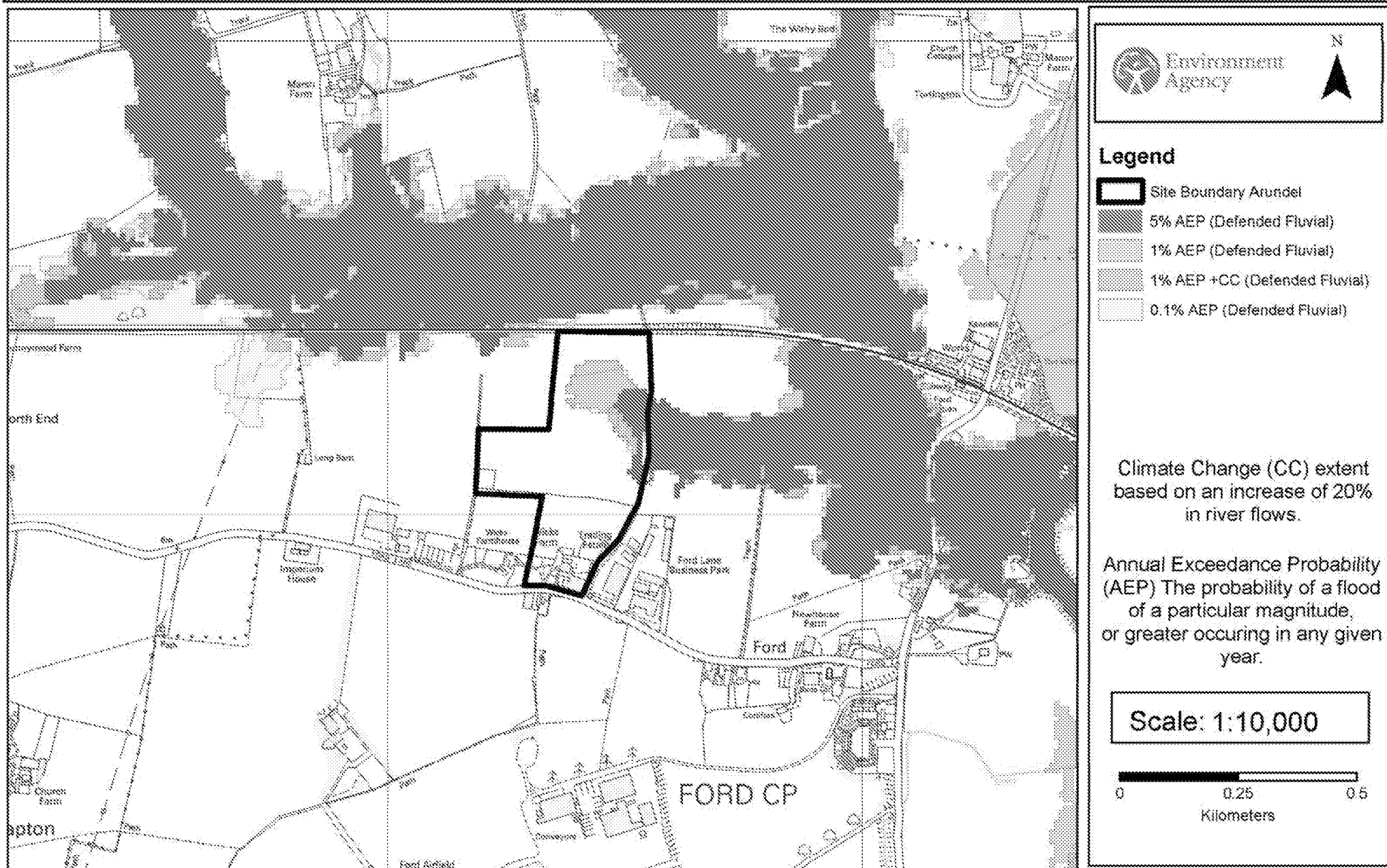
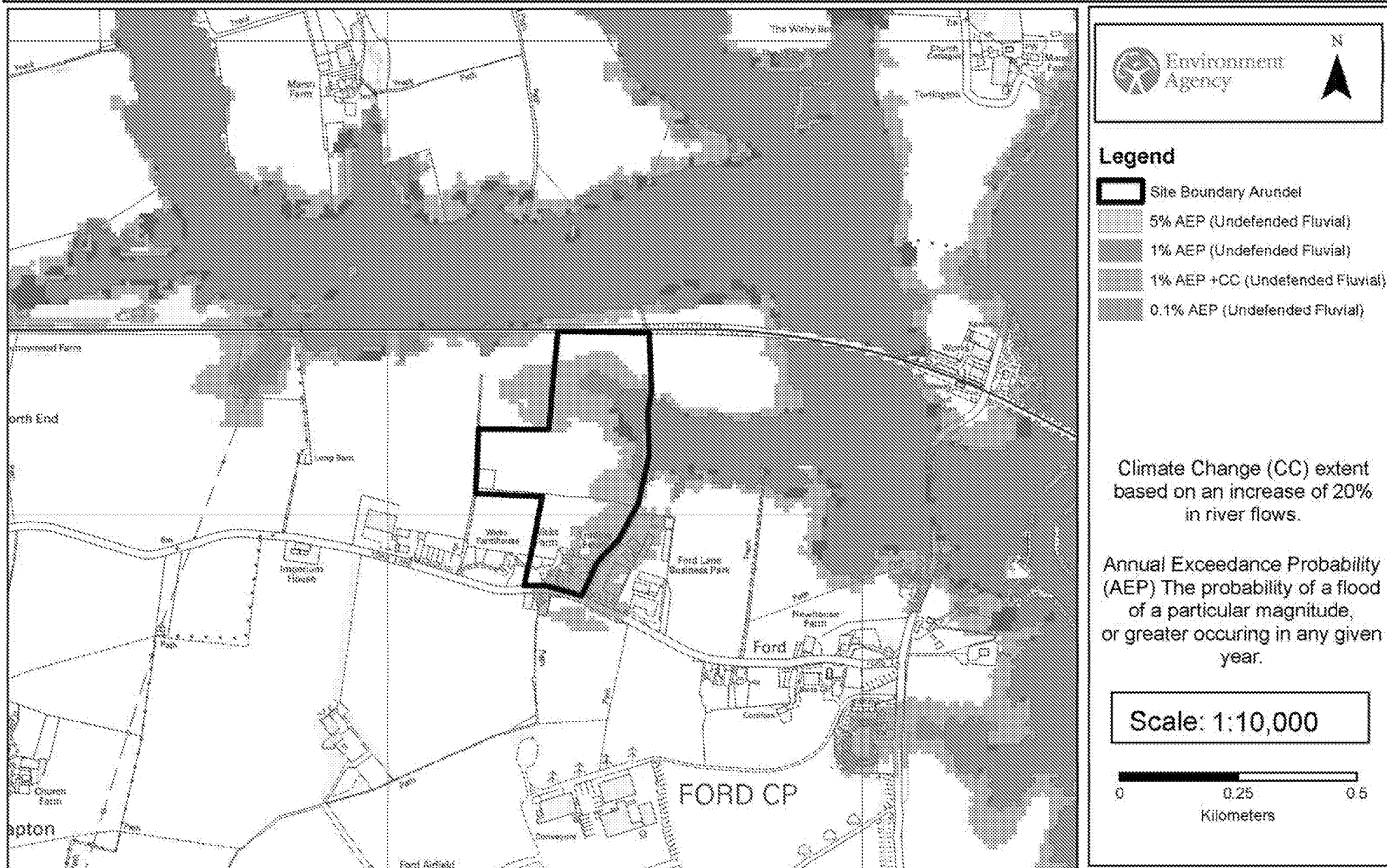
