Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED 9-STOREY NURSING HOME AT JURONG WEST FOR MINISTRY OF HEALTH

For

MINISTRY OF HEALTH

Copy No.	1

Prepared By: Chia Chung Han/Ngu Kat Lung

Authorised By: Goh Soon Huat

Date: 12 November 2013

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 USED
3.5	Contractor/Sub-Contractors - NOT USED
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 USED
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 - NOT USED
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 USED
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 USED
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 USED
11	**LIST OF SUB-JOB**
11.1	List of Sub-Job Numbers - NOT USED

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6174-PQP File	12 November 2013

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	12 November 2013	1 to 11	29	+ 3 pgs (Sect 4.1 - Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	New Erection of Nursing Home

Statistics of Development	
Site Area, m²	2792.20
Nett Floor Area, m²	-
Gross Floor Area, m²	8652.49
Covered Carpark, m²	-
No. of Covered Carpark Lots	28
No. of Apartments/Houses	-
No. of Beds (for Hospitals)	288
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	1 block of 9-storey
Green Mark Category	Certified
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	2,738,200	864,200	874,200	724,200	1,149,200	-				
Awarded	-	-	-	-	-	-				

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

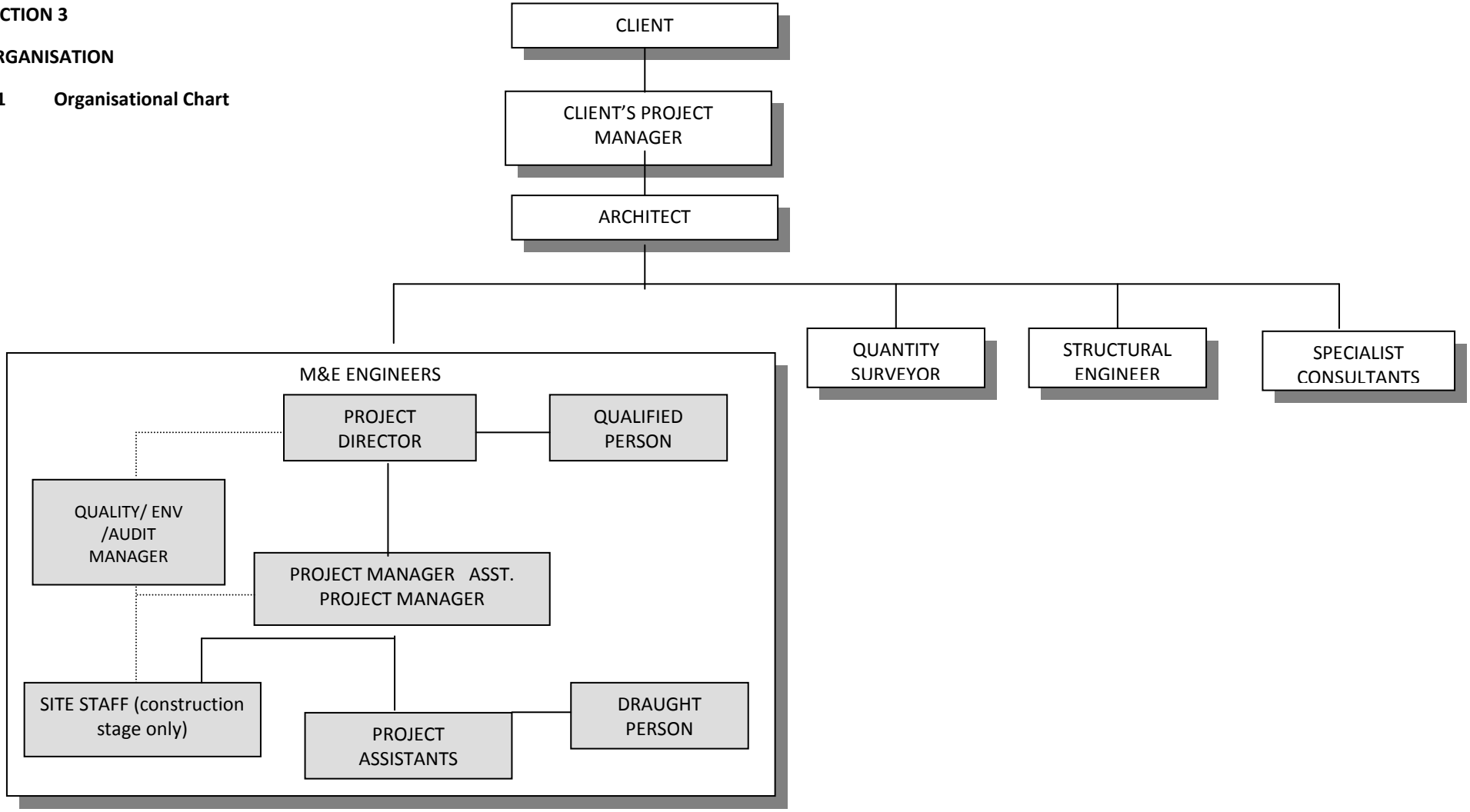
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR		PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Goh Soon Huat (GSH)
Qualified Person	Mechanical	Choong Choon Guan (CCG)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Chuan Kian Heng (CKH)
Assistant Project Manager		-
Project Assistant (Mech)		Chia Chung Han (CH)
Project Assistant (Elect)		Ngu Kat Lung (NKL)
Draughtsperson		Common Pool
Resident Engineer (M&E)		-
Assistant Resident Engineer (M&E)		-
Clerk-of-Work (M&E)		-

3.3 Client/Client's Representatives

Client:-	Ministry of Health	MOH Holdings Pte Ltd
Address:-	College of Medicine Building 16 College Road Singapore 169854	1 Maritime Square #11-25 Harbour Front Centre Singapore 099253
Tel:-	6325 1328	6818 1320
Fax:-	6325 1677	6720 0980

Client's Representatives:-

Name of Company	Contact Person	Contact
Ministry of Health	Name: Ms Yeo Meng Ni Position: Health Policy Analyst	Tel: 6325 1328 Fax: 6325 1677 Handphone: - Email: yeo_mengni@moh.gov.sg
MOH Holdings Pte Ltd (Client's Project Manager)	Name: Mr Liew Chee Hoe Position: Assistant Director Healthcare Infrastructure Projects Division	Tel: 6818 1320 Fax: 6720 0980 Handphone: - Email: cheehoe_liew@mohh.com.sg
SIPM Consultants Pte Ltd (Project Manager)	Name: Mr Desmond Siah Yeow Kia Position: Lead Project Manager	Tel: 6248 1310 Fax: 6242 1294 Handphone: 9299 9257 Email: desmondsiah@sipmconsultants.com
	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 Team Design Architects Pte Ltd	Name: Mr Yee Wei Wen Position: Project Manager	Tel: 6323 3168 Fax: 6323 3618 Handphone: 9662 3255 Email: 1108@teamdesign.com.sg
Quantity Surveyor Langdon & Seah Singapore Pte Ltd	Name: Mr Teoh Wooi Sin Position: Executive Director	Tel: 6239 8248 Fax: 6224 7089 Handphone: 9658 2937 Email: 5789@sg.langdonseah.com
Structural Engineer KTP Consultants Pte Ltd	Name: Mr Song Wee Ngee Position: Project Director	Tel: 6412 0308 Fax: 6273 8454 Handphone: 8189 5550 Email: 110206_jwest@ktpcon.com
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:
_____	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	Chin Yoke Fah	6378 8556
(b) Diversion		
SP Services:		
(a) Customer Supply	Yip Si Wah	6671 7192
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel		
(c) IDA	Lee Chong Beng	9649 7719
BCA:		
(a) Building Plan		
(b) Green Mark		
FSSD:		
(a) Building Plan		
(b) M&E Plan		
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan		
(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

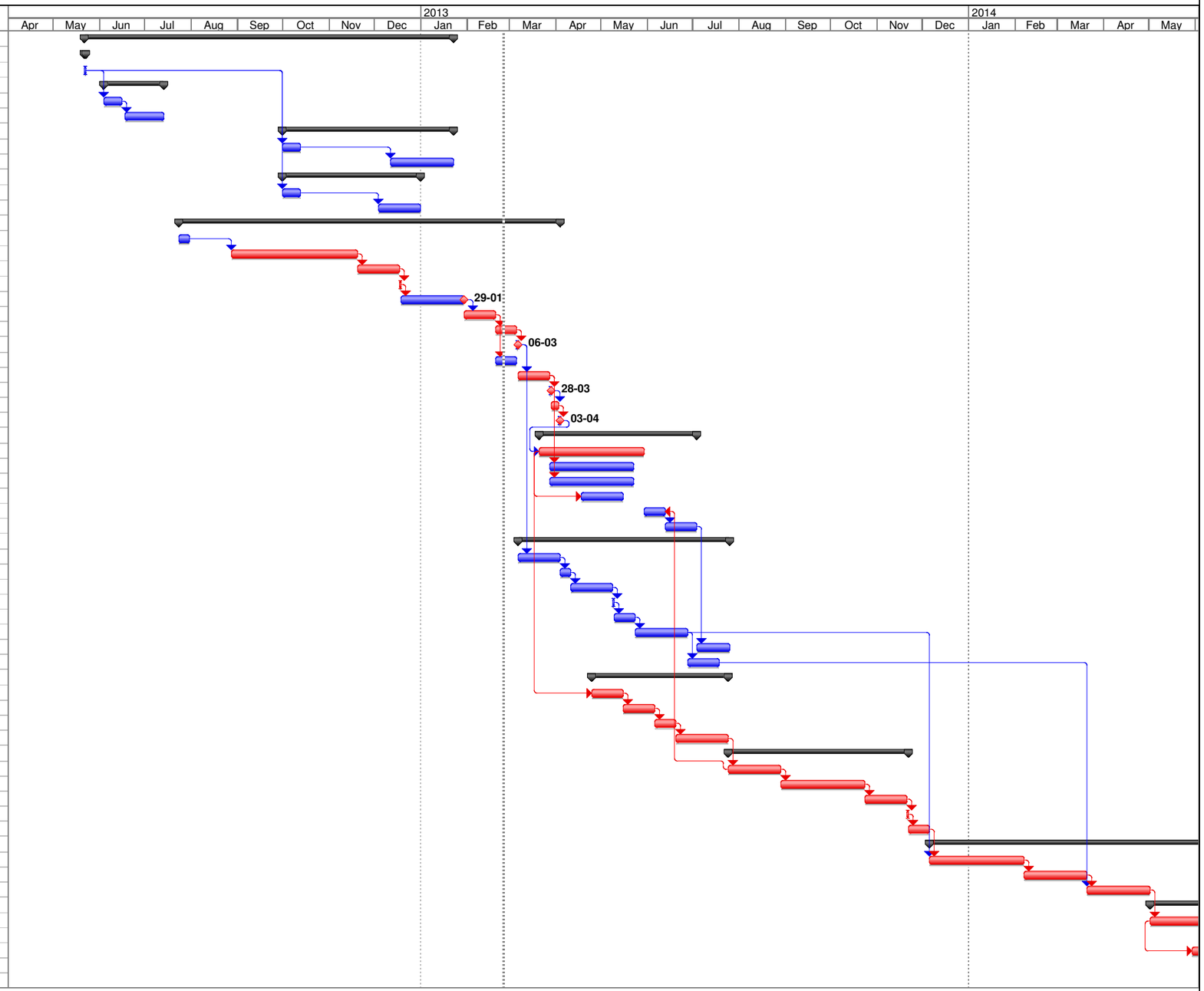
PROGRAMME

4.1 Overall Programme (Refer to 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																									

Nursing Home at Jurong West - Preliminary Draft Master Schedule

ID	Task Name	Duration	Start	Finish	Predecessors
1	**FORWARD WORKS**	**8.8 mons**	**Tue 22-05-12**	**Tue 22-01-13**	
2	**URA's PLANNING ADVICE FOR NEW SITE**	**0.05 mons**	**Tue 22-05-12**	**Tue 22-05-12**	
3	URA planning approval for new site	1 day	Tue 22-05-12	Tue 22-05-12	
4	**Topo & Boundary Survey**	**1.5 mons**	**Mon 04-06-12**	**Fri 13-07-12**	
5	Calling to award of quotation	2 wks	Mon 04-06-12	Fri 15-06-12	3
6	Survey works	4 wks	Mon 18-06-12	Fri 13-07-12	5
7	**Soil Investigation**	**4.1 mons**	**Mon 01-10-12**	**Tue 22-01-13**	
8	Calling to award of quotation	2 wks	Mon 01-10-12	Fri 12-10-12	3
9	SI works & report	6 wks	Wed 12-12-12	Tue 22-01-13	8
10	**Underground Services Detection**	**3.3 mons**	**Mon 01-10-12**	**Mon 31-12-12**	
11	Calling to award of quotation	2 wks	Mon 01-10-12	Fri 12-10-12	3
12	Detection works & report	4 wks	Tue 04-12-12	Mon 31-12-12	11
13	**CONCEPT DESIGN STAGE**	**9.1 mons**	**Tue 24-07-12**	**Wed 03-04-13**	
14	Preparation of Design Brief	1 wk	Tue 24-07-12	Mon 30-07-12	
15	Design layout	12 wks	Tue 28-08-12	Mon 19-11-12	14
16	**MOH engage Advisor in the Design + URA**	4 wks	Tue 20-11-12	Mon 17-12-12	15
17	URA reply no roof kitchen and cannot exceed 3.1 GPR	1 day	Tue 18-12-12	Tue 18-12-12	16
18	Revision of design and SCC presentation	6 wks	Wed 19-12-12	Tue 29-01-13	17
19	SCC and MOH comments and revision	3 wks	Wed 30-01-13	Tue 19-02-13	18
20	Revision of design and SCC presentation	2 wks	Wed 20-02-13	Tue 05-03-13	19
21	**Concept Design sign-off (projected)**	1 day	Wed 06-03-13	Wed 06-03-13	20
22	Landscape Concept Design Presentation	2 wks	Wed 20-02-13	Tue 05-03-13	19
23	Preparation Interior Design Concepts	3 wks	Thu 07-03-13	Wed 27-03-13	21
24	Submission of Landscape and ID Concepts to MOH	1 day	Thu 28-03-13	Thu 28-03-13	23
25	Approval/Comments from MOH	3 days	Fri 29-03-13	Tue 02-04-13	24
26	Landscape and Interior Design sign-off	1 day	Wed 03-04-13	Wed 03-04-13	25
27	**DESIGN DEVELOPMENT STAGE**	**3.75 mons**	**Thu 21-03-13**	**Wed 03-07-13**	
28	Detail Design Development - Architectural	10 wks	Thu 21-03-13	Wed 29-05-13	26FS-2 wks
29	Detail Landscape and Interior Design	8 wks	Thu 28-03-13	Wed 22-05-13	23
30	Detail Design Development - C&S and M&E	8 wks	Thu 28-03-13	Wed 22-05-13	23
31	QS costing	4 wks	Thu 18-04-13	Wed 15-05-13	28SS+4 wks
32	Calling quotations for Accredited Checker (AC)	2 wks	Thu 30-05-13	Thu 13-06-13	49SF-6 wks
33	Checking by AC	3 wks	Thu 13-06-13	Wed 03-07-13	32
34	**TECHNICAL SUBMISSIONS**	**5.05 mons**	**Thu 07-03-13**	**Thu 25-07-13**	
35	Prepare URA DC submission	4 wks	Thu 07-03-13	Wed 03-04-13	21
36	Submit DC drawings to SLA for endorsement	1 wk	Thu 04-04-13	Wed 10-04-13	35
37	Submit DC drawings to URA	4 wks	Thu 11-04-13	Wed 08-05-13	36
38	Provisional Planning Permission	1 day	Thu 09-05-13	Thu 09-05-13	37
39	Resubmission of compliance drawings to URA	2 wks	Fri 10-05-13	Thu 23-05-13	38
40	Release of Written Permission by URA	5 wks	Fri 24-05-13	Thu 27-06-13	39
41	Prepare C&S submission to BCA	16 days	Thu 04-07-13	Thu 25-07-13	33
42	Building Plan Approval	3 wks	Fri 28-06-13	Thu 18-07-13	40
43	**TENDER DOCUMENTATION**	**3.25 mons**	**Thu 25-04-13**	**Wed 24-07-13**	
44	Tender Specifications compilation	3 wks	Thu 25-04-13	Wed 15-05-13	28SS+5 wks
45	Tender Drawings compilation	3 wks	Thu 16-05-13	Wed 05-06-13	44
46	Tender Documentation review by SIPM	2 wks	Thu 06-06-13	Wed 19-06-13	45
47	Tender Documentation review by MOH	5 wks	Thu 20-06-13	Wed 24-07-13	46
48	**TENDER & EVALUATION**	**4.3 mons**	**Thu 25-07-13**	**Thu 21-11-13**	
49	Tender	5 wks	Thu 25-07-13	Wed 28-08-13	47
50	Tender Evaluation & Report by Consultants	2 mons	Thu 29-08-13	Wed 23-10-13	49
51	Tender Report Approval by MOH	4 wks	Thu 24-10-13	Wed 20-11-13	50
52	Contract Award	1 day	Thu 21-11-13	Thu 21-11-13	51
53	Site mobilisation	0.5 mons	Fri 22-11-13	Thu 05-12-13	52
54	**CONSTRUCTION STAGE**	**17.25 mons**	**Fri 06-12-13**	**Thu 02-04-15**	
55	Piling Works	9 wks	Fri 06-12-13	Thu 06-02-14	53,40
56	Earthworks & pilecap construction	6 wks	Fri 07-02-14	Thu 20-03-14	55
57	Ground Slab & Beams	6 wks	Fri 21-03-14	Thu 01-05-14	56,42
58	**Superstructure (9 storeys)**	**11 mons**	**Fri 02-05-14**	**Thu 05-03-15**	
59	Structural works	6 mons	Fri 02-05-14	Thu 16-10-14	57
60	Lift installation	3 mons	Fri 17-10-14	Thu 08-01-15	59
61	Architectural and M&E Works	10 mons	Fri 30-05-14	Thu 05-03-15	59SS+1 mon
62	RI and TOP inspections	5 wks	Fri 06-02-15	Thu 12-03-15	61FS-1 mon
63	Handing-over inspection (including T&C)	3 wks	Fri 13-03-15	Thu 02-04-15	62



Nursing Home at Jurong West

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By SummTask
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Critical Task

JWNH - MICRO SCHEDULE FOR TENDER ACTIVITIES LEADING UP TO AWARD

S/N	Activities	Duration	Milestone	Date Start	Date End
	CONCEPT DESIGN STAGE				
	Project Brief and Concept Design Sign-off (Projected)*	**Milestone**	***9-Apr-13**		30-Apr-13
	Presentation of Landscape and ID Concepts to MOH	Milestone	**22-May-13**		3-Jun-13
	TENDER DOCUMENTATION				
	Presentation to MOH on schedule of finishes, kitchen, M&E security system, nurse call system etc	1 d	**22-May-13**		3-Jun-13
	Submission of tender documents to MOHH /MOH				
	Submission of scoring matrix for approval	milestone	**24-Jun-13**		
	Submission of EPV and proposed LD computation by QS	milestone	**24-Jun-13**		
	Submission of complete set of tender documents to MOHH	milestone	**4-Jul-13**		
	Construction tender document vetting by HIPD	1.5 wks		4-Jul-13	14-Jul-13
	Submission of tender drawings to MOHH	milestone	**15-Jul-13**		
	Submission of construction tender document and scoring matrix for vetting by PCD /Legal	2 wks		15-Jul-13	29-Jul-13
	Appointment of TAC and TEC	Milestone	**22-Aug-13**		
	Publication of Tender	milestone	**23-Aug-13**		
	TENDER & EVALUATION				
	Tender date	**Milestone**	**23-Aug-13**		
	Tender period (5 weeks tender period)	**5 wks**		**23-Aug-13**	**27-Sep-13**
	Tender briefing	**Milestone**	**27-Aug-13**		
	Tender closing date	**Milestone**	**27-Sep-13**		
	Tender Evaluation by consultant team	3.5 wks		30-Sep-13	24-Oct-13
	(a) TAC 1st progress review meeting	1d	30-Sep-13		
	(b) Eligibility screening	2 d		30-Sep-13	1-Oct-13
	(b) TAC 2nd progress review meeting	1d	4-Oct-13		
	(c) Emailing of clarification	5 d		2-Oct-13	8-Oct-13
	(d) Confirmation of eligibility	Milestone	9-Oct-13		
	(e) TAC 3rd progress review meeting	1d	9-Oct-13		
	(f) Submission of folder of tender submissions for TEC briefing / interview	2 d		10-Oct-13	11-Oct-13
	(g) TEC briefing and Tender Interview (if any) and endorsement of Q score	2 d		16-Oct-13	17-Oct-13
	(h) Preparation of report	10 d		18-Oct-13	31-Oct-13
	(i) Submission of draft tender report	Milestone	1-Nov-13		
	(j) Review and amend by HIPD	1 wk		1-Nov-13	8-Nov-13
	(j) Review and amend by PCD	1 wk		11-Nov-13	18-Nov-13
	Submission of tender report to Tender Board	milestone	25-Nov-13		
	Tender report approval by MOH Tender Board	3.5 wks		26-Nov-13	20-Dec-13
	TENDER AWARD	**Milestone**	**23-Dec-13**		
	Construction Commencement date	Milestone	6-Jan-14		
	Completion of Construction	Milestone	5-Jun-15		

JWNH - MICRO SCHEDULE FOR TENDER ACTIVITIES TO AWARD

(27 Sep 2013)_Rev

S/N	Activities	Duration	Milestone	Date Start	Date End
	TENDER & EVALUATION				
	Tender date	**Milestone**	**23-Aug-13**		
	Tender period (5 weeks tender period)	**5 wks**		**23-Aug-13**	**4-Oct-13**
	Tender briefing	**Milestone**	**27-Aug-13**		
	Tender closing date	**Milestone**	**27-Sep-13**		
	Tender Evaluation by consultant team	3 wks		7-Oct-13	24-Oct-13
	(a) TAC 1st progress review meeting	1d	7-Oct-13		
	(b) Eligibility screening	2 d		7-Oct-13	8-Oct-13
	(b) Emailing of clarifications	6d		9-Oct-13	17-Oct-13
	(c) TAC 2nd progress review meeting	1 d	14-Oct-13		
	(d) Confirmation of eligibility	Milestone	18-Oct-13		
	(e) TAC 3rd progress review meeting	1d	18-Oct-13		
	(f) Submission of folder of tender submissions for TEC briefing / interview	2 d		21-Oct-13	22-Oct-13
	(g) TEC briefing and Tender Interview (if any) and endorsement of Q score	2 d		23-Oct-13	24-Oct-13
	(h) Preparation of report	10 d		26-Oct-13	8-Oct-13
	(i) Submission of draft tender report	Milestone	11-Nov-13		
	(j) Review and amend by HIPD	1 wk		11-Nov-13	15-Nov-13
	(j) Review and amend by PCD	1 wk		18-Nov-13	22-Nov-13
	Submission of tender report to Tender Board	milestone	25-Nov-13		
	Tender report approval by MOH Tender Board	4 wks		25-Nov-13	20-Dec-13
	TENDER AWARD	**Milestone**	**23-Dec-13**		
	Construction Commencement date	Milestone	6-Jan-14		
	Completion of Construction	Milestone	5-Jun-15		

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	5/2013	5/2013							6/2013
Power Supply Substation	SP PowerGrid Ltd	7/2013	7/2013	8/2013	11/2013					
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	2/2014								
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision									
Fuel Storage	FSSD	NA								
	NEA (Pollution Control)	NA								

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:	

(✓*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	All project drawings in softcopy to be saved in server
Incoming Architectural Sketches/Details	
Incoming Structural Drawings	
M&E Drawings	
- Electrical Installation	
- Lift & Escalator Installation	
- Air Conditioning & Ventilation Installation	
- Fire Fighting & Alarm Installation	
- Plumbing & Sanitary Installation	
- Swimming Pool & Filtration Installation	
Other Drawings	
- Electrical Shop Drawings	NKL
- Mechanical Shop Drawings	CH

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	I	A	C	I	I	
c.	Project Cost Estimate/Contract Cost	A	A	I	-	C	
2.	**Drawings**						
a.	Outline Design Drgs.	C	C	C	-	-	
b.	Sketch Design Drgs.	C	C	C	-	-	
c.	Final Design Drgs.	A	C	C	I	I	
d.	Shop Drawings	-	C	C	I	-	
e.	As Built Drgs.	I	I	I	I	-	
3.	**Other Document**						
a.	Specification	A	C	-	-	I	
b.	Tender Document	A	C	I	-	I	
c.	Tender Evaluation Report	-	A	I	-	I	
d.	Design Report	A	C	I	-	-	
e.	Progress Report	I	I	-	-	-	
f.	Financial Report	A	A	I	-	I	
g.	Minutes of Meeting	I	I	-	-	-	
h.	Inspection Report	I	I	-	-	-	
i.	Testing & Comm. Report	I	I	-	-	-	
j.	O & M Manual	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 USED

ITEM	KEPT BY

8.2 List of Applicable Code of Practice and Regulations

Services	Title of Code of Practice/Standard
Electrical Wiring	CP5:1998 COP for Electrical Installation
Lightning Protection System	SS555:2010 COP for Protection against Lightning
Emergency Voice Communication System	SS546:2009 COP for Emergency Voice Communication Systems in Building
Air Conditioning & Ventilation Installation	SS553:2009 COP for Air Conditioning and Mechanical Ventilation in Buildings
Lift & Escalator Installation	SS550: 2009 COP for Installation, Operation and Maintenance of Electric Passenger and Goods Lifts
Sprinkler System	CP52:2004 COP for Automatic Fire Sprinkler System
Wet Riser System	SS575:2012 COP for Fire Hydrant, Rising Mains and Hosereel System
Automatic Fire Alarm System	CP10:2005 COP for Installation and Servicing of Electrical Fire Alarm Systems
Sanitary System	COP for Sewerage and Sanitary Works
Plumbing System	CP48:2005 COP for Water Services
Town Gas/LPG Supply System	CP51:2004 COP for Manufactured Gas Pipe Installation
Boiler and Steam Supply System	----
Mechanical Smoke Control System	SS553:2009 COP for Air Conditioning and Mechanical Ventilation in Buildings

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 USED

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	
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	4.9		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	
Elevate	-	-	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	-

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:	NIL

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	C, A
M&E Cost Estimate Report	C, A
Pre-Qualification of Tenderers	C, A
Tender Documents	C
Tender Report	C, A
Payment Valuation for QS	By L&S
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