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Project KXB

Job number	18885
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LOAD RUN-DOWN

PHILOSOPHY

THIS CALCULATION FORMS AN APPENDIX TO A REPORT. ~~THIS REPORT~~ WHICH OUTLINES THE GENERAL PHILOSOPHY OF THE LOAD RUN-DOWN INCLUDING LOADING USED AND STRUCTURAL ARRANGEMENT. LOADS ARE DIVIDED INTO IMPOSED & DEAD LOADS, COMBINATIONS REQUIRING FURTHER SPECIFICATION WILL BE USED CONSERVATIVELY.

THE FOLLOWING SECTIONS DESCRIBE THE LOAD RUN-DOWN PROCESS USED FOR THE EXISTING & PROPOSED BUILDINGS. THE SECTIONS THEREAFTER PRESENT THE METHODOLOGY, RESULTS & COMPARISONS.

PROPOSED LOADS

ABOVE THE BASEMENT SLAB THESE WERE FOUND FROM THE BUILDING DESIGNER MODEL (PRESENTED IN ANOTHER APPENDIX). LOADS FROM THE BASEMENT WERE FOUND BY TWEAKING THE EXISTING LOAD RUN-DOWN DISCUSSED IN THE NEXT SECTION.

BUILDING DESIGNER REACTIONS ARE ATTACHED.

EXISTING LOADS

LOAD AREAS WERE DRAWN IN THE BLUEBEAM PDF EDITOR & AREA VALUES WERE EXPORTED TO ~~PDF~~ EXCEL. AFTER SOME PROCESSING THESE VALUES WERE INSERTED INTO THE MAIN LOAD RUN-DOWN SPREADSHEET. THIS SPREADSHEET PROCESSES EXISTING LOADS AS WELL AS PROPOSED BASEMENT LOADS & PRESENTS RESULTS / COMPARISONS.

THE PDF MARKUP & BOTH SPREADSHEETS ARE ATTACHED.

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RESULTS BELOW BASEMENT SLAB

AS IS MADE CLEAR IN THE ATTACHED SPREADSHEET PRINTOUTS, A MAJORITY OF BASEMENT LEVEL LOADS ARE REDUCED. SINCE NO NEW STRUCTURE IS INTRODUCED BELOW THIS LEVEL, THE FOUNDATION LOADS IN THESE AREAS ARE ALSO REDUCED. THERE ARE 6 AREAS WHERE LOADS ARE NOT REDUCED (LISTED BELOW), FOR THESE THE LOAD PATH IS ANALYSED FURTHER.

AREAS OF FURTHER INVESTIGATION:

- BEARINGS 19/20
- BEARINGS ON GIRDER A
- BEARINGS ON GIRDER B
- BEARINGS ON GIRDER E
- BEARING F
- BEARINGS 21/H/16

BEARINGS 19 & 20

THESE BOTH SIT ON A 4.2m TALL WALL ~ 1.4m APART. BY INSPECTION THESE LOAD THE FOUNDATION TOGETHER.

$P_{19,EXISTING} = 247\,kN$
$P_{20,EXISTING} = 682\,kN$

$\Sigma P_{EXISTING} = 929\,kN$

$P_{19,PROPOSED} = 689\,kN$
$P_{20,PROPOSED} = 163\,kN$

$\Sigma P_{PROPOSED} = 852\,kN$

$\frac{852}{929} = 92\%$ OK

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BEARINGS ON GIRDER A & B

GIRDERS A & B SIT ON ABUTMENTS ON EITHER END, THESE ARE ANALYSED SEPARATELY. THE REACTIONS FROM GIRDERS A & B ARE TAKEN FROM THE FINITE ELEMENTS MODEL DEVELOPED AS PART OF THE GIRDER ANALYSIS (SEPARATE APPENDIX).

: NORTHERN ABUTMENT

GIRDER A

$R_A = 580\gamma_G + 293\gamma_Q$ $\quad R_{A,EXISTING} = 340\gamma_G + 163\gamma_Q$ kN

GIRDER B

$R_B = 1003\gamma_G + 643\gamma_Q$ $\quad R_{B,EX} = 615\gamma_G + 272\gamma_Q$ kN

BEARING LENGTH

$L_A = 6.7m$
$L_B = 7.7m$

R_A/L_A
R_B/L_B

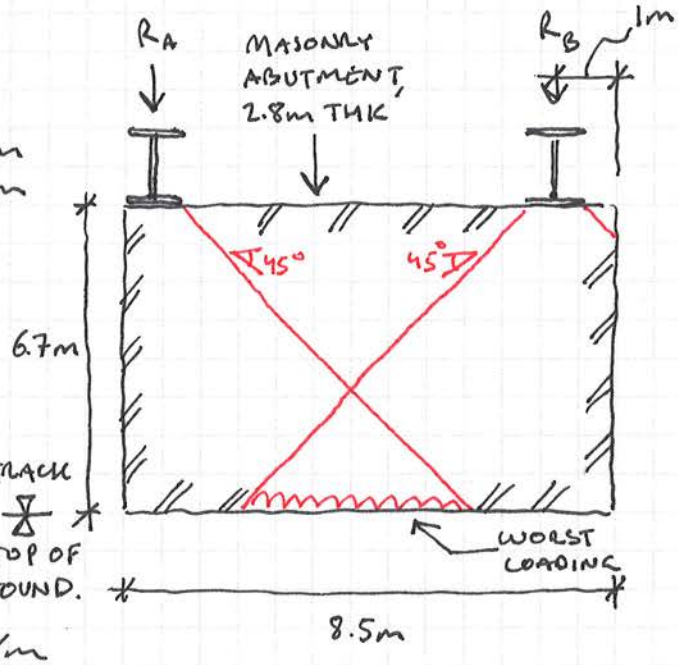
$R_{A,BASE} = 87\gamma_G + 44\gamma_Q$ kN/m
$R_{B,BASE} = 130\gamma_G + 85\gamma_Q$ kN/m

$R_{ABUT} = 6.7 \times 2.8 \times 20$ ← MASONRY WEIGHT
$= 375$ kN/m

LOAD FROM WALLS ON 283 PENTONVILLE ROAD:

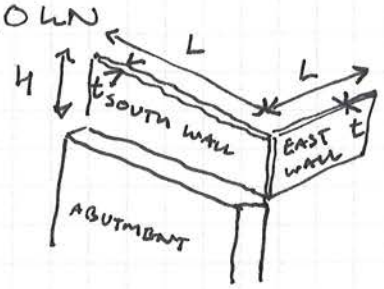
EAST WALL

$R_E = \frac{L_E}{2} \times H_E \times t_E \times 20$
$= \frac{6.6}{2} \times 14.5 \times 0.215 \times 20$
$= 206$ kN
$R_{E,BASE} = 206/7.7 = 27$ kN/m



SOUTH WALL

$R_S = L_S \times H_S \times t_S \times 20 = 6.7 \times 17 \times 0.215 \times 20 = 490$ kN
$R_{S,BASE} = 490/8.5 = 58$ kN/m



