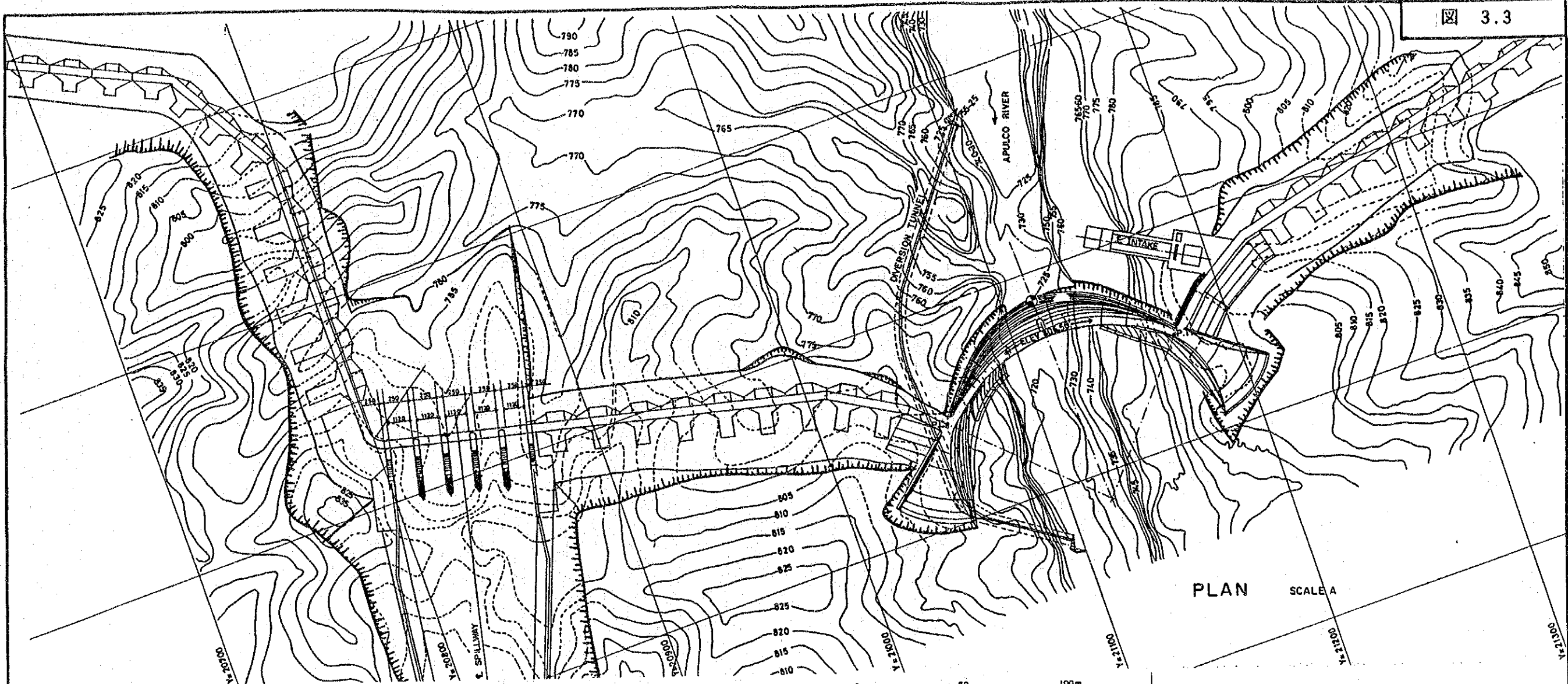
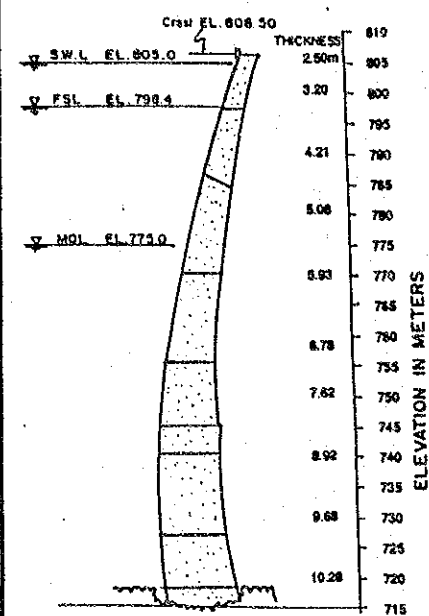
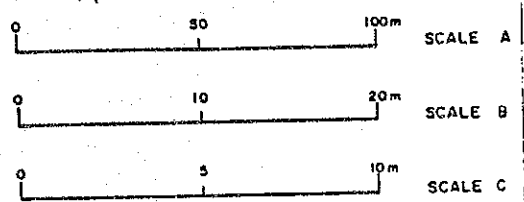


マサテペックプロジェクトの概要図

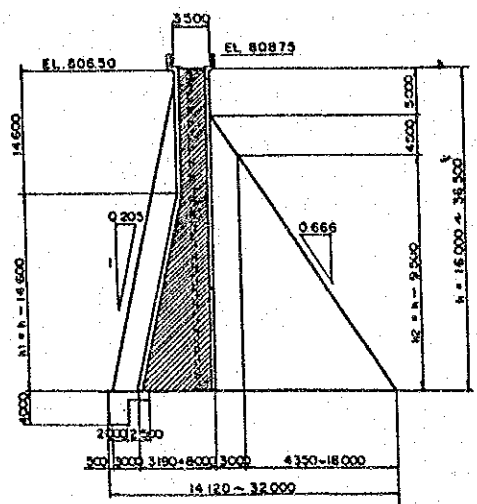




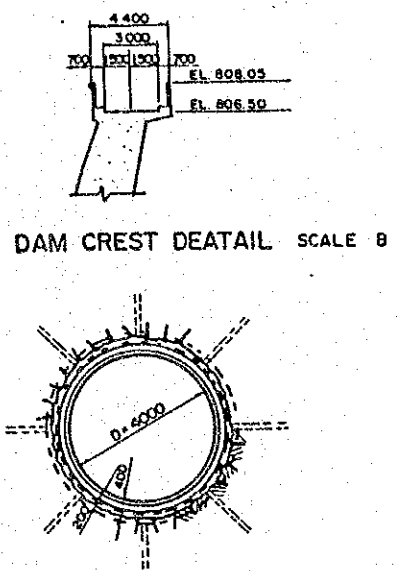
PLAN SCALE A



SECTION OF ARCH DAM

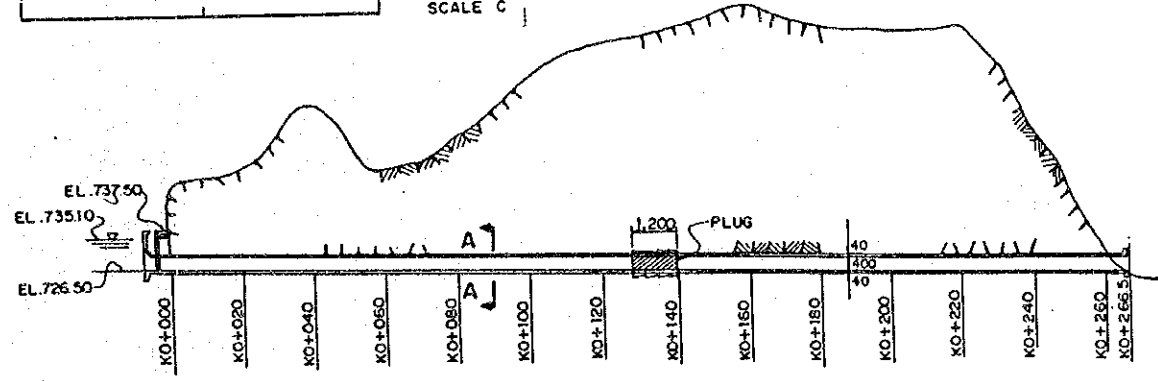


SECTION OF GRAVITY WING WALL



DAM CREST DEATAIL SCALE B

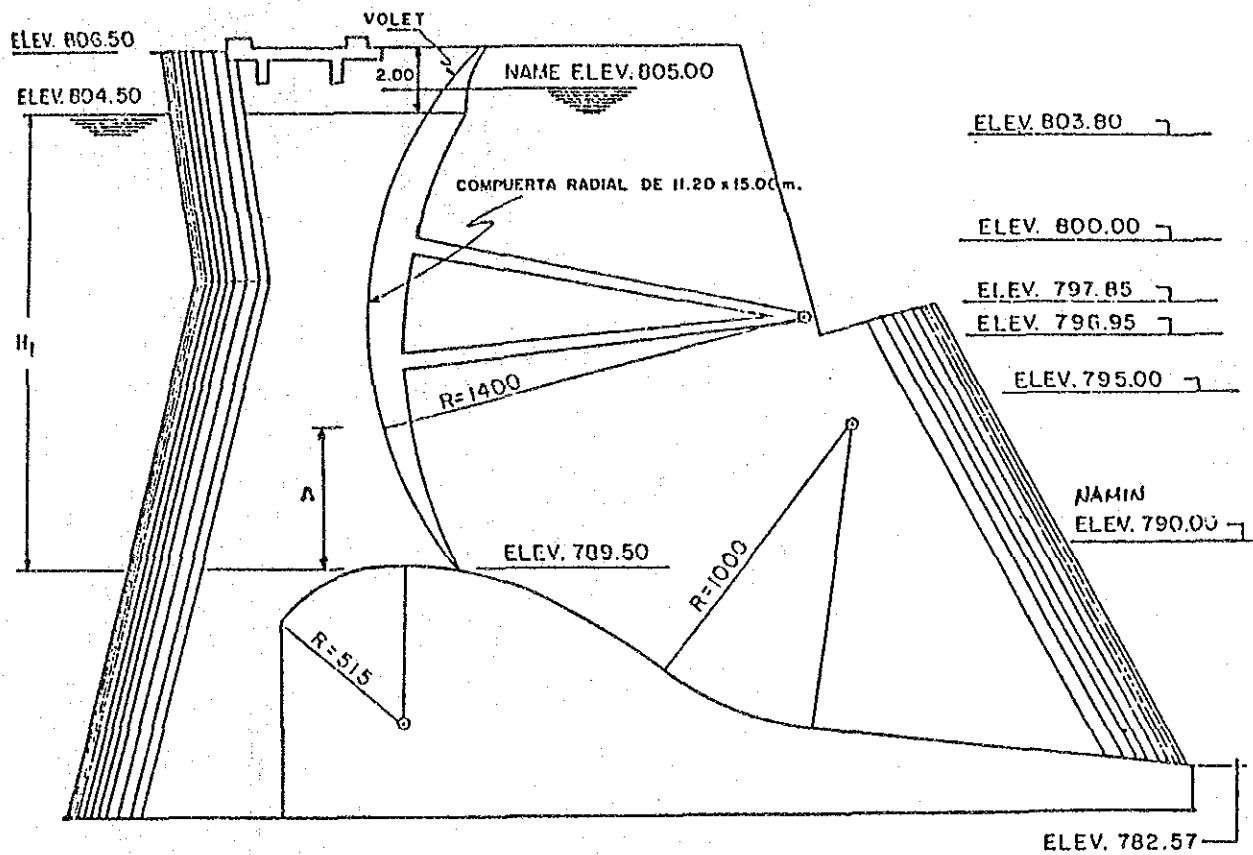
SECTION A-A SCALE C



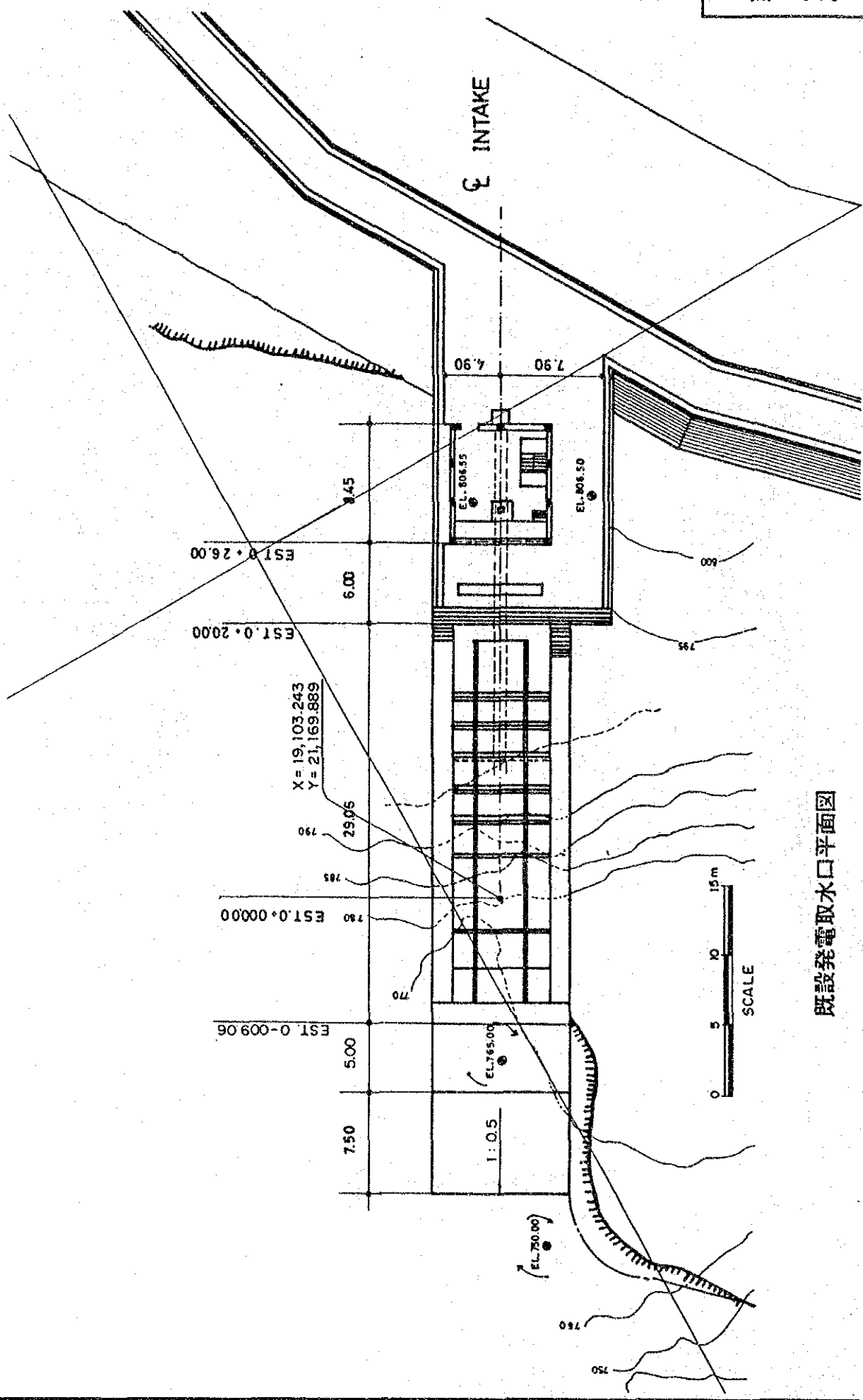
PROFILE OF DIVERSION TUNNEL SCALE A

ダム、洪水吐および取水口の概要図

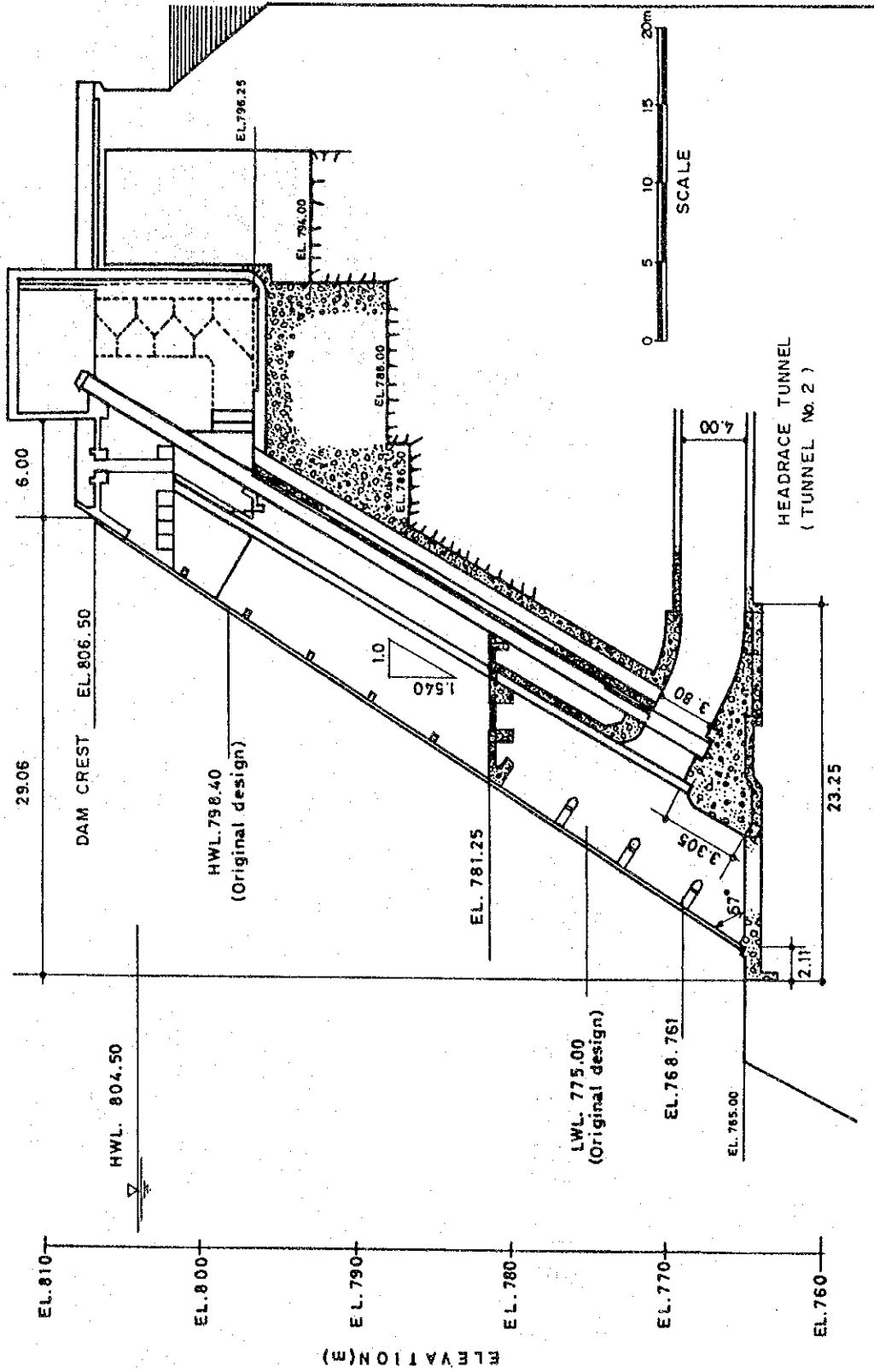




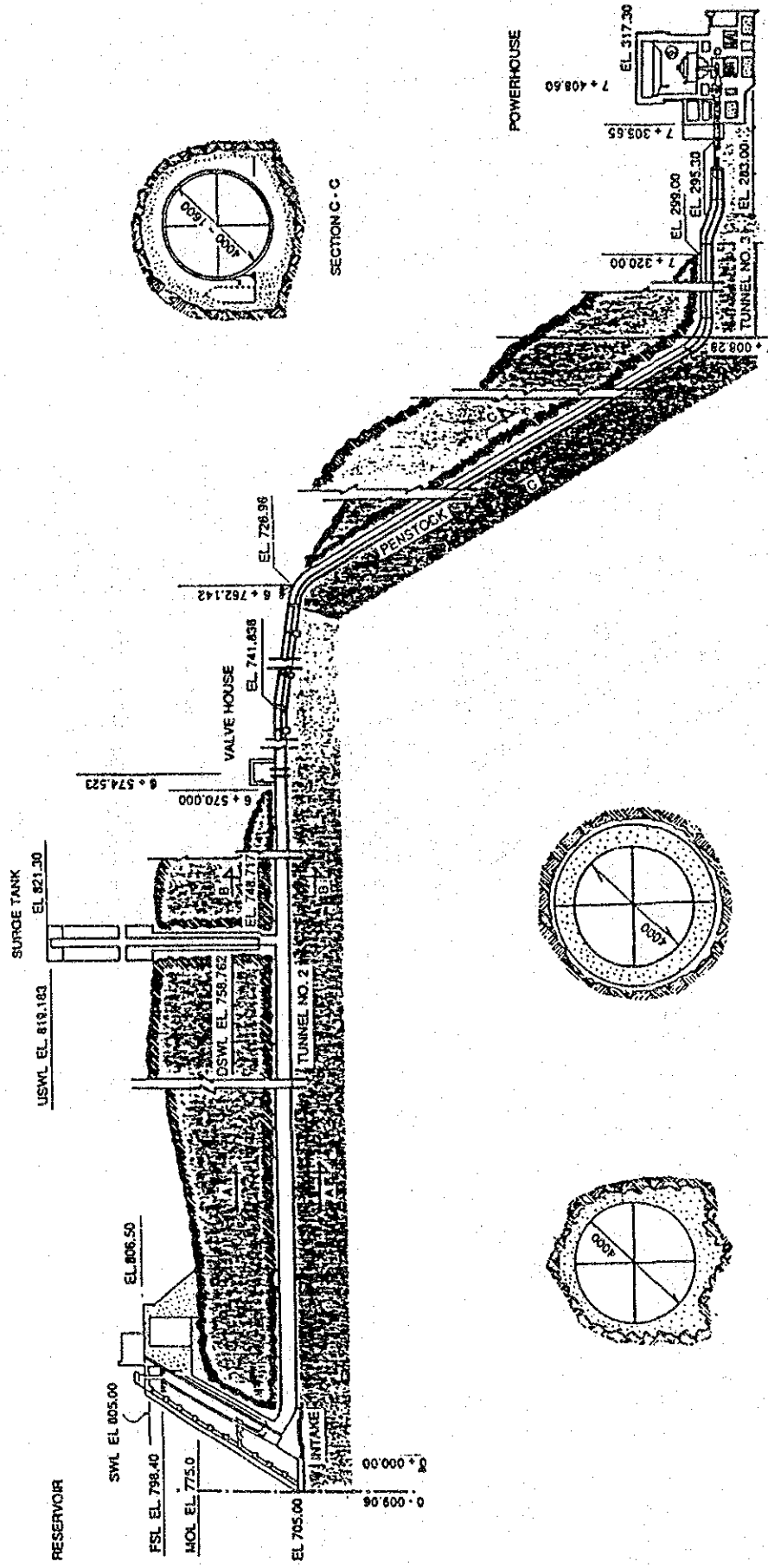
洪水吐ゲート縦断面図



既設発電取水口平面図

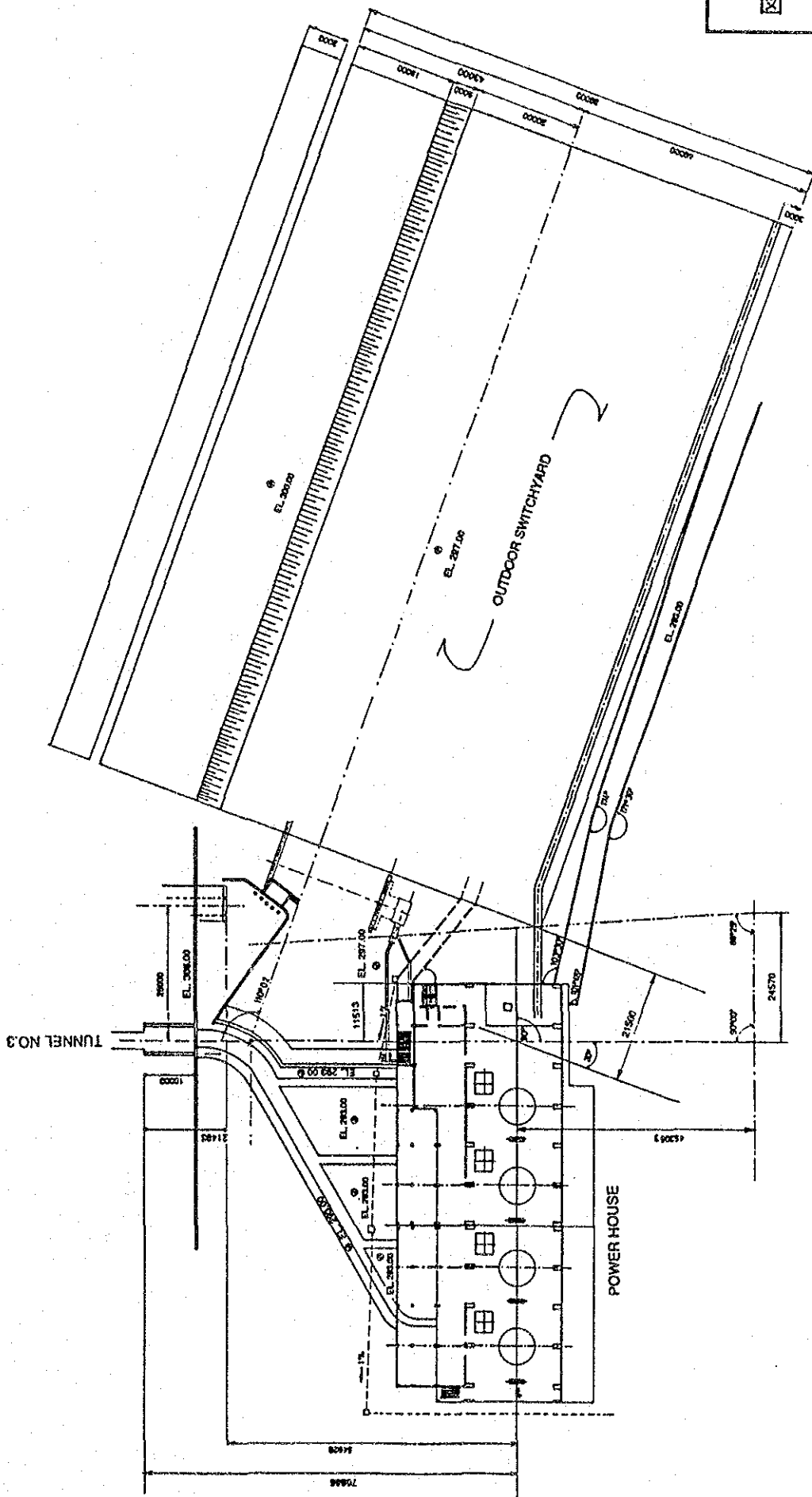


既設発電取水口縦断面図

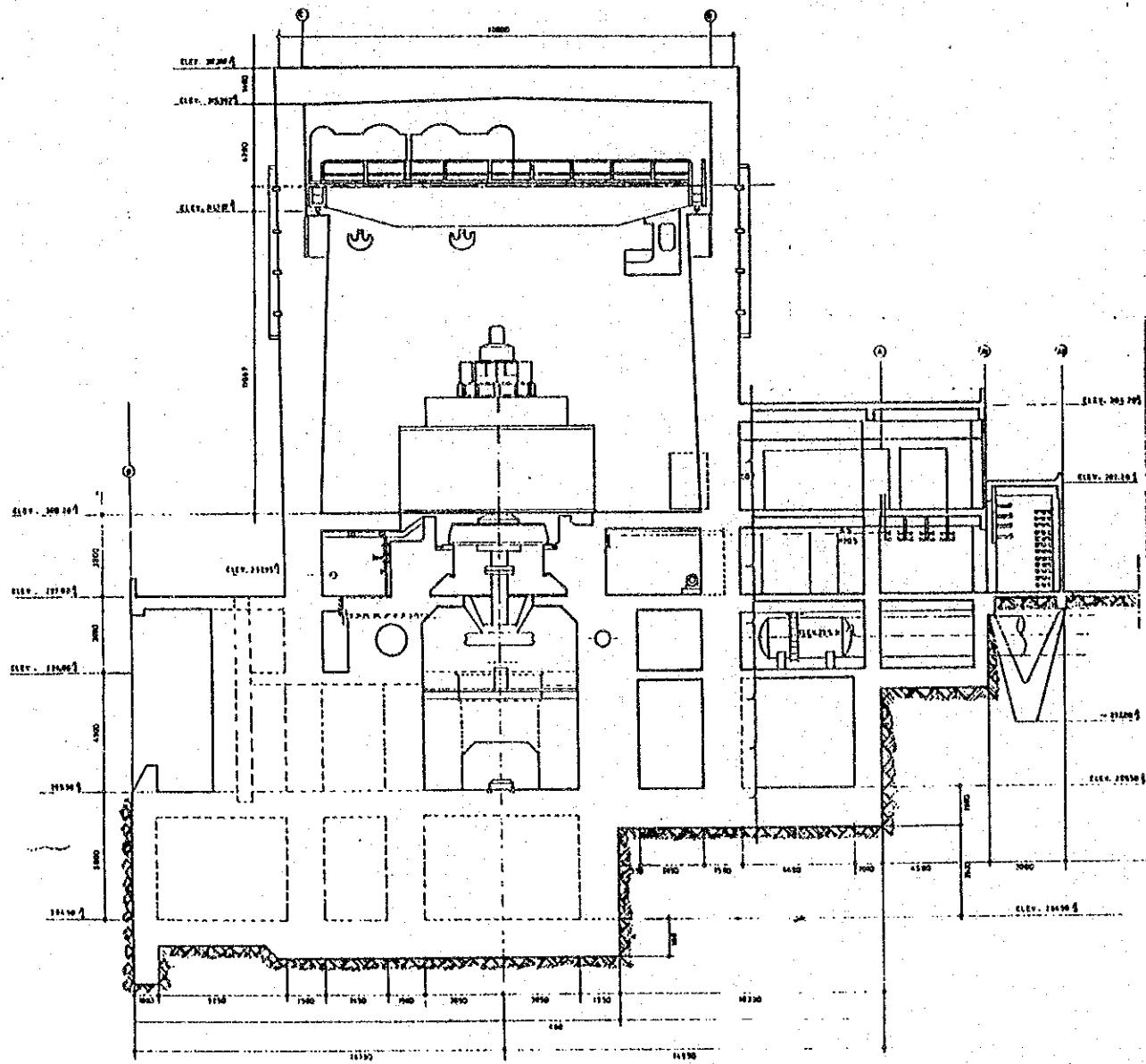
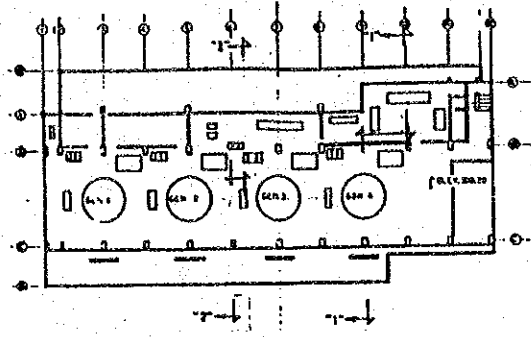


水路縦断面図

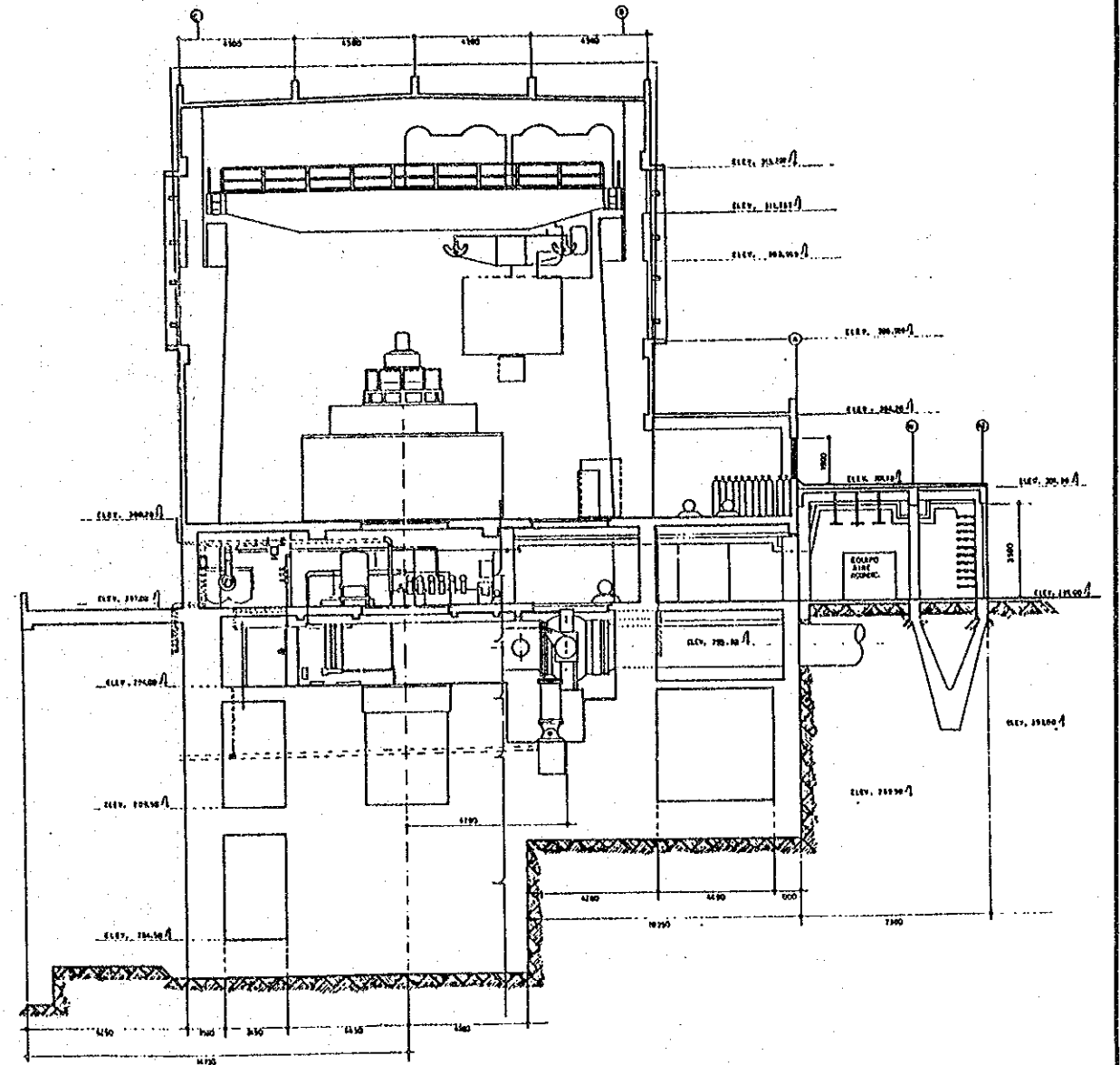




発電所および屋外開閉所概要図



Section 1 - 1

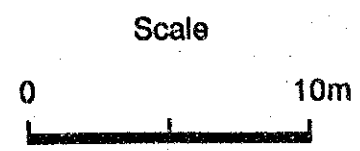
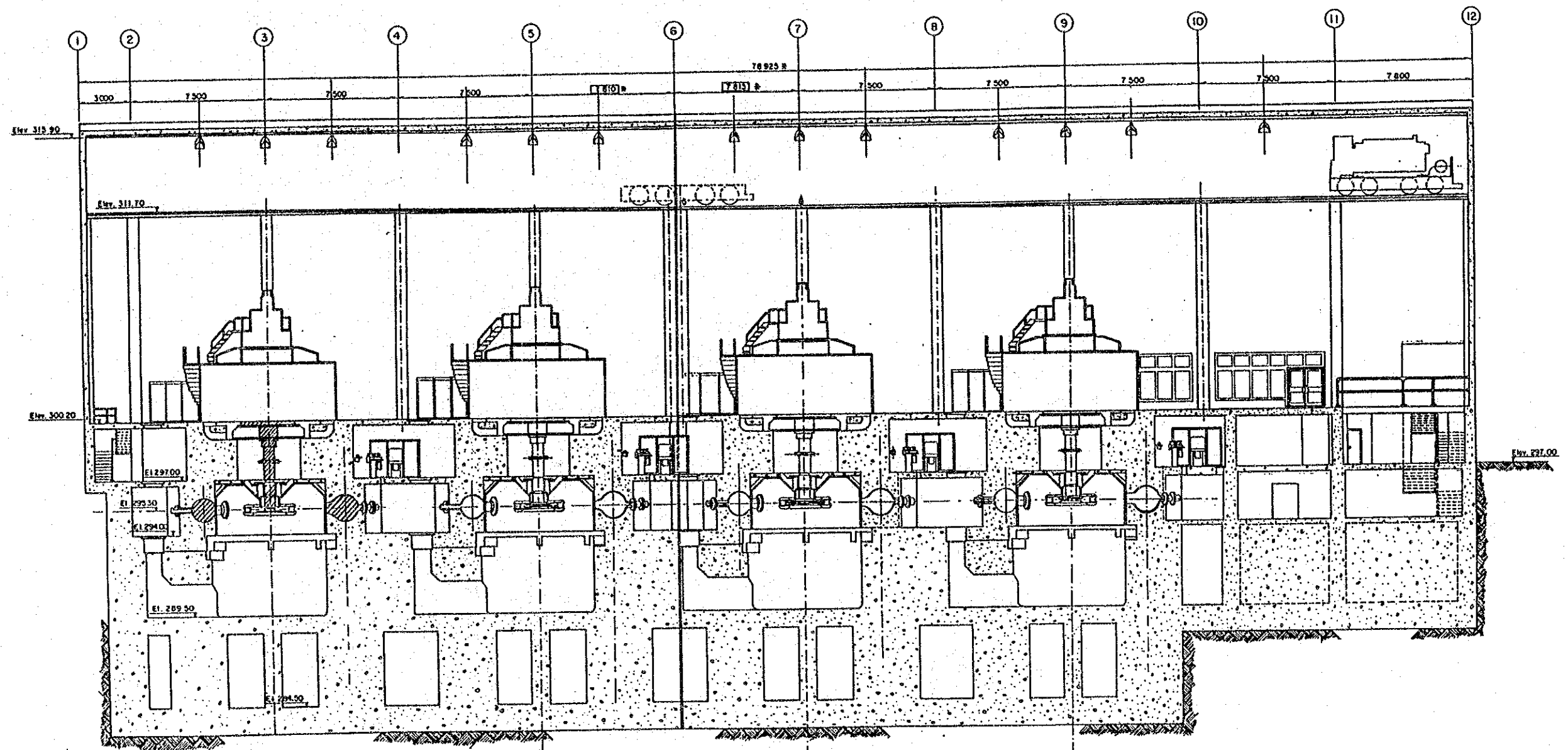


