Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED ERECTION OF A 25 STOREY RESIDENTIAL APARTMENT BUILDING (TOTAL 44 UNITS) WITH SWIMMING POOL, COMMUNAL FACILITIES AND CARPARKS ON LOT 627T TS 21 AT 55 DEVONSHIRE ROAD (RIVER VALLEY PLANNING AREA)

For

ORCHARD SUITES RESIDENCE PTE LTD

Copy No.	1

Prepared By: Derek Ong

Authorised By: Loh Fook Yuen

Date: 26 April 2010

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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	6082-PQP File	31 August 2009

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	31 August 2009	Section 1 to 11	28	+1 page (Sect 4.1 – Overall Programme)
1	26 April 2010	Section 1 to 11	28	+1 page (Sect 4.1 – Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Residential

Statistics of Development	
Site Area, m²	1245.3
Nett Floor Area, m²	-
Gross Floor Area, m²	3486.84
Covered Carpark, m²	200
No. of Covered Carpark Lots	44
No. of Apartments/Houses	44
No. of Beds (for Hospitals)	N.A
No. of Guestroom (for Hotels)	N.A
No. of Blocks / No. of Storeys	1/25
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	1.2	0.97	0.9	0.43	0.6	0.15				
Awarded										

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate			20
Awarded			

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

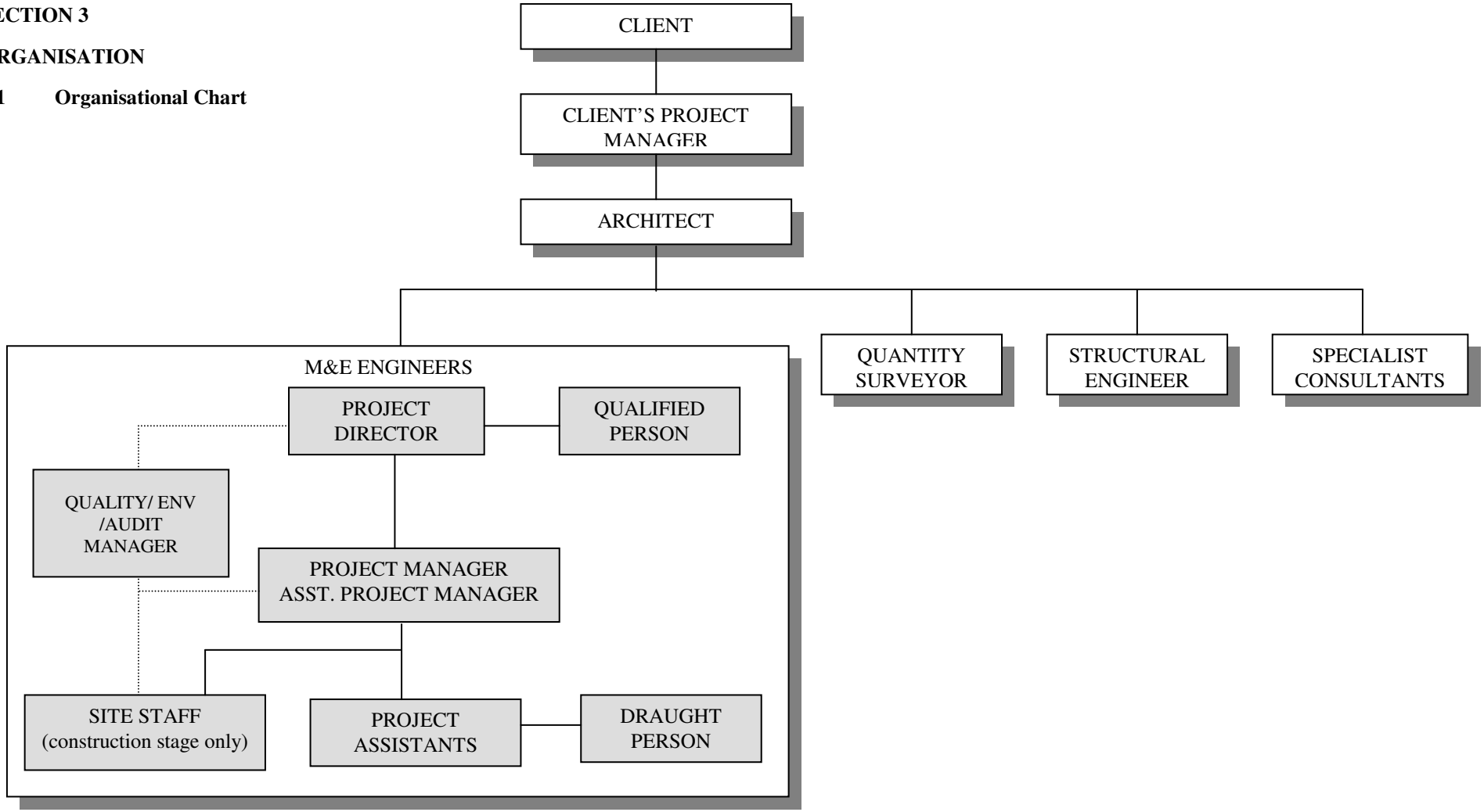
EJECTOR & DIVERTER	✓	SUMP PUMP	✓		FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Loh Fook Yuen(LFY)
Qualified Person	Mechanical	Choong Choon Guan(CCG)
	Electrical	Loh Fook Yuen(LFY)
Project Manager		Yip Yoke Fun (YYF)
Assistant Project Manager		Derek Ong(DO)
Project Assistant (Mech)		Daryl Choy(DC)
Project Assistant (Elect)		-
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client: Orchard Suites Residence Pte Ltd

Address: 11 Changi South Street 3
#04-01 Builders Centre
Singapore 486122

Tel: 6545 5223

Fax: 67339948

Client's Representatives:

Name of Company	Contact Person	Contact
Orchard Suites Residence Pte Ltd	Name: Mr Gary Koh Position: Director of Development	Tel: 6545 5223 Fax: 67339948 Handphone: 98509188 Email: gary.koh@goldenflowergroup.com
	Name: Mr Nico Po Position: Managing Director	Tel: 6545 5223 Fax: 67339948 Handphone: Email: nico.po@goldenflowergropu.com
	Name: Ms Janice Wong Position: Project Manager	Tel: 6545 5223 Fax: 67339948 Handphone: 9753 6267 Email: janice.wong@shining.com.sg
	Name: Position:	Tel: Fax: Handphone: Email:

3.4 Other Consultants (Local)

Function / Name of Company	Contact Person	Contact
Architect MKPL Architects Pte Ltd	Name: Mr Chew Chee Kong Position:Director	Tel: 6223 4633 Fax: 6223 4233 Handphone: Email: devonshireorchard0802@mkpl.com.sg
Quantity Surveyor Northcroft Lim Consultants Pte Ltd	Name: Ms Yvonne Tho Position: Associate Director	Tel:62207188 Fax:62220868 Handphone: Email: ytho@northcroft.com.sg
Structural Engineer KTP Consultants Pte Ltd	Name: Mr Song Wee Ngee Position: Managing Director	Tel:62735622 Fax:62738454 Handphone: Email: songwn@ktp.com.sg
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Landscape Consultant DLQ Design Pte Ltd	Name: Ms Lena Quek Position: Director	Tel: 67380171 Fax: 67383124 Handphone: Email: dlq@dlqdesign.com
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.4 Other Consultants (Overseas) – NOT USED

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 - NOT USED

Function / Name of Company	Contract *	Contact Person	Contact
Main Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Air Conditioning & Ventilation Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Plumbing & Sanitary Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Electrical Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Lift & Escalator Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Fire Fighting & Alarm Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Swimming Pool Filtration Plant Installation Sub-Contractor		Name: Position:	Tel: Fax: Handphone: Email:
Carpark System Installation Sub-Contractor		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	Mr Chen Wee Yuan	68238551
(b) Diversion		
SP Services:		
(a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV	Mr Patrick Fwok	68256379
(b) SingTel	Mr Gilbert Ho	63425938
(c) IDA		
BCA:		
(a) Building Plan		
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan		
(c) Diversion	Mr Toh Tse Teck	63809825
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU	Mr Lam Tong Choy	67319653
(b) M&E Plan		
(c) Diversion	Mr Hong Kwan Meng	62824336
City Gas Pte Ltd:		
(a) Planning/Submission	Mr Liew Khee Boon	65787603
(b) Installation/Inspection		
PowerGas Pte Ltd		
(a) Diversion	Mr Tan Lye Sing	67518142
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

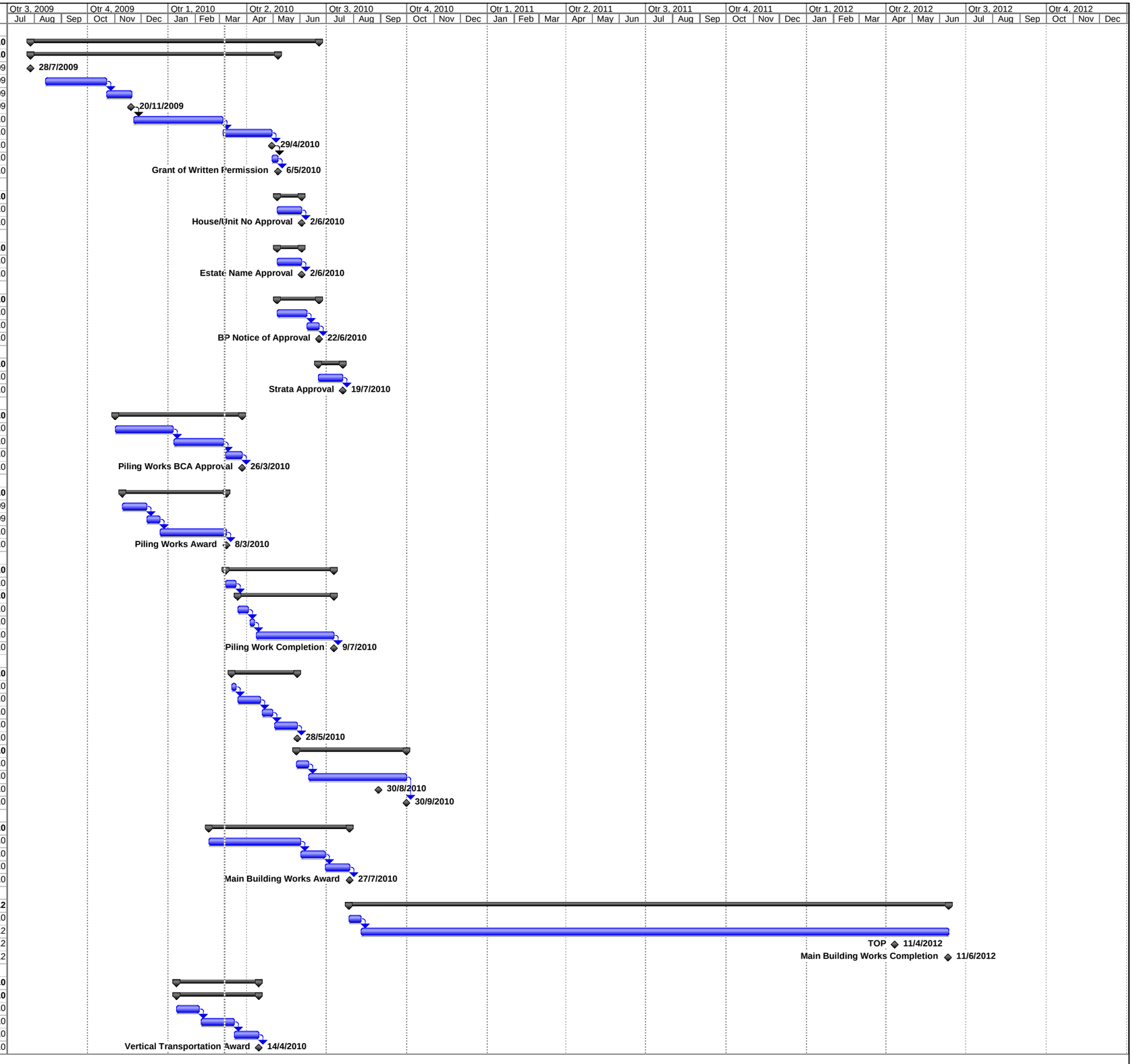
SECTION 4

PROGRAMME

4.1 Overall Programme (refer to attached master programme)

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 Name	Duration	Start	Finish
1				
2	**ARCHITECTURAL SUBMISSION**	**47.2 wks**	**Tue 28/7/09**	**Tue 22/6/10**
3	**DCD_URA**	**40.6 wks**	**Tue 28/7/09**	**Thu 6/5/10**
4	Extension of Provisional Permission	0 wks	Tue 28/7/09	Tue 28/7/09
5	Preparation for Re-Submission	10 wks	Fri 14/8/09	Thu 22/10/09
6	DCD Re-Submission	4.2 wks	Fri 23/10/09	Fri 20/11/09
7	Written Direction	0 wks	Fri 20/11/09	Fri 20/11/09
8	Preparation for Re-submission	14.8 wks	Mon 23/11/09	Thu 4/3/10
9	Re-Submission	8 wks	Fri 5/3/10	Thu 29/4/10
10	Interim DC Order	0 wks	Thu 29/4/10	Thu 29/4/10
11	Payment & Processing of DC Order	1 wk	Fri 30/4/10	Thu 6/5/10
12	Grant of Written Permission	0 wks	Thu 6/5/10	Thu 6/5/10
13				
14	**IRAS - House & Unit Numbering**	**4 wks**	**Thu 6/5/10**	**Wed 2/6/10**
15	House & Unit Numbering Submission	4 wks	Thu 6/5/10	Wed 2/6/10
16	House/Unit No Approval	0 wks	Wed 2/6/10	Wed 2/6/10
17				
18	**IRAS - Estate Naming**	**4 wks**	**Thu 6/5/10**	**Wed 2/6/10**
19	Estate Name Submission	4 wks	Thu 6/5/10	Wed 2/6/10
20	Estate Name Approval	0 wks	Wed 2/6/10	Wed 2/6/10
21				
22	**BP Approval**	**6.8 wks**	**Thu 6/5/10**	**Tue 22/6/10**
23	BP Submission Preparation	4.8 wks	Thu 6/5/10	Tue 8/6/10
24	BP Submission	2 wks	Wed 9/6/10	Tue 22/6/10
25	BP Notice of Approval	0 wks	Tue 22/6/10	Tue 22/6/10
26				
27	**SURVEYOR'S SUBMISSION**	**4 wks**	**Tue 22/6/10**	**Mon 19/7/10**
28	Strata Submission	4 wks	Tue 22/6/10	Mon 19/7/10
29	Strata Approval	0 wks	Mon 19/7/10	Mon 19/7/10
30				
31	**Piling Design Works**	**21 wks**	**Mon 2/11/09**	**Fri 26/3/10**
32	Design (PE) - inclusive of wind tunnel test	9.6 wks	Mon 2/11/09	Wed 6/1/10
33	A/C checker	8.2 wks	Fri 8/1/10	Fri 5/3/10
34	BCA submission	3 wks	Mon 8/3/10	Fri 26/3/10
35	Piling Works BCA Approval	0 wks	Fri 26/3/10	Fri 26/3/10
36				
37	**Piling Works Tender**	**17 wks**	**Tue 10/11/09**	**Mon 8/3/10**
38	Tender preparation	4 wks	Tue 10/11/09	Mon 7/12/09
39	Tender calling	2.2 wks	Tue 8/12/09	Tue 22/12/09
40	Tender evaluation	10.8 wks	Wed 23/12/09	Mon 8/3/10
41	Piling Works Award	0 wks	Mon 8/3/10	Mon 8/3/10
42				
43	**Piling Works Construction**	**18 wks**	**Mon 8/3/10**	**Fri 9/7/10**
44	Mobilisation Period	2 wks	Mon 8/3/10	Fri 19/3/10
45	**Construction Period**	**16 wks**	**Mon 22/3/10**	**Fri 9/7/10**
46	Ultimate Load Test	2 wks	Mon 22/3/10	Fri 2/4/10
47	Ultimate Load Test Report	1 wk	Mon 5/4/10	Fri 9/4/10
48	Commencement of Working Pile	13 wks	Mon 12/4/10	Fri 9/7/10
49	Piling Work Completion	0 wks	Fri 9/7/10	Fri 9/7/10
50				
51	**Show Flat**	**11 wks**	**Mon 15/3/10**	**Fri 28/5/10**
52	Design Refinement	1 wk	Mon 15/3/10	Fri 19/3/10
53	Tender Preparation	4 wks	Mon 22/3/10	Fri 16/4/10
54	Tender Calling	2 wks	Mon 19/4/10	Fri 30/4/10
55	Tender Evaluation	4 wks	Mon 3/5/10	Fri 28/5/10
56	Showflat Works Award	0 wks	Fri 28/5/10	Fri 28/5/10
57	**Showflat Construction**	**18 wks**	**Fri 28/5/10**	**Thu 30/9/10**
58	Mobilisation Period-inclusive of C&S Design	2 wks	Fri 28/5/10	Thu 10/6/10
59	Construction Period	16 wks	Fri 11/6/10	Thu 30/9/10
60	FSC	0 wks	Mon 30/8/10	Mon 30/8/10
61	Showflat Works Completion	0 wks	Thu 30/9/10	Thu 30/9/10
62				
63	**Main Building Works Tender**	**23 wks**	**Wed 17/2/10**	**Tue 27/7/10**
64	Tender Preparation	15 wks	Wed 17/2/10	Tue 1/6/10
65	Tender Calling	4 wks	Wed 2/6/10	Tue 29/6/10
66	Tender Evaluation/Interview	4 wks	Wed 30/6/10	Tue 27/7/10
67	Main Building Works Award	0 wks	Tue 27/7/10	Tue 27/7/10
68				
69	**Main Building Works Construction**	**98 wks**	**Tue 27/7/10**	**Mon 11/6/12**
70	Mobilisation Period	2 wks	Tue 27/7/10	Mon 9/8/10
71	Construction Period	96 wks	Tue 10/8/10	Mon 11/6/12
72	TOP	0 wks	Wed 11/4/12	Wed 11/4/12
73	Main Building Works Completion	0 wks	Mon 11/6/12	Mon 11/6/12
74				
75	**NSC Works Tender**	**13.6 wks**	**Mon 11/1/10**	**Wed 14/4/10**
76	**Vertical Transportation**	**13.6 wks**	**Mon 11/1/10**	**Wed 14/4/10**
77	Tender Preparation	4 wks	Mon 11/1/10	Fri 5/2/10
78	Tender Calling	5.6 wks	Mon 8/2/10	Wed 17/3/10
79	Tender Evaluation/Interview	4 wks	Thu 18/3/10	Wed 14/4/10
80	Vertical Transportation Award	0 wks	Wed 14/4/10	Wed 14/4/10



Project: Devonshire_Sales Launch
Date: Sat 6/3/10

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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	30/4/2010								
Power Supply Substation	SP PowerGrid Ltd	31/3/2010								
Metering Layout	SP Services Ltd	N.A								
Sanitary Installation	PUB Water Reclamation (Network) Dept	1/9/2010								
Domestic Water Supply	PUB (Water Supply) Network Dept	2/8/2010								
Gas Supply Installation	City Gas Pte Ltd	N.A								
Air Conditioning & Ventilation Inst.	FSSD	29/10/2010								
Fire Fighting & Alarm Installation	FSSD	30/11/2010								
Telephone Installation	TFCC	2/8/2010								
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision	N.A								
Fuel Storage	FSSD	N.A								
	NEA (Pollution Control)	N.A								

SECTION 4

PROGRAMME

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

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:	
EC/MC	✓				

(✓*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	DC
Incoming Architectural Sketches/Details	DC
Incoming Structural Drawings	DC
M&E Drawings	
- Electrical Installation	DO
- Lift & Escalator Installation	DO
- Air Conditioning & Ventilation Installation	DC
- Fire Fighting & Alarm Installation	DC
- Plumbing & Sanitary Installation	DC
- Swimming Pool & Filtration Installation	DC
Other Drawings	
Landscape Drawing	DO

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 USED

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	C	C	I	
b.	Project Administration	A	A	C	C	I	
c.	Project Cost Estimate/Contract Cost	A	A	C	C	I	
2.	**Drawings**						
a.	Outline Design Drgs.	A	A	C	C	-	
b.	Sketch Design Drgs.	A	A	C	C	-	
c.	Final Design Drgs.	A	A	C	C	-	
d.	Shop Drawings	I	I	A/C	C	-	
e.	As Built Drgs.	I	I	I	I	-	
3.	**Other Document**						
a.	Specification	A	A	A	I	-	
b.	Tender Document	A	A	A	I	-	
c.	Tender Evaluation Report	A	A	A	-	I	
d.	Design Report	C	C	I	-	I	
e.	Progress Report	A	A	A	I	A	
f.	Financial Report	-	-	-	-	-	
g.	Minutes of Meeting	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 Questionaires	✓	✓			
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 USED

ITEM	KEPT BY

8.2 List of Applicable Code of Practice and Regulations

Electrical Wiring	~~BS~~	SS	~~IEE~~	~~NFPA~~	
Lightning Protection System	~~BS~~	SS			
~~Emergency Voice Communication System~~	~~BS~~	~~SS~~	~~NFPA~~		
Air Conditioning & Ventilation Installation	~~BS~~	~~AS~~	~~NFPA~~	SS	~~MS~~
Lift & Escalator Installation	~~BS~~	SS			
Sprinkler System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~LPC~~
Wet Riser System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Automatic Fire Alarm System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Sanitary System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Plumbing System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
~~Town Gas/LPG Supply System~~	~~BS~~	~~SS~~	~~NFPA~~	~~AS~~	
~~Boiler and Steam Supply System~~	~~ASME~~	~~BS~~	~~AS~~		
~~Mechanical Smoke Control System~~	~~BS~~	~~NFPA~~	~~AS~~		

(Delete where necessary)

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 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	✓

8.5 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	
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	Gold
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 - NOT USED

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 – NOT USED

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	NA
Tender Documents	A
Tender Report	A
Payment Valuation for QS	Re
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 USED

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers – NOT USED

Sub Job No	Description	Allocation Details