Technical design note

Project name	Land East of George Lane, Kilmington		
Design note title	Drainage Strategy		
Document reference	27120-HYD-XX-XX-TN-D-0001		
Author	Richard Hughes		
Revision	P02		
Date	16 January 2023	Approved	✓

1. Introduction

1.1 This Technical Note supports representations by Place Land Limited to the East Devon Local Plan and the allocation of land east of George Lane for residential development under Policy KILM_09. The Technical Note demonstrates that the site can be effectively drained in terms of both foul and surface water.

1.2 The findings and proposals contained within this Technical Note are based on desk based investigations and will require further site work to confirm the conclusions.

2. Surface Water

2.1 Existing

2.1.1 The site is currently undeveloped 'greenfield' and is used for arable agricultural.

2.1.2 It is bounded to the north by the A35 Gammons Hill, to the west by George Lane, to the south by residential development and to the east by fields and public open space and the Old Inn public house.

2.1.3 Site location plans and site referencing information are shown below.

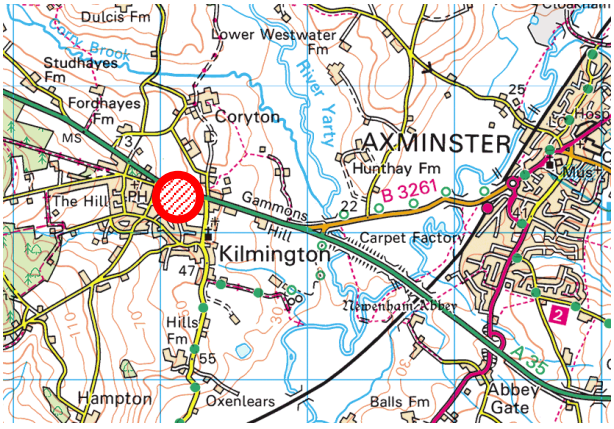

Figure 1 – Site Location

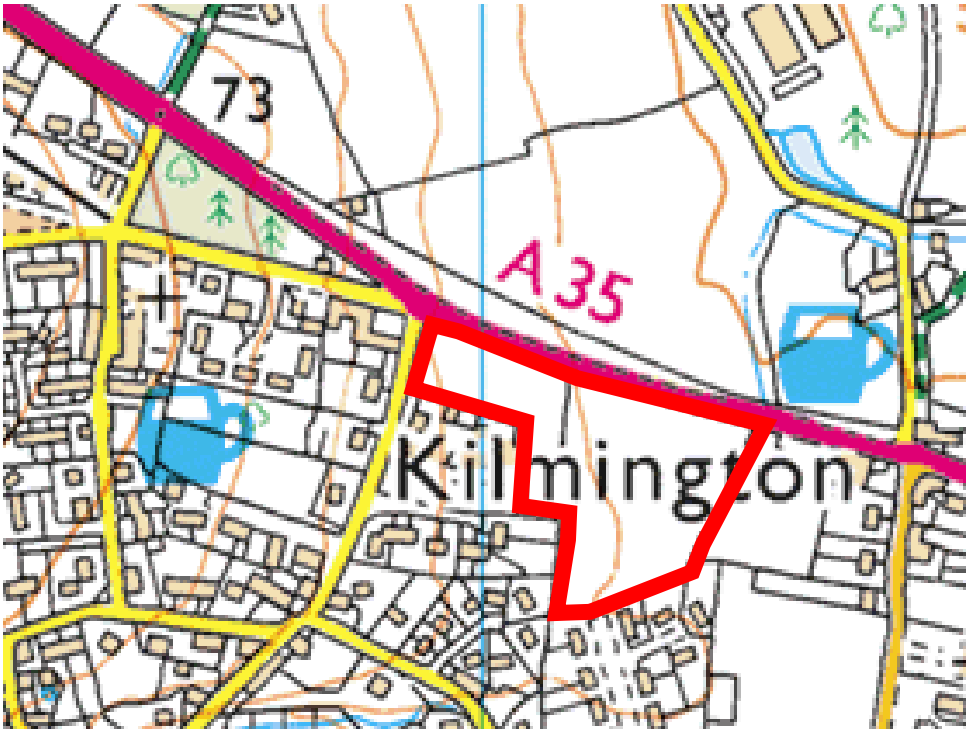

Figure 2 – Site Location

Site Referencing Information	
Site address	George Lane Kilmington East Devon EX13 7DL
Grid reference	E. 326981, N. 98287 SY269982 / SY2698198287

Table 1 – Site Referencing Details

2.1.4 The topography of the site falls generally from west to east at an average gradient of 1 in 33 to a low point in the north-east corner of the site, adjacent to the A35.

