

Oxford Road, Bodicote Flood Risk Assessment Addendum Rev B

APPENDIX E FOUL & SURFACE DRAINAGE STRATEGY LAYOUT



The foul & surface water design has been based on the approved principles outlined within the Flood Risk Assessment & Drainage Strategy undertaken by Forge Engineering Design Solutions together with the MJA Consulting FRA Addendum.

The foul water flows from each property will drain via gravity through the private house drainage before out—falling to a new sewer located typically within the development road network. All foul flow from the development gravitates in a southerly direction to a new

The development foul drainage network will be offered to Thames Water for adoption under a Section 104 agreement of the Water

The surface water drainage strategy sets of general principles for the designs. The sub strata is unsuitable for infiltration type SUDs

Due to the steepness of the development roads and drives permeable type paving is unsuitable. The surface water flows from each property will drain via gravity through the private house drainage before out-falling to a new storm drain located typically within the development road network. The development storm drainage discharges to an attenuation tank located towards the southern end of the site within the open space. Storage cells to be placed below POS avoiding LEAP and to be an off line design. Detail design to be

The controlled surface water discharge from the development will outfall to a new surface water outfall sewer constructed as part of

The following SUDs techniques are proposed for the development site and form part of the drainage treatment train.

The final surface water runoff from the development will be strictly controlled via the above Sustainable Drainage Systems. The runoff rate is at the equivalent agreed Greenfield runoff rate and be designed to manage the 1 in 100 year return storm plus an extra

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	Project Bodicote, Banbu	ury	Abingdon, Oxon, OX1 <i>Tel:</i> 01235 555173 <i>Fax:</i> 01235 523226	4 3NB		
•	Title Proposed Drain	age	Scale 1:500 @A1	Date Nov'2017	Drawing No. 5692:DS	Rev
/	Strategy Plan		Checked KTG	Drawn AJW	0032.03	



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Flood Flow Route



DATE DESCRIPTION

MJA CONSULTING

CREST NICHOLSON CIVIL AND STRUCTURAL ENGINEE<u>R</u>S Monarch House, Barton Lane, Abingdon, Oxon, OX14 3NB *Tel:* 01235 555173 *Fax:* 01235 523226 Scale Date 1:500 @A1 Nov' 2017 Flood Exceedance Route Plan Drawn AJW

Checked KTG

Project Bodicote, Banbury

5692:FE

INITIALS

Drawing No.

REV. No. Client



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## **APPENDIX F** DEVELOPMENT DRAINAGE CALCULATIONS

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					mm) 19.8 .0 R 0.4						ange (%	
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\$1.000 \$1.001 \$1.002 \$1.003 \$2.000 \$2.001 <b>PN</b> \$1.00	<pre>(m) 38.625 13.106 14.956 12.517 32.393 29.226 Rai (mm/H 00 68.01 67.00</pre>	(m) 0.624 0.479 0.339 0.338 2.086 2.329 n T nr) (m .06 .66	(1:X) 61.9 27.4 44.1 37.0 15.5 12.5 .C. ins) 5.32 1 5.39 1	(m Total A Total <u>Networ</u> <b>1.Area</b> (ha) 0.039 0.064 0.015 0.066 0.088 0.040 <u>Net</u> US/IL 2 (m)	<pre>ins) (h 0-4 0.8 rea Cont rea Cont Pipe Vo K Desig T.E. (mins) 5.00 0.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00</pre>	(mins)         (mins)         854       4-8         cributing (h         olume (m³) =         gn Table f         Base         Flow (l/s)         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0	<pre>(ha) 0.605 a) = 1 = 66.90 Eor St k (mm) 0.600 0.600 0.600 0.600 0.600 0.600 able Foul (1/s) 0.0</pre>	08 .orm HYD SECT 0 0 0 0 0 0 0 0 0 0 0 0 0	(mm) 300 300 300 300 300 510w /s) 0.0	Pipe/ Pipe/ Pipe/ Pipe/ Vel (m/s) 2.00 3.02 2.37	Conduit Conduit Conduit Conduit Conduit Conduit (1/s) 141.5 213.3 167.8	Desig 0 0 0 0 0 0 0 0 0 0 0 0 0
\$1.000 \$1.001 \$1.002 \$1.003 \$2.000 \$2.001 <b>PN</b> \$1.00 \$1.00	<pre>(m) 38.625 13.106 14.956 12.517 32.393 29.226 Rai (mm/1 00 68. 01 67. 02 67.</pre>	(m) 0.624 0.479 0.339 0.338 2.086 2.329 n T nr) (m .06 .66 .09	(1:X) 61.9 27.4 44.1 37.0 15.5 12.5 .C. ins) 5.32 1 5.39 1 5.39 1	(m Total A Total Networ I.Area (ha) 0.039 0.064 0.015 0.066 0.088 0.040 Net US/IL 2 (m) 0.07.420 .06.796	<pre>ins) (h 0-4 0.8 rea Cont Pipe Va k Desig T.E. (mins) 5.00 0.00 0.00 5.00 0.00 5.00 0.00 c.00 c</pre>	(mins)         (mins)         854       4-8         cributing (h         olume (m³) =         gn Table f         Base         Flow (l/s)         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0	<pre>(ha)   (ha)   0.605   a) = 1   = 66.90   Eor St   k   (mm)   0.600   0.600   0.600   0.600   0.600   0.600   able   Foul   (l/s)    0.0   0.0</pre>	08 .orm HYD SECT 0 0 0 0 0 0 0 0 0 0 0 0 0	(mm) 300 300 300 300 300 510w /s) 0.0 0.0	Pipe/ Pipe/ Pipe/ Pipe/ Vel (m/s) 2.00 3.02 2.37	Conduit Conduit Conduit Conduit Conduit Conduit (1/s) 141.5 213.3	Desig 0 0 0 0 0 0 0 0 0 0 0 0 0
\$1.000 \$1.001 \$1.002 \$1.003 \$2.000 \$2.001 <b>PN</b> \$1.00 \$1.00 \$1.00	<pre>(m) 38.625 13.106 14.956 12.517 32.393 29.226 Rai (mm/1 00 68 01 67 02 67 03 66</pre>	(m) 0.624 0.479 0.339 0.338 2.086 2.329 n T nr) (m .06 .66	(1:X) 61.9 27.4 44.1 37.0 15.5 12.5 .C. ins) 5.32 1 5.39 1 5.50 1 5.58 1	(m Total A Total Networ I.Area (ha) 0.039 0.064 0.015 0.066 0.088 0.040 Net 0.015 0.066 0.088 0.040 Net 0.015 0.066 0.088 0.040 Net 0.015 0.066 0.031 0.040 Net 0.039 0.064 0.015 0.066 0.031 0.064 0.039 0.064 0.015 0.066 0.039 0.066 0.039 0.064 0.015 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.066 0.039 0.066 0.039 0.066 0.055 0.066 0.055 0.066 0.055 0.066 0.055 0.067 0.057 0.057 0.067 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.0	<pre>ins) (h 0-4 0.8 rea Cont rea Cont Pipe Vo K Desig T.E. (mins) 5.00 0.00 0.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 5.00 0.00 5.00 0.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00</pre>	(mins)         (mins)         854       4-8         cributing (h         olume (m³) =         gn Table f         Base         Flow (l/s)         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0	<pre>(ha)   (ha)   0.605   a) = 1   = 66.90   Eor St   k  (mm)   0.600   0.600   0.600   0.600   0.600   0.600   able   Foul   (l/s)    0.0   0.0 </pre>	08 .orm HYD SECT 0 0 0 0 0 Add (1	(mm) 300 300 300 300 300 300 510w /s) 0.0 0.0 0.0 0.0 0.0	Pipe/ Pipe/ Pipe/ Pipe/ Vel (m/s) 2.00 3.02 2.37 2.59	Conduit Conduit Conduit Conduit Conduit Conduit (1/s) 141.5 213.3 167.8 183.2	Desig
\$1.000 \$1.001 \$1.002 \$1.003 \$2.000 \$2.001 <b>PN</b> \$1.00 \$1.00	(m) 38.625 13.106 14.956 12.517 32.393 29.226 Rai (mm/H 00 68. 01 67. 02 67. 03 66. 00 69.	(m) 0.624 0.479 0.339 0.338 2.086 2.329 n T hr) (m .06 .66 .09 .66	(1:X) 61.9 27.4 44.1 37.0 15.5 12.5 .C. ins) 5.32 1 5.32 1 5.50 1 5.58 1 5.58 1	(m Total A Total Networ I.Area (ha) 0.039 0.064 0.015 0.066 0.088 0.040 Networ 0.088 0.040 Networ 0.039 0.064 0.015 0.066 0.088 0.040 Networ 0.039 0.064 0.015 0.066 0.039 0.064 0.015 0.066 0.039 0.064 0.015 0.066 0.039 0.064 0.015 0.066 0.039 0.064 0.015 0.066 0.039 0.064 0.015 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.039 0.066 0.067 0.066 0.079 0.067 0.060 0.067 0.066 0.079 0.066 0.079 0.066 0.079 0.066 0.079 0.066 0.079 0.066 0.079 0.067 0.066 0.079 0.066 0.079 0.066 0.079 0.066 0.079 0.066 0.079 0.067 0.066 0.079 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.077 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.077 0.067 0.077 0.067 0.077 0.067 0.067 0.067 0.067 0.067 0.067 0.067 0.077 0.067 0.077 0.067 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.077 0.0777 0.0777 0.0777 0.0777 0.0777 0.0777 0.0777 0.0777 0.07777 0.07777 0.077777 0.07777777777	<pre>ins) (h 0-4 0.8 rea Cont rea Cont Pipe Vo K Desig T.E. (mins) 5.00 0.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 0.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00</pre>	(mins)         (mins)         854         4-8         cributing (h         olume (m³) =         gn Table f         Base         Flow (l/s)         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0	<pre>(ha) (ha) 0.605 a) = 1 = 66.90 Eor St k (mm) 0.600 0.600 0.600 0.600 0.600 0.600 able Foul (1/s) 0.0 0.0 0.0</pre>	08 .orm HYD SECT 0 0 0 0 0 Add (1	(mm) 300 300 300 300 300 300 510w /s) 0.0 0.0 0.0 0.0 0.0	Pipe/ Pipe/ Pipe/ Pipe/ Vel (m/s) 2.00 3.02 2.37 2.59 4.01	Conduit Conduit Conduit Conduit Conduit Conduit (1/s) 141.5 213.3 167.8	Desig 0 0 0 0 0 0 0 0 0 0 0 0 0

MJA Consulting		Page 2
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u> </u>
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	1

#### Network Design Table for Storm

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
S1.004	24.205	0.650	37.2	0.037	0.00	0.0	0.600	0	375	Pipe/Conduit	æ
s3.000	55.141	2.979	18.5	0.100	5.00	0.0	0.600	0	300	Pipe/Conduit	ð
S1.005	34.396	0.153	224.8	0.099	0.00	0.0	0.600	0	450	Pipe/Conduit	ď
S4.000	20.657	0.838	24.7	0.046	5.00	0.0	0.600	0	300	Pipe/Conduit	ð
S1.006	30.680	0.137	223.9	0.066	0.00	0.0	0.600	0	450	Pipe/Conduit	ര്
S5.000	32.241	3.928	8.2	0.052	5.00	0.0	0.600	0	300	Pipe/Conduit	ð
S1.007	24.318	0.182	133.6	0.010	0.00	0.0	0.600	0	450	Pipe/Conduit	ሆ
S6.000	30.768	3.134	9.8	0.113	5.00	0.0	0.600	0	300	Pipe/Conduit	ð
S1.008 S1.009		0.033 1.285	208.6 35.5	0.009 0.019	0.00		0.600 0.600	0		Pipe/Conduit Pipe/Conduit	ъ ъ
S7.000	7.034	0.036	195.4	0.015	5.00	0.0	0.600	0	300	Pipe/Conduit	<del>0</del>

### Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)		Add Flow (l/s)	Vel (m/s)	Cap (1/s)	Flow (l/s)	
S1.004	65.95	5.71	105.565	0.349	0.0	0.0	0.0	2.98	328.8	62.3	
S3.000	68.46	5.25	107.969	0.100	0.0	0.0	0.0	3.67	259.5	18.5	
S1.005	63.83	6.14	104.840	0.548	0.0	0.0	0.0	1.35	215.0	94.7	
S4.000	69.28	5.11	105.675	0.046	0.0	0.0	0.0	3.18	224.8	8.6	
S1.006	62.08	6.52	104.687	0.660	0.0	0.0	0.0	1.35	215.4	111.0	
S5.000	69.34	5.10	108.628	0.052	0.0	0.0	0.0	5.52	390.2	9.8	
S1.007	61.06	6.75	104.550	0.722	0.0	0.0	0.0	1.76	279.5	119.4	
S6.000	69.32	5.10	107.727	0.113	0.0	0.0	0.0	5.05	356.7	21.2	
S1.008 S1.009	60.71 59.77		104.368 104.335	0.844 0.863	0.0	0.0	0.0		223.3 544.0		
S7.000	69.30	5.10	103.311	0.015	0.0	0.0	0.0	1.12	79.3	2.8	
			©1	982-201	7 XP Solut	ions					

MJA Consulting		Page 3
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u> </u>
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	-

### <u>Network Design Table for Storm</u>

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
S1.010	11.751	0.130	90.4	0.005	0.00	0.0	0.600	0	450	Pipe/Conduit	ď
S8.000	44.965	2.462	18.3	0.084	5.00	0.0	0.600	0	225	Pipe/Conduit	ð
	21.388			0.085	5.00		0.600	0		Pipe/Conduit	ð
S9.001	22.722	0.125	181.8	0.040	0.00	0.0	0.600	0	225	Pipe/Conduit	ď
S8.001	33.206	0.138	240.6	0.025	0.00	0.0	0.600	0	300	Pipe/Conduit	6
S8.002	25.135	0.111	226.4	0.056	0.00	0.0	0.600	0	300	Pipe/Conduit	Ē
S8.003	7.826	0.085	92.1	0.027	0.00	0.0	0.600	0	300	Pipe/Conduit	ð
S10.000	24.178	0.350	69.1	0.032	5.00	0.0	0.600	0	225	Pipe/Conduit	ð
S10.001	33.145	1.410	23.5	0.049	0.00	0.0	0.600	0	225	Pipe/Conduit	ď
S8.004	43.294	3.929	11.0	0.058	0.00	0.0	0.600	0	300	Pipe/Conduit	6
S8.005	41.544	1.743	23.8	0.023	0.00	0.0	0.600	0	300	Pipe/Conduit	đ
S8.006	23.635	0.994	23.8	0.063	0.00	0.0	0.600	0	300	Pipe/Conduit	đ
S8.007	12.871	0.886	14.5	0.034	0.00	0.0	0.600	0	300	Pipe/Conduit	Ū
S1.011	2.818	0.017	165.8	0.000	0.00	0.0	0.600	0	225	Pipe/Conduit	ð
S1.012	8.681	0.047	184.7	0.000	0.00	0.0	0.600	0		Pipe/Conduit	÷

#### Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)		Add Flow (1/s)	Vel (m/s)	Cap (1/s)	Flow (l/s)
S1.010	59.40	7.14	103.050	0.883	0.0	0.0	0.0	2.14	340.2	142.0
S8.000	68.50	5.24	111.871	0.084	0.0	0.0	0.0	3.08	122.3	15.6
S9.000	67.82	5.37	109.654	0.085	0.0	0.0	0.0	0.98	38.8	15.6
S9.001	65.73	5.76	109.534	0.125	0.0	0.0	0.0	0.97	38.4	22.3
S8.001	63.05	6.31	109.334	0.234	0.0	0.0	0.0	1.01	71.3	40.0
S8.002	61.23	6.71	109.196	0.290	0.0	0.0	0.0	1.04	73.6	48.1
S8.003	60.88	6.79	109.085	0.317	0.0	0.0	0.0	1.64	115.9	52.3
S10.000	68.43	5.26	110.835	0.032	0.0	0.0	0.0	1.58	62.6	5.9
S10.001	67.30	5.46	110.485	0.081	0.0	0.0	0.0	2.71	107.8	14.8
S8.004	60.24	6.94	109.000	0.456	0.0	0.0	0.0	4.76	336.6	74.4
S8.005	59.35	7.15	105.071	0.479	0.0	0.0	0.0	3.23	228.6	77.0
S8.006	58.87	7.27	103.328	0.542	0.0	0.0	0.0	3.24	228.9	86.4
S8.007	58.66	7.33	102.334	0.576	0.0	0.0	0.0	4.15	293.1	91.5
S1.011	69.64	5.05	101.373	0.000	10.5	0.0	0.0	1.01	40.3	10.5
S1.012	68.76	5.20	101.356	0.000	10.5	0.0	0.0	0.96	38.1	10.5
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Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	4
OX14 3NB	System 1	Micro
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Innovyze	Network 2017.1.2	

## <u>Area Summary for Storm</u>

Pipe	PIMP	PIMP	PIMP	Gross	Imp.	Pipe Total
Number	Туре	Name	(%)	Area (ha)	Area (ha)	(ha)
1.000	-	-	100	0.039	0.039	0.039
1.001	-	-	100	0.064	0.064	0.064
1.002	-	-	100	0.015	0.015	0.015
1.003	-	-	100	0.066	0.066	0.066
2.000	-	-	100	0.088	0.088	0.088
2.001	-	-	100	0.040	0.040	0.040
1.004	-	-	100	0.037	0.037	0.037
3.000	-	-	100	0.100	0.100	0.100
1.005	-	-	100	0.099	0.099	0.099
4.000	-	-	100	0.046	0.046	0.046
1.006	-	-	100	0.066	0.066	0.066
5.000	-	-	100	0.052	0.052	0.052
1.007	-	-	100	0.010	0.010	0.010
6.000	-	-	100	0.113	0.113	0.113
1.008	-	-	100	0.009	0.009	0.009
1.009	-	-	100	0.019	0.019	0.019
7.000	-	-	100	0.015	0.015	0.015
1.010	-	-	100	0.005	0.005	0.005
8.000	-	-	100	0.084	0.084	0.084
9.000	-	-	100	0.085	0.085	0.085
9.001	-	-	100	0.040	0.040	0.040
8.001	-	-	100	0.025	0.025	0.025
8.002	-	-	100	0.056	0.056	0.056
8.003	-	-	100	0.027	0.027	0.027
10.000	-	-	100	0.032	0.032	0.032
10.001	-	-	100	0.049	0.049	0.049
8.004	-	-	100	0.058	0.058	0.058
8.005	-	-	100	0.023	0.023	0.023
8.006	-	-	100	0.063	0.063	0.063
8.007	-	-	100	0.034	0.034	0.034
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.459	1.459	1.459

Free Flowing Outfall Details for Storm

Outfall	Outfall	C. Level	I. Level	Min	D,L	W
Pipe Number	Name	(m)	(m)	I. Level	(mm)	(mm)
				(m)		
S1.012	S	104.225	101.309	0.000	0	0

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File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

#### Simulation Criteria for Storm

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 Coeffiecient 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

#### Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.800	Storm Duration (mins)	30
Ratio R	0.404		

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		-					D1' .							Page	9 0
Monarch								ote, 1		-	,				
Barton	-	9					Sarra	ce Wa	ter	Netw	ork			2	~ m
OX14 3N							Syste							- Mir	
Date 05							-	ned by	-	cshan	е			Dra	inade
File SW	File SW Network 250918.mdx Checked by								DIC						
Innovyz	е						Netwo	rk 20	17.1	1.2					
Innovyz The hy	e	<u>Comp</u> Mir s	Diex N Suggest D M	Dutlet Ced Mar Cc esign f ean Flo ulatior	Onl .e: I Des Ir Pipe ahole Poin	ine ( <u>S19,</u> <u>Hydrc</u> Unit Design Sign F P Diam Diam Diam <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Diam</b> <b>Di</b>	Netwo Contro DS/PI D-Brak Refere A Head 'low (1 'lush-F Object policat Availa meter ( Level meter ( mts lculate lush-F: Xick-F: ead Ran een bas	rk 200 ols fo N: S1. ee® Op mnce MD (m) /s) lo™ mm) mm) Hea ed) lo® nge sed on	17.1 <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>.011</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u> <u>timu</u>	<pre>torm ., Vol um0137</pre>	-1050- c. pstread 10. 10. 8. 9. Discha:	1825-1 1. alcula m stor Surf 101. 1. 5. 5. 3. 2. rge re.	050 825 0.5 ted age ace Yes 137 373 150 500	<u>l</u> onship	o for the than a
Hydro- invali	date	d							-		-				
Depth	(m)	Flow	(1/s)	Depth	(m)	Flow	(1/s)	Depth	(m)	Flow	(l/s)	Depth	(m)	Flow	(1/s)
	.100		4.9	1	.200		8.6	1	.000		13.3	1	.000		19.9
	.200		9.0		.400		9.3	1	.500		14.3		.500		20.6
	.300		9.9 10.3		.600		9.9 10.4	1	.000		15.2 16.1		.000		21.2 21.8
	.500		10.5		.000		10.4	1	.000		16.9		.000		22.4
0	.600		10.5	2	.200		11.5	5	.500		17.7		.500		23.0
	.800		10.2		.400		11.9	1	.000		18.5				
1	.000		9.3	2	.600		12.4	6	.500		19.2				
							Ta7 ~	ir							
							<u>we</u>	<u>ir</u>							
		Disc	charge	Coef	0.54	4 Widt	th (m)	0.500	Inve	ert Le	evel (n	n) 103.	.198		
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Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	4
OX14 3NB	System 1	Micco
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Innovyze	Network 2017.1.2	

#### Storage Structures for Storm

### Cellular Storage Manhole: S19, DS/PN: S1.011

Invert Level (m) 101.373 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²) I	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	500.0	500.0	1.300	500.0	616.3
0.100	500.0	508.9	1.400	500.0	625.2
0.200	500.0	517.9	1.500	500.0	634.2
0.300	500.0	526.8	1.600	500.0	643.1
0.400	500.0	535.8	1.700	500.0	652.1
0.500	500.0	544.7	1.800	500.0	661.0
0.600	500.0	553.7	1.900	500.0	669.9
0.700	500.0	562.6	2.000	500.0	678.9
0.800	500.0	571.6	2.100	500.0	687.8
0.900	500.0	580.5	2.200	500.0	696.8
1.000	500.0	589.4	2.300	500.0	705.7
1.100	500.0	598.4	2.400	500.0	714.7
1.200	500.0	607.3	2.500	500.0	723.6

Mananah II.	ing						Page	e 8
Monarch Hou	se			Bodicote, Ba	anbury			
Barton Lane				Surface Wate	er Networ	k	4	
OX14 3NB				System 1				~m
Date 05/10/	2018			Designed by	mcshane			
File SW Net		)18 mdv		Checked by	mesnane		Dra	ainage
	WOIK 2003	910.IIIUX			7 1 0			
Innovyze				Network 2017	/.1.2			
<u>l year Reti</u>	urn Peric	od Summ	ary of	<u>Critical Re</u> <u>for Storm</u>	sults by	Maximum :	Level (F	<u>ank 1)</u>
	Hot Hot Sta Headloss C Sewage per Number o: Number	Start Start Leve Soeff (G hectare f Input of Onli	Factor 1 (mins) l (mm) lobal) 0 (l/s) 0 Hydrogra	.500 Flow per .000 aphs 0 Number cols 1 Number	nal Flow - DD Factor * Person per of Storage of Time/Ard	10m³/ha S let Coeffi Day (l/pe Structures ea Diagrams	torage 2. ecient 0. r/day) 0. s 1 s 0	000 800
	Number o	of Offli		ols 0 Number		ne Controls	5 0	
	Raiı	nfall Mo Reg M5-60 (	del jion Engl	land and Wales	Ratio	c) 0.750		
	Margin f	or Floo		arning (mm) 30 is Timestep F				
				DTS Status				
Ret	Duratio urn Period Climate		ins)	DTS Status 15, 30, 60, 1: 720, 960, 1-	ON 20, 180, 24	Summer and 10, 360, 48 2880, 4320 7200, 8640 1,	Winter 80, 600, 9, 5760,	
Ret US/MH PN Name	urn Period	n(s) (m: (s) (yea Change <b>Return</b>	ins)	15, 30, 60, 12 720, 960, 14	ON 20, 180, 24 440, 2160,	Summer and 10, 360, 48 2880, 4320 7200, 8640 1,	Winter 80, 600, 9, 5760, 9, 10080 30, 100 9, 0, 40	Water Level (m)
US/MH PN Name	urn Period Climate Storm	n(s) (m: (s) (yea Change Return Period	ins) ars) (%) Climate Change	15, 30, 60, 12 720, 960, 1 First (X)	ON 20, 180, 24 440, 2160, First (Y)	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m)
<b>US/MH</b> <b>PN</b> Name S1.000 S1	urn Period Climate <b>Storm</b> 15 Winter	n(s) (m: (s) (yea Change Return Period 1	ins) ars) (%) Climate Change +0%	15, 30, 60, 1: 720, 960, 1 First (X) Surcharge	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2	urn Period Climate <b>Storm</b> 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1	ins) ars) (%) Climate Change +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3	urn Period Climate <b>Storm</b> 15 Winter	n(s) (m: (s) (yea Change Return Period 1	ins) ars) (%) Climate Change +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4	urn Period Climate Storm 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1	ins) ars) (%) Climate Change +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5	urn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1	<pre>ins) ars) (%) Climate Change +0% +0% +0% +0% +0%</pre>	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097
US/MH           PN         Name           S1.000         S1           S1.001         S2           S1.002         S3           S1.003         S4           S2.000         S5           S2.001         S6           S1.004         S7	urn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664
US/MH           PN         Name           S1.000         S1           S1.001         S2           S1.002         S3           S1.003         S4           S2.000         S5           S2.001         S6           S1.004         S7           S3.000         S8	urn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9	urn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030
US/MH           PN         Name           S1.000         S1           S1.001         S2           S1.002         S3           S1.003         S4           S2.000         S5           S2.001         S6           S1.004         S7           S3.000         S8           S1.005         S9           S4.000         S10	urn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9           \$4.000         \$10	urn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9           \$4.000         \$11           \$5.000         \$12	urn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1. First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897 108.657
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9           \$4.000         \$10           \$1.006         \$11           \$5.000         \$12           \$1.007         \$13	urn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1- First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897 108.657 104.743
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9           \$4.000         \$10           \$1.006         \$11           \$5.000         \$12           \$1.007         \$13           \$6.000         \$14	urn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1: 720, 960, 1- First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897 108.657 104.743 107.770
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9           \$4.000         \$10           \$1.006         \$11           \$5.000         \$12           \$1.007         \$13           \$6.000         \$14           \$1.008         \$15	urn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 12 720, 960, 14 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897 104.657
US/MH           PN         Name           \$1.000         \$1           \$1.001         \$2           \$1.002         \$3           \$1.003         \$4           \$2.000         \$5           \$2.001         \$6           \$1.003         \$8           \$1.004         \$7           \$3.000         \$8           \$1.005         \$9           \$4.000         \$10           \$1.005         \$12           \$1.006         \$11           \$5.000         \$12           \$1.007         \$13           \$6.000         \$14           \$1.008         \$15           \$1.009         \$16           \$7.000         \$17	urn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 12 720, 960, 14 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897 104.657 104.743 107.770 104.658 104.476 103.348
US/MH           PN         Name           S1.000         S1           S1.001         S2           S1.002         S3           S1.003         S4           S2.001         S6           S1.004         S7           S3.000         S8           S1.005         S9           S4.000         S10           S1.005         S9           S4.000         S10           S1.005         S1           S5.000         S12           S1.007         S13           S6.000         S14           S1.008         S15           S1.009         S16           S7.000         S17           S1.010         S18	urn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 12 720, 960, 14 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	Winter 30, 600, 30, 5760, 30, 10080 30, 100 0, 0, 40 Overflow	Level (m) 107.459 106.851 106.382 106.057 110.097 108.017 105.664 108.015 105.030 105.710 104.897 104.657 104.743 107.770 104.658 104.476

MJA Consulting		Page 9
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	4
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

<u>1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm</u>

PN	US/MH Name	Surcharged Depth (m)		Flow / Cap.	Overflow (1/s)		Status	Level Exceeded
S1.000	S1	-0.261	0.000	0.04		5.4	OK	
S1.001	S2	-0.245	0.000	0.07		12.9	OK	
S1.002	s3	-0.235	0.000	0.11		14.8	OK	
S1.003	S4	-0.221	0.000	0.16		22.6	OK	
S2.000	S5	-0.258	0.000	0.05		12.3	OK	
S2.001	S6	-0.252	0.000	0.06		17.0	OK	
S1.004	S7	-0.276	0.000	0.16		44.0	OK	
S3.000	S8	-0.254	0.000	0.06		14.0	OK	
S1.005	S9	-0.260	0.000	0.37		69.3	OK	
S4.000	S10	-0.265	0.000	0.03		6.5	OK	
S1.006	S11	-0.240	0.000	0.44		81.8	OK	
S5.000	S12	-0.271	0.000	0.02		7.3	OK	
S1.007	S13	-0.257	0.000	0.38		89.7	OK	
S6.000	S14	-0.257	0.000	0.05		15.8	OK	
S1.008	S15	-0.160	0.000	0.74		104.0	OK	
S1.009	S16	-0.309	0.000	0.22		105.7	OK	
S7.000	S17	-0.263	0.000	0.04		2.1	OK	
S1.010	S18	-0.216	0.000	0.53		107.1	OK	
S8.000	S21	-0.177	0.000	0.10		11.8	OK	

MJA Consulting		Page 10
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u>Y</u>
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	1

<u>1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm</u>

PN	US/MH Name	Storm		Climate Change		t (X) narge		t (Y) ood	First (Z) Overflow	Overflow Act.
S9.000	S22	15 Winter	1	+0읭	30/15	Summer	100/15	Summer		
S9.001	S23	15 Winter	1	+0%	30/15	Summer				
S8.001	S24	15 Winter	1	+0%	30/15	Summer				
S8.002	S25	15 Winter	1	+0%	30/15	Summer				
S8.003	S26	15 Winter	1	+0%	30/15	Summer				
S10.000	S19	15 Winter	1	+0%						
S10.001	S20	15 Winter	1	+0%						
S8.004	S27	15 Winter	1	+0%						
S8.005	S28	15 Winter	1	+0%	100/15	Summer	100/15	Winter		
S8.006	S29	15 Winter	1	+0%	100/15	Summer				
S8.007	S30	15 Winter	1	+0%	100/15	Summer				
S1.011	S19	240 Winter	1	+0%	1/30	Winter				
S1.012	S20	240 Winter	1	+0%						

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S9.000	S22	109.744	-0.135	0.000	0.33		11.7	OK	2
S9.001	S23	109.643	-0.116	0.000	0.47		16.4	OK	
S8.001	S24	109.479	-0.155	0.000	0.46		30.2	OK	
S8.002	S25	109.356	-0.140	0.000	0.55		36.3	OK	
S8.003	S26	109.241	-0.144	0.000	0.53		38.7	OK	
S10.000	S19	110.877	-0.183	0.000	0.08		4.4	OK	
S10.001	S20	110.533	-0.177	0.000	0.10		10.2	OK	
S8.004	S27	109.084	-0.216	0.000	0.17		54.1	OK	
S8.005	S28	105.176	-0.195	0.000	0.27		56.4	OK	1
S8.006	S29	103.442	-0.186	0.000	0.31		62.9	OK	
S8.007	S30	102.442	-0.192	0.000	0.28		66.3	OK	
S1.011	S19	101.714	0.116	0.000	0.36		9.7	SURCHARGED	
S1.012	S20	101.443	-0.138	0.000	0.32		9.7	OK	

	ing						Page	e 11
Monarch Hou	ise			Bodicote, B	anbury			
Barton Lane	9			Surface Wate	er Networ	k	4	
OX14 3NB				System 1				- Cm
Date 05/10/	2018			Designed by	mcshane			cio
File SW Net		918.mdx		Checked by			Ula	ainage
Innovyze				Network 201	7 1 2			
<u>30 year Ret</u>	turn Peri	<u>od Sumr</u>	<u>mary of</u>	<u>Critical Re</u> for Storm	esults by	Maximum	Level (	<u>Rank 1)</u>
			Sim	ulation Criter	<u>tia</u>			
				.000 Additio				
	Hot Sta Headloss C Sewage per	art Leve Coeff (G hectare	l (mm) lobal) 0 (l/s) 0	.500 Flow per .000	In Person per	let Coeffi Day (l/pe	ecient 0. r/day) 0.	800
	Number	of Onli	.ne Contr	aphs 0 Number cols 1 Number cols 0 Number	of Time/Are	ea Diagrams	в О	
		_		tic Rainfall D				
	Raiı	nfall Mc Reg M5-60 (	jion Engl	land and Wales	Ratio Cv (Summer Cv (Winter	c) 0.750		
	Margin f	for Floo		arning (mm) 30 is Timestep F				
				DTS Status				
Rei		Profile n(s) (m:	ins)	DTS Status 15, 30, 60, 1 720, 960, 1	ON 20, 180, 24	Summer and 10, 360, 48 2880, 4320 7200, 8640	80, 600, ), 5760, ), 10080	
Ret	turn Period	n(s) (m:	ins) ars)	15, 30, 60, 1	ON 20, 180, 24	Summer and 40, 360, 48 2880, 4320 7200, 8640 1,	30, 600, ), 5760,	
Ret US/MH PN Name	turn Period Climate	n(s) (m: (s) (yea Change <b>Return</b>	ins) ars)	15, 30, 60, 1 720, 960, 1	ON 20, 180, 24 440, 2160,	Summer and 40, 360, 48 2880, 4320 7200, 8640 1,	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40	Water Level (m)
US/MH PN Name	turn Period Climate Storm	n(s) (m: (s) (yea Change Return Period	ins) ars) (%) Climate Change	15, 30, 60, 1 720, 960, 1 First (X)	ON 20, 180, 24 440, 2160, First (Y)	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m)
US/MH PN Name S1.000 S1	turn Period Climate <b>Storm</b> 15 Winter	n(s) (m: (s) (yea Change Return Period 30	ins) ars) (%) Climate Change +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484
US/MH PN Name S1.000 S1 S1.001 S2	turn Period Climate Storm	n(s) (m: (s) (yea Change Return Period	ins) ars) (%) Climate Change +0% +0%	15, 30, 60, 1 720, 960, 1 First (X)	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10	turn Period Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11	turn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11 S5.000 S12 S1.007 S13	Storm Climate Storm Storm Storm Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324 108.671 105.152
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11 S5.000 S12 S1.007 S13 S6.000 S14	turn Period Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324 108.671 105.152 107.796
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11 S5.000 S12 S1.007 S13 S6.000 S14 S1.008 S15	Storm Climate Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	<pre>ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%</pre>	15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324 108.671 105.152 107.796 104.980
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11 S5.000 S12 S1.007 S13 S6.000 S14 S1.008 S15 S1.009 S16	Storm Climate Storm Storm Storm Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1 720, 960, 1 720, 960, 1  First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324 108.671 105.152 107.796 104.980 104.572
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11 S5.000 S12 S1.007 S13 S6.000 S14 S1.008 S15 S1.009 S16 S7.000 S17	Storm Climate Storm Storm Storm Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1 720, 960, 1 720, 960, 1  First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324 108.671 105.152 107.796 104.980 104.572 103.577
US/MH PN Name S1.000 S1 S1.001 S2 S1.002 S3 S1.003 S4 S2.000 S5 S2.001 S6 S1.004 S7 S3.000 S8 S1.005 S9 S4.000 S10 S1.006 S11 S5.000 S12 S1.007 S13 S6.000 S14 S1.008 S15 S1.009 S16 S7.000 S17 S1.010 S18	Storm Climate Storm Storm Storm Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter Swinter	n(s) (m: (s) (yea Change Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	ins) ars) (%) Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0% +0%	<pre>15, 30, 60, 1 720, 960, 1 720, 960, 1  First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer 100/15 Summer</pre>	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 10, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	80, 600, ), 5760, ), 10080 30, 100 ), 0, 40 Overflow	Level (m) 107.484 106.890 106.430 106.121 110.123 108.048 105.740 108.044 105.452 105.732 105.324 108.671 105.152 107.796 104.980 104.572

MJA Consulting		Page 12
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u> </u>
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm</u>

PN	US/MH Name	Surcharged Depth (m)			Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
	Rame	(11)	(	cap.	(1/3)	(1)3)	blatus	Inceeded
S1.000	S1	-0.236	0.000	0.10		13.3	OK	
S1.001	S2	-0.206	0.000	0.21		36.7	OK	
S1.002	S3	-0.187	0.000	0.30		42.0	OK	
S1.003	S4	-0.157	0.000	0.45		66.1	OK	
S2.000	S5	-0.232	0.000	0.12		30.3	OK	
S2.001	S6	-0.221	0.000	0.16		44.8	OK	
S1.004	S7	-0.200	0.000	0.44		123.9	OK	
S3.000	S8	-0.225	0.000	0.14		34.5	OK	
S1.005	S9	0.162	0.000	0.94		176.0	SURCHARGED	
S4.000	S10	-0.243	0.000	0.08		15.8	OK	
S1.006	S11	0.187	0.000	1.10			SURCHARGED	
S5.000	S12	-0.257	0.000	0.05		17.9	OK	
S1.007	S13	0.152	0.000	0.96		223.8	SURCHARGED	
S6.000		-0.231	0.000	0.12		39.0	OK	
S1.008	S15	0.162	0.000	1.85		259.3	SURCHARGED	
S1.009	S16	-0.213	0.000	0.54		264.2	OK	
S7.000	S17	-0.034	0.000	0.08		4.5	OK	
S1.010	S18	0.075	0.000	1.31		267.1	SURCHARGED	
S8.000	S21	-0.149	0.000	0.25		28.9	OK	

MJA Consulting		Page 13
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u> </u>
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	1

<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm</u>

PN	US/MH Name	Storm		Climate Change		c (X) harge	First Flo	C (Y) ood	First (Z) Overflow	Overflow Act.
S9.000	S22	15 Winte	er 30	+0%	30/15	Summer	100/15	Summer		
S9.001	S23	15 Winte	er 30	+0%	30/15	Summer				
S8.001	S24	15 Winte	er 30	+0읭	30/15	Summer				
S8.002	S25	15 Winte	er 30	+0읭	30/15	Summer				
S8.003	S26	15 Winte	er 30	+0%	30/15	Summer				
S10.000	S19	15 Winte	er 30	+0읭						
S10.001	S20	15 Winte	er 30	+0읭						
S8.004	S27	15 Winte	er 30	+0읭						
S8.005	S28	15 Winte	er 30	+0%	100/15	Summer	100/15	Winter		
S8.006	S29	15 Winte	er 30	+0읭	100/15	Summer				
S8.007	S30	15 Winte	er 30	+0읭	100/15	Summer				
S1.011	S19	240 Winte	er 30	+0%	1/30	Winter				
S1.012	S20	960 Winte	er 30	+0%						

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S9.000	S22	109.960	0.081	0.000	0.73		26.0	SURCHARGED	2
S9.001	S23	109.897	0.138	0.000	1.03		36.4	SURCHARGED	
S8.001	S24	109.760	0.126	0.000	1.05		68.8	SURCHARGED	
S8.002	S25	109.600	0.104	0.000	1.26		83.1	SURCHARGED	
S8.003	S26	109.415	0.030	0.000	1.23		89.6	SURCHARGED	
S10.000	S19	110.902	-0.158	0.000	0.19		10.9	OK	
S10.001	S20	110.567	-0.143	0.000	0.28		28.8	OK	
S8.004	S27	109.136	-0.164	0.000	0.41		127.9	OK	
S8.005	S28	105.249	-0.122	0.000	0.63		133.9	OK	1
S8.006	S29	103.529	-0.099	0.000	0.75		153.0	OK	
S8.007	S30	102.522	-0.112	0.000	0.69		163.9	OK	
S1.011	S19	102.279	0.681	0.000	0.38		10.5	SURCHARGED	
S1.012	S20	101.447	-0.134	0.000	0.34		10.5	OK	

MJA Consi	ulti	ng						Page	e 14
Monarch 1	Hous	e			Bodicote, B	anbury			
Barton La	ane				Surface Wat	er Networ	k	4	A.
OX14 3NB					System 1			M	
Date 05/3	10/2	2018			Designed by	mcshane			cio
File SW 1	Netw	ork 2509	918.mdx		Checked by				ainage
Innovyze					Network 201	7.1.2			
<u>100 yea</u>	<u>ir R</u> e	eturn Pe:	riod Sı	-	of Critical L) for Storm		<u>by Maximu</u>	um Level	(Rank
		Hot Hot Sta Headloss C ewage per Number of Number of	Start rt Leve oeff (G hectare f Input of Onli	Factor 1 (mins) 1 (mm) lobal) 0 (1/s) 0 Hydrogra	0 .500 Flow per	DDD Factor * In Person per of Storage of Time/Ard	10m³/ha S let Coeffi Day (l/pe Structures ea Diagrams	torage 2. ecient 0. r/day) 0. s 1 s 0	000 800
			nfall Mc	Synthet	cic Rainfall D			5 0	
				jion Engl	Land and Wales		r) 0.750		
		Margin f	or Floo		arning (mm) 30 is Timestep - B				
				1	DTS Status		a status U		
		Duratio	Profile n(s) (m:	e(s)	-	ON 20, 180, 24	Summer and 40, 360, 48 2880, 4320	d Winter 30, 600, 0, 5760,	
	Retu	Duratio urn Period Climate	n(s) (m: (s) (yea	e(s) ins) ars)	DTS Status	ON 20, 180, 24	Summer and 40, 360, 48 2880, 4320 7200, 8640 1,	d Winter 30, 600, 0, 5760,	
US	/мн	urn Period Climate	n(s) (m: (s) (yea Change <b>Return</b>	e(s) ins) ars) (%) Climate	DTS Status 15, 30, 60, 1 720, 960, 1 First (X)	ON 20, 180, 24 440, 2160, First (Y)	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	
US PN Na	/MH ame	urn Period Climate <b>Storm</b>	n(s) (m: (s) (yea Change Return Period	e(s) ins) ars) (%) Climate Change	DTS Status	ON 20, 180, 24 440, 2160,	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C	Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40	Level (m)
US PN Na S1.000	/MH ame S1	urn Period Climate <b>Storm</b> 15 Winter	n(s) (m: (s) (yea Change Return Period 100	e(s) ins) ars) (%) Climate Change +40%	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m)
US PN Na S1.000 S1.001	/MH ame S1 S2	urn Period Climate <b>Storm</b> 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100	<pre>e(s) ins) ars) (%) Climate Change +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16
US, PN Na S1.000 S1.001 S1.002	/MH ame S1 S2 S3	urn Period Climate <b>Storm</b> 15 Winter	n(s) (m: (s) (yea Change Return Period 100	<pre>e(s) ins) ars) (%) Climate Change +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Leve] (m) 107.50 107.16 107.12
US PN Na S1.000 S1.001 S1.002 S1.003	<b>/MH</b> ame S1 S2 S3 S4	Storm 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100	<pre>e(s) ins) ars) (%) Climate Change +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Leve] (m) 107.50 107.16 107.12 107.08
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001	/MH ame S1 S2 S3 S4 S5	Storm Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1. 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004	/MH ame S1 S2 S3 S4 S5 S6 S7	Storm Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000	/MH ame S1 S2 S3 S4 S5 S6 S7 S8	Storm Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 108.07
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005	/мн s1 s2 s3 s4 s5 s6 s7 s8 s9	Storm Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1. 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 108.07 106.73
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000	/мн s1 s2 s3 s4 s5 s6 s7 s8 s9 s10	Storm Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 108.07 106.73 106.43
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006	<b>2/MH</b> ame S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11	Storm Climate Storm 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 106.73 106.43 106.40
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006 S5.000	<pre>/MH ame     S1     S2     S3     S4     S5     S6     S7     S8     S9     S10     S11     S12</pre>	Storm Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100 10	<pre>c(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%</pre>	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 106.73 106.43 106.40 108.68
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006 S5.000 S1.007 S6.000	<pre>/MH ame     S1     S2     S3     S4     S5     S6     S7     S8     S9     S10     S11     S12     S13     S14</pre>	Storm Storm Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100 10	- e(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%	DTS Status 15, 30, 60, 1. 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 106.73 106.43 106.43 106.40 108.68 105.96 107.82
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006 S5.000 S1.007 S6.000 S1.008	<pre>/MH ame     S1     S2     S3     S4     S5     S6     S7     S8     S9     S10     S11     S12     S13     S14     S15</pre>	Storm Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100 10	- e(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%	DTS Status 15, 30, 60, 1. 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 106.73 106.43 106.43 106.40 108.68 105.96 107.82 105.52
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006 S5.000 S1.007 S6.000 S1.008 S1.009	<pre>/MH ame     S1     S2     S3     S4     S5     S6     S7     S8     S9     S10     S11     S12     S13     S14     S15     S16</pre>	Storm Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100 10	- e(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%	DTS Status 15, 30, 60, 1. 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.12 107.08 110.14 108.07 106.97 108.07 106.73 106.43 106.43 106.40 108.68 105.96 107.82 105.52 104.95
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006 S5.000 S1.007 S6.000 S1.008 S1.009 S7.000	<pre>/MH ame     S1     S2     S3     S4     S5     S6     S7     S8     S9     S10     S11     S12     S13     S14     S15     S16     S17</pre>	Storm Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100 10	- e(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%	DTS Status 15, 30, 60, 1 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer 100/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.12 107.08 110.14 108.07 106.97 108.07 106.73 106.43 106.40 108.68 105.96 107.82 105.52 104.95 103.96
US PN Na S1.000 S1.001 S1.002 S1.003 S2.000 S2.001 S1.004 S3.000 S1.005 S4.000 S1.006 S5.000 S1.007 S6.000 S1.008 S1.009 S7.000 S1.010	<pre>/MH ame     S1     S2     S3     S4     S5     S6     S7     S8     S9     S10     S11     S12     S13     S14     S15     S16     S17     S18</pre>	Storm Storm 15 Winter 15 Winter	n(s) (m: (s) (yea Change Return Period 100 100 100 100 100 100 100 100 100 10	- e(s) ins) ars) (%) Climate Change +40% +40% +40% +40% +40% +40% +40% +40%	DTS Status 15, 30, 60, 1. 720, 960, 1 First (X) Surcharge 100/15 Winter 100/15 Summer 100/15 Summer 100/15 Summer 30/15 Summer 30/15 Summer 30/15 Summer 100/15 Summer	ON 20, 180, 24 440, 2160, First (Y) Flood	Summer and 40, 360, 48 2880, 4320 7200, 8640 1, C First (Z)	<pre>d Winter 80, 600, 0, 5760, 0, 10080 30, 100 0, 0, 40 Overflow</pre>	Level (m) 107.50 107.16 107.12 107.08 110.14 108.07 106.97 106.73 106.43 106.43 106.40 108.68 105.96 107.82 105.52 104.95

MJA Consulting		Page 15
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u> </u>
OX14 3NB	System 1	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

100 year Return Period Summary of Critical Results by Maximum Level (Rank <u>1) for Storm</u>

PN	US/MH Name	Surcharged Depth (m)			Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.212	0.000	0.18		24.1	OK	
S1.000	s1	0.212	0.000	0.37			SURCHARGED	
S1.001 S1.002	52 S3	0.510	0.000	0.49			SURCHARGED	
S1.003	S4	0.804	0.000	0.67			SURCHARGED	
S2.000	S5	-0.206	0.000	0.21		55.2	OK	
S2.001	S6	-0.190	0.000	0.28		81.4	OK	
S1.004	S7	1.037	0.000	0.62		176.6	SURCHARGED	
S3.000	S8	-0.197	0.000	0.26		62.7	OK	
S1.005	S9	1.449	0.000	1.50		281.4	SURCHARGED	
S4.000	S10	0.455	0.000	0.13		25.8	SURCHARGED	
S1.006	S11	1.270	0.000	1.77		329.0	SURCHARGED	
S5.000	S12	-0.239	0.000	0.09		32.6	OK	
S1.007	S13	0.968	0.000	1.55		361.3	SURCHARGED	
S6.000	S14	-0.205	0.000	0.22		70.8	OK	
S1.008	S15	0.711	0.000	3.04			SURCHARGED	
S1.000	S15 S16	0.167	0.000	0.88			SURCHARGED	
S7.000	S17	0.356	0.000	0.12			SURCHARGED	
S1.010	S18	0.463	0.000	2.16		438.5	SURCHARGED	
S8.000	S21	-0.119	0.000	0.45		52.6	OK	

MJA Consulting		Page 16
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u>Y</u>
OX14 3NB	System 1	Micro
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

100 year Return Period Summary of Critical Results by Maximum Level (Rank <u>1) for Storm</u>

PN	US/MH Name	Storm		Climate Change		t (X) narge		t (Y) ood	First (Z) Overflow	Overflow Act.
S9.000	S22	15 Winte	r 100	+40%	30/15	Summer	100/15	Summer		
S9.001	S23	15 Winte	r 100	+40%	30/15	Summer				
S8.001	S24	15 Winte	r 100	+40%	30/15	Summer				
S8.002	S25	15 Winte	r 100	+40%	30/15	Summer				
S8.003	S26	15 Winte	r 100	+40%	30/15	Summer				
S10.000	S19	15 Winte	r 100	+40%						
S10.001	S20	15 Winte	r 100	+40%						
S8.004	S27	15 Winte	r 100	+40%						
S8.005	S28	15 Winte	r 100	+40%	100/15	Summer	100/15	Winter		
S8.006	S29	15 Winte	r 100	+40%	100/15	Summer				
S8.007	S30	480 Winte	r 100	+40%	100/15	Summer				
S1.011	S19	480 Winte	r 100	+40%	1/30	Winter				
S1.012	S20	15 Summe	r 100	+40%						

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S9.000	S22	111.062	1.183	1.117	1.34		47.4	FLOOD	2
S9.001	S23	110.976	1.217	0.000	1.80		63.4	SURCHARGED	
S8.001	S24	110.674	1.040	0.000	1.77		115.5	SURCHARGED	
S8.002	S25	110.227	0.731	0.000	2.17		142.4	SURCHARGED	
S8.003	S26	109.682	0.297	0.000	2.12		155.0	SURCHARGED	
S10.000	S19	110.927	-0.133	0.000	0.34		19.8	OK	
S10.001	S20	110.601	-0.109	0.000	0.52		52.4	OK	
S8.004	S27	109.197	-0.103	0.000	0.75		234.6	OK	
S8.005	S28	106.571	1.200	0.263	1.09		232.9	FLOOD	1
S8.006	S29	104.513	0.885	0.000	1.26		256.2	SURCHARGED	
S8.007	S30	103.254	0.620	0.000	0.16		38.8	SURCHARGED	
S1.011	S19	103.251	1.653	0.000	0.38		10.5	SURCHARGED	
S1.012	S20	101.447	-0.134	0.000	0.34		10.5	OK	

MJA Consulting						Page	e 1
Monarch House	Bodio	cote, Bar	nbury				
Barton Lane	Surfa	ace Water	Netw	ork		4	~
DX14 3NB	Syste	em 2				Mic	J.
Date 05/10/2018	Desig	gned by m	ncshan	e			
File SW Network 250918.mdx		ked by				Ula	inago
Innovyze		ork 2017.	1.2				
STORM SEWER DESIG	N by the	e Modifie	ed Rat	ional Me	<u>ethod</u>		
<u>Design (</u>	Criteria	<u>for Sto</u>	rm Sy	<u>s 2</u>			
Pipe Sizes S	STANDARD	Manhole Si	zes ST	ANDARD			
FSR Rainfa	all Model	- England	l and W	ales			
Return Period (year				/ 01-		IMP (응)	
	m) 19.800 R 0.404	)		ow / Clima num Backdr		5	
Maximum Rainfall (mm/h				num Backdr num Backdr			
Maximum Time of Concentration (min		) Min Desi	gn Dept	ch for Opt	imisat:	ion (m)	1.200
Foul Sewage (l/s/h	a) 0.000	) Min V	el for	Auto Desi	.gn only	y (m/s)	1.00
Volumetric Runoff Coef	f. 0.750	) Min	Slope	for Optim	nisation	n (1:X)	500
Desi	gned with	n Level So:	ffits				
<u>Time Area</u>	a Diagra	um for St	orm S	<u>ys 2</u>			
		Time 2					
	ns) (ha)						
	0-4 0.201	I					
Total Are	ea Contri	buting (ha	(1) = 0.1	267			
Total	Pipe Volu	1me (m³) =	53.571	-			
<u>Network De</u>	sign Tal	ble for S	Storm	Sys 2			
# - Indicates pij	pe length	does not	match	coordinate	85		
PN Length Fall Slope I.Area (m) (m) (1:X) (ha)	T.E. (mins) Fl	Base Low (1/s)		HYD DIA SECT (mm)	Sectio	on Type	Auto Design
s10.000 38.967 3.502 11.1 0.068	5.00	0.0	0.600	o 225	Pipe/C	onduit	ð
S11.000 5.000# 0.050 100.0 0.046	5.00		0.600		Pipe/C		
S11.001 5.000# 0.050 100.0 0.000	0.00	0.0	0.600	o 150	Pipe/C	onduit	6
		eulte Ta	ble				
Net	twork Re	SUICS IA					
<u>Nei</u> PN Rain T.C. US/IL Σ (mm/hr) (mins) (m)	I.Area	Σ Base Flow (1/s)	Foul	Add Flow (1/s)		Cap (1/s)	Flow (1/s)
PN Rain T.C. US/IL Σ	I.Area	Σ Base	Foul (l/s)	(1/s)		(l/s)	
PN Rain T.C. US/IL Σ (mm/hr) (mins) (m) S10.000 50.00 5.16 107.448	(ha) E	<b>Σ Base</b> Flow (1/s) 0.0	Foul (1/s) 0.0	<b>(l/s)</b> 0.0	(m/s) 3.95	( <b>1/s)</b> 156.9	<b>(l/s)</b> 9.2
PN Rain T.C. US/IL Σ (mm/hr) (mins) (m)	I.Area (ha) H	Σ Base Flow (l/s)	Foul (1/s) 0.0	(1/s)	(m/s) 3.95	(l/s)	(l/s)

MJA Cons		g										Page	2
Monarch								nbury				5	
Barton I								r Net	work			2	~
OX14 3NE					-	stem						— Mic	
Date 05/						-	-	mcsha	ne				inaqu
File SW		rk 25	0918.	mdx		ecked	_					DIC	
Innovyze	9				Net	twork	2017	.1.2					
			Net	work D	esign '	Table	e for	Storm	<u>Sys</u>	2			
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)			ase (1/s)	k (mm)	HYD SECT		Sect	ion Type	Auto Desigr
S10.001	11.259	2.571	4.4	0.020	0.00		0.0	0.600	0	225	Pipe,	/Conduit	6
S12.000 S12.001				0.085				0.600 0.600			-	/Conduit /Conduit	
S10.002 S10.003								0.600 0.600				/Conduit ble Pipe	
				N	etwork	Resu	lts T	<u>able</u>					
PN	Rair (mm/h	n T. r) (mi		JS/IL (m)	Σ I.Area (ha)		Base (1/s)	Foul (1/s)	Add (1/		Vel (m/s)	Cap (1/s)	Flow (1/s)
S10.001	1 50.	00 5	.19 10	3.946	0.088	3	1.0	0.0		0.0	6.30	250.3	12.9
S12.000 S12.001				01.900 01.850	0.085 0.000		0.0			0.0			11.5 1.0
s10.002 s10.003			.49 10 .04 10	00.600 00.450	0.134 0.000		2.0 3.5			0.0		2909.0 156.9	20.1 3.5
			<u>C</u>	onduit	Secti	ons f	<u>for St</u>	orm S	<u>ys 2</u>				
		condui	ts. Th	ese con	han 66 m nduits a nnel, oo	re ma:	rked by	y the s	symbol	s:-	[] box		
		Sec	tion n	umbers	< 0 are	take	n from	user d	condui	t tak	ole		
			ion C ber		Major M Dimn. D (mm) (	imn.		Splay		ıs Aı			
			-3	НЗ	1650	1000			1.21	LO 1.	268		
				<b>Q1</b>	000 001	7 175	0 - 1	+ +					
				©1	982-201	/ XP	Solu	tions					

MJA Consulti	ng						Page 3
Monarch Hous	e		Bod	icote, B	anbury		
Barton Lane			Sur	face Wat	er Netwo	ck	4
OX14 3NB			Sys	tem 2			Maga
Date 05/10/2	018		Des	igned by	mcshane		
File SW Netw		.mdx		cked by			Drainago
Innovyze				work 201	7 1 2		
11110 1 1 20					,		
		Area S	Summary	, for Sto	orm Sys 2		
		<u>Alca</u> c	<u>Janinar y</u>	IOI DCO	<u>, 111 Dys 2</u>		
	Pipe	PIMP PIMP	PIMP	Gross	Imp. 1	Pipe Total	
	-			rea (ha) <i>I</i>		- (ha)	
	10.000		100	0.068	0.068		
	11.000 11.001		100 100	0.046 0.000	0.046 0.000	0.046 0.000	
	10.001		100	0.020		0.020	
	12.000		100	0.085		0.085	
	12.001		100	0.000		0.000	
	10.002		100	0.046		0.046	
	10.003		100	0.002			
				Total		Total	
				0.267	0.267	0.267	
	Eroo E	louing	)+ f - 1 1	Dotoila	for Sto	rm 6110 2	
	S10.00	)3	s 102.	850 100.3	(m) .50 0.00	0 0 0	
	Si	mulatio	n Crit	eria for	Storm Sy	vs 2	
	olumetric Ru					- % of Total	
	Areal Reduct					* 10m³/ha Sto	2
	HOT St HOT Start	art (mins	,			nlet Coeffiec r Day (l/per/	
Manhole H	eadloss Coef	•	,	-	rerson pe	Run Time (m	-
	wage per hec				Outpu	t Interval (m	
					-	Structures 2	
						ea Diagrams ( me Controls (	
	MUMBEL OI	orranie C	CHCLOIS	o number	or near fi	MG CONCLOIS (	5
		<u>Synth</u>	netic F	Rainfall	<u>Details</u>		
	Rainfall	Model		FSR	Pr	ofile Type Su	ummer
Reti	urn Period (			2		v (Summer) (	
		-	gland a	nd Wales		v (Winter) (	
		0 (mm) atio R		19.800 S 0.404	corm Durat	ion (mins)	30
	K	alio k		0.404			

Manhole	e /2018 twork turn I Area Hc e Headl Sewage Num Nu	250918.r Period Su Al Reduction Hot Start Dot Start Le Loss Coeff e per hecta ber of Inp umber of Of Mber of Of Rainfall M5-6	ummary on Facto rt (mins evel (mm (Global are (1/s out Hydro online Co filine Co Syn: Model Region H Go (mm) lood Ris	Surfa Syste Desig Check Netwo of Crit: for Sto Simulatic r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3 ontrols 0 thetic Ras England an	gned by mcsh and by prk 2017.1.2 ical Result: <u>rm Sys 2</u> on Criteria Additional F MADD Fac Tow per Person Number of Sta Number of Sta Number of Res infall Detail: FSR 1 and Wales Cv (1 20.000 Cv (1) (mm) 300.0 estep Fine I	low - % of tor * 10m ³ . Inlet Con per Day prage Struc me/Area Dia al Time Con Ratio R 0.4 Summer) 0.7 Vinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	w 0.000 e 2.000 t 0.800
0X14 3NB Date 05/10/ Tile SW Net Innovyze <u>1 year Ret</u> Manhole	/2018 twork turn I Area Hc e Headl Sewage Num N Num	250918.r Period Su Al Reduction Hot Start Dot Start Le Loss Coeff e per hecta ber of Inp umber of Of Mber of Of Rainfall M5-6	ummary on Facto rt (mins evel (mm (Global are (1/s out Hydro online Co filine Co Syn: Model Region H Go (mm) lood Ris	Syste Desig Check Netwo of Crit: for Sto <u>simulatic</u> r 1.000 ) 0 ) 0.500 F ) 0.000 opraphs 0 ontrols 3 ontrols 0 thetic Ra England an k Warning lysis Tim	em 2 gned by mcsh ced by prk 2017.1.2 <u>ical Results</u> <u>rm Sys 2</u> <u>on Criteria</u> Additional F MADD Fac 'low per Perso Number of Sta Number of Res <u>infall Details</u> FSR 1 nd Wales Cv (1 (mm) 300.0 estep Fine I	low - % of tor * 10m ³ , Inlet Co n per Day prage Struc me/Area Dia al Time Con Ratio R 0.4 Summer) 0.7 Vinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	W 0.000 e 2.000 t 0.800
Date 05/10/ Tile SW Net Innovyze <u>1 year Ret</u> Manhole	twork turn I Area Hc e Headl Sewage Numi Nu	250918.r Period Su Al Reduction Hot Start Dot Start Le Loss Coeff e per hecta ber of Inp umber of Of Mber of Of Rainfall M5-6	ummary on Facto rt (mins evel (mm (Global are (1/s out Hydro online Co filine Co Syn: Model Region H Go (mm) lood Ris	Desig Desig Check Netwo of Crit: <u>for Sto</u> <u>Simulatic</u> r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3 ontrols 3 ontrols 0 thetic Ra England an k Warning lysis Tim	gned by mcsh and by prk 2017.1.2 ical Result: <u>rm Sys 2</u> on Criteria Additional F MADD Fac Tow per Person Number of Sta Number of Sta Number of Res infall Detail: FSR 1 and Wales Cv (1 20.000 Cv (1) (mm) 300.0 estep Fine I	low - % of tor * 10m ³ . Inlet Co n per Day brage Struc me/Area Dia al Time Con Ratio R 0.4 Summer) 0.7 Vinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	W 0.000 e 2.000 t 0.800
Tile SW Net Innovyze <u>1 year Ret</u> Manhole	twork turn I Area Hc e Headl Sewage Numi Nu	250918.r Period Su Al Reduction Hot Start Dot Start Le Loss Coeff e per hecta ber of Inp umber of Of Mber of Of Rainfall M5-6	ummary on Facto rt (mins evel (mm (Global are (1/s out Hydro online Co filine Co Syn: Model Region H Go (mm) lood Ris	Check Netwo of Crit: for Sto r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3 ontrols 0 thetic Ras England an k Warning lysis Tim	ical Results ical Results rm Sys 2 on Criteria Additional F MADD Fac 'low per Perso Number of Sto Number of Tin Number of Res infall Details FSR 1 nd Wales Cv (1 20.000 Cv (1 (mm) 300.0 estep Fine I	low - % of tor * 10m ³ . Inlet Co n per Day brage Struc me/Area Dia al Time Con Ratio R 0.4 Summer) 0.7 Vinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	W 0.000 e 2.000 t 0.800
Innovyze <u>1 year Ret</u> Manhole	turn 1 Area Hc Headl Sewage Num N Nu	Period Su Al Reduction Hot Start Dot Start Le Loss Coeff e per hecta ber of Inp umber of Of Rainfall M5-6	ummary on Facto rt (mins evel (mm (Global are (1/s out Hydro online Co filine Co Syn: Model Region H Go (mm) lood Ris	Netwo of Crit: for Sto Simulatic r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3 ontrols 3 ontrols 0 thetic Ra England an k Warning lysis Tim	ork 2017.1.2 ical Results rm Sys 2 on Criteria Additional F MADD Fac 'low per Perso Number of Sta Number of Res infall Details FSR 1 nd Wales Cv (1 20.000 Cv (1) (mm) 300.0 estep Fine I	s by Maxin low - % of tor * 10m ³ , Inlet Co n per Day brage Struc ne/Area Dia al Time Con al Time Con al Time Con al Time Con al Time Con al Dinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	W 0.000 e 2.000 t 0.800
<u>1 year Ret</u> Manhole	Area Hc Headl Sewage Numl N' Nu	Al Reduction Hot Start Loss Coeff e per hecta ber of Inp umber of Of Rainfall M5-6	on Facto rt (mins evel (mm (Global are (l/s out Hydro online Co ffline Co <u>Syn</u> . Model Region H 50 (mm) lood Ris	Netwo of Crit: for Sto Simulatic r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3 ontrols 3 ontrols 0 thetic Ra England an k Warning lysis Tim	ork 2017.1.2 ical Results rm Sys 2 on Criteria Additional F MADD Fac 'low per Perso Number of Sta Number of Res infall Details FSR 1 nd Wales Cv (1 20.000 Cv (1) (mm) 300.0 estep Fine I	s by Maxin low - % of tor * 10m ³ , Inlet Co n per Day brage Struc ne/Area Dia al Time Con al Time Con al Time Con al Time Con al Time Con al Dinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	w 0.000 e 2.000 t 0.800
<u>1 year Ret</u> Manhole	Area Hc Headl Sewage Numl N' Nu	Al Reduction Hot Start Loss Coeff e per hecta ber of Inp umber of Of Rainfall M5-6	on Facto rt (mins evel (mm (Global are (l/s out Hydro online Co ffline Co <u>Syn</u> . Model Region H 50 (mm) lood Ris	of Crit: for Sto simulatic r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3 ontrols 3 ontrols 0 thetic Ra England an k Warning lysis Tim	ical Results <u>rm Sys 2</u> <u>on Criteria</u> Additional F MADD Fac Ylow per Person Number of Sta Number of Tim Number of Res infall Details FSR 1 nd Wales Cv (1 20.000 Cv (1) (mm) 300.0 estep Fine I	s by Maxin low - % of tor * 10m ³ , Inlet Co n per Day brage Struc ne/Area Dia al Time Con al Time Con al Time Con al Time Con al Time Con al Dinter) 0.8	Total Flow /ha Storage oeffiecient (l/per/day) ctures 2 agrams 0 utrols 0 409 750 840 tus OFF	w 0.000 e 2.000 t 0.800
	e Headl Sewage Num N Nu	Loss Coeff e per hecta ber of Inp umber of O mber of Of Rainfall M5-6	(Global are (l/s out Hydro online Co ffline Co ffline Co Syn: Model Region H 50 (mm) lood Ris	) 0.500 F ) 0.000 optrols 3 ontrols 0 thetic Ra England an k Warning lysis Tim	Number of Sto Number of Tin Number of Rea infall Detail: FSR 1 ad Wales Cv (1 20.000 Cv (1 (mm) 300.0 estep Fine I	n per Day prage Struc me/Area Dia al Time Con <u>s</u> Ratio R 0.4 Summer) 0.7 Vinter) 0.8 DVD Stat	(l/per/day) etures 2 agrams 0 etrols 0 409 750 840 tus OFF	
	Mar	M5-6	Model Region H 60 (mm) lood Ris	England an k Warning lysis Tim	FSR 1 nd Wales Cv (3 20.000 Cv (1 (mm) 300.0 estep Fine I	Ratio R 0.4 Summer) 0.7 Winter) 0.8 DVD Stat	750 340 tus OFF	
	Mar	rgin for Fi		lysis Tim	estep Fine I			
Ret	eturn P	Prof aration(s) Period(s) imate Char	(years)		D, 60, 120, 14 , 960, 1440, 2	Summe 30, 240, 36 2160, 2880,	er and Wint 0, 480, 60	0, 0, 80 00
	JS/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	
				-	<b>···- y •</b>			
S10.000 S11.000		15 Winter 15 Winter	1	+0% +0%	30/15 Summer			
S11.000 S11.001		360 Winter	1	+03	30/30 Summer			
S10.001		15 Winter	1	+0%	20,00 Duniner			
s12.000		360 Winter	1	+0%	1/180 Winter			
S12.001		360 Winter	1	+0%	1/60 Winter			
		30 Winter	1		.00/180 Winter			
S10.003 S	S34B	30 Winter	1	+0%	1/15 Winter			
U:	US/MH	Water Su Level	rcharged Depth	d Flooded Volume	Flow / Overf	Pipe low Flow		Level
PN N	Name	(m)	(m)	(m³)	Cap. (1/s	) (1/s)	Status	Exceeded
S10.000	S32	107.485	-0.188	3 0.000	0.06	9.5	OK	
S11.000		105.822	-0.078		0.46	6.4	OK	
	S2 .		-0.041	L 0.000	0.02	0.3	OK	
S11.001		105.809		0.000	0.06	11.9	OK	

MJA Consulting		Page 5
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	4
OX14 3NB	System 2	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

<u>1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm Sys 2</u>

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³ )	Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S12.001	S4	102.062	0.062	0.000	0.03		0.4	SURCHARGED	
S10.002	S34A	100.707	-0.893	0.000	0.01		13.1	OK	
S10.003	S34B	100.707	0.032	0.000	0.04		3.5	SURCHARGED	

	lting								Page 6
onarch H	ouse			Bodic	cote, Ba	anbury			
arton La	ne			Surfa	ice Wate	er Net	work		L'
X14 3NB				Syste	em 2				Micco
ate 05/1	0/201	8		Desig	ned by	mcsha	ne		
ile SW N	etwor	k 250918.1	mdx	Check	ed by				Dialinat
nnovyze						7.1.2			
Manho	Are I le Head l Sewad Nu	Hot Start Lo dloss Coeff ge per hect mber of Inp Number of C	on Facto rt (mins evel (mm (Global are (l/s out Hydro Dnline Co	<u>for Sto</u> <u>Simulatic</u> r 1.000 ) 0 ) 0.500 F ) 0.000 ographs 0 ontrols 3	rm Sys on Criter Additic MAE 'low per Number of Number of	<u>2</u> mal Flo DD Facto Person of Stor of Time	ow - % of or * 10m ³ Inlet C per Day age Struc /Area Dia	Total Flo /ha Storag oeffiecier (l/per/day ctures 2 agrams 0	ow 0.000 ge 2.000 nt 0.800
			<u>Synt</u> Model Region H 50 (mm) lood Ris	thetic Ra England an k Warning lysis Tim	infall De FSR nd Wales 20.000 (mm) 30	etails Ra Cv (Su Cv (Wi 0.0 Cine Ine	tio R 0 mmer) 0. nter) 0.3 DVD Sta	409 750 340 tus OFF	
I	Return	Prod Duration(s) Period(s) Climate Char	(years)				, 240, 36 60, 2880,	er and Win 50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0,	00, 60, 080 100
I	Return	Duration(s) Period(s)	(mins) (years) nge (%)			440, 21	, 240, 36 60, 2880, 7200,	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0,	00, 60, 080 100
PN	Return (	Duration(s) Period(s)	(mins) (years) nge (%)	720. Climate	, 960, 1 ⁴	440, 21 (X)	, 240, 36 60, 2880, 7200,	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0,	00, 60, 080 100 40 ) Overflow
	Return ( US/MH	Ouration(s) Period(s) Climate Char	(mins) (years) nge (%) Return	720. Climate	, 960, 14 <b>First</b>	440, 21 (X)	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN	Return ( US/MH Name S32	Ouration(s) Period(s) Climate Char Storm	(mins) (years) nge (%) Return Period	720 Climate Change	, 960, 14 <b>First</b>	440, 21 (X) : rge	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN S10.000 S11.000 S11.001	CUS/MH Name S32 S2 S3	Duration(s) Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter	(mins) (years) nge (%) Return Period 30 30 30	720 <b>Climate</b> <b>Change</b> +0% +0% +0%	, 960, 14 First Surcha	440, 21 (X) : rge Gummer	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN S10.000 S11.000 S11.001 S10.001	Return ( <b>US/MH</b> Name S32 S3 S33	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter	(mins) (years) nge (%) Return Period 30 30 30 30	720, Climate Change +0% +0% +0% +0%	, 960, 14 First Surchar 30/15 s 30/30 s	(X) rge Summer Summer	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000	Return ( US/MH Name S32 S3 S33 S3	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30	720, Climate Change +0% +0% +0% +0% +0%	First Surchar 30/15 s 30/30 s 1/180 W	(X) rge Summer Summer	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001	Return ( US/MH Name S32 S33 S33 S3 S4	Period(s) Climate Char Storm 15 Winter 240 Winter 15 Winter 360 Winter 360 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30	720, Climate Change +0% +0% +0% +0% +0%	First Surchar 30/15 s 30/30 s 1/180 w 1/60 w	(X) rge Summer Summer Jinter Jinter	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	Return ( <b>US/MH</b> Name S32 S33 S3 S3 S3 S4 S34A	Period(s) Climate Char Storm 15 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30	720, Climate Change +0% +0% +0% +0% +0% +0% +0% +0% +0%	First Surchar 30/15 s 30/30 s 1/180 W	(X) rge Summer Jinter Jinter Jinter	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001	Return ( US/MH Name S32 S33 S33 S3 S4	Period(s) Climate Char Storm 15 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30	720, Climate Change +0% +0% +0% +0% +0%	First Surcha 30/15 s 30/30 s 1/180 w 1/60 w 00/180 w	(X) rge Summer Jinter Jinter Jinter	, 240, 36 60, 2880, 7200, First (Y)	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	Return ( <b>US/MH</b> Name S32 S33 S3 S3 S3 S4 S34A	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30 30 30	720, <b>Climate</b> <b>Change</b> +0% +0% +0% +0% +0% +0% +0% +0%	First Surcha 30/15 s 30/30 s 1/180 w 1/60 w 00/180 w	(X) rge Summer Jinter Jinter Jinter	, 240, 36 60, 2880, 7200, First (Y) Flood	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	Return ( <b>US/MH</b> Name S32 S33 S3 S3 S3 S3 S4 S34A S34A S34B	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter 60 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30 30 30	720, <b>Climate</b> <b>Change</b> +0% +0% +0% +0% +0% +0% +0% 1 +0%	First Surcha 30/15 s 30/30 s 1/180 m 1/60 m 00/180 m 1/15 m	(X) rge Summer Jinter Jinter Jinter Jinter	<pre>, 240, 36 60, 2880, 7200, First (Y) Flood Pipe</pre>	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow v Act.
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002 \$10.003	Return US/MH Name S32 S33 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter 60 Winter Water Su Level	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30 20 50 Epth	720, Climate Change +0% +0% +0% +0% +0% +0% +0% 1 +0% 1 +0% Volume	<pre>First Surcha: 30/15 s 30/30 s 1/180 w 1/60 w 00/180 w 1/15 w</pre>	(X) rge Summer Summer Jinter Jinter Jinter Overflc	<pre>, 240, 36 60, 2880, 7200, First (Y) Flood Pipe w Flow</pre>	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z Overflow	00, 60, 080 100 40 ) Overflow
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	Return ( <b>US/MH</b> Name S32 S33 S3 S3 S3 S3 S4 S34A S34A S34B	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter 60 Winter	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30 30 30	720, <b>Climate</b> <b>Change</b> +0% +0% +0% +0% +0% +0% +0% 1 +0%	First Surcha 30/15 s 30/30 s 1/180 m 1/60 m 00/180 m 1/15 m	(X) rge Summer Jinter Jinter Jinter Jinter	<pre>, 240, 36 60, 2880, 7200, First (Y) Flood Pipe</pre>	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z	00, 60, 080 100 40 ) Overflow v Act. Level
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002 \$10.003	Return US/MH Name S32 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3	Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter 60 Winter Water Su Level	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30 20 50 Epth	720, Climate Change +0% +0% +0% +0% +0% +0% +0% +0% 1 +0% 4 Flooded Volume (m ³ )	<pre>First Surcha: 30/15 s 30/30 s 1/180 w 1/60 w 00/180 w 1/15 w</pre>	(X) rge Summer Summer Jinter Jinter Jinter Overflc	<pre>, 240, 36 60, 2880, 7200, First (Y) Flood Pipe w Flow</pre>	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z Overflow	00, 60, 080 100 40 ) Overflow Act. Level Exceeded
PN \$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002 \$10.003 PN \$10.000 \$11.000	Return US/MH Name S32 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3	Period(s) Period(s) Climate Char Storm 15 Winter 240 Winter 240 Winter 15 Winter 360 Winter 360 Winter 60 Winter 60 Winter Water Su Level (m) 107.508 105.963	(mins) (years) nge (%) Return Period 30 30 30 30 30 30 30 30 30 30 30 30 30	720, Climate Change +0% +0% +0% +0% +0% +0% +0% 1 +0% 4 Flooded Volume (m ³ ) 5 0.000 8 0.000	<pre>First Surcha: 30/15 s 30/30 s 1/180 W 1/60 W 1/15 W Flow / Gap. 0.16 0.20</pre>	(X) rge Summer Summer Jinter Jinter Jinter Overflc	<pre>, 240, 36 60, 2880, 7200, First (Y) Flood Pipe w Flow (1/s) 23.4</pre>	50, 480, 6 4320, 57 8640, 10 1, 30, 0, 0, First (Z Overflow Status	00, 60, 080 100 40 ) Overflow Act. Level Exceeded
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MJA Consulting		Page 7
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	4
OX14 3NB	System 2	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	

<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm Sys 2</u>

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³ )	Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S12.001	S4	102.362	0.362	0.000	0.04		0.6	SURCHARGED	
S10.002	S34A	100.992	-0.608	0.000	0.01		21.6	OK	
S10.003	S34B	100.992	0.317	0.000	0.04		3.5	SURCHARGED	

	lting							Page 8
onarch H	ouse			Bodic	cote, Banbur	У		5
arton La	ne			Surfa	ace Water Ne	twork		1 L
X14 3NB				Syste	em 2			Micco
ate 05/1	0/201	8		Desig	ned by mcsh	ane		MICCO
ile SW N	letwor	k 250918.n	mdx	Checł	ked by			Drainag
nnovyze					ork 2017.1.2			
<u>100 year</u>			<u>1)</u>	) for St Simulatic	<u>itical Resu</u> torm Sys 2 on Criteria Additional F	_		
	He Head l Sewag Nu	Hot Start Le dloss Coeff ge per hecta mber of Inp Number of C	rt (mins) evel (mm) (Global) are (l/s) put Hydro Online Co	) 0 0.500 F 0.000 graphs 0 ntrols 3	MADD Fac Flow per Perso Number of Sto Number of Tir	tor * 10m Inlet ( n per Day prage Stru me/Area Di	<pre>%/ha Storag Coeffiecien (1/per/day ctures 2 agrams 0</pre>	re 2.000 it 0.800
	N	umber of Of			Number of Rea		ntrols O	
		Rainfall	Model			Ratio R 0.		
				ngland a	nd Wales Cv (S			
		M5-6	50 (mm)		20.000 Cv (V	Vinter) 0.	840	
	-10	-	Anal	lysis Tim	(mm) 300.0 Nestep Fine I tatus ON	nertia Sta	atus OFF	
1		Prof Duration(s) Period(s)			0, 60, 120, 18 , 960, 1440, 2	80, 240, 3 2160, 2880		00, 60, 080
-		Climate Char					0, 0,	
	US/MH	Storm	Return ( Period		First (X) Surcharge	First (Y Flood	) First (Z) Overflow	
PN	Name			yc	5 0 y C	- 1004		
PN	Name							
S10.000	S32	15 Winter		+40%	20/15 0			
S10.000 S11.000	S32 S2	15 Winter 360 Winter	100	+40%	30/15 Summer 30/30 Summer			
S10.000	S32 S2	15 Winter			30/15 Summer 30/30 Summer			
S10.000 S11.000 S11.001	S32 S2 S3 S33	15 Winter 360 Winter 360 Winter	100 100	+40% +40%				
\$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001	S32 S2 S3 S33 S3 S3 S4	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter	100 100 100 100 100	+40% +40% +40% +40% +40%	30/30 Summer 1/180 Winter 1/60 Winter			
\$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	S32 S2 S3 S3 S3 S4 S34A	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 180 Winter	100 100 100 100 100 100	+40% +40% +40% +40% +40% +40% 1	30/30 Summer 1/180 Winter 1/60 Winter 100/180 Winter			
\$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001	S32 S2 S3 S3 S3 S4 S34A	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter	100 100 100 100 100 100	+40% +40% +40% +40% +40%	30/30 Summer 1/180 Winter 1/60 Winter			
\$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	\$32 \$2 \$3 \$33 \$3 \$4 \$34A \$34B	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter 180 Winter 180 Winter	100 100 100 100 100 100 100 100	+40% +40% +40% +40% +40% +40% 1 +40%	30/30 Summer 1/180 Winter 1/60 Winter 100/180 Winter 1/15 Winter	Pipe		T 1
\$10.000 \$11.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002	S32 S2 S3 S3 S3 S4 S34A	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter 180 Winter 180 Winter	100 100 100 100 100 100 100	+40% +40% +40% +40% +40% +40% 1 +40%	30/30 Summer 1/180 Winter 1/60 Winter 100/180 Winter 1/15 Winter	Pipe low Flow	Status	Level Exceeded
\$10.000 \$11.000 \$11.001 \$12.000 \$12.001 \$10.002 \$10.003	S32 S2 S33 S3 S4 S34A S34B US/MH Name	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter 180 Winter 180 Winter Water Su Level	100 100 100 100 100 100 100 100 <b>nrcharged</b> Depth	+40% +40% +40% +40% +40% +40% 1 +40% 1 <b>Flooded</b> Volume (m ³ )	30/30 Summer 1/180 Winter 1/60 Winter 100/180 Winter 1/15 Winter Flow / Overf Cap. (1/s	Pipe low Flow	Status	Exceeded
\$10.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002 \$10.003	S32 S2 S33 S3 S3 S34 S34A S34B US/MH Name S32	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter 180 Winter 180 Winter Water Su Level (m)	100 100 100 100 100 100 100 100 <b>nrcharged</b> Depth (m)	+40% +40% +40% +40% +40% +40% +40% 1 <b>Flooded</b> Volume (m ³ ) 0.000	30/30 Summer 1/180 Winter 1/60 Winter 100/180 Winter 1/15 Winter Flow / Overf Cap. (1/s 0.29	Pipe low Flow ) (1/s) 42.6		Exceeded
\$10.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002 \$10.003 <b>PN</b> \$10.000	S32 S2 S33 S3 S4 S34A S34B US/MH Name S32 S2	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter 180 Winter 180 Winter Water Su Level (m) 107.530	100 100 100 100 100 100 100 100 100 <b>urcharged</b> Depth (m) -0.143	+40% +40% +40% +40% +40% +40% +40% 1 Flooded Volume (m ³ ) 0.000 0.000	30/30 Summer 1/180 Winter 1/60 Winter 1/60 Winter 1/15 Winter Flow / Overf Cap. (1/s 0.29 0.27	Pipe low Flow ) (1/s) 42.6 3.8	OK	Exceeded
\$10.000 \$11.001 \$10.001 \$12.000 \$12.001 \$10.002 \$10.003 <b>PN</b> \$10.000 \$11.000	\$32 \$2 \$33 \$3 \$34 \$34A \$34B <b>US/MH</b> Name \$32 \$2 \$3 \$33	15 Winter 360 Winter 360 Winter 15 Winter 480 Winter 480 Winter 180 Winter 180 Winter <b>Water Su</b> <b>Level</b> (m) 107.530 106.209	100 100 100 100 100 100 100 100 100 <b>urcharged</b> Depth (m) -0.143 0.309	+40% +40% +40% +40% +40% +40% +40% <b>5</b> <b>Flooded</b> <b>Volume</b> (m ³ ) 0.000 0.000 0.000	30/30 Summer 1/180 Winter 1/60 Winter 1/60 Winter 1/15 Winter <b>Flow / Overf:</b> <b>Cap. (1/s</b> 0.29 0.27 0.04 0.26	Pipe low Flow ) (1/s) 42.6 3.8 0.6 55.9	OK SURCHARGED	Exceeded

MJA Consulting		Page 9
Monarch House	Bodicote, Banbury	
Barton Lane	Surface Water Network	<u> </u>
OX14 3NB	System 2	Micco
Date 05/10/2018	Designed by mcshane	
File SW Network 250918.mdx	Checked by	Drainage
Innovyze	Network 2017.1.2	1

100 year Return Period Summary of Critical Results by Maximum Level (Rank <u>1) for Storm Sys 2</u>

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³ )	Flow / Cap.	Overflow (1/s)	Pipe Flow (l/s)	Status	Level Exceeded
S12.001	S4	102.842	0.842	0.000	0.06		0.8	SURCHARGED	
S10.002	S34A	101.607	0.007	0.000	0.01		18.8	SURCHARGED	
S10.003	S34B	101.607	0.932	0.000	0.04		3.6	SURCHARGED	



Oxford Road, Bodicote Flood Risk Assessment Addendum Rev B

## **APPENDIX G** SUDS MANAGEMENT & MAINTENANCE PLAN





# OXFORD ROAD, BODICOTE OXON

# SUDS MANAGEMENT & MAINTENANCE PLAN



Date: 4th October 2018 Ref: AMc/18/**5627** Rev: -



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## DOCUMENT CONTROL RECORD

#### **Document Issue:**

Rev	Date	Issue Status	Prepared by	Checked by
-	04.10.17	First Issue	A. Mcshane	C. Pendle

#### **References:**

The SUDS manual – CIRIA C753 (2015) ISBN 9780-86017-760-9

National Planning Policy Framework (NPPF) – Communities and Local Government Technical Guidance - Flood Risk & Coastal Change (March 2012)









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## **1** Introduction

- 1.1 This document sets out the principles for the long term management and maintenance of the proposed surface water Sustainable Drainage Systems (SuDS) installed at the residential development located at Oxford Road, Bodicote, Oxon for Crest Nicholson Midlands.
- 1.2 The purpose of this document is to set out the basis of the development SUDs Maintenance Plan and to ensure that the adopting management company is entrusted with a robust inspection and maintenance programme, ensuring the optimum operation of the surface water drainage network is continually maintained for the lifetime of the development and to prevent the increased risk of flooding both on and off site in accordance with The National Planning Policy Framework (NPPF).
- 1.3 The principle storm water drainage strategy for the development is to utilise an attenuated and controlled discharge to the existing surface water outfall sewer for all surface water runoff generated from the site.
- 1.4 This document details the SuDS structures within development and their required maintenance processes to ensure that no polluted runoff is discharged downstream.
- 1.5 This plan has been comprised of and is directly referenced from the latest technical SuDS guidance within the *CIRIA Report C753 The SuDS Manual* (2015) and other applicable guidance.
- 1.6 The activities listed are specific to the relative SuDS types and represent the minimum maintenance and inspection requirements, however additional tasks or varied maintenance frequency may be instructed by the maintenance company as required. Specific maintenance needs of the SuDS elements to be monitored and maintenance schedules adjusted to suit requirements.
- 1.7 All those responsible for maintenance must follow relevant health and safety legislation for all activities listed within this report (including lone working and confined space if relevant) and risk assessments for inspections and maintenance activities must always be undertaken.
- 1.8 This report is to read in conjunction with the Engineering design layouts for the type and location of all SuDS systems present on this site.



# 2 SuDS Layout & Design

- 2.1 The installed SuDS system at this development are the responsibility of Crest Nicholson Midlands Ltd and their appointed Management Company.
- 2.2 Following installation and after transfer, all SuDS are to be maintained in perpetuity by the Management Company and shall ensure that it or any contractor employed by it carries out periodic maintenance of all such SuDS in accordance with the schedules listed in this report. Inspection checks shall be carried out by a qualified and competent person, at the minimum intervals listed within the schedules and the appropriate work carried out.
- 2.3 In terms of water quality, the proposed surface water system offers a suitable level of mitigation in accordance with the Environment Agency pollution prevention guidance GP3, NPPF, CIRIA C753 and DEFRA guidance.
- 2.4 There are three categories of maintenance activities referred to in this report:
  - **Regular maintenance** (including inspections and monitoring). Consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, inspections and sampling.

## • Occasional maintenance

Comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).

## • Remedial maintenance

Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.



## **3** SUDS Management & Maintenance

## Storm water pipework and road gullies

- 3.1 The key maintenance requirement for the surface water drainage system includes the removal of sediments and debris from the system as required.
- 3.2 All storm water pipe work should be visually inspected a minimum of monthly for the first three months after installation and then a minimum of once year.

As road gullies are the first on the treatment train and susceptible to higher silt loadings, these will need to be inspected a minimum of monthly for the first three months after installation and then a minimum of every four months.

- 3.3 During this inspection identify any gully pots or pipes that require remedial maintenance such removal of sediment, debris, leaves and litter as required. This involves the removal all protective covers and grids and the cleaning out of channels or gully pots by hand or with suitable jetting equipment.
- 3.4 The main highways will be offered to OCC for adoption. As part of this adoption the associated gullies and any highway drainage pipework will transfer to OCC ownership and be maintained as part of the standard highway maintenance procedures.
- 3.5 The main storm drainage will be offered to Thames Water for adoption. As part of this adoption the associated pipework and manholes will transfer to Thames Water Utilities ownership and be maintained as part of their term maintenance procedures.

## Parking Court Drainage

3.6 General yard gully and linear channel maintenance involves the removal of dead leaves, soil, litter from the gratings and sediments from the sump within the gully pot or channel. This involves the removal all protective covers and grids and the cleaning out of channels or gully pots by hand or with suitable jetting equipment.
During the first year of operation each gully and channel to be inspected every 3 months, and every 6 months thereafter for structural integrity and cleaned out as required.

## **Cellular Attenuation Tank**

3.7 The key maintenance requirement for the cellular attenuation tank will be the visual inspection of the internal units via built in access chambers and integral maintenance tunnel for the removal of sediment and jetting as required.

A visual inspection of the impermeable geomembrane that envelopes the structure should also be carried out to check for structural integrity.



3.8 The attenuation tank is to be constructed from cellular units that allow internal CCTV and jetting access for inspection and maintenance (Hydro StormBloc, Aco Stormbrixx, Wavin Aquacell or similar approved).

The built in modular inspection unit and maintenance tunnels within the attenuation tank allow almost the entire volume of the structure to be inspected via CCTV camera and flushed through.

A catchpit chamber is to be installed immediately upstream of the attenuation tank to reduce the amount of silt entering the tank and it will generally only be necessary to ensure that the upstream catchpits / silt traps are free from debris such as leaves or sediment.

- 3.9 It is recommended that the attenuation tank system be inspected no less frequently than at monthly intervals for the first 3 months and thereafter at 6 monthly intervals.
  In addition, it is suggested that the installation is inspected immediately following the first storm event, whenever this should occur post installation.
- 3.10 It should also be noted that more regular inspections may be required should the catchpit(s) fill more frequently and/or if the initial inspections reveal that maintenance / cleaning will be required more regularly than at six month intervals.
- 3.11 Any silt & debris should be flushed to the inspection or catchpit manhole and removed in accordance with the Management Company policy for waste management.

Maintenance schedule	Required action	Recommended Frequency
	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
Regular maintenance	Where rainfall infiltrates into blocks from above, check surface of filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)
	Remove sediment from pre-treatment structures	Annually, or as required
Remedial actions	Repair/rehabilitation of inlets, outlet , overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

Cellular Systems - Operation and Maintenance Requirements



## Flow Control Chamber

- 3.12 The key maintenance requirement for the flow control chambers will be the inspection of the units for blockages of the vortex flow control unit and silt removal from sump of chamber.
- 3.13 The hydraulic vortex flow control unit has no moving parts and is self-activating, requiring minimal maintenance. After initial installation, it is recommended that the unit be inspected monthly for three months.
- 3.14 Thereafter the manhole chamber and control device should be inspected at least every six months to verify the condition and operation of the unit and check for blockages within the inlet of the chamber and of the flow control device.
   During these inspections, accumulated silts should be removed and the sump cleaned out using a conventional sump vacuum cleaner.
   Flow Controls are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.
- 3.15 As part of the main storm pipework adoption the flow control will be included and transfer to Thames Water Utilities ownership. Management & maintenance will be included within the term maintenance procedures.



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