Legend:
- 1 Bed
- 2 Bed
- 3 Bed
- 4 Bed
- House
- Hotel
- Residential Lobby
- Office
- Cinema/Gym
- School

SQUIRE & PARTNERS

77 Wicklow Street London WC1X 9JY
T: 020 7278 5555 F: 020 7239 0495
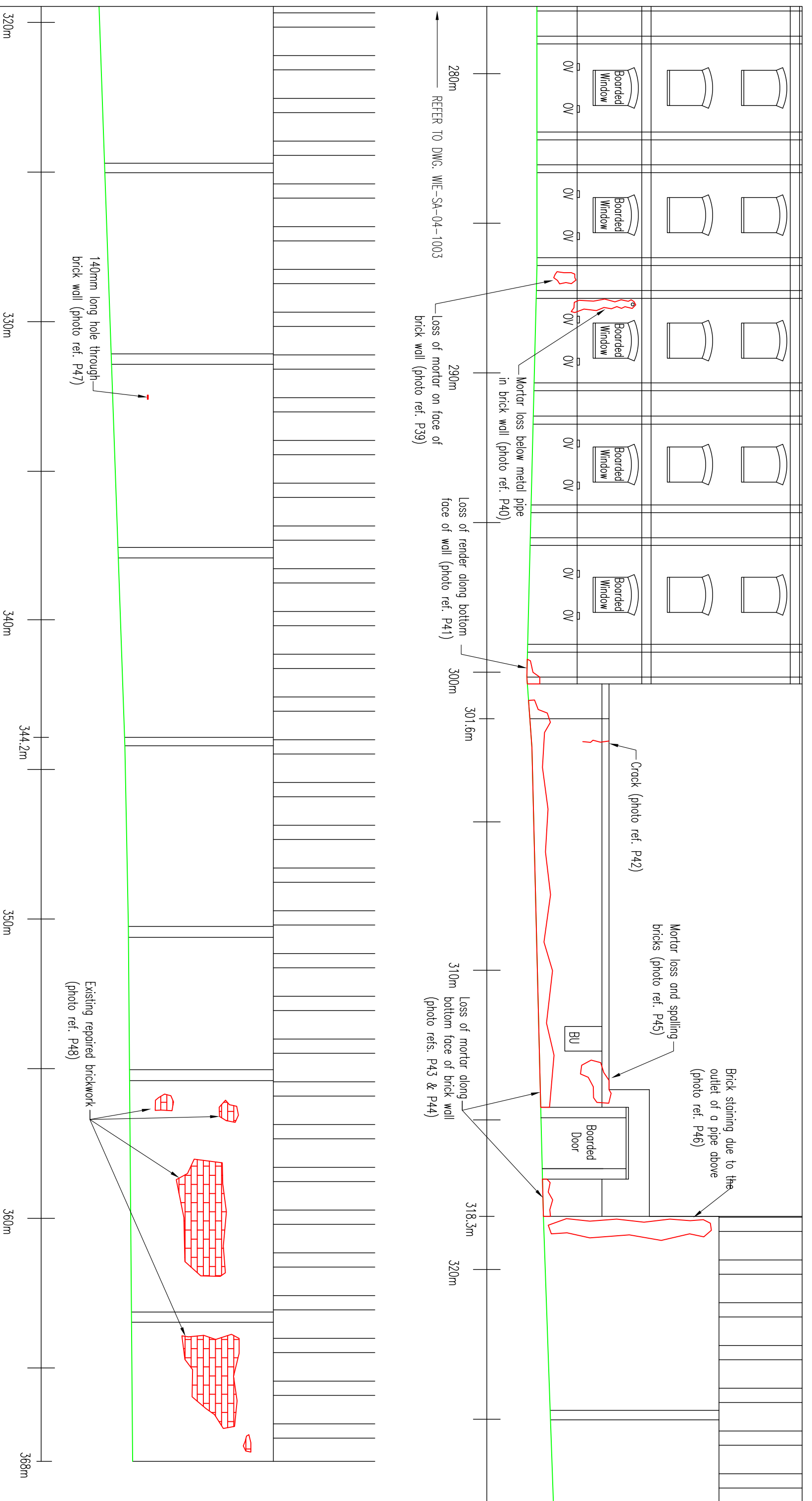
info@squireandpartners.com
www.squireandpartners.com

Project

Stag Brewery
Richmond

Drawing

Site Plan
Typical Level

Revision description	Date	Check	Rev

Drawn	Date		Scale	
JB	06/08/16		1 : 1250 @ A1	
			3 : 2500 @ A3	

Job Number	Drawing number	Revision
16019	G100_P_02_001	

View of from the River with The Maltings

KEY:
BU = BRICKED UP
OV = OPEN VENT

GENERAL NOTES

1. THIS CONDITION SURVEY WAS CARRIED OUT ON 16TH SEPTEMBER BY TLR & TSC.

2. MINOR VEGETATION GROWTH, GRAFFITI AND WEAR OF THE BRICKS ARE PRESENT ALONG THE LENGTH OF WALL.

3. WALL COMPOSED OF MANY DIFFERENT BRICK WALL SECTIONS. STEEL COLUMNS INSTALLED BEHIND THE EASTERN HALF OF THE WALL FROM 163m TO 257m. MALTINGS BUILDING SECTION (0m TO 163m). NEWER SECTION OF WALL FROM 163m TO 257m. WALL RUNS FROM 257m TO 318m. NEWER SECTION OF WALL RUNS FROM 318m TO 368m.

Scale bars:
1:125
1:1

Rev	Date	Description	By
A01	14.12.16	ISSUED FOR INFORMATION	TLR

Amendments

Drawing Status	PRELIMINARY				

Project
STAG BREWERY, MORTLAKE

Title
THAMES RIVER WALL
CONDITION SURVEY
DEFECT ELEVATION SKETCH
(SHEET 1 of 4)

Client
DARTMOUTH CAPITAL ADVISORS LTD

Designed by	Drawn by	Checked by
TLR	TLR	AAK
	Date	DECEMBER 2016
Publisher	Scales @ A3 work to figured dimensions only	
	Zone	1:125

Project No
WIE10667

Computer File No.
WIE-10667-SA-04-1004.dwg

WIE	SA	04	1004	A01

A3L-WahS

REFER TO DWG. WIE-SA-04-1003

Boarded Window (×5)
OV (multiple)

Loss of mortar on face of brick wall (photo ref. P39)

Mortar loss below metal pipe in brick wall (photo ref. P40)

Loss of render along bottom face of wall (photo ref. P41)

Crack (photo ref. P42)

Loss of mortar along bottom face of brick wall (photo refs. P43 & P44)

Mortar loss and spalling bricks (photo ref. P45)

Brick staining due to the outlet of a pipe above (photo ref. P46)

BU

Boarded Door

140mm long hole through brick wall (photo ref. P47)

Existing repaired brickwork (photo ref. P48)

280m
290m
300m
301.6m
310m
318.3m
320m
320m
330m
340m
344.2m
350m
360m
368m

waterman

B.   Calculations

Loading

-Determine the load that results from the river rising to the flood defence level.

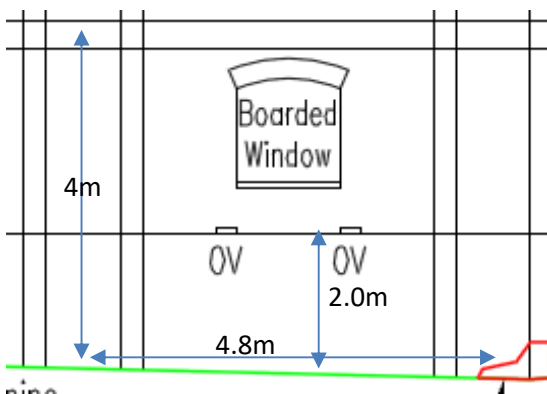|		
Existing Ground level =	4.7	m
2100 Flood defence level =	6.7	m
Height of water =	2	m
Unit weight of water =	10	kN/m3
Accidental load factor =	1	
Applied pressure =	20	kN/m2

Wind pressure

The building is currently subject to wind pressures and these will be applied to the top section of the column that is not subject to water pressures.

Wind Pressure = 0.9 kN/m2

Span arrangements

The architectural intent is to extend the windows on the bottom floor down to ground level.

The wall panels and column section will be considered as one section with the load from the windows transferrred to the masonry. The combined section will then be considered to span between the ground and the first floor.

A fixed edge condition will be taken for the bottom of the wall and a free edge support condition will be taken for the top of the wall.
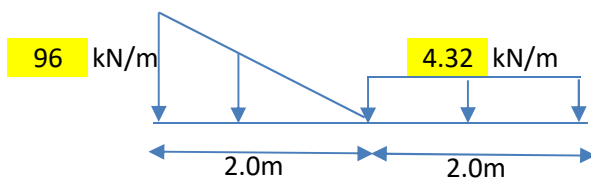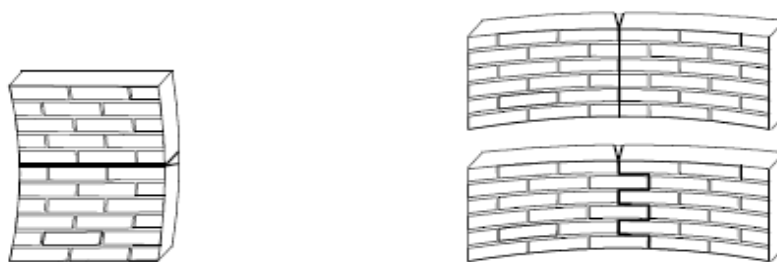
Dimensions:

Wall Panel

Column

788mm

1000mm   750mm   750mm   1000mm
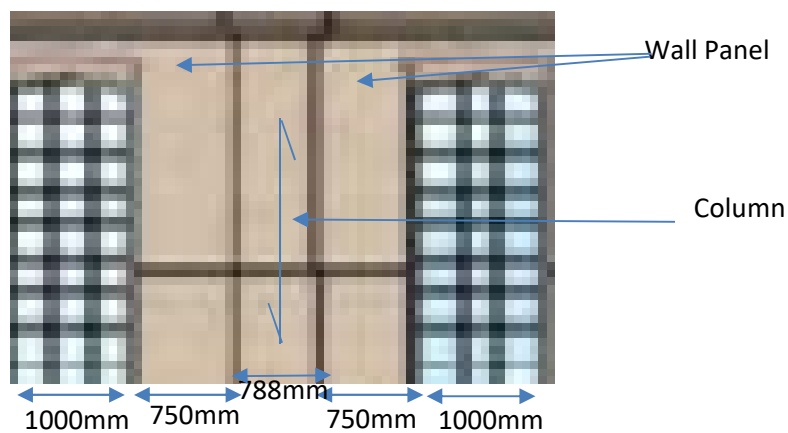
Distance Between Columns =   4800   mm

Loading Diagrams

Determine the total load applied to the column.

96 kN/m   4.32 kN/m

2.0m   2.0m

Planes of failure

a) plane of failure parallel to bed joints, f_{xk1} b) plane of failure perpendicular to bed joints, f_{xk2}

Waterman

| **Calculations**	Office: London		Project No: WIE10667
Job Title: Stag Brewery - Mortlake	Prepared by: VB	Date: 14/02/17	
Calculations Title: Maltings Building External Wall Assessment	Checked by:	Date:	

Analysis

Column

The column spans between the ground and first floor. The bottom two metres is subject to a water pressure in a 2100 storm event.

An analysis model was created in Staad Pro V8i considering a column with a fixed and connection at foundation level and a pinned end connection at first floor level. A hydrostatic water pressure was applied to the bottom two metres of the column and a wind pressure was applied to the top 2m of the column.

$$M = 46 \text{ kNm}$$
$$V = 94 \text{ kN}$$

Section Dimensions

3800 mm

x2

450 mm

225 mm

450 mm
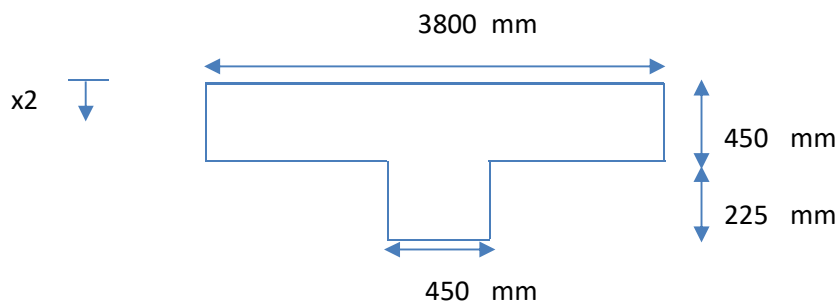
Determine section Z value

$$x2 = 244 \text{ mm}$$
$$I = 4E{+}10 \text{ mm}^4$$
$$Z = I/x2$$
$$Z = 2E{+}08 \text{ mm}^3$$

Bending and shear stresss checks

Applied bending Stress = M/Z

$$Z = 2E{+}08 \text{ mm}^3$$

Applied bending Stress = 0.2792 N/mm^2

The critical case for the column in this instance is bending parallel to the bed joint

Characteristic flexural strength of masonry, f_{xk1} = **0.5** N/mm^2

γ_m = **2.70**

Capacity = $f_{xk1}/\gamma_m + \sigma_d$ (σ_d limited to $0.2f_k/\gamma_m$)

Determine limiting σ_d value:

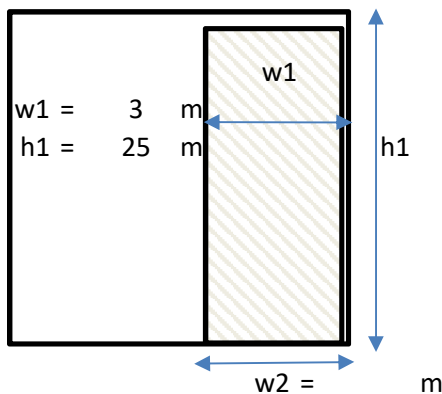$$f_k = k f_b{}^\alpha f_m{}^\beta \qquad \text{cl3.6.1.2 EN 1996-1-1:2005}$$
$$k = 0.75$$
$$f_b = 50 \text{ N/mm}^2$$

f_m = 4 N/mm^2

α = 0.7

β = 0.3

f_k = 17.58 N/mm^2

σ_d = 1.30 N/mm^2

Determine actual σ_d value:

Actual σ_d = Force / Area

Force = Unit Weight x Cross section area x height

Unit Weight = 22.5 kN/m3

Force = 1018.8 kN

Area = Cross section Area

Area = 1.8113 m^2

Actual σ_d = 0.56 N/mm^2

Capacity = fxk1/γm + σd

γ_m = 2.50

Capacity = 0.7625 N/mm^2

w1 = 3 m
h1 = 25 m

w2 = m

FOS = 2.73

Shear
- Check that the interface between the panel and the wall has sufficient shear capacity
- Checks in accordance with cl 3.6.2 of BS EN 1996-1-1

Applied force = 94.0 kN

Stress = 0.21 N/mm^2

Capacity: fvk = 0.5fvko + 0.4 σd ≤ 0.045fb

Table 3.4 fvko = 0.2 N/mm^2 (1)

0.045f$_b$ = 2.25 N/mm^2

Determine sd for panel section

Force = Unit Weight x Cross section area x height

Force = 424 kN

Cross section Area = 0.7538 m^2

Actual σ_d = 0.5625 N/mm^2

fvk = = 0.425 N/mm^2

FOS = 2.0 N/mm^2

Checks in accordance with BD 21/01

Since the structure would have been designed and constructed prior to the introduction of the Eurocodes an additional check will be carried out in accordance with BD 21/01.

Section 7.16 states that assesments are to be carried out in accordance with BS 5628.

Table 3 of BS 5628 presents the same values as Table NA.6 of BS EN 1996-1-1:2005 as such the same Characteristic flexural strength of masonry will be adopted.

Flexural strength

Characteristic flexural strength of = 0.5 N/mm^2
masonry, f_{kx}

32.5.3   flexural resistance = $(f_{xk}/\gamma_m + g_d)$ N/mm^2

table 4 γ_m = 2.5

g_d = design vertical dead load per unit area

The design vertical load per unit area is equivalent to the EC6 σ_d calculation.

flexural strength = 0.76 N/mm^2

Characteristic shear strength

The characteristic shear strength of the masonry is determined in accordance with BS 5628 cl 21.1.1

f_v = $f_{vk0} + 0.6g_a$ <   1.4 N/mm^2

cl 21.1.2 (c) f_{vk0} = 0.15 N/mm^2

g_a = design vertical load per unit area

The design vertical load per unit area is equivalent to the EC6 σ_d calculation.
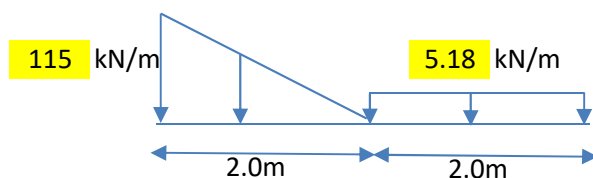
g_a = 0.56 N/mm^2

f_v = 0.49 N/mm^2

Applied loads

In accordance with clause 18 of BS 5628 consider the applied loading to be be equal to 1.2Gk+1.2Qk+1.2Wk where Gk, Qk and Wk are equal to design dead, imposed and wind loads. For the raised flood level case the dead load is not applicable for assessing flexure and shear.

Loading Diagram

115 kN/m   5.18 kN/m

2.0m   2.0m

Waterman

Calculations	Office: London		Project No: WIE10667
Job Title: Stag Brewery - Mortlake	Prepared by: VB	Date: 14/02/17	
Calculations Title: Maltings Building External Wall Assessment	Checked by:	Date:	

-Staad pro results:

$$M = 57 \text{ kNm}$$
$$V = 115 \text{ kN}$$

Capacity Checks

Bending:

Applied bending Stress = M/Z

Applied bending Stress = 0.35 N/mm^2

Capacity = 0.76 N/mm^2

FOS = 2.2

Shear:

Applied shear stress = Shear force / cross section

Applied shear stress = 0.26 N/mm^2

Capacity = 0.49 N/mm^2

FOS = 1.91

FOS Summary

	Bending	Shear
EC 6	2.7	2.0
BD 21/01	2.2	1.9

C. Column Analysis Model Input and Output

	Job No	Sheet No	Rev
Software licensed to	**WIE106687**	**1**	0
	Part		
Job Title Stag Brewery	Ref		
	By VB	Date 24-APR-17	Chd
Client Darmouth Capital Investors Ltd	File Check.std	Date/Time 02-Jun-2017 15:27	

Job Information

	Engineer	Checked	Approved
Name:	VB		
Date:	24-APR-17		

Structure Type	SPACE FRAME

Number of Nodes	2	Highest Node	2
Number of Elements	1	Highest Beam	1

Number of Basic Load Cases	2
Number of Combination Load Cases	0

Included in this printout are data for:

All	The Whole Structure

Included in this printout are results for load cases:

Type	L/C	Name
Primary	1	LOAD CASE 1
Primary	2	LOAD CASE 2
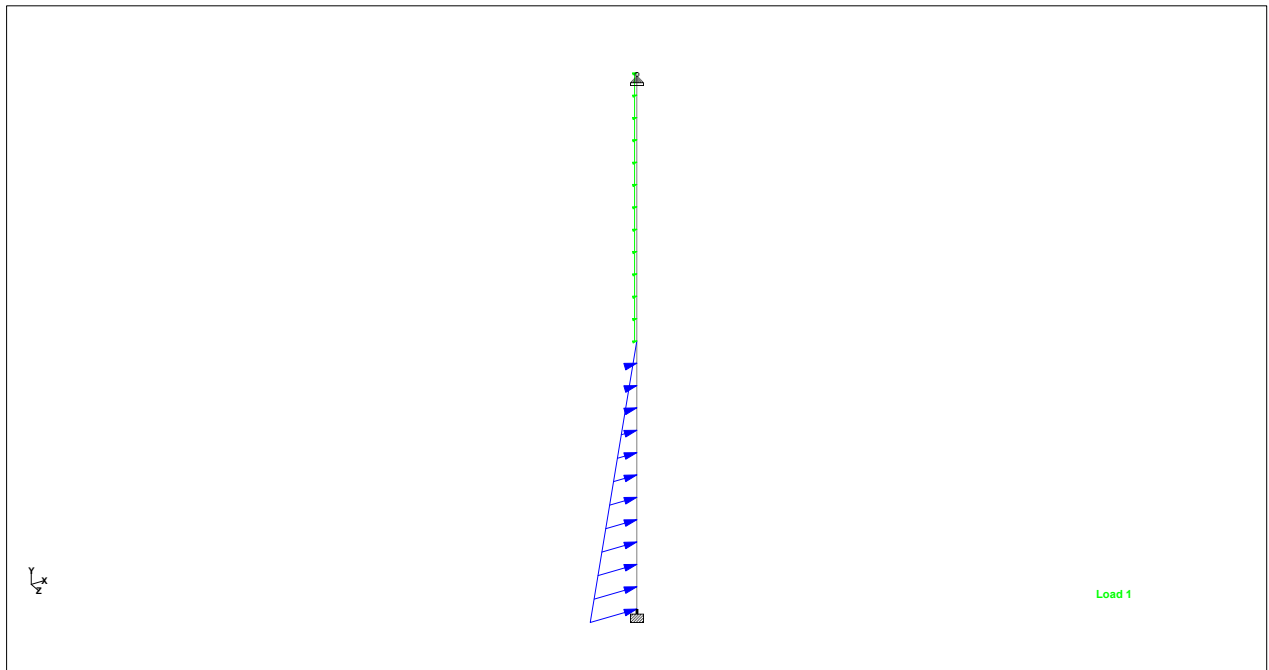
Whole Structure (Input data was modified after picture taken)

Nodes

Node	X	Y	Z
	(m)	(m)	(m)
1	0.000	0.000	0.000
2	0.000	4.000	0.000

Beams

Beam	Node A	Node B	Length (m)	Property	β (degrees)
1	1	2	4.000	1	0

Supports

Node	X (kN/mm)	Y (kN/mm)	Z (kN/mm)	rX (kN·m/deg)	rY (kN·m/deg)	rZ (kN·m/deg)
1	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
2	Fixed	Fixed	Fixed	-	-	-

Primary Load Cases

Number	Name	Type
1	LOAD CASE 1	None
2	LOAD CASE 2	None

Beam End Forces

Sign convention is as the action of the joint on the beam.

			Axial	Shear		Torsion	Bending	
Beam	Node	L/C	Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
1	1	1:LOAD CASE	0.000	93.675	0.000	0.000	0.000	46.099
		2:LOAD CASE	0.000	115.081	0.000	0.000	0.000	56.589
	2	1:LOAD CASE	0.000	10.925	0.000	0.000	0.000	0.000
		2:LOAD CASE	0.000	13.319	0.000	0.000	0.000	0.000

Beam Maximum Moments

Distances to maxima are given from beam end A.

| Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
1	1	4.000	1:LOAD CASE	Max +ve	0.000	0.000	0.000	46.099
				Max -ve	0.000	0.000	1.667	-13.729
			2:LOAD CASE	Max +ve	0.000	0.000	0.000	56.589
				Max -ve	0.000	0.000	1.667	-16.848

Beam Maximum Shear Forces

Distances to maxima are given from beam end A.

| Beam	Node A	Length (m)	L/C		d (m)	Max Fz (kN)	d (m)	Max Fy (kN)
1	1	4.000	1:LOAD CASE	Max +ve	0.000	0.000	0.000	93.675
				Max -ve	0.000	0.000	4.000	-10.925
			2:LOAD CASE	Max +ve	0.000	0.000	0.000	115.081
				Max -ve	0.000	0.000	4.000	-13.319

	TEKLA Tedds	Project		Job no.	
		Stag Brewery		WIE10667	
Waterman Infrastructure & Environment		Calcs for Wind Loading		Start page no./Revision 1	
Clink Street Pickfords Wharf		Calcs by VB	Calcs date 14/02/2017	Checked by	Checked date	Approved by	Approved date

WIND LOADING (EN1991-1-4)

TEDDS calculation version 3.0.16
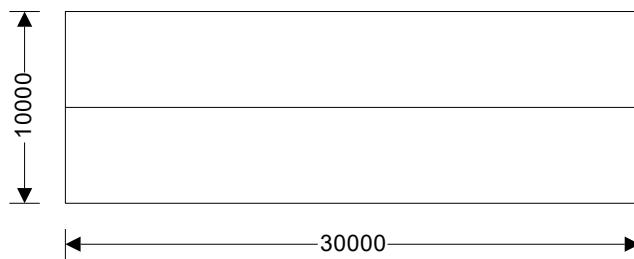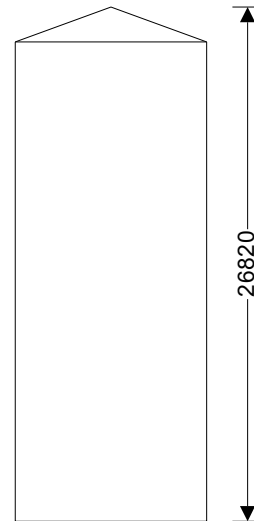
Plan   Elevation

Building data

Type of roof	Duopitch
Length of building	$L = \textbf{30000}$ mm
Width of building	$W = \textbf{10000}$ mm
Height to eaves	$H = \textbf{25000}$ mm
Pitch of roof	$\alpha_0 = \textbf{20.0}$ deg
Total height	$h = \textbf{26820}$ mm

Basic values

Location	London
Wind speed velocity (FigureNA.1)	$v_{b,map} = \textbf{21.4}$ m/s
Distance to shore	$L_{shore} = \textbf{66.00}$ km
Altitude above sea level	$A_{alt} = \textbf{8.0}$m
Altitude factor	$c_{alt} = A_{alt} \times 0.001m^{-1} + 1 = \textbf{1.008}$
Fundamental basic wind velocity	$v_{b,0} = v_{b,map} \times c_{alt} = \textbf{21.6}$ m/s
Direction factor	$c_{dir} = \textbf{1.00}$
Season factor	$c_{season} = \textbf{1.00}$
Shape parameter K	$K = \textbf{0.2}$
Exponent n	$n = \textbf{0.5}$
Probability factor	$c_{prob} = [(1 - K \times \ln(-\ln(1-p)))/(1 - K \times \ln(-\ln(0.98)))]^n = \textbf{1.00}$
Basic wind velocity (Exp. 4.1)	$v_b = c_{dir} \times c_{season} \times v_{b,0} \times c_{prob} = \textbf{21.6}$ m/s
Reference mean velocity pressure	$q_b = 0.5 \times \rho \times v_b^2 = \textbf{0.285}$ kN/m^2

Orography

Orography factor not significant	$c_o = \textbf{1.0}$
Terrain category	Town
Displacement height (sheltering effect excluded)	$h_{dis} = 0$mm

		Project			Job no.	
TEKLA **Tedds**						
Waterman Infrastructure & Environment		Calcs for			Start page no./Revision 2	
Clink Street Pickfords Wharf		Calcs by C	Calcs date 14/02/2017	Checked by	Checked date	Approved by	Approved date

The velocity pressure for the windward face of the building with a 0 degree wind is to be considered as 1 part as the height h is less than b (cl.7.2.2)

Peak velocity pressure - windward wall - Wind 0 deg

Reference height (at which q is sought) $z = 25000$mm

Displacement height (sheltering effects excluded) $h_{dis} = 0$ mm

Exposure factor (Figure NA.7) $c_e = 2.96$

Exposure correction factor (Figure NA.8) $c_{e,T} = 1.00$

Peak velocity pressure $q_p = c_e \times c_{e,T} \times q_b = 0.84$ kN/m^2

Structural factor

Structural damping $\delta_s = 0.100$

Height of element $h_{part} = 25000$ mm

Size factor (Table NA.3) $c_s = 0.892$

Dynamic factor (Figure NA.9) $c_d = 1.000$

Structural factor $c_sc_d = c_s \times c_d = 0.892$

Peak velocity pressure - roof

Reference height (at which q is sought) $z = 26820$mm

Displacement height (sheltering effects excluded) $h_{dis} = 0$ mm

Exposure factor (Figure NA.7) $c_e = 3.01$

Exposure correction factor (Figure NA.8) $c_{e,T} = 1.00$

Peak velocity pressure $q_p = c_e \times c_{e,T} \times q_b = 0.86$ kN/m^2

Structural factor - roof 0 deg

Structural damping $\delta_s = 0.100$

Height of element $h_{part} = 26820$ mm

Size factor (Table NA.3) $c_s = 0.893$

Dynamic factor (Figure NA.9) $c_d = 1.000$

Structural factor $c_sc_d = c_s \times c_d = 0.893$

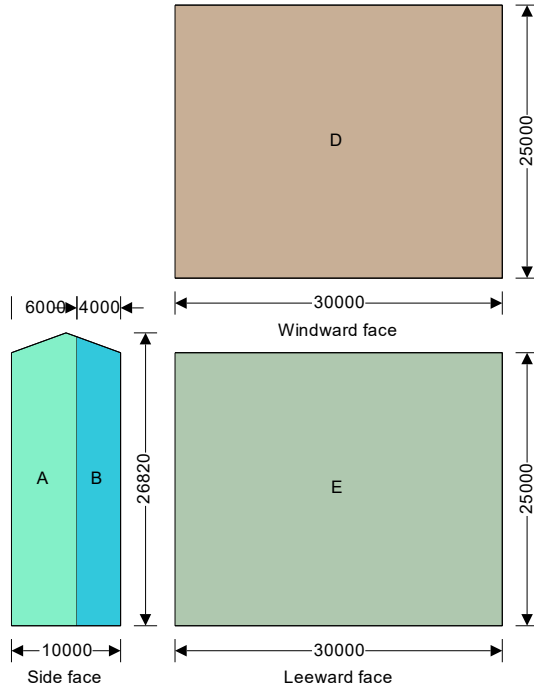**Peak velocity pressure for internal pressure**

Peak velocity pressure – internal (as roof press.) $q_{p,i} = 0.86$ kN/m^2
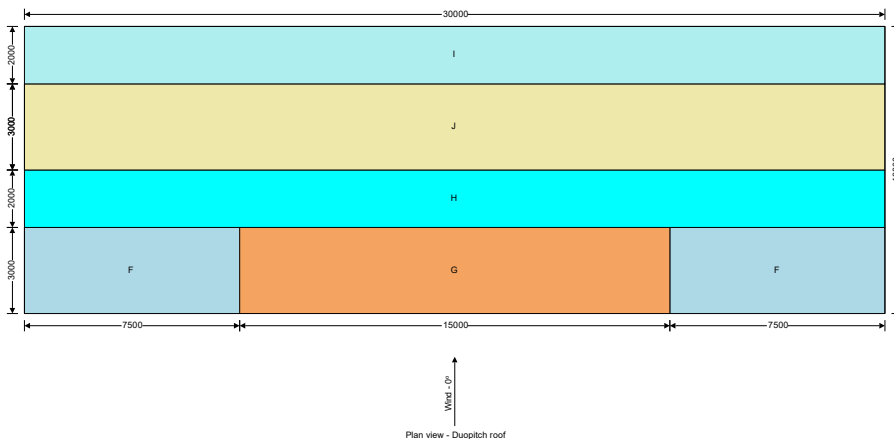
Plan view - Duopitch roof

	TEKLA Tedds	Project		Job no.	
Waterman Infrastructure & Environment		Calcs for		Start page no./Revision 3	
Clink Street Pickfords Wharf		Calcs by C	Calcs date 14/02/2017	Checked by	Checked date	Approved by	Approved date

UK and Ireland Office Locations

Glasgow

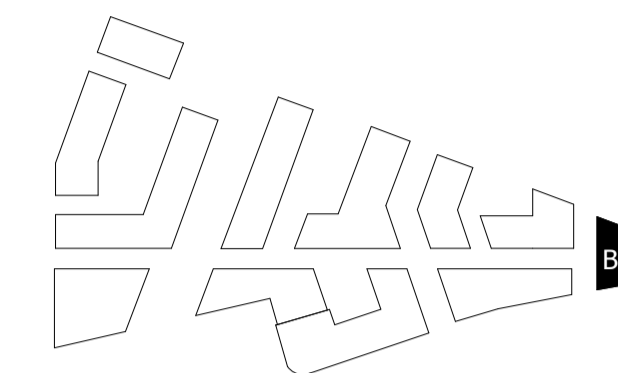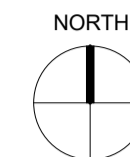Edinburgh

Perth

Leeds

Manchester

Sheffield

Dublin

Cardiff

Bristol

Birmingham

Nottingham

Redhill

London (Head office)

Brentwood

F. Boat House Drawings

NORTH

B9

KEY

01. BRICK WALLS
02. METAL CLAD ROOF
03. HORIZONTAL CONCRETE BAND
04. CLEAR GLAZING WITH GREY PPC ALUMINIUM FRAMES
05. CLEAR GLAZING WITH BRONZE ANODIZED ALUMINIUM FRAMES
06. GLASS BALUSTRADE
07. METAL BALUSTRADE
08. TEXTURED BRICK DETAIL
09. PROFILED METAL CLADDING
10. BRONZE ANODIZED ALUMINIUM PROFILE
11. COLOURED MOSAIC TILES
12. CURTAIN WALL
13. PRE-CAST CONCRETE CLADDING
14. DECORATIVE FRIEZE
15. FASCIA SIGNAGE
16. OBSCURE GLAZING
17. ANODIZED ALUMINIUM VENTILATION GRILLS

ROOF TOP PLAN ELEMENTS

T.O.Building +24.98M A.O.D

06
14
16
12
13
05
03
08

4th Floor

3rd Floor

05
07

2nd Floor

01

1st Floor

FFL +6.70M
Raised Terrace

FFL +5.10M - Ground Floor -
Lower Richmond Road

FFL +4.25M - Ground Floor -
Towpath

MORTLAKE HIGH STREET   BUILDING 09   TOWPATH

Revision description	Date	Check	Rev
HYBRID APPLICATION - DRAFT	26/02/22	BJ	D
GLA SUBMISSION	27/04/20	BJ	C
DRAFT GLA SUBMISSION	24/01/20	KH	B
FINAL DRAFT PLANNING APPLICATION	21/10/19	KH	A
LEGAL REVIEW	13/09/19	KH	-

