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Data updated: 17/01/22

Scale: 1:1250

Map Centre: 474498,98635

Date: 24/01/22

Our Ref: 763421 - 1

Wastewater Plan A3

Powered by digdat

Foul Gravity Sewer
Combined Gravity Sewer
Culverted Water Course or Treated Effluent
Surface Water Gravity Sewer
Rising Main, Vacuum or Syphon
Combined Outfall
Surface Water Outfall
Foul Outfall
Surface Water Inlet
Combined Pumping Station
Surface Water Pumping Station
Foul Pumping Station
Water Treatment Works
Section 104 Area
Building Over Agreement Area
Foul Manhole
Combined Manhole
Surface Water Manhole
Side Entry Manhole, Decarcation Chamber, Dummy Manhole or Surface Water Soakaway

tkillingback@swh.co.uk

Haslemere Gardens

WATER for LIFE

from Southern Water.

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2022 Ordnance Survey 100031673 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

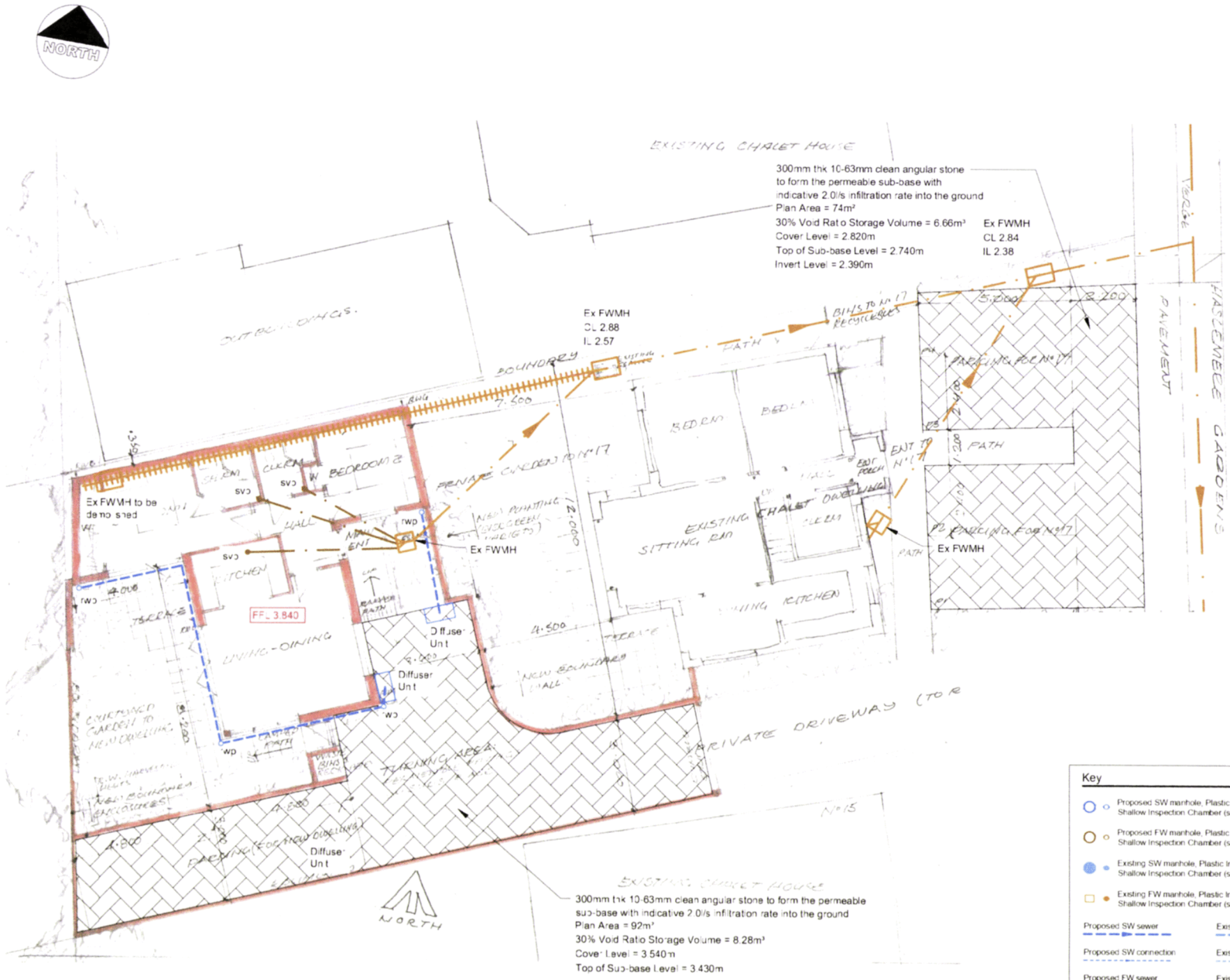
WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
3501	F	3.71	2.36	
3702	F	2.97	1.61	
3703	F	2.98	1.46	
3704	F	2.69	2.16	
3705	F	3.07	1.70	
3706	F	3.08	1.65	
3707	F	3.01	1.57	
3708	F	3.21	1.24	
4402	F	0.00	0.00	
4501	F	3.34	-0.18	
4502	F	3.23	-0.35	
4503	F	3.54	1.97	
4504	F	0.00	0.00	
4601	F	3.06	0.19	
4701	F	3.13	1.12	
4702	F	3.12	0.95	
4703	F	3.07	2.62	
5501	F	2.78	0.28	
5601	F	2.74	1.03	
5602	F	2.80	0.76	
5701	F	2.79	1.46	
6402	F	2.79	-0.14	
6403	F	2.90	0.06	
6405	F	3.02	0.42	
6501	F	3.02	0.81	
6502	F	3.05	0.93	
6504	F	2.97	0.47	
6601	F	2.69	1.11	
6603	F	2.68	0.88	
6604	F	2.78	1.17	
6605	F	2.53	1.42	
6701	F	2.54	1.20	
6702	F	2.49	1.21	
6703	F	2.44	1.28	
6705	F	2.43	1.36	
6706	F	0.00	0.00	
4550	S	3.25	1.95	
4551	S	3.33	2.31	
6450	S	2.86	2.02	
6452	S	2.99	1.95	
6453	S	3.02	0.00	
6550	S	3.01	2.22	
6650	S	2.62	1.72	
6651	S	2.79	1.50	
6652	S	2.77	1.88	
6750	S	2.46	1.48	
6751	S	2.47	1.35	
6753	S	2.45	1.62	

