

BORING LOG				BORING NO. <u>BH-1</u>		GROUND ELEV.(m.) <u>96.0</u>												
PROJECT <u>14102 LAM NAM PHUAI</u>				DEPTH (m.) <u>11.08</u>		OBSERVED WL (m.) <u>-2.95</u>												
LOCATION <u>A. SI BUN RUANG, UDON THANI</u>				COORD. <u>-</u>		DATE STARTED <u>5/3/89</u>												
						DATE FINISHED <u>6/3/89</u>												
SOIL DESCRIPTION	DEPTH (m.)	GRAPHIC LOG	METHOD	SAMPLING RECOVERY	SPT - N (blows/ft)				PL W _n LL (%)			S _u (t/m ²)				γ ₁ (t/m ³)		
					10	20	30	40	10	20	30	40	5	10	15	20	1.6	1.8
STIFF SANDY CLAY TO CLAYEY SAND (INTERMEDIATE SOIL), BROWN (SC/CL) (NO SALTY) 2.50	1		PA	1	11 (5,5)													
	2		PA	2	10 (5,5)					10								
MEDIUM DENSE SAND WITH GRAVEL AND CLAY, BROWN (SM) (NO SALTY) 4.80	3		PA	3	14 (7,7)													
	4		PA	4	24 (4,10)													
VERY LOOSE SAND WITH GRAVEL, BROWN (SM) (NO SALTY) 5.65	5		SS	5	1 (0,1)													
VERY STIFF SANDY CLAY, BROWN (CL) (NO SALTY) 6.80	6		WO	6	19 (5,4)													
	7		WO	7	18 (7,11)													
MEDIUM DENSE SILTY FINE SAND, GREY (NO SALTY) (SM) 8.25	8		SS	8	50/20 CM (15,35/5CM)													
	9		WO	9	50/8 CM													
HARD CLAY, DARK BROWN (CL) (NO SALTY) 11.08	10		WO	10	50/2.5 CM													
	11		WO	11	50/8 CM													
END OF BORING																		

BORING LOG				BORING NO. BH-2		GROUND ELEV.(m.) 92.80											
PROJECT 14.02 LAM NAM PHUAI				DEPTH (m.) 6.05		OBSERVED WL (m.) -0.05											
LOCATION A.SI BUN RUANG, UDON THANI				COORD. -		DATE STARTED 7/3/89											
						DATE FINISHED 7/3/89											
SOIL DESCRIPTION	DEPTH (m.)	GRAPHIC LOG	METHOD	SAMPLING & RECOVERY	SPT - N (blows / ft)				PL W _n LL (%)			S _u (1/m ²)				γ _s (1/m ³)	
					10	20	30	40	10	20	30	40	5	10	15	20	1.6
MEDIUM DENSE GRAVELLY SAND BRONW (SP-SM) (NO SALTY) 2.50	1		PA														
			SS 1	■													
			PA														
	2		SS 2	■													
			PA														
LOOSE SAND, WITH GRAVEL, BROWN (SM)(NO SALTY) 3.80	3		SS 3	■													
			WO														
VERY STIFF SANDY CLAY, GREY (SC/CL)(NO SALTY) 5.00	4		SS 4	■													
			WO														
VERY DENSE GRAVELLY SAND, GREY (SM) (NO SALTY) 6.05	5		SS 5	■													
			WO														
END OF BORING	6		SS 6	■													

BORING LOG				BORING NO. BH-3		GROUND ELEV.(m) 93.50											
PROJECT 14.02 LAM NAM PHUAI				DEPTH (m.) 10.18		OBSERVED WL (m.) -3.10											
LOCATION A.SI BUN RUANG, UDON THANI				COORD. -		DATE STARTED 8/3/89											
						DATE FINISHED 9/3/89											
SOIL DESCRIPTION	DEPTH (m.)	GRAPHIC LOG	METHOD	SAMPLING & RECOVERY	SPT - N (blows / ft)			PL W _n LL (%)			S _u (1/m ²)				γ _i (1/m ³)		
					10	20	30	40	10	20	30	40	5	10	15	20	1.6
VERY STIFF SANDY CLAY, BROWN (CL) (NO SALTY) 3.70	1		PA														
			SS 1	1	22												
			PA		(11,11)												
		2		SS 2	2	26											
				PA		(12,14)											
		3		SS 3	3	18											
MEDIUM DENSE CLAYEY SAND, WITH GRAVEL, BROWN (SM, SM-SC) (NO SALTY) 7.00	4		PA														
			SS 4	4	24												
			PA		(12,12)												
		5		SS 5	5	37											
				PA		(17,20)											
		6		SS 6	6	44											
VERY DENSE GRAVELLY SAND AND SILTY FINE SAND, BROWN AND GREY (SM) (NO SALTY) 10.18	7		SS 7	7	50/25 CM												
			PA		(26,24/10CM)												
		8		SS 8	8	50/15 CM											
				PA		(14,50/15CM)											
		9		SS 9	9	50/10 CM											
				PA													
END OF BORING	10		SS 10	10	50/18 CM												
					(40,10/25CM)												

BORING LOG			BORING NO. BH-1		GROUND ELEV.(m.) 98.5			
PROJECT 15.07 LAM SOM NO.1			DEPTH (m.) 8.27		OBSERVED WL (m.) Not Found			
LOCATION A. DET UDOM, UBON RATCHATHANI			COORD. -		DATE STARTED 20/2/89			
					DATE FINISHED 21/2/89			
SOIL DESCRIPTION	DEPTH (M.)	GRAPHIC LOG	METHOD	SAMPLING & RECOVERY	SPT - N (blows / ft)	PL W _n LL (%)	S _u (t/m ²)	γ ₁ (t/m ³)
					10 20 30 40	10 20 30 40	○ UCT Δ PP × FVT □ TV	1.6 1.8 2.0
					5 10 15 20			
LATERITE, REDDISH BROWN (NO SALTY) 1.00	1		PA					
VERY LOOSE TO LOOSE AND MEDIUM DENSE SILTY AND CLAYEY FINE SAND, LI-BROWN AND YELLOWISH BROWN (SM, SC/CL) (NO SALTY) 7.50	1		SS 1	1	11 (5,6)			
	2		PA					
	2		SS 2	2	6 (3,3)			
	3		PA					
	3		SS 3	3	8 (4,4)			
	4		PA					
	4		SS 4	4	2 (1,1)			
VERY DENSE SILTSTONE, REDDISH VIOLET (SM) 8.27	5		PA					
	5		SS 5	5	2 (5,7)			
	6		PA					
	6		SS 6	6	1			
END OF BORING	7		PA					
	7		SS 7	7	(9,3) 22			
	8		PA					
	8		SS 8	8	50/5 CM.			
			SS 8	8	52/5 CM.			

BORING LOG				BORING NO. BH-2				GROUND ELEV.(m.) 93.4										
PROJECT 15.07 LAM SOM NO.1				DEPTH (m.) 2.00				OBSERVED WL (m.) +1.80										
LOCATION A. DET UDOM, UBON RATCHATHANI				COORD. -				DATE STARTED 19/2/89										
								DATE FINISHED 19/2/89										
SOIL DESCRIPTION	DEPTH (m.)	GRAPHIC LOG	METHOD	SAMPLING & RECOVERY	SPT - N (blows / ft)				PL W _n LL (%)			S _u (t/m ²)				γ ₁ (t/m ³)		
					10	20	30	40	10	20	30	40	5	10	15	20	1.6	1.8
MEDIUM DENSE SAND, LI-BROWN (NO SALTY) (SM) 1.35	1		PA															
VERY DENSE SILTSTONE, REDDISH VIOLET (NO SALTY) (SM) 2.00	2		SS PA	1	(14, 35) 49					0								0
END OF BORING																		

BORING LOG				BORING NO. BH-3		GROUND ELEV.(m) 98.4														
PROJECT 15.07 LAM SOM NO.1				DEPTH (m.) 9.08		OBSERVED WL (m.) -3.90														
LOCATION A. DET UDOM, UBON RATCHATHANI				COORD. -		DATE STARTED 17/2/89														
						DATE FINISHED 18/2/89														
SOIL DESCRIPTION	DEPTH (m.)	GRAPHIC LOG	METHOD	SAMPLING & RECOVERY	SPT - N (blows / ft)				PL W _n LL (%)				S _u (t/m ²)				γ ₁ (t/m ³)			
					10	20	30	40	10	20	30	40	5	10	15	20	1.6	1.8	2.0	
LATERITE, REDDISH BROWN (NO SLATY) 1.00	1		PA																	
STIFF TO VERY STIFF AND HARD CLAY, BROWN, LI-BROWN AND LI-GREY (CL) (SALTY) 6.50	2		SS 1	1	9															
	3		PA																	
	4		SS 2	2	2 (6,6)															
	5		PA																	
	6		SS 3	3	(3,56) 59															
	7		PA																	
LOOSE TO MEDIUM DENSE FINE SAND, LI-GREY (SALTY) (SP-SM) 8.20	8		SS 4	4	18 (8,30)															
	9		PA																	
VERY DENSE SILTSTONE, REDDISH VIOLET (SM) 9.08 (NO SALTY)	10		SS 5	5	23 (11,12)															
	11		PA																	
END OF BORING	12		SS 6	6	7 (3,4)															
	13		PA																	
	14		SS 7	7	9 (3,5)															
	15		PA																	
	16		SS 8	8	50/17 CM (35,15)															
	17		PA																	
	18		SS 9	9	50/8 CM															
	19		PA																	

APPENDIX 6

- **Economic Effect**

Basic Data for Cost Benefit Analysis

Vehicle	Car/ Pickup			Bus			Truck			Total
	3 km	4%	6%	3 km	4%	6%	3 km	4%	6%	
A. ADT in 1988 (Total of 51 Bridges)	3818	2535	1521	1723	9579					
B. Annual Growth Rate	6%	4%	6%	4%	-					
C. Average Saved Distance	3 km	3 km	3 km	3 km	3 km					3 km
D. VOC per Km (Bhat/km)	3.1	2.3	9.3	7.7	-					
E. Saving in VOC (Bhat/Vehicle)	9.3	6.9	27.9	23.1	-					
F. Travelling Speed (Km/h)	40	20	40	40	-					
G. Saving in Traveling Time (minute)	4.5	9	4.5	4.5	-					
H. Average Occupancy (person/vehicle)	3	1	21	2	-					
I. Time Value of Passenger (Bhat/pass.min.)	1.3	1.3	1.3	1.3	-					
J. Average Loading (ton/vehicle)	0.6	0.2	0	2.5	-					
K. Lease Charge of Vehicle (Baht/min)	1.7	0.2	0	7	-					
L. Saving in Passengers Time Cost (Baht/vehicle)	17.6	11.7	122.9	11.7	-					
M. Saving in Lease Charge (Baht/vehicle)	7.7	1.8	0	31.5	-					
N. Total Saving in Time Cost	67	36	328	115	-					

Source:

ADT in 1988: PWD

All other data were obtained by hearing survey to many persons concerned.

Note:

Saving in VOC = C X D

Saving in Traveling time = C X (60 ÷ F)

Saving in passenger's time cost = C X H X I

Saving in lease charge = C X K

Total Saving in Time Cost = L + M

Standard Conversion Factor = 0.9

Annual growth rate of passenger's time value = 0.02

AADT

YEAR	CAR/ PICKUP	E-TAN	BUS	TRUCK	TOTAL
1990	4290	2742	1709	1864	10604
1991	4547	2852	1812	1938	11149
1992	4820	2966	1920	2016	11722
1993	5109	3084	2035	2096	12325
1994	5416	3208	2158	2180	12961
1995	5741	3336	2287	2267	13631
1996	6085	3469	2424	2358	14337
1997	6450	3608	2570	2452	15081
1998	6837	3752	2724	2550	15864
1999	7248	3903	2887	2652	16690
2000	7683	4059	3061	2759	17560
2001	8144	4221	3244	2869	18478
2002	8632	4390	3439	2984	19444
2003	9150	4565	3645	3103	20464
2004	9699	4748	3864	3227	21538
2005	10281	4938	4096	3356	22671
2006	10898	5135	4341	3490	23865
2007	11552	5341	4602	3630	25125
2008	12245	5554	4878	3775	26453
2009	12980	5777	5171	3926	27853
2010	13758	6008	5481	4083	29330
2011	14584	6248	5810	4247	30888
2012	15459	6498	6158	4417	32532
2013	16386	6758	6528	4593	34265
2014	17370	7028	6920	4777	36094

Benefit (1000 Baht)

	Year	ADT	VOC Saving	Passenger's Time Saving	Vehicle's Time Saving	Total Time Saving	Total Benefit
1	1990	10604	0	0	0	0	0
2	1991	11149	20242	53369	14472	67841	88083
3	1992	11722	54342	146845	38671	185516	239858
4	1993	12325	57163	158308	40488	198797	255959
5	1994	12961	60134	170675	42395	213070	273204
6	1995	13631	63266	184015	44395	228410	291677
7	1996	14337	66567	198407	46494	244901	311468
8	1997	15081	70046	213935	48696	262630	332676
9	1998	15864	73713	230688	51006	281694	355406
10	1999	16690	77578	248763	53430	302194	379772
11	2000	17560	81654	268267	55975	324242	405895
12	2001	18478	85950	289312	58646	347958	433908
13	2002	19444	90480	312020	61450	373470	463950
14	2003	20464	95257	336525	64393	400918	496175
15	2004	21538	100295	362970	67483	430453	530747
16	2005	22671	105608	391508	70727	462235	567843
17	2006	23865	111211	422306	74134	496440	607651
18	2007	25125	117121	455545	77712	533257	650378
19	2008	26453	123355	491419	81470	572889	696244
20	2009	27853	129932	530138	85417	615555	745487
21	2010	29330	136870	571929	89563	661493	798362
22	2011	30888	144190	617038	93919	710957	855147
23	2012	32532	151913	665727	98496	764223	916137
24	2013	34265	160063	718285	103304	821589	981653
25	2014	36094	168664	775019	108358	883377	1052040

ECONOMIC CASH FLOW (1000 BHT)

YEAR	INVESTMENT	MAINTENANCE AND ADMINISTRATION COST	TOTAL COST	VOC SAVING BENEFIT	TIME SAVING BENEFIT	RESIDUAL VALUE	TOTAL BENEFIT	TOTAL COST	TOTAL BENEFIT	NET PRESENT VALUE
1990	1090000	0	1090000	0	0	1090000	0	1090000	0	-1090000
1991	1183300	9810	1193110	20242	67841	2251500	88083	1039320	76729	-2052590
1992	0	20460	20460	54342	185516	2206030	239858	15525	182009	-1886110
1993	0	20460	20460	57163	198797	2160570	255959	13524	169192	-1730440
1994	0	20460	20460	60134	213070	2115100	273204	11781	157313	-1584910
1995	0	20460	20460	63266	228410	2069640	291677	10262	146502	-1448870
1996	0	20460	20460	66567	244901	2024170	311468	8940	136091	-1321720
1997	0	20460	20460	70046	262630	1978700	32676	7787	126622	-1202880
1998	0	20460	20460	73713	281694	1933240	355406	6784	117837	-1091830
1999	0	20460	20460	77578	302194	1887770	379772	5909	109685	-988054
2000	0	20460	20460	81654	324242	1842310	405895	5147	102120	-891081
2001	0	20460	20460	85950	347958	1796840	433908	4484	95096	-800470
2002	0	20460	20460	90480	373470	1751370	463950	3906	88574	-715802
2003	0	20460	20460	95257	400918	1705910	496175	3403	82516	-636688
2004	0	20460	20460	100295	430453	1660440	530747	2964	76888	-562764
2005	0	20460	20460	105608	462235	1614980	567843	2582	71659	-493687
2006	0	20460	20460	111211	496440	1569510	607651	2249	66798	-429137
2007	0	20460	20460	117121	533257	1524040	650378	1959	62280	-368817
2008	0	20460	20460	123355	572889	1478580	696244	1707	58078	-312445
2009	0	20460	20460	129932	615555	1435110	745487	1487	54170	-259762
2010	0	20460	20460	136870	661493	1387650	798362	1295	50535	-210522
2011	0	20460	20460	144190	710957	1342180	855147	1128	47152	-164498
2012	0	20460	20460	151913	764223	1296710	916137	983	44004	-121477
2013	0	20460	20460	160063	821589	1251250	981653	856	41073	-81261
2014	0	20460	20460	168664	883577	1205780	2257820	746	82292	286
TOTAL							2244730		2245010	

EB/EC= 1.00013 EIRR= .14797

Note:

- (1) The Maintenance cost is 1.0% of the construction cost
- (2) The time saving benefit is the total of the passengers time saving and the time saving of vehicle itself.
- (3) At the end of evaluation period, residual value is added to total benefit.

Traffic Volume (ADT.) 1988

No.	Bridge No.	Car/Pickup	E - tan	Bus	Truck	Total
1.	02.02	76	72	44	20	212
2.	02.03	76	72	44	20	212
3.	03.01	86	69	103	87	345
4.	03.02	86	69	103	87	345
5.	03.03	80	67	101	63	311
6.	03.04	80	67	98	63	309
7.	04.04	51	33	9	19	112
8.	04.05	51	33	9	19	112
9.	05.04	52	45	9	6	112
10.	05.05	52	45	9	6	112
11.	06.01	37	30	19	20	106
12.	06.03	46	53	26	23	148
13.	06.04	47	50	8	14	94
14.	07.07	43	46	9	19	117
15.	07.08	43	46	9	19	117
16.	08.01	117	83	8	52	260
17.	08.02	115	83	8	52	258
18.	08.03	109	73	13	47	242
19.	08.04	109	73	13	47	242
20.	08.05	109	73	13	47	242
21.	09.01	61	39	10	16	126
22.	09.03	58	17	15	11	101

Traffic Volume (ADT.) 1988

Bridge No.	car/Pickup	E - tan	Bus	Truck	Total
09.04	60	39	10	16	127
10.01	97	55	134	56	342
10.02	102	59	134	56	351
11.03	98	26	9	16	149
12.02	66	33	26	40	165
13.01	76	40	20	16	152
13.02	76	40	20	16	152
13.03	90	45	8	18	161
13.04	97	46	8	18	169
13.05	46	24	4	5	79
13.06	46	24	4	5	79
14.04	106	89	53	67	315
14.05	106	89	53	67	315
14.06	106	89	53	67	315
14.07	106	89	53	67	315
15.03	80	40	28	43	191
15.04	92	30	22	40	184
15.05	84	43	11	38	176
15.06	80	30	10	34	162

Traffic Volume (ADT.) 1988-Group 11 Bridge

No.	Bridge No.	Car/Pickup	E-tan	Bus	Truck	Total
1.	01.01	41	32	14	32	119
2.	02.05	47	51	16	41	155
3.	04.01	84	22	9	32	147
4.	04.02	84	22	9	32	147
5.	05.01	28	27	21	10	86
6.	05.02	29	25	19	10	83
7.	05.03	23	22	18	3	66
8.	11.01	98	26	11	16	151
9.	14.02	102	89	53	67	311
10.	15.07	84	43	11	38	176

Basic Data for Cost Benefit Analysis

Vehicle	Car/ Pickup	E-tan	Bus	Truck	Total
A. ADT in 1988 (Total of 51 Bridges)	3818	2535	1521	1723	9579
B. Annual Growth Rate	6%	4%	6%	4%	-
C. Average Saved Distance	3 km	3 km	3 km	3 km	3 km
D. VOC per Km (Bhat/km)	3.1	2.3	9.3	7.7	-
E. Saving in VOC (Bhat/Vehicle)	9.3	6.9	27.9	23.1	-
F. Traveling Speed (Km/h)	40	20	40	40	-
G. Saving in Traveling Time (minute)	4.5	9	4.5	4.5	-
H. Average Occupancy (person/vehicle)	3	1	21	2	-
I. Time Value of Passenger (Bhat/pass.min.)	1.3	1.3	1.3	1.3	-
J. Average Loading (ton/vehicle)	0.6	0.2	0	2.5	-
K. Lease Charge of Vehicle (Baht/min)	1.7	0.2	0	7	-
L. Saving in Passengers Time Cost (Baht/vehicle)	17.6	11.7	122.9	11.7	-
M. Saving in Lease Charge (Baht/vehicle)	7.7	1.8	0	31.5	-
N. Total Saving in Time Cost	67	36	328	115	-

YEAR	CAR/ PICKUP	E-TAN	BUS	TRUCK	TOTAL
1990	4290	2742	1709	1864	10604
1991	4547	2852	1812	1938	11149
1992	4820	2966	1920	2016	11722
1993	5109	3084	2035	2096	12325
1994	5416	3208	2158	2180	12961
1995	5741	3336	2287	2267	13631
1996	6085	3469	2424	2358	14337
1997	6450	3608	2570	2452	15081
1998	6837	3752	2724	2550	15864
1999	7248	3903	2887	2652	16690
2000	7683	4059	3061	2759	17560
2001	8144	4221	3244	2869	18478
2002	8632	4390	3439	2984	19444
2003	9150	4565	3645	3103	20464
2004	9699	4748	3864	3227	21538
2005	10281	4938	4096	3356	22671
2006	10898	5135	4341	3490	23865
2007	11552	5341	4602	3630	25125
2008	12245	5554	4878	3775	26453
2009	12980	5777	5171	3926	27853
2010	13758	6008	5481	4083	29330
2011	14584	6248	5810	4247	30888
2012	15459	6498	6158	4417	32532
2013	16386	6758	6528	4593	34265
2014	17370	7028	6920	4777	36094

ECONOMIC CASH FLOW (1000 BHAT)

YEAR	INVESTMENT COST	MAINTENANCE AND ADMINISTRATION COST	TOTAL COST	VOC SAVING BENEFIT	TIME SAVING BENEFIT	RESIDUAL VALUE	TOTAL BENEFIT	TOTAL COST IN PRESENT VALUE	TOTAL BENEFIT IN PRESENT VALUE	NET PRESENT VALUE
1990	1090000	0	1090000	0	0	1090000	0	1090000	0	-1090000
1991	1183300	9810	1193110	21582	72247	2251500	93829	1032190	81174	-2041020
1992	0	20460	20460	57941	197569	2206030	255511	15313	191235	-1865090
1993	0	20460	20460	60949	211718	2160570	272667	13248	176552	-1701790
1994	0	20460	20460	64118	226923	2115100	291042	11401	163033	-1550220
1995	0	20460	20460	67458	243267	2069640	310726	9915	150583	-1409530
1996	0	20460	20460	70979	260836	2024170	331815	8578	139115	-1279010
1997	0	20460	20460	74689	279726	1978700	354415	7421	128549	-1157890
1998	0	20460	20460	78600	300037	1933240	378637	6420	118812	-1045490
1999	0	20460	20460	82723	321879	1887770	404603	5554	109836	-941211
2000	0	20460	20460	87070	345372	1842310	432442	4805	101561	-844456
2001	0	20460	20460	91653	370642	1796840	462295	4157	93928	-754685
2002	0	20460	20460	96485	397827	1751370	494312	3596	86888	-671393
2003	0	20460	20460	101580	427076	1705910	528656	3111	80391	-594113
2004	0	20460	20460	106953	458549	1660440	565502	2692	74596	-522409
2005	0	20460	20460	112620	492418	1614980	605038	2329	68862	-455876
2006	0	20460	20460	118597	528870	1569510	647467	2015	63752	-394138
2007	0	20460	20460	124901	568107	1524040	693007	1743	59033	-336848
2008	0	20460	20460	131551	610344	1478580	741895	1508	54674	-283682
2009	0	20460	20460	138566	655816	1433110	794382	1304	50646	-234341
2010	0	20460	20460	145967	704776	1387650	850743	1128	46924	-188546
2011	0	20460	20460	153775	757496	1342180	911271	976	43483	-146039
2012	0	20460	20460	162014	814270	1296710	976284	845	40302	-106581
2013	0	20460	20460	170708	875416	1251250	1046120	731	37361	-69951
2014	0	20460	20460	179882	941275	1205780	2326940	632	71895	1312
TOTAL								2231670	2232980	

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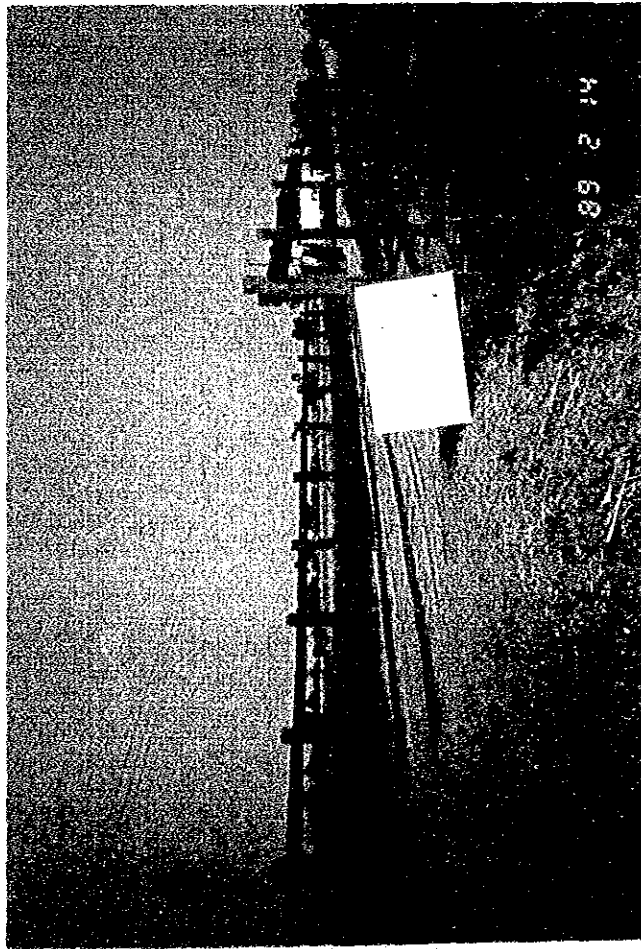
APPENDIX 7

- **Present Situation Photograph
of Construction Site**

Phase I, Group I

02.02 Huai Nong Ben

Km. 5.200
Ban Kham Bong-
Ban Non Dong Man Road
(A. Nam Phong)
Khon Kaen



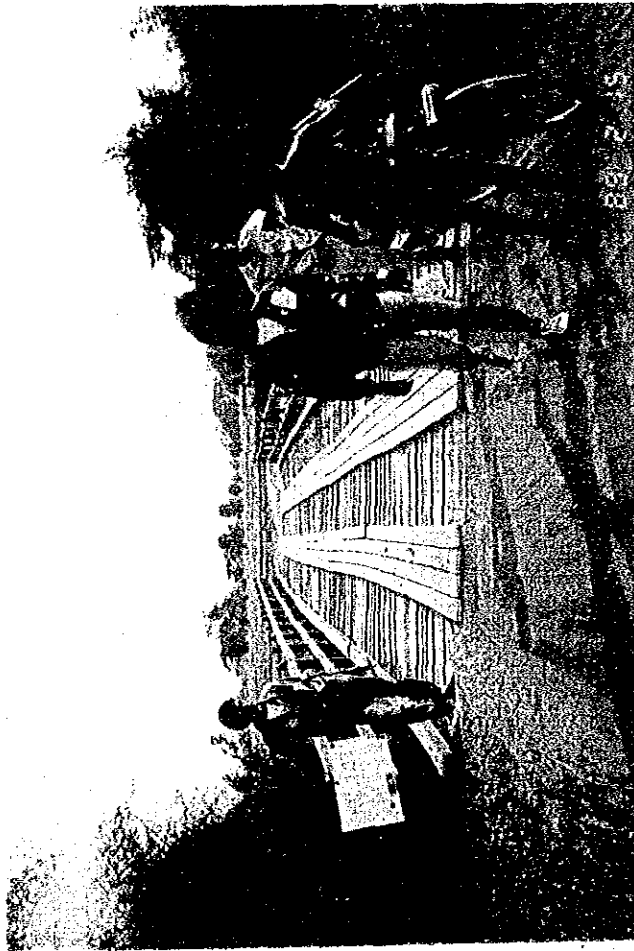
04.05 Huai Na Krathum

Km. 2.550
Ban Nu Khol-
Ban Un Na Road
(A. Na Wa)
Nakhon Phanom

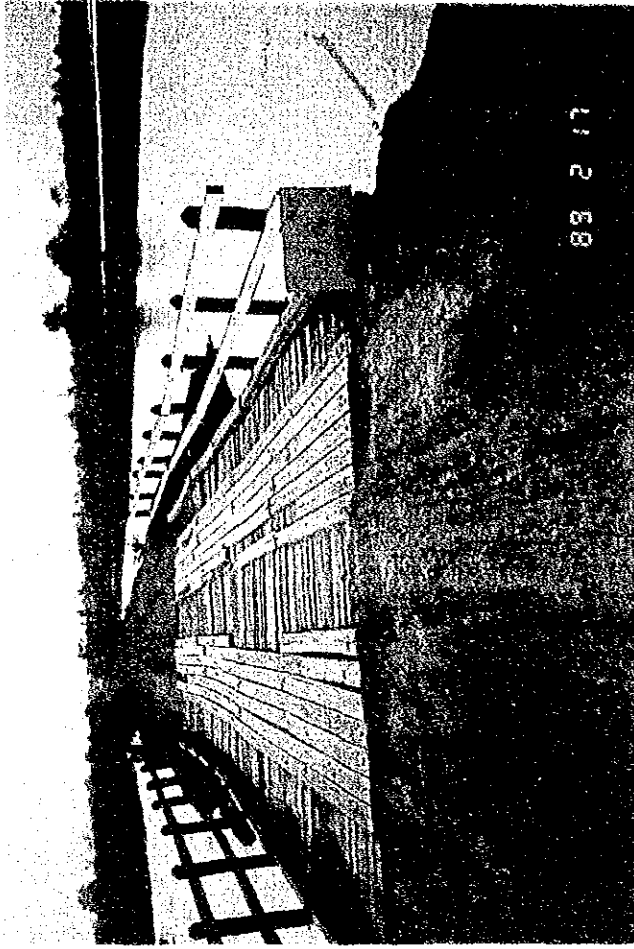


Phase I, Group I

11.03 Ban Na Kae
Ban Phon Kangpla-Ban Na
Ol Road
Sakon Nakhon



13.04 Huai Ran
Ban Na Chung Nam-
Ban Nong Waeng Road
(A. Tha Bo)
Nong Khai



83 2 17

Phase I, Group I

14.06 Nong Bung Mo No. 3

Ban Chiang Yun-Ban Chlang
Pheng Road
(A. Kut Chap)
Udon Thani



Phase II, Group I

03.01 Huai Khon Tha

Km. 1.100

A. Kaeng Khlo-
Ban Nong Khu Road
Chai ya Phum



05.04 Lam Ta Khong No. 1

Ban Nam Mao
(Lat Boe Khao, Sikhui)

Nkthon Rachasima



Phase II, Group I

06.01 Huai Sieo

Km. 0.450

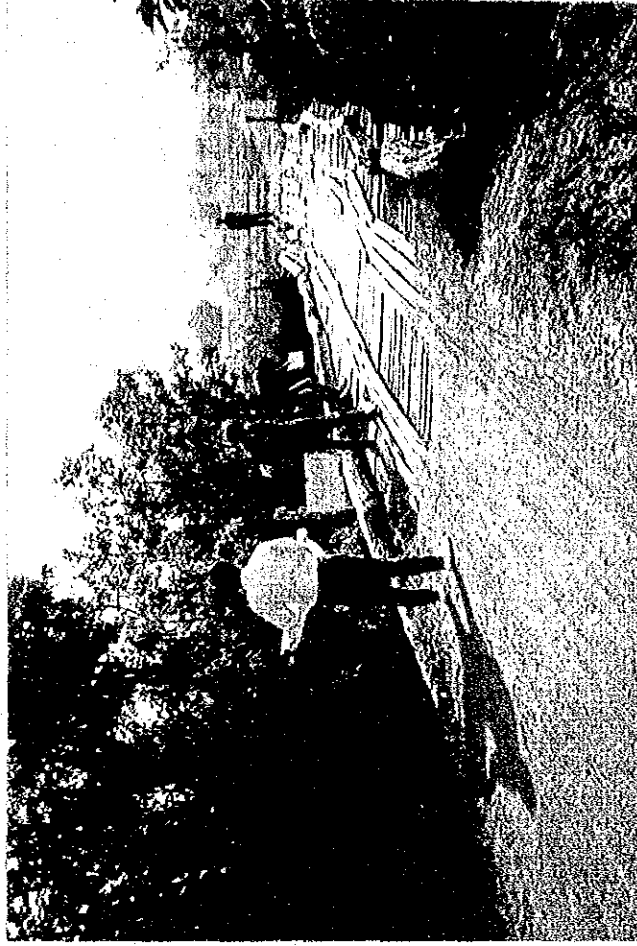
Ban Daeng-Ban
Bon Thung Road
(A. Wepipathum)
Mahasarakham



07.08 Huai Ngui

Km. 0.850

Rt. No. 212-Ban Kham Mek Road
(A. Muang)
Mukudahan



Phase II, Group I

08.03 Huai Kaen

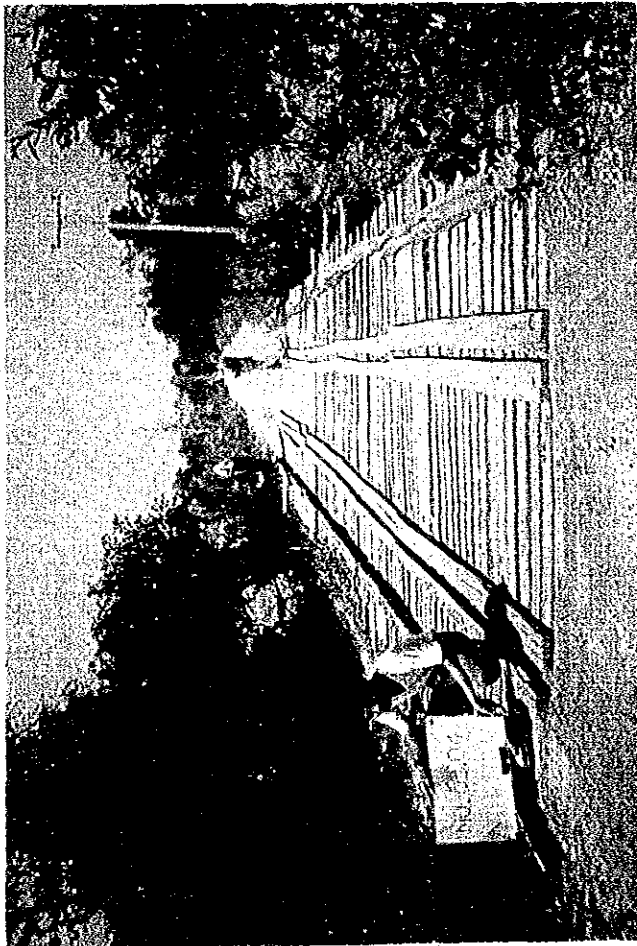
Km. 0.800

A. Kut Chum-Ban Khok

Sung Road

(A. Kut Chum)

Yasothon



09.01 Huai Pla Pong

Km. 1.700

Ban Non Yang-Ban Sathon Road

(A. Selaphum)

Ban Nong Chok

(A. Selaphum)

Roi-et



Phase I, Group I

10.01 Huai Palan Muang

Ban Sikhunhan-Ban Nong
Phu Road
Sisaket
Sisaket



12.02 Huai Thamo

Km. 5.625
Ban Prasat Beng-
Ban Khu Tan Road
(A. Kap Choeng)
Surin



Phase II, Group I

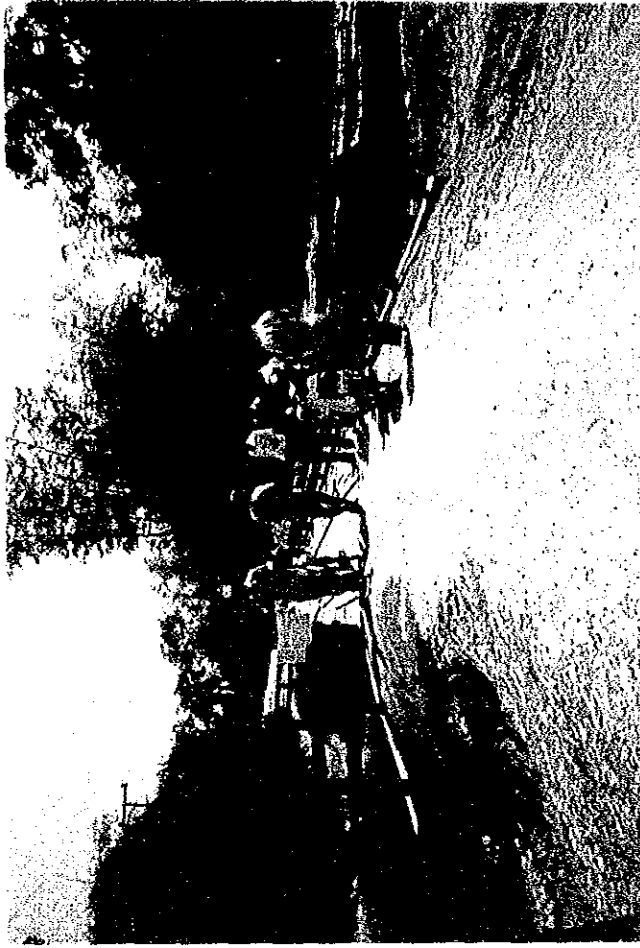
15.05 Huai Choek

Km. 0.350
Ban Nong Hai (Rt. No. 2178)
Ban Na Kae Road
(A. Samrong)
Ubon Ratchathani



15.06 Huai Kaen

Km. 4.800
Ban Non Hai (Rt. No. 2178)
Ban Na Kae Road
(A. Samrong)
Ubon Ratchathani



Phase II, Group I

15.03 Huai Sa Do

Km. 3.375

Rt. No. 2172-Ban Nong
Hai Road
(A. Phibun Mang Sahan)
Ubon Ratchathani



Phase I, Group II

02.05 Huai Khum Muen

Km. 6.250

Ban Huai Sai-Ban Kut Chiang

(A. Ubol Rattana)

Khon Kaen



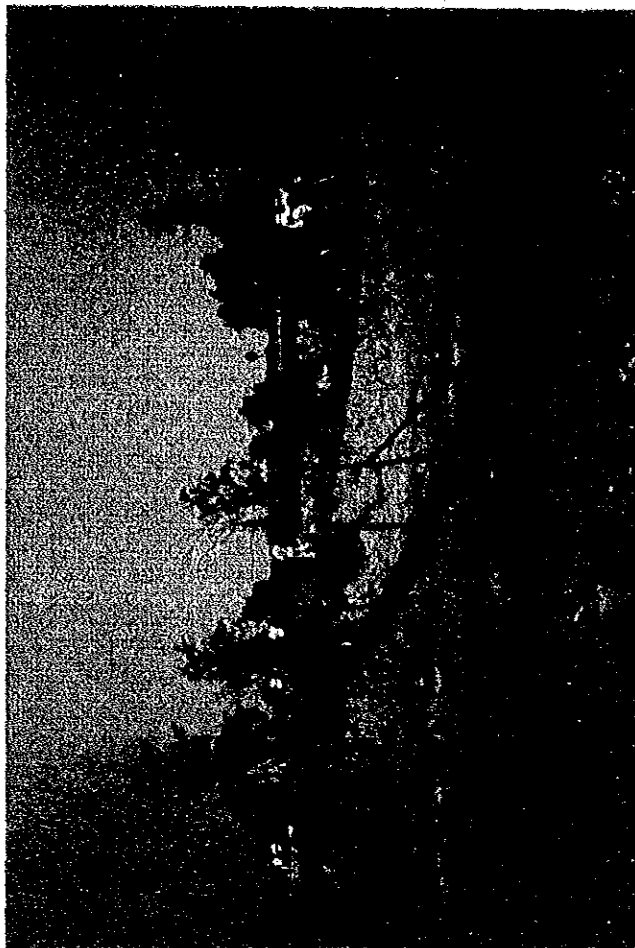
11.01 Lam Nam Kam

Km. 3.200

Ban Khok Kong-Ban Phon Road

A. Muang

Sakon Nakhon



Phase I, Group II

04.01 Huai Soeng No. 1

Km. 0.750

Rt. No. 2031-Ban Bo Dok

Son Road

(A. Na Kae)

Nakhon Phanom



04.02 Huai Soeng No. 2

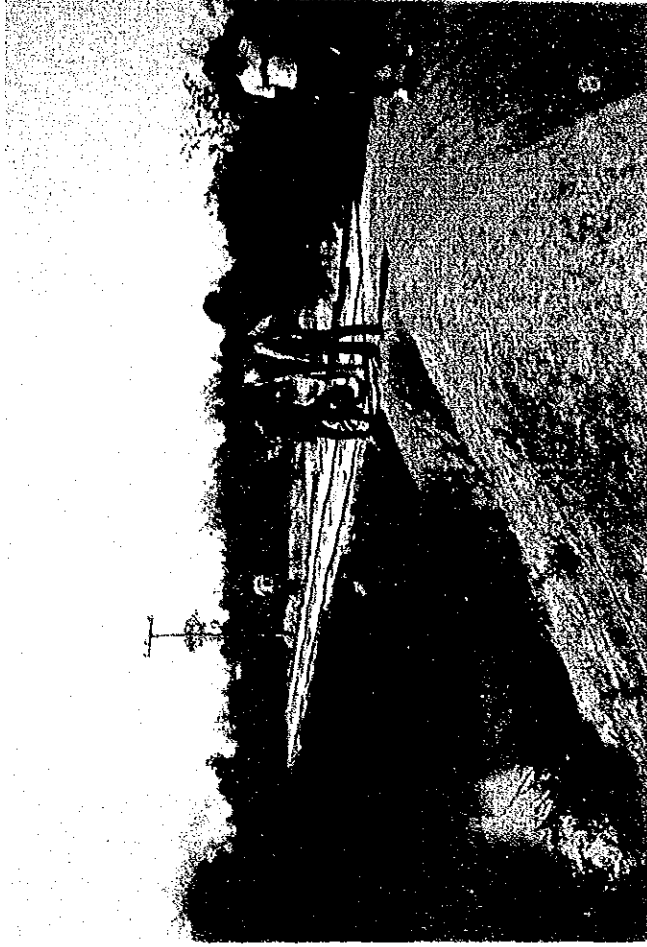
Km. 1.150

Rt. No. 2031-Ban Bo Dok

Son Road

A. Na Kae

Nakhon Phanom



Phase II, Group II

05.01 Lam Klang

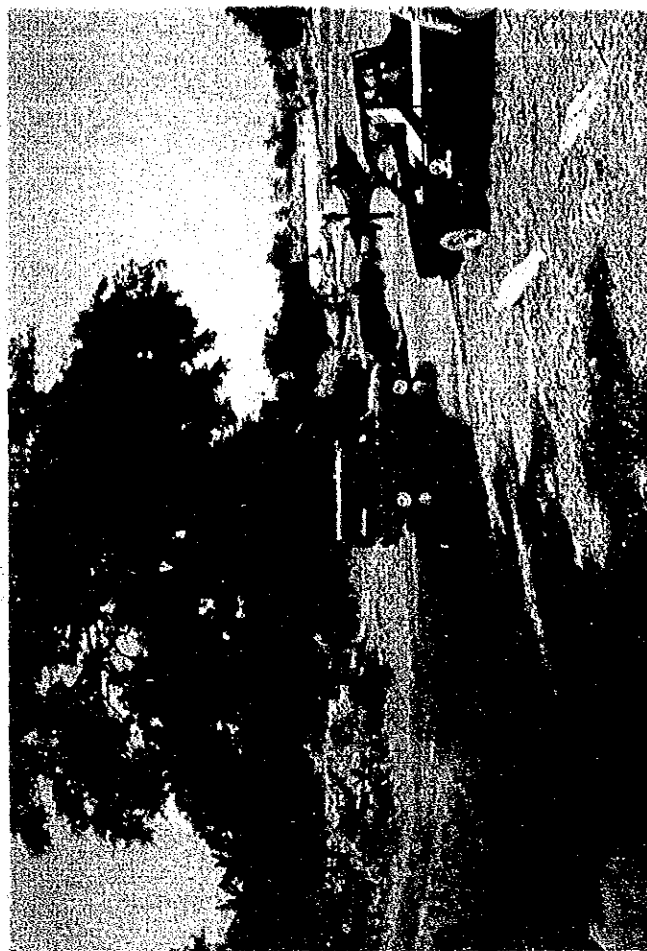
Ban Dan Khon Khob
Nakhon Ratchasima



14.02 Lam Nam Phai

Km. 5.650

A. Si Bun Ruang-Ban Pa
Kha Road
A. Si Bun Ruang
Udon Thani



Phase II, Group II

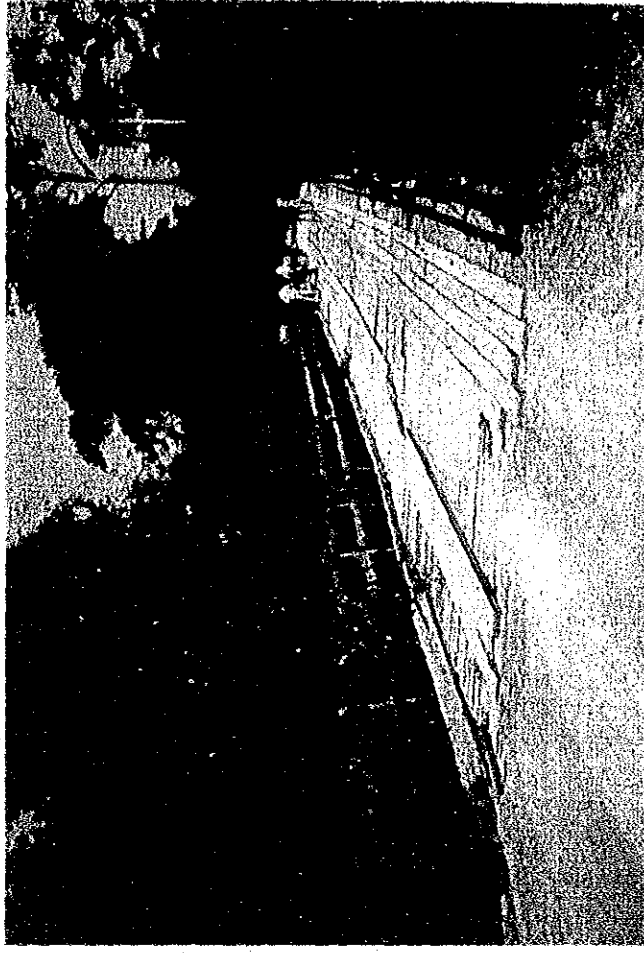
01.01 Huai Kae

Ban Kut Khlong-Ban Dan
Tae Road
Kalasin



15.07 Lam Som No. 1

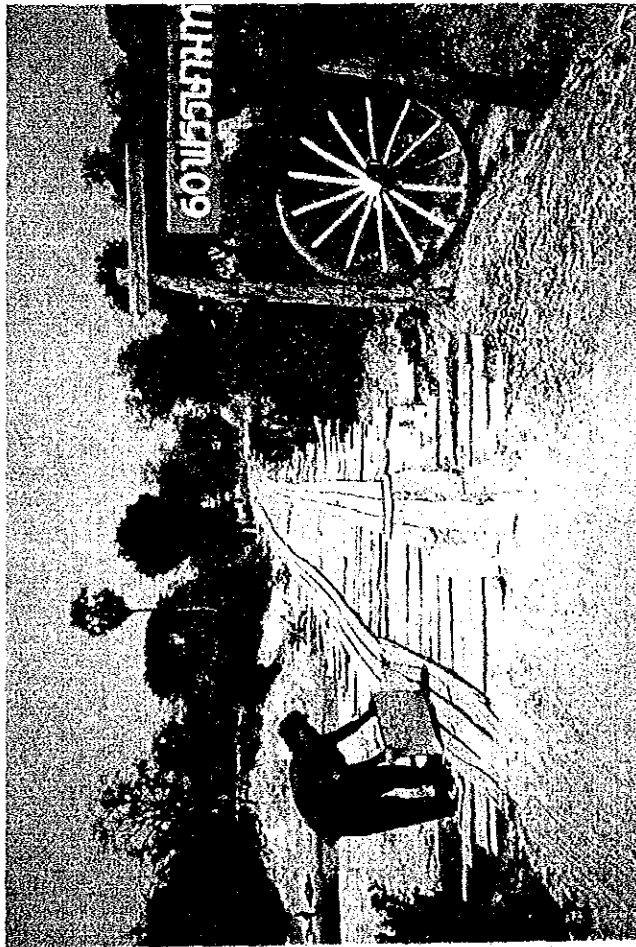
Km. 1.225
Ban Na Kae (Rt. No. 2171)
Ban Sao Lao Road
A. Det Udom
Ubon Ratchathani



Phase II, Group II

05.02 Lam Nam Mum

Ban Kham Klang
Nakhon Rachasima



05.03 Lam Phra Phloeng

Ban Phla Bung
A. Pak Thong Chai
Nakhon Rachasima



