



West Winch Housing Access Road

Environmental Statement Chapter 11: Water: Appendix I: Hydraulic Calculations

Author: Info Drainage

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1 Introduction

- 1.1.1 A set of calculations output from the Infodrainage hydraulic design software which detail the proposed surface water drainage systems and their performance in various design storm scenarios. If you require this document in a more accessible format please contact westwinchhar@norfolk.gov.uk.

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Pond

Type : Pond

Dimensions

Exceedance Level (m)	10.700
Depth (m)	1.050
Base Level (m)	9.650
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.731
Total Volume (m³)	2126.933

Depth (m)	Area (m²)	Volume (m³)
0.000	2576.00	0.000
1.050	3329.00	3091.689

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	4.004
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)


Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (6)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	5.001
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	1.007
Bypass Destination	(None)
Capacity Type	No Restriction

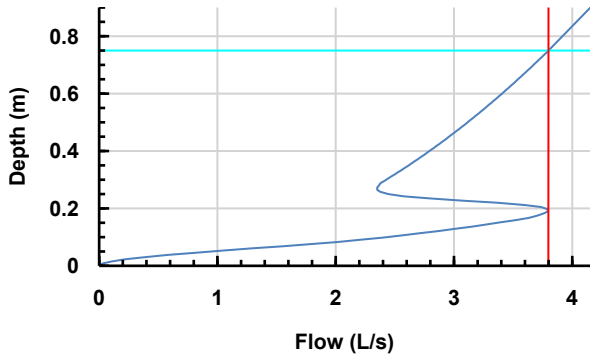
West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
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		WSP UK LTD: 8 First Street Manchester M154GU		

Outlets

Outlet


Outgoing Connection	1.008
Outlet Type	Hydro-Brake®
Invert Level (m)	9.650
Design Depth (m)	0.750
Design Flow (L/s)	3.8
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	<input type="checkbox"/>

Unit Reference	CHE-0093-3800-0750-3800
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Advanced

Perimeter	Circular
Length (m)	86.141
Friction Scheme	Manning's n
n	0.04

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH1	12.583 11.007	Diameter / Length: 1.200					Manhole
E:563383.769 N:315061.967	1.576		{a} 1.000	Pipe	11.008	Diam/Width:375	Not Applicable
MH17	11.780 10.020	Diameter / Length: 1.200	{1} 4.001	Pipe	10.246	Diam/Width:375	Manhole
E:563533.764 N:314885.875	1.760		{a} 4.002	Pipe	10.021	Diam/Width:375	Not Applicable
MH18	11.300 9.854	Diameter / Length: 1.200	{1} 4.002	Pipe	9.855	Diam/Width:375	Manhole
E:563499.353 N:314828.916	1.446		{a} 4.003	Pipe	9.855	Diam/Width:375	Not Applicable
MH19	10.775 9.774	Diameter / Length: 1.200	{1} 4.003	Pipe	9.775	Diam/Width:375	Manhole
E:563486.016 N:314798.495	1.001		{a} 4.004	Pipe	9.775	Diam/Width:375	Not Applicable
Outfall MH	10.500 9.499	Diameter / Length: 1.200	{1} 1.008	Pipe	9.500	Diam/Width:300	Manhole
E:563567.105 N:314725.860	1.001						Not Applicable


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		WSP UK LTD: 8 First Street Manchester M154GU			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH20	11.354 10.079	Diameter / Length: 1.200					Manhole
E:563468.208 N:314717.943	1.275		{a} 5.000	Pipe	10.079	Diam/Width:375	Not Applicable
MH3	12.032 10.376	Diameter / Length: 1.200	{1} 2.003	Pipe	10.376	Diam/Width:450	Manhole
E:563472.900 N:314974.533	1.656		{2} 1.001	Pipe	10.530	Diam/Width:450	
			{a} 1.002	Pipe	10.380	Diam/Width:600	Not Applicable
MH4	12.600 11.100	Diameter / Length: 1.200					Manhole
E:563469.146 N:314896.251	1.500		{a} 2.000	Pipe	11.100	Diam/Width:300	Not Applicable
MH5	12.200 10.821	Diameter / Length: 1.200	{1} 2.000	Pipe	10.896	Diam/Width:300	Manhole
E:563445.664 N:314934.065	1.379		{a} 2.001	Pipe	10.821	Diam/Width:375	Not Applicable

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Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH6	11.980 10.610	Diameter / Length: 1.200	{1} 2.001	Pipe	10.685	Diam/Width:375	Manhole
E:563443.853 N:314963.602	1.370		{2} 3.001	Pipe	10.761	Diam/Width:300	
			{a} 2.002	Pipe	10.610	Diam/Width:450	Not Applicable
MH9	11.841 10.526	Diameter / Length: 1.200	{1} 2.002	Pipe	10.526	Diam/Width:450	Manhole
E:563456.060 N:314977.309	1.315		{a} 2.003	Pipe	10.526	Diam/Width:450	Not Applicable
MH8	12.170 10.848	Diameter / Length: 1.200	{1} 3.000	Pipe	10.848	Diam/Width:300	Manhole
E:563421.159 N:314973.417	1.322		{a} 3.001	Pipe	10.848	Diam/Width:300	Not Applicable
MH7	12.560 11.060	Diameter / Length: 1.200					Manhole
E:563394.177 N:315027.070	1.500		{a} 3.000	Pipe	11.060	Diam/Width:300	Not Applicable
MH10	11.434 10.168	Diameter / Length: 1.200	{1} 1.002	Pipe	10.243	Diam/Width:600	Manhole
E:563511.058 N:314934.964	1.266		{a} 1.003	Pipe	10.168	Diam/Width:675	Not Applicable

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		WSP UK LTD: 8 First Street Manchester M154GU		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH12	11.611 10.070	Diameter / Length: 1.200	{1} 1.004	Pipe	10.070	Diam/Width:675	Manhole
E:563519.394 N:314898.574	1.541		{a} 1.005	Pipe	10.070	Diam/Width:675	Not Applicable
MH16	11.891 10.324	Diameter / Length: 1.200	{1} 4.000	Pipe	10.324	Diam/Width:375	Manhole
E:563558.775 N:314915.598	1.567		{a} 4.001	Pipe	10.324	Diam/Width:375	Not Applicable
MH11	11.589 10.115	Diameter / Length: 1.200	{1} 1.003	Pipe	10.117	Diam/Width:675	Manhole
E:563519.931 N:314916.382	1.474		{a} 1.004	Pipe	10.115	Diam/Width:675	Not Applicable
MH2	12.389 10.717	Diameter / Length: 1.200	{1} 1.000	Pipe	10.792	Diam/Width:375	Manhole
E:563431.486 N:315015.159	1.672		{a} 1.001	Pipe	10.717	Diam/Width:450	Not Applicable
MH15	11.807 10.431	Diameter / Length: 1.200					Manhole
E:563533.368 N:314954.672	1.376		{a} 4.000	Pipe	10.432	Diam/Width:375	Not Applicable

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Report Details: Type: Manhole Schedule Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		




Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH21	10.789 9.774	Diameter / Length: 1.200	{1} 5.000	Pipe	9.775	Diam/Width:375	Manhole
E:563484.463 N:314793.309	1.015		{2} 6.001	Pipe	9.775	Diam/Width:375	
			{a} 5.001	Pipe	9.775	Diam/Width:375	Not Applicable
MH22	11.609 10.408	Diameter / Length: 1.200					Manhole
E:563458.597 N:314718.273	1.201		{a} 6.000	Pipe	10.409	Diam/Width:375	Not Applicable
MH23	11.041 9.840	Diameter / Length: 1.200	{1} 6.000	Pipe	9.841	Diam/Width:375	Manhole
E:563475.204 N:314795.895	1.201		{a} 6.001	Pipe	9.841	Diam/Width:375	Not Applicable
MH13	11.557 9.969	Diameter / Length: 1.200	{1} 1.005	Pipe	9.970	Diam/Width:675	Manhole
E:563503.115 N:314860.168	1.588		{a} 1.006	Pipe	9.970	Diam/Width:675	Not Applicable
MH14	11.067 9.799	Diameter / Length: 1.200	{1} 1.006	Pipe	9.800	Diam/Width:675	Manhole
E:563476.110 N:314799.168	1.268		{a} 1.007	Pipe	9.800	Diam/Width:675	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
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Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	MH7		Time of Concentration	0.129	20	0	20	0.026
Catchment Area (1)	MH22		Time of Concentration	0.067	100	0	100	0.067
Catchment Area (2)	MH18		Time of Concentration	0.048	100	0	100	0.048
Catchment Area (3)	MH19		Time of Concentration	0.021	100	0	100	0.021
Catchment Area (4)	MH20		Time of Concentration	0.061	100	0	100	0.061
Catchment Area (5)	MH1		Time of Concentration	0.126	100	0	100	0.126
Catchment Area (6)	Pond		Time of Concentration	0.474	20	0	20	0.095
Catchment Area (7)	MH5		Time of Concentration	0.079	100	0	100	0.079
Catchment Area (8)	MH6		Time of Concentration	0.057	100	0	100	0.057
Catchment Area (9)	MH8		Time of Concentration	0.023	100	0	100	0.023
Catchment Area (10)	MH7		Time of Concentration	0.079	100	0	100	0.079
Catchment Area (11)	MH9		Time of Concentration	0.044	100	0	100	0.044
Catchment Area (12)	MH3		Time of Concentration	0.114	100	0	100	0.114
Catchment Area (13)	MH10		Time of Concentration	0.094	100	0	100	0.094
Catchment Area (14)	MH11		Time of Concentration	0.156	100	0	100	0.156
Catchment Area (15)	MH12		Time of Concentration	0.049	100	0	100	0.049
Catchment Area (16)	MH16		Time of Concentration	0.074	100	0	100	0.074
Catchment Area (17)	MH16		Time of Concentration	0.160	20	0	20	0.032
Catchment Area (18)	MH13		Time of Concentration	0.054	100	0	100	0.054
Catchment Area (19)	MH14		Time of Concentration	0.023	100	0	100	0.023
TOTAL		0.0		1.933				1.323

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Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Flow Path (3)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
3.000	MH7	MH8	60.056	Pipe	283.00	0.6	300	12.560
3.001	MH8	MH6	24.726	Pipe	283.00	0.6	300	12.170

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
3.000	11.060	12.170	10.848		5	
3.001	10.848	11.980	10.761		5	

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Flow Path (2)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
2.000	MH4	MH5	44.512	Pipe	218.00	0.6	300	12.600
2.001	MH5	MH6	29.592	Pipe	218.00	0.6	375	12.200
Branch: 3.000								
3.000	MH7	MH8	60.056	Pipe	283.00	0.6	300	12.560
3.001	MH8	MH6	24.726	Pipe	283.00	0.6	300	12.170
2.002	MH6	MH9	18.355	Pipe	218.00	0.6	450	11.980
2.003	MH9	MH3	17.067	Pipe	113.78	0.6	450	11.841


Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
2.000	11.100	12.200	10.896		0	
2.001	10.821	11.980	10.685		5	
Branch: 3.000						
3.000	11.060	12.170	10.848		5	
3.001	10.848	11.980	10.761		5	
2.002	10.610	11.841	10.526		5	
2.003	10.526	12.032	10.376		5	

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Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Flow Path (4)	WSP UK LTD: 8 First Street Manchester M154GU		




Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
4.000	MH15	MH16	46.608	Pipe	432.000	0.6	375	11.807
4.001	MH16	MH17	38.846	Pipe	498.027	0.6	375	11.891
4.002	MH17	MH18	66.547	Pipe	400.884	0.6	375	11.780
4.003	MH18	MH19	33.216	Pipe	415.203	0.6	375	11.300
4.004	MH19	Pond	9.336	Pipe	373.435	0.6	375	10.775

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
4.000	10.432	11.891	10.324		0	
4.001	10.324	11.780	10.246		5	
4.002	10.021	11.300	9.855		0	
4.003	9.855	10.775	9.775		5	
4.004	9.775	10.700	9.750		5	

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Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
5.000	MH20	MH21	77.099	Pipe	253.616	0.6	375	11.354
Branch: 6.000								
6.000	MH22	MH23	79.379	Pipe	139.751	0.6	375	11.609
6.001	MH23	MH21	9.613	Pipe	145.658	0.6	375	11.041
5.001	MH21	Pond	8.922	Pipe	356.880	0.6	375	10.789

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
5.000	10.079	10.789	9.775		5	
Branch: 6.000						
6.000	10.409	11.041	9.841		5	
6.001	9.841	10.789	9.775		0	
5.001	9.775	10.700	9.750		0	

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Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Flow Path (5)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
6.000	MH22	MH23	79.379	Pipe	139.751	0.6	375	11.609
6.001	MH23	MH21	9.613	Pipe	145.658	0.6	375	11.041
Branch: 5.000								
5.000	MH20	MH21	77.099	Pipe	253.616	0.6	375	11.354
5.001	MH21	Pond	8.922	Pipe	356.880	0.6	375	10.789

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
6.000	10.409	11.041	9.841		5	
6.001	9.841	10.789	9.775		0	
Branch: 5.000						
5.000	10.079	10.789	9.775		5	
5.001	9.775	10.700	9.750		0	

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		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
1.000	MH1	MH2	66.842	Pipe	310.000	0.6	375	12.583
1.001	MH2	MH3	58.014	Pipe	310.000	0.6	450	12.389
Branch: 2.000								
2.000	MH4	MH5	44.512	Pipe	218.000	0.6	300	12.600
2.001	MH5	MH6	29.592	Pipe	218.000	0.6	375	12.200
Branch: 3.000								
3.000	MH7	MH8	60.056	Pipe	283.000	0.6	300	12.560
3.001	MH8	MH6	24.726	Pipe	283.000	0.6	300	12.170
2.002	MH6	MH9	18.355	Pipe	218.000	0.6	450	11.980
2.003	MH9	MH3	17.067	Pipe	113.780	0.6	450	11.841
1.002	MH3	MH10	54.970	Pipe	400.000	0.6	600	12.032
1.003	MH10	MH11	20.592	Pipe	400.000	0.6	675	11.434
1.004	MH11	MH12	17.816	Pipe	395.913	0.6	675	11.589
1.005	MH12	MH13	41.713	Pipe	417.134	0.6	675	11.611
1.006	MH13	MH14	66.711	Pipe	392.417	0.6	675	11.557
1.007	MH14	Pond	18.771	Pipe	375.426	0.6	675	11.067
Branch: 4.000								
4.000	MH15	MH16	46.608	Pipe	432.000	0.6	375	11.807
4.001	MH16	MH17	38.846	Pipe	498.027	0.6	375	11.891
4.002	MH17	MH18	66.547	Pipe	400.884	0.6	375	11.780
4.003	MH18	MH19	33.216	Pipe	415.203	0.6	375	11.300
4.004	MH19	Pond	9.336	Pipe	373.435	0.6	375	10.775
Branch: 5.000								
5.000	MH20	MH21	77.099	Pipe	253.616	0.6	375	11.354
Branch: 6.000								
6.000	MH22	MH23	79.379	Pipe	139.751	0.6	375	11.609
6.001	MH23	MH21	9.613	Pipe	145.658	0.6	375	11.041
5.001	MH21	Pond	8.922	Pipe	356.880	0.6	375	10.789
1.008	Pond	Outfall MH	16.696	Pipe	111.307	0.6	300	10.700

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Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Flow Path		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
1.000	11.008	12.389	10.792		5	
1.001	10.717	12.032	10.530		0	
Branch: 2.000						
2.000	11.100	12.200	10.896		0	
2.001	10.821	11.980	10.685		5	
Branch: 3.000						
3.000	11.060	12.170	10.848		5	
3.001	10.848	11.980	10.761		5	
2.002	10.610	11.841	10.526		5	
2.003	10.526	12.032	10.376		5	
1.002	10.380	11.434	10.243		5	
1.003	10.168	11.589	10.117		5	
1.004	10.115	11.611	10.070		5	
1.005	10.070	11.557	9.970		5	
1.006	9.970	11.067	9.800		5	
1.007	9.800	10.700	9.750		5	
Branch: 4.000						
4.000	10.432	11.891	10.324		0	
4.001	10.324	11.780	10.246		5	
4.002	10.021	11.300	9.855		0	
4.003	9.855	10.775	9.775		5	
4.004	9.775	10.700	9.750		5	
Branch: 5.000						
5.000	10.079	10.789	9.775		5	
Branch: 6.000						
6.000	10.409	11.041	9.841		5	
6.001	9.841	10.789	9.775		0	
5.001	9.775	10.700	9.750		0	
1.008	9.650	10.500	9.500		5	

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Flow Options


Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	<input type="checkbox"/>
Reduce Channel Depths	<input type="checkbox"/>

Manhole Options

Apply Offset	<input type="checkbox"/>
<p>An error has occurred while processing TextBox 'txtSynchroniseManholeInvertLevelsHeader': The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is not defined in the current context.</p>	
	<input type="checkbox"/>

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
Outfall MH	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	WSP UK LTD: 8 First Street Manchester M154GU		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Prefill Manhole Sumps	<input type="checkbox"/>
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall


FEH22 C1		Type: FEH
Site Location	GB 563250 314350 TF 63250 14350	
Rainfall Version	2013	
Data Type	Catchment	
Summer	<input checked="" type="checkbox"/>	
Winter	<input checked="" type="checkbox"/>	

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH22 C1: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (2)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.05	9.7	4.254
Catchment Area (3)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.02	4.2	1.824
Catchment Area (4)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.06	12.2	5.345
Catchment Area (7)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.08	15.9	6.945
Catchment Area (8)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.06	11.4	4.981
Catchment Area (9)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.02	4.6	2.021
Catchment Area (10)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.08	15.9	6.963
Catchment Area (11)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.04	8.8	3.836
Catchment Area	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.13	5.2	2.260
Catchment Area (6)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.47	19.1	8.323
Catchment Area (5)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.13	25.4	11.085
Catchment Area (12)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.11	22.9	10.015
Catchment Area (13)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.09	18.9	8.248
Catchment Area (14)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.16	31.5	13.731

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	



Catchment Area (15)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.05	9.8	4.293
Catchment Area (16)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.07	14.9	6.508
Catchment Area (1)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.07	13.5	5.892
Catchment Area (17)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.16	6.4	2.807
Catchment Area (18)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.05	10.9	4.750
Catchment Area (19)	FEH22 C1: 2 years: +0 %: 15 mins: Summer	0.02	4.6	1.991

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			




FEH22 C1: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (2)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.05	34.1	14.853
Catchment Area (3)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.02	14.6	6.368
Catchment Area (4)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.06	42.9	18.659
Catchment Area (7)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.08	55.7	24.255
Catchment Area (8)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.06	40.0	17.402
Catchment Area (9)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.02	16.2	7.048
Catchment Area (10)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.08	55.9	24.318
Catchment Area (11)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.04	30.8	13.410
Catchment Area	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.13	18.1	7.901
Catchment Area (6)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.47	66.8	29.056
Catchment Area (5)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.13	89.0	38.716
Catchment Area (12)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.11	80.4	34.972
Catchment Area (13)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.09	66.2	28.801
Catchment Area (14)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.16	110.2	47.954

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023	
		Designed by: Sufyyan Raja	Checked by:
		Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase		WSP UK LTD: 8 First Street Manchester M154GU	



Catchment Area (15)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.05	34.4	14.978
Catchment Area (16)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.07	52.2	22.726
Catchment Area (1)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.07	47.3	20.583
Catchment Area (17)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.16	22.5	9.813
Catchment Area (18)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.05	38.1	16.603
Catchment Area (19)	FEH22 C1: 30 years: +35 %: 15 mins: Summer	0.02	16.0	6.964

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH22 C1: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (2)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.05	45.6	19.845
Catchment Area (3)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.02	19.6	8.510
Catchment Area (4)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.06	57.3	24.934
Catchment Area (7)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.08	74.5	32.408
Catchment Area (8)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.06	53.5	23.248
Catchment Area (9)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.02	21.7	9.420
Catchment Area (10)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.08	74.7	32.497
Catchment Area (11)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.04	41.2	17.917
Catchment Area	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.13	24.3	10.554
Catchment Area (6)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.47	89.3	38.831
Catchment Area (5)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.13	119.0	51.738
Catchment Area (12)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.11	107.4	46.724
Catchment Area (13)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.09	88.5	38.487
Catchment Area (14)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.16	147.3	64.073

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	



Catchment Area (15)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.05	46.0	20.016
Catchment Area (16)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.07	69.8	30.366
Catchment Area (1)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.07	63.2	27.502
Catchment Area (17)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.16	30.1	13.110
Catchment Area (18)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.05	51.0	22.180
Catchment Area (19)	FEH22 C1: 100 years: +40 %: 15 mins: Summer	0.02	21.4	9.303

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH22 C1: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH22 C1: 2 years: +0 %: 960 mins: Winter	9.793	9.793	0.143	0.143	19.7	376.564	0.000	0.000	2.6	196.446	1757	82.295

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH22 C1: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH22 C1: 30 years: +35 %: 60 mins: Summer	9.892	9.892	0.242	0.242	517.1	643.775	0.000	0.000	3.8	19.077	1917	69.732

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
		Designed by:	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Sufyyan Raja		
		WSP UK LTD: 8 First Street Manchester M154GU		




**FEH22 C1: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank
By: Max. Outflow**

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH22 C1: 100 years: +40 %: 60 mins: Summer	9.976	9.976	0.326	0.326	691.4	875.450	0.000	0.000	3.8	13.605	2235	58.840

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023			
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			



FEH22 C1: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.008	FEH22 C1: 2 years: +0 %: 960 mins: Winter	Pipe	Pond	Outfall MH	10.700	9.793	0.033	196.394	0.6	0.03	2.6	OK
4.002	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH17	MH18	11.780	10.116	0.105	9.090	0.6	0.14	14.0	OK
4.003	FEH22 C1: 2 years: +0 %: 30 mins: Summer	Pipe	MH18	MH19	11.300	9.974	0.121	17.338	0.6	0.2	19.8	OK
4.004	FEH22 C1: 2 years: +0 %: 30 mins: Summer	Pipe	MH19	Pond	10.775	9.898	0.114	19.648	0.8	0.22	22.3	OK
2.000	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH4	MH5	12.600	11.100	0.005	0.000	0.0	0	0.0	OK
2.001	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH5	MH6	12.200	10.907	0.084	6.935	0.8	0.11	14.4	OK
2.002	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH6	MH9	11.980	10.758	0.143	23.045	1.0	0.2	44.3	OK
3.000	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH7	MH8	12.560	11.175	0.117	9.244	0.8	0.3	19.5	OK
3.001	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH8	MH6	12.170	10.968	0.114	11.155	0.8	0.3	19.9	OK
1.002	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH3	MH10	12.032	10.580	0.186	47.471	1.0	0.21	73.0	OK
2.003	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH9	MH3	11.841	10.662	0.171	26.852	0.9	0.17	50.8	OK
1.003	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH10	MH11	11.434	10.401	0.242	55.626	0.8	0.19	87.3	OK
1.004	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH11	MH12	11.589	10.367	0.247	69.196	0.9	0.23	110.1	OK
4.001	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH16	MH17	11.891	10.438	0.103	9.164	0.7	0.18	16.4	OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



1.000	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH1	MH2	12.583	11.121	0.107	11.020	0.8	0.18	20.6	OK
1.001	FEH22 C1: 2 years: +0 %: 30 mins: Summer	Pipe	MH2	MH3	12.389	10.810	0.089	14.190	0.7	0.09	16.3	OK
4.000	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH15	MH16	11.807	10.440	0.059	0.018	0.0	0	0.1	OK
5.000	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH20	MH21	11.354	10.153	0.090	5.317	0.5	0.09	10.8	OK
5.001	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH21	Pond	10.789	9.881	0.098	10.947	0.7	0.16	16.6	OK
6.000	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH22	MH23	11.609	10.477	0.067	5.435	0.9	0.07	11.5	OK
6.001	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH23	MH21	11.041	9.907	0.086	5.674	0.6	0.06	10.6	OK
1.006	FEH22 C1: 2 years: +0 %: 30 mins: Summer	Pipe	MH13	MH14	11.557	10.207	0.237	101.719	1.0	0.24	114.9	OK
1.007	FEH22 C1: 2 years: +0 %: 15 mins: Summer	Pipe	MH14	Pond	11.067	10.046	0.233	80.513	1.2	0.26	126.1	OK
1.005	FEH22 C1: 2 years: +0 %: 30 mins: Summer	Pipe	MH12	MH13	11.611	10.310	0.239	95.020	1.0	0.24	109.2	OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH22 C1: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.008	FEH22 C1: 30 years: +35 %: 60 mins: Summer	Pipe	Pond	Outfall MH	10.700	9.892	0.039	18.983	0.7	0.04	3.8	OK
4.002	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH17	MH18	11.780	10.214	0.228	32.153	0.7	0.52	52.0	OK
4.003	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH18	MH19	11.300	10.118	0.258	46.809	0.9	0.74	72.5	OK
4.004	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH19	Pond	10.775	10.027	0.230	52.992	1.1	0.79	80.8	OK
2.000	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH4	MH5	12.600	11.100	0.049	0.000	0.0	0	0.0	OK
2.001	FEH22 C1: 30 years: +35 %: 15 mins: Winter	Pipe	MH5	MH6	12.200	10.984	0.215	24.122	0.7	0.36	48.6	OK
2.002	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH6	MH9	11.980	10.966	0.372	80.559	1.1	0.69	151.5	OK
3.000	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH7	MH8	12.560	11.339	0.283	32.139	1.0	1.02	66.8	OK
3.001	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH8	MH6	12.170	11.135	0.250	38.905	1.2	1.13	74.0	OK
1.002	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH3	MH10	12.032	10.854	0.489	165.692	1.1	0.82	281.1	OK
2.003	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH9	MH3	11.841	10.913	0.433	93.919	1.1	0.56	169.0	OK
1.003	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH10	MH11	11.434	10.747	0.584	195.295	0.9	0.67	312.0	OK
1.004	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH11	MH12	11.589	10.705	0.574	243.020	1.2	0.86	404.1	OK
4.001	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH16	MH17	11.891	10.552	0.202	32.261	1.0	0.65	58.2	OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		




1.000	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH1	MH2	12.583	11.250	0.222	38.014	1.1	0.67	76.3	OK
1.001	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH2	MH3	12.389	10.911	0.259	38.110	0.7	0.38	69.5	OK
4.000	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH15	MH16	11.807	10.554	0.175	0.085	0.2	0.04	3.9	OK
5.000	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH20	MH21	11.354	10.223	0.183	18.581	0.7	0.31	39.4	OK
5.001	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH21	Pond	10.789	9.998	0.205	39.411	1.1	0.63	66.3	OK
6.000	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH22	MH23	11.609	10.541	0.150	20.214	1.1	0.26	44.3	OK
6.001	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH23	MH21	11.041	10.008	0.195	20.993	0.6	0.22	36.1	OK
1.006	FEH22 C1: 30 years: +35 %: 30 mins: Summer	Pipe	MH13	MH14	11.557	10.498	0.508	359.085	1.4	0.86	403.5	OK
1.007	FEH22 C1: 30 years: +35 %: 30 mins: Summer	Pipe	MH14	Pond	11.067	10.288	0.447	368.462	1.6	0.85	411.1	OK
1.005	FEH22 C1: 30 years: +35 %: 15 mins: Summer	Pipe	MH12	MH13	11.611	10.629	0.539	256.679	1.3	0.9	409.4	OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		

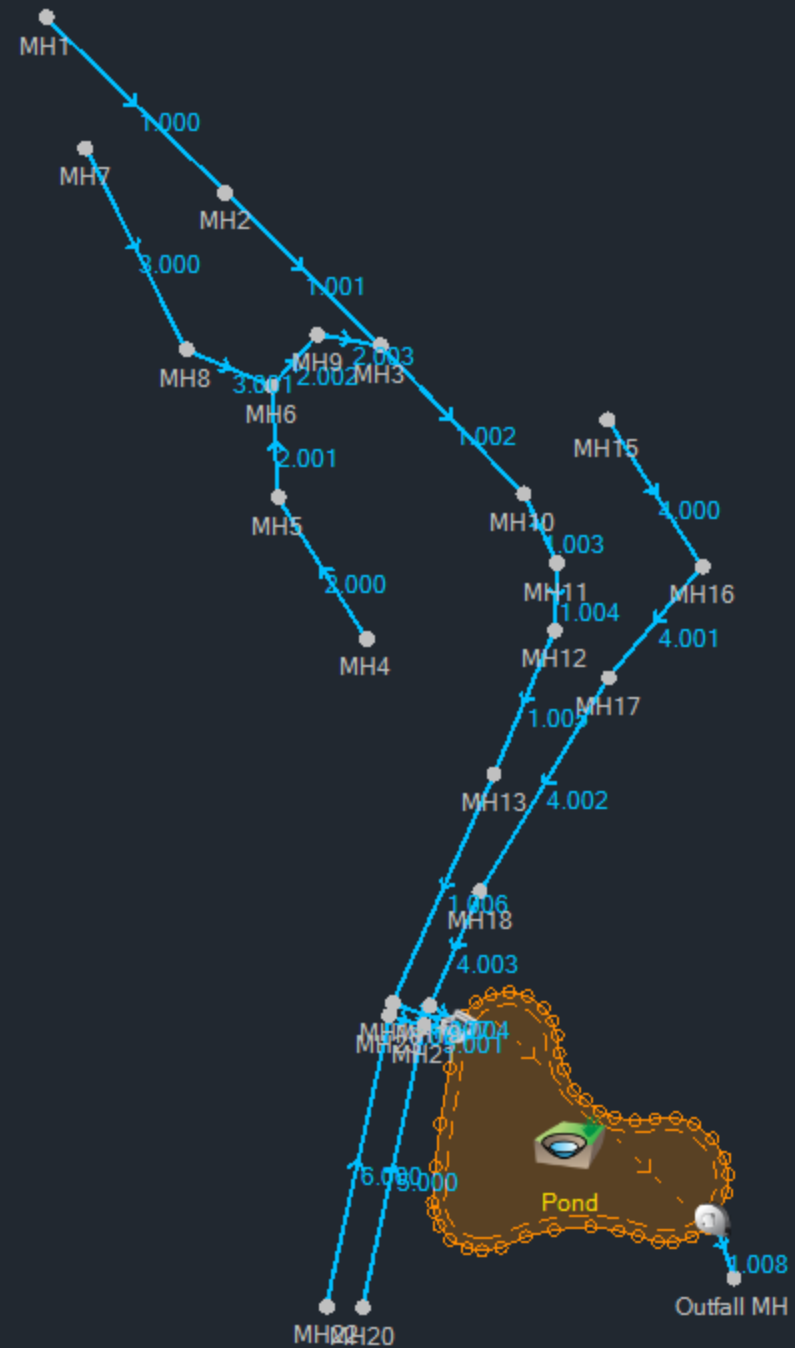


FEH22 C1: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.008	FEH22 C1: 100 years: +40 %: 480 mins: Summer	Pipe	Pond	Outfall MH	10.700	10.135	0.039	138.159	0.7	0.04	3.8	Surcharged
4.002	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH17	MH18	11.780	10.266	0.289	43.110	0.7	0.68	67.8	OK
4.003	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH18	MH19	11.300	10.188	0.319	62.732	1.0	1	97.6	OK
4.004	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH19	Pond	10.775	10.081	0.275	70.542	1.3	1.07	110.4	OK
2.000	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH4	MH5	12.600	11.148	0.196	0.438	0.2	0.06	4.6	OK
2.001	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH5	MH6	12.200	11.277	0.375	32.444	0.8	0.4	54.4	Surcharged
2.002	FEH22 C1: 100 years: +40 %: 30 mins: Summer	Pipe	MH6	MH9	11.980	11.217	0.450	142.059	1.1	0.67	146.8	Surcharged
3.000	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH7	MH8	12.560	11.935	0.300	42.839	1.2	1.34	88.1	Surcharged
3.001	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH8	MH6	12.170	11.515	0.300	52.009	1.4	1.49	97.7	Surcharged
1.002	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH3	MH10	12.032	11.153	0.600	222.724	1.1	0.91	311.4	Surcharged
2.003	FEH22 C1: 100 years: +40 %: 15 mins: Winter	Pipe	MH9	MH3	11.841	11.142	0.450	125.831	1.1	0.57	173.8	Surcharged
1.003	FEH22 C1: 100 years: +40 %: 30 mins: Summer	Pipe	MH10	MH11	11.434	10.943	0.675	345.366	1.0	0.78	364.7	Surcharged
1.004	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH11	MH12	11.589	10.952	0.675	325.939	1.3	1.03	481.5	Surcharged
4.001	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH16	MH17	11.891	10.603	0.242	43.182	1.1	0.9	79.8	OK

West Winch Housing Access Road - 70100518: Catchment 1 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-001-DRAFT			Date: 23/11/2023					
Report Details: Type: Connections Summary Storm Phase: Phase			Designed by: Sufyyan Raja	Checked by:	Approved By:			
			WSP UK LTD: 8 First Street Manchester M154GU					

1.000	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH1	MH2	12.583	11.316	0.297	49.634	1.2	0.98	110.4	OK
1.001	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH2	MH3	12.389	11.080	0.450	51.685	0.7	0.52	95.7	OK
4.000	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH15	MH16	11.807	10.600	0.223	0.092	0.1	0.05	4.8	OK
5.000	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH20	MH21	11.354	10.249	0.219	24.843	0.8	0.42	53.0	OK
5.001	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH21	Pond	10.789	10.043	0.244	51.918	1.2	0.86	90.1	OK
6.000	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH22	MH23	11.609	10.564	0.184	27.142	1.1	0.36	60.3	OK
6.001	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH23	MH21	11.041	10.054	0.240	27.905	0.7	0.3	48.9	OK
1.006	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH13	MH14	11.557	10.660	0.640	367.279	1.5	1.14	537.3	Surcharged
1.007	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH14	Pond	11.067	10.390	0.527	380.099	1.8	1.11	536.1	OK
1.005	FEH22 C1: 100 years: +40 %: 15 mins: Summer	Pipe	MH12	MH13	11.611	10.850	0.675	344.408	1.4	1.11	506.5	Surcharged



West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU		



Pond

Type : Pond

Dimensions

Exceedance Level (m)	10.900
Depth (m)	1.800
Base Level (m)	9.100
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.564
Total Volume (m³)	5736.610

Depth (m)	Area (m²)	Volume (m³)
0.000	3254.00	0.000
1.800	4680.43	7102.205


Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	1.005
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (4)
Bypass Destination	(None)
Capacity Type	No Restriction

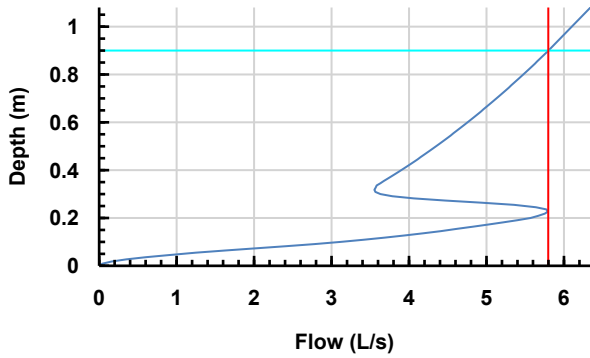
West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Stormwater Controls Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Outlets

Outlet


Outgoing Connection	1.006
Outlet Type	Hydro-Brake®
Invert Level (m)	9.100
Design Depth (m)	0.900
Design Flow (L/s)	5.8
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	<input type="checkbox"/>