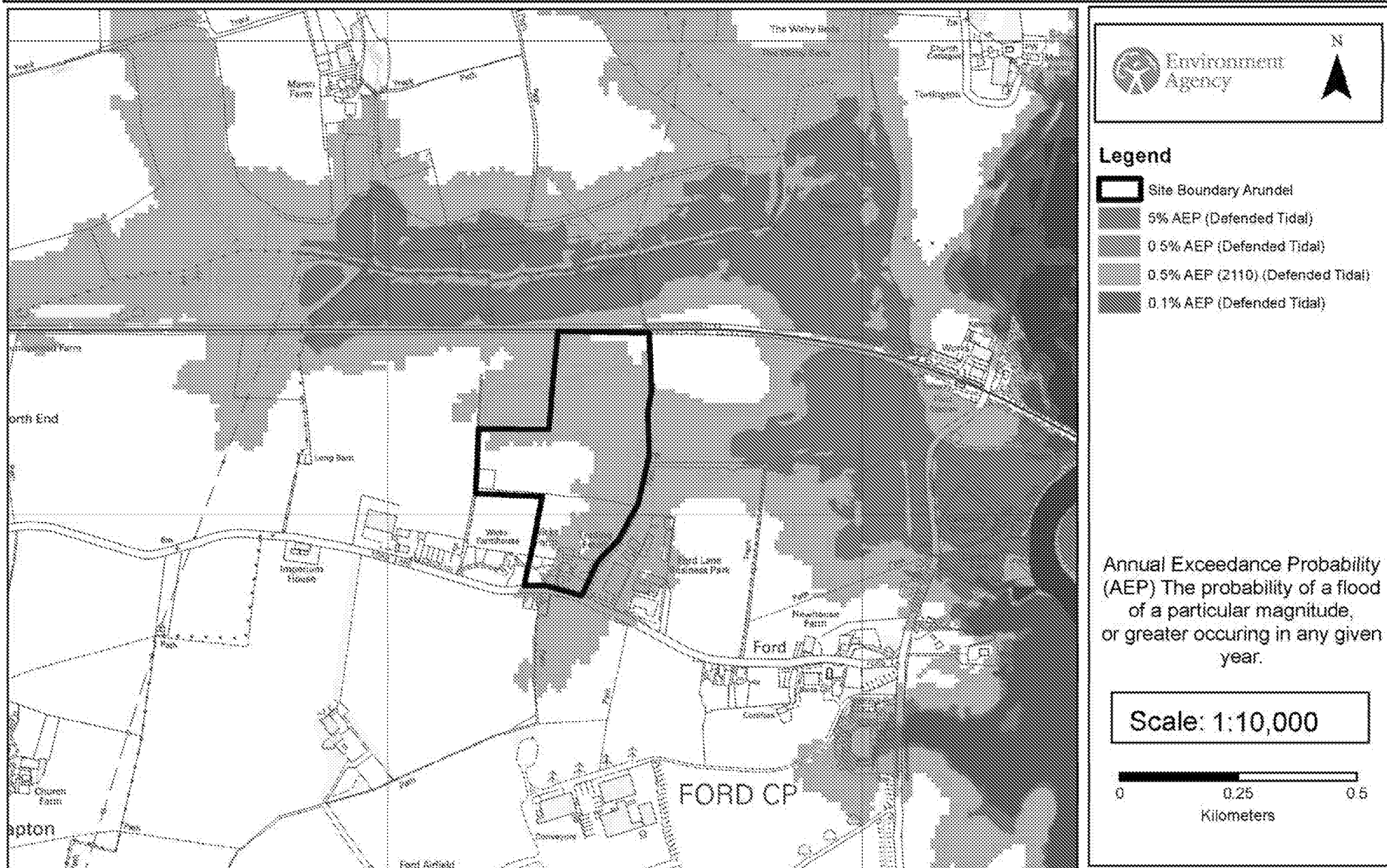




