

**Appendix 5**  
**Environment Agency Product 4 Information**  
**and Flood Maps**

# Flood Map for Planning (Rivers and Sea) Centred on Land at Newgate Lane - Created 25 July 2019



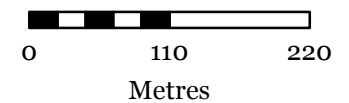
## Legend

-  Flood Zone 3
-  Flood Zone 2



1:5,940 \*

\*when printed at A4.



## Risk of flooding from Surface Water Centred on Newgate Lane - Created 25 July 2019



Scale 1:10,000



### Likelihood of flooding from Surface Water

- High ( $\geq 3.3\%$ )
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

### Likelihood of flooding from Surface Water

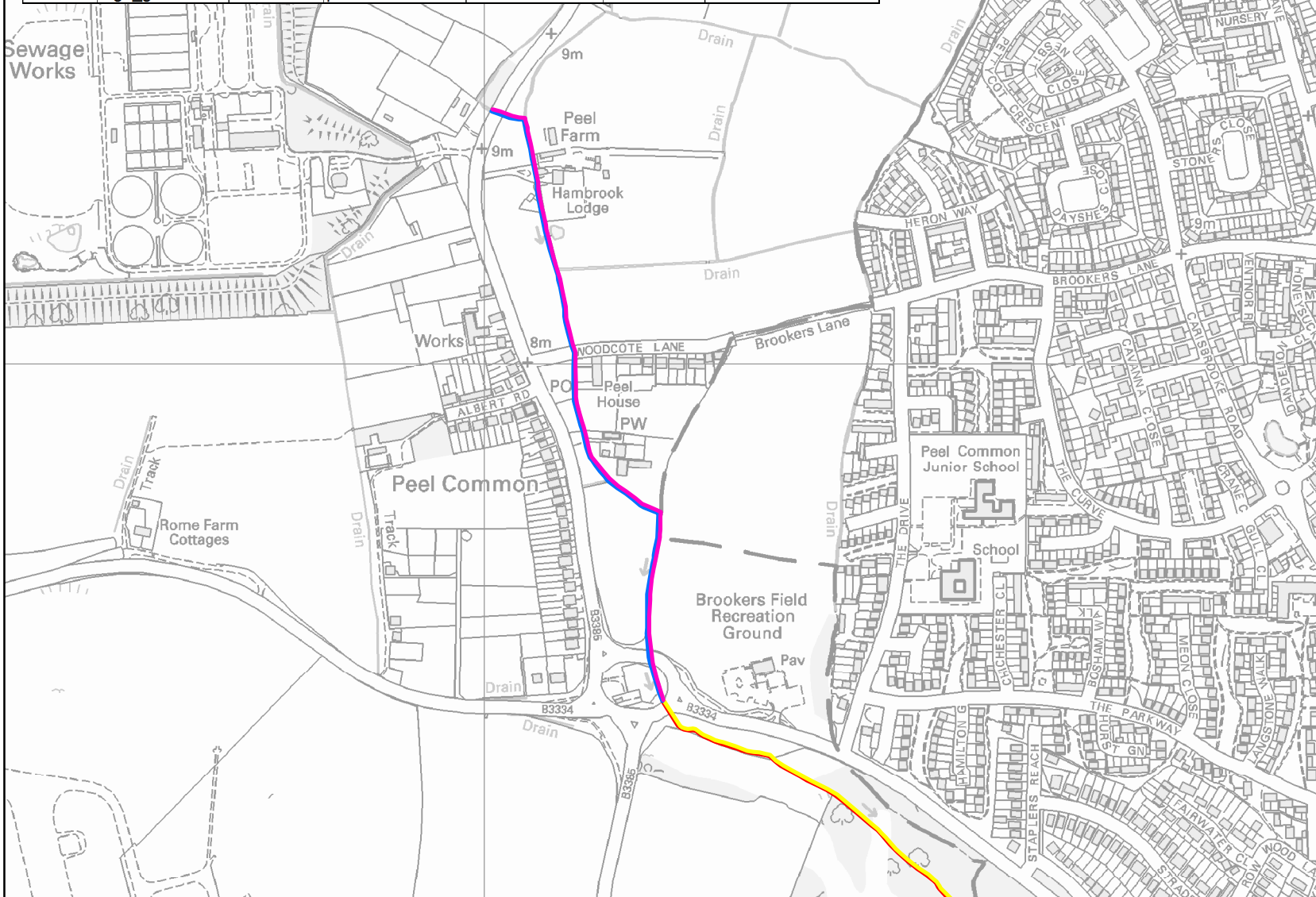
- High:** Greater than or equal to 3.3% (1 in 30) chance in any given year
- Medium:** Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low:** Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low:** Less than 0.1% (1 in 1,000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on our website.



# Defences Centred on Land at Newgate Lane - Created 25 July 2019

Asset Id	Asset Sub-type	Length (m)	Asset Maintainer	Actual Condition	Estimated SoP	Last Inspection Date
49551	high_ground	782.33	private	Fair		27/07/2017
110674	high_ground	1257.1	private	Fair	1:50	04/11/2014
110675	high_ground	1258.11	private	Fair	1:50	04/11/2014
110676	high_ground	780.76	private	Fair		27/07/2017

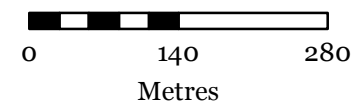


## Legend

### ASSET\_ID

- 49551
- 110674
- 110675
- 110676

1:7,102 \*  
\*when printed at A4.



# JFLOW Levels Centred on Land at Newgate Lane - Created 25 July 2019



## Legend

Location Points

### Ground Level

Value  
 - High  
 - Low

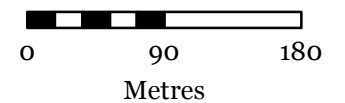
### Depth

Value  
 - High  
 - Low



1:4,971 \*

\*when printed at A4.



### Water Depths & Levels for Land at Newgate Lane

Point	Water Depth (Metres)					Water Surface Level (mAOD*)					Ground Level
	1% Annual Probability/1 in 100 Year (Flood Zone 3)	1% Annual Probability/1 in 100 Year + 35% Climate Change	1% Annual Probability/1 in 100 Year + 45% Climate Change	1% Annual Probability/1 in 100 Year + 105% Climate Change	0.1% Annual Probability/1 in 1000 Year (Flood Zone 2)	1% Annual Probability/1 in 100 Year (Flood Zone 3)	1% Annual Probability/1 in 100 Year + 35% Climate Change	1% Annual Probability/1 in 100 Year + 45% Climate Change	1% Annual Probability/1 in 100 Year + 105% Climate Change	0.1% Annual Probability/1 in 1000 Year (Flood Zone 2)	
1	0.13	0.14	0.17	0.21	0.19	8.88	8.89	8.92	8.96	8.94	8.75
2	0.11	0.14	0.16	0.24	0.17	8.89	8.92	8.94	9.02	8.95	8.78
3	0.13	0.09	0.16	0.17	0.19	8.89	8.85	8.92	8.93	8.95	8.76
4	0.07	0.12	0.12	0.18	0.14	8.79	8.84	8.84	8.90	8.86	8.72
5	0.31	0.34	0.35	0.39	0.36	8.77	8.80	8.81	8.85	8.82	8.46
6	0.16	0.20	0.20	0.24	0.21	8.77	8.81	8.81	8.85	8.82	8.61
7	0.36	0.39	0.39	0.43	0.40	8.79	8.82	8.82	8.86	8.83	8.43
8	0.28	0.28	0.31	0.32	0.32	8.77	8.77	8.80	8.81	8.81	8.49
9	0.04	0.11	0.11	0.19	0.14	8.29	8.36	8.36	8.44	8.39	8.25
10	0.27	0.32	0.33	0.39	0.36	8.25	8.30	8.31	8.37	8.34	7.98
11	0.07	0.11	0.12	0.18	0.14	8.21	8.25	8.26	8.32	8.28	8.14
12	0.03	0.08	0.11	0.16	0.12	8.15	8.20	8.23	8.28	8.24	8.12
13	0.23	0.28	0.30	0.37	0.32	8.10	8.15	8.17	8.24	8.19	7.87
14	0.36	0.40	0.41	0.48	0.43	7.99	8.03	8.04	8.11	8.06	7.63

\* Levels in metres above Ordnance Datum Newlyn

Basic view  Detailed view

Location



Flood risk from rivers or the sea

Extent of flooding

Flood risk from surface water

Extent of flooding

Flood risk from reservoirs

Extent of flooding



Full screen

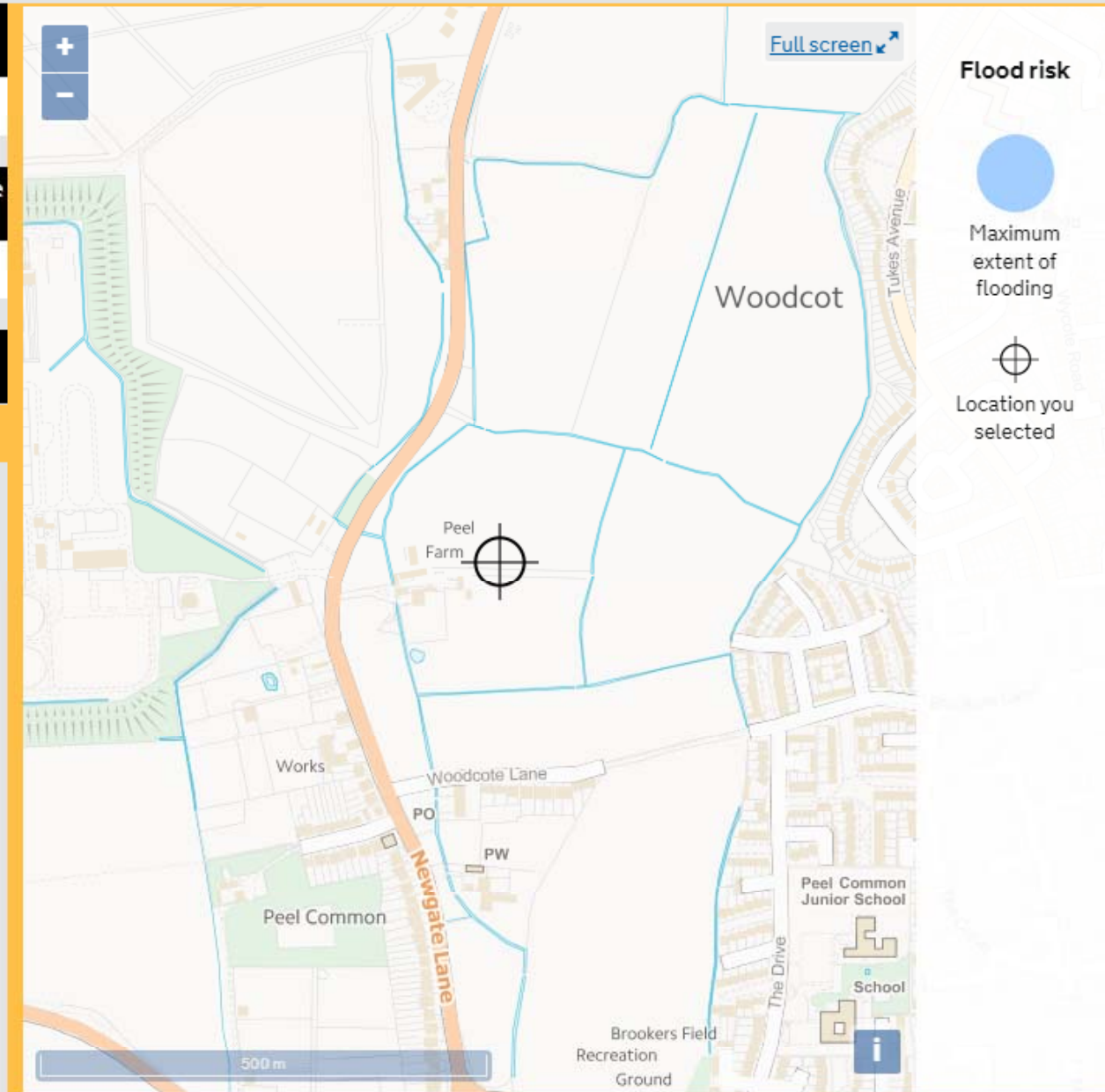
Flood risk

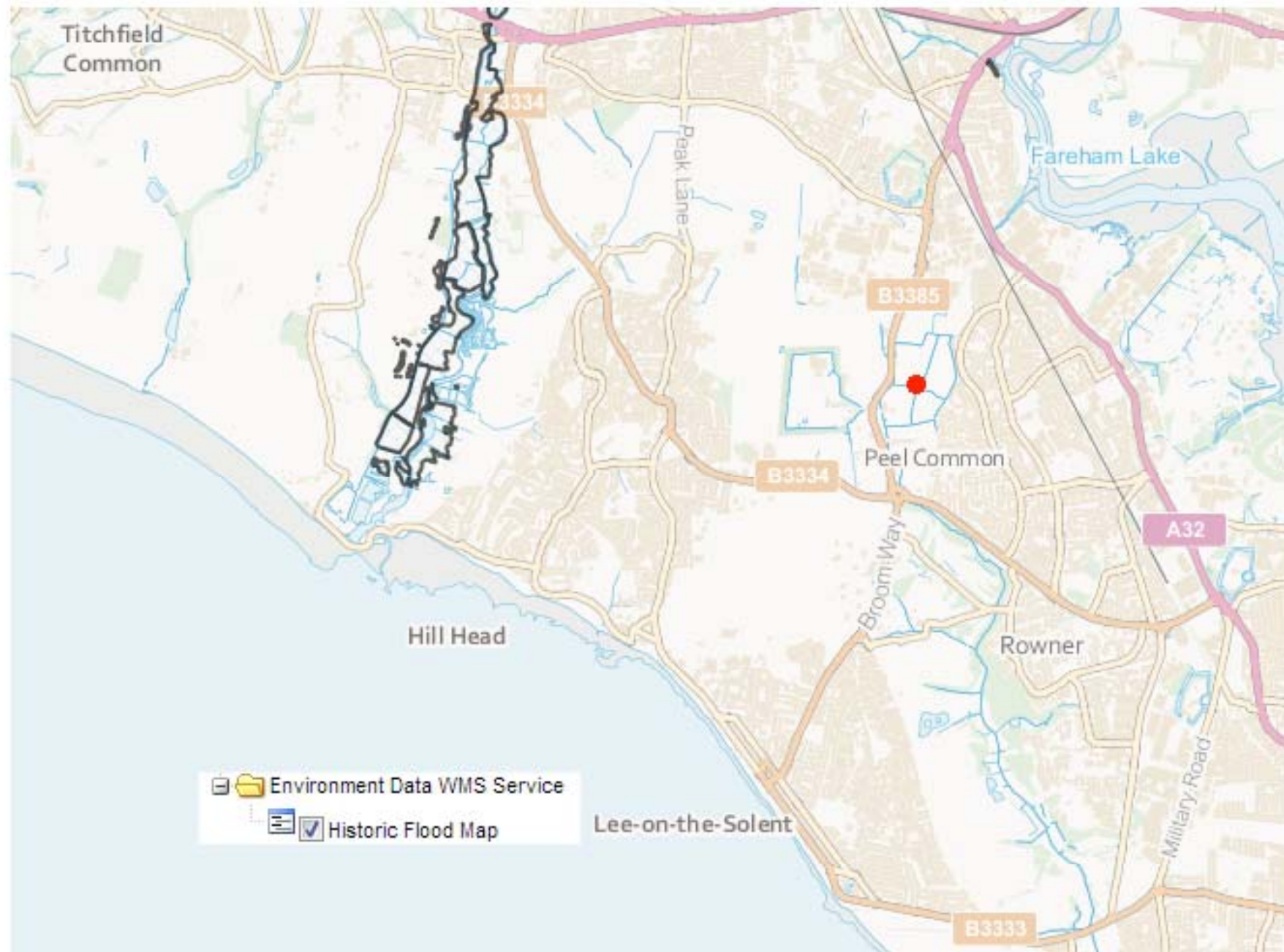


Maximum extent of flooding



Location you selected







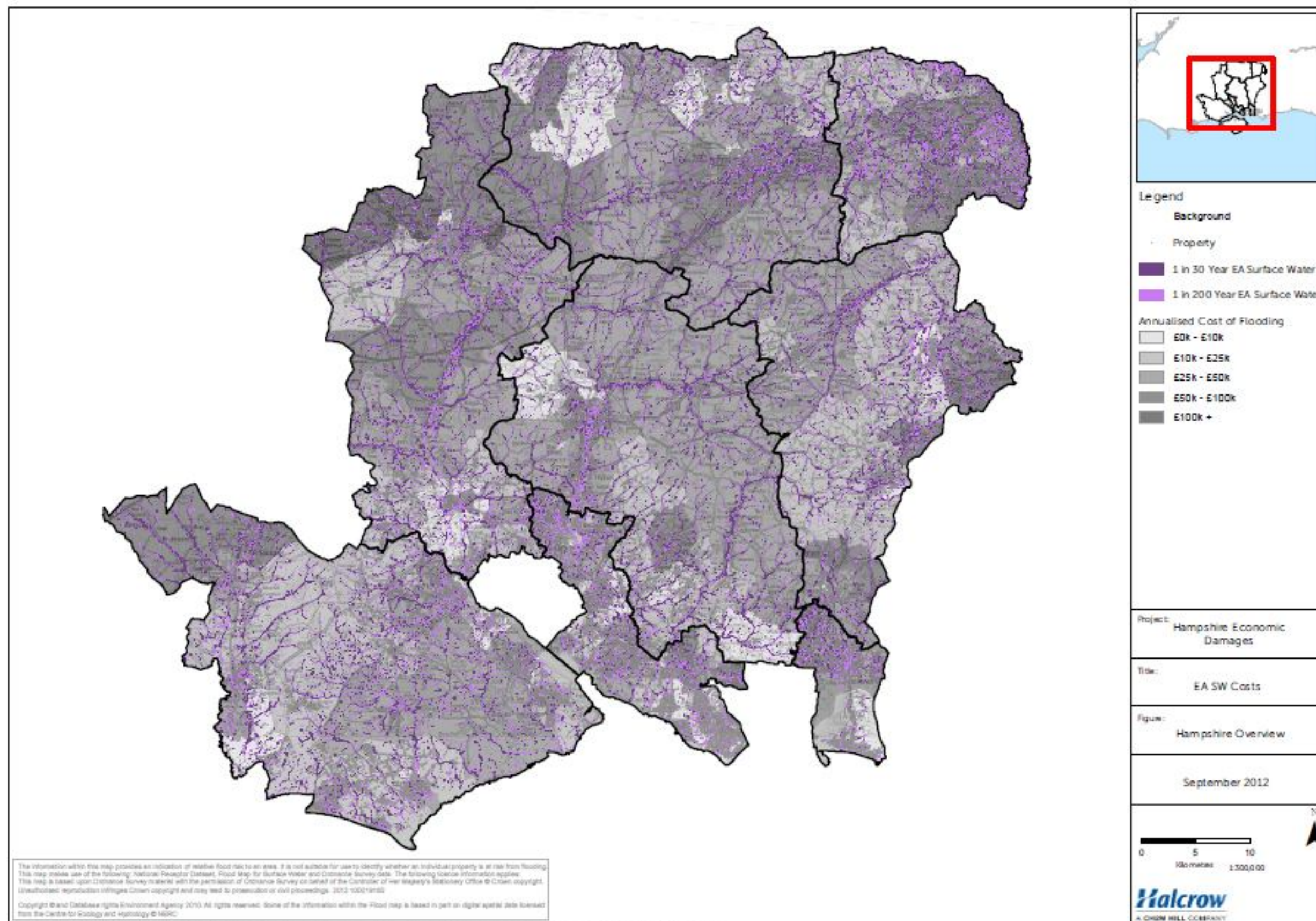
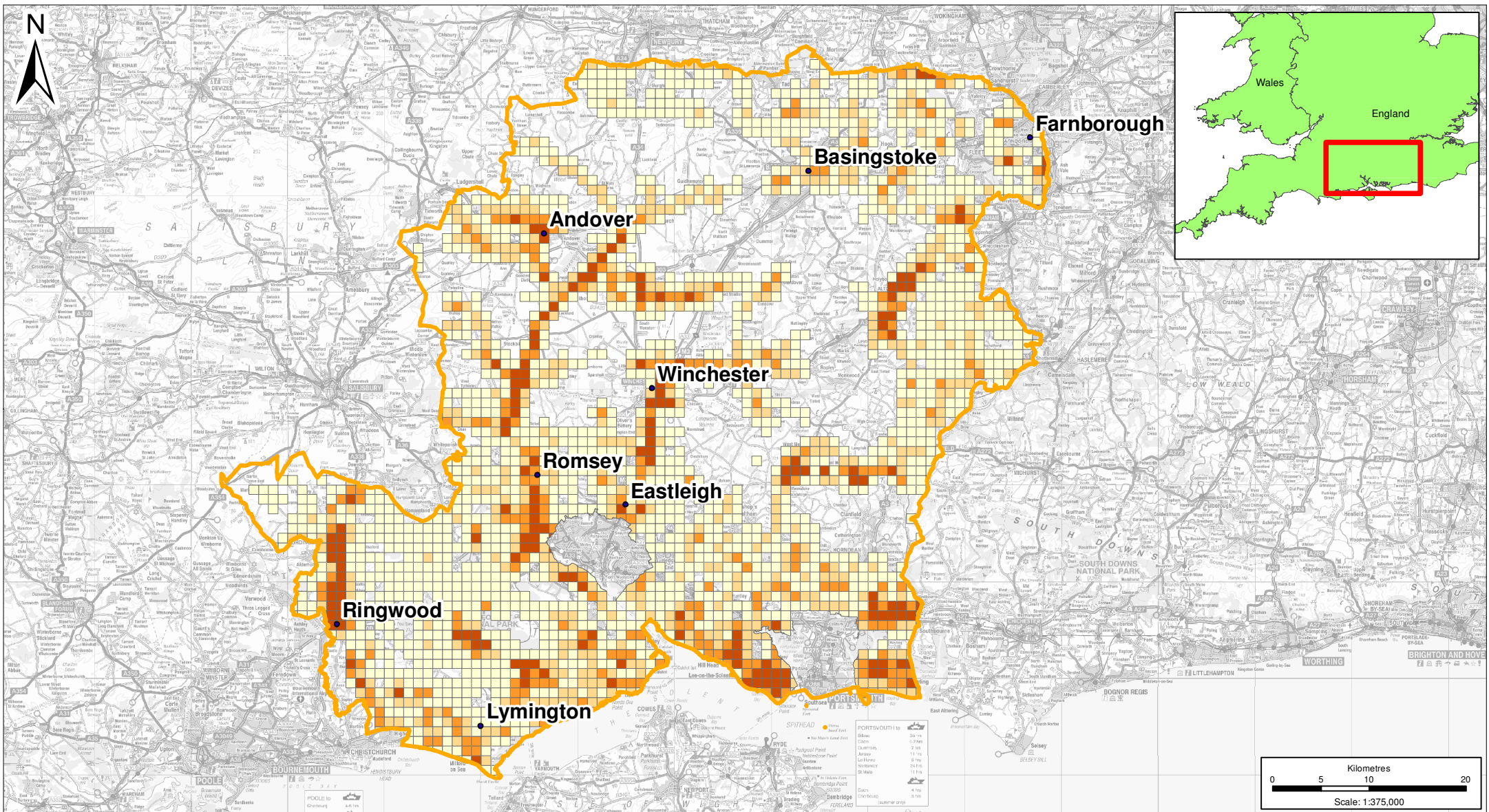


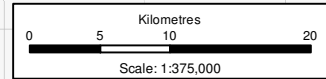
Figure 4.3: Risk of flooding calculated as an economic cost from the Environment Agency Flood Map for Surface Water



**Proportion of 1 km square susceptible to groundwater flood emergence**

- $\geq 75\%$
- $\geq 50\% < 75\%$
- $\geq 25\% < 50\%$
- $< 25\%$
- Hampshire County Boundary

Figure Number: 7  
 Job Number: 461312  
 Drawn By: CLK  
 Date: 01-05-2013

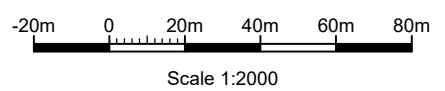
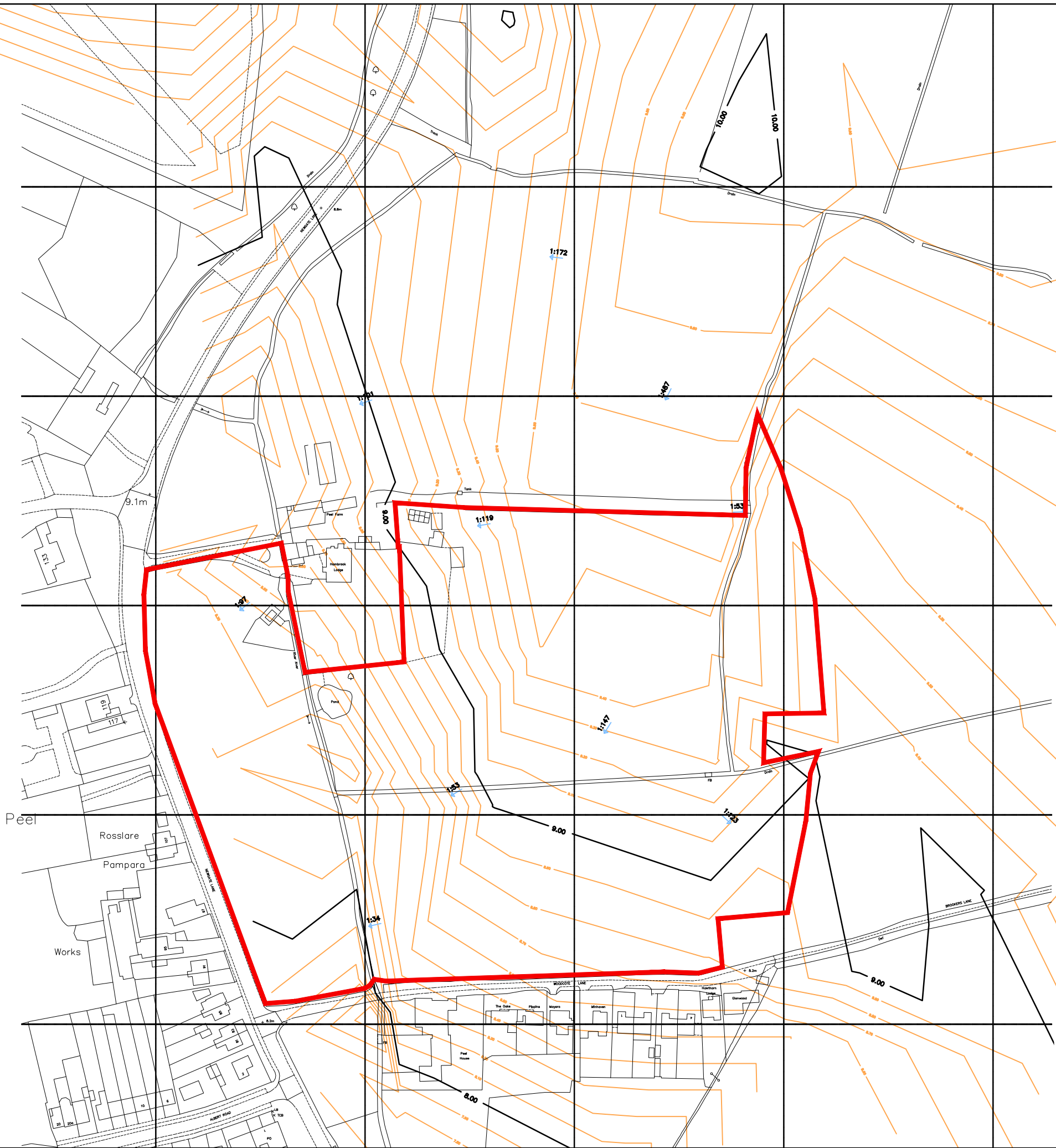
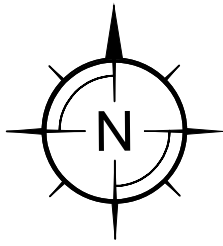


Hampshire GWMP  
 Figure 7 Areas susceptible to groundwater flooding



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**Appendix 6**  
**Existing Flow Path Plan**



TITLE	
Land at Newgate Lane (Southern Site), Existing Flow Path	
SCALE	PROJECT No.
1:2000@A3	23013
REPORT TYPE	DRG. No.
FRA	03

**Appendix 7**  
**Illustrative Master Plan**



NORTHERN PARCEL  
[PART OF SEPARATE APPLICATION]

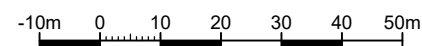
EXISTING HAMBROOK  
LODGE

WOODCOTE LN

- APPLICATION BOUNDARY
- LAND USE:**
- RESIDENTIAL PARCELS
- PRIMARY FRONTAGE
- SECONDARY FRONTAGE
- PUBLIC OPEN SPACE
- ACCESS AND CONNECTIONS:**
- PROPOSED ACCESS
- RETAINED EXISTING ACCESS TO HAMBROOK LODGE
- PRIMARY SPINE ROAD
- SECONDARY ROAD
- TERTIARY ROAD
- FOOTPATH CONNECTIONS
- FOOTPATHS KEY NODE
- GREEN AND BLUE INFRASTRUCTURE:**
- EXISTING VEGETATION
- PROPOSED VEGETATION
- PROPOSED LEAP (400SQM WITH 20M OFFSET)
- DRAINAGE CHANNELS
- INDICATIVE ATTENUATION
- OTHER:**
- PROPOSED PUMPING STATION (MIN 12M X 8M WITH 15M OFFSET)

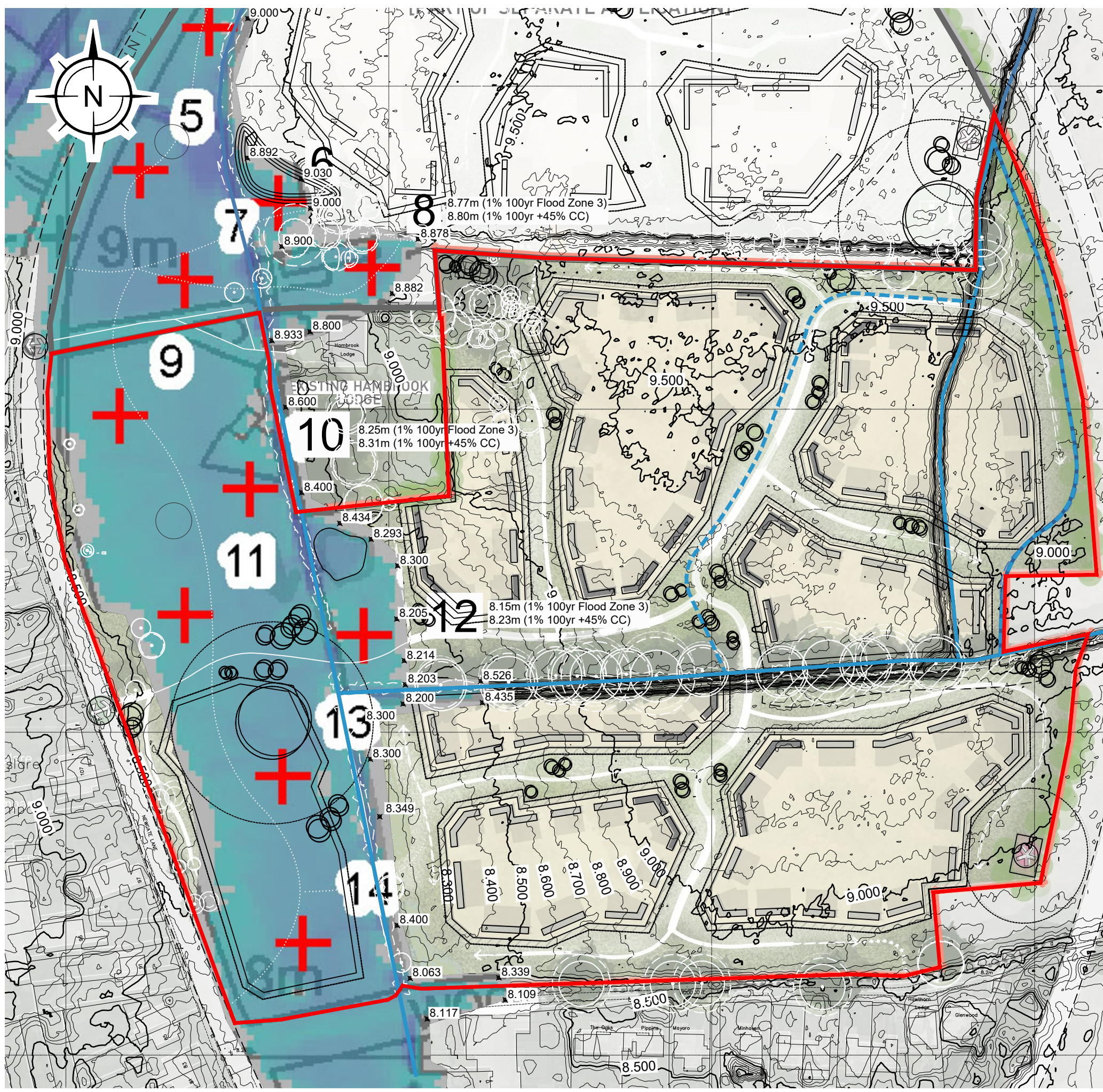


- KEY:**
- Existing Watercourse
  - Potential Watercourse Realignment
  - Site Boundary



<b>TITLE</b>			
Land at Newgate Lane (Southern Site) Illustrative Master Plan			
<b>SCALE</b>	1:1250@A3	<b>PROJECT No.</b>	23013
<b>REPORT TYPE</b>	FRA	<b>DRG. No.</b>	04 A

**Appendix 8**  
**Flood Extents Plan**



Water Depths & Levels for Land at Newgate Lane

Point	Water Depth (Metres)					Water Surface Level (mAOD*)					Ground Level
	1% Annual Probability/1 in 100 Year (Flood Zone 3)	1% Annual Probability/1 in 100 Year + 35% Climate Change	1% Annual Probability/1 in 100 Year + 45% Climate Change	1% Annual Probability/1 in 100 Year + 105% Climate Change	0.1% Annual Probability/1 in 1000 Year (Flood Zone 2)	1% Annual Probability/1 in 100 Year (Flood Zone 3)	1% Annual Probability/1 in 100 Year + 35% Climate Change	1% Annual Probability/1 in 100 Year + 45% Climate Change	1% Annual Probability/1 in 100 Year + 105% Climate Change	0.1% Annual Probability/1 in 1000 Year (Flood Zone 2)	
1	0.13	0.14	0.17	0.21	0.19	8.88	8.89	8.92	8.96	8.94	8.75
2	0.11	0.14	0.16	0.24	0.17	8.89	8.92	8.94	9.02	8.95	8.78
3	0.13	0.09	0.16	0.17	0.19	8.89	8.85	8.92	8.93	8.95	8.76
4	0.07	0.12	0.12	0.18	0.14	8.79	8.84	8.84	8.90	8.86	8.72
5	0.31	0.34	0.35	0.39	0.36	8.77	8.80	8.81	8.85	8.82	8.46
6	0.16	0.20	0.20	0.24	0.21	8.77	8.81	8.81	8.85	8.82	8.61
7	0.36	0.39	0.39	0.43	0.40	8.79	8.82	8.82	8.86	8.83	8.43
8	0.28	0.28	0.31	0.32	0.32	8.77	8.77	8.80	8.81	8.81	8.49
9	0.04	0.11	0.11	0.19	0.14	8.29	8.38	8.36	8.44	8.39	8.25
10	0.27	0.32	0.33	0.39	0.36	8.25	8.30	8.31	8.37	8.34	7.98
11	0.07	0.11	0.12	0.18	0.14	8.21	8.25	8.26	8.32	8.28	8.14
12	0.03	0.08	0.11	0.16	0.12	8.15	8.20	8.23	8.28	8.24	8.12
13	0.23	0.28	0.30	0.37	0.32	8.10	8.15	8.17	8.24	8.19	7.67
14	0.36	0.40	0.41	0.48	0.43	7.99	8.03	8.04	8.11	8.06	7.63

\* Levels in metres above Ordnance Datum Newlyn

**KEY:**

- Existing Watercourse
- Potential Watercourse Realignment
- Site Boundary
- Flood Extent from Environment Agency Product 4 JFLOW flood mapping (Blue)
- Nodes from Environment Agency flood mapping

**TITLE**  
Flood Extents Plan

**SCALE** 1:1250 @ A3 | **PROJECT No.** 23013

**REPORT TYPE** FRA | **DRG. No.** 05



## **Appendix 9**

### **Preliminary Surface Water Storage Calculations**

11 Tungsten Building  
George Street  
Fishersgate BN41 1RA

23013  
Land at Newgate Lane, Fareham  
South Site Preliminary Storage



Date 06/09/2018  
File Preliminary Storage (So...

Designed by SRD  
Checked by

Innovyze

Source Control 2019.1

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m <sup>3</sup> )	Status
15 min Summer	6.772	0.272	5.4	462.8	O K
30 min Summer	6.865	0.365	5.4	620.8	O K
60 min Summer	6.966	0.466	5.4	792.3	O K
120 min Summer	7.072	0.572	5.4	971.9	O K
180 min Summer	7.133	0.633	5.4	1075.6	O K
240 min Summer	7.173	0.673	5.4	1144.9	O K
360 min Summer	7.230	0.730	5.4	1241.2	O K
480 min Summer	7.269	0.769	5.4	1307.3	O K
600 min Summer	7.297	0.797	5.4	1354.9	O K
720 min Summer	7.318	0.818	5.4	1390.5	O K
960 min Summer	7.346	0.846	5.4	1437.9	O K
1440 min Summer	7.370	0.870	5.4	1478.6	O K
2160 min Summer	7.367	0.867	5.4	1473.4	O K
2880 min Summer	7.350	0.850	5.4	1445.7	O K
4320 min Summer	7.313	0.813	5.4	1382.2	O K
5760 min Summer	7.273	0.773	5.4	1314.9	O K
7200 min Summer	7.233	0.733	5.4	1246.2	O K
8640 min Summer	7.194	0.694	5.4	1179.8	O K
10080 min Summer	7.153	0.653	5.4	1110.6	O K
15 min Winter	6.805	0.305	5.4	518.8	O K
30 min Winter	6.910	0.410	5.4	696.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m <sup>3</sup> )	Discharge Volume (m <sup>3</sup> )	Time-Peak (mins)
15 min Summer	126.074	0.0	367.7	27
30 min Summer	84.745	0.0	443.9	41
60 min Summer	54.368	0.0	735.2	72
120 min Summer	33.674	0.0	861.0	130
180 min Summer	25.065	0.0	873.5	190
240 min Summer	20.180	0.0	857.6	250
360 min Summer	14.839	0.0	830.5	370
480 min Summer	11.923	0.0	811.0	488
600 min Summer	10.054	0.0	796.5	608
720 min Summer	8.741	0.0	785.1	726
960 min Summer	7.003	0.0	768.0	966
1440 min Summer	5.114	0.0	749.3	1444
2160 min Summer	3.727	0.0	1593.4	2140
2880 min Summer	2.973	0.0	1534.8	2452
4320 min Summer	2.159	0.0	1412.3	3204
5760 min Summer	1.718	0.0	2419.6	4032
7200 min Summer	1.438	0.0	2521.0	4840
8640 min Summer	1.245	0.0	2597.7	5704
10080 min Summer	1.102	0.0	2629.1	6552
15 min Winter	126.074	0.0	402.8	27
30 min Winter	84.745	0.0	453.3	41

11 Tungsten Building  
George Street  
Fishersgate BN41 1RA

23013  
Land at Newgate Lane, Fareham  
South Site Preliminary Storage



Date 06/09/2018  
File Preliminary Storage (So...

Designed by SRD  
Checked by


Innovyze

Source Control 2019.1

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	7.023	0.523	5.4	889.1	O K
120 min Winter	7.142	0.642	5.4	1092.2	O K
180 min Winter	7.211	0.711	5.4	1209.5	O K
240 min Winter	7.257	0.757	5.4	1287.5	O K
360 min Winter	7.322	0.822	5.4	1397.0	O K
480 min Winter	7.367	0.867	5.4	1473.2	O K
600 min Winter	7.399	0.899	5.4	1529.0	O K
720 min Winter	7.424	0.924	5.4	1571.3	O K
960 min Winter	7.459	0.959	5.4	1629.6	O K
1440 min Winter	7.492	0.992	5.4	1686.0	O K
2160 min Winter	7.498	0.998	5.4	1697.2	O K
2880 min Winter	7.481	0.981	5.4	1667.7	O K
4320 min Winter	7.432	0.932	5.4	1583.6	O K
5760 min Winter	7.379	0.879	5.4	1494.1	O K
7200 min Winter	7.322	0.822	5.4	1397.7	O K
8640 min Winter	7.266	0.766	5.4	1302.0	O K
10080 min Winter	7.208	0.708	5.4	1203.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
60 min Winter	54.368	0.0	809.0	70
120 min Winter	33.674	0.0	876.6	130
180 min Winter	25.065	0.0	854.0	188
240 min Winter	20.180	0.0	837.4	246
360 min Winter	14.839	0.0	816.1	364
480 min Winter	11.923	0.0	803.8	480
600 min Winter	10.054	0.0	796.3	598
720 min Winter	8.741	0.0	792.0	714
960 min Winter	7.003	0.0	791.2	948
1440 min Winter	5.114	0.0	793.6	1406
2160 min Winter	3.727	0.0	1615.5	2076
2880 min Winter	2.973	0.0	1569.1	2708
4320 min Winter	2.159	0.0	1486.7	3376
5760 min Winter	1.718	0.0	2703.9	4320
7200 min Winter	1.438	0.0	2807.3	5256
8640 min Winter	1.245	0.0	2847.5	6144
10080 min Winter	1.102	0.0	2759.9	7064

The Civil Engineering Practice		Page 3
11 Tungsten Building George Street Fishersgate BN41 1RA	23013 Land at Newgate Lane, Fareham South Site Preliminary Storage	
Date 06/09/2018 File Preliminary Storage (So...	Designed by SRD Checked by	
Innovyze	Source Control 2019.1	


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)	19.200	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 1.980

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0	4 0.660	4	8 0.660	8	12 0.660

The Civil Engineering Practice		Page 4
11 Tungsten Building George Street Fishersgate BN41 1RA	23013 Land at Newgate Lane, Fareham South Site Preliminary Storage	
Date 06/09/2018 File Preliminary Storage (So...	Designed by SRD Checked by	
Innovyze	Source Control 2019.1	

Model Details

Storage is Online Cover Level (m) 8.000

Tank or Pond Structure

Invert Level (m) 6.500

Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )	Depth (m)	Area (m <sup>2</sup> )
0.000	1700.0	0.700	1700.0	1.400	0.0	2.100	0.0
0.100	1700.0	0.800	1700.0	1.500	0.0	2.200	0.0
0.200	1700.0	0.900	1700.0	1.600	0.0	2.300	0.0
0.300	1700.0	1.000	1700.0	1.700	0.0	2.400	0.0
0.400	1700.0	1.001	0.0	1.800	0.0	2.500	0.0
0.500	1700.0	1.200	0.0	1.900	0.0		
0.600	1700.0	1.300	0.0	2.000	0.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0109-5400-1000-5400
Design Head (m)	1.000
Design Flow (l/s)	5.4
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	109
Invert Level (m)	6.500
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	5.4
Flush-Flo™	0.298	5.4
Kick-Flo®	0.643	4.4
Mean Flow over Head Range	-	4.7

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)
0.100	3.8	1.200	5.9	3.000	9.0	7.000	13.5
0.200	5.2	1.400	6.3	3.500	9.7	7.500	13.9
0.300	5.4	1.600	6.7	4.000	10.3	8.000	14.4
0.400	5.3	1.800	7.1	4.500	10.9	8.500	14.8
0.500	5.1	2.000	7.5	5.000	11.5	9.000	15.2
0.600	4.7	2.200	7.8	5.500	12.0	9.500	15.6
0.800	4.9	2.400	8.1	6.000	12.5		
1.000	5.4	2.600	8.4	6.500	13.0		

**Appendix 10**  
**Drainage Maintenance Schedule**

# Drainage Maintenance Schedule



<b>Project</b>	<b>Newgate Lane, Fareham</b>
<b>Project Number</b>	<b>23013</b>

**By** Martin Kempshall

**Date** 30 October 2019

## 1 Schedule of Maintenance

- 1.1 Once appointed the Contractor will prepare a site specific method statement for the control of silt and other pollutants during construction. CIRIA Report C532, Control of water pollution from construction sites, provides further guidance on this.
- 1.2 The Contractor will maintain the proposed drainage system during construction and until the handing over of the site.
- 1.3 Upon completion management of the shared drainage facilities (where not adopted) will be passed on to a Management Company appointed by the developer on behalf of the new residents.
- 1.4 In the event that the Management Company becomes unable to discharge its duties within two years of first appointment the developer will endeavour to appoint an alternative on behalf of the residents.
- 1.5 Maintenance of individual property drainage connections is the responsibility of the individual property owners.
- 1.6 The following maintenance schedule details the typical tasks to be undertaken at different intervals.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove sediment and debris from silt trap chambers, channel drains and inlet chambers	6 monthly
	Remove silt and debris from oil interceptors where provided	When alarm indicates
	Litter and debris removal – catch pits	Monthly or as required
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
	Manage other vegetation and remove nuisance plants – aesthetics	As required
	Visual inspection of permeable paving for defects and settlement	Annually
	Sweeping / brushing of permeable paving	Every 2 years



<b>Maintenance Schedule</b>	<b>Required Action</b>	<b>Frequency</b>
Corrective Maintenance	Remove debris / blockages to silt traps / channel drains	As required
	Repairs to access chambers / manhole covers	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipe and gullies for blockages, standing water and clear	As required

**Indicative Schedule of Maintenance for the Proposed Drainage System**

**2 Financing**

- 2.1 The regular maintenance of all private drainage, channels, gutters, rainwater pipes and connections will be the responsibility of the individual homeowner.
- 2.2 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents.

<b>Inspection / Action Required</b>	<b>Gullies, Channels and Gutters</b>	<b>Catchpits</b>	<b>Oil Interceptors</b>	<b>Permeable Surface</b>	<b>Surface Water Pipework</b>
After leaf fall in Autumn	✓	✓			
6 Months	✓	✓		✓	
1 Year				✓	
2 Years					✓
When alarm indicates			✓		

**Drainage System Maintenance Summary**