Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED ERECTION OF A BLOCK OF 18-STOREY OFFICE BUILDING WITH 2 LEVELS OF CARPARKS ON LOT 99937X TS30 AND 2ND STOREY LINK BRIDGE ACROSS ROBINSON ROAD ON STATE AIRSPACE PART LOTS 00367C TS30/00310A TS02 63 ROBINSON ROAD (DOWNTOWN CORE PLANNING AREA)

For

ROBINSON DEVELOPMENT (PTE) LTD

Copy No.	1

Prepared By: Chong Lai Meng/Thin Thin Tun/Low Qi Fan

Authorised By: Choong Choon Guan

Date: 21 March 2022

TABLE OF CONTENTS

SECTION	DESCRIPTION
-	**TITLE PAGE**
-	**TABLE OF CONTENTS**
1	**QUALITY PLAN CONTROL AND DISTRIBUTION**
1.1	List of Copy Holders
1.2	Revision Record
2	**PROJECT INFORMATION**
2.1	Project Description
2.2	Project Cost
2.3	Scope of Works
3	**ORGANISATION**
3.1	Organisation Chart
3.2	ACEPL's Project Team Member
3.3	Client/Client's Representative
3.4	Other Consultants - Local - Overseas – NOT APPLICABLE
3.5	Contractor/Sub-Contractors
3.6	Authorities
4	**PROGRAMME**
4.1	Overall Programme
4.2	Authority Submission Status for M&E Services – 1st Submission
4.3	Authority Submission Status for M&E Services (Amendment) – 2nd Submission – NOT APPLICABLE
5	**PROJECT RECORDS**
5.1	List of Internal Files
5.2	Filing of Drawings

TABLE OF CONTENTS

SECTION	DESCRIPTION
6	**INTERFACING**
6.1	Method of Interface
6.2	Internal Design Interface
6.3	Circulation of Documents to External Parties
7	**WORK AUTHORISATION**
8	**DESIGN INPUT AND METHODOLOGY**
8.1	List of Client's Standards, Reference Documents or Brief – NOT APPLICABLE
8.2	List of Applicable Code of Practice and Regulations
8.3	List of Design Guide or Handbook Used
8.4	List of Pre-Consultation and Waiver – NOT APPLICABLE
8.5	List of Applicable Quality System Procedures
8.6	List of Software Used for Design/Analysis
9	**ENVIRONMENTAL CONSIDERATIONS**
9.1	Sustainable Design Features/Criteria
9.2	Site PPE Requirement
9.3	Site Emergency Preparedness
9.4	Reporting of Environmental Non-conformances
9.5	List of Applicable Environmental Management System Procedures
10	**CLIENT'S REQUIREMENTS**
10.1	List of Output Required by Client
10.2	Specific Procedures Required by Client – NOT APPLICABLE
11	**LIST OF SUB-JOB**
11.1	List of Sub-Job Numbers – NOT APPLICABLE

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6228-PQP File	21 March 2022

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	29 November 2017	1 to 11	30	+1 page (Section 4.1 – Overall Programme)
1	13 May 2019	1 to 11	31	+1 page (Section 4.1 – Overall Programme)
2	11 November 2019	1 to 11	31	+1 Page (Section 4.2 - Authority Submission Status for M&E)
3	8 January 2021	1 to 11	31	+2 pages (Section 4.1 – Overall Programme)
4	21 March 2022	1 to 11	31	+2 pages (Section 4.1 – Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Office

Statistics of Development	
Site Area, m²	1,490.5
Nett Floor Area, m²	14,607.19
Gross Floor Area, m²	16,886.89
Covered Carpark, m²	390.0
No. of Covered Carpark Lots	38
No. of Apartments/Houses	–
No. of Beds (for Hospitals)	–
No. of Guestroom (for Hotels)	–
No. of Blocks / No. of Storeys	One development consists of (i) 2 storeys office podium (ii) 2 storeys carpark (iii) 2 storeys sky terrace (iv) 12 storeys office
Green Mark Category	Platinum
No. of Phases	1 phase

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACMV	LEI	FFAI	PSI	SPFI				
Estimate	-	-	-	-	-	-				
Awarded	5.395	6.470	2.303	1.510	1.550	-				

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	–
Awarded	1.006	2.937	68.5

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

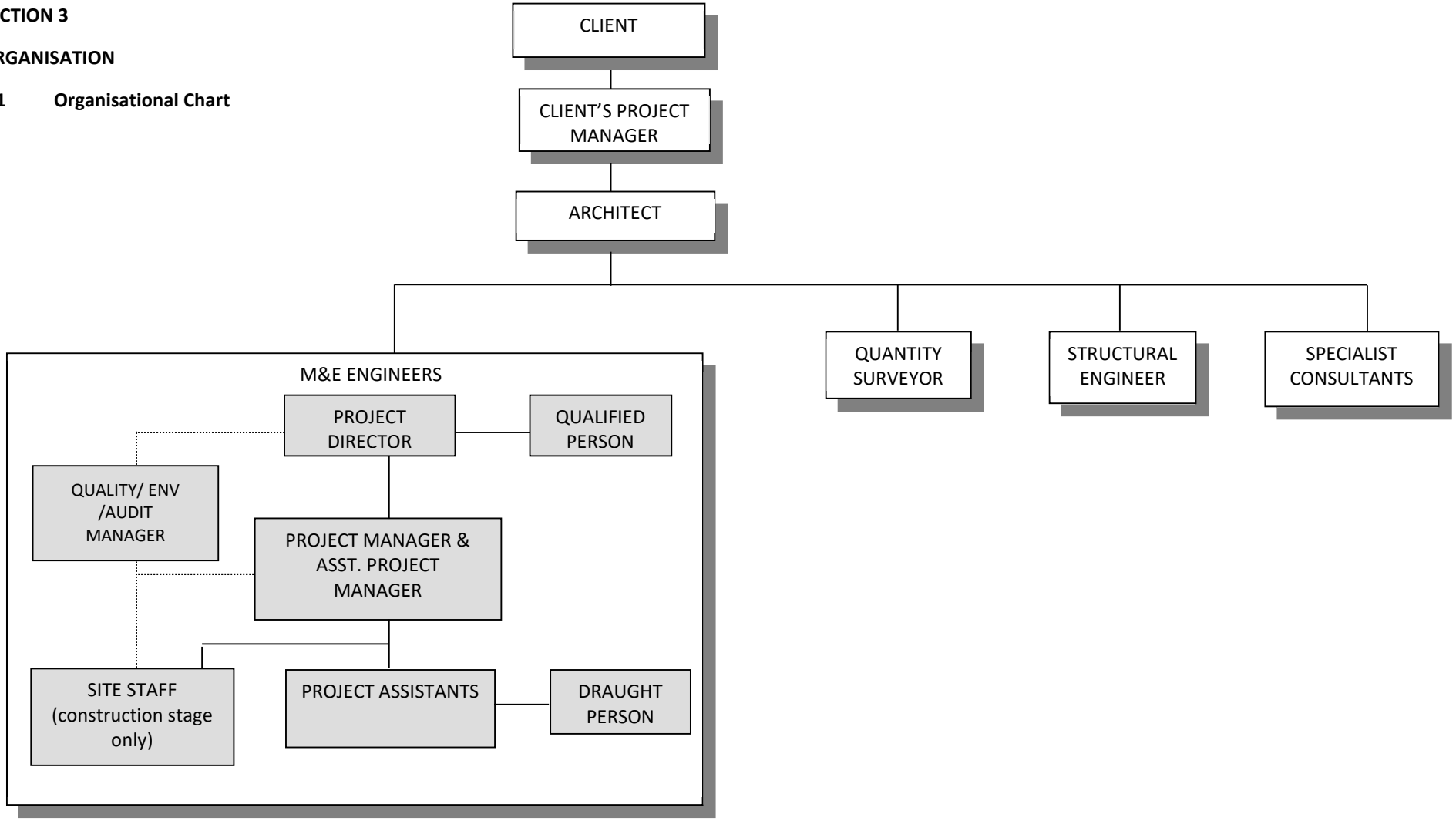
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS	✓	FOAM	

(✓*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		Chong Lai Meng (CLM)
Assistant Project Manager		–
Project Assistant (Mech)		Low Qi Fan (LQF)
Project Assistant (Elect)		Thin Thin Tun (TTT)
Draughtsperson		Common Pool
Resident Engineer (M&E)		–
Assistant Resident Engineer (M&E)		–
Clerk-of-Work (M&E)		–

3.3 Client/Client's Representatives

Client: Robinson Development Pte Ltd

Address: 63 Robinson Road
#02-00
Singapore 068894

Tel: 6222 5555 /6220 0406
Fax: 6224 1343 /6224 9890

Client's Representatives:

Name of Company	Contact Person	Contact
Shimizu Corporation Investment & Development Division	Name: Mr Arai Satoshi Position: Head, Regional Office (Singapore) Investment & Development Div.	Tel: 6709 9437 Fax: – Handphone: – Email: arai.satoshi@shimz.biz
Afro Asia Shipping Co (Pte) Ltd	Name: Mr Tan Chin Hoon Position: Head of Afro Asia Shipping Co (Pte) Ltd.	Tel: 6222 5555 Fax: 6224 1343 Handphone: – Email: general@afroasia-global.com

3.4 **Other Consultants** (Local)

Function/Name of Company	Contact Person	Contact
Architect Architects 61 Pte Ltd	Name: Mr Michael Ngu Position: CEO	Tel: 6737 5977 Fax: 6732 5439 Handphone: – Email: michael@a61.com.sg
Architect Architects 61 Pte Ltd	Name: Mr Chan Mun Kit Position: Associate Director	Tel: 6393 6876 Fax: 6732 5439 Handphone: – Email: munkit@a61.com.sg
Architect Architects 61 Pte Ltd	Name: Ms Serena Tan Position: Senior Associate	Tel: 6393 6869 Fax: 6732 5439 Handphone: – Email: serena_tan@a61.com.sg
Architect Architects 61 Pte Ltd	Name: Mr Sean Su Position: Architectural Assistant	Tel: 6393 6755 Fax: 6732 5439 Handphone: – Email: sean_su@a61.com.sg
Architect Architects 61 Pte Ltd	Name: Ms Kong Yen Ying Position: Architectural Assistant	Tel: 6393 6751 Fax: 6732 5439 Handphone: – Email: yenying_kong@a61.com.sg
Structural Engineer KKLim & Associates Pte Ltd	Name: Mr Lim Kok Kim Position: Managing Director	Tel: 6377 0036 Fax: 6377 0059 Handphone: 9817 2053 Email: kklim@kklim.com.sg
Structural Engineer KKLim & Associates Pte Ltd	Name: Ms Yap Leelyn Lee Yu Position: Senior Associate	Tel: 6377 0036 Fax: 6377 0059 Handphone: 9791 9035 Email: yapleelyn@kklim.com.sg
Structural Engineer KKLim & Associates Pte Ltd	Name: Ms Cheong Mei Leng Position: Engineer	Tel: 6377 0036 Fax: 6377 0059 Handphone: – Email: cheongmeileng@kklim.com.sg
Quantity Surveyor Threesixty Cost Management Pte Ltd	Name: Ms Juliana Hor Position: Assistant Director	Tel: 6839 7355 Fax: 6264 8832 Handphone: – Email: juliana.horcl@threesixtyconsultants.com

3.4 Other Consultants (Local) (Cont'd)

Function/Name of Company	Contact Person	Contact
Façade Consultant HCCH Consulting Pte Ltd	Name: Mr Sani Chang Position: Managing Director	Tel: 6222 5451 Fax: 6444 0126 Handphone: 9681 8336 Email: sani@hcch.sg
Lighting Consultant Meinhardt Light Studio	Name: Mr Raymond Lim Position: Lighting Designer	Tel: 6270 9211 Fax: 6270 8067 Handphone: - Email: raymond.lim@meinhardtgroup.com
Acoustic Consultant Shen Milsom & Wilke(S) Pte Ltd	Name: Mr Stan Wang Position: Acoustic Consultant	Tel: 6292 4101 Fax: 6292 3868 Handphone: 9083 2784 Email: swang@smwhk.com
Landscape Consultant Tinderbox Landscape Studio Pte Ltd	Name: Mr Zhang Shuhan Position: Landscape Consultant	Tel: 6255 6024 Fax: – Handphone: – Email: project@tinderbox.com.sg
Security Consultant Jacobs Building & Infrastructure SKM (Singapore) Pte Ltd	Name: Mr Vincent Quek Position: Director, Security (Asia)	Tel: 6922 0718 Fax: 6922 2173 Handphone: 9106 2378 Email: Vincent.Quek@jacobs.com
Greenmark Consultant Building System & Diagnostics Pte Ltd	Name: Ms Queenie Lee Yi Ru Position: Executive Engineer	Tel: 6560 0702 Fax: 6795 0020 Handphone: 9060 7111 Email: queenie.lee@bsd.com.sg

3.4 Other Consultants (Overseas) – NOT APPLICABLE

Function/Name of Company	Contact Person	Contact
Architect	Name: Position:	Tel: Fax: Handphone: Email:
M&E Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Quantity Surveyor	Name: Position:	Tel: Fax: Handphone: Email:
Structural Engineer	Name: Position:	Tel: Fax: Handphone: Email:
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant	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 Shimizu Corporation	DSC	Name: Mr Simon Ng Yuen Yeung Position: Deputy Project Director	Tel: 6837 3208 Fax: 6837 2177 Handphone: 9022 1864 Email: simon.ng@shimz.biz
Main Contractor Shimizu Corporation (International Division Singapore Office Aurora EOA Project)	DSC	Name: Ms Lim Suet Fong Position: Assistant Manager	Tel: 6316 9228 Fax: 6795 2391 Handphone: 9753 9528 Email: lim.suetfong@shimz.biz
Main Contractor Shimizu Corporation (Afro Asia Green Project)	DSC	Name: Mr Shinsuke Kaichi Position: Senior Project Manager	Tel: 6220 0406 Fax: 6224 9890 Handphone: 6455 2974 Email: Kaichi.shinsuke@shimz.biz
Main Contractor Shimizu Corporation (Afro Asia Green Project)	DSC	Name: Mr Fong Yew Meng Position: M&E Manager	Tel: 6220 0406 Fax: 6224 9890 Handphone: 9847 1222 Email: fong.yewmeng@shimz.biz
Air Conditioning & Ventilation Installation Sub-Contractor Kandenko Co. Ltd	DSC	Name: Mr Francis Saw Position:	Tel: 6259 7700 (Ext 307) Fax: 6259 9911 Handphone: 9186 2581 Email: francis@kandenko.com.sg
Plumbing & Sanitary Installation Sub-Contractor Markpoint Engineering Pte Ltd	DSC	Name: Mr Mark Low Position:	Tel: 6456 8012 Fax: 6454 8012 Handphone: 9297 8326 Email: mark.low@markpoint.com.sg
Electrical Installation Sub-Contractor Kandenko Co. Ltd	DSC	Name: Mr Lim Wee Ru Position: Project Manager	Tel: 6259 7700 Fax: 6259 9911 Handphone: 8123 0240 Email: lim.wr@kandenko.com.sg
Lift & Escalator Installation Sub-Contractor Mitsubishi Elevator (Singapore) Pte. Ltd	DSC	Name: Mr Kow Jit Too Position: Project Manager	Tel: 6432 2852 Fax: 6748 2292 Handphone: 9489 2690 Email: jt.kow@mesp.meap.com
Fire Fighting & Alarm Installation Sub-Contractor Active Fire Protection Systems Pte Ltd	DSC	Name: Mr Louis Lam Position:	Tel: 6353 3371 Fax: 6353 3185 Handphone: 8112 5512 Email: louis@activefire.com.sg
Carpark System Installation Sub-Contractor		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:	Mr Bryan Chua Zhi Qiang	6378 8384
(a) Sub-Station	Mr Goh Li Qing	6916 8679
(b) Diversion		
SP Services:		
(a) Customer Supply		
(b) Installation		
(c) Meter Section	Mr. Chen Ye Xiang	6919 9161
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel		
(c) IDA	Mr Ong Pang Yen Jeremy	9644 5361
BCA:		
(a) Building Plan		
(b) Green Mark	Mr Lewis Chua	6804 6850
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan	Nur Sakinah Ow Zhao Hui	9380 2963
(c) Diversion		
(d) NEWater		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU		
(b) M&E Plan		
(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		

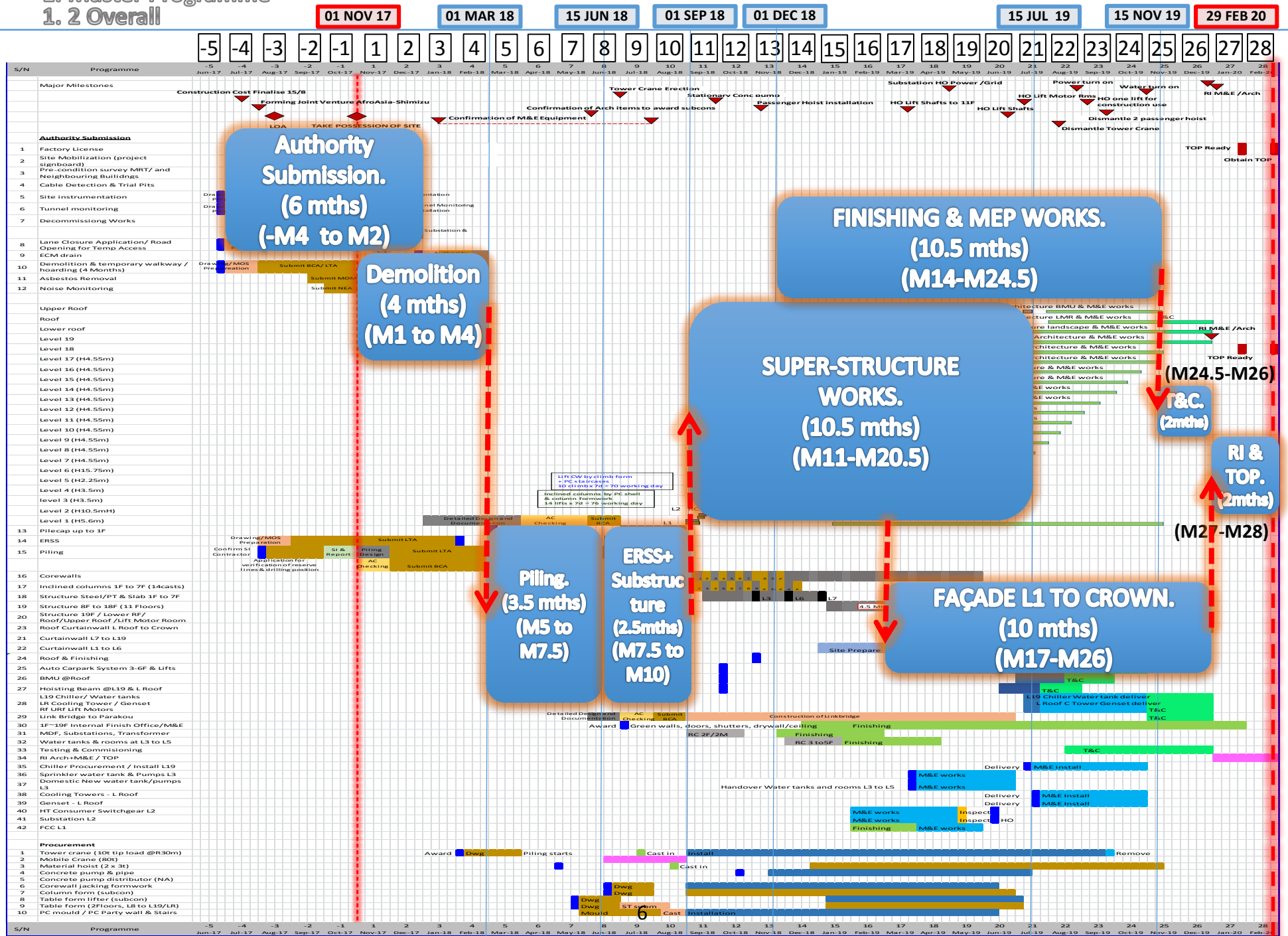
SECTION 4

PROGRAMME

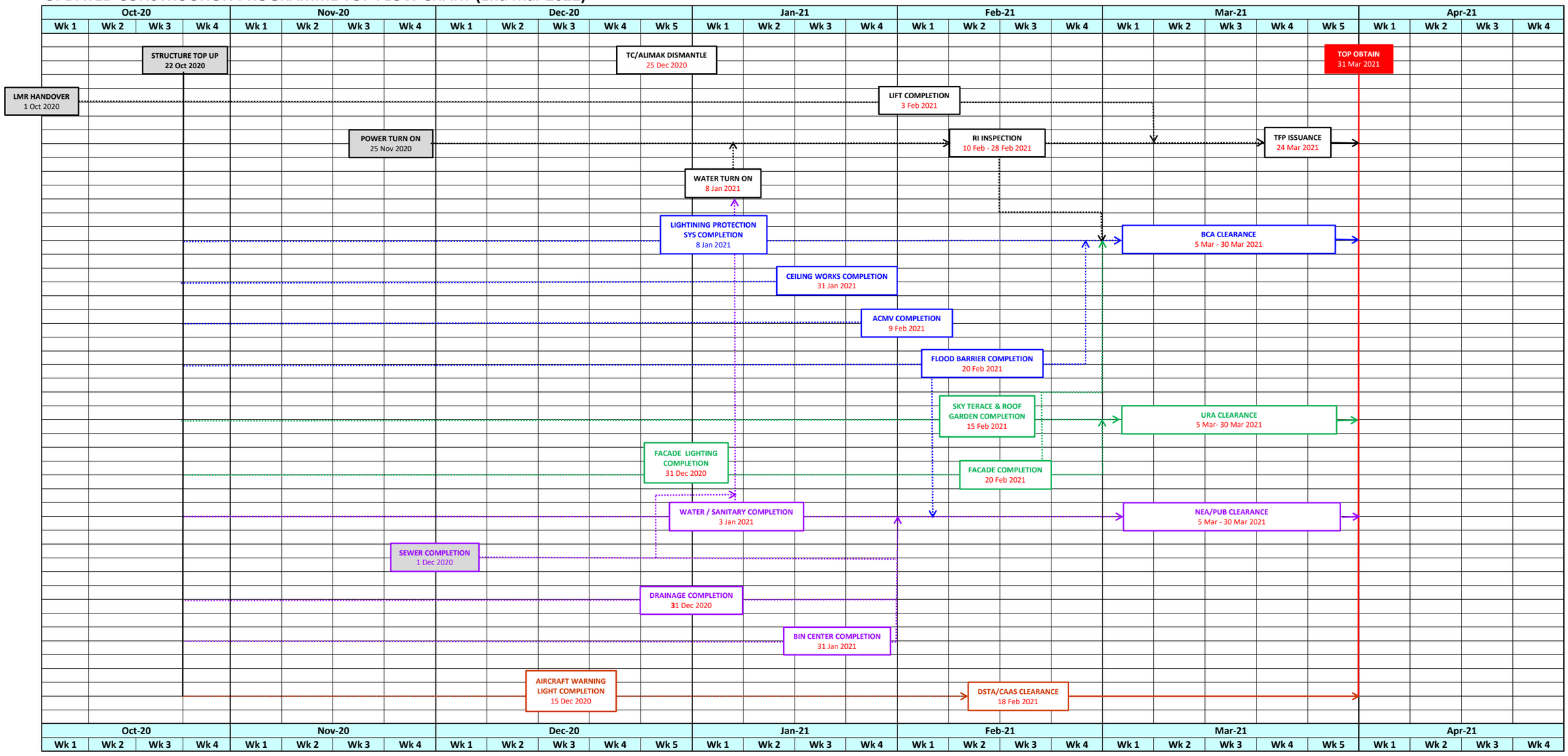
4.1 Overall Programme – REFER TO THE ATTACHED PROGRAM

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																									

1. Master Programme
1. 2 Overall



UPDATED CONSTRUCTION PROGRAMME TOP FLOW CHART (End Mar 2021)



SECTION 4

PROGRAMME

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

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd	23 Nov 2017	23 Nov 2017							28 Nov 17
Power Supply Substation	SP PowerGrid Ltd	23 Nov 2017	5 Dec 2017	19 Dec 2017	23 Feb 2018	23 Mar 2018	6 Jun 2018	26 Jul 2018	26 Jul 2018	26 Jul 2018
Metering Layout	SP Services Ltd	31 Mar 2019	8 Apr 2019	29 Apr 2019	8 May 2019					13 May 2019
Sanitary Installation	PUB Water Reclamation (Network) Dept	31 Mar 2018	1 Feb 2019							4 Feb 2019
Domestic Water Supply	PUB (Water Supply) Network Dept	31 Mar 2018	4 Dec 2018							31 Jan 2019
Gas Supply Installation	City Gas Pte Ltd	-								
Air Conditioning & Ventilation Inst.	FSSD	30 Apr 2018	24 Jun 2019							18 Jul 2019
Fire Fighting & Alarm Installation	FSSD	30 Apr 2018	21 Jun 2019							16 Jul 2019
Telephone Installation	TFCC	23 Nov 2017	23 Nov 2017		5 Nov 2018					15 Nov 2018
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision									
Fuel Storage	FSSD									
	NEA (Pollution Control)									
Emergency Voice Communication System	FSSD		8 Jul 2019							13 Aug 2019

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments) – 2nd Submission – NOT APPLICABLE

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									
Fire Fighting & Alarm Installation	FSSD									
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

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	LQF
Incoming Architectural Sketches/Details	LQF
Incoming Structural Drawings	LQF
M&E Drawings	
- Electrical Installation	TTT
- Lift & Escalator Installation	TTT
- Air Conditioning & Ventilation Installation	LQF
- Fire Fighting & Alarm Installation	LQF
- Plumbing & Sanitary Installation	LQF
- Swimming Pool & Filtration Installation	-
Other Drawings	

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

Item No.	Description*	Required From	Required By	Date Required	Remarks
1.	Mechanical Schematic Design	JCH, CLM	CCG	31 May 2016	
2.	Electrical Schematic Design	TTT	LFY	24 May 2016	
3.	Mechanical Detail Design	JCH CLM	CCG	13 June 2016	
4.	Electrical Detail Design	TTT	LFY	10 June 2016	
5.	Mechanical Tender Document	CLM	CCG	2 July 2016	
6.	Electrical Tender Document	TTT	LFY	2 July 2016	
7.	Mechanical Post Tender Addendum No.1	JCH, CLM	CCG	22 July 2016	
8.	Electrical Post Tender Addendum No.1	TTT	LFY	22 July 2016	

** 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	C	I	I	
b.	Project Administration	A	A	C	I	I	
c.	Project Cost Estimate/Contract Cost	A	A	-	-	I	
2.	**Drawings**						
a.	Outline Design Drgs.	C	C	C	I	I	
b.	Sketch Design Drgs.	C	C	C	I	I	
c.	Final Design Drgs.	A	A	C	I	I	
d.	Shop Drawings	I	I	I	I	-	
e.	As Built Drgs.	I	I	I	I	-	
3.	**Other Document**						
a.	Specification	C	C	I	I	I	
b.	Tender Document	A	A	I	I	I	
c.	Tender Evaluation Report	A	A	I	I	I	
d.	Design Report	A	A	I	-	-	
e.	Progress Report	A	A	I	I	I	
f.	Financial Report	A	A	I	I	C	
g.	Minutes of Meeting	I	I	I	I	I	
h.	Inspection Report	I	I	I	-	-	
i.	Testing & Comm. Report	I	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	Singapore Standard CP 5 : 1998 Code Of Practice For Electrical Installations
Lightning Protection System	Singapore Standard SS 555 : 2018 Code Of Practice For Protection Against Lighting
Emergency Voice Communication System	Singapore Standard CP 546 : 2009 Code Of Practice For Emergency Voice Communication System In Buildings
Air Conditioning & Ventilation Installation	Singapore Standard CP 553 : 2016 Code Of Practice For Air Conditioning And Mechanical Ventilation in Buildings
Lift & Escalator Installation	Singapore Standard CP 550 : 2009 Code Of Practice For Installation, Operation And Maintenance Of Electric Passenger And Goods Lifts
Sprinkler System	Singapore Standard CP 52 : 2004 Code Of Practice For Automatic Fire Sprinkler System
Wet Riser & Hose Reel System	Singapore Standard CP SS 575 : 2012 Code Of Practice For Fire Hydrant, Rising Mains And Hose Reel System
Automatic Fire Alarm System	Singapore Standard CP10 : 2005 Code Of Practice For Installation And Servicing Of Electrical Fire Alarm Systems
Sanitary System	Code Of Practice On Sewerage & Sanitary Works
Plumbing System	Singapore Standard SS 636 : 2018 Code of practice for water services

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 – NOT APPLICABLE

S/N	Description	Date of Application	Date of Approval	Remarks
1	*Clause number in Code of Practice for (Services) which require clarification or waiver. Consultation Ref No. Waiver Ref. No.			
2	*Clause number in Code of Practice for (Services) which require clarification or waiver. Consultation Ref No. Waiver Ref. No.			
3	*Clause number in Code of Practice for (Services) which require clarification or waiver. Consultation Ref No. Waiver Ref. No.			

*To fill in actual information

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	✓
S13	Non-Conformity & Corrective Action Procedures	✓
S14	Quality & Environmental System Audit	✓
S15	Feedback Reporting	✓
S16	Clients Feedback	✓
S17	Management Review	✓
S18	Risk Identification, Assessment & Control	✓

8.6 List of Software Used For Design/Analysis

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Calculux	2.30	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	
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	
Dialux	4.11	Freewave	Lighting design	✓
Lift Traffic	7.18	Elevate	Lift traffic calculation	✓
Fault Level Calculation	11.11	ETAP	Calculation of fault level and voltage drop	✓

(✓*where applicable*)

SECTION 9

ENVIRONMENTAL CONSIDERATIONS

9.1 Sustainable Design Features/Criteria

Item	Remarks
Green Mark criteria	Platinum
Green Design Features	–

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	✓

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	A
M&E Cost Estimate Report	A
Pre-Qualification of Tenderers	A
Tender Documents	A
Tender Report	A
Payment Valuation for QS	A
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