Bradbrook Consulting

Strategic Drainage and Watercourse Assessment

Project Newton -
Proposed Science and Technology Park, Goddards Green

Date:	November 2019	**Issue:**	2
Reference:	19-109_R01	**Status:**	Planning
Prepared by:	PWE	**Date:**	November 2019
Authorised by:	NRB	**Date:**	November 2019
Issuing office:	BKM		

DOCUMENT CONTROL

Issue	Date	Status	BC Author	BC Approval	Notes
V1	15/11/2019	draft	15/11/2019_PWE	15/11/2019_RLM	-
V2	19/11/2019	planning	19/11/2019_PWE	19/11/2019_RLM	Minor updates

1.0 INTRODUCTION AND SITE DESCRIPTION

This report has been produced for Glenbeigh Developments and Dacaror Southern Ltd to assess current and potential future hydrological conditions at the site of a proposed Science and Technology Park (STP) in the Goddards Green area of West Sussex. The site is located to the north of the A2300, either side of Cuckfield Road, at indicative post code BN6 9HG and centred on OS grid reference TQ 284 208.

It comprises three land parcels which at present predominantly comprise agricultural fields with small clusters of mature / established trees and field boundaries defined by hedgerows. It covers a total area of about 49 hectares and at its maximum measures just over 1000 m east-west by about 570 m north-south.

Several ponds are situated in the central portion of the site, and overhead power lines supported by steel pylons cross its northern sector.

The STP is understood to comprise a mix of building types covering B1a office, B1b R&D and B1c light industrial uses. These would be located in the central and western of the three land parcels. The eastern-most land parcel, located to the east of Cuckfield Road, is not expected to be occupied by new buildings but may be developed for a solar energy farm.

2.0 PRESENT DAY TOPOGRAPHY AND HYDROLOGY

Present day ground levels fall from a high of about 22 mAOD on the southern boundary to a low of about 13 mAOD on the northern boundary. The River Adur flows from east to west along this northern boundary. Enclosed in Appendix A is Bradbrook drawing 600/P1 illustrating existing site contours and levels, based on publicly available LiDAR data.

It is concluded that a significant proportion of surface water runoff currently flows overland into the River Adur, which effectively lies in a valley with land rising again to the north. It is also possible that the river receives a degree of baseflow generated from infiltration into the site's underlying soils – parts of the site are mapped to be underlain by a Secondary aquifer associated with river terrace deposits.

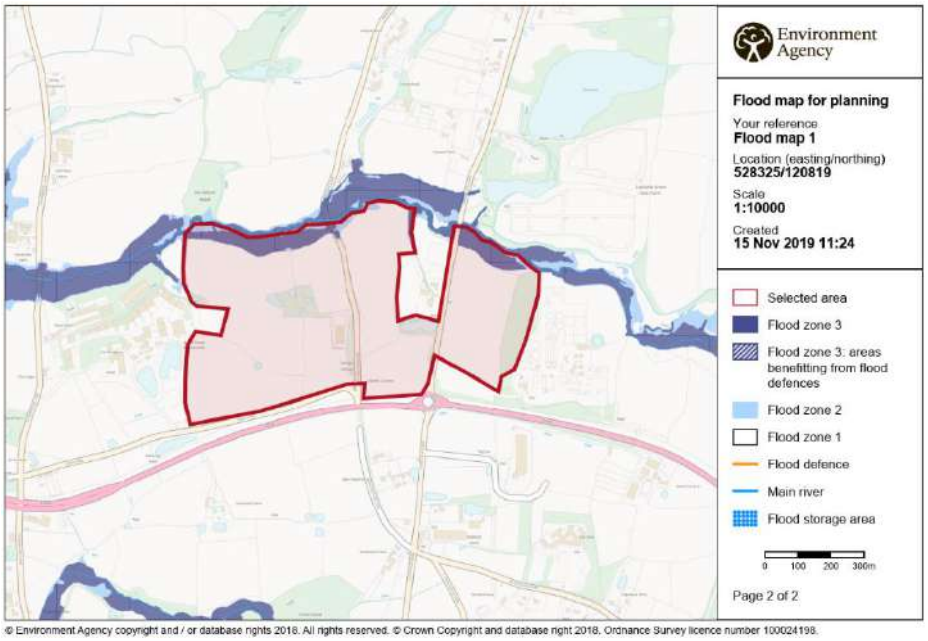
The underlying solid geology of the Weald Clay Formation is an Unproductive Stratum (a non-aquifer). This lithology is broadly described as comprising dark grey thinly-bedded mudstones. A thin ribbon of alluvium overlies the Weald Clay at the northern edge of the site, parallel with the River Adur.

The ponds situated in the central part of the site, which are proposed to be retained within the new development masterplan, are also believed to be fed by surface runoff. A ditch bisects the site from south to north, directing runoff into the ponds and also linking pond outflow into the River Adur.

3.0 FLOOD RISK STATUS

Current Environment Agency 'flood map for planning' records indicate the River Adur causes flooding along a narrow margin of the site parallel with the watercourse. Flooding is indicated to encroach a maximum of about 60 m onto the northern edge of the site. The map identifies most of this to be defined as Flood Zone 3 – meaning there is a greater than 1 in 100 probability of river flooding in this location in any year. Small areas are located within Zone 2, which can be considered to be at 'moderate' risk – meaning between 1 in 100 and 1 in 1000 annual probability of flooding from the river.

The great majority of the site is therefore outside Flood Zones 2 and 3 and is defined as being located within Flood Zone 1. This designation applies to land at low risk of flooding, meaning less than 1 in 1000 annual probability:



Environment Agency flood map for planning (November 2019).

Bradbrook Consulting has also obtained Environment Agency 'Product 4' flood risk data applicable to the site (enclosed as Appendix B). This provides details (where available) regarding flood zones, defences and storage areas, areas benefiting from defences, statutory main river designations, historic flood event outlines and data from EA computer river models.

The data provides modelled flood levels for various return period events, for a number of node points situated predominantly along the site's northern boundary.

Where parts of the site are situated within the modelled flood plain, development levels will be set taking this data into account to ensure no loss of flood storage capacity within the overall site demise. At present the development masterplan envisages such areas to be used for car parking, i.e. lower sensitivity land use. It is proposed that where possible ground levels will not be raised, so that land is not lifted out of the pre-development flood zone. However where changes in ground level do become necessary, level-for-level flood compensation will be provided. In this way there will be no change in the fluvial flood risk profile at either the site or at neighbouring properties.

