

VKM:RS
10924-VKM01

19 September 2016

Invergowrie Properties Pty Ltd
63 The Corso
MANLY NSW 2095

Attn: Mr. Peter Skerrett | E: invergowrie@tpg.com.au

Dear Sir,

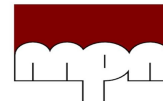
**RE: PROPOSED EXTENSION FOR ADDITIONAL LIGHTWEIGHT FLOOR -
STRUCTURE LOAD-CHECK**
AT: MANLY BACKPACKERS, 63 THE CORSO - MANLY NSW 2095

As requested by you, MPN Group structural engineers have considered the proposed lightweight framing addition of one new floor to the existing back-packers hostel, to create a new apartment building. We have considered the following in our assessment:

1. A desire to maintain the retail store at ground floor trading throughout the proposed works;
2. The original for construction structural drawings by Scott Tech Consulting (1999) as supplied by you (we note that the floor structure at L1 is by Ultrafloor- we have presumed 130R precast joists at 500cts + a 100mm thick slab);
3. The architectural sketches showing the extent of the new floor framing, and replacement roof;
4. We have made allowance for lightweight partitions throughout, and a normal residential floor live-load of 1.5kPa, and have retained the open terrace as future residential floor structure between grids X4 and X6.

We attach a part-copy of the original construction drawings for footings, which labels each of the pad footings and each steel column number. Also attached is a schedule of relevant columns and footings which MPN have checked for the new total loads, and the resulting capability of these two structural elements (column and footing) to accommodate the proposed total load.

To summarise our findings as presented in the schedule, all the steel columns work (quite comfortably) for the proposed loads, and no upgrade to these columns are required for the proposed additional floor extension. However, several of the pad-footings did fail in bearing. This is not a failing of the concrete structure of the pad footing, but the sand foundation material underneath it, based upon the advised Safe Bearing Capacity (SBC) of the original design being 200 kPa. This type of bearing failure will manifest in additional settlements of the footings (and the structure above them), presuming the 200 kPa SBC is correct.



MPN recommend that the following actions should be pursued:

- A) Refer to a Geotechnical consulting engineer to advise upon the likely additional settlements; it is possible that they may be relatively small, (which may possibly be borne by the structure without major ill-effect);
- B) Refer to a Geotechnical engineer to undertake a review (and/or additional site testing) to re-assess the SBC value and related settlement additions (presuming that they cannot increase the SBC all the way up to 335kPa as required of pad PD6 at column C26).

We trust the above information is useful to you. If you have any specific questions, please contact the under-signed.

Yours sincerely,

MPN GROUP PTY LIMITED

A handwritten signature in blue ink, appearing to read 'V. Mateffy', written over a light blue horizontal line.

VIKTOR MATEFFY

Director

BE(Hons), MEngSc, MIE(Aust),
CPEng, NER(17240)

"MANLY BACKPACKERS"- 63 THE CORSO, MANLY

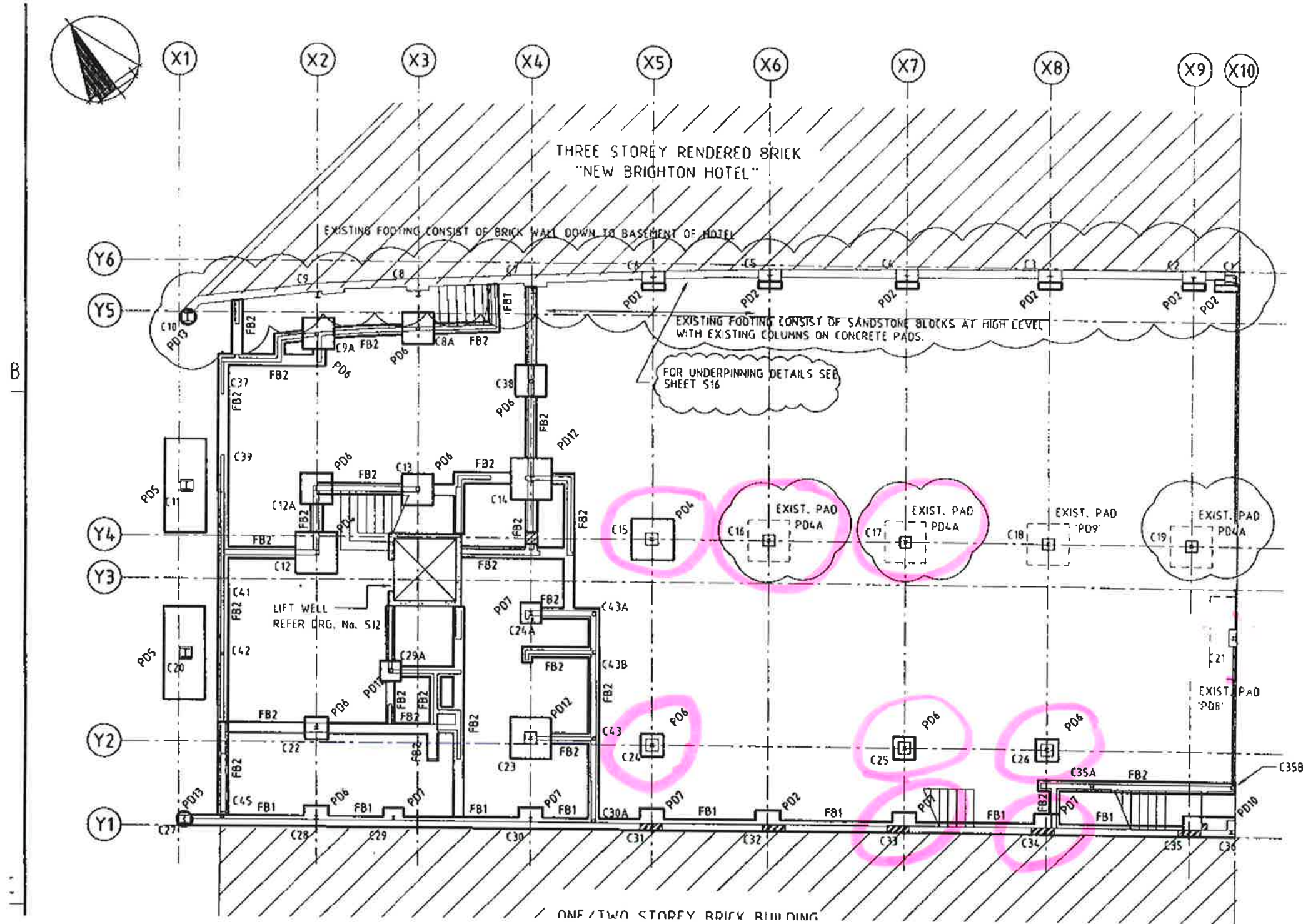
Ex.PAD FOOTINGS & COLUMNS CAPACITY

Note:Check Capcity of Existing Columns and Pad Footings for Additional New Loads (Extra Load with Floor @ Level 3)

Ex. Column No. Reference	Column Size	Existing Max Column Load (Working) (kN)	Existing Max Column Load (Ultimate) (kN)	Proposed Max Column Load (Working) (kN)	Proposed Max Column Load (Ultimate) (kN)	Existing Column Capacity ϕ Ns (kN)	Check the Capacity of Ex. Column	Ex.Footing Reference	Pad Length (m)	Pad Breadth (m)	Pad Depth (m)	Pad Footing SW (kN)	End Bearing Allowable Pressure (kPa)	Pad Footing Capacity (Working) (kN)	Total Service Axial Load (Inc. SW of Pad) (kN)	Checking the Capcity of Ex.Footing	% LESS (%)
C1	150UC37.2	216	263	215	261	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	236	OK	OK
C2	150UC37.2	190	249	171	222	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	193	OK	OK
C3	150UC37.2	230	302	279	362	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	300	FAIL	4.2%
C4	150UC37.2	201	261	249	322	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	271	OK	OK
C5	150UC37.2	173	222	190	243	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	211	OK	OK
C6	150UC37.2	168	342	197	260	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	219	OK	OK
C15	200UC46.2	450	602	416	547	1699	OK	PD4	1.4	1.4	0.6	29.4	200	392	446	FAIL	13.7%
C16	9"*7" & 2/230*20PL	383	494	471	615	3784	OK	PD4A	1.8	1.2	0.6	32.4	200	432	504	FAIL	16.6%
C17	9"*7" & 2/230*20PL	376	490	477	617	3784	OK	PD4A	1.8	1.2	0.6	32.4	200	432	509	FAIL	17.9%
C18	9"*7" & 2/230*20PL	361	470	466	602	3784	OK	PD9	1.9	1.9	0.6	54.15	200	722	520	OK	OK
C19	9"*7" & 2/230*12PL	244	317	336	438	2103	OK	PD4A	1.8	1.2	0.6	32.4	200	432	368	OK	OK
C21	9"*7" & 2/230*20PL	313	382	336	413	3784	OK	PD8	2.4	0.75	0.6	27	200	360	363	FAIL	0.9%
C24	9"*7" & 2/230*12PL	201	268	201	267	2103	OK	PD6	0.9	0.9	0.6	12.15	200	162	213	FAIL	31.8%
C25	150UC37.2	208	277	257	340	1362	OK	PD6	0.9	0.9	0.6	12.15	200	162	269	FAIL	66.2%
C26	150UC37.2	215	286	267	352	1362	OK	PD6	0.9	0.9	0.6	12.15	200	162	279	FAIL	72.0%
C31	150UC37.2	63	82	63	82	1362	OK	PD7	0.6	0.6	0.6	5.4	200	72	68	OK	OK
C32	150UC37.2	193	251	239	308	1362	OK	PD2	1.2	1.2	0.6	21.6	200	288	260	OK	OK
C33	150UC23.4	65	84	81	104	858	OK	PD7	0.6	0.6	0.6	5.4	200	72	86	FAIL	19.3%
C34	150UC23.4	66	86	81	105	858	OK	PD7	0.6	0.6	0.6	5.4	200	72	87	FAIL	20.5%
C35	150UC37.2	145	188	179	231	1362	OK	PD10	1.5	0.6	0.6	13.5	200	180	192	FAIL	6.8%
C36	150UC37.2	123	150	129	158	1362	OK	PD10	1.5	0.6	0.6	13.5	200	180	143	OK	OK

NOTE:

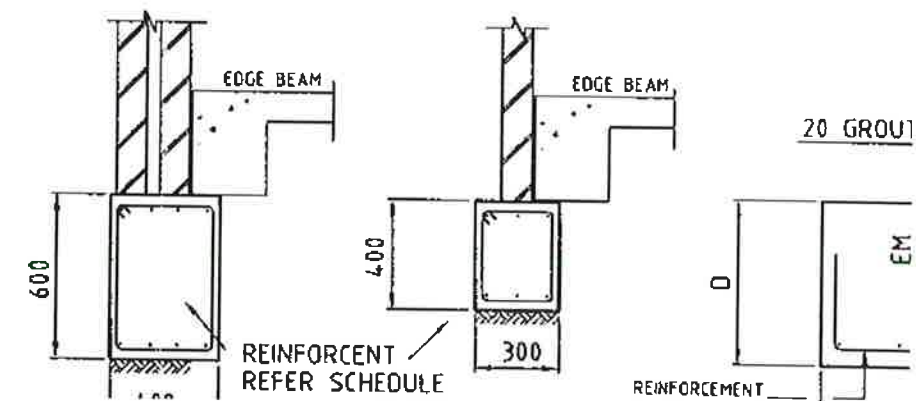
1. End Bearing Allowable Pressure = 200 kPa



TYPE	SIZE (L x B x D)	REINFORCEMENT	
PD1	900 x 900 x 600	Y16-200 BTM, BOTH WAYS	18
PD2	1200 x 1200 x 600	EXISTING/ENLARGEN	54
PD3	2000 x 800 x 600	Y16-200 BTM, BOTH WAYS	18
PD4	1400 x 1400 x 600	Y16-200 BTM, BOTH WAYS	24
PD4A	1800 x 1200 x 600	EXISTING/ENLARGEN	54
PD5	2700 x 1200 x 600	7Y20 BTM LONG, Y16-200 BTM SHORT	24
PD6	900 x 900 x 600	Y16-200 BTM, BOTH WAYS	18
PD7	600 x 600 x 600	Y16-200 BTM, BOTH WAYS	12
PD8	2400 x 750 x 600	EXISTING/ENLARGEN	54
PD9	1900 x 1900 x 600	EXISTING/ENLARGEN	54
PD10	1500 x 600 x 600	Y16-200 BTM, BOTH WAYS	18
PD11	REFER DRG. No. 502		5
PD12	1200 x 1200 x 600	Y16-200 BTM, BOTH WAYS	2
PD13	Ø450 PIER x 2500 DEEP	4Y12 WITH R10 TIES AT 600 CTS.	18
FB1	400 WIDE x 600 DEEP	4Y12 TOP & BTM, R10 TIES AT 900 CTS.	
FB2	300 WIDE x 400 DEEP	3Y12 TOP & BTM, R10 TIES AT 900 CTS.	

NOTE:-

EXISTING PAD SIZES SHOWN HATCHED SHOULD BE CONFIRMED AND INCREASED TO MATCH ABOVE TABLE. IF NECESSARY SEEK ENGINEER'S APPROVAL IF MODIFICATIONS REQUIRED.



○ Highlights footings with significant bearing failure.