1.523	0.473	2.5787	
15 minute summer	S 14	2.001	S 15	140.9	2.001	0.926	2.6395	
30 minute summer	S 15	2.002	S16	144.8	2.057	0.693	0.4011	
15 minute summer	S16	2.003	S17	186.1	2.643	1.180	2.9820	
15 minute summer	S17	2.004	S18	242.7	1.913	0.466	0.9221	
15 minute summer	S18	2.005	S19	311.8	1.968	0.846	5.6214	
15 minute summer	S19	2.006	S20	377.6	2.384	2.348	5.1198	
15 minute summer	S21	3.000	S10	75.1	1.423	0.709	3.8940	
15 minute summer	S10	1.009	S11	546.9	1.942	1.755	1.8999	
15 minute summer	S11	1.010	S12	941.7	3.343	0.790	12.5127	
30 minute summer	S12	1.011	S24	986.4	3.502	2.098	7.2112	
15 minute summer	S22	4.000	S23	62.4	1.569	0.932	0.8252	
15 minute summer	S23	4.001	S24	134.1	3.372	1.402	0.8240	
960 minute summer	S24	1.012	HW 1.1	241.8	1.398	0.246	2.4875	
960 minute summer	HW 1.1	1.013	BASIN A	251.6	1.230	0.185	1.4084	
960 minute summer	BASIN A	1.014	S25	43.5	0.463	0.046	2.8816	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 98.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	S25	660	56.757	1.644	43.5	4.1843	0.0000	SURCHARGED
960 minute summer	END OF PIPE	660	55.149	0.130	29.0	0.0000	0.0000	OK
15 minute summer	S20	11	58.622	1.313	377.6	1.8794	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)
960 minute summer	S25	1.015	END OF PIPE	29.0	0.945	0.405	0.6890	2170.7
15 minute summer	S20	2.007	S11	366.3	2.312	1.992	1.6502	

Appendix G
West Sussex SuDS Proforma

Surface Water Drainage Proforma

West Sussex County Council (WSCC) as Lead Local Flood Authority recommends this proforma is completed and submitted to support any planning application for a major development. The information contained in this form will be used by WSCC officers in their role as 'statutory consultee' on surface water drainage. The proforma should accompany the site-specific Flood Risk Assessment and Drainage Strategy submitted as part of the planning application.

1. Site Details

No.	Requirement	Answer	Application Type
1.1	Address including postcode	Land North of Horsham	Outline & Full
1.2	OS grid reference (easting and northing)	518589, 134083	Outline & Full
1.3	Planning application reference		Outline & Full
1.4	Total site area (hectares)	3.43	Outline & Full
1.5	Pre-development use	Greenfield site	Outline & Full
1.6	Proposed design life		Outline & Full
1.7	Have agreements in principle for discharge been provided (where applicable)? (YES/NO)	Yes	
1.8	Topographic Survey Plan showing existing site layout, site levels and drainage system	Yes	Outline & Full

2. Discharge Hierarchy/Methods of Discharge¹

No.	Requirement	Answer	Application Type
2.1	Store rainwater for later use (reuse) (YES/NO)	NO	Full
2.2	Infiltration techniques such as soakaways, permeable paving, etc (YES/NO)	NO	Outline & Full
2.3	Hybrid (YES/NO)	NO	Outline & Full

¹ Runoff may be discharged via one or multiple methods.

No.	Requirement	Answer	Application Type
2.4	Attenuation with restricted discharge to watercourse (YES/NO)	NO	Outline & Full
2.5	Attenuation with restricted discharge to surface water sewer (YES/NO)	YES	Outline & Full
2.6	Attenuation with restricted discharge to combined sewer (YES/NO)	NO	Outline & Full

3. Calculation Inputs

No.	Requirement	Answer	Application Type
3.1	Area within site which is drained by SuDS ² (hectares)	1.827 ha (includes urban creep, as agreed in DC/24/0446)	Outline & Full
3.2	Impermeable area drained pre-development ³ (hectares)		Outline & Full
3.3	Impermeable area drained post-development ³ (hectares)	1.827 ha	Outline & Full
3.4	Urban Creep (hectares)	1.827 ha	Outline & Full
3.5	Climate change factor applied (1 in 30 and 1 in 100) (percentage)	20% climate change and 40% for exceedence in the 1 in 100 year. Climate change for 1 in 30 year is not considered, part of the approved Reserved Matters Application DC/24/0446	Outline & Full

4. Infiltration Feasibility/Ground Investigations

No.	Requirement	Answer	Application Type
4.1	Has winter groundwater monitoring and infiltration been undertaken? (YES/NO)	Yes	Outline & Full
4.2	Period of winter groundwater monitoring (from/to)	Yes	Outline & Full
4.3	Depth to highest recorded groundwater level (mAOD)	2.2 mbgl	Full
4.4	Infiltration rate		Outline & Full

² Impermeable area should be measured pre and post development. Impermeable surfaces include roofs, pavements, driveways and paths, where runoff is conveyed to the drainage system.

³ 10% Urban Creep should be added to the volumes required for storage and not increase discharge rates.

No.	Requirement	Answer	Application Type
4.5	Depth of infiltration structure (mAOD)	N/A	Full
4.6	Safety factor used for sizing infiltration storage	N/A	Outline & Full

5. Calculation Outputs: Greenfield Runoff Rates⁴

No.	Requirement	Answer	Application Type
5.1	Qbar (l/s)	5.20	Outline & Full
5.2	1 in 2 year rainfall (l/s)	4.40	Outline & Full
5.3	1 in 30 year rainfall (l/s)	11.80	Outline & Full
5.4	1 in 100 year rainfall (l/s)	16.50	Outline & Full

6. Calculation Outputs: Brownfield Runoff Rates (including Urban Creep) (if applicable)

No.	Requirement	Answer	Application Type
6.1	1 in 1 year rainfall (l/s)	N/A	Outline & Full
6.2	1 in 30 year rainfall (l/s)	N/A	Outline & Full
6.3	1 in 100 year rainfall (l/s)	N/A	Outline & Full

7. Calculation Outputs: Volume Control/Infiltration Provision

No.	Requirement	Answer	Application Type
7.1	Infiltration (m ³)		Outline & Full
7.2	Attenuation (m ³)	1,321m ³	Outline & Full
7.3	Separate volume designated as long-term storage ⁵ (m ³)		Full
7.4	Total volume control (sum of inputs for 7.1 to 7.3) (m ³)		Full

⁴ Flows within long term storage areas should be infiltrated to the ground or discharged at low flow rate of maximum 2 litres per second per hectare (l/s/ha).

⁵ In calculations and for the avoidance of doubt FEH shall be used FSR is not acceptable, and CV values must equal 1.

8. Calculation Outputs: Attenuation/Restricted Discharge

No.	Requirement		Answer	Application Type
8.1	Proposed discharge rate (critical storm)	1 in 1 (100%) AEP (m/s)	3.54 l/s	Outline & Full
		1 in 30 (3.33%) AEP (m/s)	20 l/s	Outline & Full
		1 in 30 (3.33%) AEP plus climate change (m/s)		Outline & Full
		1 in 100 (1%) AEP (m/s)	28.0 l/s	Outline & Full
		1 in 100 (1%) AEP plus climate change (m/s)	28.0 l/s	Outline & Full
8.2	Calculations show critical storm durations (both by max height and max discharge) for 1 in 1, 1 in 30, 1 in 30 plus climate change, 1 in 100 and 1 in 100 year plus climate change allowance can be accommodated on site (YES/NO)		Yes	Outline & Full
8.3	Has treatment of potential contaminants been considered? (YES/NO)		Yes	Outline & Full
8.4	Demonstration of source control features with substantive evidence why these cannot be used if not (YES/NO)		Yes	Full
8.5	If discharging into a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event plus climate change allowance, within the existing system? (YES/NO)		No	Full

9. Other Supporting Details

No.	Requirement	Answer	Application Type
9.1	Plan detailing location of groundwater monitoring and infiltration testing	Yes	Outline & Full
9.2	Detailed drainage design layout	Yes	Full
9.3	Maintenance strategy	Yes	Full

No.	Requirement	Answer	Application Type
9.4	Detailed development layout	Yes	Full
9.5	Impermeable area plan	No	Full
9.6	Phasing plan?	No	Full
9.7	If ground levels are being raised over 300mm above existing levels and is unavoidable, have detailed plans been provided, together with drainage proposals, to address any potential drainage related issues?	Yes	Full

The above form should be completed using evidence from information which should be appended to this form. The information being submitted should be proportionate to the site conditions, flood risks and magnitude of development. It should serve as a summary of the drainage proposals and should clearly show that the proposed discharge rate and volume as a result of development will not be increasing. Where there is an increase in discharge rate or volume, then the relevant section of this form must be completed with clear evidence demonstrating how the requirements will be met.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form completed by	Dominic Cronin
Qualification of person responsible for signing off this proforma	BEng Civil Engineering
Company	Ardent Consulting
On behalf of (client's details)	Bellway
Date	13/028/26