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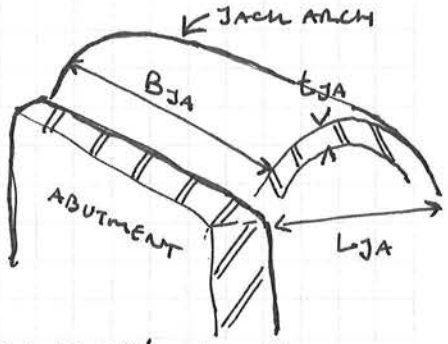
LOAD RUN-DOWN

LOAD FROM JACK-ARCHES BELOW PENTONVILLE ROAD:

$$R_{JA} = \frac{L_{JA}}{2} \times B_{JA} \times t_{JA} \times 20 \quad \text{(AVERAGE)}$$
$$= 6.6/2 \times 6.7 \times 0.4 \times 20$$
$$= 177\ kN$$
$$R_{JA,BASE} = 177/8.5 = 21\ kN/m$$



TOTAL:

$$R_{A,B} + R_{B,B} + R_{E,B} + R_{S,B} + R_{AJ,B} + R_{ABUT} = 698\,\gamma_G + 130\,\gamma_Q\ kN/m$$

TOTAL EXISTING:

$$R_{A,B} + R_{B,B} + R_{E,B} + R_{S,B} + R_{AJ,B} + R_{ABUT} = 612\,\gamma_G + 60\,\gamma_Q\ kN/m$$

INCREASE = 156 kN SLS = 23%

SEE FOUNDATION ANALYSIS FOR FURTHER INFORMATION.

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: SOUTHERN WALL

GIRDERS A & B SIT ON 1.53m OF MASONRY. BEHIND THESE THERE IS A 215mm THK MASONRY WALL SUPPORTED OFF THE SAME WALL ∴ THE TOTAL THICKNESS IS 1.745m.

GIRDER A EXISTING

$R_A = 406\gamma_g + 223\gamma_q$ kN

$R_{A,Ex} = 302\gamma_g + 146\gamma_q$ kN

GIRDER B EXISTING

$R_B = 930\gamma_g + 579\gamma_q$ kN

$R_{B,Ex} = 597\gamma_g + 266\gamma_q$ kN

$L_A = 5.7$m

$L_B = 4.3$m

R/L

$R_{A,BASE} = 71\gamma_g + 40\gamma_q$ kN/m

$R_{A,Ex,BASE} = 53\gamma_g + 26\gamma_q$ kN/m

$R_{B,BASE} = 216\gamma_g + 135\gamma_q$ kN/m

$R_{B,Ex,BASE} = 139\gamma_g + 62\gamma_q$ kN/m

WALL ABOVE

$R_{WALL} = 0.215 \times 5 \times 20$ ← MASONRY WEIGHT

$= 22$ kN/m

ABUTMENT WALL

$R_{ABUT} = 1.745 \times 4.3 \times 20$

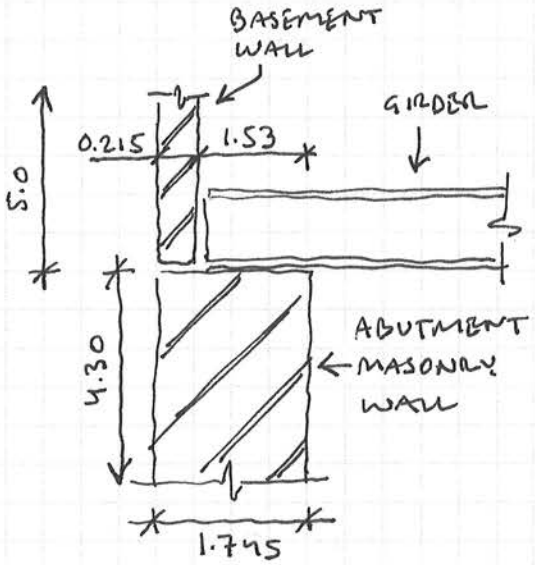
$= 150$ kN/m

TOTAL:

PROPOSED $= 459\gamma_g + 175\gamma_q$ kN/m

EXISTING ~~PROPOSED~~ $= 364\gamma_g + 88\gamma_q$ kN/m

INCREASE = 182kN SLS = 40%



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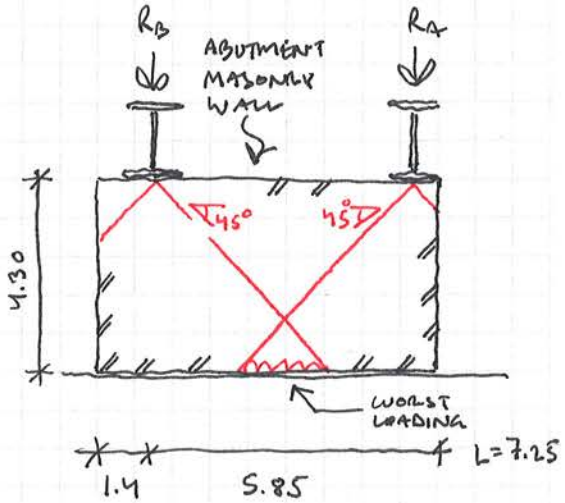

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Project KxB

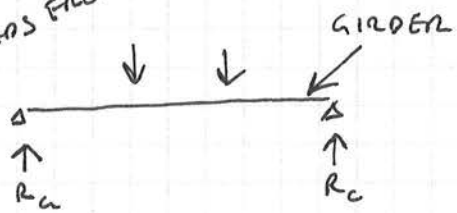
LOAD RUN-DOWN

BEARING ON ~~GRID~~ GIRDER E

@ BEARING A EXISTING
@ BEARING C EXISTING

$R_A = 406\gamma_a + 222\gamma_Q$ kN
$R_{A,Ex} = 558\gamma_a + 164\gamma_Q$ kN
$R_C = 460\gamma_a + 248\gamma_Q$ kN
$R_{C,Ex} = 666\gamma_a + 191\gamma_Q$ kN

} GIRDER LOADS FROM F.E. MODEL



$P_A = 150\gamma_a + 98\gamma_Q$ kN
$P_C = 36\gamma_a + 29\gamma_Q$ kN

} SUPPORT LOADS FROM BUILDING DESIGNER MODEL

RESULTS @ A:

~~PROPOSED = $556\gamma_a + 320\gamma_Q$ kN~~
~~EXISTING =~~

EXISTING LOADS FROM SUPERSTRUCTURE @ A & C

$P_{A,Ex} = 84\gamma_a + 50\gamma_Q$ kN
$P_{C,Ex} = 49\gamma_a + 35\gamma_Q$ kN

RESULTS @ A:

PROPOSED = $556\gamma_a + 320\gamma_Q$ kN
EXISTING = $642\gamma_a + 214\gamma_Q$ kN
INCREASE = 20 kN = 2%. OK

RESULTS @ C:

PROPOSED = $496\gamma_a + 277\gamma_Q$ kN
EXISTING = $715\gamma_a + 226\gamma_Q$ kN
INCREASE = −168 kN = −18%. OK

