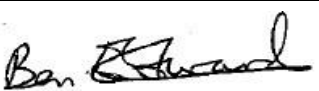
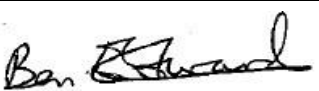
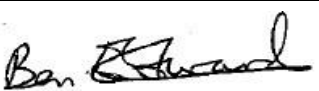


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Job No.	:	20139
Sheet	:	S1
Made by	:	BWE
Date	:	28.01.19
Checked	:	PWJL
Revision	:	-

Ref:	CALCULATIONS	Output.																															
	RESIDENTIAL DEVELOPMENT AT LLYS WERN NEATH, NEATH PORT TALBOT SA10 7PR Client: TAI TARIAN RCA Brief: Surface Water Drainage Design. Design Data: 1 Building Regulations Approved Document Part H. 2 Sewers for Adoption 7th Edition. 3 Site Location Co-Ordinates: - E 274398 - N 198631 4 Site Grid Reference: SS743986 5 Welsh Ministers Standards. Information Provided: Architectural Site Plan. Land Survey. Drainage Design By: Microdrainage 2018.1 Revisions: <table><thead><tr><th>Revision Version:</th><th>Description:</th><th>Date:</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table> <table><thead><tr><th colspan="2">Calculations Prepared By:</th><th colspan="2">Calculations Checked By:</th></tr></thead><tbody><tr><td colspan="2">Ben Edwards</td><td colspan="2">Philip Lawrence</td></tr></tbody></table> <table><thead><tr><th>Signed:</th><th>Date:</th><th>Signed:</th><th>Date:</th></tr></thead><tbody><tr><td></td><td>28.01.19</td><td></td><td>28.01.19</td></tr></tbody></table>	Revision Version:	Description:	Date:													Calculations Prepared By:		Calculations Checked By:		Ben Edwards		Philip Lawrence		Signed:	Date:	Signed:	Date:		28.01.19		28.01.19	Template Issue Date: 21.11.2018
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Date 08/01/2019 File 20139 1-100+30%- POROUS PAVI...	Designed by BWE Checked by PWJL	
Micro Drainage		Source Control 2018.1.1

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
60 min Winter	41.302	0.502	0.0	2.4	2.4	19.2	Flood Risk
120 min Winter	41.365	0.565	0.0	2.6	2.6	22.1	Flood Risk
180 min Winter	41.375	0.575	0.0	2.6	2.6	22.5	Flood Risk
240 min Winter	41.369	0.569	0.0	2.6	2.6	22.2	Flood Risk
360 min Winter	41.339	0.539	0.0	2.5	2.5	20.9	Flood Risk
480 min Winter	41.303	0.503	0.0	2.4	2.4	19.3	Flood Risk
600 min Winter	41.267	0.467	0.0	2.3	2.3	17.6	Flood Risk
720 min Winter	41.232	0.432	0.0	2.3	2.3	16.0	Flood Risk
960 min Winter	41.167	0.367	0.0	2.1	2.1	13.1	Flood Risk
1440 min Winter	41.066	0.266	0.0	1.9	1.9	8.6	O K
2160 min Winter	40.968	0.168	0.0	1.6	1.6	4.2	O K
2880 min Winter	40.909	0.109	0.0	1.4	1.4	1.8	O K
4320 min Winter	40.837	0.037	0.0	1.1	1.1	0.2	O K
5760 min Winter	40.800	0.000	0.0	0.9	0.9	0.0	O K
7200 min Winter	40.800	0.000	0.0	0.8	0.8	0.0	O K
8640 min Winter	40.800	0.000	0.0	0.7	0.7	0.0	O K
10080 min Winter	40.800	0.000	0.0	0.6	0.6	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
60 min Winter	49.663	0.0	25.5	62
120 min Winter	33.288	0.0	34.4	100
180 min Winter	25.665	0.0	39.9	140
240 min Winter	21.303	0.0	44.3	178
360 min Winter	16.317	0.0	51.0	252
480 min Winter	13.466	0.0	56.1	324
600 min Winter	11.584	0.0	60.3	394
720 min Winter	10.233	0.0	64.0	462
960 min Winter	8.398	0.0	70.1	592
1440 min Winter	6.332	0.0	79.2	842
2160 min Winter	4.769	0.0	89.5	1196
2880 min Winter	3.906	0.0	97.6	1532
4320 min Winter	2.955	0.0	110.5	2208
5760 min Winter	2.433	0.0	121.0	0
7200 min Winter	2.099	0.0	130.3	0
8640 min Winter	1.867	0.0	138.8	0
10080 min Winter	1.695	0.0	146.8	0

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.900	Shortest Storm (mins)	15
Ratio R	0.218	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.063

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4 0.021	4	8 0.021	8	12 0.021

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Model Details

Storage is Online Cover Level (m) 41.400

Porous Car Park Structure

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 10.0
Membrane Percolation (mm/hr) 1000	Length (m) 15.0
Max Percolation (l/s) 41.7	Slope (1:X) 100.0
Safety Factor 2.0	Depression Storage (mm) 5
Porosity 0.30	Evaporation (mm/day) 3
Invert Level (m) 40.800	Membrane Depth (m) 0

Orifice Outflow Control

Diameter (m) 0.039 Discharge Coefficient 0.600 Invert Level (m) 40.700

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