4.0 SURFACE WATER DRAINAGE STRATEGY

As noted above, new build development is currently proposed for the central and western land parcel only. These cover a combined plan area of 36.4 hectares. The following greenfield (i.e. pre-development) runoff rates have been calculated:

	1 in 1 year storm	1 in 100 year storm
Runoff rate per hectare	4.8 l/s	17.9 l/s
Total runoff (36.4 hectare site)	174.7 l/s	651.6 l/s

In its developed condition a significant proportion of the site will be surfaced with impermeable ground cover, increasing the rate of surface water runoff. Engineered systems will therefore be introduced to ensure runoff from the new development does not exceed greenfield rates, thereby mitigating any attendant risk of surface water flooding. This runoff will be directed into the River Adur at the applicable greenfield rates, and central to this will be the adoption of Sustainable Drainage Systems (SuDS). SuDS aim to store surface water at source, decreasing flow rates to watercourses and by improving water quality.

The SuDS components to be utilised will include both soft and hard-engineered features, and shall act at various scales. The overall system will include regional controls, such as attenuation ponds, attenuation swales and underground storage. Consideration will also be given to source control measures such as green roofs and bioretention systems. Infiltration devices (soakaways) will also be adopted if ground conditions allow.

Similarly, rainwater harvesting systems will be installed where appropriate to allow the efficient collection, storage and re-use of non-potable water.

The following design principles will apply:

- SuDS shall be designed in accordance with standard industry guidance.
- SuDS are to be provided within each development package, to initiate the management of surface water as close to source as possible.
- SuDS are to be integrated into infrastructure corridors and strategic open spaces designated in the Masterplan.
- SuDS are to be designed sensitively to augment the landscape and wherever possible provide biodiversity and amenity benefits.
- SuDS are to be designed to allow for effective maintenance. All components shall be located where they will be accessible to a responsible management body.

Space for SuDS components has been allocated into the masterplan, specifically in relation to the existing ponds – which are to be retained in the new development. These ponds will be managed sensitively to provide amenity and biodiversity benefits, as well as attenuation capacity.

Permeable surfacing may be used where appropriate on footpaths, cycle paths, private access roads and parking areas. When the permeable surfacing is paved, water passes through the gaps in between the paving blocks or through the blocks themselves. If the surface is unpaved, water passes through the surfacing material. Unpaved permeable surfaces could take the form of filter strips. These may be located alongside impermeable surfaces, from which runoff is discharged. Once it has filtered through the surface, water is temporarily stored in the sub-base and gradually released to the downstream system.

5.0 DRAINAGE CONVEYANCE

It will be necessary to collect and transport surface water from its source to the ultimate point of discharge into the River Adur using a variety of conveyance features. Appropriate SuDS components used for conveyance may also contribute to source control, attenuation and water quality.

Swales are the preferred option for water conveyance due to their provision of biodiversity and amenity benefits. However swales would only be used where they can be integrated with the landscape design and their character will suit the surroundings, with soft, natural features.

They will provide a beneficial contribution to a biodiverse environment through being planted with a variety of vegetation.

Swales designed primarily for conveyance will have fewer check dams and shorter, smoother vegetation than attenuation swales. They will be trapezoidal in profile for good hydraulic performance and the efficient passage of water.

Due to their open, linear features, crossing points are required where they intersect with access routes, which will require careful design for future maintenance. Therefore swales are better suited to locations where fewer crossing points would be required, such as alongside buffer zones or perimeter roads encircling a development plot.

6.0 DESIGN FOR EXCEEDANCE

The drainage systems will be designed to operate without flooding in design rainfall events up to the 1 in 30 year return period. Design events beyond this standard, up to the 1 in 100 year plus 30% climate change return period, will be designed to ensure that surface water exceedance ponding is contained and managed within the site.

Flow control devices or capacity-managed conveyance features may be strategically positioned throughout the drainage network in conjunction with overflows, to encourage surface water to leave the drainage network at designated positions, and consequently be managed by exceedance features.

Exceedance flow routes will be designed for all systems which are designed to flood in higher return period design events. Areas designed for exceedance storage will be clearly defined and will not be located within the fluvial floodplain, as this area is required to accommodate floodwater from the River Adur.

7.0 FOUL DRAINAGE

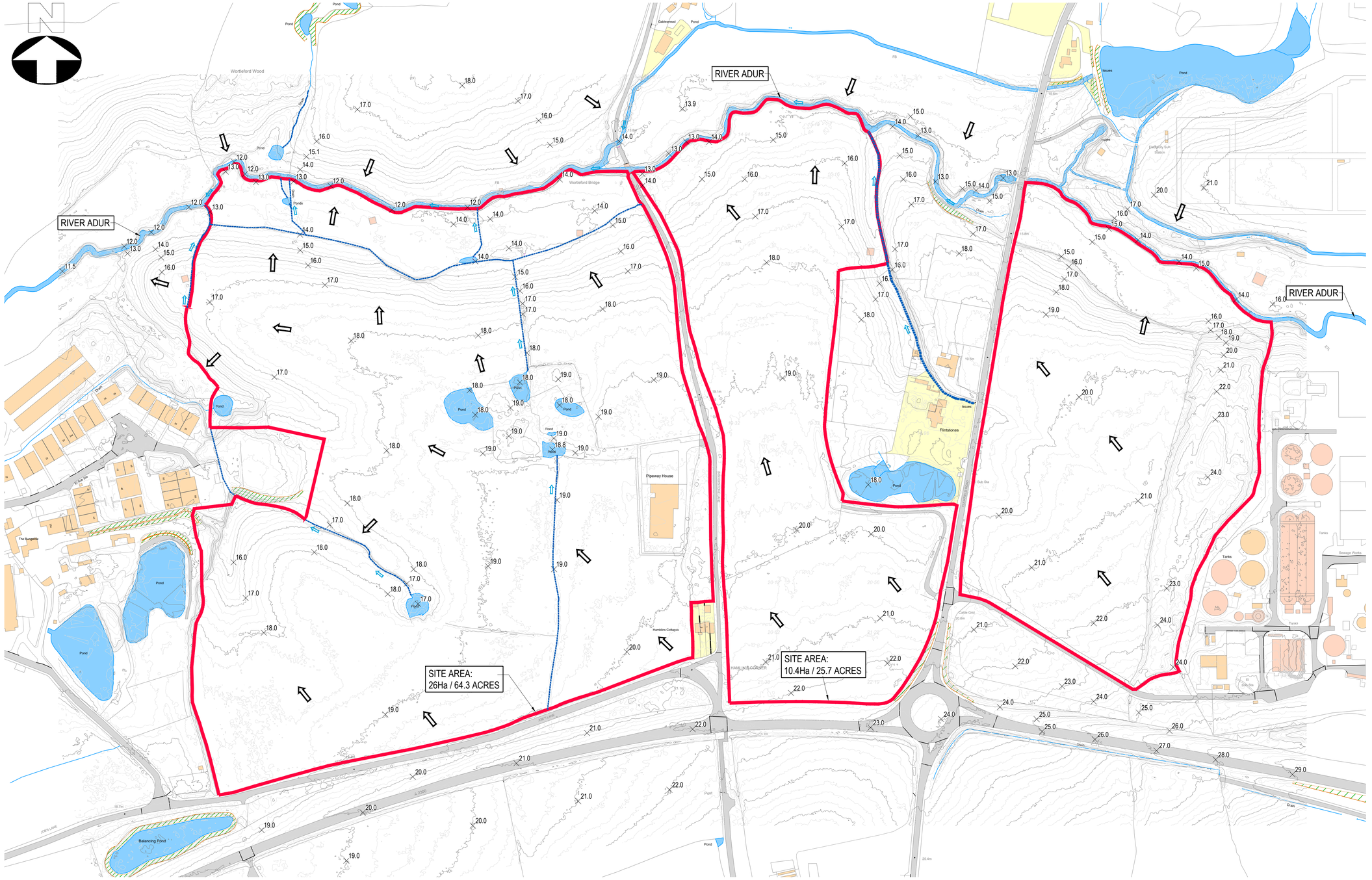
Foul water drainage is proposed to be directed into the Southern Water public sewer network and into the treatment works situated immediately beyond the site's eastern boundary.

A pre-development enquiry will be submitted to Southern Water to agree the strategy at the earliest opportunity.

It is understood that a pumped foul sewer currently crosses the site; any associated easement will need to be incorporated into the masterplan layout.

APPENDIX A

EXISTING SITE CONTOURS AND LEVELS



NOTES:

1. SITE CONTOURS AND LEVELS REPRODUCED FROM LiDAR DATA RECOVERED FROM ONLINE RESOURCES. ALL LEVELS TO BE VERIFIED BY A ONSITE TOPOGRAPHY SURVEY.
2. SITE FEATURES INC. WATERCOURSES CAPTURED FROM OS PLAN. SITE FEATURES TO BE VERIFIED BY ONSITE TOPOGRAPHY SURVEY.

Rev.	Tech	Date	Description
P1	NDH	15.11.19	FIRST ISSUE.

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Client: glenbeigh DEVELOPMENTS LTD

Project Title:
PROJECT NEWTON
BURGESS HILL

Drawing Title:
EXISTING SITE CONTOURS AND LEVELS

Purpose of Issue:
Information ○ Preliminary ● Approval ○ Tender ○ Construction ○ Record Copy ○

First Issue Date	Drawn By	Scale	Checked
Nov 2019	NDH	1:2000 @ A1	PWE

Drawing Number	Rev.
19-109D / 600	P1

APPENDIX B

EA PRODUCT 4 FLOOD DATA

Paul Edwards
Bradbrook Consulting
240 Blackfriars Road
London
SE1 8NW

Our ref: SSD147169
Date: 06/11/2019

Dear Paul Edwards,

Enquiry Regarding Product 4 for Flood Risk Assessment for Land East And West Of Cuckfield Road And North Of The A2300, Goddards Green, West Sussex, BN6 9HG.

Thank you for your enquiry which was received on 15 October 2019.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The information on Flood Zones in the area relating to this address is as follows:

The site is in an area located within Flood Zone 1,2 and 3 as shown on our Flood Map for Planning (Rivers and Sea).

Note - This information relates to the area that the above named property is in and is not specific to the property itself as it is influenced by factors such as the height of door steps, air bricks or the height of surrounding walls. We do not have access to this information and is not currently used in our flood modelling.

Flood Zone definitions can be found at www.gov.uk/guidance/flood-risk-and-coastal-change#Table-1-Flood-Zones

Flood Defences
There are no formal raised flood defences in the vicinity of the site.

Model Information
The model used was the Upper Adur (Eastern Branch) Model Maintenance which was completed by Hyder Consulting in 2011 with updated climate change runs completed by JBA Consulting in 2016.

Flood History
We hold no record of previous flooding events affecting this site.

Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flood Authority, **West Sussex County Council** or the Local Authority, **Mid Sussex District Council** for a more comprehensive flood history check.

FRA advisory text

Name	Product 4
Description	Detailed Flood Risk Assessment Map for **Land East And West Of Cuckfield Road And North Of The A2300, Goddards Green, West Sussex, BN6 9HG.**
Licence	Open Government Licence
Information Warning - OS background mapping	*The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2018 Ordnance Survey 100024198.

Data Available Online

Many of our flood datasets are available online:

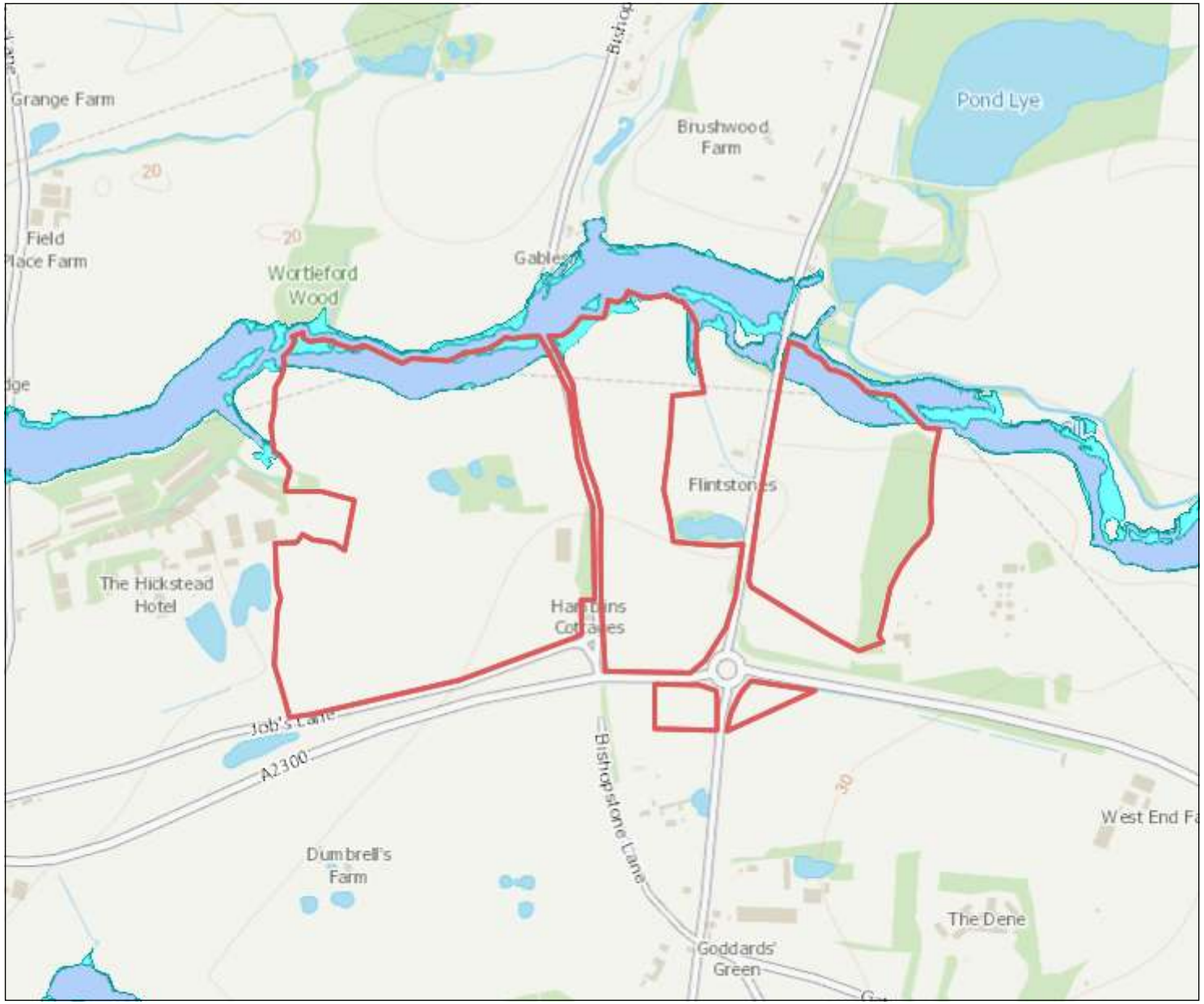
- Flood Map For Planning (Flood Zone 2, Flood Zone 3 ,Flood Storage Areas, Flood Defences, Areas Benefiting from Defences)
- Risk of Flooding from Rivers and Sea
- Historic Flood Map
- Current Flood Warnings

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely,

Tom Lamboo
FCRM Officer, PSO West Sussex | Solent and South Downs
Environment Agency | Guildbourne House, Chatsworth Road, Worthing, West Sussex, BN11 1LD

Flood Map for Planning (Rivers and Sea). Centred BN6 9HG. Created 06/11/2019.



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)

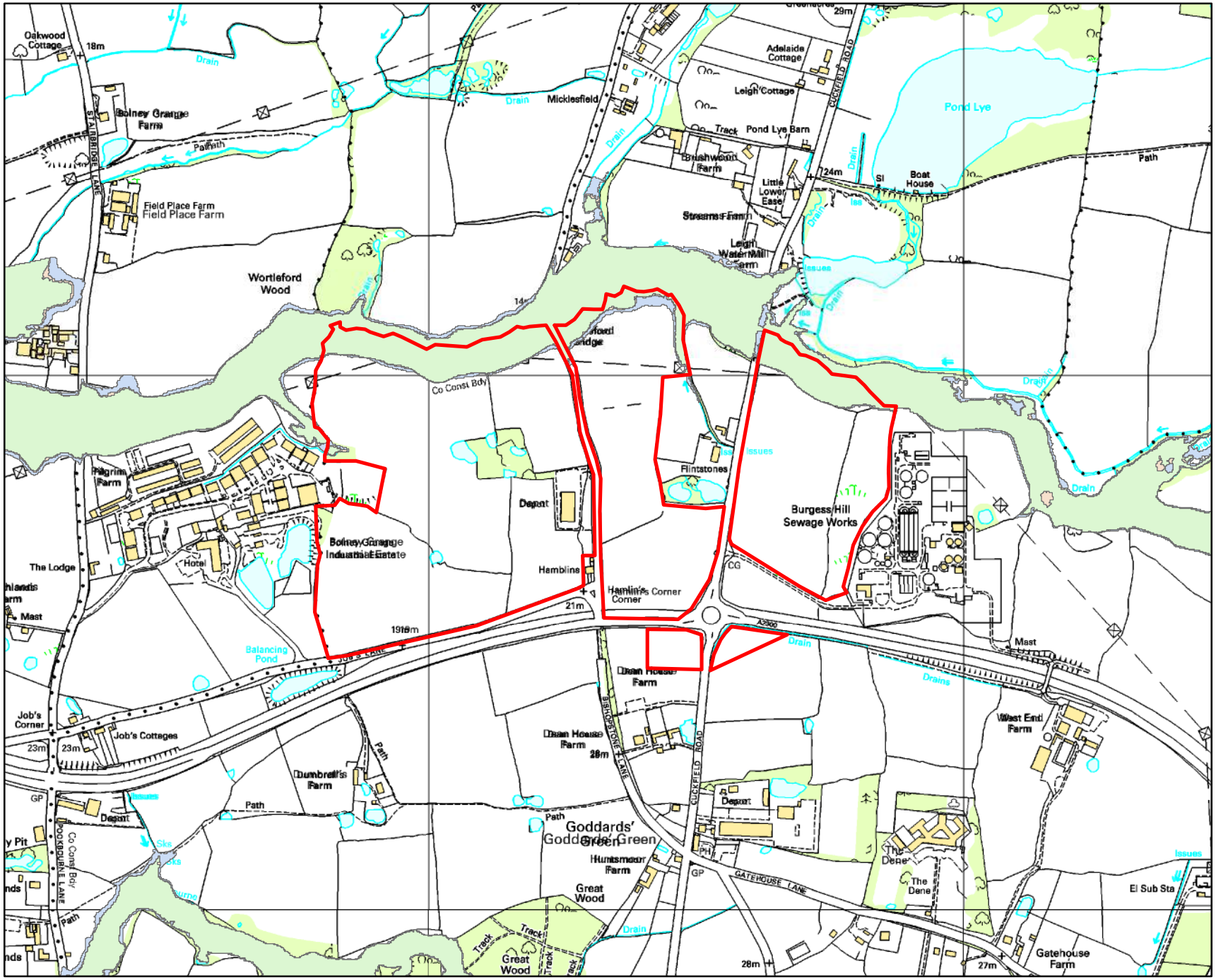
Flood Zone 3 shows the area that could be affected by flooding:

- 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.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Modelled Flood Outlines Plus Climate Change Allowences (Undefended Fluvial). Centred BN6 9HG. Created 06/11/2019.



Environment Agency

N

Legend

- Site_Boundary
- 1% AEP Plus Climate Change (35%) (Undefended Fluvial)
- 1% AEP Plus Climate Change (45%) (Undefended Fluvial)
- 1% AEP Plus Climate Change (105%) (Undefended Fluvial)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Climate Change (CC) for fluvial models is based on an increase in river flows of 35, 45 & 105% for undefended scenarios.

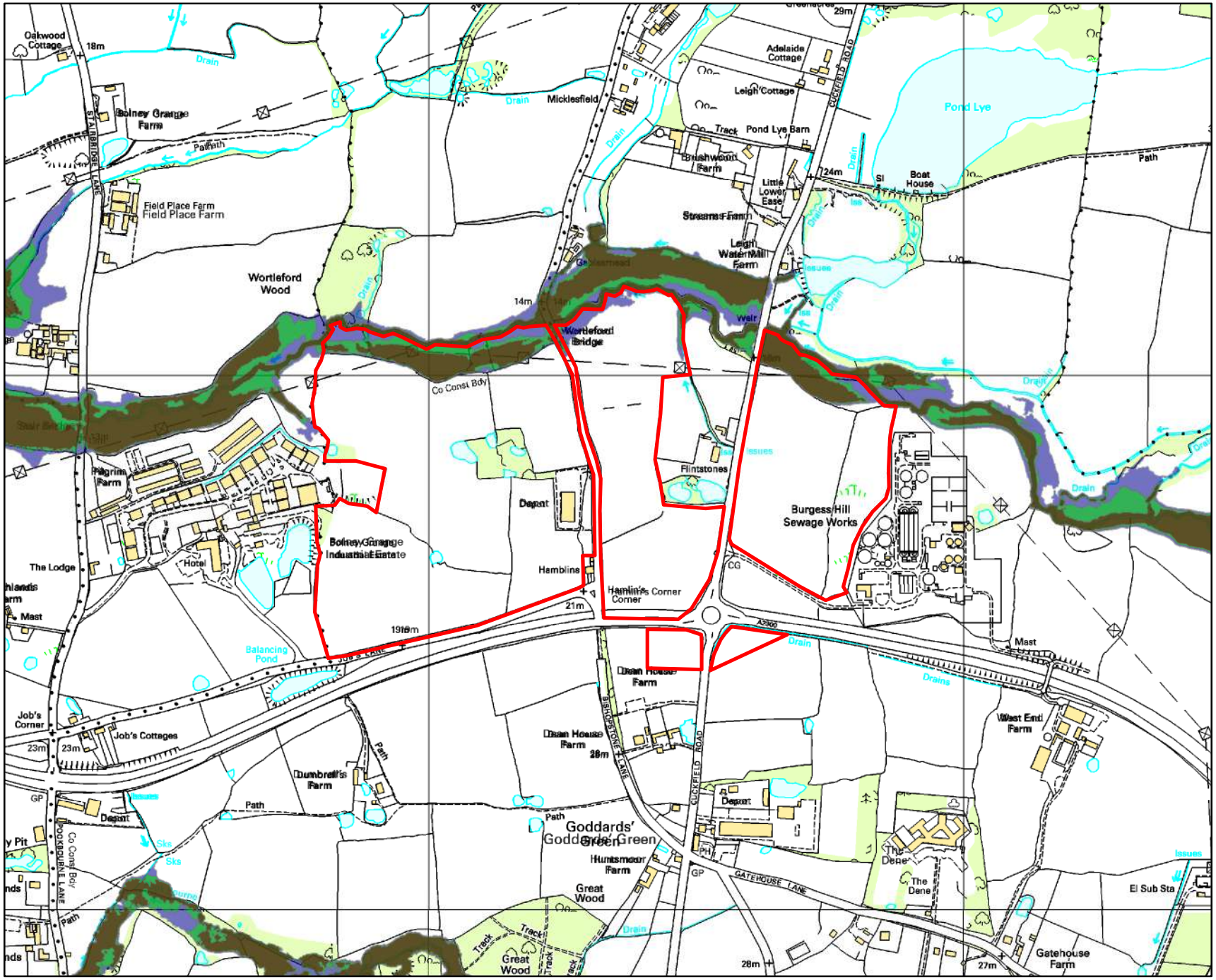
Defended scenarios only show the superseded 20% increase in flows

Scale: 1:10,000

0 0.225 0.45

Kilometers

Modelled Flood Outlines (Undefended Fluvial). Centred BN6 9HG. Created 06/11/2019.



Legend

- Site_Boundary
- 5% AEP (Undefended Fluvial)
- 1% AEP (Undefended Fluvial)
- 0.1% AEP (Undefended Fluvial)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

