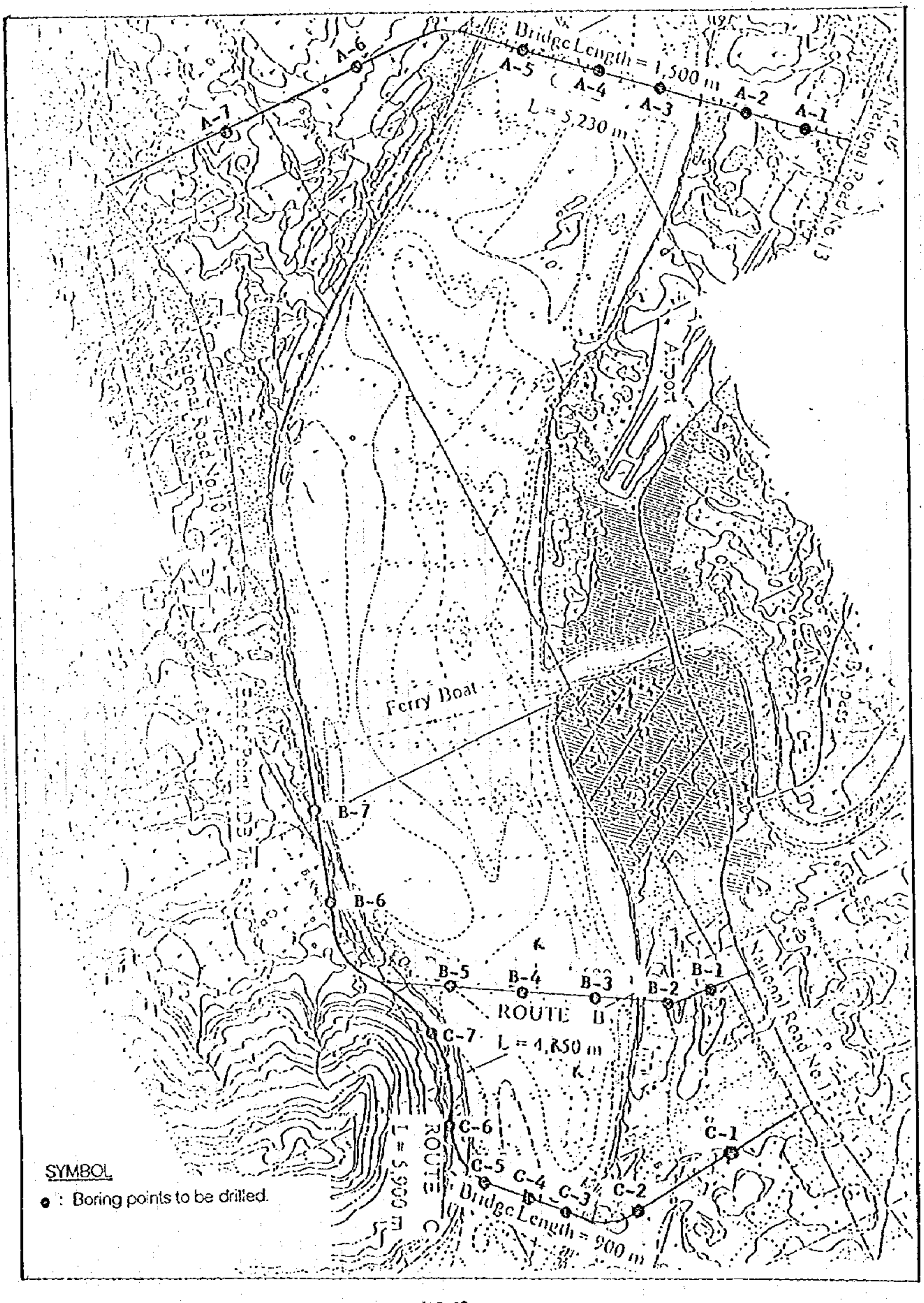
Note A.3-22 GEOLOGICAL INVESTIGATION

1. INTRODUCTION

This report presents the results of geotechnical investigation undertaken as part of the feasibility study on construction of the Mekong bridge at Pakse in Laos, which is to be carried out by The Japan International Agency. The work was consulted by Nippon Koei Co.,Ltd. and commenced by Geo-mining Enterprise. Field investigation was carried out between September to December 1995.

FIG. 1 POSITION OF BORING HOLES



2. SCOPE AND COMMENCEMENT OF THE WORK

2.1 GENERAL

The work was carried out under contract and under supervision of the Engineer. The contractor provided full technical and geological supervision to provide a drilling report containing drill logs and the results of tests.

The mobilization was began on 11/09/95 and completed preparation on 16/09/95. Inaccessible to vehicles, the work was commenced on 17/09/95 at right bank of proposed route - B and C while high water level (low river bank level) because of easier to winch up the rig to river bank and boring points. And then the work was commenced at left bank of proposed route - C and B, and proposed route - A at right bank and left bank respectively. Boring holes in the river were commenced latest. The drilling work was completed on 13/12/95.

2.2 INVESTIGATION SITES

The sites were studies on three proposed bridge route and position of boring holes as show in Fig. 1. The list of no's of boring holes are listed in the table below.

Location	Site	Number of boring (Nos.)		
		Land-1 (Left bank)	Land-2 (Right Bank)	In the river
A	Proposed Route-A	2	2	3
B	Proposed Route-B	2	2	3
C	Proposed Route-A	2	2	3
		6	6	9

2.3 DRILLING AND DOWN HOLE TESTING

The boring holes were carried out Standard Penetration Test in soil and fully cored in rock using double core barrel NWM with water flushing. A Tone THC-1 lightweight rig was used for the majority of holes as most locations were inaccessible to vehicles and in the river. a Russian truck-mounted rig was used for boring hole No. A-1, A-2, A-6, A-7 and B-1.

All core was logged on site and placed in wooden core boxs. All core was photographed in colour. Full engineering geological logs were prepared for each hole. Included on the logs are descriptions of rock type, physical characteristics, defects, strength, the result of standard penetration test, and information on ground water levels and core recovery. The HQ standard pipe was used as casing incase collapse of the bore hole.

Standard Penetration Test was carried out in accordance with test No. 19, BS 1377 : 197 using the split-barrel sampler and a self - tripping hammer. It was carried out at 1.0 m. interval at each bore hole. The holes were advanced by drag bit dia. 3" with water or bentonite slurry flushing. Samples were placed in sealed plastic bags.

Undisturbed samples were taken at bore hole No. A-2 and A-6 on the proposed route-A, proposed bore hole No. B-1 and B-2 on the proposed route-B and bore hole No. C-2 and C-6 on the propose route-C at the depth 2 metres above rock surface with thin-wall tube sampler 74 mm. dia. driven by hammer. Samples were sealed by wax.

Included on the description of bore holes were summarized in Table. 1.

2.4 LABORATORY TESTS.

Samples from bore holes included disturbed samples from STP, undisturbed samples and core samples which selected by the Engineers were transported to Bangkok for testing at Asian Institute of Technology as soon as possible. The test types and number of laboratory tests are listed in Table 2.

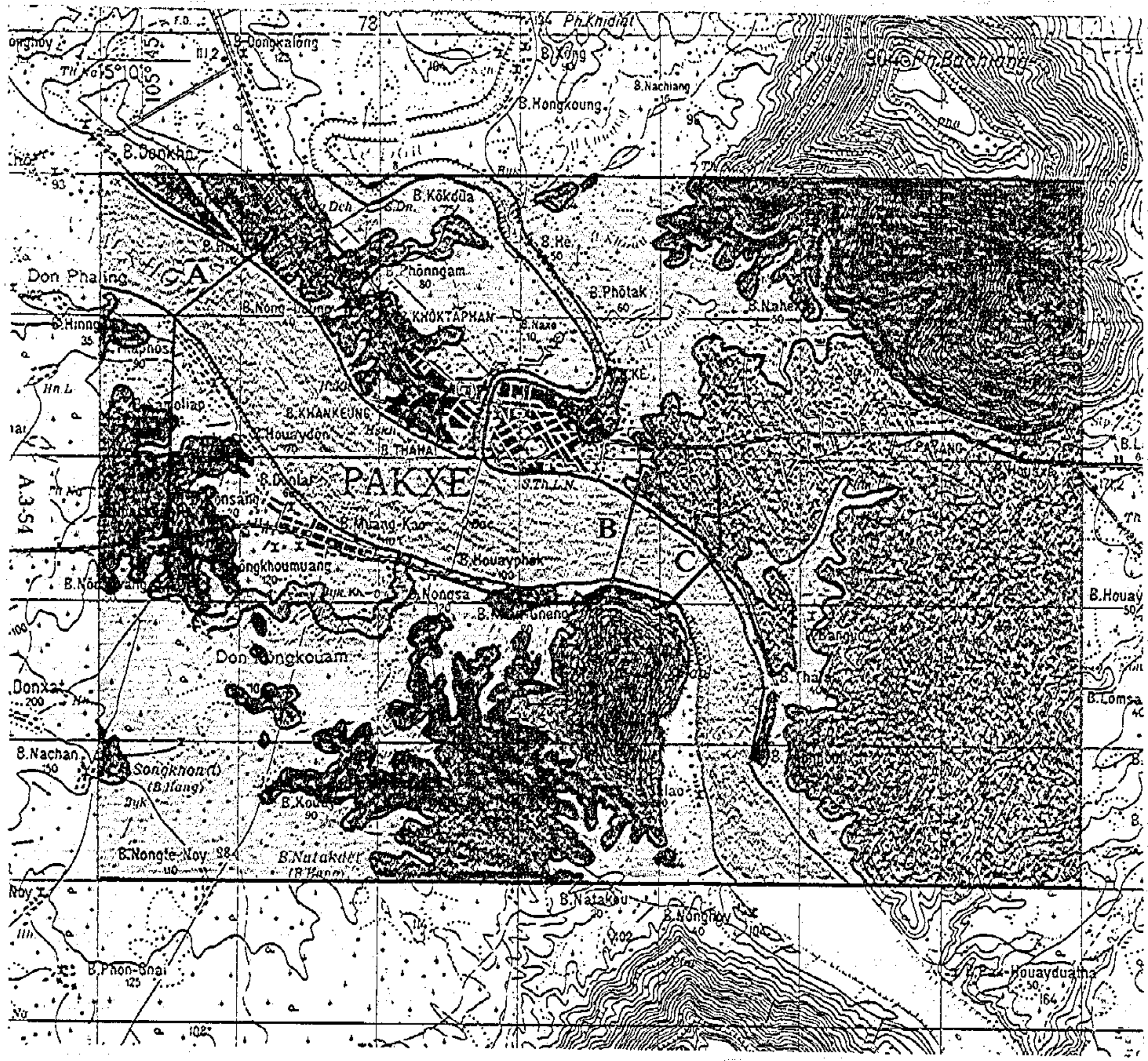
TABLE 1 : SUMMARY OF BORE HOLES

Location	Hole No.	Coordinate		Elevation	Drill Lenght (m)			Commenced Date		Water level	Remark
		N.	E	(m)	Soil	Rock	Total	Start	Complete	(m)	
A	A-1	1,675,387.459	8,582,638.814	103.26	7.38	3.00	10.38	31-Oct-95	01-Nov-95	3.00	On Land
	A-2	1,674,942.378	8,582,236.443	97.65	12.40	3.00	15.40	04-Nov-95	06-Nov-95	Not Record	On Land
	A-3	1,674,571.477	8,581,901.133	81.26	16.50	5.00	21.50	25-Nov-95	29-Nov-95	-	In The River
	A-4	1,674,274.756	8,581,632.886	83.25	3.10	5.00	8.10	24-Nov-95	24-Nov-95	-	In The River
	A-5	1,673,978.036	8,581,364.638	81.78	0.55	5.00	5.55	01-Dec-95	01-Dec-95	-	In The River
	A-6	1,672,884.432	8,581,050.000	96.3	4.20	3.00	7.20	28-Oct-95	29-Oct-95	Not Record	On Land
	A-7	1,671,884.432	8,581,050.000	101.45	4.37	3.00	7.37	27-Oct-95	28-Oct-95	4.00	On Land
B	B-1	1,672,020.000	8,587,700.000	97.95	2.35	3.65	6.00	25-Oct-95	26-Oct-95	Artificail	On Land
	B-2	1,671,621.468	8,587,683.497	110.45	15.80	3.00	18.80	20-Oct-95	24-Oct-95	9.00	On Land
	B-3	1,671,251.834	8,587,530.956	86.6	10.50	19.75	30.25	03-Nov-95	11-Nov-95	-	In The River
	B-4	1,670,883.643	8,587,374.637	81.16	10.80	5.00	15.80	13-Nov-95	15-Nov-95	-	In The River
	B-5	1,670,515.452	8,587,218.319	76.92	15.78	4.35	20.13	16-Nov-95	22-Nov-95	-	In The River
	B-6	1,670,030.073	8,586,895.438	105.16	0.00	3.16	3.16	30-Sep-95	30-Sep-95	1.60	On Land
	B-7	1,670,086.403	8,585,805.016	100.75	5.00	3.05	8.05	17-Sep-95	18-Sep-95	0.60	On Land
C	C-1	1,671,662.178	8,588,806.619	111.34	3.00	3.05	6.05	03-Oct-95	03-Oct-95	1.60	On Land
	C-2	1,670,965.227	8,588,871.885	108.89	10.90	3.25	14.15	04-Oct-95	11-Oct-95	10.00	On Land
	C-3	1,670,440.116	8,588,663.729	76.27	7.10	5.00	12.10			-	In The River
	C-4	1,670,233.284	8,588,446.425	69.01	17.50	0.00	17.50			-	In The River
	C-5	1,670,032.445	8,588,224.034	78.86	1.20	5.00	6.20			-	In The River
	C-6	1,669,973.954	8,587,936.913	96.55	3.20	3.00	6.20	25-Sep-95	27-Sep-95	3.00	On Land
	C-7	1,670,167.390	8,587,477.964	104.32	2.00	3.00	5.00	21-Sep-95	23-Sep-95	1.20	On Land
				TOTAL	153.63	91.26	244.89				

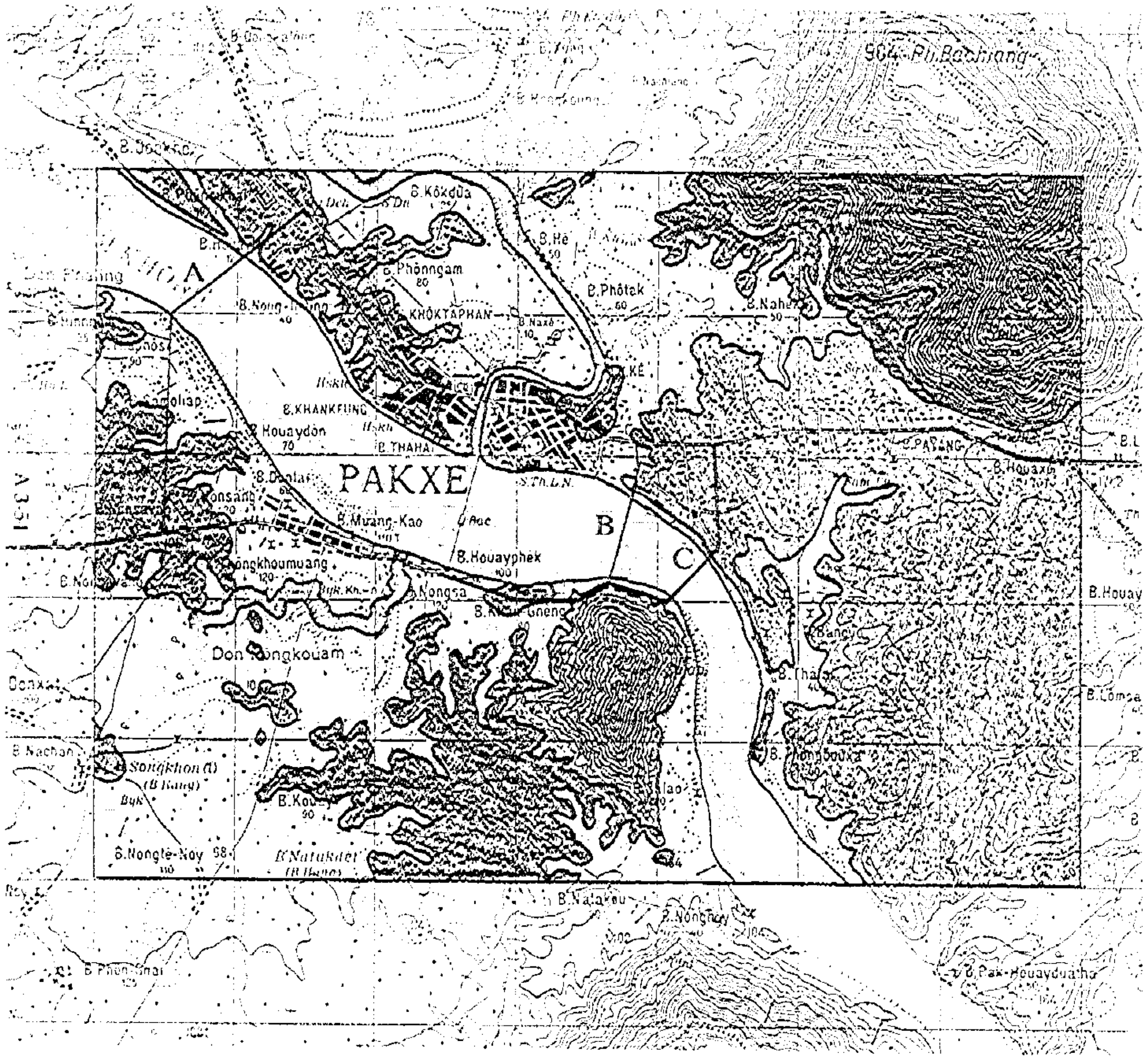
Table 2 : Types and Number of Laboratory Tests

Material	Test Type	Number of Test
Soil	Atterberg Limits	9
	Specific Gravity	21
	Unit Weight	2
	Water Content	21
	Grain Size Analysis	21
	Unconsolidated Undrained Triaxial Compression Test	0
Rock	One Dimensional Compression Test	10
	Elastic Modulus Analysis	2

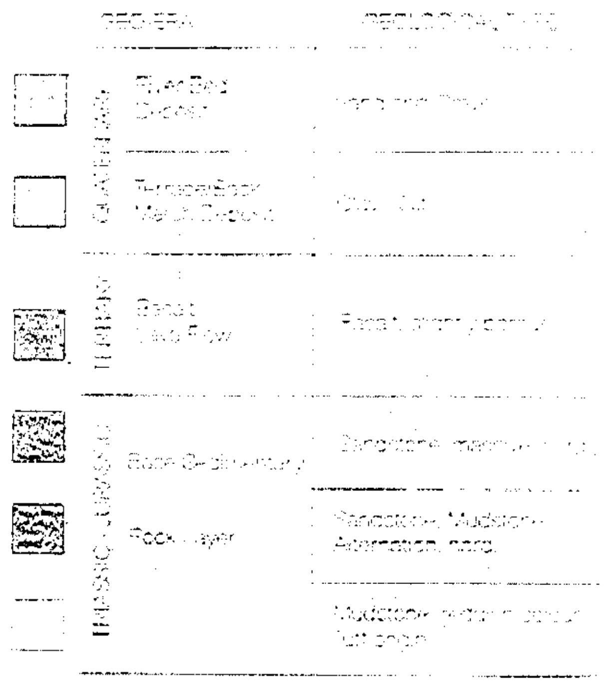
Fig. 2 Geological Map of Project Area



	GEO-ERA		GEOLOGICAL TYPE
	QUATERNARY	River Bed Deposit	Sand and Gravel.
	QUATERNARY	Terrace/Back Marsh Deposit	Clay - Silt.
	TERTIARY	Basalt Lava Flow	Basalt, slightly porous.
	TRIASSIC - JURASSIC	Base Sedimentary	Sandstone, massive, hard
	TRIASSIC - JURASSIC	Rock Layer	Sandstone, Mudstone Alternation, hard.
	TRIASSIC - JURASSIC		Mudstone, reddish colour, Tuff origin.



PAKXE
A
B
C
A 3-51
904 Pu Bachiang
B.Kôkdûa
B.Phônngam
KHÔKTAPHAN
B.KHANKFUNG
B.Houaydôn
B.THAHA
B.Muang-Kao
B.Houayphèk
B.Nongsa
B.Phôtek
B.Hé
B.Nahé
B.Houaxin
B.Houay
B.Lômsa
B.Natakeu
B.Nongtê-Noy
B.Nachan
B.Pak-Houayduatho



Rock Layer
Sandstone, Mudstone
Alternation

Fig. 2

3. GEOLOGICAL SETTING

The project is located in an area dominated by terrigeneous continental and shallow marine sediment of Triassic - Jurassic Era that are mapped as Indosinias Group of Khorat Group in Thailand. The lower formations is reddish brown Mudstone with some Tuff origin widespread in low flat area that are capped by Alluvial deposit and at the river bedrock. The middle formations is Sandstone and Mudstone alternation spread in high terrain area at left and right bank of Mekong river on the north-west direction of project area. The upper formations is massive Sandstone, that characterized by high escarpments or flat- topped mountain is occurred at the small mountain which is local named "Phon Salao" on the right bank of proposed route - B and C.

The Basalt lava flow of Tertiary Era is spreaded along the left bank of proposed route - B and C with small hill or high terrain topographic feature.

Quaternary deposits are devided into two groups as : sand and gravel of river bed deposit of Mekong river and its distribution. and clay-silt of terrace and back marsh deposit spread on flat plain area in both side of Mekong River.

