

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
THE GOVERNMENT OF LAO P.D.R.

THE STUDY
ON
MEKONG RIVERBANK PROTECTION AROUND
VIENTIANE MUNICIPALITY
IN
THE LAO PEOPLE'S DEMOCRATIC REPUBLIC

FINAL REPORT
VOLUME 5
DATA BOOK



DECEMBER 2004

NIKKEN Consultants, Inc.
NEWJEC Inc.

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COMPOSITION OF FINAL REPORT

VOLUME 1 EXECUTIVE SUMMARY

VOLUME 2 MAIN REPORT

VOLUME 3 MANUAL FOR RIVERBANK PROTECTION

SECTOR A PLANNING & DESIGN

SECTOR B CONSTRUCTION

VOLUME 4 SUPPORTING REPORT

SECTOR A PRESENT CONDITION IN THE STUDY AREA

SECTOR B PREPARATORY STUDY FOR PILOT WORKS

SECTOR C FIELD SURVEY FOR PILOT WORKS

SECTOR D EXECUTION OF PILOT WORKS

SECTOR E TEST OF SIMPLE VEGETATION RIVERBANK PROTECTION

SECTOR F MONITORING OF PILOT WORKS

SECTOR G MONITORING SURVEY FOR PILOT WORKS

SECTOR H RIVERBANK PROTECTION MASTER PLAN

SECTOR I ENVIRONMENTAL CONSIDERATION

SECTOR J TRANSFER OF TECHNOLOGY

VOLUME 5 DATA BOOK

The cost estimate in this study is based on the price level at the beginning of February 2004 and the applied foreign currency exchange rates are as stated below:

EXCHANGE RATE

US Dollar (US\$) 1.00 = Lao Kip (Kip) 10,420

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Middle rate as of February 1, 2004

**THE STUDY ON MEKONG RIVERBANK PROTECTION
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**FINAL REPORT
VOLUME 5
-DATA BOOK-**

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- II . Riverbank Erosion at Pilot Work Sites by August 2002 Flood**
- III . Daily Water Level at Pilot Work Sites**
- IV . Field Explanatory Sign for Pilot Works**
- V . Material for Steering Committee for the Study**

I .
Geological Survey
at Pilot Work Sites

Geological Survey at Pilot Work Sites

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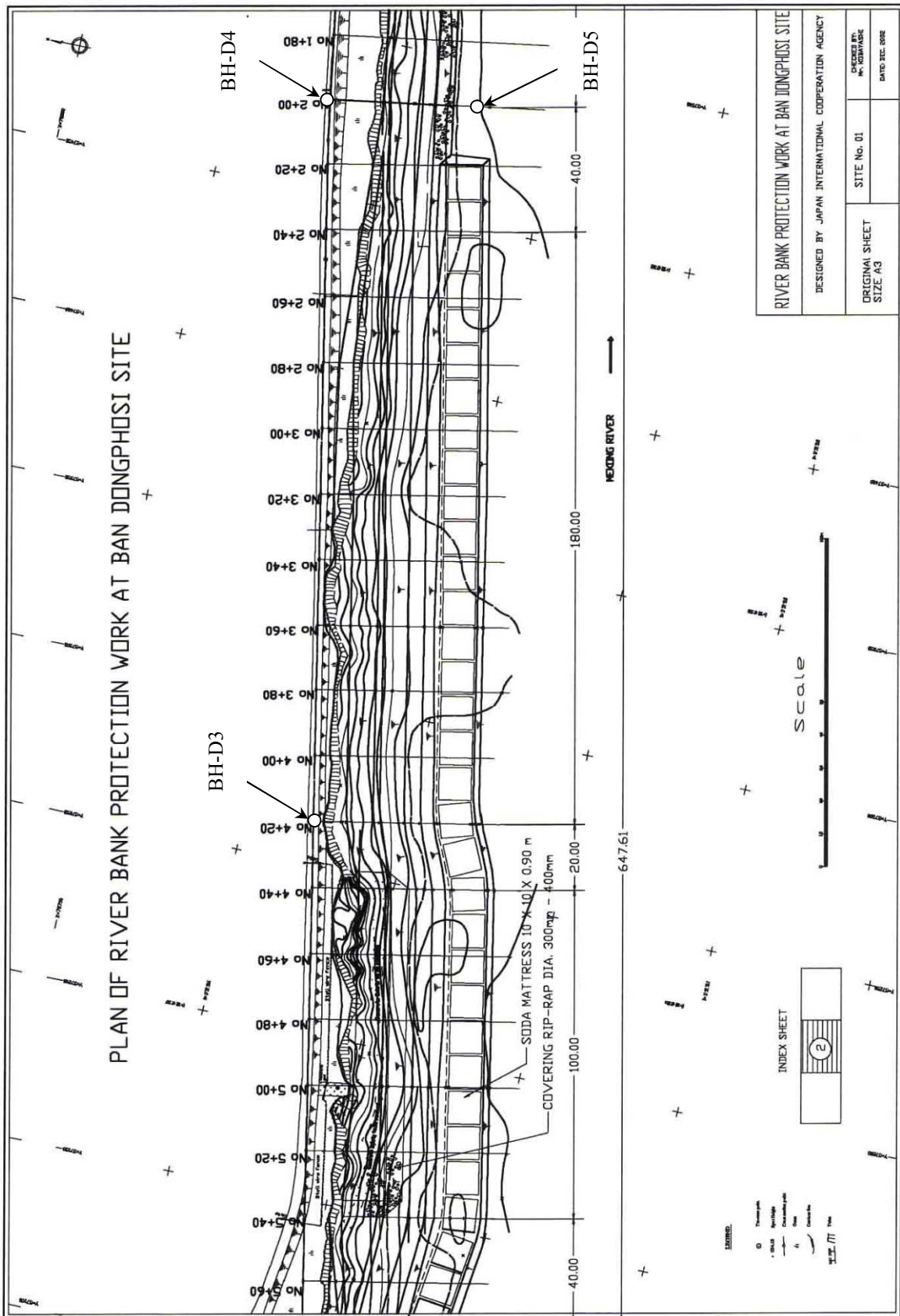


Figure 1(1/2) Location of Bore Hole at Ban Dongphosi Site

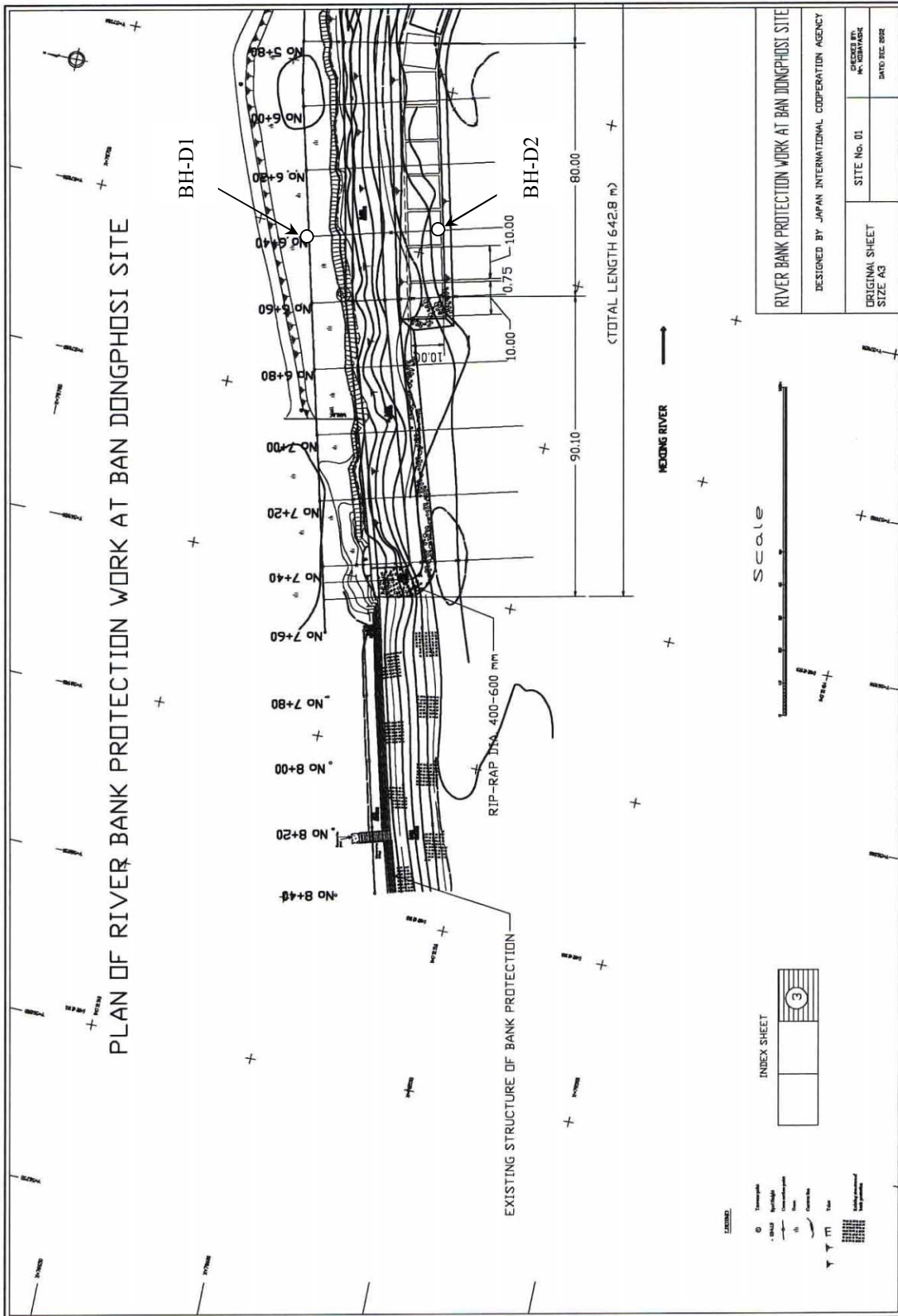


Figure 1(2/2) Location of Bore Hole at Ban Dongphosi Site

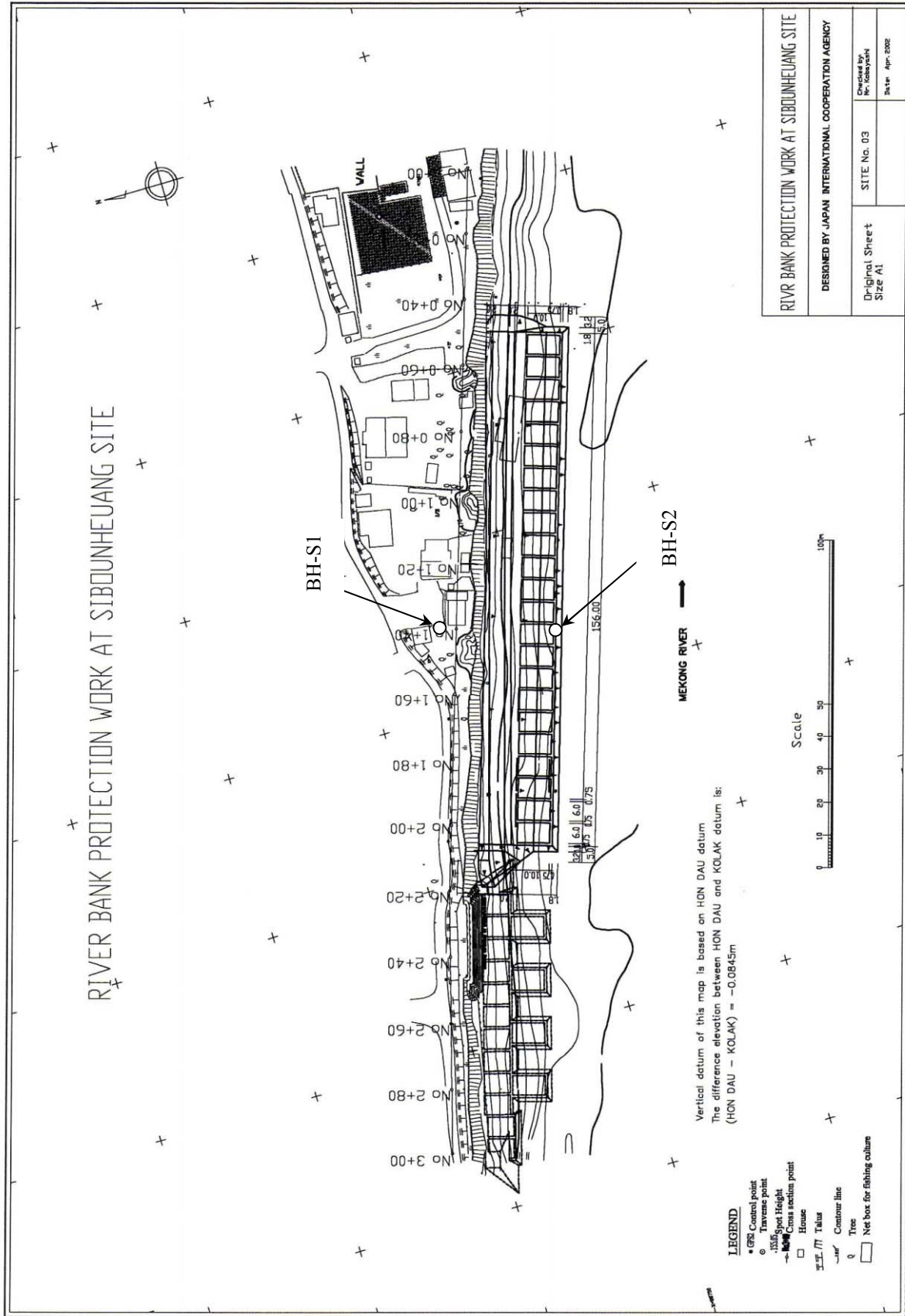


Figure 3 Location of Bore Hole at Sibounheuang Site

Table 1 Summary of Laboratory Test Results for Borehole No. BH-D1

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)						Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt	Clay						
									Coarse	Medium	Fine									
BH-D1	DS-1	0.45	1.00	11.5	-	24.9	9.2	2.54	0	1	26	18	55	-	-	-	Grayish Brown	CL	Silty CLAY with sand	
BH-D1	UD-1	1.00	2.00	13.2	2.03	32.9	15.9	2.61	13	8	12	23	31	-	-	-	Dark Yellowish Brown	CL	Sandy CLAY with gravel	
BH-D1	DS-4	3.45	4.00	19.1	-	46.1	26.9	2.56	0	2	22	15	59	-	-	-	Dark Yellowish Brown	CL	Silty CLAY with sand	
BH-D1	UD-2	5.00	6.00	21.0	1.98	47.0	30.0	2.54	0	1	16	29	52	14.3	335	-	Dusky Red	CL	Silty CLAY with sand	
BH-D1	DS-8	7.45	8.00	17.5	-	NP	NP	2.59	0	0	62	34		-	-	-	Pale Brown	SM	Silty SAND	
BH-D1	UD-3	8.00	9.00	26.3	1.91	NP	NP	2.61	0	0	21	49	30	4.8	140	-	Pale Brown	-	SILT with sand	
BH-D1	DS-11	10.45	11.00	23.7	-	NP	NP	2.56	0	0	78	22		-	-	-	Grayish Brown	SM	Silty SAND	
BH-D1	DS-13	12.45	13.00	10.3	-	NP	NP	2.67	34	7	34	18		-	-	-	Grayish Brown	SM	Silty SAND with gravel	
BH-D1	DS-15	14.45	15.00	8.3	-	NP	NP	2.70	46	7	26	14		-	-	-	Grayish Brown	GM	Silty GRAVEL with sand	
BH-D1	DS-16	15.45	16.00	9.0	-	NP	NP	2.61	43	1	17	37		-	-	-	Grayish Brown	GM	Silty GRAVEL with sand	

Note ** denotes insufficient soil for testing

Table 2 Summary of Laboratory Test Results for Borehole No. BH-D2

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)						Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt	Clay						
									Coarse	Medium	Fine									
BH-D2	SS-1	0.00	0.45	39.0	-	NP	NP	2.69	36	9	16	21	18	-	-	-	Pale Brown	SM	Silty SAND with gravel	
BH-D2	DS-1	0.45	1.00	37.5	-	NP	NP	2.59	43	25	22	7	3	-	-	-	Pale Brown	SW	Well graded SAND with gravel	
BH-D2	DS-2	1.45	2.00	7.2	-	NP	NP	2.62	42	19	17	12	11	-	-	-	Grayish Brown	SW-SM	Well graded SAND with silt and gravel	
BH-D2	DS-3	2.45	3.00	3.3	-	NP	NP	2.69	43	20	15	8	15	-	-	-	Dark Yellowish Brown	SM	Silty SAND with gravel	

Note ** denotes insufficient soil for testing

Table 3 Summary of Laboratory Test Results for Borehole No. BH-D3

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)						Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description	
		From	To						Gravel	Sand			Silt	Clay							
BH-D3	DS-1	0.45	1.00	8.0	-	**	**	2.67	20	12	8	6	22	32	-	-	-	-	Grayish Brown	-	Sandy CLAY with gravel
BH-D3	UD-1	2.00	3.00	15.5	2.10	39.7	20.3	2.60	15	9	3	7	26	39	-	-	-	-	Dark Yellowish Brown	CL	Sandy CLAY
BH-D3	DS-5	4.45	5.00	20.4	-	50.1	26.7	2.61	2	2	2	22	22	50	-	-	-	-	Dark Yellowish Brown	CH	Silty CLAY with sand
BH-D3	UD-2	5.00	6.00	19.9	1.96	43.8	21.6	2.54	0	0	1	40	20	39	14.1	316	-	-	Dark Yellowish Brown	CL	Sandy CLAY
BH-D3	UD-3	7.00	8.00	10.9	1.94	NP	NP	2.59	0	0	0	69	18	13	14.3	328	-	-	Grayish Brown	SM	Silty SAND
BH-D3	DS-10	9.45	10.00	13.9	-	NP	NP	2.53	0	0	1	72	28	-	-	-	-	-	Pale Brown	SM	Silty SAND
BH-D3	DS-12	11.45	12.00	18.0	-	NP	NP	2.61	3	0	26	52	19	-	-	-	-	-	Dark Yellowish Brown	SM	Silty SAND
BH-D3	DS-14	13.45	14.00	21.0	-	NP	NP	2.66	0	0	17	64	19	-	-	-	-	-	Grayish Brown	SM	Silty SAND

Note ** denotes insufficient soil for testing

Table 4 Summary of Laboratory Test Results for Borehole No. BH-D4

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)						Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description	
		From	To						Gravel	Sand			Silt	Clay							
BH-D3	DS-1	0.45	1.00	8.0	-	**	**	2.67	20	12	8	6	22	32	-	-	-	-	Grayish Brown	-	Sandy CLAY with gravel
BH-D3	UD-1	2.00	3.00	15.5	2.10	39.7	20.3	2.60	15	9	3	7	26	39	-	-	-	-	Dark Yellowish Brown	CL	Sandy CLAY
BH-D3	DS-5	4.45	5.00	20.4	-	50.1	26.7	2.61	2	2	2	22	22	50	-	-	-	-	Dark Yellowish Brown	CH	Silty CLAY with sand
BH-D3	UD-2	5.00	6.00	19.9	1.96	43.8	21.6	2.54	0	0	1	40	20	39	14.1	316	-	-	Dark Yellowish Brown	CL	Sandy CLAY
BH-D3	UD-3	7.00	8.00	10.9	1.94	NP	NP	2.59	0	0	0	69	18	13	14.3	328	-	-	Grayish Brown	SM	Silty SAND
BH-D3	DS-10	9.45	10.00	13.9	-	NP	NP	2.53	0	0	1	72	28	-	-	-	-	-	Pale Brown	SM	Silty SAND
BH-D3	DS-12	11.45	12.00	18.0	-	NP	NP	2.61	3	0	26	52	19	-	-	-	-	-	Dark Yellowish Brown	SM	Silty SAND
BH-D3	DS-14	13.45	14.00	21.0	-	NP	NP	2.66	0	0	17	64	19	-	-	-	-	-	Grayish Brown	SM	Silty SAND

Note ** denotes insufficient soil for testing

Table 5 Summary of Laboratory Test Results for Borehole No. BH-D5

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)					Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt						
										Coarse	Medium	Fine							
BH-D5	SS-1	0.00	0.45	12.3	-	NP	NP	2.60	23	6	14	48	10	-	-	Moderate Olive Brown	SW-SM	Well graded SAND with silt and gravel	

Note ** denotes insufficient soil for testing

Table 6 Summary of Laboratory Test Results for Borehole No. BH-C1

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, Gs	Grain Size Analysis (%)						Undrained Shear Strength, c_u (ton/m ²)	Modulus @50% Stress, E50	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt	Clay						
BH-C1	DS-1	0.45	1.00	16.3	-	NP	NP	2.56	0	0	1	32	48	19	-	-	-	Blackish Red	-	Sandy SILT
BH-C1	UD-1	2.00	3.00	16.6	1.93	31.8	12.8	2.55	0	0	1	5	44	50	-	-	-	Dark Yellowish Brown	CL	Silty CLAY
BH-C1	DS-5	4.45	5.00	16.6	-	31.9	14.5	2.58	0	1	2	6	41	50	-	-	-	Pale Brown	CL	Silty CLAY
BH-C1	UD-2	5.00	6.00	17.7	2.04	30.3	11.7	2.59	0	0	0	23	37	40	16.7	597	-	Dark Yellowish Brown	CL	Silty clay with sand
BH-C1	UD-3	7.00	8.00	19.5	2.08	27.2	10.5	2.59	0	0	0	36	26	38	-	-	-	Dark Reddish Brown	CL	Sandy CLAY
BH-C1	DS-9	8.45	9.00	21.9	-	NP	NP	2.65	0	0	0	20	79	-	-	-	-	Pale Brown	-	SILT with sand
BH-C1	DS-11	10.45	11.00	20.2	-	NP	NP	2.53	0	0	0	53	47	-	-	-	-	Pale Brown	SM	Silty SAND
BH-C1	DS-13	12.45	13.00	21.9	-	NP	NP	2.51	0	0	0	21	79	-	-	-	-	Pale Brown	-	SILT with sand
BH-C1	DS-15	14.45	15.00	22.9	-	NP	NP	2.57	0	0	0	39	61	-	-	-	-	Pale Brown	-	Sandy SILT

Note ** denotes insufficient soil for testing

Table 7 Summary of Laboratory Test Results for Borehole No. BH-C2

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, Gs	Grain Size Analysis (%)						Undrained Shear Strength, c_u (ton/m ²)	Modulus @50% Stress, E50	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt	Clay						
BH-C2	SS-1	0.00	0.45	26.0	-	NP	NP	2.68	0	0	1	82	17	-	-	-	-	Brownish Gray	SM	Silty SAND
BH-C2	SS-2	1.00	1.45	9.6	-	NP	NP	2.70	21	20	15	29	16	-	-	-	-	Grayish Brown	SM	Silty SAND with gravel
BH-C2	SS-3	2.00	2.45	9.8	-	NP	NP	2.73	22	11	29	29	9	-	-	-	-	Dark Gray	SP-SM	Poorly graded SAND with silt and gravel
BH-C2	SS-6	5.00	5.45	3.7	-	NP	NP	2.63	37	16	22	15	10	-	-	-	-	Moderate Olive Brown	SW-SM	Well graded SAND with silt and gravel
BH-C2	SS-8	7.00	7.45	6.6	-	NP	NP	2.71	38	14	10	25	13	-	-	-	-	Moderate Olive Brown	SM	Silty SAND with gravel
BH-C2	SS-9	8.00	8.45	7.2	-	NP	NP	2.68	21	32	19	17	11	-	-	-	-	Pale Brown	SW-SM	Well graded SAND with silt and gravel

Note ** denotes insufficient soil for testing

Table 8 Summary of Laboratory Test Results for Borehole No. BH-S1

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)						Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt	Clay						
									Coarse	Medium	Fine									
BH-S1	DS-1	0.45	1.00	17.7	-	33.5	23.5	2.52	0	0	1	7	39	54	-	-	Dark Yellowish Brown	CL	Silty CLAY	
BH-S1	UD-1	1.00	2.00	15.2	2.07	NP	NP	2.68	0	0	0	21	56	22	-	-	Dark Yellowish Brown	-	SILT with sand	
BH-S1	UD-2	3.00	4.00	21.2	2.02	47.8	22.1	2.64	0	0	1	4	30	66	26.7	876	Grayish Red	CL	Silty CLAY	
BH-S1	DS-5	4.45	5.00	21.3	-	44.0	28.7	2.51	0	6	6	5	33	50	-	-	Pale Brown	CL	Silty CLAY with sand	
BH-S1	UD-3	5.00	6.00	21.5	2.04	40.9	20.7	2.59	0	4	5	5	38	48	18.7	584	Pale Brown	CL	Silty CLAY	
BH-S1	DS-8	7.45	8.00	6.7	-	NP	NP	2.61	27	12	21	20	20		-	-	Pale Brown	SM	Silty SAND with gravel	
BH-S1	DS-10	9.45	10.00	9.2	-	NP	NP	2.67	54	13	10	11	12		-	-	Pale Brown	GM	Silty GRAVEL with sand	
BH-S1	DS-12	11.45	12.00	7.7	-	NP	NP	2.70	35	10	14	34	7		-	-	Brownish Gray	SP-SM	Poorly graded SAND with silt and gravel	
BH-S1	DS-14	13.45	14.00	7.4	-	NP	NP	2.60	13	16	22	28	21		-	-	Pale Brown	SM	Silty SAND	

Note ** denotes insufficient soil for testing

Table 9 Summary of Laboratory Test Results for Borehole No. BH-S2

Borehole No.	sample No.	Depth (m)		Water Content (%)	Total Unit Weight (ton/m ³)	Liquid Limit, LL (%)	Plasticity Index, PI (%)	Specific Gravity, G _s	Grain Size Analysis (%)						Undrained Shear Strength, c _u (ton/m ²)	Modulus @50% Stress, E ₅₀	SPT N value	Colour	USCS	Soil Description
		From	To						Gravel	Sand			Silt	Clay						
									Coarse	Medium	Fine									
BH-S2	SS-1	0.00	0.45	8.0	-	NP	NP	2.67	46	9	12	17	15		-	-	Pale Brown	GM	Silty GRAVEL with sand	
BH-S2	DS-3	2.45	3.00	5.1	-	NP	NP	2.71	45	25	13	7	9		-	-	Pale Brown	GP-SM	Poorly graded GRAVEL with silt and sand	
BH-S2	SS-5	4.00	4.45	3.2	-	NP	NP	2.69	60	25	9	3	3		-	-	Pale Brown	GW	Well graded GRAVEL with sand	
BH-S2	SS-6	5.00	5.45	3.7	-	NP	NP	2.54	51	31	12	4	2		-	-	Pale Yellowish Brown	GW	Well graded GRAVEL with sand	
BH-S2	SS-7	6.00	6.45	5.4	-	NP	NP	2.67	48	19	19	9	5		-	-	Pale Yellowish Brown	GP-SM	Poorly graded GRAVEL with silt and sand	
BH-S2	SS-10	9.00	9.45	9.5	-	NP	NP	2.60	33	16	12	24	14		-	-	Pale Yellowish Brown	SM	Silty SAND with gravel	

Note ** denotes insufficient soil for testing

Table 10 Summary of Undrained Shear Strength Characteristics

Borehole No.	Sample No.	Depth (m)		Liquid Limit (%)	Plasticity Index (%)	Undisturbed Sample				Colour	USCS	Soil Description
		From	To			Water Content (%)	Total unit weight (ton/m ³)	Undrained Shear Strength (ton/m ²)	Modulus @ 50% cu (ton/m ²)			
BH-C1	UD-1	2.00	3.00	31.8	12.8	16.6	1.93	**	**	Dark Yellowish Brown	CL	Silty CLAY
BH-C1	UD-2	5.00	6.00	30.3	11.7	17.7	2.05	16.7	597	Dark Yellowish Brown	CL	Silty CLAY with sand
BH-C1	UD-3	7.00	8.00	27.2	10.5	19.5	2.08	**	**	Dark Reddish Brown	CL	Sandy CLAY
BH-D1	UD-1	1.00	2.00	32.9	15.9	13.2	2.03	**	**	Dark Yellowish Brown	CL	Sandy CLAY with gravel
BH-D1	UD-2	5.00	6.00	47.0	30.0	22.1	1.95	14.3	335	Dusky Red	CL	Silty CLAY with sand
BH-D1	UD-3	8.00	9.00	NP	NP	28.0	1.91	4.9	140	Pale Brown	-	SILT with sand
BH-D3	UD-1	2.00	3.00	39.7	20.3	15.5	2.10	**	**	Dark Yellowish Brown	CL	Sandy CLAY
BH-D3	UD-2	5.00	6.00	43.8	21.6	19.9	1.97	14.1	316	Dark Yellowish Brown	CL	Sandy CLAY
BH-D3	UD-3	7.00	8.00	NP	NP	10.7	1.94	14.3	328	Grayish Brown	SM	Silty SAND
BH-D4	UD-1	2.00	3.00	40.8	19.7	14.3	2.05	**	**	Pale Brown	CL	Silty CLAY with sand
BH-D4	UD-2	5.00	6.00	48.4	26.3	18.6	1.88	12.9	417	Dusky Red	CL	Sandy CLAY
BH-D4	UD-3	7.00	8.00	NP	NP	15.7	1.97	18.8	617	Pale Brown	SM	Silty SAND
BH-S1	UD-1	1.00	2.00	NP	NP	15.2	2.07	**	**	Dark Yellowish Brown	-	SILT with sand
BH-S1	UD-2	3.00	4.00	47.8	22.1	21.1	2.03	26.7	876	Grayish Red	CL	Silty CLAY
BH-S1	UD-3	5.00	6.00	40.9	20.7	20.9	2.04	18.7	584	Pale Brown	CL	Silty CLAY

Note ** denote can not prepare the specimen

Table 11 Summary of Isotropically Consolidation Undrained Triaxial Test

Location	Borhole No	Sample No	Depth		Liquid Limit (%)	Plasticity Index (%)	Effect. Confining Pressure (ton/m ²)	Back Pressure (ton/m ²)	Initial		Undrained Shear Strength, c _u (ton/m ²)	Modulus @ 50% cu (ton/m ²)	Friction Angle, φ (°)	C (ton/m ²)	Colour	USCS	Soil Description	
			From	To					Wc (%)	γ _i (ton/m ³)								
Wat Chom Cheng	C-1	UD-1	2.00	3.00	31.8	12.8	1.0	20	20.0	2.06	3.4	163	28.4	0.99	Dark Yellowish Brown	CL	Silty CLAY	
							2.0	20	18.7	1.98	3.6	200						
							4.0	20	17.6	2.12	9.0	315						
	C-1	UD-2	5.00	6.00	30.3	11.7	2.5	20	17.9	2.15	10.2	394	32.7	0.69	Dark Yellowish Brown	CL	Silty CLAY with sand	
							5.0	20	18.2	2.13	14.6	511						
							10.0	20	18.7	2.12	19.8	764						
	C-1	UD-3	7.00	8.00	27.2	10.5	3.5	20	24.4	1.92	3.8	422	34.1	0.00	Dark Reddish Brown	CL	Sandy CLAY	
							7.0	20	24.2	1.93	4.5	701						
							14.0	20	20.6	2.01	15.6	1215						
Ban Dongphosi	D-1	UD-1	1.00	2.00	32.9	15.9	0.5	20	11.0	2.07	4.3	421	28.7	1.14	Dark Yellowish Brown	CL	Sandy CLAY with gravel	
							1.0	20	11.8	2.11	4.0	221						
							2.0	20	12.8	2.03	5.7	369						
	D-1	UD-2	5.00	6.00	47.0	30.0	2.5	20	20.7	1.97	6.6	212	31.7	0.59	Dusky Red	CL	Silty CLAY with sand	
							5.0	20	22.6	1.93	7.8	251						
							10.0	20	21.1	1.96	12.7	546						
	D-1	UD-3	8.00	9.00	NP	NP	4.0	20	28.8	1.94	4.3	558	28.7	0.34	Pale Brown	-	SILT with sand	
							8.0	20	28.1	1.95	5.5	608						
							16.0	20	27.3	1.95	10.6	2058						
Ban Dongphosi	D-3	UD-1	2.00	3.00	39.7	20.3	1.0	20	12.7	2.1	4.5	292	31.3	1.29	Dark Yellowish Brown	CL	Sandy CLAY	
							2.0	20	15.0	2.09	4.3	187						
							4.0	20	16.2	2.11	10.3	442						
	D-3	UD-2	5.00	6.00	43.8	21.6	2.5	20	20.4	1.93	6.5	195	31.3	1.15	Dark Yellowish Brown	CL	Sandy CLAY	
							5.0	20	22.4	1.95	5.5	357						
							10.0	20	23.1	1.99	8.7	1348						
	Ban Dongphosi	D-4	UD-1	2.00	3.00	40.8	19.7	1.0	20	14.7	2.08	5.0	178	32.7	0.59	Pale Brown	CL	Silty CLAY with sand
								2.0	20	14.5	2.04	5.6	216					
								4.0	20	15.3	2.11	9.6	340					
D-4		UD-2	5.00	6.00	48.4	26.3	2.5	20	21.0	1.99	6.6	182	25.5	1.99	Dusky Red	CL	Sandy CLAY	
							5.0	20	21.4	1.98	9.5	409						
							10.0	20	19.8	2.01	12.3	533						
Sibounhuang		S-1	UD-2	3.00	4.00	47.6	22.1	1.5	20	22.2	2.1	8.1	283	28.4	1.42	Grayish Red	CL	Silty CLAY
								3.0	20	22.7	2.07	8.3	460					
								6.0	20	22.2	2.06	11.2	616					
	S-1	UD-3	5.00	6.00	40.9	20.7	2.5	20	23.1	2.04	9.4	363	29	1.66	Pale Brown	CL	Silty CLAY	
							5.0	20	21.8	2.04	10.0	386						
							10.0	20	22.0	2.04	11.7	1008						

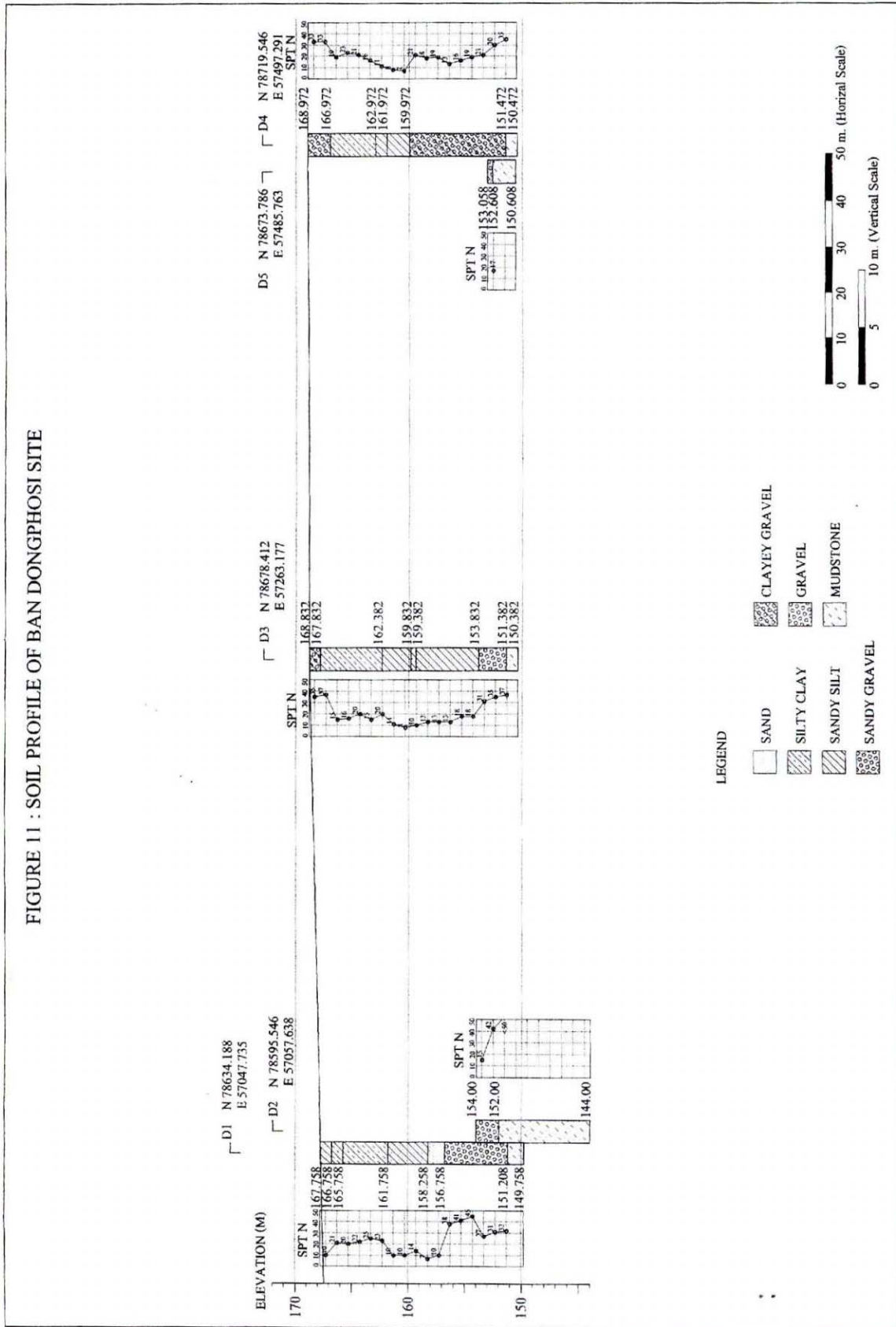


Figure 4 Soil Profile of Ban Dongphosi Site

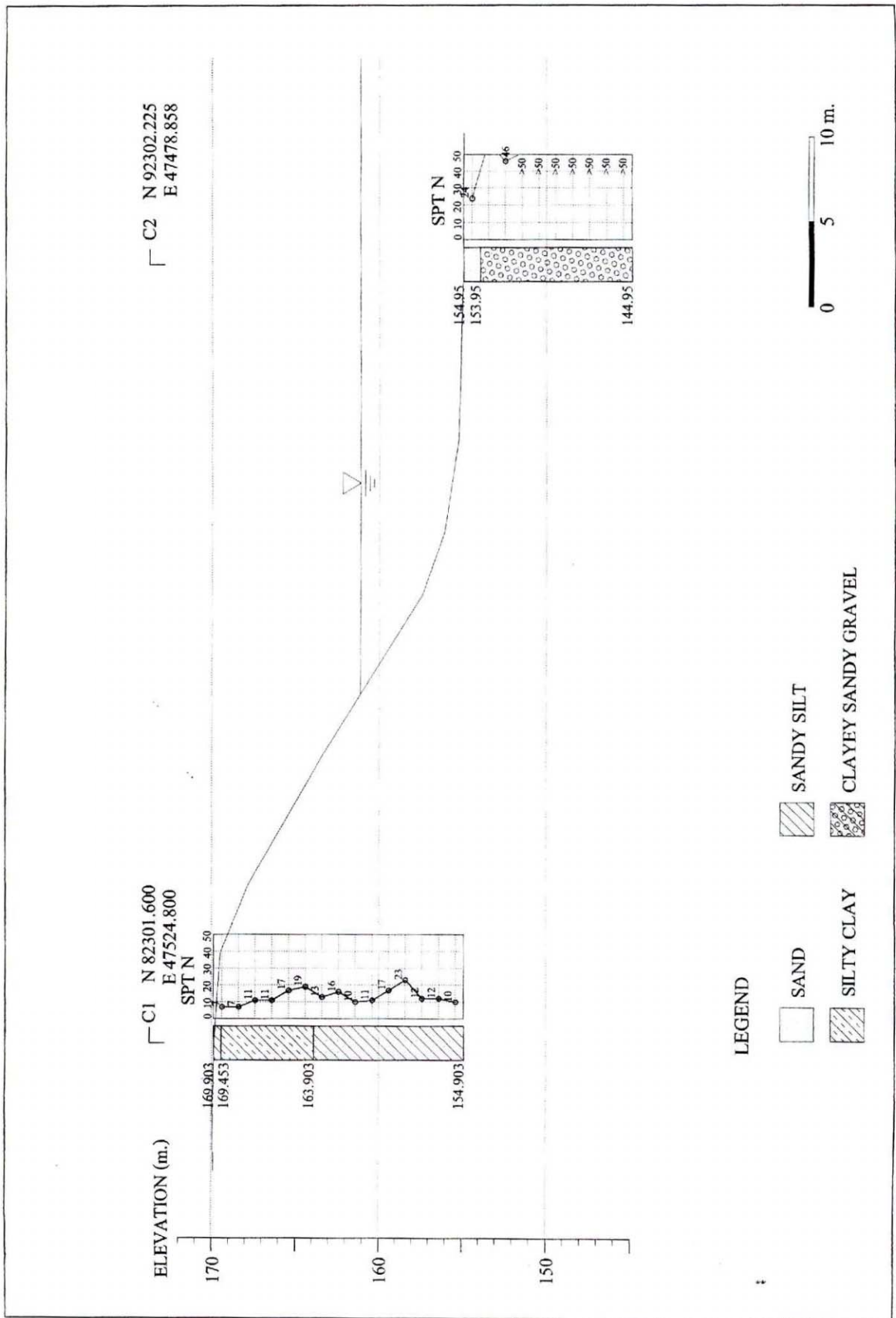
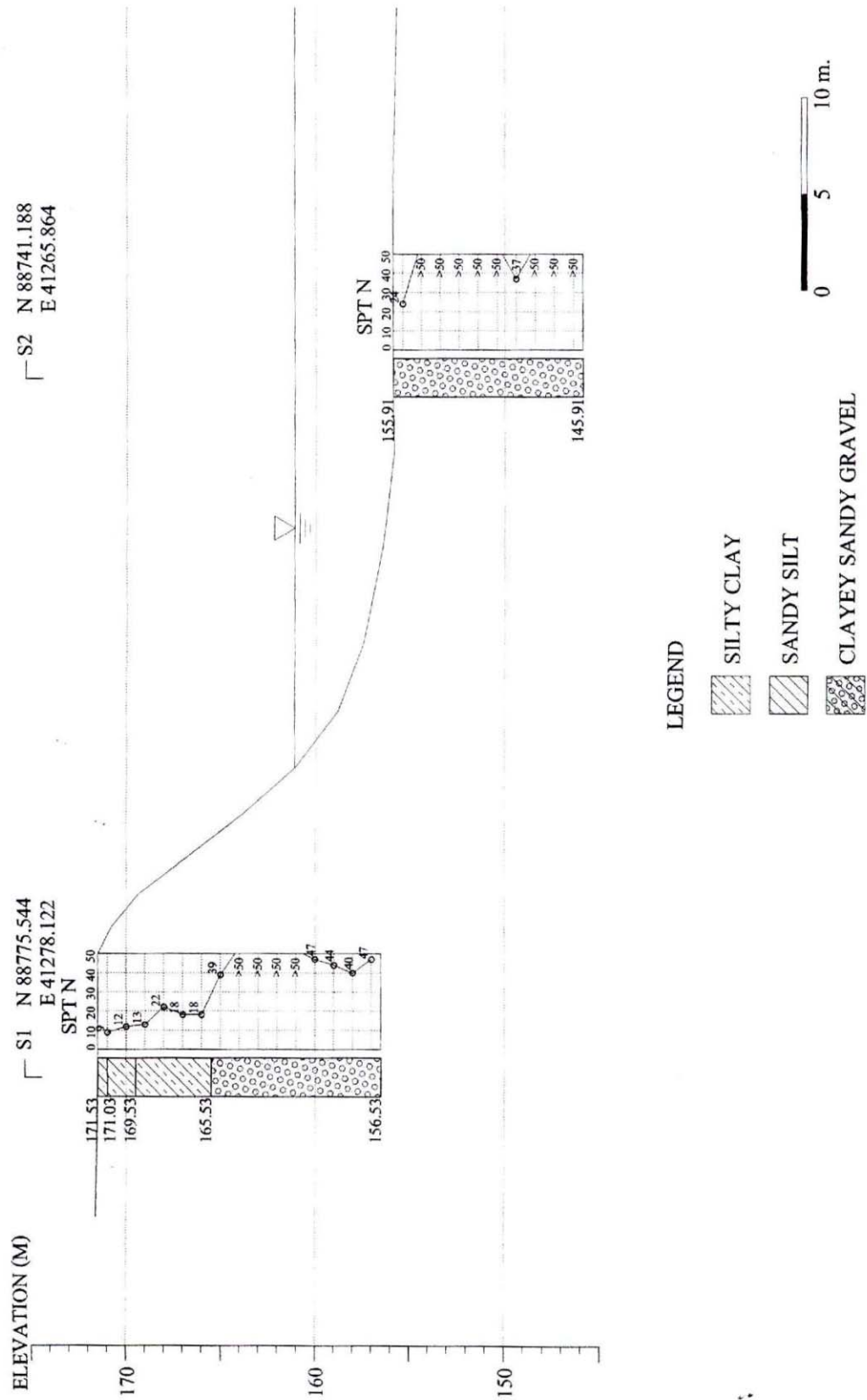


Figure 5 Soil Profile of Wat Chom Cheng Site

Figure 6 Soil Profile of Sibounheuang Site



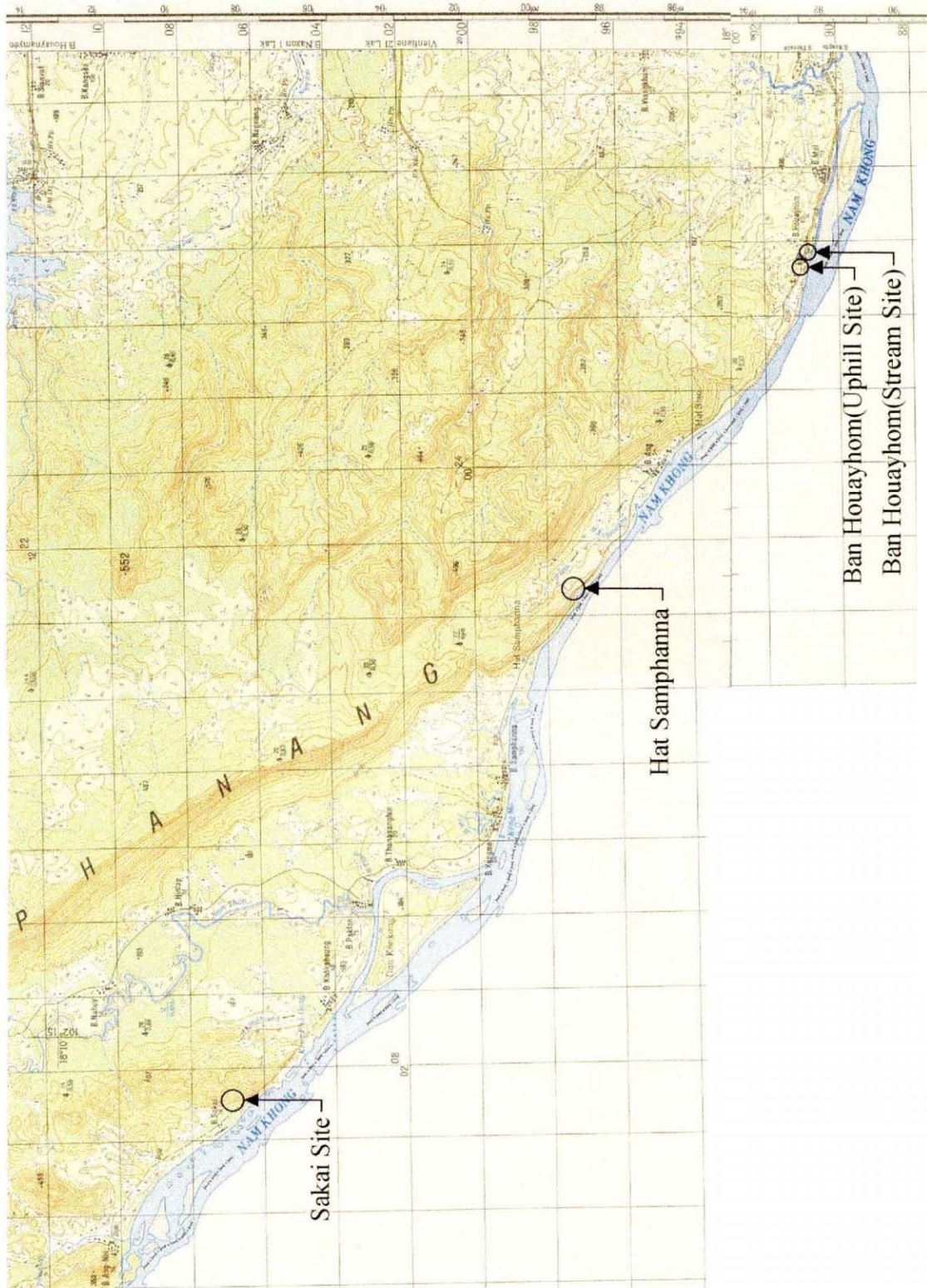
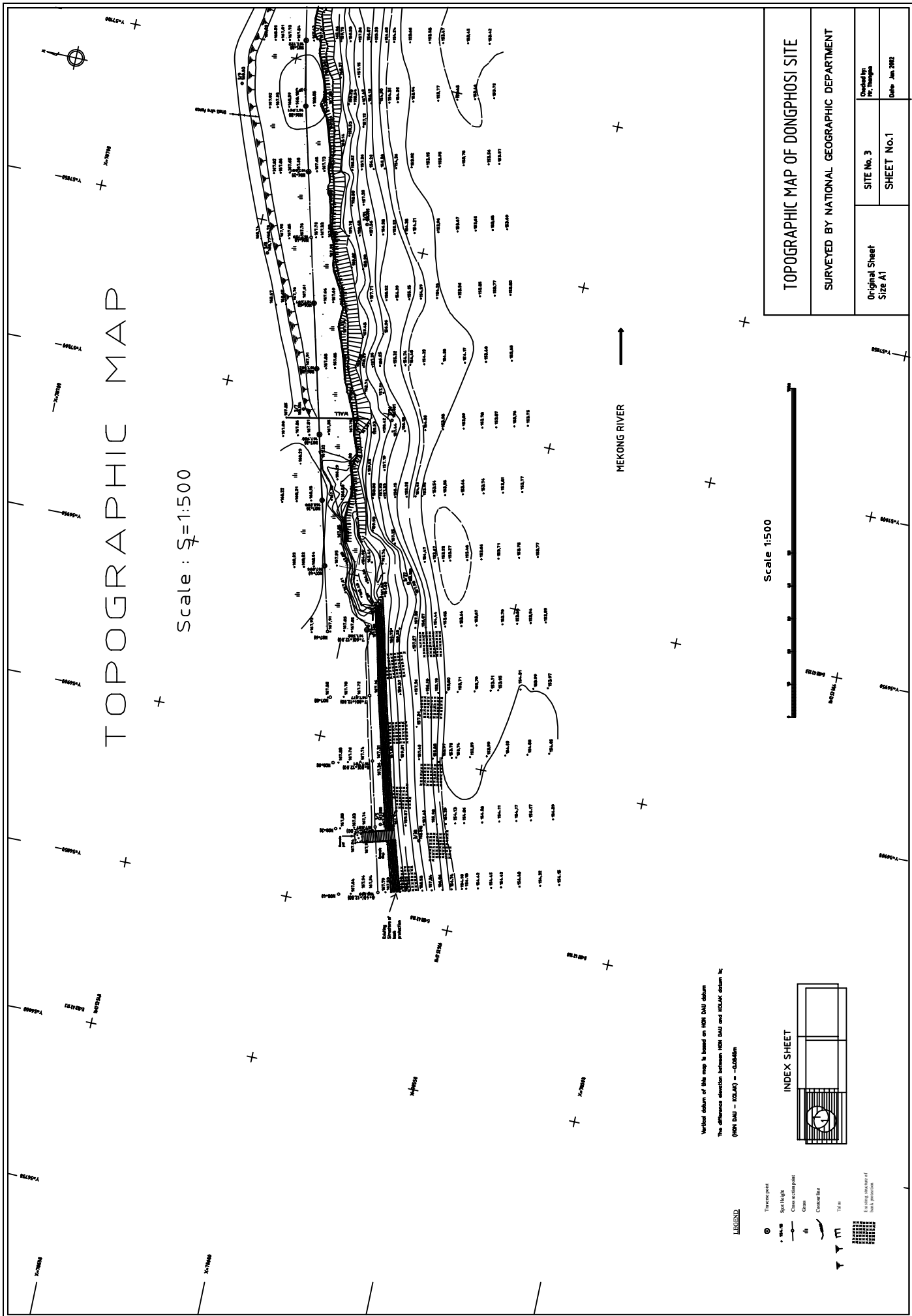


