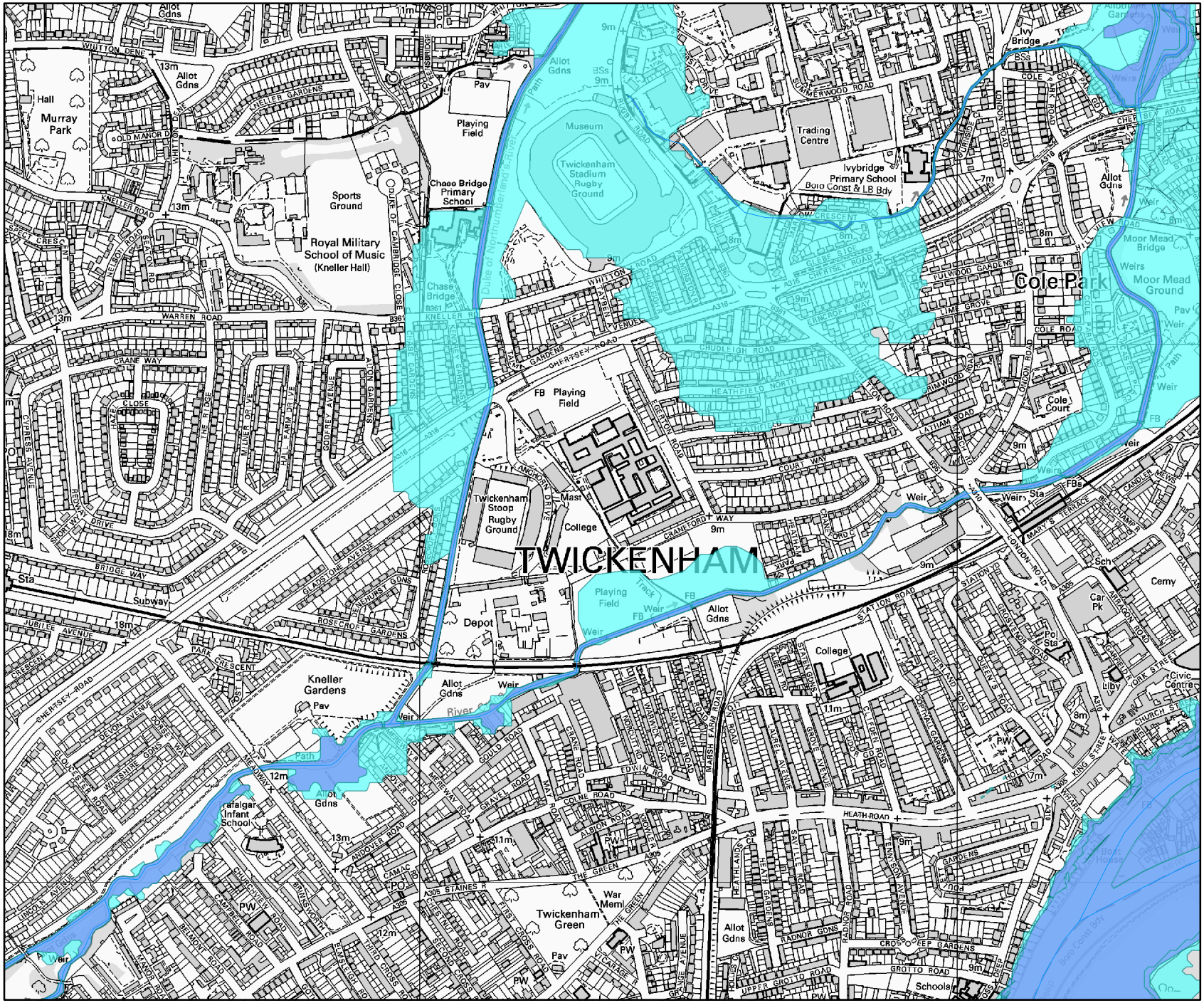
Flood Map for Planning centred on Richmond College created 15/05/2014 - NET41816AS-2



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX

0 125 250 500
Metres

Legend

Main Rivers

Flood Map for Planning

Flood Zone 3

Flood Zone 2

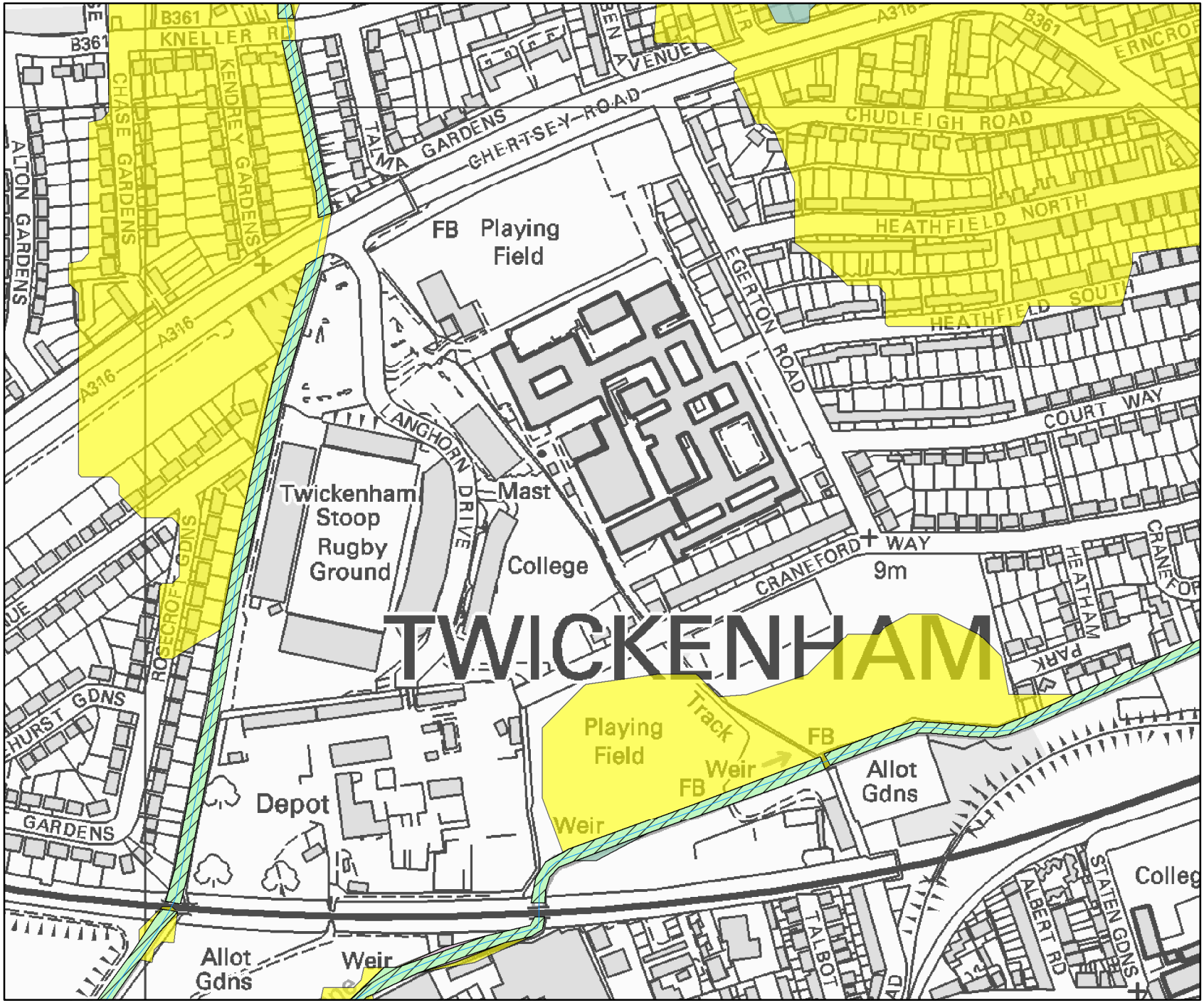
Flood Map for Planning (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

