Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED MAJOR ADDITIONS & ALTERATIONS WORKS TO EXISTING 4-STORE INDUSTRIAL BUILDING (FOR PHILIPS ELECTRONICS SINGAPORE PTE LTD) WITH ADDITIONAL 2 STOREYS TO BECOME 6-STOREY SINGLE USER INDUSTIAL BUILDING ON LOT 04174N MK 17 AT TOA PAYOH LORONG 1

FOR

PHILIPS ELECTRONICS SINGAPORE PTE LTD

Copy No.	1

Prepared By: Tay Chin Meng / Mohd. Muzamir Tan

Authorised By: Choong Choon Guan

Date: 29 February 2016

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SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6211-PQP	29 February 2016

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	29 February 2016	1 to 11	29	+1 page (Section 4.1 – Overall Programme) +1 page (Section 9.1 – Sustainable Design Features / Criteria)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Industrial

Statistics of Development	
Site Area, m^2	15,195.4
Nett Floor Area, m^2	47,724.44
Gross Floor Area, m^2	37,974.99
Covered Carpark, m^2	3,852.95
No. of Covered Carpark Lots	85
No. of Apartments/Houses	NA
No. of Beds (for Hospitals)	NA
No. of Guestroom (for Hotels)	NA
No. of Blocks / No. of Storeys	1 Block / 6 Storey
Green Mark Category	Certified
No. of Phases	2

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI	BMS	ESCS	IT	
Estimate	-	-	-	-	-	-				
Awarded	12.2	13.1	0.8	2.8	1.9	-	0.89	1.45	1.9	

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	-
Awarded	0.3	6.5	95.6

Site Clearance shall include earth work, soil improvement, service diversion and termination.

2.3 Scope of Works

2.3.1 Scope of Consultancy Services

Conceptual/Schematic Design	✓
Detailed Design	✓
Tender Documentation	
Tender Evaluation	
Contract Supervision	✓
M&E Costing	
Submissions to Authority	✓

(✓*where applicable*)

2.3.2 Scope of M&E Services

ELECTRICAL	✓	AIR CONDITIONING	✓	SPRINKLER	✓	SANITARY	✓	SWIMMING POOL	
LIFT	✓	MECHANICAL VENTILATION	✓	FIRE ALARM	✓	COLD WATER	✓	STEAM BOILER	
ESCALATOR		MECHANICAL SMOKE EXTRACT		HOSEREEL	✓	HOT WATER		FUEL STORAGE	
PABX		COMPUTER A/C	✓	WET RISER		TOWN GAS			
SECURITY	✓	BST CARPARK EXH		DRY RISER	✓	LPG GAS			
TELELIFT		HEATING				MEDICAL GAS			
DATA COMM.	✓								
FLUSHFLOOR TRUNKING									

(✓*where applicable*)

2.3.3 Submission to Relevant Authorities by Others

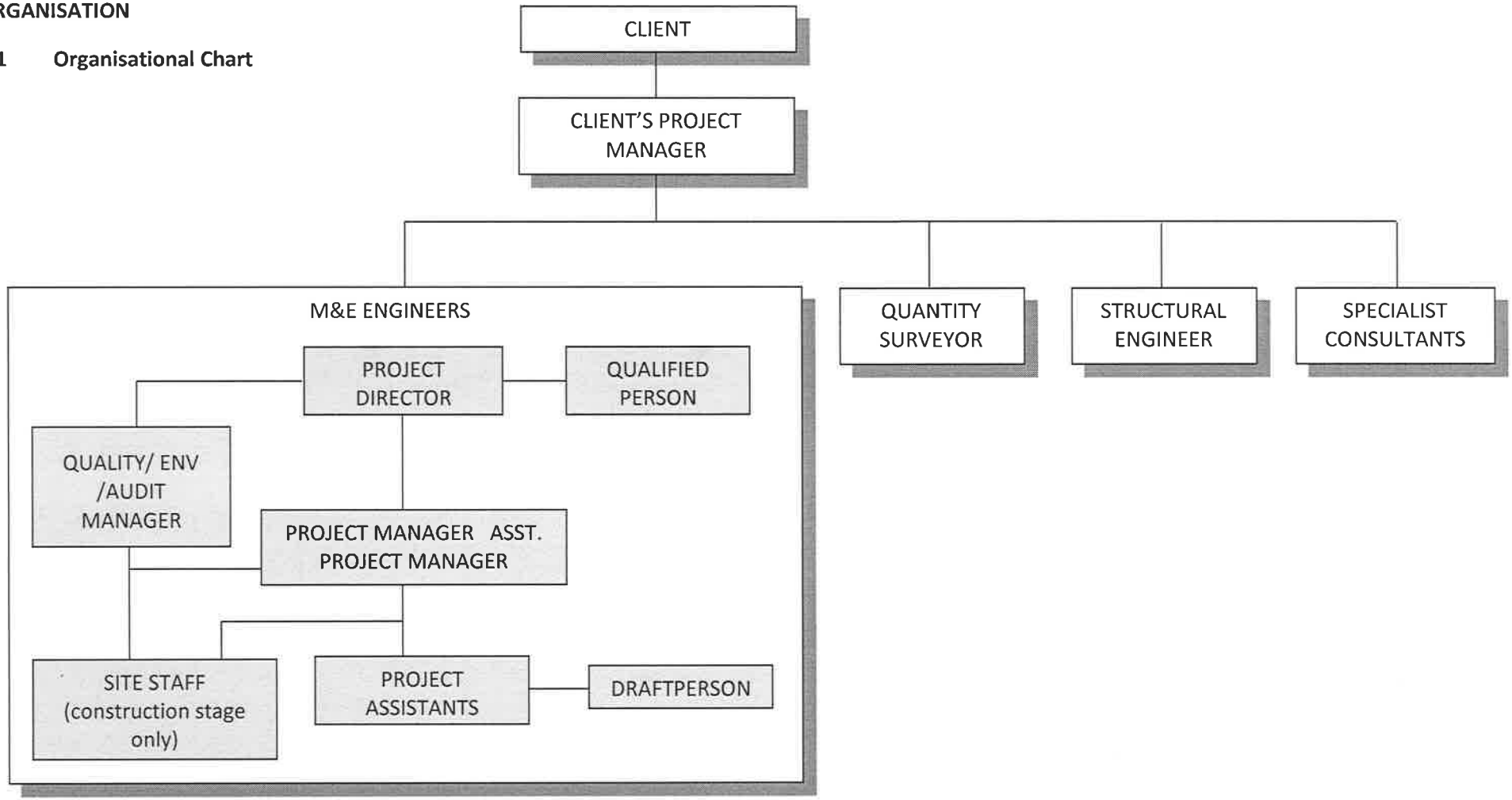
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Choong Choon Guan (CCG)
Qualified Person	Mechanical	Choong Choon Guan (CCG)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Tay Chin Meng (TCM)
Assistant Project Manager		Derek Ong (DO)
Project Assistant (Mech)		-
Project Assistant (Elect)		Mohd. Muzamir Tan (MMT)
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-
Resident Technical Officer (M&E)		Stephen Lee (LST)

