PT. Geo ACE
Jln. Pajajaran no. 125
BANDUNG, INDONESIA

SUBSURFACE EXPLORATION LOG

BORING NO : B - 33
SHEET : 2 OF 2
TOTAL DEPTH : 35.00 M

PROJECT : ADDITIONAL GEOLOGICAL SURVEY FOR THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RECOURCES DEVELOPMENT IN SEMARANG, IN THE REPUBLIC OF INDONESIA
LOCATION : DAM SITE
FEATURE :
AREA DESIGNATION :
GROUND ELEVATION : Z = 88.096
COORDINATES : X = 428278.793 Y = 9222208.185
DEPTH OF G.W.L : .....

COMMENCEMENT DATE : 26 August 1998
COMPLETION DATE : 2 September 1998
ANGLE : Vertical , BEARING :
DRILLER : Tatang / Udi
SUPERVISOR : H. Otaka
LOGGED : Tonny Lesmana
DRILLING MACHINE : YSO - 01

1	2	3	4	5	6	7 CORES							8	9	10	11	12	13	14	15 WATER PRESSURE TEST		16 REMARKS
DATE	SCALE	DEPTH IN METER	G.W.L IN METER	CORE BARREL & BIT TYPE	CASING TYPE	DEPTH OF WATER LOSS	RUN NO.	% RECOVERY	R.Q.D. in %	LITHOLOGY	GRAPH OF RQD 0 20 40 60 80 100	LOG	METHOD OF SAMPLING	DESCRIPTION OF LITHOLOGY	ROCK CLASSIFICATION	WEATHERING	HARDNESS	JOINT SPACING	S.P.T. BLOW / 30 CM	CM / SECOND	LUGEON	CORING / SPT / SAMPLING
1 SEPTEMBER 1998	35							90						14.10 - 33.60 m : VOLCANIC BRECCIA, dark grey, slightly to medium weathered, dense, strong rock. Components: andesite & pumice fragments. Matrix: tuff.								
	36							90														
	37							90														
	38							95														
	39							83														
	30							100														
	31							90														
	32							100						31.50 m : TRACE OF WOOD.								
	33							70						33.60 - 34.60 m : TUFFACEOUS SILTSTONE, grey, dense, strong rock with white speckles of tuff material, MW, containing black minerals.								
	34	33.60						70						34.60 - 35.00 m : VOLCANIC BRECCIA, dark grey, slightly to medium weathered, dense, strong rock. Components: andesite & pumice fragments. Matrix: tuff.	CM-H							
	35	34.60	0.25	NMLC dia. 73 mm	CASING dia. 89 mm									BOTTOM OF HOLE								

Fig. 1.1.32 Subsurface Exploration Log No. B – 33 (2 of 2)

PT. Geo ACE
Jln. Pajajaran no. 125
BANDUNG, INDONESIA

SUBSURFACE EXPLORATION LOG

BORING NO : B - 34
SHEET : 1 OF 1
TOTAL DEPTH : 10.00 M

PROJECT : ADDITIONAL GEOLOGICAL SURVEY FOR THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RECOURCES DEVELOPMENT IN SEMARANG, IN THE REPUBLIC OF INDONESIA
LOCATION : DAM SITE
FEATURE :
AREA DESIGNATION :
GROUND ELEVATION : Z = 100.559
COORDINATES : X = 428103.083 Y = 9222162.478
DEPTH OF G.W.L : 1

COMMENCEMENT DATE : 28 August 1998
COMPLETION DATE : 29 August 1998
ANGLE : Vertical , BEARING :
DRILLER : Umar / Komarudi
SUPERVISOR : H. Otaka
LOGGED : Tonny Lesmana
DRILLING MACHINE : YSO - 01

1	2	3	4	5	6	7 CORES							8	9	10	11	12	13	14	15 WATER PRESSURE TEST		16 REMARKS
DATE	SCALE	DEPTH IN METER	G.W.L IN METER	CORE BARREL & BIT TYPE	CASING TYPE	DEPTH OF WATER LOSS	RUN NO.	% RECOVERY	R.Q.D. in %	LITHOLOGY	GRAPH OF RQD 0 20 40 60 80 100	LOG	METHOD OF SAMPLING	DESCRIPTION OF LITHOLOGY	ROCK CLASSIFICATION	WEATHERING	HARDNESS	JOINT SPACING	S.P.T. BLOW / 30 CM	CM / SECOND	LUGEON	CORING / SPT / SAMPLING
26 AUGUST 1998	1	1.40	1.00	STC dia. 73 mm	CASING dia. 89 mm									0.00 - 4.60 m : RIVERBED DEPOSIT, brown, medium to coarse sand, well graded, loose, moist to wet, having some amount of gravels with dia. 2 to 10 cm.								
	4																					
	5	5.00						100						4.60 - 5.00 m : CONGLOMERATIC SANDSTONE, grey, coarse grained, dense, medium graded, wet, highly weathered.	CL-H							
29 AUGUST 1998	6	6.10	1.00	TTC dia. 73 mm										5.00 - 6.10 m : COARSE SANDSTONE, grey, coarse grained, very dense, well graded, slightly weathered.								
	7													6.10 - 8.50 m : CONGLOMERATIC SANDSTONE, grey, coarse grained, loose to medium dense, medium graded.	CM-L							
	8	8.50												8.50 - 10.00 m : FINE SANDSTONE, grey, fine grained, well graded.	CL-H							
	9	10.00												BOTTOM OF HOLE								

Fig. 1.1.33 Subsurface Exploration Log No. B – 34 (1 of 1)

PT. Geo ACE
Jln. Pajajaran no. 125
BANDUNG, INDONESIA

SUBSURFACE EXPLORATION LOG

BORING NO : B - 35
SHEET : 1 OF 1
TOTAL DEPTH : 20.00 M

PROJECT : ADDITIONAL GEOLOGICAL SURVEY FOR THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RECOURCES DEVELOPMENT IN SEMARANG, IN THE REPUBLIC OF INDONESIA
LOCATION : DAM SITE
FEATURE :
AREA DESIGNATION :
GROUND ELEVATION : Z = 150.163
COORDINATES : X = 428281.104 Y = 9222050.459
DEPTH OF G.W.L. : NONE

COMMENCEMENT DATE : 19 September 1998
COMPLETION DATE : 21 September 1998
ANGLE : Vertical , BEARING :
DRILLER : Asep / Sobari
SUPERVISOR : H. Otaka
LOGGED : Tonny Lesmana
DRILLING MACHINE : YBM - 3ES

1	2	3	4	5	6	7						8	9	10	11	12	13	14	15		16
						CORES													WATER PRESSURE TEST		REMARKS
DATE	SCALE	DEPTH IN METER	G.W.L IN METER	CORE BARREL & BIT TYPE	CASING TYPE	DEPTH OF WATER LOSS	RUN NO.	% RECOVERY	R.Q.D. in %	LITHOLOGY	GRAPH OF R.Q.D (0 20 40 60 80 100)	LOG	METHOD OF SAMPLING	DESCRIPTION OF LITHOLOGY	ROCK CLASSIFICATION	WEATHERING	HARDNESS	JOINT SPACING	S.P.T. BLOW / 30 CM	LUGEON	LUGEON	☐ CORING ☐ SPT ☒ CORE LOSS
19 SEPTEMBER 1998				STC dia. 73 mm	CASING dia. 89 mm									0.00 - 2.80 m : TUFFACEOUS SANDSTONE, brown, low plasticity, moist, having white speckles of tuff materials.							
														2.80 - 4.00 m : CONGLOMERATE, andesite (component), clay (ground mass); gravel's dia. 4.0 - 10.0 cm.	D						
														4.00 - 5.00 m : TUFF, yellow, soft to firm, high plasticity, moist, having black mineral's, yellow mottled of iron oxide.							
														5.00 - 10.20 m : TUFFACEOUS SANDSTONE, yellow, dense, medium to fine grained, poorly graded, weak rock.	CL - L						
20 SEPTEMBER 1998				NMLC dia. 73 mm				100	40					10.20 - 10.60 m : GRAVELY SANDSTONE, loose.							
								100	50					10.60 - 11.20 m : TUFFACEOUS SANDSTONE, yellow, medium strong rock.	CL - H						
								40	20					11.20 - 12.30 m : CONGLOMERATE (loose).							
								40	20					12.30 - 12.50 m : TUFFACEOUS SANDSTONE.	CL - L						
								65	75					12.50 - 14.00 m : SANDSTONE (medium to coarse grained), brown, well graded, weak rock.	CL - H						
								65	0					14.00 - 14.80 m : CONGLOMERATE (loose), grey, dia. 1.0 - 10.0 cm.							
														14.80 - 17.70 m : TUFFACEOUS SANDSTONE, yellow, loose to medium dense, fine grained, poorly graded.							
21 SEPTEMBER 1998				STC dia. 73 mm										17.70 - 18.00 m : CONGLOMERATE, yellow, loose, moist, consisting of andesite & sandstone gravels.							
														18.00 - 20.00 m : SANDSTONE (medium to coarse grained), light brown, loose, moist.	CL - L						
														BOTTOM OF HOLE							

Fig. 1.1.34 Subsurface Exploration Log No. B – 35 (1 of 1)

PT. Indra Karya (Persero)
Consulting Engineers

Fig. 2.1.1 DRILL LOG

HOLE No. RA - 1

PROJECT	JATIBARANG DAM		DEPTH	30.80 M	ELEVATION	165.694 M
SITE	RESERVOIR	COORDINATE X= 9,223,554.590 Y= 428,575.699	INCLINATION	VERTICAL	DRILL RIG	TONE UD - 5
CLIENT	J I C A	DATE Nov. 13, 1997 till Nov. 25, 1997	DRILLED BY	SUMALI	LOGGED BY	DIDIK PRANOWO

DATE	SAMPLING	DEPTH	ELEVATION	COLUMN SECTION	DESCRIPTION	GROUND WATER LEVEL	ROCK GRADE	CORE RECOVERY %	R Q D %	WATER PRESSURE TEST LUGEON VALUE
								50	50	0 10 20 30 40 50
NOVEMBER 13, 1997		1			EMBANKMENT			100	0	
		2	1.90	163.794				100	0	
		3	2.90	162.794	SILTSTONE , soft ~ stiff , blackish grey			100	0	
		4						100	0	
		5						100	0	
		6						100	0	
		7						100	0	
		8						100	0	Lugeon Value = 32.21 Critical Pressure = 1.23 kg/cm²
N. 18 NOVEMBER 14, 1997		9						100	0	
		10						100	0	
		11						100	0	
		12						100	0	
		13						100	0	Lugeon Value = 4.50 Critical Pressure = 3.48 kg/cm²
		14						200	0	
		15						100	0	
		16						100	0	
N. 19 NOVEMBER 19, 1997		17			MUDSTONE , soft ~ stiff , blackish grey		CL - L	100	0	
		18						100	0	Lugeon Value = 4.28 Critical Pressure = 2.51 kg/cm²
		19						100	0	
N. 22 NOVEMBER 22, 1997		20						100	0	
		21						100	0	

N.22 NOVEMBER 19, 1997	N.18 NOVEMBER 14, 1997						
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17		MUDSTONE , soft ~ stiff , blackish grey			CL - L	100	0
18						100	0
19						100	0
20						100	0
21						100	0
22						100	0
23						100	0
24						100	0
25						100	0
26						100	0
27						100	0
28						100	0
29						100	0
30	30.00	135.594				100	0
		END OF DRILLING					

Lugeon Value = 32.21
Critical Pressure = 1.23 kg/cm²

Lugeon Value = 4.50
Critical Pressure = 3.48 kg/cm²

Lugeon Value = 4.28
Critical Pressure = 2.51 kg/cm²

Lugeon Value = 0.23
Critical Pressure = 2.51 kg/cm²

Lugeon Value = 0.95
Critical Pressure = 3.58 kg/cm²

NOV.25 NOV.24, 1997 NOV.23, 1997

F-2-1

* R. Q. D. = Rock Quality Designation = (Total Length of Cylindric Cores longer than 10 cm) / (Total Core Length) x 100 %
* LUGEON VALUE is ltr/min/mtr under injection water pressure by 10 kgf/cm2
* G. W. L. = Ground Water Level = Height of Spring Water

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Fig. 2.1.2 DRILL LOG

HOLE No. RA - 2

PROJECT	JATIBARANG DAM			DEPTH	35.00 M	ELEVATION	176.358 M
SITE	RESERVOIR	COORDINATE	X = 9,221,471.492 Y = 428,534.944	INCLINATION	VERTICAL	DRILL RIG	TONE UD - 5
CLIENT	J I C A	DAYE	Nov. 28, 1997 till Dec. 05, 1997	DRILLED BY	SUMALI	LOGGED BY	DIDIK PRANOWO

DATE	SAMPLING	DEPTH	ELEVATION	COLUMN SECTION	DESCRIPTION	GROUND WATER LEVEL	ROCK GRADE	CORE RECOVERY %	R Q D %	WATER PRESSURE TEST LUGEON VALUE
								50	50	0 10 20 30 40 50
NOVEMBER 28, 1997		1.50	174.858		SECONDARY DEPOSIT			100	0	
		3.10	173.258		SILTSTONE , dense , brown		CL - L	100	0	
NOVEMBER 29, 1997								100	0	
								100	0	
								100	0	
								100	0	Lugeon Value = 42.60 Critical Pressure = 0.98 kg/cm²
								100	0	
								100	0	
NOV. 30					MUDSTONE , soft ~ stiff , blackish grey		CL - L	100	0	
								100	0	
DEC. 01, 1997								100	0	Lugeon Value = 5.16 Critical Pressure = 1.54 kg/cm²
								100	0	
								100	0	
								100	28	
DECEMBER 02, 1997								100	20	
								100	0	Lugeon Value = 4.34 Critical Pressure = 2.54 kg/cm²
								100	0	
								100	0	
		20.30	156.058							

10			MUDSTONE , soft ~ stiff , blackish grey	CL - L	100	0	
11					100	0	
12					100	0	
13					100	0	Lugeon Value = 5.10 Critical Pressure = 1.54 kg/cm²
14					100	0	
15					100	0	
16					100	28	
17					100	20	
18					100	0	Lugeon Value = 4.34 Critical Pressure = 2.54 kg/cm²
19					100	0	
20					100	0	
21	20.30	156.058	TUFFACEOUS SANDSTONE , dense , dark brown	CL - L	100	0	
22	20.80	155.558			100	0	
23					100	0	Lugeon Value = 3.29 Critical Pressure = 1.58 kg/cm²
24					100	0	
25					100	0	
26					100	0	
27					100	0	
28					100	0	Lugeon Value = 0.27 Critical Pressure = 1.58 kg/cm²
29			SILTSTONE , soft ~ stiff , blackish grey with shell fragment (27.60) & marl (31.70)	CL - L	100	0	
30					100	0	
31					100	0	
32					100	0	
33					100	0	Lugeon Value = 0.40 Critical Pressure = 2.61 kg/cm²
34					100	0	
35	35.00	141.358			100	0	
			END OF DRILLING				

* R. Q. D. = Rock Quality Designation = (Total Length of Cylindric Cores longer than 10 cm) / (Total Core Length) x 100 %

* LUGEON VALUE is ltr/min/mtr under injection water pressure by 10 kgf/cm2

* G. W. L. = Ground Water Level = Height of Spring Water

PT. Indra Karya (Persero)
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Fig. 2.1.3 DRILL LOG

HOLE No. RA - 3

PROJECT	JATIBARANG DAM		DEPTH	30.00 M	ELEVATION	163.778 M
SITE	RESERVOIR	COORDINATE X = 9,221,654.218 Y = 428,624.547	INCLINATION	VERTICAL	DRILL RIG	TONE UD - 5
CLIENT	J I C A	DATE Oct. 31, 1997 till Nov. 17, 1997	DRILLED BY	SUMALI	LOGGED BY	DIDIK PRANOWO

DATE	SAMPLING	DEPTH		ELEVATION	COLUMN SECTION	DESCRIPTION	GROUND WATER LEVEL	ROCK GRADE	CORE RECOVERY %	R Q D %	WATER PRESSURE TEST LUGEON VALUE
									50	50	0 10 20 30 40 50
OCT. 31		1	1.05	162.728		EMBANKMENT (disturbed siltstone with gravel)			100	0	
NOV. 01		2							100	0	
		3							100	0	
		4							100	0	
		5							100	0	
		6							100	0	
		7							100	0	
		8							100	0	Lugeon Value = 80.10 Critical Pressure = 1.85 kg/cm²
		9							100	0	
		10							100	0	
		11							100	0	
		12							100	0	
NOVEMBER 02, 1997		13							100	0	Lugeon Value = 28.52 Critical Pressure = 2.94 kg/cm²
		14							100	0	
NOV. 03		15							100	0	
		16				SILTSTONE , soft ~ stiff , blackish grey		CL - L	100	0	
		17							100	0	
NOVEMBER 04, 1997		18							100	0	Lugeon Value = >100 Critical Pressure = – kg/cm²
		19							100	0	
		20							100	0	

NOVEMBER 02, 1997 | NOV. 03 | NOVEMBER 04, 1997 | NOV. 05 | NOV. 06 | NOV. 10 | NOV. 15 | NOV. 17, 1997

SILTSTONE , soft ~ stiff , blackish grey

CL - L

5 – 6	100	0	
6 – 7	100	0	
7 – 8	100	0	Lugeon Value = 80.10 Critical Pressure = 1.85 kg/cm²
8 – 9	100	0	
9 – 10	100	0	
10 – 11	100	0	
11 – 12	100	0	
12 – 13	100	0	Lugeon Value = 28.52 Critical Pressure = 2.94 kg/cm²
13 – 14	100	0	
14 – 15	100	0	
15 – 16	100	0	
16 – 17	100	0	
17 – 18	100	0	Lugeon Value = >100 Critical Pressure = – kg/cm²
18 – 19	100	0	
19 – 20	100	0	
20 – 21	100	0	
21 – 22	100	0	
22 – 23	100	0	Lugeon Value = 0.06 Critical Pressure = 3.27 kg/cm²
23 – 24	100	0	
24 – 25	100	0	
25 – 26	100	0	
26 – 27	100	0	
27 – 28	100	0	Lugeon Value = 3.58 Critical Pressure = 4.31 kg/cm²
28 – 29	100	0	
29 – 30	100	0	

30 | 30.00 | 133.778

END OF DRILLING

* R. Q. D. = Rock Quality Designation = (Total Length of Cylindric Cores longer than 10 cm) / (Total Core Length) x 100 %
* LUGEON VALUE is ltr/min/mtr under injection water pressure by 10 kgf/cm2
* G. W. L. = Ground Water Level = Height of Spring Water

PT. Indra Karya (Persero)
Consulting Engineers

Fig. 2.1.4 DRILL LOG

HOLE No. RA - 4

PROJECT	JATIBARANG DAM		DEPTH	40.00 M	ELEVATION	181.960 M	
SITE	RESERVOIR	COORDINATE X: 9,221,827.654 Y: 428,709.088	INCLINATION	VERTICAL	DRILL RIG	TONE UD - 5	
CLIENT	JICA	DATE Oct. 31, 1997 till Nov. 17, 1997	DRILLED BY	RAPAL	LOGGED BY	DIDIK PRANOWO	

DATE	SAMPLING	DEPTH	ELEVATION	COLUMN SECTION	DESCRIPTION	GROUND WATER LEVEL	ROCK GRADE	CORE RECOVERY %	R Q D %	WATER PRESSURE TEST LUGEON VALUE
								50	50	0 10 20 30 40 50
DEC. 23		0.70	181.260		VOLC. CONGLOMERATE , poor cemented , brown		D	100	0	
DEC. 24		2.66	179.360		CONGL'TIC S'STONE , p. cemented , greyish brown		D	100	0	
		3.80	178.160		TUFFACEOUS SANDSTONE , medium grained , soft , blackish brown		D	100	0	
		4.30	177.660		CONGL'TIC S'STONE , p. cemented , dark brown		D			
DECEMBER 26, 97		5.00	176.960		TUFFACEOUS SANDSTONE , medium grained , soft ~ dense , dark grey		CL - L	100	0	
		6.15			VOLC. CONGLOMERATE , poor cemented , brown		CL - L	100	0	
					TUFF. SANDSTONE , c. grained , dense , light brown		CL - L	100	0	Lugeon Value = 4.10 Critical Pressure = 1.84 kg/cm²
								100	0	
DEC. 27, 1997		9.00	172.960							
		9.50	172.460		CONGL'TIC S'STONE , p. cemented , dark brown		CL - L	100	0	
		12.00			TUFFACEOUS SANDSTONE , medium grained , soft ~ dense , blackish brown		CL - L	100	0	
								100	0	
DECEMBER 28, 1997		13.80	168.160		CONGL'TIC S'STONE , dense , blackish brown		CL - L	100	0	Lugeon Value = 93.54 Critical Pressure = 1.73 kg/cm²
								100	0	
		16.40	165.560		TUFF. SANDSTONE , f. grained , soft , light brown		CL - L	100	0	
		17.30			VOLC. CONGLOMERATE , p. cemented , brown		CL - L	100	0	
DECEMBER 30, 1997								100	0	Lugeon Value = 1.71 Critical Pressure = 4.04 kg/cm²
								100	0	
								100	0	
								100	0	

Date	Depth (m)	Elevation (m)	Soil / rock description	Classification
DECEMBER 30, 1997	16.40	165.560	TUFF. SANDSTONE , f. grained , soft , light brown	CL - L
DECEMBER 30, 1997	17.30		VOLC. CONGLOMERATE , p. cemented , brown	CL - L
DEC. 31, 1997 / JAN. 01 / JAN. 02 / JAN. 04, 1997	29.30	152.660	TUFFACEOUS SANDSTONE , fine grained , very soft , high water content with gravel , brown	D
JAN. 04, 1997	29.70	152.260	SILTSTONE , dense , brownish black	CL - L
JAN. 04, 1997	29.90	152.060	SANDSTONE , c. grained , dense , brownish black	CL - L
JANUARY 07, 1997	31.05	150.910	SILTSTONE with gravel , dense , brownish black	CL - L
JANUARY 07, 1997 / JAN. 08	36.86	145.160	SILTSTONE with organic content , dense , brown	CL - L
JAN. 09, 1998	37.40	144.560	TUFFACEOUS SANDSTONE , medium grained , dense ~ compact , brownish grey	CL - L
JAN. 09, 1998	40.00	141.960	VOLC. CONGLOMERATE , compact , brownish grey	CL - H
			END OF DRILLING	

Depth interval (m)			Remarks
15 - 16	100	0	
16 - 17	100	0	
17 - 18	100	0	Lugeon Value = 1.71 Critical Pressure = 4.04 kg/cm²
18 - 19	100	0	
19 - 20	100	0	
20 - 21	100	0	
21 - 22	100	0	
22 - 23	100	0	Lugeon Value = 5.74 Critical Pressure = 3.00 kg/cm²
23 - 24	100	0	
24 - 25	100	0	
25 - 26	100	0	
26 - 27	100	0	
27 - 28	100	0	Lugeon Value = 3.57 Critical Pressure = 2.88 kg/cm²
28 - 29	100	0	
29 - 30	100	0	
30 - 31	100	0	
31 - 32	100	0	
32 - 33	100	0	Leakage
33 - 34	100	0	
34 - 35	100	0	
35 - 36	100	0	
36 - 37	100	0	
37 - 38	100	0	
38 - 39	100	0	Lugeon Value = 1.50 Critical Pressure = 11.00 kg/cm²
39 - 40	100	0	

* R. Q. D. = Rock Quality Designation = (Total Length of Cylindric Cores longer than 10.cm) / (Total Core Length) x 100 %
* LUGEON VALUE is ltr/min/mtr under injection water pressure by 10 kgf/cm2
* G. W. L. = Ground Water Level = Height of Spring Water

PT. Indra Karya (Persero)
Consulting Engineers

Fig. 2.1.5 DRILL LOG

Figure II - 1 - C - 12

HOLE No. RA - 5

PROJECT	JATIBARANG DAM		DEPTH	30.00 M	ELEVATION	166.986 M	
SITE	RESERVOIR	COORDINATE X= 9225,747.091 Y= 428,620.089	INCLINATION	VERTICAL	DRILL RIG	TONE UD - 5	
CLIENT	JICA	DATE Oct. 26 1997 till Nov. 08, 1997	DRILLED BY	SUMALI	LOGGED BY	DIDIK PRANOWO	

DATE	SAMPLING	DEPTH	ELEVATION	COLUMN SECTION	DESCRIPTION	GROUND WATER LEVEL	ROCK GRADE	CORE RECOVERY %	R Q D %	WATER PRESSURE TEST LUGEON VALUE
								50	50	0 10 20 30 40 50
1997 OCTOBER 26, 1997 OCTOBER 27, 1997 OCTOBER 31, 1997		1			EMBANKMENT			100	0	
		2						100	0	
		3	2.80	164.186				100	0	
		4						100	0	
		5						100	0	
		6						100	0	
		7						100	0	
		8			SILTSTONE , soft ~ stiff , light brown fault : shear zone dip = 70° (14.30 ~ 14.90)		CL - L	100	0	
		9						100	0	
		10						100	0	Lugeon Value = 26.24 Critical Pressure = 5.88 kg/cm²
		11						100	0	
		12						100	0	
		13						100	0	Lugeon Value = 23.19 Critical Pressure = 2.33 kg/cm²
		14						100	0	
		15	14.90	152.086				100	0	
		16			VOLC. CONGLOMEATE , p. cemented , greyish brown		CL - L	100	0	
		17						100	0	
		18						100	0	Lugeon Value = 0.85 Critical Pressure = 4.75 kg/cm²
		19						100	0	
		20	19.50	147.486				100	0	
			19.90	147.086	SANDSTONE , fine ~ m. grained , brownish grey		CL - L	100	0	

Date	Depth (m)	Elevation (m)	Description	Class
OCTOBER 26, 1997 / OCTOBER 27, 1997	14.90	152.086	SILTSTONE , soft ~ stiff , light brown fault : shear zone dip = 70° (14.30 ~ 14.90)	CL - L
OCTOBER 31, 1997	19.50	147.486	VOLC. CONGLOMEATE , p. cemented , greyish brown	CL - L
	19.90	147.086	SANDSTONE , fine ~ m. grained , brownish grey	CL - L
NOVEMBER 04, 1997 / NOVEMBER 08, 1997	29.20	137.786	TUFFACEOUS SANDSTONE , fine ~ medium grained , dense , light brown with silty (27.60 ~ 29.20)	Cl - L
	30.00	136.986	SANDY TUFF , poor cemented , brownish grey	CL - L

END OF DRILLING

Approx. depth (m)	Lugeon Value	Critical Pressure
9–10	26.24	5.88 kg/cm²
12–13	23.19	2.33 kg/cm²
17–18	0.85	4.75 kg/cm²
22–23	0.60	6.25 kg/cm²
27–28	1.38	4.15 kg/cm²

* R. Q. D. = Rock Quality Designation = (Total Length of Cylindric Cores longer than 10 cm) / (Total Core Length) x 100 %
* LUGEON VALUE is ltr/min/mtr under injection water pressure by 10 kgf/cm2
* G. W. L. = Ground Water Level = Height of Spring Water

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Consulting Engineers

Fig. 2.1.6 **DRILL LOG**

HOLE No. RA - 6

PROJECT	JATIBARANG DAM		DEPTH	20.00 M	ELEVATION	146.716 M
SITE	RESERVOIR	COORDINATE X : 9,221,684.341 Y : 428,538.689	INCLINATION	VERTICAL	DRILL RIG	TONE UD - 5
CLIENT	JICA	DATE Dec. 26, 1997 till Dec. 28, 1997	DRILLED BY	SUMALI	LOGGED BY	SUPRIYADI

DATE	SAMPLING	DEPTH		ELEVATION	COLUMN SECTION	DESCRIPTION	GROUND WATER LEVEL	ROCK GRADE	CORE RECOVERY %	R.Q.D %	STANDARD PENETRATION TEST
									50	50	0 10 20 30 40 50
DECEMBER 26, 1997		1				SECONDARY SEDIMENTS			100	0	N = 40 X
			1.50	145.216					100	0	>50
		2							100	0	N = 39 X
		3							100	0	N = 49 X
		4							100	0	N = 38 X
		5							100	0	>50
		6							100	0	N = 30 X
DECEMBER 27, 1997		7							100	0	N = 39 X
		8							100	0	N = 44 X
		9							100	0	>50
		10							100	0	N = 41 X
		11				SILTSTONE , soft , black		CL - L	100	0	N = 45 X
		12							100	0	N = 47 X
		13							100	0	N = 36 X
		14							100	0	>50
		15							100	0	N = 44 X
		16							100	0	>50
DECEMBER 28, 1997		17							100	0	N = 48 X
		18							100	0	N = 48 X
		19							100	0	N = 44 X
		20	20.00	126.716		END OF DRILLING					

* R. Q. D. = Rock Quality Designation = (Total Length of Cylindric Cores longer than 10 cm) / (Total Core Length) x 100 %
* S. P. T. = Standard Penetration Test (Times Blows)
* G. W. L. = Ground Water Level = Height of Spring Water