Welcome to the first webinar in the series

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Designing Foundations for YOU

www.roger-bullivant.co.uk

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South West Area Manager

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Foundation Systems Technical Manager

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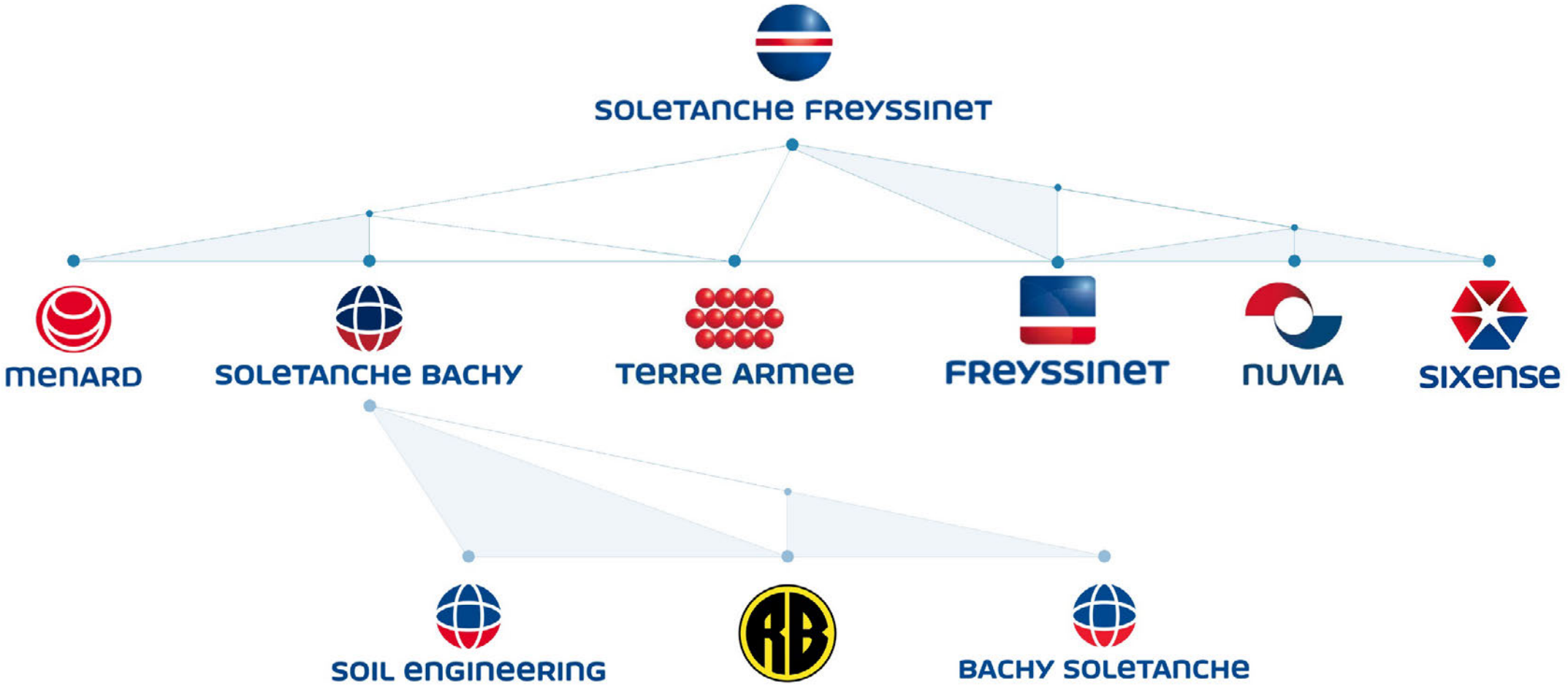
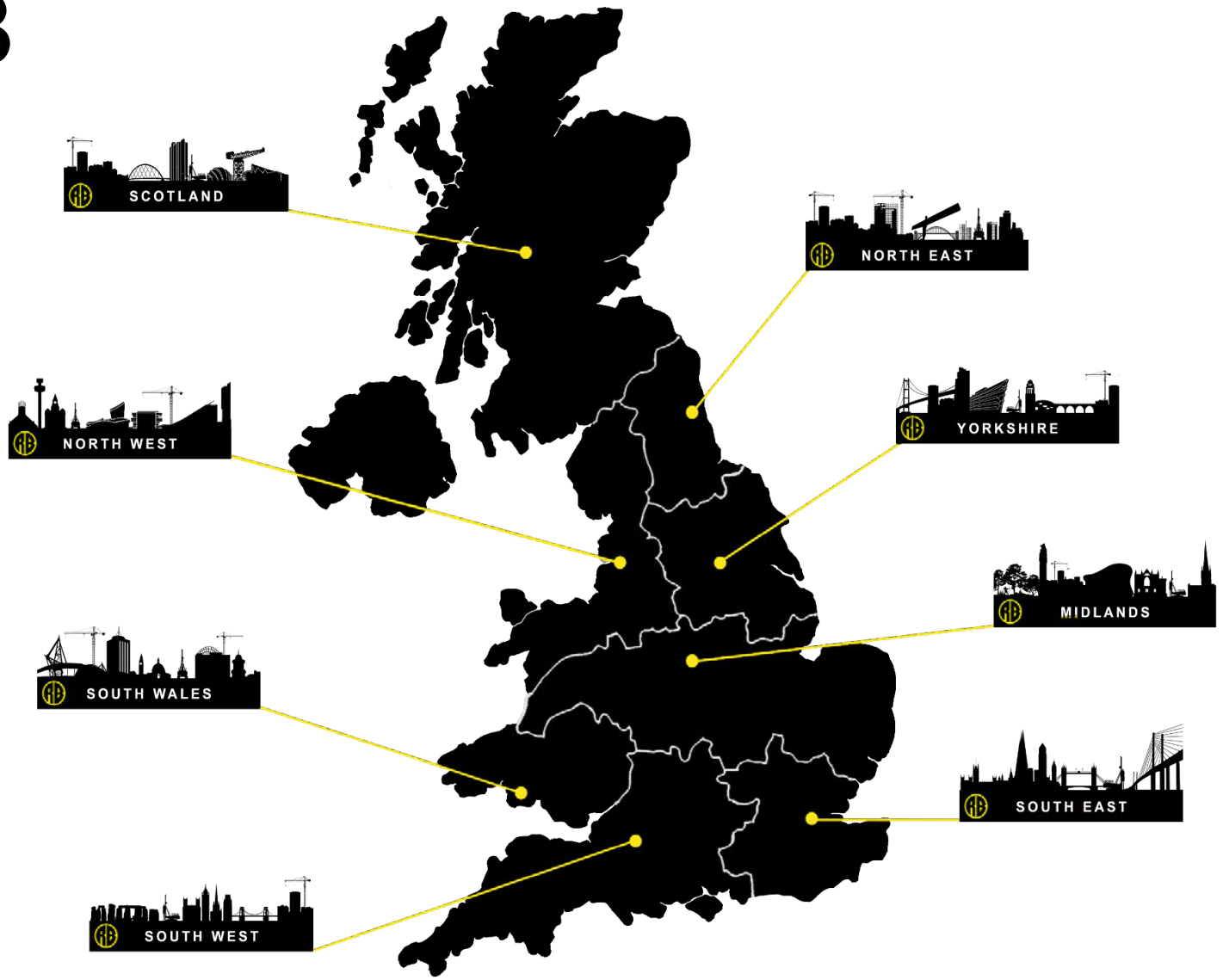
Our Business


SOLETANCHE FREYSSINET
MENARD
SOLETANCHE BACHY
TERRE ARMEE
FREYSSINET
NUVIA
SIXENSE
SOIL ENGINEERING
BACHY SOLETANCHE

About RB


SCOTLAND
NORTH EAST
NORTH WEST
YORKSHIRE
MIDLANDS
SOUTH WALES
SOUTH EAST
SOUTH WEST

About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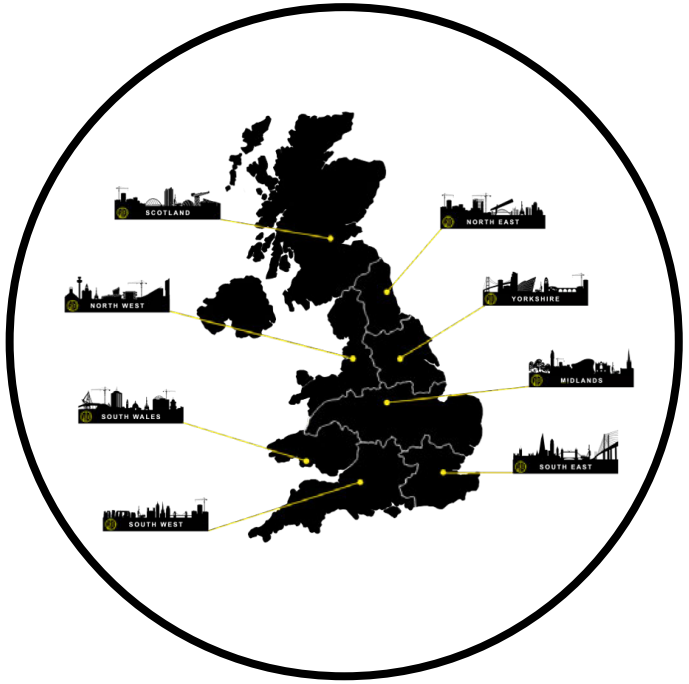
SCOTLAND
NORTH EAST
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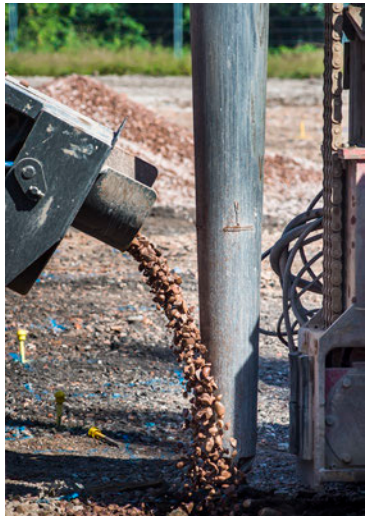
YORKSHIRE
MIDLANDS
SOUTH WALES
SOUTH EAST
SOUTH WEST

Years of experience...

PILING



GROUND IMPROVEMENT

FOUNDATIONS

RESTRICTED ACCESS

Overview

Our Client – Nicholas King Homes established in 1991 who predominantly work in the Home Counties and the SE of England. Founder and Chairman Nicholas King is still as much part of the day to day running of the company.

The project is a joint venture with Nicholas King Homes and A2 Dominion.

The project is the Waters Edge Development, Mytchett which is a new development of 248No properties consisting of 3, 4, 5 bed houses and 2 Bed Apartments. The development is surrounded by beautiful lakes with over 2.5k of waterside walks.

Two main phases North & South.

Site investigation by RSK

Over view on the site which was being remediated to create a ‘working platform’ 600mm below FFL.

Varying made ground from 0.5m and 3.6m

Overlying River terrace Gravels from 1.7m to 3.7m

Over Camberley Sand Formation from 5.1m to 9.0m to depths of 16.0m to 19.5m

CFA piles were originally specified and estimate submitted

Alternative Segmental RBL Precast Driven Pile (Displacement over replacement)

Nicholas King Homes PLC

Waters Edge, Mytchett

Supplementary Geoenvironmental and Geotechnical Site Investigation

29116-R02 (01)

AUGUST 2019

RSK

Roger Bullivant submission

Following dialogue with NKH we put forward two options initially

Compliant option - CFA piles up to maximum 11.0m founding in the Camberley Sands formation and the RBL RBeam Precast Foundation package contract sum in the order of £1.965M

Alternative option – Precast Piles (4.0m to 8.0) and the RBL RBeam Foundation Precast Contract sum £1.6M

Massive saving in time on site and speed of delivery

No spoil arisings for pile installation

Accurate off site manufactured Precast Foundation System

Roger Bullivant design considerations

The building construction, traditional, timber frame or A N Other

Preliminary drawings, take off of pile numbers and loadings and quantities of insitu concrete for pile caps or precast caps and beams

Site conditions, type of pile, size and depth

General assessment of time on site, the piles (size and depths) type of Precast beam and meterage

Testing requirements to satisfy Premier (Warranty Provider) which was Static Load test 1:100 piles (28No allowed) with a caveat that these could be reduced following satisfactory results

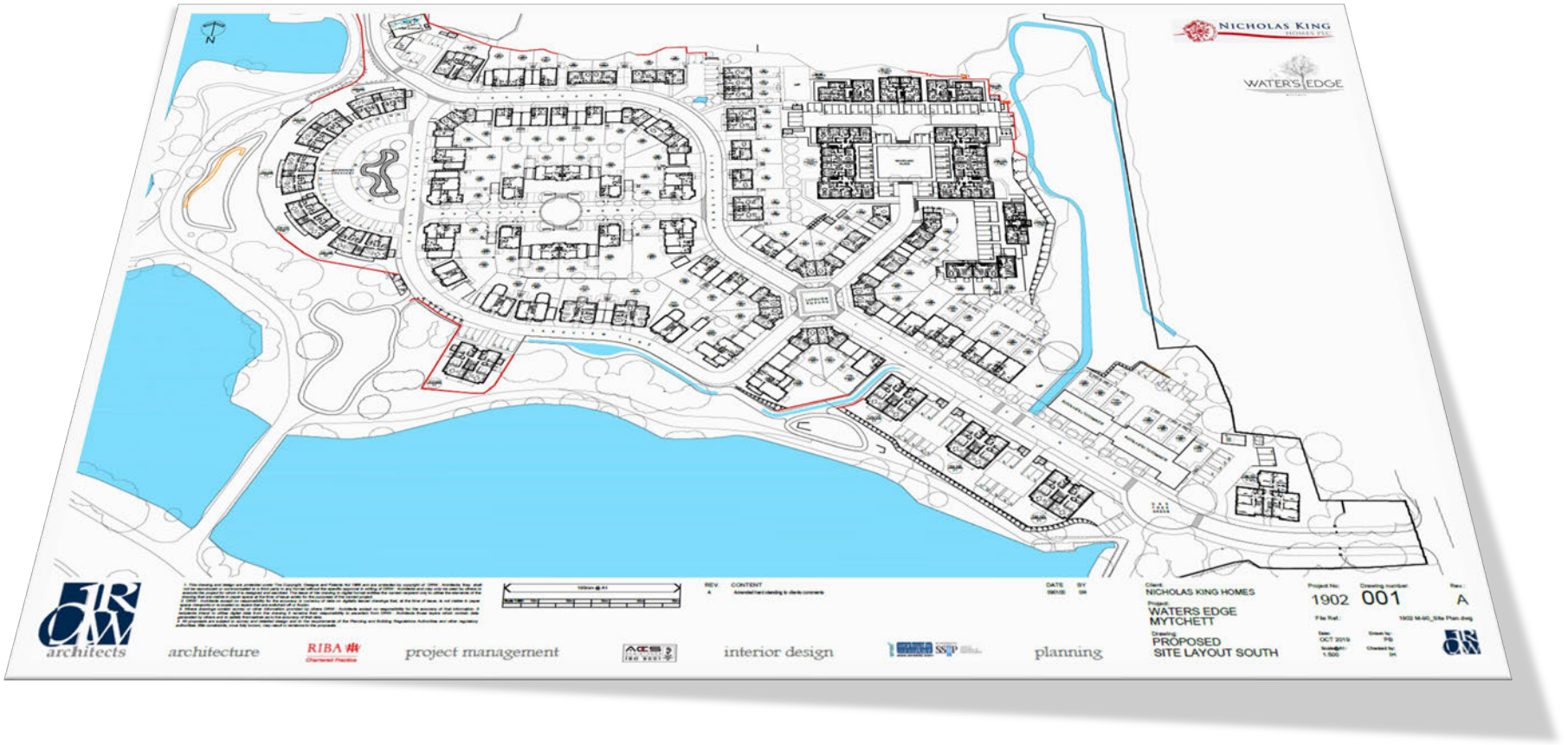
Roger Bullivant Ltd – negotiation

RBL submitted two options which clearly identified that the alternative option was a more cost effective way forward for the client.