2.1.5 As the site is greenfield, it is anticipated that there are no formal drainage systems serving the site. A copy of the South West Water sewer records, included in Appendix B, has been obtained which confirms that there are no public surface water sewers within the site boundary.

An existing public sewer network is shown in the adjacent residential development to the west serving Dares Field. There is no apparent outfall point and it is assumed that the system discharges to a soakaway.

2.1.6 There are no watercourses recorded within the site boundary although a site inspection has revealed a culvert under the A35 adjacent to the north-east corner.

2.1.7 Referring to the on-line GOV.UK mapping service for flood risk from surface water, shows the whole of the site to be at 'very low' risk however, there is a length of medium risk immediately adjacent to the southern side of the A35 flowing to the east, see Figure 3 below.

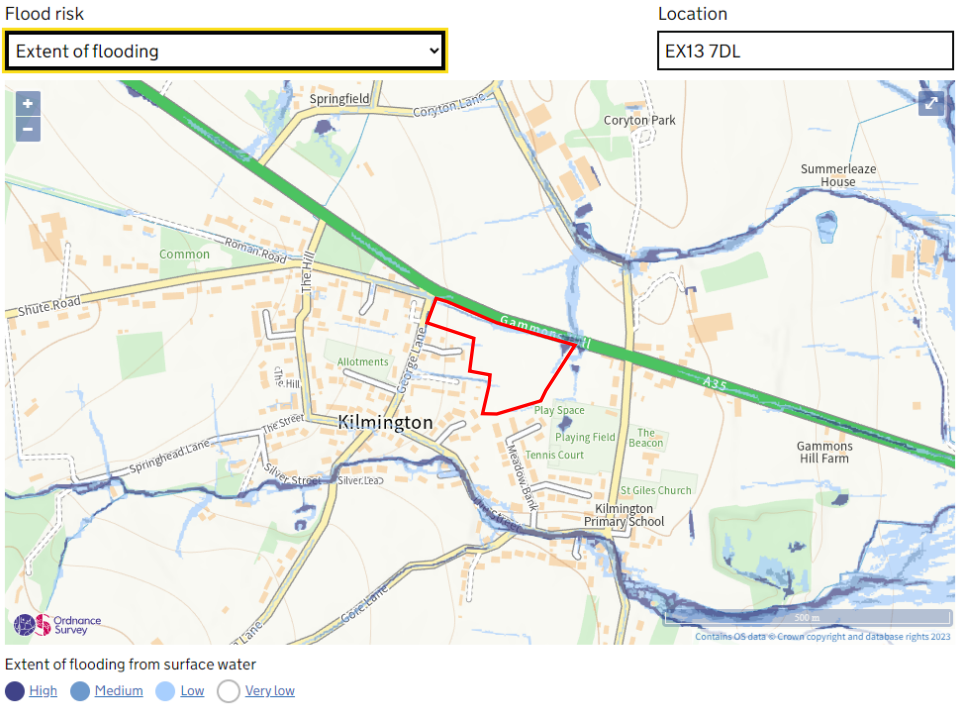

Figure 3: Surface Water Mapping

The mapping also shows that the site is entirely located within Flood Zone 1 which is a low risk of flooding (≤0.1% AEP of fluvial flooding in any given year), see Figure 4 below.

