Flood Risk and Drainage Appraisal

South West Cambridge

January 2026

Prepared for:
North Barton Road Landowners Group
(North BRLOG)

Prepared by:
[redacted]

Project Number:
331610058

Revision Schedule

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
A	Updated flood mapping and new development layout	[redacted]	28/11/25	RL	28/11/25		
B	Final Issue	[redacted]	27/01/26	RL	27/01/26	[redacted]	27/01/26

Disclaimer

The conclusions in the Report titled Flood Risk and Drainage Appraisal are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from North BRLOG (the "Client"), the project team and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by:

Reviewed by:

Approved by:

[redacted]

Contents

1 Introduction 1

2 Existing Baseline Information 6

2.1 Site Location 6

2.2 Site Topography 6

2.3 Hydrological Context 6

2.4 Geological Context 7

3 Assessment of Flood Risk 9

3.1 Information Sources 9

3.2 Fluvial Flooding 9

3.3 Surface Water 10

3.4 Flood Risk from Reservoirs 11

3.5 Groundwater Flooding 12

3.6 Sewer Flooding 13

3.7 Historical Flooding 13

3.8 Flood Risk Vulnerability Classification 13

3.9 Climate Change 14

4 Surface Water Management 15

4.1 Surface Water Drainage Hierarchy 15

4.2 Existing Site Drainage 15

4.3 Greenfield Runoff Rates 15

5 Surface Water Drainage Strategy 16

5.2 Attenuation Storage Requirements 16

5.3 C2C Alternative Alignments 18

5.4 Exceedance 18

5.5 Pollution Control 18

5.6 Adoption and Maintenance 18

6 Natural Flood Management (NFM) 20

6.1 NFM opportunities & background 20

6.2 Wetland restoration 21

6.3 Attenuation Basins 22

6.4 Flow Deflectors 23

6.5 In-channel leaky barriers/leaky debris dams 24

7 Conclusions and Recommendations 25

7.2 Flood Risk 25

7.3 Surface Water Drainage 25

7.4 Natural Flood Management 25

7.5 Compliance with Local Planning Policy 26

Figures

Figure 2-1: Historical OS Map 7
Figure 3-1: Flood Map for Planning 9
Figure 3-2: Risk of Flooding from Surface Water 10
Figure 3-3: Risk of Flooding from Reservoirs 12
Figure 6-1 presents potential wetland restoration locations and the sites TWI values. 22
Figure 6-2 Presents the suggested locations for attenuation basins. 23

Tables

Table 2-1: Soil Association types found at site 8
Table 3-1: Surface Water Flood Risk Categories 11
Table 3-2: BGS Borehole Records in the vicinity of the site 12
Table 3-3: Flood Risk vulnerability and flood zone 'compatibility' 14
Table 5-1: Post-Development Surface Water Drainage Catchment Areas 17

Appendices

Appendix A GIS Mapping
Appendix B Existing Catchment Plan
Appendix C Correspondence
Appendix D AW Sewer Plans
Appendix E EA Product 4 Data
Appendix F SFRA Historical Flood Map
Appendix G Greenfield Runoff Calcs
Appendix H High Level Drainage Strategy Drawing & QSE Calcs
Appendix I NFM Map

1 Introduction

1.1.1 Stantec UK Limited (Stantec) has been appointed on behalf of the University of Cambridge, Corpus Christi, St Johns, Jesus and Downing Colleges St John's Colleges, for input to the Vision and Delivery document which will be used to promote a site, referred to as South West Cambridge, as a residential led development through the emerging Greater Cambridge Local Plan. The site of interest is located in west Cambridge and covers 149.4 hectares (ha).

1.1.2 The appraisal is a desk-based review of publicly available information, documents and reports, supplemented by consultation with stakeholders. This considers existing site conditions and the nature of existing flood risk constraints associated with fluvial, groundwater, tidal/coastal, reservoirs/impounded water features, surface water and sewer sources. The potential surface water drainage requirements are also reviewed on a broad scale. Thid report is based on previous report South West Cambridge: Land North of Barton Road, Flood Risk and Drainage Appraisal dated February 2020. The appraisal also includes historic data obtained in 2019 in addition to the latest available data, to help inform assessment of the site.

1.1.3 Key stakeholders have been consulted to acquire site-specific information on flood risk and drainage, to confirm design criteria/principles that should be adopted for the purposes of informing the development of a surface water drainage strategy and the production of a future Flood Risk Assessment (FRA). The following stakeholders were consulted:

- Environment Agency (EA);
- Cambridgeshire County Council (CCC) (the Lead Local Flood Authority (LLFA));
- Anglian Water (AW);
- South Cambridgeshire District Council (SCDC).

1.1.4 The following documents are also relevant to the development and have been reviewed to inform the appraisal:

- National policy in relation to flood risk is contained within the **National Planning Policy Framework (NPPF)**, updated February 2025, issued by the Department for Levelling Up, Housing and Communities, with reference to Section 14 'Meeting the challenge of climate change, flooding and coastal change';
- The latest version of the associated **Planning Practice Guidance (PPG)** 'Flood Risk and Coastal Change' section was updated August 2022;
- The guidance on the application of climate change allowances in FRAs is linked via the PPG and was most recently updated in May 2022 . The guidance provides contingency allowances for the potential increases in peak river flow, peak rainfall intensity and sea level rise which are considered accordingly subject to the Site conditions;
- Stantec South West Cambridge: Land North of Barton Road, **Flood Risk and Drainage Appraisal**, dated February 2020;
- South Cambridgeshire and Cambridge City **Greater Cambridge Integrated Water Management Study**, Level 1 Strategic Flood Risk Assessment (July 2021);
- Cambridge Local Plan dated October 2018. The Local Plan makes reference to the following relevant policies:
  - Policy 31: Integrated water management and water cycle;
  - Policy 32: Flood Risk.

- South Cambridgeshire Local Plan dated September 2018. The Local Plan makes reference to the following relevant policies:
  - Policy CC/1: Mitigation and Adaption to Climate Change;
  - Policy CC/7: Water Quality;
  - Policy CC/8: Sustainable Drainage Systems, and
  - Policy CC/9: Managing Flood Risk.

1.1.5 Policy 31: Integrated water management and water cycle states that development will be permitted provided that:

Policy 31 'Integrated water management and water cycle'

Development will be permitted provided:

A) Surface water is managed close to its source and on the surface where reasonably practicable to do so.

B) Priority is given to the use of nature services.

D) The features that manage surface water are commensurate with the design of the development in terms of size, form and materials and make an active contribution to making places for people.

E) Surface water management features are multi-functional wherever possible in their land use.

G) There is no discharge from the developed site for rainfall depths up to 5 mm of any rainfall event.

H) The run-off from all hard surfaces shall receive an appropriate level of treatment in accordance with Sustainable Drainage Systems guidelines, SUDS Manual (CIRIA C753), to minimise the risk of pollution.

I) Development adjacent to a water body actively seeks to enhance the water body in terms of its hydromorphology, biodiversity potential and setting.

J) Watercourses are not culverted and any opportunity to remove culverts is taken.

K) All hard surfaces are permeable surfaces where reasonably practicable and having regard to groundwater protection.

1.1.6 Policy 32: Flood Risk states that development will be permitted providing it is demonstrated that:

> ***Policy 32 'Flood Risk'***
>
> Development will be permitted providing it is demonstrated that:
>
> *A) The peak rate of run-off over the lifetime of the development, allowing for climate change, is no greater for the developed site than it was for the undeveloped site.*
>
> *B) The post-development volume of run-off, allowing for climate change over the development lifetime, is no greater than it would have been for the undeveloped site. If this cannot be achieved, then the limiting discharge is 2 litre/s/ha for all events up to the 100-year return period event.*
>
> *C) The development is designed so that the flooding of property in and adjacent to the development would not occur for a 1 in 100-year event, plus an allowance for climate change and in the event of local drainage system failure.*
>
> *D) The discharge locations have the capacity to receive all foul and surface water flows from the development, including discharge by infiltration, into water bodies and into sewers.*
>
> *E) There is a management and maintenance plan for the lifetime of the development, which shall include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime.*
>
> *F) The destination of the discharge obeys the following priority order: firstly, to ground via infiltration; then, to a water body; then, to a surface water sewer.'*

1.1.7 *Policy CC/1: Mitigation and Adaption to Climate Change* of the South Cambridgeshire Local Plan states that "*Planning permission will only be granted for proposals that demonstrate and embed the principles of climate change mitigation and adaptation into the development*".

1.1.8 *Policy CC/7: Water Quality* states that in order to protect and enhance water quality, all development proposals must demonstrate:

1. *In order to protect and enhance water quality, all development proposals must demonstrate that:*

    a. *There are adequate water supply, sewerage and land drainage systems (including water sources, water and waste water infrastructure) to serve the whole development, or an agreement with the relevant service provider to ensure the provision of the necessary infrastructure prior to the occupation of the development. Where development is being phased, each phase must demonstrate sufficient water supply and waste water conveyance, treatment and discharge capacity;*

    b. *The quality of ground, surface or water bodies will not be harmed, and opportunities have been explored and taken for improvements to water quality, including renaturalisation of river morphology, and ecology;*

    c. *Appropriate consideration is given to sources of pollution, and appropriate Sustainable Drainage Systems (SuDS) measures incorporated to protect water quality from polluted surface water run off.*

2. *Foul drainage to a public sewer should be provided wherever possible, but where it is demonstrated that it is not feasible, alternative facilities must not pose unacceptable risk to water quality or quantity.*

1.1.9 *Policy CC/8: Sustainable Drainage Systems* states that Development proposals must incorporate appropriate sustainable surface water drainage systems (SuDS) appropriate to the nature of the site. Development proposals will be required to demonstrate that:

a. *Surface water drainage schemes comply with the Sustainable Drainage Systems: Non-statutory technical standards for sustainable drainage systems and the Cambridgeshire Flood and Water Supplementary Planning Document or successor documents;*

b. *Opportunities have been taken to integrate sustainable drainage with the development, create amenity, enhance biodiversity, and contribute to a network of green (and blue) open space;*

c. *Surface water is managed close to its source and on the surface where it practicable to do so;*

d. *Maximum use has been made of low land take drainage measures, such as rain water recycling, green roofs, permeable surfaces and water butts;*

e. *Appropriate pollution control measures have been incorporated, including multiple component treatment trains; and*

f. *Arrangements have been established for the whole life management and maintenance of surface water drainage systems.*

1.1.10 *Policy CC/9 Managing Flood Risk* states (1) in order to minimize flood risk, development will only be permitted where:

a. *The sequential test and exception tests established by the National Planning Policy Framework demonstrate the development is acceptable (where required).*

b. *Floor levels are 300mm above the 1 in 100 year flood level plus an allowance for climate change where appropriate and where appropriate and practicable also 300mm above adjacent highway levels.*

c. *Suitable flood protection / mitigation measures are incorporated as appropriate to the level and nature of flood risk, which can be satisfactorily implemented to ensure safe occupation, access and egress. Management and maintenance plans will be required, including arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime;*

d. *There would be no increase to flood risk elsewhere, and opportunities to reduce flood risk elsewhere have been explored and taken (where appropriate), including limiting discharge of surface water (post development volume and peak rate) to natural greenfield rates or lower, and*

e. *The destination of the discharge obeys the following priority order:*

i Firstly, to the ground via infiltration;

ii Then, to a water body;

iii Then, to a surface water sewer;

iv Discharge to a foul water or combined sewer is unacceptable.

2. *Site specific Flood Risk Assessments (FRAs) appropriate to the scale and nature of the development and the risks involved, and which takes account of future climate change, will be required for the following:*

    f. Development proposals over 1ha in size;

    g. Any other development proposals in flood zones 2 and 3;

    h. Any other development proposals in flood zone 1 where evidence, in particular the Strategic Flood Risk Assessment or Surface Water Management Plans, indicates there are records of historic flooding or other sources of flooding, and/or a need for more detailed analysis.

3. *FRAs will need to meet national standards and local guidance (including recommendations of the South Cambridgeshire and Cambridge City Strategic Flood Risk Assessment (2010) and the Phase 1 and 2 Water Cycle Strategy or successor documents).*

2 Existing Baseline Information

2.1 Site Location

2.1.1 The site is located in West Cambridge and comrpsies an area of 149.4 ha. The site extends to Madingley Road to the north to Barton Road to the south. The M11 motorway forms part of the western site boundary. Residential development and land owned by individual colleges of the University of Cambridge form the eastern boundary. The site consists of mainly agricultural land with buildings and associated infrastructure owned by University of Cambridge covering the northern part of the site.

2.1.2 A location plan is enclosed in **Appendix A**.

2.2 Site Topography

2.2.1 LiDAR data show site levels range between 19m AOD in the north – west area of the site to 8.5m AOD adjacent to the eastern most boundary. The site generally falls to the south east although there are several areas which falls to the north in the northern part of the site.

2.2.2 An existing catchment plan is enclosed in **Appendix B**.

2.3 Hydrological Context

2.3.1 The site is covered by a network of ordinary watercourses. An ordinary watercourse is defined as a river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows and which does not form part of a main river.

2.3.2 The Bin Brook is a tributary of the River Cam in Cambridgeshire. It extends from Hardwick, a village to the west of Cambridge, to its confluence with the River Cam in the centre of Cambridge. The Bin Brook enters the site at the south-west boundary and is an awarded watercourse at this point managed by South Cambridgeshire District Council (see SCDC 2019 response and plan showing extent of awarded watercourse enclosed in **Appendix C**). The Bin Brook flows in a south-east direction across the south-west section of the site, it then runs parallel with the A603 Barton Road and becomes a "Main River" managed by the Environment Agency close to Stone Bridge. From a point close to Barton Road, south of Gough Way, the Bin Brooks flows north-west through the Gough Way residential area. It is partly culverted through this area, a 1500mm diameter surface water sewer is shown on the Anglian Water sewer plans in this location (**Appendix D**). Downstream of the Gough Way residential area it flows towards Clare Hall College and through the grounds of Robinson College and St John's College in Cambridge before joining the River Cam north east of the site.

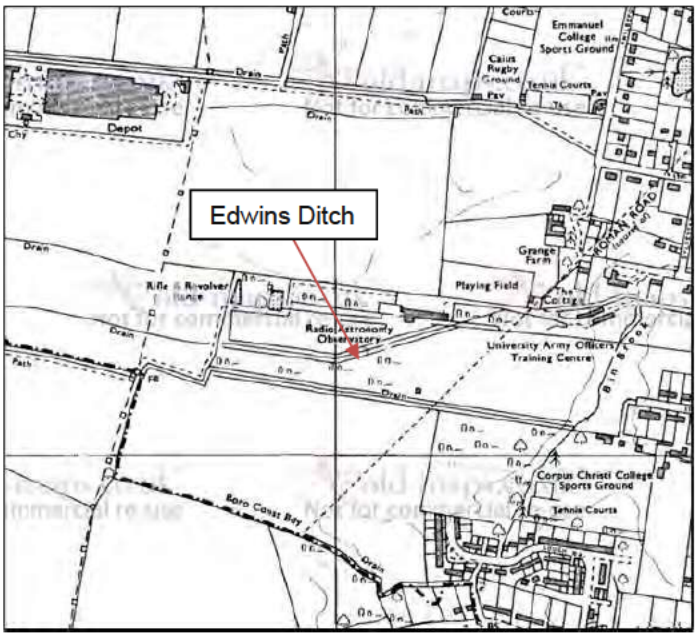
2.3.3 A flood relief channel operates in parallel with Bin Brook partly defining the south-east site boundary by flowing around the western and northern edges of the Gough Way area before re-joining Bin Brook. An EA pre-feasibility report on the Bin Brook dated October 2002 states the relief channel is a concrete channel for the majority of its length and an earth channel for the remainder. The report states the flood relief channel was designed to a 1 in 40-year standard. The feasibility report also noted that properties on Gough Way and a number of properties adjacent to the Bin Brook immediately up and downstream were flooded October 2001, as the capacity of the flood relief channel was insufficient to contain the volume of water flowing downstream.

2.3.4 Information provided by CCC in 2019 shows a section of "ordinary" watercourse is culverted for a length of 700m (see plan enclosed in **Appendix C**). The culverted watercourse flows eastwards along a track, near the boundary between land owned by Jesus College and St John's College and past a playing field, discharging to Bin Brook approximately 100m upstream of the crossing beneath Sylvester Road. CCC stated the Bin Brook is a designated main river

in this location, and also awarded to South Cambridgeshire District Council as the 3rd public drain.

2.3.5 There are further ordinary watercourses upstream of the Bin Brook in the south-west corner of the site. There is an ordinary watercourse which enters the site at the western boundary of the site between land owned by St John's College and University of Cambridge – West Cambridge. The aforementioned watercourse drains in an easterly direction before merging with Bin Book at the northern boundary of Corpus Christi College Sports Ground. OS Mapping shows there are additional "ordinary" watercourses within land owned by St John's College and University of Cambridge – West Cambridge and are culverted in several locations.

2.3.6 An old OS Map dating back to 1972-1973 sourced from old maps website shows the presence of a ditch (believed to be called Edwins Ditch draining north-east within the north east area of the site (see **Figure 2-1** below). The aforementioned watercourse is not shown on current mapping which suggests it may have been infilled.



Modern Mapping © Crown Copyright and database rights Ordnance Survey 2019. All rights reserved

Figure 2-1: Historical OS Map

2.3.7 There is a lake approximately 480m south-east of the site near to King's & Selwyn Colleges' Sports Ground.

2.3.8 There are no public sewers within the southern section of the site. There is a 225mm surface water sewer which runs along Cranmer Road and discharges into the Bin Brook in the eastern most area of the site. There are several foul and surface water sewers serving the existing buildings located within the northern part of the site. A copy of the sewer plans covering the site is enclosed in **Appendix D**.

2.4 Geological Context

2.4.1 The British Geological Survey (BGS) extracts show the site is underlain by the Gault Formation comprising mudstone. No superficial deposits are present. Geological information is enclosed in the February 2020 Flood Risk and Drainage Appraisal.

2.4.2 The Soil Association Maps (see February 2020 Flood Risk and Drainage Appraisal) show that the site is underlain wholly by soil type 411d (Hanslope). The permeability characteristics of soil type 411d is summarised in **Table 2-1** below.

Table 2-1: Soil Association types found at site

Soil Type	Coverage	Description	BFIHOST
411d (Hanslope)	100% of site.	Slowly permeable calcareous clayey soils. Some slowly permeable non-calcareous clayey soils. Slight risk of water erosion.	0.34

2.4.3 The above suggests that infiltration is unlikely to be viable where underlain directly by soil type 411d, subject to infiltration testing. The effectiveness of infiltration will also be dictated by ground water levels at the site and therefore this is subject to further intrusive ground investigations which will be undertaken to support the site at the planning stage.

2.4.4 The Groundwater Source Protection Zone (GSPZ) maps show the site is not within a GSPZ. These maps show the risk of negative impact on water quality near an abstraction due to activities on or near the ground. The site is not underlain by a bedrock aquifer or superficial drift aquifer.

2.4.5 Ground Investigations will be undertaken to inform the technical studies to support any future planning application (if the site is allocated in the Local Plan or otherwise brought forward for development). These will inform the proposed surface water drainage strategy (i.e. suitability of infiltration drainage and ground water levels) and inform the masterplan.

3 Assessment of Flood Risk

3.1 Information Sources

3.1.1 The baseline flood maps have been taken from the Stantec GIS flood maps report in **Appendix A**, utilising the EA Open Data datasets available online and reproduced with OS mapping under licence to Stantec.

3.2 Fluvial Flooding

3.2.1 The EA Flood Map for Planning associated with the Site, available on the Government's website, is presented in **Figure 3-1** below.

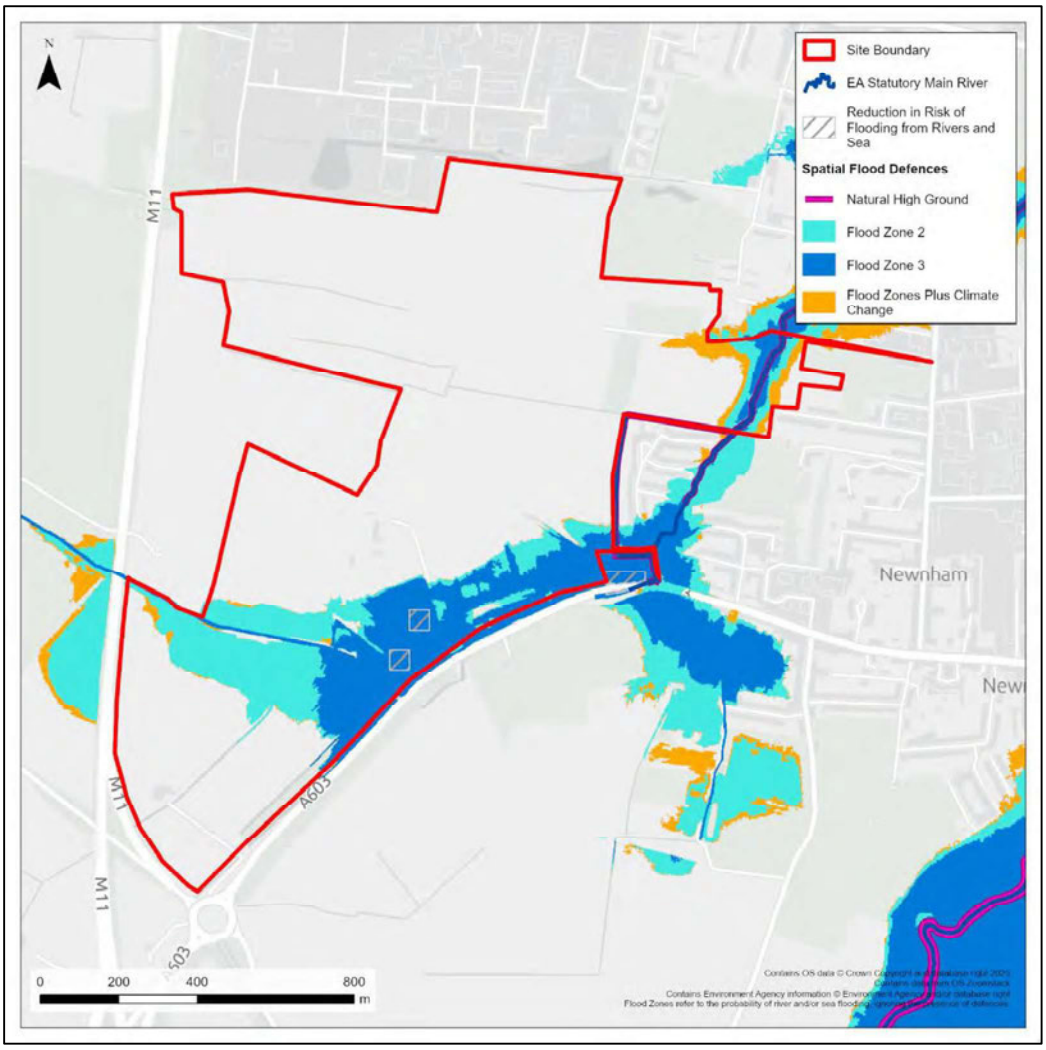


Figure 3-1: Flood Map for Planning

3.2.2 The Flood Map shows a large portion of the site is located within Flood Zone 1, having a less than 1 in 1,000 annual probability (<0.1%) of fluvial or tidal flooding in any year. A part of the site is in Flood Zones 2 and 3, 'medium' and 'high' probability of flooding, mainly relating to the Bin Brook watercourse which bisects the western part of the site before running parallel to the southern site boundary.

3.2.3 The Flood Map for Planning does not map fluvial flood risk from minor watercourses. However, the "Risk of Flooding from Surface Water" (RoFSW) map is considered a reasonable initial indicator of fluvial flood risk from minor watercourses, further details on the surface water flood risk is provided within this appraisal.

3.2.4 EA product 4 data is enclosed in **Appendix E** and details the modelled flood extents along Bin Brook which are broadly in line with the extent of Flood Zones 2 and 3.

3.3 Surface Water

3.3.1 The Risk of Flooding from Surface Water (RoFSW) map available from the Government website, see **Figure 3-2** below, shows areas that could potentially be susceptible to surface water flooding in an extreme rainfall event. Please note that the surface water flood maps show modelled information and not historical records.

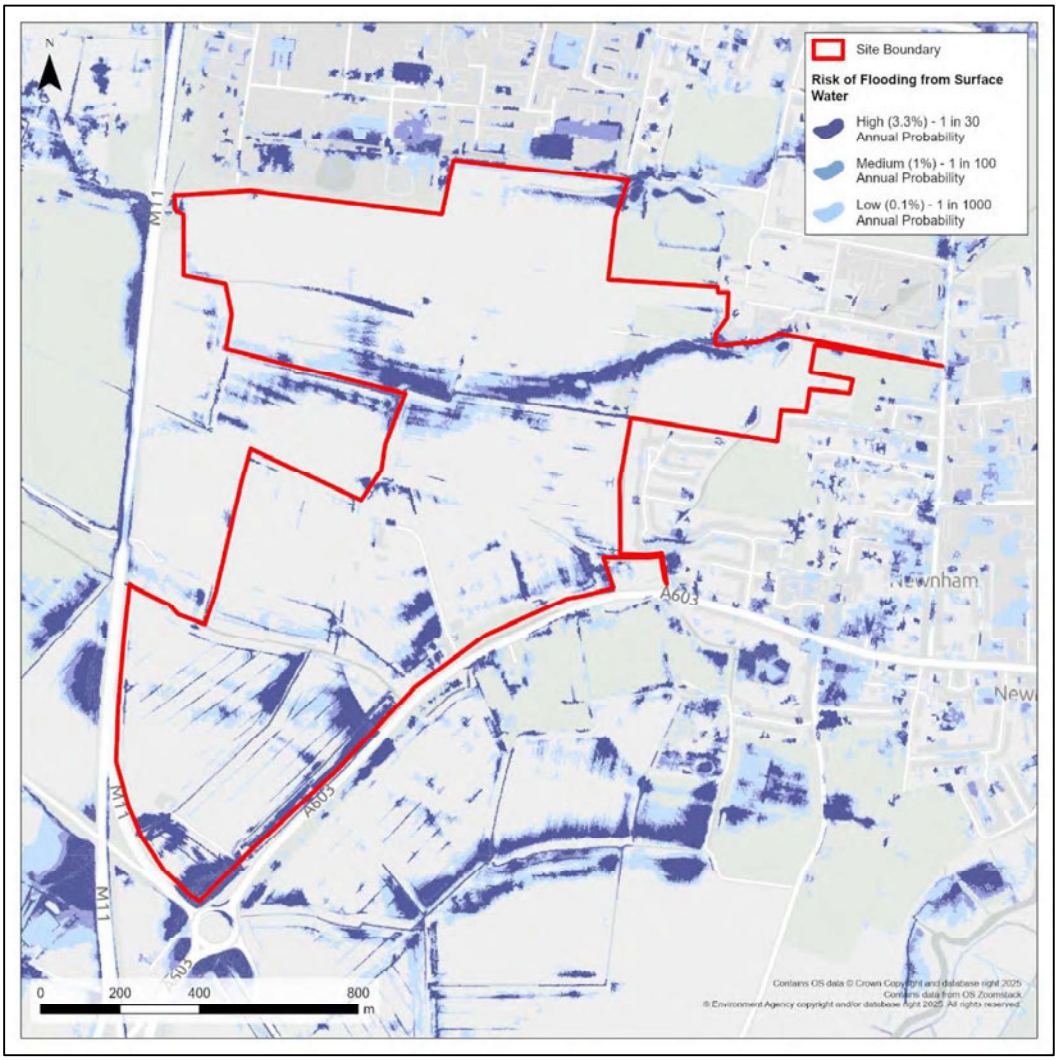


Figure 3-2: Risk of Flooding from Surface Water

3.3.2 The definitions for each surface water flood risk category is defined in **Table 3-1** below.

Table 3-1: Surface Water Flood Risk Categories

Risk of flooding	Probability
Very low	< 1 in 1000 (0.1%)
Low	1 in 1000 (0.1%) - 1 in 100 (1%).
Medium	1 in 100 (1%) - 1 in 30 (3.3%)
High	>1 in 30 (3.3%)

3.3.3 **Figure 3-2** above shows the majority of the Site is at 'Very Low' risk of surface water flooding. However, there are areas shown to be at 'Low', 'Medium' and 'High' risk of surface water flooding as a result of depressions in the topography and presence of watercourses on site.

3.3.4 In the south-western part of the site, there is an area of surface water flood risk, which is likely as a result of overland flow generated from the localised catchment area to the north/south and potentially from overflow associated with the Bin Brook watercourse and its tributaries which traverse the area.

3.3.5 There are areas of surface water flood risk (low, medium and high risk) associated with the Bin Brook watercourse and site topography along the south-eastern site boundary.

3.3.6 The other significant area of surface water flood risk area lies within the central part of the site due to due to water accumulating in low depression areas and overland flow routes. It is assumed at this locality that the watercourses are not explicitly modelled.

3.3.7 The 'High Risk' areas shown generally coincide with the alignment of existing watercourses located within the site, where watercourses merge and natural overland flow routes.

3.3.8 On the EA RoFSW plus Climate Change (2040s – 2060s) mapping, included in **Appendix A**, existing areas of 'Low to High' risk described above show a similar spatial extent, albeit with marginally increased area. There are no new areas of risk identified.

3.3.9 Consultation with the LLFA and appropriate investigations will be undertaken to assess the flood risk at the Site and to consider how the downstream flood risk could be reduced.

3.3.10 Appropriate easements and offsets to the existing watercourses at the site will be incorporated with the emerging masterplan for the site, in accordance with approving stakeholders.

3.3.11 SCDC require a 5m offset where the Bin Brook is designated as an 'Awarded watercourse'. The EA require a 8m offset where the Bin Brook is designated as an EA Main River. CCC confirmed the on site 'ordinary watercourses' require a 5m offset.

3.4 Flood Risk from Reservoirs

3.4.1 The Risk of Flooding from Reservoirs map, see **Figure 3-3** below, shows the risk of flooding in the event of a breach from reservoirs containing 25,000 (or above) cubic metres of water. The maps indicate that the site is not located within an area which is considered at risk in the event of reservoir breach.