Unit Reference	CHE-0109-5800-0900-5800
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Advanced


Perimeter	Circular
Length (m)	111.604
Friction Scheme	Manning's n
n	0.04

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH6	11.472 9.580	Diameter / Length: 1.650	{1} 2.000	Pipe	9.881	Diam/Width:300	Manhole
E:563582.783 N:315039.353	1.892		{2} 1.004	Pipe	9.656	Diam/Width:525	
			{3} 3.005	Pipe	9.581	Diam/Width:600	
			{a} 1.005	Pipe	9.581	Diam/Width:600	Not Applicable
Outfall MH	10.500 8.949	Diameter / Length: 1.200	{1} 1.006	Pipe	8.950	Diam/Width:300	Manhole
E:563643.838 N:315000.094	1.551						Not Applicable
MH1	19.067 17.416	Diameter / Length: 1.650					Manhole
E:563732.115 N:315784.916	1.651		{a} 1.000	Pipe	17.417	Diam/Width:450	Not Applicable
MH7	11.781 10.205	Diameter / Length: 1.200					Manhole
E:563572.480 N:314953.312	1.576		{a} 2.000	Pipe	10.206	Diam/Width:300	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH5	13.238 11.513	Diameter / Length: 1.200	{1} 1.003	Pipe	11.513	Diam/Width:525	Manhole
E:563614.676 N:315185.859	1.725		{a} 1.004	Pipe	11.513	Diam/Width:525	Not Applicable
MH4	15.171 13.446	Diameter / Length: 1.200	{1} 1.002	Pipe	13.521	Diam/Width:450	Manhole
E:563644.427 N:315332.907	1.725		{a} 1.003	Pipe	13.446	Diam/Width:525	Not Applicable
MH3	16.695 15.045	Diameter / Length: 1.200	{1} 1.001	Pipe	15.045	Diam/Width:450	Manhole
E:563673.221 N:315482.592	1.650		{a} 1.002	Pipe	15.045	Diam/Width:450	Not Applicable
MH2	17.034 15.384	Diameter / Length: 1.200	{1} 1.000	Pipe	15.384	Diam/Width:450	Manhole
E:563681.275 N:315525.440	1.650		{a} 1.001	Pipe	15.384	Diam/Width:450	Not Applicable
MH8	19.072 17.421	Diameter / Length: 1.200					Manhole
E:563715.254 N:315787.890	1.651		{a} 3.000	Pipe	17.422	Diam/Width:450	Not Applicable


West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH13	11.413 9.612	Diameter / Length: 1.200	{1} 3.004	Pipe	9.688	Diam/Width:525	Manhole
E:563570.120 N:315042.049	1.801		{2} 4.000	Pipe	9.838	Diam/Width:375	
			{a} 3.005	Pipe	9.613	Diam/Width:600	Not Applicable
MH14	11.622 10.146	Diameter / Length: 1.200					Manhole
E:563554.773 N:314972.754	1.476		{a} 4.000	Pipe	10.147	Diam/Width:375	
MH9	17.134 15.483	Diameter / Length: 1.200	{1} 3.000	Pipe	15.484	Diam/Width:450	Manhole
E:563666.897 N:315527.593	1.651		{a} 3.001	Pipe	15.484	Diam/Width:450	
MH10	16.729 15.078	Diameter / Length: 1.200	{1} 3.001	Pipe	15.079	Diam/Width:450	Manhole
E:563659.154 N:315484.749	1.651		{a} 3.002	Pipe	15.079	Diam/Width:450	
MH11	15.106 13.455	Diameter / Length: 1.200	{1} 3.002	Pipe	13.456	Diam/Width:450	Manhole
E:563631.585 N:315334.987	1.651		{a} 3.003	Pipe	13.456	Diam/Width:450	


West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU		



Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH12	13.178 11.452	Diameter / Length: 1.200	{1} 3.003	Pipe	11.528	Diam/Width:450	Manhole
E:563601.714 N:315187.927	1.726		{a} 3.004	Pipe	11.453	Diam/Width:525	Not Applicable


West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflow Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	MH1		Time of Concentration	0.331	100	0	100	0.331
Catchment Area (1)	MH3		Time of Concentration	0.149	100	0	100	0.149
Catchment Area (2)	MH4		Time of Concentration	0.183	100	0	100	0.183
Catchment Area (3)	MH5		Time of Concentration	0.185	100	0	100	0.185
Catchment Area (4)	Pond		Time of Concentration	0.712	20	0	20	0.142
Catchment Area (5)	MH6		Time of Concentration	0.192	100	0	100	0.192
Catchment Area (6)	MH7		Time of Concentration	0.109	100	0	100	0.109
Catchment Area (7)	MH8		Time of Concentration	0.330	100	0	100	0.330
Catchment Area (8)	MH10		Time of Concentration	0.057	100	0	100	0.057
Catchment Area (9)	MH11		Time of Concentration	0.190	100	0	100	0.190
Catchment Area (10)	MH12		Time of Concentration	0.175	100	0	100	0.175
Catchment Area (11)	MH13		Time of Concentration	0.206	100	0	100	0.206
Catchment Area (12)	MH14		Time of Concentration	0.112	100	0	100	0.112
TOTAL		0.0		2.931				2.361

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase (1) Flow Path: Southbound 1		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
1.000	MH1	MH2	264.409	Pipe	130.059	0.6	450	19.067
1.001	MH2	MH3	43.599	Pipe	128.610	0.6	450	17.034
1.002	MH3	MH4	152.429	Pipe	100.019	0.6	450	16.695
1.003	MH4	MH5	150.028	Pipe	77.614	0.6	525	15.171
1.004	MH5	MH6	149.937	Pipe	80.741	0.6	525	13.238
Branch: 2.000								
2.000	MH7	MH6	86.656	Pipe	266.633	0.6	300	11.781
Branch: 3.000								
3.000	MH8	MH9	264.751	Pipe	136.610	0.6	450	19.072
3.001	MH9	MH10	43.538	Pipe	107.501	0.6	450	17.134
3.002	MH10	MH11	152.279	Pipe	93.825	0.6	450	16.729
3.003	MH11	MH12	150.063	Pipe	77.834	0.6	450	15.106
3.004	MH12	MH13	149.260	Pipe	84.567	0.6	525	13.178
Branch: 4.000								
4.000	MH14	MH13	70.974	Pipe	229.690	0.6	375	11.622
3.005	MH13	MH6	12.947	Pipe	400.000	0.6	600	11.413
1.005	MH6	Pond	17.381	Pipe	45.618	0.6	600	11.472
1.006	Pond	Outfall MH	20.295	Pipe	135.303	0.6	300	10.900

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
1.000	17.417	17.034	15.384		5	
1.001	15.384	16.695	15.045		0	
1.002	15.045	15.171	13.521		5	
1.003	13.446	13.238	11.513		5	
1.004	11.513	11.472	9.656		5	
Branch: 2.000						
2.000	10.206	11.472	9.881		5	
Branch: 3.000						
3.000	17.422	17.134	15.484		5	
3.001	15.484	16.729	15.079		0	
3.002	15.079	15.106	13.456		5	
3.003	13.456	13.178	11.528		5	
3.004	11.453	11.413	9.688		5	
Branch: 4.000						
4.000	10.147	11.413	9.838		5	
3.005	9.613	11.472	9.581		5	
1.005	9.581	10.900	9.200		5	
1.006	9.100	10.500	8.950		5	

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase (1) Flow Path: Southbound 2		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
2.000	MH7	MH6	86.656	Pipe	266.633	0.6	300	11.781
Branch: 1.000								
1.000	MH1	MH2	264.409	Pipe	130.059	0.6	450	19.067
1.001	MH2	MH3	43.599	Pipe	128.610	0.6	450	17.034
1.002	MH3	MH4	152.429	Pipe	100.019	0.6	450	16.695
1.003	MH4	MH5	150.028	Pipe	77.614	0.6	525	15.171
1.004	MH5	MH6	149.937	Pipe	80.741	0.6	525	13.238
Branch: 3.000								
3.000	MH8	MH9	264.751	Pipe	136.610	0.6	450	19.072
3.001	MH9	MH10	43.538	Pipe	107.501	0.6	450	17.134
3.002	MH10	MH11	152.279	Pipe	93.825	0.6	450	16.729
3.003	MH11	MH12	150.063	Pipe	77.834	0.6	450	15.106
3.004	MH12	MH13	149.260	Pipe	84.567	0.6	525	13.178
Branch: 4.000								
4.000	MH14	MH13	70.974	Pipe	229.690	0.6	375	11.622
3.005	MH13	MH6	12.947	Pipe	400.000	0.6	600	11.413
1.005	MH6	Pond	17.381	Pipe	45.618	0.6	600	11.472
1.006	Pond	Outfall MH	20.295	Pipe	135.303	0.6	300	10.900

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
2.000	10.206	11.472	9.881		5	
Branch: 1.000						
1.000	17.417	17.034	15.384		5	
1.001	15.384	16.695	15.045		0	
1.002	15.045	15.171	13.521		5	
1.003	13.446	13.238	11.513		5	
1.004	11.513	11.472	9.656		5	
Branch: 3.000						
3.000	17.422	17.134	15.484		5	
3.001	15.484	16.729	15.079		0	
3.002	15.079	15.106	13.456		5	
3.003	13.456	13.178	11.528		5	
3.004	11.453	11.413	9.688		5	
Branch: 4.000						
4.000	10.147	11.413	9.838		5	
3.005	9.613	11.472	9.581		5	
1.005	9.581	10.900	9.200		5	
1.006	9.100	10.500	8.950		5	

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase (1) Flow Path: Northbound 2		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
4.000	MH14	MH13	70.974	Pipe	229.690	0.6	375	11.622
Branch: 3.000								
3.000	MH8	MH9	264.751	Pipe	136.610	0.6	450	19.072
3.001	MH9	MH10	43.538	Pipe	107.501	0.6	450	17.134
3.002	MH10	MH11	152.279	Pipe	93.825	0.6	450	16.729
3.003	MH11	MH12	150.063	Pipe	77.834	0.6	450	15.106
3.004	MH12	MH13	149.260	Pipe	84.567	0.6	525	13.178
3.005	MH13	MH6	12.947	Pipe	400.000	0.6	600	11.413
Branch: 2.000								
2.000	MH7	MH6	86.656	Pipe	266.633	0.6	300	11.781
Branch: 1.000								
1.000	MH1	MH2	264.409	Pipe	130.059	0.6	450	19.067
1.001	MH2	MH3	43.599	Pipe	128.610	0.6	450	17.034
1.002	MH3	MH4	152.429	Pipe	100.019	0.6	450	16.695
1.003	MH4	MH5	150.028	Pipe	77.614	0.6	525	15.171
1.004	MH5	MH6	149.937	Pipe	80.741	0.6	525	13.238
1.005	MH6	Pond	17.381	Pipe	45.618	0.6	600	11.472
1.006	Pond	Outfall MH	20.295	Pipe	135.303	0.6	300	10.900

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
4.000	10.147	11.413	9.838		5	
Branch: 3.000						
3.000	17.422	17.134	15.484		5	
3.001	15.484	16.729	15.079		0	
3.002	15.079	15.106	13.456		5	
3.003	13.456	13.178	11.528		5	
3.004	11.453	11.413	9.688		5	
3.005	9.613	11.472	9.581		5	
Branch: 2.000						
2.000	10.206	11.472	9.881		5	
Branch: 1.000						
1.000	17.417	17.034	15.384		5	
1.001	15.384	16.695	15.045		0	
1.002	15.045	15.171	13.521		5	
1.003	13.446	13.238	11.513		5	
1.004	11.513	11.472	9.656		5	
1.005	9.581	10.900	9.200		5	
1.006	9.100	10.500	8.950		5	

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase (1) Flow Path: Northbound 1		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
3.000	MH8	MH9	264.751	Pipe	136.610	0.6	450	19.072
3.001	MH9	MH10	43.538	Pipe	107.501	0.6	450	17.134
3.002	MH10	MH11	152.279	Pipe	93.825	0.6	450	16.729
3.003	MH11	MH12	150.063	Pipe	77.834	0.6	450	15.106
3.004	MH12	MH13	149.260	Pipe	84.567	0.6	525	13.178
Branch: 4.000								
4.000	MH14	MH13	70.974	Pipe	229.690	0.6	375	11.622
3.005	MH13	MH6	12.947	Pipe	400.000	0.6	600	11.413
Branch: 2.000								
2.000	MH7	MH6	86.656	Pipe	266.633	0.6	300	11.781
Branch: 1.000								
1.000	MH1	MH2	264.409	Pipe	130.059	0.6	450	19.067
1.001	MH2	MH3	43.599	Pipe	128.610	0.6	450	17.034
1.002	MH3	MH4	152.429	Pipe	100.019	0.6	450	16.695
1.003	MH4	MH5	150.028	Pipe	77.614	0.6	525	15.171
1.004	MH5	MH6	149.937	Pipe	80.741	0.6	525	13.238
1.005	MH6	Pond	17.381	Pipe	45.618	0.6	600	11.472
1.006	Pond	Outfall MH	20.295	Pipe	135.303	0.6	300	10.900

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
3.000	17.422	17.134	15.484		5	
3.001	15.484	16.729	15.079		0	
3.002	15.079	15.106	13.456		5	
3.003	13.456	13.178	11.528		5	
3.004	11.453	11.413	9.688		5	
Branch: 4.000						
4.000	10.147	11.413	9.838		5	
3.005	9.613	11.472	9.581		5	
Branch: 2.000						
2.000	10.206	11.472	9.881		5	
Branch: 1.000						
1.000	17.417	17.034	15.384		5	
1.001	15.384	16.695	15.045		0	
1.002	15.045	15.171	13.521		5	
1.003	13.446	13.238	11.513		5	
1.004	11.513	11.472	9.656		5	
1.005	9.581	10.900	9.200		5	
1.006	9.100	10.500	8.950		5	

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase (1) Flow Path: Flow Path		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
3.005	MH13	MH6	12.947	Pipe	400.000	0.6	600	11.413
Branch: 2.000								
2.000	MH7	MH6	86.656	Pipe	266.633	0.6	300	11.781
Branch: 1.000								
1.000	MH1	MH2	264.409	Pipe	130.059	0.6	450	19.067
1.001	MH2	MH3	43.599	Pipe	128.610	0.6	450	17.034
1.002	MH3	MH4	152.429	Pipe	100.019	0.6	450	16.695
1.003	MH4	MH5	150.028	Pipe	77.614	0.6	525	15.171
1.004	MH5	MH6	149.937	Pipe	80.741	0.6	525	13.238
1.005	MH6	Pond	17.381	Pipe	45.618	0.6	600	11.472
1.006	Pond	Outfall MH	20.295	Pipe	135.303	0.6	300	10.900

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
3.005	9.613	11.472	9.581		5	
Branch: 2.000						
2.000	10.206	11.472	9.881		5	
Branch: 1.000						
1.000	17.417	17.034	15.384		5	
1.001	15.384	16.695	15.045		0	
1.002	15.045	15.171	13.521		5	
1.003	13.446	13.238	11.513		5	
1.004	11.513	11.472	9.656		5	
1.005	9.581	10.900	9.200		5	
1.006	9.100	10.500	8.950		5	

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU		



Flow Options


Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	<input type="checkbox"/>
Reduce Channel Depths	<input type="checkbox"/>

Manhole Options

Apply Offset	<input type="checkbox"/>
<p>An error has occurred while processing TextBox 'txtSynchroniseManholeInvertLevelsHeader': The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is not defined in the current context.</p>	
	<input type="checkbox"/>

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU			

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
Outfall MH	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	WSP UK LTD: 8 First Street Manchester M154GU		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Pre-fill Manhole Sumps	<input type="checkbox"/>
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall


FEH	Type: FEH
Site Location	GB 563250 314350 TF 63250 14350
Rainfall Version	2013
Data Type	Catchment
Summer	<input checked="" type="checkbox"/>
Winter	<input checked="" type="checkbox"/>

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations


Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflows Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			



FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow


Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (4)	FEH: 2 years: +0 %: 15 mins: Summer	0.71	28.9	12.549
Catchment Area	FEH: 2 years: +0 %: 15 mins: Summer	0.33	67.1	29.145
Catchment Area (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.15	30.2	13.095
Catchment Area (2)	FEH: 2 years: +0 %: 15 mins: Summer	0.18	37.1	16.101
Catchment Area (3)	FEH: 2 years: +0 %: 15 mins: Summer	0.18	37.5	16.272
Catchment Area (5)	FEH: 2 years: +0 %: 15 mins: Summer	0.19	38.9	16.899
Catchment Area (6)	FEH: 2 years: +0 %: 15 mins: Summer	0.11	22.2	9.624
Catchment Area (7)	FEH: 2 years: +0 %: 15 mins: Summer	0.33	66.9	29.046
Catchment Area (8)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	11.5	4.995
Catchment Area (9)	FEH: 2 years: +0 %: 15 mins: Summer	0.19	38.5	16.710
Catchment Area (10)	FEH: 2 years: +0 %: 15 mins: Summer	0.18	35.6	15.453
Catchment Area (11)	FEH: 2 years: +0 %: 15 mins: Summer	0.21	41.7	18.111
Catchment Area (12)	FEH: 2 years: +0 %: 15 mins: Summer	0.11	22.8	9.897

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflows Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			



FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow


Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (4)	FEH: 30 years: +35 %: 15 mins: Summer	0.71	100.8	43.782
Catchment Area	FEH: 30 years: +35 %: 15 mins: Summer	0.33	234.2	101.691
Catchment Area (1)	FEH: 30 years: +35 %: 15 mins: Summer	0.15	105.2	45.678
Catchment Area (2)	FEH: 30 years: +35 %: 15 mins: Summer	0.18	129.4	56.175
Catchment Area (3)	FEH: 30 years: +35 %: 15 mins: Summer	0.18	130.7	56.766
Catchment Area (5)	FEH: 30 years: +35 %: 15 mins: Summer	0.19	135.7	58.950
Catchment Area (6)	FEH: 30 years: +35 %: 15 mins: Summer	0.11	77.3	33.585
Catchment Area (7)	FEH: 30 years: +35 %: 15 mins: Summer	0.33	233.4	101.355
Catchment Area (8)	FEH: 30 years: +35 %: 15 mins: Summer	0.06	40.1	17.424
Catchment Area (9)	FEH: 30 years: +35 %: 15 mins: Summer	0.19	134.3	58.305
Catchment Area (10)	FEH: 30 years: +35 %: 15 mins: Summer	0.18	124.1	53.907
Catchment Area (11)	FEH: 30 years: +35 %: 15 mins: Summer	0.21	145.5	63.195
Catchment Area (12)	FEH: 30 years: +35 %: 15 mins: Summer	0.11	79.5	34.542

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflows Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			



FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (4)	FEH: 100 years: +40 %: 15 mins: Summer	0.71	134.7	58.491
Catchment Area	FEH: 100 years: +40 %: 15 mins: Summer	0.33	312.8	135.849
Catchment Area (1)	FEH: 100 years: +40 %: 15 mins: Summer	0.15	140.5	61.029
Catchment Area (2)	FEH: 100 years: +40 %: 15 mins: Summer	0.18	172.8	75.045
Catchment Area (3)	FEH: 100 years: +40 %: 15 mins: Summer	0.18	174.6	75.837
Catchment Area (5)	FEH: 100 years: +40 %: 15 mins: Summer	0.19	181.3	78.756
Catchment Area (6)	FEH: 100 years: +40 %: 15 mins: Summer	0.11	103.3	44.868
Catchment Area (7)	FEH: 100 years: +40 %: 15 mins: Summer	0.33	311.8	135.399
Catchment Area (8)	FEH: 100 years: +40 %: 15 mins: Summer	0.06	53.6	23.271
Catchment Area (9)	FEH: 100 years: +40 %: 15 mins: Summer	0.19	179.4	77.895
Catchment Area (10)	FEH: 100 years: +40 %: 15 mins: Summer	0.18	165.8	72.009
Catchment Area (11)	FEH: 100 years: +40 %: 15 mins: Summer	0.21	194.4	84.420
Catchment Area (12)	FEH: 100 years: +40 %: 15 mins: Summer	0.11	106.2	46.140

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH: 2 years: +0 %: 960 mins: Winter	9.302	9.302	0.202	0.202	35.2	670.431	0.000	0.000	4.6	353.646	1735	88.313

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH: 30 years: +35 %: 1440 mins: Summer	9.679	9.679	0.579	0.579	102.9	2008.582	0.000	0.000	5.8	623.498	2966	64.987

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH: 100 years: +40 %: 960 mins: Winter	9.848	9.848	0.748	0.748	125.3	2642.067	0.000	0.000	5.8	482.941	4702	53.944

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU		




Status
OK

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.005	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH6	Pond	11.472	9.819	0.223	249.162	2.8	0.26	263.3	OK
1.006	FEH: 2 years: +0 %: 960 mins: Winter	Pipe	Pond	Outfall MH	10.900	9.302	0.045	353.544	0.7	0.05	4.6	OK
2.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH7	MH6	11.781	10.312	0.102	9.556	0.8	0.25	16.8	OK
1.003	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH4	MH5	15.171	13.580	0.144	74.513	1.7	0.15	80.3	OK
1.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH3	MH4	16.695	15.177	0.132	40.893	1.6	0.19	60.8	OK
1.001	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH2	MH3	17.034	15.504	0.125	37.244	1.2	0.15	42.3	OK
1.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH1	MH2	19.067	17.558	0.125	29.435	1.5	0.19	54.2	OK
1.004	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH5	MH6	13.238	11.666	0.158	96.132	1.8	0.19	99.9	OK
3.000	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH8	MH9	19.072	17.539	0.116	37.034	1.2	0.15	40.6	OK
3.003	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH11	MH12	15.106	13.588	0.131	64.241	1.7	0.18	67.3	OK
3.004	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH12	MH13	13.178	11.597	0.170	84.563	1.5	0.17	88.2	OK
3.005	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH13	MH6	11.413	9.884	0.255	119.924	1.1	0.37	127.4	OK
4.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH14	MH13	11.622	10.245	0.097	9.861	0.8	0.14	18.6	OK
3.001	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH9	MH10	17.134	15.596	0.112	36.831	1.3	0.13	40.3	OK
3.002	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH10	MH11	16.729	15.192	0.122	43.282	1.3	0.14	46.4	OK

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Connections Summary Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU			




FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.005	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH6	Pond	11.472	10.281	0.580	880.010	3.4	0.94	956.1	Surcharged
1.006	FEH: 30 years: +35 %: 1440 mins: Summer	Pipe	Pond	Outfall MH	10.900	9.679	0.050	623.372	0.7	0.06	5.8	Surcharged
2.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH7	MH6	11.781	10.465	0.300	31.456	1.0	1.03	69.6	OK
1.003	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH4	MH5	15.171	13.725	0.302	264.363	2.3	0.54	299.9	OK
1.002	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH3	MH4	16.695	15.325	0.275	191.322	2.1	0.67	217.1	OK
1.001	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH2	MH3	17.034	15.639	0.268	132.085	1.5	0.53	152.1	OK
1.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH1	MH2	19.067	17.714	0.277	102.131	1.9	0.7	198.8	OK
1.004	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH5	MH6	13.238	11.838	0.475	338.375	1.9	0.7	378.8	OK
3.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH8	MH9	19.072	17.680	0.251	87.790	1.7	0.57	158.5	OK
3.003	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH11	MH12	15.106	13.745	0.283	224.999	2.4	0.7	256.9	OK
3.004	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH12	MH13	13.178	11.758	0.510	295.473	1.6	0.64	335.2	OK
3.005	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH13	MH6	11.413	10.403	0.600	421.885	1.6	1.35	464.0	Surcharged
4.000	FEH: 30 years: +35 %: 15 mins: Winter	Pipe	MH14	MH13	11.622	10.420	0.375	33.640	0.8	0.52	68.9	OK
3.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH9	MH10	17.134	15.727	0.236	93.075	1.8	0.49	151.7	OK
3.002	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH10	MH11	16.729	15.310	0.260	149.306	1.8	0.52	173.6	OK

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Connections Summary Storm Phase: Phase (1)	WSP UK LTD: 8 First Street Manchester M154GU			



FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

West Winch Housing Access Road - 70100518: Catchment 2 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-002-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase (1)		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.005	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH6	Pond	11.472	10.965	0.600	906.490	4.7	1.29	1315.3	Surcharged
1.006	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	Pond	Outfall MH	10.900	9.848	0.050	482.798	0.7	0.06	5.8	Surcharged
2.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH7	MH6	11.781	11.627	0.300	42.459	1.3	1.32	89.6	Flood Risk
1.003	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	MH4	MH5	15.171	13.786	0.525	356.376	2.3	0.73	403.8	OK
1.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH3	MH4	16.695	15.412	0.361	195.672	2.3	0.97	313.6	OK
1.001	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	MH2	MH3	17.034	15.701	0.336	178.302	1.6	0.72	205.5	OK
1.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH1	MH2	19.067	17.791	0.347	135.569	2.0	0.93	262.5	OK
1.004	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH5	MH6	13.238	12.197	0.525	345.284	2.3	0.93	501.6	Surcharged
3.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH8	MH9	19.072	17.749	0.314	118.778	1.8	0.79	219.1	OK
3.003	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH11	MH12	15.106	14.008	0.450	237.743	2.4	1.01	370.7	Surcharged
3.004	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH12	MH13	13.178	12.030	0.525	308.886	2.0	0.84	440.9	Surcharged
3.005	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH13	MH6	11.413	11.220	0.600	438.689	2.3	1.93	659.4	Flood Risk
4.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH14	MH13	11.622	11.541	0.375	45.091	1.2	0.99	129.9	Flood Risk
3.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH9	MH10	17.134	15.785	0.292	134.769	1.9	0.66	206.7	OK
3.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH10	MH11	16.729	15.378	0.426	157.299	1.9	0.77	258.6	OK



West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Pond

Type : Pond

Dimensions

Exceedance Level (m)	18.550
Depth (m)	1.300
Base Level (m)	17.250
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.021
Total Volume (m³)	812.614

Depth (m)	Area (m²)	Volume (m³)
0.000	665.00	0.000
1.350	1090.00	1172.872


Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	1.003
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (15)
Bypass Destination	(None)
Capacity Type	No Restriction

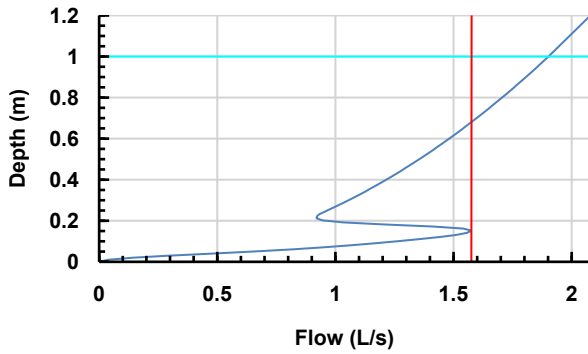
West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Stormwater Controls Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Outlets

Outlet


Outgoing Connection	1.004
Outlet Type	Hydro-Brake®
Invert Level (m)	17.250
Design Depth (m)	1.000
Design Flow (L/s)	1.9
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	<input type="checkbox"/>

Unit Reference	CHE-0063-1900-1000-1900
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Advanced


Perimeter	Circular
Length (m)	44.069
Friction Scheme	Manning's n
n	0.5

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH5	19.735 18.160	Diameter / Length: 1.200					Manhole
E:563767.115 N:315929.818	1.575		{a} 2.000	Pipe	18.160	Diam/Width:375	Not Applicable
MH2	19.645 17.725	Diameter / Length: 1.200	{1} 1.000	Pipe	17.725	Diam/Width:450	Manhole
E:563753.450 N:315828.531	1.920		{a} 1.001	Pipe	17.725	Diam/Width:450	Not Applicable
MH3	19.100 17.450	Diameter / Length: 1.200	{1} 1.001	Pipe	17.450	Diam/Width:450	Manhole
E:563727.311 N:315794.354	1.650		{a} 1.002	Pipe	17.450	Diam/Width:450	Not Applicable
Outfall MH	18.450 17.149	Diameter / Length: 1.200	{1} 1.004	Pipe	17.150	Diam/Width:375	Manhole
E:563654.148 N:315810.861	1.301						Not Applicable
MH7	18.740 17.576	Diameter / Length: 1.200	{1} 2.001	Pipe	17.652	Diam/Width:375	Manhole
E:563703.460 N:315858.707	1.164		{a} 2.002	Pipe	17.577	Diam/Width:450	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH1	19.603 17.952	Diameter / Length: 1.200					Manhole
E:563746.142 N:315849.961	1.651		{a} 1.000	Pipe	17.953	Diam/Width:450	Not Applicable
MH8	18.746 17.514	Diameter / Length: 1.200	{1} 2.002	Pipe	17.515	Diam/Width:450	Manhole
E:563695.789 N:315835.053	1.232		{a} 2.003	Pipe	17.515	Diam/Width:450	Not Applicable
MH9	18.913 17.402	Diameter / Length: 1.200	{1} 2.003	Pipe	17.403	Diam/Width:450	Manhole
E:563715.404 N:315795.572	1.511		{a} 2.004	Pipe	17.403	Diam/Width:450	Not Applicable
MH4	18.834 17.397	Diameter / Length: 1.200	{1} 1.002	Pipe	17.397	Diam/Width:450	Manhole
E:563714.367 N:315793.443	1.436		{2} 2.004	Pipe	17.397	Diam/Width:450	
			{a} 1.003	Pipe	17.397	Diam/Width:450	Not Applicable
MH6	19.616 17.893	Diameter / Length: 1.200	{1} 2.000	Pipe	17.893	Diam/Width:375	Manhole
E:563747.141 N:315880.189	1.723		{a} 2.001	Pipe	17.893	Diam/Width:375	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	MH5		Time of Concentration	0.056	100	0	100	0.056
Catchment Area (1)	MH5		Time of Concentration	0.016	20	0	20	0.003
Catchment Area (2)	MH6		Time of Concentration	0.029	20	0	20	0.006
Catchment Area (3)	MH7		Time of Concentration	0.025	20	0	20	0.005
Catchment Area (4)	MH1		Time of Concentration	0.035	100	0	100	0.035
Catchment Area (5)	MH3		Time of Concentration	0.061	100	0	100	0.061
Catchment Area (6)	MH3		Time of Concentration	0.035	20	0	20	0.007
Catchment Area (7)	MH3		Time of Concentration	0.034	100	0	100	0.034
Catchment Area (8)	MH7		Time of Concentration	0.125	100	0	100	0.125
Catchment Area (9)	MH7		Time of Concentration	0.044	100	0	100	0.044
Catchment Area (10)	MH6		Time of Concentration	0.019	20	0	20	0.004
Catchment Area (11)	MH9		Time of Concentration	0.024	20	0	20	0.005
Catchment Area (12)	MH9		Time of Concentration	0.020	100	0	100	0.020
Catchment Area (13)	MH9		Time of Concentration	0.007	20	0	20	0.001
Catchment Area (14)	MH8		Time of Concentration	0.154	20	0	20	0.031
Catchment Area (15)	Pond		Time of Concentration	0.190	20	0	20	0.038
TOTAL		0.0		0.874				0.475

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Mainline1		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
1.000	MH1	MH2	22.642	Pipe	99.306	0.6	450	19.603
1.001	MH2	MH3	43.027	Pipe	156.461	0.6	450	19.645
1.002	MH3	MH4	12.976	Pipe	244.837	0.6	450	19.100
Branch: 2.000								
2.000	MH5	MH6	53.497	Pipe	200.000	0.6	375	19.735
2.001	MH6	MH7	48.677	Pipe	201.981	0.6	375	19.616
2.002	MH7	MH8	24.867	Pipe	401.073	0.6	450	18.740
2.003	MH8	MH9	44.085	Pipe	393.618	0.6	450	18.746
2.004	MH9	MH4	2.368	Pipe	394.596	0.6	450	18.913
1.003	MH4	Pond	13.817	Pipe	293.973	0.6	450	18.834
1.004	Pond	Outfall MH	13.246	Pipe	132.458	0.6	375	18.550

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
1.000	17.953	19.645	17.725		5	
1.001	17.725	19.100	17.450		0	
1.002	17.450	18.834	17.397		5	
Branch: 2.000						
2.000	18.160	19.616	17.893		5	
2.001	17.893	18.740	17.652		5	
2.002	17.577	18.746	17.515		5	
2.003	17.515	18.913	17.403		5	
2.004	17.403	18.834	17.397		5	
1.003	17.397	18.550	17.350		0	
1.004	17.250	18.450	17.150		5	

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Mainline2	WSP UK LTD: 8 First Street Manchester M154GU		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
2.000	MH5	MH6	53.497	Pipe	200.000	0.6	375	19.735
2.001	MH6	MH7	48.677	Pipe	201.981	0.6	375	19.616
2.002	MH7	MH8	24.867	Pipe	401.073	0.6	450	18.740
2.003	MH8	MH9	44.085	Pipe	393.618	0.6	450	18.746
2.004	MH9	MH4	2.368	Pipe	394.596	0.6	450	18.913
Branch: 1.000								
1.000	MH1	MH2	22.642	Pipe	99.306	0.6	450	19.603
1.001	MH2	MH3	43.027	Pipe	156.461	0.6	450	19.645
1.002	MH3	MH4	12.976	Pipe	244.837	0.6	450	19.100
1.003	MH4	Pond	13.817	Pipe	293.973	0.6	450	18.834
1.004	Pond	Outfall MH	13.246	Pipe	132.458	0.6	375	18.550

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
2.000	18.160	19.616	17.893		5	
2.001	17.893	18.740	17.652		5	
2.002	17.577	18.746	17.515		5	
2.003	17.515	18.913	17.403		5	
2.004	17.403	18.834	17.397		5	
Branch: 1.000						
1.000	17.953	19.645	17.725		5	
1.001	17.725	19.100	17.450		0	
1.002	17.450	18.834	17.397		5	
1.003	17.397	18.550	17.350		0	
1.004	17.250	18.450	17.150		5	

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	<input type="checkbox"/>
Reduce Channel Depths	<input type="checkbox"/>

Manhole Options

Apply Offset	<input type="checkbox"/>
<p>An error has occurred while processing TextBox 'txtSynchroniseManholeInvertLevelsHeader': The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is not defined in the current context.</p>	
	<input type="checkbox"/>

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Outfall Details Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
Outfall MH	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	WSP UK LTD: 8 First Street Manchester M154GU		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Prefill Manhole Sumps	<input type="checkbox"/>
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall


FEH22 C2	Type: FEH
Site Location	GB 563400 315100 TF 63400 15100
Rainfall Version	2013
Data Type	Catchment
Summer	<input checked="" type="checkbox"/>
Winter	<input checked="" type="checkbox"/>

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU			




FEH22 C2: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	



Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.06	11.6	5.019
Catchment Area (1)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.02	0.6	0.279
Catchment Area (2)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.03	1.2	0.507
Catchment Area (3)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.02	1.0	0.447
Catchment Area (4)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.03	7.1	3.102
Catchment Area (5)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.06	12.6	5.460
Catchment Area (6)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.03	1.4	0.624
Catchment Area (7)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.03	7.0	3.060
Catchment Area (8)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.12	25.6	11.111
Catchment Area (9)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.04	9.0	3.900
Catchment Area (10)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.02	0.8	0.336
Catchment Area (11)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.02	1.0	0.432
Catchment Area (12)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.02	4.2	1.809
Catchment Area (13)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.120
Catchment Area (14)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.15	6.3	2.751
Catchment Area (15)	FEH22 C2: 2 years: +0 %: 15 mins: Summer	0.19	7.8	3.390

