

社会開発調査部報告書

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

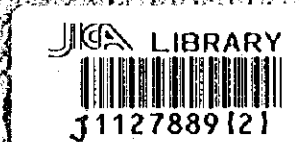
MINISTRY OF WATER RESOURCES

No. 11

THE STUDY
ON
ELEVEN CENTERS WATER SUPPLY AND SANITATION
IN
FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

DRAWINGS
WEROTA

(Volume IV-IV)



FEBRUARY, 1996

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GOVERNMENT OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)
FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF WATER RESOURCES

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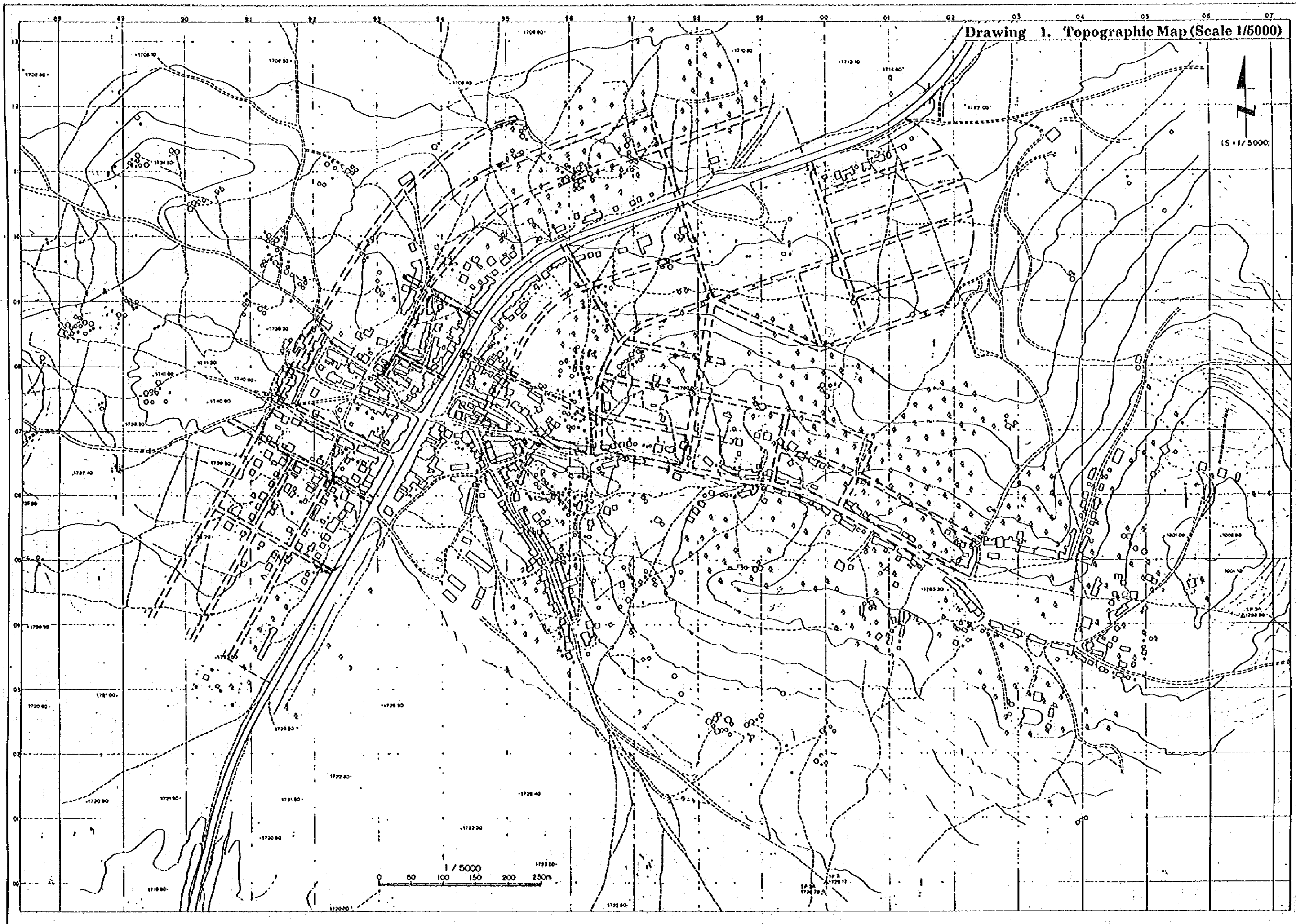
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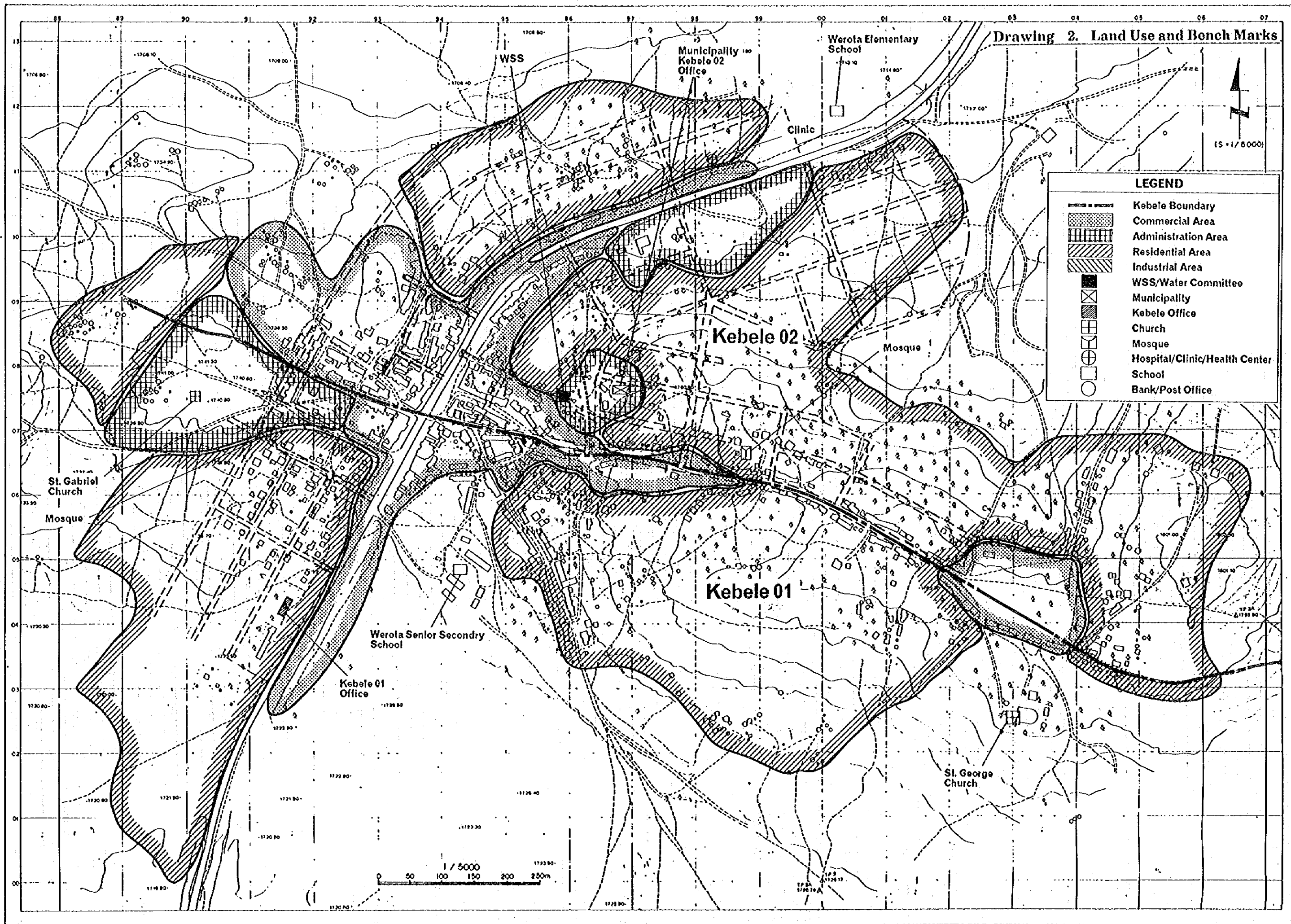
Drawing 1.	Topographic Map (Scale 1/5000)
Drawing 2.	Land Use and Bench Marks
Drawing 3.	Current Available Water Sources
Drawing 4.	Plan of Proposed Water Sources
Drawing 5.	Layout of Proposed Deep Well
Drawing 6.	Layout Between Water Sources and Reservoir
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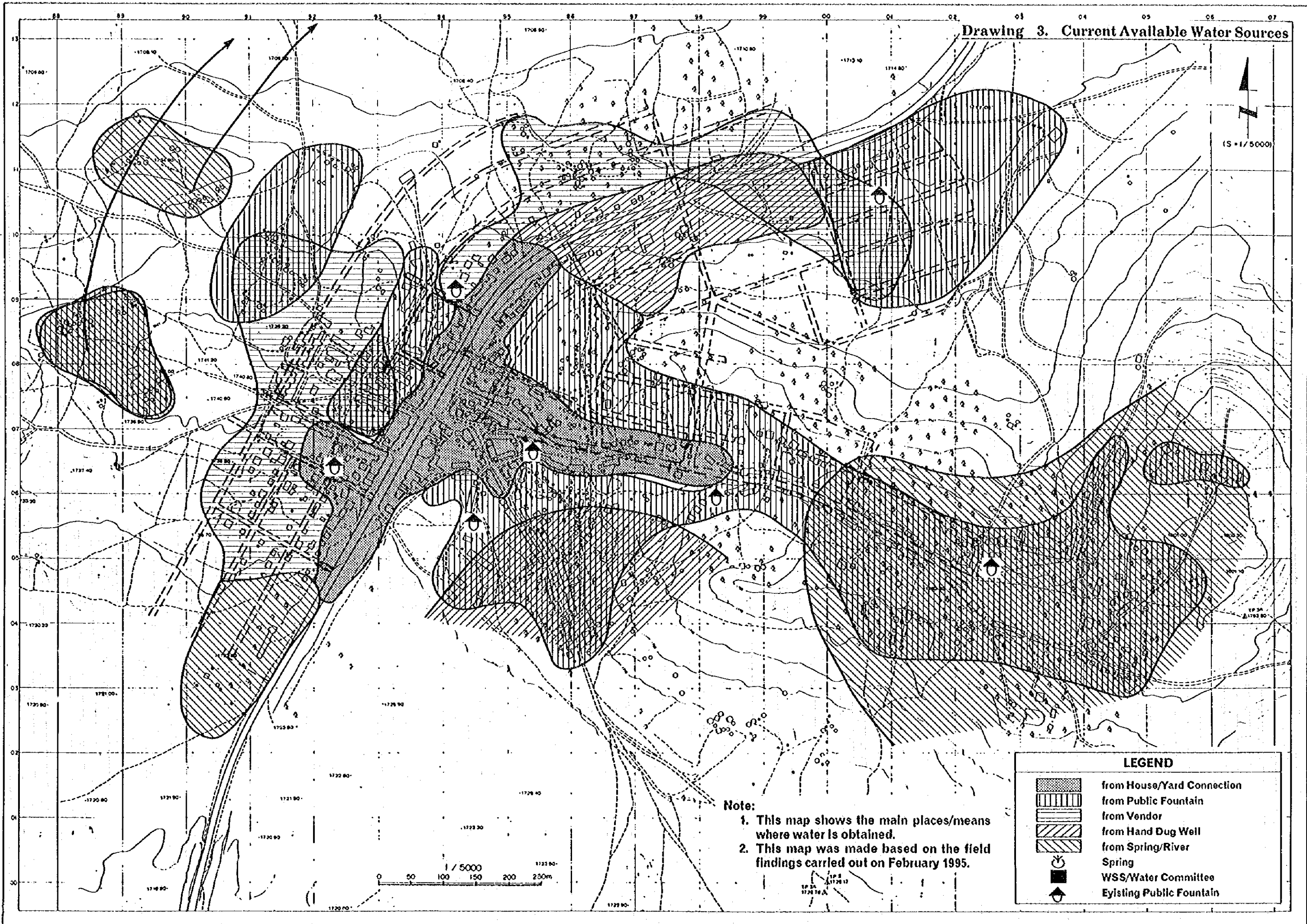
Drawing 1. Topographic Map (Scale 1/5000)

(S = 1/5000)

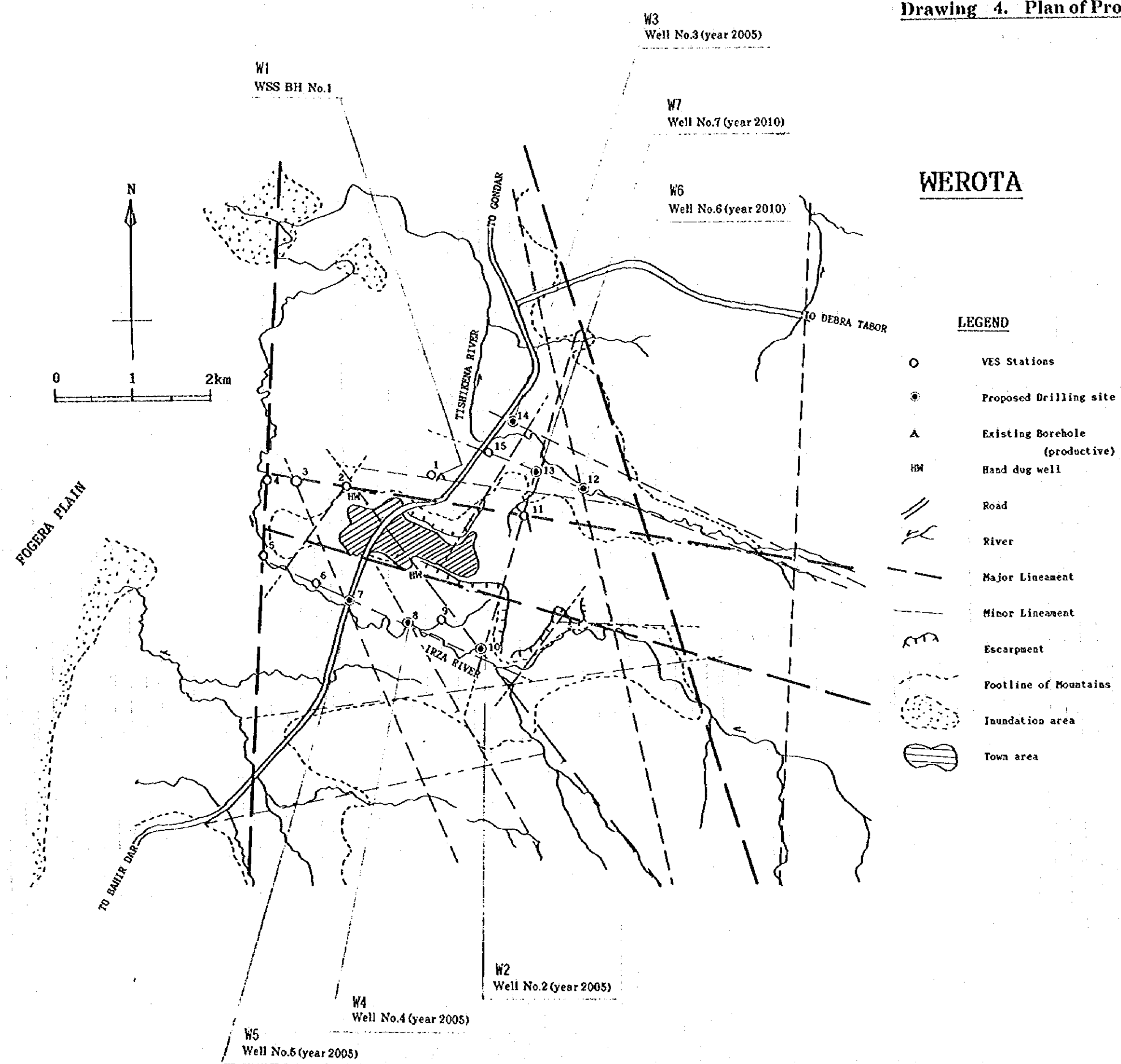
1 / 5000
0 50 100 150 200 250m



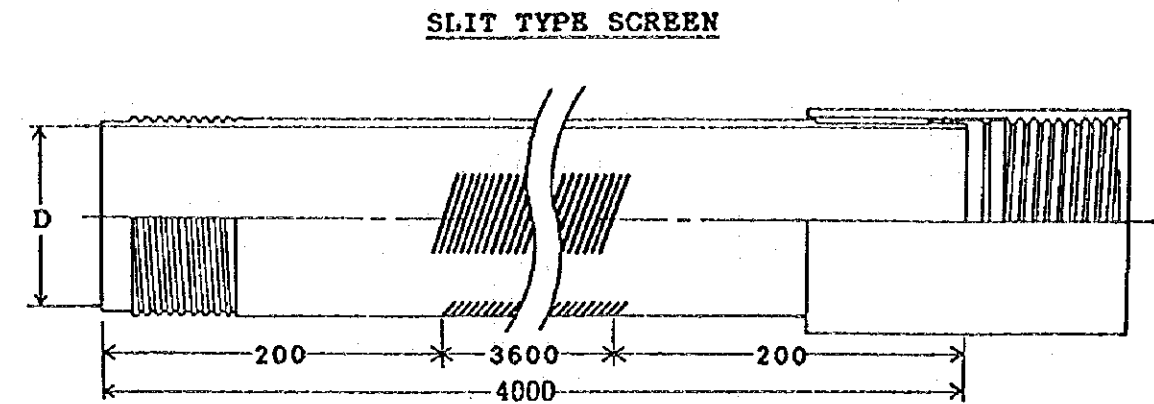
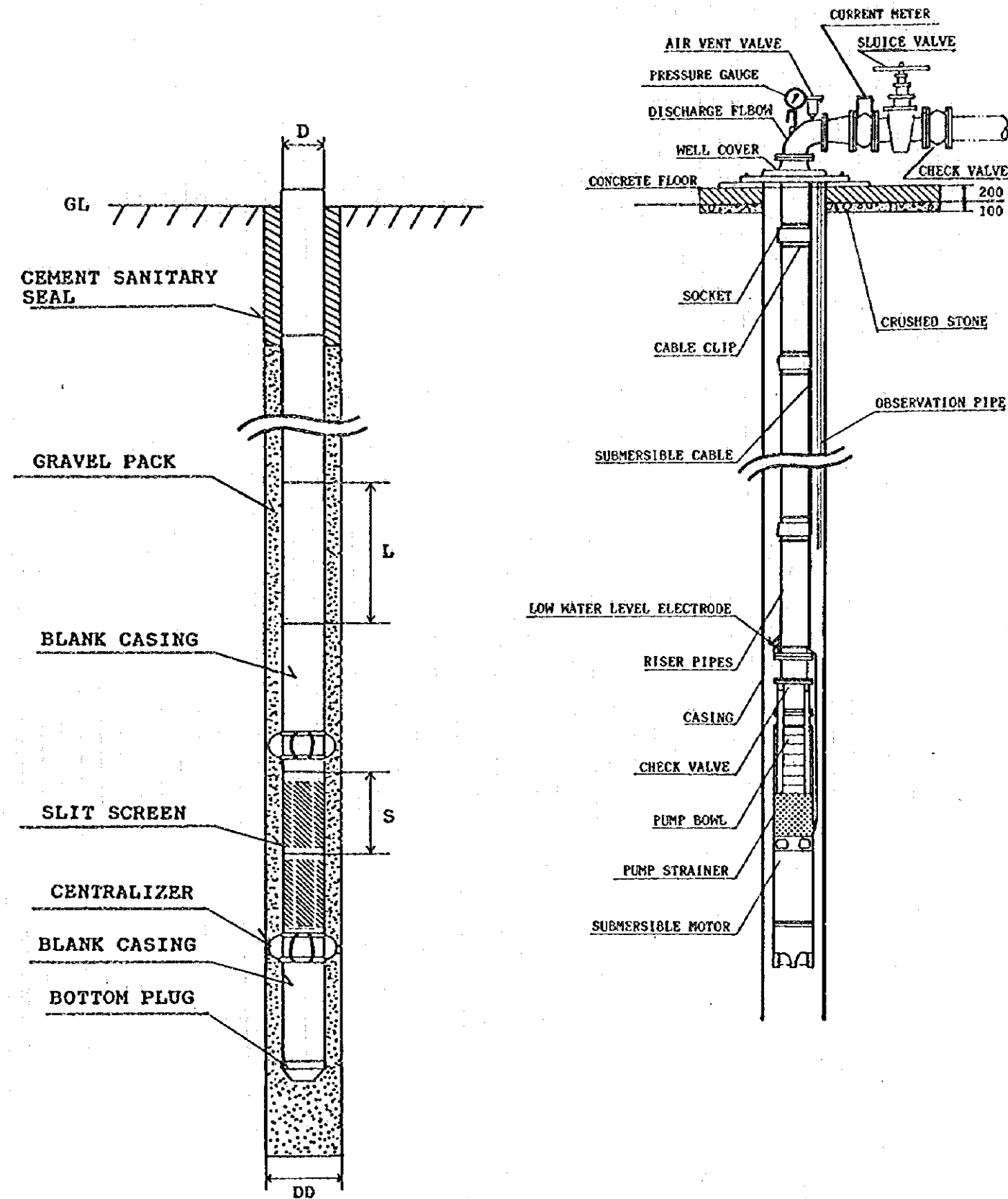
Drawing 3. Current Available Water Sources