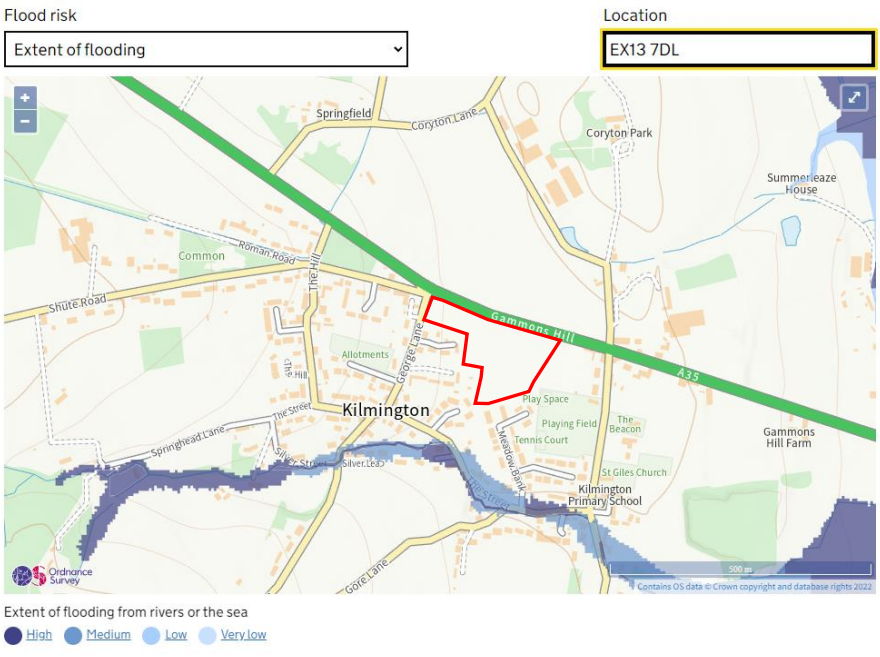

Figure 4: Flood Zone Mapping

2.2 Post Development

2.2.1 The proposal is for 37 residential dwellings together with associated access, parking and open space.

A copy of the proposed site layout plan is included in Appendix A.

2.2.2 The site lies within the responsibility of Devon County Council as Lead Local Flood Authority. Reference has been made to their document "Sustainable Drainage Systems – Guidance for Devon" dated January 2017'.

2.2.3 In accordance with the National Planning Policy Framework (NPPF), surface water runoff from the proposed development is to be captured and managed utilising sustainable methods where possible. As such, the following surface water drainage management strategies will be assessed in direct relation to the site, based on preferential order in accordance with the NPPF, National Planning Policy Guidance (NPPG), Building Regulations and Sewerage Sector Guidance (SSG).

- Infiltration
- Discharge to local watercourse
- Discharge to public surface water sewer
- Discharge to public combined sewer

2.2.4 No ground investigation work has been undertaken at the time of writing however, reference has been made to the on-line British Geological Society mapping information. This indicates that the site is underlain by a bedrock of mudstone with superficial deposits of silt, sand and gravel in the western part of the site and sand and gravel in the eastern part.

On the basis of the above, it is anticipated that the use of soakaways will be practical for the disposal of surface water runoff. This assumption Is supported by the apparent disposal of surface water from the Dares Field development to the west to ground.

2.2.5 An infiltration rate of 1.0 x 10^{-5} m/s has been assumed as a conservative value for the purposes of estimating soakaway sizes. It is possible that each plot can be provided with its own soakaway manhole however, this will be dependent on the final layout and being able to achieve 5m offsets to all structures.

For the purposes of this assessment, it is assumed that this is not possible and that all buildings and roads will need to be drained to an infiltration basin located in the north-east corner of the site as a 'worst case' option.

2.2.6 An assumed impermeability factor of 55% has been taken for the proposed development areas and an urban creep factor of +10% applied to determine a likely total drained area of 0.775 ha.

2.2.7 Applying the above design criteria an infiltration basin design has been carried out using the Source Control module in Micro Drainage. This shows that a basin with a maximum storage depth of 1.3m. and an overall footprint of 836m^2 will contain runoff generated by a 1 in 100 year storm event with an allowance of +45% for climate change.

The half drain down time is 972 minutes.

2.2.8 A copy of the calculations and a drawing showing the size and location of the basin is included in Appendix C.

2.2.9 Should infiltration prove not to be practical, surface water runoff will be discharged to the culvert under the A35 and discharge rates restricted to the greenfield QBAR value.

Using the Source Control module in Micro Drainage which estimates a QBAR rate of 6.6 l/s/ha. The total impermeable area, ignoring the urban creep factor, is 0.734 ha therefore the allowable discharge rate will be 4.8 l/s.

The Micro Drainage calculation shows that the storage requirement is very similar to that of the infiltration basin option with a maximum depth of 1.3m and a maximum volume of 551m^3.

Copies of the above calculations are included in Appendix C.