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Appendix F

Proposed Drainage Drawing and Calculations



Notes

GENERAL

- This drawing is to be read in conjunction with all relevant Engineers and Architects drawings and with the Specification.
- For setting out refer to Architects drawings.
- All dimensions are in millimetres and levels are in metres unless noted otherwise.
- Contractor to take all relevant dimensions on site. Any discrepancies to be advised to the Engineer.
- Contractor to check/scan for services prior to construction to avoid any damage during works.
- Existing utilities are shown as indicative and traced from asset records supplied by emapsite and Technics (Utility_Fast-track_725342_944774) dated, 23rd December 2021.
- Existing topographical survey and site layout plan supplied by AR Design Studio 23rd December 2021.

DRAINAGE

- Any information given on this drawing regarding existing services is believed to be correct. The contractor must check this information and determine the nature and location of other existing services from the various statutory authorities before commencing excavation works.
- Drainage works to be constructed in accordance with BS EN 752 and Approved Document H.
- All soft spots and unacceptable material encountered in drainage excavations is to be removed and replaced with granular material to the requirements of the building control officer.
- Pipes to be installed to manufacturers recommendations.
- Pipes under buildings to be laid to a fall of 1:40 minimum unless noted otherwise.
- Pipes outside buildings to be laid to a fall of 1:80 minimum for Foul water and 1:100 minimum for Surface water unless noted otherwise.
- Invert levels of RWPs and SVPs under building to be set 400-650mm below Finished Floor Level U.N.O.
- All pipes under buildings to run through masonry sleeper walls, above top of foundations U.N.O. Openings for pipes must not exceed 450mm wide and must have a 70mm deep precast lintel over, to match the sleeper wall thickness. Any openings wider than 450mm must be approved by SWH.
- Plastic plain wall pipes to be PVC-U to BS EN 1401-1, class SN4, with flexible joints, Kitemark certified. Structured wall plastic pipes to be to WIS 04-35-01, Kitemark certified.
- Clay pipes to be vitrified clay to BS EN 295-1, with flexible joints, Kitemark certified. Clayware pipes must be extra strength classification protected in accordance with the specified details.
- Concrete pipes to be precast concrete to BS 5911-1 and BS EN 1916, with flexible joints.
- Bedding of pipes to be in accordance with approved document H1.
- Rocker pipes with flexible joints are to be provided at a distance of 150mm and 750mm from the face of construction to manholes, where pipes pass above, below or through ground beams or foundations, at gully connections and soil stack ends.
- Manhole access covers are to be located at the outgoing side of manholes.
