

EA Flood Zone 3
EA Flood Zone 2

SuDS Planning Polygon

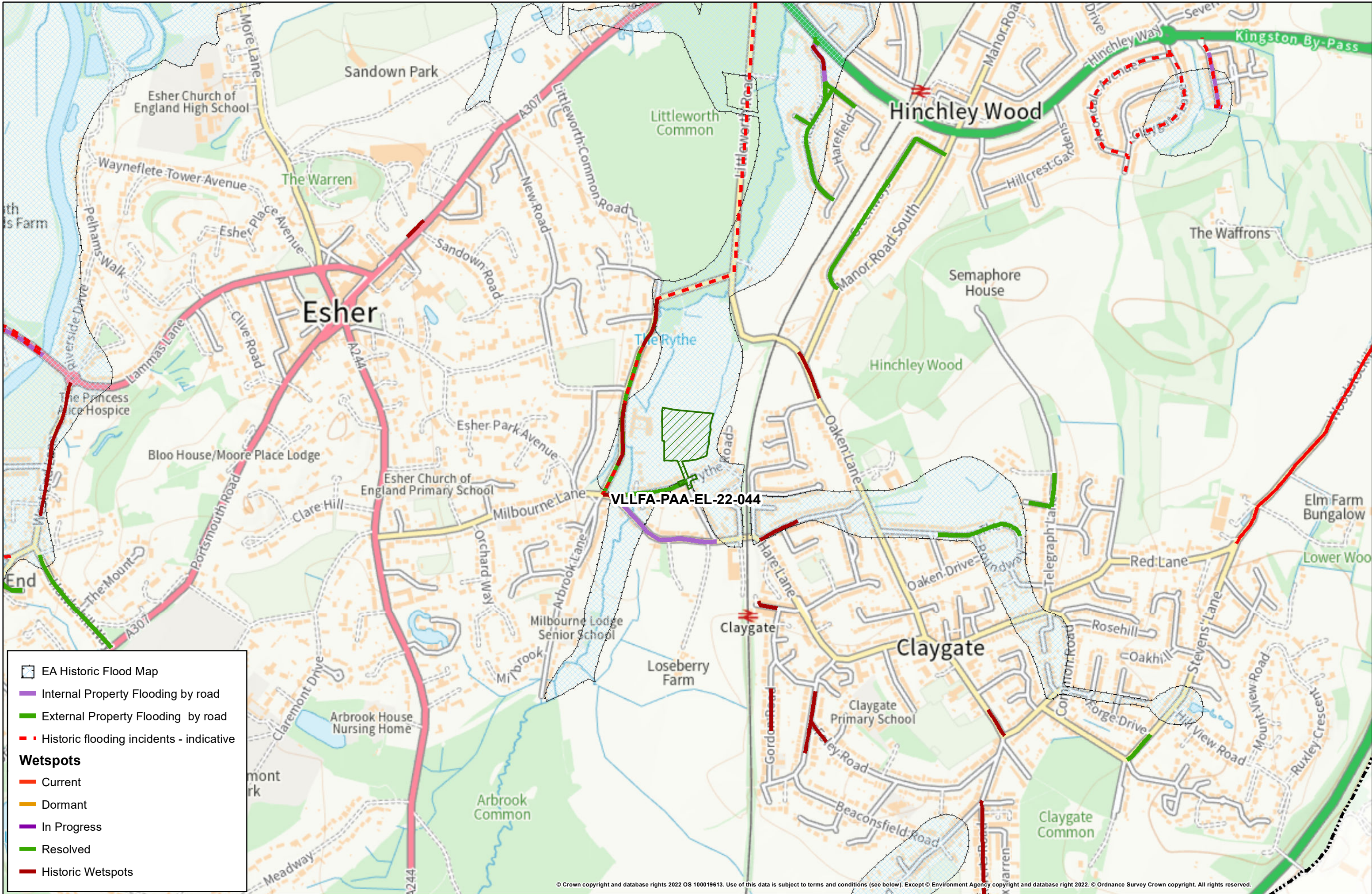
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Created by: AD
Department: Strategic Network Resilience
Printed on: 23/09/2022
Original Size A3
0 150 300 Metres

FLOOD RISK REPORT- VLLFA-PAA-EL-22-004 - Land North of Raleigh Drive, Claygate
Fluvial Flood Risk
For use in reference to the Flood Risk Report only.





