

TAYLOR WIMPEY SOUTH THAMES

KILNWOOD VALE - PHASE 3 DFG

PROPOSED DRAINAGE STRATEGY

**REPORT REF.
2509520-01**

December 2025

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1.0 Introduction

1.1 Ardent Consulting Engineers (hereafter referred to as Ardent) have been appointed by Taylor Wimpey South Thames to provide information on the drainage strategy to support a section 73 submission for Phase 3 DFG of the Kilnwood Vale Masterplan, specifically for land at Kilnwood Vale, Horsham, West Sussex, RH12 0DE, hereby known as 'Site'.

1.2 The Section 73 Application is pursuant to reserved matters planning permission reference DC/23/0856. This drainage strategy seeks to provide evidence that revised site plan has negligible impact on the overall strategy:

The strategy shall also include:

- *Details of how the sustainable drainage management train will be incorporated including several water treatment stages*
- *Details of how the drainage from the phase or part phase will discharge into the watercourse as proposed in section 15.3 of the approved Flood Risk Assessment (FRA) dated July 2010 (SLR Ref: 403-00404-00027).*
- *Consideration of pollution prevention measures to protect watercourses and groundwater*
- *Confirmation that there will be no discharge to ground in areas affected by contamination*
- *Demonstration that the scheme complies with Advice Note 6 'Potential Bird Hazards from Sustainable Urban Drainage Schemes (SUDS)'.*
- *Demonstration that flows through railway culverts will be restricted to pre-development rates or less.*

The development shall be carried out in accordance with the details and any timings of the approved scheme. Any subsequent amendments shall be agreed in writing with the Local Planning Authority.

Reason: To prevent the increased risk of flooding and ensure a management train is incorporated as agreed to improve and protect water quality, improve habitat and amenity, and ensure future maintenance of the drainage system. This planning condition is necessary to ensure the development complies with

the principles of the NPPF and Policy 38 of the Horsham District Planning Framework (2015).

- 1.3 This briefing note constitutes an addendum to the Flood Risk Assessment produced by Global Environmental Solutions (report ref: 403.00404.00027 dated July 2010). The following sections outline the existing site characteristics, flood risk environment, proposed surface water drainage strategy and the intended Sustainable Drainage System (SuDS) management and maintenance regime.
- 1.4 This briefing note is to be read in conjunction with Ardent Consulting Engineers' drawing 2509520-ACE-XX-XX-DR-C-0005-0006 entitled *Main Drainage General Arrangement* which can be found in **Appendix A**.

2.0 Existing Site

- 2.1. This development is within Phase 3 of land on the north-western edge of the wider Kilnwood Vale Masterplan. The reserved land parcels were originally kept free of residential development in order to be utilised for Site access to the prior phases of construction towards the South. The Site is now ready for construction due to impending completion of prior phases.
- 2.2. The site of the wider development incorporates multiple land usages; greenfield, former inert landfill and an active construction waste recycling facility.
- 2.3. In terms of the Site's topography, existing levels fall from approximately 91.45mAOD in the south-western boundary, to 73.22mAOD to the north-east of the site.
- 2.4. The Site is shown on British Geological mapping to be underlain by bedrock of the Weald Clay Formation – mudstone. A Land Contamination Assessment was undertaken by ST Environmental in November 2017 (ref: J13115) for the entire site which confirmed that the soil has poor drainage characteristics and therefore infiltration would not be viable due to the clay geology.

- 2.5. Prior to the Kilnwood Vale masterplan, there were no existing drainage networks at the Site. However, surface water runoff from the entirety of Site will now be conveyed to one of several attenuation basins, before being discharged from the basins at greenfield run-off rates. **Figure 2-1** shows the Overall Drainage Constraints plan for the specific Phase 3 DFG.



Figure 2-1: Drainage Constraints Plan for Site

3.0 Proposed Development

- 3.1. The proposed Phase 3 (land parcels DFG) development consists of 182 residential units, with associated access roads, car parking and open space. The site is 4.2 ha. A plan of the proposed area subject to the section 73 submission (red) is shown in **Figure 3-1** and included in **Appendix B**.



Figure 3-1: Proposed Site Layout

4.0 Surface Water Drainage Strategy

- 4.1. Based on the principles set out in the previously approved drainage strategy, Ardent have updated the on-site surface water drainage strategy which follows the SuDS Management Train philosophy. The updated Drainage Strategy has increased the area of permeable paving by 149m².
- 4.2. The positive system will be offered to Thames Water for adoption.
- 4.3. The flow from Phase 3 will be conveyed to strategic 'Pond S1' via manholes S205 and S215 to then be discharged into the adjacent ditch, as detailed

in Campbell Reith's Overall Drainage Constraints Plan '11950-3DEFG-CD100' Rev. P1.

- 4.4. The system will be unrestricted in line with the approved FRA and there will be no requirement for offline storage to deal with the 1 in 100-year plus 40% climate change event to suit Sewers for Adoption requirements; the network will be conveying a flow from all designed storm events to Pond S1. The surface water drainage calculations can be found within **Appendix C**. The Proposed Overall Drainage Constraints Plan is included in **Appendix D**

Urbanisation

- 4.5. The proposed impermeable areas within each catchment have incorporated a 10% uplift to account for 'urban creep' over the lifetime of the development.

Water Quality

- 4.6. Permeable pavement has been incorporated within the Phase 3 Drainage Strategy. As identified in "SuDS for Roads" - Scotland, permeable paving provides two stages of treatment, firstly within the grit layer and geotextile which the blocks are bedded on, and secondly, the underlying gravel media comprising washed, no-fines material of adequate depth, i.e. 0.5m from the surface to base of the system.
- 4.7. Shown below are three tables which form part of the CIRIA C753 Simple Index Treatment Method and highlight the improvement in water quality the designed SuDS methods deliver. The benchmark classification data for the development is shown in **Table 1** which is then compared to the SuDS mitigation indices displayed in **Table 2**.
- 4.8. As seen within the comparison in **Table 3**, the quality of water discharging from the site has been improved by the use of the proposed SuDS methods.

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

Table 1: Pollution hazard indices for different land use classifications (land use in bold applicable for the development).

Type of SuDS component	Mitigation indices		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bio retention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Table 2: Indicative SuDS mitigation indices for discharges to surface waters
(bold text is applicable to this development)

For surface water discharge from Residential Parking Areas and Low Traffic Roads <300 traffic movements/day			
	Required mitigation indices		
Source	TSS	Metals	Hydrocarbons
Medium	0.5	0.4	0.4
Type of SuDS component provided			
Permeable Pavement	0.7	0.6	0.7
Check	+0.2	+0.2	+0.3

Table 3: SuDS mitigation indices provided

- 4.9. Tanked/lined permeable pavement is to be used to protect watercourses and groundwater receptors from pollution. In addition, no infiltration SuDS techniques will be used in areas affected by contamination to reduce the risk of mobilising contaminants.

SuDS Management and Maintenance

- 4.10. The maintenance of all SuDS components will be in accordance with best practice and the CIRIA C753 publication "The SuDS Manual". The recommended operation and maintenance requirements for the proposed permeable paving are provided in
- 4.11. Table 4 below.
- 4.12. A private management company will be appointed to maintain the unadopted elements of the surface water drainage network, including the permeable paving, tank and flow control.