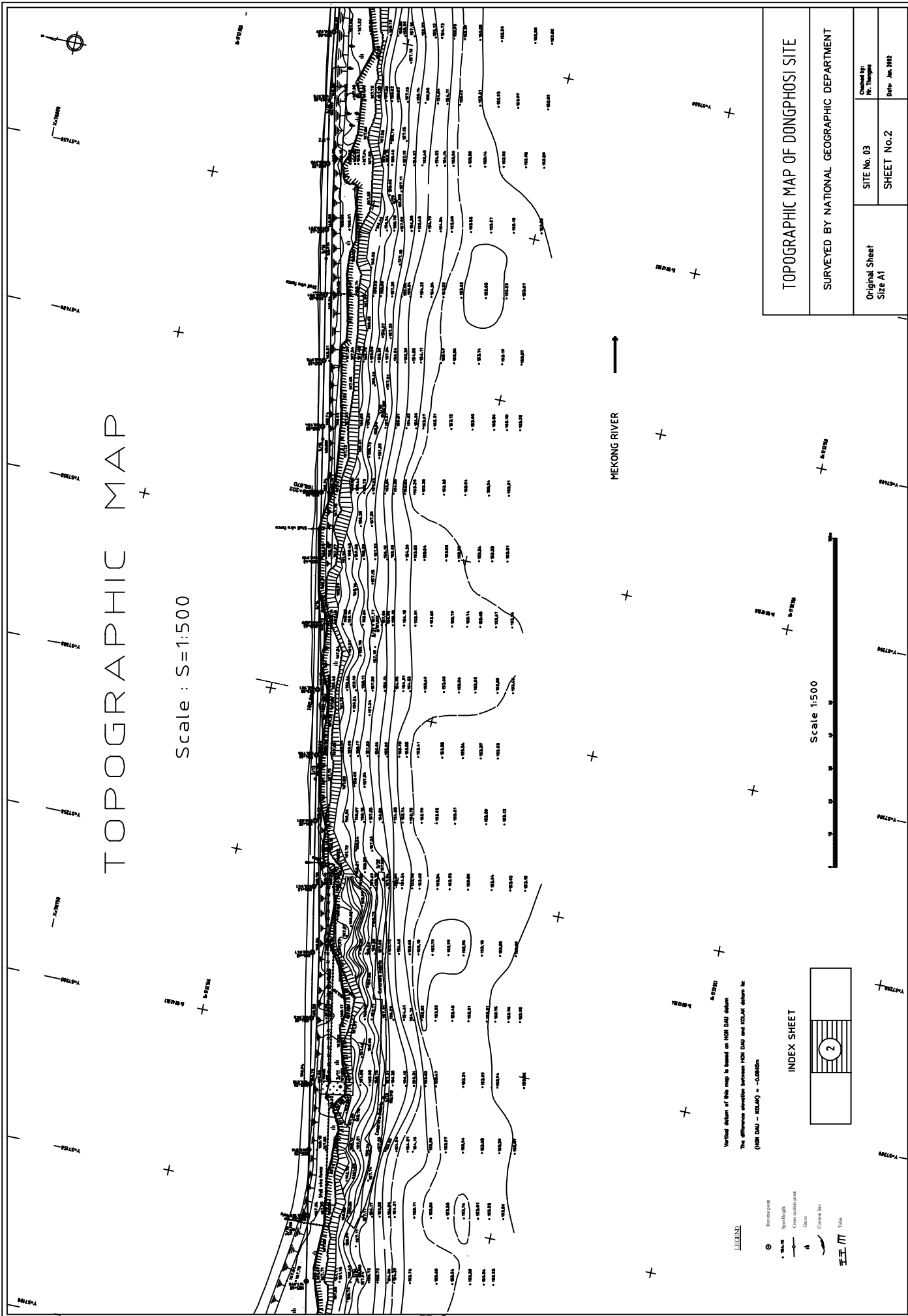
Figure 7 Location of the Candidate Quarry Sites

Table 12 Summary of Laboratory Test Results for Rock Pieces

Location	Sample No.	Total unit weight (ton/m ³)	Specific Gravity	Max. Compressive Strength (ton/m ²)	Absorption (%)	Colour	Rock Description
BAN HOUAYHOM	HR 1/1	2.29	2.58	6,021	2.16	Reddish Purple	Sandstone
	HR 1/2	2.46	2.60	10,186	2.32	Reddish Purple	Sandstone
	HR 1/3	2.44	2.55	7,841	2.73	Reddish Purple	Sandstone
	HR 1/4	2.42	2.56	5,400	2.22	Reddish Purple	Sandstone
	HR 1/5	2.50	2.54	5,763	2.47	Reddish Purple	Sandstone
BAN HOUAYHOM	HR 2/1	2.32	2.57	1,621	4.43	Reddish Purple	Sandstone
	HR 2/2	2.40	2.55	2,567	3.43	Reddish Purple	Sandstone
	HR 2/3	2.32	2.58	1,433	5.05	Reddish Purple	Sandstone
	HR 2/4	2.30	2.52	1,864	3.84	Reddish Purple	Sandstone
	HR 2/5	2.36	2.56	3,000	4.10	Reddish Purple	Sandstone
HAT SAMPHANNA	SR 1/1	2.42	2.58	3,856	3.90	Yellowish Brown	Sandstone
	SR 1/2	2.45	2.60	5,454	2.57	Yellowish Brown	Sandstone
	SR 1/3	2.36	2.62	7,178	2.84	Yellowish Brown	Sandstone
	SR 1/4	2.44	2.59	5,631	3.57	Yellowish Brown	Sandstone
	SR 1/5	2.43	2.64	2,768	3.36	Yellowish Brown	Sandstone
SAKAI	SR 2/1	2.66	2.66	3,526	0.24	Medium Dark Gray	Andesite
	SR 2/2	2.67	2.65	15,997	0.09	Medium Dark Gray	Andesite
	SR 2/3	2.32	2.63	4,399	0.23	Medium Dark Gray	Andesite
	SR 2/4	2.66	2.61	11,869	0.28	Medium Dark Gray	Andesite
	SR 2/5	2.64	2.61	12,245	0.25	Medium Dark Gray	Andesite

II.
Riverbank Erosion
at Pilot Work Sites
by August 2002 Flood





TOPOGRAPHIC MAP

Scale : S=1:500

MEKONG RIVER

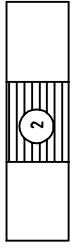
TOPOGRAPHIC MAP OF DONGPHOSJI SITE

SURVEYED BY NATIONAL GEOGRAPHIC DEPARTMENT

Original Sheet Size A1	SITE No. 03	Checked by: P. Thongsak
	SHEET No.2	Date: Jan. 2002

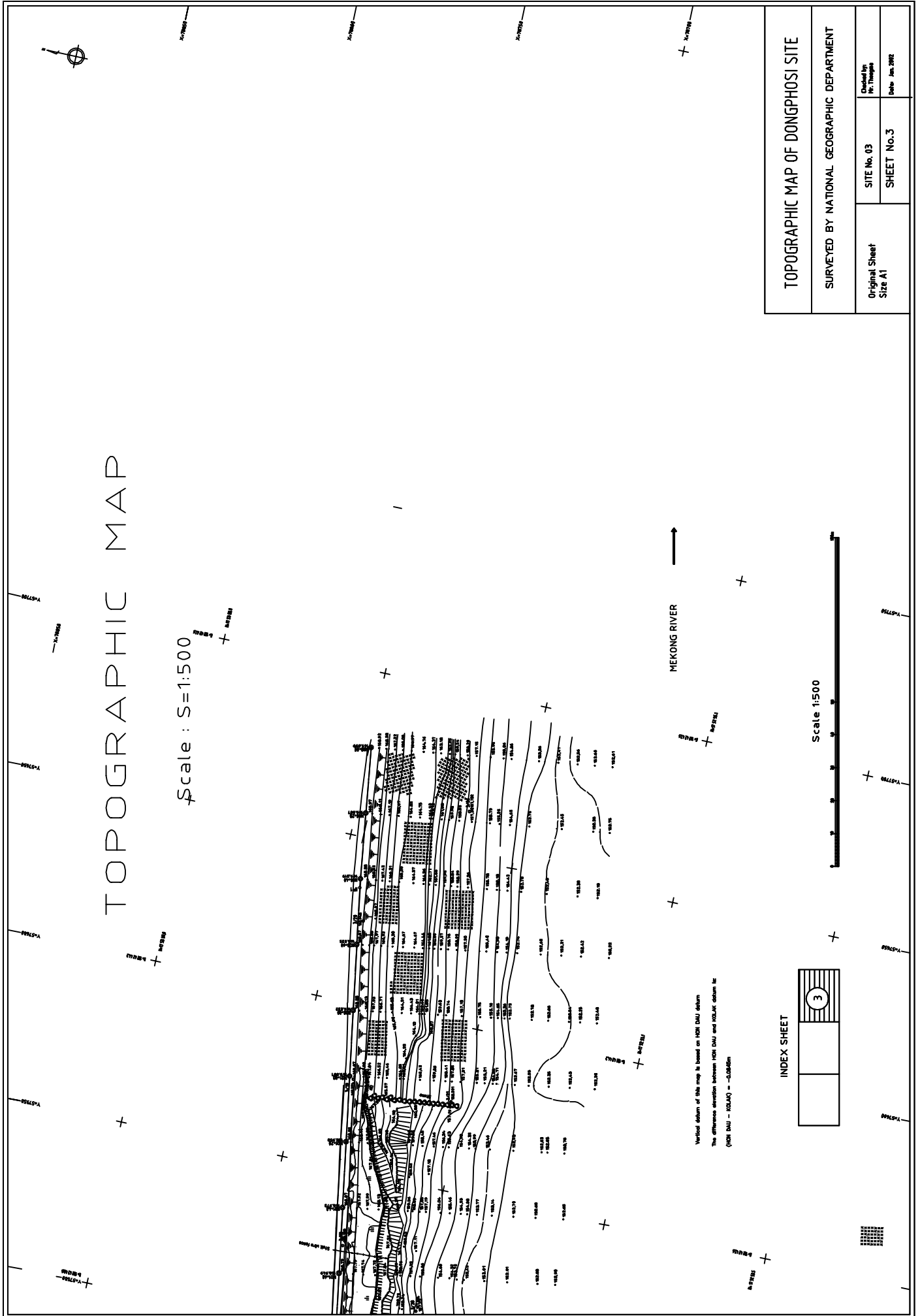
Scale 1:500

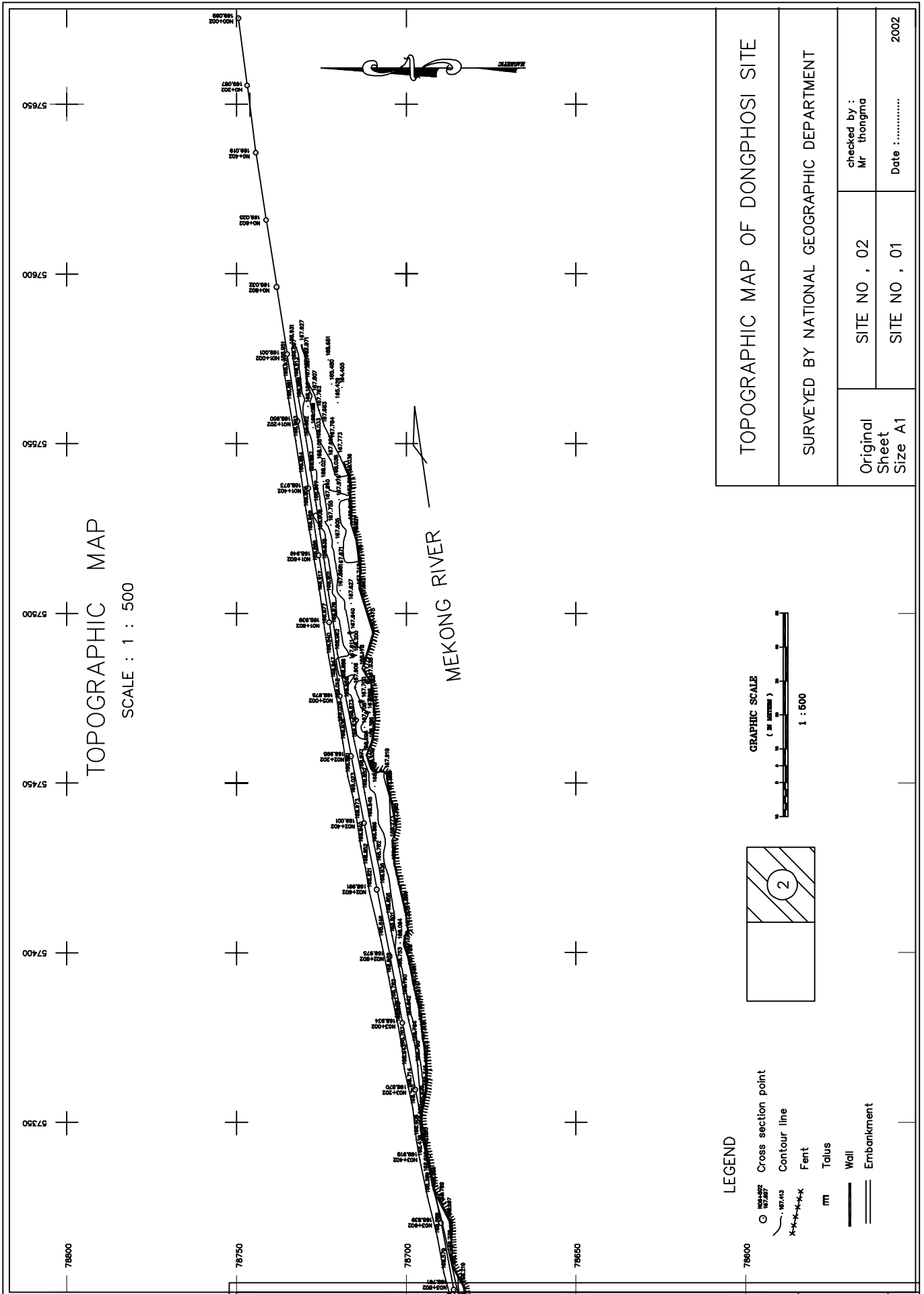
INDEX SHEET

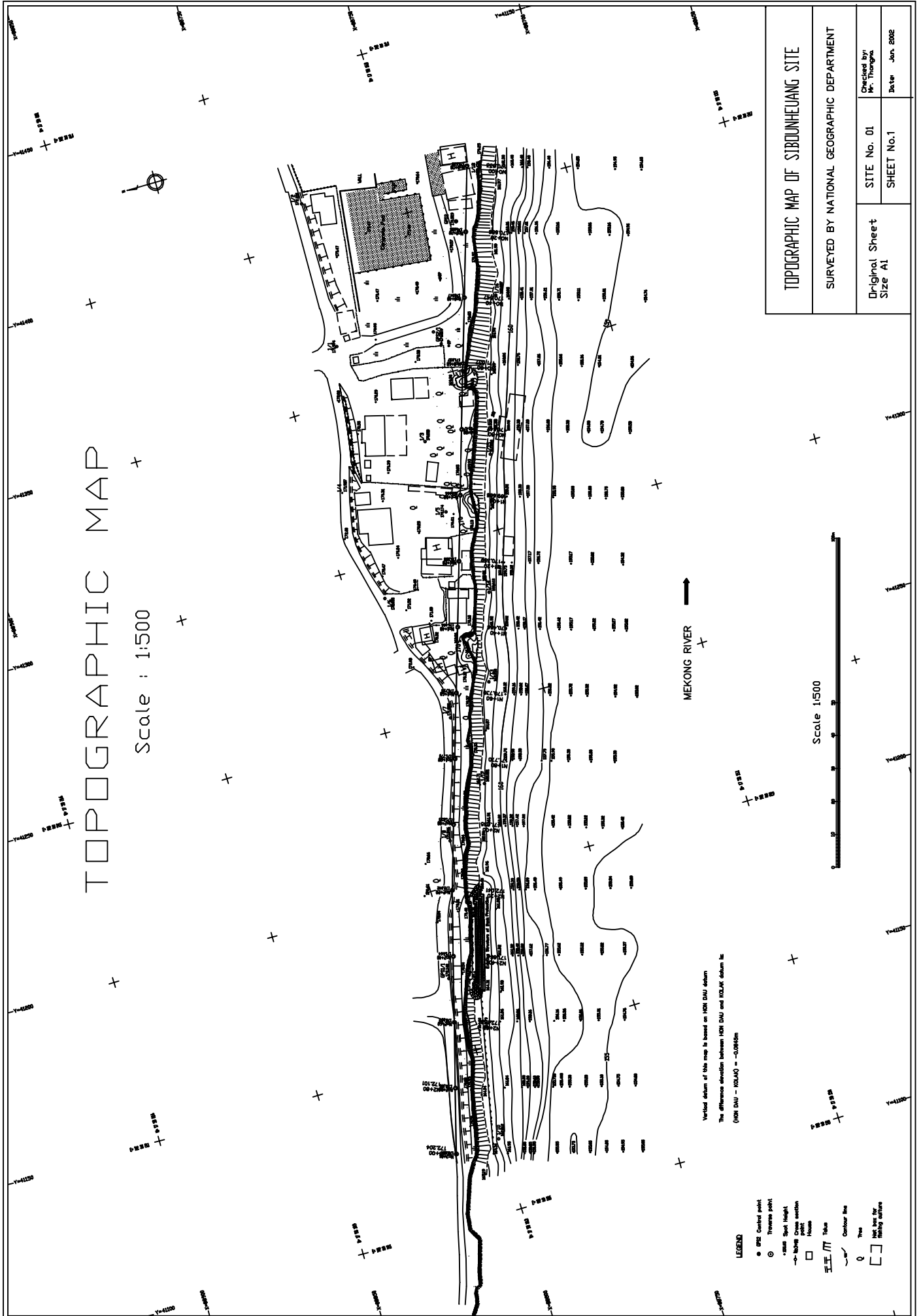


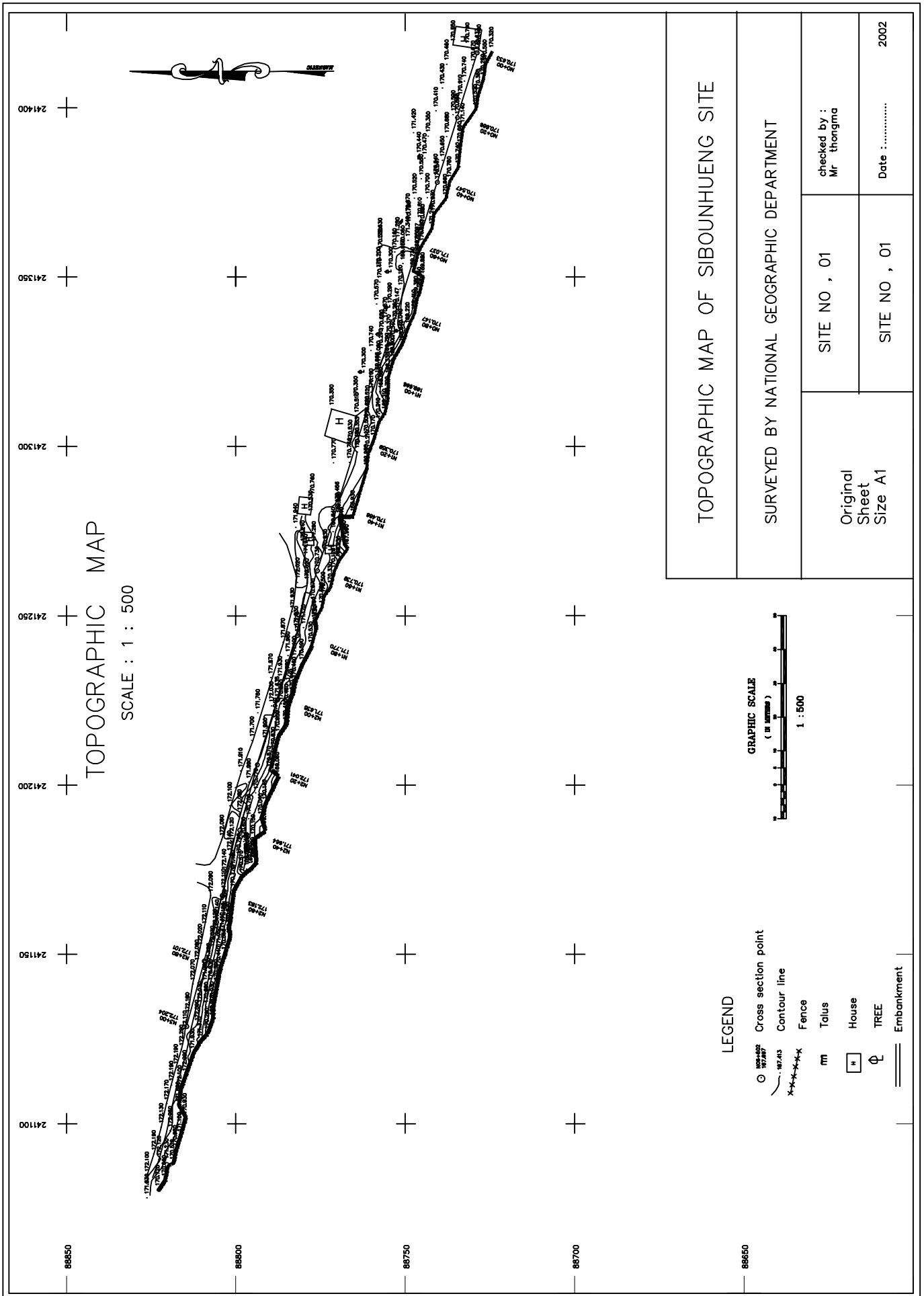
Vertical datum of this map is based on IGN DATUM datum.
The difference elevation between IGN DATUM and IGLAD datum is
(IGN DATUM - IGLAD) = -0.040m

- LEGEND**
- Triangulation point
 - Spot height
 - Cross section point
 - Gully
 - Contour line
 - Drainage









III.

*Daily Water Level
at Pilot Work Sites*

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
Jan-02	1/Jan/02	N.A.	N.A.	161.76
	2/Jan/02	N.A.	160.26	161.60
	3/Jan/02	N.A.	160.18	161.50
	4/Jan/02	N.A.	N.A.	161.51
	5/Jan/02	N.A.	160.41	161.65
	6/Jan/02	N.A.	N.A.	161.81
	7/Jan/02	157.18	160.59	161.86
	8/Jan/02	157.19	160.60	161.87
	9/Jan/02	157.18	160.59	161.87
	10/Jan/02	157.02	160.43	161.75
	11/Jan/02	156.77	160.19	161.52
	12/Jan/02	156.66	160.11	161.42
	13/Jan/02	N.A.	N.A.	161.43
	14/Jan/02	156.63	160.08	161.39
	15/Jan/02	156.55	159.96	161.28
	16/Jan/02	156.45	159.88	161.20
	17/Jan/02	156.45	159.93	161.24
	18/Jan/02	156.55	159.96	161.37
	19/Jan/02	156.69	160.20	161.49
	20/Jan/02	156.72	160.19	161.45
	21/Jan/02	156.72	160.04	161.32
	22/Jan/02	156.49	159.91	161.20
	23/Jan/02	156.41	159.74	161.15
	24/Jan/02	156.37	159.70	161.11
	25/Jan/02	156.32	159.64	161.04
	26/Jan/02	156.23	159.54	160.96
	27/Jan/02	156.22	159.56	160.98
	28/Jan/02	156.29	159.64	161.04
	29/Jan/02	156.35	159.70	161.10
	30/Jan/02	156.43	159.80	161.20
	31/Jan/02	156.51	159.87	161.25
Feb-02	1/Feb/02	156.50	159.83	161.21
	2/Feb/02	156.44	159.74	161.12
	3/Feb/02	156.38	159.67	161.06
	4/Feb/02	156.30	159.58	160.97
	5/Feb/02	156.21	159.48	160.88
	6/Feb/02	156.14	159.41	160.82
	7/Feb/02	156.10	159.35	160.78
	8/Feb/02	156.11	159.40	160.81
	9/Feb/02	156.16	159.44	160.84
	10/Feb/02	156.17	159.42	160.83
	11/Feb/02	156.13	159.37	160.77
	12/Feb/02	156.08	159.31	160.71
	13/Feb/02	156.03	159.24	160.66
	14/Feb/02	156.00	159.22	160.62
	15/Feb/02	156.00	159.20	160.63
	16/Feb/02	155.99	159.18	160.60
	17/Feb/02	155.98	159.19	160.60
	18/Feb/02	156.02	159.23	160.64
	19/Feb/02	156.05	159.22	160.63
	20/Feb/02	156.02	159.18	160.59
	21/Feb/02	156.00	159.17	160.58

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	22/Feb/02	156.00	159.17	160.57
	23/Feb/02	155.99	159.15	160.55
	24/Feb/02	155.97	159.11	160.52
	25/Feb/02	155.95	159.09	160.50
	26/Feb/02	155.99	159.15	160.56
	27/Feb/02	156.04	159.21	160.61
	28/Feb/02	156.09	159.24	160.64
Mar-02	1/Mar/02	156.06	159.18	160.57
	2/Mar/02	156.01	159.04	160.51
	3/Mar/02	155.94	159.03	160.42
	4/Mar/02	155.87	158.97	160.38
	5/Mar/02	155.87	158.97	160.38
	6/Mar/02	155.86	158.96	160.37
	7/Mar/02	155.88	159.00	160.42
	8/Mar/02	155.99	159.11	160.51
	9/Mar/02	156.04	159.13	160.52
	10/Mar/02	155.97	159.04	160.42
	11/Mar/02	155.87	158.94	160.32
	12/Mar/02	155.77	158.83	160.21
	13/Mar/02	155.67	158.77	160.18
	14/Mar/02	155.76	158.89	160.30
	15/Mar/02	155.84	158.93	160.31
	16/Mar/02	155.67	158.69	160.06
	17/Mar/02	155.47	158.56	159.97
	18/Mar/02	155.59	158.71	160.11
	19/Mar/02	155.69	158.78	160.18
	20/Mar/02	155.72	158.80	160.18
	21/Mar/02	155.71	158.80	160.19
	22/Mar/02	155.73	158.82	160.20
	23/Mar/02	155.69	158.77	160.15
	24/Mar/02	155.59	158.64	160.01
	25/Mar/02	155.51	158.61	159.98
	26/Mar/02	155.59	158.70	160.10
	27/Mar/02	155.68	158.77	160.16
	28/Mar/02	155.68	158.75	160.13
	29/Mar/02	155.65	158.84	160.10
	30/Mar/02	155.64	158.72	160.11
	31/Mar/02	155.52	158.70	160.07
	1/Apr/02	155.58	158.74	160.03
	2/Apr/02	155.52	158.59	159.96
	3/Apr/02	155.46	158.50	159.92
	4/Apr/02	155.44	158.54	159.94
	5/Apr/02	155.57	158.68	160.06
	6/Apr/02	155.66	158.75	160.14
	7/Apr/02	155.66	158.73	160.10
	8/Apr/02	155.56	158.62	159.98
	9/Apr/02	155.49	158.57	159.95
	10/Apr/02	155.51	158.60	159.97
	11/Apr/02	155.49	158.55	159.92
	12/Apr/02	155.40	158.50	159.92
	13/Apr/02	155.38	158.47	159.93
	14/Apr/02	155.37	158.44	159.92

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
Apr-02	15/Apr/02	155.38	158.44	159.92
	16/Apr/02	155.39	158.48	159.92
	17/Apr/02	155.43	158.53	159.92
	18/Apr/02	155.47	158.58	159.97
	19/Apr/02	155.54	158.84	160.04
	20/Apr/02	155.65	158.77	160.16
	21/Apr/02	155.77	158.89	160.28
	22/Apr/02	155.87	158.98	160.36
	23/Apr/02	155.91	159.00	160.38
	24/Apr/02	155.88	158.96	160.32
	25/Apr/02	155.77	158.84	160.19
	26/Apr/02	155.66	158.73	160.09
	27/Apr/02	155.58	158.67	160.04
	28/Apr/02	155.55	158.66	160.05
29/Apr/02	155.57	158.68	160.05	
30/Apr/02	155.56	158.66	160.04	
May-02	1/May/02	155.63	158.78	160.18
	2/May/02	155.83	158.99	160.39
	3/May/02	155.98	159.09	160.47
	4/May/02	155.97	159.14	160.41
	5/May/02	155.84	158.90	160.27
	6/May/02	155.71	158.79	160.16
	7/May/02	155.67	158.79	160.17
	8/May/02	155.76	158.92	160.32
	9/May/02	155.94	159.09	160.48
	10/May/02	156.03	159.13	160.50
	11/May/02	155.92	158.98	160.34
	12/May/02	155.81	158.91	160.28
	13/May/02	155.91	159.10	160.49
	14/May/02	156.21	159.41	160.82
	15/May/02	156.55	159.73	161.11
	16/May/02	156.75	159.90	161.28
	17/May/02	156.84	160.01	161.37
	18/May/02	156.99	160.14	161.48
	19/May/02	157.28	160.62	162.06
	20/May/02	158.38	160.81	163.16
	21/May/02	159.06	162.34	163.63
	22/May/02	159.30	162.54	163.80
	23/May/02	159.23	162.44	163.70
	24/May/02	159.28	162.54	163.82
	25/May/02	159.69	162.96	164.27
	26/May/02	159.83	163.06	164.35
	27/May/02	159.80	162.99	164.27
	28/May/02	159.67	162.76	164.00
	29/May/02	159.28	162.34	163.59
	30/May/02	158.95	162.02	163.25
	31/May/02	158.71	161.82	163.08
	1/Jun/02	158.78	161.94	163.23
	2/Jun/02	158.98	162.14	163.42
	3/Jun/02	159.06	162.19	163.45
	4/Jun/02	159.05	162.15	163.40
	5/Jun/02	158.81	162.03	163.27

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)			
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang	
Jun-02	6/Jun/02	158.85	161.86	163.10	
	7/Jun/02	158.58	161.70	162.95	
	8/Jun/02	158.50	161.63	162.87	
	9/Jun/02	158.49	161.62	162.87	
	10/Jun/02	158.59	161.70	162.95	
	11/Jun/02	158.63	161.73	162.96	
	12/Jun/02	158.56	161.64	162.87	
	13/Jun/02	158.45	161.54	162.77	
	14/Jun/02	158.41	161.48	162.71	
	15/Jun/02	158.30	161.39	162.63	
	16/Jun/02	159.05	162.48	163.79	
	17/Jun/02	159.86	162.82	164.04	
	18/Jun/02	159.65	162.68	163.92	
	19/Jun/02	159.53	162.57	163.79	
	20/Jun/02	159.28	162.26	163.45	
	21/Jun/02	158.87	161.96	163.15	
	22/Jun/02	158.78	161.87	163.09	
	23/Jun/02	158.75	161.84	163.06	
	24/Jun/02	158.66	161.76	162.98	
	25/Jun/02	158.57	161.71	162.94	
	26/Jun/02	158.66	161.71	162.92	
	27/Jun/02	158.50	161.66	162.87	
	28/Jun/02	158.49	161.73	162.96	
	29/Jun/02	158.93	162.12	163.38	
	30/Jun/02	159.63	162.85	164.12	
	Jul-02	1/Jul/02	160.09	163.15	164.38
		2/Jul/02	160.17	163.06	164.25
		3/Jul/02	159.94	162.98	164.18
		4/Jul/02	160.07	163.23	164.49
		5/Jul/02	161.26	164.44	165.71
6/Jul/02		161.33	164.31	165.52	
7/Jul/02		161.17	164.27	165.44	
8/Jul/02		161.28	164.33	165.56	
9/Jul/02		161.50	164.92	166.26	
10/Jul/02		162.98	166.14	167.34	
11/Jul/02		162.95	165.92	167.11	
12/Jul/02		163.06	166.20	167.38	
13/Jul/02		163.14	166.19	167.38	
14/Jul/02		163.57	166.87	168.04	
15/Jul/02		163.85	167.05	168.18	
16/Jul/02		164.01	167.36	168.50	
17/Jul/02		164.25	167.61	168.75	
18/Jul/02		164.64	168.03	169.05	
19/Jul/02		164.74	168.07	169.12	
20/Jul/02		164.69	168.02	169.06	
21/Jul/02		164.47	167.82	168.87	
22/Jul/02		164.25	167.64	168.70	
23/Jul/02		164.84	168.40	169.50	
24/Jul/02		165.25	168.74	169.79	
25/Jul/02		165.17	168.59	169.62	
26/Jul/02		164.87	168.27	169.32	
27/Jul/02		164.48	167.79	168.94	

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	28/Jul/02	164.12	167.60	168.55
	29/Jul/02	163.91	167.29	168.50
	30/Jul/02	164.18	167.49	168.56
	31/Jul/02	164.30	167.65	168.73
Aug-02	1/Aug/02	164.54	167.91	168.96
	2/Aug/02	164.67	168.02	169.07
	3/Aug/02	164.62	167.92	168.97
	4/Aug/02	164.96	168.42	169.50
	5/Aug/02	165.59	169.04	170.10
	6/Aug/02	165.60	168.94	169.96
	7/Aug/02	165.60	168.86	169.88
	8/Aug/02	165.68	168.96	169.95
	9/Aug/02	165.71	168.97	169.98
	10/Aug/02	165.45	168.59	169.56
	11/Aug/02	165.07	168.12	169.08
	12/Aug/02	164.64	167.67	168.60
	13/Aug/02	164.35	167.31	168.22
	14/Aug/02	164.35	167.32	168.23
	15/Aug/02	164.52	167.62	168.55
	16/Aug/02	165.07	168.31	169.23
	17/Aug/02	165.40	168.62	169.56
	18/Aug/02	165.49	168.68	169.62
	19/Aug/02	165.70	169.02	169.94
	20/Aug/02	166.49	169.98	170.94
	21/Aug/02	166.93	170.36	171.29
	22/Aug/02	166.91	170.18	171.10
	23/Aug/02	166.55	169.92	170.79
	24/Aug/02	166.41	169.78	170.71
	25/Aug/02	166.27	169.56	170.43
	26/Aug/02	165.88	169.10	169.94
	27/Aug/02	165.28	168.43	169.23
	28/Aug/02	164.77	167.98	168.81
	29/Aug/02	164.63	167.72	168.55
	30/Aug/02	164.59	167.70	168.54
	31/Aug/02	164.64	167.68	168.58
Sep-02	1/Sep/02	164.45	167.54	168.39
	2/Sep/02	164.25	167.26	168.10
	3/Sep/02	164.12	167.17	168.02
	4/Sep/02	164.29	167.33	168.17
	5/Sep/02	164.56	167.68	168.54
	6/Sep/02	164.83	167.93	168.77
	7/Sep/02	164.90	167.86	168.70
	8/Sep/02	164.77	167.83	168.66
	9/Sep/02	164.38	167.33	168.15
	10/Sep/02	164.09	167.02	167.67
	11/Sep/02	163.73	166.65	167.43
	12/Sep/02	163.47	166.18	166.99
	13/Sep/02	163.00	165.77	166.56
	14/Sep/02	162.31	165.35	166.16
	15/Sep/02	162.05	165.11	165.94
	16/Sep/02	161.89	164.99	165.84
	17/Sep/02	161.77	164.89	165.75

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	18/Sep/02	161.93	165.13	166.03
	19/Sep/02	162.35	165.49	166.33
	20/Sep/02	162.47	165.58	166.44
	21/Sep/02	162.51	165.60	166.45
	22/Sep/02	162.31	165.29	166.14
	23/Sep/02	162.01	165.06	165.93
	24/Sep/02	161.73	164.81	165.67
	25/Sep/02	161.52	164.51	165.39
	26/Sep/02	N.A.	164.29	165.17
	27/Sep/02	N.A.	164.02	164.92
	28/Sep/02	N.A.	163.76	164.69
	29/Sep/02	160.10	163.62	164.55
	30/Sep/02	N.A.	163.49	164.42
Oct-02	1/Oct/02	160.34	163.44	164.40
	2/Oct/02	160.62	163.70	164.66
	3/Oct/02	161.02	164.10	165.04
	4/Oct/02	161.12	164.19	165.12
	5/Oct/02	161.40	164.52	165.42
	6/Oct/02	161.82	164.85	165.77
	7/Oct/02	161.89	164.96	165.86
	8/Oct/02	161.80	164.84	165.75
	9/Oct/02	161.80	164.89	165.82
	10/Oct/02	161.72	164.79	165.73
	11/Oct/02	161.48	164.47	165.41
	12/Oct/02	161.02	164.12	165.08
	13/Oct/02	160.72	163.77	164.75
	14/Oct/02	160.34	163.44	164.43
	15/Oct/02	159.92	163.19	164.20
	16/Oct/02	159.67	163.02	164.03
	17/Oct/02	159.49	162.79	163.82
	18/Oct/02	159.38	162.57	163.62
	19/Oct/02	159.29	162.44	163.50
	20/Oct/02	N.A.	162.32	163.39
	21/Oct/02	159.07	162.18	163.27
	22/Oct/02	159.02	162.12	163.20
	23/Oct/02	158.95	162.08	163.16
	24/Oct/02	158.92	162.04	163.13
	25/Oct/02	158.82	161.95	163.05
	26/Oct/02	158.84	161.97	163.06
	27/Oct/02	158.92	162.04	163.14
	28/Oct/02	159.03	162.16	163.24
	29/Oct/02	159.10	162.21	163.30
	30/Oct/02	159.23	162.36	163.45
	31/Oct/02	159.32	162.45	163.53
	1/Nov/02	159.53	162.44	163.52
	2/Nov/02	159.54	162.53	163.62
	3/Nov/02	159.60	162.73	163.84
	4/Nov/02	159.67	162.81	163.92
	5/Nov/02	159.74	162.82	163.80
	6/Nov/02	159.80	162.46	163.58
	7/Nov/02	159.61	162.21	163.36
	8/Nov/02	159.56	162.23	163.41

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)			
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang	
Nov-02	9/Nov/02	159.38	162.35	163.53	
	10/Nov/02	159.44	162.38	163.56	
	11/Nov/02	159.43	162.36	163.56	
	12/Nov/02	159.32	162.24	163.45	
	13/Nov/02	159.15	162.06	163.27	
	14/Nov/02	158.99	161.90	163.09	
	15/Nov/02	158.76	161.68	162.90	
	16/Nov/02	158.55	161.61	162.78	
	17/Nov/02	158.41	161.44	162.69	
	18/Nov/02	158.31	161.34	162.61	
	19/Nov/02	158.23	161.29	162.57	
	20/Nov/02	158.21	161.27	162.53	
	21/Nov/02	158.17	161.21	162.49	
	22/Nov/02	158.25	161.25	162.53	
	23/Nov/02	158.23	161.24	162.53	
	24/Nov/02	158.19	161.18	162.48	
	25/Nov/02	158.13	161.10	162.41	
	26/Nov/02	158.05	161.01	162.32	
	27/Nov/02	158.06	160.96	162.29	
	28/Nov/02	158.03	160.94	162.27	
	29/Nov/02	157.99	160.89	162.24	
	30/Nov/02	157.99	160.91	162.28	
	Dec-02	1/Dec/02	158.16	161.11	162.51
		2/Dec/02	159.09	161.34	163.66
		3/Dec/02	N.A.	162.10	164.31
		4/Dec/02	N.A.	162.92	164.12
		5/Dec/02	N.A.	162.54	163.73
		6/Dec/02	159.40	162.14	163.38
		7/Dec/02	159.07	161.90	163.08
		8/Dec/02	158.70	161.50	162.80
9/Dec/02		158.48	161.21	162.53	
10/Dec/02		158.14	160.94	162.29	
11/Dec/02		157.44	160.75	162.13	
12/Dec/02		157.35	160.68	162.07	
13/Dec/02		157.29	160.64	162.03	
14/Dec/02		157.35	160.64	162.03	
15/Dec/02		157.34	160.73	162.12	
16/Dec/02		157.45	160.83	162.22	
17/Dec/02		157.89	160.96	162.35	
18/Dec/02		158.11	160.98	162.35	
19/Dec/02		158.00	160.85	162.22	
20/Dec/02		157.41	160.70	162.09	
21/Dec/02		157.27	160.59	161.98	
22/Dec/02		157.18	160.52	161.91	
23/Dec/02		157.13	160.48	161.88	
24/Dec/02		157.10	160.44	161.85	
25/Dec/02		157.08	160.44	161.85	
26/Dec/02		157.06	160.41	161.82	
27/Dec/02		157.04	160.38	N.A.	
28/Dec/02		156.93	160.26	N.A.	
29/Dec/02		156.86	160.21	N.A.	
30/Dec/02		156.97	160.40	N.A.	

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	31/Dec/02	157.21	160.63	N.A.
Jan-03	1/Jan/03	157.47	160.84	N.A.
	2/Jan/03	157.52	160.83	N.A.
	3/Jan/03	157.47	160.74	N.A.
	4/Jan/03	157.35	160.64	N.A.
	5/Jan/03	157.21	160.54	N.A.
	6/Jan/03	157.11	160.44	N.A.
	7/Jan/03	157.01	160.34	N.A.
	8/Jan/03	157.10	160.40	N.A.
	9/Jan/03	157.18	160.58	N.A.
	10/Jan/03	157.39	160.82	N.A.
	11/Jan/03	158.49	161.48	N.A.
	12/Jan/03	158.87	161.88	N.A.
	13/Jan/03	159.17	161.98	N.A.
	14/Jan/03	158.93	161.68	N.A.
	15/Jan/03	158.51	160.70	N.A.
	16/Jan/03	158.05	160.95	N.A.
	17/Jan/03	157.48	160.67	162.02
	18/Jan/03	157.16	160.48	161.84
	19/Jan/03	157.03	160.35	161.72
	20/Jan/03	156.94	160.27	161.65
	21/Jan/03	156.84	160.18	161.56
	22/Jan/03	156.75	160.10	161.48
	23/Jan/03	156.70	160.06	161.45
	24/Jan/03	156.70	160.07	161.45
	25/Jan/03	156.68	160.03	161.40
	26/Jan/03	156.58	159.90	161.29
	27/Jan/03	156.49	159.85	161.22
	28/Jan/03	156.43	159.77	161.15
	29/Jan/03	156.38	159.73	161.12
	30/Jan/03	156.35	159.70	161.10
	31/Jan/03	156.32	159.67	161.07
Feb-03	1/Feb/03	156.30	159.73	161.03
	2/Feb/03	156.27	159.71	161.00
	3/Feb/03	156.25	159.69	160.99
	4/Feb/03	156.24	159.67	160.97
	5/Feb/03	156.21	159.65	160.94
	6/Feb/03	156.19	159.65	160.92
	7/Feb/03	156.18	159.64	160.91
	8/Feb/03	156.17	159.62	160.89
	9/Feb/03	156.12	159.57	160.84
	10/Feb/03	156.05	159.51	160.77
	11/Feb/03	156.00	159.45	160.73
	12/Feb/03	156.01	159.49	160.77
	13/Feb/03	156.12	159.62	160.91
	14/Feb/03	156.36	159.83	161.14
	15/Feb/03	156.53	160.08	161.30
	16/Feb/03	156.65	160.14	161.38
	17/Feb/03	156.66	160.16	161.33
	18/Feb/03	156.55	160.06	161.21
	19/Feb/03	156.45	159.95	161.12
	20/Feb/03	156.40	159.91	161.08

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	21/Feb/03	156.35	159.87	161.02
	22/Feb/03	156.31	159.82	160.98
	23/Feb/03	156.21	159.63	160.87
	24/Feb/03	156.11	159.54	160.78
	25/Feb/03	156.04	159.45	160.71
	26/Feb/03	N.A.	159.40	160.66
	27/Feb/03	N.A.	159.40	160.70
	28/Feb/03	N.A.	159.45	160.70
Mar-03	1/Mar/03	N.A.	159.47	160.73
	2/Mar/03	N.A.	159.49	160.74
	3/Mar/03	N.A.	159.45	160.72
	4/Mar/03	156.07	159.38	160.62
	5/Mar/03	156.04	159.24	160.50
	6/Mar/03	155.90	159.17	160.44
	7/Mar/03	155.81	159.13	160.42
	8/Mar/03	155.78	159.12	160.40
	9/Mar/03	155.75	159.09	160.34
	10/Mar/03	155.71	159.05	160.34
	11/Mar/03	155.69	159.03	160.30
	12/Mar/03	155.66	159.04	160.30
	13/Mar/03	155.59	159.03	160.31
	14/Mar/03	155.65	159.08	160.35
	15/Mar/03	155.67	159.12	160.39
	16/Mar/03	155.71	159.15	160.41
	17/Mar/03	155.75	159.29	160.45
	18/Mar/03	155.77	159.20	160.46
	19/Mar/03	155.77	159.18	160.45
	20/Mar/03	155.77	159.20	160.45
	21/Mar/03	155.77	159.19	160.44
	22/Mar/03	155.77	159.19	160.44
	23/Mar/03	155.77	159.22	160.44
	24/Mar/03	155.78	159.20	160.45
	25/Mar/03	155.78	159.16	160.42
	26/Mar/03	155.74	159.20	160.46
	27/Mar/03	155.75	159.24	160.51
	28/Mar/03	155.81	159.28	160.54
	29/Mar/03	155.84	159.22	160.49
	30/Mar/03	155.83	159.19	160.44
	31/Mar/03	155.77	159.18	160.44
	1/Apr/03	155.75	159.16	160.41
	2/Apr/03	155.72	159.15	160.41
	3/Apr/03	155.73	159.16	160.37
	4/Apr/03	155.76	159.17	160.33
	5/Apr/03	155.75	159.14	160.39
	6/Apr/03	155.72	159.12	160.37
	7/Apr/03	155.68	159.07	160.32
	8/Apr/03	155.63	159.00	160.26
	9/Apr/03	155.53	158.92	160.20
	10/Apr/03	155.50	158.92	160.17
	11/Apr/03	155.52	158.94	160.20
	12/Apr/03	155.54	158.96	160.22
	13/Apr/03	155.52	158.94	160.20

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
Apr-03	14/Apr/03	155.51	158.91	160.17
	15/Apr/03	155.48	158.89	160.16
	16/Apr/03	155.47	158.89	160.11
	17/Apr/03	155.49	158.88	160.16
	18/Apr/03	155.43	158.82	160.09
	19/Apr/03	155.39	158.78	160.09
	20/Apr/03	155.37	158.80	160.05
	21/Apr/03	155.45	158.89	160.17
	22/Apr/03	155.57	158.99	160.23
	23/Apr/03	155.61	159.04	160.30
	24/Apr/03	155.75	159.16	160.43
	25/Apr/03	155.81	159.22	160.49
	26/Apr/03	155.83	159.23	160.48
	27/Apr/03	155.77	159.15	160.41
	28/Apr/03	155.69	159.06	160.31
	29/Apr/03	155.57	158.92	160.13
30/Apr/03	155.35	158.70	159.92	
May-03	1/May/03	155.24	158.62	159.92
	2/May/03	155.25	158.66	159.94
	3/May/03	155.33	158.74	160.00
	4/May/03	155.39	158.79	160.03
	5/May/03	155.44	158.82	160.08
	6/May/03	155.43	158.80	160.08
	7/May/03	155.43	158.83	160.11
	8/May/03	155.51	158.89	160.17
	9/May/03	155.53	158.92	160.17
	10/May/03	155.54	158.92	160.19
	11/May/03	155.61	159.03	160.32
	12/May/03	155.75	159.15	160.42
	13/May/03	155.83	159.22	160.48
	14/May/03	155.81	159.16	160.39
	15/May/03	155.78	159.15	160.40
	16/May/03	155.79	159.18	160.41
	17/May/03	155.92	159.32	160.54
	18/May/03	156.03	159.41	160.66
	19/May/03	156.07	159.42	160.64
	20/May/03	156.01	159.37	160.60
	21/May/03	155.93	159.32	160.58
	22/May/03	155.95	159.30	160.52
	23/May/03	155.94	159.31	160.54
	24/May/03	155.92	159.25	160.50
	25/May/03	155.78	159.09	160.32
	26/May/03	155.65	159.00	160.19
	27/May/03	155.61	159.00	160.22
	28/May/03	155.71	159.14	160.42
	29/May/03	155.89	159.32	160.57
	30/May/03	156.16	159.40	160.76
	31/May/03	156.18	159.45	160.76
	1/Jun/03	156.24	159.51	160.81
	2/Jun/03	156.27	159.52	160.80
	3/Jun/03	156.37	159.64	160.95
	4/Jun/03	156.50	159.69	160.97

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)			
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang	
Jun-03	5/Jun/03	156.47	159.80	161.01	
	6/Jun/03	156.59	159.92	161.12	
	7/Jun/03	156.64	159.96	161.14	
	8/Jun/03	156.68	159.94	161.14	
	9/Jun/03	156.57	159.87	161.11	
	10/Jun/03	156.61	159.98	161.22	
	11/Jun/03	156.73	160.08	161.35	
	12/Jun/03	156.77	160.15	161.40	
	13/Jun/03	156.91	160.26	161.47	
	14/Jun/03	157.05	160.40	161.63	
	15/Jun/03	157.10	160.44	161.63	
	16/Jun/03	157.03	160.31	161.53	
	17/Jun/03	156.97	160.25	161.44	
	18/Jun/03	156.89	160.15	161.40	
	19/Jun/03	156.98	160.29	161.51	
	20/Jun/03	157.13	160.51	161.73	
	21/Jun/03	157.46	160.78	162.04	
	22/Jun/03	157.60	161.13	162.34	
	23/Jun/03	158.30	161.63	162.89	
	24/Jun/03	158.76	161.99	163.19	
	25/Jun/03	158.91	162.14	163.29	
	26/Jun/03	159.08	162.26	163.41	
	27/Jun/03	159.11	162.03	163.14	
	28/Jun/03	158.64	161.88	162.97	
	29/Jun/03	159.51	161.72	162.91	
	30/Jun/03	158.42	161.64	162.81	
	Jul-03	1/Jul/03	158.36	161.61	162.80
		2/Jul/03	158.81	162.20	163.59
		3/Jul/03	160.07	163.41	164.60
		4/Jul/03	160.08	163.36	164.43
5/Jul/03		159.94	163.11	164.23	
6/Jul/03		159.89	163.12	164.25	
7/Jul/03		160.00	163.22	164.37	
8/Jul/03		160.05	163.27	164.40	
9/Jul/03		160.07	163.29	164.44	
10/Jul/03		160.10	163.32	164.44	
11/Jul/03		160.00	163.19	164.30	
12/Jul/03		159.79	163.02	164.11	
13/Jul/03		159.77	162.89	164.15	
14/Jul/03		159.93	163.19	164.36	
15/Jul/03		160.26	163.49	164.59	
16/Jul/03		160.24	163.39	164.51	
17/Jul/03		160.17	163.36	164.49	
18/Jul/03		160.17	163.39	164.49	
19/Jul/03		160.20	163.43	164.56	
20/Jul/03		160.31	163.53	164.67	
21/Jul/03		160.25	163.43	164.54	
22/Jul/03		159.91	163.06	164.16	
23/Jul/03		159.64	162.84	163.96	
24/Jul/03		159.55	162.73	163.81	
25/Jul/03		160.13	163.58	164.73	
26/Jul/03		160.73	163.85	164.95	

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	27/Jul/03	160.68	163.80	164.91
	28/Jul/03	160.55	163.66	164.75
	29/Jul/03	160.51	163.70	164.83
	30/Jul/03	160.72	163.92	165.03
	31/Jul/03	160.90	164.09	165.18
Aug-03	1/Aug/03	160.83	163.97	165.02
	2/Aug/03	160.67	163.82	164.88
	3/Aug/03	160.55	163.65	164.72
	4/Aug/03	160.33	163.52	164.60
	5/Aug/03	160.35	163.60	164.72
	6/Aug/03	160.59	163.84	164.95
	7/Aug/03	160.63	163.82	164.87
	8/Aug/03	160.48	163.56	164.62
	9/Aug/03	160.06	163.26	164.32
	10/Aug/03	159.82	163.07	164.15
	11/Aug/03	159.70	162.98	164.06
	12/Aug/03	159.68	162.97	164.08
	13/Aug/03	159.94	163.19	164.40
	14/Aug/03	160.40	163.65	164.86
	15/Aug/03	161.06	164.38	165.49
	16/Aug/03	161.17	164.39	165.47
	17/Aug/03	161.00	164.26	165.31
	18/Aug/03	160.85	164.09	165.17
	19/Aug/03	160.70	163.96	165.03
	20/Aug/03	161.05	164.39	165.49
	21/Aug/03	161.54	164.84	165.91
	22/Aug/03	162.17	165.44	166.51
	23/Aug/03	162.49	165.69	166.72
	24/Aug/03	162.37	165.48	166.50
	25/Aug/03	162.23	165.37	166.38
	26/Aug/03	162.44	165.78	166.85
	27/Aug/03	162.78	166.14	167.13
	28/Aug/03	162.65	165.96	166.96
	29/Aug/03	162.62	166.12	167.14
	30/Aug/03	162.45	165.87	166.82
	31/Aug/03	161.99	165.38	166.35
Sep-03	1/Sep/03	161.68	165.15	166.15
	2/Sep/03	161.87	165.46	166.46
	3/Sep/03	161.97	165.46	166.46
	4/Sep/03	161.67	165.15	166.10
	5/Sep/03	161.57	165.08	166.08
	6/Sep/03	161.96	165.58	166.59
	7/Sep/03	162.87	166.46	167.44
	8/Sep/03	163.38	166.64	167.60
	9/Sep/03	163.39	166.60	167.54
	10/Sep/03	N.A.	166.56	167.49
	11/Sep/03	N.A.	167.01	167.94
	12/Sep/03	N.A.	167.58	168.49
	13/Sep/03	N.A.	167.78	168.64
	14/Sep/03	N.A.	167.44	168.30
	15/Sep/03	N.A.	167.54	168.40
	16/Sep/03	N.A.	167.52	168.37

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	17/Sep/03	N.A.	167.22	168.07
	18/Sep/03	N.A.	166.96	167.79
	19/Sep/03	N.A.	166.54	167.38
	20/Sep/03	N.A.	166.09	166.95
	21/Sep/03	N.A.	165.78	166.67
	22/Sep/03	N.A.	165.68	166.60
	23/Sep/03	N.A.	165.44	166.32
	24/Sep/03	N.A.	165.07	165.96
	25/Sep/03	N.A.	164.88	165.80
	26/Sep/03	N.A.	164.74	165.67
	27/Sep/03	N.A.	164.58	165.51
	28/Sep/03	N.A.	164.55	165.49
	29/Sep/03	N.A.	164.73	165.68
30/Sep/03	N.A.	164.84	165.80	
Dec-03	1/Oct/03	N.A.	164.69	165.62
	2/Oct/03	N.A.	164.34	165.28
	3/Oct/03	N.A.	164.18	165.12
	4/Oct/03	N.A.	164.02	164.97
	5/Oct/03	N.A.	163.78	164.71
	6/Oct/03	160.14	163.44	164.39
	7/Oct/03	160.02	163.18	164.13
	8/Oct/03	159.93	163.18	164.17
	9/Oct/03	159.84	163.26	164.22
	10/Oct/03	159.74	163.11	164.06
	11/Oct/03	159.52	162.85	163.84
	12/Oct/03	159.37	162.73	163.73
	13/Oct/03	159.19	162.58	163.52
	14/Oct/03	159.05	162.44	163.42
	15/Oct/03	158.97	162.36	163.35
	16/Oct/03	158.92	162.34	163.34
	17/Oct/03	158.82	162.27	163.27
	18/Oct/03	158.77	162.06	163.08
	19/Oct/03	158.77	162.04	163.07
	20/Oct/03	158.95	162.26	163.30
	21/Oct/03	158.82	162.26	163.29
	22/Oct/03	158.72	162.10	163.12
	23/Oct/03	158.53	161.96	162.98
	24/Oct/03	158.43	161.84	162.85
	25/Oct/03	158.35	161.72	162.78
	26/Oct/03	158.17	161.58	162.66
	27/Oct/03	158.10	161.50	162.60
	28/Oct/03	158.07	161.49	162.57
	29/Oct/03	158.04	161.52	162.62
	30/Oct/03	157.99	161.50	162.59
	31/Oct/03	157.95	161.43	162.54
	1/Nov/03	157.94	161.38	162.49
	2/Nov/03	157.83	161.31	162.42
	3/Nov/03	157.91	161.32	162.44
	4/Nov/03	157.90	161.28	162.41
	5/Nov/03	157.90	161.24	162.37
	6/Nov/03	157.89	161.20	162.29
	7/Nov/03	157.81	161.10	162.22

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)			
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang	
Nov-03	8/Nov/03	157.70	160.95	162.11	
	9/Nov/03	157.62	160.84	161.91	
	10/Nov/03	N.A.	160.74	161.90	
	11/Nov/03	N.A.	160.67	161.85	
	12/Nov/03	N.A.	160.69	161.86	
	13/Nov/03	157.27	160.68	161.85	
	14/Nov/03	157.22	160.64	161.80	
	15/Nov/03	157.09	160.54	161.69	
	16/Nov/03	156.99	160.40	161.57	
	17/Nov/03	156.82	160.28	161.44	
	18/Nov/03	156.69	160.19	161.38	
	19/Nov/03	156.65	160.16	161.36	
	20/Nov/03	156.67	160.18	161.38	
	21/Nov/03	156.72	160.22	161.41	
	22/Nov/03	156.77	160.22	161.40	
	23/Nov/03	156.69	160.17	161.35	
	24/Nov/03	156.62	160.10	161.28	
	25/Nov/03	156.54	160.02	161.21	
	26/Nov/03	156.55	160.02	161.21	
	27/Nov/03	156.59	160.06	161.18	
	28/Nov/03	156.64	160.10	161.28	
	29/Nov/03	156.65	160.11	161.25	
	30/Nov/03	156.65	160.09	161.26	
	Dec-04	1/Dec/03	156.57	160.02	161.19
		2/Dec/03	156.48	159.95	161.12
		3/Dec/03	156.42	159.86	161.05
		4/Dec/03	156.39	159.84	161.03
		5/Dec/03	156.35	159.79	160.98
		6/Dec/03	156.28	159.70	160.89
		7/Dec/03	156.17	159.60	160.80
8/Dec/03		156.07	159.48	160.70	
9/Dec/03		155.97	159.38	160.60	
10/Dec/03		156.03	159.32	160.54	
11/Dec/03		156.02	159.31	160.53	
12/Dec/03		156.00	159.28	160.47	
13/Dec/03		155.94	159.22	160.41	
14/Dec/03		155.92	159.18	160.39	
15/Dec/03		155.90	159.17	160.42	
16/Dec/03		155.90	159.18	160.36	
17/Dec/03		155.89	159.17	160.38	
18/Dec/03		155.86	159.16	160.38	
19/Dec/03		155.91	159.18	160.40	
20/Dec/03		155.91	159.20	160.06	
21/Dec/03		155.86	159.15	160.38	
22/Dec/03		155.82	159.12	160.34	
23/Dec/03		155.80	159.09	160.32	
24/Dec/03		155.79	159.07	160.28	
25/Dec/03		155.82	159.10	160.29	
26/Dec/03		155.86	159.15	160.37	
27/Dec/03		155.89	159.16	160.37	
28/Dec/03		155.85	159.14	160.35	
29/Dec/03		155.83	159.13	160.33	

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	30/Dec/03	155.77	159.04	160.27
	31/Dec/03	155.67	158.96	160.20
Jan-04	1/Jan/04	155.66	158.96	160.20
	2/Jan/04	155.67	158.97	160.21
	3/Jan/04	155.69	158.98	160.20
	4/Jan/04	155.69	158.99	160.23
	5/Jan/04	155.72	159.03	160.26
	6/Jan/04	155.76	159.05	160.21
	7/Jan/04	155.73	159.03	160.25
	8/Jan/04	155.69	159.01	160.13
	9/Jan/04	155.61	159.00	160.17
	10/Jan/04	155.64	158.99	160.19
	11/Jan/04	155.67	158.98	160.20
	12/Jan/04	155.68	158.96	160.21
	13/Jan/04	155.69	158.98	160.18
	14/Jan/04	155.78	158.96	160.25
	15/Jan/04	155.73	158.99	160.21
	16/Jan/04	155.70	158.97	160.17
	17/Jan/04	155.67	158.94	160.16
	18/Jan/04	155.64	158.92	160.15
	19/Jan/04	155.62	158.91	160.14
	20/Jan/04	155.57	158.86	160.09
	21/Jan/04	155.52	158.81	160.00
	22/Jan/04	155.49	158.80	160.02
	23/Jan/04	155.46	158.74	159.93
	24/Jan/04	155.39	158.67	159.90
	25/Jan/04	155.36	158.61	159.91
	26/Jan/04	155.34	158.54	159.88
	27/Jan/04	155.26	158.52	159.89
	28/Jan/04	155.06	158.50	159.90
	29/Jan/04	155.04	158.46	159.90
	30/Jan/04	154.97	158.40	159.90
	31/Jan/04	154.95	158.37	159.89
Feb-04	1/Feb/04	N.A.	158.38	159.90
	2/Feb/04	N.A.	158.44	159.90
	3/Feb/04	N.A.	158.49	159.90
	4/Feb/04	154.93	158.57	159.90
	5/Feb/04	154.97	158.64	159.89
	6/Feb/04	155.03	158.70	159.94
	7/Feb/04	155.12	158.77	159.99
	8/Feb/04	155.20	158.74	159.98
	9/Feb/04	155.27	158.76	159.99
	10/Feb/04	155.36	158.77	159.99
	11/Feb/04	155.36	158.78	160.00
	12/Feb/04	155.36	158.74	159.96
	13/Feb/04	155.37	158.68	159.92
	14/Feb/04	155.37	158.67	159.92
	15/Feb/04	155.35	158.70	160.28
	16/Feb/04	155.29	158.70	160.26
	17/Feb/04	155.31	158.68	160.24
	18/Feb/04	155.29	158.58	160.15
	19/Feb/04	155.22	158.47	160.07

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	20/Feb/04	155.12	158.40	160.05
	21/Feb/04	155.10	158.35	160.01
	22/Feb/04	155.07	158.26	159.93
	23/Feb/04	154.99	158.20	159.91
	24/Feb/04	154.88	158.22	159.91
	25/Feb/04	154.80	158.20	159.91
	26/Feb/04	154.80	158.24	159.95
	27/Feb/04	154.79	158.29	159.98
	28/Feb/04	154.82	158.26	159.95
	29/Feb/04	154.89	158.23	159.93
Mar-04	1/Mar/04	154.84	158.24	159.95
	2/Mar/04	154.85	158.24	159.94
	3/Mar/04	154.83	158.22	159.92
	4/Mar/04	154.82	158.23	159.93
	5/Mar/04	154.85	158.24	159.94
	6/Mar/04	154.84	158.22	159.92
	7/Mar/04	154.79	158.21	159.92
	8/Mar/04	154.79	158.20	159.93
	9/Mar/04	154.82	158.20	159.96
	10/Mar/04	154.85	158.22	159.98
	11/Mar/04	154.85	158.22	159.98
	12/Mar/04	154.84	158.21	159.94
	13/Mar/04	154.79	158.14	159.91
	14/Mar/04	154.70	158.06	159.91
	15/Mar/04	154.66	158.02	159.91
	16/Mar/04	154.64	158.00	159.91
	17/Mar/04	154.61	157.97	159.91
	18/Mar/04	154.57	157.93	159.91
	19/Mar/04	154.68	158.04	159.91
	20/Mar/04	154.74	158.10	159.91
	21/Mar/04	154.70	158.04	159.91
	22/Mar/04	154.58	157.95	159.91
	23/Mar/04	154.59	157.99	159.91
	24/Mar/04	154.59	157.85	159.91
	25/Mar/04	154.52	157.87	159.91
	26/Mar/04	154.49	157.84	159.91
	27/Mar/04	154.46	157.84	159.91
	28/Mar/04	154.49	157.88	159.91
	29/Mar/04	154.56	157.98	159.91
	30/Mar/04	154.76	158.12	159.90
	31/Mar/04	154.75	158.10	159.91
	1/Apr/04	154.59	157.88	159.91
	2/Apr/04	154.40	157.73	159.90
	3/Apr/04	154.37	157.74	159.91
	4/Apr/04	154.35	157.71	159.91
	5/Apr/04	154.37	157.78	159.91
	6/Apr/04	154.50	157.92	159.91
	7/Apr/04	154.65	158.04	159.91
	8/Apr/04	154.74	158.12	159.92
	9/Apr/04	154.78	158.15	159.93
	10/Apr/04	154.80	158.16	159.94
	11/Apr/04	154.82	158.18	159.96

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)			
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang	
Apr-04	12/Apr/04	154.84	158.21	160.01	
	13/Apr/04	154.98	158.38	160.16	
	14/Apr/04	155.04	158.63	160.39	
	15/Apr/04	155.40	158.75	160.49	
	16/Apr/04	155.45	158.76	160.51	
	17/Apr/04	155.46	158.81	160.54	
	18/Apr/04	155.49	158.83	160.55	
	19/Apr/04	155.50	158.86	160.58	
	20/Apr/04	155.49	158.84	160.54	
	21/Apr/04	155.44	158.73	160.44	
	22/Apr/04	155.39	158.72	160.45	
	23/Apr/04	155.43	158.78	160.51	
	24/Apr/04	155.50	158.84	160.56	
	25/Apr/04	155.55	158.88	160.61	
	26/Apr/04	155.66	159.06	160.80	
	27/Apr/04	155.94	159.32	161.04	
	28/Apr/04	156.20	159.56	161.23	
	29/Apr/04	156.28	159.58	161.25	
	30/Apr/04	156.21	159.48	161.14	
	Apr-04	1/May/04	156.05	159.31	160.98
		2/May/04	155.91	159.18	160.86
		3/May/04	155.89	159.18	160.87
		4/May/04	155.87	159.16	160.86
		5/May/04	155.83	159.15	160.87
		6/May/04	155.87	159.18	160.89
		7/May/04	155.92	159.26	160.95
		8/May/04	155.94	159.22	160.92
		9/May/04	155.91	159.22	160.92
		10/May/04	155.93	159.25	160.96
		11/May/04	156.05	159.40	161.10
12/May/04		156.23	159.59	161.29	
13/May/04		156.43	159.78	161.46	
14/May/04		156.59	159.88	161.56	
15/May/04		156.58	159.84	161.52	
16/May/04		156.42	159.75	161.43	
17/May/04		156.33	159.57	161.22	
18/May/04		156.19	159.34	161.03	
19/May/04		156.03	159.36	161.09	
20/May/04		156.25	159.61	161.34	
21/May/04		156.41	159.84	161.53	
22/May/04		156.61	160.00	161.70	
23/May/04		156.95	160.25	161.97	
24/May/04		157.25	160.59	162.30	
25/May/04		158.02	161.44	163.16	
26/May/04		158.86	162.25	163.92	
27/May/04		158.94	163.00	164.56	
28/May/04		158.96	163.04	164.63	
29/May/04		158.93	162.71	164.28	
30/May/04		158.89	162.31	163.91	
31/May/04		158.85	161.95	163.56	
	1/Jun/04	158.52	161.72	163.36	
	2/Jun/04	158.66	161.80	163.47	

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)			
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang	
Jun-04	3/Jun/04	158.91	162.10	163.77	
	4/Jun/04	159.26	162.51	164.13	
	5/Jun/04	159.51	162.60	164.20	
	6/Jun/04	159.36	162.42	164.00	
	7/Jun/04	159.19	162.18	163.76	
	8/Jun/04	158.95	162.06	163.67	
	9/Jun/04	158.86	161.98	163.60	
	10/Jun/04	158.91	162.03	163.77	
	11/Jun/04	159.21	162.36	163.97	
	12/Jun/04	159.22	162.48	164.09	
	13/Jun/04	159.58	162.74	164.34	
	14/Jun/04	159.61	162.64	164.19	
	15/Jun/04	159.28	162.34	163.92	
	16/Jun/04	159.58	162.73	164.32	
	17/Jun/04	160.41	163.58	165.27	
	18/Jun/04	161.24	164.24	165.75	
	19/Jun/04	160.52	163.45	164.93	
	20/Jun/04	159.81	162.74	164.22	
	21/Jun/04	159.23	162.16	163.64	
	22/Jun/04	158.79	161.74	163.26	
	23/Jun/04	158.52	161.58	163.14	
	24/Jun/04	158.52	161.66	163.25	
	25/Jun/04	158.64	161.78	163.36	
	26/Jun/04	158.64	161.75	163.34	
	27/Jun/04	158.47	161.63	163.26	
	28/Jun/04	158.39	161.54	163.18	
	29/Jun/04	158.41	161.55	163.14	
	30/Jun/04	158.41	161.62	163.24	
	Jul-04	1/Jul/04	158.65	161.90	163.55
		2/Jul/04	159.01	162.28	163.94
3/Jul/04		159.62	162.91	164.57	
4/Jul/04		160.61	163.84	165.46	
5/Jul/04		160.98	164.06	165.63	
6/Jul/04		160.68	163.76	165.33	
7/Jul/04		160.27	163.31	164.89	
8/Jul/04		159.72	163.00	164.57	
9/Jul/04		159.73	162.84	164.42	
10/Jul/04		159.71	162.86	164.47	
11/Jul/04		159.76	162.90	164.49	
12/Jul/04		159.66	162.78	164.38	
13/Jul/04		159.64	162.80	164.42	
14/Jul/04		160.10	163.30	164.94	
15/Jul/04		160.92	164.16	165.83	
16/Jul/04		162.00	164.99	166.56	
17/Jul/04		162.26	165.42	166.96	
18/Jul/04		162.51	165.62	167.13	
19/Jul/04		162.51	165.65	167.14	
20/Jul/04		162.29	165.40	166.90	
21/Jul/04		162.06	165.13	166.62	
22/Jul/04		161.84	164.93	166.43	
23/Jul/04		161.88	164.94	166.49	
24/Jul/04		162.00	165.26	166.80	

N.A.:Not available

Water Level Data observed at Ban Dongphosi, Wat Chom Cheng and Sibounheuang

Month	Date	Water Level Observed at 7:00 am (EL+m)		
		Ban Dongphosi	Wat Chom Cheng	Sibounheuang
	25/Jul/04	162.60	165.82	167.38
	26/Jul/04	162.92	166.36	167.85
	27/Jul/04	163.31	166.52	167.98
	28/Jul/04	163.49	166.76	168.22
	29/Jul/04	163.55	166.78	168.23
	30/Jul/04	163.34	166.54	167.97
	31/Jul/04	163.09	166.12	167.54

N.A.:Not available

IV.

*Field Explanatory Sign
for Pilot Works*



ອົງການຮ່ວມມືສາກົນຢີ່ປຸ່ນ (ໄຈກາ)

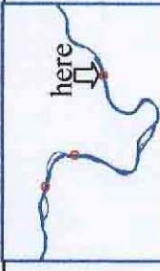


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

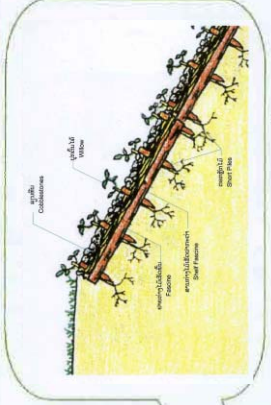


ໂຄງການສ້າງແຜນແມ່ບົດປ້ອງກັນຕະຝັ່ງເຈື່ອນຕາມແມ່ນ້ຳຂອງ
ຂະດກຳແພງນະຄອນວຽງຈັນ
ໂຄງການທົດລອງກໍ່ສ້າງຕາມເຈື່ອນ ບ້ານ ດົງໄພສີ

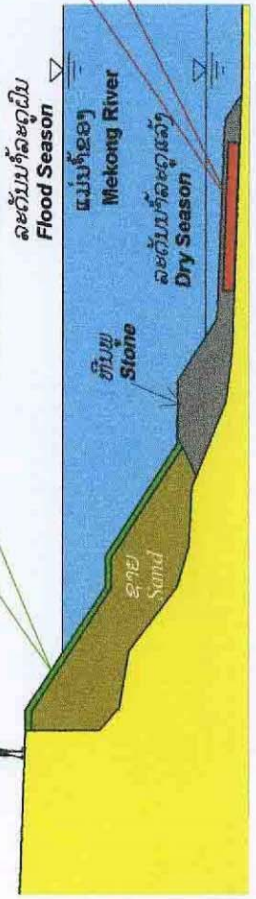
THE STUDY ON MEKONG RIVER BANK PROTECTION
AROUND VIENTIANE MUNICIPALITY
Ban Dongphosi Site (Pilot River Bank Protection Works)



ການປ້ອງກັນສະລົບຕະຝັ່ງ
- ລຽນຫີນ ໃສ່ກະຕ່າກ່າງໄມ້ ແລະ ບູກເຕີ້ໄດ້
Slope Protection Work
- Cobble Stone with Willow Branch Work



You are here



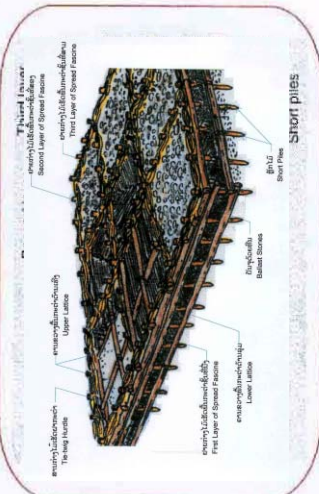
ລະດັບນ້ຳລະດູຝົນ
Flood Season

ແມ່ນ້ຳຂອງ
Mekong River

ລະດັບນ້ຳລະດູແລ້ງ
Dry Season

ຫີນ
Stone

ຊາຍ
Sand



ການປ້ອງກັນຕົ້ນສະລົບ
- ກະຕ່າ SODA (ກະຕ່າກ່າງໄມ້)
Foot Protection Work
- SODA Mattress (Fascine Mattress)

ການກໍ່ສ້າງປ້ອງກັນຕະຝັ່ງເຈື່ອນແບບພັນເມືອງ ທີ່ເຄີຍໃຊ້ຢູ່ປະເທດຍີ່ປຸ່ນ, ເປັນວິທີທີ່ເມາະສົມ
ແລະ ພົ້ນເຄີງ ໄດ້ຖືກນຳມາໃຊ້ຢູ່ ສປປ ລາວ

Traditional River Works in Japan, a Suitable and Sustainable Method
of Riverbank Protection Introduced and Applied to Lao PDR.

ສຳເລັດໃນປີ: 2003

Year of Completion: 2003

ເຈົ້າຂອງໂຄງການ: ກະຊວງ ຫົມມະນາຄົມ ຂົນສົ່ງ ໄປສະນີ ແລະ ກໍ່ສ້າງ
ອອກແບບ ແລະ ຄຸ້ມຄອງການກໍ່ສ້າງ ໂດຍ: ຫົມງານຊ່ວງຊານຍີ່ປຸ່ນ ຈາກອົງການໄຈກາ
(ບໍລິສັດທີ່ປຶກສາ ວິສະວະກຳ ນິກເກນ ແລະ ບໍລິສັດທີ່ປຶກສາ ວິສະວະກຳ ນິວເຈັກ)
ຜູ້ຮັບໜ້າກໍ່ສ້າງ: ບໍລິສັດ ໂອບາຍາຊີ

Ownership: Ministry of Communication, Transport, Post and Construction
Design and Supervising: JICA Study Team
(Joint Venture of NIKKEN Consultants, Inc. and NEWJEC Inc.)
Construction: OBAYASHI Corporation



ອົງການຮ່ວມມືສາກົນຢີ່ປຸ່ນ (ເຈັກາ)



JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

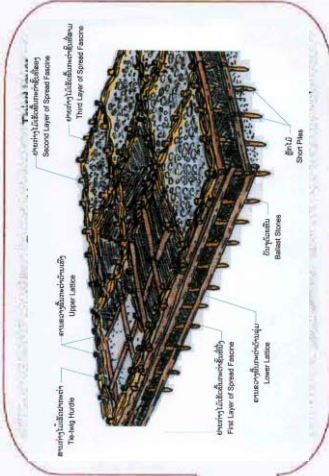
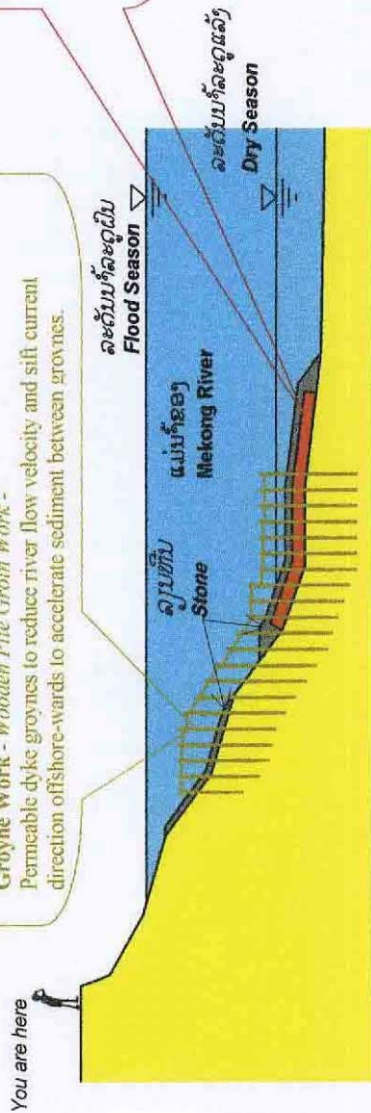


ໂຄງການສ້າງແຜນແມ່ບົດປ້ອງກັນຕະຝັ່ງເຈື່ອນຕາມແມ່ນ້ຳຂອງ
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THE STUDY ON MEKONG RIVER BANK PROTECTION
AROUND VIENTIANE MUNICIPALITY
Wat Chom Cheng Site (Pilot River Bank Protection Works)

ການປ້ອງກັນຕະຝັ່ງເຈື່ອນດ້ວຍການຕອກເສົາເຂັ້ມໄມ້
ການຕອກເສົາເຂັ້ມໄມ້ເປັນຄັນຄູເພື່ອຫຼຸດຜ່ອນຄວາມໄວການໄຫຼຂອງນ້ຳຢູ່ໄກຕະຝັ່ງ
ແລະ ຕົກເປັນຕະກອນຢູ່ລະຫວ່າງຄັນຄູ
Groyne Work - Wooden Pile Groyne Work -
Permeable dyke groyne to reduce river flow velocity and silt current
direction offshore-wards to accelerate sediment between groynes.



ການປ້ອງກັນການເຊາະເຈື່ອນ
- ກະຕາ SODA (ກະຕາກາງໄມ້)
Local Erosion Protection Work
- SODA Mattress (Fascine Mattress)

ການກໍ່ສ້າງປ້ອງກັນຕະຝັ່ງເຈື່ອນແບບໜັ້ນເນືອງ ທີ່ເຄີຍໃຊ້ຢູ່ບະເທດຍີ່ປຸ່ນ, ເປັນວິທີທີ່ເມາຍສົມ
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ຜູ້ຮັບເໝົາກໍ່ສ້າງ: ບໍລິສັດ ໂອບາຍາຊີ

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ອົງການຮ່ວມມືສາກົນຍີ່ປຸ່ນ (ໄຈກາ)

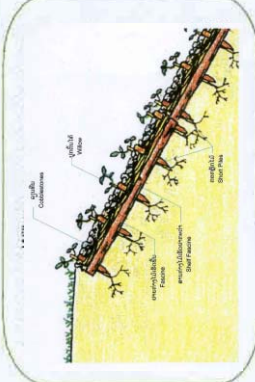
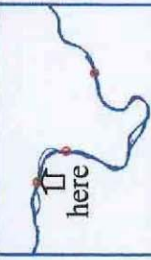


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

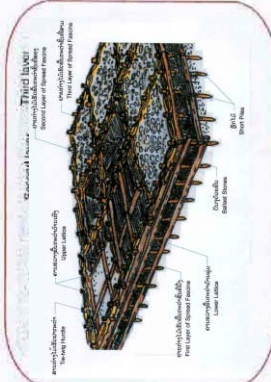


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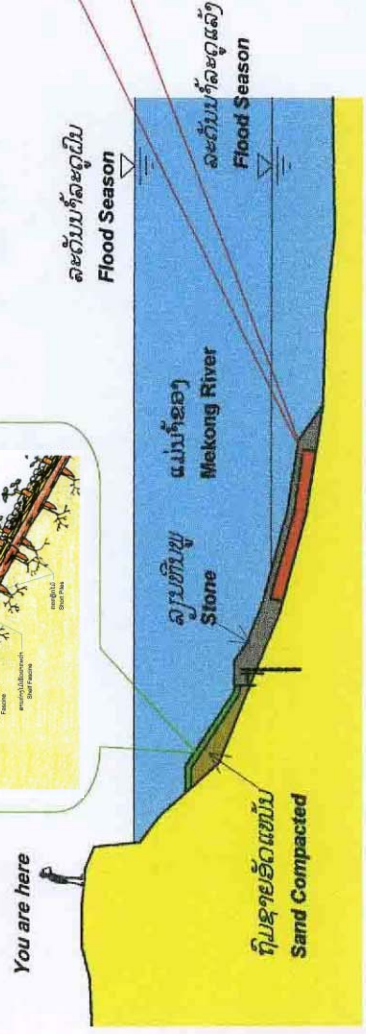
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AROUND VIENTIANE MUNICIPALITY
Wat Sibounheuang Site (Pilot River Bank Protection Works)



ການປ້ອງກັນສະລົບຕະຝັ່ງ
- ລຸນຫີນໃສ່ກະຕ່າກ່າງໄມ້ ແລະ ປູກຕົ້ນໄດ້
- Cobble Stone with Willow Branch Work -



ການປ້ອງກັນຕົ້ນສະລົບ
- ກະຕ່າ SODA (ກະຕ່າກ່າງໄມ້)
- Foot Protection Work
- SODA Mattress (Fascine Mattress) -



ການກໍ່ສ້າງປັດປ້ອງກັນຕະຝັ່ງເຈື່ອນແບບໜັ້ນເມືອງ ທີ່ເຄີຍໃຊ້ຢູ່ປະເທດຍີ່ປຸ່ນ, ເປັນວິທີທີ່ເມາະສົມ
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