

Table K-7 Construction Cost of Kab Daeng Area (Case 1)

Unit : Baht

Description	Unit	Quantity	Labour and Materials			Machine Cost			Total		
			Unit Cost		Amount	Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total
			F.C.	L.C.							
Kab Daeng F/S Area : Case 1											
Land Reclamation											
Mowing	ha	431.9				147,278	258,276	2,012,654	405,554	2,012,654	2,418,208
Stumping	//	345.5			985,423	1,130,541	723,864	2,115,964	723,864	2,839,829	
Stumps Exclusion	//	345.5			771,201	884,877	566,307	1,656,077	566,307	2,222,385	
Removal of Sundries	//	431.9		1,900,360						1,900,360	
Burning	//	431.9	4,400	950,180						950,180	
Readjust the Land	//	399.0	2,200	438,900						1,516,200	
Sub Total			1,100	3,289,440						7,669,566	
Overhead 25%										1,917,391	
Total										9,586,957	
Agricultural Infrastructure											
Canal Type I	m	4,600.0	197	903,900		144,900	153,640	102,580	298,540	1,005,480	1,305,020
Check Structure 2*1.2*1	place	4.0	31,775	127,100		752	820	540	191,604	127,640	319,244
Culvert ϕ 500	//	45.0	281	11,340		765	810	990	12,915	13,635	26,550
Culvert ϕ 1000	//	16.0	952	14,400		400	416	512	15,216	15,744	30,960
Dike TypeIII	//	1,150.0	2,023	2,326,450		196,650	211,600	165,600	408,250	2,492,050	2,900,300
Ditch 30m Pitch	ha	298.4	9,670	2,885,528		448,794	475,053	317,199	923,846	3,202,727	4,126,574
Farm Road	m	7,800.0	517	4,032,600		195,000	234,000	156,000	423,000	4,188,600	4,617,600
Check Gate 2*2*1	place	2.0	357,440	714,880		17,190	22,002	22,182	628,800	737,062	1,365,862
Fishery Pond TypeII	//	16.0	290,129	4,642,064		2,346,736	2,701,312	1,733,712	5,128,688	6,375,776	11,504,464
Liming	t	9,246.0	412	3,809,352		3,351,187	3,799,653	2,499,315	8,036,859	3,809,352	3,809,352
Sub Total				19,469,751						21,969,066	30,005,926
Overhead 25%										5,492,267	6,663,685
Total										27,461,333	36,669,611
Grand Total										37,048,290	54,623,512

Table K-8 Construction Cost of Kab Daeng Area (Case 2)

Unit : Baht

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total	
			Unit Cost		Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.
			F.C.	L.C.					
Kab Daeng F/S Area : Case 2									
Land Reclamation									
Mowing	ha	431.9			147,278	258,276	2,012,654	405,554	2,012,654
Stumping	//	345.5			985,423	1,130,541	723,864	2,115,964	2,839,829
Stumps Exclusion	//	345.5			771,201	884,877	566,307	1,656,077	2,222,385
Removal of Sundries	//	431.9		1,900,360					1,900,360
Burning	//	431.9		950,180					950,180
Readjust the Land	//	399.0		438,900	1,476,300	1,715,700	1,077,300	3,192,000	4,708,200
Sub Total				3,289,440	3,380,202	3,989,394	4,380,126	7,369,596	15,039,162
Overhead 25%								997,349	2,914,740
Total								8,366,945	17,953,902
Agricultural Infrastructure									
Canal Type I	m	4,600.0	197	903,900	144,900	153,640	102,580	298,540	1,305,020
Check Structure 2*1.2*1	place	4.0	31,775	127,100	752	820	540	191,604	319,244
Culvert Ø 500	//	45.0	281	12,645	765	810	990	12,915	26,550
Culvert Ø 1000	//	16.0	952	15,232	400	416	512	15,216	30,960
Dike Type III	//	1,150.0	2,023	2,326,450	196,650	211,600	165,600	408,250	2,900,300
Ditch 30m Pitch	ha	298.4	9,670	2,885,528	448,794	475,053	317,199	923,846	4,126,574
Farm Road	m	7,800.0	517	4,032,600	195,000	234,000	156,000	429,000	4,617,600
Check Gate 2*2*1	place	2.0	357,440	714,880	17,190	22,002	22,182	628,800	1,355,862
Fishery Pond Type II	//	16.0	290,129	4,642,064	2,346,736	2,701,312	1,733,712	5,128,688	11,504,464
Liming	t	9,246.0	412	3,809,352				3,809,352	3,809,352
Drainage Canal Improvement									
Excavating (Backhoe)	m3	23,160.0			213,535	226,042	151,003	439,577	590,580
Base Cutting and Banking	//	23,160.0			195,702	224,420	143,592	420,122	563,714
Sub Total				886,020	19,469,751	3,801,348	2,823,370	8,982,529	31,275,649
Overhead 25%								1,295,295	6,868,575
Total								10,277,824	38,144,224
Grand Total								18,644,769	56,098,127

Table K-9 Construction Cost of Muno-Koknai Area (Case 1)

Unit : Baht

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total		
			Unit Cost		Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total
			F.C.	L.C.						
Muno-Koknai F/S Area :Case 1										
Land Reclamation	ha	13.0			4,433	7,774	60,580	12,207	60,580	72,787
Mowing	"	13.0			31,096	37,336	24,362	68,432	24,362	92,794
Stumps Exclusion	"	13.0			24,336	29,224	19,071	53,560	19,071	72,631
Removal of Sundries	"	13.0		2,200			28,600		28,600	28,600
Burning	"	13.0		2,200			28,600		28,600	28,600
Readjust the Land	"	413.0		1,100			454,300		1,404,200	4,047,400
Plowing	"	404.0					630,240	1,310,576	474,700	1,785,276
Harrowing	"	404.0					469,448	976,468	353,581	1,330,049
Sub Total					2,357,253	2,707,190	1,882,194	5,064,443	2,393,694	7,458,137
Overhead 25%								676,798	598,423	1,275,221
Total								5,741,241	2,992,117	8,733,358
Agricultural Infrastructure										
Canal Type I	m	4,350.0		197			854,775	113,970	120,930	234,900
Canal Improvement	"	4,400.0		98			432,520	57,640	61,160	118,800
Culvert ϕ 300	"	126.0	234	299			37,674			29,484
" ϕ 600	"	0.0	318	351			0	0	0	0
Dike Type II	"	8,250.0		865			7,136,250	297,000	354,750	651,750
" Type IV	"	0.0		2,562			0	0	0	0
Ditch (30m Pitch)	ha	167.0		10,578			1,766,526	238,810	252,838	491,648
" (50m Pitch)	"	0.0		9,534			0	0	0	0
Farm Turn out	place	21.0	12,840	9,970			269,640	5,208	5,649	280,497
Weir	"	410.0	249	1,755			102,090	19,290	24,560	102,090
Intake Culvert ϕ 1000	"	5.0	50,040	76,058			380,290	0	0	294,050
Check Structure 2*2*1	"	0.0	294,804	357,440			0	0	0	0
Fishery Pond Type III	"	21.0	5,040	76,734			1,611,414	2,139,480	2,568,594	4,813,914
Liming	t	11,518.0		412			4,745,416			4,745,416
Sub Total							17,893,785	2,871,398	3,388,481	20,130,667
Overhead 25%										7,017,133
Total										1,036,434
Grand Total										8,053,567
										13,794,808
										28,155,451
										41,950,259

Table K-10 Construction Cost of Muno-Koknai Area (Case 2)

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total				
			Unit Cost		Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total		
			F.C.	L.C.							F.C.	L.C.
Muno-Koknai F/S Area :Case 2												
Land Reclamation	ha											
Mowing		13.0			4,433	7,774	60,580	12,207	60,580			72,787
Stumping	"	13.0			31,096	37,336	24,362	68,432	24,362			92,794
Stumps Exclusion	"	13.0			24,336	29,224	19,071	53,560	19,071			72,631
Removal of Sundries	"	13.0		2,200								28,600
Burning	"	13.0		2,200								28,600
Readjust the Land	"	413.0		1,100								4,047,400
Plowing	"	394.0			1,197,700	1,445,500	949,900	2,643,200	1,404,200			4,047,400
Harrowing	"	394.0			614,640	663,496	462,950	1,278,136	462,950			1,741,086
Sub Total					457,828	494,470	344,829	952,298	344,829			1,297,127
Overhead 25%					511,500	2,677,800	1,861,692	5,007,833	2,373,192			7,381,025
Total								669,450	593,298			1,262,748
								5,677,283	2,966,490			8,643,773
Agricultural Infrastructure												
Canal Type I	m	3,900.0		197								1,049,100
Canal Improvement	"	4,400.0		98								592,240
Culvert ϕ 300	"	189.0	234	299								100,737
" ϕ 600	"	0.0	318	351								0
Dike Type II	"	7,650.0		865								7,443,450
" Type IV	"	0.0		2,562								0
Ditch (30m Pitch)	ha	167.0		10,578								2,426,844
" (50m Pitch)	"	220.0		9,534								2,881,560
Farm Turn out	place	21.0	12,840	9,970	269,640	5,649	4,998	280,497	214,368			494,865
Weir	"	410.0	249	1,755	102,090			102,090	719,550			821,640
Intake Culvert ϕ 1000	"	5.0	50,040	76,058	250,200			294,050	404,560			698,610
Check Structure 2*2*1	"	0.0	294,804	357,440								0
Fishery Pond Type III	"	21.0	5,040	76,734	105,840			4,813,914	3,289,713			8,103,627
Liming	t	11,518.0		412								4,745,416
Sub Total					771,996	3,650,251	2,411,577	7,543,835	21,814,254			29,358,089
Overhead 25%					19,402,677			1,105,562	5,453,564			6,559,126
Total								8,649,397	27,267,818			35,917,215
Grand Total								14,326,680	30,234,308			44,560,988

Unit : Baht

Table K-11 Construction Cost of Muno-Koknai Area (Case 3)