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

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Detailed FRA centred on Richmond College created 15/05/2014 - NET41816AS-2



Environment Agency

Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX

0 50 100 200
Metres

Legend

Main Rivers

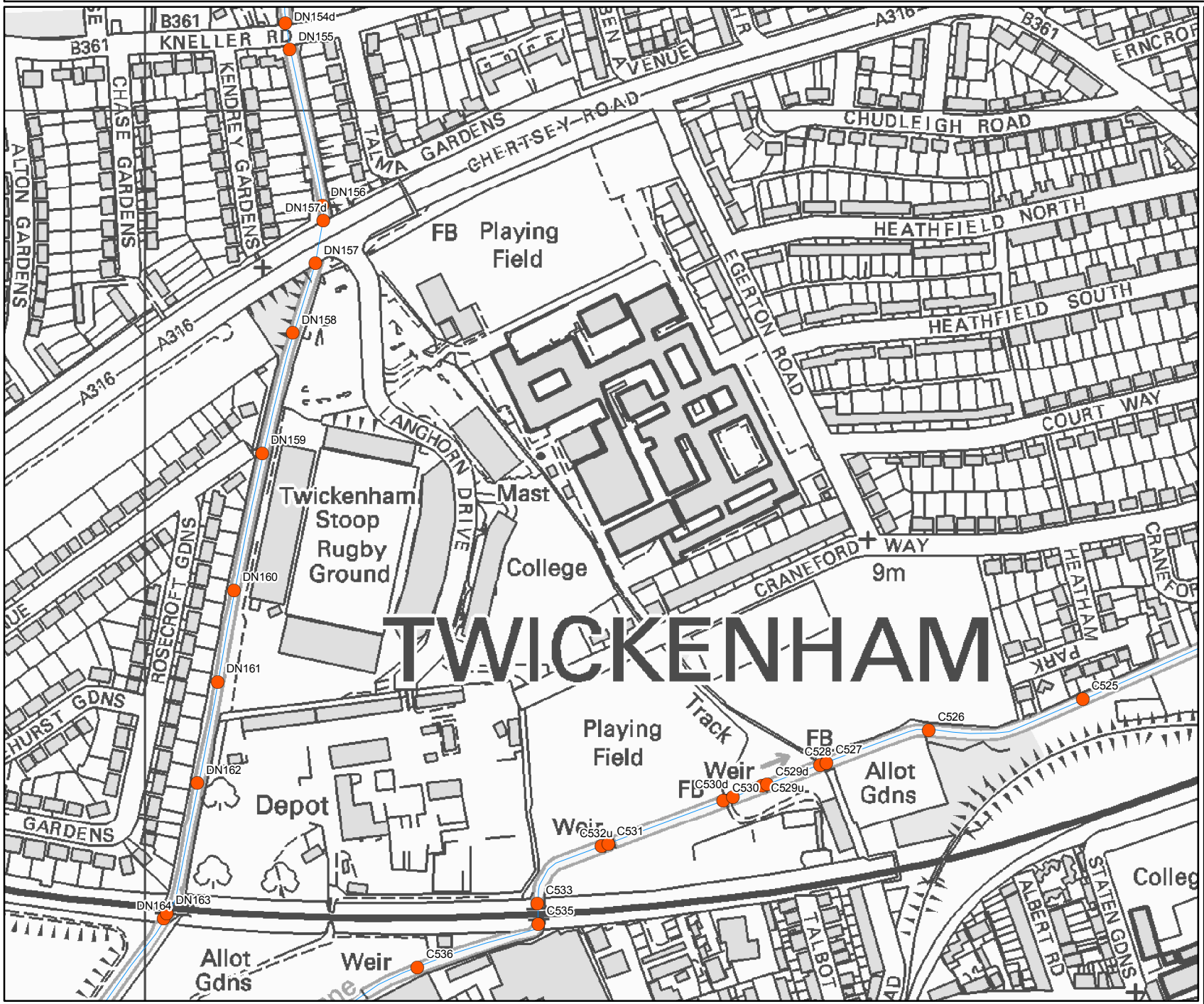
Defended Flood Outlines

- 1 in 5 (20%) Defended
- 1 in 10 (10%) Defended
- 1 in 20 (5%) Defended
- 1 in 50 (2%) Defended
- 1 in 100 (1%) Defended
- 1 in 100+20% (*CC) Defended
- 1 in 1000 (0.1%) Defended

The data in this map has been extracted from the River Crane Mapping Study (Halcrow 2008).
This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment.
Modelled outlines take into account catchment wide defences.

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Detailed FRA centred on Richmond College created 15/05/2014 - NET41816AS-2



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX

0 50 100 200
Metres

Legend

Main Rivers

1D Node Results

Node Results

The data in this map has been extracted from the River Crane Mapping Study (Halcrow 2008).
This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment.
Modelled outlines take into account catchment wide defences.

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Environment Agency ref: NET41816AS-2

The following information has been extracted from the River Crane Mapping Study (Halcrow 2008)

Caution:
The modelled flood levels and extents are appropriate for catchment wide strategic flood risk mapping. However, for more detailed flood risk assessment it is recommended that each of the underlying flood mapping, hydraulic modelling and hydrological assumptions are re-evaluated to determine the appropriateness in a more detailed analysis.

All flood levels are given in metres Above Ordnance Datum (mAOD)
All flows are given in cubic metres per second (cumecs)

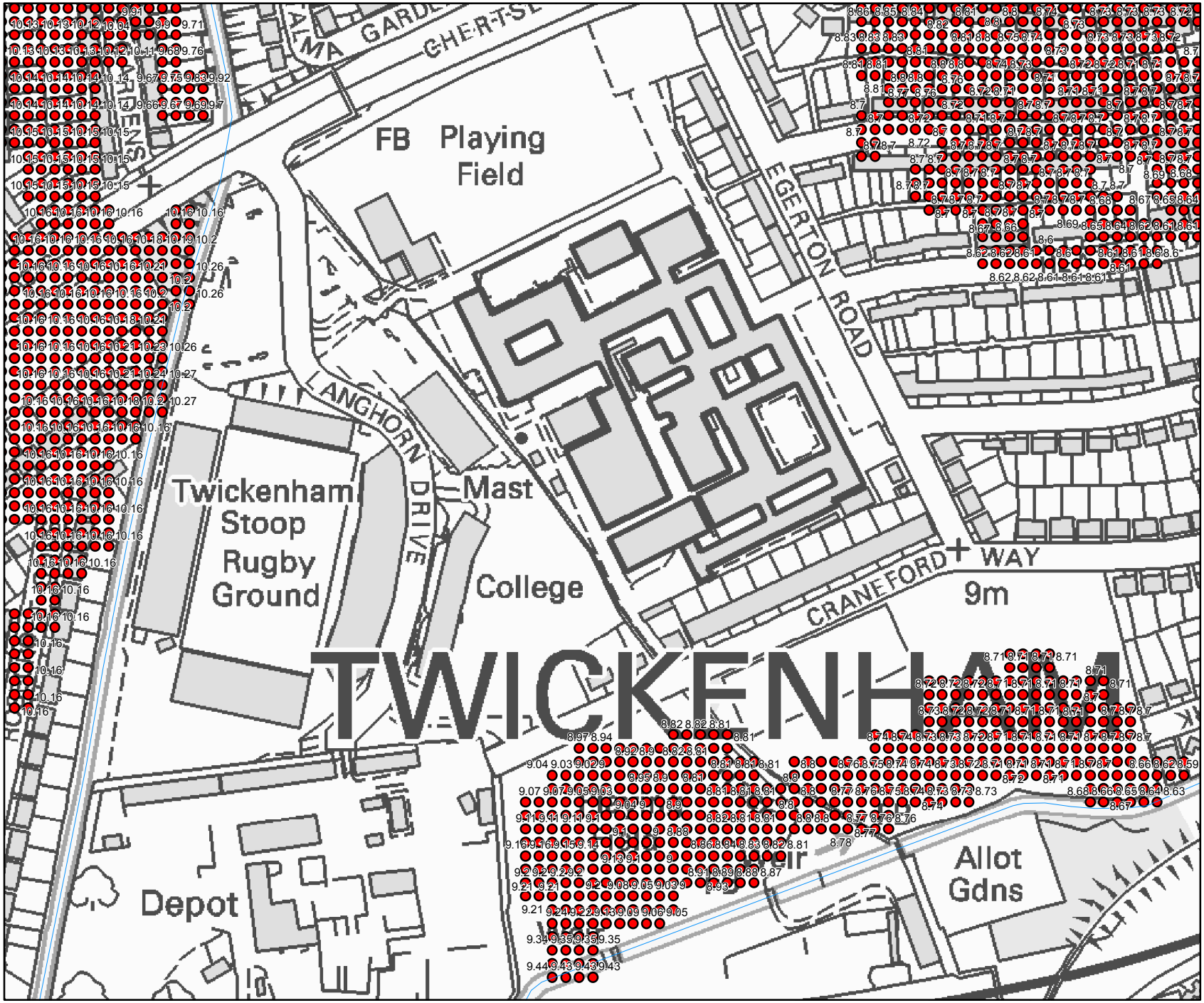
MODELLED FLOOD LEVEL

			Return Period					
Node Label	**Easting**	**Northing**	**5 yr**	**20 yr**	**50 yr**	**100 yr**	**100yr + 20%**	**1000yr**
C536	515203	173360	9.462	9.573	9.61	9.645	9.698	9.915
C535	515294	173393	9.383	9.497	9.536	9.573	9.628	9.854
C533	515293	173409	9.153	9.236	9.263	9.289	9.329	9.461
C532u	515341	173452	9.091	9.173	9.2	9.227	9.267	9.433
C531	515346	173453	8.982	9.061	9.086	9.112	9.151	9.317
C530	515432	173485	8.912	8.99	9.015	9.041	9.08	9.231
C530d	515432	173485	8.912	8.99	9.015	9.039	9.073	9.195
C529u	515460	173500	8.878	8.955	8.98	9.004	9.038	9.161
C529d	515460	173500	8.479	8.548	8.571	8.592	8.623	8.778
C528	515504	173513	8.425	8.494	8.516	8.537	8.568	8.729
C527	515506	173513	8.431	8.5	8.523	8.544	8.575	8.736
C526	515584	173537	8.27	8.339	8.362	8.383	8.413	8.601
C525	515698	173562	8.046	8.115	8.138	8.159	8.191	8.349
DN164	515016	173397	9.899	10.021	10.063	10.103	10.162	10.464
DN163	515016	173401	9.903	10.027	10.069	10.108	10.167	10.463
DN162	515040	173498	9.828	9.951	9.994	10.034	10.094	10.392
DN161	515056	173574	9.762	9.888	9.934	9.972	10.033	10.34
DN160	515067	173641	9.722	9.849	9.897	9.935	9.997	10.314
DN159	515088	173744	9.684	9.808	9.859	9.894	9.957	10.28
DN158	515110	173834	9.655	9.776	9.828	9.861	9.924	10.264
DN157	515126	173885	9.646	9.766	9.818	9.852	9.915	10.265
DN157d	515126	173885	9.646	9.766	9.818	9.851	9.914	10.264
DN156	515132	173929	9.632	9.749	9.801	9.832	9.895	10.256
DN155	515106	174044	9.611	9.726	9.779	9.809	9.871	10.246
DN154d	515104	174048	9.607	9.72	9.773	9.802	9.864	10.241

MODELLED FLOWS

			Return Period					
Node Label	**Easting**	**Northing**	**5 yr**	**20 yr**	**50 yr**	**100 yr**	**100yr + 20%**	**1000yr**
C536	515203	173360	24.112	26.036	26.678	27.274	28.149	32.517
C535	515294	173393	24.113	26.035	26.677	27.274	28.149	32.503
C533	515293	173409	24.113	26.036	26.677	27.274	28.149	32.504
C532u	515341	173452	24.113	26.035	26.677	27.274	28.149	31.412
C531	515346	173453	24.113	26.035	26.677	27.274	28.149	31.411
C530	515432	173485	24.112	26.035	26.677	27.274	28.149	31.394
C530d	515432	173485	24.112	26.035	26.677	27.274	28.149	31.394
C529u	515460	173500	24.112	26.035	26.677	27.274	28.149	31.39
C529d	515460	173500	24.112	26.035	26.677	27.274	28.149	31.39
C528	515504	173513	24.112	26.035	26.677	27.274	28.149	31.384
C527	515506	173513	24.112	26.035	26.677	27.274	28.149	31.384
C526	515584	173537	24.112	26.035	26.678	27.274	28.149	31.391
C525	515698	173562	24.112	26.035	26.677	27.273	28.149	32.46
DN164	515016	173397	2.735	3.562	3.852	4.123	4.555	6.6
DN163	515016	173401	2.735	3.562	3.852	4.123	4.555	6.6
DN162	515040	173498	2.734	3.563	3.852	4.124	4.556	6.7
DN161	515056	173574	2.734	3.563	3.853	4.125	4.558	6.7
DN160	515067	173641	2.734	3.563	3.854	4.126	4.558	6.80
DN159	515088	173744	2.735	3.565	3.855	4.127	4.561	6.8
DN158	515110	173834	2.737	3.566	3.857	4.128	4.564	6.3
DN157	515126	173885	2.738	3.567	3.858	4.13	4.565	6.2
DN157d	515126	173885	2.738	3.567	3.858	4.13	4.565	6.2
DN156	515132	173929	2.739	3.567	3.859	4.13	4.566	6.2
DN155	515106	174044	2.743	3.569	3.861	4.133	4.571	6.20
DN154d	515104	174048	2.894	3.649	3.993	4.211	4.745	9.90

Detailed FRA centred on Richmond College created 15/05/2014 - NET41816AS-2



Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX

0 37.5 75 150
Metres

Legend

Main Rivers

2D Node Results

1 in 1000 (0.1%) Defended

The data in this map has been extracted from the River Crane Mapping Study (Halcrow 2008).
This model has been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within the catchment.
Modelled outlines take into account catchment wide defences.

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Environment Agency ref: NET41816AS-2

The following information on defences has been extracted from the Asset Information Management System (AIMS)

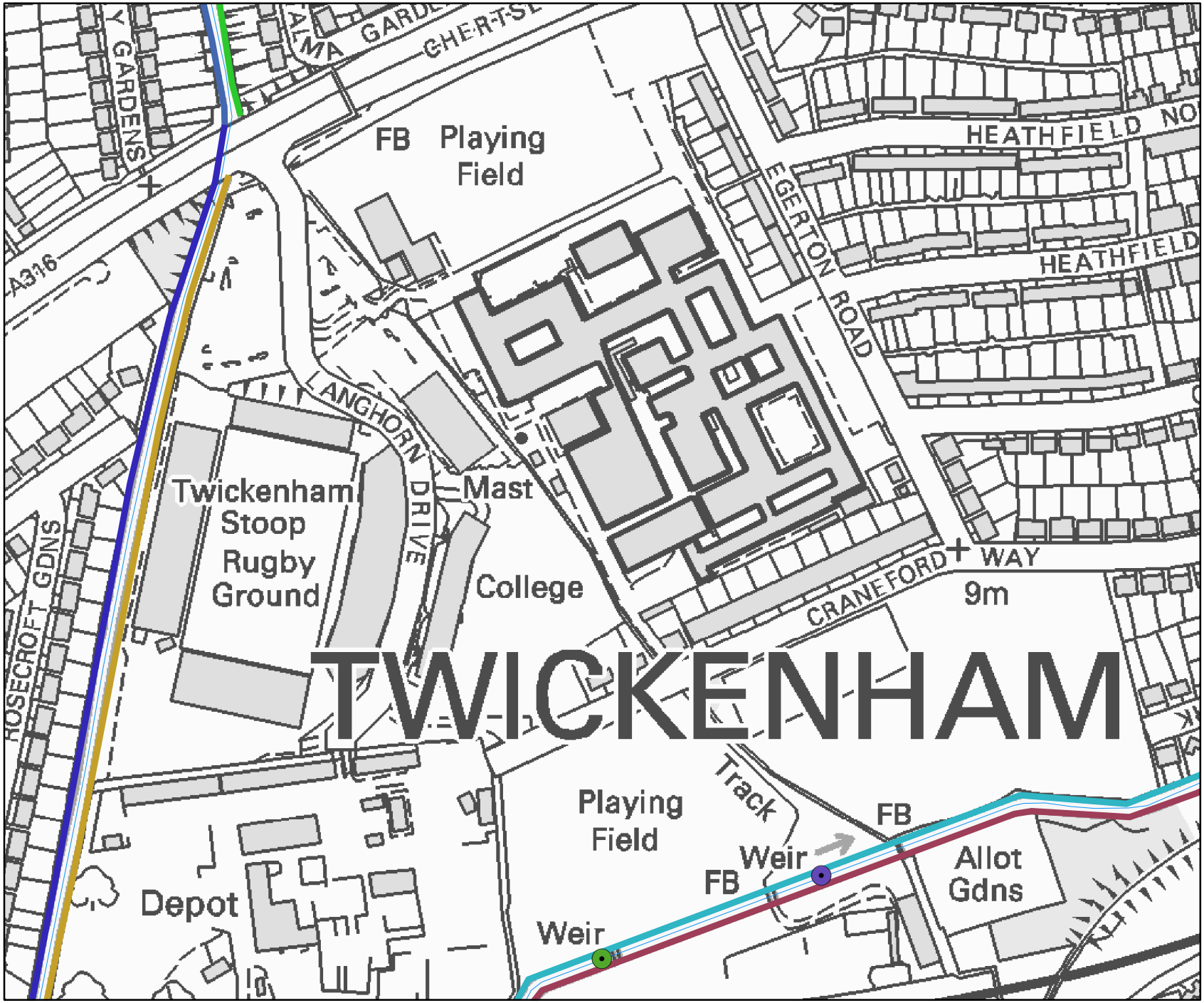
Defences

Map ID	Asset Reference	Asset Type	Asset Protection	Asset Comment	Asset Description	Asset Location	Design Standard of protection (years)	Grid Reference
126260	0623636DH0114L02	defence	Fluvial	Combination of poured concrete and timber bank protection	Bank protection.	D/S from Chertsey Road	200	TQ1512973916
126461	0623636DH0114R03	defence	Fluvial	Concrete bank protection with section of timber lining	Bank protection.	D/S from Chertsey Road	200	TQ1513273888
126257	0623636DH0113L02	defence	Fluvial	Cast insitu concrete channel lining	Lined Channel	Kneller Road, Twickenham	200	TQ1509974064
126259	0623636DH0113R03	defence	Fluvial	Cast insitu concrete channel lining.	Lined Channel	Kneller Road, Twickenham.	200	TQ1511174048
143354	0623636CR0104L02	defence	Fluvial	Cast insitu concrete lined channel with 1.5m high walls and lined channel bed.	Lined channel.	Twickenham	10	TQ1601573725
144651	0623636CR0104R02	defence	Fluvial	Cast insitu concrete lined channel with 1.5m high walls and lined channel bed.	Lined channel.	Twickenham	20	TQ1602473713

Structures

Map ID	Asset Reference	Asset Type	Asset Protection	Asset Comment	Asset Description	Asset Location	Grid Reference
192275	0623636CR0104R01002	weir	Fluvial	Precast concrete fixed crest weir	Weir.	North of Norcutt Road	TQ1534073451
192274	0623636CR0104R01001	weir	Fluvial	Fixed crest concrete sloping weir. 7-03-2011 AP Changed to FDS, TC 3	Weir.	North of Talbot Road	TQ1546273498

Defences & Structures - centred on Richmond College created 15/05/2014 - NET41816AS-2



Environment Agency

Environment Agency
2 Bishops Square Business Park
St Albans Road West
Hatfield
Hertfordshire
AL10 9EX

0 37.5 75 150
Metres

Legend

Main Rivers

Defences Asset ID	Structures Asset ID
126257	192274
126259	192275
126260	
126461	
143354	
144651	

The following information on defences has been extracted from the Asset Information Management System (AIMS)

Produced by:
Partnerships & Strategic Overview,
Hertfordshire & North London

Historic Flood Data

We do not hold records of historic flood events from rivers and/or the sea affecting the area local to this property. However, please be aware that this does not necessarily mean that flooding has not occurred here in the past.

Please note that our records are not comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

We map flooding to land, not individual properties. Our historic flood event record outlines are an indication of the geographical extent of an observed flood event. Our historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

Please be aware that flooding can come from different sources. Examples of these are:

- from rivers or the sea;
- surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system);
- overflowing or backing up of sewer or drainage systems which have been overwhelmed,
- groundwater rising up from underground aquifers

Surface Water

Managing the risk and responding to surface water flooding is a role for Lead Local Flood Authorities. The Environment Agency was funded by the government to produce new national surface water maps, which went live on our website from December 2013. See http://maps.environment-agency.gov.uk and select “Risk of Flooding from Surface Water”. We have produced these maps for the whole country and have worked with Lead Local Flood Authorities to incorporate their local surface water flood risk information where this is available.

Apollo Court, 2 Bishop Square Business Park, St Albans Road West, Hatfield, Hertfordshire, AL10 9EX
Customer services line: 03708 506 506
Email: NETenquiries@environment-agency.gov.uk
Website: www.environment-agency.gov.uk

Additional Information

Use of Environment Agency Information for Flood Risk / Flood Consequence Assessments

Important If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:- http://www.environment-agency.gov.uk/research/planning/33580.aspx

Depending on the enquiry, we may also provide advice on other issues related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In **England**, you should refer to the Environment Agency's Flood Risk Standing Advice and the technical guidance to the National Planning Policy Framework for information about what flood risk assessment is needed for new development in the different Flood Zones. These documents can be accessed via:

http://www.environment-agency.gov.uk/research/planning/82587.aspx
https://www.gov.uk/government/publications/national-planning-policy-framework-technical-guidance

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

You should note that:

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

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

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

4. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your local planning authority.

Apollo Court, 2 Bishop Square Business Park, St Albans Road West, Hatfield, Hertfordshire, AL10 9EX
Customer services line: 03708 506 506
Email: NETenquiries@environment-agency.gov.uk
Website: www.environment-agency.gov.uk

APPENDIX D

Thames Water Sewer Flooding Enquiry

Sewer Flooding

History Enquiry

Thames Water Property Searches

Vastern Road

Search address supplied Richmond-Upon-Thames College
Egerton Road
Twickenham
TW2 7SJ

Your reference 62335

Our reference SFH/SFH Standard/2014_2764887

Received date **15 May 2014**

Search date **18 May 2014**

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry

Search address supplied: Richmond-Upon-Thames College,Egerton Road,Twickenham,TW2 7SJ

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

(i) any negligent or incorrect entry in the records searched;

(ii) any negligent or incorrect interpretation of the records searched;

(iii) and any negligent or incorrect recording of that interpretation in the search report

(iv) compensation payments

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0845 9200 800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

APPENDICES

APPENDIX A

Groundsure flood report

centremapslive.com
the mapping portal from Laser Surveys

Report Reference:	CMAPS-CM-325206-28958-150514
Your Reference:	28958
Report Date:	15 May 2014
Report Delivery Method:	**Email - pdf**
Client Email:	andy@centremaps.com

GroundSure Floodview

Address: RICHMOND-UPON-THAMES COLLEGE,EGERTON ROAD,ST MARGARETS AND NORTH TWICKENHAM,TWICKENHAM, TW2 7SJ

Dear Sir/Madam,

Thank you for placing your order with CENTREMAPS. Please find enclosed the GroundSure Floodview report as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 01886 832972 quoting the above CENTREMAPS reference number.

Yours faithfully,

CENTREMAPS

Enc.
GroundSure Floodview

centremapslive.com
the mapping portal from Laser Surveys

GroundSure
ENVIRONMENTAL INSIGHT

GroundSure Floodview

Address: RICHMOND-UPON-THAMES COLLEGE,EGERTON ROAD,ST MARGARETS AND NORTH TWICKENHAM,TWICKENHAM, TW2 7SJ

Date: 15 May 2014

Your Reference:28958

Client: CENTREMAPS

COPSO
EXECUTIVE MEMBER

searchcode

Report Reference: CMAPS-CM-325206-28958-150514

Aerial Photograph of Study Site

NW ▲ N NE

◄W

E►

SW ▼ S SE

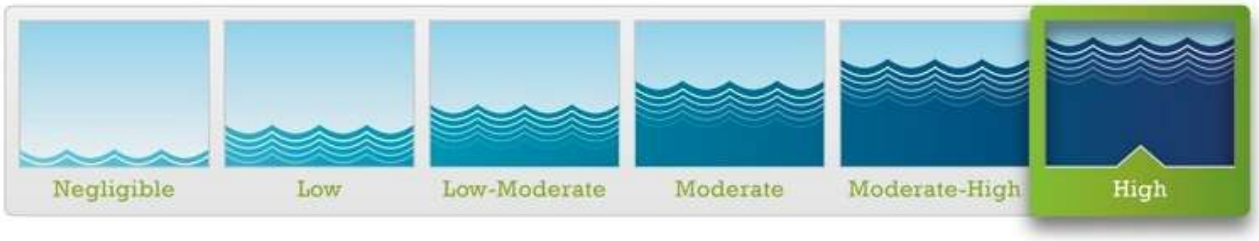
Site Name: RICHMOND-UPON-THAMES COLLEGE,EGERTON ROAD,ST MARGARETS AND NORTH TWICKENHAM,TWICKENHAM, TW2 7SJ

Grid Reference: 515351,173703

Size of Site: 19.42 ha

Executive Summary: Flood Risk

The following opinion is provided by GroundSure on the basis of the information available at the time of writing and contained within this report.



Is insurance cover for flooding likely to be available for the property based upon Environment Agency NaFRA data?	May not be available
What is the highest NaFRA risk rating for the property?	High
What is the highest Environment Agency Flood Zone risk at the property?	High
What is the risk of flooding from pluvial/surface water sources?	Significant
If the site were to be redeveloped, would a NPPF flood risk assessment be required?	Yes

Recommendations

It is recommended that several insurers are contacted to confirm the availability of reasonably priced insurance for the property.

The purchaser may wish to make specific enquiries of the vendor regarding the history of flooding at the property.

National Flood Risk Assessment (NaFRA)

As the site lies within or in close proximity to an area with a High risk rating in the NaFRA database, a prudent purchaser may wish to consider reducing the impact of flooding at the property by installing flood protection measures. Such measures may help reduce the effects of flooding at the property if flood defences are absent or are breached, and may assist in obtaining insurance for the site. Furthermore, it is recommended that anyone living within an

area at High risk signs up to the Environment Agency's Flood Warning Scheme on 0845 988 1188 or at www.environment-agency.gov.uk.

Environment Agency Flood Zones

The site has been identified to lie within Flood Zone 3 as designated by the Environment Agency, indicating the site has a predicted chance of flooding of greater than 1.0% from fluvial sources or greater than 0.5% from coastal sources in any given year.
It is recommended that a purchaser consider reducing the impact of flooding at the property by installing flood protection measures. Such measures may help reduce the effects of flooding at the property if flood defences are absent or are breached, and may assist in obtaining insurance for the site. Further information on flood protection measures may be obtained from the National Flood Forum or the Flood Protection Association.

Groundwater Flooding

The BGS have identified potential for groundwater flooding at surface level in the area. This means that given the geological conditions in the vicinity groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

Development Guidance

If the site is to be developed, a detailed Flood Risk Assessment will be required. 'Highly Vulnerable' developments, as defined within the National Planning Policy Framework (NPPF), will not be permitted within a Zone 3 floodplain, and 'Essential Infrastructure' and 'More Vulnerable' developments will be required to pass an Exemption Test prior to permission being granted. A GroundSure Flooding Desktop Report would assist in clarifying the flood risk to the property and assessing the potential for development at the site in relation to flood risk. GroundSure Flooding Desktop Reports are available from £500 + VAT. Please contact GroundSure for further details.

JBA Surface Water (Pluvial) Flooding

As the site lies within an area considered to be at Significant risk of surface water flooding (with a predicted depth of flooding of between 0.3m and 1m in a 1 in 75 year flooding event), it is recommended that a purchaser obtains a more detailed flood risk assessment. Some insurers may choose to not provide insurance cover for properties with a Significant risk of surface water flooding. The detailed flood risk assessment will further quantify the risk of flooding at the site as well as examining the history of flooding at the site, reviewing the standard of protection afforded to the site and providing a quote for a Full Flood Risk Assessment to meet the requirements of NPPF, if required. A GroundSure Flooding Desktop Report is available from GroundSure from £500 + VAT. Please contact GroundSure for further details.

Alternatively, a purchaser may wish to consider reducing the impact of flooding at the property by installing flood protection measures at the site. Such measures may help reduce the effects of flooding at the property if flood defences are absent or are breached, and may assist in obtaining insurance for the site. Further information on flood protection measures may be obtained from the National Flood Forum or the Flood Protection Association.

Historic Flood Events

The site is not recorded to have been subject to historic flooding. However, the absence of data does not provide a definitive conclusion that the site has never flooded, only that the Environment Agency hold no record of any flooding at the site.

Additional Matters

Riparian ownership	If your land abuts a river, stream or ditch, you may have responsibility to maintain this watercourse, even if Title Deeds show the property boundary to be adjacent to the watercourse. This includes the responsibility for clearing debris and obstructions which may impede the free passage of water and fish, and also includes the responsibilities to accept flood flows through your land, even if these are caused by inadequate capacity downstream. There is no duty in common law for a landowner to improve the drainage capacity of a watercourse. Please contact GroundSure if you need further advice on riparian ownership issues relating to this property.
Sewerage Flooding	Extreme rainfall events may overwhelm sewerage systems and cause local flooding. The water and sewerage companies within the UK are required to maintain 'DG5 – At Risk Registers' which record properties that have flooded from sewers and/or are considered to be at risk of flooding from sewers in the future. If your property is on the 'At Risk' Register, this may be recorded within a standard CON29 Drainage and Water search.

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed.

Report Section	
1. Environment Agency Flood Zones	
1.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
1.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site?	Yes
1.3 Are there any Flood Defences within 250m of the study site?	No
1.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
1.5 Are there any areas of Proposed Flood Defences within 250m of the study site?	No
1.6 Are there any areas used for Flood Storage within 250m of the study site?	No
2. National Flood Risk Assessment (NaFRA)	
2.1 What is the National Flood Risk Assessment (NaFRA) Flood Rating for the study site?	High
3. Historic Flood Events	
3.1 Has the site been subject to past flooding as recorded by the Environment Agency?	No
4. Surface Water Floods	
4.1 Is the site or any area within 50m at risk of Surface Water (Pluvial) Flooding?	Yes
5. Groundwater Flooding	
5.1 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential for groundwater flooding at surface
5.2 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Moderate
6. BGS Geological Indicators of historic flooding	
6.1 Are there any geological indicators of historic flooding within 250m of the study site?	Yes
7. JBA Reservoir failure	
7.1 Is the property located in an area identified as being at potential risk in the event of a reservoir failure?	No

Using this Report

The following report is designed by Environmental Consultants for commercial property transactions bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between GroundSure and the Client.

Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

Flood Risk Framework

The Flood Risk Assessment section is based on datasets covering a variety of different flooding types. No inspection of the property or of the surrounding area has been undertaken by GroundSure or the data providers. The modelling of flood hazards is extremely complex and in creating a national dataset certain assumptions have been made and all such datasets will have limitations. These datasets should be used to give an indication of relative flood risk rather than a definitive answer. Local actions and minor variations, such as blocked drains or streams etc. can greatly alter the effect of flooding. A low or negligible modelled flood risk does not guarantee that flooding will not occur. Nor will a high risk mean that flooding definitely will occur. GroundSure's overall flood risk assessment takes account of the cumulative risk as assessed within the Environment Agency's NaFRA and Flood Zone datasets, Historic Flood Events and surface water (pluvial) flooding.

This report provides an overall risk ranking of flooding potential at the site as well as answering the following key questions:

Is insurance likely to be available for the property?

A number of insurance companies providing cover for flood risk use this data as the basis of their risk model, although they may also utilise additional information such as claims histories, which may further influence their decision. Where a significant risk of flooding is identified flood risk insurance may be difficult to obtain without further work being undertaken. Property owners of sites within Low and Medium risk areas are still considered to be at risk of flooding and insurance premiums may be increased as a result. Owners of properties within Low, Medium and High risk areas are advised to sign up to the Environment Agency's Flood Warning scheme.

- Very Low – the chance of flooding from rivers or the sea is considered to be Less than 1 in 1000 (0.1%) chance in any given year.
- Low – the chance of flooding from rivers or the sea is considered to be less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance in any given year.
- Medium - the chance of flooding from rivers or the sea is considered to be less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year.
- High – the chance of flooding from rivers or the sea is considered to be greater than or equal to 1 in 30 (3.3%) chance in any given year.

What is the Environment Agency NaFRA risk rating for the property?

This rating is based upon the highest NaFRA risk band to be found within the site boundary. See above for an explanation of NaFRA risk banding.

What is the highest Environment Agency Flood Zone risk at the site?

The Environment Agency estimates the annual probability of flooding from rivers and the sea as:-

- Zone 1 – little or no risk with an annual probability of flooding from rivers and the sea of less than 0.1%.
- Zone 2 – low to medium risk with an annual probability of flooding of 0.1-1.0% from rivers and 0.1-0.5% from the sea.
- Zone 3 (or Zone 3a) – high risk with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.
- Zone 3b – very high risk with the site being used as part of the functional flood plain or as a Flood Storage Area.

Where the property is in an area benefiting from flood defences these may be taken into account within the flood risk assessment provided. However it should be noted that flood defences do not entirely remove the risk of flooding, as they can fail or overtop. Owners of properties within Zone 2 and Zone 3 are advised to sign up to the Environment Agency's Flood Warning scheme.

What is the risk of flooding from pluvial/surface water sources?

JBA Risk Management surface water flood map identifies areas likely to flood following extreme rainfall events, i.e. land naturally vulnerable to surface water or "pluvial" flooding. This data set was produced by simulating 1 in 75 year, 1 in 200 year and 1 in 1000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though older ones may even flood in a 1 in 5 year rainstorm event.

The model provides the maximum depth of flooding in each 5m "cell" of topographical mapping coverage. The maps include 7 bands indicating areas of increasing natural vulnerability to surface water flooding. These are:-

- 0.1m or greater in a 1 in 1,000 year rainfall event - Low
- Between 0.1m and 0.3m in a 1 in 200 year rainfall event – Low to Moderate
- Between 0.3m and 1.0m in a 1 in 200 year rainfall event - Moderate
- Greater than 1.0m in a 1 in 200 year rainfall event – Moderate to High
- Between 0.1m and 0.3m in a 1 in 75 year rainfall event - High
- Between 0.3m and 1.0m in a 1 in 75 year rainfall event – Significant
- Greater than 1.0m in a 1 in 75 year rainfall event – Highly Significant

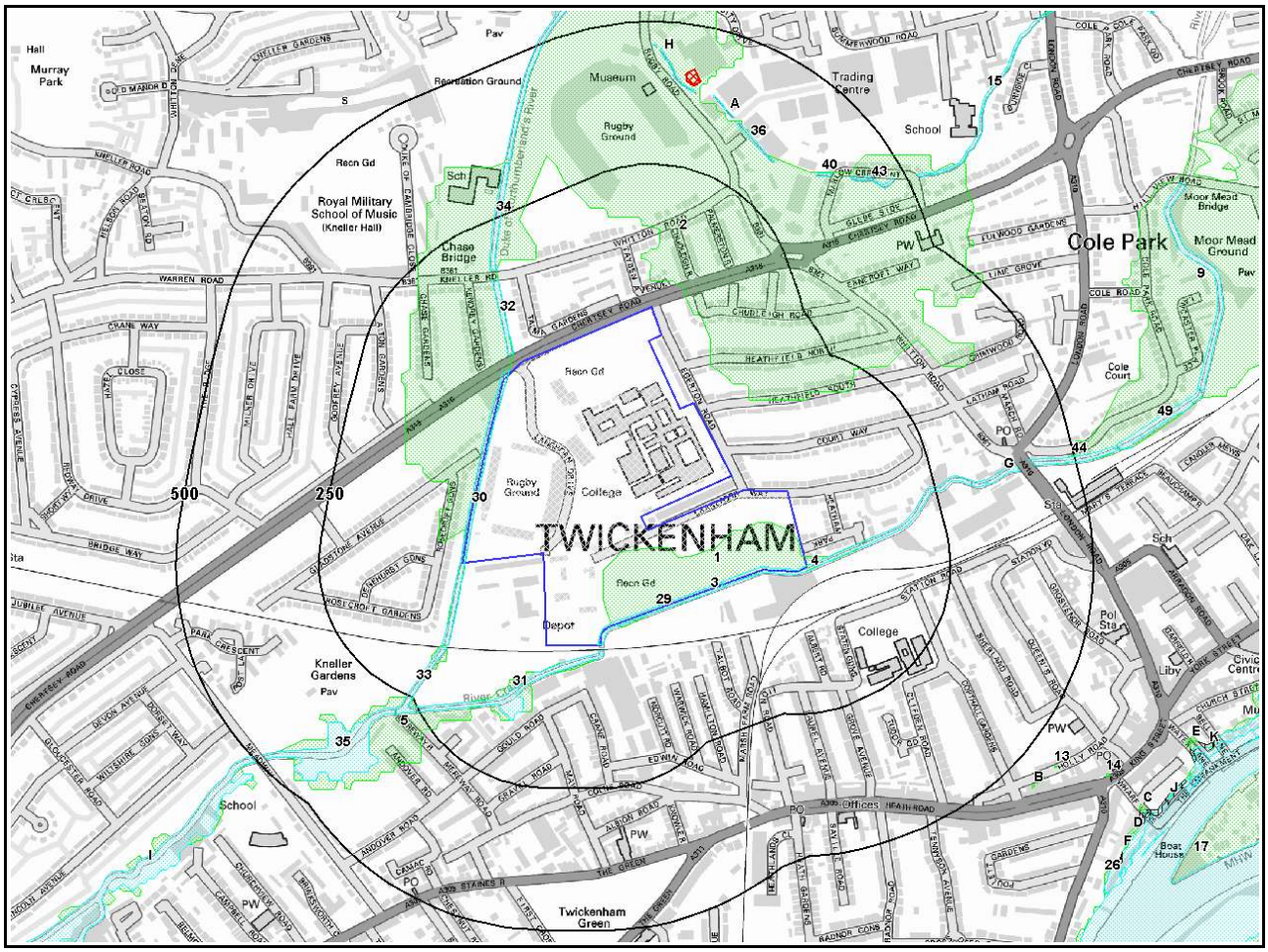
If the site is to be redeveloped, will a Flood Risk Assessment be required under National Planning Policy Framework?

The *National Planning Policy Framework* identifies the need for Flood Risk Assessments to be carried out for developments within Flood Zones. Furthermore, any development proposals comprising one hectare or above will require a brief Flood Risk Assessment, partly due to their potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of new development on surface water run-off.

The Recommendations will also highlight whether the site has been subject to an historic flood event as recorded by the Environment Agency. Furthermore, the recommendations will indicate whether the site is considered to lie within an area which may be susceptible to groundwater flooding. However, information regarding groundwater flooding susceptibility is not used to calculate the overall flood risk to the property due to the limitations of the database. Additionally, the flood risk assessment does not take account of flooding from sources such as burst water mains, blocked sewers or appliance failure.

1. Environment Agency Flood Map for Planning (from rivers and the sea)

NW ▲ N NE



◄W E►

SW ▼ S SE

Environment Agency Flood Map for Planning Legend

Mapping sourced from Ordnance Survey

- Search Centre
- Search Buffers (m) — 100, 250
- Zone 2 Floodplain
- Zone 3 Floodplain
- Flood Defences
- Area used for Flood Storage
- Proposed Flood Defence Scheme
- Area Benefiting from Flood Defences