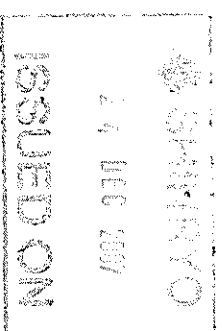


24.12.2007



JTC
Summit Building
Jurong Town Hall Road
Singapore

Attention: Mr. Goh Wee Keng

Dear Sir

AMENDMENT TO LOADING DATA FOR DCSAT FUSIONPOLIS 2A

Good day to you

We refer to our last submission on 27.11.2007 and attached am pleased to submit the following amendments for your perusal :

<u>S/No</u>	<u>LOCATION</u>	<u>DESCRIPTION OF AMENDMENTS</u>
1	B4	Add 50mm dia fuel pipe and propose support location to B3 ceiling
2	B4	Add RC beam between steel tanks as instructed by Arup
3	B3	Relocate LV MCC and AHU to different location
4	B2	Relocate LV Transformer from to B3
5	B2	Relocate 6.6KV switchgear to B1
6	B2	Add location of traveling hoist route
7	B2	Add more supports to pipes at heat exchanger
8	B2	Relocate branch pipe 600mm dia and indicate headroom clearance
9	B1 (New Dwg)	Replace heat exchanger layout with 6.6 KVA switchgear room
10	B1 (New Dwg)	Combine Blk B & C heat exchanger layout
11	1 st str	Revised DCS Power supply layout
12	11 th str	Propose additional support for 800 mm dia pipe

Should you have further queries, please do not hesitate to contact Mr Jayutaro of Mr Richard Boey at 63052719

ST Architects
& Engineers Pte Ltd

Yours faithfully,
ST ARCHITECTS & ENGINEERS PTE LTD



.....
Mr KH Tan
Senior Manager - Design

cc. SCI – Mr Woo
Shiro – Mr Juntaro



PLAN () IN DC
SHEET OF

071224-01
SHINRYO
24 DEC 2007
ISSUED ON

NO.	DATE	BY	DESCRIPTION
1	24 DEC 2007	AS SHOWN	AS SHOWN
2	24 DEC 2007	AS SHOWN	AS SHOWN

LAND OWNER'S NAME & ADDRESS
MIS JTC CORPORATION
THE JTC SUITE
6 JIROONG TOWN HALL ROAD
SINGAPORE 099354
TEL: 6552 0566
FAX: 6552 5351

Goan Yuen King
Assistant Manager
ARCHITECT
P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
22-00 COLLEGE CENTRE
SINGAPORE 099341
TEL: 6555 2011
FAX: 6555 1283

Sanjiv Corp
Industries
Sanjiv Corp Industries Ltd
20, 21 & 22, 1st Floor
20, 21 & 22, 1st Floor
20, 21 & 22, 1st Floor
20, 21 & 22, 1st Floor
SINGAPORE 099327

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DDP)

PROJECT NO.:
DRAWING TITLE:
SCALE: 1:11.5
DATE: 24 DEC 2007
PROJECT NO.:
DRAWING TITLE:
SCALE: 1:11.5
DATE: 24 DEC 2007

PROFESSIONAL ENGINEER
KWA
CIVIL
TAN KING HENG
3098
SINGAPORE

NO.	DRAWING LIST	DRAWING TITLE	REVISION NO./DATE												
			7-NOV-2007	13-NOV-2007	21-NOV-2007	27-NOV-2007	06-DEC-2007	24-DEC-2007							
1.0	LOADING DATA														
1.01	SCI/FUP-DCS/LD/001	DRAWING LIST	-	0	-	1	-	-	2						
1.02	SCI/FUP-DCS/LD/002	BASEMENT 4 _ PIPE LOADING DATA	-	0	-	0	-	-	0						
1.03	SCI/FUP-DCS/LD/003	BASEMENT 4 _ LOADING CALCULATION	-	0	-	1	-	-	2						
1.04	SCI/FUP-DCS/LD/004	BASEMENT 4 _ LOADING PLAN FOR CHILLED WATER TANK	-	0	-	0	-	-	1						
1.05	SCI/FUP-DCS/LD/005	BASEMENT 4 _ LOADING PLAN FOR MAKE-UP PUMP & PIPE	-	0	-	1	-	-	2						
1.06	SCI/FUP-DCS/LD/006	BASEMENT 4 _ LOADING PLAN FOR DIESEL PUMP & PIPE	-	0	-	0	-	-	1						
1.07	SCI/FUP-DCS/LD/007	BASEMENT 3 _ LOADING CALCULATION & LOADING PLAN FOR LV MCC ROOM	-	0	-	1	-	-	2						
1.08	SCI/FUP-DCS/LD/008	BASEMENT 2 _ LOADING CALCULATION	-	0	-	1	-	-	2						
1.09	SCI/FUP-DCS/LD/009	BASEMENT 2 _ LOADING PLAN FOR CHILLER PLANT ROOM, HEAT EXCHANGER ROOM (BLOCK A)	-	0	-	1	-	-	2						
1.10	SCI/FUP-DCS/LD/010	BASEMENT 2 _ LOADING PLAN FOR PIPES DOWNHANG AT BASEMENT 1 SOFFIT	-	0	-	1	-	-	2						
1.11	SCI/FUP-DCS/LD/011	BASEMENT 1 _ LOADING CALCULATION	-	0	-	1	-	-	2						
1.12	SCI/FUP-DCS/LD/012	BASEMENT 1 _ LOADING CALCULATION FOR PIPES ABOVE DCS PLANT & 6.6 kV SWITCHGEAR ROOM	-	0	-	0	-	-	1						
1.13	SCI/FUP-DCS/LD/013	BASEMENT 1 _ LOADING PLAN FOR HEAT EXCHANGER (BLOCK B & BLOCK C)	-	0	-	1	-	-	2						
1.14	SCI/FUP-DCS/LD/014	1ST STOREY _ LOADING CALCULATION & LOADING PLAN FOR DCS POWER SUPPLY CONSUMER ROOM	-	0	-	1	-	-	2						
1.15	SCI/FUP-DCS/LD/015	11TH STOREY _ LOADING CALCULATION	-	0	-	1	-	-	1						
1.16	SCI/FUP-DCS/LD/016	11TH STOREY _ LOADING PLAN FOR COOLING TOWER, CONDENSER PIPES & MAKE-UP TANK	-	0	-	0	-	-	1						
2.0	DCS LAYOUT														
2.01	SCI/FUP-DCS/PD/001	BASEMENT 4 _ PLAN LAYOUT	4	-	5	-	6	-	7						
2.02	SCI/FUP-DCS/PD/002	BASEMENT 3 _ PLAN LAYOUT	4	-	5	-	6	-	7						
2.03	SCI/FUP-DCS/PD/003	BASEMENT 2 _ PLAN LAYOUT	5	-	6	-	7	-	8						
2.04	SCI/FUP-DCS/PD/004	BASEMENT 1 _ PLAN LAYOUT	6	-	7	-	8	-	9						
2.05	SCI/FUP-DCS/PD/005	1ST STOREY _ PLAN LAYOUT	5	-	6	-	7	-	8						
2.06	SCI/FUP-DCS/PD/006	11TH STOREY _ PLAN LAYOUT	5	-	6	-	7	-	7						
2.07	SCI/FUP-DCS/PD/007	12TH STOREY _ PLAN LAYOUT	5	-	5	-	5	-	5						
2.08	SCI/FUP-DCS/PD/011	15TH STOREY _ PLAN LAYOUT	-	-	0	-	0	-	0						

NOTES : The above loading data and the revised DCS layout is based on the Clarification for Fusionpolis DCS Plant dated 01-October 2007.

24 DEC 2007

a) Chilled Water

S/N	Pipe Size	Pipe	Water Weight	Insulation+ Cladding	Support Wt. 20% Pipe Wt.	Total Dead Weight	Factor of Safety & Allowance for Dynamic Load	Total Loading Weight
		kg/m	kg/m	kg/m	20	kg/m	(f)	kg/m
		(a)	(b)	(c)	(d)	(e) = (a+b+c+d)	(f)	(g) = (e x f)
25		2.50	0.49	2.30	0.500	5.79	2	12
32		3.38	0.80	2.45	0.676	7.31	2	15
40		4.05	1.26	2.62	0.810	8.74	2	17
50		5.43	1.96	3.63	1.086	12.11	2	24
65		8.62	3.32	3.98	1.724	17.64	2	35
80		11.27	5.03	4.34	2.254	22.89	2	46
100		16.04	7.85	4.81	3.208	31.91	2	64
125		21.76	12.27	5.40	4.352	43.79	2	88
150		28.22	17.67	6.00	5.644	57.53	2	115
200		42.46	31.42	7.18	8.992	90.05	2	180
250		60.20	49.09	9.23	11.540	130.06	2	260
300		79.60	70.69	10.49	14.420	175.20	2	350
350		94.20	96.21	11.75	17.840	220.00	2	440
400		123.10	125.66	13.01	28.120	289.89	2	580
450		155.70	159.04	14.27	31.140	360.15	2	720
500		182.80	196.35	18.77	37.050	434.98	2	870
600		254.91	282.74	21.66	50.482	609.80	2	1,220
650		277.00	331.83	23.11	52.900	684.84	2	1,370
700		299.00	384.85	24.56	61.800	770.21	2	1,540
800		343.00	502.66	27.46	72.100	945.21	2	1,890
900		387.00	636.17	30.35	76.400	1,129.93	2	2,260
1,000		431.00	785.40	33.25	85.200	1,334.85	2	2,670
1,200		519.00	1,130.98	39.04	105.800	1,794.82	2	3,590
1,350		554.00	1,431.39	43.39	121.300	2,150.08	2	4,300

b) Condenser

S/N	Pipe Size	Pipe	Water Weight	Insulation+ Cladding	Support Wt. 20% Pipe Wt.	Total Dead Weight	Factor of Safety & Allowance for Dynamic Load	Total Loading Weight
		kg/m	kg/m	kg/m	20	kg/m	(f)	kg/m
		(a)	(b)	(c)	(d)	(e) = (a+b+c+d)	(f)	(g) = (e x f)
25		2.50	0.49		0.500	3.49	2	7
32		3.38	0.80		0.676	4.85	2	10
40		4.05	1.26		0.810	6.12	2	12
50		5.43	1.96		1.086	8.48	2	17
65		8.62	3.32		1.724	13.66	2	27
80		11.27	5.03		2.254	18.55	2	37
100		16.04	7.85		3.208	27.10	2	54
125		21.76	12.27		4.352	38.38	2	77
150		28.22	17.67		5.644	51.54	2	103
200		42.46	31.42		8.492	82.37	2	165
250		60.20	49.09		11.540	124.83	2	250
300		79.60	70.69		15.420	170.21	2	340
350		94.20	96.21		19.340	209.75	2	420
400		123.10	125.66		26.120	274.88	2	550
450		155.70	159.04		30.140	344.88	2	690
500		182.80	196.35		41.060	420.21	2	840
600		254.91	282.74		52.482	590.14	2	1,180
650		277.00	331.83		56.400	665.23	2	1,330
700		299.00	384.85		61.300	745.15	2	1,490
800		343.00	502.66		69.100	914.76	2	1,830
900		387.00	636.17		76.900	1,100.07	2	2,200
1,000		431.00	785.40		83.700	1,300.10	2	2,600
1,200		519.00	1,130.98		99.800	1,749.78	2	3,500
1,350		554.00	1,431.39		114.800	2,100.19	2	4,200

PLAN () IN DC
SHEET OF

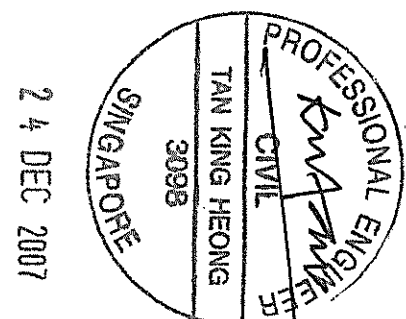
DATE: 24 DEC 2007
PROJECT NO: 24 DEC 2007
SCALE: 1:125
DRAWN BY: C. J. LIAW
CHECKED BY: K. H. TAN
PROJECT NO: 24 DEC 2007
SCALE: 1:125
DRAWN BY: C. J. LIAW
CHECKED BY: K. H. TAN

CONTRACTOR: SembCorp Industries
SembCorp Industries Ltd
20, Hill Street
Singapore 059501
Tel: (65) 6333 3113 Fax: (65) 6333 3207

ARCHITECT: P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
#2400 CLIFTON CENTRE
SINGAPORE 059221
TEL: 6593 2011
FAX: 6595 1265

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / AYER RAHAY AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DGP)

BASEMENT 4
PIPE LOADING DATA
REVISION: 0



24 DEC 2007

a) Chilled Water

SN	Pipe Size	Pipe	Water Weight	Insulation+ Cladding	Support Wt. 20 % Pipe Wt.	Total Dead Weight	Factor of Safety & Allowance for Dynamic Load	Total Loading Weight
		kg/m	kg/m	kg/m	20	kg/m	(1)	kg/m
		(a)	(b)	(c)	(d)	(e) = (a+b+c+d)	(f)	(g) = (e x f)
25	25	2.50	0.49	2.30	0.500	5.79	2	12
32	32	3.38	0.80	2.45	0.676	7.31	2	15
40	40	4.05	1.26	2.62	0.810	8.74	2	17
50	50	5.43	1.95	3.63	1.085	12.11	2	24
65	65	8.62	3.32	3.98	1.724	17.64	2	35
80	80	11.27	5.03	4.34	2.254	22.89	2	46
100	100	16.04	7.85	4.81	3.208	31.91	2	64
125	125	21.76	12.27	5.40	4.352	43.79	2	88
150	150	28.22	17.67	6.00	5.644	57.53	2	115
200	200	42.46	31.42	7.18	8.992	90.05	2	180
250	250	60.20	49.09	9.23	11.540	130.06	2	260
300	300	79.60	70.69	10.49	14.420	175.20	2	350
350	350	94.20	96.21	11.75	17.840	220.00	2	440
400	400	123.10	125.66	13.01	28.120	289.89	2	580
450	450	155.70	159.04	14.27	31.140	360.15	2	720
500	500	182.80	196.35	18.77	37.050	434.98	2	870
600	600	254.91	282.74	21.66	50.482	609.80	2	1,220
650	650	277.00	331.83	23.11	52.900	684.84	2	1,370
700	700	299.00	384.85	24.56	61.800	770.21	2	1,540
800	800	343.00	502.66	27.46	72.100	945.21	2	1,890
900	900	387.00	636.17	30.35	76.400	1,129.93	2	2,260
1,000	1,000	431.00	785.40	33.25	85.200	1,334.85	2	2,670
1,200	1,200	519.00	1,130.98	39.04	105.800	1,794.82	2	3,590
1,350	1,350	554.00	1,431.39	43.39	121.300	2,150.08	2	4,300

b) Condenser

SN	Pipe Size	Pipe	Water Weight	Insulation+ Cladding	Support Wt. 20 % Pipe Wt.	Total Dead Weight	Factor of Safety & Allowance for Dynamic Load	Total Loading Weight
		kg/m	kg/m	kg/m	20	kg/m	(1)	kg/m
		(a)	(b)	(c)	(d)	(e) = (a+b+c+d)	(f)	(g) = (e x f)
25	25	2.50	0.49	2.50	0.500	3.49	2	7
32	32	3.38	0.80	3.38	0.676	4.86	2	10
40	40	4.05	1.26	4.05	0.810	6.12	2	12
50	50	5.43	1.95	5.43	1.085	8.48	2	17
65	65	8.62	3.32	8.62	1.724	13.66	2	27
80	80	11.27	5.03	11.27	2.254	18.55	2	37
100	100	16.04	7.85	16.04	3.208	27.10	2	54
125	125	21.76	12.27	21.76	4.352	38.38	2	77
150	150	28.22	17.67	28.22	5.644	51.54	2	103
200	200	42.46	31.42	42.46	8.492	82.37	2	165
250	250	60.20	49.09	60.20	15.540	124.83	2	250
300	300	79.60	70.69	79.60	19.920	170.21	2	340
350	350	94.20	96.21	94.20	19.340	209.75	2	420
400	400	123.10	125.66	123.10	26.120	274.88	2	550
450	450	155.70	159.04	155.70	30.140	344.88	2	690
500	500	182.80	196.35	182.80	41.060	420.21	2	840
600	600	254.91	282.74	254.91	52.482	590.14	2	1,180
650	650	277.00	331.83	277.00	56.400	665.23	2	1,330
700	700	299.00	384.85	299.00	74.515	745.15	2	1,490
800	800	343.00	502.66	343.00	69.100	914.76	2	1,830
900	900	387.00	636.17	387.00	76.900	1,100.07	2	2,200
1,000	1,000	431.00	785.40	431.00	83.700	1,300.10	2	2,600
1,200	1,200	519.00	1,130.98	519.00	99.800	1,749.78	2	3,500
1,350	1,350	554.00	1,431.39	554.00	114.800	2,100.19	2	4,200

