

Candidate Number:

Room No.:

Seat No.:

## **HKIA/ARB Professional Assessment 2004**

### **Paper 7**

#### **BUILDING DESIGN, CONSTRUCTION DETAILS & DOCUMENTS**

23 December 2004  
9:00 am – 7:00 pm (10 hours)

#### Venue

Room 319, Knowles Building  
The University of Hong Kong  
Pokfulam Road  
Hong Kong

#### **TWO COMPULSORY QUESTIONS**

<b>Question 1</b>	<b>:</b>	<b>80 marks</b>
<b>Question 2</b>	<b>:</b>	<b>20 marks</b>
<b>Total</b>	<b>:</b>	<b>100 marks</b>
<b>Time allowed</b>	<b>:</b>	<b>10 hours</b>

## Contents

	Cover Sheet		
Page 1	Contents		
Pages 2 – 6	<b>Question 1 – Building Design</b>		80 marks
	Question Statement		
	Site Description		
	Building Design Brief		
	Operational Requirements		
	Accommodation Schedule		
	Submission Requirements		
Page 7	<b>Question 2 – Construction Details and Documentation</b>		20 marks
	Question Statement		
	Submission Requirements		
Page 7	General Notes	Format, Presentation	
Attachment 1	Location Plan	Scale 1:500	Key Plan at 1:2500
Attachment 2	Site Plan	Scale 1:200	
Attachment 3	Site Sections	Scale 1:200	
Attachment 4	Site Photos		
Attachment 5	Minimum standards of turning circle for Cars, Goods Vehicles and Tourist Bus (no scale)		
Total number of sheets	13 (including Cover and Attachments)		
Reference Materials	Provided for your use. Do not remove from assessment venue.		

**TWO COMPULSORY QUESTIONS****Question 1 – Building Design****80 marks****1 Question Statement**

Your Client is a private non-profit organization. They recently acquired land from the Hong Kong Government for the building of a **Home for Senior Citizens** (see Attachment 1 - Location Plan).

The Client instructs you to design a *new model for senior citizens housing* for Hong Kong. They aim to provide generous space standards along with a pleasant environment, and efficient operations and administration.

The Design Brief includes an Operation Philosophy and Schedule of Accommodation (see below).

**Your task** is to prepare a **schematic design** for presentation to the Client which satisfies the functional requirements, complies with statutory requirements, is **sensible** and technically **feasible**. Your design should incorporate the basic provisions and requirements of building structure, building services and utilities.

**2 Site Description****Context**

The Site is located in Chai Wan at the foot of Mount Collinson, the upper part of which is a cemetery.

To the north is an existing 25-storey residential building.

A public road runs along the eastern edge. Across the road is a public housing estate (see Attachment 4 - Site Photos).

**Access and Services**

Vehicular access is permitted from Lin Shing Road between points X and Y through Z (see Attachment 2 Site Plan).

Accessibility for the elderly, both ambulatory and disabled, ease of servicing, safety and security are of prime importance.

**Environmental Factors**

The green slopes to the south and west are pleasant.

The public cemetery at the upper slope is screened from view by mature trees at the foot of the slope.

Lin Shing Road is a source of traffic noise and air pollution.

**Special Features**

There is a gentle slope from south to north across the site (see Attachment 2 - Site Plan; and Attachment 3 – Site Sections).

There are four large mature trees within the site along Lin Shing Road. These are required to be preserved (see Attachment 2 - Site Plan).

A non-building area runs along the western edge of the site.

## Question 1 – Building Design, continued

## 3 Design Brief

## 3.1 Development Requirements

Site area	2,080 square metres (about)
Zoning	Residential Group A (RA)
Permissible plot ratio (PR)	comply with Buildings Ordinance for domestic development (see note below)
Permissible site coverage (SC)	comply with Buildings Ordinance for domestic development (see note below)
Building height	Not to exceed 8 storeys
Site vehicular access	Between X and Y through Z (See Attachment 2 Site Plan)
Non-building area	Drainage Reserve along western site boundary (See Attachment 2 Site Plan – hatched area)
Use	Unrestricted under Lease Conditions
Car parks	4 car parking spaces for private cars (minimum 5000 L x 2500 W x 2400 H ) 1 coach parking space (minimum 9000 L x 3500 W x 3800 H )
Loading and Unloading	1 bay (minimum 7500 L x 3500 W x 3500 H ) Turntable is not to be used.
Barrier free access	Comply with regulations
Lifts	2 passenger lifts (to comply with requirements for fireman's use and to accommodate stretchers)
Building services	Natural ventilation to be maximized. Air-conditioning to be provided: <ul style="list-style-type: none"> <li>• Window types for living units.</li> <li>• Split types for Multi-Function Hall, Administration Office and other areas as appropriate</li> </ul>

Note: For the purpose of this paper, the Living Units (see Accommodation Schedule, below) are considered as domestic use with regard to the Buildings Ordinance and Regulations.

