

**LAND AT BAYARDS, EASTERGATE
FLOOD RISK ASSESSMENT AND DRAINAGE
STRATEGY
AUGUST 2021**



LAND AT BAYARDS, EASTERGATE

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

August 2021

Reside Developments Ltd

RESIDENTIAL
LAND AT BAYARDS, EASTERGATE

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

CONTROLLED DOCUMENT

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RESIDENTIAL LAND AT BAYARDS, EASTERGATE

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

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1. INTRODUCTION

- 1.1 This Flood Risk Assessment (FRA) and Drainage Strategy has been prepared by Paul Basham Associates on behalf of Reside Developments Ltd to support an outline planning application for a residential site. The land is located to the South of Level Mare Lane, Eastergate, Fontwell, Arun. The nearest postcode is PO20 3SA, and the grid reference is SU 94608 06305.

2. SITE DETAILS

- 2.1 The plot size is approximately 2.31ha and the land is currently open field. The topographical survey shows the site has a low point of c.16.65m at the south-east corner of the site. The site has a general fall of 1:80 from the highpoint of c.19.46m at the very north of the site. See **Figure 1** for site location.
- 2.2 The development aspirations are for 69 residential dwellings with the associated hardstanding, landscaping and a play area. See **Appendix A** for the site layout.



Figure 1: Site Location Plan

Site Geology

- 2.3 A review of the British Geological Survey (BGS) mapping indicates that the bedrock geology beneath the site is Lambeth Group - Clay, silt and sand. Sedimentary bedrock formed between 59.2 and 47.8 million years ago during the Palaeogene period. There also superficial deposits of Head - Gravel, sand, silt and clay. Sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period. See **Figure 2** for the BGS map extract.



Figure 2: BGS bedrock mapping

- 2.4 SOILS Ltd completed a site investigation report in August 2021 (**reference: 19469/MIR_R27**). The report identified that the soil up to depths 0.65m comprised of soft to stiff yellow brown slightly sandy silt and comprised of “soft to stiff brown silty sandy very clayey gravel/very gravelly clay interbedded with light brown to yellow brown, slightly sandy, silty/clayey GRAVEL, bands of sandy gravelly SILT were noted” from 0.65m to 6.00m. The report will be submitted with the application.
- 2.5 Soakage tests to BREDG365.2016 were undertaken for the aforementioned report, in two trial pits. The results varied from 1.041×10^{-4} to 4.867×10^{-5} .
- 2.6 It was concluded by SOILS Ltd that a 5m offset distance from foundations to soakaways should be adopted within the surface water drainage proposals.

3. EXISTING DRAINAGE

Existing Surface Water Drainage

- 3.1 There appears to be no existing surface water drainage provisions proximate to the site.
- 3.2 The nearest known watercourse is the Lidsey Rife River due south of the site.
- 3.3 The greenfield run-off rates for the existing site have been estimated using the HR Wallingford online calculator on the UK SuDS website. The run-off rates are shown in **Figure 3** below. See **Appendix B** for a copy of the full report.

	Default
Q _{BAR} (l/s):	0.44
1 in 1 year (l/s):	0.37
1 in 30 years (l/s):	1.01
1 in 100 year (l/s):	1.4
1 in 200 years (l/s):	1.64

Figure 3: Greenfield runoff rates

- 3.4 The developed area impermeable area has been calculated at 1.0ha, which provides the developed area greenfield rates as shown in **Figure 4**. The developed area is all the impermeable areas added together (roofs, driveways, internal road, footway and a nominal patio allowance of 3.0x3.0m). **Appendix B** for a copy of the full report.

	Default
Q _{BAR} (l/s):	0.19
1 in 1 year (l/s):	0.16
1 in 30 years (l/s):	0.44
1 in 100 year (l/s):	0.61
1 in 200 years (l/s):	0.71

Figure 4: Developed area greenfield runoff rates

Existing Foul Water Drainage

- 3.5 The existing foul water drainage provisions are a Southern Water foul sewer within the adjacent site, flowing southbound. See **Appendix C** for a copy of Southern Water's sewer mapping.
- 3.6 There is a proposed foul water drainage system in the adjacent site to the East (Planning ref: BN/50/20/PL).

4. FLOOD RISK

Fluvial/tidal flooding

- 4.1 Flood mapping obtained from the Environment Agency's 'flood map for planning' website has identified that the site falls wholly within Flood Zone 1. See **Figure 5** for a snip of the Environment Agency's flood map for planning.

