Alpha
Consulting Engineers Pte Ltd

PROJECT QUALITY PLAN

PROPOSED ADDITION OF A 6 STOREY SCHOOL OF CHEMICAL & LIFE SCIENCES TEACHING BLOCK WITH ANNEX AND LINKWAY AT SINGAPORE POLYTECHNIC ON LOTS 1797, 3438V & 2266, MK 3, AT 500 DOVER ROAD (QUEENSTOWN DGP)

For

SINGAPORE POLYTECHNIC

Copy No.	1

Prepared By: Goh Whye Liang

Authorised By: Goh Soon Huat

Date: 5 January 2011

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 Representatives
3.4	Other Consultants - Local - Overseas – NOT USED
3.5	Contractors/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 (Amendments) – 2nd Submission
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 Applicable Quality System Procedures
8.5	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
11	**LIST OF SUB-JOB**
11.1	List of Sub-Job Numbers

SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	6094-PQP File	5 January 2011

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	29 April 2009	1 to 11	28	+ 8 pgs (Section 4.1 – Overall programme)
1	16 April 2010	1 to 11	28	+ 3 pgs (Section 4.1 – Overall programme)
2	5 January 2011	1 to 11	28	+ 4 pgs (Section 4.1 – Overall programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Institution

Statistics of Development	
Site Area, m²	16,258.11
Nett Floor Area, m²	-
Gross Floor Area, m²	14,553.36
Covered Carpark, m²	-
No. of Covered Carpark Lots	-
No. of Apartments/Houses	-
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	2 Blocks/6 & 3 storeys
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)							
Services	EI	ACVI	LEI	FFAI	PSI	SPFI	
Estimate	2.85	4.9	0.4	0.45	0.9	-	
Awarded	4.1	7.22	.45	0.48	1.35		

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	4	38.524
Awarded	-	6.397	40.753

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

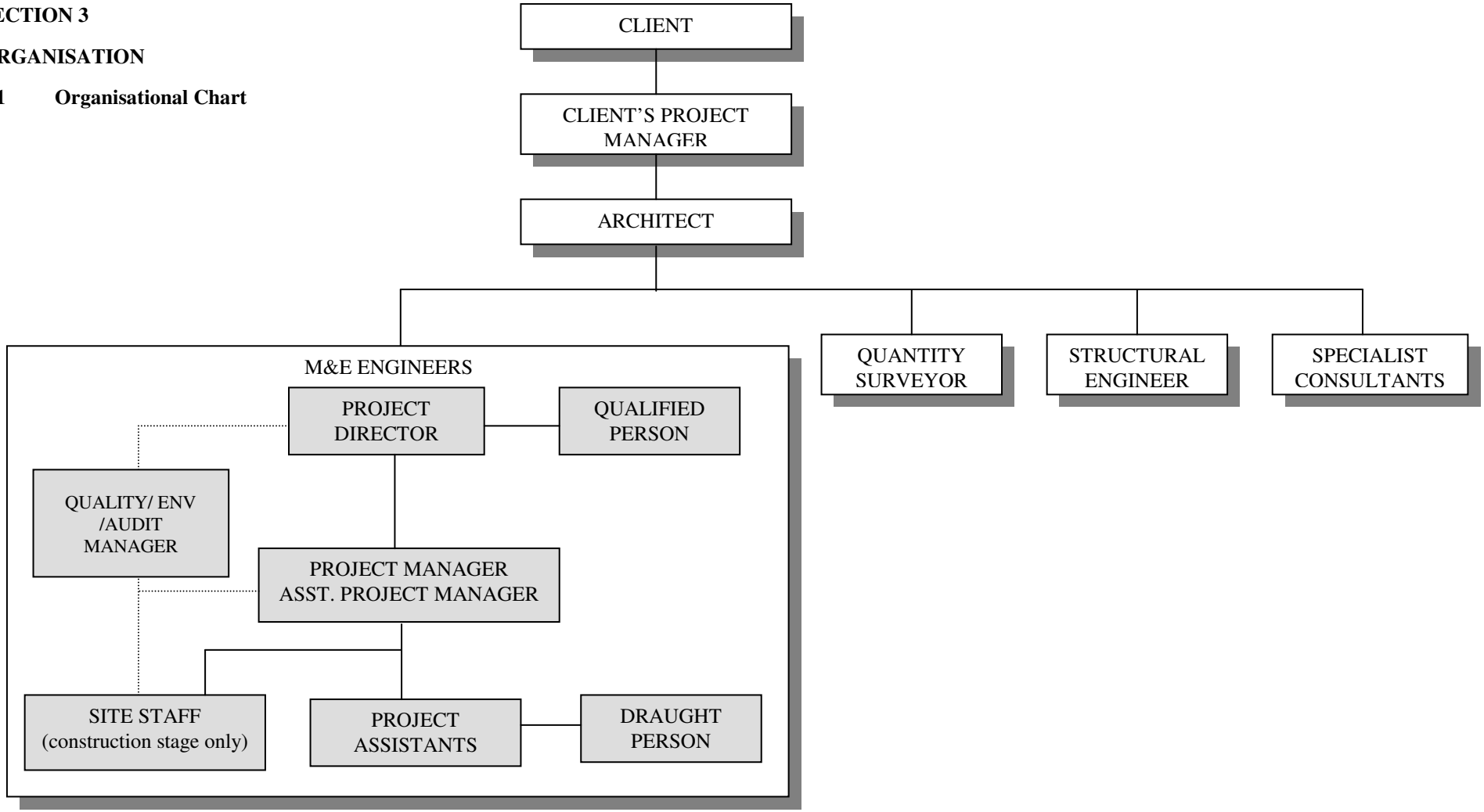
EJECTOR & DIVERTER		SUMP PUMP		FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 ACEPL's Project Team Member

TITLE		NAME
Project Director		Andrew Loh (LCT)
Qualified Person	Mechanical	Andrew Loh (LCT)
	Electrical	NIL
Project Manager		Goh Soon Huat (GSH)
Assistant Project Manager		Goh Whye Liang (GWL)
Project Assistant (Mech)		NIL
Project Assistant (Elect)		Winston Chee (WC)
Draughtsperson		Common Pool
Resident Engineer (M&E)		NIL
Assistant Resident Engineer (M&E)		NIL
RTO (M&E)		NIL

3.3 Client/Client's Representatives

Client: Singapore Polytechnic

Address: 500 Dover Road
Singapore 139651

Tel: 6772 1628

Fax: 6772 1951

Name of Firm	Contact Person	Contact
Singapore Polytechnic	Name: Mr Wong Swee Chan Position: Project Manager	Tel: 6772 1808 Fax: 6772 1951 Handphone: - Email: SweeChan@sp.edu.sg
Singapore Polytechnic	Name: Ms Emily Goh Position: Project Manager	Tel: 6772 1007 / 6772 1628 Fax: 6772 1951 Handphone: 9622 9993 Email: emily@sp.edu.sg
Singapore Polytechnic	Name: Ms Lee Siang Yen Position: Project Officer	Tel: 6772 1501 Fax: 6772 1951 Handphone: - Email: leesiangyen@sp.edu.sg
	Name: Position:	Tel: Fax: Handphone: Email:
	Name: Position:	Tel: Fax: Handphone: Email:

3.4 **Other Consultants** (Local)

Function / Name of Firm	Contact Person	Contact
Architect Architects Team 3 (Pte)	Name: Mr Ng Yan Chuan Position: Architect	Tel: 6467 2233 Fax: 6466 7810 Handphone: - Email: yanchuan@at3s.com.sg
Quantity Surveyor WT Partnership	Name: Ms Elaine Ong Position: -	Tel: 6533 0822 Fax: 6533 2833 Handphone: 9649 2852 Email: elaineong@wtpartnership.com.sg
Structural Engineer Meinhardt (S) Pte Ltd	Name: Mr Budi Lee Position: Director	Tel: 6273 5255 / DID: 6377 9195 Fax: 6274 0788 Handphone: 9125 4686 Email: bl@meinhardt.com.sg
Interior Designer Nil	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant Nil	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant Nil	Name: Position:	Tel: Fax: Handphone: Email:
Green Mark Consultant SuperSolutions Pte Ltd	Name: Ms Janet Low Position: Manager, Client Solutions	Tel: 6735 5640 Fax: 6735 5420 Handphone: 9747 1180 Email: janet.low@boss.com.sg

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

Function / Name of Company	Contract *	Contact Person	Contact
Main Contractor Incorporated Builders Pte Ltd	Lump Sum	Name: Sathivel@Ragu Position: Project Manager	Tel: 6746 8320 / Site Tel: 6774 0371 Fax: 6746 5734 / Site Fax: 6774 0577 Handphone: 9001 4279 Email: ragu@ib.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Winner Engineering Pte Ltd	DSC	Name: Joelito Pabillar De Jesus Position: Project Manager	Tel: 6481 8423 Fax: 6481 0255 Handphone: 9683 1588 Email: joel@winner-e.sg
Plumbing & Sanitary Installation Sub-Contractor Fidens Engineering Pte Ltd	DSC	Name: Gao Xun Tao Position: Project Engineer	Tel: 6741 2906 Fax: 6741 2419 Handphone: 8182 1515 Email: fidens@pacific.net.sg
Electrical Installation Sub-Contractor Kurihara Kogyo Co Ltd	DSC	Name: Chia Hiok Seah Position: Project Manager	Tel: 6271 9863 Fax: 6278 4475 Handphone: 9001 9774 Email: hschia@kuriharakogyo.com.sg
Lift & Escalator Installation Sub-Contractor Sigma Elevator Singapore Pte Ltd	DSC	Name: Lim Yew Teck Position: Project Manager	Tel: 6323 7361 Fax: 6323 7362 Handphone: 9638 5733 Email: yewtecklim@sigma.com.sg
Fire Fighting & Alarm Installation Sub-Contractor Fire-Guard Engineering Pte Ltd	DSC	Name: Mandy Chee Position: Asst Project Manager	Tel: 6744 2142 Fax: 6744 2406 Handphone: 9437 7053 Email: mandy@fireguard.com.sg
Swimming Pool Filtration Plant Installation Sub-Contractor N.A.		Name: Position:	Tel: Fax: Handphone: Email:
Carpark System Installation Sub-Contractor N.A.		Name: Position:	Tel: Fax: Handphone: Email:
Canopy Right Tech (S) Pte Ltd	NSC	Name: Kenji Koay Position: Project Manager	Tel: 6285 8533 Fax: 6285 2230 Handphone: 9183 5242 Email: righttech@qala.com.sg

** 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		
(b) Diversion		
SP Services: (a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC: (a) SCV		
(b) SingTel		
(c) IDA		
BCA: (a) Building Plan		
FSSD: (a) Building Plan		
(b) M&E Plan	Mr Cheung Yuen Fatt	6848 1433
PUB (Water Supply) Network Dept: (a) Water Conservation	Mr Kuthubdeen Zaman	6731 3762 / zaman_kuthubdeen@pub.gov.sg
(b) Plumbing Plan		
(c) Diversion		
PUB Water Reclamation (Network) Dept: (a) Building Plan/CBPU	Mr Alan Tan	6731 3298 / alan_tan@pub.gov.sg
(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

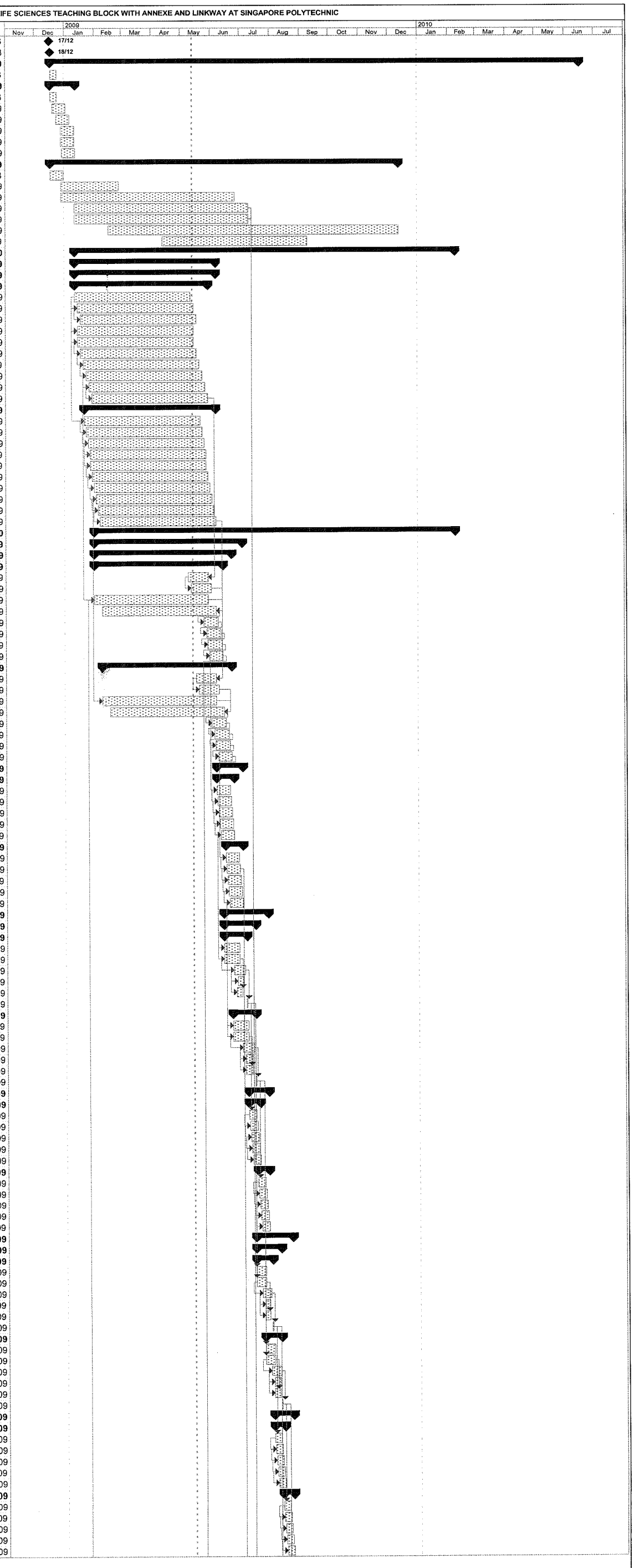
PROGRAMME

4.1 Overall Programme – (Refer to attached 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																									

PROPOSED ADDITION OF 6-STOREY SCHOOL OF CHEMICAL & LIFE SCIENCES TEACHING BLOCK WITH ANNEXE AND LINKWAY AT SINGAPORE POLYTECHNIC

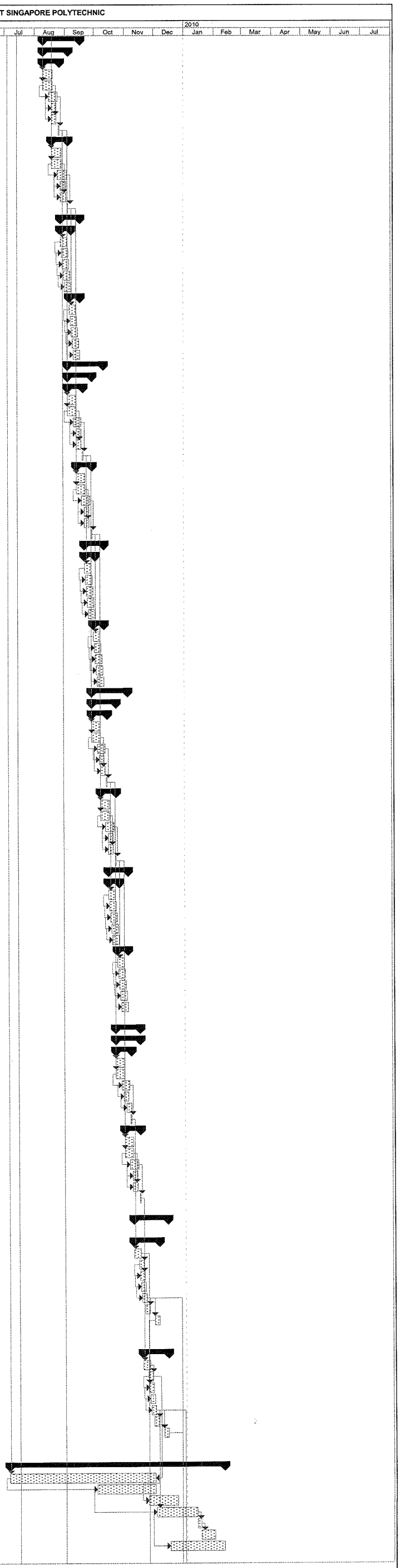
ID	Task Name	Duration	Start	Finish
1	Letter Award	0 days	Wed 17/12/08	Wed 17/12/08
2	Commencement Date	0 days	Thu 18/12/08	Thu 18/12/08
3	**Project Duration**	**546 days**	**Thu 18/12/08**	**Thu 17/06/10**
4	Permit To Commence	7 days	Thu 18/12/08	Wed 24/12/08
5	**Site Mobilization**	**26 days**	**Thu 18/12/08**	**Mon 12/01/09**
6	Precon Survey	7 days	Thu 18/12/08	Wed 24/12/08
7	Erection of Storage Area/ SubCon Offices	14 days	Sat 20/12/08	Fri 02/01/09
8	Erection of Project Team's Offices	14 days	Wed 24/12/08	Tue 06/01/09
9	Erection of Toilet Facilities	14 days	Mon 29/12/08	Sun 11/01/09
10	Services Detection	14 days	Mon 29/12/08	Sun 11/01/09
11	Earth Control Measure	14 days	Tue 30/12/08	Mon 12/01/09
12	**Planning & Submission**	**360 days**	**Thu 18/12/08**	**Sat 12/12/09**
13	Fomat Form Samples Submission & Approval	14 days	Thu 18/12/08	Wed 31/12/08
14	Authority Submission & Approval	60 days	Mon 29/12/08	Thu 26/02/09
15	Award to Sub-Contractors & Suppliers	180 days	Mon 29/12/08	Fri 26/06/09
16	Shopdrawing Submission & Approval	180 days	Mon 12/01/09	Fri 10/07/09
17	Sample/Material/Catalogue Submission & App	180 days	Mon 12/01/09	Fri 10/07/09
18	Design Build (eg. Steel Structures)	300 days	Mon 16/02/09	Sat 12/12/09
19	Procurement & Delivery Of Materials	150 days	Mon 13/04/09	Wed 09/09/09
20	**Structural Works**	**393 days**	**Mon 12/01/09**	**Mon 08/02/10**
21	**Sub-Structural Works**	**146 days**	**Mon 12/01/09**	**Sat 06/06/09**
22	**Pilecaps**	**146 days**	**Mon 12/01/09**	**Sat 06/06/09**
23	**Zone 1 (G/L 1-9/I-O)**	**138 days**	**Mon 12/01/09**	**Fri 29/05/09**
24	Excavation	120 days	Mon 12/01/09	Mon 11/05/09
25	Hacking Of Pile Head	120 days	Thu 15/01/09	Thu 14/05/09
26	ECC/ Rectification Works (If Any)	120 days	Sun 18/01/09	Sun 17/05/09
27	Compaction of Pilecap Base	120 days	Thu 15/01/09	Thu 14/05/09
28	Lean Concrete	120 days	Thu 15/01/09	Thu 14/05/09
29	Installation Of Rebars	120 days	Sun 18/01/09	Sun 17/05/09
30	Installation of Formwork	120 days	Wed 21/01/09	Wed 20/05/09
31	Concreting	120 days	Sat 24/01/09	Sat 23/05/09
32	Dismantling Of Formwork	120 days	Tue 27/01/09	Tue 26/05/09
33	Backfiling	120 days	Fri 30/01/09	Fri 29/05/09
34	**Zone 2 (G/L A-I/1-6)**	**136 days**	**Thu 22/01/09**	**Sat 06/06/09**
35	Excavation	120 days	Thu 22/01/09	Thu 21/05/09
36	Hacking Of Pile Head	120 days	Sat 24/01/09	Sat 23/05/09
37	ECC/ Rectification Works (If Any)	120 days	Mon 26/01/09	Mon 25/05/09
38	Compaction of Pilecap Base	120 days	Wed 28/01/09	Wed 27/05/09
39	Lean Concrete	120 days	Wed 28/01/09	Wed 27/05/09
40	Installation Of Rebars	120 days	Fri 30/01/09	Fri 29/05/09
41	Installation of Formwork	120 days	Sun 01/02/09	Sun 31/05/09
42	Concreting	120 days	Tue 03/02/09	Tue 02/06/09
43	Dismantling Of Formwork	120 days	Thu 05/02/09	Thu 04/06/09
44	Backfiling	120 days	Sat 07/02/09	Sat 06/06/09
45	**Super-Structural Works**	**373 days**	**Sun 01/02/09**	**Mon 08/02/10**
46	**1st Storey**	**153 days**	**Sun 01/02/09**	**Fri 03/07/09**
47	**Ground Beam & Slab**	**142 days**	**Sun 01/02/09**	**Mon 22/06/09**
48	**Zone 1 (G/L 1-9/I-O)**	**133 days**	**Sun 01/02/09**	**Sat 13/06/09**
49	Excavation	21 days	Sat 09/05/09	Fri 29/05/09
50	Compaction of GB Base	21 days	Tue 12/05/09	Mon 01/06/09
51	Installation of U/G Services	118 days	Sun 01/02/09	Fri 29/05/09
52	Anti-Termite & W/P membrane	118 days	Mon 09/02/09	Sat 06/06/09
53	Protection screed to W/P memb	15 days	Mon 25/05/09	Mon 08/06/09
54	Installation Of Rebars	15 days	Thu 28/05/09	Thu 11/06/09
55	Installation of Formwork	15 days	Fri 29/05/09	Fri 12/06/09
56	Concreting	14 days	Sun 31/05/09	Sat 13/06/09
57	**Zone 2 (G/L A-I/1-6)**	**134 days**	**Mon 09/02/09**	**Mon 22/06/09**
58	Excavation	21 days	Sun 17/05/09	Sat 06/06/09
59	Compaction of GB Base	21 days	Wed 20/05/09	Tue 09/06/09
60	Installation of U/G & Concealed	118 days	Mon 09/02/09	Sat 06/06/09
61	Anti-Termite & W/P membrane	118 days	Tue 17/02/09	Sun 14/06/09
62	Protection screed to W/P memb	15 days	Tue 02/06/09	Tue 16/06/09
63	Installation Of Rebars	15 days	Fri 05/06/09	Fri 19/06/09
64	Installation of Formwork	15 days	Sat 06/06/09	Sat 20/06/09
65	Concreting	14 days	Tue 09/06/09	Mon 22/06/09
66	**Column/ Lift Wall/ RC Walls**	**27 days**	**Sun 07/06/09**	**Fri 03/07/09**
67	**Zone 1 (G/L 1-9/I-O)**	**18 days**	**Sun 07/06/09**	**Wed 24/06/09**
68	Scaffolding & Staging Erection	14 days	Sun 07/06/09	Sat 20/06/09
69	Installation Of Rebars	14 days	Mon 08/06/09	Sun 21/06/09
70	Installation of Concealed Servic	14 days	Tue 09/06/09	Mon 22/06/09
71	Installation of Formwork	14 days	Wed 10/06/09	Tue 23/06/09
72	Concreting	14 days	Thu 11/06/09	Wed 24/06/09
73	**Zone 2 (G/L A-I/1-6)**	**18 days**	**Tue 16/06/09**	**Fri 03/07/09**
74	Scaffolding & Staging Erection	14 days	Tue 16/06/09	Mon 29/06/09
75	Installation Of Rebars	14 days	Wed 17/06/09	Tue 30/06/09
76	Installation of Concealed Servic	14 days	Thu 18/06/09	Wed 01/07/09
77	Installation of Formwork	14 days	Fri 19/06/09	Thu 02/07/09
78	Concreting	14 days	Sat 20/06/09	Fri 03/07/09
79	**2nd Storey**	**46 days**	**Sun 14/06/09**	**Wed 29/07/09**
80	**RC Beam & Slab / Staircase**	**33 days**	**Sun 14/06/09**	**Thu 16/07/09**
81	**Zone 1 (G/L 1-9/I-O)**	**24 days**	**Sun 14/06/09**	**Tue 07/07/09**
82	Scaffolding & Staging Erection	16 days	Sun 14/06/09	Mon 29/06/09
83	Installation of Formwork	16 days	Sun 14/06/09	Mon 29/06/09
84	Installation Of Rebars	12 days	Wed 24/06/09	Sun 05/07/09
85	Installation Of Post-tensioning S	6 days	Sun 28/06/09	Fri 03/07/09
86	Installation of Concealed Servic	6 days	Sat 27/06/09	Thu 02/07/09
87	Concreting	1 day	Tue 07/07/09	Tue 07/07/09
88	**Zone 2 (G/L A-I/1-6)**	**24 days**	**Tue 23/06/09**	**Thu 16/07/09**
89	Scaffolding & Staging Erection	16 days	Tue 23/06/09	Wed 08/07/09
90	Installation of Formwork	16 days	Tue 23/06/09	Wed 08/07/09
91	Installation Of Rebars	12 days	Fri 03/07/09	Tue 14/07/09
92	Installation Of Post-tensioning S	7 days	Mon 06/07/09	Sun 12/07/09
93	Installation of Concealed Servic	7 days	Mon 06/07/09	Sun 12/07/09
94	Concreting	1 day	Thu 16/07/09	Thu 16/07/09
95	**Column/ Lift Wall/ RC Walls**	**21 days**	**Thu 09/07/09**	**Wed 29/07/09**
96	**Zone 1 (G/L 1-9/I-O)**	**12 days**	**Thu 09/07/09**	**Mon 20/07/09**
97	Scaffolding & Staging Erection	8 days	Thu 09/07/09	Thu 16/07/09
98	Installation Of Rebars	8 days	Fri 10/07/09	Fri 17/07/09
99	Installation of Concealed Servic	8 days	Sat 11/07/09	Sat 18/07/09
100	Installation of Formwork	8 days	Sun 12/07/09	Sun 19/07/09
101	Concreting	8 days	Mon 13/07/09	Mon 20/07/09
102	**Zone 2 (G/L A-I/1-6)**	**12 days**	**Sat 18/07/09**	**Wed 29/07/09**
103	Scaffolding & Staging Erection	8 days	Sat 18/07/09	Sat 25/07/09
104	Installation Of Rebars	8 days	Sun 19/07/09	Sun 26/07/09
105	Installation of Concealed Servic	8 days	Mon 20/07/09	Mon 27/07/09
106	Installation of Formwork	8 days	Tue 21/07/09	Tue 28/07/09
107	Concreting	8 days	Wed 22/07/09	Wed 29/07/09
108	**3rd Storey**	**38 days**	**Thu 16/07/09**	**Sat 22/08/09**
109	**RC Beam & Slab / Staircase**	**26 days**	**Thu 16/07/09**	**Mon 10/08/09**
110	**Zone 1 (G/L 1-9/I-O)**	**17 days**	**Thu 16/07/09**	**Sat 01/08/09**
111	Scaffolding & Staging Erection	10 days	Thu 16/07/09	Sat 25/07/09
112	Installation of Formwork	10 days	Thu 16/07/09	Sat 25/07/09
113	Installation Of Rebars	9 days	Wed 22/07/09	Thu 30/07/09
114	Installation Of Post-tensioning S	5 days	Sat 25/07/09	Wed 29/07/09
115	Installation of Concealed Servic	5 days	Sat 25/07/09	Wed 29/07/09
116	Concreting	1 day	Sat 01/08/09	Sat 01/08/09
117	**Zone 2 (G/L A-I/1-6)**	**17 days**	**Sat 25/07/09**	**Mon 10/08/09**
118	Scaffolding & Staging Erection	10 days	Sat 25/07/09	Mon 03/08/09
119	Installation of Formwork	10 days	Sat 25/07/09	Mon 03/08/09
120	Installation Of Rebars	10 days	Fri 31/07/09	Sun 09/08/09
121	Installation Of Post-tensioning S	6 days	Mon 03/08/09	Sat 08/08/09
122	Installation of Concealed Servic	6 days	Mon 03/08/09	Sat 08/08/09
123	Concreting	1 day	Mon 10/08/09	Mon 10/08/09
124	**Column/ Lift Wall/ RC Walls**	**20 days**	**Mon 03/08/09**	**Sat 22/08/09**
125	**Zone 1 (G/L 1-9/I-O)**	**11 days**	**Mon 03/08/09**	**Thu 13/08/09**
126	Scaffolding & Staging Erection	7 days	Mon 03/08/09	Sun 09/08/09
127	Installation Of Rebars	7 days	Tue 04/08/09	Mon 10/08/09
128	Installation of Concealed Servic	7 days	Wed 05/08/09	Tue 11/08/09
129	Installation of Formwork	7 days	Thu 06/08/09	Wed 12/08/09
130	Concreting	7 days	Fri 07/08/09	Thu 13/08/09
131	**Zone 2 (G/L A-I/1-6)**	**11 days**	**Wed 12/08/09**	**Sat 22/08/09**
132	Scaffolding & Staging Erection	7 days	Wed 12/08/09	Tue 18/08/09
133	Installation Of Rebars	7 days	Thu 13/08/09	Wed 19/08/09
134	Installation of Concealed Servic	7 days	Fri 14/08/09	Thu 20/08/09
135	Installation of Formwork	7 days	Sat 15/08/09	Fri 21/08/09
136	Concreting	7 days	Sun 16/08/09	Sat 22/08/09



Project: Working Programme Rev1
Wed 13/05/09 Rev 1 Working Program

Task · Split · Progress · Milestone · Summary · Project Summary · External Tasks · External MileTask · Split

ID	Task Name	Duration	Start	Finish
137	**4th Storey**	**38 days**	**Mon 10/08/09**	**Wed 16/09/09**
138	**RC Beam & Slab / Staircase**	**26 days**	**Mon 10/08/09**	**Fri 04/09/09**
139	**Zone 1 (G/L 1-9/I-O)**	**17 days**	**Mon 10/08/09**	**Wed 26/08/09**
140	Scaffolding & Staging Erection	10 days	Mon 10/08/09	Wed 19/08/09
141	Installation of Formwork	10 days	Mon 10/08/09	Wed 19/08/09
142	Installation Of Rebars	9 days	Sun 16/08/09	Mon 24/08/09
143	Installation Of Post-tensioning S	5 days	Wed 19/08/09	Sun 23/08/09
144	Installation of Concealed Servic	5 days	Wed 19/08/09	Sun 23/08/09
145	Concreting	1 day	Wed 26/08/09	Wed 26/08/09
146	**Zone 2 (G/L A-I/1-6)**	**17 days**	**Wed 19/08/09**	**Fri 04/09/09**
147	Scaffolding & Staging Erection	10 days	Wed 19/08/09	Fri 28/08/09
148	Installation of Formwork	10 days	Wed 19/08/09	Fri 28/08/09
149	Installation Of Rebars	10 days	Tue 25/08/09	Thu 03/09/09
150	Installation Of Post-tensioning S	6 days	Fri 28/08/09	Wed 02/09/09
151	Installation of Concealed Servic	6 days	Fri 28/08/09	Wed 02/09/09
152	Concreting	1 day	Fri 04/09/09	Fri 04/09/09
153	**Column/ Lift Wall/ RC Walls**	**20 days**	**Fri 28/08/09**	**Wed 16/09/09**
154	**Zone 1 (G/L 1-9/I-O)**	**11 days**	**Fri 28/08/09**	**Mon 07/09/09**
155	Scaffolding & Staging Erection	7 days	Fri 28/08/09	Thu 03/09/09
156	Installation Of Rebars	7 days	Sat 29/08/09	Fri 04/09/09
157	Installation of Concealed Servic	7 days	Sun 30/08/09	Sat 05/09/09
158	Installation of Formwork	7 days	Mon 31/08/09	Sun 06/09/09
159	Concreting	7 days	Tue 01/09/09	Mon 07/09/09
160	**Zone 2 (G/L A-I/1-6)**	**11 days**	**Sun 06/09/09**	**Wed 16/09/09**
161	Scaffolding & Staging Erection	7 days	Sun 06/09/09	Sat 12/09/09
162	Installation Of Rebars	7 days	Mon 07/09/09	Sun 13/09/09
163	Installation of Concealed Servic	7 days	Tue 08/09/09	Mon 14/09/09
164	Installation of Formwork	7 days	Wed 09/09/09	Tue 15/09/09
165	Concreting	7 days	Thu 10/09/09	Wed 16/09/09
166	**5th Storey**	**37 days**	**Fri 04/09/09**	**Sat 10/10/09**
167	**RC Beam & Slab / Staircase**	**25 days**	**Fri 04/09/09**	**Mon 28/09/09**
168	**Zone 1 (G/L 1-9/I-O)**	**16 days**	**Fri 04/09/09**	**Sat 19/09/09**
169	Scaffolding & Staging Erection	9 days	Fri 04/09/09	Sat 12/09/09
170	Installation of Formwork	9 days	Fri 04/09/09	Sat 12/09/09
171	Installation Of Rebars	8 days	Thu 10/09/09	Thu 17/09/09
172	Installation Of Post-tensioning S	5 days	Sun 13/09/09	Thu 17/09/09
173	Installation of Concealed Servic	5 days	Sun 13/09/09	Thu 17/09/09
174	Concreting	1 day	Sat 19/09/09	Sat 19/09/09
175	**Zone 2 (G/L A-I/1-6)**	**16 days**	**Sun 13/09/09**	**Mon 28/09/09**
176	Scaffolding & Staging Erection	9 days	Sun 13/09/09	Mon 21/09/09
177	Installation of Formwork	9 days	Sun 13/09/09	Mon 21/09/09
178	Installation Of Rebars	9 days	Fri 18/09/09	Sat 26/09/09
179	Installation Of Post-tensioning S	5 days	Mon 21/09/09	Fri 25/09/09
180	Installation of Concealed Servic	5 days	Mon 21/09/09	Fri 25/09/09
181	Concreting	1 day	Mon 28/09/09	Mon 28/09/09
182	**Column/ Lift Wall/ RC Walls**	**20 days**	**Mon 21/09/09**	**Sat 10/10/09**
183	**Zone 1 (G/L 1-9/I-O)**	**11 days**	**Mon 21/09/09**	**Thu 01/10/09**
184	Scaffolding & Staging Erection	7 days	Mon 21/09/09	Sun 27/09/09
185	Installation Of Rebars	7 days	Tue 22/09/09	Mon 28/09/09
186	Installation of Concealed Servic	7 days	Wed 23/09/09	Tue 29/09/09
187	Installation of Formwork	7 days	Thu 24/09/09	Wed 30/09/09
188	Concreting	7 days	Fri 25/09/09	Thu 01/10/09
189	**Zone 2 (G/L A-I/1-6)**	**11 days**	**Wed 30/09/09**	**Sat 10/10/09**
190	Scaffolding & Staging Erection	7 days	Wed 30/09/09	Tue 06/10/09
191	Installation Of Rebars	7 days	Thu 01/10/09	Wed 07/10/09
192	Installation of Concealed Servic	7 days	Fri 02/10/09	Thu 08/10/09
193	Installation of Formwork	7 days	Sat 03/10/09	Fri 09/10/09
194	Concreting	7 days	Sun 04/10/09	Sat 10/10/09
195	**6th Storey**	**37 days**	**Mon 28/09/09**	**Tue 03/11/09**
196	**RC Beam & Slab / Staircase**	**25 days**	**Mon 28/09/09**	**Thu 22/10/09**
197	**Zone 1 (G/L 1-9/I-O)**	**16 days**	**Mon 28/09/09**	**Tue 13/10/09**
198	Scaffolding & Staging Erection	9 days	Mon 28/09/09	Tue 06/10/09
199	Installation of Formwork	9 days	Mon 28/09/09	Tue 06/10/09
200	Installation Of Rebars	8 days	Sun 04/10/09	Sun 11/10/09
201	Installation Of Post-tensioning S	5 days	Tue 06/10/09	Sat 10/10/09
202	Installation of Concealed Servic	5 days	Wed 07/10/09	Sun 11/10/09
203	Concreting	1 day	Tue 13/10/09	Tue 13/10/09
204	**Zone 2 (G/L A-I/1-6)**	**16 days**	**Wed 07/10/09**	**Thu 22/10/09**
205	Scaffolding & Staging Erection	9 days	Wed 07/10/09	Thu 15/10/09
206	Installation of Formwork	9 days	Wed 07/10/09	Thu 15/10/09
207	Installation Of Rebars	9 days	Mon 12/10/09	Tue 20/10/09
208	Installation Of Post-tensioning S	5 days	Thu 15/10/09	Mon 19/10/09
209	Installation of Concealed Servic	5 days	Thu 15/10/09	Mon 19/10/09
210	Concreting	1 day	Thu 22/10/09	Thu 22/10/09
211	**Column/ Lift Wall/ RC Walls**	**20 days**	**Thu 15/10/09**	**Tue 03/11/09**
212	**Zone 1 (G/L 1-9/I-O)**	**11 days**	**Thu 15/10/09**	**Sun 25/10/09**
213	Scaffolding & Staging Erection	7 days	Thu 15/10/09	Wed 21/10/09
214	Installation Of Rebars	7 days	Fri 16/10/09	Thu 22/10/09
215	Installation of Concealed Servic	7 days	Sat 17/10/09	Fri 23/10/09
216	Installation of Formwork	7 days	Sun 18/10/09	Sat 24/10/09
217	Concreting	7 days	Mon 19/10/09	Sun 25/10/09
218	**Zone 2 (G/L A-I/1-6)**	**11 days**	**Sat 24/10/09**	**Tue 03/11/09**
219	Scaffolding & Staging Erection	7 days	Sat 24/10/09	Fri 30/10/09
220	Installation Of Rebars	7 days	Sun 25/10/09	Sat 31/10/09
221	Installation of Concealed Servic	7 days	Mon 26/10/09	Sun 01/11/09
222	Installation of Formwork	7 days	Tue 27/10/09	Mon 02/11/09
223	Concreting	7 days	Wed 28/10/09	Tue 03/11/09
224				
225	**Lower Roof**	**25 days**	**Thu 22/10/09**	**Sun 15/11/09**
226	**RC Beam & Slab / Staircase**	**25 days**	**Thu 22/10/09**	**Sun 15/11/09**
227	**Zone 1 (G/L 1-9/I-O)**	**16 days**	**Thu 22/10/09**	**Fri 06/11/09**
228	Scaffolding & Staging Erection	9 days	Thu 22/10/09	Fri 30/10/09
229	Installation of Formwork	9 days	Thu 22/10/09	Fri 30/10/09
230	Installation Of Rebars	8 days	Wed 28/10/09	Wed 04/11/09
231	Installation Of Post-tensioning S	5 days	Fri 30/10/09	Tue 03/11/09
232	Installation of Concealed Servic	5 days	Mon 02/11/09	Fri 06/11/09
233	Concreting	1 day	Fri 06/11/09	Fri 06/11/09
234	**Zone 2 (G/L A-I/1-6)**	**16 days**	**Sat 31/10/09**	**Sun 15/11/09**
235	Scaffolding & Staging Erection	9 days	Sat 31/10/09	Sun 08/11/09
236	Installation of Formwork	9 days	Sat 31/10/09	Sun 08/11/09
237	Installation Of Rebars	9 days	Thu 05/11/09	Fri 13/11/09
238	Installation Of Post-tensioning S	5 days	Sun 08/11/09	Thu 12/11/09
239	Installation of Concealed Servic	5 days	Sun 08/11/09	Thu 12/11/09
240	Concreting	1 day	Sun 15/11/09	Sun 15/11/09
241				
242	**Upper Roof**	**35 days**	**Mon 09/11/09**	**Sun 13/12/09**
243				
244	**Zone 1 (G/L 1~9/I~O)**	**26 days**	**Mon 09/11/09**	**Fri 04/12/09**
245	Fwk, Scaffolding & Staging Erectior	7 days	Mon 09/11/09	Sun 15/11/09
246	Rebar installation	5 days	Sat 14/11/09	Wed 18/11/09
247	Concealed conduit	5 days	Sun 15/11/09	Thu 19/11/09
248	Close fwk	5 days	Mon 16/11/09	Fri 20/11/09
249	Concreting of wall / beam & slab	5 days	Tue 17/11/09	Sat 21/11/09
250	Curing and remove side fwk	5 days	Fri 20/11/09	Tue 24/11/09
251	Curing and remove beam & slab sc	5 days	Mon 30/11/09	Fri 04/12/09
252				
253				
254	**Zone 2 (G/L A~I/1~6)**	**26 days**	**Wed 18/11/09**	**Sun 13/12/09**
255	Fwk, Scaffolding & Staging Erectior	7 days	Wed 18/11/09	Tue 24/11/09
256	Rebar installation	5 days	Mon 23/11/09	Fri 27/11/09
257	Concealed conduit	5 days	Tue 24/11/09	Sat 28/11/09
258	Close fwk	5 days	Wed 25/11/09	Sun 29/11/09
259	Concreting of wall / beam & slab	5 days	Thu 26/11/09	Mon 30/11/09
260	Curing and remove side fwk	5 days	Sun 29/11/09	Thu 03/12/09
261	Curing and remove beam & slab sc	5 days	Wed 09/12/09	Sun 13/12/09
262				
263				
264	**Curve Steel Structure**	**221 days**	**Fri 03/07/09**	**Mon 08/02/10**
265	Installation of Holding Down Bolts	150 days	Fri 03/07/09	Sun 29/11/09
266	Fabrication of Steel Works	60 days	Thu 01/10/09	Sun 29/11/09
267	Scaffolding & Staging Erection	30 days	Mon 23/11/09	Tue 22/12/09
268	Installation of Steel members - B~G	42 days	Tue 01/12/09	Mon 11/01/10
269	Dismantling of Tower Crane	4 days	Tue 12/01/10	Fri 15/01/10
270	Installation of Steel members G~I	14 days	Sat 16/01/10	Fri 29/01/10
271	Testing	56 days	Tue 15/12/09	Mon 08/02/10
272				

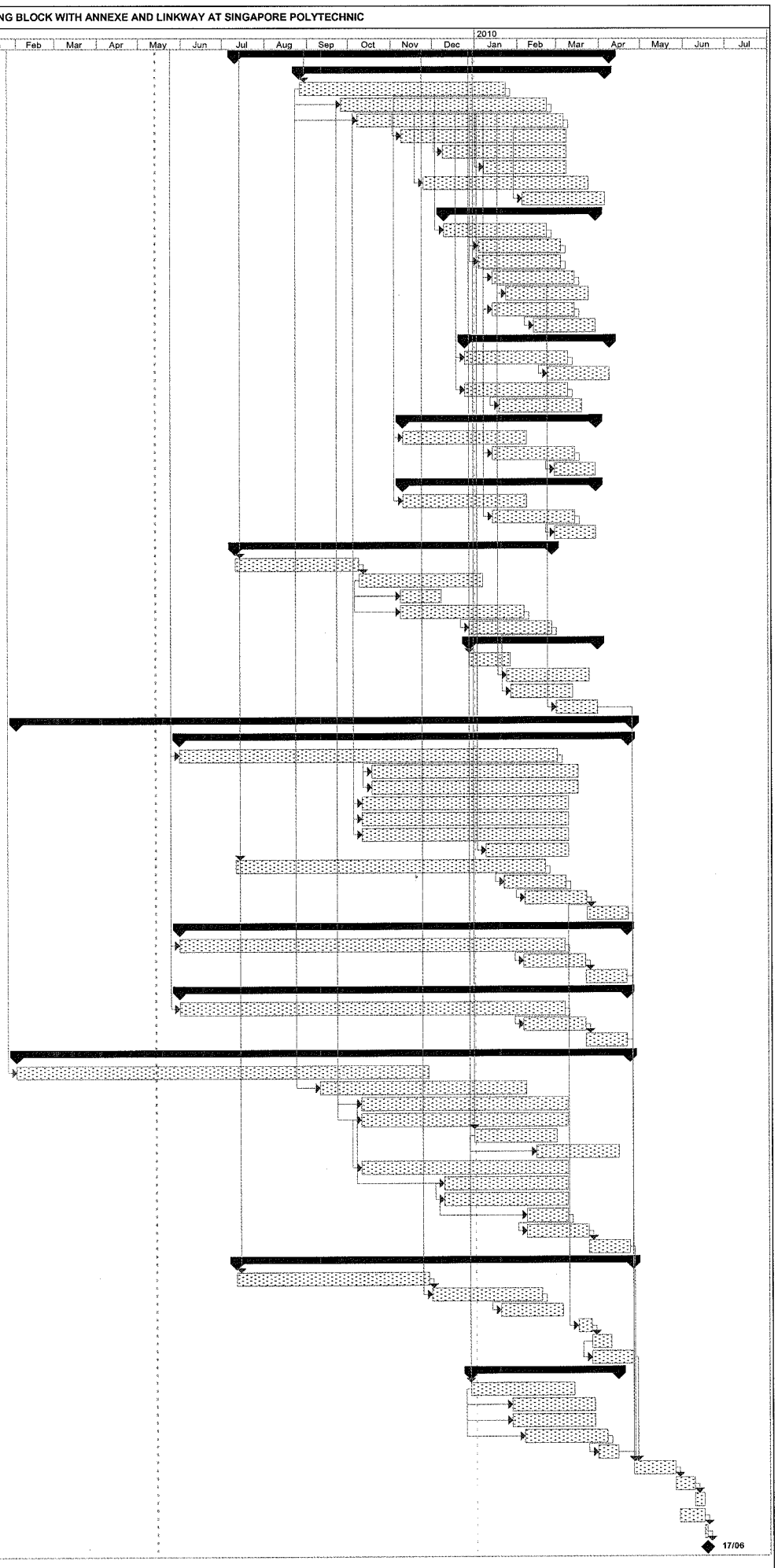


Project: Working Programme Rev1
Wed 13/05/09 Rev 1 Working Program

Task — Progress — Summary — External Tasks — Split
Split — Milestone — Project Summary — External MileTask

PROPOSED ADDITION OF 6-STOREY SCHOOL OF CHEMICAL & LIFE SCIENCES TEACHING BLOCK WITH ANNEXE AND LINKWAY AT SINGAPORE POLYTECHNIC

ID	Task Name	Duration	Start	Finish
273	**Architectural Works**	**272 days**	**Sat 11/07/09**	**Thu 08/04/10**
274	**Walls**	**222 days**	**Thu 27/08/09**	**Mon 05/04/10**
275	Brickworks	150 days	Thu 27/08/09	Sat 23/01/10
276	Internal Plastering	150 days	Sat 26/09/09	Mon 22/02/10
277	External Plastering	150 days	Thu 08/10/09	Sat 06/03/10
278	Internal Partition Works	120 days	Mon 09/11/09	Mon 08/03/10
279	Wall Tiles	90 days	Wed 09/12/09	Mon 08/03/10
280	Fabric Panels	60 days	Fri 08/01/10	Mon 08/03/10
281	Internal Painting	120 days	Wed 25/11/09	Wed 24/03/10
282	External Painting	60 days	Fri 05/02/10	Mon 05/04/10
283	**Floors**	**110 days**	**Thu 10/12/09**	**Mon 29/03/10**
284	Water proofing - wet area	75 days	Thu 10/12/09	Mon 22/02/10
285	Screeding to receive finishes	60 days	Mon 04/01/10	Thu 04/03/10
286	Screeding for Smooth Finishes	60 days	Mon 04/01/10	Thu 04/03/10
287	Floor Tiles	60 days	Thu 14/01/10	Sun 14/03/10
288	Carpet Tiles	60 days	Sun 24/01/10	Wed 24/03/10
289	Vinyl Tiles	60 days	Thu 14/01/10	Sun 14/03/10
290	Epoxy Coating	45 days	Sat 13/02/10	Mon 29/03/10
291	**Ceilings**	**105 days**	**Fri 25/12/09**	**Thu 08/04/10**
292	Installation of Ceiling Grid	75 days	Fri 25/12/09	Tue 09/03/10
293	Installation Of Ceiling Board	45 days	Tue 23/02/10	Thu 08/04/10
294	Installation of Support System	75 days	Fri 25/12/09	Tue 09/03/10
295	Installation of Plaster Board	60 days	Tue 19/01/10	Fri 19/03/10
296	**Doors**	**140 days**	**Tue 10/11/09**	**Mon 29/03/10**
297	Installation of Door Frames	90 days	Tue 10/11/09	Sun 07/02/10
298	Installation of Door Panels	60 days	Thu 14/01/10	Sun 14/03/10
299	Installation of Iromongeries	30 days	Sun 28/02/10	Mon 29/03/10
300	**Windows**	**140 days**	**Tue 10/11/09**	**Mon 29/03/10**
301	Installation of Window Frames	90 days	Tue 10/11/09	Sun 07/02/10
302	Installation of Window Panels	60 days	Thu 14/01/10	Sun 14/03/10
303	Installation of Iromongeries	30 days	Sun 28/02/10	Mon 29/03/10
304	**Alumimium & Joinery Works**	**230 days**	**Sat 11/07/09**	**Thu 25/02/10**
305	Procurement	90 days	Sat 11/07/09	Thu 08/10/09
306	Fabrication & Coatings	90 days	Fri 09/10/09	Wed 06/01/10
307	Scaffolding & Staging Erection/Boom Lifts	30 days	Sun 08/11/09	Mon 07/12/09
308	Installation of Framing System	90 days	Sun 08/11/09	Fri 05/02/10
309	Installation of Aluminium Cladding	60 days	Mon 28/12/09	Thu 25/02/10
310	**Others**	**93 days**	**Mon 28/12/09**	**Tue 30/03/10**
311	Water Proofing to Roof	30 days	Mon 28/12/09	Tue 26/01/10
312	Installation of Staircase Railing	60 days	Sun 24/01/10	Wed 24/03/10
313	Glazing Works	45 days	Wed 27/01/10	Fri 12/03/10
314	Installation of Sanitaryware Fittings	30 days	Mon 01/03/10	Tue 30/03/10
315	**M&E Works**	**448 days**	**Sun 01/02/09**	**Sat 24/04/10**
316	**Electrical Installation**	**326 days**	**Sun 31/05/09**	**Wed 21/04/10**
317	Installation of Trunking/Conduit	275 days	Sun 31/05/09	Mon 01/03/10
318	Installation of Cables	150 days	Sun 18/10/09	Tue 16/03/10
319	Installation of Sub-Main Cables	150 days	Sun 18/10/09	Tue 16/03/10
320	Installation of Power Points	150 days	Sun 11/10/09	Tue 09/03/10
321	Installation of Lighting Points	150 days	Sun 11/10/09	Tue 09/03/10
322	Installation of Data/Tel Points	150 days	Sun 11/10/09	Tue 09/03/10
323	Installation of Fittings	60 days	Sat 09/01/10	Tue 09/03/10
324	Fabrication of DB	225 days	Sat 11/07/09	Sat 20/02/10
325	Installation of DB	45 days	Fri 22/01/10	Sun 07/03/10
326	Termination & Connection	45 days	Sat 06/02/10	Mon 22/03/10
327	Testing & Commisionning	30 days	Tue 23/03/10	Wed 21/04/10
328	**ACMV Installation**	**325 days**	**Sun 31/05/09**	**Tue 20/04/10**
329	ACMV Installation System	280 days	Sun 31/05/09	Sat 06/03/10
330	Termination & Connection	45 days	Fri 05/02/10	Sun 21/03/10
331	Testing & Commisionning	30 days	Mon 22/03/10	Tue 20/04/10
332	**Fire Protection Installation**	**325 days**	**Sun 31/05/09**	**Tue 20/04/10**
333	Fire Protection Installation System	280 days	Sun 31/05/09	Sat 06/03/10
334	Termination & Connection	45 days	Fri 05/02/10	Sun 21/03/10
335	Testing & Commisionning	30 days	Mon 22/03/10	Tue 20/04/10
336	**Plumbing & Sanitary Installation**	**446 days**	**Sun 01/02/09**	**Thu 22/04/10**
337	Installation of U/G services & Pipe Sleeves	300 days	Sun 01/02/09	Fri 27/11/09
338	Installation of Stack Pipes	150 days	Thu 10/09/09	Sat 06/02/10
339	Installation of Waste Pipes	150 days	Sat 10/10/09	Mon 08/03/10
340	Installation of Vent Pipes	150 days	Sat 10/10/09	Mon 08/03/10
341	Construction of I.C.	60 days	Thu 31/12/09	Sun 28/02/10
342	Installation of Fittings	60 days	Sun 14/02/10	Wed 14/04/10
343	Installation of Pipe	150 days	Sat 10/10/09	Mon 08/03/10
344	Installation of CWP	90 days	Wed 09/12/09	Mon 08/03/10
345	PP/PPR - Lab	90 days	Wed 09/12/09	Mon 08/03/10
346	Installation of Fittings	30 days	Sun 07/02/10	Mon 08/03/10
347	Termination & Connection	45 days	Sun 07/02/10	Tue 23/03/10
348	Testing & Commisionning	30 days	Wed 24/03/10	Thu 22/04/10
349	**Lift Car Installation**	**288 days**	**Sat 11/07/09**	**Sat 24/04/10**
350	Procurement	140 days	Sat 11/07/09	Fri 27/11/09
351	Installation of Passenger Lifts/ Service Lift	80 days	Mon 30/11/09	Wed 17/02/10
352	Lift Car Finishes	45 days	Tue 19/01/10	Thu 04/03/10
353	Turn-On Supply	10 days	Tue 16/03/10	Thu 25/03/10
354	Pre-Testing Alignments	14 days	Fri 26/03/10	Thu 08/04/10
355	Testing & Commisionning	30 days	Fri 26/03/10	Sat 24/04/10
356	**External Works**	**107 days**	**Mon 28/12/09**	**Tue 13/04/10**
357	Drain Works	75 days	Mon 28/12/09	Fri 12/03/10
358	RC Kerbs	60 days	Wed 27/01/10	Sat 27/03/10
360	Planter Box	60 days	Wed 27/01/10	Sat 27/03/10
361	Driveway	60 days	Fri 05/02/10	Mon 05/04/10
362	Road Marking	15 days	Tue 30/03/10	Tue 13/04/10
363	**Target R.I. Inspection**	**30 days**	**Sun 25/04/10**	**Mon 24/05/10**
364	**Target 2nd R.I. Inspection**	**14 days**	**Tue 25/05/10**	**Mon 07/06/10**
366	**Target T.O.P.**	**7 days**	**Tue 08/06/10**	**Mon 14/06/10**
365	**Final Cleaning-up**	**18 days**	**Fri 28/05/10**	**Mon 14/06/10**
367	**Handing Over To End Users**	**2 days**	**Tue 15/06/10**	**Wed 16/06/10**
368	**Contract Completion**	**0 days**	**Thu 17/06/10**	**Thu 17/06/10**

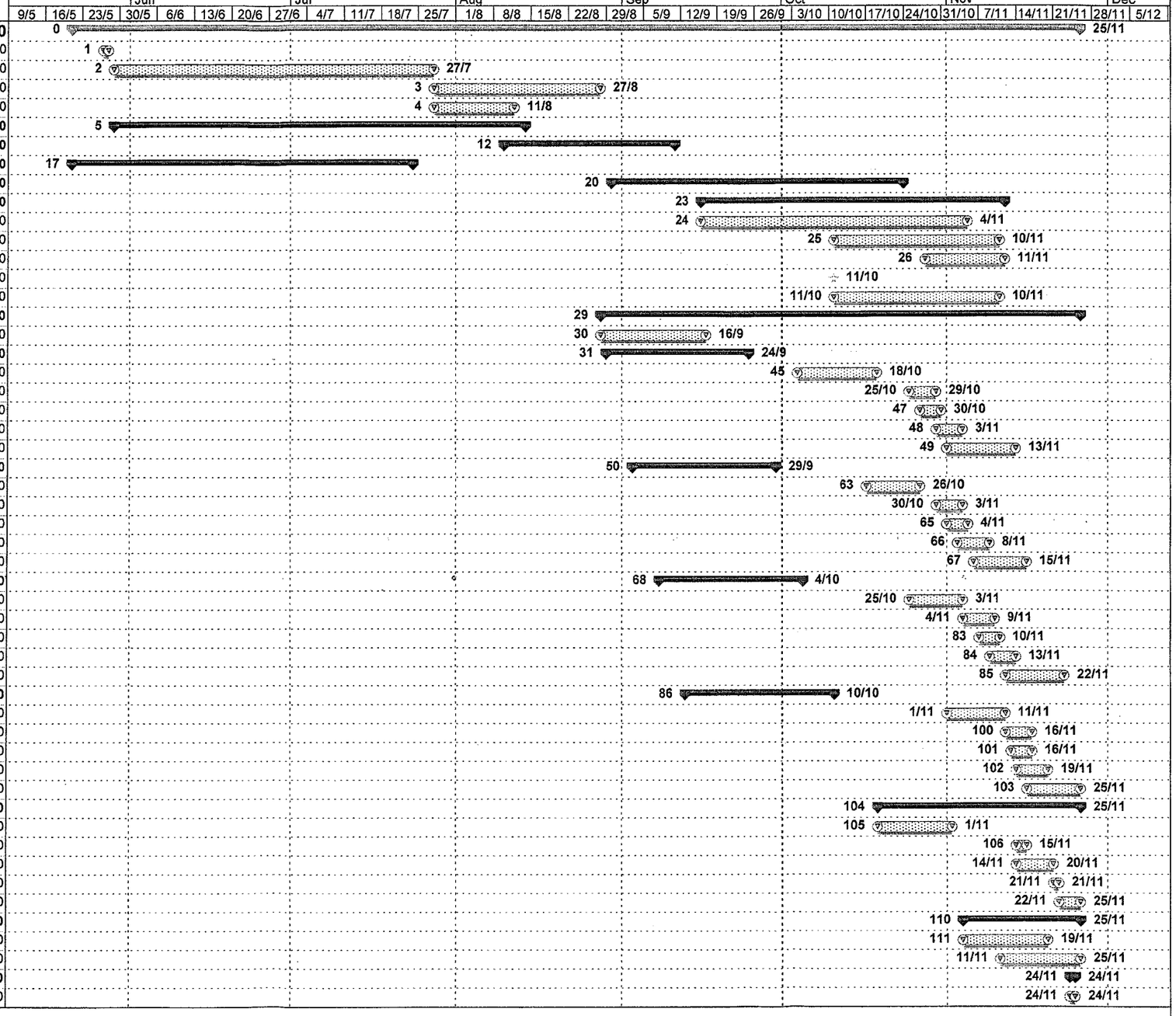


Project: Working Programme Rev1
Wed 13/05/09 Rev 1 Working Program

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

Work Programme of Tensile Structure for Singapore Polytechnic

ID	Task Name	Duration	Start	Finish
0	**Contract Duration**	**185 days**	**Fri 21/5/10**	**Thu 25/11/10**
1	Awarding contract	1 day	Thu 27/5/10	Thu 27/5/10
2	URA submission	60 days	Sat 29/5/10	Tue 27/7/10
3	FSSB approval	30 days	Wed 28/7/10	Fri 27/8/10
4	NEA approval	14 days	Wed 28/7/10	Wed 11/8/10
5	**Design and Engineering**	**76 days**	**Sat 29/5/10**	**Fri 13/8/10**
12	**Construction of Foundation**	**32 days**	**Tue 10/8/10**	**Fri 10/9/10**
17	**Procurement**	**63 days**	**Fri 21/5/10**	**Fri 23/7/10**
20	**Fabrication of membrane**	**55 days**	**Mon 30/8/10**	**Sat 23/10/10**
23	**Fabrication of Steel**	**56 days**	**Thu 16/9/10**	**Thu 11/11/10**
24	Fabrication of steelwork	50 days	Thu 16/9/10	Thu 4/11/10
25	Fabrication of connection	30 days	Mon 11/10/10	Wed 10/11/10
26	Fabrication of clamp plate	14 days	Thu 28/10/10	Thu 11/11/10
27	Confirmation Cladding Design	0 days	Mon 11/10/10	Mon 11/10/10
28	Fabrication	30 days	Mon 11/10/10	Wed 10/11/10
29	**Installation**	**88 days**	**Sat 28/8/10**	**Thu 25/11/10**
30	Site setting out	20 days	Sat 28/8/10	Thu 16/9/10
31	**Sec 1- Main Contract Works**	**27 days**	**Sun 29/8/10**	**Fri 24/9/10**
45	Installation of canopy steelwork	15 days	Mon 4/10/10	Mon 18/10/10
46	Installation of canopy fabric	5 days	Mon 25/10/10	Fri 29/10/10
47	Installation Lighting & Power Cables	4 days	Wed 27/10/10	Sat 30/10/10
48	Cement Screed -Tilies Base	5 days	Sat 30/10/10	Wed 3/11/10
49	Installation Floor Tiles	12 days	Mon 1/11/10	Sat 13/11/10
50	**Sec 2 -Main Contract Works**	**27 days**	**Fri 3/9/10**	**Wed 29/9/10**
63	Installation of canopy steelwork	10 days	Sun 17/10/10	Tue 26/10/10
64	Installation of canopy fabric	5 days	Sat 30/10/10	Wed 3/11/10
65	Installation Lighting & Power Cables	4 days	Mon 1/11/10	Thu 4/11/10
66	Cement Screed -Tilies Base	5 days	Wed 3/11/10	Mon 8/11/10
67	Installation Floor Tiles	10 days	Sat 6/11/10	Mon 15/11/10
68	**Sec 3-Main Contract Works**	**27 days**	**Wed 8/9/10**	**Mon 4/10/10**
81	Installation of canopy steelwork	10 days	Mon 25/10/10	Wed 3/11/10
82	Installation of canopy fabric	5 days	Thu 4/11/10	Tue 9/11/10
83	Installation Lighting & Power Cables	4 days	Sun 7/11/10	Wed 10/11/10
84	Cement Screed -Tilies Base	5 days	Tue 9/11/10	Sat 13/11/10
85	Installation Floor Tiles	10 days	Fri 12/11/10	Mon 22/11/10
86	**Sec 4-Main Contract Works**	**28 days**	**Mon 13/9/10**	**Sun 10/10/10**
99	Installation of canopy steelwork	10 days	Mon 1/11/10	Thu 11/11/10
100	Installation of canopy fabric	5 days	Fri 12/11/10	Tue 16/11/10
101	Installation Lighting & Power Cables	4 days	Sat 13/11/10	Tue 16/11/10
102	Cement Screed -Tilies Base	5 days	Sun 14/11/10	Fri 19/11/10
103	Installation Floor Tiles	9 days	Tue 16/11/10	Thu 25/11/10
104	**Electrical Works**	**36 days**	**Tue 19/10/10**	**Thu 25/11/10**
105	Fabrication OG Box	14 days	Tue 19/10/10	Mon 1/11/10
106	Installation OG Box	2 days	Sun 14/11/10	Mon 15/11/10
107	Lightning Protection	6 days	Sun 14/11/10	Sat 20/11/10
108	Termination Cables	1 day	Sun 21/11/10	Sun 21/11/10
109	Testing & Commissioning	4 days	Mon 22/11/10	Thu 25/11/10
110	**Other Works**	**20 days**	**Thu 4/11/10**	**Thu 25/11/10**
111	Painting To Steel Structure	14 days	Thu 4/11/10	Fri 19/11/10
112	Cladding To Column	14 days	Thu 11/11/10	Thu 25/11/10
113	**Authority Inspection**	**1 day**	**Wed 24/11/10**	**Wed 24/11/10**
114	R.I. Inspection	1 day	Wed 24/11/10	Wed 24/11/10



Project: Singapore Poly
Date: Fri 1/10/10

RightTech

Task | Milestone | Rolled Up Critical Task | Split | External Milestone
Critical Task | Summary | Rolled Up Milestone | External Tasks | Deadline
Progress | Rolled Up Task | Rolled Up Progress | Project Summary

This work schedule is depend on period processing by URA and BCA in order to have building plan approval.

revision 1
dated 28th September 2010

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	Not Required								
Power Supply Substation	SP PowerGrid Ltd	Not Required								
Metering Layout	SP Services Ltd	Not Required								
Sanitary Installation	PUB Water Reclamation (Network) Dept	27 Feb 09	14 Apr 09							N.A
Domestic Water Supply	PUB (Water Supply) Network Dept	6 Mar 09	21 Jan 10	23 Feb 10	15 Apr 10					10 May 10
Gas Supply Installation	City Gas Pte Ltd	Not Required								
Air Conditioning & Ventilation Inst.	FSSD	11 Jun 09	27 May 10							11 Jun 10
Fire Fighting & Alarm Installation	FSSD	25 Jun 09	27 May 10							11 Jun 10
Telephone/BCS Installation	TFCC	Not Required								
Fuel Storage	FSSD	Not Required								
	NEA (Pollution Control)	Not Required								

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	Not Required								
Power Supply Substation	SP PowerGrid Ltd	Not Required								
Metering Layout	SP Services Ltd	Not Required								
Sanitary Installation	PUB Water Reclamation (Network) Dept		9 Jun 10							6 July 10
Domestic Water Supply	PUB (Water Supply) Network Dept		7 Jun 10							14 Jun 10
Gas Supply Installation	City Gas Pte Ltd	Not Required								
Air Conditioning & Ventilation Inst.	FSSD		30 Nov 10							16 Dec 10
Fire Fighting & Alarm Installation	FSSD		24 Aug 10		30 Nov 10					16 Dec 10
Telephone Installation	TFCC	Not Required								
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision	Not Required								
Fuel Storage	FSSD	Not Required								
	NEA (Pollution Control)	Not Required								

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

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

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
-EC/MC	✓				
- PP	✓				
-VO	✓				

(✓*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	Soft Copy – Server Hard Copy- GWL
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~~	GWL/WC/RA (All project drawings in soft copy to be saved in server)
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*)

* Design presentation was conducted as requested by Client.

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

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	Certify
Green Design Features	NIL

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	C
Pre-Qualification of Tenderers	N.A
Tender Documents	I
Tender Report	C
Payment Valuation for QS	I
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)*

Payment valuation for QS to be sent by email.

SECTION 11

LIST OF SUB-JOB

11.1 List of Sub-Job Numbers

Sub Job No	Description	Allocation Details
6094-601	Singapore Polytechnic (Phase 2B) - Amendment to 2nd, 4th & 5th Storeys	
6094-602	Singapore Polytechnic (Phase 2B) - Proposed Canopy between Blk T11A and T11B	