San Yee Kong
Assistant Manager

P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
SINGAPORE 048611
TEL: 6555 2011
FAX: 6555 7283

LAND OWNER'S NAME & ADDRESS
M/S JTC CORPORATION
THE JTC SQUARE
5 AIRONG TOWN HALL ROAD
SINGAPORE 09454
TEL: 6550 0556
FAX: 6555 5301

DATE: 13 NOV 2007

PROJECT NO.: SC/UP-DCS/LD/002

SCALE: N/S

DRAWN BY: E. J. J. Tan

CHECKED BY: K. H. Tan

PROJECT TITLE:
PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247N PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN D9P)

PROFESSIONAL ENGINEER
TAN KING HEONG
3098
SINGAPORE

SanYee Kong Industries Ltd
24 RAFFLES PLACE
SINGAPORE 048611
TEL: 6555 2011
FAX: 6555 7283

DATE OF ISSUE: 13 NOV 2007

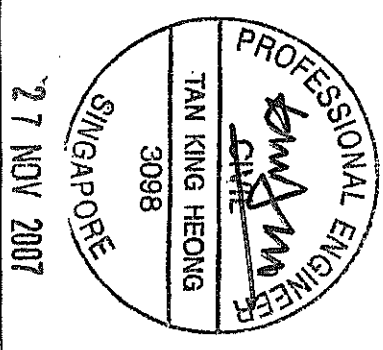
PROJECT NO.: SC/UP-DCS/LD/002

SCALE: N/S

DRAWN BY: E. J. J. Tan

CHECKED BY: K. H. Tan

PROJECT TITLE:
PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247N PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN D9P)



PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247N PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN D9P)

PROJECT TITLE:
PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247N PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN D9P)

PROJECT NO.: SC/UP-DCS/LD/002

SCALE: N/S

DRAWN BY: E. J. J. Tan

CHECKED BY: K. H. Tan

PROJECT TITLE:
PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247N PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN D9P)

27 NOV 2007

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes
1	B4	MJP pipe, 300 dia x 2 nos, at 8.4m per span	16.80 m	340	5,712 kg	5,712 kg	
		Total Weight =				5,712 kg	Load acting on soffit of B3
						57 kN	
B4		Fuel pipe, 100 dia x1 no, at 3.0m per span	3.00 m	54	162 kg		
		Fuel pipe, 50 dia x1 no, at 3.0m per span	3.00 m	17	51 kg		
		Vent pipe, 80 dia x1 no, at 3.0m per span	3.00 m	14	41 kg		
		Total Weight =				254 kg	
						2.5 kN	Load acting on soffit of B3
2	B4	Transfer Pump room					
		Pump	4.00 nos.	1,500	6,000 kg		
		Pipe, 300dia, 10m	10.00 m	340	3,400 kg		
		Concrete plinth, 3.2m x 2.5m x 0.15mH (2400/ kg /m3)	1.20 m ³	2,400	2,880 kg		
		Total Weight =				12,280 kg	
						123 kN	
		Concrete Plinth size =	3.2 m x 2.5 m x 0.15 m			8 m ²	
		Loading / unit of floor area =				15 kN/m ²	<< Use 15 kN/m ²
3	B4	Diesel Pump room					
		Pump	2.00 nos.	1,000	2,000 kg		
		Pipe, 100dia, 10m	10.00 m	55	550 kg		
		Concrete plinth, 2m x 1.5m x 0.15mH (2400/ kg /m3)	0.45 m ³	2,400	1,080 kg		
		Total Weight =				3,630 kg	
						36 kN	
		Concrete Plinth size =	2 m x 1.5 m x 0.15 m			3 m ²	
		Loading / unit of floor area =				12 kN/m ²	<< Use 15 kN/m ²
4	B4	Chilled Water Tank, 2 nos. For 1 tank		tons / unit			
		Chilled water & Structure Weight, 2525 Tons/tank	1.00 nos.	2,525	2,525 Tons		
		Pipe weight, 60m x 1 sets	60.00 m	0.70	42 Tons		
		Concrete plinth, 1.1mD x 0.30mH x 1 set (2400/ kg /m3)	28.51 m ³	2.4	68 Tons		
		Total Weight =				2,635 tons	per tank
						26,354 kN	per tank
		Concrete Plinth size =	1.1m dia x 0.30mH			95 m ²	
		Loading / unit of floor area =				277.3 kN/m ²	<< Use 300 kN/m ²

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.

PLAN () IN DC
SHEET OF

21 DEC 2007 2 AS SHOWN
21 DEC 2007 1 REVISIONS
DATE REV REVISIONS
LAND OWNER'S NAME & ADDRESS
M/S JTC CORPORATION
THE JTC SUMMIT, WALL ROAD
SINGAPORE 099444
TEL: 6393 0026
FAX: 6393 5501

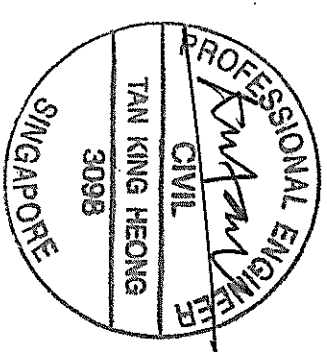
ARCHITECT
P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
42340 CLIFTON CENTRE
SINGAPORE 048271
TEL: 6355 2011
FAX: 6355 1233

CONTRACTOR
SembCorp Industries Ltd
30 Hill Street, #15-01
Singapore 17805
Tel: (65) 373 3113 Fax: (65) 373 2307

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247N PT MK 03 AT ONE-NORTH GATEWAY / AYER RAHAT AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN D92)

PROJECT TITLE
BASEMENT 4
LOADING CALCULATION

DESIGNED BY: E. Loh
CHECKED BY: K. H. Tan
DATE: 21 DEC 2007
SCALE: 1/15
PROJECT NO.:
DRAWING NO.: SCIPUP-DCSLD/003
REV: 2
DATE: 21 DEC 2007
DRAWN BY: SCIPUP-DCSLD-003
DESIGNED BY: E. Loh
CHECKED BY: K. H. Tan
DATE: 21 DEC 2007
SCALE: 1/15
PROJECT NO.:
DRAWING NO.: SCIPUP-DCSLD/003



24 DEC 2007

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes
1	B4	MUP pipe, 300 dia x 2 nos, at 8.4m per span	16.80 m	340	5,712 kg	5,712 kg	
		Total Weight =				57 kN	Load acting on soffit of B3
2	B4	Transfer Pump room					
		Pump	4.00 nos.	1,500	6,000 kg		
		Pipe, 300dia, 10m	10.00 m	340	3,400 kg		
		Concrete plinth, 3.2m x 2.5m x 0.15mH (2400/ kg /m3)	1.20 m3	2,400	2,880 kg		
		Total Weight =				12,280 kg	
		Concrete Plinth size =	3.2 m x 2.5 m x 0.15 m			123 kN	
		Loading / unit of floor area =				8 m2	<< Use 15 kN/m2
3	B4	Diesel Pump room					
		Pump	2.00 nos.	1,000	2,000 kg		
		Pipe, 100dia, 10m	10.00 m	55	550 kg		
		Concrete plinth, 2m x 1.5m x 0.15mH (2400/ kg /m3)	0.45 m3	2,400	1,080 kg		
		Total Weight =				3,630 kg	
		Concrete Plinth size =	2 m x 1.5 m x 0.15 m			36 kN	
		Loading / unit of floor area =				12 kN/m2	<< Use 15 kN/m2
4	B4	Chilled Water Tank, 2 nos. For 1 tank					
		Chilled water & Structure Weight, 2x25 Tons/tank	1.00 nos.	2,525	2,525 Tons		
		Pipe weight, 80m x 1 sets	60.00 m	0.70	42 Tons		
		Concrete plinth, 11mD x 0.30mH x 1 set (2400/ kg /m3)	28.51 m3	2.4	68 Tons		
		Total Weight =				2,635 tons	per tank
		Concrete Plinth size =	11m dia x 0.30mH			26,354 kN	per tank
		Loading / unit of floor area =				96 m2	per tank
						277.3 kN/m2	<< Use 300 kN/m2

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.

LAND OWNERS NAME & ADDRESS
M/S. JTC CORPORATION
THE JTC SQUARE
8 JURONG TOWNHALL ROAD
SINGAPORE 629544

TEL: 6595 0596
FAX: 6595 5901

ARCHITECT
P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
2303 RAFFLES PLACE
SINGAPORE 098611

TEL: 6593 2011
FAX: 6593 7283

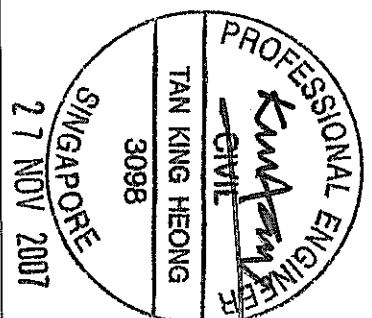
CONTRACTOR
SembCorp Industries Ltd
20 Hill Street
Singapore 059504

TEL: 6592 2000
FAX: 6592 2000

PROJECT TITLE:
PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DSP)