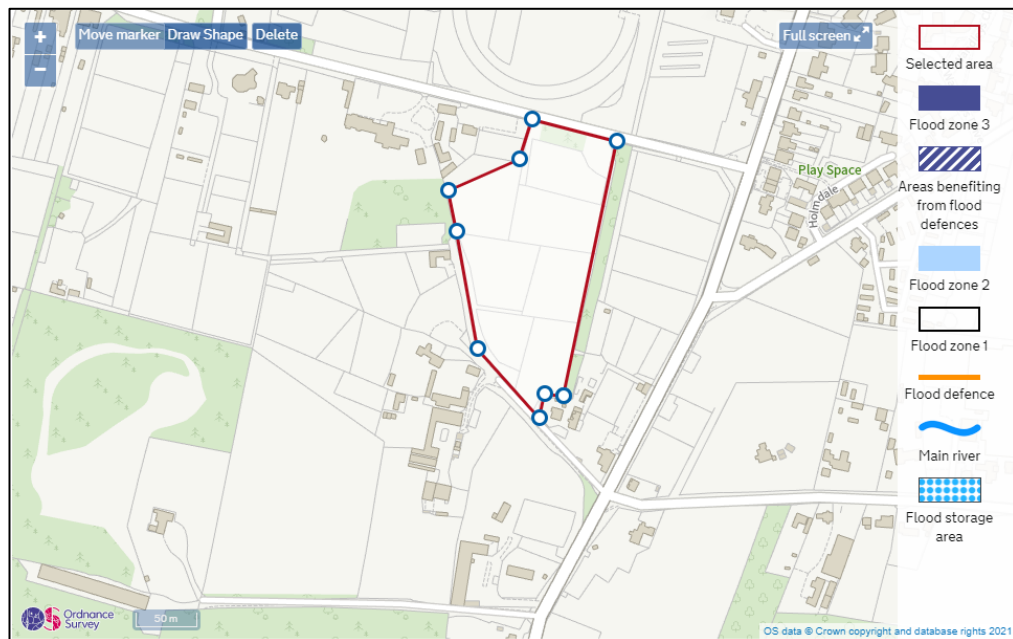


Figure 5: Flood Map for Planning

Long term flood risk from rivers and seas

- 4.2 The long-term flood risk and from rivers and seas mapping shows that the site is not considered to be at long-term risk of flooding from rivers and seas. See **Figure 6** below for a snip of the long-term risk of from rivers and seas map

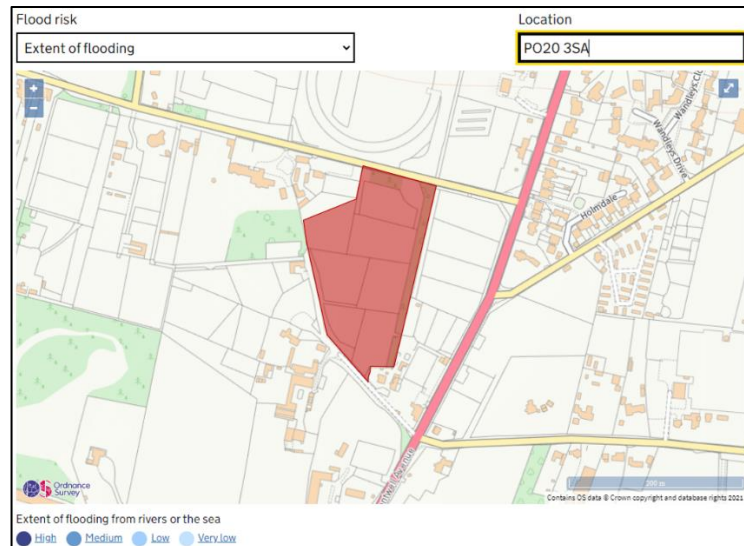


Figure 6: Long-term flood risk from rivers and seas map

Long-term flood risk from reservoirs

- 4.3 The long-term flood risk from reservoirs map shows that the site is not considered to be at risk of long-term flooding from reservoirs. See **Figure 7** below for a snip of the long-term flood risk from reservoirs map.