Unit : Baht

Description	Unit	Quantity	Labour and Materials			Machine Cost			Total			
			Unit Cost		Amount	Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total	
			F.C.	L.C.								
Muno-Koknai F/S Area :Case 3												
Land Reclamation	ha	340.0				115,940	203,320	1,584,400	319,260	1,584,400	1,903,660	
Mowing	"	340.0				813,280	976,480	637,160	1,789,760	637,160	2,426,920	
Stumps Exclusion	"	340.0				636,480	764,320	498,780	1,400,800	498,780	1,899,580	
Removal of Sundries	"	340.0		748,000						748,000	748,000	
Burning	"	340.0		748,000						748,000	748,000	
Readjust the Land	"	665.0		731,500		1,928,500	2,327,500	1,529,500	4,256,000	2,261,000	6,517,000	
Plowing	"	403.0				628,680	678,652	473,525	1,307,332	473,525	1,780,857	
Harrowing	"	403.0				468,286	505,765	352,706	974,051	352,706	1,326,757	
Sub Total				2,227,500		4,591,166	5,456,037	5,076,071	10,047,203	7,303,571	17,350,774	
Overhead 25%									1,364,009	1,825,893	3,189,902	
Total									11,411,212	9,129,464	20,540,676	
Agricultural Infrastructure	m	5,300.0		1,041,450		138,860	147,340	98,050	286,200	1,139,500	1,425,700	
Canal Type I	"	4,400.0		432,520		57,640	61,160	40,920	118,800	473,440	592,240	
Canal Improvement	"	189.0					44,226		44,226	56,511	100,737	
Culvert ϕ 300	"	10.0	234	3,180		190	200	240	3,570	3,750	7,320	
// ϕ 600	"	9,900.0		865		356,400	425,700	287,100	782,100	8,850,600	9,632,700	
Dike Type II	"	4,000.0		2,562		424,000	512,000	340,000	936,000	10,588,000	11,524,000	
// Type IV	"	167.0		10,578		238,810	252,838	168,670	491,648	1,935,196	2,426,844	
Ditch (30m Pitch)	ha	220.0		9,534		283,580	300,080	200,420	583,660	2,297,900	2,881,560	
// (50m Pitch)	"	21.0	12,840	269,640		5,208	5,649	4,998	280,497	214,368	494,865	
Farm Turn out	place	410.0	249	1,755		209,370	209,370		102,090	719,550	821,640	
Weir	"	12.0	50,040	76,058		912,696	58,944	58,248	705,720	970,944	1,676,664	
Intake Culvert ϕ 1000	"	5.0	294,804	357,440		42,975	55,005	55,455	1,572,000	1,842,655	3,414,655	
Check Structure 2*2*1	"	21.0	5,040	105,840		2,139,480	2,568,594	1,678,299	4,813,914	3,289,713	8,103,627	
Fishery Pond Type III	"	11,518.0		412		3,733,439	4,387,510	2,932,400	10,720,425	37,127,543	47,847,968	
Liming	t								1,746,747	9,281,886	11,028,633	
Sub Total				2,599,476					12,467,172	46,409,429	58,876,601	
Overhead 25%									23,878,384	55,538,893	79,417,277	
Total												
Grand Total												

K-3 Unit Cost

Table K-12 Unit Cost of Various Works (1/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials			Machine Cost			Total						
			Unit Cost		Amount	Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total				
			F.C.	L.C.								F.C.	L.C.	F.C.	L.C.
Drainage Canal															
Canal Type I B=1.0m : Peat	m3	3.42													
Excavating (Machine)	//	1.46	65.0	94.9		31.5	33.4	22.3	64.9	22.3	87.2				
Slope Trimming	m2	4.24	11.0	46.6							94.9				
Scattering Surplus Soils	day	0.50	110.0	55.0							46.6				
Total per One Meter				196.5		31.5	33.4	22.3	64.9	22.3	283.8				
Canal Type I B=1.0m : Acid	m3	3.42													
Excavating (Machine)	//	1.46	65.0	94.9		26.2	27.8	18.5	54.0	18.5	72.5				
Slope Trimming	m2	4.24	11.0	46.6							94.9				
Scattering Surplus Soils	day	0.50	110.0	55.0							46.6				
Total per One Meter				196.5		26.2	27.8	18.5	54.0	18.5	269.1				
Canal Type II B=2.0m : Peat	m3	4.47													
Excavating (Machine)	//	1.91	65.0	124.2		41.2	43.6	29.1	84.8	29.1	114.0				
Slope Trimming	m2	4.24	11.0	46.6							124.2				
Scattering Surplus Soils	day	0.65	110.0	71.5							46.6				
Total per One Meter				242.3		41.2	43.6	29.1	84.8	29.1	356.3				
Canal Type II B=2.0m : Acid	m3	4.47													
Excavating (Machine)	//	1.91	65.0	124.2		34.3	36.3	24.2	70.6	24.2	94.8				
Slope Trimming	m2	4.24	11.0	46.6							124.2				
Scattering Surplus Soils	day	0.65	110.0	71.5							46.6				
Total per One Meter				242.3		34.3	36.3	24.2	70.6	24.2	337.1				

Table K-12 Unit Cost of Various Works (2/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials		Depre. (F.C.)	Machine Cost		Total		
			Unit Cost			F.C.	L.C.	F.C.	L.C.	Total
			F.C.	L.C.						
Drainage Canal Improvement Canal Type I : Peat 50% of the Above Mentioned	m			98.3	15.8	16.7	11.1	32.5	109.4	141.9
Canal Type I : Acid 50% of the Above Mentioned	m			98.3	13.1	13.9	9.3	27.0	107.5	134.5
Canal Type II : Peat 50% of the Above Mentioned	m			121.1	20.6	21.8	14.6	42.4	135.7	178.1
Canal Type II : Acid 50% of the Above Mentioned	m			121.1	17.1	18.1	12.1	35.3	133.3	168.5
Check Structure : 1.0×0.6×1										
Excavating	m3	4.0			37	39	26	76	26	102
Backfill	//	0.8	28	22	5	6	4	10	26	36
Removal of Surplus Soils	//	3.2			13	14	9	27	9	36
Concrete	//	2.9	2,267	6,574				5,107	6,574	11,681
Gate 1.0×0.6m	unit	1.0		5,100				11,900	5,100	17,000
Total per One Place				17,007	54	59	39	17,120	11,736	28,856
Check Structure : 2.0×1.2×1										
Excavating	m3	14.0			129	137	91	266	91	357
Backfill	//	2.6	28	73	15	18	12	33	85	118
Removal of Surplus Soils	//	11.2			44	50	32	94	32	127
Concrete	//	7.5	2,267	17,003				13,208	17,003	30,210
Gate 2.0×1.2m	unit	1.0		14,700				34,300	14,700	49,000
Total per One Place				47,508	188	205	135	47,901	31,911	79,811

Table K-12 Unit Cost of Various Works (3/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials			Machine Cost			Total			
			Unit Cost		Amount	Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total	
			F.C.	L.C.								
Incidental Culvert ø300 : 14.0m	m	14.0	195		2,730					2,730	2,730	5,460
RC Pipe	day	5.0		110	550					550		550
Labour (General)	//	1.4		150	210					210		210
Labour (Skilled)					3,490					3,490		3,490
Sub Total					546					546		546
Earth Work 20%					3,276					3,276		3,276
Total					234					234		234
Total per 1.0m												
ø500 : 34.4m/day	m	34.4	210		7,224					7,224		7,224
RC Pipe	day	4.2		110	462					462		462
Labour (General)	//	2.4		150	360					360		360
Labour (Skilled)												
Truck Crane 2t	hr	6.7						515	643	1,010	643	1,654
Sub Total					7,224			515	643	8,234	643	8,889
Earth Work 20%					1,445			99	129	1,647	129	1,738
Total per 1day					8,669			617	772	9,881	772	10,427
Total per 1.0m					252			18	22	287	22	303
ø600 : 31.6m/day	m	31.6	265		8,374					8,374		8,374
RC Pipe	day	1.2		180	216					216		216
Steeplejack	//	4.2		110	462					462		462
Labour (General)	//	1.2		150	180					180		180
Labour (Skilled)												
Truck Crane 2t	hr	6.7						496	643	1,010	643	1,654
Sub Total					8,374			496	643	9,384	643	9,875
Earth Work 20%					1,675			99	129	1,877	129	1,975
Total per 1day					10,049			617	772	11,261	772	11,850
Total per 1.0m					318			20	24	356	24	375

Table K-12 Unit Cost of Various Works (4/11)

unit : Baht

Description	Unit	Quantity	Unit Cost		Labour and Materials		Depre. (F.C.)	Machine Cost		Total	
			F.C.	L.C.	F.C.	L.C.		F.C.	L.C.	F.C.	L.C.
Incidental Culvert Ø1000 : 23.8m/day	m	23.8	750	750	17,850	17,850				17,850	35,700
RC Pipe	day	1.2		180	216					216	216
Steeplejack	"	4.2		110	462					462	462
Labour (General)	"	2.4		150	360					360	360
Labour (Skilled)	hr	6.7					496	515	643	643	1,654
Truck Crane 2t							99	103	129		7,678
Earth Work 20%					3,778	3,778				3,906	7,678
Total per 1day					21,420	22,666	595	617	772	22,632	46,070
Total per 1.0m					900	952	25	26	32	951	1,936
Dike (Road) : Type I B=3.0m H=1.0m	m3	4.1					38	40	27	78	105
Excavating (Backhoe)	"	0.8					3	4	2	7	9
" (Swamp Bull 13t)	"	4.1	146		599		64	62	62	125	786
Banking (Lower Layer)	"	4.0	146		584		28	34	22	62	668
Banking (Upper Layer)	"	0.7	153		107		5	6	4	11	122
Laterite	"	2.8			31					31	31
Slope Trimming	m2										
Total per Meter					1,321		137	145	118	282	1,438
Dike (Road) : Type II B=3.0m H=1.0m	m3	0.8					3	4	2	7	9
Excavating (Bull 11t)	"	4.0	146		584		28	34	22	62	668
Banking	"	0.7	153		107		5	6	4	11	122
Laterite	"	2.8	11		31					31	31
Slope Trimming	m2		51		143					143	143
Sodding	"	2.8									
Total per Meter					865		36	43	29	79	893

