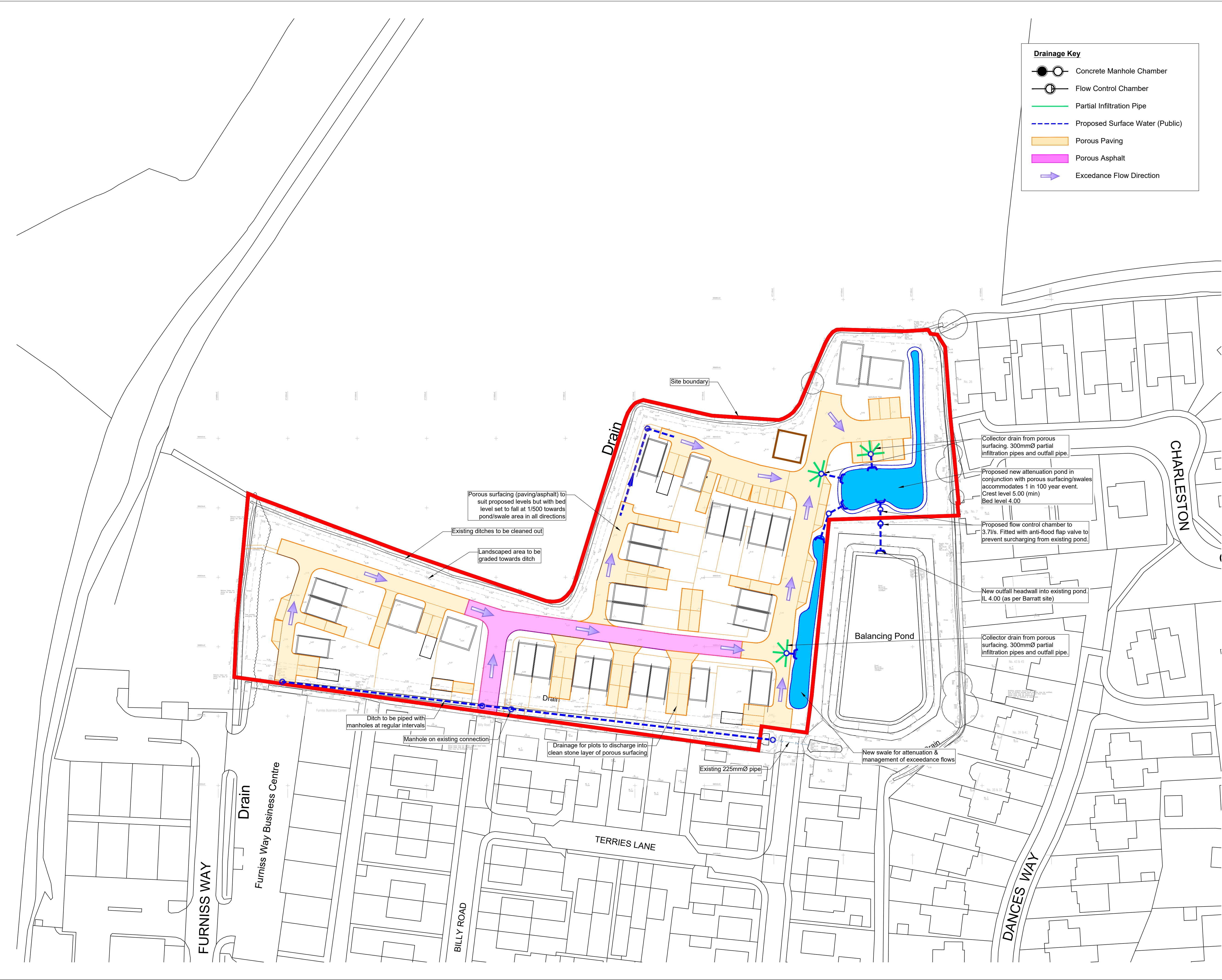




Drainage Key

- Concrete Manhole Chamber
- Flow Control Chamber
- Partial Infiltration Pipe
- Proposed Surface Water (Public)
- Porous Paving
- Porous Asphalt
- Exceedance Flow Direction

GENERAL NOTES

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- Drainage Construction Notes**
- 1. All materials and workmanship related to private sewers shall be in accordance with Part H of the Building Regulations and BS EN752 and best practice
 - 2. All materials and workmanship related to adoptable sewers shall be in accordance with the Design and Construction Guidance 2020 as published by the Water Services Association and any subsequent revisions shown by the water authority
 - 3. All sustainable drainage systems to be designed and maintained in accordance with CIRIA C753 The SuDS Manual and best practice guidance.

P2	SITE LAYOUT UPDATED					
	HS	18.10.21	DB	18.10.21	DB	18.10.21
P1	INITIAL ISSUE					
	HS	01.10.21	DB	01.10.21	DB	01.10.21
REV.	REVISION NOTE/COMMENT					
	DRW BY	DATE	CHK BY	DATE	APP BY	DATE

Revisions

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Hayling Island Builders

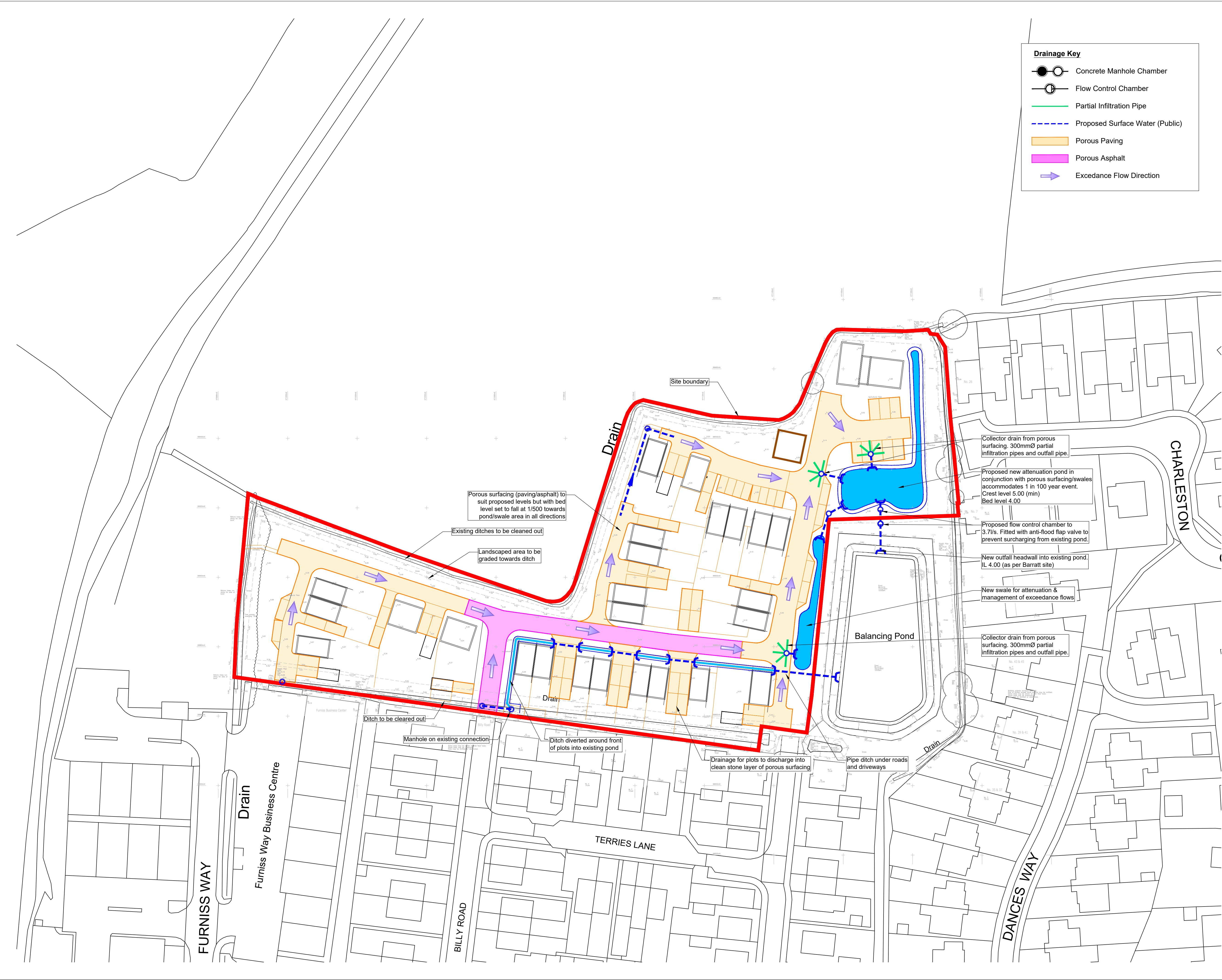
Project
Land North of The Oysters

Drawing
**Drainage Strategy Plan
Surface Water
Option A**

Scales 1:500 At original size A1

Drawn	AJ	Checked	DB
Date	July 2021		

Status	PRELIMINARY		
Drawing No.	A21078/0201	Rev.	P2



Drainage Key

- Concrete Manhole Chamber
- Flow Control Chamber
- Partial Infiltration Pipe
- Proposed Surface Water (Public)
- Porous Paving
- Porous Asphalt
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P2	SITE LAYOUT UPDATED					
	HS	18.10.21	DB	18.10.21	DB	18.10.21
P1	INITIAL ISSUE					
	HS	01.10.21	DB	01.10.21	DB	01.10.21
REV.	REVISION NOTE/COMMENT					
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Revisions

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Client
Hayling Island Builders

Project
Land North of The Oysters

Drawing
**Drainage Strategy Plan
Surface Water
Option B**

Scales 1:500 At original size A1

Drawn	AJ	Checked	DB
Date	July 2021		

Status **PRELIMINARY**

Drawing No. **A21078/0202** Rev. **P2**

Appendix H

MicroDrainage Calculations

Patrick Parsons Limited		Page 3
Waterloo House Thornton Street Newcastle Upon Tyne, NE1 4AP	Land North of The Oysters 30 Year Storm	
Date 23/08/2021 10:18 File Storage 30yr.SRCX	Designed by A Johnson Checked by D Brooke	
Innovyze Source Control 2020.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.568

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
0	4	0.189	4	8	0.189
				8	12
					0.189

