

HARD LANDSCAPE STRATEGY

PAVING STRATEGY:

The main aims of the hard landscape strategy are simplicity of design and layout, and overall quality, bearing in mind maintenance considerations, and cost limitations. The best of existing granite sett paving will be retained and reinstated wherever possible, in particular historic cobbles in Bull's Alley and along the Towpath.

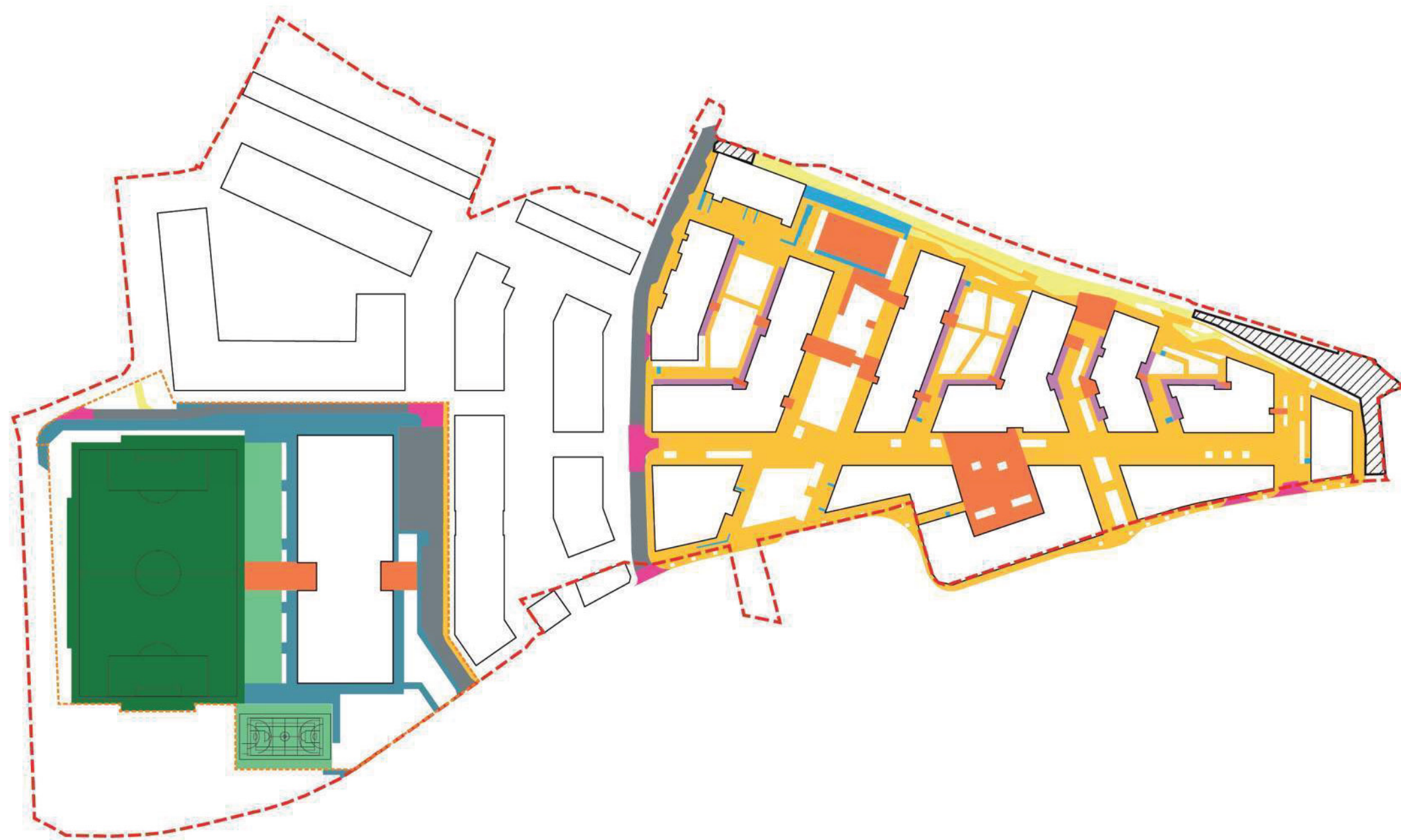
Colour, texture and unit size help to define the uses of various spaces, including using paving sizes and patterns in 'streets' to identify pedestrian priority, service vehicle routes and loading bays. The accessibility requirements of vision and mobility impaired users is a factor in the determination of surface and edge types to provide a legible and safe environment in accordance with current requirements.

It is proposed to use paved surfaces of different scale and grain to create a range of distinct characters within a unified warm palette of materials. Natural stone paving is proposed in areas of shared (vehicular and pedestrian) zones, with some integration of bound gravel in several of flexible open spaces created within the masterplan, to provide variety and definition while creating a more permeable surface for stormwater infiltration.

The courtyard areas will be finished with stone pavements and resin bound gravel, with softfall (rubberised) pavements in designated play spaces.

LBRuT Guidance
 Consideration has been given to Public Realm Design Guidelines (2006) published by LBRuT and pavements in the public realm reflect the intent and broad material selections recommended by this guide.

- Asphalt
- Ceramic Tiles (Private terrace)
- Small Block Setts
- Pre-Cast Concrete Steps
- Artificial Stone Flag Paving
- 3G Pitch
- Porous Macadam Surfacing
- Resin Bound Aggregate Paving
- Stone Paving
- Feature Stone Paving
- Existing Granite Setts to Retain
- Site Application Boundary
- School Application Boundary





Small block setts



MUGA - Pitch Treatment



3G Pitch Treatment



Resin Bound Aggregate Paving



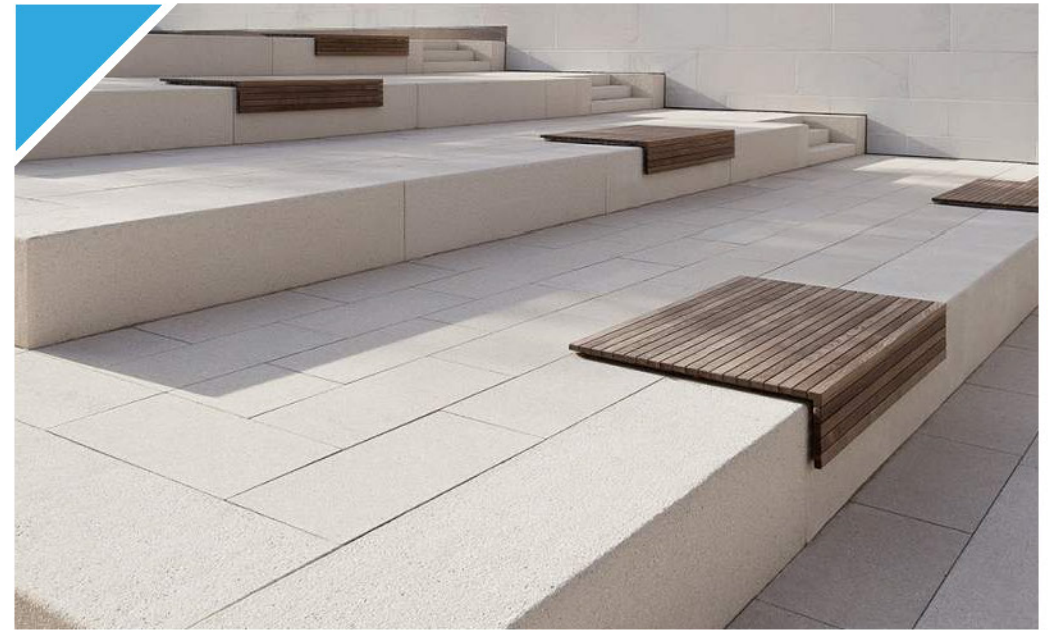
Artificial Stone Flag Paving



Ceramic Tiles



Hot Rolled Asphalt



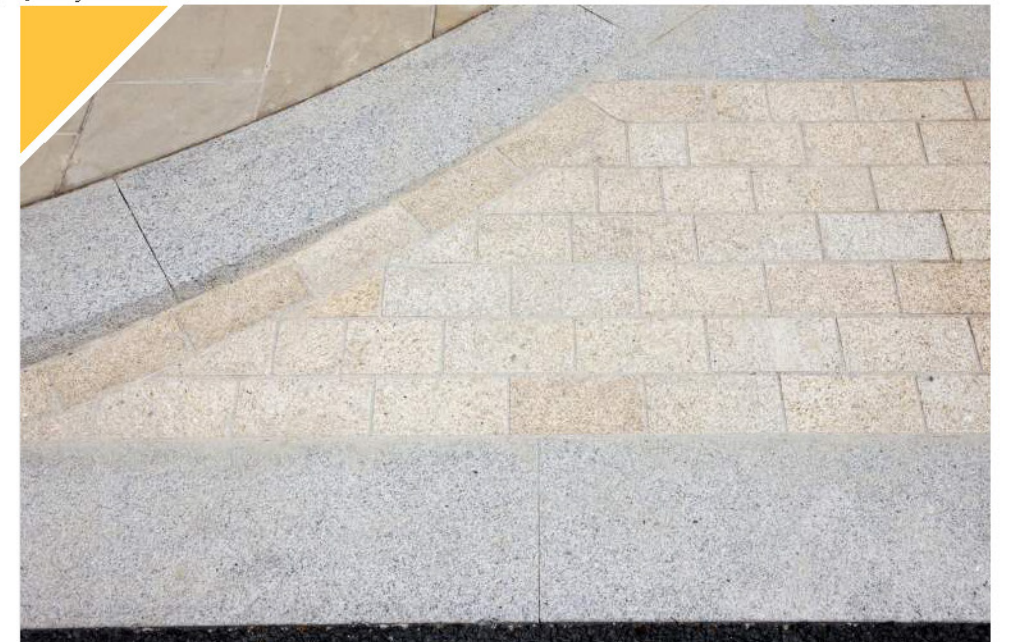
High Quality Pre-Cast Concrete



Feature Mix Stone Paving



High Quality Stone Paving



High Quality Stone Paving

SUSTAINABLE URBAN DRAINAGE

SUSTAINABLE URBAN DRAINAGE STRATEGY:

RAIN GARDENS

A 'rain garden' forms a significant landscape feature within the central Green Link, draining one side of the pavement directly into a planted storage 'trench' which ultimately connects to the stormwater attenuation system. This feature provides an effective sustainable drainage system while creating an obvious ecological feature in the public realm, accentuating the visibility of sustainable measures taken in the development. This feature provides a link to the master planning strategy for ecological development and sustainable drainage and allows surface water to be collected in mass planting areas along the Green Link.

BIODIVERSE ROOFS

Green and brown roofs on the majority of buildings across the site provide biodiversity and also contribute to the rainwater attenuation. Surface treatments in the public and private realm are proposed as predominantly permeable, with soft landscape, turf and grasses, together with permeable pavements of gravel (self-binding or bonded) contrasting with hard paving surfaces and assisting drainage of stormwater.

IRRIGATION

An irrigation system will be provided to all soft landscape areas (planting and grassed) excluding green or brown roofs. This will include soil moisture monitors and a programmable control system to ensure efficiencies in operation and water management.

The irrigation plant room and central controls will be positioned in the basement plant room and link to mains water supply.

PERMEABLE SURFACES

Paved areas will be designed where feasible to drain into tree pits and planting areas, providing natural watering and assisting infiltration and storage of stormwater.

For Development Area 2, the sustainable urban drainage strategy will be developed in accordance with the above and provided in detail design stage.

- Legend
- Rain Garden
 - Planter
 - Permeable Paving
 - Site Application Boundary
 - School Application Boundary





D. Updated Surface Water Calculations

Appendices

Surface Water Drainage Update Briefing Note
WIE10667-103-BN-1-1-3
WIE10667

CALCULATIONS

Company: WIE
 Sheet No: 1 of 4
 By: N Balboni
 Checked: D O'Donovan

Office: London
 Project No: WIE10667
 Date: 19/12/2018
 Date: 19/12/2018

Project Title Former Stag Brewery, Mortlake

Calculations Title Existing Discharge Rate - Modified Rational Method - Update

LOCATION	CALCULATIONS		OPTIONS	
	Calculations based on: Design and Analysis of urban storm drainage. The Wallingford Procedure, Volume 1 Principles methods and practice.			
	User Input Data			
	Total site area		4.82	ha
	SAAR (From FEH)		605	
	Rainfall Intensity (From FEH)		51.80	
	PIMP (% impervious)		100	%
	Soil Type		0.40	
	Very Low Runoff (well drained sandy, loamy or earthy peat soils)		0.15	
	Low Runoff (Very permeable soils (e.g. gravel, sand)		0.30	
	Moderate (Very fine sands, silts and sedimentary clays)		0.40	
	High Runoff (Clayey or loamy soils)		0.45	
	Very High Runoff (Soils of the wet uplands)		0.50	
Fig. 9.7	UCWI (From Figure 9.7 of Wallingford Method)		52	
Eqn. 13	$Q_p \text{ (peak discharge)} = 2.78 C_v CR i A$			
	Where:	Q_p (Peak Discharge)	i = rainfall intensity	A = Total Area
From FEH	Average rainfall Intensity (i)			
	M100_60 is:	51.80	mm	
Eqn 7.20	$C_v = PR/100$			
Eqn 7.3	$PR = (0.829 PIMP) + (25.0 SOIL) + (0.078 UCWI) - 20.7$			
	PIMP (Percentage of catchment which is impervious)		100	%
Page 52	Note: PIMP can not be less than 40%		40	%
	Thus value of PIMP to be used		100	%
	Soil: 0.40	UCWI: 52		
	PR =		76.26	
	Thus C_v =		0.76	
Sec 7.10	CR (Recommended for simulation and design)		1.3	
	Qp for 1 in 100 year 60 minute duration =	688.1	l/s	142.8 l/s/ha
	50% of the existing runoff rate=	405.0	l/s	71.4 l/s/ha

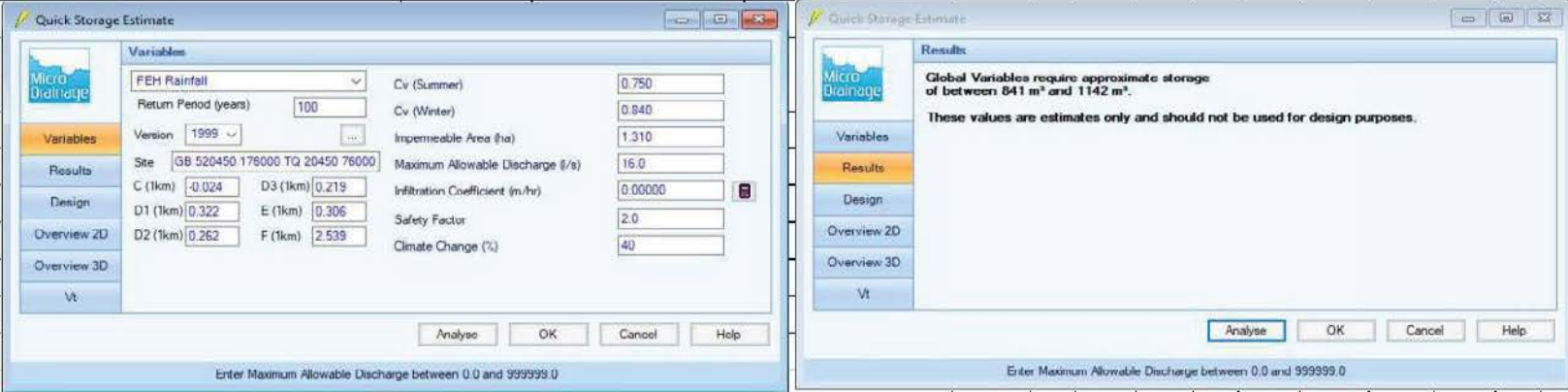


CALCULATIONS

Company: WIE
 Sheet No: 4 of 4
 By: N Balboni
 Checked: O O'Donovan

Office: London
 Project No: WIE10667
 Date: 19/12/2018
 Date: 19/12/2018

Project Title Former Stag Brewery, Mortlake
Calculations Title Surface water attenuation volume - School Catchment Update

LOCATION	CALCULATIONS										OPTIONS		
	In order to calculate the volume of surface water attenuation required for the Site, Windes Microdrainage version 2018.1, Source Control module, Quick Storage Estimate has been used. The input and output data for which are shown below;												
	Drainage Catchment - School												
	Area	1.31	ha										
	Attenuation Available	993	m3										
	Discharge Rate	16.00	l/s										
	Betterment	91	%										
													
	<u>Required volume to achieve 24.5 l/s</u>												
	Attenuation volume (m3)	992											



E. Thames Water Pre-Development Enquiry Response

Appendices

Surface Water Drainage Update Briefing Note
WIE10667-103-BN-1-1-3
WIE10667



Miss Nora Balboni
Pickfords Wharf
Clink Street
SE1 9DG



Our ref: DS6041473



0800 009 3921

Monday to Friday, 8am to 5pm

13 May 2018

Pre-planning enquiry: Confirmation of sufficient capacity

Dear Miss Balboni

Thank you for providing information on your development **Stag Brewery, Mortlake, SW14 7QR, OS grid ref. 520380, 176003.**

Redevelopment of the former Stag Brewery site to provide mix use development (Flats: 687, Primary School for 1200 pupils, Cinema: 475 seats, Sports Hall: 189 people, Hotel: 20 rooms, Car Home: 220 beds, Offices: 2424m², Warehouse: 5113m²). Foul Water discharging by gravity into multiple outfalls. Surface Water to be attenuated and discharged by gravity and pump into multiple outfalls (50% betterment anticipated from existing sw run-off). Surface Water from the north-eastern part of the site discharging into the River Thames.

If your proposals progress in line with the details you've provided (drawings ref: WIE SA 92 0004 Rev A05, WIE SA 92 0005 Rev A05, WIE SA 92 0006 Rev A05, WIE SA 92 0007 Rev A05) we're pleased to confirm that there will be sufficient sewerage capacity to serve your development.

However, Thames Water has concerns with capacity to the West of the development based on the proposed flows and connection points. We request that the developer updates Thames Water in advance of building phases as they come forwards in order to ensure that any investigative or upgrade works can be carried out before development commences.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

Please note that you must keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient sewerage capacity.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you've any further questions, please contact me on 0203 577 8082.

Yours sincerely

Artur Jaroma

Thames Water



C. Greater London Authority Correspondence

Appendices

Stag Brewery, Mortlake Amended Scheme

Project Number: WIE10667

Document Reference: WIE10667-105-R-2-2-1-DSAddendum

Nora Balboni

From: Katherine Wood <Katherine.Wood@london.gov.uk>
Sent: 08 February 2019 17:12
To: Nora Balboni; Stuart McTaggart; Abby Crisostomo
Cc: Anna Gargan; Suzanne Robson
Subject: RE: Stag Brewery (GLA ref: 4172a/b) drainage strategy [Filed 08 Feb 2019 17:19]

Hi Nora,

Apologies, I should have confirmed with you that Stuart had reviewed this response and confirmed that it addressed outstanding issues on drainage.

Kind regards,

Katherine

Katherine Wood
Team Leader, Development Management
GREATERLONDONAUTHORITY
City Hall, The Queen's Walk, London SE1 2AA
020 7983 5743
www.london.gov.uk/what-we-do/planning
katherine.wood@london.gov.uk

From: Nora Balboni <nora.balboni@watermangroup.com>
Sent: 08 February 2019 17:07
To: Stuart McTaggart <Stuart.McTaggart@london.gov.uk>; Abby Crisostomo <Abby.Crisostomo@london.gov.uk>; Katherine Wood <Katherine.Wood@london.gov.uk>
Cc: Anna Gargan <AGargan@geraldeve.com>; Suzanne Robson <SRobson@geraldeve.com>
Subject: FW: Stag Brewery (GLA ref: 4172a/b) drainage strategy

Hi Stuart

Hope you are well. Have you had the chance to look at the Briefing Note?

Kind regards,

Nora Balboni
Flood Risk Engineer
Waterman Infrastructure & Environment Ltd

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www.watermangroup.com | [LinkedIn](#) | [Twitter](#)

From: Nora Balboni
Sent: 08 January 2019 16:22
To: 'Stuart McTaggart' <Stuart.McTaggart@london.gov.uk>
Cc: 'Anna Gargan' <AGargan@geraldeve.com>; 'Abby Crisostomo' <Abby.Crisostomo@london.gov.uk>; 'Katherine Wood' <Katherine.Wood@london.gov.uk>; Ellen Smith <ellen.smith@watermangroup.com>; Donal O'Donovan

<donal.odonovan@watermangroup.com>; Harry Chetty <harry.chetty@watermangroup.com>

Subject: RE: Stag Brewery (GLA ref: 4172a/b) drainage strategy

Hi Stuart

Happy new year, I hope you had a great break.

Please find attached the Briefing Note outlining the amendments to the drainage strategy for the Stag Brewery development as per our agreements below.

Let me know if you have any queries.

Kind regards,

Nora Balboni
Flood Risk Engineer
Waterman Infrastructure & Environment Ltd

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From: Nora Balboni

Sent: 12 December 2018 09:24

To: Stuart McTaggart <Stuart.McTaggart@london.gov.uk>

Cc: Anna Gargan <AGargan@geraldeve.com>; Ellen Smith <ellen.smith@watermangroup.com>; Donal O'Donovan <donal.odonovan@watermangroup.com>; Abby Crisostomo <Abby.Crisostomo@london.gov.uk>; Katherine Wood <Katherine.Wood@london.gov.uk>

Subject: RE: Stag Brewery (GLA ref: 4172a/b) drainage strategy [Filed 12 Dec 2018 09:24]

Hi Stuart

Thank you for confirming.

As discussed, we will provide a Briefing Note which will cover the following:

- Amended drainage strategy plan to show permeable paving extents;
- Volume calculations to estimate the attenuation available within the permeable paving sub-base and rain garden feature to show that a restriction of surface water runoff beyond the minimum 50% requirement is achieved;
- Sports pitch in south-west of site removed from surface water calculations under the assumption that it would drain freely, subject to ground investigations during detailed design; and
- Summary of all SuDS included.

Kind regards,

Nora Balboni
Flood Risk Engineer
Waterman Infrastructure & Environment Ltd

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From: Stuart McTaggart <Stuart.McTaggart@london.gov.uk>

Sent: 11 December 2018 15:23

To: Nora Balboni <nora.balboni@watermangroup.com>

Cc: Anna Gargan <AGargan@geraldeve.com>; Ellen Smith <ellen.smith@watermangroup.com>; Donal O'Donovan <donal.odonovan@watermangroup.com>; Abby Crisostomo <Abby.Crisostomo@london.gov.uk>; Katherine Wood

<Katherine.Wood@london.gov.uk>

Subject: Re: Stag Brewery (GLA ref: 4172a/b) drainage strategy [Filed 12 Dec 2018 09:17]

Hi Nora,

To summarise our chat earlier:

1. The intent of the original drainage strategy was to show that it is possible within site constraints to meet the absolute minimum requirements of London Plan policy 5.13.
2. We would like to see that all efforts have been made to get as close to possible to the policy targets (i.e. greenfield runoff, drainage hierarchy, and a preference for SuDS with multiple benefits). We expect that on large sites such as this the policy targets should be able to be met in most cases.
3. Waterman will produce an addendum to the drainage strategy to more clearly show how the drainage will integrate SuDS with multiple benefits and identify an approximate maximum reduction in discharge rate. Where appropriate the reduction in discharge rate can be caveated with assumptions/risks that need confirmation during detailed design (e.g. infiltration rates of the subgrade below the 3G pitch).

Regards,

Stuart McTaggart

Flood Risk, Drainage & Water Policy Officer

Development, Enterprise & Environment

Greater London Authority

City Hall, The Queens Walk, London SE1 2AA

Email: stuart.mctaggart@london.gov.uk

Web: [Greening London / Greater London Authority](#)

Follow the GLA's Environment team on Twitter [@LDN Environment](#)

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From: Nora Balboni <nora.balboni@watermangroup.com>

Sent: 04 December 2018 10:32

To: Stuart McTaggart <Stuart.McTaggart@london.gov.uk>

Cc: Anna Gargan <AGargan@geraldeve.com>; Ellen Smith <ellen.smith@watermangroup.com>; Donal O'Donovan <donal.odonovan@watermangroup.com>

Subject: RE: GLA Flood Feedback

Hi Stuart

Thanks for your comments. Please feel free to give me a call to discuss as I don't have your contact number.

We understand that developments should aim to achieve greenfield runoff rates, or as close as feasible. To endeavour to achieve this we took the following approach:

1. As per the drainage hierarchy, the amount of surface water that could be discharged into the River Thames was maximised by incorporating the innovative shallow conveyance channel system;
2. For the remaining site, where discharge into the Thames was not feasible due to levels or crossing third party land, as many tanks were incorporated as possible. The horizontal constraints for the tanks include the basement extent, proposed building outlines, and landscaping. The vertical constraints include the required soil depth for tree pits and achieving a gravity connection into the surrounding sewer network. London Borough of Richmond accepted the 50% restriction during pre-application consultation. Conscious that the constraints of the site preclude a greater reduction in runoff, Thames Water were consulted to ensure that the surrounding sewer network has sufficient capacity. Thames Water confirmed capacity for both surface and foul water flows. It is important to note that the surface water flows from the development are only conveyed within the Thames Water network for maximum of 350m before discharging into the River Thames.

We are keen to find a solution to reduce runoff further to find an agreeable solution. I would appreciate your thoughts on the following options:

- Allowing the proposed sports pitch to drain freely, i.e. excluding it from the surface water calculations and therefore reducing the size requirement for the tank beneath the MUGA pitch. Subject to levels I could explore the possibility of directing surface water from other areas into this tank, reducing the restriction beyond the 50% mark. In the current strategy we assumed that the pitch would need to be positively drained due to the underlying London Clay to avoid potential water logging beneath the pitch. However, if no other areas would drain towards the pitch, allowing it to free drain could be considered.
- We took a conservative approach when designing the current drainage strategy, assuming 100% impermeable proposed area (discounting the park area in the south eastern corner of the site). We did not quantify the attenuation available within the rain garden along the green link and within the permeable paving, to demonstrate the worst-case scenario that the minimum required restriction (i.e. 50%) can be achieved within the tanks themselves. I will do a quick calculation to demonstrate the additional attenuating volume that these features would hold, reducing the restriction beyond the 50% mark.
- Exploring further areas for incorporation of permeable paving.
- The current proposals do not include for blue roofs. However, green roofs are proposed throughout the development, which, although not quantifiable, provide a betterment to the surface water runoff regime.

Let me know whether you find the above agreeable, I will then amend the drainage strategy drawing to show the constraints to the attenuation volumes and incorporate any changes, and will re-issue for you to review.

Kind regards,

Nora Balboni
Flood Risk Engineer
Waterman Infrastructure & Environment Ltd

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From: Anna Gargan
Sent: 28 November 2018 16:51
To: 'Ellen Smith'; 'Nora Balboni'
Cc: Guy Duckworth; Susie Taylor; Neil Henderson
Subject: GLA Flood Feedback

Hi Ellen / Nora,

I hope you are well.

The GLA has provided the following response to Flood comments issued on 20 November 2018.

Please can you review and respond. The officer states that he is happy to speak with you directly.

Kind regards,
Anna

"I have reviewed the Applicant's second response to our Stage 1 comments. Following our previous response at the end of October the final point of contention appears to be the proposed discharge rate where the site will drain to the public sewer.

It is noted that the London Plan and DEFRA national guidance require a development to achieve as close to greenfield runoff rate as possible (approximately a >90% reduction from pre-development rates for a brownfield site). In this case the Applicant is proposing to reduce the discharge by 50%, well short of the policy requirements. The Applicant should calculate the greenfield runoff rate and provide calculations showing the attenuation storage required to meet this discharge rate. The Applicant should then seek to include additional attenuation storage to get as close to this value as possible. Our original comments suggested building the biodiverse roofs as green/blue roofs to provide additional storage and this has not been addressed to date. The Applicant should then provide a clear drawing or markup clearly showing the constraints to expanding attenuation storage if discharge at greenfield runoff rate is not proposed.

I am happy to discuss directly with the Applicant's consultant to resolve this if required.

Regards,

Stuart McTaggart
Flood Risk, Drainage & Water Policy Officer
Development, Enterprise & Environment
Greater London Authority
City Hall, The Queens Walk, London SE1 2AA

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Planning Consultant

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GERALDEVE

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D. Thames Water Correspondence

Appendices

Stag Brewery, Mortlake Amended Scheme

Project Number: WIE10667

Document Reference: WIE10667-105-R-2-2-1-DSAddendum



Miss Nora Balboni
Pickfords Wharf
Clink Street
SE1 9DG



Our ref: DS6041473



0800 009 3921

Monday to Friday, 8am to 5pm

13 May 2018

Pre-planning enquiry: Confirmation of sufficient capacity

Dear Miss Balboni

Thank you for providing information on your development **Stag Brewery, Mortlake, SW14 7QR, OS grid ref. 520380, 176003.**

Redevelopment of the former Stag Brewery site to provide mix use development (Flats: 687, Primary School for 1200 pupils, Cinema: 475 seats, Sports Hall: 189 people, Hotel: 20 rooms, Car Home: 220 beds, Offices: 2424m², Warehouse: 5113m²). Foul Water discharging by gravity into multiple outfalls. Surface Water to be attenuated and discharged by gravity and pump into multiple outfalls (50% betterment anticipated from existing sw run-off). Surface Water from the north-eastern part of the site discharging into the River Thames.

If your proposals progress in line with the details you've provided (drawings ref: WIE SA 92 0004 Rev A05, WIE SA 92 0005 Rev A05, WIE SA 92 0006 Rev A05, WIE SA 92 0007 Rev A05) we're pleased to confirm that there will be sufficient sewerage capacity to serve your development.

However, Thames Water has concerns with capacity to the West of the development based on the proposed flows and connection points. We request that the developer updates Thames Water in advance of building phases as they come forwards in order to ensure that any investigative or upgrade works can be carried out before development commences.

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Please note that you must keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient sewerage capacity.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you've any further questions, please contact me on 0203 577 8082.

Yours sincerely

Artur Jaroma

Thames Water



E. Amended Foul Estimate

Appendices

Stag Brewery, Mortlake Amended Scheme

Project Number: WIE10667

Document Reference: WIE10667-105-R-2-2-1-DSAddendum



Project Title: **Stag Brewery**
 Calculations Title: **Amended Proposed Foul Flow Estimate**

Sheet No: 1 of 1 Project No: WIE10667
 By: N Balboni Date: 18/04/2019
 Checked: D O'Donovan Date: 18/04/2019

	Dry Weather Flow Rate (per day)	Source	Number of	Factor	Profile (hours)	Peak Flow Rate (litres/second)
Residential				2.12	24	
Existing property = 160 litres/person/day	400.0 litres per unit	Thames Water Guidelines (2016)	0 existing units			0.0
New property = 125 litres/person/day	312.5 litres per unit	Thames Water Guidelines (2016)	664 proposed units			5.1
Occupancy = 2.5 persons						
Hotel	500.0 litres per room	British Water (2013)	16 rooms	3	24	0.3
Student Accommodation	200.0 litres per bed	Thames Water Guidelines (2016)	0 beds	3	24	0.0
Offices	750.0 litres per 100m ²	Jones (1992)	7121 m ²	3	10	4.5
Retail	400.0 litres per 100m ²	Jones (1992)	0 m ²	3	12	0.0
Cinema	10.0 litres per seat	Jones (1992)	530 seats*	3	8	0.6
Health Club/Sports Centre	50.0 litres per customer	British Water (2013)	185 customers**	3	16	0.5
Day School	90.0 litres per pupil	British Water (2013)	1200 pupils	3	10	9.0
Boarding School	175.0 litres per pupil	British Water (2013)	0 pupils	3	24	0.0
Hospital	625.0 litres per bed	Jones (1992)	4 beds	3	24	0.1
Nursing Home	350.0 litres per bed	British Water (2013)	230 beds	3	24	2.8
Restaurant	30.0 litres per cover	British Water (2013)	0 covers	3	8	0.0
Pub/Club	15.0 litres per customer	Butler and Davies (2004)	0 customers***	3	12	0.0
Warehouse	150.0 litres per 100m ²	Jones (1992)	4493 m ²	3	12	0.5
Manufacturing	550.0 litres per 100m ²	Jones (1992)	0 m ²	3	12	0.0
Commercial	300.0 litres per 100m ²	Jones (1992)	0 m ²	3	12	0.0
SUB TOTAL						23.2
Infiltration percentage 10%						2.3
TOTAL						25.5

* Foul flow rate needs to be calculated based on number of seats. An allowance of 4m² has been made for each seat.

Floor area = 2120 m² 4 m² per person

** Foul flow rate needs to be calculated based on number of customers. An allowance of 4m² has been made for each customer.

Floor area = 740 m² 4 m² per person

*** Foul flow rate needs to be calculated based on number of customers. An allowance of 4m² has been made for each customer.

Floor area = 0 m² 4 m² per person

UK and Ireland Office Locations



H. Bat Survey – River Wall Inspection

Briefing Note:

Bat Survey – River Wall Inspection

The Former Stag Brewery, Mortlake

Date: October 2018

Client Name: Reselton Properties Limited

Document Reference: WIE10667-103-BN-2-1-2-LM

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

Issue	Prepared by	Checked by	Approved by
	Lee Mantle Associate Director	Sebastian Fitzgerald Senior Ecologist	Lee Mantle Associate Director
Draft			

1. Introduction

- 1.1. This briefing note has been prepared by Waterman Infrastructure & Environment Ltd (Waterman IE) on behalf of Reselton Properties Limited. It presents the findings of two external and endoscope inspections for bats at the Former Stag Brewery in Mortlake, London (hereafter referred to as the 'Site'). The inspections were undertaken upon a wall present within the north-east of the Site and adjacent to the River Thames.
- 1.2. In February 2016 the wall was subject to a ground-based inspection to determine its potential to support roosting bats as part of a Preliminary Ecological Appraisal (PEA)¹. As part of this inspection it was found that the brickwork was generally in good condition with no signs of missing mortar or features that may provide suitable roosting opportunities for bats.
- 1.3. Following comments received from the London Borough of Richmond upon Thames ('LBRuT') on 19th September 2018 in relation to a proposed mixed-use development at the Site, it was noted by LBRuT that the river wall now contained 'numerous cracks and hanging cement providing plenty of potential bat roosting locations'.

¹ Waterman IE (2016); 'The Former Stag Brewery, Mortlake. Preliminary Ecological Appraisal'. WIE10667-100-R-1-3-1-RA

2. Legislation

2.1. In summary, all bat species in England are protected by The Conservation of Habitats and Species Regulations 2017² and by the Wildlife and Countryside Act 1981 (as amended)³. Taken together, it is an offence to:

- deliberately kill, injure or capture a bat;
- deliberately disturb bats in such a way as to be likely to significantly affect:
 - (i) the ability of any significant group of bats to survive, breed, or rear / nurture their young; or
 - (ii) the local distribution of that species;
- damage or destroy any breeding or resting place used by bats; or
- intentionally or recklessly obstruct access to any place used by bats for shelter or protection.

3. Methodology

3.1. To address the comments received by LBRuT an update inspection of the river wall was undertaken on the 18th October 2018, which comprised a visual ground-based inspection for any potential roosting features (PRFs), followed by an endoscope inspection of any PRFs recorded. The inspection was undertaken by two Natural England Class 2 Bat Licence Holders, with a ladder used to access any PRF's present at height as part of the endoscope inspection.

3.2. An assessment of each PRF recorded along the wall was made in terms of its suitability to support roosting bats. The ground-based and endoscope inspections searched for evidence of bat use (e.g. droppings, scratch marks, staining and sightings). A number of factors were also considered, including presence of features suitable for use by roosting bats; proximity to foraging habitats or cover; and potential for disturbance. Following the ground-based and endoscope inspections, each feature was scored as per the criteria set out in **Table 1**, based on adapted current best practice guidelines⁴, to determine its potential to support roosting bats.

Table 1: Bat Roost Potential Ratings

Assigned Bat Roosting Potential	Description
Known or confirmed roost	Evidence of roosting bats within the feature.
High	A feature that is obviously suitable for use by a larger number of bats on a more regular basis and potentially for longer periods of time due to its size, shelter, protection, conditions and surrounding habitat.
Moderate	A feature that could be used by bats due to its size, shelter, protection, conditions and surrounding habitat, but unlikely to support a roost of high conservation status (with respect to roost type only).
Low	A feature that could be used by individual bats opportunistically. However, these PRFs do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Negligible	A structure with negligible features likely to be used by roosting bats.

² HMSO (2017): 'The Conservation of Habitats and Species Regulations'

³ HMSO (1981): 'The Wildlife and Countryside Act' (WCA) (as amended)'




⁴ Collins, J. (ed.) (2016): 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)'. The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1





- 3.3. Following the undertaking of the above, the wall was then subject to re-inspection by the same surveyors on 25th October 2018. Again, this comprised a visual ground-based and endoscope inspection of those PRFs previously recorded.




4. Results

- 4.1. The results of the ground-based and endoscope inspections are detailed in **Table 2** below. In summary a total of fourteen PRFs were recorded, both on the interior and exterior of the wall (Site and river side) and were assessed to be of between low and moderate bat roosting potential. The locations of those PRFs recorded are provided on **Figure 1**.

Table 2: Results of the River Wall Preliminary Bat Roost Inspections

Description	Building Photographs	Bat Roost Rating
<p>PRF 1</p> <p>Feature present on the river side of the wall. The front of 'Budweiser' sign comprises sheet metal wording to wooden boarding. The rear of the sign comprises a steel frame and corrugated steel sheeting.</p> <p>Whilst the sign is assessed to be a solid structure with no cavities, gaps are present between the wooden boarding and 'Budweiser' lettering. The gaps are 4 to 5cm at their widest and open to the elements from above, below and the sides. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>
<p>PRF 2</p> <p>Feature present on the Site side of the wall. This section of the wall has areas of paint that are peeling, which may offer temporary sheltering opportunities for bats. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>
<p>PRF 3</p> <p>Feature present on the Site side of the wall. An open gap is present between a steel support and the wall with 14 of these features present in close succession. The majority of the supports are flush with the wall or with a wide gap present, however several have a 1-3cm gap present along the length of the support. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>

Description	Building Photographs	Bat Roost Rating
<p><u>PRF 4</u></p> <p>Feature present on the Site side of the wall. An open cavity is present at the base of the wall, with 3 of these features present in close succession. Looking into the cavity, bricking up work has been undertaken on the riverside of the wall. This PRF the wall was fully bricked up on the Site side, creating a cavity at the top of the brick work. However the remaining features were open at the base from ground level to approximately 40cm high. During the inspection no signs of roosting bats were recorded.</p>		<p>Moderate</p>
<p><u>PRF 5</u></p> <p>Feature present on the Site side of the wall. An area of render has broken away from the wall and has created a linear gap between the render and the wall. The gap is 1cm wide at its greatest extent and protrudes up between 2 to 6cm. It is arguable if the cavity present is wide enough to provide an entrance point for bats, however spider webs are present both in the cavity and at the entrance. During the inspection no signs of roosting bats were recorded.</p>		<p>Low/Moderate</p>
<p><u>PRF 6</u></p> <p>Feature present on the Site side of the wall. Linear gaps are present in the wall where mortar is missing, in the vicinity of PRF 5. The gaps are 1 to 1.5cm tall, 4cm at their widest and protrude into the wall 3-5cm. The gaps contain debris from the mortar and spider webs are present. During the inspection no signs of roosting bats were recorded.</p>		<p>Moderate</p>
<p><u>PRF 7</u></p> <p>Feature present on the Site side of the wall. An open gap is present around the window frame with 3 of these features present in close succession. The gap is 3 to 4cm wide and 5cm deep. Spider webs are present. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>

Description	Building Photographs	Bat Roost Rating
<p><u>PRF 8</u></p> <p>Feature present on the riverside of the wall. A crack is present in the wall running up the brickwork from 1m to 3m above ground level. The crack is assessed to be superficial and is 2cm at its widest and contains snails, woodlice and spider webs. The crack is 6cm at its deepest. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>
<p><u>PRF 9</u></p> <p>Feature present on the riverside of the wall. The feature is present at 1.5m above ground level and is assessed to have formed due to bricking up work. The access point is triangle in shape 25cm long and 10cm high where brickwork is missing and leads into an internal cavity which is open at the bottom on the Site side of the wall. The cavity runs 1m along the top of the brick work is 10cm wide but then drops down to ground level on the Site side of the wall. The cavity contains debris from the brick work including mortar and spider webs are present. An old disused birds nest is also present. During the inspection no signs of roosting bats were recorded.</p>		<p>Moderate</p>
<p><u>PRF 10</u></p> <p>Feature present on the riverside of the wall. The feature is present at 0.5m above ground level and is assessed to have formed due to bricking up work. The access point (created as a result of missing mortar) is 2 to 3cm high, 7cm long and protrudes 10cm back. The cavity contains debris from the brick work including mortar and spider webs are present. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>

Description	Building Photographs	Bat Roost Rating
<p><u>PRF 11</u></p> <p>Feature present on the riverside of the wall.</p> <p>A gap is present between the top of a 'new' wall (constructed from darker brick work as part of previous bricking up work) and a concrete lintel above. The gap is 2cm wide and goes up 2cm and back the width of a brick. No internal cavity is present behind. During the inspection no signs of roosting bats were recorded.</p>		<p>Moderate</p>
<p><u>PRF 12</u></p> <p>Feature present on the riverside of the wall. A large crack is present at the stone lintel at the top of the wall (above ladder). The crack has split the stone work in two and is 4cm at its widest. The cavity is therefore open to the elements and leaf litter and spider webs are present. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>
<p><u>PRF 13</u></p> <p>Feature present on the riverside of the wall. The feature is present at 1.5m above ground level and is assessed to have formed due to bricking up work. The access point (created as a result of missing mortar) is 3 to 4cm high and 7 to 8cm wide and leads into a confined internal cavity. The cavity runs 1m along the top of the brick work and 10cm wide but drops down by 5cm on the site side of the wall. The cavity contains debris from the brick work including mortar and spider webs are present. During the inspection no signs of roosting bats were recorded.</p>		<p>Moderate</p>
<p><u>PRF 14</u></p> <p>Feature present on the riverside of the wall. A crack is present above the bricked-up window. The crack is 1.5cm at its widest with spider webs and woodlice present. During the inspection no signs of roosting bats were recorded.</p>		<p>Low</p>

- 4.2. Other than a greater concentration of spider webs, no change in feature conditions were recorded during the second ground-based and endoscope inspections.

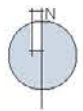
5. Discussion and Conclusions



- 5.1. The results of the external and endoscope inspections undertaken in October 2018 have assessed that the wall in question does contain PRFs. Based on the findings of these inspections these PRFs have been assessed to be of between low and moderate roosting potential. The inspections also recorded no evidence of roosting bats to be present.
- 5.2. Best practice guidelines (Collins, J. 2016) state that the recommended number of presence/absence survey visits to give confidence in a negative result for structures of moderate roosting potential is two separate survey visits. The surveys associated with the two visits would normally comprise evening emergence or pre-dawn re-entry surveys. However, and on this occasion, it was assessed that undertaking two external and endoscope inspections was a suitable way forward as every PRF could be fully assessed.
- 5.3. It is recognised that the external and endoscope inspections were undertaken outside of the recognised active bat period for evening emergence and pre-dawn re-entry surveys (May to August/September inclusive, for these types of surveys) to confirm the presence/absence of roosting bats. However best practice guidelines state that bat activity surveys are optimal into October (location and weather dependent). The weather conditions at sunset before the inspections on the 18th and 25th were both above 10°C and therefore bats would still be active given the mild weather conditions experienced in October 2018.
- 5.4. It is therefore assessed that the inspections undertaken at the wall provides an adequate survey baseline and the absence of roosting bats can be assumed.
- 5.5. Notwithstanding the above, as stated within the August 2018 Briefing Note⁵, a commitment has already been made to update bat surveys prior to demolition works to ensure legal compliance. Should any roosting bats be recorded, the necessary licencing and mitigation would be attained from Natural England.

⁵ Waterman IE (2018): 'Ecology Response to the London Borough of Richmond upon Thames Consultation Comments. The Former Stag Brewery, Mortlake.

FIGURES

Figure 1: Potential Roosting Feature Locations (ref: WIE10667-103_GR_EC_1A)



-  The Site
-  Potential Roosting Features

Project Details	WIE10667-103: Stag Brewery
Figure Title	Figure 1: Potential Roosting Feature Locations
Figure Ref	WIE10667-103_GR_EC_1A
Date	2018
File Location	\\s-incs\wie\projects\wie10667\103\graphics\ec\issued figures

I. May 2019 Amendment Photomontages of Viewpoints 4 and 6

WIE10667: Stag Brewery
ES Addendum Photomontages



Viewpoint 4 - TVIA 2018



Viewpoint 4 - ES Addendum 2019

Project Details	WIE10667: Stag Brewery
Figure Title	Figure 1: Viewpoint 4
Figure Ref	WIE10667-105-GR-TVIA-01A
Date	April 2019
File Location	\\H-Incs\wiel\Projects\WIE10667\105\8_Reports\1. ES Addendum\Inputs\TVIA



Viewpoint 6 - TVIA 2018



Viewpoint 6 - ES Addendum 2019

Project Details	WIE10667: Stag Brewery
Figure Title	Figure 2: Viewpoint 6
Figure Ref	WIE10667-105-GR-TVIA-02A
Date	April 2019
File Location	\\H-Incs\wiel\Projects\WIE10667\105\8_Reports\1. ES Addendum\Inputs\TVIA

J. Daylight, Sunlight, Overshadowing and Light Pollution Appendix



Appendix A

Drawings of the Baseline Condition and Development Scenario



Sources of information

SQUIRE & PARTNERS

3DView-(3D-kh).dwg
 Received 04/01/18

APR SERVICES

Topographical Survey.pdf
 Received 22/09/16

CLOUD 10

Stag Brewery East end 15-09-16.dwg
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 Stag Brewery West end 22-09-16 Pt1.dwg
 Stag Brewery West end 23-09-16.dwg
 The Ship PH.dwg
 Jolly Gardeners.dwg
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EB7 Ltd

Site Photographs
 Ordnance Survey

Key:

Existing

Proposed

NORTH



Project The Stag Brewery
 SW14 7ET
 London

Title Existing Condition
 Plan View

Drawn BA Checked --

Date 25/04/2019 Project 2201

Rel no. 09 Prefix DS01 Page no. 01

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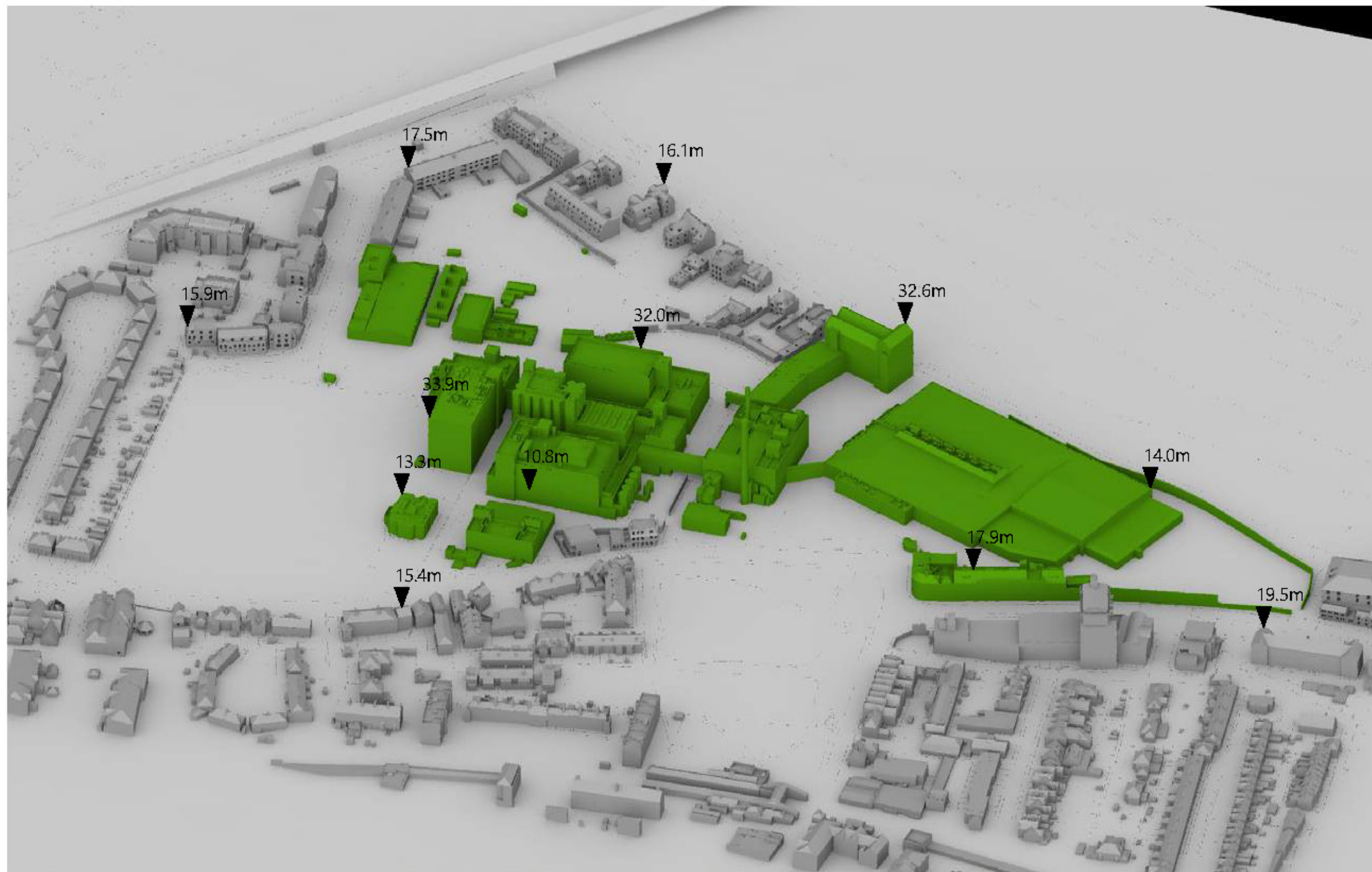
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Key:

■ Existing

■ Proposed

Notes:
 All heights and dimensions are in AOD

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Title Existing Condition
 3D View

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Key:

- Existing
- Proposed

NORTH



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Title Proposed Development
 Plan View

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 Ordnance Survey



Key:

- Existing
- Proposed

Notes:
 All heights and dimensions are in AOD

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Title Proposed Development
 3D View

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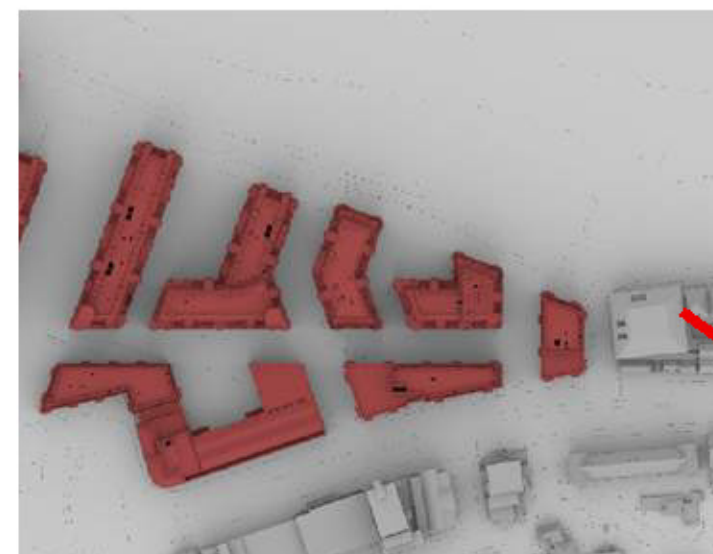
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 SW14 7ET
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Title Boat Race House
 Window Map

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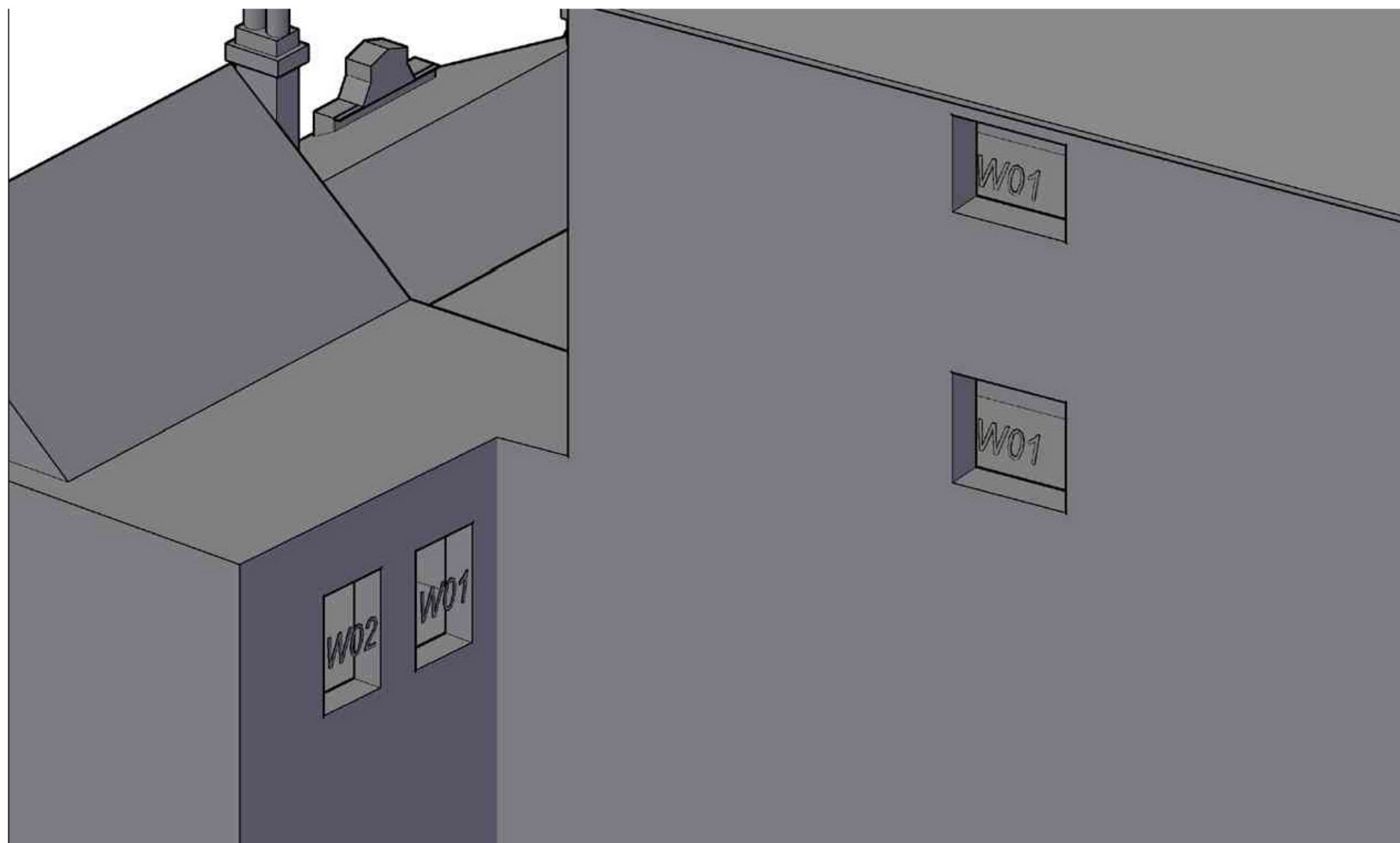
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Sources of information

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 Topographical Survey.pdf
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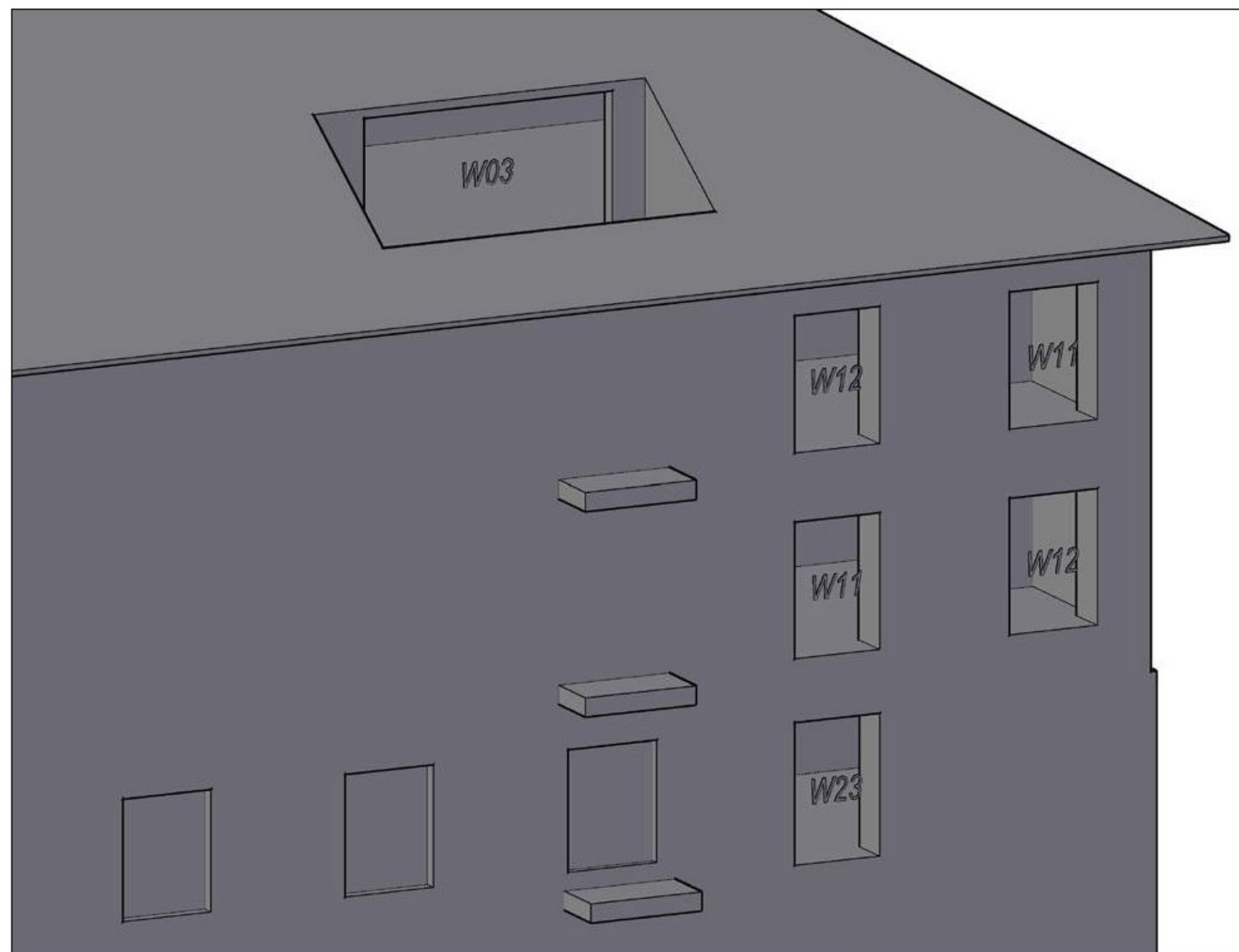
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Jolly Gardeners.dwg
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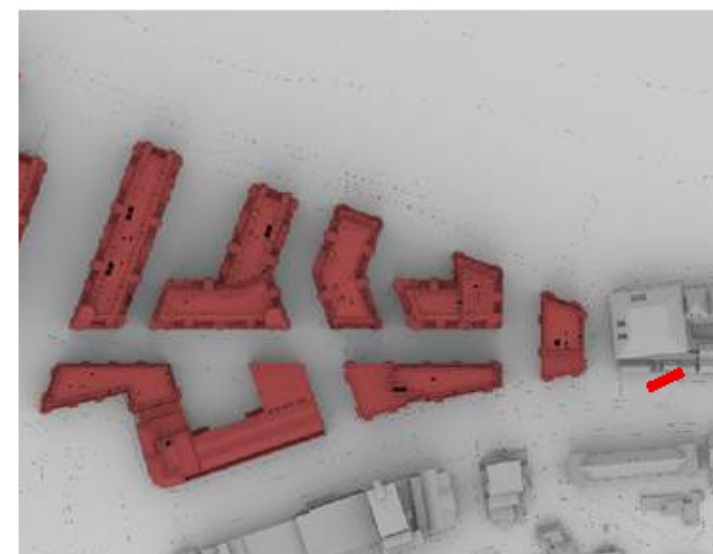
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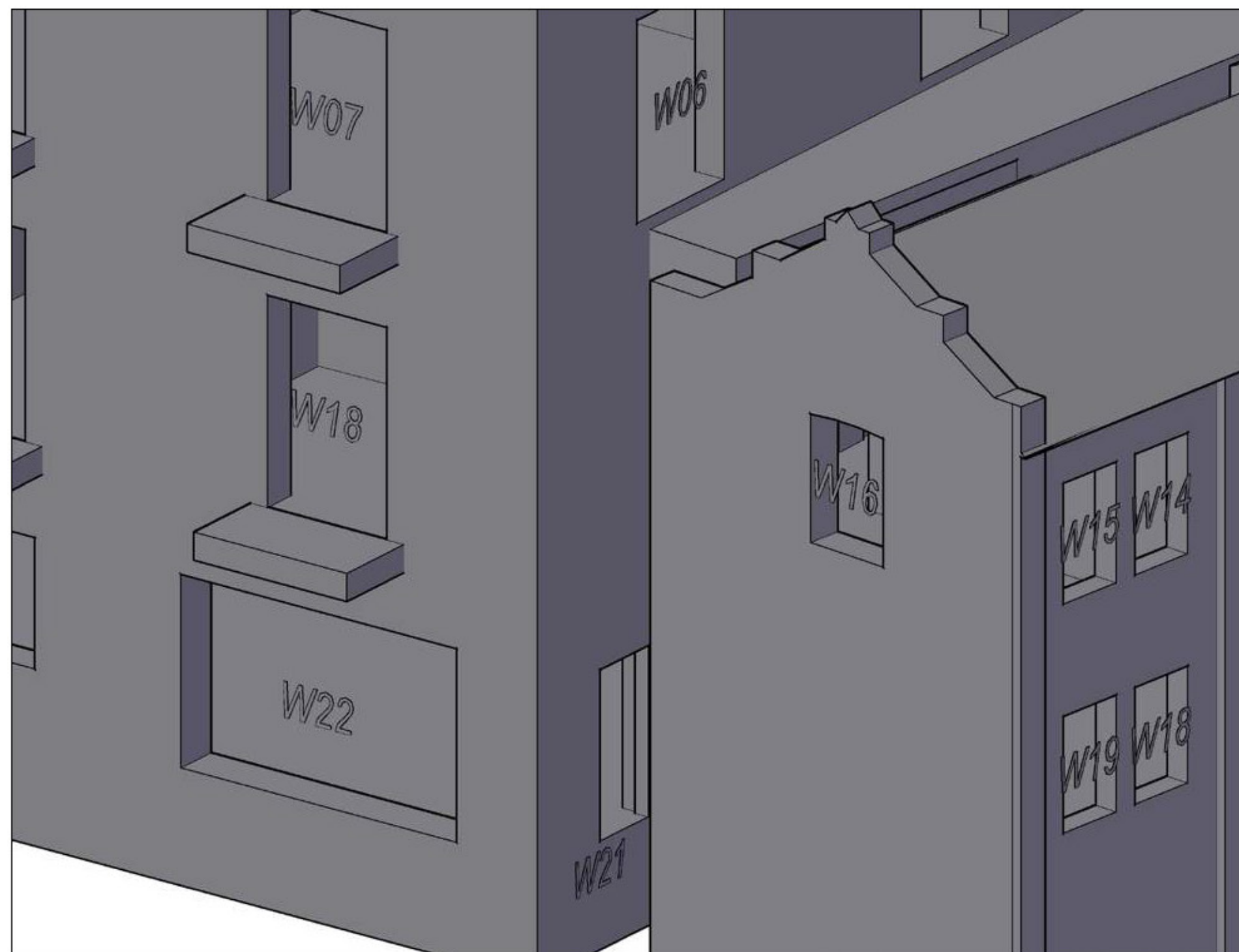
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Window Map

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Appendix B

Detailed Results of the Daylight (VSC, NSC and ADF) and Sunlight (APSH) Analysis (Boat Race House only)

Address	Room	Window	Room Use	Existing	Proposed	Loss	Loss	Room Area	Existing	Proposed	Loss	Loss	Existing ADF	Proposed ADF	Loss	Loss	Existing APSH	Proposed APSH	Total Retained	Winter Retained		
				VSC	VSC	%	%		NSC	NSC	%	%	Window	Total	Window	Total	%	%			Total	Winter
Boat Race House																						
Ground	R1	W01	Residential	31.8	31.8	0.0	0.1	367.3	339.1	339.1	0.0	0.0	0.5	0.5	0.0	0.0	78	20	78	20	1.0	1.0
	R1	W02		31.3	31.3	0.0	0.1						0.5	1.0			0.5	1.0	78	20	78	20
Ground	R4	W11	Residential	30.1	30.1	0.0	0.1	663.0	645.2	645.2	0.0	0.0	0.2	0.2	0.0	0.0	74	21	74	21	1.0	1.0
	R4	W12		30.1	30.1	0.0	0.0						0.2	0.2			77	21	77	21	1.0	1.0
	R4	W13		30.1	30.1	0.0	0.1						0.2	0.2			75	21	75	21	1.0	1.0
	R4	W14-L		29.6	29.6	0.0	0.0						0.0	0.0			76	20	76	20	1.0	1.0
		W14-U											0.0	0.0								
	R4	W15		30.5	30.5	0.0	0.0						0.0	0.0			78	22	78	22	1.0	1.0
	R4	W16		30.1	30.1	0.0	0.1						0.2	0.2			73	20	73	20	1.0	1.0
	R4	W17		30.2	30.2	0.0	0.0						0.2	0.2			76	20	76	20	1.0	1.0
	R4	W18		30.3	30.2	0.1	0.2						0.2	0.2			75	21	75	21	1.0	1.0
R4	W19	30.3	30.3	0.0	0.0	0.2	1.6	0.2	1.6	0.0	0.0	78	22	78	22	1.0	1.0					
First	R1	W01-L	LKD	0.8	0.8	0.0	0.0	500.2	455.5	455.5	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	N/A	N/A	N/A	N/A
		W01-U											0.1	0.1								
	R1	W02-L		1.2	1.2	0.0	0.0						0.0	0.0			N/A	N/A	N/A	N/A	N/A	N/A
		W02-U											0.1	0.1								
	R1	W03-L		33.6	33.6	0.0	0.1						0.0	0.0			82	24	82	24	1.0	1.0
		W03-U											0.4	0.4								
R1	W04-L	33.4	33.4	0.0	0.1	0.0	0.0	81	23	81	23	1.0	1.0									
	W04-U					0.4	0.4															
R1	W05-L	33.2	33.2	0.0	0.1	0.0	0.0	81	23	81	23	1.0	1.0									
	W05-U					0.4	1.5	0.4	1.5	0.0	0.0											
First	R2	W06-L	Bedroom	32.1	32.0	0.0	0.1	165.8	110.9	110.9	0.0	0.0	0.0	0.0	0.0	0.0	72	22	72	22	1.0	1.0
	W06-U						0.6						0.6	0.6			0.6					
First	R3	W07-L	Bedroom	32.4	32.3	0.0	0.1	158.8	111.9	111.9	0.0	0.0	0.0	0.0	0.0	0.0	80	24	80	24	1.0	1.0
	W07-U						0.6						0.6	0.6			0.6					
First	R4	W08	Bedroom	31.6	31.6	0.0	0.1	145.3	144.3	144.3	0.0	0.0	0.8	0.8	0.0	0.0	78	25	78	25	1.0	1.0
	R4	W09		31.6	31.6	0.0	0.0						0.8	1.6			0.8	1.6	81	25	81	25
First	R5	W10	LKD	31.7	31.6	0.0	0.1	227.2	225.9	225.9	0.0	0.0	0.6	0.6	0.0	0.0	78	24	78	24	1.0	1.0
	R5	W11		31.6	31.6	0.0	0.0						0.6	0.6			79	23	79	23	1.0	1.0
	R5	W12		31.6	31.6	0.0	0.1						0.5	0.5			77	24	77	24	1.0	1.0
	R5	W13		31.7	31.7	0.0	0.0						0.5	2.2			0.5	2.2	0.0	0.0	80	24
First	R6	W14	Bedroom	31.7	31.7	0.0	0.1	197.4	188.0	165.2	22.8	12.1	0.5	0.5	0.3	13.3	79	25	79	25	1.0	1.0
	R6	W15		31.8	31.8	0.0	0.0						0.5	0.5			81	25	81	25	1.0	1.0
	R6	W16		36.4	23.8	12.6	34.6						0.8	0.6			N/A	N/A	N/A	N/A	N/A	N/A
	R6	W17		14.2	7.5	6.7	47.1						0.1	1.9			0.1	1.6	0.3	13.3	16	0
First	R7	W18-L	Bedroom	32.9	15.7	17.3	52.5	164.8	157.2	100.2	57.0	36.3	0.1	0.1	0.6	41.9	49	14	33	12	0.7	0.9
	W18-U						1.4						1.5	0.8			0.9					

Address	Room	Window	Room Use	Existing	Proposed	Loss	Loss	Room Area	Existing	Proposed	Loss	Loss	Existing ADF	Proposed ADF	Loss	Loss	Existing APSH	Proposed APSH	Total Retained	Winter Retained				
				VSC	VSC	%	%		NSC	NSC	%	%	Window	Total	Window	Total	%	%			Total	Winter		
First	R8	W19-L	LKD	33.0	14.3	18.7	56.7	449.7	429.6	46.1	383.5	89.3	0.1	0.0	0.3	0.3	45.5	47	13	25	9	0.5	0.7	
		W19-U											0.6	0.7										
First	R9	W20-L	Bedroom	33.3	14.8	18.5	55.5	228.5	224.7	90.9	133.8	59.6	0.1	0.1	0.6	0.6	0.5	44.4	47	14	22	8	0.5	0.6
		W20-U											1.1	1.2										
First	R10	W21-L	Bedroom	33.8	17.4	16.5	48.7	184.9	128.9	86.6	42.3	32.8	0.1	0.1	0.8	0.8	0.5	39.1	48	14	23	8	0.5	0.6
		W21-U											1.3	1.4										
First	R11	W22-L	LKD	36.6	21.3	15.4	41.9	367.4	322.8	227.1	95.7	29.6	0.0	0.0	0.8	1.4	0.2	12.9	44	13	19	7	0.4	0.5
	R11	W22-U		0.5	0.3	0.1	0.1						N/A	N/A					N/A	N/A	N/A	N/A		
Second	R1	W01	Bedroom	29.8	29.8	0.0	0.0	253.6	251.8	251.8	0.0	0.0	1.0	1.0	1.0	2.0	0.0	0.0	N/A	N/A	N/A	N/A	N/A	N/A
		R1		W02-L	33.6	33.6	0.0						0.1	0.1					0.1	84	28	84	28	1.0
Second	R2	W03-L	Bedroom	34.2	34.2	0.0	0.1	242.1	236.0	236.0	0.0	0.0	0.1	0.1	1.1	1.2	0.0	0.0	84	28	84	28	1.0	1.0
		W03-U											1.1	1.2										
Second	R4	W05-L	Bedroom	34.4	34.2	0.2	0.5	134.9	132.8	132.8	0.0	0.0	0.2	0.2	1.7	1.9	0.0	0.2	86	29	85	28	1.0	1.0
		W05-U											1.7	1.9										
Second	R5	W06-L	LKD	34.8	34.4	0.4	1.1	348.2	347.2	336.2	11.0	3.2	0.1	0.1	0.8	1.8	0.3	16.1	86	29	82	27	1.0	0.9
		W06-U											0.9	0.9					0.1	0.1	49	15	35	13
Second	R5	W07-L	LKD	33.7	19.4	14.4	42.6	348.2	347.2	336.2	11.0	3.2	0.1	0.1	0.8	1.8	0.3	16.1	49	15	35	13	0.7	0.9
		W07-U											0.8	1.8										
Second	R6	W08-L	Bedroom	33.8	18.0	15.8	46.8	233.4	219.8	46.3	173.5	78.9	0.1	0.1	1.0	1.1	0.4	36.7	46	13	28	9	0.6	0.7
		W08-U											1.0	1.1										
Second	R7	W09-L	Bedroom	33.4	17.7	15.7	47.0	185.3	181.2	80.1	101.1	55.8	0.1	0.1	1.1	1.2	0.4	36.8	45	13	24	7	0.5	0.5
		W09-U											1.1	1.2										
Second	R8	W10-L	Bedroom	33.8	19.8	14.0	41.5	167.4	118.9	90.0	28.9	24.3	0.1	0.1	1.3	1.4	0.5	32.6	46	14	24	8	0.5	0.6
		W10-U											1.3	1.4										
Second	R9	W11-L	LKD	38.4	38.1	0.3	0.8	367.5	300.2	300.2	0.0	0.0	0.1	0.1	0.8	1.7	0.0	0.7	N/A	N/A	N/A	N/A	N/A	N/A
		W11-U											0.8	0.8					0.1	0.1	N/A	N/A	N/A	N/A
Third	R1	W01	Bedroom	26.4	26.4	0.0	0.0	257.0	254.8	254.8	0.0	0.0	0.8	0.8	0.9	1.8	0.0	0.0	N/A	N/A	N/A	N/A	N/A	N/A
		R1		W02-L	32.4	32.4	0.0						0.1	0.1					0.1	79	30	79	30	1.0
Third	R1	W02-L	Bedroom	32.4	32.4	0.0	0.1	257.0	254.8	254.8	0.0	0.0	0.9	1.8	0.9	1.8	0.0	0.0	79	30	79	30	1.0	1.0
		W02-U											0.9	1.8										

Address	Room	Window	Room Use	Existing	Proposed	Loss	Loss	Room Area	Existing	Proposed	Loss	Loss	Existing ADF		Proposed ADF		Loss	Loss	Existing APSH		Proposed APSH		Total	Winter	
				VSC	VSC	%	%		NSC	NSC	%	%	Window	Total	Window	Total	%	%	Total	Winter	Total	Winter	Retained	Retained	
Third	R2	W03-L W03-U	Bedroom	32.2	32.1	0.0	0.1	221.8	218.4	218.4	0.0	0.0	0.1	1.0	0.1	1.0	0.0	0.0	77	30	77	30	1.0	1.0	
Third	R4	W05-L W05-U	Bedroom	31.6	31.5	0.1	0.3	157.6	138.5	138.5	0.0	0.0	0.1	1.2	0.1	1.2	0.0	0.1	76	29	76	29	1.0	1.0	
Third	R5	W06-L W06-U	LKD	31.6	31.4	0.2	0.7	347.6	346.5	335.0	11.5	3.3	0.1	0.7	0.1	0.7	0.0	0.0	77	29	75	27	1.0	0.9	
	R5	W07-L W07-U		33.0	22.7	10.3	31.3						0.1	0.1	0.1	0.1	0.2	12.6	40	13	29	11	0.7	0.8	
Third	R6	W08-L W08-U	Bedroom	33.0	21.3	11.7	35.5	186.0	179.7	81.7	98.0	54.5	0.1	1.2	0.1	0.9	0.4	27.8	39	12	26	10	0.7	0.8	
Third	R7	W09-L W09-U	Bedroom	32.0	20.2	11.9	37.1	178.1	169.7	100.4	69.3	40.9	0.1	1.1	0.1	0.8	0.4	29.0	39	12	23	8	0.6	0.7	
Third	R8	W10-L W10-U	Bedroom	32.1	21.5	10.7	33.2	171.7	123.2	106.0	17.2	14.0	0.1	1.2	0.1	0.9	0.3	26.0	39	12	22	6	0.6	0.5	
Third	R9	W11-L W11-U	LKD	33.7	33.3	0.3	0.9	367.2	299.6	299.6	0.0	0.0	0.1	0.7	0.1	0.6	0.0	0.5	N/A	N/A	N/A	N/A	N/A	N/A	
	R9	W12-L W12-U		33.5	33.2	0.2	0.7						0.1	0.1	0.6	1.4	0.6	1.4	0.0	0.5	N/A	N/A	N/A	N/A	N/A
Fourth	R1	W01-L W01-U	Bedroom	25.8	22.1	3.7	14.4	311.0	291.8	205.5	86.3	29.6	0.1	0.8	0.1	0.7	0.1	9.3	26	2	21	1	0.8	0.5	
Fourth	R2	W02-L W02-U	Bedroom	25.6	21.4	4.2	16.5	214.5	195.4	195.2	0.2	0.1	0.1	1.1	1.2	1.0	1.1	0.1	10.4	28	2	23	0	0.8	0.0
Fourth	R3	W03-L W03-U	LKD	38.8	38.8	0.0	0.0	730.8	713.9	713.9	0.0	0.0	0.1	1.6	0.1	1.6	0.0	0.1	N/A	N/A	N/A	N/A	N/A	N/A	



Detailed Mirror Baseline Results of the Daylight (VSC, NSC and ADF) and Sunlight (APSH) Analysis (Boat Race House only)

Sources of information

See appendix 1



Key:

 Mirrored

NORTH



Project The Stag Brewery
SW14 7ET
London

Title Mirrored baseline
Plan View

Drawn DB Checked --

Date 02/05/2019 Project 2201

Rel no. 01 Prefix DS03 Page no. 01