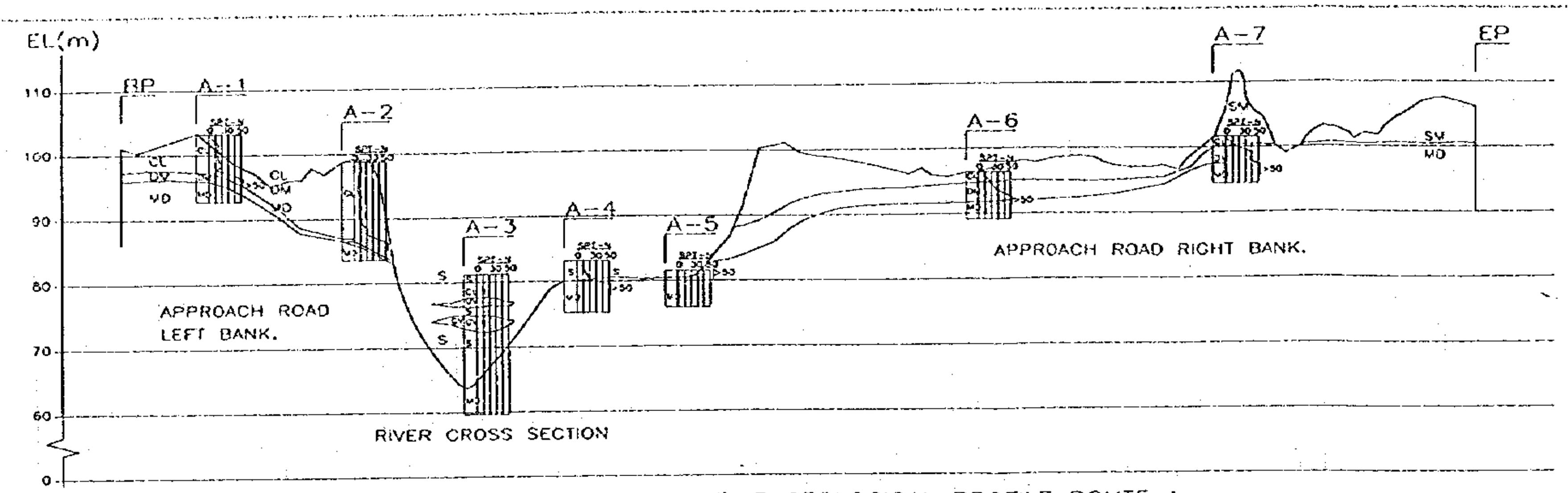


Fig.3 GEOLOGICAL PROFILE ROUTE A

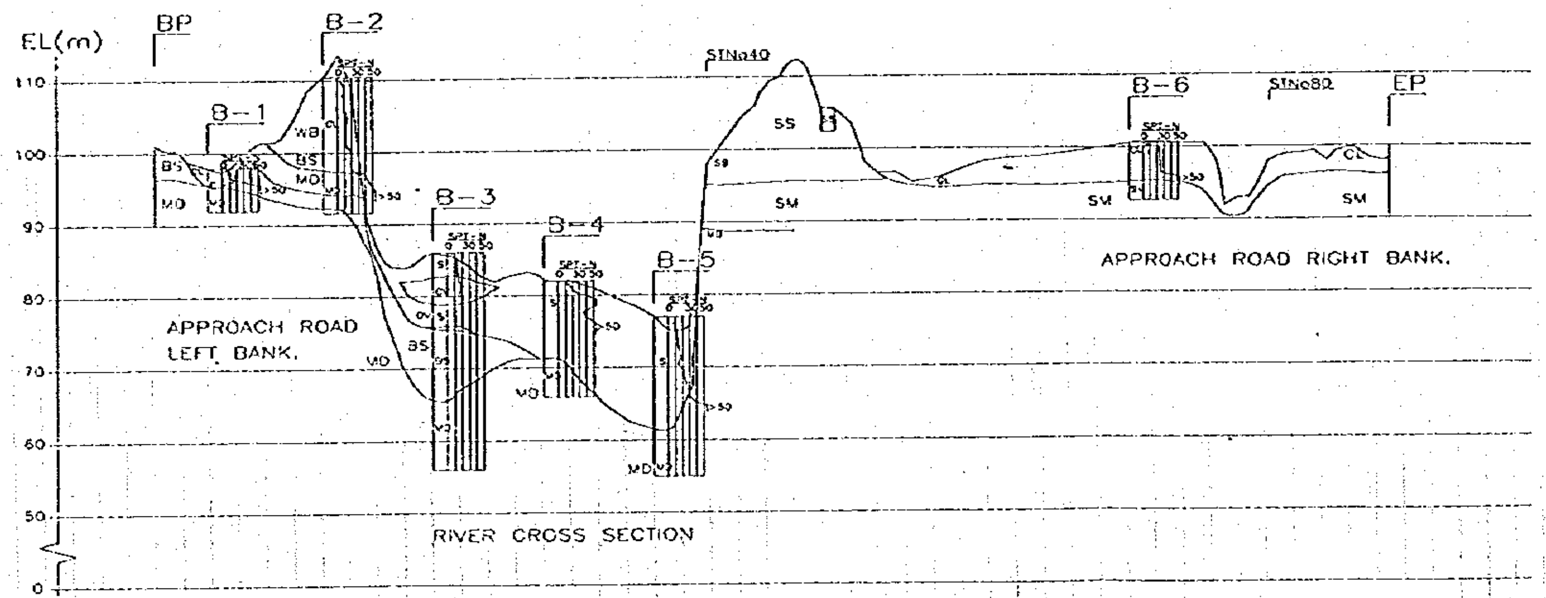
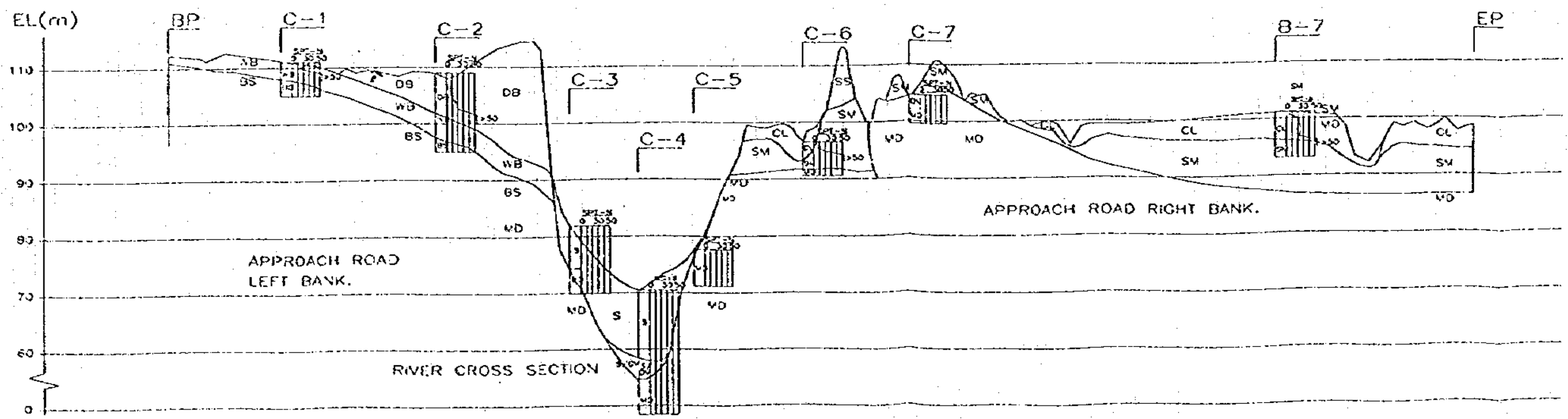


Fig.4 GEOLOGICAL PROFILE ROUTE B

	GEO-ERA		GEOLOGICAL TYPE
S	QUATERNARY	River Bed Deposit	Sand. Fine to Meddium
GV	QUATERNARY	River Bed Deposit	Gravel. Well grain sized Large size 50-70 mm.
CL	QUATERNARY	Terrace / Back Marsh Deposit	Clay Clay-silt. Slightly soft.
DB	TERTIARY	Deconposed Basalt	Origin Rock Changed into Clay Laterite
WB	TERTIARY	Weathered Basalt	Hard Clay with fragments Rock Texture Pressarved.
BS	TERTIARY	Basalt Lava Flow	Basalt. slightly porous
DS	TRIASSIC JURASIC	Decomposed	Origin Rock Changed into clay (Laterite)
DM	TRIASSIC JURASIC	Sandstone Mudstone	Moderately firm in consistency.
SS	TRIASSIC JURASIC		Sandstone massive hard
SM	TRIASSIC JURASIC	Basin. Sedimentary Rock Layer	Sandstone. Mudstone Alternation. hard
MD	TRIASSIC JURASIC		Mudstone reddish color Moderately hard Tuff Origin



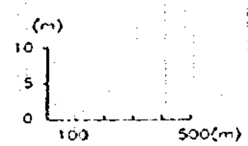


Fig.5 GEOLOGICAL PROFILE ROUTE C

4. PRESENTATION OF RESULT

4.1 GEOLOGICAL FEATURE OF STUDY SECTION

4.1.1 Proposed route - A

A cross-section along the proposed route - A and subsurface data is illustrated on Figure 3.

The subsoil on the left bank comprises of clay and silt of terrace and back marsh deposit with thickness ranging from 6 to 12 metres and underlied by Mudstone, that decomposed layer about 1 meter of thickness. On the river bed, river bed deposit consists of sand and gravel with thickness ranging from 16.50 metres at hole No. A-3 to 0.55 metre at hole No. A-5. The bed rock is Mudstone. The bed rock level is deepest at hole No. A-3 of elevation 64.76 metres and shallower at hole No. A-4 and A-5 of elevation about 80 metres. On the right bank, subsoil is clay and silt of terrace and back marsh deposit with thickness ranging from about 6 metres at the bank decrease to about 1 metres in further. The underlying bedrock is Mudstone, that decomposed layer about 3 metres of thickness. At the end of proposed route-A, 950 metres in length, is small hill and high terrain area of hard Sandstone.

4.1.2 Proposed route - B

A cross-section along the proposed route - B and subsurface data is illustrated on Figure 4.

Subsurface strata on the left bank comprises of Basalt lava flow on the river bank with rather thick decomposed layer about 13-15 metres of thickness at top hill. And weathered layer about 3 metres of thickness. The underlying layer is Mudstone, that occure on flat plain area at hole No. B-1 was capped by clay and silt of Alluvial deposit with thickness 2.35 metre. On the river bed, river bed deposit consists of sand and gravel with thickness ranging from 10 metres at hole No. A-3 and A-4 to 15 metres at hole No. A-5. On the left side of river underlied by Basalt lava flow of very high spacing fracture with thickness 10 metres; On the middle and right side of river underlied by Mudstone. Elevation of bed rock is deepest on the right side of river (hole No. B-5) 61.14 metres and shallower on the left side of river (hole No. B-3) 76.10 metres respectively. On the right bank consists of massive Sandstone at the part of Phou Saloa Mountain and clay & silt of terrace and back marsh deposit at flat plain area with thickness about 5 metres, was underlied by hard Sandstone.

4.1.3 Proposed route - C

A cross-section along the proposed route - C and subsurface data is illustrated on Figure 5.

Subsurface strata on the left bank is Basalt lava flow that rather thick decomposed layer about 18 metres on river bank and decreasing in further. On the river bed, river bed deposit consists of medium sand with gravel of thickness about 2-3 metres above bed rock. The river bed deposit is thicknest at hole No. C -4 of 17.5 metres and thiner at hole No. C-3 and C-5 respectively. On the right bank, sub-surface stratas composed of massive Sandstone at the part of Phou Salao and Sandstone-Mudstone alternation at foot of moutain. At the flat area is capped by clay-silt of terrace and back marsh deposit with thickness about 5 metres.

4.2 LABORATORY TEST RESULT

The laboratory testing result is summarized on Table 3.

TABLE 3 SUMMARY OF LABORATORY TEST

Sample No.	Hole No.	Depth (m)	Soil/Rock Type	Grain Size				GS	WC	γt	PL	LL	Uniaxial		Triaxial	
				Gravel (%)	Sand (%)	Sand & Clay (%)	D 50		%		%	%	QU	ES	C	Ø
A-1-1	A-1	2.00 - 4.45	Silty Clay (CH)	0	14	86	-	2.75	20.4	1.98	23.2	59.8				
A-1-2	A-1	8.38 - 8.58	Mudstone													
A-2-1	A-2	0.00 - 1.45	Clay	0	7	93	-	2.70	19.3		15.8	39.7				
A-2-2	A-2	4.00 - 5.45	Sandy Clay	0	46	54	-	2.69	23		6.0	24.6				
A-2-3	A-2	9.00 - 10.00	Clayey Sand	3	27	71	-	2.67	24		6.5	24.2				
A-2-4	A-2	14.15 - 14.30	Siltstone										1,034.48	1,538.16		
A-3-1	A-3	0.00 - 3.00	Sand	1	96	3	1.04	2.75	17.6							
A-3-2	A-3	5.00 - 8.00	Gravel	42	58	0	4.00	2.63	4.5							
A-3-3	A-3	9.00 - 13.00	Sand	0	99	1	0.22	2.68	24.6							
A-3-4	A-3	18.33 - 18.50	Sandstone						0.97				561.71			
A-4-1	A-4	0.00 - 2.60	Sand	0	98	2	0.26	2.66	20.9							
A-4-2	A-4	4.91 - 5.10	Mudstone													
A-5-1	A-5	2.35 - 2.55	Mudstone													
A-6-1	A-6	2.00 - 3.50	Silty Clay (CL)	0	8	92	-	2.69	13.2		17.8	28.2				
A-6-2	A-6	6.20 - 6.44	Siltstone													
A-7-1	A-7	1.00 - 1.45	Sandy Silty Clay (CH)	0	43	57	-	2.57	16.6	1.87	21.1	56.1				
A-7-2	A-7	5.37 - 5.60	Sandstone						1.65				592.31			

Note : D 50 : Diameter (mm.) of quantity 50 %. GS : Specific Gravity. Wc : Natural water content γt : unit weight saturated (g/cm3) PL : Plastic limit. LL : Liquid limit.

QU : Uniaxial compressive strength (kg f/cm2). ES : Elastic modulus (kg. f/cm2) C : Coehesion (kg f/cm2). Ø : Internal friction angle (°)

TABLE 3 SUMMARY OF LABORATORY TEST (Continue)

Sample No.	Hole No.	Depth (m)	Soil/Rock Type	Grain Size: Gravel (%)	Grain Size: Sand (%)	Grain Size: Sand & Clay (%)	Grain Size: D 50	GS	WC %	γt	PL %	LL %	Uniaxial: QU	Uniaxial: ES	Triaxial: C	Triaxial: Ø
B-1-1	B-1	0.50 - 1.50	Silty clay with sand (CL)	1	13	85	-	2.65	18.6		14	26.4				
B-1-2	B-1	3.00 - 3.30	Mudstone													
B-2-1	B-2	1.00 - 3.45	Sandy silty clay	16	31	53	-	2.74	42.6							
B-2-2	B-2	11.00 - 12.00	Silty clay with gravel	22	15	62	-	2.77	42.8							
B-3-1	B-3	1.00 - 3.00	Sand	0	99	1	0.28	2.64	22.2							
B-3-2	B-3	3.00 - 7.00	Gravel	45	55	0	4.8	2.64	10.0							
B-3-3	B-3	17.31 - 17.45	Basalt													
B-4-1	B-4	1.00 - 3.00	Sand	0	99	1	0.24	2.68	22.4							
B-4-2	B-4	12.24 - 12.36	Mudstone						1.22				438.8			
B-5-1	B-5	1.00 - 4.00	Sand	0	99	1	0.22	2.64	27.7							
B-5-2	B-5	19.25 - 19.40	Mudstone						2.21				352.61			
B-6-1	B-6	2.10 - 2.50	Sandstone										1,016.83	1,635.06		
B-7-1	B-7	1.00 - 1.45	Silty clay (CL)	0	12	88	-	2.61	17.4		15.4	31.7				
B-7-2	B-7	3.00 - 3.45	Silty Clay (CL)	0	5	95	-	2.68	16.0		20.1	42.4				

Note : D 50 : Diameter (mm.) of quantity 50 %. GS : Specific Gravity. Wc : Natural water content γt : unit weight saturated (g/cm3) PL : Plastic limit. LL : Liquid limit.
QU : Uniaxial compressive strength (kg f/cm2). ES : Elastic modulus (kg. f/cm2) C : Coehesion (kg f/cm2). Ø : Internal friction angle (°)

TABLE 3 SUMMARY OF LABORATORY TEST (Continue)

Sample No.	Hole No.	Depth (m)	Soil/Rock Type	Grain Size				GS	WC %	γt	PL %	LL %	Uniaxial		Triaxial	
				Gravel (%)	Sand (%)	Sand & Clay (%)	D 50						QU	ES	C	Ø
C-1-1	C-1	4.10 - 4.45	Basalt						0.08				497.76			
C-2-1	C-2	2.00 - 4.50	Silty clay with sand	15	25	60	-	2.77	40.10							
C-2-2	C-2	13.00 - 13.27	Basalt						0.45				612.31			
C-6-1	C-6	1.00 - 2.00	Silty clay	0	10	90	-	2.63	25.6							
C-6-2	C-6	4.45 - 4.63	Mudstone						1.87				251.23			
C-7-1	C-7	3.77 - 4.00	Mudstone						1.64				583.64			

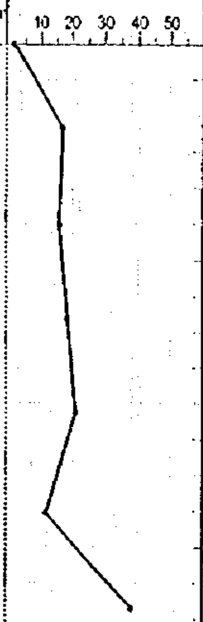
Note : D 50 : Diameter (mm.) of quantity 50 %. GS : Specific Gravity. Wc : Natural water content γt : unit weight saturated (g/cm3) PL : Plastic limit. LL : Liquid limit.

QU : Uniaxial compressive strength (kg f/cm2). ES : Elastic modulus (kg. f/cm2) C : Coehesion (kg f/cm2). Ø : Internal friction angle (°)

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. A-1 SHEET NO. 1 OF 1
SITE: LINE A	COORDINATE DATE	N:1,675,387.459 E:8,582,638.814 FROM 31/10/95 TO 01/11/95	INCLINATION 0° DRILL RIG ______ DRILLED SOMSRI
AVERAGE CORE RECOVERY:	100 %	DEPTH 10.380 M. ELEVATION 103.260 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE	SAMPLING	DEPTH
31/10/95	0–0.45	102.81	FINE SANDY CLAY		ALLUVIAL DEPOSIT, ORANGISH YELLOW IN COLOUR, SOFT IN CONSISTENCY, HIGH WATER CONTENT, MEDIUM PLASTICITY. (0.45 M.)	DRAG BIT 3"						
	0.45–1.45	101.81	LATTERITIC CLAY		ALLUVIAL DEPOSIT, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. (1.45 M.)							
	1.45–6.20	97.06	CLAY		ALLUVIAL, DEPOSIT, ORANGISH BROWN AND GRAY IN COLOUR, STIFF TO VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. (6.20 M.)		3.00				A1-1	
	6.20–7.38	95.88	SILTY CLAY		DECOMPOSED MUDSTONE, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, LOW PLASTICITY. (7.38 M.)							
01/11/95	7.38–10.38	92.46	MUDSTONE		REDDISH BROWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED - 75° JOINT ROUGH SURFACE WITH IRON STAIN AT 8.24 M. - BEDDING DIP 3° - 5° AT 7.43, 7.48, 7.54, 7.65, 7.74, 8.58, 8.64 AND 9.93 M. - VERY THIN BEDDING 2-6 CM. AT 7.80-8.23 M. - RQD = 69 % (10.38 M.)	DIAMOND BIT 76 MM.			300		A1-2	
					END OF HOLE							

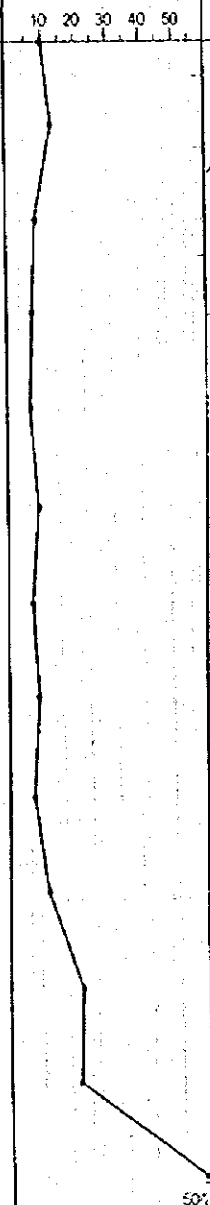


DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. A-2 SHEET NO. 1 OF 2
SITE / LINE A	COORDINATE DATE	N:1,674,942.378 E:8,582,236.443 FROM 04/11/95 TO 06/11/95	INCLINATION 0° DRILL RIG ____ DRILLED SOMSRI
AVERAGE CORE RECOVERY:	100 %	DEPTH 15.400 M. ELEVATION 97.650 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	CORE RECOVERY %	CORE RECOVERY cm	SAMPLING
25/11/95	0–2.00	93.65	CLAY	ALLUVIAL DEPOSIT, DARK ORANGISH BROWN IN COLOUR, STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. 2.00 M.				A-3-1
26/11/95	2.00–7.00	90.65	CLAY WITH FINE SAND	ALLUVIAL DEPOSIT, LIGHT ORANGISH BROWN IN COLOUR, FIRM IN CONSISTENCY, HIGH TO SATURATE WATER CONTENT, LOW PLASTICITY, SILT INCLUDED, INCREASING OF SAND CONTENT WITH DEPTH. 7.00 M.				A-3-2
27/11/95, 28/11/95	7.00–12.20	85.45	CLAYEY FINE SAND	ALLUVIAL DEPOSIT, GRAYISH BROWN IN COLOUR, FINE TO MEDIUM IN GRAIN SIZE WITH SOME GRANULE GRAIN SIZE AT 12.00-12.20 M., SUB-ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION, LOW TO MEDIUM DENSITY, HIGH WATER CONTENT, LOW PLASTICITY OF CLAY. 12.20 M.				A-3-3
	12.20–12.40	85.25	CLAY	DECOMPOSED MUDSTONE, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY. 12.40 M.				
	12.40–13.05	84.60	SANDSTONE	REDDISH BROWN IN COLOUR, MEDIUM IN GRAIN SIZE, SLIGHTLY HARD, MODERATELY WEATHERED. 13.05 M.	DIAMOND BIT 76 MM.		300	
	13.05–13.73	83.92	MUDSTONE					
29/11/95	13.73–15		SILTSTONE	REDDISH BROWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED, SLIGHTLY POROUS IN TEXTURE WITH SOME TUFF ORIGIN. RQD = 16 % 13.73 M.				