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Patrick Parsons Limited		Page 4																																																																																																											
Waterloo House Thornton Street Newcastle Upon Tyne, NE1 4AP	Land North of The Oysters 30 Year Storm																																																																																																												
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Innovyze Source Control 2020.1																																																																																																													
Model Details Storage is Online Cover Level (m) 5.000 Complex Structure Tank or Pond Invert Level (m) 4.000 <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>250.0</td><td>1.000</td><td>500.0</td></tr></table> Porous Car Park <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.00000</td><td>Width (m)</td><td>50.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>50.0</td></tr><tr><td>Max Percolation (l/s)</td><td>694.4</td><td>Slope (1:X)</td><td>500.0</td></tr><tr><td>Safety Factor</td><td>2.0</td><td>Depression Storage (mm)</td><td>5</td></tr><tr><td>Porosity</td><td>0.30</td><td>Evaporation (mm/day)</td><td>3</td></tr><tr><td>Invert Level (m)</td><td>4.620</td><td>Membrane Depth (m)</td><td>0</td></tr></table> Hydro-Brake® Optimum Outflow Control <table><tr><td>Unit Reference</td><td colspan="3">MD-SHE-0091-3700-1000-3700</td></tr><tr><td>Design Head (m)</td><td colspan="3">1.000</td></tr><tr><td>Design Flow (l/s)</td><td colspan="3">3.7</td></tr><tr><td>Flush-Flo™</td><td colspan="3">Calculated</td></tr><tr><td>Objective</td><td colspan="3">Minimise upstream storage</td></tr><tr><td>Application</td><td colspan="3">Surface</td></tr><tr><td>Sump Available</td><td colspan="3">Yes</td></tr><tr><td>Diameter (mm)</td><td colspan="3">91</td></tr><tr><td>Invert Level (m)</td><td colspan="3">4.000</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td colspan="3">150</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td colspan="3">1200</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.000</td><td>3.7</td></tr><tr><td>Flush-Flo™</td><td>0.299</td><td>3.7</td></tr><tr><td>Kick-Flo®</td><td>0.631</td><td>3.0</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>3.2</td></tr></table> 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><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>2.9</td><td>0.200</td><td>3.6</td><td>0.300</td><td>3.7</td><td>0.400</td><td>3.6</td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	250.0	1.000	500.0	Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	50.0	Membrane Percolation (mm/hr)	1000	Length (m)	50.0	Max Percolation (l/s)	694.4	Slope (1:X)	500.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	4.620	Membrane Depth (m)	0	Unit Reference	MD-SHE-0091-3700-1000-3700			Design Head (m)	1.000			Design Flow (l/s)	3.7			Flush-Flo™	Calculated			Objective	Minimise upstream storage			Application	Surface			Sump Available	Yes			Diameter (mm)	91			Invert Level (m)	4.000			Minimum Outlet Pipe Diameter (mm)	150			Suggested Manhole Diameter (mm)	1200			Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.000	3.7	Flush-Flo™	0.299	3.7	Kick-Flo®	0.631	3.0	Mean Flow over Head Range	-	3.2	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	2.9	0.200	3.6	0.300	3.7	0.400	3.6
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Patrick Parsons Limited				Page 5			
Waterloo House Thornton Street Newcastle Upon Tyne, NE1 4AP				Land North of The Oysters 30 Year Storm			
Date 23/08/2021 10:18 File Storage 30yr.SRCX				Designed by A Johnson Checked by D Brooke			
Innovyze				Source Control 2020.1			
Micro Drainage							
<u>Hydro-Brake® Optimum Outflow Control</u>							
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.500	3.5	1.800	4.9	4.000	7.1	7.500	9.5
0.600	3.2	2.000	5.1	4.500	7.5	8.000	9.8
0.800	3.3	2.200	5.3	5.000	7.8	8.500	10.1
1.000	3.7	2.400	5.6	5.500	8.2	9.000	10.4
1.200	4.0	2.600	5.8	6.000	8.6	9.500	10.6
1.400	4.3	3.000	6.2	6.500	8.9		
1.600	4.6	3.500	6.6	7.000	9.2		
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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 841 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (1/s)</th><th>Max Control (1/s)</th><th>Max Σ Outflow (1/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>4.439</td><td>0.439</td><td>0.0</td><td>3.7</td><td>3.7</td><td>130.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>4.560</td><td>0.560</td><td>0.0</td><td>3.7</td><td>3.7</td><td>174.8</td><td>O K</td></tr><tr><td>60 min Summer</td><td>4.659</td><td>0.659</td><td>0.0</td><td>3.7</td><td>3.7</td><td>219.2</td><td>O K</td></tr><tr><td>120 min Summer</td><td>4.705</td><td>0.705</td><td>0.0</td><td>3.7</td><td>3.7</td><td>260.1</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>4.723</td><td>0.723</td><td>0.0</td><td>3.7</td><td>3.7</td><td>280.1</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>4.732</td><td>0.732</td><td>0.0</td><td>3.7</td><td>3.7</td><td>291.1</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>4.742</td><td>0.742</td><td>0.0</td><td>3.7</td><td>3.7</td><td>302.1</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>4.745</td><td>0.745</td><td>0.0</td><td>3.7</td><td>3.7</td><td>305.8</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>4.744</td><td>0.744</td><td>0.0</td><td>3.7</td><td>3.7</td><td>305.0</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>4.741</td><td>0.741</td><td>0.0</td><td>3.7</td><td>3.7</td><td>301.5</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>4.734</td><td>0.734</td><td>0.0</td><td>3.7</td><td>3.7</td><td>292.8</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>4.719</td><td>0.719</td><td>0.0</td><td>3.7</td><td>3.7</td><td>274.8</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>4.694</td><td>0.694</td><td>0.0</td><td>3.7</td><td>3.7</td><td>248.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>4.664</td><td>0.664</td><td>0.0</td><td>3.7</td><td>3.7</td><td>222.9</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>4.544</td><td>0.544</td><td>0.0</td><td>3.7</td><td>3.7</td><td>169.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>4.426</td><td>0.426</td><td>0.0</td><td>3.7</td><td>3.7</td><td>126.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>4.328</td><td>0.328</td><td>0.0</td><td>3.7</td><td>3.7</td><td>93.7</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>4.254</td><td>0.254</td><td>0.0</td><td>3.7</td><td>3.7</td><td>70.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>4.199</td><td>0.199</td><td>0.0</td><td>3.6</td><td>3.6</td><td>54.