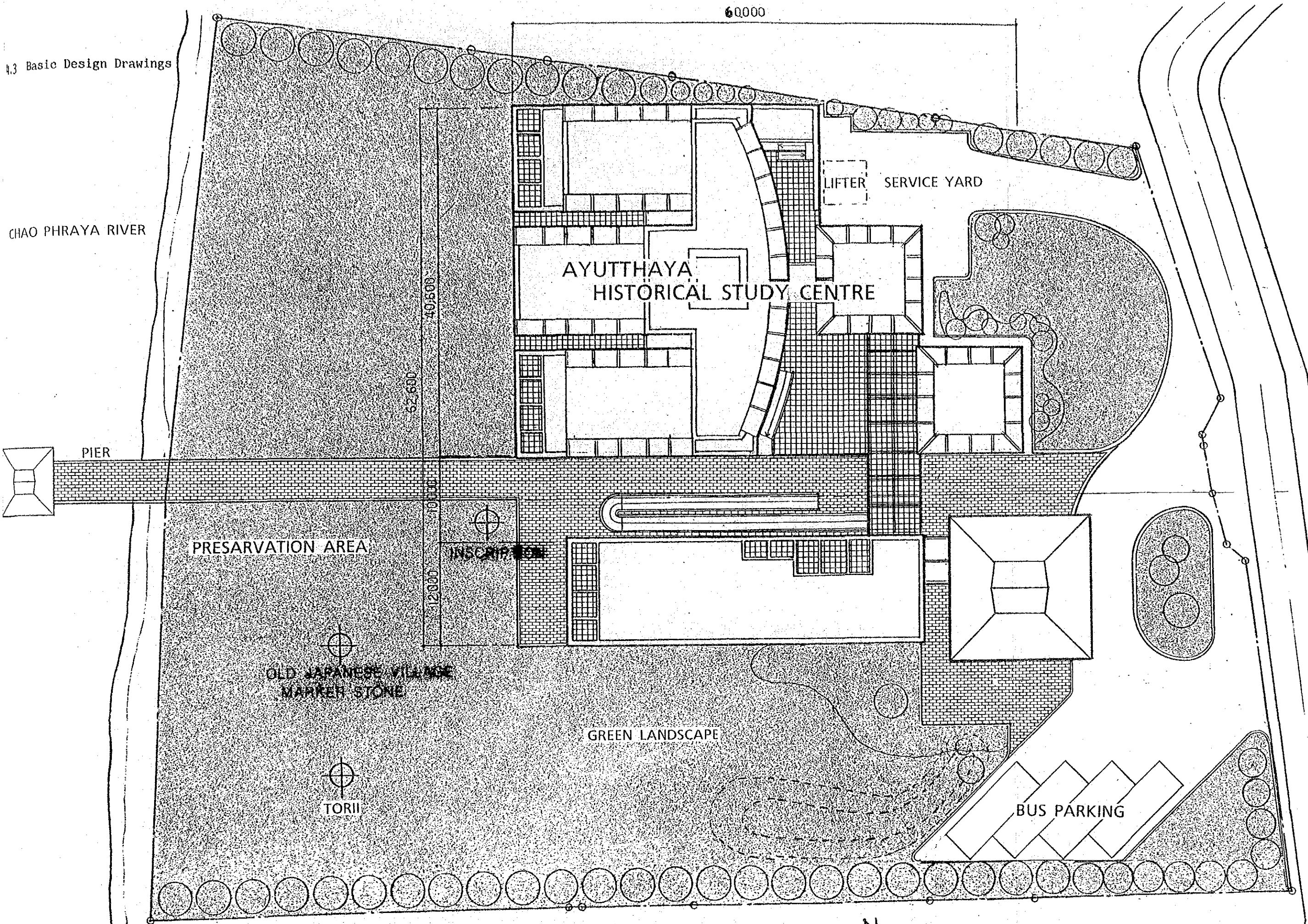


CHAO PHRAYA RIVER



60000

40500

62600

10000

12000

LIFTER SERVICE YARD

AYUTTHAYA HISTORICAL STUDY CENTRE

PRESERVATION AREA

INSCRIPTION

OLD JAPANESE VILLAGE MARKER STONE

TORII

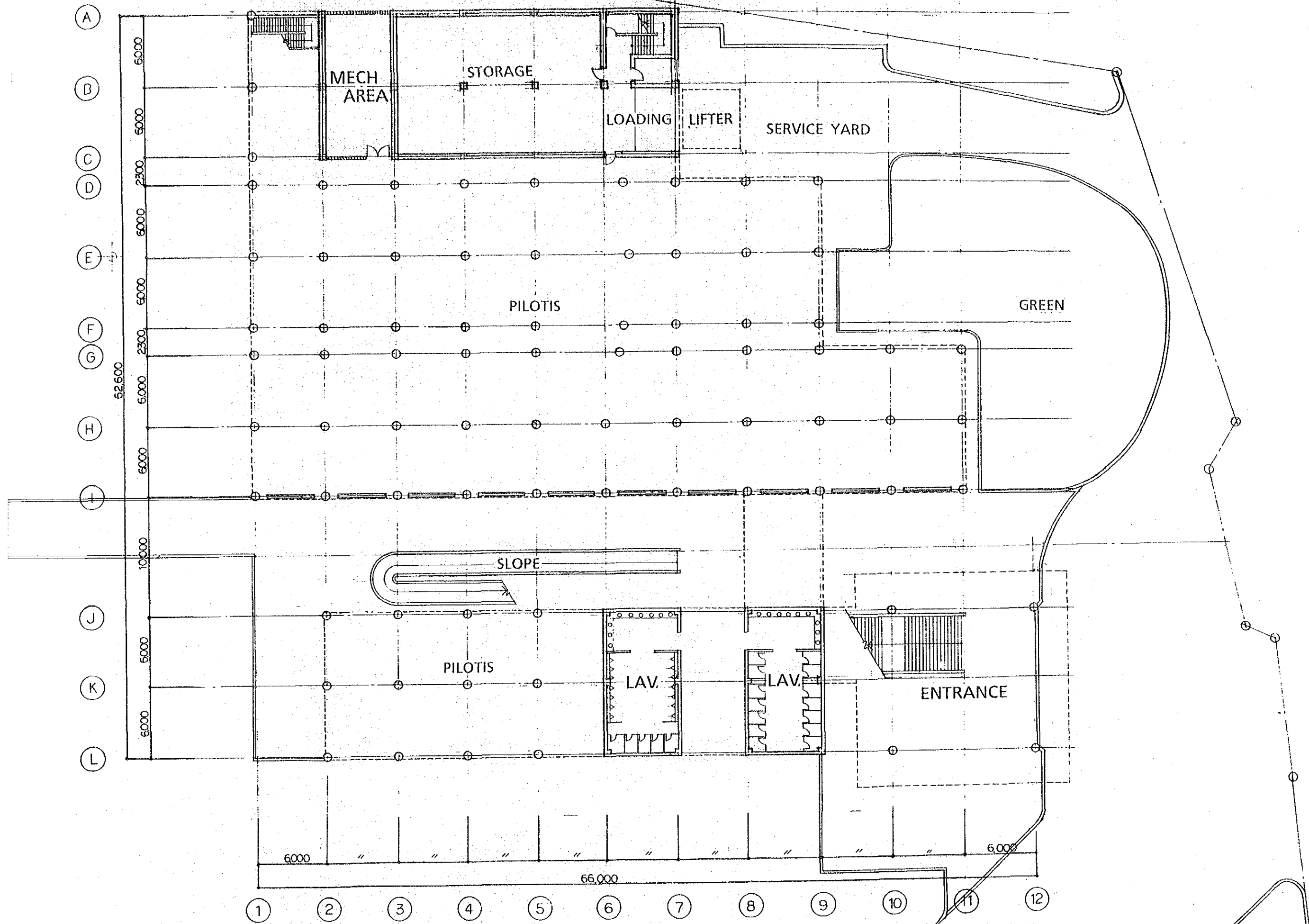
GREEN LANDSCAPE

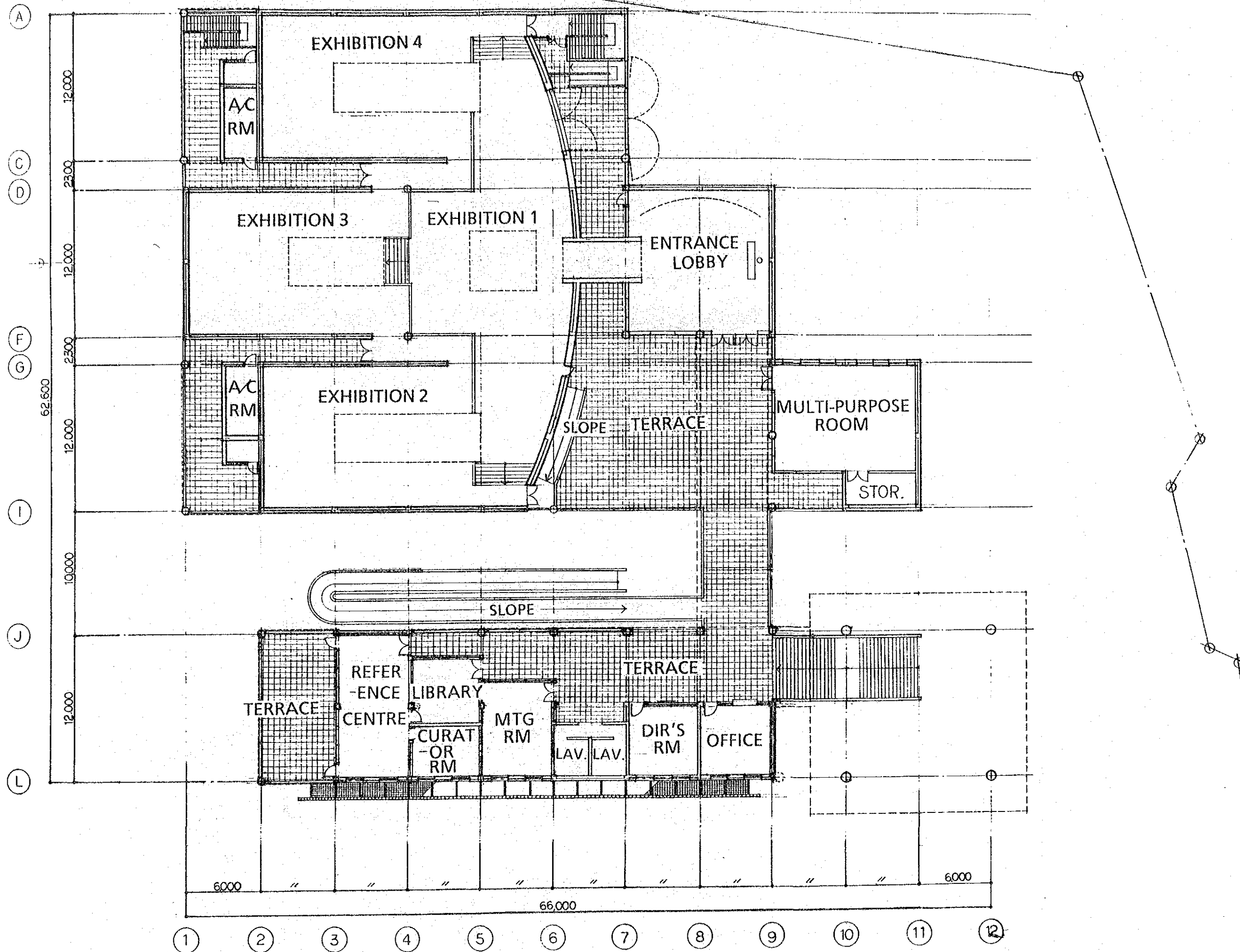
BUS PARKING

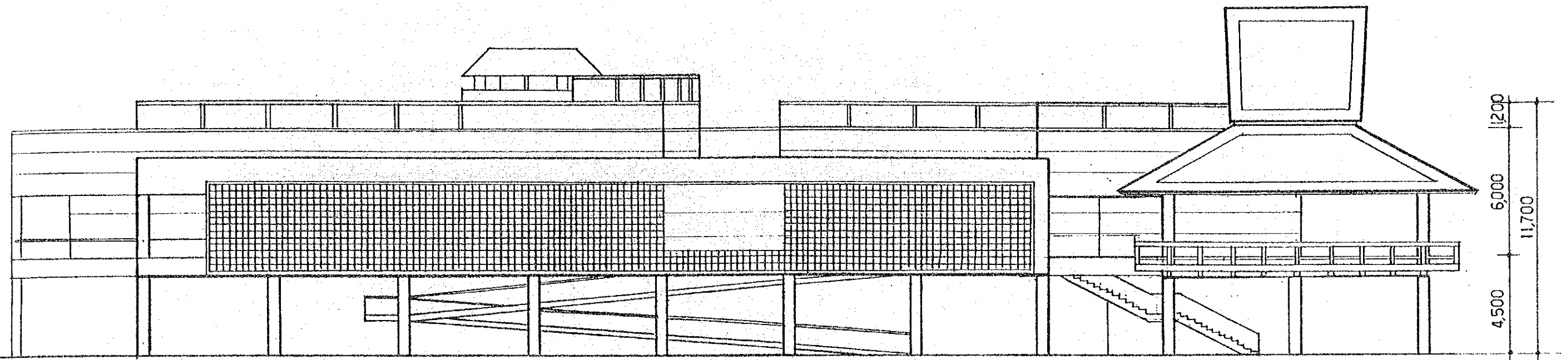


SITE PLAN

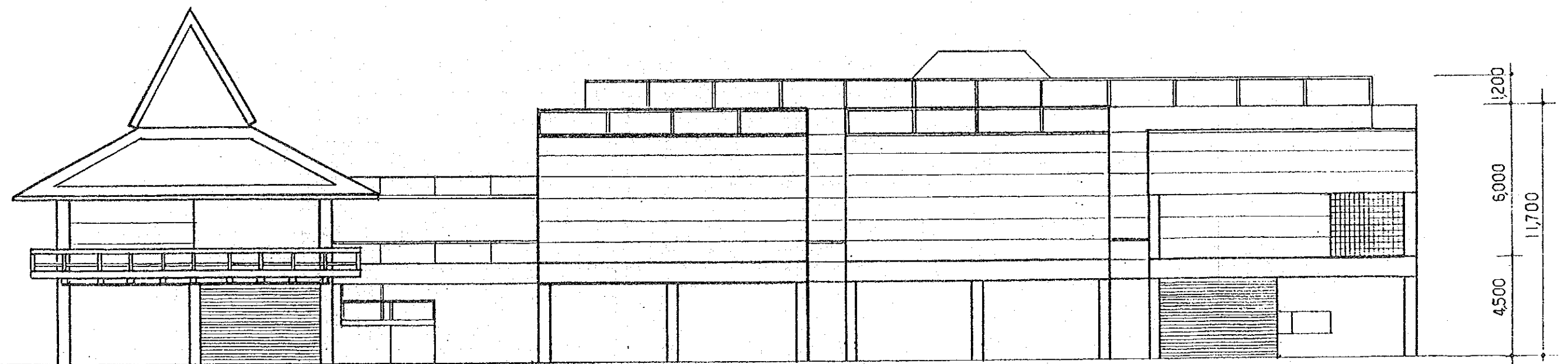
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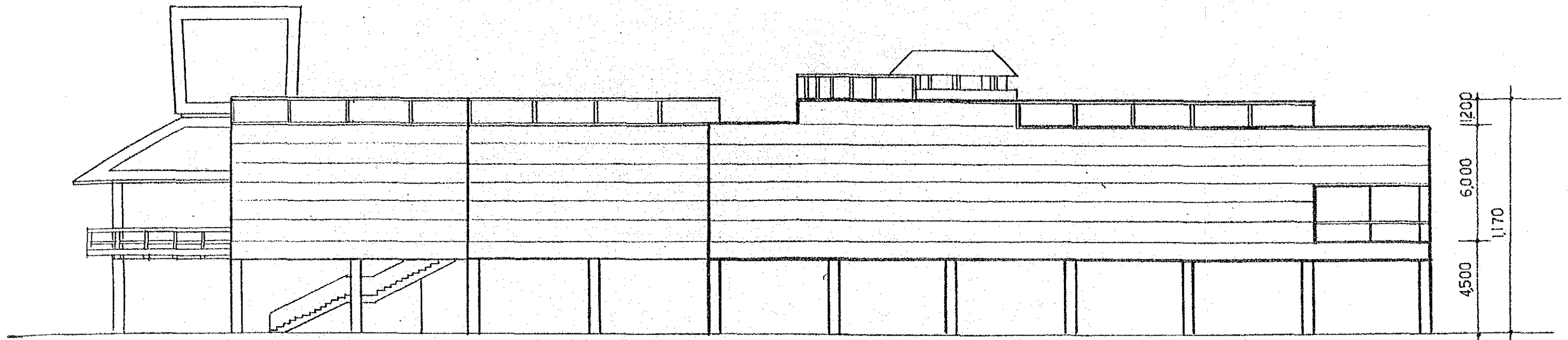




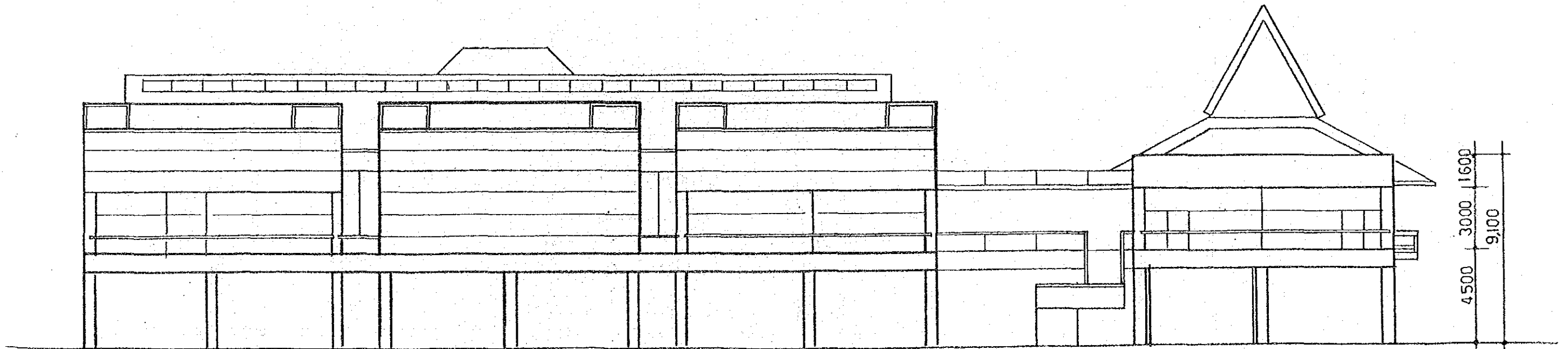
SOUTH ELEVATION



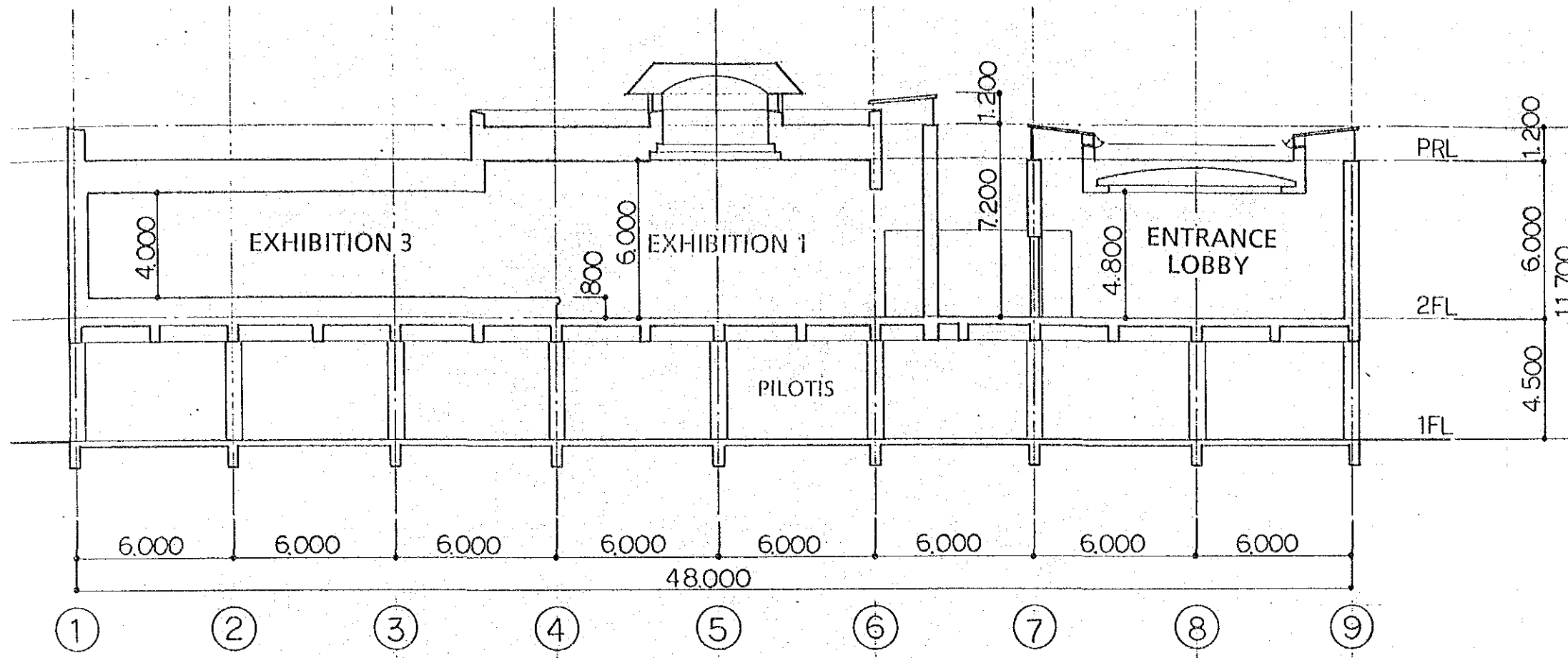
EAST ELEVATION



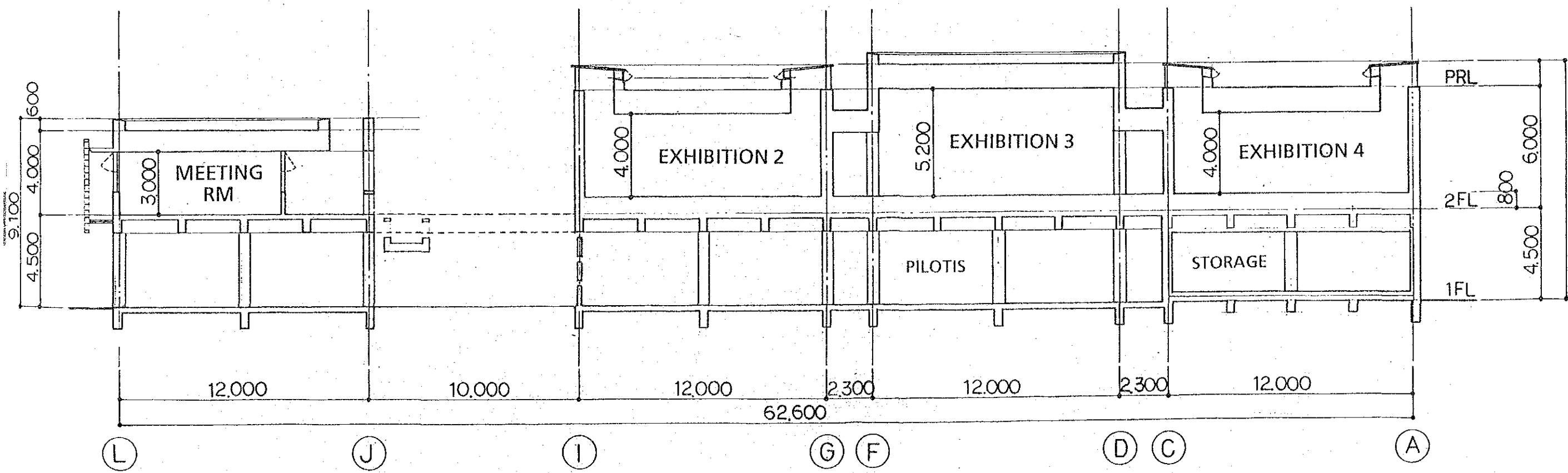
NORTH ELEVATION



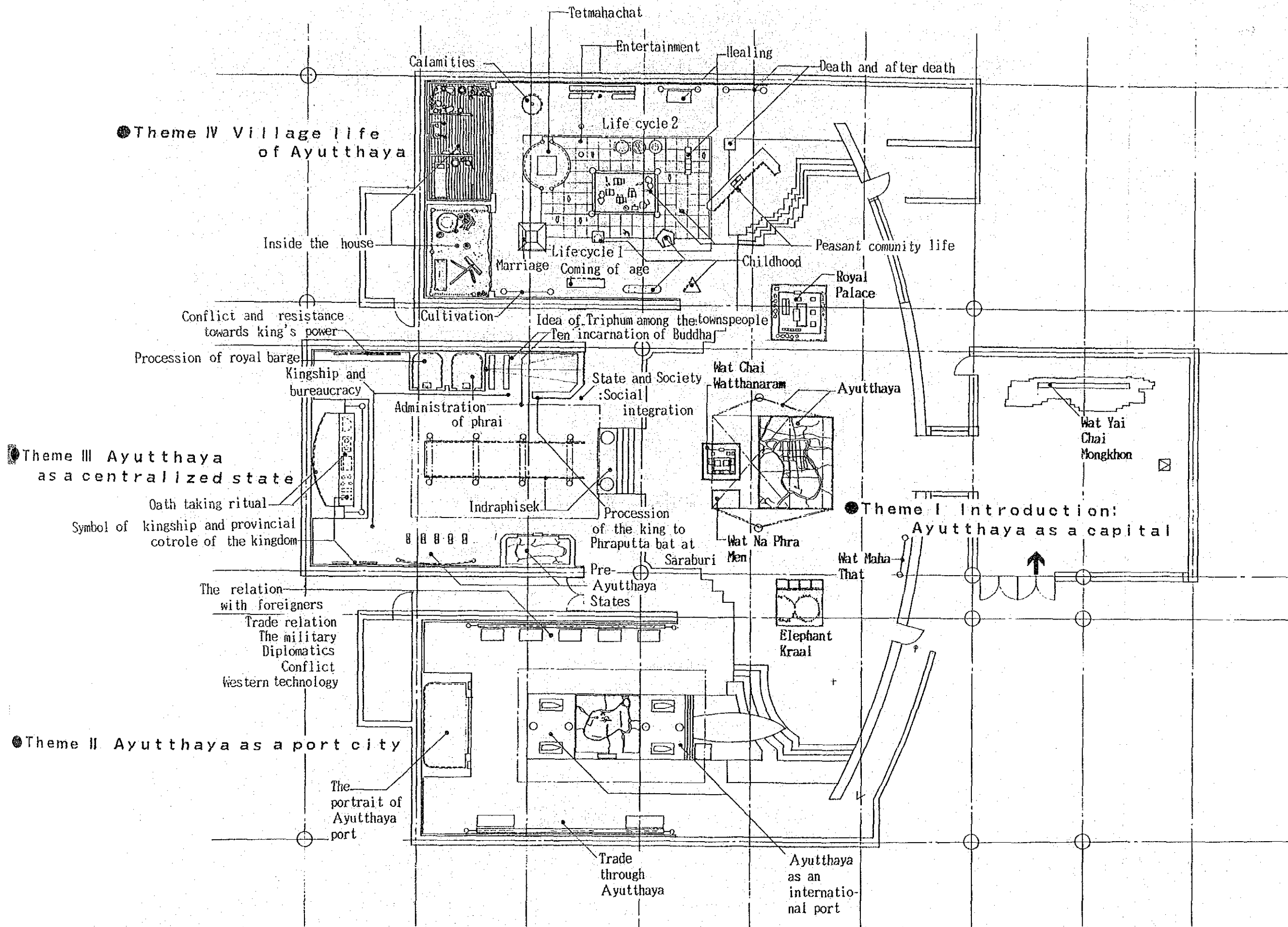
WEST ELEVATION

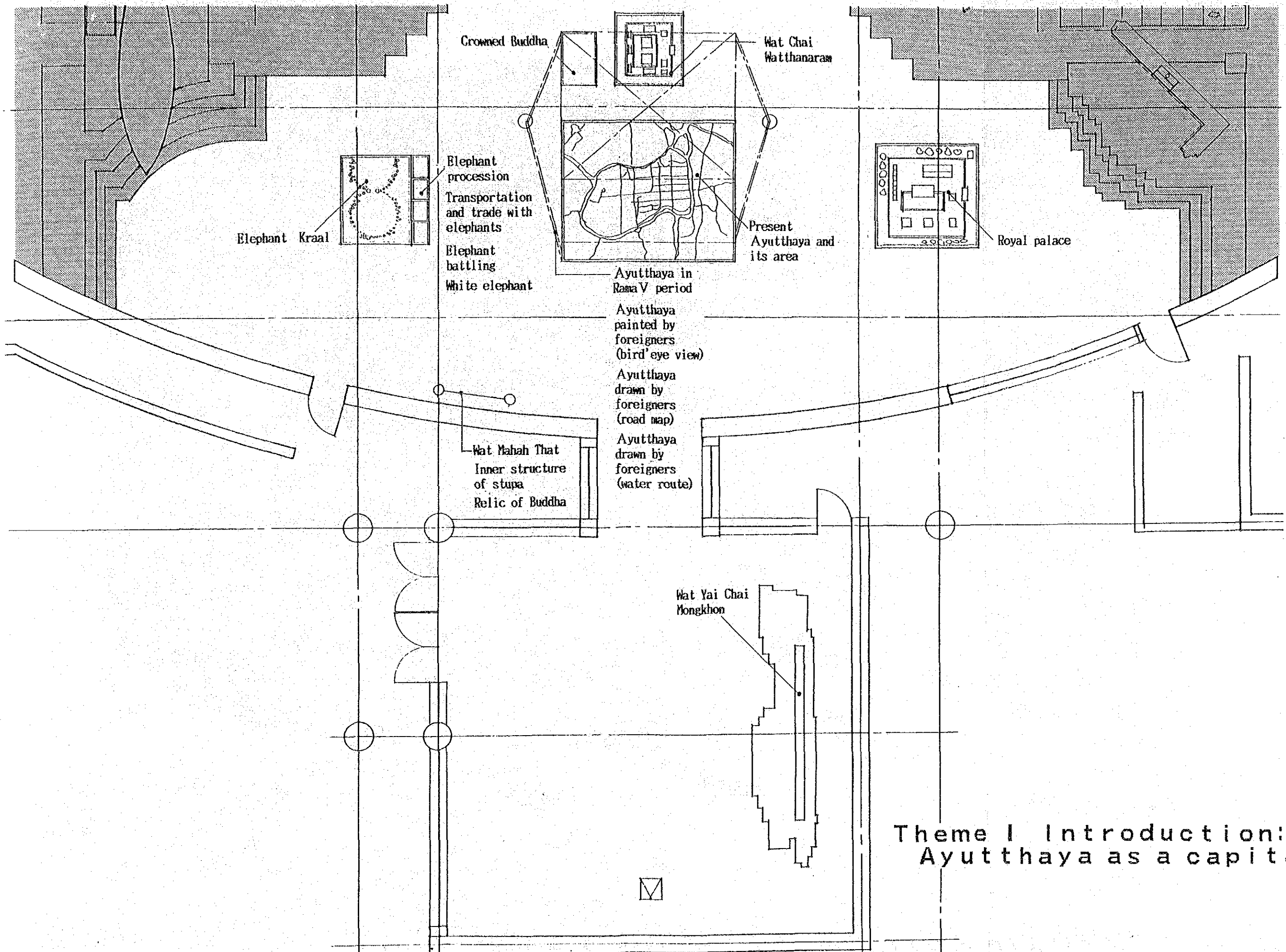


WEST-EAST SECTION

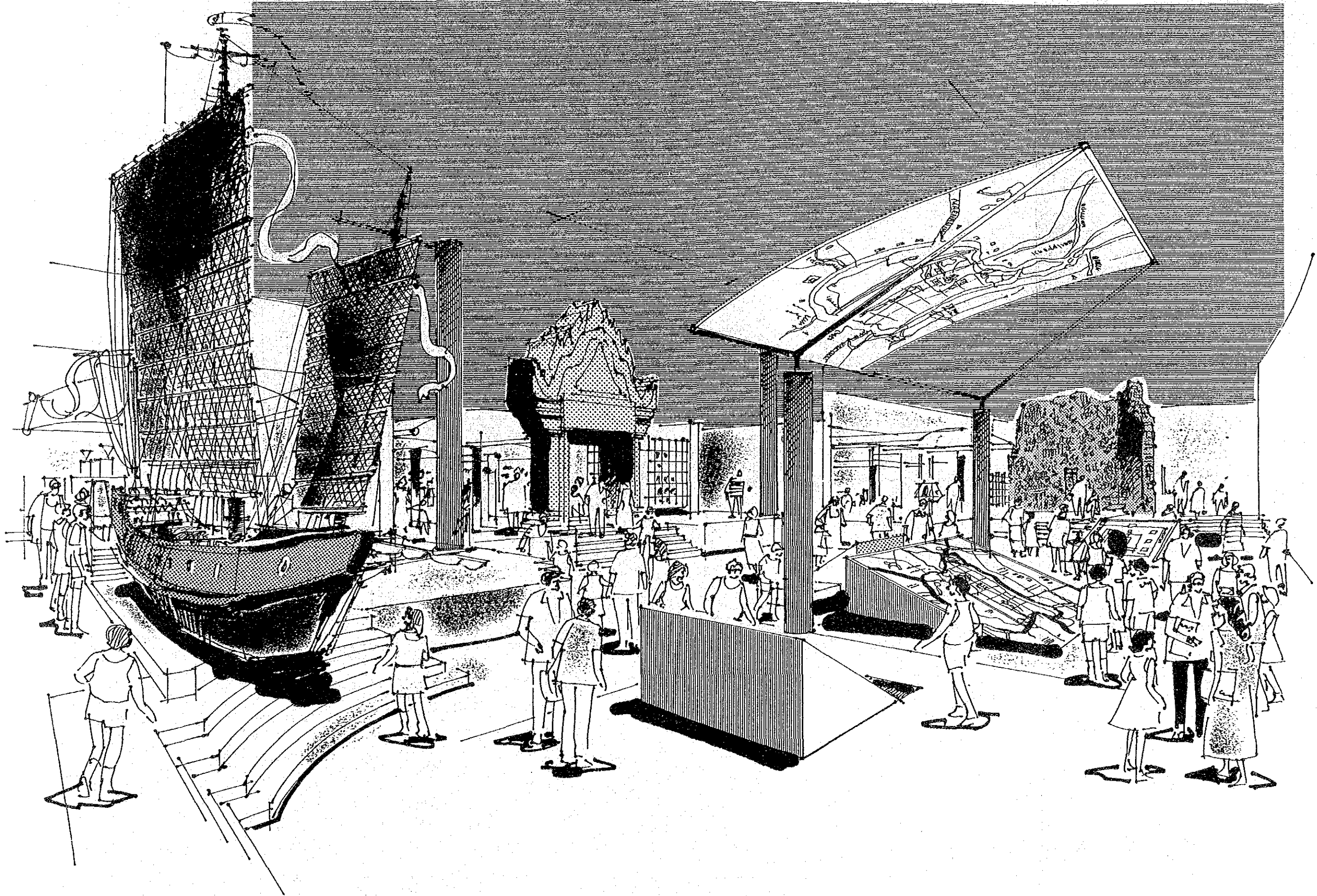


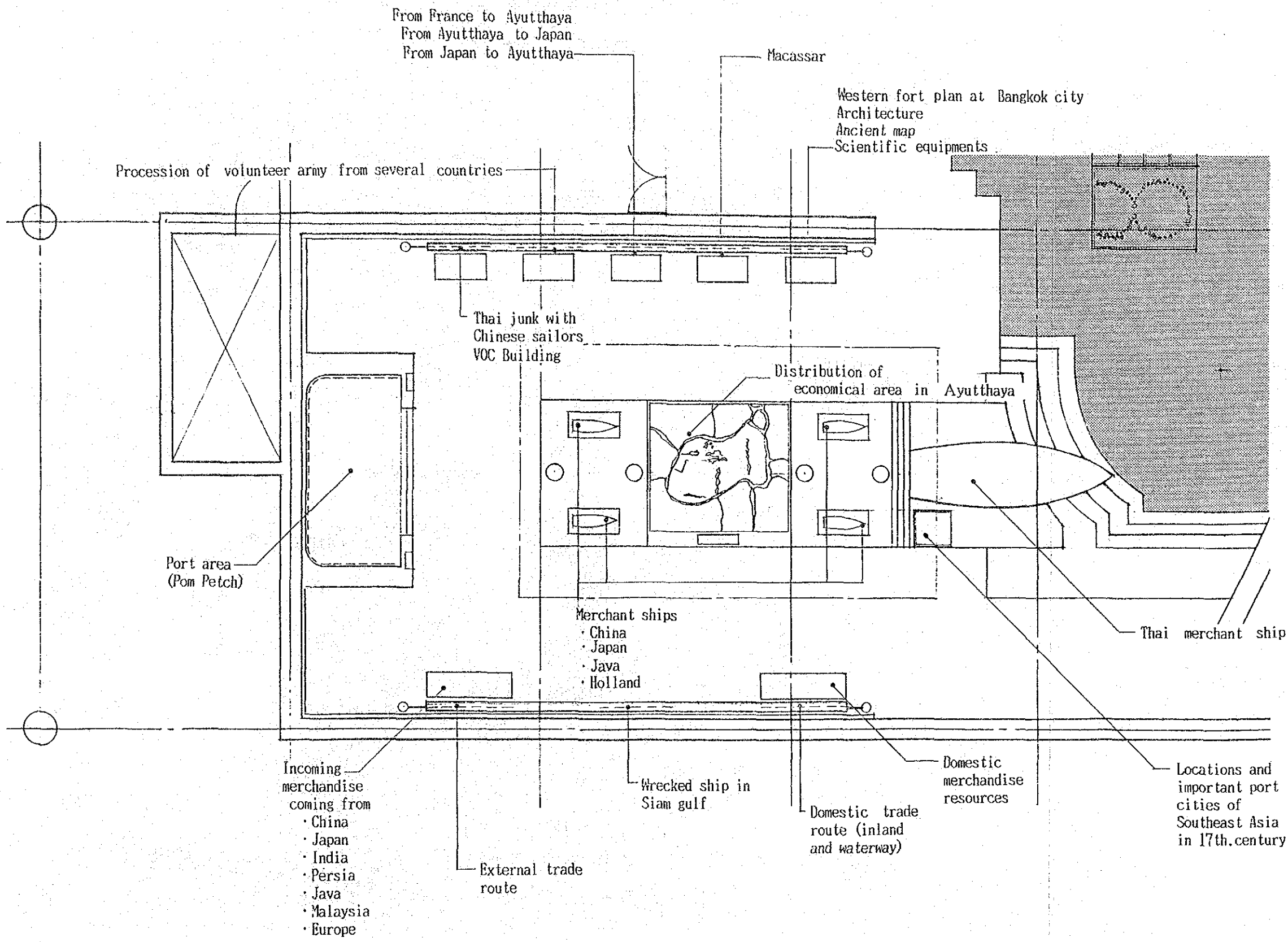
SOUTH-NORTH SECTION



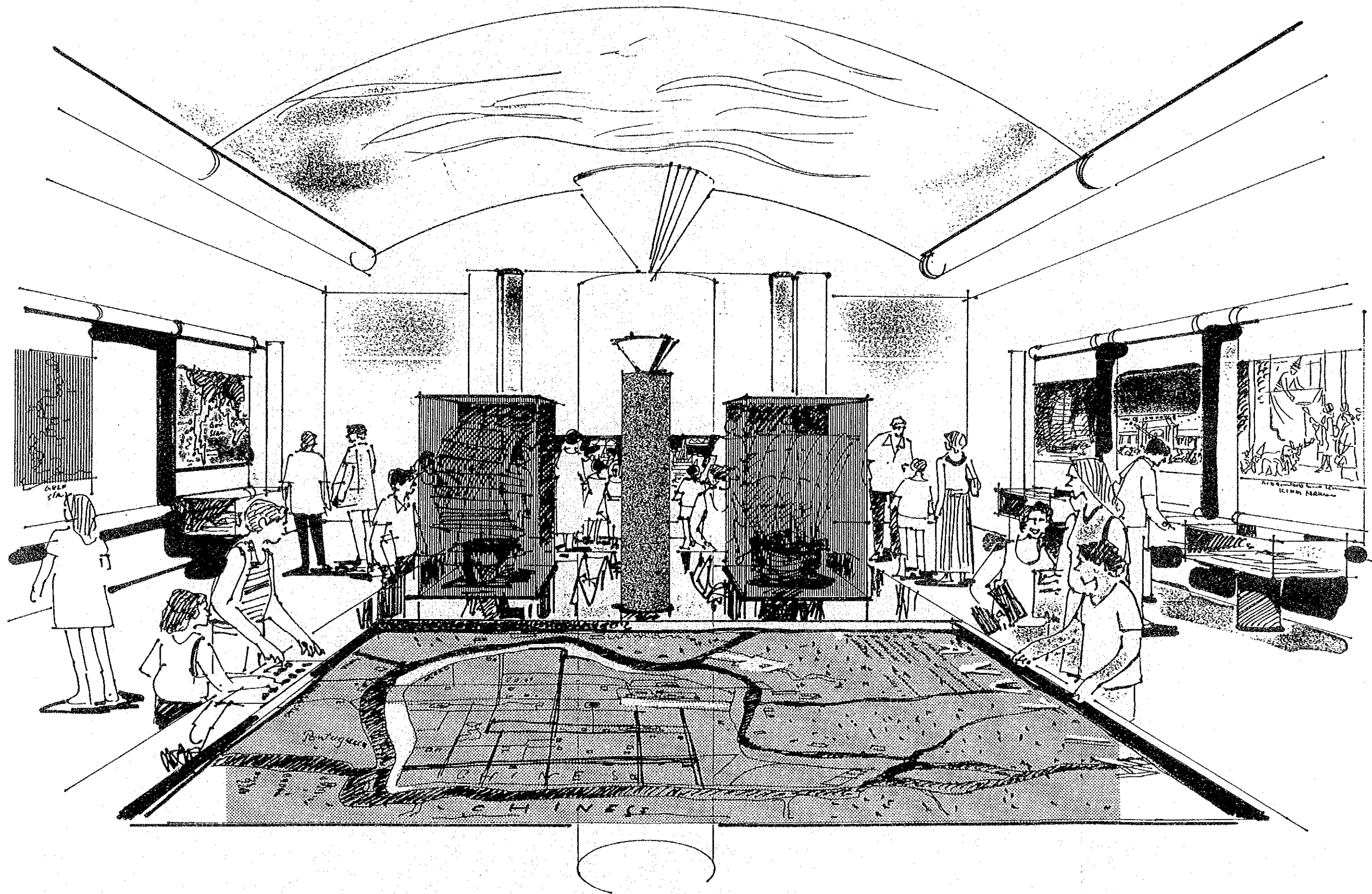


Theme I Introduction:
Ayutthaya as a capital

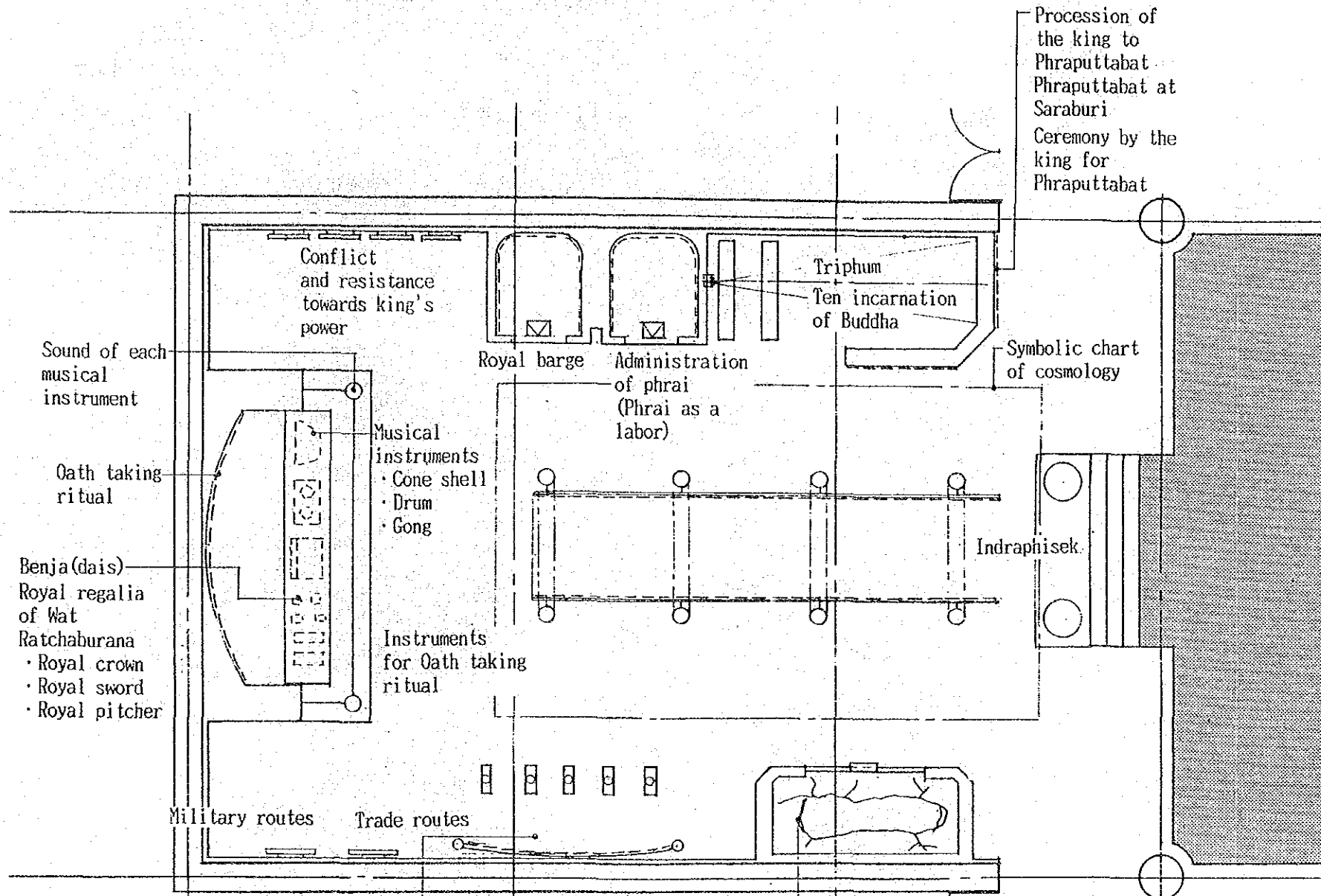




Theme II Ayutthaya as a port city



Theme II Ayutthaya as a port city



Sound of each musical instrument

Oath taking ritual

Benja (dais)
Royal regalia of Wat Ratchaburana
• Royal crown
• Royal sword
• Royal pitcher

Conflict and resistance towards king's power

Musical instruments
• Cone shell
• Drum
• Gong

Instruments for Oath taking ritual

Royal barge

Administration of phrai (Phrai as a labor)

Triphum
Ten incarnation of Buddha

Symbolic chart of cosmology

Procession of the king to Phraputtabat Phraputtabat at Saraburi Ceremony by the king for Phraputtabat

Indraphisek

Military routes

Trade routes

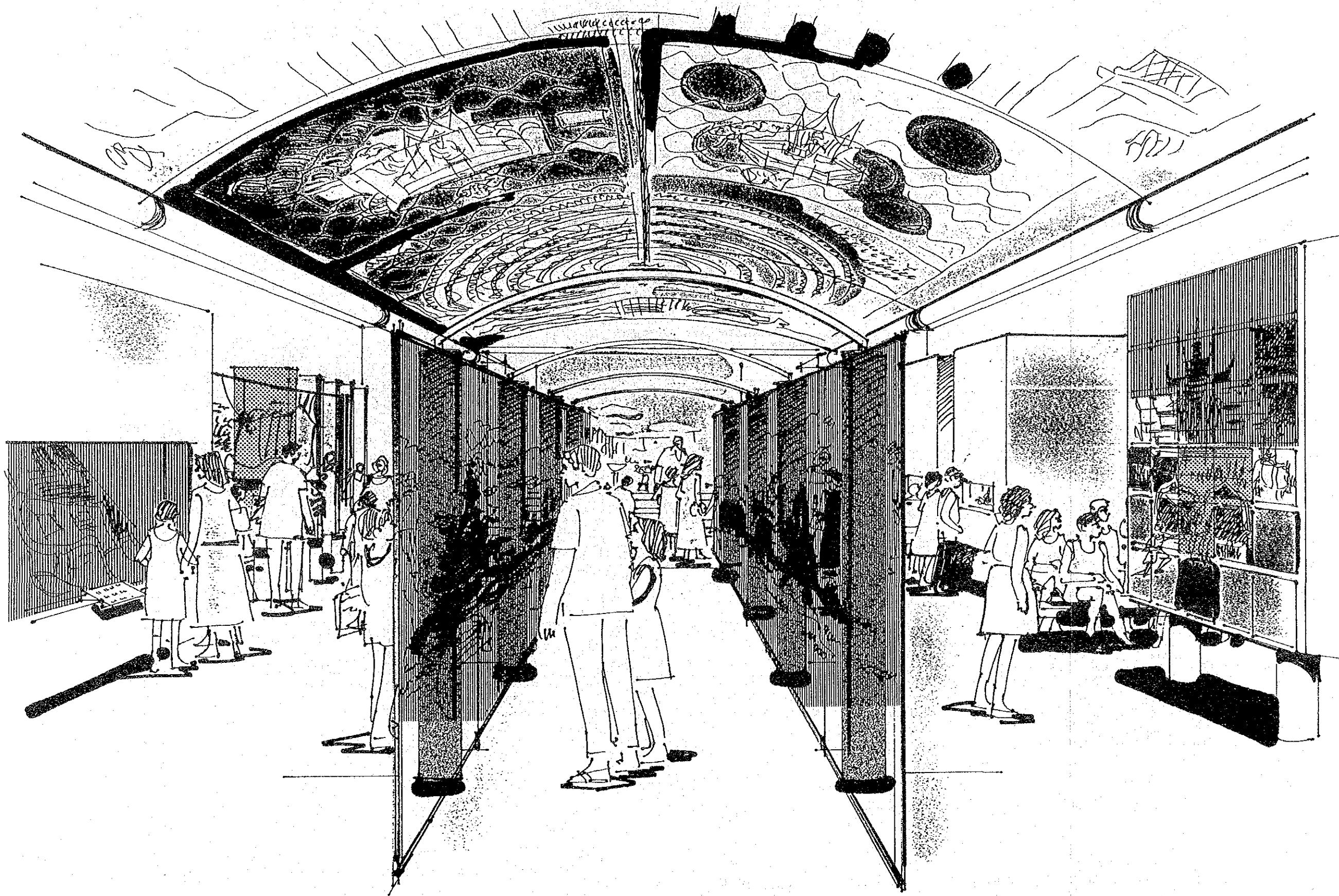
Main ancient remains in the Ayotthaya period
• Head of the Buddha image of Wat Thammikaraj
• Stucco Buddha image at the main prang of Wat Phiraram
• Phanang Choen Buddha
• Boundary stone of Wat Phutthaisawan

• Chedi Wat Khun Muang Chai
Distribution of main ancient remains in the Ayotthaya period
Water route in the Ayutthaya period

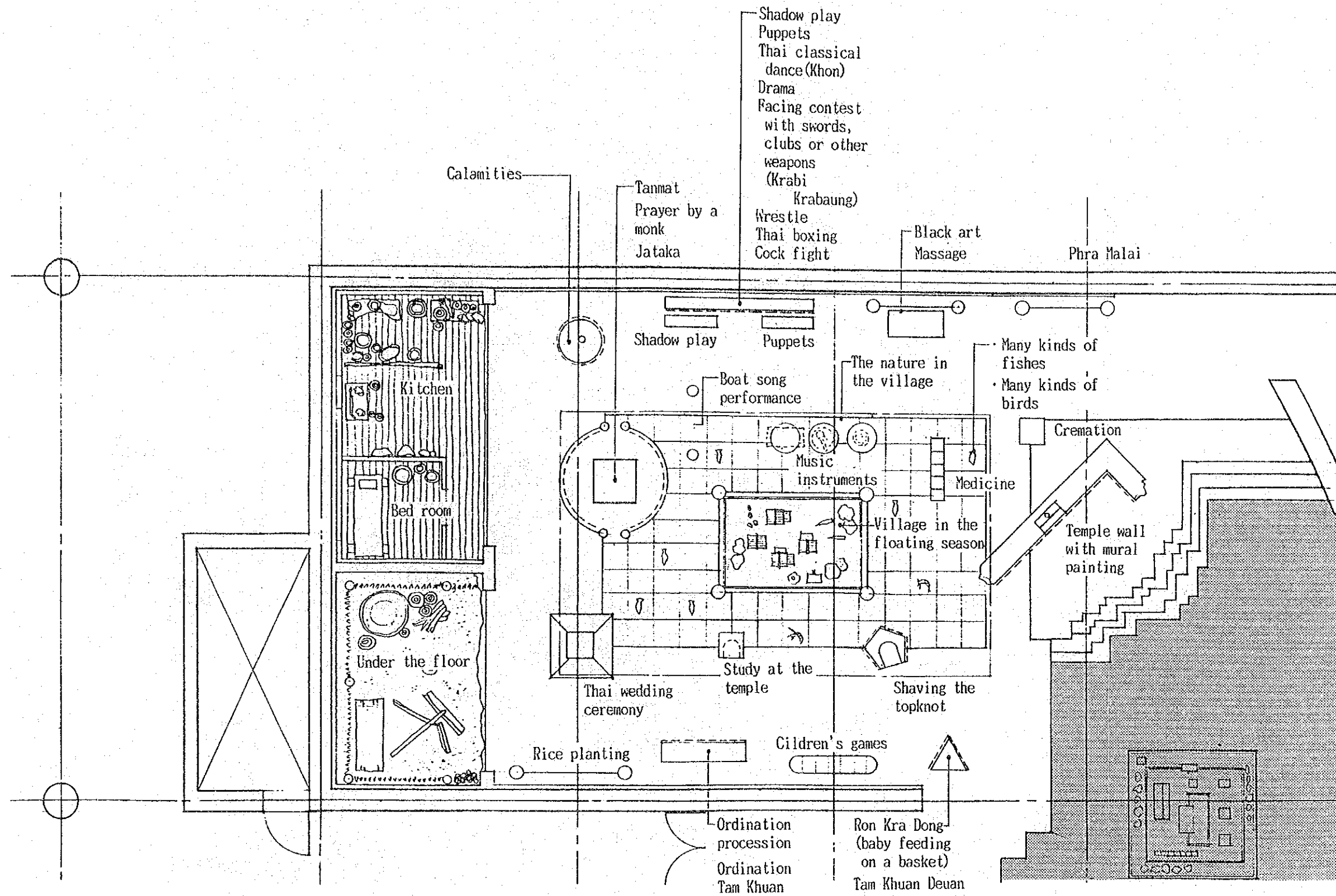
Main cities to the gulf of Siam before the Ayutthaya period
Symbol of each city

Main cities in and after the Skhothai period
Symbol of each city

Theme III Ayutthaya as a centralized state

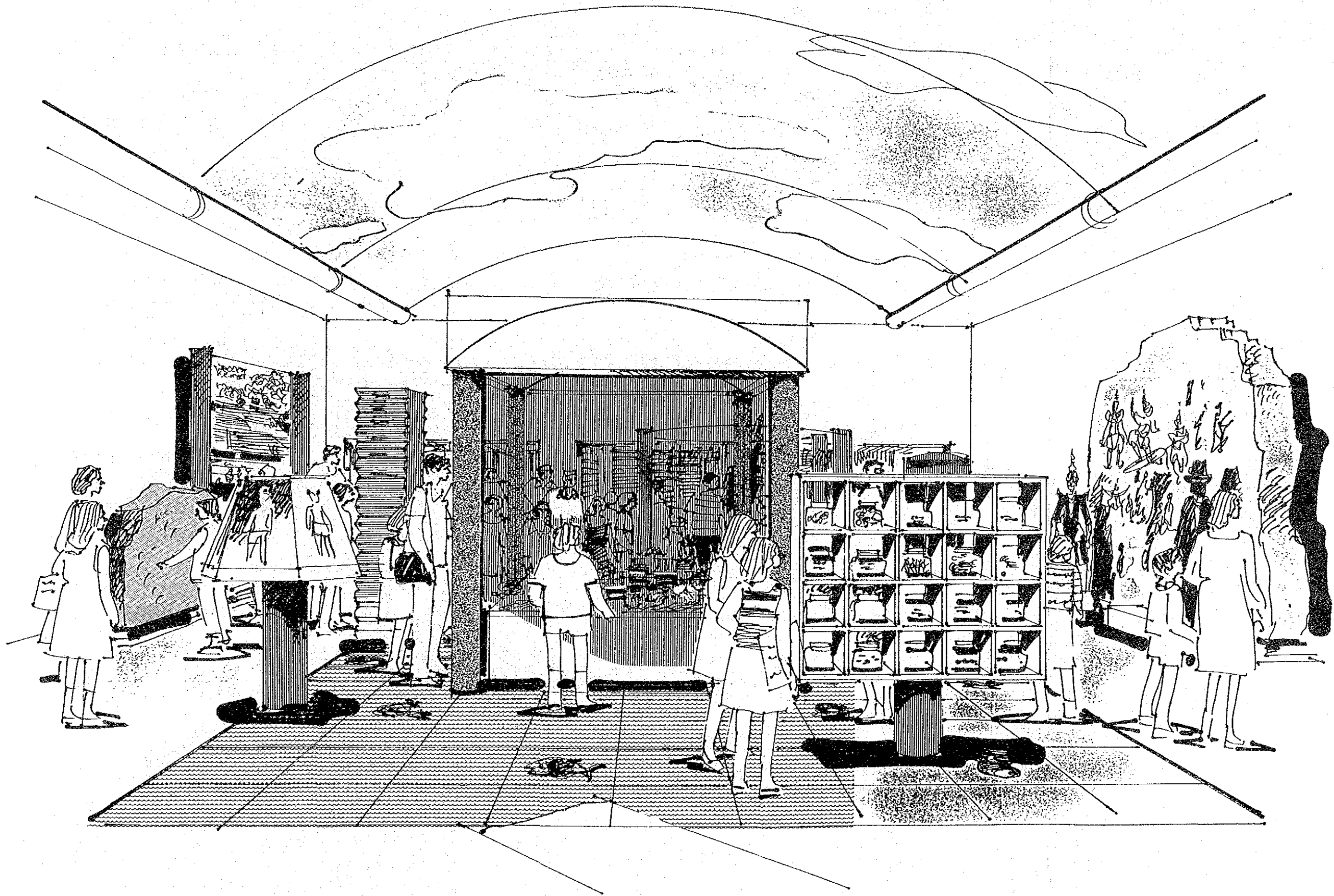


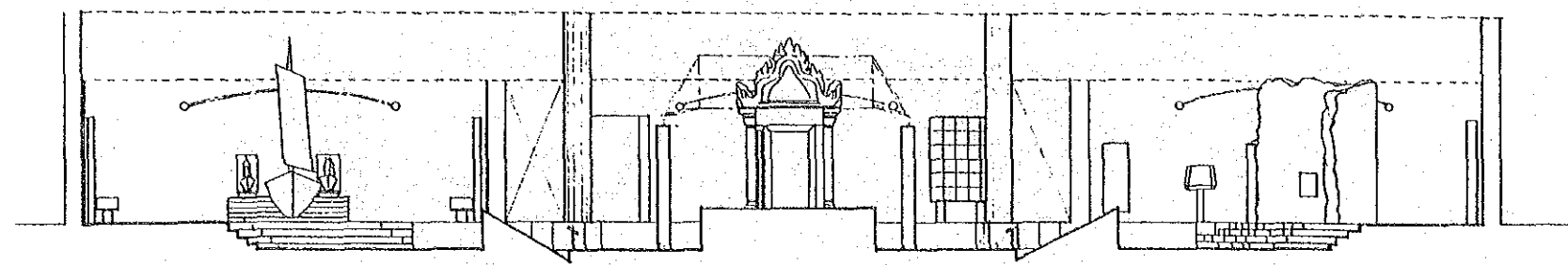
Theme III Ayutthaya as a centralized state



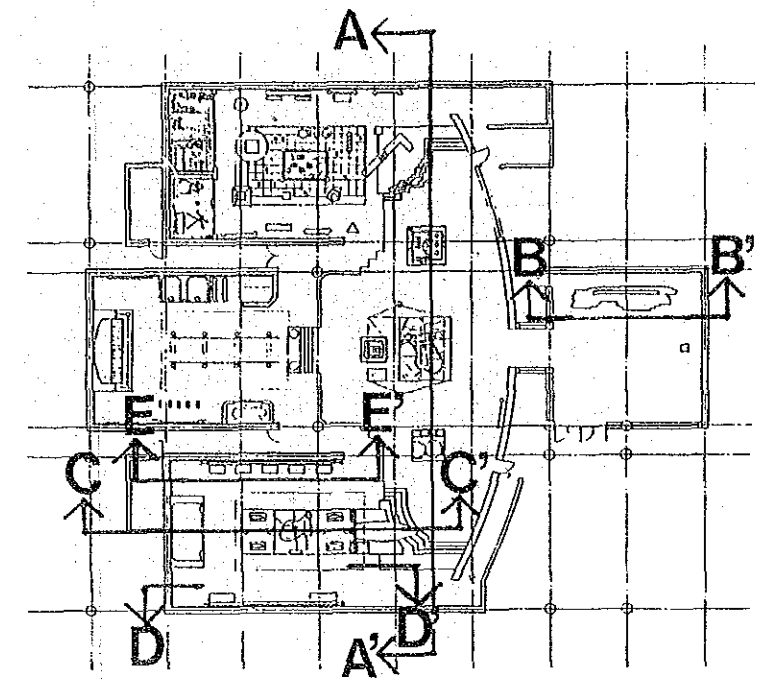
Theme IV Village life of Ayutthaya

LAYOUT PLAN OF EXHIBITION ROOM 1/100

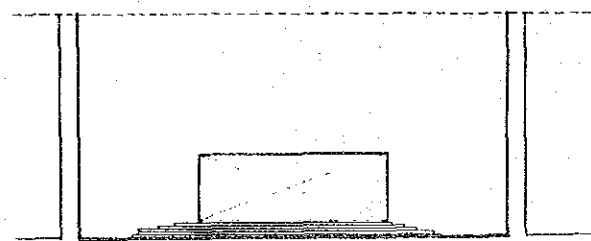




A-A'

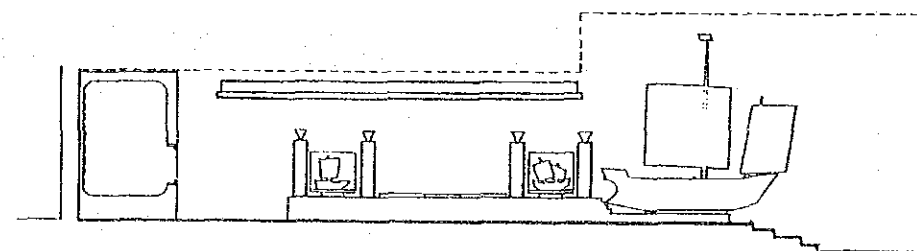


● Theme I Introduction:
Ayutthaya as a capital

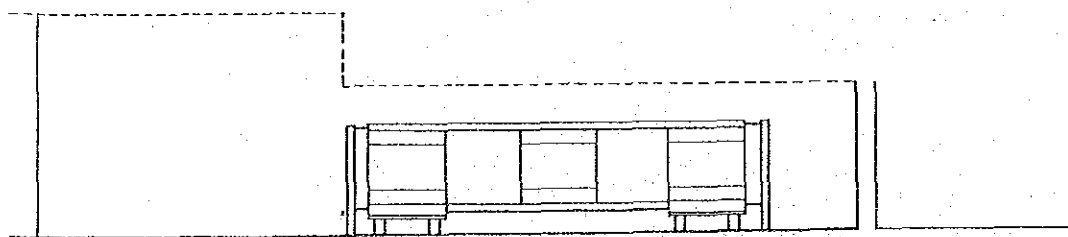


B-B'

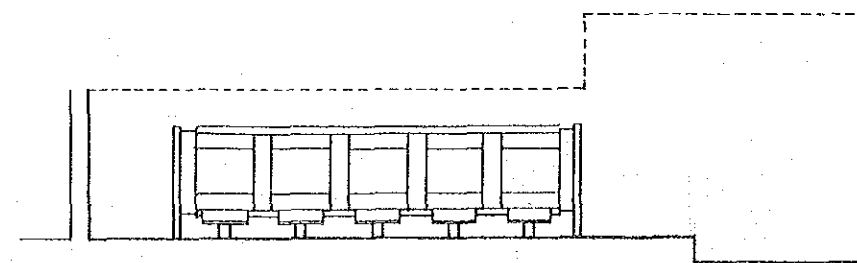
● Theme II Ayutthaya as a port city



C-C'

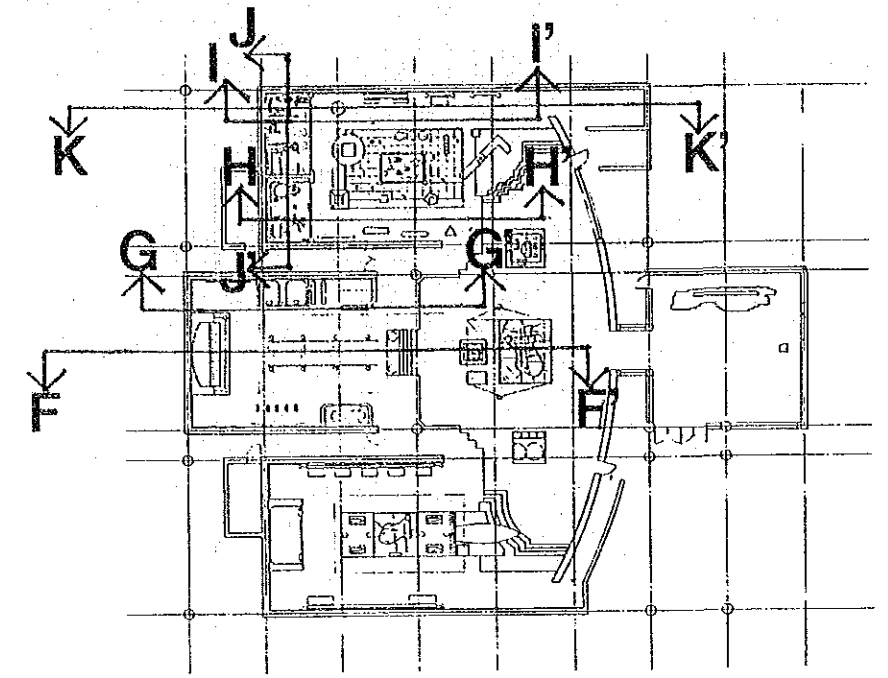
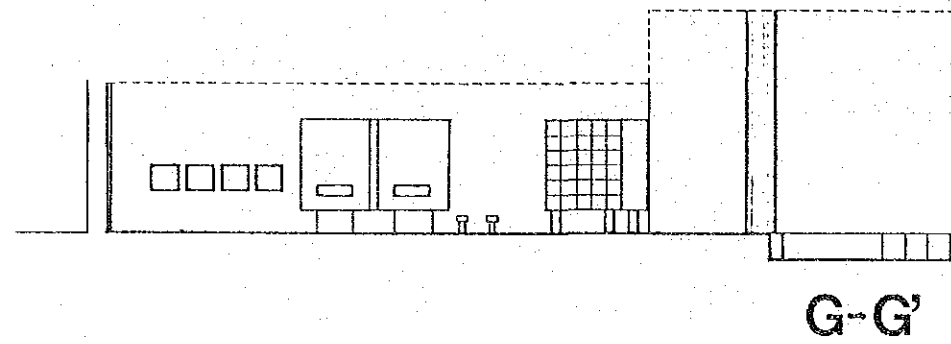
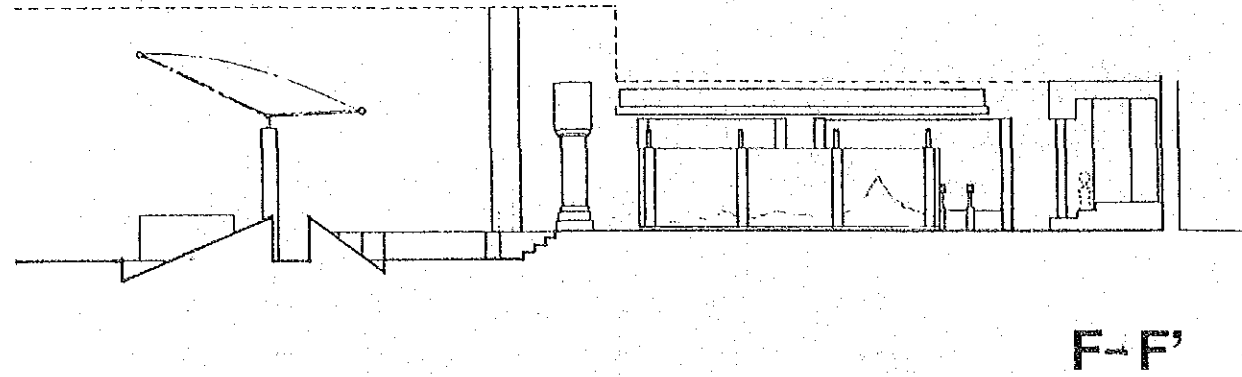


D-D'

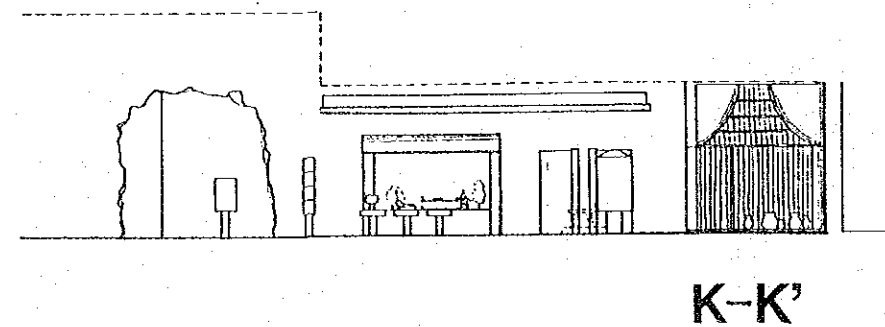
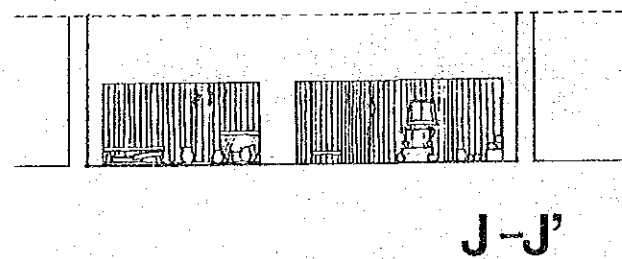
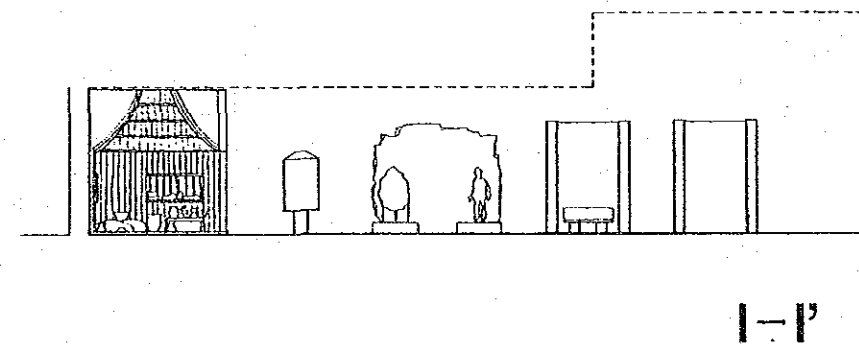
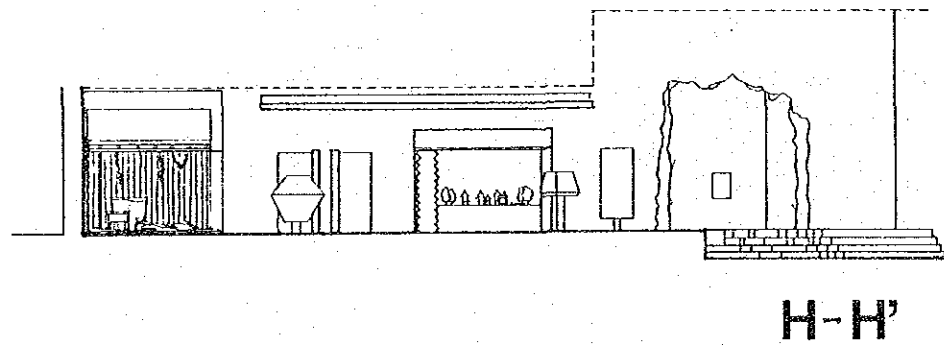


E-E'

● Theme III Ayutthaya as a centralized state



● Theme IV Village life of Ayutthaya



4.4 Maintenance and Operation Plan

4.4.1 Operation plan

1) Mode of operation

After the work related to the facilities and equipment of the Project is completed and they are handed over to Thailand, the organization responsible for their operation and maintenance will be the Ayutthaya Provincial Authority. While the Historical Study Centre will be operated as an independent organization for achieving the objectives outlined in 3.1, it should be considered as a new organization of the Ayutthaya Provincial Authority in terms of operation, maintenance and budgeting.

2) Estimated number of visitors to the study centre

The following is the estimated number of visitors to the Historical Study Centre.

a) Schoolchildren (primary school, junior high school) of Thailand

Groups of schoolchildren in Ayutthaya Province and Bangkok Metropolis as well as foreign schoolchildren living in Thailand will visit the Study Centre as part of their school education.

Reference:

Total No. of students in Ayutthaya Province (1986) (including)	approx. 140,000
No. of primary school and junior high school pupils	approx. 114,000

b) General public of Thailand (including foreigners living in Thailand)

Families and groups of friends will also visit the Study Centre for recreation or as part of their lifetime education.

Reference:

Population of Ayutthaya (1984)	57,000
Population of Bangkok (1985)	5,363,000

c) Foreign tourists

In addition, foreign tourists visiting Thailand are expected to stop by at the Historical Study Centre during the tour of the historical remains of Ayutthaya.

Reference:

No. of foreigners visiting Thailand (1985)	2,438,270
Target for 1986	2,900,000

Judging from its scale, contents and location, approximately 120,000 people are expected to visit the Historical Study Centre per year (about 10,000 per month).

4.4.2 Maintenance plan

1) Maintenance plan for facilities

a) Building

Maintenance of buildings consists mainly of daily routine maintenance such as cleaning, reconditioning of wear and tear due to utilization, and of deterioration arising from breakage and aging. For routine maintenance, scrupulous and frequent cleaning, prompting careful usage and the early discovery of breakages and defects in the building will ultimately result in the prolonged life of facilities, utility service equipment and research equipment.

The regular maintenance service will require 5 to 6 persons for the daily cleaning of the facilities. As far as repairs of the building and facilities are concerned, provided that the expected life span of the buildings of the Centre is 30 years, repair works involving the structural components will

not be necessary, and repairs will be mainly concentrated on interior and exterior finishing. It is necessary to assign persons from the Administration Division to take charge of facility management and to ensure systematic inspections and reconditioning.

Periodic inspection and repair of the following items is needed.

(Exterior)

Repair and repainting of exterior finish and inspection of cracks in crumbling concrete once every 5 years

Repair, repainting and inspection of roof slabs
inspection: once a year; others: once every 5 years

Inspection and partial repair of roof waterproofing
inspection: once a year; others: as occasion calls

Periodical cleaning of downspouts, drains, etc. once a month

Inspection, repair of sealing of exterior doors and windows once a year

Repainting of exterior doors and windows once every 5 years

Periodical inspection and cleaning of drainage gutters, manholes, etc. once a month

Repainting of surrounding fences once every 5 years

Periodical checkup of landscaping and gardening as occasion calls

(Interior)

Refurnishing of interior as occasion calls

Repair and repainting of interior walls as occasion calls

Refurnishing of ceiling material as occasion calls

Check-up of the fastening of doors and windows and exchanging metal components as occasion calls

With regard to the security guard, it will be necessary to establish a guard system which will ensure to prevent theft of the stored exhibition materials, by checking incoming and outgoing facility users and of articles carried in and out, and also by nighttime patrols.

b) Utility service systems

In addition to daily operation control and the periodic inspection of utility service equipment, maintenance for the various utility systems including electric power, airconditioning and ventilation, plumbing and special facilities such as repair in case of failure will be necessary. It is important to establish a maintenance system to prevent breakdowns and accidents and to ensure the smooth operation of facilities by operating the equipment properly and executing daily inspections, adjustment, painting and repairs as required. At least one maintenance staff, who is well versed in the operation, function and care of the facilities under his charge, is considered to be necessary. Utility service equipment is to be periodically overhauled, deteriorated parts are to be replaced, and each piece of equipment is to be inspected and maintained at predetermined intervals from several months to several years. The general items of equipment are to be replaced at the end of their life spans as indicated below:

Operating life span of main equipment

(electrical equipment)

Panel board

15 to 20 years

Fluorescent lamps	5,000 to 10,000 hours
Incandescent lamps	1,000 to 15,000 hours
Telephone exchange	40 years
Public address system equipment	10 to 20 years
(plumbing equipment)	
Pumps	10 to 15 years
Tanks	15 to 20 years
Pipes and valves	10 to 15 years
Plumbing fixtures	25 years
Fire extinguishers	20 years
Sewage treatment equipment	7 years
(air-conditioning and ventilation equipment)	
Pipes	10 to 15 years
Package-type air-conditioners	5 to 10 years

2) Maintenance plan for exhibits

a) Exhibition installations

① Cases, stages and installations for environmental presentations

Regular maintenance work for these installations will mainly consist of daily cleaning and reconditioning of breakages due to utilization and of deterioration from aging. Most of the repair work will involve repainting and mending of mobile parts. There will be very little work related to the main structures.

* Reconditioning of painted parts, re-painting (as occasion calls)

* Exchange of mobile metal parts (as occasion calls)

② Lightings effects

A great deal of lighting equipment will be used for effective presentation of the exhibits to the visitors. Regular maintenance of equipment will be important and

4.4.3 Estimated costs for operation and maintenance

An estimate was made of the annual costs required for operation and maintenance to be covered by the Thai side after the completion of the Historical Study Centre. The items are divided into (1) Personnel Costs, (2) Cleaning/Security Costs, (3) Running Costs for Facilities, (4) Costs for Maintenance, Inspection and Repair of the Facilities, and (5) General Administration Expenses. Estimations are based on 1987 prices.

1) Personnel costs

An estimation is made of Personnel costs, according to the personnel assignment plan for the Historical Study Centre at the time of its opening outlined in "3.4: Organization and Personnel Assignment Plan". The estimated average salary per employee is B5,630/month.

Number of employees at the time of foundation; 7 persons

$7 \text{ persons} \times \text{B}5,630/\text{person.month} \times 12 \text{ months} = \text{B}472,920/\text{year}$

2) Cleaning and security costs

These can be regarded as personnel expenses for workers required for cleaning, and security guards.

a) Cleaning workers: 5 persons

$5 \times \text{B}2,000/\text{person.month} \times 12 \text{ months} = \text{B}120,000/\text{year}$

b) Security guards: 4 persons

$4 \times \text{B}2,500/\text{person.month} \times 12 \text{ months} = \text{B}120,000/\text{year}$

Sub-total B240,000/year

3) Facilities maintenance cost

As water will be supplied from the well there will be no cost for water, but the cost for using electricity for motors will be added to the electricity cost. The quantity of electricity to be consumed is estimated from the presumed daily usage, in order to calculate the annual running cost for the facilities.

a) Basic rates for electricity

$$120\text{KW} \times \text{B}95/\text{KW} \cdot \text{month} \times 12 \text{ months} = \text{B}136,800/\text{year}$$

b) Costs for using electricity

* lighting and servicing outlets

$$30\text{KW} \times 180 \text{ Hr/month} \times \text{B}1.52/\text{KW} \cdot \text{month} \times 12 \text{ months} \\ = \text{B}98,500/\text{year}$$

* electric power

$$90\text{KW} \times 180\text{Hr/month} \times \text{B}1.52/\text{KW} \cdot \text{month} \times 12 \text{ months} \\ = \text{B}295,500/\text{year}$$

Sub-total B530,800/year

4) Costs for maintenance, inspection and repair of facilities

Maintenance, inspection and repair costs for buildings can be regarded as repair expenses, which vary substantially depending on the age of the buildings. For example, the costs for repair and exchange of components will be relatively small until about 5 years after completion, but they will increase abruptly thereafter. The following is an estimate at the rate of B100/m² for annual average expenses (assumed life span: 20 years).

$$\text{B}100/\text{m}^2 \cdot \text{year} \times 2,000\text{m} = \text{B}200,000/\text{year}$$

5) General administration expenses

These include transportation fee, costs for consumables, stationery and printing etc.

$$\text{B}10,000/\text{month} \times 12 \text{ months} = \text{B}120,000/\text{year}$$

6) Total estimated costs

* Personnel Costs	B472,920
* Cleaning/Security Costs	B240,000
* Running Costs for Facilities	B530,800
* Costs for Maintenance/Inspection and Repair of Facilities	B200,000
* General Administration Expenses	B120,000

Grand Total

B1,563,720/year

7) Operation Budget

Careful studies are now being made by the Thai side on the subject of the Operation Budget for the Historical Study Centre. The following measures have been considered.

- * Income from Admission Fee (B10 per person)
- * Income from utilizing other facilities within the site
- * Budget allocated by Ayutthaya Province
- * Contributions from the Thai-Japanese Association

Income from the above shall cover the maintenance costs. The Thai side also plans to set up a Supporting Fund to promote the academic activities of the Centre in future.

4.5 Implementation of Project

4.5.1 System of implementation

1) Executing agency

As specified in 4.1.1: Operation System, the Ayutthaya Provincial Authority will be the executing agency of the Project. The Office of the Ayutthaya Provincial Governor (the Ministry of Interior) will undertake all necessary legal and administrative procedures for implementing the Project, including the conclusion of contracts for consulting services and construction work.

2) Consulting firm

Consultants specializing in architecture and exhibitions should collaborate closely with each other and form a Project implementation team to promote smooth execution of the Project according to the basic design that has been drawn up.

After the Exchange of Notes between the Governments of Thailand and Japan, the Japanese consulting firm shall conclude a consultant contract with the Ayutthaya Provincial Authority based on procedures required for the Grant Aid Program. The following are the work to be carried out by the Consultant based on this contract.

a) Detailed design stage

Preparation of Detailed Design drawings, specifications and other design documents consisting of technical materials.

b) Tendering stage

Work for selecting the construction firm and concluding a contract with them.

c) Construction stage

Supervision of construction work.

It is necessary for the Japanese consultant to seek the advice and instructions from Thai architects and the Thai Academic

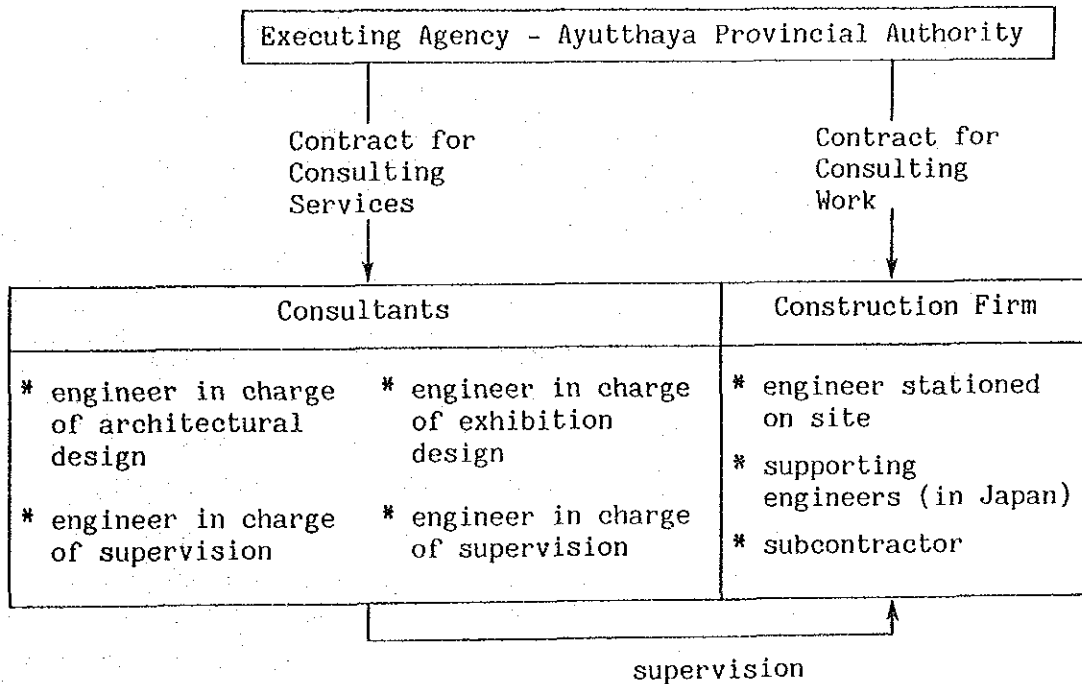
Committee regarding design of the buildings and exhibitions, respectively.

3) Construction company

The building construction work (including construction work for the exhibition) shall be carried out by a Japanese construction firm selected by tendering. The firm is required to complete the construction work and hand over the completed facilities to the Ayutthaya Provincial Authority, the Executing Agency of the Project, by the end of the period specified in the contract.

4) Organization for project implementation

The Ayutthaya Provincial Authority, the Executing Agency of the Project, the Consultant in charge and the construction firm in charge of construction work will carry out the Project under the following organization:



4.5.2 Scope of work

According to the system of the Grant Aid Program of the Government of Japan, the scope of work to be covered by the Japanese side

consists of construction of the building and facilities, preparation and installation of exhibits and procurement of equipment for the Historical Study Centre, whereas the work to be covered by the Government of Thailand is the execution of preparatory work for the Project site such as removal of existing buildings and facilities on the site, earthfilling and grading work, repair and paving of the Access Road, connection of infrastructure, and operation and maintenance of the facilities and equipment after completion of the Project.

1) The undertaking of the Government of Japan

a) Construction of building and facilities for Ayutthaya Historical Study Centre

① Building Historical Study Centre (Exhibition Rooms, Multi-Purpose Hall, Administration Offices, etc.): 1 building

② Type of work

construction work (for structure and finish)
installation of electrical system
installation of plumbing system
installation of air-conditioning/ventilation devices

b) Production and installation of exhibits displayed in the Historical Study Centre

- 1) Exhibits related to Ayutthaya as a Capital
- 2) Exhibits related to Ayutthaya as a Port City
- 3) Exhibits related to Ayutthaya as a Centralized State
- 4) Exhibits related to Village Life of Ayutthaya

c) Procurement of equipment to be used in the Historical Study Centre

Video System

Overhead Projector

Camera and Darkroom Equipment

(developing, printing and enlarging devices)

Typewriters: 3 (English and Thai)

Automobiles (for collection of exhibition materials)

2) The undertaking of the Government of Thailand

- a) Securing of the site for the Project
- b) Preparation of Project site such as clearing, leveling and removal of existing buildings and facilities
- c) Rive-side retaining work, preparation of a pier and construction of a canteen
- d) Exterior work including gate, fence and landscape
- e) Repair and paving of Access Road to site
- f) Provision of the following infrastructure to the building site
 - * Extensiton of power line and installation of transformer
 - * Connection of telephone lines to the main distribution frame/panel (MDF) within the building
- g) Bear the following commissions payable to a Japanese foreign exchange bank for the banking services based upon the Bank Arrangement.
 - a. Advising commission of Authorization to Pay (A/P)
 - b. Payment Commission
- h) Ensure unloading, customs clearance, bonded warehouse charge and tax exemption for the products imported to Thailand for implementation of the Project.
- i) Exempt Japanese nationals from customs duty, internal taxes and other fiscal levies which may be imposed in Thailand with respect to the supply of the products and services under the verified contracts.
- j) Accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contracts such facilities as may be

necessary for their entry into Thailand and stay herein for the performance of their work.

- k) Bear all expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and the installation of the equipment.
- l) Maintain and use properly and effectively the facilities constructed and equipment purchased under the Grant.

4.5.3 Construction work plan

1) Construction work

The site for the Project is located within the site of the Old Japanese Village, about 80 minutes' drive from the centre of Bangkok, and is considered to have favorable conditions for construction work because of the easy procurement of materials and manpower. The site faces the Chao Praya River which has the possibility of flooding in the rainy season. Therefore careful consideration should be given to the safety of work as well as to the method of construction and transportation.

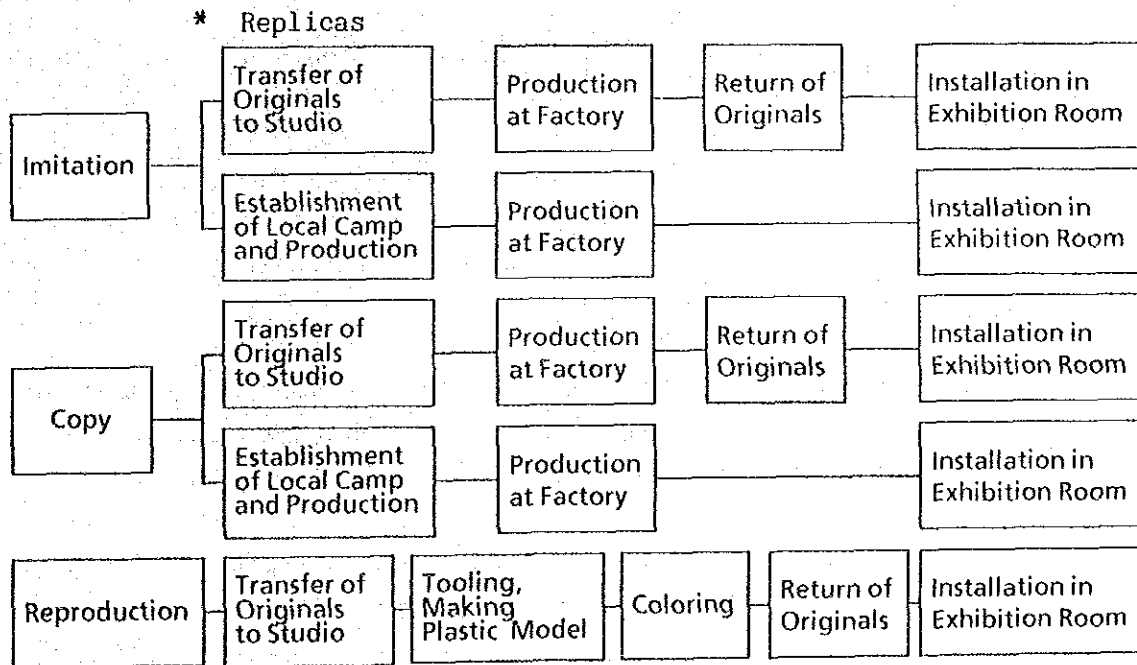
a) Building facilities

The scale of the building is rather small, with a total floor area of 2,000m², but the actual area for construction work will be substantially larger than the total floor area because the building adopts a high-floor structure. Furthermore, the Historical Study Centre is regarded as a cultural facility which requires careful finishing work to the details. Therefore, a reasonable time schedule shall be adopted for construction work. Locally procured materials and equipment will be used wherever possible. Construction methods commonly practiced in Thailand will be applied. Confirmation shall be made on the scope of work and the Thai side will take the responsibility on the construction work.

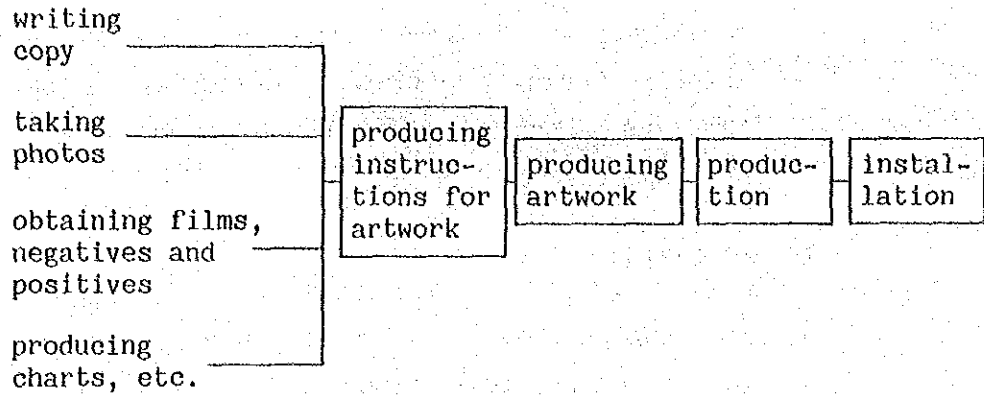
for facilities other than the Historical Study Centre, such as river-side retaining work, construction of piers, construction of Canteen and Museum Shop, landscaping and exterior works. Sufficient consideration shall be given to the time schedule of the construction work to be conducted by respective parties.

b) Exhibition

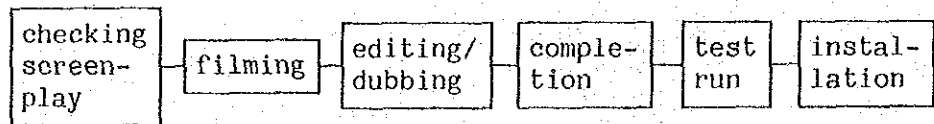
The modeled exhibits to be displayed in the Exhibition Rooms of the Historical Study Centre will include replicas, graphics, images and models. The following flow chart shows how they are produced.



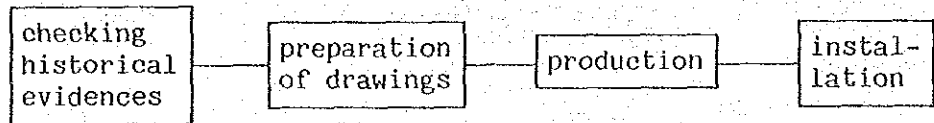
* Graphic



* Images



* Models



Academic supervision will be indispensable for production of these items. Appropriate procedures shall be taken at the required stages.

Some of the replicas and models will be produced in Thailand and others in Japan, but since they will be displayed in the same exhibition space, sufficient consideration shall be given to avoiding large differences in expression. The possibility of damage during transportation and the required customs clearance must be taken into account in the time schedule of items produced in Japan.

2) Procurement of materials and equipment for construction works

Although locally procured materials and equipment shall be used as much as possible for the construction work for this Project, procurement from Japan shall be considered for the following items.

- * materials and equipment that cannot be procured in Thailand
- * materials and equipment which can be procured more economically in Japan

Caution shall be taken, however, in procuring materials and equipment from Japan so as to avoid problems of maintenance after the completion of the facilities.

Materials to be procured in Thailand:

reinforcing bar, cement, lumber, concrete products, bricks, sand, gravel, paint, vinyl asbestos tiles, ceramic tiles, plaster board, acoustic asbestos, parquet blocks, glass, concrete, piles, etc.

Materials to be procured in Japan:

distribution panel, power board, switchboard, telephone exchanging machine, detectors, package-type air-conditioning units, outdoor devices, fans, pumps and equipment

3) Supervision of construction work

Appropriate measures shall be taken for supervising the schedule and quality control of the construction work. A close collaboration between the supervising organization on site and supporting organizations in Japan is essential for this purpose.

4.5.4 Overall schedule

The implementation schedule for the Project shall be carried out according to the following stages after the Exchange of Notes by the Governments of the two countries regarding the Grant Aid Program.

1) Detailed design stage

After the consultant contracts have been concluded, detailed design shall be drawn up based on the Basic Design Study Report

and the tender documents shall be prepared. The approval of such documents by related organizations shall be obtained.

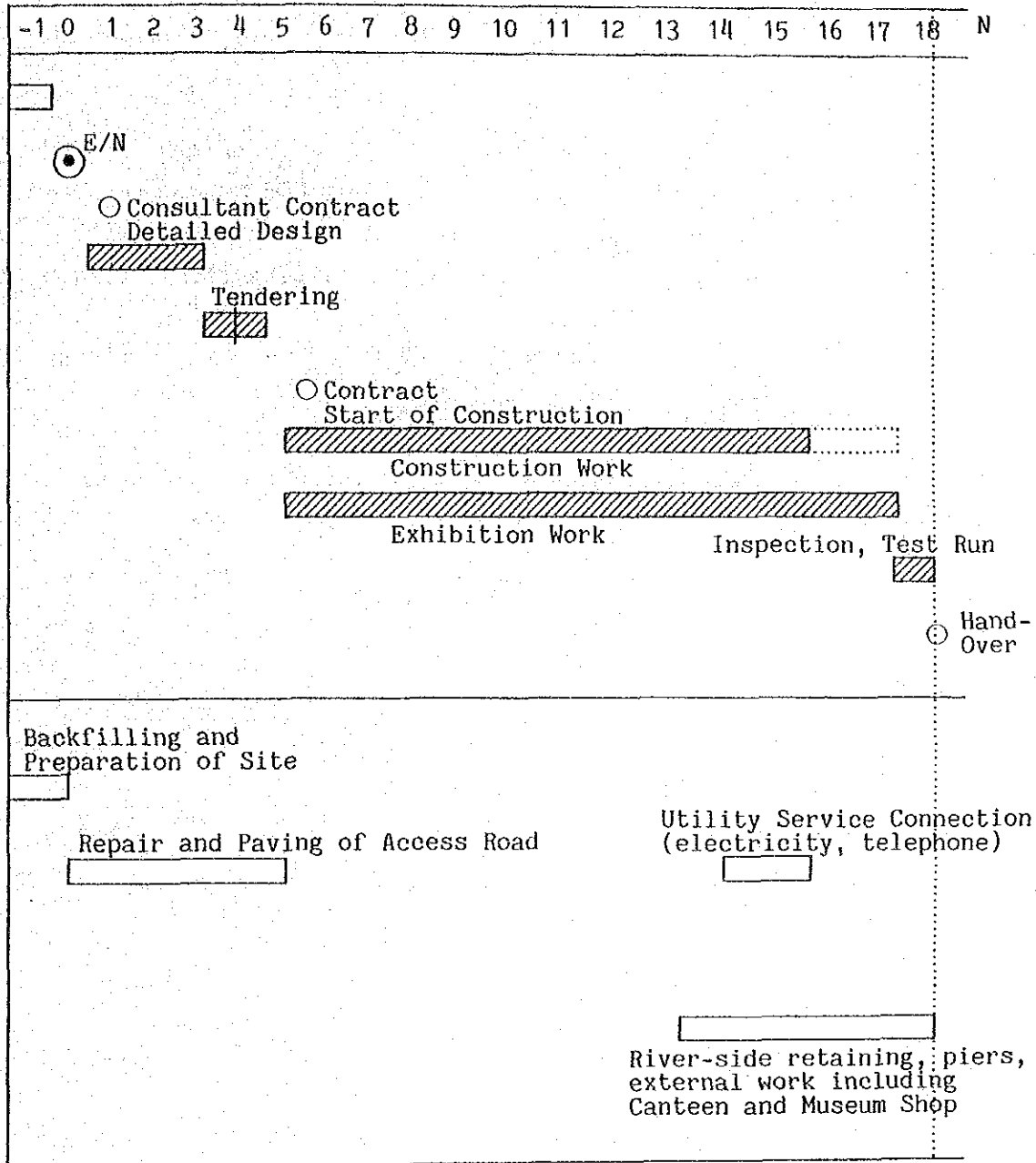
2) Tendering stage

The following work shall be carried out: announcement of tenders, pre-qualification of construction firms, invitation of tenders, submission of tender documents, cost estimation, evaluation, and conclusion of construction contract.

3) Implementation stage

After the construction work has been completed, inspection and test running shall be conducted in the presence of consultants and related parties, whereby conformity to the tendering documents shall be confirmed. The facilities shall be handed over to the Implementing Agency. The Project shall be regarded as completed at this point.

The following chart shows the tentative overall schedule for implementation of the Project.



4.6 Estimated Costs to be Covered by the Thai Side

The total cost to be covered by the Thai side is estimated to be approximately B19,620,000.

The Government of Thailand, which has reviewed the Implementation Plan (including the time schedule) and started negotiating with relevant organizations, has confirmed that the budget to cover the costs shall be appropriated in the budget for the current and following fiscal year.

According to the program conceived by the Government of Thailand, the budget for fiscal 1987 will cover the costs for removing the existing facilities from the site and backfilling and preparing the site, while the budget for fiscal 1988 will cover the cost for the remaining works including the installation of infrastructures and repair and paving of the Access road.

The breakdown is as follows:

1. Cost for removing existing facilities from the site and backfilling and preparing the site	B2,900,000
2. Cost for installation of infrastructures	B510,000
(1) power lines	
(2) telephone lines	
3. Repair and paving of Access Road	B2,560,000
4. River-side retaining and construction of pier	B5,970,000
5. Exterior work for gate, fence, parking lot and landscape	B5,120,000
6. Construction of Canteen and Museum Shop	B2,560,000
Total	B19,620,000

CHAPTER 5 PROJECT EVALUATION

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In its Fifth Five-Year National Economic and Social Development Plan (1982-1986), the Government of the Kingdom of Thailand stressed the need for shifting the focus of education from quantitative expansion to qualitative upgrading, the importance of social and lifelong education and the urgency in preserving cultural heritages. In the Sixth Five-Year National Program (1987-1991) starting from this year, educational policies are once again focused on lifetime education, education for better living and society, and fusion of traditional and modern cultures.

The current circumstances of museums in Thailand as places for education in tradition cultures are that exhibitions mainly consist of historically old and valuable vestiges, excavated articles and antiques, with little explanation on the items exhibited. As a result, the current systems of museums are not suitably established to facilitate the understanding of the visiting schoolchildren and the general public.

The Ayutthaya Period spanning 417 years from 1350 to 1767 was one of the particularly notable periods in the long history of Thailand, in terms of economy, culture and foreign relations. However, a major part of the excavated articles of historical significance that bear witness to Ayutthaya culture are dispersed within and outside Thailand.

It is, therefore, of vital importance to establish the Historical Study Center and to make public the Outline of Ayutthaya culture based on historical facts revealed through meticulous research and exhibited by modern and sophisticated techniques. It will contribute to facilitating the Thai people's understanding of the Ayutthaya culture, providing a place for social education and promoting education in traditional culture.

The Historical Study Centre shall provide visitors with valuable information on the history of Ayutthaya and will continue to study and compile relevant materials during the preparation period for the exhibition and also after its opening. As a result, the Centre is expected to play a pioneering role as a model case for other educational and research institutions with similar functions.

The cooperation extended by the Government of Japan, through the activities of the Historical Study Centre, will not only provide a place of social education for the people of Thailand but will also contribute to the implementation of studies on the Ayutthaya culture which is an important historical heritage for all mankind.