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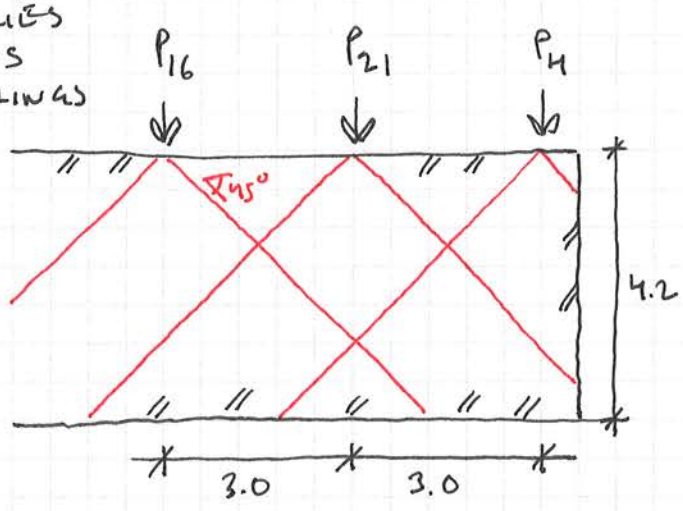
BEARING F

LOADING < EXISTING +10% OK

BEARINGS 21 & H & 16

THESE LAND ON A 460 THK, 4.2m TALL MASONRY WALL

AS SEEN IN THE ELEVATION, BEARING 21 WHICH CARRIES ADDITIONAL LOADING LOADS THE FOUNDATION WITH BEARINGS 16 ~~&~~ OR H IN ALL INSTANCES. THE WORST CASE INCREASE IS SEEN @ THE UNION OF P_{16} & P_{21} :



ELEVATION

$P_{16} = 132\gamma_a + 87\gamma_q$ kN
$P_{16,EX} = 451\gamma_a + 106\gamma_q$ kN

$P_{21} = 283\gamma_a + 153\gamma_q$ kN
$P_{21,EX} = 0$

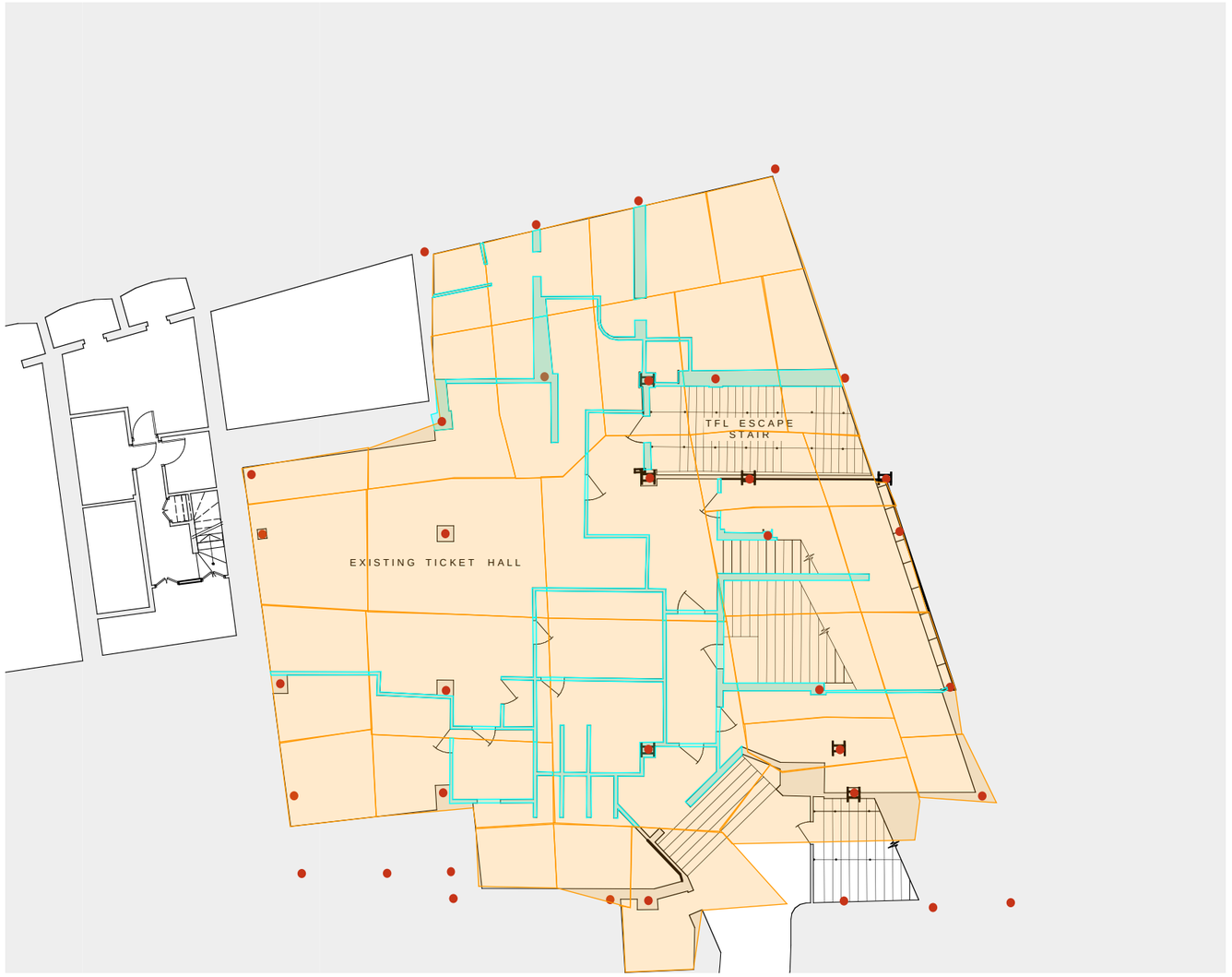
∴ PROPOSED = 655/(4.2×2) = 78 kN/m
EXISTING = 557/(4.2×2) = 66 kN/m

$P_{WALL} = 0.46 \times 4.2 \times 20$ ← MASONRY WEIGHT
= 39 kN/m

∴ INCREASE = 12 kN = 11 % OK

AREA MARK-UPS

SCALE = 1:200



EXISTING BASEMENT PLAN

GENERAL NOTES

Drawing to be read in conjunction with all information by architects, structural engineer & service consultants.

The contractor is not to scale from this drawing. All written dimensions to be checked on site before work commences. Discrepancies, where identified, must be reported to the architect immediately.

