

資料編

〔資料〕

1. 調査団員氏名・所属
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資料編1 調査団員氏名、所属

スリ・ランカ国中小橋梁改修計画基本設計調査

1-1 本格調査時

氏名	担当	所属
1 中村三樹男	総括	国際協力事業団無償資金協力業務部
2 中村秀規	計画管理	国際協力事業団無償資金協力調査部
3 柳田和朗	業務主任／道路交通計画	(株)オリエンタルコンサルタンツ
4 横溝幸雄	橋梁設計	(株)オリエンタルコンサルタンツ
5 岡部信之	自然条件調査	(株)オリエンタルコンサルタンツ
6 今野啓悟	施工計画／積算	(株)オリエンタルコンサルタンツ

2-1 基本設計概要説明時

氏名	担当	所属
1 狩野良昭	総括	国際協力事業団スリ・ランカ事務所
2 柳田和朗	業務主任／道路交通計画	(株)オリエンタルコンサルタンツ
3 横溝幸雄	橋梁設計	(株)オリエンタルコンサルタンツ
4 今野啓悟	施工計画／積算	(株)オリエンタルコンサルタンツ

資料編 2-1 本格調査時

No	日付	曜日	滞在場所	中村(三)	中村(秀)	柳田	横溝	岡部	今野	近藤(業務支援)
0	98' 3/7	土	コロンボ							現地調査 (No.31,32)
1	8	日	コロンボ	1135 東京 ~ 1745 シガボール (JL719) 2100 シガボール ~ 2240 コロンボ (SQ402)						現地調査 (No.33,38,70)
2	9	月	コロンボ	JICA・日本大使館・Min. of Transport & Highways, Dept. of External Resources, RDA 表敬訪問						資料整理
3	10	火	コロンボ	現地調査 (Bridges No.31 & 32)						現地調査
4	11	水	コロンボ	現地調査 (Bridges No.33, 38 & 70)						
5	12	木	コロンボ	RDA 打合せ						資料収集整理
6	13	金	コロンボ	RDA 打合せ						
7	14	土	コロンボ	調査団ミ〜ティング						
8	15	日	コロンボ	調査団ミ〜ティング						社会状況調査 情報収集
9	16	月	コロンボ	ミニッツ協議						
10	17	火	コロンボ	ミニッツ調印、日本大使館・JICA 報告						
				移動: 2355 コロンボ ~						
11	18	水	コロンボ	0550 シガボール (SQ401) 0825 シガボール ~ 1545 東京(JL712)		現地調査・資料整理				
12~24	19~31		コロンボ							資料整理
25	4/1	水	コロンボ							
26	2	木	コロンボ	日本大使館・JICA 報告, RDA 表敬訪問						
27	3	金	コロンボ	移動:2355 コロンボ ~ (SQ401)		資料整理				
28	4	土	コロンボ	0815 シガボール ~ 1600 東京(JL712)						
29~31	5~7		コロンボ							
32	8	水	コロンボ							RDA 打合せ
33	9	木	コロンボ							JICA 報告
34	10	金	コロンボ	移動: 2355 コロンボ ~ (SQ401)						
35	11	土		0550 シガボール 0815 シガボール ~ 1600 東京(JL712)						

資料編 2-2 基本設計概要説明時

No	日付	曜日	滞在場所	狩野	柳田	横溝	今野
1	98 6/1	月	コロンボ				1135 東京 ~ 1745 シンガポール (JL719) 2100 シンガポール ~ 2240 コロンボ (SQ402)
2	6/2	火	コロンボ	JICA・日本大使館・Min. of Transport & Highways, Dept. of External Resources, Dept. of National Planning, RDA 表敬訪問			
3	6/3	水	コロンボ	RDA 基本設計概要書説明			
4	6/4	木	コロンボ	RDA 基本設計概要書説明、ミニッツ協議			
5	6/5	金	コロンボ	ミニッツ調印、日本大使館挨拶 移動：2355 コロンボ ~ (SQ401)			
6	6/6	土	コロンボ				0815 シンガポール ~ 1600 東京 (JL712)

資料編 3 相手国関係者リスト

◆ Ministry of Finance & Planning

1. Mr. J. H. J. Jayamaha Director, Japan Division, Department of External Resources
2. Mr. K. Jegarajasingham Director, Economic Infrastructure division, department of National Planning

◆ Ministry of Transport & Highways

3. Mr. G. Hewagama Secretary
4. Mr. W. A. Jayasinghe Additional Secretary, Highways

◆ Road Development Authority

5. Mr. M. B. S. Fernando Chairman
6. Dr. G. L. Asoka J. de Silva Director, Engineering Services Division (ESD)
7. Mrs. H. Y. Fernando Deputy Director, Engineering services Division
8. Mr. H. M. K. G. C. Bandara Chief Engineer (Planning), Traffic & Planning Office, ESD
9. Mr. W. E. S. K. Fernando Senior Engineer, Bridge Design Office (BDO), ESD
10. Mr. D. K. Rphitha Swarna Senior Engineer, BDO, ESD
11. Mr. M. J. G. Munasinghe Design Engineer, BDO, ESD
12. Mr. B. P. K. Amarasekara Design Engineer, BDO, ESD

◆ 在スリ・ランカ日本大使館

13. 川村 一等書記官

◆ JICA スリ・ランカ事務所

14. 狩野 所長
15. 永石 所員

資料編 4 スリ・ランカの社会・経済事情

国名	スリ・ランカ民主社会主義共和国
	Democratic Socialist of Sri Lanka

一般指標				
政体	共和制	*1	首都	スリ・ジャヤワルダプラ・コッタ
元首	Pres. Chandrika KUMARATUNGA	*1	主要都市名	カレ, ジャファ, マラ
独立年月日	1948年2月4日	*1	経済活動可人口	8,000千人(1995年)
人種(部族)構成	シハル人 74%, タミル 18%, アーリア人 7%	*1	義務教育年数	11年間(1997年)
			初等教育就学率	% (1997年)
言語・公用語	シハル語 74%, タミル語 18%, 英語	*1	初等教育終了率	% (1997年)
宗教	仏教 69%, ヒンドゥー教 15%, 初級教, 回教	*1	識字率	90.1% (1994年)
国連加盟	1955年12月	*2	人口密度	286.58人/km ² (1996年)
世銀加盟	1950年8月	*3	人口増加率	1.1% (1996年)
IMF加盟	1994年3月	*3	平均寿命	平均 72.35男 69.77女 75.06
面積	65.61千km ²	*1	5歳児未満死亡率	19/1000 (1995年)
人口	18,553.074千人(1996年)	*1	加リ-供給量	2,275.0cal/日/人 (1992年)

経済指標				
通貨単位	スリ・ランカ・ルピー	*1	貿易量	(1996年)
為替 (IUS\$)	1US\$=61.29 (1997年12月)	*8	輸入	4,095.0百万ドル
会計年度	1月~12月	*1	輸出	5,416.0百万ドル
国家予算	(1996年)	*9	輸入カバー率	4.2月 (1995年)
歳入	2,646.6百万ドル	*9	主要種出品目	繊維, 茶, 石油製品, ゴム (1994年)
歳出	3,811.5百万ドル	*9	主要輸入品目	食品, 飲料品, 繊維, 石油 (1994年)
国際収支	239.40百万ドル (1995年)	*9	日本への輸出	273.9百万ドル (1996年)
ODA受取額	553.00百万ドル (1995年)	*7	日本からの輸入	400.8百万ドル (1996年)
国内総生産(GDP)	12,915.00百万ドル (1995年)	*4		
1人当たりGNP	700.0百万ドル (1995年)	*4	外貨準備総額	2,051.0百万ドル (1997年12月)
GDP産業別構成	農業 23.0% (1995年)	*4	対外債務残高	409.0百万ドル (1995年)
	鉱工業 25.0% (1995年)		対外債務偏在率	7.0% (1995年)
	サービス業 52.0% (1995年)		インフレ率	8.2% (1993年)
産業別雇用	農業 23.0% (1990年)	*7		
	鉱工業 25.0% (1990年)			
	サービス業 52.0% (1990年)			
経済成長率	4.8% (1995年)	*4	国家開発計画	公共投資5ヶ年計画 (93~97年)

気象 (1961~1990年平均)		場所: Colombo											(標高 7m)
月	1	2	3	4	5	6	7	8	9	10	11	12	平均計
最高気温	30.0	31.0	31.0	31.0	31.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.8℃
最低気温	22.0	22.0	23.0	24.0	26.0	25.0	25.0	25.0	25.0	24.0	23.0	22.0	23.8℃
平均気温	26.8	26.9	27.7	28.2	28.3	28.0	27.6	27.6	27.5	27.0	26.8	26.6	27.4℃
降水量	89	69	147	231	371	224	135	109	160	348	315	147	2,345 mm
雨期乾期													