Table K-12 Unit Cost of Various Works (5/11)

unit : Baht

Description	Unit	Quantity	Unit Cost		Labour and Materials		Depre. (F.C.)	Machine Cost		Total			
			F.C.	L.C.	F.C.	L.C.		F.C.	L.C.	F.C.	L.C.	Total	
													Amount
				F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.	Total	
Dike (Road) : Type III B=3.0m H=1.8m	m3	4.1					38	40	27	78	27	105	
Excavating (Backhoe) // (Swamp Bull 13t)	//	1.0					4	5	3	8	3	11	
Banking (Lower Layer)	//	4.1	146		599		64	62	62	125	661	786	
Banking (Upper Layer)	//	8.6	146		1,261		60	73	48	133	1,310	1,443	
Laterite	//	0.7	153		107		5	6	4	11	111	122	
Slope Trimming	m2	5.1	11		56						56	56	
Total per Meter					2,023		171	184	144	355	2,167	2,522	
Dike (Road) : Type IV B=3.0m H=2.5m	m3	1.3					5	6	4	11	4	15	
Excavating (Bull 11t)	//	13.8	146		2,015		97	116	77	213	2,092	2,305	
Banking	//	0.7	153		107		5	6	4	11	111	122	
Laterite	m2	7.1	11		78						78	78	
Slope Trimming	//	7.1	51		362						362	362	
Sodding													
Total per Meter					2,562		106	128	85	234	2,647	2,881	
Road Improvement : Type III 30% of the Above Mentioned	m	1			607		51	55	43	106	650	756	
Farm Road B=2.0m H=1.0m	m3	0.6					2	3	2	5	2	7	
Excavating	//	3.0	146		438		21	25	17	46	455	501	
Banking	//	0.3	153		46		2	3	2	5	48	52	
Laterite	m2	3.0	11		33						33	33	
Slope Trimming													
Total per Meter					517		25	30	20	56	537	593	

Table K-12 Unit Cost of Various Works (6/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials			Machine Cost			Total				
			Unit Cost		Amount	Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total		
			F.C.	L.C.								F.C.	L.C.
Ditch : Peat Area													
Excavating (Backhoe)	m3	0.7				6.5	6.8	4.6	13.3	4.6	17.9		
" (Manpower)	//	0.3	65.0		19.5					19.5	19.5		
Labour (General)	day	0.2	110.0		22.0					22.0	22.0		
Total per 1.0m3					41.5				13.3	46.1	59.4		
Total per 1ha (30m Pitch)	m3	233.0			9,670	1,504	1,592	1,063	3,096	10,733	13,829		
Ditch : Acid Area													
Excavating (Backhoe)	m3	0.8				6.1	6.5	4.3	12.6	4.3	17.0		
" (Manpower)	//	0.3	78.0		23.4					23.4	23.4		
Labour (General)	day	0.2	110.0		22.0					22.0	22.0		
Total per 1.0m3					45.4				12.6	49.7	62.4		
Total per 1ha (30m Pitch)	m3	233.0			10,578	1,430	1,514	1,010	2,944	11,588	14,532		
Total per 1ha (50m Pitch)	//	210.0			9,534	1,289	1,364	911	2,653	10,445	13,098		
Farm Turn Out : Peat Area													
Excavating	m3	12.0				111	117	78	228	78	306		
Concrete - Light	//	2.0	1,464		4,214				2,928	4,214	7,142		
Riprap	//	0.6			358					358	358		
Backfill	//	4.0			112				51	130	181		
Removal of Surplus Soils	//	8.0				23	28	18	67	23	90		
Slide Gate 0.6*0.6m	unit	1.0			3,600				8,400	3,600	12,000		
Foundation Sand	m3	1.3			594				4	604	611		
RC Pipe Ø500 L=6m	m	6.0	252		1,686	102	108	132	1,722	1,818	3,540		
Total per One Place					12,840	270	293	261	13,403	10,826	24,228		

Table K-12 Unit Cost of Various Works (7/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total		
			Unit Cost		Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total
			F.C.	L.C.						
Farm Turn Out : Acid Area										
Excavating	m3	12.0			92	97	65	189	65	255
Concrete - Light	"	2.0	1,464	2,107	2,928	4,214	4,214	2,928	4,214	7,142
Riprap	"	0.6		597		358	358		358	358
Backfill	"	4.0		28		112	112		130	181
Removal of Surplus Soils	"	8.0						51	23	90
Slide Gate 0.6*0.6m	unit	1.0				3,600	3,600	8,400	3,600	12,000
RC Pipe ϕ 500 L=6m	m	6.0	252	281	1,512	1,686	132	1,722	1,818	3,540
Total per One Place					12,840	9,970	238	13,358	10,208	23,566
Weir										
Mas Concrete	m3	0.5	498	925	249	463		249	463	712
Riprap	"	1.1		597		657			657	657
Timber (Weir)	"	0.03		17,500		525			525	525
Labour (General)	day	1.0		110		110			110	110
Total per One Place					249	1,755		249	1,755	2,004
Water Control Facilities										
Intake Culvert ϕ1000										
Excavating	m3	120.0								
Backfill	"	36.0		146		5,256		1,171	782	3,060
Removal of Surplus Soils	"	120.0						302	194	6,095
Foundation Sand	"	6.0		457		2,742		1,163	744	2,921
Concrete	"	10.0	1,761	2,269	17,610	22,690		17,610	22,690	40,300
Foundation Concrete	"	2.6	498	925	1,295	2,405		1,295	2,405	3,700
Riprap	"	7.0	53	543	371	3,801		371	3,801	4,172
Gate	unit	1.0			20,300	8,700		20,300	8,700	29,000
RC Pile 0.18*0.18*10m	pcs	8.0	500	500	4,000	4,000	3,134	7,761	7,134	14,894
RC Pipe ϕ 1000 L=8m	"	1.0			6,464	6,464		6,464	6,464	12,928
Temporary Works	"				20,000	20,000			20,000	20,000
Total per One Place					50,040	76,058	4,854	58,809	80,912	139,722

Table K-12 Unit Cost of Various Works (8/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total			
			Unit Cost		Depre. (F.C.)	F.C.		L.C.			
			F.C.	L.C.		F.C.	L.C.	F.C.	L.C.		
Water Control Facilities											
Check Gate 2.0m×2.0m×1	m3	300.0			2,766		2,928	1,956	5,694	1,956	7,650
Excavating	"	80.0		28	456		560	360	1,016	360	3,648
Backfill	"	220.0			1,859		2,132	1,364	3,991	1,364	5,355
Removal of Surplus Soils	"	98.0		2,269		172,578			172,578		394,940
Concrete	"	42.0		543		2,226			2,226		25,032
Riprap	"	10.0		5,000		50,000		7,411	58,895	7,411	116,306
RC Pile 0.3*0.3*20m	pcs.	1.0				70,000			70,000		100,000
Gate 2.0*2.0m	unit	1.0				30,000			30,000		30,000
Temporary Works		1.0				30,000			30,000		30,000
Total per One Place						294,804	11,001	11,091	314,400	368,531	682,931
Check Gate											
4.0m×2.0m×2	m3	468.0			4,315		4,568	3,051	8,883	3,051	11,934
Excavating	"	435.6			1,660		1,991	1,298	3,650	1,298	4,948
Backfill	"	344.7		2,269		607,017			607,017		1,389,141
Concrete	"	86.7		543		4,595			4,595		51,673
Riprap	"	24.0		7,500		180,000		17,786	201,348	17,786	399,134
RC Pile 0.4*0.4*20m	pcs.	2.0		63,000		294,000			294,000		420,000
Gate 4.0m*2.0m*2	unit	1.0				50,000			50,000		50,000
Temporary Works		1.0				50,000			50,000		50,000
Total per One Place						1,085,612	19,473	22,136	1,119,493	1,207,338	2,326,831
Removal of Sundries											
- Peat Area:Labour(General)	day	40.0		110		4,400					4,400
Total per 1.0ha						4,400					4,400
- Acid Area:Labour(General)	day	20.0		110		2,200					2,200
Total per 1.0ha						2,200					2,200
Burning											
labour (General)	day	20.0		110		2,200					2,200
Total per 1.0ha						2,200					2,200

Table K-12 Unit Cost of Various Works (9/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total	
			Unit Cost		Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.
			F.C.	L.C.					
Readjust the Land									
- Bulldozer 11t	ha	1.0			2,900	3,500	2,300	6,400	2,300
labour (General)	day	10.0		110					1,100
Total per 1.0ha									3,400
- Swamp Bulldozer 13t	ha	1.0			3,700	4,300	2,700	8,000	2,700
labour (General)	day	10.0		110					1,100
Total per 1.0ha									3,800
- Super Swamp Bulldozer 13t	ha	1.0			4,000	4,600	2,800	8,600	2,800
labour (General)	day	10.0		110					1,100
Total per 1.0ha									3,900
Inland Fishery Pond									
Type I : 250m X 90m (Peat)									
Excavating	m3	57,943			884,790	1,015,161	650,120	1,899,951	650,120
Backfill	//	1,155			9,760	11,192	7,161	20,952	7,161
Removal of Surplus Soils	//	56,788			479,859	550,276	352,086	1,030,134	352,086
Sand	//	4,472		183					818,376
Sand Leveling	//	4,472			22,673	25,982	16,636	48,655	16,636
Sand Compaction	//	4,472			8,452	9,704	6,216	18,156	6,216
Readjust the Land	m2	19,200		1,100	7,104	8,256	5,184	15,360	7,296
Banking	m3	5,062			35,434	42,521	27,335	77,955	766,387
Laterite	//	137			959	1,151	740	2,110	21,701
Clay Coating t=20cm	//	4,289			33,025	39,630	25,477	72,656	714,290
Slope Trimming	m2	2,988		11					32,868
Gate and Culvert ϕ 1000	place	1		75,644	3,858	4,908	5,012	58,806	80,656
Culvert ϕ 1000 L=10m	m	10		952	250	260	320	9,510	9,840
Total					1,486,163	1,709,042	1,096,286	3,254,245	3,483,633
									6,737,878

Table K-12 Unit Cost of Various Works (10/11)

