3) Fire Fighting Equipment

Specifications of fire fighting vehicles are recommended in ICAO standard, which are as follows;

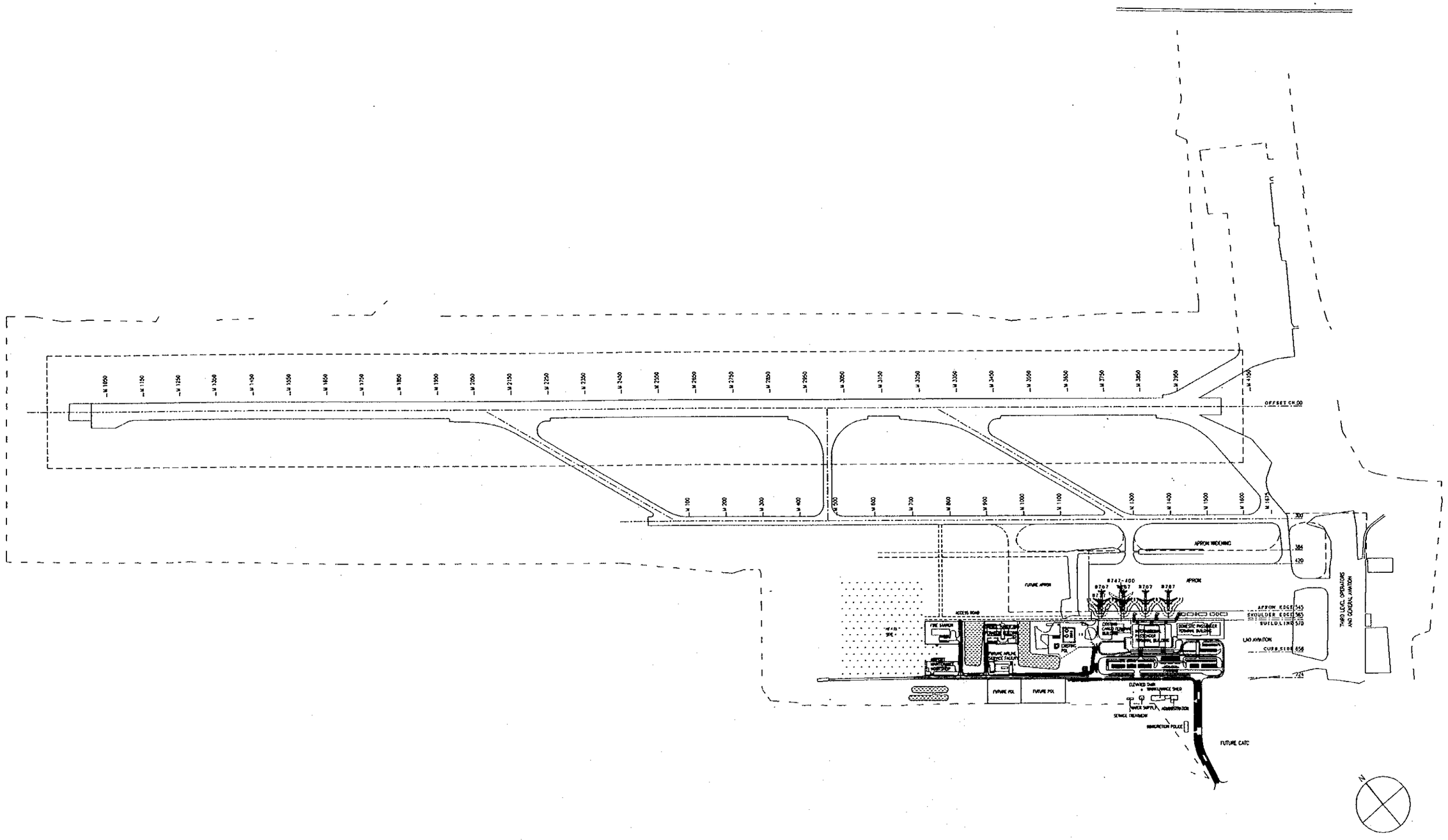
Item	more than 4500 litres	less than 4500 litres
Monitor	Required for Cat. 8	Required
Design feature	High discharge capacity	High and low discharge capacity
Range	Appropriate to longest aeroplane	Appropriate to longest aeroplane
Handlines	Required	Required
Under truck nozzle	Optional	Required
Bumper turret	Optional	Optional
Acceleration	80Km/h within 25 s at the normal operating temperature	80Km/h within 40 s at the normal operating temperature
Top speed	At least 105 Km/h	At least 100 Km/h
All wheel drive	Yes	Required
Automatic Transmission	Yes	Required
Minimum angle of approach/ departure	30°	30°
Minimum angle of lift	30°	28°

As for various tools for rescue and fire fighting are also indicated in ICAO recommendations, required tools shall be based on this.

Specifications of ambulance are not indicated in the ICAO recommendations but one box type of around 2500 cc engine is recommendable for this magnitude of airport.

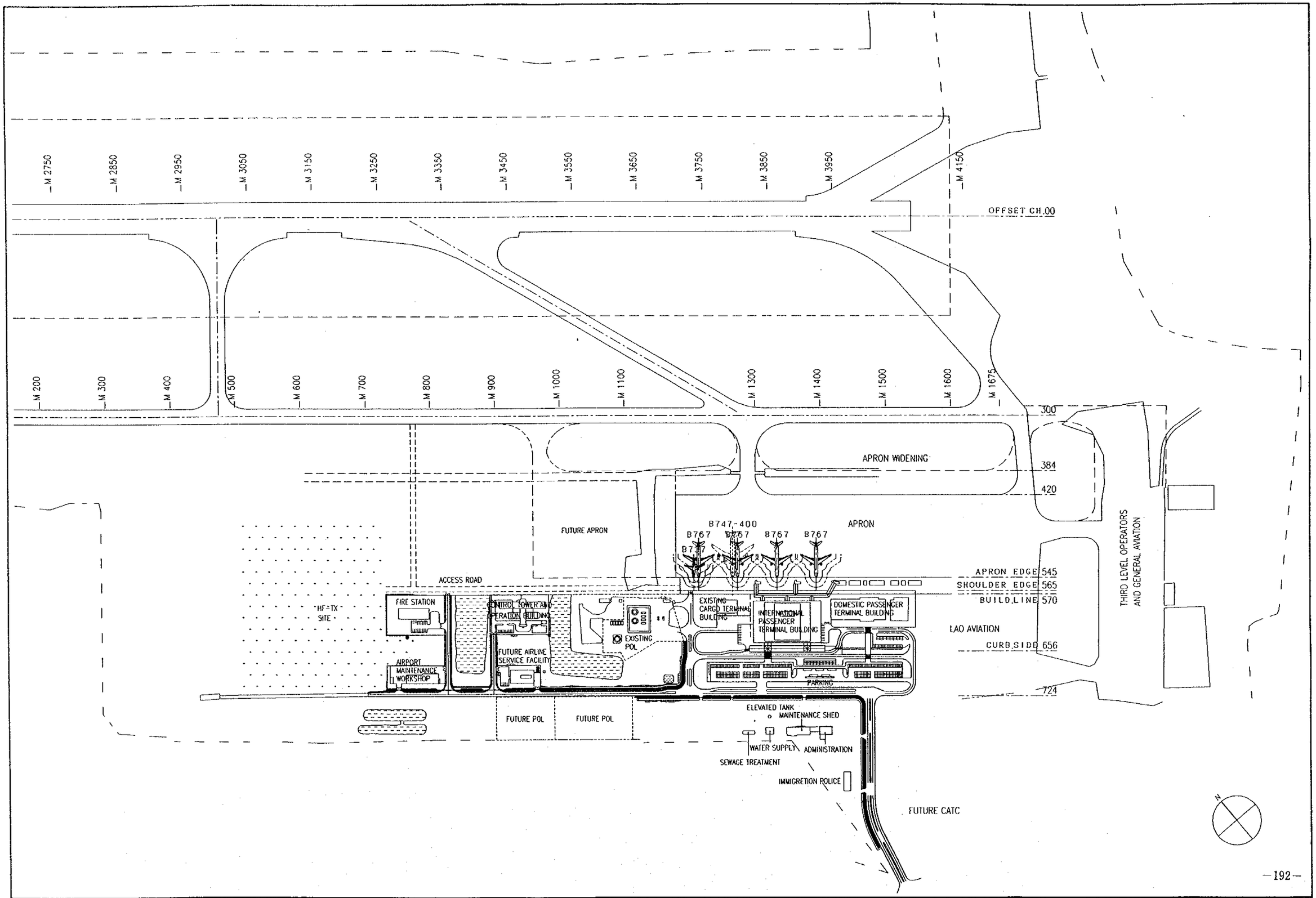
(6) Basic Design Drawings

A part of the basic design drawings is as shown in the following pages.



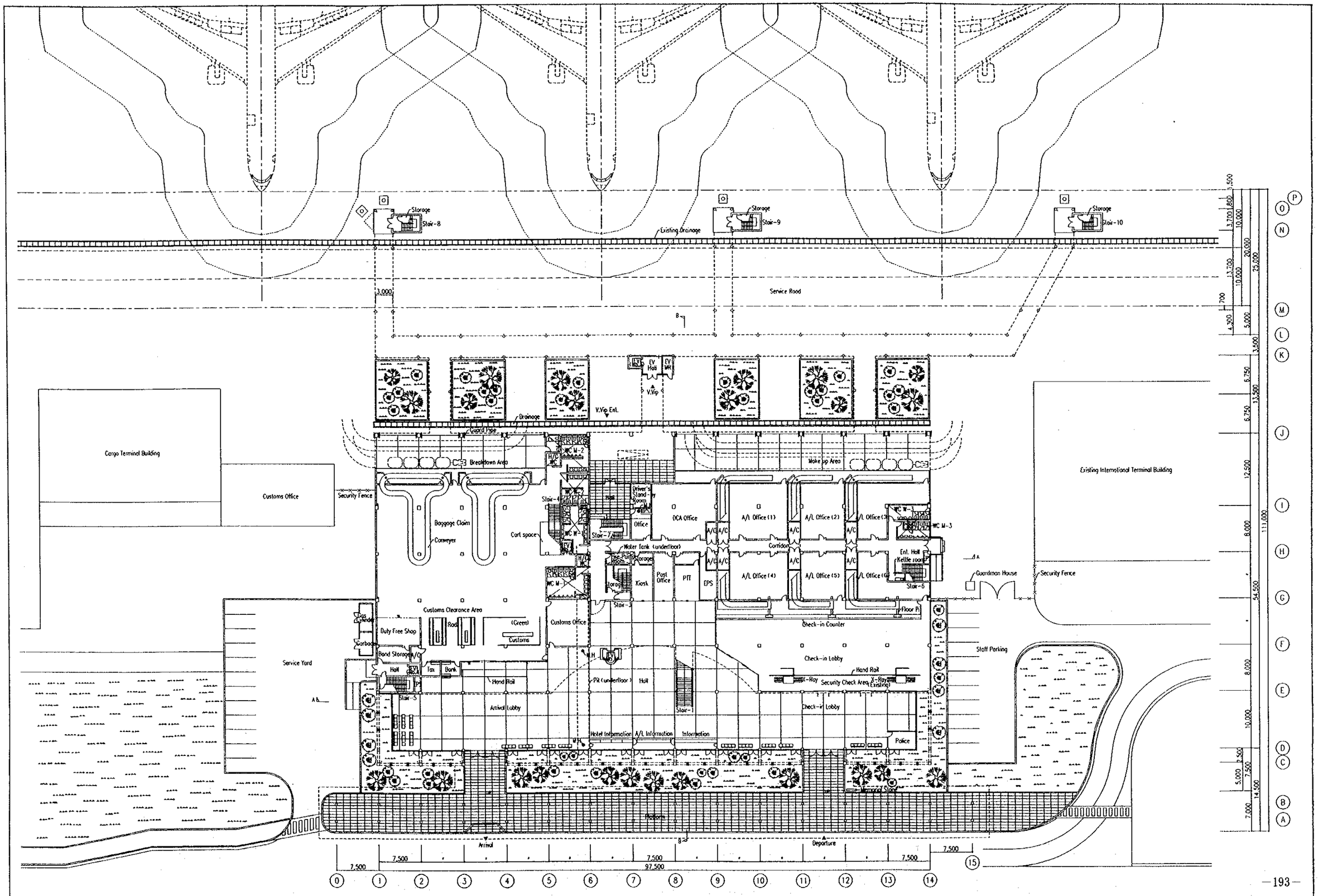
The Project for Rehabilitation of Vientiane International Airport

Building Name	Drawing No.
Drawing Title: **Site Plan**	Scale



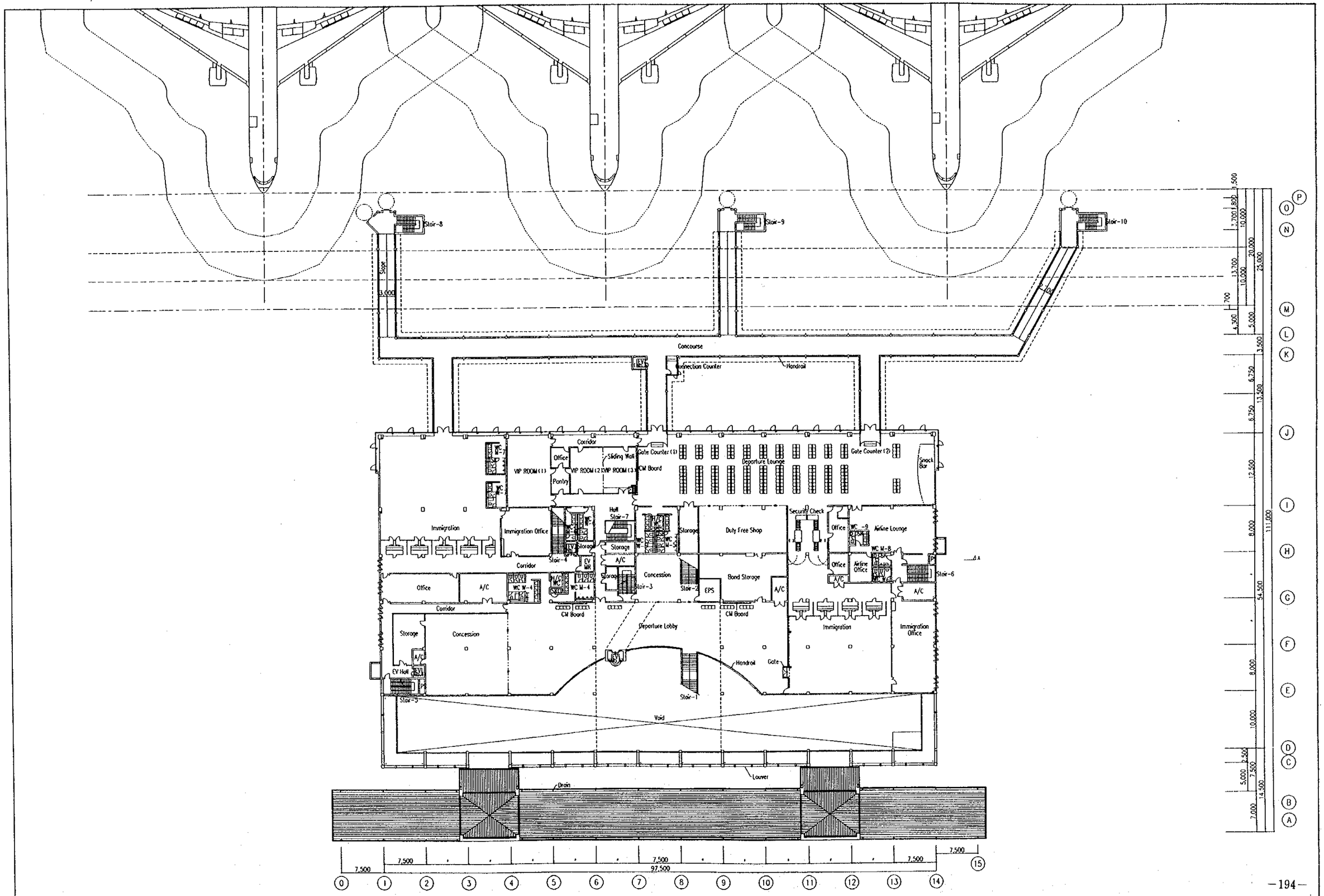
The Project for Rehabilitation of Vientiane International Airport

Building Name	Drawing No.
Drawing Title: **Terminal Area Layout Plan**	Scale



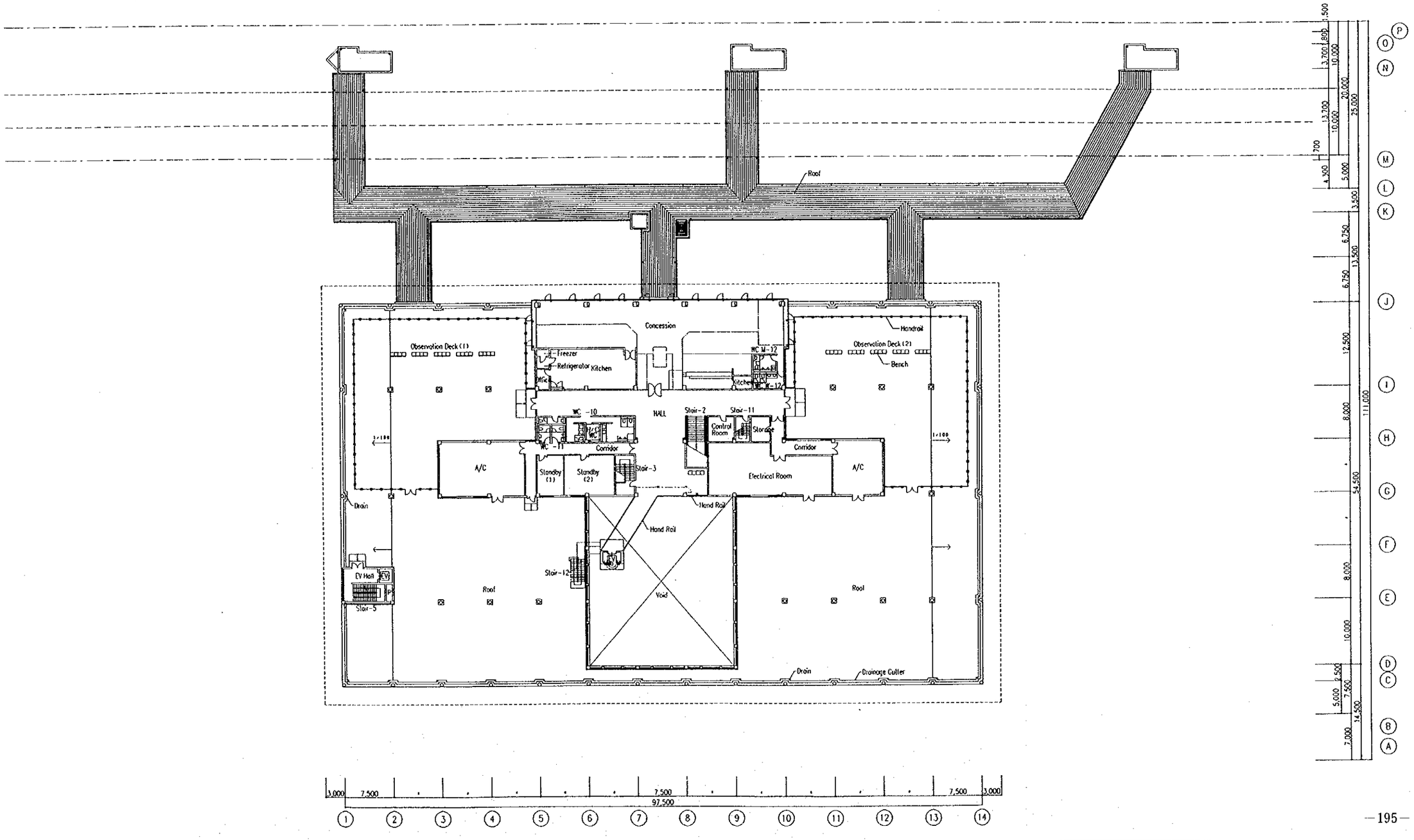
The Project for Rehabilitation of Vientiane International Airport

Build: Int'l Passenger Terminal Building		Drawing No.
Drawing Title: 1F Plan		Scale



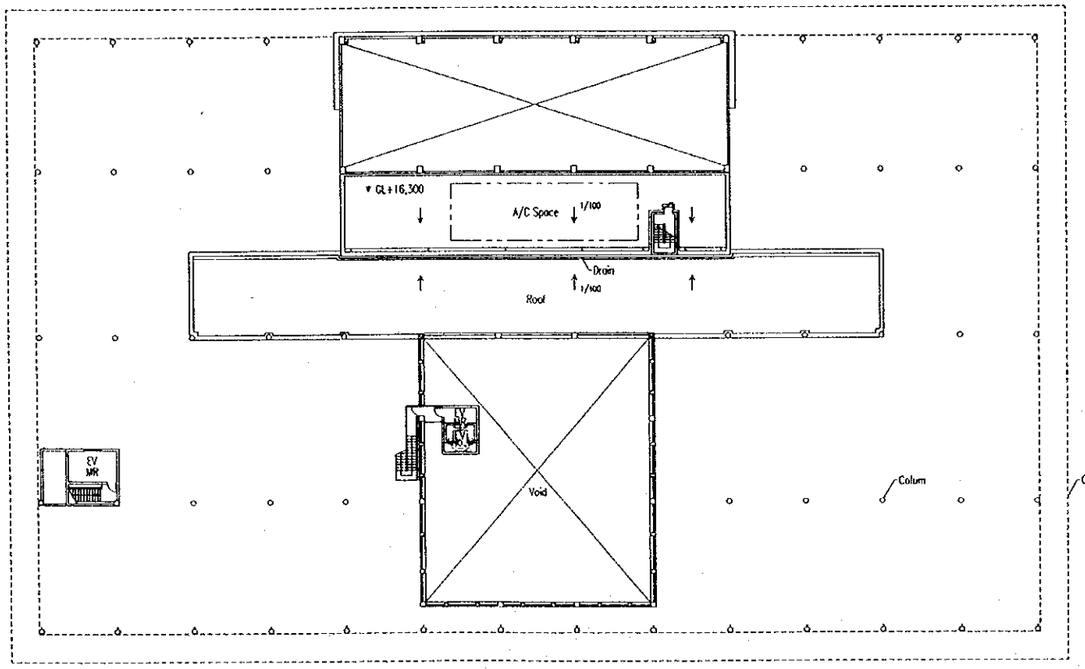
The Project for Rehabilitation of Vientiane International Airport

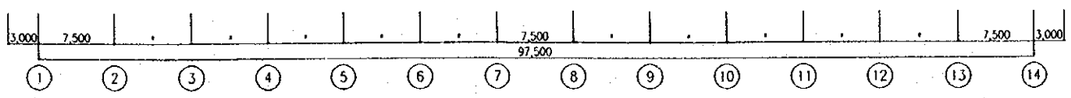
Build: Int'l Passenger Terminal Building	Drawing No.
Drawing title: 2F Plan	Scale



The Project for Rehabilitation of Vientiane International Airport

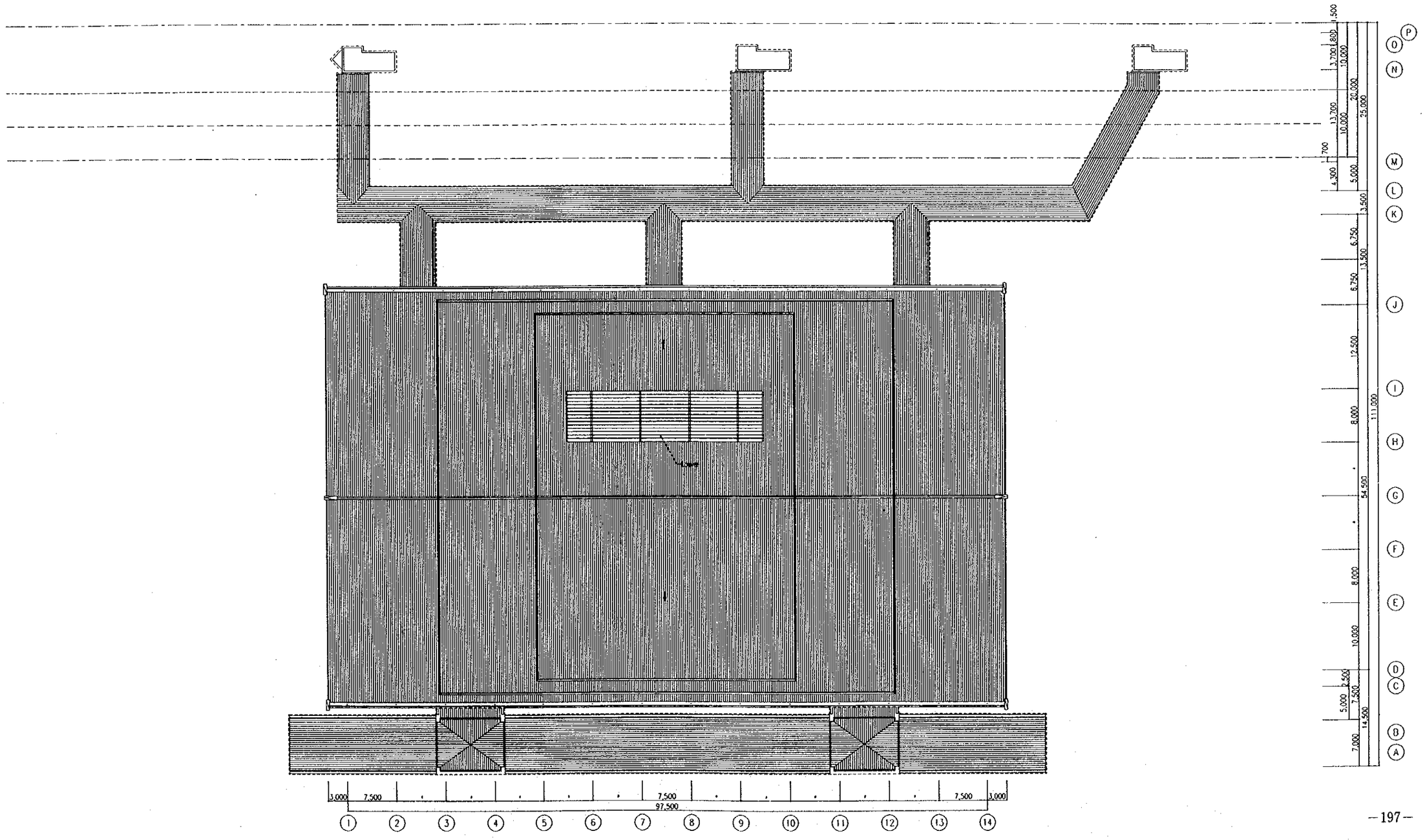
Building	Int'l Passenger Terminal Building
Drawing Title	3F Plan
Drawing No.	
Scale	