*1 CIA World Fact Book 1997-1998
 *2 States Members of United Nations
 *3 International Financial Statistics Yearbook 1996
 *4 World Development Report 1997
 *5 UNESCO Statistical Yearbook 1997
 *6 Status and Trends 1997
 *7 Human Development Report 1997

*8 International Financial Statistics February 1998
 *9 International Financial Statistics Yearbook 1997
 *10 Global Development Finance 1997
 *11 世界の国一覽表 1997年版
 *12 最新世界各国要覽 97年版
 *13 The Times Book World Weather Guide, Update Edition
 *14 理科年表 国立天文台 (1997)

資料編 4 スリ・ランカの社会・経済事情

国名	スリ・ランカ民主社会主義共和国
	Democratic Socialist of Sri Lanka

*15

項目	年度	1992	1993	1994	1995
技術協力		2,699.97	2,892.93	3,087.67	2,796.65
無償資金協力		2,194.95	2,224.22	2,456.48	3,256.28
有償資金協力		5,852.05	3,939.97	4,352.21	3,878.11
総額		10,746.97	9,077.12	9,896.36	9,931.04

*15

項目	年度	1992	1993	1994	1995
技術協力		20.97	22.74	27.51	36.37
無償資金協力		43.78	71.70	53.59	82.06
有償資金協力		31.31	52.76	132.66	145.28
総額		96.06	147.20	213.76	263.71

*16

	贈与 (1)	有償資金協力 (2)	政府開発援助 (ODA) (1)+(2)=(3)	その他政府資金 および民間資金 (4)	経済協力総額 (3) + (4)
二ヶ国間援助 (主要供与国)	250.90	123.10	374.00		374.00
1. 日本	118.40	145.30	263.70		263.70
2. アメリカ	20.00	5.00	25.00		25.00
3. ノルウェー	13.90	0.30	14.20		14.20
4. オランダ	27.10	-13.00	14.10		14.10
多国間援助 (主要援助機関)	38.30	146.10	184.40		184.40
1. IDA					
2. ASDB					
その他	0.00	-2.80	-2.80		-2.80
合計	289.20	266.40	555.60		555.60

*17

技術	関係各省庁→計画実施省(国家計画局)
無償	
協力隊	

*15 Japan's ODA Annual Report 1996

*16 Geographical Distribution of Financial Flows to Aid Recipients 1991-1995

*17 国別協力情報 (JICA)

資料編 5 参考資料リスト

I. 開発計画・統計資料													
1	Statistical Abstract, 1996	1996	Dept. of Census and Statistics	vol.	1	Original	印刷製本 ペン	A1	313	JICA	借用	1998/ 3/8	
2	Atlas of Sri Lanka	1997	Arjunas Consulting Co.Ltd.	vol.	1	Original	印刷製本 /綴り	A1	220	JICA	借用	1998/ 3/8	
3	RDA Bridge Rehabilitation 10 Year Program	1997	Road Development Authority	set	1	Copy	北'-/止 め	A3	5	JICA	借用	1998/ 3/8	
4	Public Investment Programme 1997-2001	1997	Dept. of Finance & Planning	vol.	1	Original	印刷製本 /綴り	B5	137	JICA	借用	1998/ 3/8	
5	Budget Speech	1997	Ministry of Finance & Planning	vol.	1	Original	北'-製本 /白	A4	58	JICA	借用	1998/ 3/8	
II. 技術仕様書類													
1	Bridge Design Manual	1997	Road Development Authority	vol.	1								
2	Draft Highway Geometric Design Standards	1997	Road Development Authority	vol.	1								
3	建設現場の道路標識設置指示書	1997	Road Development Authority	shl	1								
III. 地図類													
1	スリ・ランカ全国地図, 1/500,000	1997	Survey Dept.	shl	1	Original	印刷物・ 折り	変形	-	JICA	借用	1998/ 3/8	Road Map of Sri Lanka
2	スリ・ランカ全国地図, 1/250,000	1992	Survey Dept.	set	1	Original	印刷物・ 折り	A4	-	JICA	借用	1998/ 3/8	
3	A&B Class Highways Network	1997	Road Development Authority	set	1								
4	Transport Routes to 5 Bridge Sites	1997	Road Development Authority	set	1								
5	5 橋のサイト付近案内図 (Ser.Nos:31, 32, 33, 38, 70)	1997	Road Development Authority	shl	5								
6	Location Map of Ready Mix Concrete Batching Plants	1997	Local Concrete Maker (Colombo)	shl	1								
IV. 図面類													
1	RDA 設計の橋梁 (Ser.Nos:1, 31, 32, 33, 38, 70)	1997	RDA, Design Office	set	6	Copy	青焼き図 面	A1	-	JICA	+	1998/ 3/8	
V. 名簿類													
1	現地建築業者(橋梁建設その他)	1997	RDA	shl	1								
2	現地測量会社	1997	RDA	shl	1								
3	現地地質調査会社	1997	RDA	shl	1								
VI その他													
1	Boring Log Sample (by local soil investigator)	1997	Local Soil Investigator	shl	1								
2	List of Concrete Products (incl. Prestressed Concrete)	1997	State Development & Construction co.	shl	1								
VII 別添資料													
別1	Statistical Pocket Book	1996	Dept. of Census and Statistics	vol.	1	Original	印刷製本 /茶	手帳	252	JICA	借用	1998/ 3/8	
別2	National Accounts of Sri Lanka 1994	1994	Dept. of Census and Statistics	vol.	1	Original	印刷製本 /白-綴り	A1 変	145	JICA	借用	1998/ 3/8	
ANEX 1	Sri Lanka Socio-Economic Data 1997	1997	Statistics Dep. & Central Bank of Sri Lanka	vol.	1	Original	印刷製本 /茶	特殊	58	RDA	借用	1998/ 3/25	
ANEX 1-1	Sri Lanka Socio-Economic Data 1997	1997	Statistics Dep. & Central Bank of Sri Lanka	vol.	1	Copy	抜粋北'-	特殊	14	RDA	+	1998/ 3/25	
ANEX 2	A and B Class Roads Map				4	Copy	青焼き	A1	-	RDA	+	1998/ 3/25	
ANEX 3	New Registration of Vehicles 1986-1996	-			1	Copy	北'-	A1	1	RDA	+	1998/ 3/25	
ANEX 4A	Average Daily Traffic Volume on National Highways	1998	RDA	vol.	1	Copy	北'-/止 め	A3	19	RDA	+	1998/ 3/25	
ANEX 4B	(Vehicle Composition %)	1998	RDA	vol.	1	Copy	北'-/止 め	A3	5	RDA	+	1998/ 3/25	

ANEX. 5	Organization Chart RDA	1998	RDA		1	Copy	北 -	A1	1	RDA	*	1998/ 3/25	
ANEX. 6	Estimates 1998-1997-1996	1997	RDA	vol.	1	Copy	北 - / 北止 め	A1	37	RDA	*	1998/ 3/25	
ANEX. 7	Five Year Program of Work 1997-2001		RDA	vol.	1	Copy	北 - / 北止 め	A1	26	RDA	*	1998/ 3/25	
ANEX. 8	ADT (Sample + Computer Seats 5)		RDA	vol.	1	Copy	北 - / 北止 め	A3	6	RDA	*	1998/ 3/25	
ANEX. 9	Bridge Inventory (Sample)		RDA		1	Copy	北 -	A3	1	RDA	*	1998/ 3/25	
ANEX. 10	Vehicle Utilization		RDA		1	Copy	北 -	A4	1	RDA	*	1998/ 3/25	
ANEX. 11	List of names of Contractors & Consultants Work for RDA for Up to Now		RDA		1	Copy	北 - / 北止 め	A4	2	RDA	*	1998/ 3/25	
A	Public Investment Programme 1996-2000	1996	Dept. of National Planning Ministry of Finance & Planning	vol.	1	Original	印刷製本 / 白	B5	247	RDA	借用	1998/ 3/25	
B	Annual Report 1995	1995	Central Bank of Sri Lanka	vol.	1	Original	印刷製本 / 白	A4	359	RDA	借用	1998/ 3/25	
C	Standard Specification for Construction and Maintenance of Roads and Bridges 1989	1989	RDA	vol.	1	Original	印刷製本 / 白	A4	358	RDA	借用	1998/ 3/25	
D	Highway Design Manual	-	RDA	vol.	1	Copy	北 - / 北止 め	A4	56	RDA	*	1998/ 3/25	
D-1	Average Daily Traffic Volumes on Western Province	1998	RDA	vol.	1	Copy	北 - / 北止 め	A4	6	RDA	*	1998/ 3/25	
D-2	Detailed Questionnaire	-	RDA	vol.	1	Copy	北 - / 北止 め	A4	7	RDA	*	1998/ 3/25	
E	Bridge Design Manual 1997	1997	RDA	vol.	1	Copy	北 - / 北止 め	A4	33	RDA	*	1998/ 3/25	
F	ADB: Third Road Improvement Project, Sri Lanka F/S VI Nov. 1990	1990	India & Sri Lanka Consultant	vol.	1	Original	北 - 製本 / 写真入り	A4	58	RDA	借用	1998/ 3/25	
	Public Investment Programme 1997-2001	1997	Dep. of Meteorology	vol.	1	Original	印刷製本 / 白	B5	137	RDA	借用	1998/ 3/27	
	Annual Report 1996	1997	Central Bank of Sri Lanka	vol.	1	Original	印刷製本 / 白	A4	359	RDA	借用	1998/ 3/27	
	Annual Maximum Daily Rainfall Series for Colombo Meteorological Station 1870-1997	1997	Dep. of Meteorology	vol.	1	Copy	北 - / 北止 め	A4	2	Dep. Metro logy	*	1998/ 3/27	
	Exchange Rates 1991-1996 (SRD)	1996		vol.	1	Copy	北 - / 北止 め	A4	4	RDA	*	1998/ 3/27	
	Abbreviations (ANEX, 1998/3/25)			shl	1	Copy	北 -	A4	1	RDA	*	1998/ 3/27	
	Code Description	1995		vol.	1	Original	Data Seats	特殊	64	RDA		1998/ 3/27	
	Bridge Construction Manual 1997		RDA	vol.	1	Copy	北 - / 北止 め	A4	173	RDA	借用	1998/ 3/27	
	Annual Highest Water Level and Maximum Discharge		Hydrology Irrigation Dep.	Division	vol.	1	Copy	北 - / 北止 め	A4	2	Irrig ation Dep.	受理	1998/ 4/2
	Hydrological Annual 1995/96	1996	Hydrology Irrigation Dep.	Division	vol.	1	Original	北 - 製本 / 白	A4	83	Irrig ation Dep.	購入	1998/ 4/2

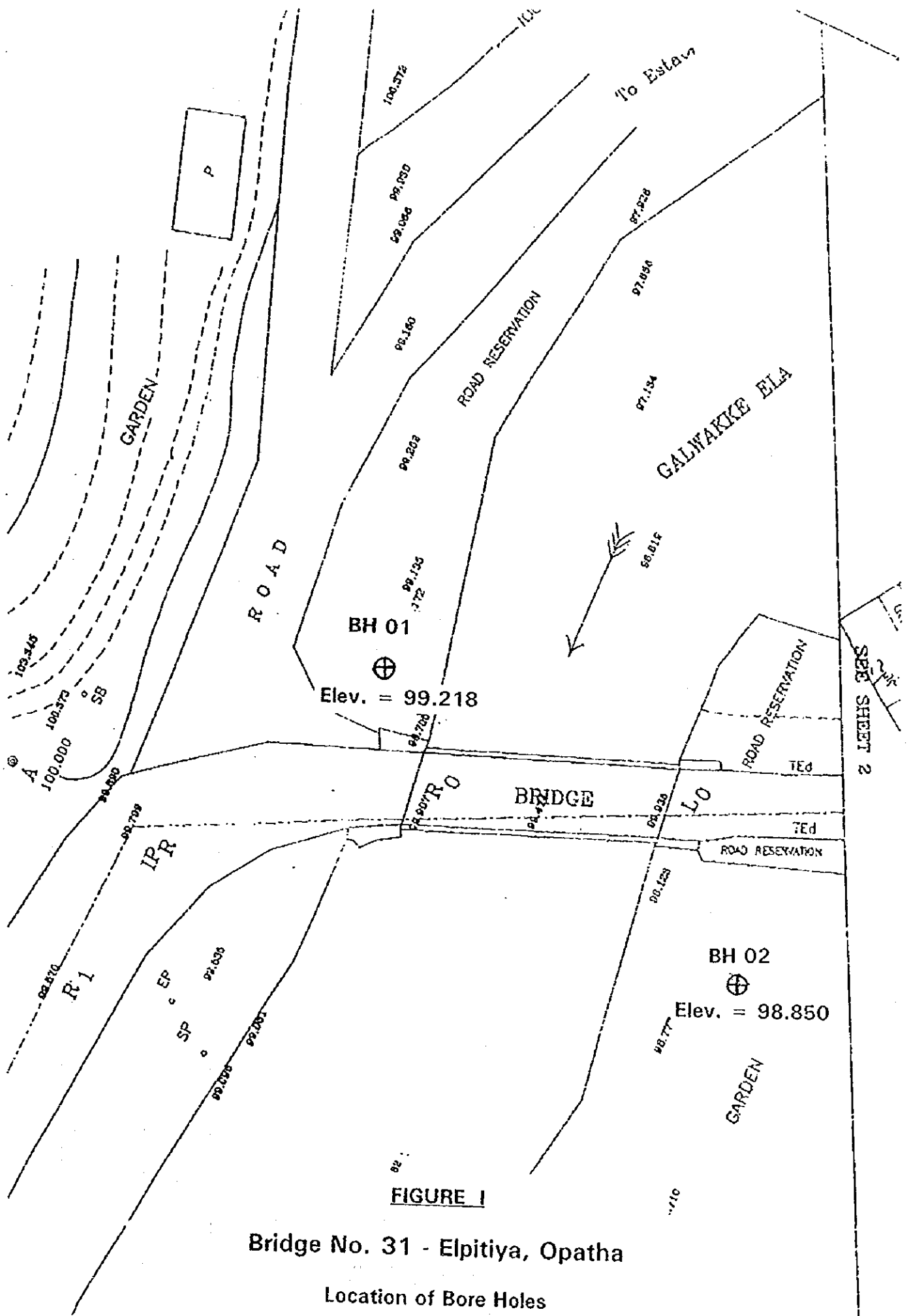


FIGURE I
Bridge No. 31 - Elpitiya, Opatha
Location of Bore Holes
 A-9

GEOLOGICAL RECORD OF BORING				HOLE No. BH - 01	
PROJECT	Basic Design Study of Five Bridge		LOCATION	No. 31 (Opatha - Elpitiya)	
GROUND ELEVATION		DEPTH OF HOLE	7.6 m	ANGLE FROM VERTICAL	0
DIAMETER OF HOLE	100 mm	MACHINE	Nenzl	DATE OF DRILLING	19th March 1998
CORE RECOVERY		DEPTH TO GROUND WATER LEVEL IN HOLE	Not Encountered		
DRILLED BY S.K.P. Jayasundera			LOGGED BY S.K. Jayawardana		

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST								
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N							
									(N)	0	10	20	30	40	50	60	
	0.40	0.40			Dark Brown	HUMUS TOP SOIL											
	0.85	0.45		ML	Reddish Brown	MODERATELY DENSE SANDY CLAYEY SILT											
	1.90	1.05		SH	Dark Grey	VERY LOOSE SAND											
	4.00	2.10		ML	Yellowish Brown	VERY SOFT SAND SANDY SILTY CLAY											
	4.40	0.40		ML	Greyish Brown	EXTREMELY DENSE CLAYEY SILT											
	4.72	0.32		Charnockitic Gneiss	Grey	DECOMPOSED ROCK Core Recovery = 100% R.Q.O. = 100%											
	7.60	2.88		Charnockitic Gneiss		FRESH SLIGHTLY WEATHERED Core Recovery = 95% R.Q.O. = 83%											
						Angle of Dip = 60°-70°											
						BORE HOLE TERMINATED AT 7.60 m BELOW GROUND LEVEL IN THE FRESH BED ROCK (GRADE I)											
						SW=Slightly Weathered											
						Note : Undisturbed sample has been obtained from 2.50 m - 3.0 m depth											

GEOLOGICAL RECORD OF BORING

HOLE No. BH - 02

PROJECT	Basic Design Study of Five Bridge	LOCATION	Bridge No. 31 (Elpitiya - Dpatha)
GROUND ELEVATION		DEPTH OF HOLE	6.85 m
DIAMETER OF HOLE	100 mm	MACHINE	Nenzi
CORE RECOVERY		DATE OF DRILLING	21st March 1998
		DEPTH TO GROUND WATER LEVEL IN HOLE	1.80 m below ground level
		DRILLED BY	S.K.P. Jayasundera
		LOGGED BY	S.K. Jayawardana

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST						
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N					
								(N)	0	10	20	30	40	50	60
	0.20	0.20		OL	Dark Brown	HUMUS TOP SOIL									
	0.80	0.60		ML	Dark Brown	VERY SOFT SANDY SILTY CLAY									
				ML	Yellow Brown	SOFT SANDY SILTY CLAY / LOOSE SANDY CLAYEY SILT			1.0	02					
	2.00	1.20		ML	Greyish Black	SOFT SANDY SILTY CLAY/LOOSE SANDY CLAYEY SILT			2.0	05					
	2.75	0.75		SH	Greyish Black Dark Grey Grey	LOOSE SILTY SAND			3.0	05					
	4.50	1.75							4.0	05					
	4.85	0.35		SP	Yellow Grey	FRAGILELY SILTY GRANULICALLY SANDY (SANDSTONE ROCK)									
						GARNETIFEROUS GARNULITIC GNEISS	SLIGHTLY WEATHERED ON THE TOP (100 mm) AND FRESH AT THE DEPTH			5.0	50				
	6.85	2.00					Core Recovery: 85% R.Q.D. = 70%								
							BORE HOLE TERMINATED AT 6.85 m BELOW GROUND LEVEL IN FRESH (GRADE I) ROCK								
							Note : No undisturbed samples could be obtained as total soil profile is sandy								

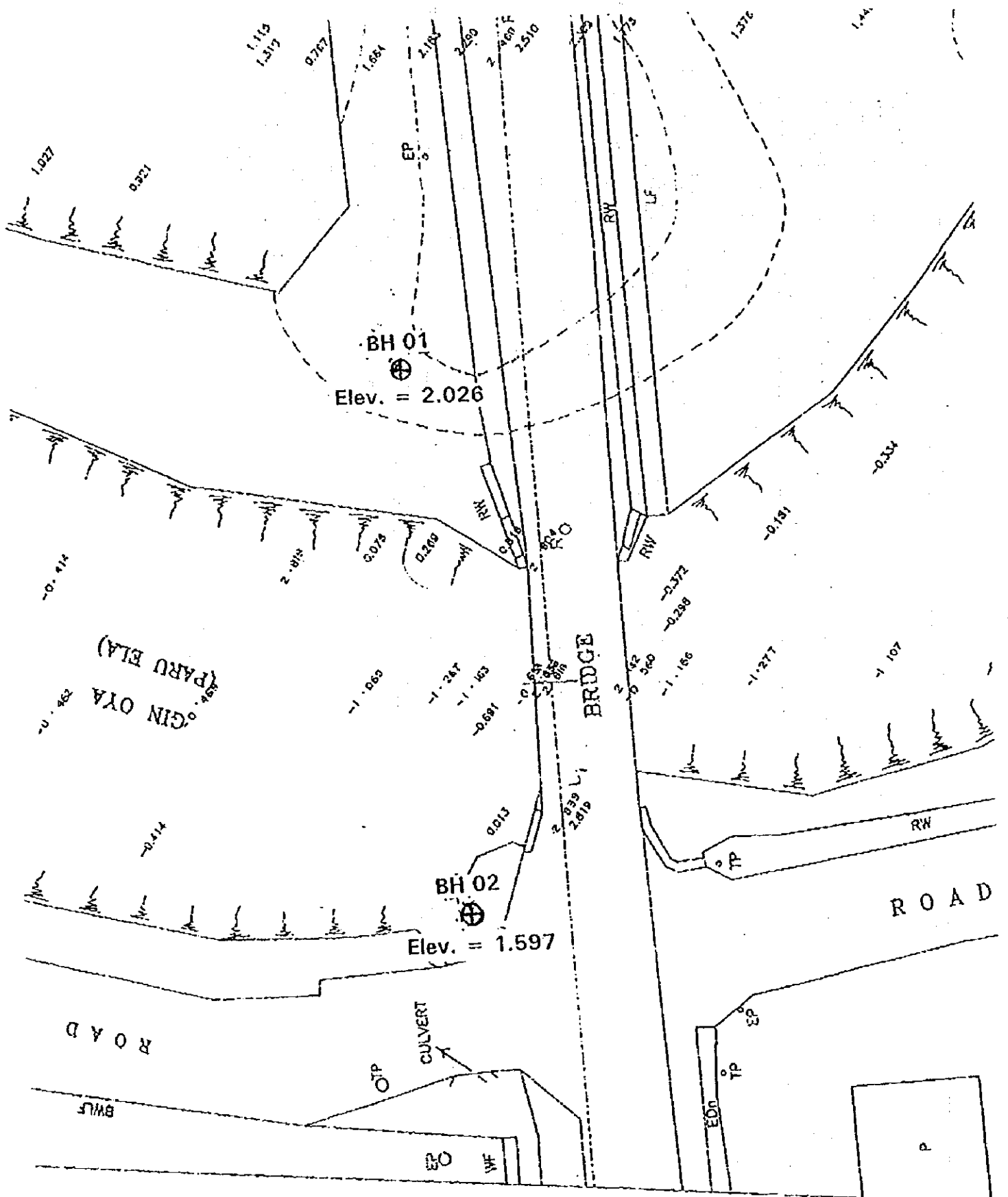


FIGURE II

Bridge No. 32 - Bolawatta, Dankotuwa

Location of Bore Holes

GEOLOGICAL RECORD OF BORING

HOLE No. 8H - 01

PROJECT	Basic Design Study for Five Bridge	LOCATION	No. 32 (Bolsawatta - Oankotuwa)
GROUND ELEVATION		DEPTH OF HOLE	17.82 m
DIAMETER OF HOLE	100 mm	MACHINE	NENZI
CORE RECOVERY		DATE OF DRILLING	21st March 1998
		DEPTH TO GROUND WATER LEVEL IN HOLE	1.24 m below ground level
		DRILLED BY	H.M. Weerasingha
		LOGGED BY	B.S. Yapa

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST						
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N					
								(N)	0	10	20	30	40	50	60
	0.48	0.48		CL	Brown	MODERATELY PLASTIC CLAY MIXED WITH SOME SANDS									
	0.97	0.49		CL	Brown	MODERATELY PLASTIC CLAY									
	1.15	0.18		BOULDER											
	2.50	1.35		CL	Brown	SOFT MODERATELY PLASTIC CLAY									
	3.31	0.81		SP	Greyish Brown	LOOSE COARSE TO FINE SAND									
	3.95	0.64		SP	Greyish Brown	MODERATELY DENSE COARSE TO FINE SANDS WITH SOME FINES			2.5	07					
	4.25	0.30		CL	Dark Grey	MODERATELY SOFT MODERATELY PLASTIC CLAY			3.5	10					
	4.45	0.20		SP	Dark Grey	COARSE TO FINE SAND			4.0	05					
	5.00	0.55		SP/SC	Dark Grey	COARSE TO FINE SAND									
	6.00	1.00		SP/SC	Greyish Brown	LOOSE COARSE TO FINE SANDS MIXED WITH SOME PLASTIC FINES			5.0	05					
	7.50	1.50		CL	Dark Greyish Brown	VERY SOFT MODERATELY PLASTIC CLAY MIXED WITH PARTIALLY DECAYED ORG. MATTER AND SAND			6.0	01					
	8.95	1.45		CL/PL	Blackish Brown	VERY SOFT MODERATELY PLASTIC SLIGHTLY ORGANIC SPOILING CLAY MIXED WITH SOME DECAYED ORGANIC MATTER			7.5	02					
	9.60	0.65		PL	Brown	SOFT PARTIALLY DECAYED ORGANIC MATTER			8.5	02					
	10.50	0.90		SC	Grey	VERY DENSE GRAVELLY COARSE TO FINE SAND WITH SOME PLASTIC FINES			9.5	32					
	10.95	0.45		CL	Greyish Brown	SOFT MODERATELY PLASTIC CLAY MIXED WITH SOME SAND			10.5	04					
	11.50	0.55		CL	Yellowish Brown	SOFT MODERATELY PLASTIC CLAY MIXED WITH SOME SAND			11.5	04					
	12.50	1.00		CL/ML	Yellowish Brown	MODERATELY STIFF MODERATELY PLASTIC CLAY MIXED WITH SOME SILTS									
	13.50	1.00		CL/ML	Yellowish Brown	STIFF MODERATELY PLASTIC CLAY MIXED WITH SOME SANDS AND SILTS									
	14.82	0.05		ML	Yellowish Brown	VERY DENSE SLIGHTLY PLASTIC CLAYEY SILTS MIXED WITH MICACEOUS MATERIAL			12.5	15					
									13.5	27					
									14.5	50					

GEOLOGICAL RECORD OF BORING

HOLE No. 8H 01 (Contd)

PROJECT Basic Design Study for five Bridge.		LOCATION No. 32 - Bolanatta - Dankotuma	
GROUND ELEVATION	DEPTH OF HOLE 17.82 m	ANGLE FROM VERTICAL 0	
DIAMETER OF HOLE 100 mm	MACHINE YBN	DATE OF DRILLING 21st March 1998	
CORE RECOVERY	DEPTH TO GROUND WATER LEVEL IN HOLE 1.24 m below ground level		DRILLED BY H.M. Weerasingha
			LOGGED BY B.S. Yapa

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST								
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N							
									(N)	0	10	20	30	40	50	60	
	17.82	3.00		Charnockit -ic Biotite Gneiss	Grey	GRADE 1 ROCK WITH SLIGHTLY WEATHERED 150 mm THICK TOP LAYER CORE RECOVERY=100% R.Q.D. = 48%											
						<p><u>BORE HOLE TERMINATED at 17.82 M BELOW GROUND LEVEL IN GRADE 1 BED ROCK</u></p> <p>Notes :</p> <p>1. Undisturbed Sample 1 is obtained from 1.60 - 2.10 m of depth</p> <p>2. Undisturbed Sample 2 is obtained from 7.00 - 7.50 m of depth</p>											

GEOLOGICAL RECORD OF BORING

HOLE No. BH - 02 (Contd)

PROJECT	Basic Design Study for Five Bridge		LOCATION	No.32 - Bolawetta - Dankotuma				
GROUND ELEVATION		DEPTH OF HOLE	17.60 m		ANGLE FROM VERTICAL	0		
DIAMETER OF HOLE	100 mm		MACHINE	YBM - 05		DATE OF DRILLING	26th March 1998	
CORE RECOVERY		DEPTH TO GROUND WATER LEVEL IN HOLE		0.60 m below ground level				
		DRILLED BY			H.M. Weerasinghe		LOGGED BY	B.S. Yapa

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST								
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N							
									(N)	0	10	20	30	40	50	60	
	1.00	1.00		SC/CL	Brown	GRAVELLY COARSE TO FINE SAND WITH SOME PLASTIC FINES											
				CL	Brown Grey- ish Brown	VERY SOFT MODERATELY PLASTIC CLAY MIXED WITH SOME SANDS AND SILTS				0.1							
	3.21	2.21								0.1							
				CL/Pl	Black- ish Brown	VERY SOFT MODERATELY PLASTIC SLIGHTLY ORGANIC SMELLING CLAY MIXED WITH PARTIALLY DECAYED ORGANIC MATTER				0.2							
	5.61	2.40								0.1							
				SC	Grey	LOOSE TO MODERATELY DENSE COARSE TO FINE SANDS WITH SOME PLASTIC FINES				1.1							
	7.50	1.89								2.0							
				SC	Grey- ish Brown to Yellow- ish Brown	DENSE COARSE TO FINE SANDS WITH SOME PLASTIC FINES				2.6							
	9.50	2.00								1.3							
				ML	Yellow ish Brown	MODERATELY DENSE TO DENSE SLIGHTLY PLASTIC CLAYEY SILTS WITH SOME SANDS AND MICACEOUS MATTER				1.1							
										1.1							
										2.2							
										1.8							
										3.0							
										6.0							

GEOLOGICAL RECORD OF BORING						HOLE No. BH - 02 (Contd...)		
PROJECT	Basic Design Study for Five Bridge			LOCATION	No. 32 - Bolawetta - Dankoluwa			
GROUND ELEVATION				DEPTH OF HOLE	17.60 m	ANGLE FROM VERTICAL	0	
DIAMETER OF HOLE	100 mm	MACHINE	Y8H - 03	DATE OF DRILLING	26th March 1998			
CORE RECOVERY				DEPTH TO GROUND WATER LEVEL IN HOLE	0.60 m below ground level			
				DRILLED BY	H.H. Weerasinghe		LOGGED BY	B.S. Yapa

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST						
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N					
								(N)	0	10	20	30	40	50	60
	15.51	6.01													
	15.61	0.10		CHARNOCKITIC GNEISS	Yellowish Brown	DENSE SLAYCY SILTS WITH PIECES OF ROCK DECOMPOSED ROCK									
	17.60	1.99		CHARNOCKITIC GNEISS	Grey	SLIGHTLY WEATHERED TO MODERATELY WEATHERED ROCK CORE RECOVERY = 43%									
						R.O.D. = 21%									
						<p><u>BORING HOLE TERMINATED AT 17.60 m BELOW GROUND LEVEL IN BED ROCK</u></p> <p>GRADE II - III</p> <p>Notes :</p> <ol style="list-style-type: none"> Undisturbed Sample No. 1 is obtained from 2.71 m to 3.21 m below the ground level Undisturbed Sample No. 2 is obtained from 5.00 m to 5.50 m below the ground level 									

GEOLOGICAL RECORD OF BORING				HOLE No. BH - 01	
PROJECT	Basic Design Study of Five Bridge Site		LOCATION	No. 33 (Horana - Anguruwatota)	
GROUND ELEVATION		DEPTH OF HOLE	7.32 m	ANGLE FROM VERTICAL	0
DIAMETER OF HOLE	100 mm	MACHINE	Nez 1	DATE OF DRILLING	12th March 1998
CORE RECOVERY		DEPTH TO GROUND WATER LEVEL IN HOLE	2.40 m below ground level		
DRILLED BY			S.K.P. Jayasundera		
LOGGED BY			S.K. Jayasundera		

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY (%)	CORE DEPTH (m)	STANDARD PENETRATION TEST							
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOR	DESCRIPTION			NUMBER OF BLOWS N (N)							
									0	10	20	30	40	50	60	
	1.15	1.15			Dark Brown	HUMUS TOP SOIL CONTAINING VEGETABLE MATTERS										
	2.60	1.45		Charnockitic Gneiss BOULDER	Grey	SLIGHTLY TO MODERATELY WEATHERED ROCK										
				SM	Brown	VERY DENSE SILTY SAND (HIGHLY WEATHERED ROCK)		4.0	50							
	4.34	1.74						5.0	50							
	7.32	2.98		Charnockitic Gneiss		Core Recovery = 100% R.Q.D = 100% SLIGHTLY WEATHERED BED ROCK										
						BORE HOLE TERMINATED AT 7.32 m BELOW GROUND LEVEL IN THE GRADE I-II BED ROCK										
						Note : No UD samples were obtained from soils										

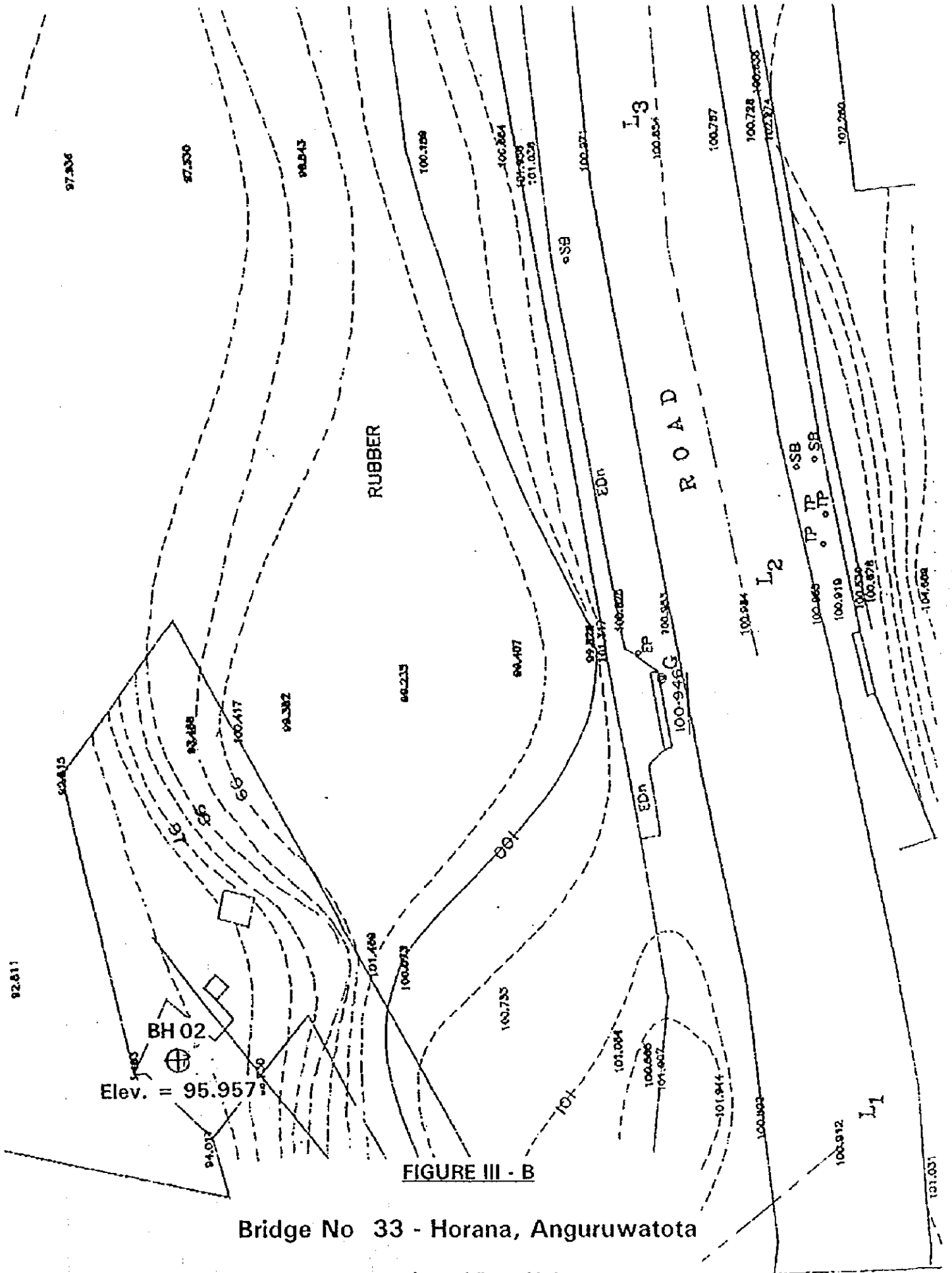


FIGURE III - B
 Bridge No 33 - Horana, Anguruwatota
 Location of Bore Holes

GEOLOGICAL RECORD OF BORING

HOLE No. BH - 02

PROJECT	Basic Design Study for Five Bridge	LOCATION	No. 33 - Horana - Anguruwatota
GROUND ELEVATION		DEPTH OF HOLE	9.00 m
DIAMETER OF HOLE	100 mm	MACHINE	YBM - 05
CORE RECOVERY		DATE OF DRILLING	20th March 1998
		DEPTH TO GROUND WATER LEVEL IN HOLE	1.70 m below ground level
		DRILLED BY	A.O. Somapala
		LOGGED BY	B.S. Yapa

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST						
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N					
								(N)	0	10	20	30	40	50	60
	0.65	0.65		CL/SC	Brown	SLIGHTLY PLASTIC CLAY MIXED WITH SAND									
	1.30	0.65		CONCRETE	Grey	DETERIORATED TO SOME EXTENT CORE RECOVERY=66%									
				BOULDER	Grey	MODERATELY WEATHERED BOULDER CORE RECOVERY=22%									
	4.05	2.75													
	4.40	0.35		BOULDER	Grey	MODERATELY WEATHERED BOULDER CORE RECOVERY=59%									
	4.90	0.50		BOULDER	Grey	MODERATELY WEATHERED BOULDER CORE RECOVERY=100%									
	5.25	0.35		BOULDER	Grey	MODERATELY WEATHERED BOULDER CORE RECOVERY=97%									
	5.85	0.60		ML/SN	Brown	VERY FINE SAND MIXED WITH NON PLASTIC FINES									
	6.15	0.30		CHARNOCKITIC GNEISS	Brown/Grey	HIGHLY WEATHERED GNEISS CORE RECOVERY=100%									
	6.95	0.70		CHARNOCKITIC GNEISS	Brown/Grey	R.O.D. = 80% MODERATELY WEATHERED GNEISS CORE RECOVERY=93% R.O.D. = 47%									
	7.60	0.65		CHARNOCKITIC GNEISS	Grey	SLIGHTLY WEATHERED GNEISS CORE RECOVERY= 94% R.O.D. = 88%									
	9.00	1.40		CHARNOCKITIC GNEISS	Greenish Grey	FRESH ROCK GNEISS CORE RECOVERY=96% R.O.D. = 62%									
						<p>BORE HOLE TERMINATED AT 9.00 m BELOW GROUND LEVEL IN THE GRADE I BED ROCK</p> <p>Note :</p> <ol style="list-style-type: none"> No undisturbed soil samples were taken No SPT tests were carried out 									

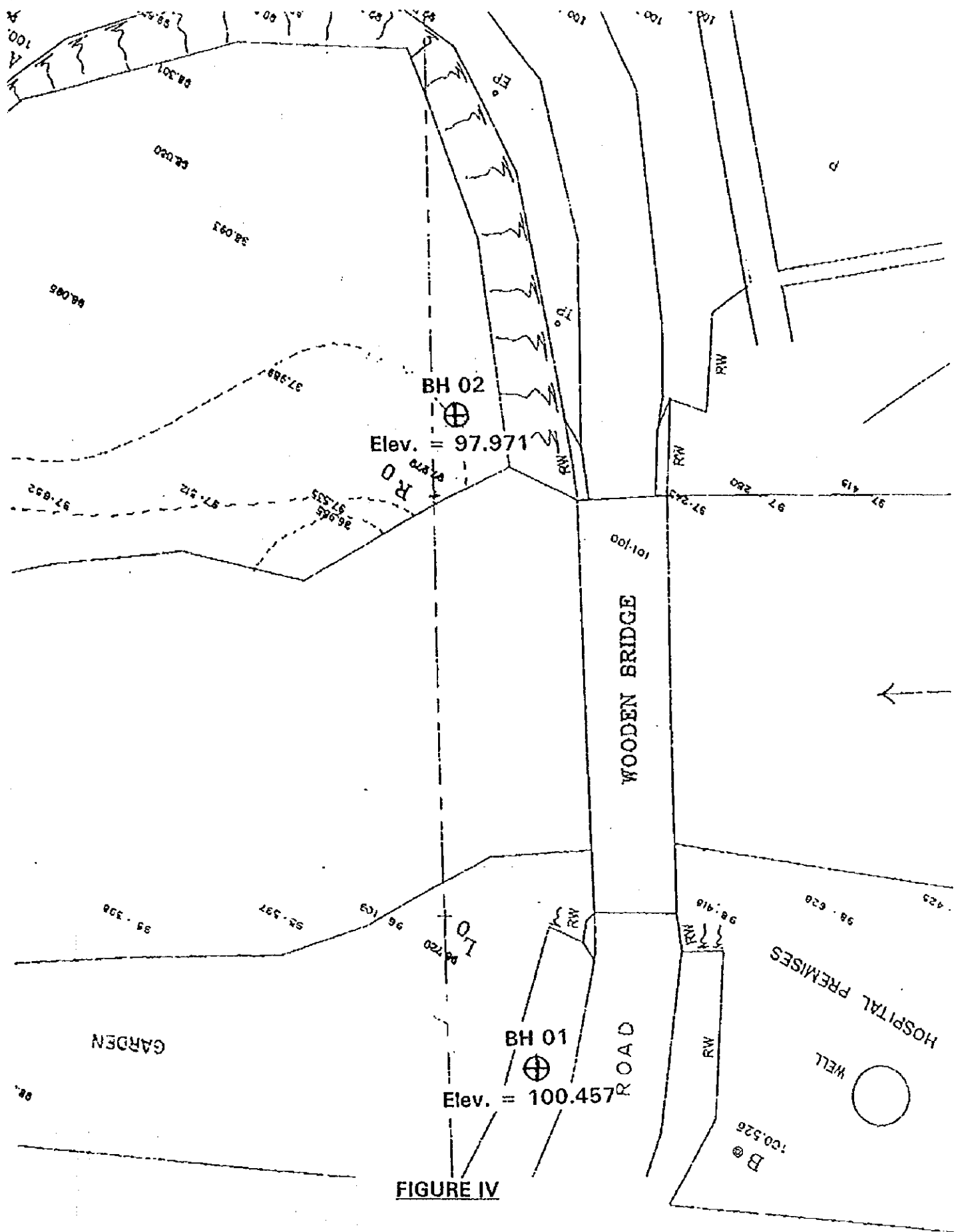


FIGURE IV

Bridge No. 38 - Malwala, Sriperumbalur

Location of Bore Holes

GEOLOGICAL RECORD OF BORING

HOLE No. BH - 01

PROJECT	Basic Design Study of Five Bridge	LOCATION	No. 38 - Malwala - Siripagama
GROUND ELEVATION		DEPTH OF HOLE	14.50 m
DIAMETER OF HOLE	100mm	MACHINE	NENZI
CORE RECOVERY		DATE OF DRILLING	23rd March 1998
		DEPTH TO GROUND WATER LEVEL IN HOLE	2.96-m below ground level
		DRILLED BY	S.K.P. Jayasundera
		LOGGED BY	S.K. Jayawardena

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY %	DEPTH (m)	STANDARD PENETRATION TEST							
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION			NUMBER OF BLOWS N (N) 0 10 20 30 40 50 60							
	1.10	1.10			Light Grey Brown Grey	Humus Top Soil Stiff/moderately DENSE SANDY SILTY CLAY / SANDY CLAYEY SILT		1.0	06							
	1.95	0.85		ML	Greyish Brown	VERY SOFT/VERY LOOSE SANDY SILTY CLAY/ SANDY CLAYEY SILT		2.0	03							
	3.10	1.15		SM/SC	Brown Reddish Brown	VERY LOOSE SILTY CLAYEY SAND		3.0	01							
	3.85	0.75		ML	Dark Grey	VERY SOFT SANDY SILTY CLAY		4.0	07							
	3.95	0.10		Boulder		HIGHLY WEATHERED		4.0	07							
	4.80	0.85		SH	Grey	LOOSE SILTY SAND		5.0	07							
	5.45	0.65		ML	Yellow Brown	sh MODERATELY STIFF SANDY SILTY CLAY		6.0	08							
	6.45	1.00		SC	Yellow Brown	sh LOOSE SILTY CLAYEY SAND		7.0	09							
	8.00	1.55		CL	Yellow Brown	sh STIFF SANDY SILTY CLAY		8.0	13							
	8.65	0.45		Boulder	Whitish Grey	HIGHLY WEATHERED ROCK		9.0	19							
	9.00	0.55		CL	Greyish Brown	VERY STIFF SANDY SILTY CLAY		9.0	19							
	9.85	0.85		GRANULITIC GNEISS (BED ROCK)	Grey / Brown	HIGHLY WEATHERED ROCK / COMPLETELY WEATHERED ROCK CORE RECOVERY = 25% R.O.D.		10.0	50							
	10.00	0.15		- do -	Grey / Brown	HIGHLY WEATHERED ROCK CORE RECOVERY = 25% R.O.D.		11.0	50							
	1.80	1.80		GRANULITIC GNEISS (BED ROCK)	Grey / Brown	COMPLETELY DECOMPOSE ROCK WITH SMALL ROCK PIECES		12.0	50							
	4.50	2.70		GRANULITIC GNEISS (BED ROCK)	Grey	MODERATELY WEATHERED - FRESH ROCK										
						BORING TERMINATED AT 14.50 m BELOW IN THE GRADE 1 BED ROCK										

GEOLOGICAL RECORD OF BORING				HOLE No. BH - 02		
PROJECT	Basic Design Study for Five Bridge		LOCATION	No. 38 - Malwala - Siripagama		
GROUND ELEVATION		DEPTH OF HOLE	10.03 m	ANGLE FROM VERTICAL	0	
DIAMETER OF HOLE	100 mm	MACHINE	Nanzi	DATE OF DRILLING	27th March 1998	
CORE RECOVERY		DEPTH TO GROUND WATER LEVEL IN HOLE	0.00 m			
DRILLED BY			S.K.P. Jayasundera		LOGGED BY	B.S. Yapa

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY %	STANDARD PENETRATION TEST									
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION		DEPTH (m)	NUMBER OF BLOWS N (N) 0 10 20 30 40 50 60								
	0.86	0.86		CL	Blackish Brown	VERY SOFT SLIGHTLY PLASTIC CLAY MIXED WITH SOME SAND											
	2.00	1.14		CL	Yellowish Brown	SOFT SLIGHTLY PLASTIC CLAY MIXED WITH SOME SANDS		1.0	02								
	3.00	1.00		ML/SM	Yellowish Brown	STIFF/DENSE SLIGHTLY PLASTIC CLAYEY SILTS MIXED WITH SOME SANDS		2.0	17								
	3.45	0.45		SM	Brown	VERY DENSE FINE SAND WITH SILT		3.0	35								
	4.00	0.55		ML/SH	Brown	MODERATELY DENSE SLIGHTLY PLASTIC CLAYEY SILTS MIXED WITH MICA		4.0	16								
	5.00	1.00		ML	Brown	AND GRAVELS. DENSE SLIGHTLY PLASTIC CLAYEY SILTS MIXED WITH MICA AND SOME SANDS		5.0	26								
	6.00	1.00		ML	Yellowish Brown	DENSE SLIGHTLY PLASTIC CLAYEY SILTS MIXED WITH LITTLE AMOUNT OF SANDS		6.0	17								
	6.45	0.45		ML	Brown	DENSE SLIGHTLY PLASTIC CLAYEY SILTS MIXED WITH MICA		7.0	34								
	9.00	2.55		SM	Yellowish Brown	VERY DENSE FINE TO COARSE SILTY SAND WITH MICA COMPLETELY DECOMPOSED ROCK)		8.0	41								
	10.03	1.03		SM	Yellowish Brown	VERY DENSE FINE TO COARSE SILTY SAND WITH MICA (HIGHLY DECOMPOSED ROCK)		9.0	50								
						<p>BORING TERMINATED AT 10.03 m BELOW GROUND LEVEL IN THE HIGHLY WEATHERED BED ROCK (GRADE IV)</p> <p>Notes:</p> <p>1. UO sample NO.1 is obtained from the depth 0 to 1.00 m below the ground level</p>		10.0	50								