Maintenance Issues	Failure of components, blockage from debris	
Maintenance Period	Maintenance Task	Frequency
Regular	Inspect and identify any elements that are not operating correctly.	Monthly for three months, then six monthly
	Brush surface and remove sweepings from all hard surfaces	Monthly or as required
	Remove weeds from surface of permeable paving	As necessary, inspect regularly
	Remove sediment/debris from catchpits/gullies and control structures.	Annually, after severe storms or as required
Occasional Tasks	Sweep and suction brush surface in autumn after leaf fall	Annually or as required

	Brush and vacuum surface to prevent silt blockage and enhance design life	Annually
	Remove sediment/debris from catchpits/gullies and control structures.	Annually, after severe storms or as required
	Remove covers of inspection chambers and control chamber and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt	Annually
Remedial Work	Repair inlets, outlets, vents, overflows and control structures.	As required
	Repair physical damage if necessary	As required
Monitoring	Inspect all inlets, outlets, vents, overflows and control structures to ensure they are in good condition and operating as designed.	Annually or after severe Storms

Table 4: SuDS Operation and Maintenance requirements

5.0 Foul Water Drainage

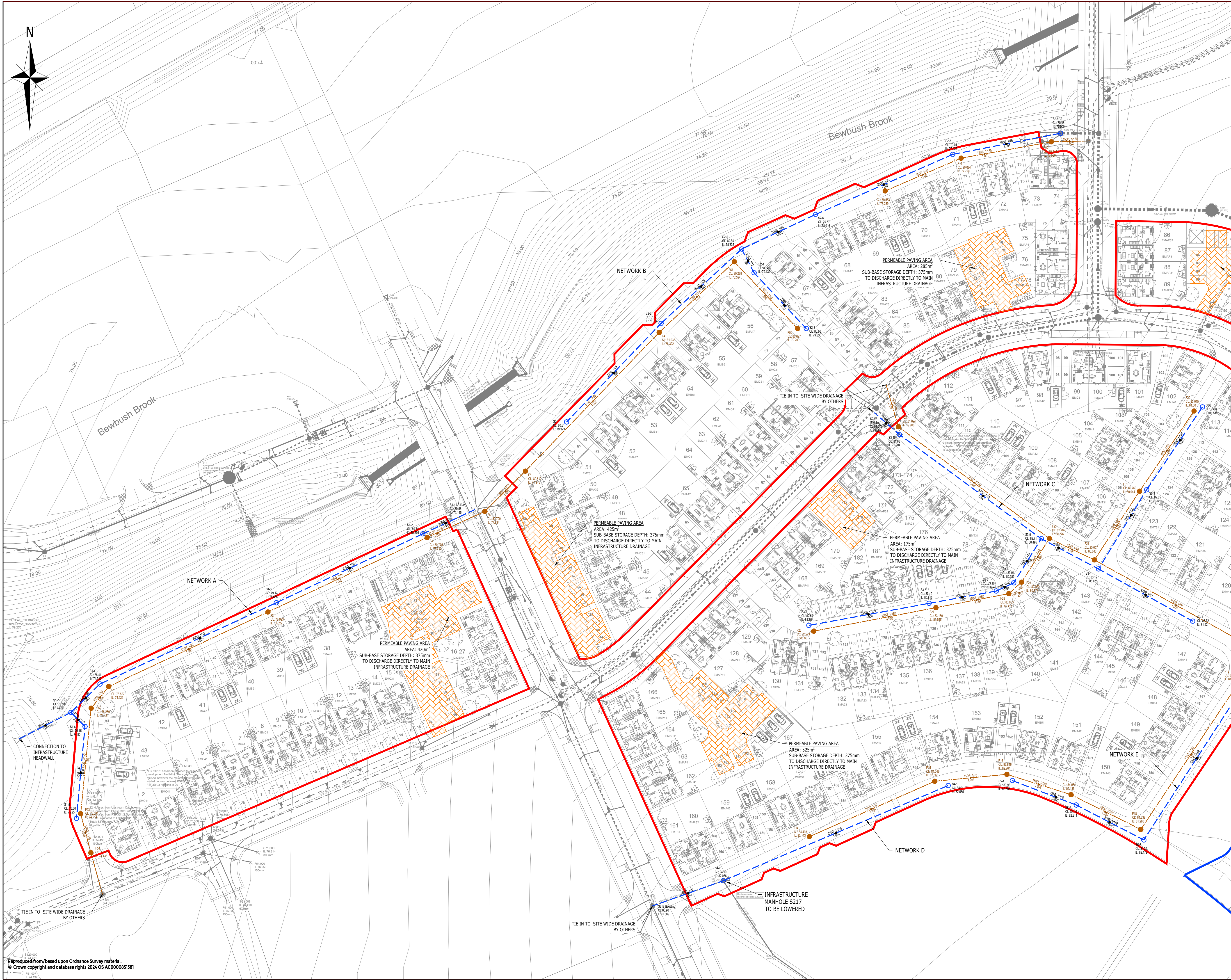
- 5.1. Foul flows from the 182no. residential units in Phase 3 (DFG) utilises the pre-constructed foul network to convey foul sewerage across the Site to outlet points at manholes F60.002 and F104, in line with Campbell Reith's Phase 3 DFG Overall Drainage Constraints Plan 11950-3DEFG-CD100, Rev. P1. Besides a portion of 3D1, every land parcel will discharge to Manhole 60.002. This provides no change to the number of units from the previous strategy.
- 5.2. The proposed foul water design can be found on ACE's *Main Drainage General Arrangement* (2509520-ACE-XX-XX-DR-C-0005-0006) which can be found in **Appendix A**.

6.0 Conclusions

- 6.1 Surface water runoff from Phase 3 (DFG) will be conveyed unrestricted to Pond S1 via a piped sewer network. The network will discharge freely into Pond S1 during all return events up to and including the 1 in 100 year plus 40% climate change event in line with the approved FRA aforementioned.
- 6.2 Tanked/lined permeable pavement is included within the Phase 3 (DEFG) surface water strategy, providing two levels of treatment to protect watercourses and groundwater receptors from pollution.
- 6.3 Foul flows from the 182no. units in Phase 3 (DFG) will be conveyed unrestricted to Manholes F60.002 and F104; a majority of the Site discharging to the former.

Appendix A

Preliminary Surface & Foul Water Drainage Strategy

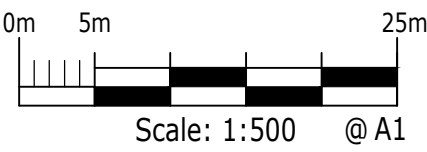
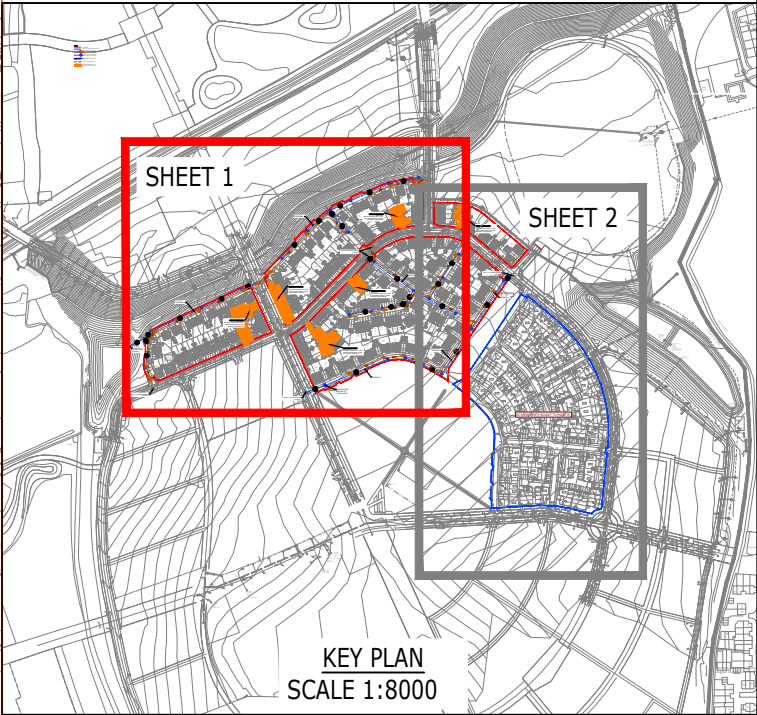