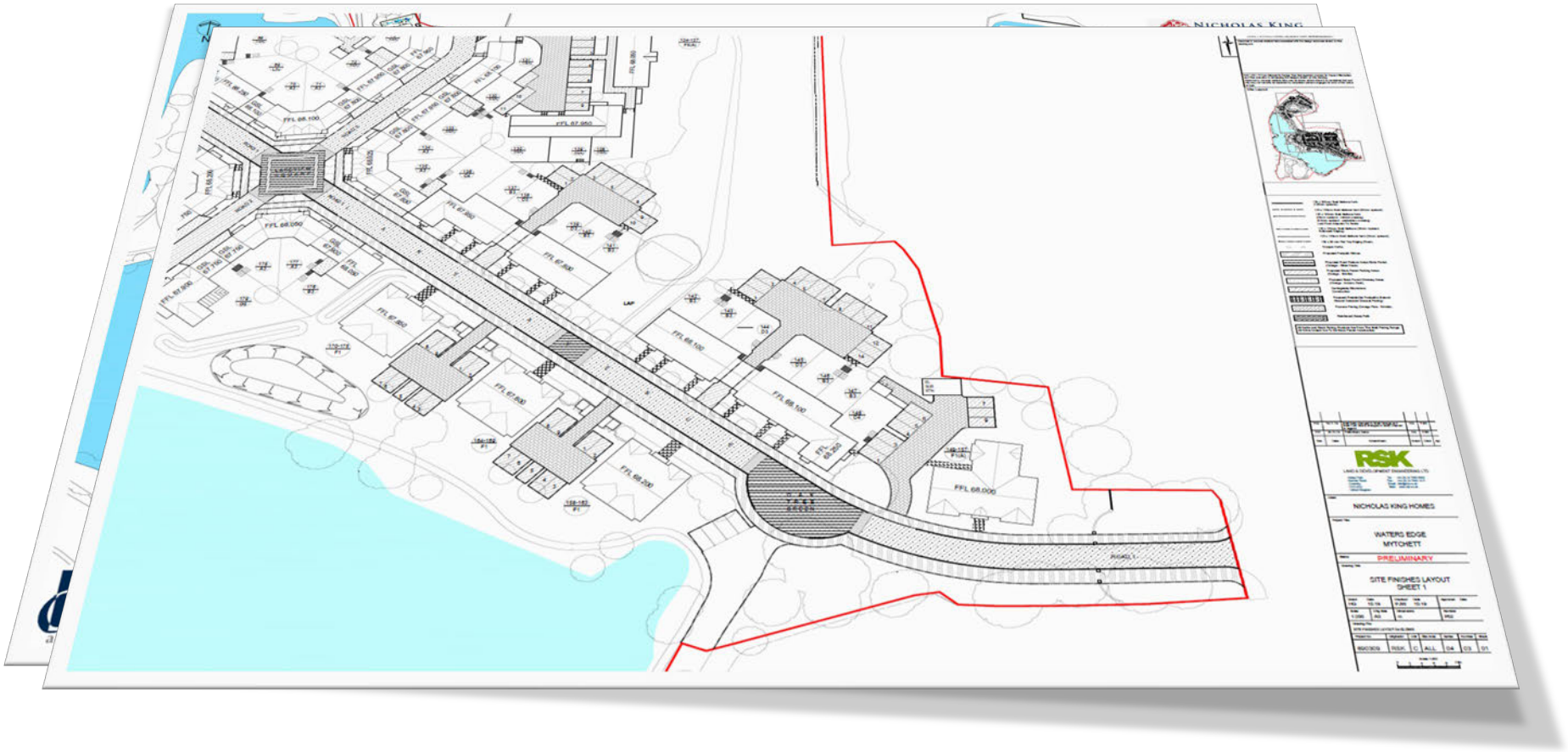
Final numbers would be subject to receipt of construction drawings, engineering layouts, load take downs and sequence of works.

Works were scheduled with phases agreed, number of visits and start dates agreed.

Design Process



The Design Process



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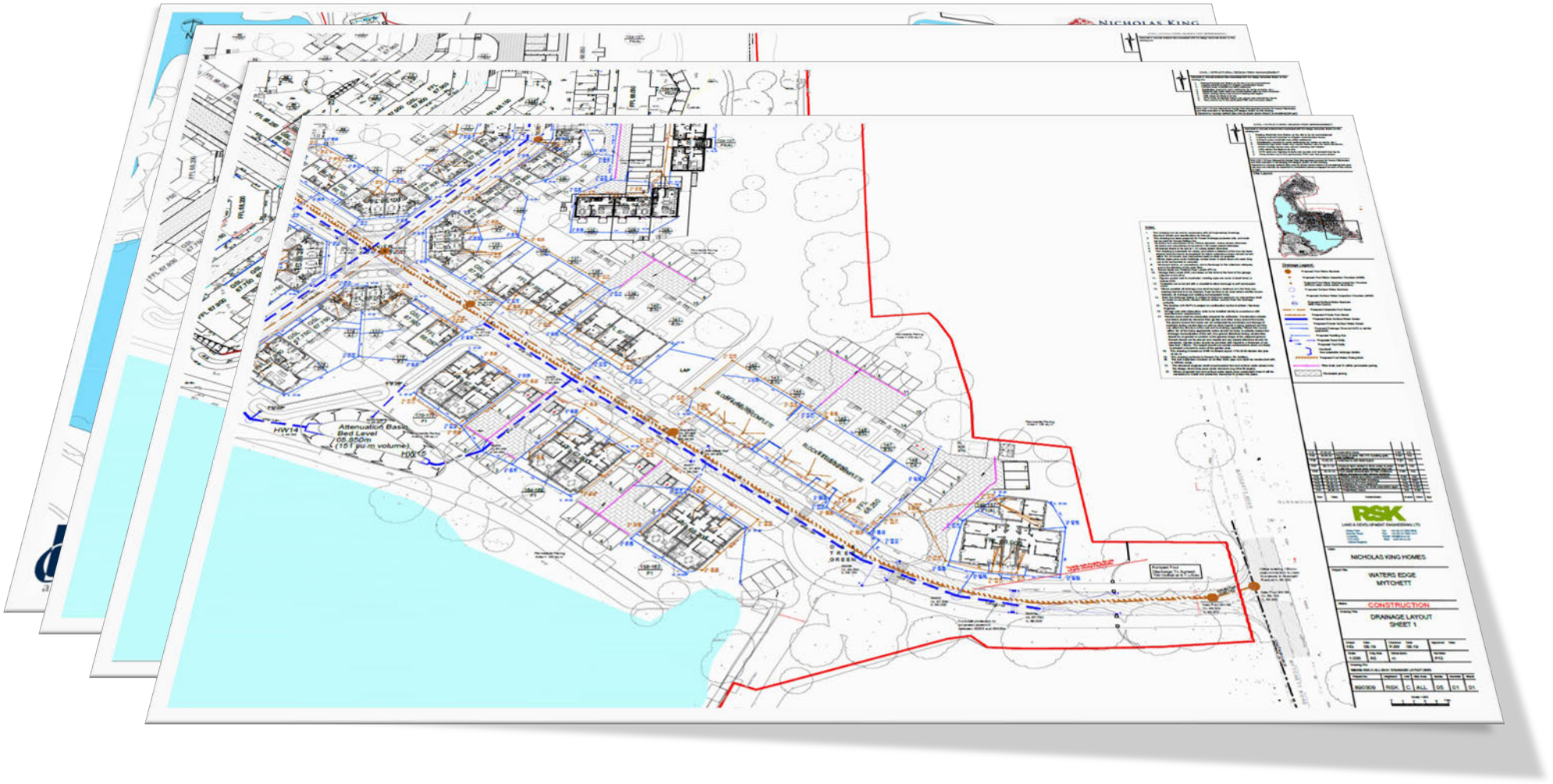
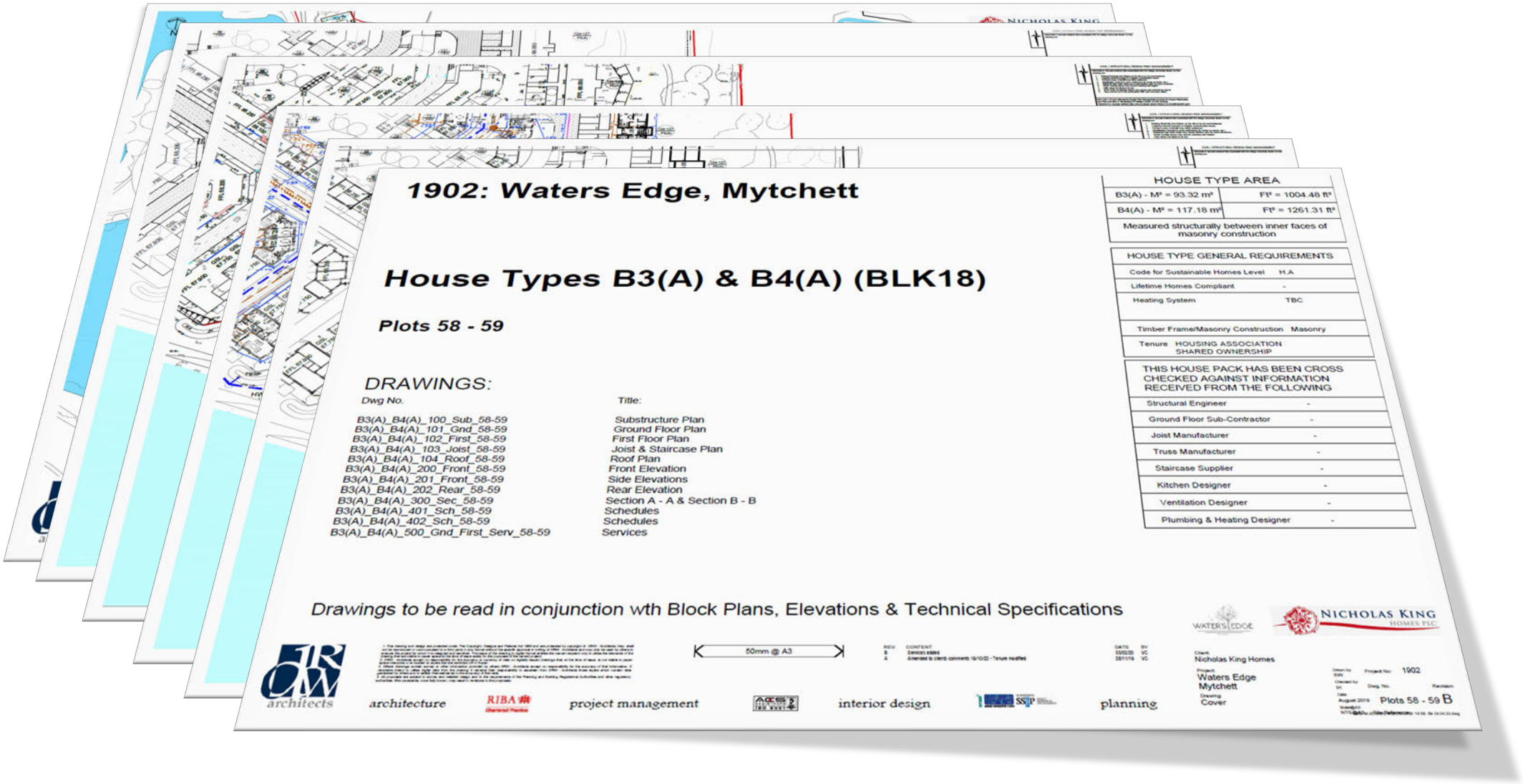


The Design Process

The Design Process



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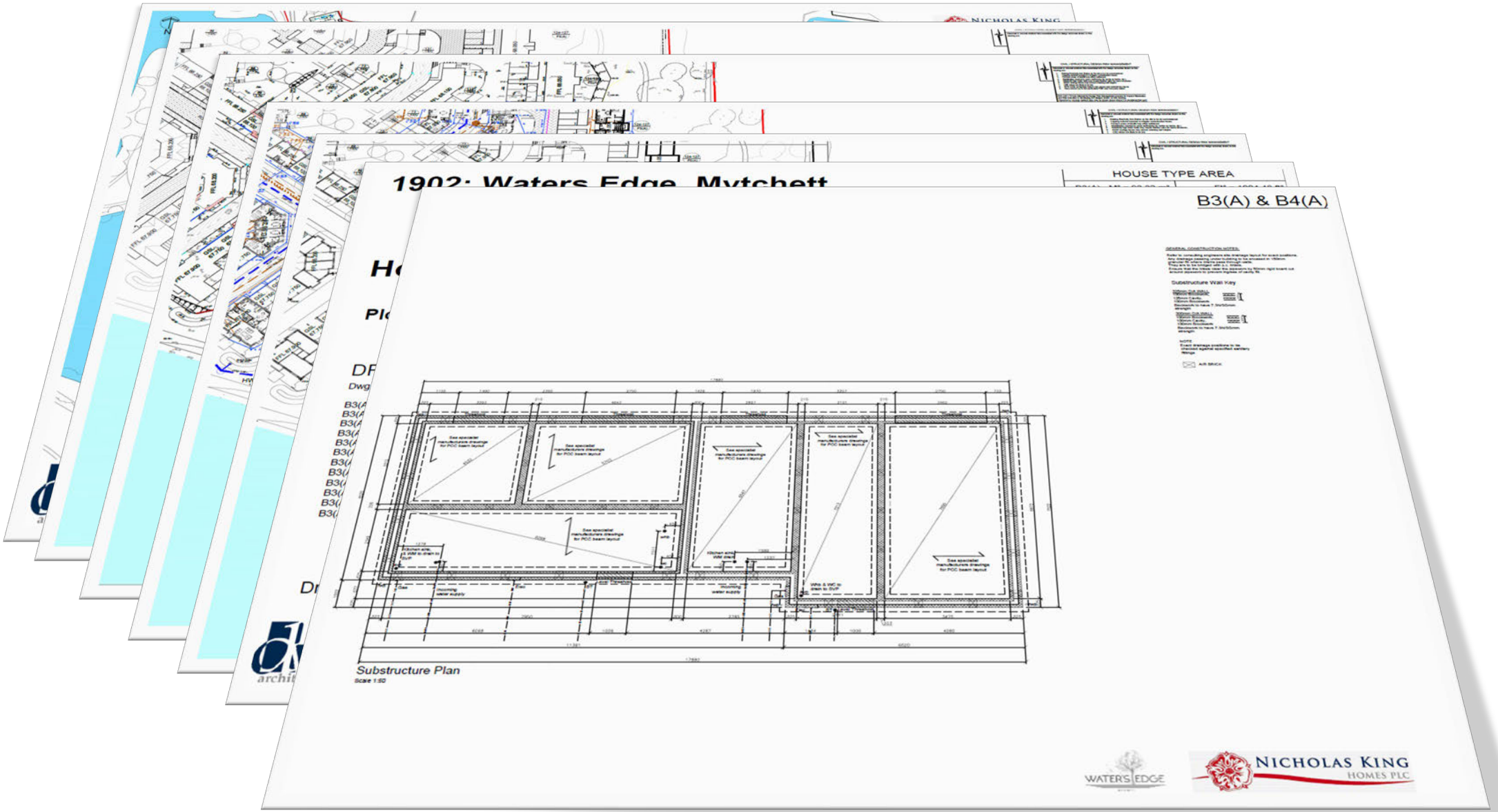