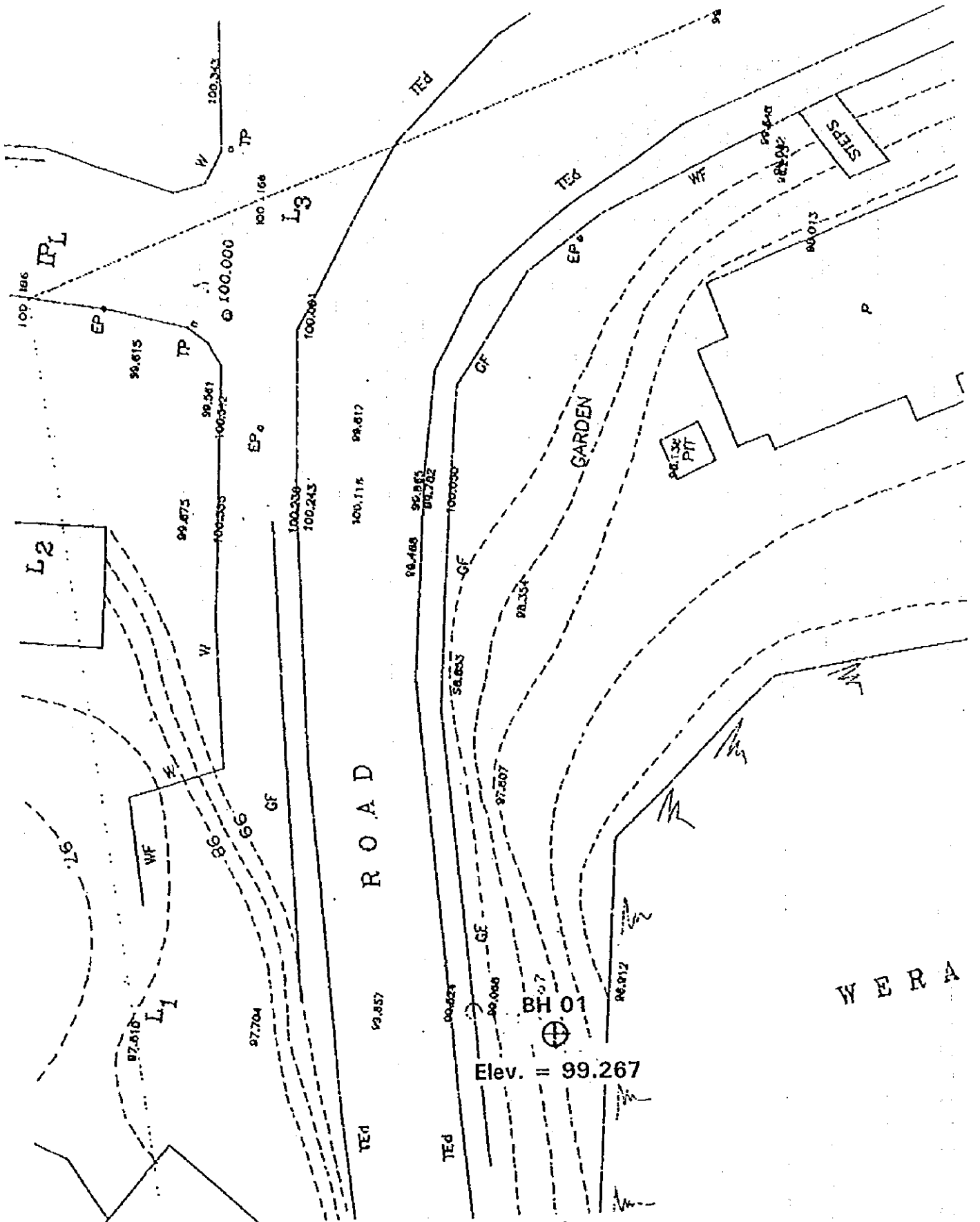


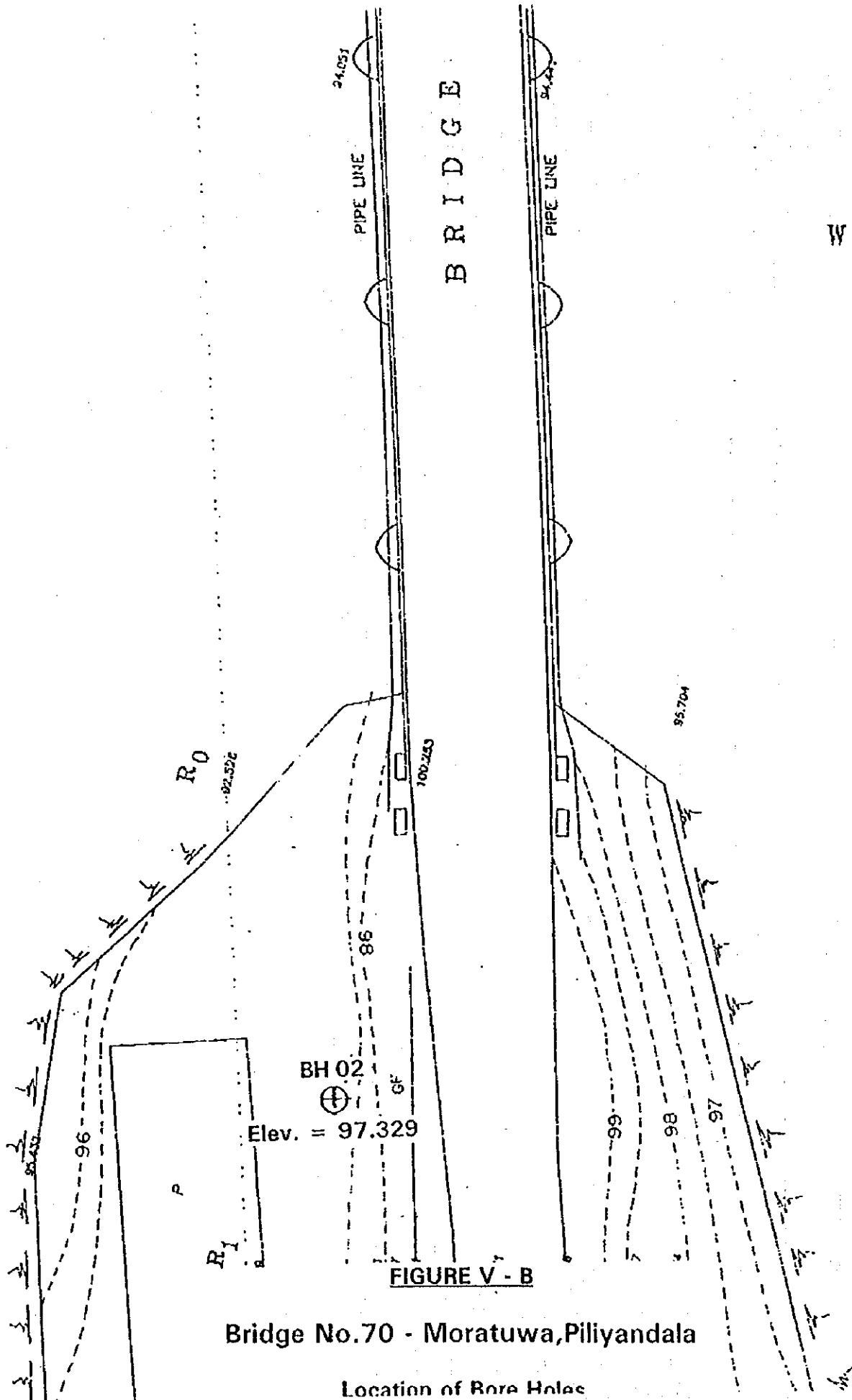
FIGURE V - A

Bridge No.70 - Moratuwa, Piliyandala

Location of Bore Holes

GEOLOGICAL RECORD OF BORING				HOLE No. BH - 01	
PROJECT	BASIC DESIGN STUDY OF FIVE BRIDGE		LOCATION	No.70 (Moratuwa - Piliyandala)	
GROUND ELEVATION	At the road to level	DEPTH OF HOLE	14.45 m	ANGLE FROM VERTICAL	0
DIAMETER OF HOLE	100 mm	MACHINE	YBM - 05	DATE OF DRILLING	11th March 1988
CORE RECOVERY	DEPTH TO GROUND WATER LEVEL IN HOLE		3.07 m below ground level		
DRILLED BY			R.O. Sonapala	LOGGED BY S.K. Jayawardana	

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST													
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N (N) 0 10 20 30 40 50 60												
						FILLED GROUND FOR THE ROAD EMBANKMENT																
	3.05	3.05																				
	3.45	0.40		ML	Yellowish Brown	SOFT SANDY SILTY CLAY																
				ML	Reddish Brown	SOFT SANDY SILTY CLAY																
	4.60	1.15		ML	Light Brown	VERY SOFT SANDY SILTY CLAY																
	5.25	0.65		SC	Brown	LOOSE TO MODERATELY DENSE SANDY CLAYEY SILT																
	6.80	1.55		SH	Grey	MODERATELY DENSE SILTY SAND																
	7.50	0.70		ML	Grey	MODERATELY DENSE SANDY CLAYEY SILT																
	8.00	0.50		SH	Dark Brown	MODERATELY DENSE SILTY SAND																
	8.40	0.40		ML	Dark Brown	SOFT SANDY SILTY CLAY																
	8.90	0.50		SH	Light Grey	LOOSE SANDY SILT																
	9.10	0.20		CL	Dark Grey	SOFT SILTY CLAY																
	9.30	0.20		ML	Light Grey	SOFT SANDY SILTY CLAY																
	9.75	0.45		ML	Dark Grey	CLAYEY SILT SOFT TO VERY SOFT																
				ML	Dark Grey	CLAYEY SILT SOFT TO VERY SOFT																
	11.0																					
	12.0																					
	13.0																					
	14.0																					
	3.30	3.55		MH	Dark Grey	DENSE TO VERY DENSE MICACEOUS SILT (COMPLETELY DECOMPOSED ROCK)																
	4.45	1.15																				
				Note: UD Samples could not be obtained		BORE HOLE TERMINATED AT 14.45 m BELOW GROUND LEVEL IN WEATHERED ROCK (GRADE V - VI)																



14556

GEOLOGICAL RECORD OF BORING

HOLE No. BH - 02

PROJECT	Basic Design Study of Five Bridge	LOCATION	No. 70 (Piliyandala - Moratuwa)
GROUND ELEVATION		DEPTH OF HOLE	9.75 m
DIAMETER OF HOLE	100 mm	MACHINE	NENZI
CORE RECOVERY		DATE OF DRILLING	13th March 1998
		DEPTH TO GROUND WATER LEVEL IN HOLE	0.70 m below ground level
		DRILLED BY	S.K.P. Jayasundera
		LOGGED BY	S.K. Jayawardana

ELEVATION (m)	DEPTH (m)	THICKNESS (m)	FIELD OBSERVATION				CORE RECOVERY		STANDARD PENETRATION TEST									
			COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	%	cm	DEPTH (m)	NUMBER OF BLOWS N								
										(N) 0	10	20	30	40	50	60		
	1.15	1.15		SM	Dark Brown	SANDY SILT AND SILTY SAND												
				ML	Reddish Brown	VERY SOFT SANDY CLAY												
	3.30	2.15																
	3.50	0.20		ML	Dark Brown	VERY SOFT SANDY SILT CLAY												
	3.90	0.40		ML	Yellow Brown	VERY SOFT SANDY SILTY CLAY												
	4.35	0.45		ML	Reddish Brown	VERY SOFT SANDY SILTY CLAY												
				ML	Dark Grey	VERY SOFT SILTY CLAY												
	5.56	1.21																
	5.90	0.34		ML	Dark Grey	VERY LOOSE SANDY CLAYEY SILT												
	6.60	0.70		SM	Light Grey	MODERATELY DENSE SILTY SAND												
	6.60	0.20		SM	Dark Grey	MODERATELY DENSE SANDY SILT												
				SM	Light Grey	MODERATELY DENSE SANDY SILT												
	8.20	1.40																
	8.70	0.50		ML	Light Grey	MODERATELY DENSE SANDY CLAYEY SILT												
	9.15	0.45		ML	Reddish Brown	SANDY SILTY CLAY STIFF (HIGHLY WEATHERED ROCK)												
	9.75	0.60		Charnockite Gneiss	Grey	FRESH-SLIGHTLY WEATHERED ROCK												
<p>BORE HOLE TERMINATED AT 9.15 M BELOW GROUND LEVEL GRADE 1.111.</p> <p>Notes:</p> <p>1. UD Sample No. 1 From 6.50 m to 5.2 m depth</p> <p>2. US Sample No. 2 From 6.50 m to 7.00 m depth</p>																		

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