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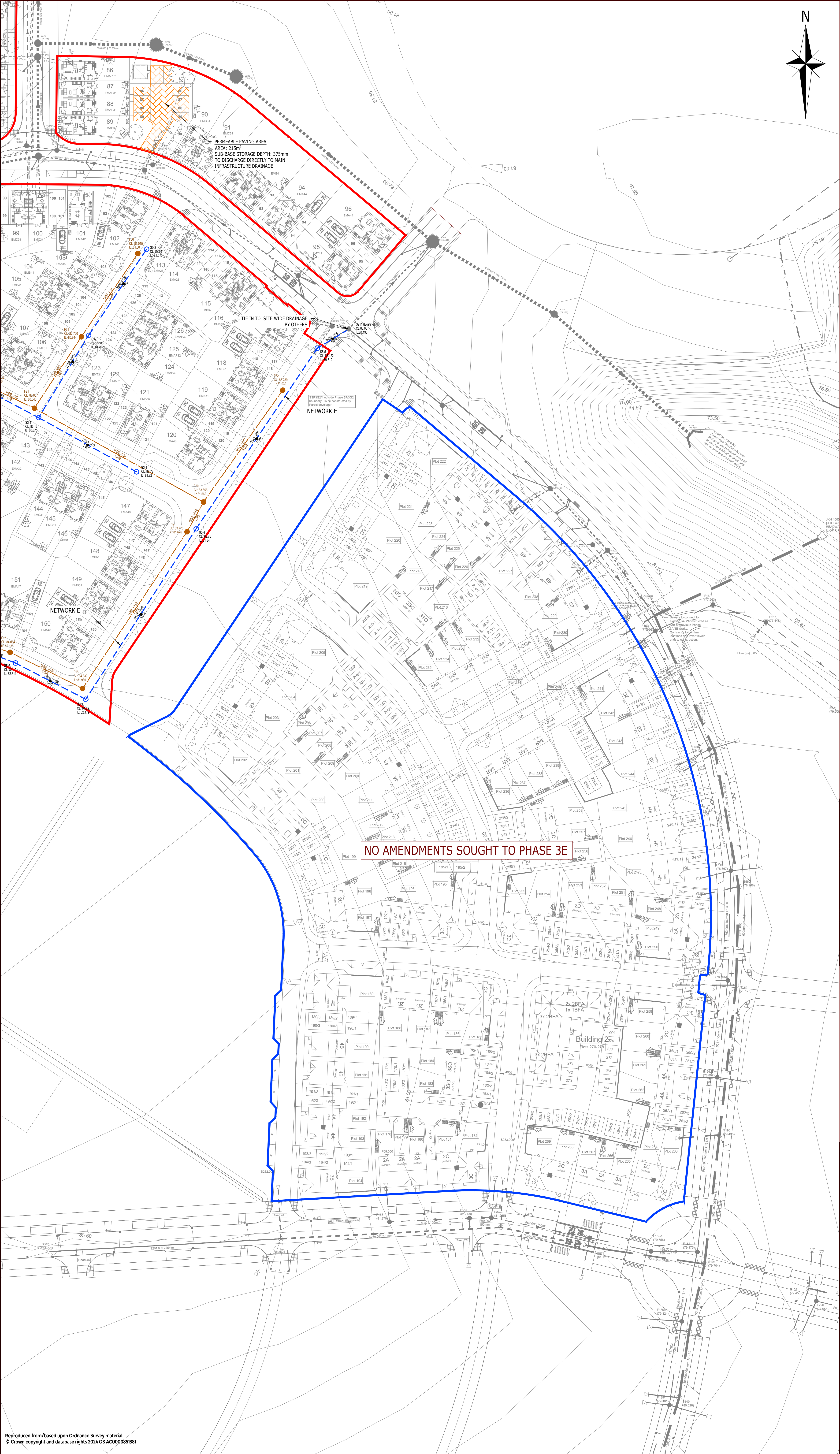
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LEGEND

- SITE BOUNDARY
- PHASE 3E - NO AMENDMENTS SOUGHT TO P
- PROPOSED ADOPTABLE FOUL WATER SEWER & MANHOLE (WITH MANHOLE REF. No.)
- PROPOSED ADOPTABLE SURFACE WATER SEWER & MANHOLE (WITH MANHOLE REF. No.)
- SITE WIDE SURFACE WATER DRAINAGE
- SITE WIDE FOUL WATER DRAINAGE
- PROPOSED PERMEABLE PAVING WITH GEO-CELLULAR SUB-BASE (95% VOIDS)

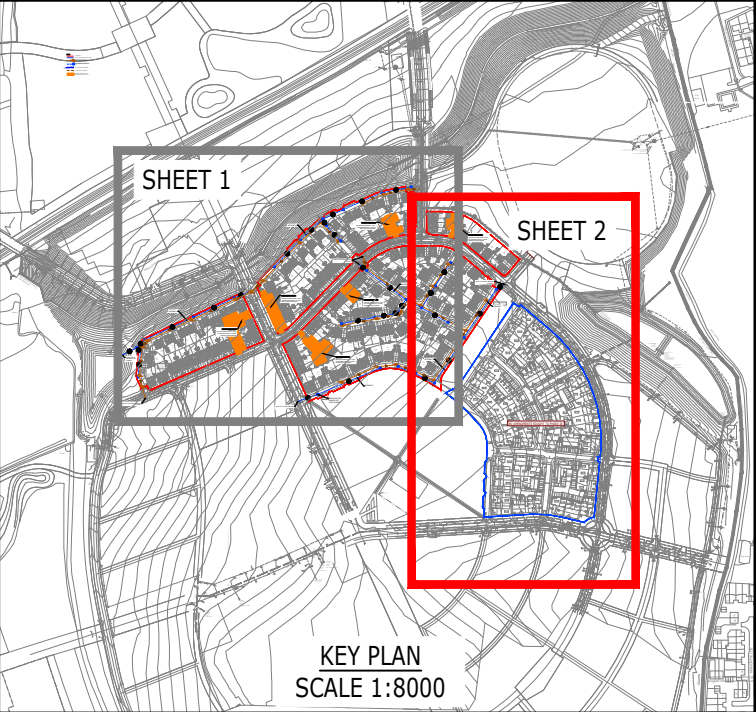


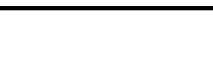
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TAYLOR WIMPEY SOUTH THAMES					
Project Title:					
KILNWOOD VALE, PHASE 3 DFG					
Drawing Title:					
MAIN DRAINAGE GENERAL ARRANGEMENT (SHEET 1 OF 2)					
Drawn by IL	Checked by MJR	Approved by MSL		Revision	
Scale 1:500@A1	Date 12.12.2025			-	
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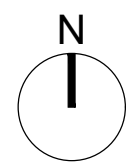
- LEGEND
- SITE BOUNDARY
 - PHASE 3E - NO AMENDMENTS SOUGHT TO PHASE 3E
 - PROPOSED ADOPTABLE FOUL WATER SEWER & MANHOLE (WITH MANHOLE REF. No.)
 - PROPOSED ADOPTABLE SURFACE WATER SEWER & MANHOLE (WITH MANHOLE REF. No.)
 - SITE WIDE SURFACE WATER DRAINAGE
 - SITE WIDE FOUL WATER DRAINAGE
 - PROPOSED PERMEABLE PAVING WITH GEO-CELLULAR SUB-BASE (95% VOIDS)



