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	- i - i -		SW Ca		0.00 - 2.45 m: CLAYEY SILT, brown to greysh brown, soft to firm, medium to low plasticity, moist, containing some amount of plant roots. 2.45 - 5:30 m: SILTY SAND, grey, very fine to medium grained, well graded, kose; containing some moltusca shell and gravels with diameter up to 1.00 cm. 5:30 - 12:00 m: SILTY CLAY grey, soft, low to medium plasticity, moist; containing some moltusca shell. 12:00 - 16:35 m: SILTY-CLAYEY SAND, grey, very fine to medium grained, poorty graded, kose, moist (in 14:40 m depth getting medium dense and containing gravels with diameter up to 1:00 cm).	3 3 3 3 3 3 3 3 3 3 3 3 3 3		2 637	41 250 52 700 52 650	1.733	1 227	21-221 +455		

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1001			1 :	:	<u>.</u>		coarse grained, we'l graded, medium dense.	ľ														
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				2 80	·····			200-280 m SANDY SILT, Boht brown,		10/30	<u>As</u>		44 060	1791	1 070	26	s76 -102	-	-	-
		ł				۰.		firm medium to high	3											
								p'asticity, moist. 2.80 - 5.00 m;						·						
	4-							SILTY CLAY, brownish grey, firm to stiff, high	4	13/30										
								plasticky, moist.			*	2								
	5			500						830		1								
								5.00 - 6.13 m	5		1. A. 1.									
i								SILTY CLAY, dark brown to black, high plasticity, moist							.					-
	8 		-	6.13					6	633										
				670	· ·			6.13 - 6.70 m; SILTY SAND, grey, medium			\$. Y.									
	\boldsymbol{v}							to coarse grained, loose, well graded, occationally		630	2	1		1						
								gravels with diameter up to 0.50 cm.			1									
	្លា			i				6.70 • 15.00 m:			ſ,			- I						
								SILTY CLAY, dark grey to grey,high plasticcity, stiff to very stiff, moist.	8	13/30	Ao //									
								reny son, most.												
	9								9	16/30	Ľ									
											V	2.759	x 360	1 2 5 1 1	075	29- 40 4	68	αJ 2	11 54 0.1	17
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1	+	E.	115	<u>[</u> 0]	1	- 13	75	BOTTOM OF HOLE	シ└─╵╬╌╧╌╌╧╴╧	12/30 C	<u>k /</u> 10010:		60494]	. (SS) vos	4.41		<u> </u>	- [*] -

L				125 NDONE	SLA		THE DETAILED URBAN DRAINAGE AND IN SEMARANG IN		DD CON RCES D	ITROL EVEL	OPI	rent	r		B	OR	ING	L	00
Ears Ho Location Boring D		RG	IT BAY		1 .	1	Ground Water Level (GWL): Coordinate : x*	meter y =					edby		8 - 9 - 199 Ade K. / K	os is h	9 • 1597		
Elevation	<u>epn:</u>	٠	3 107	कर्शस कर्लस			Angle : Dricing Wachine : YBM -					1.80	ervisor		Rudy Hive	240			
1 2	3	4	5		1	8	CLASSIFICATION	AND DESCRIPT 12 Standard Panetra		F MAT 13 14			17	18		19	· · · · · · · · · · · · · · · · · · ·		20
		1						Test		, je		R	ନ			Serberg i Pesceti-		-	Ster Te
	c	E S	2	3	ş		DESCRIPTION	N - Value Number of Blow per 30 Cm Penetri	a rion	er Strat	All and a	Xex	11) XU	* 0	l a	Perio no Validum	(a) test		internal
Scale Scale	Elevation	Statum	Oepth(m)	Sol Profile	Clanification	ט אר ט או		0 10 20 30 43	50	Geological Strata Method of Sampling	Specific Granity	Water Content (%)	Unk Welghe (2m3)	Void Ratio	0	40	60 I	20 2	NOIE IN
							0.00 - 3.60 m: SANDY SILT, light brown to		-1		1			-					
							brown, low plasticity, soft to stiff, moist; containing some		1870	7									
							amount of plant roots.				1:								
2					ML			2	14/30	17									
						Ì		2		A.									
				 					1 · F	A: 17									
2							3.60 - 10.00 m: CLAY, greyish brown to	3	10/30		÷.,								
			380 3				black, high plasticity, firm to stiff, moist.												
97 2010								4	16/30										.
SEPTEMBER 1997											2545	68 173			23-		1 85 113] _	
TEMB								5	13/30	<u>v</u> ()					25*		-05 71	.	
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- 10	-	1	000		_	4.30	10.00 • 15.00 m:	10	14/30										
							SANDY-SILTY CLAY, grey, high plasticity, firm to stiff,							•					
55_							moist	1	32/30										
														ĺ					{
1997			ŀ	 - 4 - 4				12	34/30							11 10 10 10			
WBE				· · · · ·	сн					2. 2. en									:
9 SEPTEMBER 1997				·				13	41/30	\square						1010-00			,
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4	•		f						44/30	0									
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<u>191</u>				•			BOTTOM OF HOLE	2 - 47	<u> </u> [tē	GEND:		CCR.	• 2	<u>]</u> ;		UDS.	a a Majar		,

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etion			HT B		; 1	ø	<u> </u>	IN SEMARANG IN Ground Water Level (GVL): Coordinate : x #	me!e		<u>vou</u>						Dete Divie			27 - 9 - 1 Uut Kos		0 28 -	9 - 199	1			
ng De azion				0 meter 6 meter				Angle		ang					· · · ·			ed by nisor		Ruty I'u	kranko						
2		4	5	6	-1	7	г. <u>.</u>	CLASSIFICATION	AN	d de		110	ON C									45					
	3	┤┺		<u>°</u> .			8		1	Stand	12 and Peric	tratio	<u>م</u>	13	14	15	16	<u> 11</u>	18			19 erg Lin	163		20 Streng Test		
		ŝ	ł							·	Test N - Value				ş		£	(Sm3)			e Puz	Se Limit (
		7 ictor			ĺ	S		DESCRIPTION		Nor	ber of B Crn Pen	645	.	t Sta	E San	÷.	ntent	S E	u			ichdur Alimt ((%) . (%)		ž.	(ho/cr	
¥	Eorelon	Stratum	Depth(m)	Sold Profile		Cantleation	0 V L	· · ·			0 30			Geological Strata	Method of Sampling	Specific Gravity	Water Content	Unit Weight	d Ratio,					120 A	120	et on	
Scote	ំ	ß	8	8	_	ð	6		- 0-		1 I.			8	ž	ð,	ŝ	ŝ	Pio/	0	40			120 F	158	8	
					Ξ			0.00 - 1.35 m: SANDY SILT, brown, soft to																			
				=	Ξ	ML.	а.	firm, medium to low plasticity, molst; containing				ĺ			\square												
			135		Ξ			some amount of plant roots, gravels with diameter up to	1	K			\$/ 3 0	*											ĺ		
				·				3.00 cm	$\left\{ \right\}$			Í			2												
2							- 1	1.35 • 4.35 m; SILTY SAND, dark brown,	2		``	Į	41/30		Δ												
					-			fine to medium grained, poorly graded, dense to very				ĥ.															
					-			dense; containing some amount of gravels with	11			N															
3.				:	<u>·</u>	8P 8		diameter up to 5.00 cm.	з				54/30				1	-									
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			4 35		-				4			17	1		1										1.		
								4.35 - 6.50 m:				 	ļ														
5								SANDY CLAY, grevish brown, high plasticity, very	5			1	35/30														6
						Ż		stiff to hard, moist.				Į															
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8		ļ	6 50			_						l			100												
7	5				-			6.50 - 10.00 m; CLAYEY SAND, brown, fine				ĺ	102/30	ļ	Λ			•							1		
				· · · ·	·			to medium grained, medium to well graded, medium	[1]			ļ '			20. X												
				::: :		1		dense to dense; having some amount of gravels with																			
8						5~	4.05	diameter up to 1.50 cm.	8				10775	}	/ 2	712 S	× 720	1.658	1297					-	-	-	
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9					<u> </u>	÷							107/3		Ά												
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<u>.</u>				1	-			10.00 · 10.55 m:	11				50/14			ł			Ċ								
10			10 00	<u>,</u>	- -	_	:	SANDSTONE, greyish brown, medium to very	10																		· · ·
			10 55				- 1	coarse grained, well sorted, high porosity.			ĺ							с З									
]										7												· · ·
×.				••••	•		1	10.55 - 12.65 m; SAND, brown, fine to very	11				42/30					- 1									6
					:		:	fine grained (in 12.00 m depth become medium to							,		, i							-			•
2					: *	SP		very coarse grained and very dense), poorty graded,	12				87/30		∕].	rse ju	8 470	1 801	1413						_		
			:					dense.											1								
			12.65	• • • •		_							507		2												
`						·		12.65 - 15.00 m: GRAVELY SAND, brownish	13					i													
								grey to dark grey, coarse to very coarse grained, poorly							ì												
						\$ 2		graded, very dense; having					50713	÷					· 1								
			·	••••	•			8.00 cm.	14						1												5 - 15
				. C									50/10		2			:									
3			15 (0	<u> </u>	·L		3 75	BOTTOM OF HOLE	is L					De LEGE						11 🕅						L	

Barel Locat Borng Elevat	on Depth	:	NT BA	Sted NK Dinatar Dinatar	: 1	<u>a</u> 1	Ground Winter Level (GVM): Coordinate : 2 = Angle : Druling Machine : YBU -	y * Drived by : Ade Searna : Lopped by : Rud	9-1997 K.Kosesu'a Y W.Ka'a'a
	2 13			1 6	11	18		ND DESCRIPTION OF MATERIAL 12 13 14 15 15 17 18	19 20
	Ť	Ì			Ť	Ì		Standard Penetration	Allerberg Limits Test
Date Scale	Elevation	Gratum Thickness	Deptn(m)	Solt Profile	Claufcation	CWL .	DESCRIPTION	N+V22.e N-V22.e Number of Bove per 30 Cm Peretasion 100 00 00 00 00 00 00 00 00 00 00 00 00	A Tasif Link (13) A Tasif Link (14) A Tasif Link (14) A Tasif Link (14) A Tasif Link (15) A Tasif Link (15)
A CANADA			093	• • • • • •	G		0.00 - 0.90 m; GRAVEL, (retaining wall).	8	4) 50 20 20 20 20 20 20 20 20 20 20 20 20 20
							0 99 - 6 20 m: SILTY CLAY, greyish brown to reddish brown, high pissicity, stiff to very stiff, moist.	1630	
								25730	
								31/30	
5								5070 Z 562581	22+ x 29 +55 ~ ~ ~
			6 23						250 +48 00 7.43
3ER 1997							6:20-9:80 m; TUFFACEOUS-CLAYEY SILT, vetowish brown, low to medium plasticky, stift to very stiff, moist.	37/39	
16 SEPTEMBER								42/30	<i>\$</i> }7 (1) (UU 72 83)
9									
10			639	Y.Y.Y Y.Y.Y Y.Y.Y			9.80-15.00 m: TUFFACEOUS SAND, yeliovish grey, fine to medium grained, poorty	5570	
			-	YY Y.Y.Y Y.Y.Y Y.Y.Y Y.Y.Y			graded, dense, medium comented (derived from highly weathered of volcanic breccia), containing some amount of GRAVELS with diameter up to 3.00 cm.	537 537	
12 13				v. v. v. v. v. v. v. v. v. v.					
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			1500	v v v v v v				507 04	

	110		T BAN				Coordinate : x*			<u> </u>				Onbe			UsK			
	Depth ion	: •		meter meter			Angle : Dryling Wachine : YBM - :	36	earing :					Logo Supe		:	Rudy Mukanla			
Ţ	2 3	11	5	6	17	8	CLASSIFICATION 9			12				AL 16	17	18	19		20	
	ĺ									Penetration lest		2					Atterberg Limits		Stren Tes	ŧ
		- Second	Ì				000000000	Γ		Value r of Biows	Stretta	Sampli	λīγ	r F	Smo		Perfective (%) Perfective		73	C(cm)
	ş	Stratum Thick	ŝ	Soli Profile	Clashcation	: د.	DESCRIPTION		per 30 Crr	Penetration	Goological Strats	Metthod of Sampling	Specific Gravity	Water Content (%)	Unit Weight (Vm3)	Void Ratio,	A Take Link (%)		Angle Internal	Cohesion (rg/cm [*])
3	Elevation	Ē	Oepth(m)	3	1 U U	3 0			10 20	30 40 50	8	Mett	Spec	Wate	ž	ş	0 40 80	120	A A	8
							0.00 - 2.20 m: CLAYEY SILT, brown, low	ן ר			T	100								
100							to medium plasticity, stiff, moist.					7								
					MŁ	. :		۱		12/3										
2002									A I											
10.22			2 20					2		573										
		T				:	2.20-8.00 m: SILTY CLAY, grey with													
							yellowish brown mottled, high plasticity, firm to stiff,	1		erx		Ľ	: 538	42 21	•.	-	24+ 41 +55	.	~ -	-
					1		moist.		N.											
	Č.									143		Ν	1							
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			1		СН			5				8.								
1000				-																
			ŀ					6		16/3						3				
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CMBCH								'												
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1002			800				8.00 - 11.15 m:	8		630										
	Ş.						SANDY CLAY, greyish brown to grey, high								÷					
		l					plasticity, firm to stiff, moist.	9		5/30										
101.20																				
	ŝ				сн			10		7/30		Δ^{i}	255	52.97	7	-	23- 658 151	-	• ~	-
1000																				
			11.15							6/30	A.	7	1							
		-		••••			11.15 - 13.80 m:	-['']			H				A.				2	
1			l .	···			CLAYEY SAND, grey, very fine to medium grained,					7								
	2			··'			oense,	12		1430										
					SP															
				•••_•				13	1	2070										
				•••	-		13.80 • 15.00 m: SAND, grey, medium to			<u>}.</u>										
1	<u> </u>		13.60	<u></u>		{	 coarse grained, well graded, dense to very dense; 			50/15	A.5									
				••••			GRAVELS with diameter up													
ß			15 CO			5 09	to 3.00 cm.			50/17	Da	\geq								

CLASSIFICATION AND PLECKIPTION OF MATERAL 2 3 4 5 6 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		80 10 80	re Ho at on ing C	e ecch	R8 RKG	- 30 HT BA 15 0) mele				Coordinate : x • Angle :		eter Bearing :	Y =					d by ed by		l 13 - 9 - 11 Tatang Rudy Mul		4 - 9 - 19	991		
1 1 <th></th> <th>Ee</th> <th><u>rato</u></th> <th><u> </u></th> <th>•</th> <th>102</th> <th>T nele</th> <th></th> <th></th> <th></th> <th></th> <th>• • •</th> <th>ND DESC</th> <th>RIPTION</th> <th>OF M</th> <th>- IAT</th> <th>ERL</th> <th>S.pe</th> <th></th> <th>1</th> <th>• • • • • • •</th> <th></th> <th></th> <th>.</th> <th></th> <th></th>		Ee	<u>rato</u>	<u> </u>	•	102	T nele					• • •	ND DESC	RIPTION	OF M	- IAT	ERL	S.pe		1	• • • • • • •			.		
Image: State in the s		1	2	3	1	15	10	-	1	8		7	Sarcard	2 Penetration					17	13					S	lieng!
1 000-100m; CALVEY (Finith Soft matched and matche	- 10 July 1	Dele	Scale	Elevation	Stratum Thickness	Cepth(m)	Coll Percis		Classication	GWL	DESCRIPTION		N - Number per 30 Cm	Value of Biows Penetration	Geological Strata	Method of Sempling	Specific Gravity	Water Content (%)	Uns Weight (Vm3)		a C J) Pedela] Pedela Laudin	4 (N) 4 (N) 4 (N)	120		lernul (•)
SUTT CLAY, Byt trown is peaked; still is very still, most 3 Sutt is very still, peaked; still is very still, most 3 Sutt is very still, peaked; still is very still, most 3 Sutt is very still, peaked; still is very still, most 3 Sutt is very still, peaked; still is very still, most 3 Sutt is very still, peaked; still is very still, most 3 Sutt is very still, peaked; still is very still, most 4 Sutt is very still, peaked; still is very still, most 4 Sutt is very still, peaked; still is very still, most 4 Sutt is very still, most 5 Su		-	120 A 10 A 10 A						м	-	CLAYEY SILT, brown, low to medium plasticity, firm to stiff, moist; containing some amount of organic and		1	15/3		Г И										
3		q 1997	2.2 C								SILTY CLAY, Byth brown to brownish grey, high plasticity, stiff to very stiff,		2			\square				-						
5 5 500 700 727 700-870 m: 500 100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 100 1100 <t< td=""><td></td><td>SEP1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>ся</td><td></td><td></td><td></td><td></td><td>23/3</td><td>5</td><td>И</td><td></td><td></td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td>-</td><td></td></t<>		SEP1							ся					23/3	5	И			-	-					-	
1 100 215 1 111 Status Status Status 1 110 110 110 1 110	1		5											\$30			2758	43750	1 6 13	1758	26+	158 	-21		00 2	313
1 1 <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>7 00</td> <td></td> <td></td> <td></td> <td>275</td> <td>SILTY SAND, grey, medium</td> <td></td> <td></td> <td>5/30</td> <td></td> <td>И</td> <td></td> <td></td> <td></td> <td></td> <td>·····</td> <td></td> <td>*******</td> <td></td> <td></td> <td></td>					-	7 00				275	SILTY SAND, grey, medium			5/30		И					·····		*******			
10 <			8			870		-	sw 	-	graded, bose to medium dense, 8.70 - 11.00 m:								-							
13 some amount of GRAVELS with diameter up to 3.00 cm. 12 13 SV 14 15 13.00		97	:0					-	сн		SANDY CLAY, grey, high plasticity, firm, moist.						2512	\$3 112	-	-	27+		a.U.2		-	and the second
33 some amount of GRAVELS with diameter up to 3.00 cm. 12 13 with diameter up to 3.00 cm. 13 14 14 15 15 co 310		SEPTEMBER 1				11.00	• • • • • • • • •	•			SAND, grey, medium to coarse orgined well orgited			13/33	Ac						*****					
							• • • • • • • • • • • • •	•	W		with diameter up to 3.00 cm.															
35 115 00 ····· 310			14		-		• • • •	•		tana arawa di																
						15 00	· · · · ·			5 10	BOITON OF HOLE	- 15		51/00		× / >	1323	1 004	0	- 	PT. (2) USS				

		17. (11n. F BAN	Geo Pejaj (DU	ACC jaran	80. 125 INDON	ESIA		SOIL ME THE DETAILED URBAN DRAINAGE AND	DE: W/	IGN OF	FLOO	D CO RCES	NTE	/ELO	DPM	ENT	•		B	OR	ING	GI	JO 10	G		
Bo Loc	re Hole sation	20 20	RB - LEFT	31 1 8455 15 00	Sheet			IN SEMARANG IN Ground Water Level (GWL): Coordinate : k= Angle Ditung Machine : YBM-	me B		<u>у.</u>	OF IN	DON	ESI	A 		od by ,ed by		9 - 9 - 199 UUS Rudy Muk) - 9 - 19	a r				
	2		4	5	6	17	8	CLASSIFICATION		D DESC 1 Standard F	2					AL	17			19 Herberg		 	St:	20 1210/11		
		8	n Thickness	Ê	ahe	ation		DESCRIPTION	-	Te N+V Number per 30 Cm	'alue of Biow		Geological Strata	Method of Sempling	Specific Gravity	Water Content (%)	(CmV) MOre	Ratio, e	•	Paste Li Paste Li Ligit Li	int (%) dag				Cohesion (kg/cm ⁵)	0
Sate O	Scale	Elevation	Stratum Thici	Oept)(m)	Soil Profile	Clearfication	U W L		- 0	10 20 3	30 49 T	50	8	Mettho	Specific	Water (Unit Weight	Void R.	0	40 1	80 	120	a L	Angle Internet Inction (•)	Coheat	
						-		0.00 - 5.20 m; SILTY CLAY, brown with yellow & white spotting to grey, medium to high plassicity, firm to stiff, moist.	1			12/30														
	2					•			2			12/30	8													
	3					CH			3			10/30			2.520	36 560	-	-	Z7+	-57	-79		-	-	-	
SEPTEMBER 1997	C 1.5			· ·		•			4			1/30				-		- 4 - 4								
9 SEPTE!				5 20		- - - - - - - - - - -		5.20 - 6.80 m; CLAYEY SANO, brownish	5			7/30	A C						111111111111111111111111111111111111111	******						
	•			6 80	· · · · · · ·	- SW		grey to grey, very fine to very coarse grained, well grades, medium dense; occationally GRAVELS with diameter up to 1.50 cm.	6			14/30	<u>As</u>								*****			-		
	8					100	-	6.80-9.30 m; GRAVELY SAND, grey, coarse to very coarse	7			26/30			2.647	13 163	-		******		*******		-		-	
	3			930	. C			grained, poorly graded, dense. GRAVELS: angular to subangular, diameter up to 5.00 cm.	8			46.00				2 2										
	10			* 33				9.30 - 11.40 m: SAND, grey with white speck-ing, fine to coarse grained, well graded,	10		Â	27/30		Ζ			ж. 4				*****					
97				11.40	· · · · · · · · · · · · · · · · · · ·	SW		medium dense,	11			44/30		Ζ	2 850	\$ 179 		-					-	-	-	
SEPTEMBER 1997	2							11.40 - 15.00 m: GRAVELY SAND, grey, coarse to very coarse grained, weil graded, dense. GRAVELS: subrounded to	12			50730		2												*
10 SE	2					SW		sngular, diameter up to 3,00 cm,	13			50/11		2	- - -					-	******					
					.0		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		14			50/13														
				1500				DOTTOM OF HOLE	, <u></u>			90721	Da	.		con				UDE						

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10 60	re Ho ortion org D	eçth:	·	17 BAN	X तन्द्रश	:1 0	<u> </u> <u>* 1</u>	IN SEMARANG IN Ground Water Level (GWL): Coordinate : x * Ange	neter	KEPU	y =			.514		ed by ped by	:	10 - 9 - 1 Tetang Rudy Mi	1997 to 11-1	- 1997	
ē	vitio	<u>:</u>	+		meter			Onling Machine : YSO-(CLASSIFICATION	01		RIP	ION C)F M	ATE	S.p	ervisor					
Oate -		Geration	Statum Thiotomaa	Cepth(m)	Soul Profile	Clearfication 1	SWL SWL	9 Cescription		breiones 1	12 Panetr Test Value r of Bio I Penet	ition As ation	13		16 R	Unk Weight (Vm3)	Retto, e		19 Allorberg Lini Prescued (Prescued (Disistone (Alloristone (Alloristone (Alloristone (Allorberg Lini)	k3 -)	2
5	8	ð	め		8 :	1	0	0.00 - 0.50 m:	0				8	2 8 2	Š	5	\$	0	40	80]	7,yb
	1. N. 1. N.			0 50 1.10				SILTY SAND, fight brown, very fine to medium grained, poorly graded, medium dense, having some amount	1			50/8									
	1002				: <u>-</u>			of plant rocks. 0.50 - 1.10 m; GRAVELS (retaining walt).	2			19/30							÷		
	3			2.43	· · · · · ·	•		1.10 + 2.48 m: SILTY SAND, light brown, very fine to medium grained,	3			14/30	8								
CR 1097						сн		poorty graded, medium dense, 2.48 - 5.00 m; CLAY, grey, high plasticity,	4			16/30	Ac								
SEPTEMBER				<u>500</u>			145	firm to stiff, moist.	5			19733									
5	÷ З в					SP	-	S.W. 6.40 m. SAND, grey, very fine to medium grained, poorly graded loose, wet.	6 •			3/30									
	1			6.43				6.40 - 8.10 m: CLAY, yellowish brown, high plasticity, stiff, molst.	7			9/30	<u>A4</u>								
	8			8.10		сн			8			20/30									
					···_·	58	3.45	8.10 - 13.30 m; CLAYEY SAND, grey to	9			18/30	Ac			н 1911 1911					
	10				···			dark grey, very fine to fine grained, poorty graded, medium dense, moist.	10			23/30	As								÷
			-	•	· ·				11	······································		24/30		217	24 573	-	-				-
PTEMBER 1997	12					sw		GRAVELS with diameter up to 2.50 cm.	12			52/30									
11 SEPTE	13.1			3 30	· · · · -				13			60/26		277	5 34.173	-	. .	n	-41	43	-
	14				-	SW		13.30 - 15.00 m; GRAVELY SAND, grey, medium to very coarse grain- ed, well graded.	14			50/28									
	15 15			500			290	GRAVELS/COBBLES: diameter up to 10.00 cm, BOTTOM OF HOLE	15				Da						2] UD \$		

	Jin. BA	88	ijara JNG - 33	10 DC 7, 17 1	DONE			THE DETAILED (URBAN DRAINAGE AND IN SEMARANG IN Ground Water Level (GML):	WA1	rer Re	RE	SOUI	RCES	DEV	/ELC	ЭΡМ	Date			7 - 9 - 1		RIN		I.N.		r 	
ion.		LE	FTB	144	neter			Coordinale : 1*		ving		y =	• . • • •				Onie			Uus K Rudy M							
0 0 101	epth:	+			neter			Angle : Driding Machine : YBM - 3		nng .			~				Supe	visor		RIOY M	19973						
							:	CLASSIFICATION	AND) DI			ION C	FN	<u>IAT</u>	ERI	AL.			·				· •			
2	3	4	1-1	<u> </u>	8	1	8	<u> </u>	<u> </u>	Sar	12 Sed F	enetra	500	13	Щ	15	16	17	18			19			20 Strangt	<u>5</u>	
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		ĮĮ			÷						N-Y	ate	_	18	Metthod of Sampling	≩	ί χ	(Cm/2)				ic Linii (S. ic Irdan (S				Cohesion (kg/cm?)	
		Ž				ş		DESCRIPTION		Nut per 30	nber () Cm i	enetra	sion –	Geological Strata	м То	Specific Gravity	Content	Unk Weight (e o			HUHL (N)			Angle Internal Inicition (*)	3	
•	Eeretion	Stretum Thic		futurdan	Soil Profile	Clasification	2			10		0 40	63	1 Š	B	çijo	5	PA.	Void Ratio,						20	1 S	1
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								0.00 - 4.18 m: SiLTY CLAY, brown to light brown, high plasticity, soft to stiff, moist; containing some amount of plant roots.					7/30		Ζ												
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						ļ.,		SILTY SAND, grey to dark			1			1	17					1.1	l	H					
5					·		3.79	grey, fine to very coarse grained, well graded, loose	5				630		U			λ.						ł			
						1	1	to medium dense.		١Į											1.2						
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	-	1	1	1			1	8.10 - 13.10 m:		k					2								1	1			
								CLAY, greyish brown, high							7	:	;						- 61				
્રં							÷	plasticity, stiff to very stiff, moist.	9	1	Ĭ		21/3		Ľ	Ň		31									
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								/ SILTY SAND, grey to dark					1.		7	2785	0210	_	_								
			13.	10		1		grey, very fine to medium gra- ned, poorly graded,	13				13/30	1	Ľ			-				36	-67				
*		1	13	55	'	se		medium dense.]	1.					2							•		
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S,		1			•••••	G₩		to subangular, with diameter up to 4.00 cm.				ľ						a de la composición de la comp									1.1
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Bo Lo Bo	re Hc cator mo (ie I Vepth	RB RG	• 34 нт ви 15 С	ND Ste NX 0 met	et :	1.00		IN SEMARANG IN	WATER RESOURCES DEVELO THE REPUBLIC OF INDONESIA meter y *		ENT Dried Logge Super	dby	: :	BORING L 8-9-1997 to 9-9-1997 Tetarg Rudy Matanto	
			14	15	<u>.</u>	6	11	8	** ***********************	AND DESCRIPTION OF MATE		AL	17	18		20
to .	Scale	Devation	Stratum Thickness	Depth(m)		Soil Profile	Claufcation	GWL	Cescr:PTION	Standsrd Penetration Test P	Spearlic Granity		(cmv)	i Retio, e	Attorberg Limits	Strength Test
CMBER 1997	1	ď	20	3 33			8 M	0	0.00 - 3.30 m: CLAYEY SILT, Eght brown to greyish brown, firm to stiff, medium to low plasticity, motst. 3.30 - 5.00 m:	0 1 2 3 3 4 5 5 0 5 5 0 5 2 5 2 5 2 5 2 5 2 5 2 5 2	-					7999 Angle firsuo
 8 SEPTEM	4 5 7			5.00			\$	305	SILTY SAND, grey, vry fine to medium grained, poorly graded, loose. 5.00 - 7.15 m: SAND, grey, medium to very coarse grained, well graded, medium dense, coostionally GRAVELS with diameter up to 1.50 cm.	4 5 7 7 7 7 4 7 7 7 7 7 7 7 7 7 7 7 7 7		2017			2005 -323	
0	13			12 55	1			4.65	12.40 - 12.55 m: SiLTY SAND, yelowish orey fine to modum	8 9 10 11 12 12 13 14 15500		59 233			269 262 488	
-	14 			15.00	···, ··· · 2.	ð • • •		283	BOTTOM OF HOLE	14 505 Da					NT. [53] UDS	

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0	tatior		: ເຍ	T BA'	iK U mel			<u> </u>	Coordinate x=		y *				Drife	dby	:	ius –				· · · · · ·	
	vatio				30 met		·		Drilling Machine YBM.						Sr,e	ed by svisor		Rudy Wolf	2/10				
	2	13	4	15	1.	6	17	18	CLASSIFICATION	AND DES	SCRIPTION (AL 16	- in 1				<u> </u>			
		ľ	Ť	1-		-	<u>-</u>	<u> </u>		Standa	rd Penetration	13	14	35	16	<u> </u>	18		19 Serberg			Sre	
		Ľ	Ę	ļ							Test		2		8	ନ			Persola			1	
			Ş		·		ç		DESCRIPTION	Numb	I - Value ber of Blows	Ter.	J and	ŧ	Ĕ	m'a)		П	Parks Id David Lin	Swe		Ī	(•) m (indem)
		<u>§</u>	Statum Thick	Ê		Pole Pole	Clasification			\$er 30 (Im Penetration	olcal	8	5	8	/eight	latto,	^	1040410-	* (*)		12	្ន
	Scole	Geration	Page 1	Oepth(m)		COI Prote	8	C W L		0 10 20	0 30 40 50	Geological Strata	Metthod of Sampling	Specific Gravity	Water Content (%)	Unit Weight (Vm3)	Void Ratio,	0	40	80 .	120	2404 1-12	
	1.			2.10			¥1.		0.00 - 2.10 m; SANDY SILT, brown, firm to soft, low plasticity, moist; containing some amount of gravels with diameter up to 8.00 cm; cobbles with diameter up to 10.00 cm; some amount of plant roots. 2.10 - 3.10 m;		11/3												
				3.10			ભ		SILTY CLAY, brown, high plasticity, firm to stiff, moist.				7										
			╂	3.40			SW		3.10 • 3.40 m	3	17/90) B	ĥ			-							
			İ	Ī	12				CLAYEY SAND, brownish grey, medium to coarse				Č,	-	· .								
					-	-			grained, well graded, inedium dense.		8/30		Ø	2747	17.229	~	0 700	- ×	બ	45		- -	-
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-								Ι.	3.40 - 5.00 m			1											
	5_		- <u>-</u> -	5.00	-	-			SILTY CLAY, light brown, high plasticity, stiff, moist.	5	37/30		$\langle \cdot \rangle$										
								[<u> </u>							-							
					.U.			:	5.00 - 10.00 m; CLAYEY-GRAVELY SAND,		150/6		2										
	0					<u>.</u> .			brownish grey, fine to medium grained, poorly	6				ſ									
			ĺ		1	- 1			graded, very dense, well		59/17												
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8	ore H catio xing	n Deoth	: RK	- 35 HT BA 10 00	NX) meter	:1	of 1	Ground Water Level (GWL): Coordinate : x = Angla	y *	Onited by :	12 • 9 • 1997 Komardi Rudy Mulrando
			: •	5 663	5 meter			Dubig Nachine : YSO-		Supervisor :	
F	3	3	1	5	6	F	3	9	12 13 14 15 Standard Panetration		19 20 Atterberg Linz's Tes
Date	Scale	Elevation	Stratum Thickness	Cepth(m)	, Soil Profie	Claufication	CWL	DESCRIPTION	Test D N - Value 12 Humber of Bows 20 per 30 Cm Peretration 13 0 10 20 30 0 10 20 30 40 50	Vvalor Content (%) Unk Weight (Vm3) Void Ratio, e	Allerberg (m/4 Tes Prede Unit (N) [] Prete Solar (N) A UgH (Unit (N) 0 40 90 120 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2
		Ť		0.55		6	1	0.00 + 0.55 m:		5 5 5	
					•			GRAVEL, subrounded to subangular, diameter up to 4.00 cm. 0.55 - 4.40 m; SAND, grey, fine to medium grained, well graded, loose, moist to wel.	1		
	4				· · · · · · · · · · · · · · · · · · ·	sw			3		
ER 1997	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			143	· · Q · G	sw		4.40 - 5.00 m: GRAVELY SAND, grey, medium to coarse grained, well graded, medium dense.	4 530 2123 1	1945	H
12 SEPTEMBER				5.00		СН		5.00 - 6.35 m: SANDY CLAY, grey, high plasticity, firm, moist.	5 6 5730		
	1.5			635.				6.35 · 10.00 m; GRAVELY SAND, grey, madium to coarse grained, dense to very dense, weil graded.	7		
	8.				. 9. 0. . 0.	sw			8 45:00 21:37	908	
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Hok	:	RB -						IN SEMARANG IN Graund Water Level (GYA): Coordenate : x*	£7.		ON	ESI	A 	Do e Drie	15		3 - 9 - 1997 10 4 - 9 UUS	1997			
ο D	- 225-1	· · · ·	10 00) तल १ लख	स •		·	Angle : Onling Machine : YBM -	•	Bearing :			·	1.02	ed by		Rudy Vulranto				
	:			, K.C.						ND DESCRIPTION O	F N	LAT	ERL			<u>-</u> -	· · · · · · · · · · · ·				
2	3	4	5	1	5	1	8	9	7	12					17	18	19		Γ.	20 Srenz	
į										Standard Penebation Test							Atterterg La	₹ 6		Test	
		Ĕ							F	N + V23, je	55	Method of Sampling	~	3	Und Weight (Um3)		8 Paste Link				£
		Stratum Thokne		1		5	1	DESCRIPTION		Number of Bows per XI Cm Penetration	Geological Strata	ŝ	Specific Granity	Waler Content	ц Ц	•	C Prote tion ▲ Up+11+1			Anole Internal Inction (*)	Cohesion (hg/am [*])
•	Elevation	١.	Oepth(m)		Sol Profie	Casilication	1				200	ğ	cific	ა ა	Ť	Ratio,				28	18
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1					Ē	se		CLAYEY SAND, grey, fine		. 16/30	Å.:	\mathbb{N}									
1.1			54)					to medium grained, poorly graded, medium dense;	: [5					: :					1	
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1.00		ĺ			•••			10 3.00 cm.													
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Lo Bo	ne Hol tation ring D	oth:	UEF .	T 84%	Sheet K D metar		or 1	Ground Water Level (GWL): Coordinate : z.e Angle :	y # C , Bearing : U	Date Drifed by Logged by	: Korta : Rudy	- 1997 to 10 - 9 - 1997 ardi (Multanto	
							····-	CLASSIFICATION	AND DESCRIPTION OF MATERIAL	Supervisor L	:		
	2		Thickness		6	1 1	8	DESCRIPTION	12 13 14 15 1 Standard Prinetration Test P P P P N-Value Number of Bows per 30 Cm Penetration P P P P 0 10 20 30 40 50 P P	ant (%)	•	19 Attorborg Limits Presko Unit (%) Presko Inst A Ugart (m)	St/
Dete	Scale	Geration	Stratum Thickn	Depth(m)	Soil Profile	Clashcation	C W L		Norvaue Number of Bione per 30 Cm Peretration 0 10 20 30 40 50 30 43 40 0 10 20 30 40 50 30 43 40 0 10 20 30 40 50 30 43 40 0 3 10 20 30 40 50 30 43 40 0 3 10 20 30 40 50 30 43 40 0 3 10 20 30 40 50 30 40 50 40 40 40 40 40 40 40 40 40 40 40 40 40	Water Cox	8 0	40 80 120	
				120		- WL		0.00 - 1.20 m; SANDY SILT, reddish brown, low plasticity, soft to firm, moist; some amount of plant roots.	р 1				
1987	े २ २			180		GP		1.20 - 1.80 m: GRAVEL (Andesitic), grey, diameter 7.00 cm (as	son a				
SEPTEMBER				250	1.777	-		retaining was). 1.80 • 2.50 m;					
9 SEP1				4,10	.0	sw		SANDY CLAY, greytsh brown, high plasticity, wet; having small amount of GRAVELS with diameter up to 1.50 cm.		*			
	5							2.50 - 4.10 m: GRAVELY SANÓ, brownish grey, coarse ló very coarse grained, weil graded, dense. GRAVELS: angular to suban-gular, diameter up to		61)	-	30• e78 \$100	-
ER 1907	6 7			•		ભ		3.00 cm. 4.10 - 10.00 m: CLAY, grey, high plasticity, soft to firm, moist, in 9.00 m depth become SiLTY CLAY light brown, hard, moist, occationally GRAVELS with diameter up to 3.00 cm.	6 3730 7 3730				
10 SEPTEMBEI	8								6				
	9			10 00			4		5 500 Ac	10	22	49 111	-
	10_1							BOTTOM OF HOLE	13 1 1 ** 50/30 0e /				
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ion.			TB	WNK		:1	of 1	Ground Water Level (GVA.) : Coordinate : x =	me	भ स	· · · ·				Ds.e	রাদ	:	5-9-1997 UUS		·	
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	いたいとう			1 55	· · · · · · · · · · · · · · · · · · ·	SP		0.00 • 1.55 m: SILTY SAND, brown, very fine to fine grained, poorly graded, very dense, having some amount of plant roots.	1 12/20						
EPTEMBER 1097				305		СН		1.55 - 3.05 m; SILTY CLAY, grey, high plas- licity, firm, moist	2 2 2 2370						
6 55					00000 00000 00000 00000 00000			3.05 - 5.70 m: GRAVELY CLAY, brown, high plasticity, firm, moist.	3 4 21/50 21/50 21/50	H7 24 4	29 -	-	24• 033 -52		-
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S. S. A. S. S. S. S. S. S. S. S. S. S. S. S. S.			3 55		\$2		grained, poorty graded, occationally GRAVELS with diameter up to 3.00 cm. 5.00 - 6.10 m: SAN DY GRAVEL, subrounded to subangutar, diameter 0.50 to 5.00 cm.		- - 170	-	25-531	
1 1987			<u>6.10</u> 7.30		ଙ୍କ ଫ		6.10 - 7.30 m: SANDY CLAY, greyish brown to brown, high plasticity, firm, moist; containing smalt amount of GRAVELS, diameter up to 1.50 cm. 7.30 - 9.05 m: SANDY SILT, brown to reddish brown, medium to					
			9.05		¥i.	450	low plasticity, stiff to very stiff, moist, having smail amount of GRAVELS with diameter up to 1.00 cm. 9.05 - 10.00 m: CLAYEY SAND, brown, very fine to fine grained, poorly graded, dense to very dense, with some amount of	8 24/20 22/20 23 5 9 7/1/20 7/	oo -	-	22• 550 •7	3 -
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	-		4.00		. 52		3.00 - 4.00 m; SILTY SAND, grey, fine to medium grained, poorly graded medium dense. 4.00 - 7.00 m;	, , 	· · · · · · · · ·	,		25:30	As									
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1997	3			300					3			- 15	30	Z								
SEPTEMBER 1997								3.00 - 9.00 m: SANDY GRAVEL, subrounded to subangular, diameter up to 8.00 cm.				18/		V	£							
2 SI					 •••••							- 53	8									
		:		. *	• • • • • •				5			ณ	15									
	0			-	 	๛			6			50/	3		ч. -		-	1				
	2				• • • • • • • • • • • • • • • • • •		4.50		7			50	7									
EMBER 199	e				*****	-	-		8			50*	9									
3 SEPTE	9			en	.0	sw		9.00 - 10.00 m: GRAVELY SAND, grey, fine to very coarse grained, well graded, very dense.	9			504	5				-			*****		
	10	-		10.00			4.50		1 3				Da	KI		-+						
		·		- 2.1 - 1				BOTTOM OF HOLE														
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Hota	BAT	Geo Pejaj VDU RB		ND	ONES			SOIL MEC THE DETAILED D URBAN DRAINAGE AND IN SEMARANG IN Ground Weat Level (GML):	es: Na	IGN TER E RE	OF RE:	=L.OC 50UI	D CO CES	ont De	EVELO	рмі	Dote			BORIN 9.9.1997 to 30.9.		0	G		
tion o De	<u>.</u>	เษา	BANK 10:00	E-e	લ			Coordinate X= Angle		aring	; .	<u>y =</u>					Drie Logy	stby		ide K. Kosasih Tudy Multarilo				_	
tion		+1	2.395	rte	er			Drive YBH-3 CLASSIFICATION		מח		RIPT	ION	OF	MAT	ERI/	Supe AL	Nisor	<u>;</u>			~		-	
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Scale	Genetion	Stratum	Cepth(m)		Soli Profie	Clasification	GWL		10	20) 30	40	50		Geological Strata Metthod of Sempling	Specific Gravity	Water Content (%)	Unk Weight (Vm3)	Void Ratio,	ા હા છ	120	ŝ	80	Cohesion (kg/cm [*])	
8	ð —–	ß	ð.	-	8	8	<u>.</u>		٥		1	- T		-		<u>,</u>	>		~		TI	-		-	
		ļ	0.40	<u> :</u>	<u> </u>	<u>8</u> 2		0.00 - 0.40 m: SILTY SAND, brownish		.												1			
				ŀ		PL		grey, fine to medium grained, loose, poorly																	
14					···-	P.		graded.	1		1			1	2.45 -72										
			1.40	1_	·_·-	· ··		0.40 - 1.40 m: SANDY SILT, brown,														1			
2.			.		<u>;</u>			medium to low plasticity, stiff, moist. Occationally	2				24	30	Z										
						сн	•	gravels with diamter up to			/			1	<u>_</u>		ļ								
				1-			2 80	4.00 cm.						ł	- 7										
3				-				1.40 - 3.40 m: SANDY CLAY, greyish	3				15	1											
		 	3.40		 7			brown, high plasticity, stiff moist.				·	50		B								:		
			1		0.									1	1		İ	1							ĺ.
				1.				3.40 - 5.00 m: SANDY-GRAVELY CLAY,	1								•							·	
					Ū.	сн	:	greyish brown, firm, high plasticity, moist.					×	n											
5.			500					SAND: grey, fine to medium grained, poorty graded,	5						X										
					<u>e::</u>			medium dense. GRAVELS (SANDSTONE):																	(
Š,			Ι.	ľ	∷¤			grey to white, medium to					50	מ											
6				k	ή			coarse grained, medium to well cemented.	6																
				F	····	:						İ	50	3		Į	1	1							ĺ
				÷	: <u>::</u> :			5.00 - 10.00 m; GRAVELY SAND, grey,								ĺ			1						
		1		Ľ	<u>e::</u>			grained, dense to very	1														:	1	
					 <u>구</u>	รพ		dense, weil graded, moist to wet.					5	¥4		ļ									
8						İ		GRAVELS and COBBLES (of SANDSTONE &	8																
				:	<u>.</u> 0.			ANDESITIC rock (ragments): subangular to																	
			1.		Q::			subrounded, diameter up to					15	2			1.0		- 3						
9			ί.		e			10.00 cm.	9									1							
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	Bore J Locati			R8 RiC	45	(Sheet	:1	đ	1	Ground Water Level (GWL):	neter	•••							Cox o			30 - 9 - 1997	0 31 - 9 - 1997			
2	Borrg Devr	(mg	47		100	Ю г	neter reter		·		Anoia	, Besr	ng.	:	<u>y *</u>					Log	od by god by	;	Asep/Sobandi Rudy Muhanta				-
	CANF.	<u></u>				<u>1</u>	TC.6				CLASSIFICATION		D			1011			-		ervisor	:					_
	1		Ē	4	3	T	6	T	7	8	9	AND	DI	12		<u>10A (</u>					11	18	· · · · · · · · · · · · · · · · · · ·	19		20	ົງ
													Na d	iard Pr Tes		tion .							1	erg Limits		Stren Tes	5
			5	Sintum Thidmese	Ê		office		cetion		DESCRIPTION	2 A	Na	N Va nber o I Cra F	ilue I Elovi		Geolopical Strata	Method of Sampling	Specific Gravity	Water Content (%)	(Cm/I) Higen InU	atio, e	0~~	e Loder (%) e boler (%) é Lone (%)		Internat	
•			5	я S	Cepth(m)		Sol Profile		Candication	C WL		10 0	20	30 1	40	50			Specifi	Water	N N N N	Vold Ratio,	0 20	40 60	2 2 2	l n	
	1800-200 - D					•					0.00 -3.00 m: SILTY SAND, brown, fine to very fine grained, poorly graded, loose; occationally					19/30		/									
			3				'		; ;e		gravels/cobbles with diameter up to 10.00 cm.	1		·. .		50/15										-	
					• • •	•		-				2							· · ·								:
	SEPIEMBER 1997				3.00		<u></u>				3.00 - 7.70 m:	3				รมกร	8	Ζ	2 672	24 393	1.858	0 751				-	
•	3			:		E	 G				SILTY-GRAVELY SAND, grey to dark brown, fine to very coarse grained, well					593											
							с 				graded, very dense. GRAVELS: diameter up to 4.00 cm.	4				50/10											
	\$				·		9	5				5				5014											
•	6					.	 0	21		i.		6				50/4					-						
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750 1007				,	- 70						7.70-9.80 m:	1				509											
	e 1						<u> </u>				SILTY SAND, dark brown, fine to very fine grained, poorly graded.	8			/												
E								8	P		9.60 - 10.00 m GRAVELY SAND, grey, medium to coarse grained,	9		K		29/30		<u>_</u>	2751	150 161	\$ 851	0 FL2	20-22	5 43	-	-	
	2 2		. -		< 83 2 00			57	VI		well graded, dense very dense.	HO				. 57/14	Det										
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Z		ÞT. (Jia: J BAN	ito njaj DU	ACI MAN J NO, I	00. 125 NDONE	STA		THE DETAILED URBAN DRAINAGE AND IN SEMARANG IN	DE VW	ATER RES	LOO SOUR	d CC ICES	NTR DEV	ELOPI	MENT	ſ		BORI	NG I)G	L 7
Loc	Hole	:		IT BAY		1 c	(1	Ground Water Level (GWL): Coordinate : 1 *		eter	y =					ed by	. :	26 - 9 - 1997 to 28 Ade K. Kusash	- 9 - 1997			
Je-	10 De 3501	<u>፡<u>፡</u>፡፡ :</u>	•	10 CO 9 263	neter neter			Angle : Drilling Machine : YBM -	3Ę	Bearing :					130	ged by en isor		Rudy Wutanko				
	2	5	4	5	6	17	8	CLASSIFICATION 9		12	·			ATER 14 15		17	18	19		<u> </u>	20	
					1					Standard P Ter		01						Atterberg U	mits .		krengt Test	h T
			-							N - V: Number o			Strata	émplin Aty	8 7	Smo		6 Partic Ura () Partic Inter	(A)		7	Ĩ
		ş	M TN	Ê	notie	Clearfication	L	DESCRIPTION		per 30 Cm F	eneta	ion	Geological S	Method of Sempl Specific Grevity	Water Content (%)	Unit Weight (Vm3)	Void Patio,	🛦 Uqsid Linu	(H)		,)	Cohesion (ig/om/)
ŝ	Scale	Elevation	Statum	Oepth(m)	Soil Profile	Clease	OWL			10 20 30	\$3	5)	C oct	Kett Speci	Wate	2 5	1 DioV	0 10 20	30 40	TYDe	Angle Ir Thation	No.
					 . 			0.00 + 1.55 m: SILTY SAND, greyish	ן						-						-	
1997						รพ		brown, fine to medium grained, well graded, loose;				15/3		7								
EMBER 1				155	i			having some amount of plant roots.	1			1013										
TEM.					··	GP		1.55 - 2.00 m:			Ì	50/10	6									
S SEPTI	2			2.00				GRAVELS, grey to brownish grey, hard,	2													
8				2 64		\$P		rounded to subrounded, poorly graded, diameter up				539										
	3			1 22	****		260	to 8.00 cm.	3					<u>/</u> ·								
				323		<u> </u>	<u> </u>	2.00 - 2.64 m: GRAVELY SAND, brownish				50/9			<u>а</u>						:	
1987					····			grey, medium to coarse grained, poorly graded, very						177	14 D00	1 54	e 634			-	-	-
BER	١,				<u> </u>			dense.	ľ					177								
5		·			-() -		· .	2.64 - 3.20 m: GRAVELS, grey, hard,				5075 ;										
7 SEPT						S°		rounded to subrounded, poorly graded, diameter up	5			1										
17			ļ		`{⊱' ····_			to 8.00 cm, medium to coarse orained, poorty			ļ											
-					••••	·	1.50	graded (n 3.00 m depth become sandy gravel).	6			3633		⊴	17.00	1 152	0 813	160 •22	374	-		-
				6 50				3.20 - 6.60 m:			Ţ.	505			. 1							
	<u>,</u>			1ω	ų 	CH		GRAVELY-CLAYEY SAND, grey to dark grey, medium to	,								4					
1661					••••			coarse grained, poorly graded, dense,	ľ				1 8									
H	B				0			6.60 • 7.00 m;	{			5075										
SEPTEMBER					. 9			SANDY-GRAVELY CLAY, grey to dark grey, high	3			ľ									- 	
m i.					· ··· › ·	s>		plasticity, firm to stiff, moist.				503										
					Ç.			7.00 - 10.00 m; GRAVELY SAND, coarse to	9													
					• • • • • •			graded, very dense.				5019				- N						
	61 24	-		10 00			2.10		 				04	×.		L	_					
0	1							BOTTOM OF HOLE			1											
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<u>15</u>	<u>5</u> .1									2 - 7			UGDI		COA	NO [2		1. (S) UDS				

10 80	re Hoi cation nng D Nation	ezh		HT 84	Sheet NK D meter meter	· · · · ·		Ground Water Level (GML): Coordinate : X = Angle : Draing Machine : YBU -	y • 0 , Bearing : Lo -3E S	ke Ved by Servico	: / /. : /	18-9-1997 to 79-9-1997 UsepSotand Rudy Wiktarto
Ī	2	3	4	5	6	1	8	CLASSIFICATION	AND DESCRIPTION OF MATERIAL 12 13 14 15 11 Standard Penetration		13	19 Sin
Dete	Scale	Elevation	Stratum Thickness	Depth(m)	Soil Profile	Classification	טאר	DESCRIPTION	Test N. Vable Number of Biows per 30 Cm Penetration 0 10 20 30 40 50	N) NOIS	Void Ratio, .	Attorborg Links T • Prince Link (%) () Predic India (%) A Lipsel Link (%) 20 43 60 80 8
				0.70	 			0.00 - 0.70 m: SILTY SAND, light brown, fine to medium grained, weil graded, loose; having some amount of plant roots.	4/30 B			
ER 1997	2					сн		0.70 - 2.20 m: SILTY CLAY, brown, soft, high plasticity, moist.	350		1054	23+ -36 +59 -
SEPTEMBER 1997	9.0. S			2 20		Сн		2 20 - 2,70 m: SANDY CLAY, brownish grey, high plasticity, soft to		1 860	5] 1 810;	
28				3 68	00000 00000 00000 00000	GV/		firm, moist. 2.70 - 3.68 m: GRAVELS: subrounded to subangular, diameter up to				
		 .		4 20	8-0- -0- 	ы		8.00 cm. SANDSTONE: yellowish grey, fine to medium grained, well cemented, highly weathered.	4			
	8				· · · · · · · · · · · · · · · · · · ·		200	3.63 - 4.20 m: GRAVELY CLAY, brown, Nigh plasticity, stiff, moist. GARVELS (andesitic): sub-		-		
1997	7_				· · · · · · · · · · · · · · · · · · ·	GW		rounded to subangular, dia- meter up to 8.00 cm; derived from volcanic materials.	5012			
SEPTEMBER 1	8,-							4:20 - 10:00 m: SANDY GRAVEL (andesitic), subrounded to subangular, diameter up to 8:00 cm.				
29 SI	9				• • • • • • • • • • • • • • • • • • •			8.00 cm.	sor11			
	10		·	10.00	• • • • • • • • •		2.00		50/10 10 Da			
	11.2							BOTTOM OF HOLE				
	12								12			
	13								13			
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	; pth:	GAR	ANG F	f.e.er	1 0	<i>i</i> i	Graund Water Level (GWL): Coordinate : x * Angle :		eter Beð	ng		<u>у</u> .=					Date Drife Logg	d by od by		30 - 9 - 1997 to 7 - Talang Rudy Mulranto	10 - 1997				
ation	:	•		n##		:	Distry Vactime : YSO- CLASSIFICATION		ND	DE	SCI	191	ION	OF I	IAT	ERL		rvisor	·:						
2	3	4	5	6	1	8	9				12 land P	enetra	tion	13	14	15	16	17	18	19			20 Streng		
		1		÷.	ł			+			Te			┤.	2		ŝ	ĝ		Atterberg Lir Pusic Link		-	Test		
	1	The level			5		DESCRIPTION			- Nor	N-V aber (Cm I	180	rs aice	L Strat	l S S	inerity		(cm/c) tu	•	A Light Link	(%) (%)		R.	Sec.	6
3	Devation	Stratum Thick	Oepth(m)	Soli Profile	Casification	סאר			•		20 3			Geological Strata	Method of Sampling	Specific Gravity	Water Contont	Uok Weight	Void Ratio,				Angle internal Inition (*)	Ş	{
See.	ធំ	ð	ð	\$	8	6		_	۰ <u>۲</u>					8	.	8	W.	ŝ	\$	ο 40 ε		20 F	₹ <u>₹</u>	ð	
							0.00 - 1.60 m; SAND, grey, medium to											1	-						
					SW		coarse grained, well graded, loose, some			ĺ			1/30		И				:						
							amount of organic materials (plant remains),		1	·· ·	 					•		-							
			-	;;;;;;	GP	<u> </u>	occationally of gravels with diameter up to 2.00 cm.						- 50% 2					-							
2			2.00			+	1.60 - 2.00 m:	-	2			<i>:</i>		8		•									
			2.55	<u> </u>	\$°		GRAVEL (pillar foundation).								A										
3							2.00 · 2.55 m;	-	3 =	ĺ			3/3		Ø			ł							
							SILTY SAND, grey, very fine to fine grained, poorly												4						
							graded, very loose, containing some moliusca						1/30		\square			•	1						
			:				shells.	·	4						М	2 576	64 560	1.60				 	1.156	0.01	
							2.55 - 11.55 m:		-				:	ľ						76- 551	490				
3							SANDY CLAY, grey, high plasticity, very soft to firm,		5									11 - L. L.	л.,						
				<u> </u>	сн	Ļ	moist, containing some mollusca shells.		Ē																6
8				<u> </u>	1				6				1/3		И										· .
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																									•
11								1					6/30	Ac											
			11.55																			1			- (
12						205	11.55 - 26.30 m;			$\left \right\rangle$			21/3		Л										1.1.1
					•		CLAY, light brown to brown, stiff to hard, high plasticity, moist.	12	2		ŀ														
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5								l					503		$\overline{\lambda}$										1.14

Locar Bonn	a Cespi	: GA h:	500	Sheet RMER D meter	2	3 4	Ground Water Level (GVAL): Coordinate : #* Angle	THE REPUBLIC OF IND reter y = , Bearing :			Care Drest Lorred	7 V	: 30-9-1597 1 : Tdang : Rudy Multania		
Een T	5 3 201	•		neer	·			AND DESCRIPTION O					:		
-1			5	- 6		_•	9	12 Standard Penetration Test	13 14	15	15 1	7 15		19 erg Links	Sur T
Oute	Clevation	Stratum Thickness	Depth(m)	Sol Profile	Clashcation	CWL	description	N - Value Humber of Bours per 30 Crs Penetration 0 10 20 30 43 50	Geological Strata Method of Sampho	Specific Granty	Water Content (%)	unk wegnt (umu) Void Rako, e	- Gree	Se Lond (%) Se tober (%) N Lond (%) SO 120	Type Andle internet
OCTOBER 1997					-		11,55 - 26 30 m; CLAY, fight brown to brown, stiff to hard, high plasticky, moist.	15				-			
6						2.10		17 2530			\$1 230	- -	234	-72 -93	_
						2.10		18 1900							
1000 X 1000 44.00								20							
OCTOBER 1997					СН			21 (1/30							
A North North								23	/						
						4.15		24 36500		2 654	29 050 -	-	154	CE2 +101	
- 12 - 12 - 12 - 12 - 12 - 12 - 12 - 12			26 39					26		-					
OCTOBER 1997			27 20		SP		26.30 - 27.20 m; SILTY SAND, greyish brown to yeliomish brown, fine to medium grained, dense, poorty graded,	n 6639							
100 9					Э		CLAY, light brown to brown, very still to hard, high plasticzy, moist.	23 23 29							
3.			1 1 1 1					\$1/30	46600- 1	12-1	1 (05,24)	520	SPT (2) VO	8	

Ľ,	PT. Jln, BA	Geo Pajaj NDU	ACL Brann NG, D	0. 125 NDONE			SOIL MEC THE DETAILED URBAN DRAINAGE AND IN SEMARANG IN	DES IVA	gn of flood Ier resour	D CON CES C	ITR EV	ELOP	5 A. A.	÷		BORING	.0G	1	
e Hole aton		RB GAS	51 ANG R	Sheet MER	:3 (11	Ground Water Level (GM): Coordinate : **	F-2 (0.0			0-9-1997 to 7-10-1997 Intary			
19 O	epin:			हरूल सन्दर्भ			Angia : Orang Machine : YSO-1		~g :				1.02	ed by	; 1	Rudy Mulano			
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				[<u></u>	-		SILTY SAND, brownish			50/25	~	Δ							e
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CLASSIFICATION AND DESCRIPTION OF MATERIAL 1 2 3 4 5 6 7 8 9 12 13 14 15 18 19 20 1 2 3 4 5 6 7 8 9 12 13 14 15 18 19 20 1 2 3 4 5 6 7 8 9 12 13 14 15 18 19 20 1 1 1 1 15 16 17 18 19 20 1 1 1 1 15 16 17 18 19 20 15 16 17 18 19 20 18 19 20 17 18 19 20 17 18 19 18 19 18 19 18 19 18 19 18 19	CLASSIFICATION AND DESCRIPTION OF MATERIAL 1 <th1< th=""> <th1< th=""> 1 1</th1<></th1<>	Location Borng De Election	<u>; GA</u> 20:	2000 F	Sheet : IVER meter meter	4 0		Ground Water Level (GWA): Coordinate : x = Angle : Onling Machine : YBN -:	meter	BLIC OF INI	·		Oste Onie Logg Supe			30 • 9 • 1597 to 7 • 10 • 1997 Tstang Rudy Multanto	
Samuel Precision Interview Samuel Precision Interview Samuel Interview Access (Interview) Interview Access (Intervi	Source Source<					17	8	CLASSIFICATION	AND DESC		F MA	TERI	AL			19	
33 90 - 50.00 m; 53 90 - 50.00 m; SAND, dark grey, fina to medium graixed, very dense, poort to medium gravets, angular to subrounded, diameter to to 400 cm (dented from highly weathered rokanic breccia). 500 50 50 50 5000 1405 51 51 50 52 5000	6 33.00.50.00 m 50.00 50.00 SAND, dark grey, for a log mesonal grey loss is some emount of gravels, angular to subcunded, dameter up to texcisi, and the form highly weathered tokanic texcisi). 50.00 50.00 5 5 50 50.00 50.00 5 5 55 55		holoneas					DESCRIPTION	Standard F Te N - V Number per 30 Cm I	enetration st 'alue of Biows Penetration			Content (%)	(Cm/l)	Ratio, e	Alterborg Links Productive (N) Productive (N) A Capatible (N)	Strer Te
51 52 52 53	53 54 55 55	7 OCTOBER 1997 ह	201				0 ×	33.90 - 50.00 m; SAND, dark grey, fina to medum grained, very dense, poorly to medium graded, some amount of gravels, angular to subrounded, diameter up to 4.00 cm (derived from highly weathered volcanic	45	50/10 50/14 50/9 50/25			W				
		51.		50 00			14.05	BOTTOM OF HOLE	52		02						

Loca Boria	r.ion 19 De	: eth:	GAR	52 ANG F 50 00	neter	1 0		Ground Water Level (GWL): Coordinate : x * Angle :	, Bearing :					log	ad by pad by		15 • 10 • 1997 to 18 • 10 • 19 Sudarmadji Rudy Mutrarto	91	
		:			meter			Driling Machine : Y841- CLASSIFICATION		non o)F N	IA T	ERL	AL	ervisor				
	Scale	Elevation	Stratum Thickness	CepO(m) S	Solt Profile	Ciastification	8 CWL	9 DESCRIPTION	12 Standard Penetr Yest N- Value Humber of Bio per 30 Cm Penet 0 10 20 30 4	we ration	Geological Strata	Metthod of Sampling	Specific Gravity 5	Water Content (%) 51	Unit Weepk (Um3)	Ratio, e 🐳	19 Atterberg Links • Penke Unk (%)] Penke Nex (%) & Uald Unk (%) 0 40 80	Coreson (Kolom)	ĺ
8	3 2	۵	Ø	ð		8	U VL	0.00 - 0.80 m;	┤⁰┌─┐─┐─┐	· _ ·	8	Me Me	\$	ž	5				
	10 10 10 10 10 10 10 10 10 10 10 10 10 1			0.80				CLAYEY SILT, light brown, firm, low plasticity, moist, some amount of plant roots. 0.80-5.20 m: SILTY CLAY, brown to brownish grey, high plasticity, soft to firm, moist.	1	3/30 3/30									
						CX			3	5/30	8		28%	36 243	t70	1.361	254 411 157	W 2437 0055	
TOBER 1997	5			520				5.20 - 15.30 m: SANDY CLAY, brownish grey to grey, high plasticity, soft to firm, moist, containing some amount of motusca shells.	6 7	330 330 330			1.00	8 200	1,450	2377		W 1315 0 051	
25 S	8 9 10								9	123) 3730									
						ы			12	2/30			2755	¥ 540	1 608	1322	\$	W 2700 0 000	(
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Bor	8.00 ing 0 7.01	: ಕ್ರಭಾ :	GAR	52 1240 F	NER meler meler		01 4	Ground Water Level (GWL : Coordinate : x * Angle : Driving Machine : YBM	(y = earing :		Log	ed by pod by envisor		Sudarmadj Rudy Mukanto	18 - 10 - 1997	
1	2	3	4	5	6	17	8			DESCRIPTION	OF MATEI	RIAL	11	18	19		20
Date	· · · ·	Elevation	Stratum Thickness	Deoth(m)	Soil Profise	Clonification		DESCRIPTION		Standard Penetration Test Number of Biows per 30 Cm Penetration 10 20 30 40 50	Geological Strata Method of Sempling Specific Grenty	£	Unit Weight (Um3)	l Rato, e	Atterborg Predet G Predet A tiquet 0 40 80	Umits Ht (%) dar (%) Ht (%)	Streng Test
OCTOBER 1997	15.			15 30				5.20-15.30 m: SANDY CLAY, brownish grey to grey, high plasticity, soft to firm, moist, containing some emount of moliusca shells.		200 2016							
16 0010	9 19			17 Iu		· -	51.70	grained, medium dense to	17	27/3							
	(8 19							dense, well graded. 17.10 - 25.00 m: CLAY, greyfsh brown to brown, high plasticity, hard, moist, small amount	18	603							
	3							of gravels, with diameter up to 0.30 cm.	20	450							
	27				 	- CH			21	52/3							
	22 23			•		-			22	3093							1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 -
OCTOBER 1997	24								23 24	393							
16	25			<u>25 Q</u> j		-	A the second second second second second second second second second second second second second second second	25.00 - 26.80 m; CLAYEY SAND, yellowish	-25	(1730	<u>~</u> /						
Contraction of the second second second second second second second second second second second second second s	28			<u>26 5.1</u>		- sw	and the second second second second second second second second second second second second second second second	brown, medium to coarse grained, well graded, dense.	\$	43/30	<u>64</u>						
	3					- - сн	a and a second second	26.80 - 29.15 m: SILTY CLAY, dark brown, high plasticity, hard, moist.	27 28	33720							
	8		· ·	79 15 		•		29.15 - 31.40 m: SILTY SAND, grey medium to coarse grained, well graded, dense to very dense, containing gravels	20	40/30		•7 660		-	320 143 014		
	8	÷				SW	1160	with diameter up to 8.00 cm.		44/30							

Ľ		P1. Jin. J BAT	νού		no. 125 NDON Sheet			SOIL ME THE DETAILED URBAN DRAINAGE AND IN SEMARANG IN Grand West Level (SYM):	DE W	ESOURCES) Di	EVEL	.OPI	MEN.		;	BORIN)G		
lo	aion		GAR	AHG R				Coordinate : x= Angle :	. 6	<u>у =</u>					ed by ged b		Sutamadij Rudy Maranto					
		1			meter			Dritting Machine : YBM .	365					Sur	envíso							
1	2	13	4	5	6	TT	8	CLASSIFICATION 9		CRIPTION			TER 15		17	1 18	19			20		
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	1		1			·			┢	Value	4			8	Ê		Partici Link (%)	ſ			£	
Date	Scale	Elevation	Stratum Thickne	Depth(m)	Soli Profile	Clanification	CWL CWL	DESCRIPTION	3	ar of Biows In Penetration 30 49 50		Method of Samoling		Water Content (%)	UNK Welght (Um3)	Void Ratio, e	[] Plande Folm A Tigse Unit (%) 0 40 80	120	Type	Angle internal Inction (*)	Cohesion (kg/c	0
	30			31.40		sw		29.15 - 31.40 m; SILTY SAND, grey medium to coarse grained, weil graded, dense to very dense, containing gravels with diameter up to 8.00	31	506		8 11										
	4					-	† 	cm. 31.40 - 32.83 m;	32	85/2					- 13							
	33			32 89		-		SANDY CLAY, brown to greyish brown, high plasticity, hard, moist, containing some amount of gravels with diameter up to	33	87/1		X		. 						-		
			-					4.00 cm. 32 68 - 36.65 m: SAND, grey, fine to coarse			,											
1997								grained, well graded, dense, containing some amount of gravels with diameter up to 4.00 cm.	34	107/	25					-						
OCTOBER 1	5					sw			35	504	5	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1										0
17 0			•						36	507	7											
	37			35.85		· -		36,65 • 38,00 m;	37		0											
	3			33 00		- CH		SANDY CLAY, dark brown to brown, hard, high plasticity, moist,	33	85/1		б Р С (1874) Г С (1874)										
	100 No. 100			39.00		sw		38.00-39.00 m; SAND, grey, five to medium grained, we'l graded, dense to very		85/1	8											
						SP		dense; occationally gravets with diameter up to 2.00 cm. 39.00 - 41.15 m:	39	504	9	N		4								
	40 			41.15				SAND, grey, very fine to fine grained, poorly graded, very dense.	40													
7					 		2	41.15 - 43.35 m; SAND, grey, medium to coarse grained, well graded, very dense; containing some amount of	41	හෙ	0											0
18 OCTOBER 1997	4			2 - 2 - 2				gravels with diameter up to 5.00 cm (derived from highly weathered of volcanic breccia).	42	6079 5073												11.2 1 1.1 1.1
18 00	0			43 35	m	,	-	12.25	43		D	3										
						GP		43:35 - 45:25 m; GRAVEL, and estito, subrounded to subangular, diameter up to 8:00 CM.	4													
	, G (19								45		ū	0690			AHG		\$P.1. (20) VDS					

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lœ	t Hole abon	: F : C	8 - 5	2 NG R				Ground Water Level (GWL): Coordinate : x =	THE REPUBLIC OF INDONE	SIA		dby	:	15 - 10 - 1597 to 18 - 10 - 1997 Sudarmadji
Đe	ng Deg ration	: :;	+		meter इन्होंक			Angle : Driting Machine : YBM - :	. Bearing : SES			ed by sivisor		Rudy Mukranko
1	2		۲T	5	6	17	8	CLASSIFICATION 9	AND DESCRIPTION OF M	ATERI 14 15	AL Lis	1 17	19	19
Cato	Scale	Conetar	Stretum Thickness	Depth(m)	Soul Profile	Clashcation	GWL	DESCRIPTION	Standard Penetration	Metthod of Sampling Specific Gravity	Water Content (%)	Une Weight (Um3)	l Ratio, e	Atterborg Links Str. • Partice Link (%) • Partice Max (%) • Const Link
	ଟ ୁ		ŝ	0	67 * * * * * *	GP	0	43.35 • 45.25 m;	145		3	č	3	
18 OCTOBER 1997	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			-		sw		43.35 - 45.25 m; GRAVEL, and esitic, subrounded to subangular, diameter up to 8.00 CM. 45.25 - 50.00 m; SAND, grey to dark grey, medium to coarse grained, well graded, very dense, some amount of GRAVEL with diameter up to 5.00 cm (derived from highly weathered volcanic breccia.	45 47 43 49 50712 50710 50710 5075 5075					
	53	_	5	000			14.15		50 D2	<u> </u>				
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A. Geo ACE Solid. MECHANICS SURVEY FOR n. Pipipinan po. 125 THE DETAILED DESIGN OF FLOOD CONTROL. BORING LOG a. Pipipinan po. 125 URBAN DRAINAGE AND WATCH RESOURCES DEVELOPMENT IN SEMARANOS IN THE REPUBLIC OF INDONESIA BORING LOG 364-1 Stord of the control of the	
ACC THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA BORING LOG 1 Steet 1 of 2 Growstriker Leei (CVL) meter Date 1 - 9 - 1997 to 3 - 9 - 1997 2000 meter Acque Korer 1 Dated ty Table 1 Dated ty Table 1 2000 meter Acque Korer 1 Dated ty Table 1 Dated ty Table 1 2000 meter Acque Korer 1 Dated ty Table 1 Dated ty Table 1 2000 meter Acque Korer 1 Dated ty Table 1 Dated ty Table 1 2000 meter Acque Korer 1 Dated ty Table 1 Dated ty Table 1 2000 meter Acque Korer 1 Dated ty Table 1 Dated ty Table 1 2000 meter CLASSIFICATION AND DESCRIPTION OF MATERIAL Description 1 Table 1 Dated ty Table 1 Dated ty 2000 meter Sandard Prevision 1 Table 1 Dated ty Table 1 Dated ty Dated ty Dated ty Dated ty 20 Sandard Prevision 1 Dated ty Dated ty Dated ty Dated ty Dated ty Dated ty Dated ty 20 Sandard	
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