SQUIRE & PARTNERS

Project

Stag Brewery
Richmond

Drawing

BUILDING 09 - PROPOSED EAST
ELEVATION

Drawn	Date		Scale	
EmK	13/09/19		1 : 100 @ A1	
			1 : 200 @ A3	

Job Number	Drawing number	Revision
18125	C645_B09_E_E_001	D

0 1 2   5   10 m

NORTH

KEY

01. BRICK WALLS
02. METAL CLAD ROOF
03. HORIZONTAL CONCRETE BAND
04. CLEAR GLAZING WITH GREY PPC ALUMINIUM FRAMES
05. CLEAR GLAZING WITH BRONZE ANODIZED ALUMINIUM FRAMES
06. GLASS BALUSTRADE
07. METAL BALUSTRADE
08. TEXTURED BRICK DETAIL
09. PROFILED METAL CLADDING
10. BRONZE ANODIZED ALUMINIUM PROFILE
11. COLOURED MOSAIC TILES
12. CURTAIN WALL
13. PRE-CAST CONCRETE CLADDING
14. DECORATIVE FRIEZE
15. FASCIA SIGNAGE
16. OBSCURE GLAZING
17. ANODIZED ALUMINIUM VENTILATION GRILLS

ROOF TOP PLAN ELEMENTS

T.O.Building +24.98M A.O.D

4th Floor

3rd Floor

2nd Floor

1st Floor

06
14
16
12
13
05

03
08

05
07

01

FFL +6.70M
Raised Terrace

FFL +6.03M
Ground Floor -
Street

FFL +5.10M - Ground Floor -
Lower Richmond Road

FFL +4.25M - Ground
Floor - Towpath

STORAGE AREA
BENEATH PODIUM

BUILDING 09

RIVER TERRACE

BUILDING 12

Revision description	Date	Check	Rev
HYBRID APPLICATION - DRAFT	26/02/22	BJ	D
GLA SUBMISSION	27/04/20	BJ	C
DRAFT GLA SUBMISSION	24/01/20	KH	B
FINAL DRAFT PLANNING APPLICATION	21/10/19	KH	A
LEGAL REVIEW	13/09/19	KH	-

SQUIRE & PARTNERS

The Department Store
248 Ferndale Road London SW9 8FR
T: 020 7278 5555 F: 020 7239 0495

info@squireandpartners.com
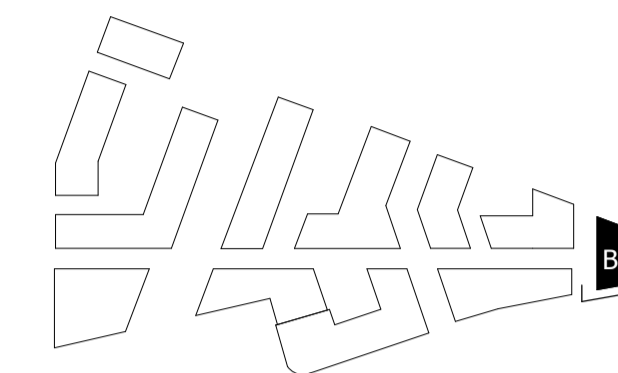www.squireandpartners.com

Project

Stag Brewery
Richmond

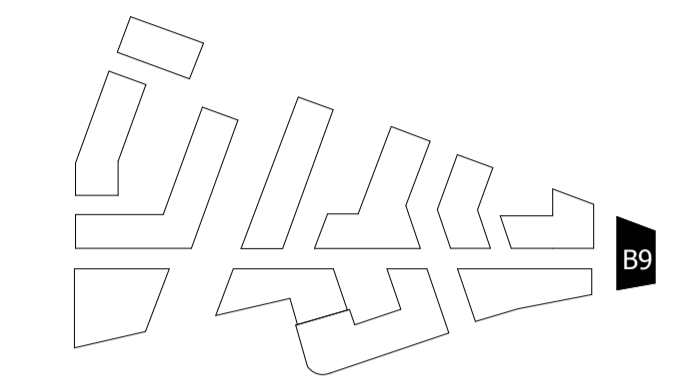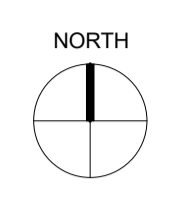Drawing

BUILDING 09 - PROPOSED NORTH
ELEVATION

Drawn	Date	Scale
EmK	13/09/19	1 : 100 @ A1 / 1 : 200 @ A3
Job Number	Drawing number	Revision
18125	C645_B09_E_N_001	D

0 1 2   5   10 m

NORTH

KEY

01. BRICK WALLS
02. METAL CLAD ROOF
03. HORIZONTAL CONCRETE BAND
04. CLEAR GLAZING WITH GREY PPC ALUMINIUM FRAMES
05. CLEAR GLAZING WITH BRONZE ANODIZED ALUMINIUM FRAMES
06. GLASS BALUSTRADE
07. METAL BALUSTRADE
08. TEXTURED BRICK DETAIL
09. PROFILED METAL CLADDING
10. BRONZE ANODIZED ALUMINIUM PROFILE
11. COLOURED MOSAIC TILES
12. CURTAIN WALL
13. PRE-CAST CONCRETE CLADDING
14. DECORATIVE FRIEZE
15. FASCIA SIGNAGE
16. OBSCURE GLAZING
17. ANODIZED ALUMINIUM VENTILATION GRILLS

