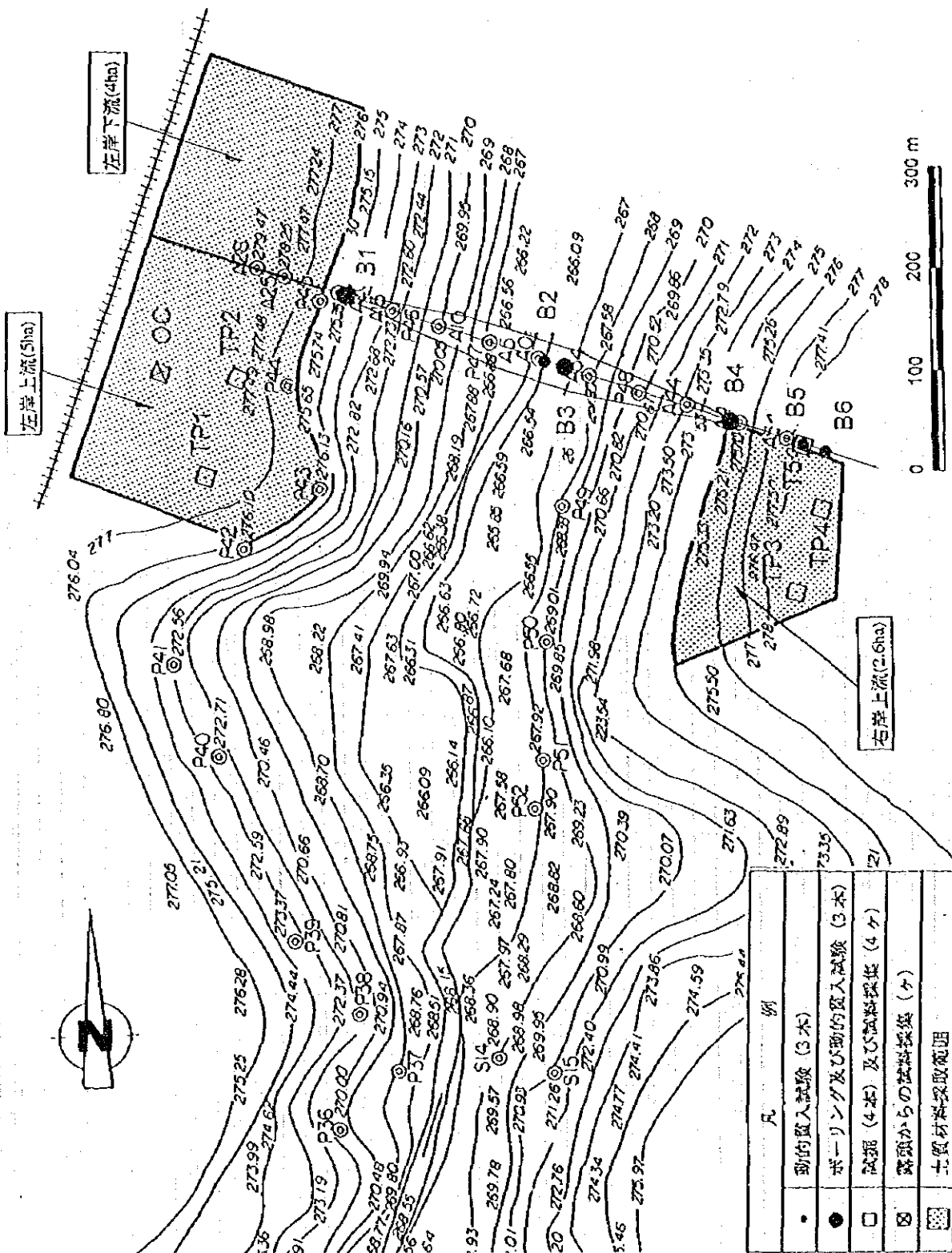


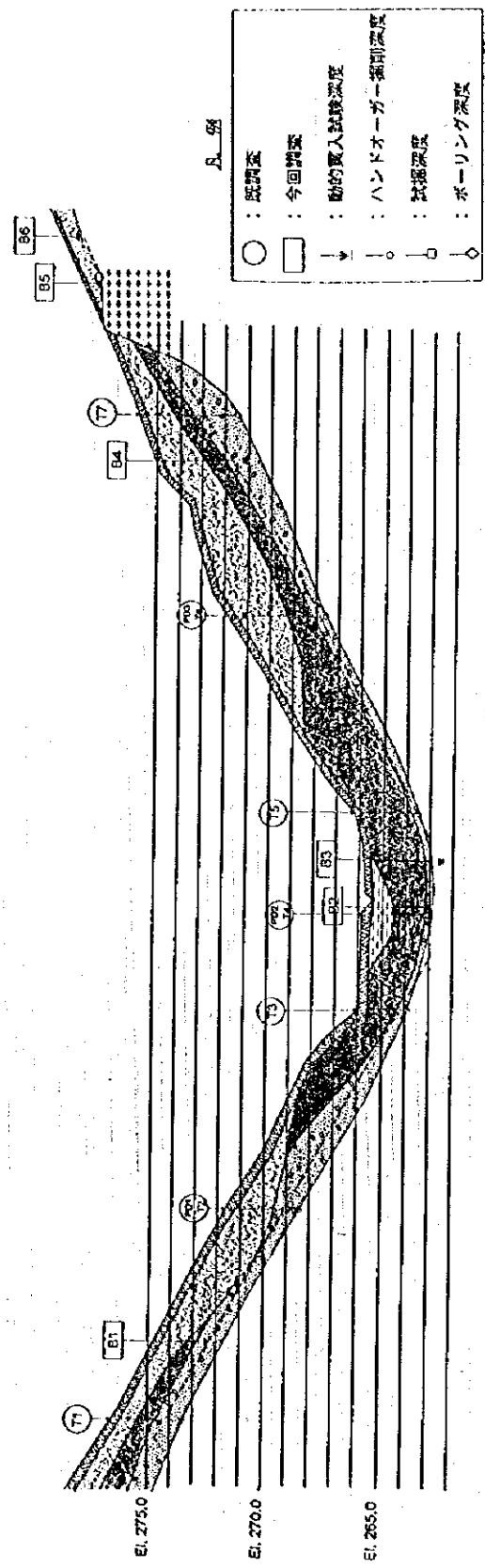
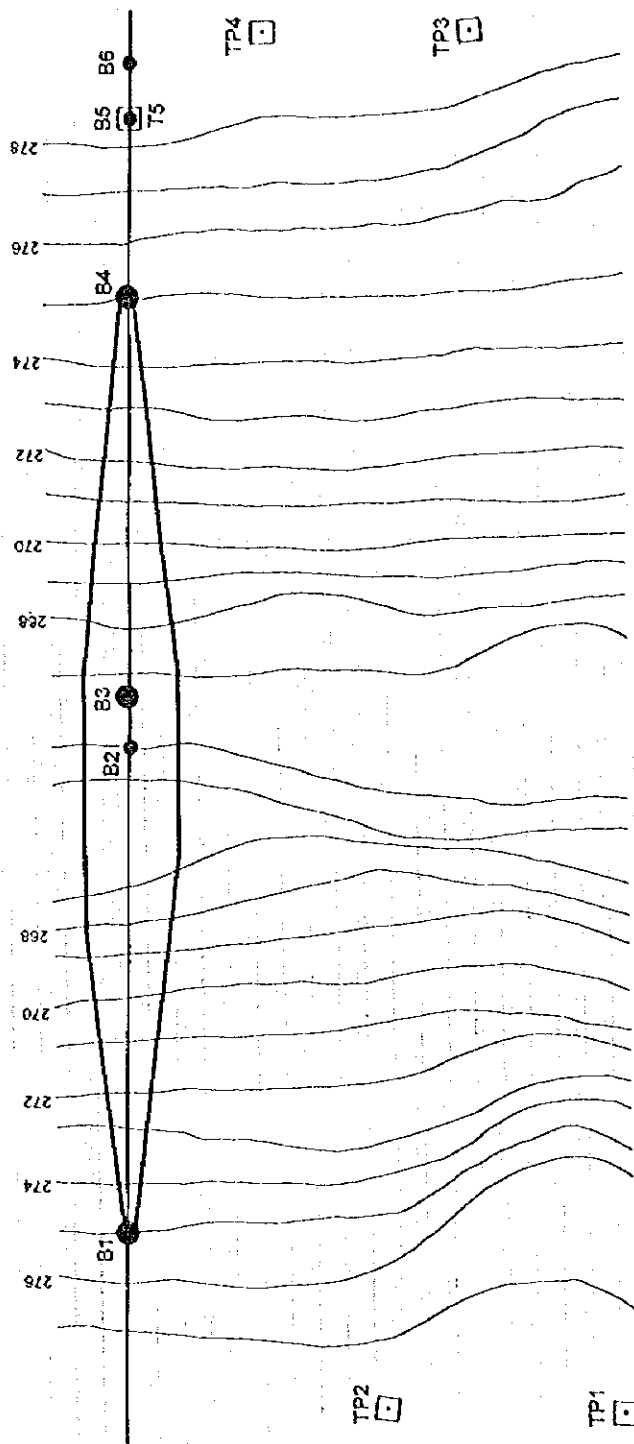
## B. 地質關係資料



B-1. ダムサイト地質調査位置図



B-2. ダム軸地質調査図



B-3. ダムサイト基盤、築堤材料の調査試験結果総括表

① ダムサイト、基盤の調査試験結果

項目	調査地点		ダム軸		ダム軸		備 考
	左岸袖部 T2	左岸袖部 T6	左岸袖部 B4	底 部 T4	底 部 T4		
調査深度 (m)	1.90~2.30	3.70~4.00	3.50	0.20~1.25	1.25~2.65		
地質区分	粘土質砂	変質粘土	粘性粘土	粘 土	粘土混り砂		
土質分類	SM	CH		CL	SM		
コンシ L.L. (%)	59	69		46	23		
	L.P. (%)	24	32		20	13	
コンシ I.P.	35	37		26	10		
細 粒 分 (%)	41	79		64	32		
含 水 比 (%)	17	34		26	20		
現場透水係数 (cm/s)			1.7×10 <sup>-4</sup>		4.2×10 <sup>-4</sup>		注水法による
圧密	圧縮係数 Cc	0.161	0.251				
	透水係数 K(cm/s)	1.3×10 <sup>-4</sup>	1.5×10 <sup>-4</sup>				
三軸	摩擦角 φ (°)	39	15				
	粘着力 (kgf/cm <sup>2</sup> )	0.44	0.70				

② 土取場、土質材料の調査試験結果

項目	調査地点		左 岸		右 岸		備 考	
	左 岸 土取場 TP2	左 岸 土取場 TP2	左 岸 露 頭	左 岸 露 頭	右 岸 土取場 TP3	右 岸 土取場 TP3		
調査深度 (m)	0.50~1.55	1.55~3.40	0.40~1.60	1.90~2.30	0.80~2.20	2.20~4.30		
地質区分	ラテライト 粘 土	レキ混り 粘 土	ラテライト 粘 土	粘 土	ラテライト レキ混り粘土	風化岩		
土質分類	GC	SC	CL	SC	GC	SC		
コンシ L.L. (%)	41	57	48	64	42	49		
	L.P. (%)	9	26	27	27	21	25	
コンシ I.P.	32	31	21	37	21	24		
細 粒 分 (%)	20	42	51	49	22	34		
含 水 比 (%)	10.3	13.0	15.8	18.6	9.4	11.4		
有機物含有量 (%)	0.36	0.16	0.19	0.10	0.19	0.02	炭素量による。	
突固 め	最大乾燥密度 (t/m <sup>3</sup> )	2.17	1.98	1.88	1.91	2.10	2.01	プロクター突固めに
	最適含水比 (%)	7.5	10.0	14.7	14.3	8.5	10.3	よる95%最大乾燥密 度の平均値は1.90t/m <sup>3</sup>
圧密	圧縮係数 Cc							
	透水係数 K(cm/s)	1.2×10 <sup>-4</sup> ~0.6×10 <sup>-4</sup>	1.8×10 <sup>-4</sup> ~1.7×10 <sup>-4</sup>	1.3×10 <sup>-4</sup> ~0.5×10 <sup>-4</sup>	7.5×10 <sup>-5</sup> ~1.9×10 <sup>-5</sup>	1.8×10 <sup>-4</sup> ~0.4×10 <sup>-4</sup>	3.5×10 <sup>-4</sup> ~0.9×10 <sup>-4</sup>	圧密試験 (縦荷重0.5,1.2 bar) からのK値による。
三軸 (CD)	摩擦角 φ (°)	25			30		30	圧密時間は
	粘着力 (kgf/cm <sup>2</sup> )	0.20			0.10		0.10	48時間~5日間

③ 河床~採石場、破碎砂~砂利の調査試験結果

項目	調査地点			備 考
	河 床 (ブアケ西 方約16km)	採石場 (ブアケ西 方約16km)	採石場 (ブアケ西 方約15km)	
材 料	河床砂	破碎砂	破碎砂利	砕石の母岩は花崗岩質片麻岩で、新鮮・堅硬であって割れ目がほとんどなく、比重は2.66 t/m <sup>3</sup> 以上、一軸圧縮強度は1,000kgf/cm <sup>2</sup> 以上あるので、強度、耐久性とも十分であり、砂れき~ロック材料として極めて良好である。
比重 (t/m <sup>3</sup> )	2.66	2.66	2.68	
見掛け密度 (t/m <sup>3</sup> )	1.43	1.56	1.42	
含水量 (%)	3.1	3.5		
分 類	SM	GM	GP	

B-4. 各種地質調査結果

ダム軸地質調査結果 (B1)

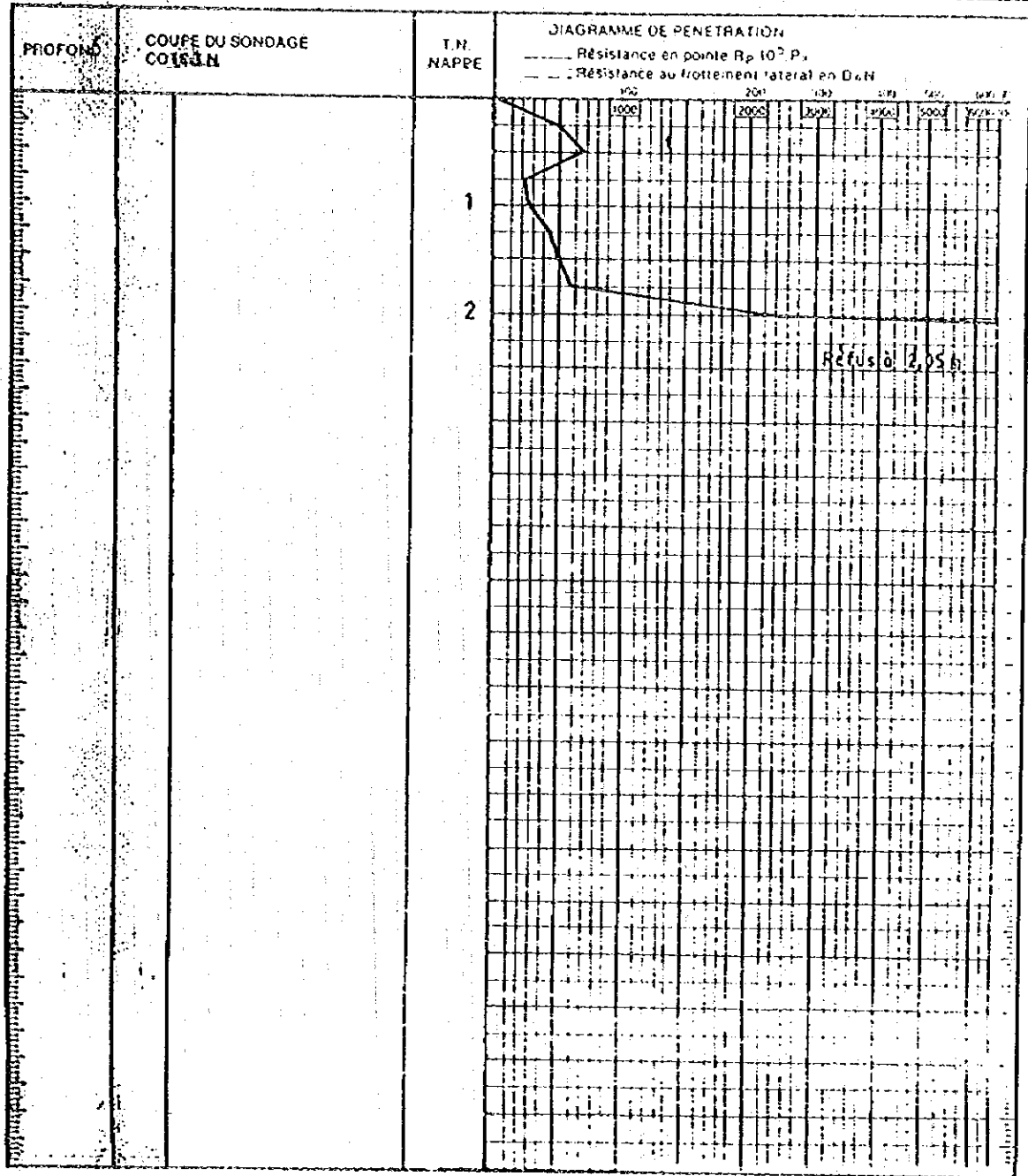
CHANTIER: BARRAGE LOKAPLI (BOUAKE)

N° DOSSIER:

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

B1

TYPE DE SONDAGE: DYNAMIQUE LEGER <input type="checkbox"/> PENETROMETRE: DYNAMIQUE LOURD <input checked="" type="checkbox"/> STATIQUE <input type="checkbox"/> COTE DU TERRAIN: PROFONDEUR DE LA NAPPE: MISE EN STATION SUR:	ESSAI N° PD B1 Rive gauche
--	-------------------------------



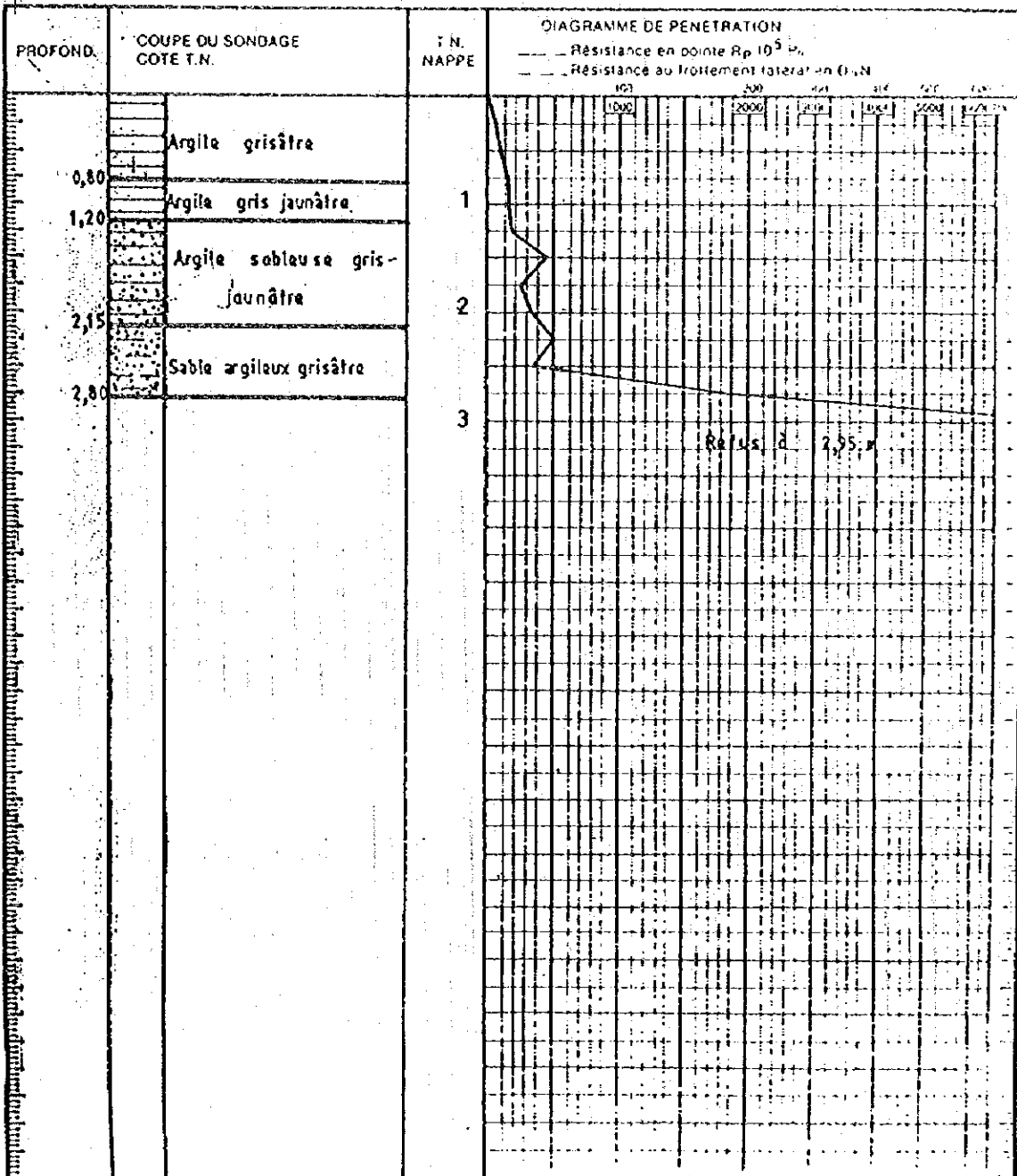
ダム軸地質調査結果 (B2)

CHANTIER: BARRAGE LOKAPLI (BOUAKE)

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

B2

TYPE DE SONDAGE : DYNAMIQUE LEGER <input type="radio"/> PENETROMETRE : DYNAMIQUE LOURD <input checked="" type="radio"/> STATIQUE <input type="radio"/> COTE DU TERRAIN : PROFONDEUR DE LA NAPPE : MISE EN STATION SUR :	ESSAI N° PD B2/T2  Lit mineur
--	-------------------------------------



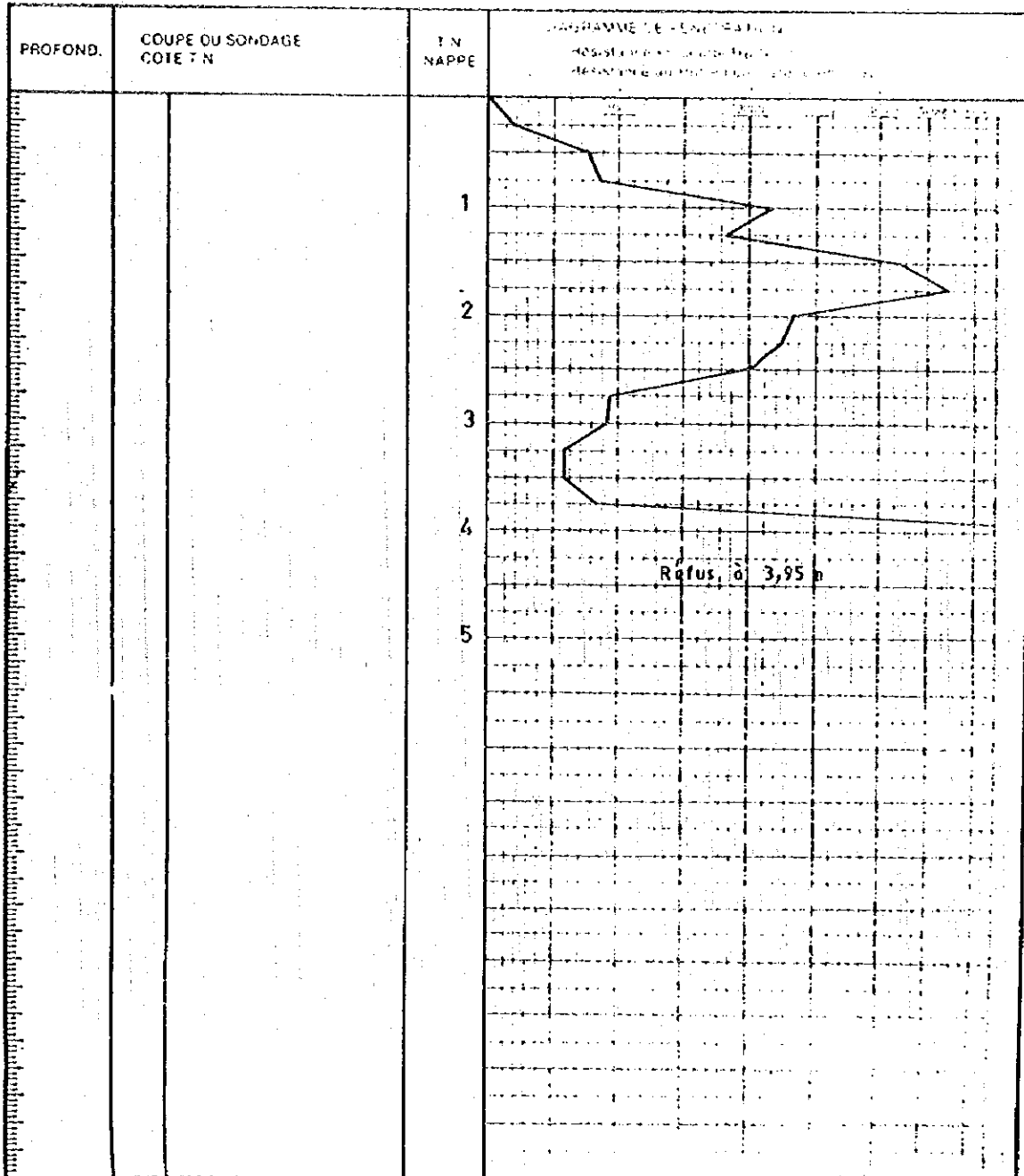
ダム軸地質調査結果 (B4)

CHANTIER : BARRAGE LOKAPLI ( BOUAKE )

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

B4

TYPE DE SONDAGE DYNAMIQUE LEGER PENETROMETRE DYNAMIQUE LEGER & STATIQUE COTE DU TERRAIN PROFONDEUR DE LA NAPPE MISE EN STATION SUR	ESSAI N° PD B4 Rive droite
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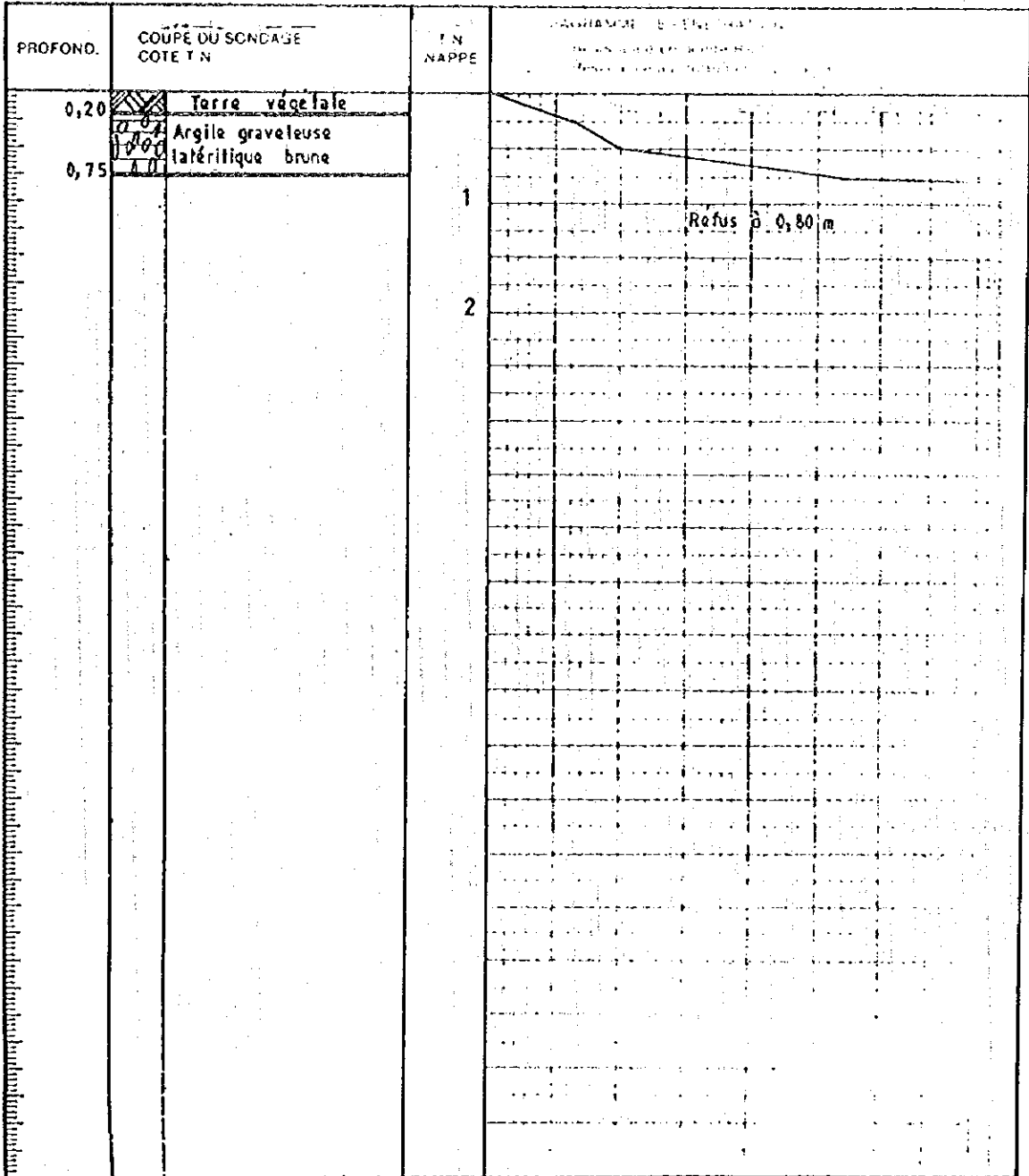
ダム軸地質調査結果 (B5)

CHANTIER: BARRAGE LOKAPLI (BOUAKE)

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

B5

TYPE DE SONDAGE DYNAMIQUE LEGER PENETROMETRE: DYNAMIQUE LEGER COTE DU TERRAIN PROFONDEUR DE LA NAPPE MISE EN STATION SUR	ESSAI: PD B5 / P5 Ax Rive droite
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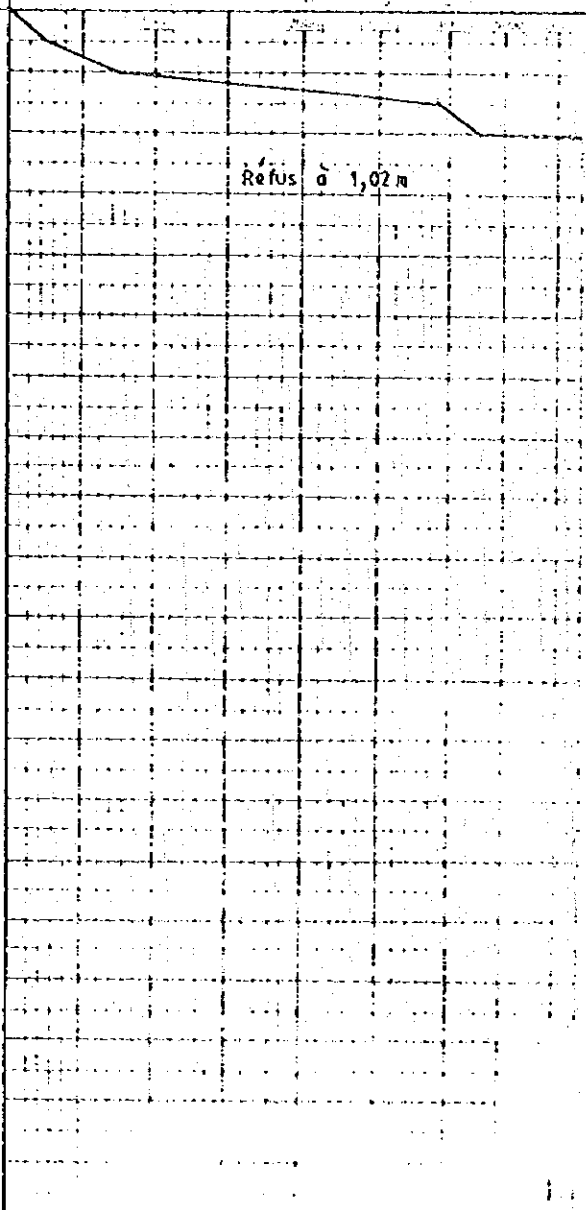
ダム地質調査結果 (B6)

CHANTIER: BARRAGE LOKAPLI (BOUAKE)

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

B6

TYPE DE SONDAGE DYNAMIQUE LEGER PENETROMETRE DYNAMIQUE COURD ★ LIAISON COTE DU TERRAIN PROFONDEUR DE LA NAPPE MISE EN STATION SUR.	ESSAI N° PD B6 Rive droite
---	-------------------------------

PROFOND.	COUPE DU SONDAGE COTE T.N	N NAPPE	TITRE DE LA SECTION (à compléter)
		1	 <p>Refus à 1,02 m</p>
		2	

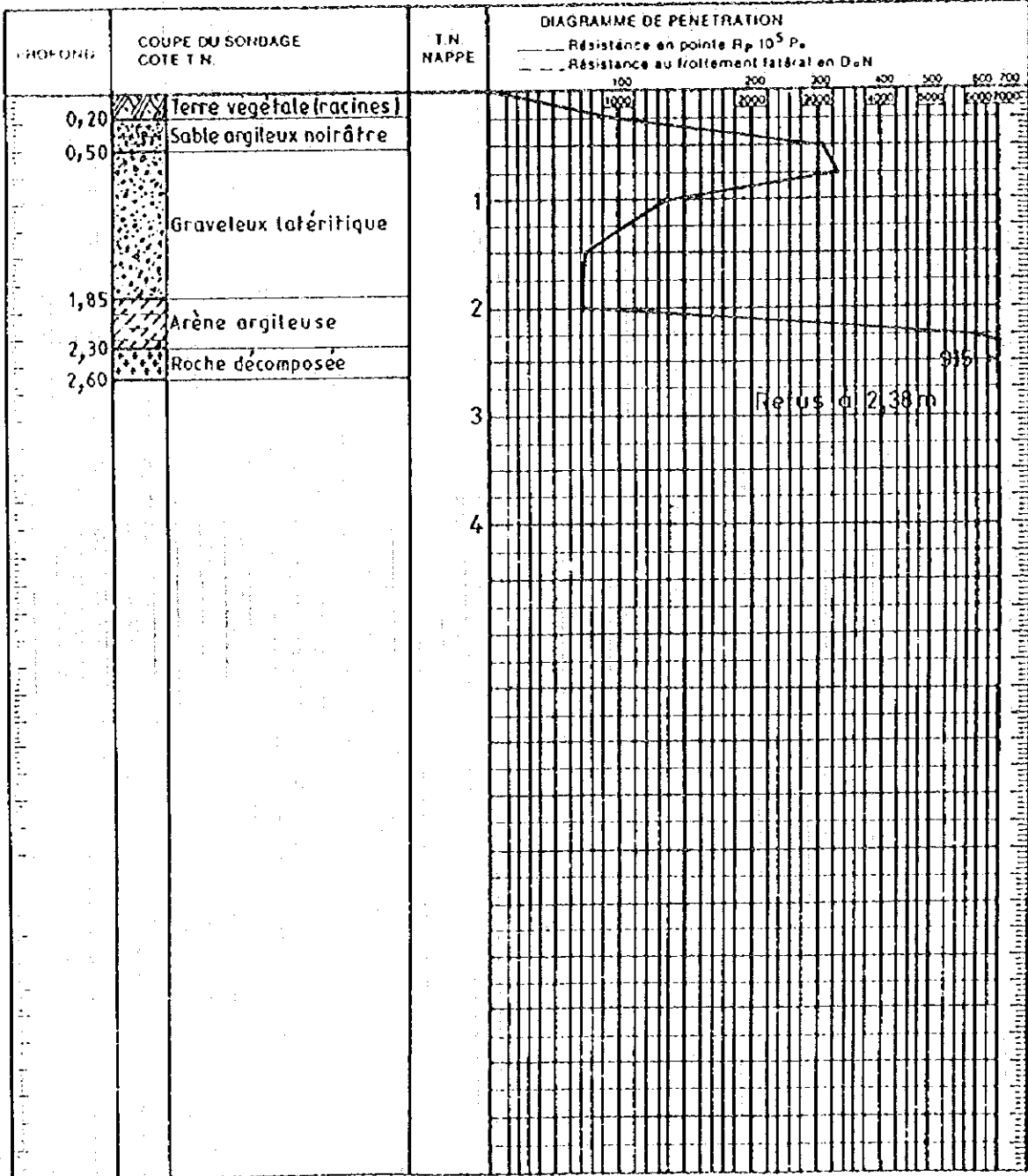
ダム軸地質調査結果 (T2)

BARRAGE DE YOBOUEKRO S/P BOUAKE N° Dossier :

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

(T2)

TYPE DE SONDAGE DYNAMIQUE LEGER (O) PENETROMETRE DYNAMIQUE LOURD & STATIQUE (O) COTE DU TERRAIN PROFONDEUR DE LA NAPPE NIVEAU STATION SUR	ESSAI N°PDI_T2
--	----------------



(BTP - 04 06 3 ABIDJAN 04

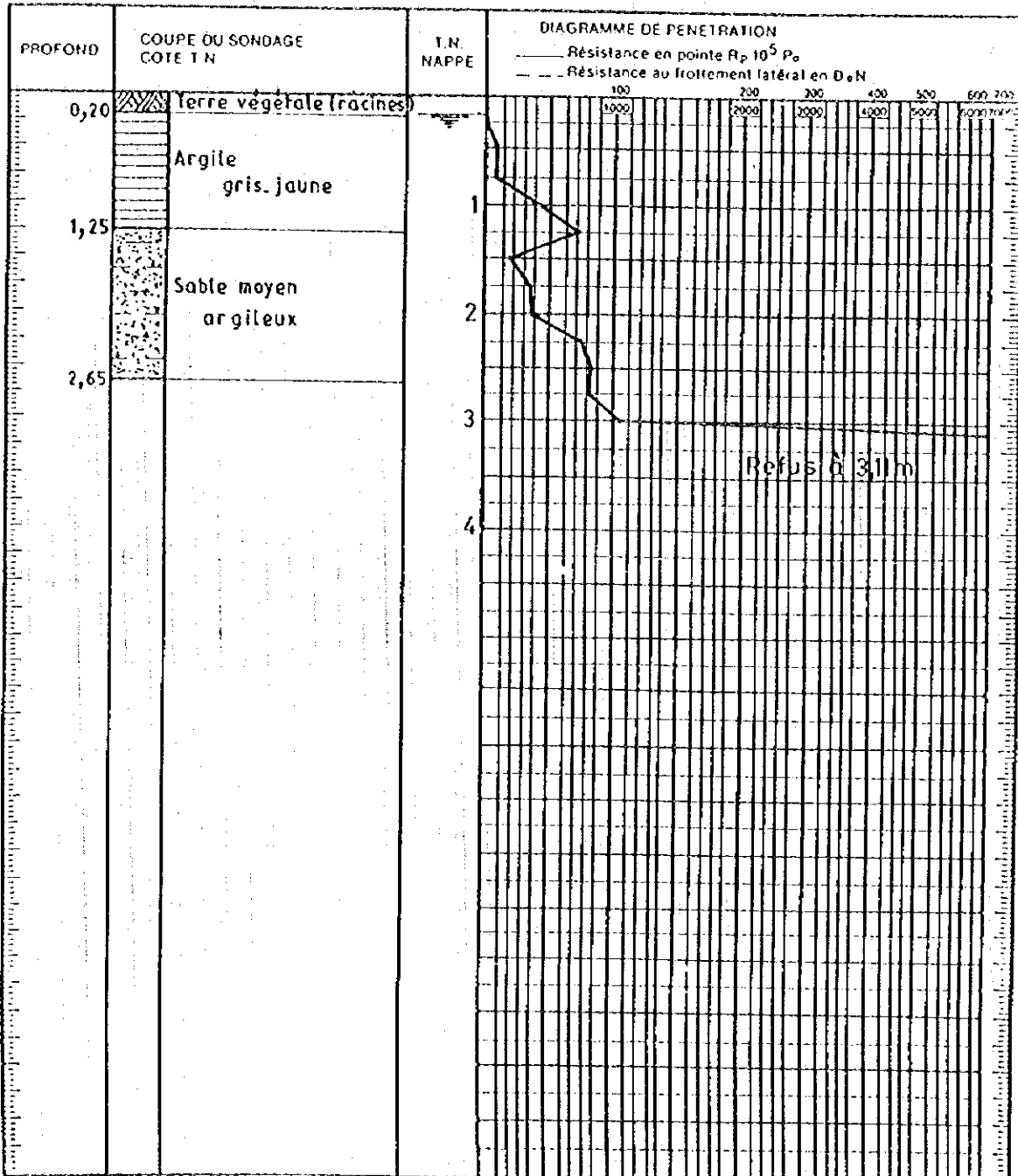
ダム軸地質調査結果 (T4)

CHANTIER : BARRAGE DE YOBOUEKRO S/P BOUAKE N° Dossier :

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

(T4)

TYPE DE SONDAGE DYNAMIQUE LEGER <input type="radio"/>	ESSAI N° PD2_T4
PENETROMETRE : DYNAMIQUE LOURD <input type="radio"/> STATIQUE <input type="radio"/>	
COTE DU TERRAIN :	
PROFONDEUR DE LA NAPPE : 0,16m MISE EN STATION SUR :	



ダム軸地質調査結果 (T6)

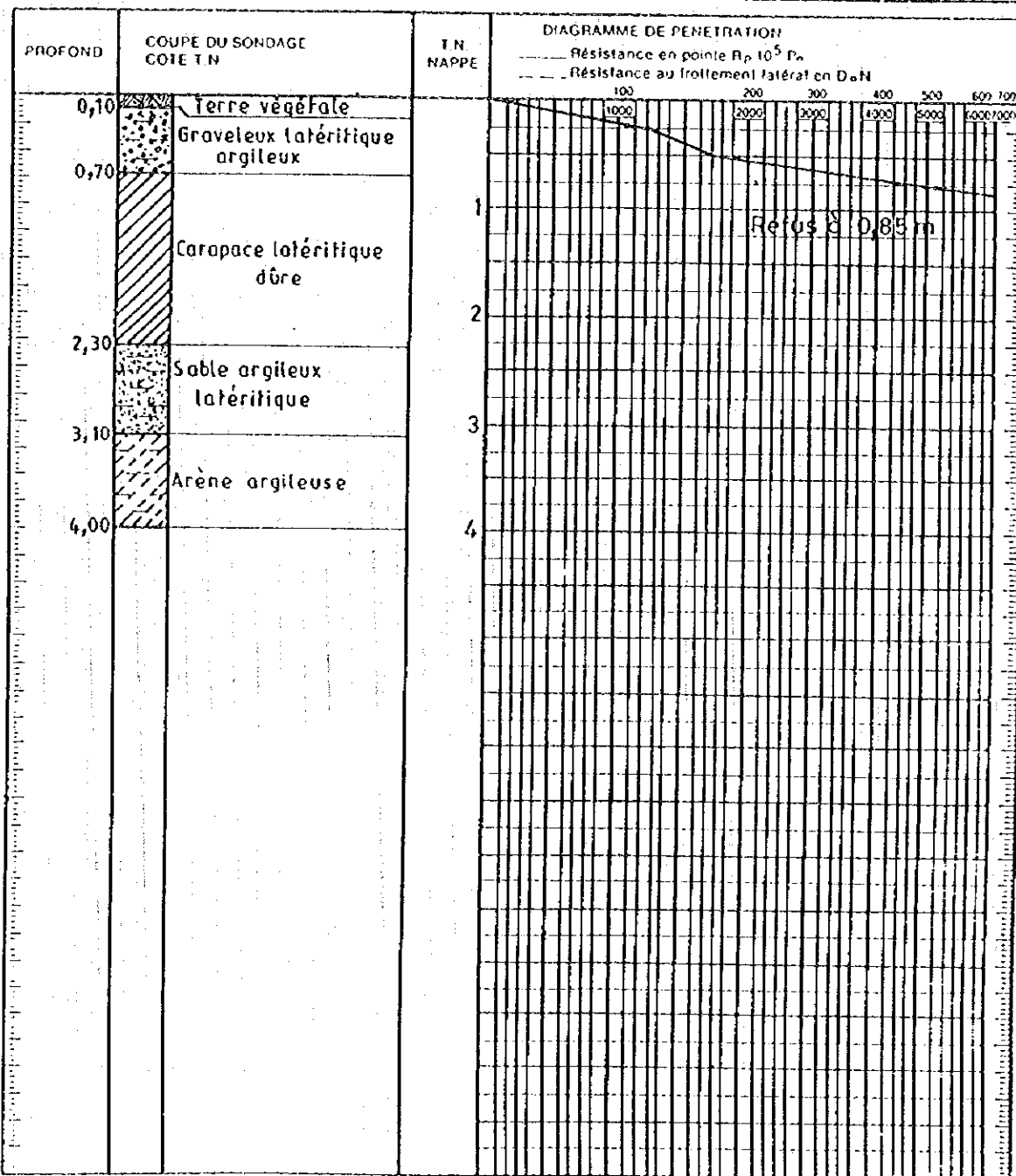
CHANTIER : BARRAGE DE YOBOUEKRO S/P BOUAKE

N° Dossier :

SONDAGE ET ESSAI AU PENETROMETRE ASSOCIES

(T6)

TYPE DE SONDAGE : DYNAMIQUE LEGER <input type="radio"/>	ESSAI N° PD3_T6
PENETROMETRE : DYNAMIQUE LOURD <input checked="" type="radio"/> STATIQUE <input type="radio"/>	
COTE DU TERRAIN :	
PROFONDEUR DE LA NAPPE :	
MISE EN STATION SUR :	



N° Dossier:

CHANTIER BARRAGE LOKAPLI (Bouaké)

**B1**

TYPE D'APPAREIL : **Sondeuse mécanique**

COTE DU TERRAIN NATUREL :

PROFONDEUR DE LA NAPPE :

DESCRIPTION DU SITE :

**SONDAGE**

**N° SC 1 (au point PDB**

**Rive gauche**

COTE	PROFONDEUR m	DESCRIPTION DES SOLS	Echan- tillons	W%	Clasifi- cation USCS LPC	OBSERVATIONS
	0,20	Terre végétale				
		Sable argileux grossier marron				
	1,30	Sable grossier ocre (gravier)				
	2,00	Sable moyen brun				
	2,30	Sable fin verdâtre (arène)				
	3,50	Argile sableuse ocre				
	4,00	Sable fin peu argileux				
	5,40					

EI : Echantillon intact paraffiné

ER : Echantillon ramené en sac plastique

W : Echantillon en bocal pour teneur en eau

Wp : .

CHIFFRE D'ORDRE

N° Dossier:

CHANTIER **BARRAGE LOKAPLI (Bouaké)**

TYPE D'APPAREIL : <b>Sondeuse mécanique</b> COTE DU TERRAIN NATUREL : PROFONDEUR DE LA NAPPE : DESCRIPTION DU SITE :	B2 から左岸側41m地点 <b>SONDAGE</b> <b>N° SC 2 (à 41m de P.D.E)</b> <b>Vers rive gauche</b>
---	---

COÛTE	PROFONDEUR m	DESCRIPTION DES SOUS	Echan- tillons	w%	Classif- cation USCS L.P.C.	OBSERVATIONS
	0,10	Terre végétale				
	0,30	Sable moyen argileux ôcre				
		Sable moyen argileux grisâtre				
	0,90					
		Argile sableuse compacte				
	2,20					
		Sable grossier argileux verdâtre				
	2,90					
		Sable fin argileux verdâtre				
	4,60					

EI : Echantillon intact paraffiné  
 ER : Echantillon remanié en sac plastique  
 W : Echantillon en bocal pour teneur en eau

N° Dossier:

CHANTIER BARRAGE LOKAPLI (Bouaké)

B4

TYPE D'APPAREIL: Sondeuse mécanique

COTE DU TERRAIN NATUREL:

PROFONDEUR DE LA NAPPE:

DESCRIPTION DU SITE:

SONDAGE

N° SC 3 (au point PU B4)

Rive droite

COTE	PROFONDEUR m	DESCRIPTION DES SOLS	Echantillons	W%	Classification USCS L.P.C.	OBSERVATIONS
	0,25	Terre végétale				
	1,00	Argile latéritique sableuse rougeâtre				
	2,10	Argile latéritique rougeâtre				
	3,00	Argile latéritique brun rougeâtre				
	3,80	Argile latéritique brun rouge				

EI: Echantillon intact paraffiné

ER: Echantillon ramené en vase plastique

W: Echantillon en bocal pour teneur en eau

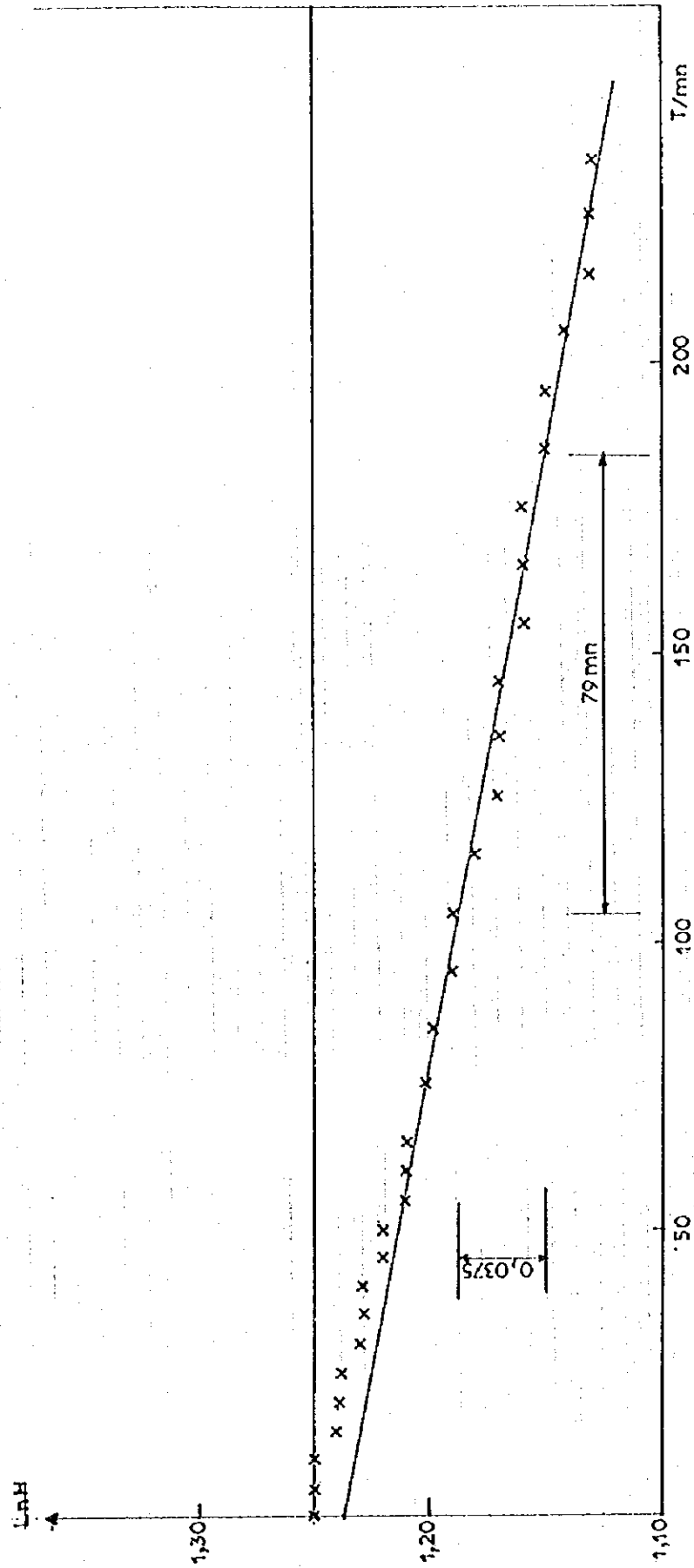


現場透水試験結果 (B4)

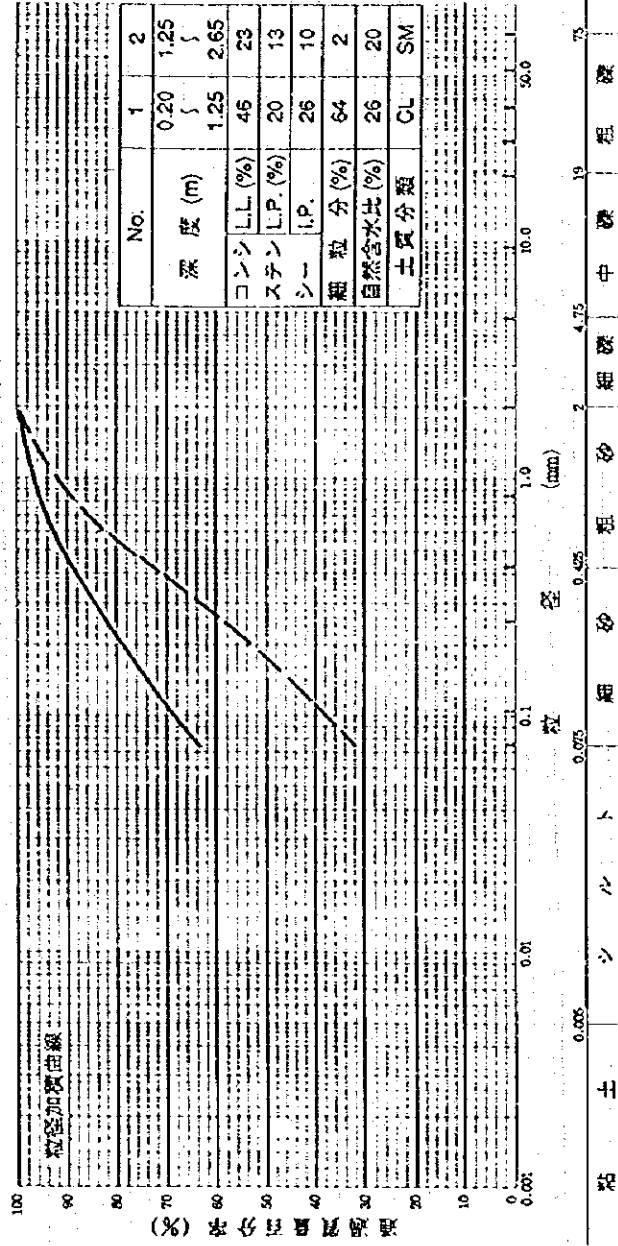
現場透水試験

場所：B4 地点 深度 3.5 m

土質：ラテライト粘土



T4 地点粒径加積曲線図



現場透水試験結果 (T4)

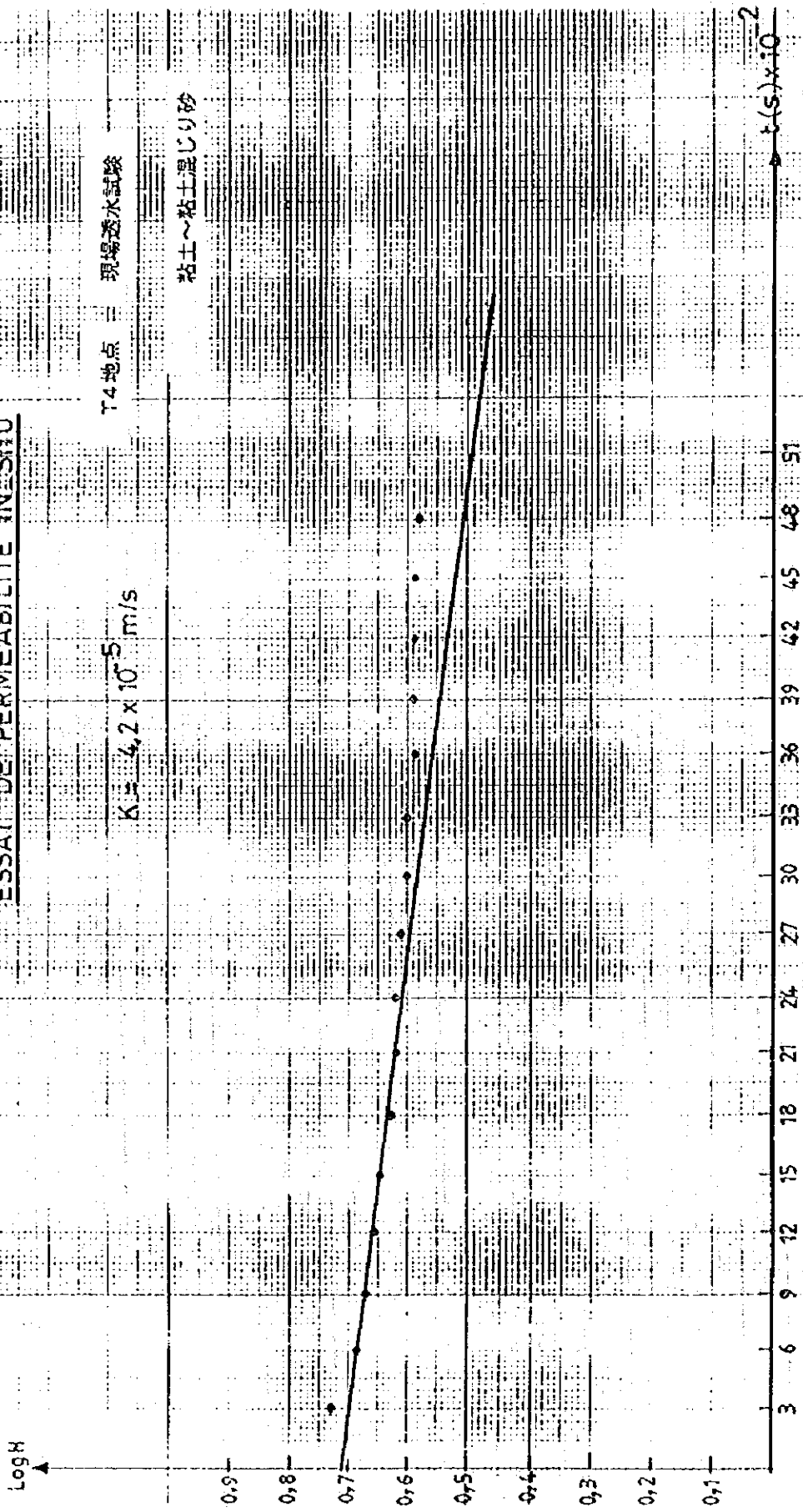
BARRAGE DE YOBOUEKRO S/P BOUAKE

ESSAI DE PERMEABILITE IN SITU

T4地点 = 現場透水試験

粘土〜粘土混じり砂

$$K = 4.2 \times 10^{-5} \text{ m/s}$$



土質材料試験結果 (TP1 地点)

N° Dossier:

CHANTIER BARRAGE LOKAPLI (BOUAKE)

TYPE D'APPAREIL: Puits manuel

Emprunt N° 2

COTE DU TERRAIN NATUREL:

SONDAGE

PROFONDEUR DE LA NAPPE:

N° P1

DESCRIPTION DU SITE:

Rive gauche

COTE	PROFONDEUR m	DESCRIPTION DES SOLS	Echan- tillons	W%	Classi- cation U.S.G.S. L.P.C.	OBSERVATIONS
0,00	0,15	Terre végétale				
0,15	0,50	Graveleux lateritique grisâtre				
0,50	1,55	Sable lateritique brun				
1,55	3,40	Argile peu graveleuse gris-ocre				土質材料 (透水材等) 採取土層
3,40	4,35	Argile graveleuse (quartz) gris jaunâtre				
4,35	5,00	Arène granitique gris-blanchâtre				

EI: échantillon intact paraffiné

ER: échantillon remanié en sac plastique

W: échantillon en bocal pour teneur en eau

土質材料試驗結果 (TP2 地点)

N° Dossier:

CHANTIER BARRAGE LOKAPLI (BOUAKE)

TYPE D'APPAREIL: Puits manuel

COTE DU TERRAIN NATUREL:

PROFONDEUR DE LA NAPPE:

DESCRIPTION DU SITE:

Emprunt N° 2

SONDAGE

N° P 2

Rive gauche

COTE	PROFONDEUR m	DESCRIPTION DES SOLS	Echan- tillons	W%	Classif- cation U.S.C.S. S.P.C.	OBSERVATIONS
0,00	0,20	Terre végétale				
	1,10	Argile latéritique brune				
	1,90	Argile graveleuse jaunâtre				土質材料 (透水材等) 採取土層
	5,00	Arène granitique gris verdâtre				

EI: Echantillon intact corattine

ER: Echantillon ramolé en sac plastique

W: Echantillon en bocal pour teneur en eau

.....

土質材料試験結果 (TP2 鉤頭)

N° Dossier:

CHANTIER BARRAGE LOKAPLI (BOUAKE)

TYPE D'APPAREIL: Puits manuel COTE DU TERRAIN NATUREL: PROFONDEUR DE LA NAPPE: DESCRIPTION DU SITE:	Emprunt N°2 <b>SONDAGE</b> N° P2 bis Rive gauche
--	---

COTE	PROFONDEUR M	DESCRIPTION DES SOLS	Echan- tillons	W%	Classi- cation USCS LPC	OBSERVATIONS
0,00		Terre végétale				
0,20		Argile graveleuse latéritique brune				
0,40		Argile latéritique brun jaunâtre				
1,60		Argile graveleuse jaunâtre				
2,30						

土質材料 (濾水材等) 採取土層

EI: Echantillon intact pour essais  
 ER: Echantillon remanié en laboratoire  
 W: Echantillon en bocal pour mesure de w  
 ....

土質材料試験結果 (TP3 地点)

N° Dossier:

CHANTIER BARRAGE LOKAPLI ( BOUAKE )

TYPE D'APPAREIL: Puits manuel	Emprunt N° 1
COTE DU TERRAIN NATUREL:	<b>SONDAGE</b>
PROFONDEUR DE LA NAPPE:	N° P3
DESCRIPTION DU SITE:	Rive droite

COTE	PROFONDEUR m	DESCRIPTION DES SOLS	Echan- tillons	W%	Clasifi- cation U.S.C.S. L.P.C.	OBSERVATIONS
	0,00	Argile grisâtre (terre végétale)				
	0,35	Sable argileux brun				
	0,80	Sable graveleux lateritique brun				
	2,20					土質材料 (透水材等) 採取土層
	4,30	Roche décomposée gris verdâtre				

EI: Echantillon intact paraffiné  
 ER: Echantillon remanié en sac plastique  
 W: Echantillon en bocal pour teneur en eau

土質材料試験結果 (TP4 地点)

N° Dossier:

CHANTIER BARRAGE LOKAPLI (BOUAKE)

TYPE D'APPAREIL: Puits manuel	Emprunt N° 1
COTE DU TERRAIN NATUREL:	<b>SONDAGE</b>
PROFONDEUR DE LA NAPPE:	N° P4
DESCRIPTION DU SITE:	Rive droite

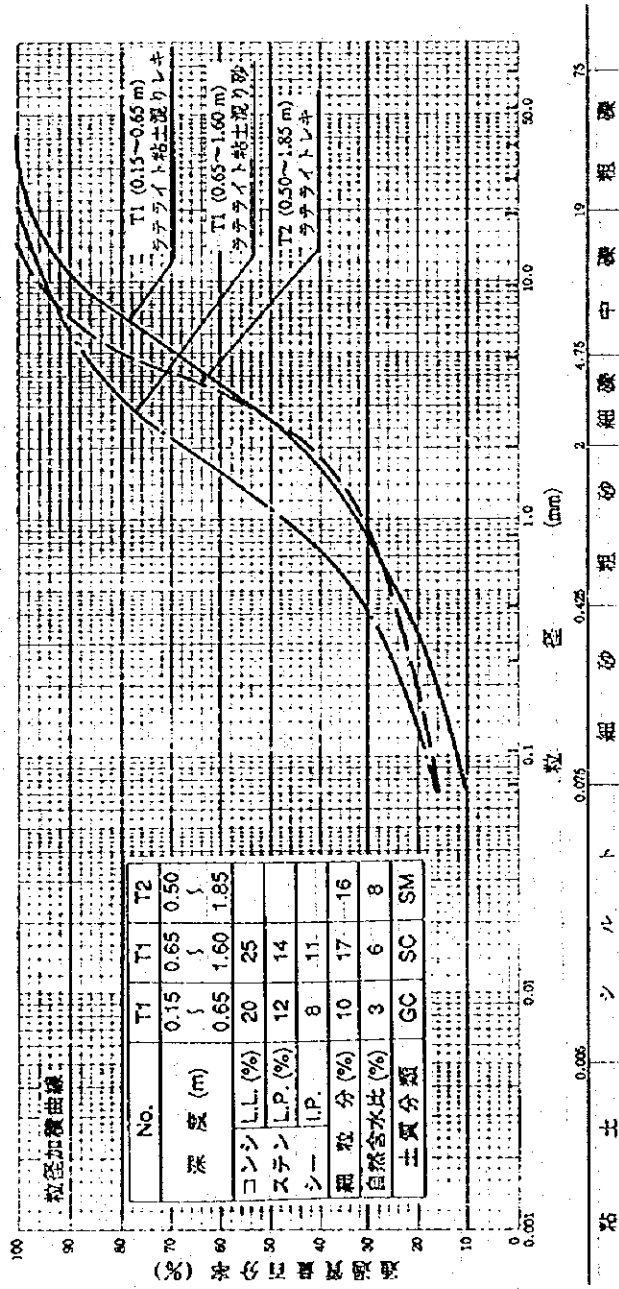
COTE	Profondeur m	DESCRIPTION DES SOLS	Echan- illons	w%	Classi- cation USCS L.P.C.	OBSERVATIONS
0.00	0.20	Terre végétale				
0.20	0.70	Graveleux latéritique marron				
0.70	1.60	Argile graveleuse brune				
1.60	2.50	Arène granitique jaunâtre				
						土質材料 (透水材等) 採取土層

- EI: Echantillon intact paraffiné
- ER: Echantillon ramolli en sac plastique
- W: Echantillon en bacal pour teneur en eau



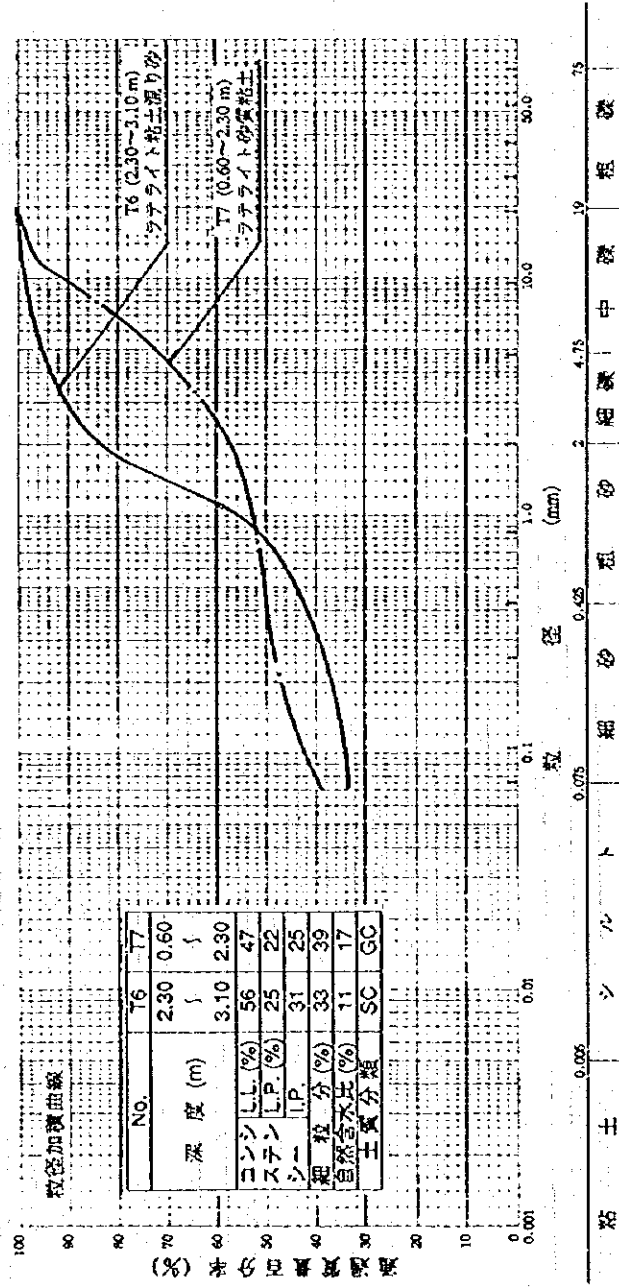
土質材料粒度試験結果

T1 及び T2 地点



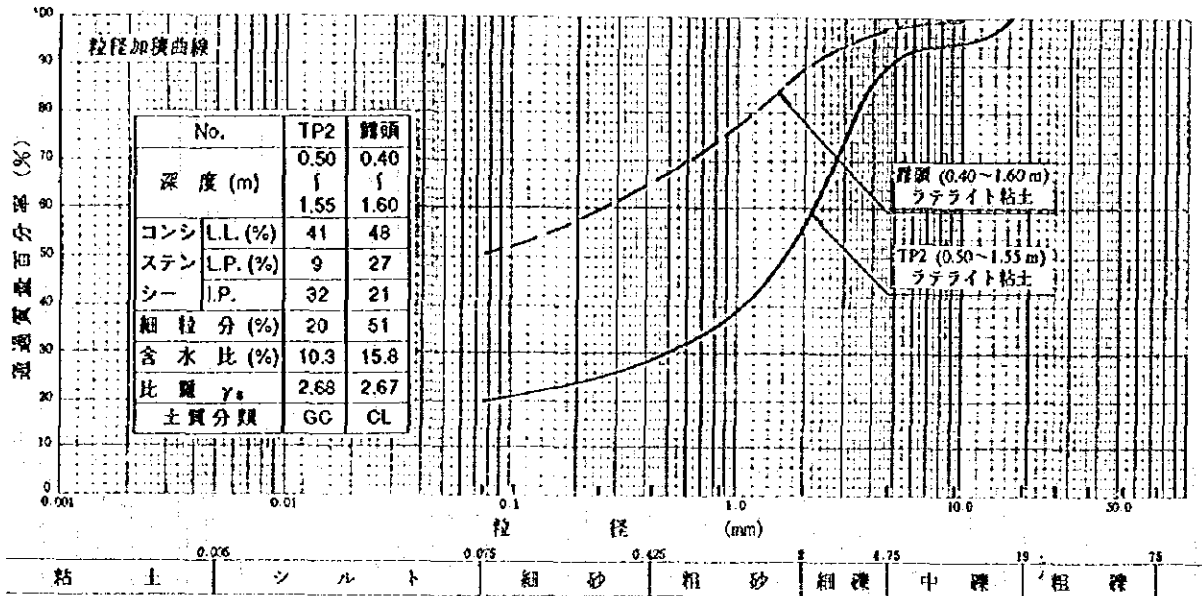
土質材料粒度試験結果

T6 及び T7 地点

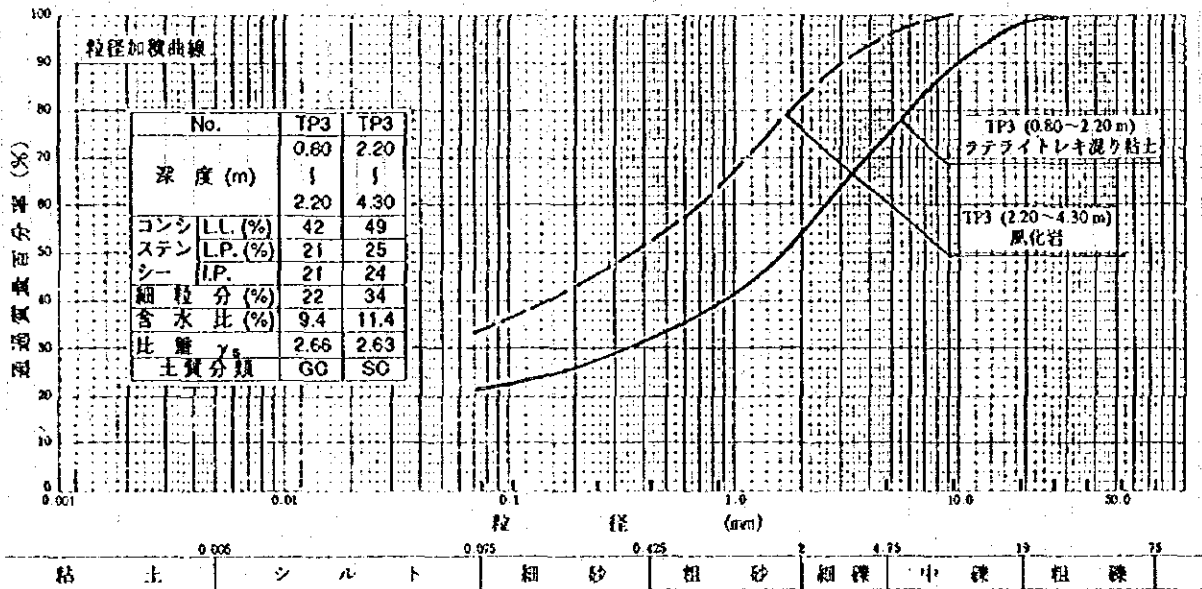


土質材料粒度試験結果

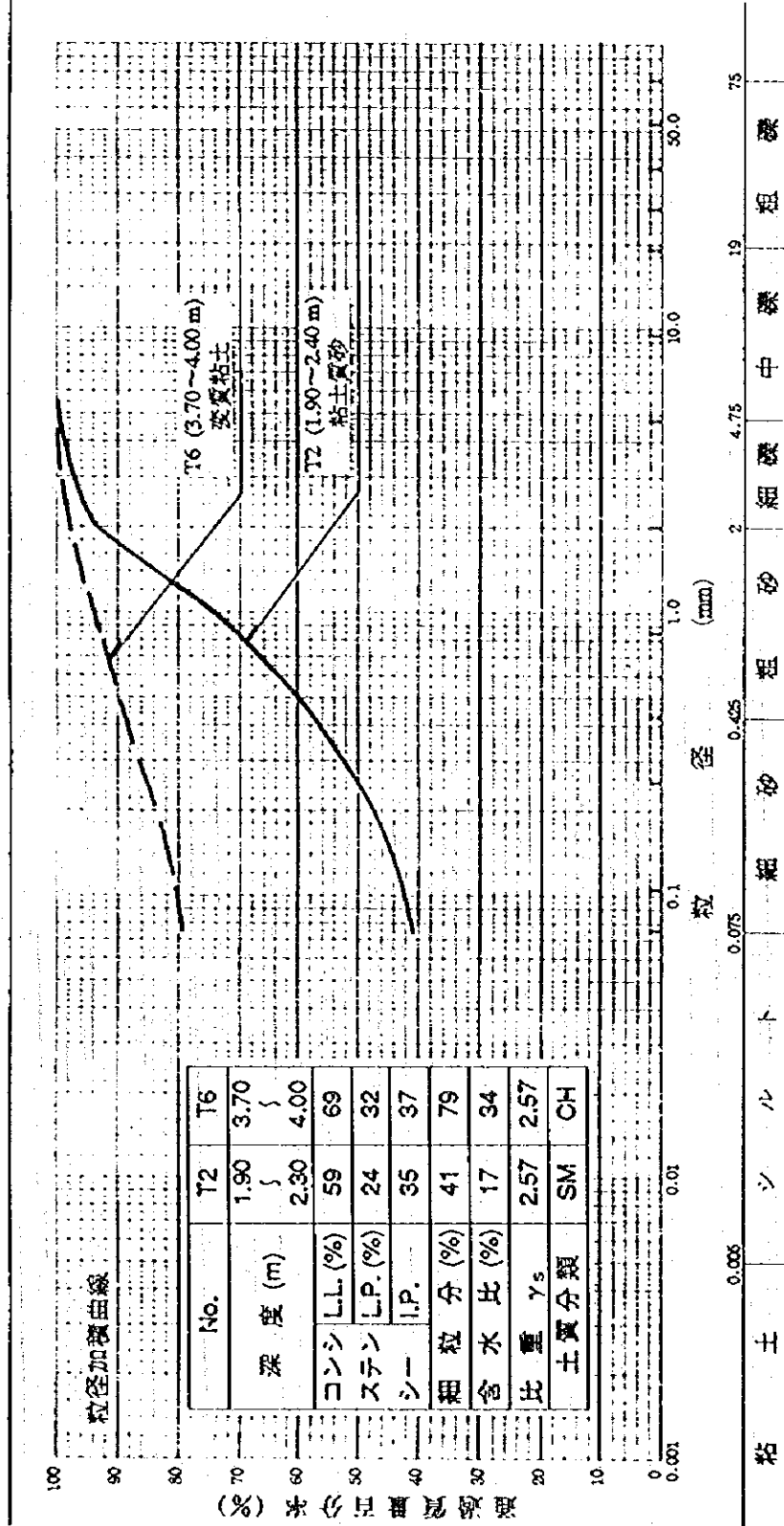
TP2 地点



TP3 地点

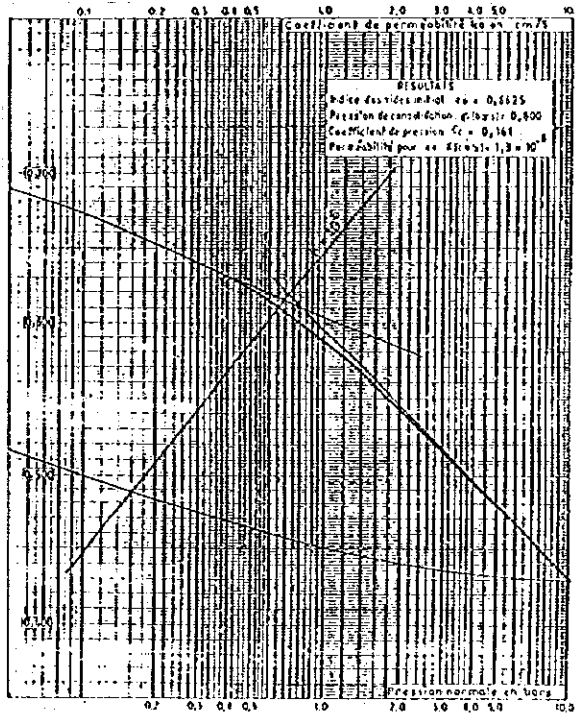


T2 及び T6 地点粒径加積曲線図

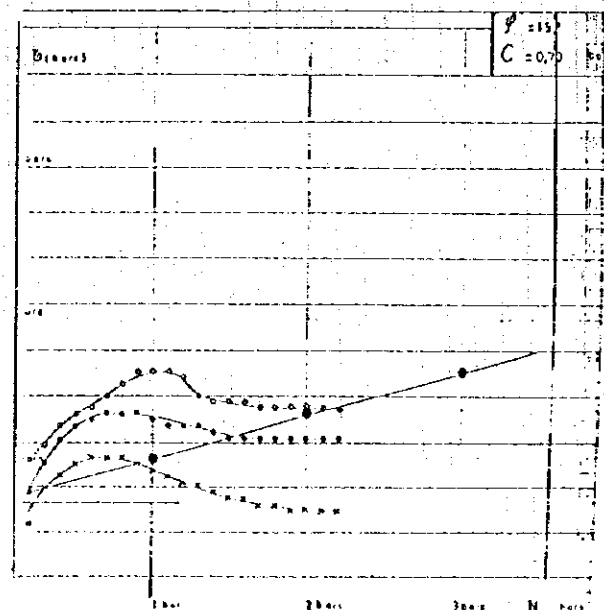
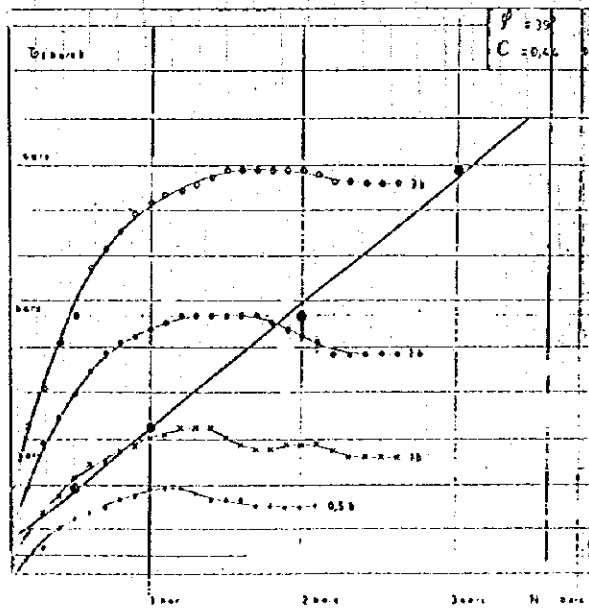
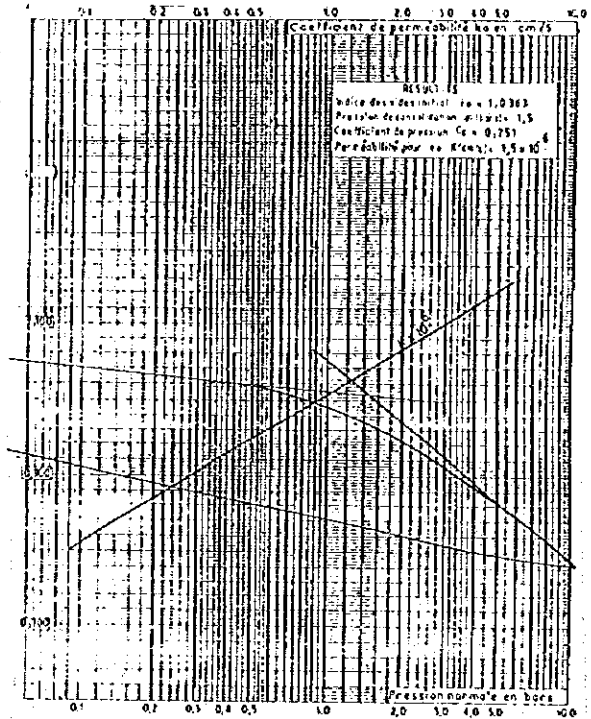


土質材料力学試験結果 (2/6)

T2 地点 (粘土質砂)

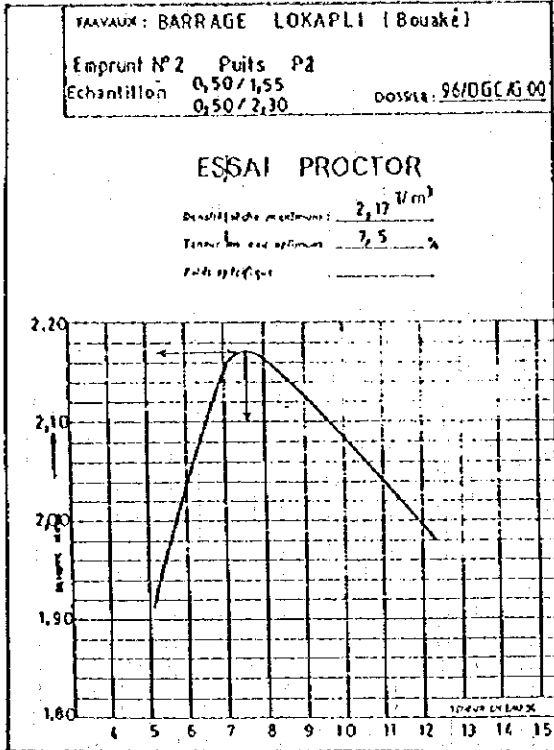


T6 地点 (変質粘土)

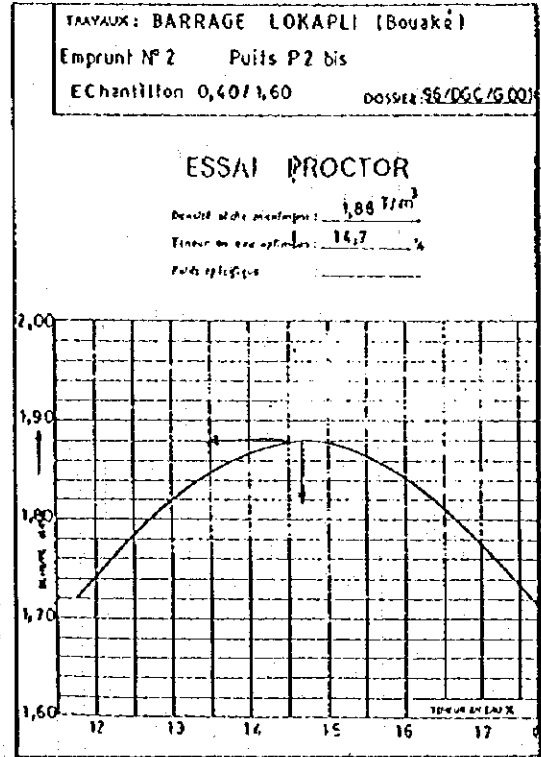


土質材料力学試験結果 (3/6)

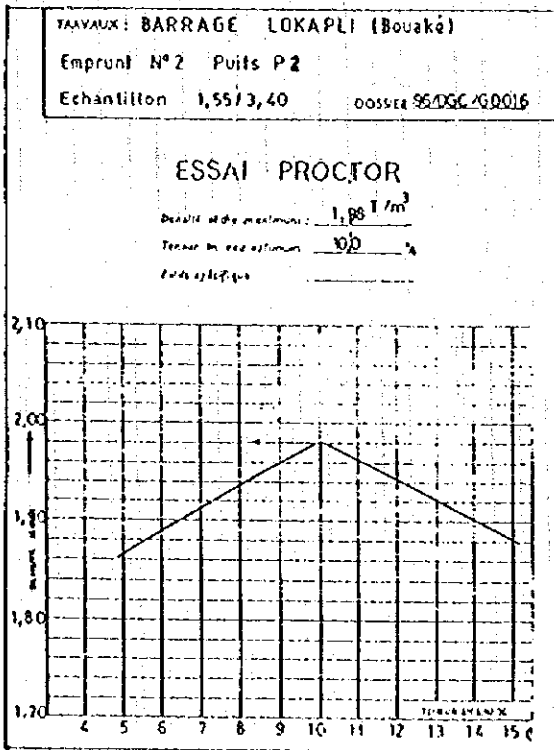
TP2 地点 (0.50~2.30m)



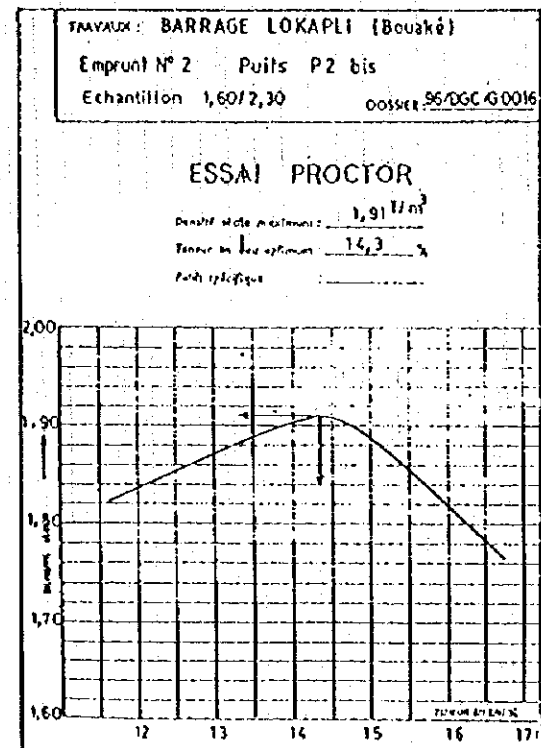
TP2 露頭地点 (0.40~1.60m)



TP2 地点 (1.55~3.40m)

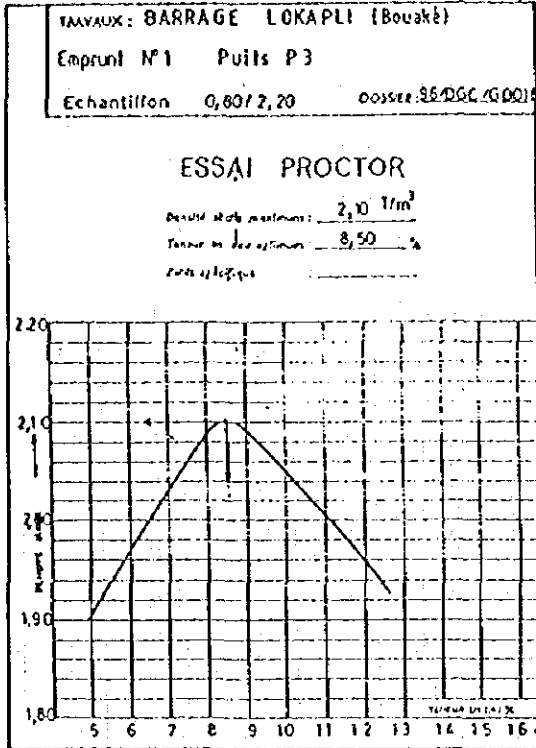


TP2 露頭地点 (0.80~2.20m)



土質材料力学試験結果 (4/6)

TP 地点 (0.80~2.20m)



プロクター突き固め試験結果の要約

最大乾燥密度の平均値

$$(2.17+1.98+1.88+1.91+2.10+2.01) / 6 = 2.00 \text{ T/m}^3$$

95% 最大乾燥密度の平均値

$$2.00 \times 0.95 = 1.90 \text{ T/m}^3$$

最適含水比の平均値

$$(7.5+10.0+14.7+14.3+8.5+10.3) / 6 = 10.8 \%$$

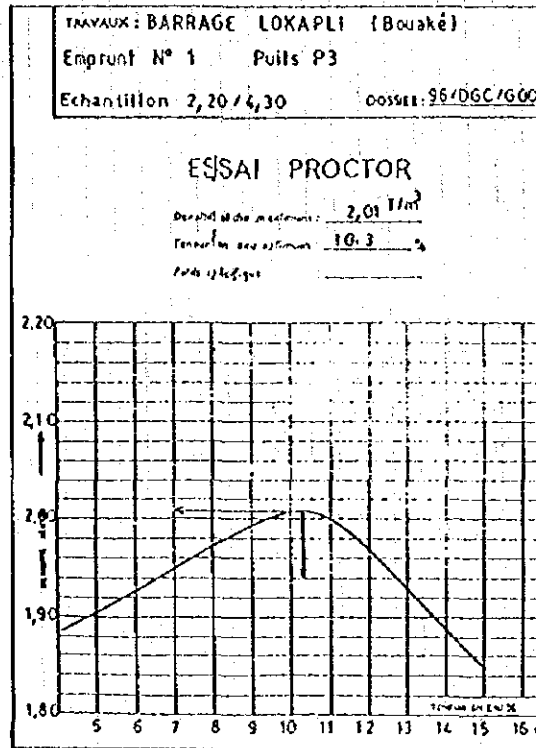
最適含水比の範囲

7.5~14.7 %

自然含水比の範囲

9.4~15.8 %

TP 地点 (2.20~4.30m)



土質材料力学試験結果 (5/6)

土質材料力学試験結果

圧密試験からの透水係数 K EN M/S

ESSAI DE PERMEABILITE A L'OEDOMETRE  
K EN M/S

試掘坑 SONDAGES	深 度 ECHATILLONS	搭 載 CHARGES		
		0,5 bar	1 bar	2 bar
TP2	0,50 / 1,55	$1,2 \times 10^{-5}$	$0,8 \times 10^{-5}$	$0,6 \times 10^{-5}$
TP2	1,55 / 3,40	$1,8 \times 10^{-8}$	$1,3 \times 10^{-8}$	$1,7 \times 10^{-8}$
P2 bis 露頭	0,40 / 1,60	$1,3 \times 10^{-6}$	$0,6 \times 10^{-6}$	$0,5 \times 10^{-6}$
P2 bis 露頭	1,60 / 2,30	$7,5 \times 10^{-9}$	$4,3 \times 10^{-9}$	$1,9 \times 10^{-9}$
TP3	0,80 / 2,20	$1,8 \times 10^{-6}$	$1,1 \times 10^{-6}$	$0,4 \times 10^{-6}$
TP3	2,20 / 4,30	$3,5 \times 10^{-6}$	$1,9 \times 10^{-6}$	$0,9 \times 10^{-6}$

Les échantillons sont compactés à 95% de l'OPM (Optimum Proctor Modifié)

有機物含有量 (炭素量 %)

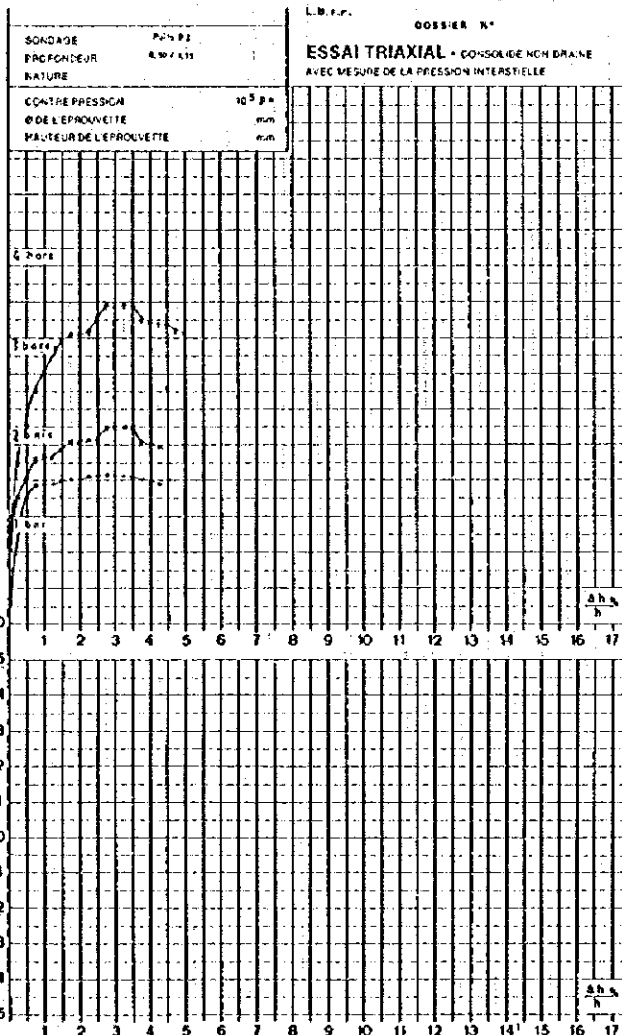
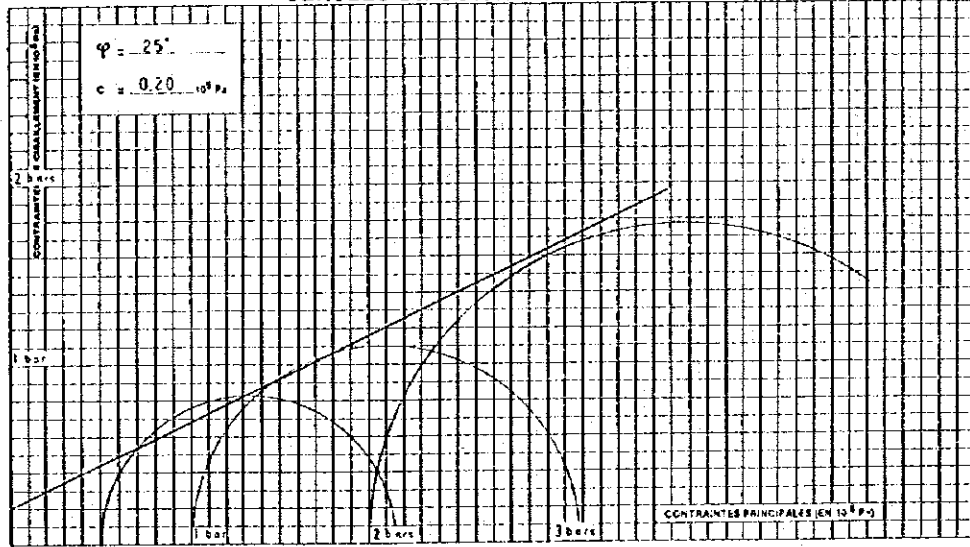
TENEUR EN MATIERE ORGANIQUE (M/O)  
EXPRIMEE EN % DE CARBONE

試掘坑 SONDAGES	深 度 ECHATILLONS	有機物含有量 (炭素量 %)
TP2	0,50 / 1,55	0,36
TP2	1,55 / 3,40	0,16
P2 bis 露頭	0,40 / 1,60	0,19
P2 bis 露頭	1,60 / 2,30	0,10
TP3	0,80 / 2,20	0,19
TP3	2,20 / 4,30	0,02



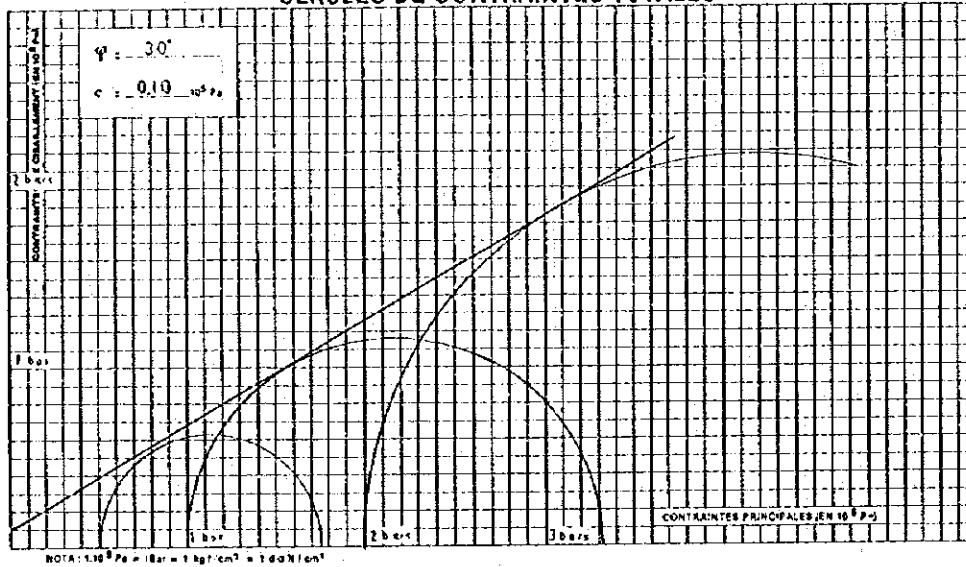
L. B.T.P.	Dossier	NO. 1000-01074	CHANTIER:	BORNE (CAMPUS 1964)
<b>ESSAI TRIAXIAL</b>			SONDAGE:	P. 111 72
--- CONSOLIDE --- DRAINE MESURE DE LA PRESSION INTERSTITIELLE			SCHANTILLON:	EMPL. M. 2
			PROFONDEUR:	0.307 53

**CERCLES DE CONTRAINTES TOTALES**



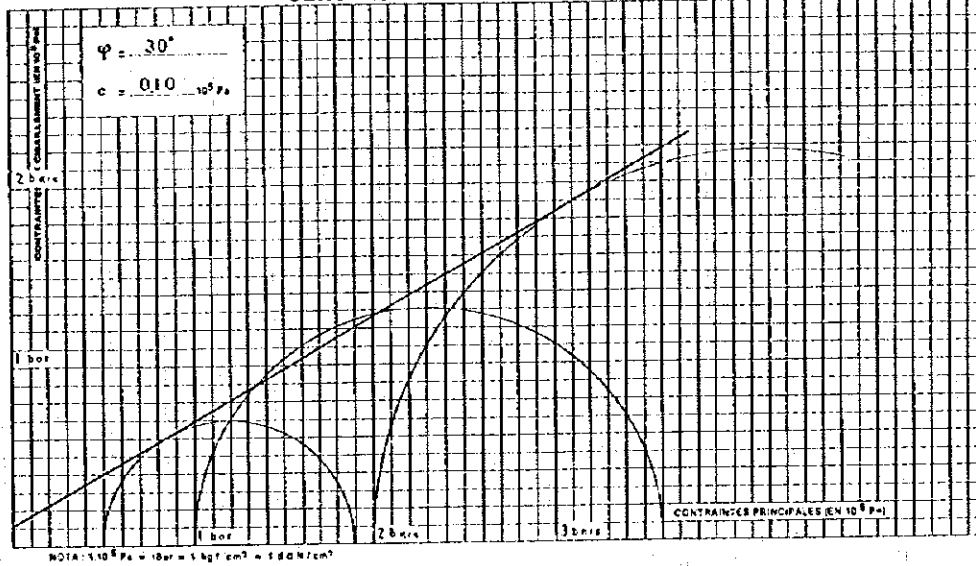
L B T P	Dossier	W 02 C 04	CHAMBER:	SERIE (S/N) (Ech):
	<b>ESSAI TRIAXIAL</b>		SONDAGE:	P.N. P2 43 L 04
CONSOLIDATION NON DRAINE MESURE DE LA PRESSION INTERSTIELLE			ECHANTILLON:	Ech. n° 1
			PROFONDEUR:	140 / 130

**CERCLES DE CONTRAINTES TOTALES**



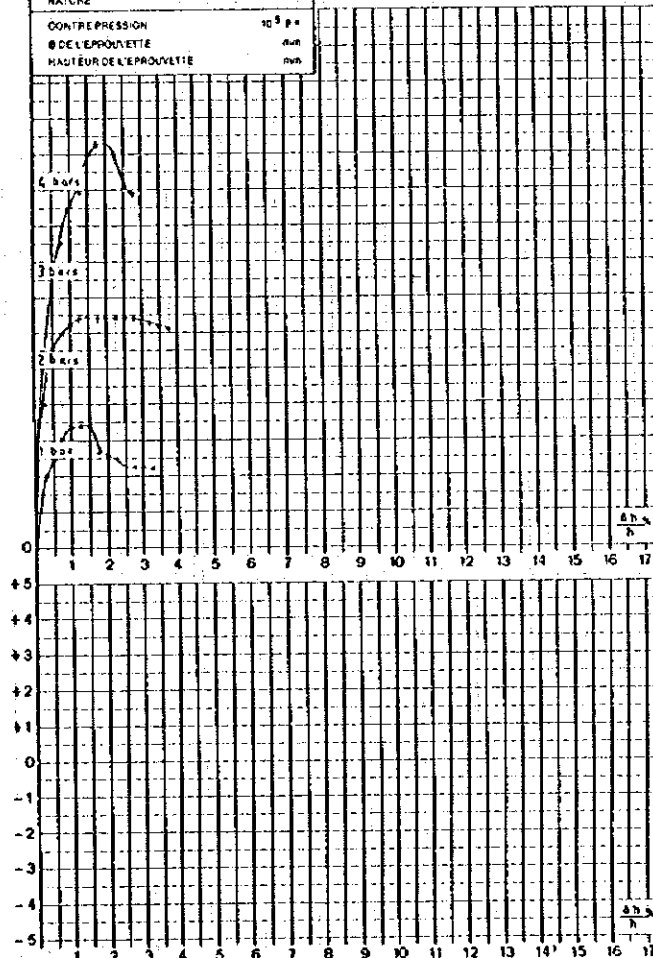
L B.T.P.	Dossier: N°10006-MW	CHANTIER: BARRAGE (OSAPU (SUD))
<b>ESSAI TRIAXIAL</b>		SONDAGE: Puits P3
<input type="checkbox"/> CONSOLIDE	<input type="checkbox"/> DRAINE	ECHANTILLON: Emp. n° 8
MESURE DE LA PRESSION INTERSTITIELLE		PROFONDEUR: 3.00 m

**CERCLES DE CONTRAINTES TOTALES**

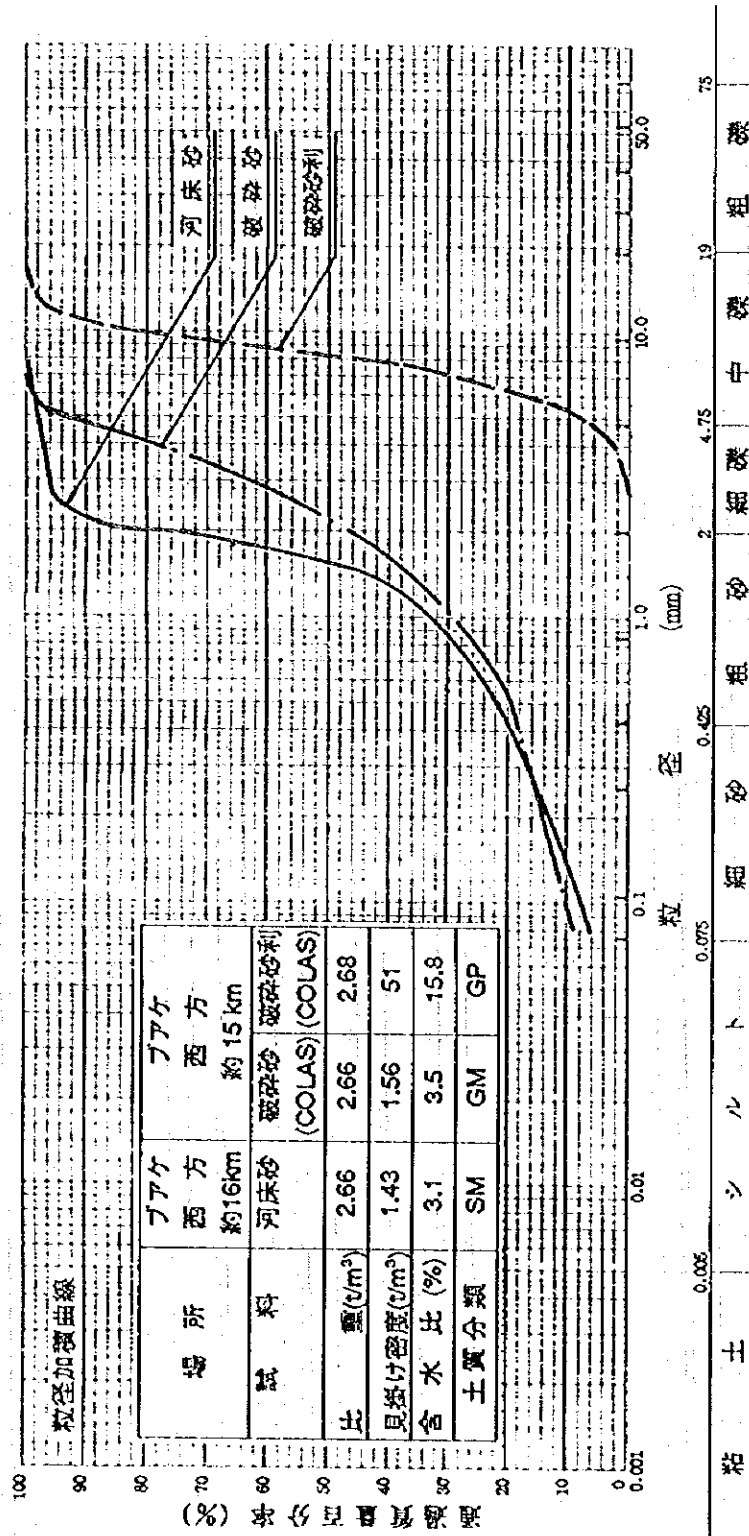


BONDAGE	Puits P3
PROFONDEUR	3.00 m
NATURE	
CONTRE-PRESSION	10^5 Pa
Ø DE L'ÉPROUVETTE	Ø=60
HAUTEUR DE L'ÉPROUVETTE	h=60

DOSSIER N°  
**ESSAI TRIAXIAL - CONSOLIDE NON DRAINE**  
AVEC MESURE DE LA PRESSION INTERSTITIELLE



土質材料粒径加積曲線図



ロック材料力学試験図

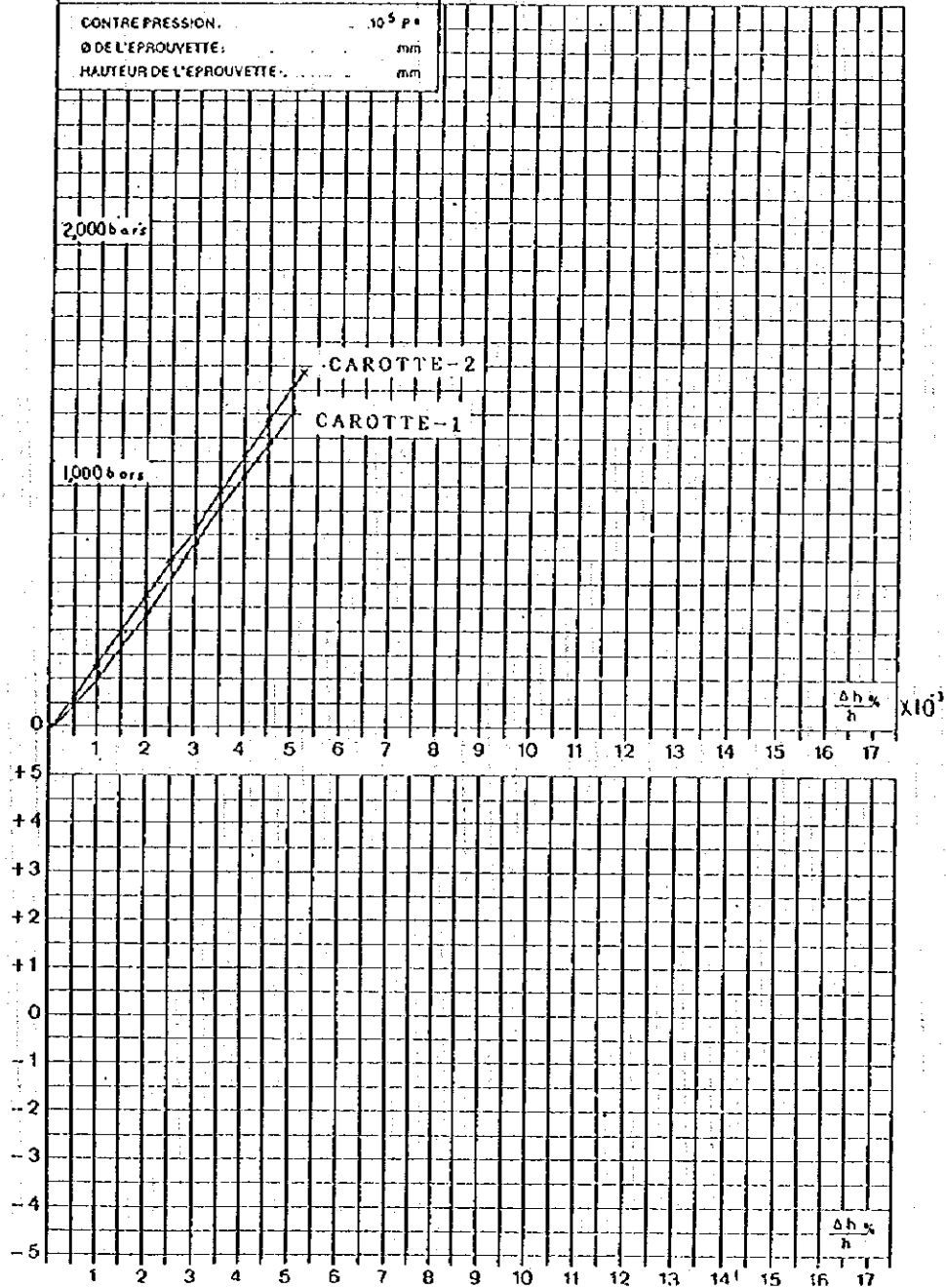
SONDAGE: _____	
PROFONDEUR: _____	
NATURE: _____	
CONTRE-PRESSION: _____	$10^5 \text{ Pa}$
Ø DE L'ÉPROUVETTE: _____	mm
HAUTEUR DE L'ÉPROUVETTE: _____	mm

L.B.T.P.

GRAPHIQUE N°

DOSSIER N°

ESSAI COMPRESSION SIMPLE



# B-5 堤体安定計算結果

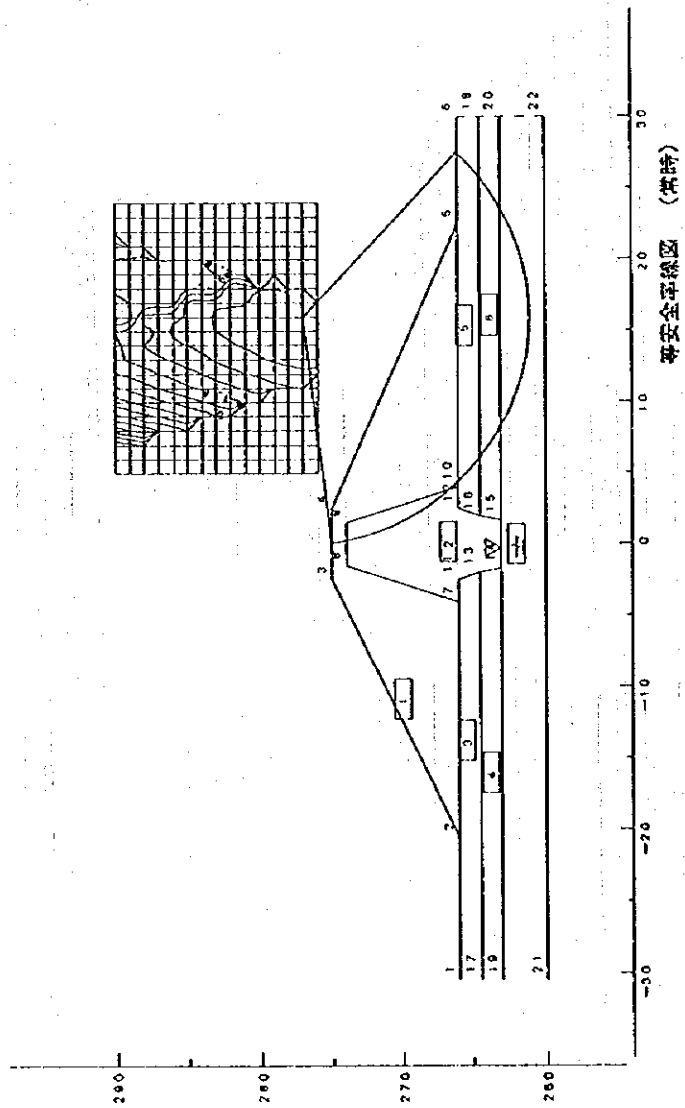
縮尺 : 1 / 500

最小安全係数  $F_{smin} = 1.207$   
 円弧の中心  $X = 16.00$  (M)  
 $Y = 277.00$  (M)  
 半径  $R = 16.00$  (M)  
 抵抗モーメント  $M_R = 1665.90$  (T\*M)  
 起動モーメント  $M_o = 1379.84$  (T\*M)

層番号	飽和重量 (T/M <sup>3</sup> )	湿潤重量 (T/M <sup>3</sup> )	内部摩擦角 (度)	粘着力 (T/M <sup>2</sup> )	粘着力の 一次係数	水平摩擦係	鉛直摩擦係
1	1.90	1.90	25.0	1.00	0.000	0.000	0.000
2	1.90	1.90	25.0	1.00	0.000	0.000	0.000
3	1.90	1.90	25.0	1.00	0.000	0.000	0.000
4	1.90	1.90	25.0	1.00	0.000	0.000	0.000
5	1.90	1.90	25.0	1.00	0.000	0.000	0.000
6	1.90	1.90	25.0	1.00	0.000	0.000	0.000
7	1.90	1.90	15.0	0.70	0.000	0.000	0.000

水の単位体積重量 = 1.000 (T/M<sup>3</sup>)

①上流側 水位なし 浸透部なし



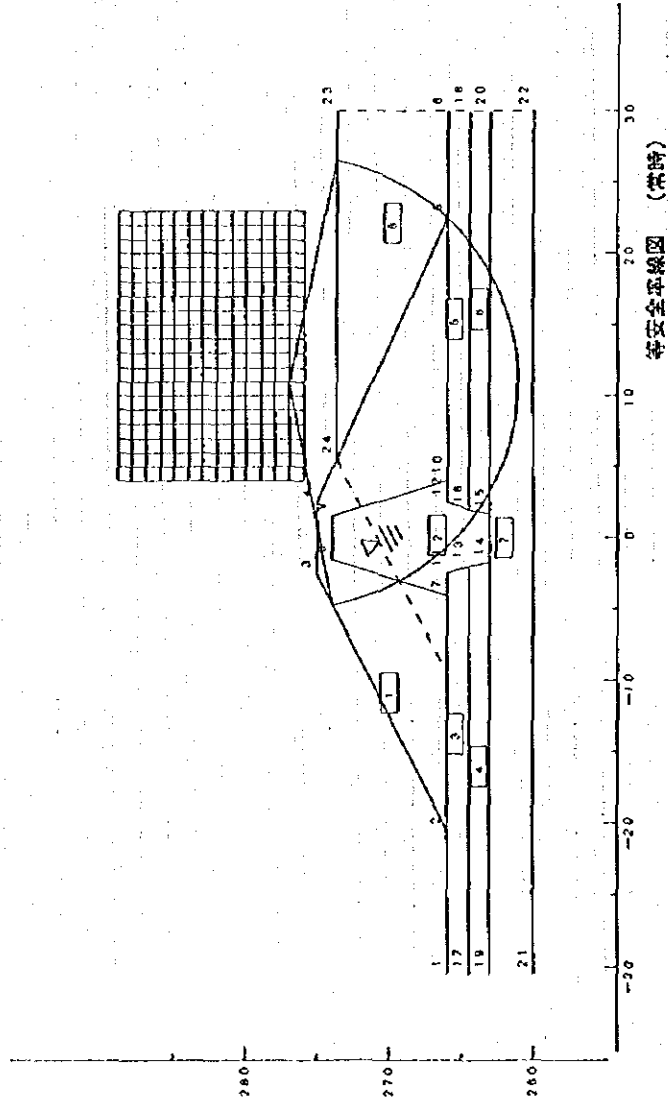
②上流部 N.W.LB時 浸透部あり

縮尺 : 1 / 500

最小安全厚  $F_{smin} = 4.447$   
 円弧の中心 X = 11.00 (M)  
 Y = 277.00 (M)  
 半径 R = 16.00 (M)  
 張成モーメント  $M_n = 1855.08$  (T\*M)  
 起動モーメント  $M_o = 417.06$  (T\*M)

層番号	層厚 (T/M <sup>2</sup> )	透水性係数 (T/M <sup>2</sup> )	円弧傾角 (度)	粘着力 (T/M <sup>2</sup> )	粘着力一次係数	水平透水性	鉛直透水性
1	1.90	1.90	25.0	1.00	0.900	0.000	0.000
2	1.90	1.90	25.0	1.00	0.900	0.000	0.000
3	1.90	1.90	25.0	1.00	0.900	0.000	0.000
4	1.90	1.90	25.0	1.00	0.900	0.000	0.000
5	1.90	1.90	25.0	1.00	0.900	0.000	0.000
6	1.90	1.90	25.0	1.00	0.900	0.000	0.000
7	1.80	1.80	15.0	0.70	0.000	0.000	0.000
8	2.00	1.00	0.0	0.00	0.000	0.000	0.000

水の単位体積重量 = 1.000 (T/M<sup>3</sup>)



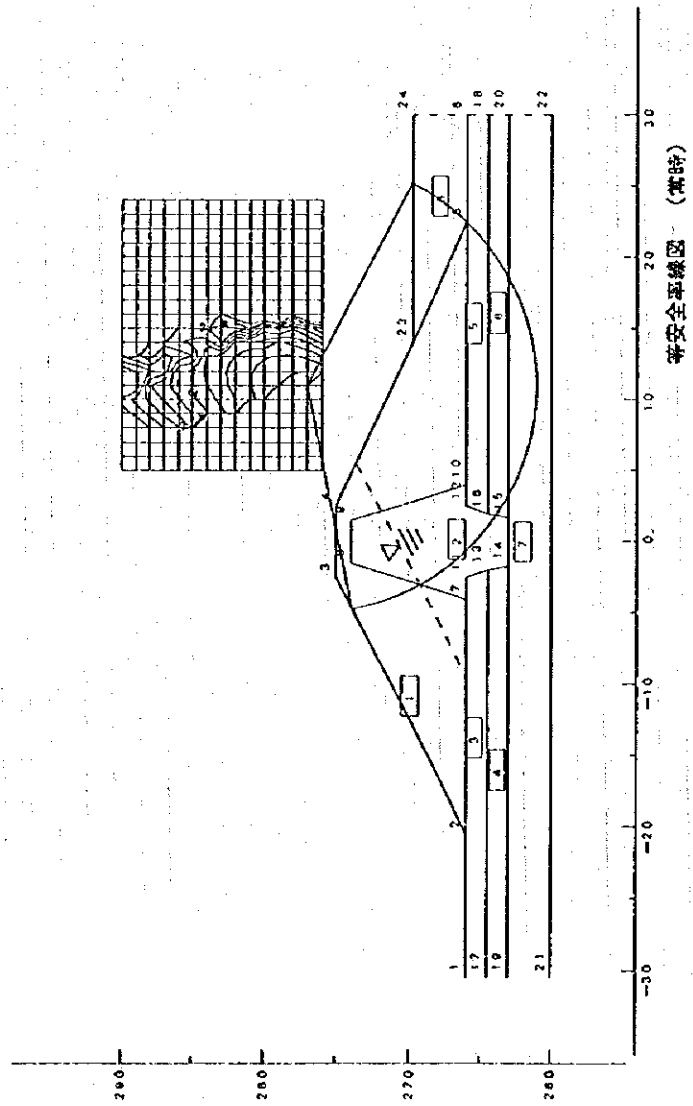
③上流側 中間水位時 浸透部あり

縮尺 : 1 / 500

最小安全率  $F_s$  with  $= 1.939$   
 円弧の中心  $X = 11.00$  (M)  
 $Y = 277.00$  (M)  
 半径  $R = 16.00$  (M)  
 形状モーメント  $M_x = 1624.62$  (T\*M)  
 起動モーメント  $M_0 = 837.48$  (T\*M)

階番号	総荷重 (T/M <sup>2</sup> )	埋置重量 (T/M <sup>2</sup> )	内部埋置外 (厚)	粘着力 (T/M <sup>2</sup> )	一次係数	粘着力の 水平分量	剪断強度
1	1.90	1.00	25.0	1.00	1.000	0.000	0.000
2	1.90	1.90	25.0	1.00	1.000	0.000	0.000
3	1.90	1.90	25.0	1.00	1.000	0.000	0.000
4	1.90	1.90	25.0	1.00	1.000	0.000	0.000
5	1.90	1.90	25.0	1.00	1.000	0.000	0.000
6	1.90	1.90	25.0	1.00	1.000	0.000	0.000
7	1.90	1.90	15.0	0.70	1.000	0.000	0.000
8	2.00	1.00	0.0	0.00	1.000	0.000	0.000

水の単位体積重量 = 1.000 (T/M<sup>3</sup>)





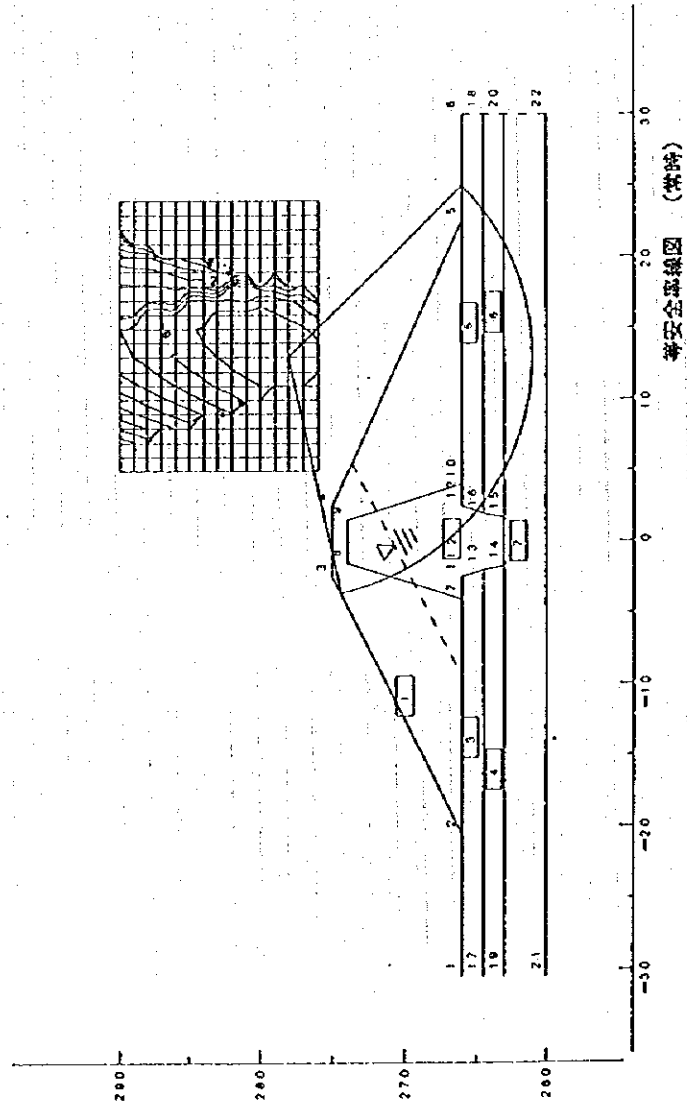
④上流側 水位なし 浸透部あり

縮尺 : 1 / 500

最小安全率  $F_{s \min} = 1.419$   
 円弧の中心  $X = 13.00 (M)$   
                    $Y = 276.00 (M)$   
                   半径  $R = 17.00 (M)$   
 抵抗モーメント  $M_a = 1593.05 (T \cdot M)$   
 起動モーメント  $M_0 = 1122.19 (T \cdot M)$

層番号	透り率 ( $T/M^2$ )	流路長さ ( $T/M^2$ )	内部摩擦角 (度)	粘着力 ( $T/M^2$ )	粘着力の 一次係数	水平抗力	鉛直抗力
1	1.90	1.90	25.0	1.00	0.000	0.000	0.000
2	1.90	1.90	25.0	1.00	0.000	0.000	0.000
3	1.90	1.90	25.0	1.00	0.000	0.000	0.000
4	1.90	1.90	25.0	1.00	0.000	0.000	0.000
5	1.90	1.90	25.0	1.00	0.000	0.000	0.000
6	1.90	1.90	25.0	1.00	0.000	0.000	0.000
7	1.00	1.00	15.0	0.70	0.000	0.000	0.000

水の単位体積重量 = 1,000 ( $T/M^3$ )



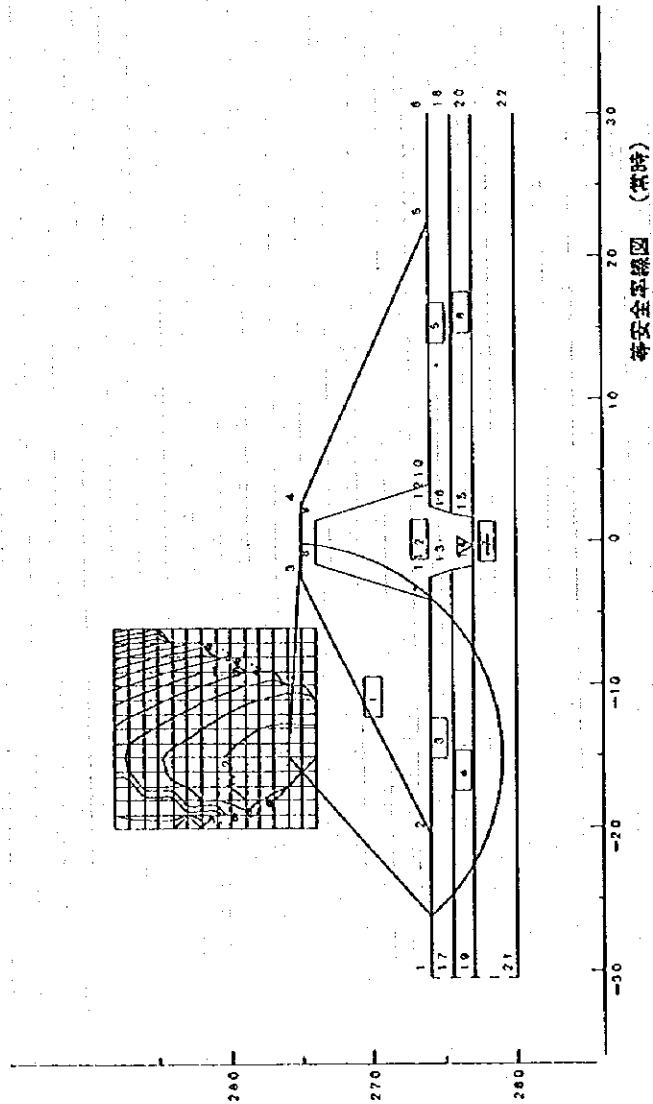
⑤下流側 水位なし 浸透部なし

縮尺 : 1 / 500

最小安全係数 F<sub>MIN</sub> = 1.162  
 円弧の中心 X = -15.00 (M)  
 Y = 276.00 (M)  
 半径 R = 15.00 (M)  
 抵抗モーメント M<sub>A</sub> = 1478.02 (T=M)  
 起動モーメント M<sub>0</sub> = -1271.56 (T=M)

層番号	鉛直位置 (T/M <sup>2</sup> )	水平位置 (T/M <sup>2</sup> )	内径厚さ (mm)	鉛直力 (T/M <sup>2</sup> )	鉛直力の一次係数	水平位置	鉛直位置
1	1.90	1.90	25.0	1.00	0.000	0.000	0.000
2	1.90	1.90	25.0	1.00	0.000	0.000	0.000
3	1.90	1.90	25.0	1.00	0.000	0.000	0.000
4	1.90	1.90	25.0	1.00	0.000	0.000	0.000
5	1.90	1.90	25.0	1.00	0.000	0.500	0.000
6	1.90	1.90	25.0	1.00	0.000	0.000	0.000
7	1.90	1.90	15.0	0.70	0.000	0.000	0.000

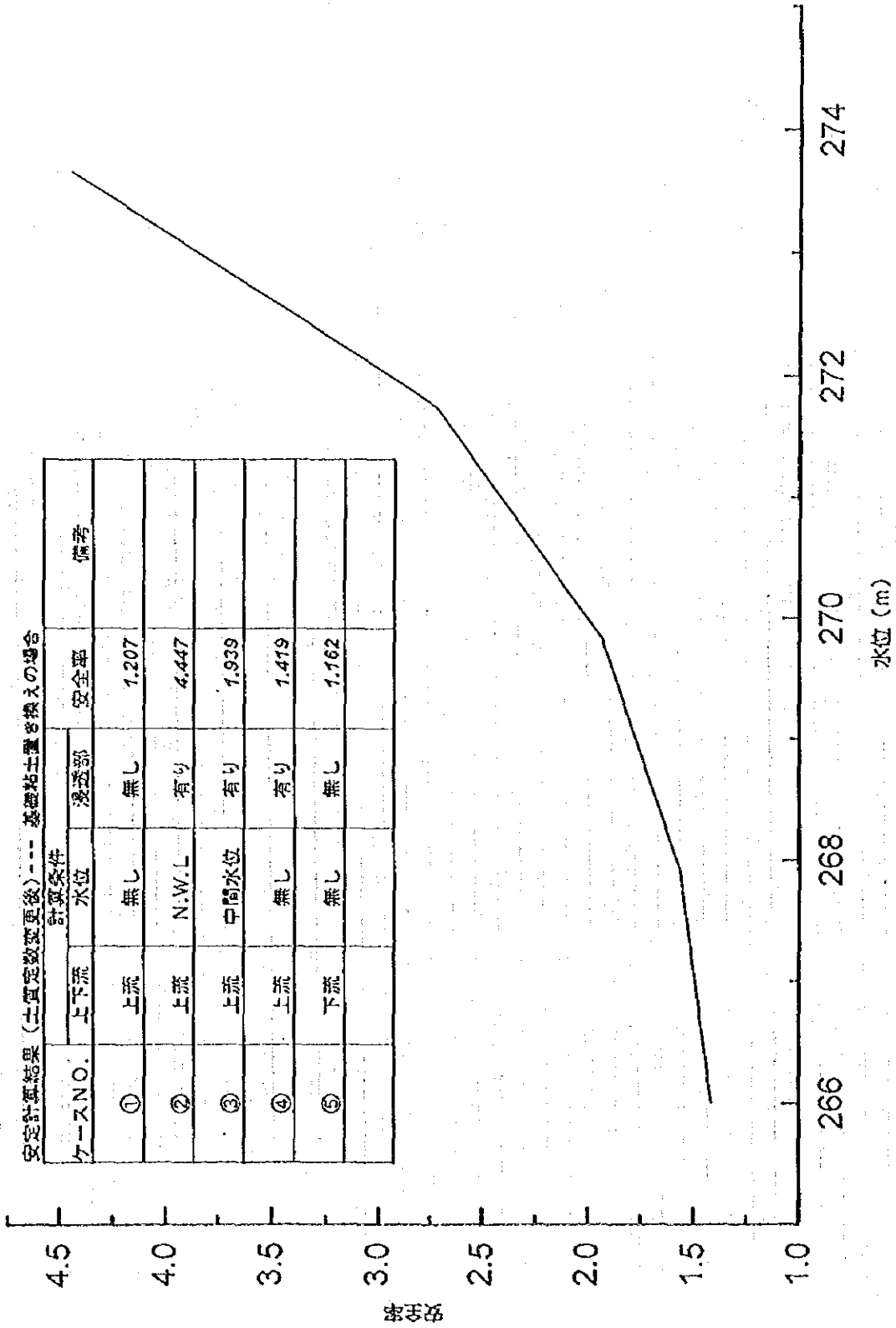
次の単位係数 = 1.000 (T/M<sup>2</sup>)



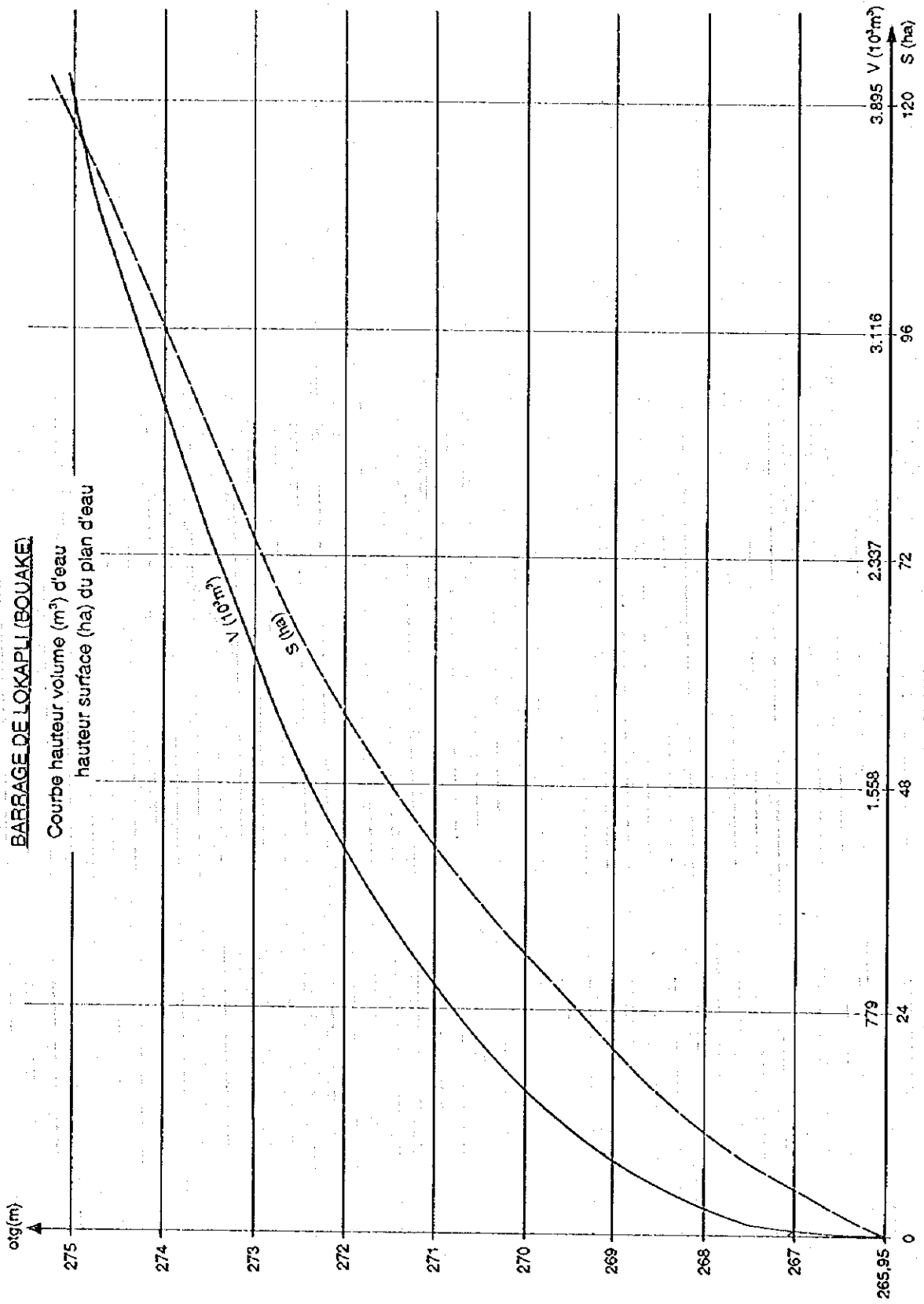
上流側水位-安全率

安定計算結果(土質定数変更後)---基礎粘土置き換えの場合

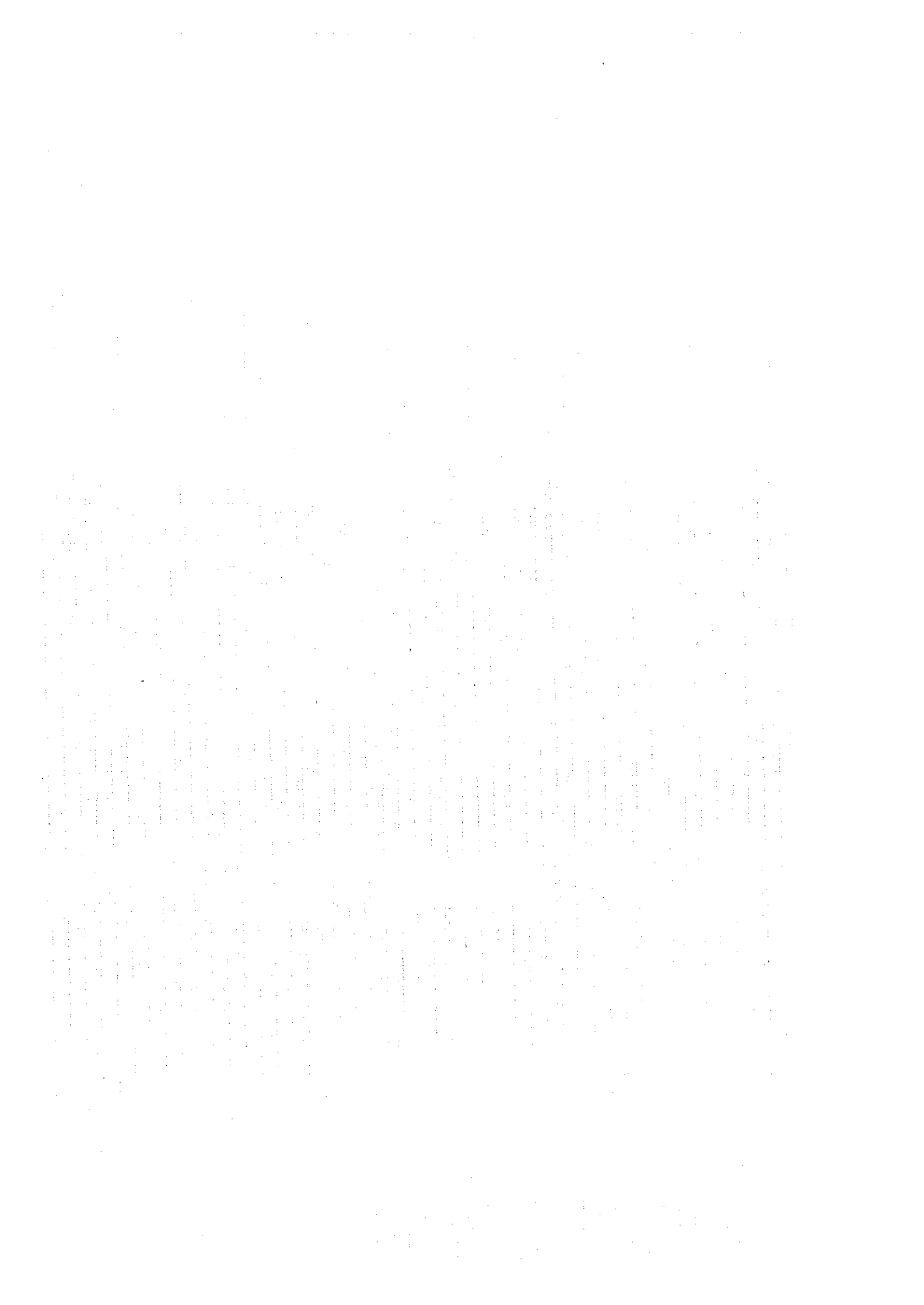
ケースNO.	計算条件			安全率	備考
	上下流	水位	浸透部		
①	上流	無し	無し	1.207	
②	上流	N.W.L	有り	4.447	
③	上流	中間水位	有り	1.939	
④	上流	無し	有り	1.419	
⑤	下流	無し	無し	1.162	



B-6 ロカブリダム H-V 及び H-A 曲線



### C. 水文關係資料



C-1. 流出量計算

洪水流出計算結果 (1/2)

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of f'	Value of C
Lokapli River	1-5	108.17	0.7	0.7	350
Catchment	Dilatation	Rainfall	Peak Ruoff	Peak Ruoff	Specific Q
Area (km <sup>2</sup> )	Time (hr)	Intensity	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)	(m <sup>3</sup> /s/km <sup>2</sup> )
2.75	2.988	12.773	6.850	6.850	2.484
5.50	3.594	11.646	12.455	12.455	2.264
8.25	4.002	11.053	17.699	17.699	2.143
11.00	4.324	10.618	22.710	22.710	2.065
13.75	4.589	10.306	27.556	27.556	2.004
16.50	4.818	10.059	32.275	32.275	1.956
19.25	5.020	9.854	36.885	36.885	1.916
22.00	5.202	9.680	41.411	41.411	1.882
24.75	5.366	9.530	45.861	45.861	1.853
27.50	5.521	9.397	50.246	50.246	1.827
30.25	5.663	9.278	54.573	54.573	1.804
33.00	5.796	9.171	58.847	58.847	1.785
35.75	5.921	9.074	63.074	63.074	1.764
38.50	6.039	8.984	67.258	67.258	1.747
41.25	6.152	8.902	71.403	71.403	1.731
44.00	6.258	8.826	75.510	75.510	1.716
46.75	6.360	8.753	79.584	79.584	1.702
49.50	6.458	8.688	83.625	83.625	1.689
52.25	6.552	8.626	87.637	87.637	1.677
55.00	6.642	8.567	91.621	91.621	1.666

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of f'	Value of C
Lokapli River	1-2	84.06	0.7	0.7	350
Catchment	Dilatation	Rainfall	Peak Ruoff	Peak Ruoff	Specific Q
Area (km <sup>2</sup> )	Time (hr)	Intensity	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)	(m <sup>3</sup> /s/km <sup>2</sup> )
2.75	3.325	9.410	5.032	5.032	1.850
5.50	4.000	9.175	9.668	9.668	1.668
8.25	4.457	8.128	15.039	15.039	1.580
11.00	4.812	7.822	16.731	16.731	1.521
13.75	5.107	7.593	20.500	20.500	1.476
16.50	5.362	7.411	23.776	23.776	1.441
19.25	5.587	7.260	27.174	27.174	1.412
22.00	5.789	7.132	30.508	30.508	1.387
24.75	5.974	7.021	33.786	33.786	1.365
27.50	6.144	6.923	37.017	37.017	1.346
30.25	6.302	6.835	40.204	40.204	1.329
33.00	6.450	6.756	43.353	43.353	1.314
35.75	6.590	6.685	46.468	46.468	1.300
38.50	6.721	6.619	49.530	49.530	1.287
41.25	6.846	6.558	52.603	52.603	1.275
44.00	6.965	6.502	55.629	55.629	1.264
46.75	7.078	6.450	58.620	58.620	1.254
49.50	7.187	6.401	61.608	61.608	1.245
52.25	7.291	6.355	64.563	64.563	1.236
55.00	7.392	6.311	67.498	67.498	1.227

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of f'	Value of C
Lokapli River	1-20	138.15	0.7	0.7	350
Catchment	Dilatation	Rainfall	Peak Ruoff	Peak Ruoff	Specific Q
Area (km <sup>2</sup> )	Time (hr)	Intensity	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)	(m <sup>3</sup> /s/km <sup>2</sup> )
2.75	2.693	17.184	9.189	9.189	3.341
5.50	3.240	15.667	16.755	16.755	3.046
8.25	3.610	14.842	23.809	23.809	2.886
11.00	3.893	14.284	30.551	30.551	2.777
13.75	4.137	13.863	37.070	37.070	2.696
16.50	4.343	13.532	43.415	43.415	2.631
19.25	4.525	13.257	49.621	49.621	2.578
22.00	4.689	13.023	55.709	55.709	2.532
24.75	4.839	12.820	61.696	61.696	2.495
27.50	4.977	12.641	67.595	67.595	2.458
30.25	5.105	12.481	73.415	73.415	2.427
33.00	5.225	12.337	79.163	79.163	2.399
35.75	5.337	12.206	84.852	84.852	2.373
38.50	5.444	12.086	90.480	90.480	2.350
41.25	5.545	11.976	96.056	96.056	2.329
44.00	5.641	11.873	101.581	101.581	2.309
46.75	5.733	11.778	107.061	107.061	2.290
49.50	5.821	11.688	112.498	112.498	2.273
52.25	5.906	11.604	117.895	117.895	2.256
55.00	5.987	11.525	123.255	123.255	2.241

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of f'	Value of C
Lokapli River	1/10	123.63	0.7	0.7	350
Catchment	Dilatation	Rainfall	Peak Ruoff	Peak Ruoff	Specific Q
Area (km <sup>2</sup> )	Time (hr)	Intensity	(m <sup>3</sup> /s)	(m <sup>3</sup> /s)	(m <sup>3</sup> /s/km <sup>2</sup> )
2.75	2.823	15.019	8.051	8.051	2.920
5.50	3.396	13.695	14.644	14.644	2.663
8.25	3.784	12.972	20.810	20.810	2.522
11.00	4.086	12.484	26.703	26.703	2.428
13.75	4.336	12.118	32.400	32.400	2.360
16.50	4.552	11.827	37.946	37.946	2.300
19.25	4.744	11.587	43.370	43.370	2.253
22.00	4.915	11.382	48.691	48.691	2.213
24.75	5.072	11.205	53.923	53.923	2.179
27.50	5.217	11.048	59.079	59.079	2.148
30.25	5.351	10.909	64.168	64.168	2.121
33.00	5.477	10.783	69.192	69.192	2.097
35.75	5.595	10.669	74.162	74.162	2.074
38.50	5.707	10.564	79.082	79.082	2.054
41.25	5.813	10.467	83.955	83.955	2.035
44.00	5.913	10.377	88.784	88.784	2.018
46.75	6.010	10.294	93.574	93.574	2.002
49.50	6.102	10.216	98.326	98.326	1.986
52.25	6.191	10.142	103.043	103.043	1.972
55.00	6.276	10.073	107.727	107.727	1.959

洪水流出計算結果 (2/2)

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of C
Lokapli River	1/50	156.67	0.7	350
Catchment Area (km <sup>2</sup> )				
2.75	2.553	20.014	10.702	3.892
5.50	3.072	18.247	19.515	3.548
8.25	3.422	17.387	27.431	3.361
11.00	3.693	16.636	35.364	3.253
13.75	3.922	16.149	43.176	3.140
16.50	4.117	15.761	50.366	3.063
19.25	4.290	15.440	57.794	3.002
22.00	4.446	15.168	64.885	2.949
24.75	4.587	14.931	71.858	2.903
27.50	4.718	14.723	78.728	2.863
30.25	4.840	14.537	85.508	2.827
33.00	4.953	14.370	92.203	2.794
35.75	5.060	14.217	98.828	2.764
38.50	5.161	14.077	105.384	2.737
41.25	5.257	13.948	111.877	2.712
44.00	5.348	13.829	118.313	2.689
46.75	5.435	13.717	124.696	2.667
49.50	5.519	13.613	131.028	2.647
52.25	5.599	13.513	137.314	2.628
55.00	5.676	13.423	143.556	2.610

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of C
Lokapli River	1/200	184.20	0.7	350
Catchment Area (km <sup>2</sup> )				
2.75	2.384	24.553	13.022	4.755
5.50	2.868	22.203	23.745	4.317
8.25	3.195	21.033	33.743	4.090
11.00	3.450	20.243	43.298	3.956
13.75	3.662	19.650	52.536	3.821
16.50	3.844	19.178	61.529	3.729
19.25	4.005	18.788	70.323	3.655
22.00	4.150	18.456	78.951	3.589
24.75	4.283	18.168	87.436	3.535
27.50	4.405	17.915	95.796	3.483
30.25	4.518	17.689	104.045	3.440
33.00	4.624	17.485	112.193	3.400
35.75	4.724	17.299	120.254	3.364
38.50	4.818	17.129	128.231	3.331
41.25	4.908	16.973	136.132	3.300
44.00	4.993	16.827	143.964	3.272
46.75	5.074	16.691	151.750	3.246
49.50	5.152	16.565	159.485	3.221
52.25	5.227	16.446	167.083	3.198
55.00	5.299	16.334	174.678	3.176

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of C
Lokapli River	1/100	170.47	0.7	350
Catchment Area (km <sup>2</sup> )				
2.75	2.463	22.171	11.855	4.311
5.50	2.964	20.213	21.617	3.980
8.25	3.302	19.130	30.719	3.724
11.00	3.565	18.429	39.417	3.585
13.75	3.784	17.889	47.827	3.478
16.50	3.972	17.459	56.015	3.395
19.25	4.139	17.104	64.021	3.326
22.00	4.289	16.802	71.876	3.267
24.75	4.426	16.540	79.600	3.216
27.50	4.552	16.309	87.211	3.171
30.25	4.669	16.104	94.720	3.131
33.00	4.779	15.918	102.139	3.095
35.75	4.882	15.749	109.476	3.062
38.50	4.979	15.594	116.739	3.032
41.25	5.072	15.451	123.932	3.004
44.00	5.160	15.319	131.060	2.979
46.75	5.244	15.199	138.131	2.955
49.50	5.325	15.080	145.146	2.932
52.25	5.402	14.972	152.109	2.911
55.00	5.476	14.870	159.023	2.891

Case Name	Return Period	Max. 24 hr Rainfall (mm)	Value of f	Value of C
Lokapli River	1/200	184.20	0.7	350
Catchment Area (km <sup>2</sup> )				
2.75	2.384	24.553	13.022	4.755
5.50	2.868	22.203	23.745	4.317
8.25	3.195	21.033	33.743	4.090
11.00	3.450	20.243	43.298	3.956
13.75	3.662	19.650	52.536	3.821
16.50	3.844	19.178	61.529	3.729
19.25	4.005	18.788	70.323	3.655
22.00	4.150	18.456	78.951	3.589
24.75	4.283	18.168	87.436	3.535
27.50	4.405	17.915	95.796	3.483
30.25	4.518	17.689	104.045	3.440
33.00	4.624	17.485	112.193	3.400
35.75	4.724	17.299	120.254	3.364
38.50	4.818	17.129	128.231	3.331
41.25	4.908	16.973	136.132	3.300
44.00	4.993	16.827	143.964	3.272
46.75	5.074	16.691	151.750	3.246
49.50	5.152	16.565	159.485	3.221
52.25	5.227	16.446	167.083	3.198
55.00	5.299	16.334	174.678	3.176



流域流出量 (1/2)

Year Month	1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970		1971		1972		1973		1974		1975		1976										
	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )									
Jan (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
(2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(3)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Feb (1)	0.0	0.0	11.1	4760	85.3	372709	0.3	1632	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	0.0	0.0	34.4	45721	0.0	0.0	17.2	11430	0.0	0.0	40.9	64632	17.4	11698	3.8	5581	8.2	2598	1.8	1251	11.5	3110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	3.0	348	3.2	6332	18.4	13081	14.7	8349	0.0	0.0	42.0	68155	21.8	18362	1.6	991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	3.0	348	38.7	57213	103.7	385790	38.4	21412	0.0	0.0	82.9	132787	39.4	30061	25.0	15499	8.2	2598	17.3	9408	23.6	33374	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Mar (1)	1.3	1852	71.0	200381	42.8	70776	32.1	39472	9.2	35472	2.4	2431	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	45.3	79286	72.5	210381	0.0	0.0	23.2	20796	1.8	1251	24.4	23003	78.5	281794	12.0	5564	28.8	32047	85.3	372709	32.6	126320	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	9.3	3342	14.0	7573	3.2	396	17.8	12342	73.1	72349	77.2	114184	111.6	301801	214.3	160562	38.3	24288	111.4	399028	42.0	60727	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	12.1	94460	128.1	418334	46.0	71172	43.1	22349	22.1	100494	38.1	26088	17.2	11450	26.9	27958	71.2	193996	16.8	10902	30.0	34773	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Apr (1)	109.2	778373	14.3	8125	19.7	14994	25.7	25519	31.0	100494	38.1	26088	17.2	11450	26.9	27958	71.2	193996	16.8	10902	30.0	34773	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	52.8	107713	53.7	11416	37.3	53755	43.1	71772	66.5	170861	11.8	5380	28.0	30291	75.9	249835	11.5	5110	77.4	268084	46.8	84625	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	24.2	22627	56.3	122466	19.3	14392	43.8	74122	16.2	10140	62.8	15237	69.6	197607	42.5	69787	71.9	204693	18.2	12798	28.4	31163	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	186.2	906713	124.3	242005	76.3	83741	112.6	171413	133.7	281494	112.7	215842	114.8	228883	145.3	347580	134.6	404799	112.4	291786	103.2	150559	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
May (1)	8.8	15650	4.3	714	27.7	128633	0.2	10	30.6	31736	21.6	18026	30.1	30352	20.9	16877	27.6	29452	64.6	161237	14.0	3264	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(2)	37.9	55498	79.0	288118	26.0	26118	12.7	6232	19.9	15300	11.4	873238	94.3	509341	42.8	70776	13.0	6330	28.2	30725	61.2	144711	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	91.9	471090	42.1	68480	74.1	228617	0.0	0.0	30.9	36891	13.4	69338	98.1	572607	62.0	148519	16.0	9891	49.7	95436	55.7	119870	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	148.6	340223	125.4	337312	157.8	383368	13.2	6231	87.4	103947	149.0	898202	228.5	1132299	125.7	236172	36.6	43852	142.5	283598	128.9	270145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jun (1)	162.2	1873970	21.2	7563	29.4	33396	100.8	61957	42.7	70446	18.4	13081	196.6	336784	36.6	128775	12.4	3941	53.2	109521	41.2	65385	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	78.0	275228	19.8	15147	74.1	238617	0.0	0.0	15.9	9768	24.5	25192	25.2	34536	13.6	7146	17.8	13242	19.4	14541	28.4	31163	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	393.8	4288324	138.6	596605	197.4	764887	104.8	620189	101.8	152319	239.5	3404728	246.3	3415381	82.3	136766	40.0	21893	130.9	255214	89.8	112311	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	621.0	6210321	178.6	614460	271.5	1033776	205.6	682146	160.4	200000	152.7	391000	268.1	676122	132.5	266737	70.4	24182	164.1	366026	119.4	177188	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Jul (1)	6.2	1632	4.9	928	67.0	173440	38.0	22791	64.3	129743	11.1	38	3.8	3281	10.4	4179	48.7	91634	39.2	134407	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
(2)	64.9	162738	24.7	23572	38.4	56972	88.7	422142	2.0	135	26.7	27544	28.3	30944	0.3	31.6	38581	36.4	51192	63.0	163240	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
(3)	35.9	49795	2.2	187	78.9	268838	0.8	25	12.2	15763	20.2	5731	1.4	76	32.9	41821	113.3	858783	21.6	18026	19.0	139488	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	107.3	214165	31.8	24686	184.3	517260	127.5	477538	78.5	163648	48.0	45336	33.5	31577	43.6	46003	193.6	988598	117.2	204626	84.0	177188	0.0	0.0</																			

流域流出量 (2/2)

Year	1977			1978			1979			1980			1991			1992			1993			1994			1995			Average				
Month	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )	Rainfall (mm)	Runoff (m <sup>3</sup> )				
Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
(2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
(3)	23.6	21519	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	24.1	21529	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Feb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(3)	25.9	22070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total	25.9	22070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(2)	7.3	2059	13.4	6938	22.1	18871	21.6	18026	0.0	0.0	2.8	303	0.0	0.0	14.1	1681	18.1	12658	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(3)	69.1	184483	24.8	23763	41.7	67185	4.6	818	126.0	1138317	38.7	57866	168.1	2330340	20.2	15765	43.1	71772	48.0	291844	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	76.4	186941	105.6	206218	65.8	86055	83.3	144815	126.0	1138517	41.5	68560	186.8	2566666	40.2	29678	81.2	79548	96.4	300027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Apr	15.4	6958	38.9	154039	27.2	28585	10.3	4260	20.0	13455	86.0	382670	15.0	3695	95.0	520746	71.0	194767	40.9	127940	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(2)	32.2	40060	88.6	420631	58.1	130422	55.7	19370	11.7	5289	3.4	447	38.0	55791	80.8	311558	8.0	2475	44.1	11260	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
(3)	15.3	9044	58.4	131773	38.5	57269	34.0	44664	18.5	13223	34.3	46790	44.3	73824	43.4	72774	79.2	290663	41.0	82138	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	60.9	36042	203.9	686462	123.8	216276	100.2	168793	50.2	33967	124.2	429907	97.3	403508	219.2	904879	158.2	487903	125.9	322338	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	16.0	9891	42.3	70776	74.9	237955	16.1	10015	38.3	56676	94.6	314215	25.4	24927	39.2	135407	12.2	5751	45.4	124610	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	42.9	71107	27.7	29645	6.1	1438	109.5	82272	57.9	129526	18.0	12518	56.7	124212	51.0	100494	41.1	65265	47.2	153741	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	138.9	31935	120.4	196627	133.5	343885	192.5	96520	138.0	253709	122.7	330675	125.4	221579	150.6	298962	104.0	70331	129.5	381305	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Jun	92.5	48029	106.0	726110	122.5	184316	11.9	5471	58.5	152224	68.7	171890	30.7	56415	63.7	156775	49.9	96206	68.4	106865	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	45.7	80692	14.2	7791	95.7	532264	38.7	57866	58.0	129974	4.9	928	2.0	155	17.4	11698	19.3	14392	50.3	369855	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	0.6	14	8.4	2726	36.4	51192	0.0	23.4	0.0	23.4	1.0	59	10.0	3864	0.9	31	20.4	16079	20.9	56849	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	138.8	561255	129.2	736627	284.6	2424772	30.6	63337	139.9	283354	72.6	172856	42.7	40433	82.0	168504	89.6	126676	139.8	917511	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jul	18.6	13267	2.0	261	0.2	261	2.0	261	14.58	728	225153	14.3	7901	28.9	32270	25.0	20459	181.0	276878	32.6	83025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3)	33.2	42587	51.0	100494	100.2	608990	290.7	8116205	5.2	1045	10.8	4507	1.9	139	31.6	38581	15.4	9165	43.9	310637	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	51.8	25954	54.9	100820	210.2	1397184	299.1	8117847	129.3	323952	95.3	193171	31.0	32411	46.0	222506	209.4	2792571	113.7	821384	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aug	15.5	9282	0.0	0.0	28.5	31583	13.0	8693	32.5	40810	0.2	2	15.4	9163	16.1	10015	35.2	47872	25.4	80353	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	45.8	81046	36.1	50532	12.9	6450	115.5	904592	94.4	510963	0.0	0.0	31.9	39317	25.3	24731	137.0	1410696	42.7	194519	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(3)	141.5	1330039	10.0	3864	12.3	5845	52.1	104876	31.3	37852	34.7	46522	56.5	123338	4.9	928	12.2	5751	42.7	165354	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	202.8	1620367	46.1	54215	53.7	43637	182.6	1018161	158.2	589625	34.9	46524	103.8	171818	46.3	35674	184.4	1464319	108.8	440429	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sep	104.0	677597	9.2	3270	45.5	9987	66.9	72922	126.8	1137376	35.1	47601	70.8	193671	80.3	304828	57.6	128187	70.2	46947	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	95.0	488457	96.3	550591	29.1	32718	16.1	10015	0.8	32718	25	140486	5.8	1300	24.1	22441	78.9	286848	54.9	228829	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3)	75.7	224003	34.8	46790	17.8	12242	109.5	82272	36.5	51474	76.3	254651	120.2	1006176	71.3	197089	16.2	10140	56.4	248154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	270.7	1389858	140.8	600651	92.4	124947	192.5	965210	164.1	1208874	171.7	427538	196.8	1201147	175.7	524357	152.7	425175	181.5	923930	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct	67.6	160200	7.6	2232	50.6	98924	11.9	5471	15.8	7558	49.4	94287	116.8	932185	22.5	19214	48.7	91634	43.4	146057	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(2)	55.5	118154	22.4	19386	29.7	34081	38.7	57866	1.6																							

確率年別日最大雨量

確率年	1/2	1/5	1/10	1/20	1/50	1/100	1/200
日最大雨量(mm)	84.06	108.17	123.63	138.15	156.67	170.47	174.20

確率年別流出量計算結果

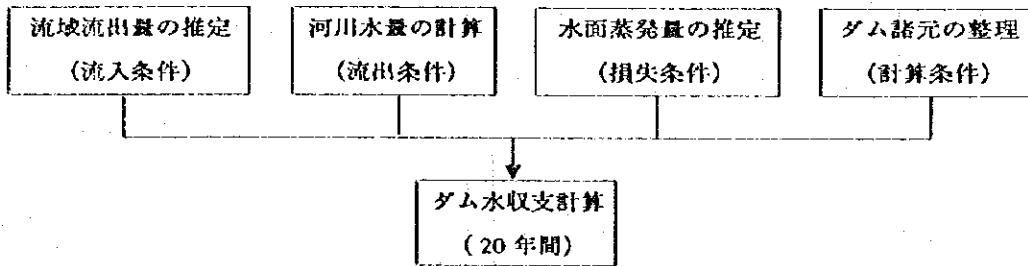
Return Period	1/2	1/5	1/10	1/20	1/50	1/100	1/200
R <sub>24</sub>	84.06	108.17	123.63	138.15	156.67	170.47	184.20
T (hr)	7.4	6.6	6.3	6.0	5.7	5.5	5.3
Qp (m <sup>3</sup> /s)	67.498	91.621	107.727	123.255	143.556	159.023	174.678

(注) fp=0.7、 Value of C = 350 、 Area(km<sup>2</sup>) = 55

計算はデータ集 C - 1 (流出量計算) に示す

## C-2. ダム水収支計算

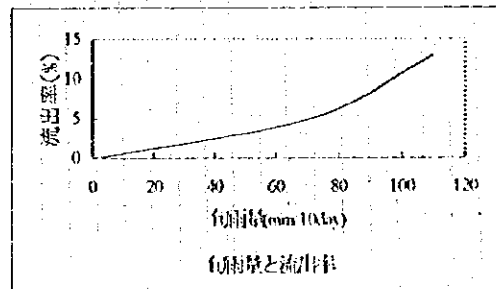
### ダム水収支計算手法



### 流出量の推定

年	降雨量(mm)	損失高(mm)	流出率(%)	流出量(m <sup>3</sup> /年)
平均	1,092	996	8	4,800,000
乾期10年	868	825	5	2,400,000
雨期10年	1,336	1,161	13	9,600,000

出典：DME

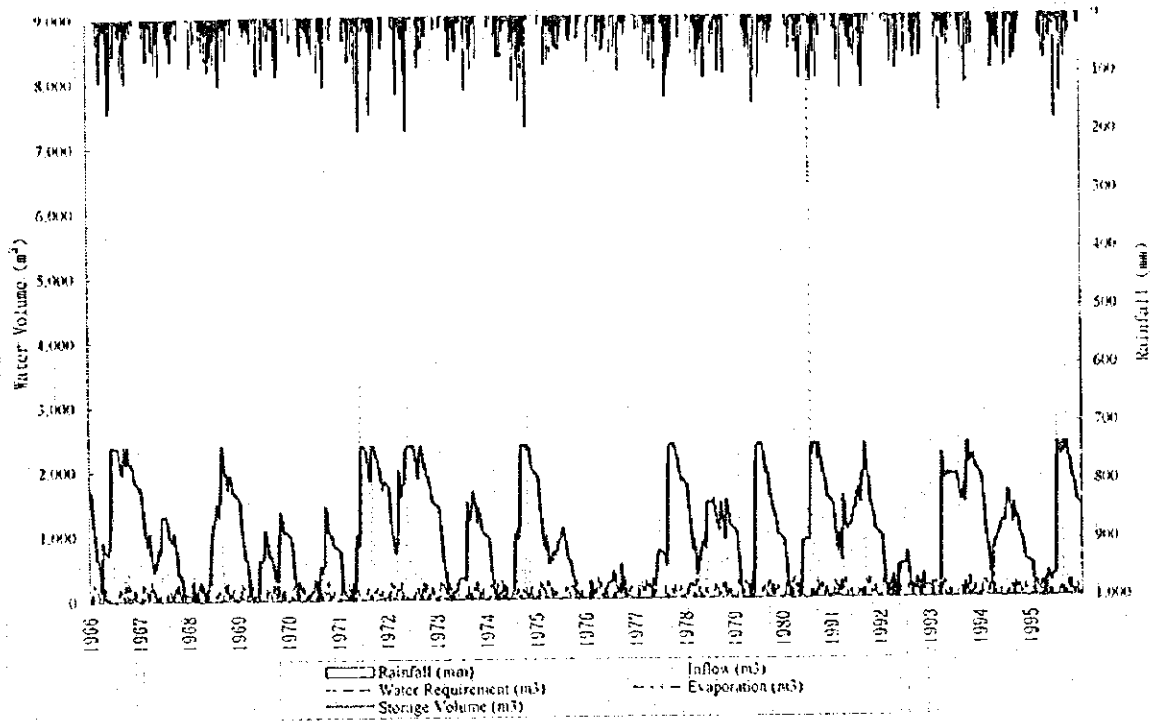


### 旬雨量と流出率

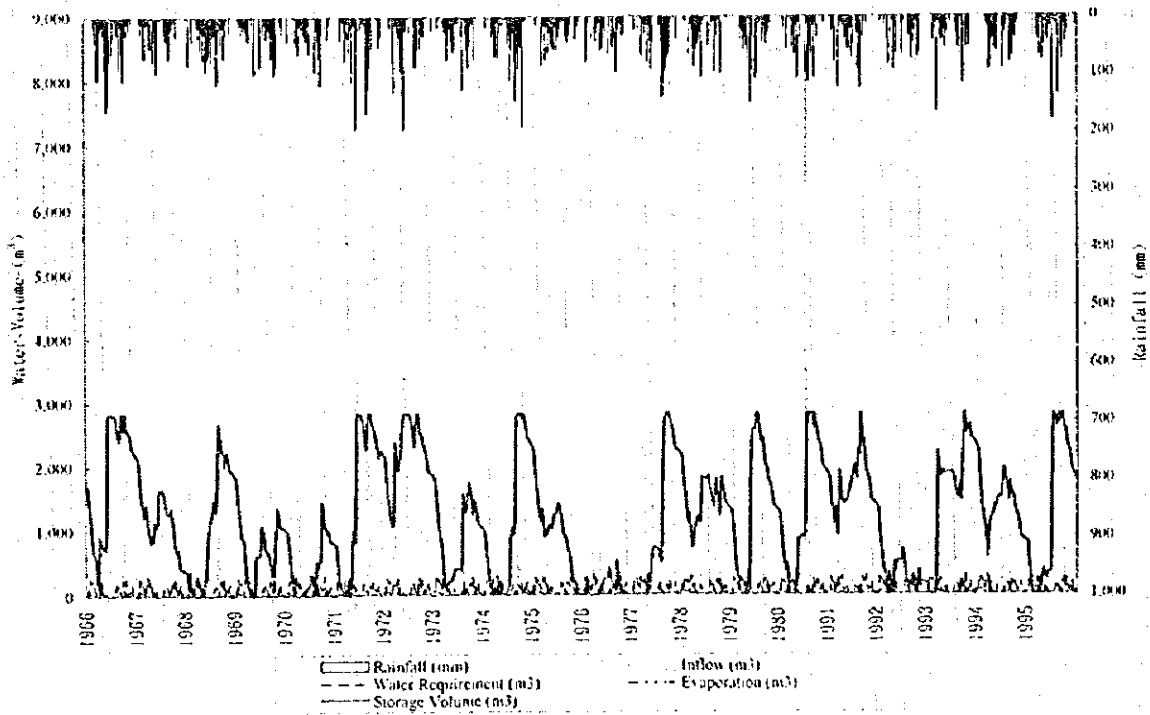
### 流出量

	降雨量 (mm)	流出量 (m <sup>3</sup> )	流出率 (%)
平均	1,097	4,803,561	8
乾期10年	978	2,713,548	5
雨期10年	1,216	6,893,574	10

(注) 計算はデータ集C-1 (流出量計算) に示す



Case 1  $V_{max} 2,375,000 \text{ m}^3$



Case 2  $V_{max} 2,815,225 \text{ m}^3$

ダム水収支計算結果

水收支計算結果

Case1 : Vmax 2,735,000 m<sup>3</sup> (1/4)

Year.Month	Rainfall (mm)	Inflow (m3)	Water Requirement (m3)	Evaporation (m3)	Storage Volume (m3)	Over Flow (m3)	Insufficiency (m3)	Water Level (m)	Water Area (ha)
1966.01	0.0	0	252,460	103,663	1,313,877	0	0	272.01	55.36
1966.02	3.0	318	596,485	93,639	654,100	0	0	270.43	34.99
1966.03	72.1	94,460	541,731	35,966	157,863	0	0	268.39	14.08
1966.04	186.2	906,713	276,114	38,956	759,505	0	0	270.72	38.24
1966.05	148.6	540,243	128,069	28,120	1,143,560	0	0	271.59	49.52
1966.06	393.8	4,288,324	0	41,518	2,375,000	3,015,336	0	273.50	83.13
1966.07	107.3	214,165	51,308	43,614	2,359,134	135,110	0	273.48	82.74
1966.08	69.6	76,521	426,453	38,388	1,970,813	0	0	272.98	73.08
1966.09	169.7	617,874	389,957	34,713	2,117,968	46,019	0	273.17	76.77
1966.10	168.5	891,337	277,958	38,382	2,139,768	543,196	0	273.20	77.31
1966.11	38.7	27,320	278,162	50,722	1,838,204	0	0	272.77	69.32
1966.12	9.9	3,787	0	79,246	1,762,745	0	0	272.66	67.18
1967.01	0.0	0	252,460	135,483	1,374,802	0	0	272.05	56.18
1967.02	58.7	57,213	494,598	97,902	839,515	0	0	270.95	40.71
1967.03	158.1	418,334	447,759	62,242	747,818	0	0	270.69	37.88
1967.04	124.5	242,005	373,266	33,362	583,225	0	0	270.23	32.80
1967.05	125.3	357,312	182,314	25,533	732,660	0	0	270.65	37.41
1967.06	138.6	596,605	0	25,280	1,303,986	0	0	271.92	54.15
1967.07	31.8	24,686	112,461	28,430	1,187,781	0	0	271.68	50.80
1967.08	98.7	133,743	374,087	23,047	924,390	0	0	271.14	43.26
1967.09	125.3	289,170	358,190	19,862	835,507	0	0	270.94	40.59
1967.10	38.2	25,053	481,937	16,874	358,750	0	0	269.43	24.25
1967.11	35.1	47,601	285,746	15,828	104,776	0	0	268.03	10.87
1967.12	4.8	819	0	12,299	93,296	0	0	267.92	10.06
1968.01	5.3	1,169	252,460	19,683	0	0	-177,677	265.95	0.00
1968.02	103.7	185,790	424,884	16,245	0	0	-55,340	265.95	0.00
1968.03	46.0	71,172	593,495	3,534	0	0	-525,854	265.95	0.00
1968.04	76.3	83,141	446,291	0	0	0	-363,150	265.95	0.00
1968.05	157.8	383,368	132,763	5,061	245,544	0	0	268.97	19.36
1968.06	197.4	764,887	0	15,228	995,203	0	0	271.28	45.24
1968.07	181.3	517,260	0	25,654	1,486,840	0	0	272.23	59.35
1968.08	158.9	539,084	279,197	27,722	1,718,674	0	0	272.59	65.93
1968.09	168.5	1,011,088	436,979	33,756	1,965,564	293,463	0	272.97	72.93
1968.10	142.1	327,731	338,928	31,112	1,920,256	0	0	272.90	71.64
1968.11	43.7	47,380	269,724	47,587	1,650,324	0	0	272.48	63.99
1968.12	27.7	29,645	0	73,821	1,606,148	0	0	272.41	62.74
1969.01	0.0	0	252,460	126,327	1,227,161	0	0	271.77	51.93
1969.02	38.4	21,412	531,176	88,360	629,037	0	0	270.36	31.21
1969.03	73.1	72,849	541,604	41,695	115,587	0	0	268.11	11.53
1969.04	112.6	171,413	381,700	4,918	63,130	0	-162,748	267.52	7.67
1969.05	13.2	6,241	358,629	2,148	0	0	-291,405	265.95	0.00
1969.06	104.8	620,189	0	12,181	608,009	0	0	270.30	33.56
1969.07	127.5	477,958	115,044	20,305	950,618	0	0	271.19	43.95
1969.08	85.4	107,771	398,256	19,686	640,447	0	0	270.39	34.56
1969.09	92.7	114,475	426,405	14,887	313,629	0	0	269.25	22.31
1969.10	212.7	934,233	270,455	12,074	965,334	0	0	271.22	44.38
1969.11	87.5	402,929	281,406	31,530	1,052,327	0	0	271.40	46.89
1969.12	43.2	43,474	0	54,165	1,041,635	0	0	271.38	46.58
1970.01	44.6	76,854	172,042	93,910	852,538	0	0	270.98	41.11
1970.02	0.0	0	602,020	65,150	485,368	0	0	268.57	15.73
1970.03	77.2	114,181	535,778	15,661	0	0	-251,887	265.95	0.00
1970.04	133.7	281,494	348,185	0	0	0	-66,691	265.95	0.00
1970.05	87.4	103,947	223,359	1,448	0	0	-120,860	265.95	0.00
1970.06	101.8	152,319	0	3,836	148,482	0	0	268.32	13.51
1970.07	78.5	165,648	94,012	10,603	210,113	0	0	268.73	17.23
1970.08	123.0	561,314	347,331	8,563	415,533	0	0	269.66	26.63
1970.09	234.3	1,272,158	224,955	12,985	1,449,750	0	0	272.17	58.30
1970.10	59.3	68,073	436,835	25,920	1,045,069	0	0	271.39	46.68
1970.11	51.8	71,478	249,935	30,283	836,328	0	0	270.94	40.61
1970.12	0.0	0	0	46,328	790,000	0	0	270.81	39.18
1971.01	0.0	0	252,460	78,888	458,652	0	0	269.83	28.47
1971.02	82.9	132,787	452,195	39,189	99,855	0	0	268.00	10.58
1971.03	111.6	301,801	479,853	8,330	100,442	0	-186,669	268.00	10.59
1971.04	112.7	213,842	405,062	5,899	152,377	0	-249,354	268.35	13.74
1971.05	149.0	898,202	201,754	17,459	831,365	0	0	270.93	40.46
1971.06	239.5	3,404,126	0	31,760	2,375,000	1,828,731	0	273.50	83.13
1971.07	48.0	43,156	79,253	43,660	2,295,504	0	0	273.10	81.16
1971.08	54.0	42,380	454,214	37,491	1,846,176	0	0	272.79	69.51
1971.09	387.7	3,988,056	191,310	34,994	2,375,000	3,232,928	0	273.30	83.13
1971.10	81.7	149,604	408,766	38,969	2,076,870	0	0	273.12	75.75
1971.11	11.5	3,274	328,444	48,878	1,702,922	0	0	272.56	65.48
1971.12	91.8	168,315	0	78,381	1,793,056	0	0	272.70	68.01

水收支計算結果  
Case1 : Vmax=2,735,000 m<sup>3</sup> (2/4)

Year Month	Rainfall (mm)	Inflow (m <sup>3</sup> )	Water Requirement (m <sup>3</sup> )	Evaporation (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )	Over Flow (m <sup>3</sup> )	Insufficiency (m <sup>3</sup> )	Water Level (m)	Water Area (ha)
1972.01	0.0	0	252,160	137,217	1,103,179	0	0	272.10	36.99
1972.02	39.4	30,061	529,331	97,609	806,501	0	0	270.86	39.69
1972.03	214.5	1,605,622	316,886	55,052	2,010,181	0	0	273.03	74.10
1972.04	114.8	228,883	412,753	68,379	1,757,936	0	0	272.65	67.01
1972.05	228.5	1,132,299	41,417	53,583	2,375,000	120,236	0	273.50	83.13
1972.06	246.3	3,115,581	0	49,435	2,375,000	3,366,147	0	273.50	83.13
1972.07	33.5	31,577	113,937	43,609	2,246,785	2,246	0	273.34	79.98
1972.08	106.4	136,182	373,761	36,685	2,272,520	0	0	273.37	80.59
1972.09	150.3	520,576	416,336	36,518	2,061,181	279,031	0	273.10	75.36
1972.10	123.9	210,137	332,253	35,910	1,903,155	0	0	272.87	71.16
1972.11	1.2	56	347,346	45,614	1,510,221	0	0	272.26	60.02
1972.12	23.9	22,070	0	68,529	1,463,761	0	0	272.19	38.70
1973.01	0.0	0	252,160	118,381	1,092,918	0	0	271.49	18.06
1973.02	25.0	15,499	555,898	81,534	470,986	0	0	269.88	29.00
1973.03	38.3	32,288	605,241	31,572	0	0	-133,541	265.95	0.00
1973.04	145.3	347,580	328,447	2,465	131,486	0	-114,818	268.21	12.48
1973.05	125.7	236,172	158,061	9,139	200,358	0	0	268.67	16.64
1973.06	82.5	136,766	0	12,064	325,160	0	0	269.30	22.83
1973.07	43.6	46,003	56,551	11,964	302,648	0	0	269.21	21.87
1973.08	164.1	1,235,000	301,002	21,686	1,214,961	0	0	271.74	51.58
1973.09	199.0	689,716	286,472	25,406	1,592,798	0	0	272.39	62.36
1973.10	102.5	252,950	412,772	27,488	1,405,489	0	0	272.10	57.05
1973.11	4.8	508	340,704	36,300	1,028,992	0	0	271.35	46.21
1973.12	0.0	0	0	52,760	976,232	0	0	271.25	44.69
1974.01	20.6	16,396	214,355	90,105	688,067	0	0	270.52	36.03
1974.02	8.2	2,598	586,892	54,293	49,480	0	0	267.34	6.59
1974.03	136.2	276,688	433,427	7,831	5,299	0	-120,388	266.18	1.01
1974.04	154.6	404,799	350,933	3,941	203,693	0	-148,470	268.69	16.84
1974.05	56.6	45,852	278,774	11,385	0	0	-10,613	265.95	0.00
1974.06	40.0	21,893	0	528	21,365	0	0	266.89	4.07
1974.07	193.6	988,998	0	5,025	1,005,339	0	0	271.31	45.53
1974.08	164.2	420,581	264,586	21,997	1,139,339	0	0	271.58	39.40
1974.09	301.4	2,322,736	269,186	31,744	2,375,000	786,144	0	273.50	83.13
1974.10	298.7	3,391,077	272,265	39,962	2,375,000	3,078,851	0	273.50	83.13
1974.11	16.8	5,480	318,566	51,193	2,007,722	0	0	273.03	74.04
1974.12	0.6	14	0	81,608	1,923,127	0	0	272.91	71.73
1975.01	0.0	0	252,160	144,656	1,526,011	0	0	272.29	66.16
1975.02	17.3	9,408	570,103	104,783	860,532	0	0	271.01	41.35
1975.03	111.4	399,028	484,543	58,464	716,554	0	0	270.60	36.91
1975.04	112.4	291,786	388,113	34,317	585,910	0	0	270.24	32.88
1975.05	142.5	287,398	167,941	26,530	678,834	0	0	270.50	35.75
1975.06	130.9	255,214	0	23,055	910,993	0	0	271.11	42.81
1975.07	117.2	201,626	76,670	23,977	1,014,971	0	0	271.33	45.81
1975.08	44.5	35,263	471,916	20,103	558,216	0	0	270.16	32.03
1975.09	121.3	192,599	370,911	14,041	365,833	0	0	269.46	24.55
1975.10	46.7	46,986	469,877	7,931	0	0	-64,990	265.95	0.00
1975.11	60.3	78,521	239,779	1,161	0	0	-162,419	265.95	0.00
1975.12	13.1	4,383	0	715	3,867	0	0	266.12	0.74
1976.01	0.0	0	252,160	1,330	0	0	-249,923	265.95	0.00
1976.02	93.6	333,714	441,654	14,189	0	0	-122,128	265.95	0.00
1976.03	42.0	60,727	599,709	0	0	0	-538,982	265.95	0.00
1976.04	105.2	150,559	394,634	0	0	0	-241,075	265.95	0.00
1976.05	128.9	270,145	153,970	2,992	159,432	0	-16,249	268.40	14.17
1976.06	89.8	112,511	0	9,915	262,029	0	0	269.05	20.16
1976.07	81.0	177,188	81,467	11,703	346,046	0	0	269.38	23.71
1976.08	94.2	176,369	384,873	8,583	128,959	0	0	268.19	12.33
1976.09	122.3	577,197	375,946	7,658	322,552	0	0	269.29	22.72
1976.10	62.3	64,337	441,543	5,784	25,358	0	-85,996	267.02	1.69
1976.11	41.6	40,405	273,288	2,409	0	0	-209,734	265.95	0.00
1976.12	0.0	0	0	0	0	0	0	265.95	0.00
1977.01	24.1	21,529	208,920	3	0	0	-187,391	265.95	0.00
1977.02	23.9	22,070	557,927	0	0	0	-535,857	265.95	0.00
1977.03	76.4	186,541	541,952	0	0	0	-355,411	265.95	0.00
1977.04	60.9	56,042	474,207	0	0	0	-118,165	265.95	0.00
1977.05	138.9	381,935	202,065	9,279	170,592	0	0	268.47	14.84
1977.06	138.8	561,235	0	16,420	715,406	0	0	270.60	36.88
1977.07	51.8	55,951	56,027	19,411	695,922	0	0	270.55	36.28
1977.08	202.8	1,620,367	275,910	15,961	2,024,419	0	0	273.05	74.45
1977.09	270.7	1,389,858	248,875	35,766	2,375,000	754,635	0	273.50	83.13
1977.10	130.5	296,946	324,963	39,937	2,201,790	105,256	0	273.28	78.84
1977.11	4.1	649	341,996	51,058	1,809,386	0	0	272.73	68.50
1977.12	39.3	59,671	0	79,736	1,789,323	0	0	272.70	67.93

水収支計算結果  
Case1 : Vmax=2,735,000 m<sup>3</sup> (3-4)

Year Month	Rainfall (mm)	Inflow (m <sup>3</sup> )	Water Requirement (m <sup>3</sup> )	Evaporation (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )	Over Flow (m <sup>3</sup> )	Insufficiency (m <sup>3</sup> )	Water Level (m)	Water Area (ha)
1978.01	0.0	0	252,460	137,003	1,399,860	0	0	272.69	56.89
1978.02	20.3	8,147	564,569	97,863	745,576	0	0	270.69	47.81
1978.03	103.6	206,218	528,923	53,801	369,069	0	0	269.47	24.68
1978.04	203.9	686,462	244,381	27,723	783,426	0	0	270.79	38.98
1978.05	120.4	196,627	180,878	30,580	768,595	0	0	270.75	38.52
1978.06	129.2	736,627	0	30,386	1,474,832	0	0	272.21	59.01
1978.07	54.9	100,820	24,947	30,851	1,519,861	0	0	272.28	60.29
1978.08	46.1	51,215	469,770	27,191	1,072,119	0	0	271.45	47.60
1978.09	110.8	600,651	312,670	22,756	1,312,344	0	0	271.94	51.39
1978.10	129.9	625,349	408,341	23,556	1,505,792	0	0	272.26	59.89
1978.11	0.0	0	349,560	38,120	1,118,112	0	0	271.51	48.79
1978.12	6.9	1,022	0	55,720	1,063,414	0	0	271.43	47.21
1979.01	2.3	204	252,460	95,182	715,977	0	0	271.60	46.90
1979.02	0.0	0	602,020	55,926	58,031	0	0	267.45	7.27
1979.03	63.8	86,055	559,691	4,064	0	0	-119,672	265.95	6.00
1979.04	123.8	216,276	363,259	0	37,014	0	-183,997	267.17	5.60
1979.05	133.5	345,885	181,121	10,515	191,264	0	0	268.61	16.09
1979.06	284.6	2,424,772	0	32,160	2,375,000	208,876	0	273.50	83.13
1979.07	210.2	1,397,184	0	43,607	2,375,000	1,353,577	0	273.50	83.13
1979.08	53.7	43,657	455,011	38,881	1,924,766	0	0	272.91	71.77
1979.09	92.4	124,947	443,339	31,840	1,374,534	0	0	272.36	61.84
1979.10	104.2	155,074	366,038	29,002	1,334,569	0	0	271.99	55.03
1979.11	13.0	6,330	325,576	35,294	980,228	0	0	271.25	44.81
1979.12	1.1	47	0	51,154	929,121	0	0	271.15	43.33
1980.01	8.7	2,921	252,460	87,132	592,131	0	0	270.26	33.07
1980.02	29.5	20,127	547,595	48,947	15,738	0	0	266.64	3.00
1980.03	83.3	144,815	551,062	7,224	0	0	-397,732	265.95	0.00
1980.04	100.2	168,793	405,581	0	16,544	0	-253,331	266.68	3.15
1980.05	192.5	965,210	108,352	7,216	866,185	0	0	271.62	41.52
1980.06	50.6	63,337	0	24,906	904,616	0	0	271.10	42.63
1980.07	299.1	8,117,847	0	22,295	2,375,000	6,625,168	0	273.50	83.13
1980.08	182.6	1,018,161	256,330	39,865	2,375,000	721,965	0	273.50	83.13
1980.09	192.3	965,210	328,827	36,282	2,375,000	600,100	0	273.50	83.13
1980.10	50.6	63,337	463,351	38,201	1,936,781	0	0	272.93	72.11
1980.11	9.5	1,689	332,033	46,474	1,559,963	0	0	272.31	61.43
1980.12	15.9	6,151	0	70,289	1,495,825	0	0	272.24	59.61
1991.01	3.8	558	252,460	120,230	1,123,693	0	0	271.55	48.95
1991.02	116.9	339,944	397,891	81,252	981,494	0	0	271.26	44.84
1991.03	126.0	1,138,517	489,780	56,814	1,573,417	0	0	272.36	61.81
1991.04	50.2	33,967	493,287	55,988	1,058,109	0	0	271.41	47.06
1991.05	138.0	253,709	137,062	35,982	1,138,773	0	0	271.58	49.38
1991.06	139.9	283,354	0	31,241	1,390,885	0	0	272.08	56.63
1991.07	129.3	323,952	106,927	32,282	1,575,629	0	0	272.37	61.87
1991.08	158.2	589,625	282,662	31,312	1,851,280	0	0	272.79	69.69
1991.09	164.1	1,208,874	461,769	34,031	1,941,663	622,691	0	272.93	72.25
1991.10	30.2	13,920	499,696	32,103	1,425,784	0	0	272.13	57.62
1991.11	1.9	139	346,055	36,626	1,043,243	0	0	271.38	46.63
1991.12	3.3	421	0	53,240	990,424	0	0	271.27	45.10
1992.01	0.0	0	252,460	90,931	617,033	0	0	270.41	34.77
1992.02	18.4	8,036	568,074	52,568	44,428	0	0	267.14	5.39
1992.03	57.9	68,560	570,288	3,017	0	0	-170,316	265.95	0.00
1992.04	124.2	429,907	372,266	7,938	49,703	0	0	267.34	6.61
1992.05	122.7	530,675	214,481	9,046	360,371	0	-3,523	269.44	24.32
1992.06	72.6	172,856	0	16,858	516,369	0	0	270.04	30.73
1992.07	93.5	193,171	96,595	17,106	595,839	0	0	270.27	33.19
1992.08	34.9	46,524	490,297	12,444	139,622	0	0	268.26	12.98
1992.09	171.7	442,738	291,294	6,415	284,650	0	0	269.14	21.11
1992.10	85.7	125,795	399,790	8,130	2,525	0	0	266.66	0.48
1992.11	136.2	368,421	170,111	10,605	190,229	0	0	268.60	16.03
1992.12	0.0	0	0	18,083	172,146	0	0	268.48	14.91
1993.01	0.0	0	252,460	29,183	0	0	-169,799	265.95	0.00
1993.02	46.8	77,700	517,562	0	2,953	0	-442,816	266.08	0.56
1993.03	209.4	2,366,606	399,978	706	2,220,798	0	-251,922	273.30	79.31
1993.04	97.3	140,308	309,451	74,086	1,877,369	0	0	272.81	70.43
1993.05	125.4	221,579	161,520	53,069	1,884,559	0	0	272.85	70.63
1993.06	42.7	40,433	0	42,130	1,882,851	0	0	272.84	70.58
1993.07	31.0	32,411	113,015	37,211	1,765,036	0	0	272.66	67.24
1993.08	103.8	171,818	366,817	30,827	1,539,210	0	0	272.31	60.84
1993.09	196.8	1,201,147	338,063	27,609	2,374,685	0	0	273.50	83.12
1993.10	172.8	1,052,485	286,037	39,026	2,182,264	919,843	0	273.25	78.36
1993.11	63.5	116,151	235,683	32,238	2,016,494	0	0	273.01	74.11
1993.12	0.0	0	0	81,691	1,925,803	0	0	272.91	71.80



水収支計算結果  
Case1 : Ymax-2,735,000 m<sup>3</sup> (4/4)

Year.Month	Rainfall (mm)	Inflow (m3)	Water Requirement (m3)	Evaporation (m3)	Storage Volume (m3)	Over Flow (m3)	Insufficiency (m3)	Water Level (m)	Water Area (ha)
1994.01	0.0	0	252,460	144,809	1,528,544	0	0	272.29	60.54
1994.02	0.1	0	601,846	103,654	823,045	0	0	270.90	40.20
1994.03	44.0	29,678	594,640	50,952	207,131	0	0	268.71	17.03
1994.04	219.2	904,879	214,648	28,547	868,825	0	0	271.02	41.59
1994.05	150.6	298,962	113,700	32,619	1,021,468	0	0	271.34	46.00
1994.06	82.0	168,504	0	28,884	1,161,089	0	0	271.63	50.03
1994.07	146.0	522,306	58,823	28,635	1,395,937	0	0	272.40	62.43
1994.08	46.3	35,674	468,362	28,400	1,131,819	0	0	271.37	49.27
1994.09	175.7	524,357	361,144	23,620	1,274,442	0	0	271.86	53.30
1994.10	78.0	88,245	412,801	23,790	926,096	0	0	271.14	43.25
1994.11	10.6	4,341	330,604	27,299	573,133	0	0	270.20	32.49
1994.12	0.0	0	0	37,059	336,076	0	0	270.10	31.34
1995.01	0.0	0	252,460	63,074	220,541	0	0	268.80	17.86
1995.02	39.2	39,371	531,040	14,315	0	0	-265,443	265.95	0.00
1995.03	80.7	126,393	529,836	0	0	0	-103,444	263.95	0.00
1995.04	158.2	487,903	357,709	3,402	290,663	0	-163,871	269.16	21.37
1995.05	104.0	170,331	212,222	16,928	231,845	0	0	268.87	18.54
1995.06	89.6	126,676	0	12,624	345,897	0	0	269.38	23.70
1995.07	209.4	2,792,571	88,109	32,941	2,273,910	743,508	0	273.37	80.63
1995.08	184.4	1,464,319	275,869	39,335	2,223,420	1,199,603	0	273.31	79.38
1995.09	152.7	425,175	364,508	36,413	2,138,248	109,427	0	273.20	77.27
1995.10	83.0	136,825	405,402	36,535	1,833,136	0	0	272.77	69.17
1995.11	9.0	3,130	332,956	44,585	1,458,725	0	0	272.18	58.56
1995.12	25.4	15,196	0	67,063	1,406,859	0	0	272.10	57.09

水收支計算結果

Case2 : Vmax-2, 819, 225 m<sup>3</sup> (1/4)

Year Month	Rainfall (mm)	Inflow (m <sup>3</sup> )	Water Requirement (m <sup>3</sup> )	Evaporation (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )	Over Flow (m <sup>3</sup> )	Insufficiency (m <sup>3</sup> )	Water Level (m)	Water Area (ha)
1966.01	0.0	0	252,460	103,663	1,313,877	0	0	272.01	35.30
1966.02	3.0	348	596,485	93,639	654,100	0	0	270.43	31.99
1966.03	72.1	91,160	544,741	45,966	157,863	0	0	268.39	14.08
1966.04	186.2	906,713	276,114	28,956	759,505	0	0	270.72	38.24
1966.05	148.6	540,243	128,069	28,120	1,143,560	0	0	271.59	49.52
1966.06	393.8	4,288,324	0	45,662	2,819,225	2,566,997	0	274.00	94.56
1966.07	107.3	214,165	51,308	49,607	2,801,385	131,090	0	273.98	94.10
1966.08	69.6	76,521	426,453	43,827	2,407,626	0	0	273.54	83.97
1966.09	169.7	617,874	389,957	39,695	2,558,925	36,924	0	273.71	87.86
1966.10	168.5	881,337	277,958	43,826	2,580,155	538,323	0	273.73	88.41
1966.11	38.7	27,320	278,162	58,076	2,271,236	0	0	273.37	80.56
1966.12	9.9	3,787	0	92,196	2,182,827	0	0	273.25	78.37
1967.01	0.0	0	252,460	158,413	1,771,924	0	0	272.67	67.41
1967.02	58.7	57,213	394,598	119,296	1,215,243	0	0	271.74	51.59
1967.03	158.1	418,334	447,759	77,349	1,108,469	0	0	271.52	48.51
1967.04	124.5	242,005	373,266	44,087	933,121	0	0	271.16	43.45
1967.05	125.4	357,312	182,344	33,393	1,074,697	0	0	271.45	47.53
1967.06	138.6	596,605	0	31,190	1,640,112	0	0	272.47	63.79
1967.07	31.8	24,686	112,461	33,422	1,518,915	0	0	272.28	60.26
1967.08	98.7	133,743	374,087	27,664	1,250,907	0	0	271.81	52.62
1967.09	125.3	289,170	358,190	24,050	1,157,836	0	0	271.62	49.93
1967.10	38.2	25,053	484,937	21,634	676,318	0	0	270.49	35.67
1967.11	35.1	47,601	285,746	25,541	414,629	0	0	269.66	26.61
1967.12	4.8	819	0	30,260	385,188	0	0	269.54	25.37
1968.01	5.5	1,169	252,460	50,722	831,175	0	0	267.78	9.26
1968.02	103.7	385,790	424,884	28,408	15,672	0	0	266.64	2.99
1968.03	46.0	71,172	593,495	5,675	0	0	-512,326	265.95	0.00
1968.04	76.3	83,141	446,291	0	0	0	-363,150	265.95	0.00
1968.05	157.8	383,368	132,763	5,061	245,544	0	0	268.97	19.36
1968.06	197.4	764,887	0	15,228	995,203	0	0	271.38	45.24
1968.07	184.3	517,260	0	25,654	1,486,810	0	0	272.33	59.35
1968.08	158.9	539,084	279,497	27,722	1,718,674	0	0	273.59	65.93
1968.09	168.5	1,011,088	436,979	35,911	2,256,873	0	0	273.35	80.21
1968.10	142.1	327,731	338,928	37,781	2,207,895	0	0	273.29	78.99
1968.11	43.7	47,380	269,724	52,537	1,933,013	0	0	272.92	72.01
1968.12	27.7	29,645	0	82,973	1,879,681	0	0	272.84	70.49
1969.01	0.0	0	252,460	142,171	1,485,053	0	0	272.22	59.30
1969.02	38.4	21,412	531,176	102,435	872,851	0	0	271.03	41.71
1969.03	73.1	72,819	541,604	55,682	318,416	0	0	269.39	23.81
1969.04	112.6	171,413	381,700	17,207	120,922	0	0	268.44	11.85
1969.05	13.2	6,241	358,629	4,772	0	0	-236,238	265.95	0.00
1969.06	104.8	620,189	0	12,181	608,009	0	0	270.30	33.56
1969.07	127.5	477,958	115,044	20,305	950,618	0	0	271.19	43.95
1969.08	85.4	107,771	398,256	19,686	640,447	0	0	270.39	34.56
1969.09	92.7	114,475	426,405	14,887	313,629	0	0	269.25	22.34
1969.10	212.7	934,233	270,455	12,074	965,334	0	0	271.22	41.38
1969.11	87.5	402,929	281,406	34,530	1,052,327	0	0	271.10	46.89
1969.12	43.2	43,474	0	51,165	1,041,635	0	0	271.38	46.58
1970.01	44.6	76,854	172,042	93,910	852,538	0	0	270.98	41.11
1970.02	0.0	0	602,020	65,150	185,368	0	0	268.57	15.73
1970.03	77.2	114,184	535,778	15,661	0	0	-251,887	265.95	0.00
1970.04	133.7	281,494	348,185	0	0	0	-66,691	265.95	0.00
1970.05	87.4	103,947	223,459	1,448	0	0	-120,860	265.95	0.00
1970.06	101.8	152,319	0	3,836	148,482	0	0	268.32	13.51
1970.07	78.5	165,648	94,012	10,005	210,113	0	0	268.73	17.23
1970.08	123.0	561,314	347,331	8,563	415,533	0	0	269.66	26.65
1970.09	234.3	1,272,158	221,955	12,985	1,449,750	0	0	272.17	58.30
1970.10	59.3	68,073	446,835	25,920	1,015,069	0	0	271.39	46.68
1970.11	54.8	71,478	249,935	30,283	846,328	0	0	270.94	40.61
1970.12	0.0	0	0	46,328	790,000	0	0	270.81	39.18
1971.01	0.0	0	252,460	78,888	158,652	0	0	269.83	28.47
1971.02	82.9	132,787	452,195	39,389	99,855	0	0	268.00	10.58
1971.03	111.6	301,801	479,853	8,330	100,142	0	-186,669	268.00	10.59
1971.04	112.7	213,842	405,062	5,899	152,377	0	-249,354	268.35	13.74
1971.05	149.0	898,202	201,754	17,459	831,365	0	0	270.93	40.46
1971.06	239.5	3,404,126	0	33,818	2,819,225	1,182,449	0	274.00	94.56
1971.07	48.0	43,356	79,253	49,575	2,733,753	0	0	273.90	92.36
1971.08	54.0	42,180	454,214	42,865	2,279,053	0	0	273.38	80.75
1971.09	387.7	3,988,056	191,310	40,065	2,819,225	3,216,509	0	274.00	94.56
1971.10	81.7	149,604	408,766	44,334	2,515,630	0	0	273.66	86.75
1971.11	11.5	3,274	328,344	56,254	2,134,306	0	0	273.19	77.17
1971.12	91.8	168,515	0	91,392	2,211,430	0	0	273.25	79.08

水收支計算結果

Case2 : Vmax=2,819,225 m<sup>3</sup> (2/4)

Year.Month	Rainfall (mm)	Inflow (m3)	Water Requirement (m3)	Evaporation (m3)	Storage Volume (m3)	Over Flow (m3)	Insufficiency (m3)	Water Level (m)	Water Area (ha)
1972.01	0.0	0	252,460	159,874	1,799,095	0	0	272.71	68.21
1972.02	39.4	30,061	529,331	118,935	1,180,890	0	0	271.67	50.70
1972.03	214.5	1,605,622	346,886	70,319	2,369,307	0	0	273.19	82.99
1972.04	114.8	228,883	412,753	77,591	2,107,817	0	0	273.16	76.52
1972.05	228.5	1,132,299	41,417	60,485	2,819,225	319,019	0	274.00	91.56
1972.06	246.3	3,415,581	0	56,232	2,819,225	3,359,350	0	274.00	91.56
1972.07	33.5	31,577	113,937	49,595	2,687,271	0	0	273.85	91.16
1972.08	106.1	436,182	373,761	42,107	2,707,584	0	0	273.87	91.69
1972.09	150.3	520,576	416,336	41,588	2,502,113	268,125	0	273.61	86.40
1972.10	123.9	210,137	332,253	41,277	2,338,720	0	0	273.35	82.23
1972.11	1.2	56	347,346	53,280	1,938,149	0	0	272.93	72.15
1972.12	23.9	22,070	0	82,386	1,877,833	0	0	272.81	70.41
1973.01	0.0	0	252,460	142,065	1,483,308	0	0	272.22	59.25
1973.02	25.0	15,499	555,898	102,963	839,917	0	0	270.95	40.72
1973.03	38.3	32,288	605,244	51,063	215,929	0	0	268.77	17.58
1973.04	145.3	347,580	328,447	14,440	220,622	0	0	268.80	17.86
1973.05	125.7	236,172	158,061	13,108	285,624	0	0	269.14	21.15
1973.06	82.5	136,766	0	14,398	407,993	0	0	269.63	26.33
1973.07	43.6	46,004	56,551	13,791	383,653	0	0	269.53	25.30
1973.08	161.1	1,235,000	301,002	22,996	1,294,655	0	0	271.91	53.88
1973.09	199.0	689,716	286,472	26,418	1,671,480	0	0	272.51	61.59
1973.10	102.5	252,950	412,772	28,571	1,483,088	0	0	272.22	59.25
1973.11	4.8	508	340,704	37,776	1,105,115	0	0	271.31	48.41
1973.12	0.0	0	0	55,268	1,019,847	0	0	271.40	46.82
1974.01	20.6	16,396	214,455	94,388	757,400	0	0	270.72	38.17
1974.02	8.2	2,598	586,892	59,455	113,651	0	0	268.09	11.41
1974.03	136.2	276,688	433,427	42,196	5,299	0	-60,582	266.18	1.01
1974.04	154.6	404,799	350,933	3,941	203,693	0	-148,470	268.69	16.81
1974.05	56.6	45,852	278,774	11,385	0	0	-10,613	265.95	0.00
1974.06	40.0	21,893	0	528	21,365	0	0	266.89	4.07
1974.07	193.6	988,998	0	5,025	1,005,339	0	0	271.31	45.53
1974.08	164.2	420,584	264,586	21,997	1,139,339	0	0	271.58	49.40
1974.09	301.4	2,322,736	269,186	35,042	2,819,225	338,621	0	274.00	91.56
1974.10	298.7	3,391,077	272,265	45,480	2,819,225	3,073,332	0	274.00	91.56
1974.11	16.8	5,480	318,566	61,749	2,444,391	0	0	273.58	81.92
1974.12	0.6	14	0	27,055	2,317,350	0	0	273.46	82.35
1975.01	0.0	0	252,460	166,677	1,928,213	0	0	272.91	71.87
1975.02	17.3	9,408	570,103	126,391	1,241,126	0	0	271.79	52.31
1975.03	111.4	399,028	484,543	73,853	1,081,759	0	0	271.46	47.74
1975.04	112.4	291,786	388,113	45,034	940,399	0	0	271.17	43.66
1975.05	142.5	287,398	167,944	34,425	1,025,428	0	0	271.35	46.11
1975.06	130.9	255,214	0	29,681	1,251,560	0	0	271.82	52.64
1975.07	117.2	204,626	76,670	29,104	1,350,412	0	0	272.02	55.48
1975.08	44.5	35,263	471,916	24,849	888,910	0	0	271.06	42.17
1975.09	121.3	192,599	370,941	18,599	691,970	0	0	270.54	36.16
1975.10	46.7	46,986	469,877	14,979	254,100	0	0	269.01	19.82
1975.11	60.3	78,521	239,779	11,476	81,366	0	0	267.76	9.12
1975.12	13.1	4,383	0	10,517	75,431	0	0	267.68	8.65
1976.01	0.0	0	252,460	16,847	0	0	-193,876	265.95	0.00
1976.02	93.6	333,714	441,654	14,189	0	0	-122,128	265.95	0.00
1976.03	42.0	60,727	599,709	0	0	0	-518,982	265.95	0.00
1976.04	105.2	150,559	394,634	0	0	0	-244,075	265.95	0.00
1976.05	128.9	270,145	151,970	2,992	159,132	0	-46,249	268.40	14.17
1976.06	89.8	112,511	0	9,915	262,029	0	0	269.05	20.16
1976.07	84.0	177,188	81,467	11,703	316,046	0	0	269.18	23.71
1976.08	94.2	176,369	384,873	8,583	128,959	0	0	268.19	12.33
1976.09	122.3	577,197	375,946	7,658	322,552	0	0	269.29	22.72
1976.10	62.3	64,337	411,544	5,784	25,558	0	-85,996	267.02	4.69
1976.11	41.6	40,405	273,288	2,409	0	0	-209,234	265.95	0.00
1976.12	0.0	0	0	0	0	0	0	265.95	0.00
1977.01	24.1	21,529	208,920	3	0	0	-187,394	265.95	0.00
1977.02	23.9	22,070	557,927	0	0	0	-535,857	265.95	0.00
1977.03	76.4	186,541	541,952	0	0	0	-355,411	265.95	0.00
1977.04	60.9	56,042	474,207	0	0	0	-418,165	265.95	0.00
1977.05	138.9	381,945	202,065	9,279	170,592	0	0	268.47	14.84
1977.06	138.8	561,235	0	16,420	715,406	0	0	270.60	36.88
1977.07	51.8	55,954	56,027	19,411	695,922	0	0	270.55	36.28
1977.08	202.8	1,620,367	275,910	15,961	2,024,419	0	0	273.05	74.45
1977.09	270.7	1,389,858	248,875	38,592	2,819,225	307,584	0	274.00	91.56
1977.10	130.5	296,946	324,963	45,451	2,642,151	103,603	0	273.80	90.00
1977.11	4.1	649	341,996	58,425	2,242,180	0	0	273.33	79.85
1977.12	39.3	59,674	0	92,623	2,209,431	0	0	273.29	79.03

水收支計算結果  
Case2 :  $V_{max}=2,819,225 \text{ m}^3$  (3/4)

Year Month	Rainfall (mm)	Inflow (m <sup>3</sup> )	Water Requirement (m <sup>3</sup> )	Evaporation (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )	Over Flow (m <sup>3</sup> )	Insufficiency (m <sup>3</sup> )	Water Level (m)	Water Area (ha)
1978.01	0.0	0	252,460	159,774	1,797,197	0	0	272.71	68.15
1978.02	20.3	8,147	561,569	119,270	1,121,505	0	0	271.55	48.88
1978.03	105.6	206,218	528,923	69,246	729,554	0	0	270.64	37.32
1978.04	205.9	686,162	244,381	39,442	1,132,192	0	0	271.57	49.19
1978.05	120.4	196,627	180,878	38,109	1,109,833	0	0	271.52	48.55
1978.06	129.2	736,627	0	36,184	1,810,276	0	0	272.73	68.53
1978.07	54.9	100,820	24,947	35,823	1,850,326	0	0	272.79	69.66
1978.08	46.1	54,215	469,770	31,747	1,403,024	0	0	272.10	56.98
1978.09	140.8	600,651	342,670	26,909	1,634,097	0	0	272.46	63.53
1978.10	129.9	625,349	408,344	28,604	1,823,097	0	0	272.75	68.89
1978.11	0.0	0	349,560	44,116	1,429,421	0	0	272.14	57.73
1978.12	6.9	1,022	0	65,936	1,364,307	0	0	272.04	55.88
1979.01	2.3	203	252,460	112,693	999,358	0	0	271.29	45.37
1979.02	0.0	0	602,020	74,380	323,158	0	0	269.29	22.74
1979.03	63.8	86,055	359,694	20,686	0	0	-171,167	265.95	0.00
1979.04	123.8	216,276	363,259	0	37,014	0	-183,997	267.17	5.60
1979.05	133.5	345,885	181,121	10,515	191,264	0	0	268.61	16.09
1979.06	284.6	2,424,772	0	32,960	2,583,076	0	0	273.73	88.48
1979.07	210.2	1,397,184	0	47,462	2,819,225	1,113,573	0	274.00	94.56
1979.08	53.7	43,657	455,011	41,363	2,363,508	0	0	273.49	82.85
1979.09	92.4	124,947	413,339	36,808	2,008,308	0	0	273.03	74.05
1979.10	101.2	155,074	366,038	34,907	1,762,447	0	0	272.66	67.17
1979.11	13.0	6,530	325,576	43,402	1,399,989	0	0	272.09	56.89
1979.12	1.1	47	0	64,960	1,335,076	0	0	271.99	55.05
1980.01	8.7	2,924	252,460	111,049	974,391	0	0	271.24	41.64
1980.02	29.3	20,127	547,595	74,582	372,440	0	0	269.49	24.83
1980.03	83.3	144,815	551,062	34,616	0	0	-68,423	265.95	0.00
1980.04	100.2	168,793	405,581	0	16,544	0	-253,331	266.68	3.15
1980.05	192.5	965,210	108,352	7,216	866,185	0	0	271.02	41.52
1980.06	50.6	63,337	0	24,906	904,616	0	0	271.10	42.63
1980.07	299.1	8,117,847	0	22,295	2,819,225	6,180,943	0	274.00	94.56
1980.08	182.6	1,018,161	256,330	45,402	2,819,225	716,429	0	274.00	94.56
1980.09	192.5	965,210	328,827	41,348	2,819,225	595,034	0	274.00	94.56
1980.10	50.6	63,337	463,351	43,639	2,575,571	0	0	273.50	83.14
1980.11	9.5	1,689	332,033	54,058	1,991,169	0	0	273.01	73.63
1980.12	15.9	6,151	0	84,215	1,913,075	0	0	272.89	71.44
1991.01	3.8	558	252,460	141,094	1,517,079	0	0	272.27	60.21
1991.02	116.9	339,944	397,891	105,756	1,353,377	0	0	272.02	55.57
1991.03	126.0	1,138,517	489,780	72,012	1,930,101	0	0	272.92	71.92
1991.04	50.2	33,967	493,287	65,909	1,404,872	0	0	272.10	57.03
1991.05	118.0	253,709	137,062	43,391	1,478,128	0	0	272.21	59.11
1991.06	139.9	283,354	0	36,963	1,724,518	0	0	272.60	66.09
1991.07	129.3	323,952	106,927	37,203	1,904,341	0	0	272.88	71.19
1991.08	158.2	589,623	282,662	35,677	2,175,627	0	0	273.25	78.19
1991.09	164.1	1,208,874	461,769	38,631	2,382,626	501,475	0	273.51	83.33
1991.10	30.2	15,920	499,696	37,783	1,861,067	0	0	272.81	69.97
1991.11	1.9	139	346,055	44,859	1,470,293	0	0	272.20	58.88
1991.12	3.3	421	0	67,247	1,403,467	0	0	272.10	56.99
1992.01	0.0	0	252,460	114,932	1,036,074	0	0	271.37	46.42
1992.02	18.4	8,036	568,074	77,750	398,287	0	0	269.59	25.92
1992.03	57.9	68,560	570,288	27,590	0	0	-131,031	265.95	0.00
1992.04	124.2	429,907	372,266	7,938	49,703	0	0	267.34	6.61
1992.05	122.7	530,675	214,484	9,046	360,371	0	-3,523	269.14	24.32
1992.06	72.6	172,856	0	18,858	516,369	0	0	270.04	30.73
1992.07	93.5	193,171	96,595	17,106	595,819	0	0	270.27	33.19
1992.08	31.9	46,524	490,297	12,444	139,622	0	0	268.26	12.98
1992.09	171.7	442,738	291,294	6,415	284,650	0	0	269.14	21.11
1992.10	85.7	125,795	399,790	8,130	2,525	0	0	266.06	0.48
1992.11	136.2	368,421	170,111	10,605	190,229	0	0	268.60	16.03
1992.12	0.0	0	0	18,083	172,146	0	0	268.48	14.91
1993.01	0.0	0	252,460	29,485	0	0	-109,799	265.95	0.00
1993.02	46.8	77,700	517,562	0	2,953	0	-442,816	266.08	0.56
1993.03	209.4	2,366,606	399,978	706	2,220,798	0	-251,922	273.30	79.31
1993.04	97.3	140,308	409,451	74,086	1,877,569	0	0	272.84	70.43
1993.05	125.4	221,579	161,520	53,069	1,884,559	0	0	272.85	70.63
1993.06	42.7	40,433	0	42,140	1,882,851	0	0	272.84	70.58
1993.07	31.0	32,411	113,015	37,211	1,765,036	0	0	272.66	67.24
1993.08	103.8	171,818	366,817	30,827	1,539,210	0	0	272.31	60.84
1993.09	196.8	1,201,147	338,063	27,609	2,374,685	0	0	273.50	83.12
1993.10	172.8	1,052,485	286,037	42,854	2,622,661	475,618	0	273.78	89.50
1993.11	63.5	116,151	235,683	59,652	2,443,478	0	0	273.58	84.89
1993.12	0.0	0	0	97,028	2,346,449	0	0	273.46	82.42

水收支計算結果

Case2 :  $V_{max}=2,819,225 \text{ m}^3$  (4/4)

Year-Month	Rainfall (mm)	Inflow (m3)	Water Requirement (m3)	Evaporation (m3)	Storage Volume (m3)	Over Flow (m3)	Insufficiency (m3)	Water Level (m)	Water Area (ha)
1994.01	0.0	0	252,460	166,832	1,927,358	0	0	272.91	71.83
1994.02	0.1	0	601,836	125,101	1,200,421	0	0	271.71	51.16
1994.03	44.0	29,678	594,640	66,706	568,753	0	0	270.19	32.35
1994.04	219.2	904,879	214,638	40,911	1,218,083	0	0	271.75	51.67
1994.05	150.6	298,962	113,700	40,112	1,363,233	0	0	272.04	55.85
1994.06	82.0	168,504	0	31,682	1,497,055	0	0	272.24	59.61
1994.07	136.0	522,306	58,823	33,645	1,926,893	0	0	272.91	71.83
1994.08	46.3	35,674	468,362	32,956	1,461,249	0	0	272.19	58.63
1994.09	175.7	524,357	361,144	27,761	1,596,701	0	0	272.40	62.47
1994.10	78.0	88,245	412,801	28,247	1,243,898	0	0	271.80	52.42
1994.11	10.6	4,341	330,003	33,457	884,778	0	0	271.06	42.05
1994.12	0.0	0	0	48,007	836,771	0	0	270.94	40.63
1995.01	0.0	0	252,460	81,795	502,516	0	0	270.01	30.41
1995.02	39.2	59,371	531,040	37,785	0	0	-6,938	265.95	0.00
1995.03	80.7	126,395	529,836	0	0	0	-103,411	265.95	0.00
1995.04	158.2	487,903	357,709	3,402	290,663	0	-163,871	269.16	21.37
1995.05	104.0	170,311	212,222	16,928	231,845	0	0	268.87	18.54
1995.06	89.6	126,676	0	12,624	345,897	0	0	269.38	23.70
1995.07	209.4	2,792,371	88,109	36,878	2,714,198	299,283	0	273.88	91.86
1995.08	184.4	1,464,319	275,869	44,818	2,665,846	1,191,981	0	273.83	90.61
1995.09	152.7	425,175	364,508	41,469	2,580,820	104,225	0	273.73	88.43
1995.10	83.0	136,825	405,402	41,911	2,270,329	0	0	273.37	80.54
1995.11	9.0	3,130	332,956	52,381	1,888,122	0	0	272.85	70.73
1995.12	25.4	15,196	0	80,967	1,822,351	0	0	272.75	68.87

作期別不足水量 Case1 : Vmax=2,735,000 m<sup>3</sup>

Year Stage	Rainfall (mm)	Inflow (m <sup>3</sup> )	Water Requirement (m <sup>3</sup> )	Evaporation (m <sup>3</sup> )	Max. Storage Volume (m <sup>3</sup> )	Min. Storage Volume (m <sup>3</sup> )	Over Flow (m <sup>3</sup> )	Insufficiency (m <sup>3</sup> )	Insufficiency (%)
1966 First	805.7	2,830,088	1,797,839	341,893	2,375,000	157,863	3,013,336		
1966 Second	563.7	1,821,004	1,423,839	285,065	2,375,000	1,762,745	724,355		
1967 First	605.3	1,671,470	1,730,428	379,802	1,732,381	468,853			
1967 Second	333.9	521,072	1,615,422	116,340	1,309,432	93,296			
1968 First	386.7	1,689,226	1,849,893	39,748	995,203	0			-60.63%
1968 Second	725.2	2,472,189	1,335,128	242,653	2,375,000	1,160,500	293,463		
1969 First	342.1	892,104	2,065,369	278,828	1,377,791	0			-21.99%
1969 Second	649.0	2,080,839	1,491,565	155,648	1,360,718	311,864			
1970 First	444.7	728,799	1,881,384	180,006	1,020,581	0			-23.36%
1970 Second	549.9	2,158,670	1,363,068	134,085	1,449,750	24,958			
1971 First	695.7	4,950,738	1,791,324	181,726	2,375,000	0	1,828,751		-24.34%
1971 Second	674.7	4,395,183	1,461,887	282,315	2,375,000	1,702,922	3,232,928		
1972 First	845.5	6,412,447	1,582,847	461,274	2,375,000	712,533	3,786,383		
1972 Second	439.2	1,220,598	1,533,633	266,936	2,375,000	1,463,761	281,277		
1973 First	416.8	768,306	1,900,109	255,157	1,437,229	0			-13.07%
1973 Second	514.0	2,224,177	1,397,502	175,604	1,673,729	302,648			
1974 First	416.2	768,227	1,864,481	168,082	936,031	0			-16.60%
1974 Second	975.3	7,128,888	1,124,602	237,530	2,375,000	112,267	3,864,994		
1975 First	514.5	1,242,834	1,863,163	391,806	1,890,707	550,445			-13.96%
1975 Second	403.1	562,577	1,629,183	67,929	1,081,859	0			-65.21%
1976 First	459.5	927,657	1,824,426	28,425	262,029	0			-18.99%
1976 Second	404.4	1,035,496	1,537,117	36,137	519,980	0			-75.40%
1977 First	463.0	1,229,332	1,985,072	23,701	722,068	0			
1977 Second	699.2	3,423,448	1,247,770	241,869	2,375,000	499,129	859,892		
1978 First	381.4	1,854,080	1,771,211	377,330	1,758,618	369,069			
1978 Second	378.6	1,582,057	1,595,291	198,194	1,519,864	909,331			-30.82%
1979 First	608.0	3,073,193	1,938,554	197,847	2,375,000	0	208,876		
1979 Second	474.6	1,727,439	1,589,964	229,777	2,375,000	929,121	1,353,577		
1980 First	464.8	1,365,206	1,863,030	175,723	912,329	0			-34.91%
1980 Second	750.2	10,172,395	1,380,543	253,410	2,375,000	891,236	7,947,233		
1991 First	574.8	2,050,048	1,770,481	384,308	1,373,417	572,072			
1991 Second	487.0	2,138,931	1,697,108	219,593	2,375,000	990,424	622,691		
1992 First	393.8	1,210,033	1,977,372	180,337	970,038	0			-23.96%
1992 Second	522.0	1,176,648	1,448,087	72,784	694,182	2,525			
1993 First	521.6	2,846,626	1,740,972	199,486	2,220,798	0			-46.21%
1993 Second	367.9	2,574,012	1,339,615	271,602	2,375,000	1,461,000	919,843		
1994 First	493.9	1,402,024	1,773,374	389,463	1,893,349	307,131			
1994 Second	456.6	1,174,924	1,631,154	168,802	1,627,115	536,076			
1995 First	471.7	970,676	1,883,266	110,344	521,909	0			-44.22%
1995 Second	665.9	4,837,216	1,466,843	236,871	2,375,000	1,406,839	2,052,540		
Average First	535.3	2,095,173	1,845,947	238,376			2,209,832		-36.98%
Average Second	561.6	2,710,388	1,468,465	195,657			2,013,890		-16.48%

作期別不足水量 Case 2 : Vmax=2,819,225 m<sup>3</sup>

Year Stage	Rainfall (mm)	Inflow (m <sup>3</sup> )	Water Requirement (m <sup>3</sup> )	Evaporation (m <sup>3</sup> )	Max. Storage Volume (m <sup>3</sup> )	Min. Storage Volume (m <sup>3</sup> )	Over Flow (m <sup>3</sup> )	Insufficiency (m <sup>3</sup> )	Insufficiency (%)
1966 First	803.7	5,830,088	1,797,839	-346,007	2,819,225	157,863	2,566,997		
1966 Second	563.7	1,821,004	1,423,839	327,227	2,819,225	2,182,827	706,336		
1967 First	605.3	1,671,470	1,750,428	463,738	2,147,402	821,902			
1967 Second	333.9	521,072	1,615,422	160,574	1,642,198	385,188			
1968 First	386.7	1,689,326	1,849,893	105,094	995,203	0			-47.33%
1968 Second	725.2	2,472,189	1,525,128	262,580	2,668,463	1,160,500			
1969 First	342.1	892,104	2,063,369	334,448	1,847,821	0			-11.44%
1969 Second	649.0	2,080,839	1,491,565	155,648	1,360,718	311,864			
1970 First	444.7	728,799	1,881,384	180,006	1,020,381	0			-23.36%
1970 Second	549.9	2,138,670	1,563,068	154,085	1,449,750	24,958			
1971 First	695.7	4,950,758	1,791,324	186,783	2,819,225	1,382,449			
1971 Second	674.7	4,395,185	1,461,887	324,584	2,819,225	2,134,306	3,216,509		-24.34%
1972 First	843.3	6,412,447	1,582,847	343,436	2,819,225	1,080,822	3,678,369		
1972 Second	439.2	1,220,598	1,583,633	310,232	2,819,225	1,877,833	268,125		
1973 First	416.8	768,306	1,900,109	338,038	1,845,994	93,611			
1973 Second	514.0	2,224,177	1,597,502	184,821	1,752,725	383,655			-13.39%
1974 First	416.2	768,227	1,864,481	181,892	1,028,086	0			
1974 Second	975.3	7,128,888	1,124,602	266,349	2,819,225	112,267	3,411,955		
1975 First	514.3	1,242,834	1,863,163	475,461	2,310,084	911,052			
1975 Second	403.1	562,577	1,629,183	109,524	1,418,972	75,431			
1976 First	439.3	927,637	1,842,426	43,943	262,029	0			-62.16%
1976 Second	404.4	1,035,496	1,557,117	36,137	519,980	0			-18.99%
1977 First	663.0	1,229,332	1,985,072	25,701	722,068	0			
1977 Second	699.2	3,423,448	1,247,770	270,467	2,819,225	499,129	411,187		
1978 First	581.4	1,834,080	1,771,211	462,024	2,173,709	739,334			
1978 Second	378.6	1,382,057	1,593,291	232,536	1,850,326	1,228,201			
1979 First	608.0	3,073,193	1,958,534	231,234	2,383,076	0			-18.13%
1979 Second	474.6	1,727,439	1,589,964	271,902	2,819,225	1,333,076	1,113,573		
1980 First	464.8	1,365,206	1,865,030	222,370	1,310,194	0			-17.23%
1980 Second	750.2	10,172,395	1,380,543	290,988	2,819,225	891,256	7,492,406		
1991 First	574.8	2,030,048	1,770,481	468,124	1,930,101	933,552			
1991 Second	487.0	2,138,931	1,697,108	261,400	2,819,225	1,403,467	501,475		
1992 First	392.8	1,210,033	1,977,372	234,114	1,377,708	0			-6.80%
1992 Second	522.0	1,176,648	1,448,087	72,784	694,182	2,525			
1993 First	521.6	2,846,626	1,740,972	199,386	2,220,798	0			-46.21%
1993 Second	567.9	2,574,012	1,339,615	295,181	2,819,225	1,461,000	475,618		
1994 First	493.9	1,402,924	1,772,274	474,143	2,309,194	308,733			
1994 Second	436.6	1,174,924	1,631,134	204,073	1,959,699	836,771			-30.49%
1995 First	471.7	970,676	1,883,266	152,534	818,409	0			
1995 Second	663.9	4,837,216	1,466,843	298,426	2,819,225	1,822,851	1,595,493		
Average First	533.3	2,093,173	1,845,947	280,780	2,819,225	2,342,602	3,542,602		-31.36%
Average Second	561.6	2,710,388	1,468,465	223,476	2,819,225	1,919,267	2,935,729		-18.99%

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