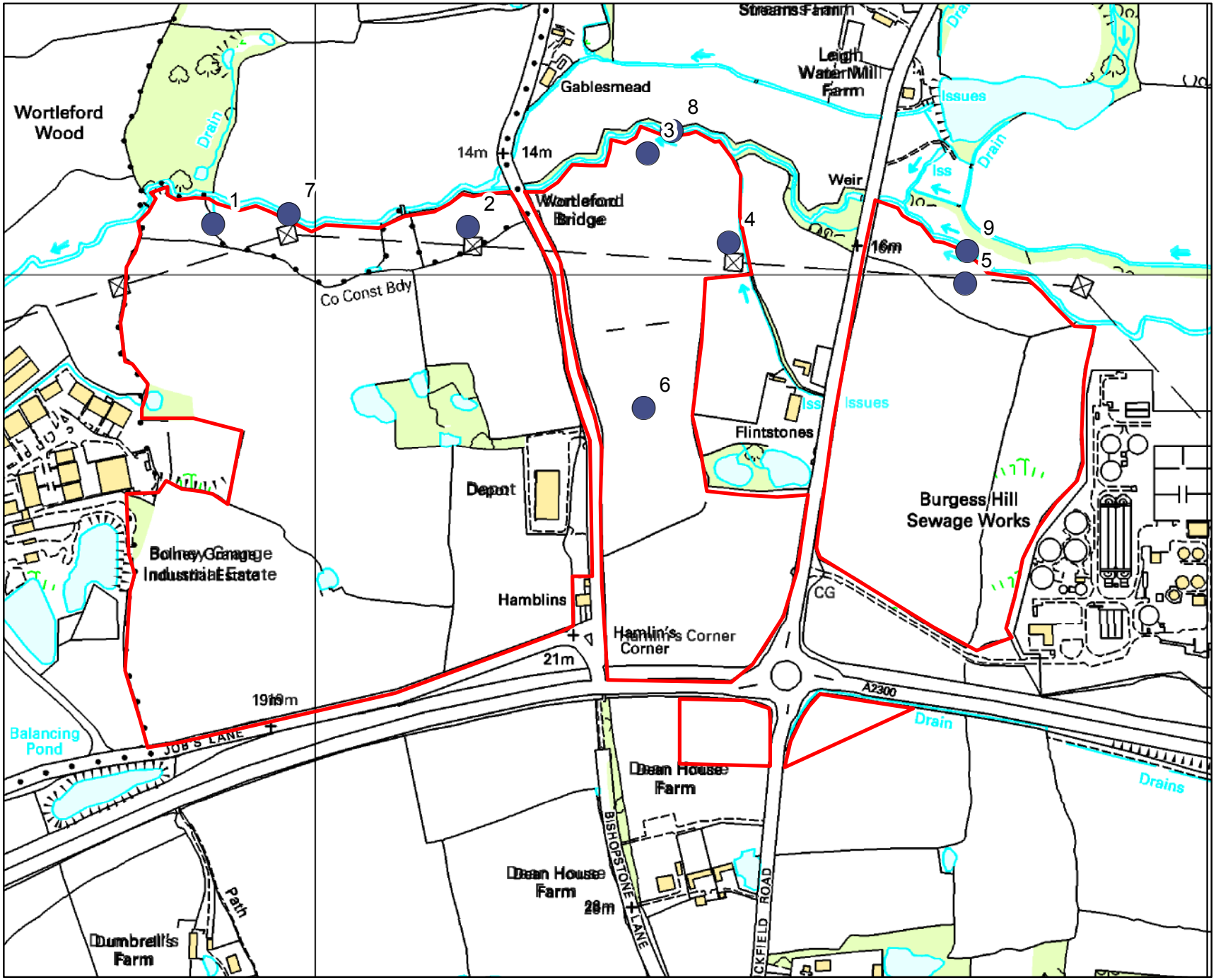
Climate Change (CC) for fluvial models is based on an increase in river flows of 35, 45 & 105% for undefended scenarios.

Defended scenarios only show the superseded 20% increase in flows

Scale: 1:10,000

0 0.225 0.45
Kilometers

FRA Site Boundary & Node Points Map. Centred BN6 9HG. Created 06/11/2019.



Environment Agency

N

Legend

- Site_Nodes
- Site_Boundary

Scale: 1:6,000

0 0.125 0.25

Kilometers

Product 4 Flood Risk Data Requested by: Bradbrook Consulting

Site: Land East and West Of Cuckfield Road and North Of The A2300, Goddards Green, West Sussex, BN6 9HG.

Table 1: Water Levels: Fluvial Undefended

	NGR		Modelled Flood Levels in Metres AOD					
			Undefended Annual Exceedance Probability					
Node Ref	Eastings	Northings	5%	1%	1% +CC (35%)	1% +CC (45%)	1% +CC (105%)	0.1%
1	527886	121057	-	-	14.09	14.14	14.37	-
2	528172	121054	-	-	14.60	14.64	14.89	-
3	528373	121136	-	-	15.00	15.05	15.26	-
4	528464	121036	-	-	15.18	15.22	15.42	-
5	528729	120990	-	-	15.82	15.85	16.01	-
6	528368	120851	-	-	-	-	-	-
7	527970	121068	13.92	14.15	14.33	15.03	15.80	14.41
8	528400	121162	14.71	14.87	14.37	15.07	15.83	15.11
9	528732	121027	15.57	15.69	14.59	15.29	15.99	15.86

Table 2: Water Depths: Fluvial Undefended

	NGR		Modelled Flood Depths in Metres					
			Undefended Annual Exceedance Probability					
Node Ref	Eastings	Northings	5%	1%	1% +CC (35%)	1% +CC (45%)	1% +CC (105%)	0.1%
1	527886	121057	-	-	0.65	0.79	1.03	-
2	528172	121054	-	-	0.67	0.73	0.94	-
3	528373	121136	-	-	0.10	0.18	0.37	-
4	528464	121036	-	-	0.27	0.30	0.43	-
5	528729	120990	-	-	0.79	0.82	0.97	-
6	528368	120851	-	-	-	-	-	-
7	527970	121068	-	-	1.43	1.70	2.00	-
8	528400	121162	-	-	1.56	1.72	2.18	-
9	528732	121027	-	-	1.58	1.88	2.29	-

All levels taken from: Adur Eastern Branch (2012) with new climate change allowances (2016)

Produced on: 06/11/2019

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.

Office Address: Guildbourne House, Chatsworth Road, Worthing BN11 1LD.
Customer services line: 03708 506 506. Email: enquiries@environment-agency.gov.uk
www.gov.uk/government/organisations/environment-agency

Risk of flooding from Surface Water. Centred BN6 9HG. Created 06/11/2019.

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

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.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). E-mail: enquires@environment-agency.gov.uk

Use of Environment Agency Information for Flood Risk Assessments

Important

The Environment Agency are keen to work with partners to enable development which is resilient to flooding for its lifetime and provides wider benefits to communities. If you have requested this information to help inform a development proposal, then we recommend engaging with us as early as possible by using the pre-application form available from our website:

https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

We recognise the value of early engagement in development planning decisions. This allows complex issues to be discussed, innovative solutions to be developed that both enables new development and protects existing communities. Such engagement can often avoid delays in the planning process following planning application submission, by reaching agreements up-front. We offer a charged pre-application advice service for applicants who wish to discuss a development proposal.

