PROJECT QUALITY PLAN

PROPOSED DEVELOPMENT ON PLOT 52, CHANGI BUSINESS PARK

For

M/S ARCASIA LAND PTE LTD

Copy No.	

Prepared By: Chong L M

Authorised By: Richard Teo

Date: 4 January 1999

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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	1191-PQP	4 January 1999
2	Chong L M	4 January 1999

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Business Park

Statistics of Development	
Site Area, m²	7254
Nett Floor Area, m²	14500
Gross Floor Area, m²	18122
Covered Carpark, m²	5200
No. of Covered Carpark Lots	198
No. of Apartments/Houses	-
No. of Beds (for Hospitals)	-
No. of Guestroom (for Hotels)	-
No. of Blocks / No. of Storeys	6 Storey + 1 Basement
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)										
Services	EI	ACVI	LEI	FFAI	PSI	SPFI				
Estimate	1.1107	2.0326	0.685	0.5324	0.6839					
Awarded										

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	-
Awarded	-	-	14.998750

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

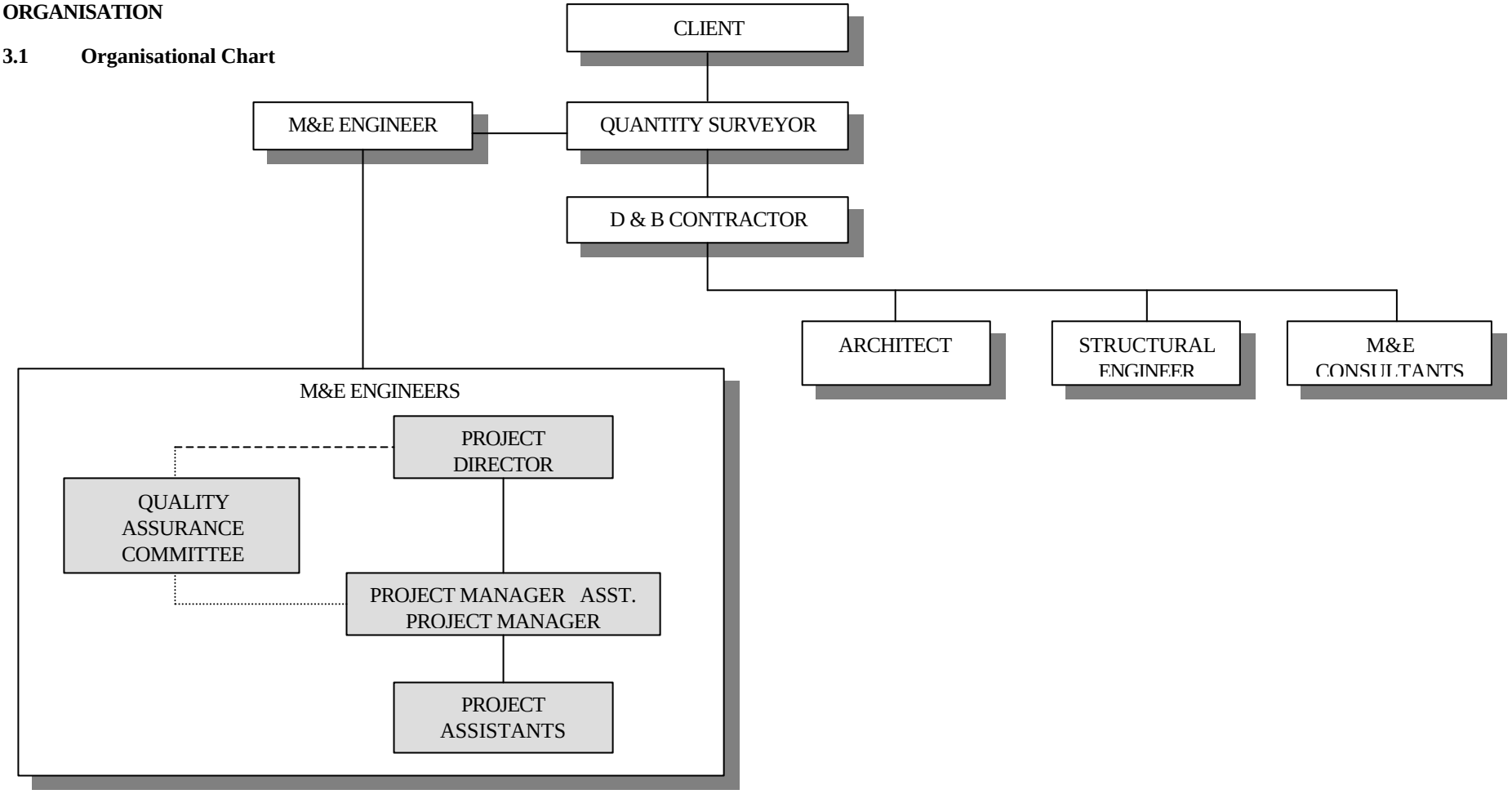
ELECTRICAL	✓	SUMP PUMP	✓	AIR CONDITIONING & VENTILATION	✓	LIFT & ESCALATOR	✓	FIRE FIGHTING & ALARM	✓	PLUMBING & SANITARY	✓

(✓ *where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 AEC's Project Team Member

TITLE		NAME
Project Director		Richard Teo
Qualified Person	Mechanical	-
	Electrical	-
Project Manager		Chong L M
Assistant Project Manager		Goh S H
Project Assistant (Mech)		-
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:- Arcasia Land Pte Ltd

Address:- 77 Science Park Drive
#04-01/06 CINTECH III
Singapore Science Park
Singapore 118256

Tel:- 774 1033

Fax:- 777 8962

Client's Representatives:-

Name of Firm	Contact Person	Contact
Arcasia Land Pte Ltd	Name: Mr Thomas Teo Position: General Manager	Tel: 774 1033 Fax: 777 8962 Pager: - Handphone: - Email: -
Arcasia Land Pte Ltd	Name: Mr Yew Kok Chee Position: Project Manager	Tel: 774 9198 Fax: 777 8962 Pager: - Handphone: - Email: kokchee@arcasia.com
Arcasia Land Pte Ltd	Name: Mr Yeo Yuen Kee Position: Project Manager	Tel: 774 9098 Fax: 777 8962 Pager: - Handphone: - Email: yuenkee@arcasia.com
-	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
-	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -

3.4 Other Consultants (Local)

Function / Name of Firm	Contact Person	Contact
Architect ADDP Architects	Name: Mr Tang Peak Kang Position: Architect	Tel: 220 1088 Fax: 224 0280 Pager: - Handphone: - Email: -
Quantity Surveyor Northcroft Lim Consultants Pte Ltd	Name: Mr David Haslam/ Mr Desmond Cheo Position: Director / Quantity Surveyor	Tel: 220 7188 Fax: 222 0868 Pager: - Handphone: - Email: -
Structural Engineer ECAS Consultants Pte	Name: Mr Song Siak Keong Position: Director	Tel: 295 1966 Fax: 295 2789 Pager: - Handphone: - Email: -
Interior Designer NA	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
Lighting Consultant NA	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
Acoustic Consultant NA	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
M&E Consultant United Project Consultants Pte Ltd	Name: Mr Tan Heng Wee Position: Director	Tel: 255 3900 Fax: 253 4106 Pager: - Handphone: - Email: -
_____ NA	Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -

3.4 Other Consultants (Overseas)

NOT USED

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
D&B Main Contractor Lend Lease Singapore	D&B	Name: Mr David Ong / Mr Koh Nghee Kwang Position: Project Director / Senior Project Manager	Tel: 258 8777 Fax: 259 6677 Pager: - Handphone: - Email: -
Air Conditioning & Ventilation Installation Sub-Contractor GDS Engineering Pte Ltd	DSC	Name: Mr Yeo Aik Teck Position: Director	Tel: 289 1624 / 286 1327 Fax: 287 8430 Pager: - Handphone: - Email: -
Plumbing & Sanitary Installation Sub-Contractor Kim Sanitary & Plumbing Pte Ltd	DSC	Name: Mr Desmond Foo Position: Project Manager	Tel: 289 1624 / 286 1327 Fax: 287 8430 Pager: - Handphone: - Email: -
Electrical Installation Sub-Contractor Nylect Engineering Pte Ltd	DSC	Name: Mr Simon Tan Position: Project Engineer	Tel: 759 6888 Fax: 759 6988 Pager: - Handphone: - Email: -
Lift & Escalator Installation Sub-Contractor Schindler Lifts (S) Pte Ltd	DSC	Name: Mr Stanley Fong Position: Project Manager	Tel: 283 8611 Fax: 283 2212 Pager: - Handphone: - Email: -
Fire Fighting & Alarm Installation Sub-Contractor Spray Safe Engineering Pte Ltd		Name: Mr Ong Swee Teck/ Mr Tan Wee Yik Position: Project Manager	Tel: 744 6545 Fax: 744 9021 Pager: - Handphone: - Email: -
Swimming Pool Filtration Plant Installation Sub-Contractor NA		Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -
Carpark System Installation Sub-Contractor NA		Name: - Position: -	Tel: - Fax: - Pager: - Handphone: - Email: -

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*
- *D&B (Design & Build)*

3.6 Authorities

NOT USED

SECTION 4

PROGRAMME

4.1 Overall Programme

			1999												2000											
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	NA					44																			
7.	Tender Period for Sub-Structure	NA																								
8.	Tender Period for Super-Structure	NA																								
9.	Piling Period																									
10.	Sub-Structure Construction Period																									
11.	Super-Structure Construction Period																									
12.	TOP (1 June 2000)																									
13.	CSC																									

SECTION 4

PROGRAMME

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

NOT USED

SECTION 4

PROGRAMME

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

NOT USED

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
-CM	✓	-QSP	
-PC	✓	-BD	✓
-AE		-CC	
-AM		-CF	
-AA		-GC	
-PQP	✓		

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
-SM		-SR		-ET	
-SC		-QM		-MT	
-AI		-EC		-DF	
-SQ		-MC		-EOT	
-CO		-PP	✓		

Service Files to be initiated by PM as and when required

	Service										
File Ref:	ACVI	FFAI	PSI	EI	LI	SPFP					
-G											
-Q											
-VO											
-PP											
-AI											
-AD											
-CF											

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	Chong L M
Incoming Architectural Sketches/Details	Chong L M
Incoming Structural Drawings	-
M&E Drawings	
- Electrical Installation	Goh S H
- Lift & Escalator Installation	Goh S H
- Air Conditioning & Ventilation Installation	Chong L M
- Fire Fighting & Alarm Installation	Chong L M
- Plumbing & Sanitary Installation	Chong L M
- Swimming Pool & Filtration Installation	-
Other Drawings	-

SECTION 6

INTERFACING

6.1 Method of Interface

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

(✓ *where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface

NOT USED

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

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	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

SS : AEC Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

8.1 List of Client's Standards, Reference Documents or Brief

ITEM	KEPT BY
NA	NA

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~~
Automatic Fire Alarm System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Sanitary System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Plumbing System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~

(Delete where necessary)

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

NOT USED

8.4 List of Applicable Quality System Procedures

Alpha Engineering Consultant's Quality System Procedures

Section	Title
A1	Documentation of Quality System Procedure
A2	Documentation of Project Quality Plan
A3	Administration Control
A4	Document Control
A5	Library Control
A6	Archive Control
A9	Feedback Reporting
B5	Drawing Control (only item 1)
B6	Specification Control (Performance Specification only)
B7	Tender Process and Evaluation (D&B Tender called by Client)
C1	Construction Process Control (item 3 – Review on Owner's requirement only, item 6 – Progress payment evaluation, item 7 – Contract variations)
D1	Quality System Audit

8.5 List of Software Used For Design/Analysis

NOT USED

SECTION 9

CLIENT'S REQUIREMENTS

9.1 List of Output Required by Client:-

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

** Remarks*

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

Other purposes and for action: please specify.

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

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers

NOT USED