

Cole Easdon		Page 4
160 Aztec, Aztec West Almondsbury Bristol, BS32 4TU	8417 Renaissance Proposed SW Attenuation Catchment 1	
Date 04/03/2022 13:50 File 8417 RT INITIAL CALCS.SRCX	Designed by JP (CE) Checked by DF (CE)	
Innovyze		Source Control 2020.1

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	18.000	Shortest Storm (mins)	15
Ratio R	0.359	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.200

Time (mins)	Area
From:	To: (ha)
0	4 0.200

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Model Details Storage is Online Cover Level (m) 12.000 Cellular Storage Structure Invert Level (m) 10.200 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>115.0</td><td>115.0</td><td>1.300</td><td>0.0</td><td>182.2</td></tr><tr><td>1.200</td><td>115.0</td><td>182.2</td><td></td><td></td><td></td></tr></tbody></table> Hydro-Brake® Optimum Outflow Control Unit Reference MD-SHE-0069-2300-1200-2300 Design Head (m) 1.200 Design Flow (l/s) 2.3 Flush-Flo™ Calculated Objective Minimise upstream storage Application Surface Sump Available Yes Diameter (mm) 69 Invert Level (m) 10.200 Minimum Outlet Pipe Diameter (mm) 100 Suggested Manhole Diameter (mm) 1200 <table><thead><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr></thead><tbody><tr><td>Design Point (Calculated)</td><td>1.200</td><td>2.3</td><td>Kick-Flo®</td><td>0.617</td><td>1.7</td></tr><tr><td>Flush-Flo™</td><td>0.304</td><td>2.1</td><td>Mean Flow over Head Range</td><td>-</td><td>1.9</td></tr></tbody></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><thead><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></thead><tbody><tr><td>0.100</td><td>1.7</td><td>1.200</td><td>2.3</td><td>3.000</td><td>3.5</td><td>7.000</td><td>5.2</td></tr><tr><td>0.200</td><td>2.0</td><td>1.400</td><td>2.5</td><td>3.500</td><td>3.8</td><td>7.500</td><td>5.4</td></tr><tr><td>0.300</td><td>2.1</td><td>1.600</td><td>2.6</td><td>4.000</td><td>4.0</td><td>8.000</td><td>5.6</td></tr><tr><td>0.400</td><td>2.1</td><td>1.800</td><td>2.8</td><td>4.500</td><td>4.2</td><td>8.500</td><td>5.7</td></tr><tr><td>0.500</td><td>2.0</td><td>2.000</td><td>2.9</td><td>5.000</td><td>4.5</td><td>9.000</td><td>5.9</td></tr><tr><td>0.600</td><td>1.8</td><td>2.200</td><td>3.0</td><td>5.500</td><td>4.7</td><td>9.500</td><td>6.0</td></tr><tr><td>0.800</td><td>1.9</td><td>2.400</td><td>3.2</td><td>6.000</td><td>4.8</td><td></td><td></td></tr><tr><td>1.000</td><td>2.1</td><td>2.600</td><td>3.3</td><td>6.500</td><td>5.0</td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	115.0	115.0	1.300	0.0	182.2	1.200	115.0	182.2				Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	1.200	2.3	Kick-Flo®	0.617	1.7	Flush-Flo™	0.304	2.1	Mean Flow over Head Range	-	1.9	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	1.7	1.200	2.3	3.000	3.5	7.000	5.2	0.200	2.0	1.400	2.5	3.500	3.8	7.500	5.4	0.300	2.1	1.600	2.6	4.000	4.0	8.000	5.6	0.400	2.1	1.800	2.8	4.500	4.2	8.500	5.7	0.500	2.0	2.000	2.9	5.000	4.5	9.000	5.9	0.600	1.8	2.200	3.0	5.500	4.7	9.500	6.0	0.800	1.9	2.400	3.2	6.000	4.8			1.000	2.1	2.600	3.3	6.500	5.0		
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