

PROJECT AD-3

RT. 4 KHOK KLOY - PHANGNGA

CHANGWAT: PHANGNGA

2) ROUTE MAP

3.9 Route No. 4 Kok Kloi - Phangnga (AD-3)

1) Summary

The aim of the project is to facilitate inter regional traffic flow between Phuket and Surat Thani/Krabi.

The existing highway is "P3" standard with carriageway width of 6.0 meters and shoulders of 2.0 meters on both sides. Additional two lane highway with 7.0 meter carriageway is to be constructed on a separated embankment along the existing highway which will constitute another two lanes for opposite direction.

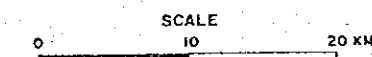
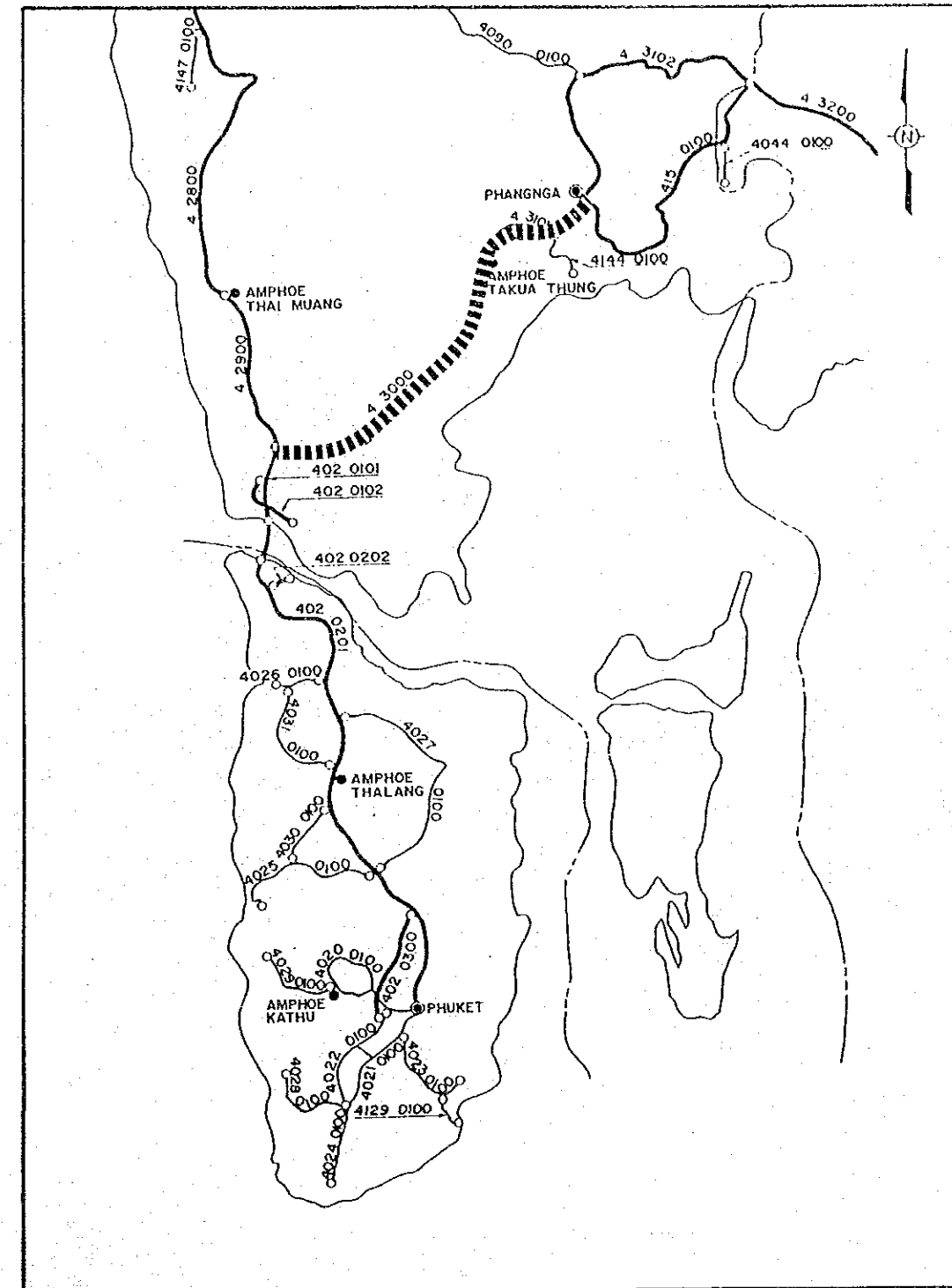
The project starts from Amphoe Kok Kloi at the intersection with Route 402 and ends at Amphoe Phangnga at the intersection with Route 417. The total length amounts to 35.6 kilometers. The project is situated in hilly terrain for about 70 % and in flat terrain for the remaining 30 %. Land use along the highway is mostly rubber plantation.