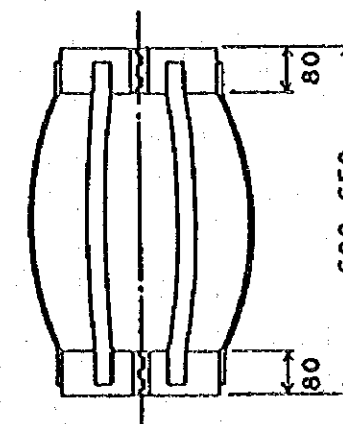
Drawing 4. Plan of Proposed Water Sources



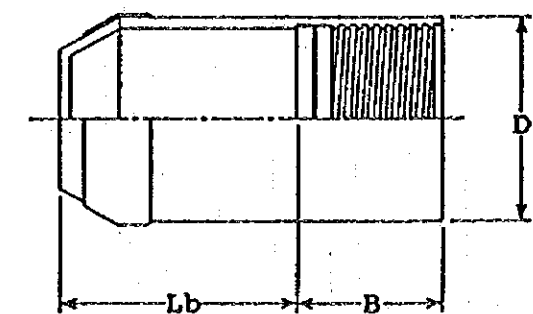
Drawing 5. Layout of Proposed Deep Well



CENTRALIZER



BOTTOM PLUG



Dimension

(Unit:mm)

Inner Diameter	Drilling Diameter	Blank Pipe	Diagonal Slit Screen		Bottom Plug	
D	DD	L	S		Lb	B
150	250	6,000	4,000	Approx 12%	160	110
200	300					