EA Historic Flood Map
 Internal Property Flooding by road
 External Property Flooding by road
 Historic flooding incidents - indicative

Wetspots
 Current
 Dormant
 In Progress
 Resolved
 Historic Wetspots

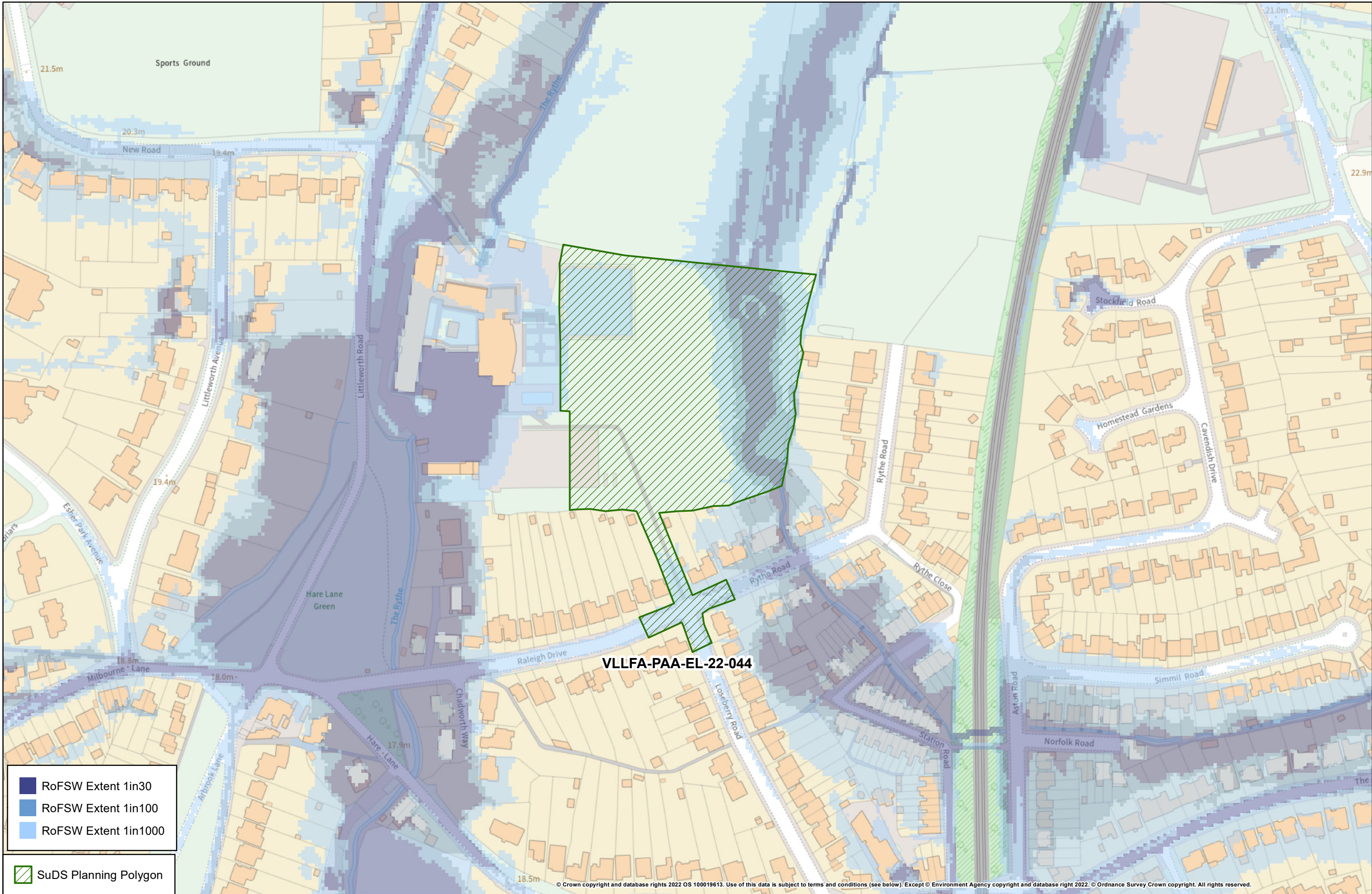
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FLOOD RISK REPORT- VLLFA-PAA-EL-22-004 - Land North of Raleigh Drive, Claygate
Historic Flood Evidence
For use in reference to the Flood Risk Report only.





VLLFA-PAA-EL-22-044

- RoFSW Extent 1in30
- RoFSW Extent 1in100
- RoFSW Extent 1in1000

SuDS Planning Polygon

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 Printed on: 23/09/2022
 Original Size A3
 0 30 60 Metres

FLOOD RISK REPORT- VLLFA-PAA-EL-22-004 - Land North of Raleigh Drive, Claygate
Surface Water Flood Risk
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From: Mike Burch <Mike.Burch@surreycc.gov.uk>
Sent: 21 October 2022 14:56
To: Daniel Cook
Cc: Bob Shattock; Oliver Harvey
Subject: RE: VLLFA-PAA-EL-22-044 Land North of Raleigh Drive, Claygate

Dear Daniel,

Apologies for the delayed response, it's been a manic week.
Comments below in green

Kind Regards

Mike Burch (Mr. pronouns: he/him)
Critical Drainage Specialist
Flood Risk, Planning and Consenting Team
Flood and Climate Resilience
Surrey County Council
Merrow Depot, Merrow Lane, Guildford, GU4 7BQ
Email: suds@surreycc.gov.uk | Telephone: 0300 200 1003

From: Daniel Cook <daniel@aegaea.com>
Sent: 18 October 2022 21:33
To: Mike Burch <Mike.Burch@surreycc.gov.uk>
Cc: Bob Shattock <bob@greatwavegroup.co.uk>; Oliver Harvey <oliverharvey@aegaea.com>
Subject: Re: VLLFA-PAA-EL-22-044 Land North of Raleigh Drive, Claygate

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Dear Mike,

Thank you ever so much for your response and comments on the proposed strategy.
Please see below
our response to the queries/suggestions raised.

* The permeable surfacing could extend to all the parking bays and parking courts too.

It could yes, it would result in slightly less subbase depth requirement. It should be stressed that all hardstanding should be permeable paving regardless (apart from the access road), however not all the paving may have a cellular subbase. This would , as I am sure you will agree be designed/confirmed with architects at design state or as a condition.

The permeable surfacing of the additional areas was not apparent from the plan supplied. It is certainly acceptable to have the additional areas of permeable surfacing without

the additional depth of attenuating sub-base. May be an idea on the drainage plan to have the areas that are permeable but not attenuating hatched as so.

* A conveyance swale could be utilised along the eastern side of the development in preference to below ground pipes. Most of the eastern side of the development is in a flood zone, we have provided an extract from the pre-application document demonstrating the AEPs, we were under the impression post our meeting as per the minutes that no SuDS / open storage should be in flood zone 3. It can be seen that there is very little land available on the eastern side outside of the 1 in 100 and 1 in 100 + CC extent making up Flood Zone 3. We welcome your comments on this. It was difficult to eyeball in where the FZ3 outline would be - may be an idea to include on drainage plan when submitting. Ideally we would prefer surface water drainage features kept outside of FZ3. So if there is no room to include as a conveyance swale, then piped is what it will have to be.

* Unclear how filter drain from impermeable access road feeds into drainage system and whether it has been accounted for. We can confirm that it has been accounted for within the calcs. we explore whether it is possible to extend it further north and if it is possible it would just be connected into the subbase of the paving. This would only be a shallow filter drain, primarily for conveyance (circa. 200-300mm deep) ; we don't envisage this having any issues with a connection.

We trust that the above is useful to support both parties in coming to an agreement on the drainage strategy. Whilst in discussion, please could I also ask for an amendment or comment to the previous meeting minutes circulated. The request is with focus to the bowling green in the western corner of the site. As discussed on the call, it was recognised that this an unnatural feature and infilling would not cause concern as it would return to the natural levels of the site and is outside of the 1 in 100 and 1 in 100 + CC event. Can a note be added to this effect.

I welcome your response at your earliest convenience and thank you for your support.

Kind regards and best wishes,

Daniel

On Mon, 17 Oct 2022 at 08:38, Mike Burch <Mike.Burch@surreycc.gov.uk> wrote:
Hi Daniel,

The overall principles are certainly acceptable.

Some comments:

* The permeable surfacing could extend to all the parking bays and parking courts too.

* A conveyance swale could be utilised along the eastern side of the development in preference to below ground pipes.

* Unclear how filter drain from impermeable access road feeds into drainage system and whether it has been accounted for

Kind Regards

Mike Burch (Mr. pronouns: he/him)
Critical Drainage Specialist
Flood Risk, Planning and Consenting Team
Flood and Climate Resilience
Surrey County Council
Merrow Depot, Merrow Lane, Guildford, GU4 7BQ
Email: suds@surreycc.gov.uk | Telephone: 0300 200 1003

From: Daniel Cook <daniel@aegaea.com>
Sent: 12 October 2022 16:26
To: Mike Burch <Mike.Burch@surreycc.gov.uk>
Cc: Bob Shattock <bob@greatwavegroup.co.uk>
Subject: Re: VLLFA-PAA-EL-22-044 Land North of Raleigh Drive, Claygate

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Dear Mike,

I hope you are well.

Thank you once more for your time a few weeks ago now. We have as discussed worked on the drainage strategy factoring the space constraints of the site, flood zones, geology and other

environmental factors.

Attached is our current proposal for the outline planning application demonstrating surface water runoff rates can be mitigated, attenuated and discharged from the site.

Please can we have your comments as discussed in the meeting.

Many thanks

Daniel

On Mon, 26 Sept 2022 at 14:44, Mike Burch <Mike.Burch@surreycc.gov.uk> wrote:
Dear Daniel,

Please see attached Detailed FRR and associated mapping.

Kind Regards

Mike Burch (Mr. pronouns: he/him)
Critical Drainage Specialist
Flood Risk, Planning and Consenting Team
Flood and Climate Resilience
Surrey County Council
Merrow Depot, Merrow Lane, Guildford, GU4 7BQ
Email: suds@surreycc.gov.uk | Telephone: 0300 200 1003

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Daniel Cook BSc (Hons) MSc C.WEM MCIWEM
Principal Flood Risk Consultant & Director
DD: 02081 641 282
Email: daniel@aegaea.com
www.aegaea.com

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Daniel Cook BSc (Hons) MSc C.WEM MCIWEM
Principal Flood Risk Consultant & Director
DD: 02081 641 282
Email: daniel@aegaea.com
www.aegaea.com

I will be on leave Monday 24th October to the 28th October. Returning to the office 31st October. I will have no access to email or work phone.

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Appendix C Topographic Survey

Appendix D Borehole/ Ground Records

RECORD OF BOREHOLE NO. 49

TQ16SW 83
14947 64386

Ground level: 54.7ft. above O.D. Dia. of boring: 6in.
 Type of boring: Post-hole Auger Lining tubes: Not used

Daily Progress	Samples		Change of Strata			Description of Strata
	Depth	Type	Legend	Depth	O.D. Level	
	0'0" - 0'9"	D	▨	1'6"	53.2	TOPSOIL
	1'6" - 2'0"	D	▨			Firm brown silty CLAY with occasional gravel and pockets of fine sand and silt
	2'0" - 3'6"	U(4)				
	3'6" - 4'3"	D				
	4'3" - 5'6"	D				
	5'6" - 6'3"	D				
	7'0" - 8'6"	U(4)	8'6"	46.2	Stiff fissured brown and grey silty CLAY	
	8'6" - 9'3"	D	12'0"	42.7	Stiff dark grey clayey SILT	
27.11.63.	12'0" - 12'9"	D	15'0"	39.7	Stiff dark grey clayey SILT	
	13'6" - 15'0"	U(4)				
	15'0"	D				

RECORD OF BOREHOLE NO. 50

TQ16SW 84

Ground level: 51.8ft. above O.D. Dia. of boring: 6in.
 Type of boring: Shell and Auger Lining tubes: 6in. to 6ft.

Daily Progress	Samples		Change of Strata			Description of Strata
	Depth	Type	Legend	Depth	O.D. Level	
	1'6"	D	▨	1'0"	50.8	TOPSOIL
	2'6" - 3'6"	S(3)	▨			Very loose grey clayey medium SAND with occasional gravel
	4'0" - 5'6"	U(4)				
	5'6"	D				
	7'6"	D				
	9'6"	D				
	7'0" - 10'6"	U(4)	7'0"	47.6	Firm mottled brown and grey silty CLAY	
	10'6"	D	▨			Stiff to very stiff fissured blue-grey silty CLAY with pockets of fine sand
	12'6"	D				
	12'6"	D				
2.12.63.	13'6" - 15'0"	U(4)	15'0"	36.8		
	15'0"	D				

Key to type of sample:
 U (4) — 4 in. dia. undisturbed sample.
 U (1½) — 1½ in. dia. " "
 D — disturbed sample. " "
 BD — bulk disturbed sample.
 W — water sample.
 S () — standard penetration test.
 C () — dynamic cone penetration test.
 No. in brackets gives No. of blows/12 in. penetration.

Remarks: (Observations on ground-water, etc.)
 D.H. 89 Ground-water was first encountered at depth of 6ft. 6in. below ground level. Sample of ground-water taken.
 I.H. 40 No ground-water was encountered during boring.




Soils No:
S/3914

RECORD OF BOREHOLE NO. 51

111

Ground level: 48.4 ft. above 0.0. Dia. of boring: 5 in.







Type of boring: Shell and Auger Lining tubes: 5 in. to 6 ft.

Daily Progress	Samples		Change of Strata			Description of Strata
	Depth	Type	Legend	Depth	O.D. level	
3.12.63.			TOP SOIL	0'11"	48.6	
	2'6"	BD		2'6"	42.0	Firm to stiff brown sandy CLAY with occasional gravel
	3'0" - 4'0"	S(1)				
	4'0" - 4'6"	U(4)				Firm to stiff mottled brown and grey silty CLAY
	5'6"	D				
	7'6"	D				
8'6" - 10'0"	U(4)		9'3"	36.4		
10'0"	D		10'0"	35.4	Stiff fissured grey silty CLAY	

RECORD OF BOREHOLE NO. 52 TQ16SW 84 12660 64406

Ground level: 40.9 ft. above 0.0. Dia. of boring: 5 in.

Type of boring: Shell and Auger Lining tubes: 5 in. to 25 ft.

Daily Progress	Samples		Change of Strata			Description of Strata
	Depth	Type	Legend	Depth	O.D. level	
6.12.63.			TOP SOIL	0'2"	40.2	
	2'0" - 3'6"	U(4)				Firm brown and grey silty CLAY
	3'6"	D				
	4'6"	D				
	7'0" - 8'6"	U(2)				
	10'0"	D		10'6"	20.8	Stiff blue-grey silty CLAY
	12'0" - 13'6"	U(4)		12'0"	20.9	Grey-brown peaty CLAY
	12'6"	D		13'0"	27.9	Loose grey medium to coarse SAND
	13'6" - 14'6"	S(5)				
	14'6" - 14'6"	BD		15'0"	25.9	
	16'0" - 17'0"	C(17)				Medium dense grey-brown medium SAND with some gravel
	16'0" - 17'0"	BD				
	16'5"	D		20'0"	20.9	
	17'0" - 20'0"	BD				
	20'6" - 22'0"	U(4)				
22'0"	D					
24'0"	D					
24'6" - 27'0"	U(4)				Very stiff fissured blue-grey silty CLAY	
27'0"	D					
29'0" - 30'6"	U(4)		20'6"	10.8		
30'6"	D					

Key to type of sample:
 U (4) — 4 in. dia. undisturbed sample.
 U (1 1/2) — 1 1/2 in. dia. " "
 D — disturbed sample.
 BD — bulk disturbed sample.
 W — water sample.
 S () — standard penetration test.
 C () — dynamic cone penetration test.
 No. in brackets gives
 No. of blows/12 in. penetration.

Remarks: (Observations on ground-water, etc.)
 B.H. 51 A seepage of ground-water was encountered at depth of 2 ft. below ground level. Sample of ground-water taken.
 B.H. 52 Ground-water was first encountered at depth of 3 ft. 6 in. and again at 13 ft. below ground level. Sample of ground-water taken.
 * unable to recover sample.

ESHER BY-PASS

Soils No:
0/2014

FIG. 30

Appendix E Thames Water Utilities Asset Mapping

Asset location search



Property Searches

Aegaea
66 Swaledale Road
WARMINSTER
BA12 8FJ

Search address supplied Claygate House
Raleigh Drive
Esher
Surrey
KT10 9BS

Your reference 474

Our reference ALS/ALS Standard/2022_4645584

Search date 17 May 2022

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Search address supplied: Claygate House, Raleigh Drive, Esher, Surrey, KT10 9BS

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

Asset location search



Property Searches

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk