

Soil samples were taken from the master sites for laboratory analysis at the Soil Chemistry and Physics Laboratory, RID. The results of soil analysis were summarized in Tables C-7 and C-8, and the natural fertility of the master site soils were determined in Table C-10 based on the keys for the estimation (Table C-9).

Finally, the land classification maps irrigated paddy rice were made on a scale of 1:20,000. Figures C-6, C-7, and C-8 are the reduced land classification maps scaled 1:50,000 for the Upper Lam Plai Mat sub-basin and Figure C-9 is for the Huai Seo sub-basin. The area of each land class is summarized in Table C-3 for the Project Study area and for the irrigable area by sub-projects.

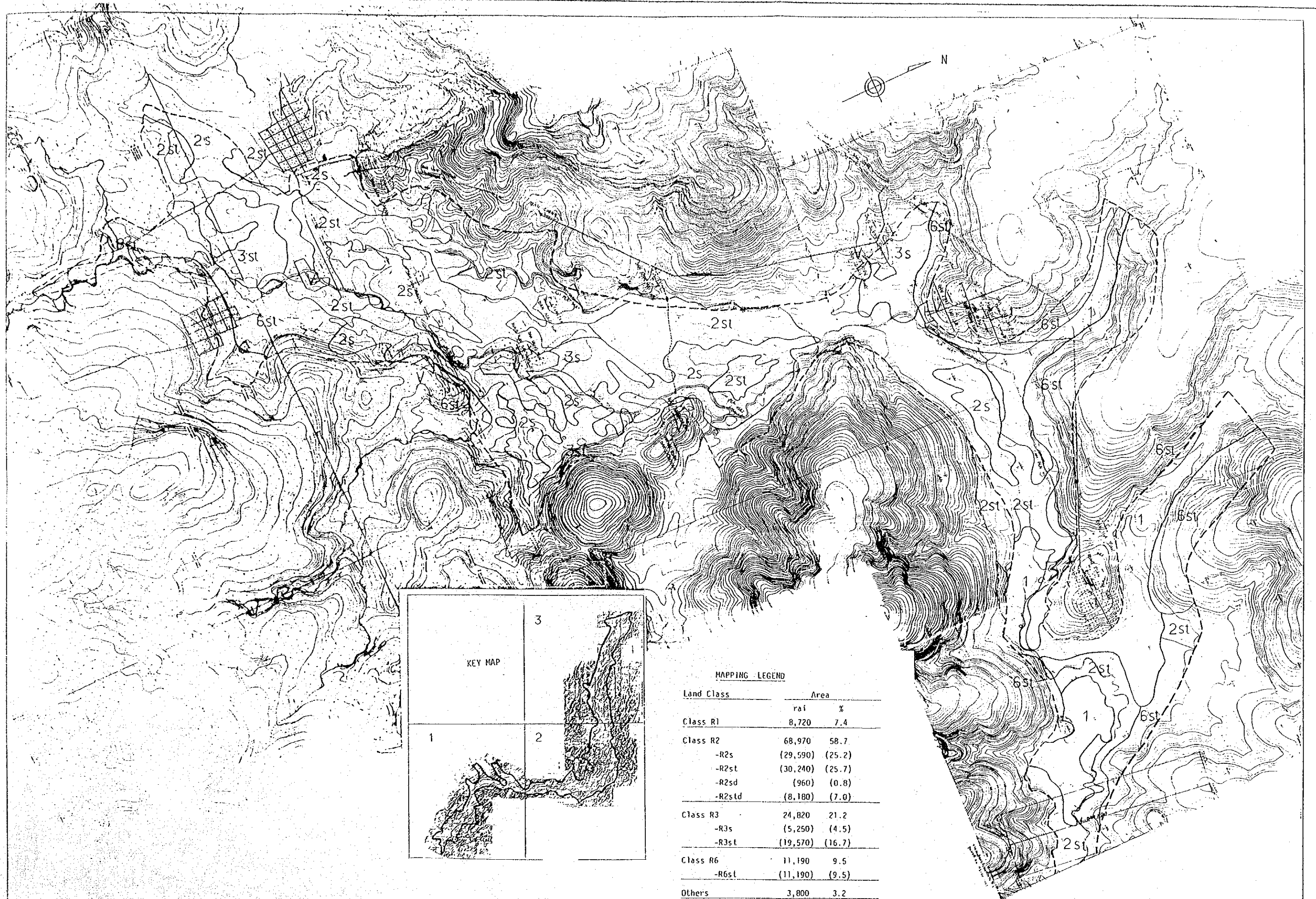
The Class R6 lands are considered to be unsuitable for being included in the project. Every kind of effort should be made to exclude this class lands from the irrigation service areas because if included, farmers would be eager to cultivate paddy rice with the irrigation water. In general, the Class R6 lands are located in elevated portions, therefore, proper consideration could be given to a point that canals be aligned to exclude these lands.

#### C.4. Land Use Categories

During the field survey, the present land use categories were checked using the airphotos which had been interpreted previously. The results were compiled on the topographic maps scaled 1:10,000. Figures C-10, C-11 and C-12 are present land use maps for the Upper Lam Plai Mat sub-basin, and Figure C-13 is for the Huai Seo sub-basin after reducing the scale to 1:50,000. The present land use categories in the Project Study areas are summarized in Table C-4.

Table C-3. Summary of Land Classification

Land Class	Project Study Area			Irrigable Area by Sub-Project								
	Upper Lam		Husai	Lam Plai Mat		Nong Lam Phuk		Huai Phlu				
	rai	%	rai	%	rai	%	rai	%	rai	%		
R1	8,720	7.4	1,490	4.2	1,231	1,470	2,701	4.0	603	27.7	889	16.8
R2s	29,590	25.2	13,450	38.3	5,267	12,952	18,219	27.1	232	10.7	2,789	52.7
R2st	30,240	25.7	260	0.7	5,151	16,027	21,178	31.5	834	38.4	163	3.1
R2sd	960	0.8	210	0.6	-	4,649	4,649	6.9	-	-	-	-
R2std	8,180	7.0	-	-	-	54	54	0.1	-	-	-	-
Sub-total	(68,970)	(58.7)	(13,920)	(39.6)	(10,418)	(33,682)	(44,100)	(65.6)	(1,066)	(49.1)	(2,952)	(55.8)
R3s	5,250	4.5	4,210	12.0	-	2,946	2,946	4.4	505	23.2	223	4.2
R3st	19,570	16.7	6,210	17.6	1,628	14,443	16,071	23.9	-	-	842	15.9
Sub-total	(24,820)	(21.2)	(10,420)	(29.6)	(1,628)	(17,389)	(19,017)	(28.3)	(505)	(23.2)	(1,065)	(20.1)
R6st	11,190	9.5	7,860	22.4	1,268	121	1,389	2.1	-	-	388	7.3
Others	3,800	3.2	1,470	4.2	-	-	-	-	-	-	-	-
Total	117,500	100.0	35,160	100.0	14,545	52,662	67,207	100.0	2,174	100.0	5,294	100.0



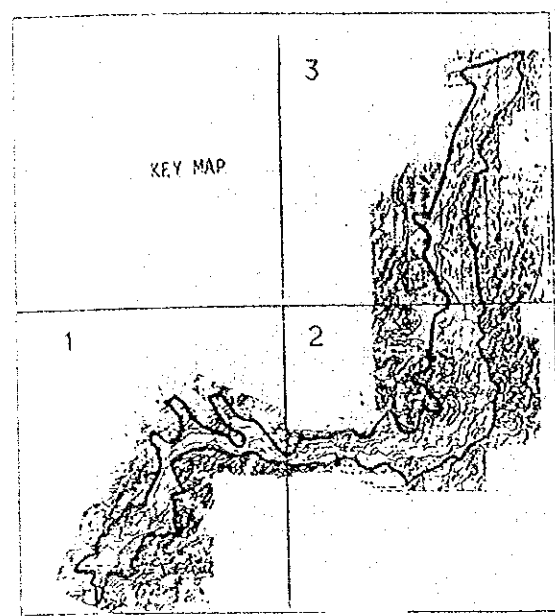
**MAPPING LEGEND**

Land Class	Area	
	rai	%
Class R1	8,720	7.4
Class R2	68,970	58.7
-R2s	(29,590)	(25.2)
-R2st	(30,240)	(25.7)
-R2sd	(960)	(0.8)
-R2std	(8,180)	(7.0)
Class R3	24,820	21.2
-R3s	(5,250)	(4.5)
-R3st	(19,570)	(16.7)
Class R6	11,190	9.5
-R6st	(11,190)	(9.5)
Others	3,800	3.2
<b>Total</b>	<b>117,500</b>	<b>100.0</b>

FIGURE C-6. LAND CLASSIFICATION MAP OF UPPER LAM PLAI MAT SUB-BASIN (1)

- THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

SCALE 1:50,000  
C-26



MAPPING LEGEND

Land Class	Area	ra1	%
Class R1	8,720		7.4
Class R2	68,970		58.7
-R2s	(29,590)		(25.2)
-R2st	(30,240)		(25.7)
-R2sd	(960)		(0.8)
-R2std	(8,180)		(7.0)
Class R3	24,020		21.2
-R3s	(5,250)		(4.5)
-R3st	(19,570)		(16.7)
Class R6	11,190		9.5
-R6st	(11,190)		(9.5)
Others	3,800		3.2
Total	117,500		100.0