## Question 1 – Building Design, continued

**3.2 Operational Requirements**

- Residents of the Home are over age 60. They are basically healthy and independent. Some need to move around in **wheelchairs**.
- Minimal care is provided. Only periodic monitoring of residents is necessary.
- There is an onsite **Infirmary** (sick room). More serious needs are referred to the local hospital.
- The buildings are **low rise** for reasons of scale, ease of circulation and management efficiency.
- A humane and intimate environment is provided for residents. The independence and dignity of residents is respected through the careful **protection of individual privacy** and the provision of **comfortable space standards**. **External spaces** for outdoor activities are required.
- The Multi-function Hall is provided for special activities. It is **open to senior citizens of the neighbourhood**.
- To foster community life **Common Areas** are provided at each building level (as appropriate). These are suitable for **family gatherings** and other **small group** activities.
- A central Kitchen provides meals which can be taken in the Living Units, in the Common Areas, or in the Multi-function Hall.

**3.3 Accommodation Schedule**

		Usable Area Square Metres	Remarks
<b>Residents Living Facilities</b>			
Living Unit A for single person	40 nos.@	20	Bed / sitting room including private bathroom with toilet and shower. Unit to be accessible for the disabled.
Living Unit B for married couple	20 nos.@	30	Bed / sitting room including private bathroom with toilet and shower. Unit to be accessible for the disabled.
Monitoring stations	6 nos. @	10	Similar to nursing stations. Each to serve 15 residents. In proximity to Living Units. Staffed 24 hours.
<b>Common Facilities</b>			
Main Lobby & Reception Area		50	
Multi-function Hall		150	For group activities, meals and special functions. Also open to general public.

## Question 1 – Building Design, continued

Accommodation Schedule continued	Usable Area Square Meters	Remarks
Kitchen	30	
Common Areas	160 ( total )	To serve Living Units At each building level as appropriate.
Exercise Room	80	For residents use.
Infirmary (sick room)	40	Located near Administration Office.
Buildings and Grounds Maintenance	50	For buildings and grounds maintenance, equipment storage and the like.
<b>Administration &amp; Services</b>		
Administration Office	80	Centralized.
Toilets	as appropriate	For visitors and residents.
Staff Changing Rooms	as appropriate	For administrative and health care staff. Lockers, showers, toilets etc.
Male    5 persons		
Female  5 persons		
Laundry & Linen	80	Centralized.
Storage	80 ( total )	For residents use. For administrative use. (To be dispersed)
<b>Circulation &amp; Amenities</b>		
Circulation	as appropriate	
Amenities / External Areas	as appropriate	Gardens, exercise paths and the like
<b>Building Services</b>		
Transformer room	as appropriate	
Switch room	as appropriate	
Plant rooms	as appropriate	

## Question 1 – Building Design, continued

## 4 Submission Requirements

<b>Design Statement</b>	Describe design concepts and intentions briefly. Use text, sketches and diagrams as appropriate.
<b>Site Plan</b> preferred Scale 1:200	Show site development. Include access point(s) for vehicles and pedestrians. Show relevant features of adjacent sites.
<b>Floor Plans of all major Levels</b> preferred Scale 1:200	Indicate all major spaces and elements of construction. Label spaces according to the Accommodations Schedule. Note usable area of each space.  Indicate building section cut-line(s). Give overall and critical dimensions. Show site boundary and adjacent structures. Show critical means of escape distances. Show means of access for firefighting & rescue  Show integrated building structure. Show integrated building services.
<b>Building Section(s)</b> preferred scale 1:100	Show floor-to-floor dimensions. Show relationship between the elements of construction. <i>(eg Building structure, building envelope, finishes, building services, and the like)</i>  Include annotations and critical dimensions.
<b>Illustration</b>	Provide drawing(s) to show external massing, architectural form and key architectural features.  Use axonometric, isometric and/or perspective drawings.  Annotate major exterior finish materials, textures and the like.
<b>Calculations</b>	Show compliance of design with <ul style="list-style-type: none"> <li>• Permissible Plot Ratio</li> <li>• Permissible Site Coverage</li> </ul> Tables, schedules and calculations for exit widths, sanitary fitments, refuse rooms, and the like are NOT REQUIRED.

## Question 2 – Construction Details and Documentation 20 marks

### 1 Question Statement

Based upon **your schematic design** (Question 1) for the Home for Senior Citizens, you are instructed by the Client to proceed with the construction of a mock up.

Your task is to

- complete the design development for **Living Unit B** for married couple and its attached bathroom
- develop **Construction Details** for the Living Unit
- produce a **comprehensive set of Documents with information sufficient for costing and tendering**
- **fully coordinate and cross reference** the set of Documents for ease of understanding for the purpose of construction

### 2 Submission Requirements

**Floor Plan of Living Unit B including Bathroom**

Annotate and dimension

preferred Scale 1: 20

**Sections and Elevations**

Annotate and dimension

preferred Scale 1: 20

**Construction Details of Bathroom Wall**

Provide Section through base cabinet, countertop, lavatory, and the like.

preferred Scale 1: 5

Show floor and ceiling details.

Show all finishes and their interfaces.

*OR*

Annotate and dimension.

**Construction Details of External Wall**

Provide Section through an external wall and window.

preferred Scale 1: 5

Show floor and ceiling details.

Show all internal and external finishes and their interfaces.

Annotate and dimension.

### General Guidance Notes

Format

A3 paper is provided.

Use tracing or plain paper at your discretion.

Presentation

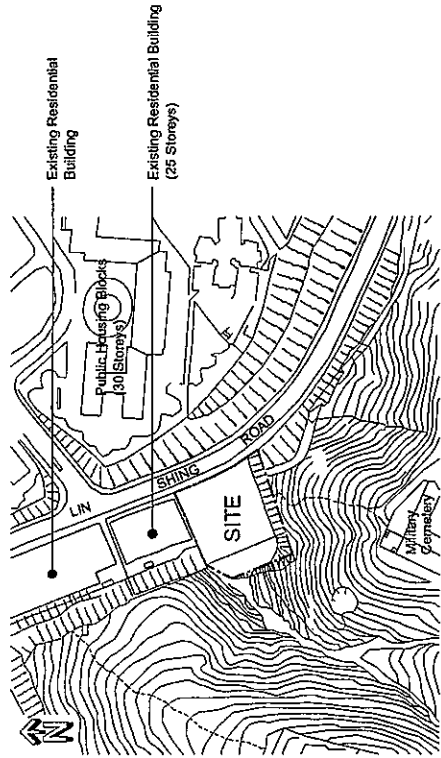
Ink or pencil line drawings are acceptable.

Use of colour is optional.

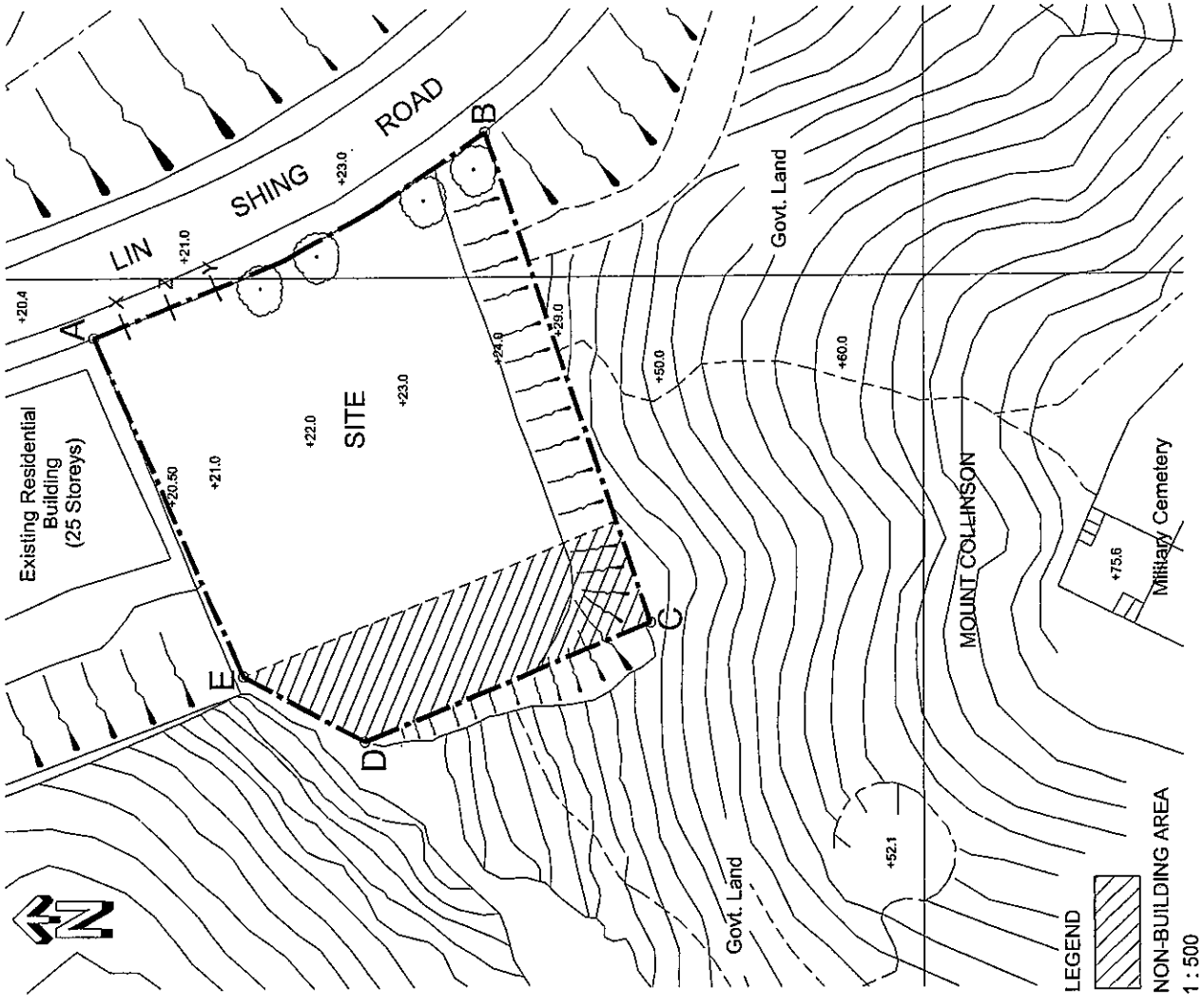
Do NOT use RED.

E N D O F P A P E R



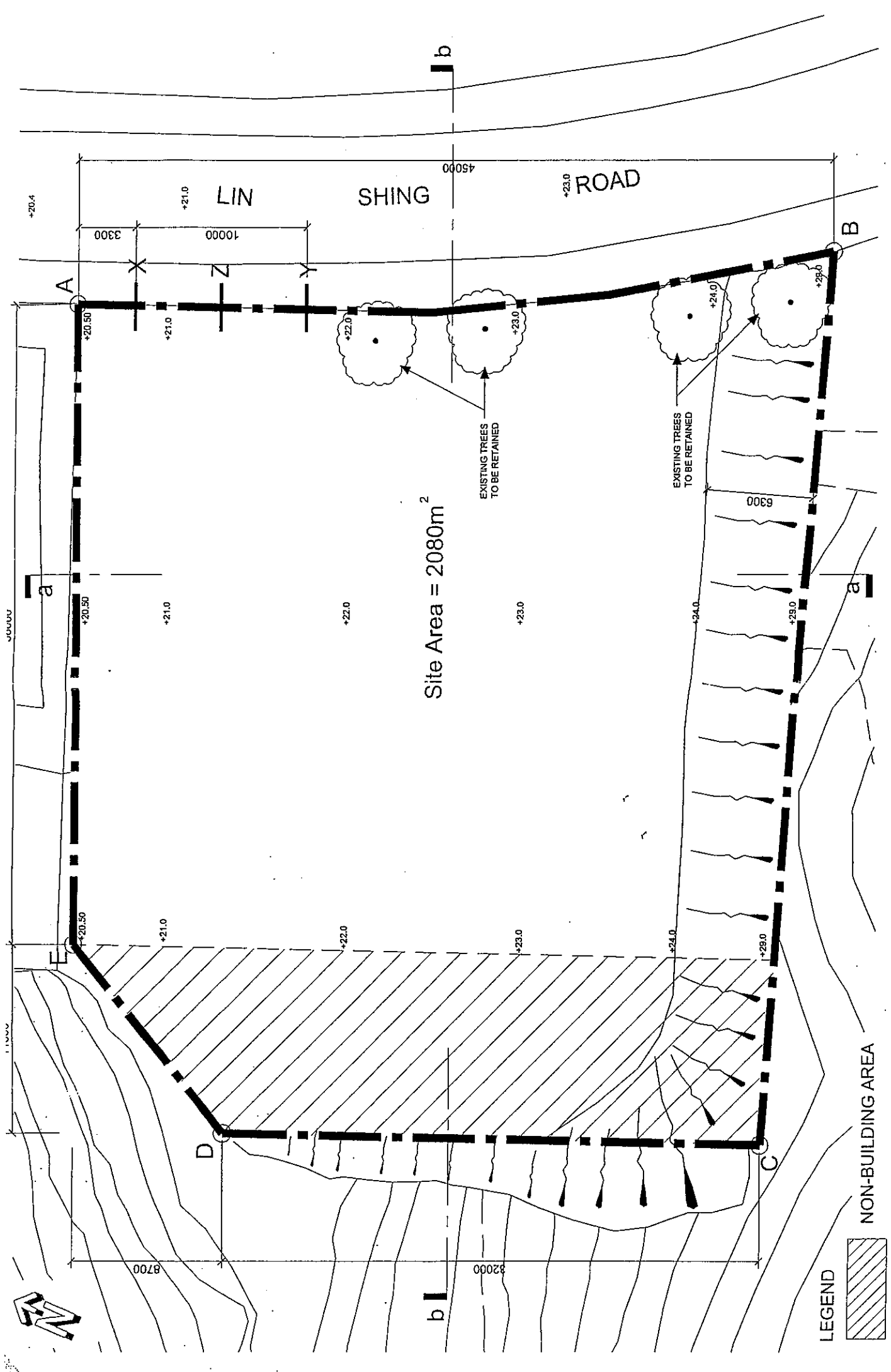


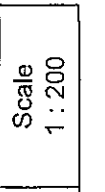
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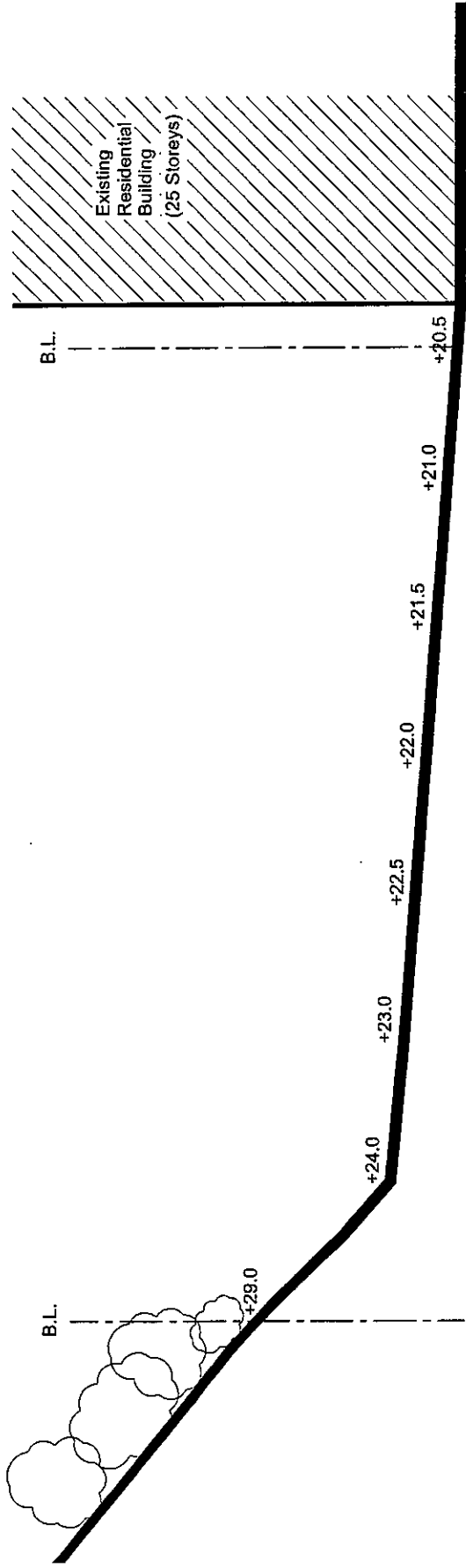


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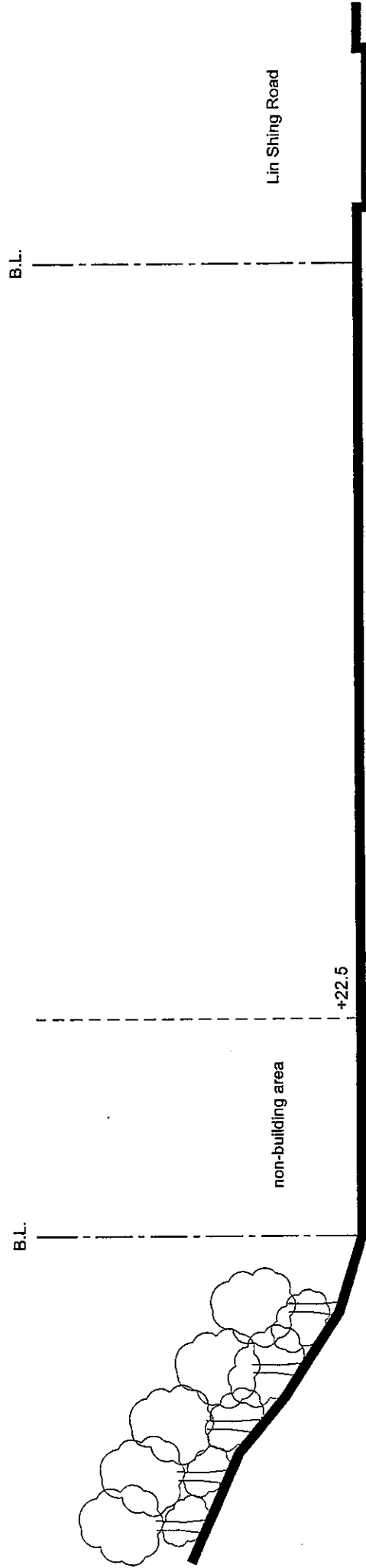




	Paper 7 BUILDING DESIGN, CONSTRUCTION DETAILS & DOCUMENTATION	Attachment 2 Site Plan	Scale 1 : 200
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Section aa



Section bb

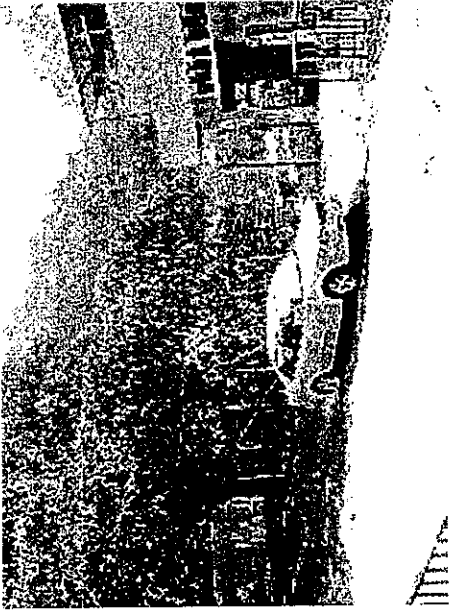




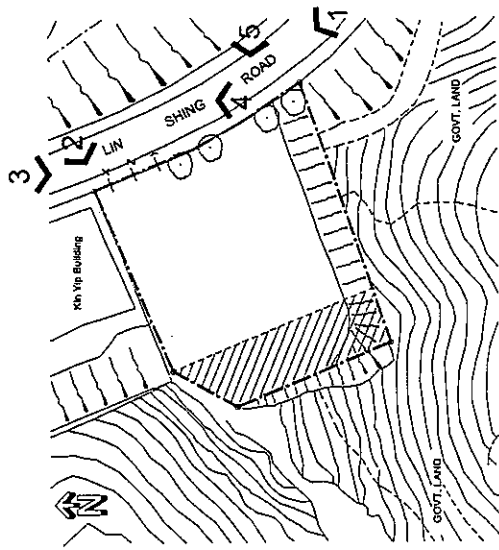
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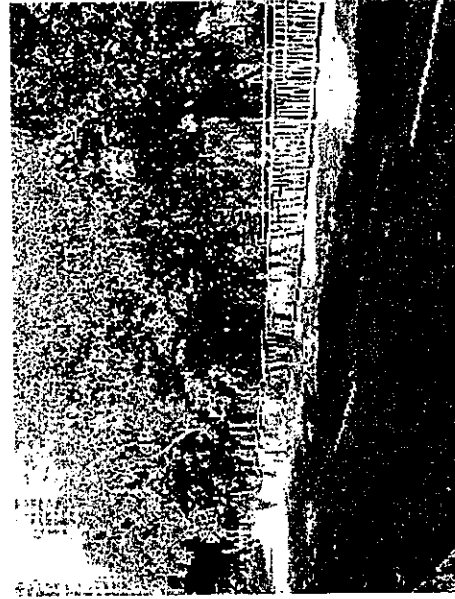
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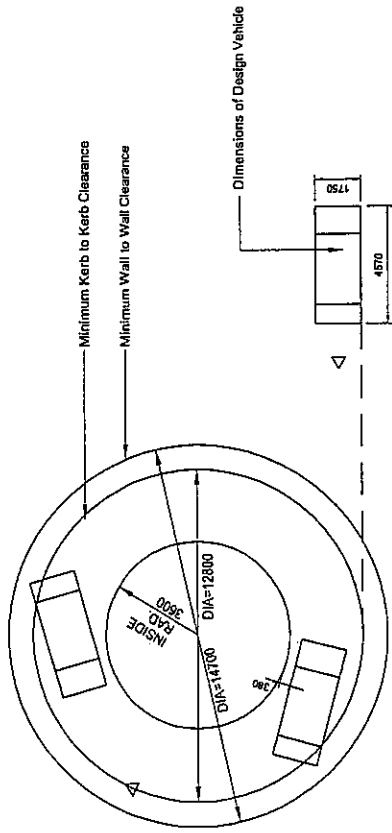


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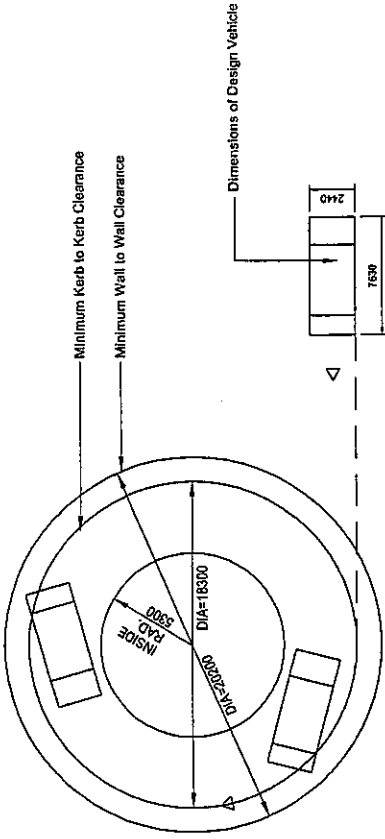


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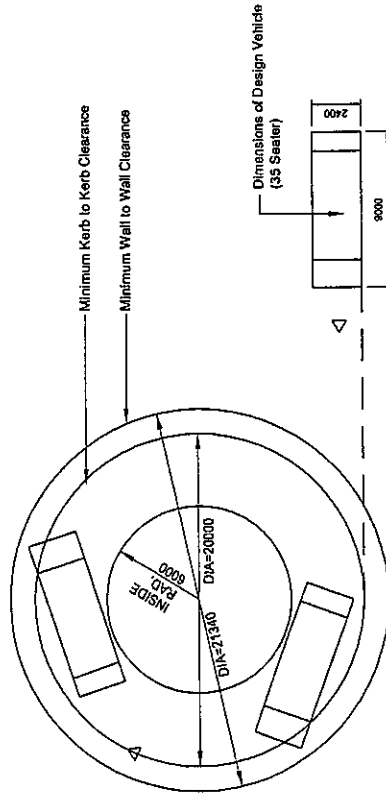




**RECOMMENDED MINIMUM STANDARDS OF  
TURNING CIRCLE FOR PRIVATE CARS**  
(not to scale)



**RECOMMENDED MINIMUM STANDARDS OF  
TURNING CIRCLE FOR GOODS VEHICLES**  
(not to scale)



**RECOMMENDED MINIMUM STANDARDS OF  
TURNING CIRCLE FOR TOURIST BUS**  
(not to scale)