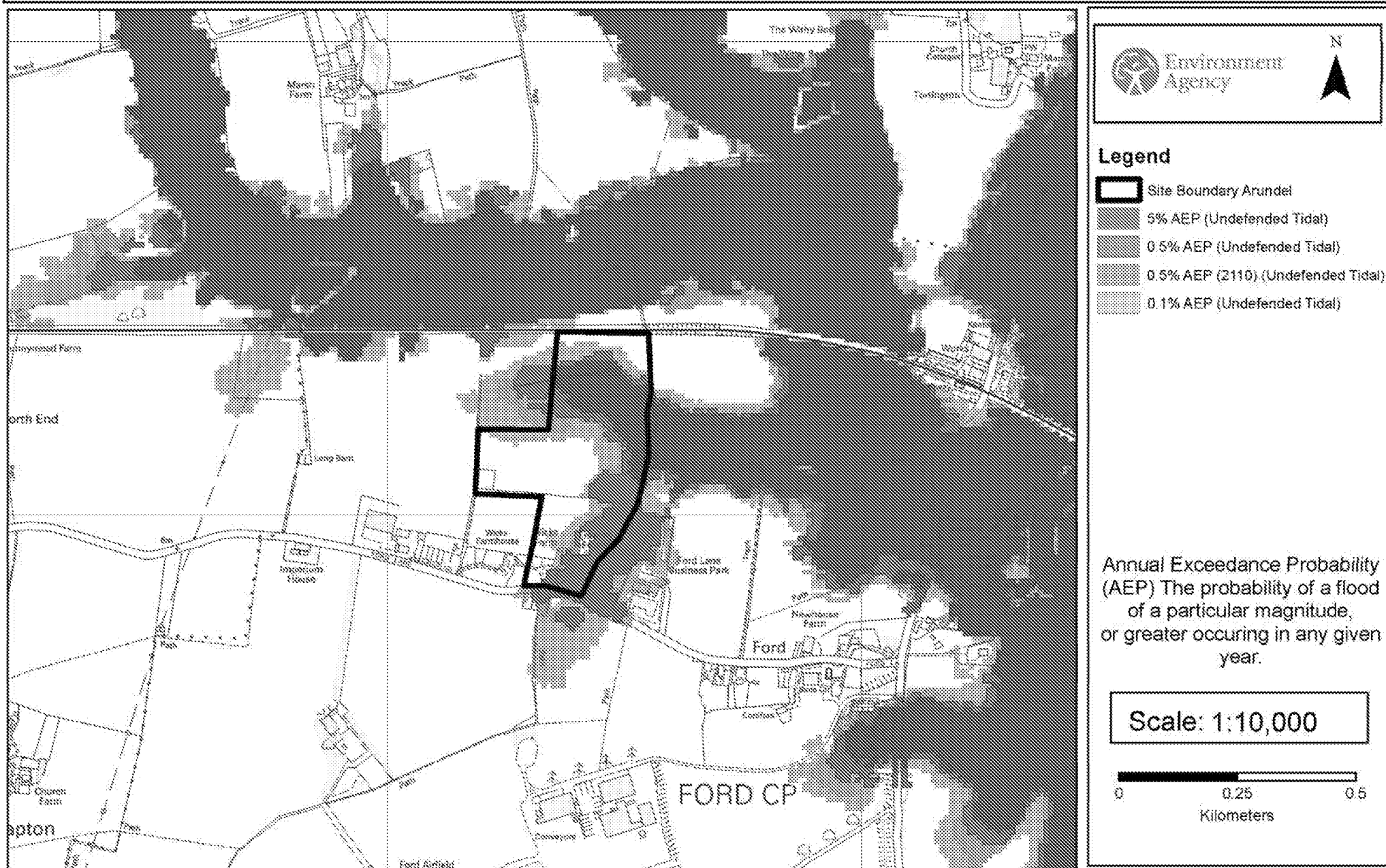
Modelled Flood Outlines (Undefended Fluvial) Map. Centred BN18 0DF. Created 9/4/18.

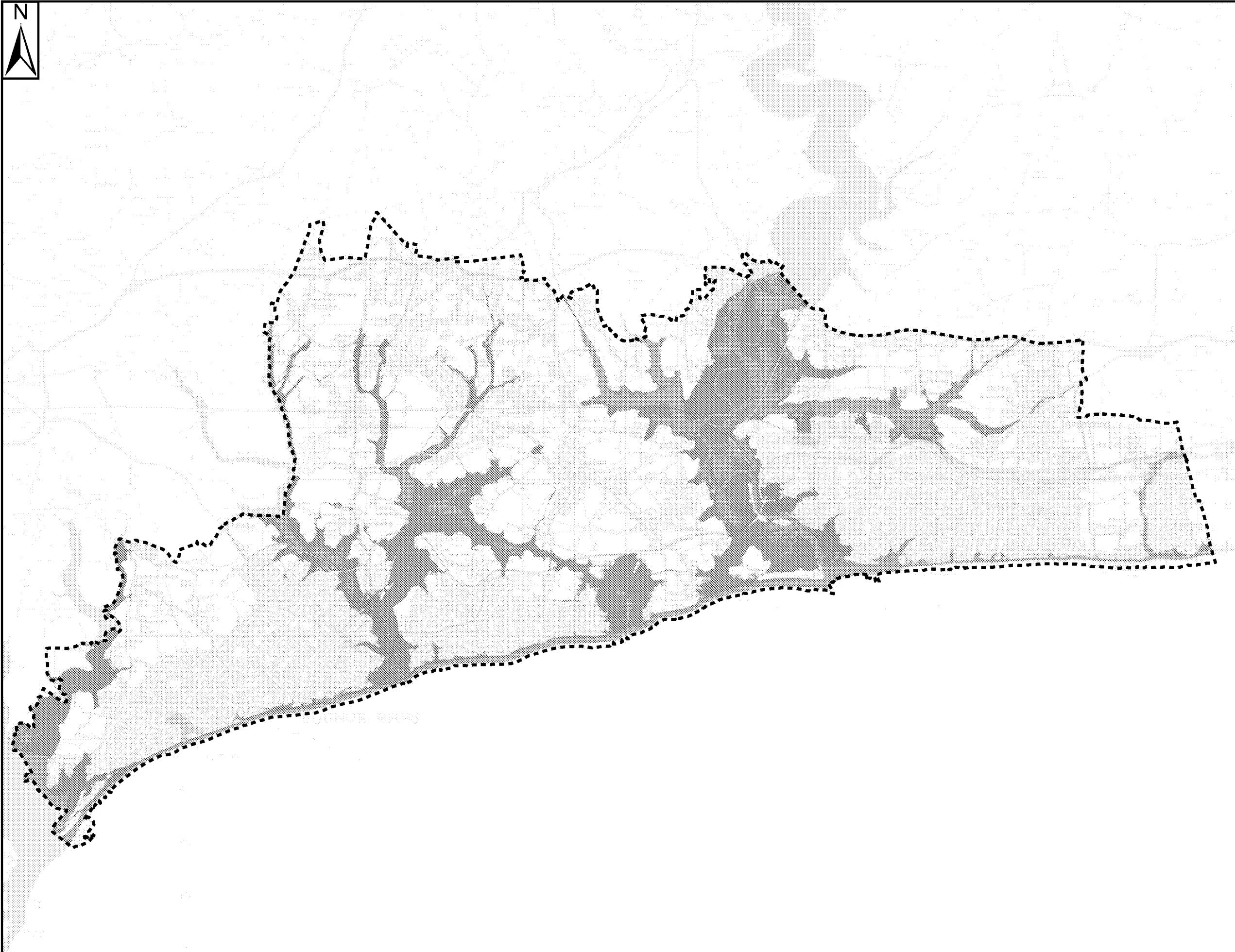


Modelled Flood Outlines (Defended Tidal) Map. Centred BN18 0DF. Created 9/4/18.



Modelled Flood Outlines (Undefended Tidal) Map. Centred BN18 0DF. Created 9/4/18.





Notes

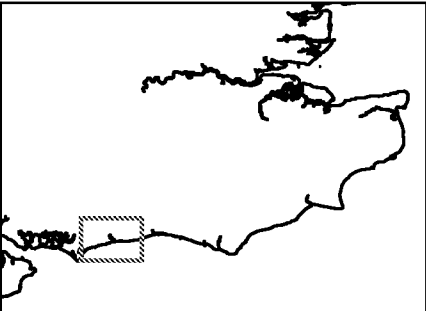
Zone 1: Comprised of land having a less than 1 in 1,000 annual probability of river or sea flooding in any year.

Zone 2: Comprised of land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding or 1 in 200 and 1 in 1,000 annual probability of sea flooding in any year.

Zone 3a: This zone comprises land assessed as having a greater than 1 in 100 annual probability of river flooding or a greater than 1 in 200 annual probability of flooding from sea in any year.

Zone 3b: This zone comprises land where water has to flow or be stored in times of flood (the functional floodplain). The SFRA identified this Flood Zone as land which would flood with an annual probability of 1 in 20 years, where detailed modelling exists. In the absence of detailed hydraulic model information, a precautionary approach has been adopted with the assumption that the extent of Flood Zone 3b would be equal to Flood Zone 3a. If development is shown to be in Flood Zone 3a, further work should be undertaken as part of a detailed site specific.

Key Plan



Legend

- Arun District SFRA boundary
- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

REF	Date	Comments
A	June 2016	-



This map is based upon Ordnance Survey data for the position of landmasses. It is not to be used as a substitute for a professional survey. It is not to be used as a substitute for a professional survey. It is not to be used as a substitute for a professional survey.

ARUN DISTRICT COUNCIL

SFRA: APPENDIX C
FLOOD ZONES

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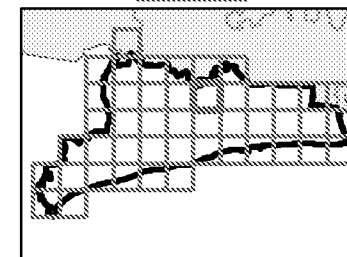
Notes

The Historic Flooding Map shows the recorded incidents and flood outlines provided by Arun District Council, West Sussex County Council, Southern Water and Environment Agency. Historical flood extent was obtained from the Environment Agency.

Flooding incidents provided have been categorised based upon the details provided in the records. Unknown flood points could not be determined from the information provided, and therefore could be from a number of sources.

Please note that not all historical records may be shown on this map, and that it is therefore advised you contact Arun District Council for updated information post 2015.

Key Plan



Legend



Arun District SFRA boundary



Historic flood outline

Source of Flooding



Flooding



Coastal



Tidal



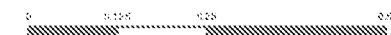
Surface Water



Failure



Unknown



REF	Date	Comments
A	June 2016	
B		
C		

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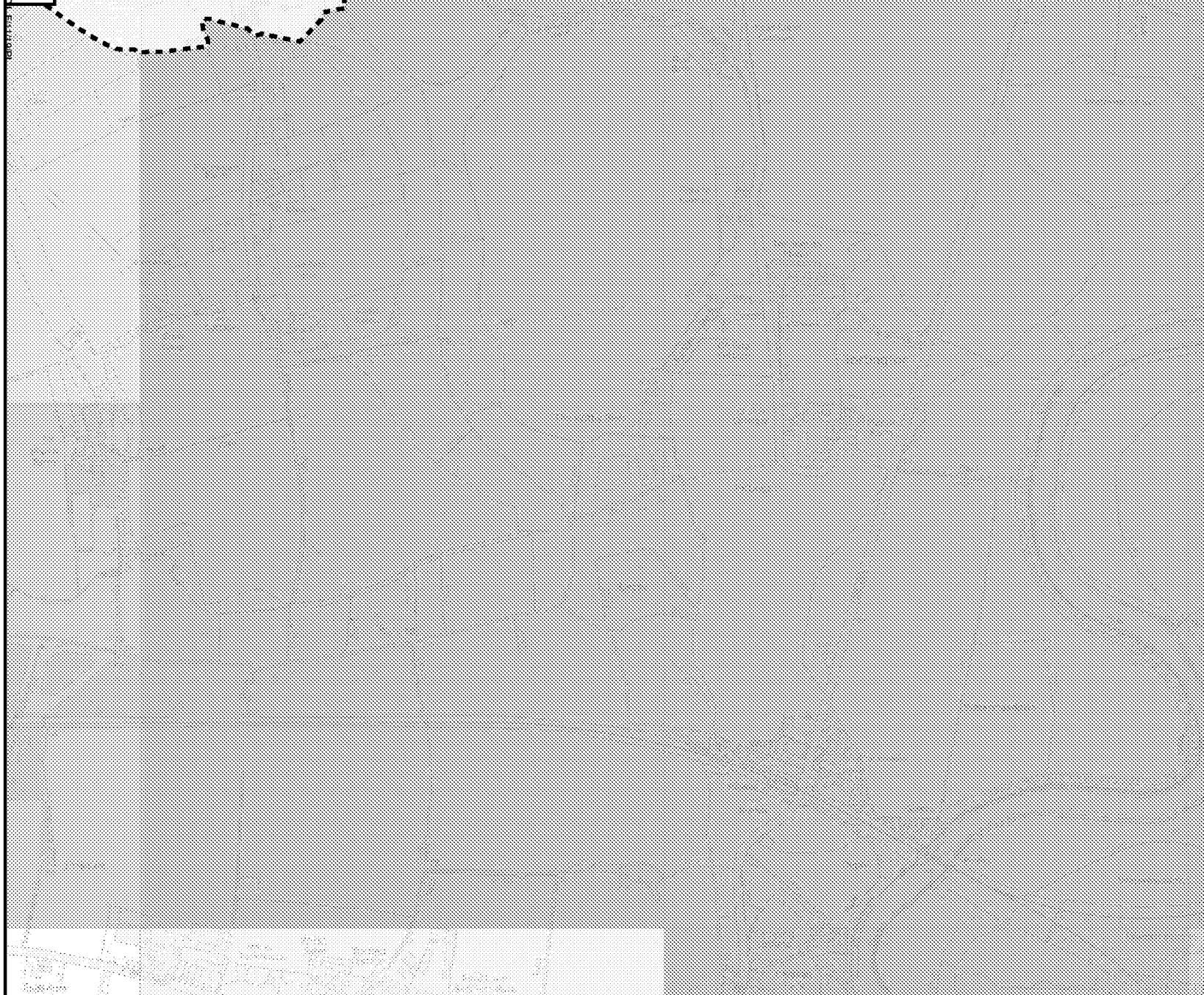
ARUN DISTRICT COUNCIL LEVEL 1 SFRA: APPENDIX H HISTORIC FLOODING RECORDS

Sheet No: 04 of 08

Index Number: ARUN_04

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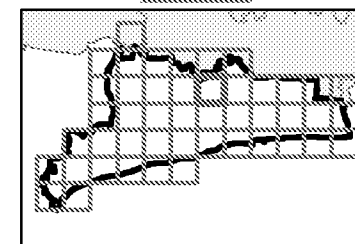
Notes

The Area's Susceptible to Groundwater Flooding (ASGWFF) is a strategic scale map showing groundwater flood areas on a 1m square grid. The data was produced to annotate indicative Flood Risk Areas for Preliminary Flood Risk Assessment (PFRA) studies and show the Lead Local Flood Authorities (LLFAs) to determine whether there may be a risk of flooding from groundwater.

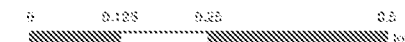
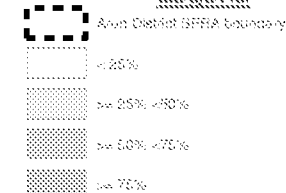
This data shows the proportion of each 1m grid square where geological and hydrogeological conditions show that groundwater might emerge. It does not show the likelihood of groundwater flooding occurring. It does not take account of the chance of flooding from groundwater recharging. This dataset covers a large area of land, and only isolated locations within the overall susceptible area are actually likely to suffer the consequences of groundwater flooding.

The ASGWFF data should be used only in combination with other information, for example local data or historic data. It should not be used as sole evidence for any specific flood risk management, land use planning or other decisions at any scale. However, the data can help to identify areas for assessment of a local scale where finer resolution datasets exist.

Key Plan



Legend



REF	Date	Comments
A	June 2015	
B		
C		

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ARUN DISTRICT COUNCIL LEVEL 1 SPRA: APPENDIX F AREAS SUSCEPTIBLE TO GROUNDWATER

Sheet No: 04 of 48 Index Number: ARUN_04

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John C. Beck

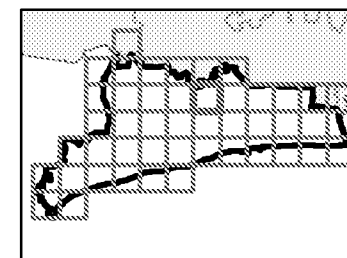
The updated Flood Map for Surface Water (FIRM), shows the flooding that takes place from the "surface runoff" generated by rain-water (including snow and other precipitation), which:

- (a) is on the surface of the ground (whether or not it is flooding), and
- (b) has not yet entered a watercourse, drainage system or public sewer.

The NFMEW will pick out natural drainage channels, rivers, low areas in the floodplain and flow paths between buildings but it will only indicate flooding caused by local rainfall.

Note: The *oFMSW* shows predictions of flooded areas but does not show whether individual properties will be affected by surface water flooding or have been affected in the past. The *oFMSW* should not be used to predict if individual properties will flood.

Key Point



Legend



■ Aron District SPMA boundary



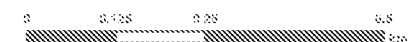
CFMISW 20-year client



00413W 100-veg: orient



uPLM/SW 1,000-va; extent



SES	Date	Comments
A	Dec 2007	
B		
C		

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ARUN DISTRICT COUNCIL

LEVEL 1 SFRA: APPENDIX E
SURFACE WATER FLOOD RISK

Page No: 34 of 43

Index Number: A05_08

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Hydraulic modeling has been undertaken as part of this SFRA to provide updated climate change flood mapping to the Arun District for Flood Zone 3a. This modelling followed the latest guidance for climate change in FFRA/SFRAs released by the Environment Agency in February 2015 (and updated in April 2016). Climate change for flood events has been based on the Higher Central estimates for the years 2021, 2031 and 2111. Present day flood risk information is available for comparison. Arun District is within the South-East River Basin District and therefore follows an.

- 2031 = +15% flows
- 2081 = +30% flows
- 2111 = +45% flows

For tidal/coastal models, undammed case still water level and defended case still water level with wave overtopping simulations have been completed to inform future flood risk within the Arun District. Again, climate change allowance predictions are for the years 2031, 2061 and 2111, with present day outputs for comparison.

	Active District EFRF boundary		Future Flood Zone 1a (2031)
	Present Flood Zone 1a		Future Flood Zone 1a (2111)
	Future Flood Zone 1a (2011)		



Item	Date	Comments
A	August 2016	
B		
C		

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LEVEL 1 SFRA- APPENDIX D
CLIMATE CHANGE MAPPING

Sheet No. 74 of 86

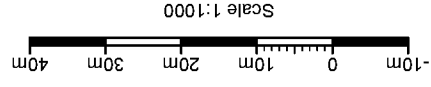
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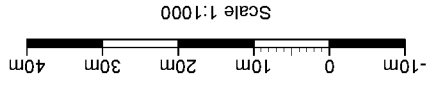
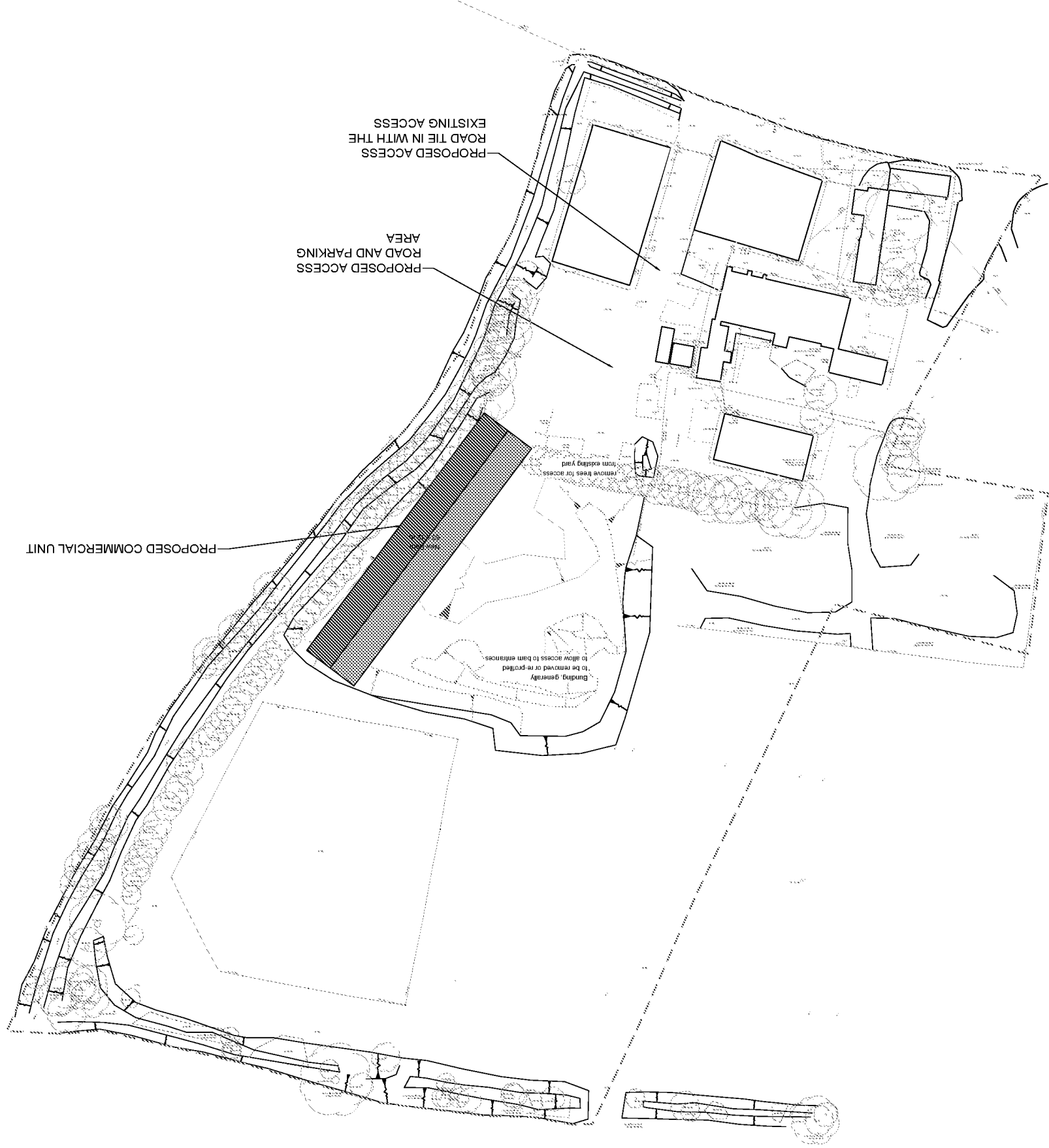
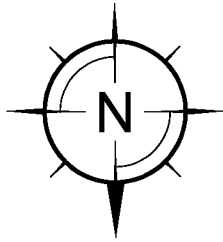


Appendix 6

Existing Flow Path Plan



Appendix 7
Indicative Site Layout Plan



Appendix 8

Preliminary Surface Water Drainage Calculations and Indicative Surface Water Drainage Plan

Storage Calculation

Project Name: Wicks Farm, Ford Lane, Arundel
Project Number: 22979

Impermeable Area

Impermeable Area 756 m²

Outflow Restriction 2 l/s

Return Storm Period Assessments available are: 1, 2, 5, 10, 20, 25, 50, 100 years.

Ratio r1 in the range 0.12, 0.15, 0.18, 0.21, 0.24, 0.27, 0.30-0.45

40% Additional Rainfall to account for Climate Change (Where Appropriate)

Storm Profiles

Return Period 100 years

M5-60 20 mm

Ratio r1 0.35

Consider Storms Beyond 6 hour duration? Yes ▼

Storm Duration (mins)	Z1	R M5-D (mm)	Z2	R M(x)-D (mm)	I	Outflow	Storage Required
5	0.36	7.20	1.84	18.55	13.91	0.60	13.31 m ³
10	0.51	10.20	1.91	27.27	20.46	1.20	19.26 m ³
15	0.62	12.40	1.95	33.85	25.39	1.80	23.59 m ³
30	0.79	15.80	1.99	44.02	33.01	3.60	29.41 m ³
60	1.00	20.00	2.03	56.84	42.63	7.20	35.43 m ³
120	1.23	24.60	2.01	69.22	51.92	14.40	37.52 m ³
180	1.37	27.40	1.99	76.34	57.25	21.60	35.65 m ³
240	1.51	30.20	1.97	83.29	62.47	28.80	33.67 m ³
300	1.60	32.00	1.96	87.58	65.69	36.00	29.69 m ³
360	1.69	33.80	1.94	91.80	68.85	43.20	25.65 m ³
480	1.82	36.30	1.93	97.83	73.37	57.60	15.77 m ³
600	1.94	38.80	1.91	103.75	77.81	72.00	5.81 m ³
840	2.09	41.89	1.88	110.49	82.87	100.80	0.00 m ³
1140	2.29	45.74	1.85	118.61	88.96	136.80	0.00 m ³
1440	2.48	49.60	1.82	126.38	94.79	172.80	0.00 m ³

Peak Storage

37.5 m³

Design of Aquacell Trench Soakaways

Project Name: Wicks Farm, Ford Lane, Arundel
Project Number: 22979

Soakaway No

Cover Level 3.200 m AOD
Invert of pipe 1.500 m AOD
Pipe Invert Depth 1.700 m
Depth to top of Soakaway 1.500 m
Depth to Permeable Strata 1.500 m
Soakaway Width 5.000 m (Crate Size 1m x 0.5m)
Depth to Base 3.100 m 4 crates
Impermeable Area 750 m²
Void Ratio 95 %

Allow Drainage Through Base? No (Default No)

Storm Profiles

Return Period 100 years (10years-BRE 365)
M5-60 20 mm
Ratio r1 0.35

Consider Storms Beyond 6 hour duration? Yes

Soil Characteristics

Soil Infiltration Rate 20.00 x10⁻⁶m/s
Soil Description Chalk

Calculations based on BRE Digest 365 - September 1991.

Return Storm Period Assessments available are: 1, 2, 5, 10, 20, 25, 50, 100 years.

Ratio r1 in the range 0.12, 0.15, 0.18, 0.21, 0.24, 0.27, 0.30-0.45

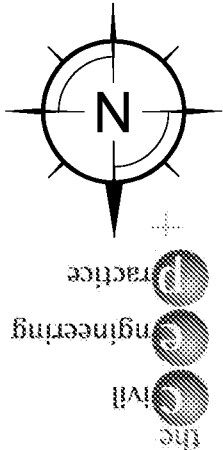
40% Additional Rainfall to account for Climate Change (Where Appropriate)

Crate Depth 400 mm each

Soakaway Results

Width 5.000 m
Excavation Depth 3.100 m
Storage Depth 1.600 m
Effective Outflow Depth 1.600 m
Length of Soakaway 8.23 m
ts50 20.52 hrs