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU			




FEH22 C2: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	




Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.06	40.0	17.330
Catchment Area (1)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.02	2.2	0.969
Catchment Area (2)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.03	4.0	1.755
Catchment Area (3)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.02	3.5	1.539
Catchment Area (4)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.03	24.7	10.713
Catchment Area (5)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.06	43.5	18.839
Catchment Area (6)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.03	5.0	2.148
Catchment Area (7)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.03	24.4	10.563
Catchment Area (8)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.12	88.5	38.372
Catchment Area (9)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.04	31.0	13.451
Catchment Area (10)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.02	2.7	1.170
Catchment Area (11)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.02	3.4	1.497
Catchment Area (12)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.02	14.4	6.231
Catchment Area (13)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.01	1.0	0.426
Catchment Area (14)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.15	21.9	9.492
Catchment Area (15)	FEH22 C2: 30 years: +35 %: 15 mins: Summer	0.19	27.0	11.694


West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023			
	Designed by: Sufyyan Raja	Checked by:	Approved By:	
Report Details: Type: Inflows Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU			



FEH22 C2: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.06	53.3	23.129
Catchment Area (1)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.02	3.0	1.290
Catchment Area (2)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.03	5.4	2.340
Catchment Area (3)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.02	4.7	2.052
Catchment Area (4)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.03	32.9	14.293
Catchment Area (5)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.06	57.9	25.142
Catchment Area (6)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.03	6.6	2.865
Catchment Area (7)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.03	32.5	14.095
Catchment Area (8)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.12	117.9	51.206
Catchment Area (9)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.04	41.3	17.957
Catchment Area (10)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.02	3.6	1.560
Catchment Area (11)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.02	4.6	1.995
Catchment Area (12)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.02	19.2	8.320
Catchment Area (13)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.01	1.3	0.567
Catchment Area (14)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.15	29.2	12.667
Catchment Area (15)	FEH22 C2: 100 years: +40 %: 15 mins: Summer	0.19	35.9	15.610

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023			
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			




FEH22 C2: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH22 C2: 2 years: +0 %: 480 mins: Winter	17.422	17.422	0.172	0.172	12.5	118.433	0.000	0.000	1.6	63.578	843	85.426

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH22 C2: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH22 C2: 30 years: +35 %: 960 mins: Summer	17.745	17.745	0.495	0.495	28.8	364.201	0.000	0.000	1.6	124.969	2425	55.182

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		



**FEH22 C2: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank
By: Max. Outflow**

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Pond	FEH22 C2: 100 years: +40 %: 1440 mins: Winter	17.906	17.906	0.656	0.656	17.0	497.992	0.000	0.000	1.6	215.839	3134	38.717

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



FEH22 C2: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow


Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH2	MH3	19.645	17.771	0.099	3.094	0.2	0.02	6.1	OK
1.004	FEH22 C2: 2 years: +0 %: 480 mins: Winter	Pipe	Pond	Outfall MH	18.550	17.422	0.025	63.541	0.5	0.01	1.6	OK
1.000	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH1	MH2	19.603	17.999	0.046	3.107	0.8	0.02	6.9	OK
2.002	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH7	MH8	18.740	17.747	0.167	21.426	0.8	0.26	42.5	OK
2.003	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH8	MH9	18.746	17.679	0.183	24.380	0.7	0.27	43.2	OK
1.002	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH3	MH4	19.100	17.602	0.172	12.240	0.4	0.11	21.9	OK
1.003	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH4	Pond	18.834	17.589	0.180	38.925	1.0	0.32	60.8	OK
2.004	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH9	MH4	18.913	17.605	0.197	26.764	0.7	0.27	43.5	OK
2.000	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH5	MH6	19.735	18.233	0.072	5.324	0.8	0.08	11.3	OK
2.001	FEH22 C2: 2 years: +0 %: 15 mins: Summer	Pipe	MH6	MH7	19.616	17.964	0.083	6.244	0.7	0.08	11.2	OK

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH22 C2: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

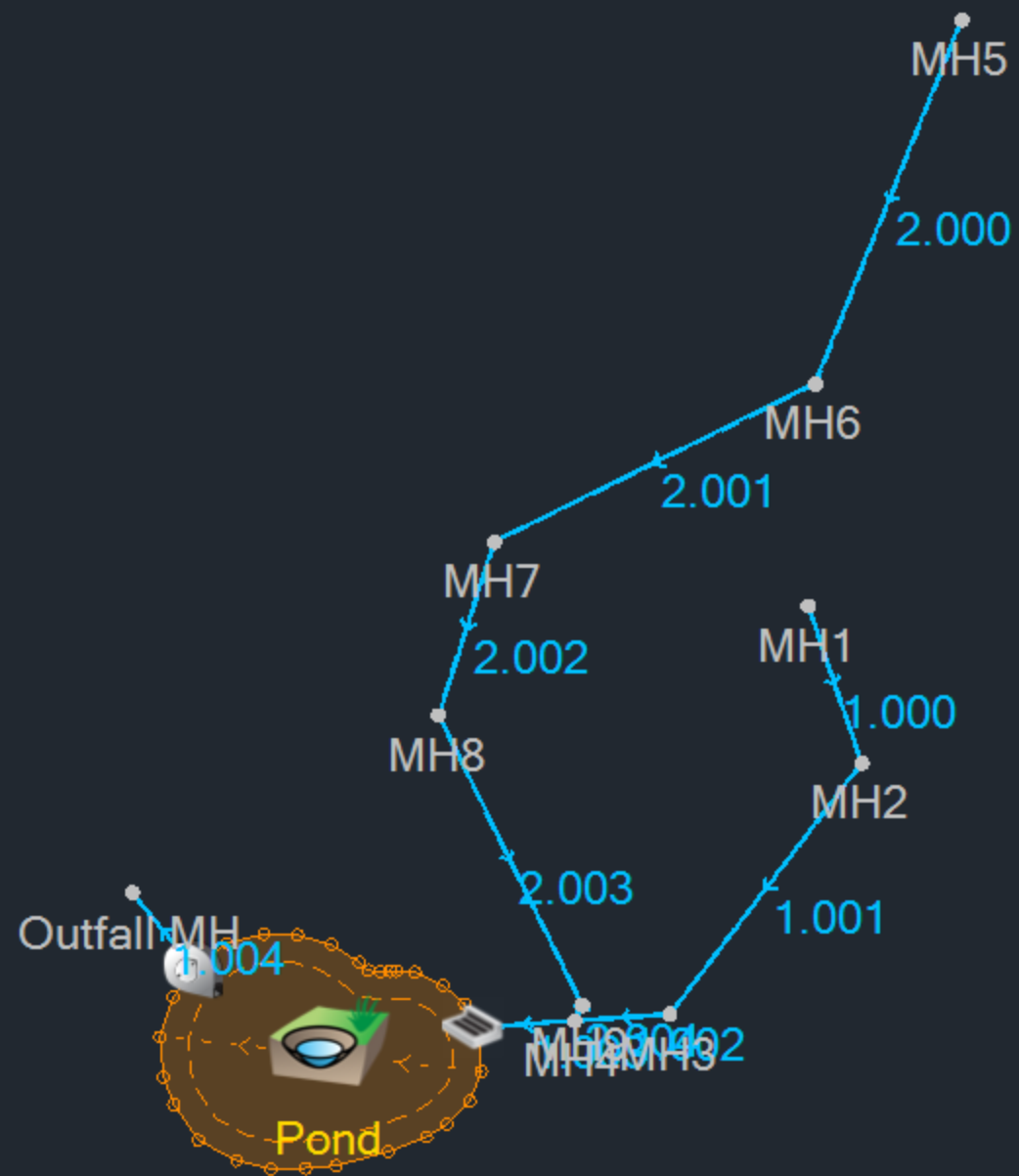
Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FEH22 C2: 30 years: +35 %: 30 mins: Summer	Pipe	MH2	MH3	19.645	17.809	0.217	13.986	0.2	0.06	15.8	OK
1.004	FEH22 C2: 30 years: +35 %: 960 mins: Summer	Pipe	Pond	Outfall MH	18.550	17.745	0.025	124.932	0.5	0.01	1.6	Surcharged
1.000	FEH22 C2: 30 years: +35 %: 15 mins: Summer	Pipe	MH1	MH2	19.603	18.039	0.097	10.731	1.0	0.07	24.2	OK
2.002	FEH22 C2: 30 years: +35 %: 15 mins: Winter	Pipe	MH7	MH8	18.740	17.990	0.419	74.251	0.9	0.83	133.4	OK
2.003	FEH22 C2: 30 years: +35 %: 15 mins: Summer	Pipe	MH8	MH9	18.746	17.980	0.450	84.000	0.9	0.88	142.1	Surcharged
1.002	FEH22 C2: 30 years: +35 %: 15 mins: Summer	Pipe	MH3	MH4	19.100	17.842	0.413	42.255	0.5	0.34	71.0	OK
1.003	FEH22 C2: 30 years: +35 %: 15 mins: Summer	Pipe	MH4	Pond	18.834	17.831	0.383	133.691	1.6	1.19	224.0	OK
2.004	FEH22 C2: 30 years: +35 %: 15 mins: Summer	Pipe	MH9	MH4	18.913	17.863	0.447	92.024	1.0	0.97	157.7	Surcharged
2.000	FEH22 C2: 30 years: +35 %: 15 mins: Summer	Pipe	MH5	MH6	19.735	18.303	0.142	18.354	1.0	0.28	39.8	OK
2.001	FEH22 C2: 30 years: +35 %: 15 mins: Winter	Pipe	MH6	MH7	19.616	18.026	0.236	21.386	0.6	0.27	37.6	OK

West Winch Housing Access Road - 70100518: Catchment 3 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-003-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:	
		WSP UK LTD: 8 First Street Manchester M154GU		



FEH22 C2: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.001	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH2	MH3	19.645	17.976	0.382	14.324	0.3	0.11	27.1	OK
1.004	FEH22 C2: 100 years: +40 %: 1440 mins: Winter	Pipe	Pond	Outfall MH	18.550	17.906	0.025	215.799	0.5	0.01	1.6	Surcharged
1.000	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH1	MH2	19.603	18.046	0.172	14.326	0.8	0.1	32.5	OK
2.002	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH7	MH8	18.740	18.257	0.450	99.245	1.0	0.98	156.6	Surcharged
2.003	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH8	MH9	18.746	18.161	0.450	112.169	1.1	1.07	173.0	Surcharged
1.002	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH3	MH4	19.100	17.962	0.450	55.908	0.5	0.42	86.5	Surcharged
1.003	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH4	Pond	18.834	17.943	0.450	177.062	1.7	1.46	274.7	Surcharged
2.004	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH9	MH4	18.913	17.988	0.450	122.368	1.2	1.19	193.2	Surcharged
2.000	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH5	MH6	19.735	18.319	0.275	24.648	0.8	0.37	52.8	OK
2.001	FEH22 C2: 100 years: +40 %: 15 mins: Summer	Pipe	MH6	MH7	19.616	18.283	0.375	28.728	0.7	0.35	49.8	Surcharged



West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



POND 4

Type : Pond

Dimensions

Exceedance Level (m)	15.399
Depth (m)	1.594
Base Level (m)	13.805
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.002
Total Volume (m³)	4390.089

Depth (m)	Area (m²)	Volume (m³)
0.000	3000.00	0.000
1.200	3739.70	4035.677
1.500	3937.30	5187.100
1.594	4001.00	5560.196

Inlets

Inlet

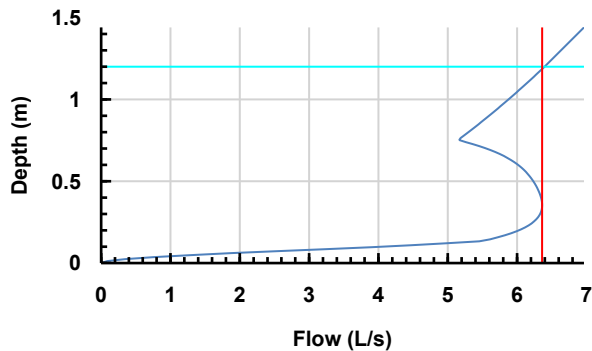
Inlet Type	Point Inflow
Incoming Item(s)	3.013 POND 4 - DA
Bypass Destination	(None)
Capacity Type	No Restriction


Outlets

Outlet

Outgoing Connection	3.014
Outlet Type	Hydro-Brake®
Invert Level (m)	13.805
Design Depth (m)	1.200
Design Flow (L/s)	6.4
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	<input checked="" type="checkbox"/>

Unit Reference SHE-0116-6400-1200-6400



West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
Report Details: Type: Stormwater Controls Storm Phase: Storm	Designed by: Amit Kumar		
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA	

Advanced

Perimeter	Circular
Length (m)	5.000
Friction Scheme	Manning's n
n	0.04

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
11	20.899 19.324		Diameter / Length: 1.350					Manhole - Access Required	{a} Free Discharge	
E:563966.509 N:316924.446	1.575									
IP E:563966.509 IP N:316924.446				{a} 3.000	Pipe	19.324	Diam/Width: 375	Not Applicable		
12	20.372 18.722		Diameter / Length: 1.350	{1} 3.000	Pipe	18.797	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563959.436 N:316824.699	1.650									
IP E:563959.436 IP N:316824.699				{a} 3.001	Pipe	18.722	Diam/Width: 450	Not Applicable		
13	19.472 17.822		Diameter / Length: 1.350	{1} 3.001	Pipe	17.822	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:563949.470 N:316725.197	1.650									
IP E:563949.470 IP N:316725.197				{a} 3.002	Pipe	17.822	Diam/Width: 450	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
14	18.572 16.772		Diameter / Length: 1.500	{1} 3.002	Pipe	16.922	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:563939.488 N:316625.696	1.800									
IP E:563939.488 IP N:316625.696				{a} 3.003	Pipe	16.772	Diam/Width: 600	Not Applicable		
15	17.791 15.841		Diameter / Length: 1.800	{1} 3.003	Pipe	15.991	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563930.827 N:316539.367	1.950									
IP E:563930.827 IP N:316539.367				{a} 3.004	Pipe	15.841	Diam/Width: 750	Not Applicable		
16	17.292 15.342		Diameter / Length: 1.800	{1} 3.004	Pipe	15.342	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563923.984 N:316469.170	1.950									
IP E:563923.984 IP N:316469.170				{a} 3.005	Pipe	15.342	Diam/Width: 750	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
17	17.190 15.240		Diameter / Length: 1.800	{1} 3.005	Pipe	15.240	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563918.5 16 N:316454.6 40	1.950									
IP E:563918.5 16 IP N:316454.6 40				{a} 3.006	Pipe	15.240	Diam/Width: 750	Not Applicable		
18	16.650 14.700		Diameter / Length: 1.800	{1} 3.006	Pipe	14.700	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563883.1 83 N:316422.5 89	1.950									
IP E:563883.1 83 IP N:316422.5 89				{a} 3.007	Pipe	14.700	Diam/Width: 750	Not Applicable		
19	16.650 14.651		Diameter / Length: 1.800	{1} 3.007	Pipe	14.651	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563885.0 55 N:316398.2 45	1.999									
IP E:563885.0 55 IP N:316398.2 45				{a} 3.008	Pipe	14.651	Diam/Width: 750	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Storm	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
20	16.650 14.630		Diameter / Length: 1.800	{1} 3.008	Pipe	14.630	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563894.885 N:316394.663	2.020			{a} 3.009	Pipe	14.630	Diam/Width: 750	Not Applicable		
IP E:563894.885 IP N:316394.663										
21	16.158 14.508		Diameter / Length: 1.800	{1} 3.009	Pipe	14.508	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563909.202 N:316368.969	1.650			{2} 4.000	Pipe	14.883	Diam/Width: 375			
IP E:563909.202 IP N:316368.969				{a} 3.010	Pipe	14.508	Diam/Width: 750	Not Applicable		
25	16.290 15.015		Diameter / Length: 1.350					Manhole - Access Required	{a} Free Discharge	
E:563943.032 N:316398.260	1.275									
IP E:563943.032 IP N:316398.260				{a} 4.000	Pipe	15.015	Diam/Width: 375	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Storm	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		

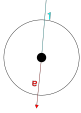
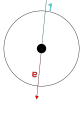
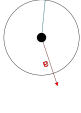



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
22	15.921 14.271		Diameter / Length: 1.800	{1} 3.010	Pipe	14.271	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563903.540 N:316315.793	1.650									
IP E:563903.540 IP N:316315.793					{a} 3.011	Pipe	14.271	Diam/Width: 750	Not Applicable	
23	15.850 14.067		Diameter / Length: 1.800	{1} 3.011	Pipe	14.182	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:563898.108 N:316289.487	1.783			{2} 5.007	Pipe	14.182	Diam/Width: 750			
IP E:563898.108 IP N:316289.487					{3} 7.005	Pipe	14.182	Diam/Width: 750		
				{a} 3.012	Pipe	14.067	Diam/Width: 900	Not Applicable		
26	19.423 18.223		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563980.806 N:316924.140	1.200									
IP E:563980.806 IP N:316924.140					{a} 5.000	Pipe	18.223	Diam/Width: 300	Not Applicable	

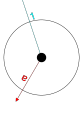
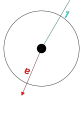
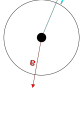
West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
27	19.900 17.632		Diameter / Length: 1.200	{1} 5.000	Pipe	17.632	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563968.654 N:316773.160	2.268									
IP E:563968.654 IP N:316773.160				{a} 5.001	Pipe	17.632	Diam/Width: 300	Not Applicable		
28	17.758 16.236		Diameter / Length: 1.200	{1} 5.001	Pipe	16.236	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563944.954 N:316536.975	1.522									
IP E:563944.954 IP N:316536.975				{a} 5.002	Pipe	16.236	Diam/Width: 300	Not Applicable		
29	17.114 15.839		Diameter / Length: 1.350	{1} 5.002	Pipe	15.914	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563939.152 N:316477.500	1.275									
IP E:563939.152 IP N:316477.500				{a} 5.003	Pipe	15.839	Diam/Width: 375	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie		Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
30	16.423 15.148		Diameter / Length: 1.350	{1} 5.003	Pipe	15.148	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563960.2 04 N:316414.1 74	1.275									
IP E:563960.2 04 IP N:316414.1 74			{a} 5.004	Pipe	15.148	Diam/Width: 375	Not Applicable			
31	16.247 14.747		Diameter / Length: 1.500	{1} 5.004	Pipe	14.972	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563942.0 30 N:316383.1 15	1.500									
IP E:563942.0 30 IP N:316383.1 15			{a} 5.005	Pipe	14.747	Diam/Width: 600	Not Applicable			
32	15.876 14.276		Diameter / Length: 1.500	{1} 5.005	Pipe	14.276	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563921.6 62 N:316334.8 52	1.600									
IP E:563921.6 62 IP N:316334.8 52			{a} 5.006	Pipe	14.276	Diam/Width: 600	Not Applicable			

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		

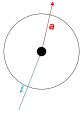
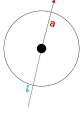
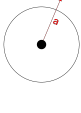


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
33	15.863 14.213		Diameter / Length: 1.800	{1} 5.006	Pipe	14.363	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563913.1 11 N:316286.8 14	1.650		{2} 6.003	Pipe	14.663	Diam/Width: 300				
IP E:563913.1 11 IP N:316286.8 14			{a} 5.007	Pipe	14.213	Diam/Width: 750	Not Applicable			
34	19.900 18.700		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563781.2 60 N:315925.4 58	1.200									
IP E:563781.2 60 IP N:315925.4 58			{a} 6.000	Pipe	18.700	Diam/Width: 300	Not Applicable			
35	20.011 18.265		Diameter / Length: 1.200	{1} 6.000	Pipe	18.265	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563832.1 54 N:316039.6 22	1.746									
IP E:563832.1 54 IP N:316039.6 22			{a} 6.001	Pipe	18.265	Diam/Width: 300	Not Applicable			

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
36	18.145 16.945		Diameter / Length: 1.200	{1} 6.001	Pipe	16.945	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563888.5 39 N:316184.1 48	1.200			{a} 6.002	Pipe	16.945	Diam/Width: 300	Not Applicable		
IP E:563888.5 39 IP N:316184.1 48										
37	16.230 15.030		Diameter / Length: 1.200	{1} 6.002	Pipe	15.030	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563904.9 28 N:316255.6 39	1.200			{a} 6.003	Pipe	15.030	Diam/Width: 300	Not Applicable		
IP E:563904.9 28 IP N:316255.6 39										
38	19.733 18.383		Diameter / Length: 1.350					Manhole - Access Required	{a} Free Discharge	
E:563767.5 45 N:315931.0 20	1.350			{a} 7.000	Pipe	18.383	Diam/Width: 450	Not Applicable		
IP E:563767.5 45 IP N:315931.0 20										

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type			
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)	
Coordinates (m)	Depth (m)			Outgoing Connections				Cover			
Intersection (m)											
39	19.266 17.695		Diameter / Length: 1.350	{1} 7.000	Pipe	17.695	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge		
E:563806.3 87 N:316023.1 69	1.571										
IP E:563806.3 87 IP N:316023.1 69				{a} 7.001	Pipe	17.695	Diam/Width: 450	Not Applicable			
40	18.000 16.650		Diameter / Length: 1.350	{1} 7.001	Pipe	16.650	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge		
E:563845.9 46 N:316115.0 11	1.350										
IP E:563845.9 46 IP N:316115.0 11				{a} 7.002	Pipe	16.650	Diam/Width: 450	Not Applicable			
41	17.304 15.954		Diameter / Length: 1.350	{1} 7.002	Pipe	15.954	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge		
E:563859.6 25 N:316151.5 55	1.350			{2} 8.000	Pipe	16.104	Diam/Width: 300				
				{3} 9.000	Pipe	16.179	Diam/Width: 225				
IP E:563859.6 25 IP N:316151.5 55					{a} 7.003	Pipe	15.954	Diam/Width: 450	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		


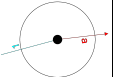



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
44	19.159 17.959		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563764.387 N:316154.130 IP E:563764.387 IP N:316154.130	1.200			{a} 8.000	Pipe	17.959	Diam/Width: 300	Not Applicable		
45	19.700 18.575		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:564017.338 N:316144.552 IP E:564017.338 IP N:316144.552	1.125			{a} 9.000	Pipe	18.575	Diam/Width: 225	Not Applicable		
42	16.282 14.782		Diameter / Length: 1.500	{1} 7.003	Pipe	14.932	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:563868.919 N:316180.756	1.500			{2} 10.001	Pipe	15.157	Diam/Width: 225			
IP E:563868.919 IP N:316180.756				{3} 11.000	Pipe	15.082	Diam/Width: 300			
				{a} 7.004	Pipe	14.782	Diam/Width: 600	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
46	19.330 18.205		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563678.6 45 N:316147.5 70 IP E:563678.6 45 IP N:316147.5 70	1.125			{a} 10.000	Pipe	18.205	Diam/Width: 225	Not Applicable		
47	19.370 17.768		Diameter / Length: 1.200	{1} 10.000	Pipe	17.768	Diam/Width: 225	Manhole - Access Required	{a} Free Discharge	
E:563750.3 03 N:316166.8 57 IP E:563750.3 03 IP N:316166.8 57	1.602			{a} 10.001	Pipe	17.768	Diam/Width: 225	Not Applicable		
48	19.557 18.357		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:564020.7 06 N:316157.3 38 IP E:564020.7 06 IP N:316157.3 38	1.200			{a} 11.000	Pipe	18.357	Diam/Width: 300	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Level (m) Invert Level (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IL (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
43	15.918 14.268		Diameter / Length: 1.800	{1} 7.004	Pipe	14.418	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563892.0 13 N:316263.0 61	1.650									
IP E:563892.0 13 IP N:316263.0 61				{a} 7.005	Pipe	14.268	Diam/Width: 750	Not Applicable		
24	15.899 14.007		Diameter / Length: 1.800	{1} 3.012	Pipe	14.007	Diam/Width: 900	Manhole - Access Required	{a} Free Discharge	
E:563868.6 89 N:316295.5 21	1.892									
IP E:563868.6 89 IP N:316295.5 21				{a} 3.013	Pipe	14.007	Diam/Width: 900	Not Applicable		
P4 OF	14.770 13.658		Diameter / Length: 1.200	{1} 3.014	Pipe	13.658	Diam/Width: 225	Manhole		
E:563802.0 61 N:316341.2 78	1.112									
IP E:563802.0 61 IP N:316341.2 78									Not Applicable	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflow Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
11 - DA	11		Time of Concentration	0.166	100	0	100	0.166
12 - DA	12		Time of Concentration	0.137	100	0	100	0.137
13 - DA	13		Time of Concentration	0.137	100	0	100	0.137
14 - DA	14		Time of Concentration	0.118	100	0	100	0.118
15 - DA	15		Time of Concentration	0.096	100	0	100	0.096
16 - DA	16		Time of Concentration	0.059	100	0	100	0.059
17 - DA	17		Time of Concentration	0.052	100	0	100	0.052
19 - DA	19		Time of Concentration	0.028	100	0	100	0.028
19 - DA (1)	19		Time of Concentration	0.126	100	0	100	0.126
22 - DA	22		Time of Concentration	0.099	100	0	100	0.099
25 - DA	25		Time of Concentration	0.131	100	0	100	0.131
25 - DA (1)	25		Time of Concentration	0.143	100	0	100	0.143
26 - DA	26		Time of Concentration	0.037	20	0	20	0.007
26 - DA (1)	26		Time of Concentration	0.041	100	0	100	0.041
27 - DA	27		Time of Concentration	0.057	20	0	20	0.011
27 - DA (1)	27		Time of Concentration	0.112	100	0	100	0.112
28 - DA	28		Time of Concentration	0.027	100	0	100	0.027
28 - DA (1)	28		Time of Concentration	0.016	20	0	20	0.003
29 - DA	29		Time of Concentration	0.044	100	0	100	0.044
29 - DA (1)	29		Time of Concentration	0.017	20	0	20	0.003
30 - DA	30		Time of Concentration	0.010	20	0	20	0.002
30 - DA (1)	30		Time of Concentration	0.008	100	0	100	0.008
31 - DA	31		Time of Concentration	0.013	20	0	20	0.003
31 - DA (1)	31		Time of Concentration	0.036	100	0	100	0.036
32 - DA	32		Time of Concentration	0.010	100	0	100	0.010
32 - DA (1)	32		Time of Concentration	0.005	20	0	20	0.001
32 - DA (2)	32		Time of Concentration	0.015	20	0	20	0.003
34 - DA	34		Time of Concentration	0.032	20	0	20	0.006
34 - DA (1)	34		Time of Concentration	0.075	100	0	100	0.075
35 - DA	35		Time of Concentration	0.030	20	0	20	0.006
36 - DA	36		Time of Concentration	0.028	20	0	20	0.006
38 - DA	38		Time of Concentration	0.136	100	0	100	0.136

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflow Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



39 - DA	39		Time of Concentration	0.147	100	0	100	0.147
40 - DA	40		Time of Concentration	0.071	100	0	100	0.071
41 - DA	41		Time of Concentration	0.004	100	0	100	0.004
42 - DA	42		Time of Concentration	0.172	100	0	100	0.172
44 - DA	44		Time of Concentration	0.127	100	0	100	0.127
45 - DA	45		Time of Concentration	0.053	100	0	100	0.053
46 - DA	46		Time of Concentration	0.014	100	0	100	0.014
48 - DA	48		Time of Concentration	0.088	100	0	100	0.088
POND 4 - DA	POND 4		Time of Concentration	0.842	100	0	100	0.842
TOTAL		0.0		3.559				3.351

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: Mainline 1		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
3.000	11	12	99.998	Pipe	189.749	0.6	375	20.899
3.001	12	13	100.000	Pipe	111.111	0.6	450	20.372
3.002	13	14	100.000	Pipe	111.111	0.6	450	19.472
3.003	14	15	86.763	Pipe	111.093	0.6	600	18.572
3.004	15	16	70.529	Pipe	141.340	0.6	750	17.791
3.005	16	17	15.525	Pipe	152.204	0.6	750	17.292
3.006	17	18	47.704	Pipe	88.342	0.6	750	17.190
3.007	18	19	24.415	Pipe	500.000	0.6	750	16.650
3.008	19	20	10.462	Pipe	500.000	0.6	750	16.650
3.009	20	21	30.414	Pipe	249.299	0.6	750	16.650
Branch: 4.000								
4.000	25	21	44.748	Pipe	339.002	0.6	375	16.290
3.010	21	22	53.947	Pipe	227.623	0.6	750	16.158
3.011	22	23	26.861	Pipe	301.805	0.6	750	15.921
Branch: 5.000								
5.000	26	27	151.468	Pipe	256.296	0.6	300	19.423
5.001	27	28	237.371	Pipe	170.000	0.6	300	19.900
5.002	28	29	59.758	Pipe	185.749	0.6	300	17.758
5.003	29	30	66.734	Pipe	96.576	0.6	375	17.114
5.004	30	31	35.985	Pipe	204.459	0.6	375	16.423
5.005	31	32	52.385	Pipe	111.220	0.6	600	16.247
5.006	32	33	48.794	Pipe	-562.114	0.6	600	15.876
Branch: 6.000								
6.000	34	35	124.994	Pipe	287.172	0.6	300	19.900
6.001	35	36	155.135	Pipe	117.550	0.6	300	20.011
6.002	36	37	73.345	Pipe	38.300	0.6	300	18.145
6.003	37	33	32.231	Pipe	87.761	0.6	300	16.230
5.007	33	23	15.239	Pipe	500.000	0.6	750	15.863
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304
Branch: 10.000								
10.000	46	47	74.209	Pipe	170.000	0.6	225	19.330
10.001	47	42	119.427	Pipe	45.748	0.6	225	19.370
Branch: 11.000								
11.000	48	42	153.583	Pipe	46.896	0.6	300	19.557
7.004	42	43	85.483	Pipe	234.844	0.6	600	16.282
7.005	43	23	27.120	Pipe	315.351	0.6	750	15.918
3.012	23	24	30.032	Pipe	500.000	0.6	900	15.850
3.013	24	POND 4	60.963	Pipe	600.000	0.6	900	15.899
3.014	POND 4	P4 OF	24.994	Pipe	170.000	0.6	225	15.399

West Winch Housing Access Road - 70100518:
 Catchment 04
 Surface Water Calculations
 70100518-WSP-HDG-WW-CA-CD-04-DRAFT

Date:
 23/11/2023
 Designed by: Amit Kumar
 Checked by: Joe Leslie
 Approved By: Gareth Hamer



Report Details:
 Type: Network Design Report
 Storm Phase: Storm
 Flow Path: Mainline 1

Company Address:
 WSP in the UK
 62-64 Hills Road
 Cambridge CB2 1LA

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
3.000	19.324	20.372	18.797		5	
3.001	18.722	19.472	17.822		5	
3.002	17.822	18.572	16.922		5	
3.003	16.772	17.791	15.991		5	
3.004	15.841	17.292	15.342		5	
3.005	15.342	17.190	15.240		5	
3.006	15.240	16.650	14.700		5	
3.007	14.700	16.650	14.651		0	
3.008	14.651	16.650	14.630		5	
3.009	14.630	16.158	14.508		0	
Branch: 4.000						
4.000	15.015	16.158	14.883		5	
3.010	14.508	15.921	14.271		0	
3.011	14.271	15.850	14.182		5	
Branch: 5.000						
5.000	18.223	19.900	17.632		5	
5.001	17.632	17.758	16.236		5	
5.002	16.236	17.114	15.914		5	
5.003	15.839	16.423	15.148		5	
5.004	15.148	16.247	14.972		5	
5.005	14.747	15.876	14.276		5	
5.006	14.276	15.863	14.363		5	
Branch: 6.000						
6.000	18.700	20.011	18.265		5	
6.001	18.265	18.145	16.945		5	
6.002	16.945	16.230	15.030		5	
6.003	15.030	15.863	14.663		0	
5.007	14.213	15.850	14.182		0	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	
Branch: 10.000						
10.000	18.205	19.370	17.768		5	
10.001	17.768	16.282	15.157		0	
Branch: 11.000						
11.000	18.357	16.282	15.082		5	
7.004	14.782	15.918	14.418		5	
7.005	14.268	15.850	14.182		0	
3.012	14.067	15.899	14.007		0	
3.013	14.007	15.399	13.905		0	
3.014	13.805	14.770	13.658		5	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: FP1		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
5.000	26	27	151.468	Pipe	256.296	0.6	300	19.423
5.001	27	28	237.371	Pipe	170.000	0.6	300	19.900
5.002	28	29	59.758	Pipe	185.749	0.6	300	17.758
5.003	29	30	66.734	Pipe	96.576	0.6	375	17.114
5.004	30	31	35.985	Pipe	204.459	0.6	375	16.423
5.005	31	32	52.385	Pipe	111.220	0.6	600	16.247
5.006	32	33	48.794	Pipe	-562.114	0.6	600	15.876
Branch: 6.000								
6.000	34	35	124.994	Pipe	287.172	0.6	300	19.900
6.001	35	36	155.135	Pipe	117.550	0.6	300	20.011
6.002	36	37	73.345	Pipe	38.300	0.6	300	18.145
6.003	37	33	32.231	Pipe	87.761	0.6	300	16.230
5.007	33	23	15.239	Pipe	500.000	0.6	750	15.863
Branch: 3.000								
3.000	11	12	99.998	Pipe	189.749	0.6	375	20.899
3.001	12	13	100.000	Pipe	111.111	0.6	450	20.372
3.002	13	14	100.000	Pipe	111.111	0.6	450	19.472
3.003	14	15	86.763	Pipe	111.093	0.6	600	18.572
3.004	15	16	70.529	Pipe	141.340	0.6	750	17.791
3.005	16	17	15.525	Pipe	152.204	0.6	750	17.292
3.006	17	18	47.704	Pipe	88.342	0.6	750	17.190
3.007	18	19	24.415	Pipe	500.000	0.6	750	16.650
3.008	19	20	10.462	Pipe	500.000	0.6	750	16.650
3.009	20	21	30.414	Pipe	249.299	0.6	750	16.650
Branch: 4.000								
4.000	25	21	44.748	Pipe	339.002	0.6	375	16.290
3.010	21	22	53.947	Pipe	227.623	0.6	750	16.158
3.011	22	23	26.861	Pipe	301.805	0.6	750	15.921
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304
Branch: 10.000								
10.000	46	47	74.209	Pipe	170.000	0.6	225	19.330
10.001	47	42	119.427	Pipe	45.748	0.6	225	19.370
Branch: 11.000								
11.000	48	42	153.583	Pipe	46.896	0.6	300	19.557
7.004	42	43	85.483	Pipe	234.844	0.6	600	16.282
7.005	43	23	27.120	Pipe	315.351	0.6	750	15.918
3.012	23	24	30.032	Pipe	500.000	0.6	900	15.850

West Winch Housing Access Road - 70100518:
 Catchment 04
 Surface Water Calculations
 70100518-WSP-HDG-WW-CA-CD-04-DRAFT

Date:
 23/11/2023
 Designed by: Amit Kumar
 Checked by: Joe Leslie
 Approved By: Gareth Hamer



Report Details:
 Type: Network Design Report
 Storm Phase: Storm
 Flow Path: FP1

Company Address:
 WSP in the UK
 62-64 Hills Road
 Cambridge CB2 1LA

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
5.000	18.223	19.900	17.632		5	
5.001	17.632	17.758	16.236		5	
5.002	16.236	17.114	15.914		5	
5.003	15.839	16.423	15.148		5	
5.004	15.148	16.247	14.972		5	
5.005	14.747	15.876	14.276		5	
5.006	14.276	15.863	14.363		5	
Branch: 6.000						
6.000	18.700	20.011	18.265		5	
6.001	18.265	18.145	16.945		5	
6.002	16.945	16.230	15.030		5	
6.003	15.030	15.863	14.663		0	
5.007	14.213	15.850	14.182		0	
Branch: 3.000						
3.000	19.324	20.372	18.797		5	
3.001	18.722	19.472	17.822		5	
3.002	17.822	18.572	16.922		5	
3.003	16.772	17.791	15.991		5	
3.004	15.841	17.292	15.342		5	
3.005	15.342	17.190	15.240		5	
3.006	15.240	16.650	14.700		5	
3.007	14.700	16.650	14.651		0	
3.008	14.651	16.650	14.630		5	
3.009	14.630	16.158	14.508		0	
Branch: 4.000						
4.000	15.015	16.158	14.883		5	
3.010	14.508	15.921	14.271		0	
3.011	14.271	15.850	14.182		5	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	
Branch: 10.000						
10.000	18.205	19.370	17.768		5	
10.001	17.768	16.282	15.157		0	
Branch: 11.000						
11.000	18.357	16.282	15.082		5	
7.004	14.782	15.918	14.418		5	
7.005	14.268	15.850	14.182		0	
3.012	14.067	15.899	14.007		0	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: FP3		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304
Branch: 10.000								
10.000	46	47	74.209	Pipe	170.000	0.6	225	19.330
10.001	47	42	119.427	Pipe	45.748	0.6	225	19.370
Branch: 11.000								
11.000	48	42	153.583	Pipe	46.896	0.6	300	19.557
7.004	42	43	85.483	Pipe	234.844	0.6	600	16.282
7.005	43	23	27.120	Pipe	315.351	0.6	750	15.918
Branch: 3.000								
3.000	11	12	99.998	Pipe	189.749	0.6	375	20.899
3.001	12	13	100.000	Pipe	111.111	0.6	450	20.372
3.002	13	14	100.000	Pipe	111.111	0.6	450	19.472
3.003	14	15	86.763	Pipe	111.093	0.6	600	18.572
3.004	15	16	70.529	Pipe	141.340	0.6	750	17.791
3.005	16	17	15.525	Pipe	152.204	0.6	750	17.292
3.006	17	18	47.704	Pipe	88.342	0.6	750	17.190
3.007	18	19	24.415	Pipe	500.000	0.6	750	16.650
3.008	19	20	10.462	Pipe	500.000	0.6	750	16.650
3.009	20	21	30.414	Pipe	249.299	0.6	750	16.650
Branch: 4.000								
4.000	25	21	44.748	Pipe	339.002	0.6	375	16.290
3.010	21	22	53.947	Pipe	227.623	0.6	750	16.158
3.011	22	23	26.861	Pipe	301.805	0.6	750	15.921
Branch: 5.000								
5.000	26	27	151.468	Pipe	256.296	0.6	300	19.423
5.001	27	28	237.371	Pipe	170.000	0.6	300	19.900
5.002	28	29	59.758	Pipe	185.749	0.6	300	17.758
5.003	29	30	66.734	Pipe	96.576	0.6	375	17.114
5.004	30	31	35.985	Pipe	204.459	0.6	375	16.423
5.005	31	32	52.385	Pipe	111.220	0.6	600	16.247
5.006	32	33	48.794	Pipe	-562.114	0.6	600	15.876
Branch: 6.000								
6.000	34	35	124.994	Pipe	287.172	0.6	300	19.900
6.001	35	36	155.135	Pipe	117.550	0.6	300	20.011
6.002	36	37	73.345	Pipe	38.300	0.6	300	18.145
6.003	37	33	32.231	Pipe	87.761	0.6	300	16.230
5.007	33	23	15.239	Pipe	500.000	0.6	750	15.863
3.012	23	24	30.032	Pipe	500.000	0.6	900	15.850

West Winch Housing Access Road - 70100518:
 Catchment 04
 Surface Water Calculations
 70100518-WSP-HDG-WW-CA-CD-04-DRAFT

Date:
 23/11/2023
 Designed by: Amit Kumar
 Checked by: Joe Leslie
 Approved By: Gareth Hamer

Report Details:
 Type: Network Design Report
 Storm Phase: Storm
 Flow Path: FP3

Company Address:
 WSP in the UK
 62-64 Hills Road
 Cambridge CB2 1LA



Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	
Branch: 10.000						
10.000	18.205	19.370	17.768		5	
10.001	17.768	16.282	15.157		0	
Branch: 11.000						
11.000	18.357	16.282	15.082		5	
7.004	14.782	15.918	14.418		5	
7.005	14.268	15.850	14.182		0	
Branch: 3.000						
3.000	19.324	20.372	18.797		5	
3.001	18.722	19.472	17.822		5	
3.002	17.822	18.572	16.922		5	
3.003	16.772	17.791	15.991		5	
3.004	15.841	17.292	15.342		5	
3.005	15.342	17.190	15.240		5	
3.006	15.240	16.650	14.700		5	
3.007	14.700	16.650	14.651		0	
3.008	14.651	16.650	14.630		5	
3.009	14.630	16.158	14.508		0	
Branch: 4.000						
4.000	15.015	16.158	14.883		5	
3.010	14.508	15.921	14.271		0	
3.011	14.271	15.850	14.182		5	
Branch: 5.000						
5.000	18.223	19.900	17.632		5	
5.001	17.632	17.758	16.236		5	
5.002	16.236	17.114	15.914		5	
5.003	15.839	16.423	15.148		5	
5.004	15.148	16.247	14.972		5	
5.005	14.747	15.876	14.276		5	
5.006	14.276	15.863	14.363		5	
Branch: 6.000						
6.000	18.700	20.011	18.265		5	
6.001	18.265	18.145	16.945		5	
6.002	16.945	16.230	15.030		5	
6.003	15.030	15.863	14.663		0	
5.007	14.213	15.850	14.182		0	
3.012	14.067	15.899	14.007		0	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: FP2		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
6.000	34	35	124.994	Pipe	287.172	0.6	300	19.900
6.001	35	36	155.135	Pipe	117.550	0.6	300	20.011
6.002	36	37	73.345	Pipe	38.300	0.6	300	18.145
6.003	37	33	32.231	Pipe	87.761	0.6	300	16.230
Branch: 5.000								
5.000	26	27	151.468	Pipe	256.296	0.6	300	19.423
5.001	27	28	237.371	Pipe	170.000	0.6	300	19.900
5.002	28	29	59.758	Pipe	185.749	0.6	300	17.758
5.003	29	30	66.734	Pipe	96.576	0.6	375	17.114
5.004	30	31	35.985	Pipe	204.459	0.6	375	16.423
5.005	31	32	52.385	Pipe	111.220	0.6	600	16.247
5.006	32	33	48.794	Pipe	-562.114	0.6	600	15.876
5.007	33	23	15.239	Pipe	500.000	0.6	750	15.863
Branch: 3.000								
3.000	11	12	99.998	Pipe	189.749	0.6	375	20.899
3.001	12	13	100.000	Pipe	111.111	0.6	450	20.372
3.002	13	14	100.000	Pipe	111.111	0.6	450	19.472
3.003	14	15	86.763	Pipe	111.093	0.6	600	18.572
3.004	15	16	70.529	Pipe	141.340	0.6	750	17.791
3.005	16	17	15.525	Pipe	152.204	0.6	750	17.292
3.006	17	18	47.704	Pipe	88.342	0.6	750	17.190
3.007	18	19	24.415	Pipe	500.000	0.6	750	16.650
3.008	19	20	10.462	Pipe	500.000	0.6	750	16.650
3.009	20	21	30.414	Pipe	249.299	0.6	750	16.650
Branch: 4.000								
4.000	25	21	44.748	Pipe	339.002	0.6	375	16.290
3.010	21	22	53.947	Pipe	227.623	0.6	750	16.158
3.011	22	23	26.861	Pipe	301.805	0.6	750	15.921
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304
Branch: 10.000								
10.000	46	47	74.209	Pipe	170.000	0.6	225	19.330
10.001	47	42	119.427	Pipe	45.748	0.6	225	19.370
Branch: 11.000								
11.000	48	42	153.583	Pipe	46.896	0.6	300	19.557
7.004	42	43	85.483	Pipe	234.844	0.6	600	16.282
7.005	43	23	27.120	Pipe	315.351	0.6	750	15.918
3.012	23	24	30.032	Pipe	500.000	0.6	900	15.850

West Winch Housing Access Road - 70100518:
 Catchment 04
 Surface Water Calculations
 70100518-WSP-HDG-WW-CA-CD-04-DRAFT

Date:
 23/11/2023
 Designed by: Amit Kumar
 Checked by: Joe Leslie
 Approved By: Gareth Hamer

Report Details:
 Type: Network Design Report
 Storm Phase: Storm
 Flow Path: FP2

Company Address:
 WSP in the UK
 62-64 Hills Road
 Cambridge CB2 1LA



Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
6.000	18.700	20.011	18.265		5	
6.001	18.265	18.145	16.945		5	
6.002	16.945	16.230	15.030		5	
6.003	15.030	15.863	14.663		0	
Branch: 5.000						
5.000	18.223	19.900	17.632		5	
5.001	17.632	17.758	16.236		5	
5.002	16.236	17.114	15.914		5	
5.003	15.839	16.423	15.148		5	
5.004	15.148	16.247	14.972		5	
5.005	14.747	15.876	14.276		5	
5.006	14.276	15.863	14.363		5	
5.007	14.213	15.850	14.182		0	
Branch: 3.000						
3.000	19.324	20.372	18.797		5	
3.001	18.722	19.472	17.822		5	
3.002	17.822	18.572	16.922		5	
3.003	16.772	17.791	15.991		5	
3.004	15.841	17.292	15.342		5	
3.005	15.342	17.190	15.240		5	
3.006	15.240	16.650	14.700		5	
3.007	14.700	16.650	14.651		0	
3.008	14.651	16.650	14.630		5	
3.009	14.630	16.158	14.508		0	
Branch: 4.000						
4.000	15.015	16.158	14.883		5	
3.010	14.508	15.921	14.271		0	
3.011	14.271	15.850	14.182		5	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	
Branch: 10.000						
10.000	18.205	19.370	17.768		5	
10.001	17.768	16.282	15.157		0	
Branch: 11.000						
11.000	18.357	16.282	15.082		5	
7.004	14.782	15.918	14.418		5	
7.005	14.268	15.850	14.182		0	
3.012	14.067	15.899	14.007		0	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: Flow Path		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
10.000	46	47	74.209	Pipe	170.000	0.6	225	19.330
10.001	47	42	119.427	Pipe	45.748	0.6	225	19.370
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304
Branch: 11.000								
11.000	48	42	153.583	Pipe	46.896	0.6	300	19.557
7.004	42	43	85.483	Pipe	234.844	0.6	600	16.282

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
10.000	18.205	19.370	17.768		5	
10.001	17.768	16.282	15.157		0	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	
Branch: 11.000						
11.000	18.357	16.282	15.082		5	
7.004	14.782	15.918	14.418		5	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: Flow Path (1)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
11.000	48	42	153.583	Pipe	46.896	0.6	300	19.557
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304
Branch: 10.000								
10.000	46	47	74.209	Pipe	170.000	0.6	225	19.330
10.001	47	42	119.427	Pipe	45.748	0.6	225	19.370
7.004	42	43	85.483	Pipe	234.844	0.6	600	16.282

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
11.000	18.357	16.282	15.082		5	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	
Branch: 10.000						
10.000	18.205	19.370	17.768		5	
10.001	17.768	16.282	15.157		0	
7.004	14.782	15.918	14.418		5	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: Flow Path (2)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 9.000								
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304


Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
8.000	17.959	17.304	16.104		5	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 9.000						
9.000	18.575	17.304	16.179		5	
7.003	15.954	16.282	14.932		5	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Storm Flow Path: Flow Path (3)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
9.000	45	41	157.869	Pipe	65.888	0.6	225	19.700
Branch: 7.000								
7.000	38	39	100.000	Pipe	145.349	0.6	450	19.733
7.001	39	40	100.000	Pipe	95.694	0.6	450	19.266
7.002	40	41	39.020	Pipe	56.044	0.6	450	18.000
Branch: 8.000								
8.000	44	41	95.273	Pipe	51.360	0.6	300	19.159
7.003	41	42	30.645	Pipe	29.985	0.6	450	17.304

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
9.000	18.575	17.304	16.179		5	
Branch: 7.000						
7.000	18.383	19.266	17.695		5	
7.001	17.695	18.000	16.650		5	
7.002	16.650	17.304	15.954		5	
Branch: 8.000						
8.000	17.959	17.304	16.104		5	
7.003	15.954	16.282	14.932		5	

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023			
Report Details: Type: Network Design Criteria Storm Phase: Storm	Designed by: Amit Kumar		Checked by: Joe Leslie	Approved By: Gareth Hamer
	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Sim Criteria FEH

Type: FEH

Site Location	GB 563200 316750 TF 63200 16750
Return Period (years)	2.0
Rainfall Version	2013
Data Type	Catchment

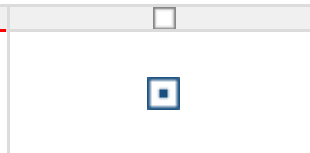
Pipe Options

Lock Slope Options	None
Design Level	Level Inverts
Min. Slope (1:X)	1000.00
Max. Slope (1:X)	40.00
Use Flow Restriction	<input checked="" type="checkbox"/>
Reduce Channel Depths	<input checked="" type="checkbox"/>

Manhole Options

Apply Offset

An error has occurred while processing TextBox
'txtSynchroniseManholeInvertLevelsHeader':
The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is
not defined in the current context.




West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Outfall Details Storm Phase: Storm	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
P4 OF	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023			
Report Title: Rainfall Analysis Criteria	Designed by: Amit Kumar		Checked by: Joe Leslie	Approved By: Gareth Hamer
	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	0
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall

Sim Criteria FEH

Type: FEH

Site Location	GB 563200 316750 TF 63200 16750
Rainfall Version	2013
Data Type	Catchment
Summer	<input checked="" type="checkbox"/>
Winter	<input checked="" type="checkbox"/>

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
11 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.17	33.3	14.469
12 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.14	27.4	11.901
13 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.14	27.4	11.901
14 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.12	23.8	10.323
15 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.10	19.3	8.379
16 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.06	11.9	5.169
17 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.05	10.4	4.506
19 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	5.6	2.445
19 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.13	25.3	10.971
25 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.13	26.4	11.454
25 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.14	28.7	12.456
22 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.10	19.9	8.631
26 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.04	1.5	0.642
26 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.04	8.3	3.594

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



27 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.06	2.3	0.999
27 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	22.5	9.762
28 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	5.5	2.397
28 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.6	0.273
29 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.04	8.9	3.846
29 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.7	0.306
30 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.4	0.168
30 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.5	0.669
31 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.5	0.231
31 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.04	7.3	3.168
32 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.9	0.840
32 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.2	0.093
32 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.6	0.258
34 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	1.3	0.549
34 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	15.0	6.501
35 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	1.2	0.531
36 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	1.1	0.486

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



38 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.14	27.4	11.901
39 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.15	29.4	12.768
40 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	14.4	6.231
44 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.13	25.6	11.109
45 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.05	10.7	4.650
41 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.7	0.312
46 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	2.9	1.251
48 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.09	17.6	7.638
42 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.17	34.5	14.988
POND 4 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.84	168.9	73.368

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
11 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.17	116.6	50.631
12 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.14	95.9	41.631
13 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.14	95.9	41.628
14 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.12	83.2	36.114
15 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.10	67.5	29.322
16 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.06	41.6	18.081
17 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.05	36.3	15.756
19 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	19.7	8.556
19 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.13	88.4	38.391
25 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.13	92.3	40.071
25 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.14	100.3	43.581

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie
		Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA	



22 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.10	69.5	30.207
26 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.04	5.1	2.238
26 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.04	29.0	12.585
27 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.06	8.1	3.498
27 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	78.7	34.161
28 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	19.3	8.379
28 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.2	0.957
29 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.04	31.0	13.464
29 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.4	1.059
30 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.3	0.582
30 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	5.4	2.343
31 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.8	0.801
31 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.04	25.5	11.085

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



32 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	6.8	2.943
32 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	0.7	0.315
32 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	2.1	0.903
34 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	4.4	1.920
34 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	52.4	22.743
35 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	4.3	1.857
36 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	3.9	1.698
38 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.14	95.9	41.628
39 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.15	102.9	44.679
40 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	50.2	21.804
44 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.13	89.5	38.868
45 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.05	37.5	16.275
41 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.00	2.5	1.095

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



46 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	10.1	4.377
48 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.09	61.5	26.724
42 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.17	120.7	52.431
POND 4 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.84	591.1	256.694

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
11 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.17	155.7	67.635
12 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.14	128.1	55.611
13 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.14	128.1	55.611
14 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.12	111.1	48.249
15 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.10	90.2	39.174
16 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.06	55.6	24.159
17 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.05	48.5	21.045
19 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	26.3	11.433
19 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.13	118.1	51.282
25 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.13	123.3	53.532
25 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.14	134.1	58.218

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie
		Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA	



22 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.10	92.9	40.350
26 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.04	6.9	2.988
26 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.04	38.7	16.809
27 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.06	10.8	4.680
27 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	105.1	45.636
28 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	25.8	11.199
28 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.0	1.284
29 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.04	41.4	17.982
29 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.3	1.419
30 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.8	0.777
30 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	7.2	3.129
31 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.5	1.071
31 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.04	34.1	14.811

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie
		Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA	



32 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	9.0	3.924
32 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.0	0.426
32 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.8	1.209
34 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	5.9	2.571
34 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	70.0	30.384
35 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	5.7	2.481
36 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	5.2	2.268
38 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.14	128.0	55.608
39 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.15	137.4	59.685
40 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	67.1	29.127
44 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.13	119.6	51.924
45 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.05	50.1	21.741
41 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.00	3.4	1.464

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



46 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	13.5	5.850
48 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.09	82.2	35.700
42 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.17	161.3	70.047
POND 4 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.84	789.6	342.917

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
POND 4	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	13.896	13.896	0.091	0.091	358.7	275.097	0.000	0.000	1.8	1.348	4193	93.734

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



**Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item:
Rank By: Max. Flooded Volume**

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
POND 4	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	14.126	14.126	0.321	0.321	1236.2	991.723	0.000	0.000	6.3	6.600	3679	77.410

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



**Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item:
Rank By: Max. Flooded Volume**

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
POND 4	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	14.229	14.229	0.424	0.424	1648.6	1326.193	0.000	0.000	6.4	7.225	4357	69.791

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT	Date: 23/11/2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Storm	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Status
OK

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
3.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	11	12	20.899	19.435	0.109	14.395	1.0	0.18	26.0	OK
3.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	12	13	20.372	18.845	0.129	26.318	1.3	0.16	48.9	OK
3.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	13	14	19.472	17.957	0.133	37.814	1.4	0.18	56.4	OK
3.003	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	14	15	18.572	16.907	0.134	62.357	1.5	0.11	70.5	OK
3.004	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	15	16	17.791	15.985	0.152	73.111	1.3	0.08	82.5	OK
3.005	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	16	17	17.292	15.503	0.148	79.670	1.4	0.09	89.3	OK
3.006	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	17	18	17.190	15.375	0.184	85.463	1.1	0.07	95.4	OK
3.007	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	18	19	16.650	14.939	0.238	64.691	0.8	0.18	99.6	OK
3.008	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	19	20	16.650	14.889	0.224	77.818	1.0	0.2	111.7	OK
3.009	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	20	21	16.650	14.841	0.216	77.487	1.1	0.15	116.7	OK
4.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	25	21	16.290	15.203	0.174	23.889	1.0	0.46	49.2	OK
3.010	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	21	22	16.158	14.729	0.249	100.864	1.1	0.18	146.3	OK
3.011	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	22	23	15.921	14.548	0.288	107.733	1.1	0.23	160.1	OK
5.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	26	27	19.423	18.288	0.083	4.227	0.5	0.1	7.2	OK

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT				Date: 23/11/2023					
Report Details: Type: Connections Summary Storm Phase: Storm				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

5.001	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	27	28	19.900	17.734	0.105	19.317	1.0	0.25	21.3	OK
5.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	28	29	17.758	16.350	0.113	16.344	1.0	0.3	24.2	OK
5.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	29	30	17.114	15.931	0.106	20.347	1.1	0.13	27.2	OK
5.004	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	30	31	16.423	15.267	0.117	20.685	1.0	0.21	28.8	OK
5.005	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	31	32	16.247	14.832	0.166	23.954	0.6	0.05	31.0	OK
5.006	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	32	33	15.876	14.523	0.185	0.000	0.5	0.16	33.9	OK
6.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	34	35	19.900	18.799	0.081	7.109	0.9	0.2	13.3	OK
6.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	35	36	20.011	18.333	0.061	7.404	1.1	0.11	11.0	OK
6.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	36	37	18.145	16.998	0.061	7.731	1.2	0.07	12.5	OK
6.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	37	33	16.230	15.098	0.068	7.569	1.1	0.11	13.0	OK
5.007	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	33	23	15.863	14.487	0.286	29.408	0.6	0.09	50.5	OK
7.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	38	39	19.733	18.475	0.104	11.928	0.9	0.09	24.7	OK
7.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	39	40	19.266	17.811	0.113	24.594	1.5	0.14	45.9	OK
7.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	40	41	18.000	16.760	0.114	30.731	1.7	0.13	54.1	OK
8.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	44	41	19.159	18.037	0.077	11.091	1.6	0.14	22.3	OK
9.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	45	41	19.700	18.627	0.052	4.584	1.1	0.12	7.4	OK
7.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	41	42	17.304	16.071	0.114	46.647	2.5	0.13	79.5	OK

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




10.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	46	47	19.330	18.247	0.031	1.261	0.8	0.06	2.4	OK
10.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	47	42	19.370	17.792	0.023	1.194	0.8	0.02	1.8	OK
11.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	48	42	19.557	18.416	0.059	7.588	1.4	0.08	13.6	OK
7.004	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	42	43	16.282	14.984	0.199	90.990	1.3	0.23	104.2	OK
7.005	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	43	23	15.918	14.490	0.244	90.256	0.9	0.15	103.1	OK
3.012	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	23	24	15.850	14.480	0.404	206.682	1.1	0.35	311.8	OK
3.013	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	24	POND 4	15.899	14.403	0.361	203.160	1.3	0.4	320.6	OK
3.014	Sim Criteria FEH: 2 years: +0 %: 960 mins: Winter	Pipe	POND 4	P4 OF	15.399	14.108	0.061	540.727	0.7	0.16	6.2	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow


Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
3.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	11	12	20.899	19.564	0.232	50.546	1.4	0.67	97.3	OK
3.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	12	13	20.372	18.983	0.286	92.205	1.7	0.59	180.8	OK
3.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	13	14	19.472	18.132	0.297	133.294	2.0	0.73	223.6	OK
3.003	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	14	15	18.572	17.063	0.279	169.073	2.1	0.41	270.6	OK
3.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	15	16	17.791	16.153	0.325	198.190	1.7	0.31	317.6	OK
3.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	16	17	17.292	15.680	0.310	215.830	2.0	0.33	332.1	OK
3.006	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	17	18	17.190	15.521	0.436	231.394	1.5	0.27	353.5	OK
3.007	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	18	19	16.650	15.338	0.644	230.636	1.0	0.62	339.3	OK
3.008	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	19	20	16.650	15.228	0.563	365.579	1.2	0.73	398.7	OK
3.009	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	20	21	16.650	15.266	0.672	276.830	1.2	0.53	411.5	OK
4.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	25	21	16.290	15.689	0.375	81.338	1.7	1.73	187.1	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT				Date: 23/11/2023														
Report Details: Type: Connections Summary Storm Phase: Storm				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA									Designed by: Amit Kumar		Checked by: Joe Leslie		Approved By: Gareth Hamer	

3.010	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	21	22	16.158	15.216	0.750	359.109	1.5	0.62	508.3	OK
3.011	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	22	23	15.921	15.102	0.750	386.625	1.4	0.75	532.5	Surcharged
5.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	26	27	19.423	18.355	0.186	14.816	0.6	0.41	28.2	OK
5.001	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	27	28	19.900	17.858	0.249	68.494	1.2	0.91	77.1	OK
5.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	28	29	17.758	16.551	0.273	59.947	1.3	1.08	87.5	Surcharged
5.003	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	29	30	17.114	16.032	0.227	99.325	1.5	0.51	102.9	OK
5.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	30	31	16.423	15.410	0.251	76.454	1.4	0.76	106.0	OK
5.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	31	32	16.247	15.082	0.557	88.163	0.6	0.2	128.2	OK
5.006	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	32	33	15.876	15.056	0.600	0.000	0.6	0.65	138.2	Surcharged
6.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	34	35	19.900	18.908	0.174	24.762	1.1	0.75	48.6	OK
6.001	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	35	36	20.011	18.402	0.118	34.669	1.5	0.39	39.7	OK
6.002	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	36	37	18.145	17.043	0.109	36.820	1.8	0.23	41.8	OK
6.003	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	37	33	16.230	15.155	0.247	27.471	1.3	0.37	44.4	OK

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT				Date: 23/11/2023					
Report Details: Type: Connections Summary Storm Phase: Storm				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

5.007	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	33	23	15.863	15.032	0.750	115.815	0.7	0.34	188.8	Surcharged
7.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	38	39	19.733	18.563	0.211	41.676	1.2	0.33	89.6	OK
7.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	39	40	19.266	17.938	0.240	86.217	2.0	0.52	171.1	OK
7.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	40	41	18.000	16.888	0.246	107.896	2.3	0.47	204.9	OK
8.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	44	41	19.159	18.119	0.156	38.849	2.2	0.52	81.0	OK
9.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	45	41	19.700	18.684	0.108	16.190	1.6	0.46	29.3	OK
7.003	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	41	42	17.304	16.208	0.296	163.604	2.8	0.52	308.0	OK
10.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	46	47	19.330	18.285	0.062	4.400	1.0	0.23	9.1	OK
10.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	47	42	19.370	17.813	0.079	4.299	0.8	0.09	6.9	OK
11.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	48	42	19.557	18.479	0.155	25.781	1.5	0.35	56.6	OK
7.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	42	43	16.282	15.270	0.559	236.667	1.7	0.88	394.3	OK
7.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	43	23	15.918	15.061	0.750	245.115	1.1	0.53	369.1	Surcharged
3.012	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	23	24	15.850	15.025	0.900	748.874	1.7	1.21	1073.3	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023				
Report Details: Type: Connections Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer		
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA				


3.013	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	24	POND 4	15.899	14.859	0.737	741.682	2.0	1.36	1103. 1	OK
3.014	Sim Criteria FEH: 30 years: +35 %: 180 mins: Summer	Pipe	POND 4	P4 OF	15.399	14.476	0.061	106.476	0.7	0.16	6.4	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow


Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
3.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	11	12	20.899	19.626	0.283	67.533	1.4	0.89	129.4	OK
3.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	12	13	20.372	19.045	0.362	122.718	1.8	0.8	244.5	OK
3.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	13	14	19.472	18.224	0.377	178.265	2.1	0.96	295.2	OK
3.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	14	15	18.572	17.122	0.335	225.554	2.2	0.56	365.0	OK
3.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	15	16	17.791	16.218	0.524	264.924	1.8	0.41	430.6	OK
3.005	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	16	17	17.292	16.053	0.735	288.707	2.1	0.48	477.5	OK
3.006	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	17	18	17.190	15.999	0.750	309.853	1.6	0.39	507.1	Surcharged
3.007	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	18	19	16.650	15.891	0.750	308.845	1.2	0.95	520.2	Surcharged
3.008	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	19	20	16.650	15.815	0.750	371.193	1.3	1.02	562.7	Surcharged
3.009	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	20	21	16.650	15.756	0.750	370.848	1.3	0.73	573.0	Surcharged
4.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	25	21	16.290	16.098	0.375	108.876	2.3	2.32	250.6	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT				Date: 23/11/2023														
Report Details: Type: Connections Summary Storm Phase: Storm				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA									Designed by: Amit Kumar		Checked by: Joe Leslie		Approved By: Gareth Hamer	

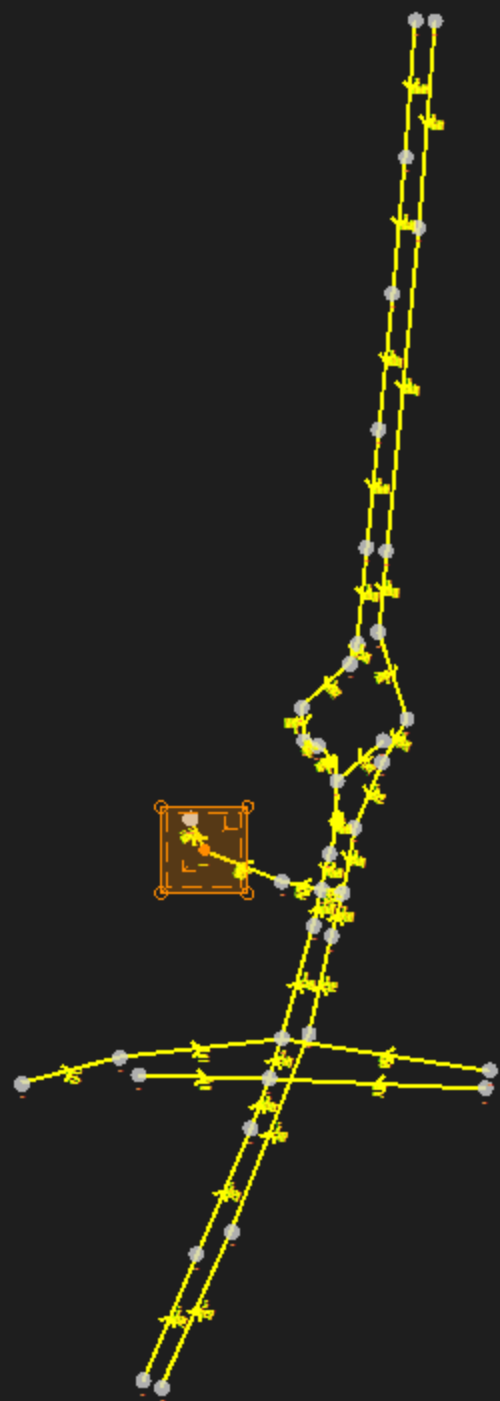
3.010	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	21	22	16.158	15.654	0.750	480.950	1.5	0.79	648.4	Surcharged
3.011	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	22	23	15.921	15.438	0.750	688.169	1.6	0.97	687.4	Surcharged
5.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	26	27	19.423	18.388	0.300	19.795	0.6	0.57	39.6	OK
5.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Winter	Pipe	27	28	19.900	18.078	0.300	68.009	1.3	1.08	91.6	Surcharged
5.002	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	28	29	17.758	16.763	0.300	108.242	1.5	1.3	105.5	Surcharged
5.003	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	29	30	17.114	16.063	0.291	133.681	1.5	0.66	134.9	OK
5.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	30	31	16.423	15.582	0.375	102.942	1.3	0.98	136.4	Surcharged
5.005	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	31	32	16.247	15.395	0.600	118.592	0.6	0.24	153.8	Surcharged
5.006	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	32	33	15.876	15.371	0.600	0.000	0.6	0.76	160.9	Surcharged
6.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	34	35	19.900	18.966	0.216	33.027	1.2	0.97	63.0	OK
6.001	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	35	36	20.011	18.429	0.139	46.600	1.7	0.52	53.3	OK
6.002	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	36	37	18.145	17.059	0.235	49.505	1.7	0.32	57.4	OK
6.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Winter	Pipe	37	33	16.230	15.443	0.300	36.958	1.1	0.54	64.5	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT				Date: 23/11/2023					
Report Details: Type: Connections Summary Storm Phase: Storm				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

5.007	Sim Criteria FEH: 100 years: +40 %: 15 mins: Winter	Pipe	33	23	15.863	15.301	0.750	156.572	0.7	0.43	234.9	Surcharged
7.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	38	39	19.733	18.595	0.254	55.661	1.3	0.45	120.5	OK
7.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	39	40	19.266	17.991	0.294	115.148	2.1	0.7	230.0	OK
7.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	40	41	18.000	16.943	0.309	143.895	2.4	0.64	275.4	OK
8.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	44	41	19.159	18.153	0.189	50.049	2.3	0.7	108.4	OK
9.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	45	41	19.700	18.707	0.130	20.302	1.7	0.62	39.7	OK
7.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	41	42	17.304	16.279	0.450	218.469	2.7	0.71	423.0	OK
10.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	46	47	19.330	18.298	0.073	5.875	1.1	0.31	12.2	OK
10.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	47	42	19.370	17.821	0.225	5.665	0.8	0.13	10.0	OK
11.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	48	42	19.557	18.502	0.300	33.827	1.4	0.48	77.7	OK
7.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	42	43	16.282	15.696	0.600	318.206	1.8	1.13	506.1	Surcharged
7.005	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	43	23	15.918	15.369	0.750	433.395	1.1	0.71	493.0	Surcharged
3.012	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	23	24	15.850	15.338	0.900	1003.697	2.2	1.54	1369.3	Surcharged

West Winch Housing Access Road - 70100518: Catchment 04 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-04-DRAFT		Date: 23/11/2023				
Report Details: Type: Connections Summary Storm Phase: Storm		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer		
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA				

3.013	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	24	POND 4	15.899	15.100	0.895	990.568	2.2	1.71	1386.7	Surcharged
3.014	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	POND 4	P4 OF	15.399	14.357	0.061	16.462	0.7	0.16	6.4	Surcharged



West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



BASIN 5

Type : Pond

Dimensions

Exceedance Elevation (m)	11.580
Depth (m)	2.000
Base Elevation (m)	9.580
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:x)	3.00
Total Volume (m³)	2134.952

Depth (m)	Area (m²)	Volume (m³)
0.000	950.00	0.000
1.700	1588.95	2134.952
2.000	1718.67	2630.967

Inlets

Inlet

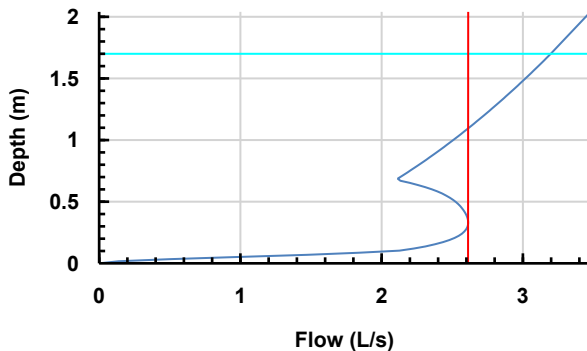
Inlet Type	Point Inflow
Incoming Item(s)	1.009
Bypass Destination	BASIN 5 - DA
Capacity Type	(None)
	No Restriction

Outlets

Outlet

Outgoing Connection	1.010
Outlet Type	Hydro-Brake®
Invert Elevation (m)	9.580
Design Depth (m)	1.700
Design Flow (L/s)	3.2
Objective	Minimize Upstream Storage Requirements
Application	Surface Water Only
Sump Available	<input checked="" type="checkbox"/>

Unit Reference	SHE-0076-3200-1700-3200
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West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		






Advanced

Perimeter	Circular
Length (m)	16.000
Friction Scheme	Manning's n
n	0.04

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type			
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)	
Coordinates (m)	Depth (m)										
Intersection (m)				Outgoing Connections				Cover			
1	20.899 19.624		Diameter / Length: 1.350					Manhole - Access Required	{a} Free Discharge		
E:563966.5 18 N:316924.7 62	1.275										
IP E:563966.5 18 IP N:316924.7 62				{a} 1.000	Pipe	19.624	Diam/Width: 375	Not Applicable			
2	19.660 18.385		Diameter / Length: 1.350	{1} 1.000	Pipe	18.385	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge		
E:563960.9 62 N:317064.4 51	1.275										
IP E:563960.9 62 IP N:317064.4 51				{a} 1.001	Pipe	18.385	Diam/Width: 375	Not Applicable			
3	18.647 17.372		Diameter / Length: 1.350	{1} 1.001	Pipe	17.372	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge		
E:563949.6 63 N:317110.6 80	1.275										
IP E:563949.6 63 IP N:317110.6 80				{a} 1.002	Pipe	17.372	Diam/Width: 375	Not Applicable			

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		

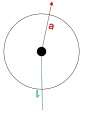
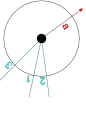
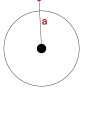


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
4	18.623 17.048		Diameter / Length: 1.350	{1} 1.002	Pipe	17.048	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563921.785 N:317131.816										
IP E:563921.785 IP N:317131.816	1.575			{a} 1.003	Pipe	17.048	Diam/Width: 375	Not Applicable		
5	18.623 16.983		Diameter / Length: 1.350	{1} 1.003	Pipe	16.983	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563922.554 N:317153.046	1.640									
IP E:563922.554 IP N:317153.046				{a} 1.004	Pipe	16.983	Diam/Width: 375	Not Applicable		
6	18.021 16.297		Diameter / Length: 1.500	{1} 1.004	Pipe	16.447	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563954.969 N:317186.772	1.724									
IP E:563954.969 IP N:317186.772				{a} 1.005	Pipe	16.297	Diam/Width: 525	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
				Outgoing Connections				Cover		
7	16.198 14.474		Diameter / Length: 1.500	{1} 1.005	Pipe	14.474	Diam/Width: 525	Manhole - Access Required	{a} Free Discharge	
E:563953.8 31 N:317276.7 61	1.725									
IP E:563953.8 31 IP N:317276.7 61				{a} 1.006	Pipe	14.474	Diam/Width: 525	Not Applicable		
8	14.970 13.169		Diameter / Length: 1.500	{1} 1.006	Pipe	13.245	Diam/Width: 525	Manhole - Access Required	{a} Free Discharge	
E:563965.3 96 N:317331.5 66	1.800			{2} 2.010	Pipe	13.169	Diam/Width: 600			
IP E:563965.3 96 IP N:317331.5 66				{3} 3.010	Pipe	13.620	Diam/Width: 150			
				{a} 1.007	Pipe	13.169	Diam/Width: 600	Not Applicable		
11	19.429 18.304		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563986.0 53 N:316923.7 75	1.125									
IP E:563986.0 53 IP N:316923.7 75				{a} 2.000	Pipe	18.304	Diam/Width: 225	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		

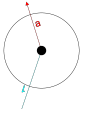
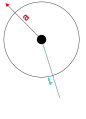
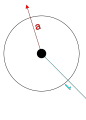



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
12	20.125 17.838		Diameter / Length: 1.200	{1} 2.000	Pipe	17.838	Diam/Width: 225	Manhole - Access Required	{a} Free Discharge	
E:563981.9 97 N:317002.8 50	2.287									
IP E:563981.9 97 IP N:317002.8 50				{a} 2.001	Pipe	17.838	Diam/Width: 225	Not Applicable		
13	18.569 17.071		Diameter / Length: 1.350	{1} 2.001	Pipe	17.296	Diam/Width: 225	Manhole - Access Required	{a} Free Discharge	
E:563975.0 49 N:317094.7 69	1.498									
IP E:563975.0 49 IP N:317094.7 69				{a} 2.002	Pipe	17.071	Diam/Width: 450	Not Applicable		
14	19.000 17.017		Diameter / Length: 1.350	{1} 2.002	Pipe	17.017	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:563977.6 45 N:317116.1 96	1.983									
IP E:563977.6 45 IP N:317116.1 96				{a} 2.003	Pipe	17.017	Diam/Width: 450	Not Applicable		

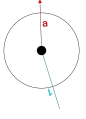
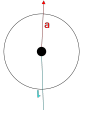
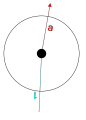
West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
15	17.667 16.167		Diameter / Length: 1.500	{1} 2.003	Pipe	16.317	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:563989.5 69 N:317151.3 87	1.500									
IP E:563989.5 69 IP N:317151.3 87				{a} 2.004	Pipe	16.167	Diam/Width: 600	Not Applicable		
16	17.421 15.921		Diameter / Length: 1.500	{1} 2.004	Pipe	15.921	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563983.9 67 N:317169.3 13	1.500									
IP E:563983.9 67 IP N:317169.3 13				{a} 2.005	Pipe	15.921	Diam/Width: 600	Not Applicable		
17	17.219 15.719		Diameter / Length: 1.500	{1} 2.005	Pipe	15.719	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563966.3 26 N:317187.1 15	1.500									
IP E:563966.3 26 IP N:317187.1 15				{a} 2.006	Pipe	15.719	Diam/Width: 600	Not Applicable		

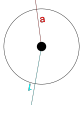
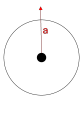
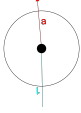
West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
18	17.279 15.650		Diameter / Length: 1.500	{1} 2.006	Pipe	15.650	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563962.8 87 N:317198.1 66	1.629									
IP E:563962.8 87 IP N:317198.1 66				{a} 2.007	Pipe	15.650	Diam/Width: 600	Not Applicable		
19	16.847 15.347		Diameter / Length: 1.500	{1} 2.007	Pipe	15.347	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563961.6 76 N:317235.2 95	1.500									
IP E:563961.6 76 IP N:317235.2 95				{a} 2.008	Pipe	15.347	Diam/Width: 600	Not Applicable		
20	15.996 14.496		Diameter / Length: 1.500	{1} 2.008	Pipe	14.496	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563964.3 38 N:317297.2 57	1.500									
IP E:563964.3 38 IP N:317297.2 57				{a} 2.009	Pipe	14.496	Diam/Width: 600	Not Applicable		

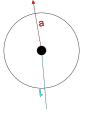
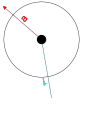
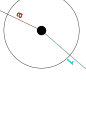
West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
21	15.195 13.695		Diameter / Length: 1.500	{1} 2.009	Pipe	13.695	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563967.5 20 N:317315.4 48	1.500									
IP E:563967.5 20 IP N:317315.4 48				{a} 2.010	Pipe	13.695	Diam/Width: 600	Not Applicable		
22	18.658 17.608		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563951.7 18 N:316925.0 16	1.050									
IP E:563951.7 18 IP N:316925.0 16				{a} 3.000	Pipe	17.608	Diam/Width: 150	Not Applicable		
23	18.400 17.350		Diameter / Length: 1.200	{1} 3.000	Pipe	17.350	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563949.2 22 N:317063.1 70	1.050									
IP E:563949.2 22 IP N:317063.1 70				{a} 3.001	Pipe	17.350	Diam/Width: 150	Not Applicable		




West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
24	18.362 17.190		Diameter / Length: 1.200	{1} 3.001	Pipe	17.190	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563947.8 62 N:317079.1 23	1.172									
IP E:563947.8 62 IP N:317079.1 23				{a} 3.002	Pipe	17.190	Diam/Width: 150	Not Applicable		
25	18.670 16.902		Diameter / Length: 1.200	{1} 3.002	Pipe	16.902	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563942.9 79 N:317107.5 35	1.768									
IP E:563942.9 79 IP N:317107.5 35				{a} 3.003	Pipe	16.902	Diam/Width: 150	Not Applicable		
26	18.732 16.712		Diameter / Length: 1.200	{1} 3.003	Pipe	16.712	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563928.5 90 N:317120.0 03	2.020									
IP E:563928.5 90 IP N:317120.0 03				{a} 3.004	Pipe	16.712	Diam/Width: 150	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
27	18.534 16.586		Diameter / Length: 1.200	{1} 3.004	Pipe	16.586	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563917.2 52 N:317125.4 47	1.948									
IP E:563917.2 52 IP N:317125.4 47				{a} 3.005	Pipe	16.586	Diam/Width: 150	Not Applicable		
28	18.135 16.255		Diameter / Length: 1.200	{1} 3.005	Pipe	16.255	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563918.4 50 N:317158.5 04	1.879									
IP E:563918.4 50 IP N:317158.5 04				{a} 3.006	Pipe	16.255	Diam/Width: 150	Not Applicable		
29	18.260 16.141		Diameter / Length: 1.200	{1} 3.006	Pipe	16.141	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563926.4 86 N:317166.5 99	2.119									
IP E:563926.4 86 IP N:317166.5 99				{a} 3.007	Pipe	16.141	Diam/Width: 150	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		

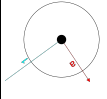
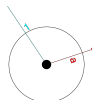
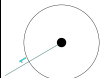


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
30	17.911 15.966		Diameter / Length: 1.200	{1} 3.007	Pipe	15.966	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563933.479 N:317182.675	1.945									
IP E:563933.479 IP N:317182.675				{a} 3.008	Pipe	15.966	Diam/Width: 150	Not Applicable		
34	17.440 15.776		Diameter / Length: 1.200	{1} 3.008	Pipe	15.776	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563935.783 N:317201.548	1.664									
IP E:563935.783 IP N:317201.548				{a} 3.009	Pipe	15.776	Diam/Width: 150	Not Applicable		
35	16.147 15.097		Diameter / Length: 1.200	{1} 3.009	Pipe	15.097	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563933.003 N:317299.073	1.050									
IP E:563933.003 IP N:317299.073				{a} 3.010	Pipe	15.097	Diam/Width: 150	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
9	14.426 12.626		Diameter / Length: 1.500	{1} 1.007	Pipe	12.626	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:564000.7 12 N:317357.3 18	1.800									
IP E:564000.7 12 IP N:317357.3 18						{a} 1.008	Pipe	12.626	Diam/Width: 600	Not Applicable
10	14.158 12.358		Diameter / Length: 1.500	{1} 1.008	Pipe	12.358	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:564011.4 39 N:317341.3 02	1.800									
IP E:564011.4 39 IP N:317341.3 02						{a} 1.009	Pipe	12.358	Diam/Width: 600	Not Applicable
B5 OF	10.389 9.144		Diameter / Length: 1.200	{1} 1.010	Pipe	9.144	Diam/Width: 225	Manhole		
E:564160.8 18 N:317407.1 04	1.245									
IP E:564160.8 18 IP N:317407.1 04										Not Applicable

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflow Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (ha)
1 - DA	1		Time of Concentration	0.221	100	0	100	0.221
2 - DA	2		Time of Concentration	0.110	100	0	100	0.110
4 - DA	4		Time of Concentration	0.029	100	0	100	0.029
5 - DA	5		Time of Concentration	0.009	100	0	100	0.009
5 - DA (1)	5		Time of Concentration	0.010	100	0	100	0.010
6 - DA	6		Time of Concentration	0.031	100	0	100	0.031
6 - DA (1)	6		Time of Concentration	0.110	100	0	100	0.110
7 - DA	7		Time of Concentration	0.051	100	0	100	0.051
7 - DA (1)	7		Time of Concentration	0.113	100	0	100	0.113
12 - DA	12		Time of Concentration	0.037	100	0	100	0.037
12 - DA (1)	12		Time of Concentration	0.097	20	0	20	0.019
13 - DA	13		Time of Concentration	0.032	100	0	100	0.032
13 - DA (1)	13		Time of Concentration	0.016	20	0	20	0.003
14 - DA	14		Time of Concentration	0.022	100	0	100	0.022
14 - DA (1)	14		Time of Concentration	0.005	20	0	20	0.001
14 - DA (2)	14		Time of Concentration	0.004	20	0	20	0.001
14 - DA (3)	14		Time of Concentration	0.014	100	0	100	0.014
15 - DA	15		Time of Concentration	0.247	100	0	100	0.247
16 - DA	16		Time of Concentration	0.011	100	0	100	0.011
16 - DA (1)	16		Time of Concentration	0.012	20	0	20	0.002
17 - DA	17		Time of Concentration	0.007	20	0	20	0.001
17 - DA (1)	17		Time of Concentration	0.027	100	0	100	0.027
18 - DA	18		Time of Concentration	0.107	100	0	100	0.107
18 - DA (1)	18		Time of Concentration	0.011	20	0	20	0.002
19 - DA	19		Time of Concentration	0.024	20	0	20	0.005
20 - DA	20		Time of Concentration	0.023	20	0	20	0.005
22 - DA	22		Time of Concentration	0.112	20	0	20	0.022
23 - DA	23		Time of Concentration	0.019	20	0	20	0.004
25 - DA	25		Time of Concentration	0.013	20	0	20	0.003
28 - DA	28		Time of Concentration	0.003	20	0	20	0.001
28 - DA (1)	28		Time of Concentration	0.012	20	0	20	0.002
30 - DA	30		Time of Concentration	0.009	20	0	20	0.002

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflow Summary Storm Phase: Catchment 05		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



BASIN 5 - DA	BASIN 5		Time of Concentration	0.354	100	0	100	0.354
TOTAL		0.0		1.902				1.608

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 05 Flow Path: Mainline 1		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:x)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)
1.000	1	2	139.799	Pipe	112.832	0.6	375	20.899
1.001	2	3	47.590	Pipe	46.979	0.6	375	19.660
1.002	3	4	34.985	Pipe	107.977	0.6	375	18.647
1.003	4	5	21.244	Pipe	325.000	0.6	375	18.623
1.004	5	6	46.777	Pipe	87.271	0.6	375	18.623
1.005	6	7	89.996	Pipe	49.367	0.6	525	18.021
1.006	7	8	56.011	Pipe	45.580	0.6	525	16.198
Branch: 2.000								
2.000	11	12	79.178	Pipe	169.910	0.6	225	19.429
2.001	12	13	92.181	Pipe	170.076	0.6	225	20.125
2.002	13	14	21.584	Pipe	399.707	0.6	450	18.569
2.003	14	15	37.156	Pipe	53.080	0.6	450	19.000
2.004	15	16	18.781	Pipe	76.345	0.6	600	17.667
2.005	16	17	25.062	Pipe	124.069	0.6	600	17.421
2.006	17	18	11.574	Pipe	167.741	0.6	600	17.219
2.007	18	19	37.148	Pipe	122.601	0.6	600	17.279
2.008	19	20	62.019	Pipe	72.878	0.6	600	16.847
2.009	20	21	18.467	Pipe	23.055	0.6	600	15.996
2.010	21	8	16.257	Pipe	30.919	0.6	600	15.195
Branch: 3.000								
3.000	22	23	138.177	Pipe	535.568	0.6	150	18.658
3.001	23	24	16.012	Pipe	100.073	0.6	150	18.400
3.002	24	25	28.828	Pipe	100.097	0.6	150	18.362
3.003	25	26	19.040	Pipe	100.000	0.6	150	18.670
3.004	26	27	12.577	Pipe	100.000	0.6	150	18.732
3.005	27	28	33.079	Pipe	100.000	0.6	150	18.534
3.006	28	29	11.406	Pipe	100.000	0.6	150	18.135
3.007	29	30	17.531	Pipe	100.000	0.6	150	18.260
3.008	30	34	19.013	Pipe	100.000	0.6	150	17.911
3.009	34	35	97.565	Pipe	143.689	0.6	150	17.440
3.010	35	8	45.881	Pipe	31.061	0.6	150	16.147
1.007	8	9	43.708	Pipe	80.494	0.6	600	14.970
1.008	9	10	19.276	Pipe	71.925	0.6	600	14.426
1.009	10	BASIN 5	90.077	Pipe	34.941	0.6	600	14.158
1.010	BASIN 5	B5 OF	74.054	Pipe	170.000	0.6	225	11.580

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 05 Flow Path: Mainline 1		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
1.000	19.624	19.660	18.385		5	
1.001	18.385	18.647	17.372		5	
1.002	17.372	18.623	17.048		0	
1.003	17.048	18.623	16.983		5	
1.004	16.983	18.021	16.447		5	
1.005	16.297	16.198	14.474		5	
1.006	14.474	14.970	13.245		5	
Branch: 2.000						
2.000	18.304	20.125	17.838		0	
2.001	17.838	18.569	17.296		5	
2.002	17.071	19.000	17.017		5	
2.003	17.017	17.667	16.317		5	
2.004	16.167	17.421	15.921		5	
2.005	15.921	17.219	15.719		5	
2.006	15.719	17.279	15.650		5	
2.007	15.650	16.847	15.347		5	
2.008	15.347	15.996	14.496		5	
2.009	14.496	15.195	13.695		5	
2.010	13.695	14.970	13.169		0	
Branch: 3.000						
3.000	17.608	18.400	17.350		5	
3.001	17.350	18.362	17.190		5	
3.002	17.190	18.670	16.902		0	
3.003	16.902	18.732	16.712		5	
3.004	16.712	18.534	16.586		0	
3.005	16.586	18.135	16.255		0	
3.006	16.255	18.260	16.141		5	
3.007	16.141	17.911	15.966		0	
3.008	15.966	17.440	15.776		5	
3.009	15.776	16.147	15.097		0	
3.010	15.097	14.970	13.620		0	
1.007	13.169	14.426	12.626		0	
1.008	12.626	14.158	12.358		0	
1.009	12.358	11.580	9.780		0	
1.010	9.580	10.389	9.144		5	

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 05 Flow Path: Flow Path		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:x)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)
3.000	22	23	138.177	Pipe	535.568	0.6	150	18.658
3.001	23	24	16.012	Pipe	100.073	0.6	150	18.400
3.002	24	25	28.828	Pipe	100.097	0.6	150	18.362
3.003	25	26	19.040	Pipe	100.000	0.6	150	18.670
3.004	26	27	12.577	Pipe	100.000	0.6	150	18.732
3.005	27	28	33.079	Pipe	100.000	0.6	150	18.534
3.006	28	29	11.406	Pipe	100.000	0.6	150	18.135
3.007	29	30	17.531	Pipe	100.000	0.6	150	18.260
3.008	30	34	19.013	Pipe	100.000	0.6	150	17.911
3.009	34	35	97.565	Pipe	143.689	0.6	150	17.440
3.010	35	8	45.881	Pipe	31.061	0.6	150	16.147
Branch: 1.000								
1.000	1	2	139.799	Pipe	112.832	0.6	375	20.899
1.001	2	3	47.590	Pipe	46.979	0.6	375	19.660
1.002	3	4	34.985	Pipe	107.977	0.6	375	18.647
1.003	4	5	21.244	Pipe	325.000	0.6	375	18.623
1.004	5	6	46.777	Pipe	87.271	0.6	375	18.623
1.005	6	7	89.996	Pipe	49.367	0.6	525	18.021
1.006	7	8	56.011	Pipe	45.580	0.6	525	16.198
Branch: 2.000								
2.000	11	12	79.178	Pipe	169.910	0.6	225	19.429
2.001	12	13	92.181	Pipe	170.076	0.6	225	20.125
2.002	13	14	21.584	Pipe	399.707	0.6	450	18.569
2.003	14	15	37.156	Pipe	53.080	0.6	450	19.000
2.004	15	16	18.781	Pipe	76.345	0.6	600	17.667
2.005	16	17	25.062	Pipe	124.069	0.6	600	17.421
2.006	17	18	11.574	Pipe	167.741	0.6	600	17.219
2.007	18	19	37.148	Pipe	122.601	0.6	600	17.279
2.008	19	20	62.019	Pipe	72.878	0.6	600	16.847
2.009	20	21	18.467	Pipe	23.055	0.6	600	15.996
2.010	21	8	16.257	Pipe	30.919	0.6	600	15.195
1.007	8	9	43.708	Pipe	80.494	0.6	600	14.970

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 05 Flow Path: Flow Path		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
3.000	17.608	18.400	17.350		5	
3.001	17.350	18.362	17.190		5	
3.002	17.190	18.670	16.902		0	
3.003	16.902	18.732	16.712		5	
3.004	16.712	18.534	16.586		0	
3.005	16.586	18.135	16.255		0	
3.006	16.255	18.260	16.141		5	
3.007	16.141	17.911	15.966		0	
3.008	15.966	17.440	15.776		5	
3.009	15.776	16.147	15.097		0	
3.010	15.097	14.970	13.620		0	
Branch: 1.000						
1.000	19.624	19.660	18.385		5	
1.001	18.385	18.647	17.372		5	
1.002	17.372	18.623	17.048		0	
1.003	17.048	18.623	16.983		5	
1.004	16.983	18.021	16.447		5	
1.005	16.297	16.198	14.474		5	
1.006	14.474	14.970	13.245		5	
Branch: 2.000						
2.000	18.304	20.125	17.838		0	
2.001	17.838	18.569	17.296		5	
2.002	17.071	19.000	17.017		5	
2.003	17.017	17.667	16.317		5	
2.004	16.167	17.421	15.921		5	
2.005	15.921	17.219	15.719		5	
2.006	15.719	17.279	15.650		5	
2.007	15.650	16.847	15.347		5	
2.008	15.347	15.996	14.496		5	
2.009	14.496	15.195	13.695		5	
2.010	13.695	14.970	13.169		0	
1.007	13.169	14.426	12.626		0	

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Network Design Report Storm Phase: Catchment 05 Flow Path: Flow Path (1)	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:x)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)
2.000	11	12	79.178	Pipe	169.910	0.6	225	19.429
2.001	12	13	92.181	Pipe	170.076	0.6	225	20.125
2.002	13	14	21.584	Pipe	399.707	0.6	450	18.569
2.003	14	15	37.156	Pipe	53.080	0.6	450	19.000
2.004	15	16	18.781	Pipe	76.345	0.6	600	17.667
2.005	16	17	25.062	Pipe	124.069	0.6	600	17.421
2.006	17	18	11.574	Pipe	167.741	0.6	600	17.219
2.007	18	19	37.148	Pipe	122.601	0.6	600	17.279
2.008	19	20	62.019	Pipe	72.878	0.6	600	16.847
2.009	20	21	18.467	Pipe	23.055	0.6	600	15.996
2.010	21	8	16.257	Pipe	30.919	0.6	600	15.195
Branch: 1.000								
1.000	1	2	139.799	Pipe	112.832	0.6	375	20.899
1.001	2	3	47.590	Pipe	46.979	0.6	375	19.660
1.002	3	4	34.985	Pipe	107.977	0.6	375	18.647
1.003	4	5	21.244	Pipe	325.000	0.6	375	18.623
1.004	5	6	46.777	Pipe	87.271	0.6	375	18.623
1.005	6	7	89.996	Pipe	49.367	0.6	525	18.021
1.006	7	8	56.011	Pipe	45.580	0.6	525	16.198
Branch: 3.000								
3.000	22	23	138.177	Pipe	535.568	0.6	150	18.658
3.001	23	24	16.012	Pipe	100.073	0.6	150	18.400
3.002	24	25	28.828	Pipe	100.097	0.6	150	18.362
3.003	25	26	19.040	Pipe	100.000	0.6	150	18.670
3.004	26	27	12.577	Pipe	100.000	0.6	150	18.732
3.005	27	28	33.079	Pipe	100.000	0.6	150	18.534
3.006	28	29	11.406	Pipe	100.000	0.6	150	18.135
3.007	29	30	17.531	Pipe	100.000	0.6	150	18.260
3.008	30	34	19.013	Pipe	100.000	0.6	150	17.911
3.009	34	35	97.565	Pipe	143.689	0.6	150	17.440
3.010	35	8	45.881	Pipe	31.061	0.6	150	16.147
1.007	8	9	43.708	Pipe	80.494	0.6	600	14.970

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 05 Flow Path: Flow Path (1)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
2.000	18.304	20.125	17.838		0	
2.001	17.838	18.569	17.296		5	
2.002	17.071	19.000	17.017		5	
2.003	17.017	17.667	16.317		5	
2.004	16.167	17.421	15.921		5	
2.005	15.921	17.219	15.719		5	
2.006	15.719	17.279	15.650		5	
2.007	15.650	16.847	15.347		5	
2.008	15.347	15.996	14.496		5	
2.009	14.496	15.195	13.695		5	
2.010	13.695	14.970	13.169		0	
Branch: 1.000						
1.000	19.624	19.660	18.385		5	
1.001	18.385	18.647	17.372		5	
1.002	17.372	18.623	17.048		0	
1.003	17.048	18.623	16.983		5	
1.004	16.983	18.021	16.447		5	
1.005	16.297	16.198	14.474		5	
1.006	14.474	14.970	13.245		5	
Branch: 3.000						
3.000	17.608	18.400	17.350		5	
3.001	17.350	18.362	17.190		5	
3.002	17.190	18.670	16.902		0	
3.003	16.902	18.732	16.712		5	
3.004	16.712	18.534	16.586		0	
3.005	16.586	18.135	16.255		0	
3.006	16.255	18.260	16.141		5	
3.007	16.141	17.911	15.966		0	
3.008	15.966	17.440	15.776		5	
3.009	15.776	16.147	15.097		0	
3.010	15.097	14.970	13.620		0	
1.007	13.169	14.426	12.626		0	

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Network Design Criteria Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Flow Options


Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Inverts
Min. Slope (1:x)	1000.00
Max. Slope (1:x)	40.00
Use Flow Restriction	<input checked="" type="checkbox"/>
Reduce Channel Depths	<input checked="" type="checkbox"/>

Manhole Options

Apply Offset	<input type="checkbox"/>
An error has occurred while processing TextBox 'txtSynchroniseManholeInvertLevelsHeader': The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is not defined in the current context.	<input type="checkbox"/>

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Catchment 05	Amit Kumar	Joe Leslie	Gareth Hamer	
Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA				

Outfalls

Outfall	Outfall Type	Fixed Surcharged Elevation (m)	Elevation Curve
B5 OF	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Title: Rainfall Analysis Criteria	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	0
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall

Sim Criteria FEH	Type: FEH
Site Location	GB 563150 317700 TF 63150 17700
Rainfall Version	2013
Data Type	Catchment
Summer	<input checked="" type="checkbox"/>
Winter	<input checked="" type="checkbox"/>

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Inflows Summary Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
1 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.22	44.1	19.245
2 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	21.8	9.542
4 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	5.8	2.518
5 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.9	0.814
5 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	1.9	0.850
6 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	6.3	2.730
6 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	21.9	9.563
7 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.05	10.2	4.461
7 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	22.5	9.814
12 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.04	7.4	3.218
12 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.10	3.9	1.689
13 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	6.4	2.787
13 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.6	0.278
14 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	4.4	1.928

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



14 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.2	0.093
14 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.2	0.078
14 - DA (3)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	2.8	1.231
15 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.25	49.2	21.482
16 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	2.2	0.958
16 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.5	0.216
17 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.117
17 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	5.4	2.359
18 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	21.4	9.335
18 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.5	0.198
19 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.9	0.410
20 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.9	0.407
22 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	4.5	1.952
23 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.7	0.326
25 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.5	0.231
28 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.1	0.045
28 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.5	0.210

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



30 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.153
BASIN 5 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.35	70.5	30.799

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Inflows Summary Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
1 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.22	153.7	66.956
2 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	76.2	33.192
4 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	20.1	8.771
5 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	6.5	2.828
5 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	6.8	2.948
6 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	21.8	9.496
6 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	76.4	33.273
7 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.05	35.6	15.530
7 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	78.4	34.133
12 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.04	25.7	11.207
12 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.10	13.5	5.863

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



13 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	22.3	9.700
13 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.2	0.977
14 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	15.4	6.710
14 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	0.7	0.315
14 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.00	0.6	0.270
14 - DA (3)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	9.8	4.281
15 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.25	171.5	74.727
16 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	7.7	3.340
16 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.7	0.755
17 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	0.9	0.407
17 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	18.9	8.211
18 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	74.6	32.485
18 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.6	0.698

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



19 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	3.3	1.429
20 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	3.2	1.417
22 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	15.6	6.788
23 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.6	1.132
25 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.8	0.800
28 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.00	0.4	0.159
28 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.7	0.722
30 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.2	0.530
BASIN 5 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.35	246.0	107.155

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
1 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.22	205.1	89.270
2 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	101.7	44.253
4 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	26.9	11.694
5 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	8.7	3.774
5 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	9.0	3.933
6 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	29.1	12.664
6 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	101.9	44.358
7 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.05	47.6	20.698
7 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	104.5	45.505
12 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.04	34.3	14.944
12 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.10	18.0	7.815

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



13 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	29.7	12.928
13 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.0	1.303
14 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	20.6	8.947
14 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.0	0.425
14 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.00	0.8	0.353
14 - DA (3)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	13.1	5.706
15 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.25	228.9	99.622
16 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	10.2	4.457
16 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.3	1.006
17 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.2	0.542
17 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	25.1	10.948
18 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	99.5	43.303
18 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.1	0.929

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



19 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	4.4	1.908
20 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	4.3	1.887
22 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	20.8	9.055
23 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.5	1.516
25 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.4	1.066
28 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.00	0.5	0.216
28 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.2	0.967
30 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.6	0.707
BASIN 5 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.35	328.2	142.856

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
BASIN 5	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	9.718	9.718	0.138	0.138	193.0	134.715	0.000	0.000	2.1	2.055	1585	93.690

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



**Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item:
Rank By: Max. Flooded Volume**

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
BASIN 5	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	10.043	10.043	0.463	0.463	790.7	475.830	0.000	0.000	2.6	3.265	2531	77.712

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



**Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item:
Rank By: Max. Flooded Volume**

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
BASIN 5	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	10.185	10.185	0.605	0.605	1025.9	636.320	0.000	0.000	2.6	3.273	3166	70.195

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 05	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Status
OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Connections Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	1	2	20.899	19.744	0.115	19.236	1.4	0.21	39.2	OK
1.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	2	3	19.660	18.495	0.124	28.649	1.7	0.19	54.6	OK
1.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	3	4	18.647	17.509	0.157	28.560	1.1	0.26	49.7	OK
1.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	4	5	18.623	17.225	0.152	30.994	1.2	0.46	50.7	OK
1.004	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	5	6	18.623	17.108	0.123	42.145	1.5	0.23	48.8	OK
1.005	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	6	7	18.021	16.409	0.120	44.699	1.9	0.1	69.9	OK
1.006	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	7	8	16.198	14.602	0.126	58.656	2.2	0.12	87.9	OK
2.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	11	12	19.429	18.304	0.033	0.000	0.0	0	0.0	OK
2.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	12	13	20.125	17.905	0.066	4.802	0.7	0.18	7.2	OK
2.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	13	14	18.569	17.159	0.076	7.831	0.8	0.08	13.4	OK
2.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	14	15	19.000	17.082	0.064	11.109	1.4	0.04	19.1	OK
2.004	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	15	16	17.667	16.294	0.136	32.578	1.4	0.08	66.9	OK
2.005	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	16	17	17.421	16.065	0.155	33.686	1.1	0.11	66.3	OK
2.006	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	17	18	17.219	15.885	0.163	36.080	1.1	0.13	68.5	OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 05				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

2.007	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	18	19	17.279	15.811	0.149	45.564	1.6	0.14	86.3	OK
2.008	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	19	20	16.847	15.484	0.118	45.833	2.1	0.1	80.7	OK
2.009	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	20	21	15.996	14.595	0.100	46.134	2.5	0.05	77.6	OK
2.010	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	21	8	15.195	13.797	0.149	46.073	1.4	0.06	75.3	OK
3.000	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	22	23	18.658	17.681	0.058	2.500	0.4	0.36	2.7	OK
3.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	23	24	18.400	17.394	0.044	2.130	0.7	0.18	3.2	OK
3.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	24	25	18.362	17.234	0.045	2.095	0.7	0.19	3.3	OK
3.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	25	26	18.670	16.948	0.047	2.293	0.8	0.2	3.6	OK
3.004	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	26	27	18.732	16.759	0.047	2.262	0.8	0.2	3.6	OK
3.005	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	27	28	18.534	16.633	0.048	2.217	0.8	0.2	3.6	OK
3.006	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	28	29	18.135	16.304	0.048	2.431	0.8	0.21	3.7	OK
3.007	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	29	30	18.260	16.189	0.047	2.393	0.8	0.21	3.7	OK
3.008	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	30	34	17.911	16.013	0.048	2.503	0.8	0.21	3.7	OK
3.009	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	34	35	17.440	15.830	0.044	3.552	0.8	0.24	3.6	OK
3.010	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	35	8	16.147	15.131	0.033	3.499	1.2	0.11	3.5	OK
1.007	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	8	9	14.970	13.363	0.195	139.341	2.0	0.2	157.2	OK
1.008	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	9	10	14.426	12.823	0.173	139.255	2.3	0.19	156.8	OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Connections Summary Storm Phase: Catchment 05		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




1.009	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	10	BASIN 5	14.158	12.507	0.149	105.960	2.9	0.13	156.9	OK
1.010	Sim Criteria FEH: 2 years: +0 %: 180 mins: Summer	Pipe	BASIN 5	B5 OF	11.580	9.923	0.039	44.093	0.6	0.07	2.6	Surcharged

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Connections Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	1	2	20.899	19.880	0.247	66.912	1.8	0.74	140.2	OK
1.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	2	3	19.660	18.623	0.374	99.731	1.9	0.71	208.5	OK
1.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	3	4	18.647	17.893	0.375	99.864	1.5	0.86	166.4	Surcharged
1.003	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	4	5	18.623	17.558	0.375	108.576	1.6	1.58	174.5	Surcharged
1.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	5	6	18.623	17.269	0.272	114.230	2.1	0.82	176.6	OK
1.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	6	7	18.021	16.529	0.255	156.811	2.6	0.39	267.6	OK
1.006	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	7	8	16.198	14.751	0.342	205.699	2.4	0.5	358.3	OK
2.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	11	12	19.429	18.304	0.074	0.000	0.0	0	0.0	OK
2.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	12	13	20.125	17.986	0.144	16.921	1.1	0.71	28.4	OK
2.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	13	14	18.569	17.243	0.151	27.551	1.1	0.32	51.0	OK
2.003	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	14	15	19.000	17.148	0.129	39.120	2.0	0.17	74.2	OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 05		Designed by: Amit Kumar		Checked by: Joe Leslie	Approved By: Gareth Hamer				
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