AD-3	Description
Changwat	: Phangnga
Name or Location	: Rt.4 Khok Kloi - Phangnga
Road Class	: PD (P3)
Cross Section (m)	: <2.5+7.0+1.5>x2 (2.0+7.0+2.0)
Surface Type	: SA /ASC/SA (SA /ASC/SA)
Surface Condition	: (G and G/F)
Length: Total	: 35.6 km
DOH Road	: 35.6 km

AADT<'96/'01/'06>	: 6,300 / 9,600 / 14,100

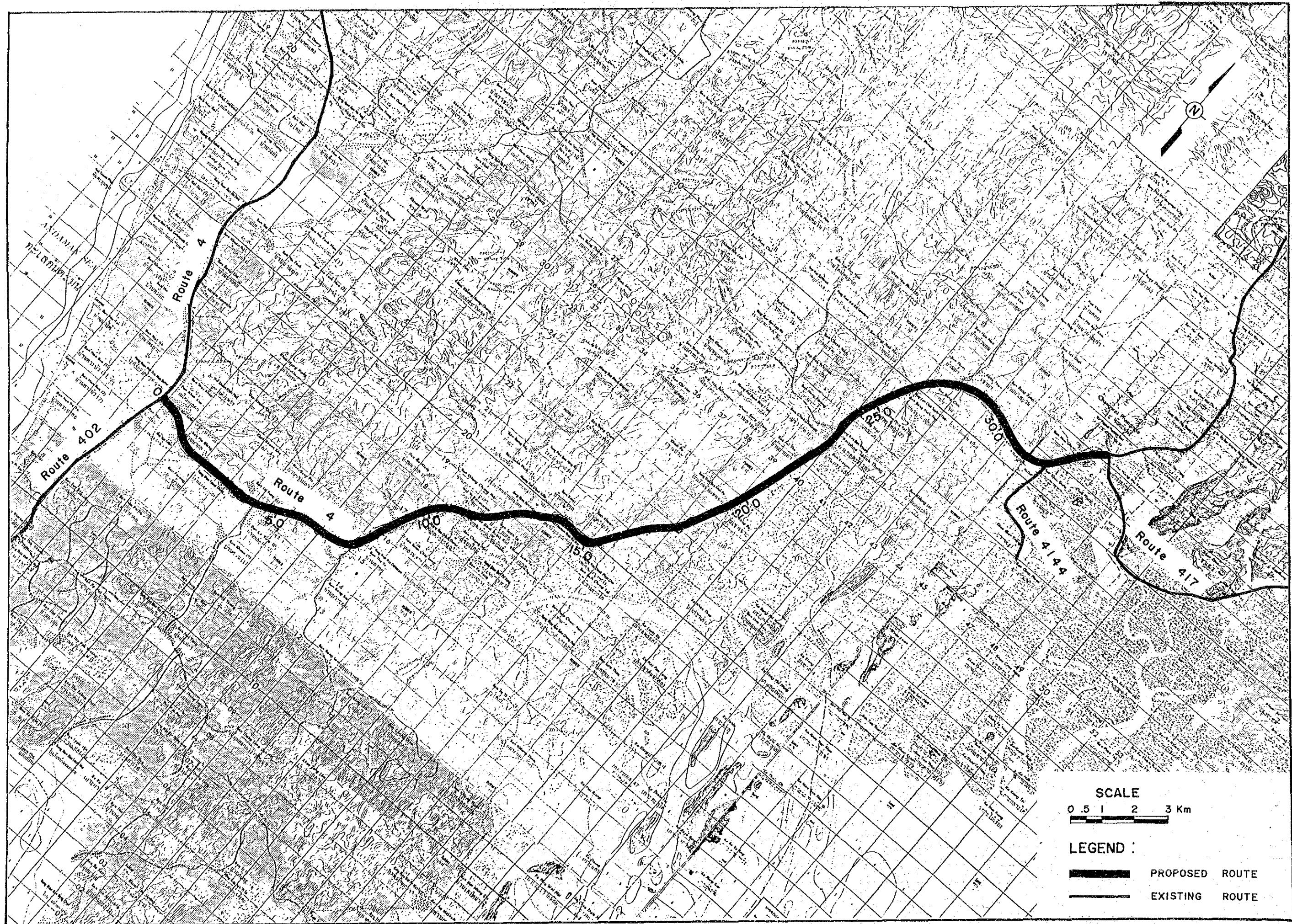
Financial Cost	: 273.9 million baht
NPV	: 1,496 million baht (12% discount rate)
B/C	: 12.4 (12% discount rate)
EIRR	: 51.0 %

(): Existing Condition or Value



LEGEND :

	PROJECT ROUTE		PROVINCIAL HIGHWAYS
	DIVIDED HIGHWAYS		CHANGWAT, AMPHOE
	NATIONAL HIGHWAYS		



4) PROFILE OF PROJECT

PROJECT NO. AD-3 ROUTE NO. 4 KHOK KLOY - PANGNGA

(1/2)