Material

BLANK PIPE : FRP

SCREEN : FRP

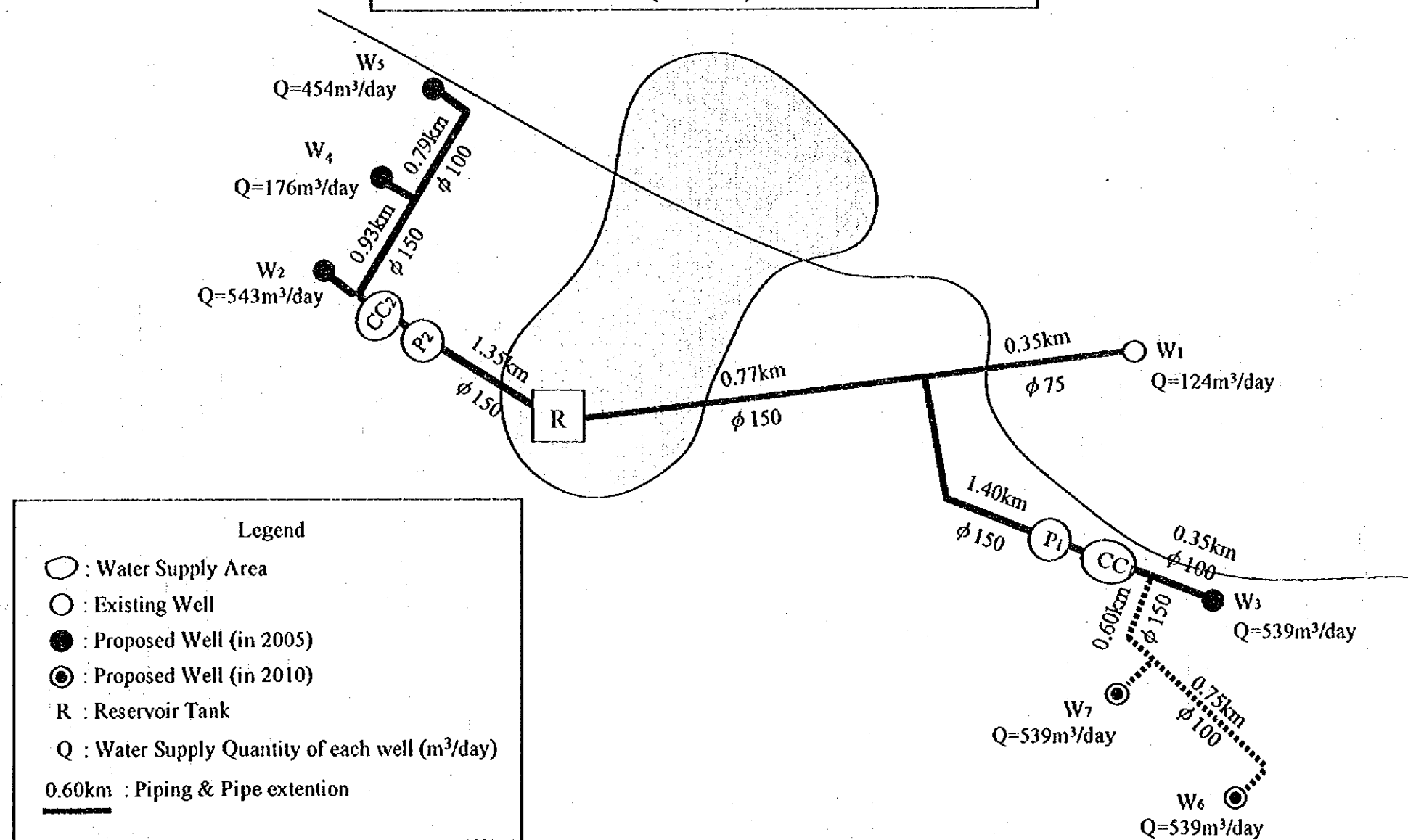
BOTTOM PLUG : FRP

Drawing 6. Layout Between Water Sources and Reservoir

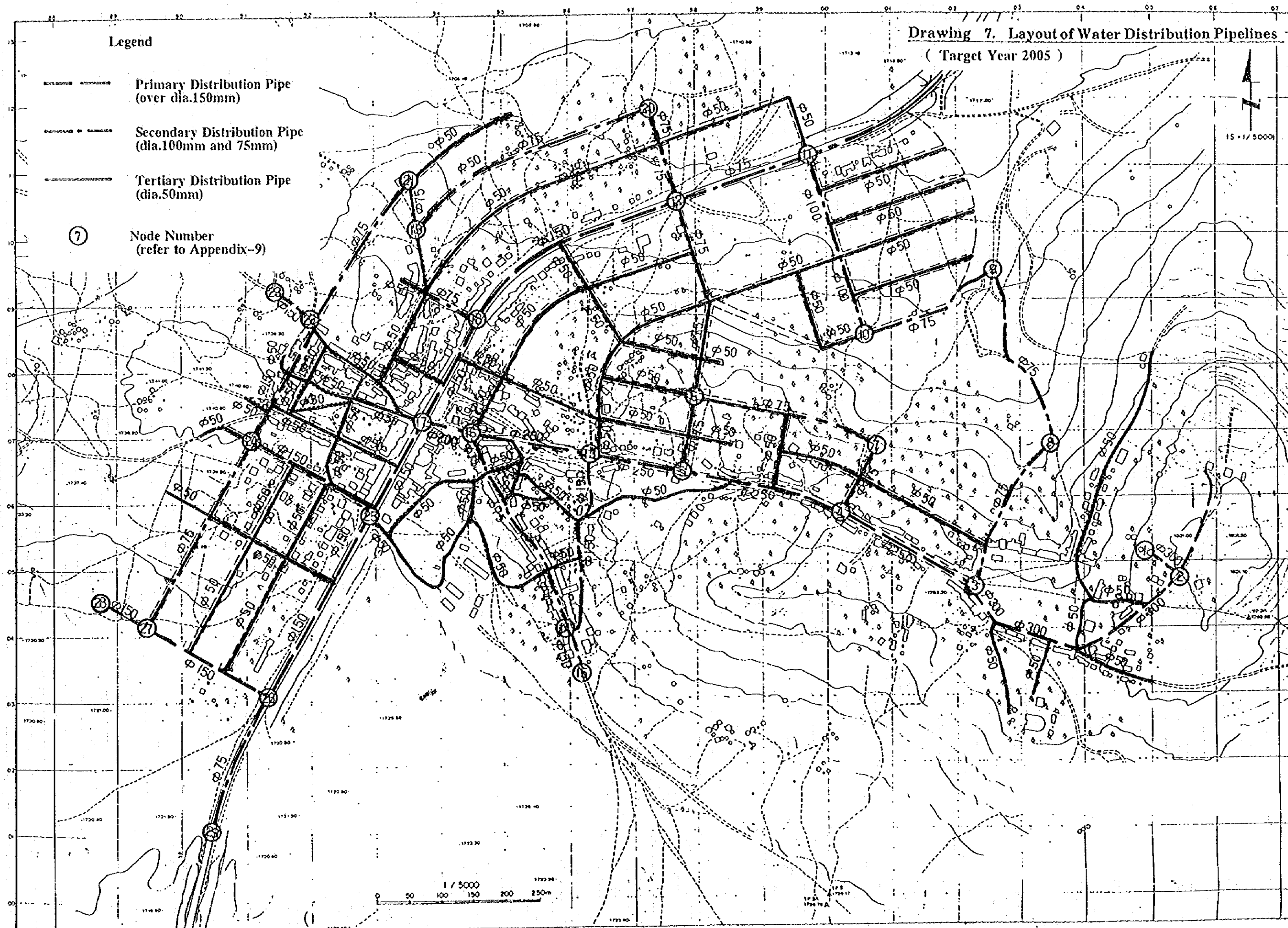
Total Water Demand in Target Years (m ³ /day)				
	1995*	2000	2005	2010
Domestic	169	642	1,032	1,697
Non Domestic	49	151	221	317
Losses	58	88	171	355
Total	276	881	1,423	2,369

