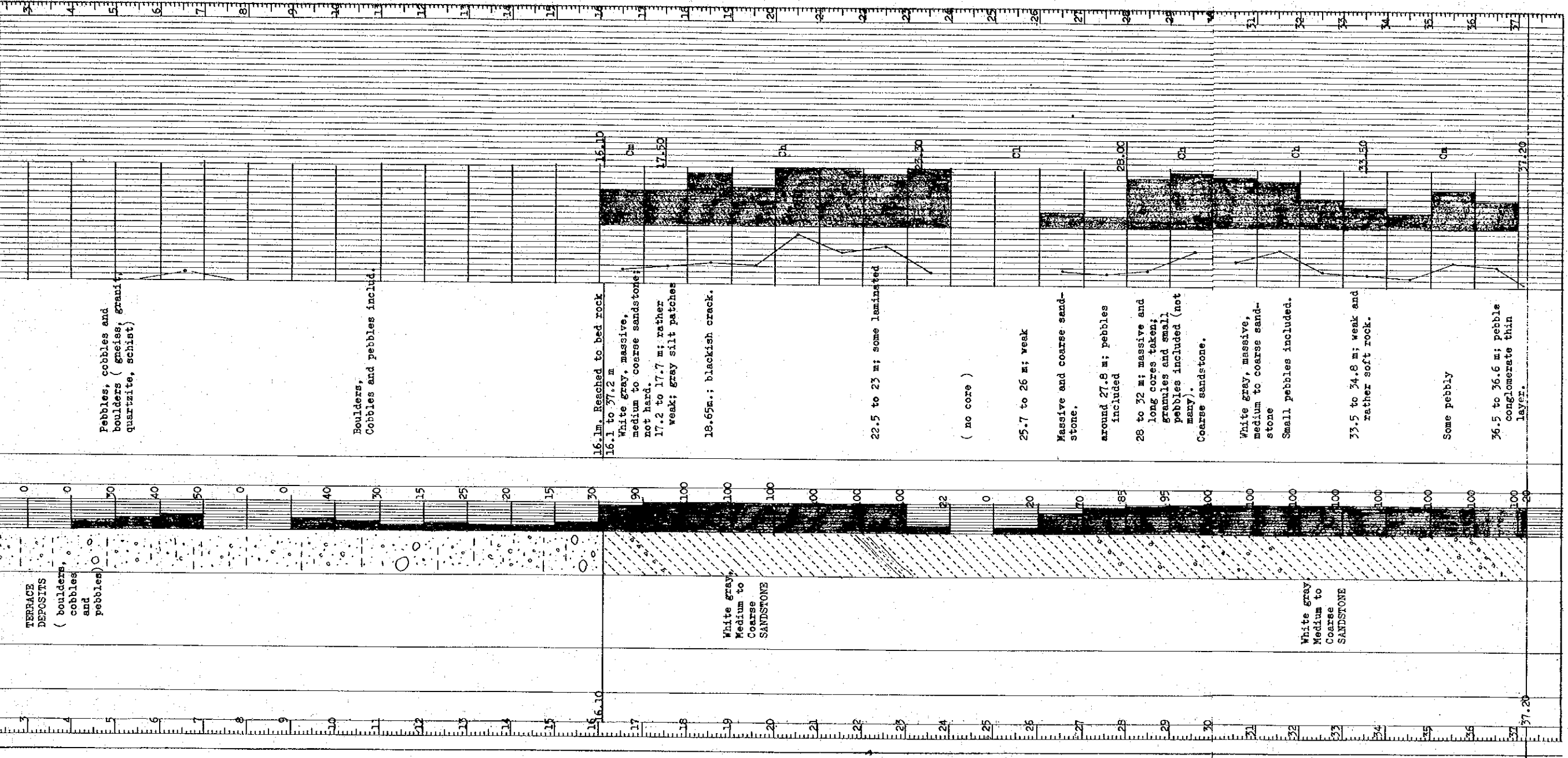


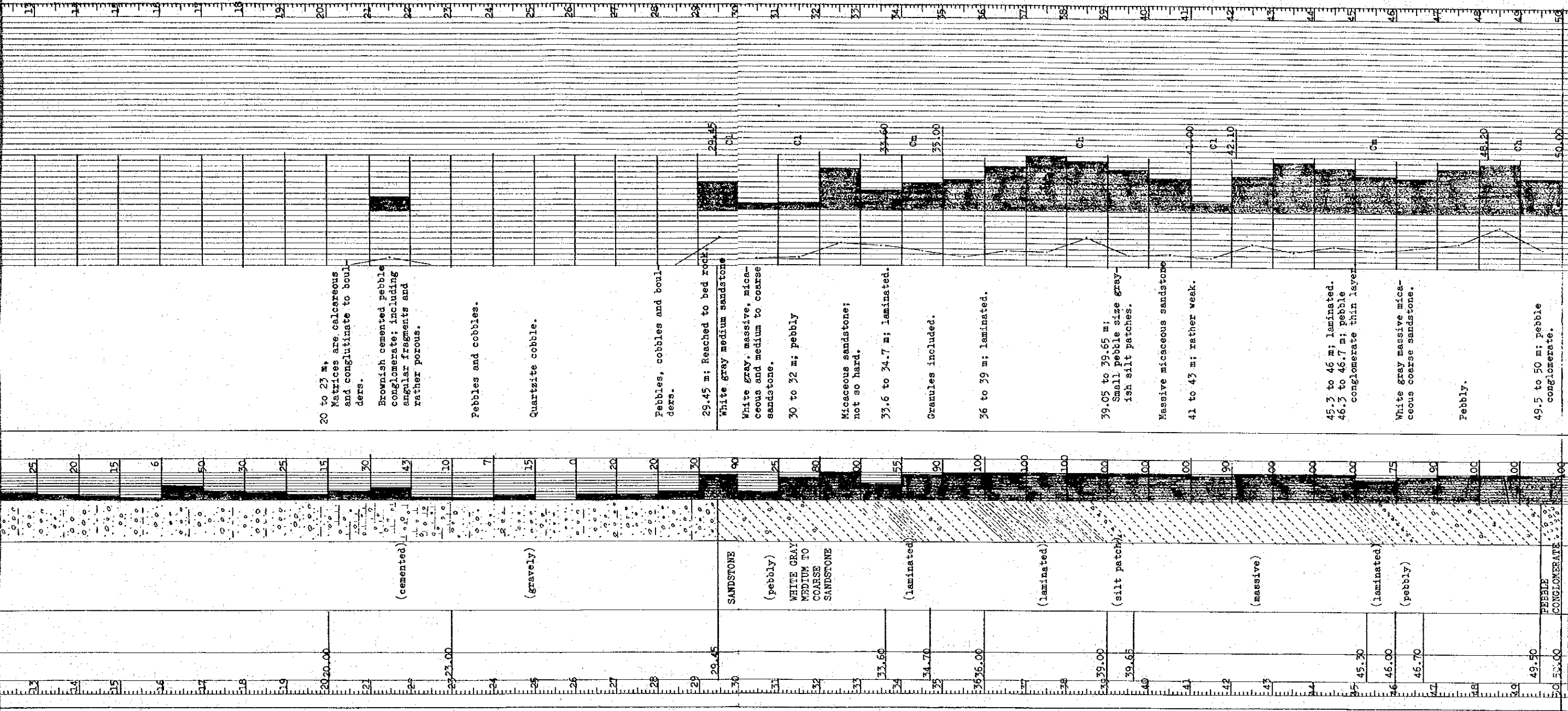
II

DRILL LOG (47 SHEETS)

GEOLOGICAL RECORD OF DRILL HOLE											
PROJECT		SAPT GANDAKI PROJECT		LOCATION		LEFT BANK		HOLE No. DG-1			
ELEVATION OF GROUND SURFACE		DIAMETER OF HOLE		MACHINE		DEPTH OF HOLE		INCLINATION OF HOLE			
		CORE RECOVERY		56.4 %		37.2 m.		VERTICAL			
CORE RECOVERY		DATE OF DRILLING		LOGGED BY		S.K.					
DATE	DEPTH (m)	ELEVATION (m)	ROCK TYPE	COLUMN SECTION	CORE RECOVERY %	BT DIAMETER %	DESCRIPTION	MAX. CORE LENGTH	LONG CORE PERCENT	ROCK CLASS.	DEPTH
	0				0		0 to 16.1m. Soils and gravels	50	100		0
	16.10		TERRACE DEPOSITS (boulders, cobbles and pebbles)		0		(no core)				16.10
	16.10				0		Pebbles, cobbles and boulders (gneiss, granite, quartzite, schist)				16.10
	17.50				0		Boulders, cobbles and pebbles included.				17.50
	16.10				30						16.10
	16.10				90		16.1m. Reached to bed rock				16.10
	17.50				100		White gray, massive, medium to coarse sandstone, not hard.				17.50
	17.2				100		17.2 to 17.7 m; rather weak; gray silt patches				17.50
	18.65				100		18.65m.; blackish crack.				17.50
	22.5				100		22.5 to 23 m; some laminated				22.50
	25.7				100		(no core)				25.30
	25.7				20		25.7 to 26 m; weak				25.30
	27.8				100		Massive and coarse sandstone.				25.30
	27.8				85		around 27.8 m; pebbles included				28.00
	28				95		28 to 32 m; massive and long cores taken; granules and small pebbles included (not many).				28.00
	28				100		Coarse sandstone.				28.00
	33.5				100		White gray, massive, medium to coarse sandstone				31.50
	33.5				100		Small pebbles included.				31.50
	33.5				100		White gray, massive, medium to coarse sandstone				31.50
	33.5				100		33.5 to 34.8 m; weak and rather soft rock.				31.50



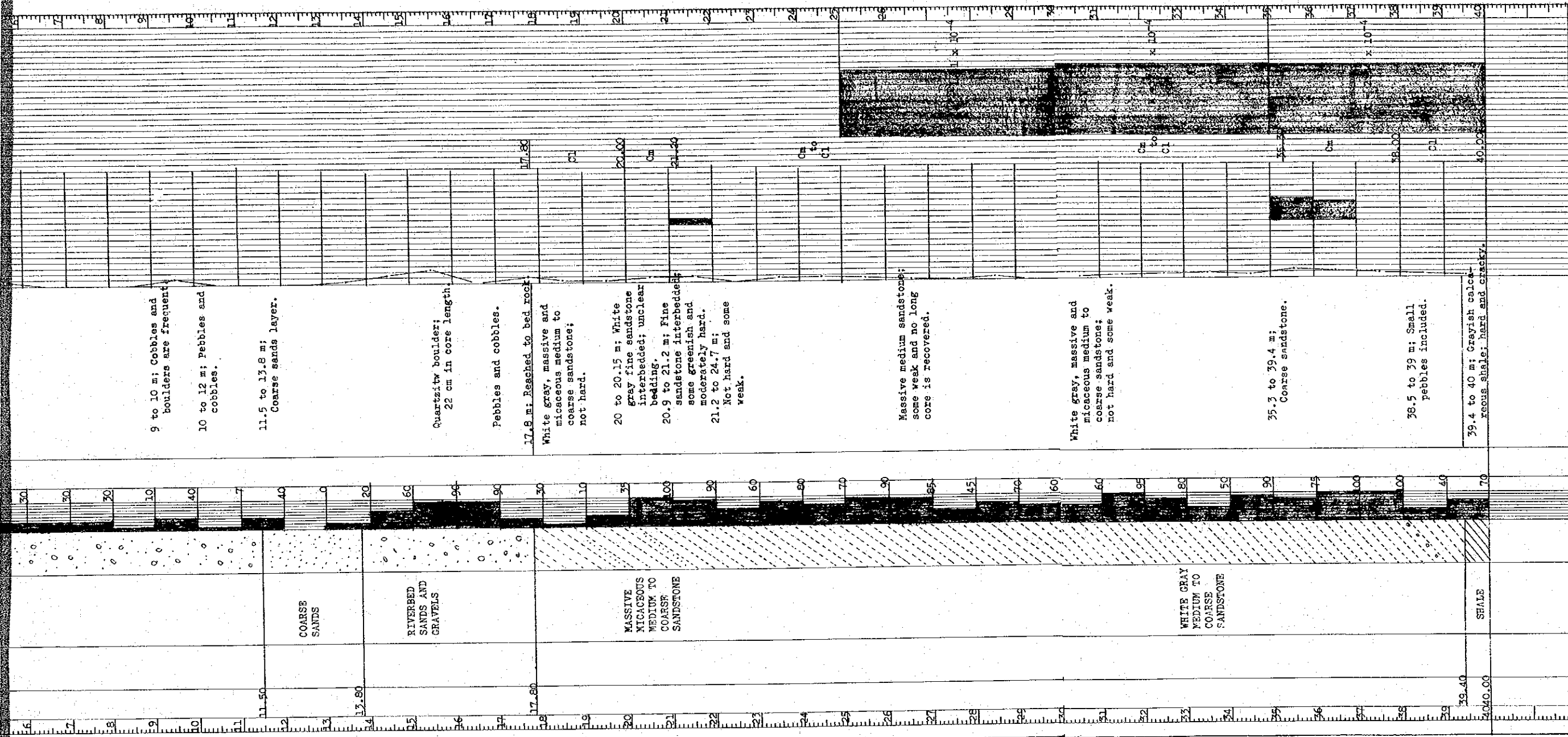
GEOLOGICAL RECORD OF DRILL HOLE									
PROJECT		SAPT GANDAKI PROJECT		LOCATION		DAM SITE LEFT BANK		HOLE No. DG-2	
ELEVATION OF GROUND SURFACE		DEPTH OF HOLE		50.0 M		INCLINATION OF HOLE		VERTICAL	
DIAMETER OF HOLE		MACHINE		DATE OF DRILLING		LOGGED BY		S.K.	
CORE RECOVERY		59.4 %		DRILLED BY		LOGGED BY		S.K.	
DEPTH (m)	ELEVATION (m)	ROCK TYPE	COLUMN SECTION	CORE RECOVERY %	BIT DIAMETER	DESCRIPTION	MAX. CORE LENGTH	PERCENT. CLASS	DEPTH
0		TOP SOIL		80		0 to 1 m. Blackish brown top soil.	50	100	0
1	1.00	TERRACE DEPOSITS (silty)		80		Dark brownish micaceous soil; silty			
2	2.50			80		Sandy; coarse sands and granules included.			
3				80					
4				80					
5				80					
6				80					
7		(sandy)		80					
8	8.15			80		8.15 to 9 m. no core.			
9				10					
10		(gravelly)		15		Up to 29.45 m. Pebbles, cobbles and boulders of quartzite, granite, gneiss, quartzschist, etc.			
11				7					
12				40					
13				25					
14				20					
15				15					
16				6					
17				50					
18				30					
19				25					
20	20.00			15		20 to 23 m. Matrices are calcareous and conglomerate to boulders.			
21				30					
22		(cemented)		70		Brownish cemented pebble conglomerate; including angular fragments and rather porous.			
23	23.00			43					
24				10					
25		(gravelly)		7		Pebbles and cobbles.			
26				15		Quartzite cobble.			
27				0					
28				20					
29				20					
29.45	29.45			30		29.45 m; Reached to bed rock.			
30		SANDSTONE		90		White gray medium sandstone			
31		(pebbly)		25		White gray, massive, micaceous and medium to coarse sandstone.			
32		WHITE GRAY MEDIUM TO COARSE SANDSTONE		30		30 to 32 m; pebbly			
33				00		Micaceous sandstone; not so hard.			
33.60	33.60			55		33.6 to 34.7 m; laminated.			
34		(laminated)		00		Granules included.			
34.70	34.70			00					



GEOLOGICAL RECORD OF DRILL HOLE										HOLE No. DG-3	
PROJECT			SAPT GANDAKI PROJECT		LOCATION		RIVERBED: UPSTREAM				
ELEVATION OF GROUND SURFACE			DIAMETER OF HOLE		DEPTH OF HOLE		INCLINATION OF HOLE		VERTICAL		
CORE RECOVERY			57.0 %		MACHINE		DATE OF DRILLING		LOGGED BY		
DRILLED BY									S.K.		
DATE	DEPTH (m)	ELEVATION (m)	ROCK TYPE	COLUMN SECTION	RECOVERY %	BIT DIAMETER	DESCRIPTION	MAX. CORE LENGTH cm.	LONG CORE PERCENT	DIAS.	DEPTH
1	0		RIVERBED SANDS AND GRAVELS		0		0 to 15.5 m; Riverbed sands and gravels.	50			0
2	2				50		Boulders and cobbles of quartzite, quartz-schist and slate.				2
3	4				10						4
4	6				25		Boulders, cobbles and pebbles of quartzite, granite and gneiss.				6
5	8				15						8
6	10				15						10
7	12				0		Boulders.				12
8	14				70						14
9	16				20						16
10	18				0		9 to 15 m; no core; (sandy?)				18
11	20				0						20
12	22				0						22
13	24				0						24
14	26				0						26
15	28				0						28
16	30				0						30
17	31.50				0		15.5 m. Reached to bed rock				31.50
18	15.50				50		15.5 to 21.05 m; White gray, massive, micaceous and medium to coarse sandstone.				15.50
19	17.50		White gray Medium to Coarse SANDSTONE		100		16 to 17.5 m; Pebbles included.				17.50
20	19.50		(silt patch)		100		17.5 to 19.5 m; weaknes.				19.50
21	21.05				100		19.3 to 19.5 m; Subangular and soft silt pebbles included.				21.05
22	21.50				100		19.5 to 20 m; Grayish silt patches.				21.50
23	21.50				100		21.05 to 25.3 m; Gray to dark gray well laminated silt to very fine sandstone.				21.50
24	23.00		Laminated SILTSTONE AND SANDSTONE		100		at 23 m; fault breccia (5 cm thick)				23.00
25	25.30				100		Long cores.				25.30
26	25.30				100		25.3 to 31.3 m; White gray, massive and micaceous medium sandstone.				25.30
27	29.10		White gray Medium SANDSTONE		100		Massive and long cores.				29.10
28	29.70				100		29.1 to 29.7 m; Rather weak.				29.70
29	29.70				100		29.7 to 31.3 m; Long cores and good condition.				29.70
30	31.30				100						31.30

GEOLOGICAL RECORD OF DRILL HOLE									
PROJECT		SAPT. GANDAKI PROJECT		LOCATION		RIVERBED		HOLE No. B80-1	
ELEVATION OF GROUND SURFACE		DEPTH OF HOLE		INCLINATION OF HOLE		VELOCITY			
DIAMETER OF HOLE		MACHINE		DATE OF DRILLING		FEB. 23 to MAR. 11, 1961			
CORE RECOVERY		DRILLED BY M. KIDO		LOGGED BY S. KUMAZAWA					
DATE	DEPTH (m)	ELEVATION (m)	ROCK TYPE	COLUMN SECTION	CORE RECOVERY %	DIAMETER	DESCRIPTION	MAX. CORE LENGTH PERCENT. CLASH PERMEABILITY	COEFFICIENT OF
								50 100 50 100	(cm/sec) x 10 ⁻⁵
1	0				80		0 to 17.8 m; Riverbed sands and gravels.		
2			RIVERBED SANDS AND GRAVELS		80		Pebbles, cobbles and boulders of quartzite, granite, schist, gneiss, green meta-sandstone, etc.		
3					50				
4					80		Quartzite cobble (or boulder); 14 cm.-long core.		
5					40				
6					30				
7					30				
8					30				
9					30				
10					30				
11					10		9 to 10 m; Cobbles and boulders are frequent.		
12					40		10 to 12 m; Pebbles and cobbles.		
13					7				
14	11.50		COARSE SANDS		40		11.5 to 13.8 m; Coarse sands layer.		
15					0				
16	13.80				20				
17			RIVERBED SANDS AND GRAVELS		60				
18					90		Quartzite boulder; 22 cm in core length.		
19					90		Pebbles and cobbles.		
20	17.80				30		17.8 m. Reached to bed rock.		
21					10		White gray, massive and micaceous medium to coarse sandstone; not hard.		
22					35		20 to 20.15 m; White gray fine sandstone interbedded; unclear bedding.		
23			MASSIVE MICACEOUS MEDIUM TO COARSE SANDSTONE		100		20.9 to 21.2 m; Fine sandstone interbedded; some greenish and moderately hard.		
24					90		21.2 to 24.7 m; Not hard and some weak.		
25					60				
26					50				
27					70				
28					90		Massive medium sandstone; some weak and no long core is recovered.		
29					95				
30					45				
31					70				
32					60				
33					50				
34			WHITE GRAY MEDIUM TO COARSE SANDSTONE		50		White gray, massive and micaceous medium to coarse sandstone; not hard and some weak.		
35					90				

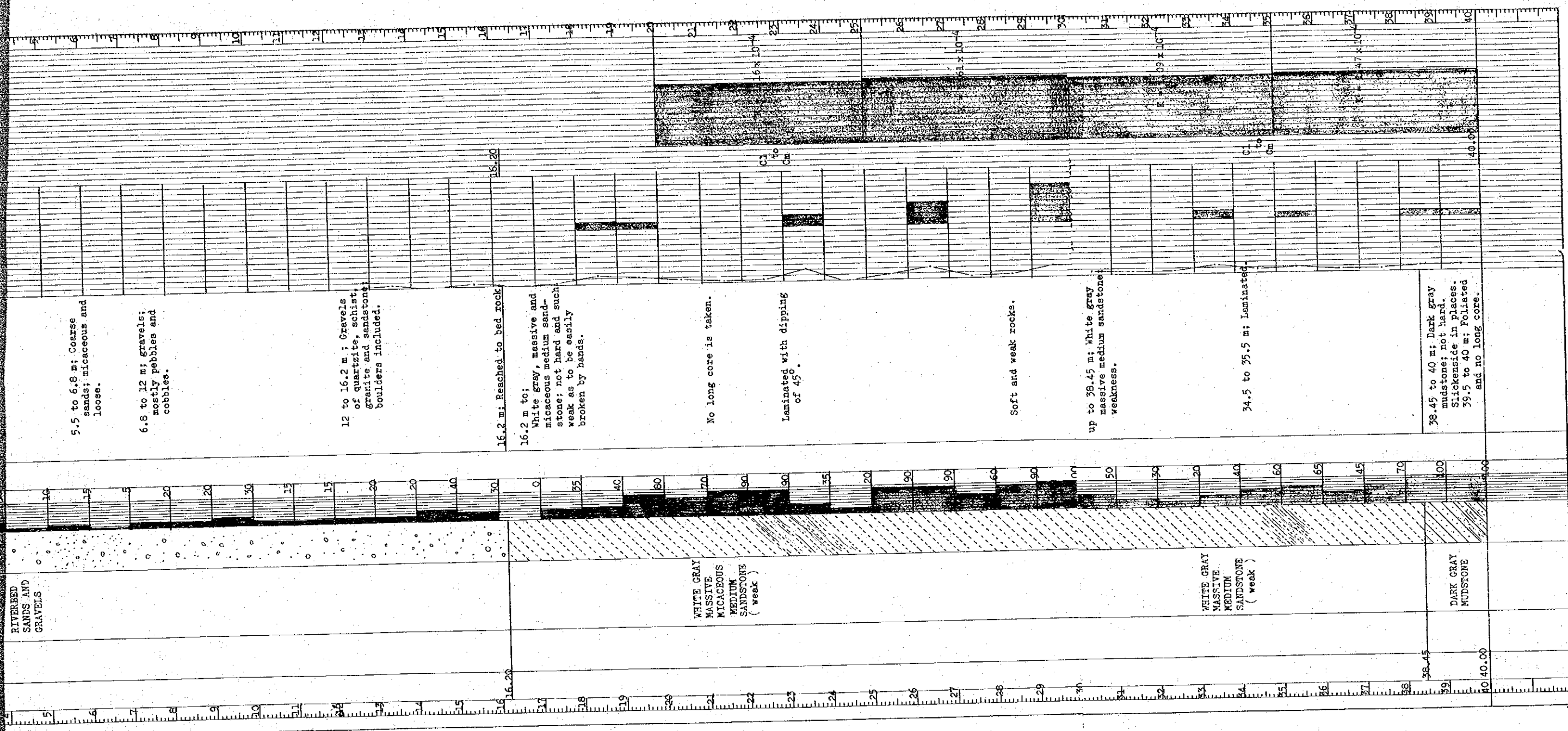
35.3 to 39.4 m;



GEOLOGICAL RECORD OF DRILL HOLE									
PROJECT		SAPT GANDAKI PROJECT		LOCATION		DAM SITE: RIVERBED		HOLE No. B80-2	
ELEVATION OF GROUND SURFACE		DEPTH OF HOLE		INCLINATION OF HOLE		VERTICAL			
DIAMETER OF HOLE		MACHINE		DATE OF DRILLING		MAR. 13 to 22, 1981			
CORE RECOVERY		DRILLED BY		LOGGED BY		S. KOMAZAWA			
DEPTH (m)	ELEVATION (m)	ROCK TYPE	COLUMN SECTION	CORE RECOVERY %	DIAMETER (cm)	DESCRIPTION	MAX. CORE LONG CORE LENGTH (cm)	PERCENT GLASS	Coefficient of permeability (cm/sec) x 10 ⁻⁵
0		RIVERBED SANDS AND GRAVELS		30	7.62	0 to 16.2 m; Riverbed sands and gravels.	100	0	
0				45	11.43	0 to 5.5 m; Gravels, pebbles and cobbles of quartzite, granite and schist.	100	0	
5.5				10	25.40		100	0	
5.5				30	7.62		100	0	
5.5				10	25.40	5.5 to 6.8 m; Coarse sands; micaceous and loose.	100	0	
6.8				15	38.10		100	0	
6.8				20	50.80	6.8 to 12 m; gravels; mostly pebbles and cobbles.	100	0	
12				20	50.80		100	0	
12				15	38.10	12 to 16.2 m; Gravels of quartzite, schist, granite and sandstone; boulders included.	100	0	
16.2				15	38.10		100	0	
16.2				20	50.80	16.2 m; Reached to bed rock	100	0	
16.2				30	76.20	16.2 m to; White gray, massive and micaceous medium sandstone; not hard and such weak as to be easily broken by hands.	100	0	
16.2				35	89.90		100	0	
16.2				40	102.60		100	0	
16.2				80	205.20	No long core is taken.	100	0	
16.2				70	182.70		100	0	
16.2				90	243.90		100	0	
16.2				90	243.90	Laminated with dipping of 45°.	100	0	
16.2				35	89.90		100	0	
16.2				20	76.20		100	0	
16.2				90	243.90	Soft and weak rocks.	100	0	
16.2				90	243.90		100	0	
16.2				60	152.40		100	0	
16.2				90	243.90		100	0	
16.2				20	76.20	up to 38.45 m; White gray massive medium sandstone weakness.	100	0	
16.2				30	114.30		100	0	
16.2				20	76.20		100	0	
16.2				40	102.60		100	0	
16.2				60	152.40		100	0	
16.2				60	152.40	34.5 to 35.5 m; Laminated.	100	0	

WHITE GRAY MASSIVE MICACEOUS MEDIUM SANDSTONE (weak)

WHITE GRAY MASSIVE MEDIUM SANDSTONE (weak)



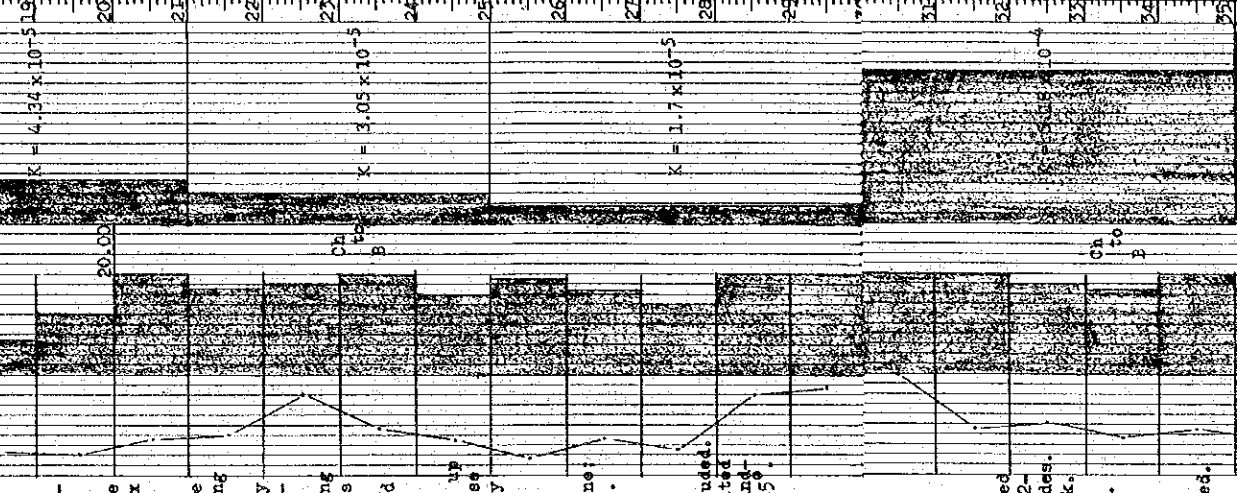
RIVERBED SANDS AND GRAVELS

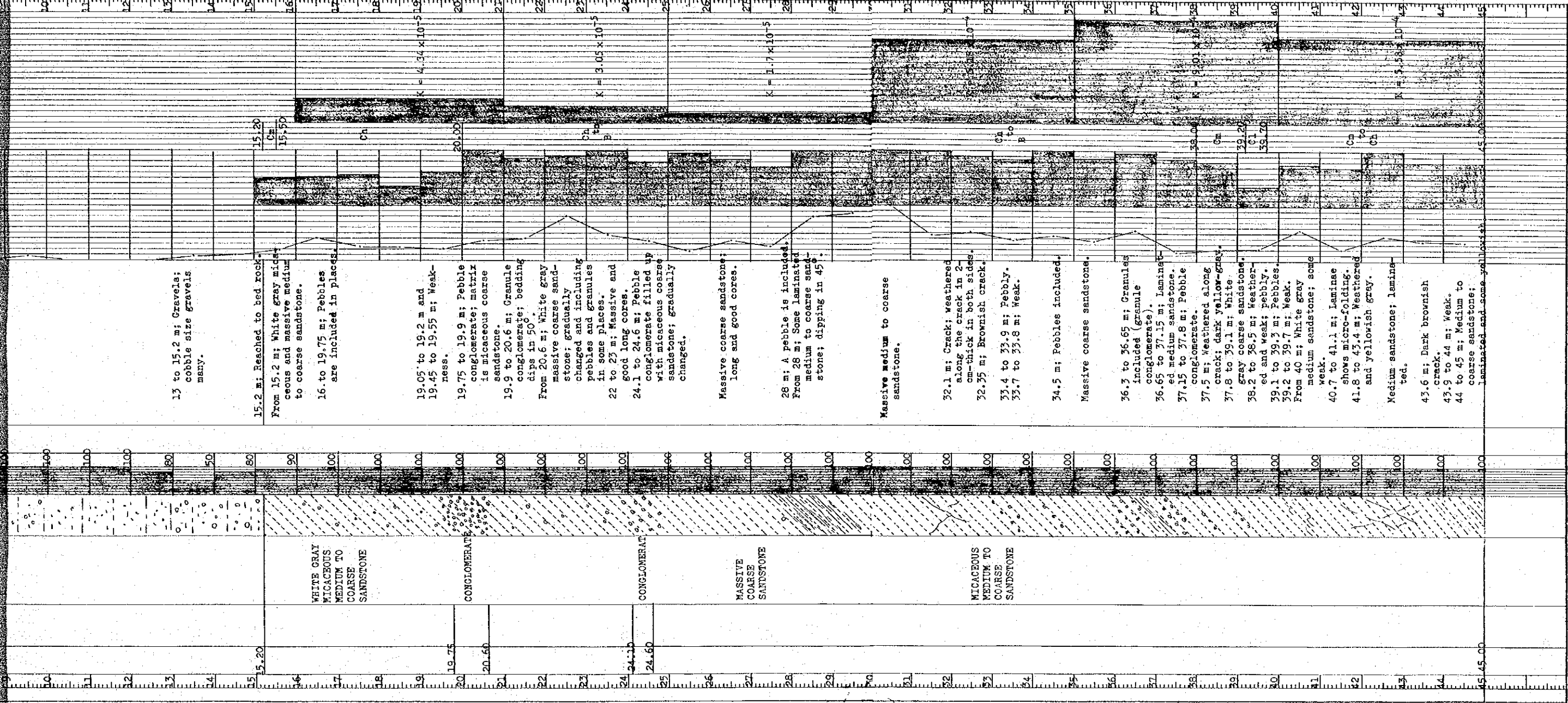
WHITE GRAY MASSIVE MICACEOUS MEDIUM SANDSTONE (weak)

WHITE GRAY MASSIVE MEDIUM SANDSTONE (weak)

DARK GRAY MUDSTONE

GEOLOGICAL RECORD OF DRILL HOLE HOLE No. B80-3									
PROJECT SAFT SANDAKI PROJECT		LOCATION DAM SITE: LEFT BANK		DEPTH OF HOLE 45.0 M		INCLINATION OF HOLE VERTICAL			
ELEVATION OF GROUND SURFACE		MACHINE KOKEN-02-L		DATE OF DRILLING FEB. 28 to MAR. 18, 1981		LOGGED BY S. KUMAZAWA			
DIAMETER OF HOLE 100 to 86 mm		DRILLED BY T. KODAMA		CORE RECOVERY 97.8 %					
DEPTH (m)	ELEVATION (m)	ROCK TYPE	COLUMN SECTION	CORE RECOVERY %	CORE DIAMETER	DESCRIPTION	MAX. CORE LONG CORRELATION		
							LENGTH	PERCENTAGE	
0		TOP SOIL		100	100	0 to 15.2 m; Terrace deposits; gravels and soils.	50	100	
1		SILTY SOIL		100	100	0 to 0.4 m; Top soil; grayish brown.	50	100	
1.80				100	100	0.4 to 1.8 m; Pale brown silty soil with small rock fragments.	50	100	
1.8				100	100	1.8 to 15.2 m; Terrace deposits; gravels filled up with pale brownish silty soil; including boulders.	50	100	
1.9				100	100	1.9 to 3.75 m; Cobbles and boulders of quartzite and granite.	50	100	
4				100	100	4 to 4.8 m; Smaller size gravels; pebbles and granules.	50	100	
5.8		TERRACE DEPOSITS		100	100	5.8 m; Quartzite boulder.	50	100	
6				100	100	6 to 8 m; Pebbles with pale brownish silty soil.	50	100	
8				100	100	8 to 10 m; Cobbles and pebbles.	50	100	
13				80	80	13 to 15.2 m; Gravels; cobble size gravels many.	50	100	
15.20				80	80	15.2 m; Reached to bed rock.	50	100	
15.20		WHITE GRAY MICACEOUS MEDIUM TO COARSE SANDSTONE		90	90	From 15.2 m; White gray micaceous and massive medium to coarse sandstone.	50	100	
16				100	100	16 to 19.75 m; Pebbles are included in places.	50	100	
19.05				100	100	19.05 to 19.2 m and 19.45 to 19.55 m; Weakness.	50	100	
19.75				100	100	19.75 to 19.9 m; Pebble conglomerate; matrix is micaceous coarse sandstone.	50	100	
20.60		CONGLOMERATE		100	100	19.9 to 20.6 m; Granule conglomerate; bedding dips in 50°.	50	100	
20.60				100	100	From 20.6 m; White gray massive coarse sandstone; gradually changed and including pebbles and granules in some places.	50	100	
22				100	100	22 to 23 m; Massive and good long cores.	50	100	
24.1		CONGLOMERATE		100	100	24.1 to 24.6 m; Pebble conglomerate filled up with micaceous coarse sandstone; gradually changed.	50	100	
24.60				100	100	Massive coarse sandstone; long and good cores.	50	100	
28		MASSIVE COARSE SANDSTONE		100	100	28 m; A pebble is included. From 28 m; Some laminated medium to coarse sandstone; dipping in 45°.	50	100	
32.1				100	100	Massive medium to coarse sandstone.	50	100	
32.1		MICACEOUS MEDIUM TO COARSE SANDSTONE		100	100	32.1 m; Crack; weathered along the crack in 2-cm-thick in both sides.	50	100	
32.35				100	100	32.35 m; Brownish crack.	50	100	
33.4				100	100	33.4 to 33.9 m; Pebbly.	50	100	
33.7				100	100	33.7 to 33.8 m; Weak.	50	100	
34.5				100	100	34.5 m; Pebbles included.	50	100	





DRILL LOG

HOLE NO. B81-1 SHEET NO. 1 OF 1

PROJECT		SAPT GANDAKI PROJECT				DEPTH	30 M	ELEVATION						
SITE		DAM SITE A: LEFT BANK		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	TONE, UD-5					
AVERAGE CORE RECOVERY		77.7%		DATE	FROM OCT.20 TO NOV.6	DRILLED	by M. KIDO	LOGGED	by KUMAZAWA					
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORK RECOVERY		MAX. CORE LENGTH	WATER IN TEST PERMEABILITY (K)		DEPTH	
								%	cm		10	20		30
	1.20		Top Soil		Dark reddish brown			100	0					
	2		Terrace Deposits		Yellowish brown Sands and silts with gravels.	66 mm dia		100	0					
	3				1.4 to 1.6 m; Including a decomposed sandstone boulder.				100	0				
	4								100	0				
	5								100	0				
	6								100	0				
	7								100	0				
	8						8 to 10 m; Gravels are not many. 8.5 to 9.5 m; Extremely micaceous.		100	0				
	9								100	0				
	10						10.6 m; Granite boulder.		100	0				
	11						11 to 13 m; No core.		0	0				
	12						0	0						
	13				13 to 15.1 m; Dirty gray and muddy.		0	0						
	14						100	0						
	15				14.7 to 15 m; Blackish		100	0						
	16						100	0						
	17				15.1 to 18.8 m; Yellowish gray and/or yellowish brown sandy silt with gravels.		100	0						
	18						100	0						
	19		Terrace Deposits		18.8 to 20.0 m; Gravely. Quartzite and granite boulders are contained.		100	0						
	20				20.0 to 23.3 m; Dirty brownish gray sandy silt with gravels.		100	0						
	21							100	0					
	22						70	0						
	23						100	0						
	24				23.3 to 30.0 m; Terrace gravels. Including quartzite boulders commonly.		100	0						
	25						15	0						
	26						7	0						
	27						30	0						
	28						50	0						
	29						30	0						
	30						50	0						

HOLE NO. B81-1

*R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 #LUGON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 #DIAMETER is in millimeter

DRILL LOG

HOLE NO.881-2 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	60 M	ELEVATION				
SITE		DAM SITE B; LEFT BANK		COORDINATE			INCLINATION	VERTICAL	DRILL RIG	TONE UD-6		
AVERAGE CORE RECOVERY		98.7%		DATE	FROM JAN.29 TO FEB.10		DRILLED	by NORBAHADUR	LOGGED	by KIDO, KUMAZAWA		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST LUDEON VALUE	DEPTH
									%	cm	10 20 30 40 50	
JAN.29			Residual Soil		Dark reddish brown residual soil (loamy) Includ. root fragments.		84					
	4.10				Pale reddish brown, Silty/sandy soil.		4.10					
			Decomposed Rock (Sandstone)		Yellowish gray decomposed sandstone, micaceous. 7.3 to 7.6 m; Dirty brownish gray weathered sandstone 8.5 to 8.8 m; Yellowish gray weathered medium sandst. massive and micaceous. 10.0 to 10.3 m; Dirty gray clay (weathered silt stone) 11.7 to 11.9 m; Pale brown weathered medium sandst.	D	66 (M.B. Single)					
JAN.30			Sandstone		White gray laminated, fine to medium sandstone		11.90					
	12.63		Mudstone		12.65 to 12.9 m; Fractured. (minor fault) 12.65 to 13.15 m; Dark gray massive mudst; rather weak and latent cracks.	CL to CH						
	16.50				Includ. black lignite small fragments.		16.00					
	17.50		Fine Sandstone		Dark gray massive fine sandstone							
	19.50		Fine to Medium Sandstone		White gray massive micaceous fine to medium sandstone. Includ. indistinct laminae.							
			Medium to Coarse Sandstone		White gray micaceous medium to coarse sandst. 20.7 to 21.0 m; Vertical crack. 22.2 to 22.4 m; } Some laminated. 23.1 to 23.4 m; } 24.1 to 24.4 m; } Includ. small pebbles. 25.9 to 26.1 m; Lignitic black laminae.	CH						
	26.45		Conglomerate		26.45 to 26.95 m; Pebble congl. with gray siltstone patches.		26.95					
	26.95		Siltstone		Dark gray laminated calcareous siltstone. Laminae dip 45°	CM to						
	28.10		Mudstone		Dark gray massive mudstone. Greenish gray mudstone; includ. dark brownish siltstone patched struct.	CH						
	28.90											

LOC. FORM-B

*R.Q.D is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUDEON VALUE is 1/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

HOLE NO. 881-2

DRILL LOG

HOLE NO. B81-2 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORRECTION		R. O. D. B. MAX. CORE L. 50 cm	WATER PRESSURE TEST		DEPTH
									%	cm		LUGEON VALUE		
FEB 6	31.20		Fine Sandstone	4	Gray massive fine sandstone; muddy and includ. patched str.	CH	66 (D.B. Double)		100	0	0.5 Lu	0	31.20	
	31.30				Gray laminated fine sandst.				100	0				31.30
FEB 7	31.40		Fine to Medium Sandstone	4	Fine to medium sandstone; Some laminated	CH	66 (D.B. Double)		100	0	0.3 Lu	0	31.40	
	33.85				White gray medium to coarse massive sandstone. Cores are long and not had.				100	0				33.85
FEB 7	35.6		Medium to Coarse Sandstone	4	35.6 to 35.75 m; Finegrains and laminated.	CH	66 (D.B. Double)		100	0	0.3 Lu	0	35.6	
	36.9				36.9 to 38.5 m; Fine to medium grains and including indistinct laminae.				100	0				36.9
FEB 7	39.95		Pebble Conglomerate	4	Pebble conglomerate with matrix of white gray coarse sandstone.	CH	66 (D.B. Double)		100	0	1.1 Lu	0	39.95	
	41.75				41.75 to 42.1 m } Some laminated medium sandst.				100	0				41.75
FEB 8	42.6		Fine to Medium Sandstone	4	Gray laminated fine to medium sandstone; including siltst. laminae.	CH	66 (D.B. Double)		100	0	1.1 Lu	0	42.6	
	43.05				43.05 to 43.15 m				100	0				43.05
FEB 9	43.25		Medium to Coarse Sandstone	4	White gray massive and micaceous medium to coarse sandstone.	CH	66 (D.B. Double)		100	0	1.2 Lu	0	43.25	
	46.66				46.66 to 47.5 m; Some laminated				100	0				46.66
FEB 9	47.2		Medium to Coarse Sandstone	4	47.2 m; Dark gray siltstone thin bed; 2 cm-thick.	CH	66 (D.B. Double)		100	0	1.2 Lu	0	47.2	
	49.10				Gray massive fine sandstone with white gray patched str.				100	0				49.10
FEB 10	50.00		Fine Sandst.	4	Gray massive fine sandstone with white gray patched str.	CH	66 (D.B. Double)		100	0		0	50.00	

HOLE NO. B81-2

(2)

DRILL LOG

HOLE NO. 881-3 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	40 M	ELEVATION					
SITE		DAMSITE B; RIGHT BANK		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	TONE, UD-6				
AVERAGE CORE RECOVERY		99.3%		DATE	FROM MAR.10 TO MAR.17	DRILLED	by KUMAR	LOGGED	BY KIDO & KUMAZAWA				
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D & MAX. CORE L. 30 cm	WATER PRESSURE TEST LUKEON VALUE	DEPTH	
									%	cm	10 20 30 40 50		
MAR. 10	1		Overburden	Δ	Upper 30 cm; brownish gray top soil.		66 (M. Bit : Single)		100			1	
	2			Δ	0.3 to 1.1 m; Yellowish brown micaceous soil with rock fragments.				100				2
	3			Δ	1.1 to 5.7 m; Decomposed rock fragments.				100				3
	4			Δ					100				4
	5			Δ	5.0 to 5.7 m; coarse sandst.				100				5
	5.70		Coarse Sandstone	○	5.7 to 6.5 m; weathered and weak very coarse sandstone with a pebble and granule.	C ₁			50			6	
	6								30			6	
	7					White gray, massive and micaceous coarse sandstone; cores are generally long but not so hard.			95			7	
	8								100			8	
	9								100			9	
	10					10.5 to 11 m; pebble to cobble conglomerate.			100			10	
	11								100			11	
	12					11 to 12.1 m; very coarse and including granules, pebbles and soft rock patches.	CH		100				12
MAR. 11	13								100			13	
	14								100			14	
	15	15.48			Bedding dips in 42°.			100			15		
	16	16.60	Siltstone & Fine Sandst.		Dark gray and laminated.			100			16		
	17	17.60	Fine Sandst.		Upper half, muddy. Dark gray and massive.			100			17		
	18	18.70	Siltstone & Fine Sandst.		Dark gray and laminated.			100			18		
	19	19.00	Fine Sandst.		18.8 to 19.2 m; fractured.			100			19		
MAR. 12	20	20.25				Dark gray and massive. Below 19.9 m; laminated with slickensides.	C _M		100			20	
	21		Fine Sandstone	Δ	Brownish and weathered with laminated and/or patched structures.			100			21		
	22					Slickensides and fault clays are in places.	C _L		100			22	
	23								100			23	
	24								100			24	
	25	25.55			Bedding slip with clay seam. Gray and massive.	C _M		100			25		
MAR. 13	26		Fine Sandstone	Δ	Slickensides with clay seams are in places.			100			26		
	27								100			27	
	28					Below 27.65 m; Cores are rather long and not bad.	C _H		100			28	
	29	29.10	Fine Sandst.	Δ	29.1 to 29.5 m; patched.			100			29		
	30					29.5 to 30.2 m; laminated.			100			30	

LOG FORM-B

HOLE NO. 881-3

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUKEON VALUE is 1' min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. BB1-3 SHEET NO. 2 OF 2

PROJECT		SITE				COORDINATE		DEPTH	ELEVATION			
AVERAGE CORE RECOVERY		DATE	FROM	TO	INCLINATION	DRILL RIG		LOGGED				
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST	DEPTH
									%	cm	LUGEON VALUE	
MAR. 14	31.00		Fine Sandstone		30.2 to 30.5 m; fractured. White gray and cross laminated.	C _M	30.55		100			31.00
	32.60		Fractured zone		32.6 to 32.9 m; dark gray laminated very fine sandst. 32.9 to 35.2 m; greenish gray and weak mudstone. 35.2 to 35.45; fine sandstone.	C _L to D	32.60		100			32.60
	35.45		Fine Sandstone		Gray and patched and/or laminated.		35.50		95			35.45
	37.60		Fractured		37.4 to 40.3 m; stained with weathering.	C _L			100			37.60
	39.30		Fine Sandst.		Brownish gray and massive. Patched structure.		40.20		100			39.30
MAR. 15	40.50		Fine Sandst. and Siltstone		Gray, calcareous and laminated.				100			40.50
	42.50		Fine Sandst.		white gray, massive and micaceous.	C _M			100			42.50
	44.65				Fault clay; 15 cm. thick.				100			44.65
	46.35				Gray and massive.				100			46.35
	48.25		Fine Sandstone		Micaceous and cross laminated.				100			48.25
MAR. 16	48.65				Fault clay		48.60		100			48.60
MAR. 17	49.20				Dirty gray and muddy.				100			49.20
	49.75				Calcareous and patched.	C _H			100			49.75
	50.00				White gray and massive.		50.00		100			50.00

HOLE NO. BB1-3

LOG FORM-B

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-4 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	40 M	ELEVATION				
SITE		DAM SITE A; RIGHT BANK		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	TONE UD-5			
AVERAGE CORE RECOVERY		99%		DATE	FROM NOV. 24 TO DEC. 3	DRILLED	By M. KIDD	LOGGED	By KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	CORE RECOVERY	WATER PRESSURE TEST		DEPTH	
									R. Q. D. & MAX. CORE L. 30 cm	LUGEON VALUE		
Nov. 24	1		Talus Deposit	△	Talus deposit Pale brownish sandy silt with decomposed sandstone fragments.	CM	86	2.80 (Nov. 26 to 30) 3.00M (Dec. 4)	100	100	100	100
2												
3												
4												
5	5.00											
Nov. 25	6	6.20	Mudstone (gradual)	Greenish gray massive, sandy mudstone, incl. micas. 5.0 to 5.7 m; Weathered & soft.	CM	6.20	100	100	100	100	100	100
7			Micaceous Sandstone (Medium) (gradual)	Gray medium sandstone; massive and micaceous.			100	100	100	100	100	100
8	8.00		Micaceous Sandstone (Coarse)	White gray micaceous coarse sandstone; subangular grains.			100	100	100	100	100	100
9												
10			(unconformable) Siltstone & Sandst.	11.2 to 11.9 m; Some laminated dipping in 50°.			100	100	100	100	100	100
11												
12	11.90		Fine to Medium Sandstone	Gray siltstone and fine sandst. 12.40 m; Minor fault with clay of 3 cm thick. Gray, micaceous and some laminated. 12.4 to 12.8 m; fine sandst. patches. 12.4 to 13.2 m; rather weak.			100	100	100	100	100	100
13	12.40											
14			Laminated Siltstone and Sandstone	Gray to dark gray and well laminated with 45° dipping.			100	100	100	100	100	100
15	15.00											
16	16.35		Coarse Sandstone (unconformable)	White gray micaceous sandst. with some laminae and gray and green silt patch layers.			100	100	100	100	100	100
17	17.25											
18			Calcareous Siltstone and Fine Sandst.	Gray to dark gray siltstone to fine sandstone. (Calcareous) 19.0 m; Brownish cracks. 19.7 m, 12.2 m; Pale brown cracks Laminated and rather hard. 21.55 m; Silt patched layer. Well laminated; includ. fossil leaves along laminae.		CH	66	100	100	100	100	100
19												
20			Dark gray Mudstone	Cross and folded laminae. 25.65 m; Crack with gray clay. (minor fault)			100	100	100	100	100	100
21												
22	26.00		Dark gray Mudstone	Dark gray massive mudst. 26.3 m; Incl. lignite fragments. 27.5 to 28.4 m; Gray fine and micaceous sandstone.			100	100	100	100	100	100
23												
24			Dark gray Mudstone	White gray calcareous siltstone patches in the bottom part. Laminated siltstone.			100	100	100	100	100	100
25												
26	29.70		Dark gray Mudstone	Very fine sandstone with siltst. patches.			100	100	100	100	100	100
27	29.20											
28							100	100	100	100	100	100
29							100	100	100	100	100	100
30							100	100	100	100	100	100

LOC FORM-B

HOLE NO. B 81-4

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is 1/min under injection water pressure of 100g/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-4 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		R. Q. D.	WATER PRESSURE TEST LUGEON VALUE		DEPTH	
									%	cm					
Dec. 2	30.70		Alternation of Micaceous Fine Sandst. and Laminated Calcareous Siltstone		Calcareous Gray patches	30.60	66 (D.B. Double)		100	100					
	31.55			Gray laminated siltstone (Fault with clay)	C _M										
	32.30			White gray fine sandstone. (Calcareous)		Incl. lignite small patches. 32.3 to 32.85 m. Dark gray. 33.45 m. Slickenside with clay seen.		32.50		100	100				
	33.15									100	100				
	34.60									100	100				
	35.30					Patched siltstone to fine sandstone (dark gray)				100	100				
	36.15					White gray micaceous sandstone		36.10		100	100				
	37.25					Dark gray very fine sandst. Incl. slickenside in places. (Minor fault with clay)				100	100				
	38.15					White gray fine sandstone laminated.				100	100				
	39.90				Muddy Sandstone			Weakness 38.9 to 39.9 m; Greenish gray massive sandy mudstone micaceous.	38.90		100	100			
40.00						40.00		100	100						

HOLE NO. B81-4 (2)

LOG FORM-C

DRILL LOG

HOLE NO. B81-5 SHEET NO. 1 OF 2

PROJECT				SAPT GANDAKI PROJECT		DEPTH	50 M	ELEVATION	TONE: UD-5			
SITE		DAMSITE B; LEFT BANK		COORDINATE	DATE	INCLINATION	VERTICAL	DRILL RIG	LOGGED			
AVERAGE CORE RECOVERY		99.3%		FROM FEB.11 TO FEB.21		by NORBAHADUR		by KIDG & KUMAZAWA				
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION & BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R.Q.D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGENON VALUE	DEPTH	
FEB 11	1.00		Over burden		Talus deposit; brownish	86					1	
FEB 12	2.00		Decomposed Rocks		Pole brown to yellowish gray decomposed soft sandst.	D					2	
FEB 12	3.00											3
FEB 12	4.00											4
FEB 12	5.00											5
FEB 12	6.00						Yellowish gray very fine sandstone.					6
FEB 12	7.00						Pebbly					7
FEB 13	8.50		Massive Coarse Sandstone		White gray massive coarse sandstone.	9.00					8	
FEB 13	9.50				9.5 m; Includ. small pebbles; subangular	CL					9	
FEB 13	10.50				Long cores but rather soft.							10
FEB 13	12.10				12.1 to 12.4 m; Pebbles with siltstone patches.	12.50					12	
FEB 13	12.85				12.85 m; Includ. a pebble.						13	
FEB 13	13.10				Below 13.1 m; Indistinct lamination.						14	
FEB 13	13.90				Massive and long cores, but not hard.	CH					15	
FEB 13	14.00											16
FEB 13	19.35				19.35 to 19.5 m; Some greenish.						19	
FEB 13	20.40				Below 20.4 m; Includ. granule and small pebbles.	20.40					20	
FEB 15	21.50		Very Fine Sandstone and Siltstone		Dark gray and laminated.	CL					21	
FEB 15	22.50				21.7 to 22.55 m; Siltstone; 21.7 to 22.1 m; Blackish gray 22.1 to 22.25 m; Dirty gray 22.25 to 22.55 m; Greenish gray Well laminated.	21.50					22	
FEB 15	23.30		Fine Sandst.		23.3 to 23.45 m; Slaky.	CH					23	
FEB 15	24.70				Gray, massive and micaceous.							24
FEB 15	25.10		Medium Sandstone		White gray, massive and micaceous.	25.10					25	
FEB 15	26.35				25.2 to 26.35 m; Brownish and weak coarse sandst. 26.4 to 26.7 m; Cracky.	26.70					26	
FEB 15	27.30		Fine Sandstone		Below 27.3 m; Laminated.	CH					27	
FEB 15	28.60				Well laminated fine sandst. Below 28.6 m; Silty and includ. fossil leaves.							28
FEB 15	29.75				Slickensides along laminae common, bedding dips in 35°							29

LOG FORM-B

HOLE NO. B81-5

* R.Q.D. is Rock Quality Designation, R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 * LUGENON VALUE is 1 unit/m under injection water pressure of 10kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-5 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	H. Q. D.	WATER PRESSURE TEST		DEPTH
										LUGEON VALUE		
FEB 17	30.40		Mudstone		Greenish gray and massive	30.70		95		0		31
	32.30		Patched-like Breccia.		Greenish mudst. and pale brownish gray calcareous siltstone are patched each other; hard.							
FEB 17	34.30		Sandy Siltstone		Pale greenish gray calcareous, laminated and hard. 32.4 to 32.9 m; A vertical crack with calcite seam.	34.20 CH		100		10.78		33
	35.55		Mudstone		Greenish gray and massive, and slaky. Lower part; Includ. patches. Includ. green patches.							
FEB 18	38.50		Very Fine to Fine Sandstone		Below 36.6 m; Laminated. Includ. reddish and greenish thin bands.	35.00		100		0.89 Lu		37
	40.20		Fine Sandstone		Below 37.9 m; Dark gray siltst.							
FEB 19	41.30		Fine Sandstone		Upper; Massive and muddy Includ. black lignitic spots. Middle; Patched.	CH to B		100		1.14 Lu		43
	42.05		Fine Sandstone		Greenish gray and massive. Includ. small patches.							
FEB 20	44.05		Fine Sandstone		White gray, massive and micaceous. Pale brown siltstone patched. Cross laminated.	47.40		100		1.18 Lu		45
	45.30		Fine Sandstone		Silty and well laminated. Includ. fossil leaves.							
FEB 21	47.90		Mudstone		Dark gray massive and micaceous. Laminated.	48.60		100				47
	49.70		Sandstone		Calcareous, silty and well laminated.							
	50.00				47.9 m; Bedding slip fault with 2 cm-thick clay.							49
					Greenish gray and massive, with black lignitic fragments. Muddy fine sandstone with calcareous patches.							50
					White gray medium sandst.							

LOG FORM-C

HOLE NO. B81-5

DRILL LOG

HOLE NO. 881-6 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	36 M	ELEVATION	TONE/UD-5				
SITE		DAM SITE B; RIVERBED		COORDINATE		INCLINATION	VERTICAL	DRILL RIG					
AVERAGE CORE RECOVERY		34.4%		DATE	FROM FEB.20 TO MAR.26, '82	DRILLED	by M. KIDO BISHUNU		LOGGED by KUMAZAWA				
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER & GROUNDWATER LEVEL	CORE RECOVERY	MAX CORE LENGTH OF BOULDERS	WATER PRESSURE TEST LUCEON VALUE		DEPTH		
							%	cm	10	20	30	40	50
FEB 20	1				Above 7.6 m; Gravely (including boulders (schists, quartzites, meta-sandstones and granites).	101							
FEB 21	2					86							
FEB 22	3												
FEB 23	4												
FEB 24	5												
FEB 25	6												
FEB 26	7												
FEB 27	8												
FEB 28	9												
FEB 29	10												
MAR 1	11												
MAR 2	12												
MAR 3	13												
MAR 4	14												
MAR 5	15												
MAR 6	16												
MAR 7	17												
MAR 8	18												
MAR 9	19												
MAR 10	20												
MAR 11	21												
MAR 12	22												
MAR 13	23												
MAR 14	24												
MAR 15	25												
MAR 16	26												
MAR 17	27												
MAR 18	28												
MAR 19	29												
MAR 20	30												
MAR 21	31												
MAR 22	32												
MAR 23	33												
MAR 24	34												
MAR 25	35												
MAR 26	36												
MAR 27	37												
MAR 28	38												
MAR 29	39												
MAR 30	40												
MAR 31	41												
MAR 32	42												
MAR 33	43												
MAR 34	44												
MAR 35	45												
MAR 36	46												
MAR 37	47												
MAR 38	48												
MAR 39	49												
MAR 40	50												
MAR 41	51												
MAR 42	52												
MAR 43	53												
MAR 44	54												
MAR 45	55												
MAR 46	56												
MAR 47	57												
MAR 48	58												
MAR 49	59												
MAR 50	60												

LOC FORM-B

HOLE NO. 81-6

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUCEON VALUE is 1/min/cm under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter.
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-6 SHEET NO. 2 OF 2

PROJECT		SITE		COORDINATE		DEPTH		ELEVATION									
AVERAGE CORE RECOVERY		DATE		FROM	TO	INCLINATION	DRILLED	DRILL RIG	LOGGED								
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	MAX. CORE LENGTH OF BOULDERS	WATER PRESSURE TEST LUGEON VALUE				DEPTH			
								%	cm	10	20	30	40	50			
MAR 22	31		Riverbed Sand and Gravels		32.0 to 33.7 m; Sand and gravels; sand dominant.	86		40								31	
MAR 24	33				33.7 to 34.5 m; Micaceous sand layer.	83		10									33
MAR 25	35				34.5 to 36 m; Sand and gravels.	81.7		30									35
MAR 26	36.00							56 (D.BIT - Double)		50							

HOLE NO. B81-6

LOG FORM-5

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / Total core length x 100%
 #LUGEON VALUE is l/cm²m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-7 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	50 M.	ELEVATION	TONE UD-5				
SITE		DAM SITE C: LEFT BANK		COORDINATE	DATE	INCLINATION	VERTICAL	DRILL REC	by KIDO & KUMAZAWA				
AVERAGE CORE RECOVERY		98 %				FROM	FEB.23 TO MAR.3 '82		DRILLED	by KUMAL			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEON VALUE	DEPTH	
FEB 23	1		Overburden		Reddish brown soil; micaceous loam.		86 (M. S. Single)					1	
	2												2
	3												3
	4												4
	5					Pale brown colored and silty.							5
	6												6
	7												7
	8	9.60				7.5 to 8.6 m, Terrace gravel; includ. boulders.							8
	9		Decomposed Rocks		Yellowish gray to pale brown fine sandstone; micaceous.		66 (M. S. Single)					9	
	10	10.50											10
	11					Fractured and decomposed siltstone; brownish		D					11
	12	12.30											12
	13	13.40				Decomposed sandy mudstone							13
	14		Sandy Mudstone		Yellowish gray siltstone to very fine sandstone; fractured and decomposed.		66 (M. S. Single)					14	
	15	14.90											15
	16					Greenish gray and massive slaky and weak.		C _L					16
	17	16.90			Includ. black lignitic fragments						17		
	18	17.40	Sandstone		Gray, muddy and patched		66 (M. S. Single)					18	
	19	18.00	Siltst. & Sandst.		Laminated							19	
	20	18.50			Muddy and includ. brown spots							20	
	21	19.05	Sandstone		Gray, massive fine sandstone.		66 (M. S. Single)					21	
	22	19.45				Patched structure							22
	23	20.85	Fine Sandstone		Massive fine sandst.		66 (M. S. Single)					23	
	24	21.25				Calcareous brown patches.		C _H					24
	25	21.75				Massive, micaceous and muddy.							25
	26	22.70	Laminated Fine Sandst. and Siltst.		Gray and cross laminated		66 (M. S. Double)					26	
	27	23.00				Gray and well laminated							27
	28	23.75				Brown patched							28
	29	24.10				Micaceous and white gray sandstone patched							29
	30	25.90	Muddy Sandstone		Brown patched.		66 (M. S. Double)					30	
	31	26.80				Gray and well laminated 34.35 m; Brownish crack dip.60°							31
	32	28.50	Fine Sandstone		Laminare dip 20° to 30°; 25.80 to 26.90m; Bedding slip clay.		66 (M. S. Double)					32	
	33	29.40				Dark gray, massive and micaceous; slaky		C					33
	34		Siltstone		White gray, massive and micaceous; with patches.	B	66 (M. S. Double)					34	
	35					Includ. lignitic fragments.							35
	36		Siltstone		White gray and laminated		66 (M. S. Double)					36	
	37					Dark gray; with brown patches							37
	38				Muddy sandstone						38		

LOC FORM-B

HOLE NO. B81-7

* R.Q.D. is Rock Quality Designation, R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 * LUGEON VALUE is Units/m under injection water pressure of 10 kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-7 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		R. Q. D.	WATER PRESSURE TEST		DEPTH
									%	CM		LUGEON VALUE		
FEB 28	30.70		Sandstone		Brownish gray and massive	CH	66 (D.B. Double)		100	100				31
	31.10				Brown siltstone patches.				100	100				32
FEB 28	33.20		Muddy Sandstone		Brownish gray, massive and micaceous	100	100							33
					Brown and gray colored patches.	100	100							34
FEB 28	38.35		Medium to Coarse Sandstone		White gray and massive; micaceous sandst.	100	100							35
					33.3 to 33.6 m; A high dip crack (82°)	100	100							36
MAR 1	43.10		Siltstone Patched Layer		Massive and long cores.	100	100							37
					38.0 to 38.35 m; Medium grains and laminated.	100	100							38
MAR 1	46.60		Medium to Coarse Sandstone		(Bedding; 32° dip)	100	100							39
					39.8 m; Includ. a lignitic fragment.	100	100							40
MAR 2	50.00				40.0 m; Black lignite lamina in 3 min thick.	100	100							41
					Rock condition; Good	100	100							42
MAR 2	50.00				Gray to dark gray siltstone patched - like structure; subroundness to patched; like shape and mostly pebble size.	100	100							43
					Matrix; white gray micaceous coarse sandstone.	100	100							44
MAR 3	50.00				White gray, massive and micaceous.	100	100							45
					Bedding dips in 35°	100	100							46
MAR 3	50.00				48.7 to 49.0 m; Fine and laminated sandstone.	100	100							47
					Medium sandstone	100	100							48

HOLE NO. B81-7

LOC FORM-C

DRILL LOG

HOLE NO. B81-8 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	40M	ELEVATION				
SITE		DAM SITE A; RIGHT BANK		COORDINATE		INCLINATION	VERTICAL	DRILL RIG	TONE; UD-5			
AVERAGE CORE RECOVERY		99.7%		DATE	FROM NOV.13 TO NOV.22	DRILLED	by M. KIDO	LOGGED	by KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEON VALUE	DEPTH
	0.30		Top Soil		Dark brown.	0.30	86	4.5 m above (Spring from about 32 m. in depth)	30			1
	2.10		Weathered Fine Sandst.		Yellowish gray and patched.		66 (I.D.B.)	7.15 Nov.19 8:30 AM	70		1. Average Pressure (kg/cm ²)	1
	2.67			Laminated and cracky.		00			2. Coefficient of Flow (litre per cm)	2		
	3.60			Yellowish gray and massive.		00			3. Maximum Core Length (RQD)	3		
	4.75			Gray and massive; calcareous and hard. Cracks are rust-colored.		00				4		
	5.20			Laminated Silty. Includ. fossil leaves along laminae.		00				5		
	5.85		Mudstone		Greenish and weak. 6.15 to 6.8 m; Fractured. Patched.	6.50		6				
	6.60		Fine Sandstone		Gray and well laminated.			7				
	7.30			7.73 m; slip fault clay; 2cm. thick.		00		8				
	8.50		Siltstone		Dark gray and laminated.	9.00		9				
	9.00		Fine Sandstone		Gray, massive and very fine. Includ. some siltstone patches.			10				
	9.97			Laminated.		00		11				
	10.50		Siltstone & Fine Sandst.		Calcareous			12				
	10.65			Dark gray and laminated.		00		13				
	11.38		Fine Sandstone		Gray and massive.			14				
	11.78			Laminated. 13.2 to 13.3 m; Crack with folding laminae. 13.4 to 13.6 m; Rather weak; with slickensides.		00		15				
	13.76		Fine Sandst.		White gray and massive.			16				
	14.27			14.3 to 14.75 m; Indistinct laminae. 15.3 m; Includ. pebbles. Micaceous. Including pebbles.		00		17				
	16.88		Mudstone		Greenish, sandy and massive. Includ. lignitic small fragments	16.70		18				
	17.76			Gray and calcareous siltstone patched.		00		19				
	19.40		Fine Sandstone		White gray and laminated. Laminae dip in high angle of 70°. 21.1 m; Fault clay 2 cm-thick. 21.32 to 21.45 m; Fractured.			20				
	21.45			Gray and massive; with lignitic small fragments.		00		21				
	22.65		Medium to Fine Sandstone		Bedding slip with clay seam of 2 mm thick.			22				
	25.60			White gray and massive.		00		23				
	26.20		Pebble Conglo.		Includ. siltstone patches.			24				
	28.20			White gray, massive and micaceous. Some laminated and including some small siltstone pebbles.		00		25				
	28.30		Mudstone		28.3 to 28.4 m; Fractured. Dark gray.			26				
	28.68			Calcareous silt patched.		00		27				
	29.20		Siltstone		Dark gray and patched; Calcareous and very hard.			28				
						00		29				

LOG FORM-B

HOLE NO. B81-8

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is 1/min/cm under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-8 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		R. Q. D	WATER PRESSURE TEST		DEPTH
									%	cm		LUGRON VALUE		
NOV. 20	30.15		Calcareous Siltstone	[Symbol]	Laminae dip in 42°	CH	56 (I. D. B. Double)		100	100		20.4 u	0	30.15
	30.45	Patched.			100				100	30.45				
NOV. 21	31.50		Fine to Med. Sandstone	[Symbol]	Dark gray calcareous shale, 32.3 to 32.6 m; Patched.				100	100		2.7 u	0	31.50
	32.60	White gray and micaceous.			100				100	32.60				
NOV. 21	33.58		Siltstone and Fine Sandst.	[Symbol]	Well laminated.				100	100			0	33.58
	35.75	Includ. some fossile leaves along laminae.			100				100	35.75				
NOV. 22	37.60		Mudstone	[Symbol]	White gray and laminated.				100	100			0	37.60
	38.65	Fossile leaves blackish laminae.			100				100	38.65				
NOV. 22	4000				Some greenish and massive. Cracks developed by slaking.				100	100			0	4000
					Gray calcareous siltstone patched.				100	100			0	
					38.65 to 39.35 m; Breccia-like.				100	100			0	

LOG FORM-C

HOLE NO. B81-8

DRILL LOG

HOLE NO.881-9 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT			DEPTH	40 M	ELEVATION									
SITE		DAM SITE A; LEFT BANK		COORDINATE	INCLINATION	VERTICAL	DRILL RIG	TONE UD-5								
AVERAGE CORE RECOVERY		80.4 %		DATE	FROM Oct. 23 TO Nov. 3		DRILLED	LOGGED								
						by M. KIDO		by KUMAZAWA								
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAXCORE	WATER PRESSURE TEST LUCEON VALUE					DEPTH
									cm	50 cm						
Oct. 23	1		Terrace Deposit		Terrace deposit; gravelly. Including boulders of quartzites and granites.	CH	100	5.30	60		Maximum core length of boulders					1
	2	1.4 to 1.8 m: Cemented Conglomerate.			Applied Pressure (kg/cm ²)				2							
	3	Gravels with brownish sandy soil.			Core of Flow of Flow (Lugeon per m)				3							
Oct. 24	4		Massive Sandstone		White gray massive and micaceous medium sandst. 10.15 to 11.3 m; medium to fine sandst. with indistinct laminae dipping in 54°.	CH	66	5		Maximum core length of the section of one meter R.Q.D.					4	
	5	10.65 m; includ. a pebble 11.3 to 14.65 m; Medium to coarse			7.4 Lu			5								
	6							6								
	7							7								
	8							8								
	9							9								
	10							10								
	11							11								
	12							12								
	13							13								
Oct. 25	14	9.10	Pebble Conglomerate		16 to 16.8 m. Includ. cobbles.	CH	66	10							14	
	15	14.65			16.8 to 17.8 m; Pebbles and granules			4.7 Lu	15							
Oct. 26	16		Mudstone		Greenish gray sandy mudst.; faton cracks common and weak.	CH	66	10							16	
	17				19.2 to 20.8 m; White gray fine sandst.; massive and some soft.				17							
	18				20.8 to 24.3 m; Micaceous medium sandst.; laminated				18							
Oct. 27	19		Sandstone		Lamina dips in 36°	CH	66	10							19	
	20				24.3 to 25.3 m; Coarse sandstone; not soft.			5.9 Lu	20							
	21								21							
	22								22							
Oct. 31	23		Siltstone		Dark gray, some hard and being slip along laminae.	CH	66	10							23	
	24				Greenish gray, massive, muddy and micaceous				24							
	25				White gray, massive micaceous and muddy medium sandstone with patched str.				25							
	26				Dirty gray and sandy				26							
	27				Upper; white gray massive micaceous fine sandst. Lower; gray, patched and very fine; some brownish patches				27							
	28				28											
	29				29											
	30				30											

LOG FORM-B

HOLE NO.881-9

* R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length x 100).
 * LUCEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

DRILL LOG

HOLE NO.881-9 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D	WATER PRESSURE TEST		DEPTH
										LUGEON VALUE		
Nov. 1	30.90		Mudstone		Greenish and weak Includ. brown silt patches	C _M						30.90
	32.40		Sandstone		Brownish dirty gray muddy fine sandstone; massive Patched str. in lower part.							32.40
	33.05		Siltstone		Dark gray, brown patched and hard. (Sheared along bed; 1 to 2 cm th.)							33.05
Nov. 2	34.70		Sandstone		Upper 10 cm; greenish mudstone. Gray fine sandstone with white gray patches.	C _M to C _H						34.70
	35.90		Siltstone		Dark gray, calcareous and laminated. Slicker sides along laminae. (Sheared along bed, 3 cm th.)							35.90
	36.50		Mudstone		Dark gray and shaly							36.50
	39.40		Sandstone		White gray to gray, well laminated. fine to very fine sandstone Micaceous and cross laminating.							39.40
Nov. 3	40.00		Sandstone		Top; Blackish gray mudstone; 1 cm. Greenish gray massive muddy sandst. 39.8 to 40 m; Inc. lignitic fragments.							40.00

LOG FORM-C

HOLE NO. 881-9

DRILL LOG

HOLE NO. B81-10 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	40 M	ELEVATION													
SITE		DAMSITE A; LEFT BANK		COORDINATE			INCLINATION	VERTICAL	DRILL RIG	KOKEN OE-2L											
AVERAGE CORE RECOVERY		48.1%		DATE	FROM NOV.4	TO DEC.27	DRILLED	by M. KIDO	LOGGED	by KUMAZAWA											
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		R. Q. D. & MAX. CORE L.		WATER PRESSURE TEST LUGEON VALUE					DEPTH			
									%	cm	50	cm	10	10	10	10	10		10		
	1.20		Red Soil		Reddish brown soil.																
			(Sandy Soil)		A Gr. cobble & a Qtz boulder. Sandy soil with rock fragments and micaceous.																
						Includ. decomposed rock fragments.															
	8.30		(Sandy)		Includ. Boulders. (Qtz.)																
						Brownish gray colored and micaceous.															
	15.0		Terrace Deposits (Gravels)		Pebbles, cobbles and boulders.																
	18.0		(Sandy to Pebbly)		Granules and pebbles.																
	29.0				Silty.																

LOG FORM-B

HOLE NO. B81-10

*R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

(Dec.27)
30.00

DRILL LOG

HOLE NO. 881-10 SHEET NO. 2 OF 2

ATTACHMENT-II.25

PROJECT						DEPTH	ELEVATION										
SITE		COORDINATE				INCLINATION	DRILL RIG										
AVERAGE CORE RECOVERY	DATE	FROM	TO	DRILLED	LOGGED												
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION & BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R.Q.D. & MAX. CORE L.	WATER PRESSURE TEST		DEPTH					
								%	50 cm	LUGEON VALUE							
31			Terrace Deposits (Silty) (Gravelly)		Many cobbles.	C1 86 mm dia.		60					31				
32	32.0											60				32	
33												60					33
34												60					34
35												50					35
36					Cobbles and boulders.			20				36					
37								50				37					
38	37.60		Siltstone and Fine Sandst.		Dark gray well laminated siltstone and fine sandstone	C1		10				38					
39	38.70		Micaceous Sandstone		White gray micaceous massive sandstone.	C1		100				39					
40	40.00				38.7 to 39.4 m: fine to medium. 39.4 to 40.0 m: medium to coarse.			100				40					

LOC FORM-B

HOLE NO. 881-10

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm) / Total core length x 100%
 *LUGEON VALUE is l/min/in under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-11 SHEET NO. 1 OF 1

PROJECT				SAPT GANDAKI PROJECT				DEPTH	30.6 M		ELEVATION		
SITE		DAMSITE B; RIVERBED		COORDINATE				INCLINATION	VERTICAL		DRILL RIG	KOKENOE-2L	
AVERAGE CORE RECOVERY		33.4%		DATE	FROM JAN.10 TO MAR.3			DRILLED	by BISHUNU		LOGGED	by KIDO & KUMAZAWA	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST LUCEON VALUE		DEPTH
											10 20 30 40 50		
JAN.10	0				0 to 30.2 m; Riverbed deposits; sand and gravels.		100 Casing	River water Level; 2 m above the sur- face of gravel.	30				1
JAN.12	0				0 to 2.0 m; Gravelly; including quartzite and granite boulders.		86 Casing		40				2
JAN.13	3.3				3.3 to 3.7 m; Sandy				15				3
JAN.16	20		Riverbed Deposits (Gravel)						20				4
JAN.17	30								30				5
JAN.19	35								5				6
JAN.24	20								20				7
JAN.24	15				Sand and gravels.				15				8
JAN.24	20								20				9
JAN.24	40								40				10
JAN.24	30								30				11
JAN.24	20								20				12
JAN.24	25								25				13
JAN.24	3								3				14
FEB.3	25								25				15
FEB.4	15								15				16
FEB.4	15								15				17
FEB.7	5								5				18
FEB.7	10								10				19
FEB.8	20								20				20
FEB.9	60		Riverbed Deposits (Gravel)		19.5 to 27.1 m; Gravelly. Quartzite, sandstone and granite boulders are commonly contained.		65 (D.B. Double)		60				21
FEB.11	70								70				22
FEB.12	70								70				23
FEB.13	70								70				24
FEB.13	60								60				25
FEB.15	27.1				27.1 to 27.5 m; Sand layer.				27.1				26
FEB.15	27.5				27.5 to 30.2 m; Sand and gravels.				27.5				27
FEB.15	30								30				28
FEB.15	30								30				29
FEB.15	30		Fine Sandst.		White gray, micaceous and calcareous.	C1	55		30				30
FEB.15	30								30				31

LOG FORM-B

HOLE NO. B81-11

* R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 # LUCEON VALUE is 1/2 in under injection water pressure of 10 kg/cm²
 # DEPTH and ELEVATION are in meter
 # DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-12 SHEET NO. 1 OF 2

ATTACHMENT-II.27

PROJECT		SAPT GANDAKI PROJECT				DEPTH	50 M	ELEVATION				
SITE		DAM SITE B; LEFT BANK		COORDINATE		INCLINATION	VERTICAL	DRILL RIG	TONE UD-5			
AVERAGE CORE RECOVERY		99 %				DATE	FROM JAN. 12 TO JAN. 26	DRILLED by	LOGGED by			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. MAX. CORE LENGTH	WATER PRESSURE TEST LUGEON VALUE	DEPTH
Jan. 12	1		(Top Soil)		Yellowish brown, micaceous and sandy talus deposits.	99	84					1
	2.20				Grayish color silt, sand and gravels. (Sandy)							2
					3.8 m; Granite boulder							3
					5.6 m; Quartzite boulder							4
					7.3 m; Mica Oz schist boulder.							5
Jan. 12	7.30		Terrace Deposits		(Gravelly)		66 (M.B. Single)	4.50				6
					9.5 to 10.2 m; Boulders.							7
					10.2 to 11.8 m; White grayish and silty.							8
					11.8 to 13.9 m; Pebbles, cobbles and boulders. (roundness). Matrix; dirty grayish and muddy.							9
Jan. 12	13.90		Sandstone		Laminated fine sandstone	CL						10
	14.00				Dark gray calcareous siltst.							11
	14.70		Siltstone		14.0 to 14.7 m; Laminated.	15.50						12
	15.30				14.7 to 15.3 m; Massive and muddy; not calcareous.							13
	16.50				15.3 to 16.5 m; Lamination with patchy structure.							14
Jan. 17	17.75		Sandstone		Greenish gray muddy micaceous sandstone; massive and not hard.	CM						15
					White gray micaceous medium sandstone; massive and some weak.							16
Jan. 17	21.15				21.15 to 21.4 m; Greenish gray muddy sandstone; micaceous and including white gray sandstone patches. Some brownish (weathered).	21.10						17
	21.40				21.4 to 24.7 m; White gray medium to coarse sandst; massive and patched.							18
Jan. 18	24.70		Sandstone		24.7 to 27.8 m; White gray fine to medium sandstone; micaceous and laminated.	CH						19
					Laminae dip 45°.							20
					Long cores.							21
Jan. 19	27.80		Laminated Fine Sandst. and Siltst.		Laminated fine sandst. and siltst. with patched str. Stained brown	29.60						22
						29.90						23

LOG FORM-B

HOLE NO. B81-12

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter.
 *DIAMETER is in millimeter.

DRILL LOG

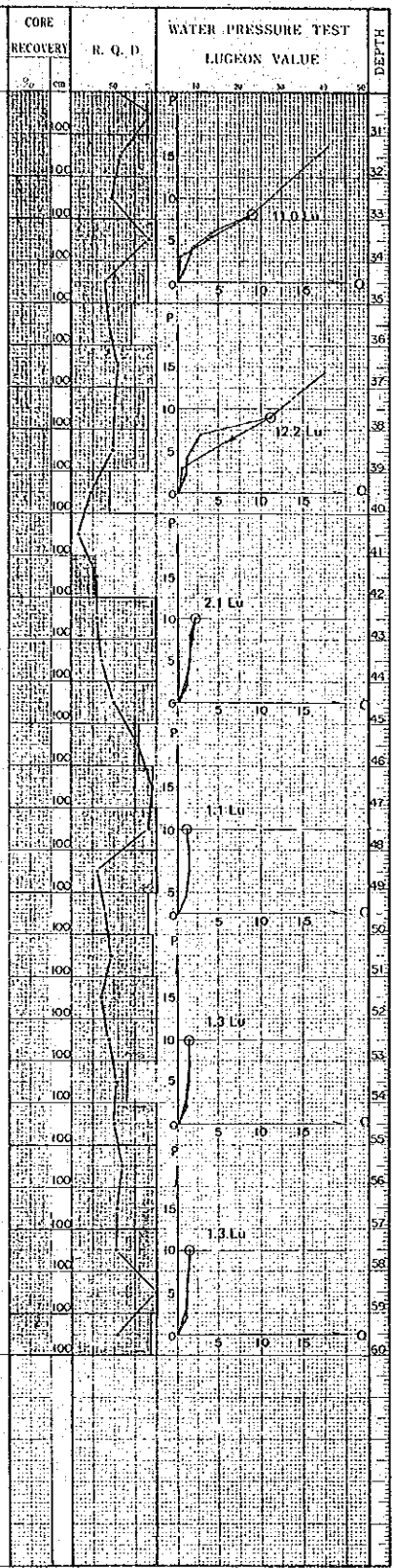
HOLE NO. B81-12 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICAT. BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D.	WATER PRESSURE TEST		DEPTH
										LUGEON VALUE		
Jan 20	31.10		Brownish Sandstone		Massive micaceous sandst.; stained brown with weathering. Upper part: fine and mucky. Bottom: coarse	CM		100				31
	33.10				Brownish gray (weathered) muddy fine sandstone 34 to 34.4 m; patched str. (limy) Medium sandst.			100			32	
Jan 21	35.20		Sandstone (calcareous)		White gray massive medium sandstone	CH		100				33
	37.85				Some laminated Calcareous			100			34	
Jan 22	39.20		Laminated Siltstone		Dark gray well laminated calcareous siltstone and very fine sandstone; Slickensides with clay seams along laminae are common	CL		100				35
	42.00				Greenish gray sandy mudst.; massive and micaceous.			100			36	
Jan 23	43.25		Mudstone		White gray medium to coarse sandstone;	CH		100				37
	49.60				Massive and long cores taken. Some laminated.			100			38	
Jan 24	51.80		Mudstone		Dark gray mudstone; massive	CH		100				39
	52.80				Gray calcareous siltstone with patched str			100			40	
Jan 25	54.75		Sandstone & Siltstone Alternation		Thin alternation of white gray sandst. and dark gray calcareous silts. Well laminated	CH		100				41
	55.55				Dark gray mudstone with gray siltstone patches Includ. black lignite small fragments			100			42	
Jan 26	56.80		Mudstone		Greenish gray sandy mudst. White gray sandst. patches. Muddy micaceous sandst.	CH		100				43
	58.10				White gray massive micaceous medium sandstone; with some greenish patches Long cores; some good			100			44	
Jan 26	60.00		Sandstone					100				45

66 (D. B. Double)

LOG FORM-C

HOLE NO. B81-12



DRILL LOG

PROJECT: SAPT GANDAKI PROJECT
 HOLE NO. B81-13 SHEET NO. 1 OF 2

ATTACHMENT-IT.29

PROJECT		SAPT GANDAKI PROJECT				DEPTH	50 M	ELEVATION	KOKEN, OE-2L				
SITE		DAM SITE B; RIVERBED		COORDINATE	DATE	INCLINATION	VERTICAL	DRILL RIG	BY KIDO & KUMAZAWA				
AVERAGE CORE RECOVERY		71.7%				DATE	DRILLED	LOGGED					
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GRIND NUMBER	LEVEL	CORE RECOVERY	R. Q. D & MAX. CORE L	WATER PRESSURE TEST	DEPTH
										%	cm	LUGEON VALUE	
MAR 28	0				Above 1.5 m; Sandy; micaceous coarse sand.				River Water Level; 5.9 m above the surface of sand & gravel.			P. Applied Pressure (kg/cm ²)	1
	1.5				1.5 to 4.0 m; Sand and gravels.		101					Q. Obs'd Rate of Flow (cm ³ /m ² /1 m)	2
	3						63						3
	4												4
	5		Riverbed Sand and Gravels		Below 4.0 m; Gravely; including boulders (quartzites, meta-sandst. schists and granites) commonly.							Maximum Core Length of Boulders (cm) above 16.5 m in depth.	5
	6												6
	7												7
	8												8
	9												9
	10												10
	11												11
	12												12
	13												13
	14												14
	15												15
	16												16
	16.30												16
	17		Coarse Sandstone		White gray and patched. Including pebbles and soft rock patches.		17.30					Maximum Core Length (cm)	17
	18											R. Q. D. (%)	18
	18.80												19
	20		Fine Sandst.		Boundary dips in 5 to 10°.								20
	20.65				Dark gray and massive with patches.								21
	21.60		Sandst. & Siltst.		Dark gray, laminated and patched.								22
	22.20		Muddy Sandst.		Dark gray and massive.								23
	23.15		Fine Sandst.		Gray and massive.	CH							24
	24				White gray and massive.								25
	25		Medium Sandstone		Cores are long and rather good condition.								26
	26				Bedding slip with clay seam.								27
	26.40												28
	27		Fine Sandst.		26.4 to 27.1 m; Massive								29
	27.48				27.1 to 27.35 m; Laminated.								30
	28		Muddy Sandst.		27.35 to 27.48 m; Fractured.								31
	28.03				Greenish gray and massive.								32
	29				Patched and/or well laminated.								33
	30		Fine Sandst.		28.03 to 29.25 m; Some greenish and patched.								34

LOG FORM-B

HOLE NO. B81-13

* R.Q.D. is Rock Quality Designation. R.Q.D. = Total length of cylindrical cores longer than 10 cm / Total core length x 100.
 * LUGEON VALUE is 1 min/in under injection water pressure of 10 kg/cm².
 * DEPTH and ELEVATION are in meter.
 * DIAMETER is in millimeter.

DRILL LOG

ATTACHMENT-II, 30

HOLE NO. B81-13 SHEET NO. 2 OF 2

PROJECT		DEPTH		ELEVATION														
SITE		EXPLANATION		DRILL RIG														
AVERAGE CORE RECOVERY		DATE		LOGGED														
DATE		FROM		TO														
DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D.	WATER PRESSURE TEST LUCEON VALUE					DEPTH			
								%		10	15	20	25	30	35	40	45	
31.40		Fine Sandst.		Laminae dip in 30°.				100										31.40
31.85		Fine Sandst.		Dark gray and muddy.				100										31.85
33.24		Medium Sandstone		White gray, massive and micaceous.				100										33.24
34.38		Silt & Sandst.		Well laminated.				100										34.38
35.10		Muddy Sandstone		Greenish gray and massive.				100										35.10
35.90				White gray, massive and micaceous.				100										35.90
36.2				36.2 to 37.5 m; Soft and weak.				80										36.2
37.50								100										37.50
38.57				38.57 m; Including a quartzite cobble.				100										38.57
42.95		Coarse Sandstone		Cores are massive and long; but not so hard.				95										42.95
43.15				42.95 to 43.15 m; Including soft rock patches and granules.				100										43.15
46.0				Pebbles and granules are scattered.				100										46.0
49.65								100										49.65
50.00		Mudstone		Dark gray and massive				100										50.00

LOC FORM-B

HOLE NO. B81-13

*R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUCEON VALUE is 1/16in under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-14 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT			DEPTH	50 M	ELEVATION						
SITE		DAM SITE C; LEFT BANK		COORDINATE			INCLINATION	VERTICAL	DRILL RIG	KOKEN OE-2L			
AVERAGE CORE RECOVERY		100%			DATE	FROM DEC. 28 TO JAN. 4		DRILLED	by M. KIDO	LOGGED	by KUMAZAWA		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER (M.B.)	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST LUGEON VALUE	DEPTH	
									%	cm	10 20 30 40 50		
DEC. 28	1.20		Overburden		Dark brown top soil.		86						
					Pole brown silt and sand.								
	2.70				Pole brownish and weathered.								
DEC. 28	3.40		Coarse Sandstone	C1H	White gray and massive medium to coarse sandst.		66	v. 12.00 Jan. 2 8:30 AM	100				
	3.4 to 3.6 m; Includ. patched-like soft pebbles.												
	3.5 to 3.8 m; Some laminated.												
	Long and good cores.												
	7.0 to 7.5 m; Includ. granules and pebbles; mainly soft rocks.												
	Indistinct lamination.												
	8.2 to 9.4 m; Including some patched-like siltstone granules.												
11.80		Fine Sandstone	B	(Unconformable) Greenish dark gray and muddy.									
12.80				Includ. lignitic small fragments.									
14.20				Massive and micaceous.									
15.50				13.55 m; A brown colored crack.									
DEC. 29	16.30		Medium Sandstone	B	Siltstone patched.								
					Long and hard cores.								
					Massive and hard. Some patched.								
	17.45				17.45 to 17.9 m; Gray fine sandstone with some patches.								
					White gray massive and micaceous sandstone.								
					Medium to coarse sandst.								
					Bottom; Patched-like greenish siltstone pebbles.								
					Pale green and massive.								
DEC. 30	23.30		Fine Sandstone	B	Pale green and patched.								
	24.28				Lower; Calcareous and hard.								
	24.92				Patched-like breccia.								
	25.75				White gray and laminated.								
DEC. 30	26.70		Calcareous Siltstone		Gray and hard; (Shaly). Bottom; Includ. fossile leaves.								
	27.45		Sandstone	C1M	Includ. siltstone patches. Gray and massive medium sandst.								
					Greenish and muddy sandstone. massive.								
					Weak and slaky.								

HOLE NO. B81-14

LOG FORM-B

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindric cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is l/min/in² under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-14 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		R. Q. D & MAX. CORE L.	WATER PRESSURE TEST					DEPTH	
									%	cm		1	2	3	4	5		
DEC. 31	30.70		Medium Sandstone	[Symbol]	White gray and massive. Laminated.	C ₁₁	66	[Symbol]	100	0	0.02 Lu	[Grid]					30.70	
	31.20				White gray, massive and micaceous. 31.67 m; Includ. a green siltstone patch. 32.15 to 32.73 m; Pale greenish and some laminated. 33.55 to 33.8 m; Pebbles and small cobbles. Coarse to very coarse.				100	0		0.02 Lu	[Grid]					31.20
JAN. 1			Coarse Sandstone	[Symbol]	36.8 to 37.7 m; Laminated. Long cores; not so hard.	C ₁₁	66	[Symbol]	100	0	0.0 Lu	[Grid]					36.80	
	39.6				39.6 m } Include pebbles. 39.8 m }				100	0		0.0 Lu	[Grid]					39.60
	41.88				Includ. granules.				100	0		0.0 Lu	[Grid]					41.88
JAN. 2	42.40				Mudstone				[Symbol]	Dark gray and some weak. Laminated and including lignitic fragments.		C ₁₁	66	[Symbol]	100	0	0.02 Lu	[Grid]
	44.25		Very Fine Sandstone	[Symbol]	44.05 to 44.25 m; Reddish brown. Calcareous and some hard.	C ₁₁	66	[Symbol]	100	0	0.0 Lu	[Grid]					44.25	
	45.50				Brownish siltst. patched & laminated.				100	0		0.0 Lu	[Grid]					45.50
	46.40		Fine Sandstone	[Symbol]	Brownish dark gray. Dark gray and laminated.	C ₁₁	66	[Symbol]	100	0	0.0 Lu	[Grid]					46.40	
	46.90				Very fine sandst.				100	0		0.0 Lu	[Grid]					46.90
JAN. 3	47.60		Fine to Very Fine Sandstone	[Symbol]	Massive and patched. Pale brownish gray and patched.	C _M	66	[Symbol]	100	0	0.0 Lu	[Grid]					47.60	
JAN. 4	50.00				Massive and some weak. Minor fault clays; 48.7 m: 1 to 2 cm thick. 49.9 m: 1 cm thick.				100	0		0.0 Lu	[Grid]					50.00

LOG FORM-C

HOLE NO. B81-14