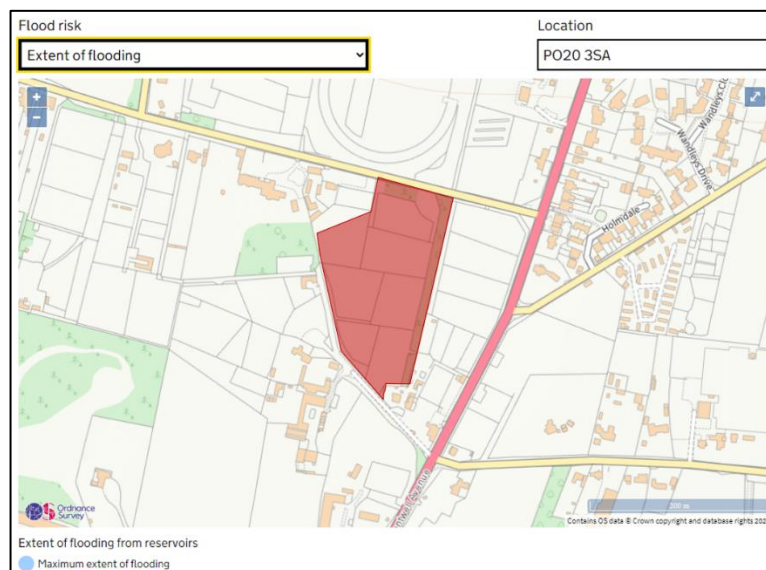


Figure 7: Long term flood risk from reservoirs map

Long-term surface water flood risk

- 4.4 Surface water or 'pluvial' flooding results from rainfall running over ground before eventually entering a watercourse or sewer. It is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting), or otherwise has low permeability.
- 4.5 The surface water flood risk map is shown in **Figure 8** and indicates that the site is considered to have a very low risk of long-term surface water flooding.

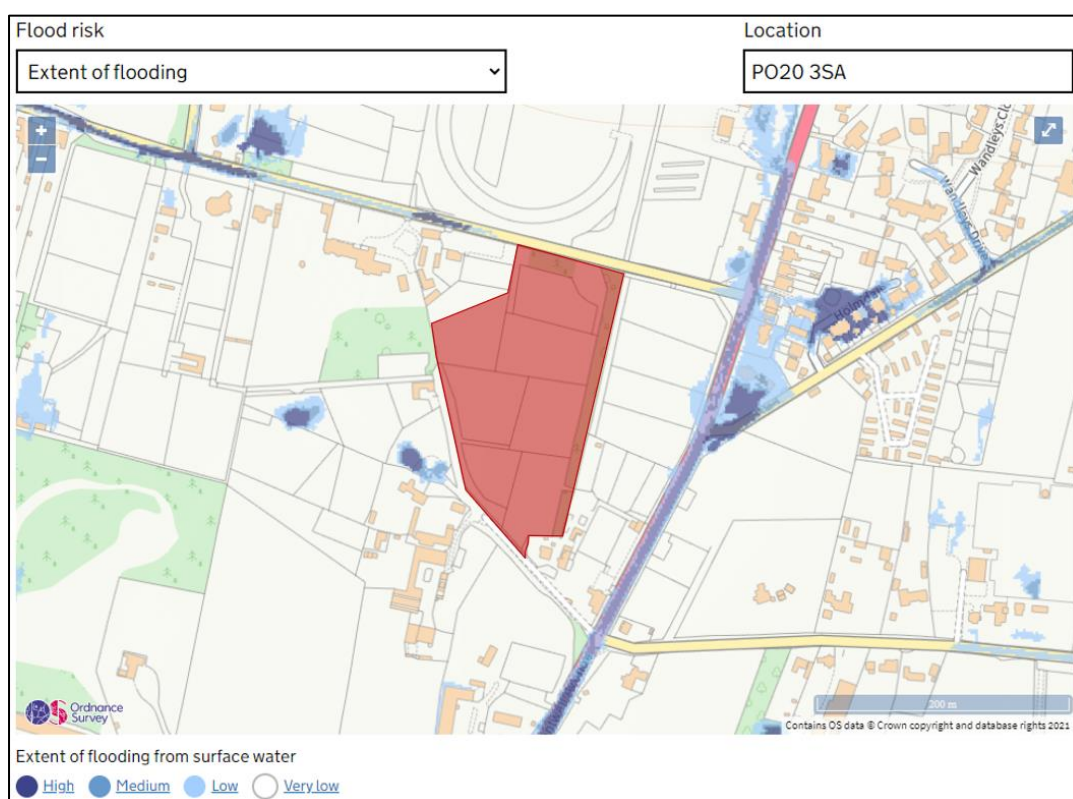


Figure 8: Long term flood risk from surface water

National Planning Policy Framework (NPPF)

- 4.6 This report has been prepared considering the National Planning Policy Framework (NPPF) Technical Guidance and the Environment Agency's (EA) flood risk standing advice.
- 4.7 Table 3 from the NPPF Technical Guidance has been included as **Figure 9** below. This provides the classes of development (based on flood risk vulnerability) that are permitted within each of the flood zones. The Flood Risk Vulnerability Classification for the site is 'More Vulnerable' as it is a housing development, which is defined in Table 2 of the Planning Practice Guidance. Based on this, the development is appropriate as it passes the Sequential Test and no Exception Test is required.