3. Foul Water

3.1 Existing

3.1.1 As the site is greenfield, it is anticipated that there are no formal drainage systems serving the site. However, a copy of the South West Water sewer records, included in Appendix B, has been obtained which shows that there is an existing 150mm diameter public combined sewer crossing the western part of the site, flowing approximately from north to south.

3.1.2 The sewer records also indicate that there is a foul sewer connection from the existing residential development, Dares Field, to the west.

3.1.3 It will be necessary to accommodate this combined sewer within the proposed site layout, either by providing a protected route or diverting it as necessary. Any diversion works will require the approval of South West Water.

3.1.4 The head of a 150mm diameter public combined sewer is located in the A35, immediately outside the Old Inn public house to the north-east of the site.

3.2 Post Development

3.2.1 The topography of the site is such that it is possible to drain the western part of the site by gravity to the existing combined sewer which passes through the development area.

The remainder of the development to the east will gravitate to the north-east corner of the site and can be connected to the existing combined sewer in the A35 via a new off-site sewer. Should this prove not to be possible it will be necessary to provide a new pumping station in order to pump flows back towards the western combined sewer.

3.2.2 The development proposal is for up to 40 residential dwellings. The anticipated peak flow for the development is 1.8 l/second for 40 units based on an allowance of 4,000 litres/dwelling/day in accordance with the recommendations of clause B3.1.1(b) of the Water UK Sewerage Sector Guidance Appendix C.

3.2.3 It is anticipated that all new foul drainage sewers will be offered to South West Water for adoption under a Section104 Agreement. It will be necessary to submit a Pre-Development Enquiry to South West Water at the time of any planning application in order to determine the recommended points of connection and if any off-site reinforcement works are required.

3.2.4 A notional foul drainage layout is included in Appendix C.

4. Conclusions

4.1 The site is currently undeveloped and therefore is assumed to have no formal drainage connections.

4.2 The only existing public surface water sewer in the immediate vicinity of the site shown on the South West Water mapping is in the existing residential development immediately to the west, served by Dares Field. This sewer network appears to have no positive discharge point and therefore it is assumed that this is likely to discharge to a soakaway.

4.3 The British Geological Society mapping indicates the site to be underlain by superficial deposits of sands, silts and gravels and it is assumed at this stage that surface water runoff from the development can be disposed of to soakaways.

An infiltration basin located in the north-east corner of the site could serve the development, as shown by the ablutions included in Appendix D.

Should infiltration prove not to be practical, a storage basin of the same size as the infiltration basin with a restricted discharge and a connection to the existing culvert under the A35 can be utilised.

4.4 The South West Water sewer records show a combined sewer passing through the site and in the A35 to the north-east of the site. It is proposed that foul flows from the development be discharged to one or both of these sewers, subject to discussions with South West Water.

APPENDIX A

Sketch Concept Layout - 21121

Key

- Site Boundary (2.46ha)
- Existing Key Trees
- Listed Buildings (Grade II & II*)
- Existing Bus Stop
- Ecological or Landscape Buffer (5 - 10m from Boundary)
- Potential SUDS Pond
- Potential SUDS Swales
- Shared Surface
- Private Drive
- Parking Court
- Ped/Cycle link
- Footpath
- Proposed Native Trees
- Proposed Semi-ornamental/ Street Trees
- Proposed Orchard Trees
- Proposed Mixed Native Hedge/Hedgebank

N

0m 10m 20m 30m 40m 50m

SCALE 1:500

REV	DATE	COMMENTS	AUTHOR / CHECKED
P1	09.01.23	First Issue to Client	AV / PO

PROJECT TITLE
Kilmington

DETAIL
Illustrative Masterplan

DRAWING NUMBER
(PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)
KIL - LHC - 00 - 00 - DR - UD - 0106