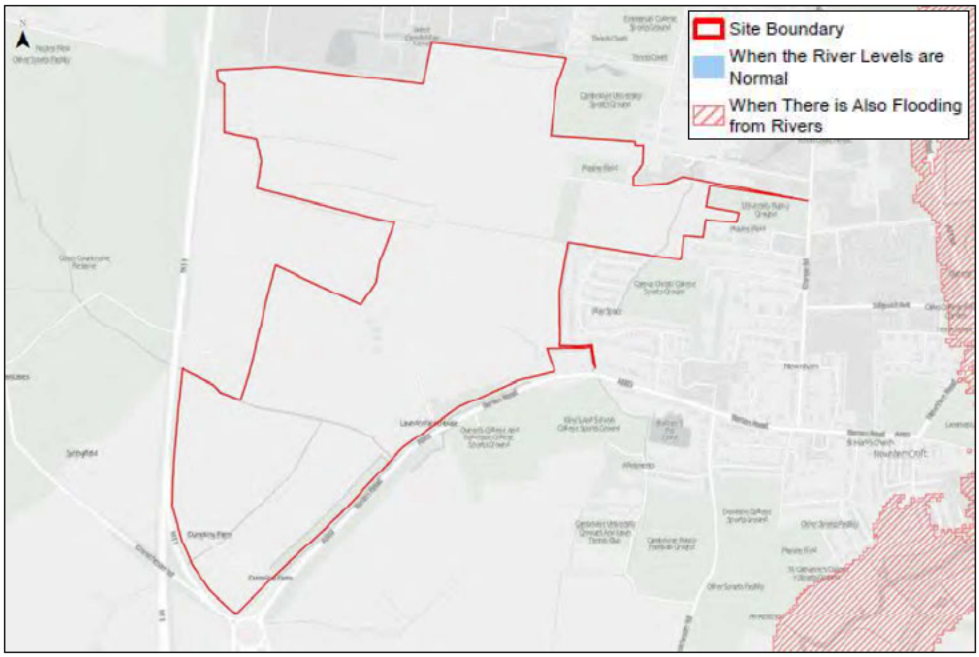


Figure 3-3: Risk of Flooding from Reservoirs

3.5 Groundwater Flooding

Available BGS borehole records in the vicinity of the site were reviewed to provide initial information on potential groundwater levels at the site. A selection of these are presented in **Table 3-2**, which demonstrate that groundwater is present within the bedrock at the south-west corner of the site.

Table 3-2: BGS Borehole Records in the vicinity of the site

Borehole Reference	Location	Depth (m)	Level water struck at (m below ground level)	Geological classification of groundwater
TW45NW181	Within Jesus College owned land	3.2	Dry	Clay
TL45NW205 Dumpling Farm Grantchester	South-west corner of the Site	Unknown	Rest water level 2.4mbgl	Unknown
TL45NW139- Haggis Farm Cottages	South-west corner of site	43.3	Rest water level 2.4mbgl	Gault Formation

3.5.1 The above results show water levels within the bedrock could be within 3m below ground level (bgl). Further intrusive investigations would need to be undertaken to confirm this. Monitoring of groundwater levels, including variation of these levels through the seasons is recommended in

conjunction with intrusive ground investigation to support of the Site at planning stage once the site is allocated in the Local Plan.

3.6 Sewer Flooding

3.6.1 AW have no records of flooding in the vicinity that can be attributed to capacity limitations in the public sewerage system (see response in **Appendix C**).

3.7 Historical Flooding

3.7.1 LLFA stated in 2019 they have historic flood records in the south-east part of the site, extending from either side of the Bin Brook. A description of the flood extent is described within the LLFA's formal response contained within **Appendix D**.

3.7.2 LLFA also have a record of the following flood investigations (provided in 2025) close to the site:

- Approximately 130m to the east of the site at Barton Road, Cambridge a record of external flooding due to high flows in Bin Brook in November 2014.
- Approximately 600m to the east of the site at Malting Lane, Cambridge a record of reoccurring external flooding issue in July 2014
- Approximately 500m to the north of the site at Wilberforce Road and Madingley Road, Cambridge a record of external flooding in July 2014.
- Approximately 400m to the north of the site at Hedgerley Close, Cambridge a record of garden flooding in October 2024.
- Approximately 670m to the north of the site at Bradrushe Fields, Cambridge a record of external flooding to roads, gardens and fields in winter 2020/21 and in March 2023.
- Approximately 800m to the north west of the site at Madingley Road, Cambridge a record of driveway flooding in July 2018.

3.7.3 The historical flood map included within the SFRA suggests multiple flood incidents have occurred near the south-east area of the site which concurs with LLFA's response (see map enclosed in **Appendix F**). The SFRA shows Barton Road in Cambridge flooded in 1978 due to the Bin Brook watercourse overtopping. In addition, SFRA records suggest Gough Way west of the site flooded due to Bin Brook surcharging (see 2.3.3 for further details).

3.8 Flood Risk Vulnerability Classification

3.8.1 NPPF PPG 'Flood Risk and Coastal Change' Table 2 identifies the 'Flood risk vulnerability classification' of a site, depending upon the proposed usage. This classification is subsequently applied to PPG Table 3 to determine whether:

- The proposed development is suitable for the flood zone in which it is located, and;
- Whether an Exception Test is required for the proposed development.

3.8.2 **Table 3-3** highlights when an exception test is required, however the table does not show the application of the Sequential Test which guides development to be located in an area with the lowest risk of flooding hence areas in Flood Zone 1 should be considered in the first instance, then to Flood Zone 2, and then Zone 3. Priority should be given to guiding 'More Vulnerable development to Flood Zone 1 ahead of 'Less Vulnerable' and Water Compatible development.

Table 3-3: Flood Risk vulnerability and flood zone 'compatibility'

Vulnerability classification	Example uses	Flood Zone		
		1	2	3
More Vulnerable	Residential care homes Residential dwellings Non–residential uses e.g. school	✓	✓	Exception Test required
Less Vulnerable	Shops Offices General Industry	✓	✓	✓
Water Compatible	Amenity Open Space Outdoor Recreation Facilities	✓	✓	✓

Key: ✓ Development is appropriate

3.9 Climate Change

3.9.1 The EA confirmed in 2019 they would only expect detailed modelling of Bin Brook to be undertaken as part of a Flood Risk Assessment if built development is proposed in close proximity to the extent of Flood Zone 3. The detailed modelling would be expected to include an assessment of the impact of climate change.

3.9.2 An allowance for climate change on peak river flow is applicable; however this will need to be agreed with the Environment Agency. Current allowances for the Cam and Ely Ouse Management Catchment for the 2080s epoch are outlined below:

- Central – 9%;
- Higher – 19%; and
- Upper – 45%.

3.9.3 With respect to anticipated changes in peak rainfall intensity due to climate change, CCC Surface Water Planning Guidance (May 2025) document states that all surface water drainage strategies are expected to incorporate the latest climate change allowances for rainfall intensity for the 3.3% and 1% AEP storm events based on the relevant catchment, in accordance with the GOV.UK Peak Rainfall Allowances Map[1].

3.9.4 For the Cam and Ely Ouse Management Catchment 1% AEP storm event, the Central allowance is +25% and the Upper allowance is +40% allowance for climate change. A 40% increase in rainfall intensities should be used to assess the potential flood risk implications in the design rainfall event including whether there is any increased flood risk to third parties as a result of the development.

[1] Climate change allowances for peak rainfall

4 Surface Water Management

4.1 Surface Water Drainage Hierarchy

4.1.1 Regional and national planning policy will be taken into account going forward within the emerging drainage strategy for the site.

4.1.2 Planning policy requires that the effects of proposed development on flood risk elsewhere be considered, given that the addition of new impermeable surfaces will increase the amount of surface water runoff. *Policy CC/8: Sustainable Drainage Systems* of the South Cambridgeshire Local Plan and *Policy 31: Integrated water management and water cycle* of the Cambridge Local Plan states that Sustainable drainage measures must be fully integrated within design to manage any surface water arising from development proposals.

4.1.3 Document H of the Building Regulations states that options for the disposal of surface water runoff should be considered in the following hierarchical order:

i. Into the ground (infiltration);

ii. To a surface water body (e.g. watercourse);

iii. To a surface water sewer, highway drain or other drainage system;

iv. To a combined sewer.

4.1.4 The new 'National standards for sustainable drainage systems (SuDS)' was released on 19th June 2025. Pre-application correspondence with the LLFA in November 2025 confirmed that they are currently reviewing the recently published National Standards for SuDS and recommend that the surface water drainage strategy aligns with either the CCC Surface Water Planning Guidance or the National Standards, clearly stating which approach is being followed.

4.2 Existing Site Drainage

4.2.1 Based on information currently available, the site generally falls to the east to where the Bin Brook is located. The site appears to be divided into seven drainage catchments, principally defined by the indicative levels currently available and the on-site watercourse network. This is illustrated in the drawing enclosed in **Appendix B**.

4.3 Greenfield Runoff Rates

4.3.1 For the purpose of this assessment, the site had been considered as 100% greenfield with no infiltration. Intrusive ground investigations will be undertaken at the site in support of any future planning application once the site has been allocated in the Local Plan.

4.3.2 The greenfield runoff rate was estimated using the FEH Statistical method based on catchment descriptors for the site. BFIHOST values were checked using soil association plans. This method resulted in a QBAR (1 in 2.33 annual probability event) greenfield runoff rate of 2.5 l/s/ha.

4.3.3 Refer to **Appendix G** for the supporting Greenfield Runoff calculations.

5 Surface Water Drainage Strategy

5.1.1 At this stage it is anticipated the attenuation features proposed at the site will be widely dispersed throughout the development.

5.1.2 The design and the integration of the proposed SuDS features within the wider landscape strategy and proposals will be carefully considered as part of the master planning process and will themselves provide an element of Public Open Space (POS) use.

5.1.3 The site already has some established landscaping which is to be retained and enhanced where possible. Through the appropriate provision of SuDS to be incorporated within the wider landscape strategy for the site. There are existing watercourses and land drains that could be integrated as part of the site's surface water drainage system, which will enhance the landscape. The SuDS proposals will therefore be designed to ensure they enhance and support the landscape proposals going forward.

5.1.4 The proposed SuDS seek to deliver long term mitigation by attenuating and treating the development generated surface water runoff and where possible provide betterment to the receiving watercourses including the Bin Brook. SuDS will be designed so they are integrated within the wider landscape proposals and will provide opportunities, where possible, to enhance biodiversity and recreation facilities.

5.1.5 As well as providing a drainage function, the SuDS will also form an important part of the project's biodiversity strategy. The proposed SuDS features will be designed so that they maximise opportunities for habitat creation.

5.1.6 The prevailing surface water strategy to be adopted is a network of positive drainage consisting of and not limited to:

- Green Roofs;
- Open cascading swales / rills;
- Attenuation Basins;
- Ponds;
- Wetlands;
- Porous Paving;
- Bio-retention areas; and
- Rainwater Harvesting.

5.1.7 Upstream on plot drainage solutions such as bio-retention planters, rainwater gardens and permeable paving could also provide pre-treatment for runoff from hard standing surfaces such a parking areas. Roof runoff where feasible will either drop directly into a piped drainage network, on plot rills, or rainwater gardens before discharging to the strategic attenuation areas.

5.1.8 Piped networks may still be utilised in areas based on the LLFA, Highways and Sewerage undertaker adoption requirements.

5.2 Attenuation Storage Requirements

5.2.1 The assumed percentage impermeable area for the residential areas is 65%. The Primary School development plot is assumed to have a percentage impermeable area of 80%. We have

excluded allowance for any internal roads at this stage. This will need to be reviewed as the development proposals progress.

5.2.2 MicroDrainage Quick Storage Estimates (QSE) have been undertaken to provide an indication of the volume of storage that would likely be required on site to provide the necessary attenuation. This is for rainfall events up to the 1% (1 in 100) annual probability event plus, an additional allowance of 40% on rainfall intensity, which is to account for the potential impacts of climate change. The climate change allowance is based on the latest Environment Agency *Flood Risk Assessments: Climate Change Allowances* (May 2022).

5.2.3 The proposed final developable area for the future works is not yet known and therefore the amount of storage required for every 1ha of impermeable area has been calculated based on the site applicable greenfield QBAR runoff rates of 2.5 /s/ha. This equates to 1,368m^3 per impermeable hectare.

5.2.4 An approximation of the total storage required for each catchment is shown in **Appendix H**. An estimate for post-development each parcel is provided in **Table 5-1**. We have assumed 65% impermeability for residential areas (including 10% urban creep) and 80% impermeability for local centres or school areas; we have excluded roads at this stage. The calculations are only rough estimates which can only be used at this high-level stage and are subject to agreement with relevant stakeholders.

5.2.5 Indicative locations of strategic attenuation basins for each catchment is shown in a Surface Water High Level Review Drawing enclosed in **Appendix H**. It is anticipated this storage will be more dispersed once a masterplan is progressed in the planning stages.

5.2.6 The maximum stored water depth to achieve a gravity outfall will also need to be confirmed at a later stage once full survey data is available of the local land drainage network. The size of any proposed attenuation features will be affected by any groundworks that may take place as part of the development proposals.

Table 5-1: Post-Development Surface Water Drainage Catchment Areas

Catchment Number	Total Area (ha)	Indicative Impermeable Areas (ha)	Attenuation Requirements (m^3)
1	2.87	1.86	2,542
1A	0.23	0.15	205
2	3.75	2.44	3,335
3	1.38	0.90	1,236
4	2.14	1.39	1,898
5	0.88	0.57	791
5A	0.03	0.02	23
6	1.50	0.97	1,335
7	1.18	0.77	1,052
7A	0.17	0.11	150
8	0.97	0.63	860
8A	0.86	0.56	759
9	0.31	0.25	344
10	0.88	0.71	960
11	5.33	3.46	4,735

11A	2.72	1.77	2,419
12	0.44	0.29	399
12A	0.29	0.19	254
13	1.87	1.22	1,674
13A	0.34	0.22	295
14	3.35	2.18	2,989
14A	0.66	0.43	579
15	1.69	1.10	1,511
16	5.59	3.64	4,973
16A	2.99	1.94	2,648
17	1.39	0.91	1,234
18	3.75	2.44	3,331
19	5.32	3.46	4,735

5.3 C2C Alternative Alignments

5.3.1 There are currently several options being considered for the C2C alignment in the northeast part of the site. There is an existing watercourse (drain) which provides an outfall for the post-development surface water drainage strategy. This outfall would need to remain in perpetuity beneath the route of the preferred alignment (possibly via a culvert - pending discussions with the LLFA) in order to permit the proposed development parcels in this part of the site to drain via gravity.

5.4 Exceedance

5.4.1 To demonstrate that in an exceedance event any flooding does not negatively affect the development, flows up to the 1 in 100 (1%) annual probability plus climate change rainfall event will be managed onsite. Furthermore, the attenuation will be designed to accommodate surface water runoff with no flooding for all storms up to and including the 1 in 100 (1%) annual probability plus 40% climate change event.

5.5 Pollution Control

5.5.1 Appropriate pollution control measures must be included in the surface water drainage system to minimise the risk of contamination or pollution entering the receiving watercourse and aquifer from surface water runoff from the development. The drainage network will need to incorporate sufficient treatment stages to meet the water quality requirements of the CIRIA SuDS Manual, CCC SuDS Design Guidance and the Local Plan. A SuDS treatment plan should be applied for each catchment whereby runoff passes through a variety of SuDS techniques to control volumes of runoff and reduce pollution before discharge to a watercourse.

5.6 Adoption and Maintenance

5.6.1 It is assumed that the surface water infrastructure will be designed to adoptable standards and adopted either by Local Authority (CCC), Anglian Water or private management company. Anglian Water will consider adoption of a scheme designed to their standards set out in their SuDS Adoption Manual and the Design and Construction Guidance. South Cambridgeshire District Council will not generally adopt and / or maintain SuDS.

5.6.2 The CCC Surface Water Planning Guidance Document dated May 2025 provides outline guidance on how SuDS features should be designed. The proposed drainage strategy is to

allow for future detailed drainage design in accordance with Water UK's Design and Construction Guidance (DCG).