- Cover levels are to be fixed on site to suit finished levels. Covers and frames to BS EN124, Grade D to be used in areas subject to heavy vehicular loading, Grade C in areas subject to light vehicular loading and Grade B to be used elsewhere.
- All internal RWP to be provided with rodding access for maintenance.
- Invert levels of RWPs and linear drains outside buildings to be set above top of foundation O.N.O.

Key

- Proposed SW manhole, Plastic Inspection Chamber (ppic) or Shallow Inspection Chamber (sic)
- Proposed FW manhole, Plastic Inspection Chamber (ppic) or Shallow Inspection Chamber (sic)
- Existing SW manhole, Plastic Inspection Chamber (ppic) or Shallow Inspection Chamber (sic)
- Existing FW manhole, Plastic Inspection Chamber (ppic) or Shallow Inspection Chamber (sic)
- Proposed SW sewer
- Existing SW sewer
- Proposed SW connection
- Existing SW connection
- Proposed FW sewer
- Existing FW sewer
- Proposed FW connection
- Existing FW connection
- Existing FW sewer to be demolished
- rwp — Rainwater downpipe
- svp/ss — Soil Vent Pipe / Stub Stack
- RE — Rodding eye
- Diffuser box
- 300mm thk 10-63mm clean angular stone to form permeable sub-base

PRELIMINARY - NOT FOR CONSTRUCTION

Rev.	Amendment	Drn.	Chkd.	Appd.	Date
P01	Preliminary	RD	TK	IL	02.02.22

17 Haselmere Gardens, Hayling Island

Drainage Strategy

Scott White and Hookins
Structural Engineering | Civil Engineering | Sustainability and BREEAM | CDM Consultancy

Scale at A2 1: 100

303499-SWH-XX-XX-DR-C-0500-P01
Project | Originator | Zone | Level | Type | Role | Number | Rev

DO NOT SCALE FROM THIS DRAWING

CP004-01_FM_ST_007_D

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

Half Drain Time : 16 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	3.207	0.097	2.0	2.7	O K
30 min Summer	3.228	0.118	2.0	3.3	O K
60 min Summer	3.234	0.124	2.0	3.4	O K
120 min Summer	3.217	0.107	2.0	3.0	O K
180 min Summer	3.195	0.085	2.0	2.3	O K
240 min Summer	3.176	0.066	2.0	1.8	O K
360 min Summer	3.157	0.047	1.9	1.3	O K
480 min Summer	3.150	0.040	1.6	1.1	O K
600 min Summer	3.144	0.034	1.4	0.9	O K
720 min Summer	3.140	0.030	1.2	0.8	O K
960 min Summer	3.135	0.025	1.0	0.7	O K
1440 min Summer	3.129	0.019	0.7	0.5	O K
2160 min Summer	3.124	0.014	0.5	0.4	O K
2880 min Summer	3.121	0.011	0.4	0.3	O K
4320 min Summer	3.118	0.008	0.3	0.2	O K
5760 min Summer	3.116	0.006	0.2	0.2	O K
7200 min Summer	3.115	0.005	0.2	0.1	O K
8640 min Summer	3.115	0.005	0.2	0.1	O K
10080 min Summer	3.114	0.004	0.2	0.1	O K
15 min Winter	3.223	0.113	2.0	3.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	124.633	0.0	15
30 min Summer	83.789	0.0	24
60 min Summer	53.779	0.0	42
120 min Summer	33.337	0.0	74
180 min Summer	24.832	0.0	106
240 min Summer	20.006	0.0	134
360 min Summer	14.706	0.0	190
480 min Summer	11.818	0.0	250
600 min Summer	9.966	0.0	310
720 min Summer	8.665	0.0	370
960 min Summer	6.943	0.0	492
1440 min Summer	5.071	0.0	734
2160 min Summer	3.696	0.0	1096
2880 min Summer	2.949	0.0	1468
4320 min Summer	2.142	0.0	2188
5760 min Summer	1.705	0.0	2848
7200 min Summer	1.427	0.0	3576
8640 min Summer	1.235	0.0	4264
10080 min Summer	1.093	0.0	4968
15 min Winter	124.633	0.0	15

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	3.245	0.135	2.0	3.7	Flood Risk
60 min Winter	3.247	0.137	2.0	3.8	Flood Risk
120 min Winter	3.214	0.104	2.0	2.9	O K
180 min Winter	3.181	0.071	2.0	2.0	O K
240 min Winter	3.160	0.050	2.0	1.4	O K
360 min Winter	3.148	0.038	1.5	1.0	O K
480 min Winter	3.141	0.031	1.2	0.9	O K
600 min Winter	3.136	0.026	1.0	0.7	O K
720 min Winter	3.133	0.023	0.9	0.6	O K
960 min Winter	3.128	0.018	0.7	0.5	O K
1440 min Winter	3.124	0.014	0.5	0.4	O K
2160 min Winter	3.120	0.010	0.4	0.3	O K
2880 min Winter	3.118	0.008	0.3	0.2	O K
4320 min Winter	3.116	0.006	0.2	0.2	O K
5760 min Winter	3.115	0.005	0.2	0.1	O K
7200 min Winter	3.114	0.004	0.1	0.1	O K
8640 min Winter	3.113	0.003	0.1	0.1	O K
10080 min Winter	3.113	0.003	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	83.789	0.0	25
60 min Winter	53.779	0.0	44
120 min Winter	33.337	0.0	80
180 min Winter	24.832	0.0	108
240 min Winter	20.006	0.0	132
360 min Winter	14.706	0.0	192
480 min Winter	11.818	0.0	252
600 min Winter	9.966	0.0	310
720 min Winter	8.665	0.0	374
960 min Winter	6.943	0.0	498
1440 min Winter	5.071	0.0	742
2160 min Winter	3.696	0.0	1104
2880 min Winter	2.949	0.0	1472
4320 min Winter	2.142	0.0	2200
5760 min Winter	1.705	0.0	2808
7200 min Winter	1.427	0.0	3536
8640 min Winter	1.235	0.0	4248
10080 min Winter	1.093	0.0	4944

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Model Details

Storage is Online Cover Level (m) 3.540

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.15500	Width (m)	9.6
Membrane Percolation (mm/hr)	1000	Length (m)	9.6
Max Percolation (l/s)	25.6	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	3.110	Membrane Depth (m)	0

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

Half Drain Time : 16 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	2.499	0.109	2.0	2.7	O K
30 min Summer	2.522	0.132	2.0	3.3	Flood Risk
60 min Summer	2.526	0.136	2.0	3.4	Flood Risk
120 min Summer	2.505	0.115	2.0	2.8	O K
180 min Summer	2.480	0.090	2.0	2.2	O K
240 min Summer	2.459	0.069	2.0	1.7	O K
360 min Summer	2.438	0.048	1.9	1.2	O K
480 min Summer	2.430	0.040	1.6	1.0	O K
600 min Summer	2.424	0.034	1.4	0.8	O K
720 min Summer	2.420	0.030	1.2	0.7	O K
960 min Summer	2.415	0.025	1.0	0.6	O K
1440 min Summer	2.408	0.018	0.7	0.5	O K
2160 min Summer	2.404	0.014	0.6	0.3	O K
2880 min Summer	2.401	0.011	0.4	0.3	O K
4320 min Summer	2.398	0.008	0.3	0.2	O K
5760 min Summer	2.396	0.006	0.3	0.2	O K
7200 min Summer	2.395	0.005	0.2	0.1	O K
8640 min Summer	2.395	0.005	0.2	0.1	O K
10080 min Summer	2.394	0.004	0.2	0.1	O K
15 min Winter	2.516	0.126	2.0	3.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	124.633	0.0	15
30 min Summer	83.789	0.0	24
60 min Summer	53.779	0.0	42
120 min Summer	33.337	0.0	74
180 min Summer	24.832	0.0	104
240 min Summer	20.006	0.0	134
360 min Summer	14.706	0.0	188
480 min Summer	11.818	0.0	248
600 min Summer	9.966	0.0	308
720 min Summer	8.665	0.0	370
960 min Summer	6.943	0.0	490
1440 min Summer	5.071	0.0	734
2160 min Summer	3.696	0.0	1088
2880 min Summer	2.949	0.0	1432
4320 min Summer	2.142	0.0	2200
5760 min Summer	1.705	0.0	2856
7200 min Summer	1.427	0.0	3592
8640 min Summer	1.235	0.0	4280
10080 min Summer	1.093	0.0	5040
15 min Winter	124.633	0.0	15

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m^3)	Status
30 min Winter	2.540	0.150	2.0	3.7	Flood Risk
60 min Winter	2.540	0.150	2.0	3.7	Flood Risk
120 min Winter	2.501	0.111	2.0	2.8	O K
180 min Winter	2.463	0.073	2.0	1.8	O K
240 min Winter	2.440	0.050	2.0	1.2	O K
360 min Winter	2.428	0.038	1.5	0.9	O K
480 min Winter	2.421	0.031	1.2	0.8	O K
600 min Winter	2.416	0.026	1.1	0.6	O K
720 min Winter	2.413	0.023	0.9	0.6	O K
960 min Winter	2.408	0.018	0.7	0.4	O K
1440 min Winter	2.403	0.013	0.5	0.3	O K
2160 min Winter	2.400	0.010	0.4	0.2	O K
2880 min Winter	2.398	0.008	0.3	0.2	O K
4320 min Winter	2.396	0.006	0.2	0.1	O K
5760 min Winter	2.395	0.005	0.2	0.1	O K
7200 min Winter	2.394	0.004	0.2	0.1	O K
8640 min Winter	2.393	0.003	0.1	0.1	O K
10080 min Winter	2.393	0.003	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m^3)	Time-Peak (mins)
30 min Winter	83.789	0.0	25
60 min Winter	53.779	0.0	44
120 min Winter	33.337	0.0	78
180 min Winter	24.832	0.0	108
240 min Winter	20.006	0.0	130
360 min Winter	14.706	0.0	190
480 min Winter	11.818	0.0	250
600 min Winter	9.966	0.0	314
720 min Winter	8.665	0.0	368
960 min Winter	6.943	0.0	490
1440 min Winter	5.071	0.0	736
2160 min Winter	3.696	0.0	1064
2880 min Winter	2.949	0.0	1456
4320 min Winter	2.142	0.0	2168
5760 min Winter	1.705	0.0	2832
7200 min Winter	1.427	0.0	3632
8640 min Winter	1.235	0.0	4304
10080 min Winter	1.093	0.0	5104

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Model Details

Storage is Online Cover Level (m) 2.820

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.17500	Width (m)	7.5
Membrane Percolation (mm/hr)	1000	Length (m)	11.0
Max Percolation (l/s)	22.9	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	2.390	Membrane Depth (m)	0

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Appendix G

EA Records and Correspondence

Flood Map for Planning (Rivers and Sea) - Centred on Haslemere Gardens, PO11 9SD - Created 6 December 2021



Environment Agency

1: 10,000

0 Metres 250

N W E S

Flood Map for Planning (Rivers & Sea)

- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occuring each year.

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Levels Map Centred on Haslemere Gardens, PO11 9SD - Created 6 December 2021



Environment Agency

Legend

Location_Point

Water Depth

Value

- High : 26.817
- Low : 1.93721e-006

Ground Level

Value

- High : 18.1244
- Low : -23.2942

1:600 *

*when printed at A4.

N

0 10 20

Metres

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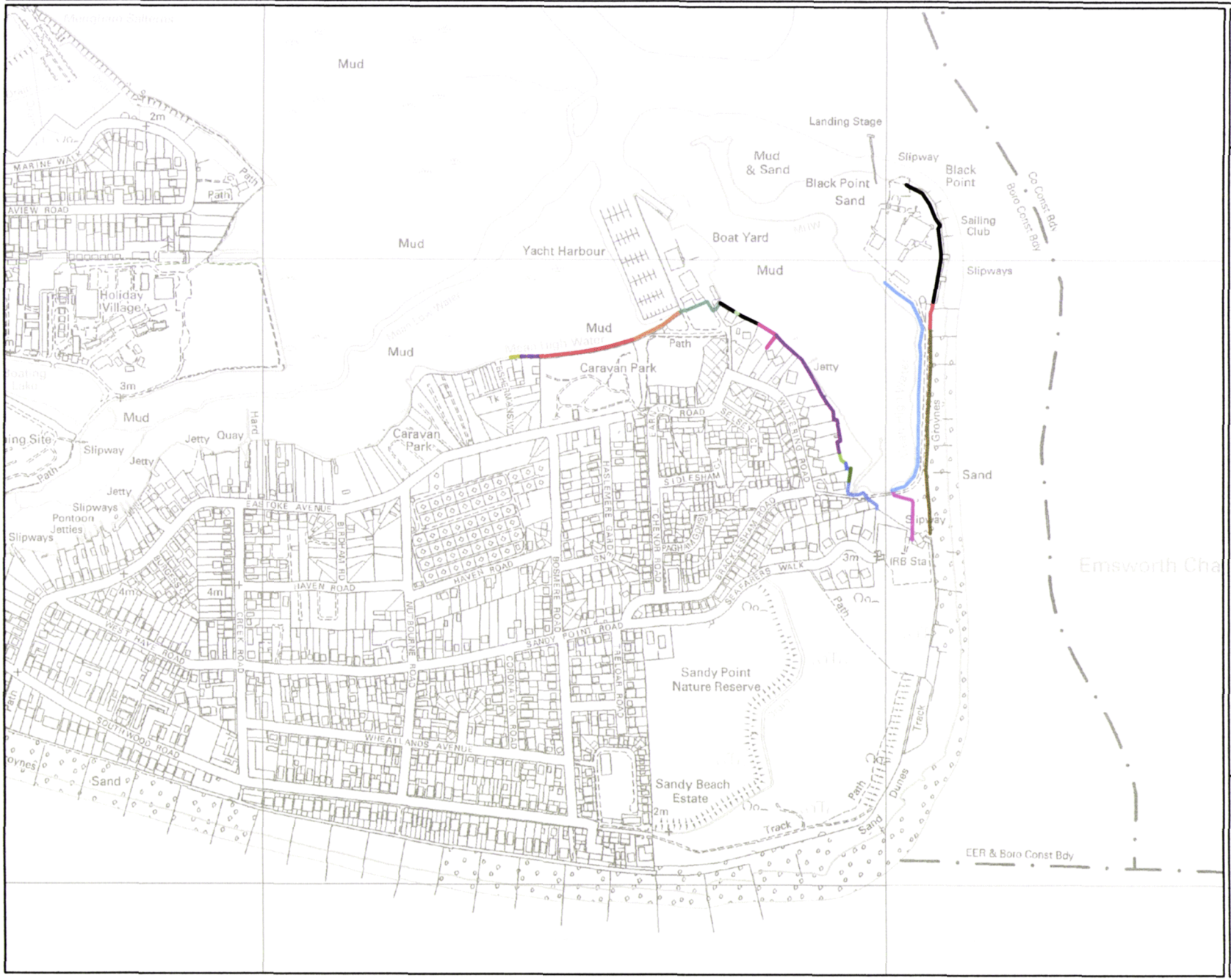
Contact Us: National Customer Contact Centre, PO BOX 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Water Depths & Levels for Haslemere Gardens, PO11 9SD