ROOF TOP PLAN ELEMENTS

T.O.Building +24.98M A.O.D

4th Floor

3rd Floor

2nd Floor

1st Floor

FFL +6.03M - Ground
Floor - Street

FFL +5.10M - Ground
Floor - Lower Richmond

06
14
16
12
13
05

03
08

05

07

01

BUILDING 10   RESIDENTIAL STREET   BUILDING 09

SQUIRE & PARTNERS

Project

Stag Brewery
Richmond

Drawing

BUILDING 09 - PROPOSED SOUTH
ELEVATION

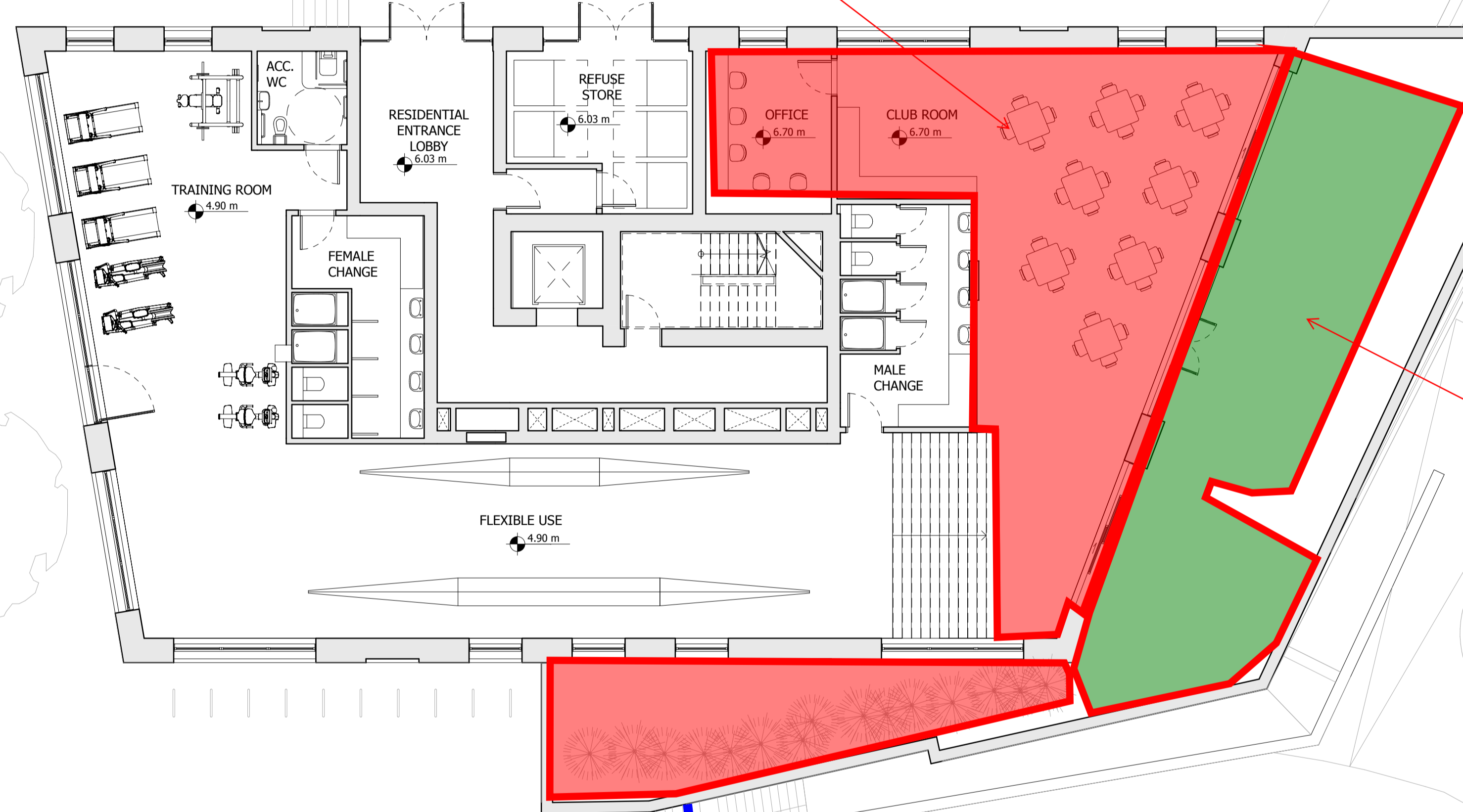| Drawn	Date		Scale	
EmK	13/09/19		1 : 100 @ A1	
			1 : 200 @ A3	
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0 1 2   5   10 m

RED HATCHED
AREA ALL RAISED
TO 6.7m AOD

PROPOSED
FLOOD DEFENCE
AT 6.7m AOD

GREEN HATCHED AREA
ALL RAISED TO 6.7m
AOD, BUT VOID AREA
BENEATH FOR STORAGE

EXISTING BULLS
ALLEY DEFENCE

NORTH

B9

Room labels on plan:

ACC. WC
RESIDENTIAL ENTRANCE LOBBY ◄ 6.03 m
REFUSE STORE ◄ 6.03 m
OFFICE ◄ 6.70 m
CLUB ROOM ◄ 6.70 m
TRAINING ROOM ◄ 4.90 m
FEMALE CHANGE
MALE CHANGE
FLEXIBLE USE ◄ 4.90 m

NORTH

0 1 2   5   10 m

INTERNAL LAYOUTS SHOWN ILLUSTRATIVELY ONLY

Revision description	Date	Check	Rev
FINAL DRAFT HYBRID SUBMISSION	07/01/22	RKB	D
GLA SUBMISSION	27/04/20	BJ	C
DRAFT GLA SUBMISSION	24/01/20	KH	B
FINAL DRAFT PLANNING APPLICATION	21/10/19	KH	A
LEGAL REVIEW	13/09/19	KH	-

Project
Stag Brewery
Richmond

Drawing
BUILDING 09 - PROPOSED
GROUND FLOOR PLAN

Drawn	Date		Scale	
EmK	13/09/19		1 : 100 @ A1	
			1 : 200 @ A3	

Job Number	Drawing number	Revision
18125	C645_B09_P_00_001	D