6 Natural Flood Management (NFM)

6.1 NFM opportunities & background

6.1.1 NFM aims to reduce or delay the downstream maximum water height of flood peaks, mitigating flood impacts. NFM is most effective at reducing the frequency of high probability fluvial events (1-in-20-year events or less).

6.1.2 The description details provided for the suggested NFM options (**Sections 6.2** to **6.5** below) are taken from the EA Natural Flood Management programme prospectus[2], the Rivers Trust[3] and the Scottish Environmental Agency (SEPA) NFM handbook[4].

6.1.3 The Cambridge City and South Cambridge SFRA (2021) states the following:

"In 2019, Cambridge Past Present & Future (CPPF) charity received funding for a feasibility study to create a new water treatment wetland and identify opportunities for natural flood management in the Bin Brook catchment, with reporting due to be completed in late 2020.

[…]

It is therefore clear that in the Bin Brook catchment there is local appetite and support for river improvement and flood risk works, that would benefit from additional funding. There are opportunities for development to contribute to these or other local improvement schemes, where sites overlay or border onto watercourses.

[…]

The charity CPPF is a significant landowner in the Bin Brook catchment, through their Coton Countryside Reserve. They are currently undertaking a feasibility study to consider options to improve water quality and reduce flood risk downstream. The proposed works being assessed comprise:

1. *Creation of a new integrated water treatment wetland, to filter outflow from Coton Water Recycling Centre, reduce diffuse pollution from agriculture, improve downstream water quality, create new wetland habitat and public amenity.*

2. *Targeted natural flood management interventions to reduce the rate of runoff from agricultural drainage systems, at locations where these ditches enter Bin Brook.*

The feasibility study is anticipated to be completed in 2020, after which CPPF will be seeking funding to implement the proposals.

There are many opportunities for development to support local flood improvement works and small-scale flood attenuation schemes along watercourses, using natural flood management techniques, with multiple benefits (e.g. water quality improvements and river restoration)."

6.1.4 Point 1 above, outlined in the SFRA (2021), proposed 'Creation of a new integrated water treatment wetland, to filter outflow from Coton Water Recycling Centre, reduce diffuse pollution from agriculture, improve downstream water quality, create new wetland habitat and public amenity. Our appraisal does not provide any specific detail on a wetland to address this point. The purpose of this initial review is to outline potential locations for NFM features that could address Point 2, to reduce the rate of runoff from minor watercourses, improve downstream water quality and possibly create new wetland habitat and public amenity.

[2] Natural flood management programme prospectus - GOV.UK

[3] Natural Flood Management | The Rivers Trust

[4] sepa-natural-flood-management-handbook1.pdf

6.1.5 We recommend a full NFM screening exercise be undertaken, supported by a detailed hydraulic flood modelling exercise, in order to determine locations that might be suitable for NFM interventions and where the maximum benefit for reducing flood risk can be gained.

6.1.6 NFM that does not rely on over engineered solutions is the focus for this site, therefore strategies like attenuation ponds, wooded/leaky dams, flow deflectors, and wetland creation should be considered.

6.1.7 A plan showing potential locations for NFM inventions outlined below, is included in **Appendix I**.

6.2 Wetland restoration

6.2.1 Wetland restoration provides storage to intercept water during periods of flooding and slows downstream flows reducing flood peaks. The benefits include improvements in water quality, habitat provision, low flow and climate regulation and reduced fluvial, surface water and groundwater flood risk, while also providing aesthetic and recreational value.

6.2.2 Wetlands can take many forms including shallow lakes, floodplain meadows, wet grasslands, streams and ditches, fens and wet woodlands etc. They are permanently or seasonally covered by shallow water. Wet woodlands for example can reduce flood flows from 3 to 70%.

6.2.3 Key locations for wetlands are low-lying areas that are continuously wet.

6.2.4 Areas around the Bin Brook Channel in the South of the site can be deemed suitable for wetland restoration due to their low-lying topography, high Topographic Wetness Index (TWI) value and location within Flood Zone 2 and 3. Suggested locations are presented in **Figure 6-1**.

6.2.5 TWI quantifies variation in soil moisture across a landscape, with a high topographic wetness index suggesting that area is likely to retain water and be susceptible to saturation and water accumulation. Therefore, locations with a high TWI, land around the Bin Brook for example, is suitable for wetland restoration.

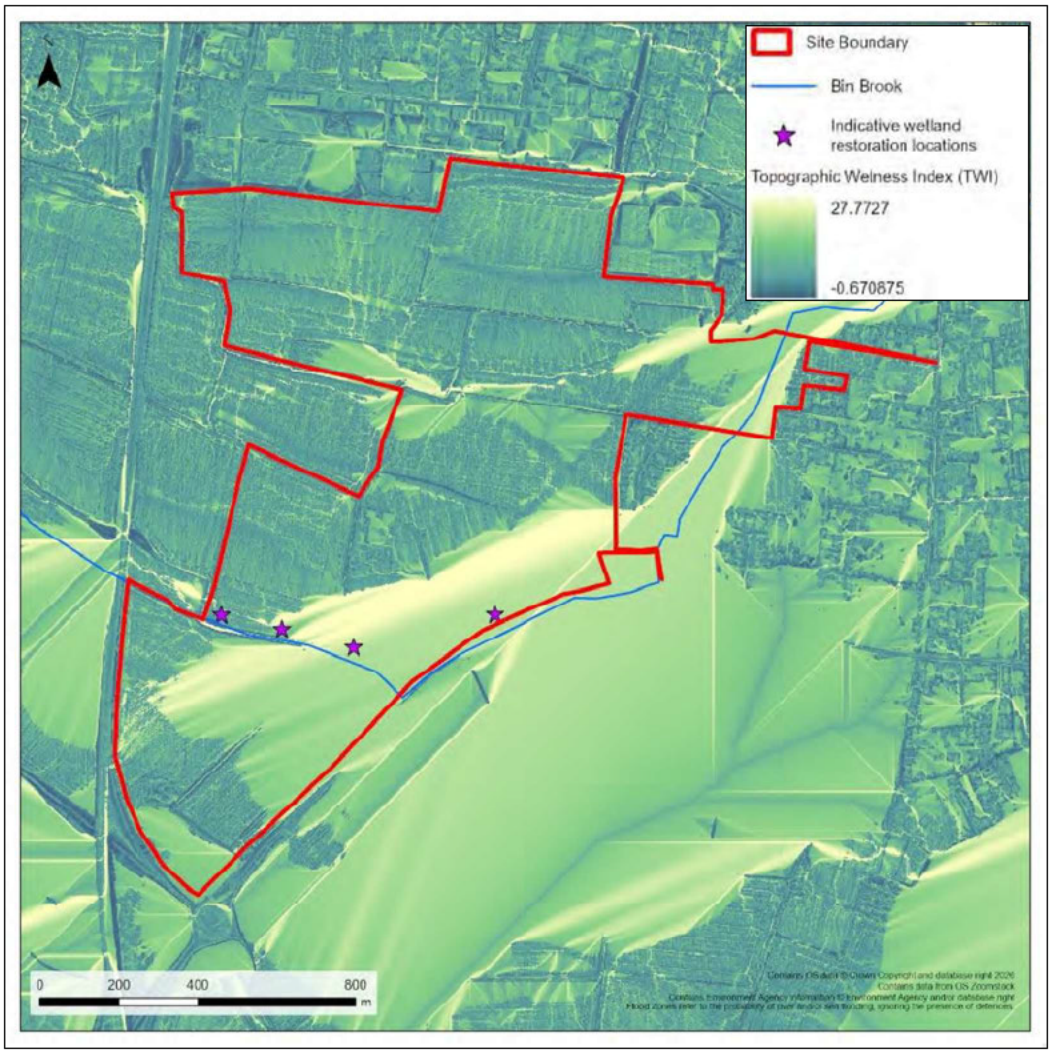


Figure 6-1 presents potential wetland restoration locations and the sites TWI values.

6.3 Attenuation Basins

6.3.1 Attenuation basins work by retaining water thereby reducing flood risk by holding back water and slowly releasing the flow upstream of receptors that might be at risk of flooding. In contrast to wetlands they are usually dry until after a rainfall event and then slowly release water overtime.

6.3.2 Key locations include slopes prone to run-off during a flood event, low-lying areas adjacent to watercourses (can be online or offline) and areas where run-off with a heavy sediment load is present. Suggested locations are presented in **Figure 6-2**.

6.3.3 The benefits include water quality improvement from sediment deposition and reduced diffuse pollution, habitat provision, low flow regulation and reduced fluvial, surface water and groundwater flood risk, while also providing aesthetic and recreational value.

6.3.4 The site has minimal changes in slope (0 to 0.93 degrees), however there are topographic low points in close proximity to the Bin Brook that provide an opportunity for attenuation basins.

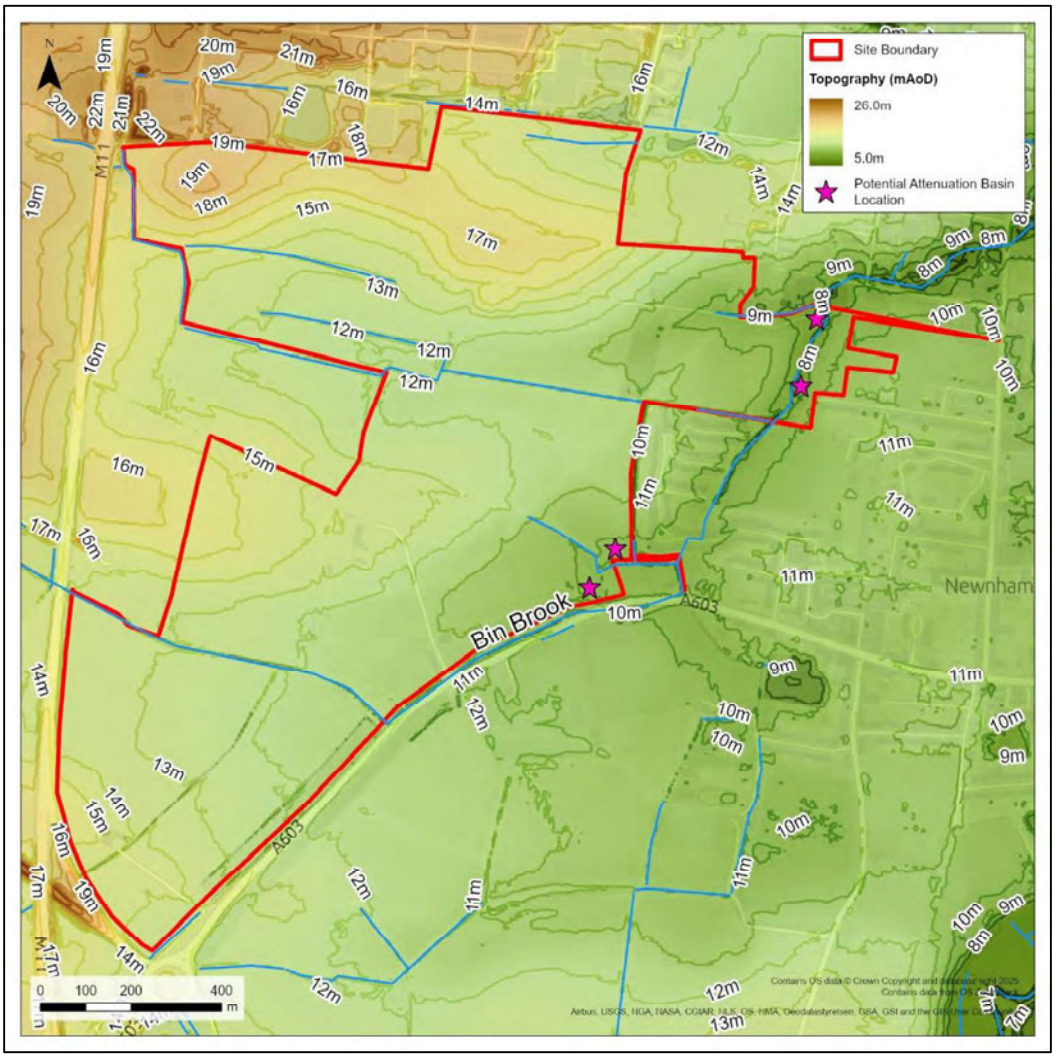


Figure 6-2 Presents the suggested locations for attenuation basins.

6.4 Flow Deflectors

6.4.1 Flow deflectors are large woody debris carefully placed within the channel to slow and direct water into temporary storage areas. Flow deflectors placed downstream of sections of lowered bank can be an effective technique to slow and reduce downstream flood by encouraging flood flows out of bank and into the flood plain.

6.4.2 Benefits included improvements to water quality, in-channel habitat provision and biodiversity, reductions to surface water, fluvial and groundwater flood risk while also providing aesthetic and cultural value.

6.4.3 Key locations for implementation include disconnected flood plains, areas adjacent to flood storage areas, streams lined with woodland, drainage ditches, habitat poor channels, and lengths of banks requiring erosion protection.

6.4.4 Key considerations include avoiding areas near bridges, culverts or gauging stations to avoid blockages.

6.4.5 There is scope for flow deflectors to be used in accordance with potential locations for wetland restoration within the site. The east to west flow path of Bin Brook across the southern part of

the site provides an opportunity for flow deflector implementation and connection with surrounding flood plain, with the purpose to reduce flood peaks further downstream (eastern and northeastern corner of the site).

6.5 In-channel leaky barriers/leaky debris dams

6.5.1 A network of in-channel wooden barriers can control channel flows, reducing the 1 in 100-year flood peak by up to 20%[5]. The dams are designed to be slowly leaky, draining the trapped water once the flood period has passed. They can also be constructed to spill water onto the floodplain for additional temporary storage.

6.5.2 Benefits include improvements to water quality, habitat provision, low flow and climate regulation and reduced fluvial, surface water and groundwater flood risk.

6.5.3 Key considerations include avoiding areas in close proximity to bridges and culverts to reduce the risk of blockage. In addition, to ensure maximum effectiveness of reducing flood risk, multiple barriers will be needed within the catchment, with their implementation requiring planning to ensure that the overall extent of flood flows is not altered and avoiding the coinciding of flood peaks.

6.5.4 Further investigation into specific locations across the Bin Brook is required, however there is scope for implementation within the catchment and tributaries located on site, flowing east to west towards the main channel of Bin Brook.

[5] NFM-Handbook-East-Anglia.pdf

7 Conclusions and Recommendations

7.1.1 Stantec has been appointed on behalf of the North BRLOG, for input to the Vision and Delivery document which will be used to promote a site, referred to as South West Cambridge, as a residential led development through the emerging Greater Cambridge Local Plan.

7.1.2 This appraisal is a desk-based review of publicly available information, supplemented by consultation with stakeholders, and considers existing site conditions and the nature of existing flood risk constraints associated with fluvial, groundwater, tidal/coastal, reservoirs/impounded water features, surface water and sewer sources.

7.1.3 Based up the findings of this appraisal and the recommendations outlined herein, it is envisaged that an effective flood risk and drainage strategy can be developed to support future development of the site.

7.2 Flood Risk

7.2.1 A large portion of the site is located within Flood Zone 1 of the "Flood Map for Planning", which is appropriate for all types of development.

7.2.2 Flood Zones 2 and 3, 'medium' and 'high' probability of flooding are shown at the site but are mainly constrained to the channel associated with the Bin Brook. Modelling of the Bin Brook may be required if built development is proposed close to Flood Zone 3 as part of a future FRA.

7.2.3 The sequential approach is to be adopted at the site whereby development is located within lowest risk flood areas of the site where possible.

7.2.4 Appropriate easements will be applied to the watercourses at the site to ensure they remain free from development and future maintenance access can be retained. SCDC require a 5m offset where the Bin Brook is designated as an 'Awarded watercourse'. The EA require a 8m offset where the Bin Brook is designated as an EA Main River. CCC confirmed the on site 'ordinary watercourses' require a 5m offset.

7.3 Surface Water Drainage

7.3.1 The work currently being undertaken has already resulted in several key issues and themes being identified, these are as follows:

- Sustainable Drainage Systems (SuDS) will be proposed throughout the development and will form a key part of the green infrastructure network. These will be designed to enhance the biodiversity opportunities within the development.
- Greenfield runoff from the site will be limited in accordance with the Lead Local Flood Authority (Cambridgeshire County Council) surface water drainage design requirements and provisional rates have been provided within this appraisal.
- There are existing water courses and land drains could be integrated as part of the site's surface water drainage system, which could enhance the landscape.
- It is estimated attenuation storage in the order of 1,368m^3 per impermeable hectare could be required to attenuate runoff prior to discharge.

7.4 Natural Flood Management

7.4.1 There is local appetite and support for river improvement within Bin Brook catchment and the charity CPPF have historically been undertaking a feasibility study to consider options to improve water quality and reduce flood risk downstream. One of these options was for targeted

NFM interventions to reduce the rate of runoff from agricultural drainage systems, at locations where these ditches enter Bin Brook.

7.4.2 Our appraisal outlines potential locations for NFM features that could help to reduce the rate of runoff from minor watercourses, improve downstream water quality and possibly create new wetland habitat and public amenity.

7.4.3 NFM that does not rely on over engineered solutions is the focus for this site, therefore strategies like attenuation ponds, wooded/leaky dams, flow deflectors, and wetland creation have been considered.

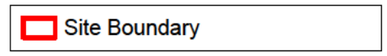
7.4.4 All locations for NFM interventions should be assessed via a detailed screening and feasibility study, supported by a hydraulic flood modelling exercise, to ensure maximum benefit and ensure no detriment to flood risk both on site and to external receptors.

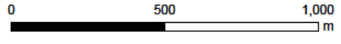
7.5 Compliance with Local Planning Policy

7.5.1 The future masterplan will be designed to meet the relevant Local Planning Policy requirements contained within the Cambridge Local Plan and South Cambridgeshire Local Plan.

7.5.2 A NPPF compliant Flood Risk Assessment (FRA) and supporting Sustainable Surface Water Drainage Strategy will be provided in support of the site at planning.

Appendix A GIS Mapping





Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

Site Location

1:20,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 01 | Rev: A

N

Site Boundary

Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

Site Location (Detailed)

0 400 800 m

1:8,000 @ A3

Date: 28/11/2025

Drawn: JB

Checked: RL

Figure: 01.1

Rev: A

N

Site Boundary

Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

Site Location - Aerial

0 400 800 m

Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, GeoTechnologies, Inc, METI/NASA, USGS, Microsoft, Vantor

1:8,000 @ A3

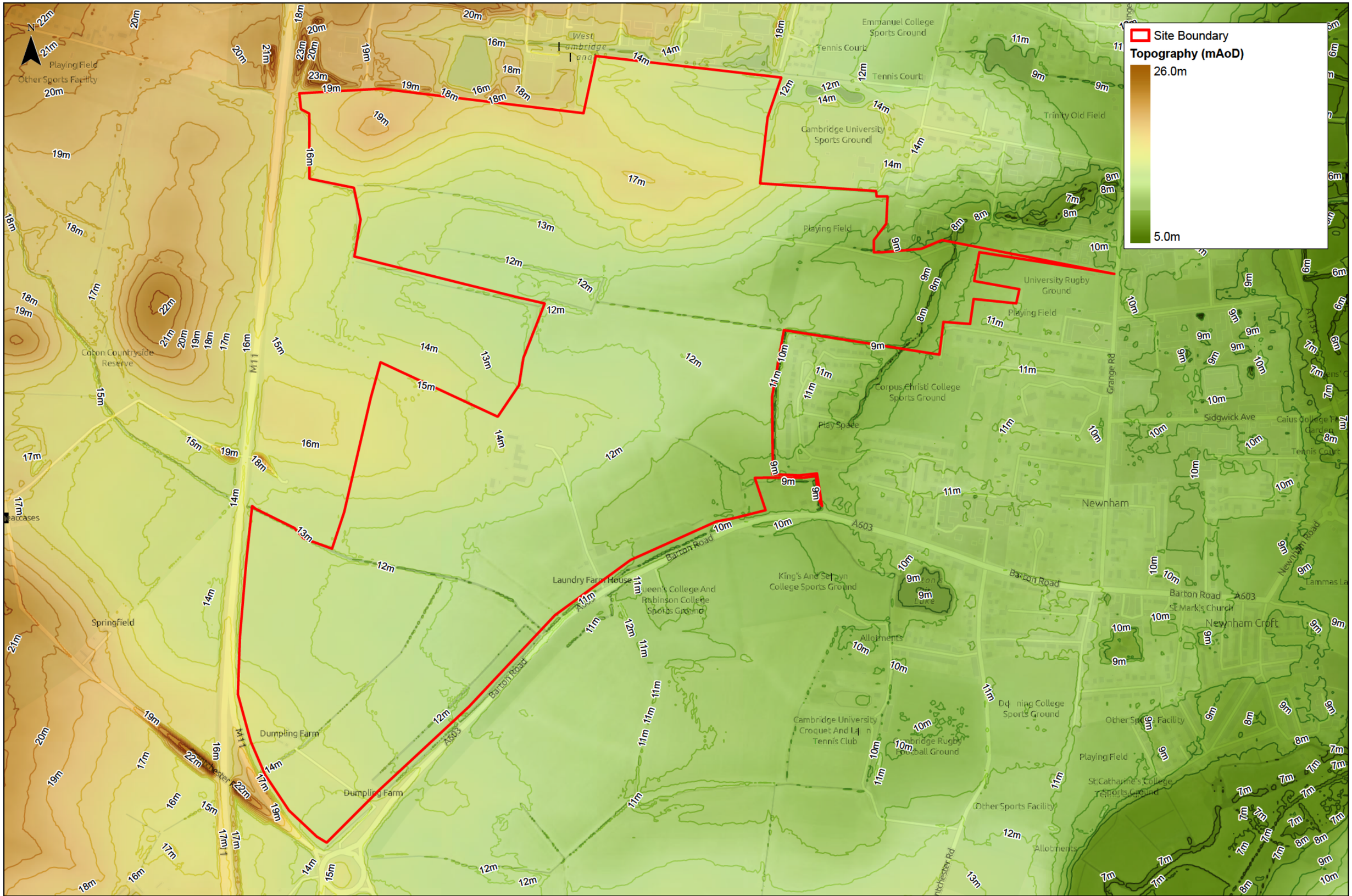
Date: 28/11/2025

Drawn: JB

Checked: RL

Figure: 02

Rev: A



Stantec	Client: St Johns College	**SOUTH WEST CAMBRIDGE** Topography	0 400 800 m Contains OS data © Crown Copyright and database right 2025 Contains data from OS Zoomstack Airbus, USGS, NGA, NASA, CGIAR, NLS, OS, NMA, Geodatastyrelsen, GSA, GSI and the GIS User Community.	1:8,000 @ A3 | Date: 28/11/2025 Drawn: JB | Checked: RL Figure: 03 | Rev: A

N

- Site Boundary
- EA Statutory Main River
- Reduction in Risk of Flooding from Rivers and Sea

Spatial Flood Defences

- Natural High Ground
- Flood Zone 2
- Flood Zone 3
- Flood Zones Plus Climate Change

Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

Environment Agency Flood Map for Planning

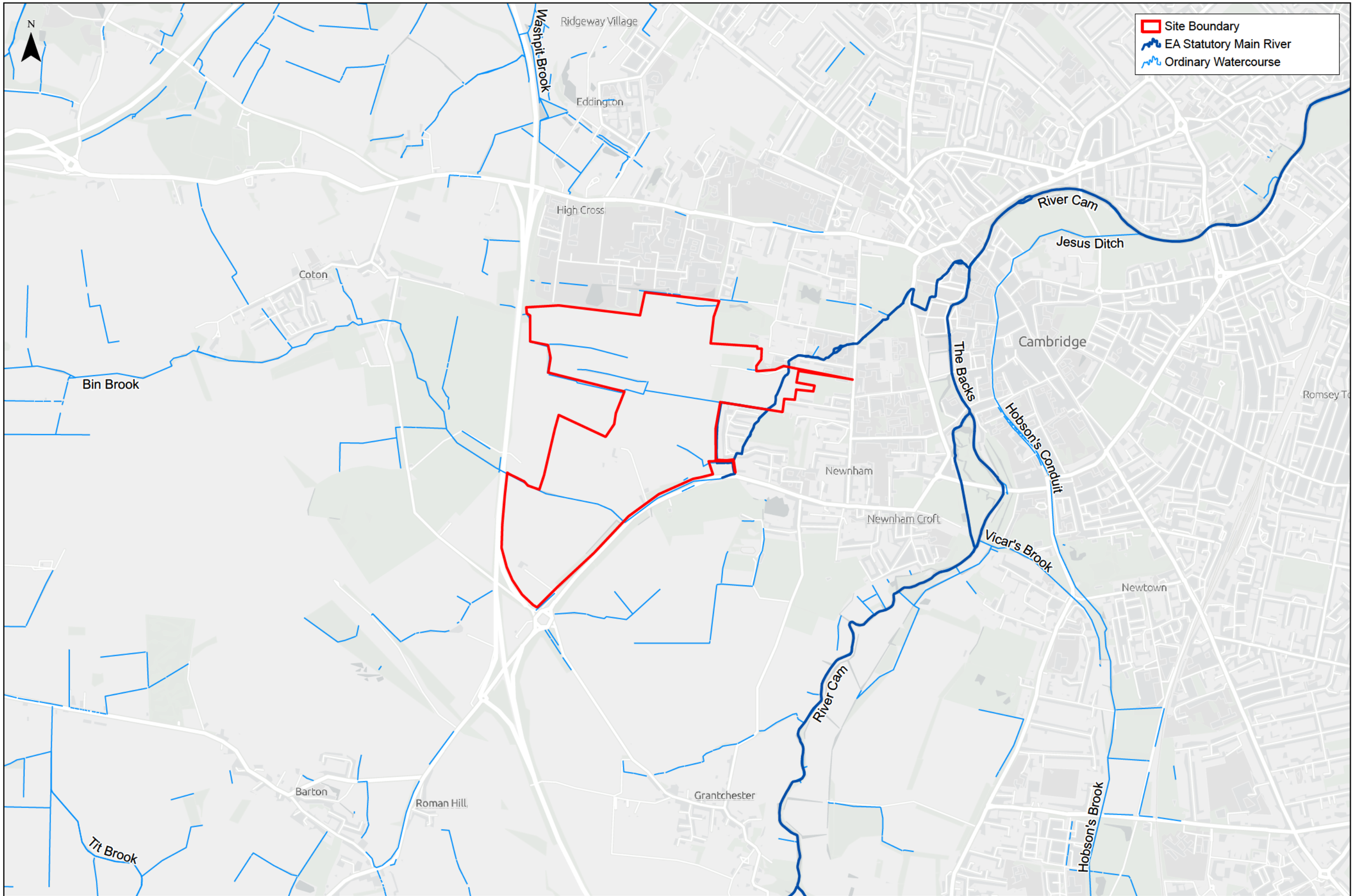
0 400 800 m

Flood Zones refer to the probability of river and/or sea flooding, ignoring the presence of defences.

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 04 | Rev: A



Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE
Watercourse Location

0 1,000 2,000 m

1:20,000 @ A3 | Date: 28/11/2025
Drawn: JB | Checked: RL
Figure: 04.1 | Rev: A

N

Site Boundary

Risk of Flooding from Surface Water

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Surface Water Extent

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 05 | Rev: A

N

Site Boundary

Risk of Flooding from Surface Water - 0.2-0.3m Depth

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Surface Water Depth 0.2-0.3m

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 05.1 | Rev: A

N

Site Boundary

Risk of Flooding from Surface Water - 0.3-0.6m Depth

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Surface Water Depth 0.3-0.6m

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 05.2 | Rev: A

N

Site Boundary

Risk of Flooding from Surface Water - 0.6-0.9m Depth

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Surface Water Depth 0.6-0.9m

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 05.3 | Rev: A

N

Site Boundary

Risk of Flooding from Surface Water - Climate Change

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Surface Water - Climate Change Extent

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 06 | Rev: A

N

Site Boundary

Risk of Flooding from Rivers and Sea

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability
- Very Low (<0.1%) - Less than 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Rivers and Sea Extent

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 07 | Rev: A

N

Site Boundary

Risk of Flooding from Rivers and Sea - Climate Change

- High (3.3%) - 1 in 30 Annual Probability
- Medium (1%) - 1 in 100 Annual Probability
- Low (0.1%) - 1 in 1000 Annual Probability
- Very Low (<0.1%) - Less than 1 in 1000 Annual Probability

Stantec

Client: St Johns College

SOUTH WEST CAMBRIDGE

EA Risk of Flooding from Rivers and Sea - Climate Change Extent

0 400 800 m

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 08 | Rev: A

N

Site Boundary

When the River Levels are Normal

When There is Also Flooding from Rivers

Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

Risk of Flooding from Reservoirs - Maximum Flood Extent

0 400 800 m

1:8,000 @ A3

Date: 28/11/2025

Drawn: JB

Checked: RL

Figure: 09

Rev: A

N

Site Boundary
Zone I - Inner Protection Zone
Zone II - Outer Protection Zone
Zone III - Total Catchment
Zone of Special Interest

Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

EA Ground Water Source Protection Zones

0 400 800 m

1:8,000 @ A3

Date: 28/11/2025

Drawn: JB

Checked: RL

Figure: 10

Rev: A

N

Site Boundary
Historic Flood Map
Recorded Flood Outlines

Stantec

Client

St Johns College

SOUTH WEST CAMBRIDGE

EA Recorded Historic Flood Extents

0 400 800 m

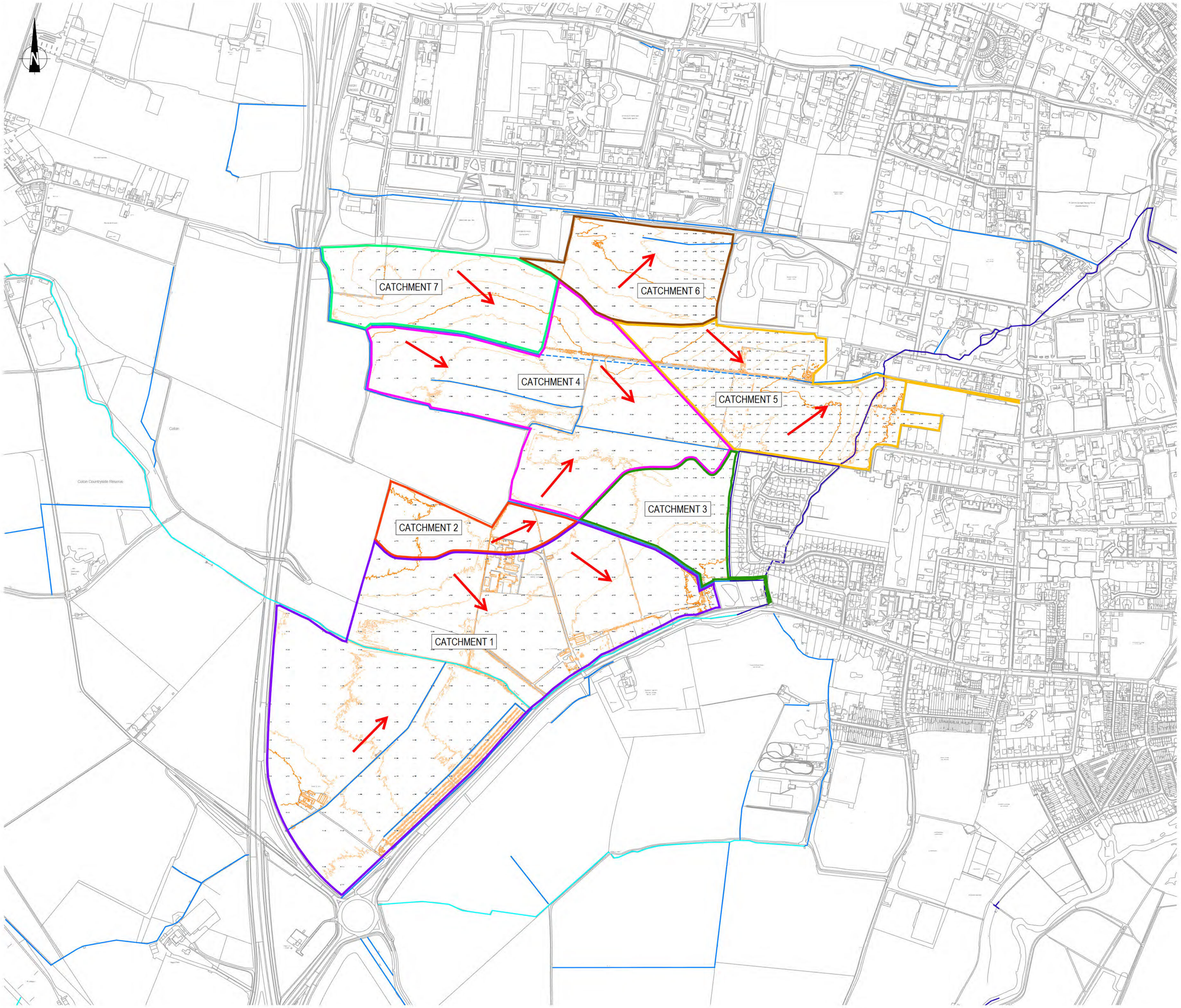
Historic Flood Map shows the maximum extent of all individual Recorded Flood Outlines from river, the sea and groundwater springs and shows areas of land that have previously been subject to flooding in England.
Recorded Flood Outlines shows all EA records of historic flooding from rivers, the sea, groundwater and surface water

1:8,000 @ A3 | Date: 28/11/2025

Drawn: JB | Checked: RL

Figure: 11 | Rev: A

Appendix B Existing Catchment Plan



NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE.
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
5. THIS DRAWING IS FOR SUPPORT AT LOCAL PLAN PROMOTION ONLY AND IS SUBJECT TO FURTHER DESIGN.
6. CATCHMENT AREAS ARE BASED ON EXISTING LIDAR DATA AND MAY BE SUBJECT TO CHANGE ONCE A TOPOGRAPHICAL SURVEY IS RECEIVED.

LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- EA MAIN RIVER
- AWARDED WATERCOURSE
- ORDINARY WATERCOURSE
- CULVERTED EA MAIN RIVER
- CATCHMENT 1
- CATCHMENT 2
- CATCHMENT 3
- CATCHMENT 4
- CATCHMENT 5
- CATCHMENT 6
- CATCHMENT 7
- FLOW DIRECTION

Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status
PRELIMINARY

LAND NORTH OF BARTON ROAD,CAMBRIDGE

SURFACE WATER DRAINAGE AND EXISTING CATCHMENT PLAN

Client
[redacted]

Date of 1st Issue	Designed	Drawn
24.10.2019	MH	ECR
A1 Scale	Checked	Approved
1:5000	ACS	-

Drawing Number: 47115/2001/002
Revision: P0

pba peterbrett
now part of Stantec
peterbrett.com

CAMBRIDGE
Tel: 01223 882 000

File Location: j:\47115 land north of barton cambridge\cad\dwgs\2001_cv\47115_2001_002_existing catchment plan.dwg

Appendix C Correspondence

[redacted]

From: FR Planning [redacted]
Sent: 14 October 2025 15:10
To: [redacted]
Cc:
Subject: RE: Request for Flooding and Drainage Information- Land southwest of Cambridge

Follow Up Flag: Follow up
Flag Status: Flagged

Dear [redacted],

Thank you for your enquiry regarding the Site on land south-west of Cambridge, E 542523, N 257960. I have responded to your enquiry below.

The historic map layer on GIS shows historic flooding in the south-east corner of the site. The Environment Agency (EA) may hold further information on flood events related to the Bin Brook.

The LLFA has not undertaken any remedial works in this location. The EA and Cambridge City Council have implemented local flood alleviation measures in the wider Bin Brook catchment, and it may be beneficial to contact them for further information.

There are no LLFA managed formal flood defences in the area. Please contact EA for further details.

We do not hold records of specific hydraulic controls within or adjacent to the site.

With regards to restrictions in developing near ordinary watercourse, please note the following: '*No person without the previous consent of the Council shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 5 metres of the landward toe of the bank where there is an embankment or wall or within 5 metres of the top of the batter where there is no embarkment or wall, or where the watercourse is enclosed within 5 metres of the enclosing structure*.' Please check with Cambridge City Council regarding any Bye Laws in place concerning the awarded watercourse that runs through southern part of the site and along the eastern border. EA will be able to advise on any easement requirements within vicinity of the main rivers.

The following reports may assist your assessment:
- Cambridgeshire Surface Water Management Plan (SWMP)
- Section 19 Flood Investigation reports are published in Flooding and flood investigations section of Cambridgeshire County Council website. However, there is no s 19 report for Cambridge.

As LLFA does not have any assets within the site area, we do not hold specific records of culverts on or adjacent to the site.

The LLFA does not hold detailed information on highways drainage assets. Please contact the Cambridgeshire County Council Highways Team for information regarding local highway drainage, and Anglian Water for adopted surface water or foul sewer infrastructure.

There are no known LLFA recorded flooding 'hot spots' within or adjacent to the site.

LLFA do not hold any record of ground water flooding, but we can direct you to the BGS GeoIndex to investigate the underlying ground conditions, also borehole records are on this website.

With regards to flood reports, we have several surface water flood incidents in the vicinity of the site, which are detailed below. Please note that there may be flood incidents from other sources, therefore we strongly

suggest you contact the Environment Agency and Anglian Water to enquire about flooding from any of their assets.

- Approximately 130m to the east of the site at Barton Road, Cambridge we have a record of external flooding due to high flows in Bin Brook in November 2014.
- Approximately 600m to the east of the site at Malting Lane, Cambridge we have a record of reoccurring external flooding issue in July 2014
- Approximately 500m to the north of the site at Wilberforce Road and Madingley Road, Cambridge we have a record of external flooding in July 2014.
- Approximately 400m to the north of the site at Hedgerley Close, Cambridge we have a record of garden flooding in October 2024.
- Approximately 670m to the north of the site at Bradrushe Fields, Cambridge we have a record of external flooding to roads, gardens and fields in winter 2020/21 and in March 2023.
- Approximately 800m to the north west of the site at Madingley Road, Cambridge we have a record of driveway flooding in July 2018.

The LLFA holds no records of capacity or drainage issues in this area. Please contact Highways Team at Cambridgeshire and Anglian Water for further information on local networks.

With regards to the surface water drainage strategy and proposals on site, all planning applications in Cambridgeshire should follow the Surface Water Drainage Guidance for Developers document which is available here. Please note that we are currently reviewing the recently published National Standards for SuDS and recommend that the strategy aligns with either the CCC Surface Water Planning Guidance or the National Standards, clearly stating which approach is being followed. Flood and Water Supplementary Planning Document, which is adopted by all the district, can be found here.

If you require any further guidance or comments on your proposals, we recommend using our charged pre-application service, information on this can be found here.

If you require anything further, please do not hesitate to contact us.

Kind regards,

[redacted]

[redacted]

Environment, Planning and Economy | Place and Sustainability |
Cambridgeshire County Council | New Shire Hall
Cambridgeshire County Council | Facebook | X

From: [redacted]
Sent: 07 October 2025 14:02
To: FR Planning [redacted]
Cc: [redacted]
Subject: Request for Flooding and Drainage Information- Land southwest of Cambridge

Dear Sir or Madam,

[redacted]

From: FR Planning [redacted]
Sent: 12 September 2019 13:31
To: [redacted]
Subject: RE: Request for Flood Data: Land North of Barton Road, Cambridge

Dear [redacted]

Thank you for your request for data for the site at:

Location: Land North of Barton Road, Cambridge
Grid Reference: 542248E, 257560N

Please find below your requested information.

1. **Historic Flooding**
   Our records indicate an area of historic flooding in the South Eastern boundary of the site, extending from either side of the Bin Brook. The area within the site boundary extends approximately 200m North from the A603 and approximately 240m West from the proposed access off of the A603 and the Bin Brook.

   We also have record of the following flood investigations close to the site:
   - Two properties along Barton Road in 2014, 10m from the site boundary
   - Three properties along Wilberforce Road and Madingley Road in 2012, approximately 500m from the site boundary
2. **Flood Modelling**
   We do not hold flood modelling for the site and would direct you to the Environment Agency's Long term Flood Risk Map for a high level overview of surface water flood risk.
3. **Detailed Surface Water Flood Maps**
   Please refer to the Long term Flood Risk Map as above.

   From this map we note that there is an area of low to high surface water flood risk flowing across the southern boundary of the site, extending from Bourn Brook (largely synonymous with the area of flood zone three).

   We also note that there is a flow path of low to high surface water flood risk bisecting the centre of the site from west to east.
4. **Easements**
   The LLFA requests a 5m buffer strip from any ordinary watercourse to facilitate access for maintenance and inspection. For information on easements from main rivers please contact the Environment Agency, and for Awarded Watercourses please contact South Cambridgeshire District Council.
5. **Ordinary Watercourse Consent**
   We note there are several watercourses within the central area of the site boundary.
   One of these watercourses is culverted for a length of 700m. We assume this flows from West to East along a field boundary, between land owned by Jesus College and past a playing field, discharging to Bin Brook approximately 100m upstream of the crossing beneath Sylvester Road. Bin Brook is a designated main river in this location, and also awarded to South Cambridgeshire District Council as the 3rd public drain. This flows from West to East along the southern boundary, before flowing north along the eastern site boundary. Bin Brook is the main source of fluvial flood risk on the site.

Any changes made to an ordinary watercourse (above or below ground) which meet the below requirements will require ordinary watercourse consent.

- Impede/obstruct the flow of water in any way.
- Change the cross sectional profile of the watercourse e.g. bank protection works.
- Change the conveyance capacity of the watercourse.

Works greater than 1.2m from the watercourse in any direction (e.g. drilling a pipeline beneath) do not require consent.

Temporary watercourse consent is required if works are planned to involve any damming and/or over-pumping of the watercourse to create a dry working area, or any objects or materials that will be removed at a later date that interfere with or change the flow of water in a watercourse.

Application and payment for Ordinary watercourse consent can be made on our website. You can also upload the supporting documentation.

Any works to the awarded watercourses may require a byelaw consent from South Cambridgeshire District Council – contact Pat Matthews on patrick.matthews@scambs.gov.uk

Any works to a main river may require flood defence consent from the Environment Agency.

Cambridgeshire County Council has a surface water guidance document which is available to view here. This document was put together with input from developers and provides guidance on putting a drainage strategy together along with checklists and templates to help ensure you include sufficient information within your drainage strategies.

We also offer a pre-application service which enables you to discuss your drainage proposals with an LLFA Officer prior to submission of a formal application. This is a charged service, application may be made on our website here. If you would like any assistance deciding the type of pre-application you need, please do not hesitate to get in touch.

Kind regards,

[redacted]
Flood Risk & Biodiversity Team
Address: Place and Economy, Cambridgeshire County Council, Box No SH1315, Shire Hall, Cambridge, CB3 0AP

LATEST NEWS:

To aid planning submissions we have added a **new SuDS maintenance plan template** to our surface water guidance document. Click on the image above to view.

All issues relating to water on the highway or blocked gullies should be reported to Highways
via [redacted], the online reporting tool or [redacted]

From: [redacted]
Sent: 11 September 2019 09:58
To: Flood and Water [redacted]
Subject: Request for Flood Data: Land North of Barton Road, Cambridge

Dear Sir/Madam

PBA, part of Stantec has been commissioned to undertake a Flood Risk and Drainage Appraisal at Land North of Barton Road, Cambridge (National Grid Ref: 542248E, 257560N). Nearest post code: CB23 7AU. A site location plan is attached.

A review of online Environment Agency mapping suggest that a large portion of the site falls within Flood Zone 1: Low Probability of flooding, although a portion of the land in the southern part of the site is within Flood Zone 3: High Probability of flooding due to the presence of the Bin Brook which traverses the site (see attached jpg). The Bin Brook crosses the western part of the site, runs along the southern boundary before turning northwards along the eastern boundary.

We would be grateful if you could provide the following information:

- Any records of previous flooding of the site;
- Modelled flood levels, depth and rate of flooding of the Bin Brook during the 1 in 20year, 1 in 100 year (and with climate change allowance if available) and 1 in 1000 year events.
- Detailed Surface Water flood map(s)

We are in consultation with other stakeholders such as Environment Agency and Anglian Water.

Thank you for your assistance. If you require any further information please contact myself on this contact email address. Please us know as soon as possible if there is a charge for this information so that we can raise the necessary payment.

Kind regards,

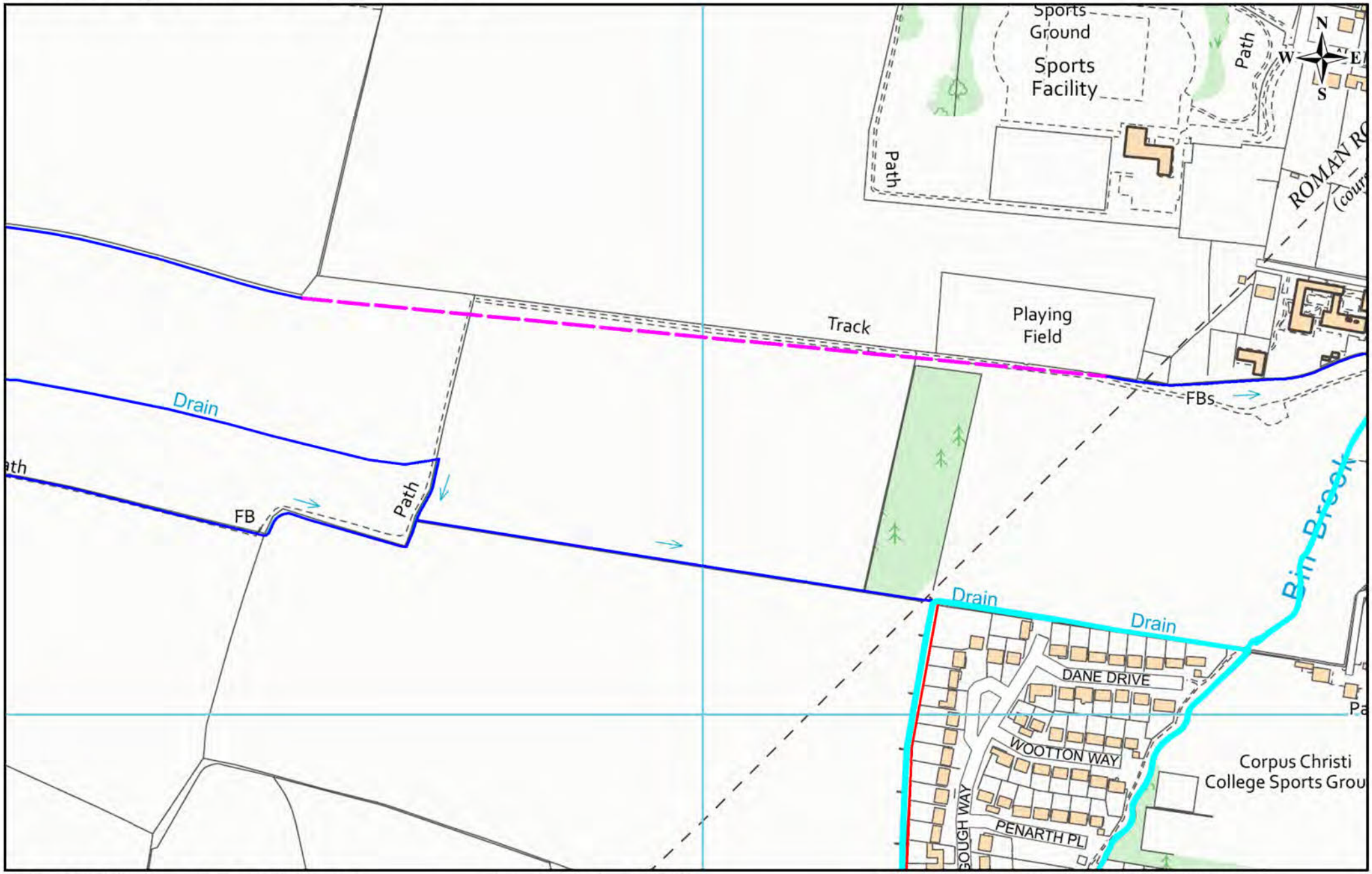
[redacted]

[redacted]

[redacted]

PBA has joined the Stantec family, find out more at peterbrett.com.