The Design Process

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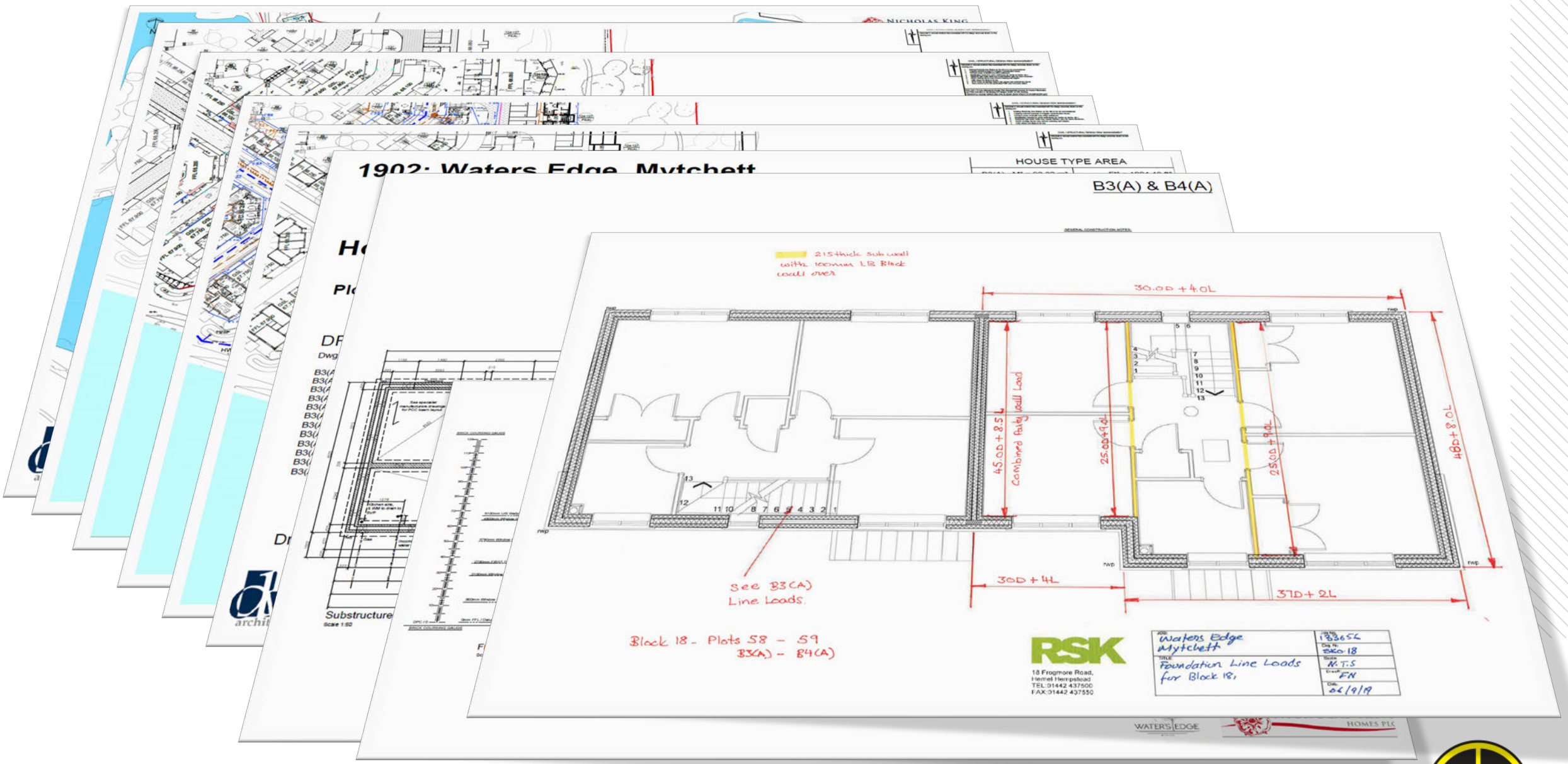

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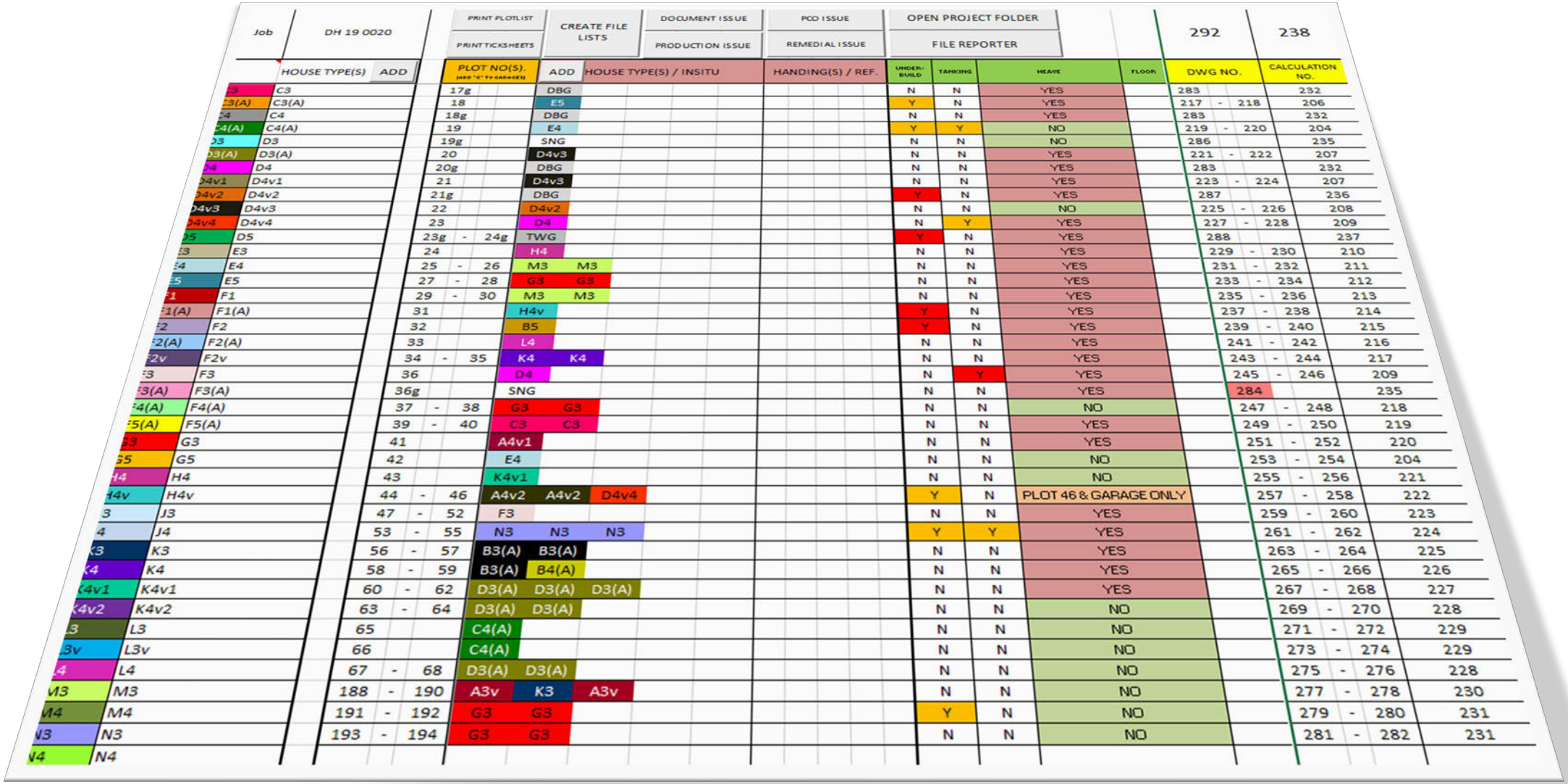
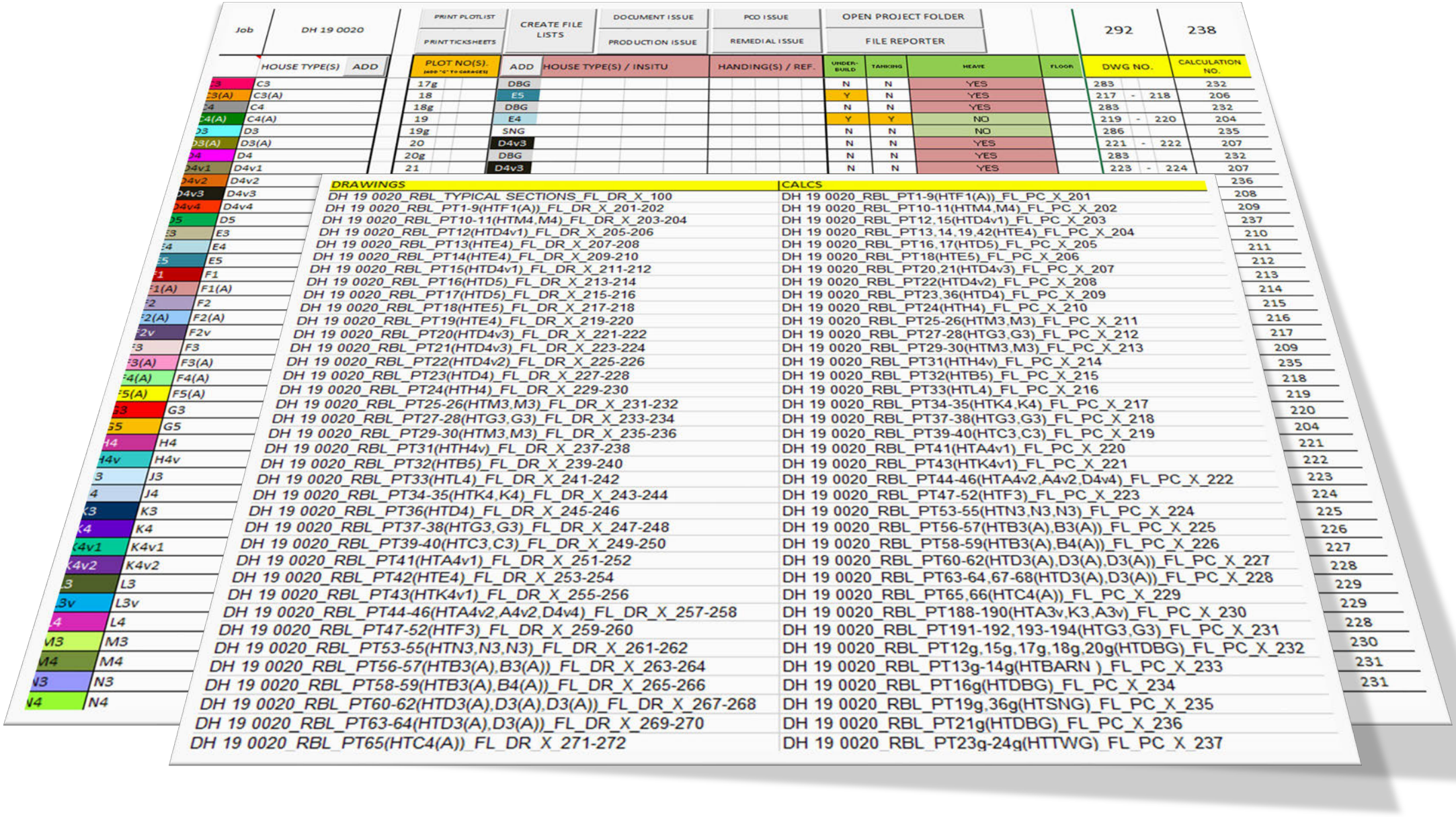


Job	DH 19 0020	PRINT PLOTLIST / PRINT TICKSHEETS	CREATE FILE LISTS	DOCUMENT ISSUE / PRODUCTION ISSUE	PCO ISSUE / REMEDIAL ISSUE	OPEN PROJECT FOLDER / FILE REPORTER					292	238
HOUSE TYPE(S)	ADD	PLOT NO(S). (ADD "G" TO GARAGES)	ADD	HOUSE TYPE(S) / INSITU	HANDING(S) / REF.	UNDER-BUILD	TANKING	HEAVE	FLOOR		DWG NO.	CALCULATION NO.
C3	C3	17g	DBG			N	N	YES			283	232
C3(A)	C3(A)	18	E5			Y	N	YES			217 - 218	206
C4	C4	18g	DBG			N	N	YES			283	232
C4(A)	C4(A)	19	E4			Y	Y	NO			219 - 220	204
D3	D3	19g	SNG			N	N	NO			286	235
D3(A)	D3(A)	20	D4v3			N	N	YES			221 - 222	207
D4	D4	20g	DBG			N	N	YES			283	232
D4v1	D4v1	21	D4v3			N	N	YES			223 - 224	207
D4v2	D4v2	21g	DBG			Y	N	YES			287	236
D4v3	D4v3	22	D4v2			N	N	NO			225 - 226	208
D4v4	D4v4	23	D4			N	Y	YES			227 - 228	209
D5	D5	23g - 24g	TWG			Y	N	YES			288	237
E3	E3	24	H4			N	N	YES			229 - 230	210
E4	E4	25 - 26	M3	M3		N	N	YES			231 - 232	211
E5	E5	27 - 28	G3	G3		N	N	YES			233 - 234	212
F1	F1	29 - 30	M3	M3		N	N	YES			235 - 236	213
F1(A)	F1(A)	31	H4v			Y	N	YES			237 - 238	214
F2	F2	32	B5			Y	N	YES			239 - 240	215
F2(A)	F2(A)	33	L4			N	N	YES			241 - 242	216
F2v	F2v	34 - 35	K4	K4		N	N	YES			243 - 244	217
F3	F3	36	D4			N	Y	YES			245 - 246	209
F3(A)	F3(A)	36g	SNG			N	N	YES			284	235
F4(A)	F4(A)	37 - 38	G3	G3		N	N	NO			247 - 248	218
F5(A)	F5(A)	39 - 40	C3	C3		N	N	YES			249 - 250	219
G3	G3	41	A4v1			N	N	YES			251 - 252	220
G5	G5	42	E4			N	N	NO			253 - 254	204
H4	H4	43	K4v1			N	N	NO			255 - 256	221
H4v	H4v	44 - 46	A4v2	A4v2	D4v4	Y	N	PLOT 46 & GARAGE ONLY			257 - 258	222
J3	J3	47 - 52	F3			N	N	YES			259 - 260	223
J4	J4	53 - 55	N3	N3	N3	Y	Y	YES			261 - 262	224
K3	K3	56 - 57	B3(A)	B3(A)		N	N	YES			263 - 264	225
K4	K4	58 - 59	B3(A)	B4(A)		N	N	YES			265 - 266	226
K4v1	K4v1	60 - 62	D3(A)	D3(A)	D3(A)	N	N	YES			267 - 268	227
K4v2	K4v2	63 - 64	D3(A)	D3(A)		N	N	NO			269 - 270	228
L3	L3	65	C4(A)			N	N	NO			271 - 272	229
L3v	L3v	66	C4(A)			N	N	NO			273 - 274	229
L4	L4	67 - 68	D3(A)	D3(A)		N	N	NO			275 - 276	228
M3	M3	188 - 190	A3v	K3	A3v	N	N	NO			277 - 278	230
M4	M4	191 - 192	G3	G3		Y	N	NO			279 - 280	231
N3	N3	193 - 194	G3	G3		N	N	NO			281 - 282	231
N4	N4											

The Design Process



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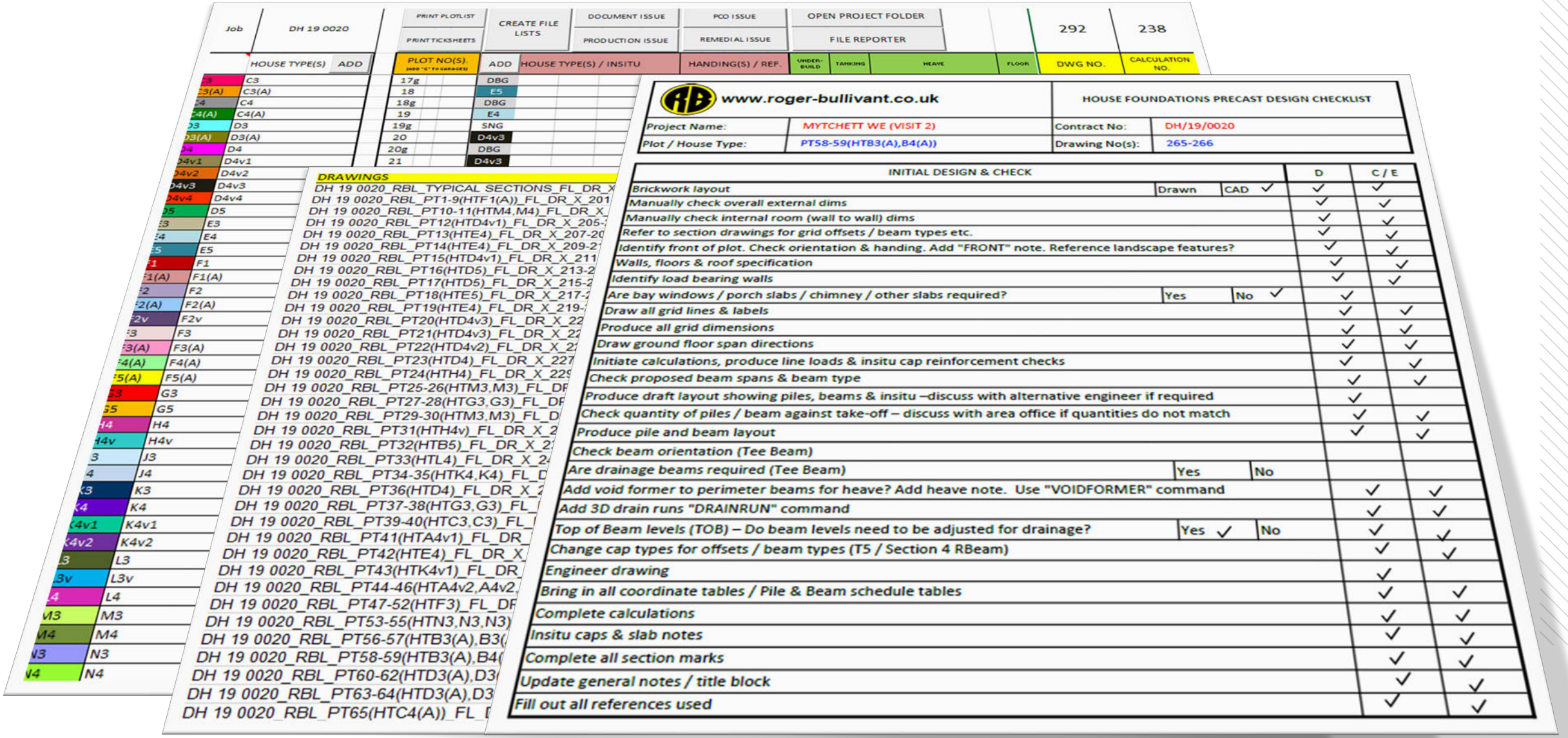

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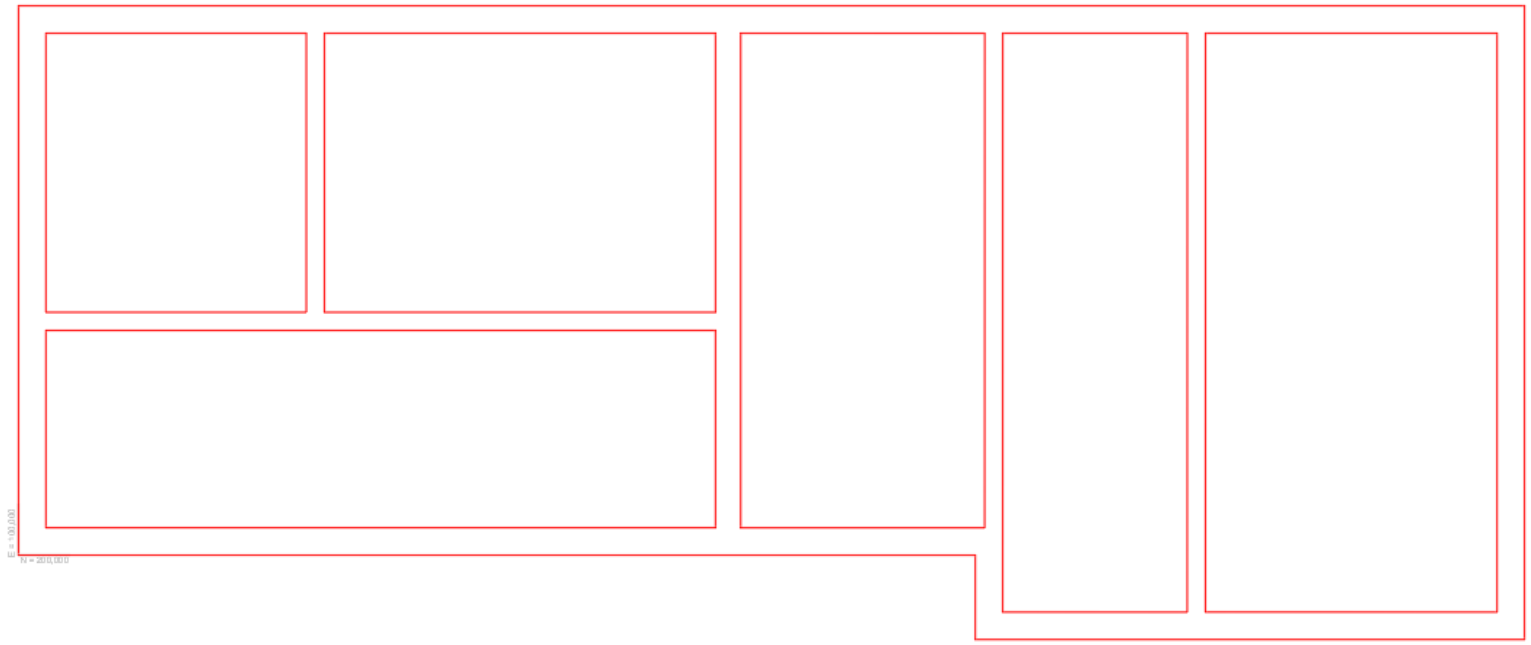

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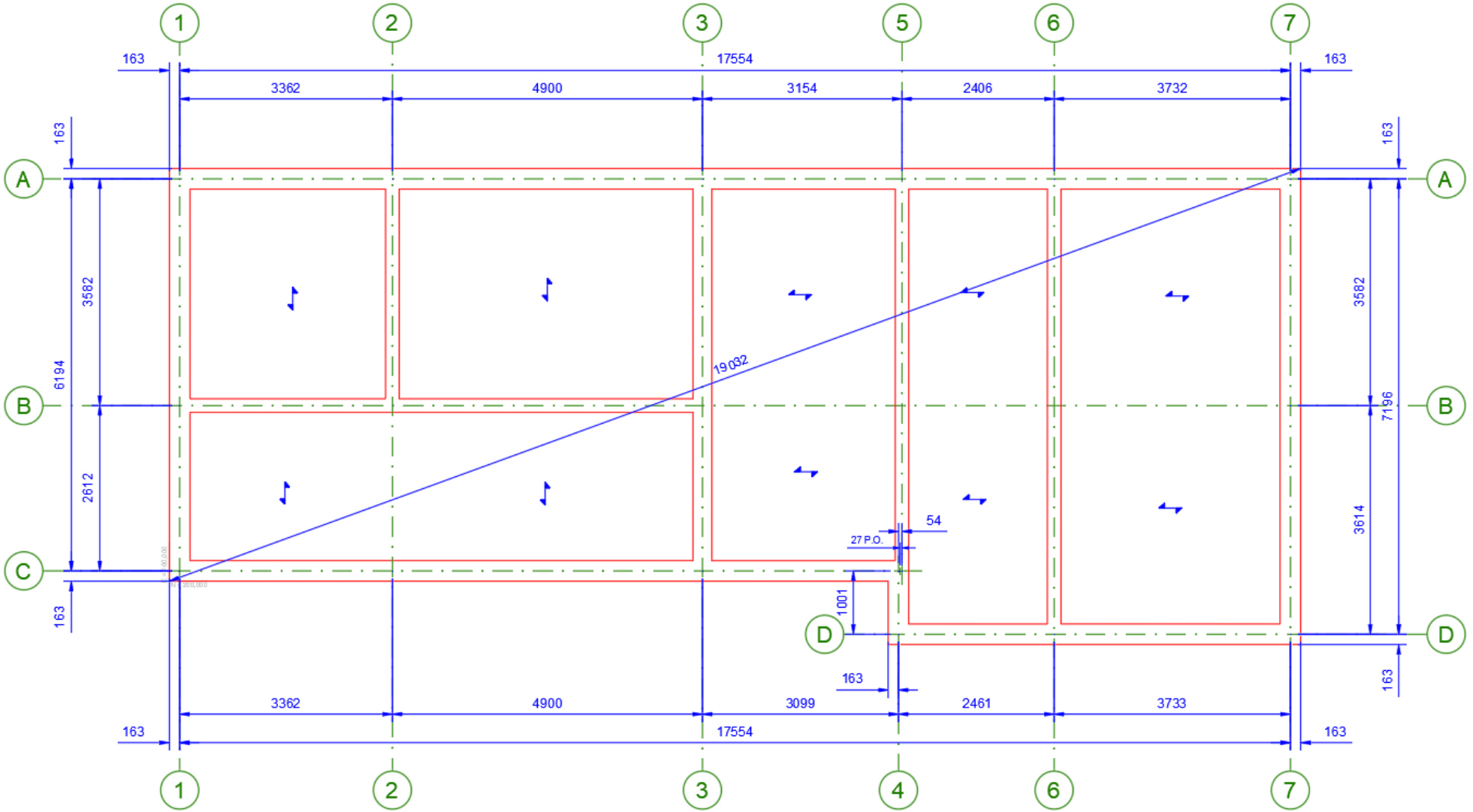

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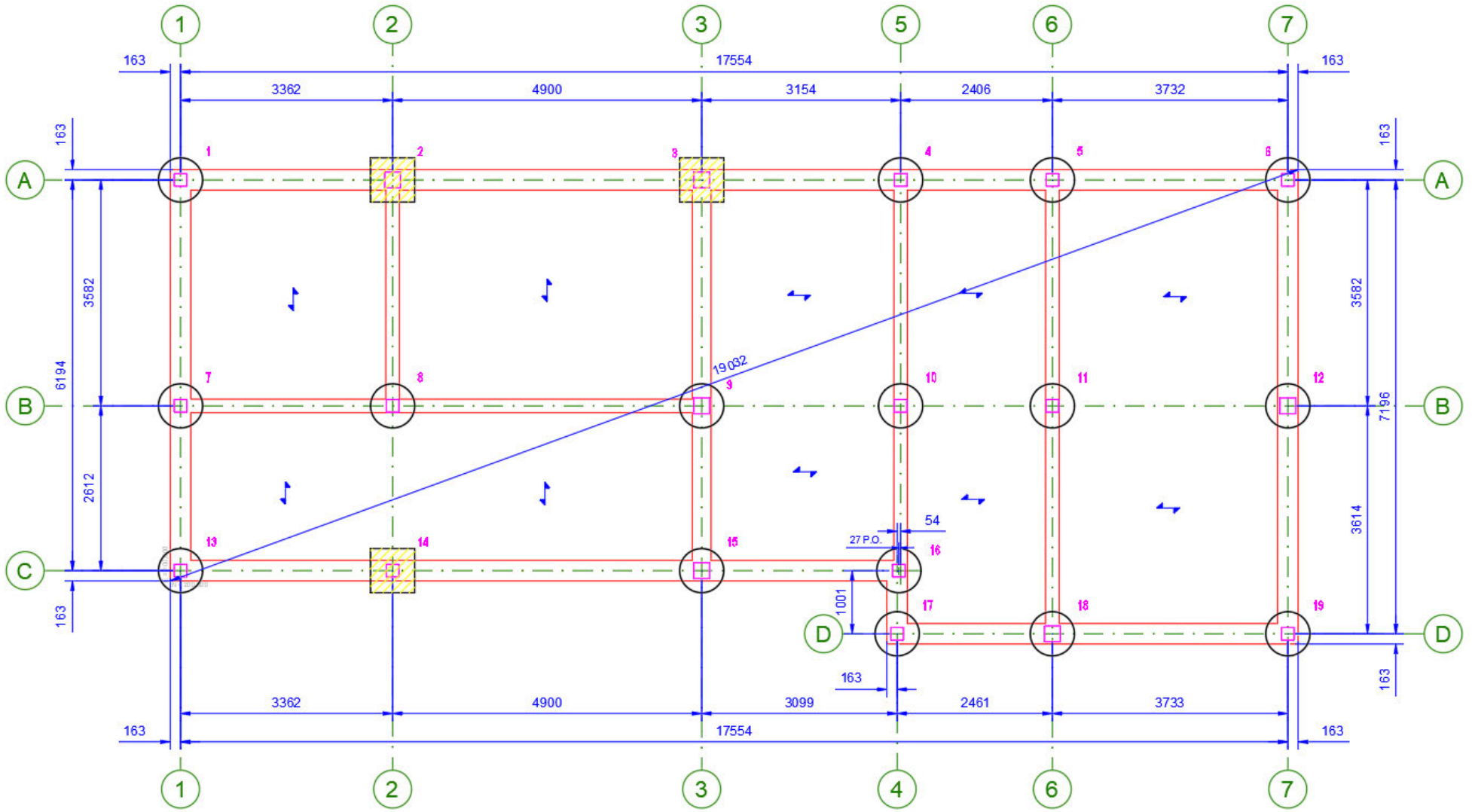

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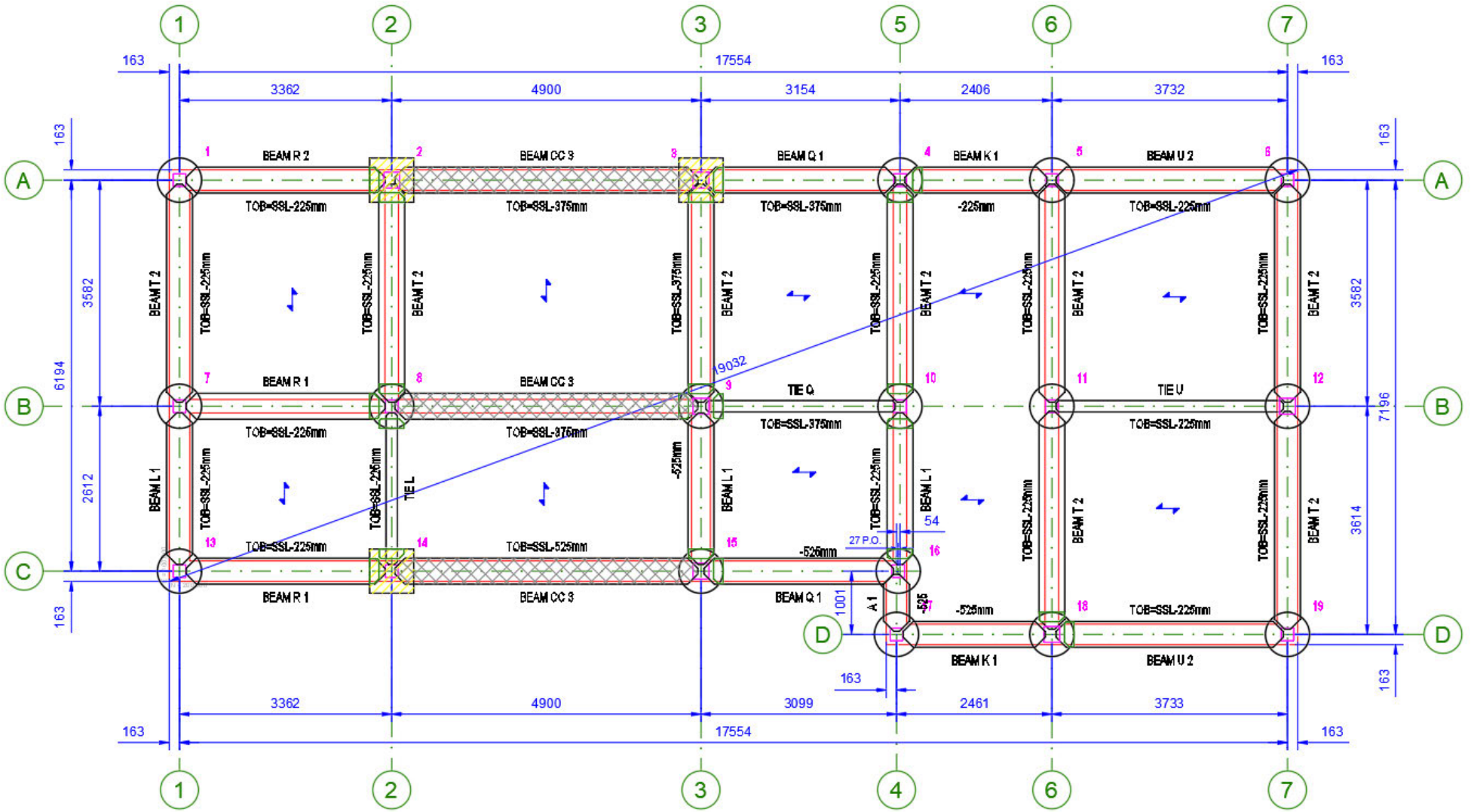

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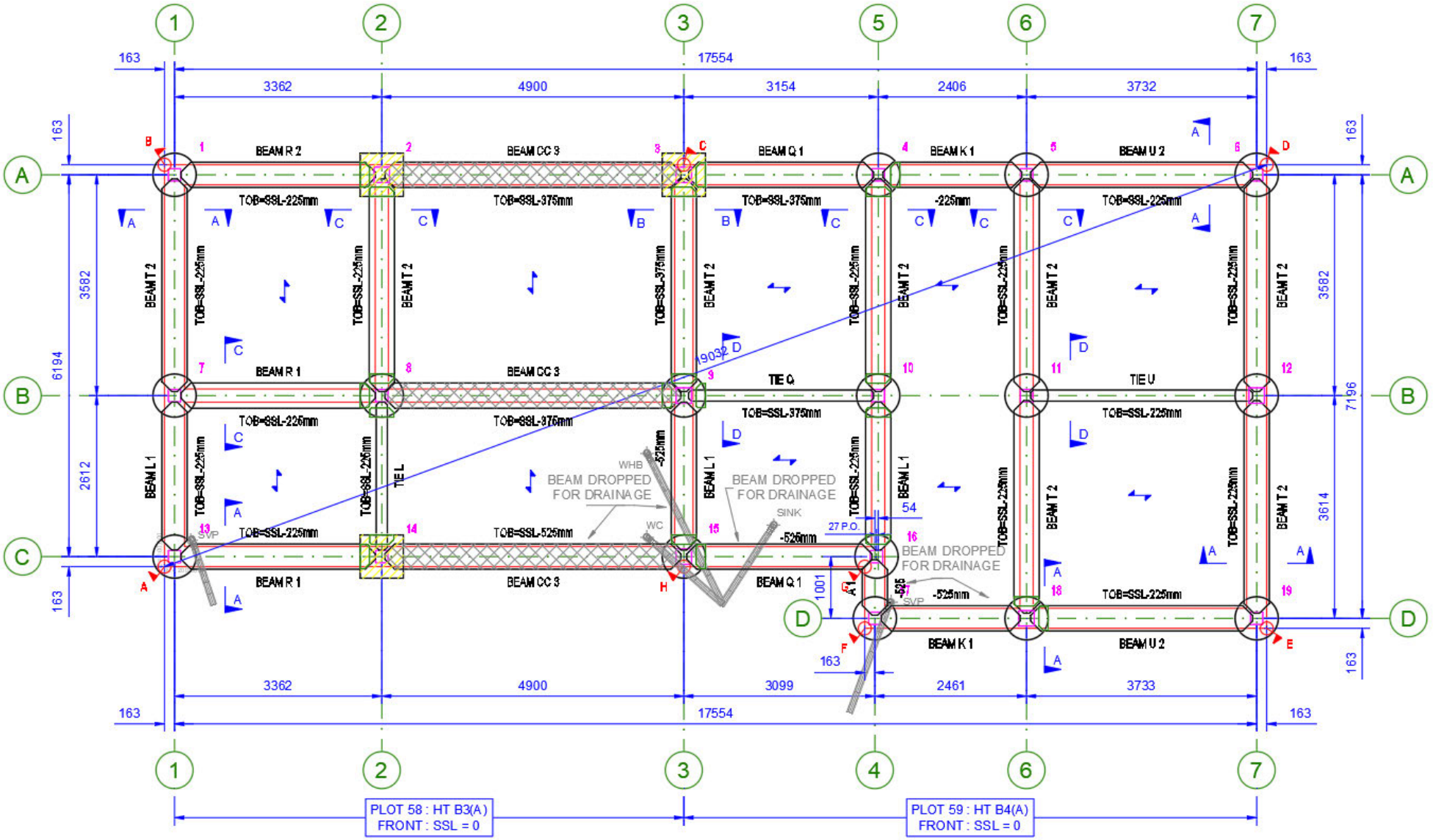

The Design Process

Beam Designer

Beam Details

Beam System: RBEAM 400

Void Former: checked

Drainage: unchecked

Top of Beam Level (mm)	-225
Span to Concrete Length Reduction (mm)	99
Beam Offset - From First Point (mm)	0
Beam Offset - From Second Point (mm)	0
Linear Beam Offset (mm)	0

Calculation Details

Load Case Number	3
Unfactored Load on Beam (kN/m)	60.00
Factored Load on Beam (kN/m)	85.60

Update Line Load

Beam Variables & Calculations

STOCK BEAM?	YES
SPAN	3610 mm
CONCRETE LENGTH	3450 mm
MAXIMUM BENDING MOMENT	110.25 kNm
MAXIMUM SHEAR	137.39 kN
DESIGN SHEAR	116.67 kN
REACTION TO PILE	108.30 kN
BEAM TYPE REQUIRED	RBEAM 400 TYPE 2

Re-Calculate Beam | Force Beam Type

End Bar Position

(High) End Bar Position | (Low) End Bar Position

Apply | Exit

The Design Process

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Client:	NICHOLAS KING HOMES	By:	LK	Engineer:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	2
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Line Loads**	Rev:	-	Doc. No:	226

ENGINEERS LOADS PROVIDED BY RSK REF: 133656 SK01 - SK48

Grid Reference:	Load Case	Other Live	Other Dead	Self Weight	Total Live	Total Dead	Design SLS	Design ULS
	1	4.0	30.0	4.00	4.00	34.00	38.00	54.00
	2	2.0	37.0	4.00	2.00	41.00	43.00	60.60
	3	8.0	48.0	4.00	8.00	52.00	60.00	85.60
	4	9.0	25.0	4.00	9.00	29.00	38.00	55.00
	5	8.5	45.0	4.00	8.50	49.00	57.50	82.20
	6	9.0	38.0	4.00	9.00	42.00	51.00	73.20
	7	7.0	35.0	4.00	7.00	39.00	46.00	65.80
	8	4.0	13.0	4.00	4.00	17.00	21.00	30.20

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Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	5
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Pile Table**	Rev:	-	Doc. No:	226

PILE SIZE	200	sq	250	sq	-	sq
MAXIMUM PILE LOAD	200	kN	350	kN	-	kN

PILE LOADS

Pile No.	Load Case Bm	Rn	Bm	Rn	Bm	Rn	Bm	Rn	Add. Load	Equalised with Pile	Adj.	TOTAL (kN)	
4	Q1-1	60	K1-1	46	T2-4	69						174	**175**
5	K1-1	46	U2-1	71	T2-4	69						185	**200**
6	U2-1	71	T2-3	108								179	**200**
7	L1-2	56	T2-2	77	R1-4	64						197	**200**
8	R1-4	64	T2-8	38	CC3-4	93						195	**200**
9	CC3-4	93	T2-5	103	L1-5	75						271	**275**
10	T2-4	69	L1-4	50								118	**125**
11	T2-4	69	T2-4	69								137	**150**
12	T2-3	108	T2-3	108								217	**225**
13	R1-7	77	L1-2	56								133	**150**
14	CC3-7	113	R1-7	77								190	**200**
15	Q1-1	60	CC3-7	113	L1-5	75						248	**250**
16	Q1-1	60	A1-3	30	L1-4	50						139	**150**
17	K1-2	53	A1-3	30								83	**100**
18	U2-2	80	K1-2	53	T2-4	69						202	**225**
19	T2-3	108	U2-2	80								188	**200**

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Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	4
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Beam Table**	Rev:	-	Doc. No:	226

Beam Analysis

Beam	Span	Load Case	Service Load (kN/m)	Ultimate Load (kN/m)	Beam Type	Minimum Section Type	Serv. Pile Rn. (kN)	Ult. Beam Rn. (kN)	Minimum Rqd. Cap Type
A1-3	1000	3	60.00	85.60	RBEAM_400	1	30	27	-
K1-1	2400	1	38.00	54.00	RBEAM_400	1	46	55	-
K1-2	2460	2	43.00	60.60	RBEAM_400	1	53	63	-
L1-2	2610	2	43.00	60.60	RBEAM_400	1	56	68	-
L1-4	2610	4	38.00	55.00	RBEAM_400	1	50	61	-
L1-5	2610	5	57.50	82.20	RBEAM_400	1	75	92	-
Q1-1	3150	1	38.00	54.00	RBEAM_400	1	60	75	-
R1-4	3360	4	38.00	55.00	RBEAM_400	1	64	82	-
R1-7	3360	7	46.00	65.80	RBEAM_400	1	77	98	-
R2-6	3360	6	51.00	73.20	RBEAM_400	2	86	109	-
T2-2	3580	2	43.00	60.60	RBEAM_400	1	77	97	-
T2-3	3610	3	60.00	85.60	RBEAM_400	2	108	138	-
T2-4	3610	4	38.00	55.00	RBEAM_400	1	69	89	-
T2-5	3580	5	57.50	82.20	RBEAM_400	2	103	132	-
T2-8	3580	8	21.00	30.20	RBEAM_400	1	38	48	-
U2-1	3730	1	38.00	54.00	RBEAM_400	1	71	90	-
U2-2	3730	2	43.00	60.60	RBEAM_400	2	80	102	-
CC3-4	4900	4	38.00	55.00	RBEAM_400	3	93	124	-
CC3-6	4900	6	51.00	73.20	RBEAM_400	3	125	165	-
CC3-7	4900	7	46.00	65.80	RBEAM_400	3	113	149	-

The Design Process

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Client:	NICHOLAS KING HOMES	By:	LK	Engineer:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	2
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Line Loads**	Rev:	-	Doc. No:	226

ENGINEERS LOADS PROVIDED BY RSK REF: 133656 SK01 - SK48

Grid Reference:	Load Case	Other Live	Other Dead	Self Weight	Total Live	Total Dead	Design SLS	Design ULS
	1	4.0	30.0	4.00	4.00	34.00	38.00	54.00
	2	2.0	37.0	4.00	2.00	41.00	43.00	60.60
	3	8.0	48.0	4.00	8.00	52.00	60.00	85.60
	4	9.0	25.0	4.00	9.00	29.00	38.00	55.00
	5	8.5	45.0	4.00	8.50	49.00	57.50	82.20
	6	9.0	38.0	4.00	9.00	42.00	51.00	73.20
	7	7.0	35.0	4.00	7.00	39.00	46.00	65.80
	8	4.0	13.0	4.00	4.00	17.00	21.00	30.20

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Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	5
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Pile Table**	Rev:	-	Doc. No:	226

PILE SIZE 200 sq 250 sq - sq
MAXIMUM PILE LOAD 200 kN 350 kN - kN

Pile No.	Load Case Bm	Rn	Bm	Rn	Bm	Rn	Bm	Rn	Add. Load	Equalised with Pile	Adj.	TOTAL (kN)	
4	Q1-1	60	K1-1	46	T2-4	69						174	**175**
5	K1-1	46	U2-1	71	T2-4	69						185	**200**
6	U2-1	71	T2-3	108								179	**200**
7	L1-2	56	T2-2	77	R1-4	64						197	**200**
8	R1-4	64	T2-8	38	CC3-4	93						195	**200**
9	CC3-4	93	T2-5	103	L1-5	75						271	**275**
10	T2-4	69	L1-4	50								118	**125**
11	T2-4	69	T2-4	69								137	**150**
12	T2-3	108	T2-3	108								217	**225**
13	R1-7	77	L1-2	56								133	**150**
14	CC3-7	113	R1-7	77								190	**200**
15	Q1-1	60	CC3-7	113	L1-5	75						248	**250**
16	Q1-1	60	A1-3	30	L1-4	50						139	**150**
17	K1-2	53	A1-3	30								83	**100**
18	U2-2	80	K1-2	53	T2-4	69						202	**225**
19	T2-3	108	U2-2	80								188	**200**

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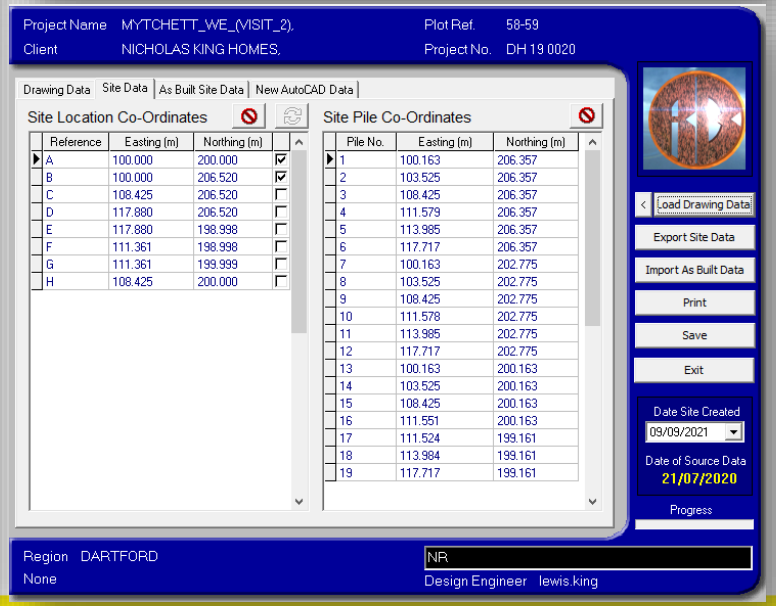
Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	4
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Beam Table**	Rev:	-	Doc. No:	226

Beam Analysis

Beam	Span	Load Case	Service Load (kN/m)	Ultimate Load (kN/m)	Beam Type	Minimum Section Type	Serv. Pile Rn. (kN)	Ult. Beam Rn. (kN)	Minimum Rqd. Cap Type
A1-3	1000	3	60.00	85.60	RBEAM_400	1	30	27	-
K1-1	2400	1	38.00	54.00	RBEAM_400	1	46	55	-
K1-2	2460	2	43.00	60.60	RBEAM_400	1	53	63	-
L1-2	2610	2	43.00	60.60	RBEAM_400	1	56	68	-
L1-4	2610	4	38.00	55.00	RBEAM_400	1	50	61	-
L1-5	2610	5	57.50	82.20	RBEAM_400	1	75	92	-
Q1-1	3150	1	38.00	54.00	RBEAM_400	1	60	75	-
R1-4	3360	4	38.00	55.00	RBEAM_400	1	64	82	-
R1-7	3360	7	46.00	65.80	RBEAM_400	1	77	98	-
R2-6	3360	6	51.00	73.20	RBEAM_400	2	86	109	-
T2-2	3580	2	43.00	60.60	RBEAM_400	1	77	97	-
T2-3	3610	3	60.00	85.60	RBEAM_400	2	108	138	-
T2-4	3610	4	38.00	55.00	RBEAM_400	1	69	89	-
T2-5	3580	5	57.50	82.20	RBEAM_400	2	103	132	-
T2-8	3580	8	21.00	30.20	RBEAM_400	1	38	48	-
U2-1	3730	1	38.00	54.00	RBEAM_400	1	71	90	-
U2-2	3730	2	43.00	60.60	RBEAM_400	2	80	102	-
CC3-4	4900	4	38.00	55.00	RBEAM_400	3	93	124	-
CC3-6	4900	6	51.00	73.20	RBEAM_400	3	125	165	-
CC3-7	4900	7	46.00	65.80	RBEAM_400	3	113	149	-



The Design Process

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Client:	NICHOLAS KING HOMES	By:	LK	Engineer:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	2
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Line Loads**	Rev:	-	Doc. No:	226

ENGINEERS LOADS PROVIDED BY RSK REF: 133656 SK01 - SK48

Grid Reference:	Load Case	Other		Self Weight	Total Live	Total Dead	Design SLS	Design ULS
		Live	Dead					
	1	4.0	30.0	4.00	4.00	34.00	38.00	54.00
	2	2.0	37.0	4.00	2.00	41.00	43.00	60.60
	3	8.0	48.0	4.00	8.00	52.00	60.00	85.60
	4	9.0	25.0	4.00	9.00	29.00	38.00	55.00
	5	8.5	45.0	4.00	8.50	49.00	57.50	82.20
	6	9.0	38.0	4.00	9.00	42.00	51.00	73.20
	7	7.0	35.0	4.00	7.00	39.00	46.00	65.80
	8	4.0	13.0	4.00	4.00	17.00	21.00	30.20

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Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	5
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Pile Table**	Rev:	-	Doc. No:	226

PILE SIZE 200 sq 250 sq - sq
MAXIMUM PILE LOAD 200 kN 350 kN - kN

Pile No.	Load Case								Add. Load	Equalised with		TOTAL (kN)	
	Bm	Rn	Bm	Rn	Bm	Rn	Bm	Rn		Pile	Adj.		
4	Q1-1	60	K1-1	46	T2-4	69						174	175
5	K1-1	46	U2-1	71	T2-4	69						185	200
6	U2-1	71	T2-3	108								179	200
7	L1-2	56	T2-2	77	R1-4	64						197	200
8	R1-4	64	T2-8	38	CC3-4	93						195	200
9	CC3-4	93	T2-5	103	L1-5	75						271	275
10	T2-4	69	L1-4	50								118	125
11	T2-4	69	T2-4	69								137	150
12	T2-3	108	T2-3	108								217	225
13	R1-7	77	L1-2	56								133	150
14	CC3-7	113	R1-7	77								190	200
15	Q1-1	60	CC3-7	113	L1-5	75						248	250
16	Q1-1	60	A1-3	30	L1-4	50						139	150
17	K1-2	53	A1-3	30								83	100
18	U2-2	80	K1-2	53	T2-4	69						202	225
19	T2-3	108	U2-2	80								188	200

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Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	4
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Beam Table**	Rev:	-	Doc. No:	226

Beam Analysis

Beam	Span	Load Case	Service Load (kN/m)	Ultimate Load (kN/m)	Beam Type	Minimum Section Type	Serv. Pile Rn. (kN)	Ult. Beam Rn. (kN)	Minimum Rqd. Cap Type
A1-3	1000	3	60.00	85.60	RBEAM_400	1	30	27	-
K1-1	2400	1	38.00	54.00	RBEAM_400	1	46	55	-
K1-2	2460	2	43.00	60.60	RBEAM_400	1	53	63	-
L1-2	2610	2	43.00	60.60	RBEAM_400	1	56	68	-
L1-4	2610	4	38.00	55.00	RBEAM_400	1	50	61	-
L1-5	2610	5	57.50	82.20	RBEAM_400	1	75	92	-
Q1-1	3150	1	38.00	54.00	RBEAM_400	1	60	75	-
R1-4	3360	4	38.00	55.00	RBEAM_400	1	64	82	-
R1-7	3360	7	46.00	65.80	RBEAM_400	1	77	98	-
R2-6	3360	6	51.00	73.20	RBEAM_400	2	86	109	-
T2-2	3580	2	43.00	60.60	RBEAM_400	1	77	97	-
T2-3	3610	3	60.00	85.60	RBEAM_400	2	108	138	-
T2-4	3610	4	38.00	55.00	RBEAM_400	1	69	89	-
T2-5	3580	5	57.50	82.20	RBEAM_400	2	103	132	-
T2-8	3580	8	21.00	30.20	RBEAM_400	1	38	48	-
U2-1	3730	1	38.00	54.00	RBEAM_400	1	71	90	-
U2-2	3730	2	43.00	60.60	RBEAM_400	2	80	102	-
CC3-4	4900	4	38.00	55.00	RBEAM_400	3	93	124	-
CC3-6	4900	6	51.00	73.20	RBEAM_400	3	125	165	-
CC3-7	4900	7	46.00	65.80	RBEAM_400	3	113	149	-

Project Name MYTCHETT_WE_(VISIT_2). Plot Ref. 58-59
Client NICHOLAS KING HOMES. Project No. DH 19 0020

Drawing Data | Site Data | As Built Site Data | New AutoCAD Data

Site Location Co-Ordinates

Reference	Easting (m)	Northing (m)	
A	100.000	200.000	☑
B	100.000	206.520	☑
C	108.425	206.520	☐
D	117.880	206.520	☐
E	117.880	198.998	☐
F	111.361	198.998	☐
G	111.361	199.999	☐
H	108.425	200.000	☐

Site Pile Co-Ordinates

Pile No.	Easting (m)	Northing (m)
1	100.163	206.357
2	103.525	206.357
3	108.425	206.357
4	111.579	206.357
5	113.985	206.357
6	117.717	206.357
7	100.163	202.775
8	103.525	202.775
9	108.425	202.775
10	111.578	202.775
11	113.985	202.775
12	117.717	202.775
13	100.163	200.163
14	103.525	200.163
15	108.425	200.163
16	111.551	200.163
17	111.524	199.161
18	113.984	199.161
19	117.717	199.161

Load Drawing Data | Export Site Data | Import As Built Data | Print | Save | Exit

Date Site Created 09/09/2021
Date of Source Data 21/07/2020
Progress

Region DARTFORD
None
NR
Design Engineer lewis.king

Project Name MYTCHETT_WE_(VISIT_2). Plot Ref. 58-59
Client NICHOLAS KING HOMES. Project No. DH 19 0020

Drawing Data | Site Data | As Built Site Data | New AutoCAD Data

As Built Pile Co-Ordinates

Pile No.	Easting (m)	Northing (m)	Difference Easting (mm)	Difference Northing (mm)
1	488742.384	154732.963	43	6
2	488745.732	154733.102	55	39
3	488750.652	154733.162	33	38
4	488753.867	154733.284	29	5
5	488756.867	154733.432	624	76
6	488759.953	154733.498	21	38
7	488742.515	154729.332	12	56
8	488745.901	154729.495	13	13
9	488750.757	154729.575	29	45
10	488753.927	154729.688	10	20
11	488756.315	154729.787	28	12
12	488760.061	154729.931	13	51
13	488742.617	154726.760	17	17
14	488745.976	154726.856	15	15
15	488750.842	154726.988	17	21
16	488753.958	154727.065	26	31
17	488753.980	154726.071	5	23
18	488756.442	154726.130	2	33
19	488760.194	154726.235	19	32

Load Drawing Data | Export Site Data | Import As Built Data | Print AsBuilt | Save | Exit

Date Site Created 20/05/2021
Date of Source Data 21/07/2020
Progress

Region DARTFORD
None
NR
Design Engineer lewis.king

The Design Process

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Client:	NICHOLAS KING HOMES	By:	LK	Engineer:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	2
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Line Loads**	Rev:	-	Doc. No:	226

ENGINEERS LOADS PROVIDED BY RSK REF: 133656 SK01 - SK48

Grid Reference:	Load Case	Other Live	Other Dead	Self Weight	Total Live	Total Dead	Design SLS	Design ULS
	1	4.0	30.0	4.00	4.00	34.00	38.00	54.00
	2	2.0	37.0	4.00	2.00	41.00	43.00	60.60
	3	8.0	48.0	4.00	8.00	52.00	60.00	85.60
	4	9.0	25.0	4.00	9.00	29.00	38.00	55.00
	5	8.5	45.0	4.00	8.50	49.00	57.50	82.20
	6	9.0	38.0	4.00	9.00	42.00	51.00	73.20
	7	7.0	35.0	4.00	7.00	39.00	46.00	65.80
	8	4.0	13.0	4.00	4.00	17.00	21.00	30.20

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Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	4
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Beam Table**	Rev:	-	Doc. No:	226

Beam Analysis

Beam	Span	Load Case	Service Load (kN/m)	Ultimate Load (kN/m)	Beam Type	Minimum Section Type	Serv. Pile Rn. (kN)	Ult. Beam Rn. (kN)	Minimum Rqd. Cap Type
A1-3	1000	3	60.00	85.60	RBEAM_400	1	30	27	-
K1-1	2400	1	38.00	54.00	RBEAM_400	1	46	55	-
K1-2	2460	2	43.00	60.60	RBEAM_400	1	53	63	-
L1-2	2610	2	43.00	60.60	RBEAM_400	1	56	68	-
L1-4	2610	4	38.00	55.00	RBEAM_400	1	50	61	-
L1-5	2610	5	57.50	82.20	RBEAM_400	1	75	92	-
Q1-1	3150	1	38.00	54.00	RBEAM_400	1	60	75	-
R1-4	3360	4	38.00	55.00	RBEAM_400	1	64	82	-
R1-7	3360	7	46.00	65.80	RBEAM_400	1	77	98	-
R2-6	3360	6	51.00	73.20	RBEAM_400	2	86	109	-
T2-2	3580	2	43.00	60.60	RBEAM_400	1	77	97	-
T2-3	3610	3	60.00	85.60	RBEAM_400	2	108	138	-
T2-4	3610	4	38.00	55.00	RBEAM_400	1	69	89	-
T2-5	3580	5	57.50	82.20	RBEAM_400	2	103	132	-
T2-8	3580	8	21.00	30.20	RBEAM_400	1	38	48	-
U2-1	3730	1	38.00	54.00	RBEAM_400	1	71	90	-
U2-2	3730	2	43.00	60.60	RBEAM_400	2	80	102	-
CC3-4	4900	4	38.00	55.00	RBEAM_400	3	93	124	-
CC3-6	4900	6	51.00	73.20	RBEAM_400	3	125	165	-
CC3-7	4900	7	46.00	65.80	RBEAM_400	3	113	149	-

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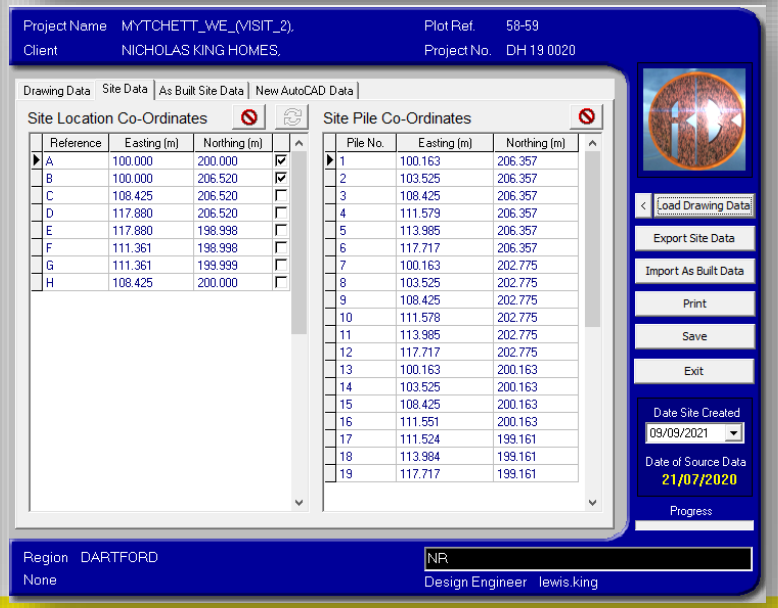
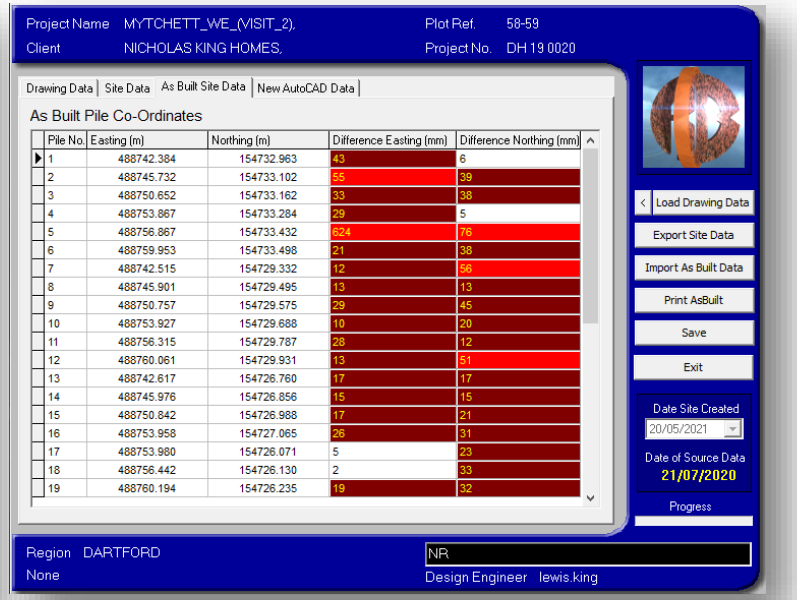
Client:	NICHOLAS KING HOMES	By:	LK	Eng:	JLS
Project:	MYTCHETT WE (VISIT 2)				
Project No.	DH/19/0020	Date:	JUNE 20	Sheet No.	5
Plot:	58-59 HT B3(A), B4(A)				
Title:	**Pile Table**	Rev:	-	Doc. No:	226

PILE SIZE	200	sq	250	sq	- sq
MAXIMUM PILE LOAD	200	kN	350	kN	- kN

PILE LOADS

Pile No.	Load Case Bm	Rn	Bm	Rn	Bm	Rn	Bm	Rn	Add. Load	Equalised with Pile	Adj.	TOTAL (kN)	
4	Q1-1	60	K1-1	46	T2-4	69						174	175
5	K1-1	46	U2-1	71	T2-4	69						185	200
6	U2-1	71	T2-3	108								179	200
7	L1-2	56	T2-2	77	R1-4	64						197	200
8	R1-4	64	T2-8	38	CC3-4	93						195	200
9	CC3-4	93	T2-5	103	L1-5	75						271	275
10	T2-4	69	L1-4	50								118	125
11	T2-4	69	T2-4	69								137	150
12	T2-3	108	T2-3	108								217	225
13	R1-7	77	L1-2	56								133	150
14	CC3-7	113	R1-7	77								190	200
15	Q1-1	60	CC3-7	113	L1-5	75						248	250
16	Q1-1	60	A1-3	30	L1-4	50						139	150
17	K1-2	53	A1-3	30								83	100
18	U2-2	80	K1-2	53	T2-4	69						202	225
19	T2-3	108	U2-2	80								188	200





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Client:	NICHOLAS KING HOMES	By:	JLS	Engineer:	JLS
Project:	MYTCHETT WE (VISIT 2)	Date:	21/05/21	Sheet No.	
Project No.	DH/19/0020	Checked:		Date:	
Plot:	58-59 HT B3(A), B4(A)	Approved:		Date:	

Pile Size 200

Out Of Position Piles:	Refer to Roger Bullivant Ltd. Drawings Ref: DH/19/0020/265		
Nos.	13No. Piles <50mm out	5No. Piles 50-75mm out	1No. Piles >75mm out
19No. Piles Total			

Pile No.	Pile Load (See Drg.) (kN)	Amount Out Of Position (mm)	Service Moment (kNm)	Out Of Position Diagram Ref. No.	Moment reduction due to drop in steel	Manual reduction in moment, due to pile location	Net moment in pile	Allowable moment in pile	Comment
1	163	43	7.0		0.0		7.0		NO ACTION REQUIRED
2	248	68	16.9	2	18.0		0.0		ENSURE BEARING
3	288	51	14.7		0.0		14.7		NO ACTION REQUIRED
4	174	30	5.2		0.0		5.2		NO ACTION REQUIRED
5	185	629	116.4		0.0		116.4		REMEDIAL ACTION REQUIRED
6	179	42	7.5		0.0		7.5		NO ACTION REQUIRED
7	197	58	11.4		0.0		11.4		NO ACTION REQUIRED
8	195	18	3.5		0.0		3.5		NO ACTION REQUIRED
9	271	53	14.4		0.0		14.4		NO ACTION REQUIRED
10	118	23	2.7		0.0		2.7		NO ACTION REQUIRED
11	137	30	4.1		0.0		4.1		NO ACTION REQUIRED
12	217	52	11.3		0.0		11.3		NO ACTION REQUIRED
13	133	24	3.2		0.0		3.2		NO ACTION REQUIRED
14	190	22	4.2		0.0		4.2		NO ACTION REQUIRED
15	248	28	6.9		0.0		6.9		NO ACTION REQUIRED
16	139	41	5.7		0.0		5.7		NO ACTION REQUIRED
17	83	24	2.0		0.0		2.0		NO ACTION REQUIRED
18	202	33	6.7		0.0		6.7		NO ACTION REQUIRED
19	188	38	7.2		0.0		7.2		NO ACTION REQUIRED

The Design Process

Piles

Pile Type	Pile Quantity
R 200 SQ PRECAST	13
R 250 SQ PRECAST	6

Caps

Cap Type	Cap Quantity
B	12
BIG B	1
D	4
BIG D	2

Insitu

Standard Cages		
Quantity	Type	Length (m)
Total Insitu Volume (m^3)		
Mesh / Dowels	Quantity	

Beams

Beam Group	Beam Grid Length (m)	Beam Conc Length (m)	Beam Weight (t)
RTIE	9.49	9	1.170
RBEAM400	80.87	77.25	22.342

Top Steel

Bar Mark	Bar Mark Quantity
01	7
02	15
03	3
04	3
07	1
08	1

Packers

Packer Type	Packer Depth	Packer Quantity
390W	75	12
390W	150	21

Heave Precautions

Type	Quantity (m)
VOID FORMER	43.46

The Design Process

Piles

Pile Type	Pile Quantity
R 200 SQ PRECAST	13
R 250 SQ PRECAST	6

Caps

Cap Type	Cap Quantity
B	12
BIG B	1
D	4
BIG D	2

Insitu

Standard Cages		
Quantity	Type	Length (m)
Total Insitu Volume (m^3)		
Mesh / Dowels	Quantity	

Beams

Beam Group	Beam Grid Length (m)	Beam Conc Length (m)	Beam Weight (t)
RTIE	9.49	9	1.170
RBEAM400	80.87	77.25	22.342

Top Steel

Bar Mark	Bar Mark Quantity
01	7
02	15
03	3
04	3
07	1
08	1

Packers

Packer Type	Packer Depth	Packer Quantity
390W	75	12
390W	150	21

Heave Precautions

Type	Quantity (m)
VOID FORMER	43.46

ROGER BULLIVANT Ltd — SHEET 1 OF 1

RBeam 400 Schedule (Stock Lengths)

DESIGN DEPARTMENT

DC CLASS DC-3

Job No :- DH 19 0020 **DATE :-** 22/07/20

Project :- MYTCHETT_WE_(VISIT_2) **Rev.**

Plot Ref :- 58-59

BEAM Code /Type	CONCRETE LENGTH	QTY	COMMENTS / Drawing No.	Wt. Each	BEAM Code /Type	CONCRETE LENGTH	QTY	COMMENTS / Drawing No.	Wt. Each
A 1	900	1		0.18					
K 1	2250	2		0.58					
L 1	2400	3		0.62					
Q 1	3000	2		0.80					
R 1	3150	2		0.85					
R 2	3150	1		0.85					
T 2	3450	8		0.94					
U 2	3600	2		0.99					
CC 3	4800	3		1.68					
L	2400	1	TIE	0.31					
Q	3000	1	TIE	0.39					
U	3600	1	TIE	0.47					

90.36 GRID LENGTH (m)

SUMMARY

	No.	LENGTH (MTRS)		WEIGHT	
Type 1	10	24.90		6.50	
Type 2	11	37.95	62.85	10.37	16.88
Type 3	3	14.40	14.40	5.04	5.04
Type 4					
Type 5					
TOTAL RB400			77.25		21.92
RTIE	3		9.00	RTIE	1.17

RB400 & RTIE

TOTAL Qty. 27

TOTAL Mtrs. 86.25

TOTAL Wt. 23.09 (Tonnes)

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HOUSE FOUNDATIONS DESIGN DEPARTMENT

MATERIAL SCHEDULE

CLIENT: NICHOLAS KING HOMES
PROJECT: MYTCHETT WE (VISIT 2)
JOB No. DH/19/0020
REGION: RB SOUTH EAST

SHEET No: 5
DATE: 22/07/20
REVISION:

REV	DATE	DESCRIPTION	BY	CKD

PLOT REF.	PILES No.	PILES TYPE	PILE CAPS No.	PILE CAPS TYPE	STANDARD CAGES No.	STANDARD CAGES TYPE	STANDARD CAGES LENGTH (m)	TOTAL PRECAST BEAM (CONCRETE) 450R (m)	600R (m)	T3 (m)	Tie (m)	T5 (m)	RBeam (m)	RTIe (m)	RBeam 400 (m)	DROP STL Mk. 01	Mk. 02	STEP STEEL Mk. 03	Mk. 04	Mk. 05	Mk. 06	Mk. 07	Mk. 08	Mk. 09	Mk. 10	JNT Mk. 11	DOWELL BARS No.	A393 MESH ¼ Sheet No.	INSITU CONC. VOLUME (m^3)	PACKERS TYPE	75mm No.	150mm No.	VOID FORMER (m)
36	18		6	B				9.2						10.4	41.0	3	6	2	4	2	2	3	1			3		10.0	1.89	390W	10	21	33.1
	1	*	2	BIG B																										440W	1	2	
			2	B800HD																													
			1	D																													
36g	4		4	B											15.6		4												390W	4		14.4
37-38	21		7	B				13.9						8.3	55.2	6	8	2	5	6	2	1			1	4	13	15.5	3.87	390W	2	23	
	6	*	2	D																										440W	2	1	
			2	BIG D																													
			2	D800HD																													
47-52	36		6	B	3	SD	1.200	18.2						17.4	75.2	20	14	3	6	3	2		2	2		8		14.0	8.39	390W	16	17	46.7
	14	*	8	D	4	SD	1.350																							440W	4		
			4	BIG D	1	HD	1.350																										
53-55	26		12	B				14.8						20.3	96.8	10	16	7		12		3		1		1		12.0	3.79	390W	10	48	82.2
	9	*	4	D																										440W		2	
			3	D800HD																													
56-57	6		6	B										4.8	72.2	5	14	6		2										390W	14	8	40.6
	9	*	5	D																													
			4	BIG D																													
58-59	13		12	B										9.0	77.3	7	15	3	3			1	1							390W	12	21	43.5
	6	*	1	BIG B																													
			4	D																													
			2	BIG D																													
60-62	17		9	B										27.0	81.9	12	9	7	1	3			3	2	1			2.0	0.82	390W	17	32	45.2
	6	*	4	BIG B																													
			2	D																													
			4	BIG D																													
TOTAL	192		118		8		3.900	56	0	0	0	0	0	97	515	69	95	33	21	31	7	9	8	6	2	18	14	54	18.76		101	193	336

PILE TYPES:	KEY	TOTAL CAP CAGES:
200 SQ PCC		
250 SQ PCC	*	

NOTES:

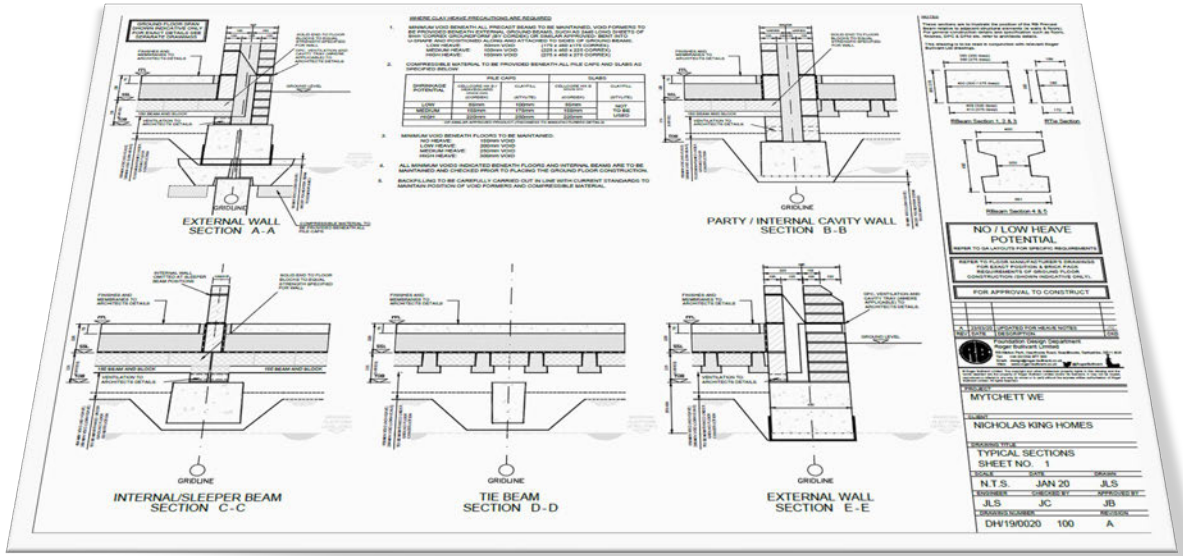
SCHEDULED BY: Lewis King

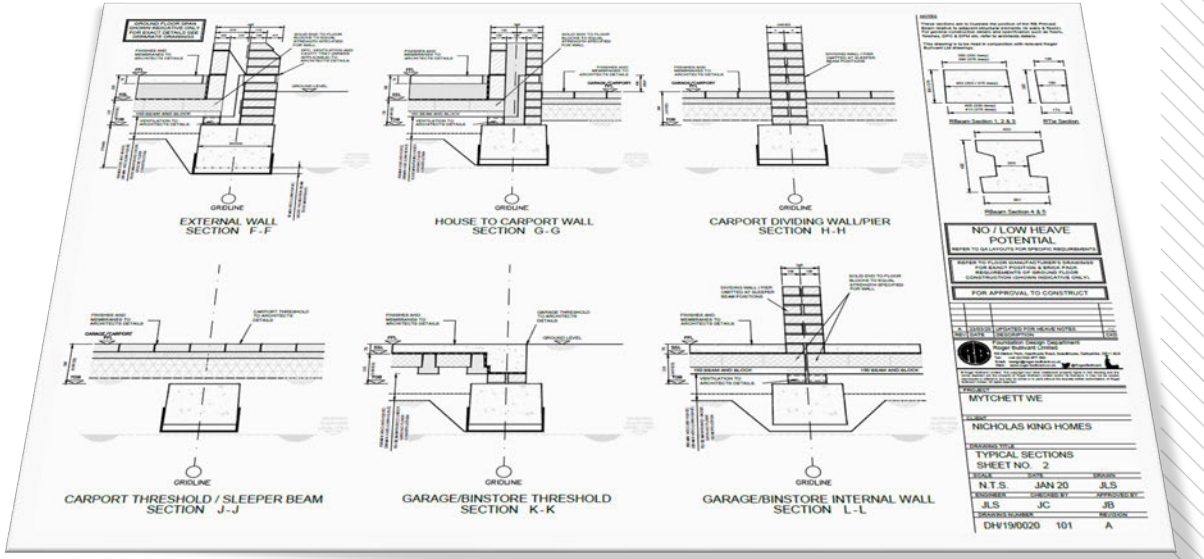
CHECKED BY:

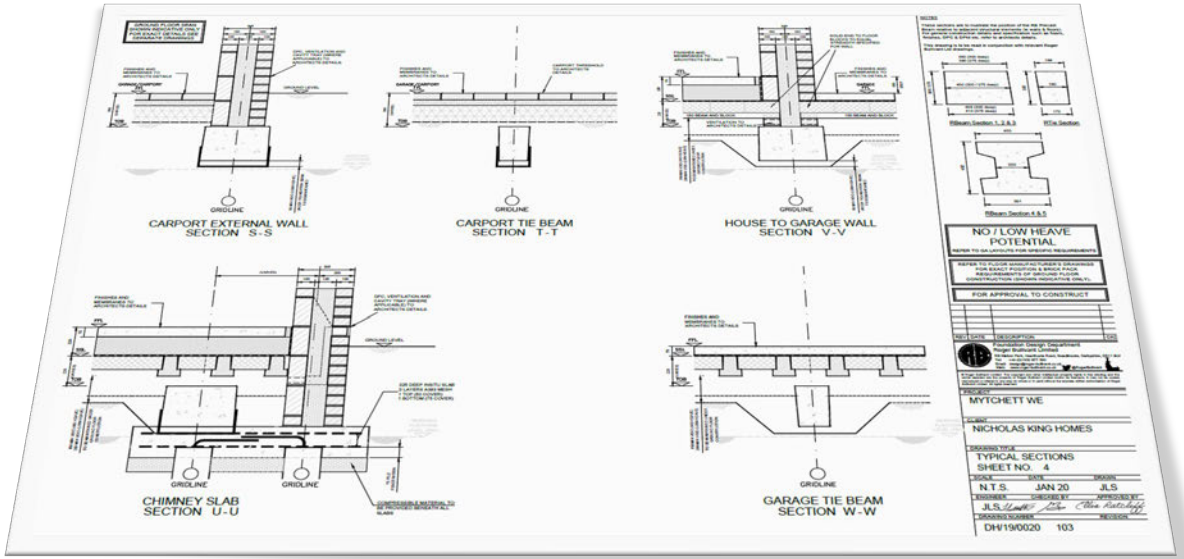
CONCRETE DC CLASS REQUIRED:

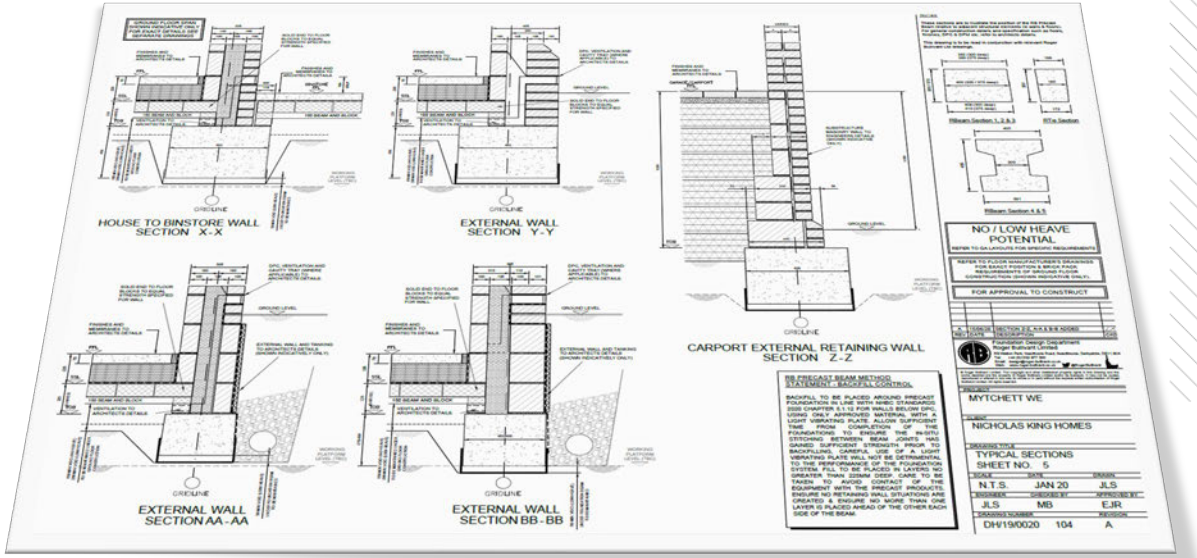
DC-3 (FND3)

The Design Process









The Design Process

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Client:	NICHOLAS KING HOMES	By:	LK	Engineer:	JLS
Project:	MYTCHETT WE (VISIT 2)	Date:	JUNE 20	Sheet No.:	1
Project No.:	DH 19 0020	Checked:		Date:	15/07/20
Plot:	58-59 HT B3(A), B4(A)	Approved:		Date:	21/7/20
Title:	PROJECT CALCULATIONS	Rev:	-	Doc. No:	226

Revision	Description	Date	Initials	Checked

Call Nationwide on: 0845 8381801
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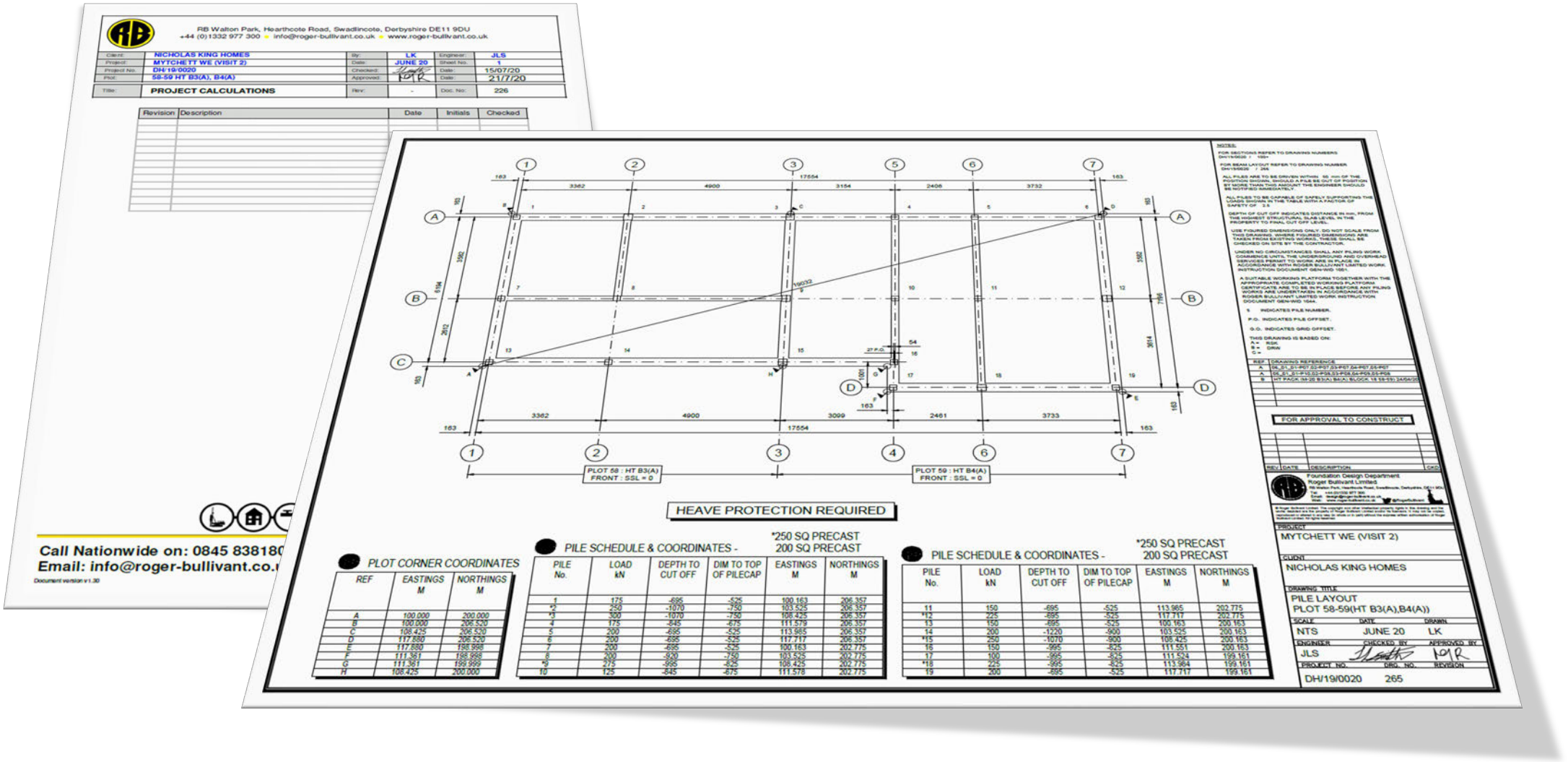
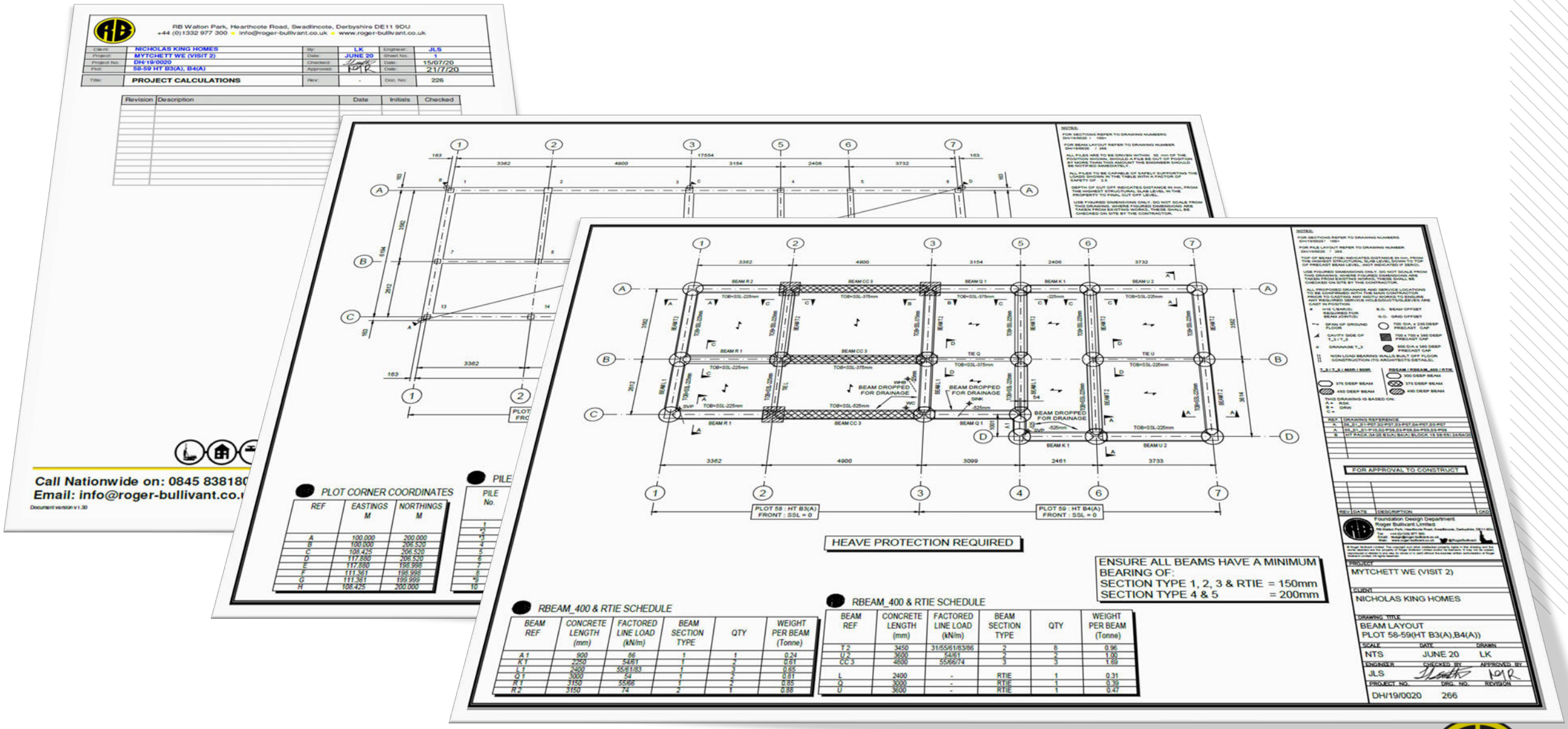
Document version v1.30

DH 19 0020_RBL_PT58-59HTB3(A)B4(A)_FL_PC_X_226

The Design Process



The Design Process



The Design Process

Roger Bullivant – lessons learnt

Site investigation – sufficient and detailed appropriate for the site with boreholes to areas to significant depth minimum 3.0 to 5.0m below estimated depth of pile.

Knowledge of any remediation or any environmental issues to ensure details are taken into consideration

Preparation works – any cut and fill, and method of installing the ‘working platform’ that could have an affect on the works ahead.

Receipt of relevant Construction drawings, Engineering layouts at an early stage to enable a relevant estimate to be submitted. (Changes to design during this process can lead to additional abortive charges)

The ‘working platform’ is at minimum soffit of the Precast beam.

LAST is to have dialogue with your customer and where possible the Design team to understand the project, their expectations and what we can provide.

Presentations

Upcoming

- Offsite Manufacturing On Site Piling
- The Completed Solution

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Thank you for listening!
We will now move onto a Q&A, followed by a survey.

All questions are welcome!

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