Section 2 - 2

Scale

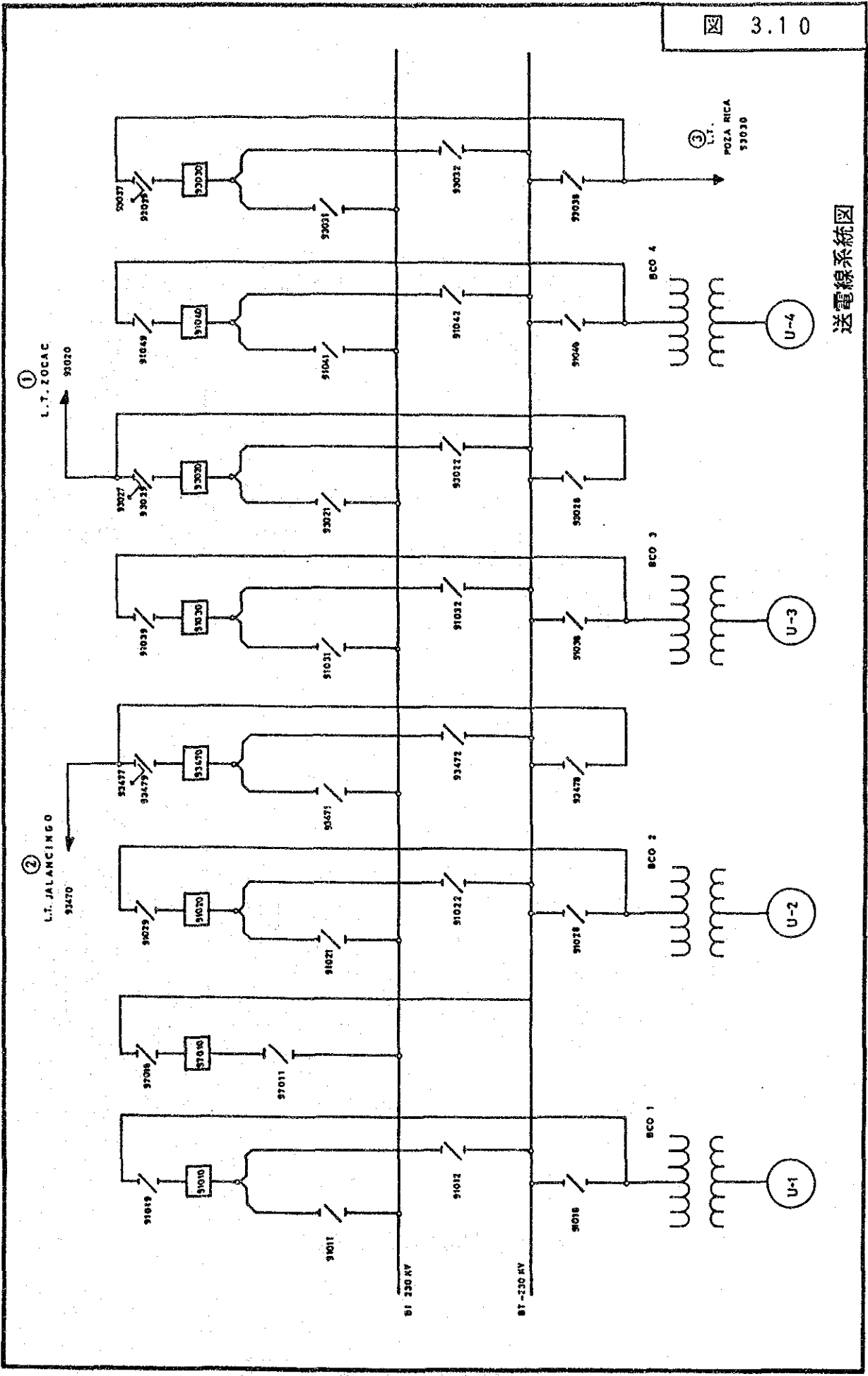


発電所断面図 (1/2)

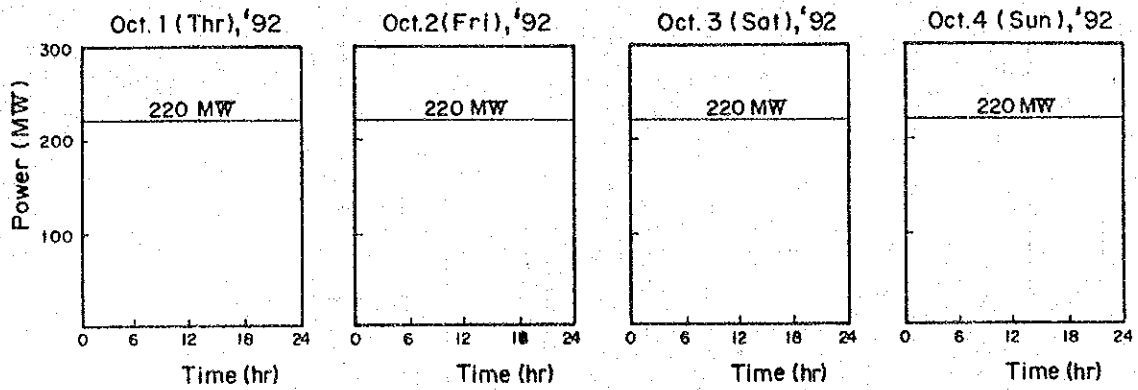


発電所断面図 (2/2)

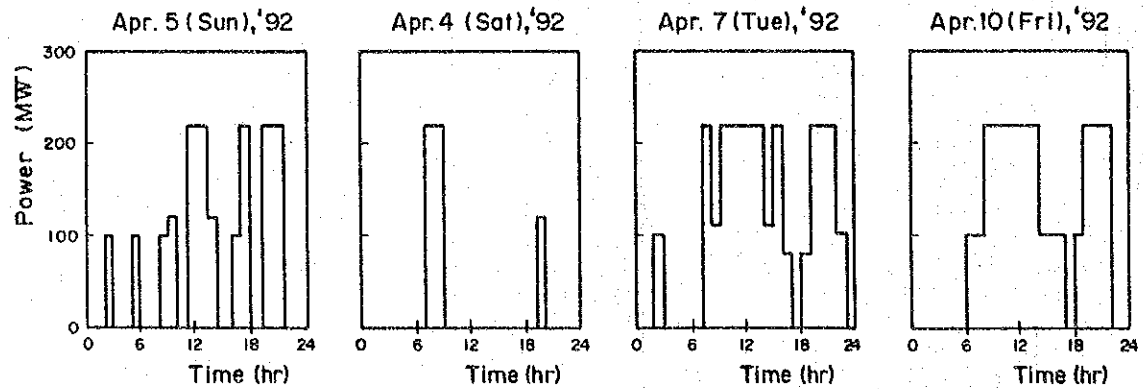




送電線系統圖

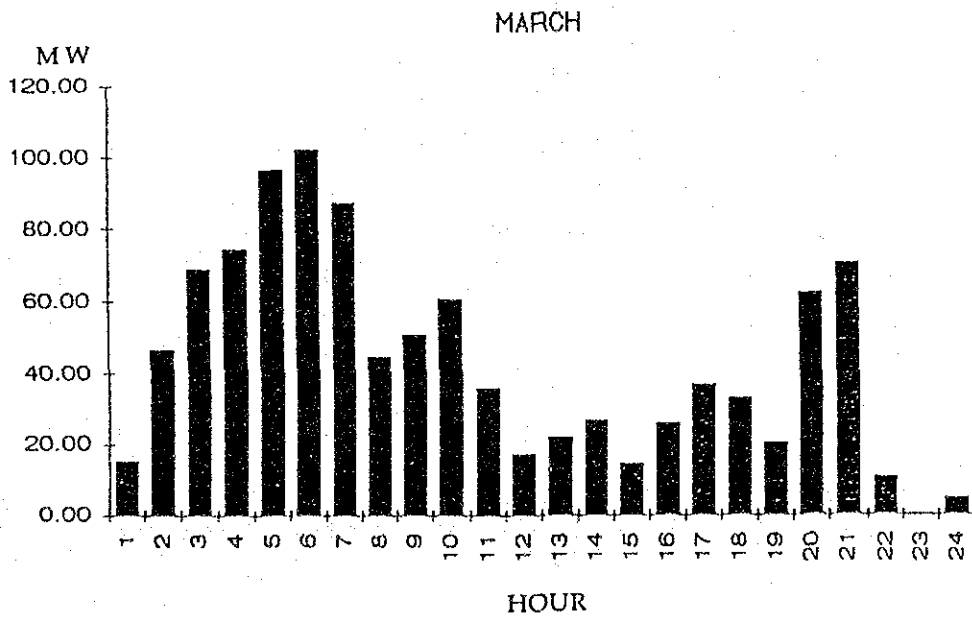
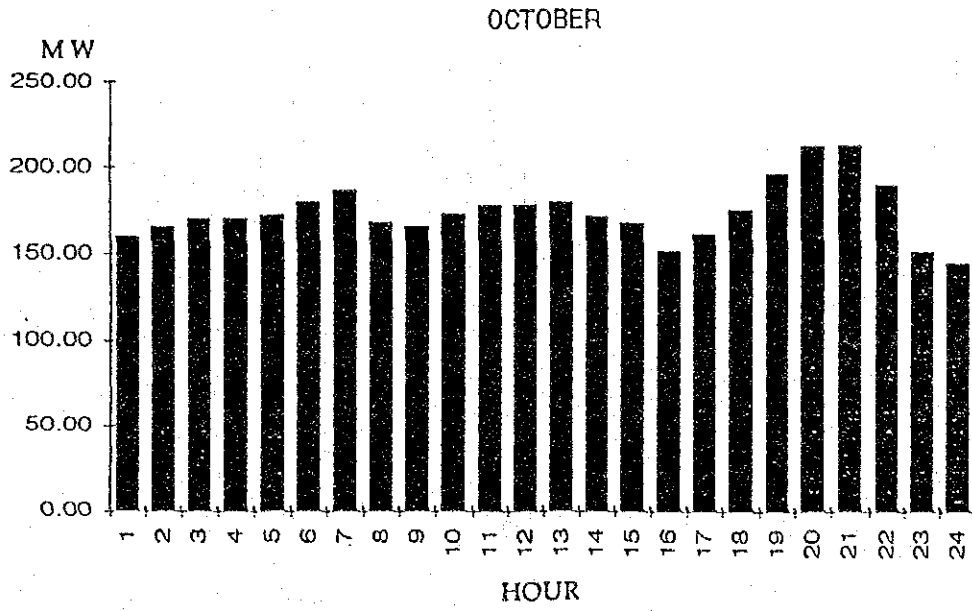


WET SEASON



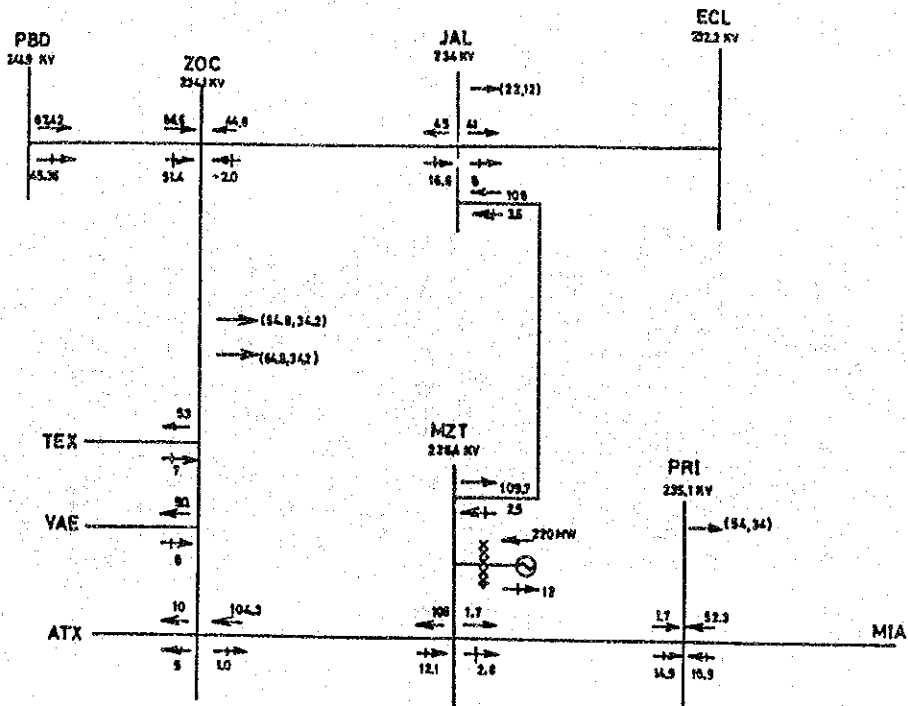
DRY SEASON

マサテベック発電所の発電実績

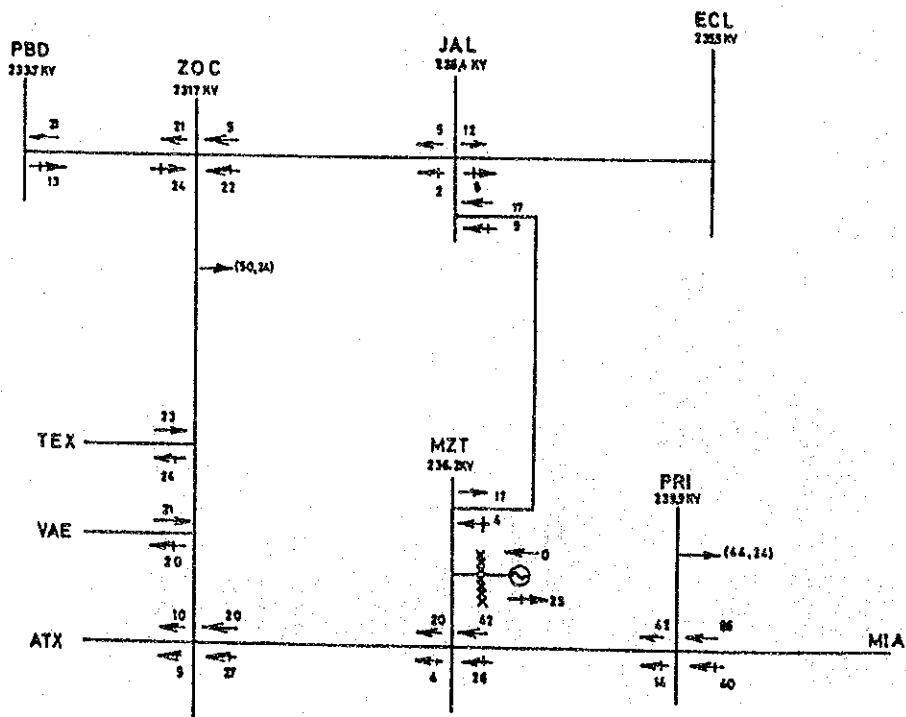


時間別の月平均出力

MAXIMUM DEMAND



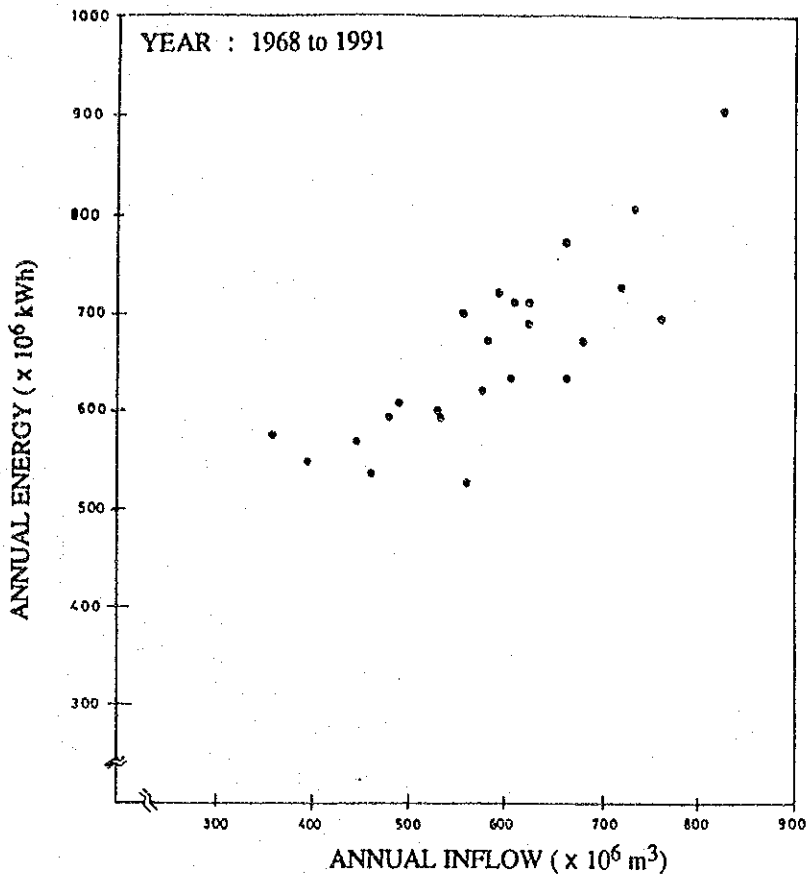
MINIMUM DEMAND



230kV送電系統の電圧の流れ図

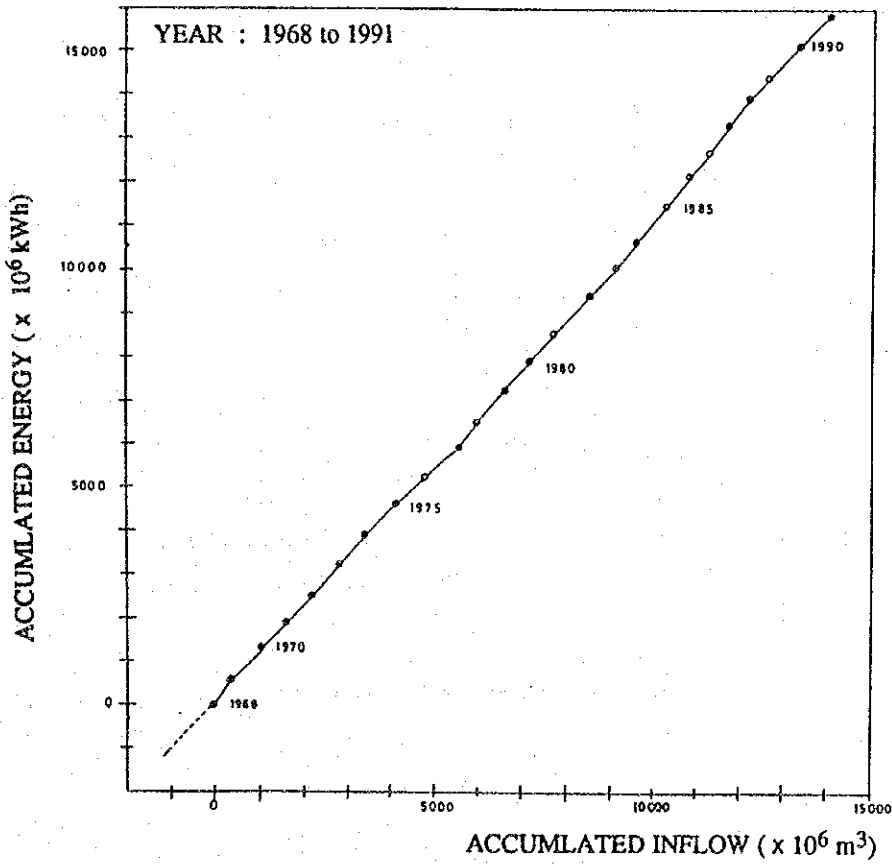


図 3.14

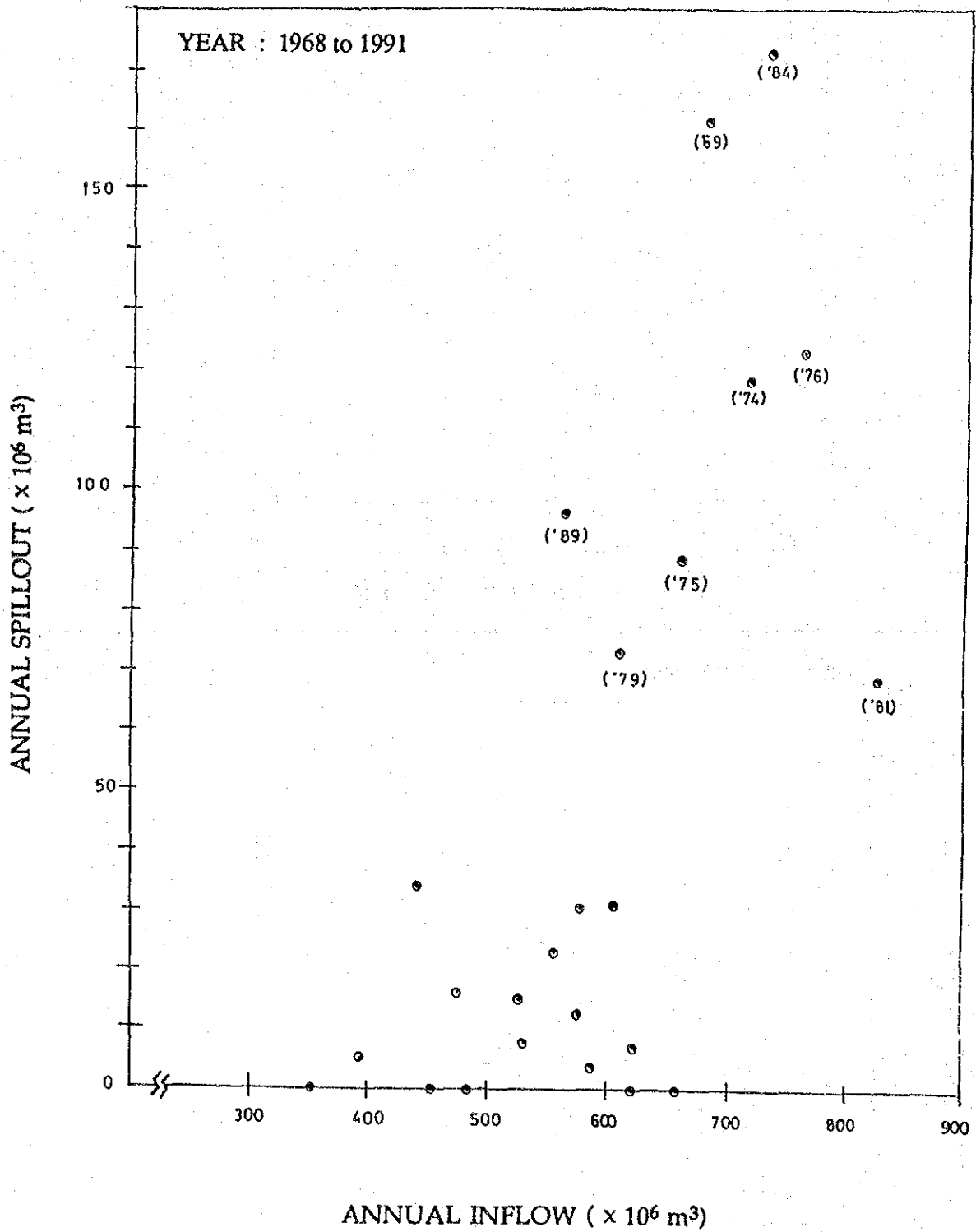


年発生電力量と年流入量の関係

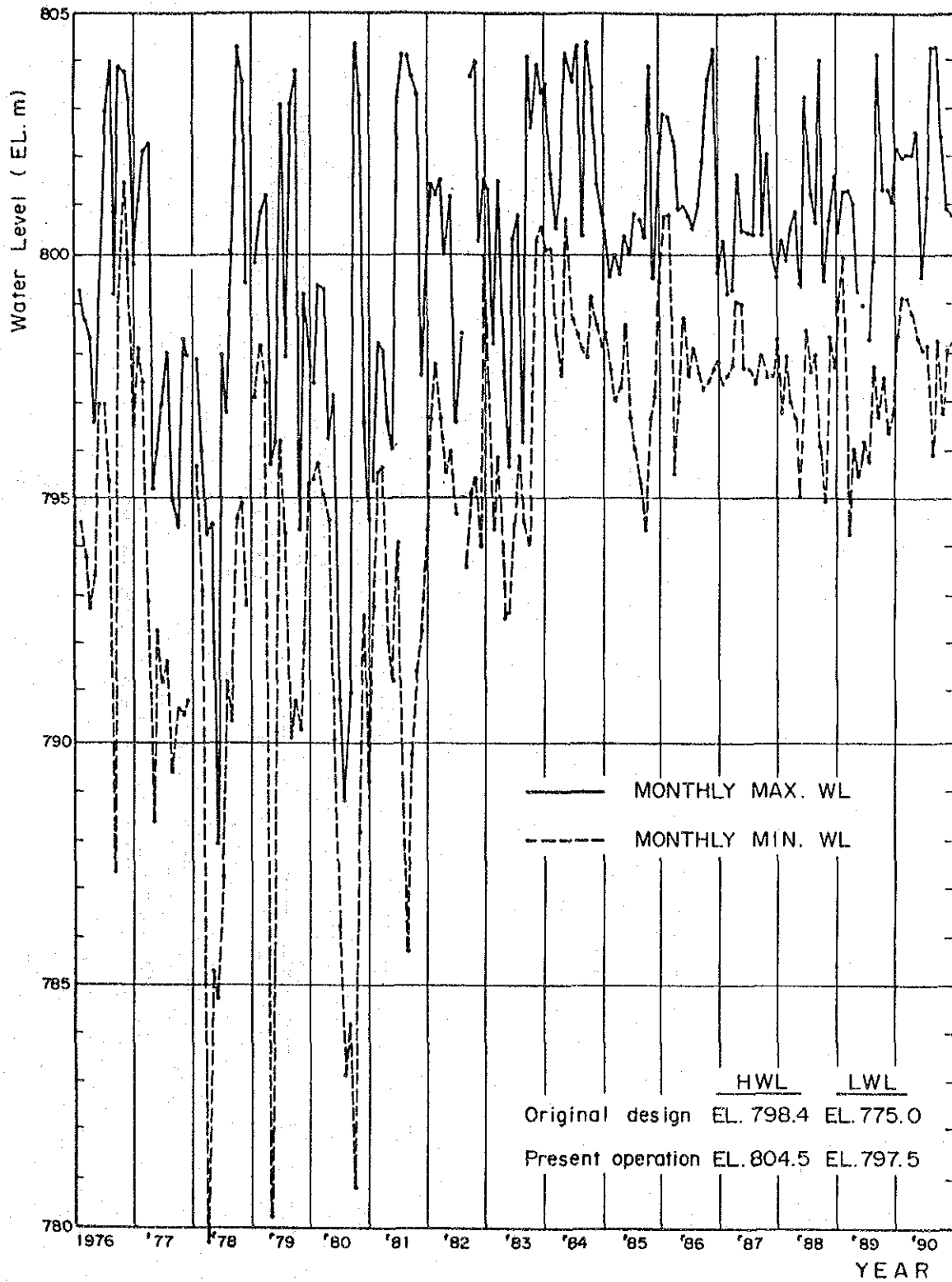
図 3.15



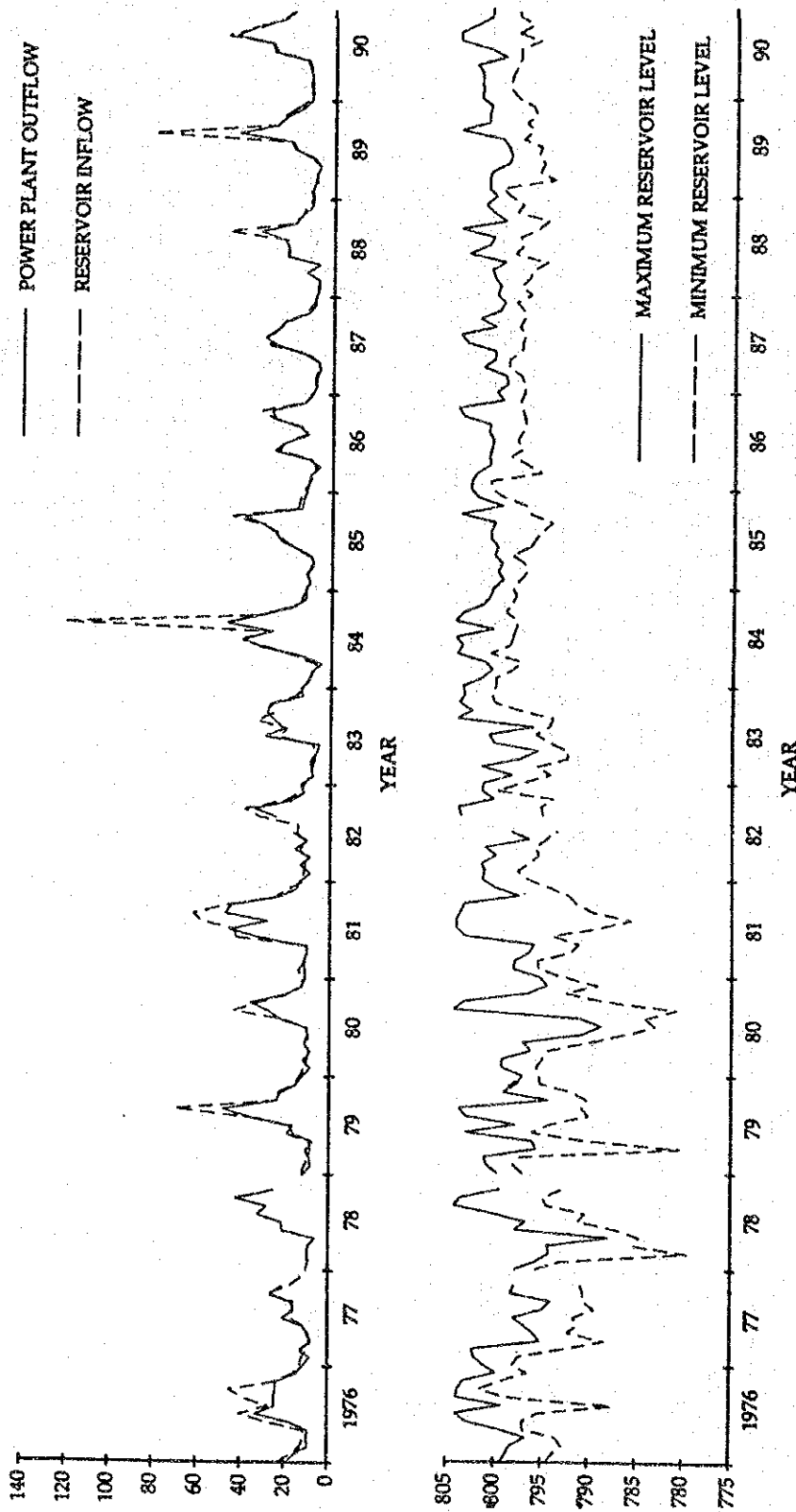
年発生電力量と年流入量のダブルマスカーブ



流入量と無効放流量の関係

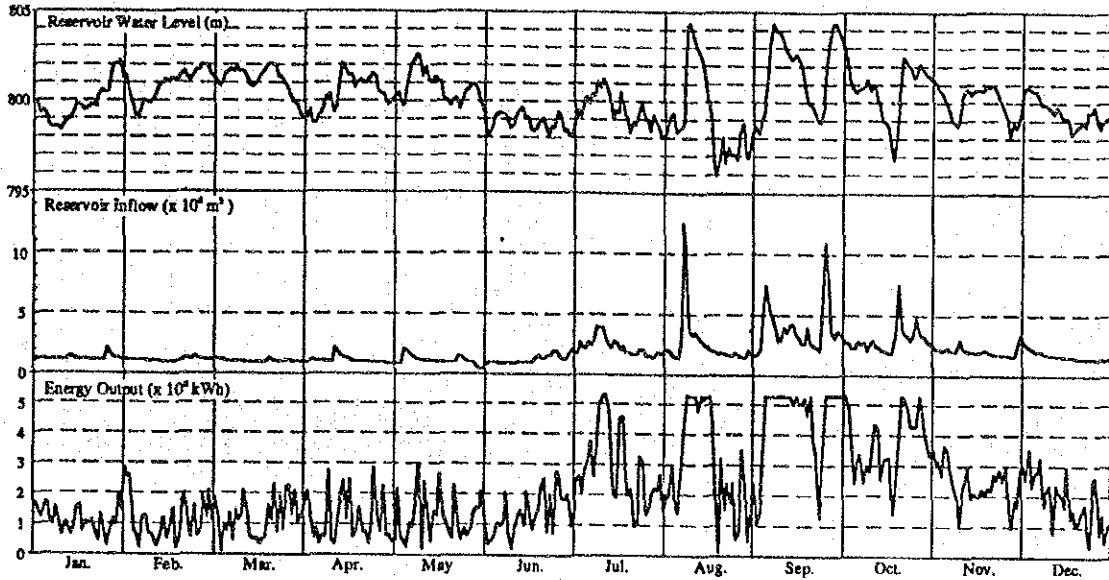


ソレダッド貯水池の月別最高/最低水位の経年変化

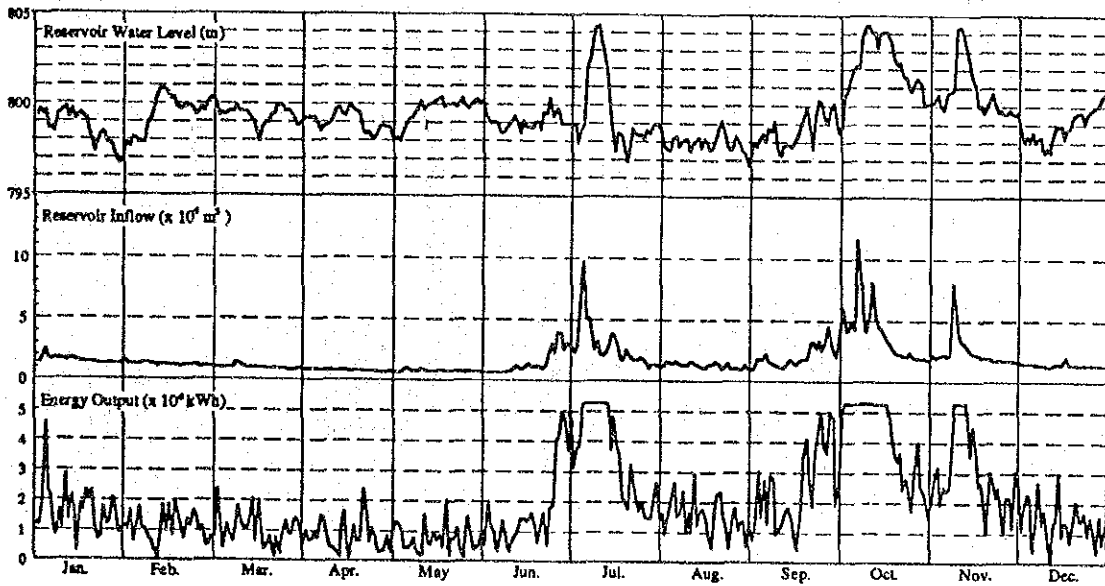


流入量、発電使用水量および貯水位の経年変化

1990

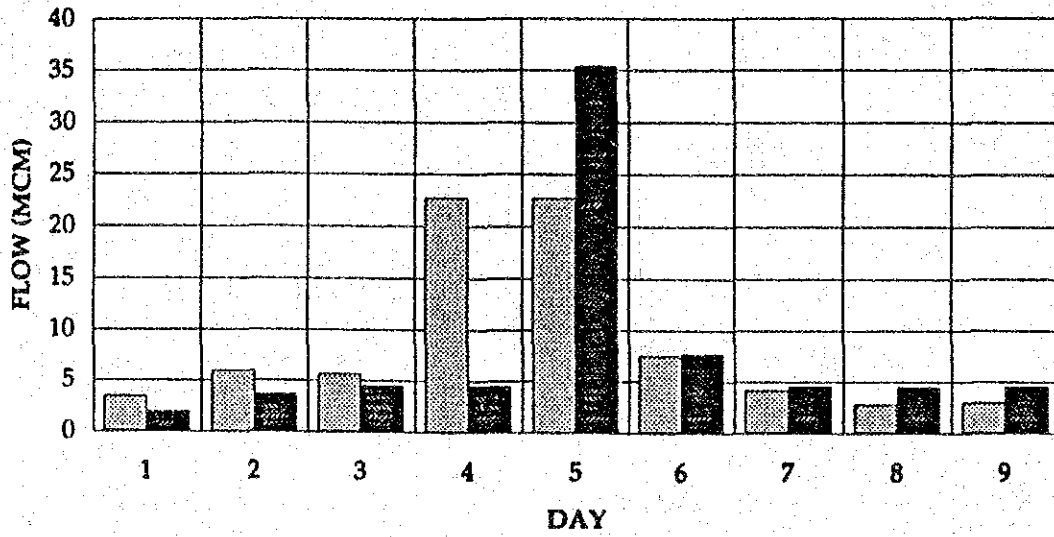


1991

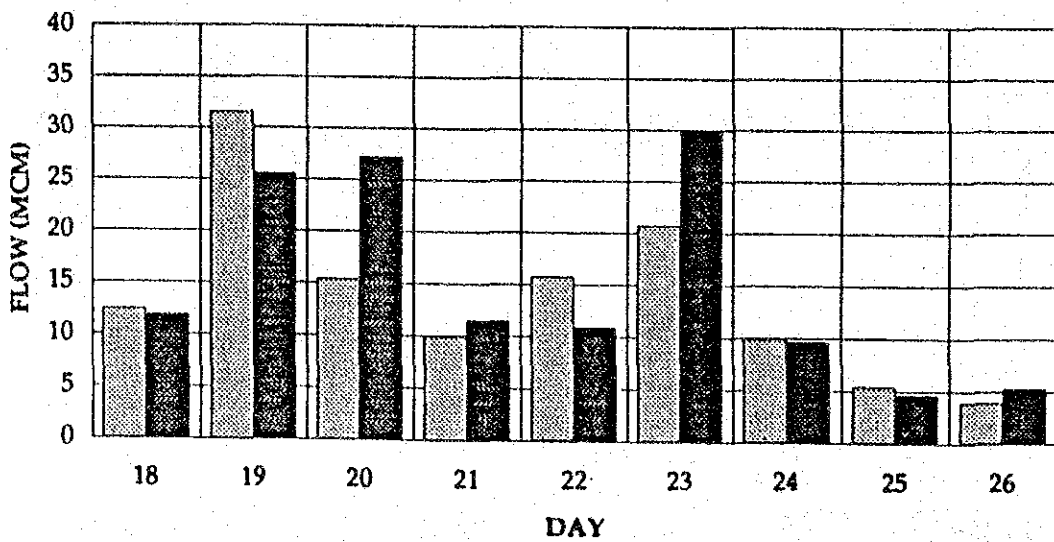


1990~1991年の貯水位、流入量および発生電力量の推移

Sept. 1988

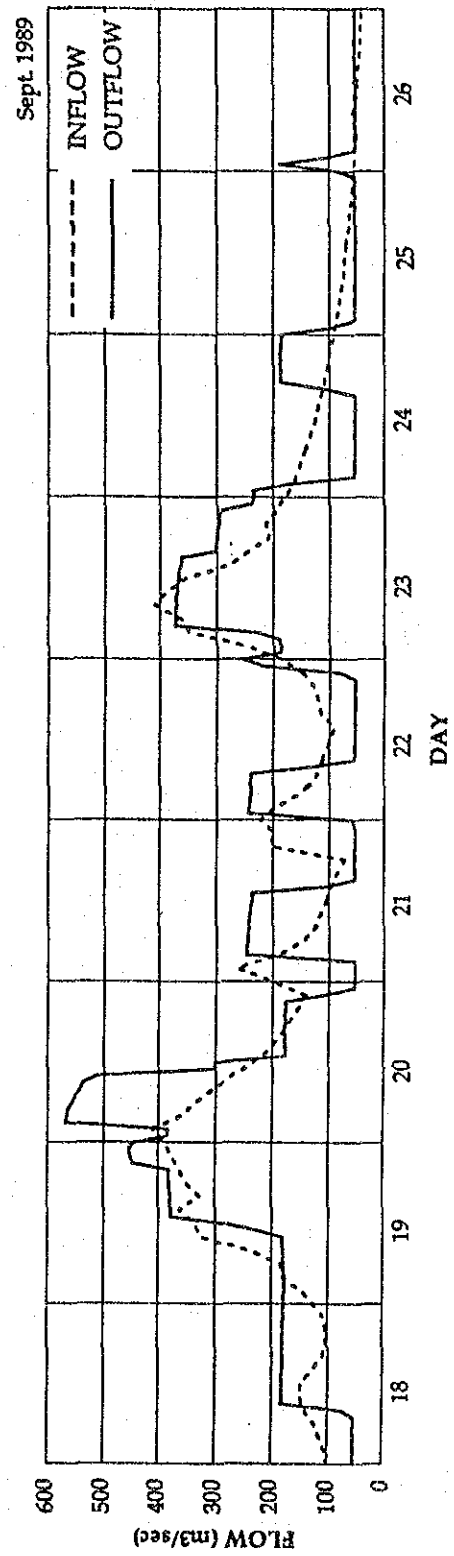
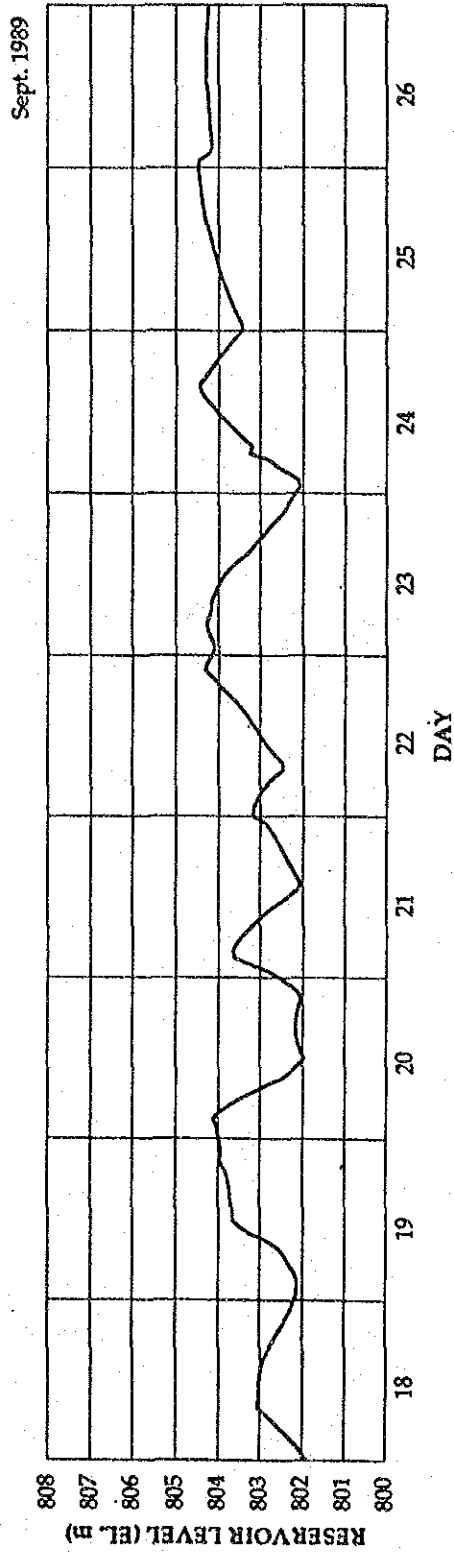


Sept. 1989

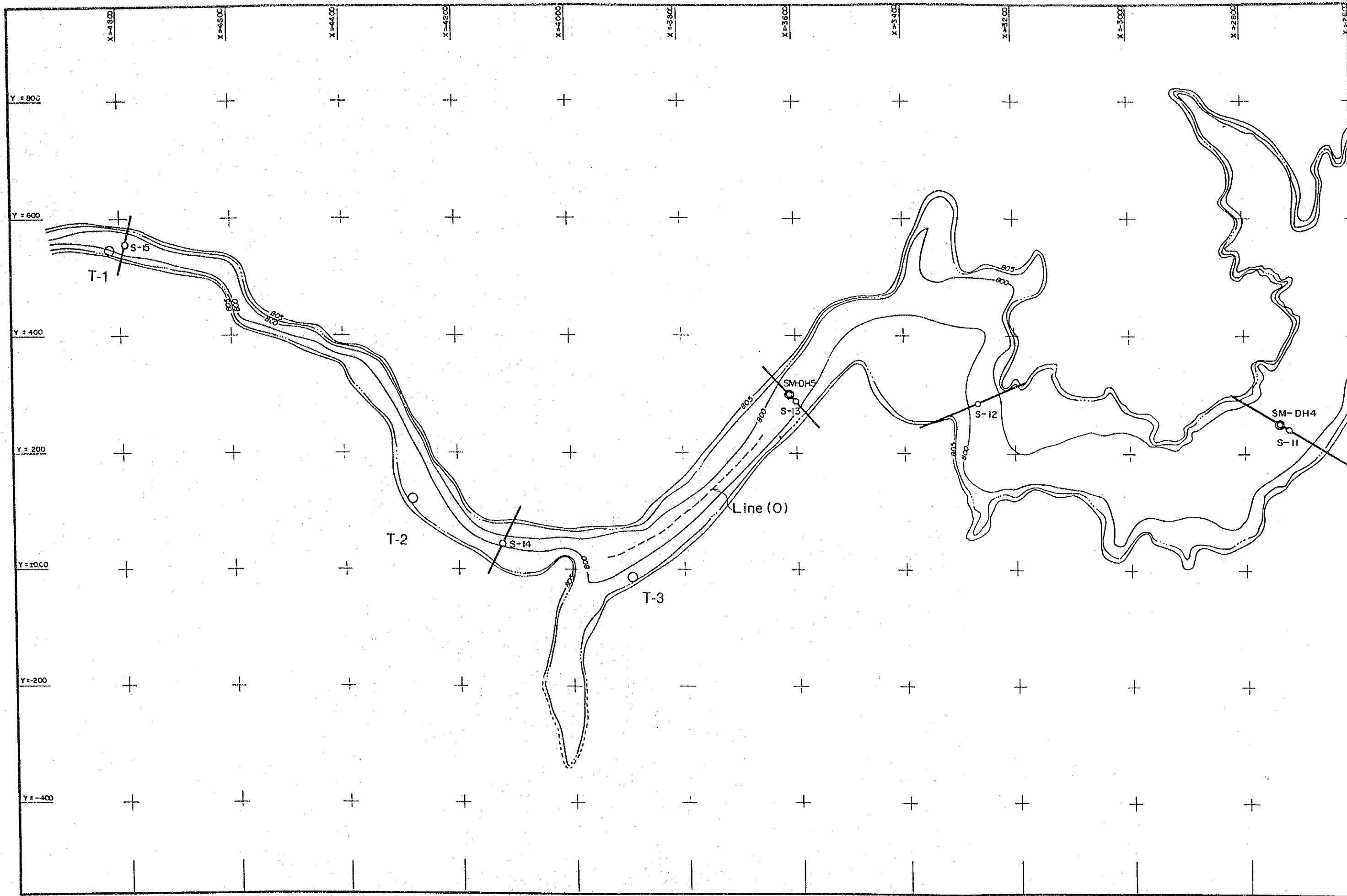


 INFLOW  
 OUTFLOW

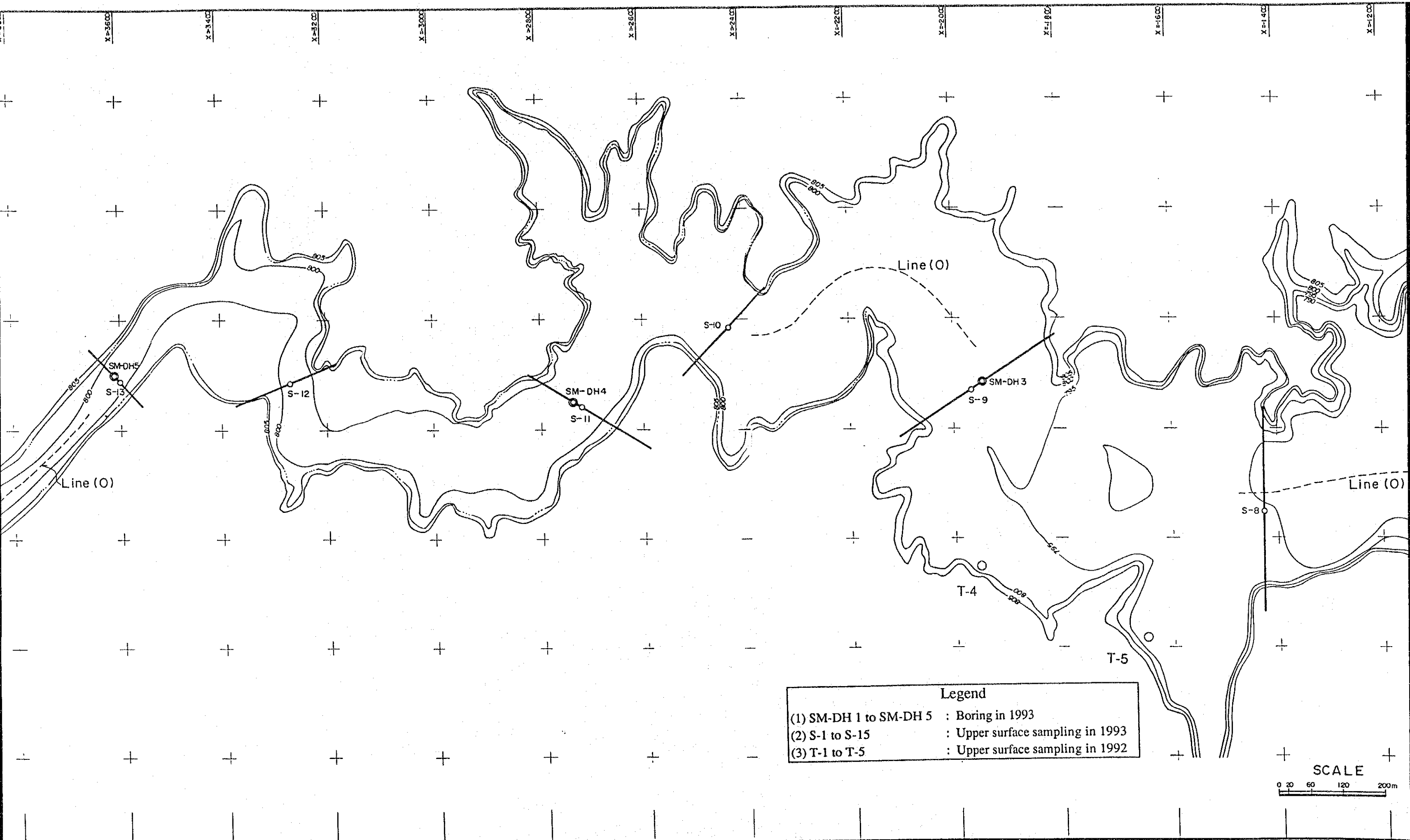
洪水時の流入量と放流量



洪水時の貯水位、流入量及び放流量 (1989年)



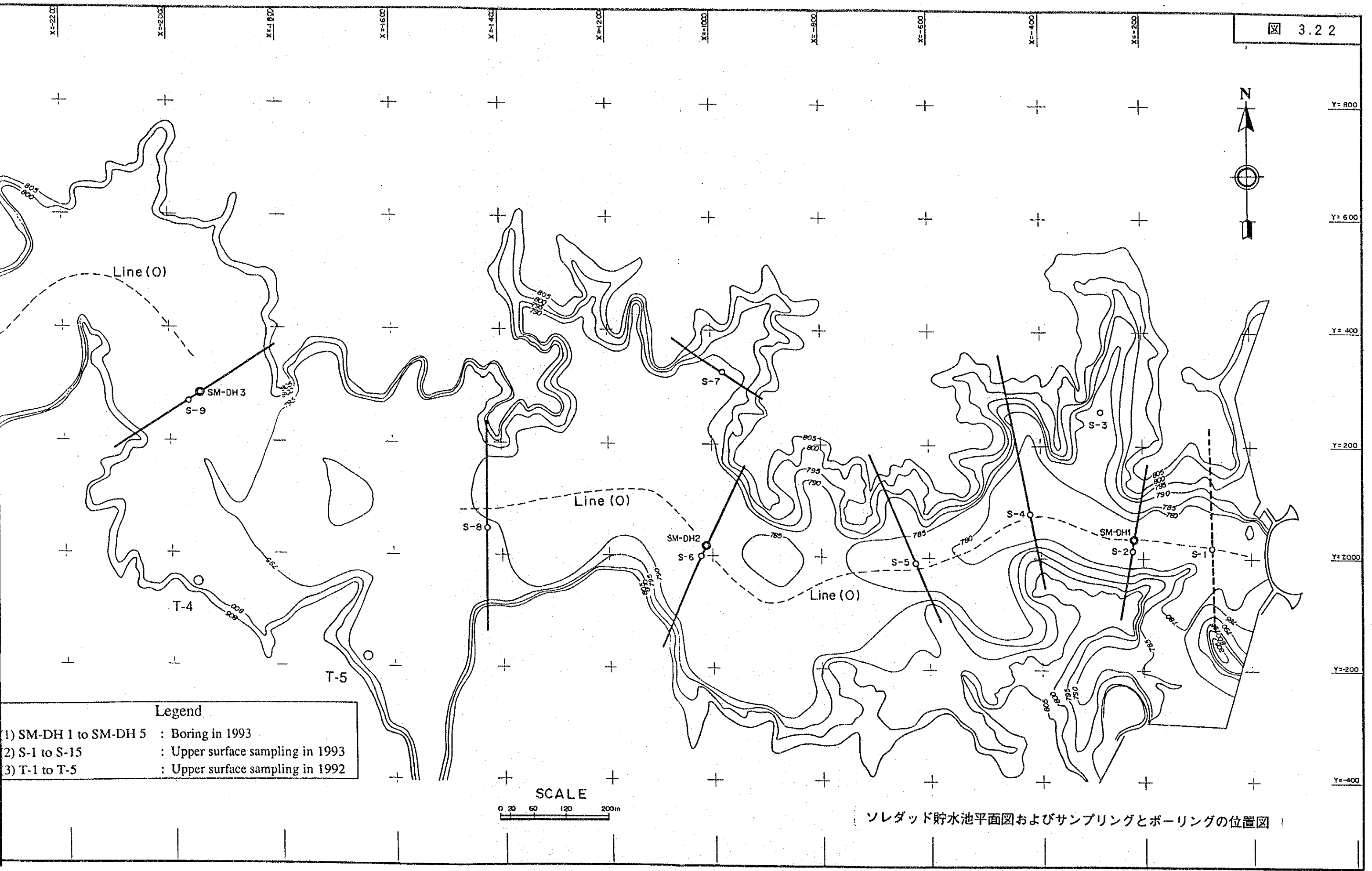




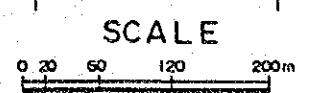
**Legend**

(1) SM-DH 1 to SM-DH 5 : Boring in 1993  
 (2) S-1 to S-15 : Upper surface sampling in 1993  
 (3) T-1 to T-5 : Upper surface sampling in 1992

**SCALE**  
 0 30 60 120 200m

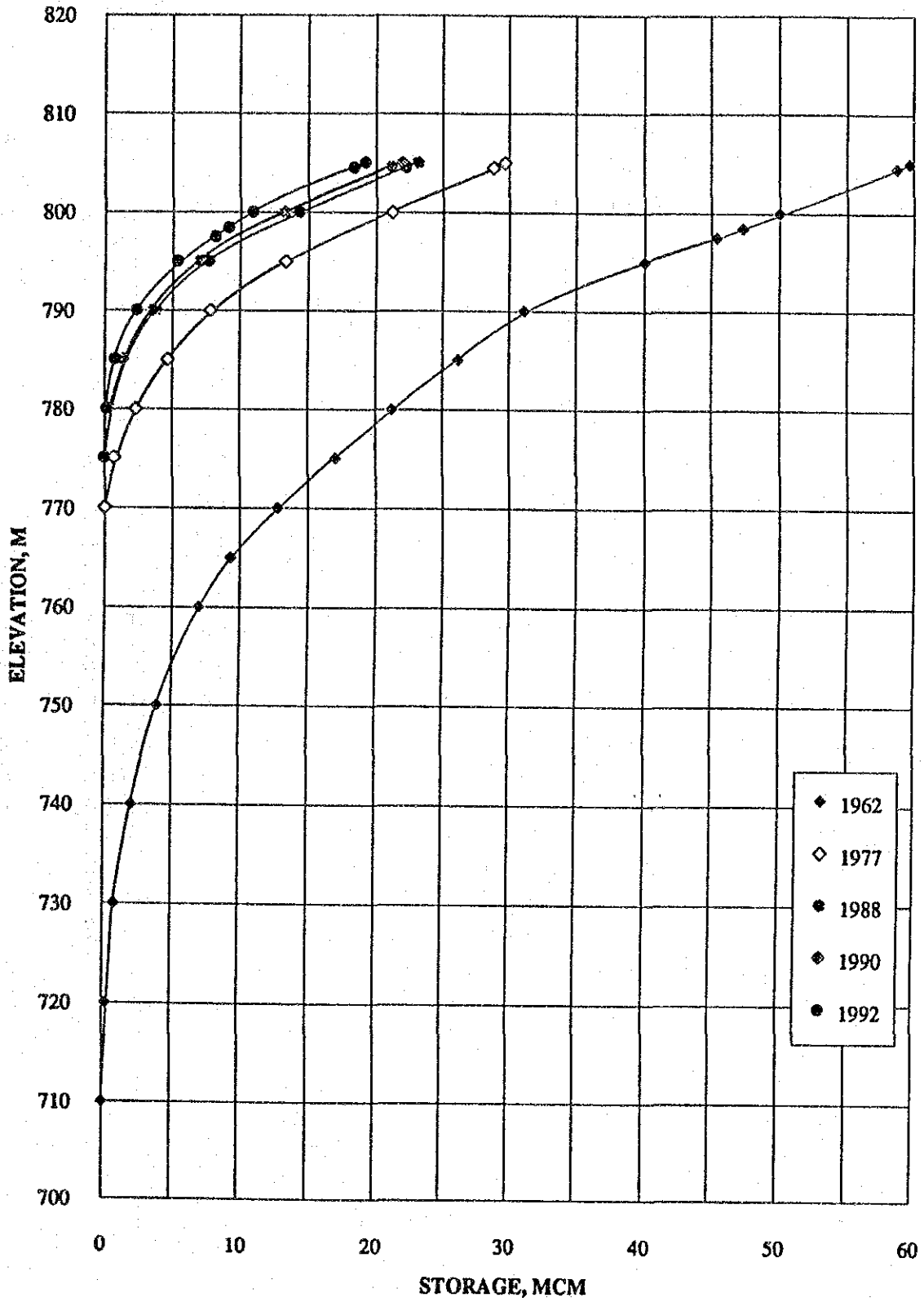


- Legend**
- 1) SM-DH 1 to SM-DH 5 : Boring in 1993
  - 2) S-1 to S-15 : Upper surface sampling in 1993
  - 3) T-1 to T-5 : Upper surface sampling in 1992

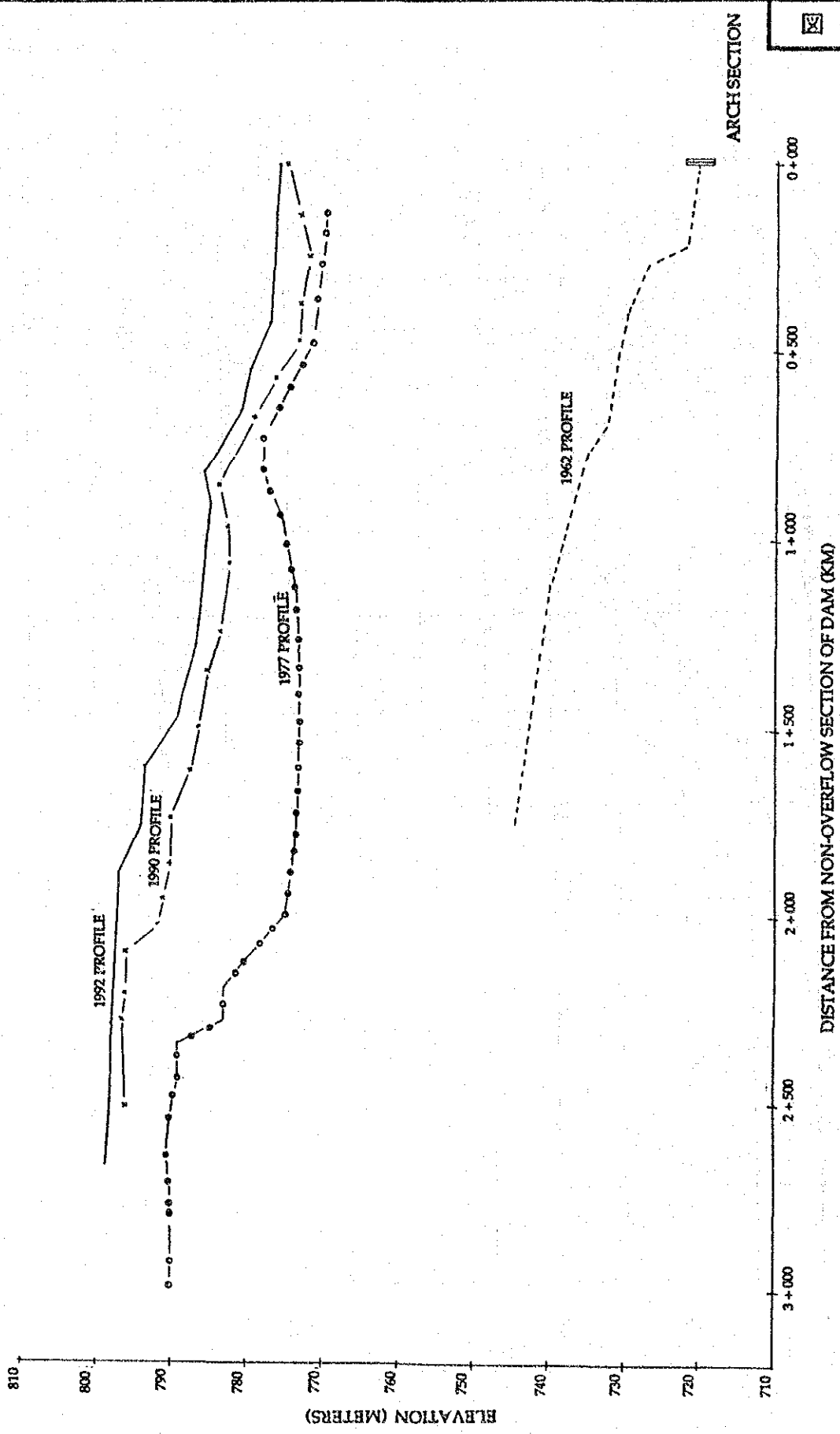


ソレダッド貯水池平面図およびサンプリングとボーリングの位置図

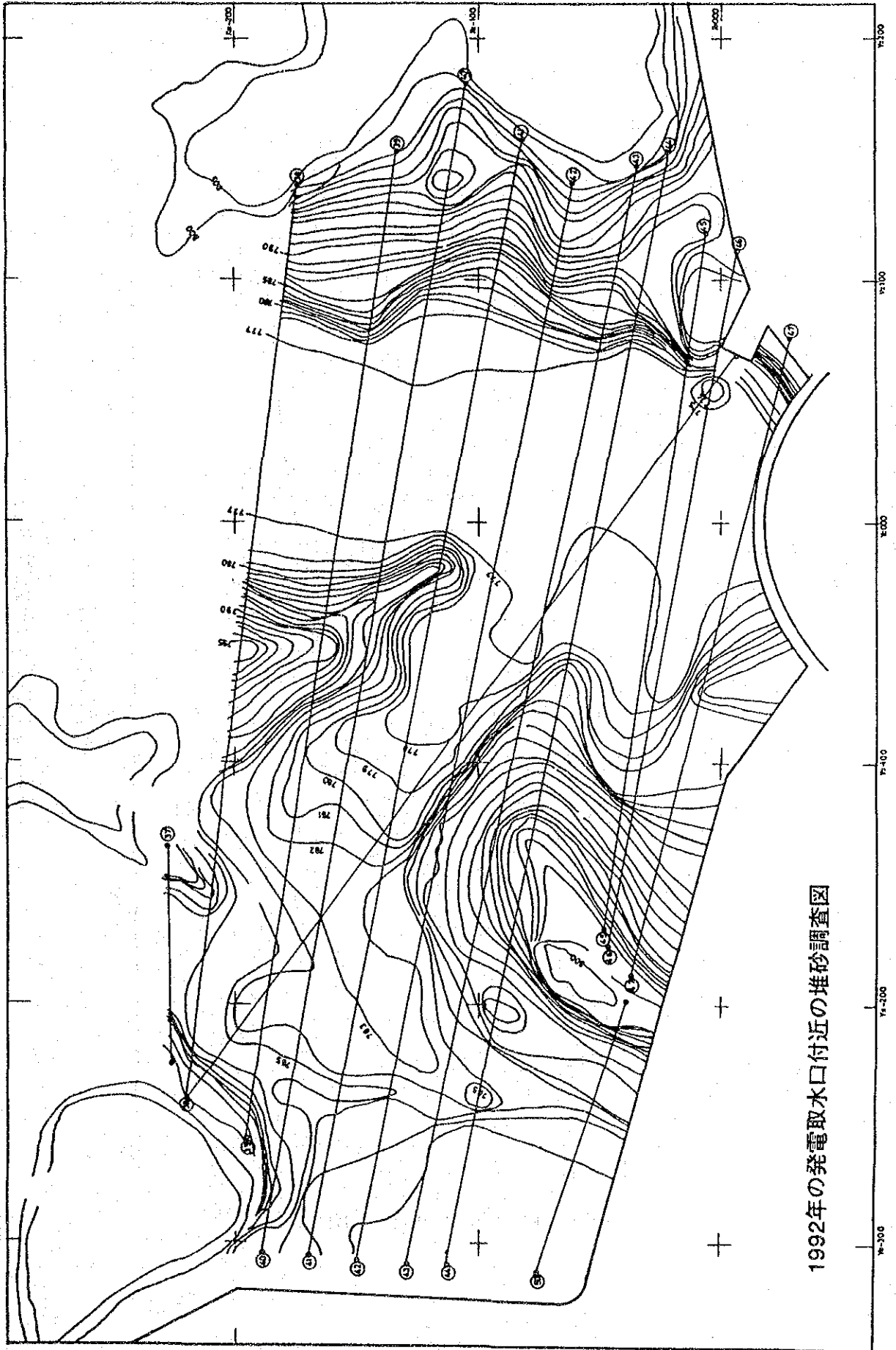




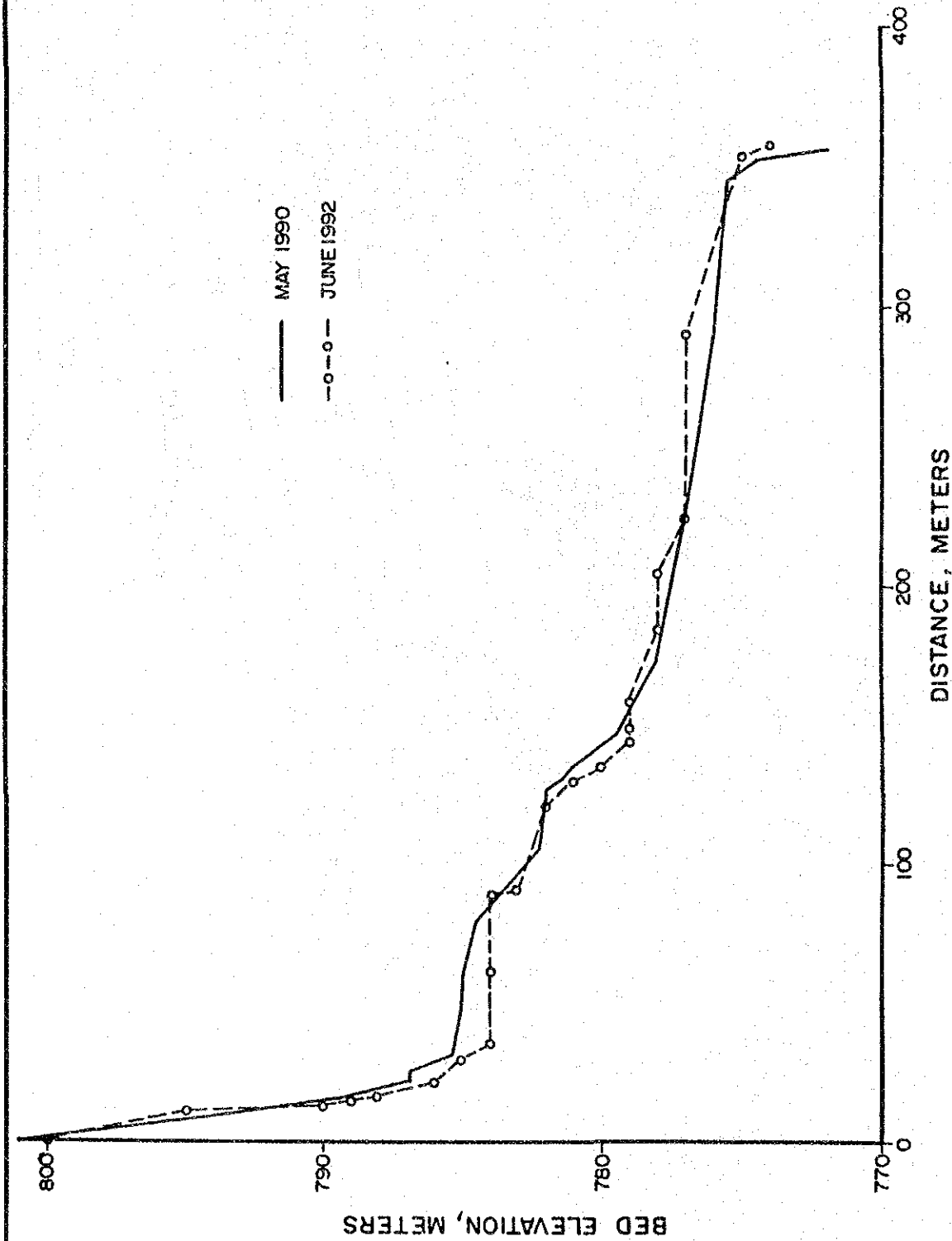
貯水位 - 容量曲線の経年変化



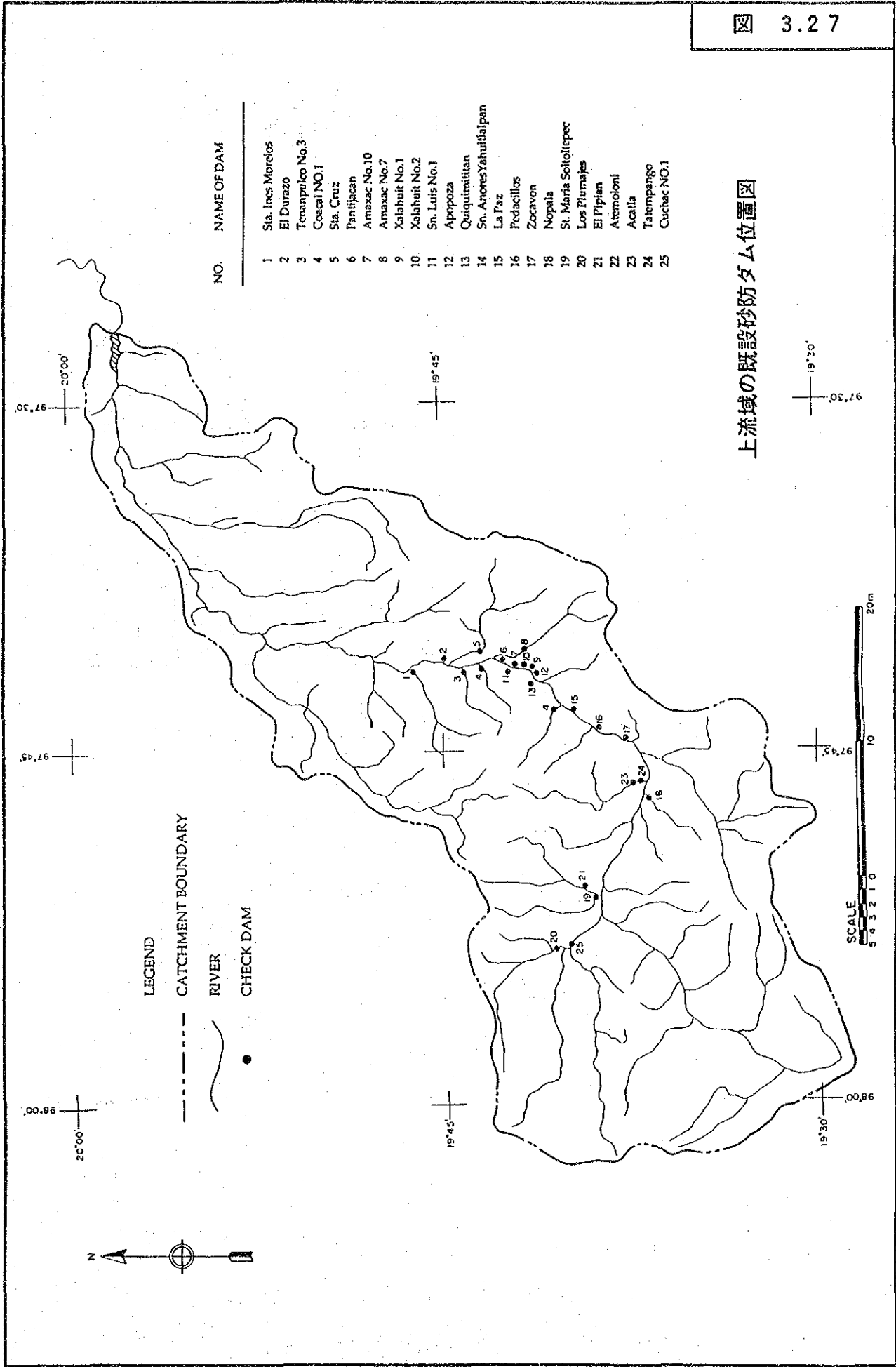
貯水池堆砂面の縦断面図



1992年の発電取水口付近の堆砂調査図



発電取水口付近の堆砂面縦断面図

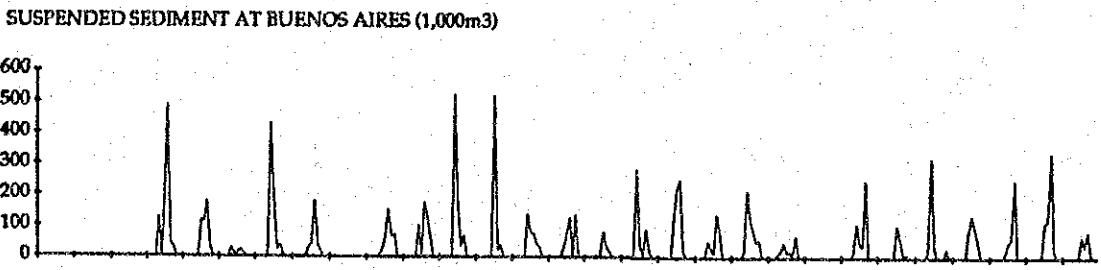
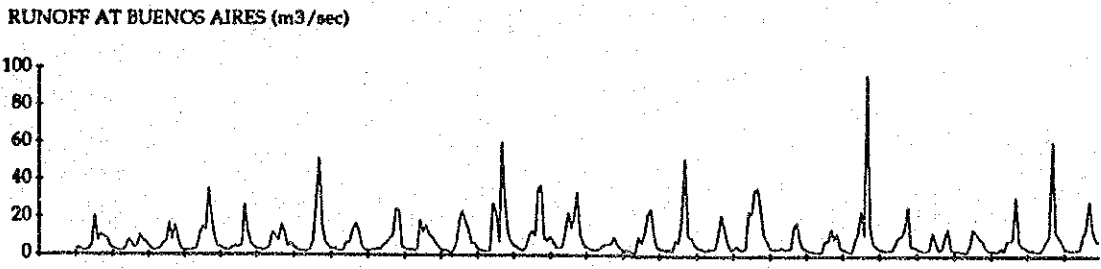
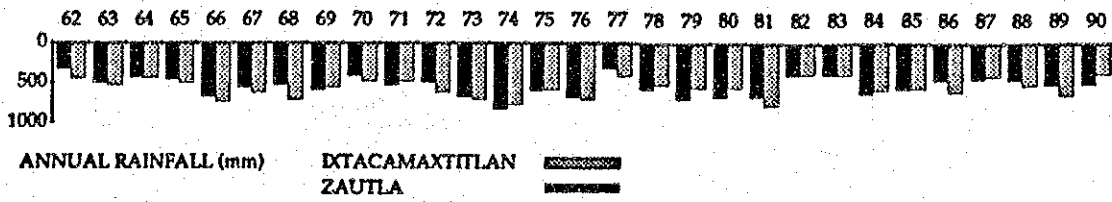


NO. NAME OF DAM

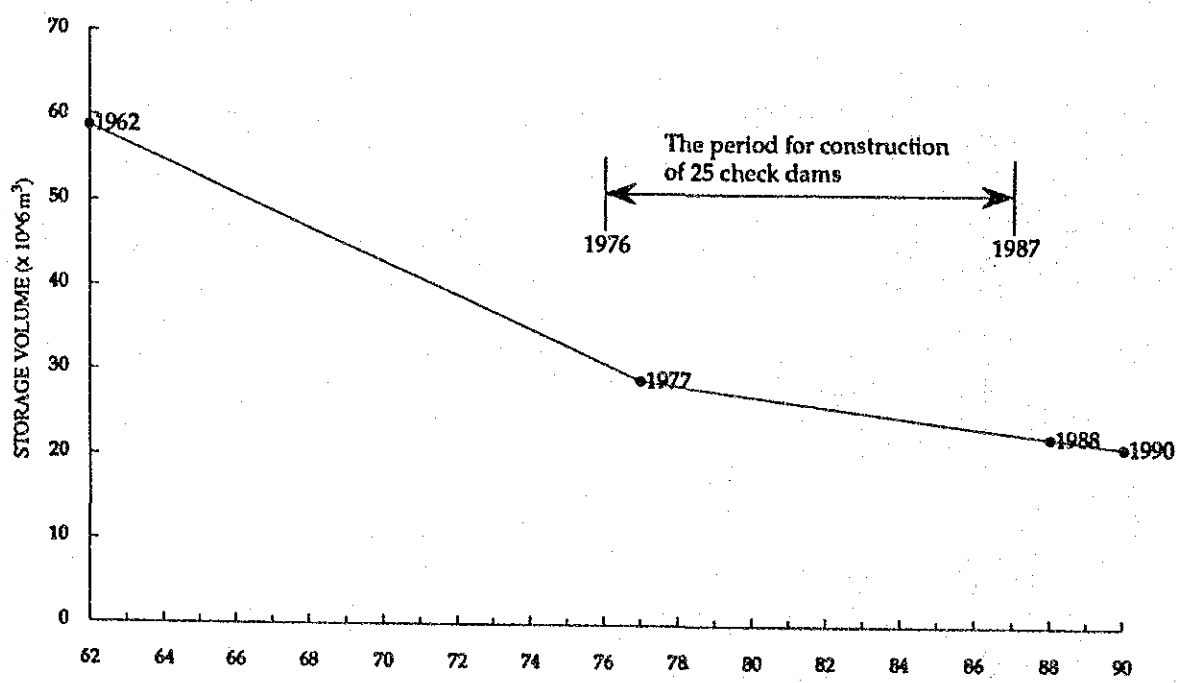
1	Sta. Ires Morelos
2	El Durazo
3	Tenampulco No.3
4	Coacal NO.1
5	Sta. Cruz
6	Pantipican
7	Amazac No.10
8	Amazac No.7
9	Xalahuit No.1
10	Xalahuit No.2
11	Sn. Luis No.1
12	Aprozoa
13	Quiquimittan
14	Sn. Anores Yahualtipan
15	La Paz
16	Pedacillos
17	Zocaven
18	Nopala
19	St. Maria Sohoitepec
20	Los Plurmajes
21	El Pipian
22	Atemoloni
23	Acaxla
24	Tampango
25	Cuchac NO.1

上流域の既設砂防ダム位置図



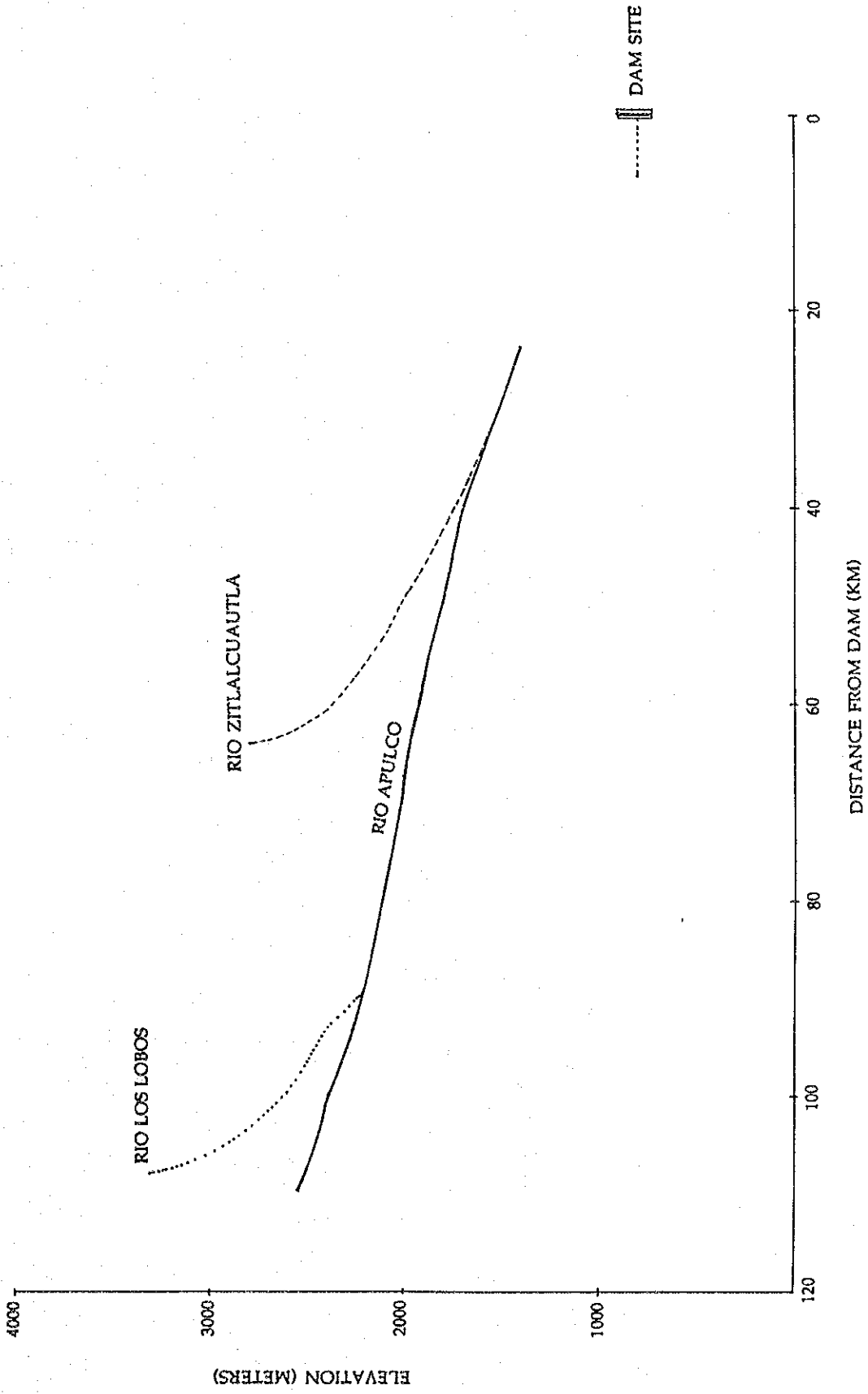


COMPARISON OF RUNOFF, RAINFALL AND SEDIMENT



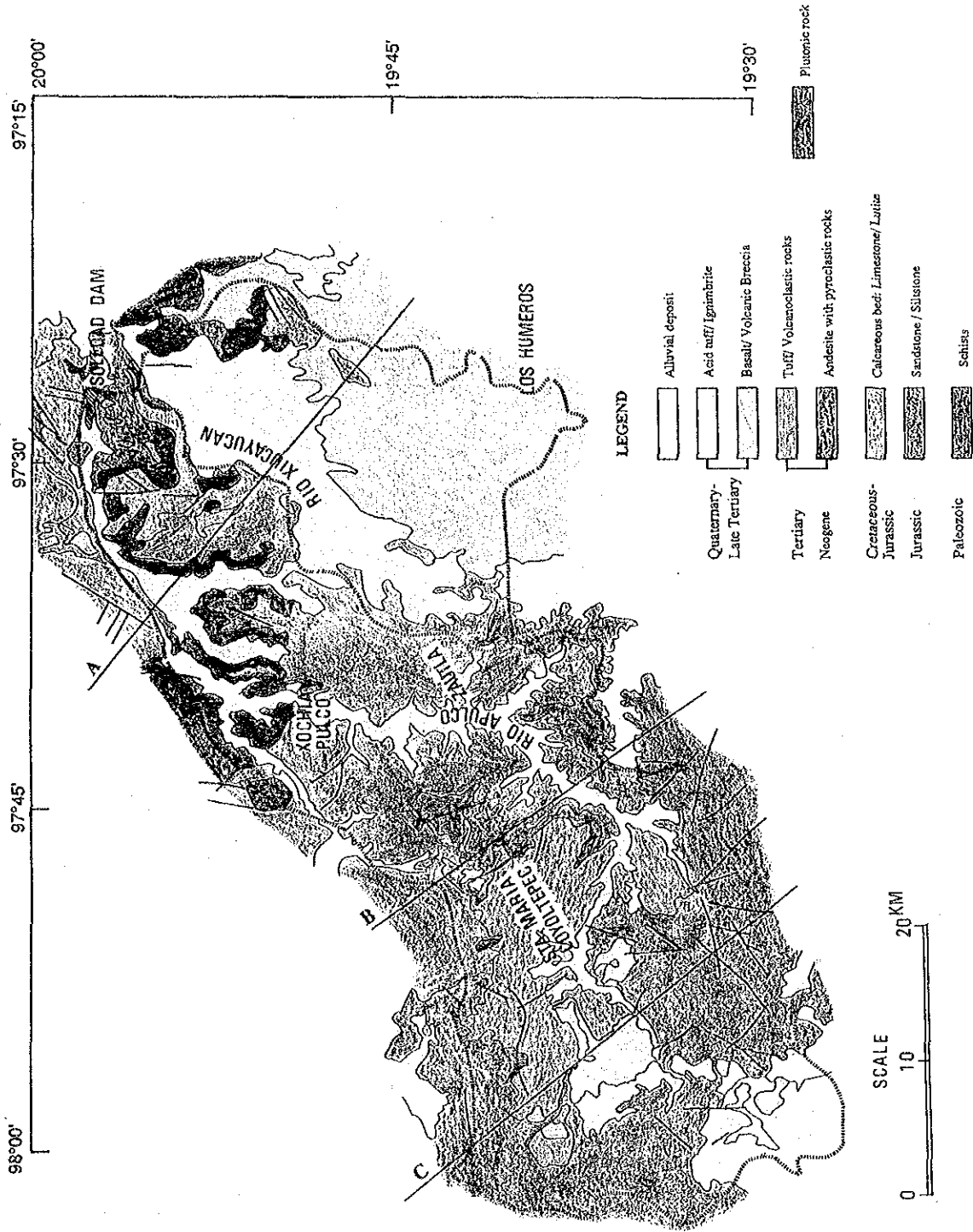
CHANGE OF RESERVOIR STORAGE VOLUME BELOW EL. 804.5 m

貯水池堆砂の進行および水文条件経年変化



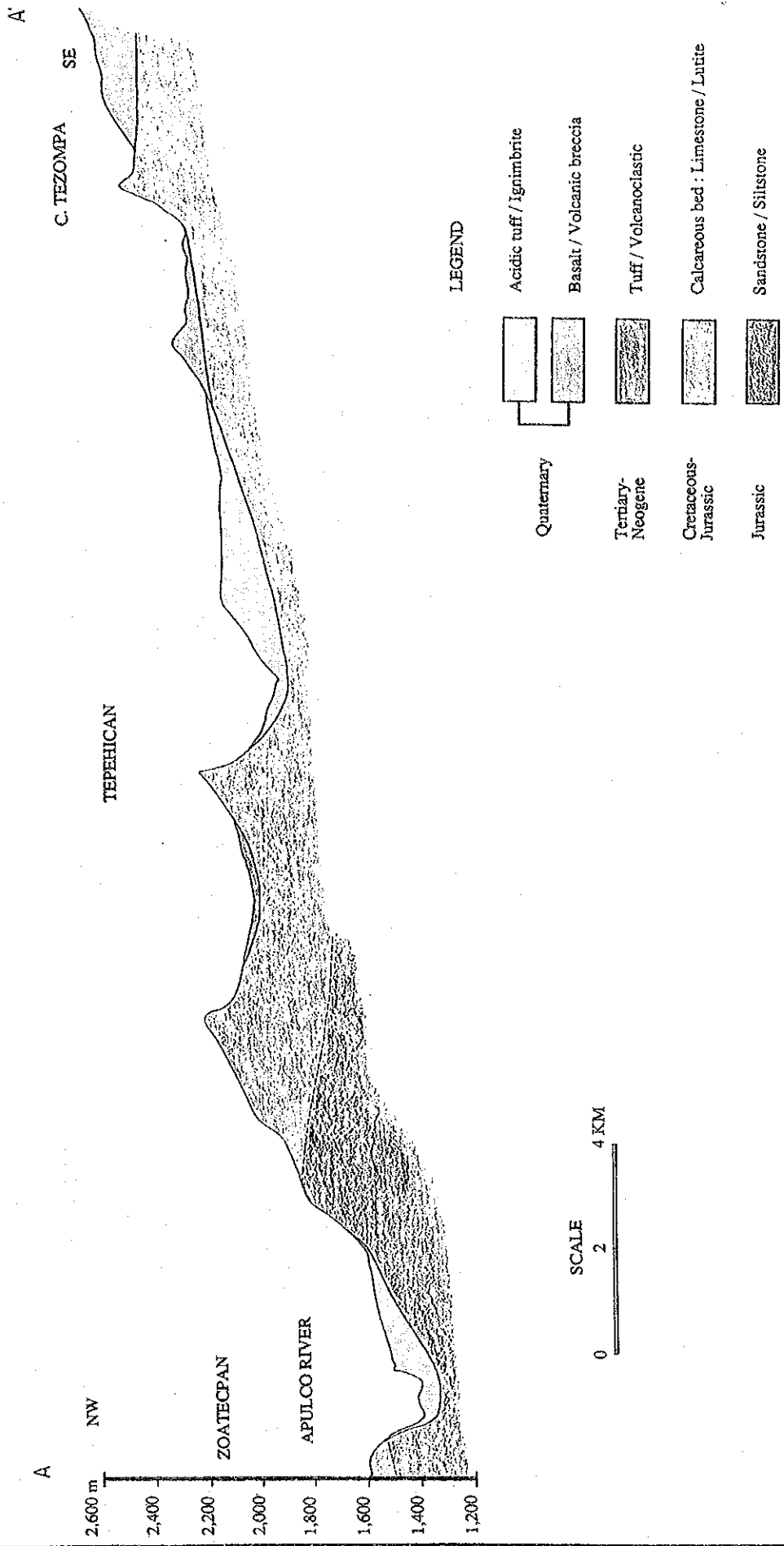
アプルコ川の河川縦断面図





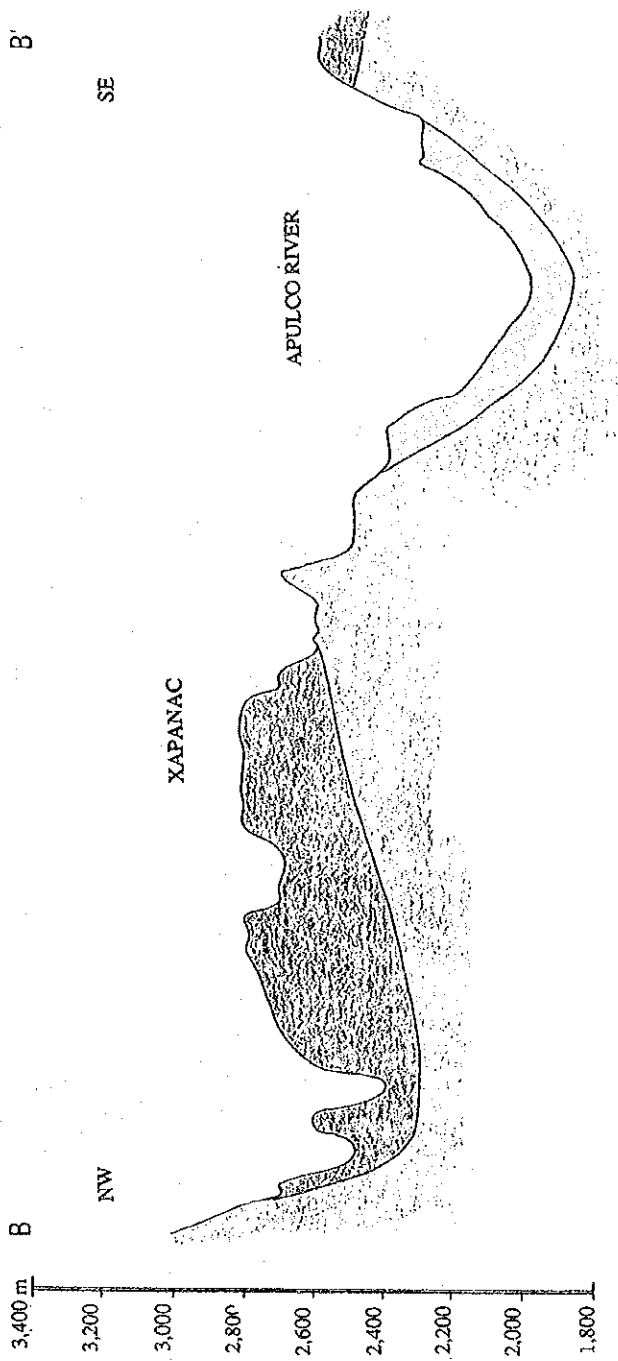
ソレダッド貯水池集水域の地質図



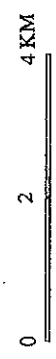


地质断面图 (1/3)





SCALE



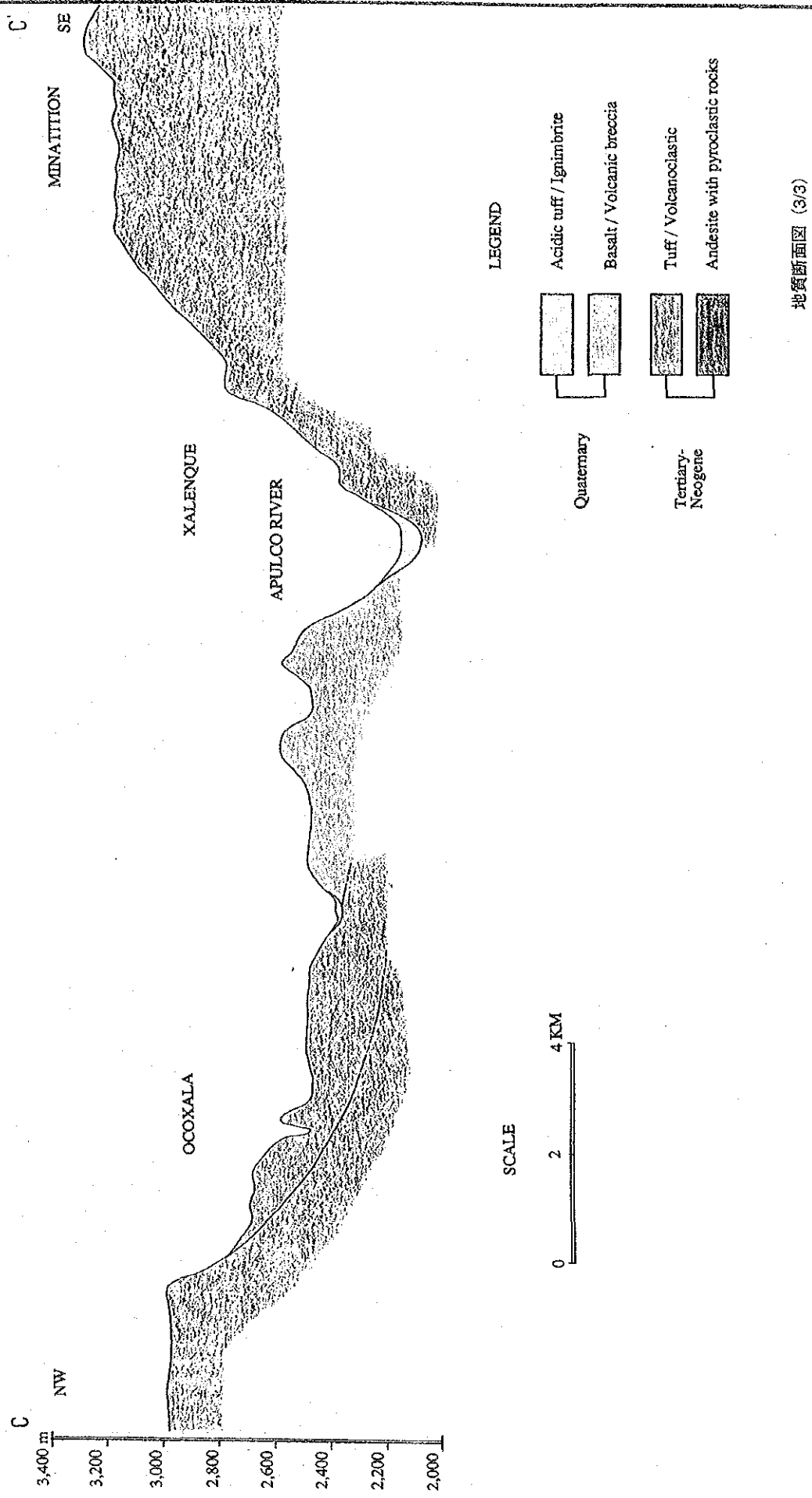
LEGEND

Quaternary	Acidic tuff / Ignimbrite
Tertiary-Neogene	Andesite with pyroclastic rocks
Cretaceous-Jurassic	Limestone / Lutite

地质断面图 (2/3)

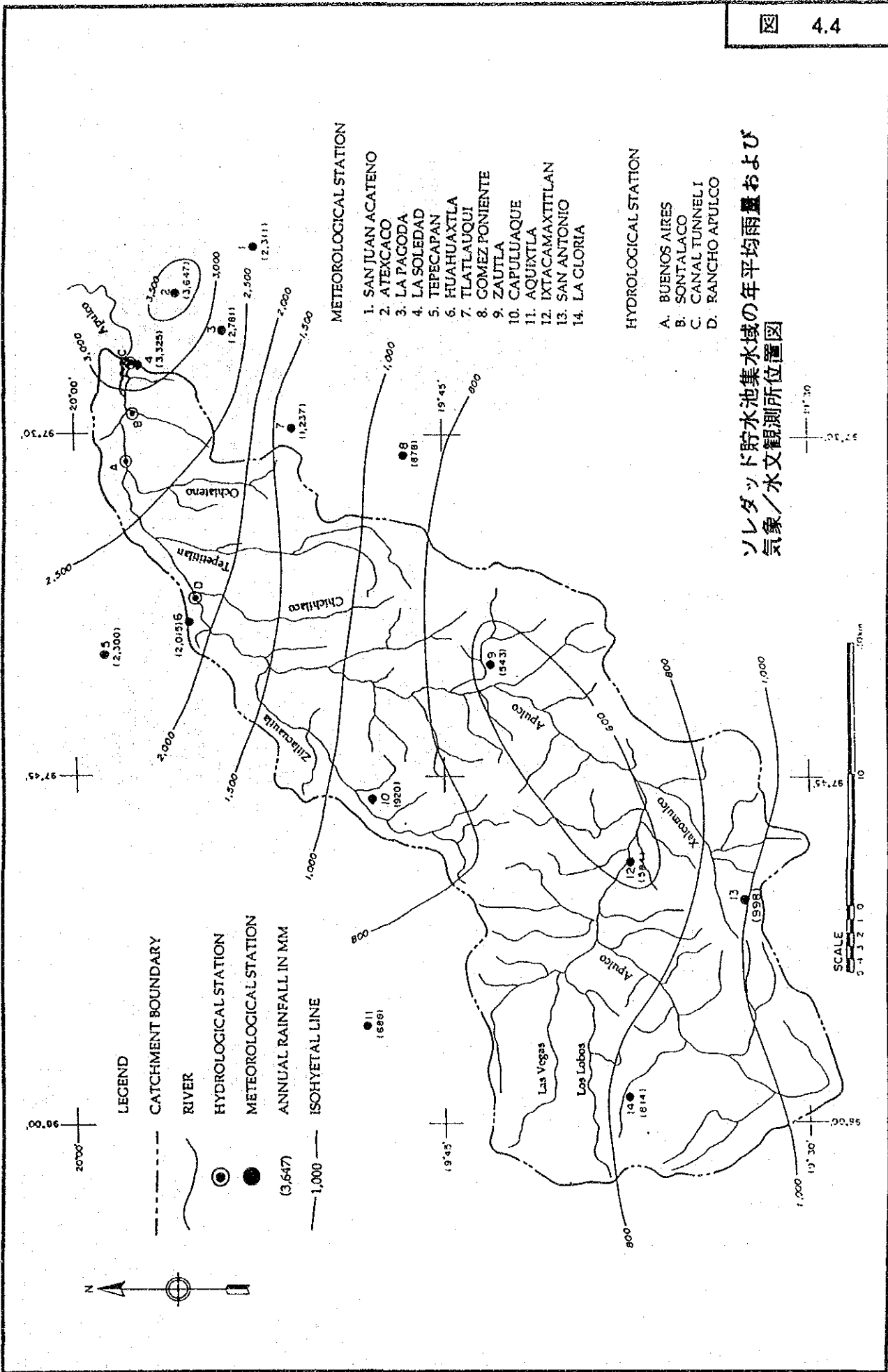




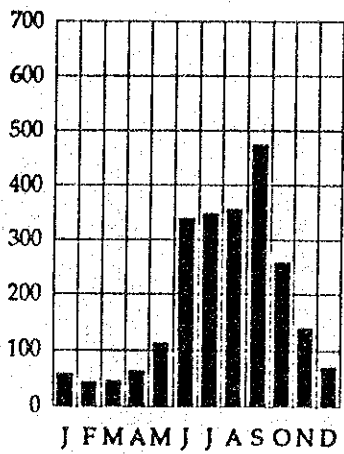


地質断面図 (3/3)

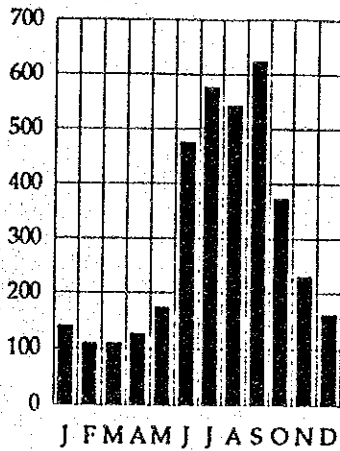




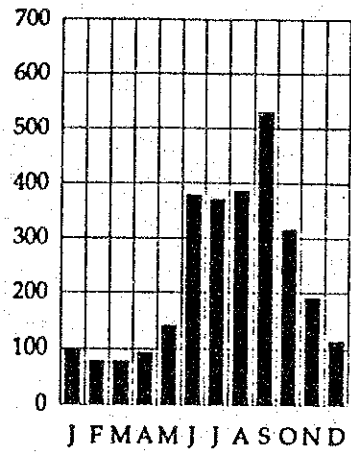
ソレダッド貯水池集水域の年平均雨量および  
気象/水文観測所位置図



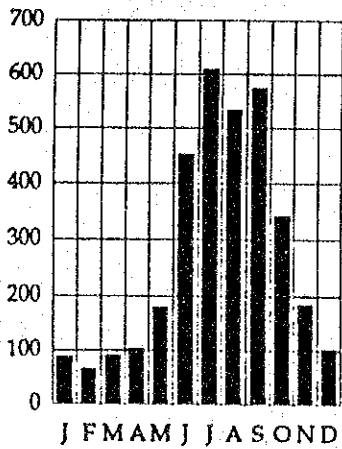
1. SAN JUAN ACATENO



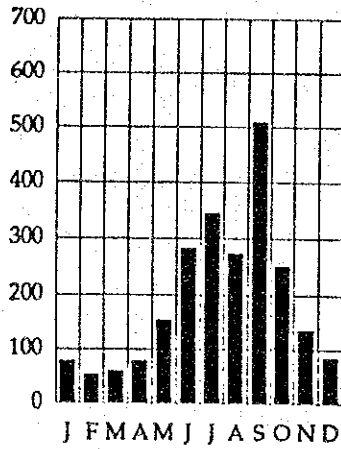
2. ATEXCACO



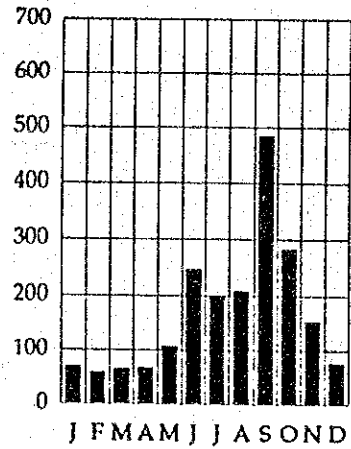
3. LA PAGODA



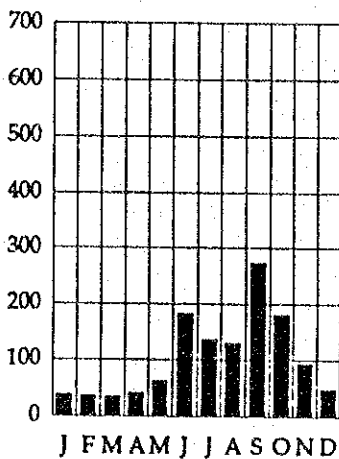
4. LA SOLEDAD



5. TEPECAPAN



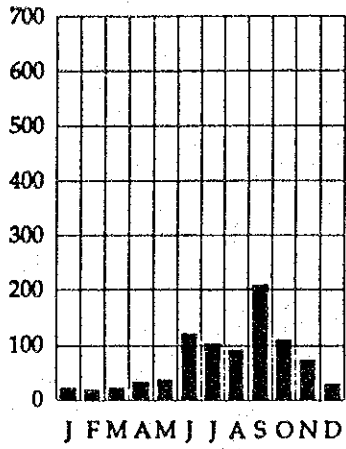
6. HUAHUAXTLA



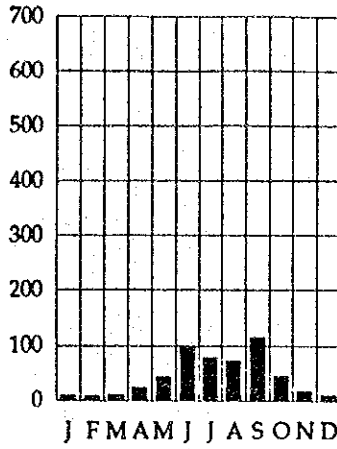
7. TLATLAUQUI

Unit : mm

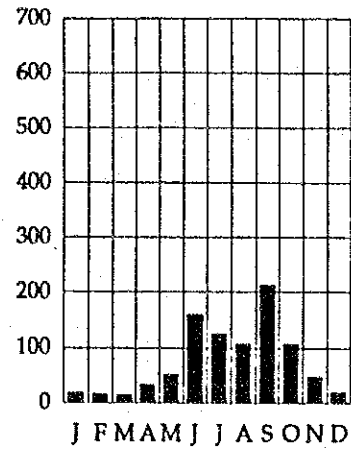
月平均雨量 (1/2)



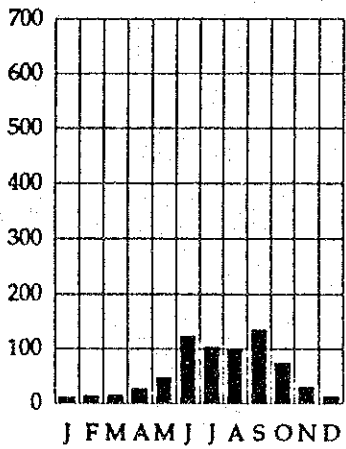
8. GOMEZ PONIENTE



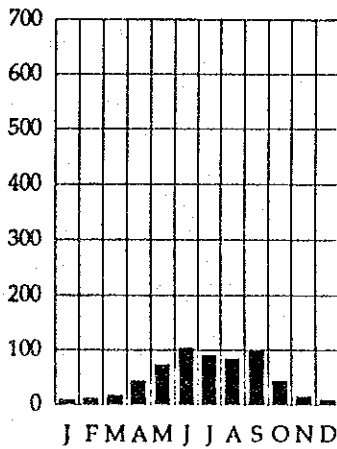
9. ZAUTLA



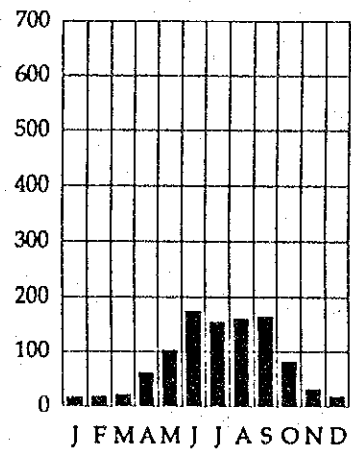
10. CAPULUAQUE



11. AQUIXTLA



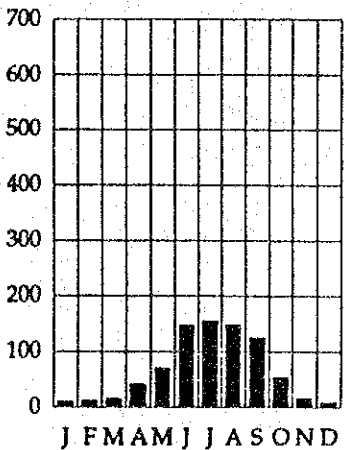
12. IXTACAMAXTITLAN



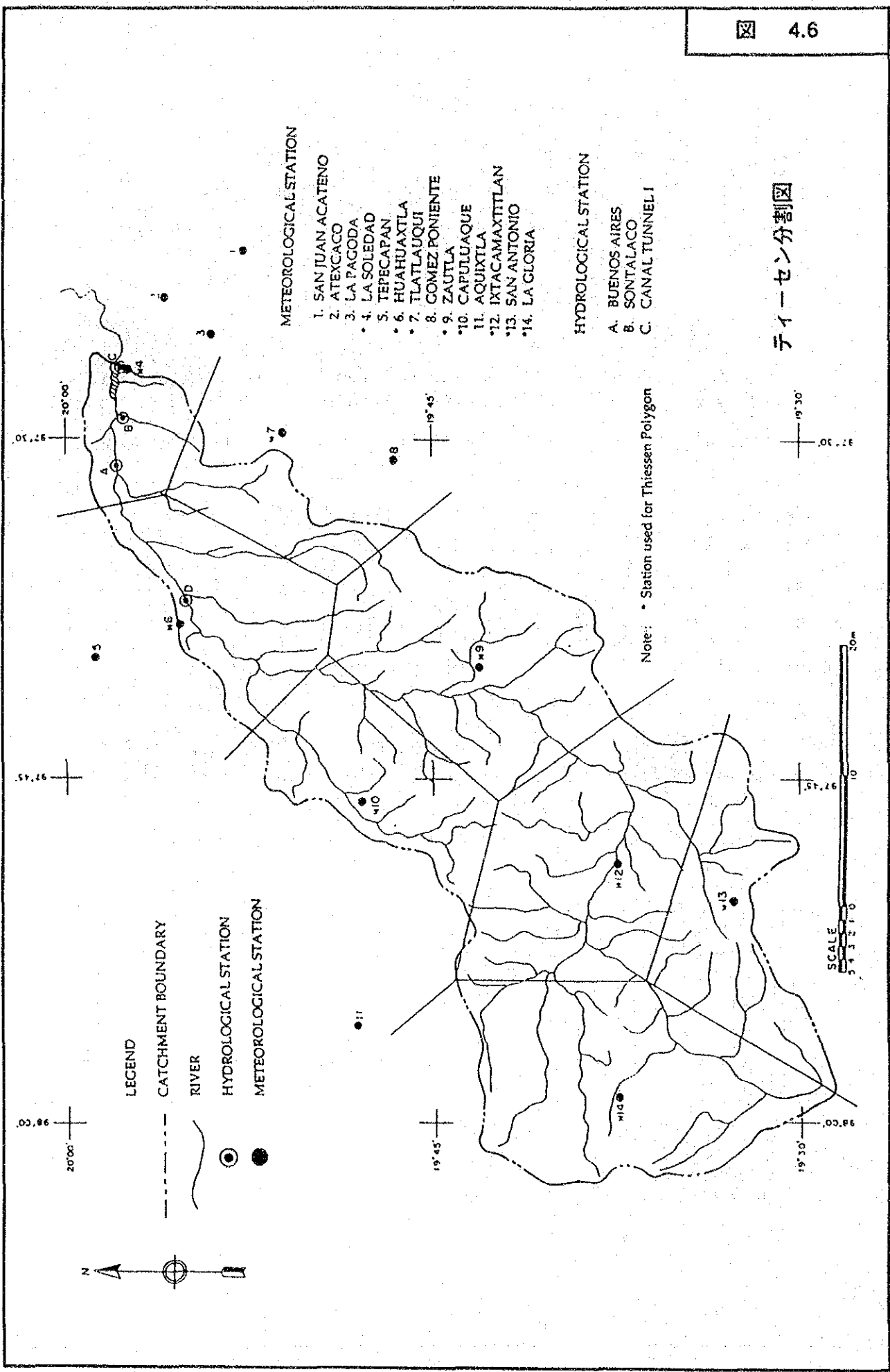
13. SAN ANTONIO

Unit: mm

月平均雨量 (2/2)



14. LA GLORIA



METEOROLOGICAL STATION

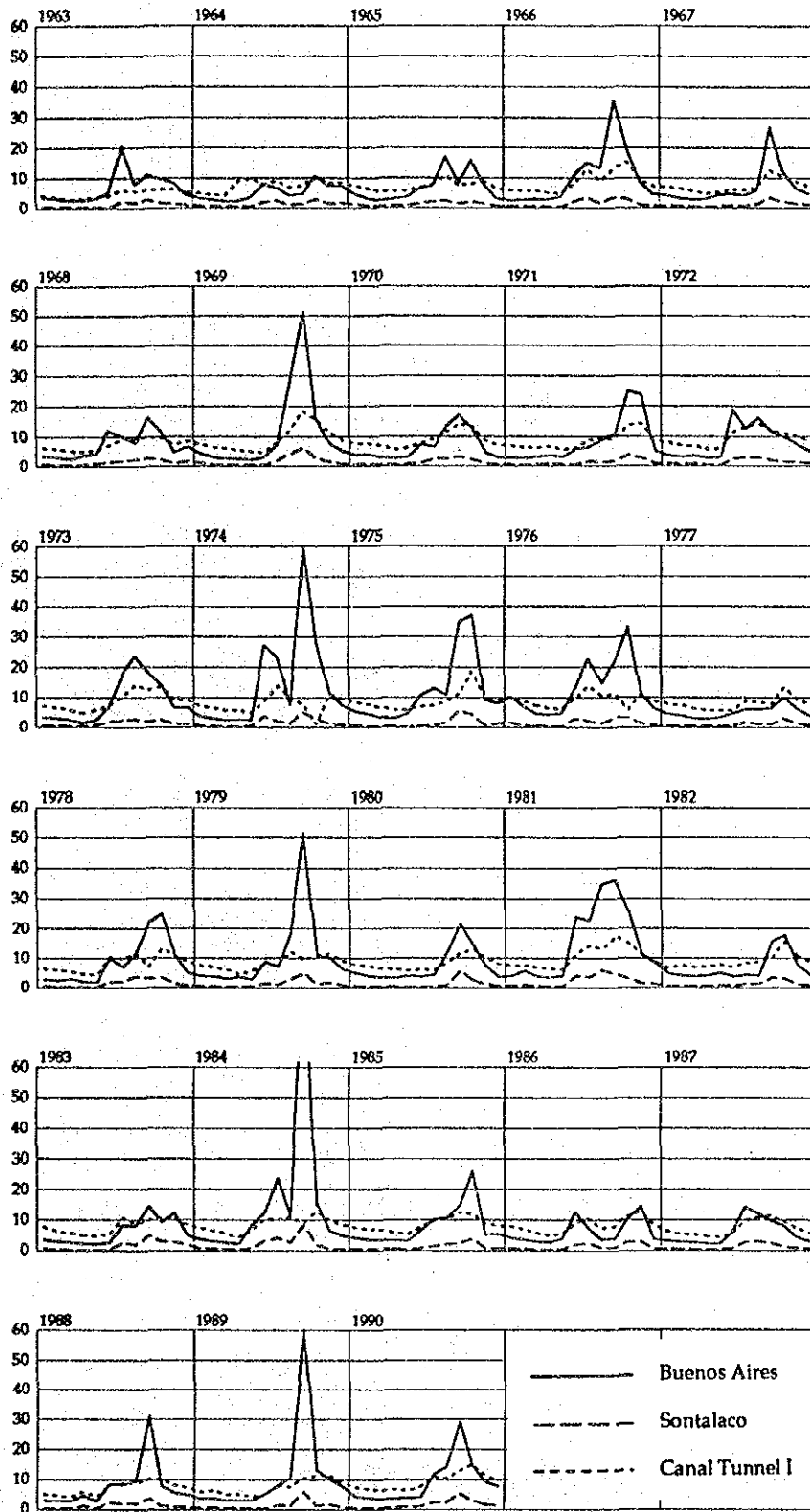
- 1. SAN JUAN ACATENO
- 2. ATEXCACO
- 3. LA PAGODA
- 4. LA SOLEDAD
- 5. TEPECAPAN
- 6. HUAHUAXTLA
- 7. TLATLAUQUI
- 8. GOMEZ PONIENTE
- 9. ZAUTLA
- 10. CAPULUAQUE
- 11. AQUIXTLA
- 12. IXTACAMAXTITLAN
- 13. SAN ANTONIO
- 14. LA GLORIA

HYDROLOGICAL STATION

- A. BUENOS AIRES
- B. SONTALACO
- C. CANAL TUNNEL I

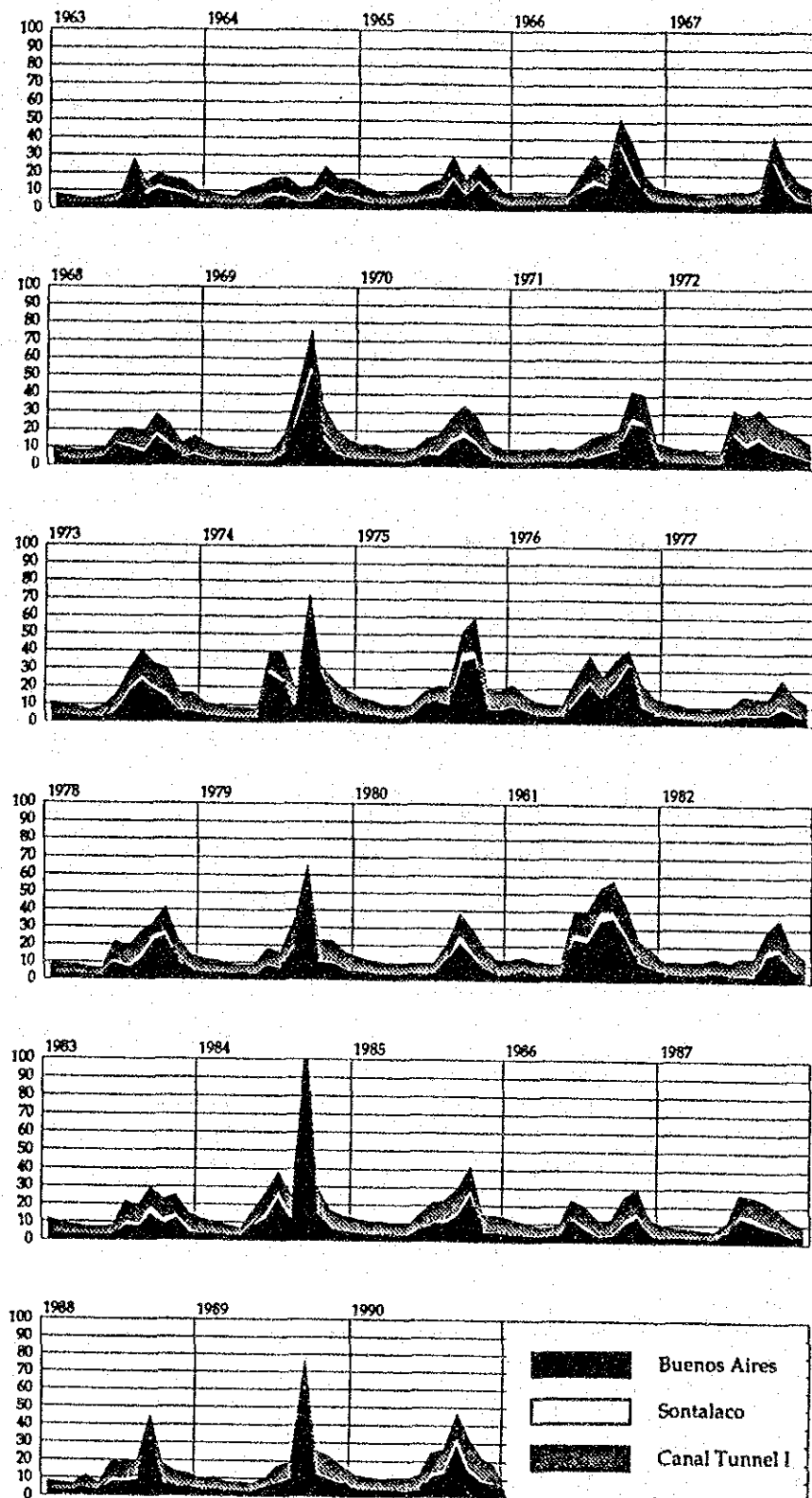
Note: \* Station used for Thiessen Polygon

テイセーセン分割図

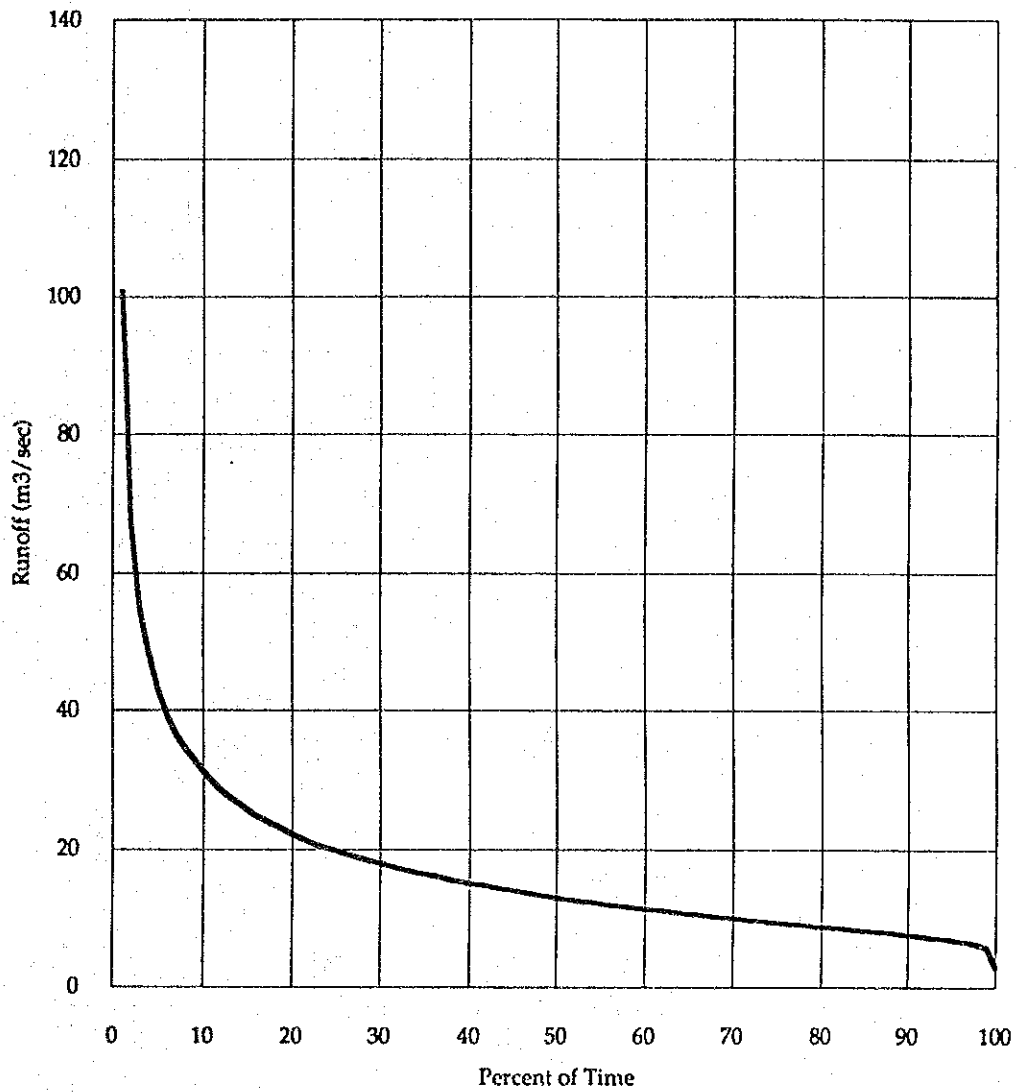


各水文観測所における流量ハイドログラフ

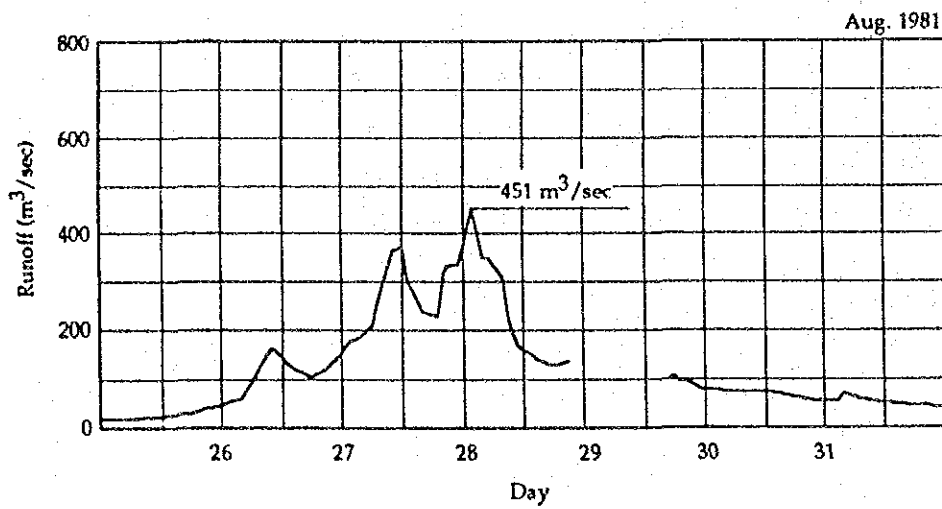
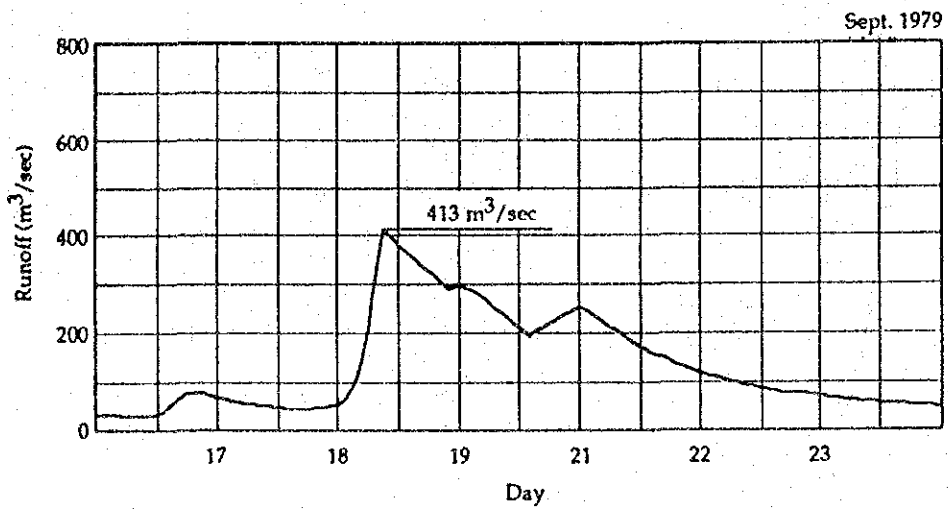
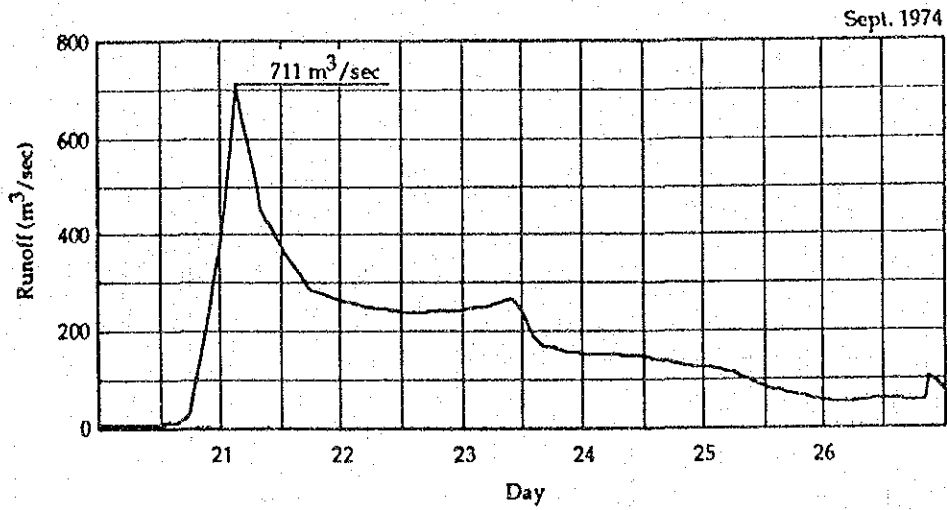




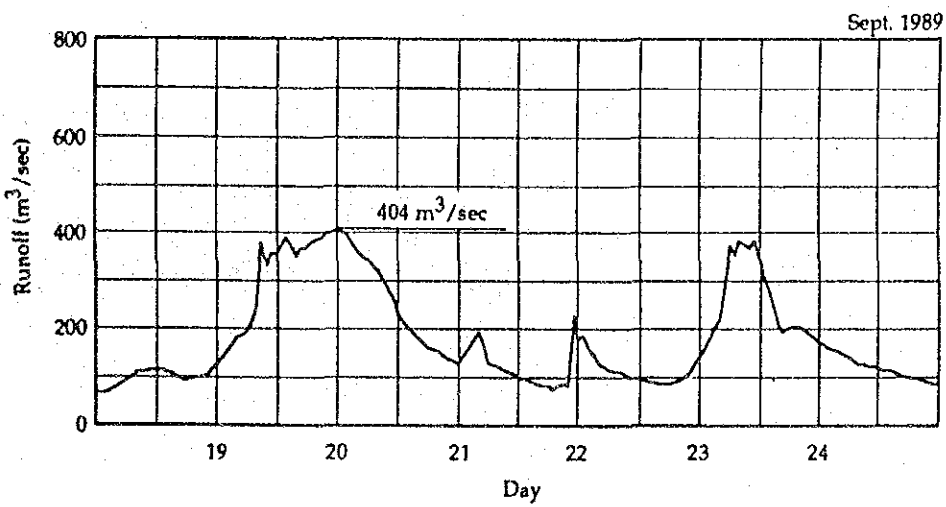
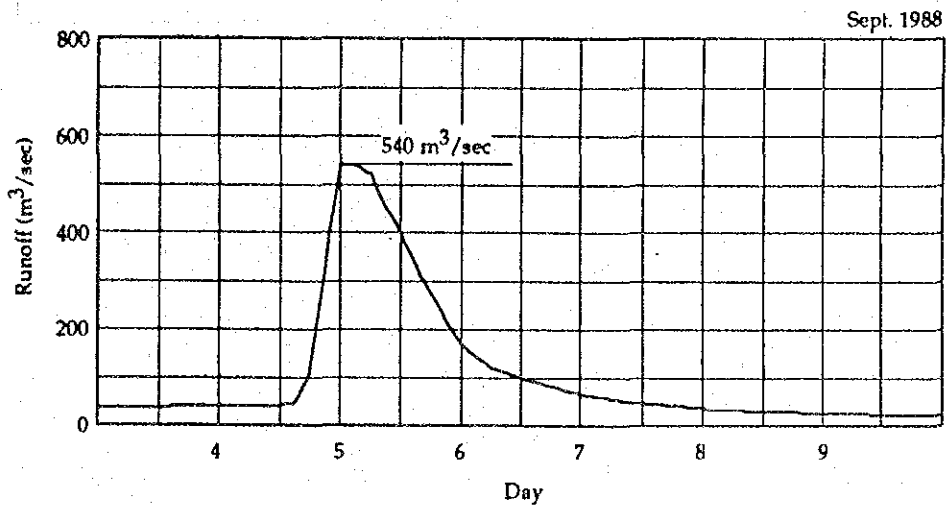
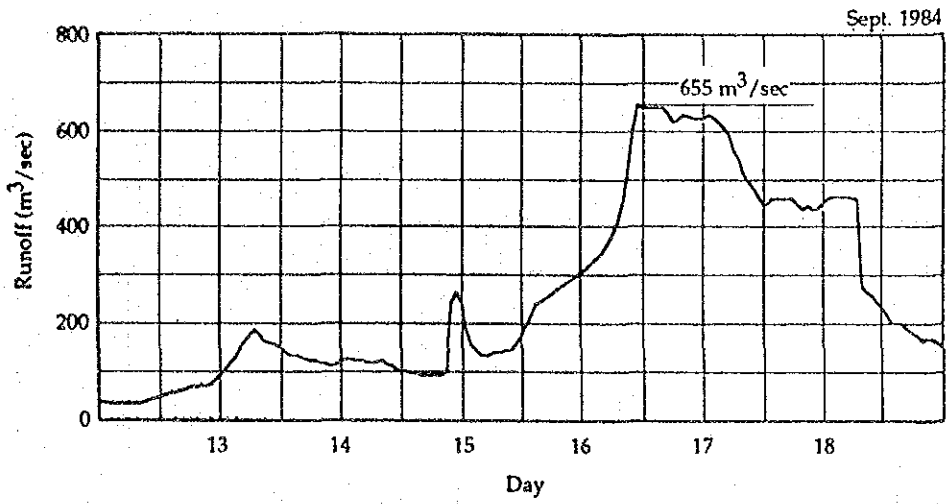
ソレダッド貯水池への流入量ハイドログラフ



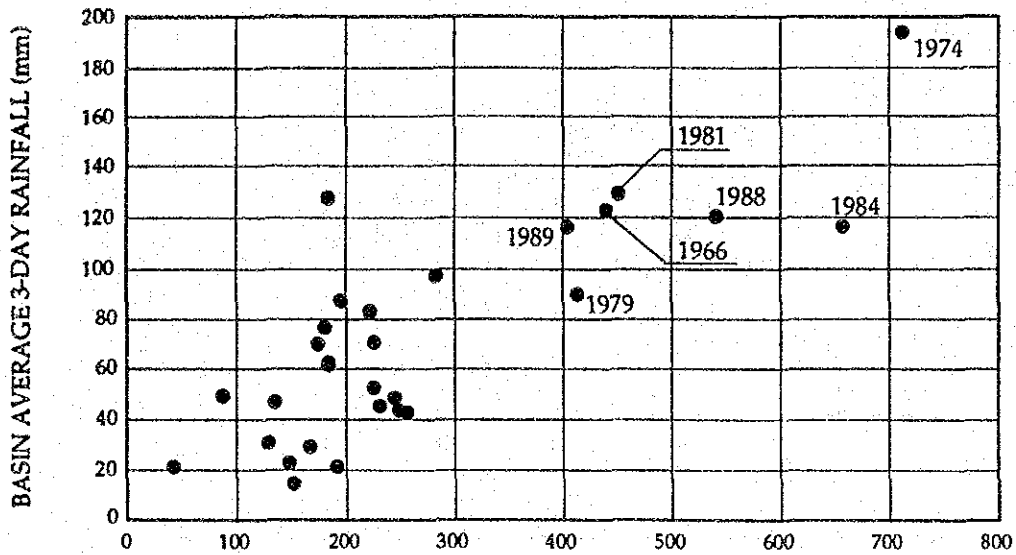
ソレダッド貯水池流入量の流況曲線



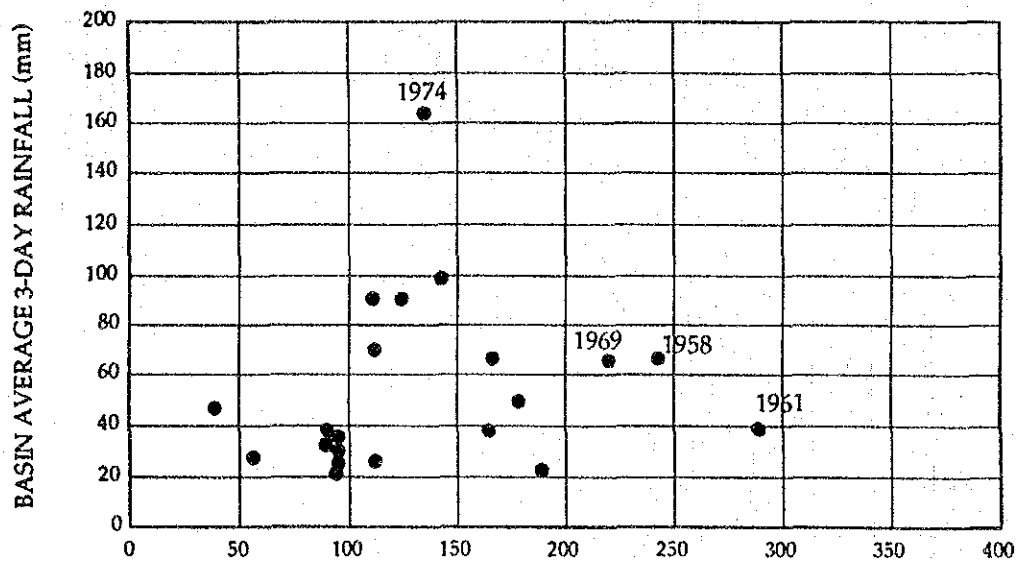
ブエノスアイレスにおける洪水ハイドログラフ (1/2)



ブエノスアイレスにおける洪水ハイドログラフ (2/2)

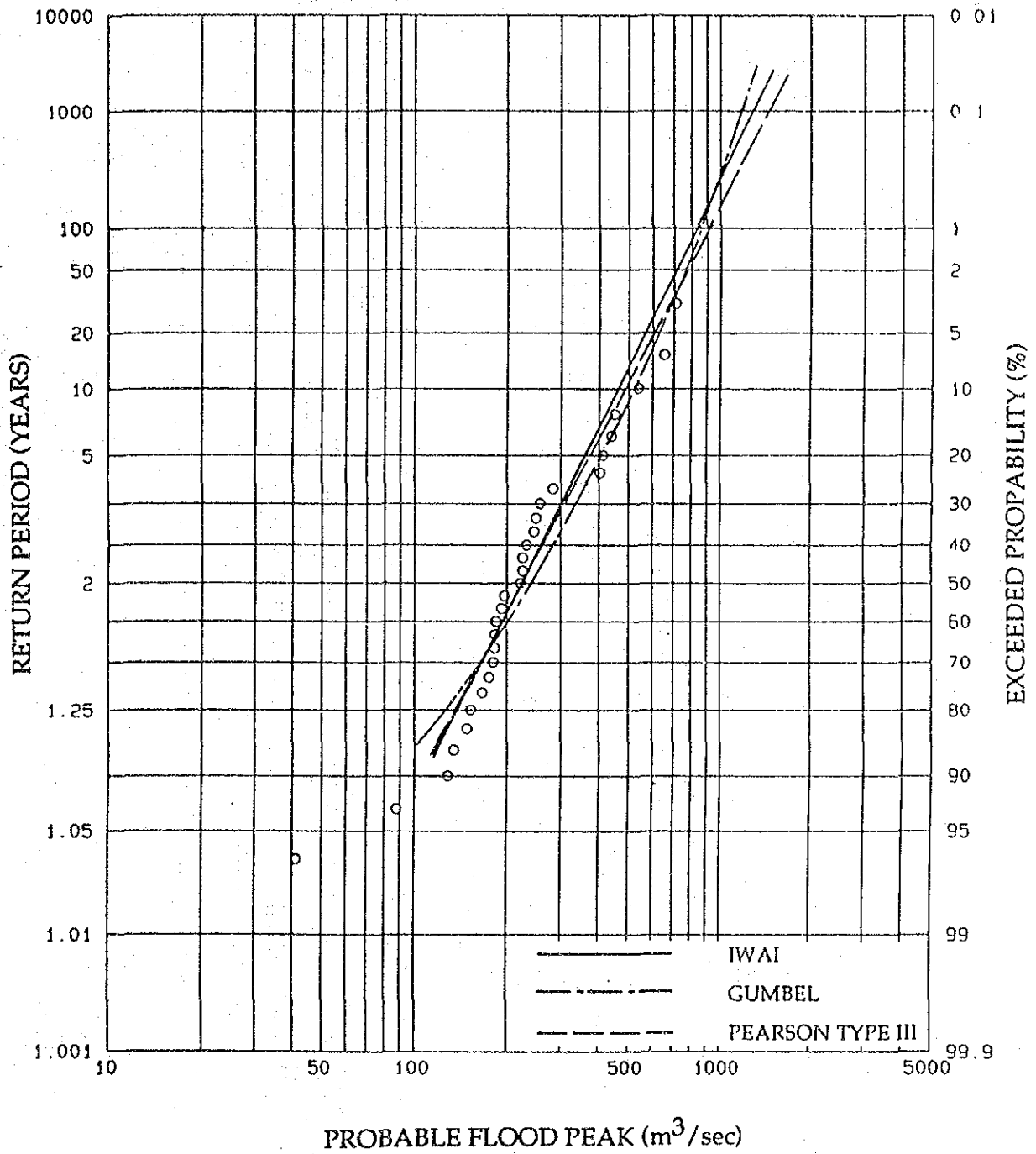


FLOOD PEAK AT BUENOS AIRES (m<sup>3</sup>/sec)

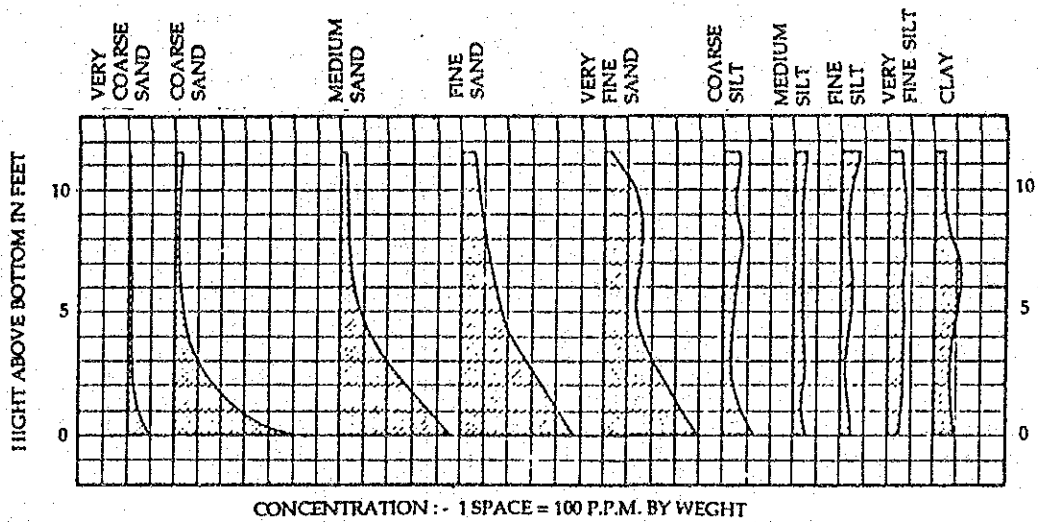


FLOOD PEAK AT RANCHO APULCO (m<sup>3</sup>/sec)

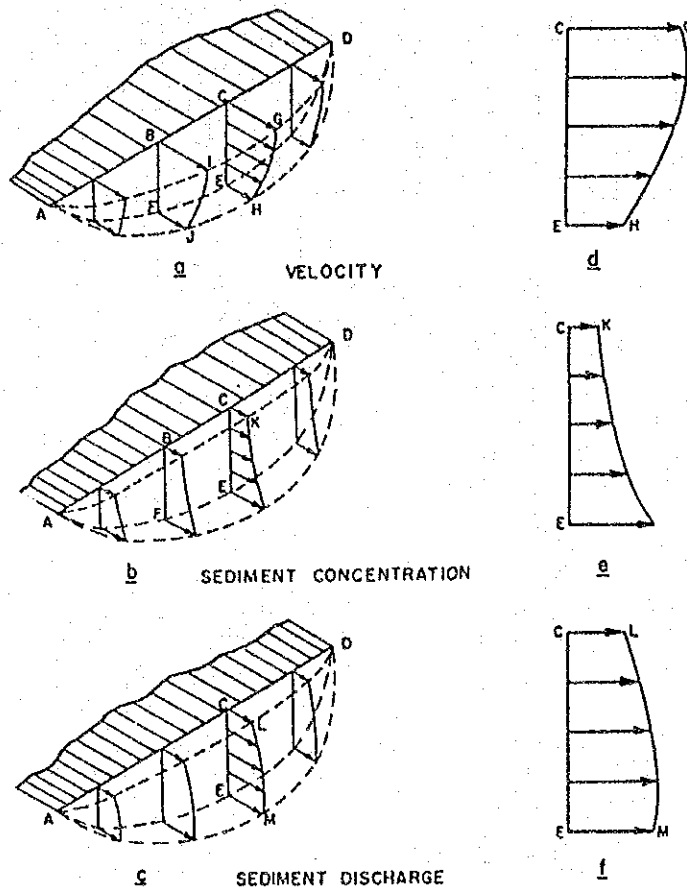
洪水ピーク流量と流域平均雨量の関係



ブエノスアイレスにおける年最大洪水ピーク流量の確率分布

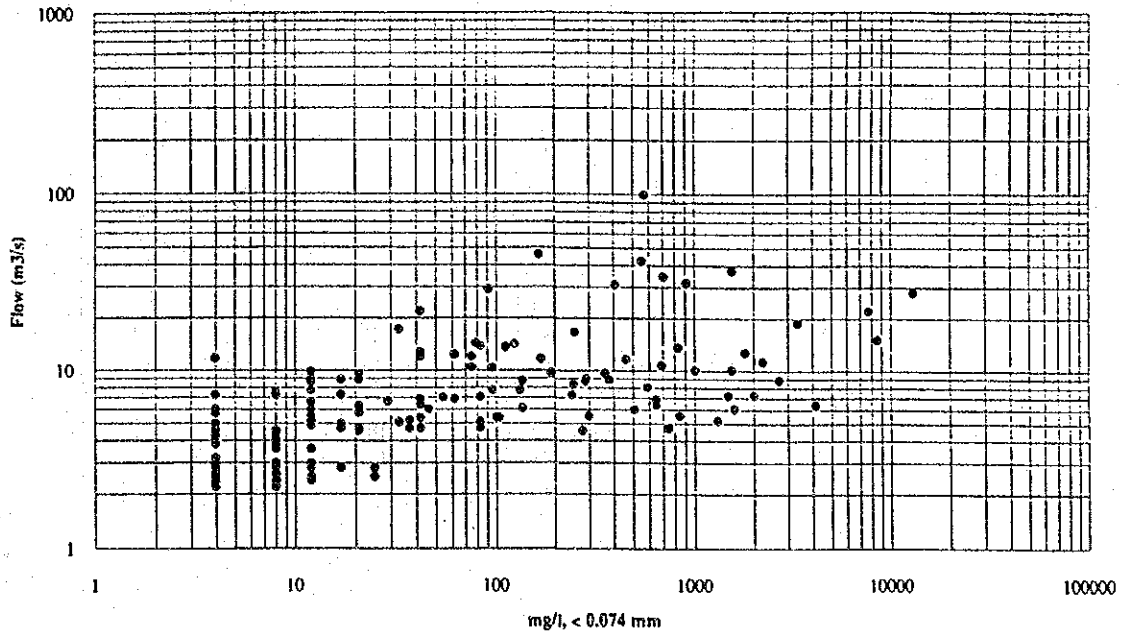


VERTICAL DISTRIBUTION OF SEDIMENT IN THE MISSOURI RIVER AT KANSAS CITY, MO.

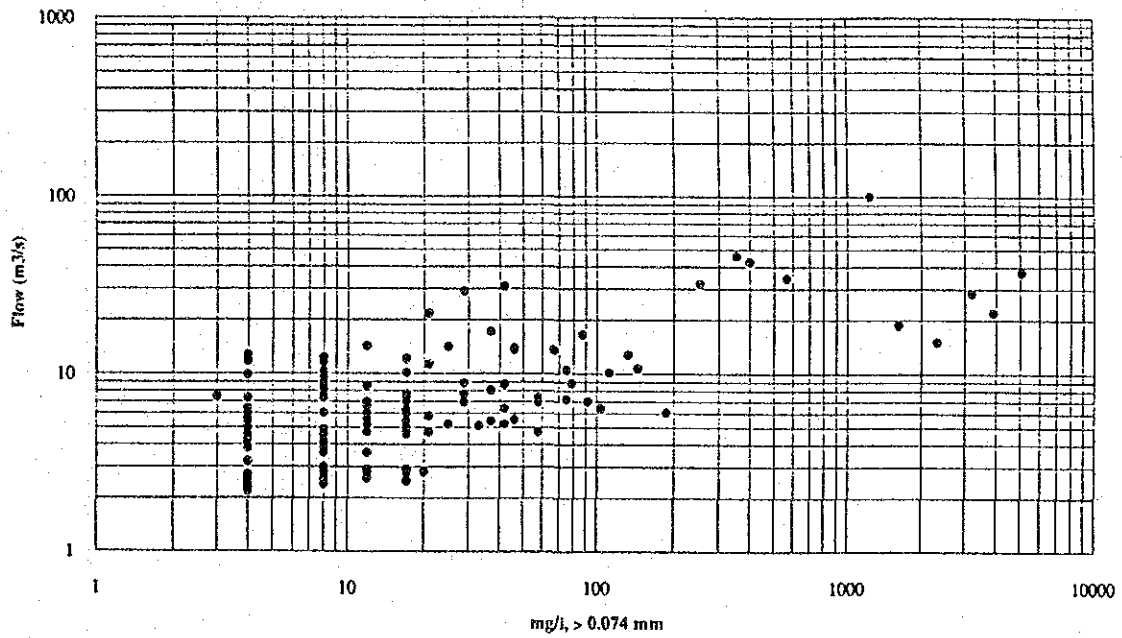


VELOCITY, SEDIMENT CONCENTRATION, AND SEDIMENT DISCHARGES IN STREAMS

流砂濃度の深さによる変化



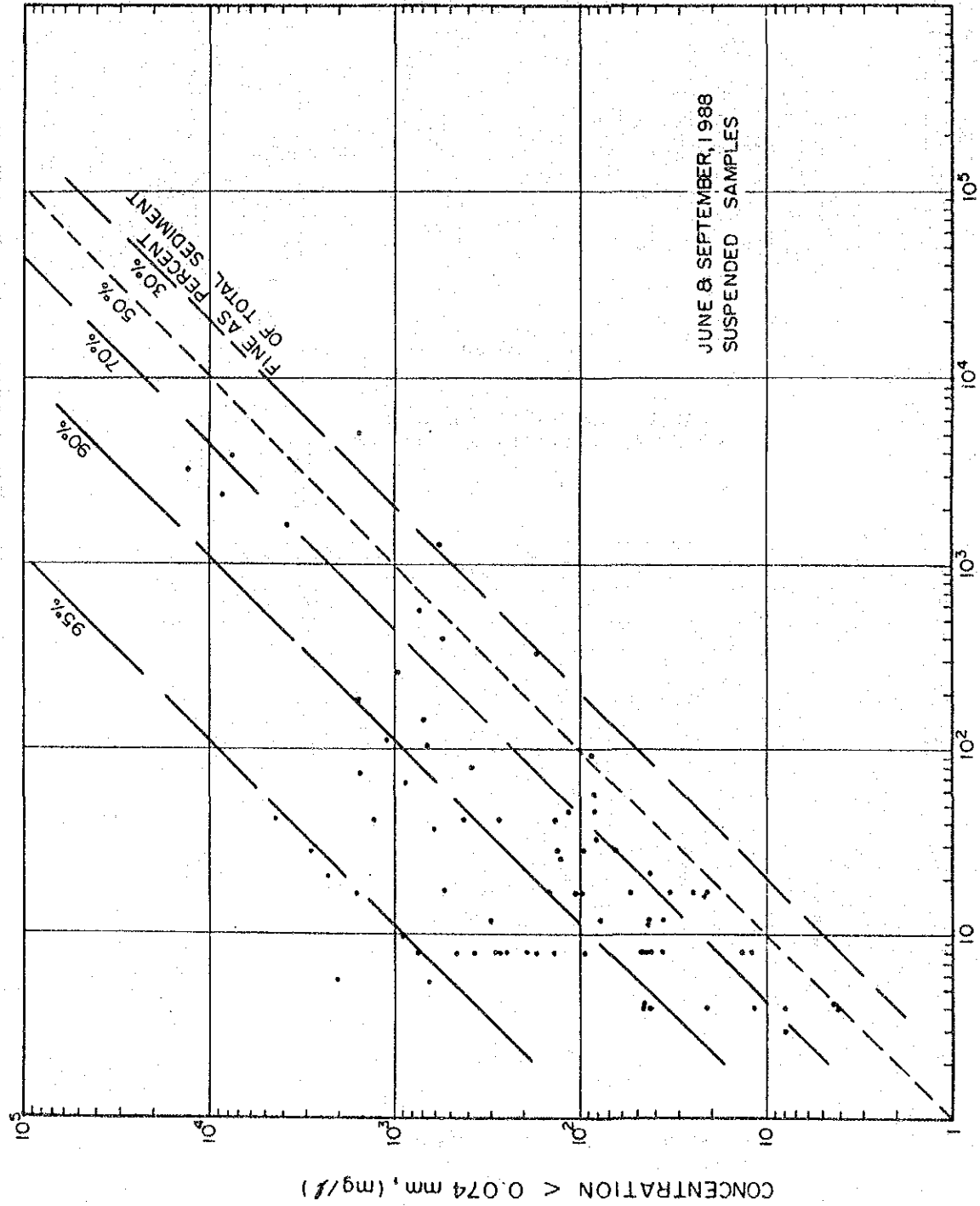
APULCO RIVER AT BUENOS AIRES  
SUSPENDED CONCENTRATION < 0.074 mm



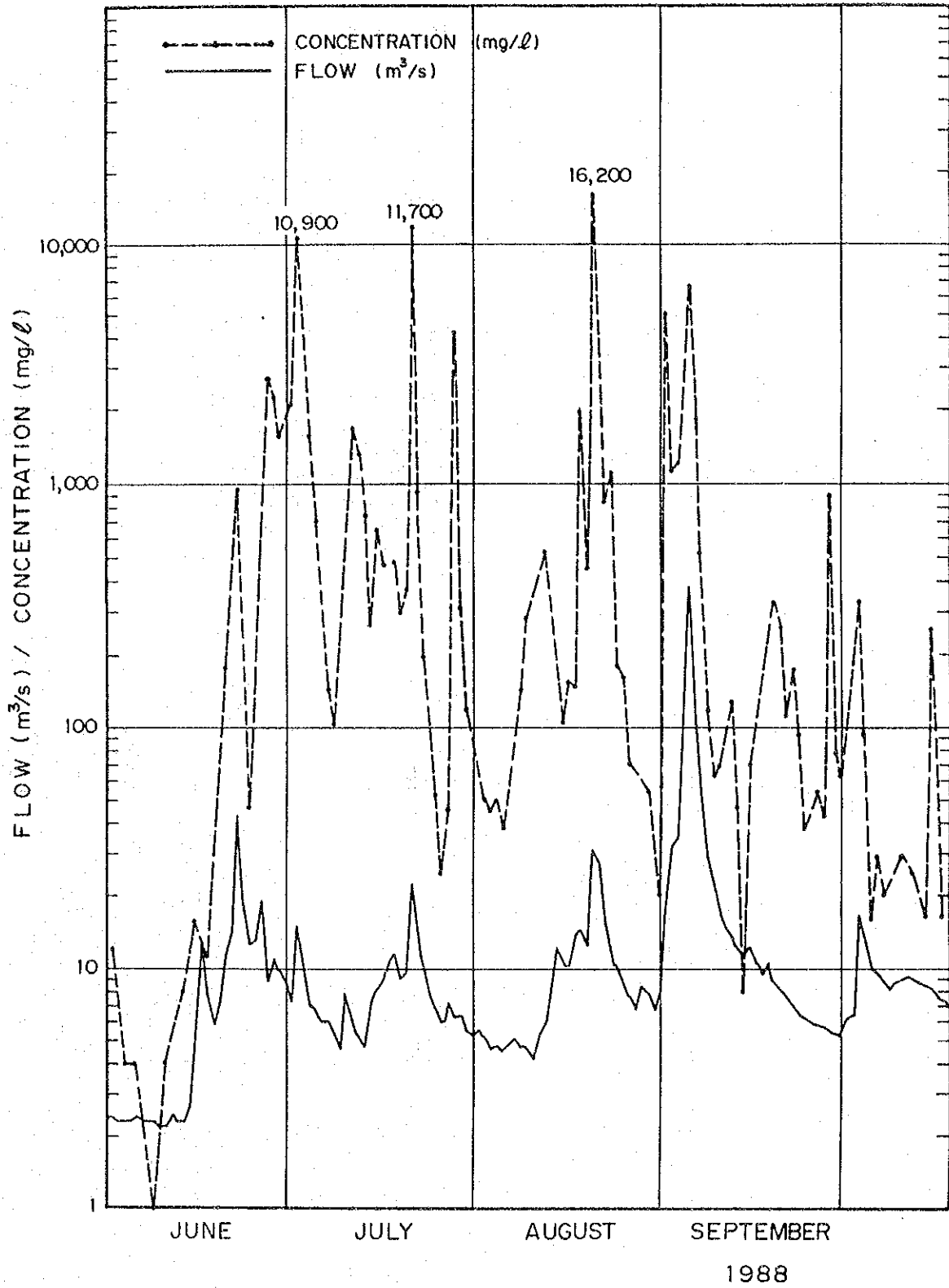
APULCO RIVER AT BUENOS AIRES  
SUSPENDED CONCENTRATION > 0.074 mm

ブエノスアイレスにおける流砂濃度

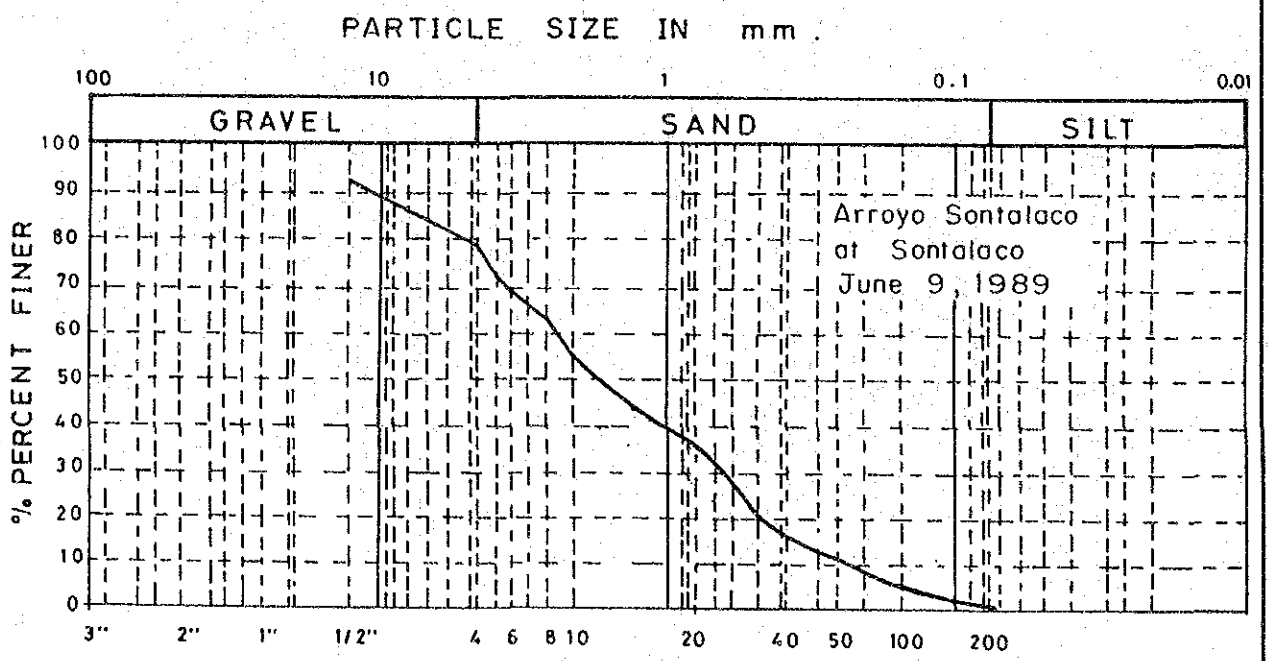
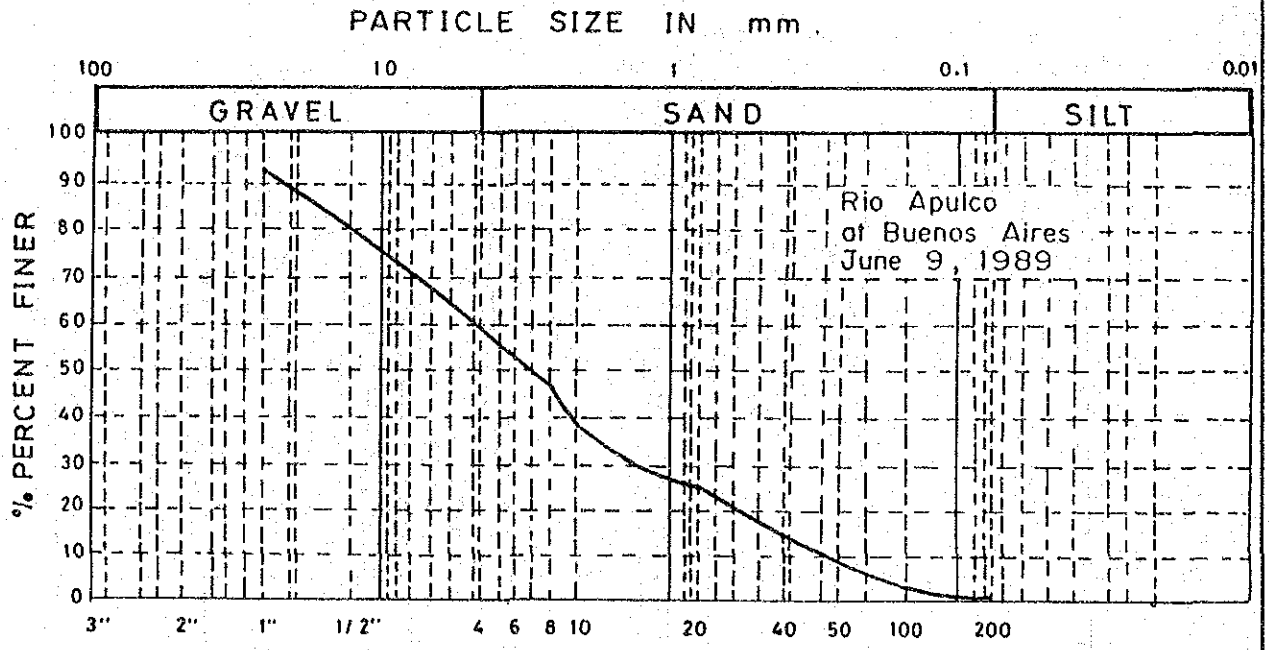




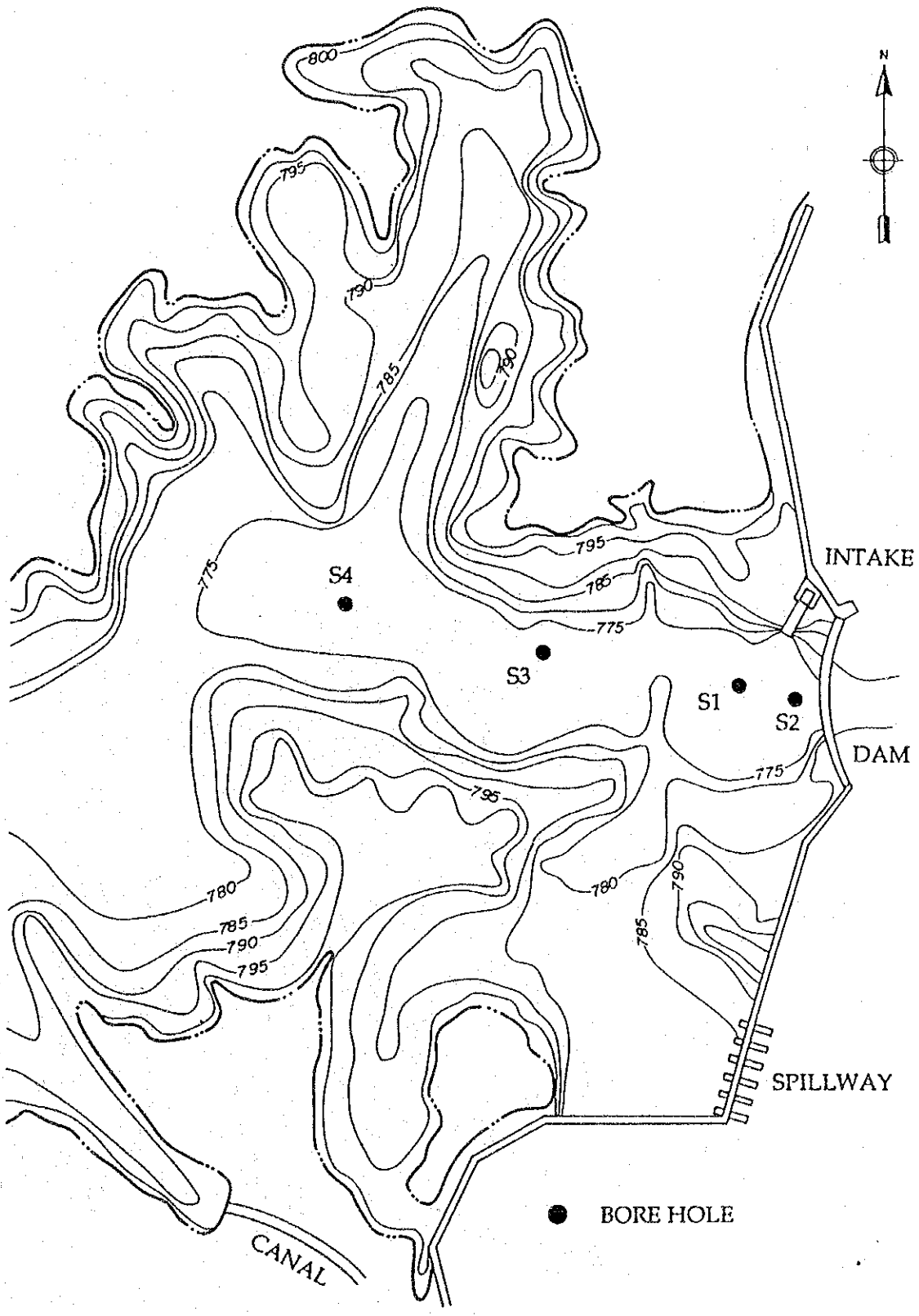
CONCENTRATION > 0.074 mm, (mg/l)  
流砂の細粒分・粗粒分の割合



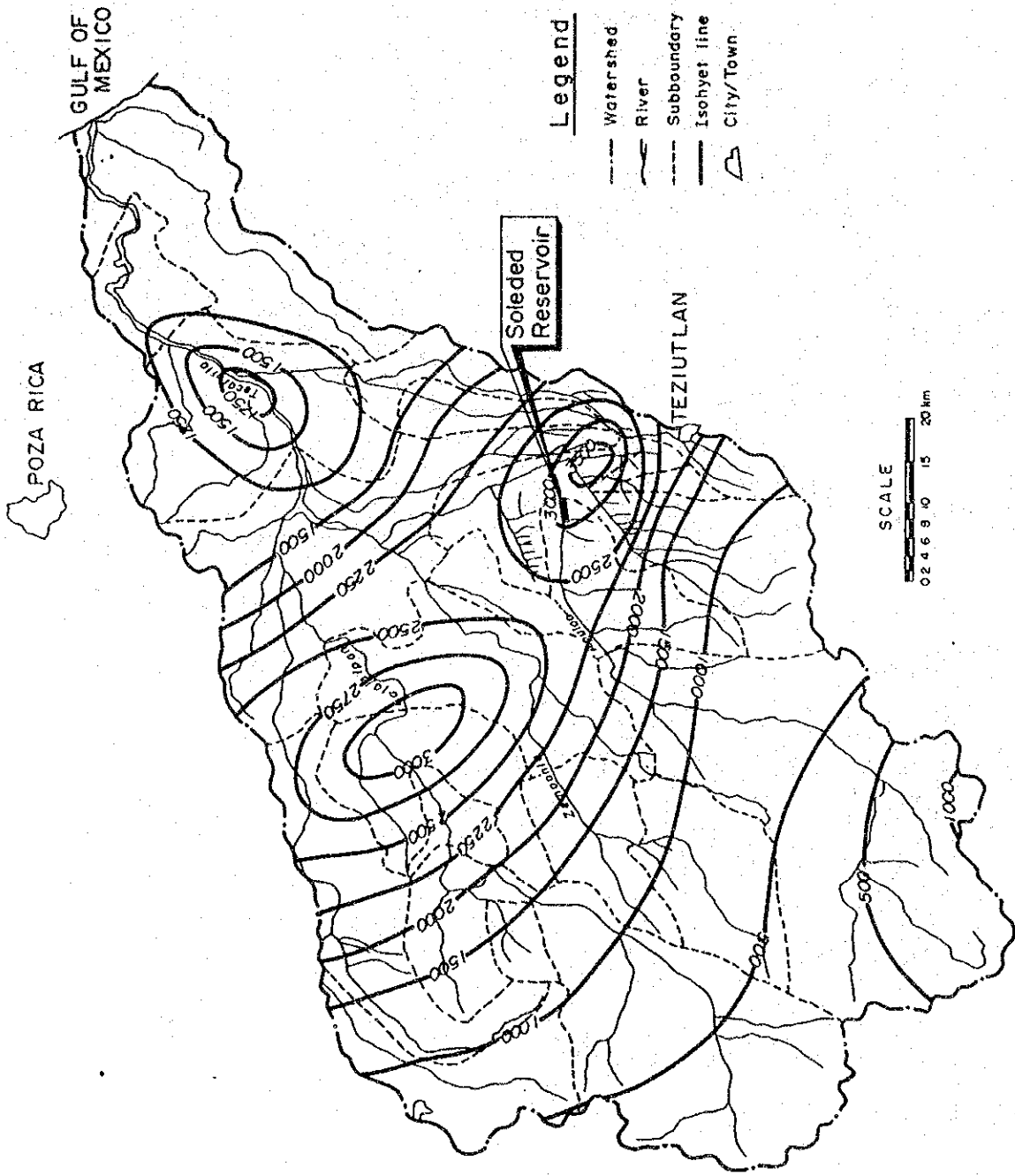
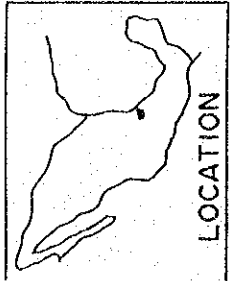
ブエノスアイレスにおける流量と流砂濃度



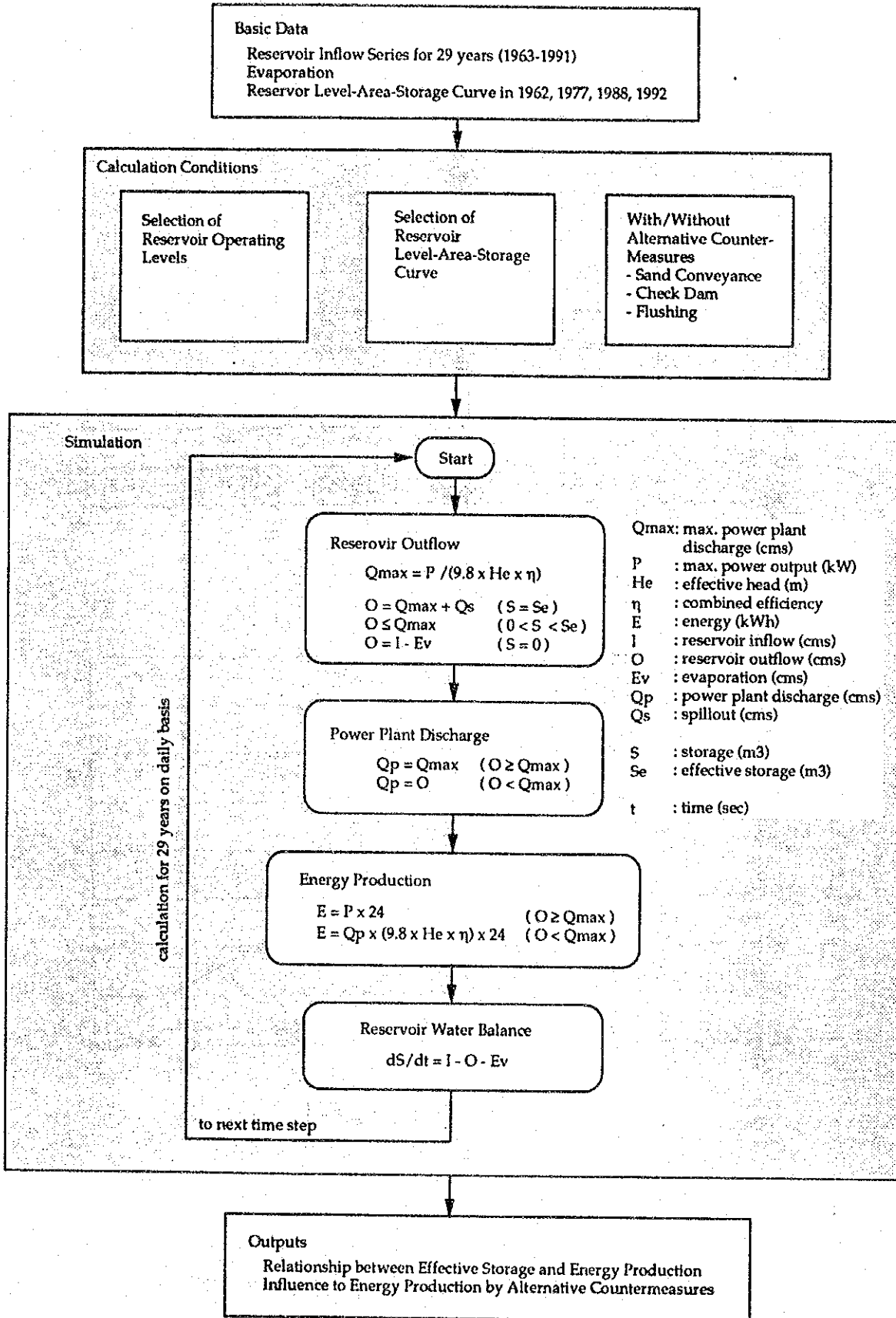
流砂の粒度分布



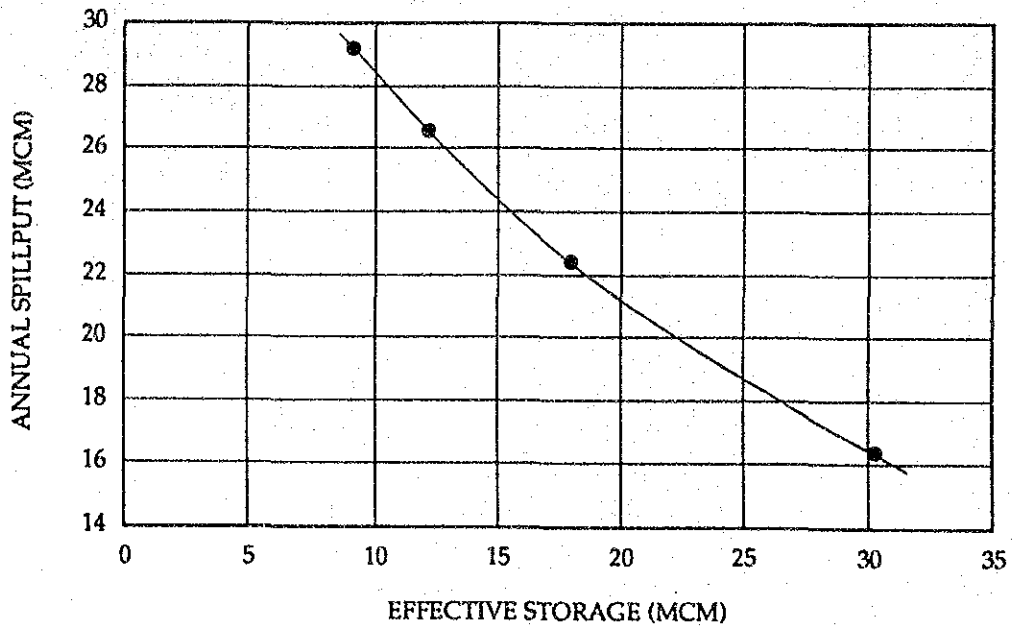
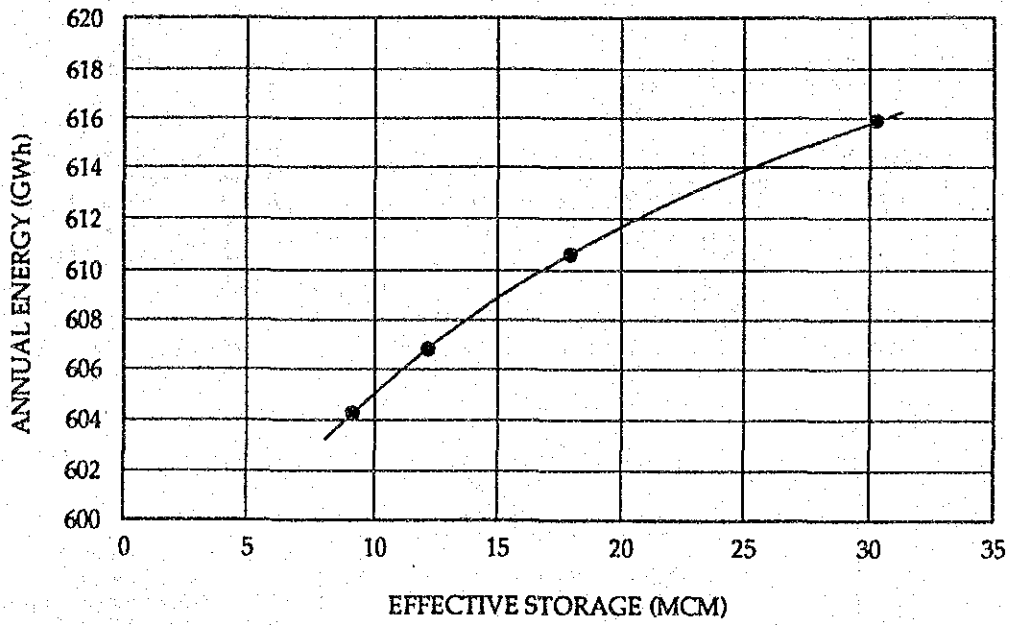
1987年のボーリング孔位置図



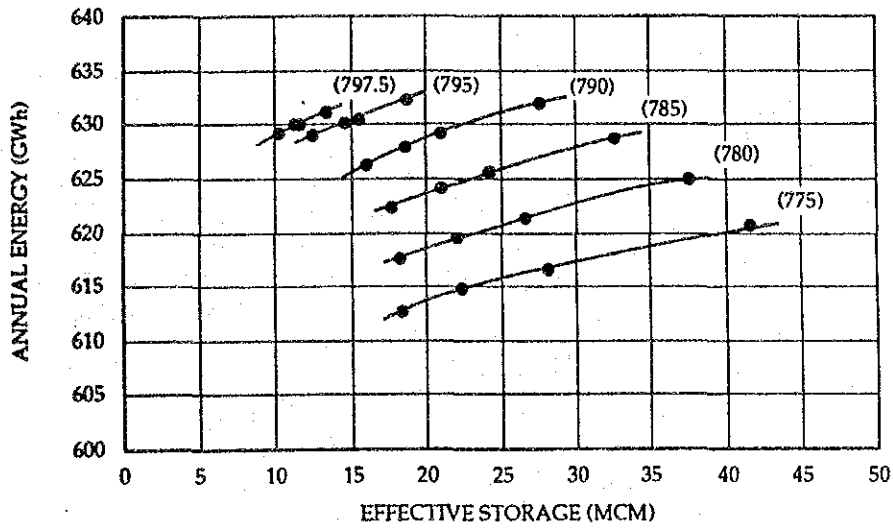
テコルトラ川流域の年平均雨量



貯水池運用シミュレーションの流れ図

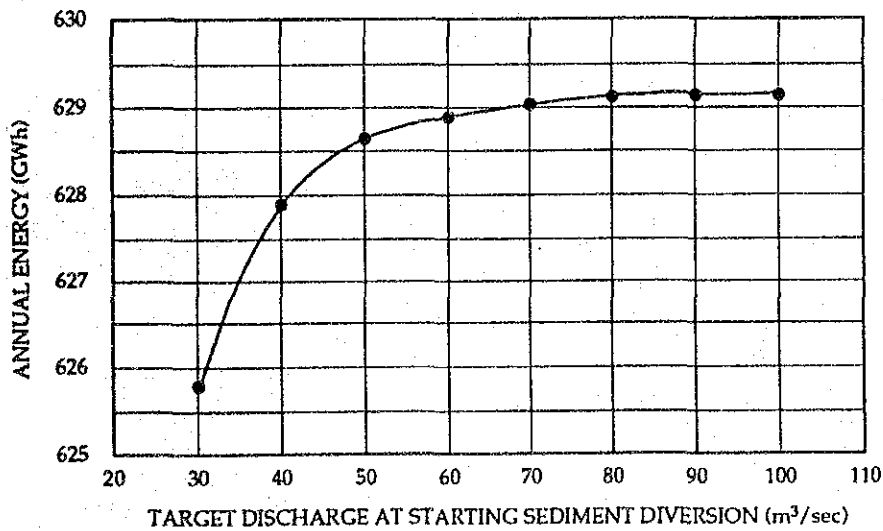


有効貯水容量と発生電力量および無効放流量の関係



Note: Normal high water level is set at El. 804.5 m.  
 Figures in ( ) mean minimum operating level.

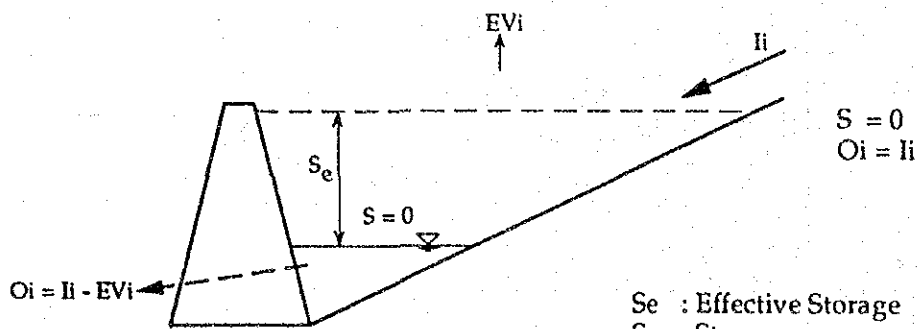
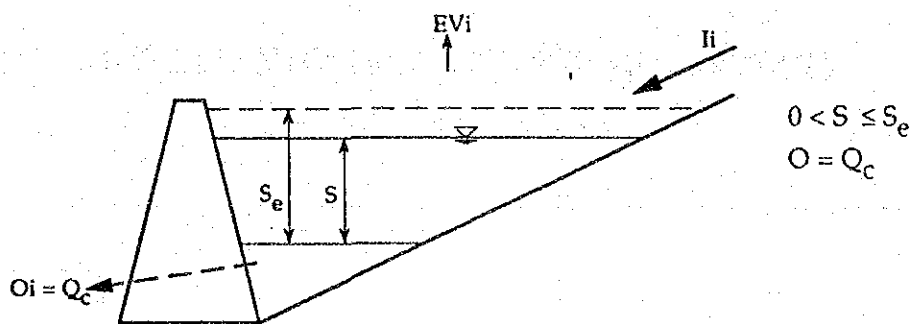
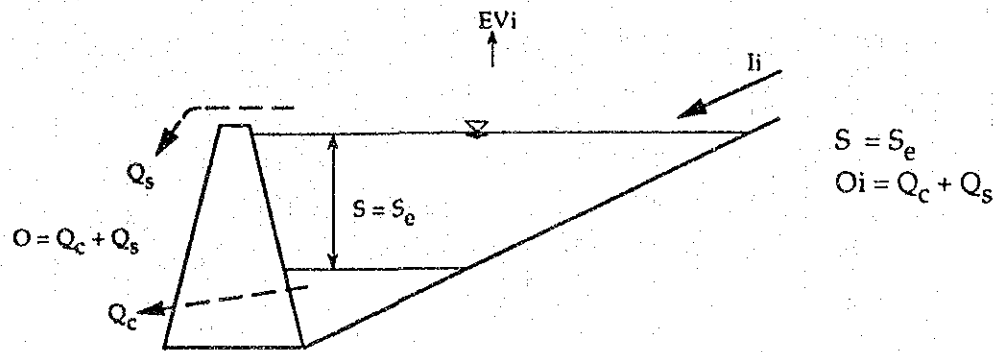
貯水池運転水位の変化による有効貯水容量と発生電力量の関係



Note: Excess river flow above target discharge is used for sediment diversion.

転流排砂開始流量と発生電力量の関係

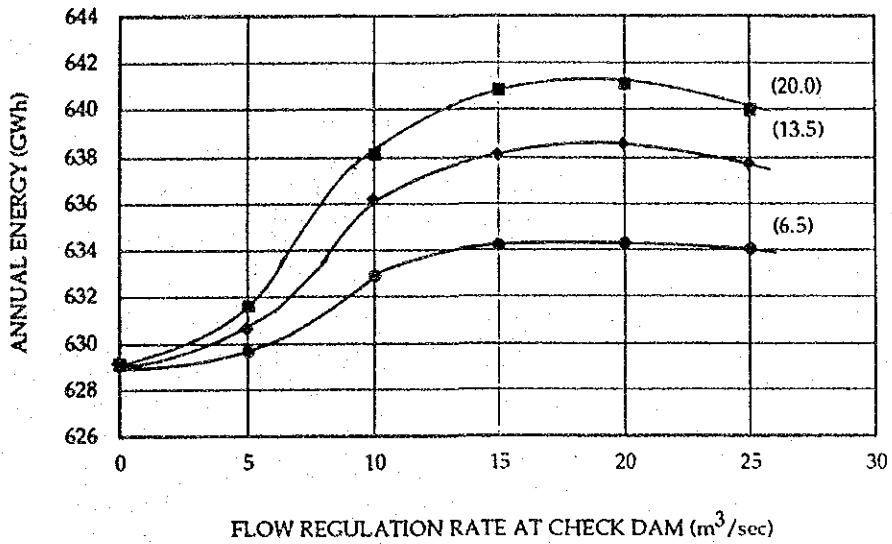




- Se : Effective Storage
- S : Storage
- li : Inflow
- Oi : Outflow
- EV<sub>i</sub> : Evaporation
- Q<sub>c</sub> : Regulated Outflow
- Q<sub>s</sub> : Spillover

上流砂防ダムによる流量調節の仮定

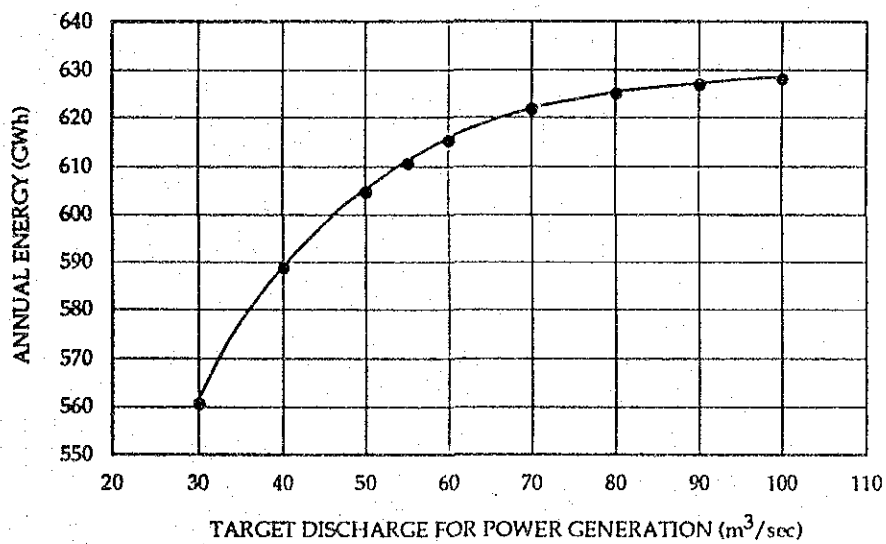
図 5.6



Note: Figure in ( ) means effective storage of check dam (mcm).

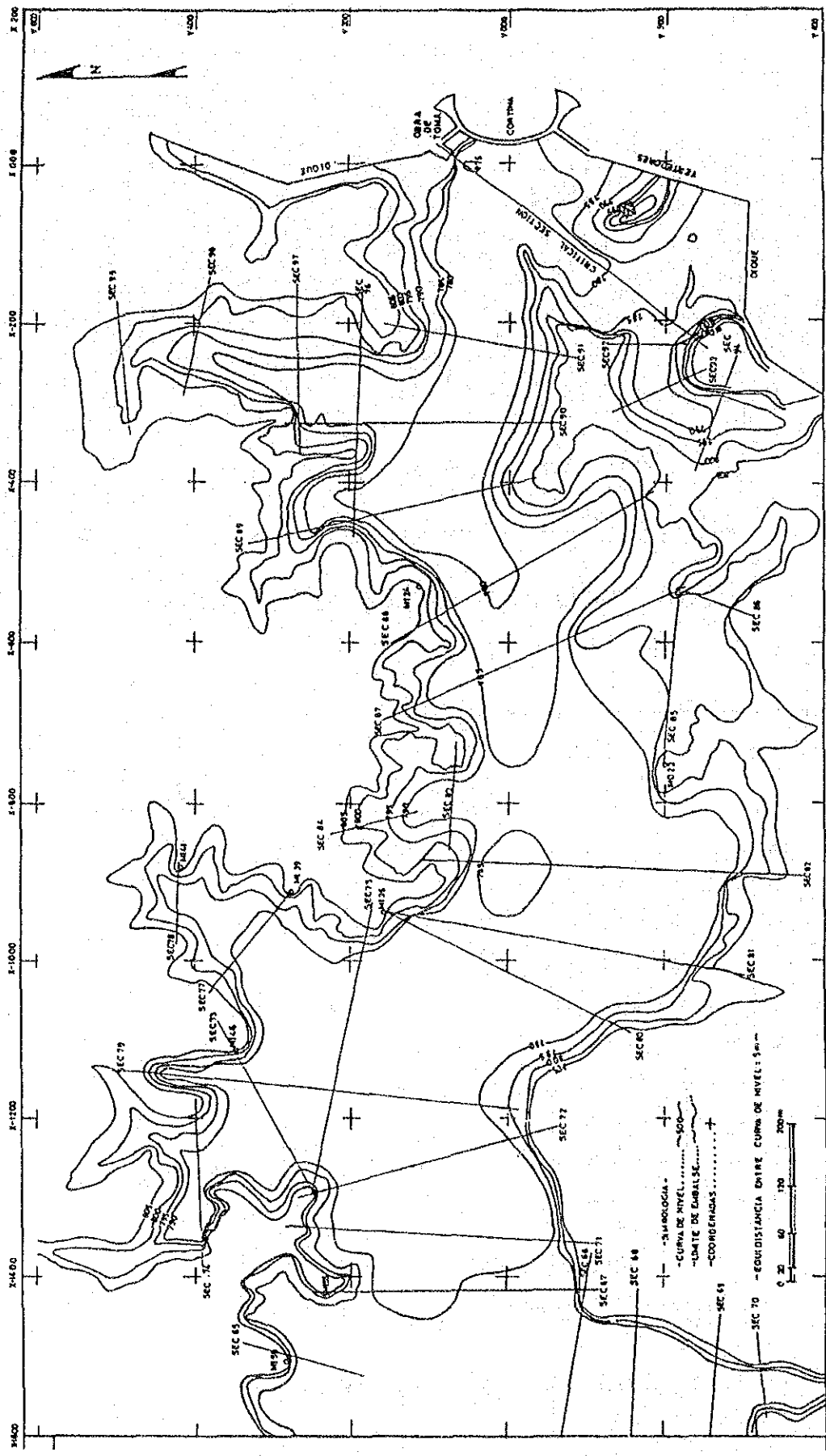
上流砂防ダムの流量調節効果による発生電力量の増加

図 5.7

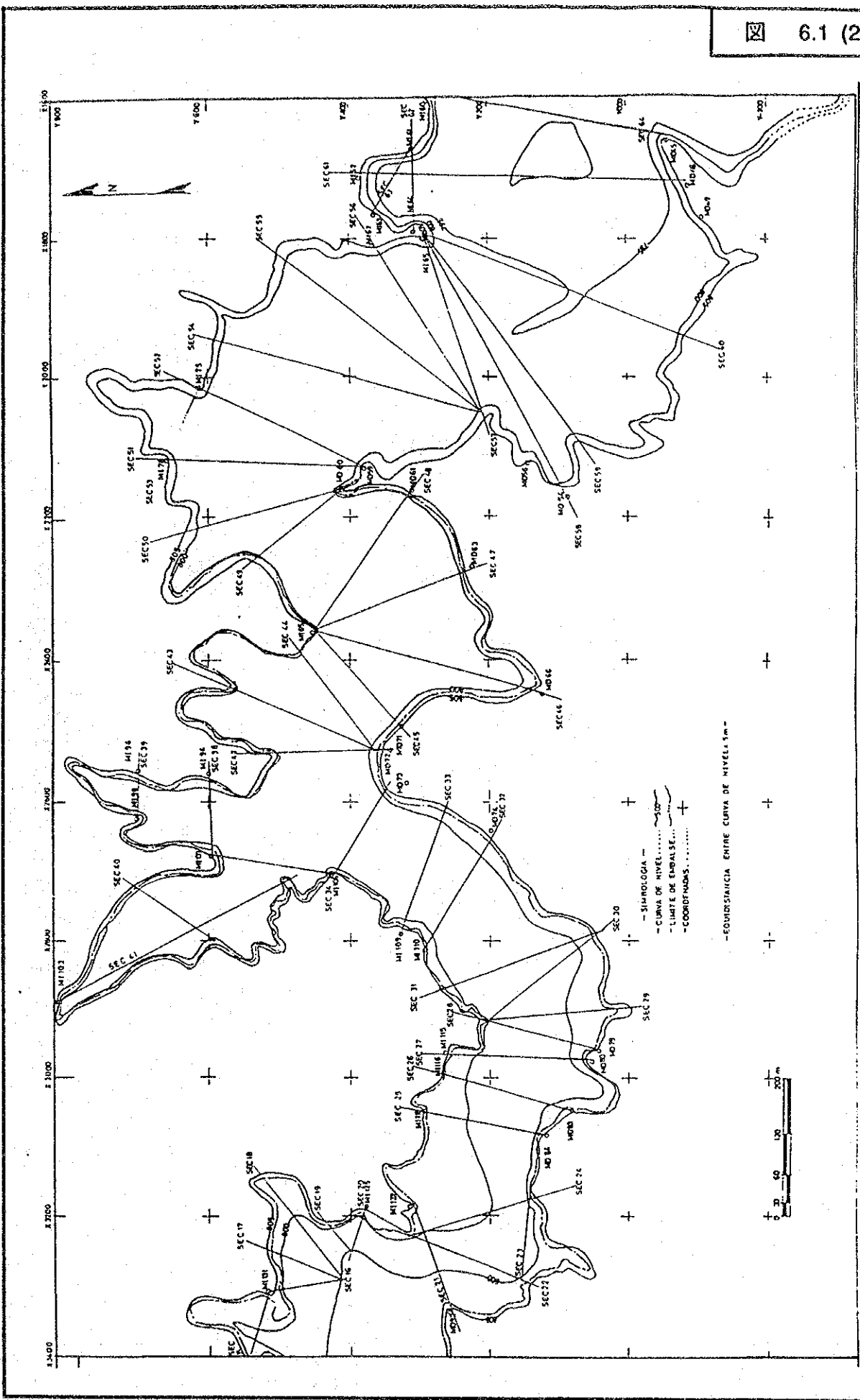


Note: Maximum power plant discharge is limited to 55.2 m³/sec in any case.  
Excess inflow above target discharge is used for sediment flushing.

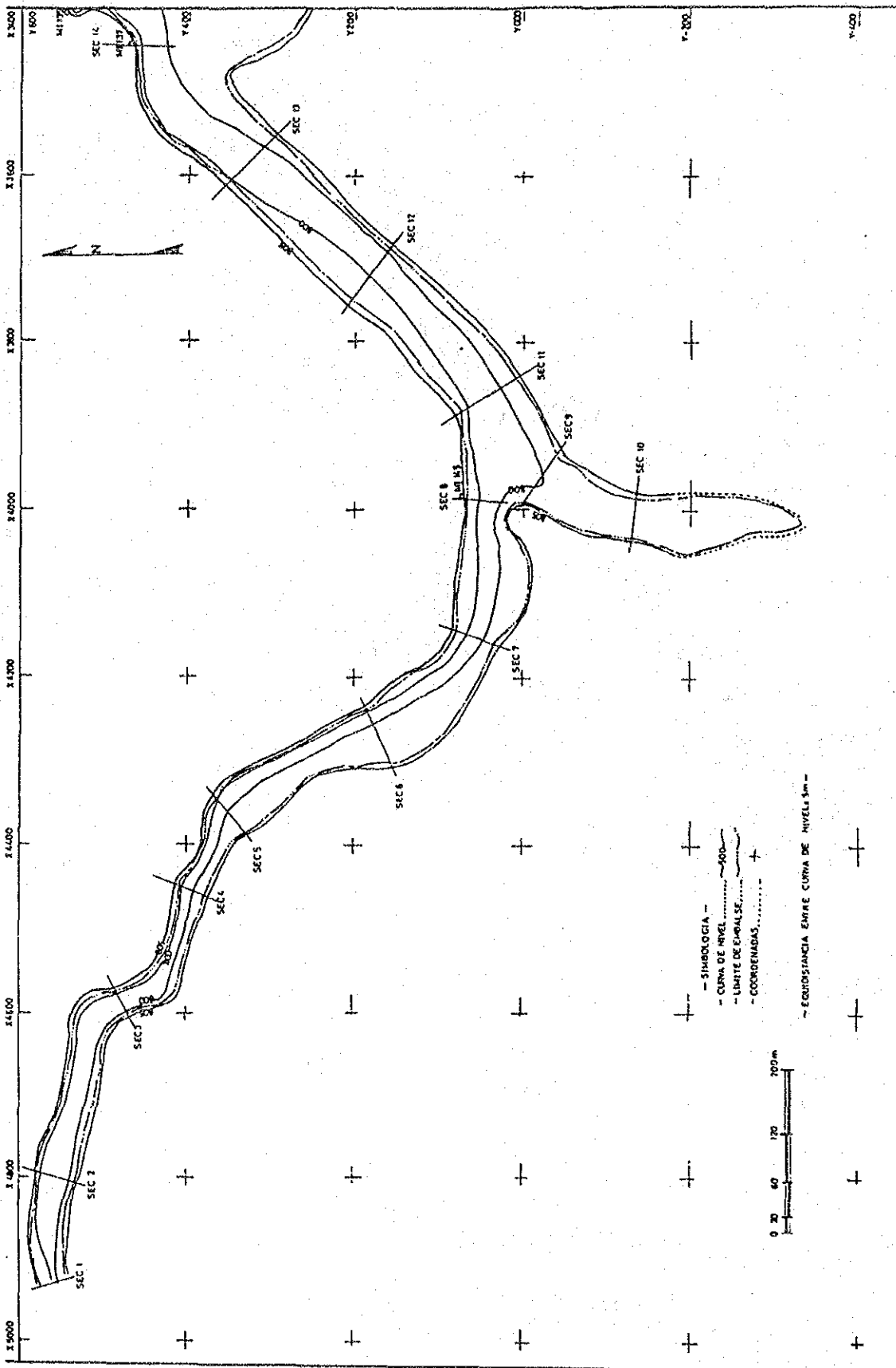
洪水吐放流開始流量と発生電力量の関係



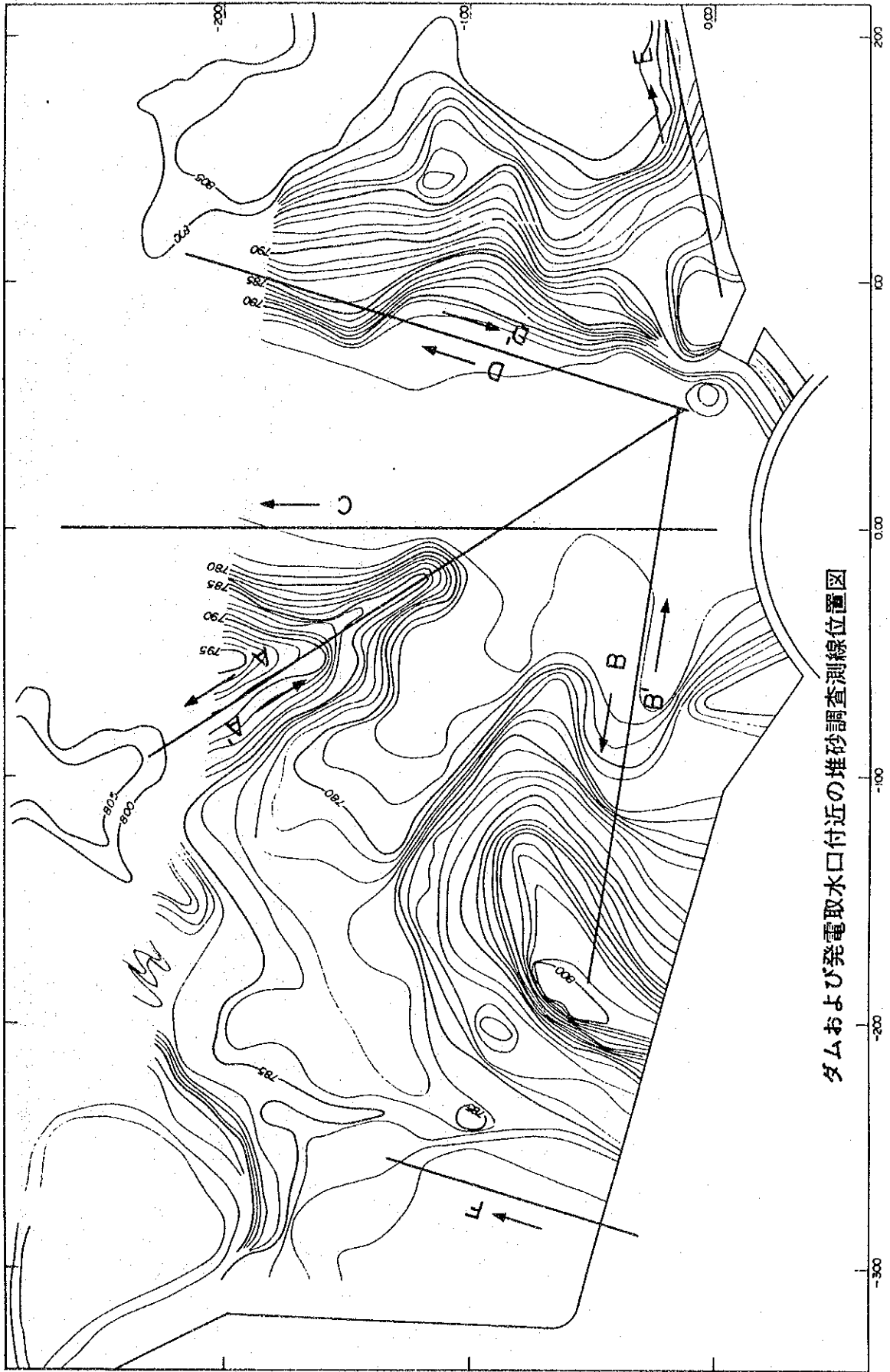
1992年貯水池堆砂調査の測線位置図 (1/3)



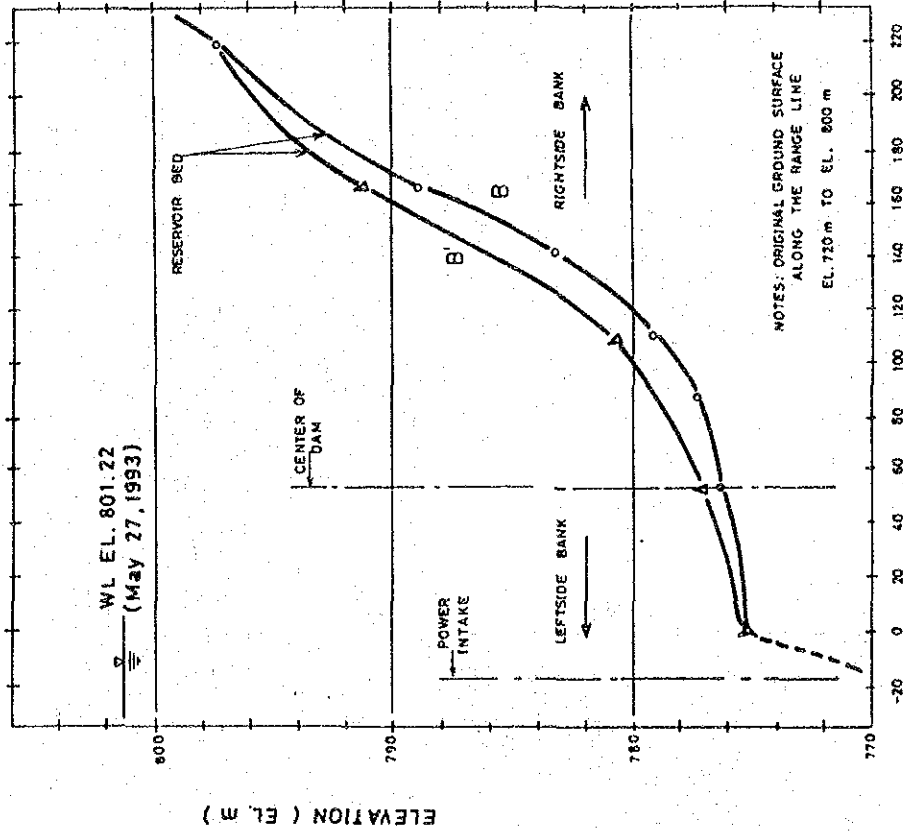
1992年貯水池堆砂調査の測線位置図 (2/3)



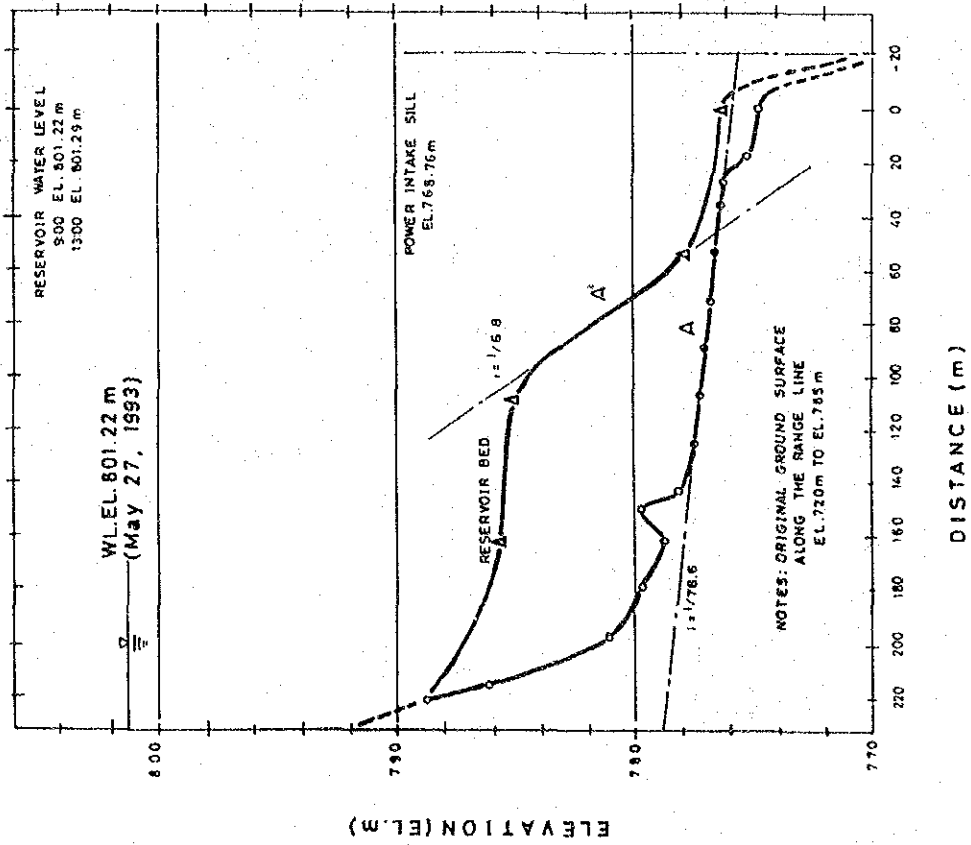
1992年貯水池堆砂調査の測線位置図 (3/3)



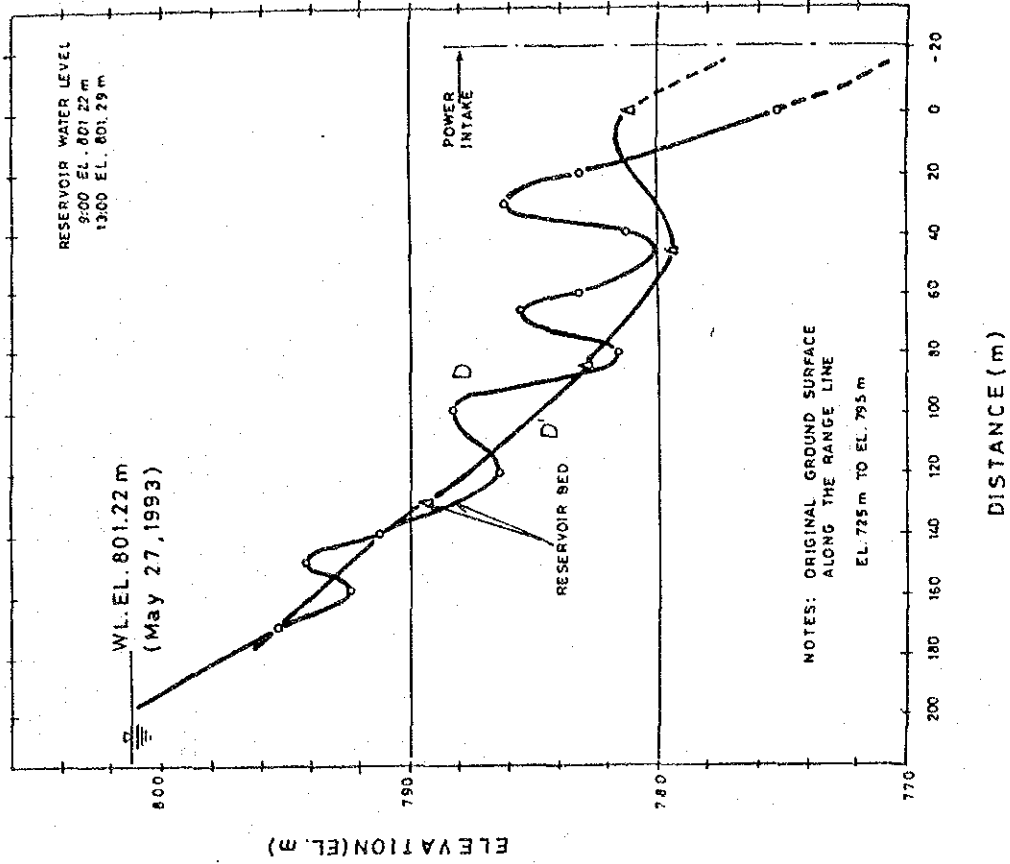
ダムおよび発電取水口付近の堆砂調査測線位置図



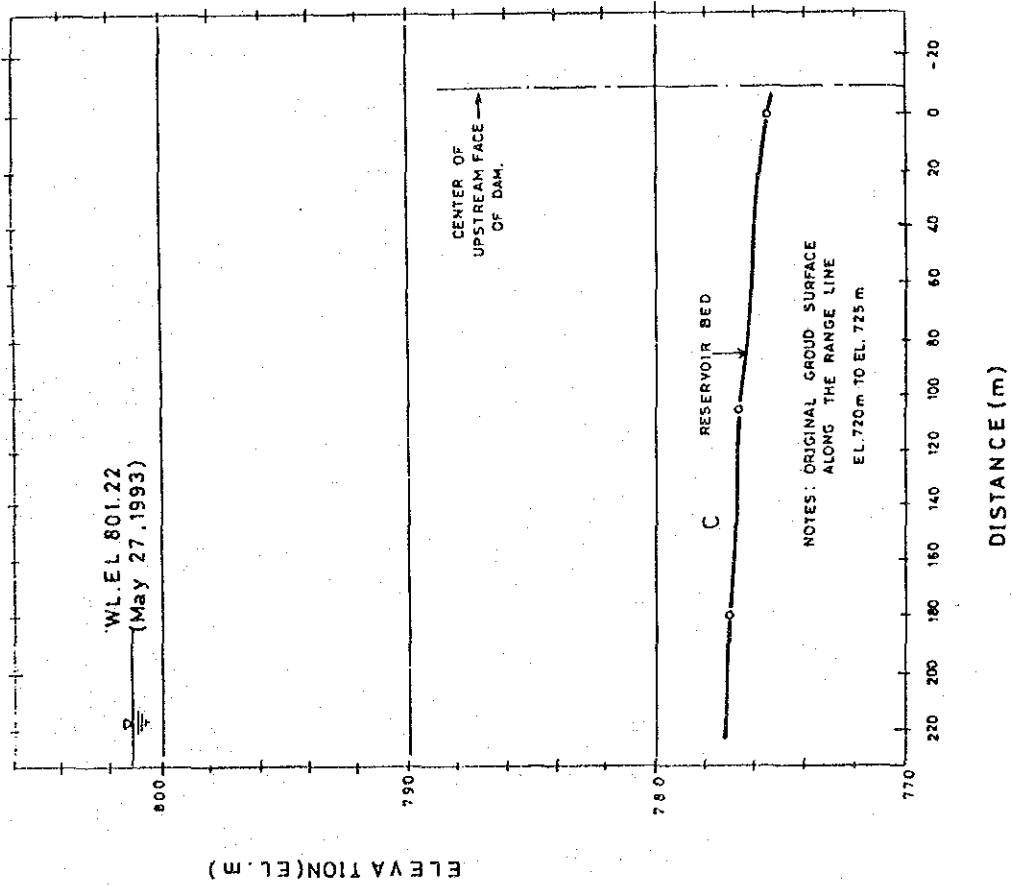
ダムおよび発電取水口付近の堆砂面 (2/6)



ダムおよび発電取水口付近の堆砂面 (1/6)

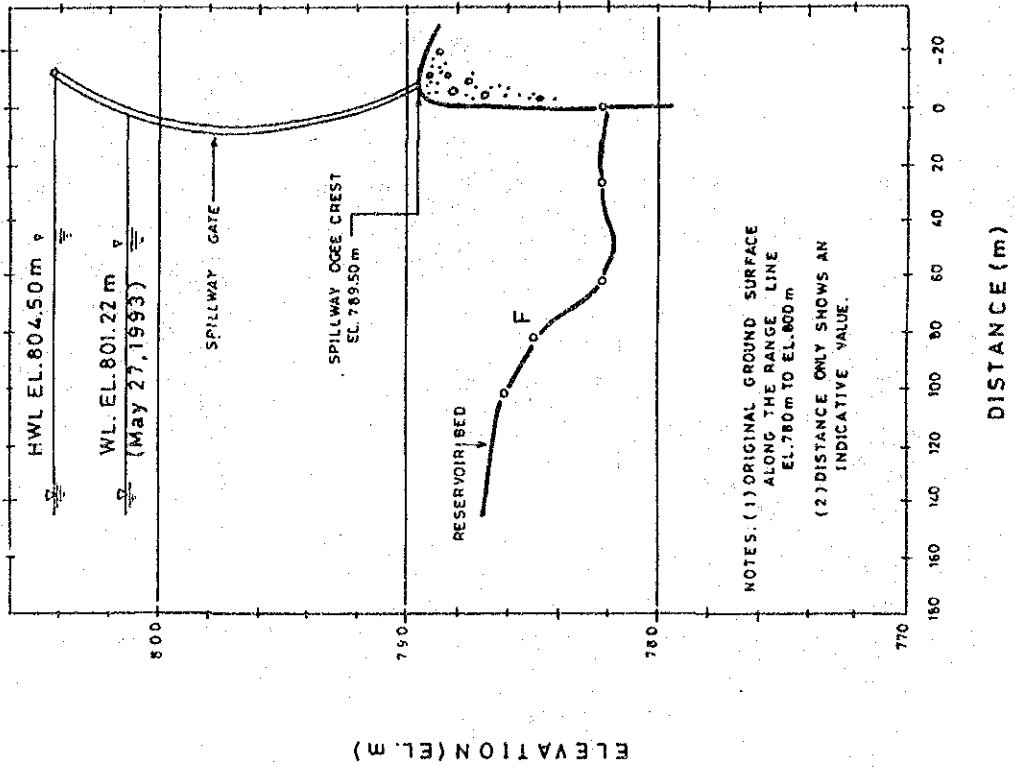


ダムおよび発電取水口付近の堆砂面 (4 / 6)

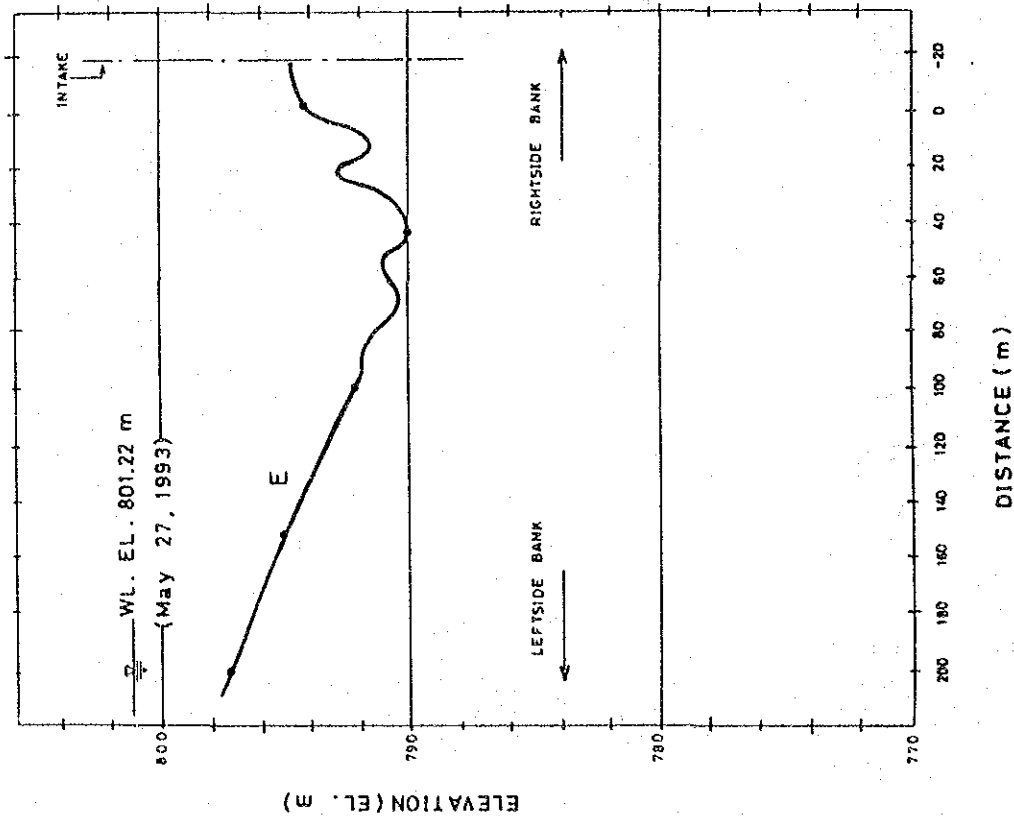


ダムおよび発電取水口付近の堆砂面 (3 / 6)

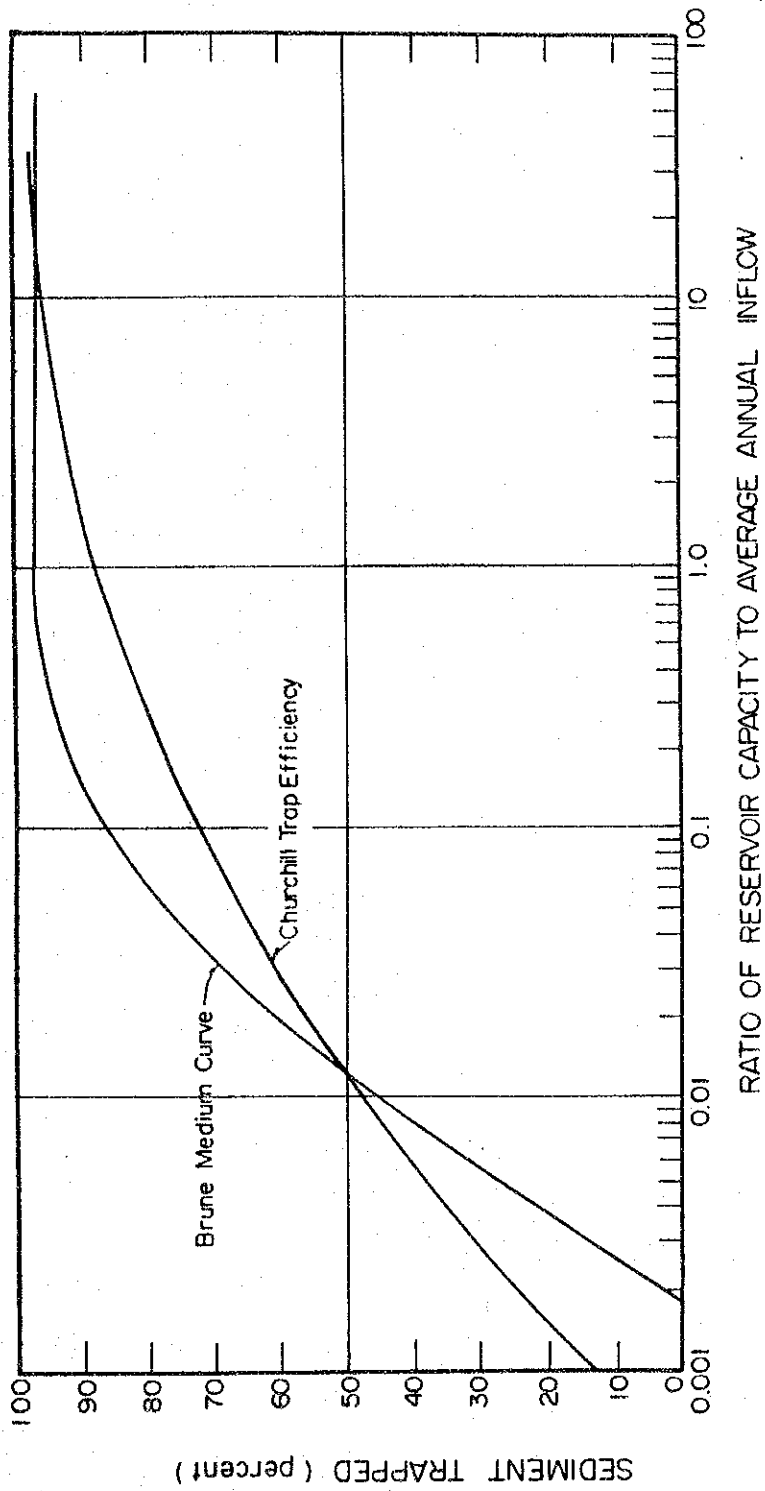




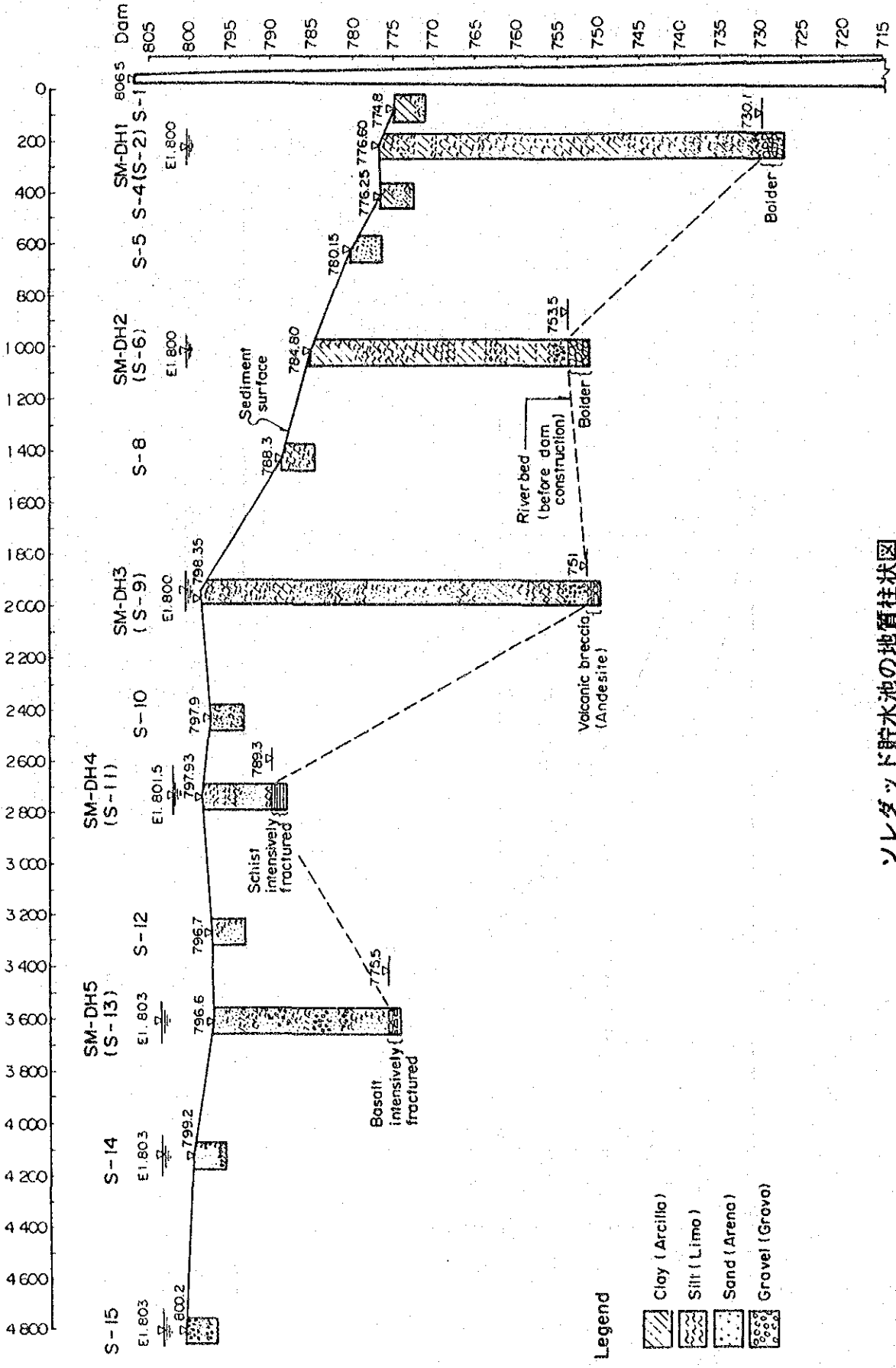
ダムおよび発電取水口付近の堆砂面 (6 / 6)



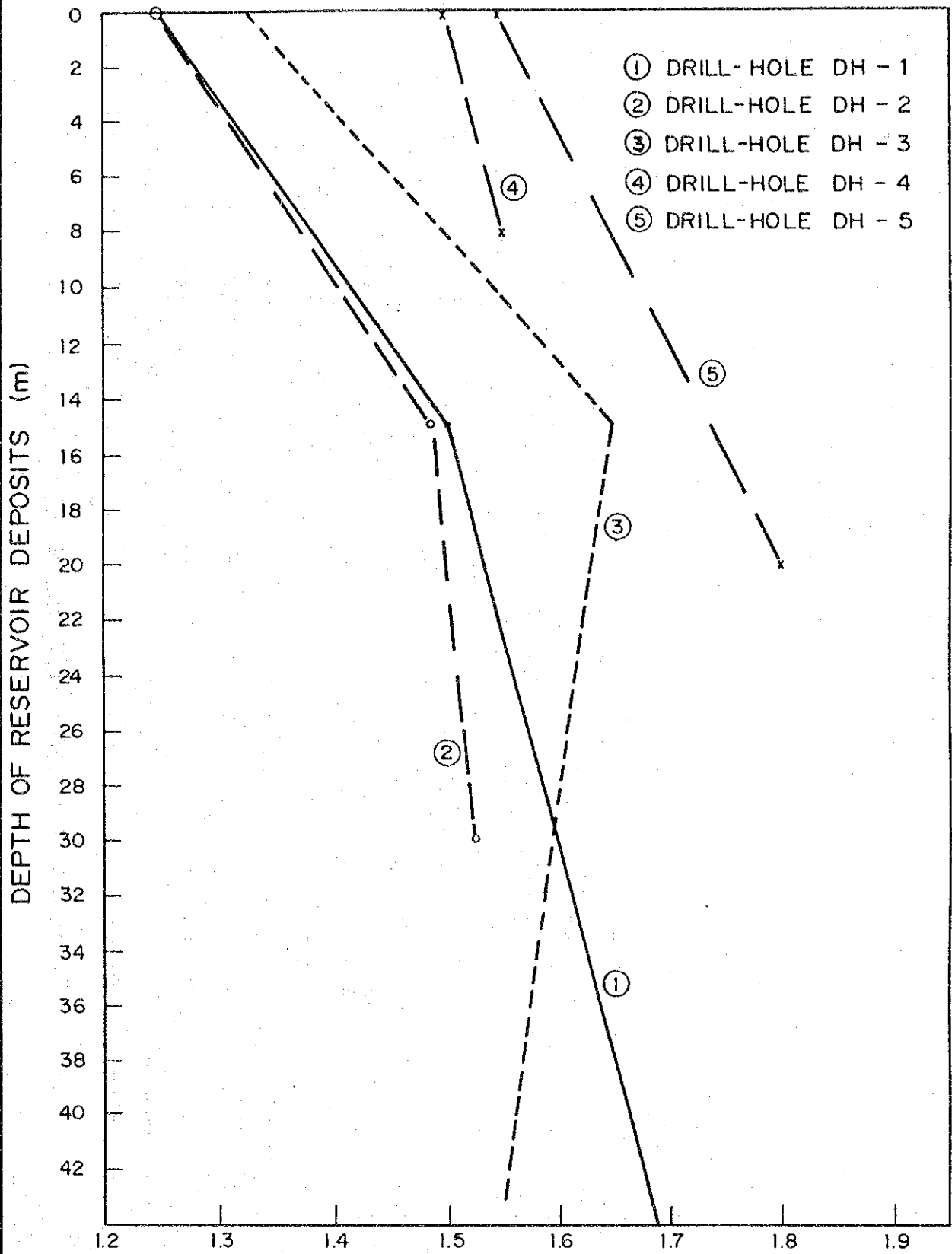
ダムおよび発電取水口付近の堆砂面 (5 / 6)



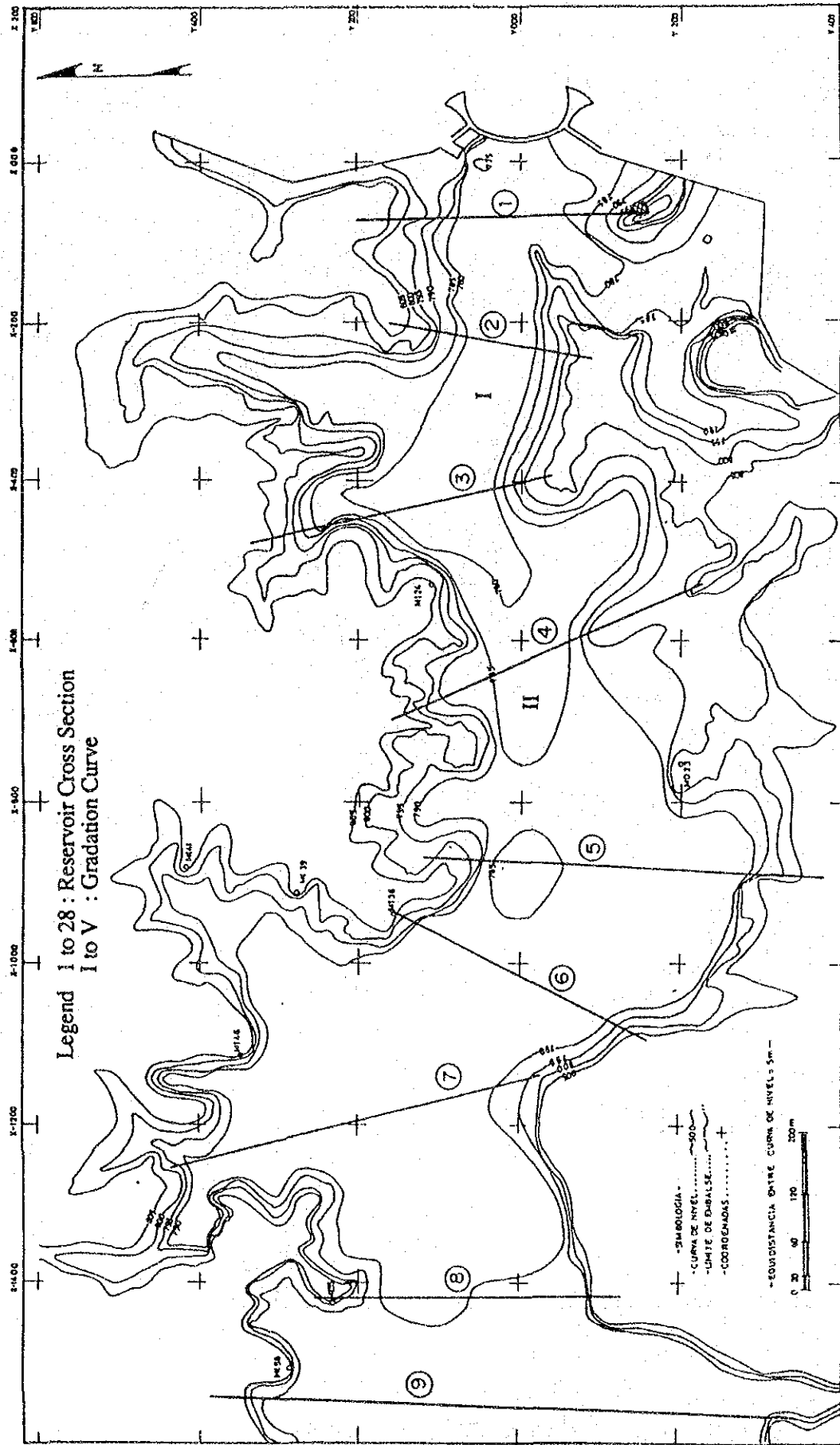
貯水池の土砂捕捉率曲線



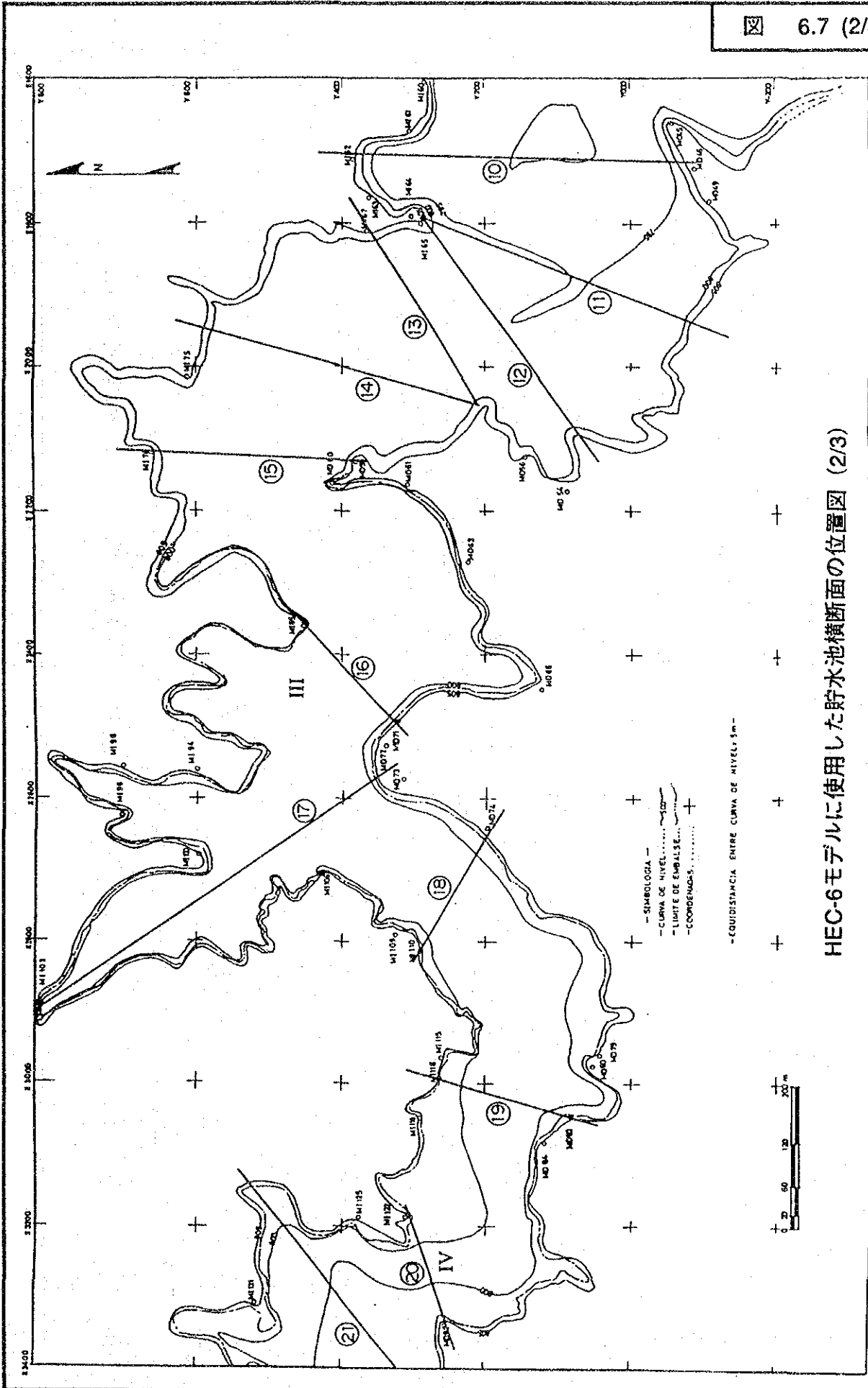
ソレダッド貯水池の地質柱状図



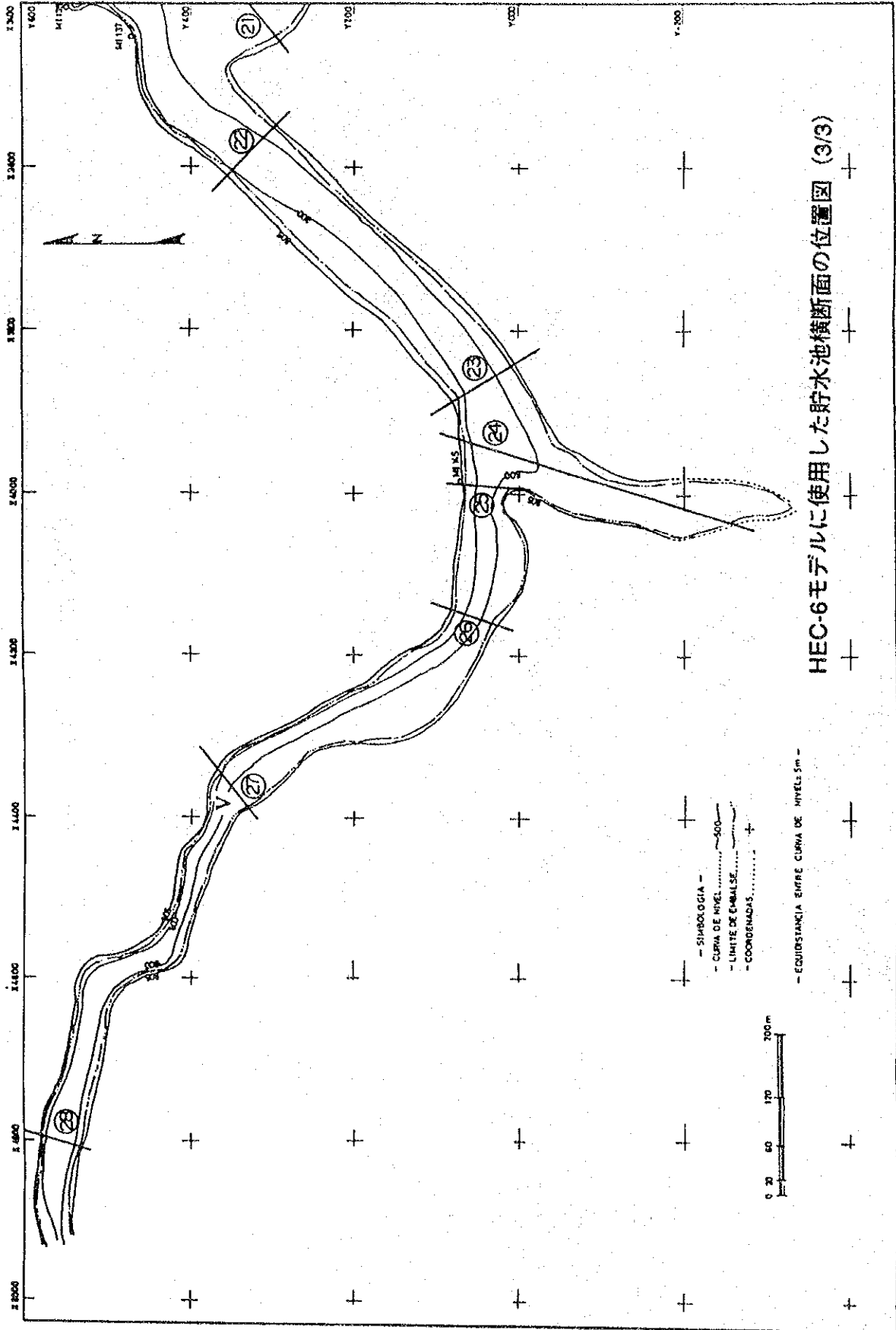
DENSITY OF DEPOSIT (ton/m<sup>3</sup>)  
貯水池堆砂土砂の密度と深さの関係



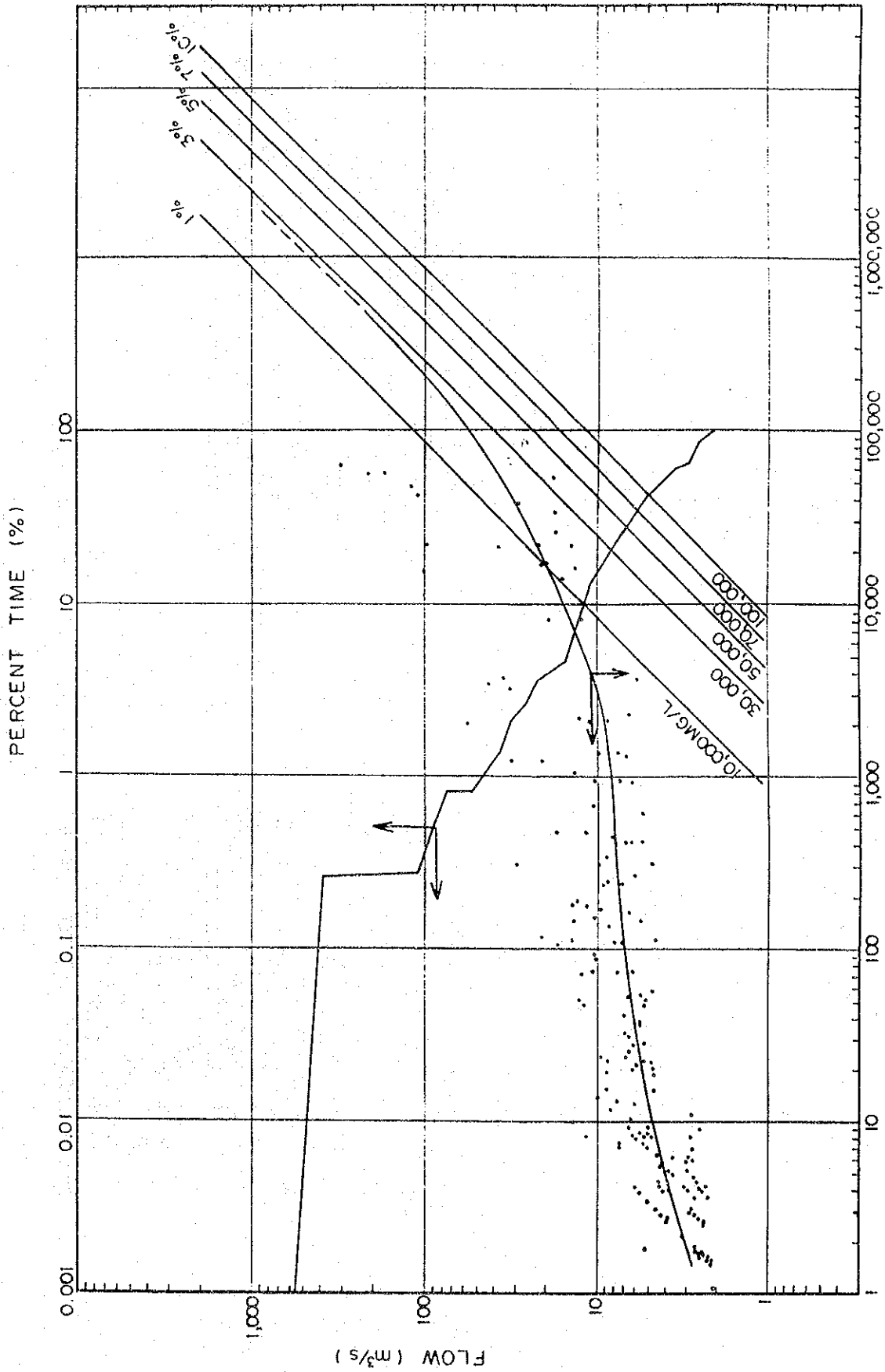
HEC-6モデルに使用した貯水池横断面の位置図 (1/3)



HEC-6モデルに使用した貯水池横断面の位置図 (2/3)



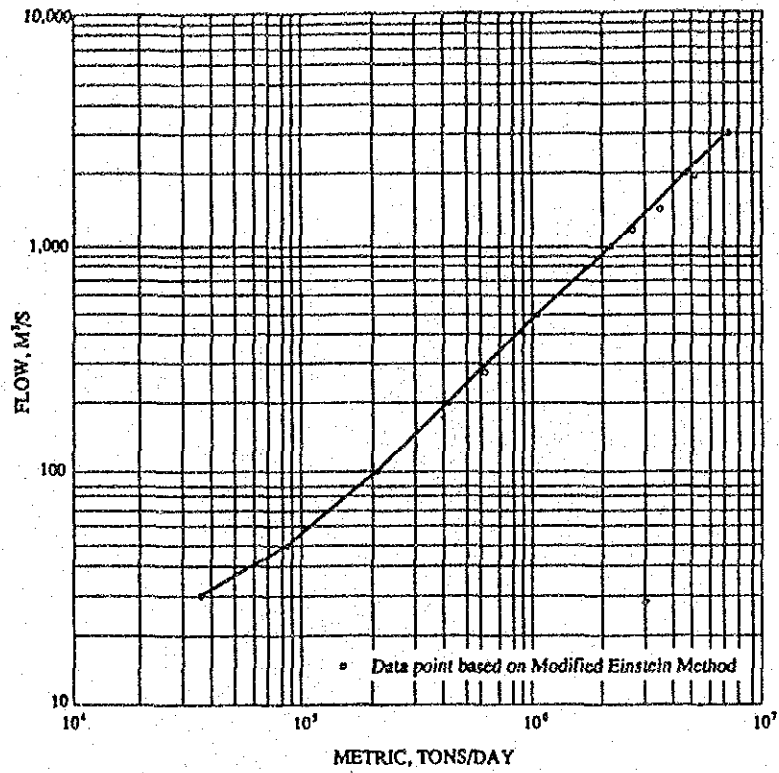
HEC-6モデルに使用した貯水池横断面の位置図 (3/3)



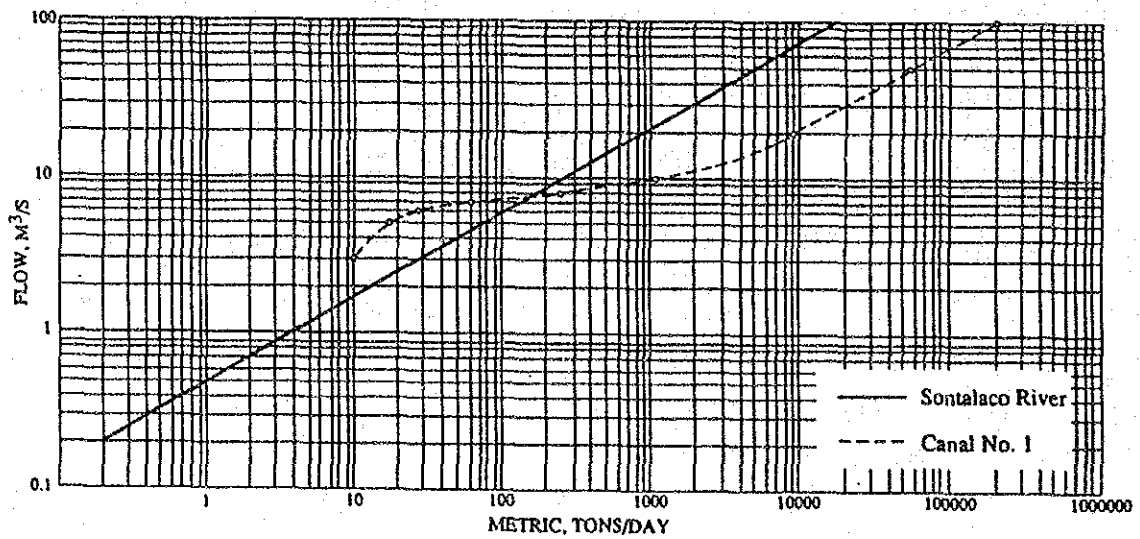
SUSPENDED SEDIMENT LOAD, (tons/day)

ブエノスアイレス観測所の流量—浮遊砂量曲線

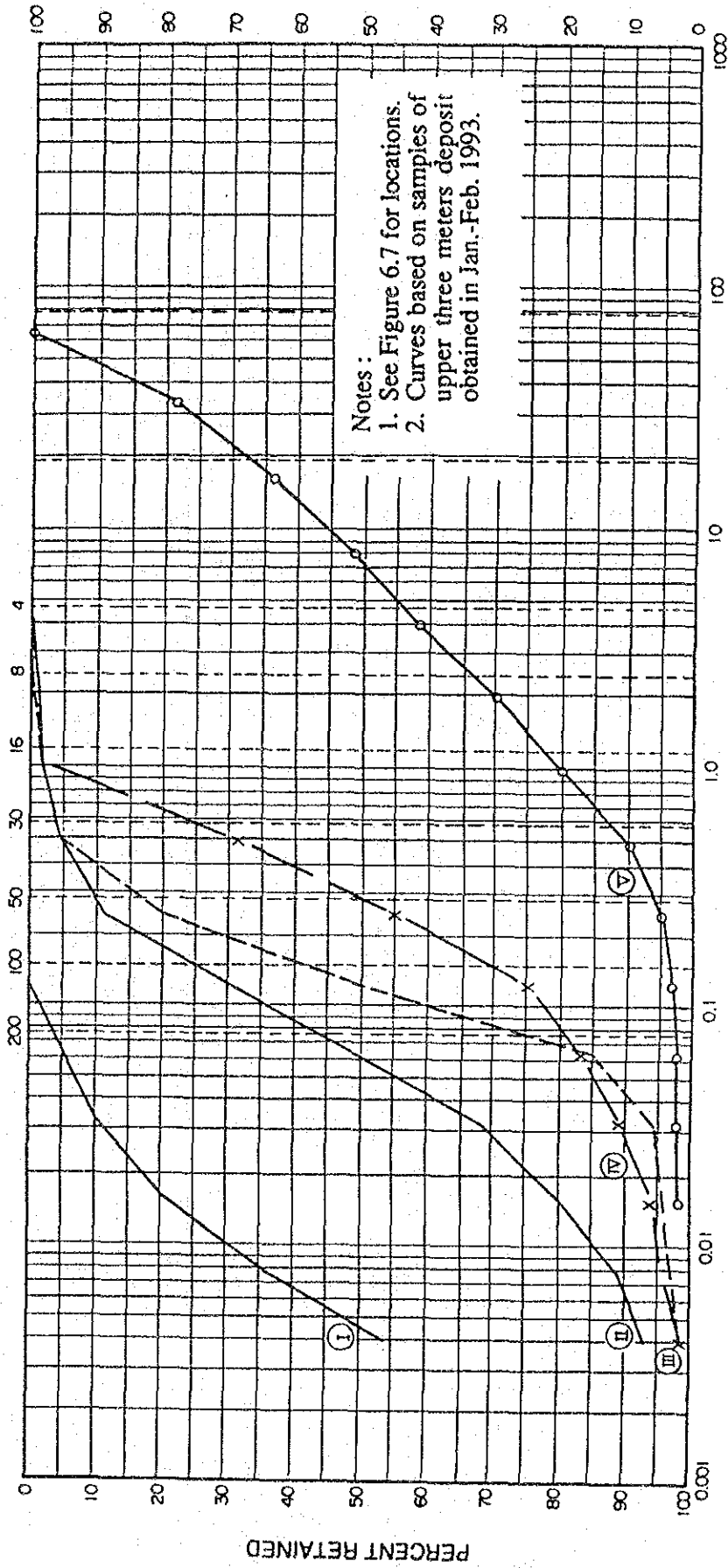




ブエノスアイレス観測所の流量—浮遊砂量曲線

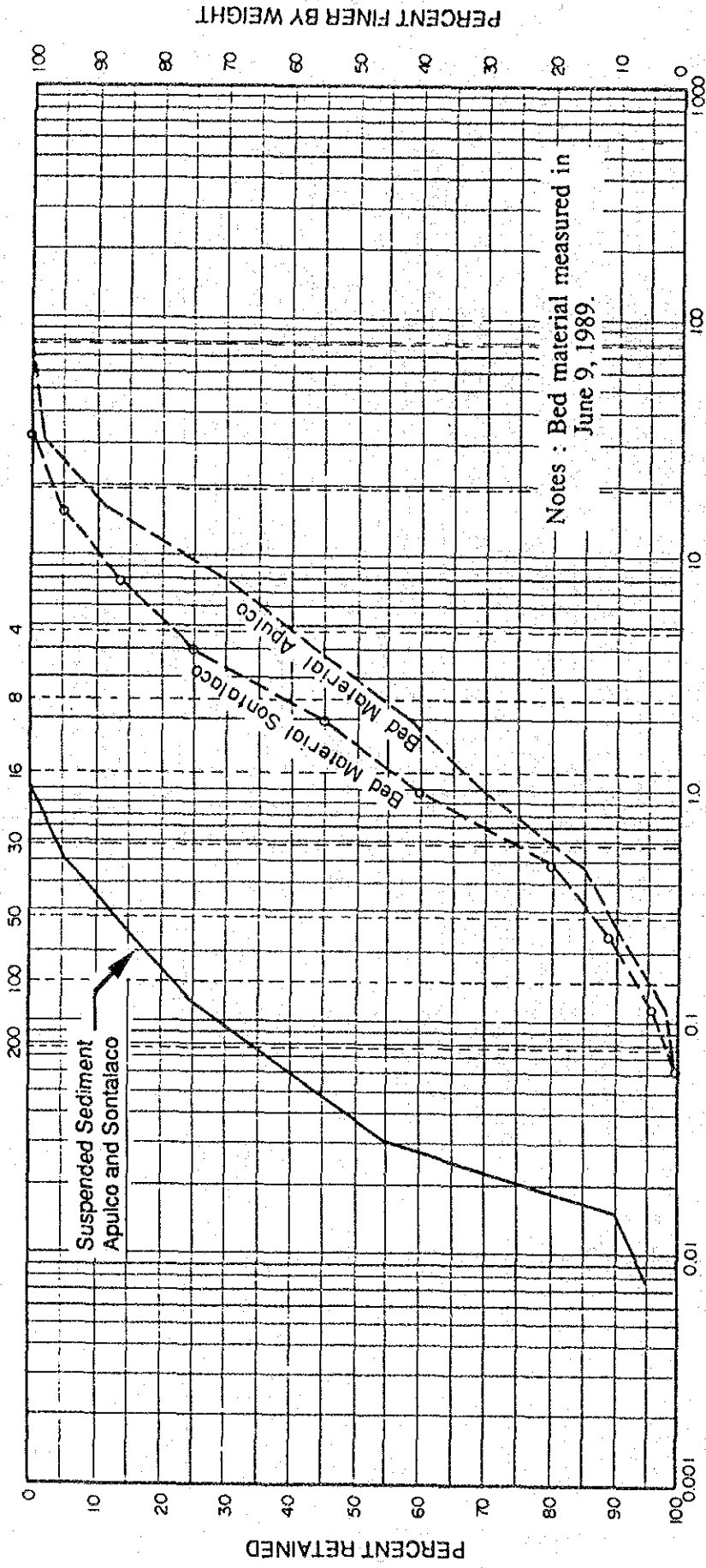


ソントラコおよび水路No.1観測所の流量—浮遊砂量曲線

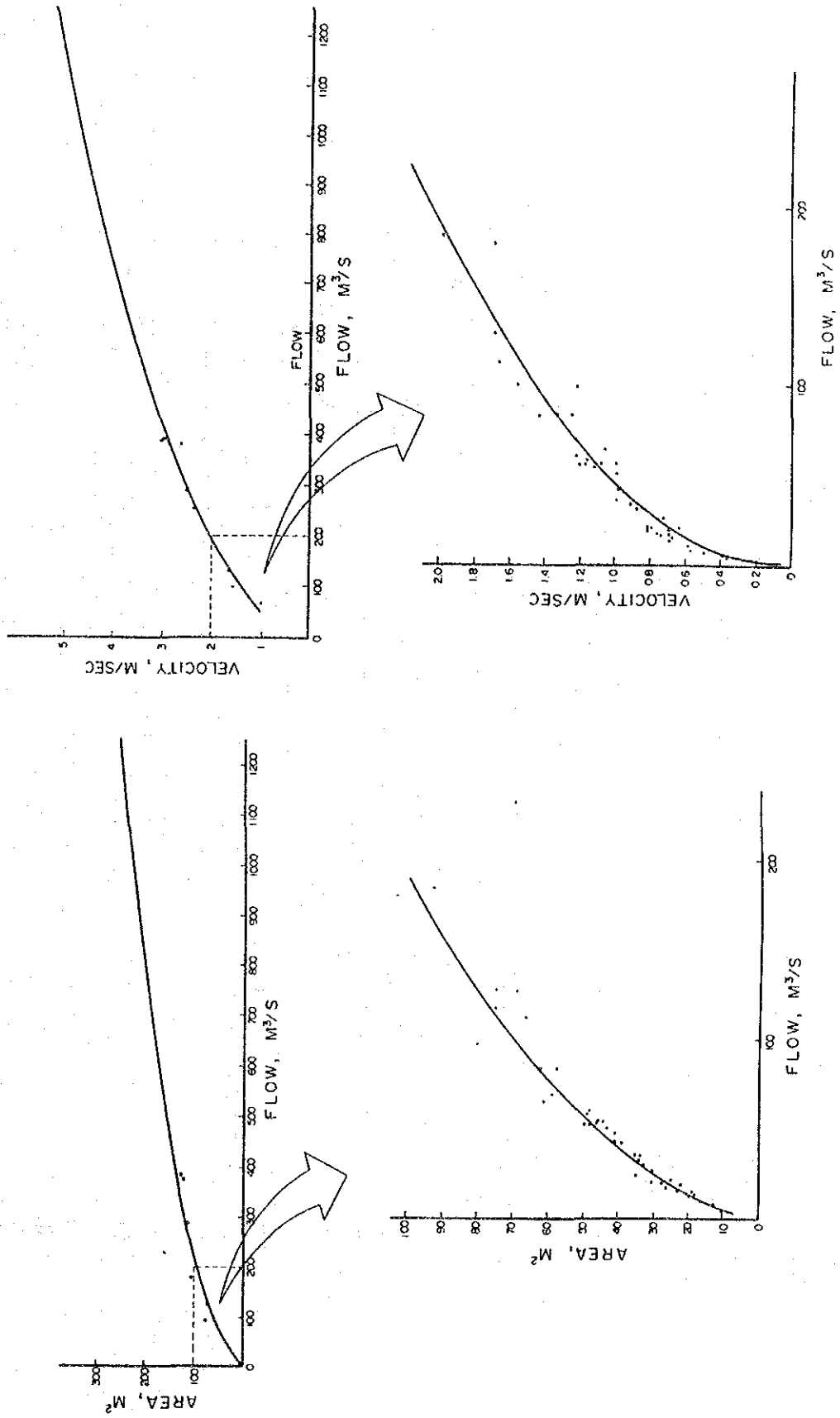


GRAIN SIZE IN MILLIMETERS

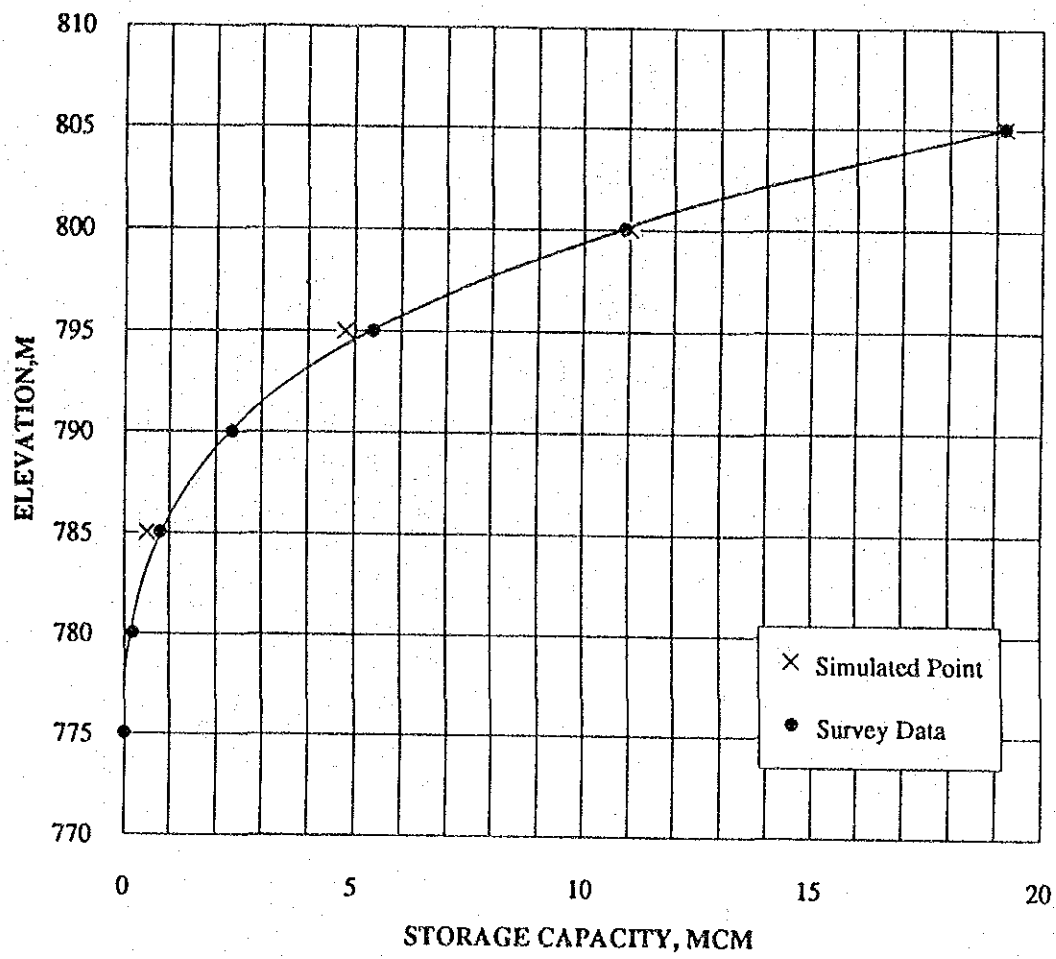
浮遊砂と河床材料の粒径加積曲線



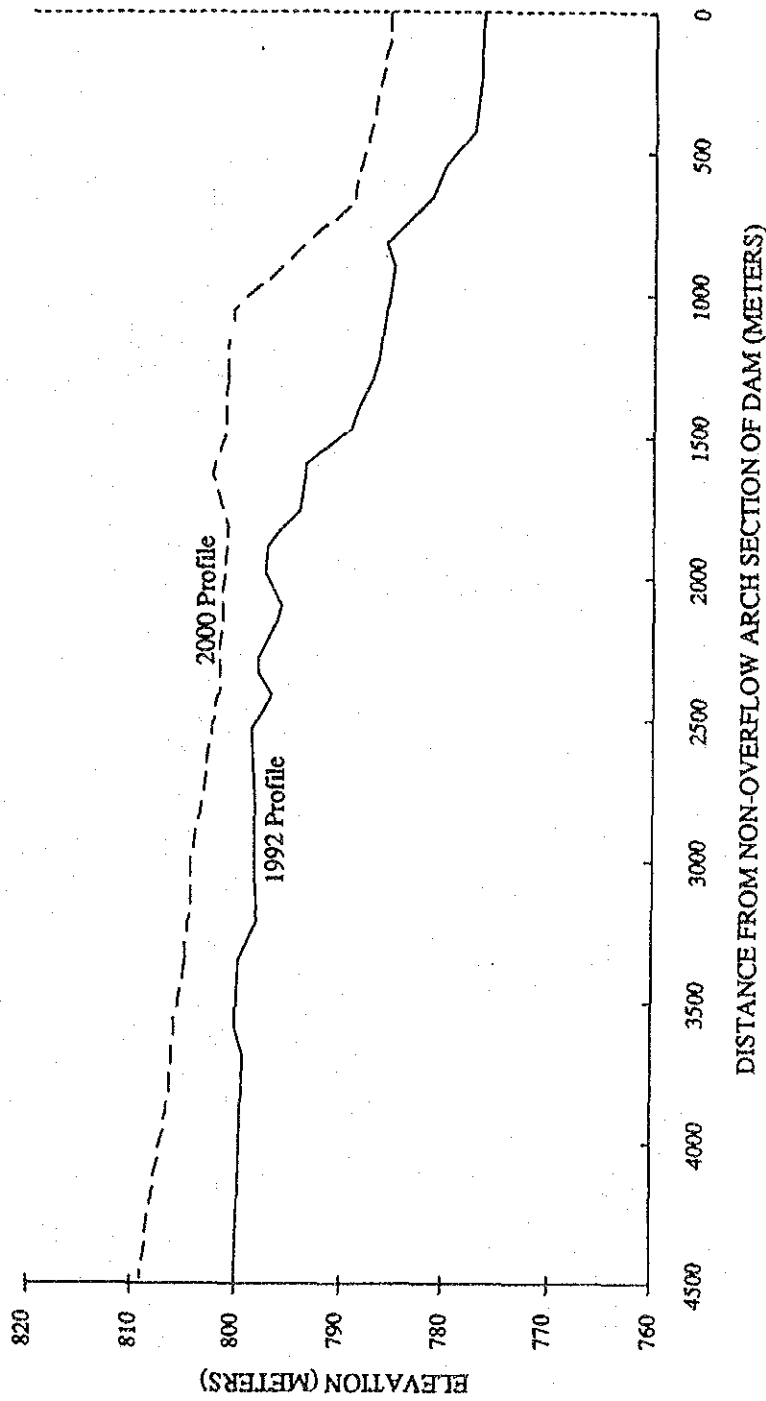
貯水池堆積土砂の粒径加積曲線



ブエノスアイレス観測所における流量—流下断面積—流速の関係



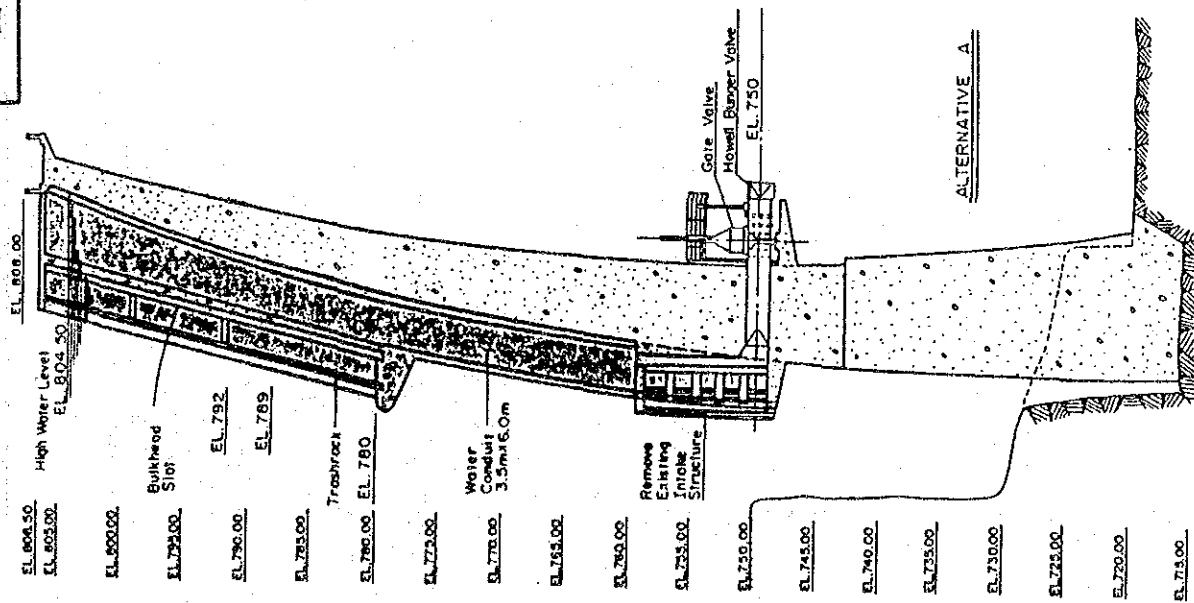
経験的面積減少法から得られたソレダッド貯水池の1992年の貯水容量曲線



HEC-6モデルにより推定した貯水池堆砂面の縦断面図

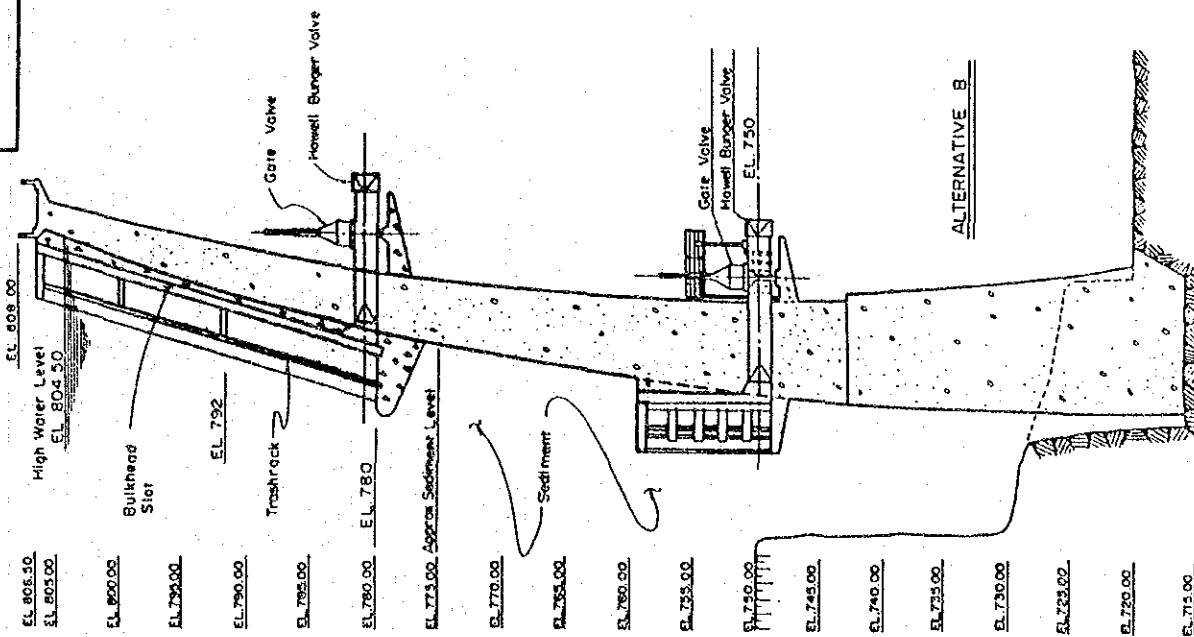


7.1



既存放流施設のリハビリ (代替案A)

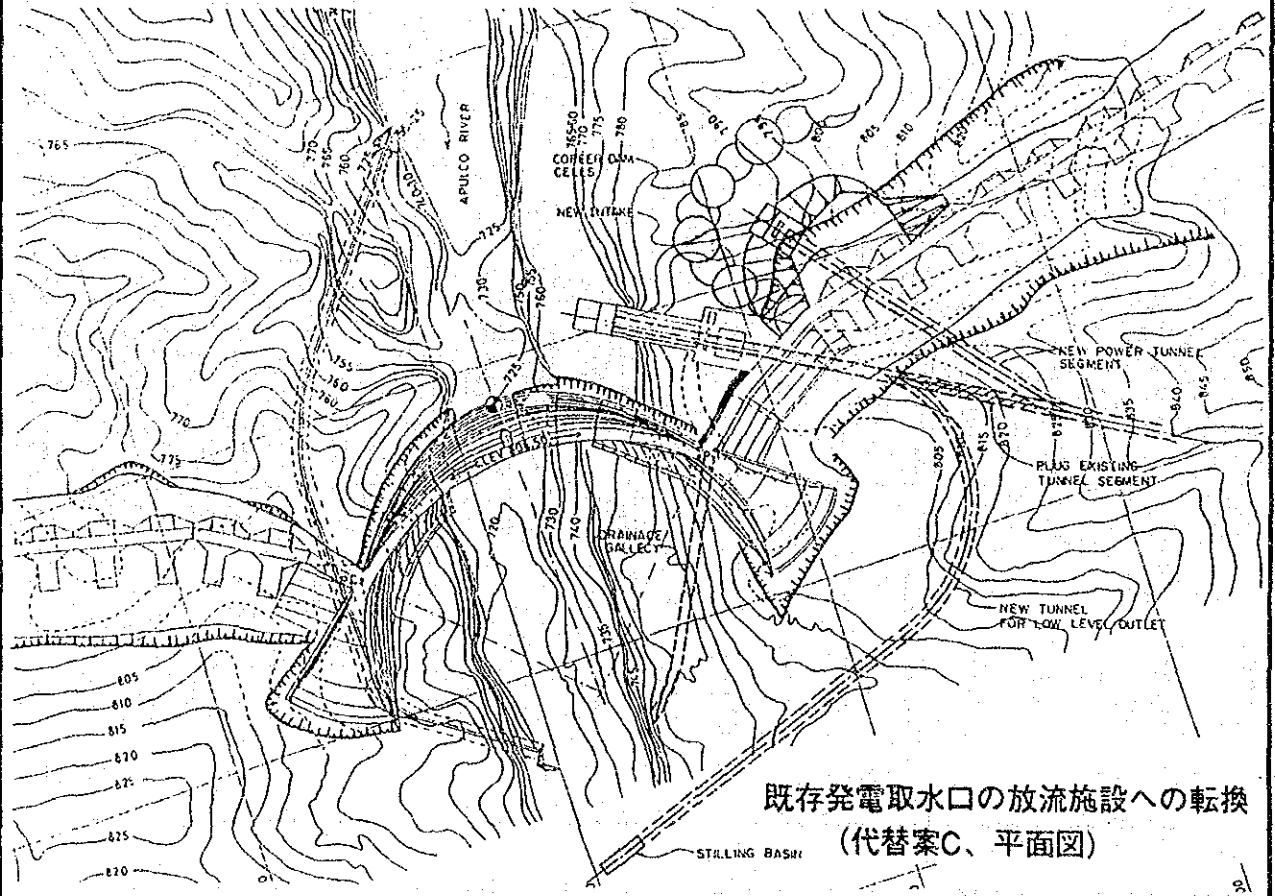
7.2



放流施設の新設 (代替案B)

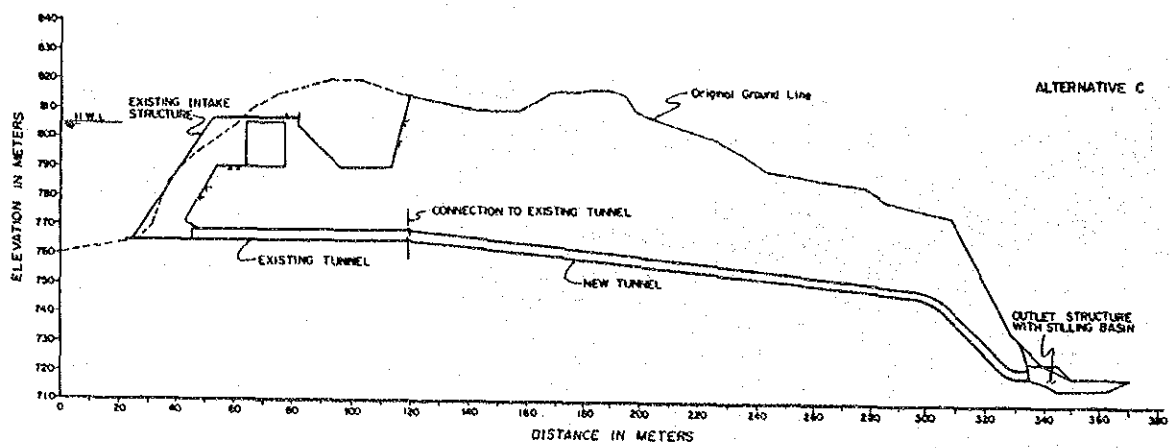


図 7.3



既存発電取水口の放流施設への転換  
(代替案C、平面図)

図 7.4



既存発電取水口の放流施設への転換 (代替案C、縦断図)