3.3 Client/Client's Representatives

Client: SH Design & Build Pte Ltd

Address: No. 1 Buroh Crescent #07-01
Singapore 627545

Tel: 6661 6800

Fax: 6266 6996

Client's Representatives:

Name of Company	Contact Person	Contact
SH Design & Build Pte Ltd	Name: Dave Soh Position: General Manager	Tel: 6661 6800 Fax: 6266 6996 Handphone: 9026 5681 Email: davesoh@shdb.com.sg
	Name: Position:	Tel: Fax: Handphone: Email:
	Name: Position:	Tel: Fax: Handphone: Email:
	Name: Position:	Tel: Fax: Handphone: Email:
	Name: Position:	Tel: Fax: Handphone: Email:

3.4 **Other Consultants** (Local)

Function / Name of Company	Contact Person	Contact
Architect Laud Architects Pte Ltd	Name: Melvin Tan Position: Director/Qualified Person	Tel: 6259 2122 Fax: 6259 1151 Handphone: 9690 7110 Email: philips@laudarchitects.com
Quantity Surveyor Arcadis	Name: Ben McGeachie Position: Associate	Tel: 6593 7006 Fax: 6536 5065 Handphone: 8506 7233 Email: ben.mcgeachie@arcadis.com
Structural Engineer Ronnie & Koh Consultants Pte Ltd	Name: Low Chee Kong Position: Director/Qualified Person	Tel:6225 7128 Fax: 6225 7182 Handphone: - Email: philipstp14513@rkconsl.com
Interior Designer Designphase DBA Pte Ltd	Name: Jenny Ng Position: Interior Designer	Tel: 6339 3677 Fax: 6334 7280 Handphone: 8186 7667 Email: PHIL-C14@designphasedba.com
Lighting Consultant Arup Singapore Pte Ltd	Name: Rob Tsu Position: Lighting Consultant	Tel: 6411 2515 Fax: - Handphone: 8192 5524 Email: SIN.Philips-LTG@arup.com
Acoustic Consultant CCW Acoustics	Name: Cheah Beng Kin Position: Director	Tel: 6278 4981 Fax: 6275 7206 Handphone: 9218 2289 Email: bengkin@ccw.com.sg
_____	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.4 **Other Consultants** (Overseas) – **NOT APPLICABLE**

Function / Name of Company	Contact Person	Contact
Architect NA	Name: Position:	Tel: Fax: Handphone: Email:
M&E Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:
Quantity Surveyor NA	Name: Position:	Tel: Fax: Handphone: Email:
Structural Engineer NA	Name: Position:	Tel: Fax: Handphone: Email:
Interior Designer NA	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.5 Contractors/Sub-Contractors

Function / Name of Company	Contract *	Contact Person	Contact
Main Contractor SH Design & Build Pte Ltd	-	Name: Dave Soh Position: General Manager	Tel: 6661 6800 Fax: 6266 6996 Handphone: 9026 5681 Email: davesoh@shdb.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Kin Xin Engineering Pte Ltd	DSC	Name: Jeremy Lim Position: Senior Project Manager	Tel: 6844 2683 Fax: 6844 4378 Handphone: 9011 8278 Email: jeremylim@kinxin.com.sg
Plumbing & Sanitary Installation Sub-Contractor Markpoint Engineering Pte Ltd	DSC	Name: Sathiya Position: Senior Project Manager	Tel: 6456 8012 Fax: 64548012 Handphone: 8163 0356 Email: sathiya@markpoint.com.sg
Electrical Installation Sub-Contractor Kin Xin Engineering Pte Ltd	DSC	Name: Steve Position: Project Engineer	Tel: 6844 2683 Fax: 6844 4378 Handphone: - Email: steve@kinxin.com.sg
Fire Fighting & Alarm Installation Sub-Contractor Kin Xin Engineering Pte Ltd	DSC	Name: Cui Pan Position: Project Manager	Tel: 6844 2683 Fax: 6844 4378 Handphone: 9270 4569 Email: cuipan@kinxin.com.sg
Lift Installation Sub-Contractor Kone Pte Ltd	NSC	Name: Dyan Ho Position: Project Manager	Tel: 6424 6246 Fax: 6424 6346 Handphone: 9273 0050 Email: dyan.ho@kone.com
Building Management System Installation Sub-Contractor Johnson Controls (S) Pte Ltd	NSC	Name: Jeffrey Low Position: Project Manager	Tel: 6854 5875 Fax: - Handphone: 9760 1655 Email: jeffrey.wk.loh@jci.com
_____		Name: Position:	Tel: Fax: Handphone: Email:
_____		Name: Position:	Tel: Fax: Handphone: Email:

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*

3.6 Authorities

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
SP PowerGrid:		
(a) Sub-Station	Hoan M.S. / Abbas Mohd Supail	hoanms@singaporepower.com.sg / 96658054
(b) Diversion		
SP Services:		
(a) Customer Supply	Bevan Hong	bevanhong@singaporepower.com.sg
(b) Installation	Bob Tan	bobtan@singaporepower.com.sg
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV	Ricky Tam Kin Keung	kktam@starhub.com
(b) SingTel	Gerry Ng	gerryng@singtel.com
(c) IDA		
BCA:		
(a) Building Plan		
(b) Green Mark	Li Kunlin	LI_Kunlin@bca.gov.sg
FSSD:		
(a) Building Plan		
(b) M&E Plan	Tan Yi Yang	TAN_Yi_Yang@scdf.gov.sg
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan	Nazilah Sapuan	Nazilah_SAPUAN@pub.gov.sg
(c) Diversion		
(d) NEWater		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU		
(b) M&E Plan	Yeo Khoon Joo	YEO_Khoon_Joo@pub.gov.sg
(c) Diversion		
City Gas Pte Ltd:		
(a) Planning/Submission		
(b) Installation/Inspection		
PowerGas Pte Ltd		
(a) Diversion		
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

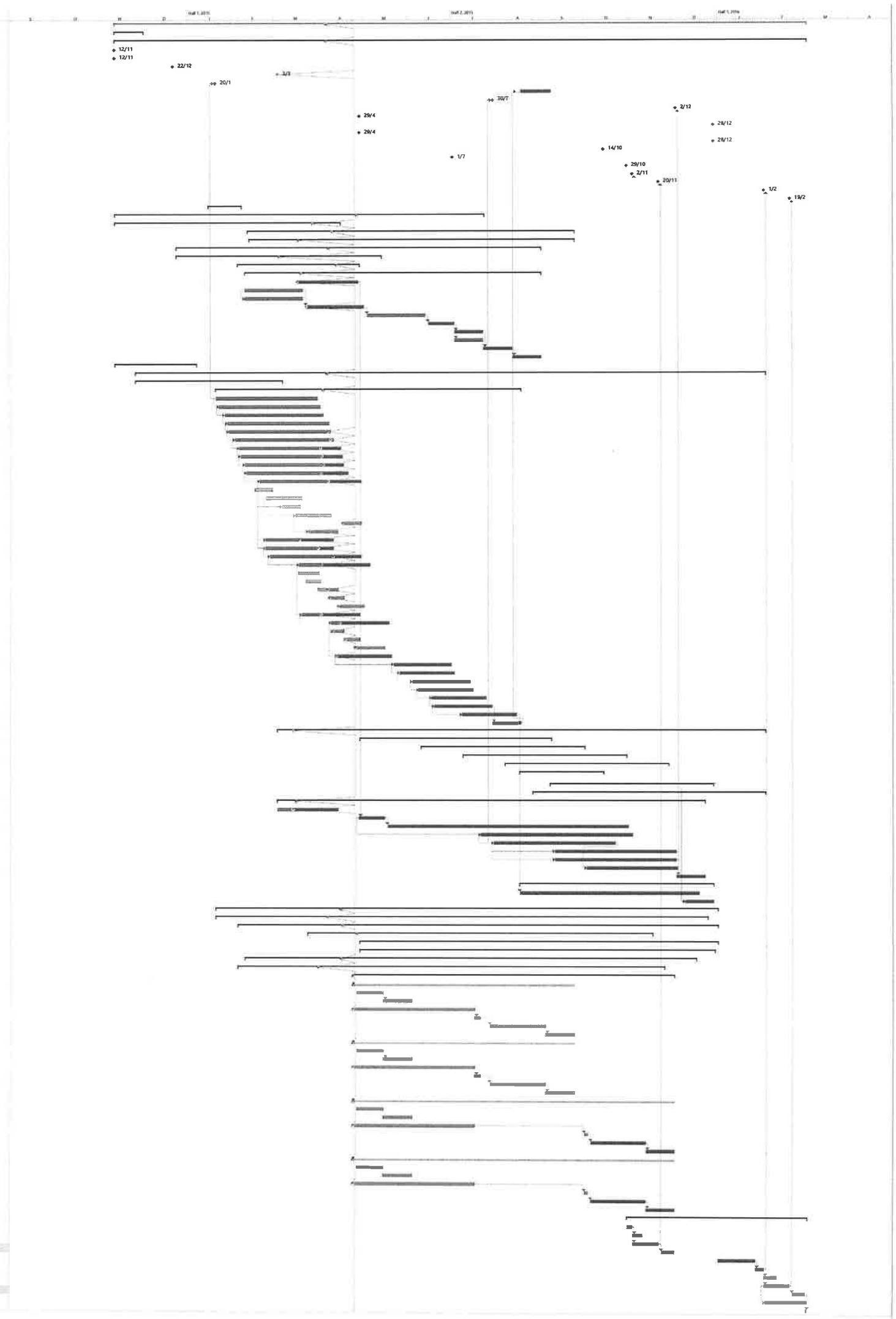
SECTION 4

PROGRAMME

4.1 Overall Programme - (refer to attached)

ID	TASK NAME	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.	Preliminary Planning																									
2.	Planning Submission																									
3.	Detail Design																									
4.	BP Submission																									
5.	BP Submission (Amendments)																									
6.	Tender Period for Piling																									
7.	Tender Period for Sub-Structure																									
8.	Tender Period for Super-Structure																									
9.	Piling Period																									
10.	Sub-Structure Construction Period																									
11.	Super-Structure Construction Period																									
12.	TOP																									
13.	CSC																									