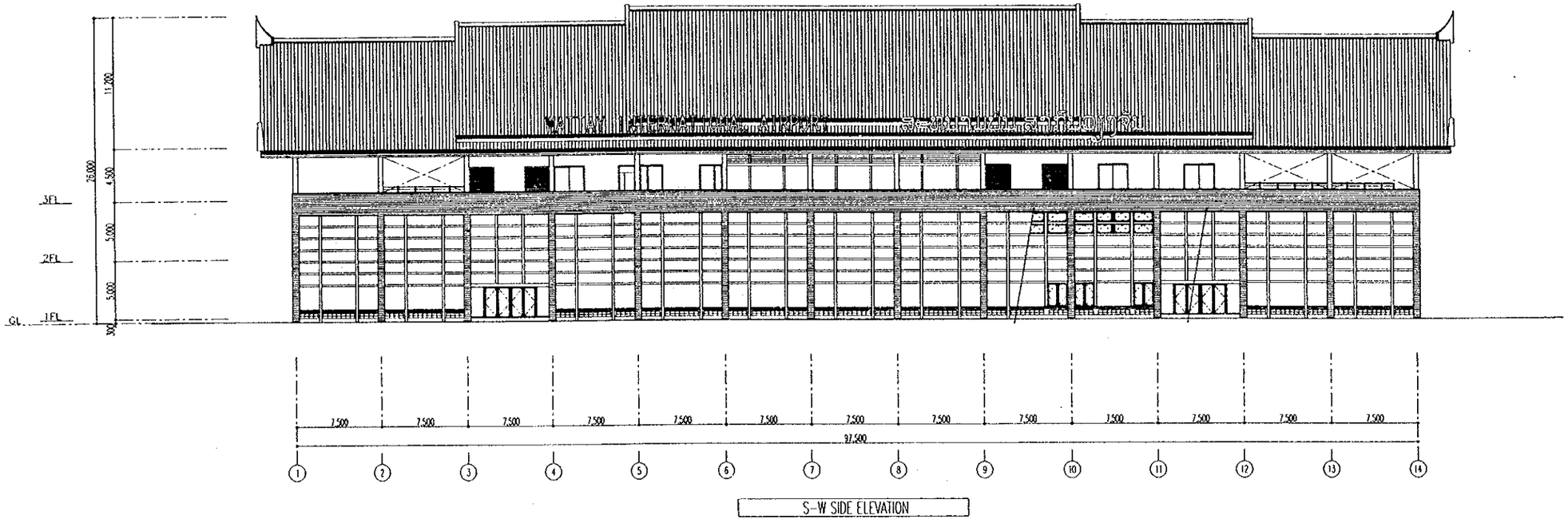
The Project for Rehabilitation of Vientiane International Airport

Building: Int'l Passenger Terminal Building	Drawing No.
Drawing Title: GL+16,300 Level Plan	Scale

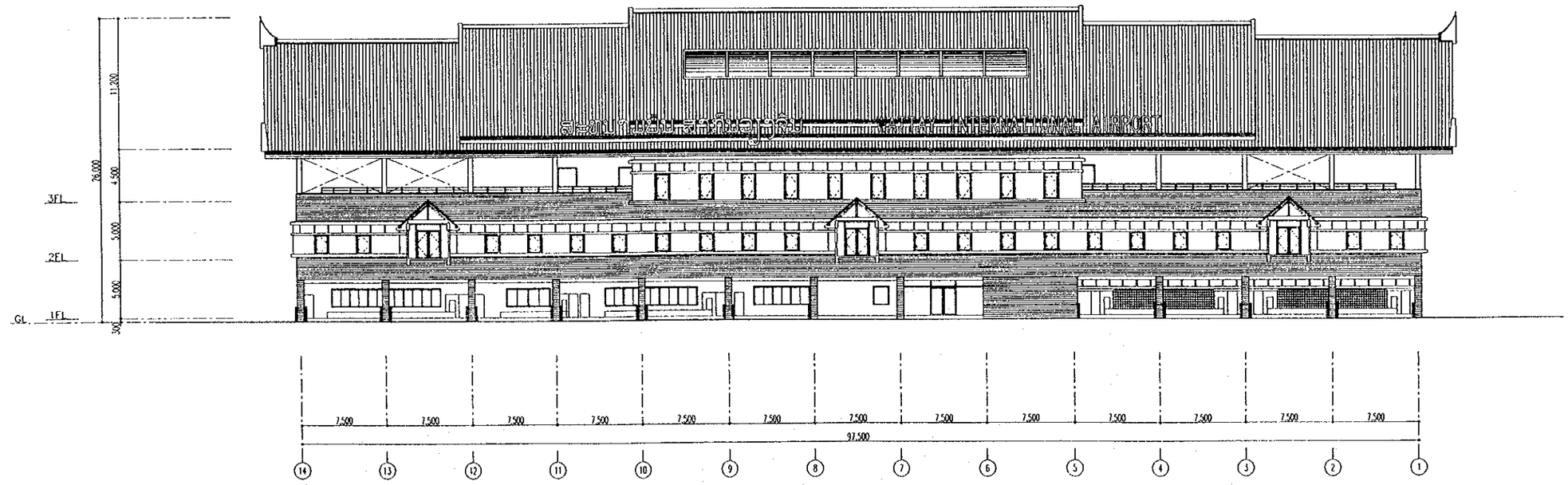


The Project for Rehabilitation of Vientiane International Airport

Building: Int'l Passenger Terminal Building		Drawing No.
Drawing Title: Roof Plan		Scale

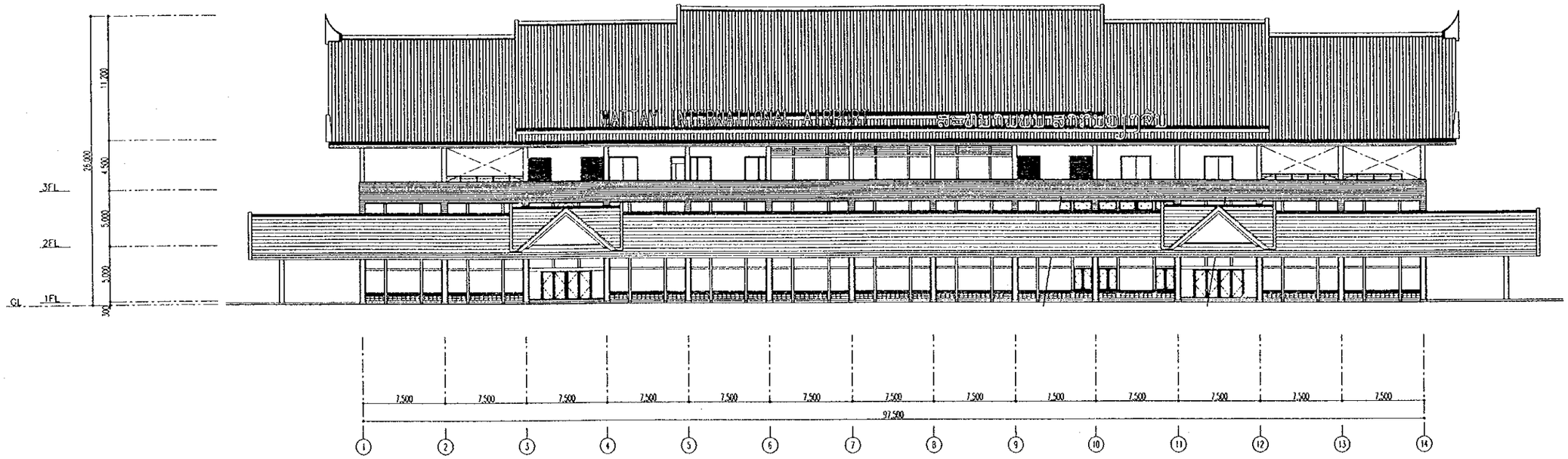


S-W SIDE ELEVATION

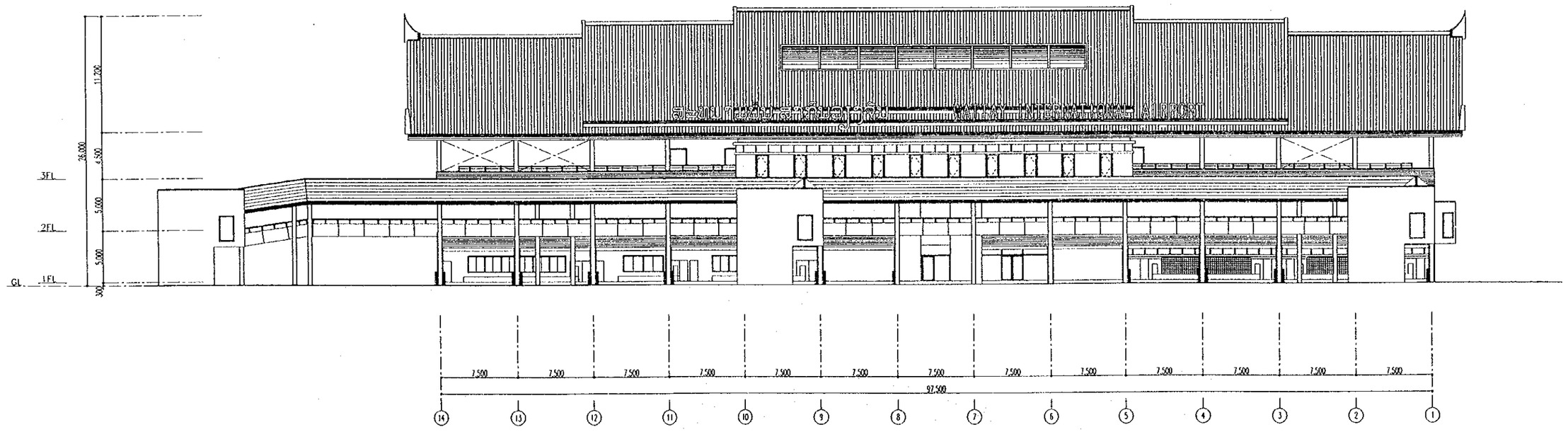


N-E SIDE ELEVATION

The Project for Rehabilitation of Vientiane International Airport	Building: Int'l Passenger Terminal Building	Drawing No.
	Drawing Title: Elevation (1)	Scale



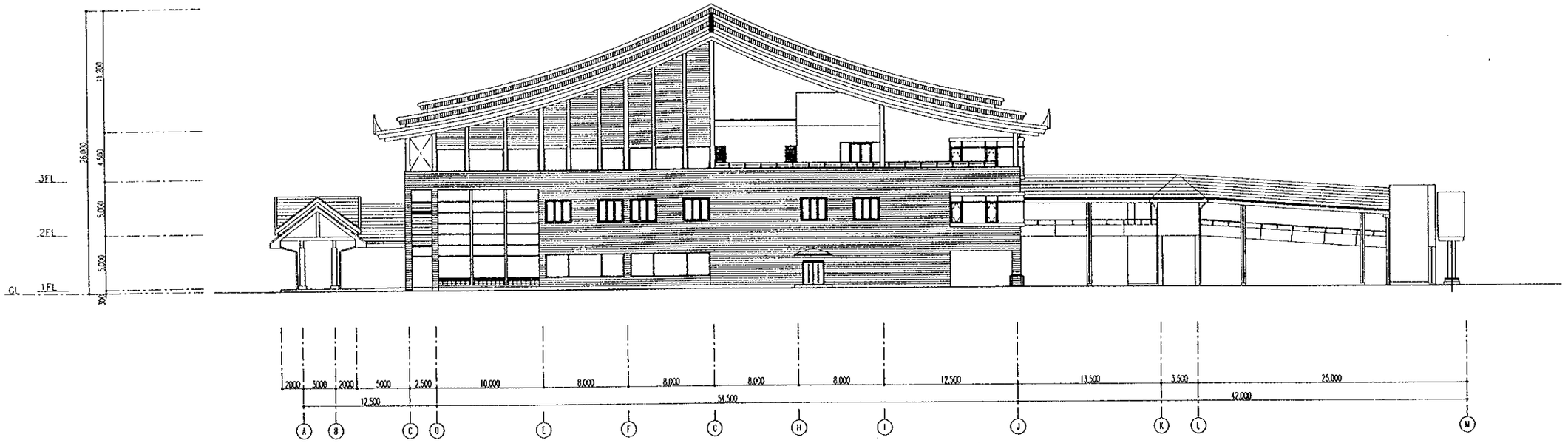
KERB SIDE ELEVATION



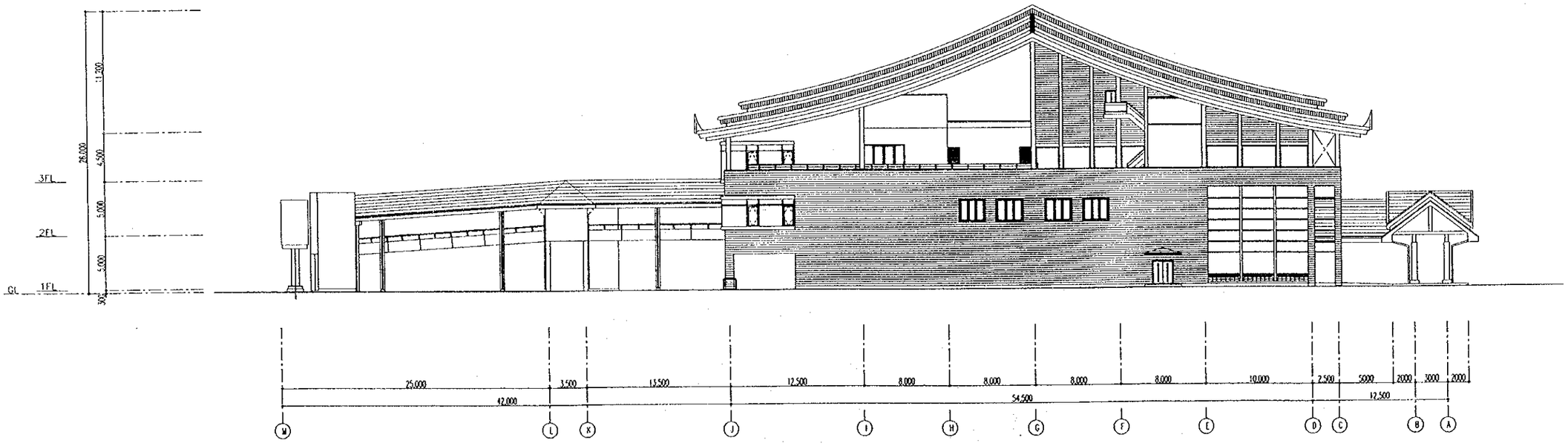
APRON SIDE ELEVATION

The Project for Rehabilitation of Vientiane International Airport

Building: Int'l Passenger Terminal Building	Drawing No.
Drawing Title: Elevation (2)	Scale



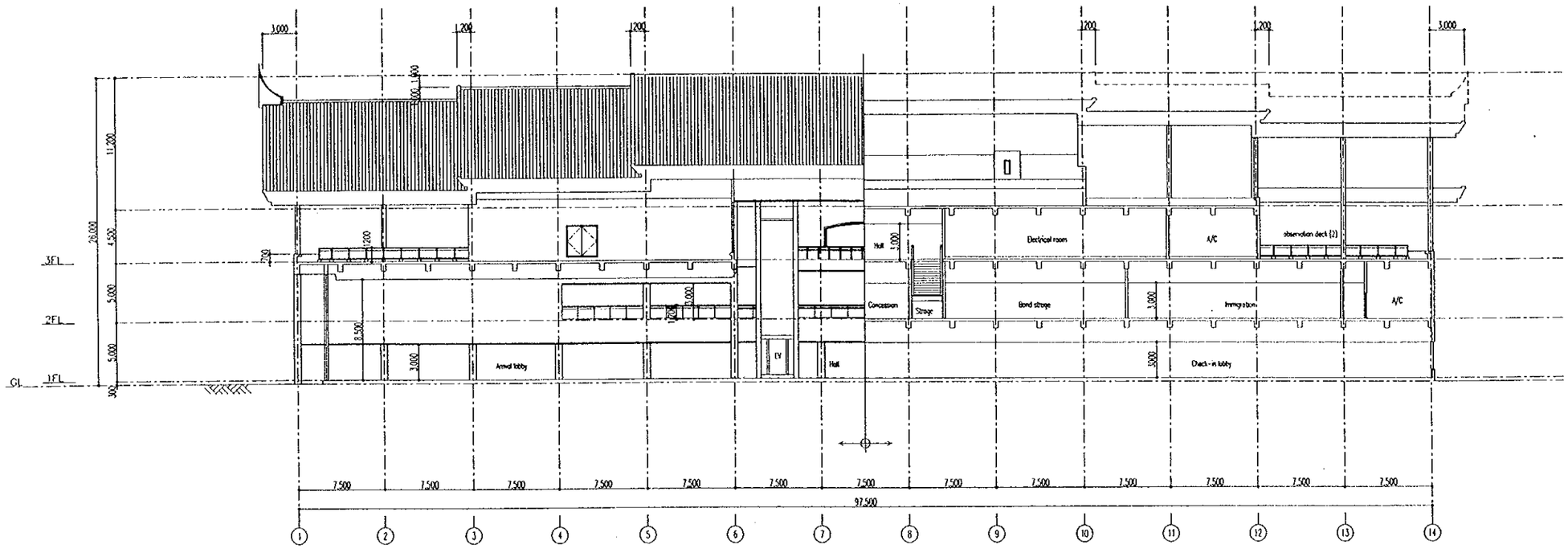
SOUTH EAST ELEVATION



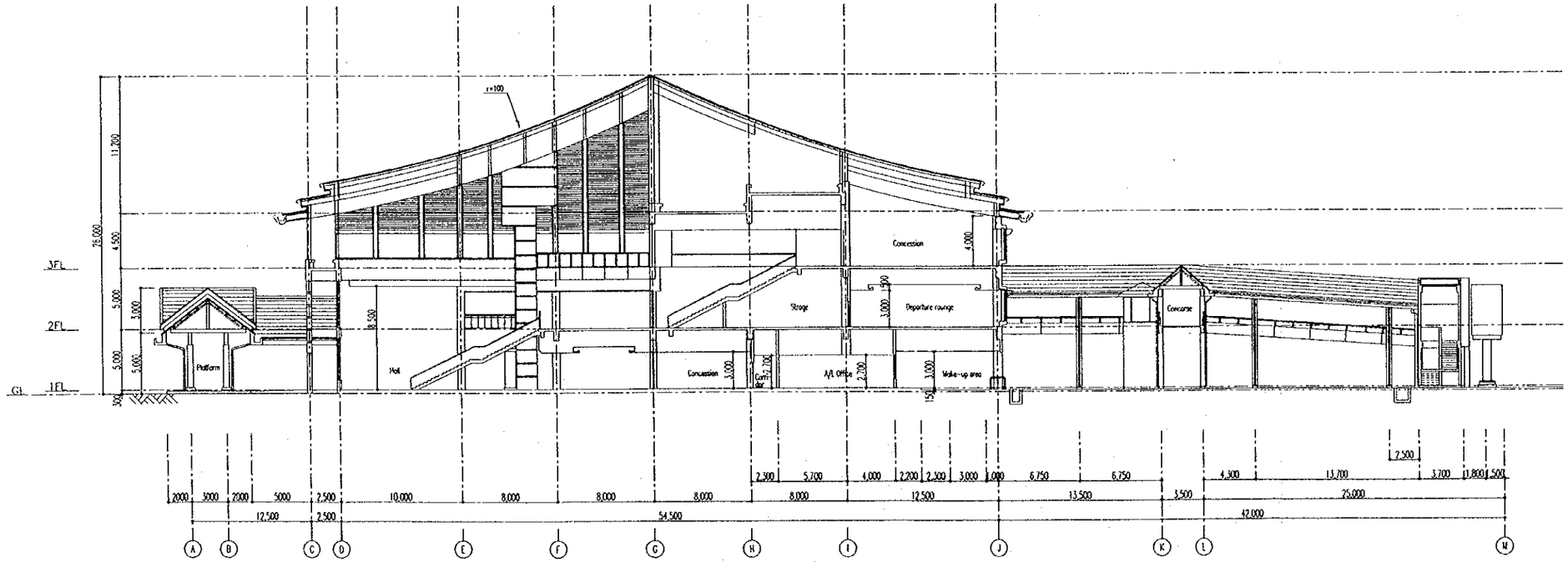
NORTH WEST ELEVATION

The Project for Rehabilitation of Vientiane International Airport

Building: Int'l Passenger Terminal Building	Drawing No.
Drawing Title: Elevation (3)	Scale



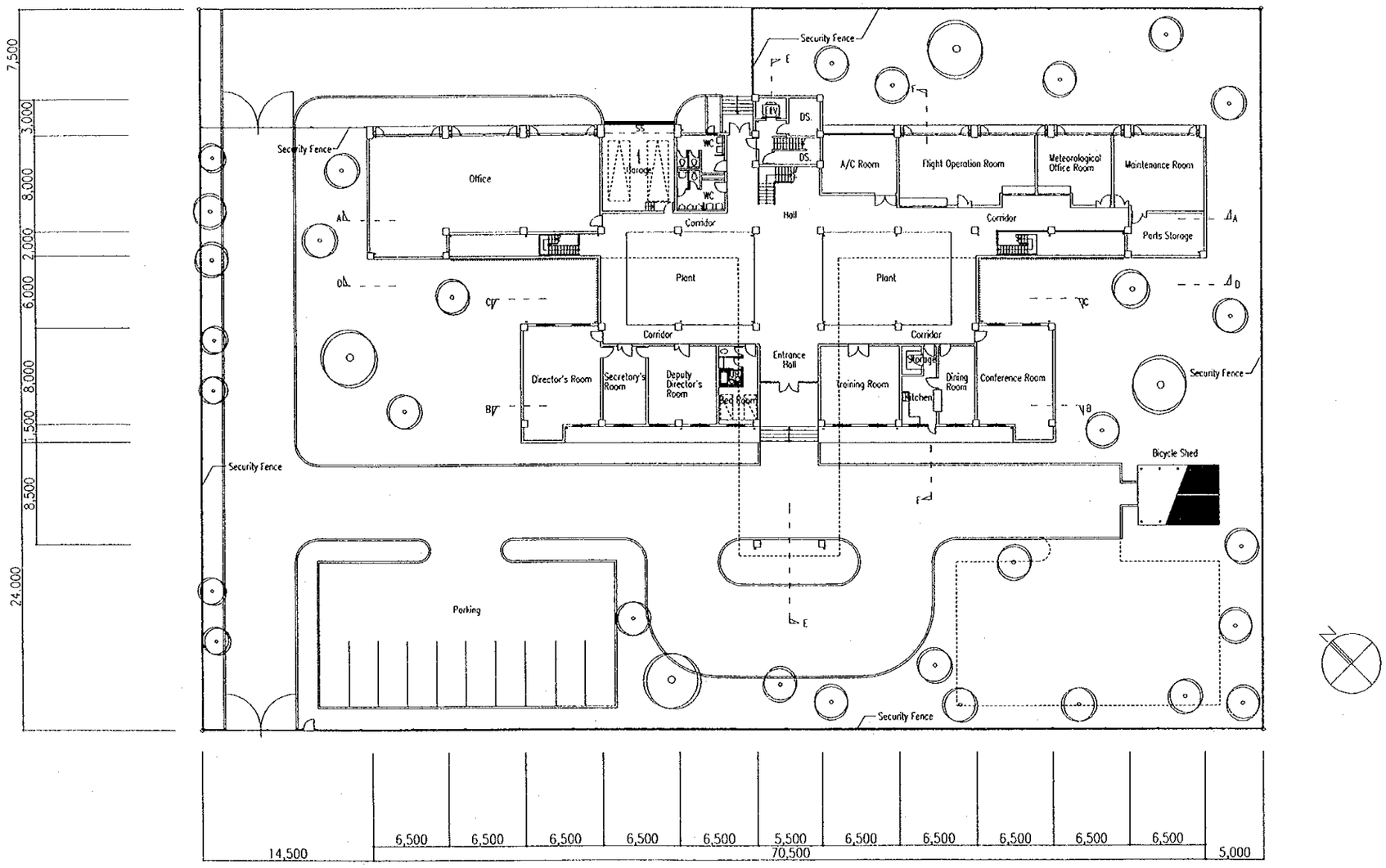
A-A SECTION



B-B SECTION

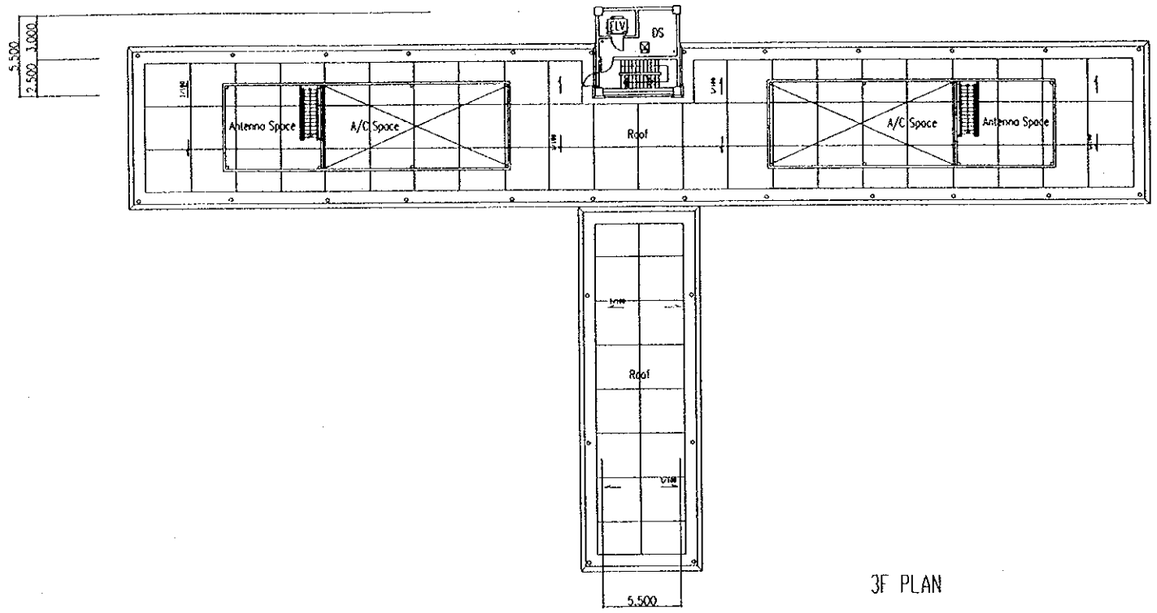
The Project for Rehabilitation of Vientiane International Airport

Build	Int'l Passenger Terminal Building	Drawing No.
Drawing Title	Section	Scale

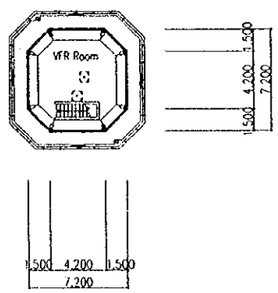


1F PLAN

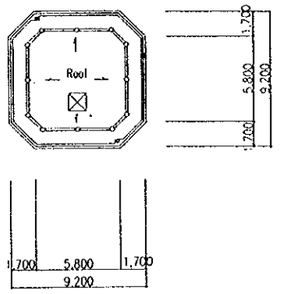
The Project for Rehabilitation of Vientiane International Airport	Building Name: Control Tower and Operations Building	
	Drawing Title: 1F Plan	Scale



