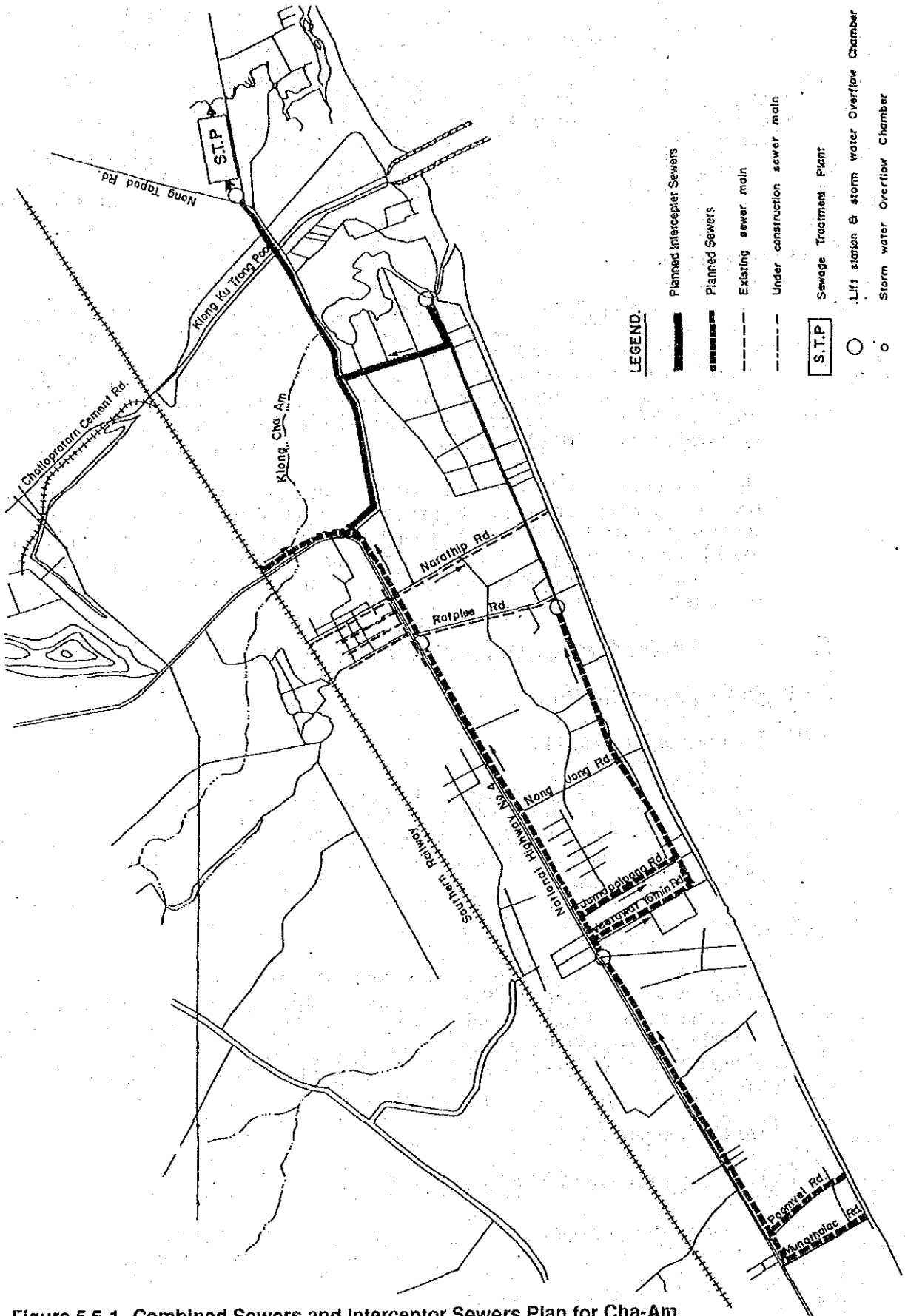


Figure 5.5-1 Combined Sewers and Interceptor Sewers Plan for Cha-Am

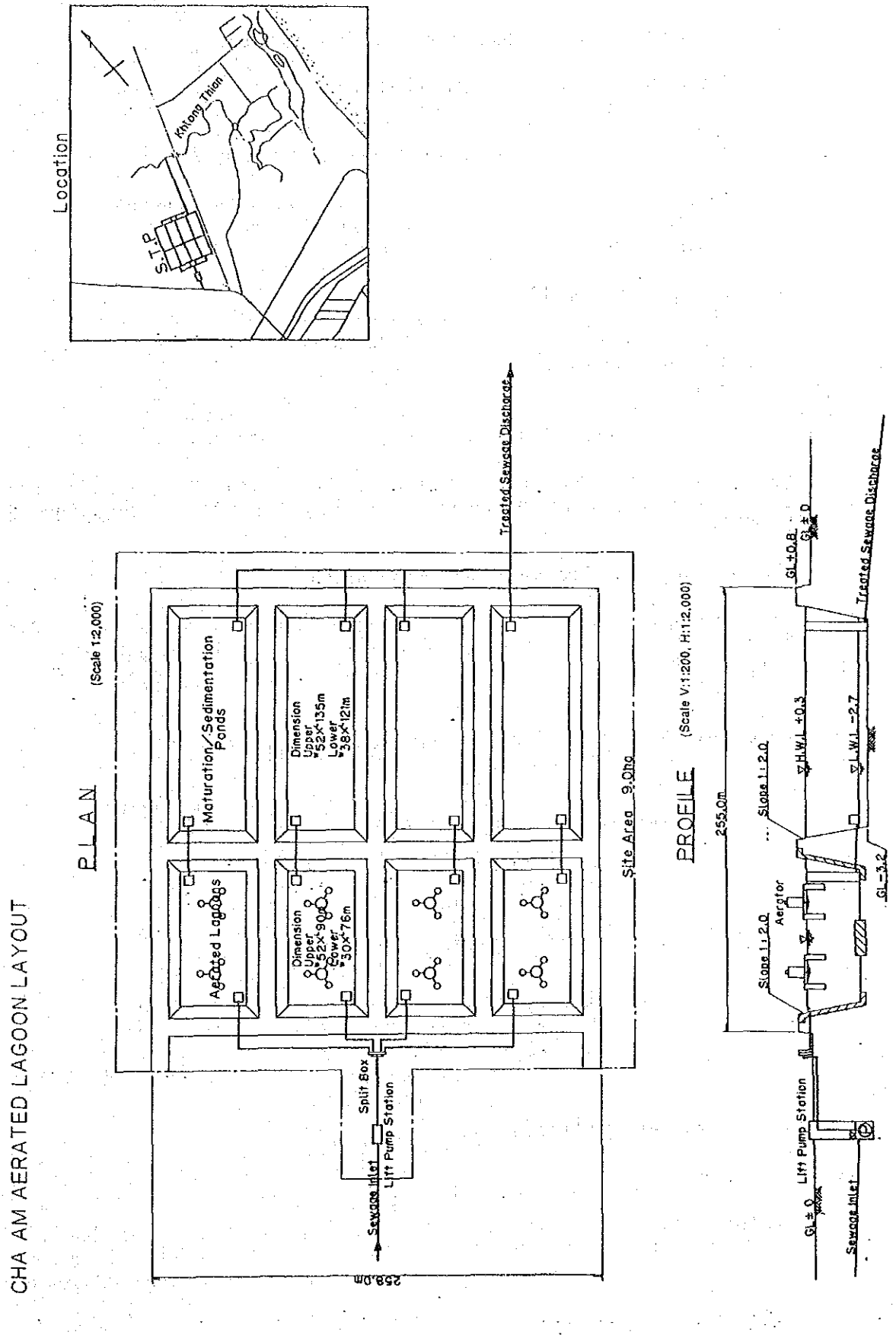


Figure 5.5-2 Aerated Lagoon Layout for Cha-Am

Pipe Size : Dia. 300 - 700 mm
Total Length : 12.2 km

2) Lift Pump Station and Stormwater Overflow Facilities

Lift Pump Station with Overflow Facilities : 6 units
Stormwater Overflow Facilities : 1 unit

3) Interceptor Sewers and Stormwater Overflow Facilities

System Capacity : Wet-weather Flow 0.497 cum/day
Pipe Size : Dia. 700 - 900 mm
Total Length : 4.4 km

4) Sewage Treatment Plant

Plant Capacity : 11,000 cum/day
Total Retention Time : 8 days
Storage Volume:
Aerated Lagoon : 33,000 cum
Maturation/Sedimentation Ponds : 55,000 cum

On completion of the project, the system covers the sewage discharge in 2006. The project will require coordination with the feasibility study which is being prepared by PWD.

(3) Development Cost and Implementation Plan

An estimation of the development cost of the project is shown in Table 5.5-1. The project shall be implemented by PWD of Cha-Am, and is scheduled to be completed by 1996.

Table 5.5-1 Development Cost of Cha-Am Municipal Sewage System Development

unit: 1,000 baht

Cha-Am Sewage System Development	Cost
Installation/Construction of:	
Combined sewers	52,800
Lift pump station and overflow facilities	6,000
Interceptor sewers	26,900
Construction of Sewage Treatment Plant	25,470
Total Construction Cost	111,170
Detail Design of Municipal Sewage System	20,000
Total Development Cost	131,170

source: Study Team

5.5.2 Financial Feasibility of the Project

(1) Evaluation Method

Hua Hin is the only city having a sewer system in this area. As no charge is collected from citizen users, the city treasury covers maintenance of all the system facilities. Some autonomies in Thailand, however, collect sewage charges in

proportion to water charges. So, in our estimation, with sewerage charges taken collectable as water charges, the feasibility of this work is evaluated from its financial internal rate of return.

(2) Sewer and Sewage Charges

1) Sewer

Sewer treated is calculated based on the assumption using drinking water use (refer to table 5.5-2).

1. 70 % of water by local residents is treated.
2. 50 % of water consumed by hotels is treated.

Table 5.5-2 Sewage Discharge Forecast (1996, 2001, 2006)

unit: cum/day

	Water Demand			Sewage Amount		
	Domestic	Hotels	Total	Domestic	Hotels	Total
1991	5,366	3,937	9,303	3,756	1,968	5,724
1996	6,517	5,881	12,398	4,562	2,769	7,331
2001	7,827	7,337	15,164	5,479	3,553	9,032
2006	9,372	8,911	18,283	6,560	4,455	11,015

source: Study Team

2) Charges to be collected

Similarly to water charges, annual sewage treatment is obtained by converting daily maximum to daily average, which is then multiplied by a unit rate (50 % of water charge for homes and 75 % of water charge for hotels). The estimated sewage charge is shown in Table 5.5-3.

Table 5.5-3 Estimation of Sewage Charges (1996,2001 and 2006)

unit: 1,000 baht/year

	Domestic	Hotels	Total
1996	4,522	4,116	8,638
2001	7,096	6,902	13,998
2006	9,905	10,090	19,995

source: Study Team

(3) Evaluation Result

From the cash flow of the Project shown in Table A6-7 of Appendix 6, FIRR is -2.1 %, which is not sufficient to confirm financial feasibility of the sewage system improvement work. However, the purpose of the sewage system work is to create or preserve a "beautiful sea" as a tourism resource, and its financial barrier to its implementation will not stop the realization of the work itself. The creation of preservation of the beautiful sea will be the core of tourist attraction for the subject area, which means that without the sea, there is not tourist value. Other than tourist benefits, the following secondary benefits may be considered:

- Reduction of disease occurrence,

- Improvement of living environment (scenery preservation, prevention of foul smell, etc.),
- Reduction of flooding damages,
- Increased possibility of bringing other development plans (such as housing and industrial complex),
- Prevention of ground water pollution, and
- Rise of land price due to improved sewage.

Since sewer system improvement is an extremely public conscious project, it is more proper to be judged in terms of its necessity with the local society and economy than from a financial viewpoint. No ordinary people may cast a doubt to a project which benefits the local community and economy. Therefore, the sewer system improvement project is judged highly essential.

6. APPENDIX

APPENDIX

1. SCOPE OF WORK AND MINUTES OF MEETING

SCOPE OF WORK

FOR

THE TOURISM DEVELOPMENT STUDY

ON

THE HUA HIN / CHA-AM BEACH RESORT AREA

IN

THAILAND

AGREED UPON BETWEEN

TOURISM AUTHORITY OF THAILAND

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

BANGKOK
APRIL 10, 1991

Mr. Seree Wangpaichitr
Deputy Governor,

Tourism Authority of
Thailand

Mr. Kimitaka Fujino
Leader,
Preliminary Study Team
Japan International
Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of the Kingdom of Thailand, the Government of Japan decided to conduct the Tourism Development Study on the Hua Hin /Cha-am Beach Resort Area (hereinafter reffered to as "the Study"), within the general frame-work of technical cooperation between Japan and Thailand, which is set forth in the Agreement of Technical Cooperation between the Government of Japan and the Government of the Kingdom of Thailand signed on November 5, 1981.

Accordingly, the Japan International Cooperation Agency (hereinafter reffered to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of the Government of Japan, will undertake the Study, in accordance with the relevant laws and regulations in force in Japan and in close cooperation with the authorities of the Kingdom of Thailand.

The Tourism Authority of Thailand (hereinafter reffered to as "TAT") shall act as the counterpart agency to the Japanese study team and also coordinating body in relation with other relevant organizations for the smooth implementation of the study.

The present document sets forth the scope of work with regard to the Study.

II. OBJECTIVE OF THE STUDY

The objectives of the Study are as follows:

1. to prepare a tourism development master plan of the Hua Hin/Cha-am Beach Resort Area with a target year 2006, based on the relevant master plan(s).

2. to carry out a feasibility study on priority projects which are fundamental for future tourism promotion of the Hua Hin / Cha-am Beach Resort Area.

3. to prepare a set of institutional arrangement proposals for the purpose of preventing progress of disorderly tourism development.

III. STUDY AREA

The study will cover the Hua Hin / Cha-am Beach Resort Area and its surrounding area.

IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items.

1. Data Collection and Analysis
   (1) Relevant development policies and plans
   (2) Socio-economic conditions
   (3) Tourism resources and present land use
   (4) Social infrastructure and other utilities
   (5) Institutional, financial, managerial and legal aspects

2. Identification of Tourism Demand

(1) Interview survey of international tourists coming to Bangkok and of the Bangkok Metropolitan Region (BMR) residents (Foreigner and Thai)

(2) Assesment of tourist destinations in the vicinity of the BMR

(3) Setting up a socio-economic framework

(4) Tourism demand forcasting /capacity analysis (target years 1996, 2001 and 2006)

3. Preparation of Tourism Development Masterplan of the Hua Hin / Cha-am Beach Resort Area

(1) Infrastructures

(2) Tourism facilities

(3) Rules and regulations for the land transaction and the environmental protection

(4) Phased development plans for the years 1996 and 2001

(5) Selection of priority projects

4. Feasibility Study on Priority Projects

(1) Preliminary engineering design

(2) Cost estimation

(3) Financial / socio-economic analysis and evaluation

5. Proposal for Institutional Arrangements

(1) Rules and regulations for the investment promotion, the land transaction control and the environmental protection

(2) An environmental monitoring and control system

6. Conclusion and Recommendations

V. STUDY SCHEDULE

The Study shall be carried out in accordance with the attached tentative schedule as shown in the Appendix.

VI. REPORTS

JICA will prepare and submit the following reports in English to TAT.

1. Inception Report (30 copies)
   The Inception Report will be submitted within one (1) month from the commencement of the Study.

2. Interim Report (50 copies)
   The Interim Report will be submitted within seven (7) months from the commencement of the Study.

3. Draft Final Report (50 copies)
   The Draft Final Report will be submitted within eleven (11) months from the commencement of the Study.
   TAT shall send the comments to JICA within one (1) month after the submission of the Draft Final Report.

4. Final Report (100 copies)
   The Final Report will be submitted within two (2) months after the receipt of the comments on the Draft Final Report from TAT and will be contained all the essential recommendations, results and findings of the Study.

VII. UNDERTAKING OF THE GOVERNMENT OF THE KINGDOM OF THAILAND

1. In accordance with the Agreement of Technical Cooperation between the Government of Japan and the Government of the Kingdom of Thailand dated on November 5, 1981, the Government of the Kingdom of Thailand shall accord benefits to the Japanese study team as follows;

(1) to permit the members of the Japanese study team to enter, leave and sojourn in Thailand for the duration of their assignment therein and exempt them from alien registration requirements and consular fees,

(2) to exempt the members of the Japanese study team from taxes, duties and any other charges on equipment, machinery and other materials brought into Thailand for the conduct of the Study,

(3) to exempt the members of the Japanese study team from income taxes and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study,

(4) to bear claims, if any arises against the members of the Japanese study team resulting from, occuring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the Japanese study team.

2. To facilitate smooth conduct of the Study, TAT shall take necessary measures in cooperation with other relevant organizations;

(1) to secure permission for entry into private properties or restricted

areas for the conduct of the Study,

(2) to secure permission for the Japanese study team to take all data and documents related to the Study out of Thailand to Japan,

(3) to provide the medical services as needed (Its expenses will be chargeable on members of the Japanese study team.), and

(4) to ensure the safety of the members of the Japanese study team when and as it is required in the course of the Study.

3. TAT shall, at its own expense, provide the Japanese study team with the followings;

(1) available data and informations related to the Study,
(2) counterpart personnel,
(3) suitable offices with necessary equipment, and
(4) credentials or identification cards.

Ⅷ. UNDERTAKING OF JICA

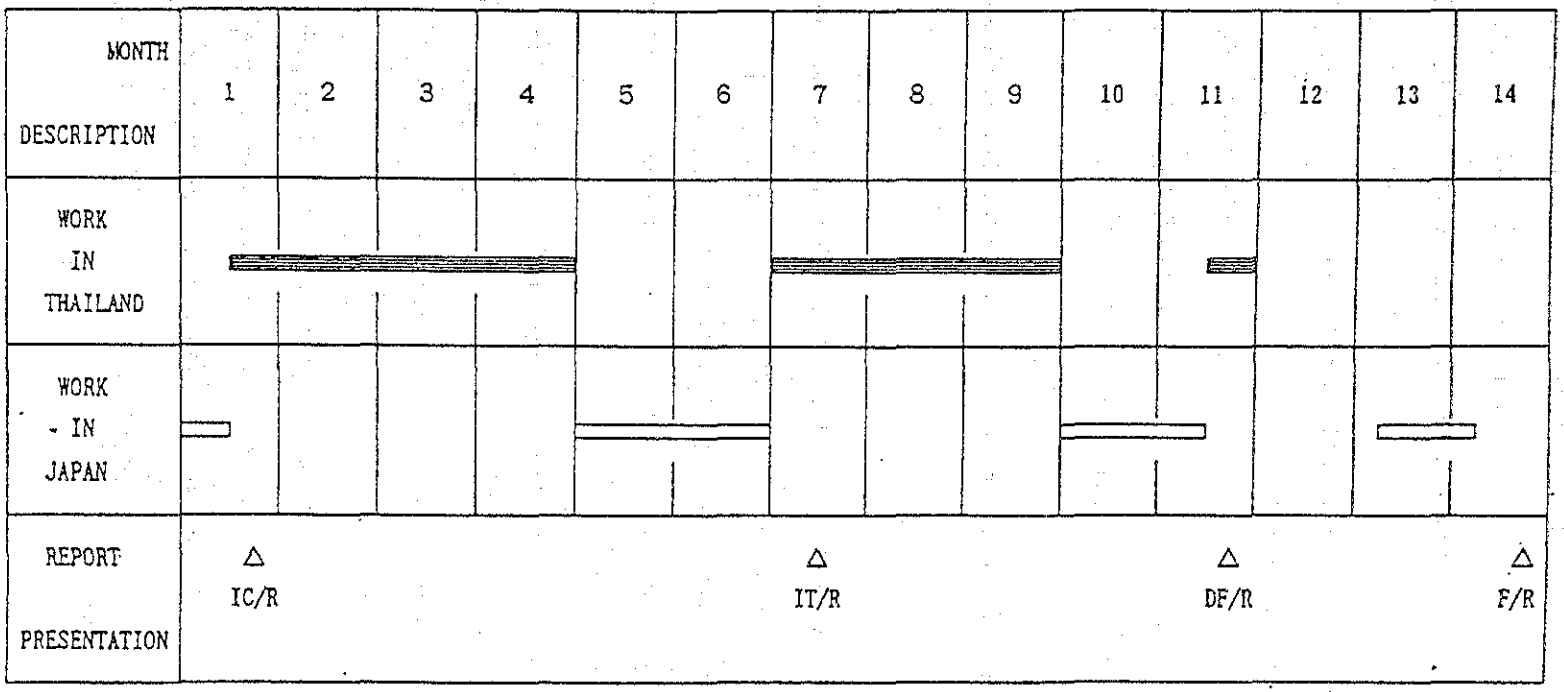
For the implementation of the Study, JICA shall take the following measures;

1. to dispatch the study team to Thailand at its own expenses.
2. to pursue technology transfer to the Thai counterpart personnel in the course of the Study.

Ⅸ. CONSULTATION

JICA and TAT shall consult with each other in respect of any matter that may arise from or in connection with the Study.

TENTATIVE STUDY SCHEDULE



Note: IC/R : Inception Report
IT/R : Interim Report
DF/R : Draft Final Report
F/R : Final Report

MINUTES OF MEETING

JICA dispatched the preliminary study team (the Team) for the Tourism development study on the Hua Hin/Cha-am Beach Resort Area in Thailand headed by Mr.Kimitaka Fujino from April 3 to 12 1991.

The Team had a series of discussions with the officials of TAT and authorities concerned.

The field surveys in Hua Hin and Cha-am were also conducted with elaborate arrangement and cooperation of TAT.

This document sets forth the main issues discussed during the above period.

1. TAT stated that the following items have to be clarified and presented in the course of the study.

1) Goal and strategy of development

2) Legal and institutional measures required for realizing the plan

3) Requirements for infrastructure and utilities to support tourism developments

4) Tourism promotion and marketing

2. TAT clarified that the study area is basically defined as Hua Hin Municipality and Cha-am Municipality, and may include the hinterland areas in Prachuab-Khirikhan Province and Petchaburi Province to the extent necessary.

3. Concerning paragraph 3 of IV.in the S/W,both sides confirmed that a land use plan for tourism development should be included in the Tourism Development Master plan.

4. TAT requested to receive 200 copies of the Summary Final Report. The Team agreed.

5. TAT requested the Team to provide equipment mentioned in page 9 of the TOR. The Team responded that the necessary equipment in conducting the Study would be provided by Japanese side.

6. Both sides agreed that TAT should set up a committee composed of members of the following government agencies.

1) Royal Forest Department
2) Public Works Department
3) National Economic and Social Development Board
4) Office of the National Environment Board
5) Office of the Policy and Planning
6) Department of Highway
7) The Governors of Petchaburi and Prachuab-Khirikhan Province
8) Hua Hin Municipality
9) Cha-am Municipality

7. TAT requested to send personnel for the counterpart training to Japan and the Team stated to convey the request to the Government of Japan.

8. In the course of the discussion, TAT requested technical cooperation in the field of tourism in Chumporn Province besides this study. The Team stated that it would convey this matter to the Government of Japan.

Bangkok

April 10, 1991

Juthamas Siriwan

Asst. Director,

Tourism Investment Coordination,

Kimitaka Fujino

Leader, JICA Preliminary

Study Team

List of Attendance

Thai Side

1. Juthamas Siriwan	Ass. director to Tourism Investment Coordination Department, TAT
2. Shujitt Potong	Tourism Investment Coordination Department
3. Chawaikit Ratanakupt	Director, TAT Cha-am Office
4. Dethapon Chindanon	Director, Planning Division, TAT
5. Kueporn Vanichchai	Offiec of Policy & Planning, Ministry of Interior
6. Supharuak Sirisombat	TAT staff
7. Kiatbordintra Keawprapan	TAT staff
8. Santi Sawangcharoen	TAT staff

Japanese Side

1. Kimitaka Fujino	Director, Development Division, Tourism Department, International Transport and Tourism Bureau, Ministry of Transport
2. Yoshimune Nakamura	Deputy Director, Tourism and Recreation Planning Office, Tourism Department, International Transport and Tourism Bureau, Ministry of Transport
3. Satoshi Shibata	Surpervisor for JNTO, Planning Division, Tourism Department, International Transport and Tourism Bureau, Ministry of Transport
4. Harumoto Ogawa	Senior Officer for International Cooperation, International Cooperation Division, International Transport and Tourism Bureau, Ministry of Transport
5. Keizo Kagawa	Deputy Director, First Development Study Division, Social Development Study Department, Japan International Cooperation Agency

2. TOURISM RESOURCES

Table A2-1 Natural Tourism Resources

Tourism Cluster	Attraction No. by TAT/TISTR		Rating by TAT/TISTR 1987	Rating by Experts 1992	Market Identification		
					Thai oriented	Foreign oriented	Thai/Foreign -mix oriented
Petchaburi	1	LAEM LUANG	D	D	●		
	2	HAT CHAO SAM RAN	C	C	●		
	3	HAT PUKTIAN	C	B	●		
	4	HAT THAWEESUK	C	C	●		
	5	PHETCHABURI DAM	C	C	●		
Hau Hin/	6	THAM KHAO TAOMO	C	C	●		
Cha-Am	7	KANG KRACHAN DAM	B	B			●
	8	KHAO MAI RUAK OFFICE	C	B			●
	9	NAM TOK THOTHIP	C	-			
	10	KHAO PHANOEN THUNG	C	-			
	11	NAM TOK HA CHAN	D	-			
	12	PHA NAM YOT	C	-			
	13	HUAI PA LAO RESERVOIR	C	C	●		
	14	NAM TOK PA LA U	C	B			●
	15	KHAO CHAO LAI	D	D	●		
	16	HAT CHA-AM	A	A			●
	17	HAT HUA HIN	A	A		●	●
	18	HAT TAKIAB	A	C	●		
	19	HAT SUAN SON	B	B	●		
	20	KO SINGTO	D	D	●		
	21	HAT KHAO TAO	C	C	●		
	23	KHAO HIN LEK FAI	C	B			●
	24	THAM DAO	C	C	●		
	25	THAM KAI LON	C	C	●		
	A-1	Tha Kad Phli	-	C			●
Pranburi	22	HAT SAI YAI	C	-	-	-	-
	A-2	Hat Sai Noi	-	C	●		
	A-3	Hat Bo Kaeo	-	C			●
	A-4	Hat Pak Nam Pran	-	C	●		
	26	PRANBURI RESERVE PARK	C	C	●		
	27	HAT PRANBURI	C	B		●	
	28	HAT NOM SAO	C	C	●		
	29	KO NOM SAO	D	C	●		
	30	HAT LAEM SALA	C	C			●
	31	THAM KAEW	C	C	●		
	32	THAM SAI	B	B			●
	33	HAT SAM PHRAYA	C	C	●		
	34	KHAO DAENG OFFICE	B	B			●

Table A2-1 Natural Tourism Resources (continued)

Tourism Cluster	Attraction No. by TAT/TISTR		Rating by TAT/TISTR 1987	Rating by Experts 1992	Market identification		
					Thai oriented	Foreign oriented	Thai/Foreign -mix oriented
Prachuap Khirikan	35	AO NOI	C	B	●		
	36	AO PRACHUAP	B	B			●
	37	KHAO CHONG KRACHOK	B	B			●
	38	AO MANAO	C	B	●		
	39	HAT WANAKORN	C	C	●		
	40	NAM TOK HUAI YANG	B	C	●		
	A-5	Dan Sinkorn	-	C	●		
	A-6	Nam Tok Khao Lan	-	C	●		
Ban Saphan	A-7	Hat San Arung	-	C	●		
	A-8	Haad Kaew	-	C	●		
	41	PA KLANG AO RESERVE PARK	C	C	●		
	42	AO BO THONGLANG	B	B	●		
	43	AO THIAN	C	D	●		
	44	AO MAE RAMPHUNG	B	B			●
	45	HAT CHAMUANG	C	C	●		
	46	HAT FANG DAENG	C	C	●		
	47	KO THALU	C	C	●		
	48	KO SINGH, KO SANG	D	D	●		
	49	HAT BANG BOET	D	C	●		
	A-9	Hat Pak Praek	-	C	●		
		Ban Saphan Noi New Road	-	C	●		

Table A2-2 Historical, Religious and Architectural Resources

Tourism Cluster	Attraction No. by TAT/TISTR		Rating by TAT/TISTR 1987	Rating by Experts 1992	Market Identification		
					Thai oriented	Foreign oriented	Thai/Foreign -mix oriented
Petchaburi	1	WAT KUT	C	C	●		
	2	WAT THAM KHAO YOI	C	C	●		
	3	WAT THAM KHAO E-KO	D	D	●		
	4	WAT KHAO TA-KHRAO	C	C	●		
	5	KHAO LUANG	A	A			●
	6	KHAO WANG	A	A			●
	7	WAT MAHA SAMANARAM	B	B	●		
	8	WAT SRA BUA	C	C	●		
	9	WAT PHRA BHUDHA SAIYAT	B	C	●		
	10	WAT MAHATHAT WORAWIHAN	B	B			●
	11	WAT YAI SUWANNARAM	B	B			●
	12	WAT KAMPHAENG LAENG	B	B			●
	13	WAT KO KAEW SUTHARAM	B	C	●		
	14	WAT PETCH PHLI	C	C	●		
	15	WAT KHAO BANDAI IT	C	C	●		
	16	RAM RATCHANIWET PALACE	B	C	●		
Hua Hin/ Cha-Am	17	WAT CHA-AM KHIRI	C	C	●		
	18	MARUEKHATHAIYAWAN PALACE	C	-	-	-	-
	19	KLAI KANGWON PALACE	B	-	-	-	-
	20	WAT KHAO PHITAK SAKSIT	C	D	●		
	21	WAT KHAO TAKIAB	B	B			●
	22	WAT KHAO KLAILAT	C	B			●
Pranburi	23	THAM PHRAYA NAKORN	B	B			●
Prachuap Khirikan	24	WAT KHAO THAM KHAN KRADAI	C	C	●		
	25	WA-KO	D	C	●		
Ban Saphan	26	WAT THAM KHAO MA RONG	C	D	●		

Table A2-3 Cultural and Handicraft Resources

Tourism Cluster	Attraction No. by TAT/TISTR		Rating by TAT/TISTR 1987	Rating by Experts 1992	Market Identification		
					Thai oriented	Foreign oriented	Thai/Foreign -mix oriented
Petchaburi	1	BAN NONG PRONG	C	C	●		●
	2	KHAO WANG CONFECTIONERY	A	A			●
Hua Hin/ Cha-Am	3	HUB KRAPHOHNG	C	D	●		
	4	HUA HIN FISHING PIER	B	C			●
Ban Saphan	5	MU BAN RON THONG	C	D	●		

3. ZONING AND BUILDING REGULATION

Excerpt 1-1 Zoning and Building Regulation

Zoning and Building Regulations

1. Introduction

The Interior Minister, with the Director of Public Works Department's announced the following Building Code on September 1991 in Hua Hin Resort Area:

"Area 1"

* Areas measured from Klai Kang Won Palace to the North and to the south for 100 meters each.
* Areas in the north starting from the junction of the Provincial Highway No.3325 and Kao Tao Rd. to the east. It is on the right angle with the shoreline in Nong Kae and heads to the south, following the shoreline in Nong Kae until a municipal limits. From the third municipal limits to the West, following the Municipal of Hua Hin limit line until the East side of the Provincial Highway No.3325 and from the limits to the north, following the east side of the Provincial Highway No.3325 until the junction of the highway and Kao Tao Rd.

"Area 2"

The areas measured from the shoreline in Hua Hin district and Nong Kae District 50 meters inland along the shoreline starting from the Municipality of Hua Hin Northern limits to the Southern limits, except the Area 1 and Klai Kang Won Palace Area.

"Area 3"

The area measured from Area 2 limit line all the way, total of 650 meters.

"Area 4"

The areas measured from Area 3 limit line all the way, total of 300 meters.

2. Specification of some areas in Hua Hin and Nong Kae districts, Amphur Hua Hin. This area is the restricted area for constructions, adaptation and changing the type of the building as follows:

In Area 1, no construction is allowed, except.

1) One-storey house with less than six meters in height. Total building area should not excess 75 sq.wah (300 m^2) and must be 20 meters far from shore. Each building should be far from each other at least four meters and two meters far from other people's land. There should be at least 75 % of the total area for surrounding space.
2) Dam, pipeway, fences, walls, doors and bridges should not be built toward the sea.
3) Government agency buildings.

In Area 2, no building is allowed, except.

1) One-storey house with less than six meters in height. Total building area should not excess 75 sq.wah (300 m^2) and must be 20 meters far from shore. Each building should be far from each other at least four meters and two meters far from other people's land. There should be at least 75 % of the total area for surrounding space.
2) Dam, pipeway, fences, walls, doors and bridges should not be built toward the sea.
3) Piers or other government agency buildings.

In Area 3, no construction of the following types of buildings are allowed:

1) Buildings with more than 12 meters in height.
2) All types of factories, except those that strictly follow the health law and do not disturb the community and the environment. The total area must be under 100 sq.m.
3) Entertainment houses according to the laws for dangers prevention in entertaining houses.
4) Bus terminal according to transportation laws.
5) All types of animal stables with total area over 10 sq.m. or built for commercial purposes or being a community disturbance.
6) Large building with total area over 2,000 sq.m.
7) Market with total area over 100 sq.m. or with less than 50 meters far from the other market.
8) Gas shops or legal gas stations according to Law of liquid petroleum gas containing.
9) Commercial gas warehouse and gas station according to Law of gas storage.
10) Hospitals with more than five overnight beds.
11) Religious sites and schools.

12) Signs or stands, except name signs with less than 12 meters in height.
13) Buildings constructed with non-permanent material or non-fire durable materials, except a single on-storey buildings with less than six meters in height and must be at least five meters far from other buildings.
14) Stalls.
15) Buildings with less than 50 % of the area used for the construction.
16) Row houses or town houses.
17) Crematorium according to law of cemetery and crematorium control.
18) Warehouse buildings or any parts of the building which belongs to this type, used for storing and transporting goods or commercial or industrial objects.

In Area 4, none of the following building can be built:

1) Building of Area 3, item 2) and 5).
2) Building of Area 3, item 18) which has total area more than 200 sq.m.
3) Building with less than 30 % of area used in construction.

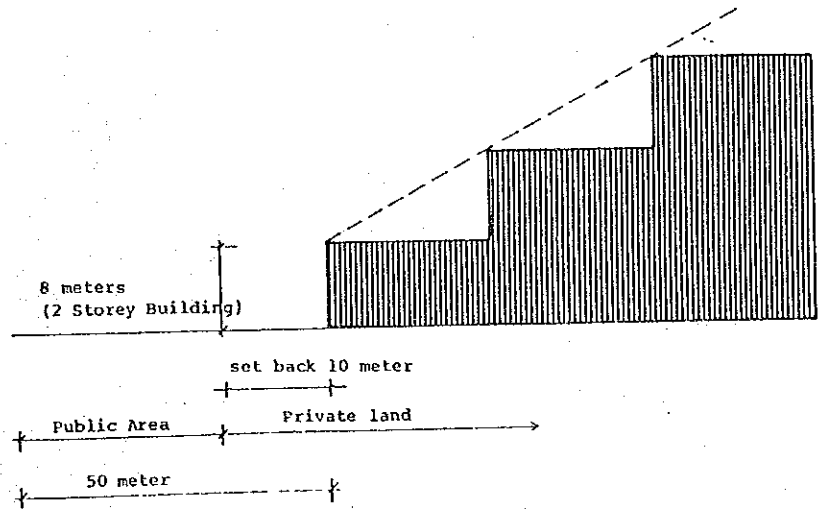
The height of the building must be measured from the ground to the top of the building.

3. In the specified area, nobody can adapt or change the building into the restricted types mentioned in 2.
4. Buildings in the area specified, which were constructed before or on the decree announcement date, are exempt from the rules but there must be no change or adaptation of the buildings into the restricted types mentioned in 2.
5. Buildings permitted for the change and adaptation according to the building code or legally permitted for specific purposes before the decree announcement date are exempt from the decree but there will be no further permit request against the rules.
6. The decree will be effective on the day after September 8th, 1991 in the government gazette.

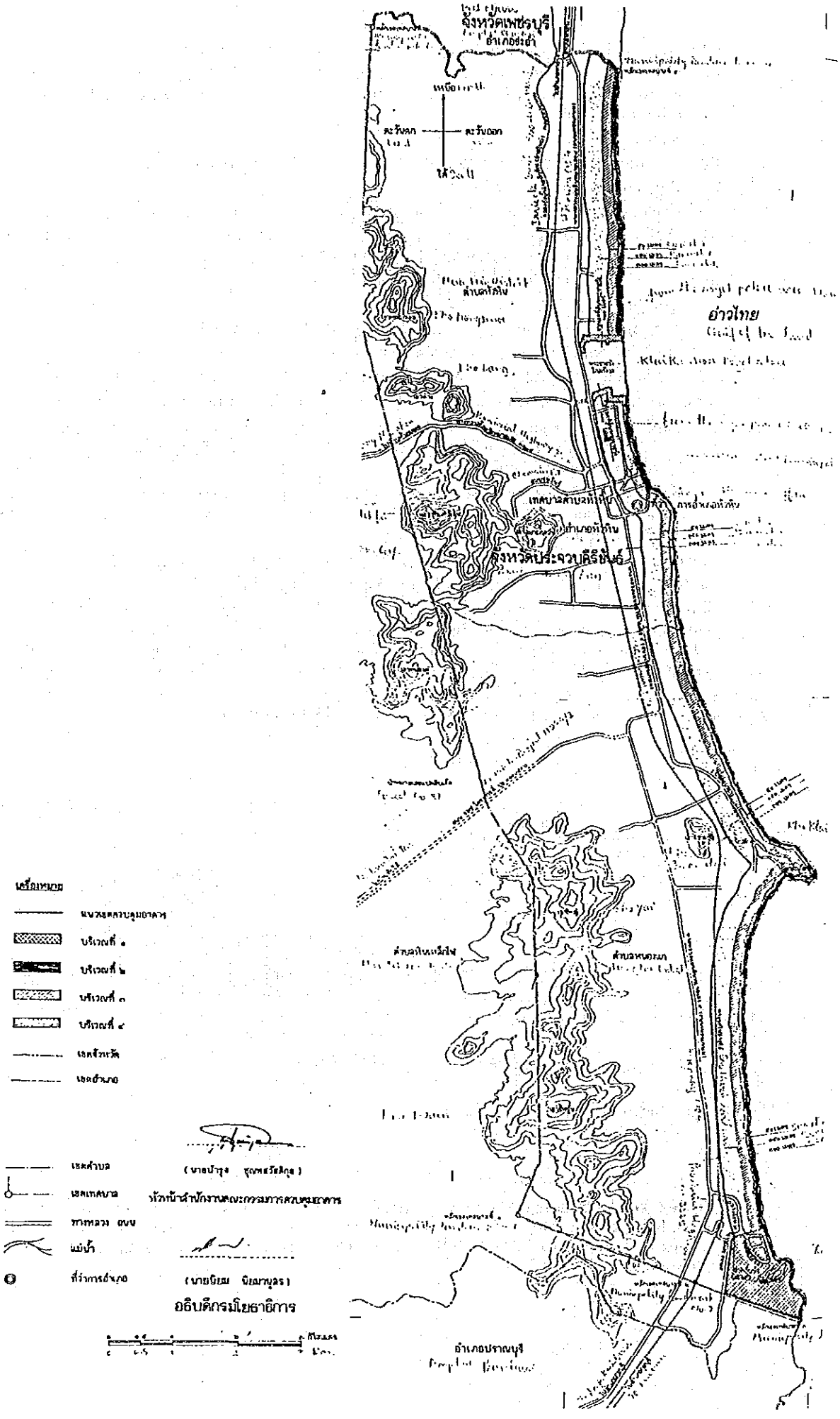
Set back Distance and High of Building Arrangement Cha-am

Building set back is required according to the municipal law on construction in order to maintain the natural beauty along the beach area. Additional stepwise set back is proposed so that the buildings are confined within the diagonal line of the profile having the vertical and horizontal ratio of 1 : 2, and not higher than 20 meters according to the Ministry of Interior's regulation, as shown in Figure.

Proportion Vertical: Horizontal = 1 : 2



Setting back of buildings should be in the stair formation having the buildings fitted into the diagonal slope line inclining with the vertical and horizontal axis ratio of 1 : 2. The height of the buildings should not exceed 20 meters. The buildings must be set back at least 10 meter from the beach (refer to Figure).

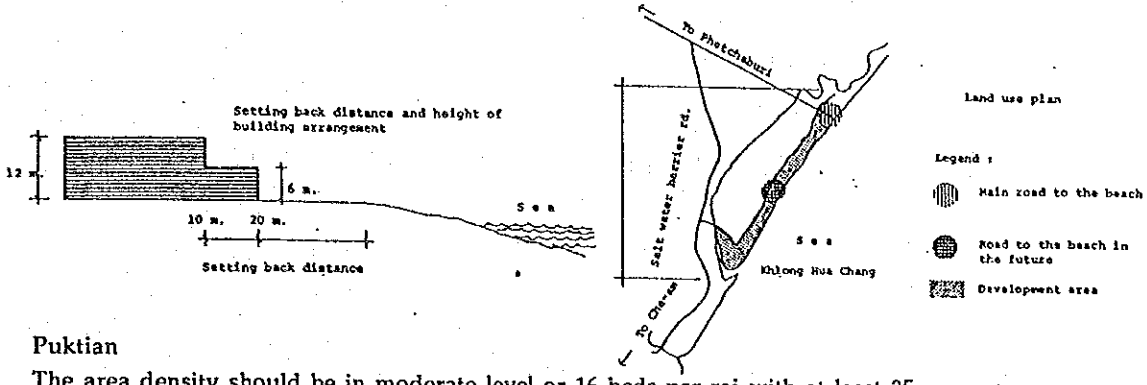

จังหวัดเพชรบุรี
อ่าวไทย
จังหวัดประจวบคีรีขันธ์
อำเภอปราณบุรี

Chao Samran

The density is suggested to be not more than 16 beds per rai with the open area between buildings at least 35 percent.

Receding distance and the height of construction

The buildings in Hat Chao Samran should be used for residents, tourism services and government offices, and not higher than 3 storeys or 12 meters. The height of the buildings should be designed in a stair formation and reclining toward the minimum receding distance at 20 meters from the beach.

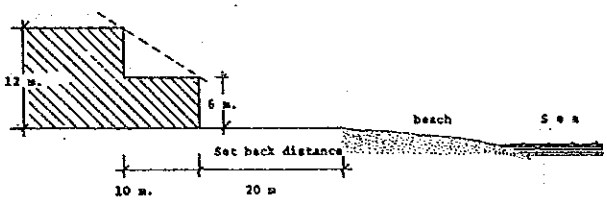


Puktian

The area density should be in moderate level or 16 beds per rai with at least 35 percent open area between buildings.

Receding distance and the height of construction

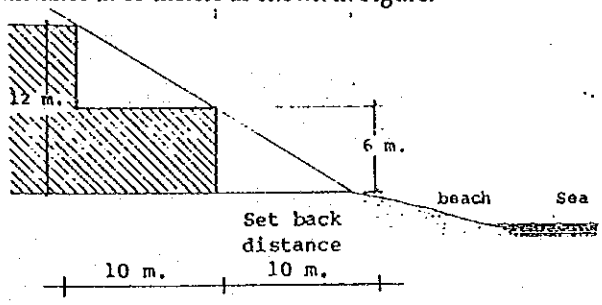
The buildings in the beach area must be constructed only for residents, or tourism service, not higher than 3 storeys or 12 meters. The heights of the building should be designed in a stair formation and reclining toward the minimum receding distance at 20 meters from the beach (as shown in Figure).



Khlong Thian

The density of the service area should be in moderate level or 16 beds per rai with at least 35 percent of the area left open between buildings.

Receding distance and the height of construction Buildings in Hat Khlong Thian area should be constructed only for residents and tourism service, not higher than 3 storeys or 12 meters. The height of the buildings should be designed in a stair formation and reclining toward the minimum receding distance at 15 meters as shown in Figure.



Set back distance and hight of building

Appendix map following to announcement of Ministry of Interior Prohibitation area of construction, adaptation or developing some type of buildings in the part of Hua-Hin District, Nong Kae District, Amphoe Hua-Hin Prachanbkinklan.