2.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	15	16	17.667	16.443	0.296	113.773	1.7	0.3	237.7	OK
2.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	16	17	17.421	16.236	0.339	117.769	1.5	0.39	239.8	OK
2.006	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	17	18	17.219	16.082	0.350	126.267	1.5	0.47	250.9	OK
2.007	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	18	19	17.279	15.987	0.309	159.381	2.2	0.51	316.8	OK
2.008	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	19	20	16.847	15.627	0.244	160.607	2.8	0.38	303.6	OK
2.009	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	20	21	15.996	14.704	0.224	161.863	3.1	0.21	296.0	OK
2.010	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	21	8	15.195	13.935	0.362	161.763	1.6	0.23	290.1	OK
3.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Winter	Pipe	22	23	18.658	17.817	0.146	6.680	0.6	1.3	9.8	Surcharged
3.001	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	23	24	18.400	17.440	0.089	10.323	1.0	0.62	10.9	OK
3.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	24	25	18.362	17.277	0.091	7.682	1.0	0.62	10.9	OK
3.003	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	25	26	18.670	16.998	0.097	11.334	1.0	0.68	12.1	OK
3.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	26	27	18.732	16.812	0.099	8.393	1.0	0.71	12.6	OK
3.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	27	28	18.534	16.684	0.105	8.330	1.0	0.74	13.2	OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 05				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					


3.006	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	28	29	18.135	16.367	0.111	9.156	1.0	0.8	14.2	OK
3.007	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	29	30	18.260	16.251	0.111	9.103	1.0	0.82	14.5	OK
3.008	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	30	34	17.911	16.078	0.125	9.573	1.0	0.85	15.1	OK
3.009	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	34	35	17.440	15.914	0.104	9.401	1.1	0.97	14.3	OK
3.010	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	35	8	16.147	15.167	0.069	9.303	1.7	0.42	13.5	OK
1.007	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	8	9	14.970	13.653	0.468	376.583	2.6	0.81	618.2	OK
1.008	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	9	10	14.426	13.078	0.382	376.262	3.2	0.74	599.2	OK
1.009	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	10	BASIN 5	14.158	12.669	0.302	490.969	4.0	0.48	563.7	OK
1.010	Sim Criteria FEH: 30 years: +35 %: 2160 mins: Winter	Pipe	BASIN 5	B5 OF	11.580	10.767	0.039	598.262	0.6	0.07	2.7	Surcharged

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT		Date: 20-11-2023		
Report Details: Type: Connections Summary Storm Phase: Catchment 05		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

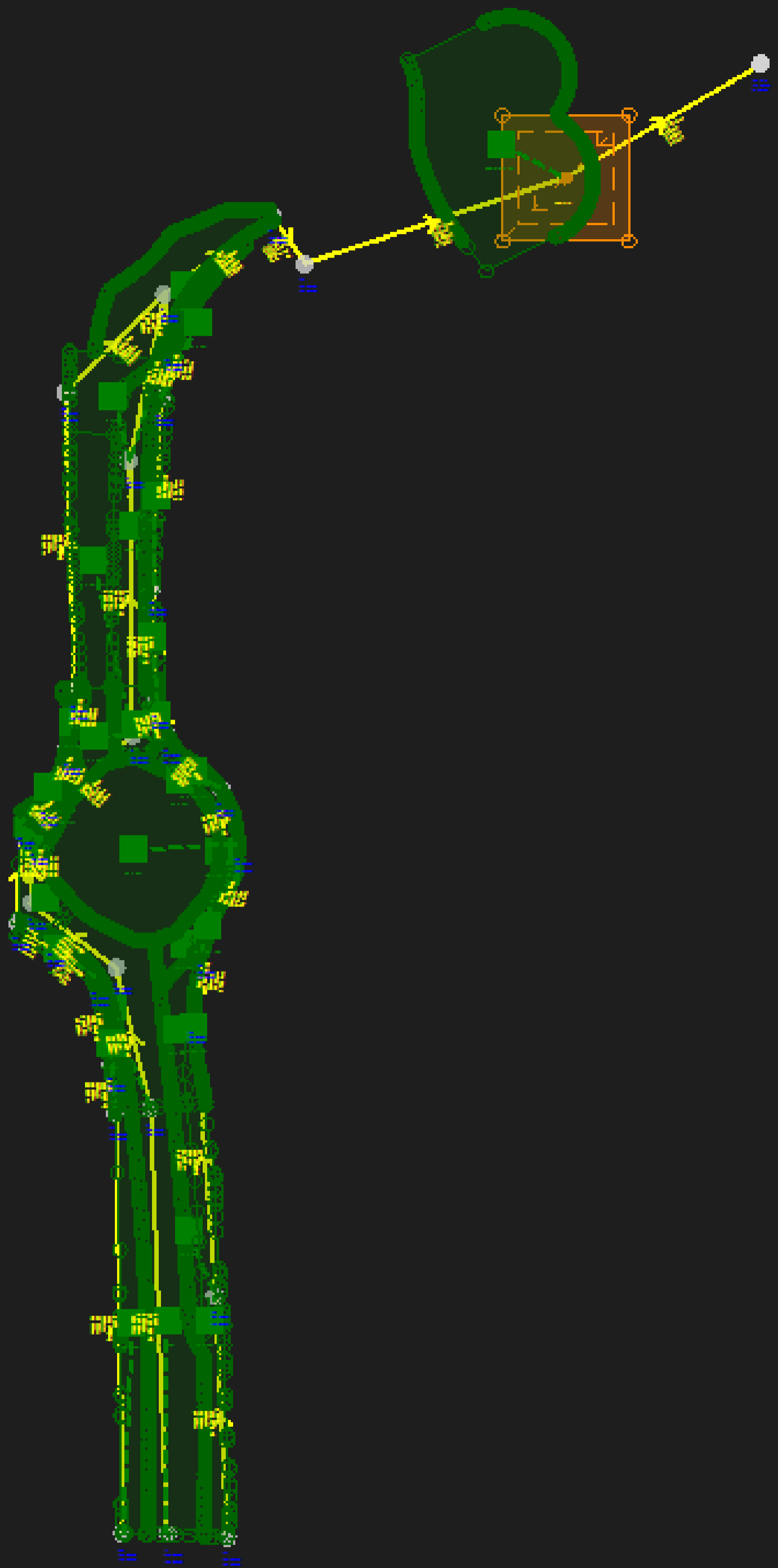
Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	1	2	20.899	19.952	0.375	87.805	1.7	1.01	189.5	OK
1.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	2	3	19.660	18.882	0.375	133.259	1.9	0.71	207.6	Surcharged
1.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	3	4	18.647	18.251	0.375	133.405	1.8	1.04	200.8	Surcharged
1.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	4	5	18.623	17.839	0.375	145.080	2.0	1.97	216.9	Surcharged
1.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	5	6	18.623	17.496	0.375	152.679	2.0	1.05	224.9	Surcharged
1.005	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	6	7	18.021	16.568	0.302	209.450	2.8	0.5	347.9	OK
1.006	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	7	8	16.198	14.807	0.525	274.531	2.4	0.71	512.4	OK
2.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	11	12	19.429	18.304	0.094	0.000	0.0	0	0.0	OK
2.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	12	13	20.125	18.025	0.174	22.593	1.1	0.94	37.3	OK
2.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	13	14	18.569	17.270	0.174	36.773	1.2	0.42	68.2	OK
2.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	14	15	19.000	17.167	0.172	52.293	1.9	0.23	100.6	OK

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 05		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			

2.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	15	16	17.667	16.512	0.367	151.796	1.8	0.41	321.7	OK
2.005	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	16	17	17.421	16.310	0.419	157.146	1.5	0.52	321.8	OK
2.006	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	17	18	17.219	16.167	0.429	168.507	1.6	0.63	336.4	OK
2.007	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	18	19	17.279	16.060	0.372	212.651	2.3	0.68	424.4	OK
2.008	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	19	20	16.847	15.682	0.293	214.324	3.0	0.5	407.1	OK
2.009	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	20	21	15.996	14.746	0.264	215.872	3.3	0.28	396.9	OK
2.010	Sim Criteria FEH: 100 years: +40 %: 15 mins: Winter	Pipe	21	8	15.195	13.959	0.469	215.927	1.6	0.31	380.1	OK
3.000	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	22	23	18.658	18.250	0.150	11.973	0.8	1.76	13.3	Surcharged
3.001	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	23	24	18.400	17.467	0.114	13.966	1.1	0.86	15.3	OK
3.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	24	25	18.362	17.307	0.142	10.302	1.0	0.93	16.6	OK
3.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	25	26	18.670	17.069	0.150	11.318	1.0	0.96	17.0	Surcharged
3.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	26	27	18.732	16.877	0.150	11.280	1.0	0.95	16.8	Surcharged
3.005	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	27	28	18.534	16.746	0.150	11.194	0.9	0.93	16.6	Surcharged

West Winch Housing Access Road - 70100518: Catchment 05 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-05-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 05				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

3.006	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	28	29	18.135	16.437	0.150	16.859	1.0	0.96	17.1	Surcharged
3.007	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	29	30	18.260	16.328	0.150	12.275	0.9	0.94	16.7	Surcharged
3.008	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	30	34	17.911	16.176	0.150	17.751	1.0	0.95	16.9	Surcharged
3.009	Sim Criteria FEH: 100 years: +40 %: 30 mins: Winter	Pipe	34	35	17.440	15.976	0.139	17.704	1.1	1.1	16.3	Surcharged
3.010	Sim Criteria FEH: 100 years: +40 %: 30 mins: Winter	Pipe	35	8	16.147	15.174	0.097	17.718	1.8	0.51	16.2	OK
1.007	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	8	9	14.970	13.979	0.600	503.897	2.7	1	770.7	Surcharged
1.008	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	9	10	14.426	13.174	0.463	670.309	3.2	0.93	756.5	OK
1.009	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	10	BASIN 5	14.158	12.746	0.376	496.945	4.3	0.68	798.8	OK
1.010	Sim Criteria FEH: 100 years: +40 %: 2160 mins: Winter	Pipe	BASIN 5	B5 OF	11.580	11.130	0.042	677.398	0.6	0.08	3.0	Surcharged



West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
21	15.258 14.058		Diameter / Length: 1.350					Manhole - Access Required	{a} Free Discharge	
E:563826.177 N:317596.687	1.200									
IP E:563826.177 IP N:317596.687				{a} 7.000	Pipe	14.058	Diam/Width: 300	Not Applicable		
22	14.743 13.393		Diameter / Length: 1.350	{1} 7.000	Pipe	13.543	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563890.700 N:317524.291	1.350									
IP E:563890.700 IP N:317524.291				{a} 7.001	Pipe	13.393	Diam/Width: 450	Not Applicable		
23	14.139 12.789		Diameter / Length: 1.350	{1} 7.001	Pipe	12.789	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:563971.921 N:317437.155	1.350									
IP E:563971.921 IP N:317437.155				{a} 7.002	Pipe	12.789	Diam/Width: 450	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
24	13.845 12.195		Diameter / Length: 1.350	{1} 7.002	Pipe	12.195	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:564024.2 45 N:317426.5 53	1.650									
IP E:564024.2 45 IP N:317426.5 53				{a} 7.003	Pipe	12.195	Diam/Width: 450	Not Applicable		
25	13.849 12.180		Diameter / Length: 1.350	{1} 7.003	Pipe	12.180	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:564034.0 09 N:317417.4 46	1.669									
IP E:564034.0 09 IP N:317417.4 46				{a} 7.004	Pipe	12.180	Diam/Width: 450	Not Applicable		
26	13.843 12.113		Diameter / Length: 1.500	{1} 7.004	Pipe	12.113	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:564051.1 72 N:317360.8 74	1.730									
IP E:564051.1 72 IP N:317360.8 74				{a} 7.005	Pipe	12.113	Diam/Width: 450	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		

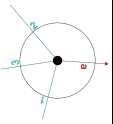

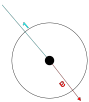


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
27	12.509 10.859		Diameter / Length: 1.800	{1} 7.005	Pipe	11.159	Diam/Width: 450	Manhole - Access Required	{a} Free Discharge	
E:564088.0 82 N:317316.3 31	1.650		{2} 8.000	Pipe	11.459	Diam/Width: 150				
IP E:564088.0 82 IP N:317316.3 31			{3} 9.004	Pipe	10.859	Diam/Width: 750				
				{a} 7.006	Pipe	10.859	Diam/Width: 750	Not Applicable		
28	18.097 17.000		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:564210.9 20 N:317148.4 36	1.097									
IP E:564210.9 20 IP N:317148.4 36			{a} 8.000	Pipe	17.000	Diam/Width: 150	Not Applicable			
1	15.696 14.237		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563942.2 04 N:317319.9 00	1.459									
IP E:563942.2 04 IP N:317319.9 00			{a} 9.000	Pipe	14.237	Diam/Width: 225	Not Applicable			

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0


Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
2	14.372 12.303		Diameter / Length: 1.800	{1} 9.000	Pipe	12.678	Diam/Width: 225	Manhole - Access Required	{a} Free Discharge	
E:563966.8 70 N:317415.1 69	2.069			{2} 10.004	Pipe	12.303	Diam/Width: 600			
IP E:563966.8 70 IP N:317415.1 69				{3} 11.001	Pipe	12.603	Diam/Width: 300			
				{a} 9.001	Pipe	12.303	Diam/Width: 600	Not Applicable		
7	15.692 14.492		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563806.6 98 N:317579.5 77	1.200									
IP E:563806.6 98 IP N:317579.5 77				{a} 10.000	Pipe	14.492	Diam/Width: 300			
8	14.788 13.588		Diameter / Length: 1.350	{1} 10.000	Pipe	13.588	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563862.9 07 N:317513.6 07	1.200									
IP E:563862.9 07 IP N:317513.6 07				{a} 10.001	Pipe	13.588	Diam/Width: 300			

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		







Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
9	14.510 13.235		Diameter / Length: 1.350	{1} 10.001	Pipe	13.310	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:563884.4 45 N:317485.8 90 IP E:563884.4 45 IP N:317485.8 90	1.275			{a} 10.002	Pipe	13.235	Diam/Width: 375			
10	14.173 12.373		Diameter / Length: 1.350	{1} 10.002	Pipe	12.598	Diam/Width: 375	Manhole - Access Required	{a} Free Discharge	
E:563911.5 46 N:317450.1 48 IP E:563911.5 46 IP N:317450.1 48	1.800			{a} 10.003	Pipe	12.373	Diam/Width: 600			
11	14.630 12.355		Diameter / Length: 1.350	{1} 10.003	Pipe	12.355	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563929.8 46 N:317458.6 54 IP E:563929.8 46 IP N:317458.6 54	2.275			{a} 10.004	Pipe	12.355	Diam/Width: 600			

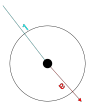
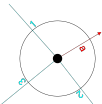

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
12	16.143 15.093		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:563931.8 50 N:317299.0 48	1.050									
IP E:563931.8 50 IP N:317299.0 48				{a} 11.000	Pipe	15.093	Diam/Width: 150	Not Applicable		
13	13.975 12.700		Diameter / Length: 1.200	{1} 11.000	Pipe	12.850	Diam/Width: 150	Manhole - Access Required	{a} Free Discharge	
E:563931.0 13 N:317409.7 02	1.275									
IP E:563931.0 13 IP N:317409.7 02				{a} 11.001	Pipe	12.700	Diam/Width: 300	Not Applicable		
3	14.199 12.281		Diameter / Length: 1.800	{1} 9.001	Pipe	12.281	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:563991.2 07 N:317413.5 36	1.918									
IP E:563991.2 07 IP N:317413.5 36				{a} 9.002	Pipe	12.281	Diam/Width: 600	Not Applicable		


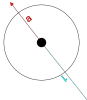
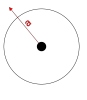
West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
4	14.196 12.223		Diameter / Length: 1.800	{1} 9.002	Pipe	12.223	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:564029.972 N:317363.250	1.973									
IP E:564029.972 IP N:317363.250				{a} 9.003	Pipe	12.223	Diam/Width: 600	Not Applicable		
5	13.797 11.637		Diameter / Length: 1.800	{1} 9.003	Pipe	11.787	Diam/Width: 600	Manhole - Access Required	{a} Free Discharge	
E:564077.473 N:317309.922	2.160			{2} 12.002	Pipe	11.937	Diam/Width: 450			
IP E:564077.473 IP N:317309.922				{3} 13.001	Pipe	12.087	Diam/Width: 300			
IP E:564077.473 IP N:317309.922				{a} 9.004	Pipe	11.637	Diam/Width: 750	Not Applicable		
14	18.147 16.647		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:564206.928 N:317145.246	1.500									
IP E:564206.928 IP N:317145.246				{a} 12.000	Pipe	16.647	Diam/Width: 300	Not Applicable		

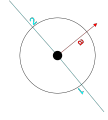

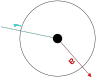
West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023			
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
15	16.490 14.990		Diameter / Length: 1.200	{1} 12.000	Pipe	14.990	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:564172.733 N:317188.343 IP E:564172.733 IP N:317188.343	1.500			{a} 12.001	Pipe	14.990	Diam/Width: 300			
16	14.941 13.291		Diameter / Length: 1.350	{1} 12.001	Pipe	13.441	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:564138.538 N:317231.440 IP E:564138.538 IP N:317231.440	1.650			{a} 12.002	Pipe	13.291	Diam/Width: 450			
17	18.101 16.901		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:564202.308 N:317141.506 IP E:564202.308 IP N:317141.506	1.200			{a} 13.000	Pipe	16.901	Diam/Width: 300			

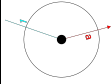

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
18	13.604 12.104		Diameter / Length: 1.200	{1} 13.000	Pipe	12.104	Diam/Width: 300	Manhole - Access Required	{a} Free Discharge	
E:564069.0 72 N:317303.0 79	1.500			{2} 14.001	Pipe	12.304	Diam/Width: 100			
IP E:564069.0 72 IP N:317303.0 79				{a} 13.001	Pipe	12.104	Diam/Width: 300	Not Applicable		
19	14.426 13.338		Diameter / Length: 1.200					Manhole - Access Required	{a} Free Discharge	
E:564004.4 56 N:317355.0 90	1.088									
IP E:564004.4 56 IP N:317355.0 90				{a} 14.000	Pipe	13.338	Diam/Width: 100	Not Applicable		
20	14.117 13.117		Diameter / Length: 1.200	{1} 14.000	Pipe	13.117	Diam/Width: 100	Manhole - Access Required	{a} Free Discharge	
E:564027.6 17 N:317350.2 62	1.000									
IP E:564027.6 17 IP N:317350.2 62				{a} 14.001	Pipe	13.117	Diam/Width: 100	Not Applicable		

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Manhole Schedule Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Setting Out Information	
Easting Origin (m)	0.000
Northing Origin (m)	0.000
Orientation (Degrees anticlockwise from North)	0

Name	Cover Elevation (m) Invert Elevation (m)	Manhole Schematic	Manhole Size (m)	Connection Details				Type		
				Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type	Flow Control Type	Flow Control IE (m)
Coordinates (m)	Depth (m)			Outgoing Connections				Cover		
Intersection (m)										
6	12.500 10.686		Diameter / Length: 1.800	{1} 7.006	Pipe	10.836	Diam/Width: 750	Manhole - Access Required	{a} Free Discharge	
E:564114.8 14 N:317307.0 70 IP E:564114.8 14 IP N:317307.0 70	1.814			{a} 7.007	Pipe	10.686	Diam/Width: 900			
47185NOL S-31-CH10	12.294 9.870		Diameter / Length: 1.200	{1} 7.008	Pipe	9.870	Diam/Width: 300	Manhole		
E:564160.3 28 N:317390.3 24 IP E:564160.3 28 IP N:317390.3 24	2.424									

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflow Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analyzed (ha)
3 - DA	3		Time of Concentration	0.108	100	0	100	0.108
3 - DA (1)	3		Time of Concentration	0.166	100	0	100	0.166
3 - DA (2)	3		Time of Concentration	0.407	100	0	100	0.407
4 - DA	4		Time of Concentration	0.050	100	0	100	0.050
4 - DA (1)	4		Time of Concentration	0.003	100	0	100	0.003
4 - DA (2)	4		Time of Concentration	0.073	100	0	100	0.073
4 - DA (3)	4		Time of Concentration	0.029	100	0	100	0.029
7 - DA	7		Time of Concentration	0.031	20	0	20	0.006
7 - DA (1)	7		Time of Concentration	0.081	100	0	100	0.081
8 - DA	8		Time of Concentration	0.046	100	0	100	0.046
9 - DA	9		Time of Concentration	0.011	20	0	20	0.002
9 - DA (1)	9		Time of Concentration	0.019	20	0	20	0.004
9 - DA (2)	9		Time of Concentration	0.073	100	0	100	0.073
11 - DA	11		Time of Concentration	0.126	100	0	100	0.126
12 - DA	12		Time of Concentration	0.066	20	0	20	0.013
14 - DA	14		Time of Concentration	0.024	100	0	100	0.024
14 - DA (1)	14		Time of Concentration	0.021	100	0	100	0.021
15 - DA	15		Time of Concentration	0.031	100	0	100	0.031
15 - DA (1)	15		Time of Concentration	0.024	100	0	100	0.024
16 - DA	16		Time of Concentration	0.074	100	0	100	0.074
16 - DA (1)	16		Time of Concentration	0.056	100	0	100	0.056
17 - DA	17		Time of Concentration	0.007	20	0	20	0.001
17 - DA (1)	17		Time of Concentration	0.026	20	0	20	0.005
17 - DA (2)	17		Time of Concentration	0.016	20	0	20	0.003
17 - DA (3)	17		Time of Concentration	0.010	20	0	20	0.002
19 - DA	19		Time of Concentration	0.018	20	0	20	0.004
20 - DA	20		Time of Concentration	0.005	20	0	20	0.001
20 - DA (1)	20		Time of Concentration	0.007	20	0	20	0.001
21 - DA	21		Time of Concentration	0.083	20	0	20	0.017
21 - DA (1)	21		Time of Concentration	0.111	100	0	100	0.111
22 - DA	22		Time of Concentration	0.042	20	0	20	0.008
22 - DA (1)	22		Time of Concentration	0.095	100	0	100	0.095

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflow Summary Storm Phase: Catchment 06		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



22 - DA (2)	22		Time of Concentration	0.105	100	0	100	0.105
23 - DA	23		Time of Concentration	0.032	20	0	20	0.006
24 - DA	24		Time of Concentration	0.093	20	0	20	0.019
27 - DA	27		Time of Concentration	0.064	20	0	20	0.013
28 - DA	28		Time of Concentration	0.008	20	0	20	0.002
28 - DA (1)	28		Time of Concentration	0.075	20	0	20	0.015
Catchment Area	POND		Time of Concentration	0.550	100	0	100	0.550
TOTAL		0.0		2.865				2.375

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Mainline 7		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Name	From	To	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)
9.000	1	2	98.410	Pipe	63.124		0.6	225
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873		0.6	300
10.001	8	9	35.102	Pipe	126.266		0.6	300
10.002	9	10	44.854	Pipe	70.415		0.6	375
10.003	10	11	20.180	Pipe	1100.000		0.6	600
10.004	11	2	57.112	Pipe	1100.000		0.6	600
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334		0.6	150
11.001	13	2	36.271	Pipe	373.931		0.6	300
9.001	2	3	24.392	Pipe	1100.000		0.6	600
9.002	3	4	63.493	Pipe	1100.000		0.6	600
9.003	4	5	71.416	Pipe	163.799		0.6	600
Branch: 12.000								
12.000	14	15	55.015	Pipe	33.201		0.6	300
12.001	15	16	55.015	Pipe	35.516		0.6	300
12.002	16	5	99.440	Pipe	73.442		0.6	450
Branch: 13.000								
13.000	17	18	209.422	Pipe	43.657		0.6	300
Branch: 14.000								
14.000	19	20	23.659	Pipe	107.054	0.045		100
14.001	20	18	62.807	Pipe	77.254	0.045		100
13.001	18	5	10.835	Pipe	646.000		0.6	300
9.004	5	27	12.394	Pipe	15.931		0.6	750
Branch: 7.000								
7.000	21	22	96.976	Pipe	188.303		0.6	300
7.001	22	23	119.119	Pipe	197.218		0.6	450
7.002	23	24	53.388	Pipe	89.878		0.6	450
7.003	24	25	13.352	Pipe	887.000		0.6	450
7.004	25	26	59.118	Pipe	887.000		0.6	450
7.005	26	27	57.849	Pipe	60.638		0.6	450
Branch: 8.000								
8.000	28	27	208.033	Pipe	37.544		0.6	150
7.006	27	6	28.291	Pipe	1256.000		0.6	750
7.007	6	POND	76.176	Pipe	129.994		0.6	900
7.008	POND	47185NOL S-31-CH10	69.632	Pipe	534.587		0.6	300

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Mainline 7		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Name	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
9.000	15.696	14.237	14.372	12.678		0	
Branch: 10.000							
10.000	15.692	14.492	14.788	13.588		5	
10.001	14.788	13.588	14.510	13.310		5	
10.002	14.510	13.235	14.173	12.598		5	
10.003	14.173	12.373	14.630	12.355		0	
10.004	14.630	12.355	14.372	12.303		5	
Branch: 11.000							
11.000	16.143	15.093	13.975	12.850		5	
11.001	13.975	12.700	14.372	12.603		0	
9.001	14.372	12.303	14.199	12.281		0	
9.002	14.199	12.281	14.196	12.223		5	
9.003	14.196	12.223	13.797	11.787		5	
Branch: 12.000							
12.000	18.147	16.647	16.490	14.990		5	
12.001	16.490	14.990	14.941	13.441		5	
12.002	14.941	13.291	13.797	11.937		5	
Branch: 13.000							
13.000	18.101	16.901	13.604	12.104		5	
Branch: 14.000							
14.000	14.426	13.338	14.117	13.117		5	
14.001	14.117	13.117	13.604	12.304		5	
13.001	13.604	12.104	13.797	12.087		0	
9.004	13.797	11.637	12.509	10.859		0	
Branch: 7.000							
7.000	15.258	14.058	14.743	13.543		5	
7.001	14.743	13.393	14.139	12.789		5	
7.002	14.139	12.789	13.845	12.195		5	
7.003	13.845	12.195	13.849	12.180		5	
7.004	13.849	12.180	13.843	12.113		0	
7.005	13.843	12.113	12.509	11.159		0	
Branch: 8.000							
8.000	18.097	17.000	12.509	11.459		5	
7.006	12.509	10.859	12.500	10.836		5	
7.007	12.500	10.686	11.600	10.100		0	
7.008	11.600	10.000	12.294	9.870		5	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:x)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)
10.000	7	8	86.670	Pipe	95.873	0.6	300	15.692
10.001	8	9	35.102	Pipe	126.266	0.6	300	14.788
10.002	9	10	44.854	Pipe	70.415	0.6	375	14.510
10.003	10	11	20.180	Pipe	1100.000	0.6	600	14.173
10.004	11	2	57.112	Pipe	1100.000	0.6	600	14.630
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124	0.6	225	15.696
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334	0.6	150	16.143
11.001	13	2	36.271	Pipe	373.931	0.6	300	13.975
9.001	2	3	24.392	Pipe	1100.000	0.6	600	14.372

Name	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
10.000	14.492	14.788	13.588		5	
10.001	13.588	14.510	13.310		5	
10.002	13.235	14.173	12.598		5	
10.003	12.373	14.630	12.355		0	
10.004	12.355	14.372	12.303		5	
Branch: 9.000						
9.000	14.237	14.372	12.678		0	
Branch: 11.000						
11.000	15.093	13.975	12.850		5	
11.001	12.700	14.372	12.603		0	
9.001	12.303	14.199	12.281		0	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (1)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Name	From	To	Length (m)	Connection Type	Slope (1:x)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Elevation (m)
11.000	12	13	110.657	Pipe	49.334	0.6	150	16.143
11.001	13	2	36.271	Pipe	373.931	0.6	300	13.975
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124	0.6	225	15.696
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873	0.6	300	15.692
10.001	8	9	35.102	Pipe	126.266	0.6	300	14.788
10.002	9	10	44.854	Pipe	70.415	0.6	375	14.510
10.003	10	11	20.180	Pipe	1100.000	0.6	600	14.173
10.004	11	2	57.112	Pipe	1100.000	0.6	600	14.630
9.001	2	3	24.392	Pipe	1100.000	0.6	600	14.372

Name	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
11.000	15.093	13.975	12.850		5	
11.001	12.700	14.372	12.603		0	
Branch: 9.000						
9.000	14.237	14.372	12.678		0	
Branch: 10.000						
10.000	14.492	14.788	13.588		5	
10.001	13.588	14.510	13.310		5	
10.002	13.235	14.173	12.598		5	
10.003	12.373	14.630	12.355		0	
10.004	12.355	14.372	12.303		5	
9.001	12.303	14.199	12.281		0	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (2)	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	From	To	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)
7.000	21	22	96.976	Pipe	188.303		0.6	300
7.001	22	23	119.119	Pipe	197.218		0.6	450
7.002	23	24	53.388	Pipe	89.878		0.6	450
7.003	24	25	13.352	Pipe	887.000		0.6	450
7.004	25	26	59.118	Pipe	887.000		0.6	450
7.005	26	27	57.849	Pipe	60.638		0.6	450
Branch: 8.000								
8.000	28	27	208.033	Pipe	37.544		0.6	150
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124		0.6	225
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873		0.6	300
10.001	8	9	35.102	Pipe	126.266		0.6	300
10.002	9	10	44.854	Pipe	70.415		0.6	375
10.003	10	11	20.180	Pipe	1100.000		0.6	600
10.004	11	2	57.112	Pipe	1100.000		0.6	600
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334		0.6	150
11.001	13	2	36.271	Pipe	373.931		0.6	300
9.001	2	3	24.392	Pipe	1100.000		0.6	600
9.002	3	4	63.493	Pipe	1100.000		0.6	600
9.003	4	5	71.416	Pipe	163.799		0.6	600
Branch: 12.000								
12.000	14	15	55.015	Pipe	33.201		0.6	300
12.001	15	16	55.015	Pipe	35.516		0.6	300
12.002	16	5	99.440	Pipe	73.442		0.6	450
Branch: 13.000								
13.000	17	18	209.422	Pipe	43.657		0.6	300
Branch: 14.000								
14.000	19	20	23.659	Pipe	107.054	0.045		100
14.001	20	18	62.807	Pipe	77.254	0.045		100
13.001	18	5	10.835	Pipe	646.000		0.6	300
9.004	5	27	12.394	Pipe	15.931		0.6	750
7.006	27	6	28.291	Pipe	1256.000		0.6	750

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (2)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Name	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
7.000	15.258	14.058	14.743	13.543		5	
7.001	14.743	13.393	14.139	12.789		5	
7.002	14.139	12.789	13.845	12.195		5	
7.003	13.845	12.195	13.849	12.180		5	
7.004	13.849	12.180	13.843	12.113		0	
7.005	13.843	12.113	12.509	11.159		0	
Branch: 8.000							
8.000	18.097	17.000	12.509	11.459		5	
Branch: 9.000							
9.000	15.696	14.237	14.372	12.678		0	
Branch: 10.000							
10.000	15.692	14.492	14.788	13.588		5	
10.001	14.788	13.588	14.510	13.310		5	
10.002	14.510	13.235	14.173	12.598		5	
10.003	14.173	12.373	14.630	12.355		0	
10.004	14.630	12.355	14.372	12.303		5	
Branch: 11.000							
11.000	16.143	15.093	13.975	12.850		5	
11.001	13.975	12.700	14.372	12.603		0	
9.001	14.372	12.303	14.199	12.281		0	
9.002	14.199	12.281	14.196	12.223		5	
9.003	14.196	12.223	13.797	11.787		5	
Branch: 12.000							
12.000	18.147	16.647	16.490	14.990		5	
12.001	16.490	14.990	14.941	13.441		5	
12.002	14.941	13.291	13.797	11.937		5	
Branch: 13.000							
13.000	18.101	16.901	13.604	12.104		5	
Branch: 14.000							
14.000	14.426	13.338	14.117	13.117		5	
14.001	14.117	13.117	13.604	12.304		5	
13.001	13.604	12.104	13.797	12.087		0	
9.004	13.797	11.637	12.509	10.859		0	
7.006	12.509	10.859	12.500	10.836		5	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (3)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Name	From	To	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)
8.000	28	27	208.033	Pipe	37.544		0.6	150
Branch: 7.000								
7.000	21	22	96.976	Pipe	188.303		0.6	300
7.001	22	23	119.119	Pipe	197.218		0.6	450
7.002	23	24	53.388	Pipe	89.878		0.6	450
7.003	24	25	13.352	Pipe	887.000		0.6	450
7.004	25	26	59.118	Pipe	887.000		0.6	450
7.005	26	27	57.849	Pipe	60.638		0.6	450
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124		0.6	225
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873		0.6	300
10.001	8	9	35.102	Pipe	126.266		0.6	300
10.002	9	10	44.854	Pipe	70.415		0.6	375
10.003	10	11	20.180	Pipe	1100.000		0.6	600
10.004	11	2	57.112	Pipe	1100.000		0.6	600
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334		0.6	150
11.001	13	2	36.271	Pipe	373.931		0.6	300
9.001	2	3	24.392	Pipe	1100.000		0.6	600
9.002	3	4	63.493	Pipe	1100.000		0.6	600
9.003	4	5	71.416	Pipe	163.799		0.6	600
Branch: 12.000								
12.000	14	15	55.015	Pipe	33.201		0.6	300
12.001	15	16	55.015	Pipe	35.516		0.6	300
12.002	16	5	99.440	Pipe	73.442		0.6	450
Branch: 13.000								
13.000	17	18	209.422	Pipe	43.657		0.6	300
Branch: 14.000								
14.000	19	20	23.659	Pipe	107.054	0.045		100
14.001	20	18	62.807	Pipe	77.254	0.045		100
13.001	18	5	10.835	Pipe	646.000		0.6	300
9.004	5	27	12.394	Pipe	15.931		0.6	750
7.006	27	6	28.291	Pipe	1256.000		0.6	750

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (3)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Name	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
8.000	18.097	17.000	12.509	11.459		5	
Branch: 7.000							
7.000	15.258	14.058	14.743	13.543		5	
7.001	14.743	13.393	14.139	12.789		5	
7.002	14.139	12.789	13.845	12.195		5	
7.003	13.845	12.195	13.849	12.180		5	
7.004	13.849	12.180	13.843	12.113		0	
7.005	13.843	12.113	12.509	11.159		0	
Branch: 9.000							
9.000	15.696	14.237	14.372	12.678		0	
Branch: 10.000							
10.000	15.692	14.492	14.788	13.588		5	
10.001	14.788	13.588	14.510	13.310		5	
10.002	14.510	13.235	14.173	12.598		5	
10.003	14.173	12.373	14.630	12.355		0	
10.004	14.630	12.355	14.372	12.303		5	
Branch: 11.000							
11.000	16.143	15.093	13.975	12.850		5	
11.001	13.975	12.700	14.372	12.603		0	
9.001	14.372	12.303	14.199	12.281		0	
9.002	14.199	12.281	14.196	12.223		5	
9.003	14.196	12.223	13.797	11.787		5	
Branch: 12.000							
12.000	18.147	16.647	16.490	14.990		5	
12.001	16.490	14.990	14.941	13.441		5	
12.002	14.941	13.291	13.797	11.937		5	
Branch: 13.000							
13.000	18.101	16.901	13.604	12.104		5	
Branch: 14.000							
14.000	14.426	13.338	14.117	13.117		5	
14.001	14.117	13.117	13.604	12.304		5	
13.001	13.604	12.104	13.797	12.087		0	
9.004	13.797	11.637	12.509	10.859		0	
7.006	12.509	10.859	12.500	10.836		5	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (4)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			


Name	From	To	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)
14.000	19	20	23.659	Pipe	107.054	0.045		100
14.001	20	18	62.807	Pipe	77.254	0.045		100
Branch: 13.000								
13.000	17	18	209.422	Pipe	43.657		0.6	300
13.001	18	5	10.835	Pipe	646.000		0.6	300
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124		0.6	225
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873		0.6	300
10.001	8	9	35.102	Pipe	126.266		0.6	300
10.002	9	10	44.854	Pipe	70.415		0.6	375
10.003	10	11	20.180	Pipe	1100.000		0.6	600
10.004	11	2	57.112	Pipe	1100.000		0.6	600
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334		0.6	150
11.001	13	2	36.271	Pipe	373.931		0.6	300
9.001	2	3	24.392	Pipe	1100.000		0.6	600
9.002	3	4	63.493	Pipe	1100.000		0.6	600
9.003	4	5	71.416	Pipe	163.799		0.6	600
Branch: 12.000								
12.000	14	15	55.015	Pipe	33.201		0.6	300
12.001	15	16	55.015	Pipe	35.516		0.6	300
12.002	16	5	99.440	Pipe	73.442		0.6	450
9.004	5	27	12.394	Pipe	15.931		0.6	750

Name	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
14.000	14.426	13.338	14.117	13.117		5	
14.001	14.117	13.117	13.604	12.304		5	
Branch: 13.000							
13.000	18.101	16.901	13.604	12.104		5	
13.001	13.604	12.104	13.797	12.087		0	
Branch: 9.000							
9.000	15.696	14.237	14.372	12.678		0	
Branch: 10.000							
10.000	15.692	14.492	14.788	13.588		5	
10.001	14.788	13.588	14.510	13.310		5	
10.002	14.510	13.235	14.173	12.598		5	
10.003	14.173	12.373	14.630	12.355		0	
10.004	14.630	12.355	14.372	12.303		5	
Branch: 11.000							
11.000	16.143	15.093	13.975	12.850		5	
11.001	13.975	12.700	14.372	12.603		0	
9.001	14.372	12.303	14.199	12.281		0	
9.002	14.199	12.281	14.196	12.223		5	
9.003	14.196	12.223	13.797	11.787		5	
Branch: 12.000							
12.000	18.147	16.647	16.490	14.990		5	
12.001	16.490	14.990	14.941	13.441		5	
12.002	14.941	13.291	13.797	11.937		5	
9.004	13.797	11.637	12.509	10.859		0	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (5)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Name	From	To	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)
12.000	14	15	55.015	Pipe	33.201		0.6	300
12.001	15	16	55.015	Pipe	35.516		0.6	300
12.002	16	5	99.440	Pipe	73.442		0.6	450
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124		0.6	225
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873		0.6	300
10.001	8	9	35.102	Pipe	126.266		0.6	300
10.002	9	10	44.854	Pipe	70.415		0.6	375
10.003	10	11	20.180	Pipe	1100.000		0.6	600
10.004	11	2	57.112	Pipe	1100.000		0.6	600
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334		0.6	150
11.001	13	2	36.271	Pipe	373.931		0.6	300
9.001	2	3	24.392	Pipe	1100.000		0.6	600
9.002	3	4	63.493	Pipe	1100.000		0.6	600
9.003	4	5	71.416	Pipe	163.799		0.6	600
Branch: 13.000								
13.000	17	18	209.422	Pipe	43.657		0.6	300
Branch: 14.000								
14.000	19	20	23.659	Pipe	107.054	0.045		100
14.001	20	18	62.807	Pipe	77.254	0.045		100
13.001	18	5	10.835	Pipe	646.000		0.6	300
9.004	5	27	12.394	Pipe	15.931		0.6	750

Name	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
12.000	18.147	16.647	16.490	14.990		5	
12.001	16.490	14.990	14.941	13.441		5	
12.002	14.941	13.291	13.797	11.937		5	
Branch: 9.000							
9.000	15.696	14.237	14.372	12.678		0	
Branch: 10.000							
10.000	15.692	14.492	14.788	13.588		5	
10.001	14.788	13.588	14.510	13.310		5	
10.002	14.510	13.235	14.173	12.598		5	
10.003	14.173	12.373	14.630	12.355		0	
10.004	14.630	12.355	14.372	12.303		5	
Branch: 11.000							
11.000	16.143	15.093	13.975	12.850		5	
11.001	13.975	12.700	14.372	12.603		0	
9.001	14.372	12.303	14.199	12.281		0	
9.002	14.199	12.281	14.196	12.223		5	
9.003	14.196	12.223	13.797	11.787		5	
Branch: 13.000							
13.000	18.101	16.901	13.604	12.104		5	
Branch: 14.000							
14.000	14.426	13.338	14.117	13.117		5	
14.001	14.117	13.117	13.604	12.304		5	
13.001	13.604	12.104	13.797	12.087		0	
9.004	13.797	11.637	12.509	10.859		0	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023			
Report Details: Type: Network Design Report Storm Phase: Catchment 06 Flow Path: Flow Path (6)		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer	
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA			

Name	From	To	Length (m)	Connection Type	Slope (1:x)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)
13.000	17	18	209.422	Pipe	43.657		0.6	300
Branch: 14.000								
14.000	19	20	23.659	Pipe	107.054	0.045		100
14.001	20	18	62.807	Pipe	77.254	0.045		100
13.001	18	5	10.835	Pipe	646.000		0.6	300
Branch: 9.000								
9.000	1	2	98.410	Pipe	63.124		0.6	225
Branch: 10.000								
10.000	7	8	86.670	Pipe	95.873		0.6	300
10.001	8	9	35.102	Pipe	126.266		0.6	300
10.002	9	10	44.854	Pipe	70.415		0.6	375
10.003	10	11	20.180	Pipe	1100.000		0.6	600
10.004	11	2	57.112	Pipe	1100.000		0.6	600
Branch: 11.000								
11.000	12	13	110.657	Pipe	49.334		0.6	150
11.001	13	2	36.271	Pipe	373.931		0.6	300
9.001	2	3	24.392	Pipe	1100.000		0.6	600
9.002	3	4	63.493	Pipe	1100.000		0.6	600
9.003	4	5	71.416	Pipe	163.799		0.6	600
Branch: 12.000								
12.000	14	15	55.015	Pipe	33.201		0.6	300
12.001	15	16	55.015	Pipe	35.516		0.6	300
12.002	16	5	99.440	Pipe	73.442		0.6	450
9.004	5	27	12.394	Pipe	15.931		0.6	750

Name	Upstream Cover Elevation (m)	Upstream Invert Elevation (m)	Downstream Cover Elevation (m)	Downstream Invert Elevation (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
13.000	18.101	16.901	13.604	12.104		5	
Branch: 14.000							
14.000	14.426	13.338	14.117	13.117		5	
14.001	14.117	13.117	13.604	12.304		5	
13.001	13.604	12.104	13.797	12.087		0	
Branch: 9.000							
9.000	15.696	14.237	14.372	12.678		0	
Branch: 10.000							
10.000	15.692	14.492	14.788	13.588		5	
10.001	14.788	13.588	14.510	13.310		5	
10.002	14.510	13.235	14.173	12.598		5	
10.003	14.173	12.373	14.630	12.355		0	
10.004	14.630	12.355	14.372	12.303		5	
Branch: 11.000							
11.000	16.143	15.093	13.975	12.850		5	
11.001	13.975	12.700	14.372	12.603		0	
9.001	14.372	12.303	14.199	12.281		0	
9.002	14.199	12.281	14.196	12.223		5	
9.003	14.196	12.223	13.797	11.787		5	
Branch: 12.000							
12.000	18.147	16.647	16.490	14.990		5	
12.001	16.490	14.990	14.941	13.441		5	
12.002	14.941	13.291	13.797	11.937		5	
9.004	13.797	11.637	12.509	10.859		0	

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Network Design Criteria Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Sim Criteria FEH

Type: FEH

Site Location	GB 563200 316750 TF 63200 16750
Return Period (years)	2.0
Rainfall Version	2013
Data Type	Catchment

Pipe Options


Lock Slope Options	None
Design Level	Level Inverts
Min. Slope (1:x)	1000.00
Max. Slope (1:x)	40.00
Use Flow Restriction	<input checked="" type="checkbox"/>
Reduce Channel Depths	<input checked="" type="checkbox"/>

Manhole Options

Apply Offset

An error has occurred while processing TextBox
'txtSynchroniseManholeInvertLevelsHeader':
The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is
not defined in the current context.



West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Outfall Details Storm Phase: Catchment 06	Amit Kumar	Joe Leslie	Gareth Hamer	
Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA				

Outfalls

Outfall	Outfall Type	Fixed Surcharged Elevation (m)	Elevation Curve
47185NOLS-31-CH10	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Title: Rainfall Analysis Criteria	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	0
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall

Sim Criteria FEH	Type: FEH
Site Location	GB 563200 316750 TF 63200 16750
Rainfall Version	2013
Data Type	Catchment
Summer	<input checked="" type="checkbox"/>
Winter	<input checked="" type="checkbox"/>

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Inflows Summary Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
21 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.08	3.3	1.440
21 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	22.1	9.623
22 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.04	1.7	0.722
22 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.10	19.0	8.278
22 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	21.0	9.171
23 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	1.3	0.551
24 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.09	3.7	1.614
28 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.135
28 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	3.0	1.302
7 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	1.2	0.545
7 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.08	16.1	7.045
8 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.05	9.2	4.027
9 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.4	0.192
9 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.8	0.335

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



9 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	14.5	6.308
11 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.13	25.2	11.003
12 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	2.6	1.144
3 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.11	21.5	9.383
3 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.17	33.1	14.449
3 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.41	81.2	35.428
4 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.05	10.1	4.386
4 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.00	0.5	0.237
4 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	14.5	6.326
4 - DA (3)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	5.9	2.560
14 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	4.8	2.090
14 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	4.1	1.796
15 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	6.1	2.674
15 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	4.7	2.066
16 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.07	14.8	6.434
16 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.06	11.1	4.835
17 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.123

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



17 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.03	1.0	0.449
17 - DA (2)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.6	0.284
17 - DA (3)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.4	0.177
19 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.7	0.308
20 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.2	0.096
20 - DA (1)	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.120
27 - DA	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.06	2.6	1.117
Catchment Area	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	0.55	109.7	47.868

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
21 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.08	11.6	5.042
21 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	77.5	33.664
22 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.04	5.8	2.527
22 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.10	66.6	28.961
22 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	73.8	32.077
23 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	4.5	1.934
24 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.09	13.0	5.632
28 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.1	0.467
28 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	10.5	4.542
7 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	4.4	1.910
7 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.08	56.7	24.640

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



8 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.05	32.4	14.081
9 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.5	0.665
9 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.7	1.171
9 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	50.8	22.072
11 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.13	88.6	38.490
12 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	9.2	3.997
3 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.11	75.5	32.817
3 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.17	116.3	50.547
3 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.41	285.2	123.941
4 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.05	35.3	15.347
4 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.00	1.9	0.835
4 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	50.9	22.125
4 - DA (3)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	20.6	8.961

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



14 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	16.9	7.326
14 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	14.5	6.293
15 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	21.5	9.365
15 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	16.6	7.227
16 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.07	51.8	22.521
16 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.06	38.9	16.925
17 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.0	0.434
17 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.03	3.6	1.572
17 - DA (2)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.3	0.991
17 - DA (3)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.4	0.617
19 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.02	2.5	1.075
20 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	0.7	0.326
20 - DA (1)	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.01	1.0	0.425

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



27 - DA	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.06	9.0	3.910
Catchment Area	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	0.55	385.4	167.486

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
21 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.08	15.5	6.752
21 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	103.6	45.084
22 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.04	7.8	3.382
22 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.10	89.1	38.779
22 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	98.7	42.950
23 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	6.0	2.593
24 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.09	17.3	7.541
28 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.4	0.624
28 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	14.0	6.089
7 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	5.9	2.557
7 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.08	75.8	32.996

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



8 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.05	43.3	18.855
9 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	2.1	0.894
9 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.6	1.570
9 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	67.9	29.557
11 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.13	118.4	51.542
12 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	12.3	5.354
3 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.11	100.9	43.943
3 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.17	155.5	67.678
3 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.41	381.3	165.959
4 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.05	47.2	20.545
4 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.00	2.6	1.113
4 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	68.1	29.623
4 - DA (3)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	27.6	12.001

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



14 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	22.5	9.807
14 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	19.4	8.430
15 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	28.8	12.538
15 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	22.2	9.678
16 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.07	69.3	30.160
16 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.06	52.1	22.663
17 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.3	0.585
17 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.03	4.8	2.104
17 - DA (2)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.0	1.326
17 - DA (3)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.9	0.822
19 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.02	3.3	1.443
20 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.0	0.432
20 - DA (1)	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.01	1.3	0.567

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Inflows Summary Storm Phase: Catchment 06		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



27 - DA	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.06	12.0	5.234
Catchment Area	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	0.55	515.2	224.262

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
POND	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	10.089	10.089	0.089	0.089	274.4	198.266	0.000	0.000	1.4	1.086	4003	93.996

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 06		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



**Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item:
Rank By: Max. Flooded Volume**

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
POND	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	10.310	10.310	0.310	0.310	1010.9	705.267	0.000	0.000	4.6	4.958	3950	78.643

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 06		Designed by:	Checked by:	Approved By:
		Amit Kumar	Joe Leslie	Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



**Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item:
Rank By: Max. Flooded Volume**

Stormwater Control	Storm Event	Max. US Elevation (m)	Max. DS Elevation (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
POND	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	10.412	10.412	0.412	0.412	1536.0	948.975	0.000	0.000	4.7	5.390	4272	71.262

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Stormwater Controls Summary Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Status
OK

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT		Date: 20-11-2023		
Report Details: Type: Connections Summary Storm Phase: Catchment 06		Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
		Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		



Sim Criteria FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
7.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	21	22	15.258	14.162	0.102	10.977	0.9	0.24	19.5	OK
7.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	22	23	14.743	13.552	0.135	29.161	1.3	0.23	53.8	OK
7.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	23	24	14.139	12.900	0.149	29.455	1.0	0.14	46.2	OK
7.003	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	24	25	13.845	12.400	0.194	40.262	0.7	0.43	46.0	OK
7.004	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	25	26	13.849	12.364	0.147	30.424	1.1	0.44	47.6	OK
7.005	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	26	27	13.843	12.222	0.108	30.027	1.8	0.13	52.2	OK
8.000	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	28	27	18.097	17.027	0.026	1.826	0.9	0.07	2.0	OK
9.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	1	2	15.696	14.237	0.000	0.000	0.0	0	0.0	OK
10.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	7	8	15.692	14.568	0.087	7.612	0.9	0.14	16.0	OK
10.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	8	9	14.788	13.686	0.095	11.539	1.1	0.21	20.8	OK
10.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	9	10	14.510	13.333	0.096	18.332	1.5	0.14	33.5	OK
10.003	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	10	11	14.173	12.631	0.264	18.269	0.2	0.14	28.0	OK
10.004	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	11	2	14.630	12.625	0.287	29.078	0.4	0.21	42.7	OK
11.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	12	13	16.143	15.121	0.027	1.124	0.8	0.07	1.9	OK

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 06				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					


11.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	13	2	13.975	12.736	0.033	1.104	0.4	0.03	1.6	OK
9.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	2	3	14.372	12.606	0.312	29.494	0.5	0.29	59.1	OK
9.002	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	3	4	14.199	12.601	0.271	115.196	1.0	0.63	129.1	OK
9.003	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	4	5	14.196	12.446	0.218	132.245	1.6	0.27	146.3	OK
12.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	14	15	18.147	16.690	0.053	3.893	1.0	0.04	8.5	OK
12.001	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	15	16	16.490	15.052	0.062	8.602	1.6	0.09	17.3	OK
12.002	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	16	5	14.941	13.387	0.095	19.795	1.5	0.1	36.6	OK
13.000	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	17	18	18.101	16.923	0.027	1.078	0.8	0.01	1.8	OK
14.000	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	19	20	14.426	13.378	0.042	0.395	0.2	0.34	0.5	OK
14.001	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	20	18	14.117	13.166	0.035	0.595	0.2	0.27	0.5	OK
13.001	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	18	5	13.604	12.143	0.033	1.781	0.3	0.03	1.5	OK
9.004	Sim Criteria FEH: 2 years: +0 %: 30 mins: Summer	Pipe	5	27	13.797	11.766	0.247	159.618	1.4	0.06	176.8	OK
7.006	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	27	6	12.509	11.226	0.329	152.708	1.2	0.67	231.2	OK
7.007	Sim Criteria FEH: 2 years: +0 %: 15 mins: Summer	Pipe	6	POND	12.500	10.920	0.231	151.512	1.9	0.14	248.8	OK
7.008	Sim Criteria FEH: 2 years: +0 %: 960 mins: Summer	Pipe	POND	47185N OLS-31- CH10	11.600	10.290	0.063	391.809	0.4	0.1	4.5	OK

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Connections Summary Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Sim Criteria FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
7.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	21	22	15.258	14.297	0.224	38.568	1.3	0.89	72.0	OK
7.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	22	23	14.743	13.744	0.293	102.125	1.8	0.86	197.5	OK
7.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	23	24	14.139	13.023	0.345	103.567	1.4	0.54	183.1	OK
7.003	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	24	25	13.845	12.651	0.419	108.901	1.2	1.7	182.6	Surcharged
7.004	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	25	26	13.849	12.552	0.283	143.362	1.6	1.54	165.6	OK
7.005	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	26	27	13.843	12.311	0.324	108.349	1.7	0.4	168.0	OK
8.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	28	27	18.097	17.057	0.097	4.591	0.8	0.31	8.9	OK
9.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	1	2	15.696	14.237	0.225	0.000	0.0	0	0.0	OK
10.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	7	8	15.692	14.644	0.186	26.450	1.2	0.51	57.5	OK
10.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	8	9	14.788	13.808	0.214	40.663	1.4	0.78	77.5	OK
10.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Winter	Pipe	9	10	14.510	13.405	0.312	53.642	1.3	0.43	103.2	OK

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 06				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

10.003	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	10	11	14.173	13.222	0.600	84.498	0.3	0.48	98.5	Surcharged
10.004	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	11	2	14.630	13.215	0.600	134.843	0.6	0.77	157.4	Surcharged
11.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	12	13	16.143	15.153	0.150	3.790	0.7	0.34	8.5	OK
11.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	13	2	13.975	13.515	0.300	4.172	0.5	0.55	31.6	Surcharged
9.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	2	3	14.372	13.501	0.600	105.951	0.7	0.92	188.6	Surcharged
9.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	3	4	14.199	13.477	0.600	311.947	2.1	2.86	587.9	Surcharged
9.003	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	4	5	14.196	12.794	0.525	472.292	2.1	1	538.8	OK
12.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	14	15	18.147	16.727	0.102	13.634	1.4	0.16	30.4	OK
12.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	15	16	16.490	15.115	0.122	30.172	2.3	0.34	63.3	OK
12.002	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	16	5	14.941	13.488	0.192	69.502	2.1	0.36	137.8	OK
13.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	17	18	18.101	16.942	0.053	3.725	1.0	0.04	6.8	OK
14.000	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	19	20	14.426	13.460	0.100	1.037	0.2	1.13	1.6	Surcharged
14.001	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	20	18	14.117	13.255	0.091	2.285	0.3	1.13	1.9	Surcharged

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 06				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					


13.001	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	18	5	13.604	12.180	0.068	4.637	0.5	0.15	6.4	OK
9.004	Sim Criteria FEH: 30 years: +35 %: 15 mins: Summer	Pipe	5	27	13.797	11.956	0.528	432.079	2.0	0.22	668.1	OK
7.006	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	27	6	12.509	11.670	0.687	724.418	1.9	2.39	826.1	Surcharged
7.007	Sim Criteria FEH: 30 years: +35 %: 30 mins: Summer	Pipe	6	POND	12.500	11.158	0.453	718.921	2.6	0.47	821.8	OK
7.008	Sim Criteria FEH: 30 years: +35 %: 60 mins: Winter	Pipe	POND	47185N OLS-31- CH10	11.600	10.437	0.064	25.313	0.4	0.1	4.7	Surcharged

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT	Date: 20-11-2023		
	Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer
Report Details: Type: Connections Summary Storm Phase: Catchment 06	Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA		




Sim Criteria FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

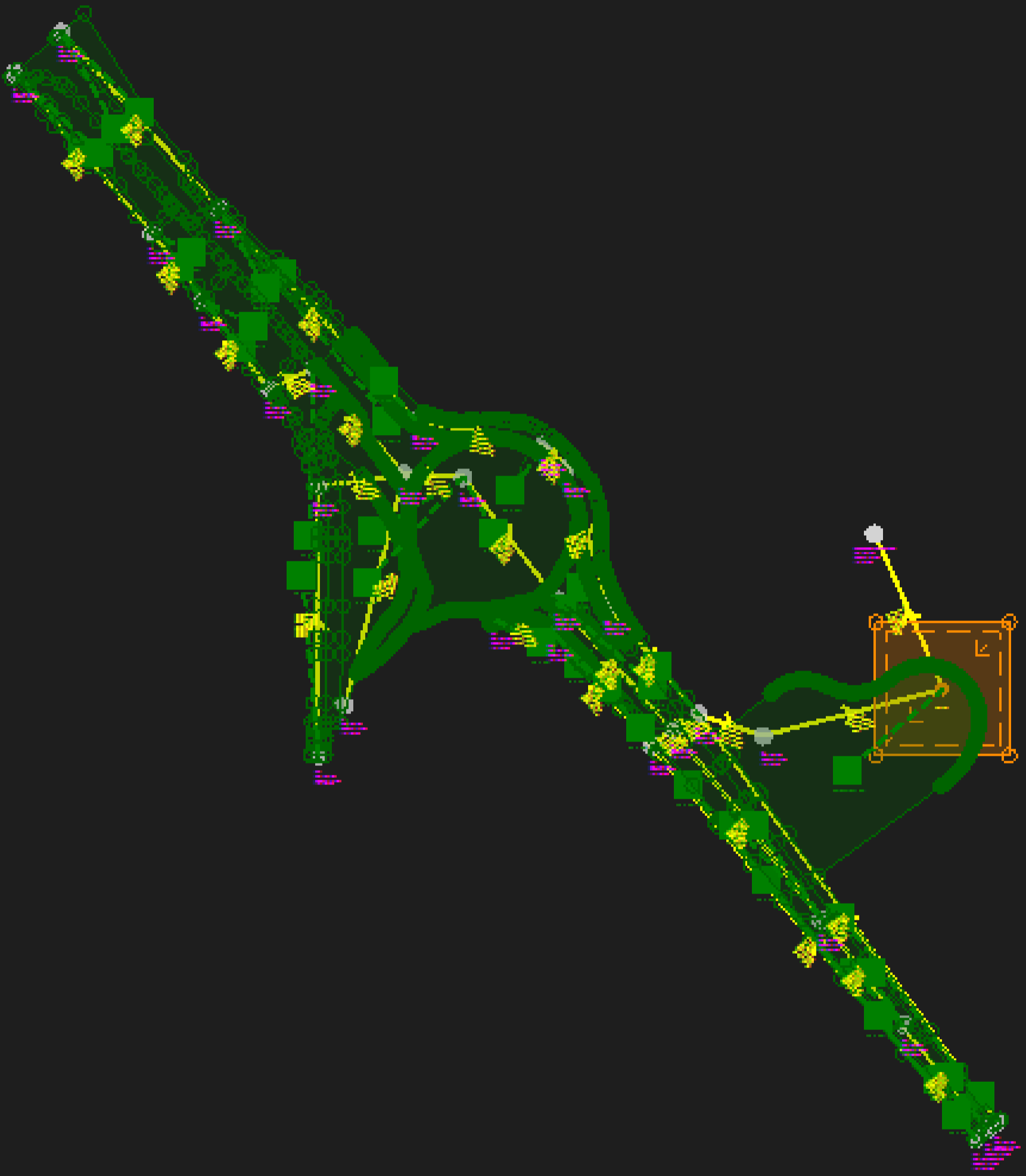
Connection	Storm Event	Connection Type	From	To	Upstream Cover Elevation (m)	Max. US Water Elevation (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
7.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	21	22	15.258	14.732	0.300	51.183	1.4	1.22	98.3	Surcharged
7.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	22	23	14.743	13.878	0.383	135.163	1.7	1.06	244.0	Surcharged
7.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	23	24	14.139	13.100	0.450	139.347	1.4	0.64	218.8	OK
7.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	24	25	13.845	12.867	0.450	146.726	1.5	2.18	234.2	Surcharged
7.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	25	26	13.849	12.763	0.412	146.399	1.5	2.12	227.9	Surcharged
7.005	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	26	27	13.843	12.354	0.450	146.348	1.7	0.56	233.1	OK
8.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	28	27	18.097	17.073	0.150	6.156	0.9	0.47	13.8	OK
9.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	1	2	15.696	14.237	0.225	0.000	0.0	0	0.0	OK
10.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Winter	Pipe	7	8	15.692	14.649	0.198	29.606	1.2	0.54	61.0	OK
10.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	8	9	14.788	14.757	0.300	54.784	1.4	0.97	95.5	Surcharged
10.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	9	10	14.510	14.510	0.375	86.167	1.5	0.6	143.1	Flood

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 06				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

10.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	10	11	14.173	14.175	0.600	87.230	0.5	0.71	145.8	Flood
10.004	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	11	2	14.630	14.035	0.600	181.309	0.7	1	205.8	Surcharged
11.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	12	13	16.143	15.165	0.150	5.074	0.8	0.46	11.6	OK
11.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	13	2	13.975	13.985	0.300	5.583	1.9	2.34	133.6	Flood
9.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	2	3	14.372	14.182	0.600	143.202	1.2	1.6	328.3	Surcharged
9.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	3	4	14.199	14.199	0.600	419.250	2.3	3.18	652.5	Flood
9.003	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	4	5	14.196	13.531	0.600	481.413	2.8	1.49	799.1	Surcharged
12.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	14	15	18.147	16.740	0.121	18.252	1.5	0.21	40.6	OK
12.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	15	16	16.490	15.139	0.145	40.437	2.5	0.45	84.9	OK
12.002	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	16	5	14.941	13.526	0.229	93.230	2.3	0.49	185.8	OK
13.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	17	18	18.101	16.948	0.060	4.977	1.0	0.05	9.3	OK
14.000	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	19	20	14.426	13.625	0.100	1.390	0.2	1.24	1.8	Surcharged
14.001	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	20	18	14.117	13.441	0.100	3.088	0.3	1.17	2.0	Surcharged

West Winch Housing Access Road - 70100518: Catchment 06 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-06-DRAFT				Date: 20-11-2023					
Report Details: Type: Connections Summary Storm Phase: Catchment 06				Designed by: Amit Kumar	Checked by: Joe Leslie	Approved By: Gareth Hamer			
				Company Address: WSP in the UK 62-64 Hills Road Cambridge CB2 1LA					

13.001	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	18	5	13.604	12.191	0.078	6.299	0.6	0.2	8.4	OK
9.004	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	5	27	13.797	12.083	0.750	580.753	2.2	0.31	973.1	OK
7.006	Sim Criteria FEH: 100 years: +40 %: 15 mins: Summer	Pipe	27	6	12.509	11.999	0.750	736.999	2.7	3.45	1191.4	Surcharged
7.007	Sim Criteria FEH: 100 years: +40 %: 30 mins: Summer	Pipe	6	POND	12.500	11.262	0.548	966.325	2.7	0.64	1113.1	OK
7.008	Sim Criteria FEH: 100 years: +40 %: 600 mins: Winter	Pipe	POND	47185N OLS-31- CH10	11.600	10.901	0.064	251.893	0.4	0.1	4.7	Surcharged



West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Basin 7

Type : Pond

Dimensions

Exceedance Level (m)	5.450
Depth (m)	2.450
Base Level (m)	3.000
Freeboard (mm)	300
Initial Depth (m)	0.000
Porosity (%)	100
Average Slope (1:X)	3.339
Total Volume (m³)	5272.767

Depth (m)	Area (m²)	Volume (m³)
0.000	1851.00	0.000
2.450	3309.00	6235.140

Inlets

Inlet


Inlet Type	Point Inflow
Incoming Item(s)	1.010
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	5.003
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area
Bypass Destination	(None)
Capacity Type	No Restriction

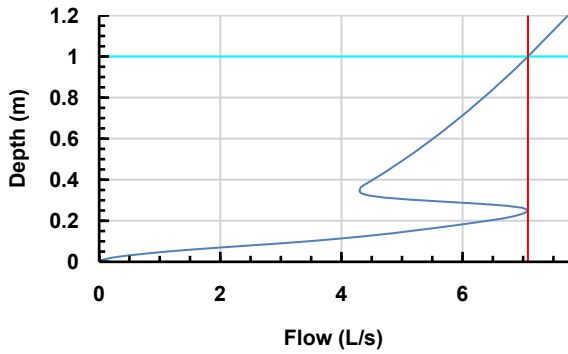
West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		

Outlets

Outlet

Outgoing Connection	1.011
Outlet Type	Hydro-Brake®
Invert Level (m)	3.000
Design Depth (m)	1.000
Design Flow (L/s)	7.08
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	<input type="checkbox"/>

Unit Reference	CHE-0118-7080-1000-7080
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Advanced

Perimeter	Circular
Length (m)	83.281
Friction Scheme	Manning's n
n	0.04


West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		




Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH31	3.400 1.500	Diameter / Length: 1.200	{1} 1.014	Pipe	1.500	Diam/Width:300	Manhole
E:563535.575 N:317972.939	1.900						
MH1	15.730 14.229	Diameter / Length: 1.200					Manhole
E:563805.407 N:317582.460	1.501						{a} 1.000
MH7	5.977 4.004	Diameter / Length: 1.200	{1} 1.005	Pipe	4.230	Diam/Width:450	Manhole
E:563623.731 N:317882.743	1.973		{2} 2.003	Pipe	4.380	Diam/Width:300	
			{3} 3.004	Pipe	4.005	Diam/Width:675	
			{a} 1.006	Pipe	4.005	Diam/Width:675	Not Applicable
MH3	12.822 11.247	Diameter / Length: 1.200	{1} 1.001	Pipe	11.322	Diam/Width:300	Manhole
E:563746.535 N:317666.514	1.575						
			{a} 1.002	Pipe	11.247	Diam/Width:375	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH4	10.402 8.827	Diameter / Length: 1.200	{1} 1.002	Pipe	8.827	Diam/Width:375	Manhole
E:563710.681 N:317743.252	1.575		{a} 1.003	Pipe	8.827	Diam/Width:375	Not Applicable
MH5	8.545 6.895	Diameter / Length: 1.200	{1} 1.003	Pipe	6.970	Diam/Width:375	Manhole
E:563682.581 N:317801.211	1.650		{a} 1.004	Pipe	6.895	Diam/Width:450	Not Applicable
MH6	7.257 5.607	Diameter / Length: 1.200	{1} 1.004	Pipe	5.607	Diam/Width:450	Manhole
E:563657.827 N:317839.640	1.650		{a} 1.005	Pipe	5.607	Diam/Width:450	Not Applicable
MH2	14.342 12.842	Diameter / Length: 1.200	{1} 1.000	Pipe	12.842	Diam/Width:300	Manhole
E:563776.256 N:317621.090	1.500		{a} 1.001	Pipe	12.842	Diam/Width:300	Not Applicable
MH8	8.404 6.903	Diameter / Length: 1.200					Manhole
E:563463.508 N:318000.810	1.501		{a} 2.000	Pipe	6.904	Diam/Width:300	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH20	5.400 3.805	Diameter / Length: 1.200	{1} 1.006	Pipe	3.955	Diam/Width:675	Manhole
E:563607.983 N:317870.132	1.595		{a} Pipe	Pipe	3.805	Diam/Width:825	Not Applicable
MH24	7.180 5.679	Diameter / Length: 1.200					Manhole
E:563424.120 N:318004.616	1.501		{a} 5.000	Pipe	5.680	Diam/Width:300	Not Applicable
MH25	6.100 4.599	Diameter / Length: 1.200	{1} 5.000	Pipe	4.600	Diam/Width:300	Manhole
E:563387.686 N:317997.150	1.501		{a} 5.001	Pipe	4.600	Diam/Width:300	Not Applicable
MH9	7.894 6.394	Diameter / Length: 1.200	{1} 2.000	Pipe	6.394	Diam/Width:300	Manhole
E:563496.812 N:317989.289	1.500		{a} 2.001	Pipe	6.394	Diam/Width:300	Not Applicable
MH10	7.255 5.755	Diameter / Length: 1.200	{1} 2.001	Pipe	5.755	Diam/Width:300	Manhole
E:563539.774 N:317963.456	1.500		{a} 2.002	Pipe	5.755	Diam/Width:300	Not Applicable


West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH11	6.532 5.032	Diameter / Length: 1.200	{1} 2.002	Pipe	5.032	Diam/Width:300	Manhole
E:563583.494 N:317924.396	1.500		{a} 2.003	Pipe	5.032	Diam/Width:300	Not Applicable
MH30	4.200 2.459	Diameter / Length: 1.200	{1} 1.013	Pipe	2.460	Diam/Width:300	Manhole
E:563517.519 N:317954.978	1.741		{a} 1.014	Pipe	2.460	Diam/Width:300	Not Applicable
MH12	11.200 9.699	Diameter / Length: 1.200					Manhole
E:563390.243 N:318059.648	1.501		{a} 3.000	Pipe	9.700	Diam/Width:300	Not Applicable
MH13	10.000 8.424	Diameter / Length: 1.200	{1} 3.000	Pipe	8.500	Diam/Width:300	Manhole
E:563459.290 N:318029.245	1.576		{a} 3.001	Pipe	8.425	Diam/Width:375	Not Applicable
MH14	8.850 7.199	Diameter / Length: 1.200	{1} 3.001	Pipe	7.275	Diam/Width:375	Manhole
E:563523.129 N:317989.938	1.651		{a} 3.002	Pipe	7.200	Diam/Width:450	Not Applicable


West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		




Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH15	6.900 5.174	Diameter / Length: 1.200	{1} 3.002	Pipe	5.250	Diam/Width:450	Manhole
E:563588.062 N:317937.495	1.726		{a} 3.003	Pipe	5.175	Diam/Width:525	Not Applicable
MH16	6.000 4.025	Diameter / Length: 1.200	{1} 3.003	Pipe	4.176	Diam/Width:525	Manhole
E:563630.556 N:317887.710	1.975		{2} 4.002	Pipe	4.251	Diam/Width:450	
			{a} 3.004	Pipe	4.026	Diam/Width:675	Not Applicable
MH17	9.550 7.974	Diameter / Length: 1.200					Manhole
E:563523.522 N:318066.730	1.576		{a} 4.000	Pipe	7.975	Diam/Width:375	Not Applicable
MH18	8.170 6.594	Diameter / Length: 1.200	{1} 4.000	Pipe	6.595	Diam/Width:375	Manhole
E:563591.522 N:317973.101	1.576		{a} 4.001	Pipe	6.595	Diam/Width:375	Not Applicable
MH19	6.700 5.049	Diameter / Length: 1.200	{1} 4.001	Pipe	5.125	Diam/Width:375	Manhole
E:563646.043 N:317901.769	1.651		{a} 4.002	Pipe	5.050	Diam/Width:450	Not Applicable

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Manhole Schedule Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH23	5.437 3.134	Diameter / Length: 1.200	{1} Pipe	Pipe	3.134	Diam/Width:825	Manhole
E:563383.468 N:317910.076	2.303		{a} 1.010	Pipe	3.134	Diam/Width:825	Not Applicable
MH28	5.293 2.954	Diameter / Length: 1.200	{1} 1.011	Pipe	2.954	Diam/Width:300	Manhole
E:563419.249 N:317988.041	2.339		{a} 1.012	Pipe	2.954	Diam/Width:300	Not Applicable
MH29	4.284 2.503	Diameter / Length: 1.200	{1} 1.012	Pipe	2.503	Diam/Width:300	Manhole
E:563509.592 N:317959.465	1.781		{a} 1.013	Pipe	2.503	Diam/Width:300	Not Applicable
MH26	5.700 4.200	Diameter / Length: 1.200	{1} 5.001	Pipe	4.200	Diam/Width:300	Manhole
E:563345.697 N:317982.213	1.500		{a} 5.002	Pipe	4.200	Diam/Width:300	Not Applicable
MH27	5.690 3.571	Diameter / Length: 1.200	{1} 5.002	Pipe	3.571	Diam/Width:300	Manhole
E:563349.728 N:317969.627	2.119		{a} 5.003	Pipe	3.571	Diam/Width:300	Not Applicable


West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflow Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Basin 7		Time of Concentration	0.461	20	0	20	0.092
Catchment Area (1)	MH30		Time of Concentration	0.515	20	0	20	0.103
Catchment Area (2)	MH12		Time of Concentration	0.180	20	0	20	0.036
Catchment Area (3)	MH17		Time of Concentration	0.160	20	0	20	0.032
Catchment Area (4)	MH17		Time of Concentration	0.022	20	0	20	0.004
Catchment Area (5)	MH18		Time of Concentration	0.358	20	0	20	0.072
Catchment Area (6)	MH13		Time of Concentration	0.087	100	0	100	0.087
Catchment Area (7)	MH14		Time of Concentration	0.099	100	0	100	0.099
Catchment Area (8)	MH17		Time of Concentration	0.174	100	0	100	0.174
Catchment Area (9)	MH25		Time of Concentration	0.060	100	0	100	0.060
Catchment Area (10)	MH1		Time of Concentration	0.215	100	0	100	0.215
Catchment Area (11)	MH5		Time of Concentration	0.137	100	0	100	0.137
Catchment Area (12)	MH6		Time of Concentration	0.105	100	0	100	0.105
Catchment Area (13)	MH16		Time of Concentration	0.144	100	0	100	0.144
Catchment Area (14)	MH24		Time of Concentration	0.061	100	0	100	0.061
Catchment Area (15)	MH8		Time of Concentration	0.056	100	0	100	0.056
Catchment Area (16)	MH10		Time of Concentration	0.049	100	0	100	0.049
Catchment Area (17)	MH11		Time of Concentration	0.054	100	0	100	0.054
Catchment Area (18)	MH7		Time of Concentration	0.056	100	0	100	0.056
Catchment Area (19)	MH15		Time of Concentration	0.118	100	0	100	0.118
Catchment Area (20)	MH15		Time of Concentration	0.060	100	0	100	0.060
Catchment Area (21)	MH18		Time of Concentration	0.095	100	0	100	0.095
Catchment Area (22)	MH19		Time of Concentration	0.093	100	0	100	0.093
Catchment Area (23)	MH3		Time of Concentration	0.179	100	0	100	0.179
TOTAL		0.0		3.538				2.182

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: 2 Mainline One		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
2.000	MH8	MH9	35.240	Pipe	69.039	0.6	300	8.404
2.001	MH9	MH10	50.131	Pipe	78.403	0.6	300	7.894
2.002	MH10	MH11	58.627	Pipe	81.138	0.6	300	7.255
2.003	MH11	MH7	57.914	Pipe	88.819	0.6	300	6.532
Branch: 1.000								
1.000	MH1	MH2	48.395	Pipe	34.871	0.6	300	15.730
1.001	MH2	MH3	54.283	Pipe	35.708	0.6	300	14.342
1.002	MH3	MH4	84.702	Pipe	35.001	0.6	375	12.822
1.003	MH4	MH5	64.411	Pipe	34.686	0.6	375	10.402
1.004	MH5	MH6	45.711	Pipe	35.490	0.6	450	8.545
1.005	MH6	MH7	54.958	Pipe	39.912	0.6	450	7.257
Branch: 3.000								
3.000	MH12	MH13	75.444	Pipe	62.870	0.6	300	11.200
3.001	MH13	MH14	74.969	Pipe	65.191	0.6	375	10.000
3.002	MH14	MH15	83.467	Pipe	42.804	0.6	450	8.850
3.003	MH15	MH16	65.453	Pipe	65.519	0.6	525	6.900
Branch: 4.000								
4.000	MH17	MH18	115.717	Pipe	83.853	0.6	375	9.550
4.001	MH18	MH19	89.782	Pipe	61.076	0.6	375	8.170
4.002	MH19	MH16	20.917	Pipe	26.179	0.6	450	6.700
3.004	MH16	MH7	8.441	Pipe	401.953	0.6	675	6.000
1.006	MH7	MH20	20.175	Pipe	403.502	0.6	675	5.977

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
2.000	6.904	7.894	6.394		5	
2.001	6.394	7.255	5.755		0	
2.002	5.755	6.532	5.032		5	
2.003	5.032	5.977	4.380		5	
Branch: 1.000						
1.000	14.230	14.342	12.842		5	
1.001	12.842	12.822	11.322		0	
1.002	11.247	10.402	8.827		5	
1.003	8.827	8.545	6.970		0	
1.004	6.895	7.257	5.607		5	
1.005	5.607	5.977	4.230		5	
Branch: 3.000						
3.000	9.700	10.000	8.500		5	
3.001	8.425	8.850	7.275		5	
3.002	7.200	6.900	5.250		5	
3.003	5.175	6.000	4.176		5	
Branch: 4.000						
4.000	7.975	8.170	6.595		5	
4.001	6.595	6.700	5.125		5	
4.002	5.050	6.000	4.251		5	
3.004	4.026	5.977	4.005		5	
1.006	4.005	5.400	3.955		5	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: 3 WB Slip		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
5.000	MH24	MH25	37.191	Pipe	34.436	0.6	300	7.180
5.001	MH25	MH26	44.567	Pipe	111.417	0.6	300	6.100
5.002	MH26	MH27	13.216	Pipe	21.011	0.6	300	5.700
5.003	MH27	Basin 7	11.057	Pipe	23.476	0.6	300	5.690

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
5.000	5.680	6.100	4.600		5	
5.001	4.600	5.700	4.200		5	
5.002	4.200	5.690	3.571		0	
5.003	3.571	5.450	3.100		0	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: 4 Mainline Two		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
3.000	MH12	MH13	75.444	Pipe	62.870	0.6	300	11.200
3.001	MH13	MH14	74.969	Pipe	65.191	0.6	375	10.000
3.002	MH14	MH15	83.467	Pipe	42.804	0.6	450	8.850
3.003	MH15	MH16	65.453	Pipe	65.519	0.6	525	6.900
Branch: 4.000								
4.000	MH17	MH18	115.717	Pipe	83.853	0.6	375	9.550
4.001	MH18	MH19	89.782	Pipe	61.076	0.6	375	8.170
4.002	MH19	MH16	20.917	Pipe	26.179	0.6	450	6.700
3.004	MH16	MH7	8.441	Pipe	401.953	0.6	675	6.000

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
3.000	9.700	10.000	8.500		5	
3.001	8.425	8.850	7.275		5	
3.002	7.200	6.900	5.250		5	
3.003	5.175	6.000	4.176		5	
Branch: 4.000						
4.000	7.975	8.170	6.595		5	
4.001	6.595	6.700	5.125		5	
4.002	5.050	6.000	4.251		5	
3.004	4.026	5.977	4.005		5	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: 5 EB Slip		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			


Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
4.000	MH17	MH18	115.717	Pipe	83.853	0.6	375	9.550
4.001	MH18	MH19	89.782	Pipe	61.076	0.6	375	8.170
4.002	MH19	MH16	20.917	Pipe	26.179	0.6	450	6.700

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
4.000	7.975	8.170	6.595		5	
4.001	6.595	6.700	5.125		5	
4.002	5.050	6.000	4.251		5	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: 6 Outfall		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
1.011	Basin 7	MH28	9.633	Pipe	210.000	0.6	300	5.450
1.012		MH28	94.755	Pipe	210.100	0.6	300	5.293
1.013		MH29	9.109	Pipe	210.000	0.6	300	4.284
1.014		MH30	25.468	Pipe	26.529	0.6	300	4.200

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
1.011	3.000	5.293	2.954		5	
1.012	2.954	4.284	2.503		0	
1.013	2.503	4.200	2.460		0	
1.014	2.460	3.400	1.500		5	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: 1 WB		Designed by: Sufyyan Raja	Checked by:	
		WSP UK LTD: 8 First Street Manchester M154GU		

Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
1.000	MH1	MH2	48.395	Pipe	34.871	0.6	300	15.730
1.001	MH2	MH3	54.283	Pipe	35.708	0.6	300	14.342
1.002	MH3	MH4	84.702	Pipe	35.001	0.6	375	12.822
1.003	MH4	MH5	64.411	Pipe	34.686	0.6	375	10.402
1.004	MH5	MH6	45.711	Pipe	35.490	0.6	450	8.545
1.005	MH6	MH7	54.958	Pipe	39.912	0.6	450	7.257
Branch: 2.000								
2.000	MH8	MH9	35.240	Pipe	69.039	0.6	300	8.404
2.001	MH9	MH10	50.131	Pipe	78.403	0.6	300	7.894
2.002	MH10	MH11	58.627	Pipe	81.138	0.6	300	7.255
2.003	MH11	MH7	57.914	Pipe	88.819	0.6	300	6.532
Branch: 3.000								
3.000	MH12	MH13	75.444	Pipe	62.870	0.6	300	11.200
3.001	MH13	MH14	74.969	Pipe	65.191	0.6	375	10.000
3.002	MH14	MH15	83.467	Pipe	42.804	0.6	450	8.850
3.003	MH15	MH16	65.453	Pipe	65.519	0.6	525	6.900
Branch: 4.000								
4.000	MH17	MH18	115.717	Pipe	83.853	0.6	375	9.550
4.001	MH18	MH19	89.782	Pipe	61.076	0.6	375	8.170
4.002	MH19	MH16	20.917	Pipe	26.179	0.6	450	6.700
3.004	MH16	MH7	8.441	Pipe	401.953	0.6	675	6.000
1.006	MH7	MH20	20.175	Pipe	403.502	0.6	675	5.977
Pipe	MH20	MH23	228.041	Pipe	339.852	0.6	825	5.400
1.010	MH23	Basin 7	13.436	Pipe	395.171	0.6	825	5.437

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
1.000	14.230	14.342	12.842		5	
1.001	12.842	12.822	11.322		0	
1.002	11.247	10.402	8.827		5	
1.003	8.827	8.545	6.970		0	
1.004	6.895	7.257	5.607		5	
1.005	5.607	5.977	4.230		5	
Branch: 2.000						
2.000	6.904	7.894	6.394		5	
2.001	6.394	7.255	5.755		0	
2.002	5.755	6.532	5.032		5	
2.003	5.032	5.977	4.380		5	
Branch: 3.000						
3.000	9.700	10.000	8.500		5	
3.001	8.425	8.850	7.275		5	
3.002	7.200	6.900	5.250		5	
3.003	5.175	6.000	4.176		5	
Branch: 4.000						
4.000	7.975	8.170	6.595		5	
4.001	6.595	6.700	5.125		5	
4.002	5.050	6.000	4.251		5	
3.004	4.026	5.977	4.005		5	
1.006	4.005	5.400	3.955		5	
Pipe	3.805	5.437	3.134		0	
1.010	3.134	5.450	3.100		0	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Network Design Report Storm Phase: Phase Flow Path: Flow Path	WSP UK LTD: 8 First Street Manchester M154GU		



Name	From	To	Length (m)	Connection Type	Slope (1:X)	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)
4.002	MH19	MH16	20.917	Pipe	26.179	0.6	450	6.700
Branch: 3.000								
3.000	MH12	MH13	75.444	Pipe	62.870	0.6	300	11.200
3.001	MH13	MH14	74.969	Pipe	65.191	0.6	375	10.000
3.002	MH14	MH15	83.467	Pipe	42.804	0.6	450	8.850
3.003	MH15	MH16	65.453	Pipe	65.519	0.6	525	6.900
3.004	MH16	MH7	8.441	Pipe	401.953	0.6	675	6.000
Branch: 1.000								
1.000	MH1	MH2	48.395	Pipe	34.871	0.6	300	15.730
1.001	MH2	MH3	54.283	Pipe	35.708	0.6	300	14.342
1.002	MH3	MH4	84.702	Pipe	35.001	0.6	375	12.822
1.003	MH4	MH5	64.411	Pipe	34.686	0.6	375	10.402
1.004	MH5	MH6	45.711	Pipe	35.490	0.6	450	8.545
1.005	MH6	MH7	54.958	Pipe	39.912	0.6	450	7.257
Branch: 2.000								
2.000	MH8	MH9	35.240	Pipe	69.039	0.6	300	8.404
2.001	MH9	MH10	50.131	Pipe	78.403	0.6	300	7.894
2.002	MH10	MH11	58.627	Pipe	81.138	0.6	300	7.255
2.003	MH11	MH7	57.914	Pipe	88.819	0.6	300	6.532
1.006	MH7	MH20	20.175	Pipe	403.502	0.6	675	5.977
Pipe	MH20	MH23	228.041	Pipe	339.852	0.6	825	5.400
1.010	MH23	Basin 7	13.436	Pipe	395.171	0.6	825	5.437

Name	Upstream Invert Level (m)	Downstream Cover Level (m)	Downstream Invert Level (m)	Total Area (ha)	Local Time of Concentration (mins)	Time Of Travel (mins)
4.002	5.050	6.000	4.251		5	
Branch: 3.000						
3.000	9.700	10.000	8.500		5	
3.001	8.425	8.850	7.275		5	
3.002	7.200	6.900	5.250		5	
3.003	5.175	6.000	4.176		5	
3.004	4.026	5.977	4.005		5	
Branch: 1.000						
1.000	14.230	14.342	12.842		5	
1.001	12.842	12.822	11.322		0	
1.002	11.247	10.402	8.827		5	
1.003	8.827	8.545	6.970		0	
1.004	6.895	7.257	5.607		5	
1.005	5.607	5.977	4.230		5	
Branch: 2.000						
2.000	6.904	7.894	6.394		5	
2.001	6.394	7.255	5.755		0	
2.002	5.755	6.532	5.032		5	
2.003	5.032	5.977	4.380		5	
1.006	4.005	5.400	3.955		5	
Pipe	3.805	5.437	3.134		0	
1.010	3.134	5.450	3.100		0	

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	<input type="checkbox"/>
Reduce Channel Depths	<input type="checkbox"/>

Manhole Options

Apply Offset	<input type="checkbox"/>
<p>An error has occurred while processing TextBox 'txtSynchroniseManholeInvertLevelsHeader': The expression contains object 'SynchroniseManholeInvertLevelsTitle' that is not defined in the current context.</p>	
	<input type="checkbox"/>

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Outfall Details Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
MH31	Free Discharge		

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	WSP UK LTD: 8 First Street Manchester M154GU		



Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Prefill Manhole Sumps	<input type="checkbox"/>
Perform No Discharge Analysis	<input type="checkbox"/>

Rainfall

FEH		Type: FEH
Site Location	GB 563150 317700 TF 63150 17700	
Rainfall Version	2013	
Data Type	Catchment	
Summer	<input checked="" type="checkbox"/>	
Winter	<input checked="" type="checkbox"/>	

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (1)	FEH: 2 years: +0 %: 15 mins: Summer	0.51	20.6	8.967
Catchment Area (2)	FEH: 2 years: +0 %: 15 mins: Summer	0.18	7.2	3.140
Catchment Area (3)	FEH: 2 years: +0 %: 15 mins: Summer	0.16	6.4	2.783
Catchment Area (4)	FEH: 2 years: +0 %: 15 mins: Summer	0.02	0.9	0.384
Catchment Area (5)	FEH: 2 years: +0 %: 15 mins: Summer	0.36	14.3	6.238
Catchment Area (6)	FEH: 2 years: +0 %: 15 mins: Summer	0.09	17.4	7.568
Catchment Area (7)	FEH: 2 years: +0 %: 15 mins: Summer	0.10	19.8	8.632
Catchment Area (8)	FEH: 2 years: +0 %: 15 mins: Summer	0.17	34.9	15.184
Catchment Area (9)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	12.1	5.258
Catchment Area (10)	FEH: 2 years: +0 %: 15 mins: Summer	0.22	43.1	18.759
Catchment Area (11)	FEH: 2 years: +0 %: 15 mins: Summer	0.14	27.5	11.976
Catchment Area (12)	FEH: 2 years: +0 %: 15 mins: Summer	0.11	21.1	9.168
Catchment Area (13)	FEH: 2 years: +0 %: 15 mins: Summer	0.14	28.8	12.560
Catchment Area (14)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	12.1	5.285
Catchment Area (15)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	11.2	4.866
Catchment Area (16)	FEH: 2 years: +0 %: 15 mins: Summer	0.05	9.7	4.231
Catchment Area (17)	FEH: 2 years: +0 %: 15 mins: Summer	0.05	10.7	4.665
Catchment Area (18)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	11.2	4.887
Catchment Area (19)	FEH: 2 years: +0 %: 15 mins: Summer	0.12	23.6	10.268

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	



Catchment Area (20)	FEH: 2 years: +0 %: 15 mins: Summer	0.06	12.0	5.225
Catchment Area (21)	FEH: 2 years: +0 %: 15 mins: Summer	0.09	18.9	8.242
Catchment Area (22)	FEH: 2 years: +0 %: 15 mins: Summer	0.09	18.7	8.131
Catchment Area	FEH: 2 years: +0 %: 15 mins: Summer	0.46	18.4	8.033
Catchment Area (23)	FEH: 2 years: +0 %: 15 mins: Summer	0.18	35.9	15.637

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (1)	FEH: 30 years: +35 %: 15 mins: Summer	0.51	71.7	31.204
Catchment Area (2)	FEH: 30 years: +35 %: 15 mins: Summer	0.18	25.1	10.921
Catchment Area (3)	FEH: 30 years: +35 %: 15 mins: Summer	0.16	22.2	9.677
Catchment Area (4)	FEH: 30 years: +35 %: 15 mins: Summer	0.02	3.1	1.331
Catchment Area (5)	FEH: 30 years: +35 %: 15 mins: Summer	0.36	49.9	21.707
Catchment Area (6)	FEH: 30 years: +35 %: 15 mins: Summer	0.09	60.5	26.344
Catchment Area (7)	FEH: 30 years: +35 %: 15 mins: Summer	0.10	68.9	30.017
Catchment Area (8)	FEH: 30 years: +35 %: 15 mins: Summer	0.17	121.3	52.824
Catchment Area (9)	FEH: 30 years: +35 %: 15 mins: Summer	0.06	42.0	18.292
Catchment Area (10)	FEH: 30 years: +35 %: 15 mins: Summer	0.22	149.9	65.265
Catchment Area (11)	FEH: 30 years: +35 %: 15 mins: Summer	0.14	95.7	41.666
Catchment Area (12)	FEH: 30 years: +35 %: 15 mins: Summer	0.11	73.3	31.905
Catchment Area (13)	FEH: 30 years: +35 %: 15 mins: Summer	0.14	100.4	43.702
Catchment Area (14)	FEH: 30 years: +35 %: 15 mins: Summer	0.06	42.2	18.388

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	



Catchment Area (15)	FEH: 30 years: +35 %: 15 mins: Summer	0.06	38.9	16.925
Catchment Area (16)	FEH: 30 years: +35 %: 15 mins: Summer	0.05	33.8	14.722
Catchment Area (17)	FEH: 30 years: +35 %: 15 mins: Summer	0.05	37.3	16.242
Catchment Area (18)	FEH: 30 years: +35 %: 15 mins: Summer	0.06	39.0	17.000
Catchment Area (19)	FEH: 30 years: +35 %: 15 mins: Summer	0.12	82.0	35.713
Catchment Area (20)	FEH: 30 years: +35 %: 15 mins: Summer	0.06	41.8	18.179
Catchment Area (21)	FEH: 30 years: +35 %: 15 mins: Summer	0.09	65.9	28.677
Catchment Area (22)	FEH: 30 years: +35 %: 15 mins: Summer	0.09	65.0	28.302
Catchment Area	FEH: 30 years: +35 %: 15 mins: Summer	0.46	64.2	27.951
Catchment Area (23)	FEH: 30 years: +35 %: 15 mins: Summer	0.18	124.9	54.398

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			




FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Catchment Area (1)	FEH: 100 years: +40 %: 15 mins: Summer	0.51	95.6	41.593
Catchment Area (2)	FEH: 100 years: +40 %: 15 mins: Summer	0.18	33.5	14.560
Catchment Area (3)	FEH: 100 years: +40 %: 15 mins: Summer	0.16	29.7	12.902
Catchment Area (4)	FEH: 100 years: +40 %: 15 mins: Summer	0.02	4.1	1.774
Catchment Area (5)	FEH: 100 years: +40 %: 15 mins: Summer	0.36	66.5	28.937
Catchment Area (6)	FEH: 100 years: +40 %: 15 mins: Summer	0.09	80.7	35.116
Catchment Area (7)	FEH: 100 years: +40 %: 15 mins: Summer	0.10	92.0	40.014
Catchment Area (8)	FEH: 100 years: +40 %: 15 mins: Summer	0.17	161.9	70.416
Catchment Area (9)	FEH: 100 years: +40 %: 15 mins: Summer	0.06	56.1	24.387
Catchment Area (10)	FEH: 100 years: +40 %: 15 mins: Summer	0.22	200.0	87.001
Catchment Area (11)	FEH: 100 years: +40 %: 15 mins: Summer	0.14	127.7	55.550
Catchment Area (12)	FEH: 100 years: +40 %: 15 mins: Summer	0.11	97.8	42.528
Catchment Area (13)	FEH: 100 years: +40 %: 15 mins: Summer	0.14	133.9	58.251
Catchment Area (14)	FEH: 100 years: +40 %: 15 mins: Summer	0.06	56.3	24.510

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023	
Report Details: Type: Inflows Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by: Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU	



Catchment Area (15)	FEH: 100 years: +40 %: 15 mins: Summer	0.06	51.9	22.559
Catchment Area (16)	FEH: 100 years: +40 %: 15 mins: Summer	0.05	45.1	19.619
Catchment Area (17)	FEH: 100 years: +40 %: 15 mins: Summer	0.05	49.8	21.648
Catchment Area (18)	FEH: 100 years: +40 %: 15 mins: Summer	0.06	52.1	22.658
Catchment Area (19)	FEH: 100 years: +40 %: 15 mins: Summer	0.12	109.4	47.602
Catchment Area (20)	FEH: 100 years: +40 %: 15 mins: Summer	0.06	55.7	24.237
Catchment Area (21)	FEH: 100 years: +40 %: 15 mins: Summer	0.09	87.9	38.224
Catchment Area (22)	FEH: 100 years: +40 %: 15 mins: Summer	0.09	86.7	37.727
Catchment Area	FEH: 100 years: +40 %: 15 mins: Summer	0.46	85.7	37.262
Catchment Area (23)	FEH: 100 years: +40 %: 15 mins: Summer	0.18	166.7	72.517

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Basin 7	FEH: 2 years: +0 %: 960 mins: Summer	3.272	3.272	0.272	0.272	48.4	523.354	0.000	0.000	6.6	468.821	890	90.074

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	
		Approved By:		
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Basin 7	FEH: 30 years: +35 %: 1440 mins: Winter	3.777	3.777	0.777	0.777	56.3	1596.979	0.000	0.000	7.1	834.849	2340	69.713

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



Status
OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			



FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Outflow

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residual Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Basin 7	FEH: 100 years: +40 %: 1440 mins: Winter	4.029	4.029	1.029	1.029	75.3	2186.932	0.000	0.000	7.1	974.007	3048	58.524

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		




Status
OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT	Date: 23/11/2023		
	Designed by: Sufyyan Raja	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	WSP UK LTD: 8 First Street Manchester M154GU		



FEH: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH3	MH4	12.822	11.367	0.116	34.382	2.4	0.21	71.4	OK
1.003	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH4	MH5	10.402	8.940	0.111	34.252	2.3	0.19	63.6	OK
1.004	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH5	MH6	8.545	7.020	0.133	46.196	2.3	0.16	88.7	OK
1.005	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH6	MH7	7.257	5.748	0.153	55.084	2.2	0.21	106.0	OK
1.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH1	MH2	15.730	14.329	0.097	18.772	2.1	0.22	42.0	OK
1.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH2	MH3	14.342	12.937	0.093	18.722	2.0	0.21	38.5	OK
1.006	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH7	MH20	5.977	4.396	0.359	161.459	1.4	0.59	273.0	OK
5.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH24	MH25	7.180	5.730	0.075	5.289	0.8	0.06	11.8	OK
2.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH8	MH9	8.404	6.963	0.058	4.870	1.1	0.08	10.7	OK
2.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH9	MH10	7.894	6.450	0.066	4.851	0.8	0.08	9.8	OK
2.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH10	MH11	7.255	5.831	0.085	9.062	1.1	0.14	17.5	OK
2.003	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH11	MH7	6.532	5.125	0.092	13.640	1.3	0.2	23.3	OK
1.014	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH30	MH31	4.200	2.522	0.061	9.426	1.9	0.09	19.5	OK
3.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH12	MH13	11.200	9.743	0.042	3.123	1.0	0.04	6.0	OK
3.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH13	MH14	10.000	8.499	0.073	10.654	1.4	0.08	20.5	OK
3.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH14	MH15	8.850	7.283	0.082	19.234	1.8	0.07	36.0	OK
3.003	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH15	MH16	6.900	5.294	0.179	34.520	1.1	0.11	68.7	OK
3.004	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH16	MH7	6.000	4.415	0.390	88.039	0.7	0.33	155.3	OK
4.000	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH17	MH18	9.550	8.082	0.118	18.218	1.3	0.18	38.8	OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT			Date: 23/11/2023					
Report Details: Type: Connections Summary Storm Phase: Phase			Designed by: Sufyyan Raja	Checked by:	Approved By:			
			WSP UK LTD: 8 First Street Manchester M154GU					


4.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH18	MH19	8.170	6.725	0.127	32.665	1.9	0.24	62.2	OK
4.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH19	MH16	6.700	5.159	0.137	40.702	2.2	0.13	80.1	OK
1.010	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH23	Basin 7	5.437	3.487	0.330	157.370	1.4	0.34	274.0	OK
1.011	FEH: 2 years: +0 %: 960 mins: Summer	Pipe	Basin 7	MH28	5.450	3.272	0.061	468.772	0.6	0.09	6.6	OK
1.012	FEH: 2 years: +0 %: 960 mins: Summer	Pipe	MH28	MH29	5.293	3.014	0.061	468.441	0.6	0.09	6.6	OK
1.013	FEH: 2 years: +0 %: 960 mins: Summer	Pipe	MH29	MH30	4.284	2.566	0.061	468.068	0.6	0.09	6.6	OK
5.001	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH25	MH26	6.100	4.700	0.081	10.549	1.4	0.21	21.9	OK
5.002	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH26	MH27	5.700	4.262	0.063	10.531	2.0	0.09	21.1	OK
5.003	FEH: 2 years: +0 %: 15 mins: Summer	Pipe	MH27	Basin 7	5.690	3.635	0.062	10.520	1.9	0.09	20.5	OK
Pipe	FEH: 2 years: +0 %: 30 mins: Summer	Pipe	MH20	MH23	5.400	4.106	0.311	209.114	1.3	0.28	241.8	OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023		
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:	Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU		




FEH: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.002	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH3	MH4	12.822	11.505	0.251	119.637	3.2	0.75	252.9	OK
1.003	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH4	MH5	10.402	9.072	0.235	119.468	3.2	0.68	231.7	OK
1.004	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH5	MH6	8.545	7.165	0.283	160.955	3.0	0.59	321.1	OK
1.005	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH6	MH7	7.257	5.903	0.450	192.477	2.4	0.74	381.7	OK
1.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH1	MH2	15.730	14.444	0.210	65.284	2.8	0.78	146.4	OK
1.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH2	MH3	14.342	13.047	0.197	65.212	2.8	0.73	136.5	OK
1.006	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH7	MH20	5.977	5.120	0.675	565.916	3.0	2.33	1084.5	Surcharged
5.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH24	MH25	7.180	5.775	0.153	18.395	1.1	0.22	41.4	OK
2.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH8	MH9	8.404	7.018	0.112	16.935	1.6	0.28	37.8	OK
2.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH9	MH10	7.894	6.503	0.132	16.906	1.2	0.28	35.5	OK
2.002	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH10	MH11	7.255	5.909	0.236	31.450	1.1	0.53	65.4	OK
2.003	FEH: 30 years: +35 %: 30 mins: Summer	Pipe	MH11	MH7	6.532	5.204	0.300	62.514	1.3	0.61	72.4	OK
1.014	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH30	MH31	4.200	2.581	0.118	36.381	2.6	0.31	66.5	OK
3.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH12	MH13	11.200	9.782	0.081	10.899	1.4	0.16	22.3	OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT				Date: 23/11/2023							
Report Details: Type: Connections Summary Storm Phase: Phase				Designed by: Sufyyan Raja	Checked by:	Approved By:					
				WSP UK LTD: 8 First Street Manchester M154GU							


3.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH13	MH14	10.000	8.573	0.145	37.197	1.9	0.3	75.7	OK
3.002	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH14	MH15	8.850	7.369	0.166	66.516	2.6	0.28	137.4	OK
3.003	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH15	MH16	6.900	5.412	0.525	120.517	1.2	0.42	250.3	OK
3.004	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH16	MH7	6.000	5.228	0.675	308.803	1.7	1.3	604.6	Surcharged
4.000	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH17	MH18	9.550	8.194	0.254	63.530	1.7	0.63	137.8	OK
4.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH18	MH19	8.170	6.884	0.278	114.232	2.5	0.85	218.3	OK
4.002	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH19	MH16	6.700	5.391	0.450	143.692	2.3	0.41	260.6	OK
1.010	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH23	Basin 7	5.437	3.821	0.625	553.683	2.0	1.09	865.8	OK
1.011	FEH: 30 years: +35 %: 1440 mins: Winter	Pipe	Basin 7	MH28	5.450	3.777	0.063	834.783	0.7	0.09	7.1	Surcharged
1.012	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH28	MH29	5.293	3.015	0.063	5.948	0.7	0.09	7.1	OK
1.013	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH29	MH30	4.284	2.579	0.099	5.309	0.7	0.09	7.1	OK
5.001	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH25	MH26	6.100	4.811	0.169	36.716	1.9	0.74	78.1	OK
5.002	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH26	MH27	5.700	4.327	0.130	36.687	2.6	0.31	76.0	OK
5.003	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH27	Basin 7	5.690	3.704	0.125	36.561	2.7	0.32	74.4	OK
Pipe	FEH: 30 years: +35 %: 15 mins: Summer	Pipe	MH20	MH23	5.400	4.607	0.700	563.952	1.9	1.06	905.3	OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT		Date: 23/11/2023			
Report Details: Type: Connections Summary Storm Phase: Phase		Designed by: Sufyyan Raja	Checked by:		Approved By:
		WSP UK LTD: 8 First Street Manchester M154GU			



FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
1.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH3	MH4	12.822	11.582	0.321	158.482	3.3	0.97	329.6	OK
1.003	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH4	MH5	10.402	9.134	0.375	157.844	3.0	0.96	327.3	OK
1.004	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH5	MH6	8.545	7.538	0.450	213.897	2.3	0.66	360.3	Surcharged
1.005	FEH: 100 years: +40 %: 15 mins: Winter	Pipe	MH6	MH7	7.257	6.692	0.450	256.593	2.8	0.86	441.0	Surcharged
1.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH1	MH2	15.730	14.557	0.296	86.840	2.6	0.97	182.8	Surcharged
1.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH2	MH3	14.342	13.108	0.263	86.589	2.8	0.97	181.4	OK
1.006	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH7	MH20	5.977	5.685	0.675	755.342	3.2	2.46	1141.4	Flood Risk
5.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH24	MH25	7.180	5.791	0.189	24.517	1.2	0.29	55.4	OK
2.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH8	MH9	8.404	7.039	0.131	22.563	1.7	0.38	50.5	OK
2.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH9	MH10	7.894	6.521	0.231	22.421	0.8	0.39	48.5	OK
2.002	FEH: 100 years: +40 %: 15 mins: Winter	Pipe	MH10	MH11	7.255	6.039	0.300	42.126	1.1	0.62	76.4	OK
2.003	FEH: 100 years: +40 %: 15 mins: Winter	Pipe	MH11	MH7	6.532	5.923	0.300	64.097	1.3	0.79	93.0	Surcharged
1.014	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH30	MH31	4.200	2.605	0.140	45.732	2.8	0.41	89.7	OK
3.000	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH12	MH13	11.200	9.799	0.099	14.478	1.6	0.23	31.7	OK

West Winch Housing Access Road - 70100518: Catchment 7 Surface Water Calculations 70100518-WSP-HDG-WW-CA-CD-007-DRAFT				Date: 23/11/2023							
Report Details: Type: Connections Summary Storm Phase: Phase				Designed by: Sufyyan Raja	Checked by:	Approved By:					
				WSP UK LTD: 8 First Street Manchester M154GU							

3.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH13	MH14	10.000	8.599	0.170	49.563	2.1	0.4	100.3	OK
3.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH14	MH15	8.850	7.390	0.432	87.757	1.8	0.38	189.7	OK
3.003	FEH: 100 years: +40 %: 15 mins: Winter	Pipe	MH15	MH16	6.900	5.678	0.525	161.660	1.3	0.47	284.5	OK
3.004	FEH: 100 years: +40 %: 30 mins: Summer	Pipe	MH16	MH7	6.000	5.737	0.675	544.372	1.7	1.28	596.8	Flood Risk
4.000	FEH: 100 years: +40 %: 15 mins: Winter	Pipe	MH17	MH18	9.550	8.234	0.375	84.049	1.6	0.79	173.8	OK
4.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH18	MH19	8.170	7.910	0.375	151.634	2.4	1.03	264.8	Flood Risk
4.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH19	MH16	6.700	6.128	0.450	191.690	2.1	0.52	329.8	Surcharged
1.010	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH23	Basin 7	5.437	3.995	0.755	734.592	2.3	1.46	1161.3	Surcharged
1.011	FEH: 100 years: +40 %: 1440 mins: Winter	Pipe	Basin 7	MH28	5.450	4.029	0.063	973.935	0.7	0.09	7.1	Surcharged
1.012	FEH: 100 years: +40 %: 1440 mins: Winter	Pipe	MH28	MH29	5.293	3.015	0.063	973.387	0.7	0.09	7.1	OK
1.013	FEH: 100 years: +40 %: 1440 mins: Summer	Pipe	MH29	MH30	4.284	2.568	0.063	973.138	0.7	0.09	7.1	OK
5.001	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH25	MH26	6.100	4.867	0.209	48.932	2.0	0.98	103.1	OK
5.002	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH26	MH27	5.700	4.351	0.155	48.901	2.7	0.41	100.7	OK
5.003	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH27	Basin 7	5.690	3.730	0.163	48.730	2.8	0.43	98.8	OK
Pipe	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	MH20	MH23	5.400	5.232	0.825	752.685	2.2	1.35	1156.7	Flood Risk