*Actual consumption

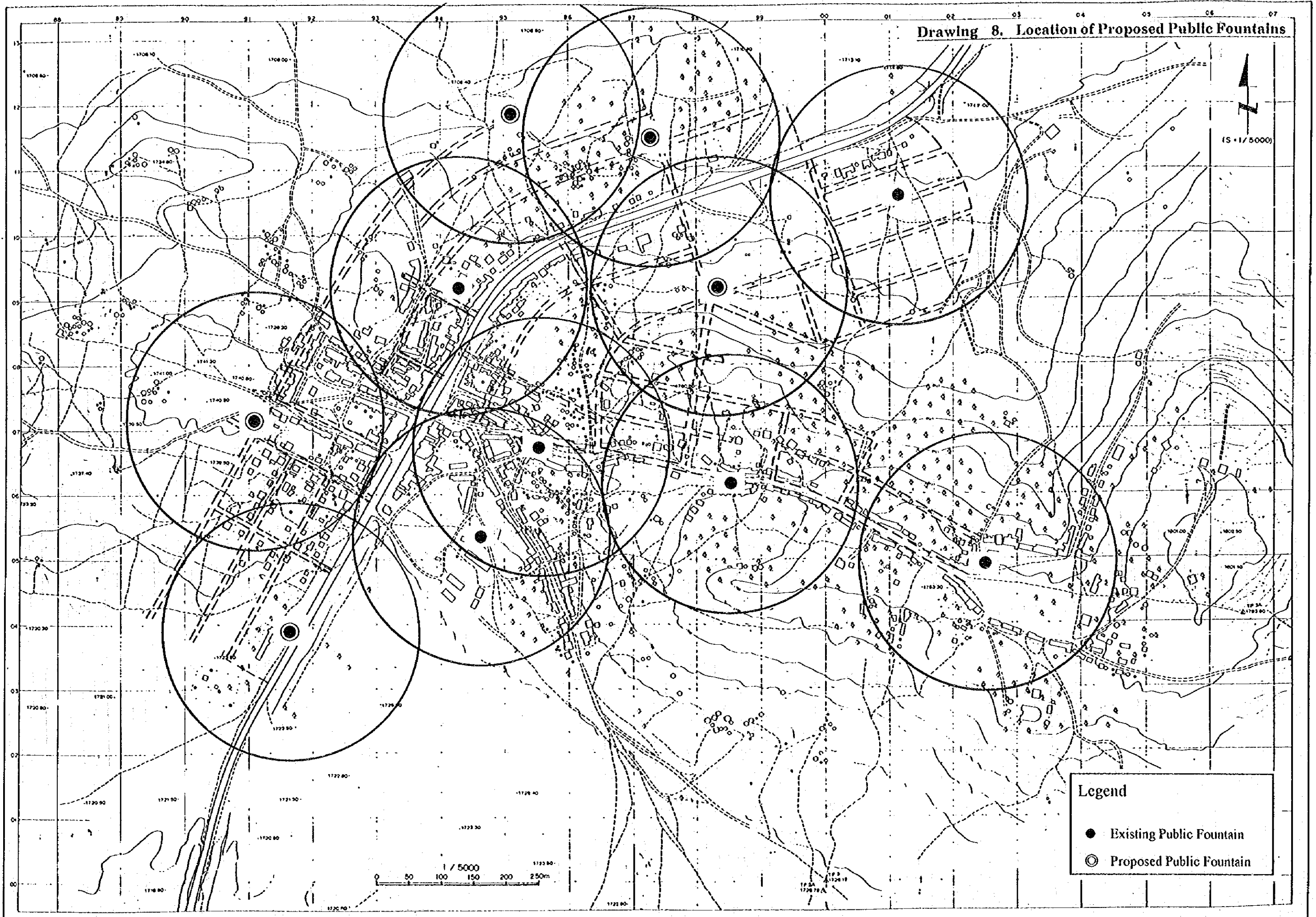
General View of Wells & Water Conveyance Facility Plan
(Werota)



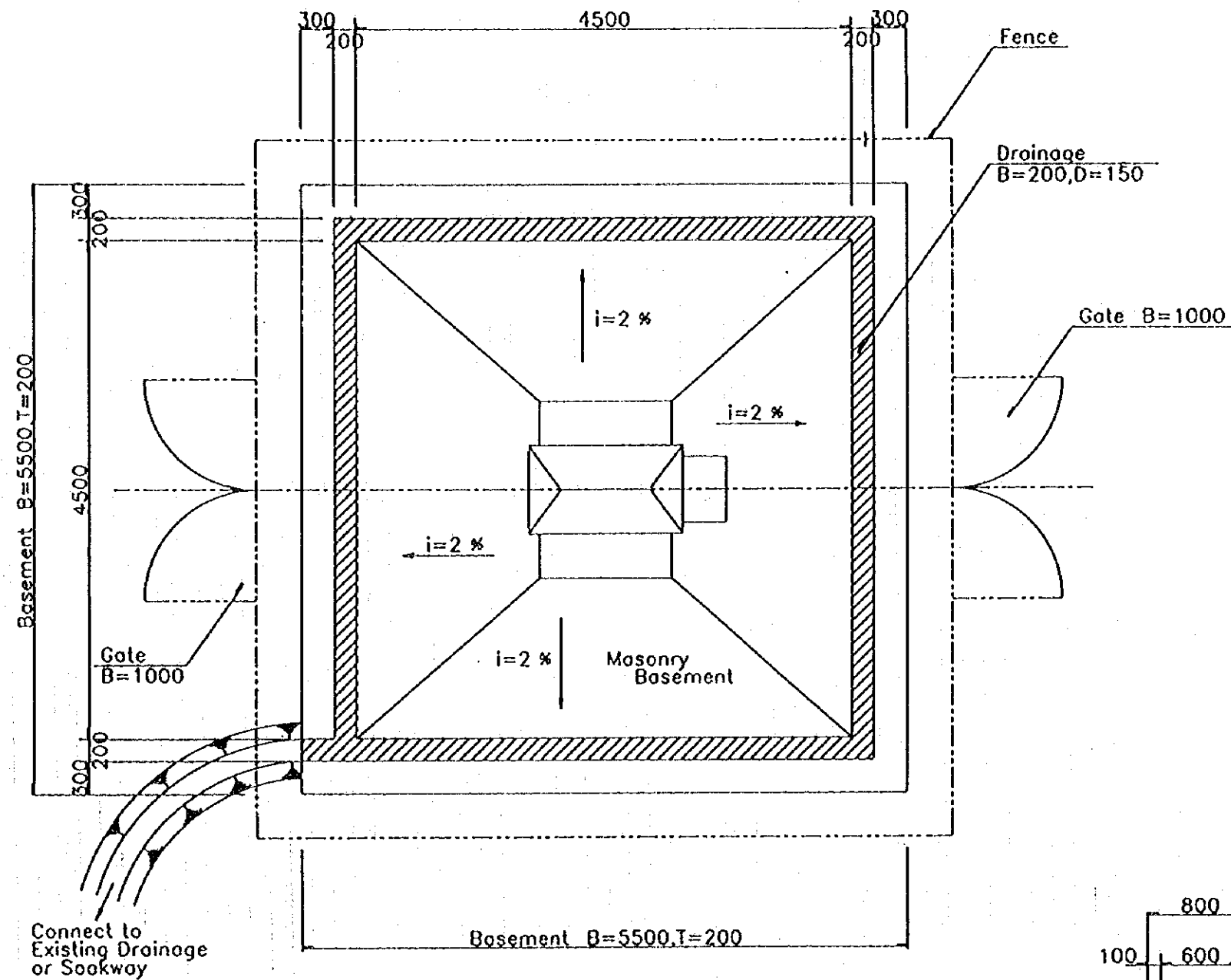
(Werota)