ID	Task Mode	Task Name	Duration	Start	Finish	% Complete	Predecessors
0		Philips - Revised Master Programme R1 (27Jan15)	341 days	Wed 12/11/14	Wed 2/3/16	31%	
1		PHILIPS NEW HQ AT TOA PAYOH	14 days	Wed 12/11/14	Mon 1/12/14	100%	
5		Key Milestones	341 days	Wed 12/11/14	Wed 2/3/16	31%	
6		Letter of Award	0 days	Wed 12/11/14	Wed 12/11/14	100%	2
7		Contract Commencement Date	0 days	Wed 12/11/14	Wed 12/11/14	100%	3
8		Piling Works Start	0 days	Mon 22/12/14	Mon 22/12/14	100%	12738
9		Piling Works Complete	0 days	Tue 3/3/15	Tue 3/3/15	94%	128
10		Structure Works Start	0 days	Tue 20/1/15	Tue 20/1/15	100%	13158
11		Structure Works Complete	15 days	Fri 14/8/15	Mon 7/9/15	0%	170
12		External Façade Works Start	0 days	Thu 30/7/15	Thu 30/7/15	0%	28238
13		External Façade Works Complete	0 days	Wed 2/12/15	Wed 2/12/15	0%	284
14		M&E Works Start	0 days	Wed 29/4/15	Wed 29/4/15	100%	28758
15		M&E Works Complete	0 days	Mon 28/12/15	Mon 28/12/15	0%	250
16		Internal Architectural Works Start	0 days	Wed 29/4/15	Wed 29/4/15	0%	17355
17		Internal Architectural Works Complete	0 days	Mon 28/12/15	Mon 28/12/15	0%	250
18		Sub-Station Handing Over	0 days	Wed 14/10/15	Wed 14/10/15	80%	
19		Power Turn-On	0 days	Wed 1/7/15	Wed 1/7/15	0%	285
20		Water Turn-On	0 days	Thu 29/10/15	Thu 29/10/15	0%	394
21		AI Inspections L1 & L5	0 days	Mon 2/11/15	Mon 2/11/15	0%	437
22		Partial TOP Inspections & Clearances L1 & L5	0 days	Fri 20/11/15	Fri 20/11/15	0%	439
23		AI Inspections (Other Floors)	0 days	Mon 1/2/16	Mon 1/2/16	0%	442
24		Final TOP Inspections & Clearances	0 days	Fri 19/2/16	Fri 19/2/16	0%	444
25		Stage 2 Tender	17 days	Thu 15/1/15	Fri 6/2/15	100%	
38		Design & Detailings Stage	182 days	Wed 12/11/14	Thu 23/7/15	100%	
52		Structure Submissions	111 days	Wed 12/11/14	Wed 18/4/15	93%	
67		Architecture Authority Submissions	161 days	Wed 11/2/15	Wed 23/9/15	63%	
73		M&E Authority Submissions	180 days	Thu 13/3/15	Wed 25/9/15	32%	
79		Materials Submissions & Approvals	179 days	Wed 24/12/14	Mon 31/8/15	74%	
80		Structure Materials	101 days	Wed 24/12/14	Wed 13/5/15	59%	
88		M&E Major Equipments	60 days	Wed 4/2/15	Tue 28/4/15	96%	
89		Architectural Materials	146 days	Mon 5/1/15	Mon 31/8/15	47%	
100		External Curtain Wall & Aluminum	30 days	Tue 17/3/15	Mon 27/4/15	0%	45
101		Internal Wall Type (Buildability Score)	30 days	Mon 5/1/15	Fri 20/2/15	100%	42
102		External Wall Type (Buildability Score)	30 days	Mon 5/1/15	Fri 20/2/15	100%	101SS
103		Granites & Tiles	30 days	Mon 23/3/15	Fri 1/5/15	0%	101
104		Sanitary Ware & Fittings	30 days	Mon 4/5/15	Fri 12/6/15	100%	103
105		Doors & Ironmongery	14 days	Mon 15/6/15	Thu 2/7/15	0%	104
106		Ceiling Works (Toilets/Lobbies)	14 days	Fri 3/7/15	Wed 22/7/15	0%	105
107		Staircase Railings	14 days	Fri 3/7/15	Wed 22/7/15	100%	105
108		Painting System	14 days	Thu 23/7/15	Tue 11/8/15	0%	106
109		TOP Signages	14 days	Wed 12/8/15	Mon 31/8/15	0%	108
112		Preliminaries & Temporary Works	40 days	Wed 12/11/14	Tue 6/1/15	100%	
122		Main Building Construction Works	310 days	Wed 28/11/14	Tue 2/2/16	19%	
123		Piling Works	79 days	Wed 28/11/14	Fri 6/3/15	100%	
130		Reinforced Concrete Works	190 days	Tue 20/1/15	Mon 17/8/15	54%	
131		Excavation for Pile-Caps	50 days	Tue 20/1/15	Mon 30/3/15	100%	12735+21 days
132		Lean Concrete	50 days	Thu 22/1/15	Wed 1/4/15	100%	13185+2 days
133		Hacking of Pile-Heads	50 days	Mon 26/1/15	Fri 3/4/15	100%	13285+2 days
134		ECC Cracks	50 days	Wed 28/1/15	Tue 7/4/15	100%	13385+2 days
135		Construction of Pile-Caps	50 days	Thu 29/1/15	Wed 8/4/15	98%	13455+1 day
136		Backfilling	50 days	Mon 2/2/15	Fri 10/4/15	98%	13585+2 days
137		Formation of L1 Levels and Compactions	50 days	Thu 5/2/15	Wed 15/4/15	80%	13683+3 days
138		Anti-Termite Treatment	50 days	Fri 6/2/15	Thu 16/4/15	80%	13755+1 day
139		Damp Proof Course	50 days	Mon 9/2/15	Fri 17/4/15	80%	13835+1 day
140		Lean Concrete for L1 Slab	50 days	Tue 10/2/15	Mon 20/4/15	75%	13985+1 day
141		L1 Slab	50 days	Thu 19/2/15	Wed 29/4/15	67%	14083+7 days
142		Zone 1A	10 days	Mon 16/2/15	Fri 27/2/15	100%	
143		Zone 1B	18 days	Tue 24/2/15	Thu 19/3/15	100%	
144		Zone 1C	9 days	Sat 7/3/15	Wed 18/3/15	100%	14155+7 days
145		Zone 1D	18 days	Mon 16/3/15	Wed 8/4/15	100%	14355+14 days
146		Zone 1E (Obstructed by Ext'g switchroom)	9 days	Fri 17/4/15	Wed 29/4/15	0%	
147		Zone 1F	14 days	Wed 25/3/15	Mon 13/4/15	0%	14555+7 days
148		L1-L2 Strengthening Works	36 days	Mon 23/2/15	Fri 10/4/15	50%	14185+2 days
149		L1-L2 Columns & Core-Walls	36 days	Mon 23/2/15	Fri 10/4/15	75%	14185+2 days
150		Initial Formwork Setting-Up	45 days	Thu 26/2/15	Wed 29/4/15	70%	14955+3 days
151		L2 Slab	35 days	Wed 18/3/15	Tue 5/5/15	33%	15055+14 days
152		Zone2A (A-G1)	10 days	Wed 18/3/15	Tue 31/3/15	100%	
153		Zone2B (G1-E)	5 days	Mon 23/3/15	Wed 1/4/15	100%	
154		Zone2C (A-G1)	10 days	Tue 31/3/15	Mon 13/4/15	50%	
155		Zone 2D (G1-K)	5 days	Wed 8/4/15	Fri 17/4/15	0%	
156		Zone 2E	14 days	Tue 14/4/15	Fri 1/5/15	0%	
157		L2-L3 Columns & Core-Walls	28 days	Fri 20/3/15	Tue 28/4/15	33%	15155+2 days
158		L3 Slab	28 days	Thu 9/4/15	Mon 18/5/15	15%	15755+14 days
159		Zone 3A	7 days	Thu 9/4/15	Fri 17/4/15	15%	
160		Zone 3B	5 days	Sat 18/4/15	Tue 28/4/15	0%	
161		Zone 3C	16 days	Sat 25/4/15	Fri 15/5/15	0%	
162		L3-L4 Columns & Core-Walls	28 days	Mon 13/4/15	Wed 20/5/15	0%	15855+2 days
163		L4 Slab	28 days	Fri 22/5/15	Tue 30/6/15	0%	16255+7 days
164		L4-L5 Columns & Core-Walls	28 days	Tue 26/5/15	Thu 2/7/15	0%	16385+2 days
165		L5 Slab	28 days	Thu 4/6/15	Mon 13/7/15	0%	16455+7 days
166		L5-L6 Columns & Core-Walls	28 days	Mon 8/6/15	Wed 15/7/15	0%	16555+2 days
167		L6 Slab	28 days	Wed 17/6/15	Fri 24/7/15	0%	16655+7 days
168		L6-Roof Columns	28 days	Fri 19/6/15	Tue 28/7/15	0%	16735+2 days
169		Roof Slab	28 days	Wed 8/7/15	Fri 14/8/15	0%	16855+13 days
170		Structure Steel Works	14 days	Wed 29/7/15	Mon 17/8/15	0%	168
171		Architectural Works	241 days	Tue 3/3/15	Tue 2/2/16	0%	
172		Level 1 Internal Architectural Works	94 days	Wed 28/4/15	Mon 7/9/15	0%	
183		Level 2 Internal Architectural Works	81 days	Wed 10/6/15	Wed 30/9/15	0%	
196		Level 3 Internal Architectural Works	81 days	Thu 9/7/15	Thu 29/10/15	0%	
211		Level 4 Internal Architectural Works	81 days	Fri 7/8/15	Fri 27/11/15	0%	
224		Level 5 Internal Architectural Works (Separate Team)	43 days	Mon 17/8/15	Tue 13/10/15	0%	
238		Level 6 Internal Architectural Works	81 days	Mon 7/9/15	Mon 28/12/15	0%	
251		Roof Architectural Works	116 days	Wed 28/8/15	Tue 2/2/16	0%	
257		External Façade & Internal Glass Atrium	215 days	Tue 3/3/15	Tue 22/12/15	2%	
258		Detailed Shop-Drawings	30 days	Tue 3/3/15	Mon 13/4/15	30%	46
259		Factory Mock-Up (Including Tests) and Confirmations	14 days	Tue 28/4/15	Fri 15/5/15	0%	100
260		Productions	120 days	Mon 18/5/15	Fri 30/10/15	0%	259
261		Delivery to Site	75 days	Tue 2/7/15	Mon 2/11/15	0%	25955+60 days
262		Installation of Frames	60 days	Thu 30/7/15	Wed 21/10/15	0%	26153+7 days
263		Installation of Curtain Wall	60 days	Thu 10/9/15	Wed 2/12/15	0%	28255+30 days
264		Installation of Glazings (Atrium)	60 days	Thu 10/9/15	Wed 2/12/15	0%	28255+30 days
265		Trellis & Other Miscellaneous	45 days	Fri 2/10/15	Thu 3/12/15	0%	26275-14 days
266		Water-Tightness Test	14 days	Thu 3/12/15	Tue 22/12/15	0%	263,264
267		Other Architectural Finishes	96 days	Mon 17/8/15	Mon 28/12/15	0%	
268		Staircase Railings	60 days	Mon 17/8/15	Fri 16/12/15	0%	168
269		TOP Signages	14 days	Wed 9/12/15	Mon 28/12/15	0%	23675-14 days
279		M&E Works	348 days	Tue 29/1/15	Thu 31/12/15	14%	
280		Electrical System	343 days	Tue 29/1/15	Thu 24/12/15	26%	
310		ACMV System	337 days	Wed 4/2/15	Thu 31/12/15	9%	
311		Chiller & Cooling Tower	170 days	Tue 24/3/15	Mon 16/11/15	13%	
319		AHU/FCU/SMV/Ducting	177 days	Wed 28/4/15	Thu 31/12/15	0%	
341		Fire-Fighting & Alarm System	178 days	Wed 28/4/15	Tue 29/12/15	0%	
368		Plumbing & Sanitary Works	223 days	Mon 9/3/15	Wed 16/12/15	24%	
385		Vertical Transportation	210 days	Wed 4/2/15	Tue 24/11/15	14%	
407		External Party Works	358 days	Fri 24/4/15	Tue 1/12/15	0%	
408		Spray Test Lab @ Level 1	1 day	Fri 24/4/15	Fri 24/4/15	0%	
409		Method statement submission	14 days	Mon 27/4/15	Thu 14/5/15	0%	
410		Site safety documents/ RA	14 days	Fri 15/5/15	Wed 3/6/15	0%	409
411		Procurement	60 days	Fri 24/4/15	Thu 16/7/15	0%	
412		Site safety induction	2 days	Fri 17/7/15	Mon 20/7/15	0%	411
413		Site installation date	28 days	Tue 28/7/15	Thu 3/9/15	0%	412
414		T&C	14 days	Fri 4/9/15	Wed 23/9/15	0%	413
415		MRI Room @ Level 1	1 day	Fri 24/4/15	Fri 24/4/15	0%	
416		Method statement submission	14 days	Mon 27/4/15	Thu 14/5/15	0%	
417		Site safety documents/ RA	14 days	Fri 15/5/15	Wed 3/6/15	0%	416
418		Procurement	60 days	Fri 24/4/15	Thu 16/7/15	0%	
419		Site safety induction	2 days	Fri 17/7/15	Mon 20/7/15	0%	418
420		Site installation date	28 days	Tue 28/7/15	Thu 3/9/15	0%	419
421		T&C	14 days	Fri 4/9/15	Wed 23/9/15	0%	420
422		SLC @ Level 4	1 day	Fri 24/4/15	Fri 24/4/15	0%	
423		Method statement submission	14 days	Mon 27/4/15	Thu 14/5/15	0%	
424		Site safety documents/ RA	14 days	Fri 15/5/15	Wed 3/6/15	0%	
425		Procurement	60 days	Fri 24/4/15	Thu 16/7/15	0%	
426		Site safety induction	2 days	Thu 1/10/15	Fri 2/10/15	0%	425
427		Site installation date	28 days	Mon 5/10/15	Wed 11/11/15	0%	426
428		T&C	14 days	Thu 12/11/15	Tue 1/12/15	0%	427
429		Garment Care @ Level 5	1 day	Fri 24/4/15	Fri 24/4/15	0%	
430		Method statement submission	14 days	Mon 27/4/15	Thu 14/5/15	0%	
431		Site safety documents/ RA	14 days	Fri 15/5/15	Wed 3/6/15	0%	
432		Procurement	60 days	Fri 24/4/15	Thu 16/7/15	0%	
433		Site safety induction	2 days	Thu 1/10/15	Fri 2/10/15	0%	432
434		Site installation date	28 days	Mon 5/10/15	Wed 11/11/15	0%	433
435		T&C	14 days	Thu 12/11/15	Tue 1/12/15	0%	434
436		FINAL INSPECTIONS	88 days	Fri 30/10/15	Wed 2/3/16	0%	
437		Phase 1 AI Inspections	2 days	Fri 30/10/15	Mon 2/11/15	0%	394
438		Applications & Approvals for TPP	5 days	Tue 3/11/15	Mon 9/11/15	0%	437
439		Phase 1 TOP Inspections	14 days	Tue 3/11/15	Fri 20/11/15	0%	437
440		Phase 1 TOP Approvals	7 days	Mon 23/11/15	Tue 1/12/15	0%	439
441		Combined Services Testing for Phase 2	18 days	Fri 1/1/16	Tue 26/1/16	0%	304,218,340,247
442		Phase 2 AI Inspections	4 days	Wed 27/1/16	Mon 1/2/16	0%	441
443		Applications & Approvals for TPP	7 days	Tue 2/2/16	Wed 10/2/16	0%	442
444		Phase 2 TOP Inspections	14 days	Tue 2/2/16	Fri 19/2/16	0%	442
445		Phase 2 TOP Approvals	7 days	Mon 22/2/16	Tue 1/3/16	0%	444
446		Final Cleaning & Touch-up	21 days	Wed 3/2/16	Wed 2/3/16	0%	444SS+1 day
447		Handing Over	1 day	Wed 2/3/16	Wed 2/3/16	0%	446



SECTION 4

PROGRAMME

4.2 Authority Submission Status for M&E Services - 1st Submission

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	SP Services Ltd	01/08/15								19/10/15
Power Supply Substation	SP PowerGrid Ltd	-	-							2/7/15
Metering Layout	SP Services Ltd	-	-							
Sanitary Installation	PUB Water Reclamation (Network) Dept		13/10/15	9/11/15	13/11/15					27/11/15
Domestic Water Supply	PUB (Water Supply) Network Dept	13/3/15	16/3/15	16/4/15	30/4/15					15/10/15
Gas Supply Installation	City Gas Pte Ltd	-	-							
Air Conditioning & Ventilation Inst.	FSSD	23/9/15	25/9/15							28/9/15
Fire Fighting & Alarm Installation	FSSD	23/9/15	23/9/15							1/10/15
Telephone Installation	TFCC	-	16/1/15							3/2/15
Fuel Storage	FSSD	-	-							
	NEA (Pollution Control)									

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments) - 2nd Submission

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd									
Power Supply Substation	SP PowerGrid Ltd									
Metering Layout	SP Services Ltd									
Sanitary Installation	PUB Water Reclamation (Network) Dept									
Domestic Water Supply	PUB (Water Supply) Network Dept									
Gas Supply Installation	City Gas Pte Ltd									
Air Conditioning & Ventilation Inst.	FSSD	29/2/15								
Fire Fighting & Alarm Installation	FSSD	29/2/15								
Telephone Installation	TFCC									
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision									
Fuel Storage	FSSD									
	NEA (Pollution Control)									

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
- Owner	✓	- Architect	✓
- Authorities	✓	- Other Consultants	✓
- Contractors	✓	- CC	✓
- CF	✓	- PQP/QSP	✓

Project Files to be initiated by PM as and when required – NOT APPLICABLE

File Ref:		File Ref:		File Ref:	

(✓*where applicable*)

SECTION 5

PROJECT RECORDS

5.2 Filing of Drawings

The following team members shall take charge of filing of drawings, stamping "SUPERSEDED" drawings, etc.

Description	Team Member
Incoming Architectural Floor Plans	TCM/MMT
Incoming Architectural Sketches/Details	TCM/MMT
Incoming Structural Drawings	TCM/MMT
M&E Drawings	
- Electrical Installation	MMT
- Lift Installation	MMT
- Air Conditioning & Ventilation Installation	TCM
- Fire Fighting & Alarm Installation	TCM
- Plumbing & Sanitary Installation	TCM
- Swimming Pool & Filtration Installation	NA
Other Drawings	
- Building Management System Installation	TCM
- Engineered Smoke Control System Installation	TCM
- Jet Fan System Installation	TCM

SECTION 6

INTERFACING

6.1 Method of Interface

Description	Method of Interface	
Client's Review & Approval	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface With External Design Teams	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface Between Internal Design Teams	Telephone	✓
	Email	✓
	Internal Project Team Meeting	✓
	Circulation of Information	✓

(✓*where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface – NOT APPLICABLE

Item No.	Description*	Required From	Required By	Date Required	Remarks

** Information required by INTERNAL DESIGN TEAM MEMBERS*

SECTION 6

INTERFACING

6.3 Circulation of Documents to External Parties

	Code: A - Approval Required C - For Comments I - For Information Only	Client/ Client Rep.	Client's Project Manager	Architect	Structural Engineer	Quantity Surveyor	
1.	**Letters/Fax:**						
a.	Project Design	A	A	-	-	-	
b.	Project Administration	C	C	-	-	-	
c.	Project Cost Estimate/Contract Cost	-	-	-	-	-	
2.	**Drawings**						
a.	Outline Design Drgs.	C	C	-	-	-	
b.	Sketch Design Drgs.	C	C	-	-	-	
c.	Final Design Drgs.	C	C	-	-	-	
d.	Shop Drawings	I	I	-	-	-	
e.	As Built Drgs.	I	I	I	-	-	
3.	**Other Document**						
a.	Specification	-	-	-	-	-	
b.	Tender Document	-	-	-	-	-	
c.	Tender Evaluation Report	-	-	-	-	-	
d.	Design Report	-	-	-	-	-	
e.	Progress Report	-	-	-	-	-	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	I	I	-	-	-	
h.	Inspection Report	I	I	-	-	-	
i.	Testing & Comm. Report	I	I	-	-	-	
j.	O & M Manual	I	I	I	-	-	

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	AE	SS
General Correspondences with Client	✓	✓			
General Correspondences with Other Consultants			✓	✓	
M&E Cost Estimate Report					
M&E Design Report	✓	✓	✓		
Check Prints	✓	✓	✓	✓	
Tender Drawing Approval					
Tender Specification Approval					
List of Tenderers					
Tender Questionnaires					
Tender Reports					
Draft Letter of Award					
Review of Contractor's Shop Drawing			✓	✓	
Review of Contractor's Technical Submittal			✓	✓	
Review of Contractor's Sample Submittal			✓	✓	
Contractor's Request for Deviation	✓	✓	✓		
Progress Payment Valuation Form					
Final Account Valuation					
Draft Variation Order					
Engineer/Architect's Instruction/Direction	✓	✓			
Site Instruction/Direction	✓		✓		✓
Correspondence/Submission to Authorities	✓	✓	✓		

(✓*where authorised*)

Key to abbreviations:-

PD : Project Director
QP : Qualified Person
PM : Project Manager/Assistant Project Manager
AE : Assistant Engineer
SS : ACEPL Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

8.1 List of Client's Standards, Reference Documents or Brief – NOT APPLICABLE

ITEM	KEPT BY

8.2 List of Applicable Code of Practice and Regulations

Services	Title of Code of Practice/Standard
Electrical Wiring	CP 5
Lightning Protection System	SS 555
Emergency Voice Communication System	SS 546
Air Conditioning & Ventilation Installation	SS 553
Lift & Escalator Installation	SS 550
Sprinkler System	CP 52
Wet Riser System	NA
Automatic Fire Alarm System	CP 10
Sanitary System	Code of Practice on Sewerage & Sanitary Works
Plumbing System	CP 48
Town Gas/LPG Supply System	NA
Boiler and Steam Supply System	NA
Mechanical Smoke Control System	NA

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

ASHRAE Handbooks

Institute of Plumbing's Plumbing Services Design Guide

8.4 List of Pre-Consultation and Waiver

S/N	Description	Date of Application	Date of Approval	Remarks
1	Clause 6.4.1 (e) of Fire Code Waiver Ref. No.WVR/2034/15	20/7/2015	24/7/2015	-
2	Waiver Ref. No. IDA.INTC.96.0701/SKC	7/7/2015	7/7/2015	-

8.5 List of Applicable Quality System Procedures

Alpha Consulting Engineers Pte Ltd's Quality Management System Procedures

Section	Title	✓ where applicable
M1	Preparation of Consultancy Offer	✓
M2	Project Commissioning and Service Agreement	✓
M3	Design Control	✓
M4	Design Change Control	✓
M5	Tender Process and Evaluation	
M6	Authority Submission	✓
M7	Construction Process Control	✓
M8	Testing and Commissioning	✓
S1	Document Control	✓
S2	Documentation of Quality & Environmental Management System Procedure	✓
S3	Documentation of Project Quality Plan	✓
S4	Specification Control	
S5	Library Control	
S6	Archive Control	
S7	Filing Control	✓
S8	Drawing Control	✓
S9	Administration Control	
S10	Purchasing Control	
S11	Training Control	
S12	Computer Control	
QE1	Quality & Environmental System Audit	✓
QE2	Feedback Reporting	✓
QE3	Clients Feedback	✓
QE4	Management Review	

8.6 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Dialux	4.12	Philips	Lighting design	✓
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	✓
Gensize 2	2.1	Onan	Generator sizing	
Lift Traffic	-	Alpha Consulting Engineers Pte Ltd	Lift traffic calculation	
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	
Fault Level Calculation	-	Alpha Consulting Engineers Pte Ltd	Calculation of voltage drop and fault level	

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features / Criteria

Item	Remarks
Green Mark criteria	Certified
Green Design Features	See attached

9.2 Site PPE Requirement

The necessary Personal Protective Equipment (detailed below) shall be provided by the main contractor / Company in accordance to the site EHS requirements prior to the site monitoring.

PPE	✓ where applicable
Safety Helmet	✓
Safety Shoes	✓
Eye Protection	
Ear Protection	
Safety Harness / Belt	
Others:	

9.3 Site Emergency Preparedness

Site staff shall comply with the site emergency preparedness and response procedure, established by the main contractor / owner, which shall include the following details.

Items	✓ where applicable
Evacuation Route	✓
Emergency Exit	✓
Assembly Point	✓
Emergency Contact List / Person	✓
Alarm system / methods	✓

List of Green Features

1. LED light fittings used in common areas

2. Variable voltage variable frequency (VVVF) drive lifts. The lights and fans in the lifts will be switched off after a predetermined time delay when there are no hall calls.

3. Use of water fittings that are certified under the Water Efficiency Labeling Scheme (WELS)

4. Building users guide

5. Siphonic rainwater system

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.4 Reporting of Environmental Non-conformances

When encountering environmental non-conformances, Site Staff shall be responsible to feedback to the main contractor.

9.5 List of Applicable Environmental management system Procedures

Alpha Consulting Engineers Pte Ltd's Environmental Management System Procedures

Section	Title	✓ where applicable
E1	Aspect / Impact Identification, Risk Assessment & Risk Control	✓
E2	Identifying Legal & Other Requirements	✓
E3	Objectives, Targets & Programmes	✓
E4	Communication	✓
E5	Emergency Preparedness & Response	✓
E6	Monitoring & Measurement	✓
E7	Control of Air & Noise Pollution	✓
E8	Management of Wastes	✓

SECTION 10

CLIENT'S REQUIREMENTS

10.1 List of Output Required by Client:-

Item	* Remarks
M&E Design Report	C
M&E Cost Estimate Report	-
Pre-Qualification of Tenderers	-
Tender Documents	-
Tender Report	-
Payment Valuation for QS	-
Certificates of Supervision for TOP/CSC	Re

* *Remarks*

A: for approval *C: for comment* *I: for Information* *Re: for record*

Other purposes and for action: please specify.

10.2 Specific Procedures Required By Client *(If applicable)*

NOT APPLICABLE

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers – NOT APPLICABLE

Sub Job No	Description	Allocation Details