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Client					
TAYLOR WIMPEY SOUTH THAMES					
Project Title:					
KILNWOOD VALE, PHASE 3 DFG					
Drawing Title:					
MAIN DRAINAGE GENERAL ARRANGEMENT (SHEET 2 OF 2)					
Drawn by IL	Checked by MJR	Approved by MSL	Revision		
Scale 1:500@A1	Date 12.12.2025	-			
Drawing Number 25.09520-ACE-XX-XX-DR-C-0006					

Appendix B

Proposed Site Layout



D	10.12.25	Amendments to plots 115-116/ Parking 08-15, 58-64	CV	KE
C	05.12.25	Amendments to Phase 3E boundary colour		KB KE
B	02.12.25	Amendments in accordance with landscape		KB KE
A	28.11.25	Parking amended outside plots 44-49		KB KE
Rev	Date	Revision Details		Dr Ch



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Client's Name
Taylor Wimpey South Thames

Job Title
Phases 3D, 3F & 3G
Kilnwood Vale

Drawing Title
Coloured Site Layout

Scale
1:1000 @ A1 / 1:2000 @ A3
metres 20 40 60 80 100

Drawn KB
Checked KE
Date 26.11.25

Job No 7633
Drawing No PL-04
Rev D

Status
APPROVAL

Appendix C

MicroDrainage Surface Water Calculations

Ardent Consulting Engineers		Page 1
4th Floor, Diamond House 36-38 Hatton Garden London EC1N 8EB	Kilnwood Vale Phase 3DEFG NETWORK A	
Date 18/12/2025 13:37 File A.MDX	Designed by M Logan Checked by J Chinnock	
Micro Drainage	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

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	17.383	0.869	20.0	0.054	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	47.528	1.533	31.0	0.005	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	56.986	1.758	32.4	0.067	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	11.906	0.310	38.4	0.067	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	27.048	0.450	60.1	0.018	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	5.856	0.050	117.1	0.027	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.004	17.035	1.095	15.6	0.000	0.00	0.0	0.600	o	300	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)
1.000	50.00	5.10	79.145	0.054	0.0	0.0	0.0	2.94	116.9	9.7
1.001	50.00	5.43	78.276	0.059	0.0	0.0	0.0	2.36	93.8	10.7
1.002	50.00	5.78	76.668	0.126	0.0	0.0	0.0	2.77	195.9	22.7
1.003	50.00	5.86	74.910	0.193	0.0	0.0	0.0	2.54	179.9	34.8
2.000	50.00	5.35	75.250	0.018	0.0	0.0	0.0	1.30	23.0	3.2
2.001	50.00	5.45	74.800	0.045	0.0	0.0	0.0	0.93	16.4	8.1
1.004	50.00	5.93	74.600	0.238	0.0	0.0	0.0	4.01	283.2	43.0

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)
S1-1	80.560	1.415	Open Manhole	1200	1.000	79.145	225				
S1-2	80.740	2.464	Open Manhole	1200	1.001	78.276	225	1.000	78.276	225	
S1-3	79.120	2.452	Open Manhole	1200	1.002	76.668	300	1.001	76.743	225	
S1-4	76.410	1.500	Open Manhole	1200	1.003	74.910	300	1.002	74.910	300	
S1-5	76.600	1.350	Open Manhole	1200	2.000	75.250	150				
S1-6	76.150	1.350	Open Manhole	1200	2.001	74.800	150	2.000	74.800	150	
S1-7	76.100	1.500	Open Manhole	1200	1.004	74.600	300	1.003	74.600	300	
								2.001	74.750	150	
OUTFALL 1-1	75.500	1.995	Open Manhole	0		OUTFALL		1.004	73.505	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1-1	523465.418	135315.701	523465.418	135315.701	Required	
S1-2	523449.656	135308.372	523449.656	135308.372	Required	
S1-3	523406.647	135288.144	523406.647	135288.144	Required	
S1-4	523354.893	135264.293	523354.893	135264.293	Required	
S1-5	523347.993	135224.884	523347.993	135224.884	Required	
S1-6	523350.497	135251.815	523350.497	135251.815	Required	
S1-7	523346.374	135255.974	523346.374	135255.974	Required	
OUTFALL 1-1	523331.209	135248.215			No Entry	

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Ardent Consulting Engineers		Page 3
4th Floor, Diamond House 36-38 Hatton Garden London EC1N 8EB	Kilnwood Vale Phase 3DEFG NETWORK A	
Date 18/12/2025 13:37 File A.MDX	Designed by M Logan Checked by J Chinnock	
Micro Drainage	Network 2020.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	S1-1	80.560	79.145	1.190	Open Manhole	1200
1.001	o	225	S1-2	80.740	78.276	2.239	Open Manhole	1200
1.002	o	300	S1-3	79.120	76.668	2.152	Open Manhole	1200
1.003	o	300	S1-4	76.410	74.910	1.200	Open Manhole	1200
2.000	o	150	S1-5	76.600	75.250	1.200	Open Manhole	1200
2.001	o	150	S1-6	76.150	74.800	1.200	Open Manhole	1200
1.004	o	300	S1-7	76.100	74.600	1.200	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	17.383	20.0	S1-2	80.740	78.276	2.239	Open Manhole	1200
1.001	47.528	31.0	S1-3	79.120	76.743	2.152	Open Manhole	1200
1.002	56.986	32.4	S1-4	76.410	74.910	1.200	Open Manhole	1200
1.003	11.906	38.4	S1-7	76.100	74.600	1.200	Open Manhole	1200
2.000	27.048	60.1	S1-6	76.150	74.800	1.200	Open Manhole	1200
2.001	5.856	117.1	S1-7	76.100	74.750	1.200	Open Manhole	1200
1.004	17.035	15.6	OUTFALL 1-1	75.500	73.505	1.695	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.004	OUTFALL 1-1	75.500	73.505	0.000	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FEH	Summer Storms	Yes
Return Period (years)	100	Winter Storms	No
FEH Rainfall Version	2013	Cv (Summer)	1.000
Site Location GB 523702 135177 TQ 23702 35177		Cv (Winter)	0.840
Data Type		Point Storm Duration (mins)	30

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

										Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	
1.000	S1-1	15 Summer	2	+0%					79.194	-0.176	0.000	
1.001	S1-2	15 Summer	2	+0%					78.331	-0.170	0.000	
1.002	S1-3	15 Summer	2	+0%					76.739	-0.229	0.000	
1.003	S1-4	15 Summer	2	+0%	100/15 Summer				75.012	-0.198	0.000	
2.000	S1-5	15 Summer	2	+0%	100/15 Summer				75.291	-0.109	0.000	
2.001	S1-6	15 Summer	2	+0%	30/15 Summer				74.886	-0.064	0.000	
1.004	S1-7	15 Summer	2	+0%					74.686	-0.214	0.000	

				Half Drain	Pipe		
	US/MH	Flow /	Overflow	Time	Flow		Level
PN	Name	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded
1.000	S1-1	0.11			11.2	OK	
1.001	S1-2	0.13			12.0	OK	
1.002	S1-3	0.13			23.5	OK	
1.003	S1-4	0.25			34.9	OK	
2.000	S1-5	0.17			3.7	OK	
2.001	S1-6	0.61			8.3	OK	
1.004	S1-7	0.18			43.4	OK	

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Micro Drainage	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

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	40.076	0.534	75.0	0.062	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	32.183	0.429	75.0	0.054	0.00	0.0	0.600	o	300	Pipe/Conduit	
2.000	22.106	0.221	100.0	0.044	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.001	8.954	0.722	12.4	0.040	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	23.918	0.319	75.0	0.020	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	44.005	0.587	75.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	32.211	0.429	75.1	0.107	0.00	0.0	0.600	o	300	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)
1.000	50.00	5.44	79.373	0.062	0.0	0.0	0.0	1.51	60.1	11.2
1.001	50.00	5.74	78.764	0.116	0.0	0.0	0.0	1.82	128.5	20.9
2.000	50.00	5.28	79.335	0.044	0.0	0.0	0.0	1.31	52.0	7.9
2.001	50.00	5.32	79.132	0.084	0.0	0.0	0.0	3.74	148.6	15.2
1.002	50.00	5.96	78.335	0.220	0.0	0.0	0.0	1.82	128.5	39.7
1.003	50.00	6.36	78.016	0.220	0.0	0.0	0.0	1.82	128.5	39.7
1.004	50.00	6.66	77.429	0.327	0.0	0.0	0.0	1.82	128.4	59.0

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)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S2-1	80.810	1.437	Open Manhole	1200	1.000	79.373	225				
S2-2	81.500	2.736	Open Manhole	1200	1.001	78.764	300	1.000	78.839	225	
S2-3	80.860	1.525	Open Manhole	1200	2.000	79.335	225				
S2-4	80.400	1.286	Open Manhole	1200	2.001	79.132	225	2.000	79.114	225	
S2-5	80.340	2.005	Open Manhole	1200	1.002	78.335	300	1.001	78.335	300	
								2.001	78.410	225	
S2-6	79.570	1.554	Open Manhole	1200	1.003	78.016	300	1.002	78.016	300	
S2-7	79.940	2.511	Open Manhole	1200	1.004	77.429	300	1.003	77.429	300	
S2-8	80.480	3.480	Open Manhole	1200		OUTFALL		1.004	77.000	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S2-1	523491.848	135341.195	523491.848	135341.195	Required	
S2-2	523519.567	135370.139	523519.567	135370.139	Required	
S2-3	523560.627	135367.050	523560.627	135367.050	Required	
S2-4	523545.668	135383.327	523545.668	135383.327	Required	
S2-5	523543.237	135391.945	523543.237	135391.945	Required	
S2-6	523564.899	135402.084	523564.899	135402.084	Required	
S2-7	523605.204	135419.747	523605.204	135419.747	Required	
S2-8	523636.812	135425.950			No Entry	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	S2-1	80.810	79.373	1.212	Open Manhole	1200
1.001	o	300	S2-2	81.500	78.764	2.436	Open Manhole	1200
2.000	o	225	S2-3	80.860	79.335	1.300	Open Manhole	1200
2.001	o	225	S2-4	80.400	79.132	1.043	Open Manhole	1200
1.002	o	300	S2-5	80.340	78.335	1.705	Open Manhole	1200
1.003	o	300	S2-6	79.570	78.016	1.254	Open Manhole	1200
1.004	o	300	S2-7	79.940	77.429	2.211	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	40.076	75.0	S2-2	81.500	78.839	2.436	Open Manhole	1200
1.001	32.183	75.0	S2-5	80.340	78.335	1.705	Open Manhole	1200
2.000	22.106	100.0	S2-4	80.400	79.114	1.061	Open Manhole	1200
2.001	8.954	12.4	S2-5	80.340	78.410	1.705	Open Manhole	1200
1.002	23.918	75.0	S2-6	79.570	78.016	1.254	Open Manhole	1200
1.003	44.005	75.0	S2-7	79.940	77.429	2.211	Open Manhole	1200
1.004	32.211	75.1	S2-8	80.480	77.000	3.180	Open Manhole	1200

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.004	S2-8	80.480	77.000	0.000	1200	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FEH	Summer Storms	Yes
Return Period (years)	100	Winter Storms	No
FEH Rainfall Version	2013	Cv (Summer)	0.750
Site Location GB 523702 135177 TQ 23702 35177		Cv (Winter)	0.840
Data Type		Point Storm Duration (mins)	30

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

										Water	Surcharged	Flooded
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	
1.000	S2-1 15	Summer	2	+0%	100/15	Summer			79.445	-0.153	0.000	
1.001	S2-2 15	Summer	2	+0%	30/15	Summer			78.853	-0.211	0.000	
2.000	S2-3 15	Summer	2	+0%	100/15	Summer			79.402	-0.158	0.000	
2.001	S2-4 15	Summer	2	+0%	100/15	Summer			79.187	-0.170	0.000	
1.002	S2-5 15	Summer	2	+0%	30/15	Summer			78.461	-0.174	0.000	
1.003	S2-6 15	Summer	2	+0%	30/15	Summer			78.137	-0.179	0.000	
1.004	S2-7 15	Summer	2	+0%	30/15	Summer			77.580	-0.149	0.000	

				Half Drain	Pipe		
	US/MH	Flow /	Overflow	Time	Flow		Level
PN	Name	Cap.	(l/s)	(mins)	(l/s)	Status	Exceeded
1.000	S2-1	0.22			12.7	OK	
1.001	S2-2	0.19			22.0	OK	
2.000	S2-3	0.19			9.0	OK	
2.001	S2-4	0.13			15.9	OK	
1.002	S2-5	0.36			41.5	OK	
1.003	S2-6	0.34			41.2	OK	
1.004	S2-7	0.50			58.3	OK	

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

										Water	Surcharged	Flooded
	US/MH			Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Level	Depth	Volume
PN	Name	Storm		Period	Change	Surcharge	Flood	Overflow	Act.	(m)	(m)	(m³)
1.000	S2-1	15 Summer		30	+40%	100/15 Summer				79.513	-0.085	0.000
1.001	S2-2	15 Summer		30	+40%	30/15 Summer				79.281	0.217	0.000
2.000	S2-3	15 Summer		30	+40%	100/15 Summer				79.461	-0.099	0.000
2.001	S2-4	15 Summer		30	+40%	100/15 Summer				79.256	-0.101	0.000
1.002	S2-5	15 Summer		30	+40%	30/15 Summer				79.153	0.518	0.000
1.003	S2-6	15 Summer		30	+40%	30/15 Summer				78.806	0.490	0.000
1.004	S2-7	15 Summer		30	+40%	30/15 Summer				78.247	0.518	0.000

Half Drain Pipe

PN	US/MH		Flow / Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level
	Name	Cap.					Exceeded
1.000	S2-1	0.68			39.1	OK	
1.001	S2-2	0.59			69.4	SURCHARGED	
2.000	S2-3	0.59			28.0	OK	
2.001	S2-4	0.47			56.4	OK	
1.002	S2-5	1.04			118.9	SURCHARGED	
1.003	S2-6	0.99			119.5	SURCHARGED	
1.004	S2-7	1.45			170.3	SURCHARGED	

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

PN	US/MH		Return Period	Climate Change	First (X)		First (Y)		First (Z)		Water Level	Surcharged Depth	Flooded Volume
	Name	Storm			Surcharge	Flood	Overflow	Act.	Overflow	Act.	(m)	(m)	(m³)
1.000	S2-1	15 Summer	100	+40%	100/15	Summer					80.207	0.609	0.000
1.001	S2-2	15 Summer	100	+40%	30/15	Summer					79.934	0.870	0.000
2.000	S2-3	15 Summer	100	+40%	100/15	Summer					79.976	0.416	0.000
2.001	S2-4	15 Summer	100	+40%	100/15	Summer					79.898	0.541	0.000
1.002	S2-5	15 Summer	100	+40%	30/15	Summer					79.761	1.126	0.000
1.003	S2-6	15 Summer	100	+40%	30/15	Summer					79.306	0.990	0.000
1.004	S2-7	15 Summer	100	+40%	30/15	Summer					78.608	0.879	0.000

Half Drain Pipe

PN	US/MH		Flow / Overflow	Time	Flow	Status	Level
	Name	Cap.					Exceeded
1.000	S2-1	0.77			43.7	SURCHARGED	
1.001	S2-2	0.64			74.7	SURCHARGED	
2.000	S2-3	0.68			32.3	SURCHARGED	
2.001	S2-4	0.54			64.7	SURCHARGED	
1.002	S2-5	1.20			136.8	SURCHARGED	
1.003	S2-6	1.16			139.4	FLOOD RISK	
1.004	S2-7	1.72			202.4	SURCHARGED	

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Micro Drainage	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 523702 135177 TQ 23702 35177
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	1.000
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

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	31.596	0.970	32.6	0.088	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	29.329	0.293	100.1	0.038	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.001	27.173	0.272	99.9	0.077	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	18.994	0.305	62.3	0.017	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.000	35.847	0.212	169.1	0.053	5.00	0.0	0.600	o	225	Pipe/Conduit	
3.001	20.073	0.119	168.7	0.073	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.002	5.665	0.034	166.6	0.077	0.00	0.0	0.600	o	300	Pipe/Conduit	
3.003	15.263	0.090	169.6	0.029	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.002	51.653	1.291	40.0	0.065	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	I.Area (ha)	Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.23	81.920	0.088	0.0	0.0	0.0	2.30	91.5	15.9
2.000	50.00	5.37	81.515	0.038	0.0	0.0	0.0	1.31	52.0	6.9
2.001	50.00	5.72	81.222	0.115	0.0	0.0	0.0	1.31	52.0	20.8
1.001	50.00	5.88	80.875	0.220	0.0	0.0	0.0	2.00	141.1	39.7
3.000	50.00	5.60	81.100	0.053	0.0	0.0	0.0	1.00	39.9	9.6
3.001	50.00	5.87	80.813	0.126	0.0	0.0	0.0	1.21	85.4	22.7
3.002	50.00	5.95	80.694	0.203	0.0	0.0	0.0	1.22	85.9	36.7
3.003	50.00	6.13	80.585	0.232	0.0	0.0	0.0	1.39	153.3	41.9
1.002	50.00	6.43	80.495	0.517	0.0	0.0	0.0	2.87	317.2	93.3

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Micro Drainage	Network 2020.1	

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
1.003	10.408	0.512	20.3	0.099	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)
1.003	50.00	6.48	79.204	0.616	0.0	0.0	0.0	4.03	445.6	111.2

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Micro Drainage	Network 2020.1	

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)
S3-1	83.720	1.800	Open Manhole	1200	1.000	81.920	225				
S3-2	83.040	1.525	Open Manhole	1200	2.000	81.515	225				
S3-3	82.850	1.628	Open Manhole	1200	2.001	81.222	225	2.000	81.222	225	
S3-4	83.120	2.245	Open Manhole	1200	1.001	80.875	300	1.000	80.950	225	
								2.001	80.950	225	
S3-5	82.590	1.490	Open Manhole	1200	3.000	81.100	225				
S3-6	83.190	2.377	Open Manhole	1200	3.001	80.813	300	3.000	80.888	225	
S3-7	83.160	2.466	Open Manhole	1200	3.002	80.694	300	3.001	80.694	300	
S3-8	83.040	2.455	Open Manhole	1350	3.003	80.585	375	3.002	80.660	300	
S3-9	82.710	2.215	Open Manhole	1350	1.002	80.495	375	1.001	80.570	300	
								3.003	80.495	375	
S3-10	81.630	2.426	Open Manhole	1350	1.003	79.204	375	1.002	79.204	375	
S223	81.375	2.683	Open Manhole	0		OUTFALL		1.003	78.692	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S3-1	523675.598	135282.744	523675.598	135282.744	Required	
S3-2	523678.469	135345.601	523678.469	135345.601	Required	
S3-3	523662.087	135321.273	523662.087	135321.273	Required	
S3-4	523647.962	135298.060	523647.962	135298.060	Required	
S3-5	523562.957	135281.497	523562.957	135281.497	Required	
S3-6	523598.215	135287.966	523598.215	135287.966	Required	
S3-7	523617.958	135291.588	523617.958	135291.588	Required	
S3-8	523623.094	135293.980	523623.094	135293.980	Required	
S3-9	523631.168	135306.932	523631.168	135306.932	Required	
S3-10	523589.539	135337.511	523589.539	135337.511	Required	
S223	523581.679	135344.333			No Entry	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	S3-1	83.720	81.920	1.575	Open Manhole	1200
2.000	o	225	S3-2	83.040	81.515	1.300	Open Manhole	1200
2.001	o	225	S3-3	82.850	81.222	1.403	Open Manhole	1200
1.001	o	300	S3-4	83.120	80.875	1.945	Open Manhole	1200
3.000	o	225	S3-5	82.590	81.100	1.265	Open Manhole	1200
3.001	o	300	S3-6	83.190	80.813	2.077	Open Manhole	1200
3.002	o	300	S3-7	83.160	80.694	2.166	Open Manhole	1200
3.003	o	375	S3-8	83.040	80.585	2.080	Open Manhole	1350
1.002	o	375	S3-9	82.710	80.495	1.840	Open Manhole	1350
1.003	o	375	S3-10	81.630	79.204	2.051	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	31.596	32.6	S3-4	83.120	80.950	1.945	Open Manhole	1200
2.000	29.329	100.1	S3-3	82.850	81.222	1.403	Open Manhole	1200
2.001	27.173	99.9	S3-4	83.120	80.950	1.945	Open Manhole	1200
1.001	18.994	62.3	S3-9	82.710	80.570	1.840	Open Manhole	1350
3.000	35.847	169.1	S3-6	83.190	80.888	2.077	Open Manhole	1200
3.001	20.073	168.7	S3-7	83.160	80.694	2.166	Open Manhole	1200
3.002	5.665	166.6	S3-8	83.040	80.660	2.080	Open Manhole	1350
3.003	15.263	169.6	S3-9	82.710	80.495	1.840	Open Manhole	1350
1.002	51.653	40.0	S3-10	81.630	79.204	2.051	Open Manhole	1350
1.003	10.408	20.3	S223	81.375	78.692	2.308	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
1.003	S223	81.375	78.692	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

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

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STORM SEWER DESIGN by the Modified Rational Method

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	71.710	0.424	169.1	0.084	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	21.962	0.697	31.5	0.097	0.00	0.0	0.600	o	300	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)
1.000	50.00	6.19	82.585	0.084	0.0	0.0	0.0	1.00	39.9	15.2
1.001	50.00	6.32	82.086	0.181	0.0	0.0	0.0	2.81	198.7	32.7

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)
S4-1	84.010	1.425	Open Manhole	1200	1.000	82.585	225				
S4-2	84.190	2.104	Open Manhole	1200	1.001	82.086	300	1.000	82.161	225	
S218	83.900	2.511	Open Manhole	0		OUTFALL		1.001	81.389	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S4-1	523603.830	135234.489	523603.830	135234.489	Required	
S4-2	523537.790	135206.542	523537.790	135206.542	Required	
S218	523517.104	135199.166			No Entry	