N-VALUE



DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. A-2 SHEET NO. 2 OF 2

SITE LINE A	COORDINATE DATE	N:1,674,942.378 E:8,582,236.443 FROM 04/11/95 TO 06/11/95	INCLINATION 0° DRILL RIG DRILLED SOMSRI
AVERAGE CORE RECOVERY:	100 %	DEPTH 15.400 M. ELEVATION 97.650 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
		82.25	SILTSTONE		15.40 M. PURPLISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED, WITH SOME TUFF ORIGIN - RQD = 84 %				300			
	16											16
	17				END OF HOLE							17
	18											18
	19											19
	20											20
	21											21
	22											22
	23											23
	24											24
	25											25
	26											26
	27											27
	28											28
	29											29
	30											30

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. A-3
			SHEET NO. 1 OF 2

SITE	LINE A	COORDINATE	N:1,674,971.477 E:8,581,901.133
		DATE	FROM 25/11/95 TO 29/11/95
AVERAGE CORE RECOVERY:	100 %	DEPTH 21.500 M.	INCLINATION 0̊ DRILL RIG THC-1
		ELEVATION 81.259 M.	DRILLED SOMSRI
			LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY (% / cm)	SAMPLING
25/11/95	0.00 – 3.00	78.259	SAND WITH GRAVEL		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MEDIUM TO VERY COARSE SAND WITH SOME GRANULE GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 3.00 M.	METAL CROWN FOR HQ SIZE			A-3-1
26/11/95	3.00 – 4.00	77.259	GRAVEL		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MOSTLY 2-8 MM. GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 4.00 M.				
	4.00 – 5.00	76.259	SAND		RIVER BED DEPOSIT, LIGHT GRAY IN COLOUR, MEDIUM GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 5.00 M.				
27/11/95	5.00 – 8.00	73.259	GRAVEL		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MOSTLY 2-8 MM. GRAIN SIZE, ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 8.00 M.				A-3-2
28/11/95, 29/11/95	8.00 – 15		SAND		RIVER BED DEPOSIT, LIGHT GRAY IN COLOUR, MEDIUM GRAIN SIZED DOMINANT, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY.				A-3-3

DEPTH	N-VALUE
0	50/22 cm
1	50/20 cm
2	50/17 cm
3	50/15 cm
4	50/26 cm
5	50/21 cm
6	50/16 cm
7	50/16 cm
8	50/13 cm
9	50/15 cm
10	50/18 cm
11	50/19 cm
12	50/14 cm
13	50/11 cm
14	50/10 cm
15	50/10 cm

DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	A-3
		SHEET NO.	2 OF 2
SITE	LINE A	COORDINATE	N:1,674,971.477 E:8,581,901.133
		DATE	FROM 25/11/95 TO 29/11/95
INCLINATION	0°	DRILL RIG	THC-1
DRILLED	SOMSRI	LOGGED	TAWEESAK
AVERAGE CORE RECOVERY:	100 %	DEPTH	21.500 M.
		ELEVATION	81.259 M

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	cm	N-VALUE	SAMPLING
	16 – 16.50	64.759	SAND	RIVER BED DEPOSIT, LIGHT GRAY IN COLOUR, MEDIUM GRAIN SIZED DOMINANT, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIUTION, VERY HIGH DENSITY. 16.50 M.					50/10 cm, 50/11 cm	
29/11/95	16.50 – 19.00	62.259	SAND STONE	REDDISH BROWN IN COLOUR, MEDIUM GRAIN SIZE, MODERATELY HARD, SLIGHTLY WEATHERED, CROSS-LAMINATION INTEXTURE. - BEDDING DIP 5° - 2 JOINT 70° AND 80° CROSS AT 17.90 M. - RQD = 78% 19.00 M.	DIAMOND BIT 76 MM.			500		A-3-4
	19.00 – 21.50	59.759	MUDSTONE	REDDISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED THICK BEDDING AT 19.50-20.35 M. - SUBVERTICAL JOINT AT 21.10 M. - 19.00-19.50 M. RQD = 30 % - 19.50-20.35 M. RQD = 100 % - 20.35-21.50 M. RQD = 25 % 21.50 M.						
	21.50 – 30			END OF HOLE						

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. A-4 SHEET NO. 1 OF 1
SITE	LINE A	COORDINATE	N:1,674,274.766 E:8,581,632.886
		DATE	FROM 24/11/95 TO 24/11/95
AVERAGE CORE RECOVERY:	100 %	DEPTH 8.100 M.	
		ELEVATION 83.247 M.	

INCLINATION 0° DRILL RIG THC-1

DRILLED KONGKAEW

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY (% / cm)	N-VALUE	SAMPLING	DEPTH
24/11/95	0–3.10	80.147	SAND		RIVER BED DEPOSIT, BROWN IN COLOUR, MEDIUM TO COARSE GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION, MEDIUM DENSITY. 3.10 M.	METAL CROWN FOR HQ SIZE			50/10 cm.	A-4-1	1–3
	3.10–8.10	75.147	MUDSTONE		REDDISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED WITH SOME TUFF ORIGIN, ATTERNATED WITH SANDSTONE AT 4.10-5.28 M. 70°-80° JOINT WITH ROUGH SURFACE AT 3.33, 4.90, 5.88 AND 6.90 M. RQD = 85% 8.10 M.	DIAMOND BIT 76 MM.		500		A-4-2	4–8
					END OF HOLE						9–15

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. A-5 SHEET NO. 1 OF 1
SITE / LINE A	COORDINATE / DATE	N:1,673,978.036 E:8,581,364.638 FROM 01/12/95 TO 01/12/95	INCLINATION 0° DRILL RIG THC-1
AVERAGE CORE RECOVERY:	100 %	DEPTH 5.550 M. ELEVATION 81.783 M.	DRILLED KONGKAEW LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY (% / cm)	N-VALUE	SAMPLING
24/11/95	0–0.55	81.233	SAND	RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MEDIUM GRAIN SIZE, SUB-ROUNDED IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 0.55 M.	DIAMOND BIT 76 MM.		500	50/22 cm	
	0.55–1.05	80.733	SANDSTONE	GRAYISH BROWN IN COLOUR, MEDIUM GRAIN SIZE, HARD, SLIGHTLY WEATHERED RQD = 100 % 1.05 M.					
	1.05–4.00	77.783	MUDSTONE	REDDISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED, ALTERNATED WITH SANDSTONE AT 1.83-2.21 M. - BEDDING DIP 7° - 2 JOINTS OF 70° WITH ROUGH SURFACE CROSS AT 1.43 M. - RQD = 88 % 4.00 M.					A-5-1
	4.00–5.55	76.233	SILTSTONE	PURPLISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED, WITH SOME TUFF ORIGIN RQD = 70% 5.55 M.					
				END OF HOLE					

N-VALUE scale: 10 20 30 40 50

DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	A-6
		SHEET NO.	1 OF 1

SITE	LINE A	COORDINATE	N:1,672,884.432 E:8,581,050.000
		DATE	FROM 28/10/95 TO 29/10/95
AVERAGE CORE RECOVERY:	100 %	DEPTH	7.200 M.
		ELEVATION	96.300 M.

INCLINATION 0° DRILL RIG ______

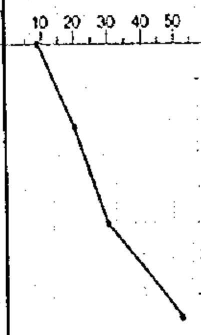
DRILLED SOMSRI

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLING
28/10/95	0.00–0.20	96.10	SILTY CLAY	TOP SOIL, GRAYISH IN COLOUR, SOFT IN CONSISTENCY (0.20 M.)	DRAG BIT 3"				
28/10/95	0.20–1.00	95.30	CLAY	ALLUVIAL DEPOSIT, ORANGISH BROWN IN COLOUR, STIFF IN CONSISTENCY, HIGH WATER CONTENT, MEDIUM PLASTICITY. (1.00 M.)	DRAG BIT 3"				
28/10/95	1.00–4.20	92.10	CLAY	DECOMPOSED MUDSTONE, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, HIGH WATER CONTENT, MEDIUM PLASTICITY. (4.20 M.)	DRAG BIT 3"				A6-1
29/10/95	4.20–7.20	89.10	MUDSTONE & SILTSTONE	REDDISH BROWN IN COLOUR, SLIGHTLY HARD, MODERATELY WEATHERED, SLIGHTLY POROUS IN TEXTURE WITH SOME TUFF ORIGIN - VERY CLOSE SPACING FRACTURE 2-6 CM AT 4.40-4.58, 4.88-4.95, 5.60-5.67 AND 6.79-6.89 M. - 75̊ JOINTS ROUGH AND MN STAIN ON SURFACE AT 4.25 AND 4.86 M. - RQD = 64% (7.20 M.)	DIAMOND BIT 76 MM.			300	A6-2

END OF HOLE

N-VALUE



DEPTH 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

DRILL LOG

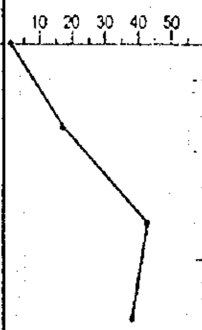
PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	A-7
		SHEET NO.	1 OF 1

SITE: LINE A	COORDINATE	N:1,671,884.432 E:8,581,050.000	INCLINATION 0̊ DRILL RIG
	DATE	FROM 27/10/95 TO 28/10/95	DRILLED SOMSRI
AVERAGE CORE RECOVERY:	100 %	DEPTH 7.370 M.	LOGGED TAWEESAK
		ELEVATION 101.450 M.	

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY (% / cm)	SAMPLING
27/10/95	0–0.45	101.00	FINE SAND	ALLUVIAL DEPOSIT, ORANGISH YELLOW IN COLOUR, FINE GRAIN SIZE, ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, VERY LOW DENSITY, MEDIUM WATER CONTENT. 0.45 M. – 1.45 M.	DRAG BIT 3"			
27/10/95	0.45–1.45	100.00	FINE SANDY CLAY		DRAG BIT 3"			A-1
27/10/95	1.45–4.37	97.08	CLAY	ALLUVIAL DEPOSITE, ORANGISH BROWN AND YELLOWISH GRAY IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT. DECOMPOSED MUDSTONE, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. 4.37 M.	DRAG BIT 3"	4.00		
28/10/95	4.37–5.37	96.08	MUDSTONE	REDDISH BROWN IN COLOUR, SLIGHTLY HARD, MODERATELY WEATHERED VERY CLOSE SPACING FRACTURE 2-6 CM. AT 4.81-5.21 M. RQD = 44% 5.37 M.	DIAMOND BIT 76 MM.		300	A7-2
28/10/95	5.37–6.82	94.63	SANDSTONE	GRAYISH BROWN IN COLOUR, MEDIUM GRAIN SIZE, MODERATELY HARD, SLIGHTLY WEATHERED, - RQD = 100 % 6.82 M.	DIAMOND BIT 76 MM.			
28/10/95	6.82–7.37	94.08	SILTSTONE	PURPLISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED, WITH SOME TUFF ORIGIN. - RQD = 100 % 7.37 M.	DIAMOND BIT 76 MM.			

END OF HOLE

N-VALUE



DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	B-1
		SHEET NO.	1 OF 1

SITE	LINE B	COORDINATE	N:1,672,020.000 E:8,587,700.000
		DATE	FROM 25/10/95 TO 26/10/95
AVERAGE CORE RECOVERY	95 %	DEPTH	6.000 M
		ELEVATION	97.950 M.

INCLINATION 0° DRILL RIG ______

DRILLED SOMSRI

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
25/10/95	0–1.45	96.50	CLAY		ALLUVIAL DEPOSIT, GRAYISH YELLOW IN COLOUR, STIFF IN CONSISTENCY, HIGH WATER CONTENT, MEDIUM PLASTICITY. 1.45 M.	DRAG BIT 3"					B-1-1	1
25/10/95	1.45–2.35	95.60	LATTERITIC CLAY		ALLUVIAL DEPOSIT, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, HIGH PLASTICITY. 2.35 M.	DRAG BIT 3"						2
25/10/95	2.35–4.65	93.30	MUDSTONE		REDDISH BROWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED, WITH SOME TUFF ORIGIN. - RQD = 62 % 4.65 M.	DIAMOND BIT 76 MM.	ARTIFICAL WATER		350		B-1-2	3, 4
26/10/95	4.65–6.00	91.95	SILTSTONE		PURPLISH BROWN IN COLOUR, MODERATELY HARD, SLIGHTLY WEATHERED, WITH SOME TUFF ORIGIN DOMINANT AT 4.70-5.00 M. - 75° JOINT AT 5.20 AND 5.57 M. - RQD = 74 % 6.00 M.	DIAMOND BIT 76 MM.	ARTIFICAL WATER					5, 6
					END OF HOLE							

Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

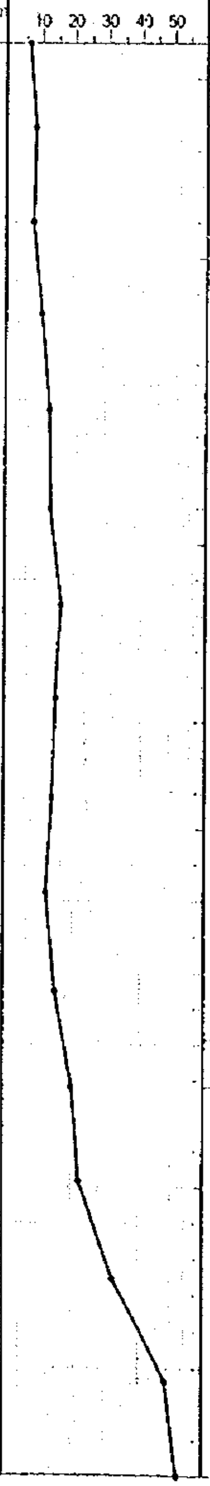
DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-2 / SHEET NO. 1 OF 2
SITE: LINE B	COORDINATE / DATE	N:1,671,621.468 E:8,587,683.497 / FROM 20/10/95 TO 24/10/95	INCLINATION 0° DRILL RIG THC-1 / DRILLED SOMSRI
AVERAGE CORE RECOVERY:	63 %	DEPTH 18.800 M. / ELEVATION 110.450 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	SAMPLING
20/10/95	0.00–4.00 M.	106.45	SILTY CLAY	DECOMPOSED BASALT, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, FIRM IN CONSISTENCY, MEDIUM WATER CONTENT, LOW PLASTICITY.	DRAG BIT 3"		B-2-1
21/10/95	4.00–7.00 M.	103.45	LATTERITIC SILTY CLAY	DECOMPOSED BASALT, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, STIFF IN CONSISTENCY, HIGH WATER CONTENT, MEDIUM PLASTICITY.			
	7.00–7.95 M.	102.50	CLAY	DECOMPOSED BASALT, ORIGIN ROCK CHANGED INTO SOIL, YELLOWISH BROWN IN COLOUR, STIFF IN CONSISTENCY, HIGH WATER CONTENT, MEDIUM PLASTICITY.			
22/10/95	7.95–13.00 M.	97.45	SILTY CLAY	DECOMPOSED BASALT, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, STIFF TO VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, LOW PLASTICITY.		9.00	B-2-2
	13.00–15		SILTY CLAY WITH BASALT FRAGMENT	WEATHERED BASALT, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, LOW PLASTICITY.			

CORE RECOVERY (% / cm)

N-VALUE



DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	B-2
		SHEET NO.	2 OF 2

SITE	LINE B	COORDINATE	N:1,671,621.468 E:8,587,683.497
		DATE	FROM 20/10/95 TO 24/10/95
AVERAGE CORE RECOVERY:	63 %	DEPTH 18.800 M.	ELEVATION 110.450 M.

INCLINATION 0̊ DRILL RIG THC-1

DRILLED SOMSRI

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
23/10/95	16	94.65	SILTY CLAY WITH BASALT FRAGMENT		WEATHERED BASALT, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, LOW PLASTICITY. 15.80 M.	DIAMOND BIT 76 MM.						16
	17		BASALT	VVV	MODERATELY HARD, VERY CLOSE SPACING FRACTURE 2-6 CM. RQD = 14 %			190				17
	18	92.30			18.15 M.							18
	19	91.65	MUDSTONE		REDDISH BROWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED 18.80 M. - 50° JOINT AT 18.25 M. - BEDDING DIP 10° AT 18.32 AND 18.40 M. - RQD = 62%							19
	20				END OF HOLE							20
	21											21
	22											22
	23											23
	24											24
	25											25
	26											26
	27											27
	28											28
	29											29
	30											30

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-3 SHEET NO. 1 OF 2

SITE: LINE B	COORDINATE	N:1,671,251.834 E:8,587,530.956	INCLINATION 0̊ DRILL RIG THC-1
	DATE	FROM 03/11/95 TO 10/11/95	DRILLED MANEESORNI
AVERAGE CORE RECOVERY:	49 %	DEPTH 30.250 M ELEVATION 86.602 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY (% / cm)	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
03/11/95	0–1	85.602	SAND		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MEDIUM GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, MEDIUM DENSITY. 1.00 M.	METAL CROWN FOR HQ SIZE					1
03/11/95	1–3	82.602	SAND		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, COARSE SAND SOME VERY COARSE GRAIN SIZE, ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION MEDIUM DENSITY. 3.00 M.					B-3-1	2, 3
04/11/95	3–7	79.602	GRAVEL		RIVER BED DEPOSIT, BROWN IN COLOUR, MOSTLY 2-8 MM. GRAIN SIZE, ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION, HIGHLY COMPOSED OF FELDSPAR AND ROCK FRAGMENT, MEDIUM DENSITY. 7.00 M.					B-3-2	4, 5, 6, 7
05/11/95	7–10	76.602	SAND		RIVER BED DEPOSIT, DARK GRAY IN COLOUR, MEDIUM TO COARSE GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, MODERATELY COMPOSED OF BASALT FRAGMENT. 10.00 M.						8, 9, 10
	10–10.5	76.102	GRAVEL		RIVER BED DEPOSIT, BROWN IN COLOUR, MOSTLY 4-6 MM. GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, WELL GRAIN SIZE DISTRIBUTION, COMPOSED OF SOME BASALT FRAGMENT. 10.50 M.						
07/11/95	10.5–15		BASALT	VVV	MODERATELY HARD, SLIGHTLY POROUS, VERY CLOSE SPACING FRACTURE 2-6 CM. RQD = 3%	DIAMOND BIT 76 MM.		130; 0			11, 12, 13, 14, 15

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-3 SHEET NO. 2 OF 2
SITE / LINE B	COORDINATE / DATE	N:1,671,251.834 E:8,587,530.956 FROM 03/11/95 TO 10/11/95	INCLINATION 0̊ DRILL RIG THC-1 DRILLED MANEESORNI
AVERAGE CORE RECOVERY:	49 %	DEPTH 30.250 M. ELEVATION 86.602 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY (% / cm)	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
08/11/95, 09/11/95, 10/11/95	16–20.75	65.852	BASALT	VVV	MODERATELY HARD, SLIGHTLY POROUS, VERY CLOSE SPACING FRACTURE 2-6 CM. RQD = 3% 20.75 M.	DIAMOND BIT 76 MM.		230		B-3-3	16–20
11/11/95	21–30	56.352	POSSIBLE MUDSTONE OR CONGLOMERAT E		NO CORE RECOVERY. 30.25 M.						21–30

END OF HOLE

DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	B-4
		SHEET NO.	1 OF 2

SITE	LINE B	COORDINATE	N:1,670,883.643 E:8,587,374.637
		DATE	FROM 13/11/95 TO 15/11/95
AVERAGE CORE RECOVERY:	100 %	DEPTH	15.800 M.
		ELEVATION	81.162 M.

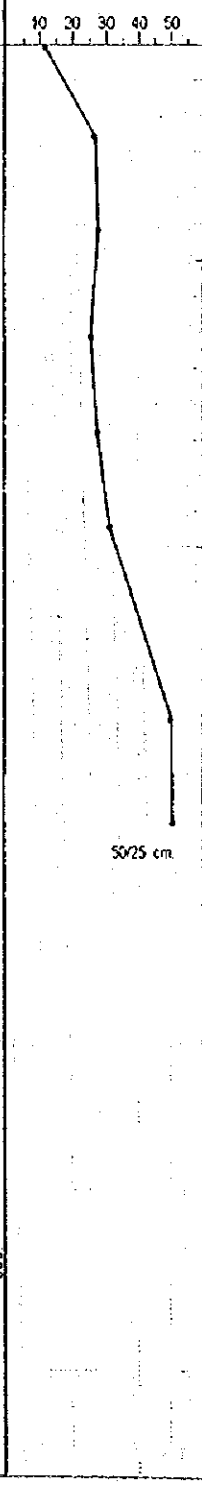
INCLINATION 0° DRILL RIG THC-1

DRILLED MANEESORNI

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	CORE RECOVERY %	SAMPLING
13/11/95	0–7.00	74.162	SAND	RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MEDIUM TO COARSE GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, MUSCOVITE INCLUDED, MEDIUM TO HIGH DENSITY. 7.00 M.	METAL CROWN FOR HQ SIZE		A-4-1
14/11/95	7.00–8.00	73.162	SAND	RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, VERY COARSE GRAN SIZE, SUB-ROUND IN PARTICLE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 8.00 M.	METAL CROWN FOR HQ SIZE		
	8.00–9.00	72.162	SAND	RIVER BED DEPOSIT, LIGHT GRAY IN COLOUR, MEDIUM GRAIN SIZE, SUB-ROUND IN PARTICLE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 9.00 M.	METAL CROWN FOR HQ SIZE		
	9.00–10.80	76.362	SAND	RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, COARSE TO VERY COARSE GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, VERY HIGH DENSITY. 10.80 M.	METAL CROWN FOR HQ SIZE		
15/11/95	10.80–11.30	69.862	SANDSTONE	GRAYISH BROWN IN COLOUR, FINE SAND WITH SILT RICH IN GRAIN SIZE, MODERATELY HARD, SLIGHTLY WEATHERED 11.30 M. RQD = 100 %	DIAMOND BIT 76 MM.		
	11.30–14.15	67.012	MUDSTONE	REDDISH BROWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED, ATTERNATED WITH SANDSTONE AT 12.25-12.45 M. CLOSE SPACING FRACTURE 6-20 CM BROKEN DURING DRILLING RQD = 37 % 14.15 M.	DIAMOND BIT 76 MM.	500	A-4-2
	14.15–15		SANDSTONE	GRAYISH BROWN IN COLOUR, FINE SAND WITH SILTY RICH IN GRAIN SIZE, MODERATELY HARD, SLIGHTLY WEATHERED WITH SOME TUFF ORIGIN 75° JOINT WITH ROUGH SURFACE AT 15.31 M. RQD = 100%	DIAMOND BIT 76 MM.		

N-VALUE



DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-4 SHEET NO. 2 OF 2

SITE / LINE B	COORDINATE / DATE	N:1,670,883.643 E:8,587,374.637 FROM 13/11/95 TO 15/11/95	INCLINATION 0̊ DRILL RIG THC-1 / DRILLED MANEESORN!
AVERAGE CORE RECOVERY:	100 %	DEPTH 15.800 M. ELEVATION 81.162 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
10/11/95	16	65.362	SANDSTONE		GRAYISH BROWN IN COLOUR, FINE SAND WITH SILTY RICH IN GRAIN SIZE, MODERATELY HARD, SLIGHTLY WEATHERED WITH SOME TUFF ORIGIN 75̊ JOINT WITH ROUGH SURFACE AT 15.31 M. RQD = 100% — 15.80 M				500			16
	17				END OF HOLE							17
	18											18
	19											19
	20											20
	21											21
10/11/95	22											22
	23											23
	24											24
	25											25
	26											26
	27											27
	28											28
	29											29
	30											30

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-5 SHEET NO. 1 OF 2

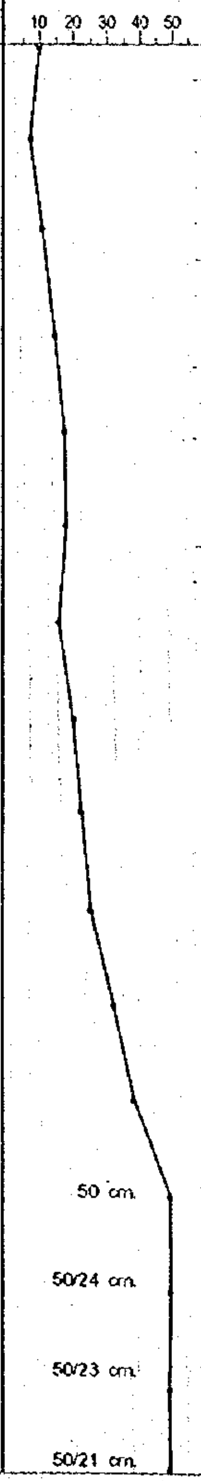
SITE	LINE B	COORDINATE	N:1,670,515.452 E:8,587,215.319
		DATE	FROM 16/11/95 TO 22/11/95
AVERAGE CORE RECOVERY:	100 %	DEPTH 20.130 M ELEVATION 76.916 M	

INCLINATION 0° DRILL RIG THC-1

DRILLED MANEESORNI

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE	SAMPLING	DEPTH
16/11/95	1–3										B-5-1	1–3
17/11/95	4–7											4–7
	8		SAND		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MEDIUM IN GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, MUSCOVITY INCLUDED, MEDIUM TO VERY HIGH DENSITY INCREASING WITH DEPTH.	METAL CROWN FOR HQ SIZE						8
19/11/95	9–11											9–11
	12									50 cm.		12
20/11/95	13									50/24 cm.		13
	14									50/23 cm.		14
	15									50/21 cm.		15



DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-5 SHEET NO. 2 OF 2
SITE LINE B	COORDINATE DATE	N:1,670,518.452 E:8,587,215.319 FROM 16/11/95 TO 22/11/95	INCLINATION 0° DRILL RIG THC-1 DRILLED MANEESORNI
AVERAGE CORE RECOVERY:	100 %	DEPTH 20.130 M. ELEVATION 76.916 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE 10 20 30 40 50	SAMPLING	DEPTH
20/11/95	16	61.136	SAND		RIVER BED DEPOSIT, LIGHT BROWN IN COLOUR, MEDIUM IN GRAIN SIZE, SUB-ROUND IN PARTICLE SHAPE, POOR GRAIN SIZE DISTRIBUTION, MUSCOVITY INCLUDED, MEDIUM TO VERY HIGH DENSITY INCREASING WITH DEPTH. 15.78 M.							16
21/11/95	17											17
	18		MUDSTONE		REDDISH BROWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED, WITH SOME TUFF ORIGIN, ALTERNATED WITH SANDSTONE AT 16.14-16.59 AND 18.21-18.47 M. BEDDING DIP 5° CLOSE SPACING FRACTURE 6-20 CM. AT 18.48-18.78 M. - 15.78-18.78 M. RQD = 20 % - 18.78-19.78 M. RQD = 100 % - 19.78-20.13 M. RQD = 0 %	DIAMOND BIT 76 MM.			435			18
22/11/95	19										B-S-2	19
	20	56.786			20.13 M. END OF HOLE							20
	21											21
	22											22
	23											23
	24											24
	25											25
	26											26
	27											27
	28											28
	29											29
	30											30

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. B-6 SHEET NO. 1 OF 1
SITE: LINE B	COORDINATE DATE	N:1,670,030.073 E:8,586,895.438 FROM 30/09/95 TO 30/09/95	INCLINATION 0° DRILL RIG THC-1
AVERAGE CORE RECOVERY:	100 %	DEPTH 3.160 M. ELEVATION 105.160 M.	DRILLED APICHAT LOGGED TAWEESAK

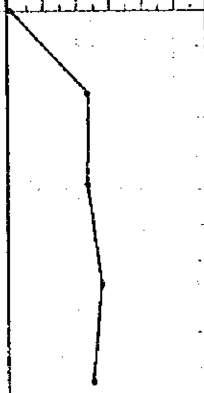
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
30/09/95	1–3	102.00	SANDSTONE		GRAYISH BROWN IN COLOUR, MEDIUM IN GRAIN SIZE, HARD, SLIGHTLY WEATHERED, MICA PARTICLE INCLUDED, GENTLY INCLINED CROSS-LAMINATION IN BEDDING - 80° JOINT, ROUGH SURFACE INFILLING WITH FILM OF CLAY AT 0.15 M. - BEDDING DIP 3-10° AT 0.25, 1.80 AND 2.60 M. - RQD = 90 % 3.16 M.	DIAMOND BIT 76 MM.	1.60		316		B6-1	1–3
					END OF HOLE							
	4											4
	5											5
	6											6
	7											7
	8											8
	9											9
	10											10
	11											11
	12											12
	13											13
	14											14
	15											15

DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	B-7
		SHEET NO.	1 OF 1

SITE	LINE B	COORDINATE	N:1,670,086.403 E:8,585,805.016
		DATE	FROM 17/08/95 TO 18/08/95
AVERAGE CORE RECOVERY:	100 %	DEPTH 8.050 M.	INCLINATION 0̊ DRILL RIG THC-1
		ELEVATION 100.750 M.	DRILLED APICHAT
			LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
17/09/95	1	99.75	CLAYEY SILTY FINE SAND		ALLUVIAL DEPOSIT, YELLOWISH BROWN IN COLOUR, FINE IN GRAIN SIZE, VERY LOW DENSITY, HIGH WATER CONTENT, LOW PLASTICITY OF CLAY. 1.00 M	DRAG BIT 3"	0.60				B-7-1	1
	2–4	96.75	LATTERITIC CLAY		ALLUVIAL DEPOSIT, ORANGISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, HIGH PLASTICITY. 4.00 M.						B-7-2	2–4
	5	95.75	CLAY		ALLUVIAL DEPOSIT, YELLOWISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, HIGH PLASTICITY. 5.00 M.							5
18/09/95	6–8	92.70	SANDSTONE		GRAYISH BROWN IN COLOUR, MEDIUM IN GRAIN SIZE, HARD, SLIGHTLY WEATHERED, MICA PARTICLE INCLUDED, GENTLY INCLINED CROSS-LAMINATION IN BEDDING - BEDDING DIP 5̊ AT 6.75 M. - BEDDING DIP 7̊ AT 7.40 M. - RQD = 100 % 8.05 M.	DIAMOND BIT 76 M.M.			350			6–8
					END OF HOLE							



Depth scale: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	C-1
		SHEET NO.	1 OF 1

SITE	LINE C	COORDINATE	N:1,671,662.178 E:8,588,896.619
		DATE	FROM 03/10/95 TO 03/10/95
AVERAGE CORE RECOVERY:	100 %	DEPTH	6.050 M.
		ELEVATION	111.340 M.

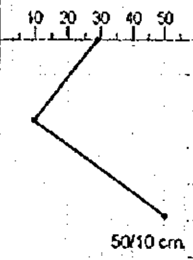
INCLINATION 0 DRILL RIG THC-1

DRILLED APICHAT

LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE	SAMPLING	DEPTH
03/10/95	0–3	108.34	LATTERITIC SILTY CLAY WITH BASALT FRAGMENT	VVV	WEATHERED BASALT, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. 3.00 M.	DRAG BIT 3"	1.60			50/10 cm.		0–3
	3–6	105.29	BASALT	VVV	HARD, PORPHYRITIC AND POROUS TEXTURE - 40° JOINT WITH IRON STAIN SURFACE AT 3.19 M. - 20° JOINT WITH IRON STAIN SURFACE AT 3.25, 3.65 AND 4.45 M. - SUB-VERTICAL JOINTS WITH IRON STAIN SURFACE AT 5.60 AND 5.87 M. - RQD = 86% 6.05 M.	DIAMOND BIT 76 MM.			350		C-1-1	3–6
					END OF HOLE							

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

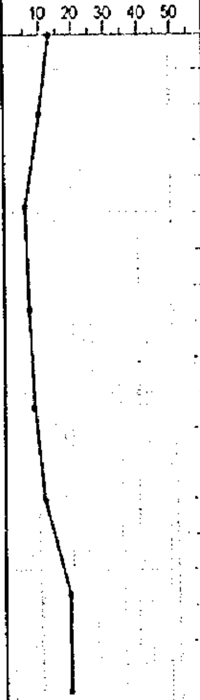


DRILL LOG

DRILL LOG	PROJECT: THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. C-2 SHEET NO. 1 OF 1

SITE	LINE C	COORDINATE DATE	N:1,670,965.227 E:8,588,871.885 FROM 04/10/95 TO 11/10/95	INCLINATION 0 DRILL RIG THC-1 DRILLED APICHAT
AVERAGE CORE RECOVERY:		100 %	DEPTH 14.150 M. ELEVATION 108.890 M.	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
04/10/95	0–2.00		LATTERITIC SILTY CLAY		DECOMPOSED BASALT, ORIGIN ROCK CHANGED INTO SOIL, BROWN IN COLOUR, STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. 2.00 M.	DRAG BIT 3"						1, 2
07/10/95	2.00–7.50	101.39	SILTY CLAY		DECOMPOSED BASALT, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN TO DARK BROWN IN COLOUR, FIRM TO VERY STIFF IN CONSISTENCY INCREASING WITH DEPTH, MEDIUM WATER CONTENT, MEDIUM PLASTICITY. 7.50 M.	DRAG BIT 3"					C-2-1	3–7
08/10/95	7.50–10.90	97.99	SILTY CLAY WITH BASALT FRAGMENT	VVV	WEATHERED BASALT, DARK BROWN IN COLOUR, VERY STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY, HARD AND FRESH IN BASALT FRAGMENT. 10.90 M.	DRAG BIT 3"	10.00					8–10
11/10/95	10.90–14.15	94.74	BASALT	VVV	HARD, PORPHYRITIC AND POROUS IN TEXTURE CLOSE SPACING FRACTURE 6-20 CM. AT 10.90-13.00 M. - SUB-HORIZONTAL JOINTS WITH IRON STAIN SURFACE AT 13.00, 13.29, 13.40, 13.43, 14.00 AND 14.15 M. - 45 JOINTS WITH IRON STAIN SURFACE AT 13.50 AND 13.57 M. - 10.90-13.00 M. RQD = 21 % - 13.00-14.15 M. RQD = 86 % 14.15 M.	DIAMOND BIT 76 MM.			325		C-2-2	11–14
					END OF HOLE							15

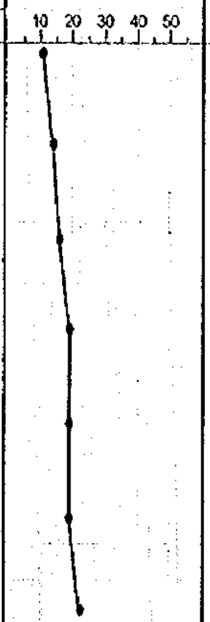


DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. C-3 SHEET NO. 1 OF 1

SITE	LINE C	COORDINATE DATE	N:1,670,440.116 E:8,588,663.729 FROM 11/12/95 TO 13/12/95	INCLINATION 0̊ DRILL RIG THC-1
AVERAGE CORE RECOVERY:		100 %	DEPTH 12.100 M. ELEVATION 108.890 M.	DRILLED KONGKAEW LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE	SAMPLING	DEPTH
11/12/95 12/10/95	0 – 7	101.39	SILTY CLAY		FINE TO MEDIUM IN GRAIN SIZE, MEDIUM DENSITY, BELOW 6.5 METRES GRANUTES AND PEBBLE ARE INCLUDED. 7.10 M.	METAL CROWN FOR HQ SIZE						0 – 7
13/10/95	7 – 12	97.99	MUDSTONE SANDSTONE ALTERNATION		REDDISH IN COLOUR, MUDSTONE AND SANDSTONE ALTERNATED AT INTERVALS OF 3 MM. TO 5 MM., OPPEARS STRIPED, MODERATELY HARD. 12.10 M.	DIAMOND BIT 76 MM.			500			7 – 12
	12 – 15				END OF HOLE						C-2-2	12 – 15



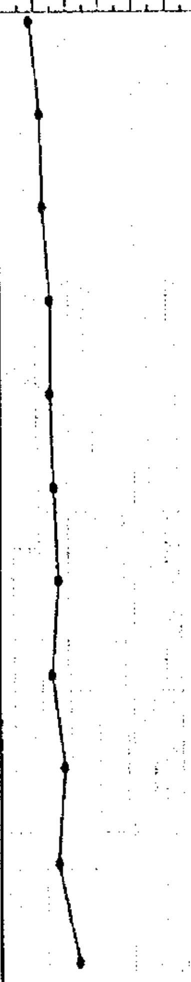
DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO.	C-4
		SHEET NO.	1 OF 2

SITE	LINE C	COORDINATE	N:1,670,233.284 E:8,588,446.425
		DATE	FROM 07/12/95 TO 09/12/95
AVERAGE CORE RECOVERY:	100 %	DEPTH 17.500 M.	ELEVATION 108.890 M.
INCLINATION 0̊	DRILL RIG THC-1	DRILLED KONGKAEW	LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE	SAMPLING	DEPTH
07/12/95	0–6.5		SAND		FINE TO MEDIUM IN GRAIN SIZE, POOR GRAIN SIZE DISTRIBUTION, SAND GRAIN CONSIST OF IRON 1, QUARTZ AND SANDSTONE FRAGMENT, MEDIUM DENSITY.	METAL CROWN FOR HQ SIZE						1–6
08/12/95	6.5–10.8											7–10
09/12/95	10.8–15	97.99			14.95 M							11–15

N-VALUE scale: 10 20 30 40 50



DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. C-4 SHEET NO. 1 OF 2
SITE: LINE C	COORDINATE / DATE	N:1,670,233.284 E:8,588,446.425 FROM 07/12/95 TO 09/12/95	INCLINATION 0̊ DRILL RIG THC-1
AVERAGE CORE RECOVERY:	100 %	DEPTH 17.500 M. ELEVATION 108.890 M.	DRILLED KONGKAEW LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
09/12/95	16		SAND AND GRAVEL		WELL GRAIN SIZE DISTRIBUTION, MAXIMUM SIZE 10 CM. IN DIAMETER.							1
	17	97.99			17.50 M							2
	18				END OF HOLE							3
	19											4
	20											5
	21											6
	22											7
	23											8
	24											9
	25											10
	26											11
	27											12
	28											13
	29											14
	30											15

DRILL LOG

PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE
HOLE NO.	C-5
SHEET NO.	1 OF 1
SITE	LINE C
COORDINATE	N:1,670,032.445 E:8,588,224.034
DATE	FROM 10/12/95 TO 10/12/95
INCLINATION	0°
DRILL RIG	THC-1
DRILLED	KONGKAEW
LOGGED	TAWEESAK
AVERAGE CORE RECOVERY:	100 %
DEPTH	12.100 M.
ELEVATION	108.890 M.

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
10/12/95	0–1.20	101.39	SAND		FINE TO MEDIUM IN GRAIN SIZE, MEDIUM DENSITY. 1.20 M.	METAL CROWN						1
	1.20–6.20	97.99	MUDSTONE, SANDSTONE ALTERNATION		REDDISH IN COLOUR, TUFF ORIGIN, APPEAR & STRIPE TEXTURE, MUDSTONE AND SANDSTONE ALTERNATED AT INTERVALS OF 2-5 MM. HIGHLY WEATHERED AT 1.20 - 2.00 M. 6.20 M.	DIAMOND BIT 76 MM.			500			2–6
					END OF HOLE							
13/10/95	13										C-2-2	13

Depth scale: 1–15

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. C-6 SHEET NO. 1 OF 1

SITE	LINE C	COORDINATE / DATE	N:1,669,973.954 E:8,587,936.913 / FROM 25/09/95 TO 27/09/95	INCLINATION 0° DRILL RIG THC-1
AVERAGE CORE RECOVERY:		100 %	DEPTH 6.200 M. / ELEVATION 96.550 M.	DRILLED APICHAT / LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLING
25/09/95	0–1.00	95.55	CLAYEY SILT	TOP SOIL, DARK BROWN IN COLOUR, STIFF IN CONSISTENCY, MEDIUM WATER CONTENT, LOW PLASTICITY, WITH HIGH ROOTS. 1.00 M.	DRAG BIT 3"				
	1.00–3.20	93.35	SILTY CLAY	STREAM DEPOSIT, YELLOWISH BROWN IN COLOUR, FIRM TO STIFF IN COSISTENCY, MEDIUM WATER CONTENT, MEDIUM PLASTICITY, WITH FRAGMENT OF COMPLETED WEATHERED GRAYISH BROWN SANDSTONE. 3.20 M.		3.00			C-6-1
26/09/95	3.20–4.33	92.20	SANDSTONE	GRAYISH BROWN IN COLOUR, MEDIUM IN GRAIN SIZE, MODERATELY HARD, MODERATELY WEATHERED, MICA PARTICLE INCLUDED, GENTLY INCLINED CROSS-LAMINATION IN BEDDING 4.33 M. - 35° JOINT AT 3.45 M. - BEDDING DIP 5° AT 3.80 M. - RQD = 87 %	DIAMOND BIT 76 MM.			300	
	4.33–6.20	90.35	MUDSTONE	REDDISH BOWN IN COLOUR, SLIGHTLY HARD, SLIGHTLY WEATHERED, SLIGHTLY POROUS IN TEXTURE AND SOME TUFF ORIGIN 6.20 M. - CLOSE SPACING FRACTURE 6-20 CM. AT 5.00-5.20 M. - BEDDING DIP 10° WITH MN STAIN SURFACE AT 4.58, 4.65, 4.85, 5.22 AND 5.32 M. - RQD = 66 %					C-6-2

END OF HOLE

N-VALUE (10 20 30 40 50)

DEPTH 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

DRILL LOG

DRILL LOG	PROJECT:	THE FEASIBILITY STUDY ON THE CONSTRUCTION OF THE MEKONG BRIDGE AT PAKSE	HOLE NO. C-7 / SHEET NO. 1 OF 1
SITE / LINE C	COORDINATE / DATE	N:1,670,167.390 E:8,587,477.964 / FROM 21/09/95 TO 23/09/95	INCLINATION 0° DRILL RIG THC-1
AVERAGE CORE RECOVERY:	100 %	DEPTH 5.000 M. / ELEVATION 104.320 M.	DRILLED APICHAT / LOGGED TAWEESAK

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	N-VALUE (10 20 30 40 50)	SAMPLING	DEPTH
21/09/95	0–1.00	103.32	SAND WITH SANDSTONE BOULDER		COLLUVIAL DEPOSIT, BROWN IN COLOUR, FINE TO MEDIUM IN GRAIN SIZE, GAP GRAIN SIZE DISTRIBUTION, MEDIUM DENSITY, MEDIUM WATER CONTENT. (1.00 M.)	DRAG BIT 3"	1.20					1
	1.00–2.00	102.32	CLAY		DECOMPOSED MUDSTONE, ORIGIN ROCK CHANGED INTO SOIL, REDDISH BROWN IN COLOUR, VERY STIFF IN CONSISTENCY. (2.00 M.)							2, 3
23/09/95	2.00–5.00	99.32	MUDSTONE		REDDISH BROWN IN COLOUR, SLGIHTLY HARD, SLIGHTLY WEATHERED, MICA PARTICLE INCLUDED, SOME TUFF ORIGIN AT 2.00-3.77 M. - CLOSE SPACING FRACTURE 6-20 CM. OF SUB-VERTICAL, 60°-70° AND SUB-HORIZONTAL JOINT AT 2.00-3.77 M. - BEDDING DIP ?° WITH IRON STAIN SURFACE AT 4.35, 4.75 AND 4.78 M. - RQD = 57 % (5.00 M.)	DIAMOND BIT 76 MM.			300		C-7-1	4, 5

END OF HOLE

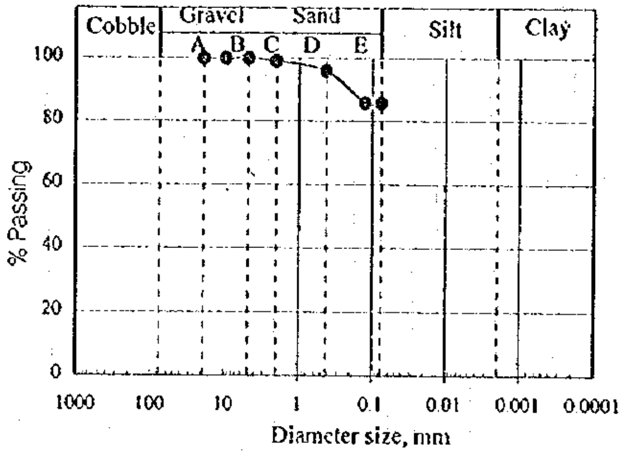
Sieve Analysis

Wet Sieve Analysis

Borehole No. A-1
Sample No. A-1-1
Depth (m): 2.00-4.45
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.66	99.1
#40	425 μm	2.39	96.0
#120	125 μm	7.79	85.8
#200	75 μm	0.01	85.8

Wt. of Dry Sample 76.31 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

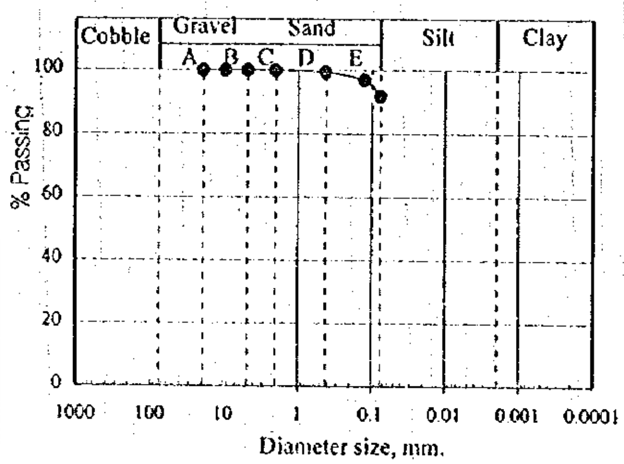
Gravel	0	%
Sand	14	%
Silt+Clay	86	%

Wet Sieve Analysis

Borehole No. A-6
Sample No. A-6-1
Depth (m): 2.00-3.50
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.16	99.8
#40	425 μm	0.40	99.4
#120	125 μm	2.49	96.9
#200	75 μm	4.91	91.8

Wt. of Dry Sample 97.26 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	0	%
Sand	8	%
Silt+Clay	92	%

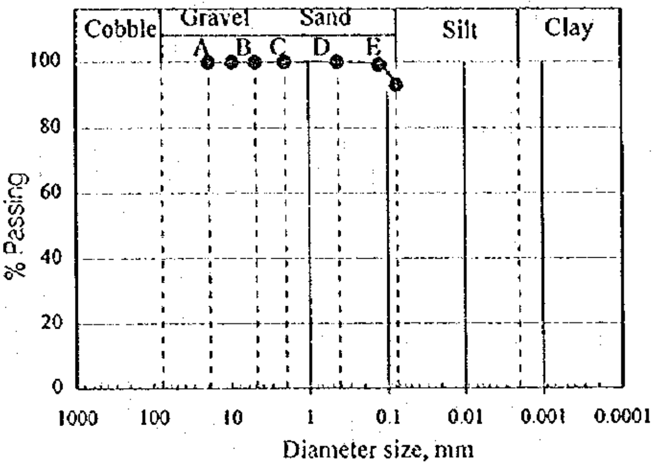
Sieve Analysis

Wet Sieve Analysis

Borehole No. A-2
Sample No. A-2-1
Depth (m): 1.00-1.45
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.00	100.0
#40	425 μm	0.10	99.9
#120	125 μm	1.44	99.1
#200	75 μm	10.42	92.9

Wt. of Dry Sample 168.83 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

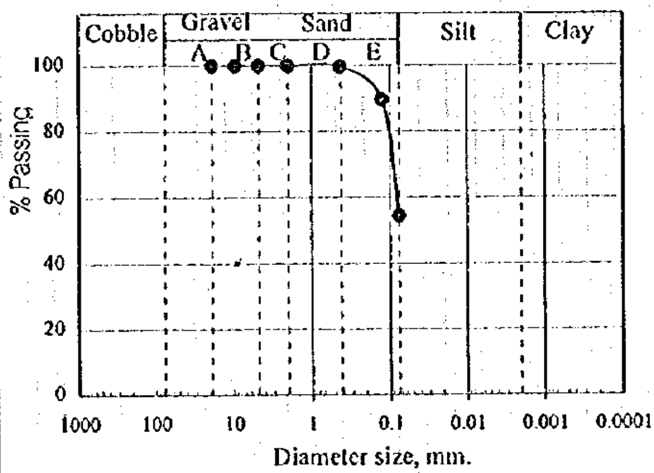
Gravel	0	%
Sand	7	%
Silt+Clay	93	%

Wet Sieve Analysis

Borehole No. A-2
Sample No. A-2-2
Depth (m): 4.00-4.45
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.13	99.9
#40	425 μm	0.39	99.7
#120	125 μm	17.12	89.6
#200	75 μm	59.74	54.4

Wt. of Dry Sample 169.81 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	0	%
Sand	46	%
Silt+Clay	54	%

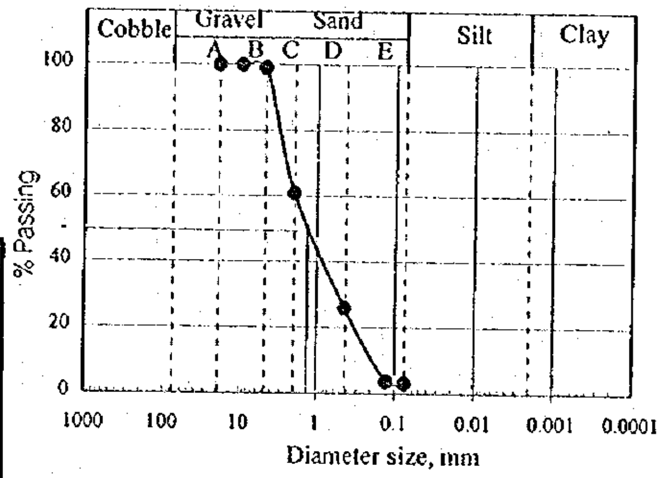
Sieve Analysis

Wet Sieve Analysis

Borehole No. A-3
Sample No. A-3-1
Depth (m): 0.00-1.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	1.84	98.9
#10	2.00 mm	64.44	60.9
#40	425 μm	59.49	25.8
#120	125 μm	37.41	3.8
#200	75 μm	1.04	3.1

Wt. of Dry Sample 169.54 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

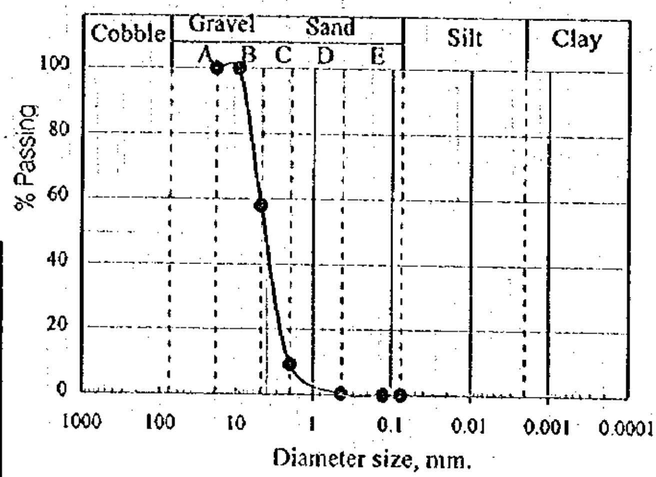
Gravel	1	%
Sand	96	%
Silt+Clay	3	%

Wet Sieve Analysis

Borehole No. A-3
Sample No. A-3-2
Depth (m): 6.00-7.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	79.54	58.0
#10	2.00 mm	92.12	9.3
#40	425 μm	16.51	0.5
#120	125 μm	0.80	0.1
#200	75 μm	0.10	0.1

Wt. of Dry Sample 189.17 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	42	%
Sand	58	%
Silt+Clay	0	%

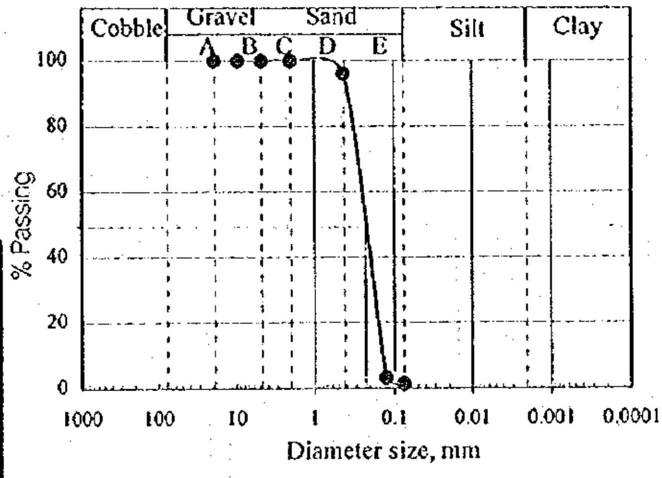
Sieve Analysis

Wet Sieve Analysis

Borehole No. A-3
Sample No. A-3-3
Depth (m): 9.00-10.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.00	100.0
#40	425 μm	4.45	96.1
#120	125 μm	106.10	3.2
#200	75 μm	2.04	1.4

Wt. of Dry Sample 114.18 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

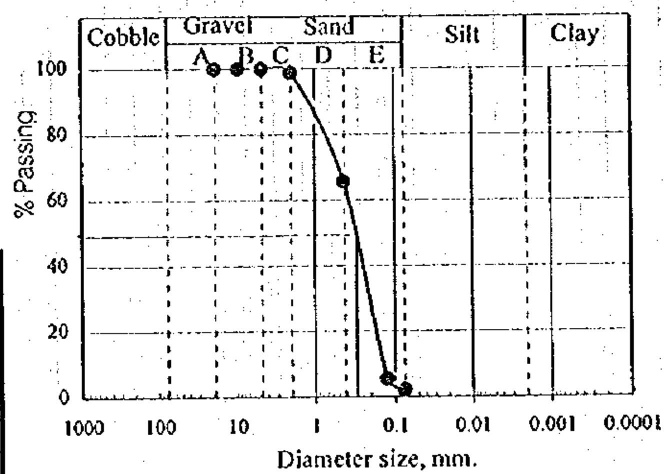
Gravel	0	%
Sand	99	%
Silt+Clay	1	%

Wet Sieve Analysis

Borehole No. A-4
Sample No. A-4-1
Depth (m): 0.00-1.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	2.80	98.7
#40	425 μm	71.53	65.6
#120	125 μm	130.25	5.4
#200	75 μm	7.04	2.2

Wt. of Dry Sample 216.29 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	0	%
Sand	98	%
Silt+Clay	2	%

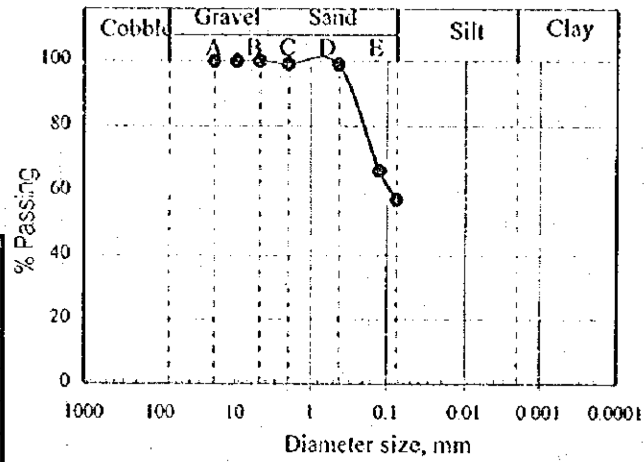
Sieve Analysis

Wet Sieve Analysis

Borehole No. A-7
Sample No. A-7-1
Depth (m): 1.00-1.45
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.49	99.1
#40	425 µm	0.09	98.9
#120	125 µm	17.98	66.3
#200	75 µm	4.90	57.4

Wt. of Dry Sample 55.12 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

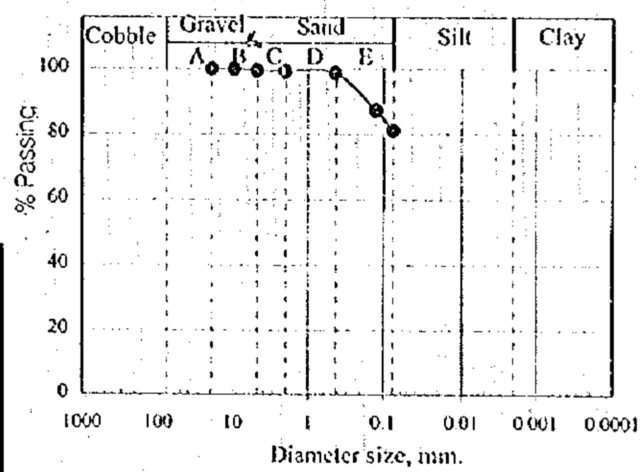
Gravel	0	%
Sand	43	%
Silt+Clay	57	%

Wet Sieve Analysis

Borehole No. B-1
Sample No. B-1-1
Depth (m): 1.00-1.45
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.27	99.4
#10	2.00 mm	0.07	99.3
#40	425 µm	0.25	98.7
#120	125 µm	5.35	87.3
#200	75 µm	2.84	81.3

Wt. of Dry Sample 46.87 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	1	%
Sand	18	%
Silt+Clay	81	%

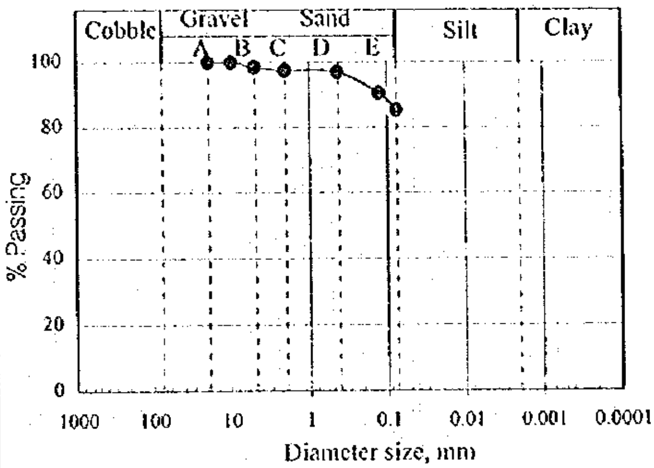
Sieve Analysis

Wet Sieve Analysis

Borehole No. B-1
Sample No. B-1-1
Depth (m): 0.50-1.50
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.74	98.5
#10	2.00 mm	0.51	97.5
#40	425 μm	0.31	96.9
#120	125 μm	3.18	90.5
#200	75 μm	2.59	85.4

Wt. of Dry Sample 50.04 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

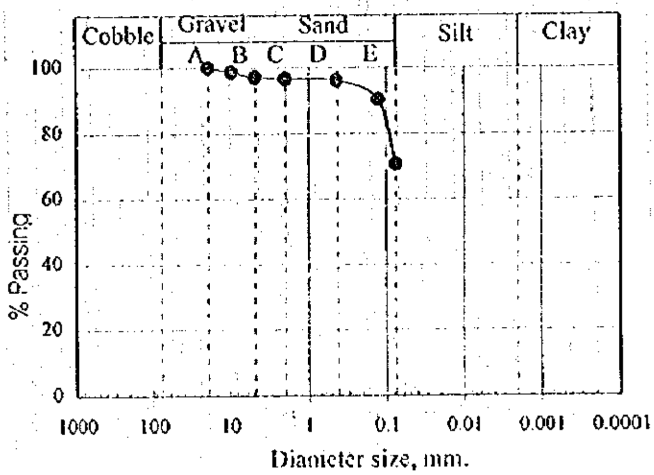
Gravel	1	%
Sand	13	%
Silt+Clay	85	%

Wet Sieve Analysis

Borehole No. A-2
Sample No. A-2-3
Depth (m): 9.00-10.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	1.54	98.8
# 4	4.75 mm	1.93	97.2
#10	2.00 mm	0.71	96.6
#40	425 μm	0.66	96.1
#120	125 μm	7.21	90.3
#200	75 μm	24.43	70.7

Wt. of Dry Sample 124.30 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	3	%
Sand	27	%
Silt+Clay	71	%

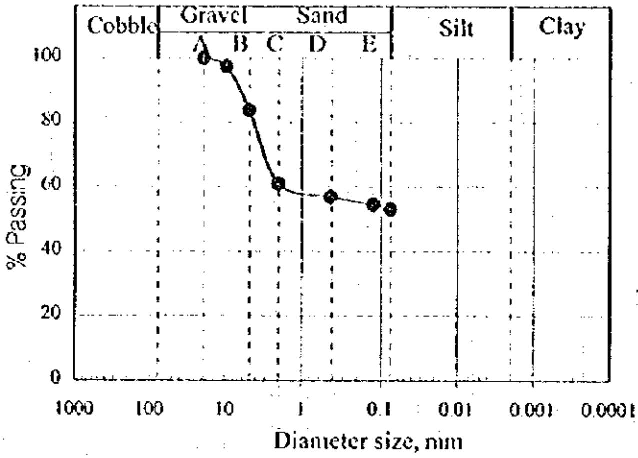
Sieve Analysis

Wet Sieve Analysis

Borehole No. B-2
Sample No. B-2-1
Depth (m): 1.00-1.45
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	1.60	97.4
# 4	4.75 mm	8.30	83.7
#10	2.00 mm	13.89	60.9
#40	425 μm	2.43	57.0
#120	125 μm	1.50	54.5
#200	75 μm	0.89	53.0

Wt. of Dry Sample 60.91 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

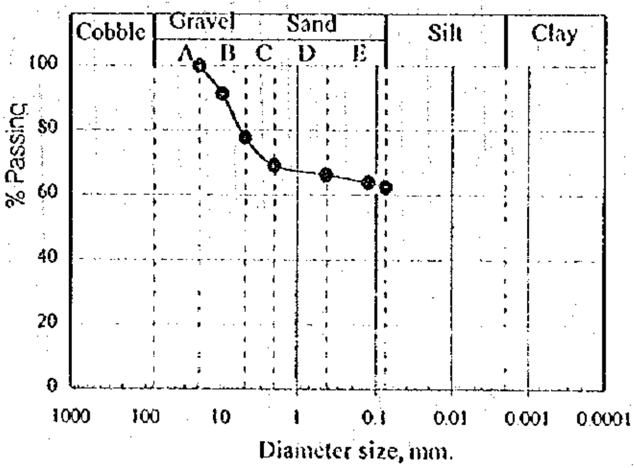
Gravel	16	%
Sand	31	%
Silt+Clay	53	%

Wet Sieve Analysis

Borehole No. B-2
Sample No. B-2-2
Depth (m): 11.00-12.00
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	3.71	91.3
# 4	4.75 mm	5.84	77.6
#10	2.00 mm	3.65	69.1
#40	425 μm	1.20	66.3
#120	125 μm	1.02	63.9
#200	75 μm	0.64	62.4

Wt. of Dry Sample 42.70 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	22	%
Sand	15	%
Silt+Clay	62	%

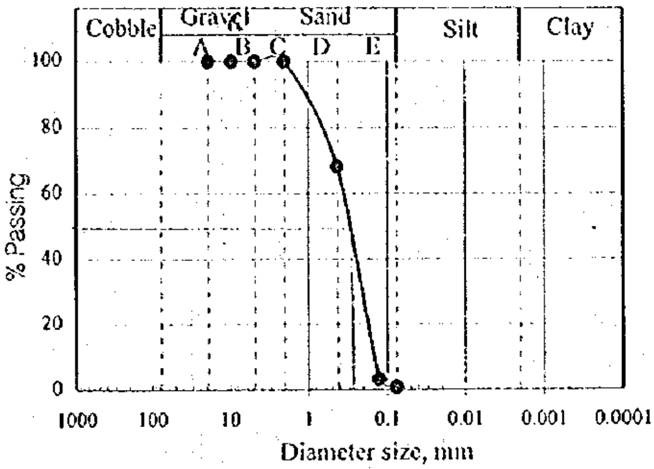
Sieve Analysis

Wet Sieve Analysis

Borehole No. B-3
Sample No. B-3-1
Depth (m): 2.00-3.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.00	100.0
#40	425 μm	65.20	68.2
#120	125 μm	133.16	3.2
#200	75 μm	4.91	0.8

Wt. of Dry Sample 204.82 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

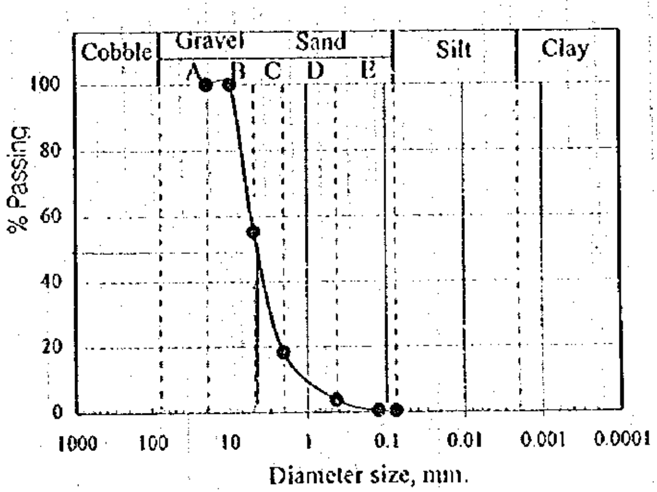
Gravel	0	%
Sand	99	%
Silt+Clay	1	%

Wet Sieve Analysis

Borehole No. B-3
Sample No. B-3-2
Depth (m): 4.00-5.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	67.56	55.2
#10	2.00 mm	55.68	18.3
#40	425 μm	21.90	3.8
#120	125 μm	4.91	0.6
#200	75 μm	0.10	0.5

Wt. of Dry Sample 150.90 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	45	%
Sand	55	%
Silt+Clay	0	%

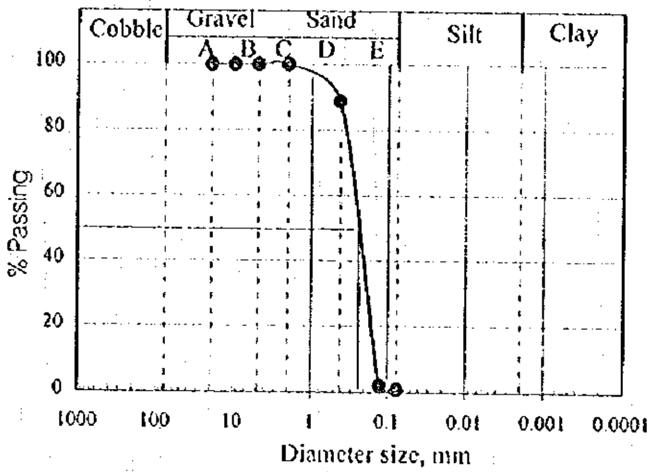
Sieve Analysis

Wet Sieve Analysis

Borehole No. B-4
Sample No. B-4-1
Depth (m): 1.00-2.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.00	100.0
#40	425 μm	24.02	88.9
#120	125 μm	188.59	2.2
#200	75 μm	2.65	0.9

Wt. of Dry Sample 217.32 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

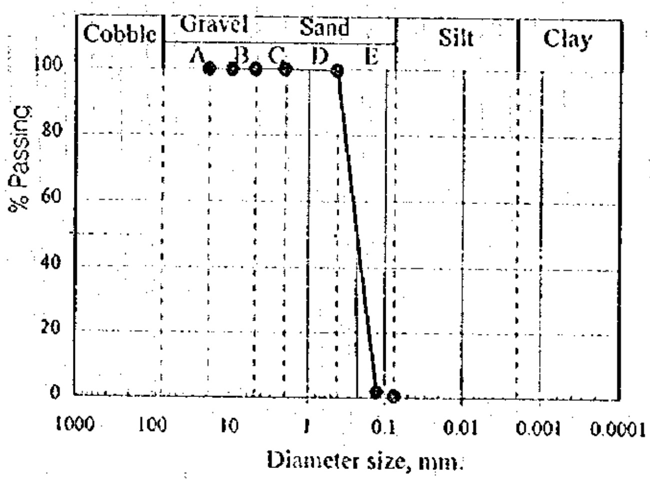
Gravel	0	%
Sand	99	%
Silt+Clay	1	%

Wet Sieve Analysis

Borehole No. B-5
Sample No. B-5-1
Depth (m): 2.00-3.00
Location: Mekong Bridge, Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.00	100.0
#40	425 μm	0.73	99.6
#120	125 μm	193.04	1.7
#200	75 μm	2.22	0.6

Wt. of Dry Sample 197.22 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	0	%
Sand	99	%
Silt+Clay	1	%

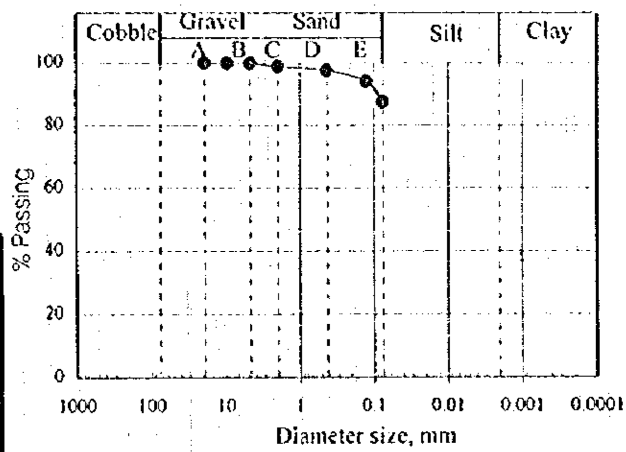
Sieve Analysis

Wet Sieve Analysis

Borehole No. B-7
Sample No. B-7-1
Depth (m): 1.00-1.45
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	1.24	98.9
#40	425 µm	1.51	97.5
#120	125 µm	3.72	94.1
#200	75 µm	7.21	87.6

Wt. of Dry Sample 110.36 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

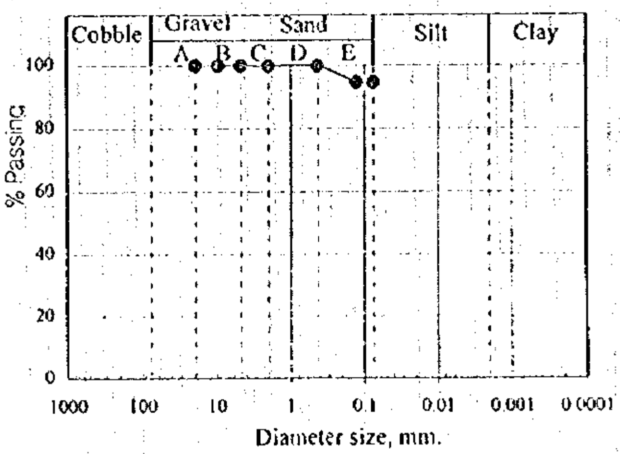
Gravel	0	%
Sand	12	%
Silt+Clay	88	%

Wet Sieve Analysis

Borehole No. B-7
Sample No. B-7-2
Depth (m): 3.00-3.45
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.05	99.9
#40	425 µm	0.04	99.7
#120	125 µm	1.69	94.7
#200	75 µm	0.01	94.7

Wt. of Dry Sample 33.49 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	0	%
Sand	5	%
Silt+Clay	95	%

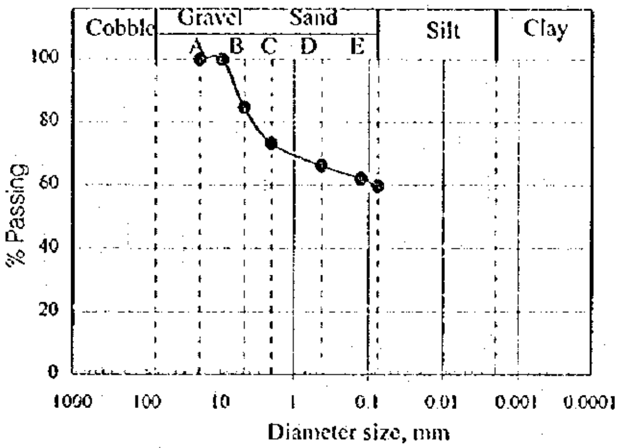
Sieve Analysis

Wet Sieve Analysis

Borehole No. C-2
Sample No. C-2-1
Depth (m): 2.00-4.50
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	5.24	84.7
#10	2.00 mm	3.88	73.3
#40	425 µm	2.43	66.2
#120	125 µm	1.39	62.1
#200	75 µm	0.82	59.7

Wt. of Dry Sample 34.15 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

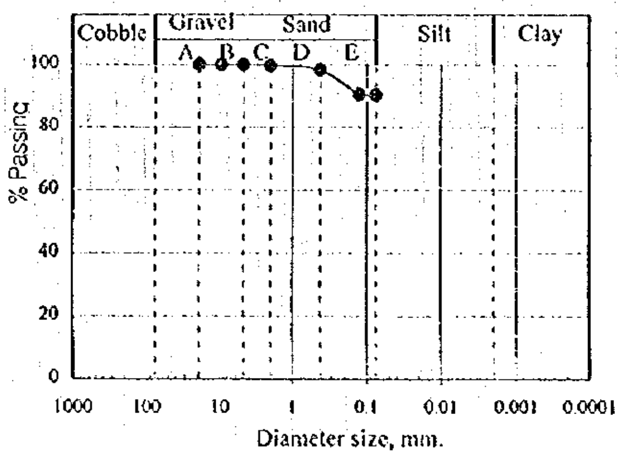
Gravel	15	%
Sand	25	%
Silt+Clay	60	%

Wet Sieve Analysis

Borehole No. C-6
Sample No. C-6-1
Depth (m): 1.00-2.00
Location: Mekong Bridge , Laos

Sieve No.	Sieve Size	Soil Mass Retained (g)	Passing %
3/4"	19 mm	0.00	100.0
3/8"	9.5 mm	0.00	100.0
# 4	4.75 mm	0.00	100.0
#10	2.00 mm	0.27	99.7
#40	425 µm	1.33	98.3
#120	125 µm	7.36	90.6
#200	75 µm	0.12	90.4

Wt. of Dry Sample 94.88 g



A=Coarse Gravel B=Fine Gravel C=Coarse Sand
D=Medium Sand E=Fine Sand

Gravel	0	%
Sand	10	%
Silt+Clay	90	%

Specific Gravity

Borehole No.	A-1	C-6	B-7	A-7	B-2	C-2	B-1	A-6	B-2	B-7
Sample No.	A-1-1	C-6-1	B-7-1	A-7-1	B-2-1	C-2-1	B-1-1	A-6-1	B-2-2	B-7-2
Depth (m) From										
To										
Container No.	D57	D29	D53	D63	D19	D56	D6	D39	D17	D78
Wt of Container	18.16	15.9	15.85	16.55	16.09	17.27	14.58	16.95	14.86	24.22
Wt. of Cont+Dry Soil	93.07	101	76.17	131	89.97	90.26	93.28	90.52	87.74	71.2
Wt. of Dry Soil	74.91	85.05	60.32	114.4	73.88	72.99	78.7	73.57	72.88	46.98
Flask No.	A	B	C	D	E	A	B	C	D	E
Temperature, C	25	27	27	27.5	27	26	26.5	26.5	26.5	27.5
Wt. of Water +	121.4	135.1	140.3	135.9	137.5	107.2	93.5	109.1	96.78	95.06
Flask + Soil	583.9	572.2	554.4	585.3	561	596.9	610.5	594.7	601.3	585.8
Flask+water										
Specific Gravity, Gs	2.748	2.625	2.608	2.565	2.742	2.770	2.676	2.689	2.774	2.677

Borehole No.										
Sample No.										
Depth (m) From										
To										
Container No.										
Wt of Container										
Wt. of Cont+Dry Soil										
Wt. of Dry Soil										
Flask No.										
Temperature, C										
Wt. of Water +										
Flask + Soil										
Flask+water										
Specific Gravity, Gs										

Borehole No.										
Sample No.										
Depth (m) From										
To										
Container No.										
Wt of Container										
Wt. of Cont+Dry Soil										
Wt. of Dry Soil										
Flask No.										
Temperature, C										
Wt. of Water +										
Flask + Soil										
Flask+water										
Specific Gravity, Gs										

Specific Gravity

Borehole No.	B-3	B-3	B-4	B-5	A-2	A-2	A-3	A-3	A-3	A-4
Sample No.	B-3-1	B-3-2	B-4-1	B-5-1	A-2-1	A-2-2	A-3-1	A-3-2	A-3-3	A-4-1
Depth (m) From	1.00	3.00	2.00	3.00	0.00	4.00	1.00	5.00	10.00	1.00
To	2.00	4.00	3.00	4.00	1.00	4.45	2.00	6.00	11.00	2.00
Container No.	D-73	D-123	D-140	D30	D-70	D72	D-71	D-82	D-115	D-62
Wt of Container	27.71	22.58	23.16	14.58	24.17	20.69	27.82	21.78	22.59	15.68
Wt. of Cont+Dry Soil	74.17	192.49	155.24	247.57	176.11	229.75	187.97	146.88	112.79	167.87
Wt. of Dry Soil	46.46	169.91	132.08	232.99	151.94	209.06	160.15	125.1	90.2	152.19
Flask No.	A	B	C	C	D	E	E	A	B	C
Temperature, C	26	26	26	27.5	26.5	28	26	27	27	27
Wt. of Water +	65.37	167.7	153.5	240.15	148.81	184.04	152.84	142.86	140.61	143.39
Flask + Soil	620.88	592.82	587.11	562.31	598.37	598.72	600.96	591.97	570.51	609.23
Specific Gravity, Gs	2.635	2.641	2.684	2.642	2.697	2.685	2.754	2.627	2.675	2.662

Borehole No.	B-1	A-2								
Sample No.	B-1-1	A-2-3								
Depth (m) From	0.5	9								
To	1.5	10								
Container No.	D-2	D-4								
Wt of Container	14.99	19.1								
Wt. of Cont+Dry Soil	53.25	117.3								
Wt. of Dry Soil	38.26	98.2								
Flask No.	A	B								
Temperature, C	27	27								
Wt. of Water +	213.08	220.47								
Flask + Soil	468.00	495.62								
Specific Gravity, Gs	2.654	2.671								

Water Content & Unit Weight Determination

Project:	Mekong River Bridge, Laos	Tested by:	THS	Sheet No:
Location:		Date:	Dec-95	1

Test No:							
Borehole No:		A-1	A-1	A-1	A-1	A-6	A-6
Sample No:		A-1-1	A-1-1	A-1-1	A-1-1	A-6-1	A-6-1
Depth (m.)	From	2.00	2.00	2.00	2.00	2.00	2.00
	To	4.45	4.45	4.45	4.45	3.50	3.50
Tin No:		B-57	B-38	B-10	B-47	B-46	B-3
Wt. of Tin	gm.	21.89	20.88	21.07	21.09	21.03	22.24
Wt. of Tin + Wet Soil	gm.	83.40	72.31	162.23	156.27	96.90	131.60
Wt. of Tin + Dry Soil	gm.	73.02	63.55	138.24	133.64	87.68	119.44
Wt. of Water	gm.	10.38	8.76	23.99	22.63	9.22	12.16
Wt. of Dry Soil	gm.	51.13	42.67	117.17	112.55	66.65	97.20
Water Content	%	**20.3**	**20.5**	**20.5**	**20.1**	**13.8**	**12.5**
Sample Height	cm.			7.15	7.15		
Sample Diameter	cm.			3.53	3.53		
Wt. of Wet Soil	gm.			141.16	135.18		
Volume of Sample	cc.			69.98	69.98		
Total Unit Weight	**ton/m³**			**2.02**	**1.93**		
Dry Unit Weight	**ton/m³**			**1.67**	**1.61**		

Test No:							
Borehole No:		A-7	A-7	A-7	A-7	B-1	B-1
Sample No:		A-7-1	A-7-1	A-7-1	A-7-1	B-1-1	B-1-1
Depth (m.)	From	1.00	1.00	1.00	1.00	1.00	1.00
	To	1.45	1.45	1.45	1.45	1.45	1.45
Tin No:		B-30	B-1	B-58	B-16	B-4	B-8
Wt. of Tin	gm.	21.16	20.96	21.91	20.75	22.11	22.17
Wt. of Tin + Wet Soil	gm.	151.31	152.33	59.04	86.73	71.10	75.31
Wt. of Tin + Dry Soil	gm.	132.01	134.46	53.90	77.20	63.90	66.48
Wt. of Water	gm.	19.30	17.87	5.14	9.53	7.20	8.83
Wt. of Dry Soil	gm.	110.85	113.50	31.99	56.45	41.79	44.31
Water Content	%	**17.4**	**15.7**	**16.1**	**16.9**	**17.2**	**19.9**
Sample Height	cm.	7.15	7.15				
Sample Diameter	cm.	3.53	3.53				
Wt. of Wet Soil	gm.	130.15	131.37				
Volume of Sample	cc.	69.98	69.98				
Total Unit Weight	**ton/m³**	**1.86**	**1.88**				
Dry Unit Weight	**ton/m³**	**1.58**	**1.62**				

Water Content & Unit Weight Determination

Project: Mekong River Bridge — Tested by: THS — Sheet No: 2
Location: Pakse, Laos — Date: Dec-95

Test No:		A	B	A	B	A	B
Borehole No:		A-2	A-2	A-3	A-3	A3	A3
Sample No:		A-2-3	A-2-3	A-3-1	A-3-1	A-3-2	A-3-2
Depth (m.)	From	9.00	9.00	0.00	1.00	5.00	6.00
	To	10.00	10.00	1.00	2.00	6.00	7.00
Tin No:		D4	D5	D-75	D-71	D-82	D-68
Wt. of Tin	gm.	19.10	15.94	25.43	24.82	21.78	23.73
Wt. of Tin + Wet Soil	gm.	142.43	167.58	225.13	216.30	151.81	222.01
Wt. of Tin + Dry Soil	gm.	117.37	139.75	194.97	187.97	146.88	212.31
Wt. of Water	gm.	25.06	27.83	30.16	28.33	4.93	9.70
Wt. of Dry Soil	gm.	98.27	123.81	169.54	163.15	125.10	188.58
Water Content	**%**	**25.5**	**22.5**	**17.8**	**17.4**	**3.9**	**5.1**
Sample Height	cm.						
Sample Diameter	cm.						
Wt. of Wet Soil	gm.						
Volume of Sample	cc.						
Total Unit Weight	**ton/m³**						
Dry Unit Weight	**ton/m³**						

Test No:		A	B	A	B	A	B
Borehole No:		A-3	A-3	A-4	A-4	B-1	B-1
Sample No:		A-3-3	A-3-3	A-4-1	A-4-1	B-1-1	B-1-1
Depth (m.)	From	9.00	10.00	0.00	1.00	0.50	0.50
	To	10.00	11.00	1.00	2.00	1.50	1.50
Tin No:		D-81	D-115	D-44	D-62	D-1	D-2
Wt. of Tin	gm.	21.41	22.59	15.94	15.68	13.67	14.99
Wt. of Tin + Wet Soil	gm.	163.50	135.14	279.51	198.03	71.86	60.07
Wt. of Tin + Dry Soil	gm.	135.59	112.79	232.23	167.87	63.35	53.32
Wt. of Water	gm.	27.91	22.35	47.28	30.16	8.51	6.75
Wt. of Dry Soil	gm.	114.18	90.20	216.29	152.19	49.68	38.33
Water Content	**%**	**24.4**	**24.8**	**21.9**	**19.8**	**17.1**	**17.6**
Sample Height	cm.						
Sample Diameter	cm.						
Wt. of Wet Soil	gm.						
Volume of Sample	cc.						
Total Unit Weight	**ton/m³**						
Dry Unit Weight	**ton/m³**						

Water Content & Unit Weight Determination

Project: Mekong Bridge, Laos
Location:

Tested by: THS
Date: Dec-95

Sheet No: 2

Test No:						
Borehole No:	B-2	B-2	B-2	B-2	B-7	B-7
Sample No:	B-2-1	B-2-1	B-2-2	B-2-2	B-7-1	B-7-1
Depth (m.) From	1.00	1.00	11.00	11.00	1.00	1.00
To	1.45	1.45	12.00	12.00	1.45	1.45
Tin No:	B-2	B-5	B-50	B-43	B-61	B-59
Wt. of Tin gm.	25.60	21.53	21.15	21.05	22.02	20.98
Wt. of Tin + Wet Soil gm.	76.16	67.21	68.22	76.93	79.43	80.35
Wt. of Tin + Dry Soil gm.	61.19	53.45	54.62	59.59	70.82	71.69
Wt. of Water gm.	14.97	13.76	13.60	17.34	8.61	8.66
Wt. of Dry Soil gm.	35.59	31.92	33.47	38.54	48.80	50.71
Water Content %	**42.1**	**43.1**	**40.6**	**45.0**	**17.6**	**17.1**
Sample Height cm.						
Sample Diameter cm.						
Wt. of Wet Soil gm.						
Volume of Sample cc.						
Total Unit Weight ton/m³						
Dry Unit Weight ton/m³						

Test No:						
Borehole No:	B-7	B-7	C-2	C-2	C-6	
Sample No:	B-7-2	B-7-2	C-2-1	C-2-1	C-6-1	
Depth (m.) From	3.00	3.00	2.00	2.00	1.00	
To	3.45	3.45	4.50	4.50	2.00	
Tin No:	B-28	B-77	B-7	B-18	B101	
Wt. of Tin gm.	21.05	21.40	21.21	20.84	17.94	
Wt. of Tin + Wet Soil gm.	75.48	70.78	86.67	77.94	122.08	
Wt. of Tin + Dry Soil gm.	67.91	64.03	68.16	61.40	100.85	
Wt. of Water gm.	7.57	6.75	18.51	16.54	21.23	
Wt. of Dry Soil gm.	46.86	42.63	46.95	40.56	82.91	
Water Content %	**16.2**	**15.8**	**39.4**	**40.8**	**25.6**	
Sample Height cm.						
Sample Diameter cm.						
Wt. of Wet Soil gm.						
Volume of Sample cc.						
Total Unit Weight ton/m³						
Dry Unit Weight ton/m³						

Water Content & Unit Weight Determination

Project:	Mekong River Bridge	Tested by:	THS	Sheet No:	
Location:	Pakse, Laos	Date:	Dec-95	1	

Test No:		A	B	A	B	A	B
Borehole No:		B-3	B-3	B-3	B-3	B-4	B-4
Sample No:		B-3-1	B-3-1	B-3-2	B-3-2	B-4-1	B-4-1
Depth (m.)	From	1.00	2.00	3.00	4.00	1.00	2.00
	To	2.00	3.00	4.00	5.00	2.00	3.00
Tin No:		D-73	D-76	D-123	D-64	D-77	D-140
Wt. of Tin	gm.	27.71	28.72	22.58	23.36	21.25	23.16
Wt. of Tin + Wet Soil	gm.	84.26	279.22	217.63	182.02	289.05	183.66
Wt. of Tin + Dry Soil	gm.	74.07	233.54	192.49	174.26	238.57	155.24
Wt. of Water	gm.	10.19	45.68	25.14	7.76	50.48	28.42
Wt. of Dry Soil	gm.	46.36	204.82	169.91	150.90	217.32	132.08
Water Content	**%**	**22.0**	**22.3**	**14.8**	**5.1**	**23.2**	**21.5**
Sample Height	cm.						
Sample Diameter	cm.						
Wt. of Wet Soil	gm.						
Volume of Sample	cc.						
Total Unit Weight	**ton/m^3**						
Dry Unit Weight	**ton/m^3**						

Test No:		A	B	A	B	A	B
Borehole No:		B-5	B-5	A-2	A-2	A-2	A-2
Sample No:		B-5-1	B-5-1	A-2-1	A-2-1	A-2-2	A-2-2
Depth (m.)	From	2.00	3.00	0.00	1.00	4.00	4.00
	To	3.00	4.00	1.00	1.45	4.45	5.45
Tin No:		D-86	D-30	D-70	D-65	D-79	D-72
Wt. of Tin	gm.	21.80	14.58	24.17	22.42	21.44	20.69
Wt. of Tin + Wet Soil	gm.	270.77	315.70	206.08	222.92	291.34	280.48
Wt. of Tin + Dry Soil	gm.	219.02	247.60	176.11	191.25	241.54	231.20
Wt. of Water	gm.	51.75	68.10	29.97	31.67	49.80	49.28
Wt. of Dry Soil	gm.	197.22	233.02	151.94	168.83	220.10	210.51
Water Content	**%**	**26.2**	**29.2**	**19.7**	**18.8**	**22.6**	**23.4**
Sample Height	cm.						
Sample Diameter	cm.						
Wt. of Wet Soil	gm.						
Volume of Sample	cc.						
Total Unit Weight	**ton/m^3**						
Dry Unit Weight	**ton/m^3**						

Atterberg Limits

Borehole No. A-1						
Sample No. A-1-1	ω_P		ω_L			
Test No./Blows	Test 1	Test 2	33	28	22	15
Container, gm.	20.71	21.08	20.78	20.65	25.74	20.88
Wet soil + cont., gm.	30.82	31.29	28.92	29.75	34.69	30.59
Dry soil + cont., gm.	28.89	29.39	25.91	26.35	31.39	26.8
ω_n %	23.59	22.86	58.67	59.65	58.41	64.02
Average	23.2		59.8			
Borehole No. A-6						
Sample No. A-6-1	ω_P		ω_L			
Test No./Blows	Test 1	Test 2	34	26	18	10
Container, gm.	20.78	20.81	20.94	21.04	21.75	25.58
Wet soil + cont., gm.	34.27	33.8	34.02	32.16	32	38.25
Dry soil + cont., gm.	32.19	31.87	31.25	29.68	29.69	35.27
ω_n %	18.23	17.45	26.87	28.70	29.09	30.75
Average	17.8		28.2			
Borehole No. A-7						
Sample No. A-7-1	ω_P		ω_L			
Test No./Blows	Test 1	Test 2	34	28	21	15
Container, gm.	22.17	20.98	20.82	21.66	21.42	21.62
Wet soil + cont., gm.	31.99	33.2	28.09	30.66	30.14	30.45
Dry soil + cont., gm.	30.3	31.04	25.54	27.47	26.97	27.13
ω_n %	20.79	21.47	54.03	54.91	57.12	60.25
Average	21.1		56.1			
Borehole No. B-1						
Sample No. B-1-1	ω_P		ω_L			
Test No./Blows	Test 1	Test 2	36	26	20	14
Container, gm.	20.61	21.86	20.93	20.8	20.92	20.69
Wet soil + cont., gm.	29.92	31.87	31.96	31.14	31.85	32.5
Dry soil + cont., gm.	28.78	30.63	29.69	29	29.53	29.95
ω_n %	13.95	14.14	25.91	26.10	26.95	27.54
Average	14.0		26.4			
Borehole No. B-7						
Sample No. B-7-1	ω_P		ω_L			
Test No./Blows	Test 1	Test 2	30	23	14	14
Container, gm.	20.71	21.97	20.82	21.13	20.77	20.77
Wet soil + cont., gm.	30.81	29.56	29.54	29.89	31.41	31.41
Dry soil + cont., gm.	29.51	28.51	27.5	27.75	28.65	28.65
ω_n %	14.77	16.06	30.54	32.33	35.03	35.03
Average	15.4		31.7			
Borehole No. B-7						
Sample No. B-7-2	ω_P		ω_L			
Test No./Blows	Test 1	Test 2	18	26	18	12
Container, gm.	22.42	23.25	20.82	22.11	20.82	20.83
Wet soil + cont., gm.	35.13	34.77	29.16	30.53	29.16	30.69
Dry soil + cont., gm.	33.03	32.81	26.39	27.79	26.39	26.26
ω_n %	19.79	20.50	49.73	48.24	49.73	81.58
Average	20.1		42.4			

Atterberg Limits

Borehole No.	A-2		Sample No.	A-2-1		
	ω_P		ω_L			
Test No. /Blows	Test 1	Test 2	36	27	20	12
Container, gm.	20.89	20.7	21.07	20.83	20.69	20.89
Wet soil + cont., gm.	31.01	30.2	31.2	31.09	33.98	31.78
Dry soil + cont., gm.	29.05	28.38	28.38	28.18	30.19	28.52
Water Content, ω_c (%)	24.02	23.70	38.58	39.59	39.89	42.73
ω_P	23.9	%	ω_L	39.7	%	

Borehole No.	A-2		Sample No.	A-2-2		
	ω_P		ω_L			
Test No. /Blows	Test 1	Test 2	32	26	20	12
Container, gm.	22.08	20.76	20.66	20.61	20.98	20.68
Wet soil + cont., gm.	33.61	34.56	31.95	31.73	32.75	33.98
Dry soil + cont., gm.	31.8	32.39	29.76	29.55	30.38	31.19
Water Content, ω_c (%)	18.62	18.66	24.07	24.38	25.21	26.55
ω_P	18.6	%	ω_L	24.6	%	

Borehole No.	A-2		Sample No.	A-2-3		
	ω_P		ω_L			
Test No. /Blows	Test 1	Test 2	32	24	18	12
Container, gm.	20.75	21.01	21.63	20.92	21.04	21.79
Wet soil + cont., gm.	31.03	33.87	31.65	34.89	31.83	37.62
Dry soil + cont., gm.	29.48	31.95	29.71	32.19	29.69	34.36
Water Content, ω_c (%)	17.75	17.55	24.01	23.96	24.74	25.93
ω_P	17.7	%	ω_L	24.2	%	

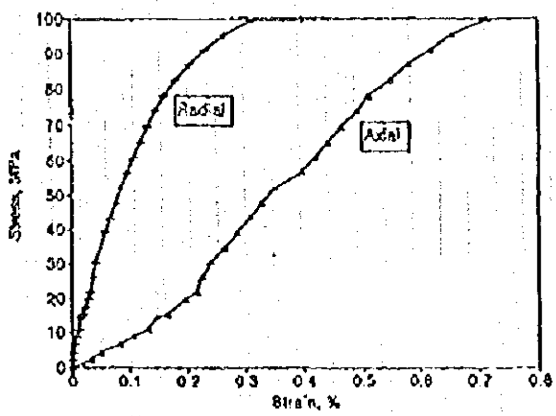
ASIAN INSTITUTE OF TECHNOLOGY
GEOTECHNICAL ENGINEERING LABORATORY

Uniaxial Compressive Strength

Geotechnical Investigation of Mekong Bridge at Pakse in Laos

Date : 17 Nove 1995

Sample Type	Sandstone
Sample No.	A-2
Diameter, cm	5.42
Length/Diameter	2
Uniaxial Compressive Strength, MPa	101.42
Axial Stain at 50% of Failure Stress, %	0.35
Radial Strain at 50% of Failure Stress, %	0.09
Tangent Modulus at 50% of Failure Stress, GPa	19.79
Secant Modulus at 50% of Failure Stress, GPa	15.08
Poisson's Ratio at 50% of Failure Stress	0.28
Water Content at Test Condition, %	0.91



Tested and Forwarded By

Indra Jworchan
Laboratory Supervisor

Approved By

Dr. Noppadol Phienwej
Laboratory Coordinator

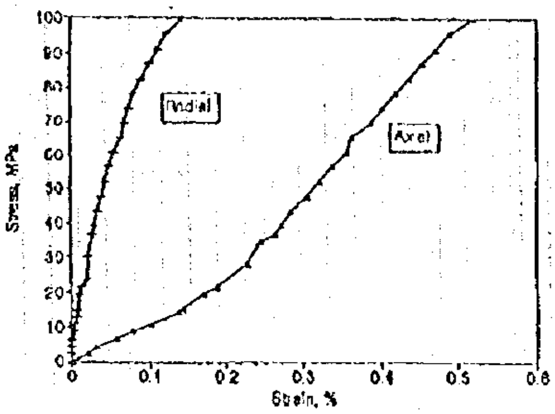
ASIAN INSTITUTE OF TECHNOLOGY
GEOTECHNICAL ENGINEERING LABORATORY

Uniaxial Compressive Strength

Geotechnical Investigation of Mekong Bridge at Pakse in Laos

Date : 17 Nov 1995

Sample Type	Sandstone
Sample No.	8-8
Diameter, cm	5.42
Length/Diameter	2.13
Uniaxial Compressive Strength, MPa	99.69
Axial Stain at 50% of Failure Stress, %	0.31
Radial Strain at 50% of Failure Stress, %	0.04
Tangent Modulus at 50% of Failure Stress, GPa	25.85
Secant Modulus at 50% of Failure Stress, GPa	16.03
Poisson's Ratio at 50% of Failure Stress	0.13
Water Content at Test Condition, %	0.77



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GEOTECHNICAL ENGINEERING LABORATORY

UNIAXIAL COMPRESSIVE STRENGTH

Geotechnical Investigation of Mekong Bridge at Pakse in Laos

Date : 20 Dec 199

Sample No.	A-3-4	B-4-2	B-5-2
Sample Type	Sandstone	Mudstone	Mudstone
Diameter, cm	5.44	5.44	5.36
Length/Diameter	2.14	2.02	2.17
Total Unit Weight, kN/m3	25.72	25.76	28.24
Uniaxial Compressive Strength, MPa	55.07	43.02	34.57
Water Content at Test Condition, %	0.97	1.22	2.21

Tested By : Sangwan Y.

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SCHOOL OF CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING LABORATORY

UNIAXIAL COMPRESSIVE STRENGTH

Geotechnical Investigation of Mekong Bridge at Pakse in Laos

Date : 20 Dec 1995

Sample No.	A-7-2	C-1-1	C-2-2	C-6-2	C-7-1
Sample Type	Sandston	Sandston	Sandston	Siltstone	Mudstone
Diameter, cm	5.38	5.43	5.41	5.38	5.42
Length/Diameter	2.27	2.23	2.17	2.26	2.17
Total Unit Weight, kN/m3	24.54	25.67	25.01	24.54	25.37
Uniaxial Compressive Strength, MP	58.07	48.80	60.03	24.63	57.22
Water Content at Test Condition, %	1.65	0.08	0.45	1.87	1.64

Tested By : Sangwan Y.

Forwarded By

Indra Jworchan
Laboratory Supervisor

Approved By

Dr Dennis Bergado
Laboratory Coordinator

TABLE A.5-1 PRESENT OD TABLE BY VEHICLE TYPE (1/2)

M/C

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	44	31	6	148	1	1	0	1	14	0	0	1	0	56	0	0	303
2	34	0	4	1	2	0	0	0	0	2	0	0	1	0	0	0	0	44
3	7	1	0	2	1	0	0	0	0	1	0	0	0	0	5	0	0	17
4	3	1	5	0	0	0	0	0	0	1	0	1	1	0	0	0	0	12
5	140	3	3	1	85	7	4	1	0	2	0	0	0	0	86	0	0	332
6	1	0	0	0	3	0	12	1	0	0	0	0	0	0	0	0	0	17
7	0	0	0	0	1	7	0	3	0	0	0	0	0	0	0	0	0	11
8	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
9	1	1	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	7
10	6	1	2	1	1	0	0	0	2	0	0	0	0	0	2	0	0	15
11	1	0	1	1	0	0	0	0	0	1	0	3	1	0	0	0	0	8
12	0	0	1	2	0	0	0	0	0	0	1	0	2	0	3	0	0	9
13	12	16	27	30	5	2	2	1	2	6	5	49	0	0	1	0	0	158
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	54	0	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	127
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	259	67	75	44	319	17	21	6	5	31	6	53	6	0	153	0	0	1,062

Light

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	30	13	3	9	1	0	0	1	8	0	0	2	0	42	0	0	109
2	30	0	2	1	1	0	0	0	0	2	0	0	2	0	0	0	0	38
3	12	2	0	3	1	0	0	0	0	1	0	0	2	0	4	0	0	25
4	3	1	3	0	1	0	0	0	0	1	1	1	3	0	0	0	0	14
5	2	2	1	1	63	5	2	0	0	1	0	0	1	0	64	0	0	142
6	1	0	0	0	2	0	8	1	0	0	0	0	0	0	0	0	0	12
7	0	0	0	0	1	8	0	2	0	0	0	0	0	0	0	0	0	11
8	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
9	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3
10	8	2	1	1	1	0	0	0	2	0	1	0	1	0	1	0	0	18
11	0	0	0	1	0	0	0	0	0	1	0	2	1	0	0	0	0	5
12	0	0	0	1	0	0	0	0	0	0	2	0	8	0	2	0	0	13
13	2	3	3	4	1	0	0	0	1	1	2	10	0	0	1	0	0	28
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	40	0	0	0	55	0	0	0	0	0	0	0	0	0	0	0	0	95
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	99	40	23	15	135	15	12	3	4	17	6	13	20	0	114	0	0	516

Bus

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	5	2	1	0	0	0	0	0	2	0	0	1	0	8	0	0	19
2	5	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	8
3	2	1	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	6
4	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
5	0	0	0	0	12	1	1	0	0	0	0	0	0	0	12	0	0	26
6	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3
7	0	0	0	0	1	2	0	1	0	0	0	0	0	0	0	0	0	4
8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
10	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4
11	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	4
13	1	1	1	1	1	0	0	0	0	0	1	3	0	0	0	0	0	9
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	8	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	18
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	8	5	3	25	3	4	1	1	4	2	4	8	0	21	0	0	108

TABLE A.5-1 PRESENT OD TABLE BY VEHICLE TYPE (2/2)

Truck

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	5	2	1	31	0	0	0	0	2	0	0	1	0	19	0	0	61
2	5	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	9
3	2	0	0	1	0	0	0	0	0	0	0	0	1	0	2	0	0	6
4	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
5	30	1	0	0	28	2	1	0	0	0	0	0	1	0	28	0	0	91
6	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3
7	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
10	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	4
11	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	0	1	0	3	0	1	0	0	5
13	1	1	1	2	1	0	0	0	0	1	1	4	0	0	0	0	0	12
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	18	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	42
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	59	7	5	4	87	3	3	0	1	5	2	5	9	0	51	0	0	241

All Vehicle

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	84	48	11	188	2	1	0	2	26	0	0	5	0	125	0	0	492
2	74	0	8	2	4	0	0	0	0	6	0	0	5	0	0	0	0	99
3	23	4	0	7	2	0	0	0	0	2	0	0	4	0	12	0	0	54
4	8	2	10	0	1	0	0	0	0	2	1	2	6	0	0	0	0	32
5	172	6	4	2	188	15	8	1	0	3	0	0	2	0	190	0	0	591
6	2	0	0	0	7	0	24	2	0	0	0	0	0	0	0	0	0	35
7	0	0	0	0	4	18	0	6	0	0	0	0	0	0	0	0	0	28
8	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	6
9	2	1	1	0	0	0	0	0	0	8	0	0	0	0	0	0	0	12
10	18	4	3	2	2	0	0	0	6	0	1	0	1	0	4	0	0	41
11	1	0	1	2	0	0	0	0	0	2	0	7	4	0	0	0	0	17
12	0	0	1	3	0	0	0	0	0	0	5	0	16	0	6	0	0	31
13	16	21	32	37	8	2	2	1	3	8	9	66	0	0	2	0	0	207
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	120	0	0	0	162	0	0	0	0	0	0	0	0	0	0	0	0	282
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	436	122	108	66	566	38	40	10	11	57	16	75	43	0	339	0	0	1,927

TABLE A.5-2 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE A (1/6) - YEAR 2000 -

M/C

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	77	46	10	321	2	1	0	2	20	0	0	25	0	71	0	0	576
2	66	0	6	1	4	0	0	0	0	3	0	0	24	0	1	0	0	107
3	43	6	0	11	6	0	0	0	0	4	0	0	0	0	19	0	0	91
4	8	2	9	0	3	0	0	0	0	2	0	2	29	0	1	0	0	56
5	333	5	4	1	173	8	4	1	0	3	0	0	1	0	110	0	0	644
6	2	1	1	0	10	0	17	1	0	0	0	0	0	0	0	0	0	33
7	2	1	0	0	3	21	0	5	0	0	0	0	0	0	0	0	0	34
8	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	10
9	2	1	1	0	1	0	0	0	0	7	0	0	0	0	0	0	0	13
10	22	3	4	2	3	0	0	0	7	0	0	0	0	0	3	0	0	45
11	1	0	1	1	1	0	0	0	0	1	0	2	5	0	0	0	0	12
12	0	0	1	3	1	0	0	0	0	0	2	0	37	0	4	0	0	49
13	10	10	17	22	3	2	1	1	2	4	9	41	0	0	1	0	0	123
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	91	1	1	0	117	0	0	0	0	0	0	0	0	0	0	0	0	211
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	581	107	91	52	648	35	33	9	12	45	11	46	122	0	211	0	0	2,003

Light

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	57	29	6	29	2	0	0	2	17	0	0	4	0	67	0	0	213
2	59	0	4	2	3	0	0	0	0	4	0	0	4	0	0	0	0	76
3	25	4	0	6	2	0	0	0	0	2	0	0	4	0	5	0	0	49
4	6	2	6	0	2	0	0	0	0	2	2	2	5	0	0	0	0	27
5	6	5	2	2	145	7	4	0	0	2	0	0	2	0	84	0	0	260
6	2	0	0	0	4	0	16	2	0	0	0	0	0	0	0	0	0	24
7	0	0	0	0	2	15	0	4	0	0	0	0	0	0	0	0	0	21
8	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	6
9	3	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	7
10	17	4	2	2	2	0	0	0	3	0	1	0	2	0	1	0	0	35
11	0	0	0	2	0	0	0	0	0	2	0	4	2	0	0	0	0	10
12	0	0	0	2	0	0	0	0	0	0	3	0	12	0	3	0	0	20
13	3	4	5	5	1	0	0	0	1	1	2	14	0	0	1	0	0	37
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	85	0	0	0	76	0	0	0	0	0	0	0	0	0	0	0	0	162
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	207	76	49	27	267	26	24	6	6	34	8	20	35	0	162	0	0	948

Bus

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	8	3	2	0	0	0	0	0	3	0	0	2	0	12	0	0	30
2	7	0	2	0	0	0	0	0	0	1	0	0	2	0	0	0	0	12
3	3	1	0	2	0	0	0	0	0	0	0	0	2	0	1	0	0	9
4	2	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
5	0	0	0	0	17	2	1	0	0	0	0	0	0	0	17	0	0	37
6	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	5
7	0	0	0	0	1	3	0	2	0	0	0	0	0	0	0	0	0	6
8	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
9	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
10	3	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	6
11	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	6
13	1	1	2	2	1	0	0	0	0	0	2	5	0	0	0	0	0	14
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	30
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	11	9	6	37	5	6	2	2	6	3	6	14	0	30	0	0	169

TABLE A.5-2 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE A (2/6) - YEAR 2000 -

Truck

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	8	4	1	55	0	0	0	0	3	0	0	2	0	28	0	0	101
2	6	0	2	0	1	0	0	0	0	1	0	0	2	0	0	0	0	12
3	3	0	0	1	0	0	0	0	0	0	0	0	2	0	3	0	0	9
4	2	0	2	0	0	0	0	0	0	0	0	0	2	0	54	0	0	60
5	54	2	0	0	39	3	1	0	0	0	0	0	2	0	37	0	0	139
6	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	5
7	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
10	3	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	7
11	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	2	0	5	0	1	0	0	8
13	1	2	2	3	1	0	0	0	0	1	1	6	0	0	0	0	0	17
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	32	0	0	54	39	0	0	0	0	0	0	0	0	0	0	0	14	139
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14
Total	101	12	10	59	140	5	4	0	2	7	3	8	16	0	139	0	14	521

All Vehicle

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	150	82	19	406	4	1	0	4	43	0	0	33	0	177	0	0	920
2	138	0	14	3	8	1	1	0	0	9	0	0	32	0	1	0	0	207
3	74	11	0	20	9	0	0	0	0	6	0	0	8	0	29	0	0	158
4	18	4	19	0	6	0	0	0	0	4	2	4	37	0	55	0	0	149
5	393	13	7	3	374	20	10	1	0	6	0	1	5	0	248	0	0	1,081
6	4	1	1	0	18	0	39	3	0	0	0	0	0	0	0	0	0	67
7	2	1	1	0	8	41	0	11	0	0	0	0	0	0	0	0	0	65
8	1	0	0	0	0	2	14	0	0	0	0	0	0	0	0	0	0	18
9	5	1	1	0	1	0	0	0	0	15	0	0	0	0	0	0	0	24
10	45	8	6	4	6	0	0	0	14	0	1	0	2	0	6	0	0	93
11	1	0	1	3	1	0	0	0	0	3	0	9	10	0	0	0	0	28
12	0	0	1	5	1	0	0	0	0	0	8	0	59	0	8	0	0	83
13	15	17	26	32	6	2	1	1	3	6	14	66	0	0	2	0	0	192
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	223	1	1	54	248	0	0	0	0	0	0	0	0	0	0	0	14	542
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14
Total	919	207	159	145	1,092	71	67	17	22	93	25	80	187	0	542	0	14	3,640

TABLE A.5-2 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE A (3/6) - YEAR 2010 -

M/C

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	180	119	24	784	4	3	0	5	51	0	0	48	0	149	0	0	1,368
2	166	0	13	3	9	1	1	0	0	7	0	0	43	0	2	0	0	245
3	114	12	0	24	15	1	1	0	0	11	0	0	0	0	40	0	0	217
4	19	5	21	0	6	0	0	0	0	4	0	7	55	0	1	0	0	120
5	800	12	13	4	371	17	10	3	0	7	0	1	2	0	206	0	0	1,447
6	6	2	1	1	20	0	36	3	0	1	0	0	1	0	0	0	0	70
7	5	2	1	1	10	43	0	14	0	1	0	0	1	0	0	0	0	76
8	2	1	1	0	0	0	20	0	0	0	0	0	0	0	0	0	0	25
9	5	4	2	0	2	0	0	0	0	12	0	0	0	0	1	0	0	27
10	47	6	12	5	7	1	1	0	15	0	0	0	0	0	9	0	0	103
11	2	0	2	2	2	0	0	0	0	2	0	3	10	0	0	0	0	23
12	0	0	2	6	3	0	0	0	0	0	5	0	69	0	5	0	0	90
13	22	22	31	41	9	3	1	1	3	7	15	75	0	0	1	0	0	231
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	192	2	1	1	218	0	0	0	0	1	0	0	1	0	0	0	0	416
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,380	247	219	111	1,456	70	73	22	24	104	21	87	229	0	414	0	0	4,458

Light

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	138	76	15	81	5	0	0	5	42	0	0	9	0	138	0	0	509
2	142	0	7	4	5	0	0	0	0	7	0	0	6	0	0	0	0	171
3	68	7	0	13	6	0	0	0	0	5	0	0	7	0	9	0	0	115
4	17	3	12	0	5	0	0	0	0	4	3	4	11	0	0	0	0	59
5	22	12	6	5	348	14	9	0	0	6	0	0	4	0	161	0	0	586
6	7	0	0	0	9	0	31	5	0	0	0	0	0	0	0	0	0	52
7	0	0	0	0	6	31	0	11	0	0	0	0	0	0	0	0	0	48
8	0	0	0	0	0	4	11	0	0	0	0	0	0	0	0	0	0	15
9	5	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	14
10	42	7	5	4	5	0	0	0	7	0	3	0	3	0	3	0	0	79
11	0	0	0	4	0	0	0	0	0	3	0	7	3	0	0	0	0	17
12	0	0	0	4	0	0	0	0	0	0	5	0	24	0	4	0	0	37
13	7	6	8	9	3	0	0	0	2	3	4	24	0	0	2	0	0	68
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	184	0	0	0	135	0	0	0	0	0	0	0	0	0	0	0	0	319
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	494	173	114	58	603	54	51	16	14	79	15	35	67	0	317	0	0	2,091

Bus

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	13	7	3	0	0	0	0	0	5	0	0	3	0	24	0	0	56
2	12	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	21
3	4	3	0	3	0	0	0	0	0	0	0	0	3	0	3	0	0	16
4	2	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	8
5	0	0	0	0	27	2	3	0	0	0	0	0	0	0	32	0	0	64
6	0	0	0	0	2	0	5	0	0	0	0	0	0	0	0	0	0	7
7	0	0	0	0	3	5	0	3	0	0	0	0	0	0	0	0	0	11
8	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
9	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
10	5	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	11
11	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	6
12	0	0	0	0	0	0	0	0	0	0	3	0	9	0	0	0	0	12
13	3	2	3	2	2	0	0	0	0	0	3	9	0	0	0	0	0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	29	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	60
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	55	21	16	8	66	7	11	3	3	11	6	12	24	0	60	0	0	303

TABLE A.5-2 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE A (4/6) - YEAR 2010 -

Truck

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	15	6	2	98	0	0	0	0	5	0	0	3	0	57	0	0	186
2	11	0	3	0	2	0	0	0	0	2	0	0	3	0	0	0	0	21
3	6	0	0	2	0	0	0	0	0	0	0	0	3	0	5	0	0	16
4	3	0	3	0	0	0	0	0	0	0	0	0	3	0	191	0	0	200
5	94	4	0	0	64	4	2	0	0	0	0	0	3	0	71	0	0	242
6	0	0	0	0	2	0	5	0	0	0	0	0	0	0	0	0	0	7
7	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	7
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
10	6	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	12
11	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	6
12	0	0	0	0	0	0	0	0	0	0	3	0	9	0	3	0	0	15
13	2	3	3	5	2	0	0	0	0	2	3	10	0	0	0	0	0	30
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	66	0	0	191	72	0	0	0	0	0	0	0	0	0	0	0	29	358
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29
Total	188	22	15	200	245	7	7	0	3	12	6	13	27	0	360	0	29	1,134

All Vehicle

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	346	208	44	963	9	3	0	10	103	0	0	63	0	368	0	0	2,118
2	331	0	26	7	16	1	1	0	0	19	0	0	55	0	2	0	0	459
3	192	22	0	42	21	1	1	0	0	16	0	0	13	0	57	0	0	365
4	41	8	39	0	11	1	1	0	0	8	3	11	72	0	192	0	0	387
5	916	27	19	9	810	37	24	3	1	13	0	1	9	0	470	0	0	2,339
6	13	2	1	1	33	0	77	8	0	1	0	0	1	0	0	0	0	136
7	5	2	1	1	23	82	0	28	0	1	0	0	1	0	0	0	0	143
8	2	1	1	0	0	4	34	0	0	0	0	0	0	0	0	0	0	43
9	10	4	2	0	3	0	0	0	0	27	0	0	0	0	1	0	0	47
10	100	16	17	9	12	1	1	0	28	0	3	0	3	0	16	0	0	205
11	2	0	2	6	2	0	0	0	0	5	0	16	19	0	0	0	0	53
12	0	0	2	10	3	0	0	0	0	0	16	0	111	0	12	0	0	155
13	34	33	45	57	17	3	1	1	5	12	25	118	0	0	3	0	0	354
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	470	2	1	192	456	0	0	0	0	1	0	0	1	0	0	0	29	1,153
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29
Total	2,116	463	364	377	2,369	139	143	42	44	206	48	147	347	0	1,151	0	29	7,986

TABLE A.5-2 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE A (5/6) - YEAR 2020 -

M/C

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	316	218	44	1,308	6	5	1	9	91	0	0	85	0	310	0	0	2,394
2	286	0	23	6	14	1	1	0	0	11	0	0	70	0	4	0	0	418
3	201	20	0	42	24	1	1	0	0	19	0	0	0	0	80	0	0	389
4	34	8	38	0	10	1	1	0	0	7	0	9	89	0	2	0	0	199
5	1,341	19	18	5	560	29	13	5	1	12	0	1	3	0	389	0	0	2,396
6	11	3	2	1	35	0	56	6	0	1	0	0	1	0	0	0	0	116
7	8	3	2	1	15	72	0	25	0	1	0	0	1	0	0	0	0	127
8	4	1	1	0	0	0	37	0	0	0	0	0	1	0	0	0	0	45
9	7	6	5	0	4	0	0	0	0	21	0	0	0	0	1	0	0	45
10	84	9	19	11	13	1	1	0	24	0	0	0	0	0	15	0	0	177
11	3	0	3	2	2	0	0	0	0	2	0	5	17	0	1	0	0	36
12	0	0	5	8	4	0	0	0	0	0	11	0	106	0	11	0	0	146
13	35	33	55	65	11	3	3	1	6	12	21	125	0	0	2	0	0	372
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	400	3	2	1	408	0	0	0	0	1	0	1	1	0	0	0	0	817
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,414	420	390	186	2,409	115	119	39	41	178	33	142	373	0	815	0	0	7,675

Light

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	236	137	28	121	7	0	0	7	75	0	0	15	0	262	0	0	888
2	242	0	13	6	9	0	0	0	0	12	0	0	10	0	0	0	0	292
3	121	12	0	22	10	0	0	0	0	8	0	0	11	0	22	0	0	205
4	27	7	22	0	8	0	0	0	0	7	4	7	16	0	0	0	0	98
5	35	17	11	9	525	22	14	0	0	9	0	0	6	0	322	0	0	970
6	11	0	0	0	16	0	50	9	0	0	0	0	0	0	0	0	0	87
7	0	0	0	0	8	52	0	19	0	0	0	0	0	0	0	0	0	80
8	0	0	0	0	0	8	19	0	0	0	0	0	0	0	0	0	0	27
9	9	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	23
10	72	12	8	7	8	0	0	0	12	0	5	0	6	0	5	0	0	136
11	0	0	0	5	0	0	0	0	0	5	0	11	5	0	0	0	0	26
12	0	0	0	6	0	0	0	0	0	0	9	0	38	0	7	0	0	60
13	11	10	13	14	4	0	0	0	4	5	6	40	0	0	3	0	0	111
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	339	0	0	0	285	0	0	0	0	0	0	0	0	0	0	0	0	625
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	868	294	204	97	995	89	84	28	23	136	24	58	108	0	621	0	0	3,630

Bus

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	17	9	3	0	0	0	0	0	7	0	0	4	0	44	0	0	84
2	15	0	6	0	0	0	0	0	0	5	0	0	6	0	0	0	0	32
3	5	4	0	4	0	0	0	0	0	0	0	0	5	0	6	0	0	25
4	2	0	5	0	0	0	0	0	0	0	0	0	4	0	0	0	0	11
5	0	0	0	0	22	3	3	0	0	0	0	0	0	0	64	0	0	93
6	0	0	0	0	4	0	7	0	0	0	0	0	0	0	0	0	0	11
7	0	0	0	0	3	8	0	5	0	0	0	0	0	0	0	0	0	16
8	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
9	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
10	7	5	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	16
11	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	0	9
12	0	0	0	0	0	0	0	0	0	0	4	0	14	0	0	0	0	18
13	3	5	5	4	3	0	0	0	0	0	5	14	0	0	0	0	0	39
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	54	0	0	0	61	0	0	0	0	0	0	0	0	0	0	0	0	115
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	86	31	25	11	94	11	15	5	4	16	9	18	38	0	115	0	0	479

TABLE A.5-2 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE A (6/6) - YEAR 2020 -

Truck

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	24	10	3	119	0	0	0	0	7	0	0	5	0	114	0	0	283
2	16	0	4	0	4	0	0	0	0	3	0	0	6	0	0	0	0	33
3	7	0	0	3	0	0	0	0	0	0	0	0	5	0	12	0	0	27
4	3	0	5	0	0	0	0	0	0	0	0	0	5	0	230	0	0	243
5	118	5	0	0	75	6	3	0	0	0	0	0	4	0	136	0	0	347
6	0	0	0	0	4	0	7	0	0	0	0	0	0	0	0	0	0	11
7	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	10
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
10	9	0	0	0	0	0	0	0	4	0	0	0	0	0	6	0	0	20
11	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	0	9
12	0	0	0	0	0	0	0	0	0	0	4	0	15	0	5	0	0	24
13	4	4	5	7	4	0	0	0	0	4	4	18	0	0	0	0	0	50
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	130	0	0	230	140	0	0	0	0	0	0	0	0	0	0	0	45	546
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	45
Total	287	33	24	243	352	11	10	0	4	18	8	22	45	0	549	0	45	1,653

All Vehicle

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	593	374	78	1,549	13	6	1	16	180	0	0	109	0	730	0	0	3,649
2	559	0	46	12	27	2	2	1	0	31	0	0	92	0	4	0	0	775
3	334	36	0	71	34	1	1	0	0	27	0	0	21	0	119	0	0	645
4	66	15	70	0	18	1	1	0	0	14	4	16	114	0	232	0	0	551
5	1,494	40	29	15	1,182	60	33	5	1	21	1	1	13	0	911	0	0	3,806
6	23	3	2	1	59	0	120	15	0	1	0	0	1	0	0	0	0	225
7	8	3	2	1	31	137	0	49	0	1	0	0	1	0	0	0	0	233
8	4	1	1	1	0	8	61	0	0	1	0	0	1	0	0	0	0	77
9	16	6	5	0	4	0	0	0	0	43	0	0	0	0	1	0	0	76
10	172	26	27	18	21	1	1	0	44	0	5	0	6	0	27	0	0	348
11	3	0	3	7	3	0	0	0	0	7	0	24	32	0	1	0	0	80
12	0	0	5	14	4	0	0	0	0	0	28	0	173	0	24	0	0	249
13	53	52	78	90	23	3	3	1	10	21	36	197	0	0	5	0	0	573
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	923	3	2	231	894	0	0	0	0	1	0	1	1	0	0	0	45	2,103
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	45
Total	3,655	778	644	538	3,849	227	228	73	72	348	74	240	564	0	2,100	0	45	13,436

TABLE A.5-3 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE B (1/6) - YEAR 2000 -

M/C

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	77	46	10	317	2	1	0	2	20	0	0	25	0	71	0	0	571
2	66	0	6	1	4	0	0	0	0	3	0	0	24	0	1	0	0	106
3	43	6	0	11	6	0	0	0	0	4	0	0	0	0	19	0	0	91
4	8	2	9	0	4	0	0	0	0	2	0	2	29	0	1	0	0	57
5	328	5	4	1	173	8	4	1	0	3	0	0	1	0	110	0	0	640
6	2	1	1	0	10	0	17	1	0	0	0	0	0	0	0	0	0	32
7	2	1	1	0	3	21	0	5	0	0	0	0	0	0	0	0	0	33
8	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	10
9	2	1	1	0	1	0	0	0	0	7	0	0	0	0	0	0	0	13
10	22	3	4	2	3	0	0	0	7	0	0	0	0	0	3	0	0	45
11	1	0	1	1	1	0	0	0	0	1	0	2	5	0	0	0	0	12
12	0	0	1	3	1	0	0	0	0	0	2	0	37	0	4	0	0	49
13	10	10	17	22	3	2	1	1	2	4	9	41	0	0	1	0	0	123
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	91	1	1	0	117	0	0	0	0	0	0	0	0	0	0	0	0	211
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	576	106	91	52	644	35	33	9	12	45	11	46	122	0	210	0	0	1,994

Light

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	57	29	6	29	2	0	0	2	17	0	0	4	0	67	0	0	213
2	59	0	4	2	3	0	0	0	0	4	0	0	4	0	0	0	0	76
3	25	4	0	6	2	0	0	0	0	2	0	0	4	0	5	0	0	49
4	6	2	6	0	2	0	0	0	0	2	2	2	5	0	0	0	0	27
5	6	5	2	2	145	7	4	0	0	2	0	0	2	0	84	0	0	260
6	2	0	0	0	4	0	16	2	0	0	0	0	0	0	0	0	0	24
7	0	0	0	0	2	15	0	4	0	0	0	0	0	0	0	0	0	21
8	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	6
9	3	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	7
10	17	4	2	2	2	0	0	0	3	0	1	0	2	0	1	0	0	35
11	0	0	0	2	0	0	0	0	0	2	0	4	2	0	0	0	0	10
12	0	0	0	2	0	0	0	0	0	0	3	0	12	0	3	0	0	20
13	3	4	5	5	1	0	0	0	1	1	2	14	0	0	1	0	0	37
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	85	0	0	0	76	0	0	0	0	0	0	0	0	0	0	0	0	162
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	207	76	49	27	267	26	24	6	6	34	8	20	35	0	162	0	0	948

Bus

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	8	3	2	0	0	0	0	0	3	0	0	2	0	12	0	0	30
2	7	0	2	0	0	0	0	0	0	1	0	0	2	0	0	0	0	12
3	3	1	0	2	0	0	0	0	0	0	0	0	2	0	1	0	0	9
4	2	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
5	0	0	0	0	17	2	1	0	0	0	0	0	0	0	17	0	0	37
6	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	5
7	0	0	0	0	1	3	0	2	0	0	0	0	0	0	0	0	0	6
8	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
9	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
10	3	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	6
11	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	6
13	1	1	2	2	1	0	0	0	0	0	2	5	0	0	0	0	0	14
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	30
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	11	9	6	37	5	6	2	2	6	3	6	14	0	30	0	0	169

TABLE A.5-3 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE B (2/6) - YEAR 2000 -

Truck

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	8	4	1	55	0	0	0	0	3	0	0	2	0	28	0	0	101
2	6	0	2	0	1	0	0	0	0	1	0	0	2	0	0	0	0	12
3	3	0	0	1	0	0	0	0	0	0	0	0	2	0	3	0	0	9
4	2	0	2	0	0	0	0	0	0	0	0	0	2	0	54	0	0	60
5	54	2	0	0	39	3	1	0	0	0	0	0	2	0	37	0	0	139
6	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	5
7	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
10	3	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	7
11	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	2	0	5	0	1	0	0	8
13	1	2	2	3	1	0	0	0	0	1	1	6	0	0	0	0	0	17
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	32	0	0	54	39	0	0	0	0	0	0	0	0	0	0	0	14	139
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14
Total	101	12	10	59	140	5	4	0	2	7	3	8	16	0	139	0	14	521

All Vehicle

O D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	150	82	19	401	4	1	0	4	43	0	0	33	0	177	0	0	915
2	138	0	14	3	8	0	0	0	0	9	0	0	32	0	1	0	0	206
3	74	11	0	20	9	0	0	0	0	6	0	0	8	0	29	0	0	158
4	18	4	19	0	6	0	0	0	0	4	2	4	37	0	55	0	0	149
5	388	13	7	3	374	20	10	1	0	6	0	1	5	0	248	0	0	1,076
6	4	1	1	0	18	0	39	3	0	0	0	0	0	0	0	0	0	67
7	2	1	1	0	8	41	0	11	0	0	0	0	0	0	0	0	0	65
8	1	0	0	0	0	2	14	0	0	0	0	0	0	0	0	0	0	18
9	5	1	1	0	1	0	0	0	0	15	0	0	0	0	0	0	0	24
10	45	8	6	4	6	0	0	0	14	0	1	0	2	0	6	0	0	93
11	1	0	1	3	1	0	0	0	0	3	0	9	10	0	0	0	0	28
12	0	0	1	5	2	0	0	0	0	0	8	0	59	0	8	0	0	83
13	15	17	26	32	6	2	1	1	3	6	14	66	0	0	2	0	0	192
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	223	1	1	54	248	0	0	0	0	0	0	0	0	0	0	0	14	542
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14
Total	914	206	159	145	1,088	71	67	17	22	93	26	80	188	0	541	0	14	3,631

TABLE A.5-3 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE B (3/6) - YEAR 2010 -

M/C

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	180	119	24	773	4	3	0	5	51	0	0	48	0	149	0	0	1,357
2	166	0	13	3	8	1	1	0	0	7	0	0	43	0	2	0	0	244
3	114	12	0	24	15	1	1	0	0	11	0	0	0	0	40	0	0	218
4	19	5	21	0	7	1	1	0	0	4	0	7	55	0	1	0	0	121
5	789	12	13	4	371	17	10	3	0	7	0	1	2	0	206	0	0	1,436
6	6	1	1	1	20	0	36	3	0	1	0	0	1	0	0	0	0	70
7	4	1	1	1	10	43	0	14	0	1	0	0	1	0	0	0	0	76
8	2	1	1	0	0	0	20	0	0	0	0	0	0	0	0	0	0	24
9	5	4	2	0	3	0	0	0	0	12	0	0	0	0	1	0	0	27
10	47	6	12	5	7	1	1	0	15	0	0	0	0	0	9	0	0	103
11	2	0	2	2	2	0	0	0	0	2	0	3	10	0	0	0	0	24
12	0	0	2	6	3	0	0	0	0	0	5	0	69	0	5	0	0	91
13	22	22	31	41	9	3	1	1	3	7	15	75	0	0	1	0	0	231
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	192	1	1	1	218	0	0	0	0	1	0	0	1	0	0	0	0	415
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,368	245	219	111	1,447	70	73	22	24	104	21	87	229	0	414	0	0	4,435

Light

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	138	76	15	81	5	0	0	5	42	0	0	9	0	138	0	0	509
2	142	0	7	4	5	0	0	0	0	7	0	0	6	0	0	0	0	171
3	68	7	0	13	6	0	0	0	0	5	0	0	7	0	9	0	0	115
4	17	3	12	0	5	0	0	0	0	4	3	4	11	0	0	0	0	59
5	22	12	6	5	348	14	9	0	0	6	0	0	4	0	161	0	0	586
6	7	0	0	0	9	0	31	5	0	0	0	0	0	0	0	0	0	52
7	0	0	0	0	6	31	0	11	0	0	0	0	0	0	0	0	0	48
8	0	0	0	0	0	4	11	0	0	0	0	0	0	0	0	0	0	15
9	5	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	14
10	42	7	5	4	5	0	0	0	7	0	3	0	3	0	3	0	0	79
11	0	0	0	4	0	0	0	0	0	3	0	7	3	0	0	0	0	17
12	0	0	0	4	0	0	0	0	0	0	5	0	24	0	4	0	0	37
13	7	6	8	9	3	0	0	0	2	3	4	24	0	0	2	0	0	68
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	184	0	0	0	135	0	0	0	0	0	0	0	0	0	0	0	0	319
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	494	173	114	58	603	54	51	16	14	79	15	35	67	0	317	0	0	2,091

Bus

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	13	7	3	0	0	0	0	0	5	0	0	3	0	24	0	0	56
2	12	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	21
3	4	3	0	3	0	0	0	0	0	0	0	0	3	0	3	0	0	16
4	2	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	8
5	0	0	0	0	27	2	3	0	0	0	0	0	0	0	32	0	0	64
6	0	0	0	0	2	0	5	0	0	0	0	0	0	0	0	0	0	7
7	0	0	0	0	3	5	0	3	0	0	0	0	0	0	0	0	0	11
8	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
9	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
10	5	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	11
11	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	6
12	0	0	0	0	0	0	0	0	0	0	3	0	9	0	0	0	0	12
13	3	2	3	2	2	0	0	0	0	0	3	9	0	0	0	0	0	24
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	29	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	60
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	55	21	16	8	66	7	11	3	3	11	6	12	24	0	60	0	0	303

TABLE A.5-3 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE B (4/6) - YEAR 2010 -

Truck

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	15	6	2	98	0	0	0	0	5	0	0	3	0	57	0	0	186
2	11	0	3	0	2	0	0	0	0	2	0	0	3	0	0	0	0	21
3	6	0	0	2	0	0	0	0	0	0	0	0	3	0	5	0	0	16
4	3	0	3	0	0	0	0	0	0	0	0	0	3	0	191	0	0	200
5	94	4	0	0	64	4	2	0	0	0	0	0	3	0	71	0	0	242
6	0	0	0	0	2	0	5	0	0	0	0	0	0	0	0	0	0	7
7	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	7
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
10	6	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	12
11	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	6
12	0	0	0	0	0	0	0	0	0	0	3	0	9	0	3	0	0	15
13	2	3	3	5	2	0	0	0	0	2	3	10	0	0	0	0	0	30
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	66	0	0	191	72	0	0	0	0	0	0	0	0	0	0	0	29	358
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29
Total	188	22	15	200	245	7	7	0	3	12	6	13	27	0	360	0	29	1,134

All Vehicle

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	346	208	44	952	9	3	0	10	103	0	0	63	0	368	0	0	2,107
2	331	0	26	7	16	1	1	0	0	19	0	0	55	0	2	0	0	458
3	192	22	0	42	21	1	1	0	0	16	0	0	13	0	57	0	0	365
4	41	8	39	0	12	1	1	0	0	8	3	11	72	0	192	0	0	388
5	905	27	19	9	810	37	24	3	1	13	0	1	9	0	470	0	0	2,328
6	13	1	1	1	33	0	77	8	0	1	0	0	1	0	0	0	0	136
7	5	1	1	1	23	82	0	28	0	1	0	0	1	0	0	0	0	143
8	2	1	1	0	0	4	34	0	0	0	0	0	0	0	0	0	0	43
9	10	4	2	0	3	0	0	0	0	27	0	0	0	0	1	0	0	47
10	100	16	17	9	12	1	1	0	28	0	3	0	3	0	16	0	0	205
11	2	0	2	6	2	0	0	0	0	5	0	16	19	0	1	0	0	53
12	0	0	2	10	3	0	0	0	0	0	16	0	111	0	12	0	0	155
13	34	33	45	57	17	3	1	1	5	12	25	118	0	0	3	0	0	354
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	470	1	1	192	456	0	0	0	0	1	0	0	1	0	0	0	29	1,152
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	29
Total	2,105	460	365	377	2,360	138	143	42	44	206	48	147	348	0	1,151	0	29	7,964

TABLE A.5-3 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE B (5/6) - YEAR 2020 -

M/C

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	316	218	44	1,290	6	5	1	9	91	0	0	85	0	310	0	0	2,375
2	286	0	23	6	14	1	1	0	0	11	0	0	70	0	3	0	0	415
3	201	20	0	42	25	1	1	0	0	19	0	0	0	0	80	0	0	389
4	34	8	38	0	11	1	1	0	0	7	0	9	89	0	2	0	0	200
5	1,323	18	18	5	560	29	13	5	1	12	0	1	3	0	389	0	0	2,377
6	11	2	2	1	35	0	56	6	0	1	0	0	1	0	0	0	0	116
7	7	2	2	1	15	72	0	25	0	1	0	0	1	0	0	0	0	127
8	3	1	1	1	0	0	37	0	0	1	0	0	1	0	0	0	0	44
9	7	6	5	0	4	0	0	0	0	21	0	0	0	0	1	0	0	45
10	84	9	19	11	13	1	1	0	24	0	0	0	0	0	15	0	0	177
11	3	0	3	2	3	0	0	0	0	2	0	5	17	0	1	0	0	36
12	0	0	5	8	5	0	0	0	0	0	11	0	106	0	11	0	0	147
13	35	33	55	65	11	3	3	1	6	12	21	125	0	0	2	0	0	372
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	399	2	2	1	408	0	0	0	0	1	0	1	1	0	0	0	0	816
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,394	416	391	187	2,393	115	119	39	41	179	33	142	374	0	814	0	0	7,638

Light

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	236	137	28	121	7	0	0	7	75	0	0	15	0	262	0	0	888
2	242	0	13	6	9	0	0	0	0	12	0	0	10	0	0	0	0	292
3	121	12	0	22	10	0	0	0	0	8	0	0	11	0	22	0	0	205
4	27	7	22	0	8	0	0	0	0	7	4	7	16	0	0	0	0	98
5	35	17	11	9	525	22	14	0	0	9	0	0	6	0	322	0	0	970
6	11	0	0	0	16	0	50	9	0	0	0	0	0	0	0	0	0	87
7	0	0	0	0	8	52	0	19	0	0	0	0	0	0	0	0	0	80
8	0	0	0	0	0	8	19	0	0	0	0	0	0	0	0	0	0	27
9	9	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	23
10	72	12	8	7	8	0	0	0	12	0	5	0	6	0	5	0	0	136
11	0	0	0	5	0	0	0	0	0	5	0	11	5	0	0	0	0	26
12	0	0	0	6	0	0	0	0	0	0	9	0	38	0	7	0	0	60
13	11	10	13	14	4	0	0	0	4	5	6	40	0	0	3	0	0	111
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	339	0	0	0	285	0	0	0	0	0	0	0	0	0	0	0	0	625
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	868	294	204	97	995	89	84	28	23	136	24	58	108	0	621	0	0	3,630

Bus

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	17	9	3	0	0	0	0	0	7	0	0	4	0	44	0	0	84
2	15	0	6	0	0	0	0	0	0	5	0	0	6	0	0	0	0	32
3	5	4	0	4	0	0	0	0	0	0	0	0	5	0	6	0	0	25
4	2	0	5	0	0	0	0	0	0	0	0	0	4	0	0	0	0	11
5	0	0	0	0	22	3	3	0	0	0	0	0	0	0	64	0	0	93
6	0	0	0	0	4	0	7	0	0	0	0	0	0	0	0	0	0	11
7	0	0	0	0	3	8	0	5	0	0	0	0	0	0	0	0	0	16
8	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
9	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
10	7	5	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	16
11	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	0	9
12	0	0	0	0	0	0	0	0	0	0	4	0	14	0	0	0	0	18
13	3	5	5	4	3	0	0	0	0	0	5	14	0	0	0	0	0	39
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	54	0	0	0	61	0	0	0	0	0	0	0	0	0	0	0	0	115
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	86	31	25	11	94	11	15	5	4	16	9	18	38	0	115	0	0	479

TABLE A.5-3 FUTURE OD TABLE BY VEHICLE TYPE: ROUTE B (6/6) - YEAR 2020 -

Truck

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	24	10	3	119	0	0	0	0	7	0	0	5	0	114	0	0	283
2	16	0	4	0	4	0	0	0	0	3	0	0	6	0	0	0	0	33
3	7	0	0	3	0	0	0	0	0	0	0	0	5	0	12	0	0	27
4	3	0	5	0	0	0	0	0	0	0	0	0	5	0	230	0	0	243
5	118	5	0	0	75	6	3	0	0	0	0	0	4	0	136	0	0	347
6	0	0	0	0	4	0	7	0	0	0	0	0	0	0	0	0	0	11
7	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	10
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
10	9	0	0	0	0	0	0	0	4	0	0	0	0	0	6	0	0	20
11	0	0	0	0	0	0	0	0	0	0	0	4	5	0	0	0	0	9
12	0	0	0	0	0	0	0	0	0	0	4	0	15	0	5	0	0	24
13	4	4	5	7	4	0	0	0	0	4	4	18	0	0	0	0	0	50
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	130	0	0	230	140	0	0	0	0	0	0	0	0	0	0	0	45	546
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	45
Total	287	33	24	243	352	11	10	0	4	18	8	22	45	0	549	0	45	1,653

All Vehicle

O \ D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	593	374	78	1,531	13	6	1	16	180	0	0	109	0	730	0	0	3,630
2	559	0	46	12	26	1	1	0	0	31	0	0	92	0	3	0	0	772
3	334	36	0	71	35	1	1	0	0	27	0	0	21	0	119	0	0	646
4	66	15	70	0	19	1	1	0	0	14	4	16	114	0	232	0	0	553
5	1,475	39	29	15	1,182	60	33	5	1	21	1	2	14	0	911	0	0	3,788
6	23	2	2	1	59	0	120	15	0	1	0	1	1	0	0	0	0	225
7	7	2	2	1	31	137	0	49	0	1	0	1	1	0	0	0	0	233
8	3	1	1	1	0	8	61	0	0	1	0	0	1	0	0	0	0	77
9	16	6	5	0	5	0	0	0	0	43	0	0	0	0	1	0	0	77
10	172	26	27	18	21	1	1	0	44	0	5	0	6	0	27	0	0	349
11	3	0	3	7	3	0	0	0	0	7	0	24	32	0	1	0	0	80
12	0	0	5	14	5	0	0	0	0	0	28	0	173	0	24	0	0	249
13	53	52	78	90	23	3	3	1	10	21	36	197	0	0	5	0	0	573
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	923	2	3	231	894	0	0	0	0	1	0	1	1	0	0	0	45	2,102
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	45
Total	3,635	775	645	539	3,834	227	228	73	72	349	74	241	565	0	2,099	0	45	13,399