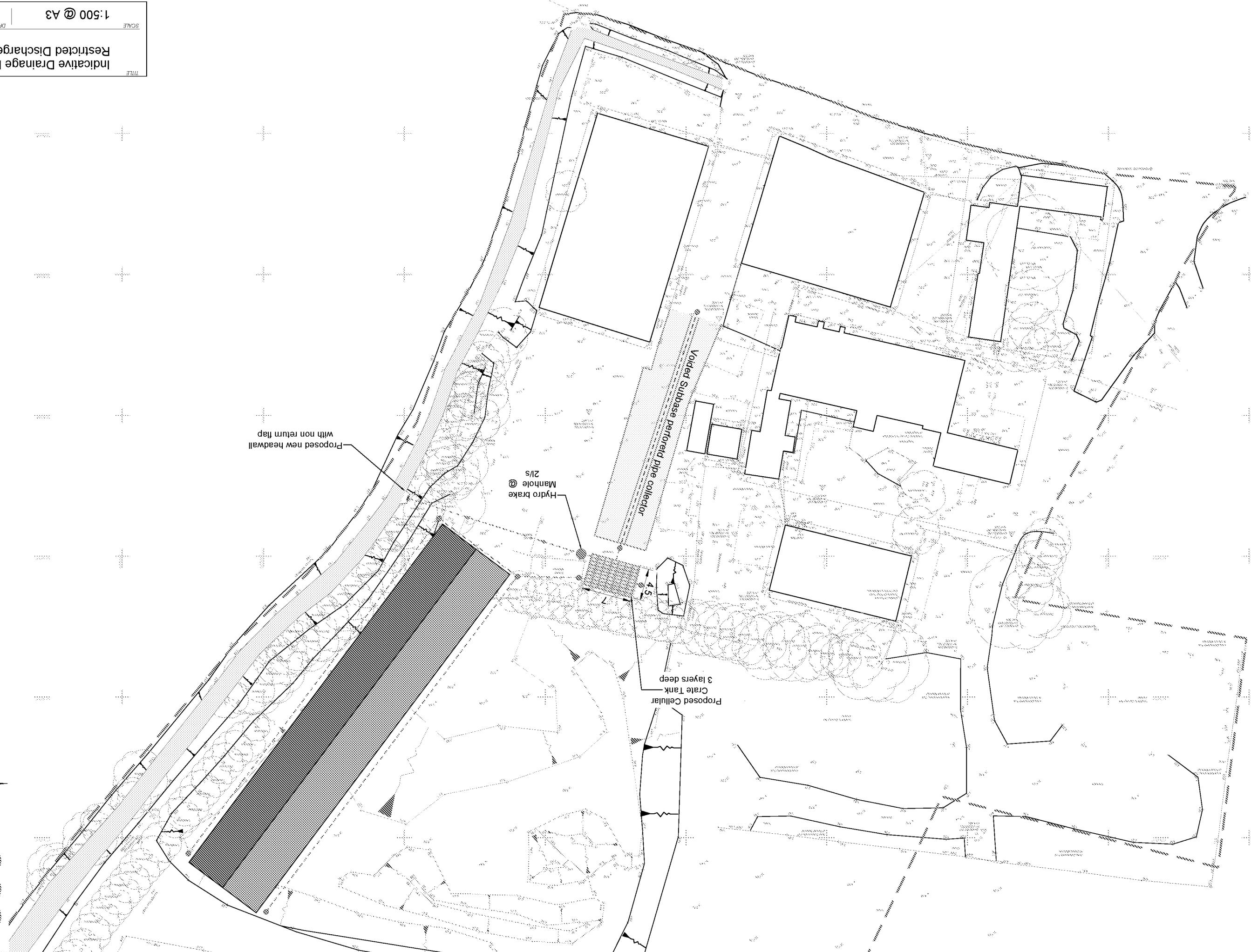
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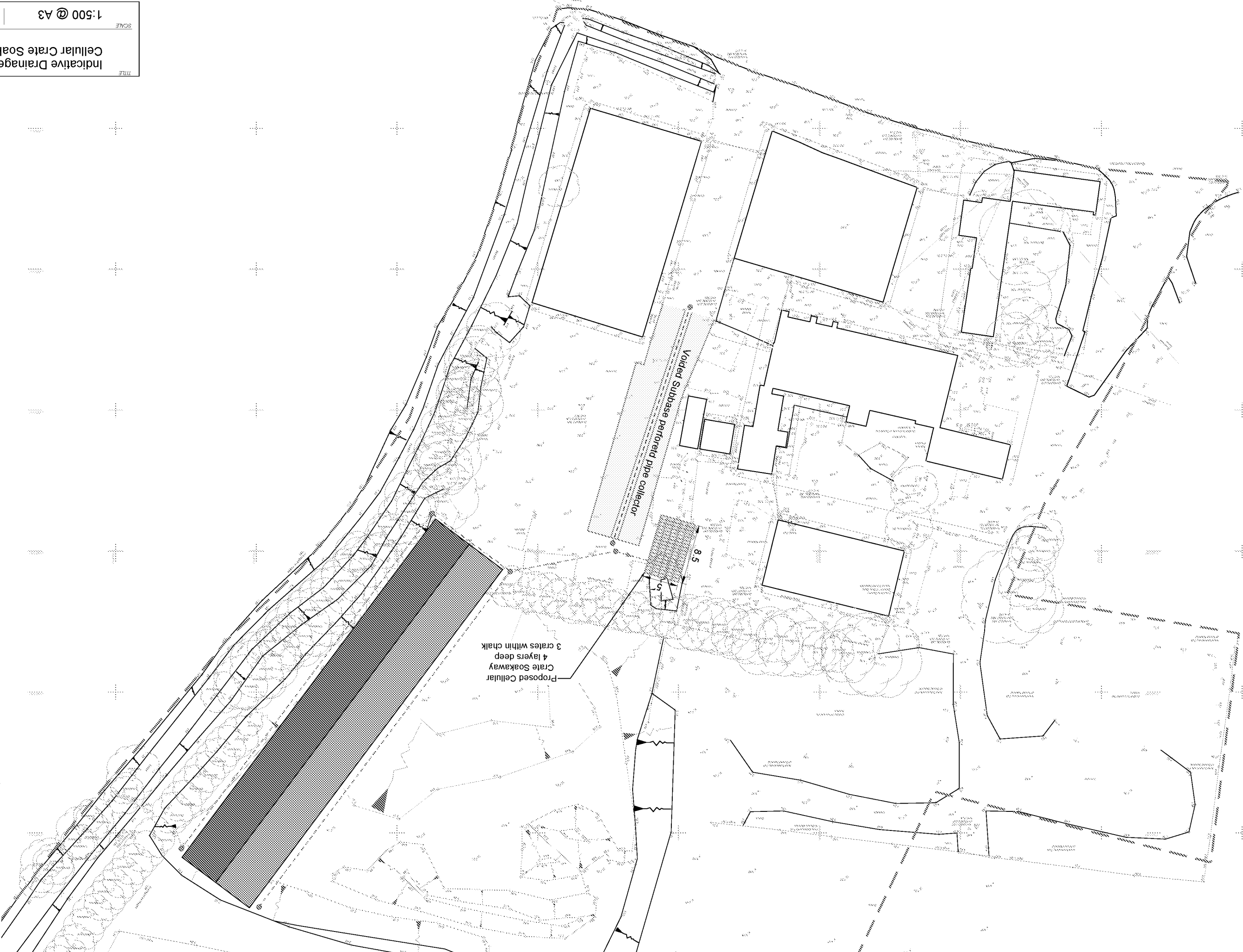
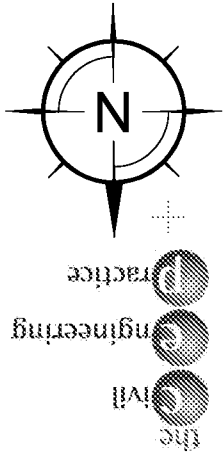


Indicative Drainage Layout
Restricted Discharge

SCALE
1:500 @ A3
DWG No. 5A

TITLE





Appendix 9

Outline Drainage Maintenance Schedule

Maintenance Schedule



The Civil Engineering Practice
11 Tungsten Building
George Street
Fishergate
Sussex
BN41 1RA

Project	Wicks Farm, Ford Lane
Project Number	22979

By Tom Zajac

Date 14 June 2018

1 Indicative 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. Upon completion the maintenance will be passed on to the property owner.
- 1.3 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
	Litter and debris removal – catch pits, flow control manhole	Monthly or as required
	Surface and Foul water pipe work – jetting / rodding	Every 2 years or as required
	Manage other vegetation and remove nuisance plants – aesthetics	As required
	Visual Inspection of permeable parking for defects and settlement	Annually
	Treatment Plant / Cesspit Tank	Annually
	Sweeping/brushing of permeable parking	Twice Annually
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



The Civil Engineering Practice Ltd
Registered Number 278754 England

Inspection / Action Required	Gullies, Channels and Gutters	Catchpits/ Flow Control Manhole	Treatment Plant / Cesspit Tank	Permeable Surface	Surface Water Pipework
After leaf fall in Autumn	✓	✓			
6 Months	✓	✓	✓	✓	
1 Year				✓	
2 Years					✓

Drainage System Maintenance Summary