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Micro Drainage	Network 2020.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	S4-1	84.010	82.585	1.200	Open Manhole	1200
1.001	o	300	S4-2	84.190	82.086	1.804	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	71.710	169.1	S4-2	84.190	82.161	1.804	Open Manhole	1200
1.001	21.962	31.5	S218	83.900	81.389	2.211	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.001	S218	83.900	81.389	0.000	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FEH	Summer Storms	Yes
Return Period (years)	100	Winter Storms	No
FEH Rainfall Version	2013	Cv (Summer)	0.750
Site Location	GB 523702 135177 TQ 23702 35177	Cv (Winter)	0.840
Data Type	Point Storm Duration (mins)		30

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Water	Surcharged	Flooded
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level	Depth	Volume
							Act.	(m)	(m)	(m³)
1.000	S4-1	15 Summer	2	+0%	30/15 Summer			82.691	-0.119	0.000
1.001	S4-2	15 Summer	2	+0%				82.175	-0.211	0.000

	US/MH	Flow /	Half Drain	Pipe	
PN	Name	Cap.	Time	Flow	Level
		(l/s)	(mins)	(l/s)	Status Exceeded
1.000	S4-1	0.45		17.4	OK
1.001	S4-2	0.19		33.6	OK

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Water	Surcharged	Flooded
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level	Depth	Volume
							Act.	(m)	(m)	(m³)
1.000	S4-1	15 Summer	30	+40%	30/15 Summer			83.128	0.318	0.000
1.001	S4-2	15 Summer	30	+40%				82.264	-0.122	0.000

	US/MH	Flow /	Half Drain	Pipe			
PN	Name	Cap.	(l/s)	Time	Flow	Status	Level
				(mins)	(l/s)		Exceeded
1.000	S4-1	1.27			49.1	SURCHARGED	
1.001	S4-2	0.63			110.4	OK	

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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Water	Surcharged	Flooded
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Level	Depth	Volume
							Act.	(m)	(m)	(m³)
1.000	S4-1	15 Summer	100	+40%	30/15 Summer			83.553	0.743	0.000
1.001	S4-2	15 Summer	100	+40%				82.293	-0.093	0.000

	US/MH	Flow /	Half Drain	Pipe			
PN	Name	Cap.	(l/s)	Time	Flow	Status	Level
				(mins)	(l/s)		Exceeded
1.000	S4-1	1.58			61.0	SURCHARGED	
1.001	S4-2	0.78			137.3	OK	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 523702 135177 TQ 23702 35177
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	1.000
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

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	26.793	0.132	203.0	0.065	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.001	43.071	0.339	127.1	0.049	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.002	83.196	1.228	67.7	0.165	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	5.826	0.419	13.9	0.082	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	50.00	5.41	82.311	0.065	0.0	0.0	0.0	1.10	77.7	11.7
1.001	50.00	5.92	82.179	0.114	0.0	0.0	0.0	1.39	98.5	20.6
1.002	50.00	6.65	81.840	0.279	0.0	0.0	0.0	1.91	135.2	50.4
1.003	50.00	6.67	80.612	0.361	0.0	0.0	0.0	4.24	299.6	65.2

Manhole Schedules for Storm											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out PN	Invert Level (m)	Diameter (mm)	Pipes In PN	Invert Level (m)	Diameter (mm)	Backdrop (mm)
S5-2	84.100	1.789	Open Manhole	1200	1.000	82.311	300				
S5-3	84.390	2.211	Open Manhole	1200	1.001	82.179	300	1.000	82.179	300	
S5-4	83.750	1.910	Open Manhole	1200	1.002	81.840	300	1.001	81.840	300	
S5-5	83.122	2.510	Open Manhole	1200	1.003	80.612	300	1.002	80.612	300	
S211	83.050	2.857	Open Manhole	0		OUTFALL		1.003	80.193	300	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S5-2	523636.904	135231.109	523636.904	135231.109	Required	
S5-3	523660.730	135218.854	523660.730	135218.854	Required	
S5-4	523684.510	135254.765	523684.510	135254.765	Required	
S5-5	523730.821	135323.880	523730.821	135323.880	Required	
S211	523736.645	135324.017			No Entry	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	300	S5-2	84.100	82.311	1.489	Open Manhole	1200
1.001	o	300	S5-3	84.390	82.179	1.911	Open Manhole	1200
1.002	o	300	S5-4	83.750	81.840	1.610	Open Manhole	1200
1.003	o	300	S5-5	83.122	80.612	2.210	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	26.793	203.0	S5-3	84.390	82.179	1.911	Open Manhole	1200
1.001	43.071	127.1	S5-4	83.750	81.840	1.610	Open Manhole	1200
1.002	83.196	67.7	S5-5	83.122	80.612	2.210	Open Manhole	1200
1.003	5.826	13.9	S211	83.050	80.193	2.557	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.003	S211	83.050	80.193	0.000	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FEH	Summer Storms	Yes
Return Period (years)	100	Winter Storms	No
FEH Rainfall Version	2013	Cv (Summer)	0.750
Site Location	GB 523702 135177 TQ 23702 35177	Cv (Winter)	0.840
Data Type	Point Storm	Duration (mins)	30

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4th Floor, Diamond House 36-38 Hatton Garden London EC1N 8EB	Kilnwood Vale Phase 3DEFG NETWORK E	
Date 18/12/2025 14:30 File E.MDX	Designed by M Logan Checked by J Chinnock	
Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

									Water	Surcharged
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)
1.000	S5-2	15 Summer	2	+0%	30/15 Summer				82.400	-0.211
1.001	S5-3	15 Summer	2	+0%	30/15 Summer				82.278	-0.201
1.002	S5-4	15 Summer	2	+0%	30/15 Summer	100/15 Summer			81.969	-0.171
1.003	S5-5	15 Summer	2	+0%	30/15 Summer				80.741	-0.171

			Flooded		Half Drain		Pipe		
PN	US/MH Name	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded	
1.000	S5-2	0.000	0.19			13.3	OK		
1.001	S5-3	0.000	0.23			21.6	OK		
1.002	S5-4	0.000	0.37			48.1	OK	1	
1.003	S5-5	0.000	0.38			61.4	OK		

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4th Floor, Diamond House 36-38 Hatton Garden London EC1N 8EB	Kilnwood Vale Phase 3DEFG NETWORK E	
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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine 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) 2, 30, 100
 Climate Change (%) 0, 40, 40

									Water	Surcharged
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)
1.000	S5-2	15 Summer	30	+40%	30/15 Summer				82.962	0.351
1.001	S5-3	15 Summer	30	+40%	30/15 Summer				82.919	0.440
1.002	S5-4	15 Summer	30	+40%	30/15 Summer	100/15 Summer			82.763	0.623
1.003	S5-5	15 Summer	30	+40%	30/15 Summer				81.085	0.173

Flooded				Half Drain Pipe			Level	
PN	US/MH Name	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Exceeded
1.000	S5-2	0.000	0.59			41.5	SURCHARGED	
1.001	S5-3	0.000	0.75			68.8	SURCHARGED	
1.002	S5-4	0.000	1.14			148.1	SURCHARGED	1
1.003	S5-5	0.000	1.19			192.6	SURCHARGED	

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4th Floor, Diamond House 36-38 Hatton Garden London EC1N 8EB	Kilnwood Vale Phase 3DEFG NETWORK E	
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Micro Drainage	Network 2020.1	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 523702 135177 TQ 23702 35177 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 450.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