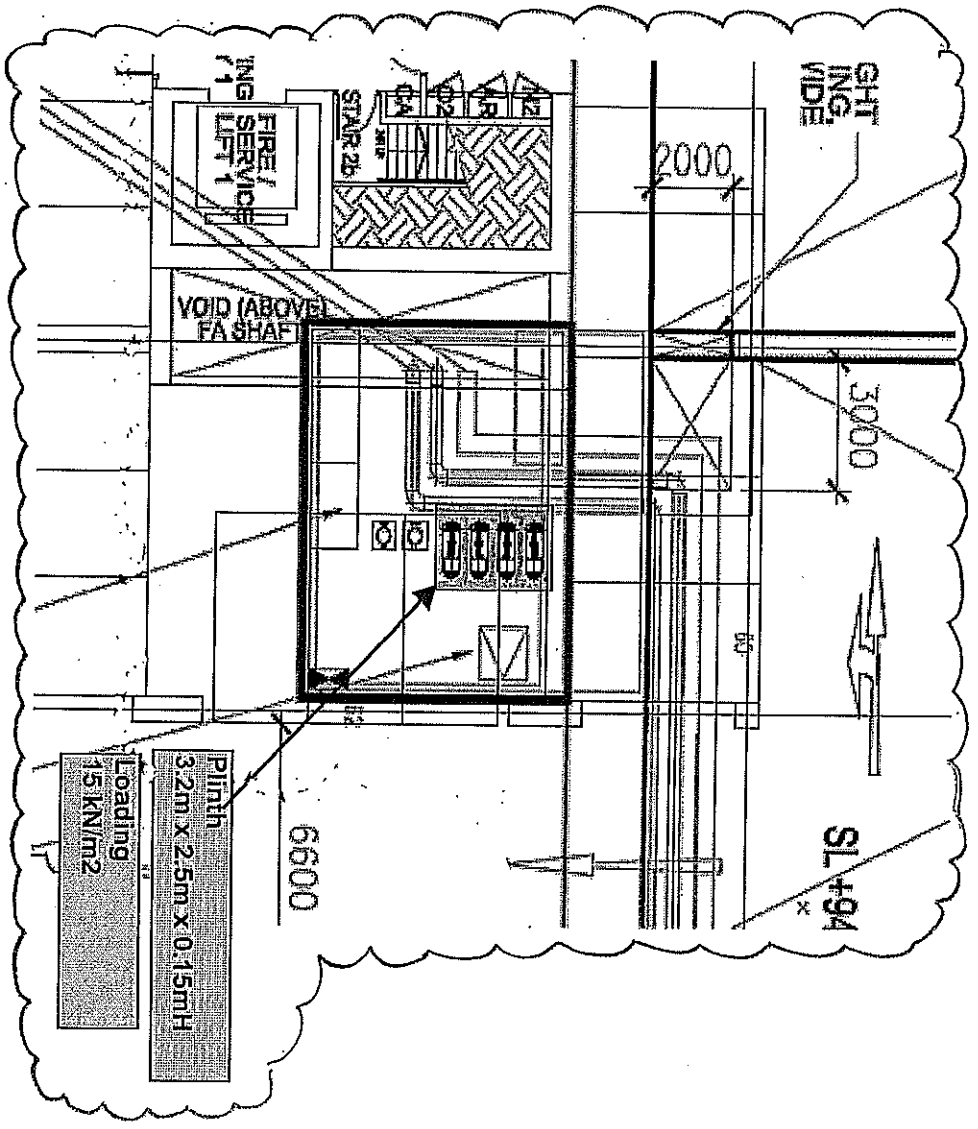
WORK NO :
SCJLUP-DCSLD003

DESIGNED BY : E. Lohala
CHECKED BY : K.H. Tan
DATE : 27 NOV 2007
SCALE : 1/125
PROJECT NO. :
CONTRACT : SC-TP-005-UP-003

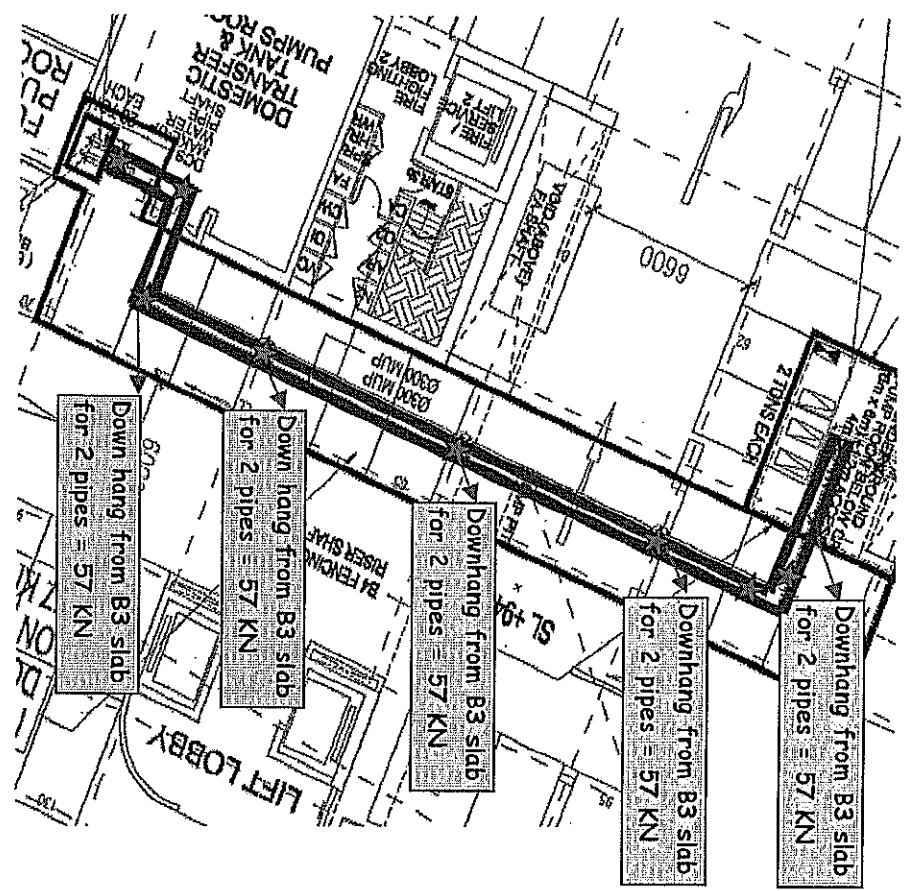


BASEMENT 4
LOADING CALCULATION

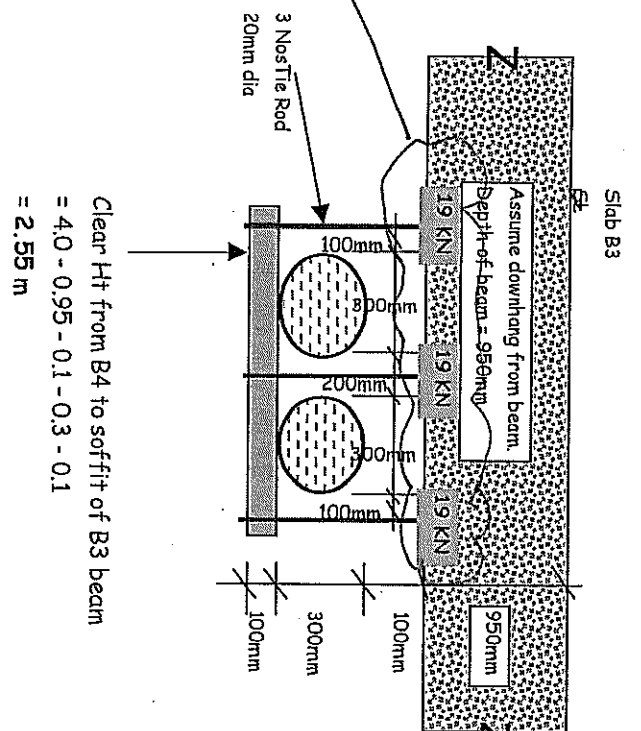
Make-up Transfer Pump



Make Up Pipes 300mm dia steel



SEE DIMENSION 2

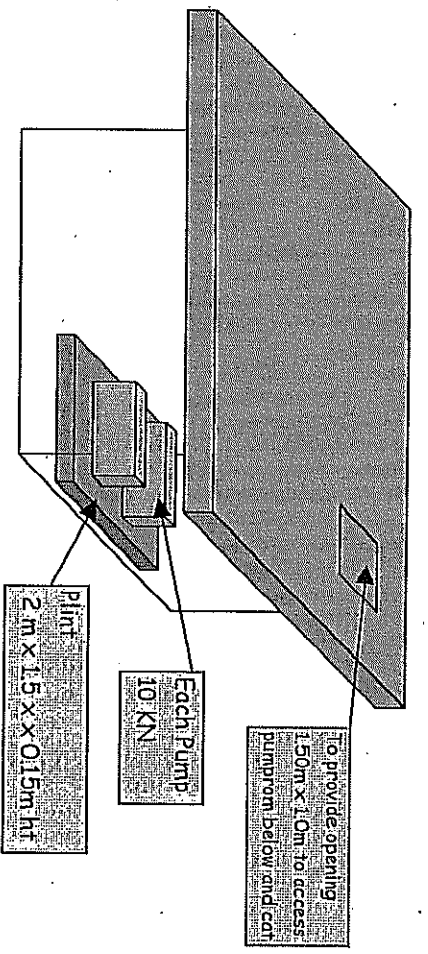
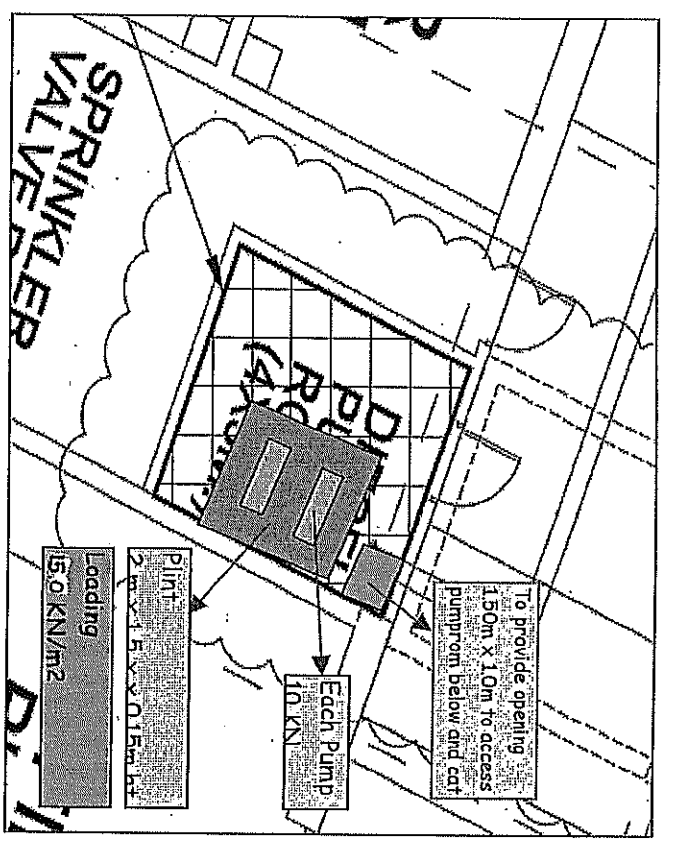


PROFESSIONAL ENGINEER
KIM MING
CIVIL
TAN KING HEONG
3098
SINGAPORE

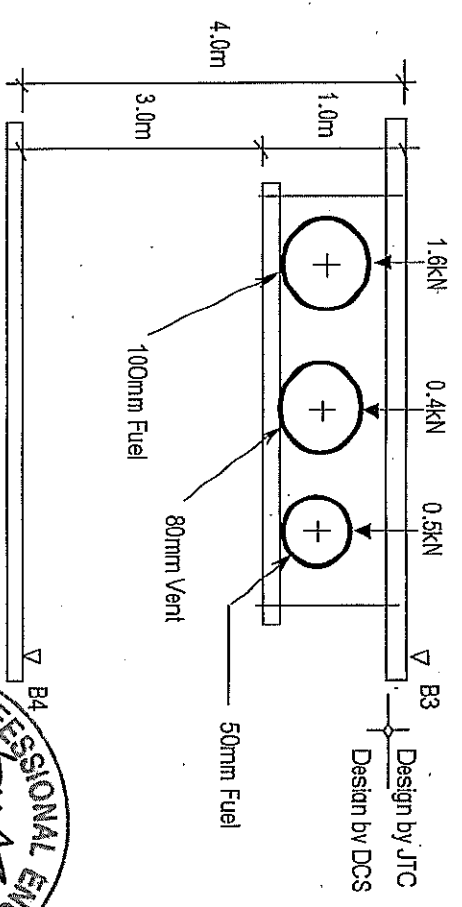
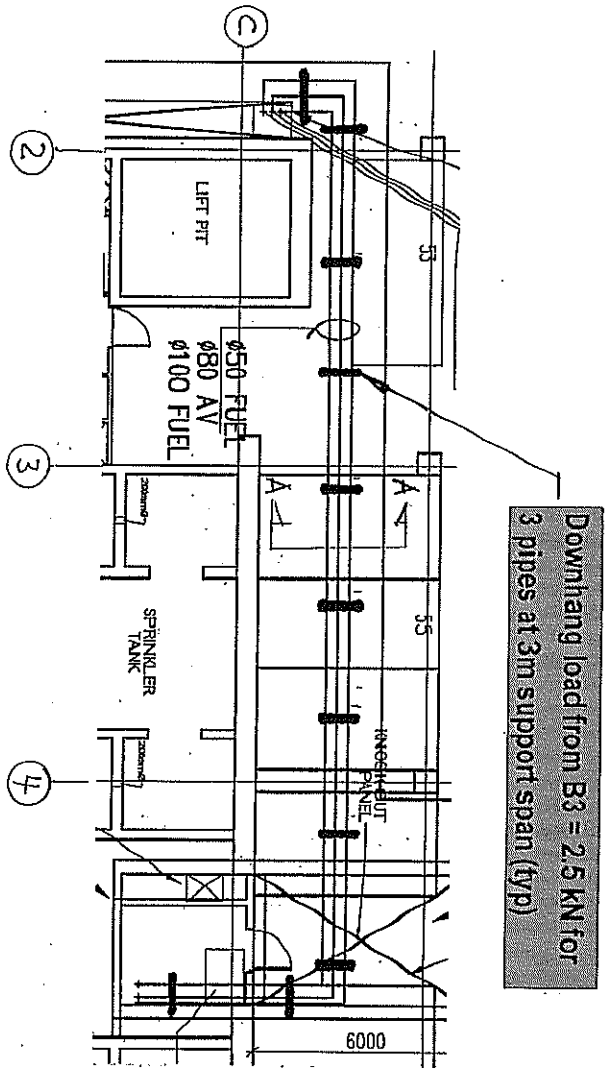
27 NOV 2007

<p>PROJECT TITLE: PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247M, PT. MK. 03 AT ONE-NORTH GATEWAY / ANER RAJAH AVENUE (JTC LAND PARCEL C4-2-2, QUEENSTOWN D99)</p>	<p>CLIENT: SembCorp Industries Ltd 20 Hill Street, #02-04 Singapore 179040 Tel: (65) 6733 3115 Fax: (65) 6733 3207</p>	<p>ARCHITECT: P&T CONSULTANTS PTE LTD 24 RAFFLES PLACE #23-00 CLIFTON CENTRE SINGAPORE 048621 TEL: 6555 2011 FAX: 6555 1255</p>	<p>LAND OWNERS NAME & ADDRESS: M/S JTC CORPORATION THE JTC SUMMIT HALL ROAD SINGAPORE 620044 TEL: 6592 6625 FAX: 6592 6501</p>	<p>DATE: 27 NOV 2007 SCALE: 1:50</p>	<p>DESIGNED BY: K.H.H. CHECKED BY: K.H.H. SCALE: 1:50 PROJECT NO.: SC-18-025-01-05</p>	<p>BASE ON JTC CONSULTANTS ARCH / C&S DWG NOS:</p>
--	--	---	--	--	--	--

Diesel Pump Room



Fuel Pipes, 100mm & 50mm dia
Air Vent, 80mm dia



PROFESSIONAL ENGINEER
TAN KING HEONG
3098
SINGAPORE

24 DEC 2007

DATE	BY	REVISIONS
24 DEC 2007	1	AS SHOWN
DATE	BY	REVISIONS
LAND OWNER'S NAME & ADDRESS		
M/S JTC CORPORATION		
THE JTC BUILDING WALL ROAD		
SINGAPORE 609544		
TEL: 6399 0226		
FAX: 6399 5291		
SINGAPORE 609544		

Eda Yee Kuan
Assistant Manager

ARCHITECT
P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
#23-00 CLIFTON CENTRE
SINGAPORE 359021
TEL: 6355 2011
FAX: 6355 1253

THE ADVISORY TEAM
THOSE OF WHO
ENDORSED BY VIMS

CONTRACTOR:
SundCorp Industries Ltd
30 Hill Street, #04-01
Singapore 059538
Tel: (65) 6333 3110 Fax: (65) 6333 2007

PROJECT TITLE:
PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247M PT MK 03 AT ONE-NORTH GATEWAY / AYER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DSG)

WORKS TITLE:
BASEMENT 4
LOADING PLAN FOR DIESEL PUMP & PIPE

BRAND NO:	REVISION
SCIFUP-DCS/LD/006	1
DESIGNED BY: E. Kuan	CHECKED BY: K.H.H.
DATE: 24 DEC 2007	SCALE: NTS
PROJECT NO.:	COORD: SC-NP-05-06
BASE ON JTC CONSULTANTS ARCH / CAS DWG NOS :	

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. (kg/m ³)	Sub-Total	Total	Remarks / Notes
1	B2	Condenser Water Pipe Thruout Block 1200dia x 75m	75.00 m	3,500	262,500 kg		For 1 floor
		Total Weight =			262,500 kg		Total weight acting on thruout block
2	B2	Heat Exchanger Room at Block A Heat Exchanger Branch Pipe, 400dia, 10m Concrete pith, 10m x 15m x 0.15mht (2400 kg/m ³)	3.00 nos. 30.00 m 19.50 m ³	15,000 590 2,400	45,000 kg 17,400 kg 46,800 kg		
		Total Weight =			109,200 kg		
		Concrete Pith size =	13 m x 10.0 m x 0.15 m		130 m ³		Use 15 kN/m ²
		Loading / unit of floor area =			8 kN/m ²		
3	B2	Heat Exchanger Room at Block A Downhang lead at soffit of B1 Main Pipe, 500dia x 1 no. Branch Pipe, 300dia x 1 no.	1.00 m 1.00 m	870 350	870 kg 350 kg		Wt of 1 pipoin Wt of 1 pipoin
		Total Weight =			1,220 kg		
		Concrete Pith size =	13 m x 10.0 m x 0.15 m		130 m ³		Use 15 kN/m ²
		Loading / unit of floor area =			8 kN/m ²		
4	B2	DCS Plant Room For EC-4, 5 & 6 Pumps Chiller, EC-4, 5 & 6 X2 piped/water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Pumps, 11 nos @ 5 tons ea Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Concrete pith, 13m x 10m x 0.15mht (2400 kg/m ³)	3.00 nos. 60.00 m 60.00 m 60.00 m 11.00 nos. 169.00 m 60.00 m 60.00 m 39.00 m ³	50,000 870 840 5,000 870 840 840 2,400	150,000 kg 52,200 kg 50,400 kg 55,000 kg 133,200 kg 50,400 kg 50,400 kg 93,600 kg		
		Total Weight =			590,800 kg		
		Concrete Pith size =	20 m x 13.0 m x 0.15 m		280 m ³		
		Loading / unit of floor area =			23 kN/m ²		
		For EC-1, 2 & Pumps Chiller, EC-1, 2 Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Pumps, 4 nos @ 5 tons ea Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Concrete pith, 13m x 10m x 0.15mht (2400 kg/m ³)	2.00 nos. 40.00 m 40.00 m 40.00 m 4.00 nos. 40.00 m 40.00 m 40.00 m 19.50 m ³	50,000 870 840 5,000 870 840 840 2,400	100,000 kg 34,800 kg 33,600 kg 20,000 kg 34,800 kg 33,600 kg 33,600 kg 46,800 kg		
		Total Weight =			303,600 kg		
		Concrete Pith size =	13 m x 10.0 m x 0.15 m		130 m ³		
		Loading / unit of floor area =			23 kN/m ²		
		For EC-3, BEC-1 & Pumps Chiller, EC-3 Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Pumps, 2 nos @ 5 tons ea Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Concrete pith, 13m x 12m x 0.15mht (2400 kg/m ³)	1.00 nos. 1.00 nos. 40.00 m 40.00 m 40.00 m 2.00 nos. 40.00 m 40.00 m 40.00 m 23.40 m ³	50,000 75,000 840 840 840 5,000 20,000 34,800 840 840 2,400	50,000 kg 75,000 kg 33,600 kg 33,600 kg 33,600 kg 10,000 kg 20,000 kg 34,800 kg 33,600 kg 33,600 kg 56,160 kg		
		Total Weight =			347,880 kg		
		Concrete Pith size =	13 m x 12.0 m x 0.15 m		156 m ³		
		Loading / unit of floor area =			22 kN/m ²		
		For BEC-2 & Pumps Chiller, BEC-2 Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Pumps, 2 nos @ 10 tons ea Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m	1.00 nos. 20.00 m 20.00 m 20.00 m 20.00 m 2.00 nos. 20.00 m 20.00 m 20.00 m 20.00 m	75,000 870 840 840 840 10,000 20,000 34,800 840 840	75,000 kg 17,400 kg 16,800 kg 16,800 kg 16,800 kg 20,000 kg 34,800 kg 33,600 kg 33,600 kg 33,600 kg		
		Total Weight =			167,800 kg		
		Concrete Pith size =	13 m x 12.0 m x 0.15 m		156 m ³		
		Loading / unit of floor area =			22 kN/m ²		

