

Ramboll UK Ltd		Page 1
240 Blackfriars Road London SE1 8NW		
Date 19/08/2020 14:50 File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Designed by CLEIG Checked by CLEIGH	

Micro Drainage	Network 2019.1
----------------	----------------

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	19.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	0.900
Ratio R	0.350	PIMP (%)	100	Min Vel for Auto Design only (m/s)	0.75
Maximum Rainfall (mm/hr)	50	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	68.802	0.344	200.0	0.060	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	57.114	0.381	150.0	0.249	0.00	0.0	0.600	o	450	Pipe/Conduit	
2.000	26.224	0.175	150.0	0.032	4.00	0.0	0.600	o	300	Pipe/Conduit	
2.001	31.099	0.400	77.7	0.127	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	44.85	6.03	1.850	0.060	0.0	0.0	0.0	1.11	78.3	7.3
1.001	43.02	6.61	1.356	0.309	0.0	0.0	0.0	1.66	263.6	36.0
2.000	50.00	4.34	1.700	0.032	0.0	0.0	0.0	1.28	90.6	4.3
2.001	50.00	4.63	1.500	0.159	0.0	0.0	0.0	1.78	126.2	21.5

Ramboll UK Ltd		Page 2
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.002	18.127	0.036	503.5	0.183	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.003	39.039	0.078	500.0	0.036	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.004	21.068	0.042	500.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.005	9.624	0.010	1000.0	0.200	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.006	12.875	0.013	990.4	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.007	89.540	0.190	471.3	0.048	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.008	49.597	0.109	455.0	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.009	7.201	0.022	327.3	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

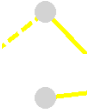
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.002	42.19	6.89	0.800	0.651	0.0	0.0	0.0	1.08	304.9	74.4
1.003	40.53	7.49	0.764	0.687	0.0	0.0	0.0	1.08	306.0	75.4
1.004	39.69	7.81	0.686	0.687	0.0	0.0	0.0	1.08	306.0	75.4
1.005	39.17	8.03	0.644	0.887	0.0	0.0	0.0	0.76	215.4	94.1
1.006	38.37	8.36	0.784	0.887	0.0	0.0	0.0	0.64	101.4	94.1
1.007	35.54	9.70	0.621	0.935	0.0	0.0	0.0	1.12	315.3	94.1
1.008	34.19	10.43	0.431	0.935	0.0	0.0	0.0	1.14	320.9	94.1
1.009	33.98	10.55	0.322	0.935	0.0	0.0	0.0	1.00	110.0	94.1

Ramboll UK Ltd		Page 3
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	

Micro Drainage	Network 2019.1
----------------	----------------

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
1	3.050	1.200	Open Manhole	1200	1.000	1.850	300				
2	2.830	1.474	Open Manhole	1350	1.001	1.356	450	1.000	1.506	300	
10	3.000	1.300	Open Manhole	1200	2.000	1.700	300				
11	2.950	1.450	Open Manhole	1200	2.001	1.500	300	2.000	1.525	300	25
3	2.830	2.030	Open Manhole	1500	1.002	0.800	600	1.001	0.975	450	25
								2.001	1.100	300	
4	2.750	1.986	Open Manhole	1500	1.003	0.764	600	1.002	0.764	600	
5	2.750	2.064	Open Manhole	1500	1.004	0.686	600	1.003	0.686	600	
6	2.830	2.186	Open Manhole	1500	1.005	0.644	600	1.004	0.644	600	
POND	2.900	2.266	Open Manhole	1500	1.006	0.784	450	1.005	0.634	600	
7	2.830	2.209	Open Manhole	1500	1.007	0.621	600	1.006	0.771	450	
8	2.500	2.069	Open Manhole	1500	1.008	0.431	600	1.007	0.431	600	
9	2.500	2.178	Open Manhole	1500	1.009	0.322	375	1.008	0.322	600	
Outfall	2.500	2.200	Open Manhole	0		OUTFALL		1.009	0.300	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
1	494142.380	101655.234	494142.380	101655.234	Required	
2	494196.552	101697.649	494196.552	101697.649	Required	
10	494189.016	101631.412	494189.016	101631.412	Required	

Ramboll UK Ltd		Page 4
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	

Micro Drainage	Network 2019.1
----------------	----------------

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
11	494215.062	101634.470	494215.062	101634.470	Required	
3	494236.588	101656.916	494236.588	101656.916	Required	
4	494249.690	101669.443	494249.690	101669.443	Required	
5	494277.527	101642.073	494277.527	101642.073	Required	
6	494262.449	101627.359	494262.449	101627.359	Required	
POND	494261.743	101617.761	494261.743	101617.761	Required	
7	494274.301	101614.920	494274.301	101614.920	Required	
8	494336.779	101679.059	494336.779	101679.059	Required	
9	494368.535	101717.156	494368.535	101717.156	Required	
Outfall	494373.015	101722.794			No Entry	

Ramboll UK Ltd		Page 5
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.060	0.060	0.060
1.001	-	-	100	0.249	0.249	0.249
2.000	-	-	100	0.032	0.032	0.032
2.001	-	-	100	0.127	0.127	0.127
1.002	-	-	100	0.183	0.183	0.183
1.003	-	-	100	0.036	0.036	0.036
1.004	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.200	0.200	0.200
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.048	0.048	0.048
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.935	0.935	0.935

Surcharged Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
---------------------	--------------	--------------	--------------	------------------	----------	--------

1.009 Outfall 2.500 0.300 0.000 0 0

Datum (m) 0.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
60	1.000	180	1.000	300	1.000	420	1.000	540	1.000	660	1.000	780	1.000	900	1.000	1020	1.000
120	1.000	240	1.000	360	1.000	480	1.000	600	1.000	720	1.000	840	1.000	960	1.000	1080	1.000
																1200	1.000
																1320	1.000
																1440	1.000

Ramboll UK Ltd		Page 6
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

Online Controls for Storm

Orifice Manhole: 7, DS/PN: 1.007, Volume (m³): 5.7

Diameter (m) 0.075 Discharge Coefficient 0.600 Invert Level (m) 0.771

Hydro-Brake® Optimum Manhole: 9, DS/PN: 1.009, Volume (m³): 17.4

Unit Reference	MD-SHE-0079-3700-1950-3700	Sump Available	Yes
Design Head (m)	1.950	Diameter (mm)	79
Design Flow (l/s)	3.7	Invert Level (m)	0.322
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	100
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.950	3.7	Kick-Flo®	0.702	2.3
Flush-Flo™	0.343	2.9	Mean Flow over Head Range	-	2.9

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.3	0.600	2.7	1.600	3.4	2.600	4.2	5.000	5.7	7.500	7.0
0.200	2.7	0.800	2.5	1.800	3.6	3.000	4.5	5.500	6.0	8.000	7.2
0.300	2.9	1.000	2.7	2.000	3.7	3.500	4.9	6.000	6.3	8.500	7.4
0.400	2.9	1.200	3.0	2.200	3.9	4.000	5.2	6.500	6.5	9.000	7.6
0.500	2.8	1.400	3.2	2.400	4.1	4.500	5.5	7.000	6.7	9.500	7.8

Ramboll UK Ltd		Page 7
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

Storage Structures for Storm

Tank or Pond Manhole: POND, DS/PN: 1.006

Invert Level (m) 0.784

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	184.0	1.050	389.0	2.100	630.0

Ramboll UK Ltd		Page 8
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	

Micro Drainage Network 2019.1

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 150.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 40, 40

PN	US/MH		Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume	Flow / Overflow		Pipe Flow	Status	Level Exceeded
	Name	Storm							(m)	(m)	(m ³)	Cap.	(1/s)	(1/s)		
1.000	1	15 Winter	1	+0%	30/960 Winter				1.914	-0.236	0.000	0.10		7.6	OK	
1.001	2	15 Winter	1	+0%	30/120 Winter				1.468	-0.338	0.000	0.14		33.5	OK	
2.000	10	15 Winter	1	+0%	30/360 Winter				1.744	-0.256	0.000	0.05		4.3	OK	
2.001	11	15 Winter	1	+0%	30/120 Winter				1.579	-0.221	0.000	0.15		17.8	OK	
1.002	3	1440 Winter	1	+0%	30/15 Summer				1.281	-0.119	0.000	0.03		5.3	OK	
1.003	4	1440 Winter	1	+0%	30/15 Summer				1.281	-0.083	0.000	0.02		5.3	OK	
1.004	5	1440 Winter	1	+0%	30/15 Summer				1.280	-0.006	0.000	0.02		4.8	OK	
1.005	6	1440 Winter	1	+0%	1/960 Winter				1.277	0.033	0.000	0.04		6.2	SURCHARGED	
1.006	POND	1440 Winter	1	+0%	1/960 Winter				1.276	0.042	0.000	0.19		12.2	SURCHARGED	
1.007	7	1440 Winter	1	+0%	1/480 Winter				1.291	0.070	0.000	0.01		2.8	SURCHARGED	

Ramboll UK Ltd		Page 9
240 Blackfriars Road London SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

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

									Water	Surcharged	Flooded	Pipe				
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Level Exceeded
1.008	8 1440	Winter	1	+0%	1/120	Winter			1.186	0.155	0.000	0.01		3.3	SURCHARGED	
1.009	9 1440	Winter	1	+0%	1/60	Summer			1.186	0.489	0.000	0.04		2.9	SURCHARGED	

Ramboll UK Ltd		Page 10
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	

Micro Drainage Network 2019.1

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 150.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 40, 40

PN	US/MH		Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume	Flow / Overflow		Pipe Flow	Status	Level Exceeded
	Name	Storm							(m)	(m)	(m ³)	Cap.	(l/s)	(l/s)		
1.000	1	1440 Winter	30	+40%	30/960 Winter				2.260	0.110	0.000	0.02		1.4	SURCHARGED	
1.001	2	1440 Winter	30	+40%	30/120 Winter				2.260	0.454	0.000	0.03		7.1	SURCHARGED	
2.000	10	1440 Winter	30	+40%	30/360 Winter				2.261	0.261	0.000	0.01		0.7	SURCHARGED	
2.001	11	1440 Winter	30	+40%	30/120 Winter				2.261	0.461	0.000	0.03		3.5	SURCHARGED	
1.002	3	1440 Winter	30	+40%	30/15 Summer				2.260	0.860	0.000	0.07		14.3	SURCHARGED	
1.003	4	1440 Winter	30	+40%	30/15 Summer				2.260	0.896	0.000	0.06		14.9	SURCHARGED	
1.004	5	1440 Winter	30	+40%	30/15 Summer				2.260	0.974	0.000	0.07		14.8	SURCHARGED	
1.005	6	1440 Winter	30	+40%	1/960 Winter				2.259	1.016	0.000	0.13		19.2	SURCHARGED	
1.006	POND	1440 Winter	30	+40%	1/960 Winter				2.259	1.025	0.000	0.07		4.7	SURCHARGED	
1.007	7	1440 Winter	30	+40%	1/480 Winter				2.274	1.053	0.000	0.01		3.6	SURCHARGED	

Ramboll UK Ltd		Page 11
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

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

US/MH			Return Climate		First (X)	First (Y)	First (Z)	Overflow	Water	Surcharged	Flooded	Pipe		Level	
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level	Depth	Volume	Flow /	Overflow	Flow	Status
									(m)	(m)	(m³)	Cap.	(l/s)	(l/s)	Exceeded
1.008	8 1440 Winter		30	+40%	1/120 Winter				2.159	1.128	0.000	0.01		3.6	SURCHARGED
1.009	9 1440 Winter		30	+40%	1/60 Summer				2.159	1.462	0.000	0.05		3.6	SURCHARGED

Ramboll UK Ltd		Page 12
240 Blackfriars Road		
London		
SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 150.0 DVD Status ON
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 40, 40

PN	US/MH		Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth	Flooded Volume	Flow / Overflow		Pipe Flow	Status	Level Exceeded
	Name	Storm							(m)	(m)	(m ³)	Cap.	(l/s)	(l/s)		
1.000	1	1440 Winter	100	+40%	30/960 Winter				2.596	0.446	0.000	0.02		1.8	SURCHARGED	
1.001	2	1440 Winter	100	+40%	30/120 Winter				2.596	0.790	0.000	0.04		8.9	SURCHARGED	
2.000	10	1440 Winter	100	+40%	30/360 Winter				2.597	0.597	0.000	0.01		0.9	SURCHARGED	
2.001	11	1440 Winter	100	+40%	30/120 Winter				2.597	0.797	0.000	0.04		4.4	SURCHARGED	
1.002	3	1440 Winter	100	+40%	30/15 Summer				2.596	1.196	0.000	0.09		18.0	SURCHARGED	
1.003	4	1440 Winter	100	+40%	30/15 Summer				2.596	1.232	0.000	0.07		19.0	SURCHARGED	
1.004	5	1440 Winter	100	+40%	30/15 Summer				2.596	1.310	0.000	0.09		18.9	SURCHARGED	
1.005	6	1440 Winter	100	+40%	1/960 Winter				2.595	1.352	0.000	0.16		24.6	SURCHARGED	
1.006	POND	1440 Winter	100	+40%	1/960 Winter				2.595	1.361	0.000	0.08		4.9	SURCHARGED	
1.007	7	1440 Winter	100	+40%	1/480 Winter				2.624	1.403	0.000	0.01		3.8	SURCHARGED	

Ramboll UK Ltd		Page 13
240 Blackfriars Road London SE1 8NW		
Date 19/08/2020 14:50	Designed by CLEIG	
File Oldlands Farm - Phase 1A - LIDL Site - Surcharg...	Checked by CLEIGH	
Micro Drainage	Network 2019.1	

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

									Water	Surcharged	Flooded	Pipe				
PN	US/MH			Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume	Flow /	Overflow	Flow	Level
	Name	Storm		Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)	Cap.	(l/s)	(l/s)	Status Exceeded
1.008	8	1440 Winter		100	+40%	1/120 Winter				2.483	1.452	0.000	0.01		3.8	FLOOD RISK
1.009	9	1440 Winter		100	+40%	1/60 Summer				2.483	1.786	0.000	0.05		3.7	FLOOD RISK