Flood Zones	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Table 3 - Flood risk vulnerability and flood zone 'compatibility'

Key: ✓ Development is appropriate ✗ Development should not be permitted.

Notes to table 3:

- This table does not show the application of the [Sequential Test](#) which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and [Exception Tests](#) do not need to be applied to [minor developments](#) and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* " * "In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere

Minor development means:

- minor non-residential extensions: industrial/commercial/leisure etc extensions with a footprint less than 250 square metres.
- alterations: development that does not increase the size of buildings e.g. alterations to external appearance.
- householder development: For example; sheds, garages, games rooms etc within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

Figure 9: NPPF Planning Practice Guidance Table – Flood Risk Vulnerability and Flood Zone Compatibility

Groundwater Flooding

- 4.8 Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels.
- 4.9 The groundwater flooding risk for the site is considered to be low. Four-month groundwater monitoring was completed for the adjacent site (**planning ref: BN/50/20/PL**) by Forge Environmental Management Ltd in September 2020. The results showed the water level ranged to from 2.96m bgl to 3.51m bgl; these values can be considered to not put the site at risk of groundwater flooding.
- 4.10 SOILS Ltd completed a site investigation report in August 2021 (**reference: 19469/MIR_R27**) and have installed groundwater monitoring wells into four of the windowless sampler boreholes (WS1, WS5, WS8 and WS12) completed for this report. This will allow for groundwater monitoring to be completed on site in the upcoming winter months.

5. DRAINAGE STRATEGY

Potential Surface Water Drainage Strategy

5.1 In line with the Building Regulations Part H3, surface water shall discharge to one of the following, listed in order of priority:

- An adequate infiltration system: or, where not reasonably practicable,
- A watercourse; or, where not reasonably practicable,
- A sewer.

5.2 Given the site conditions and results from the infiltration testing, it was concluded that infiltration would be the suitable method of discharge for this site. The infiltration testing results, from the site investigation report, are shown below in **Figure 10**.

Trial Hole	Test No.	Stratum	Infiltration Rate (m/s)
TPI	1	HEAD	1.20E-04
	2		1.55E-04
	3		1.04E-04
TP2	1	HEAD	5.93E-05
	2		4.86E-05
	3		3.63E-05

Figure 10: Infiltration Test results from Main Investigation Report

5.3 The main roads, parking courts and private drives will all be managed through permeable paving with all roof areas being conveyed to cellular crate soakaways within the rear gardens.

5.4 The proposed Surface Water drainage strategy is shown in **Appendix D**.

MicroDrainage Calculations

5.5 Microdrainage calculations have been undertaken for the cellular soakaways and show that in both the 10yr and 100yr (+40%) storm events there is no flooding and that the half drain time criteria are met. The results are shown in **Appendix E**.

Potential Foul Water Drainage Strategy

5.6 The proposals for the foul drainage are to discharge to the existing foul sewer adjacent Fontwell Avenue, via the proposed infrastructure within the development to the east.

- 5.7 The proposals require that the sewer levels within the adjacent development are designed as to facilitate a gravity connection from this proposed development.
- 5.8 The proposed Foul Water drainage proposals are shown in **Appendix D**.
- 5.9 An alternative foul option is demonstrated within **Appendix F**. This option involves provision of a pumping station and laying of a new sewer along Level Mare Lane, before discharging into the Southern Water sewer within the public highway.

6. SUMMARY AND CONCLUSION

- 6.1 This FRA has been prepared by Paul Basham Associates to help assess the suitability of the site for development located to the South of Level Mare Lane, Eastergate, Fontwell, Arun.
- 6.2 There is no increase in flood risk, either on site or downstream as a result of the proposed development and no flood reduction measures are required based on the assumptions made in this report.
- 6.3 It has been identified that the site lies wholly with Flood Zone 1 and has a very low risk of flooding. The proposed drainage system has been designed for the 1:100year storm event with an additional 40% allowance for climate change.
- 6.4 The site has also been assessed for all sources of flood risk such as rivers, groundwater, canals, reservoirs, surface water (pluvial flooding) and sewer, and it is concluded that the site is not a risk of any means of flooding.

Drainage Strategy

- 6.5 In accordance with the Environment Agency, National Planning Policy Framework and current best practices, it is intended to attenuate the run-off at source using a number of different SuDS techniques, which also help improving the water quality prior to discharge into the ground.
- 6.6 In this instance, given the underlying geology consists of silty/clayey GRAVEL, therefore as indicated in the S.I report, infiltration devices will be suitable at this location.
- 6.7 The drainage strategy employed will comprise the following:
- Surface water via infiltration with a combination of soakaways and permeable pavements
 - Piped networks for both foul water with the primary strategy via gravity via the adjacent site; an alternative pumping station option is demonstrated via Level Mare Lane
 - The new foul sewers will be connected to the existing network via an agreement with Southern Water under Section 106 of the Water Industry Act 1991
- 6.8 The proposed foul drainage strategy comprises a gravity drain network made up of pipe sizes between 100mm and 150mm in diameters running in the main access roads through the site. Sewage will then be drained into the existing foul sewers based on the guidance within the Sewerage Sector Guidance.

- 6.9 Based on the Sewerage Sector Guidance, a foul flow of 4000litres of water per property per day has been used for the foul water drainage design, therefore the design flow is 3.19l/s for the proposed development of 69 residential dwellings. A pipe of 150mm diameter is to be specified in the design for 10 properties or more.

General

- 6.10 It is important to note that the surface and foul water strategies outlined in this report may not necessarily form the final design. It is simply a demonstration of the most suitable and technically feasible designs for the proposed development, based on the information available at present. Site constraints and economic appraisals undertaken as part of the design stage may result in suitable amendments to the current strategies.
- 6.11 This FRA has been prepared considering the National Planning Policy Framework Technical Guidance and the EA Flood Risk Standing Advice. This report has quantified the flood risk posed to the proposed development as being More Vulnerable which is a suitable development type for Flood Zone 1.

Appendix A

Land at Bayards, Eastergate
Flood Risk Assessment & Drainage Strategy

Paul Basham Associates Ltd
Report No 020.5672/FRA&DS/1



Appendix B

Land at Bayards, Eastergate
Flood Risk Assessment & Drainage Strategy

Paul Basham Associates Ltd
Report No 020.5672/FRA&DS/1

Calculated by:

Craig Longhurst

Site name:

Phase 2 Northfields Cottage, Fontwell Avenue

Site location:

Fontwell, West Sussex

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:

50.84815° N

Longitude:

0.65725° W

Reference:

1328089424

Date:

Aug 09 2021 09:23

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):

2.3

Methodology

Q_{BAR} estimation method:

Calculate from SPR and SAAR

SPR estimation method:

Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	1	1
HOST class:	N/A	N/A
SPR/SPRHOST:	0.1	0.1

Hydrological characteristics

	Default	Edited
SAAR (mm):	778	778
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q _{BAR} (l/s):	0.44	0.44
1 in 1 year (l/s):	0.37	0.37
1 in 30 years (l/s):	1.01	1.01
1 in 100 year (l/s):	1.39	1.39
1 in 200 years (l/s):	1.64	1.64

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

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Site location:

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Site Details

Latitude:

Longitude:

Reference:

Date:

Runoff estimation approach

Site characteristics

Total site area (ha):

Methodology

Q_{BAR} estimation method:

SPR estimation method:

Soil characteristics

	Default	Edited
SOIL type:	1	1
HOST class:	N/A	N/A
SPR/SPRHOST:	0.1	0.1

Hydrological characteristics

	Default	Edited
SAAR (mm):	778	778
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

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(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

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Site Details

Latitude:

Longitude:

Reference:

Date:

Runoff estimation approach

Site characteristics

Total site area (ha):

Methodology

Q_{BAR} estimation method:

SPR estimation method:

Soil characteristics

	Default	Edited
SOIL type:	1	1
HOST class:	N/A	N/A
SPR/SPRHOST:	0.1	0.1

Hydrological characteristics

	Default	Edited
SAAR (mm):	778	778
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

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Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

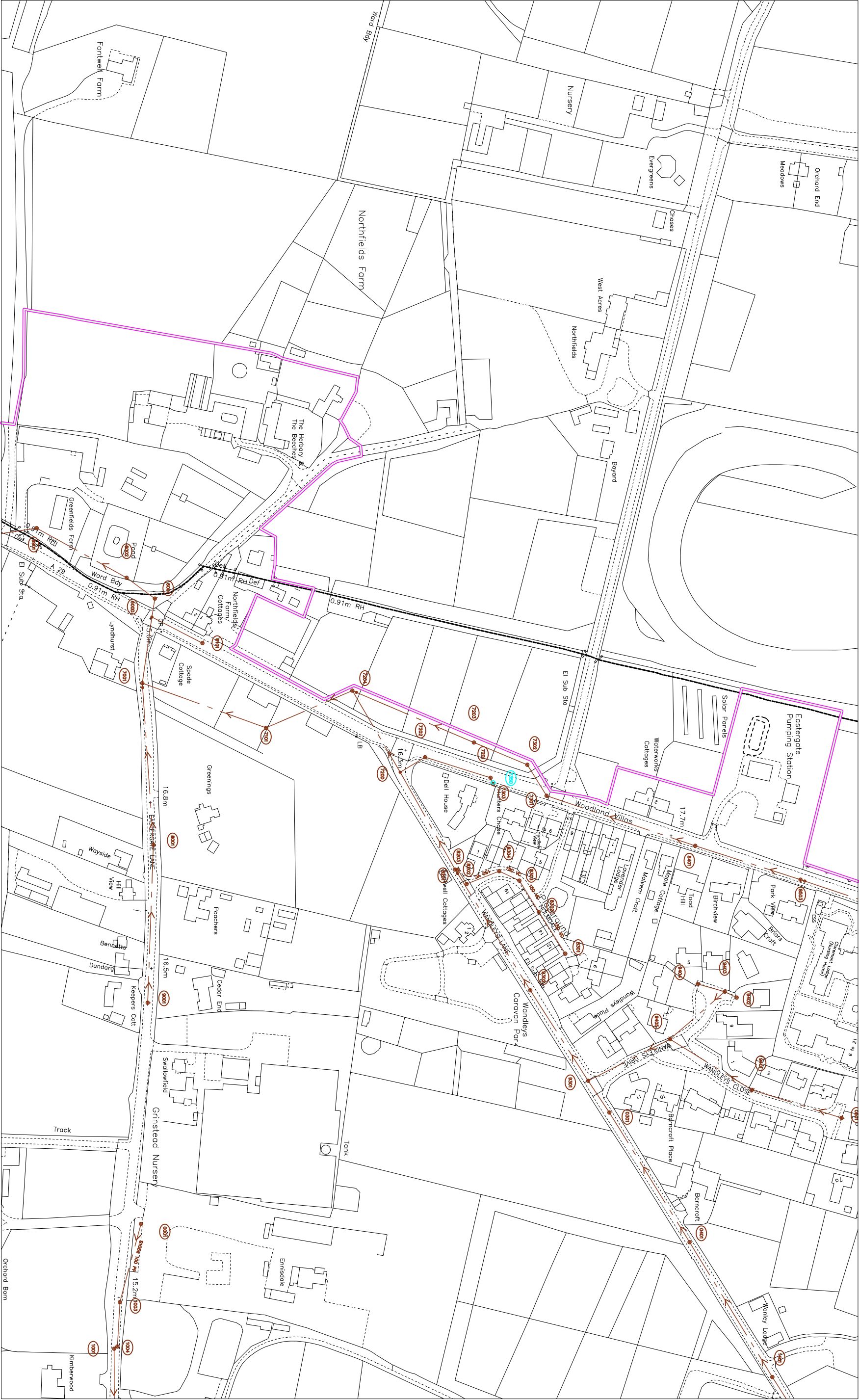
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Appendix C

Land at Bayards, Eastergate
Flood Risk Assessment & Drainage Strategy

Paul Basham Associates Ltd
Report No 020.5672/FRA&DS/1



SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
0001X	18.42		100	PF	CIRC												
0301X	19.05	17.58	130	VC	CIRC												
0401X	21.39	20.19	150	VC	CIRC												
0501X	15.19	13.38	175	VC	CIRC												
1001X			150	PF	CIRC												
1003X			150	PF	CIRC												
1004X			150	VC	CIRC												
1401X	20.48	18.61	150	VC	CIRC												
6001X	14.81	13.09	225	VC	CIRC												
6002X	15.11	12.93	225	VC	CIRC												
600DX	14.93		225	VC	CIRC												
6101X	13.31		100	VC	CIRC												
6901X	15.42	12.92	225	VC	CIRC												
7001X	15.8		225	VC	CIRC												
7101X	16.11	13.73	225	VC	CIRC												
7201X	16.79	15.6	100	VC	CIRC												
7202X	16.54	14.58	100	VC	CIRC												
7203X	16.58	15.01	225	VC	CIRC												
7204X	16.36	13.89	225	VC	CIRC												
720DX	16.45	14.1	150	VC	CIRC												
7301X	17.02	15.74	225	VC	CIRC												
7302X	17.23	15.65	225	VC	CIRC												
7303X	16.92	15.72	100	CI	CIRC												
8001X	16.89	14.63	150	VC	CIRC												
8201X	17.01	14.67	150	VC	CIRC												
8202X	17.34	14.82	150	VC	CIRC												
8203X	17.07	14.73	150	VC	CIRC												
8301X	16.72	15.67	150	VC	CIRC												
8302X	16.37	15.23	150	VC	CIRC												
8303X	16.6	15.07	150	VC	CIRC												
8304X	16.8	14.96	150	VC	CIRC												
8401X	17.98	16.17	225	VC	CIRC												
8503X	19.36	16.8	225	VC	CIRC												
9001X	16.24	15.21	150	VC	CIRC												
9301X	18.26	16.84	150	VC	CIRC												
9302X	18.25	16.48	150	VC	CIRC												
9401X	20.11	18.79	150	VC	CIRC												
9402X	19.17	19.16	150	VC	CIRC												
9403X	19.16	17.83	150	VC	CIRC												
9404X	19.1	17.99	150	VC	CIRC												
9405X	18.76	17.33	150	VC	CIRC												

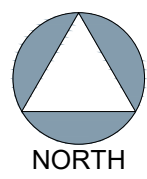
[illegible]

Drawn by: okuneyf	
Title: 284436_Land at Northfield Cott	
Date: 09/03/2018	

Appendix D

Land at Bayards, Eastergate
Flood Risk Assessment & Drainage Strategy

Paul Basham Associates Ltd
Report No 020.5672/FRA&DS/1



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CDM Regulations 2015 : Reg. 9

None of the below is deemed to relieve any contractor of his obligations under all applicable health and safety legislation.

In preparing the design shown on this and related drawings Paul Basham Associates has considered and, where reasonably practicable, eliminated foreseeable risks. Any further abnormal or unusual risks, which remain, are numbered below and identified thus 'A', and should be given particular attention by all those carrying out construction or of future maintenance works.

1. Existing water mains present
- 2.
- 3.

GENERAL NOTES

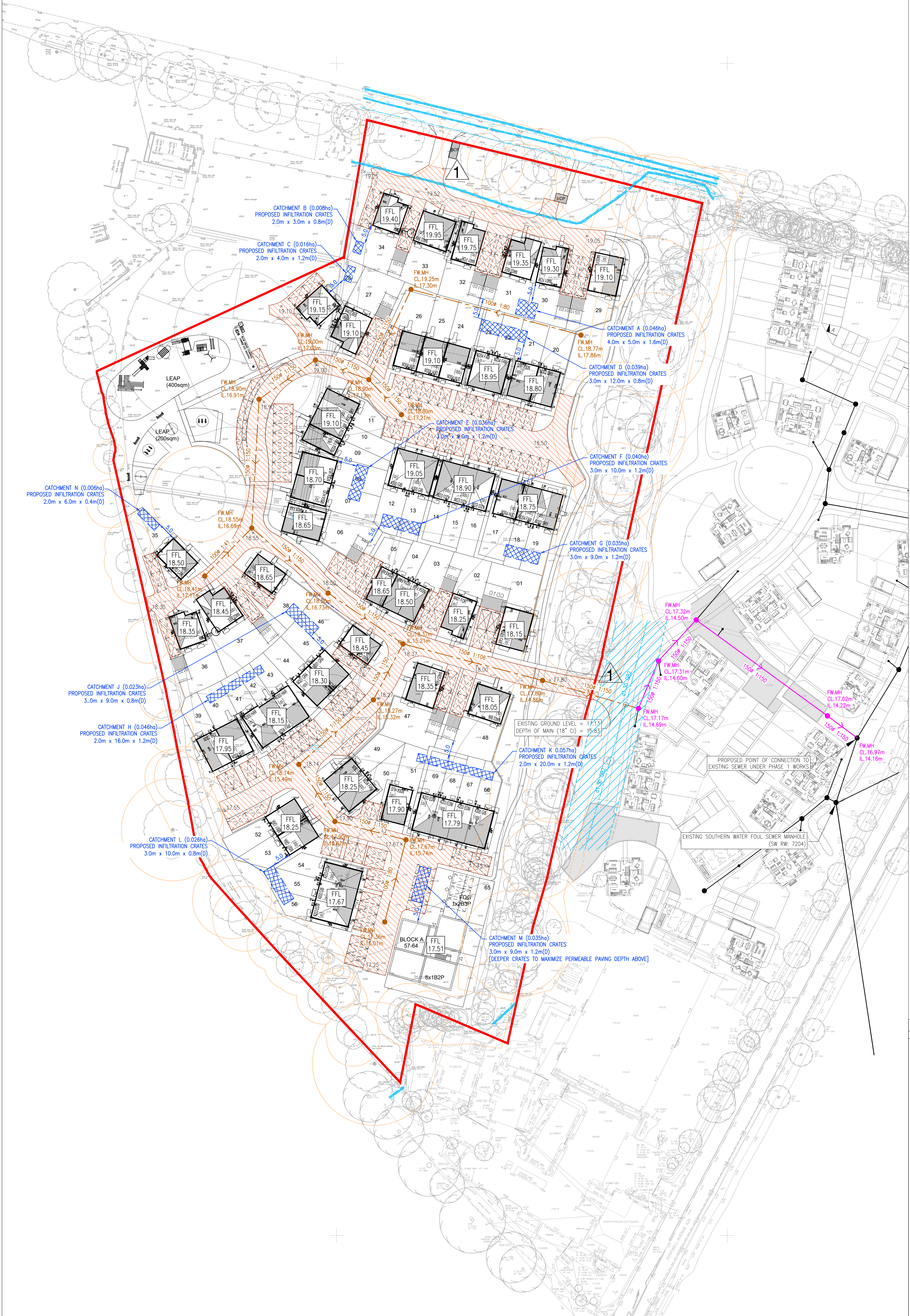
1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