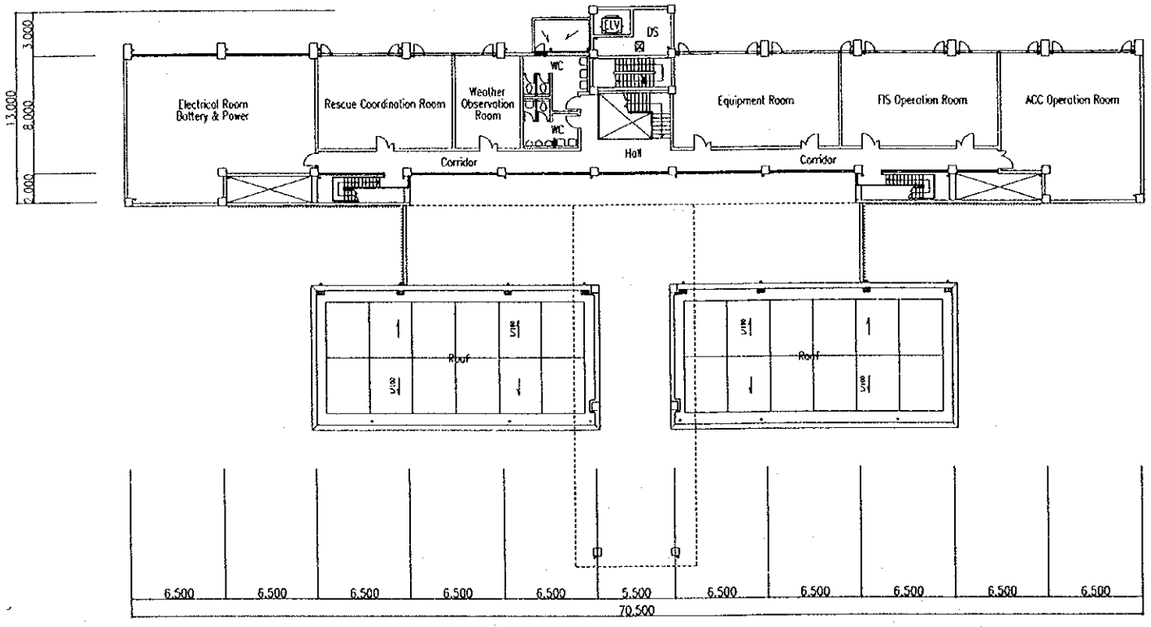
3F PLAN



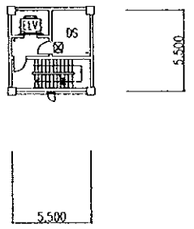
6F PLAN



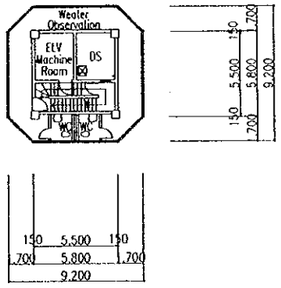
ROOF PLAN



2F PLAN



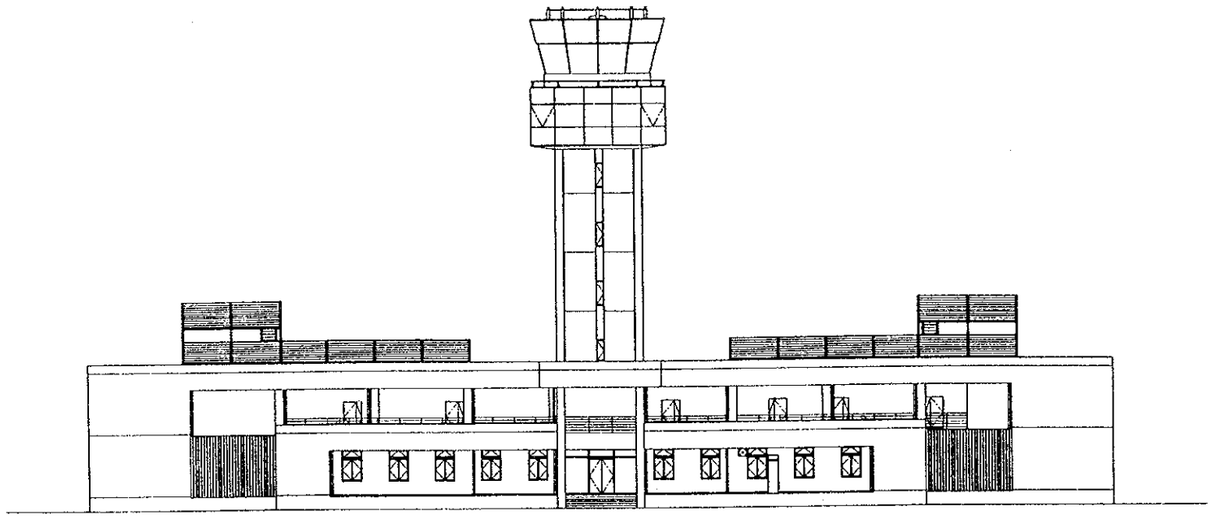
4F PLAN



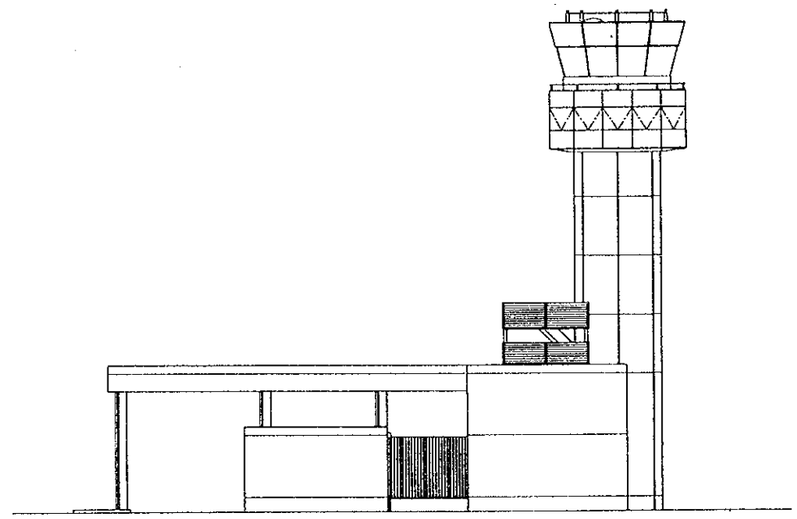
5F PLAN

The Project for Rehabilitation of Vientiane International Airport

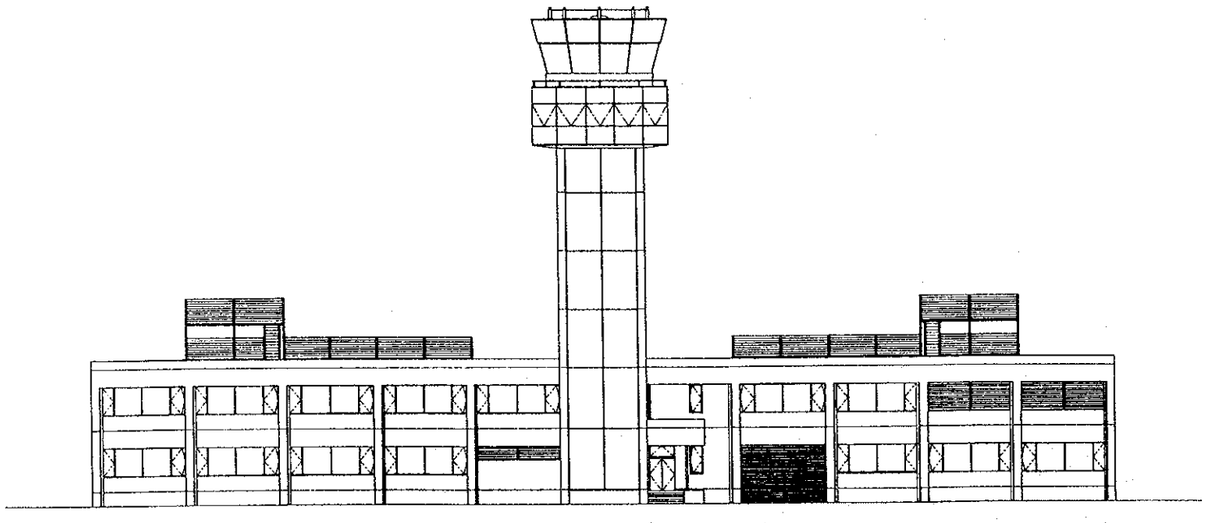
Building Name	Control Tower and Operations Building
Drawing Title	2F - RF Plan
Scale	



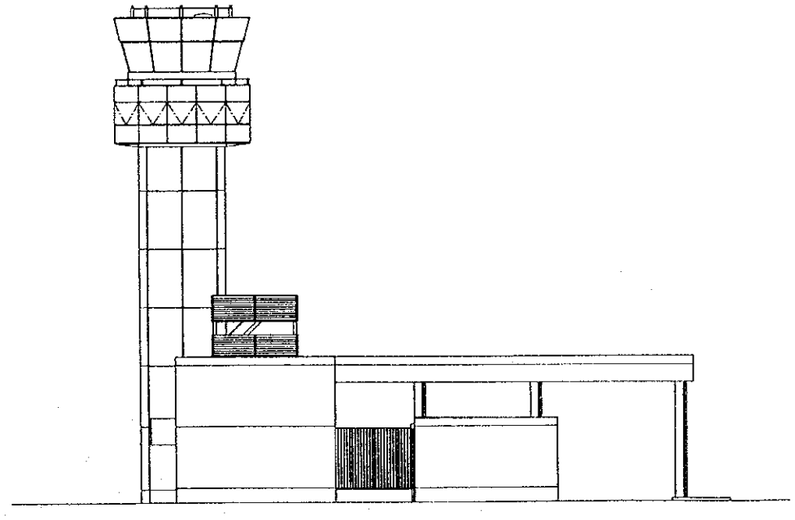
S-W ELEVATION



S-E ELEVATION



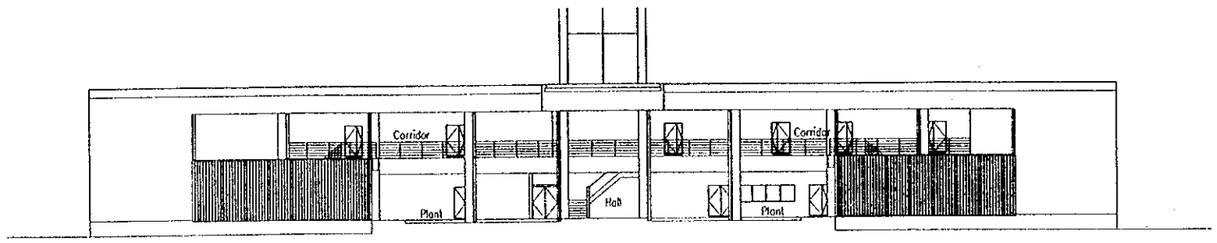
N-E ELEVATION



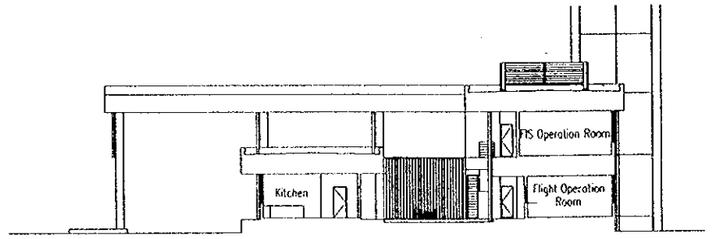
N-W ELEVATION

The Project for Rehabilitation of Vientiane International Airport

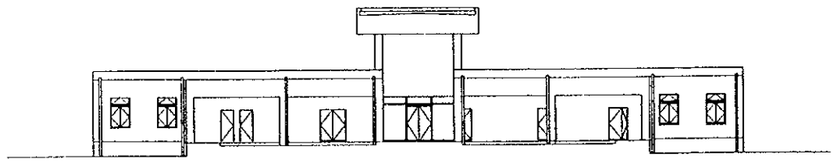
Building Name	Control Tower and Operations Building
Drawing Title	Elevation
Scale	



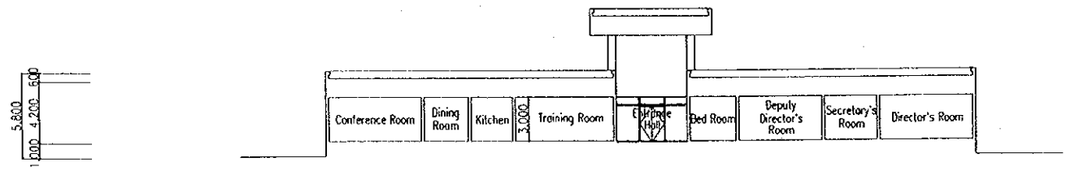
D-D SECTION



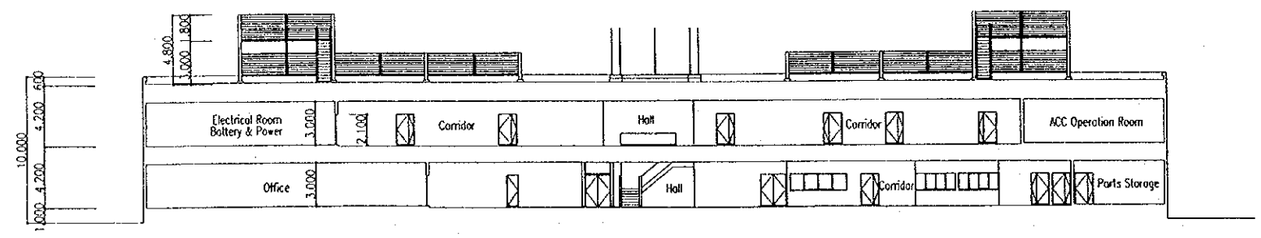
F-F SECTION



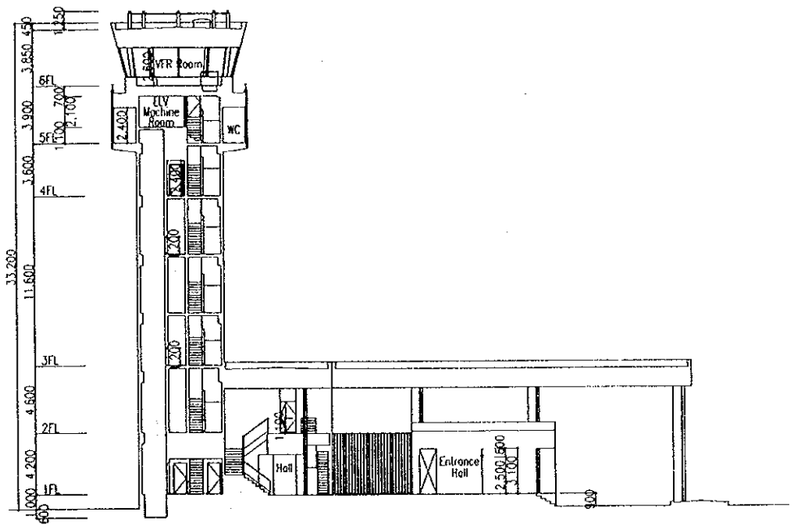
C-C SECTION



B-B SECTION



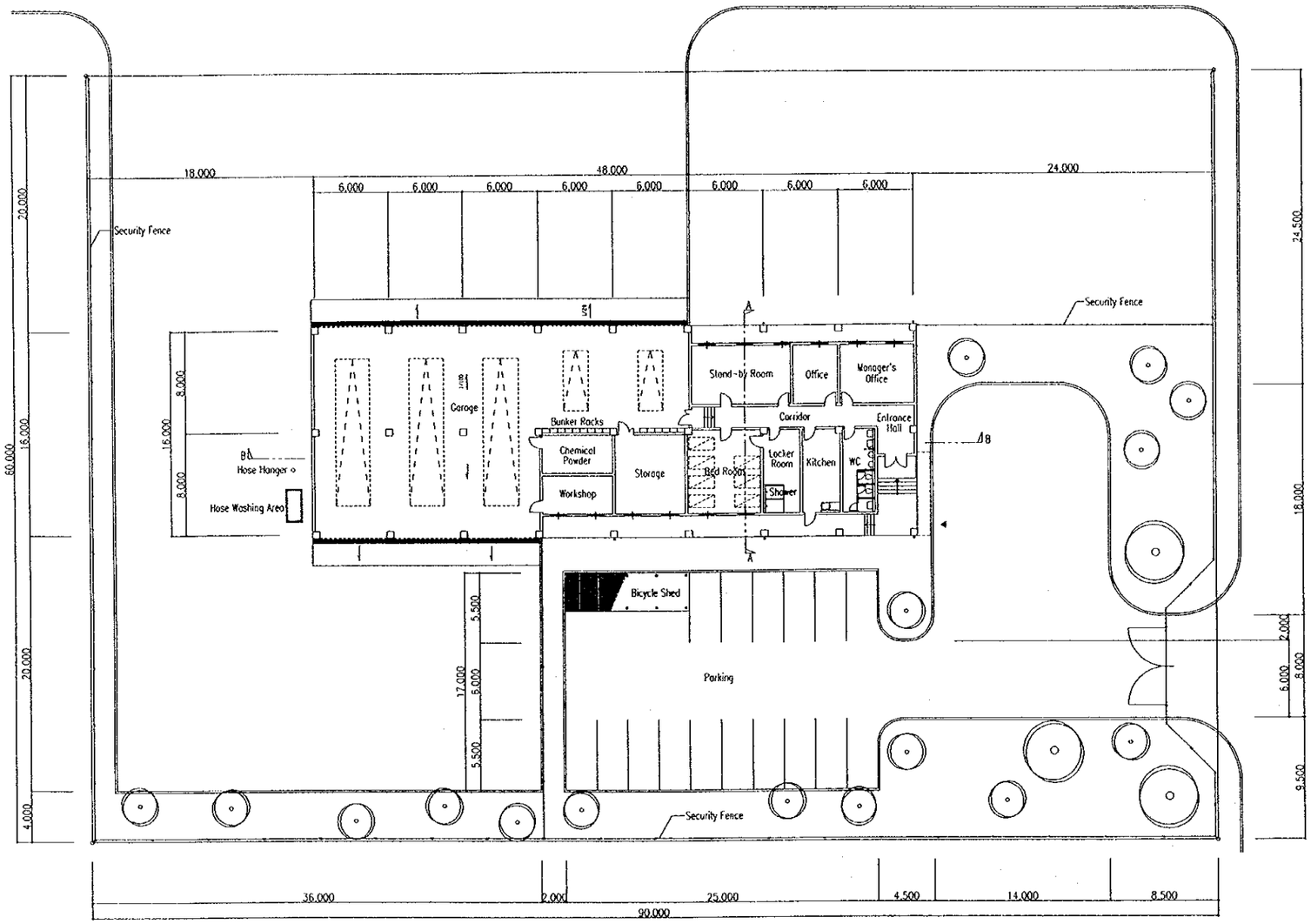
A-A SECTION



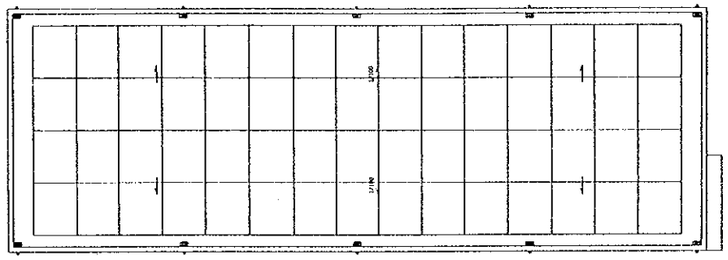
E-E SECTION

The Project for Rehabilitation of Vientiane International Airport

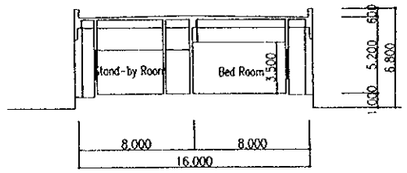
Building Name	Control Tower and Operations Building
Drawing Title	Section
Scale	



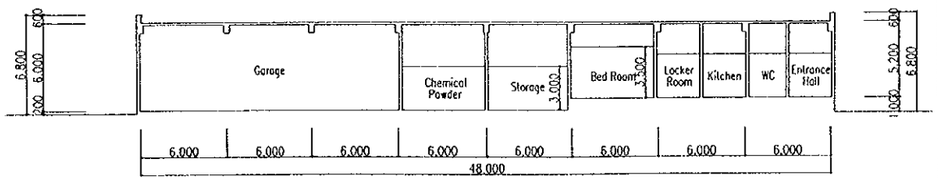
PLAN



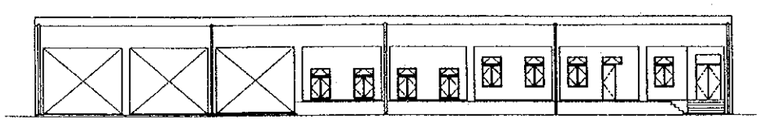
ROOF PLAN



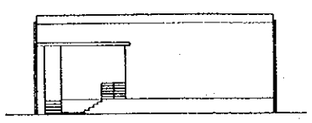
A-A SECTION



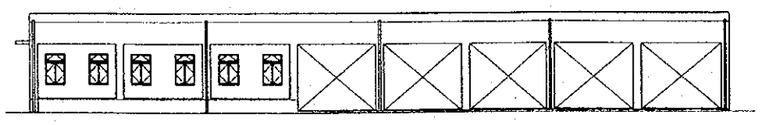
B-B SECTION



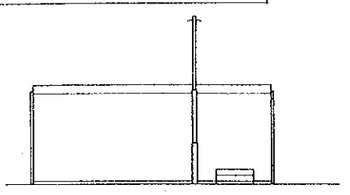
S-W ELEVATION



S-E ELEVATION



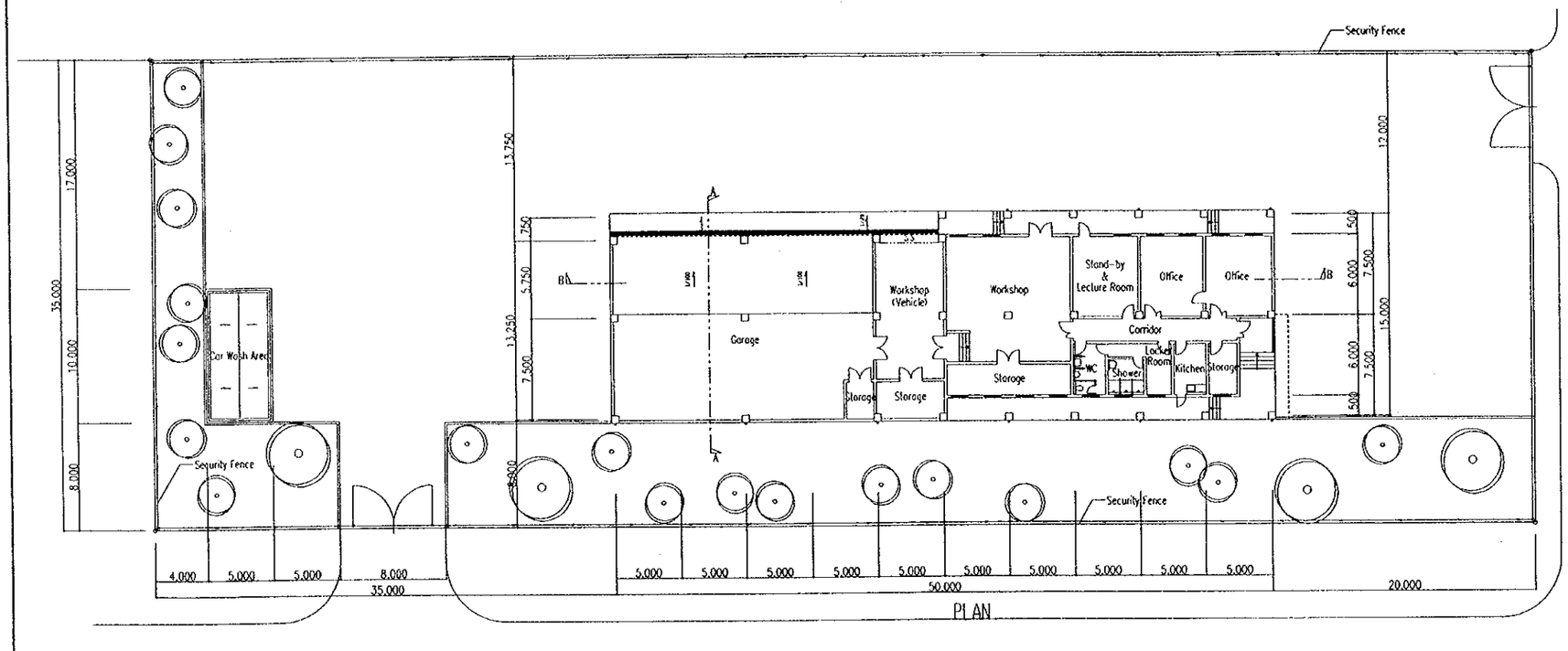
N-E ELEVATION



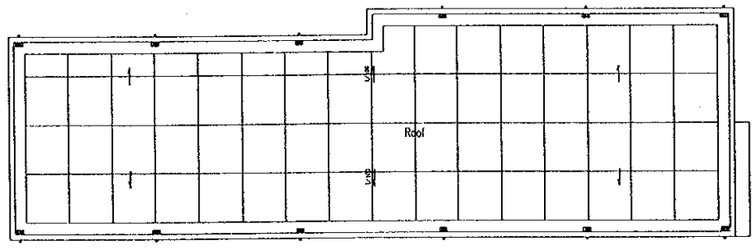
N-W ELEVATION

The Project for Rehabilitation of Vientiane International Airport

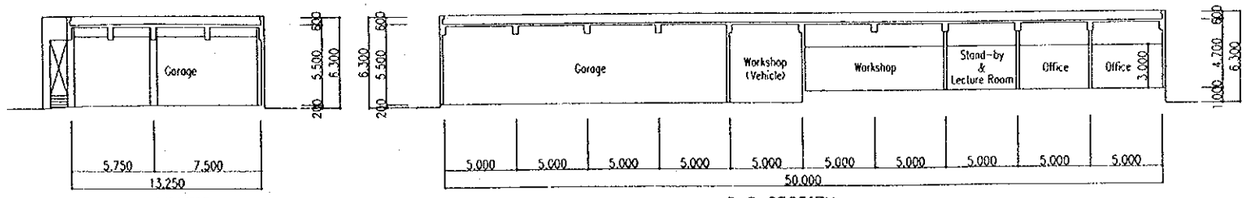
Building Name	**Fire Station**	Drawing No.
Drawing Title	**Plan, Elevation, Section**	Scale



PLAN

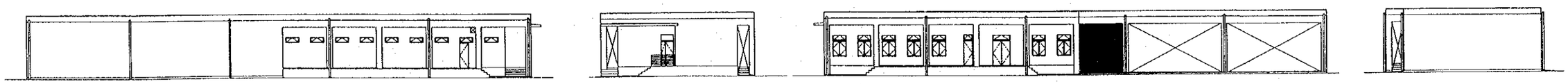


ROOF PLAN



A-A SECTION

B-B SECTION



S-W ELEVATION

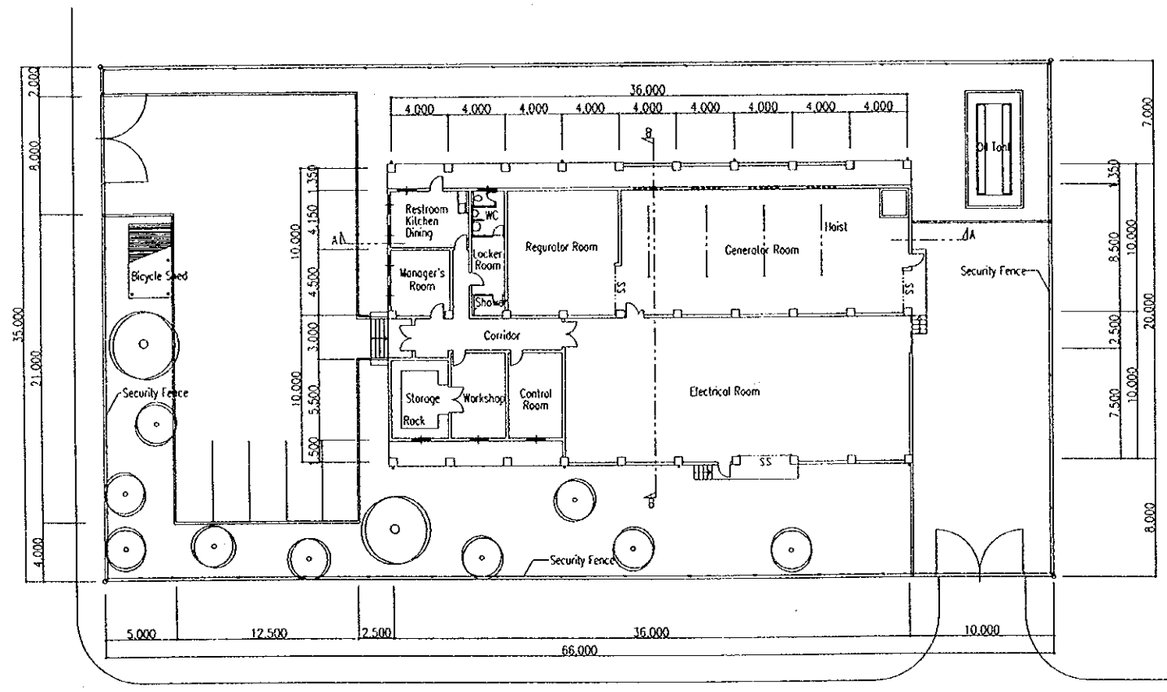
S-E ELEVATION

N-E ELEVATION

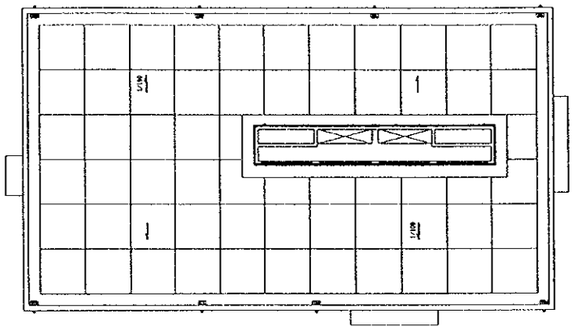
N-W ELEVATION

The Project for Rehabilitation of Vientiane International Airport

Building Name	**Maintenance Workshop**	Drawing No.
Drawing Title	**Plan, Elevation, Section**	Scale