We can also provide a preliminary opinion for free which will identify environmental constraints related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In preparing your planning application submission, you should refer to the Environment Agency's Flood Risk Standing Advice and the Planning Practice Guidance for information about what flood risk assessment is needed for new development in the different Flood Zones. This information can be accessed via:

https://www.gov.uk/flood-risk-assessment-standing-advice
http://planningguidance.planningportal.gov.uk/

You should also consult the Strategic Flood Risk Assessment or other relevant materials produced by your local planning authority.

You should note that:

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but does not constitute such an assessment on its own.

2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. Information produced by the local planning authority referred to above may assist here.

3. Where a planning application requires an FRA and this is not submitted or is deficient, the Environment Agency may raise an objection.

Solent & South Downs Area

Pre-application Advice Note

September 2019

This document sets out the environmental issues we will consider when providing our planning application consultation advice to Local Councils. It can be used by applicants, developers and consultants at the pre-planning stage.

Fluvial Flood Risk

Development must be safe and should not increase the risk of flooding.

You can view a site's flood zone on the Flood Map for Planning on our website: https://flood-map-for-planning.service.gov.uk

If your proposed development is located within flood zone 2 or 3 you should consult the Flood Risk and Coastal Change pages of the National Planning Policy Guidance (NPPG) http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/

Here you can determine whether the flood risk vulnerability of your proposed development and the flood zone are compatible. You can also establish if there are flood risk sequential test and exception test requirements for your proposed development. In the first instance we recommend the developer/applicant liaises with the Local Planning Authority (LPA) to undertake the Sequential Test in accordance with the National Planning Policy Framework (NPPF).

If your proposed development is located within flood zone 2 orf 3 and its vulnerability and flood zone are considered acceptable under the NPPG then a site specific Flood Risk Assessment (FRA) is required to support any subsequent planning application. This is required by paragraph 163 of the NPPF: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

Guidance on the content of a site specific FRA can be found in the NPPG and online: https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

More detailed flood risk modelling data is available to help you produce a FRA please contact our Customers and Engagement team at SSDenquiries@environment-agency.gov.uk.

Climate Change Allowances

On 19 February 2016, we published new guidance for planners and developers on how to use climate change allowances in a site-specific FRA: https://www.gov.uk/guidance/flood-risk-assessments-climatechange-allowances

Groundwater Quality

Development must not cause pollution to the water environment.

Source Protection Zones

We have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used across the country for public drinking water supply. These zones are more sensitive to contamination from activities that might cause pollution in the area. The closer the activity, the greater the risk.

SPZ1s are the areas designated as most at risk from contamination and development activities and in these areas we may consider it inappropriate for development to discharge foul or surface water into the ground.

To see if your proposed development is located within a Source Protection Zone, please use our online map: https://magic.defra.gov.uk/

Contaminated Land

The NPPF takes a precautionary approach to land contamination. Before the principle of development can be determined, land contamination should be investigated to see whether it could preclude certain development due to environmental risk or cost of remediation. Where contamination is known or suspected, a desk study, site investigation, remediation and other works may be required to enable safe development.

Pollution

If the proposed development use has the potential to pollute ground or surface water receptors then an assessment to establish whether the risk of pollution is acceptable or can be mitigated will be required within any planning application.

Foul Drainage

When drawing up wastewater treatment proposals for any development, the first presumption is to provide a system of foul drainage discharging into a public sewer to be treated at a public sewage treatment works (those provided and operated by the water and sewerage companies). This should be done in consultation with the sewerage company of the area prior to the submission of a formal planning application.

If connection to a public sewage treatment plant is not feasible, a package sewage treatment plant may be considered. If you would like further advice please call 03708 506 506.

Cemeteries

The development of new cemeteries in areas where groundwater vulnerability is high should be avoided, except where the thickness and nature of the unsaturated zone, or the impermeable formations beneath the site, protect groundwater; or where the long-term risk is mitigated by appropriate engineering methods.

Main Rivers

Ecology

In accordance with the National Planning Policy Framework (NPPF), any development proposal should avoid significant harm to biodiversity and seek to protect and enhance it. Opportunities to incorporate biodiversity in and around the development will be encouraged.

Your scheme should be designed with a naturalised buffer zone of at least 8 metres from the main river to protect and enhance the conservation value of the watercourse and ensure access for flood defence maintenance.

This buffer zone should be managed for the benefit of biodiversity for example by the planting of locally appropriate, UK native species. The buffer zone should be undisturbed by development with no fencing, footpaths or other structures. This buffer zone will help provide more space for flood waters, provide improved habitat for local biodiversity and allows access for any maintenance requirements.

To identify any Main Rivers in proximity to your proposed development please see our Main Rivers Consultation Map: http://apps.environment-agency.gov.uk/wiyby/151293.aspx

Culverting

The Environment Agency is likely to oppose culverting as it is damaging to the ecological integrity of the river channel and its corridor and acts as a barrier to the movement of wildlife, including fish and may also increase flood risk. If the proposal will impact an existing culvert the Environment Agency may oppose planning consent for development either over, or within 8 metres of an existing culvert. Wherever possible, existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Water Framework Directive (WFD)

Any marine works below MHWS require an assessment of possible impacts on Water Framework Directive (WFD) . The assessment should include all elements of the works that fall within, or have the potential to affect, a WFD water body and any of the protected areas therein (including Bathing Waters and Shellfish Waters).

The WFD assessment should follow the 'Clearing the Waters for All' guidance available at https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

Where appropriate, a WFD Assessment should assess any potential impacts and demonstrate that the required enhancements will be delivered. In some cases the requirements of a WFD assessment can be incorporated into an Environmental Impact Assessment (EIA). Any development that has the potential to cause deterioration in classification under WFD or that precludes the recommended actions from being delivered in the future is likely to be considered unacceptable to us.

Permits & Consents

Environmental Permitting Regulations

To see if your proposed development requires an Environmental Permit under the Environment Permitting Regulations please refer to our website: https://www.gov.uk/guidance/check-if-you-need-an-environmental-permit

From 6 April 2016 an Environmental Permit is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of designated Main River, and within 16 metres of a tidal defence.

Ordinary Watercourse Consent

The prior written consent of the relevant Lead Local Flood Authority is required for the erection of any flow control structures, culverting or diversion of ordinary watercourses, including streams, land drains and ditches.