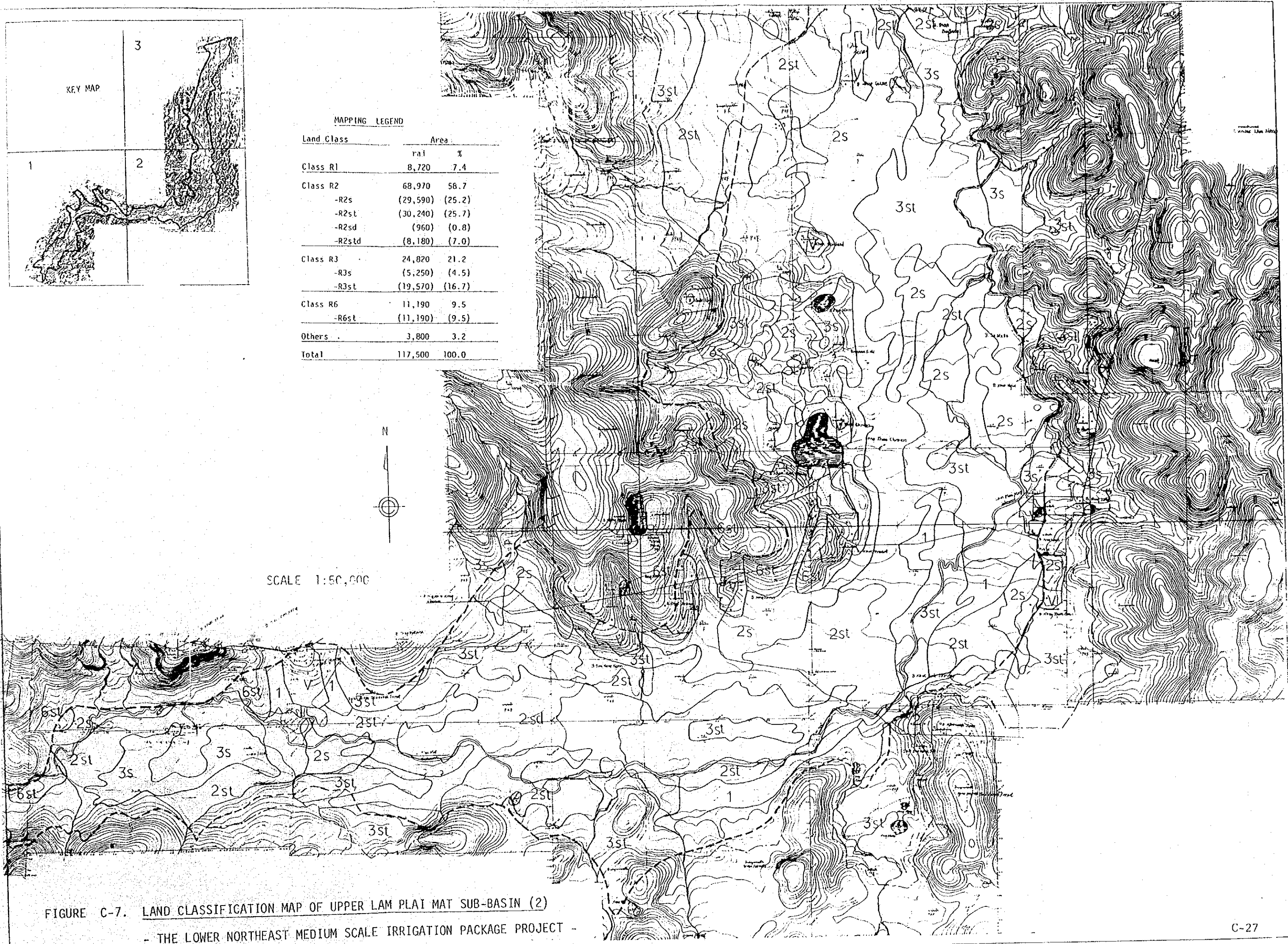
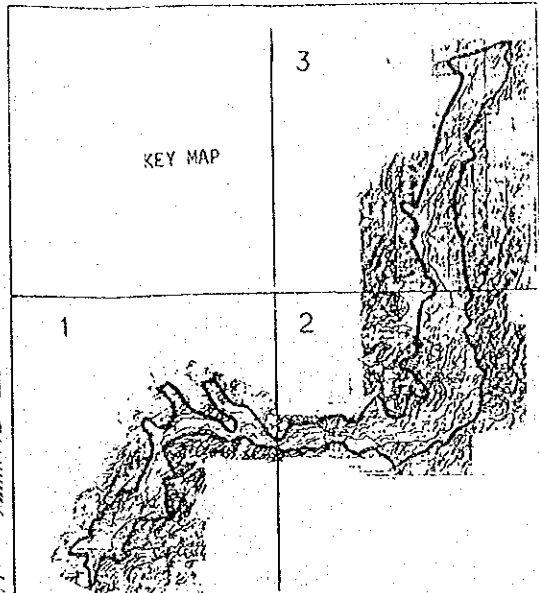
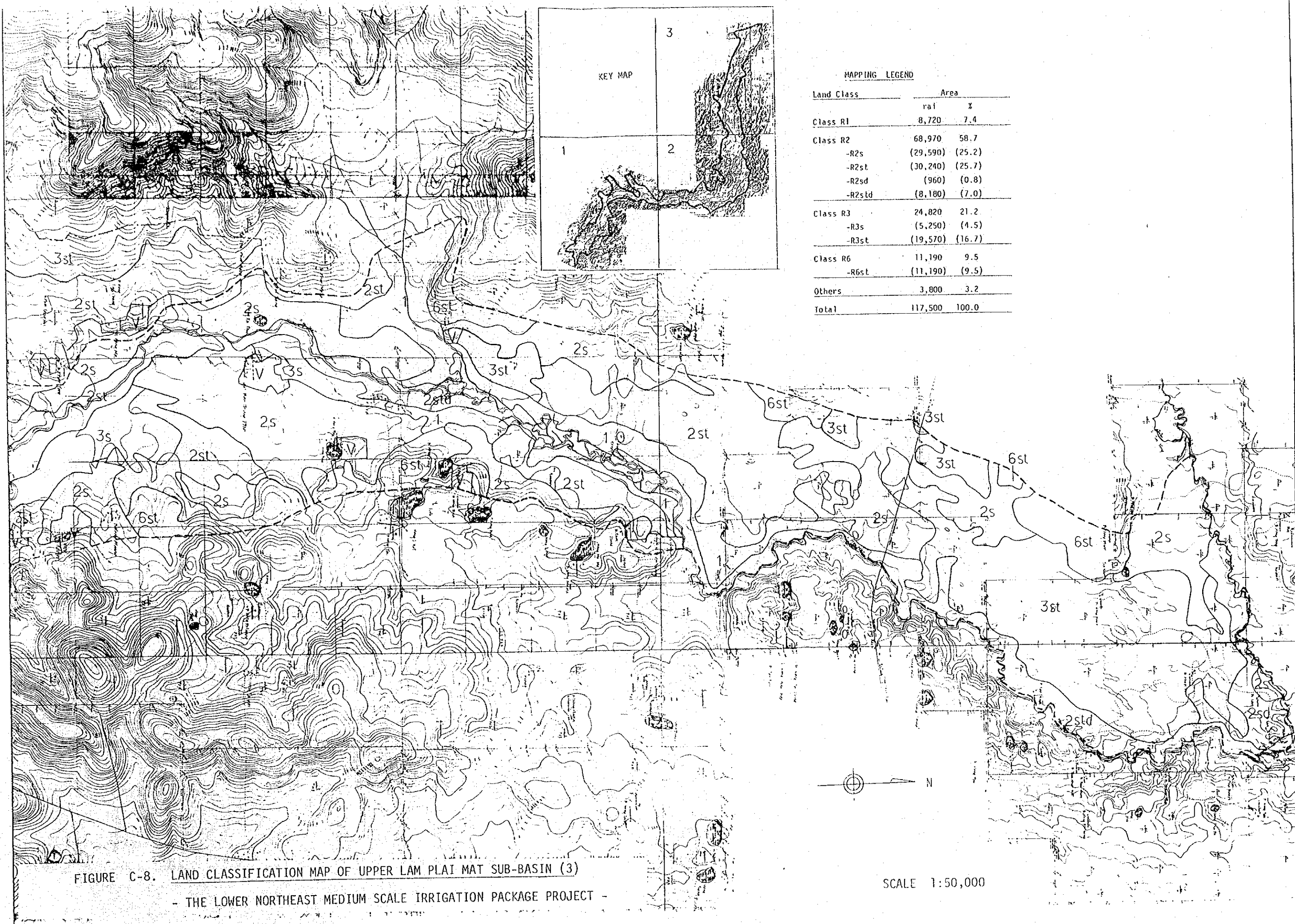


FIGURE C-7. LAND CLASSIFICATION MAP OF UPPER LAM PLAI MAT SUB-BASIN (2)  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -



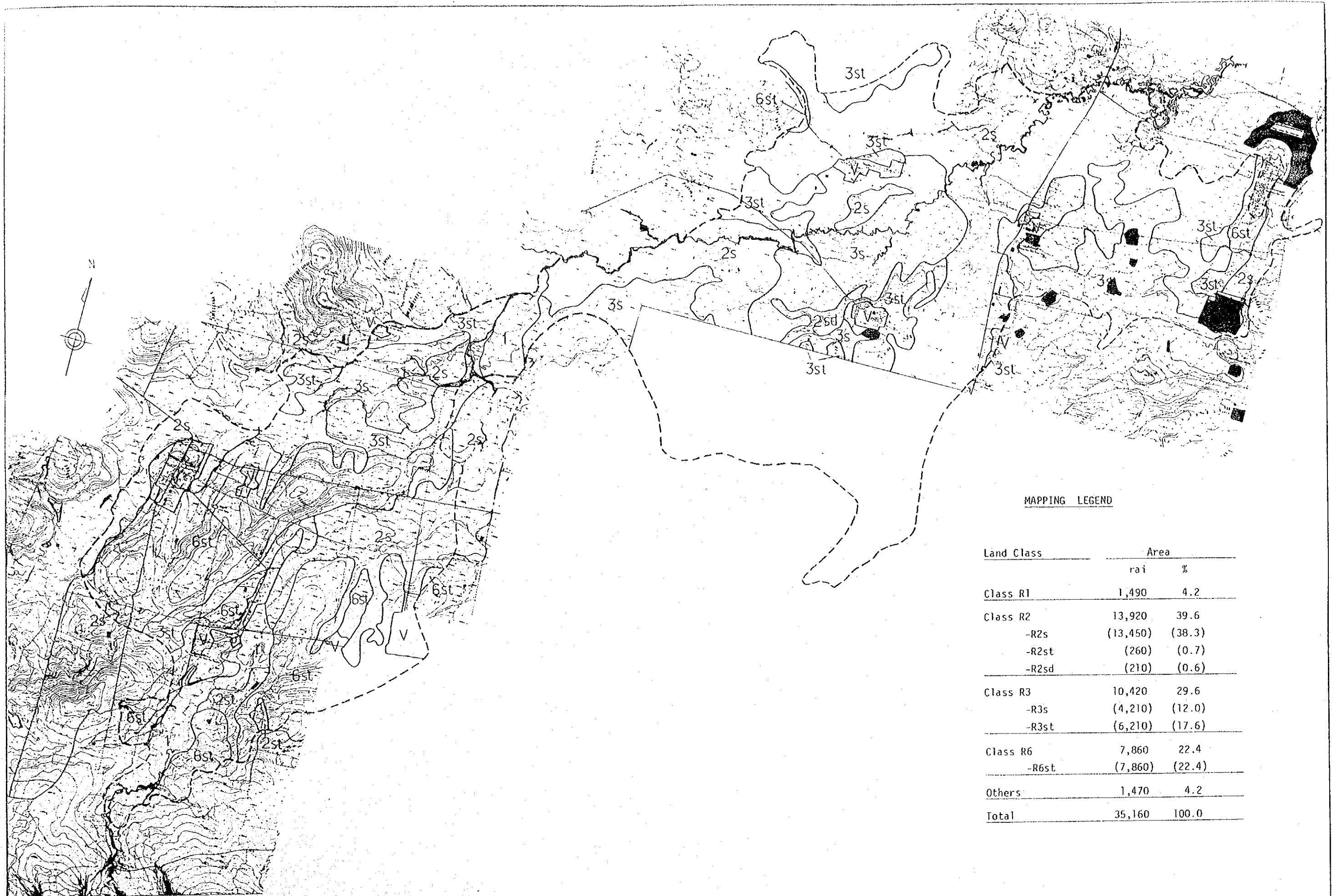
MAPPING LEGEND

Land Class	Area	
	ra1	%
Class R1	8,720	7.4
Class R2	68,970	58.7
-R2s	(29,590)	(25.2)
-R2st	(30,240)	(25.7)
-R2sd	(960)	(0.8)
-R2std	(8,180)	(7.0)
Class R3	24,820	21.2
-R3s	(5,250)	(4.5)
-R3st	(19,570)	(16.7)
Class R6	11,190	9.5
-R6st	(11,190)	(9.5)
Others	3,800	3.2
Total	117,500	100.0

FIGURE C-8. LAND CLASSIFICATION MAP OF UPPER LAM PLAI MAT SUB-BASIN (3)  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -



SCALE 1:50,000



MAPPING LEGEND

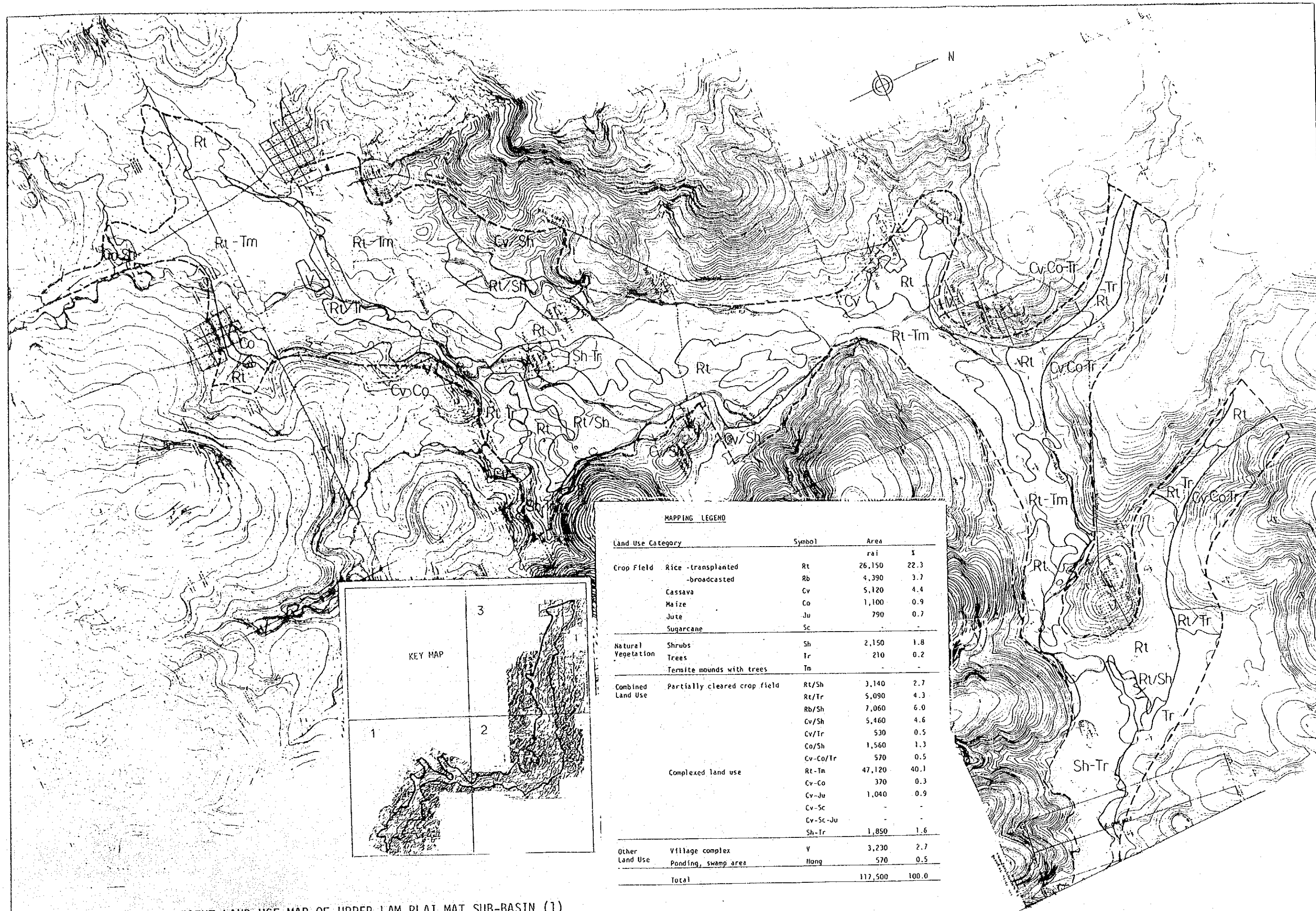
Land Class	Area	
	rai	%
Class R1	1,490	4.2
Class R2	13,920	39.6
-R2s	(13,450)	(38.3)
-R2st	(260)	(0.7)
-R2sd	(210)	(0.6)
Class R3	10,420	29.6
-R3s	(4,210)	(12.0)
-R3st	(6,210)	(17.6)
Class R6	7,860	22.4
-R6st	(7,860)	(22.4)
Others	1,470	4.2
Total	35,160	100.0

FIGURE C-9. LAND CLASSIFICATION MAP OF HUAI SEO SUB-BASIN  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

Table C-4. Summary of Land Use Categories

Land Use Category	Mapping Symbols	Project Study Area			
		Upper Lam Plai Mar Sub-Basin		Huai Seo Sub-Basin	
		rai	%	rai	%
<b>Crop Field Rice</b>					
- Transplanted	Rt	26,150	22.3	11,220	31.9
- Broadcasted	Rb	4,390	3.7	-	-
Cassava	Cv	5,120	4.4	7,750	22.0
Maize	Co	1,100	0.9	-	-
Jute	Ju	790	0.7	310	0.9
Sugarcane	Sc	-	-	-	-
<b>Natural Vegetation</b>					
Shrubs	Sh	2,150	1.8	50	0.2
Trees	Tr	210	0.2	-	-
Termite mounds with trees	Tm	-	-	-	-
<b>Combination Land Use</b>					
Partially cleared crop field	Rt/Sh	3,140	2.7	-	-
	Rc/Tr	5,090	4.3	1,670	4.7
	Rb/Sh	7,060	6.0	-	-
	Cv/Sh	5,460	4.6	-	-
	Cv/Tr	530	0.5	-	-
	Co/Sh	1,560	1.3	-	-
	Cv-Co/Tr	570	0.5	-	-
Complex land use	Rt-Tm	47,120	40.1	11,790	33.5
	Cv-Co	370	0.3	-	-
	Cv-Ju	1,040	0.9	160	0.5
	Cv-Sc	-	-	440	1.3
	Cv-Sc-Ju	-	-	180	0.5
	Sh-Tr	1,850	1.6	120	0.3
<b>Other Land Use</b>					
Village complex	Village	3,230	2.7	1,190	3.4
Ponding, swamp area	Nong	570	0.5	280	0.8
<b>Total</b>		<b>117,500</b>	<b>100.0</b>	<b>35,160</b>	<b>100.0</b>

Source: Land Classification Branch, Soil & Geology Div., RID (November 1983)



**MAPPING LEGEND**

Land Use Category		Symbol	Area	%
			rai	
Crop Field	Rice -transplanted	Rt	26,150	22.3
	-broadcasted	Rb	4,390	3.7
	Cassava	Cv	5,120	4.4
	Maize	Co	1,100	0.9
	Jute	Ju	790	0.7
	Sugarcane	Sc	-	-
Natural Vegetation	Shrubs	Sh	2,150	1.8
	Trees	Tr	210	0.2
	Termite mounds with trees	Tm	-	-
Combined Land Use	Partially cleared crop field	Rt/Sh	3,140	2.7
		Rt/Tr	5,090	4.3
		Rb/Sh	7,060	6.0
		Cv/Sh	5,460	4.6
		Cv/Tr	530	0.5
		Co/Sh	1,560	1.3
		Cv-Co/Tr	570	0.5
	Complexed land use	Rt-Tm	47,120	40.1
		Cv-Co	370	0.3
		Cv-Ju	1,040	0.9
		Cv-Sc	-	-
		Cv-Sc-Ju	-	-
	Sh-Tr	1,850	1.6	
Other Land Use	Village complex	V	3,230	2.7
	Ponding, swamp area	Hlong	570	0.5
<b>Total</b>			<b>112,500</b>	<b>100.0</b>

FIGURE C-10. PRESENT LAND USE MAP OF UPPER LAM PLAI MAT SUB-BASIN (1)  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -



MAPPING LEGEND

Land Use Category	Symbol	Area rai	%	
Crop Field	Rice -transplanted	26,150	22.3	
	-broadcasted	4,390	3.7	
	Cassava	5,120	4.4	
	Maize	1,100	0.9	
	Jute	790	0.7	
Natural Vegetation	Shrubs	2,150	1.9	
	Trees	210	0.2	
Combined Land Use	Partially cleared crop field	Rt/Sh	3,140	2.7
		Rt/Tr	5,090	4.3
		Rb/Sh	7,060	6.0
		Cv/Sh	5,460	4.6
		Cv/Tr	530	0.5
		Co/Sh	1,560	1.3
		Cv-Co/Tr	570	0.5
	Complexed land use	Rt-Tm	47,120	40.1
		Cv-Co	370	0.3
		Cv-Ju	1,040	0.9
Cv-Sc-Ju		-	-	
Sh-Tr		1,850	1.6	
Other Land Use	Village complex	V	3,230	2.7
	Ponding, swamp area	Mong	570	0.5
Total		117,500	100.0	

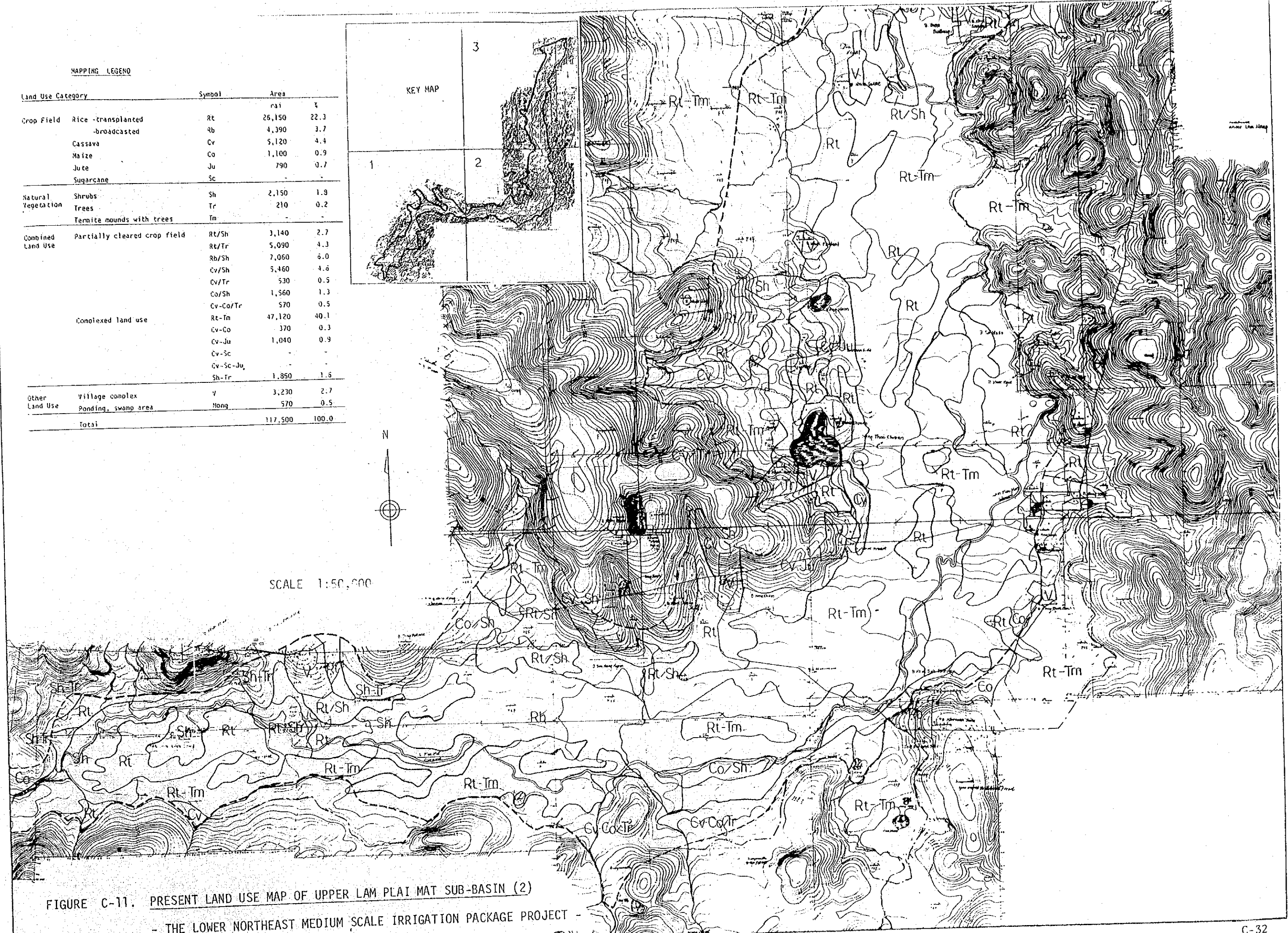
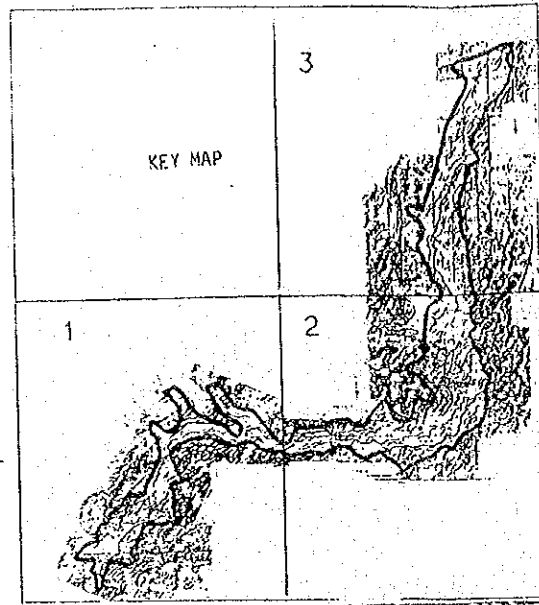
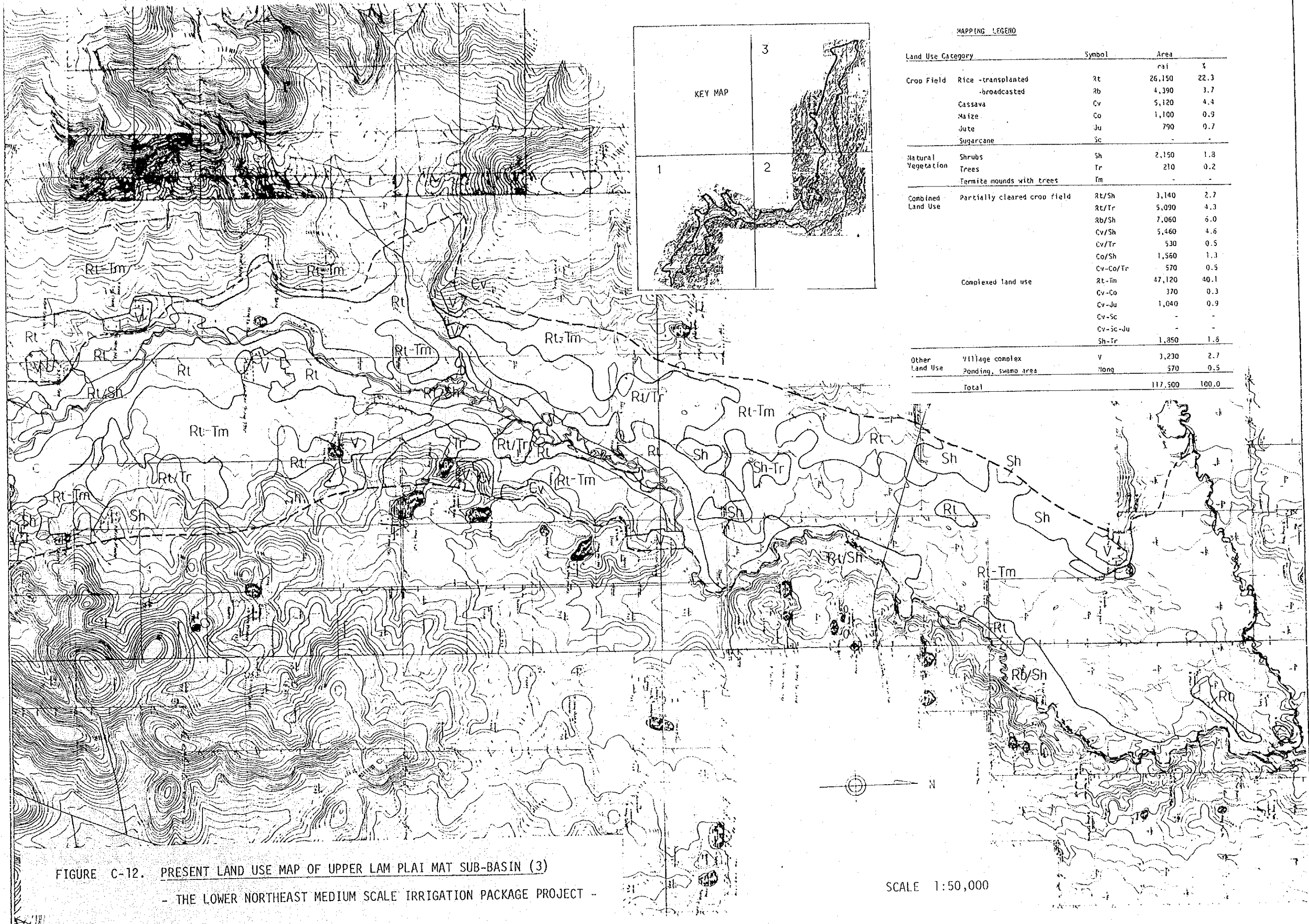


FIGURE C-11. PRESENT LAND USE MAP OF UPPER LAM PLAI MAT SUB-BASIN (2)  
- THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

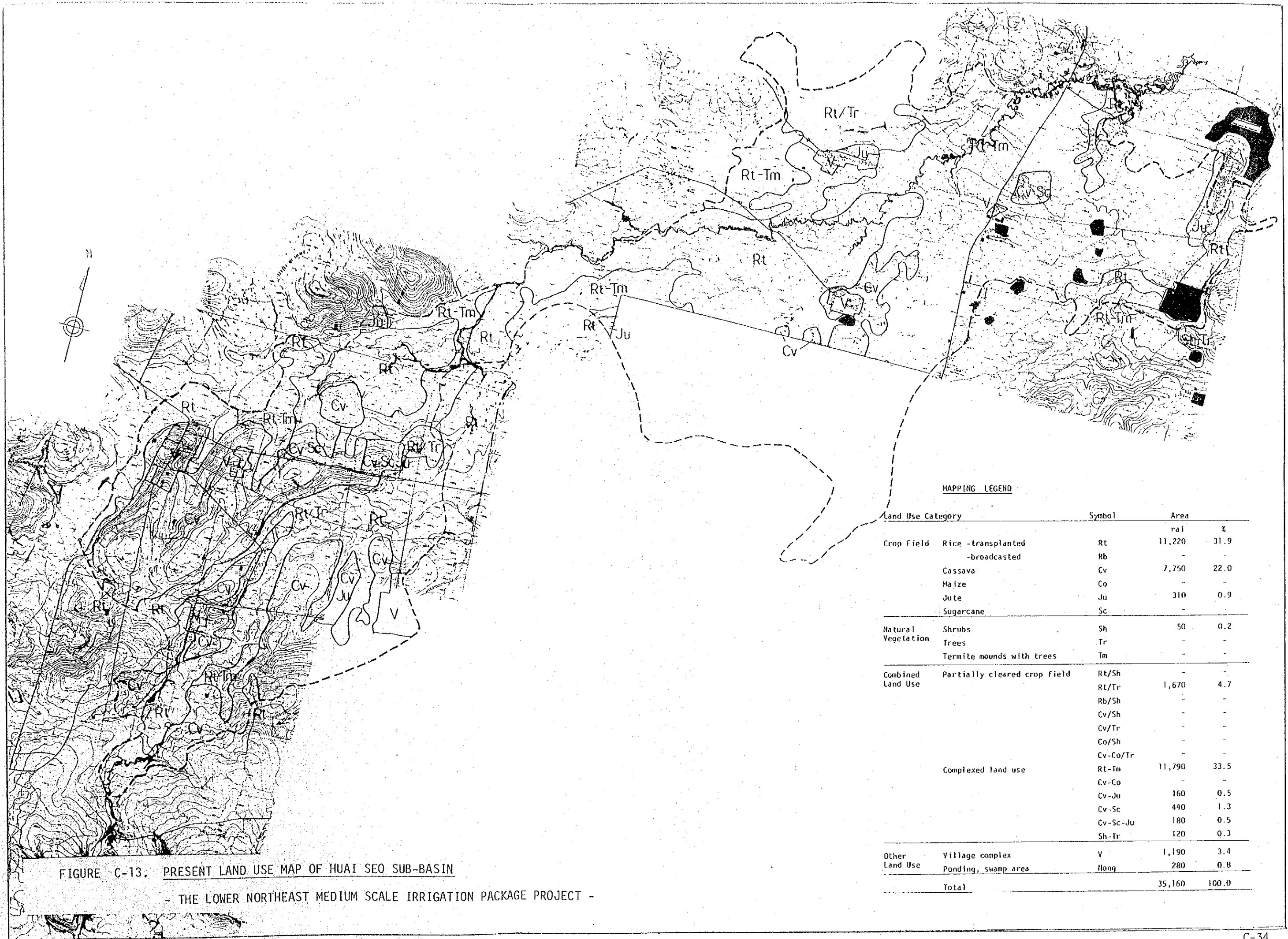


MAPPING LEGEND

Land Use Category	Symbol	Area	
		rai	%
Crop Field	Rice -transplanted	Rt	26,150 22.3
	-broadcasted	Rb	4,390 3.7
	Cassava	Cv	5,120 4.4
	Maize	Co	1,100 0.9
	Jute	Ju	790 0.7
	Sugarcane	Sc	-
Natural Vegetation	Shrubs	Sh	2,150 1.8
	Trees	Tr	210 0.2
	Termite mounds with trees	Tm	-
Combined Land Use	Partially cleared crop field	Rt/Sh	3,140 2.7
		Rt/Tr	5,090 4.3
		Rb/Sh	7,060 6.0
		Cv/Sh	5,460 4.6
		Cv/Tr	530 0.5
		Co/Sh	1,560 1.3
		Cv-Co/Tr	570 0.5
	Complexed land use	Rt-Tm	47,120 40.1
		Cv-Co	370 0.3
		Cv-Ju	1,040 0.9
	Cv-Sc	-	
	Cv-Sc-Ju	-	
	Sh-Tr	1,350 1.6	
Other Land Use	Village complex	V	1,230 2.7
	Ponding, swam area	Wong	570 0.5
	Total		117,500 100.0

FIGURE C-12. PRESENT LAND USE MAP OF UPPER LAM PLAI MAT SUB-BASIN (3)  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

SCALE 1:50,000



MAPPING LEGEND

Land Use Category		Symbol	Area	
			rai	%
Crop Field	Rice -transplanted	Rt	11,220	31.9
	-broadcasted	Rb	-	-
	Cassava	Cv	7,750	22.0
	Maize	Co	-	-
	Jute	Ju	310	0.9
	Sugarcane	Sc	-	-
Natural Vegetation	Shrubs	Sh	50	0.2
	Trees	Tr	-	-
	Termite mounds with trees	Tm	-	-
Combined Land Use	Partially cleared crop field	Rt/Sh	-	-
		Rt/Tr	1,670	4.7
		Rb/Sh	-	-
		Cv/Sh	-	-
		Cv/Tr	-	-
		Co/Sh	-	-
		Cv-Co/Tr	-	-
	Complexed land use	Rt-Tm	11,790	33.5
		Cv-Co	-	-
		Cv-Ju	160	0.5
	Cv-Sc	440	1.3	
	Cv-Sc-Ju	180	0.5	
	Sh-Tr	120	0.3	
Other Land Use	Village complex	V	1,190	3.4
	Ponding, swamp area	Nong	280	0.8
Total			35,160	100.0

FIGURE C-13. PRESENT LAND USE MAP OF HUAI SEO SUB-BASIN  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

FIGURE C-14. LOCATION OF MASTER SITES IN UPPER LAM PLAI MAT SUB-BASIN  
- THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

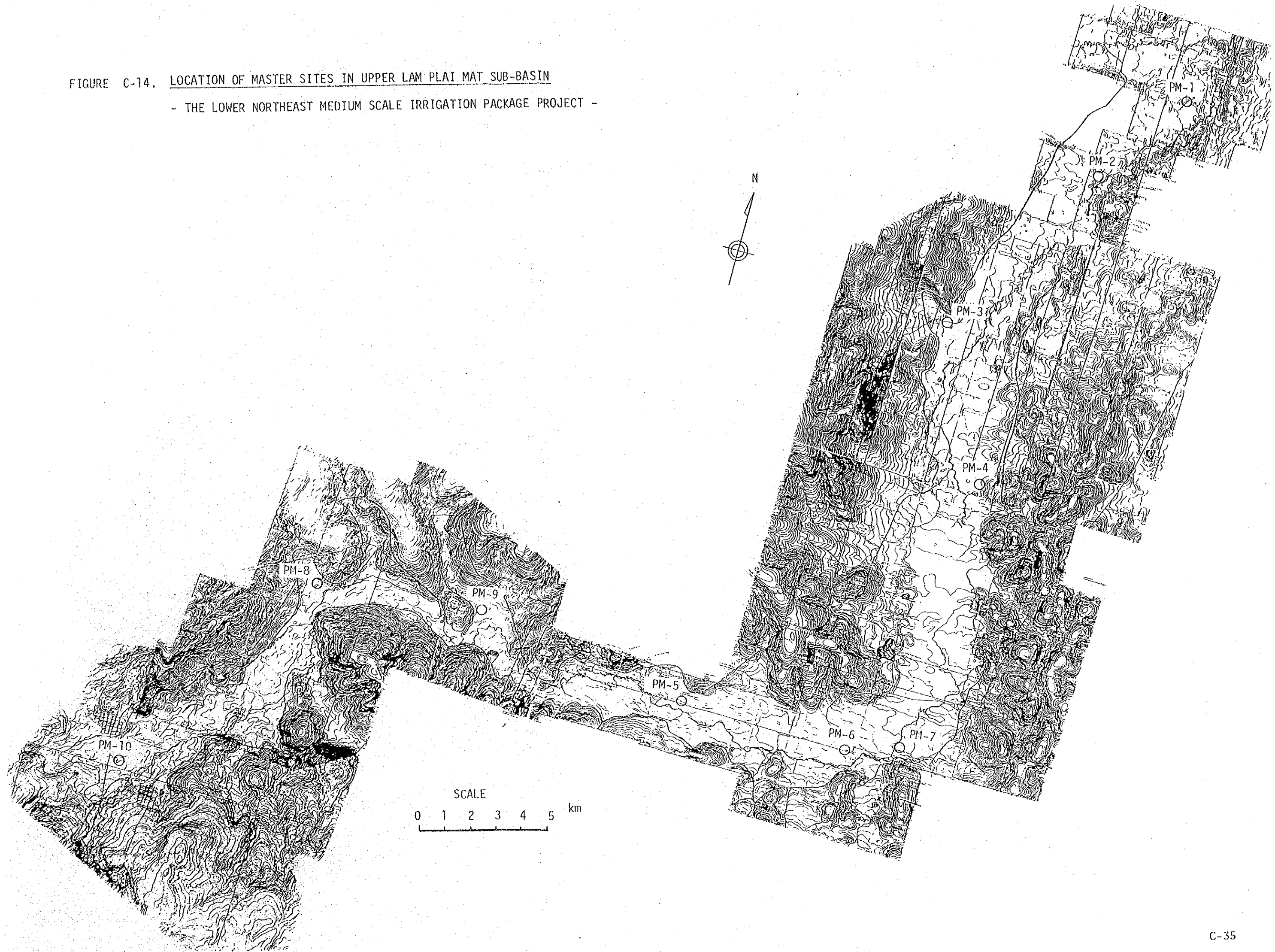


FIGURE C-15. LOCATION OF MASTER SITES IN HUAI SEO SUB-BASIN  
- THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

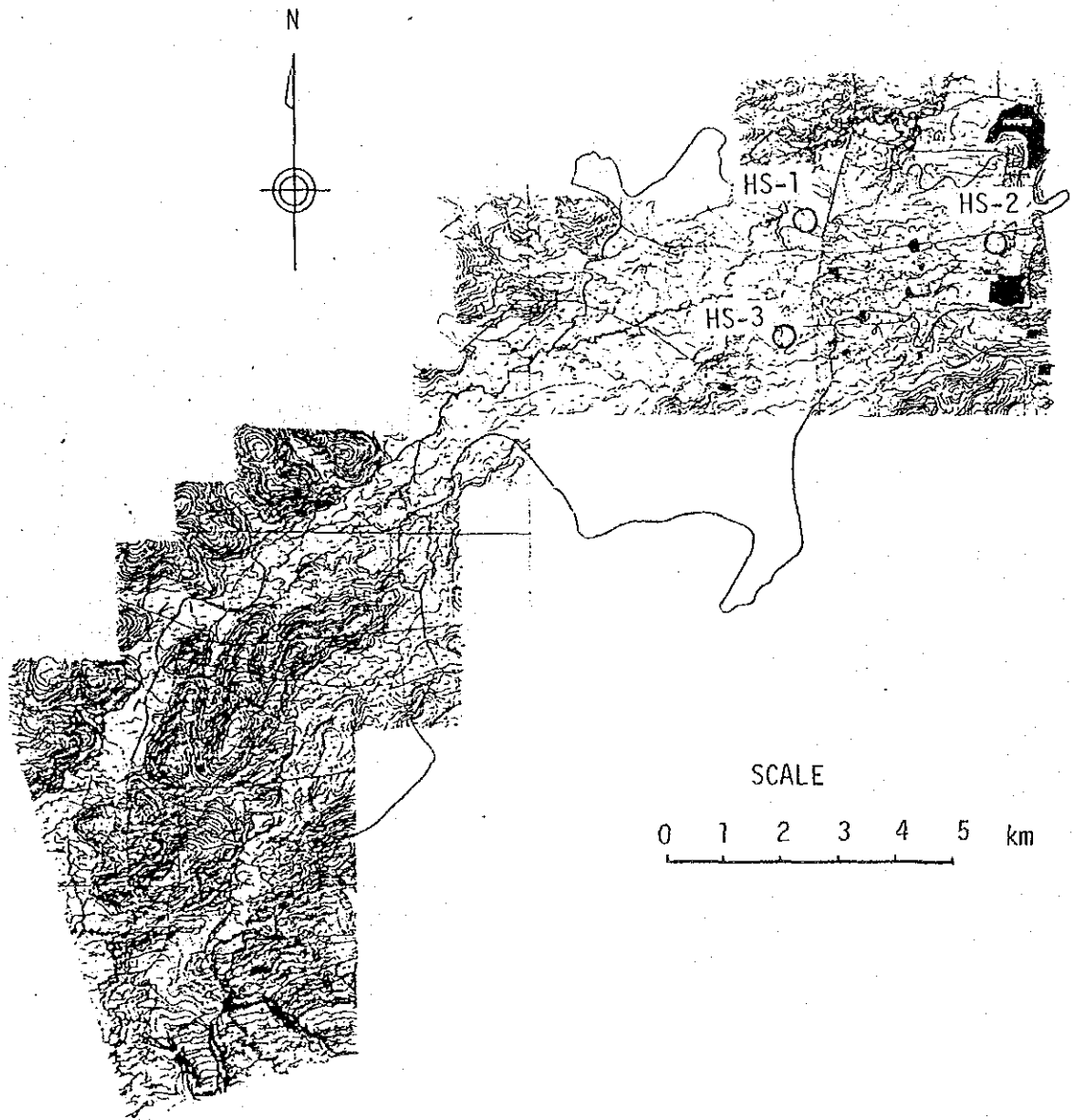


FIGURE C-16. SOIL PROFILES OF MASTER SITES IN UPPER LAM PLAI MAT SUB-BASIN  
- THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -

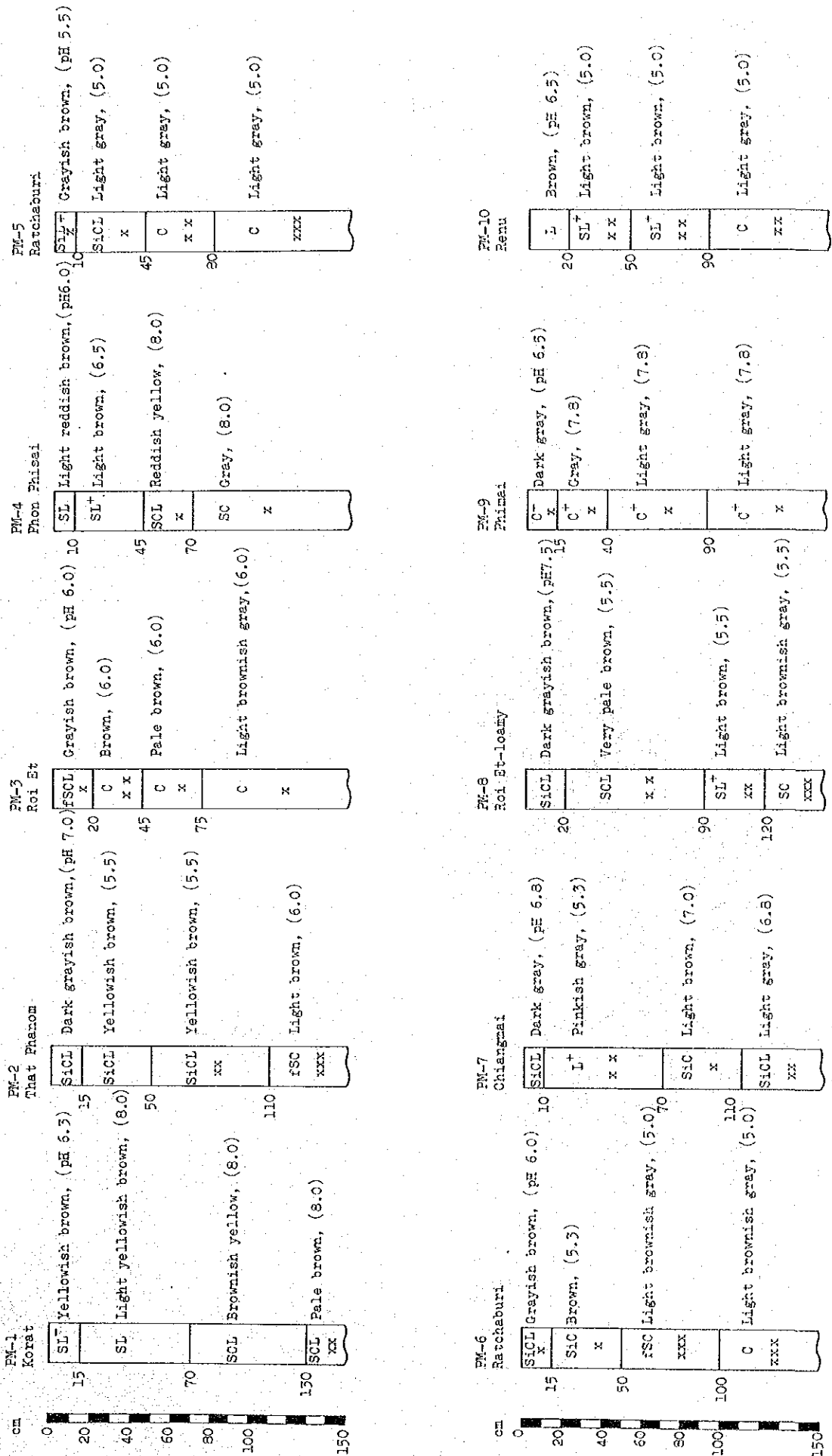
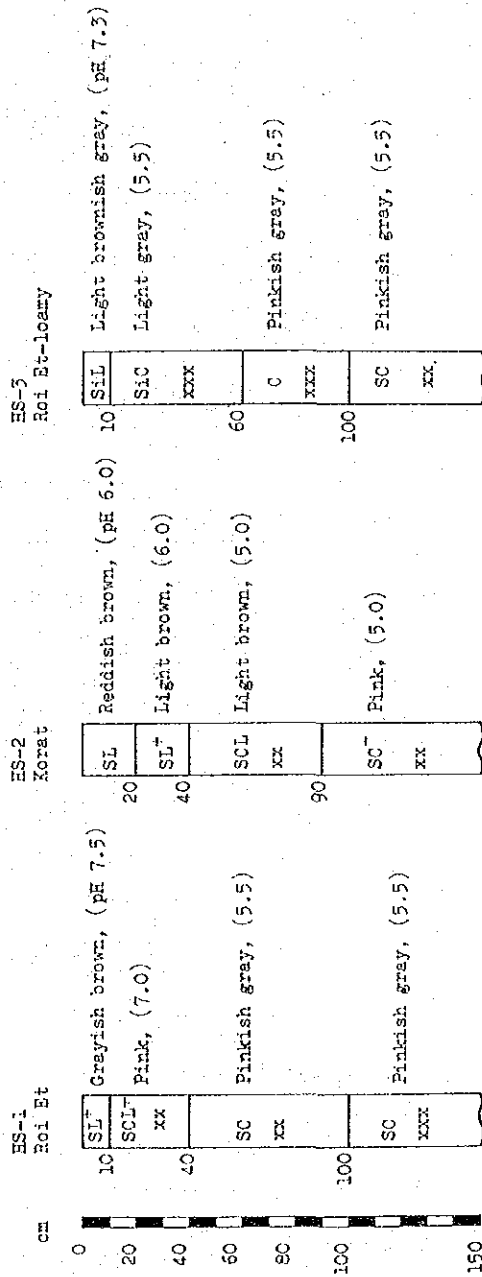


FIGURE C-17. SOIL PROFILES OF MASTER SITES IN HUAI SEO SUB-BASIN  
 - THE LOWER NORTHEAST MEDIUM SCALE IRRIGATION PACKAGE PROJECT -



LEGEND

x	Mottlings	X
x	few	
xx	common	
xxx	many	

Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (1)

กองปดพื้นและธรณีวิทยา  
กรมชลประทาน



ป.ธ. 2-02  
(ก.ค. 2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 95 - 229 Sheet \_\_\_\_\_ Roll \_\_\_\_\_ Strip 2/4

Location Lam Plai Mat Project L.P.M. S 4.5 cm, E 10.9 cm of NW.

Date Sept. 4, 1983 Classified by Somsak, Chao, Suraphol

East of Ban Rai Khok, 1 km

Hole No. PM-1 Land Class \_\_\_\_\_ Sample No. 1 - 4

Depth cm.	Texture	Color	Mottling	PH
0 - 15	SL	10YR 5/4 Yel. br.	none	6.3
15 - 70	SL	10YR 6/4 Lt. yel. br.	none	8.0
70 - 130	SCL	10YR 6/8 Br. yel.	none	8.0
130 - 150	SCL	10YR 6/3 Pale br.	10YR 6/8	8.0

Depth to = Impervious clay \_\_\_\_\_ Laterite \_\_\_\_\_

Rock \_\_\_\_\_ Water Table \_\_\_\_\_

Estimate Yield \_\_\_\_\_ Tang/Rai, Land Use Shrubs

Slope \_\_\_\_\_ % Terrace Somewhat high

Topography Gently rough

Drainage Moderately well to medium

Subjected to flood, None Salt on Surface \_\_\_\_\_

Under proper improvement this land may become land class \_\_\_\_\_

Above basin, Rt series

Remarks Secondary forest, 3 m high

Old alluvium. The other side of this track is rice cultivation lands with trees.



Table C-5: Soil Profile Description : Upper Lam Plai Mat Sub-Basin (2)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.บ. 2-02  
(ก.ก. 2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 95 - 489 Sheet - Roll - Strip 4/4

Location S 5.1 cm, E 11.7 cm of NW corner of L.P.M.

Date Sept. 4, 1983 Classified by Chao, Somsak, Suraphol  
On highway to Korat - Nang Rong.

Hole No. PM-2 Land Class Sample No. 5 - 8



Depth cm.	Texture	Color	Mottling	PH
0 - 15	SiCL	10YR 4/2 Gr.br.	none	7.0
15 - 50	SiCL	10YR 5/4 Yel.br.	none	5.5
50 - 110	SiCL	10YR 5/6 Yel.br.	2.5YR 5/8 Red 20%	5.5
110 - 150	fSC	7.5YR 6/4 Lt.br.	2.5YR 4/6 Red 30% 10YR 5/8 Yel.br.10%	6.0

Depth to = Impervious clay Laterite

Rock Water Table On surface 20 cm.

Estimate Yield 30 Tang/Rai, Land Use Transplanted rice

Slope 0 - 1 % Terrace Low, recent alluvial

Topography Gently undulating

Drainage Poorly - medium

Subjected to flood Periodic Salt on Surface

Under proper improvement this land may become land class

Tp series (That Phanom)

Remarks On the tidalflat of Lam Plai Mat river.

Recent alluvium. Floods in every year, 50 - 100 cm. during September to October. Water depth at present is 20 cm.

Table C- 5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (3)

กองปถพีและธรณีวิทยา  
กรมชลประทาน



ป.๕.๒-๐๒  
(ก.ก.๒๕๒๐)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 99 - 272 Sheet - Roll - Strip 7/4

Location N 1.5 cm, E 1.5 cm of SW of L.P.M.

Date Sept. 4, 1983 Classified by Chao, Somsak, Suraphol

South of Ban Salas 500 m.

Hole No. PM-3 Land Class - Sample No. 9 - 12

Depth cm.	Texture	Color	Mottling	PH
0 - 20	fSCL	10YR 5/2 Gr.br.	7.5YR 4/6 St.br. 5%	6.0
20 - 45	C	10YR 5/3 Br.	10YR 4/6 Dr.yel.br.20%	6.0
45 - 75	C	10YR 6/3 Pale br.	10YR 5/8 Yel.br. 5%	6.0
75 - 150	C <sup>+</sup>	10YR 6/2 Lt.br.gr.	do 5%	6.0

Depth to = Impervious clay - Laterite Pisolite on surface

Rock - Water Table On surface 5 - 10 cm

Estimate Yield 40 Tang/Rai, Land Use Transplanted rice

Slope 0.1 % Terrace Middle to low

Topography Smooth

Drainage Poorly - middle to slow

Subjected to flood None Salt on Surface -

Under proper improvement this land may become land class

Rt series

Remarks

Fe 10% on surface, small hard

Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (4)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.ธ. 2-02  
(ก.ค. 2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 100 - 074 Sheet - Roll - Strip 10/5

Location N 4.0 cm, E 4.5 cm of SW corner of L.P.M.

Date Sept. 4, 1983 Classified by Chao, Somsak, Suraphol  
Ban Nong Muang

Hole No. PM-4 Land Class - Sample No. 13 - 16



<u>Depth cm.</u>	<u>Texture</u>	<u>Color</u>	<u>Mottling</u>	<u>PH</u>
0 - 10	SL	5YR 6/4 Lt. red br.	none	6.0
10 - 45	SL <sup>+</sup>	7.5YR 6/4 Lt. br.	none	6.5
45 - 70	SCL	7.5YR 6/6 Red yel.	10YR 6/8 Br. yel. 10%	8.0
70 - 150	SC	10YR 5/1 Gray	10YR 6/8 Br. yel. 10%	8.0

Depth to = Impervious clay - Laterite -

Rock - Water Table -

Estimate Yield - Tang/Rai, Land Use Trees - shrubs

Slope 1 - 2 % Terrace Middle terrace

Topography Undulating

Drainage Well - medium

Subjected to flood None Salt on Surface -

Under proper improvement this land may become land class -

Between Korat and Roi Et series (Phon Phisai ?)

Remarks Non-cultivated area

70 - 150 cm SC with cobbles (20%) and some CaCO<sub>3</sub> (5%)

Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (5)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.บ. 2-02  
(ก.ก. 2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 118 - 18 Sheet \_\_\_\_\_ Roll \_\_\_\_\_ Strip 16/6

Location N. 4.7 cm, W. 8.0 cm of SE corner of L.P.M.

Date Sept. 6, 1983 Classified by Chao, Somsak, Suraphol

Hole No. PM-5 Land Class \_\_\_\_\_ Sample No. 17 - 20

Depth cm.	Texture	Color	Mottling	PH
0 - 10	SiL	10YR 5/2 Gr.br.	7.5YR 4/6 Str.br. 5%	5.5
10 - 45	SiCL	10YR 6/1 Lt.gr.br.	7.5YR 5/8 Str.br. 10%	5.0
45 - 80	C	10YR 7/2 Lt.gr.	7.5YR 5/8 Str.br. 20%	5.0
80 - 150	C	10YR 7/2 Lt.gr.	7.5YR 5/6 Str.br. 30%	5.0

Depth to = Impervious clay \_\_\_\_\_ Laterite \_\_\_\_\_

Rock \_\_\_\_\_ Water Table \_\_\_\_\_

Estimate Yield \_\_\_\_\_ Tang/Rai, Land Use Shrubs

Slope 0 - 1 % Terrace Above basin

Topography Undulating

Drainage Moderately poor to medium

Subjected to flood \_\_\_\_\_ Salt on Surface \_\_\_\_\_

Under proper improvement this land may become land class \_\_\_\_\_  
Unknown series ( should be Ratchaburi)

Remarks Uncultivated land

Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (6)

กองปถพีและธรณีวิทยา  
กรมชลประทาน



ป.๖.๒-๐๒  
(ก.ค.๒๕๒๐)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 118 - 026 Sheet - Roll - Strip 16/10

Location N. 3.0 cm, W. 1.9 cm of SE of L.P.M.

Date Sept. 6, 1983 Classified by Somsak, Chao, Suraphol

North of Lam Plai Mat 400 m.

Hole No. PM-6 Land Class - Sample No. 21-24v

<u>Depth cm.</u>	<u>Texture</u>	<u>Color</u>	<u>Mottling</u>	<u>PH</u>
0 - 15	SiCL	10YR 5/2 Gr.br.	7.5YR 4/6 Str.br. 5%	6.0
15 - 50	SiC	10YR 5/3 Br.	10R 4/6 Red 10% 7.5YR 4/6 Str.br. 5%	5.3
50 - 100	fSC	10YR 6/2 Lt.br.gr.	10R 4/6 Red 20% 10YR 6/8 Br.yel. 15%	5.0
100 - 150	C	10YR 6/2 Lt.br.gr.	7.5YR 5/8 Str.br. 10%	5.0

Depth to = Impervious clay - Laterite -

Rock - Water Table On the surface, 10 cm

Estimate Yield 40 - 50 Tang/Rai, Land Use Transplanted rice

Slope 0 - 1 % Terrace Low, Hydromorphic soils

Topography Smooth

Drainage Poorly - slow (internal)

Subjected to flood None Salt on Surface -

Under proper improvement this land may become land class -

Rb series

Remarks No flooding hazard, only rice cultivation, rainfed paddy

The rice has been planted about one month before.

Local rice variety named Luang Praturc (pale rice)

No fertilizer was used. Maximum water depth, 30 -40 cm high.

Table C- 5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (7)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.๖.๒-๐๒  
(ก.ก.๒๕๒๐)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 118 - 030 Sheet - Roll - Strip 16/12

Location S. 5.4 cm, E. 9.6 cm of NW corner of L.P.M.

Date Sept. 6, 1983 Classified by Chao, Suraphol

North of Ban Sook Samran

Hole No. PM-7 Land Class - Sample No. 25 - 28

<u>Depth cm.</u>	<u>Texture</u>	<u>Color</u>	<u>Mottling</u>	<u>PH</u>
0 - 10	SiCL	10YR 4/1 Dk.gr.	7.5YR 4/6 Str.br. 3%	6.8
10 - 70	L <sup>+</sup>	7.5YR 6/2 Pink gr.	7.5YR 5/8 Str.br. 20%	5.3
70 - 110	SiC	7.5YR 6/4 Lt.br.	7.5YR 5/8 Str.br. 10%	7.0
110 - 150	SiCL	10YR 7/2 Lt.gr.	10YR 5/8 Yel.br. 20%	6.8

Depth to = Impervious clay - Laterite -

Rock - Water Table 50 cm

Estimate Yield 35 Tang/Rai, Land Use Transplanted rice - trees

Slope 0 - 1 % Terrace River levees, recent alluvial

Topography Gently undulating

Drainage Somewhat poor - medium

Subjected to flood Periodic Salt on Surface -

Under proper improvement this land may become land class -

Cm series

Remarks Local variety rice named Dok Mali.

No flooding hazard, this land is an island of the Lam Plai Mat

river for 120 - 150 days.

Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (8)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.6.2-02  
(ก.ก.2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 125 - 355 Sheet \_\_\_\_\_ Roll \_\_\_\_\_ Strip 19/4

Location N. 2.0 cm, E 3.4 cm of SW corner of L.P.M.

Date Sept. 6, 1983 Classified by Chao, Somsak

Southwest of Ban Phok Tao Lek

Hole No. PM-8 Land Class \_\_\_\_\_ Sample No. 29 - 32

Depth cm.	Texture	Color	Mottling	PH
0 - 20	SiCL	10YR 4/2 Dk.br.	none	7.5
20 - 90	SCL	10YR 7/3 V.pale br.	10YR 4/6 Dk.yel.br. 20%	5.5
90 - 120	SL <sup>+</sup>	7.5YR 6/4 Lt.br.	7.5YR 5/8 Str.br. 20%	5.5
120 - 150	SC	10YR 6/2 Lt.br.gr.	7.5YR 4/6 Str.br. 30%	5.5

Depth to = ImperVIOUS clay \_\_\_\_\_ Laterite \_\_\_\_\_

Rock \_\_\_\_\_ Water Table On surface 5 cm

Estimate Yield 30 - 40 Tang/Rai, Land Use Transplanted rice

Slope 0 -1 % Terrace Middle, semi-recent

Topography Gently undulating - smooth

Drainage Moderate

Subjected to flood None Salt on Surface \_\_\_\_\_

Under proper Improvement this land may become land class \_\_\_\_\_

Re-1 series

Remarks Not flooded

Landscape is nearly flat between two terraces.

Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (9)

กองปดพื้นและธรณีวิทยา  
กรมชลประทาน



ป.๖.๒-๐๒  
(ก.ค.๒๕๒๐)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 125 -363 Sheet - Roll - Strip 19/8

Location S. 5.3 cm, E 1.5 cm of NW corner of L.P.M.

Date Sept. 6, 1983 Classified by Chao, Somsak, Suraphol

Northeast of Ban Krut Bot, 250 m.

Hole No. PM-9 Land Class Sample No. 33 - 36

Depth cm.	Texture	Color	Mottling	PH
0 - 15	C <sup>+</sup>	10YR 4/1 Dk.gr.	7.5YR 4/6 Str.br. 5%	6.5
15 - 40	C <sup>+</sup>	10YR 5/1 Gr.	10YR 4/6 Dk.yel.br.10%	7.8
40 - 90	C <sup>+</sup>	10YR 6/1 Lt.gr.	10YR 5/8 Yel.br. 10%	7.8
90 - 150	C <sup>+</sup>	10YR 7/1 Lt.gr.	10YR 6/8 Br.yel. 10%	7.8

Depth to = Impervious clay - Laterite -

Rock - Water Table On surface, 35 cm

Estimate Yield 50 - 60 Tng/Rai, Land Use Transplanted rice

Slope 0 - 1 % Terrace Low, recent alluvium

Topography Level

Drainage Very poorly

Subjected to flood, Periodic Salt on Surface -

Under proper improvement this land may become land class

Phimai series, clayey soil

Remarks No flooding hazard, 35 cm high in this year.

Non-glutinous rice "Khao"

Flooding hazard in some years, too much water (1.5 m) in the last year.



Table C-5. Soil Profile Description : Upper Lam Plai Mat Sub-Basin (10)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.๖.๒-๐๒  
(ก.ก.๒๕๒๐)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 103 - 145 Sheet - Roll - Strip 24/2

Location N. 6.3 cm, W. 3.9 cm of SE corner of L.P.M.

Date Sept. 6, 1983 Classified by Chao, Somsak, suraphol

Southeast of Ban Non Some Boon, 1000 m.

Hole No. PM-10 Land Class - Sample No. 37 - 40

Depth cm.	Texture	Color	Mottling	PH
0 - 20	L	7.5YR 5/2 Br.	none	6.5
20 - 50	SL	7.5YR 6/4 Lt.br.	5YR 5/8 Yel.red 20%	5.0
50 - 90	SL	do.	7.5YR 5/8 Str.br. 20%	5.0
90 - 150	C	10YR 7/2 Lt.gr.	10YR 6/8 Br.yel. 10% 2.5YR 3/6 Dk.red 10%	5.0

Depth to = Impervious clay - Laterite -

Rock - Water Table None

Estimate Yield 15 Tang/Rai, Land Use Transplanted rice - trees

Slope 1.5 % Terrace Middle, old soil

Topography Rough

Drainage Moderate

Subjected to flood None Salt on Surface -

Under proper improvement this land may become land class

Renu series, similar to Re-1 series.

Remarks Scattered termite mounds and trees, 3 - 5%.

Table C-6. Soil Profile Description : Huai Seo Sub-Basin (1)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป.6, 2-02  
(ก.ค. 2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 104 - 502 Sheet - Roll - Strip 2/7

Location N. 3.2 cm, W. 3.9 cm of SE corner of Huai Seo Project.

Date Sept. 7, 1983 Classified by Chao, Somsak, Suraphol

Northwest of Ban Khok Yang, 800 m.

Hole No. HS-1 Land Class Sample No. 1 - 4

Depth cm.	Texture	Color	Mottling	PH
0 - 10	SL <sup>+</sup>	10YR 5/2 Gr.br.	none	7.5
10 - 40	SCL <sup>+</sup>	7.5YR 7/4 Pink	10YR 5/8 Yel.br. 20%	7.0
40 - 100	SC	7.5YR 7/2 Pink gr.	10R 4/8 Red 20% 7.5YR 5/8 Str.br. 15%	5.5
100 - 150	SC	5YR 7/2 Pink gr.	7.5YR 5/8 Str.br. 25%	5.5

Depth to = Impervious clay - Laterite -

Rock - Water Table On surface, 30 cm

Estimate Yield 30 Tang/Rai, Land Use Transplanted rice - trees

Slope 0 - 1 % Terrace Middle

Topography Gently rolling

Drainage Moderate - slow

Subjected to flood, Periodic Salt on Surface -

Under proper improvement this land may become land class

Re series

Remarks Rice variety "Soi", non-glutinous rice.

Scattered termite mounds and trees, 3%

Flooding in some years, one meter high for 10 to 15 days.

Flooding begins from September or October.

Table C-6. Soil Profile Description : Huai Seo Sub-Basin (2)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



ป. 6, 2-02  
(ก.ค. 2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 104 - 508 Sheet - Roll - Strip 2/10  
Location N. 2.0 cm, E. 4.7 cm of SW corner of Huai Seo Project  
Date Sept. 7, 1983 Classified by Chao, Somsak, Suraphol  
At Ban Laharn Sai Kao school

Hole No. HS-2 Land Class - Sample No. 5 - 8

Depth cm.	Texture	Color	Mottling	PH
0 - 20	SL	5YR 5/3 Red br.	none	6.0
20 - 40	SL <sup>+</sup>	7.5YR 6/4 Lt.br.	none	6.0
40 - 90	SCL	do	7.5YR 5/8 Str.br. 15%	5.0
90 - 150	SC <sup>-</sup>	7.5YR 7/4 pink	7.5YR 6/8 Red yel. 10%	5.0

Depth to = Impervious clay - Laterite -

Rock - Water Table 90 cm from surface

Estimate Yield - Tang/Rai, Land Use Jute

Slope 2 % Terrace Rather high, old alluvium

Topography Undulating

Drainage Excessively well - well

Subjected to flood None Salt on Surface -

Under proper improvement this land may become land class

Kt series

Remarks Jute plantation on rather high terrace.

Table C-6. Soil Profile Description : Huai Seo Sub-Basin (3)

กองปดพีและธรณีวิทยา  
กรมชลประทาน



U.6.2-02  
(ก.ก.2520)

ใบบันทึกข้อมูลในสนาม  
SOIL PROFILE DESCRIPTION

Photo E 104 - 271 Sheet - Roll - Strip 3/8  
Location N. 4.0 cm, E. 6.2 cm of SW corner of Huai Seo Project  
Date Sept. 7, 1983 Classified by Chao, Somsak, Suraphol

Hole No. HS-3 Land Class - Sample No. 9 - 12

Depth cm.	Texture	Color	Mottling	PH
0 - 10	SiL	10YR 6/2 Lt.br.gr.	none	7.3
10 - 60	SiC	10YR 7/2 Lt.gr.	10YR 4/6 Dk.yel.br. 30%	5.5
60 - 100	C	7.5YR 7/2 Pink gr.	do	5.5
100 - 150	SC	7.5YR 7/2 Pink gr.	7.5YR 5/8 Str.br. 20%	5.5

Depth to = Impervious clay - Laterite -  
Rock - Water Table On surface, 10 -15 cm

Estimate Yield 35 Tang/Rai, Land Use Transplanted rice

Slope 0 - 1 % Terrace Lower portion of the middle terrace

Topography Smooth

Drainage Poorly

Subjected to flood Periodic Salt on Surface -

Under proper improvement this land may become land class Re-1 (?)

Remarks Flooding in some years for 10 to 20 days at 1.0 to 1.5 m during September and October.



Table C-7. Results of Soil Analysis : Upper Lam Plai Mat Sub-Basin (2)

LAB. NO. 32/2526  
SOIL CHEMISTRY AND PHYSICS LAB.

RESEARCH AND LABORATORY DIVISION  
ROYAL IRRIGATION DEPARTMENT  
PROJECT: LAM PLAI MAT.

Field Description		pH			Sat. Elect.		Saturation Extract							Sod. Ad-sorp. Ratio	CBC NH <sub>4</sub> Ext.	ESP NE <sub>4</sub> Ext.	Sol. Salt %	
Photo No.	Depth (cm.)	Water		CaCl <sub>2</sub> 1:2	S.P. ECx10 <sup>3</sup>	%	Soluble Cations mg/l.				Soluble Anions mg/l.			SAR	NH <sub>4</sub> Ext.	NE <sub>4</sub> Ext.	%	
		Paste 1:1	1:2				Na	Ca+Mg	Ca	K	CO <sub>3</sub>	HCO <sub>3</sub>	SO <sub>4</sub>					Cl
E.95-229	15-70	8.1	8.6	-	25.8	1.0	10	0.51	0.20	0.05	0.83	4.9	2.2	2.9	20	5.2	29	
2/4	70-130	8.0	9.0	-	33.1	0.85	7.4	0.56	0.35	0.03	0.66	3.2	2.2	2.0	14	7.9	18	
1	130-150	8.0	8.8	-	29.7	1.1	11	0.66	0.35	0.03	0.41	2.7	3.9	4.6	19	8.2	29	
E.100-074	70-150	8.2	8.8	-	51.2	0.62	5.9	0.51	0.25	0.07	0.83	3.5	1.5	0.38	12	24	27	
(10/6)																		
4																		
E.118-030	0-10	4.4	4.9	-	34.2	4.0	25	7.8	4.8	0.01	0	0	4.6	27	13	14	2.1	
(16/12)																		
7																		

Table C-8. Results of Soil Analysis : Huai Seo Sub-Basin

RESEARCH AND LABORATORY DIVISION  
ROYAL IRRIGATION DEPARTMENT  
PROJECT: HUAI PHU

LAB. NO. 32/2526  
SOIL CHEMISTRY AND PHYSICS LABORATORY

Field Description	Particle Size Hydrometer %				Text. Class Lab. Hyd. USDA	pH		Sat. Ex-tract Elec. Cond. EC <sub>x</sub> 10 <sup>3</sup>	Sat. % S.P.	CEC meg/100g.	ESP	Exchangeable Cations meg/100g.			Base Saturation %	Org. Matter % O.M.	Total N %	Avail. P Bray ppm.	P Sorption K ppm.	Total CaCO <sub>3</sub> Equi-va lent %			
	I 0.25 mm.	II 0.075 mm.	III 0.02 mm.	IV <0.002 mm.		Water 1:1	Paste 1:1					Na	Ca	K									
B.104-502 (2/7)	14.5	63.5	14.1	23.1	7.9	SL	5.4	5.9	4.1	0.29	18.5	<2	<0.05	1.4	1.1	0.12	51	0.76	0.01	5.5	-	47	-
	10.7	50.5	21.0	30.2	17.8	L	6.0	6.4	5.1	0.20	26.4	<2	<0.05	3.6	2.7	0.07	68	0.46	0.05	3.7	-	27	-
1	9.9	48.6	17.1	26.6	26.4	SOL	5.0	5.5	3.8	<0.20	39.9	<2	<0.05	2.5	1.8	0.16	21	0.21	0.01	4.7	-	62	-
	9.2	47.3	20.2	31.7	23.3	L	5.4	6.0	4.0	<0.20	58.4	2.7	0.40	2.9	2.4	0.16	23	0.14	0.01	2.7	-	63	-
B.104-508 (2/10)	20.1	64.9	8.2	14.2	6.8	LS	6.1	6.6	5.2	0.55	21.4	<2	<0.05	1.5	0.98	0.14	50	1.5	0.01	5.6	-	55	-
2	18.9	61.6	8.7	17.2	10.8	SL	5.1	5.6	3.9	<0.20	22.3	<2	<0.05	2.1	1.6	0.10	52	0.34	0.02	4.6	-	39	-
	21.0	57.3	7.9	14.7	13.8	SL	4.8	5.4	3.9	<0.20	29.3	<2	<0.05	0.91	0.32	0.06	20	0.21	0.01	6.7	-	23	-
	18.5	55.9	9.6	34.8	16.0	L	4.8	5.2	3.4	<0.20	35.3	<2	<0.05	1.1	0.37	<0.05	27	0.17	0.03	4.6	-	16	-
B.104-271 (3/8)	3.2	59.5	26.6	46.3	10.7	L	4.8	5.0	3.3	0.25	28.2	<2	<0.05	2.0	1.5	0.14	32	1.3	0.02	6.7	-	55	-
3	2.9	37.1	36.7	53.7	23.3	SIL	4.9	5.3	3.3	<0.20	43.4	<2	<0.05	4.0	2.3	0.21	33	0.48	0.10	2.8	-	82	-
	7.4	50.6	21.7	38.3	20.3	L	4.9	5.6	3.7	<0.20	35.4	<2	0.05	2.7	1.8	0.25	25	0.41	0.06	3.7	-	98	-
	14.8	50.2	14.7	24.7	20.3	SOL	5.1	5.9	3.8	<0.23	41.2	3.4	<0.44	4.3	3.3	0.14	37	0.14	0.01	4.9	-	55	-

Table C-9. Key for Estimating Natural Fertility

CEC	meq/100g soil
High	> 20
Moderately high	16 - 20
Medium	11 - 15
Moderately low	5 - 10
Low	< 5
Organic Matter	weight %
High	> 3.5
Moderately high	2.6 - 3.5
Medium	1.6 - 2.5
Moderately low	1.1 - 1.5
Low	< 1.0
Base Saturation	%
High	> 75
Medium	35 - 75
Low	< 35
Available Phosphorus	P-ppm
High	> 25
Moderately high	16 - 25
Medium	11 - 15
Moderately low	6 - 10
Low	< 6

Very low and very high may be used if significant for values below 3 and above 45.

\*/ From weighed average over 0 - 30 cm layer.

(b) Key for estimating the natural fertility of soils mainly suited for paddy rice

C.E.C.	Base Sat.	Org. Matter	AV. Phosphate	Natural Fertility
H-MH	H	H-M	H-M	high
"	H	M-ML	M-ML	moderately high
"	M	M	H-M	moderately high
"	H	ML	M-L	moderate
"	M	M-ML	M-L	moderate
"	L	M	M	moderately low
"	L	ML	M-L	low
M	H	H-M	H	high
"	H	M	M	moderately high
"	H	ML	M-L	moderate
"	M	M	M-L	moderate
"	M	ML	H-M	moderate
"	M	ML	M-L	moderately low
"	L	M	H-M	moderately low
"	L	ML	M-L	low
ML	H	M	H-M	moderately high
"	H	ML	M-L	moderate
"	M	M	H-M	moderate
"	M	ML	M-L	moderately low
"	H	L	M-L	moderately low
"	M	L	N-L	low
"	L	ML	M-L	low
L	H	ML	M	moderately low
"	M-L	L	L	low

Source: Soil Interpretation Handbook for Thailand, Dept. of Land Development/FAO (1973).



Table C-10. Estimation of Natural Fertility of Master Site Soils

No.	Soil Series	C.E.C. meq/100g	Base Saturation %	Org. Matter %	Av. Phosphate P-ppm	Natural Fertility
PM-1	Korat	4.4 L	65 M	0.5 L	5 L	Low
2	That Phanom	20.5 H	17 L	1.2 ML	8 ML	Low
3	Roi Et	19.0 MH	33 L	1.0 ML	5 L	Low
4	Phon Phisai	3.0 L	58 M	0.4 L	6 ML	Low
5	Ratchaburi	13.2 M	18 L	0.8 L	8 ML	Low
6	Ratchaburi	13.6 M	19 L	0.9 L	6 ML	Low
7	Chiang Mai	8.8 ML	19 L	1.1 ML	9 ML	Low
8	Roi Et, Loamy	9.6 ML	37 M	0.7 L	7 ML	Low
9	Phimai	34.0 H	54 M	2.5 MH	6 ML	Moderate
10	Renu	6.5 ML	47 M	1.3 ML	36 H	Moderately low
HS-1	Roi Et	4.7 L	62 M	0.6 L	4 L	Low
2	Korat	3.7 L	51 M	1.1 ML	5 L	Low
3	Roi Et, loamy	10.9 L	33 L	0.8 L	4 L	Low

Table C-11. Guidelines for Classification of Soil Suitability Groups for Paddy

Limiting factor	P-I	P-II	P-III	P-IV	P-V
Effective soil depth to limiting layer	>50 cm	>50 cm	>25 cm	>25 cm	-
Texture of surface soil	Clay; silty clay; clay loam; silty clay loam; sandy clay	Clay; silty clay; sandy clay; silty clay loam; sandy clay loam; clay loam	Sandy loam to clay	Loamy sand to clay	-
Permeability of subsoil	<0.5 cm/hr, slow	Slow to moderately slow, <1.5 cm/hr	Slow to moderate <5 cm/hr	Slow to moderately rapid; <15 cm/hr. (slow to moderate if well drained)	-
Fertility; relative nutrient status	High to moderate	High to moderately low	High to low	High to low	-
Reaction of surface soil layer (dry soil, pH 1:1 H <sub>2</sub> O)	5.0 - 7.5	4.5 - 8.0	4.0 - 8.0	3.5 - 8.5	-
Salinity EC <sub>5</sub> × 10 <sup>6</sup>	<1500	<2500	<2500	<4000	-
Slope	<1%	<2%	<3%	<5%	-
Micro-relief	>80% of land is smooth; little leveling required	>80% of land is smooth; little leveling required	>50% of land is smooth; moderate leveling may be required	>40% of land is smooth; Much leveling may be required	-
Gravel and stones that hinder cultivation	None	None to slightly gravelly	None to slightly gravelly and slightly stony	None to gravelly and slightly stony	-
Risk of damage by water shortage	No damage by water shortage during growing season	Occasional slight damage	Moderate damage in <4 years in 10; occasional severe damage	Moderate to severe damage <6 year in: 0; occasional complete loss	-
Soil drainage class	Somewhat poorly to poorly drained	Somewhat poorly to poorly drained	Somewhat poorly to very poorly drained	Well to very poorly drained	-
Risk of damage by flash floods, quickly rising water, or saline water	Seldom, <1 in 10 year	Occasional moderate damage; <3 in ten years	Moderate damage may be frequent, <4 in 10 years occasional severe damage	Severe damage may be very frequent; <6 in 10 years	-

Source: Soil Interpretation Handbook for Thailand, Land Classification Div., D.L.D. and FAO (1973).

Table C-12. Major Characteristics of Soil Series

Mapping No's	Soil Series, phase or variant	Range of slope (%)	Effective Soil Depth (Z)	Textural Profile	Color Profile	Structure		a. Drainage b. Permeability c. Surface Runoff 4/	Period of Water Saturation a. Surface 5/ b. Subsurface 3/	Organic matter (% Carbon x 1.724) 0 - 10 cm 6/	Base Saturation (%) a. 0 - 30 cm 7/ b. > 30 cm 7/	CEC (meq/100gram soil) a. 0-30 cm 8/ b. > 30 cm 8/	Available Phosphorus (ppm of P) a. 0-30 cm 9/ b. > 30 cm 9/	Available Potassium (ppm of K) a. 0-30 cm 10/ b. > 30 cm 10/	Reaction (pH 1: H <sub>2</sub> O) a. 0-30 cm b. > 30 cm	Estimated Natural Fertility	Paddy Suitability Group
						a. Upper A-horizon b. Subsoil	a. Moderate b. Moderate medium subangular blocky										
2	*Chiang Mai	1-2	Very deep	Sandy loam, loam or sandy clay loam to clay loam throughout or loam to sandy clay loam over clay loam	Dark brown to brown over brown	a. Weak to moderate medium subangular blocky b. Moderate medium subangular blocky	a. Moderately well b. Rapid c. Slow	a. 3 - 4 months b. 4 - 5 months	Moderately low	a. High b. High	a. Medium b. Medium	a. Moderately high b. Moderately high	a. Medium b. Medium	a. 5.3 - 6.2 b. 5.3			P-Vc
3	*Rachaburi	0-1	Very deep	Silty clay or clay over clay	Grayish brown or brown over brown	a. Moderate medium subangular blocky b. Moderate coarse prismatic and moderate medium subangular blocky	a. Somewhat poorly b. Slow c. Slow	a. Flooded by river water up to 50-100 cm for 2-3 months b. Ground water level between 2-3 meters during dry season	Moderately low	a. Medium b. Medium	a. High b. Very high	a. Very low b. Very low	a. Very high b. Very high	a. 5.3 - 5.7 b. 5.3 - 5.7	Moderate		P-III
4	*Phimai	0-1	Very deep	Clay throughout	Gray to very dark gray with strong brown and dark yellowish brown mottles over gray with brown mottles	a. Moderate medium and coarse subangular blocky b. Moderate fine and medium subangular and angular blocky	a. Poorly b. Slow c. Slow	a. Flooded by river water up to 1 m for 4 - 5 months b. Ground water level between 2 - 3 meters during dry season	Low	a. Medium b. Medium	a. Very high b. Very high	a. Low b. Low	a. Very low b. Very low	a. 5.0 - 5.4 b. 5.3 - 5.4	Moderate		P-III
5	Wachana																P-IIa
5	Roi Ec	0-3	Very deep	Loamy sand, sandy loam over sandy clay loam or sandy clay	Dark gray with dark brown and yellowish brown mottles over light brownish gray grading to pinkish gray with dark brown or yellowish brown mottles	a. Weak fine and medium subangular blocky b. Moderate medium to coarse subangular blocky	a. Poorly b. Rapid over moderate c. Slow	a. Impounded rain water up to 20-30 cm depth for 3-4 months b. Ground water level fall below 2-3 m during dry season	High (3.58)	a. Medium (36.83) b. Medium (48.74)	a. Moderately low (5.20) b. Moderately low (6.13)	a. Very low (0.57) b. Very low (0.50)	a. Low (31.10) b. Low (44.94)	a. 5.29 b. 5.27	Low		P-IIIs
7	Roi Ec, loamy variant	0-1	Very deep	Fine sandy loam, loam or silt loam over clay loam	Pale brown or brown with reddish yellow or strong brown mottles over light brownish gray with yellowish brown or yellowish mottles	a. Weak fine and medium subangular blocky b. Strong medium and coarse subangular blocky	a. Poorly b. Slow c. Slow	a. Flooded by river water and impounded rain water up to 50-100 cm for 3-4 months b. Ground water level between 2-3 meters during dry season	Very low (0.35)	a. Medium (47.00) b. Low (24.010)	a. Moderately low (6.75) b. Medium (14.12)	a. Very low (2.50) b. Very low (2.54)	a. Very low (22.00) b. Low (39.89)	a. 5.52 b. 5.19			
3	*Roi Ec, clayey variant	0-1	Very deep	Loam overlies clay loam over clay	Pale brown or brown over light brownish gray or gray	a. Weak medium and coarse subangular blocky b. Weak to moderate fine medium and coarse subangular blocky	a. Poorly b. Slow c. Slow	a. Impounded rain water up to 20-30 cm depth for 3-4 months b. Ground water level fall below 2-3 m during season	Low (0.60)	a. Low (21.77) b. Low (11.50)	a. Moderately low (9.22) b. Medium (10.75)	a. Very low (1.9) b. Very low (2.5)	a. Very low (28.1) b. Very low (26.0)	a. 5.2 b. 5.4			
3	Thac Phanom	1-4	Deep	Silt loam or loam over silt loam silty clay loam which in turn overlies silt clay loam or clay loam	Dark brown or dark grayish brown over reddish brown or brown over yellowish red or red	a. Strong fine and medium granular blocky b. Strong medium and coarse subangular blocky	a. Moderately well b. Moderate c. Moderate	a. Flooded by river water up to 10-20 cm for 2-3 months b. Ground water level falls below 3 meters during the peak of dry period	Medium (1.37)	a. Low (12.30) b. Low (9.37)	a. Medium (13.74) b. Moderately low (7.35)	a. Very low (1.03) b. Very low (0.60)	a. Medium (77.37) b. Low (34.25)	a. 4.71 b. 5.77			P-Vc

(Table C-12, continued)

Mapping No's	Soil Series, phase or variant	Range of slope (%)	Effective Soil Depth (m)	Textural Profile	Color Profile	Structure a. Upper A-horizon b. Subsoil	a. Drainage b. Permeability c. Surface Runoff 1/	Period of Water Saturation a. Surface b. Subsurface 2/	Organic matter (% Carbon x 1.724) 0-30 cm 5/	Base Saturation (%) a. 0-30 cm 7/ b. > 30 cm 7/	CEC (meq/100gram soil) a. 0-30 cm 8/ b. > 30 cm 8/	Available Phosphorus (ppm of P) a. 0-30 cm 9/ b. > 30 cm 9/	Available Potassium (ppm of K) a. 0-30 cm 10/ b. > 30 cm 10/	Reaction (pH 1: H <sub>2</sub> O) a. 0-30 cm b. > 30 cm	Estimated Natural Fertility	Paddy Suitability Group
10	Ubon	0-3	Very deep	Loamy sand over sandy loam below 60 cm grading to sandy clay loam below 80 cm	Dark gray to very dark gray with brown mottles over light brown with strong brown mottles	a. Weak subangular blocky or single grain b. Moderate subangular blocky breaking to single grain	a. Moderately well b. Rapid c. Slow	a. Rain water is impounded for 2-3 months b. Ground water level drops to 4-5 meters during dry period	Low (0.85)	a. Medium (48.56) b. Medium (42.61)	a. Very low (1.11) b. Very low (1.15)	a. Very low (0.53) b. Very low (0.83)	a. Very low (21.00) b. Very low (21.00)	a. 5.48 b. 5.49	Low	P-IVs
11	Renu	1-4	Very deep	Sandy loam over sandy clay loam grading to sandy clay in deep subsoil	Dark grayish brown or grayish brown over brown or light brown which incrust overlies a light gray or pinkish gray; mottled throughout with strong brown or yellowish red at surface and yellowish red or red in subsoils	a. Weak fine to medium subangular blocky b. Weak to moderate medium and coarse subangular blocky	a. Somewhat poorly b. Moderate c. Slow to moderate	Ground water below 0.5 meter for most of the year	Moderately high (2.50)	a. Low (21.07) b. Low (9.22)	a. Moderately low (8.09) b. Moderately low (9.30)	a. Very low (0.60) b. Very low (0.40)	a. Medium (62.73) b. Medium (60.12)	a. 4.98 b. 5.17		P-IVc
12	Korat	0-3	Very deep	Sandy loam over sandy clay loam	Very dark gray or brown over brown or pale brown	a. Weak medium subangular blocky b. Moderate medium and coarse subangular blocky	a. Moderately well b. Moderate c. Rapid	Ground water below 1 meter for most of the year	Very high (5.35)	a. Low (25.37) b. Low (33.51)	a. Low (3.42) b. Low (3.47)	a. Very low (1.86) b. Very low (0.56)	a. Very low (24.20) b. Very low (23.83)	a. 5.01 b. 4.95	Low	P-Vc
13	Phon Phisai	2-6	Shallow	Sandy clay loam over gravelly clay loam, within 50 cm gravel consists of unconsolidated laterite	Dark brown over yellowish red or strong brown	a. Strong fine and coarse subangular blocky b. Strong fine and coarse subangular blocky	a. Moderately well b. Moderate to slow c. Medium to rapid	Ground water below 1 meter for 12 months	Moderately low (1.23)	a. Medium (48.10) b. Low (32.12)	a. Low (4.67) b. Moderately low (6.96)	a. Very low (2.81) b. Low (3.45)	a. Low (37.63) b. Very low (25.46)	a. 5.70 b. 5.36	Mod. low	P-Vc
14	Nam Phong	3-10	Very deep	Loamy and throughout or at least to 80 cm over sandy clay loam	Dark grayish brown or brown over brownish yellow or light brown or pink	a. Weak fine and medium subangular blocky to single grain b. Weak fine and medium subangular blocky to single grain	a. Somewhat excessively b. Rapid c. Slow	Ground water below 1 meter for 12 months	Medium (2.06)	a. Low (23.90) b. Medium (45.46)	a. Very low (1.14) b. Very low (1.14)	a. Very low (0.50) b. Very low (0.50)	a. Very low (29.00) b. Very low (26.84)	a. 4.76 b. 5.00	Low	P-Vc
16	Satuk	3-8	Deep	Sandy loam over sandy clay loam or clay loam	Dark brown to very dark grayish brown over strong brown or reddish yellow	a. Weak fine and medium subangular blocky b. Moderate medium and coarse subangular blocky	a. Well b. Moderate c. Rapid	Ground water below 1 meter for 12 months	Very low (0.02)	a. Medium (36.87) b. Low (21.68)	a. Low (3.63) b. Moderately low	a. Very low (2.41) b. Very low (2.30)	a. Very low (14.07) b. Very low (9.00)	a. 5.53 b. 5.35	Low	P-Vc
17	Marin	2-5	Deep	Sandy loam over sandy clay loam	Dark brown over yellowish red or reddish yellow	a. Weak medium subangular blocky b. Moderate medium subangular blocky	a. Well b. Moderate c. Medium to rapid	Ground water below 1 meter for 12 months	Medium (1.91)	a. Medium (46.80) b. Low (32.89)	a. Low (3.72) b. Very low (2.24)	a. Medium (11.53) b. Very low (2.12)	a. Low (43.53) b. Very low (15.72)	a. 5.57 b. 5.32	Low	P-Vc
19	Buri Ran	1-2	Deep	Clay throughout	Black or very dark gray or dark gray over dark or very dark grayish brown	a. Weak to moderate coarse subangular blocky b. Weak to moderate medium coarse subangular blocky	a. Moderately well b. Slow to very slow c. Very slow	a. Flooded by impounded rain water up to 30 cm for 2-3 months b. Ground water below 2 meters during the peak of dry period	Moderately low (1.36)	a. Medium (69.87) b. High (84.88)	a. Very high (42.64) b. Very high (47.99)	a. Moderately high (16.66) b. Moderately high (8.86)	a. Medium (79.90) b. Medium (75.97)	a. 5.60 b. 6.70		P-IIIm
20	*Surin	2-8	Moderately deep soils	Loam or clay loam over clay loam or gravelly clay which incrust overlies weathering zone and grades to bedrock at some depth between 60 cm to 120 cm	Dark brown or dark reddish brown over yellowish red or red	a. Moderate fine to medium subangular blocky b. Moderate fine to moderate subangular blocky	a. Well b. Moderate c. Moderate to rapid	Ground water below 1 meter for 12 months	Low (0.93)	a. Medium (43.10) b. Medium (45.64)	a. Moderately low (6.61) b. High (27.42)	a. High (31.4) b. Medium (10.7)	a. Medium (75.8) b. Very high (129.8)	a. 5.5 b. 5.1		P-Vc

Source: Detailed Reconnaissance Soil Maps of Buri Ran Province and Nakhon Ratchasima Province, Soil Survey Div., D.L.D.

Table C-13. Correlation of Different Soil Classification

Soil Series	Family	Soil Taxonomy	National	FAO/UNESCO
Chiang Mai	loamy, mixed	Typic Ustifluvents	Alluvial	Eutric Fluvisols
Ratchaburi	fine-clayey, mixed, nonacid	Aeric Trophaepts	Hydromorphic Alluvial	Eutric Cambisols
Phimai	very-fine clayey, mixed, nonacid	Vertic Trophaepts	Hydromorphic Alluvial	Eutric Gleysols
Wathana	fine-clayey, montmorillonitic	Udic Paleusterts	Grumusol	Pellic Vertisols
Roi Et	fine-loamy, mixed, kaolinitic	Aeric Paleaquults	Low Humic Gley	Gleyic Acrisols
Roi Et loamy var.	loamy, mixed, kaolinitic	Aeric Paleaquults	Low Humic Gley	Gleyic Acrisols
Roi Et clayey var.	clayey, mixed, kaolinitic	Aeric Paleaquults	Low Humic Gley	Gleyic Acrisols
That Phanom	fine-loamy, mixed	Ultic Haplustalfs	Non-Calcic Brown	Chromic Luvisols
Ubon	coarse-loamy, mixed	Aquic Dystrypepts	Hydromorphic Regosol	Dystric Regosols
Renu	fine-loamy, mixed	Plinthic Paleaquults	Low Humic Gley	Gleyic Acrisols
Korat	fine-loamy, siliceous	Oxic Paleustults	Gray Podzolic	Orthic Acrisols
Phen Thisai	loamy-skeletal over clayey, mixed	Typic Plinthustults	Red-Yellow Podzolic	Plinthic Acrisols
Nam Phong	siliceous	Ustoxic Quartzipsamments	Regosol	Dystric Regosols
Satuk	fine-loamy, mixed	Oxic Paleustults	Red-Yellow Podzolic	Orthic Acrisols
Warin	fine-loamy, siliceous	Oxic Paleustults	Red-Yellow Podzolic	Orthic Acrisols
Buri Ram	very-fine clayey, montmorillonitic	Typic Pellusterts	Grumusol	Pellic Vertisols
Surin	clayey-skeletal, mixed	Phodic Paleustalfs or Oxic Haplustalfs	Reddish Brown Lateritic	Chromic Luvisols

Source: Soil Survey Handbook for Thailand, Soil Survey Div. D.L.D. (1973).