Appendices

- 1. Member List of the Survey Team
- 2. Survey Schedule
- 3. List of Party Concerned in the Recipient Country
- 4. Minutes of Discussion
- 5. Other Relevant Data (Geological Investigation)

Appendices:

1. Member List of the Survey Team

1-1. For the study

Mr. Mikio NAKAMURA	Leader	Grant Aid Project Management Department, JICA
Mr. Hidenori NAKAMURA	Project Coordinator	Grant Aid Project Study Department, JICA
Mr. Kazuo YANAGIDA	Chief Consultant / Road Traffic Planner	Oriental Consultants Co., Ltd.
Mr. Yukio YOKOMIZO	Bridge Designer	Oriental Consultants Co., Ltd.
Mr. Nobuyuki OKABE	Natural Conditions Surveyor	Oriental Consultants Co., Ltd.
Mr. Keigo KONNO	Construction Planner / Cost Estimator	Oriental Consultants Co., Ltd.

1-2. For Explanation Draft Final Report

Mr. Yoshiaki KANO	Leader	Sri Lanka Office, JICA
Mr. Kazuo YANAGIDA	Chief Consultant / Road Traffic Planner	Oriental Consultants Co., Ltd.
Mr. Yukio YOKOMIZO	Bridge Designer	Oriental Consultants Co., Ltd.
Mr. Keigo KONNO	Construction Planner / Cost Estimator	Oriental Consultants Co., Ltd.

Appendices:

2. Survey Schedule

2-1. Schedule for the Survey

No	Date	Day	Stay	1 & 2	3,4 & 5	6						
1	3/8	Sun.	Colombo		Tokyo—1745 Singapore (JI ngapore—2240 Colombo (S							
2	9	Mon.	Colombo	Highways, Dept. of and	Office, Embassy of Japan, External Resources, Dept. o Road Development Author	of National Planing rity						
3	10	Tue,	Colombo	Site	survey (Bridges No.32 & '							
4	11	Wed.	Colombo	Site	Survey (Bridges No.33 & :	38)						
5	12	Thr.	Colombo	Site Survey (Brid	ges No.33), Discussion wit	h RDA Officials						
6	13	Fri.	Colombo	Di	scussion with RDA Officia	ls						
7	14	Sat.	Colombo		Team Meeting							
8	15	Sun.	Colombo		Team Meeting							
9	16	Mon.	Colombo		Discussion on the Minutes							
10	17	Tue.	Colombo	Signing of the Minute 2355 Colombo—	es, Report to JICA Office as Site S	nd Embassy of Japan survey						
11	18	Wed.	Colombo	0550 Singapore (SQ401) 0825 Singapore—1545 Tokyo (JL712)	Survey							
12 ~ 26					Site S	Survey						
27	4/3	Fri.			2355 Colombo— (SQ401)	Site Survey						
28	4	Sat			0815 Singapore—1600 Tokyo (JL712)	Site Survey						
29 ~ 33						Site Survey						
34	10	Fri				2355 Colombo—						
35	11	Sat				0550 Singapore (SQ401) 0815 Singapore—1600 Tokyo (J1712)						

1 Mikio NAKAMURA 2 Hidenori NAKAMURA 3 Kazuro YANAGIDA

4 Yukio YOKOMIZO

5 Nobuyuki OKABE

6 Keigo KONNO

2-2. Schedule for Explanation of Draft Report

No	Date	Day	Stay	1	2,3 & 4							
1	98° 6/1	Mon.	Colombo		1135 Tokyo—1745 Singapore (JL719) 2100 Singapore—2240 Colombo (SQ402)							
2	2	Tuc,	Colombo	Highways, Dept. of F	Office, Embassy of Japan, Min. of Transport & external Resources, Dept. of National Planing Road Development Authority							
3	3	Wed.	Colombo	Expla	Explanation of Draft Report at RDA							
4	4	Thr.	Colombo	•	nation of Draft Report at RDA Minutes of Discussion							
5	5	Fri.	Colombo	Court	Minutes of Discussion Signing of Minutes of Discussion Courtesy Call to Embassy of Japan 2355 Colombo—(SQ401)							
6	6	Sat.	Colombo		0815 Singapore—1600 Tokyo (JL712)							

1 Yoshiaki KANO

3 Yukio YOKOMIZO

2 Kazuro YANAGIDA

4 Keigo KONNO

Appendices:

3. List of Party Concerned in the Recipient Country

♦ Ministry of Finance & Planning

1. Mr. J.H.J. Jayamaha Director, Japan Division, Department of External

Resouces

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

◆ Road Development Authority

5. Mr. M. B. S. Fernando Chairman

6. Dr. G. L. Asoka J. de Silva Director, Engineering Services Division

7. Mrs. H. Y. Fernando Deputy Director, Engineering Services Division (ESD)

8. Mr. H. M. K. G. C. Bandara Chief Engineer(Plannning), 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

Minutes of Discussions

The Basic Design Study

on

the Project for Reconstruction of Bridges.

In

the Democratic Socialist Republic of Sri Lanka

(Consultation on Draft Report)

In March 1998, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the Project for Reconstruction of Bridges (hereinaster referred to as "the Project") to the Democratic Socialist Republic of Sri Lanka, and through discussions, field survey, and technical examination of the results in Japan, has prepared the draft report of the study.

In order to explain the draft and to consultant the Government of Sri Lanka, JICA sent to Sri Lanka a study team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshiaki KANO, Resident Representative, JICA Sri Lanka Office, and is scheduled to stay in the country from June 1 to 6, 1998.

As a result of discussions, both parties have confirmed the main items of the Project as described on the attached sheets.

Colombo, June 5, 1998

Mr. Yoshiaki KANO

Leader

Basic Design Study Team

Japan International Cooperation Agency

Mr. C. Hewagama

Secretary

Ministry of Transport & Highways

Mr. W. A. Jayosinghe

Chairman

Road Development Authority

Mr. J. H. J. JAYAMAHA

Director, Japan Division

Department of External Resources

Ministry of Finance & Planning

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ATTACHMENT

1. COMPONENTS OF THE DRAFT REPORT

The Government of Sri Lanka has agreed to and accepted in principle the components of the Draft Report proposed by the Team.

2. JAPAN'S GRANT AID SYSTEM

- (1) The Government of Sri Lanka has understood the system of Japan's Grant Aid explained by the Team as described in Annex-1.
- (2) The Government of Sri Lanka will take the necessary measures described in Annex-2 for smooth implementation of the Project on condition that the Grant Aid assistance by the Government of Japan is extended to the Project.

3. FUTURE SCHEDULE

The Team will make the Final Report in accordance with the confirmed items and send it to the Government of Sri Lanka by the end of August, 1998.

4. CLARIFICATION OF LAND ACQUISITION AT THE PROJECT SITE

According to the clarification of land acquisition by the Team, the Government of Sri Lanka shall commence a procedure for land acquisition at the Project Site and shall completely acquire the land before the beginning of November, 1998 for five bridges, which are Moda Ela, Bolawatta, Narthupana, Gilimale and Kospalana Bridges.

The Government of Sri Lanka has also confirmed that relocation of the habitants in the Project Site shall be implemented soon after the Exchange of Notes and at latest before the commencement of construction works on condition that the Grant Aid assistance by the Government of Japan is extended to the Project.

5. REMOVAL OF EXISTING NARTHUPANA AND GILIMALE BRIDGES

The safety after the completion of the new Gilimale Bridge will be affected by the existing Narthupana and Gilimale bridges due to possible washout or collapse. Hence, the Government of Sri Lanka should completely remove the existing Narthupana and Gilimale bridges including the piers immediately after the completion of the new bridge with Sri Lanka own expense.

6. SHIFT AND SET UP OF PUBLIC FACILITIES ON EXISTING KOSPALANA BRIDGE

There are public facilities, which are four water supply pipes, two telecom pipes and so on, on existing Kospalana bridge. Those all facilities will be shifted and set up by the government of Sri Lanka during constructing and after completed new Kosparana bridge.

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JAPAN'S GRANT AID SCHEME

- 1. Grand Aid Procedures
- 1) Japan's Grant Aid Program is executed through the following procedures.
 - Application

(Request made by the recipient country)

- Study

(Basic Design Study conducted by JICA)

- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet)
- Determination of Implementation

(The note exchanged between the Government of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firms(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

- 2. Basic Design Study
- 1) Contents of the study

The aim of the Basic Design Study (hereinaster referred to as "the Study") conducted by JICA on a requested project (hereinaster referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- a) Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- c) Confirmation of items agreed on by both parties concerning the basic concept of the Proejct.
- d) Preparation of a basic design of the Project.



e) Estimation of costs of the project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm (s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The selected firm(s) carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consultant firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid undue any delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

- 3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of Note, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.
- 4) Under the Grant Aid, in principle, Japanese products and srvices including transport of those of the recipient country are to be purchased.



When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese neationality.)

5) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

- (1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
- (2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- (3) To secure buildings prior to the procurement in case the installation of the equipment.
- (4) To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- (5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

9) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designed authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

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NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF SRI LANKA

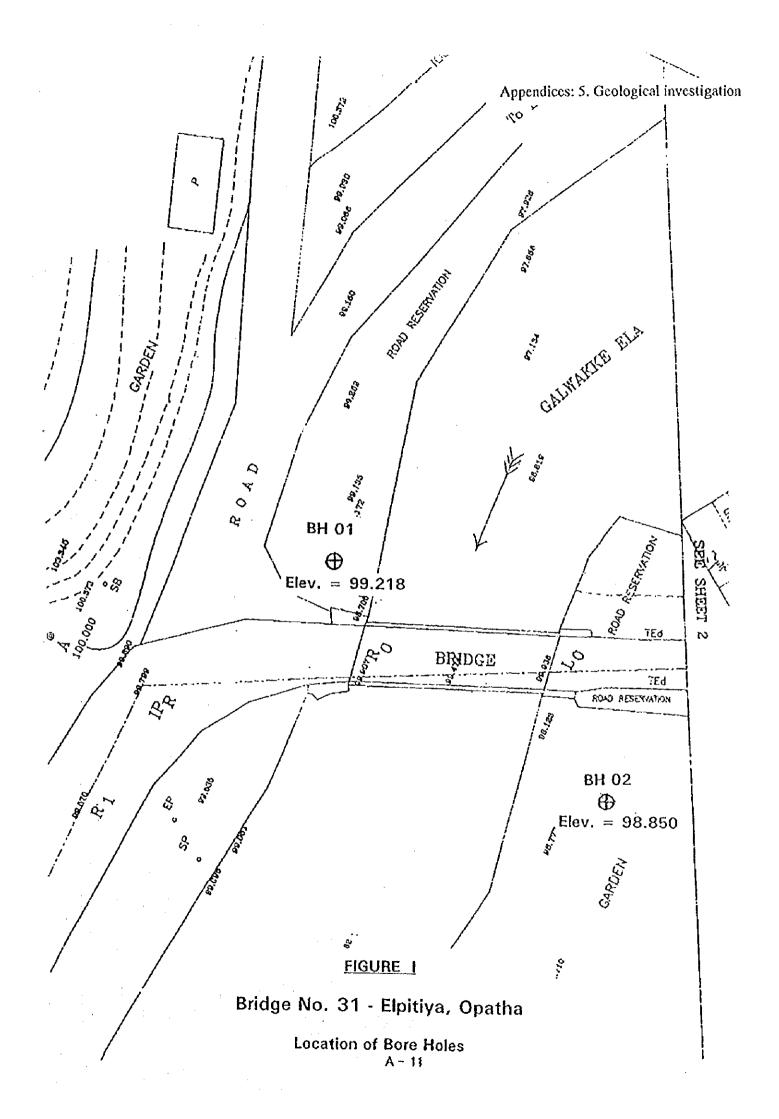
The following necessary measures should be taken by the Government of Sri Lanka on condition that the Grant Aid by the Government of Japan is extended to the Project:

- 1. To provide data and information necessary for the Project.
- 2. To secure land necessary for the execution of the Project, such as temporary offices, working areas, storage yards and others.
- 3. To clear the sites prior to the commencement of the construction, including relocation of water supply pipes / telephone lines and removal of residents.
- 4. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement.
- 5. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in Sri Lanka and prompt internal transportation of the materials and equipment for the Project purchased under the Grant Aid.
- 6. To exempt Japanese nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Sri Lanka with respect to the supply of the products and services under the verified contracts.
- 7. To accord Japanese Nationals whose services may be required in connection with the supply of products and the services under the verified contract, such facilities as may be necessary for their entry into Sri Lanka and stay therein for the performance or their work.
- 8. To provide necessary permissions, licenses and other authorizations for implementing the Project, if necessary.
- To maintain and use properly and effectively the facilities constructed under the Project.
- 10. To bear all the expenses, other than those to be borne by the Japan's Grant Aid within the scope of the project.
- 11. To assign exclusive counterpart engineers and technicians for the Project.
- 12. To coordinate and solve any issues related to the Project which may be raised from third parties or inhabitants and the Project area during implementation of the Project.





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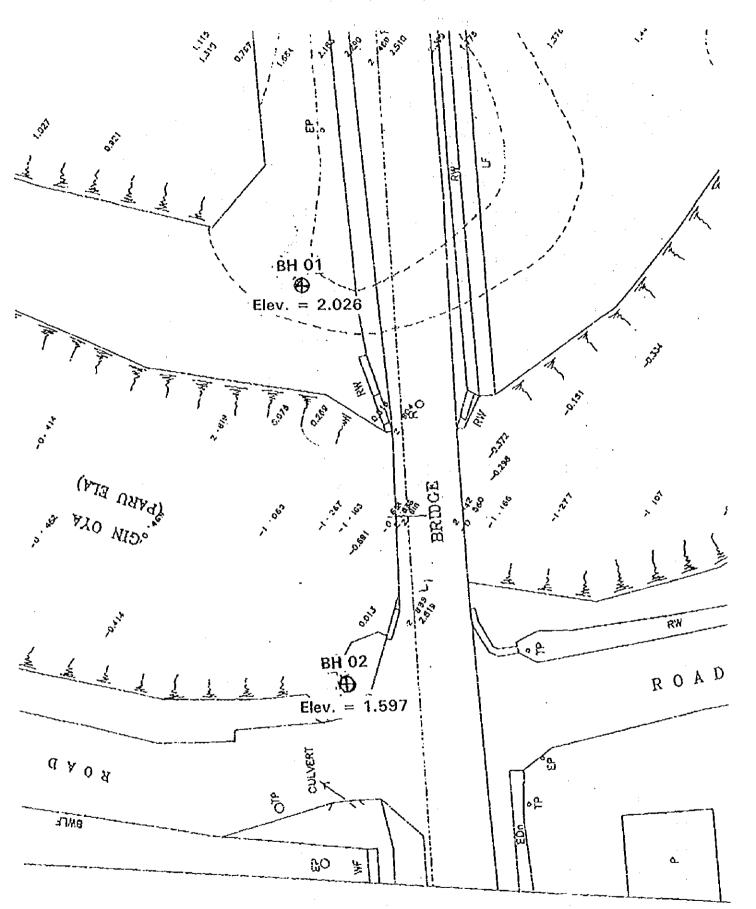


FIGURE II

Bridge No. 32 - Bolawatta, Dankotuwa

Location of Bore Holes

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	2.50	1-0	0	- CC/MC	rown fello-	CLAY HIXED WITH SOME STIFF HODERATELY FLASTIC CLAY HIXED	-		11.5	04	├ 	╂		 	├ · -	 -	╁
		ļ	ļ	ļ	wish Brown	WITH SOME SANDS, AND	Į				<u> </u>		<u> </u>				1
	13.50	1.0	30		.	SILTS											1
1	1,,,,,	† <u>''</u>	1	- JK	Vello-	PERSONE REASENCE ILYS			12,5	15							1
H					Brown	MINEO WITH HICACEOUS MATERIAL					-	┼┈	1		1		\dagger
1									13.5	27		-	\bot		<u> </u>	<u> </u>	4
1			1														
H ·									-					T '	1		1
H					:				14.5	50	-	-		-	\vdash		+
	14.82	0.	V 1	<u> </u>	上二					1	<u></u>			<u> </u>	<u> </u>		_[

•	GEOLOGICAL	RECORD	OF I	BORING	HOLE No. 8H 01 (Contd)
PROJECT Basic	Design Study for	flve Bridge,		LOCATION	No. 32 · Balewetta - Dankatuwe
GROUND ELEVATION	1 .	DEPTH OF	HOLE	17.82 #	ANGLE FROM VERTICAL 0
DIAMETER OF HOLE	100 mm	MACHINE	YBH		DATE OF DRILLING 21st March 1998
CORE RECOVERY	DEP	H TO GROUND WAT	er level	IN HOLE	1.24 m below ground level
	DR	LLED BY H.	M. Vac	realinghe	LOGGED BY 8.5. Yapa

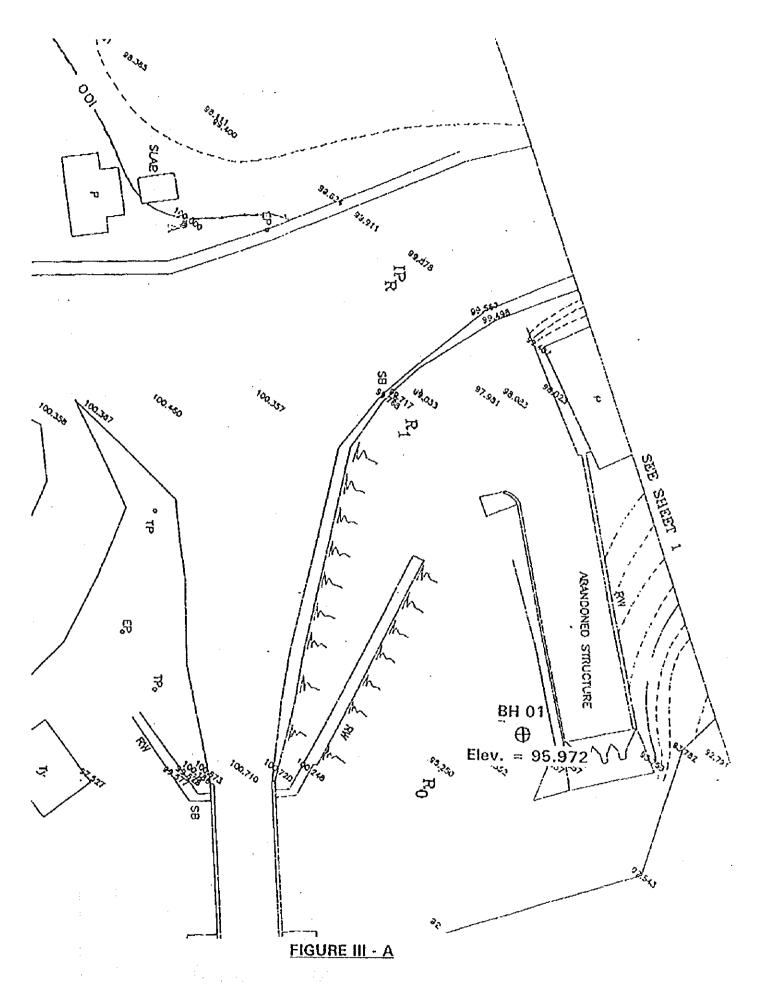
				DRICCE		H.M. Mestesingue			(VED			100				
ELEVA.		THICK-		FIEL	D OBSE	RVATION	CURE	_	STA	NDAR	D PE	ENETE	ATIO	N TE	3 T	
TION (m)	DEPTH	,	COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	RECOVERY	DEPTI (*	N			BLOV				
undundundundundundun	(10)			Charnockit -ic Biotite Gnelss	.	GRADE I ROCK WITH SIJGHTLY WEATHERED ISO mm THICK TOP LAYER CORE RECOVERY-100% R.Q.D. # 48%			(N) (1) ?	0 3	1	0 54) 60	كاستسفاستسإسيسانه
atantanananan kanan	17.62	3.00									:		:			major trailment
in de de la companie						BORE HOLE IERMINATED at 17.82 M SELOW GROUND LEVEL IN GRADE I BED ROCK Notes: 1. Undisturbed Sample 1 is obtained from 1.60 - 2.10 m of depth 2. Undisturbed Sample 2 is obtained from 7.00 - 7.50 m										بماليه بالمراب استمالته المتهامين المتهادية
arian dan dan dan dan dan dan dan dan dan d						of depth										بالبياليين إبييانيان إبيانياني
ليتماسيه مايتياس لسيسياس تسأسن																
الساساساسا																
يمنسل يبيئسيان ينيشل																
				<u> </u>						_L	<u></u>		<u> </u>	1	1	

GEOLOGIC	CAL RECO	RD OF I	BORING	HOLE No. BH - 02 (Contd)
PROJECT : Basic Design Study (or Five Bridge		LOCATION	No.32 - Bolswatta - Dankotowa
GROUND ELEVATION	DEPT	ation ao n	17.60 m	ANGLE FROM VERTICAL 6
DIAMETER OF HOLE 100 mm	MACH	INE YBM	- 05	DATE OF DRILLING 26th Harch 1998
CORE RECOVERY	DEPTH TO CROWN	WATER LEVEL	IN HOLE	0.60 m balow ground level
	DRILLED BY	H.H. Ve	eerasinghe	LOGGED BY 8.5. Yapa

_								,			 				
٤	LEVA		THOCK		FIEL	OBSE	RVATION	CORE RECOVERY			 	NETRA		TES	<u> </u>
1	10N (m)	DEPTH (m)	HESS (m)	COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	% cm	1 1-1	NL (N) (BLO195 30	60 60	50	60
		1.00	1.00		SC/CL	Brown	GRAVELLY COARSE TO FINE SAND WITH SOME PLASTIC FINES								Transfer of the state of the st
and traction front and traction burdens		1.00	1.00		čί	Grey- ish Grey-	VERY SOFT HODERATELY PLASTIC CLAY MIXED WITH SOME SANDS AND SILIS			01					
السراسياسين استاسياسياسياسيا		3.21	2.21		CL/Pt	Black-	VCRY SOFT MODERATELY PLASTIC SLIGHTLY ORGANIC SMELING CLAY MIXED WITH PARTIALLY DECAYED ORGANIC MATTER		.21						
		5.61			SC	Gray	LOOSE TO HODERATELY DENSE COARSE TO FINE SANDS WITH SOME PLASTIC FINES		6.50	11					
The state of the s		7.50			SC	Grey- ish Brown to Yello- ish Brown	DENSE CDARSE TO FINE SANDS WITH SOME PLASTIC FINES		8.50						-
	المرابعة الم	9.50	2.04		HL	Yellow ish Grown	HODERATELY DENSE TO DENSE SLICHTLY PLASTIC CLAYEY SILT WITH SOME SANDS AND MICACCOUS HATTER	5	30.5	01)					
	handandan								1 . 5	040			_		

GEC	LOGICAL F	RECORD OF	BORING	HOLE No. BH . 02 (Contd)
PROJECT Basic Desi	gn Study for	Five Bridge	1.OCATION	No. 32 - Bolawatta - Dankotuwa
GROUND ELEVATION		DEPTH OF HOLD	17.60	M ANGLE FROM VERTICAL 0
DIAMETER OF HOLE	100 mm	MACHINE VO	H - 05	DATE OF DRILLING 26th Heren 1998
CORE RECOVERY	DEPTH 1	TO CHOUND WATER LEVE	EL IN HOLE	0.60 m below ground level
	DRILL	ED BY H.H. We	erasinghe	LOGGED BY B.S. Yeps

ELEYA.		THICK-	 FIELI	08SE	RVATION	COF	E		ST	NDAI	RD PI	ENETI	RATIO	N TE	<u></u>	
	HT930 (m)	MESS	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	RECOV	1 .	DEPTI (n		JM8EI	R OF	BLO	NS 1		,	
1	15.51		 1.1				e m		(N) () 1	3 2	0 3	0 (0 5	<u>} </u>	<u>~</u>
	15.51		 CHARNOCKI- TIC GNE 155	yell. Owish	SINS SITE PIECES											tri face de
ultrafante			EHARNOCKI- TIC GNEISS	Grey	SLIGHTLY WEATHERED TO MODERATELY WEATHERED ROCK										 	Lialista Line
ستأتيمتينا	17.60	1.99	ruc ())		CORE RECOVERY = 43% R.Q.O. = 21%											Atel Aten
minima mi					8085 HOLE 15841NALCO_AL											1
inahan				1	17.60 m 9ELOW 680UNO LEVEL IN 860 ROCK CRADE II - III											dania dani
motoria					Notes: 1. Undisturbed Sample NO.1						<u> </u>					1
atum lunatu					is obtained from 2.71 m to 3.21 m											utantanda
Juntum L.					below the ground level 2. Undisturbed								· · · · · · · · · · · · · · · · · · ·			
Luckant					Sample No. 2 is obtained from 5.00 m											1
					to 5.50 m below the ground level											+
aret fan																
Leastleseries											<u> </u>	\vdash				Guntanh
Annimi																1
uluuluu										_		<u> </u>			<u></u>	
aturitus tumpus tum					:								<u> </u>			land to Alice
																111111111111111111111111111111111111111
1					:						_				_	1
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Total Line										-	<u> </u>				_	1
Indiana.				ļ											7	

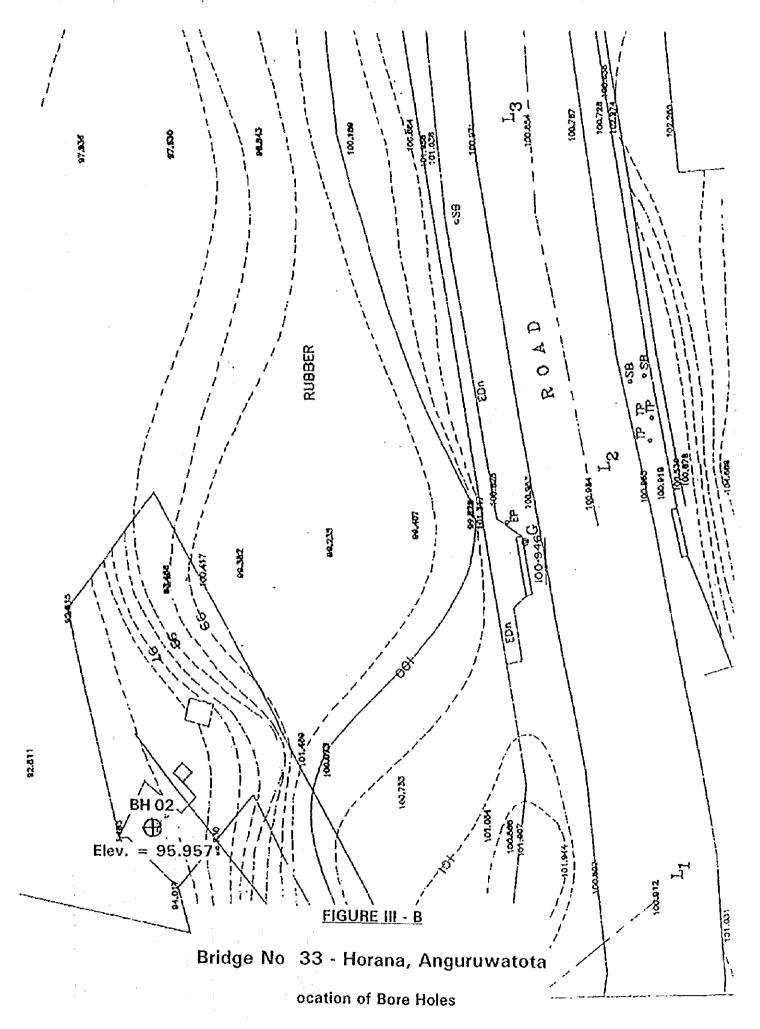


Bridge No. 33 - Horana, Anguruwatota

Location of Bore Holes A - 19

	, 0	EOLOGICA	AL E	RECORD	OF E	ORING		HOLE No.	8H - 01	
PROJECT	8 sic De	sign Studyt o	f fi	ve Bridge Si	ite	LOCATION	No.	3)(Hore	ne :- Anguri	ywstota)
GROUND EL	EVATION			DEPTH OF	H01.E	7.32 m		ANGLE PRO	M VERTICAL	G
DIAMETER	OF HOLE	100 mm		MACHINE	Nenz	1	DATE OF	DRILLING	17thMarch	1998
CORE RECO	VERY		DEPTH	TO CROUND WAT	ER LEVEL	IN HOLE	2.40	n balow g	round leve	l i
			DRILL	ED BY 5	.к.г.	Jayasunda	2.0	LOGGED BY	Y S.K. Jay	saunders

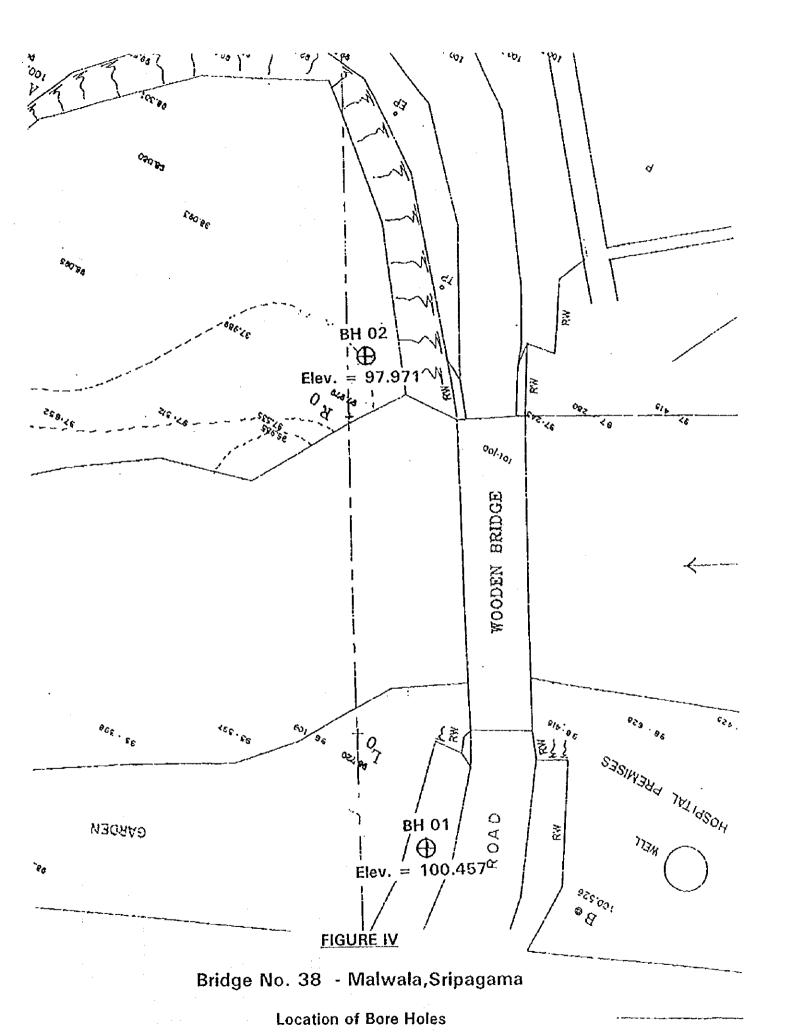
LEVA.		THCK-	 	OBSE	RVATION	CORE				 NETR	<u> </u>		ST	
(m) (M)	DEPTH (m)	115-33	SOLE OR ROCK CLASSIFICATION	COLOUR		RECOVE			MBEF	BLOV 0 30		N 10 S	Λ .	60
	1.15			Cerk Brawn	HUNDS TOP SUIL CONTAINING VEGITABLE HATTERS			4.01						The Manual State Land
	2.60	1.05	Charnockiti Gneies BOULDER	Grey	SCIENTLY TO MODERATELY WEATHERED ROCK					-				littlered broad and little
			5 M	Brown	VERY DENSE SILTY SAND (HIGHLY WEATHERED ROCK)		4.0	50					-	1
	4.34	1.74			Core Recovery: 100%		5.0	50					-	
		į	Charnockit. Gnelva	ic	R.Q.D =100% SLIGHTLY WEATHERED BED ROCK									
													-	
	7.32	2.95			BORE HOLE TERMINATE	2	ļ					-	-	
					AT 7.32 & BELOW GROUND LEVEL IN THE GRADE 1-11 BED ROCK			i i						-
					Note: No UD samples were obtained from									-
					soils									
													-	-



						: .		
	(SEOLOGIC	AL 1	RECORD	OF B	ORING	:	HOLE No. 8H - 02
PROJECT	Basic	Dozign Stu	dy fo	r five Bri	490	LOCATIO	N No.	33 - Horana - Anguruwatota
GROUND EL	ROITAVE			DEPTH OF	HOI.E	9.00 a		ANGLE FROM VERTICAL 0
DIAMETER (OF HOLE	100 mm		MACHINE	YBH	- 05	DATE O	F DRILLING 20th Barch 1998
CORE RECO	VERY		DEPTH	TO GROUND WAT	EK LEYEL	IN HOLE	3.70	m below ground level
	AC RECOVERY			LED BY A	.0. 50	****	1 1	LOCGED BY B.S. Yapa

- . . .

ELEVA-		THECK-		FIELI	OBSE	RVATION	ÇORE		ST	NDAR	D PE	NETI	OITA	N TE	ST	
гюн	DEPTH	NESS	l i	SOIL OR ROCK	COLOUR	DESCRIPTION		DEPTH	N	MBER	OF	BLOV	YS N	· · ·		
(m)	(40)	(=)	32U11UN	CLASSIFICATION CLASS	8 rown	SLIGHTLY PLASTYC CLAY MIXED WITH	% cm	(a)	(N) (10		3	0 4	0 5	0 6	₩
	0.65	0.65				SANO		İ								44.61.03
	1.30	0.65		CONCRE - TE	Grey	DETERIORATED TO SOME EXTENT CORE RECOVERY=66%										and latter
	İ			BOULDER	Grey	HODERATELY WEATHERED										11111
				BOOLOCK		BOULDER CORE RECOVERY=72%										Safetia
						TONC RECOVERY										Heller
		•														1111
																H
			ļ									 -				
	4.05	2.75	 -	BOULDER	Grey	NADED LICEY US AT US OF CO.							ļ			1
	4.40	0.35		BOULDER	Grey	HODERALLLY WEATHERED HODERATELY WEATHERED						<u> </u>		<u> </u>		
	4.90	0.50	 		ļ <u>. </u>	CORE RECOVERY-100%										
	5.25	0.35	1	BOULDER HL/SH	Brown	CORE RECOVERY : 975 VERY FINE SAND HIXED					_ -			1		1
	5.85	0.60	,			WITH NON PLASTIC FINES										
	6.15	0.30		SPAREET'S								 —	 -		-	+
				CHARNOCK- ITIC CNEISS	Grey	MODERATELY WEATHERED CORE RECOVERY 193% R.Q.O. 147%		l								1
	6.95	0.70		EHARNOCK-	Gray	SCIENTLY WEATHERED				ļ						1
	7.60	0.69	5	ITIC GNE ISS		CORE RECOVERY: 94% R.Q.O = 88%			1							-
		1		CHARNOEK-	Green.	FRESH ROCK CORE RECOVERY=96%					Ì				<u> </u>	-
				GNEISS	Grey	R.Q.O. =62%										,
	9.00	1.40														1
	7.00	1				BORE HOLE TERMINATED	4			-		╁╌	┼-	 	 	+
	}					AT 9.00 & BELOW GROUND LEVEL IN				-	 	-	-		-	+
						THE GRADE I BEO		ļ	İ	<u></u>	ļ	<u> </u>	<u> </u>	<u> </u>	ļ	1.
						Note: 1. No undisturbed										ŀ
						soil samples were taken		1								-
						2. No SPI tests								1		1.
			ŧ			were carried out					┢	†		1	1	†.
	1	-							ĺ	-	\vdash	-		-	╁	╀
										<u> </u>	 	ļ		╁—	├	4
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						A - 22	-	. :				: ·				
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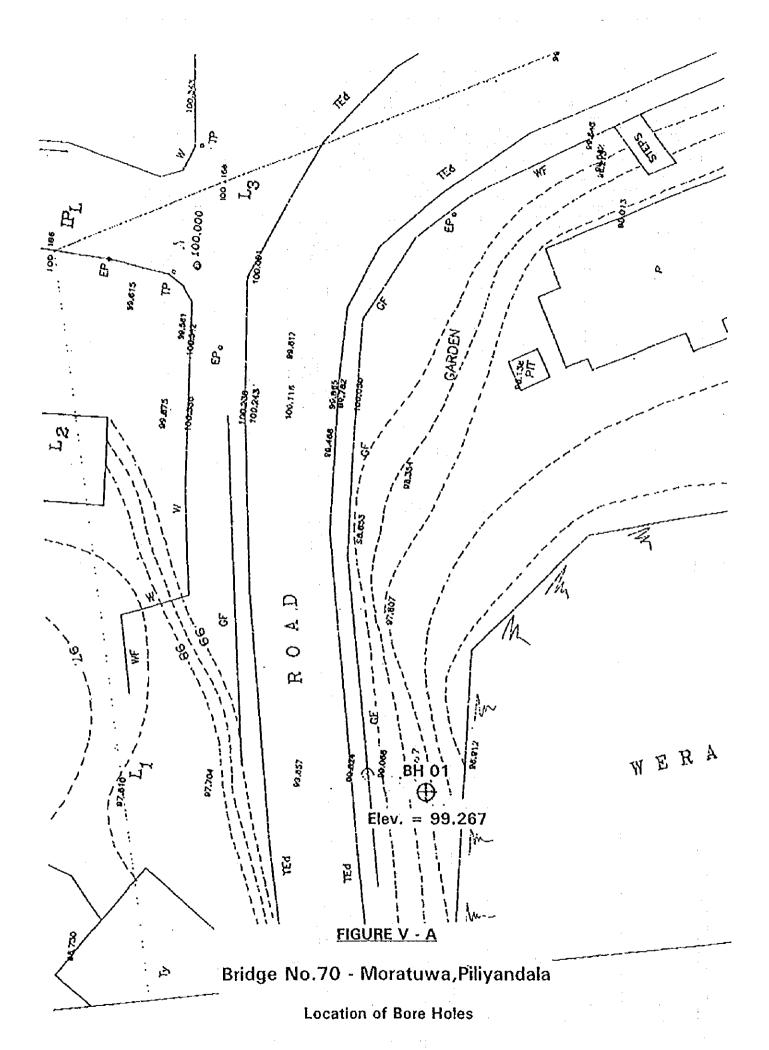
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	G	EOLOGK	CALE	RECORD	OF B	ORING		HOLE No. BH -OI
PROJECT	Basic Des	lgn Study	of flve	8ridge	T	LOCATION	No.	38 - Halwele - Siripagena
GROUND EI	EVATION			DEPTH OF	HO1.E	14.50 m		ANGLE FROM VERTICAL 0
DIAMETER	OF HOLE	100mm	:	MACHINE	MENZI			F DRILLING 23rd March 1998
CORE REC	DVERY		DEPTH	TO EROUND WATE	ER LEYEL	IN HOLE	2.96	m below ground level
	·		DRH.L	ED BY S.X.	P. Jaya	sundere		LOGGED BY S.K. Jayawardana
			· · · · · · · · · · · · · · · · · · ·		-1			

T		1.1.		FIELO	OBSE	RVATION	SACO	T		\$ T	AND.	ARD	PE	NETS	ATIO	אכ	TES	T	٦
ELEVA-	HT930	THICK NESS	COLUMN	SOIL OR ROCK	COLOUR	DESCRIPTION	RECOVER	Ţ	EPTH					BLOV					1
(m)	(m)	(m)	SECTION	CLASSIFICATION			% c1		(m)	(N)	<u> </u>	10	2(3	<u> </u>	40	50	6	0
	1.10	1.10			iight Grey Browni Grey	HVEUS TOP SOIT STIFF/HODERATELY IN OCHSE SANDY STLTY CLAY / SANDY CLAYEY STLT			1.0	96									ستقميطي يتقيينا
				ИL	Greyia Brown	VERY SOFT/VERY LOOS SANDY SILTY CLAY/ SANDY CLAYEY SILT			•		\prod					+	-		أبستسبأنس
	1.95	0.63		SM/SC	Brown Reddia Brown	VERY LOOSE SILTY TO CLAYEY SANO			2.0	03						-			ساب نسا
	3,10	1.15						ļ	3.0	01		1				_	_		111111
				ML.	Oack Grey	VERY SOFT SANDY SILTY CLAY					$\not\mid$	4			_	1			4,441
<u> </u>	3.65	0.75	 	 		HIGHLY WEATHERED		ļ	4.0	07		\prod							
,	3.95	0.10		8oulder SM	Grey	LOOSE SILTY SAND						\prod				-	_		1
1	4.80	0.85	-	MŁ	Yellov Brown	SANOVERALLY CEASE	_		5.0	07	-	\prod			-	+		 .	1
1	5.45	0.65		\$c sc	.	STATES SAND					-	#			-	+			1
and market	6.45	1.00							6.0	08	-	\parallel		 	 	+			man
Juntania				CC .	Brown	SICIY CLAY			7.0	0.9		1			-	1			Lutur
											-	-	 -		-	╁	\dashv		1
1	8,00	0.45		Boulder	Whiti		-!!!!!!	ļ	a. c	13		\dashv	+		-	\dagger	\dashv		
	9.00	0.59		- cc	Grey i Grey i Brown	1		1		İ	卜	\dashv	au		 	†			1
ماسماها ماد	1			GRANULITIC GNEISS (REO ROCK)	Brown	WEATHERED ROCK !			9.0	119									
	9.85	0.8		- do -	Grey ,		<u>-</u>		o ,	0 50	,	_		ļ	_	1	\leq) –	ļ
ساسيان	20.00	0.1	3	GRANULITIC GNE 155		COMPLETELY DECOMPOS	£ o				L	-		-	_	-			
1				(BEO ROCK)		ROCK PIECES			ļ.,	5 50	• -	_		-	+	\downarrow	•••	-	1
-Tenedama	1.80	1.8	. 0								-			-	-	+			H
				GRANULITIC GNEISS (BED ROCK)		HODERATELY WEATHERED - FRESH ROCK		1	2.0	5 (1		-	1
																	:	_	
											-				ļ	_		ļ	1
lumliumi											-			+-	+-	+		_	+
 	4.50	2.7	0			BOREHOLE TERMINATEO AT 14,50 m SELOW IN THE CHADE 1 B	<u>.</u>				-			-	-	\dashv			
L3		L			1	RUCK	-2000	ــــــــــــــــــــــــــــــــــــــ	:									i	
						A - 24							. :						

G	EOLOGICAL I	RECORD	OF B	ORING		HOLE No.	BH - 02
PROJECT Besic De	elgn Study for Fil	e Bridge		LOCATION	No.)0 - Halwais	- Stripagama
GROUND ELEVATION		DEPTH OF	HOLE	10.03 m		ANGLE FROM	VERTICAL O
DIAMETER OF HOLE	100 mm	MACHINE	Nanzi		DATE O	P DRILLING	27th Harch 1998
CORE RECOVERY	DEPTH	TO GROUND WATE	R LEYEL	IN HOLE	0.00		
	DRILI	ED BY 5.X	.P. Je	esundeta		LOGGED BY	B.S. Yapa

				C(C)	ORSE	RVATION	COR			STA	NDAR	D PE	NETR	ATIO	N TES	Г	٦
ELEVA-	DEPTH	THECK-	COLUMN	SOIL OR ROCK			RECOV		KPTN			OF				<u> </u>	7
(m)	(m)	(m)	SECTION	CLASSIFICATION	COLOUR	DESCRIPTION	%	c m	1-1	(N) (6	
	0.86	0.86	,	. cı	Blac- ish Brown	VERY SOFT SLIGHTLY PLASTIC CLAY MIXED WITH SOME SANO							_				and mark
1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m				CL	Yell- owish	SOFT SLIGHTLY PLASTIC CLAY MIXED WITH SOME			1.0	0.2							111111111111111111111111111111111111111
المان	2.00	1.14			Brow	SANOS				;							11111111
Time transfer	3,00	1.00		MŁ/SH	Yell- awish Brown	STIFF/OENSE SLIGHTLY PLASTIC CLAYEY SILTS HIXCO WITH SOME SANDS			\$.0								de deservices
	3.45	0.45		SM	Brown	Jange Bilde Ellinco			3.0	"							
- International Control of the Contr	4.00	0.55		HL/SH	Brown	SILENTEL STREET SALES			4.0	14							
nappen lande		1.00		ML	Brown				•••				_				
	5.00	1.00		#i	Yell- ieh Brown	OCNSE SLIGHTLY PLASTIC CLAYEY SILIS HIXEO WITH LITTLE AHOUNT OF			5.0	26			\nearrow				- Tunnan
	6.00	1.00	ļ		ļ <u> </u>	SANDS	-		6.0	17		-	<u> </u>	!			H
	6.45	0.45	ļ	MŁ	81041	PENSELSCLENIEN SILIS MIXED WITH	_		:			`	7	ļ			17
ահանանան				SM	Yell- ish Brown	VERY DENSE FINE TO COARSE STLTY SAND WITH MICA (COMPLETELY DECOMPOSED ROCK)			7.0	34				7			والسلسانسان
adaminatani.	9.00	2.5	5						8.0								dudindum.
Thursday, and the second		1.0		SH	-ffsY deiwo nwos8	VERY DENSE FINE ID COARSE SILIV SAND WITH MICA (HIGHLY DECOMPOSE ROCK)			9.0								Literatura
The state of the s	10.07	1	1-	-		BORC_HOLC ICRHINALED AL IOJO2 m BECOH		1	0.0	59						>	1
						GROUND LEVELY MEATHERED BED					-	-					1
						ROCK (GRADE 14) Note: 1. UD sample NO.1	1										
mountain						is obtained from the depth 0 to 1.00 m below the					-		-	<u> </u>		. 	- Inni
and and and and						ground level					-		-				1
1																	
												<u> </u>	-	<u> </u>	 		
			<u> </u>		1	<u> </u>						<u> </u>			1_		



	(GEOLOGIC	AL F	RECORD	OF E	ORING		HOLE No. 8H - 01
PROJECT (BASIC OF	SICH STUDY OF	EIVE	BRIDGE	· · ·	LOCATION	No.7	D (Moretuwe - Piliyandela)
GROUND ELE	HOITAVE	At the road	to lev	DEPTH OF	HOLE	14.45 m		ANGLE FROM VERTICAL 0
-DIAMETER O	E HOLE	\$00 mm		MACHINE	YBH	- 05	DATE OF	F DRILLING 11th Match 1998
CORE RECOV	VERY		DEPTH :	TO CROWN WATE	ER LEVEL	IN HOLE	3.07	a below ground level
			DRILL	ED BY R	.D. Saa	napale		LOGGED BY 5.K. Jayawardana

FIELD OBSERVATION						CORE STANDARD PENETRATION TEST								٦				
ELEVA-	DEPTH	THECK-	K- }					OVERY DEPTI NUMBER OF BLOWS N										
TION (m)		NESS (=)	SECTION	SOIL OR ROCK CLASSIFICATION	COLOUR	DESCRIPTION	% cm	1 4-										
<u> </u>	1					CHICA SARUES		t	1077	<u> 10</u>	2	30	1	0 50 		50 		
<u> </u>	}					FILLED GROUND FOR THE ROAD		l								Ц		
1						EHBANKMENT		l								4		
H								1.0	09	 						H		
	1									<u> _/</u>						13		
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H		1						2.0	06	┝╌╂╌┨						H		
		i							l							Ц		
Time I		ļ]					l		4		
	3.05	3.05		1 HL	V . 1 1 0 w	shSOFT SANOY SILTY		3.8	0.5	┠┈╽ ╺┨						H		
1	3,45	0.40		nt.	810#0	CLAY										Li		
				ML		h SOFT SANDY SILTY CLAY			1									
-			1		Brown	CCAI		4.0	04	┠╌╂╼┨						H		
1	4.50	1.15														Ц		
1	1.00	 	 	HC	Light	VERY SOFT SANOY				/]						-		
H	5.25	0.65		}	Stewn	SILTY CLAY		5.0	01	╠┈┤						H		
	1	+===		sc	Brown	LOOSE TO HODERATELY			1				!			Ц		
			}			DENSE SANDY CLAYEY STET										4		
H	1					, , , , , , , , , , , , , , , , , , , 			1	1-1-						1		
14										$\lfloor \ floor \rfloor$								
1	6.80	1.55			ļ				1									
	1			SM	Grey	MODERATELY DENSE		7.0	0.9							H		
lul International	7.50	0.70				JIETT SAME												
	1	·		HL	Stey	HODERATELY DENSE			İ									
<u> </u>	8.00	0.50		SM	Derk	SANDY CLASEY. SILL MODERATELY DENSE		8.0	11			<u> </u>]		
[4]	8.40	0.40		an	Brown	SILTY SAND		1	·							-		
1		T		ы	Derk Brown	SOFT SANDY SILIY												
13	9,10	0.50		SM	Liebt	COOSE SYNOT SICT	-	9.	0 01	/ _						13		
	9,30	0.20	Ī		Sier Grey	SOFF SELTY CLAY							i			1		
H	9.75	0.45		HL	Light Grey	SOFT SANDY SILTY			1			1						
	1	1		ML	Dark	CLAYEY SILT SOFT		10.	0 02	,	ļ	ļ	ļ					
10		1			Grey	TO VERY SOFT		1	1 "]]								
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13												ŀ	l			1		
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		1		1		•		13.	d i	<u>.</u>	\Box	<u></u>	ļ	 	ļ	\prod		
	3.30	3.53		 	l .	DENSE TO VERY DENSE		'] [1					1			
H			1	ия	Dark Grey	HICAEEOUS SILT				 		 	1	<u> </u>	ļ	+		
[]	-					(COMPLETELY DECOMPOSED ROCK)		14.	. 6 51	<u>, </u>					-}-			
	4.45	1.15			1			```	``[`			1				,		
H	1	+	 	Notes	 	BORE HOLE TERMINATED	7	1		-		+	1		-	+		
[4]				UD Samples	could.	AT 14.45 & BELOW		\perp	\perp		L					1		
·				<u> </u>		VEATHERED ROOK COM						,						

	G	EOLOGIC	CAL F	RECORD	OF B	IORING		HOLE No. 84 - 02
PROJECT	Besic Des	ign Study o	F F144	Bridge .	1	LOCATION	No.	70 (Piliyandala - Moratuwa)
GROUND EL	EVATION			DEPTH OF	HOLE	9,75 m		ANGLE FROM VERTICAL 0
DIAMETER O	F HOLE	100 mm		MACHINE	NENZI		DATE 0	F DRILLING 13th March 1998
CORE RECO	VERY		DEPTH 1	TO CROUND WATE	ER LEVEL	IN HOLE	0.70 m	batom ground lavel
		DRILL	ED BY . S.	K.P. J.	yasundeta		LOGGED BY S.K. Jayswardens	

<u> </u>				DRILLE	ову.	S.K.P. Jayasundera		LOG	CED	BA	5.K	. Јву				_1
r				P101 I	ABSE	RVATION	CORE		STA	NDAR	D PF	NETR	ATION	TES	r	7
ELEVA.	DEPTH	130CX			0036	KINTION	RECOVERY	VC COT								1
TION (m)		NESS (m)	COLUMN SECTION	SOIL OR ROCK CLASSIFICATION	COLCUR	DESCRIPTION	% km	1 (~)	ľ			BLOW			50	
(10)	\	,,		5H	Dark	SANOY SILI AND	lum l		(N) (1	2(30	- †	50	<u>î</u>	+
11				• • •		STETY SAND							ļ			1
Ħ								1								1
1	1.35	1.15]					1.0	09							4
	!			HL		SH VERY SOFT						1				1
H	1		}		8rown	SANDY CLAY		1								1
			ļ					2.0	0)	-						4
14		İ	ļ		}											4
H	1	1	1						ļ							1
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1	3.30	2.15			mek	VERY SOFT SANOY STU		'''	1]		- 1	4
1	3.50	0.20		ML	Yello	CLAY LISTVERY SOFT SAND SILIY CLAY	7		1	 	 					1
[]	3.90	0.40	 	 	Redds	SILIY CLAY		a.r	01	<u> </u>	<u> </u>					1
	4.35	0.45			Brawn	SILTY CLAY		"				[1
1	1			HL	Onck Gray	VERY SOFT SILTY CL				}}		 			-	7
					'					1						
	1							5.2	02	IL .						4
H	5.58	1.21	 	HE	Dark	VERY LOOSE SANOY	-1111111			1	 					H
3	5.90	0.34	4	1	Grey Light	CLAYEN STIT				L.	<u> </u>					1
	ļ	1	1	514	Gray	SILTY SAND		6.0	12	[2
	6.60	0.70			<u> </u>						/			-+		H
-	6.60	0.20	 	5.11	Oark Grey	BODERATELY DESNE		١		ĺ.,	l _					1
	1			SM	Light	NODERATELY DENSE SANDY SILI		7.0	09							1
					-			1		-	₩-			 		Н
1			1		1			١.,	1	ł	1					1
H	8.20	1.40	<u> </u>	म् म	1	-HOOCRATELY DENSE		B.U	135							
	8.70	0.50	,	,,,,	F135	SANDY CLAYEY SILT				<u> </u>	ļ	\vdash				H
4			 	HL		SANDY SILTY CLAY					ĺ					
H	9.15	0.43		 	Grown	WENTHERED BUCKY		9.0	1 50		1					I
	9.15	0.60	,	Charnockit. Gneiss	150167	FRESH-SLIGHTLY WEATHERED ROCK				<u> </u>	<u> </u>			 		H
11	7.17	10.00	-	1	+-					1						4
H						BORE HOLE TERMINAT	<u>cd</u>	1			1					日
7	İ				1	AT 9.35 M BELOW			1	<u> </u>	ļ	 		 		H
[4						GRACE I - II					1					目
H						Notes:		Ì		-	1	†				H
										<u></u>	 	 		ļļ		H
[4]				1	1	1. UO Sample No. 1 from 4.50 m to									ı	-
H						5.2 m depth					1					
1				1		2. UŠčiSample No. 2				<u> </u>	 	 				#
[-]						From 6.50 m to										-
H					1	7.00 m depth					 	\vdash	<u> </u>			目
[1]									,	ļ	1	1			ļ	$\downarrow 1$
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11	L					<u>_</u>	<u> manana</u>		ــــــــــــــــــــــــــــــــــــــ		Ц		L	لـــــا	L	1.3

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