Marine Licence

A marine licence may be required for any activities at the mean high water spring tide up to the territorial limit.This also includes the waters of every estuary, river or channel where the tide flows at mean high water spring tide.

Any development must demonstrate how adverse impacts on migratory fish, bathing waters, shellfish waters, designated sites, protected and priority species and habitats will be avoided, minimised, mitigated and if necessary compensated for. Works within or affecting a Water Framework Directive (WFD) waterbody will need to demonstrate that compliance with WFD objectives will be achieved. 'Clearing the Waters for All' provides guidance on how the impacts on WFD should be addressed, and should be used when preparing an assessment, including the screening and scoping of activities. https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

Further pre-application options

The information provided above details generic information which may or may not be applicable to your development. We are able to provide more detailed and bespoke advice and answer technical questions for a charged fee of £100 per person per hour +VAT.

If you are interested in finding out more about this service, please email:

planningssd@environment-agency.gov.uk

We can explain this service and provide you with a bespoke quote for further pre-application advice that you may require please see .gov - https://www.gov.uk/government/publications/pre- planning-application-enquiry-form-preliminary-opinion

Please note

Please note that the view expressed in this letter by the Environment Agency is in response to the enquiry only and does not represent our final view in relation to any future planning application made in relation to this site.

We reserve the right to change our position in relation to any such application.

As part of this preliminary response we have not technically reviewed any documents. This opinion is based on the information submitted and current planning policy and guidance.

If you have any questions please contact the Solent & South Downs Sustainable Places team:

planningssd@environment-agency.gov.uk

To make a request for data

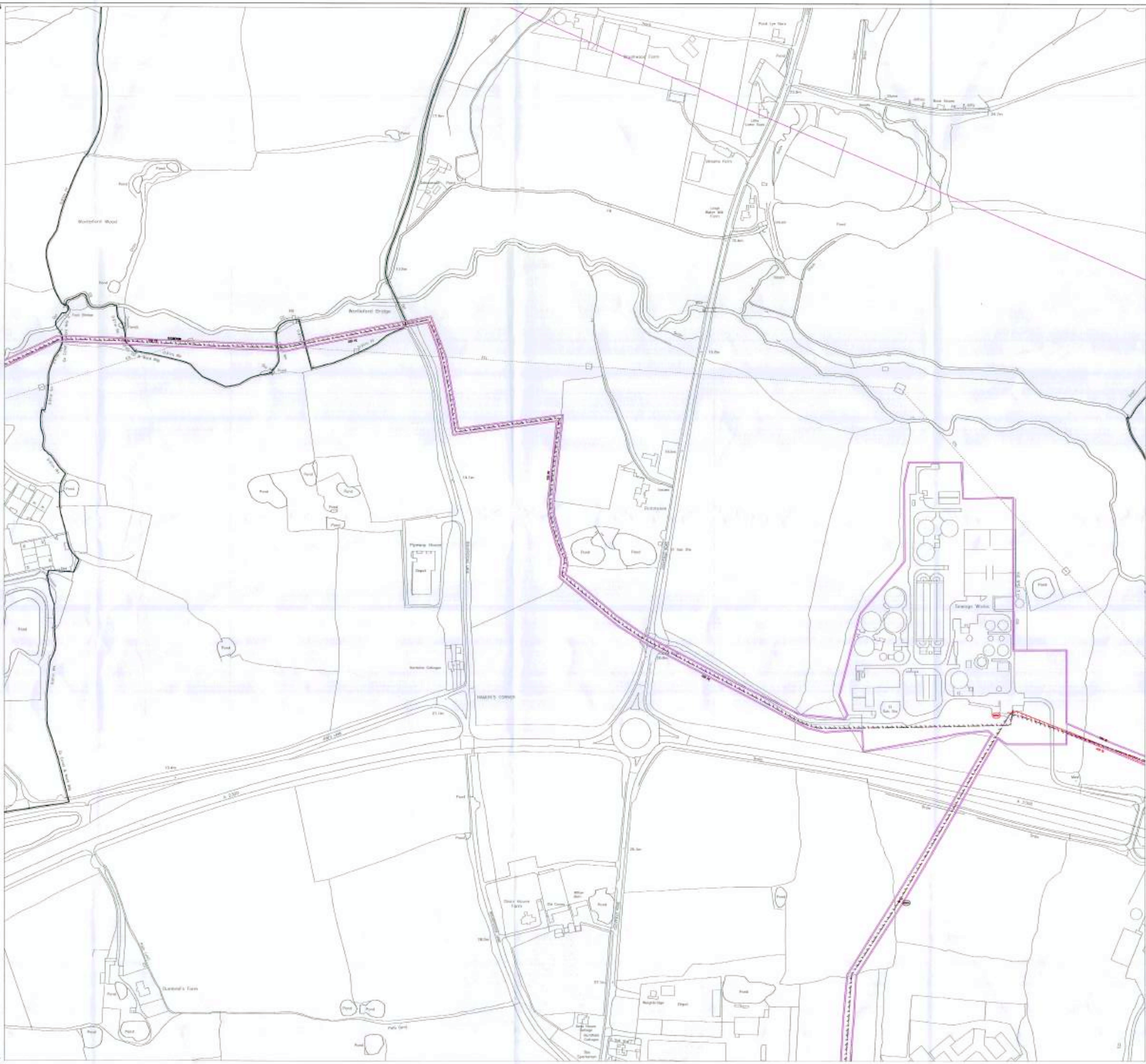
Please submit your request for data to ssdenquiries@environment-agency.gov.uk. You should get the information within 20 working days. We will tell you when to expect the information if we need more time.

There are many datasets available online at www.data.gov.uk including flood maps, historic landfill, waste exemptions, consented discharges to controlled waters, and much more.

APPENDIX C

SOUTHERN WATER SEWER MAP

121466



120137

527736

529166

SEWER RECORDS

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape

O.S. Ref:	TQ2820NW	Drawn by:	bhaltak
Scale:	1:2500	Date:	08/09/2011

Title: U789721_North Site Cuckfield R

The information contained on this plan is provided as a guide to the approximate position of existing public sewers. The accuracy thereof cannot be guaranteed.

THIS INFORMATION MUST BE TREATED WITH CAUTION AND THE ACTUAL POSITION OF THE PUBLIC SEWERS MUST
BE ESTABLISHED ON SITE, IN ALL CASES.

Southern Water must be informed before lifting manhole covers or excavating trial holes.

N

Southern Water