Issue	Chkd	Drawn	Date	Description
A	AG	AV	22.11.13	Issued for Planning

Status	Job No.	Drwg No.	Issue
PLANNING	1209	P02	A

1:200@A3 1:100@A1

Drawing
EXISTING BASEMENT PLAN

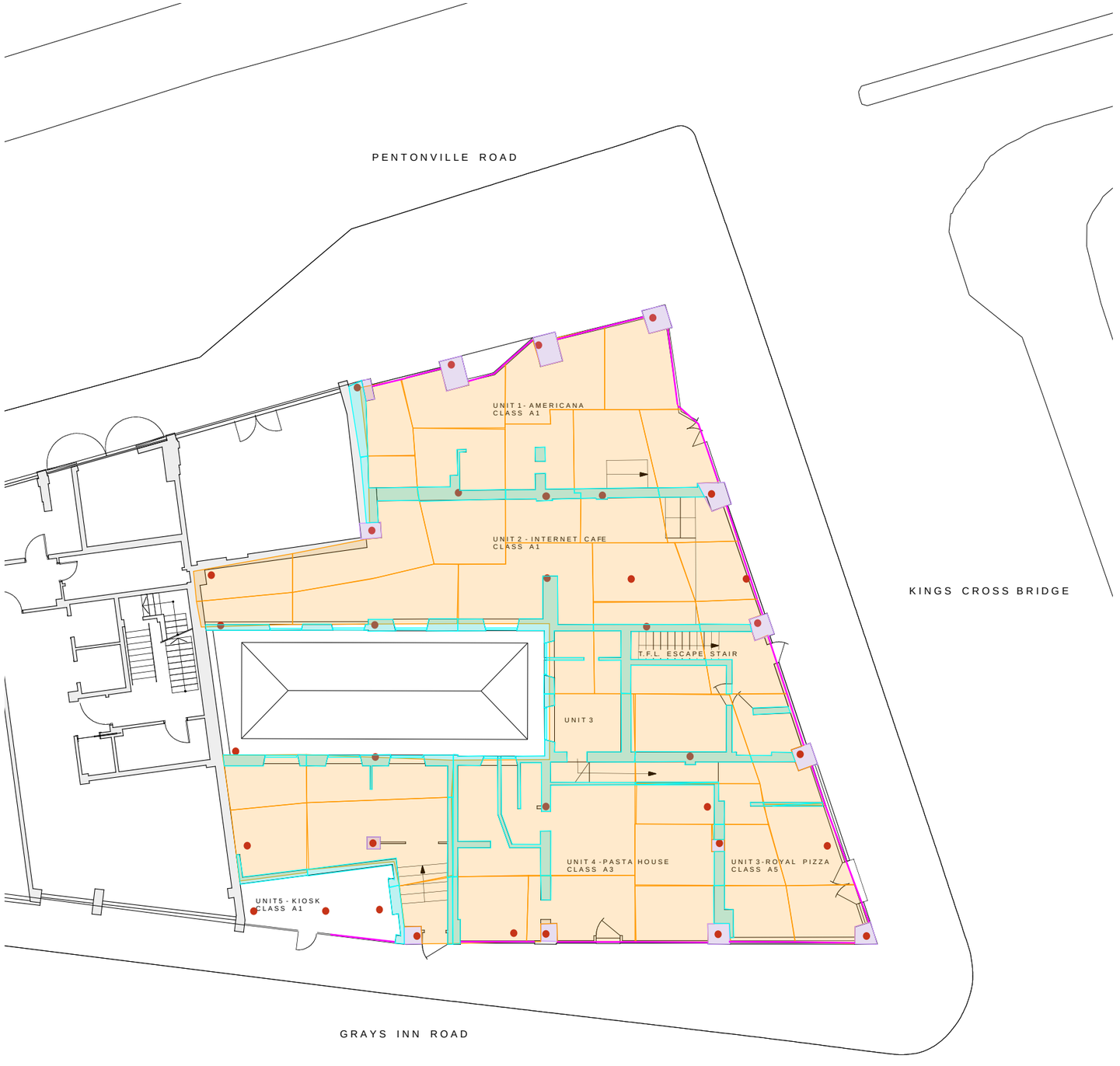
Project
KINGS CROSS BRIDGE
LONDON WC1X

latitude
Latitude Architects
15 Weller Street
London SE1 1QU
T +44 (0) 20 7234 0235
www.latitudearchitects.com

GENERAL NOTES

Drawing to be read in conjunction with all information by architects, structural engineer & service consultants.

The contractor is not to scale from this drawing. All written dimensions to be checked on site before work commences. Discrepancies, where identified, must be reported to the architect immediately.



EXISTING GROUND FLOOR PLAN

Issue	Chkd	Drawn	Date	Description
A	AG	AV	22.11.13	Issued for Planning

Status	Job No.	Drwg No.	Issue
PRELIMINARY	1209	P03	A

Drawing 1:200@A3 1:100@A1

EXISTING GROUND FLOOR PLAN

Project
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London SE1 1QU
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EXISTING ROOF PLAN

N

GENERAL NOTES

Drawing to be read in conjunction with all information by architects, structural engineer & service consultants.

The contractor is not to scale from this drawing. All written dimensions to be checked on site before work commences. Discrepancies, where identified, must be reported to the architect immediately.

Issue	Chkd	Drawn	Date	Description
A	AG	AV	22.11.13	Issued for Planning

Status	Job No.	Drwg No.	Issue
PLANNING	1209	P04	A

Drawing
EXISTING ROOF PLAN

1:200@A3 1:100@A1

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DATA PROCESSING

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#FF00FF	Façade	2	1.418	3.289	3.569	4.868	0	0	0	0	0	0	0

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#00FFFF	GF Wall	2	0.923552	1.981744	0	0	1.03712	0	1.363408	0.6728	0.422272	1.386176	3.806432
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LOAD TAKE-DOWN SPREADSHEET

LOADING

Info		Concrete unit weight	24 kN/m³
		Steel unit weight	78.5 kN/m³
		Glass unit weight	26 kN/m³
		Masonry unit weight	20.0 kN/m³
		Timber unit weight	6 kN/m³

Floor Heights		Historical 1st	4.7 m
		Historical Ground	2.8 m
		Hist 1st minus slabs	4.42 m
		Hist Ground minus slabs	2.382 m

Area	Live	Existing Ground LL	5.4 kN/m²
Area	Live	Existing Roof LL	2.7 kN/m²
Area	Live	Existing Access LL	1.5 kN/m²
Area	Live	Existing Basement LL	4.8 kN/m²
Area	Live	Basement TfL access LL	4 kN/m²
Area	Live	Basement access only LL	1.5 kN/m²
Area	Dead	Existing Roof DL	4.93 kN/m²
Area	Dead	Existing Basement DL	6.36 kN/m²
Area	Dead	Existing Lightwell Roof DL	0.3 kN/m²
Area	Dead	Existing Groundfloor DL	4.6 kN/m²
Area	Dead	Columns	94 kN/m²
Area	Dead	Masonry Wall Basement	47.64 kN/m²
Area	Dead	Masonry Wall Groundfloor	88.4 kN/m²
Area	Dead	Coping 800mm deep	19.2 kN/m²
Area	Dead	Coping 600mm deep	14.4 kN/m²

Line	Dead	Façade with Glazing	7.64 kN/m	85% glass 6mm	Assumed remainder 1 leaf masonry

Point	Live	1kN LL	1 kN
Point	Dead	1kN DL	1 kN

These are added to allow for manual addition of separately calculated loads (eg from BD)