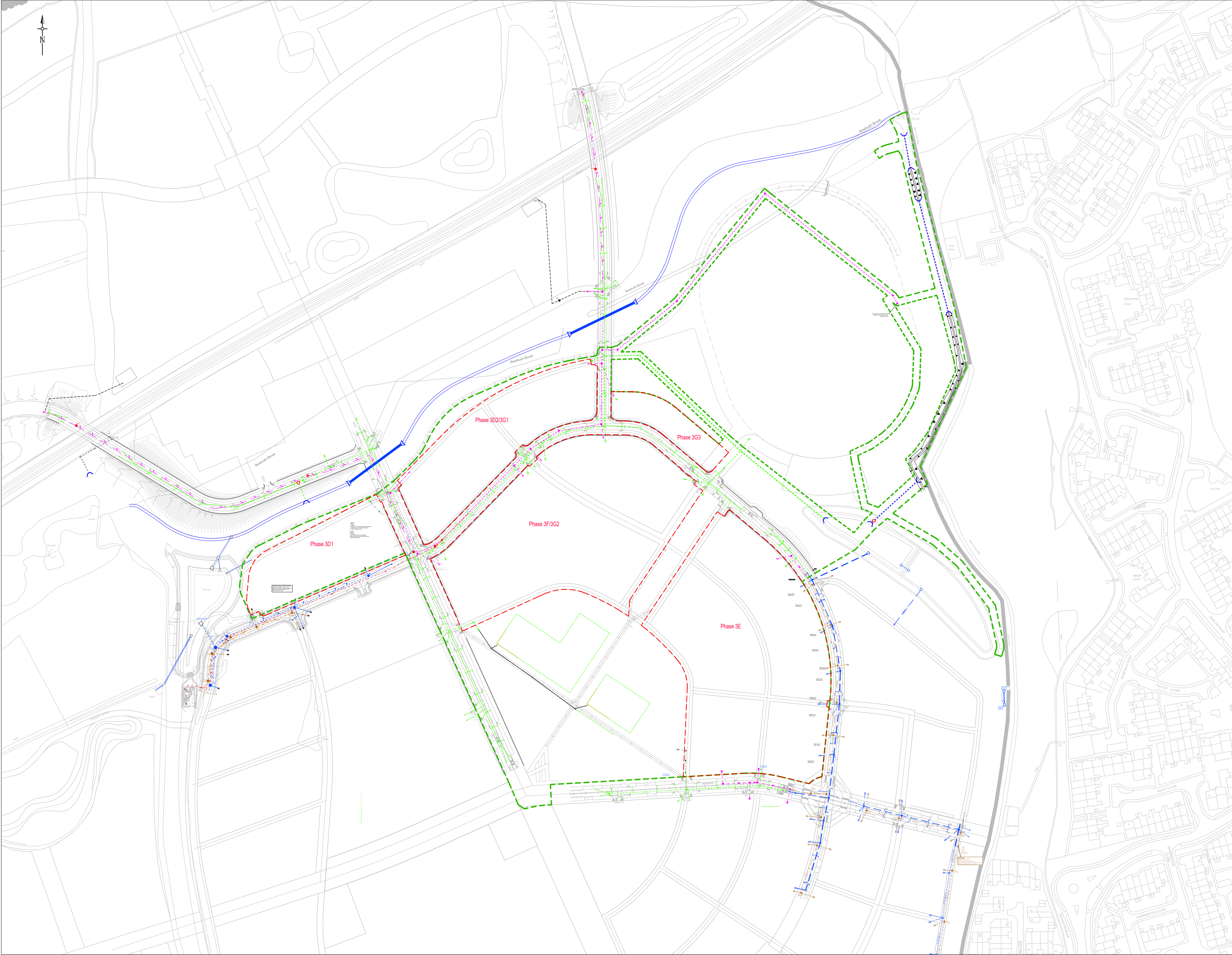
Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 40, 40

										Water	Surcharged
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.		Level (m)	Depth (m)
1.000	S5-2	15 Summer	100	+40%	30/15 Summer					84.028	1.417
1.001	S5-3	15 Summer	100	+40%	30/15 Summer					83.976	1.497
1.002	S5-4	15 Summer	100	+40%	30/15 Summer	100/15 Summer				83.750	1.610
1.003	S5-5	15 Summer	100	+40%	30/15 Summer					81.347	0.435

		<u>Flooded</u>		<u>Half Drain</u>		<u>Pipe</u>			
PN	US/MH Name	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded	
1.000	S5-2	0.000	0.72			50.7	FLOOD RISK		
1.001	S5-3	0.000	0.90			82.6	FLOOD RISK		
1.002	S5-4	0.030	1.36			177.4	FLOOD	1	
1.003	S5-5	0.000	1.41			227.9	SURCHARGED		

Appendix D

Overall Drainage Constraints Plan



NOTES

1 DO NOT SCALE THIS DRAWING ON PRINT OR ELECTRONICALLY. WORK FROM FIGURED DIMENSIONS ONLY.

2 No deviation from the details shown on this drawing is allowed without CampbellReith's prior permission in writing.

3 Read this drawing with all Architects, Service Engineers and CampbellReith's relevant details and drawings. NB. Set-out dimensions as per the Architects' drawings take precedence.

4 All work is to be in accordance with the relevant specifications issued by CampbellReith, British Standard Codes of Practice, Statutory requirements and the Contract Documents.

5 DRAWING STATUS

P - PRELIMINARY - Evolving drawings for approvals, Tenders, Billings, etc.

C - CONSTRUCTION - Fully developed drawings issued under instruction for construction.

ONLY STATUS C DRAWINGS TO BE USED FOR CONSTRUCTION.

6 SUITABILITY CODE

WORK IN PROGRESS:

S0 - Work in progress

SHARED (NON-CONTRACTUAL):

S1 - For coordination. **S2** - For information. **S3** - For internal review and comment. **S4** - For construction approval.

DOCUMENTATION (FOR CONTRACTOR PURPOSES):

D1 - For costing. **D2** - For Tender. **D3** - For contractor design. **D4** - For manufacturer's procurement.

CONSTRUCTION:

A - For construction. **B** - For construction but with comments (i.e. areas in abeyance). **C** - Comprehensive revisions required.

7 Denotes Section Number.
Denotes Drawing Number

8 For further details for individual land parcels refer to drawings 11950-3D2G1-CD100, 11950-3E-CD100, 11950-3F/3G2-CD100, 11950-3D1-CD100 and 11950-3G3-CD100.

Legend

- Land Parcel Development Boundary
- Planning Boundary
- Surface Water Drainage to be constructed by Crest South
- Surface Water Highway Drainage to be constructed by Crest South
- Foul Water Drainage to be constructed by Crest South
- Foul Water Rising Main to be constructed by Crest South
- Indicative Surface Water Drainage to be constructed by Phase 3DEFG developer/s
- Indicative Foul Water Drainage to be constructed by Phase 3DEFG developer/s
- Existing Surface Water Drainage
- Existing Foul Water Drainage
- Existing Foul Water Rising Main
- 85.000 Contour Label (Bulk Earthworks)

P1	ISSUED FOR INFORMATION	16.11.21	CL
Drawn by	Description	Date	By

CampbellReith
consulting engineers

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Job Title KILNWOOD VALE, CRAWLEY					
Client CREST NICHOLSON					
PHASE 3DEFG OVERALL DRAINAGE CONSTRAINTS PLAN					
drawn	date	scale @ A0	C1 checked	CR Project No.	
CL	15.11.21	1:1000	-	11950	
Draw No.	11950-3DEFG-CD100	Security	S2	Drawn/checked	P1

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