Description	Unit	Quantity	Labour and Materials				Machine Cost			Total		
			Unit Cost		Amount		Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total
			F.C.	L.C.	F.C.	L.C.						
Inland Fishery Pond Type II : 40m×40m (Peat)												
Excavating	m3	4,428					67,616	77,579	49,682	145,194	49,682	194,876
Backfill	//	297					2,510	2,878	1,841	5,388	1,841	7,229
Removal of Surplus Soils	//	4,131					63,080	72,375	46,350	135,455	46,350	181,805
Sand	//	263		183	48,129						48,129	48,129
Sand Leveling	//	263					1,333	1,528	978	2,861	978	3,840
Sand Compaction	//	263					497	571	366	1,068	366	1,433
Readjust the Land	m2	900		1,100	99		333	387	243	720	342	1,062
Banking	m3	1,214			177,244		8,498	10,198	6,556	18,696	183,800	202,495
Laterite	//	33			5,049		231	277	178	508	5,227	5,735
Clay Coating t=20cm	//	290			46,574		2,233	2,680	1,723	4,913	48,297	53,209
Slope Trimming	m2	674		11	7,414						7,414	7,414
Culvert Ø500	m	20	252	281	5,040		340	360	440	5,740	6,060	11,800
Total					290,129	5,040	146,671	168,832	108,357	320,543	398,486	719,029
Type III : 40m×40m (Acid)												
Excavating	m3	3,424					50,572	60,742	39,616	111,314	39,616	150,930
Removal of Surplus Soils	//	3,064					45,255	54,355	35,450	99,611	35,450	135,061
Readjust the Land	m2	900		1,100	99		261	315	207	576	306	882
Banking	m3	360					2,520	3,024	1,944	5,544	1,944	7,488
Laterite	//	36			5,508		252	302	194	554	5,702	6,257
Clay Coating t=20cm	//	348			55,889		2,680	3,216	2,067	5,895	57,956	63,851
Liming	t	7			1,071						1,071	1,071
Slope Trimming	m2	777		11	8,547						8,547	8,547
Culvert Ø500	m	20	252	281	5,040		340	360	440	5,740	6,060	11,800
Total					76,734	5,040	101,880	122,314	79,919	229,234	156,652	385,886

unit : Baht

Table K-12 Unit Cost of Various Works (11/11)

unit : Baht

Description	Unit	Quantity	Labour and Materials		Machine Cost			Total							
			Unit Cost		Amount	Depre. (F.C.)	F.C.	L.C.	F.C.	L.C.	Total				
			F.C.	L.C.								F.C.	L.C.	F.C.	L.C.
Liming	t	1.0		300		301									
Material	day	1.2		110		111									
Labour (General)						412									412
Total per 1.0t															
Incidental Culvert Ø 1500 : 17.9m/day	m	17.9	1,100	1,100	19,690	19,690									
RC Pipe	day	1.2		180		216									216
Steeplejack	"	5.5		110		605									605
Labour (General)	"	2.4		150		360									360
Labour (Skilled)	hr	6.7						595	772	617	772	1,212	772		1,984
Truck Crane 2t *1.2								119	154	123	154	4,180	4,329		8,509
Earth Work 20%															
Total per 1day								714	926	741	926	25,083	25,971		51,054
Total per 1.0m								40	52	41	52	1,401	1,451		2,852

Table K-13 Unit Cost of Machine Earthwork

Description			UNIT PRICE				
			Depre. (F.C.)	F.C.	L.C.	Total	Unit
Base Cutting and banking	Bulldozer 11t	L=10m Q=68.3m ³ /hr	3.81	4.57	2.98	11.36	Baht/m ³
		L=30 Q=31.8	8.18	9.82	6.41	24.41	//
		L=60 Q=17.6	14.77	17.74	11.57	44.08	//
	Swamp Bulldozer 13t	L=10m Q=79.0m ³ /hr	3.92	4.50	2.88	11.30	//
		L=30 Q=36.7	8.45	9.69	6.20	24.34	//
		L=60 Q=20.3	15.27	17.52	11.22	44.01	//
	Super Swamp Bulldozer 13t	L=10m Q=79.2m ³ /hr	4.42	5.03	3.14	12.59	//
		L=30 Q=36.8	9.51	10.82	6.76	27.09	//
		L=60 Q=20.4	17.16	19.52	12.20	48.88	//
Surface Soil Handling							
Bulldozer 11t	L=30m Q=38.1m ³ /hr	6.82	8.19	5.35	20.36	Baht/m ³	
	Swamp Bulldozer 13t	L=30 Q=36.7	8.45	9.69	6.20	24.34	//
	Super Swamp Bulldozer 13t	L=30 Q=36.8	11.90	13.55	8.47	33.92	//
Excavating - Backhoe 0.6m ³							
Peat Soil	Q=34.7m ³ /hr	9.22	9.76	6.52	25.50	Baht/m ³	
	Acid Soil	Q=41.7	7.67	8.12	5.42	21.21	//
Excavating and Loading							
Tractor Shovel 1.3m ³	Q=38.0m ³ /hr	10.79	11.18	7.14	29.11	Baht/m ³	
Soil Transporting							
Dump Truck 6t	L= 1km Q=13.1m ³ /hr	6.30	9.51	7.54	23.35	Baht/m ³	
	L= 2 Q= 9.9	8.33	12.59	9.98	30.90	//	
	L=10 Q= 3.3	25.00	37.76	29.94	92.70	//	
	L=20 Q= 1.8	45.83	69.22	54.89	169.94	//	
	L=30 Q= 1.3	63.46	95.85	76.00	235.31	//	
L=50 Q= 0.8	103.13	155.75	123.50	382.38	//		
Stumping - Rake Dozer							
Acid - Bulldozer 11t	T=9.2hr/ha	2392.00	2872.00	1874.00	7138.00	Baht/ha	
Peat - Swamp Bulldozer 13t	T=9.2	2852.00	3272.00	2095.00	8219.00	//	
Stumps Exclusion - Rake Dozer							
Acid - Bulldozer 11t	T=7.2hr/ha	1872.00	2248.00	1467.00	5587.00	Baht/ha	
Peat - Swamp Bulldozer 13t	T=7.2	2232.00	2561.00	1639.00	6432.00	//	
Soil Leveling							
Bulldozer 11t	D=20cm Q=61.2m ³ /hr	4.25	5.10	3.33	12.68	Baht/m ³	
	Swamp Bulldozer 13t	D=20 Q=61.2	5.07	5.81	3.72	14.60	//
	Super Swamp Bulldozer 13t	D=20 Q=61.2	5.72	6.51	4.07	16.30	//
Motor Grader 3.1m N=7	D=20 A=339.4m ² /hr	0.57	0.61	0.47	1.65	Baht/m ²	
Land Grading							
Bulldozer 11t	S=885m ² /hr	0.29	0.35	0.23	0.87	Baht/m ²	
Swamp Bulldozer 13t	S=835	0.37	0.43	0.27	1.07	//	
Super Swamp Bulldozer 13t	S=875	0.40	0.46	0.28	1.14	//	
Compaction							
Bulldozer 11t N=5	D=30cm Q=95.5m ³ /hr	2.72	3.27	2.13	8.12	Baht/m ³	
	D=20 Q=45.5	5.71	6.86	4.48	17.05	//	
Swamp Bulldozer 13t N=5	D=30 Q=163.7	1.89	2.17	1.39	5.45	//	
	D=20 Q=78.0	3.97	4.56	2.92	11.45	//	
Tired Roller(8-20t) N=7	D=20 Q=61.7	1.17	1.51	1.58	4.26	//	
	D=20 A=308.6m ² /hr	0.23	0.30	0.32	0.85	Baht/m ²	
Vibrating Roller 3.5t N=7	D=20 Q=9.1m ³ /hr	15.38	13.25	13.38	42.01	Baht/m ³	
	D=20 A=45.5m ² /hr	3.08	2.65	2.68	8.41	Baht/m ²	
Plowing - Tractor 9-10t							
15-20cm Normal	T=6.00hr/ha	1560.00	1684.00	1175.00	4419.00	Baht/ha	
	Swamp	T=7.80	1404.00	1672.00	1234.00	4310.00	//
Harrowing - Tractor 9-10t							
N=2 Normal	T=4.47hr/ha	1162.00	1255.00	875.20	3292.20	Baht/ha	
	swamp	T=5.81	1046.00	1245.00	919.10	3210.10	//
Mowing							
Weed Cutter 20ps	410m ² /day	341.00	598.00	4660.00	5599.00	Baht/ha	
Drop Hammer - Pile driver							
0.4×0.4m Pile	L=20m 0.37ea/hr	351.40	538.10	741.10	1630.60	Baht/ea	
	L=20 0.70	185.70	284.40	391.70	861.80	//	

Table K-14 Machine Operation Cost

Description	Purchase Price (10 ³ Baht)	Life Time (hr)	Depreciation F.C.	Repair Cost		Fuel / Lubricant		Operator and Labour			Administrative Cost		Total					
				Rate	Parts F.C.	Labour L.C.	Fuel (l/hr)	F.C.	L.C.	Driver (man/hr)	Labour (110B)	Others (man/hr)	Total L.C.	Rate	Tools F.C.	Labour L.C.	F.C.	L.C.
				(4)	(5)	(6)	(7)	(8)	(9)	(10) (220B)	(11) (110B)	(12)	(13) (*1.2)	(14)	(15)	(16) (Baht/hr)	(17) (Baht/hr)	
Bulldozer 11t	2,600	10,000	260.0	0.65	135.2	33.8	11.0	86.0	21.5	0.174	0.087	-	57.4	0.07	91.0	91.0	312.2	203.7
Swamp Bulldozer 13t	3,100	10,000	310.0	0.65	161.2	40.3	11.0	86.0	21.5	0.174	0.087	-	57.4	0.07	108.5	108.5	355.7	227.7
Super Swamp Bulldozer 13t	3,500	10,000	350.0	0.65	182.0	45.5	12.0	93.8	23.5	0.174	0.087	-	57.4	0.07	122.5	122.5	398.3	248.9
Carry-all Scraper 26t	9,000	10,000	900.0	0.65	468.0	117.0	25.0	195.5	48.9	0.167	0.084	-	55.2	0.07	315.0	315.0	978.5	536.1
Backhoe 22t	3,200	10,000	320.0	0.55	140.8	35.2	11.0	86.0	21.5	0.174	0.087	-	57.4	0.07	112.0	112.0	338.8	226.1
Tractor Shovel 1.3m3	4,100	10,000	410.0	0.65	213.2	53.3	8.7	68.0	17.0	0.174	0.087	-	57.4	0.07	143.5	143.5	424.7	271.2
Pile Driver	1,300	10,000	130.0	0.65	67.6	16.9	11.0	86.0	21.5	0.143	0.571	0.429	190.3	0.07	45.5	45.5	199.1	274.2
Dump Truck 6t	825	10,000	82.5	0.60	39.6	9.9	5.6	43.8	10.9	0.139	-	-	36.7	0.10	41.3	41.3	124.6	98.8
Weed Cutter	9	4,500	2.0	0.45	0.7	0.2	0.3	2.3	0.6	-	-	0.143	25.7	0.05	0.5	0.5	3.6	27.0
Motor Grader 3.1m	1,950	10,000	195.0	0.50	78.0	19.5	7.6	59.4	14.9	0.167	0.087	-	55.6	0.07	68.3	68.3	205.7	158.2
Tired Roller 11t	720	10,000	72.0	0.50	28.8	7.2	5.0	39.1	9.8	0.167	0.087	-	55.6	0.07	25.2	25.2	93.1	97.7
Vibrating Roller 3.5t	1,400	10,000	140.0	0.50	56.0	14.0	2.0	15.6	3.9	0.208	-	-	54.9	0.07	49.0	49.0	120.6	121.8
Tractor 9-10t 90HP	2,600	10,000	260.0	0.60	124.8	31.2	8.3	64.9	16.2	0.174	0.087	-	57.4	0.07	91.0	91.0	280.7	195.8
Swamp Tractor 7.5t	1,800	10,000	180.0	0.60	86.4	21.6	8.3	64.9	16.2	0.174	0.087	-	57.4	0.07	63.0	63.0	214.3	158.2
Soil Compactor 90kg	25	4,500	5.6	0.45	2.0	0.5	0.6	4.7	1.2	0.143	-	-	37.8	0.05	1.4	1.4	8.1	40.8
Truck Crane 2t	740	10,000	74.0	0.45	26.6	6.7	3.1	24.2	6.1	0.174	0.087	-	57.4	0.07	25.9	25.9	76.8	96.0
Portable Concrete Mixer 0.6m3	20	10,000	2.0	0.70	1.1	0.3	-	0.0	0.0	0.143	-	-	37.8	0.05	0.5	0.5	1.6	38.5