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>4.488</td><td>0.488</td><td>0.0</td><td>3.7</td><td>3.7</td><td>148.4</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>132.4</td><td>26</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>177.7</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>227.7</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>277.4</td><td>130</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>306.6</td><td>188</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>326.9</td><td>246</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>356.7</td><td>364</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>379.1</td><td>484</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>397.0</td><td>602</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>411.9</td><td>708</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>435.8</td><td>812</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>468.8</td><td>1056</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>510.8</td><td>1468</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>537.2</td><td>1876</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>574.0</td><td>2640</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>600.5</td><td>3344</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>619.6</td><td>4032</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>634.2</td><td>4672</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>645.4</td><td>5352</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>149.9</td><td>26</td></tr></table>								Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max Σ Outflow (1/s)	Max Volume (m³)	Status	15 min Summer	4.439	0.439	0.0	3.7	3.7	130.8	O K	30 min Summer	4.560	0.560	0.0	3.7	3.7	174.8	O K	60 min Summer	4.659	0.659	0.0	3.7	3.7	219.2	O K	120 min Summer	4.705	0.705	0.0	3.7	3.7	260.1	Flood Risk	180 min Summer	4.723	0.723	0.0	3.7	3.7	280.1	Flood Risk	240 min Summer	4.732	0.732	0.0	3.7	3.7	291.1	Flood Risk	360 min Summer	4.742	0.742	0.0	3.7	3.7	302.1	Flood Risk	480 min Summer	4.745	0.745	0.0	3.7	3.7	305.8	Flood Risk	600 min Summer	4.744	0.744	0.0	3.7	3.7	305.0	Flood Risk	720 min Summer	4.741	0.741	0.0	3.7	3.7	301.5	Flood Risk	960 min Summer	4.734	0.734	0.0	3.7	3.7	292.8	Flood Risk	1440 min Summer	4.719	0.719	0.0	3.7	3.7	274.8	Flood Risk	2160 min Summer	4.694	0.694	0.0	3.7	3.7	248.5	O K	2880 min Summer	4.664	0.664	0.0	3.7	3.7	222.9	O K	4320 min Summer	4.544	0.544	0.0	3.7	3.7	169.1	O K	5760 min Summer	4.426	0.426	0.0	3.7	3.7	126.3	O K	7200 min Summer	4.328	0.328	0.0	3.7	3.7	93.7	O K	8640 min Summer	4.254	0.254	0.0	3.7	3.7	70.3	O K	10080 min Summer	4.199	0.199	0.0	3.6	3.6	54.1	O K	15 min Winter	4.488	0.488	0.0	3.7	3.7	148.4	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	132.4	26	30 min Summer	90.705	0.0	177.7	41	60 min Summer	56.713	0.0	227.7	70	120 min Summer	34.246	0.0	277.4	130	180 min Summer	25.149	0.0	306.6	188	240 min Summer	20.078	0.0	326.9	246	360 min Summer	14.585	0.0	356.7	364	480 min Summer	11.622	0.0	379.1	484	600 min Summer	9.738	0.0	397.0	602	720 min Summer	8.424	0.0	411.9	708	960 min Summer	6.697	0.0	435.8	812	1440 min Summer	4.839	0.0	468.8	1056	2160 min Summer	3.490	0.0	510.8	1468	2880 min Summer	2.766	0.0	537.2	1876	4320 min Summer	1.989	0.0	574.0	2640	5760 min Summer	1.573	0.0	600.5	3344	7200 min Summer	1.311	0.0	619.6	4032	8640 min Summer	1.129	0.0	634.2	4672	10080 min Summer	0.994	0.0	645.4	5352	15 min Winter	138.153	0.0	149.9	26
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (1/s)	Max Control (1/s)	Max Σ Outflow (1/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																																	
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Waterloo House
Thornton Street
Newcastle Upon Tyne, NE1 4AP