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. (kg/m ³)	Sub-Total	Total	Remarks / Notes
		Concrete pith, 13m x 5m x 0.15mht (2400 kg/m ³)	9.75 m ³	2,400	23,400 kg		
		Total Weight =			168,800 kg		
		Concrete Pith size =	13 m x 5.0 m x 0.15 m		65 m ³		
		Loading / unit of floor area =			29 kN/m ²		
		For EC-7 & Pumps Chiller, EC-7 Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Pumps, 2 nos @ 5 tons ea Chilled water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Condenser water pipe, 500 dia x 10m X2 piped/water pipe, 500 dia x 10m Concrete pith, 13m x 5m x 0.15mht (2400 kg/m ³)	1.00 nos. 20.00 m 20.00 m 20.00 m 20.00 m 2.00 nos. 20.00 m 20.00 m 20.00 m 20.00 m 9.75 m ³	50,000 870 840 840 840 5,000 10,000 16,800 16,800 16,800 2,400	50,000 kg 17,400 kg 16,800 kg 16,800 kg 16,800 kg 10,000 kg 16,800 kg 16,800 kg 16,800 kg 16,800 kg 23,400 kg		
		Total Weight =			151,800 kg		
		Concrete Pith size =	13 m x 5.0 m x 0.15 m		65 m ³		
		Loading / unit of floor area =			23 kN/m ²		
		For PT-1 PT-1 Concrete pith, 3.5m x 3.5m x 0.15mht (2400 kg/m ³)	1.00 nos. 1.00 nos. 1.84 m ³	30,000 2,400	30,000 kg 4,410 kg		
		Total Weight =			34,410 kg		
		Concrete Pith size =	3.5 m x 3.5 m x 0.15 m		344 kg		
		Loading / unit of floor area =			28 kN/m ²		
		Generator Room Generator set Branch Pipe, 300dia, 10m x 2 Concrete pith, 7.5m x 7.5m x 0.15mht (2400 kg/m ³)	2.00 nos. 20.00 m 8.44 m ³	25,000 2,000 2,400	50,000 kg 40,000 kg 20,250 kg		
		Total Weight =			110,250 kg		
		Concrete Pith size =	7.5 m x 7.5 m x 0.15 m		1,103 kg		
		Loading / unit of floor area =			59 m ²		
		Travelling hoist at soffit of B1 =			10 tons each		
		Transformer Room - TX-1-4 Transformer Cable, 1 lot Pith for 1 set, 1.9m x 5m x 0.15mht	4.00 nos. 1.00 lot 14.25 m ³	25,000 12,000 2,400	100,000 kg 12,000 kg 34,200 kg		
		Total Weight =			146,200 kg		
		Concrete Pith size =	19.0 m x 5.0 m x 0.15 m		1,452 kg		
		Loading / unit of floor area =			59 m ²		
		Main Condenser & Chilled Water Pipe (GL, C-24-B) - 8 Pipes Chilled water pipe, 700dia x 8.40m Chilled water pipe, 700dia x 8.40m Chilled water pipe, 800dia x 8.40m Chilled water pipe, 800dia x 8.40m Condenser water pipe, 1200dia x 8.40m Chilled water pipe, 1200dia x 8.40m	8.40 m 8.40 m 8.40 m 8.40 m 8.40 m 8.40 m	1,560 1,880 1,880 1,880 3,590	12,936 kg 15,876 kg 15,876 kg 15,876 kg 29,400 kg		Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe
		Main Chilled Water Pipe (GL, K-1-B) - 4 Pipes Chilled water pipe, 700dia x 8.40m Chilled water pipe, 800dia x 8.40m Chilled water pipe, 800dia x 8.40m Chilled water pipe, 800dia x 8.40m	8.40 m 8.40 m 8.40 m 8.40 m	1,540 1,880 1,880 1,880	12,936 kg 15,876 kg 15,876 kg 15,876 kg		Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe
		Main Chilled Water Pipe (GL, Y4-K) - 2 Pipes Chilled water pipe, 700dia x 10.00m Chilled water pipe, 700dia x 10.00m	10.00 m 10.00 m	1,540 1,220	15,400 kg 12,200 kg		Wt of 1 no. pipe Wt of 1 no. pipe
		Branch Chilled Water Pipe (GL, A4-B) - 3 Pipes Chilled water pipe, 500dia x 10.00m Chilled water pipe, 500dia x 10.00m Chilled water pipe, 500dia x 10.00m	10.00 m 10.00 m 10.00 m	870 870 870	8,700 kg 8,700 kg 8,700 kg		Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe
		Condenser Water Pipe (GL, C-5-B) - 1 Pipe Chilled water pipe, 800dia x 8.40m Condenser water pipe, 1200dia x 8.40m Chilled water pipe, 1200dia x 8.40m	8.40 m 8.40 m 8.40 m	3,590 29,400 kg 3,590	29,400 kg 29,400 kg 12,600 kg		Wt of 1 no. pipe Wt of 1 no. pipe Wt of 1 no. pipe

PLAN () IN DC
SHEET OF

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 0424/NW PT MK D3 AT ONE-NORTH GATEWAY / ATRER BALAH AVENUE (JTC LAND PARCEL CA-2-2, QUEENSTOWN DDP)

ARCHITECT: P&T CONSULTANTS PTE LTD
2400 CULLEN DRIVE SINGAPORE 61621
TEL: 6555 5201 FAX: 6555 5201

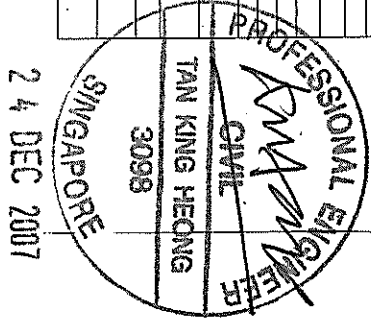
ENGINEER: SankCorp Indentech Ltd
300, Orchard Road, #04-01, Singapore 238869
TEL: 6553 3100 FAX: 6553 3100

DATE: 24 DEC 2007
DRAWN BY: K. H. NG
CHECKED BY: K. H. NG
SCALE: N.T.S.
PROJECT NO.: SCIFUPDCSLD1018
SHEET NO.: 2

BASEMENT 2
LOADING CALCULATION

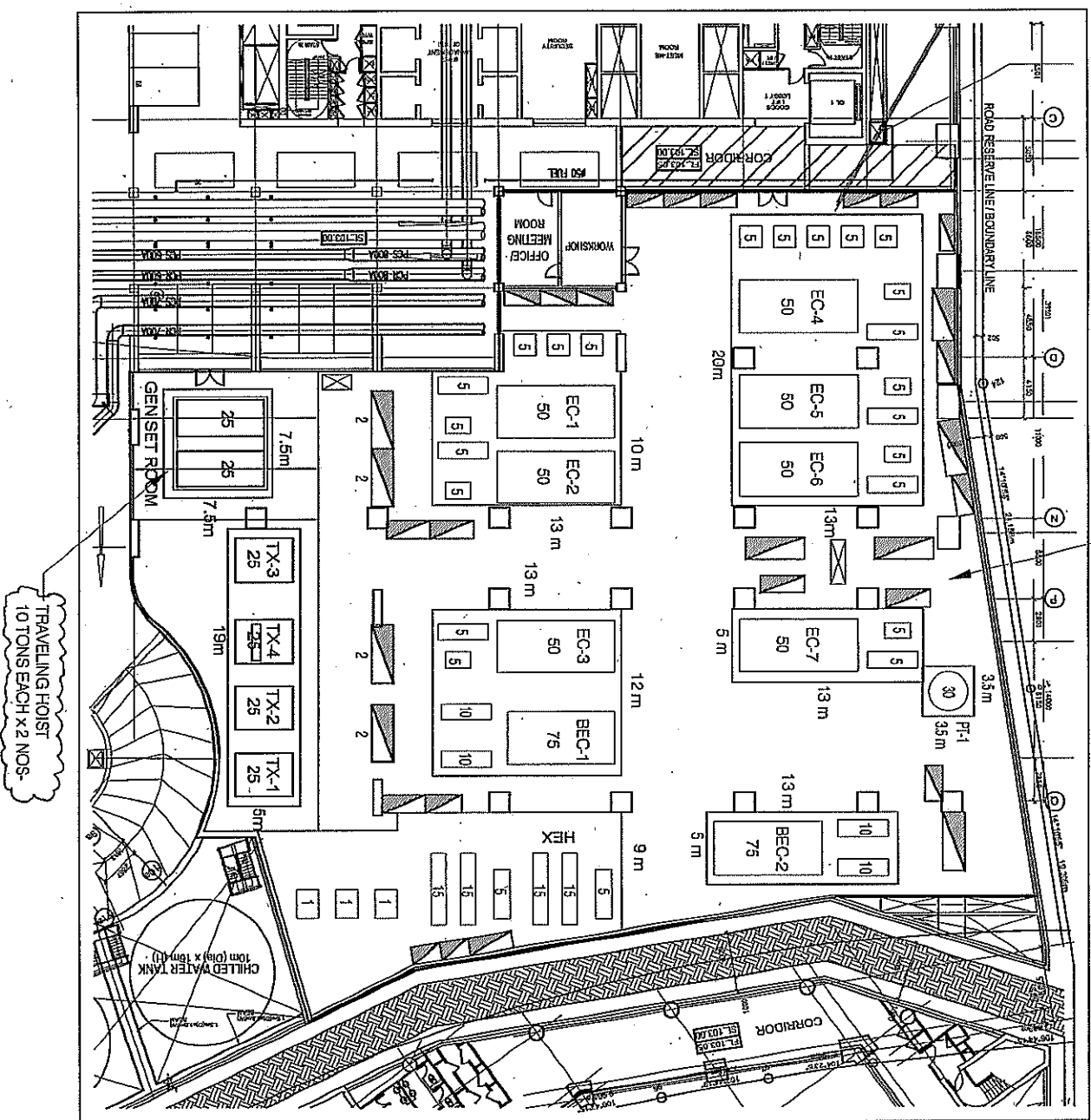
DATE: 24 DEC 2007
DRAWN BY: K. H. NG
CHECKED BY: K. H. NG
SCALE: N.T.S.
PROJECT NO.: SCIFUPDCSLD1018
SHEET NO.: 2

BASE ON JTC CONSULTANTS ARCH / CAS BRG NOS :



24 DEC 2007

DCS PLANTROOM



PLAN () IN DC
SHEET OF

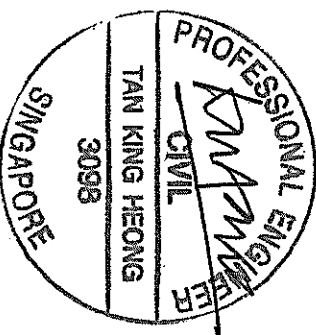
DATE: 24 DEC 2007
SCALE: 1:150
PROJECT NO.: SCIFUP-DCS/ID009

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04/247W PT MK 03 AT ONE-NORTH GATEWAY / ANER RAHAY AVENUE (JTC LAND PARCEL CA-2-2, QUEENSTOWN DDP)

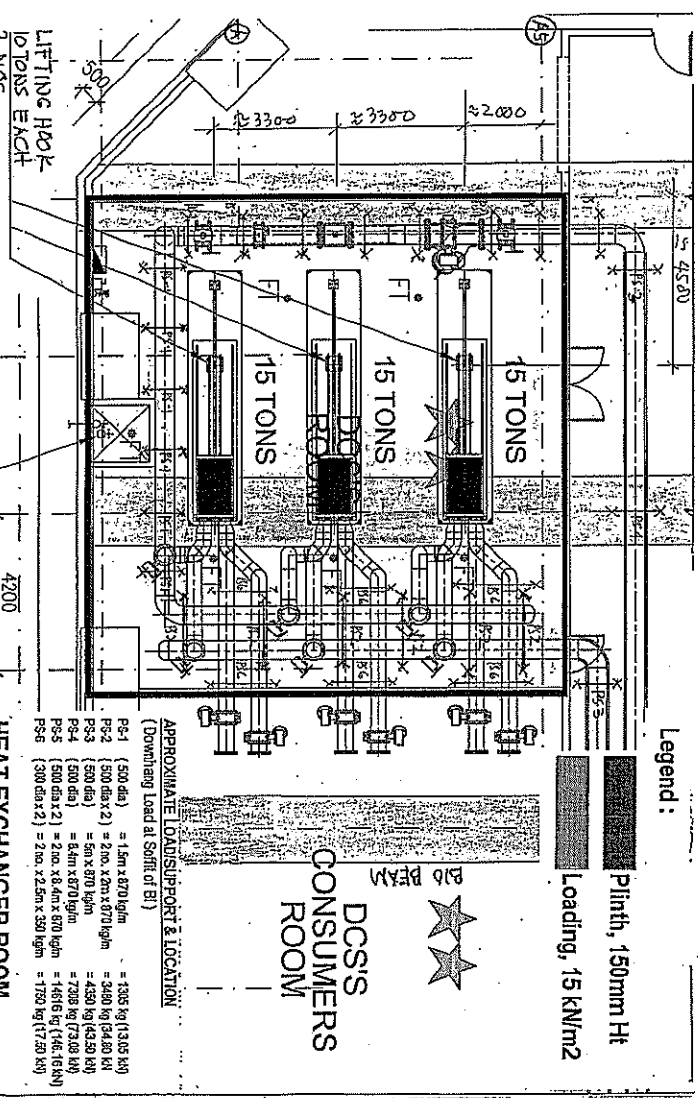
ARCHITECT: P&T CONSULTANTS PTE LTD
21 RAFFLES PLACE
23-00 CATERING CENTRE
SINGAPORE 04821
TEL: 6343 2011
FAX: 6343 1283

PROFESSIONAL ENGINEER
TAN KING HEONG
3098
SINGAPORE

24 DEC 2007



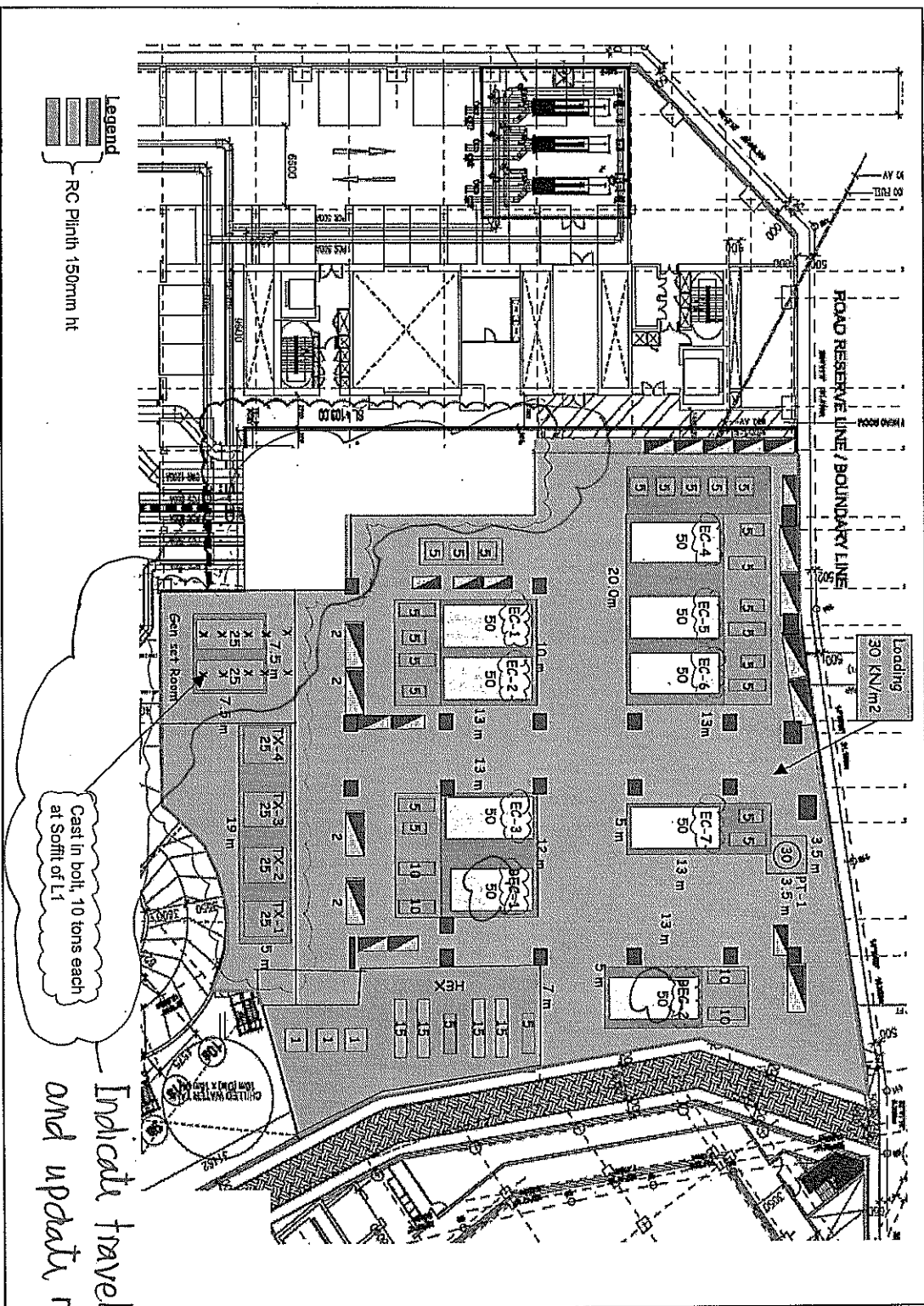
Legend:
Plinth, 150mm Ht
Loading, 15 KN/m2



APPROXIMATE LOADS/SUPPORT & LOCATION (Downloading Load at Sort of Bl)

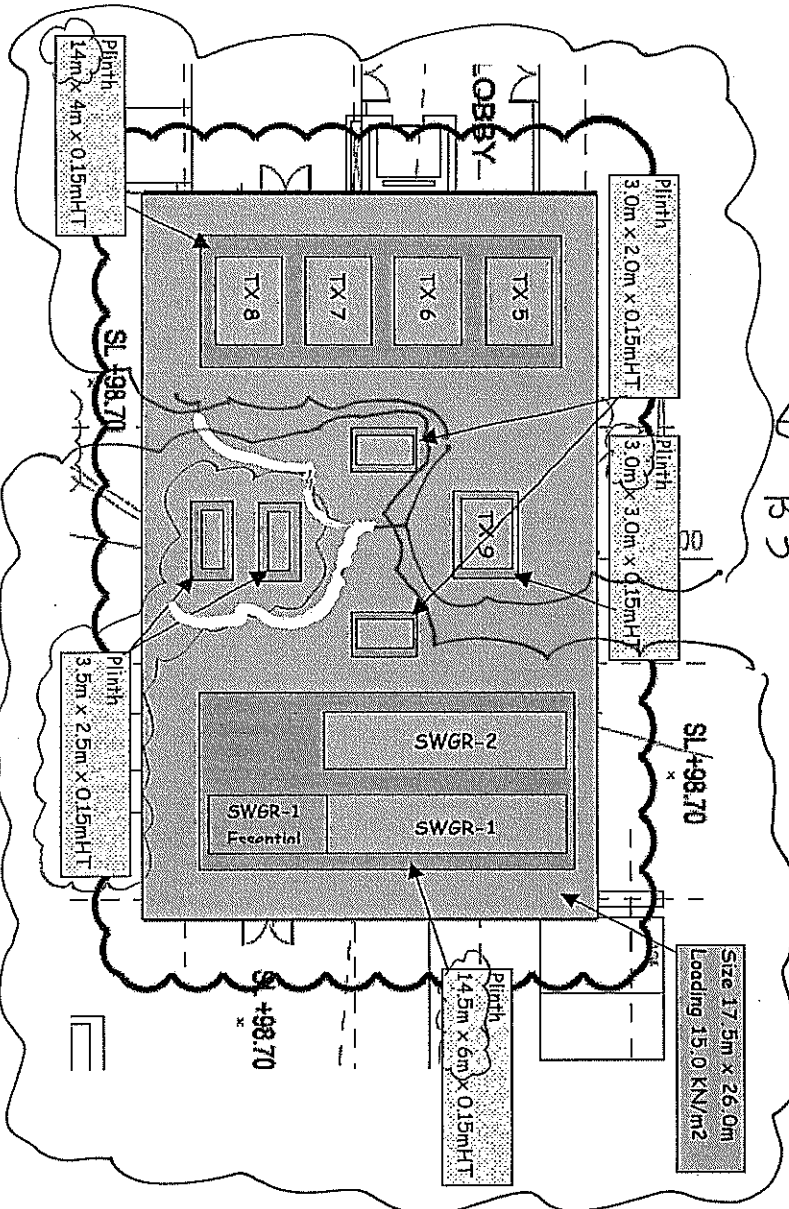
Pc-1 (500 da)	= 1.5m x 870 kg/m	= 1305 kg (13.05 kN)
Pc-2 (500 da x 2)	= 2.0m x 2.0m x 870 kg/m	= 3480 kg (34.80 kN)
Pc-3 (500 da)	= 5m x 870 kg/m	= 4350 kg (43.50 kN)
Pc-4 (500 da)	= 8.4m x 870 kg/m	= 7308 kg (73.08 kN)
Pc-5 (500 da x 2)	= 2.0m x 8.4m x 870 kg/m	= 14616 kg (146.16 kN)
Pc-6 (300 da x 2)	= 2.0m x 2.25m x 300 kg/m	= 1125 kg (11.25 kN)

REVISIONS:
NO. 1: BASEMENT 2, LOADING PLAN FOR CHILLER PLANT ROOM & HEAT EXCHANGER ROOM (BLK A)
NO. 2: (Blank)

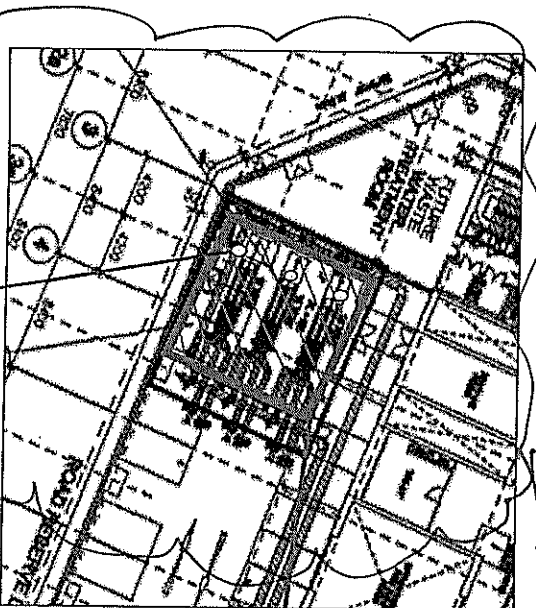


SEE REVISION 2

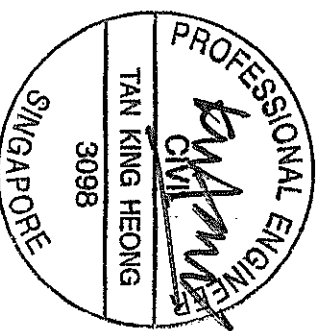
Transformer Rm



Heat Exchanger for Block A



Amend support spacing



27 NOV 2007

PLAN () INDC
SHEET OF

DATE: 27 NOV 2007
REV: 1
REV: 2
REV: 3
REV: 4
REV: 5
REV: 6
REV: 7
REV: 8
REV: 9
REV: 10
REV: 11
REV: 12
REV: 13
REV: 14
REV: 15
REV: 16
REV: 17
REV: 18
REV: 19
REV: 20
REV: 21
REV: 22
REV: 23
REV: 24
REV: 25
REV: 26
REV: 27
REV: 28
REV: 29
REV: 30
REV: 31
REV: 32
REV: 33
REV: 34
REV: 35
REV: 36
REV: 37
REV: 38
REV: 39
REV: 40
REV: 41
REV: 42
REV: 43
REV: 44
REV: 45
REV: 46
REV: 47
REV: 48
REV: 49
REV: 50
REV: 51
REV: 52
REV: 53
REV: 54
REV: 55
REV: 56
REV: 57
REV: 58
REV: 59
REV: 60
REV: 61
REV: 62
REV: 63
REV: 64
REV: 65
REV: 66
REV: 67
REV: 68
REV: 69
REV: 70
REV: 71
REV: 72
REV: 73
REV: 74
REV: 75
REV: 76
REV: 77
REV: 78
REV: 79
REV: 80
REV: 81
REV: 82
REV: 83
REV: 84
REV: 85
REV: 86
REV: 87
REV: 88
REV: 89
REV: 90
REV: 91
REV: 92
REV: 93
REV: 94
REV: 95
REV: 96
REV: 97
REV: 98
REV: 99
REV: 100

Architect: P&T CONSULT TANTIS PTE LTD
24 RAFFLES PLACE
TEL: 6355 2011
FAX: 6355 1283
SINGAPORE 08821

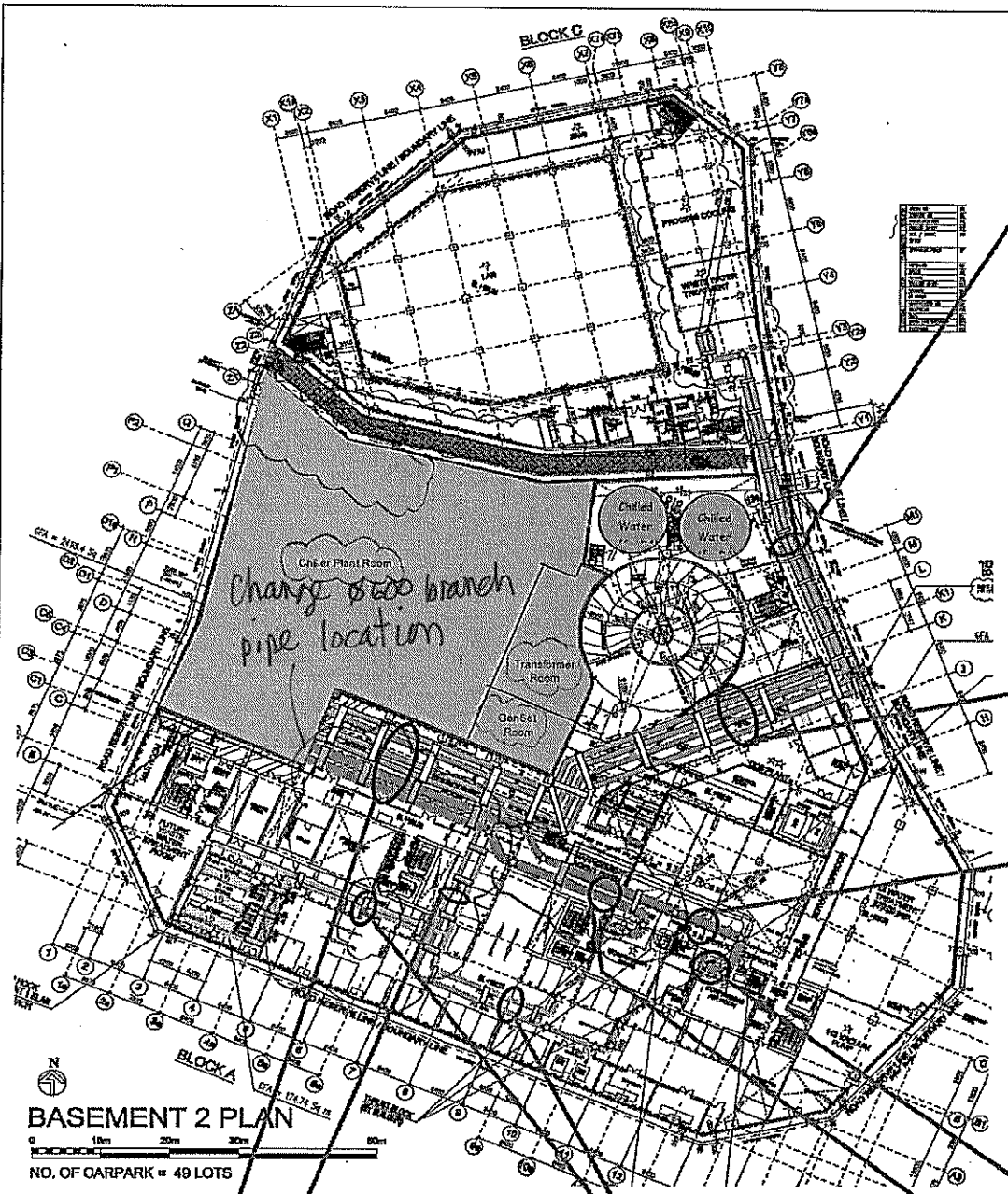
Client: SembCorp Industries Ltd
20 Hill Street, #25-04
SembCorp Industries
Tel: (65) 6323 5110 to (65) 6323 2007

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / AYER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DRP)

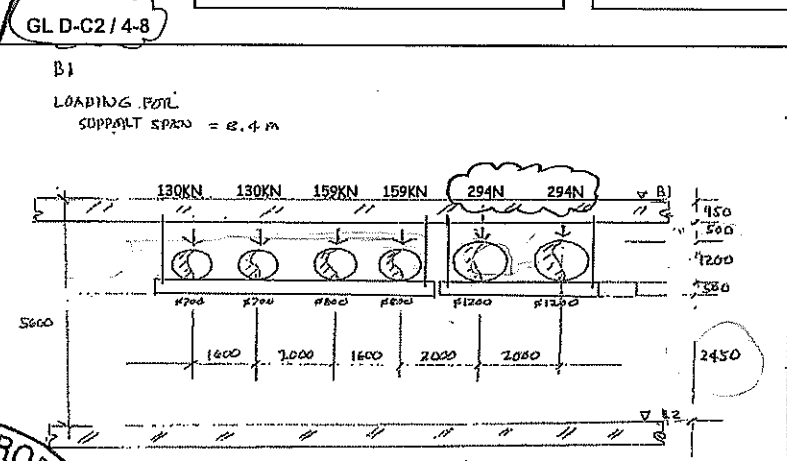
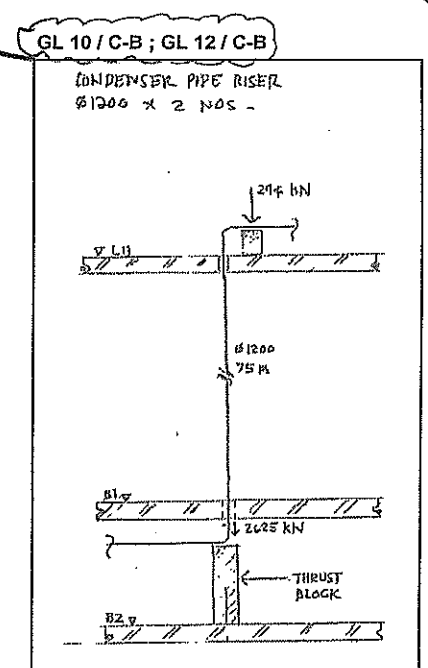
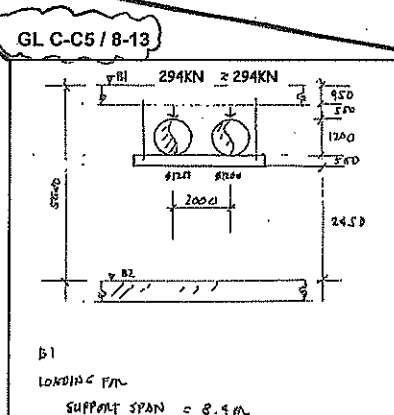
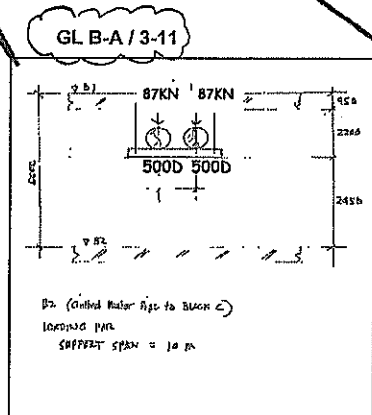
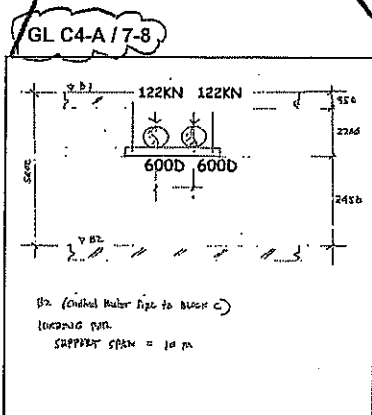
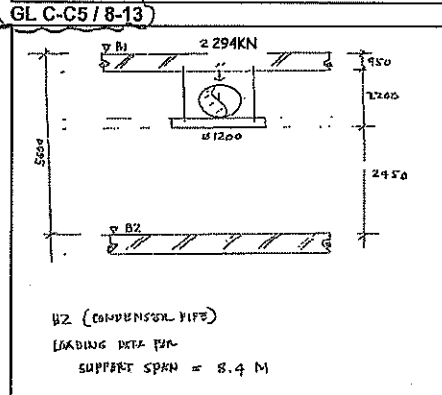
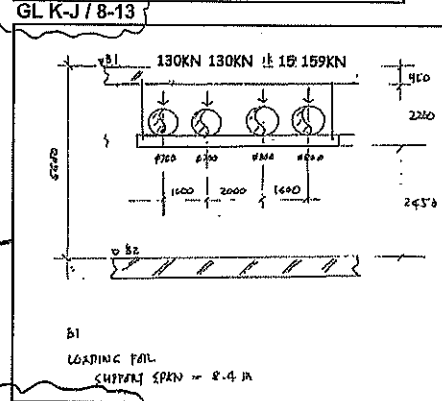
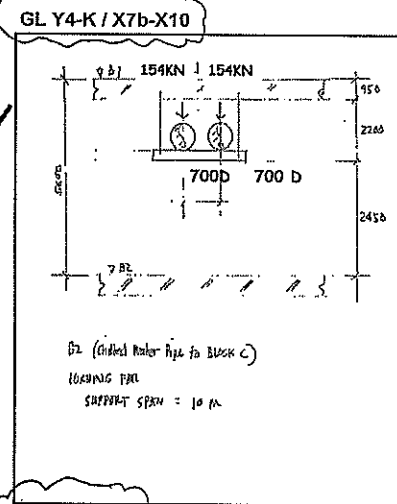
PROJECT TITLE: BASEMENT 2
LOADING PLAN FOR CHILLER PLANT ROOM, HEAT EXCHANGER ROOM (E.K. A) & TRANSFORMER ROOM

DESIGNED BY: E. Aulade
CHECKED BY: K. H. Ho
DATE: 27 NOV 2007
SCALE: 1:125
DRAWING NO.: SCIFUP-DOSLID009
SHEET NO.: 1
BASE ON JTC CONSULTANTS ARCH / CAS DWG NOS:

Pipes DOWNHANG from B1



REDRAWN in
AUTOCAD
SEE REVISION 2



PROFESSIONAL ENGINEER
TAN KING HEONG
CIVIL
3098
SINGAPORE
27 NOV 2007

<p>PROJECT TITLE: BASEMENT 2 LOADING PLAN FOR PIPES DOWNHANG AT BASEMENT 1 SOFFIT</p> <p>SCALE: 1:100</p> <p>DATE: 27 NOV 2007</p> <p>PROJECT NO.: 001E-02-01-05-00-00</p> <p>BASE ON JTC CONSULTANTS ARCH / CAS DWG NOS.:</p>	<p>CLIENT: SankCorp Industries</p> <p>20 Hill Street, #20-01 Singapore 110033 Tel: (65) 2215 3115 Fax: (65) 2215 3007</p>	<p>ARCHITECT: P&T CONSULTANTS PTE LTD</p> <p>24 RAFFLES PLACE #12-00 CLIFTON CENTRE SINGAPORE 050241</p> <p>TEL: 6555 2011 FAX: 6555 7203</p>	<p>DESIGNER: Tan King Heong</p> <p>Assistant Manager</p>	<p>DATE: 27 NOV 2007</p> <p>BY: [Signature]</p> <p>CHK: [Signature]</p>	<p>LAND OWNER'S NAME & ADDRESS: M/S JTC CORPORATION</p> <p>THE JTC CORP. HALL ROAD SINGAPORE 05054</p> <p>TEL: 6550 8000 FAX: 6555 5001</p>	<p>PLAN () INDC</p> <p>SHEET OF</p>
--	---	---	--	---	---	--------------------------------------

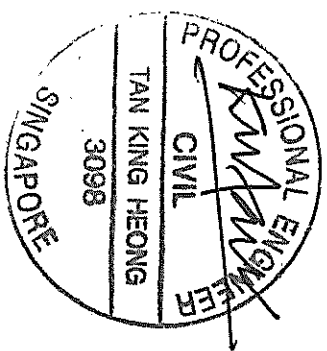
Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes	
1	B1	Heat Exchanger Room at Block C						
		Heat Exchanger	3.00 nos.	15,000	45,000 kg			
		Branch Pipe, 400dia, 10m	30.00 m	580	17,400 kg			
		Concrete plinth, 10m x 13m x 0.15mH (2400/ kg/m ³)	19.50 m ³	2,400	46,800 kg			
Total Weight =					109,200 kg			
Concrete Plinth size =			13 m x 10.0 m x 0.15 m		1,092 kN			
Loading / unit of floor area =					8 kN/m ²	<< Use 15 kN/m ²		
2	B1	Heat Exchanger Room at Block C (Downhang load at soffit of L1)						
		Main Pipe, 700dia x 1 no.	1.00 m	1,540	1,540 kg		Wt of 1 pipe/m	
		Branch Pipe, 400dia x 1 no.	1.00 m	580	580 kg		Wt of 1 pipe/m	
		Lifting Hook at Soffit of L1 =					10.0 tons each x 3 nos.	
Concrete Plinth size =			12.7 m x 10.0 m x 0.15 m		1,012 kN			
Loading / unit of floor area =					8 kN/m ²	<< Use 15 kN/m ²		
3	B1	Heat Exchanger Room at Block B						
		Heat Exchanger	3.00 nos.	15,000	45,000 kg			
		Branch Pipe, 300dia, 10m	30.00 m	350	10,500 kg			
		Concrete plinth, 12.7m x 10m x 0.15mH (2400/ kg/m ³)	19.05 m ³	2,400	45,720 kg			
Total Weight =					101,220 kg			
Concrete Plinth size =			12.7 m x 10.0 m x 0.15 m		1,012 kN			
Loading / unit of floor area =					8 kN/m ²	<< Use 15 kN/m ²		
4	B1	Heat Exchanger Room at Block B (Downhang load at soffit of L1)						
		Main Pipe, 500dia x 1 no.	1.00 m	870	870 kg		Wt of 1 pipe/m	
		Branch Pipe, 300dia x 1 no.	1.00 m	350	350 kg		Wt of 1 pipe/m	
		Lifting Hook at Soffit of L1 =					10.0 tons each x 3 nos.	
Concrete Plinth size =			12.7 m x 10.0 m x 0.15 m		1,012 kN			
Loading / unit of floor area =					8 kN/m ²	<< Use 15 kN/m ²		
5	B1	Above DCS Plantroom - Main Header at Intermediate RC Beam						
		Main condenser pipe, 1200dia x 1 nos. at 11m/no.	11.00 m	3,500	38,500 kg		Wt of 1 pipes	
		Branch condenser pipe, 500dia x 8m	8.00 m	840	6,720 kg		Wt of 1 branch	
		Total Weight =					45,220 kg	
Concrete Plinth size =			11.00 m x 8.00 m x 0.15 m		452 kN			
Loading / unit of floor area =					8 kN/m ²	<< Use 15 kN/m ²		
	b)	Main chilled water pipe, 1200dia x 1 nos. at 11m/no.	11.00 m	3,590	39,490 kg		Wt of 1 pipes	
		Branch chilled water pipe, 500dia x 8m	8.00 m	870	6,960 kg		Wt of 1 branch	
		Total Weight =					46,450 kg	
		Concrete Plinth size =			11.00 m x 8.00 m x 0.15 m		466 kN	

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes	
6	B1	6.6kV Switchgear Room						
		SWGR-1	1.00 no.	9,000	9,000 kg			
		SWGR-1 Essential	1.00 lot	4,000	4,000 kg			
		Cable, 1 lot	1.00 lot	2,000	2,000 kg			
Pilinth, 14.5m x 3m x 0.15mH					6.53 m ³	2,400	15,660 kg	
Total Weight =					30,660 kg			
Concrete Plinth size =			14.5 m x 3.0 m x 0.15 m		307 kN			
Loading / unit of floor area =					44 m ²			
Concrete Plinth size =			14.0 m x 3.0 m x 0.15 m		7 kN/m ²			
Loading / unit of floor area =					7 kN/m ²			
b)		SWGR-2	1.00 no.	9,000	9,000 kg			
		Cable, 1 lot	1.00 lot	1,000	1,000 kg			
		Pilinth, 10m x 3m x 0.15mH	4.50 m ³	2,400	10,800 kg			
		Total Weight =					20,800 kg	
Concrete Plinth size =			10.0 m x 3.0 m x 0.15 m		30 m ²			
Loading / unit of floor area =					7 kN/m ²			
c)		Capacitor bank	4.00 no.	1,000	4,000 kg			
		Cable, 1 lot	1.00 lot	1,000	1,000 kg			
		Pilinth, 7m x 1.8m x 0.15mH	1.89 m ³	2,400	4,536 kg			
		Total Weight =					9,536 kg	
Concrete Plinth size =			7.0 m x 1.8 m x 0.15 m		56 kN			
Loading / unit of floor area =					13 m ²			
Concrete Plinth size =			7.0 m x 1.8 m x 0.15 m		8 kN/m ²			
Loading / unit of floor area =					8 kN/m ²			

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.



24 DEC 2007

<p>PROJECT TITLE: PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / AYER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DSP)</p>	<p>DESIGNED BY: SCL/JP-DCS/ID/011</p>	<p>REVISION: 2</p>
<p>DATE: 24 DEC 2007</p>	<p>SCALE: X1/5</p>	<p>PROJECT NO.: 30-10-05-00-011</p>
<p>ARCHITECT: P&T CONSULTANTS PTE LTD 24 RAFFLES PLACE #02-00 RAFFLES CENTRE SINGAPORE 358641</p>	<p>CLIENT: M/S JTC CORPORATION 8, RAFFLES QUAY, SINGAPORE 358644</p>	<p>DATE: 21 DEC 2007</p>
<p>DESIGNED BY: SCL/JP-DCS/ID/011</p>	<p>SCALE: X1/5</p>	<p>PROJECT NO.: 30-10-05-00-011</p>

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/Unit	Sub-Total	Total	Remarks / Notes
1	B1	Heat Exchanger Room at Block C					
		Heat Exchanger	3.00 nos.	15,000	45,000 kg		
		Branch Pipe, 600dia, 10m	30.00 m	1,230	36,900 kg		
		Concrete plinth, 10m x 13m x 0.15mH (2400/ kg/m ³)	19.50 m ³	2,400	46,800 kg		
		Total Weight =				128,700 kg	
		Concrete Plinth size = 13 m x 10.0 m x 0.15 m				130 m ²	
		Loading / unit of floor area =				10 kN/m ²	<< Use 15 kN/m ²
2	B1	Heat Exchanger Room at Block C					
		Main Pipe, 700dia x 1 no. at 8.4m/h.o.	8.40 m	1,540	12,936 kg		
		Branch Pipe, 600dia x 1 nos. at 5m/h.o.	5.00 m	1,220	6,100 kg		
		Total Weight =				19,036 kg	
		Concrete Plinth size = 13 m x 10.0 m x 0.15 m				130 m ²	
		Loading / unit of floor area =				146 kN	Downhang load at soffit of L1
		Lifting Hook at Soffit of L1 =				10.0 tons each x 3 nos.	
3	B1	Heat Exchanger Room at Block B					
		Heat Exchanger	3.00 nos.	15,000	45,000 kg		
		Branch Pipe, 500dia, 10m	30.00 m	870	26,100 kg		
		Concrete plinth, 13m x 10m x 0.15mH (2400/ kg/m ³)	19.50 m ³	2,400	46,800 kg		
		Total Weight =				117,900 kg	
		Concrete Plinth size = 13 m x 10.0 m x 0.15 m				130 m ²	
		Loading / unit of floor area =				9 kN/m ²	<< Use 15 kN/m ²
4	B1	Heat Exchanger Room at Block B					
		Main Pipe, 600dia x 1 nos. at 8.4m/h.o.	8.40 m	1,220	10,248 kg		
		Branch Pipe, 500dia x 1 nos. at 5m/h.o.	5.00 m	870	4,350 kg		
		Total Weight =				14,598 kg	
		Concrete Plinth size = 13 m x 10.0 m x 0.15 m				146 kN	Downhang load at soffit of L1
		Loading / unit of floor area =				10.0 tons each x 3 nos.	
5	B1	Above DCS Plantroom - Main Header at Intermediate RC Beam					
	a)	Main condenser pipe, 1200dia x 1 nos. at 11m/h.o.	11.00 m	3,500	38,500 kg		Wt of 1 pipes
		Branch condenser pipe, 500dia x 8m	8.00 m	840	6,720 kg		Wt of 1 branch
		Total Weight =				45,220 kg	
		Concrete Plinth size = 13 m x 10.0 m x 0.15 m				130 m ²	
		Loading / unit of floor area =				465 kN	
	b)	Main chilled water pipe, 1200dia x 1 nos. at 11m/h.o.	11.00 m	3,590	39,490 kg		Wt of 1 pipes
		Branch chilled water pipe, 500dia x 8m	8.00 m	870	6,960 kg		Wt of 1 branch
		Total Weight =				46,450 kg	
		Concrete Plinth size = 13 m x 10.0 m x 0.15 m				130 m ²	
		Loading / unit of floor area =				465 kN	

Indicates loading in per meter of pipe run

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.

6.6 kv switchgear loading data from B2 include here

SEE REVISION 1

PLAN () INDC
SHEET OF

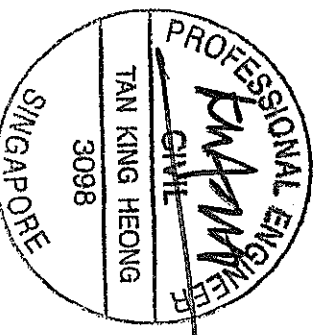
DATE: 27 NOV 2007
 REV: 1
 M/S JTC CORPORATION
 THE JTC SQUARE
 1000 SINGAPORE ROAD
 TEL: 6560 8000
 FAX: 6563 5801

ARCHITECT
P&T CONSULTANTS PTE LTD
 24 RAFFLES PLACE
 #24-00 CLIFTON CENTRE
 SINGAPORE 05821
 TEL: 6335 2015
 FAX: 6335 2323

CONTRACTOR
SembCorp Industries Ltd
 20 Hill Street
 Singapore 1780
 Tel: (65) 2315 1111 Fax: (65) 2315 2007

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / ANER RAJAH AVENUE (JTC LAND PARCEL CA-2-2, QUEENSTOWN DRP)

PROJECT TITLE:
**BASEMENT 1
 LOADING CALCULATION**



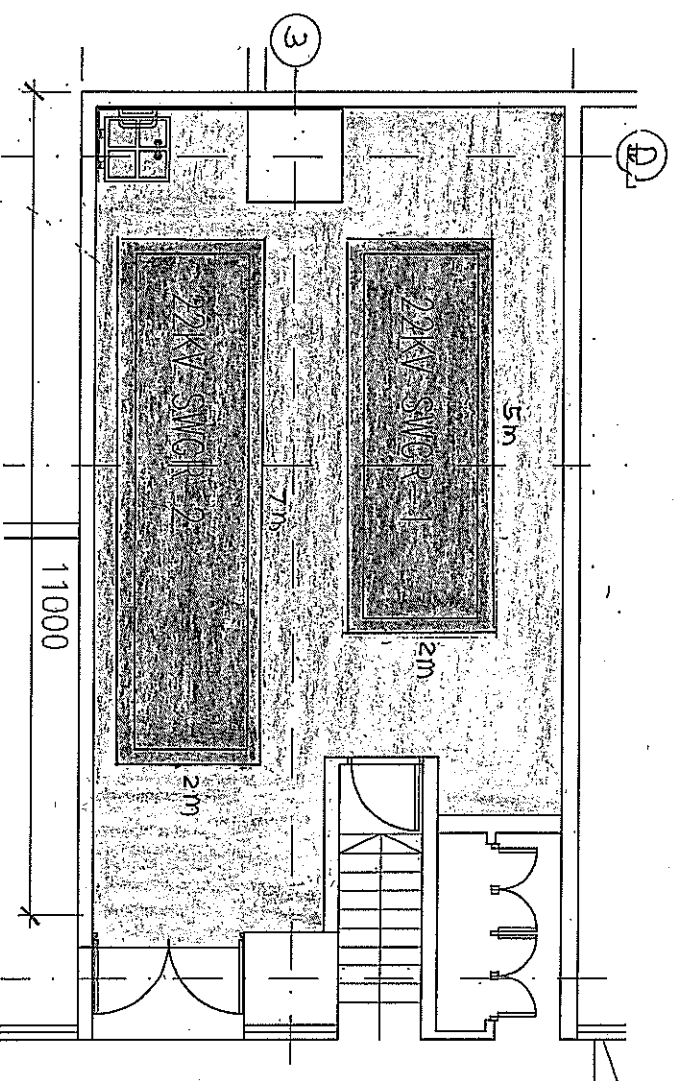
27 NOV 2007

Loading Calculation

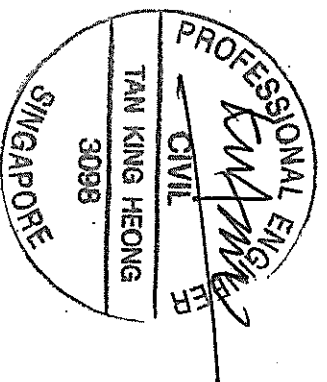
Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes
1.0	L1	DCS Power Supply & Consumer Sub-Station					
	a)	For 22 kV SWGR-1					
		SWGR-1	1.00 no.	5,300	5,300 kg		
		Cable Weight	1.00 lot	2,000	2,000 kg		
		Concrete plinth, 5.0m x 2.0m x 0.15mH (2400/ kg/m ³)	1.5 m ³	2,400	3,600 kg		
		Total Weight =				10,900 kg	
		Concrete Plinth size =	5 m x 2.0 m	x 0.15 m		10 m ²	
		Loading / unit of floor area =				11 kN/m ²	<< Use 16 kN/m ²
	b)	For 22 kV SWGR-2					
		SWGR-2	1.00 no.	6,300	6,300 kg		
		Cable Weight	1.00 lot	2,000	2,000 kg		
		Concrete plinth, 7m x 2m x 0.15mH (2400/ kg/m ³)	2.1 m ³	2,400	5,040 kg		
		Total Weight =				13,340 kg	
		Concrete Plinth size =	7 m x 2.0 m	x 0.15 m		14 m ²	
		Loading / unit of floor area =				10 kN/m ²	<< Use 16 kN/m ²

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.

DCS Power Supply Consumer Sub-Station



Legend :
 Plinth, 150mm Ht
 16 kN/m²



24 DEC 2007

REVISIONS

NO.	DATE	BY	REASON
1	27 NOV 2007	1	REVISE 1023
2	21 OCT 2007	2	AS SHOWN

LAND OWNER'S NAME & ADDRESS
M/S JTC CORPORATION
THE JTC STAMART HILL ROAD
SINGAPORE 6004

TEL: 6929 8026
FAX: 6929 8001

ESTIMATOR
ARCHITECT
P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
#24-00 CLIFTON CENTRE
SINGAPORE 098821

TEL: 6535 2411
FAX: 6535 2203

FOR ACCOUNT PLAN

THINE & LHO
LINDUNA 93 10/05

CONTRACTOR :
SembCorp Industries Ltd
20 Hill Street, #24-01
Singapore 07893
Tel: (65) 3723 3125 Fax: (65) 3723 3007

PROJECT TITLE :
**1ST STOREY
LOADING CALCULATION & LOADING PLAN FOR
DCS POWER SUPPLY CONSUMER ROOM**

PROPOSED: ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W, PT. MK 03 AT ONE-NORTH GATEWAY / ANER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DP2)

DATE : 24 DEC 2007

DESIGNED BY : E. Luchina

CHECKED BY : X. H. Tan

SCALE : A1:3

PROJECT NO. : SCIFUP-DCSILD1014

REVISION

NO. 2

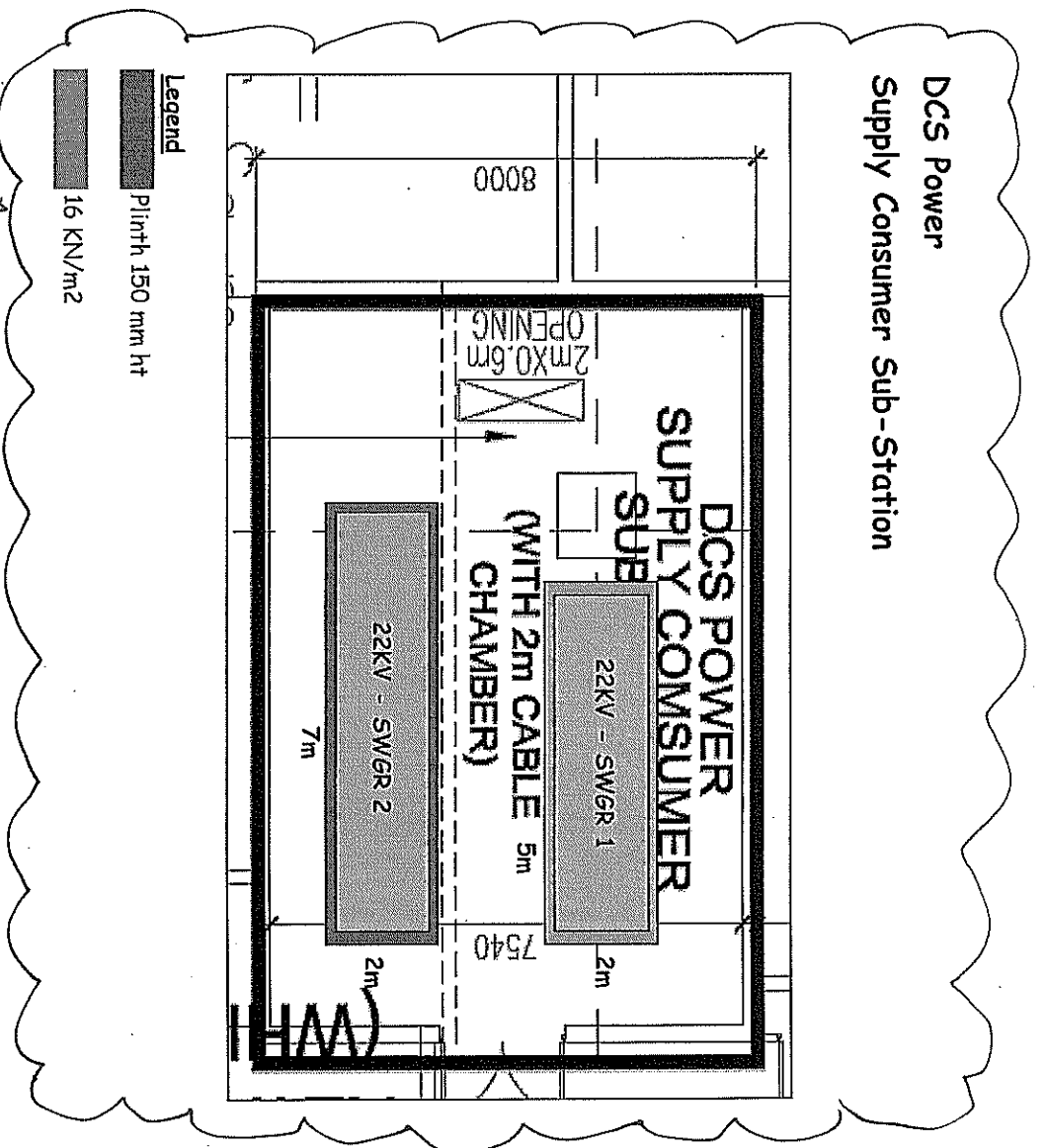
BASE ON JTC CONSULTANTS ARCH / CAS DWG NOS :

Loading Calculation

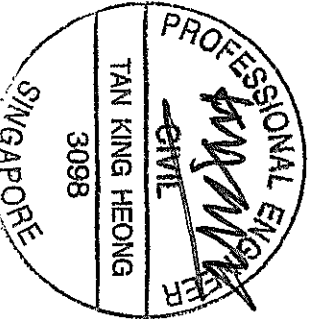
Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes
1.0	L1	DCS Power Supply & Consumer Sub-Station					
		a) For 22 kV SWGR-1					
		SWGR-1	1.00 no.	5,300	5,300 kg		
		Cable Weight	1.00 lot	2,000	2,000 kg		
		Concrete plinth, 5.0m x 2.0m x 0.15mH (2400/ kg/m ³)	1.5 m ³	2,400	3,600 kg		
		Total Weight =			10,900 kg		
		Concrete Plinth size =	5 m x 2.0 m x 0.15 m				
		Loading / unit of floor area =			109 kN		
					10 m ²		
					11 kN/m ²		<< Use 16 kN/m ²
		b) For 22 kV SWGR-2					
		SWGR-2	1.00 no.	6,300	6,300 kg		
		Cable Weight	1.00 lot	2,000	2,000 kg		
		Concrete plinth, 7m x 2m x 0.15mH (2400/ kg/m ³)	2.1 m ³	2,400	5,040 kg		
		Total Weight =			13,340 kg		
		Concrete Plinth size =	7 m x 2.0 m x 0.15 m				
		Loading / unit of floor area =			14 m ²		
					10 kN/m ²		<< Use 16 kN/m ²

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.

DCS Power Supply Consumer Sub-Station



Amend room layout
SET REV 2



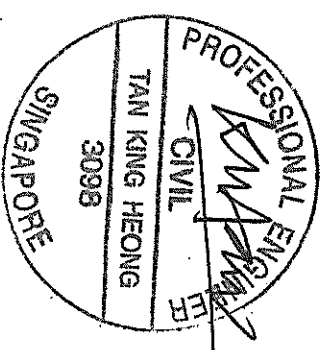
27 NOV 2007

<p>PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / AYER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DEP)</p>	<p>DATE: 27 NOV 2007 SCALE: 1/15 PROJECT NO.:</p>	<p>DESIGNED BY: E. J. J. J. CHECKED BY: K. H. H.</p>	<p>DATE: 27 NOV 2007 SCALE: 1/15 PROJECT NO.:</p>	<p>DATE: 27 NOV 2007 SCALE: 1/15 PROJECT NO.:</p>
<p>PROJECT TITLE: 1ST STOREY LOADING CALCULATION & LOADING PLAN FOR DCS POWER SUPPLY CONSUMER ROOM</p>	<p>SCALE: 1/15</p>	<p>SCALE: 1/15</p>	<p>SCALE: 1/15</p>	<p>SCALE: 1/15</p>
<p>DATE: 27 NOV 2007</p>	<p>DATE: 27 NOV 2007</p>	<p>DATE: 27 NOV 2007</p>	<p>DATE: 27 NOV 2007</p>	<p>DATE: 27 NOV 2007</p>

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes	
1	L11	Cooling Tower Area - 1						
		a) Cooling Tower	1.00 nos.	70,000	70,000 kg			
		Load per support, center	= 2 x 70,000 x 8.4 / 6		196,000 kg		Use 2000 kN	
		b) Load per support, side	= 1 x 70,000 x 8.4 / 6		98,000 kg		Use 1000 kN	
		c) Pipe, 1200 dia, 8.4m	8.40 m	3,500	29,400 kg		Use 294 kN	
		d) Pipe, 800 dia, 8.4m	8.40 m	1,830	15,372 kg		Use 154 kN	
		2	L11	Cooling Tower Area - 2				
		a) Cooling Tower		1.00 nos.	70,000	70,000 kg		
Load per support, side	= 1 x 70,000 x 8.4 / 6			98,000 kg		Use 1000 kN		
		b) Pipe, 1200 dia, 8.4m	8.40 m	3,500	29,400 kg		Use 294 kN	
		c) Pipe, 800 dia, 8.4m	8.40 m	1,830	15,372 kg		Use 154 kN	
		3	L11	Water Tank				
a) Water tank	1.00 nos.	200,000		200,000 kg				
Load per support	12.00 nos			16,667 kg		Use 170 kN		
		b) Pipe, 1200 dia, 8.4m	8.40 m	3,500	29,400 kg		Use 294 kN	

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.



24 DEC 2007

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / ANER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DRP)

REVISION NO: 1

PROJECT NO: SCIFUP-DCS/LD/015

DATE: 24 DEC 2007

DESIGNED BY: E. Ananda

CHECKED BY: K. K. Ho

SCALE: N.T.S.

BASED ON JTC CONSULTANTS ARCH / C&S DWG NOS:

FOR ARCHITECT: P&T CONSULTANTS PTE LTD, 24 RAFFLES PLACE, #23-00 CLIFTON CENTRE, SINGAPORE 048221. TEL: 6555 2011, FAX: 6555 7263.

FOR STRUCTURAL ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR CIVIL ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR MECHANICAL ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR ELECTRICAL ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR PLUMBING ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR PAINTING ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR ROOFING ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR SANITARY ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR TENDERS ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR VALUING ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR VENTILATION ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR WATER ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR WASTE ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR WOODWORK ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

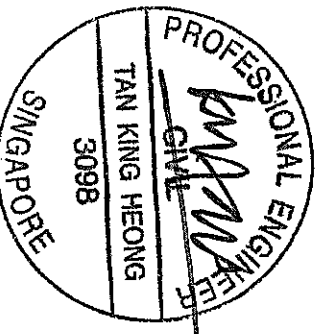
FOR YARD ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

FOR ZONING ENGINEER: SankuCorp Industries Ltd, 20 Hill Street, Singapore 17820. TEL: (65) 7721 1110, Fax: (65) 6922 2307.

Loading Calculation

Item No.	Level	Description	Qty	Unit Wt. kg/unit	Sub-Total	Total	Remarks / Notes	
1	L 11	Cooling Tower Area - 1						
		a) Cooling Tower	1,000 nos.	70,000	70,000 kg			
		Load per support, center	= 2 x 70,000 x 8.4 / 6		196,000 kg		Use 2000 kN	
		b) Load per support, side	= 1 x 70,000 x 8.4 / 6		98,000 kg		Use 1000 kN	
		c) Pipe, 1200 dia., 8.4m	8.40 m	3,500	29,400 kg		Use 294 kN	
		d) Pipe, 800 dia., 8.4m	8.40 m	1,830	15,372 kg		Use 154 kN	
		2	L 11	Cooling Tower Area - 2				
		a) Cooling Tower	1,000 nos.	70,000	70,000 kg			
		Load per support, side	= 1 x 70,000 x 8.4 / 6		98,000 kg		Use 1000 kN	
		b) Pipe, 1200 dia., 8.4m	8.40 m	3,500	29,400 kg		Use 294 kN	
		c) Pipe, 800 dia., 8.4m	8.40 m	1,830	15,372 kg		Use 154 kN	
3	L 11	Water Tank						
		a) Water tank	1,00 nos.	200,000	200,000 kg			
		Load per support	12,000 nos		16,667 kg		Use 170 kN	
		b) Pipe, 1200 dia., 8.4m	8.40 m	3,500	29,400 kg		Use 294 kN	

Note : Concrete plinth height is measured from Structural Floor Level. It is assumed that Architect needs no finishes at DCS Plantrooms. Thus, all references are with respect to S.L.



27 NOV 2007

CLIENT: M/S JTC CORPORATION
 THE JTC SUBMIT
 8 JERONG TOWN HILL ROAD
 SINGAPORE 099494
 TEL: 6560 0046
 FAX: 6565 5301

ARCHITECT: P&T CONSULTANTS PTE LTD
 24 RAFFLES PLACE
 SINGAPORE 098621
 TEL: 6535 5011
 FAX: 6535 1263

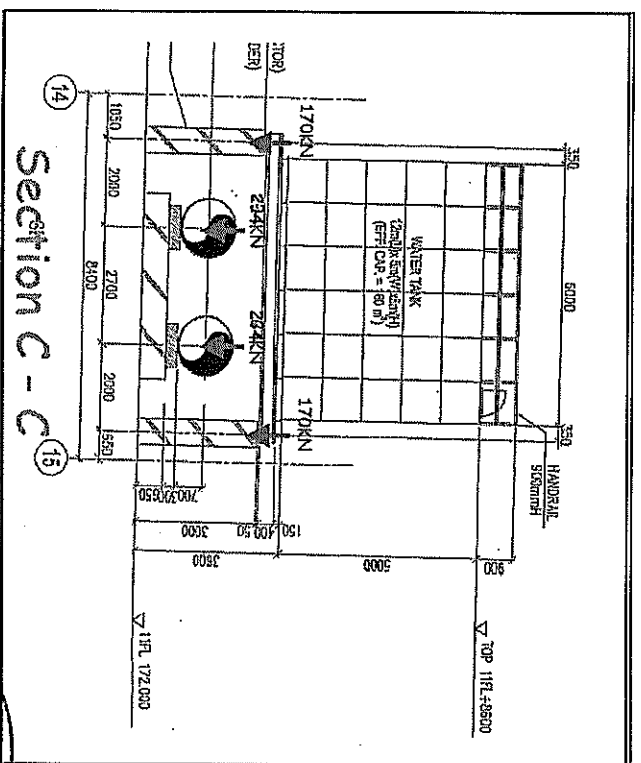
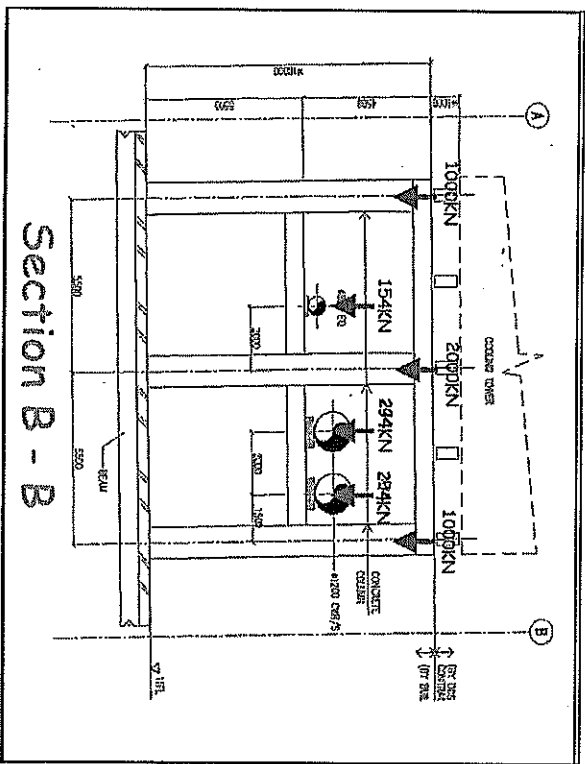
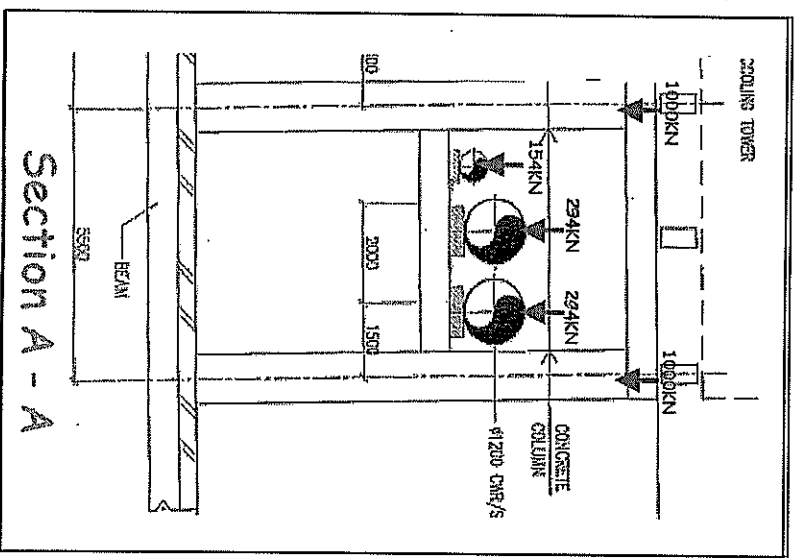
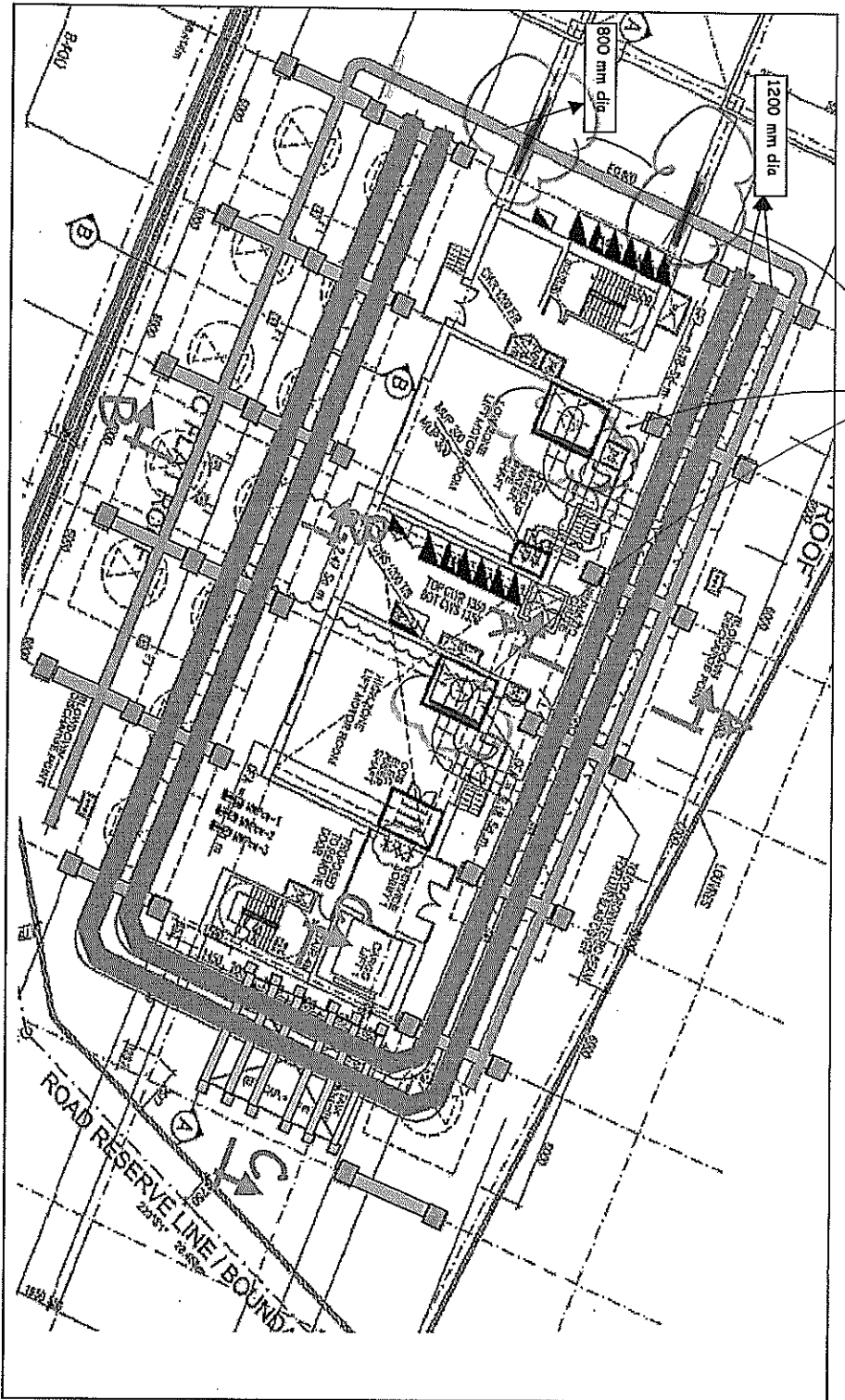
FOR MEMBER USE:
 DATE OF LOAD ESTIMATED BY YOU: _____
 CHECKED BY: _____
 SumbCorp Industries Ltd
 50 RAFFLES PLACE
 SINGAPORE 098621
 TEL: 6535 5011
 FAX: 6535 1263

PROJECT TITLE: 11TH STOREY LOADING CALCULATION
FORM NO.: SC/IFP-DCS/LD/015
REVISION: 1

PROPOSED BY: E. J. J. J.
DATE: 27 NOV 2007
SCALE: 1:100
PROJECT NO.: SC-11R-DCS-PP-015

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04247W PT MK 03 AT ONE-NORTH GATEWAY / ATER RAJAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DDP)

Cooling Tower Plan



PLAN () IN DC
SHEET OF

LAND OWNER'S NAME & ADDRESS
M/S JTC CORPORATION
THE JTC SUMMIT
3, JURONG TOWN HILL ROAD
SINGAPORE 630434

ARCHITECT
P&T CONSULTANTS PTE LTD
24 RAFFLES PLACE
SINGAPORE 048611
TEL: 6355 2011
FAX: 6355 1282

CONTRACTOR
SembCorp Industries Ltd
20 Hill Street, #04-01
SINGAPORE 009910
TEL: 6342 2211 Fax: 6342 2227

PROPOSED ERECTION OF 1 BLOCK OF 5-STORY, 1 BLOCK OF 10-STORY & 1 BLOCK OF 18-STORY RESEARCH BUILDINGS WITH BASEMENT CARPARKS ON LOT 04/27/W PT LAK 03 AT ONE-NORTH GATEWAY / AVER PALAH AVENUE (JTC LAND PARCEL CX-2-2, QUEENSTOWN DEP)

PROJECT TITLE:
**11TH STOREY
LOADING PLAN FOR COOLING TOWER,
CONDENSER PIPES & MAKE-UP TANK**

PROFESSIONAL ENGINEER
TAN KING HEONG
3098
SINGAPORE
27 NOV 2007

REVISION
NO. 0
DATE: 13 NOV 2007
DRAWN BY: E. J. L. L. L.
CHECKED BY: K. H. T.
SCALE: 1:10
PROJECT NO.:
BASED ON JTC CONSULTANTS ARCH / CAS DWG NOS: