Title	St Peter's Street & Pound Lane	Job No:	3554
Decription :	Estimate of Existing and Proposed	By:	JEM
	Peak Run-Off Rate and Volume	Date:	19/10/20
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Existing Site

Pre-Developed Site: Estimate Surface Water Run-Off Using the Modified Rational Method

Site Area = 1414 m^2

Existing Impermeable Area = 1414 m^2 (Area discharging to sewer at unrestricted rate)

Average Rate of Rainfall (Obtained from MicroDrainage using FEH data)

2 Year 15 Minute Event (M5-15D) = 34.154 mm/hr (i)   +40% 47.816 mm/hr (i)

30 Year 15 Minute Event (M5-15D) = 77.520 mm/hr (i)   +40% 108.53 mm/hr (i)

100 Year 15 Minute Event (M5-15D) = 99.200 mm/hr (i)   +40% 138.88 mm/hr (i)

FEH Rainfall data source:
Version 2013 FEH Data Set, Site: GB 614650 158103 (Point)

Peak Rate of Run-Off (Q_P)

$Q_P = C . A_P . i$ Where $C = C_V . C_R$

C_V = 0.75 (Volumetric Co-efficient)
C_R = 1.3 (Routing Co-efficient)

Q_{P1} = 13.080 l/s   +40% 18.311 l/s

Q_{P30} = 29.687 l/s   +40% 41.562 l/s

Q_{P100} = 37.989 l/s   +40% 53.185 l/s

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Proposed Development

Total Impermeable Area =   2627 m^2

Adjust Average Rainfall for Climate Change in Accordance with National Planning Policy, Technical Guidance, +40% for Period 2085 to 20115

M1-15D +40% =   47.816 mm/hr (i)

M30-15D +40% =   108.528 mm/hr (i)

M100 - 15D +40% =   138.880 mm/hr (i)

Proposed Peak Rate of Run-Off (Q_P)

Q_{P1} =   34.020 l/s

Q_{P30} =   77.215 l/s

Q_{P100} =   98.810 l/s

Peak Volume Run-Off

Whole Area Draining to Sewer =   2034   m^2

This is calculated using the 100 Year return period, 360 minute storm event

Average rainfall (M100-360D) =   12.103 mm/hr | +40%   16.944 mm/hr |

Average depth of rainfall =   72.618   mm (i_d) | 101.67   mm (i_d) |

Existing Volume Run-Off

$V = C . A_p . i$ | V =   144.01 m^3 | +40% V =   201.62 m^3 |

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Proposed Volume Run-Off

Allowance for Climate Change = 40%

Average Rainfall (M100-360D) + 40% =   16.944 mm/hr

Average Depth of Rainfall =   101.665 mm(i_d)

Proposed Volume Run-Off

$V = C \cdot AP \cdot i$ =   260.40 m^3

Additonal Volume

V_{add} = V(Proposed) - V(Existing)

V_{add} =   58.78 m^3