	Water Surface Level (mAOD*)			Water Depth (metres)	
Point	0.5% Annual Probability/1 in 200 Year (Flood Zone 3)	0.1% Annual Probability/1 in 1000 Year Present Day (Flood Zone 2)	Ground Level	0.5% Annual Probability/1 in 200 Year (Flood Zone 3)	0.1% Annual Probability/1 in 1000 Year Present Day (Flood Zone 2)
1	3.37	3.54	2.93	0.44	0.61
2	3.36	3.54	2.98	0.38	0.56
3	3.36	3.54	2.80	0.56	0.74
4	3.36	3.54	2.81	0.55	0.73
5	3.36	3.54	2.82	0.54	0.72
6	3.36	3.54	2.79	0.57	0.75
7	3.36	3.54	2.79	0.57	0.75
8	3.36	3.54	2.79	0.57	0.75
9	3.36	3.54	2.79	0.57	0.75
10	3.36	3.54	2.73	0.63	0.81
11	3.36	3.54	2.76	0.60	0.78

* Levels in metres above Ordnance Datum Newlyn

Defence map Centred on Haslemere Gardens, PO11 9SD - Created 6 December 2021



Legend

ASSET_ID		ASSET_ID	
180204	147335	44206	184546
332751	147336	44207	185639
470260	147337	97418	185640
470262	180202		185641
470265	180203		
470270	180386		
470271	184543		
470278	184544		
	184545		

1:8,900 *

*when printed at A4.

N

0 175 350

Metres

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Asset Id	Asset Sub-type	Length (m)	Protection Type	Actual Condition	Standard of Protection (Years)	Last Inspection Date
147335	flood_gate	5.86	coastal	Good	No Data	08/12/2020
147336	flood_gate	5.55	coastal	Good	No Data	08/12/2020
147337	flood_gate	4.71	coastal	Fair	No Data	08/12/2020
180386	wall	80.8	tidal	Good	100	28/09/2020
180202	embankment	21.82	tidal	Good	100	28/09/2020
180203	wall	16.18	tidal	Good	100	28/09/2020
44206	flood_gate	4.36	coastal	Good	No Data	08/12/2020
44207	flood_gate	3.72	coastal	Good	No Data	08/12/2020
184543	wall	11.43	coastal	Fair	200	08/12/2020
184544	wall	20.26	coastal	Fair	200	08/12/2020
184545	wall	154.55	coastal	Fair	200	08/12/2020
184546	wall	86.33	coastal	Fair	100	08/12/2020
185639	wall	73.44	coastal	Fair	200	08/12/2020
185640	wall	65.61	coastal	Fair	200	08/12/2020
185641	embankment	57.96	coastal	Fair	200	08/12/2020
97418	flood_gate	4.92	coastal	Good	No Data	08/12/2020
470271	embankment	101.64	coastal	No Data	No Data	No Data
470260	beach	329.88	coastal	No Data	No Data	No Data
470270	embankment	380.07	coastal	No Data	No Data	No Data
332751	flood_gate	5	coastal	Good	No Data	28/09/2020
470278	high_ground	229.51	coastal	No Data	No Data	No Data
470262	beach	42.23	coastal	No Data	No Data	No Data
470265	quay	211.9	coastal	No Data	No Data	No Data
180204	wall	20.35	coastal	Good	100	28/09/2020

Risk of flooding from Surface Water - Centred on Haslemere Gardens, PO11 9SD - Created 6 December 2021



Environment Agency

1: 10,000

0 Metres 250

N W E S

Likelihood of flooding from Surface Water

- High (>=3.3%)
- Medium (3.3% - 1%)
- Low (1% - 01%)
- Very Low
- Flood Extent 1 in 30
- Flood Extent 1 in 100
- Flood Extent 1 in 1000

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 GOV.UK.

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