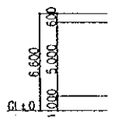


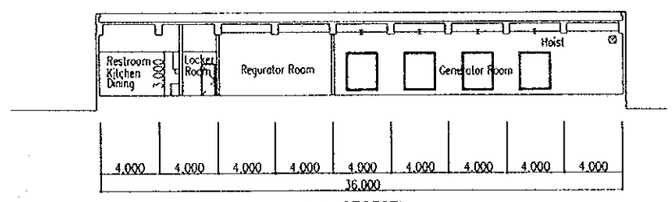
ROOF PLAN (2)



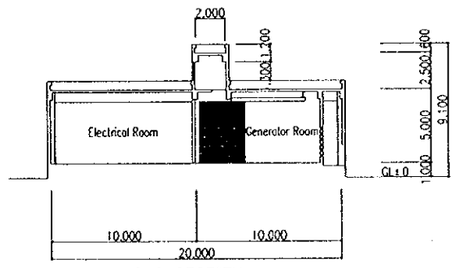
ROOF PLAN

PLAN

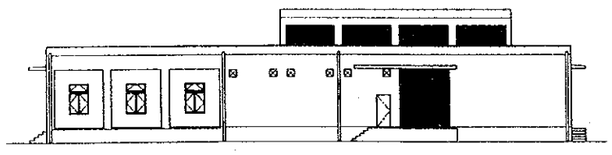




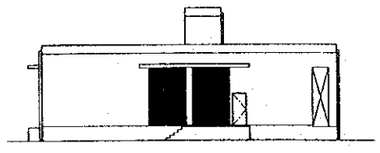
A-A' SECTION



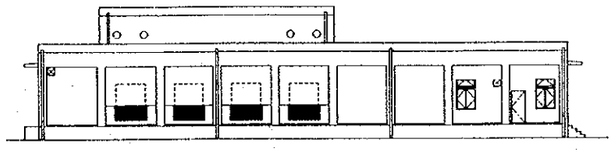
B-B' SECTION



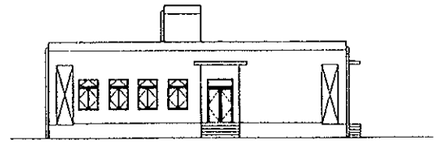
S-W ELEVATION



S-E ELEVATION



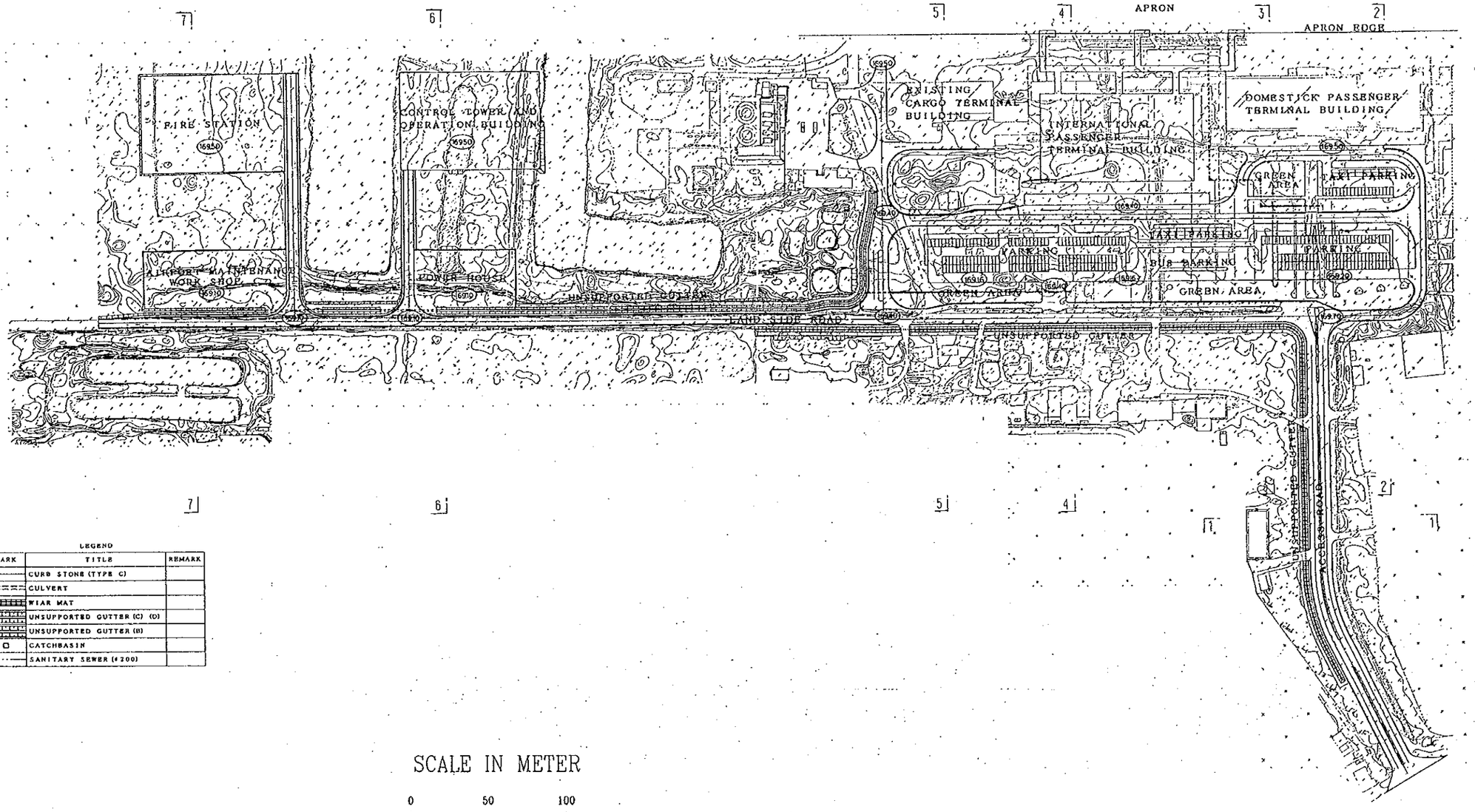
N-E ELEVATION



N-W ELEVATION

The Project for Rehabilitation of Vientiane International Airport

Building Name	**Powerhouse**	Drawing No.
Drawing Title	**Plan, Elevation, Section**	Scale



LEGEND

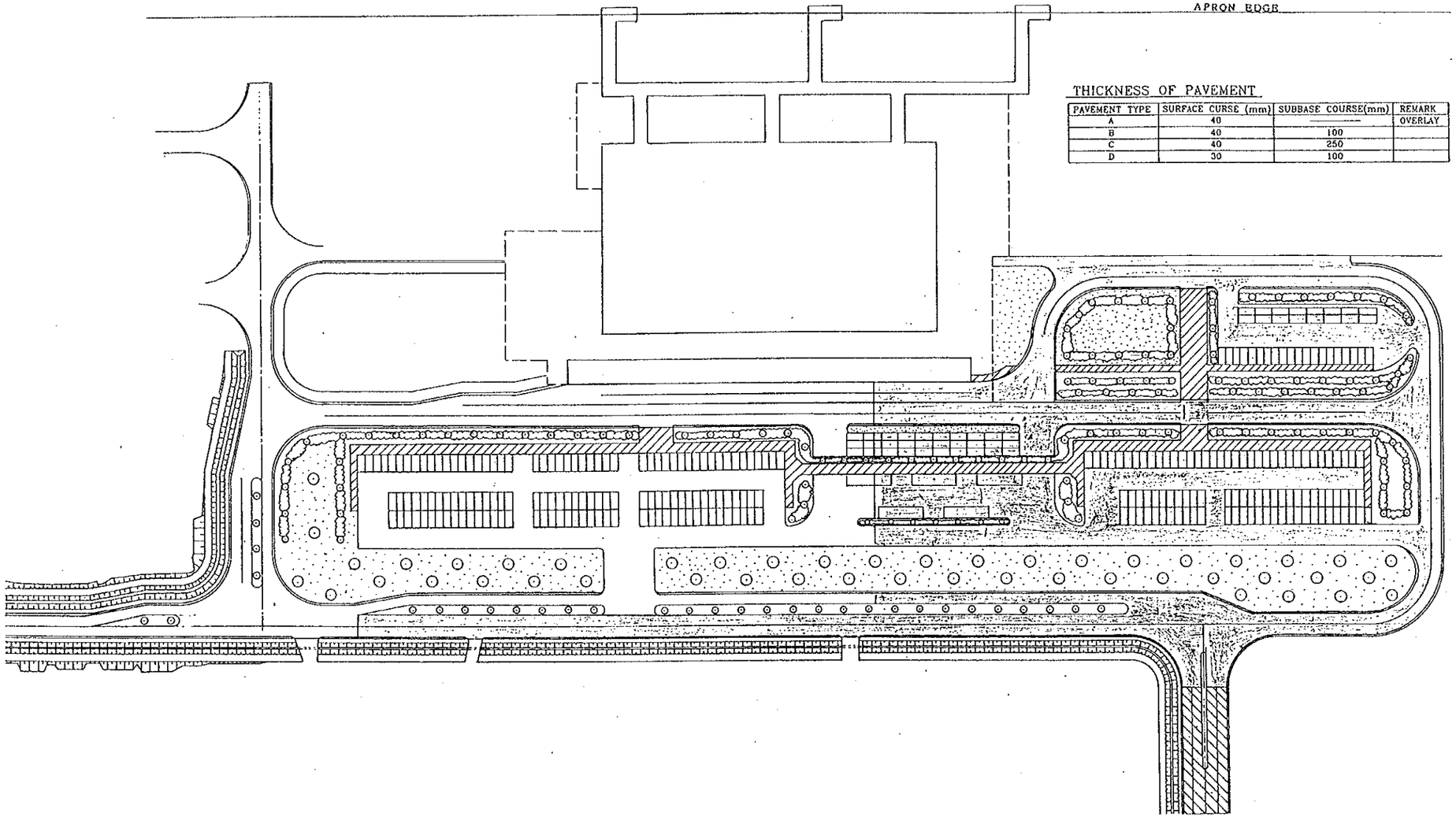
MARK	TITLE	REMARK
	CURB STONE (TYPE C)	
	CULVERT	
	WIAR MAT	
	UNSUPPORTED GUTTER (C) (D)	
	UNSUPPORTED GUTTER (B)	
	CATCHBASIN	
	SANITARY SEWER (Φ200)	

SCALE IN METER

0 50 100

The Project for Rehabilitation of Vientiane International Airport

Building Name	**Civil Works**	Drawing No.
Drawing Title	**Scheme Drawing**	Scale



THICKNESS OF PAVEMENT

PAVEMENT TYPE	SURFACE CURSE (mm)	SUBBASE COURSE(mm)	REMARK
A	40		OVERLAY
B	40	100	
C	40	250	
D	30	100	

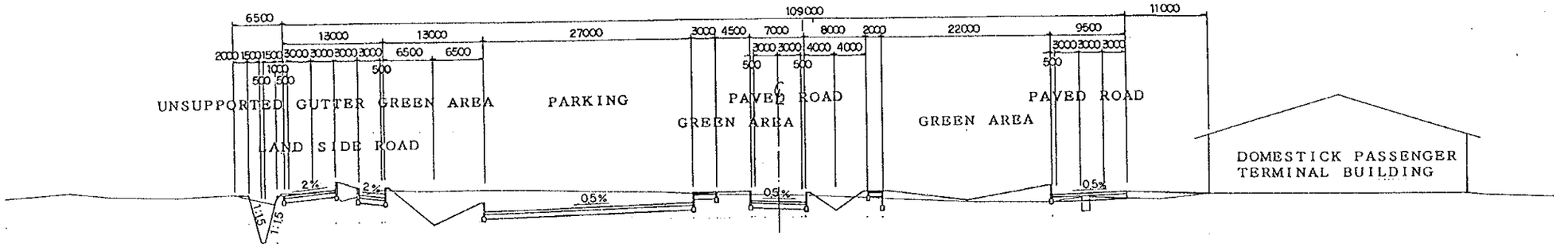
LEGEND

MARK	TITLE	REMARK
	PAVEMENT (A)	
	PAVEMENT (B)	
	PAVEMENT (C)	
	PAVEMENT (D)	
	ARBOR	
	SHRUB TYPE (A)	
	SHRUB TYPE (B)	
	SODDING	

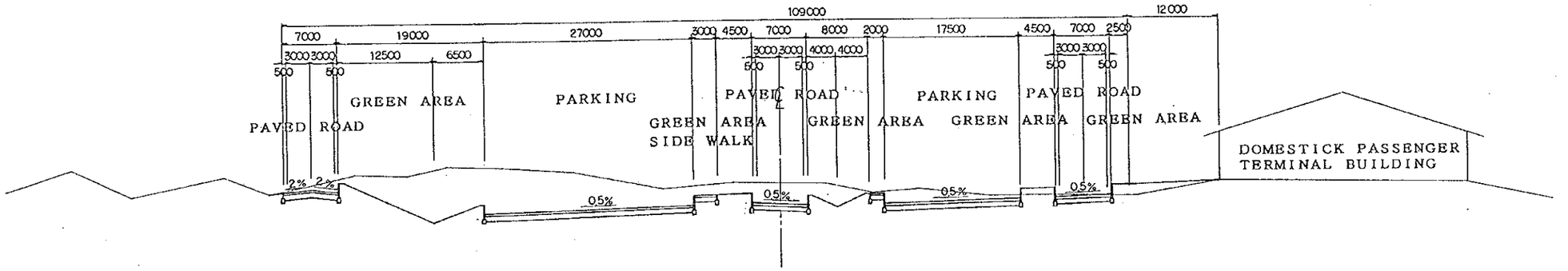
The Project for Rehabilitation of Vientiane International Airport

Building Name	**Civil Works**	Drawing No.
Drawing Title	**Arrangement (3)**	Scale

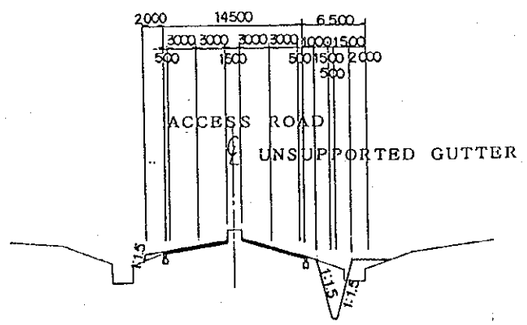
3－3 section



2－2 section



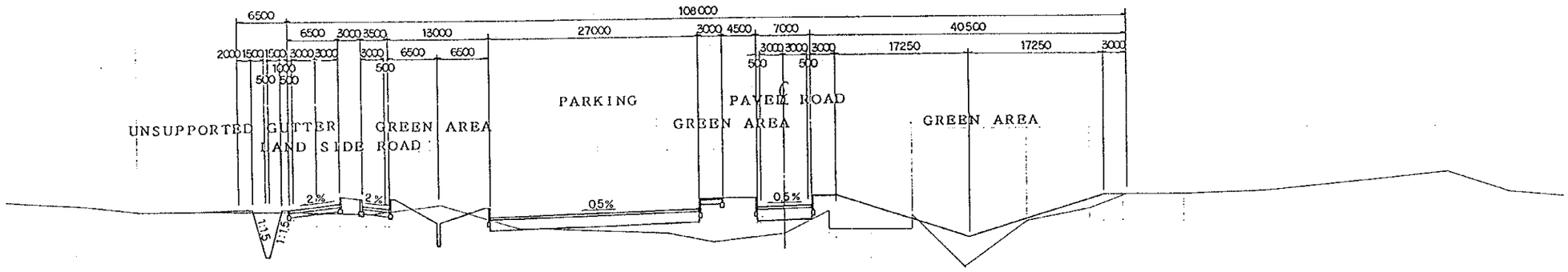
1－1 section



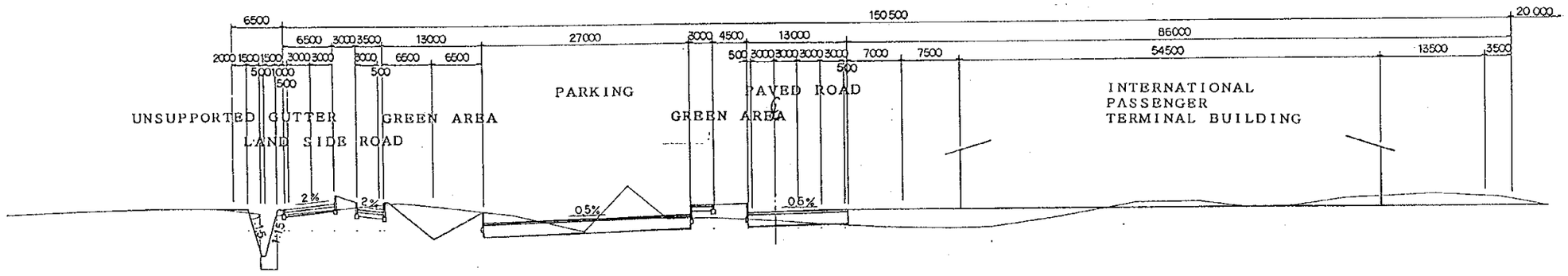
The Project for Rehabilitation of Vientiane International Airport

Building Name	Civil Works	Drawing No.
Drawing Title	Typical Cross Section (1)	Scale

5－5 section



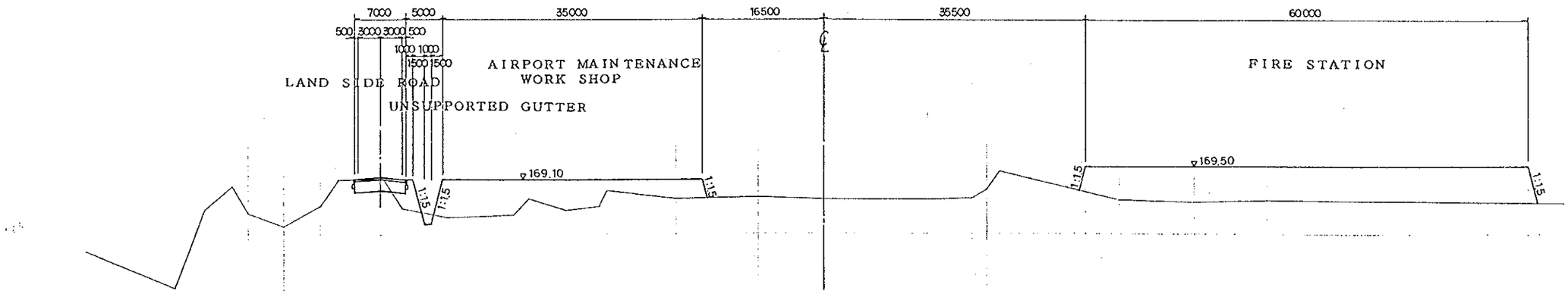
4－4 section



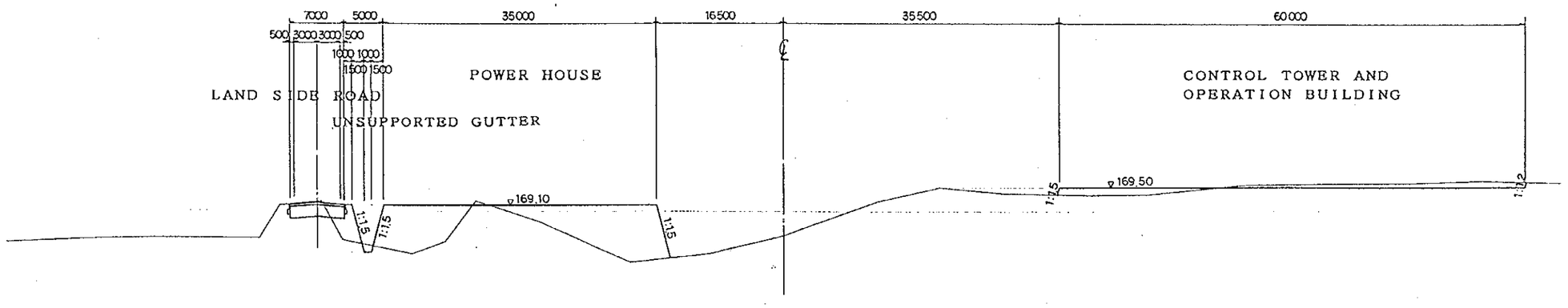
The Project for Rehabilitation of Vientiane International Airport

Building Name	Civil Works	Drawing No.
Drawing Title	Typical Cross Section (2)	Scale

7－7 section



6－6 section



The Project for Rehabilitation of Vientiane International Airport

Building Name	Civil Works	Drawing No.	
Drawing Title	Typical Cross Section (3)	Scale	

5-5. Construction Plan

5-5-1. Construction Policy

(1) System for placing orders

This project can be broadly classified into two parts: (1) Facilities Construction (building of new international passengers terminal building, control tower and operations building, fire station, power station, maintenance workshop, terminal parking area and airport facility roads, terminal area supply and processing facilities) and (2) Equipment for Airport Facilities (supply of control tower equipment, fire fighting equipment, and airport maintenance equipment).

In consideration of the special factors described below, both construction and equipment supply must be coordinated to ensure smooth progress of overall operations. The method for placing orders must be thoroughly analyzed and organized into a system.

- The Vientiane International Airport renovation plan as described above, was a cooperative project involving donations from Japan, ADB, France, NDF, etc., and from the design phase to actual operations the full cooperation and coordination of all of these donors was required. The quality of the finished product totally depends on the smooth interaction of the various donors involved, from the early stages of design and particularly through the actual execution of the project.

- Moreover, the current project for facilities construction involves both new building and dismantling of existing facilities; and not only is the scale of the project quite large, but the construction work itself will be extremely complicated.

- The current project faces special limitations, because construction must take place without interrupting the normal

services and operations of the airport, construction materials must be delivered and placed efficiently and in coordination with the progress of construction. However, a fundamental premise of the plan is to make use of the existing facilities and materials insofar as possible, which must be converted, moved, or reconstructed.

(2) Range of responsibilities involved in the construction project

In parts of the project covered by donations from Japan, the range of responsibilities of each government in the construction project will be worked out as described below.

1) Responsibilities of the Japanese side in the construction project

① Consulting work:

The Japanese side will be responsible for consulting on operation design, tenders and bid evaluations, and supervision of the operations.

② New construction and supply of equipment for the airport facilities:

- As described in Chapter 4, the Japanese side will be responsible for construction of new facilities as well as dismantling and renovation of existing facilities.
- As described in Chapter 4, the Japanese side will be responsible for supply of equipment for the airport facilities.

2) Responsibilities of the Laos government in the construction project:

① Maintenance and upkeep of newly constructed buildings and facilities in the airport (including maintenance or replacement of current underground water supply and sewage pipes, tree trimming, grass cutting, and ground leveling).

② Secure required supply of electricity and water throughout the construction project.

③ Supply the required information as needed for smooth execution of the project.

④ Infrastructure:

- Water supply:
  lay pipes to draw on the municipal water supply.
- Sewage handling:
  lay pipes for sewage handling after treatment and processing of waste water.
- Electricity:
  lead-in wires from the operation site to the designated areas.
- Telephones:
  telephone lead-in and station wires to MDF.

⑤ Furniture and indoor fixtures
Office furniture and fixtures, beds.

⑥ Transport of required materials from existing airport facilities to newly constructed facilities built by participating Japanese organizations.

⑦ Arrange with Laos government for appropriate entry and exit of Japanese people involved in construction and technical staff.

⑧ Arrange with Laos government for appropriate entry and exit of Japanese people involved in construction and technical staff, as well as technical staff called on for the project from other countries.

⑨ Arrange with Laos government for appropriate entry and shipments of materials and equipment involved in construction from Japan as well as from other countries.

5-5-2 Important Points for Construction and Operations

(1) Meetings with airport personnel

Ordinarily in new construction projects, each type of infrastructure facility and airport facility can be overseen and carried through to the period of final completion; however, the current project must be carried out without interrupting existing airport operations and services, dismantling some facilities and constructing other new facilities.

Consequently, in order to ensure that the project proceeds smoothly and safely, a system must be set up to hold meetings with the appropriate airport personnel to discuss in detail and on an ongoing basis each of the following items.

- New buildings, as well as old buildings which will be preserved, must be fully connected to services for electricity, water, and communications.
- When dismantling old buildings, the impact on remaining structures must be studied and properly managed.
- The process of new construction on the sites where old buildings have been dismantled.
- Construction of temporary facilities during the project (temporary enclosures, construction access roads, offices, operational sites, warehouses, etc.)

(2) Understanding current conditions

1) Planned building sites

The new terminal building site area is 20 hectares large, and it will be necessary to gain a thorough grasp of ground conditions over the entire area, particularly on the sites where new buildings are to be constructed, as well as the conditions of the infrastructure, in designing the operational plan.

2) Operations of existing airport facilities

In the choice and placement of construction machinery, as well as site selection for temporary facilities, full consideration must be taken of the operations of the existing airport facilities, as well as the areas which must be avoided so as not to interfere with those operations (for example, maintaining a margin of at least 45m from the runways).

3) Climate factors

Vientiane's rainy season lasts from May to October, and it is preferable to avoid carrying out construction activities during this period including: pile driving, civil engineering, foundation building, road paving, waterproofing construction, etc.

4) Local Tradesmen

The technical skills of local building tradesmen in Laos are rather low, and limited to work on a small scale. Consequently, for construction of the new international airport it will be necessary to bring in highly skilled workers and engineering experts from other countries (for example, Thailand), such as pile drivers, steel framework erectors, roofers, interior decorators, installers of equipment and fixtures, waterproofers, facilities construction workers, etc.

5) Construction machinery

For the most part, the required construction machinery cannot be obtained in Laos, so it will be necessary to ship it in from Thailand and Japan.

5-5-3. Plan for Supervision of Operations

Based on the policy of the Japanese government's donating consulting services for the project, a project team will have to be formed to supervise the operations for design and construction, and see that they proceed smoothly and according to the original design plan.

(1) Execution plan

Just as with the project to renovate the Wattay airport, where organizations from a number of different nations contributed to and cooperated on the project; in this project too each of the donors must have a clear understanding of the design plan, and must meet and work closely with the appropriate airport personnel to meet the design drawings.

(2) Operational Supervision

Because the large scale of this project, and the many types of construction projects called for within it, in each area a project supervisor (construction superintendent) will be appointed to ensure that construction proceeds according to plan, and that technical people are dispatched as needed.

- Chief of Operations, Facilities Superintendent (coordination of overall operations, supervision of construction processes)
- Civil Engineering Works Superintendent (site preparation, access roads, parking areas, rain drainage)
- Construction Superintendent (operational methods, design drawings, operational drawings, and confirmation of materials specifications)
- Structural Superintendent (confirmation of ground conditions, pile driving and foundation construction, construction operations)

- Machinery Facilities Superintendent (supply and processing facilities, air-conditioning, water supply and waste water processing sanitation facilities, etc.)
- Electrical Facilities Superintendent (supply and processing facilities, receiving and transformer facilities, etc.)
- Airport Security Facilities Superintendent (radio and other control equipment)
- Materials Superintendent (fire fighting materials, airport facilities maintenance and management materials)

5-5-4. Construction Material Procurement Plan

(1) Construction Material

Material	Laos	Thailand	Japan or Third Country
[for building works]			
Aggregate (Sand, Gravel, Crusher-run)	○		
Cement		○	
Reinforcing bar		○	
Structural steel		○	
Concrete pile (50 tons/piece)	○		
Concrete pile (70 tons/piece)		○	
Concrete block	○	○	
Brick	○		
Timber	○		
Plywood	○	○	
Tile for floor/wall		○	
Wooden doors and windows		○	
Metal doors and windows		○	
Colored iron sheet/folded plate		○	○(Q)
Paint		○	
Major finishing material		○	
Furniture (various counters, etc.)		○	
Household furniture		○	
Machines/Tools for construction	○(Part)	○	
Material for temporary works	○	○	

(Q): When high quality is required

Material	Laos	Thailand	Japan or Third Country
[for building services]			
PVC wiring ducts		○	
Electric wiring and cables		○	
Various types of boards		○	○
Lighting equipment		○	○
Transformers		○	
Diesel powered motors			○
Wiring tools		○	
Low-voltage electrical equipment			○
PVC duct arrangements		○	
Copper tubing		○	
Hygienic ceramics		○	○
Pumps		○	○
Air-conditioning equipment		○	○
Fans		○	○
Elevators		○	
Kitchen utensils		○	○
Electric water heating devices (heat storage and instant type)		○	○

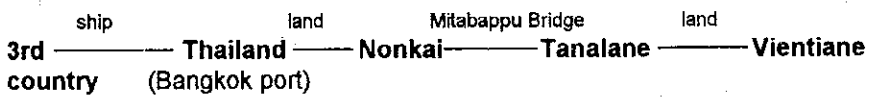
Material	Laos	Thailand	Japan or Third Country
[for special equipment]			
Conveyors		○	○
Passenger boarding bridge		○	○
Security equipment		○	○
Various types of signs		○	○

(2) Equipment

Material	Laos	Thailand	Japan or Third Country
[navigational aids]			
ATC equipment			○
ILS			○
[airport operation/maintenance]			
Fire fighting equipment			○
Airport maintenance equipment			○
Others			○

(3) Material shipping routes

For materials procured from Japan or other countries, the most preferred shipping route will be:



This route is the closest to the capital city of Vientiane, and is the route most often used between Thailand and Laos. For procurements of materials from Thailand, the overland routes take about 1 week, with an additional week required for clearance of goods through customs. Materials shipped from Japan will be shipped by sea routes, and from the day of launching to the point of arrival takes about 2 months. Shippers from Thailand must have an official license to ship materials to Laos. Moreover, after unloading at Tanalane for customs inspection, the shipper then delivers the materials directly to the sight in Laos. Unless the proper customs procedures are followed and documents prepared in advance on the Laos side, customs duties are levied as described below. There is an asphalt paved road about 23km long between Tanalane and the construction site.

Import tariff:

If the appropriate documents are prepared in advance, materials imported from Thailand are not subject to customs duties. However, if the duty free documents have not been prepared, then materials are subject to a 7% value-added tax, as well as the tariffs described below. It is also possible to import materials duty free from other countries, such as Singapore, if the proper documents are prepared in advance.

Tariff rate:

construction machinery	5%	marble	5%
machinery	5%	lumber(unprocessed)	10%
spare parts	5%	rubber materials	20%
buses	15%	blocks	5%
trucks	25%	cement	5%
steel materials	5%	tile	20%
ceiling board	5%	roofing tiles	5%
various types of boards for frameworks	5%	P-tile	5%
slate materials	50%	paint	5%
keys	5%	pre-fabricated temporary housing	10%
electric wiring	15%	electrical wiring ducts	5%
lighting equipment	5%	light oil	15%
gasoline	5%	oil	7%
propane	10%	tools	5%
electrical appliances	10%	televisions	20%
cameras	15%	copy equipment	5%
computers	5%	office supplies	5%

5-5-5. Project Implementation Schedule

- This project is subject to special considerations, not only because of its large scale, but because construction must take place without interrupting the normal services and operations of the airport, which makes construction extremely complicated in content and process.

- Because the New International Passengers Terminal Building will be constructed on the site of the old control tower and operations building, and fire station, it will be necessary to provide supply and processing facilities as required for the new control tower and operations building, and fire station.

- Especially for the new control tower and operations building, a period of approximately 2 months of overlap will be required before the switch can be made entirely to the new facilities, and the old facilities dismantled.

- It will be necessary to make use of the functions of the existing facilities (International Passenger Terminal Building, Domestic Passenger Terminal Building, Cargo Building, etc.), while proceeding with new construction. This will require close communications and cooperation with each of the authorities in Laos in charge of electricity, water, sewage, and utilities which will be affected by the construction.

- The same can be said for other donors involved in the overall construction project.

Consequently, the construction project can be divided into 2 phases. Because there will be a 1 month period of overlap between the last part of the first phase and the first part of the second phase, the overall period thought necessary for the construction project will be 31 months (the first period of 12 months, plus the second period of 20 months.

After concluding the first period of exchange of official documents, and

the 4 months thought necessary for to complete the consulting contract (E/N), operational design and bidding, the time required from ground breaking to the completion of construction is expected to be 12 months.

Contents of construction:

Facilities
- control tower and operations building
- fire station and power station facilities
- supply and processing facilities (receiving and transformer substation, water supply facilities, waste water processing facilities, non-utility power facilities)

Materials
- control tower materials
- fire station materials

The same procedures will be required in the second period as in the first, and the period of construction is planned to be 20 months.

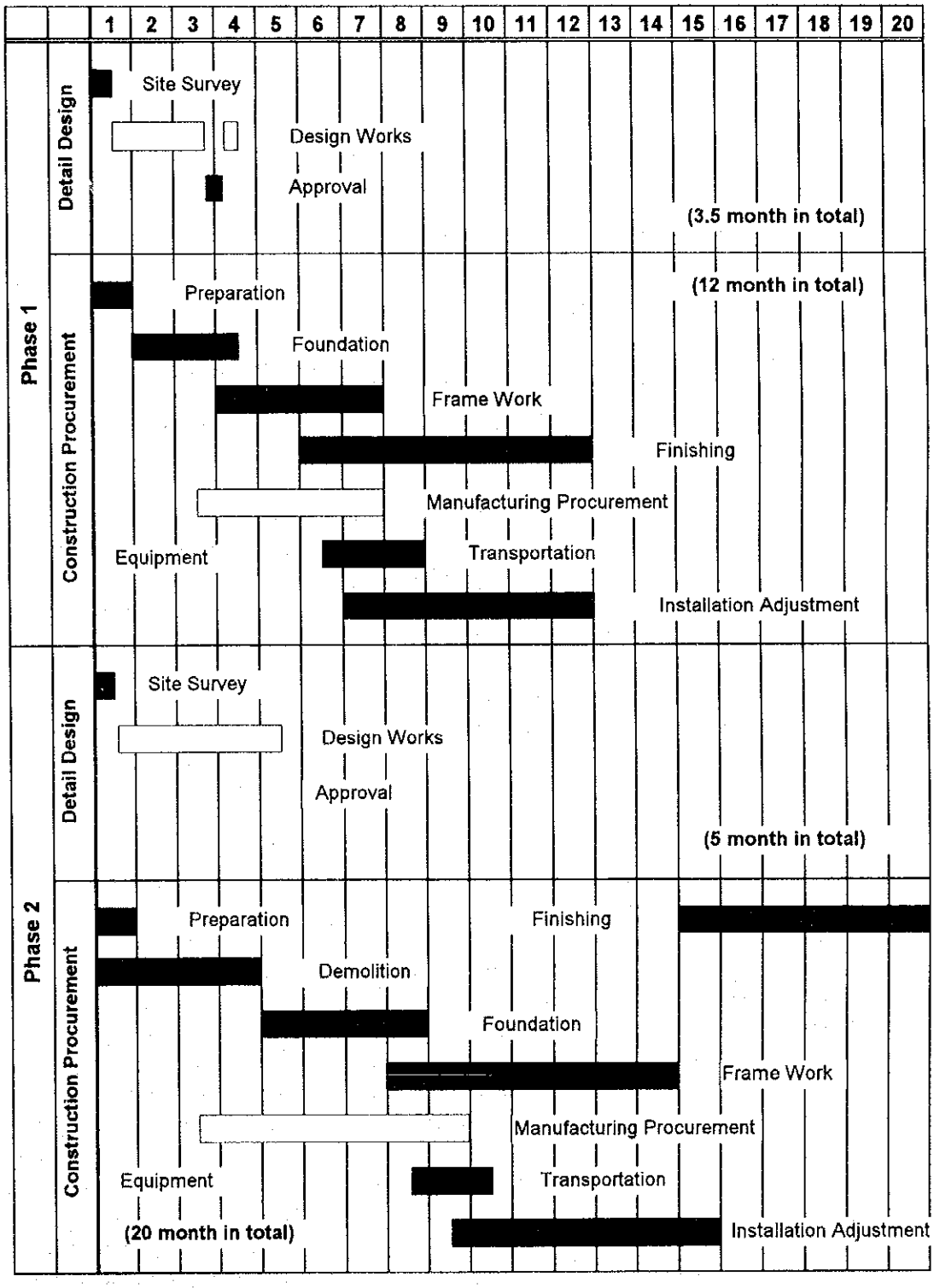
Contents of construction:

Facilities
- International Passengers Terminal Building, maintenance workshop
- access roads and parking areas

Materials
- control tower materials
- airport facilities maintenance materials

Dismantling/demolition operations
- control tower building, fire station garage, power station, elevated water tanks

Table Project Implementation Schedule



VI Evaluation and Subjects of Project

6-1. Benefit of Project

Benefit given by the project is various such as secure of air traffic safety, increase of tourism income, increase of airport income, save of travel time, increase of amenity convenience and increase of employment.
Effects of the project are summerized in Table 6-1.

Table 6-1 Benefit of Project

Current Conditions/Problems	Counter Measures at this Project	Effect of the Project
Unsafe air traffic activities such as cracks on runway pavement, visual flight rules, passengers on the apron and incomplete airport security.	- Replacement of ILS - Overlay of runway pavement - Installation of PBB - Installation of security fences - Procurement of fire fighting EQ - Replacement of airfield lighting	As instrumental landing can be taken at night time and bad weather condition, safety at landing will be secured. Passengers will be away from restricted area, so dangerous items are difficult to be in the airport
Tourism demand is restrained because of underdeveloped road and air transportation infrastructure.	- Increase of flight numbers by rehabilitation of airport facilities - Secured air traffic safety by replacement of air nav-aids	Poor airport facilities are bottleneck of promotion of tourist. Such bottle neck will be vanished and expected to have many tourists
Airport authority cannot impose proper charge on users because it cannot give proper services. Airport income is not expected to be increased.	- Rehabilitation of facilities - Training of staffs - Increase of flight numbers	After the completion of the project, airport authority can give proper services and collect proper charges and expected to have more income from airport activities.
Because of poor aviation facilities, punctual flight operation is difficult to be kept	- Replacement of air navigation facilities - Execution of proper airport operation and maintenance	Airport facilities will be always in good conditions and it is expected that delay and cancel of flights will be decreased.
Passenger handling facilities have insufficient capacity and congestions are seen in peak hous	- Construction of new international passenger terminal building - Expansion of roads and car parking	New international passenger terminal building will be constructed and smooth passenger flow is realized. The capacity will be tripled and amenity for passengers are drastically increased.
There are few employment chances	- Rehabilitation of airport facilities	After the completion of the project, many staffs are required for airport operation and maintenance. Other related employment will be created by the project.

6-2. Verification of Validity

As mentioned before, major industries able to get foreign currencies are limited at timber and power supply in Lao PDR. As farmers are occupied more than 50% of population, agricultural products can be one of these industries but there are many problems to be solved such as low productivity and transportation. Therefore, tourism is expected to be the third major industry for getting foreign currencies. It is inevitable to develop transportation infrastructure for expansion of tourism.

Lao economy is said that non-currency economy and non-organized economy, so development of such infrastructure is also inevitable for realize open market policy.

Generally speaking, airport development influenced limited users directly, but various developments are promoted from the development and there are many indirect effects. For instance, increase of foreign passengers creates various business chances and activate economics. Existing Vientiane International Airport has been aged and damaged, and flight operations are forced to be in dangerous conditions. At night time and in bad weather, aircraft cannot operate or shall operate in dangerous conditions. Facilities shall be urgently rehabilitated, secure air traffic safety and serve sufficient capacity.

This plan will be conducted by Japan, ADB, France NDF, and ICAO. Especially ICAO will train staffs for operation and maintenance of airports. Existing DCA organization has insufficient number and skill of staffs but ICAO is now planning to support to strengthen the organization and dispatch specialists for a while till the airports will be in properly operated. Vientiane International Airport is an existing airport and this development is rehabilitation. Therefore influence to environment will be minimum. Existing houses and watercourse will be almost the same as they are. This project will be conducted without major problems by Japanese grant aid.

6-3. Subjects of Project

As mentioned before, this project is expected to have various benefit directly and indirectly and contribute to economic stability in Lao then it is decided that the project shall be implemented.

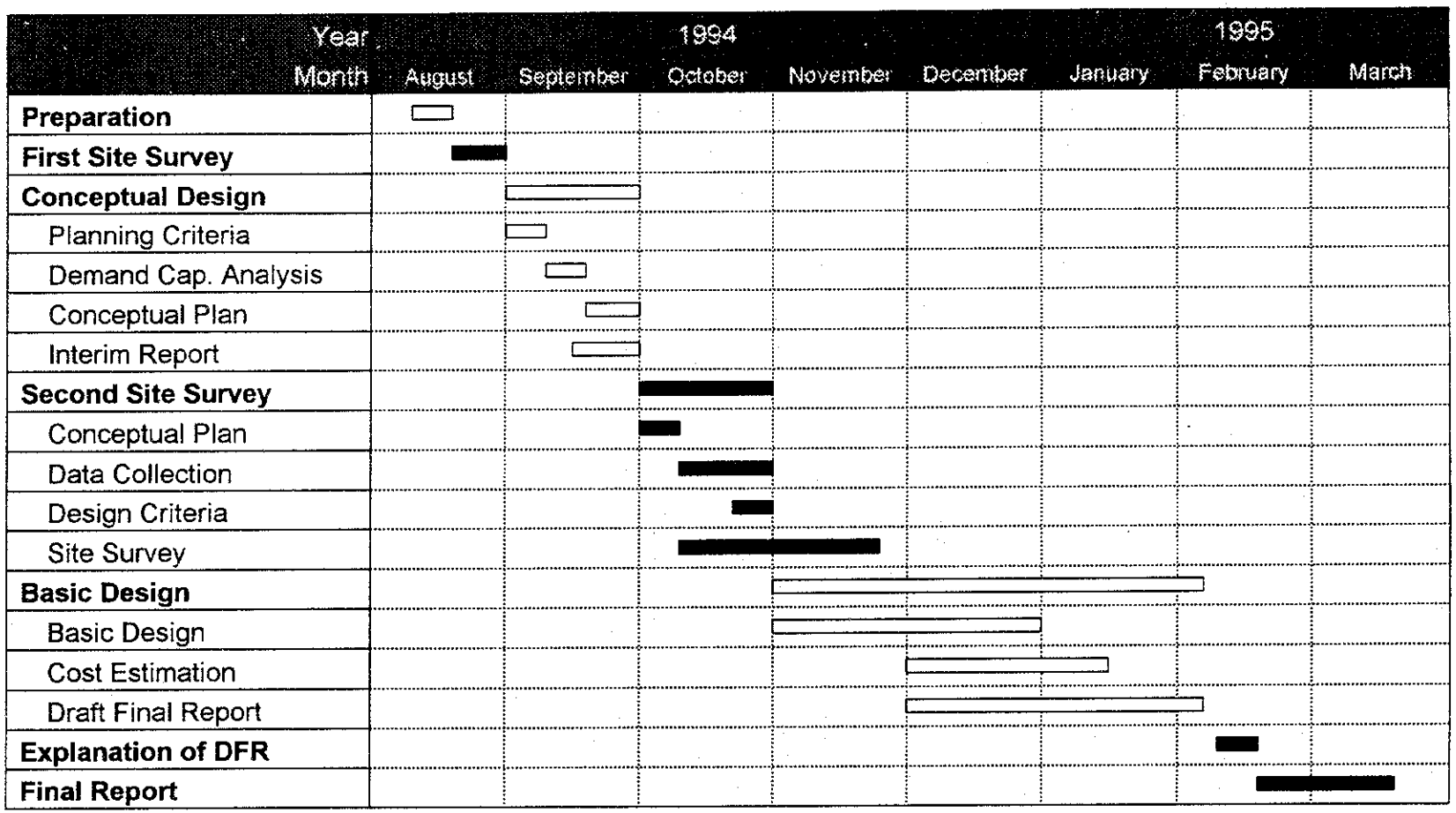
Vientiane International Airport Rehabilitation Project is one of the main project of infrastructure development in Lao PDR, so it is desirable to conduct it by Japanese grant aid.

The implementation of the project will be executed without serious problems from the point of human resources and financial conditions.

[Appendix 1 Study Member List]

Name	Role	Position/Organization
Michio Kanda	Leader	Deputy Director, Grant Aid Project Management Department, JICA
Yukihiro Koizumi	Assistant Leader	Second Basic Design Study Division, Grant Aid Study & Design Department, JICA
Katsumi Itagaki	Grant Aid	Grant Aid Division, Economic Cooperation Bureau, MOFA
Shinji Matsumae	Airport Planning	Department of Civil Aviation, MOT
Tsuyoshi Imagome	ATC	Department of Civil Aviation, MOT
Yoshihiko Hayashi	Radio Navaids	Department of Civil Aviation, MOT
Hiroshi Sasaki	Equipment	Department of Civil Aviation, MOT
Shigeru Shibata	Project Manager	Japan Airport Consultants, Inc.
Kazunori Samejima	Architecture	Azusa Sekkei Co., Ltd.
Iwao Osawa	ATC/Radio Navaids	Japan Airport Consultants, Inc.
Tsuneo Safu	Utilities	Azusa Sekkei Co., Ltd.
Kohei Aoyagi	Equipment/Cost	Japan Airport Consultants, Inc.
Kozo Furukawa	Civil Engineering	Japan Airport Consultants, Inc.

[Appendix 2　Study Schedule]



[Appendix 3 List of Persons Concerned in Lao PDR]

Name	Position
[Prime Ministers Office]	
Mr. Pao Bounnaphonh	Minister
Ms. Amphowrnany	Architect
[Department of Civil Aviation Head Quarter]	
Mr. Sadaphet Bodhivarn	Director General
Mr. Bounsoum Somsihakhom	Deputy Director General (Technical)
Mr. Singkham	Deputy Director General (Operation)
Mr. Bounkong Nouphongsamouth	Deputy Director General (Admin.)
[Capital Works Implementation Unit]	
Mr. Kaykeo	Director of CWIU
Mr. Somboune Chaleunith	Deputy Director of CWIU
Mr. Vanhpheng Chanth.	Deputy Director of CWIU
Mr. Khamvanh Mala	Radio Engineer
Mr. Done S.	Electro Mechanical Engineer
Mr. Souksavanh Sayamoungkhoum	Civil Engineer
Mr. Somphonh Sygnavong	Electrical Engineer
Mr. Khansavanh	Financial Officer
[DCA Administration Division]	
Mr. Bounkong N.	Director of Administration Division
Mr. Houmpheng T.	Deputy Director of Admin. Division
Mr. Khamma	Deputy Director of Admin. Division
[DCA Air Navigation Division]	
Mr. Somsy Sisavath	Director of Air Navigation Division
Mr. Phouthone Phrakaysone	Deputy Director of Air Nav. Division
[DCA Telecom Division]	
Mr. Kaykeo	Director of Telecom. Division
Mr. Bouathong	Deputy Director of Telecom. Division

Name	Position
[DCA Air Transport Division]	
Mr. Sompoune C.	Director of Air Transport Division
Mr. Houmphanh Nanisouk	Deputy Director of Air Trans. Division
[DCA Aerodrome Division]	
Mr. Vanpheng Chantahphone	Director of Aerodrome Division
Mr. Ounehuane Ditavong	Deputy Director of Aerodrome Division
[DCA Finance Division]	
Mr. Khansavanh	Director of Finance Division
Mr. Saykhame	Deputy Director of Finance Division
[DCA ATS Division]	
Mr. Pasit Kounlath	Director of ATS Division
Mr. Phouvienh	Deputy Director of ATS Division
Mr. Khamvanh	Deputy Director of ATS Division
[DCA Wattay International Airport]	
Mr. Kongpheng Phanthavong	Director of Wattay International Airport
Mr. Bounnhang	Deputy Director of WIA
Mr. Manh Arounsavath	Deputy Director of WIA
[Lao Aviation]	
Mr. Saysong Souksenesamlane	Commercial Director of Lao Aviation
[Thai Airways International]	
Mr. Samarn Yaicharoen	Station Manager of Thai Airways Int'l
[EDL]	
Mr. Somphone Thammavongsay	Deputy Manager of Electricite du Laos

[Appendix 4 Minutes of Discussions]

Minutes of discussions at each site survey are as shown in the following pages.

MINUTES OF DISCUSSIONS

OF

THE BASIC DESIGN STUDY ON THE PROJECT FOR

REHABILITATION OF WATTAY INTERNATIONAL AIRPORT

IN

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

In response to a request from the Government of the Lao People's Democratic Republic the Government of Japan decided to conduct a Basic Design Study on the Project for Rehabilitation of Wattay International Airport (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Lao PDR a study team, which is headed by Mr. Michio Kanda, Deputy Managing Director of Grant Aid Project Management Dept., JICA, and is scheduled to stay in the country from August 18 to August 29, 1994.

The team held discussion with the officials concerned of the Government of Lao PDR and conducted a field survey at the study area.

In the course of the discussions and field survey, both parties have confirmed the main items described on the attached sheets. The team will proceed to further works and prepare the Basic Design Study report.

Vientiane, August 24, 1994

Mr. Michio Kanda
Leader
Basic Design Study Team
JICA

Mr. Bounkong Noufongsamouth
Acting Director General
Department of Civil Aviation
Prime Minister's Office

ATTACHMENT

1. Objective

The objective of the Project is to rehabilitate the airport facilities of the Wattay International Airport to meet the air traffic demand in 2005.

2. Project Site

The site of the Project is the Wattay International Airport in Vientiane. (The site map is as shown in the attached drawing.)

3. Executing Agency

The Department of Civil Aviation of the Prime Minister's Office is responsible for the administration and execution of the Project.

4. Items Requested by the Government of Lao PDR

After discussions the request listed on the Annex I was confirmed by the Basic Design Study team.

However, the final components of the Project will be decided after further studies.

5. Japan's Grant Aid system

(1) The Government of Lao PDR has understood the system of Japanese Grant Aid explained by the team.

(2) The Government of Lao PDR will take necessary measures, described in Annex II for smooth implementation of the Project, on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

6. Schedule of the Study

JICA will prepare the Interim Report in English and dispatch mission to Lao PDR in order to explain its contents by the end of September 1994.

BS.

Annex I : Facilities and Equipment requested by Lao PDR

1. Civil Works
   1) Expansion and Rehabilitation of Car Park
   2) Landside Road

2. Building Works
   1) New International Passenger Terminal Building
   2) New Control Tower and Operation Building
   3) New Fire Station
   4) New Power House includes a Generator
   5) New Airport Maintenance Workshop with Garage

3. Site Utilities
   1) Water Supply (excludes outdoor fire hydrant)
   2) Power Supply (excludes for Nav-Aids, Airfield Lighting and Met. EQ)
   3) Sewage Treatment

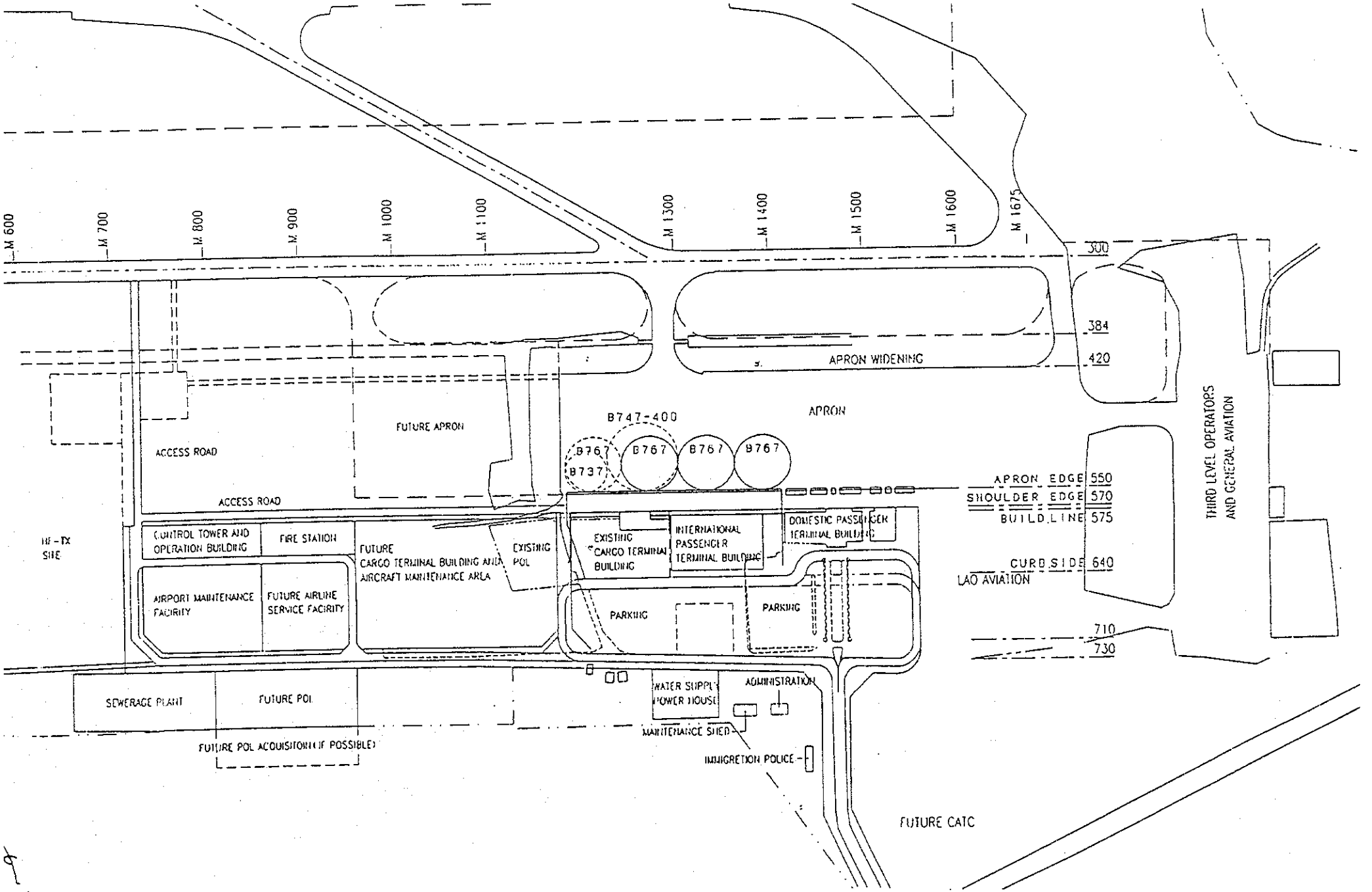
4. Procurement and Installation of ATS Equipment
   1) Control Tower Equipment (Consoles and VHF Transmitter/Receiver)
   2) ACC Consoles (excludes ER-VHF Equipment and Remote Control Equipment)
   3) Voice Communication and Control System (VCCS) and
      Auto Message Switching System (includes TTY Equipment)
   4) Other Miscellaneous Equipment (Master/Slave Clock System, Briefing
      Display System, etc.)

5. Procurement of Airport Maintenance Equipment and Others
   1) Airport Maintenance Equipment
   2) Fire Fighting Vehicles

Underlined items are newly requested by Lao PDR at the discussion on August 22. JICA Basic Design Study team will carefully consider whether these items shall be included in the scope of Basic Design Study.