Cambridgeshire County Council



Scale (at A4): 1:4340 Centred at: 542985,258243 Date: 03/10/2019 By: yd710

COTON CP

GRANTCHESTER CP

Newnham

No 4
157

No 3
157

No 5

No 2
46

No 1
360

No 6
223

[redacted]

From: [redacted]
Sent: 09 October 2019 11:16
To: [redacted]
Cc:
Subject: RE: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs
Attachments: SKM18200330191009105 30.pdf

Hi [redacted]

Please see enclosed copy of working drawing showing the location of the award drains in the locality. No digital maps due to IT glitch at moment.

The usual byelaw restrictions apply to the awards – i.e. 5-metre maintenance strip as well as consent to increase the rate or volume of flow in the awards.

On 21 October 2001, the brook caused flooding along the M11 at the intersection point. Additionally, the properties on the outskirts of Coton flooded on a number of occasions in the past (close to AW pumping station.

Immediately outside the SCDC area about 20 properties flooded on a number of occasions in Gough Way (EA main river at this point.

Hope this helps.

Kind regards

[redacted]

From: [redacted]
Sent: 08 October 2019 16:00
To: [redacted]
Cc: [redacted]
Subject: RE: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs

Hi [redacted],

I have just released that our enquiry was not sent directly to your email address for this site, only to the general drainage/flood risk South Cambridgeshire Council email address, apologises for that.

Please see attached enquiry which we submitted originally.

CCC have informed us Bin Brook is a designated main river in this location (where located east of the site), but and also awarded to South Cambridgeshire District Council as the 3rd public drain.

Kind regards,

[redacted]

[redacted]

[redacted]

PBA has joined the Stantec family, find out more at peterbrett.com.

From: [redacted]
Sent: 08 October 2019 15:47
To: [redacted]
Cc: [redacted]
Subject: RE: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs

Hi [redacted]

I don't appear to have a site plan for Barton. I am not clear on what you need. Please forward a plan of the area.

Kind regards

[redacted]

From: [redacted]
Sent: 08 October 2019 09:07
To: [redacted]
Cc: [redacted]
Subject: RE: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs

Hi [redacted]

We would be grateful if you could provide a response to our information request for Land North of Barton, Cambridge today if possible? We are submitting the flood risk and drainage appraisal shortly.

Kind regards,

[redacted]

[redacted]

[redacted]

PBA has joined the Stantec family, find out more at peterbrett.com.

From: [redacted]
Sent: 18 September 2019 09:58
To: [redacted]
Cc: [redacted]
Subject: RE: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs

Dear [redacted]

Thank you for your responses for land at Hardwick and Station Fields at Foxton. These were helpful.

We would be grateful if you could also provide a response for Land north of Barton, Cambridge also.

Many thanks

Kind regards,

[redacted]

[redacted]

[redacted]

PBA has joined the Stantec family, find out more at peterbrett.com.

From: [redacted]
Sent: 17 September 2019 10:33
To: [redacted]
Cc: [redacted]
Subject: RE: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs

Hi [redacted],

As you mention below, Bin Brook is an SCDC award at this location. I have no immediate knowledge of flooding to the site but would rely on the flood mapping for the area as guidance.

Please note the locations of the award drains adjacent to the site (attached) and be aware of the Council's 5-metre maintenance strip for access to the drains for maintenance purposes.

I would also point out that the use of the award drains for the disposal of surface water is likely to incur a surface water infrastructure charge. The charge will depend on the details of the drainage design and the cost impact on future maintenance.

Kind regards

[redacted]

From: [redacted]
Sent: 13 September 2019 10:10
To: [redacted]
Subject: Request for Flood Data: Land South of St Neots Road, Hardwick, Cambs

Dear [redacted]

PBA, part of Stantec has been commissioned to undertake a Flood Risk and Drainage Appraisal at Land South of St Neots Road, Hardwick, Cambridgeshire (National Grid Ref: 537747E, 259210N). Nearest post code: CB23 7QG. A site location plan is attached.

The Flood Map for Planning shows the site as mostly at low risk for fluvial flooding, but with some areas in the south east corner of the site associated with the Bin Brook watercourse as at high risk. We understand from correspondence with Cambridgeshire County Council that the watercourse is awarded to South Cambridgeshire District Council as the First Public Drain in this location.

We would be grateful if you could provide the following information:

- Any records of previous flooding of the site;
- Any details the council may have on the Bin Brook at this location;
- Easement requirements to the Bin Brook.

Kind regards,

[redacted]

[redacted]

[redacted]

PBA has joined the Stantec family, find out more at peterbrett.com.

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware, and may have been automatically archived

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware, and may have been automatically archived

[redacted]

From: Planning Liaison [redacted]
Sent: 08 October 2025 10:33
To: [redacted]
Cc:
Subject: RE: Request for Flooding and Drainage Information- Land southwest of Cambridge

Good morning [redacted],

Thank you for your email.

Anglian Water is able to confirm that there have been instances of flooding within the vicinity of the proposed development. It is also possible that other flooding may have occurred that we do not have records of, other organisations such as the Local Authority, Internal Drainage Board or the Environment Agency may have records. We recommend you submit a pre planning application form to enable Anglian Water to advise you of any suitable connection points for the proposed development and identify any mitigation that would be required. Further details including the application form can be found on our website.

Kind regards,
Planning Liaison

For details on how to submit a pre-planning enquiry to the Pre-Development Team, please visit the "how to apply"section on our website.
Growth Planning Team contact number: 0345 026 3912

Anglian Water Services Limited

From: [redacted]
Sent: 07 October 2025 13:57
To: Planning Liaison [redacted]
Cc: [redacted]
Subject: Request for Flooding and Drainage Information- Land southwest of Cambridge

EXTERNAL MAIL - Please be aware this mail is from an external sender - THINK BEFORE YOU CLICK

Dear Sir or Madam,

RE: REQUEST FOR FLOODING AND DRAINAGE INFORMATION- Land southwest of Cambridge

Appendix D AW Sewer Plans

[redacted]

From: Planning Liaison [redacted]
Sent: 23 September 2019 10:45
To: [redacted]
Subject: RE: Request for Flood Data: Land North of Barton Road, Cambridge

Dear [redacted]

Thank you for your email for request for Flood Data: Land North of Barton Road, Cambridge

Anglian Water is able to confirm that we have no records of flooding in the vicinity that can be attributed to capacity limitations in the public sewerage system. It is possible that other flooding may have occurred that we do not have records of, other organisations such as the Local Authority, Internal Drainage Board or the Environment Agency may have records

Regards

[redacted]

From: [redacted]
Sent: 11 September 2019 10:02
To: Planning Liaison
Subject: Request for Flood Data: Land North of Barton Road, Cambridge

---

Dear Sir/Madam

PBA, part of Stantec has been commissioned to undertake a Flood Risk and Drainage Appraisal at Land North of Barton Road, Cambridge (National Grid Ref: 542248E, 257560N). Nearest post code: CB23 7AU. A site location plan is attached.

[redacted]

Could you please provide us with any information in your possession regarding any incidences of, or possible problems with, flooding associated with your foul, surface water and land drainage in the area of the site?

Kind regards,

[redacted]

[redacted]

[redacted]

[redacted]

PBA has joined the Stantec family, find out more at peterbrett.com.

Date: 17/09/19 | Scale: 1:1250 | Map Centre: 542578,257506 | Data updated: 02/09/19 | Our Ref: 333447 - 1 | Wastewater Plan A0

Foul Sewer		Outfall*		Sewage Treatment Works	
Surface Sewer					
Combined Sewer		Inlet*		Public Pumping Sta ion	
Final Effluent					
Rising Main*		Manhole*		Decommissioned Pumping Station	
Private Sewer*					
Decommissioned Sewer*					

*(Colour denotes effluent type)

LRLOG 3

love every drop
anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
2601	543299	257671	F	10.17	7.86	2.31
2602	543286	257687	F	10.25	7.64	2.61
2702	543291	257790	F	9.61	6.62	2.99
2703	543282	257769	F	9.85	6.46	3.39
2704	543279	257711	F	9.96	7.43	2.53
2801	543224	257801	F	9.72	7.11	2.61
2802	543224	257879	F	10.86	7.67	3.19
2901	543294	257968	F	10.58	8.37	2.21
2902	543250	257984	F	11.2	8.1	3.1
2903	543264	257901	F	10.63	7.93	2.7
2904	543229	257908	F	11.14	7.78	3.36
3603	543307	257644	F	9.75	7.76	1.99
2751	543294	257798	S	9.646	7.647	1.999
2752	543273	257751	S	9.974	7.703	2.271
2851	543234	257870	S	10.736	9.116	1.62
2852	543232	257809	S	9.883	8.528	1.355
2853	543285	257896	S	10.297	9.097	1.2
2951	543253	257982	S	11.124	9.909	1.215
2952	543287	257968	S	10.568	9.398	1.17
2953	543232	257947	S	11.358	9.493	1.865

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

(c) Crown copyright and database rights 2019 Ordnance Survey 100022432 | Date: 17/09/19 | Scale: 1:1250 | Map Centre: 542651,258436 | Data updated: 02/09/19 | Our Ref: 333447 - 2 | Wastewater Plan A0

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Sta ion
Decommissioned Pumping Station
*(Colour denotes effluent type)

[redacted]

BRLOG

love every drop
anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
1701	543154	258709	F	-	-	-
2000	543288	258041	F	10.8	8.4	2.4
2601	543245	258694	F	-	-	-
2901	543294	257968	F	10.58	8.37	2.21
2902	543250	257984	F	11.2	8.1	3.1
3001	543342	258032	F	10.49	8.6	1.89
3601	543339	258684	F	-	-	-
3901	543364	257959	F	9.85	8.67	1.18
1751	543190	258739	S	13.41	12.08	1.33
1752	543186	258717	S	13.29	12	1.29
1753	543177	258719	S	13.46	11.79	1.67
2052	543290	258044	S	10.83	9.49	1.34
2053	543239	258019	S	11.18	9.815	1.365
2751	543204	258799	S	13.89	-	-
2851	543213	258839	S	14.2	12.48	1.72
2951	543253	257982	S	11.124	9.909	1.215
2952	543287	257968	S	10.568	9.398	1.17
2952	543232	258914	S	14.79	12.77	2.02
2953	543242	258912	S	14.62	12.95	1.67
3051	543341	258034	S	10.51	9.18	1.33
3951	543350	257960	S	9.981	8.771	1.21

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

(c) Crown copyright and database rights 2019 Ordnance Survey 100019209

Data updated: 02/09/19

Scale: 1:1250 | Date: 17/09/19 | Wastewater Plan A1

Map Centre: 543723,258476 | Our Ref: 333447 - 4 | Powered by digdat

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent Sewer
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station

*(Colour denotes effluent type)

[redacted]

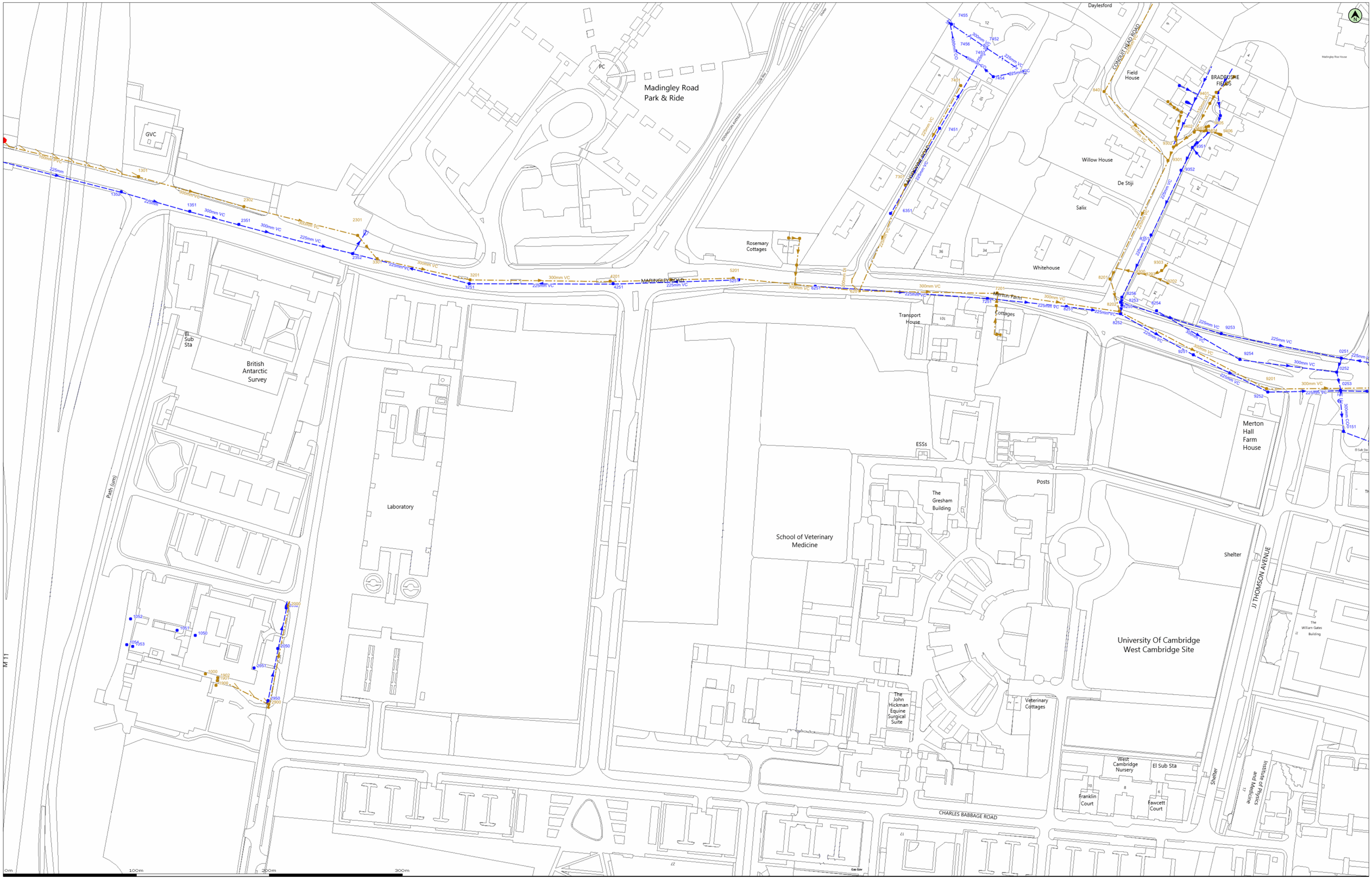
BRLOG

love every drop
anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0000	544039	258073	F	-	-	-
0001	544023	258074	F	-	-	-
0002	544002	258075	F	-	-	-
0003	544013	258074	F	-	-	-
0004	544049	258073	F	-	-	-
0006	544066	258027	F	-	-	-
0010	544054	258083	F	-	-	-
0011	544054	258073	F	-	-	-
0012	544054	258090	F	-	-	-
0013	544055	258097	F	-	-	-
0101	544074	258140	F	-	-	-
0102	544055	258109	F	-	-	-
0104	544075	258111	F	-	-	-
0601	544007	258634	F	9.3	8.25	1.05
0602	544011	258687	F	9.06	6.57	2.49
0801	544019	258825	F	11.98	6.93	5.05
0802	544013	258848	F	12.24	10.52	1.72
4001	543411	258027	F	10	8.81	1.19
4601	543431	258675	F	-	-	-
5101	543591	258108	F	10.66	9.15	1.51
5501	543520	258587	F	13.868	10.496	3.372
5502	543524	258582	F	13.908	11.814	2.094
5503	543572	258575	F	13.454	-	-
5601	543534	258650	F	12.646	10.428	2.218
5602	543538	258664	F	12.335	9.68	2.655
5603	543522	258662	F	-	-	-
5604	543533	258656	F	10.963	1.663	9.3
5701	543554	258736	F	11.18	9.39	1.79
5702	543561	258762	F	11.449	1.308	10.141
5801	543573	258835	F	11.23	9.02	2.21
5802	543585	258876	F	12.076	0.915	11.161
5902	543597	258930	F	11.732	8.797	2.935
6001	543665	258097	F	10.64	8.61	2.03
6301	543687	258359	F	9.1	7.31	1.79
6501	543622	258565	F	13.115	10.766	2.349
6502	543672	258555	F	12.743	10.247	2.496
6903	543651	258912	F	11.043	8.251	2.792
7001	543739	258085	F	10.63	8.14	2.49
7301	543749	258347	F	8.86	6.94	1.92
7401	543701	258441	F	10.26	8.53	1.73
7501	543717	258522	F	11.762	9.991	1.771
7502	543720	258546	F	12.36	9.821	2.539
7503	543790	258534	F	11.707	9.25	2.457
7504	543722	258523	F	-	-	-
7801	543705	258893	F	10.717	7.809	2.908
8001	543856	258067	F	10.63	7.38	3.25
8301	543887	258323	F	9.89	6.25	3.64
8501	543860	258522	F	10.927	8.793	2.134
8700	543846	258770	F	-	-	-
8801	543811	258856	F	10.63	7.72	2.91
8802	543864	258836	F	10.93	7.641	3.289
8804	543882	258835	F	11.09	7.52	3.57
8805	543825	258853	F	10.69	7.71	2.98
8806	543815	258853	F	10.59	7.73	2.86
8807	543886	258830	F	11.24	7.5	3.74
8808	543853	258831	F	-	-	-
9001	543976	258049	F	10.75	6.42	4.33
9004	543985	258051	F	-	-	-
9007	543986	258075	F	-	-	-
9101	543983	258131	F	10.47	5.02	5.45
9201	543986	258213	F	10.22	5.35	4.87
9301	543995	258399	F	9.17	6.63	2.54
9302	543990	258305	F	9.95	5.5	4.45
9401	543999	258495	F	9.24	7.46	1.78
9402	543997	258440	F	9.07	6.87	2.2
9501	543931	258509	F	9.997	8.221	1.776
9801	543940	258828	F	12.15	7.28	4.87
9802	543938	258826	F	-	-	-
0151	544043	258138	S	9.91	9.14	0.77
0651	544011	258690	S	9.63	7.42	2.21
0652	544009	258639	S	-	-	-
0851	544017	258828	S	11.99	7.93	4.06
4051	543405	258029	S	10.09	8.63	1.46
5651	543533	258632	S	13.03	11.125	1.905
5751	543554	258724	S	11.3	9.833	1.467
5752	543564	258759	S	10.954	9.214	1.74
5851	543590	258879	S	11.431	9.896	1.535
6051	543665	258094	S	10.58	8.44	2.14
6352	543693	258376	S	9.29	7.05	2.24
6551	543656	258556	S	12.86	11.69	1.17
6952	543657	258911	S	11.351	9.891	1.46
7051	543750	258081	S	10.58	8.77	1.81
7351	543759	258344	S	8.99	7.49	1.5
7451	543706	258450	S	-	-	-
7452	543707	258458	S	10.55	9.45	1.1
7551	543717	258543	S	12.4	11.14	1.26
7552	543719	258521	S	11.81	10.68	1.13
7851	543734	258885	S	10.921	9.421	1.5
8051	543837	258068	S	10.54	9.13	1.41
8351	543891	258320	S	9.98	8.87	1.11
8551	543819	258526	S	11.33	10.23	1.1
8552	543862	258519	S	10.78	9.76	1.02
8751	543846	258788	S	11.34	10.72	0.62
8852	543852	258836	S	10.79	8.95	1.84
8853	543806	258859	S	10.64	7.95	2.69
8855	543802	258859	S	10.65	8.88	1.77
8857	543808	258858	S	10.6	9.01	1.59
8858	543852	258842	S	-	-	-
8859	543807	258863	S	10.66	7.89	2.77
8860	543886	258831	S	11.24	7.82	3.42
8861	543819	258853	S	10.6	9.01	1.59
8951	543823	258943	S	11.297	8	3.297
9052	543922	258055	S	10.63	9.53	1.1
9053	543974	258053	S	10.74	9.17	1.57
9054	543978	258028	S	10.534	-	-
9151	543980	258132	S	10.46	8.64	1.82
9251	543984	258220	S	10.19	7.96	2.23
9351	543989	258307	S	9.93	7.37	2.56
9352	543989	258313	S	9.89	7.33	2.56

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert



(c) Crown copyright and database rights 2019 Ordnance Survey 100022432 | Date: 17/09/19 | Scale: 1:1250 | Map Centre: 542544,259176 | Data updated: 02/09/19 | Our Ref: 333447 - 3 | Wastewater Plan A1

Foul Sewer	Outfall*	Sewage Treatment Works	
Surface Sewer			
Combined Sewer			
Final Effluent	Inlet*	Public Pumping Station	
Rising Main*			
Private Sewer*	Manhole*	Decommissioned Pumping Station	
Decommissioned Sewer*		*(Colour denotes effluent type)	

[redacted]

BRLOG

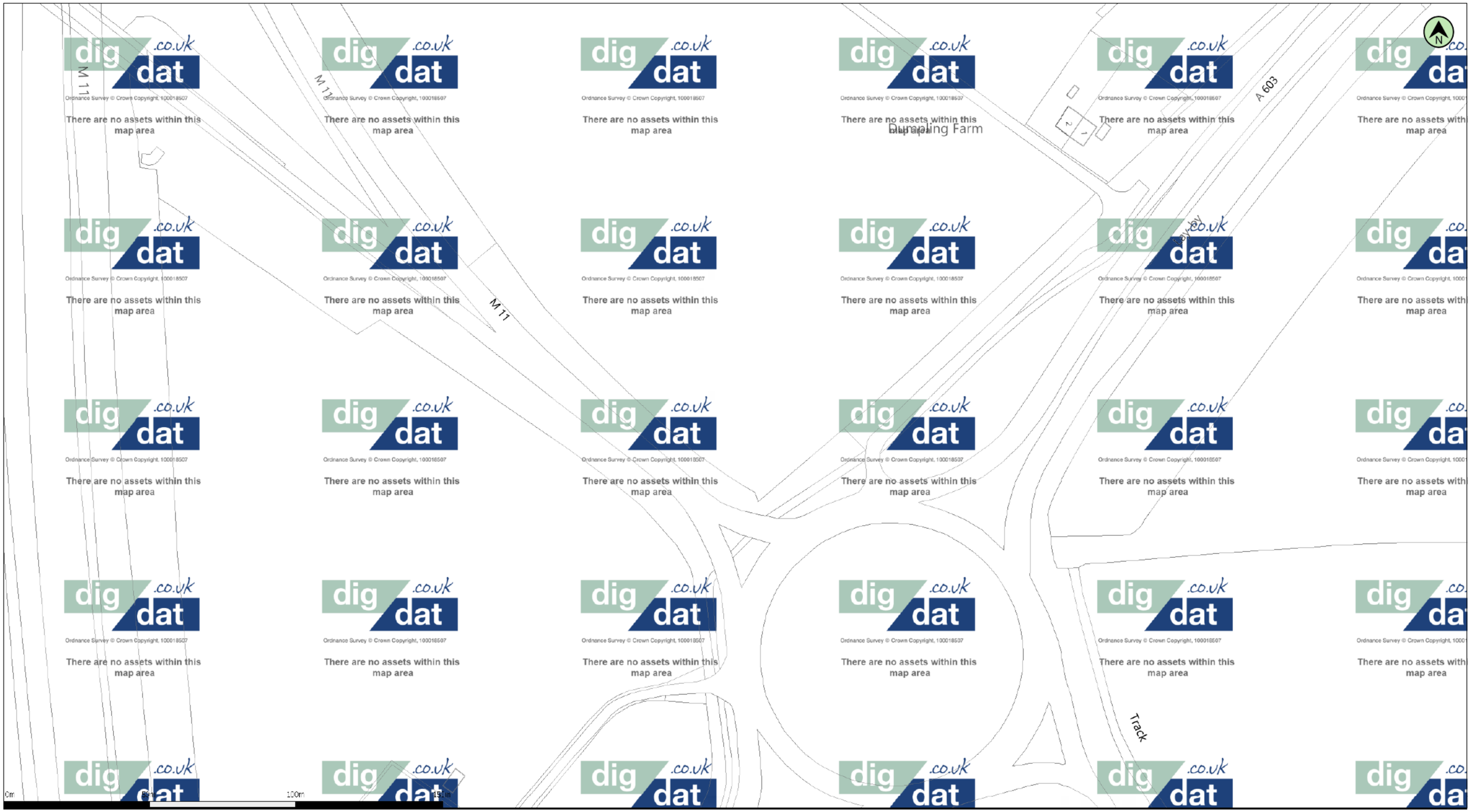
love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
1000	542183	259000	F	-	-	-
1301	542133	259374	F	21.134	16.34	4.794
1900	542191	258992	F	-	-	-
1901	542192	258995	F	-	-	-
1902	542192	258998	F	-	-	-
2000	542245	259051	F	-	-	-
2301	542297	259330	F	18.562	15.767	2.795
2302	542212	259351	F	19.27	16.099	3.171
2900	542231	258977	F	-	-	-
3201	542382	259296	F	19.263	15.517	3.746
3301	542312	259312	F	18.402	15.833	2.569
4201	542487	259295	F	19.212	15.237	3.975
5201	542579	259298	F	19.504	14.908	4.596
6201	542674	259288	F	19.575	14.582	4.993
7201	542778	259286	F	19.044	14.28	4.764
7301	542709	259367	F	17.326	14.961	2.365
7401	542751	259442	F	16.58	15.34	1.24
8201	542863	259297	F	17.593	14.902	2.691
8202	542870	259273	F	18.388	13.957	4.431
8203	542894	259300	F	-	-	-
8300	542884	259301	F	-	-	-
8401	542858	259438	F	16.95	15.401	1.549
9201	542980	259215	F	17.8	13.43	4.37
9202	542906	259294	F	-	-	-
9301	542906	259386	F	17.227	15.036	2.191
9302	542910	259396	F	17.56	15.12	2.44
9303	542902	259303	F	-	-	-
9401	542938	259429	F	17.78	16.15	1.63
9402	542926	259407	F	17.65	15.63	2.02
9403	542933	259408	F	-	-	-
9404	542935	259409	F	-	-	-
9405	542942	259407	F	-	-	-
9406	542946	259405	F	-	-	-
0151	543038	259182	S	16.44	14.6	1.84
0251	543037	259238	S	17.82	15.54	2.28
0252	543033	259227	S	18.05	15.44	2.61
0253	543036	259213	S	18	-	-
1050	542175	259029	S	-	-	-
1051	542162	259033	S	-	-	-
1052	542127	259042	S	-	-	-
1053	542128	259021	S	-	-	-
1054	542124	259022	S	-	-	-
1351	542171	259348	S	20.087	18.434	1.653
1352	542120	259362	S	21.269	19.623	1.646
2050	542237	259020	S	-	-	-
2051	542220	259005	S	-	-	-
2052	542244	259050	S	-	-	-
2351	542208	259338	S	19.422	17.721	1.701
2352	542294	259316	S	18.939	16.629	2.31
2950	542230	258980	S	-	-	-
3251	542381	259293	S	19.23	17.233	1.997
4251	542489	259293	S	19.172	17.663	1.509
5251	542584	259296	S	19.471	18.123	1.348
6251	542641	259292	S	19.551	-	-
6351	542698	259346	S	17.67	16.406	1.264
7251	542771	259282	S	18.976	17.383	1.593
7451	542735	259410	S	16.83	15.75	1.08
7452	542770	259470	S	16.56	15.41	1.15
7453	542763	259459	S	16.7	15.47	1.23
7454	542775	259449	S	16.7	15.625	1.075
7455	542744	259488	S	16.3	15.325	0.975
7456	542747	259468	S	17.35	15.4	1.95
8251	542830	259276	S	18.865	16.907	1.958
8252	542871	259271	S	18.31	16.555	1.755
8253	542871	259279	S	18.766	16.836	1.93
8254	542898	259273	S	17.925	16.197	1.728
8255	542872	259277	S	18.75	16.66	2.09
8256	542872	259283	S	18.25	16.58	1.67
8351	542894	259330	S	17.95	16.65	1.3
9251	542926	259240	S	18.006	16.261	1.745
9252	542981	259212	S	17.81	15.813	1.997
9253	542947	259256	S	17.253	16.143	1.11
9254	542960	259236	S	17.397	15.797	1.6
9351	542925	259396	S	17.98	16.92	1.06
9352	542916	259378	S	18.02	16.84	1.18

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert



(c) Crown copyright and database rights 2019 Ordnance Survey 100022432 | Date: 17/09/19 | Scale: 1:1250 | Map Centre: 542095,256900 | Data updated: 02/09/19 | Our Ref: 333447 - 5 | Wastewater Plan A3

This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2019 Ordnance Survey 100022432.This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

- Foul Sewer
- Surface Sewer
- Combined Sewer
- Final Effluent
- Rising Main*
- Private Sewer*
- Decommissioned Sewer*
- Outfall*
- Inlet*
- Manhole*
- Sewage Treatment Works
- Public Pumping Station
- Decommissioned Pumping Station

*(Colour denotes effluent type)

[redacted]

BRLOG

love every drop anglianwater

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert