Figure 1.1 (1/3) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-1 (SHEET 1 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	08-V-
ELEVATION	1067.85 m	DEPTH OF OVERBURDEN	___ m	COMPLETED	12-V-2000
COORDINATE	___	LENGTH OF ROCK DRILLING	___ m	DRILLED BY	___
ANGLE FROM HOLIZONTAL	-90°	TOTAL LENGTH OF CORE	___ m	LOGGED BY	___
BEARING OF ANGLE HOLE	—	CORE RECOVERY	___ %	W.L.	-13.3m

DEPTH	ROCK NAME	LOG	CORE RECOVERY 0 → 100 %	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER 0 10 20 30 40 50 S.P.T. 40	DEPTH	ELEVATION
0m											0m	m
1–3	Talus dt.			φ97mm	brown				Talus deposit Sand and clay tuffaceous 3.25			
4–5				φ76mm	brown	4	4	4	(D) heavily weathered zone 5.4			
6–20	Lapilli tuff				miscellaneous color (red, green, white)	3	4	1	5.4~22.3m: (D) This formation bears miscellaneous gravel of red, green, white (pumice) color. It also bears biotite crystal. Weathered and very soft rock			W.L. ▽ -13.3 m

core loss
RQD
1 (fresh) ~ 5 (decomposed)
1 (hard) ~ 5 (soft)
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

Figure 1.1 (2/3) **GEOLOGIC LOG OF DRILL HOLE**

PROJECT HOLE No. BG-1 (SHEET 2 OF 3)

LOCATION	Los Laureles	DEPTH OF HOLE	60 m	COMMENCED	- -
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	- -
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

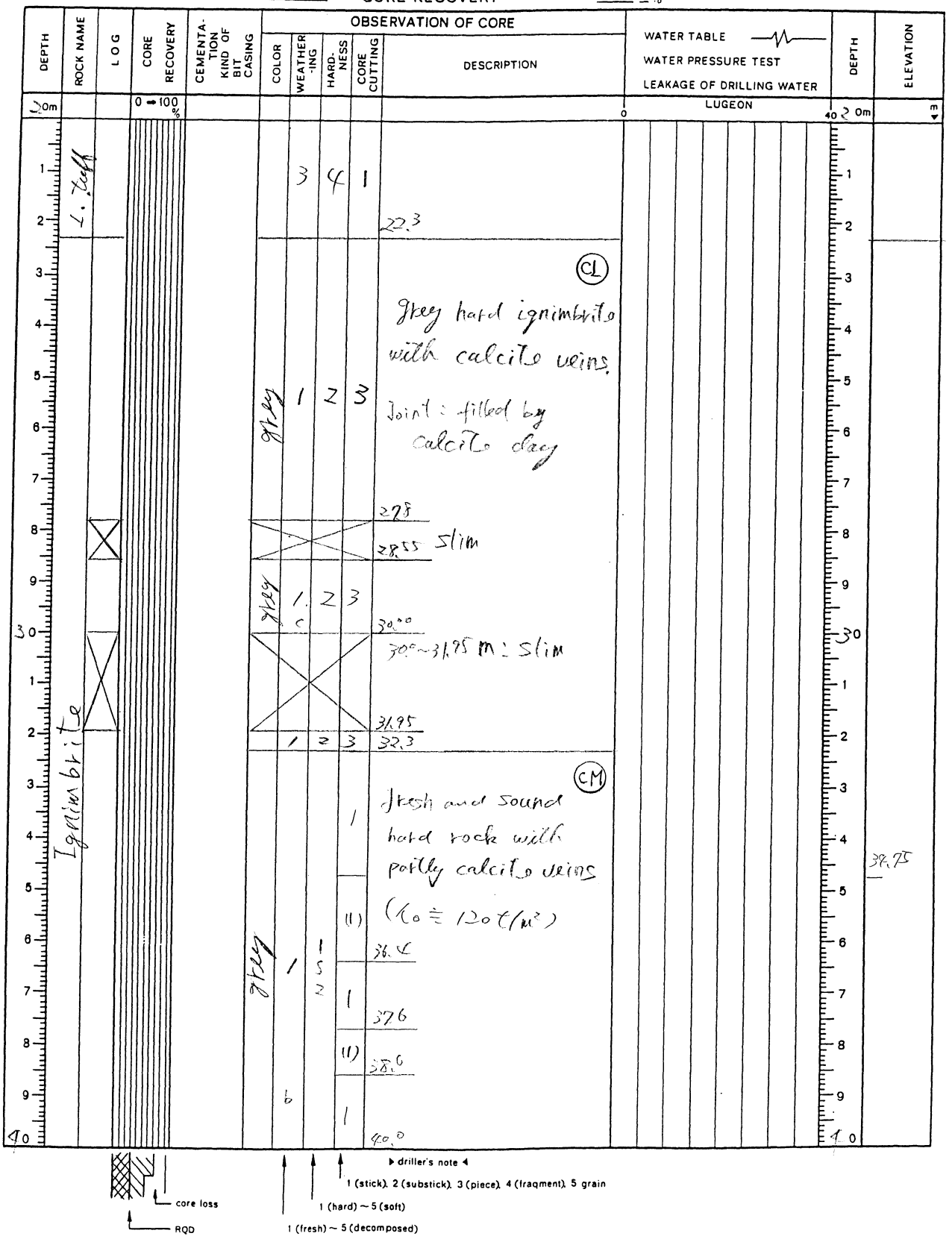

Figure 1.1 (3/3) **GEOLOGIC LOG OF DRILL HOLE**

PROJECT HOLE No. B9-1 (SHEET 3 OF 3)

LOCATION		DEPTH OF HOLE	60 m	COMMENCED	- -
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	- -
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER	DEPTH	ELEVATION
40m			0 → 100 %							LUGEON 0 40	40m	

34.75~48.3m:
Drilling along vertical joints.
Foundation rock will be good soundness excluding along joints.
CM ($k_0 \fallingdotseq 120$ t/m²)

	COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION
34.75		1	1	(1)	CM
48.3		b		1	
51.6	grey	2	2	(1)	hard, but there are many secondary clay in loosened joints. CL
60.0		1	2	1	CM fresh & sound rock $k_0 \fallingdotseq 100$ t/m² bottom

Ignimbrite

46.9

▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)
core loss
RQD

Figure 1.2 (1/3) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-2 (SHEET 1 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	30-III-
ELEVATION	4,060.85 m	DEPTH OF OVERBURDEN	___ m	COMPLETED	04-IV-2000
COORDINATE	___	LENGTH OF ROCK DRILLING	___ m	DRILLED BY	___
ANGLE FROM HOLIZONTAL	-90°	TOTAL LENGTH OF CORE	___ m	LOGGED BY	___
BEARING OF ANGLE HOLE	—	CORE RECOVERY	___ %	W.L.	-9.0 m

DEPTH	ROCK NAME	LOG	CORE RECOVERY 0→100%	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER (LUGEON 0–40)	DEPTH	ELEVATION
0m											0m	m
1	Ignimbrite					4	4	5	0.85 Heavily weathered		1	
						2	3	1	1.00 CL non water drilling			
2						2	2	1	(CM) Hard and sound rock A few joint with rust		2	
3						b			3.40		3	
4				φ76 mm	gray				L_o = 100 t/m²		4	
5						2	2	1	slightly weathered along joints with rust. Soft, hard rock.		5	
6							(3)		7.5~8.05 m : Test		6	Laboratory Test ①~③
7						b			8.05		7	
8									L_o ≒ 60 t/m² (CL)		8	
9						2			8.05 m and 10.3 m:		9	W.L.
10						5	2	1	open joint with rust / secondary clay		10	-9.0 m
1						3	(3)				1	
2						b (c)			12.00		2	
3					gray with brown				(CL)(CM)		3	
4						3	2	3	• This section encountered joints which is open crack with secondary clay.		4	
5							3				5	
6									• weathered & loosened rock		6	
7						c			17.00		7	
8									(CM)(CL)		8	Laboratory Test ④~⑤
9						2	2	1	18.0 m, 19.0 m, 19.6-19.8 m:		9	
20						(3)			breakable with open crack. weathered		20	
						b						

core loss
RQD
driller's note
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

Figure 1.2 (2/3) **GEOLOGIC LOG OF DRILL HOLE**

PROJECT — HOLE No. BG-2 (SHEET 2 OF 3)

LOCATION		DEPTH OF HOLE	60 m	COMMENCED	– –
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	– –
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	– %		

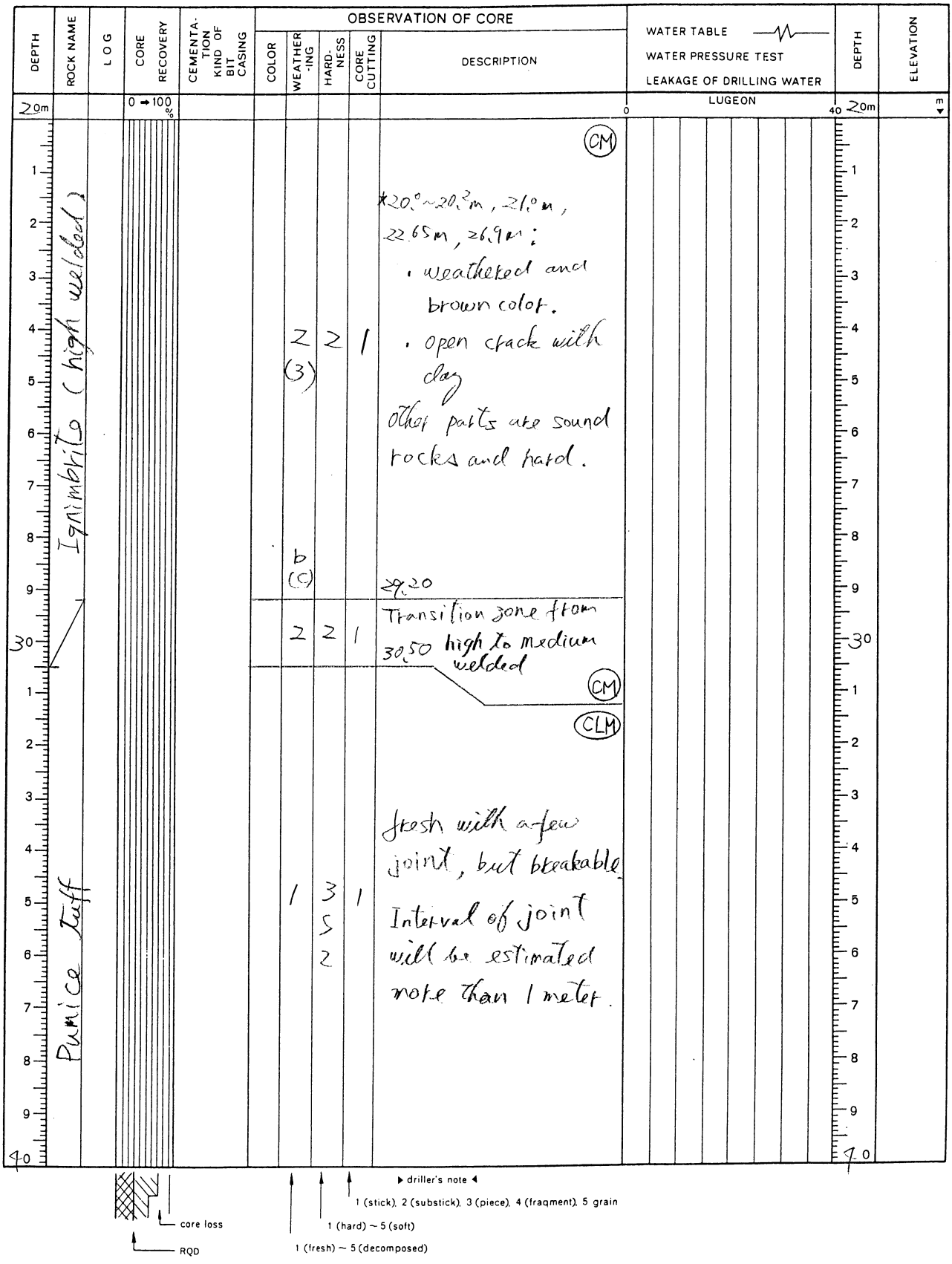

Figure 1.2 (3/3) **GEOLOGIC LOG OF DRILL HOLE**

PROJECT HOLE No. BG-2 (SHEET 3 OF 3)

LOCATION		DEPTH OF HOLE	60 m	COMMENCED	– –
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	– –
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER	DEPTH	ELEVATION
40m			0 → 100 %							0 LUGEON 40	40m	m
0–30.50	Pumice tuff											
30.50–47.70	Lapilli tuff				gray	1 a	3 5 2	1	30.50 ~ 47.70m : CLM (σ_c = 60 kg/mm²) · medium welded Ignimbrite with soft pumice. 47.70			
47.70–51.60					gray	1 a	4	1	CL Low welded Ignimbrite breakable. 51.60			
51.60–52.80						1 a	3 5 4	1	CLM. Low to medium welded 52.80			
52.80–56.45						1 a	4	1	CL Low welded Ignimbrite breakable 56.45			
56.45–60.0					gray with red patch	1 a	3	1	CML (σ_c = 80 kg/mm²) Low to medium Ignimbrite with reddish pebble 60.0 bottom			

core loss
RQD

▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

Figure 1.3 (1/2) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-3 (SHEET 1 OF 2)

LOCATION	Los Laureles II	DEPTH OF HOLE	40 m	COMMENCED	07-IV-
ELEVATION	4,031.66 m	DEPTH OF OVERBURDEN	m	COMPLETED	17-IV-2000
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	-90°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE	—	CORE RECOVERY	%	W.L.	0 m

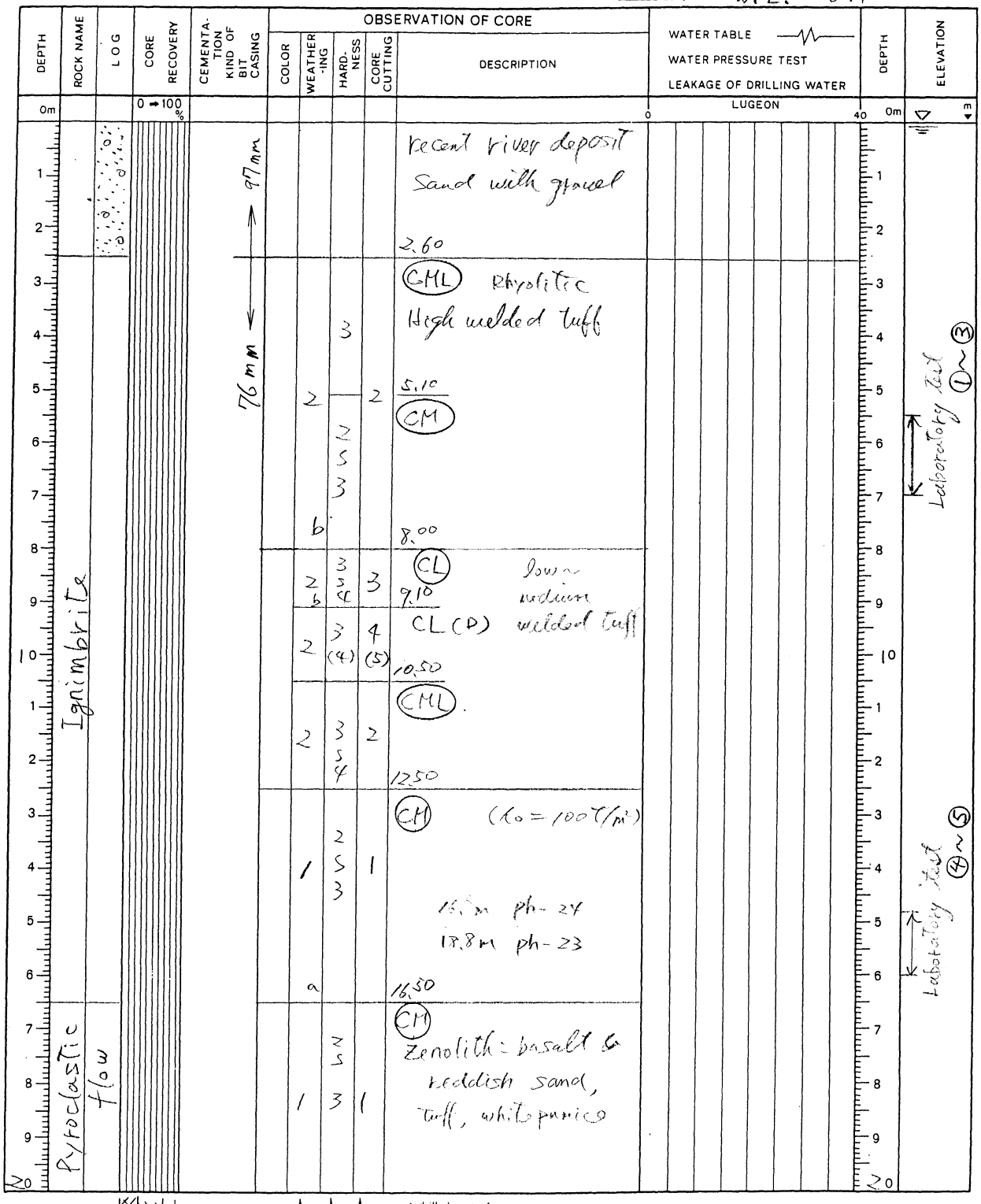

Figure 1.3 (2/2) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-3 (SHEET 2 OF 2)

LOCATION		DEPTH OF HOLE	40 m	COMMENCED	- -
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	- -
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

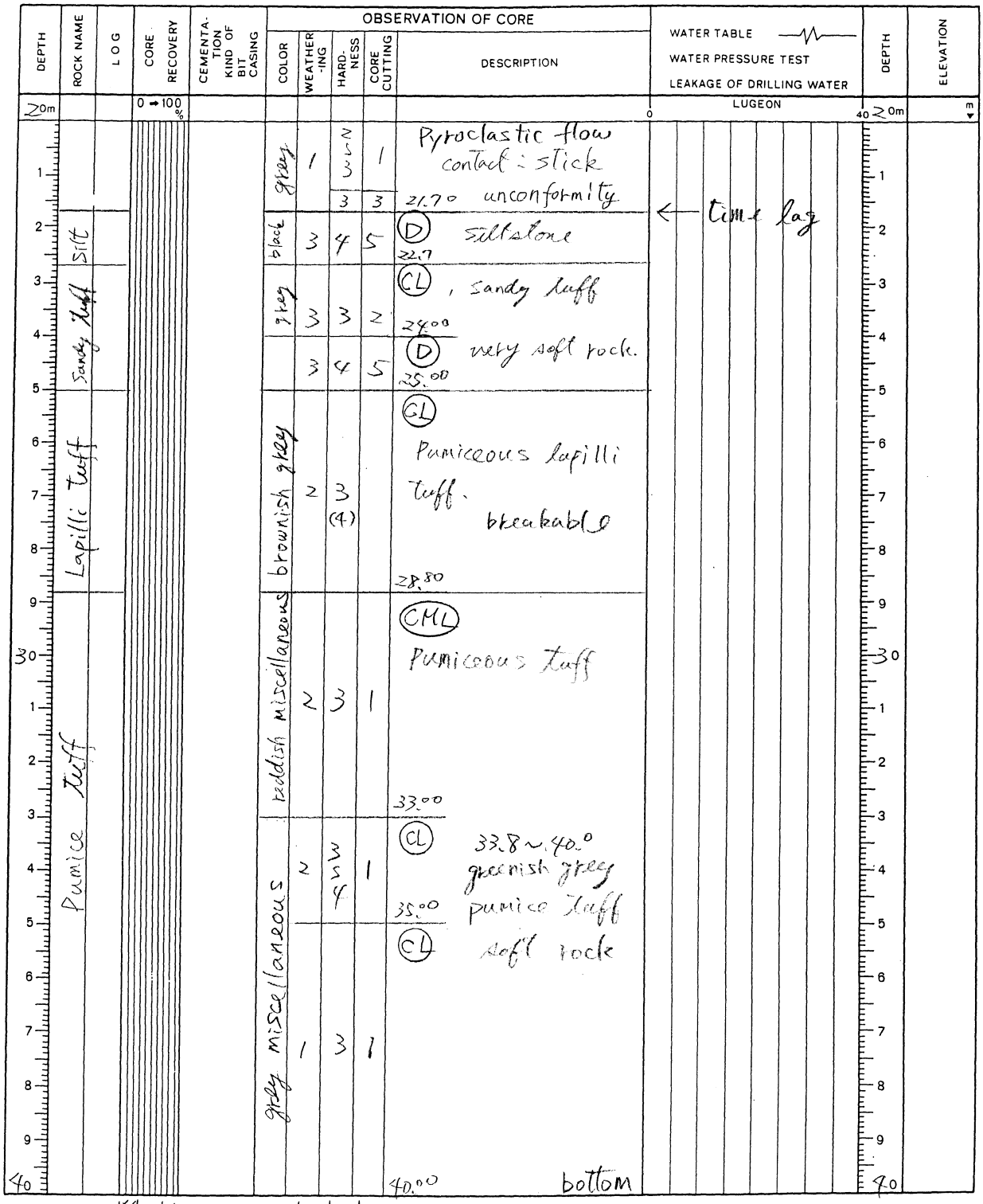

Figure 1.4 (1/3) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-4 (SHEET 1 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	15-V-
ELEVATION	1,060.09 m	DEPTH OF OVERBURDEN	___ m	COMPLETED	18-V-2000
COORDINATE	___	LENGTH OF ROCK DRILLING	___ m	DRILLED BY	___
ANGLE FROM HOLIZONTAL	-90°	TOTAL LENGTH OF CORE	___ m	LOGGED BY	___
BEARING OF ANGLE HOLE	—	CORE RECOVERY	___ %	W.L.	-24.2 m

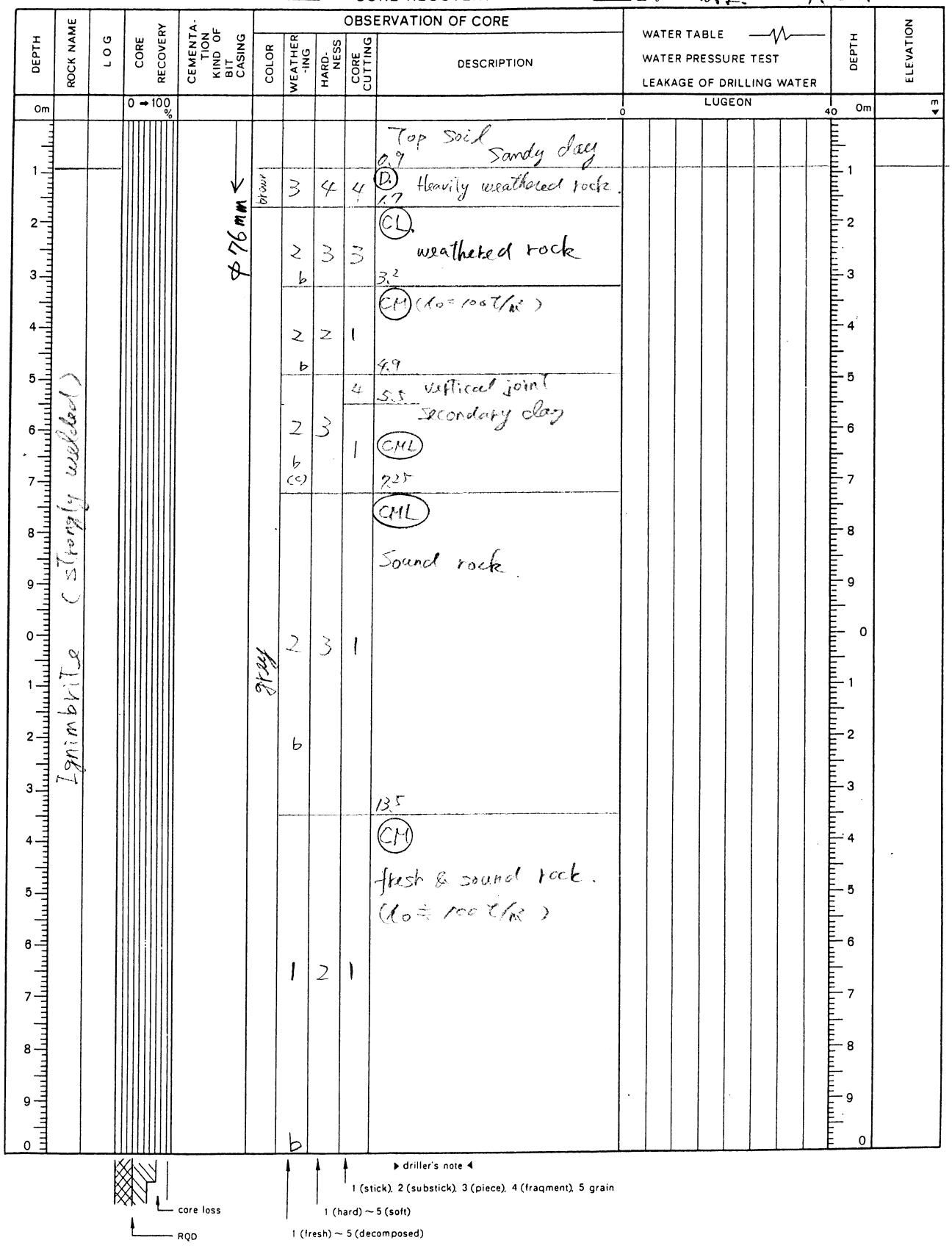

Figure 1.4 (2/3) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-4 (SHEET 2 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	- -
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	- -
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

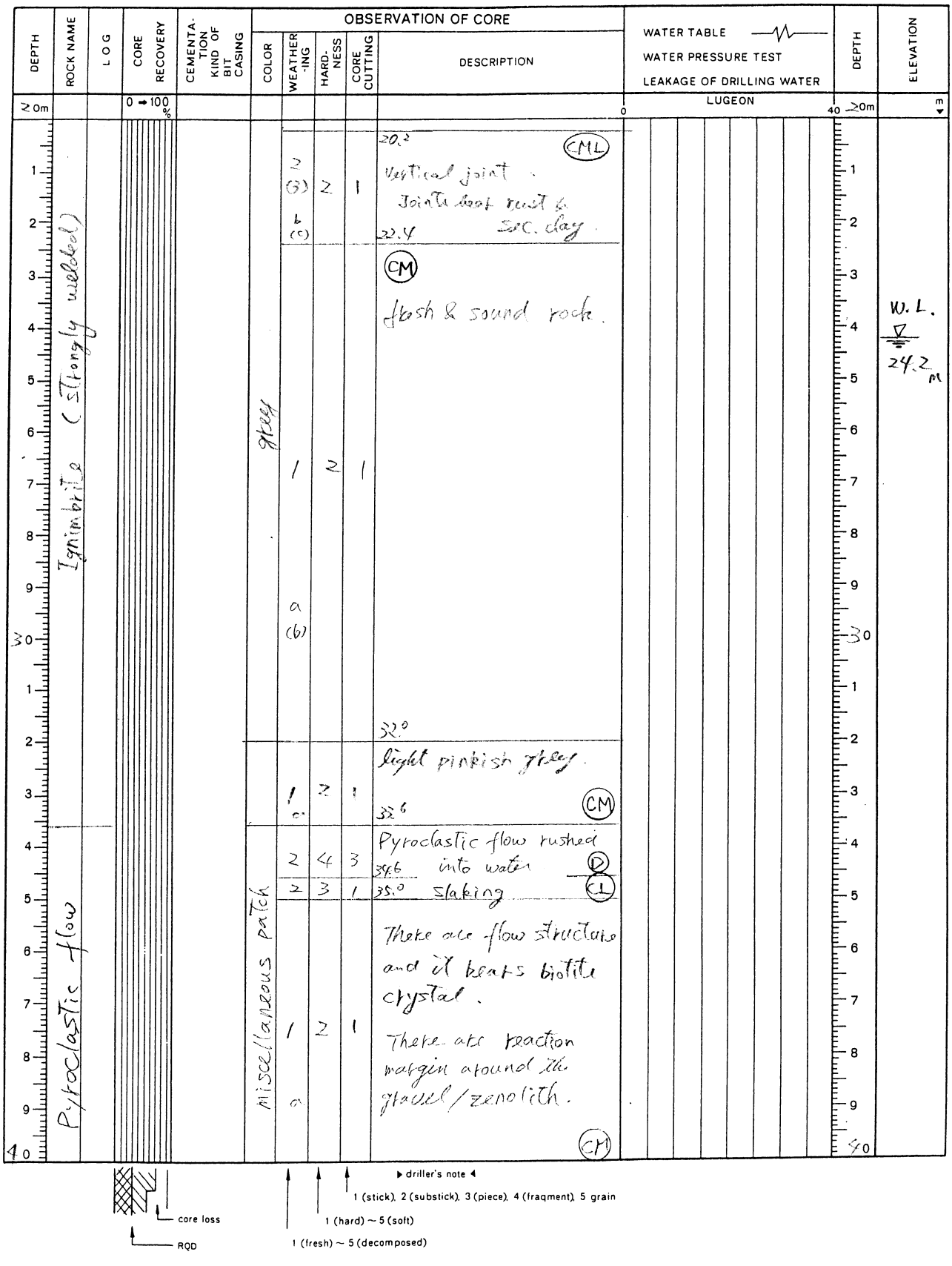

Figure 1.4 (3/3) **GEOLOGIC LOG OF DRILL HOLE**

PROJECT HOLE No. BG-4 (SHEET 3 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	– –
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	– –
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

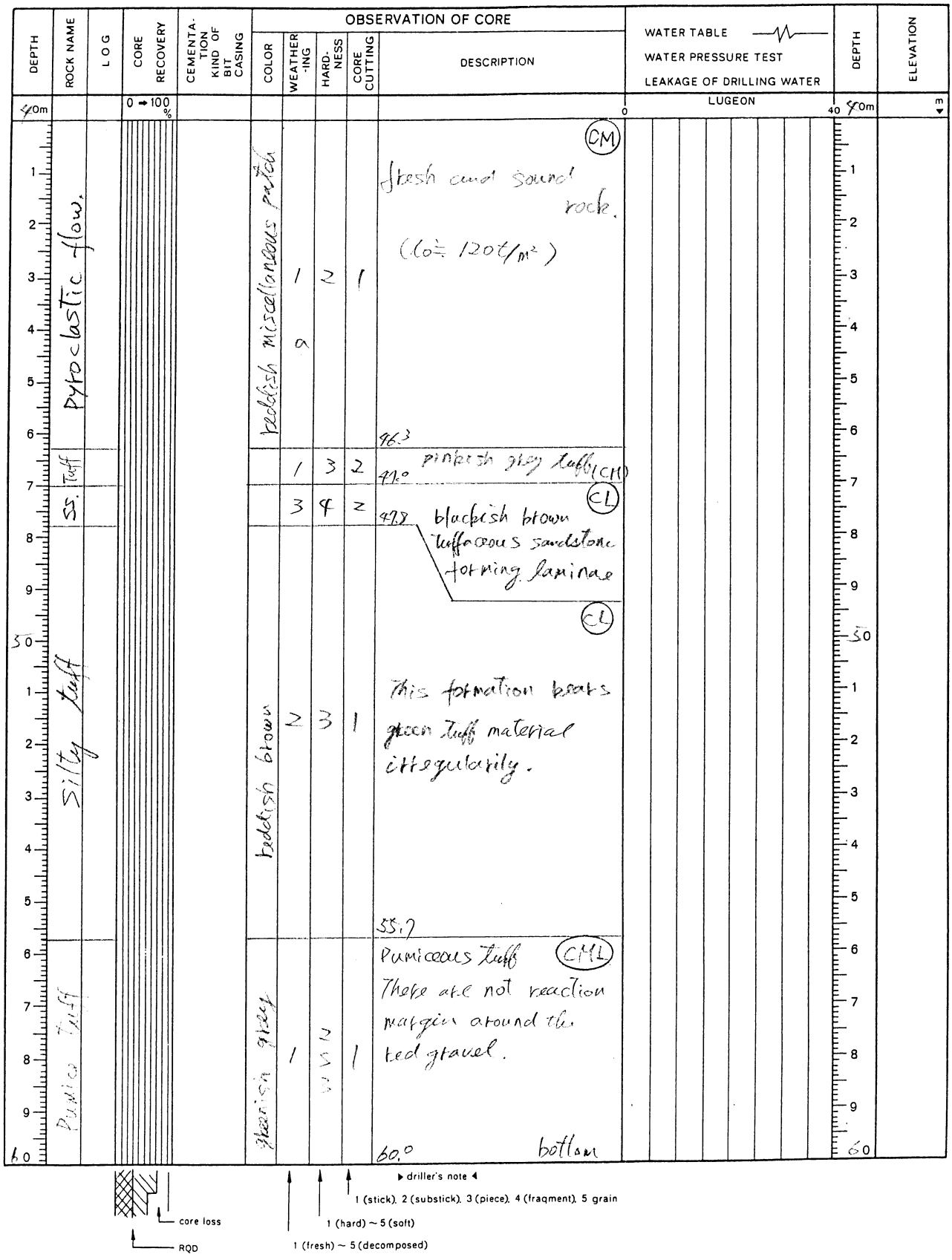

Figure 1.5 (1/3) **GEOLOGIC LOG OF DRILL HOLE**

PROJECT — HOLE No. BG-5 (SHEET 1 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	11-V-
ELEVATION	1,084.51 m	DEPTH OF OVERBURDEN	___ m	COMPLETED	14-V-2000
COORDINATE	___	LENGTH OF ROCK DRILLING	___ m	DRILLED BY	___
ANGLE FROM HOLIZONTAL	−90°	TOTAL LENGTH OF CORE	___ m	LOGGED BY	___
BEARING OF ANGLE HOLE	—	CORE RECOVERY	___ %	W.L.	−39.4 m

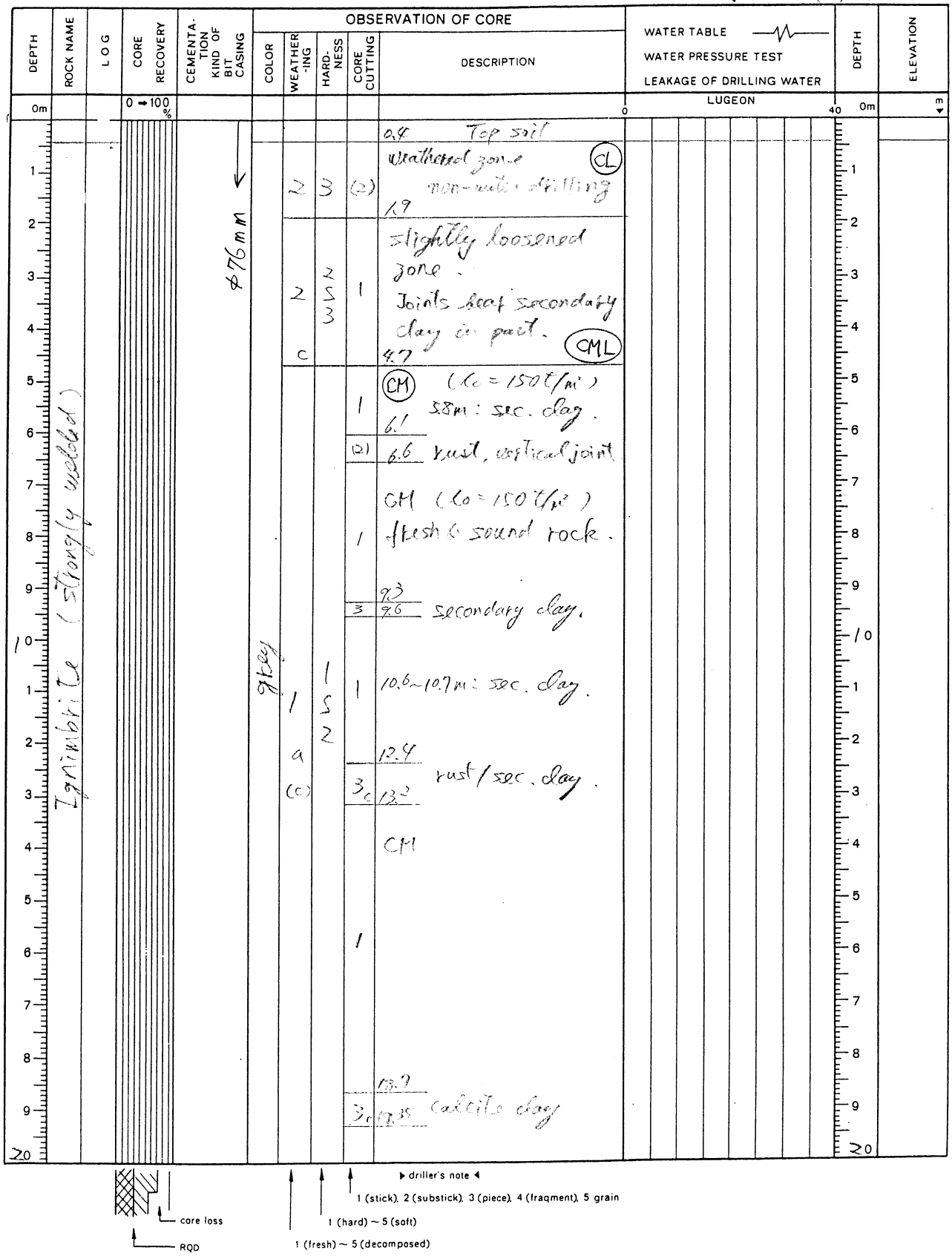

Figure 1.5 (2/3) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. RG-5 (SHEET 2 OF 3)

LOCATION	Los Laureles II	DEPTH OF HOLE	60 m	COMMENCED	- -
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	- -
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%		

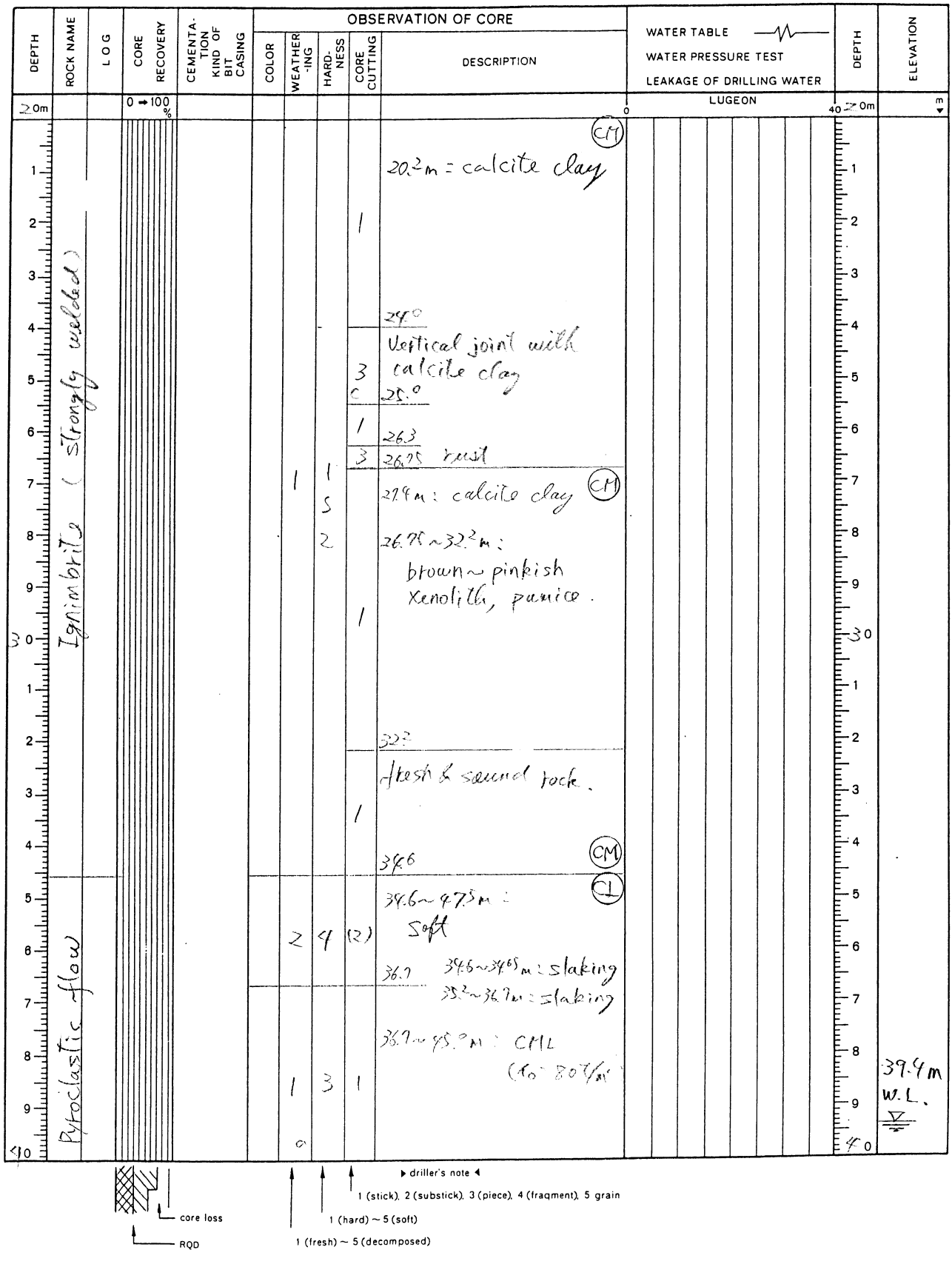

Figure 1.5 (3/3) GEOLOGIC LOG OF DRILL HOLE

PROJECT HOLE No. BG-5 (SHEET 3 OF 3)

LOCATION	Los Lacustres TI	DEPTH OF HOLE	60 m	COMMENCED	- -
ELEVATION	m	DEPTH OF OVERBURDEN	m	COMPLETED	- -
COORDINATE		LENGTH OF ROCK DRILLING	m	DRILLED BY	
ANGLE FROM HOLIZONTAL	°	TOTAL LENGTH OF CORE	m	LOGGED BY	
BEARING OF ANGLE HOLE		CORE RECOVERY	%