Annex Ⅱ : Necessary measures to be taken by the Government of Lao PDR in case Japan's Grant Aid is executed

1. To secure and clear the site for the Project
2. To announce and coordinate with the airport users for the change in use of the airport facilities during the construction
3. To undertake incidental outdoor works such as gardening in the site and fencing, gates around the site
4. To construct the access road to the site prior to commencement of the construction
5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site
   1) Electiricity distributing line to the site
   2) City water distribution main to the site
   3) Drainage city main to the site
   4) Telephone trunk line and the main distribution panel of building
   5) General administrative furniture such as carpets, curtains, tables, chairs and others
   6) Tenants' equipment and furniture such as kitchen equipment, tables and chairs in restaurants and showcases in shops
6. To bear commissions to the Japanese foreign exchange bank for the banking services based upon Banking Arrangement
7. To exempt taxes and to take necessary measures for custom clearance of the materials and equipment brought for the Project at the port of disembarkation
8. To accord Japanese Nationals whose services may required in connection with the supply of products and services under the verified contract such facilities as may be necessary for their entry into Lao PDR and stay therein for the performance of their work
9. To exempt Japanese Nationals from custom duties, internal taxes and other fiscal levies with respect to the supply of products and services under the verified contracts
10. To maintain and use properly and effectively that the facilities constructed and equipment purchased under the Grant
11. To bear all the 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



TERMINAL AREA DEVELOPMENT PLAN

MEMORANDUM

August 26, 1994

Design conditions discussed and confirmed between Lao PDR and JICA Basic Design Study team are as follows;

1. Terminal Area Layout Plan

Terminal area layout is basically correspond to the plan indicated in the ADB report. But some items as indicated below has been modified. Agreed layout plan is as shown in the attached drawing.

1) Apron edge (aircraft nose line) is shifted to runway side by 5m to secure the space for airside road, underground piping and towing.
2) New control tower is located at the place where apron can be easily expanded as shown in the attached layout plan.
3) New fire station is located next to the new control tower.
4) Existing electic substation and elevated water tank will be demosished.

2. New Passenger Terminal Building

1) Site : Existing operation building with control tower and fire station
2) Capacity : Based on the apron layout study indicated in the ADB report
3) Others : Possible to install two airbridges

3. New Control Tower and Operation Building

1) Site : As shown in the attached drawing
2) Height : Possible to look at whole runway area from VFR room

4. New Fire Station

1) Site : As shown in the attached drawing
2) Capacity : Possible to accommodate fire fighting vehicles and equipment recommended by ICAO

5. New Airprot Maintenance Workshop with Garage

1) Site : As shown in the attached drawing
2) Capacity : Possible to accommodate airport maintenance equipment recommended by the study team. But request of Lao PDR is as follows;

- 3 Tractors
- 3 Slasher Attachments
- 1 Suction Sweeper
- 4 Industrial Lawn Mowers
- 1 Backhoe
- 6 Whipper Snippers
- 1 Lot of Spare Parts
- 1 Set of Survey Instrument

6. Auto Message Switching System and Teleprinters

Lao PDR requested, in addition to the auto message switching system, 12 teleprinters (6 with a monitor) and 1 lot of spare parts are contained in the procurement package.

7. Implementation Schedule

Lao PDR intends to complete whole rehabilitation works by December 1998, because ADB's loan will valid until then.
JICA Basic Design Study team requested the Project is implemented according to the schedule which JICA Basic Design Study team will prepare.

8. Training

Lao PDR requested that adequate training, for operation and maintenance of equipment procured under Japan's Grant Aid, is contained in the procurement package, including for new teleprinter operators and maintenance technicians.

MINUTES OF DISCUSSIONS

OF

THE BASIC DESIGN STUDY (Ⅱ) ON THE PROJECT FOR

REHABILITATION OF WATTAY INTERNATIONAL AIRPORT

IN

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

In August 1994, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team (I) on the Project for Rehabilitation of Wattay International Airport (hereinafter referred to as "the Project") to the Lao People's Democratic Republic, and through discussions, field survey, and technical examination of the results in Japan, has prepared the interim report of the study.

In order to explain and to consult the Lao side on the components of the interim report, JICA sent to Lao PDR a study team (Ⅱ), which is headed by Mr. Yukihiro Koizumi, Second Basic Design Study Division, Grant Aid Study and Design Department, JICA, and is scheduled to stay in the country from October 4 to October 31, 1994.

As a result of discussions, both parties have confirmed the main items described on the attached sheets.

Vientiane, October 14, 1994

Yukihiro Koizumi

Mr. Yukihiro Koizumi
Project Coordinator
Basic Design Study Team
JICA

Mr. Sadaphet Bodhivarn
Director General
Department of Civil Aviation
Prime Minister's Office

ATTACHMENT

1. Components of Interim Report

The Government of Lao PDR has agreed and accepted in principle the components of the interim report proposed by the Team. Specific items confirmed through the discussions are as shown in ANNEX I.

Based on this Interim Report, the final components of the Project will be decided after further studies.

2. Japan's Grant Aid System

(1) The Government of Lao PDR has understood the system of Japan's Grant Aid explained by the Team.

(2) The Government of Lao PDR will take necessary measures, described in ANNEX II for smooth implementation of the Project, on the condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

3. Further Schedule

(1) JICA prepare the draft final report in accordance with the confirmed items, and will dispatch a mission in order to explain its contents around February 1995.

(2) In case that the contents of the draft final report is accepted in principle by the Government of Lao PDR, JICA will complete the final report and send it to the Government of Lao PDR by April, 1995.

Y. K

...

Annex I : Confirmed Specific Items

Specific items on the conceptual plans confirmed between The Government of Lao PDR and the Study Team are as follows;

1. International Passenger Terminal Building

- Traditional style of Lao will be respected.
- The height of roof top is higher than that of the original conceptual plan by 2m.
- Airside concourse is not air-conditioned.
- One airbridge is installed at least. (The Government of Lao PDR requested to install at least two airbridges.)
- Escalators are not installed.
- Connection counter space is added along the airside corridor.
- Customs inspection space on the first floor is partly changed to duty free shop.
- Airport identification signs are installed at both sides of the building. Airside sign is in English and landside one is in Lao language.

2. Control Tower and Operation Building

- Flight operation room is expanded, the counters of AIS and flight plan are extended.
- Area of Meteorological Office Room is reduced.
- A door is installed between Director's room and Secretary's room.
- Weather Observation Room and Rescue Coordination Room are changed their locations each other.
- Battery and power equipment is installed in Electrical Room.
- Equipment Room, FIS Operation Room and ACC Operation Room are expanded respectively.

3. Terminal Area Layout

- South-west of landside road is shifted for north-east by 15m so as to keep space for future POL area.

4. Implementation Schedule

Implementation schedule should be changed after further studies in Japan. (The Government of Lao PDR requested to complete the Project as early as possible before the termination of ADB's loan.)

Annex I : Necessary measures to be taken by the Government of Lao PDR in case Japan's Grant Aid is executed

1. To secure and clear the site for the Project
2. To announce and coordinate with the airport users for the change in use of the airport facilities during the construction
3. To undertake incidental outdoor works such as gardening in the site and fencing, gates around the site
4. To construct the access road to the site prior to commencement of the construction
5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site
   1) Electiricity distributing line to the site
   2) City water distribution main to the site
   3) Drainage city main to the site
   4) Telephone trunk line and the main distribution panel of building
   5) General administrative furniture such as carpets, curtains, tables, chairs and others
   6) Tenants' equipment and furniture such as kitchen equipment, tables and chairs in restaurants and showcases in shops
6. To bear commissions to the Japanese foreign exchange bank for the banking services based upon Banking Arrangement
7. To exempt taxes and to take necessary measures for custom clearance of the materials and equipment brought for the Project at the port of disembarkation
8. To accord Japanese Nationals whose services may required in connection with the supply of products and services under the verified contract such facilities as may be necessary for their entry into Lao PDR and stay therein for the performance of their work
9. To exempt Japanese Nationals from custom duties, internal taxes and other fiscal levies with respect to the supply of products and services under the verified contracts
10. To maintain and use properly and effectively that the facilities constructed and equipment purchased under the Grant
11. To bear all the 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

Y. K

M E M O R A N D U M

Oct 26,1994

Design conditions discussed and confirmed between Lao PDR and JICA Basic Design Study team are as follows;

1.Terminal Area Layout Plan

1) Terminal area layout plan is revised, The revised plan is as shown in the attached drawing (Fig-1).
2) Proposed road circulation plan will be determined in consideration of the existing road alignment and topographic condition.

2.Fire Station

The floor plan is changed partially as shown in the attached drawing (Fig-2).

3.Maintenance Workshop

The floor plan is changed partially as shown in the attached drawing (Fig-3).

4.Power House

Plan and size are determined as shown in the attached drawing (Fig-4).

5.Site Utilities

1) Power supply system

Power supply system is confirmed as shown in the attached drawing(Fig-5).

2) Sewage treatment system

Proposed central sewage treatment plant is cancelled in consideration of present site condition.

Sewage treatment tank will be provided by zone, such as terminal zone, new operation zone and fire station.

6.Air Conditioning Area

Air conditioning area of each building is confirmed as shown in the attached drawing (Fig-6).

7.Communication Facilities

1) Communication facilities that Basic Design Study Team has proposed are confirmed.
2) DCA confirmed that power supply and communication cable for Transmitter Station and Receiver Station will be installed by DCA.

8.Fire Fighting and Maintenance Equipment

1) Fire Fighting Equipment

Basic idea and conceptual plan is confirmed, while the following equipment was requested by DCA.

① Major Vehicle(MJV)
② Rapid Intervention Vehicle(RIV)
③ Ambulance

2) Maintenance Equipment

Basic idea and conceptual plan is confirmed, while the following equipment was requested by DCA.

① Tractors with slasher attachments
② Whipper Snippers
③ Suction Sweeper
④ Backhoe
⑤ Industrial Lawn Mowers
⑥ Spare Parts
⑦ Survey Instrument
⑧ Joint Sealing Machine
⑨ Paint Marking Machine
⑩ Concrete Cutter Saw
⑪ Tip Trucks

⑫ 4-Wheel Drive Vehicle

⑬ Concrete Mixer

⑭ Bituminous Heater and Mixer

⑮ Plate Compactor

⑯ Motor Grader

⑰ Vibrating Roller

⑱ Compressor

9.Other

Present power supply capacity from EDL to the Wattay International Airport is not enough for future demand.
DCA should request EDL to increase power supply capacity according to the Wattay International Airport Development Program.

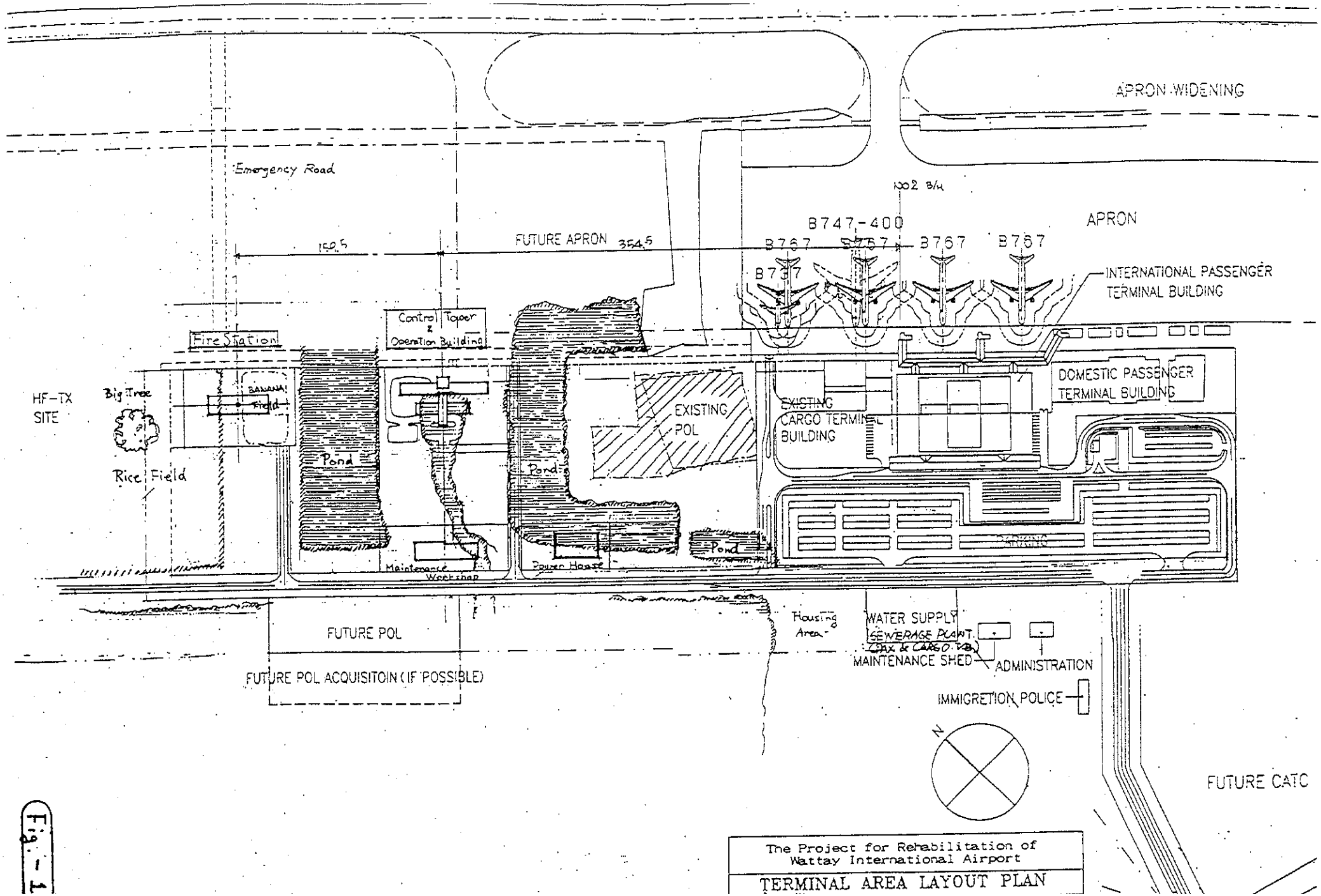


Fig. - 1

The Project for Rehabilitation of Wattay International Airport

TERMINAL AREA LAYOUT PLAN

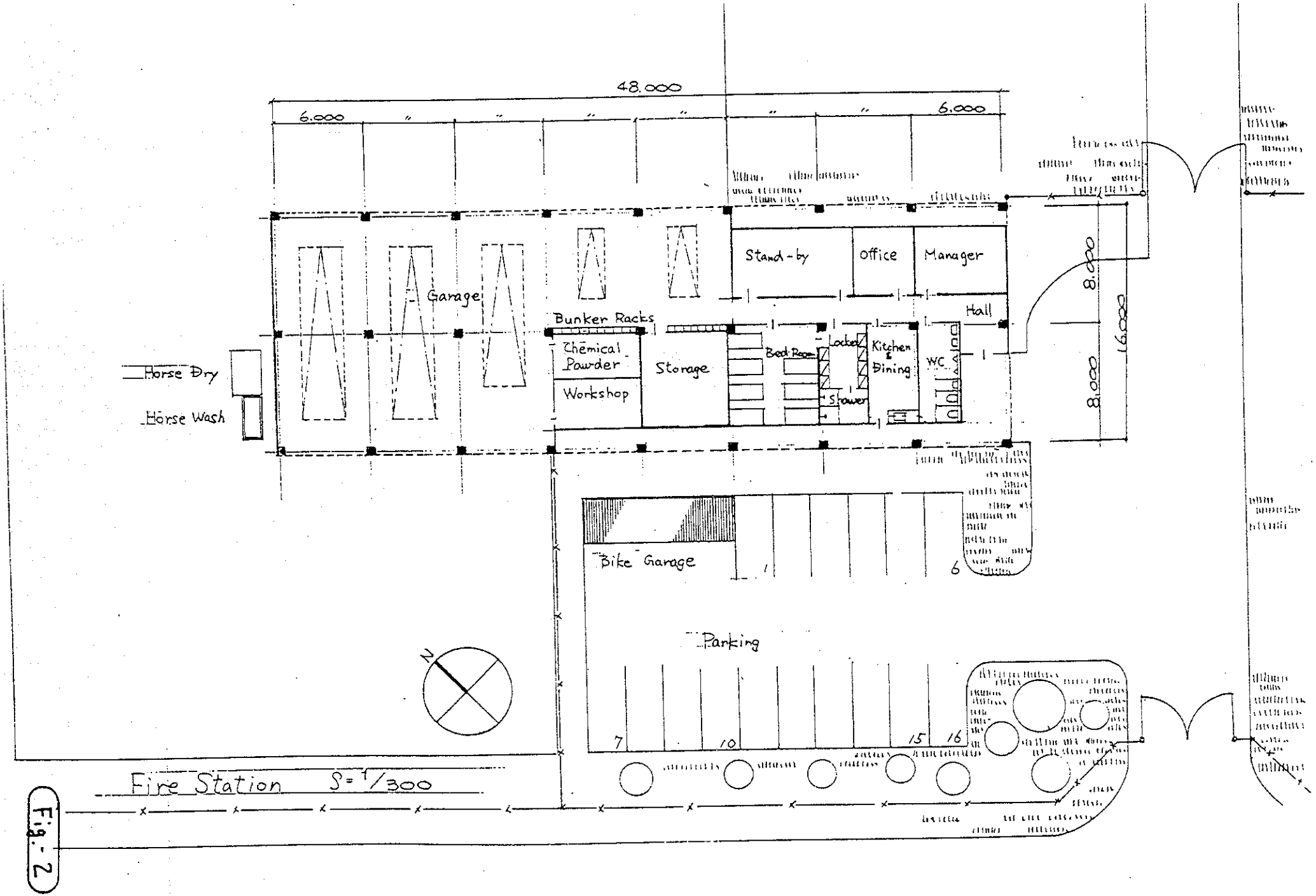

48.000
6.000
6.000
Garage
Stand-by
Office
Manager
Hall
Bunker Racks
Chemical Powder
Workshop
Storage
Bed Room
Locker
Kitchen & Dining
WC
Shower
Horse Dry
Horse Wash
8.000
8.000
16.000
Bike Garage
Parking
7
10
15
16
N
Fire Station S=1/300

Fig. - 2

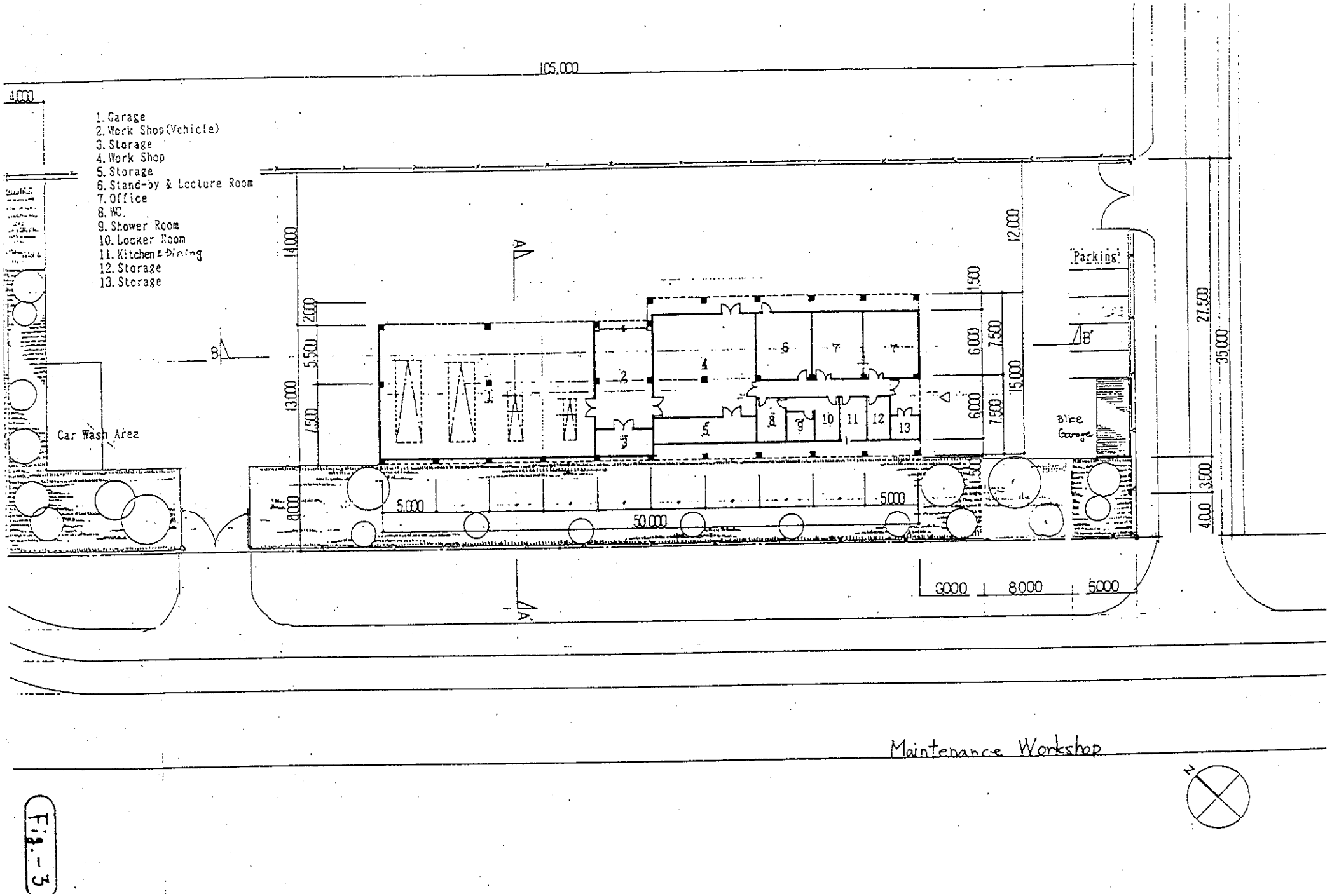
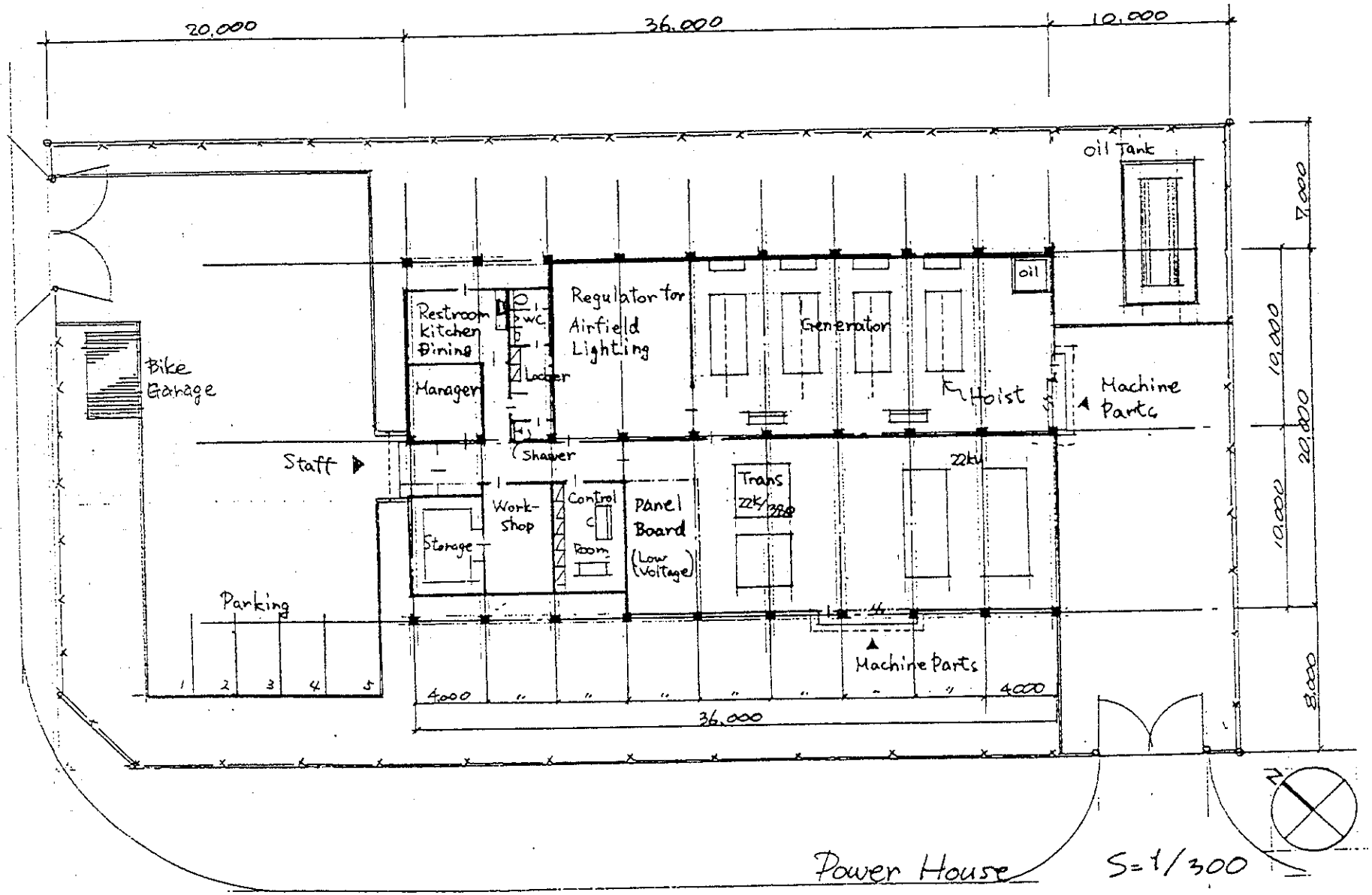

1. Garage
2. Work Shop(Vehicle)
3. Storage
4. Work Shop
5. Storage
6. Stand-by & Lecture Room
7. Office
8. WC.
9. Shower Room
10. Locker Room
11. Kitchen & Dining
12. Storage
13. Storage
105.000
14.000
2.000
5.500
13.000
7.500
8.000
5.000
50.000
5.000
12.000
1.500
6.000
7.500
15.000
6.000
7.500
1.500
Parking
Bike Garage
Car Wash Area
27.500
35.000
3.500
4.000
3000
8000
5000
A
A'
B
B'
Maintenance Workshop
N

Fig. 3-1



Power House S=1/300

Fig-4

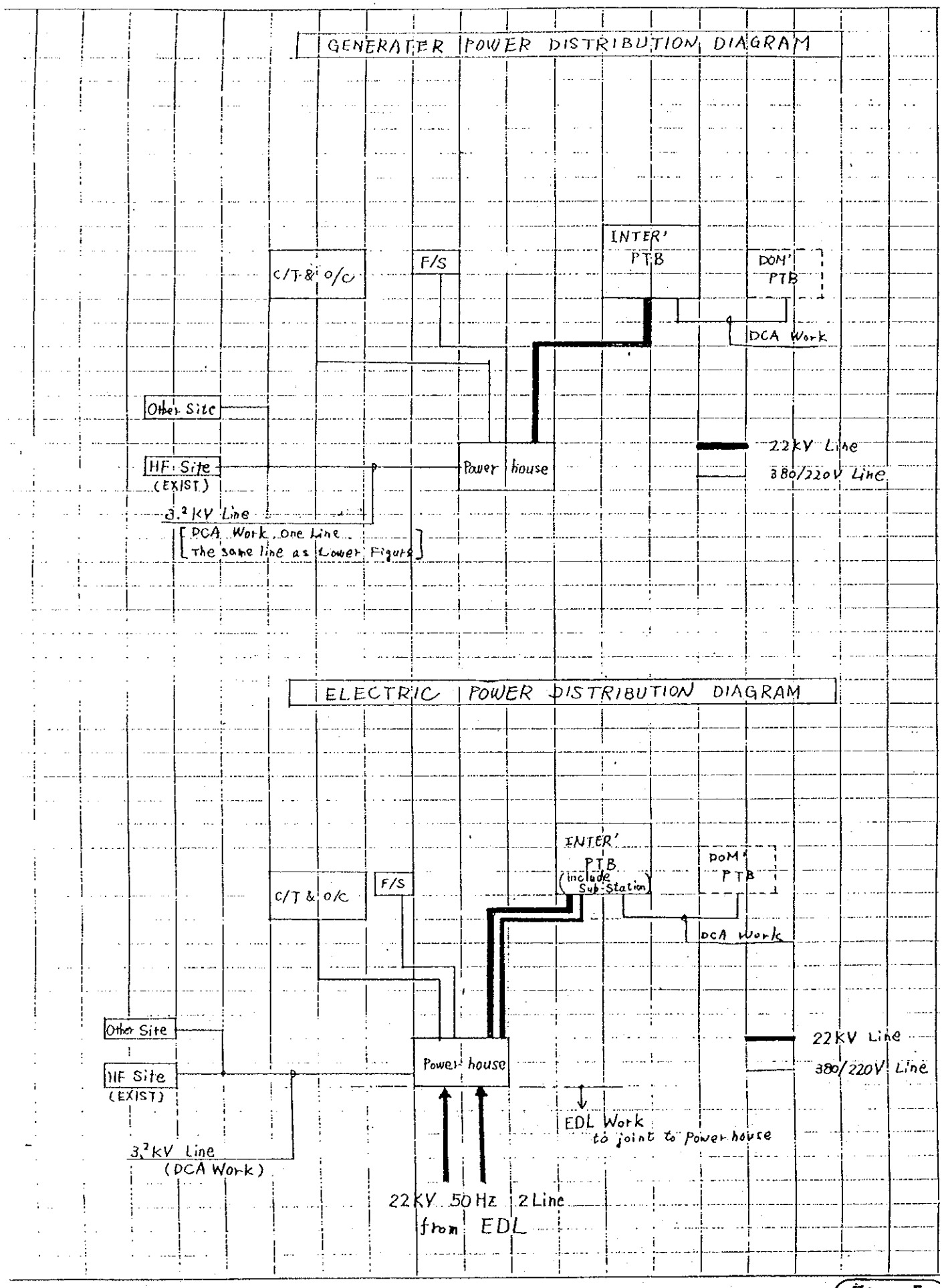
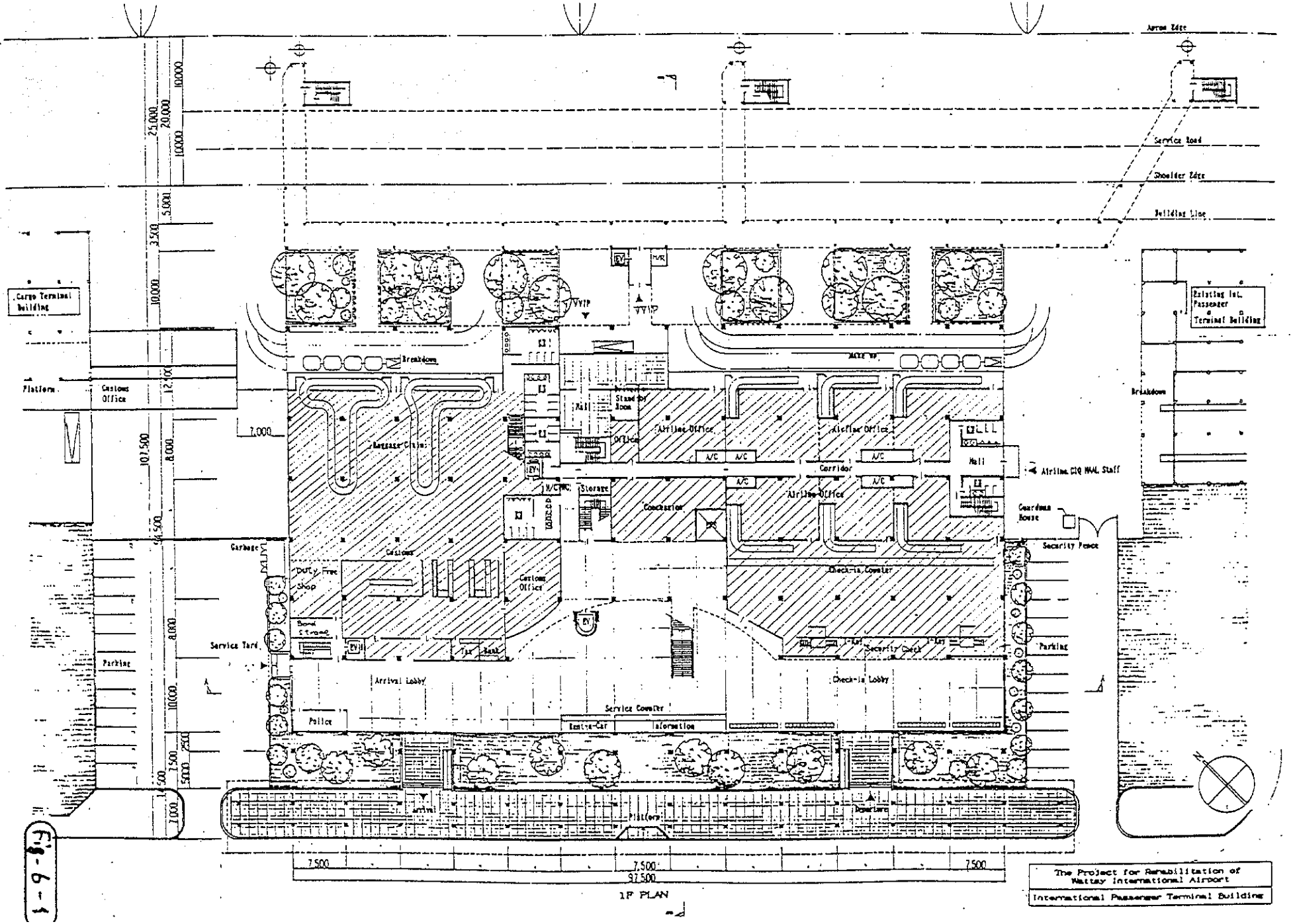

GENERATER POWER DISTRIBUTION DIAGRAM
INTER' PTB
DOM' PTB
C/T & O/C
F/S
DCA Work
Other Site
HF Site (EXIST.)
Power house
22KV Line
380/220V Line
3.2 KV Line
[DCA Work, One Line, The same line as Lower Figure]
ELECTRIC POWER DISTRIBUTION DIAGRAM
INTER' PTB (include Sub-Station)
DOM' PTB
C/T & O/C
F/S
DCA Work
Other Site
HF Site (EXIST)
Power house
22KV Line
380/220V Line
EDL Work to joint to Power house
3.2KV Line (DCA Work)
22KV 50Hz 2Line from EDL

Fig.-5


Apron Edge
Service Road
Shoulder Edge
Building Line
Cargo Terminal Building
Existing Int. Passenger Terminal Building
Platform
Customs Office
Breakdown
VVIP
Mail
Stand-by Room
Office
Airline Office
Airline Office
Baggage Claim
Corridor
Mail
Airline CIQ MAL Staff
Storage
Conclusion
Airline Office
Guardman House
Security Fence
Garbage
Duty Free Shop
Customs
Customs Office
Check-in Counter
Bond Store
Tax Bank
Security Check
Service Yard
Parking
Arrival Lobby
Check-in Lobby
Police
Service Counter
Information
Arrival
Platform
Departure
7,500
7,500
7,500
97,500
1F PLAN
The Project for Rehabilitation of Watsay International Airport
International Passenger Terminal Building
Fig-6-1

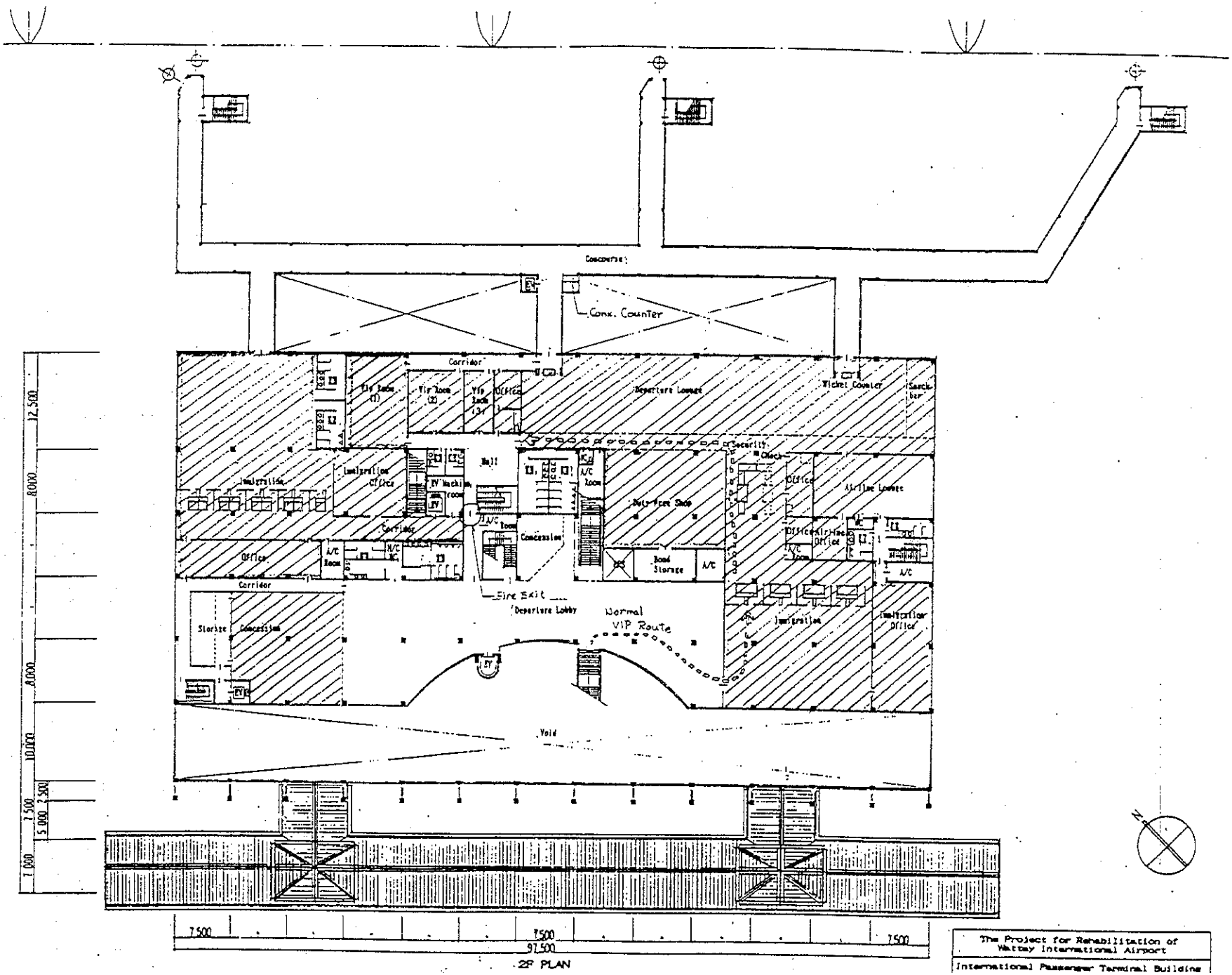


Fig.-6-2

The Project for Rehabilitation of Watray International Airport

International Passenger Terminal Building

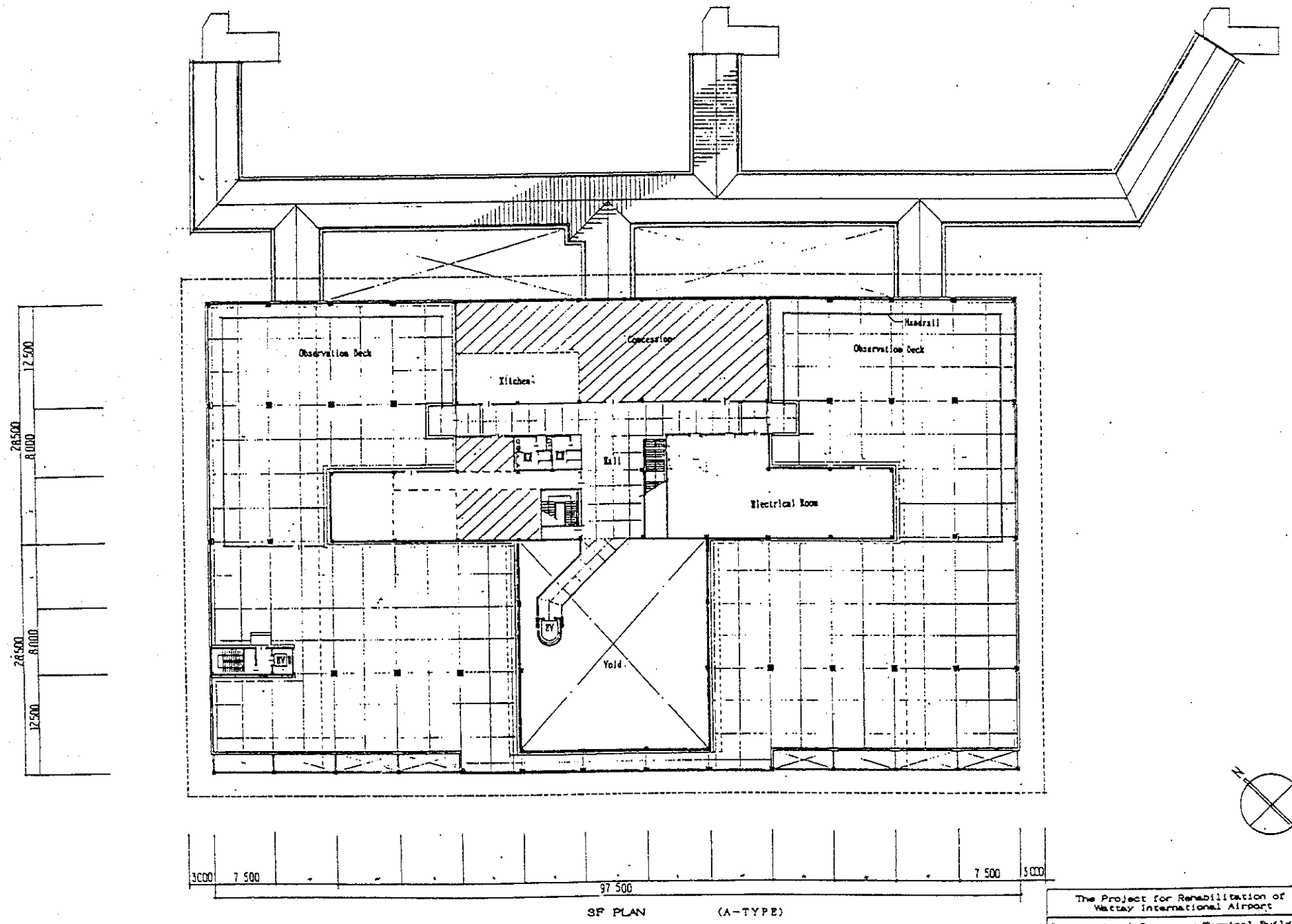
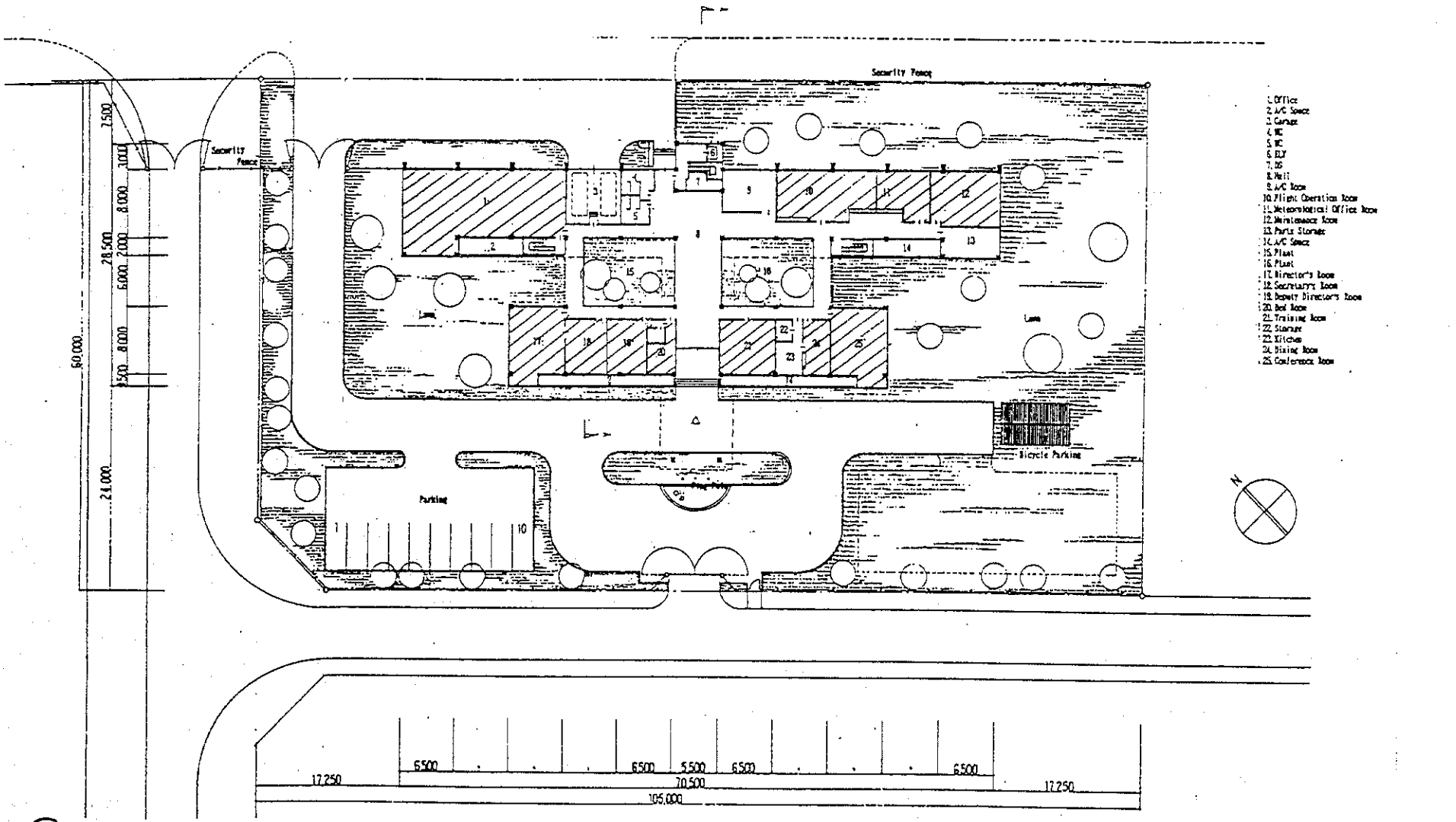


Fig. 6-3

The Project for Rehabilitation of Watsay International Airport

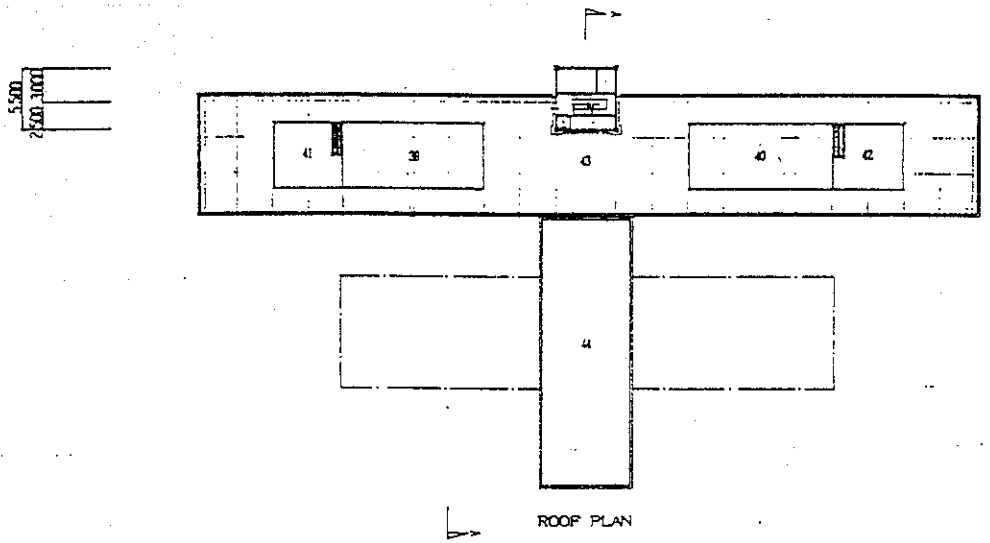
International Passenger Terminal Building



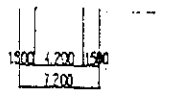
1F PLAN

Fig.-6

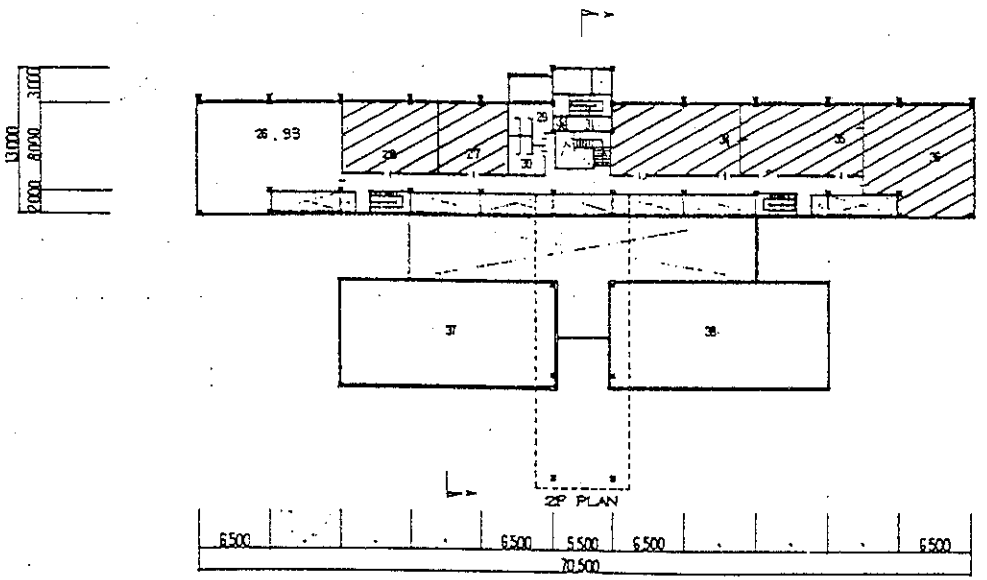
The Project for Rehabilitation of Watsay International Airport.



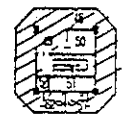
5P PLAN



35. Electrical Room
37. Weather Observation Room
38. Remote Coordination Room
39. WC
40. WC
41. DS
42. Hatch
43. Battery And Power
44. Equipment Room
45. FIS Operation Room
46. ACC Operation Room
47. Roof
48. Roof
49. A/C Space
50. A/C Space
41. Antenna Space
42. Antenna Space
43. Roof
44. Roof
45. ELV
46. DS
47. Hatch
48. Weather Observation
49. Leader Lounge
50. ELV Machine Room
51. DS
52. WC
53. WC
54. Hatch
55. VFI Room



3P PLAN



4P PLAN

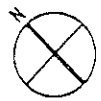
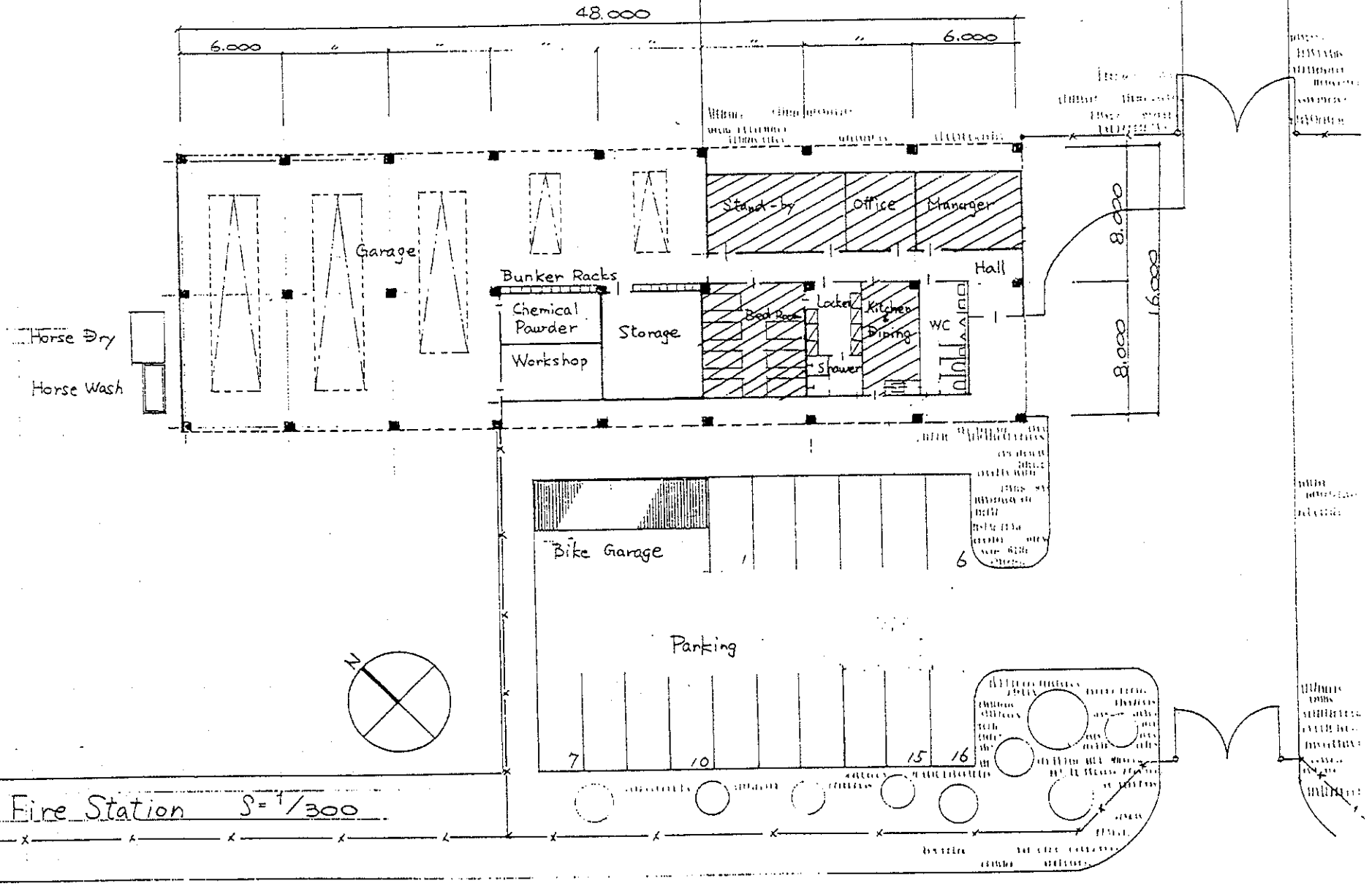


Fig.-6-5

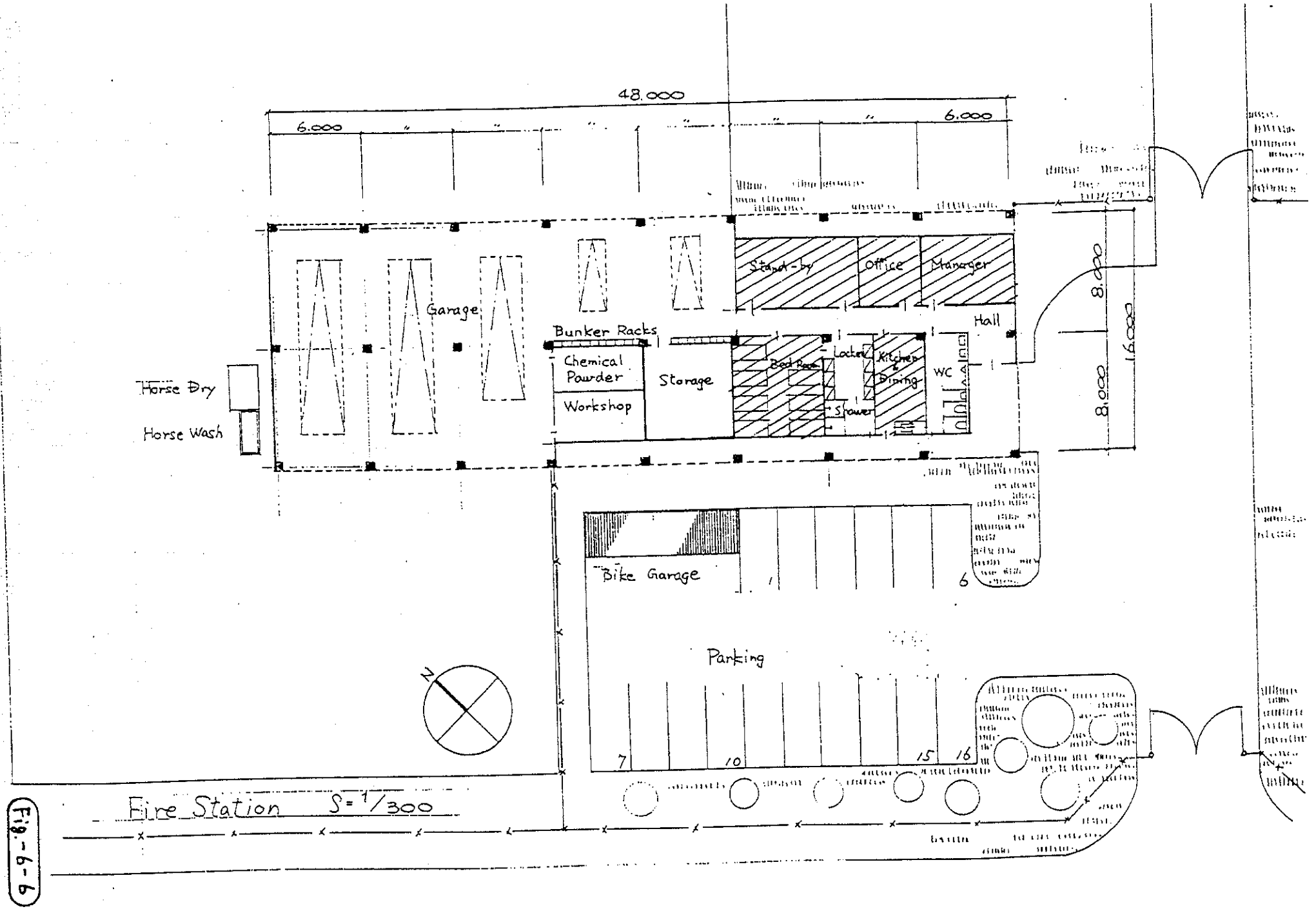
The Project for Rehabilitation of Watsay International Airport

Control Tower and Operation Building



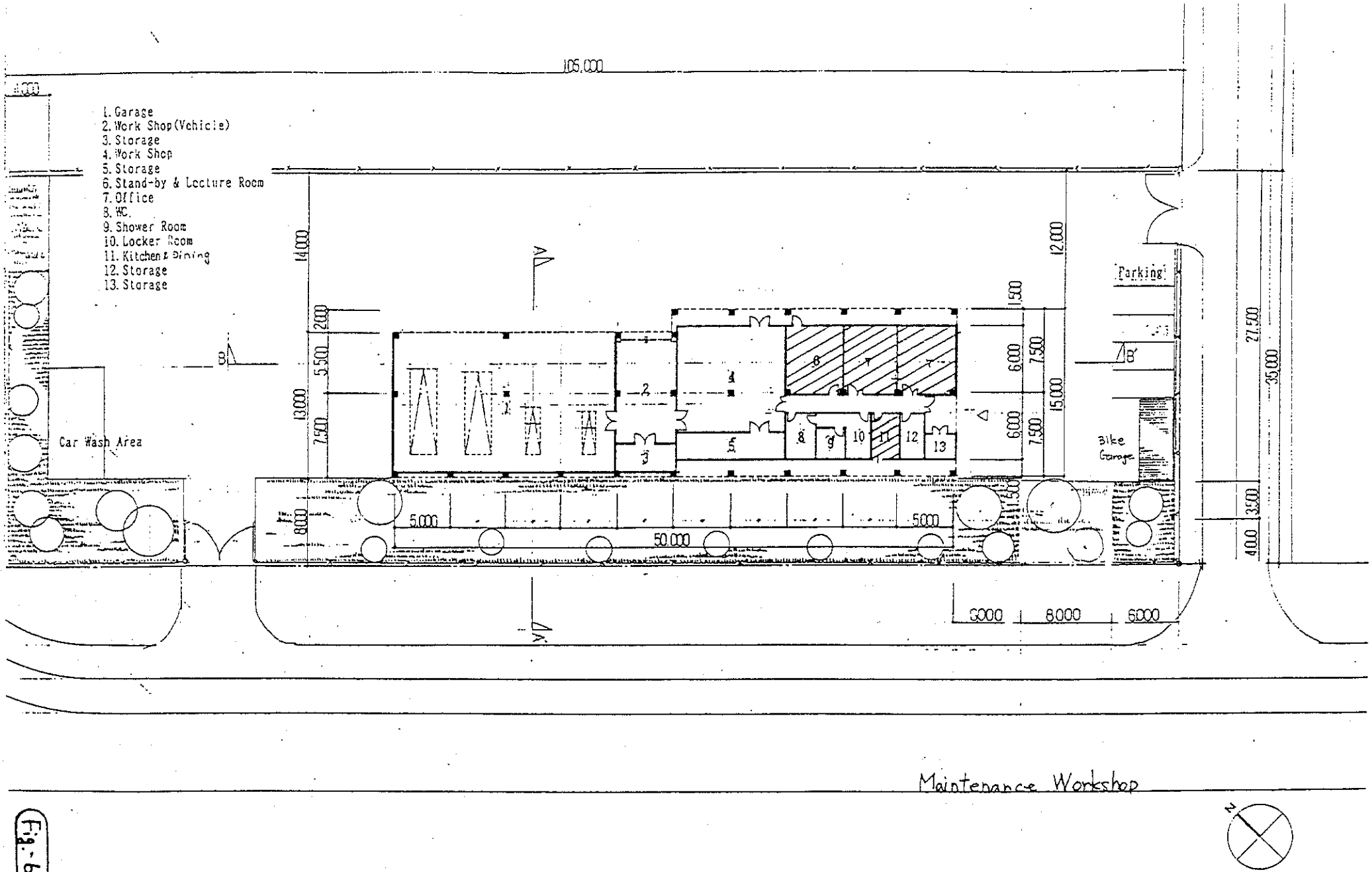
Fire Station S=1/300

Fig.-6-6



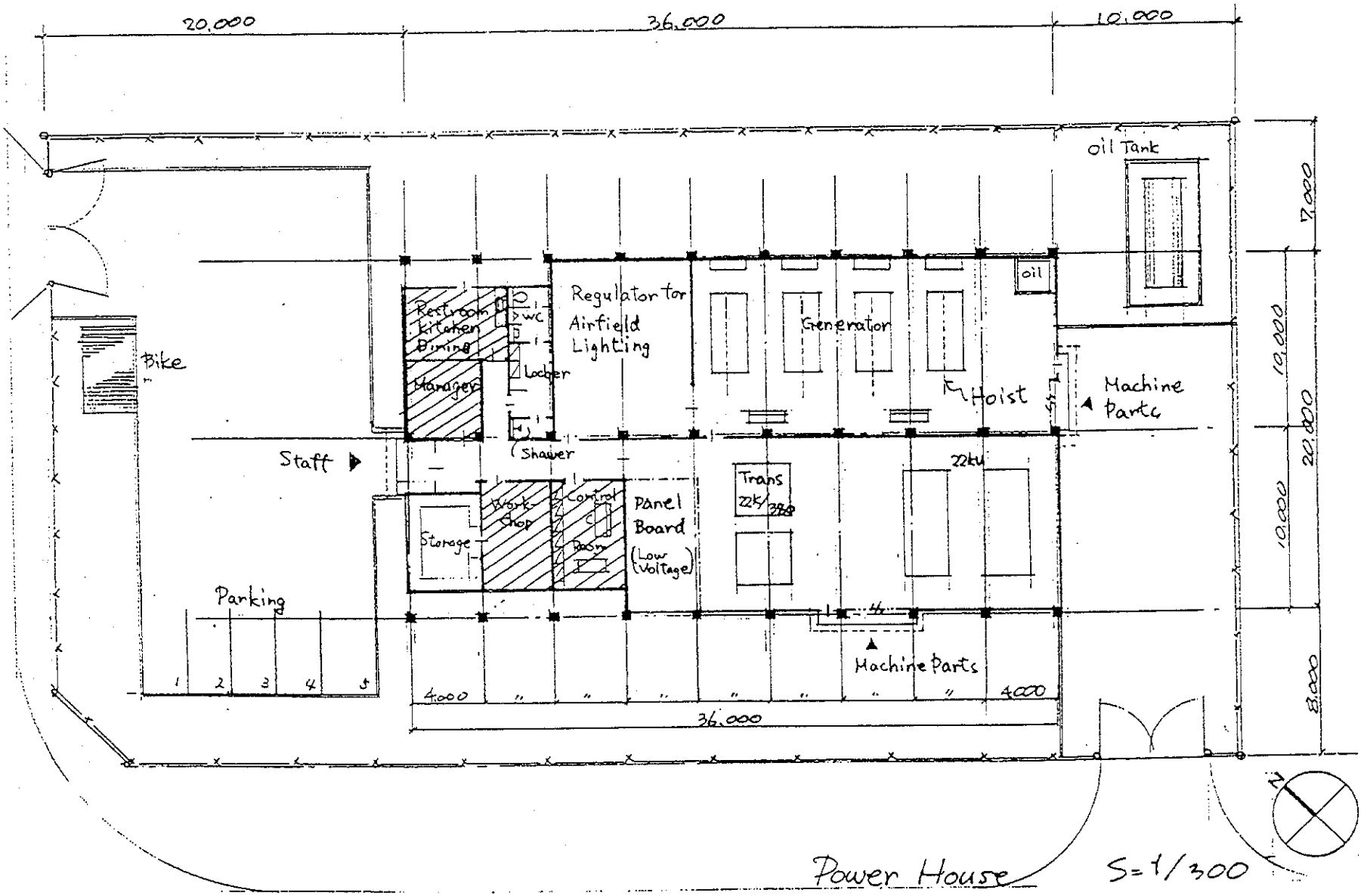
Fire Station S=1/300

Fig.-6-6



Maintenance Workshop

Fig.9-7



Power House S=1/300

Fig.-6-8

MINUTES OF DISCUSSIONS

OF

THE BASIC DESIGN STUDY ON THE PROJECT FOR

REHABILITATION OF WATTAY INTERNATIONAL AIRPORT

IN

THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

(CONSULTATION ON DRAFT FINAL REPORT)

In August and October 1994, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for Rehabilitation of Wattay International Airport (hereinafter referred to as "the Project") to the Lao People's Democratic Republic. Through discussions, field survey, and technical examination of the survey results in Japan, JICA has prepared the draft final report of the study.

In order to explain and to consult the Lao side on the components of the draft final report, JICA sent to Lao PDR a study team, which is headed by Mr. Michio Kanda, Deputy Managing Director, Grant Aid Project Management Department, JICA, and is scheduled to stay in the country from February 9 to 18, 1995.

As a result of discussions, both parties have confirmed the main items described on the attached sheets.

Vientiane, February 17, 1995

Mr. Michio Kanda
Leader
Basic Design Study Team
JICA

Mr. Sadaphet Bodhivarn
Director General
Department of Civil Aviation
Prime Minister's Office

ATTACHMENT

1. Components of Draft Final Report

The Government of Lao PDR has agreed and accepted in principle the components of the draft final report proposed by the Team.

Both sides have shared the view that the rehabilitation of the ILS (Instrumental Landing System) has high priority in terms of international safety standard recommended by ICAO.

2. Coordination of Other Works

For the smooth implementation of the Project, The Team recommended the Lao Government to take necessary measures to coordinate related activities by other donors implementation program.

3. Japan's Grant Aid System

(1) The Government of Lao PDR has understood the system of Japan's Grant Aid explained by the Team.

(2) The Government of Lao PDR will take necessary measures, described in ANNEX for smooth implementation of the Project, on the condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

4. Further Schedule

The Team will make the final report in accordance with the confirmed items, and send it to the Government of Lao PDR and Government of Japan by April, 1995.

Annex : Necessary measures to be taken by the Government of Lao PDR in case Japan's Grant Aid is executed

1. To secure and clear the site for the Project
2. To announce and coordinate with the airport users for the change in use of the airport facilities during the construction
3. To undertake incidental outdoor works such as gardening in the site and fencing, gates around the site
4. To construct the access road to the site prior ,to commencement of the construction
5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site
   1) Electricity distributing line to the site
   2) City water distribution main to the site
   3) Drainage city main to the site
   4) Telephone trunk line and the main distribution panel of building
   5) General administrative furniture such as carpets, curtains, tables, chairs and others
   6) Tenants' equipment and furniture such as kitchen equipment, tables and chairs in restaurants and showcases in shops
6. To bear commissions to the Japanese foreign exchange bank for the banking services based upon Banking Arrangement
7. To exempt taxes and to take necessary measures for custom clearance of the materials and equipment brought for the Project at the port of disembarkation
8. To accord Japanese Nationals whose services may required in connection with the supply of products and services under the verified contract such facilities as may be necessary for their entry into Lao PDR and stay therein for the performance of their work
9. To exempt Japanese Nationals from custom duties, internal taxes and other fiscal levies with respect to the supply of products and services under the verified contracts
10. To maintain and use properly and effectively that the facilities constructed and equipment purchased under the Grant
11. To bear all the 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

Memorandum

Feb. 17 1995

1. The Lao Government commented on the following items on the draft final report;

   - to install more than two passenger boarding bridges (PBB),
   - to make the airside corridor be air-conditioned,
   - to equip CCTV system in the international passenger terminal building,
   - to prepare operation/maintenance program,
   - to relocate the sewage treatment tank apart from residential area, and to adjust the sewage treatment system with that of Vientiane city under planning,
   - to provide baggage carts,
   - to rearrange road system by providing direct return road from new domestic passenger terminal building for reducing through traffic in front of new international passenger terminal building,
   - to keep VIP loading and unloading of their car out of public sight, and
   - to change exterior sign of airport name from "Vientiane International Airport" to "Wattay International Airport" in Lao language.

   The Study Team accepted to study underlined items.

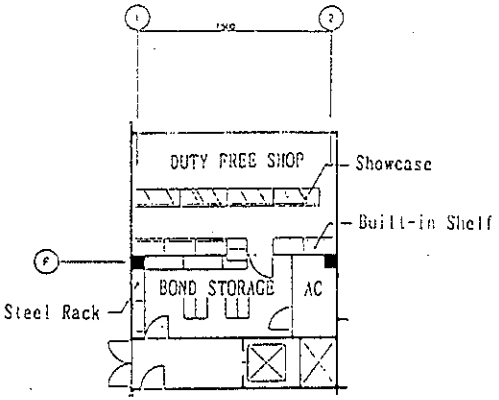
2. Proposed installation of ILS in Japanese portion will not include;

   - to replace simple approach lights by approach lights, (NDF)
   - to readjust runway strip of 300m width according to ICAO recommendation, (ADB)
   - to provide conduit pipes under taxiways for installation of ILS cables, (Lao Government)
   - to provide runway visual range (RVR) and ceilometers, (NDF)
   - to prepare ground certainly graded according to ICAO recommendation in front of GS antenna and around LLZ and (Lao Government)
   - to conduct flight check on ILS facilities. (Lao Government)

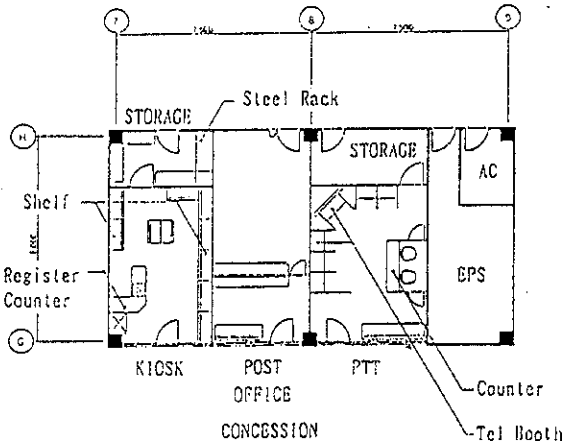
3. The Study Team recommended to adopt airport category "7" instead of "8" described in the draft final report in concerned with fire fighting, as a result of that, the number of fire fighting vehicles provided in this project will be reduced by one major vehicle (MJV). The Lao Government accepted this alteration.

4. The Study Team mentioned that it is difficult to provide the survey equipment for airport maintenance purpose, which is described to be a part of airport maintenance equipment in the draft final report. The Lao Government understood the situation and accepted exclusion of the survey equipment in this project.

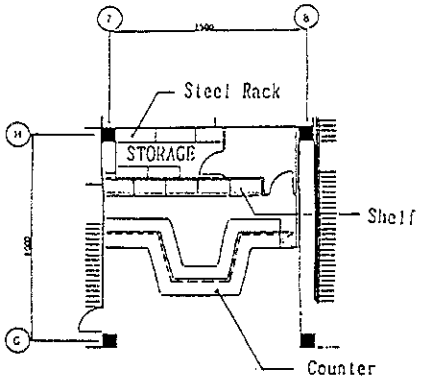
5. Attached sheets show draft layout plans of concessions in the international passenger terminal building.



DUTY FREE SHOP
1 F



CONCESSION
1 F



CONCESSION
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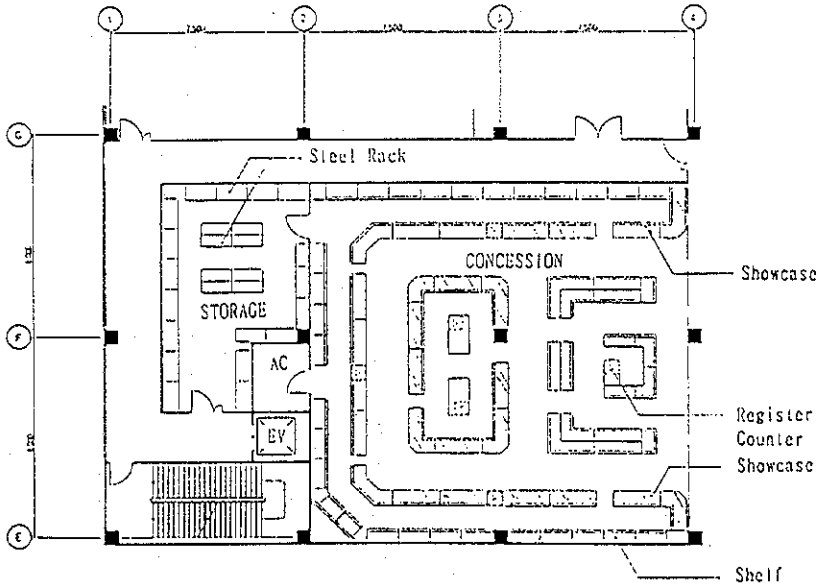

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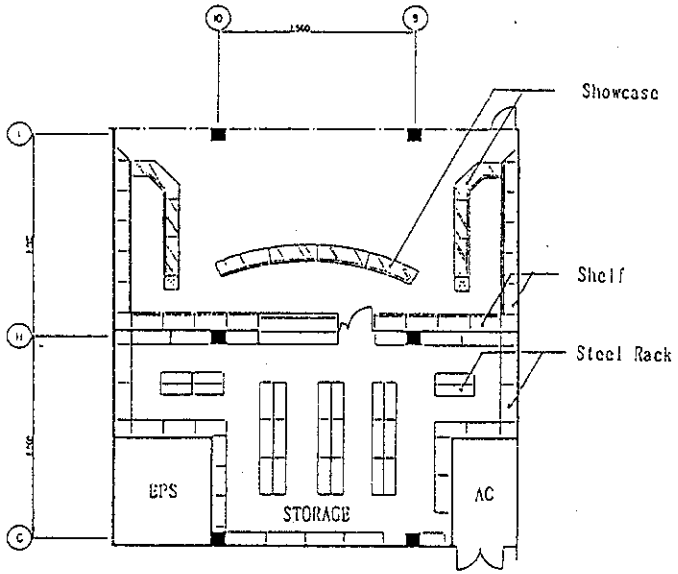

DUTY FREE SHOP
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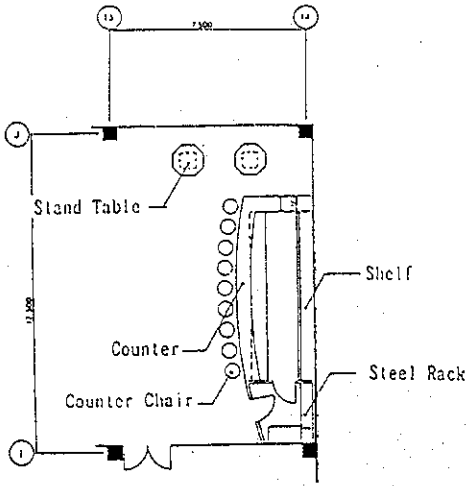
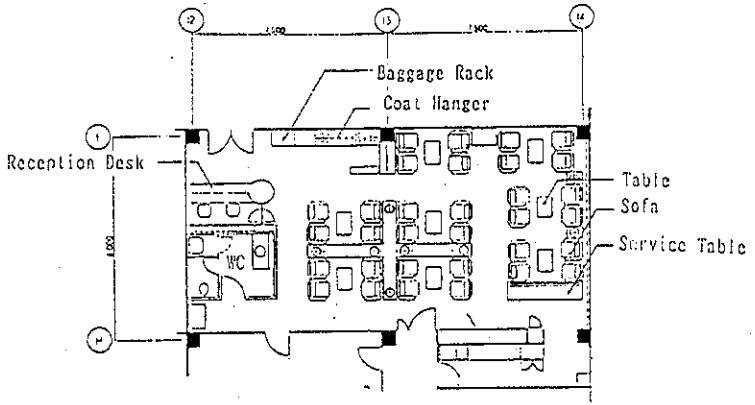
INTERNATIONAL PASSENGER TERMINAL BUILDING
FURNITURE LAYOUT (1)



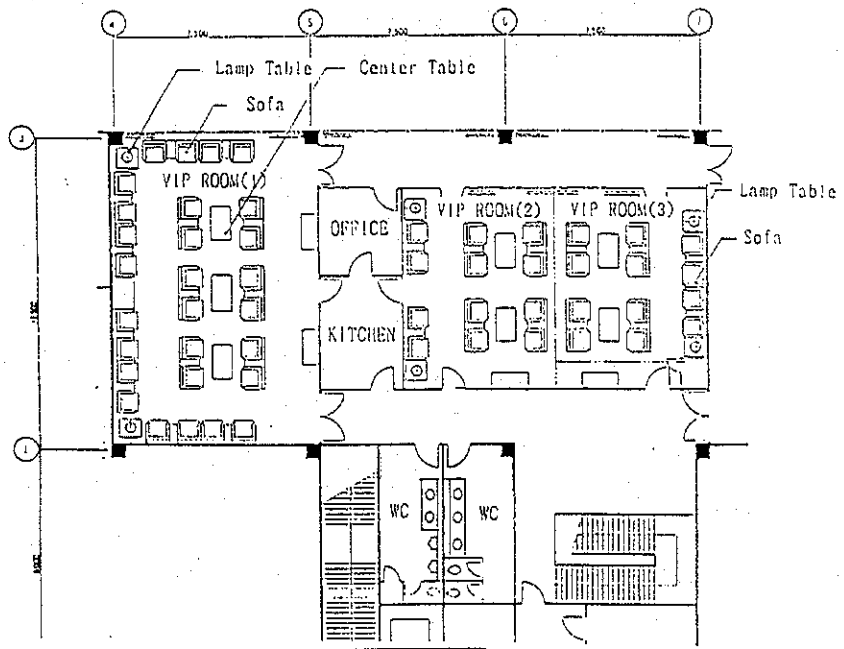
SNACK BAR

2 F



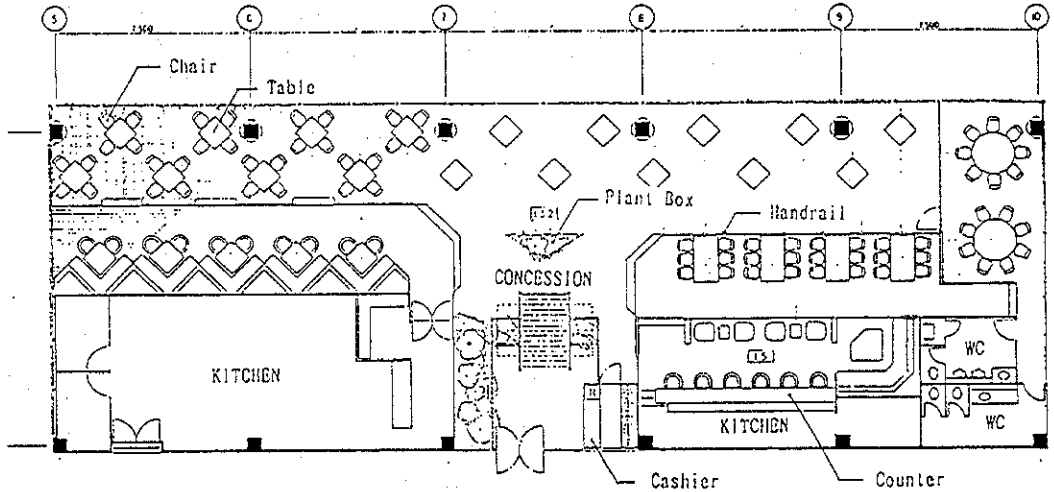
AIRLINE LOUNGE

2 F



VIP ROOM

2 F



CONCESSION

3 F

THE PROJECT FOR REHABILITATION OF WATTAY INTERNATIONAL AIRPORT

INTERNATIONAL PASSENGER TERMINAL BUILDING

FURNITURE LAYOUT (2)

[Appendix 5 Country Data]

General Indicator					
Government Type	Democratic Republic	*1	Area	236,000km^2	*1
Head of State	President NOUHAK Phoumsavan	*1	Population	4,568,000 (1993)	*1
Independence	19 July, 1949	*1	Capital	Vientiane	*1
Ethnic Groups	Lao 50%, Thai 25%	*1	Major Cities	Savannakhet	*1
Language	Lao	*1	Compulsory Education	2 Years (1992)	*2
Religions	Buddhism 85%	*1	Percentage of Primary School Attendance	59.0% (1990)	*2
Participation to UN	December 1955	*1	Literacy	84.0% (1985)	*1
Participation to IMF	July 1961	*1	Population Density	19.0/km^2 (1992)	*2
			Population Growth Rate	2.86% (1993)	*2
			Life Expectancy at birth	Average 51.18/Male 49.7, Female 52.8	*1
			Infant Mortality (less than 5 years)	104.4/1000 (1993)	*1
			Calorie Supply	2,470.0 cal/day/pers. (1990)	*2

Economic Indicator					
Currency	Kips	*1	Import and Export		
Exchange Rate	1US$=720Kips (1994)		Export	N.A.	
Fiscal Year	June to July	*1	Import	N.A.	
National Budget			Import Cover Ratio	3.3% (1991)	*4
Revenue	N.A.		Major Export Item	Electricity, Timber, Coffee	*1
Expenditure	N.A.		Major Import Item	Food, Fuel, consumer good	*1
International Balance of Payment	N.A.		Export to Japan	12.0 mil. US$ (1992)	*5
ODA amount	173.00 mil. (1992)	*2	Import from Japan	28.0 mil. US$	*5
GDP	1195.00 mil. (1992)	*4	Economic Growth	7.0% (1992)	*4
GNP per capita	220.0 US$ (1991)	*2	Foreign Currency Stock	N.A.	
GDP composition	Agriculture:N.A. Industries:N.A. Service:N.A.		International Debt	1922.0 mil. US$ (1922)	*4
			International Debt Ratio	8.9% (1991)	*4
			Inflation Ratio	10.3% (1992)	*2
Employment by Sector (1992)	Agriculture:76.0% Industries:7.0% Service:17.0%	*2	National Development Plan	Third 5 Year Plan for Socio Economic Development	*5

*1:The World Fact Book (CIA/1993)
*2:Human Development Report (UNDP/1994)
*3:International Financial Statistics (IMF/1995)
*4:World Debt Tables (World Bank/1994)
*5:Outline of Countries:(MOFA of Japan/1993)