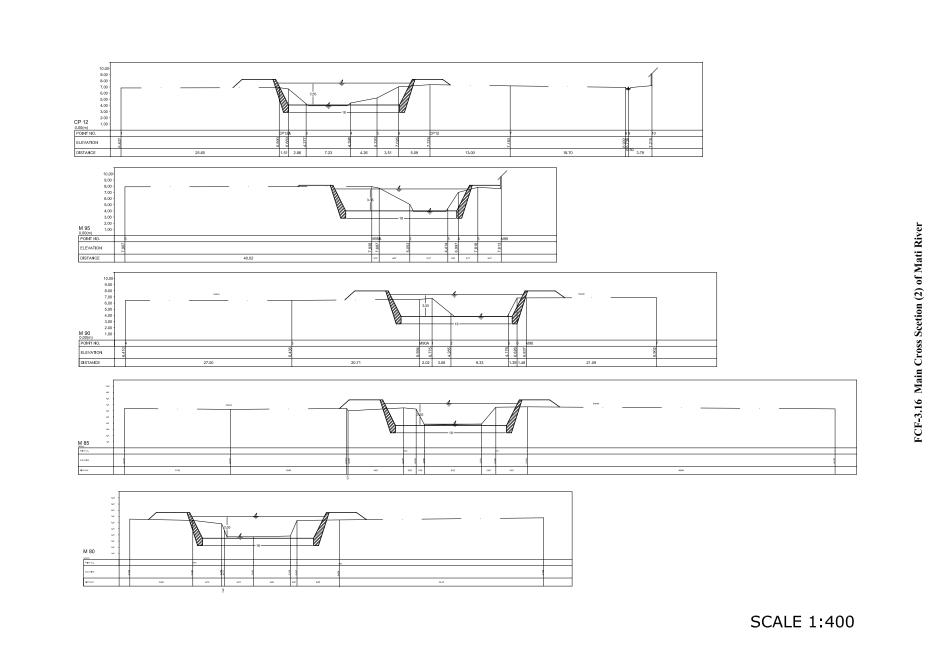
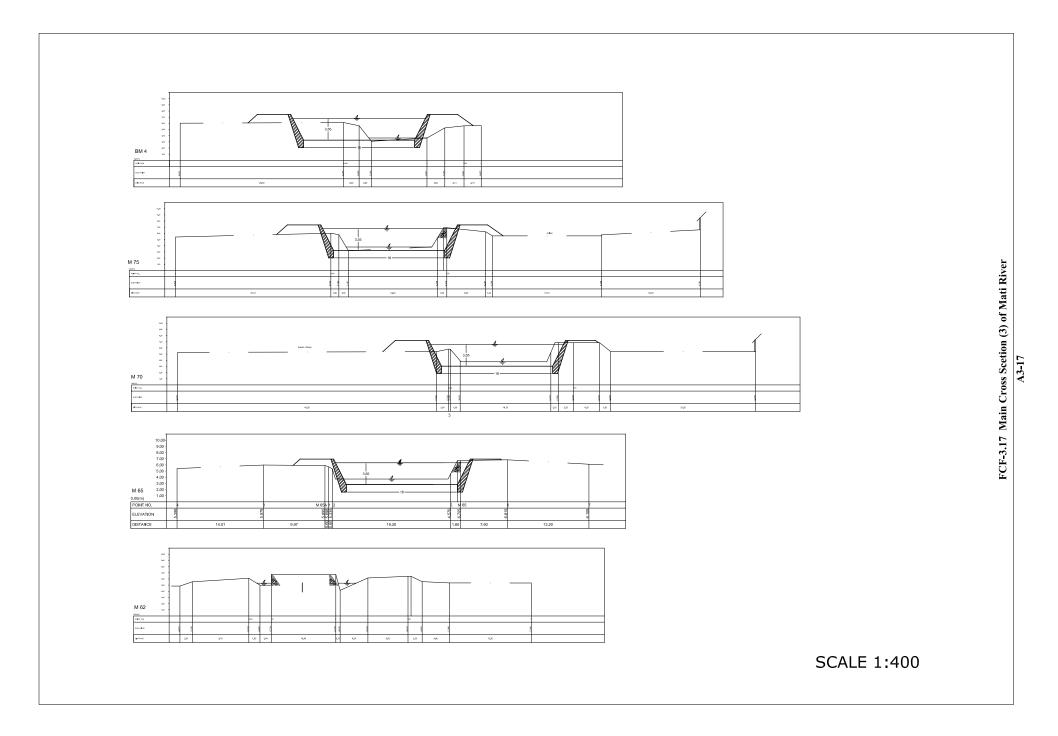


FCF-3.15 Main Cross Scetion (1) of Mati River

A3-15



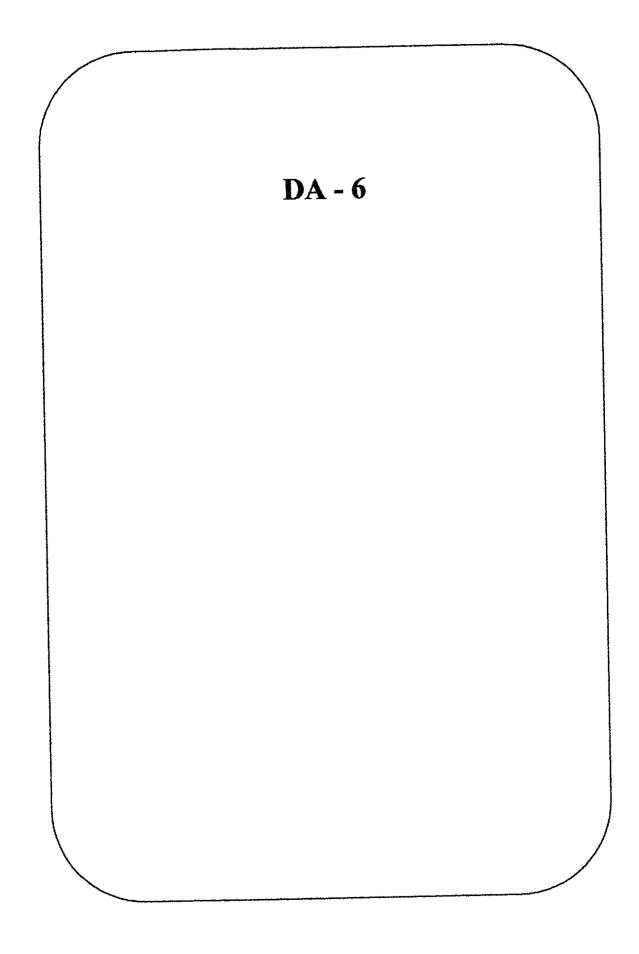
A3-16



# **B. GEOLOGY**

- B1 Drilling Logs DA-6~DA-10
- B2 Photographs of Bore Cores DA-6~DA-10 and Drilling Works
- **B3** Daily Core Drilling and Field Test Data
- B4 Permeability Tests DA-6~DA-10
- **B5** Friction Test for Water Pressure Test Analysis
- **B6** Laboratory Tests for Concrete Aggregates
- **B7** Laboratory Tests of Rock Core Samples
- **B8** Ground Water Level
- **B9** Topographic Survey

# B1 Drilling Logs DA-6~DA-10



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#### HOLE NO DA - 6

SHEET 1 of 4

<u> </u>		Detall Desig		tipu	rpose Dam	,		_		DEPTH	10	0,00 I	M	ELEVAT			399,6	34
B		Dam Site (Le	00.00		ORDINATE	X Y FROM December 14 - 2005 s/d January 25 -		1		INCLINATION	VER			GEOLO		NE	Koken	
F			BOCK	T.	DATE	danualy 25	1			CORE	Triaw		SPT	<u> </u>		NE TO T	Sig	
	т	ELEVATION		4SS	COLUMN		3	£	<b>م</b>	1 1 1	RQD		N				LITY TEST	
DATE	DEPTH (m)		OR	5		DESCRIPTION	BIT TYPE AND	мете п п	GROUND WATER LEVEL (m)	RECOVERY		Cm	(Blows)	1			K in Cm/Se	1
2	0	(m)	FORMATION	100	SECTION		E	8 - j	ŝ≩Ę	(%)	(%)		per 30 cm		Nijai Li	ugeon,	Lu	ш ~
	~-			Ľ			<u> </u>				26 50 75 100			10	20 30	40	50 60	
- 2005	<u> </u>		TOP SOIL			Top Soil												_
4-2	1	399,08		┢		Brownish Grey-Greyish Brown Silty CLAY				50		0			1			1
Dec	1			Í		with some roots, highly plastic	11											_
Ľ,	2		₽	5	<u>, v v</u>	Brownish grey - greyish brown clayey SAND							N = 10					2
	2,5		Clayey SAND			minor sift, fine-medium sand, soft	11											_
	3		λeγ.		- v v v	at(075-2) m , Greyish brown CLAY minor												3
╞	_		G	Soll-like		sand can be found								1 .	nt Head			1 _
╞	4			۳,	<b>∀~</b> ¥	Probably derived from highly WEATHERED							Ni=11	K = 70	1	-4		4
	4,5	395,28		╞		TUFF	-							Lu = 2,5	4			4 -
-	5				V A V		1						ļ					5
1	_			{	VAV	Dark grey - grey brown Lapilliceous TUFF							×					-
╏┟	6	:			*	with andesitic and pumiceous fragment				12222111771111711171171			N=7					6
Įŀ	- 7			1	×4 v	dia max 3 cm sandy scattered, highly weathered,firm						0			1			- 7
				ļ	v A v	1999 1999 1999 1999 1999 1999 1999 199									]			╟╧
	- 8				× .								N = 37					8
╏╏					₩∆₩									* Water	: Pressure	Test		
I T	9			Ì	v A v									K = 10				9
[														Lu = 80,:	\$			
	10				VAV					50		0	N = 44				▶	10
	_				V V													_
	11			ŀ	× 4 ×													11
					VΔV			.										_
	12				Ŷ		11			50		0	N=49					12
	_			Ĺ	×4× ×			É										_
	13				νΔv			8	1						ļ			13
ŀł	_				V			Single Core Barrel with Metal Core Bit dia		50		-			Pressure			
╞	14				V∆ V			e l	up to 45 00 m depth	50		-	N > 50	K = 7,0				14
	15			ļ	VAV				Ě	100				Lu ≃ 52				15
1	10		с F F		~				45 0(	50		0						1 13
			LU L		V ∆ ¥			₹ I	a) qu				X N≻50		1			16
			-	2	<b>V</b>			e Ba	Ī									
	17		. S O	900	~ 4 ~			8					}					17
			o n a	te recovery	V A V					50		C	1					
	18				× A v					50		0	N > 50					18
			LAPILLIC	S.				!						* Water	Pressure	Test		_
	19		d d		VAV					100		0		K ∓ 6,7	2 x 10	4		19
╏┟	_		2	1	v								x	Lu = 50	1,45			[
	20				ν Δν. v		1	- 1		50		-8	N > 50					20
╏┝	-				VAV													_
╞	21				×					100		0	1					21
∥ ŀ	22				×∆∨								X N ≻ 50					22
	<u></u>				ν ν∆φ.								10.00					
	23				V 11 W					sn .		0			l			23
					V A v					50		0		* Water	' Pressure	Test		
	24									50		o	N > 50					24
[															1			1
	25				VAV			ł		100		0			1			25
1 [	_ ]									40		0						11 _
∥∣	26				VA V					50			N > 50	├── <del> </del> ──	[			26
					V V A V								1					_
	27				1 4 ¥										1			27
					VA V		1			50		ᆈ	Y					11 –
	28				V					50		4	N > 50		1			28
				1										ł	Pressure			
╞╞	29									100		우	ļ	K = 3,5	1	^ ا		29
										50			X	Lu = 26,	.51			↓
	30			£.,	V A V	next to page 2	<u> </u>	1		50		<u>o</u> †	<u>N &gt; 50</u>	<u></u>	<u></u>	<u> </u>	DRILLIOG-G	<b>30</b> 75
																		~

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SHEET - 2 of 4

PROJECT	Detail Desig	n Ayung Muli	<u> </u>					DEPTH			QO M	ELEVATION	399,8
1	Dam Site (Le ORE RECOVER			ORDINATE	X Y: FROM December 14 - 2005 s/d January 25 -	2005	•	INCLINATION DRILLING MA			ICAL 18 Siladi	DRILLING MACHINE GEOLOGIST	Koken OP-1 Sigit
	1			DATE		<u> </u>		CORE		1	SPT	STANDARD PENETR	
	ELEVATION	TYPE OR FORMATION	LASS	COLUMN		BIT TYPE AND DIAMETER ( mm )	2 g Ē	RECOVERY		RQD	N	FIELD PERMEAB	I
DATE DEPTH (m)		ÖR	Š	SECTION	DESCRIPTION	I TYPE	SROU WAT	(%)	Cm	(%)	cm (Blows)	PERMEABILITY COEF, Nilai Lugeon,	- u -
	(m)	FORMATION	2	age non		5	Ļ	26 50 75 100	2	1 1 3 1	per 30 cm	10 20 30 40	
							· · · · ·						
31				Č 0	Brownish Dark Grey ANDESITIC				100		0		31
		- V			"TUFF LAVA", with purrice and andesitic	,	Į		100				
32		AVA.	_	00	fragment, dia (0 30 - 1 00)cm, angular -				100		<u> </u>		32
33			۵ י	¢	subrounded, highly weathered, welded, Onentations of welded materials mostly	68 mm			80		10	* Water Pressure Test K = 3,71 x 10	33
335		"TUFF	뉭		inclined 45 <sup>°</sup> LCA.	eib S						Lu = 27,75	
34				°o		e Bit	ļ		BD #		60 A URrasoni	Velocity Test	34
		LIC				tal Co					E I	velocity Test	-
		ESITIC		° 0		th Me	1		100		60		35
		0 I				rrel w			60		15		36
	1	Ā	CM	0		yre Ba							
37	200 -00					Double Core Barrel with Metal Core Bit dia			70		20		37
	352,43			~									
38	1		Solifike		Greyish brown: Lapiliceous TUFF with andesitic and pumiceous fragment						10		38
39			Ĺ	۷ A v	dia max. 3 cm, sandy, scattered, highly				100		0	* Water Pressure Test	39
	1			×Åv	weathered firm	1						K = 3,38 x 10 4	
40	-			×Δ×			ł		100		0	Lu = 25,39	40
				× Av					50	FILLERATIN	0 0 N>50		
41				V Å V									
42	1		9	v A v					100		.0		42
			-	v Å v							0 <b>x</b>		
43	-			~					50		0 N > 50	* Water Pressure Test K = 1,41 x 10	43
44		L		×∆∨ *					100		0	$K = 1,47 \times 10$	44
	1	L ∎		v∆∿ v					50		0		
45	4	-		$\checkmark \Delta \lor$		1	4		50		0 N > 50		45
		50		VÅV V			5 45,00 m						-    -
45	4	E U		$\stackrel{\vee \Delta \vee}{\sim}$			,		100 50		0		45
47		Li C	recovery						50		6 N > 50		47
		L F				E							_
48	351,83	L A	Soil-like	×.		99			100		0		48
49		ĺ	Š	VAV V	At (48-55)m	Bit dia			50 1 50 1		8 8 N>50	* Water Pressure Test K = 7,78 x 10	- 49
-43-				V A V	Dark grey Lapiliceous TUFF	Core			A 111	1 K S 1 K S 1 K S 1 K S 2 K S 1 K S		Lu = 58,42	
50	ł				can be found	Metal			50		0		50
				v∆v v		el with	ļ		50		0		-
51	ł	ļ		~ 4 ~		Barri			50		0 ¶ N≠31		51
52	ł			×		Single Core Barrel with Metal Core Bit dia 66 mr			100		0		52
	1		9	v A v		- Singk			30		0		
53	ł		[	VAV.					50		<u>0</u> N = 28		53
			ľ	V 4.4.		'						* Water Pressure Test K = 4,37 x 10 <sup>4</sup>	-
54	1		1	٧AV	•		1		50		0	K = 4,37 x 10 Lu = 32,77	54
55	344,83	<u> </u>		~		1	1		50		<u>ย</u> N>50		55
∦	4			~~~~ ~~~~	Greyish dark brown Tuffaceous Sitty CLAY	1							-
56	-	¥	ŀ		high plasticity, moist								56
57		CLAY	/ery	v.vay	at ( 59,50 - 61,30 ) m depth Brown highly plastic Tuffaceous CLAY,	1			50		0 N>50	<b> </b>	57
	1	Silty	/ecoi		can be found								
58	341,83	Tuffaceous Silty	ul-lika	· V- viv-	Probably derived from decomposed TUFF				90		0		58
		uffao	So	v V v V A V					40		0 X	* Water Pressure Test	
59	1	-	1	vvv					a 90		<u>u</u> N=28	K <del>= 4,17 x 10<sup>-4</sup></del> Lu = 31,29	59
60			L	.v	next to page 3	1	L_		100		0		60
													DRILLLOG-GTS

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#### HOLE NO DA - 6

SHEET - 3 of 4

PROJECT	Detail Desig									DEPTH		_	00,00		<u> </u>	ATION			399	
	Dam Site (Le			ORDINATE	X . Y - FROM December 14 - 2005 s/d January 2:	5 - 20				NCLINATION				CAL		JNG M	IACHINE T	=	Koken (	
	1	ROCK	<u> </u>	DATE		1			T	CORE				SPT	<u> </u>			ETRA	TION TEST	-
<u>_</u> = _	ELEVATION	TYPE	ROCK CLASS	COLUMN	1	AND	Ĕ-	2 e Ĩ		ECOVERY	11	RQD	l	N					LITY TEST	Ξ.
DATE DEPTH (m)	Į	OR	CK CI		DESCRIPTION		DIAMETER ( mm )	GROUND WATER LEVEL (m)	<b> </b>		Cm	<i>(</i> <b>1</b> ) \	Gai	(Blows)	PER				K in Cm/Se	_¦ш >
	(m)	FORMATION	ŝ.	SECTION			•	5-3	25	(%) 50 75 100		(%) 26 60 75 10		per 30 cm	18	1 1	30 30	40		
i-t	1	<b>T.</b> 6	h	×.	at (59,50 - 61,30) m depth	+											<u>- 40[</u>	<del>40</del> 2	30 00	
61	338,53	Tufaceous Sitty CLAY		*	Brown highly plastic Tuffaceous CLAY									N = 39						61
				vΔv		-														
62	1			Ŷ	Dark grey to Black Lapiliceous TUFF,						100		0							62
62,5	4			×∆× ×	very fine to medium tuff minor pumice		mu													-
63	-		Ϋ́	×4 × - ×	and andesitic fragment, sandy ( D )		1 66 mm				100 1		0							63
64			recovery	* 4 ~			Bıt dia				100		0				ssure To x 10 °			64
	1.		ike n	۷dy			Core						ľ			27 137	1			
65		и Ц	SolHike	× Å v	-		Metaî				100		0							65
		1		~			wth													_
68	4	Ś		*4 *			Barrel				80		•							66
		ŝ		* <u>4</u> * *	)		Core						Ι.							-
87	1	ш СШ		۷Å۷			Single Core Barre! with Meta! Core Bit dia				80		0	11						<u>. 67</u>
68		APILLICEUO		¥Δv			3				80		0							- 68
		E E		v∆v			ł								* Wat	er Pre	ssure T	est	ł	- 1
69	4	1 3	٩	~ Å v							90		0			2,93 : I	x 10 '	•		69
+				. 3. 							_				Lu = ;	21,96				
70	1		7	¥#Y v		F					70		0	H				_		70
71			recovery	vΔv							70		0				Í			71
			e rec	v																
72			SoiHike	VΔV							70		0							72
72,5	327,33		S	×			1							1					1	-
73	-		Soit-like	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	Dark brown Tuffaceous CLAY, highly plastic,		uu				70		0							73
74	325,83	×	Sol	~~~	moist, soft At (73,00 - 74,30) π ,		68				80		0				ssure Tr x 10			74
<sup>1-4</sup>	323,03	CLA		<u>х</u> х	Light grey SILT, non plastic, soft can be		Barrel with Metal Core Bit dia	depth					ľ		Lu = :		Ĩ			
75		S ∪	٩		found		ore E	ш 19			90		20							75
		TUFFACEOUS		¥ V			letal (	to 45 00 i												
76	-	AC	6	v v			with b	5			100		25							76
77			Soil-like	57			arrel.				90 J		0		8 18 <i>6</i> -18		l ssune Ti			- 77
	1		Ő	- X X-			Core E	i									x 10			
78	321,83			V			Tripple (				100		100		Lu = {					78
78,5				$\Delta \lor \Delta$			5								1					-
79	-		9	$\Delta_{\mathbf{v}}\Delta$	Dark-brownish grey TUFF BRECCIA						100		30	⊖ * Uitrasonic	Velocit	y Test	ļ			79
80				4∨4 ∨4∨	matriks consist of fine to coarse tuff with						70		0							-   80
80	1	lons	ž		pumice - sconous andesitic - basaltic fragment, angular - subrounded, diameter								1	11						
81	]	calati	recovery	יי אי ע אי ע	vanes (05-5) cm, scattered highly						80		0							81
	]	E C C I A WITH Tuffaceous CLAY Intercalations	oll-like	v v v	weathered, weakly cemented (CL-D)	Ļ														_
82		Ā	Ň.		1		÷				80		0							82
	·	s CI		$\Delta \nabla \Delta$ $\nabla \Delta \nabla$	At ( 80,00 - 82,00 ) m		88 mm							]						-
83	1	ceou		$\Delta_{v}\Delta$	Greyish-dark brown Tuffaceous CLAY, highly plastic, soft can be found	ļ					80		0		* 10/91	er Pre-	ी ssure Tr	est		83
84	]	Luffa	Q	νΔv			Single Core Barrel with Meta! Core Bit dia				70		0				x 10 '			84
84,5	295,50	E E		$\Delta \lor \Delta$			stat Cr							]	Lu = l	· .				
85	-	×	$\square$	×Δv	4		tth Me				70		0							85
	1 :	CIA C	recovery	- ~-	At (85,00 - 86,80) m,	1	arel w													-
86	1	О Ш	like re	- * -	Dark grey Tuffaceous Silty CLAY, highly plastic, soft can be found		ore Bs				81100 8		11 .	1						86
87	·	12 12	Soli-like	v v v			gle C.				100		0							87
	]	и L		$\Delta \lor \Delta$		L	ŝ							]			Í			
88	-	1 1		v A v	At (88,30) m ,	Ш	a Br				90		0				ł			88
			0- TO		Obsidian fragment, dia 3 00 cm can be found	Te Ba	I Core										ssure Te	- i		-
89	1		0	$\sim \Delta \sim \Delta$		ble Cr	with Metal Core Bit Diameter 66 mm				60       		0		ł		× 10 '	•		89
90	1			$\sim \Delta \sim$	next to page 4	Dou	Mith Diai						l c		Lu = '	17 63				90
<u> </u>	<u></u>				TIONS TO ME YE T		<u></u>			water the second	العجين		<del>ٽ ا</del>			l		 i	DRILLLOG-GT	

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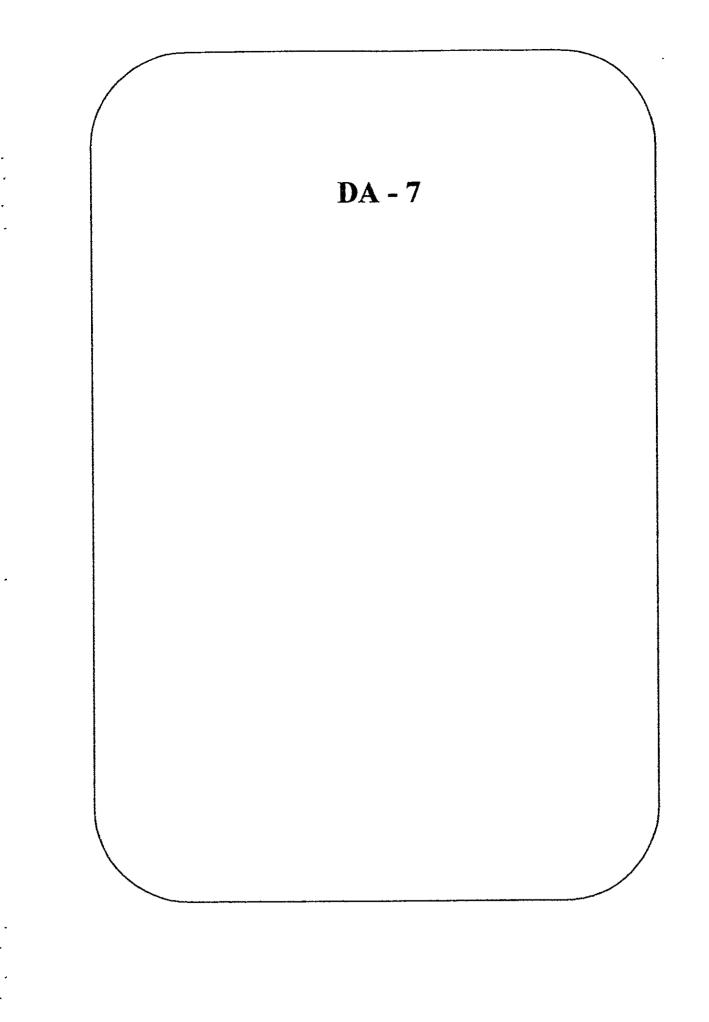
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# HOLE NO · DA - 6

SHEET: 4 of 4

	Detail Desig									DEPTH				00,00			ATION		T	399,	
	Dam Site (Le ORE RECOVER			ORDINATE DATE	X: FROM	Y December 14 - 2005 s/d		2005		DRILLING		R		RTI ( wan &		_	ING MA	GHENE		Koken C Sigi	
		BOCK	1	1	·	·. · · ·				CORE	-				SPT			PENE	TRATI	ON TEST	
- E	ELEVATION		A88	COLUMN	l			BIT TYPE AND DIAMBTER { mm }		RECOVER		R	QD		N		FIELD F				E
DATE DEPTH (m)		OR	XO		. 1	DESCRIPTION	1	TYPE AMB1	GROUND WATER LEVEL (m)	KL00125	`` Cm	ł		Crit	(Blows)	PERI				in Cm/Se	- iu -
	(m)	FORMATION	ğ.	SECTION					0-5			1 1	(%) II		per 30 cm	1	1	- ī	ion, Lu ]	1	
╞┿╍										25 50 75			0 76 1			10	20	310	40	50 60	1
			}	$ \overset{\Delta}{\vee} \Delta$	<b>.</b>						70										-
91	289,00	suo	1	$\Delta \vee \Delta$		ush grey TUFF BRECC					70			10	∯						91
92		aft	[	v A v		nsist of fine to coarse tuff concus, andesitic - basalti					80			10	* Ultrasonic	Vezocat	y test				92
		Intercalations	{	$\Delta \vee \Delta$	-	ngular - subrounded, diam		_			<u> </u>			"							32
93		۲ ۲		$\lor \land \lor$	-	i-5) cm, scattered, highl		66 mm	1		70			٥							93
		CLA	l	$\Delta \lor \Delta$		weakly cemented (CL-		dia 6						Į							
94		sno		V A V				e pt	depth -		70			0		* Wat	er Press	ure Te	rst		94
		WITH Tuffaceous CLAY		$\Delta \lor \Delta$				Double core barrel with metal core bit dia	ę												_
	285,00	1 E	10				1	р Ше	up to 45 00 m		80			1 0							95
		HTN	5	$\land \lor \land$				el wit	p to 4									1		ł	
96		A V	}	$\sim \sim \Delta$				e ban	Ĩ		80			1 0							.96
87		CIA		$\vee \Delta \vee$				e con			60										97
		C H		$\Delta \checkmark \Delta$				qno	\$												
98	ł	88	[	$_{\vee} \Delta_{\vee}$							60			0					1		98
		ц. Ц	į	$\Delta \lor \Delta$																	
- 99		ΤC		V A V							<u>60</u>			<u> </u>			er Press				_99_
				$\Delta \lor \Delta$	E,	nd of Hole at 100 00 m dep	nth.										1,06 x	10 -5			
100	299,83		$\vdash$	V A V							60			<b>   °</b>	1	Lu ≍	7 99	┿			100
101	İ I														ļ						101
101																				1	
102																					102
	1.														1						
103				i																	103
			1																		
104																					104
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105															1			+			105
106	1																				106
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107																					107
				1																	
108_	-														{					1	108
	1			• ·																	
105	1																				109
110																				ļ	110
	1																				
111	[																				111
	ļ																			1	_
112	1																	ł		1	112
																					-
113	1		1	ļ																	113
114	[															1		Ì			114
	]		1	ŀ																	
115	1														]						115
	1			Ì					}												_
116			1																		116
	ł			}											]						
	1			1																	117
118	1			1															}		118
	1			1															l		
119																					119
				1																	_
120		and a plan in street store	1	<u> </u>	l				l		Ш(	ШШ		Ш				<u> </u>	<u></u>		120
																			DP	MLLLOG-67	స



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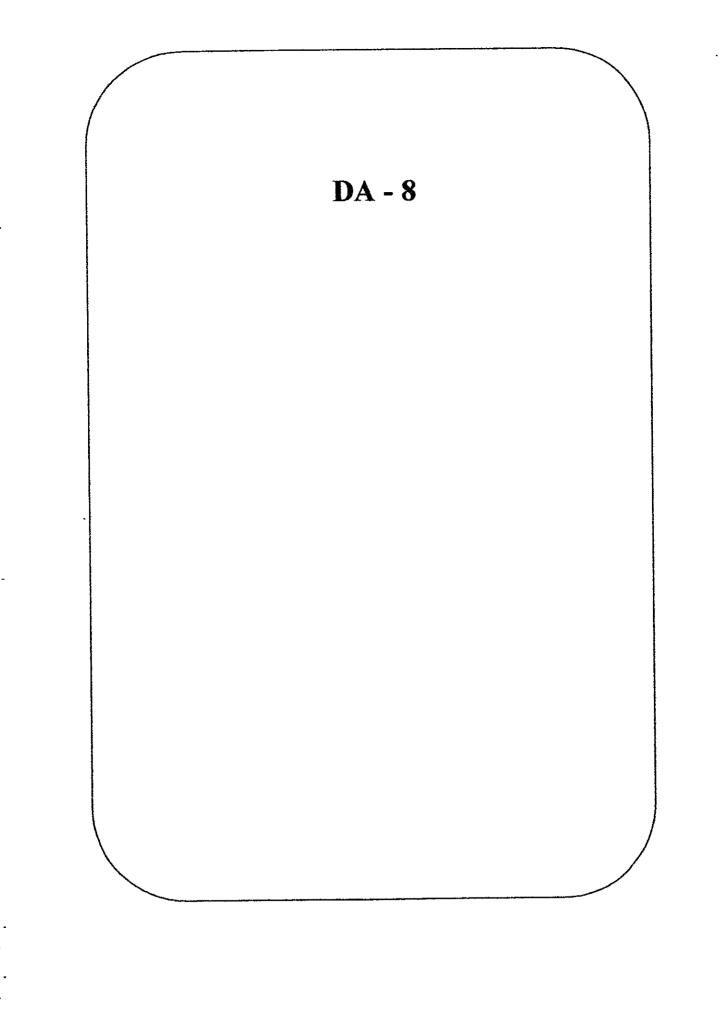
# HOLE NO DA - 7

DRILLIN	ig log	(DRA)	FI	)				HOLE		4-7					,			SHEET	1 07 3
	Detail Design									DEPTH			100 00		1	ATION ING MACH	INSE	281 0 Koken M	
	Dam Site ( Ri	ma 10	T	ORDINATE	X _		~~ 200	 5		DRILLING N			VERTI Magayono		+	OGIST		Sign	
AVERAGE C	ORE RECOVER	ROCK	i.	DATE	PROM			-		CORE		<u> </u>	T T	SPT	<u> </u>		ENETR	ATION TEST	
	ELEVATION	ROCK	22	COLUMN					9 m î			RQD		N	1			ULITY TEST	Ξ
DATE DEPTH (m)		TYPE OR FORMATION	5			DESCRIPTION		BIT TYPE AND DIAMETER ( mm )	GROUND WATER LEVEL (m)	RECOVER	Y Cm		Can	(Blows)	PERI			, K in Cm/Se	e e e
	(m)	CORMATION	ĮŠ.	SECTION					R y i	(%)		(%)	, 1	per 30 cm	Ι.	t	Lugeon I	3 4	· ^
	<u> </u>		]	L		<u></u>	4	<u></u>		25 50 75 1		s <u>so 7</u>	~~~~	l 	10	20 3	48	50 50	
909					RIVER D	EPOSIT .					50		<u>       0</u>				1		-
1 08 - 2008	4		ļ	v~ v	Brownish	Grey - Greyish Brown Gravelly					30		0			I	I		
				O		th Silty CLAY intercalations, firm		m			40			1		stant Head			
January ~	4	L		8		tuffaceous andesitic boulder up		в 96	ĺ				0		<b>F</b>	655 x 1			2
7 25		L S		00	to 20 cm	can be found - scattered		Bit die			30 22			N = 5	lω ≂ -		1		
3	4	6 0		00				Core Bit						11					
2008		ш О						eta)			50			11			-		4
8 4	1	e	{	0.0 v - v				₩ E			50		o l	]	+ Con	stant Hea	d Test		
lanuary		VER		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				₹ E					0	N > 50	К =	2,61 x 1	10, <sup>-3</sup>		] _ 5
\$	1	RIV	ł	0.				e Ba			50		10		Lu =				
6	1			o'				Single Core Barrel with Metal			<u>50</u>		c	11	<u> </u>	┝━╄─	+	┼╍┼─	6
		1		õ				Singl			50		<u>                                     </u>						-
7	4	1		00							50 30		0						
7,5	273,52		╞		ļ		-	+	1		888 88		10		 	i i locity Test			
	-			~ <u>~</u>	Dark	VIO RIACE LITHIC THEE Fra	ĺ				50				1	istant Hea			
				Lave A	-	y to Black LITHIC TUFF fine m tuff, minor pumice and andeside					100		60			176 x			9
	1			XXX	1	dia (0.30 - 1.00) cm, angutar to								]	Lu =	2			
10				294	4 -	led scattered mod weathered	1				100		<b>8</b>						10
	1	j		V 4 3	firm - ha	d													
11		1									100		30	4					1-11-
				°	Onentat	on of joints inclined, varies from													
8007 12	4		ļ		(30°-	60 <sup>0</sup> ) LCA.			1.		100		10111111 101111	17		1 1			12
				× & ~			1				100		94	11	onic Ve	Hocity Test	•		13
Apr. 13	-													41	* Wa	iter Pressu	ı re Test		
14 S				4 4					up to 4,60 m high		100		10			1,08 x			14
	1			V A V					4,60				5	71		8,07			
15		1		X A V	Around	14,60 23 30 and 27,50 m depth			엄		100		5	2			1_	<u> </u>	15
	7			∆\v ≥	* Irregul	ar joint ( fracture ), rough, fresh-	1		B F										
16	_			~ A~	Emonito	, highly weathered surface			eslan Water / Spring		100		8	7.1	I				16
								68 mm	Wate					M	ionić Ve	Hocity Tes	t		17
17	4			° 4 ∨				dia 6	aslan		100			9					
		<u>и</u> ч			1				At		100		9		1				18
18	-	TUF		AVE	1			N N							• Wa	ter Press	ure Tes		
19			3					Met	1		100		8		к =	4,00 x	10 <sup>-5</sup>		19
		1 Dir	- ac	V A V				Barrel with Metal Core Bit							Lu ×	= 3,00			_
20		LITHIC		A V A	-						100		10	2					20
		-		V A V	1			Double Core	-						]				-
8 21	-	1	ł					Jouble			100		9	<u>u</u>					21
January 12 - 2006 201 22 - 2006	ł			× ∧ × i i i i i i i i i i i i i i i i i i i	1			Ĩ			Ш., "Í		9	0	ł				22
21 22	-1				1												1		
anna Janua	258,22	_		مسم	ļ				1		100					1			23
	1			× 4 *												ater Press		a	_
24		1		NA.							100			0		130 x	10, <sup>-5</sup>		24
	]	ļ		jak 2	-										Lu=	0.97			-
25		ļ		~ 2)	1				1		100			5	$\vdash$	┼╌┼╴		┼╌┼─	25
	1			1	1			ł											25
26	4			Y 4 Y	4			1			100			0	1				
0 <b>0</b> 02 27											100				1		1		27
2 1	-				2				l l										
€ 1 1 28	253.32	_		1	-				ļ		100			io					28
Alanua 28	1			102	4											ater Press			_
· 29											100			10	ĸ	= 7,01 x	10, <sup>-5</sup>		_29
-   [	7			4 * 4	1	an spring (25-30) m, 35 L/min, 4 m								Ħ		= 5,26			
30				Y & Y	1	continued to page 2		1			100			80  * Uitara :	Some V	elocity Te	st	Deimoe	-GTS

DF	ULLIN	g log					HOLE						
<u>p</u>			n Ayung Mul	_		Y			DEPTH INCLINATION	109 09 VERTI		ELEVATION DRILLING MACHINE	281 016 Koken KT - 1
		Dam Site ( R	~	1	DRONATE	X			DRILLING MASTER	Mugyono		GEOLOGIST	Sigit
	RAGE CO		78,19 %	<u> </u>	DATE		1	1	CORE		SPT	STANDARD PENETR	ATION TEST
ļ	-	ELEVATION	1	33	COLUMN		AND -	9 ~ 2	RECOVERY	RQD	N	FIELD PERMEAB	는
DATE	0EPTH (m)			( CLASS		DESCRIPTION	GIT TYPE AND DIAMETER ( mm 1	GROUND WATER LEVEL (m)	Cm	Ст	(Blows)	PERMEABILITY COEF,	ш <del>- [</del>
à	ш — О	(m)	O R	50 Q	SECTION		E S S	15 2 1		(%)	per 30 cm	Nillai Lugeon	
							<u> </u>	<u> </u>	25 50 75 100 2	5 50 75 100	<u> </u>	10 20 38 40	50 60
18			Lithic TUFF		0 * 0	the same as above	ł						
Jan 13 - 2006	31	250,32		Ĺ			1	ļ	100	50			31
0 13	L.				0	Light grey - grey ANDESITIC "TUFF		1		50			
Ē	32	4				LAVA", consist of quartz and volcanic glass			100	50	+		32
		ļ	=		12/2	with andesitic - basaltic rock, sconous		ł				* Water Pressure Test	33
	33	ł	LAVA'		6	fragment,ota (0.30 - 100) cm angular-		{	100	90		K = 9,43 x 10 <sup>-6</sup>	
8	33,5		۲V			subrounded fresh to slightly weathered			100	75		Lu = 071	34
- 2006	34	1	Ц. Ц.,	:	ے م	mostly welded Onentations of welded materials					11		
7	⊢.		"101			inclined varies (45° - 60°) LCA.	66 mm		100	75			35
Januar	35	1	1	CH-B	80					40	11		
ř	36		LIC				Bit d	1	100	40			36
Į		1	ESITIC	'	10 2		Core			5			
	37		6		l/° •	{	Metal	[	100	5	41		37
			N N			* Irregular joint (fracture) rough fresh -	with			4			
	38		ļ	ĺ	° 。	limonitic, highly weathered surface can be	arrel		100	40	4		38
		ļ	1	ł		found through the depth	ore B				]]		39
	39	L			L°		Double Core Barrel with Metal Core Bit dra	1	100	5		* Water Pressure Test $K = 2.38 \times 10^{-5}$	39
19	-	241,82							100	3		Lu = 1,78	40
2006		4			x - v	Grey to dark grey Interbedded Lapilizeous TUFF and TUFF BRECCIA							
15			·		<u> -</u> <u>k</u> -	with Volcanic SAND and GRAVEL			80				41
	41	1	Į	ĺ	-v-	Intercalation, highly weathered, firm-loose			30		11		
	42		İ		a		1		50	2			42
		1			0	Around 40,30 m .			20	i i i i i i i i i i i i i i i i i i i	41		
	43					Woods as fragment can be found charred		hgid	30		41	* Water Pressure Tes	t <u>43</u>
			SAND and GRAVEL Intercalation		00	\$.		- 09	40	1641166666666666666	F	K = 3,58 x 10 5	44
<b>.</b>	44	4	srcal			-		up to 4	30		41	Lu = 2,69	
2	<u>.</u> [	Į	Inte		-v-		60 mm	5	95				45
0000	45	4	KET				6	Artesian Water / Spring,	40				
R.		ļ	GRA	1	V A V		E E	tier /					46
-	46	-	and		- V	At 1 41,50 - 48.60 , 51,40 - 54.40 .	ð	Ň	50				
-	47		g		VΔV		Metal	utesk	50				47
	1				×	Intercalations of Volcanic SAND and	with 1	Î	30		리		
^	48	_	can		∨∆∨	GRAVEL can be found	Single Core Barrel with Metal Core Bit dia		40		믹		48
		Ì	2			_	a e e	1	30		막	* Water Pressure Tes	
	49	_	with		V- 1		ŭ		40		먹	K = 3 18 x 10 <sup>-5</sup> Lu = 2,39	49
1			C N				Sing					(0 - 2,39	50
ŀ	50	-	REO	1	- v -	-		-1	40		20		
	51		1 00 1 11		[[				20		•		51
	51	-	1 PL		v-\	/			50		0		-
	52		and		0		1		40		<u> </u>		52
	52	1	UFF		1		Ē						-     -
			us 1		0.0	22	8		40		<u>•</u>		53
		1	lceo				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					* Water Pressure Te K = 7,87 x 10 <sup>5</sup>	st54
	54		apli	1	00	>	ore	1	70		<u></u>	Lu = 5,90	
			ed L				etai (	1	70				55
ŀ	55	-	Interbedded Laplificeous TUFF and TUFF BRECCIA with Volcanic	]			N N	1			71		
	56		iterb		νA	v	1		70		0		56
		1	5		v		Bay		30		20		-
	8	I			vΔ	v	Ö		50		0		57
<u> </u>	7	-	l	1	v		Sinole Core Barrel with Metal Core Bit dia		50		0		-
					VΔ	v [	1 %		30		0		58
	January 8	ļ.			59	2						* Water Pressure Te K = 4,87 x 10 <sup>5</sup>	-st
	- 59	4			× ×	-1	}	}	80			K = 4,87 x 30 Lu = 3,65	
-	-			ĺ	×Δ	, continued to page 3	ļ		5		15		60
	60			<b>.</b>	<u></u>					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			DRALLOG-GTS

SHEET. 3 of 3

ROJECT	Detail Desig	Ayung Muh						DEPTH		000 M	ELEVATION	281 016 Koken KT - 1
	Dam Site ( Ri			ORDINATE	X: Y		•	INCLINATION DRILLING MASTER		TICAL yono HS	GEOLOGIST	Koken Ki - 1 Sigst
HL (E)	ELEVATION	ROCK	CLASS	COLUMIN	FROM January 02 - 2006 s/d January 28 - 24		GROUND WATER LEVEL (m)	CORE	RQD (%) 25 50 75 100	SP N Cm (Blow per 30	FIELD PERMEAB S ) PERMEABILITY COEF, Nilai Lugeon,	LITY TEST
61         62           63         63           64         65           65         67           66         67           67         68           70         71           72         73           74         75           76         70           71         73           74         75           76         80           80         81           82         83           84         85           83         84           85         87           83         84           85         86           87         83           84         85           85         86           87         83           84         85           85         87           80         80           81         82           83         84           85         87           83         84           84         85           85         87	218,02	Interbedded Lapilliceous TUFF and TUFF BRECCIA with Volcanic SAND and GRAVEL Intercelation				1 65	Metal Core 88 dia 56 mm				10       20       30       40         * Water Pressure Test       K = 4.87 x 10       10         Lu = 3.65	



DRULLING LUG (DRAFT)

# HOLE NO DA - 8

DDA WAS							1.5		ж				<del></del>		SHEET. 1	
PROJECT LOCATION	Detail Desig Dam Site (Ri	n Ayung Mul ght Bank)	<u> </u>	ordinate	· · · · · · · · · · · · · · · · · · ·		~ .	•	-+	DEPTH		100 00 M VERTICAL		EVATION	406 294 TAS	1
AVERAGE C	ORE RECOVER	85,40 %		DATE	FROM November 19 - 2805 std February 11	- 200	16			DRILLING MAS	TER	Sunari	GE	OLOGIST	Sigit	
DATE Depth (m)	ELEVATION	ROCK TYPE OR FORMATION	ROCK CLASS	COLUMN	DESCRIPTION	BIT TYPE AND	( min )	GROUND WATER LEVEL (m)		CORE ECOVERY (%)		RQD N Cmr (Blow (%) per 30	s) <i>PE</i>	TANDARD PENETR/ FIELD PERMEAB RMEABILITY COEF, Nilai Lugeon	LITY TEST K in Cm/Sec Lu	06PTH (m)
2005 2005	     	TOP SOIL			Top Soil Brownish Grey-Greyish Brown SandyCLAY with some roots minor gravel, highly plas-						90		* Cc	20 30 40	50 69	1
November 19 -:		Laplificeous TUFF	Soll-like recovery		the, moist,highly weathered purvice and andesit gravel ( 1 00 - 3 00 ) em-scattered Brownish-dark grey Lapithiceous TUFF consist of fine to coarse tuff with purvice to sconous & andesitic-basalito fragment, angular to subrounded, dra ( 0 5 - 6 0 ) cm scattered, highly weathered						8 8 8 8		15 • Cc	= 6 55 x 10 <sup>2</sup> = 713 75 		3
November 20 - 2005				× Δ × Δ × Δ × Δ × Δ × Δ × Δ × Δ	At (4,00-4,15) m depth. Sity CLAY monor gravel probably debns material can be found Brownish - dark grey TUFF BRECCIA matriks consist of fine-coarse tuff,						5 5 5 5 5	0 0 N =	16	= 192,0		6
21-2005		CCIA			with andesite to basafte fragment, mostly punteceous to sconeus cha (2-5) cm angular - subrounded, highly weathered						<u> </u>		K =	4.87 x 10 <sup>-3</sup> =53.0 mstant Head Test = 3,06 x 10 <sup>-3</sup>		9 10
11 12 - 2005 November 13 13 14 14		TUFF BRECC					In Metal Core Sit dia 56 mm	red around 24 00 m depth			S S S		16	22,22		
Movember 23 - 2005							Single Core Barrel with	8 50 m depth , Water loss ocurred around			45 49 50 50 50 50 50 50 50 50 50 50 50 50 50	2000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	50 * Co K =	- 19 06 - 19 0 - 19 0 - 19		
11 25 05 Nov 24 - 2005 12 65 65 81 82			Soil - Ilke recove		Grey to dark grey Lapiliceous TUFF with pumice and andesitic fragment, dia (030- - 100) cm angular to subrounded, moderately weathered massive,(CH) fine - coarse tuff, moderately - highly weathered soft - firm			Up to 68			42 53 53 53 53	0         0         x         N >           1         1         0         0         N >           1         1         0         0         N >           1         1         0         0         N >           1         1         0         0         N >           1         1         0         0         N >           1         1         0         0         N >           1         1         0         0         N >           1         1         0         0         N >	* Co 50 K =	= 9,99 × 10 <sup>-4</sup>		18 
6 Nov 28 - 2005 72 2005		Lapililecous TUFF		× △ ×	Volcanic sand intercalation can be found at the upper parts * Water lost at 24,00 m depth.						50 40 40 30 50 50 50 50 50	0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0	* Co K = Lu =	onstart Head Test 1,60 x 10 <sup>-3</sup> = 5,82		22 
2002 - 87 - 700 29 - 2002 - 87 - 70 29 - 2002 - 87 - 70 - 71 - 72 - 72 - 72 - 72 - 72 - 72 - 72		×					66 mm				59 49 59 59 59 59 59		K =	enstant Head Test 193 x 10 <sup>-3</sup> 7,02		25 26 27
28 28 28 28 28 28 28 28 20 28 28 20 28 20 28 20 28 20 28 20 28 20 28 20 28 20 28 20 20 20 20 20 20 20 20 20 20 20 20 20		TUFF BRECCIA			Brownish - dark grey TUFF BRECCIA matrixs consist of fine-coarse tuff, with andesitic to basaltic fragment continued to page 2	Tripple Core Barrel	Metal Core Sit dia 6						К =	) Shath Head Test = 3,42 x 10 <sup>-3</sup> = 12,41	DRILLOGGTS	28 29 30

UNILLING LUG (URAFI)

HOLE NO DA - 8

SHEET: 2 of 4

		(	URAF	• /			HOLE		A-8					SHEET: 2 of 4
PRO.	JECT	Detall Desig	n Ayung Mul	upur	pose Dam				DEPTH		100,00		ELEVATION	406,294
<u>.</u>		Dam Site (Re			ORDINATE				INCLINATION	OTED	VERTI		DRILLING MACHINE	TAS
ÄVER	AGE CO	DRE RECOVER	85,40 %		DATE	FROM November 19 - 2085 sid February	11 - 2005		DRILLING MA	STER	Suna		1	Sigit
			ROCK	ŝ	COLUMN		ę _		CORE			SPT	STANDARD PENET	1
DATE	0 E P T H ( m )	ELEVATION	2	CLASS		DECONDICIÓN	BIT TYPE AND DIAMETER ( mm )	GROUND WATER LEVEL (m)	RECOVERY	Cm	RQD	N (Blows)	FIELD PERMER	EF, Kin Cm/Sec a g
A D	ы Е Ш —		O R	Š	SECTION	DESCRIPTION	AM P	GRO WA	(%)		(%)		Nitar Euroe	іш <del>~</del>
		(m)	FORMATION	Se .			120		25 50 75 100		25 50 75 100	per 30 cm		40 50 60
H			r	r-								1		
Ŀ	-				×	Brownish - dark grey TUFF BRECCIA	1							
- 2005	31		[			matriks consist of fine-coarse tuff,	j			40		{		-31
g-	-					with andesitic to basaltic fragment, mostly	ł				• •	1		
Nov.	32					pumiceous to sconous dia (2-15) em	1			40				32
	-					angular - subrounded highly weathered				40	50000000000000000000000000000000000000			
$\vdash$	33		ł							40	<u>0</u>	{ }	* Water Pressure Ter	st <u>33</u>
3	3.5				V A V					80	0		$K = 2,42 \times 10^{-4}$	
L	-34		1							80	0. 		Lu = 18 18	34
2005	_									80	0			35
3	35				× ^ ×					1 233				
l a l	_							Į .		50 22	0	{		
1 h	36				× 4 ×			1		40	15	<b>i</b>		36
	_ ]		ŀ	1						45 50	15	1		37
$\vdash$	37		ĺ	ļ	1.0 V							11		
5	<u> </u>		ŀ	2							0	1		38
2005	38			à	V A V			ļ			6 1	1		
8			l	1			1				G	11	* Water Pressure Ter	st 39
å					VAV						illinini -	1	K=2,78 x 10 <sup>-4</sup>	^       <sup>==</sup>
	40		1	ŀ	AV A					90	10		Lu = 20.85	40
			₹ I		~ 2~									
	41		ECCIA	Ì						80	0			41
			_ <u>~</u>		VAV			m depth		50		]		
18	42							Ĕ				]		42
- 2005			1 <u>1</u>		V A V V A V	Around (42.00 - 43,00) m depth		24 00		50	0	]]		
8	43		2	ł	$\Delta \lor \Delta$	Becoming light grey - brownish light grey				50	0	]	* Water Pressure Te	st 43
Å					V A V	TUFF BRECCIA can be found	199 199	arou			30		K=219 x 10 <sup>-4</sup>	
	44			1	$\Delta \lor \Delta$		Bậ địa	qeurred around		100	30		Lu = 16,41	44
		]		l	V AV		re Bå	ob ssoj.					ed Pressure Test	_
	45			L	$\land \lor \land$		Metal Core	ter lo		100	40			45
	_			5	V A V		Met	Water			0			-
	46			Ľ	$\land \land \land$		Core Barrel with			100	0			46
							Валте	m depth						-
2005	47						ore	E		100	35			47
5							Tripple (	66 50			50			-     -
lä i	. 48		1		V A V		Ē	Up to		100	50 10 10 10 10 10 10 10 10 10 10 10 10 10 1	11		48
	-		{					7			40		*Water Pressure Te K = 2,18 x 10 <sup>-4</sup>	51 49
	49	1	]		V A V					100	40	11	K-2,18 X 10	
	50		Ì	CM				İ		80			Lu = 16,37	50
	50	1			V AV			}						
	51				$\Delta \lor \Delta$					100	50			
					VA V							]		
g	52	Ì	1	l						50	25			52
1 - 2005		l			V AV					8	40	11		
Dec. 11	53	353,29								8	40	]		53
ام	53,10			Γ	AV A		1						*Water Pressure Te	1 1 11 -
	54	ļ		1	~ <u>~</u> ~	Light Grey to Grey LITHIC TUFF with	1	1		80	50	4[	$K = 2,18 \times 10^{-4}$	54
				ŀ		pumice and andesitic fragment dia (0.30 -	1	1			30		Հս = 16 33	-
	55			1	V A V	1 00 ) cm angular to subrounded,	1	1		90	30			55
		1		ł		moderately weathered, massive ( CH )	1				20			-
	56	1	1-IN	1				1		50	20			_56
		1	I ITHIC TUFF	£			1	1						-
.2005	57	ł	Ē	ł.				l		100	90			57
4		ł	i -	ł	~ ^ ~		ļ	ł			30			
å	58	1			AYA		ł			90 22	30			
	<u> </u>				~ ^ ~	<u>At ( 55.50 - 55.60 ) m depth</u>	E				25		* Water Pressure Te K = 2,26 x 10 <sup>-4</sup>	<sup>ist</sup> – 59
	59	1	ľ	1		Light brownish grey very fine TUFF as fracture fill, 30 <sup>9</sup> LCA can be found		[		100		A + 1 //	nic Velocity Test	
l h	60	ļ			~ A V	continued to page 3	ŀ			100	50	Al UkraS ▼	Lu = 16 94	
L				<u> </u>	<u></u>	Sector Se		•			with the second s			DRULCG-GTS

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# HOLE NO DA - 8

SHEET: 3 of 4

DRILLING LOO	S (DRA	FT	)			HOLE		A - 8							SHEET :	3 cf 4
PROJECT Detail	esign Ayung							DEPT			DO M	ELEVA			406,	
	e (Right Bank		ORDINAT	X	November 19 - 2005 s/d February 11		•	INCLINA DRILLINA	TION G MASTER	1	ICAL Iari	GEOLO	NG MACH	\$NE	T/ Sk	
AVERAGE CORE REC		%	DATE	FROM	November 19 - 2005 Sid February 11	- 2006				30						
ш Н (ELEVA ц н (ELEVA с ш ) с ц (т	OR	m DCK CLA99	COLUM		DESCRIPTION	BIT TYPE AND DIAMETER ( mm )	ground Water Level (m)	CORE RECOVE (%) 25 50 7	RY Cm	RQD (%) 25 50 75 100	SPT N (Blows) per30 cm	f PERM	TIELD PER TEABILITY	COEF	1 1	Ξ
61           62           62           62           63           7           63           65           66           66           67           68           69           78           9007.71           9007.71           9007.71           73           74           75           76	R ANDESITIC "TUFF LAVA"	D A CH-B		LAVA", with and fragment subround mostly with and fragment subround mostly with inclined of the subround of th	y to grey ANDESITIC "TUFF consist of quartz and volcanic glass esitic - basaftic rock, sconous , dia (0 30 - 1 00) cm angular - ted fresh to süghtly weathered ecided (B - A) ons of welded matenals mostly 45 ° LCA. <u>0 - 62 26 ) m denth ,</u> y to grey Andesitic"TUFF LAVA", d, can be found 30 - 75 10 ) m and (76,25 - 77 40 ) m ar joint can be found	Double Core Barrel with Metal Core Bit Dia 65 MM	apth , Water loss ocurred around 24.00 m depth				200 200 200 200 200 200 200 200	K = 1 $Lu = 1$ $U = 1$ $Wate$ $K = 1$ $Lu = 1$ $Wate$ $K = 1$ $Lu = 1$ $Lu = 1$ $Lu = 1$	city Test r Pressur 28.2	e Test		
77         78           77         78           78         78           78         78           79         326           9007         79           300         80           80         81           9007         84           845         85           86         85           900         84           845         85           90         83           90         90	eathered TUFF BREC IA			Greyish clayey i with and pumice angular Brownia matnks with an pumice	brown TUFF BRECCIA natriks consist of fine-coarse tuff, leate to basaltic fragment, mostly ous to sconous, dia (2-5) cm, - subrounded, highly weathered. 	Single Core Barrel With Metal Core B¥ dia 66 mm With Metal Core B¥ dia 66 mm	4969 m 06 50 m 4691		1000 50 50		100 20 50 70	K = 5 Lu = 4 • Wat Lu = 2	er Pressu 4 57 x 1 34,33	re Tess		77 78 79 80 80 81 82 83 83 83 83 83 85 85 85 85 85 85 85 85 85 85 85 85 85

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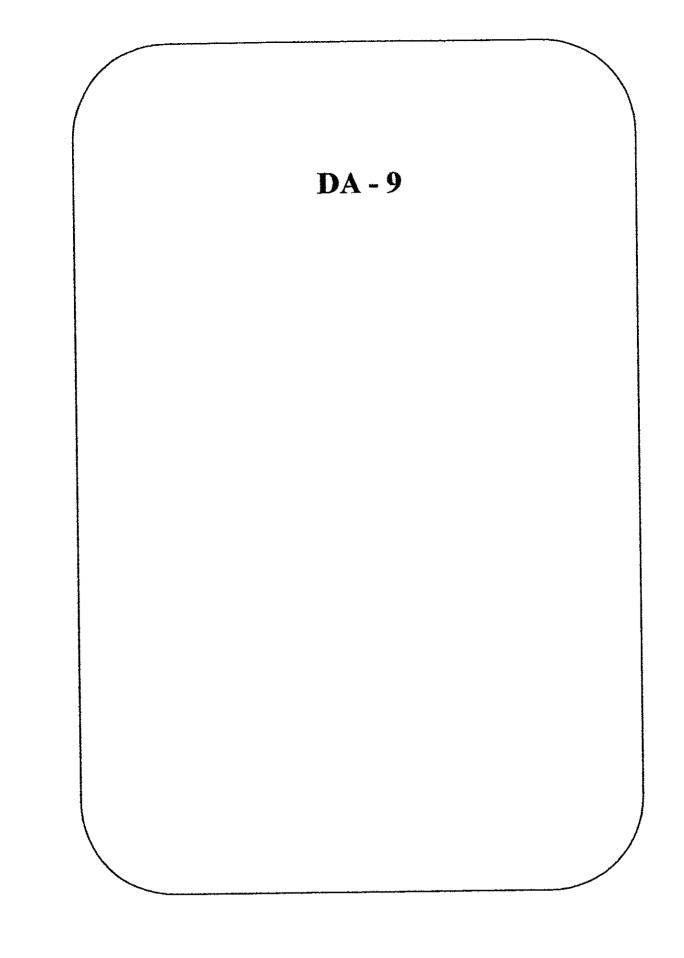
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# HOLE NO DA - 3

SHEET: 4 of 4

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PRO	JECT	Detail Desig	n Ayung iKul	tipu	pose Dam	······································				þ	ÉPT	н				100 (	0 M	ELE		1		406	294
- H	1	Dam Site (Ru		00	ORDINATE					_	CLIN				v	_	ICAL	1		AACHN	WE .	τ,	
AVE	AGE CO	ORE RECOVER	78	]	DATE	FROM November 19 - 2005 s/d February 11	- 2095			P			ASTER			Sun		<u></u>	LOGIS			<u> </u>	git
			ROCK	g	COLUMIN		e.				COR	E		_			SPT	ST				ATION TES	1
<u>ц</u>	0 E P T H ( m )	ELEVATION	TYPE	CLASS			BIT TYPE AND DIAMETER	î	WATER LEVEL (m)	RE	cov	ERY		R	QD		N					LITY TEST	
DATE	e E		OR	ROCK	SECTION	DESCRIPTION	ITYP	Ē	WAI		(%)		Cm		%)	ľ	an (Bilows)	PER		illir illai 11		K in Cm/S	
11	۳ I	(m)	FORMATION	5	02011011		5	ľ		25	1	1		1	1 1		per 30 cm		t	, ;		1 1	
H					V A V	· <u>····································</u>	<u> </u>	+				75.] 100   [	<u>, , , , , , , , , , , , , , , , , , , </u>		<u>75</u>		11	1 18	20	30	48	50 0	<u>el  </u>
	_					<i></i>											11						-
	91				VAV	Brownish - dark grey TUFF BRECCIA	ŀ		m depth				60				1						91
2006						matriks consist of fine-coarse tuff	1										11						-
_ U • F	92				v A v	with andesitic to basaltic fragment mostly	- -		24 00				50				41						92
12	- 1					pumiceous to sconous dia (2-10) cm	66 mm										11						-
Fabruary	_93				VAV	angular - subrounded, mod-highly weathered	a a		arour				40				41						93
<b>12</b>	_		۷				뷺		Ted				50						ł 		_		-
	94		ECCIA	1	v A v		Log Cor		ocui				50				41			x 10			94
	<u> </u>		э х				letal		seal										2,59 [19,4]				95
	_95		8	5	V A V		_ ≥		Waler loss ocurred around			鐗	50				41	10-3	19,4				
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			<b>D</b>		v d v		Barr		÷	鎆	<b>#</b> If		╟╩┨				11						1 30
2008	97		⊢	1			Core		dept				45				.11	ļ					97
l≓[					V A V		Single Core Barrel with Metal Core Bit dia		06 50 m depth -						IIII		11	1	ł				
H ~ F	98				ava		S I						50					1	[				98
February	_				V A V				-Up to						IIII		71	1					
	99			ļ	$\land \lor \land$				Ĩ				70					• Wa	ter Pre	essure	Test		99
	_ ]				× A ×													K =	1,80	x 10	-4		_
Ц	100	306,29		ļ	$\Delta \lor \Delta$	End of Hole at 100 00 m depth	<u> </u>						70			<u>     _</u> 2	•	<u> ٤u =</u>	13 4	<u>.</u>			100
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#### HOLE NO DA - 9

SHEET: 2 of 4

	ig log (	UKAF	· ;	<u> </u>		HOLE		A - 9	<u></u>		SHEET: 2 of 4
PROJECT	Detail Design				100 Mar.		_	DEPTH INCLINATION	100,00 M VERTICAL	ELEVATION DRILLING MACHINE	338,447 Koken T-1
	ORE RECOVER			ORDINATE DATE	FROM February 15-2996 s/d Febr			DRILLING MASTER	Mugiyono & Triawati	GEOLOGIST	Sigit
DATE DEPTH (m)	ELEVATION	ROCK	CLASS	COLUMN	DESCRIPTION	BIT TYPE AND DIAMETER	GROUND WATER LEVEL (m)		RQD N Cm (Blows) (%) per 30 cn	STANDARD PENETR FIELD PERMEAE PERMEABILITY COEF Niki Lugron	LITY TEST I K in Cal/Sec E E
31 32 33 33 33 33 33 33 33 33 33 33 33 33	346,50	ANDESITIC "TUFF LAVA "		2 10 4 0 4 0 4 0 4 0 4 0 4 0 4 0 4 0 4 0	the same as above — Light grey - grey ANDESITIC TUF LAVA", consist of quartz and volcance with andesitic - basatic rock, sconous fragment dia (0 30 - 1 00) cm, angut subrounded, fresh to slightly weathere mostly welded, hard - very hard Onentations of welded materials mostly inclined 45 ° LCA. Joint vanes betwen (15 - 45 )°, mos 45 ° fresh to limonibe - stain surface	glass ar - sd thy	(5.30) m depth			10         20         39         48           * Water Pressure Test         K = 3,93 x 10 <sup>-4</sup> Lu = 29,47           Lu = 29,47	59     60       .31        .31        .32        .33        .33        .33        .33        .33        .33        .33        .33        .33        .35        .35        .35        .35        .35        .36        .37        .38        .38        .39        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33        .33 </td
43 43 44 49 44 45 49 44 45 45 45 45 45 45 45 45 45 45 45 45	295,45	LITHIC TUFF	CH		Dark grey to black LITHIC TUFF with f to medium tuff as matniks, minor purner andesitic fragment dia (030-100) subangular to subrounded, scattered, mod weathered, firm <u>At (45,00 - 49,00) m denth</u> , Brownish - yellowish grey LITHIC TUF can be found	wn with metal Core Bit	Up to 25,00 m depth , Water lost observed around	100 100 100 100 100 100 100	50 70 30 40 40	* Water Pressure Test K = 2,40 x 10 <sup>-4</sup> Lu = 18,02	43 
066 February 19 - 2006 65 15 15 15 15 15 15 15 15 15 15 15 15 15		ANDESITIC "TUFF LAVA "	CH+8	k l	LAVA", consist of quartz and volcanio with andesitie - basaltic rock, sconous fragment, dia (0.30 - 1.00) cm, angu subrounded, fresh to slightly weather mostly wekled, Onentabons of weided materials most inclined (45 ° - 60 °) LCA.	: glass s ed, ily		<u>100</u>			50 50 51 52 53 53 54 54 55 55 56 56
February 20 - 2006	-	LITHIC TUFF	CM		subrounded, scattered, mod weather firm.	esiluc Ilar to red,		7 <u>5</u>		* Water Pressure Test K = 1 03 x 10 <sup>4</sup> Lu = 7 71	57

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# HOLE NO . DA - 9

SHEET: 4 of 4

		GLOG (					HOLE						SHEET: 4	
		Detail Desig Dam Site (Le		r i	-				DEPTH INCLINATION	100,00 VERTI	· · · · ·	ELEVATION DRILLING MACHINE	338,447 Koken T-1	
il and the second		ORE RECOVER	-	-	DATE	FROM February 15 - 2006 sid February 27 -			DRILLING MASTER	Mugiyono &		GEOLOGIST	Signit	-
DATE	06PTH (m)	ELEVATION (m)	ROCK TYPE OR FORMATION	ROCK CLASS	COLUMIN	DESCRIPTION	BIT TYPE AND DIAMETER	GROUND WATER LEVEL (m)		RQD (%)	SPT N (Blowrs) per 30 cm	STANDARD PENETRJ FIELD PERMEAB PERMEABILITY COEF, Nital Logeon, 10 20 30 40	ILITY TEST	( W)
	91	289,00		<u>}</u>	× ↓ ×	— the same as the above		a b th		5 50 75 100		10 20 30 40		91
- 2006				ļ	. V V 4 V	Dark grey to Black Lapiliceous TUFF,		( 5 30 ) m depth						
18	92			١.	*	very fine to medium tuff as matrixs, minor pumce and andesitic fragment,	E	(530	75	0				92
February	93	;			* ∆ * .*	mod. weathered, soft.	a 66 mm	around	75	o 1				93
Fe	 94		EL E		V-A V		e Bit di	Water lost observed around	75	0		* Water Pressure Test		94
			Lapliliceous TEUFF		۰.		al Core	ost obs				K ≂ 101 x 10 - 4		_
	95			5	× 4 ♥   ∨		ith me	Vater Ic	75	c		Lu = 7.56		.95
	96		Lap	Î	×		arrel	-	75	o				.96
· 2006	 97				Y AY	Brownish grey TUFF BRECCIA,	Core B		75	0				97
12					· v	matniks consist of fine to coarse tuff with	Double Core Barret with metal Core Bit dia	25,00 m depth						
February	\$48 				× 4×	fragment, angular to subrounded, up to	Ī	Up to 2	75	0				<u>98</u>
	<del>99</del>				~	10 cm, broken core recovery, stiff, highly		Ĩ	75	o la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la c		* Water Pressure Test	· -	98
	99,7 100	238,75 238,45	TUFF BX			weathered, weakly cemented (D). End of Hole at 10000 m depth			75	0		K = 593 x 10 <sup>-3</sup> Lu = 4.45		100
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SHEET: 3 of 4

	Detail Design Ayung Mu				DEPTH	100,00 M	ELEVATION	338,447
	Dam Site (Left Bank) RERECOVER 88,35		FROM February 15 - 2006 ±/d February 27 - 3	2005	INCLINATION DRILLING MASTER	VERTICAL Mugyono & Tnawan	DRILLING MACHINE GEOLOGIST	Koken T-1 Sigit
DATE DEPTH (m)	ROCK ELEVATION TYPE OR (m) FORMATIO	SS COLUM		BIT TYPE AND DUAMBTER ( mm ) ( mm ) GROUNO WATER WATER	CORE RECOVERY (%)	RQD         SPT           RQD         N           Cmr (Blows)           {%}           per 30 cm	STANDARD PENETRA FIELD PERMEABI PERMEABILITY COEF, Nibi Lugeon,	LITY TEST
Leptrnary 23 - 2006 February 23			- the same as the above Dark grey to Black L ITHIC TUFF, fine to medium toff as matriks, mnor pumice and andesite fragment, dia (0.30 - 1 00) cm, angular to subrounded, scattered, mod. weathered, firm.  4 (80.00 - 65.00) m depth, "Irregular point (fracture) rough fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered surface "Irregular point (fracture), rough, fimorate, highly weathered, firregular point, firr	Double Core Barrei with metal Core Bit dia 66 mm			10         20         30         40           * Water Pressure Test         -         -         -           * Water Pressure Test         -         -         -	55         68

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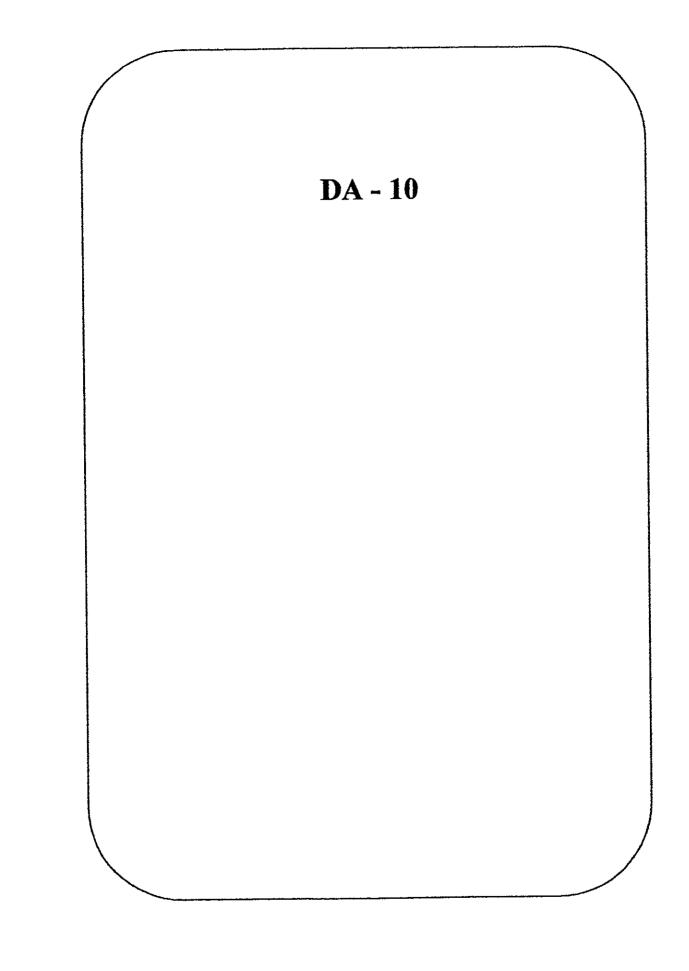
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# HOLE NO : DA - 9

SHEET: 1 of 4

		Detail Design								DEPTH			00,00		ELEVATION		338 4	
		Dam Site (Le ORE RECOVER			ORDINATE DATE	FROM	February 15-2006 sid February 27 -	2995	-	DRILLING M		V E Mugayor	2 T I C		DRILLING M		Koken Sig	
DATE	08PTH (m)	ELEVATION	ROCK	CLASS	COLUMN		DESCRIPTION	BIT TYPE AND DIAMBTER ( mm )	GROUND WATER LEVEL (m)		CF.	RQD (%)	Cm	SPT N (Blows) per30 cm	STANDAR FIELD PERIMEABI N	D PENETR PERMEAE LITY COEF	ATION TEST WLJTY TEST , K In CauSec , Lu	Ŧ
_	1 2 25 3 4	377,50	TUFF BRECCIA	나다		with som bc, moist Brownish	Grey-Greyish Brown Silty CLAY     eroots minor gravel, highly plas- highly weathered	Single Core Barrel With I Court Bit dia 180 mm			50 50 50 100		0 0 0	N = 36 N > 50	10 20		50 60	
	5 6 7 8		TUFF BRECCIA	CN		purace to fragment, 40) cm, weathere	o sconous & andesnic-basaltic angular to subrounded, dia (05- scattered, moderately - highly d, weakly cemented firm - <u>3.00) m depth.</u> eathered TUFF BRECCIA,		m depth		100 100 100		20 40 30		K = 4,21 3 Lu = 192 36	¢ 10 <sup>+2</sup>		
	2.6 9 10 11 11 12	330,45	LITHIC TUFF	CH		with fine t pumice ai -1 0)cm,s mod wea	- yellowish grey LITHIC TUFF o medium tuff as matriks minor ni andesitic fragment, dia (03 - ubangular to subrounded, scattered, thered, mod cemented, firm	10,00	Water lost observed around ( 5 30 ) m d		100 100 100		50 90 20		* Water Pre: K = 1 05 ) Lu = 79,09 <u>nc Velocity</u> 7	( 10 <sup>- \$</sup>		1
	13 14 15 16 17 18 19 20 21 22 23 24 24	369,00	ANDESITIC "TUFF LAVA "	······································	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LAVA", c with ande fragment, subrounde mostly we Onentation inclined 4. Joint vani	preyr ANDESITIC "TUFF onsist of quartz and voicanic glass sitic - basaftic rock, scorious dia (0 30 - 1.00) cm, angular - ed, fresh to slightly weathered, uided, hard - very hard ons of welded matenals mostly 5° LCA. es betwen (15 - 45) <sup>0</sup> , mostly to timonitic - stain surface	Double Core Barrel with metal Core Bit dia 88 mm					50 70 50 90 90 25 70 30 50 50	) * Uthe Sor	* Water Pres K = 103 > Lu = 77,61 we Velocity 7 * Water Pres K = 7,83 > Lu = 56,76 	est est to 4 soure Test		
	27 28 29 30					* Broken	core recovery continued to page 2		25,00		100 100 100		100	1 1	* Water Pres K = 4,40 x Lu = 33,04		DRULOGET	2



#### HOLE NO DA - 10

SHEET: 1 of 4

PROJE				pose Dam ORDINATE	· · · · · · · · · · · · · · · · · · ·				DEPTH INCLINATION	100 00		ELEVATION	334,894
	GE CORE RECOVER			DATE	FROM January 09 - 2006 s/d February 0	2 - 2005			DRILLING MASTER	VERTI	-	DRILLING MACHINE GEOLOGIST	TAS Skalt
DATE Depth	ELEVATION	ROCK	ROCK CLASS	COLUMIN SECTION	DESCRIPTION	6	GROUND	(III) TB/GT	CORE RECOVERY (%)	R Q D (%)	SPT N (Blows) per30 cm	STANDARD PENETRI FIELD PERMEAB PERMEABILITY COEF, Nilai Lugeon,	ATION TEST
Jerruary 11 - 2006 Jerruary 10 - 2009 Jerruary 08 - 2006	- 2	LITHIC TUFF BRECCIA	CH CH Solidite N	a x a     x a<	Dark grey - grey TUFF BRECCIA, matriks consist of fine to coarse tuff with purace to scorious & andesitic-basabic fragment, angular to subrounded, dia.(0.5- 6.0) cm, scattered, subr, moderately - highly weathered, weakly - mod cemented (D) <u>At (0.00 - 0.80) m depth.</u> Highly weathered - Dark brownsh grey TUFF BRECCIA, can be found. * Water lost start at 7,00 m Grey LITHEC TUFF with scorious and puraceous to basafic fragment, dia (0.50 - 2.00) cm, angular to subrounded massive, stiff, slightly to moderately weathered, (CH.) Jointed, vanes (30 - 60) <sup>0</sup> LCA.	Double Core Barret with Metal Core Bit dia 66 mm Single Core Barret with Metal Core Bit dia 66 mm						19         28         38         49           * Constant Head Test         * <td>50         50           1         -           1         -           2         -           3         -           4         -           5         -           6         -           7         -           8         -           9         -           10         -           11         -           12         -           13         -           14         -</td>	50         50           1         -           1         -           2         -           3         -           4         -           5         -           6         -           7         -           8         -           9         -           10         -           11         -           12         -           13         -           14         -
January 14 - 2006 January 15 - 2006 January 12 - 2008 January 12 - 2008 January 12 - 2008 January 12 - 2008	15       16       17       18       19       18       19       10       10       11       12       13       14       15       15       16       17       18       19       10       10       11       12       13       14       15       15       16       17       18       19       19       10       10       11       12       13       14       15       15       16       17       18       19       19       10       10       11       12       13       14       15       15       16       17       18       18       19       19       10       10       10       10       10       10       10 <td>ANDESITIC "LAVA TUFF"</td> <td></td> <td></td> <td>LAVA", consist of quartz and volcane glass with andesitic - basaftic rock, sconous fragment, dia (0 30 - 1 00) cm, angular - subrounded, fresh to sightly weathered, mostly welded, Onerkations of welded materials mostly inclined (45 <sup>0</sup> - 60 <sup>0</sup>) LCA. <u>At (14,00 - 20,00) m depth;</u> Dark grey - grey ANDESITIC "TUFF LAVA" can be found <u>At (20,00 - 30,00) m depth</u> Brownsh Grey ANDESITIC "TUFF LAVA", consist of quartz and volcane glass with andesite - basaftic rock, scorious fragment, dia (0,30 - 100) cm, angular - subrounded, fresh to sightly weathered, mostly welded, (B - A).</td> <td>Double Core Garrel with Metal Core Bit dia 08 mm</td> <td> Up to 22 90 m Deckh. Water hest around 7.50 m</td> <td></td> <td></td> <td></td> <td></td> <td>* Water Pressure Test K = 4,88 x 10 -4 Lu = 36,62 * Water Pressure Test K = 3,83 x 10 -4 Lu = 28,75 * Water Pressure Test K = 3,44 x 10 -4 Lu = 25,81</td> <td>15 16 17 17 17 18 19 20 21 20 21 22 23 24 25 27 28 29</td>	ANDESITIC "LAVA TUFF"			LAVA", consist of quartz and volcane glass with andesitic - basaftic rock, sconous fragment, dia (0 30 - 1 00) cm, angular - subrounded, fresh to sightly weathered, mostly welded, Onerkations of welded materials mostly inclined (45 <sup>0</sup> - 60 <sup>0</sup> ) LCA. <u>At (14,00 - 20,00) m depth;</u> Dark grey - grey ANDESITIC "TUFF LAVA" can be found <u>At (20,00 - 30,00) m depth</u> Brownsh Grey ANDESITIC "TUFF LAVA", consist of quartz and volcane glass with andesite - basaftic rock, scorious fragment, dia (0,30 - 100) cm, angular - subrounded, fresh to sightly weathered, mostly welded, (B - A).	Double Core Garrel with Metal Core Bit dia 08 mm	Up to 22 90 m Deckh. Water hest around 7.50 m					* Water Pressure Test K = 4,88 x 10 -4 Lu = 36,62 * Water Pressure Test K = 3,83 x 10 -4 Lu = 28,75 * Water Pressure Test K = 3,44 x 10 -4 Lu = 25,81	15 16 17 17 17 18 19 20 21 20 21 22 23 24 25 27 28 29

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SHEET: 2 of 4

		Detail Design		Upun	pose Dam			·			EPTH		f	0 00 1		ELEVA			334,8 TAS	
1		Dans Site (RK			ROMATE	X		12 - 2005	<del>_</del>		LINATION		VER S	una	_	GEOL	NG MAC		i AS Signi	
	I	ELEVATION	ROCK	1	COLUMIN		DESCRIPTION		GROUND WATER	T	CORE	Π	RQÐ	Cm	SPT N (Blows)		FIELD PI	RMEA	ATION TEST BILITY TEST F, K In Cm/Se	P T H
DAT	0 61	(m)	FORMATION	ROCK	SECTION				OR OR	1 1	(%) 50 75 10		(%) 5 50 75 100		per 30 cm	10	1	Lugeol	1 1 1	0
2008 04/14/08	32 33 33,5 34 35	301,39	"LAVA TUFF"		4 0 4 0 4 0 4 0 4 0 4 0 4 0 4 0 4 0 4 0	<u>At ( 30,0</u> Light Gre LAVA <sup>+</sup> , 4 with and fragment subround	Ime as above — <u>Q-41.001 m depth</u> , Ey ANDESITIC "TUFF consist of quartz and volcanic glass esithc - basatitic rock, sconous , dia (0.30 - 1.00) cm, angular - tied fresh to stightly weathered, ekted, (CH - B.)					100 100 150 100		70			er Pressu 63 x 10 42,22			
January 16 - 2	36		ANDESITIC "	- HO				dia 66 mm		·		100 100 100 150		95 40		к=з,	er Pressa 44 x 10 25.84			38 37 38 38 
January 17 - 2008				CH	△ △ × △ × △ × △ → △ × △ × △ → △ × → △ × → △ × → △ ×	Dark Gr with sco fragmen to subro	20 - <u>55,50 ) m diputh .</u> ey LITHIC TUFF mous and pumceous to basallic t, dia (0 50 - 2.00) cm, angular unded massive stiff, slightly to rely weathered.	Double Core Barrel with Metal Core B4	Depth, Water lost around 7,50 m			100 150 100 100		60 90 100 15		K = 3	24 10			4
lanuarian 18 2008			LITHIC TUFF	CM		2			Up to 22,80 m Dept			100 100 150 100		10		κ=4	ter Press 00 x 10 30,00		t	
22 - 2006   140	51 52 53 53 54					A <u>t ( 53</u> Fractur probabl	<u>50 - 54,50) m depth.</u> ed (broken core rec) LITHIC TUFF y Volcanxc Sand and Gravel calations					45 30		0 3 5 5 1 0 0		κ=4	ter Press \$20 x 11 31,50		ż	
-13	555 565 577 577 58 59 600		LAPILLICEOUS TUFF	D - Soll-like recovery		Grey-gi pumrce - 1 00 1 scatter highly <u>At ( 55</u> Grey-g	reyish Brown Lapilaceous TUFPwith and andeslic fragment, dia (0.30 - cm, angular to subrounded, ed, fine - coarse tuff, moderately weathered, soft - firm. <u>00 - 60.001 m depth</u> reyish Brown Lapilliceous TUFF the upper parts continued to page 3		Metal Core Bit die 55 mm			40 40 90				κ=	ater Press 1 40 x 1 = 10,48		st	

#### HOLE NO. DA - 10

_	ATION	Dam Site (Re	n Ayung Mui		DRDINATE		Y				DEPTH	N	+		20 00 R T I C		ELEVATION DRILLING		334.8 TAS	
		ORE RECOVER			DATE	FROM					DRILLING N		2		usa		GEOLOGI		Sigi	à
			ROCK	Ī	COLUMN		<u></u>		<u>6</u>		CORE			QD		SPT	Į –		RATION TEST	
DATE	0EPTH (m)	ELEVATION	0.0	K CLASS			DESCRIPTION	1	BIT TYPE AND DIAMETER ( mm )	ROUNE ATER VEL (m	RECOVER	Y Cm			cm	(Blows)	PERMEA	BILITY COE	F, K in Cm/Se	
õ	<u>م</u>	{m}	FORMATION	202	SECTION				118	5 × 5	(%) 25 50 75 1		1	(%) 0 75 10		per 30 cm	10 26	Nilai Lugeo	1 1 1	
-		I <u></u>	<u> </u> 	1-	XAX		same as the above —	<u> </u>	1			100 111 50	26 9							Г
	61			ŀ		ſ	00 - 65 00 ) m depth					40			0					
					¥ A V	Brown	Lapiliceous TUFF, with					50			0					
	62			:			and andesitic fragment dia	(030-				40			0					
	62,5 63	317,50			Y A Y	i .	) cm, angular to subrounded, ately weathered, massive,					80			0					
10	_	1			×Δv		carse tuff, moderately - highly	,										essure Test		ļ
- 2008	64				. <b>. ∀</b> 	weath	ered, soft - firm					100			0		K = 2,15			
uary 25	65			]								90			6		Lu = 16,16			
nuer				1		At 1 65	00 - 75.00 ) m depth													
	66	1				ł	sh Grey Łapiłliceous TUFF,					60			0					
	67					1	and andesitic fragment, dia ) cm, angular to subrounded,	(030-				90								ł
		1			ν Α.Υ •	].	ately weathered, massive,		1											
	68	1			8 - M- H	fine - c	oarse tuff, moderately - highly	'				80			0					
	69			Ι,	Y A Y	weath	ered, soft - firm.					100						essure Test x 10 <sup>-4</sup>		
	09				$\Omega$	}											Lu = 15,67			
	70											80			0	H		┼╍┼╍		╀
	71					c														
2006		-			× 4 ×	0						140			0					ł
/ 28 - 2000		1				4														
January	F_	1				1 1			E	ι ε		90			0					
Ĩ	73	1	TUFF		$\langle A \rangle$	1			dia 6t	09'1 P		100			0			r i ressure Test		
	74		i	Very					ore Bit	around		50			0		1	x 10 <sup>-4</sup>		
	75	305,00	\$no	recoven					letal C	2		85			0		Lu = 15 12	2		
	<u> </u>		LAPILLICEOUS	I-IIKe	х <u>д</u> у У	<u>At ( 75</u>	.00 - 85,50 ) m depth		Single Core Barrel with Metal Core Bit dia 68 mm	h, Water		50								F
127	76	ļ		108 -		1	Lapiliceous TUFF, with		Barrel	Depth,		50			0	{				
	-		d d			pumice	e and andesitic fragment, dia ) cm, angular to subrounded	(0.30 -	Core	22,90 m		80			Ċ					
2008			1 2		8.44.1	moder	ately weathered, massive,		Single	Up to 2					11	1				
9	78	4			NA V		coarse tuff, moderately - highl	у		Ĩ		85			0	<u> </u>				
Vanac	78,5 79	301,50				weath	ered, soft - firm.		-			85			0		K = 1,47	x 10 <sup>-4</sup>		
	Ľ	1			×۵,	,											Lu = 11,30	1 1		
	80	4				2 T						<b>8 90</b>			0		$\vdash$			╀
	81				4	e						80			0					
	Ē	1			× A Y				1							]				Į
	82	-	1							1		85			0					
	83	1				6						90			0					
2006		1	1		A S	ý.				1						11		ressure Tes	•	
	84	_								1		85			0		K = 1,47	x 10 <sup>-4</sup>		
	84,5 85	295,50			88% C	4						80			0					
ľ	Ē	1			S ∆ √	<u>At ( 90</u>	0.00 - 95.00 ) m depth									1				T
	86	4	1		×××		nsh grey Lapiliceous TUFF,					85			0					ł
ļ	87	1			~	panne	e and andesitic fragment, dia ) cm. angular to subrounded,		ł	1		8			0					
I	Ľ	1			×Δ.		rately weathered massive,		ĺ	ļ						1				
L	88	4	1		×.		coarse tuff, moderately - high	ły				80			0	41				
1	H			1		weat	hered, soit - firm											ressure Tes x 10 <sup>-4</sup>	t	
00.00	89	1			× A										<b>"</b>	11	Lu = 8,75			
1	90	1				14	continued	to page 4	1			80			0					ł

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# HOLE NO. : DA - 10

					·····	HOL		.:D/	A - 10				_			SHEET :	4 05 4		
PROJECT	Detail Desig			ordinate		Y				DEPTH			100,00		ELEVA			334	
5	ORE RECOVER		ŧ	DATE			ry 02 - 2006			DRILLING M			ERTI Sena		GEOLC	NG MACH	RNE.	TA Sk	
DATE DEFTH (m)	ELEVATION	ROCK TYPE OR Formation	ROCK CLA38	COLUMN	ם	ESCRIPTION	SIT TYPE AND DIAMETER	(mm) GROUND	WATER LEVEL (m)	CORE RECOVER (%) 25 50 75 10	Cne	RQD (%) 25 60 78 1	Cm	SPT N (Blows) per30cm	,	field pe Ieabilit	RMEAE Y COEF		ж 06РТН (m)
9007 - 10 9007 - 10 9007 - 10 9007 - 10 9007 - 20 9007 - 20 9007 - 20 9007 - 20 9007 - 20 907 - 20 1000 - 20 1000 - 20 1001 - 20 1002 - 20 1002 - 20 1003 - 20 1003 - 20 1003 - 20 1003 - 20 1005 - 20 1007 - 1002 1005 - 1007 - 1002 1009 - 1102 1111 - 112 1112 - 1115 1116 - 1177 - 1118 1119 - 120 1129 - 120 1119 - 120 1120 - 120 1120 -	234,89	LAPILLICEOUS TUFF	S-0		<u>At (90 00 - 9</u> Brown Lapille to coarse tuff fragment, dia subrounded, t <u>At (95 00 - 1)</u> Brownsh grej to coarse tuff fragment dia subrounded, s	as the above — 25.00 ) <u>m depth</u> iceous TUFF, fine f, mnor purace and andestre ( 0 30 - 1 00 ) cm, angular to scattered Soft to firm 00.00 ) <u>m depth</u> , y Lapificeous TUFF, fine ( 0 30 - 1 00 ) cm, angular to scattered. Soft to firm of Hole at 100.00 m depth	Single Core Barrel with Motal Core Bit dia 66 mm				80 80 80 80 80 80 80 80 80 80 80 80 80 8				* Water K = 1,2 Lu = 9,	Pressure 30 x 10 75 Pressure 9 x 10	Test -4		

DRILLI, OG-GTS