EXISTING LOAD ANALYSIS

Floor	Load type		Dead or Live	Value (load)	Unit	1	2	3	4	5	6	7	8	9
Roof		Existing Roof LL	Live	2.7	kN/m²	4	8	11	8	6	15	16	4	13
		Existing Access LL	Live	1.5	kN/m²	0	0	0	0	0	0	0	8	16
		Existing Roof DL	Dead	4.9	kN/m²	4	8	11	8	6	15	16	4	13
		Existing Lightwell Roof DL	Dead	0.3	kN/m²	0	0	0	0	0	0	0	8	16
		Coping 800mm deep	Dead	19.2	kN/m²	5	5	5	9	0	2	0	0	0
		Coping 600mm deep	Dead	14.4	kN/m²	0	0	0	0	0	0	0	2	3
	Floor Totals	Live				12	21	29	22	16	42	42	25	59
		Dead				109	134	155	206	29	118	77	55	117
		SLS				120	156	185	229	45	160	119	80	176
		ULS				164	214	254	312	64	222	166	111	246
	Cumulative Totals	Live				12	21	29	22	16	42	42	25	59
		Dead				109	134	155	206	29	118	77	55	117
		SLS				120	156	185	229	45	160	119	80	176
		ULS				164	214	254	312	64	222	166	111	246
Ground	Area	Existing Ground LL	Live	5.4	kN/m²	6	9	12	10	6	16	16	5	14
		Columns	Dead	94.0	kN/m²	0	1	1	1	0	1	0	0	0
		Existing Groundfloor DL	Dead	4.6	kN/m²	6	9	12	10	6	16	16	5	14
		Masonry Wall Groundfloor	Dead	88.4	kN/m²	2	0	0	0	0	2	2	1	2
	Line	Façade with Glazing	Dead	7.6	kN/m	1	3	4	5	0	0	0	0	0
	Floor Totals	Live				32	47	67	55	32	87	84	26	74
		Dead				204	180	197	178	27	312	233	90	219
		SLS				236	227	264	233	60	399	317	115	292
		ULS				323	314	366	323	85	552	440	160	406
	Cumulative Totals	Live				43	69	96	78	48	128	126	51	132
		Dead				313	315	352	384	57	431	309	144	336
		SLS				356	383	449	462	105	559	435	195	468
		ULS				487	528	620	635	149	774	606	271	652
BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	6	11	14	9	6	16	14	16	30
		Existing Basement DL	Dead	6.4	kN/m²	6	11	14	9	6	16	14	16	30
		Masonry Wall Basement	Dead	47.6	kN/m²	0	1	1	0	0	1	2	0	0
	Floor Totals	Live				27	54	68	44	29	77	68	76	142
		Dead				50	116	159	58	38	159	170	100	197
		SLS				77	170	227	102	67	236	238	176	339
		ULS				108	238	316	144	95	330	331	249	479
	Cumulative Totals	Live				71	123	164	121	77	206	193	126	275
		Dead				363	430	512	442	95	589	480	245	533
		SLS				433	553	675	564	172	795	673	371	807
		ULS				596	766	936	779	244	1104	938	520	1131

Floor	Load type		Dead or Live	Value (load)	Unit	10	11	12	13	14	15	16	17
Roof		Existing Roof LL	Live	2.7	kN/m²	6	10	9	19	0	0	10	0
		Existing Access LL	Live	1.5	kN/m²	8	16	0	0	0	0	0	0
		Existing Roof DL	Dead	4.9	kN/m²	6	10	9	19	0	0	10	0
		Existing Lightwell Roof DL	Dead	0.3	kN/m²	8	16	0	0	0	0	0	0
		Coping 800mm deep	Dead	19.2	kN/m²	0	0	1	1	0	0	7	0
		Coping 600mm deep	Dead	14.4	kN/m²	3	4	0	0	0	0	0	0
	Floor Totals	Live				28	50	23	50	0	0	27	0
		Dead				72	108	56	113	0	0	174	0
		SLS				101	159	79	164	0	0	201	0
		ULS				140	222	110	228	0	0	275	0
	Cumulative Totals	Live				28	50	23	50	0	0	27	0
		Dead				72	108	56	113	0	0	174	0
		SLS				101	159	79	164	0	0	201	0
		ULS				140	222	110	228	0	0	275	0
Ground	Area	Existing Ground LL	Live	5.4	kN/m²	7	11	9	18	0	0	15	0
		Columns	Dead	94.0	kN/m²	0	0	0	0	0	0	1	0
		Existing Groundfloor DL	Dead	4.6	kN/m²	7	11	9	18	0	0	15	0
		Masonry Wall Groundfloor	Dead	88.4	kN/m²	1	2	1	2	0	0	1	0
	Line	Façade with Glazing	Dead	7.6	kN/m	0	0	0	0	0	0	6	0
	Floor Totals	Live				39	59	48	98	0	0	79	0
		Dead				126	235	123	285	0	0	277	0
		SLS				165	294	171	383	0	0	356	0
		ULS				229	406	238	532	0	0	493	0
	Cumulative Totals	Live				68	110	71	149	0	0	106	0
		Dead				198	343	178	398	0	0	451	0
		SLS				266	453	250	547	0	0	557	0
		ULS				369	628	348	760	0	0	768	0
BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	16	28	10	18	0	0	0	0
		Existing Basement DL	Dead	6.4	kN/m²	16	28	10	18	0	0	0	0
		Masonry Wall Basement	Dead	47.6	kN/m²	0	2	0	1	0	0	0	0
	Floor Totals	Live				76	135	47	86	0	0	0	0
		Dead				120	257	62	162	0	0	0	0
		SLS				197	393	108	248	0	0	0	0
		ULS				277	550	153	348	0	0	0	0
	Cumulative Totals	Live				144	245	118	234	0	0	106	0
		Dead				319	601	240	560	0	0	451	0
		SLS				463	846	358	795	0	0	557	0
		ULS				646	1178	501	1108	0	0	768	0

Floor	Load type		Dead or Live	Value (load)	Unit	Ref								
						18	19	20	21	22	A	B	C	D
Roof		Existing Roof LL	Live	2.7	kN/m²	7	0	14	0	23	22	0	0	45
		Existing Access LL	Live	1.5	kN/m²	0	0	0	0	0	8	0	0	8
		Existing Roof DL	Dead	4.9	kN/m²	7	0	14	0	23	22	0	0	45
		Existing Lightwell Roof DL	Dead	0.3	kN/m²	0	0	0	0	0	8	0	0	8
		Coping 800mm deep	Dead	19.2	kN/m²	5	0	8	0	0	0	0	0	0
		Coping 600mm deep	Dead	14.4	kN/m²	0	0	0	0	0	4	0	0	4
	Floor Totals	Live				19	0	37	0	62	71	0	0	134
		Dead				127	0	215	0	113	167	0	0	280
		SLS				146	0	251	0	175	238	0	0	414
		ULS				200	0	345	0	246	332	0	0	579
	Cumulative Totals	Live				19	0	37	0	62	71	0	0	134
		Dead				127	0	215	0	113	167	0	0	280
		SLS				146	0	251	0	175	238	0	0	414
		ULS				200	0	345	0	246	332	0	0	579
Ground	Area	Existing Ground LL	Live	5.4	kN/m²	5	9	12	0	18	23	10	7	47
		Columns	Dead	94.0	kN/m²	1	0	1	0	0	0	0	0	0
		Existing Groundfloor DL	Dead	4.6	kN/m²	5	9	12	0	18	23	10	7	47
		Masonry Wall Groundfloor	Dead	88.4	kN/m²	1	1	0	0	1	4	0	0	8
	Line	Façade with Glazing	Dead	7.6	kN/m	3	3	3	0	0	0	0	3	0
	Floor Totals	Live				27	47	65	0	99	123	52	35	256
		Dead				214	124	166	0	207	442	44	49	915
		SLS				241	171	231	0	306	565	97	85	1170
		ULS				329	238	322	0	428	781	138	120	1618
	Cumulative Totals	Live				46	47	102	0	161	195	52	35	390
		Dead				341	124	381	0	320	608	44	49	1194
		SLS				387	171	482	0	481	803	97	85	1584
		ULS				529	238	667	0	674	1113	138	120	2197
BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	6	7	18	0	17	36	11	5	49
		Existing Basement DL	Dead	6.4	kN/m²	6	7	18	0	17	36	11	5	49
		Masonry Wall Basement	Dead	47.6	kN/m²	0	0	0	0	2	2	0	0	5
	Floor Totals	Live				28	33	86	0	84	172	54	26	236
		Dead				38	44	114	0	210	327	74	34	552
		SLS				66	76	200	0	294	499	128	60	789
		ULS				94	108	283	0	410	699	181	84	1100
	Cumulative Totals	Live				75	80	188	0	245	366	106	61	626
		Dead				378	167	494	0	531	935	119	83	1747
		SLS				453	247	682	0	776	1301	225	144	2373
		ULS				623	346	949	0	1084	1812	319	204	3297

Floor	Load type		Dead or Live	Value (load)	Unit	E	F	G	H	J	K	L	N	P
Roof		Existing Roof LL	Live	2.7	kN/m²	0	19	0	8	13	13	12	20	22
		Existing Access LL	Live	1.5	kN/m²	0	0	0	0	0	0	0	0	0
		Existing Roof DL	Dead	4.9	kN/m²	0	19	0	8	13	13	12	20	22
		Existing Lightwell Roof DL	Dead	0.3	kN/m²	0	0	0	0	0	0	0	0	0
		Coping 800mm deep	Dead	19.2	kN/m²	0	0	0	9	9	7	8	0	0
		Coping 600mm deep	Dead	14.4	kN/m²	0	0	0	0	0	0	0	0	0
	Floor Totals	Live				0	52	0	22	35	35	33	54	59
		Dead				0	95	0	220	228	195	213	99	108
		SLS				0	147	0	243	264	230	247	154	167
		ULS				0	206	0	331	361	316	338	216	234
	Cumulative Totals	Live				0	52	0	22	35	35	33	54	59
		Dead				0	95	0	220	228	195	213	99	108
		SLS				0	147	0	243	264	230	247	154	167
		ULS				0	206	0	331	361	316	338	216	234
Ground	Area	Existing Ground LL	Live	5.4	kN/m²	9	15	9	7	11	11	13	20	17
		Columns	Dead	94.0	kN/m²	0	0	0	1	1	1	1	0	0
		Existing Groundfloor DL	Dead	4.6	kN/m²	9	15	9	7	11	11	13	20	17
		Masonry Wall Groundfloor	Dead	88.4	kN/m²	1	1	0	0	1	1	1	2	3
	Line	Façade with Glazing	Dead	7.6	kN/m	0	0	4	4	4	3	5	0	0
	Floor Totals	Live				49	81	50	38	58	58	72	109	93
		Dead				116	173	84	128	263	253	271	279	321
		SLS				165	254	134	166	320	311	344	388	415
		ULS				230	355	189	229	441	428	475	540	574
	Cumulative Totals	Live				49	133	50	60	93	93	106	163	152
		Dead				116	268	84	348	491	448	485	378	429
		SLS				165	401	134	408	584	541	590	542	581
		ULS				230	562	189	560	802	744	813	756	807
BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	9	17	6	0	11	9	12	19	19
		Existing Basement DL	Dead	6.4	kN/m²	9	17	6	0	11	9	12	19	19
		Masonry Wall Basement	Dead	47.6	kN/m²	0	0	0	0	0	0	1	2	1
	Floor Totals	Live				42	80	27	0	51	42	57	93	91
		Dead				55	107	35	0	77	63	135	237	173
		SLS				97	187	62	0	127	105	191	330	264
		ULS				137	264	87	0	179	149	267	459	369
	Cumulative Totals	Live				91	213	77	60	144	135	162	256	243
		Dead				171	375	119	348	568	511	619	616	601
		SLS				262	588	196	408	711	646	781	871	845
		ULS				367	826	276	560	982	893	1079	1215	1177

Floor	Load type		Dead or Live	Value (load)	Unit	Q	Unit
Roof		Existing Roof LL	Live	2.7	kN/m²	23	m²
		Existing Access LL	Live	1.5	kN/m²	0	m²
		Existing Roof DL	Dead	4.9	kN/m²	23	m²
		Existing Lightwell Roof DL	Dead	0.3	kN/m²	0	m²
		Coping 800mm deep	Dead	19.2	kN/m²	0	m²
		Coping 600mm deep	Dead	14.4	kN/m²	0	m²
	Floor Totals	Live				61	kN
		Dead				111	kN
		SLS				172	kN
		ULS				242	kN
	Cumulative Totals	Live				61	kN
		Dead				111	kN
		SLS				172	kN
		ULS				242	kN

Ground	Area	Existing Ground LL	Live	5.4	kN/m²	18	m²
		Columns	Dead	94.0	kN/m²	0	m²
		Existing Groundfloor DL	Dead	4.6	kN/m²	18	m²
		Masonry Wall Groundfloor	Dead	88.4	kN/m²	3	m
	Line	Façade with Glazing	Dead	7.6	kN/m	0	m
	Floor Totals	Live				96	kN
		Dead				372	kN
		SLS				468	kN
		ULS				647	kN
	Cumulative Totals	Live				157	kN
		Dead				483	kN
		SLS				641	kN
		ULS				888	kN

BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	17	m²
		Existing Basement DL	Dead	6.4	kN/m²	17	m²
		Masonry Wall Basement	Dead	47.6	kN/m²	2	m
	Floor Totals	Live				84	kN
		Dead				200	kN
		SLS				283	kN
		ULS				395	kN
	Cumulative Totals	Live				241	kN
		Dead				683	kN
		SLS				924	kN
		ULS				1283	kN

PROPOSED LOAD ANALYSIS

Floor	Load type		Dead or Live	Value (load)	Unit	1	2	3	4	5	6	7	8	9	10
BD model	Point	1kN LL	Live	1.0	kN	47	126	142	133	53	146	165	161	458	164
		1kN DL	Dead	1.0	kN	140	226	206	241	250	420	185	367	664	310
	Floor Totals	Live				47	126	142	133	53	146	165	161	458	164
		Dead				140	226	206	241	250	420	185	367	664	310
		SLS				187	352	348	374	303	566	350	528	1122	474
		ULS				260	494	491	525	417	786	497	737	1583	665
	Cumulative Totals	Live				47	126	142	133	53	146	165	161	458	164
		Dead				140	226	206	241	250	420	185	367	664	310
		SLS				187	352	348	374	303	566	350	528	1122	474
		ULS				260	494	491	525	417	786	497	737	1583	665

BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	0	0	0	0	6	12	0	16	30	16
		Basement access only LL	Live	1.5	kN/m²	6	11	14	9	0	4	7	0	0	0
		Basement TfL access LL	Live	4.0	kN/m131	0	0	0	0	0	0	7	0	0	0
		Existing Basement DL	Dead	6.4	kN/m²	6	11	14	9	6	16	14	16	30	16
	Floor Totals	Live				9	17	21	14	29	64	39	76	142	76
		Dead				36	72	90	58	38	103	90	100	189	101
		SLS				45	89	111	72	67	167	128	176	331	177
		ULS				62	123	153	99	95	234	179	249	468	251
	Cumulative Totals	Live				56	143	163	147	82	210	204	237	600	240
		Dead				176	298	296	299	288	523	275	467	853	411
		SLS				232	441	459	446	370	733	478	704	1453	651
		ULS				321	617	644	623	512	1020	676	986	2052	915

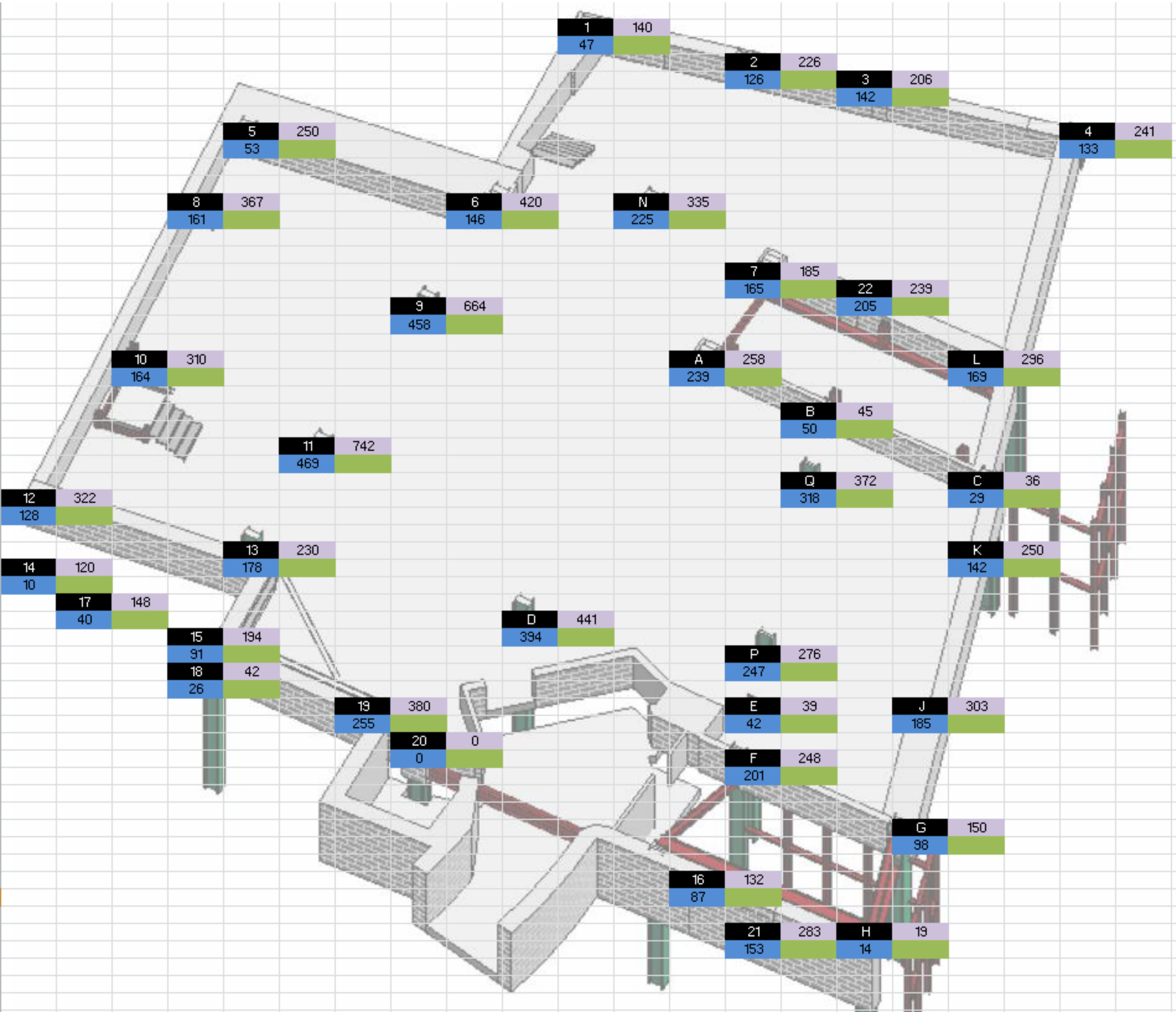
Floor	Load type		Dead or Live	Value (load)	Unit	11	12	13	14	15	16	17
BD model	Point	1kN LL	Live	1.0	kN	469	128	178	10	91	87	40
		1kN DL	Dead	1.0	kN	742	322	230	120	194	132	148
	Floor Totals	Live				469	128	178	10	91	87	40
		Dead				742	322	230	120	194	132	148
		SLS				1211	450	408	130	285	219	188
		ULS				1705	627	578	177	398	309	260
	Cumulative Totals	Live				469	128	178	10	91	87	40
		Dead				742	322	230	120	194	132	148
		SLS				1211	450	408	130	285	219	188
		ULS				1705	627	578	177	398	309	260

BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	28	0	0	0	0	0	0
		Basement access only LL	Live	1.5	kN/m²	0	10	18	0	0	0	0
		Basement TfL access LL	Live	4.0	kN/m131	0	0	0	0	0	0	0
		Existing Basement DL	Dead	6.4	kN/m²	28	10	18	0	0	0	0
	Floor Totals	Live				135	15	27	0	0	0	0
		Dead				179	62	113	0	0	0	0
		SLS				315	76	140	0	0	0	0
		ULS				445	105	193	0	0	0	0
	Cumulative Totals	Live				604	143	205	10	91	87	40
		Dead				921	384	343	120	194	132	148
		SLS				1526	526	548	130	285	219	188
		ULS				2150	732	771	177	398	309	260

Floor	Load type		Dead or Live	Value (load)	Unit	Ref									
						18	19	20	21	22	A	B	C	D	E
BD model	Point	1kN LL	Live	1.0	kN	26	255	0	153	205	239	50	29	394	42
		1kN DL	Dead	1.0	kN	42	380	0	283	239	258	45	36	441	39
	Floor Totals	Live				26	255	0	153	205	239	50	29	394	42
		Dead				42	380	0	283	239	258	45	36	441	39
		SLS				68	635	0	436	444	497	95	65	835	81
		ULS				96	896	0	612	630	707	136	92	1186	116
	Cumulative Totals	Live				26	255	0	153	205	239	50	29	394	42
		Dead				42	380	0	283	239	258	45	36	441	39
		SLS				68	635	0	436	444	497	95	65	835	81
		ULS				96	896	0	612	630	707	136	92	1186	116
BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	0	0	0	0	0	0	0	0	0	0
		Basement access only LL	Live	1.5	kN/m²	6	7	9	0	9	0	0	0	0	0
		Basement TfL access LL	Live	4.0	kN/m131	0	0	9	0	9	36	11	5	49	9
		Existing Basement DL	Dead	6.4	kN/m²	6	7	18	0	17	36	11	5	49	9
	Floor Totals	Live				9	10	49	0	48	143	45	21	197	35
		Dead				38	44	114	0	111	227	71	34	313	55
		SLS				47	54	163	0	159	370	116	55	510	90
		ULS				64	74	228	0	222	521	164	78	718	126
	Cumulative Totals	Live				35	265	49	153	253	382	95	50	591	77
		Dead				80	424	114	283	350	485	116	70	754	94
		SLS				115	689	163	436	603	867	211	120	1345	171
		ULS				160	970	228	612	852	1228	300	170	1905	242

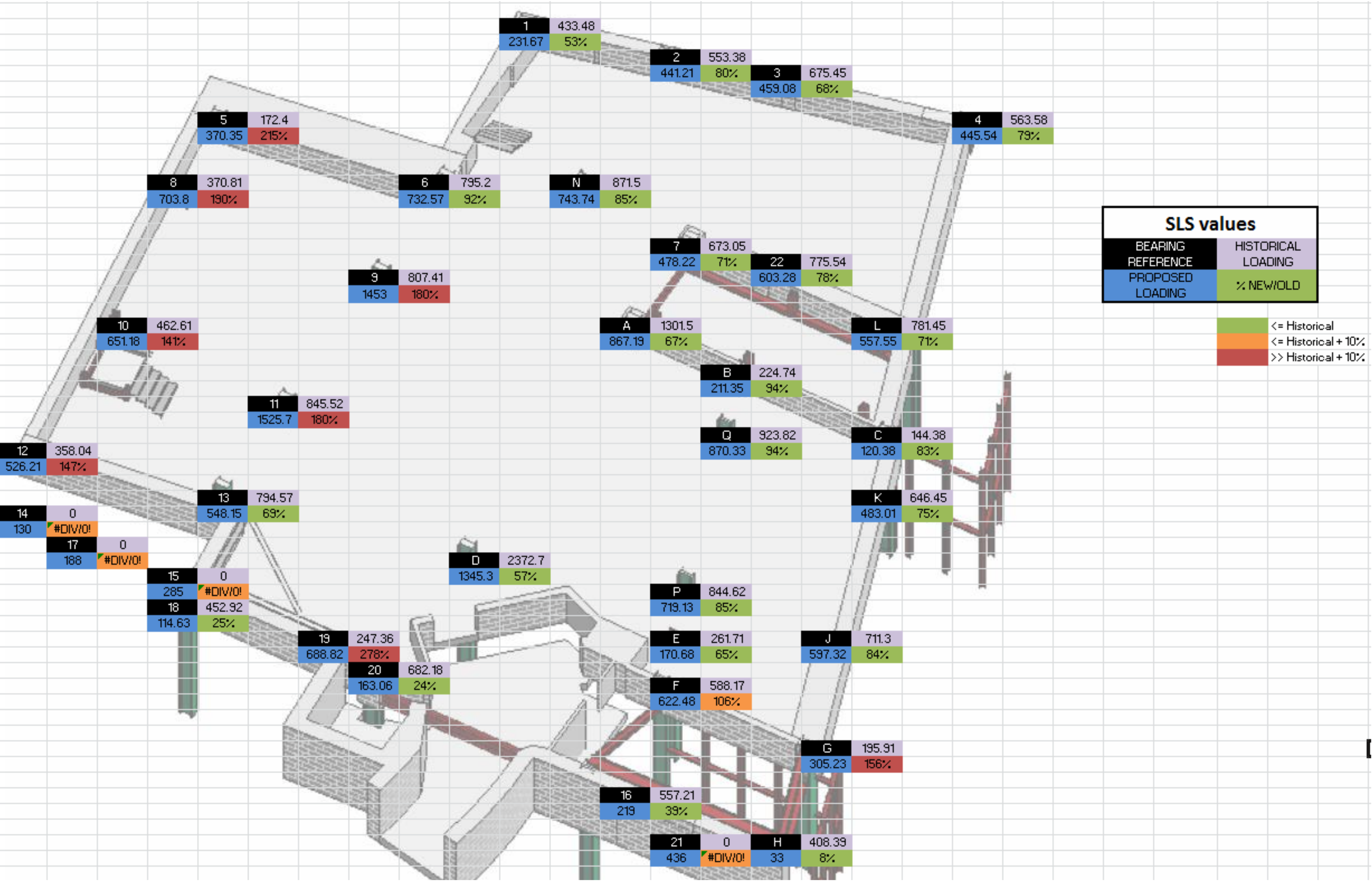
Floor	Load type		Dead or Live	Value (load)	Unit	F	G	H	J	K	L	N	P	Q	Unit
BD model	Point	1kN LL	Live	1.0	kN	201	98	14	185	142	169	225	247	318	unit
		1kN DL	Dead	1.0	kN	248	150	19	303	250	296	335	276	372	unit
	Floor Totals	Live				201	98	14	185	142	169	225	247	318	kN
		Dead				248	150	19	303	250	296	335	276	372	kN
		SLS				449	248	33	488	392	465	560	523	690	kN
		ULS				636	350	47	687	551	653	790	743	979	kN
	Cumulative Totals	Live				201	98	14	185	142	169	225	247	318	kN
		Dead				248	150	19	303	250	296	335	276	372	kN
		SLS				449	248	33	488	392	465	560	523	690	kN
		ULS				636	350	47	687	551	653	790	743	979	kN

BASEMENT	Area	Existing Basement LL	Live	4.8	kN/m²	0	0	0	0	0	0	10	0	0	m²
		Basement access only LL	Live	1.5	kN/m²	0	0	0	0	0	12	10	0	0	
		Basement TfL access LL	Live	4.0	kN/m131	17	6	0	11	9	0	0	19	17	
		Existing Basement DL	Dead	6.4	kN/m²	17	6	0	11	9	12	19	19	17	m²
	Floor Totals	Live				67	22	0	42	35	18	61	76	70	kN
		Dead				107	35	0	67	56	75	123	120	111	kN
		SLS				173	57	0	109	91	93	184	196	180	kN
		ULS				244	81	0	154	128	128	257	276	254	kN
	Cumulative Totals	Live				268	120	14	227	177	187	286	323	388	kN
		Dead				355	185	19	370	306	371	458	396	483	kN
		SLS				622	305	33	597	483	558	744	719	870	kN
		ULS				881	430	47	840	679	781	1047	1019	1233	kN



BUILDING DESIGNER INPUT

KEY	DL
LL	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8 370.81 703.8 190%
N 871.5 743.74 85%
7 673.05 478.22 71%
22 775.54 603.28 78%
9 807.41 1453 180%
10 462.61 651.18 141%
A 1301.5 867.19 67%
L 781.45 557.55 71%
B 224.74 211.35 94%
11 845.52 1525.7 180%
Q 923.82 870.33 94%
C 144.38 120.38 83%
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18 452.92 114.63 25%
P 844.62 719.13 85%
19 247.36 688.82 278%
E 261.71 170.68 65%
J 711.3 537.32 84%
20 682.18 163.06 24%
F 588.17 622.48 106%
G 195.91 305.23 156%
16 557.21 219 39%
21 0 #DIV/0!
H 408.39 33 8%
SLS values
BEARING REFERENCE
HISTORICAL LOADING
PROPOSED LOADING
% NEW/OLD
<= Historical
<= Historical + 10%
>> Historical + 10%