Date 23/08/2021 10:19
File Storage 100yr.SRCX

Innovyze

Land North of The Oysters
100 Year Storm

Designed by A Johnson
Checked by D Brooke

Source Control 2020.1

Micro Drainage

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	4.620	0.620	0.0	3.7	3.7	198.1	O K
60 min Winter	4.693	0.693	0.0	3.7	3.7	247.9	O K
120 min Winter	4.735	0.735	0.0	3.7	3.7	294.6	Flood Risk
180 min Winter	4.755	0.755	0.0	3.7	3.7	318.1	Flood Risk
240 min Winter	4.767	0.767	0.0	3.7	3.7	331.4	Flood Risk
360 min Winter	4.779	0.779	0.0	3.7	3.7	345.9	Flood Risk
480 min Winter	4.784	0.784	0.0	3.7	3.7	352.0	Flood Risk
600 min Winter	4.785	0.785	0.0	3.7	3.7	353.3	Flood Risk
720 min Winter	4.783	0.783	0.0	3.7	3.7	351.4	Flood Risk
960 min Winter	4.776	0.776	0.0	3.7	3.7	342.1	Flood Risk
1440 min Winter	4.755	0.755	0.0	3.7	3.7	318.1	Flood Risk
2160 min Winter	4.724	0.724	0.0	3.7	3.7	281.6	Flood Risk
2880 min Winter	4.689	0.689	0.0	3.7	3.7	243.7	O K
4320 min Winter	4.523	0.523	0.0	3.7	3.7	161.2	O K
5760 min Winter	4.347	0.347	0.0	3.7	3.7	100.0	O K
7200 min Winter	4.224	0.224	0.0	3.6	3.6	61.4	O K
8640 min Winter	4.152	0.152	0.0	3.4	3.4	40.3	O K
10080 min Winter	4.113	0.113	0.0	3.2	3.2	29.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	90.705	0.0	200.4	40
60 min Winter	56.713	0.0	256.6	70
120 min Winter	34.246	0.0	312.3	126
180 min Winter	25.149	0.0	344.9	184
240 min Winter	20.078	0.0	367.7	242
360 min Winter	14.585	0.0	401.0	358
480 min Winter	11.622	0.0	426.1	472
600 min Winter	9.738	0.0	446.0	586
720 min Winter	8.424	0.0	462.5	696
960 min Winter	6.697	0.0	488.5	908
1440 min Winter	4.839	0.0	516.9	1130
2160 min Winter	3.490	0.0	575.0	1588
2880 min Winter	2.766	0.0	605.0	2044
4320 min Winter	1.989	0.0	647.3	2812
5760 min Winter	1.573	0.0	677.9	3464
7200 min Winter	1.311	0.0	700.3	4104
8640 min Winter	1.129	0.0	717.7	4672
10080 min Winter	0.994	0.0	731.5	5240