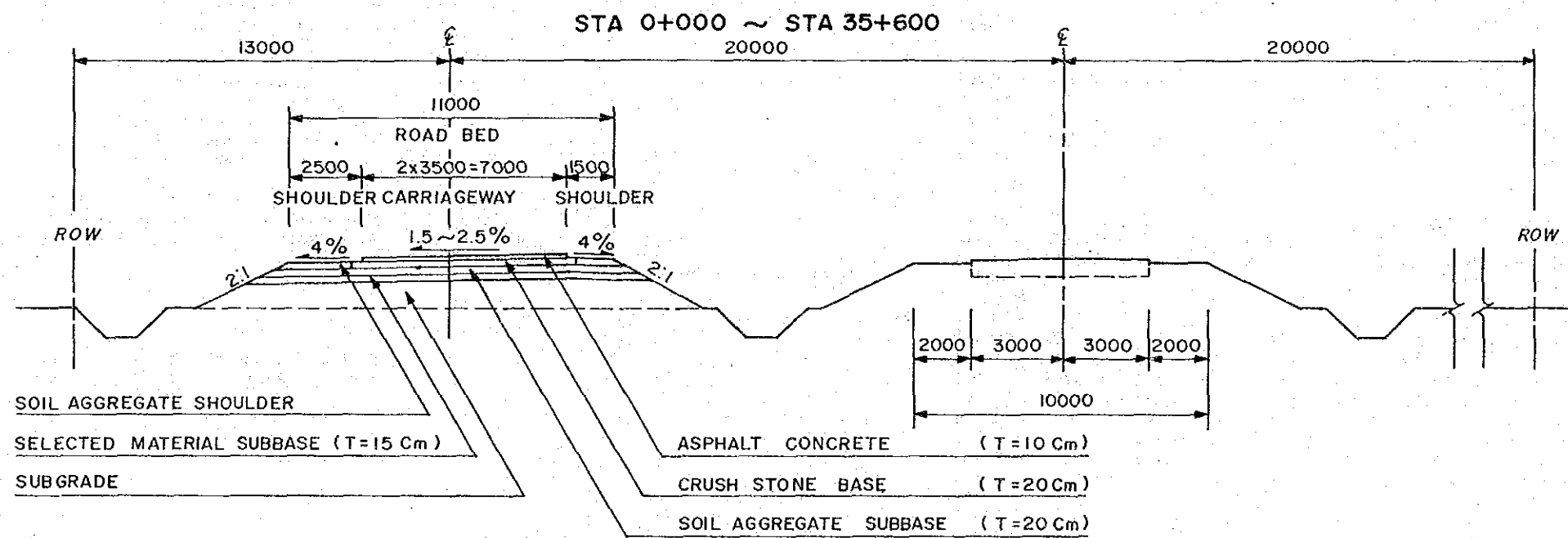
STATION (Km)		0	2	4	4+500	6	8	10	12	14	16	16+200	18	20	20+500	21+500	22	22+500	24	24+500	24+828	26	26+500	28	28+500	30		
VILLAGE ROAD INTERSECTION		KHOK KLOY		LO YOUNG		THA YOU		CHANG MAI		KAPAI		KUAN KARAI		KAO PO		KAO PO		BANG LUK		KASOM TAKUATUNG		PRN PRU YAI		TAM		BANG YUANG		
LAND USE		RUBBER, RICE, 24 KM (95%) ALREADY DEVELOPED																				RUBBER, OTHERS						
TERRAIN		FLAT : 7.0 KM ROLLING : 17.8 KM																				FLAT 4.0 KM						
FLOODING LENGTH		NO FLOODING REPORTED																				NO FLOODING REPORTED						
EXISTING CONDITIONS	RIGHT OF WAY	40.00 M (20.00+20.00)																				40.00 M (20.00+20.00)						
	ALIGNMENT	HOR.	NA																				NO OF CURVES 44					
		VER.	NA																				NO OF CURVES 43					
	CROSS SECTION	P3 2.00+6.00+2.00 = 10.00 M																				P3 2.00+6.00+2.00						
	SURFACE	SA+ASC (GOOD)+SA																				SA+ASC (G/F)+SA						
BRIDGES AND (Type - Width - Length (m))			4+992		8+385		10+032		12+133		16+133		19+266		19+916		21+112		22+159		24+464		28+247		28+900		29+825	
BOX CULVERTS (Width - Height - Length (m))			RC9.2x3x9.3		RC9.2x3x5.0		RC9.2x3x7.0		RC9.2x3x9.3		RC8.0x3x6.0		RC9.2x3x8.3		RC9.2x3x8.3		RC9.2x3x7.3		RC9.2x3x7.3		RC9.2x7x9.7		RC7.0x5x9.2		RC10.0x3x7.0		RC11.0x5x12.0	
PROPOSED CONDITIONS	CROSS SECTION	PD (2.50+7.00+1.50)+EXISTING ROAD																										
	TYPE OF IMPROVEMENT	AD 35.600 M																										
	BRIDGES (Type - Width - Length (m))	0+000		RC11.0x3x9.3		RC11.0x3x5.0		RC11.0x3x7.0		RC11.0x3x9.3		RC11.0x3x6.0		RC11.0x3x8.3		RC11.0x3x8.3		RC11.0x3x7.3		RC11.0x3x7.3		RC11.0x7x9.7		RC11.0x5x9.2		RC11.0x3x7.0		RC11.0x5x12.0

PROJECT NO. AD-3 ROUTE NO. 4 KHOK KLOY - PANGNGA

(2/2)

STATION (Km)		30	31+500	32	33+000	34	35+600	36	38	40	42	44	46	48	50	52	54	56	58	60			
VILLAGE ROAD INTERSECTION		BANG YUANG	J. Rt. 4144 NA KOK		KAO PHUNG		WANG MO KAEN																
LAND USE		100% DEVELOPED																					
TERRAIN		ROLLING 6.8 KM																					
FLOODING LENGTH		NO FLOODING REPORTED																					
EXISTING CONDITIONS	RIGHT OF WAY	40.00 M (20.00+20.00)																					
	ALIGNMENT	HOR.	NO. OF CURVES 44																				
		VER.	NO. OF CURVES 43																				
	CROSS SECTION	P3 2.00+6.00+2.00																					
	SURFACE	SA+ASC (G/F)+SA																					
BRIDGES AND (Type - Width - Length (m))		30+520																			32+062		
	BOX CULVERTS (Width - Height - Length (m))	RC 10.0x3x8.0																			RC 10.0x3x10.0		
PROPOSED CONDITIONS	CROSS SECTION	PD 11.00+EXISTING ROAD																					
	TYPE OF IMPROVEMENT	AD																					
	BRIDGES (Type - Width - Length (m))	RC 11.0x3x8.0																			RC 11.0x3x10.0	35+600	

5) TYPICAL CROSS SECTION



7) Construction Schedule

Project AD-3 Route No. 4 Kok Kloi - Phangnga

year and Month	First Year												Second Year												Third Year																							
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12												
Land Acquisition	=====																																															
Preparatory Works	=====																																															
Earth Works													=====												=====																							
Pavement Works													=====																																			
Bridge Works													=====																																			
Miscellaneous Works													=====												=====																							
Clearing -Up																																															
Percentage Of Disbursement (%)	20 %												51 %												29 %																							

8) Economic Evaluation

Project AD-3 Route No. 4 Kok Kloi - Phangnga

(unit ; 1000 Baht)

Year	Const- ruction Cost	Mainte- nance Cost	Total Cost	VOC Saving	Time Saving	Balance	Benefit= Cost=	Sensi. Analysis 0.8 1.2
1990	0	0	0	0	0	0		0
1991	0	0	0	0	0	0		0
1992	0	0	0	0	0	0		0
1993	60,543	0	60,543	0	0	(60,543)		(72,652)
1994	113,424	0	113,424	0	0	(113,424)		(136,108)
1995	57,719	0	57,719	0	0	(57,719)		(69,262)
1996	0	(159)	(159)	3,442	41,324	44,925		36,004
1997	0	(159)	(159)	17,693	91,733	109,585		87,732
1998	0	(159)	(159)	31,944	142,142	174,246		139,460
1999	0	(159)	(159)	46,196	192,552	238,906		191,189
2000	0	(159)	(159)	60,447	242,961	303,567		242,917
2001	0	(159)	(159)	74,698	293,370	368,227		294,645
2002	0	(159)	(159)	123,430	399,164	522,753		418,266
2003	0	(159)	(159)	172,162	504,958	677,280		541,887
2004	0	(159)	(159)	220,895	610,753	831,806		665,509
2005	0	(159)	(159)	269,627	716,547	986,333		789,130
2006	0	(159)	(159)	318,359	822,341	1,140,859		912,751
2007	0	(159)	(159)	318,359	822,341	1,140,859		912,751
2008	0	(159)	(159)	318,359	822,341	1,140,859		912,751
2009	0	(159)	(159)	318,359	822,341	1,140,859		912,751
2010	0	(159)	(159)	318,359	822,341	1,140,859		912,751
Total	231,686	(2,385)	229,301	2,612,329	7,347,209	9,730,238		7,692,470
						EIRR =		50.96%
						NPV (i;12%) =		1,496,134
						B/C (i;12%) =		12.37

PROJECT AD-4

RT. 4 / 43 PHATTHALUNG - HAT YAI

CHANGWAT: PHATTHALUNG, SONGKHLA

2) ROUTE MAP

3.10 Route No. 4 and 43 Phatthalung - Hat Yai (AD-4)

1) Summary

The project is a part of the highway development policy of the Government that the whole stretch of the highway from Bangkok to the Malaysian border should be developed into a four lane highway by the end of the Seventh Five Year Plan period. The aim of the policy is to boost the Southern economy by way of facilitating international as well as inter- regional traffic to and from the Southern Region.

The existing highway condition is "P2" and "P3" standards with carriageway width of more than 6 meters. Of whole section of the project, surface condition over a distance of 65.2 kilometers from Phatthalung side is judged "fair to poor". This part needs improvement when additional two lanes are constructed. Surface condition of the remaining part is judged "good to fair", so that no particular improvement works will be needed. Additional two lanes of 7.0 meter wide carriageway is to be constructed on a separated embankment along the existing highway.

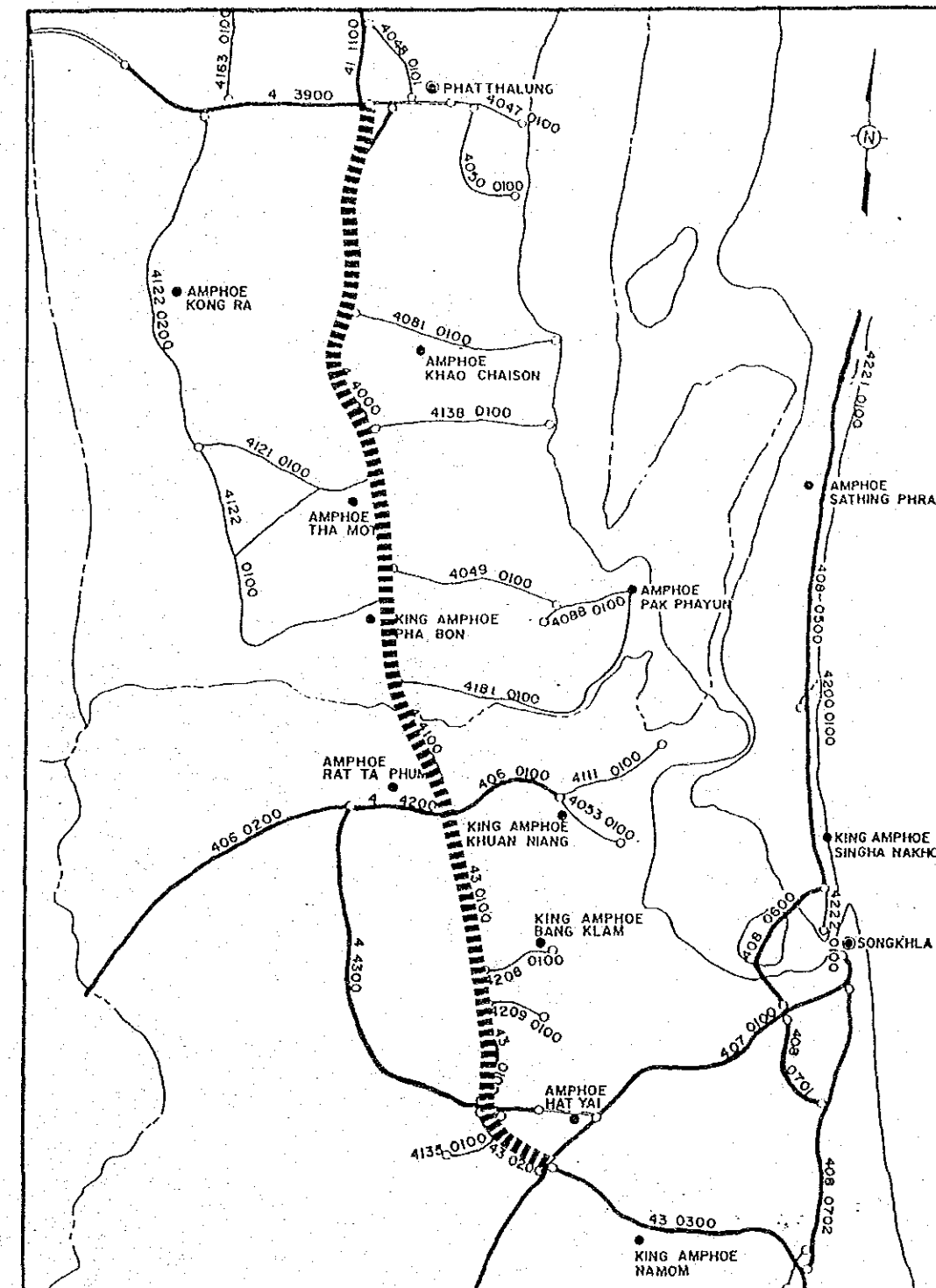
The project starts from the junction with Route 41 near Phatthalung and ends at the intersection of Route 43 and 4 directing to the Malaysian border. The total length is 95.4 kilometers. The project lies in flat terrain for about 80 % and in hilly terrain for the remaining. The corridor area of the highway has been well developed, mainly used for rubber plantation and paddy field.

AD-4	Description
Changwat	: Phatthalung and Songkhla
Name or Location	: Rt.4/43 Phatthalung - Hat Yai
Road Class	: PD (P2 and P3)
Cross Section (m)	: <2.5+7.0+1.5>x2 (2.0+6.0+2.0)
Surface Type	: SA /ASC/SA (SA/UPM/SA)
Surface Condition	: (F/P and G/F)
Length: Total	: 95.5 km
DOH Road	: 95.5 km

AADT<'96/'01/'06>	: 10,600 / 15,500 / 21,400

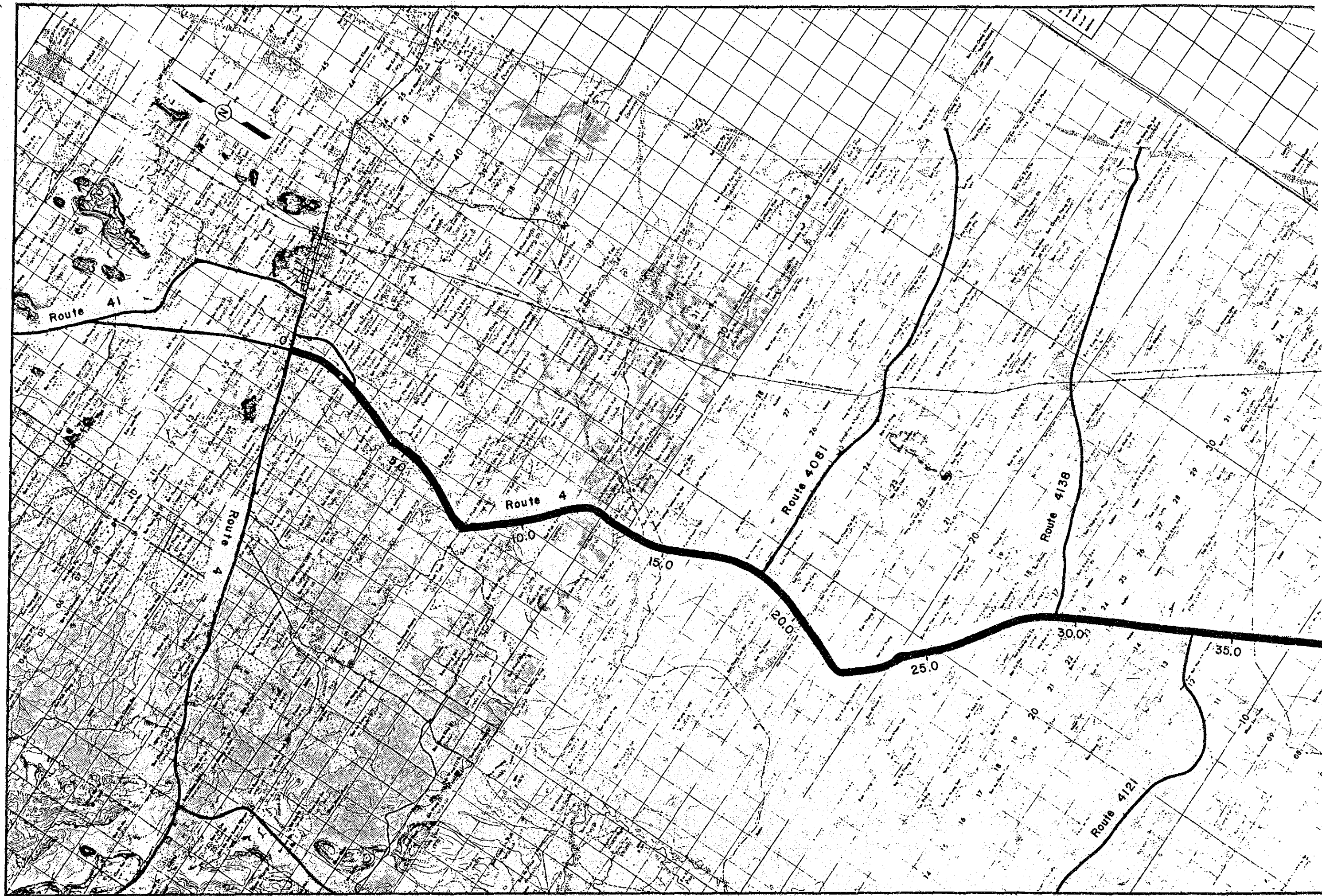
Financial Cost	: 994.0 million baht
NPV	: 1,785 million baht (12% discount rate)
B/C	: 4.8 (12% discount rate)
EIRR	: 42.9 %

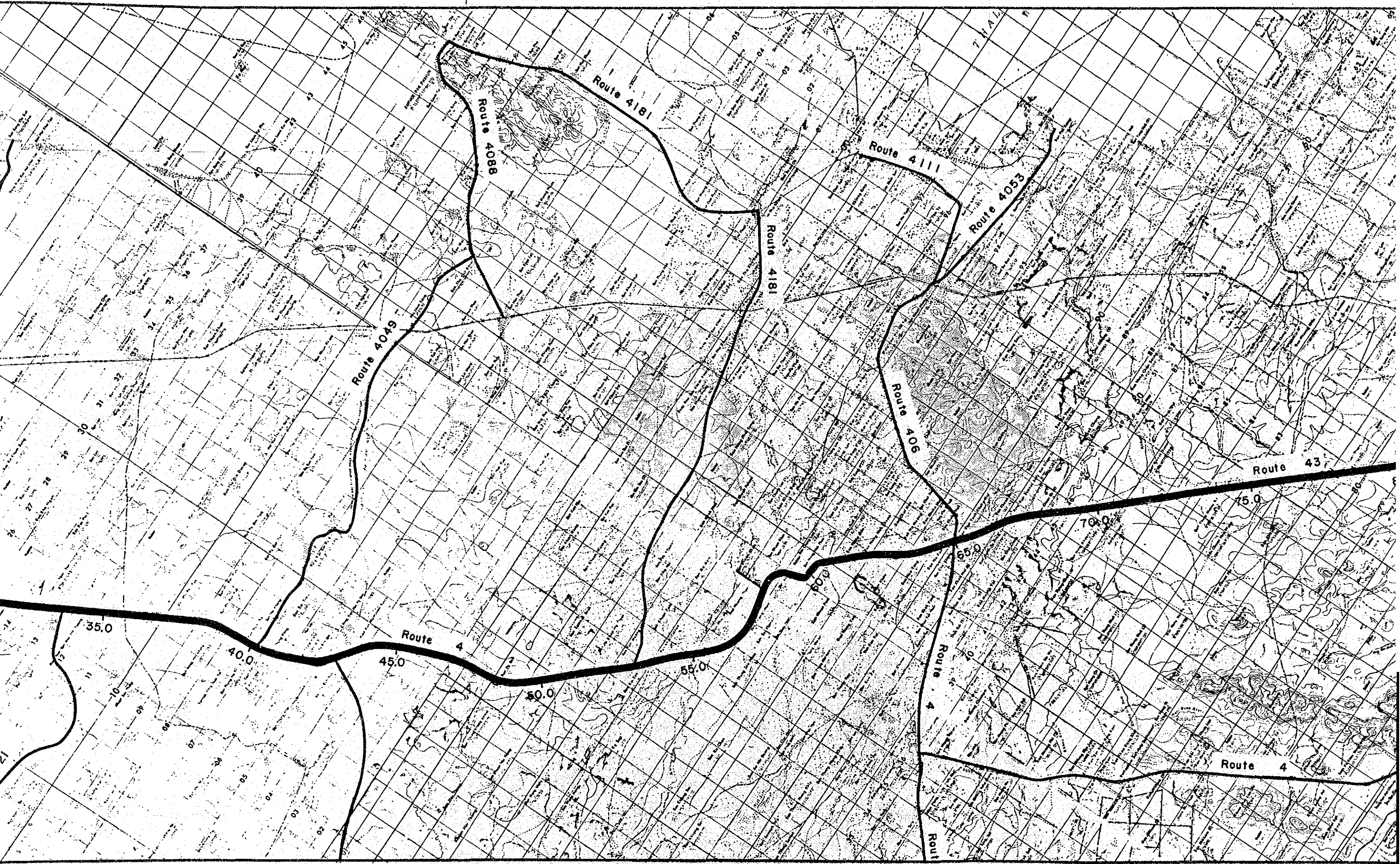
(): Existing Condition or Value

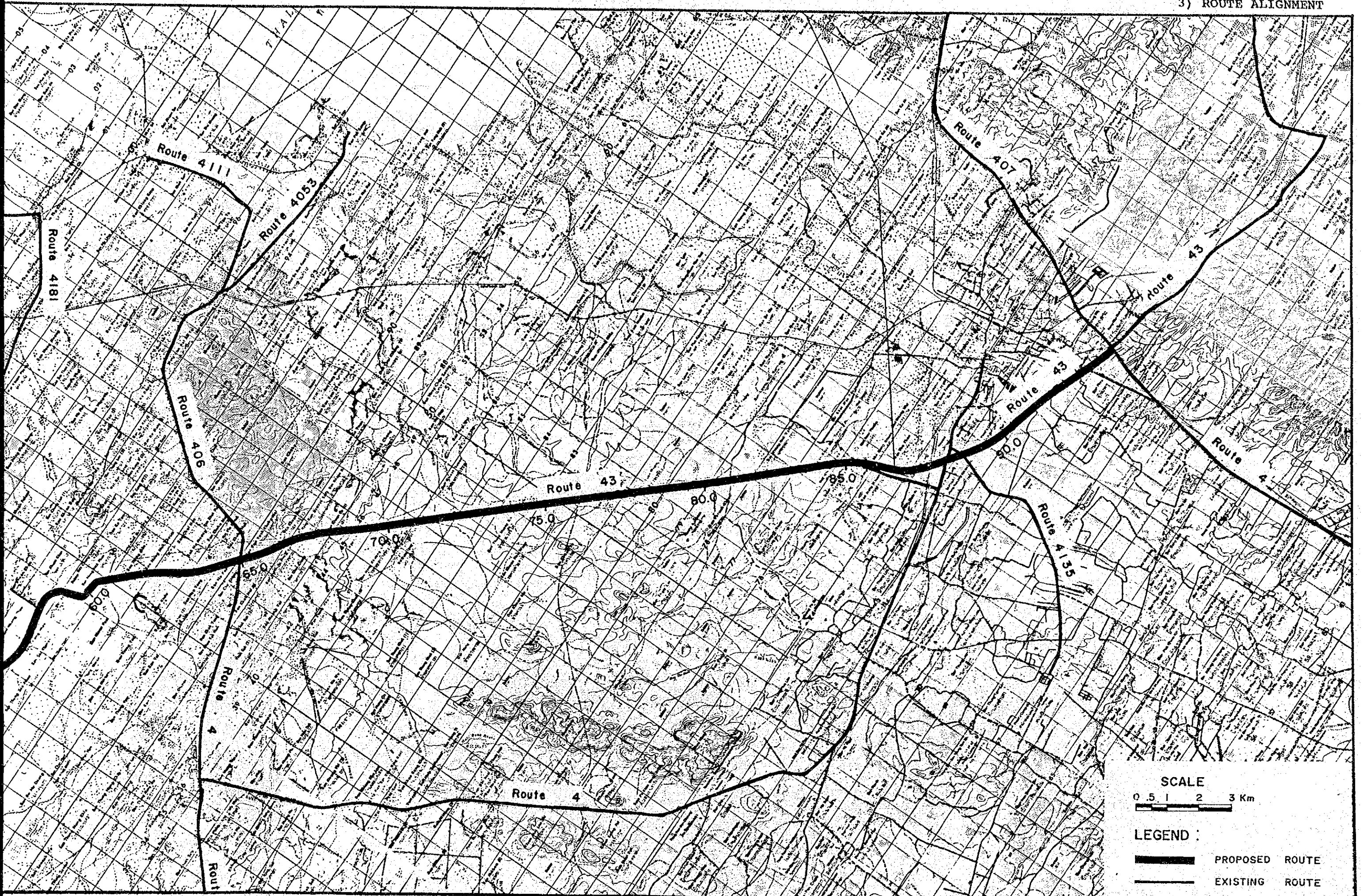


LEGEND :

-  PROJECT ROUTE
-  DIVIDED HIGHWAYS
-  NATIONAL HIGHWAYS
-  CHANGWAT, AMPHOE
-  PROVINCIAL HIGHWAYS







SCALE
0.5 1 2 3 Km

LEGEND :
— PROPOSED ROUTE
— EXISTING ROUTE

4) PROFILE OF PROJECT

PROJECT NO. AD - 4 ROUTE NO. 4 AND 43 PHATTHALUNG - HAT YAI

(1/4)

STATION (Km)	0		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30																												
VILLAGE ROAD INTERSECTION	PHATTHALUNG		KHUAN PRONG		THAKHAE	PLUAKLON			NAMTOK	NANOTE		SR. 4081 THANANGFROM	HUARANG		LANCHANG																														
LAND USE	RUBBER, RICE, 80% DEVELOPED																																												
TERRAIN	FLAT 40.0 KM																																												
FLOODING LENGTH	FLOODING REPORTED AT 10 LOCATIONS OF 14.1 KM IN TOTAL LENGTH																																												
EXISTING CONDITIONS	RIGHT OF WAY		40.00 M (20.00+20.00)																																										
	ALIGNMENT	HOR.	NUMBER OF HORIZONTAL CURVES 52																																										
		VER.	NUMBER OF VERTICAL CURVES 0																																										
	CROSS SECTION		P3 2.00+6.00+2.00 = 10.00M																																										
	SURFACE		SA+UPM (FAIR/POOR)+SA																																										
	BRIDGES AND (Type - Width - Length (m))		BX3-2.4x2.4x12.0 BX3-2.4x2.1x12.0	0+578 0+786											RC6.0x4x9.0	4+942						RC8.0x1x10.0	9+493	BX3-2.4x2.1x10.0 RC8.0x3x7.0 BX3-2.4x2.4x10.0	10+661 10+994 11+207	RC8.0x7x8.0 RC8.0x4x9.0	12+476 12+868			RC8.0x3x6.0	15+429	RC6.0x3x7.0 BX3-3.0x3.0x13.0 BX3-2.4x2.4x12.0 BX3-2.4x2.4x12.0 BX3-2.7x2.7x12.0	16+948 17+138 17+684 18+076 18+630	RC6.0x3x8.7	20+050				BX3-2.4x2.4x10.0 BX3-3.3x3.0x12.0	24+238 24+528	RC8.0x3x8.0	26+631			RC8.0x5x9.2
BOX CULVERTS (Width - Height - Length (m))																																													
PROPOSED CONDITIONS	CROSS SECTION		PD (2.50+7.00+1.50)x2																																										
	TYPE OF IMPROVEMENT		AD (I) 40,038 M																																										
	BRIDGES (Type - Width - Length (m))		0+000											RC11.0x4x9.0						RC11.0x1x10.0			RC11.0x7x8.0 RC11.0x4x9.0			RC11.0x3x6.0			RC11.0x3x7.0			RC11.0x3x8.7				RC11.0x3x8.0			RC11.0x5x9.2						

PROJECT NO. AD-4 ROUTE NO.4 AND 43 PHATTHALUNG - HAT YAI

(3/4)

STATION (Km)		60	62	62+428	64	64+728	65+228	65+828	66	68	68+328	70	72	72+528	74	76	76+228	76+388	77+350	77+728	78	80	81+532	82	84	86	88	88+228	88+728	90				
VILLAGE ROAD INTERSECTION				B. WANG SI YOM		B. KHU HA TAI	J. Rt. 406	B. KHU HA		B. KHUAN RU			B. NONG KHONG			B. PHAEK SU WON	J. Rt. 4208	B. PAK BANGSAKOB					J. Rt. 4209					J. Rt. 4	B. KRONG ITAM					
LAND USE																																		
TERRAIN																																		
FLOODING LENGTH																																		
EXISTING CONDITIONS	RIGHT OF WAY																																	
	ALIGNMENT	HOR.																																
		VER.																																
	CROSS SECTION																																	
	SURFACE																																	
BRIDGES AND (Type - Width - Length (m))																																		
	BOX CULVERTS (Width - Height - Length (m))																																	
PROPOSED CONDITIONS	CROSS SECTION																																	
	TYPE OF IMPROVEMENT																																	
	BRIDGES (Type - Width - Length (m))																																	