4. TRANSPORTATION DEVELOPMENT PROJECTS

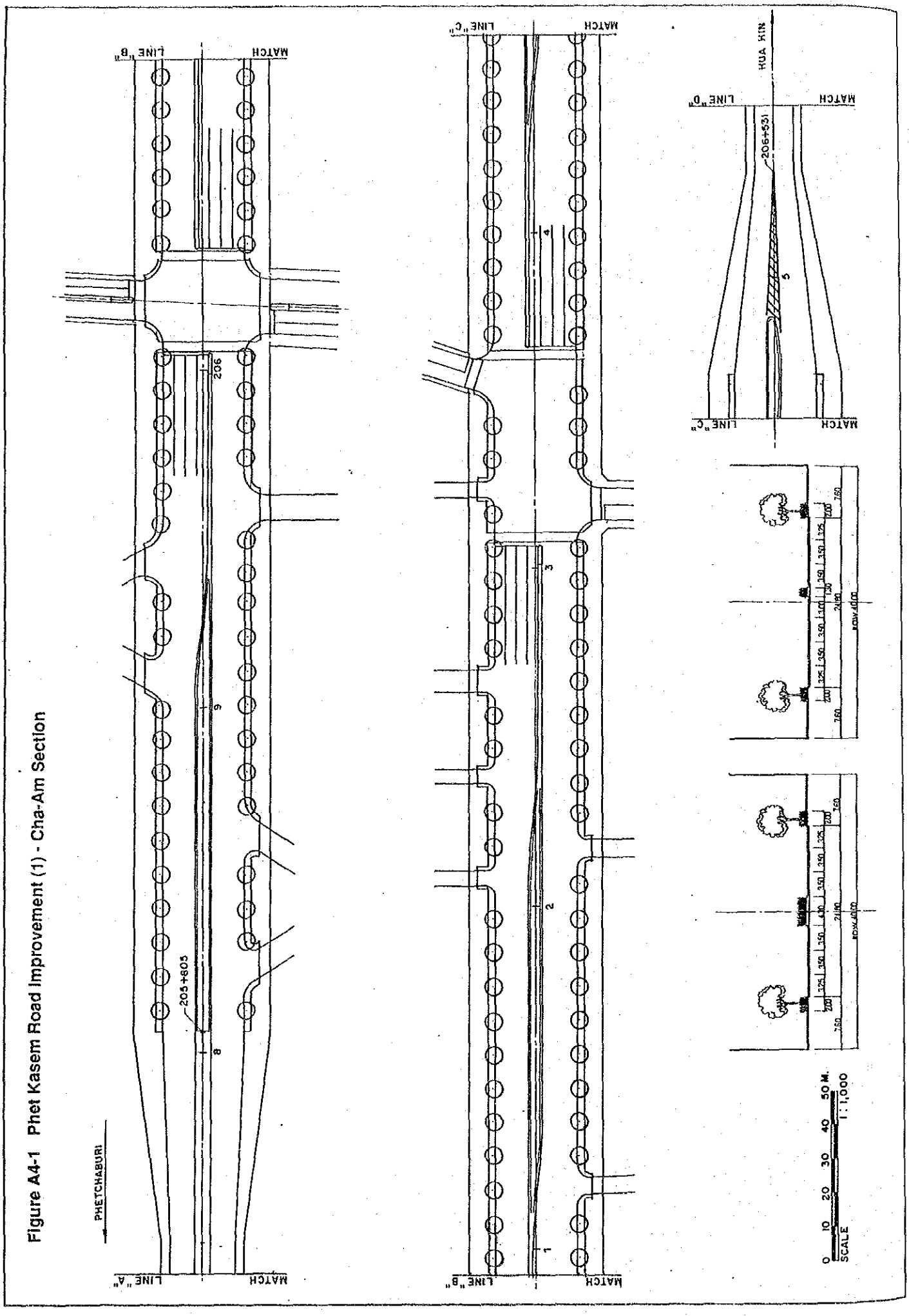


Figure A4-1 Phet Kasem Road Improvement (1) - Cha-Am Section

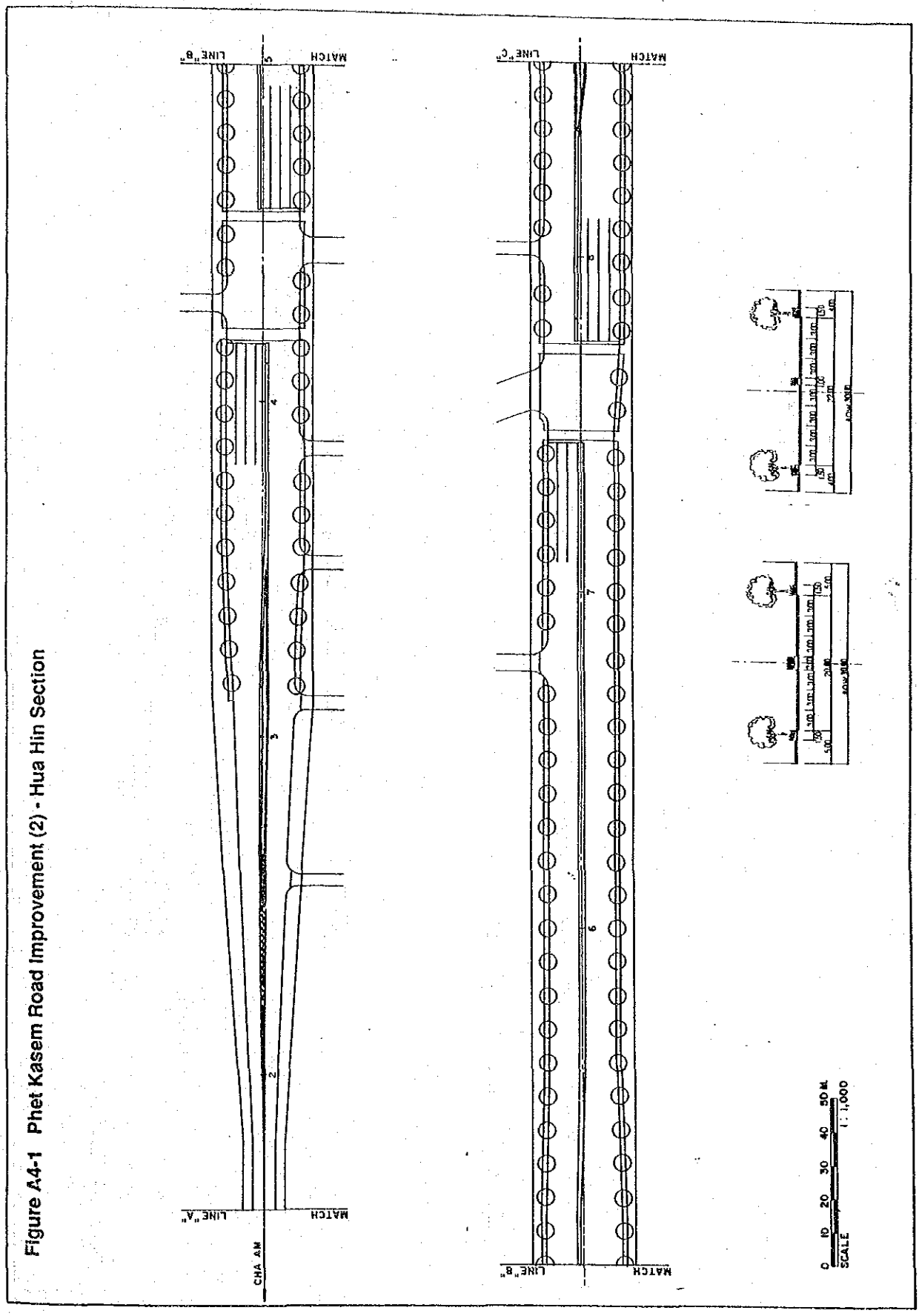


Figure A4-1 Phet Kasem Road Improvement (2) - Hua Hin Section

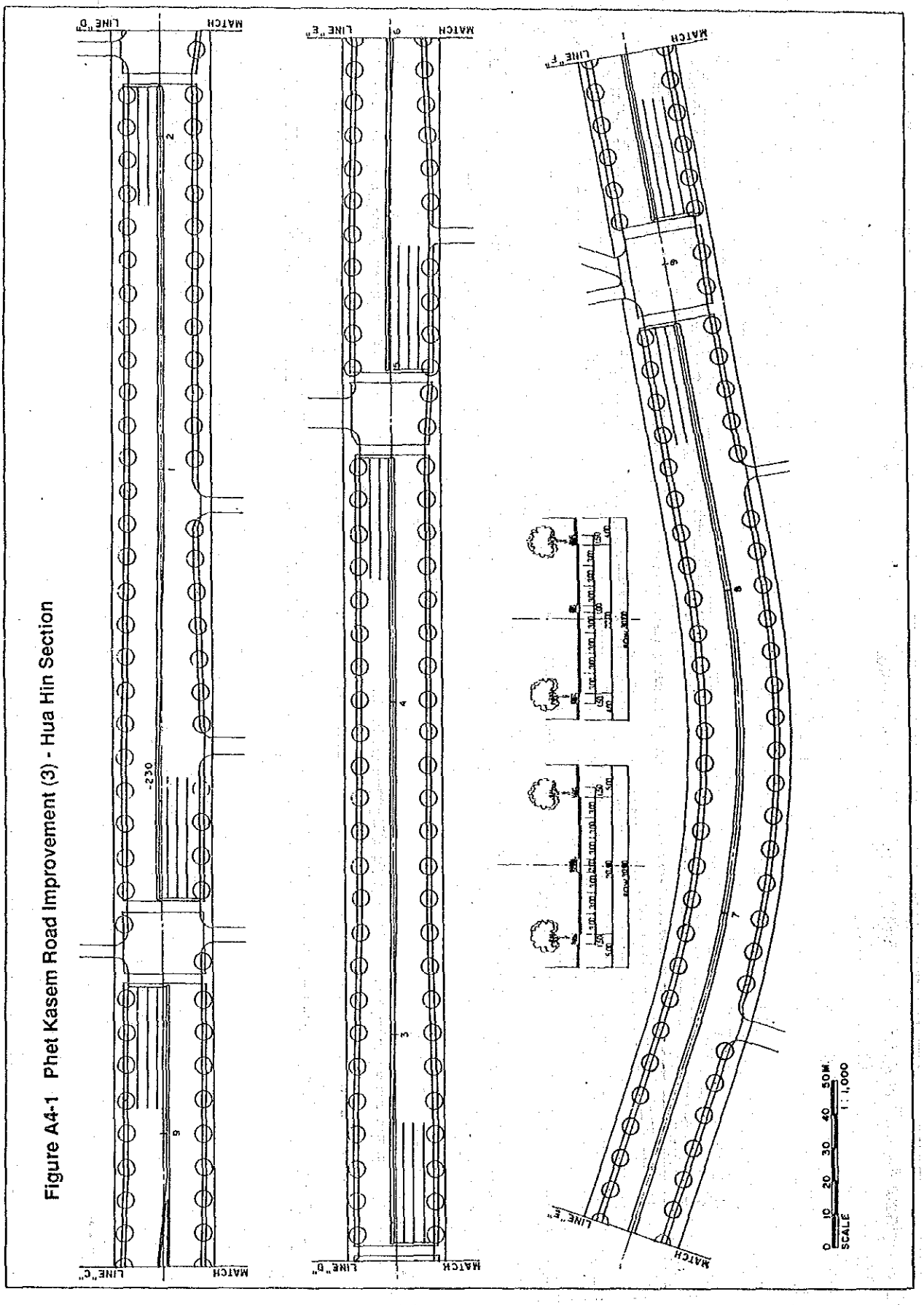


Figure A4-1 Phet Kasem Road Improvement (3) - Hua Hin Section

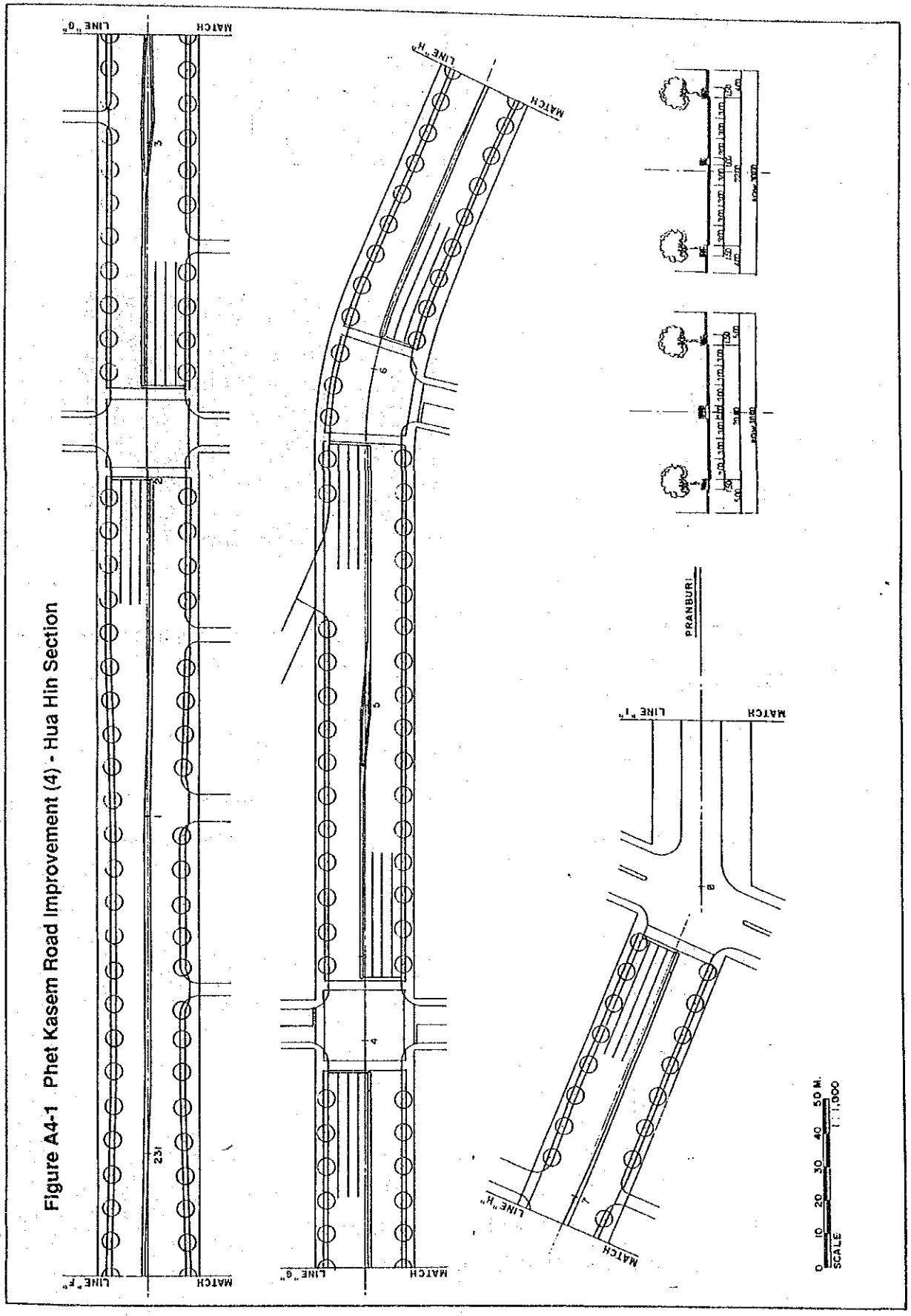


Figure A4-1 Phet Kasem Road Improvement (4) - Hua Hin Section

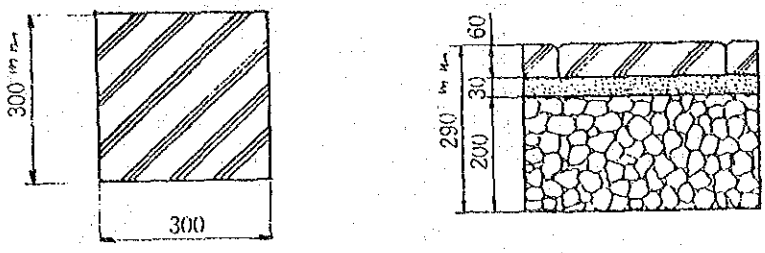


Figure A4-2 Colored Concrete Block

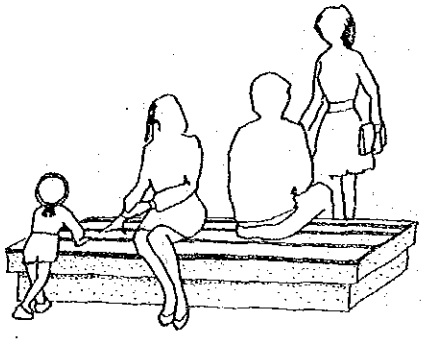


Figure A4-3 Stool

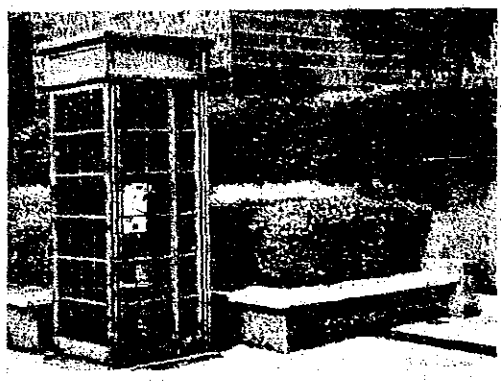
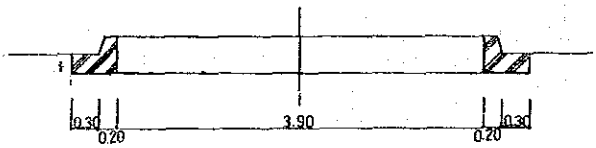
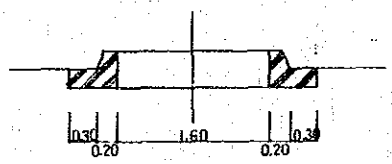


Figure A4-4 Telephone Box

Median

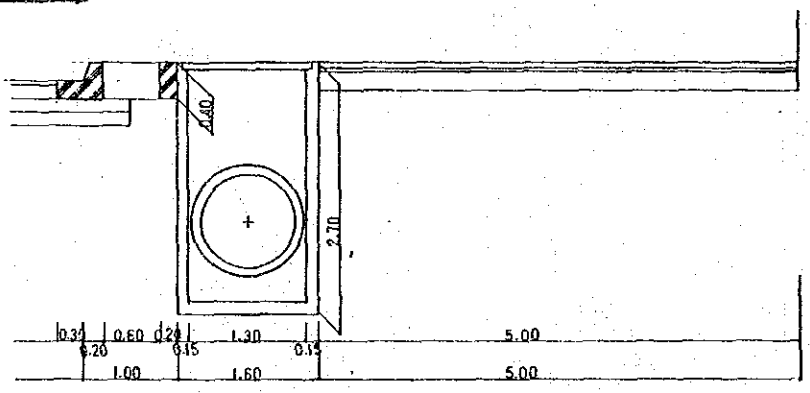


Cha- am Section



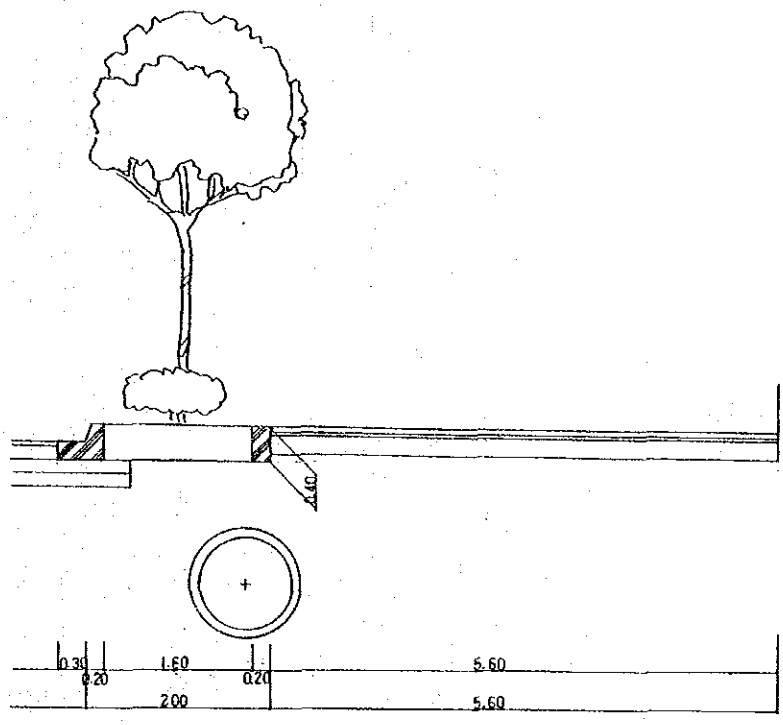
Hua Hin Section

Footway

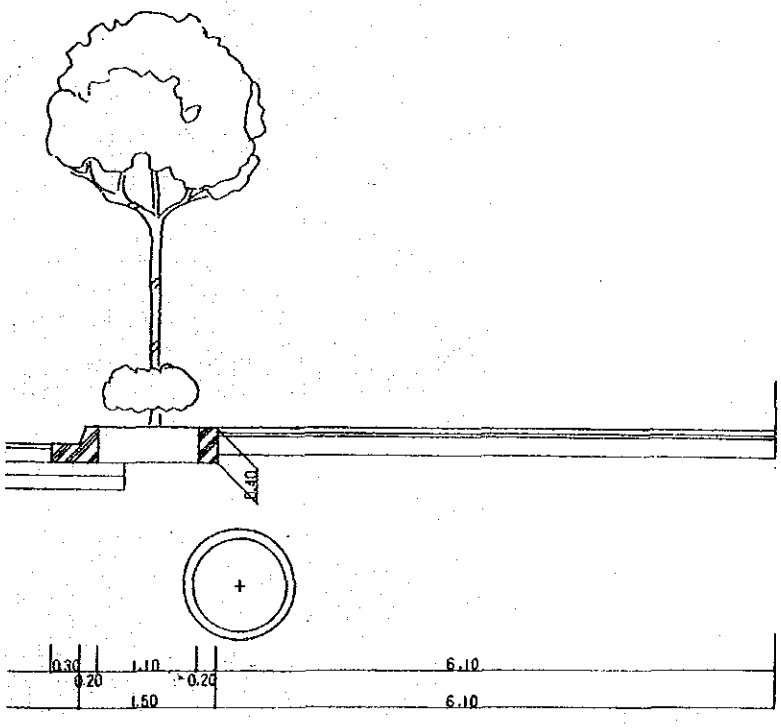


Cha-am/Hua Hin Narrow Section

Figure A4-5 Street Trees and Shrubs



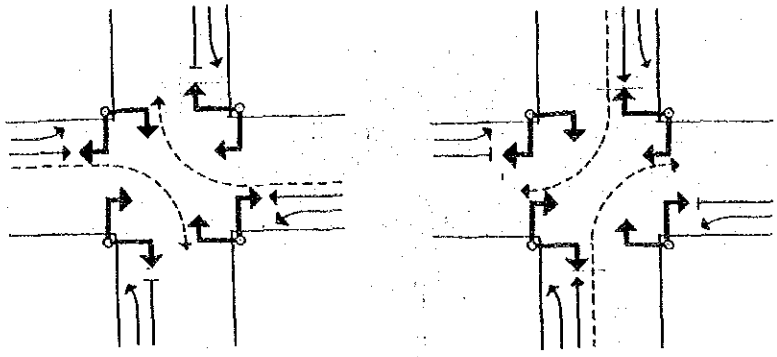
Cha-am wide Section



Hua Hin wide Section

Figure A4-6 Typical Phasing Diagram

4 - legs Type



T Type

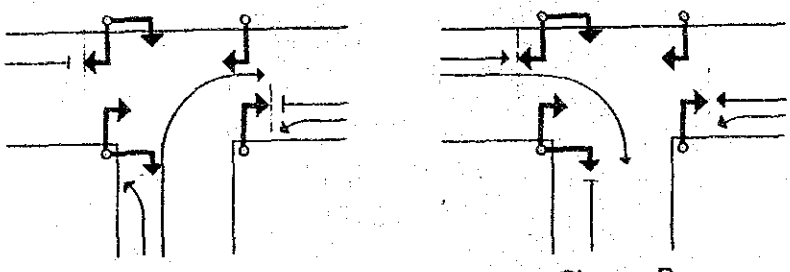
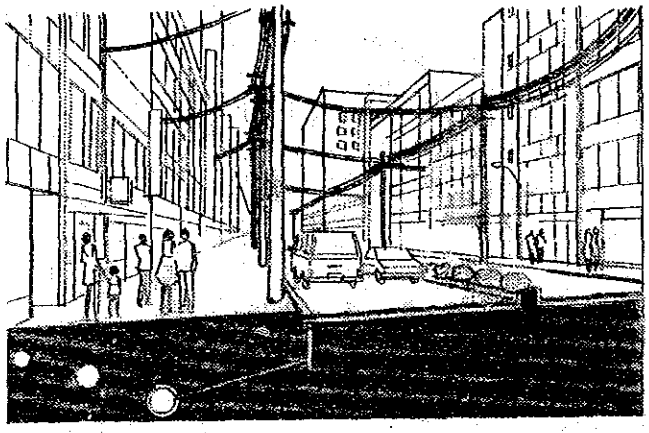
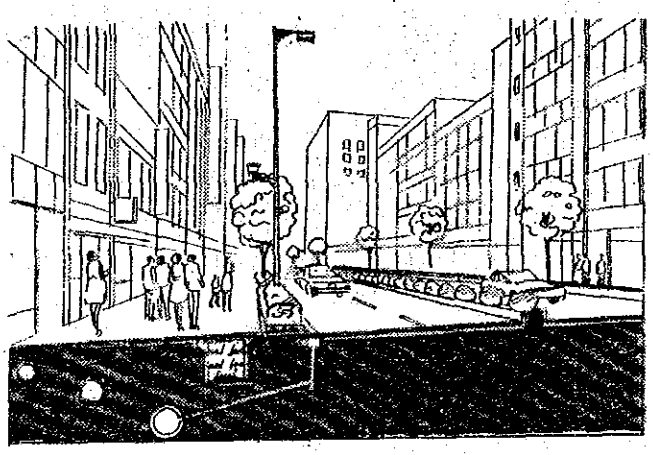


Figure A4-7 Cable Box

Aerial cable of Telephone / Electricity



Cable Box under Ground



Cable Box

Table A4-1 Estimated High Season Daily Number of Tourists

Cluster - Clusters

unit:PCU/day

Tourism Clusters	Overnight Tourists				Day Trip Tourists				Total			
	1994-96	2001	2006	2011	1994-96	2001	2006	2011	1994-96	2001	2006	2011
1. Muang Petchaburi	356	406	492	541	0	0	0	0	356	406	492	541
2. Petchaburi Coast	309	671	901	991	0	0	0	0	309	671	901	991
3. Cha-am	1,908	2,384	2,949	3,244	648	681	749	824	2,556	3,065	3,698	4,068
4. Hua Hin	925	1,177	1,475	1,622	492	517	568	625	1,417	1,694	2,043	2,247
5. Pranburi	538	936	1,401	1,541	0	0	0	0	538	936	1,401	1,541
6. Prachuap Khirikhan	239	471	737	811	0	0	0	0	239	471	737	811
7. Bang Sapan	75	111	246	270	0	0	0	0	75	111	246	270
Total	4,350	6,156	8,201	9,020	1,140	1,198	1,317	1,449	5,490	7,354	9,518	10,469

Bangkok Clusters

unit : PCU/day

Tourism Clusters	Overnight Tourists				Day Trip Tourists				Total			
	1994-96	2001	2006	2011	1994-96	2001	2006	2011	1994-96	2001	2006	2011
1. Muang Petchaburi	237	271	328	360	0	0	0	0	237	271	328	360
2. Petchaburi Coast	206	447	601	661	0	0	0	0	206	447	601	661
3. Cha-am	1,272	1,590	1,966	2,163	864	908	998	1,098	2,136	2,498	2,964	3,261
4. Hua Hin	616	785	983	1,081	656	689	758	833	1,272	1,474	1,741	1,914
5. Pranburi	359	624	934	1,027	0	0	0	0	359	624	934	1,027
6. Prachuap Khirikhan	159	314	491	541	0	0	0	0	159	314	491	541
7. Bang Sapan	50	74	164	180	0	0	0	0	50	74	164	180
Total	2,899	4,105	5,467	6,013	1,520	1,597	1,756	1,931	4,419	5,702	7,223	7,944

Table A4-2 OD Matrix of Tourists

1996

unit/PCU/day

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	11	89	49	19	8	3	179
2. Petchaburi Coast	11	0	76	42	16	7	2	154
3. Cha-am	155	135	0	617	234	104	33	1,278
4. Hua Hin	62	54	445	0	94	42	13	710
5. Pranburi	19	17	139	77	0	13	4	269
6. Prachuap Khirikhan	6	7	58	32	12	0	2	119
7. Bang Sapan	2	2	18	10	4	2	0	38
Total	257	226	825	827	379	176	57	2,747

2001

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	20	90	49	27	14	3	203
2. Petchaburi Coast	20	0	154	85	47	24	6	336
3. Cha-am	145	240	0	605	335	168	40	1,533
4. Hua Hin	61	100	459	0	140	70	17	847
5. Pranburi	30	49	223	124	0	34	8	468
6. Prachuap Khirikhan	14	23	105	58	32	0	4	236
7. Bang Sapan	3	5	24	13	7	4	0	56
Total	273	437	1,055	934	588	314	78	3,679

2006

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	25	101	56	38	20	7	247
2. Petchaburi Coast	26	0	194	107	73	39	13	452
3. Cha-am	150	280	0	649	445	234	78	1,846
4. Hua Hin	67	123	506	0	192	101	34	1,023
5. Pranburi	42	78	319	176	0	64	21	700
6. Prachuap Khirikhan	21	38	155	86	59	0	10	369
7. Bang Sapan	7	12	49	27	19	10	0	124
Total	319	562	1,324	1,101	826	468	163	4,763

2011

Origin	Destination							
	1	2	3	4	5	6	7	Total
1. Muang Petchaburi	0	27	111	61	42	22	7	270
2. Petchaburi Coast	28	0	213	118	81	42	14	496
3. Cha-am	172	315	0	714	490	258	86	2,035
4. Hua Hin	74	135	556	0	211	111	37	1,124
5. Pranburi	47	86	351	194	0	70	23	771
6. Prachuap Khirikhan	23	42	171	94	65	0	11	406
7. Bang Sapan	7	13	54	30	20	11	0	135
Total	351	618	1,456	1,211	909	514	178	5,237

Figure A4-8 Estimated High Season Daily Number of Tourists

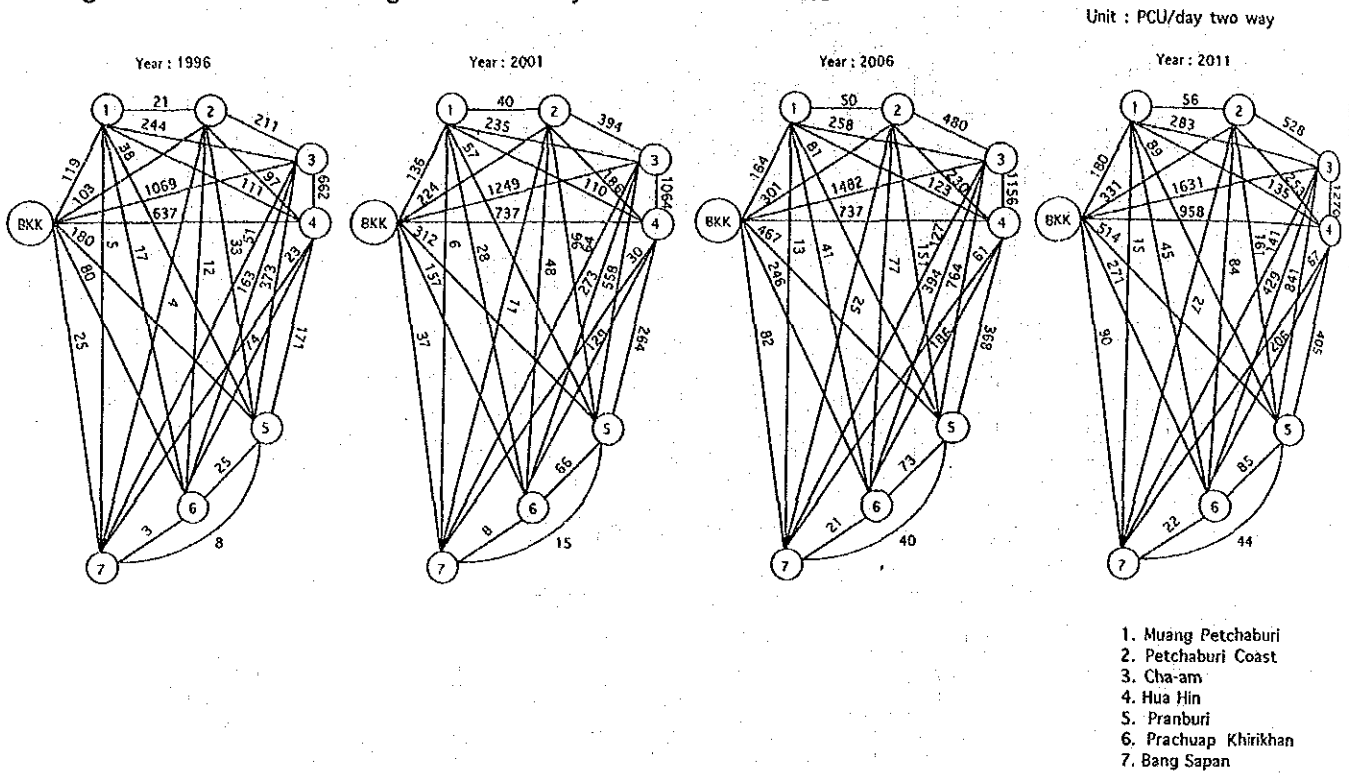


Figure A4-9 Overlay Pavement

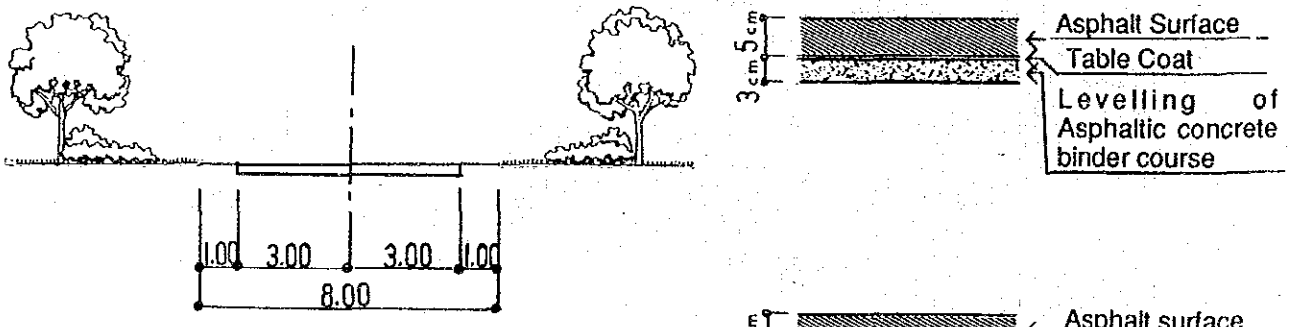
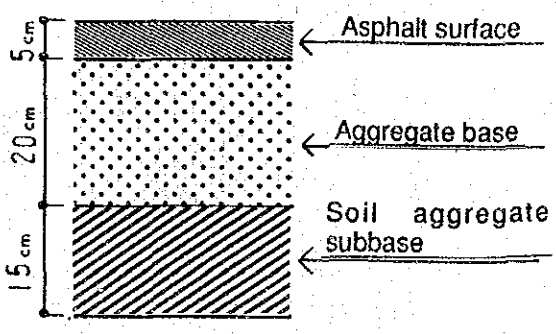


Figure A4-10 Surface Pavement



5. CASH FLOW TABLES

Table A5-1 Cash Flow of the Cultural and Recreational Center in Cha-Am (LDC)

(Unit:Thousand Baht)

Public Sector	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Price Index	112.4%	119.1%	126.2%	133.8%	141.9%	150.4%	159.4%	168.9%	179.1%	189.8%	201.2%	213.3%	226.1%	239.7%	254.0%	269.3%	285.4%	302.6%	320.7%	340.0%	360.4%	382.0%	404.9%	429.2%
1. Cost																								
- Investment Cost	597	12,722	12,722	14,442	71,789	71,789	35,214	32,086	33,598	21,276	21,276	21,276	18,218	18,218										
- Land Acquisition					36,575	36,575																		
- Land Dev. & Utilities		742	742		3,128	3,128	3,128			3,058	3,058	3,058												
- Construction Cost		9,942	9,942	9,942	26,627	26,627	26,627	26,627	26,627	15,119	15,119	15,119	15,119	15,119										
- Preparation 2%	597			2,453					1,512															
- Promotion 2%		199	199	199	533	533	533	533	533	302	302	302	302	302										
- Design & Supervion 3%		298	298	298	799	799	799	799	799	454	454	454	454	454										
- Contingency 10%		994	994	994	2,663	2,663	2,663	2,663	2,663	1,512	1,512	1,512	1,512	1,512										
- Infrastructure		547	547	547	1,465	1,465	1,465	1,465	1,465	832	832	832	832	832										
- Residual Value in 2016					38,040	39,504	4,394	5,858	7,323	4,969	5,821	6,652	7,484	8,315										
(A) Total Project Cost	670	15,152	16,061	19,327	101,834	107,944	55,126	54,209	60,169	40,369	42,812	45,361	41,190	43,661										
(Construction Cost)		13,025	13,806	14,635	41,549	44,042	46,664	49,485	52,454	31,570	33,465	35,473	37,601	39,857										
(Infrastructure)		651	690	732	2,077	2,202	2,334	2,474	2,623	1,579	1,673	1,774	1,880	1,993										
(B) Maintenance Cost 2.5%			362	768	1,222	2,451	3,824	5,352	7,050	8,932	10,347	11,899	13,600	15,462	17,499	18,549	19,662	20,841	22,092	23,417	24,822	26,312	27,890	29,564
(C) Residual Value																								
- Residual Value					53,960	59,399	7,003	9,897	13,114	9,471	11,713	14,189	16,920	19,928										
- Residual Value in 2016																								-215,594
== Grand Total Cost ==	670	15,152	16,423	20,096	103,056	110,395	59,949	59,561	67,219	49,321	53,159	57,260	54,790	59,123	17,499	18,549	19,662	20,841	22,092	23,417	24,822	26,312	27,890	-186,030
2. Revenues																								
(A) Down Payment 30%	201	4,545	4,818	5,798	30,550	32,383	16,838	16,263	18,051	12,117	12,844	13,614	12,357	13,098										
(B) Land Rental Fee(13%,t=25)																								
- Phase-1					3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866	3,866
- Phase-2										23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347	23,347
- Phase-3															9,575	9,575	9,575	9,575	9,575	9,575	9,575	9,575	9,575	9,575
- Total Land Rental Fee					5,088	5,317	7,689	9,216	10,916	36,145	37,560	39,112	40,813	42,675	54,287	55,337	56,450	57,630	58,880	60,206	61,611	63,100	64,679	66,352
(C) Facility Rental Fee 2%																								
- Construction Cost																								
:Exhibition Hall(P-1)		1,742	1,846	1,957																				
:Stadium(P-2)					1,427	1,513	1,604	1,700	1,802															
:Science Museum(P-2)					1,618	1,715	1,818	1,927	2,043															
:Amphi Theater(P-2)					1,095	1,161	1,231	1,305	1,383															
:Total Cost		1,742	1,846	1,957	4,141	4,389	4,653	4,932	5,228															
- Facility Rental Fee					111	114	117	119	122	592	607	622	638	654	670	687	704	722	740	758	777	797	817	837
== Grand Total Revenues ==	201	4,545	4,818	5,798	35,749	38,814	24,644	25,600	29,089	48,854	51,011	53,348	53,808	56,427	54,957	56,024	57,154	58,351	59,620	60,964	62,388	63,897	65,495	67,189
Net Cash Flow = (2) - (1)	-469	-10,606	-11,605	-14,297	-67,307	-71,581	-35,306	-33,961	-38,130	-467	-2,148	-3,931	-982	-2,696	37,458	37,475	37,492	37,510	37,528	37,546	37,565	37,585	37,605	253,219
NPV(24 Years,15%)	-91,565																							
FIRR(24 Years)	4.90%																							

Table A5-2 Cash Flow of the Cultural and Recreational Center in Cha-Am (PSD)

(Unit:Thousand Baht)

Private Sector	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Price Index	112.4%	119.1%	126.2%	133.8%	141.9%	150.4%	159.4%	168.9%	179.1%	189.8%	201.2%	213.3%	226.1%	239.7%	254.0%	269.3%	285.4%	302.6%	320.7%	340.0%	360.4%	382.0%	404.9%	429.2%
1. Cost																								
- Investment Cost	400	7,667	7,667	8,919	14,407	14,407	14,407	14,407	16,813	27,669	27,669	27,669	27,669	27,669										
- Construction Cost		6,667	6,667	6,667	12,528	12,528	12,528	12,528	12,528	24,060	24,060	24,060	24,060	24,060										
- Preparation 2%	400			1,253					2,406															
- Promotion 2%		133	133	133	251	251	251	251	251	481	481	481	481	481										
- Design & Supervion 3%		200	200	200	376	376	376	376	376	722	722	722	722	722										
- Contingency 10%		667	667	667	1,253	1,253	1,253	1,253	1,253	2,406	2,406	2,406	2,406	2,406										
- Residual Value in 2016					689	1,378	2,067	2,756	3,445	7,940	9,263	10,586	11,910	13,233										
(A) Total Project Cost	449	9,131	9,679	11,936	20,437	21,663	22,963	24,341	30,110	52,524	55,875	59,016	62,557	66,310										
(Construction Cost)		8,734	9,258	9,614	19,549	20,722	21,965	23,263	24,680	50,240	53,255	56,450	59,837	63,427										
(B) Down Payment	201	4,545	4,818	5,798	30,550	32,383	16,838	16,263	18,051	12,117	12,844	13,614	12,357	13,098										
(C) Land Rental Fee					5,088	6,317	7,689	9,219	10,916	36,145	37,560	39,112	40,813	42,675	54,287	55,337	56,450	57,630	58,880	60,206	61,611	63,100	64,679	66,352
(D) Variable Cost																								
- Maintenance Cost 2.5%			231	491	780	1,345	1,975	2,675	3,453	4,314	5,904	7,670	9,626	11,769	14,177	15,028	15,930	16,886	17,899	18,973	20,111	21,318	22,597	23,952
- Operating Cost:																								
Revenue x 60%					122,727	131,441	140,773	150,768	161,473	285,661	303,029	321,454	340,998	361,731	455,548	478,598	502,815	528,258	554,968	657,834	691,120	726,091	762,831	801,430
- Total			231	491	123,508	132,786	142,748	153,444	164,926	289,975	308,934	329,124	350,624	373,520	469,725	493,626	518,745	545,143	572,866	676,807	711,231	747,406	785,428	825,383
(E) Residual Value																								
- Residual Value					977	2,072	3,295	4,657	6,170	15,072	18,639	22,580	26,927	31,714										
- Residual Value in 2016																								-132,102
== Grand Total Cost ==	651	13,677	14,729	18,225	179,583	193,150	190,239	203,265	224,003	390,762	415,013	440,866	466,351	495,604	524,012	548,963	575,195	602,773	631,766	737,012	772,842	810,508	850,106	759,632
2. Revenues																								
- No. of Visitors (x1000)																								
Total					519	530	540	551	562	957	976	995	1,015	1,035	1,266	1,291	1,317	1,343	1,370	1,577	1,608	1,641	1,673	1,707
- Expenditure (Baht/Psn)																								
Total					394	413	434	456	479	498	518	538	560	582	600	618	636	655	675	695	716	738	760	783
- Revenue from Restaurant, Shop & Entertainment					204,546	219,068	234,622	251,280	269,121	476,102	505,049	535,756	568,330	602,885	759,246	797,664	838,025	880,429	924,979	1,096,390	1,151,857	1,210,151	1,271,385	1,335,717
3. Taxes and Depreciation																								
3.1 Business Tax: Rev x 3.85%					7,875	8,434	9,033	9,674	10,361	18,330	19,444	20,627	21,881	23,211	29,231	30,710	32,264	33,897	35,612	42,211	44,347	46,591	48,948	51,425
3.2 Depreciation																								
: Straight Line 20 Years					1,390	1,390	1,390	1,390	1,390	6,900	6,900	6,900	6,900	6,900	21,061	21,061	21,061	21,061	21,061	21,061	21,061	21,061	21,061	21,061
3.3 Down Payment																								
: Straight Line 20 Years					768	2,296	3,915	4,757	5,570	6,472	7,078	7,720	8,401	9,019	9,674	9,674	9,674	9,674	9,674	9,674	9,674	9,674	9,674	9,674
3.4 Income Tax:																								
(Rev.-(3.1)-(3.2)-(1.C)-(1.D)) x 35%					23,071	23,746	24,446	25,479	26,585	41,398	43,736	46,296	48,899	51,646	61,344	65,540	69,941	74,559	79,403	100,251	106,380	112,811	119,559	126,638
3.5 Total Taxes					30,946	32,180	33,479	35,153	36,947	59,728	63,241	66,922	70,780	74,857	90,575	96,250	102,205	108,456	115,015	142,462	150,727	159,402	168,507	178,063
Net Cash Flow = (2)-(1)-(3)	-651	-13,677	-14,729	-18,225	-5,983	-6,261	10,904	12,662	8,172	25,613	26,795	27,968	31,200	32,424	144,659	152,451	160,625	169,201	178,198	216,916	228,298	240,241	252,772	398,022
NPV(24 Years,15%)	136,636																							
FIRR(24 Years)	29.89%																							

Table A5-3 Cash Flow of the Circulation Roads Improvement Project

Table 5.3-7 Cost and Benefit Flow of Circulation Road Improvement (1,000 Baht)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Circulation Road (RID)	20.5 km																
1.Cost																	
(A) Investment Cost	1,593	31,869															
(B) Maintenance Cost 5%			1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593
(C) Total Cost	1,593	31,869	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593	1,593
2.Benefit																	
- Traffic Demand (pcu/day)			752	776	800	824	847	871	895	933	971	1,010	1,048	1,086	1,121	1,155	1,190
(A) Vehicle Operation Benefit			3,147	3,246	3,344	3,442	3,541	3,639	3,737	3,895	4,053	4,211	4,369	4,526	4,669	4,811	4,953
(B) Travel Time Benefit			2,349	2,543	2,724	2,911	3,104	3,303	3,508	3,777	4,057	4,346	4,645	4,954	5,255	5,566	5,885
(C) Total Benefit			5,496	5,789	6,068	6,353	6,644	6,941	7,245	7,672	8,110	8,557	9,013	9,480	9,924	10,377	10,839
Net Benefit = (2) - (1)	-1,593	-31,869	3,903	4,196	4,475	4,760	5,051	5,348	5,651	6,079	6,516	6,963	7,420	7,886	8,331	8,784	9,245
Circulation Road (OARD)	14.0 km																
1.Cost																	
(A) Investment Cost		1,253	25,059														
(B) Maintenance Cost 5%				1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253
(C) Total Cost		1,253	25,059	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253
2.Benefit																	
- Traffic Demand (pcu/day)				519	539	558	578	597	617	646	676	705	735	764	792	820	848
(A) Vehicle Operation Benefit				8,061	8,367	8,673	8,979	9,285	9,592	10,051	10,510	10,969	11,428	11,888	12,326	12,764	13,202
(B) Travel Time Benefit				2,614	2,819	3,031	3,252	3,480	3,716	4,020	4,337	4,664	5,004	5,355	5,707	6,071	6,445
(C) Total Benefit				10,675	11,186	11,704	12,231	12,765	13,308	14,071	14,846	15,633	16,432	17,243	18,033	18,835	19,647
Net Benefit = (2) - (1)		-1,253	-25,059	9,422	9,933	10,451	10,978	11,512	12,055	12,818	13,593	14,380	15,179	15,990	16,780	17,582	18,395
Circulation Road Total	34.5 km																
1.Cost																	
(A) Investment Cost	1,593	33,122	25,059														
(B) Maintenance Cost 5%			1,593	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846
(C) Total Cost	1,593	33,122	26,652	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846	2,846
2.Benefit																	
(A) Vehicle Operation Benefit			3,147	11,307	11,711	12,115	12,520	12,924	13,329	13,946	14,563	15,180	15,797	16,414	16,994	17,575	18,155
(B) Travel Time Benefit			2,349	5,157	5,543	5,942	6,355	6,783	7,224	7,798	8,393	9,010	9,649	10,308	10,963	11,637	12,331
(C) Total Benefit			5,496	16,464	17,254	18,057	18,875	19,707	20,552	21,743	22,956	24,190	25,445	26,722	27,957	29,212	30,486
Net Benefit = (2) - (1)	-1,593	-33,122	-21,156	13,617	14,407	15,211	16,029	16,860	17,706	18,897	20,110	21,344	22,599	23,876	25,111	26,365	27,640
EIRR	24.10%																

Table A5-4 Cash Flow of the Coastal Road Improvement Project

(1,000 Baht)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coastal Road -1	18.9 km																
1.Cost																	
(A) Investment Cost	1,471	29,424															
(B) Maintenance Cost 5%			1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471
(C) Total Cost	1,471	29,424	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471
2.Benefit																	
- Traffic Demand (pcu/day)			521	607	693	778	864	949	1,035	1,095	1,154	1,214	1,273	1,333	1,367	1,401	1,435
(A) Vehicle Operation Benefit			3,953	4,602	5,249	5,897	6,543	7,190	7,836	8,285	8,734	9,182	9,631	10,078	10,333	10,587	10,841
(B) Travel Time Benefit			3,378	4,127	4,893	5,705	6,563	7,466	8,415	9,191	9,999	10,838	11,710	12,613	13,299	14,003	14,725
(C) Total Benefit			7,332	8,729	10,143	11,602	13,106	14,656	16,251	17,476	18,733	20,021	21,340	22,691	23,631	24,589	25,565
Net Benefit = (2) - (1)	-1,471	-29,424	5,861	7,257	8,671	10,131	11,635	13,185	14,780	16,005	17,261	18,549	19,869	21,220	22,160	23,118	24,094
Coastal Road -2	13.7 km																
1.Cost																	
(A) Investment Cost	1,066		21,329														
(B) Maintenance Cost 5%				1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
(C) Total Cost	1,066	0	21,329	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066	1,066
2.Benefit																	
- Traffic Demand (pcu/day)				374	412	450	488	526	564	595	627	658	690	721	744	767	791
(A) Vehicle Operation Benefit				2,055	2,264	2,472	2,680	2,888	3,095	3,267	3,438	3,609	3,780	3,951	4,078	4,203	4,329
(B) Travel Time Benefit				1,843	2,110	2,391	2,688	2,998	3,324	3,624	3,936	4,260	4,597	4,945	5,248	5,560	5,880
(C) Total Benefit				3,898	4,373	4,863	5,367	5,886	6,419	6,891	7,374	7,870	8,377	8,897	9,325	9,763	10,210
Net Benefit = (2) - (1)	-1,066	0	-21,329	2,832	3,307	3,797	4,301	4,819	5,353	5,824	6,308	6,803	7,311	7,830	8,259	8,697	9,143
Coastal Road Total	32.6 km																
1.Cost																	
(A) Investment Cost	2,538	29,424	21,329														
(B) Maintenance Cost 5%			1,471	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538
(C) Total Cost	2,538	29,424	22,800	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538	2,538
2.Benefit																	
(A) Vehicle Operation Benefit			3,953	6,657	7,513	8,368	9,223	10,077	10,931	11,552	12,172	12,792	13,411	14,030	14,410	14,790	15,170
(B) Travel Time Benefit			3,378	5,970	7,003	8,096	9,250	10,464	11,739	12,815	13,935	15,099	16,306	17,558	18,547	19,562	20,605
(C) Total Benefit			7,332	12,627	14,516	16,465	18,473	20,542	22,670	24,366	26,107	27,890	29,717	31,588	32,957	34,353	35,775
Net Benefit = (2) - (1)	-2,538	-29,424	-15,468	10,089	11,978	13,927	15,936	18,004	20,132	21,829	23,569	25,352	27,180	29,050	30,419	31,815	33,237
EIRR	26.95%																

Table A5-5 Cash Flow of the Municipal Water Supply Development Projects for Cha-Am and Hua Hin

Table 5.3-12 Cash Flow of Water Distribution System Improvement Projects for Cha-am and Hua Hin Municipalities (Unit: Thousand Baht)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Price Index	119.1%	126.2%																
CHA-AM																		
1.Cost																		
(A) Project Preparation	1,787																	
(B) Construction Cost		17,422																
(C) Maintenance Cost 2%			369	392	415	440	466	494	524	555	589	624	661	701	743	788	835	885
(D) Total Cost	1,787	17,422	369	392	415	440	466	494	524	555	589	624	661	701	743	788	835	885
2.Revenue			2,195	2,493	2,790	3,087	3,384	3,681	4,021	4,361	4,701	5,041	5,381	5,489	5,599	5,711	5,825	5,941
Net Cash Flow = (2) - (1)	-1,787	-17,422	1,826	2,101	2,375	2,647	2,918	3,187	3,497	3,806	4,113	4,417	4,720	4,788	4,856	4,923	4,990	5,056
FIRR	14.15%																	
HUA HIN																		
1.Cost																		
(A) Project Preparation	2,382																	
(B) Construction Cost		27,396																
(C) Maintenance Cost 2%			581	616	653	692	733	777	824	873	926	981	1,040	1,103	1,169	1,239	1,313	1,392
(D) Total Cost	2,382	27,396	581	616	653	692	733	777	824	873	926	981	1,040	1,103	1,169	1,239	1,313	1,392
2.Revenue			1,062	1,214	1,367	1,519	1,671	1,823	2,001	2,178	2,356	2,533	2,710	2,765	2,820	2,876	2,934	2,993
Net Cash Flow = (2) - (1)	-2,382	-27,396	482	599	714	827	938	1,046	1,177	1,305	1,430	1,552	1,670	1,662	1,651	1,638	1,621	1,601
FIRR	-3.82%																	
Total																		
1.Cost																		
(A) Project Preparation	4,169																	
(B) Construction Cost		44,818																
(C) Maintenance Cost 2%			950	1,007	1,068	1,132	1,200	1,272	1,348	1,429	1,514	1,605	1,702	1,804	1,912	2,027	2,148	2,277
(D) Total Cost	4,169	44,818	950	1,007	1,068	1,132	1,200	1,272	1,348	1,429	1,514	1,605	1,702	1,804	1,912	2,027	2,148	2,277
2.Revenue			3,258	3,707	4,156	4,606	5,055	5,504	6,022	6,539	7,057	7,574	8,092	8,254	8,419	8,587	8,759	8,934
Net Cash Flow = (2) - (1)	-4,169	-44,818	2,308	2,700	3,089	3,474	3,856	4,233	4,674	5,111	5,542	5,969	6,390	6,450	6,507	6,560	6,611	6,657
FIRR	5.35%																	

Table A5-6 Cash Flow of the Municipal Sewerage System Development Project for Cha-Am

(Unit: Thousand Baht)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Price Index	119.1%	126.2%	133.8%															
1.Cost																		
(A) Project Preparation	23,820																	
(B) Construction Cost		73,729	70,658															
(C) Maintenance Cost 3%				4,732	5,016	5,317	5,636	5,974	6,333	6,713	7,115	7,542	7,995	8,475	8,983	9,522	10,093	10,699
(D) Total Cost	23,820	73,729	70,658	4,732	5,016	5,317	5,636	5,974	6,333	6,713	7,115	7,542	7,995	8,475	8,983	9,522	10,093	10,699
2.Revenue																		
(A) Domestic			4,522	5,036	5,551	6,066	6,581	7,096	7,658	8,220	8,781	9,343	9,905	9,905	9,905	9,905	9,905	9,905
(B) Hotels			4,116	4,674	5,231	5,788	6,345	6,902	7,540	8,177	8,815	9,452	10,090	10,090	10,090	10,090	10,090	10,090
(C) Total Revenue			8,638	9,710	10,782	11,854	12,926	13,999	15,198	16,397	17,596	18,795	19,995	19,995	19,995	19,995	19,995	19,995
Net Cash Flow = (2) - (1)	-23,820	-73,729	-70,658	4,978	5,766	6,537	7,290	8,024	8,865	9,684	10,481	11,253	12,000	11,520	11,012	10,473	9,901	9,296
FIRR	-2.09%																	

6. EXPERIENCES WITH RULES AND REGULATIONS FOR TOURISM DEVELOPMENT

6.1 Master Plan and Its Inconsistencies

There are dozens of high rise buildings at intervals of 500 ~ 100 m along the coast line of Hua-Hin and Cha-am. This scenery is said to be different from the one imaged in the master plan completed by Thailand Institute of Scientific and Technological Research, 1987.

Hua Hin and Cha-am areas should have unique characteristics to accommodate tourists who are looking for specific opportunities. The whole area of Hua Hin Cha-am shall have its theme as one town that can offer unique services and environment to attract more tourists and to avoid chaotic developments. For this purpose, developments shall be in accordance with the master plan.

The master plan was prepared in 1987, and the development as a coastal area was authorized in 1988. Relationships between the master plan and building permits shall be studied. The development process with the master plan should be reconsidered for orderly town planning in both cities. Also, they have to be consistent with the general plan and the specific plan.

As references herewith a few examples are introduced in order to develop a resort with observance of a master plan.

6.2 Cases in Japan and France

There are many resorts in Japan and supervisors of all of them are making effort to create/maintain the individuality of their resorts. Among off them Yasima resort, famous one from old days, in Hiroshima prefecture is caring unique policies into effect i.e., the municipal government of Yasima town in charge of developing/maintaining its resort town is checking every development plan including renovation of roofs of hotels, color of buildings, fences of houses etc. based on its ordinances. Even in the election term tourists do not find any posters of candidates for the legislators of the town etc. Urban design scheme is in practice in the Yashima resort.

Local governments additional regulations to the ones by the central government are some times discussed if they are legal against the law or not. But especially related to the environmental conservation many additional regulations are made by the local governments in order to create a comfortable environment in their towns.

As another example, the development by the third sector, which usually makes a plan, conduct it and manage a resort, is prevailing in Japan. The private sector which is called the second sector can provide better services for it's guests than the public sector which is called the first sector, but has the tendency to generate disordered developments because it is going to seek after profits. Meanwhile the public sector is not good at taking carefully thought out services, but can consider the matters related to the whole town. Expecting that a third sector collects superior characteristics of both sector and can conduct a desirable development, it is established in many development areas, not only for a resort development but also for industrial one. It is said that around 20 years ago TAT tried to set up Phuket Tourism Development Cooperation. The system seems to be able to contribute to the creation of orderly development in common with the third sector system. Therefore, it is expectable that reflecting the reason why the cooperation could not be established, the possibility of the system of the third sector, the cooperation system etc. will be studied.

As further another example of the master plan practice is in Languedoc-Roussillon. It is said that the total length of 180 km coast line of Languedoc-Roussillon is divided into around scores of parts and the each divided coast has an assigned architect who is responsible to create the coastal resort of individuality. Since 1963 Languedoc-Roussillon has been developed in accordance with the original plan which had been designated as one of national projects in France.

6.3 Master plan implementation process

To form specific shapes of a town, the master plan and the zoning regulation must be consistent. The master plan is a long term and comprehensive which guides the future growth of a town; however zoning and building regulations are the specific tools to control shapes cityscape. Zoning specifies use, bulk, and density; however, use, bulk and density regulations are not enough to achiever coherent development. Design guideline which specifies materials styles, color of buildings is necessary as in Yashima town in Japan. Landscaping also is controlled. Sign regulations controls types and shapes of signs.

6.4 Legal issues

Fundamentally, all private developments could be controlled for the purpose of orderly developments, but it has limitations. The argument is private enterprises' freedom to utilize their own private property and the government intervention to free enterprise activities. Therefore, how much to regulate and how much not to regulate are always controversial. Local governments ordinances are sometimes challenged by developers and land owners.

7. PARTICIPANTS OF THE STUDY

Participant of the Study are: (1) Thai members of the Steering Committee, (2) Japanese Advisory Committee members, (3) JICA Study Team and (4) Thai Counterparts to the JICA Study Team.

(1) Thai members of the Steering Committee

Mr. Seree Wachabusakorn	Assistant Director, National Park Division, Royal Forest Department
Mr. Anurak Tiralertwenai	Representative, National Park Division, Royal Forest Department
Mr. Bancha Wattanasin	Chief, Programming Section, Department of Highways
Mr. Chatchawal Killinopadol	Representative, Office of the Permanent Secretary for Interior
Mr. Poonsak Pranutnorapan	Chief, Amphoe Cha-Am (Sheriff)
Mr. Manusak Kumpongpan	Deveopment Planning Officer, Office of Prachuap Khiri Khan Province
Mr. Tavee Maneepruk	Hua Hin Municipal Councillor

(2) Japanese Advisory Committee members

Chairman:

Mr. Minoru Suzuki	Director for Policy Planning, Policy Divison, Transport Policy Bureau, Ministry of Transport

Members:

Mr. Satoshi Shibata	Chief Administration Officer, International Planning Division, Transport Policy Bureau, Ministry of Transport
Mr. Akira Miyashita	Chief, International Organization Section, Planning Division, Tourism Department, Transport Policy Bureau, Ministry of Transport

(3) JICA Study Team

Name:	Assignment:
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Mr. Tadashi Kume	Regional Development/Land Use
Mr. Yoshiki Hirabayashi	Demand Forecast
Mr. Goro Hirata	Tourism Facility

Mr. Kimio Kaneko	Transportation Planning
Mr. Masaharu Takasugi	Water Supply/Sewerage
Mr. Kiyoshi Miyakura	Solid Waste Disposal
Mr. Mitsuhisa Nishikawa	Power/Telecommunication
Mr. Toshiaki Horii	Financial/Socioeconomic Analysis
Mr. Kiyoaki Takakuwa	Tourism Planning/Promotion
Mr. Mitsuyuki Takamatsu	Tourism Administration/Environment
Mr. Kazutoshi Sakata	Coastal Development/Protection
Ms. Pauline Bosman	Socioeconomic Survey

(4) Thai Counterparts to the JICA Study Team (TAT)

Mr. Dharmnoon Prachuabmoh	Governor, TAT
Mr. Tamasak Rojanasoonthon	Director, Project Planning and Development Department
Ms. Juthamas Siriwan	Director, Tourism Planning Coordination Department
Mr. Chawaikrit Rattanakupt	Director, TAT Cha-Am Office
Mr. Montri Jantrupon	Director, Public Investment Planning Coordination Division
Mr. Sethapon Chindanon	Director, Planning Division
Ms. Shujit Pothong	Chief, Investment Planning Administration Section
Ms. Nitida Prayong	Chief, Public Planning Coordination, Southern Section