STATUS	STATUS DESCRIPTION	
S2	FOR INFORMATION	
REVISION	DATE	SCALE
P1	JANUARY 2023	1:500 @A1

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE - ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM - DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT BEFORE PROCEEDING
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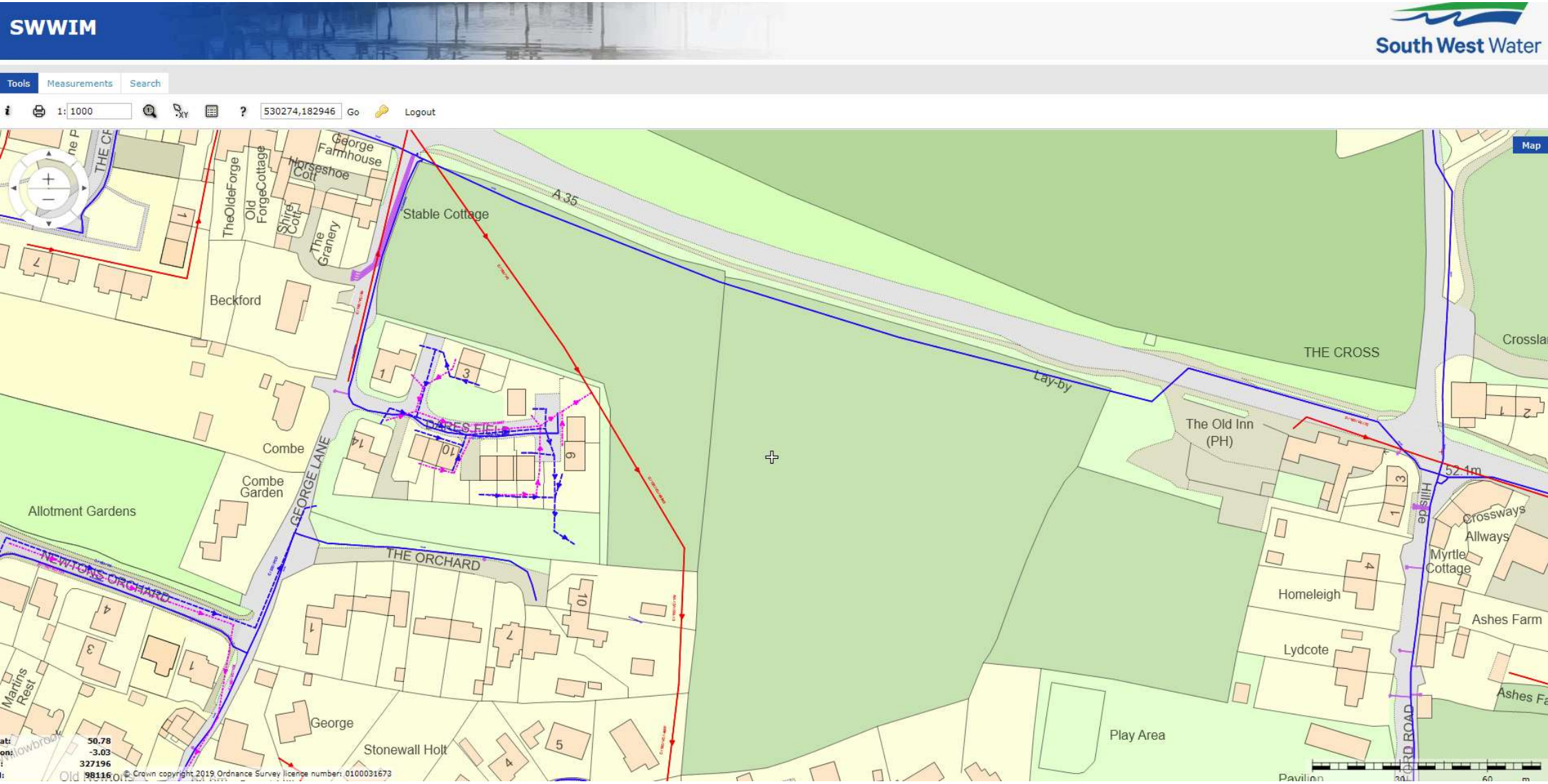
LHC PROJECT NUMBER
21121

lhc design
EXETER
PLYMOUTH
ST AUSTELL
lhc.net

APPENDIX B

South West Water Sewer Record Plan


SWWIM
South West Water
Tools
Measurements
Search
1: 1000
530274,182946
Go
Logout
Map
A 35
Lay-by
THE CROSS
Stable Cottage
George Farmhouse
Horseshoe Cott
The Older Forge
Old Forge Cottage
Shire Cott
The Granery
Beckford
Combe
Combe Garden
Allotment Gardens
GEORGE LANE
THE ORCHARD
NEWTONS ORCHARD
DARES FIELD
The Old Inn (PH)
52.1m
Crossways
Allways
Myrtle Cottage
Homeleigh
Ashes Farm
Lydcote
Play Area
Martins Rest
George
Stonewall Holt
50.78
-3.03
327196
98116
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APPENDIX C

Infiltration Basin Calculation

Greenfield Runoff Rate Calculation

Storage Basin Calculation

Drainage Strategy Plan

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 972 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.537	0.537	2.9	163.6	O K
30 min Summer	8.682	0.682	3.5	225.0	O K
60 min Summer	8.827	0.827	4.0	294.2	O K
120 min Summer	8.965	0.965	4.6	367.6	O K
180 min Summer	9.036	1.036	4.9	408.4	O K
240 min Summer	9.078	1.078	5.0	433.7	O K
360 min Summer	9.129	1.129	5.2	464.7	O K
480 min Summer	9.157	1.157	5.4	482.4	O K
600 min Summer	9.171	1.171	5.4	491.8	O K
720 min Summer	9.179	1.179	5.5	496.5	O K
960 min Summer	9.188	1.188	5.5	502.6	O K
1440 min Summer	9.191	1.191	5.5	504.7	O K
2160 min Summer	9.176	1.176	5.4	495.1	O K
2880 min Summer	9.151	1.151	5.3	478.8	O K
4320 min Summer	9.091	1.091	5.1	441.5	O K
5760 min Summer	9.034	1.034	4.8	406.9	O K
7200 min Summer	8.982	0.982	4.6	376.9	O K
8640 min Summer	8.934	0.934	4.4	350.3	O K
10080 min Summer	8.890	0.890	4.3	326.6	O K
15 min Winter	8.586	0.586	3.1	183.5	O K
30 min Winter	8.742	0.742	3.7	252.4	O K
60 min Winter	8.897	0.897	4.3	330.5	O K
120 min Winter	9.045	1.045	4.9	413.7	O K
180 min Winter	9.122	1.122	5.2	460.4	O K
240 min Winter	9.168	1.168	5.4	489.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	115.250	0.0	34
30 min Summer	79.580	0.0	48
60 min Summer	52.627	0.0	78
120 min Summer	33.624	0.0	134
180 min Summer	25.459	0.0	192
240 min Summer	20.722	0.0	250
360 min Summer	15.446	0.0	368
480 min Summer	12.532	0.0	484
600 min Summer	10.645	0.0	600
720 min Summer	9.310	0.0	670
960 min Summer	7.526	0.0	782
1440 min Summer	5.564	0.0	1038
2160 min Summer	4.102	0.0	1452
2880 min Summer	3.298	0.0	1860
4320 min Summer	2.420	0.0	2688
5760 min Summer	1.943	0.0	3472
7200 min Summer	1.640	0.0	4264
8640 min Summer	1.428	0.0	5032
10080 min Summer	1.271	0.0	5840
15 min Winter	115.250	0.0	34
30 min Winter	79.580	0.0	48
60 min Winter	52.627	0.0	76
120 min Winter	33.624	0.0	132
180 min Winter	25.459	0.0	190
240 min Winter	20.722	0.0	246

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	9.225	1.225	5.6	526.7	O K
480 min Winter	9.257	1.257	5.8	548.6	O K
600 min Winter	9.276	1.276	5.9	561.3	O K
720 min Winter	9.286	1.286	5.9	568.3	O K
960 min Winter	9.291	1.291	5.9	572.0	O K
1440 min Winter	9.291	1.291	5.9	572.2	O K
2160 min Winter	9.266	1.266	5.8	555.0	O K
2880 min Winter	9.228	1.228	5.7	529.2	O K
4320 min Winter	9.143	1.143	5.3	473.5	O K
5760 min Winter	9.061	1.061	5.0	423.1	O K
7200 min Winter	8.987	0.987	4.6	379.8	O K
8640 min Winter	8.920	0.920	4.4	342.8	O K
10080 min Winter	8.860	0.860	4.1	311.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.446	0.0	360
480 min Winter	12.532	0.0	474
600 min Winter	10.645	0.0	584
720 min Winter	9.310	0.0	692
960 min Winter	7.526	0.0	880
1440 min Winter	5.564	0.0	1102
2160 min Winter	4.102	0.0	1564
2880 min Winter	3.298	0.0	2016
4320 min Winter	2.420	0.0	2868
5760 min Winter	1.943	0.0	3704
7200 min Winter	1.640	0.0	4536
8640 min Winter	1.428	0.0	5288
10080 min Winter	1.271	0.0	6064

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.775

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.155	4	8	0.155	8	12	0.155	12	16	0.155	16	20	0.155

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Model Details

Storage is Online Cover Level (m) 10.000

Infiltration Basin Structure

Invert Level (m) 8.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.03600 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.03600

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	214.0	1.200	657.0	2.400	836.0	3.600	836.0	4.800	836.0
0.200	282.0	1.400	744.0	2.600	836.0	3.800	836.0	5.000	836.0
0.400	349.0	1.600	836.0	2.800	836.0	4.000	836.0		
0.600	420.0	1.800	836.0	3.000	836.0	4.200	836.0		
0.800	495.0	2.000	836.0	3.200	836.0	4.400	836.0		
1.000	574.0	2.200	836.0	3.400	836.0	4.600	836.0		

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ICP SUDS Mean Annual Flood

Input

Return Period (years) 100 SAAR (mm) 991 Urban 0.000
Area (ha) 1.000 Soil 0.450 Region Number Region 8

Results l/s

QBAR Rural 6.6
QBAR Urban 6.6

Q100 years 16.0

Q1 year 5.1
Q30 years 12.6
Q100 years 16.0

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	8.529	0.529	4.8	160.3	O K
30 min Summer	8.675	0.675	4.8	221.5	O K
60 min Summer	8.820	0.820	4.8	290.4	O K
120 min Summer	8.954	0.954	4.8	361.4	O K
180 min Summer	9.022	1.022	4.8	400.0	O K
240 min Summer	9.061	1.061	4.8	423.2	O K
360 min Summer	9.106	1.106	4.8	450.5	O K
480 min Summer	9.129	1.129	4.8	465.0	O K
600 min Summer	9.140	1.140	4.8	471.5	O K
720 min Summer	9.142	1.142	4.8	473.0	O K
960 min Summer	9.136	1.136	4.8	469.0	O K
1440 min Summer	9.115	1.115	4.8	456.0	O K
2160 min Summer	9.078	1.078	4.8	433.5	O K
2880 min Summer	9.039	1.039	4.8	410.0	O K
4320 min Summer	8.955	0.955	4.8	361.9	O K
5760 min Summer	8.868	0.868	4.8	315.0	O K
7200 min Summer	8.773	0.773	4.8	267.3	O K
8640 min Summer	8.651	0.651	4.8	211.0	O K
10080 min Summer	8.549	0.549	4.8	168.1	O K
15 min Winter	8.579	0.579	4.8	180.4	O K
30 min Winter	8.735	0.735	4.8	249.5	O K
60 min Winter	8.890	0.890	4.8	327.0	O K
120 min Winter	9.036	1.036	4.8	408.2	O K
180 min Winter	9.110	1.110	4.8	453.2	O K
240 min Winter	9.155	1.155	4.8	481.0	O K
360 min Winter	9.207	1.207	4.8	515.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	115.250	0.0	166.0	34
30 min Summer	79.580	0.0	229.3	48
60 min Summer	52.627	0.0	305.1	78
120 min Summer	33.624	0.0	390.0	136
180 min Summer	25.459	0.0	442.9	194
240 min Summer	20.722	0.0	480.6	252
360 min Summer	15.446	0.0	537.1	368
480 min Summer	12.532	0.0	580.8	486
600 min Summer	10.645	0.0	616.3	604
720 min Summer	9.310	0.0	646.3	720
960 min Summer	7.526	0.0	694.4	846
1440 min Summer	5.564	0.0	719.2	1102
2160 min Summer	4.102	0.0	857.7	1504
2880 min Summer	3.298	0.0	919.5	1920
4320 min Summer	2.420	0.0	1011.4	2744
5760 min Summer	1.943	0.0	1084.1	3576
7200 min Summer	1.640	0.0	1143.8	4400
8640 min Summer	1.428	0.0	1195.1	5032
10080 min Summer	1.271	0.0	1240.3	5744
15 min Winter	115.250	0.0	186.0	34
30 min Winter	79.580	0.0	256.6	48
60 min Winter	52.627	0.0	341.8	76
120 min Winter	33.624	0.0	436.7	134
180 min Winter	25.459	0.0	495.9	190
240 min Winter	20.722	0.0	538.1	248
360 min Winter	15.446	0.0	601.3	362

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
480 min Winter	9.237	1.237	4.9	534.9	O K
600 min Winter	9.253	1.253	4.9	545.7	O K
720 min Winter	9.260	1.260	4.9	550.7	O K
960 min Winter	9.259	1.259	4.9	550.1	O K
1440 min Winter	9.232	1.232	4.9	531.6	O K
2160 min Winter	9.184	1.184	4.8	500.1	O K
2880 min Winter	9.128	1.128	4.8	464.2	O K
4320 min Winter	9.003	1.003	4.8	389.1	O K
5760 min Winter	8.868	0.868	4.8	315.1	O K
7200 min Winter	8.686	0.686	4.8	226.6	O K
8640 min Winter	8.508	0.508	4.8	152.0	O K
10080 min Winter	8.368	0.368	4.8	101.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
480 min Winter	12.532	0.0	649.8	476
600 min Winter	10.645	0.0	688.8	590
720 min Winter	9.310	0.0	720.6	702
960 min Winter	7.526	0.0	751.8	918
1440 min Winter	5.564	0.0	731.9	1158
2160 min Winter	4.102	0.0	960.6	1624
2880 min Winter	3.298	0.0	1029.8	2084
4320 min Winter	2.420	0.0	1132.4	2988
5760 min Winter	1.943	0.0	1214.3	3864
7200 min Winter	1.640	0.0	1281.1	4616
8640 min Winter	1.428	0.0	1338.6	5200
10080 min Winter	1.271	0.0	1389.3	5760

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.775

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.155	4	8	0.155	8	12	0.155	12	16	0.155	16	20	0.155

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Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 8.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	214.0	1.200	657.0	2.400	836.0	3.600	836.0	4.800	836.0
0.200	282.0	1.400	744.0	2.600	836.0	3.800	836.0	5.000	836.0
0.400	349.0	1.600	836.0	2.800	836.0	4.000	836.0		
0.600	420.0	1.800	836.0	3.000	836.0	4.200	836.0		
0.800	495.0	2.000	836.0	3.200	836.0	4.400	836.0		
1.000	574.0	2.200	836.0	3.400	836.0	4.600	836.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0101-4800-1200-4800
Design Head (m)	1.200
Design Flow (l/s)	4.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	101
Invert Level (m)	8.000
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	4.8	Kick-Flo®	0.748	3.9
Flush-Flo™	0.359	4.8	Mean Flow over Head Range	-	4.2

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)
0.100	3.3	0.800	4.0	2.000	6.1	4.000	8.4	7.000	11.0
0.200	4.5	1.000	4.4	2.200	6.4	4.500	8.9	7.500	11.4
0.300	4.8	1.200	4.8	2.400	6.6	5.000	9.4	8.000	11.7
0.400	4.8	1.400	5.2	2.600	6.9	5.500	9.8	8.500	12.1
0.500	4.7	1.600	5.5	3.000	7.4	6.000	10.2	9.000	12.4
0.600	4.5	1.800	5.8	3.500	7.9	6.500	10.6	9.500	12.7

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OS NORTH

POTENTIAL DIVERSION ROUTE FOR EXISTING COMBINED SEWER

PROPOSED INFILTRATION OR STORAGE BASIN

EXISTING CULVERT

OFFSITE FOUL SEWER ROUTE

CONNECTION TO EXISTING COMBINED SEWER

THE CROSS

Hillside

Key

- Existing public surface water sewer
- Existing public foul water sewer
- Existing public combined sewer
- Proposed foul water sewer
- Existing water main
- Existing culvert
- Proposed attenuation/infiltration basin

REVISIONS

Rev	Date	Description	By	Ckd	App
P02	16/01/23	Updated planning layout.	RJH		
P01	09/01/23	First Issue.	RJH		

Hydrock
OVER COURT BARNS
OVER LANE
ALMONDSBURY
BRISTOL
BS32 4DF
[redacted]

CLIENT

PLACE LAND SW LIMITED

PROJECT

LAND EAST OF GEORGE LANE
KILMINGTON
EAST DEVON

TITLE

SCHEMATIC FOUL AND SURFACE WATER DRAINAGE STRATEGY PLAN

HYDROCK PROJECT NO.	SCALE @ A1
21720-IOCB	1 : 500

STATUS DESCRIPTION	STATUS
INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
21720-HYD-XX-XX-DR-D-2001	P02