DRAINAGE

1. SURFACE WATER INFILTRATION CALCULATIONS BASED ON FOLLOWING ARUN DC FACTORS OF SAFETY FOR 'MINOR INCONVENIENCE' CONSEQUENCES OF FAILURE:
AREA TO BE DRAINED <100m² : C_v=0.75 ; FOS OF 3
AREA TO BE DRAINED 100m²-1000m² : C_v=0.75 ; FOS OF 4
2. SOAKAWAYS IN OPEN SPACES/GARDENS SHOWN AS HAVING c.300mm OF COVER FROM PROPOSED GROUND LEVEL TO TOP OF STRUCTURE.
3. SOAKAWAY OFFSETS TO BE 5m FROM ALL FOUNDATIONS
4. CATCHMENTS BASED ON FOLLOWING TRIAL PIT LOCATIONS:
TP1 - CATCHMENTS A-D
TP2 - CATCHMENTS E-N
TP3 - NOT USED
5. EXISTING GROUND WATER TAKEN AS 2.96m BGL.

LEGEND

- SITE BOUNDARY
- ADOPTABLE/PRIVATE FOUL WATER SEWER, ø AS NOTED
- FOUL WATER MANHOLE (CL/L AS SHOWN)
- EXISTING / PHASE 1 FOUL WATER SEWER
- ADOPTABLE/PRIVATE FOUL WATER SEWER, ø AS NOTED (LEVELS AND PIPE DIA. TO BE AMENDED ON PH1 DESIGN - ALIGNMENT REMAINS UNCHANGED)
- FOUL WATER MANHOLE (CL/L AS SHOWN) (LEVELS TO BE AMENDED ON PH1 DESIGN - ALIGNMENT REMAINS UNCHANGED)
- EXISTING WATER MAINS
- EXISTING WATER MAIN WITH EASEMENT
- INFILTRATION CRATES (SIZE AS NOTED)
- PERMEABLE PAVING
- PRELIMINARY FINISHED FLOOR LEVELS
- PRELIMINARY LEVELS
- RPA PLUS 2m



Rev	Description	Date	By	Chkd
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Client

reside.

Project Name
PHASE 2 NORTHFIELDS COTTAGE,
FONTWELL AVENUE

Title
DRAINAGE STRATEGY

Project Phase
PRELIMINARY

Checked By RW	Checked Date 23.08.21	Drawn By CJL	Drawn Date 10.08.21
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Client Drawing No. -	Scale 1:500	(AT A1 SIZE)
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PBA Drawing No. 020.5672.003	Revision -
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