Remarks : ① : Marketing Price in Bangkok
 ② : Thailand Standard (RID)
 ③ = ① ÷ ②
 ④ : Japanese Standard
 ⑤ = Diesel Oil (8.5baht/l) × ⑦ × 1.15 × 0.8
 ⑥ = Diesel Oil (8.5baht/l) × ⑦ × 1.15 × 0.2
 ⑦ : Calculating
 ⑧ = ③ × ④ × 0.8
 ⑨ = ③ × ④ × 0.2
 ⑩ : Calculating
 ⑪ : Calculating
 ⑫ : Calculating
 ⑬ = (⑩ × 220 × ⑪ × 110 × ⑫ × val.) × 1.2
 ⑭ : Japanese Standard
 ⑮ = ③ × ⑬ × Life Year × 0.5
 ⑯ = ③ × ⑬ × Life Year × 0.5
 ⑰ = ③ + ⑧ + ⑮
 ⑱ = ③ + ⑨ + ⑰ + ⑱

Table K-15 Unit Cost of Materials and Labour

Description	Unit	Cost	Description	Unit	Cost
<u>Materials</u>		Baht	<u>Labour</u>		
Sand	m ³	110	General Labour	day	110
Gravel	"	310	Skilled Labour	"	150
Laterite	"	100	General Foreman	"	200
Riprap with Mortar	"	582	Carpenter	"	180
Riprap	"	487	Mason	"	200
Steel Bar	t	16,000	Steel Man	"	200
Flat Bar	"	16,000	Driver (light)	"	200
Cement	"	2,200	Driver (heavy machine)	"	220
Lime	"	300	(general)	"	150
Diesel Oil	liter	8.5	Mechanic	"	150
Reinforced Concrete (light)	m ³	3,552	Master Mechanic	"	200
(medium)	"	4,014	Electrician	"	150
(heavy)	"	4,475	Driller	"	150
(lining)	"	1,790	Watch Man	"	200
Timber	"	17,500	Surveyor	"	150
Sod	m ²	25			
RC Pipe 500 mm	m	410			
600	"	530			
700	"	910			
1000	"	1,500			
1200	"	1,960			
1500	"	2,200			
RC Pile 0.18×0.18×10 m	pcs.	1,000			
0.30×0.30×10	"	4,500			
0.30×0.30×20	"	10,000			
0.40×0.40×20	"	15,000			

Table K-16 Rate of Foreign and Local Currency

Description	Rate of Foreign Currency	Rate of Local Currency
Cement	60%	40%
Steel Bar	70%	30%
Timber	20%	80%
Fuel & Oil	80%	20%
Labour	-	100%
Spare Parts	90%	10%
Gravel	-	100%
Sand	-	100%
Laterite	-	100%
Concrete Block	40%	60%
RC Pipe	50%	50%

K-4 Administration Cost (Unit:Baht)

1 : Salary (L.C.)

Section	Salary per Annual	Bacho		Kab Daeng		Muno-koknai	
		Quantity	Amount	Quantity	Amount	Quantity	Amount
Administration							
Chief	120,000						
Accountant	72,000	1	72,000	1	72,000	1	72,000
Assist-accountant	60,000						
typist	72,000	1	72,000	1	72,000	1	72,000
Clerk	72,000						
Project Management							
Manager	180,000	1	180,000	1	180,000	1	180,000
Assist-manager	144,000						
Secretary	72,000						
Clerk	72,000						
Engineering							
Chief	120,000						
Civil Engineer	108,000						
Technician	96,000						
Surveyor	108,000	1	108,000	1	108,000	1	108,000
Agricultural Supporting							
Chief	120,000						
Assistant	108,000						
Clerk	72,000						
Typist	72,000						
Mechanical Supporting							
Driver(Vehicles)	72,000	2	144,000	1	72,000	2	144,000
Operator(Heavy Machines)	84,000						
Security	48,000						
Total		6	576,000	5	504,000	6	576,000

2 : Equipment for Supervision of Construction (F.C.)

Description	Unit Cost (F.C.)	Bacho		Kab Daeng		Muno-koknai	
		Quantity	Amount	Quantity	Amount	Quantity	Amount
Pick-up	560,000	1	560,000	1	560,000	1	560,000
Swamp Bulldozer 13t	3,000,000						
Bulldozer 11t	2,500,000						
Motorcycle	50,000	2	100,000	1	50,000	2	100,000
Radio Set	150,000	1	150,000			1	150,000
Walkie-Talkie	15,000	3	45,000	2	30,000	2	30,000
Personal Computer	150,000						
Sub Total			855,000		640,000		840,000
Miscellaneous(5%)			42,750		32,000		42,000
Total			897,750		672,000		882,000

3 : Operation Cost

1) Annual Repair and Maintenance of Equipment (F.C.)

(Purchase Price / Life Time(10yr))×0.05 :	Bacho =(897,750 /10)×0.05=	4,489
	Kab Daeng =(672,000 /10)×0.05=	3,360
	Muno-Koknai =(882,000 /10)×0.05=	4,410

2) Annual Fuel and Oil (F.C.)

Bacho = 8.5 Baht/liter × 10 liter/day × 200 days × 3 =	51,000
Kab Daeng =	2 = 34,000
Muno-Koknai =	3 = 51,000

3) Annual Office Operation (L.C.)

Bacho = Construction Cost × 0.01 = 5,400,000 × 0.01 =	54,000
kab Daeng =	= 3,240,000 = 32,400
Muno-Koknai =	= 6,000,000 = 60,000

Accordingly, total operation cost is estimated as follows.

	Bacho (4-year)		Kab Daeng (3-year)		Muno-Koknai (4-year)	
	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
1)Repair and Maintenance of Equipment	17,955		10,080		17,640	
2)Fuel and Oil	204,000		102,000		204,000	
3)Office Operation		216,000		97,200		240,000
Total	221,955	216,000	112,080	97,200	221,640	240,000

K-5 Supporting Service Project (Unit:Baht)

1 : Facilities and Equipment (F.C.)

	Unit Cost	Bacho		Kab Daeng		Muno-koknai	
		Quantity	Amount	Quantity	Amount	Quantity	Amount
Building		m2		m2		m2	
Office	12,000	100	1,200,000	100	1,200,000	100	1,200,000
Meeting Room	12,000	50	600,000	20	240,000	50	600,000
Lecture Room	12,000	100	1,200,000			100	1,200,000
Laboratory	12,000						
Farm Tool House	12,000	100	1,200,000	100	1,200,000	100	1,200,000
Ware House	12,000	50	600,000			50	600,000
Garage	12,000	50	600,000	50	600,000	100	1,200,000
Sub Total			5,400,000		3,240,000		6,000,000
Machine and Vehicles							
Tractor 30ps	760,000	1	760,000	1	760,000	1	760,000
Pick-up 2200cc	560,000	1	560,000	1	560,000	1	560,000
Station Wagon 2200cc	700,000	1	700,000	1	700,000	1	700,000
Motorcycle 100cc	50,000	3	150,000	2	100,000	3	150,000
Trailer	180,000	1	180,000			1	180,000
Hand Sprayer	30,000	3	90,000	2	60,000	2	60,000
Sub Total			2,440,000		2,180,000		2,410,000
Laboratory Equipment/Materials		1.0set	400,000	1.0set	200,000	1.0set	400,000
Office Furniture		1.0set	200,000	1.0set	150,000	1.0set	200,000
Total			8,440,000		5,770,000		9,010,000

2 : Personnel Cost

Experts	Unit Cost (Baht/Month)	Bacho (4years)		Kab Daeng (3years)		Muno-koknai (4years)	
		Quantity (M/M)	Amount	Quantity (M/M)	Amount	Quantity (M/M)	Amount
Foreign							
Soil	400,000	10	4,000,000	8	3,200,000	10	4,000,000
Agriculture	400,000	10	4,000,000	8	3,200,000	10	4,000,000
Irrigation/Drainage	400,000	10	4,000,000	8	3,200,000	10	4,000,000
Sub Total			12,000,000		9,600,000		12,000,000
Local							
Assistant	15,000	144	2,160,000	108	1,620,000	144	2,160,000
Driver	15,000	96	1,440,000	72	1,080,000	96	1,440,000
Sub Total			3,600,000		2,700,000		3,600,000
Total			15,600,000		12,300,000		15,600,000

K-6 Annual Operation / Maintenance (Unit:Baht)

1 : Personnel Cost

Description / Section	Bacho			Kab Daeng			Muno-Koknai		
	①	②	③	①	②	③	①	②	③
Manager	1			1			1		
Administration		1			1			1	
Machine Management									
Engineering			1						1
Agricultural Service			1			1			1
Total	1	1	2	1	1	1	1	1	2

	Salary per Annual	Bacho		Kab Daeng		Muno-koknai	
		Quantity	Amount	Quantity	Amount	Quantity	Amount
① : Officer	108,000	1	108,000	1	108,000	1	108,000
② : Permanent Employee	84,000	1	84,000	1	84,000	1	84,000
③ : Temporary Employee	60,000	2	120,000	1	60,000	2	120,000
Total			312,000		252,000		312,000

2 : Repair and Maintenance of Equipment and Machine

	Purchase Price	Bacho		Kab Daeng		Muno-koknai	
		Quantity	Amount	Quantity	Amount	Quantity	Amount
Pick-up	560,000	1	560,000	1	560,000	1	560,000
Tractor	760,000	1	760,000	1	760,000	1	760,000
Trailer	180,000	1	180,000			1	180,000
Hand Sprayer	30,000	2	60,000	1	30,000	1	30,000
Motorcycle	50,000	2	100,000	1	50,000	2	100,000
Total			1,660,000		1,400,000		1,630,000
Repair / Maintenance Cost			8300		7000		8150

Remark : Repair/Maintenance Cost = (Purchase Price / 10years) × 0.05

3 : Fuel and Oil Cost

Bacho = 8.5 Baht/liter × 10 liter/day × 200 days × 2 = 34,000
 Kab Daeng = 2 = 34,000
 Muno-Koknai = 2 = 34,000

4 : Administration and Others (10% of Salaries and Wages)

Bacho = 312,000 × 0.20 = 31,200
 Kab Daeng = 252,000 = 25,200
 Muno-Koknai = 312,000 = 31,200

5 : Maintenance of Facilities (0.1% of Construction Cost)

Bacho = 7,200,000 × 0.001 = 7,200
 Kab Daeng = 4,440,000 = 4,440
 Muno-Koknai = 7,200,000 = 7,200

K-7 Bearing Capacity Test

Table K-17 Bearing Capacity Test

Area	Point	Bearing Capacity of Each Depth (kg/sqcm)						Remark
		10cm	30cm	50cm	70cm	90cm	Avg.	
Bacho	1	0.0	2.0	2.0	3.0	2.0	1.8	
	2	1.5	7.5	4.5	4.5	9.0	5.4	
	2'	3.0	6.5	4.5	5.0	6.0	5.0	
	3	0.0	2.0	2.0	3.0	3.5	2.1	
	4	0.0	0.0	2.5	3.0	5.0	2.1	
	5	0.0	10.0	10.5	14.0	13.0	9.5	
	6	3.0	3.0	3.0	3.0	5.0	3.4	
	7	3.0	9.5	15.5	18.0	22.0	13.6	
	8	6.0	5.0	17.0	18.0	18.0	12.8	
	9	0.0	0.0	0.0	2.5	15.0	3.5	
	9'	0.0	2.0	2.5	3.5	9.0	3.4	
	10	0.0	0.0	0.0	3.0	4.5	1.5	
	11	3.0	6.5	4.0	6.0	6.0	5.1	Test field
	11'	0.0	2.0	4.0	12.0	12.0	6.0	//
	11''	4.5	4.0	4.0	5.0	5.5	4.6	//
	12	0.0	0.0	2.5	3.0	3.0	1.7	
	13	0.0	0.0	0.0	0.0	0.0	0.0	
	14	0.0	0.0	5.0	5.0	5.0	3.0	
	14'	3.0	3.0	12.0	7.0	7.0	6.4	
	15	0.0	10.0	6.5	15.0	18.0	9.9	
	16	9.0	4.0	6.5	8.0	8.0	7.1	
	17	4.0	9.0	6.0	(6.0)	—	6.3	() value is
	18	0.0	0.0	3.0	(4.0)	—	1.8	60cm
19	0.0	1.0	5.0	(20.0)	—	6.5		
20	0.0	0.0	2.0	(2.0)	—	1.0		
21	0.0	1.0	0.0	(7.5)	—	2.1		
22	5.0	12.0	19.0	(25.0)	—	15.3	Sand dune	
23	11.0	8.5	9.5	(21.0)	—	12.5	Sand dune	
Kab Daeng	1	10.0	6.5	5.5	5.0	6.5	6.7	
	1'	7.0	4.0	3.0	3.0	3.0	4.0	
	2	3.0	3.0	5.0	5.0	4.0	4.0	
	3	3.0	3.5	3.5	5.0	6.5	4.3	
	4	3.0	0.0	0.0	2.5	3.0	1.7	
	5	10.0	4.0	4.0	5.0	5.0	5.6	
	6	7.0	12.5	8.0	(8.0)	—	8.9	() value is
	7	9.0	3.0	3.0	(3.5)	—	4.6	60cm
	8	3.0	4.0	7.0	(7.5)	—	5.4	
9	4.5	4.5	6.0	(6.0)	—	5.3		
Muno-Koknai	1	12.5	11.0	13.0	15.0	14.0	13.1	
	1'	7.5	7.0	7.0	9.5	10.5	8.3	
	2	9.0	9.5	5.0	6.0	8.0	7.5	
	3-1	14.0	10.0	9.0	11.0	11.0	11.0	Test field
	3-2	15.0	12.0	10.0	11.0	13.0	12.2	//
	3-3	10.5	8.5	4.5	4.5	8.0	7.2	//
	3-4	14.0	9.0	6.0	6.0	10.0	9.0	//
	3-5	19.0	12.0	11.0	14.0	15.0	14.2	//
	3-6	13.0	11.0	6.0	7.0	7.5	8.9	//
	4	13.5	6.5	7.0	5.0	4.5	7.3	
	5	8.0	7.0	9.0	9.0	9.5	8.5	
	6	10.0	7.0	7.0	9.0	11.5	8.9	
	7	3.5	3.5	3.0	3.5	5.5	3.8	
	7'	5.0	4.0	4.0	3.0	3.0	3.8	
8	9.0	9.0	10.0	12.5	11.0	10.3		
9	16.5	10.5	14.0	18.0	14.5	14.7		
9'	16.0	10.0	13.5	16.0	16.5	14.4		
10	8.0	19.5	12.0	(10.0)	—	12.4	() value is	
11	12.0	7.0	9.0	(8.0)	—	9.0	60cm	
12	12.0	7.0	7.0	(7.0)	—	8.3		
13	10.0	1.0	1.0	(1.0)	—	3.3		
14	11.0	3.5	7.0	(14.0)	—	8.9		

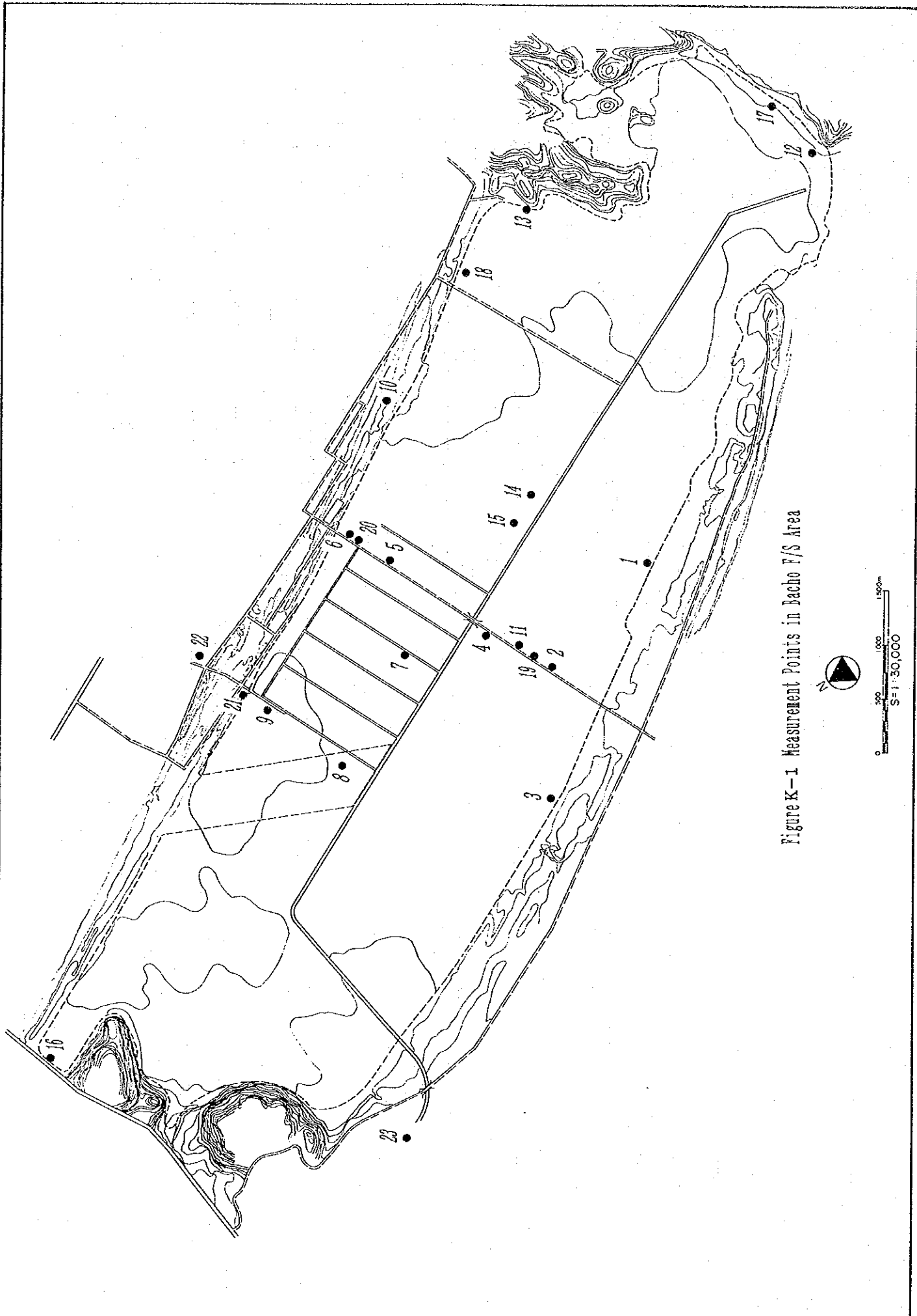


Figure K-1 Measurement Points in Bacho F/S Area

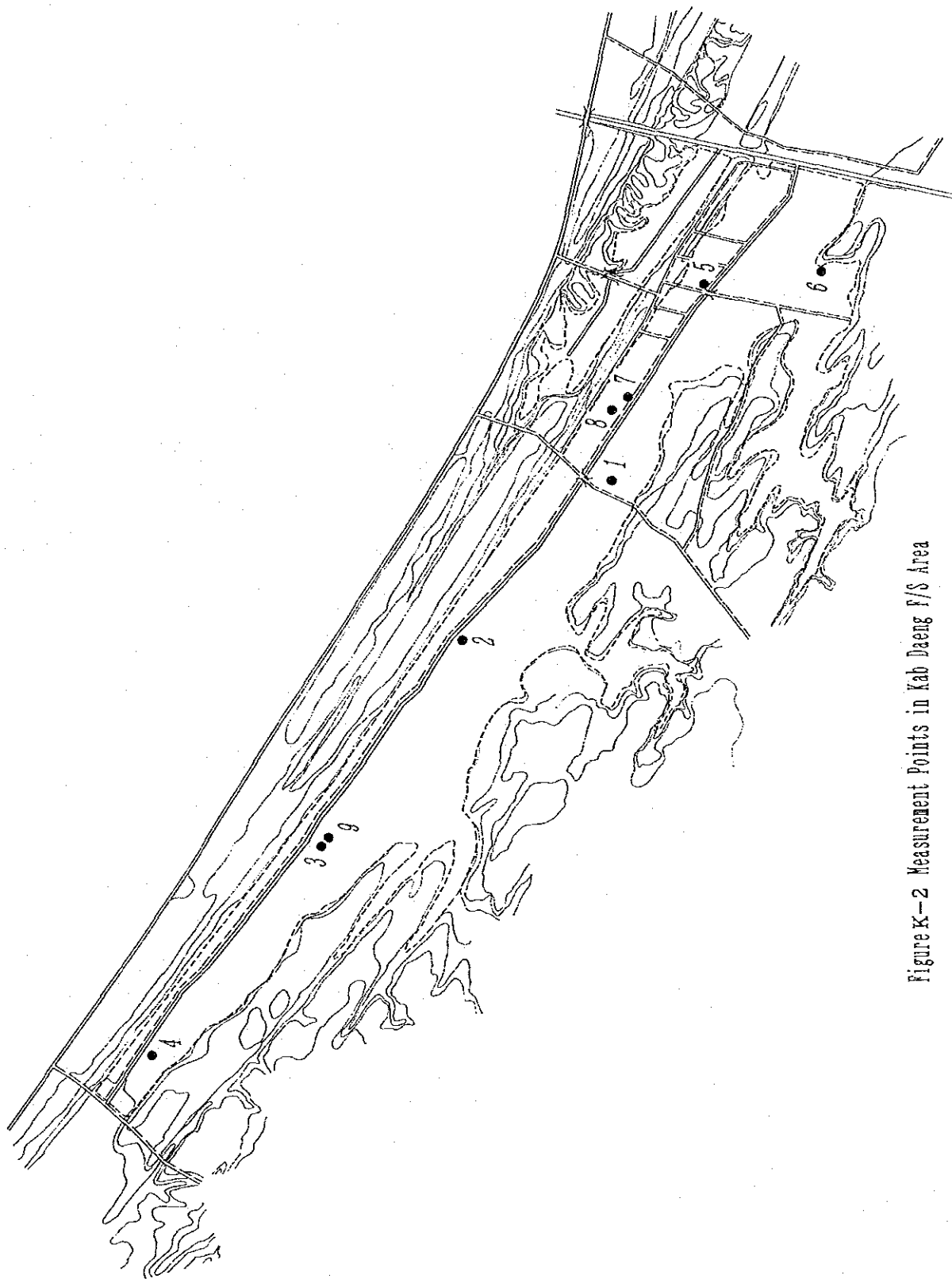


Figure K-2 Measurement Points in Kab Daeng F/S Area

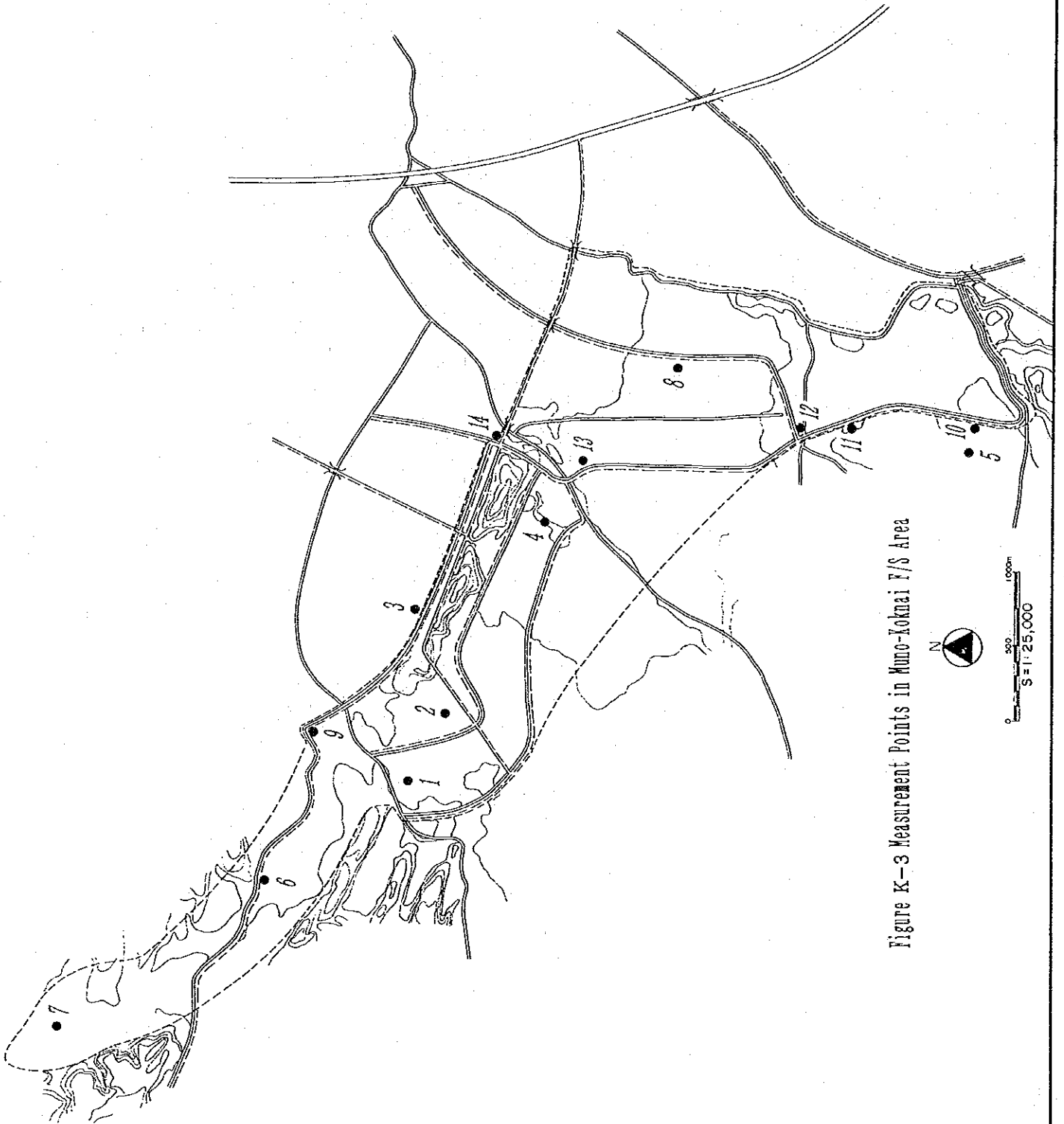


Figure K-3 Measurement Points in Muno-Koknai F/S Area

K-8 RESULT OF SOIL TEST

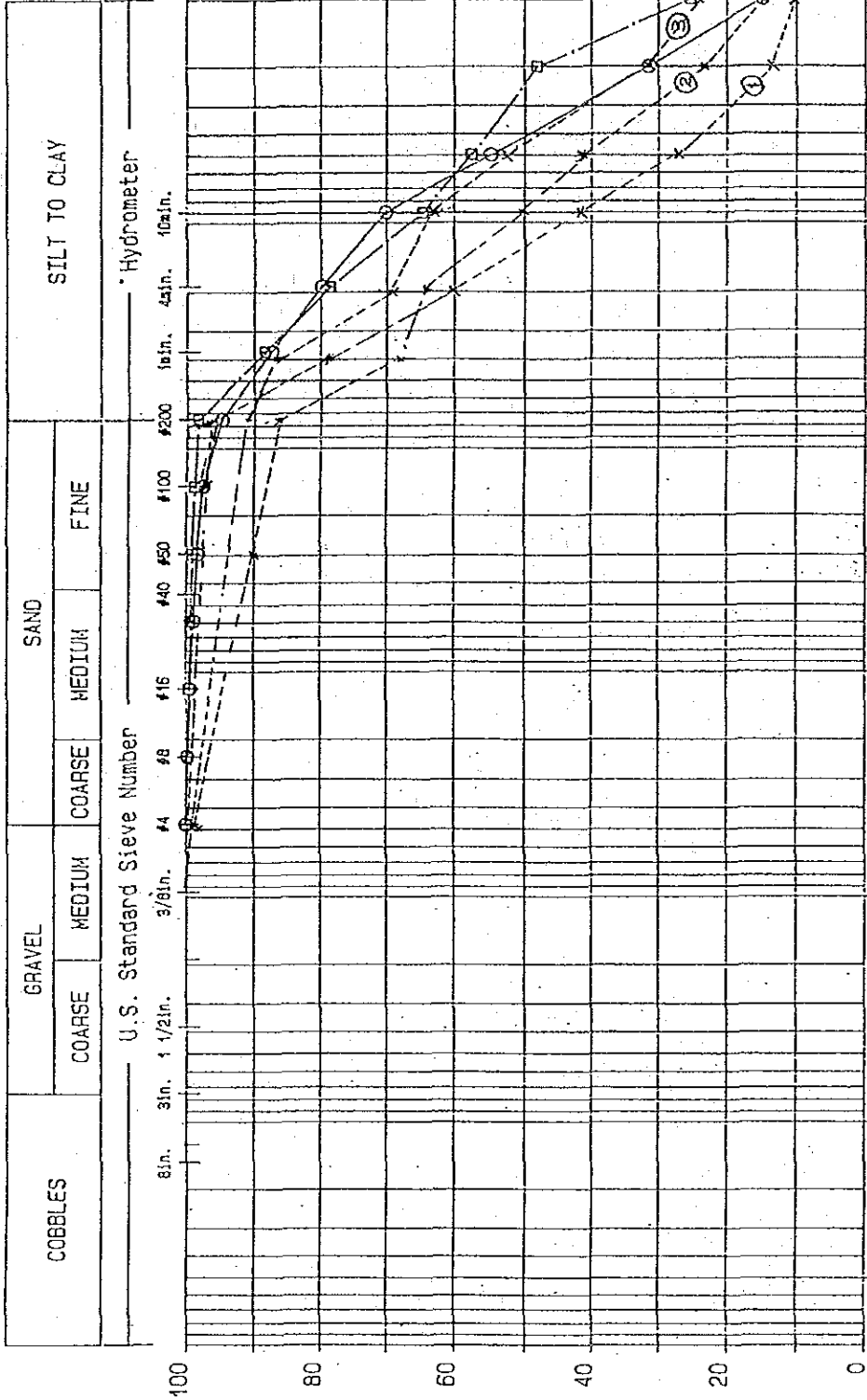
(CORE CUTTER SAMPLES)

PROJECT : The study on the Agricultural Development of peat/
Acid sulfate Soil Areas.

LOCATION : Narathiwat Province.

NO.	SAMPLE NO.	NATURAL WATER CONT.,%	WET UNIT WEIGHT, gm/cc.	REMARK
22	A	479.1	0.956	} Peat Soil
23	A	455.4	0.867	
24	A	448.9	0.854	
19	B	169.2	1.259	
20	B	181.4	1.221	
21	B	264.9	1.104	
28	C	39.7	1.689	
29	C	40.3	1.687	
30	C	38.3	1.706	

GRADATION TEST



U.S. Standard Sieve Number

Hydrometer

Project MARATHIAT
 Memo _____
 Checked by PAIBOON
 Date: 26/11/35

% FINER

K-36

500 100 10 1 0.1 0.01 0.001
 PARTICLE SIZE, mm

Sample No.	Boring No.	Depth (m.)	L.L.	P.L.	P.I.	CLASS	G _s	W _n , %
1	B	0.00-1.40	117.00	55.90	61.10	MH	2.65	237.5
2	C	0.00-1.40	58.80	35.20	23.60	MH	2.69	47.3

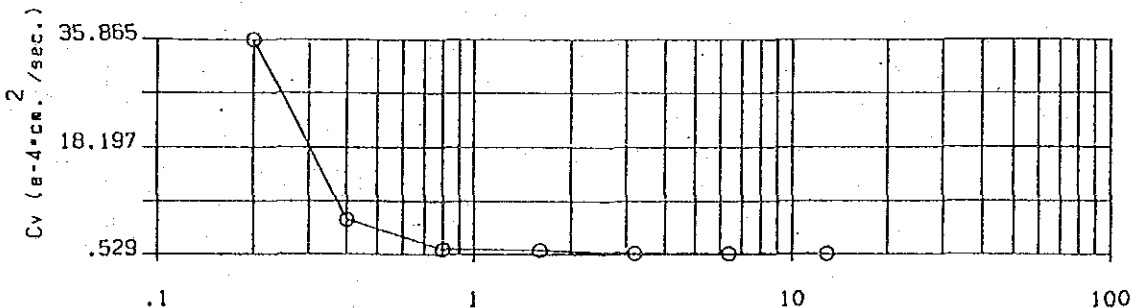
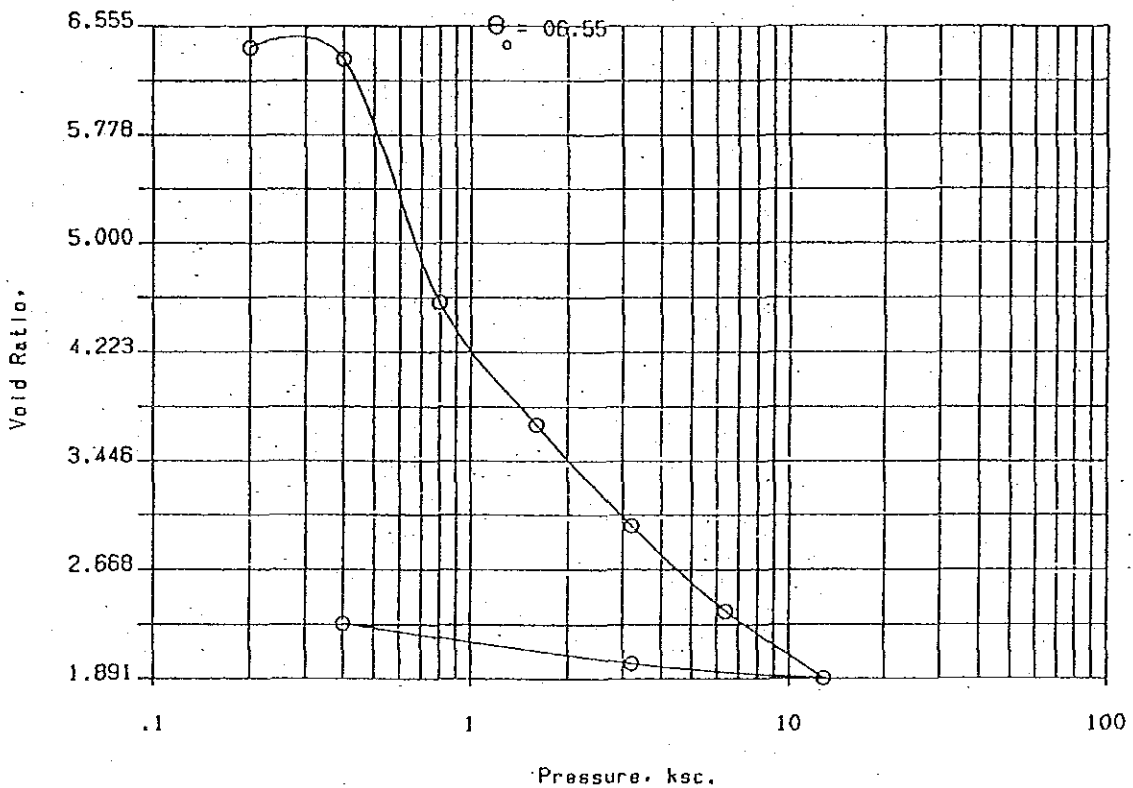
ROYAL IRRIGATION DEPARTMENT

RESEARCH AND LABORATORY DIVISION

SOIL ENGINEERING BRANCH

CONSOLIDATION TEST

PROJECT	NARATIWAT...B(1.40 M.)		MEMO	20/36
HEIGHT(initial)	2.00 cm.	HEIGHT(final)	.87 cm.	
MOISTURE CONTENT(initial)	237.52 %	MOISTURE CONTENT(final)	77.97 %	
DRY DENSITY(initial)	.351 gm./cc.	DRY DENSITY(final)	.806 gm./cc.	
VOID RATIO(initial)	6.549	VOID RATIO(final)	2.288	
DEGREE OF SATURATION(initial)	96.11 %	DEGREE OF SATURATION(final)	90.31 %	



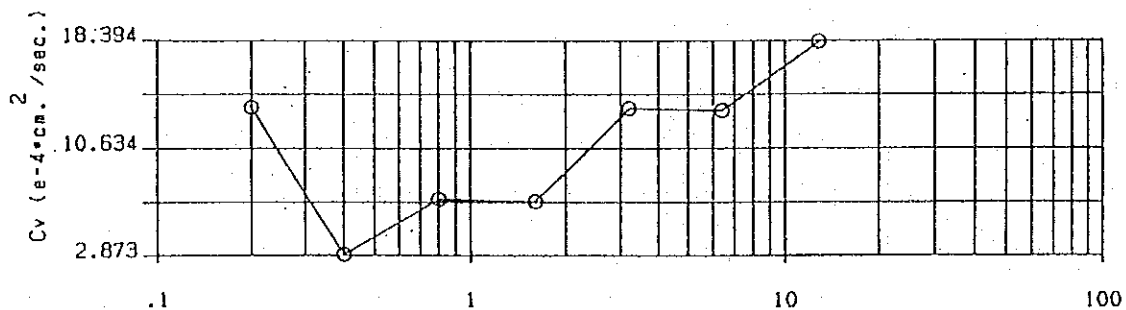
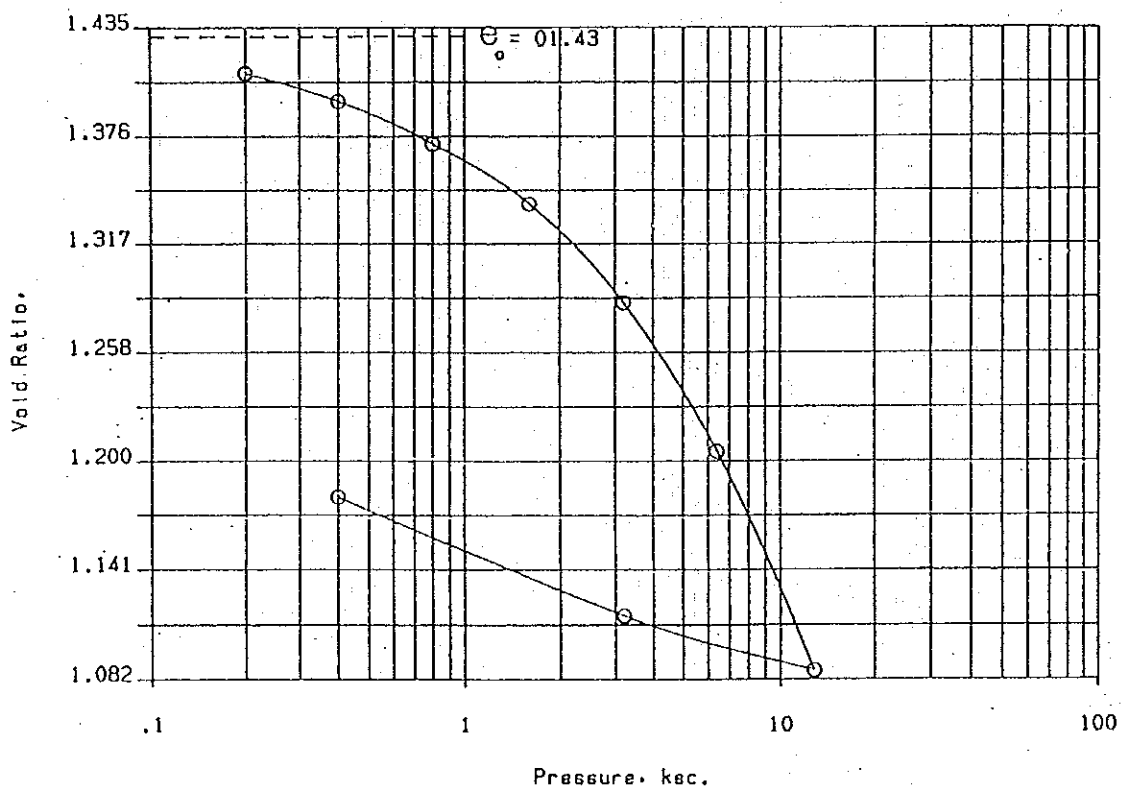
ROYAL IRRIGATION DEPARTMENT

RESEARCH AND LABORATORY DIVISION

SOIL ENGINEERING BRANCH

CONSOLIDATION TEST

PROJECT	NARATIWAT...C		MEMO	20/36	
HEIGHT(initial)	2.00	cm.	HEIGHT(final)	1.79	cm.
MOISTURE CONTENT(initial)	47.30	%	MOISTURE CONTENT(final)	40.91	%
DRY DENSITY(initial)	1.107	gn./cc.	DRY DENSITY(final)	1.234	gn./cc.
VOID RATIO(initial)	1.43		VOID RATIO(final)	1.18	
DEGREE OF SATURATION(initial)	88.98	%	DEGREE OF SATURATION(final)	93.27	%



JICA