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Waterloo House Thornton Street Newcastle Upon Tyne, NE1 4AP	Land North of The Oysters 100 Year Storm	
Date 23/08/2021 10:19 File Storage 100yr.SRCX	Designed by A Johnson Checked by D Brooke	
Innovyze	Source Control 2020.1	

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.568

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.189	4 8	0.189	8 12	0.189

Patrick Parsons Limited		Page 4																																																																																																											
Waterloo House Thornton Street Newcastle Upon Tyne, NE1 4AP	Land North of The Oysters 100 Year Storm																																																																																																												
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Model Details Storage is Online Cover Level (m) 5.000 Complex Structure Tank or Pond Invert Level (m) 4.000 <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>250.0</td><td>1.000</td><td>500.0</td></tr></table> Porous Car Park <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.00000</td><td>Width (m)</td><td>50.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>50.0</td></tr><tr><td>Max Percolation (l/s)</td><td>694.4</td><td>Slope (1:X)</td><td>500.0</td></tr><tr><td>Safety Factor</td><td>2.0</td><td>Depression Storage (mm)</td><td>5</td></tr><tr><td>Porosity</td><td>0.30</td><td>Evaporation (mm/day)</td><td>3</td></tr><tr><td>Invert Level (m)</td><td>4.620</td><td>Membrane Depth (m)</td><td>0</td></tr></table> Hydro-Brake® Optimum Outflow Control <table><tr><td>Unit Reference</td><td colspan="3">MD-SHE-0091-3700-1000-3700</td></tr><tr><td>Design Head (m)</td><td colspan="3">1.000</td></tr><tr><td>Design Flow (l/s)</td><td colspan="3">3.7</td></tr><tr><td>Flush-Flo™</td><td colspan="3">Calculated</td></tr><tr><td>Objective</td><td colspan="3">Minimise upstream storage</td></tr><tr><td>Application</td><td colspan="3">Surface</td></tr><tr><td>Sump Available</td><td colspan="3">Yes</td></tr><tr><td>Diameter (mm)</td><td colspan="3">91</td></tr><tr><td>Invert Level (m)</td><td colspan="3">4.000</td></tr><tr><td>Minimum Outlet Pipe Diameter (mm)</td><td colspan="3">150</td></tr><tr><td>Suggested Manhole Diameter (mm)</td><td colspan="3">1200</td></tr></table> <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>1.000</td><td>3.7</td></tr><tr><td>Flush-Flo™</td><td>0.299</td><td>3.7</td></tr><tr><td>Kick-Flo®</td><td>0.631</td><td>3.0</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>3.2</td></tr></table> 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><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>2.9</td><td>0.200</td><td>3.6</td><td>0.300</td><td>3.7</td><td>0.400</td><td>3.6</td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	250.0	1.000	500.0	Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	50.0	Membrane Percolation (mm/hr)	1000	Length (m)	50.0	Max Percolation (l/s)	694.4	Slope (1:X)	500.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	4.620	Membrane Depth (m)	0	Unit Reference	MD-SHE-0091-3700-1000-3700			Design Head (m)	1.000			Design Flow (l/s)	3.7			Flush-Flo™	Calculated			Objective	Minimise upstream storage			Application	Surface			Sump Available	Yes			Diameter (mm)	91			Invert Level (m)	4.000			Minimum Outlet Pipe Diameter (mm)	150			Suggested Manhole Diameter (mm)	1200			Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.000	3.7	Flush-Flo™	0.299	3.7	Kick-Flo®	0.631	3.0	Mean Flow over Head Range	-	3.2	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	2.9	0.200	3.6	0.300	3.7	0.400	3.6
Depth (m)	Area (m²)	Depth (m)	Area (m²)																																																																																																										
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[illegible]

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