Drawing 8. Location of Proposed Public Fountains



Drawing 9. Layout of Proposed Public Fountain

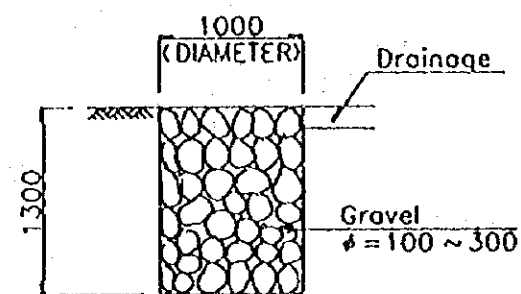


GENERAL PLAN

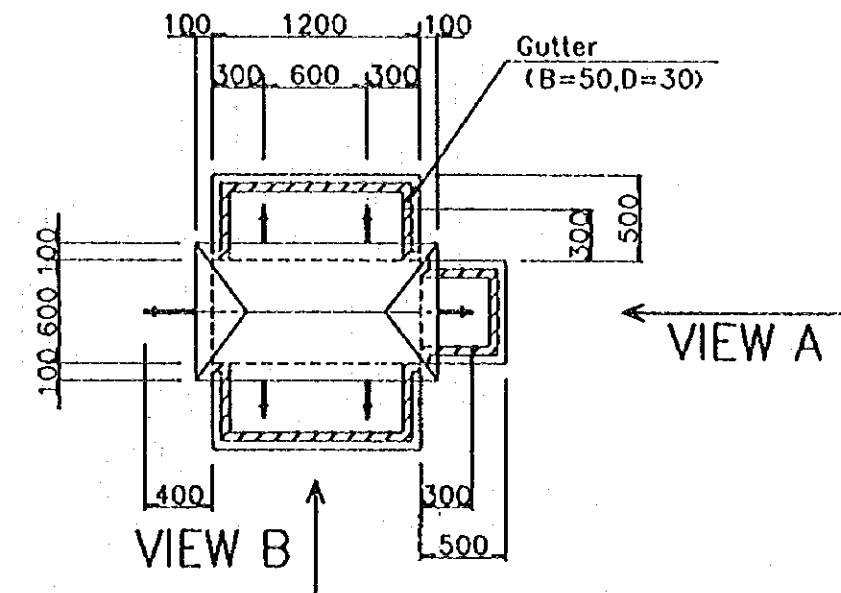
Quantity:

Concrete	: 0.25 m ³
Form-work	: 0.66 m ²
Masonry	: 7.08 m ³
Fence	: 2 m x 20.4 m
Pipe	: 6 m
Tap	: 6 NOS
Meter	: 1 NOS
Valve	: 1 NOS
Excavation	: 13 m ³
Gravel	: 1 m ³

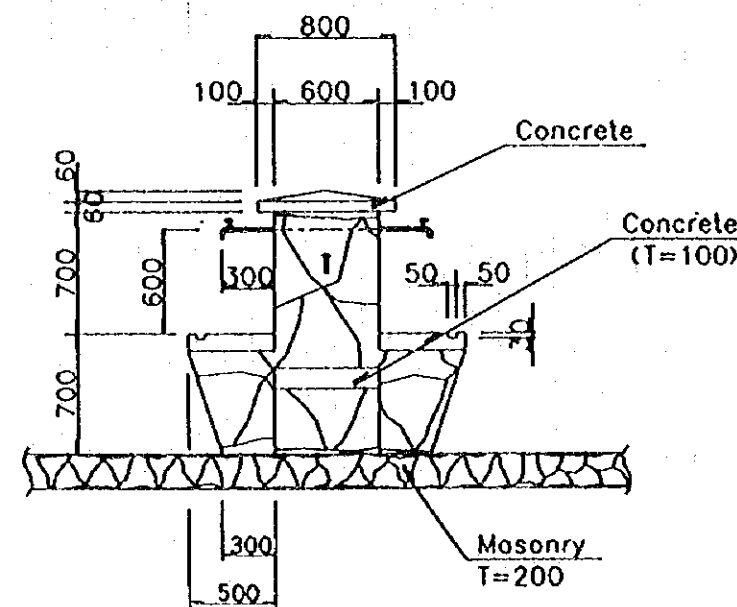
NOTE:
1. All dimensions are shown in millimeter.



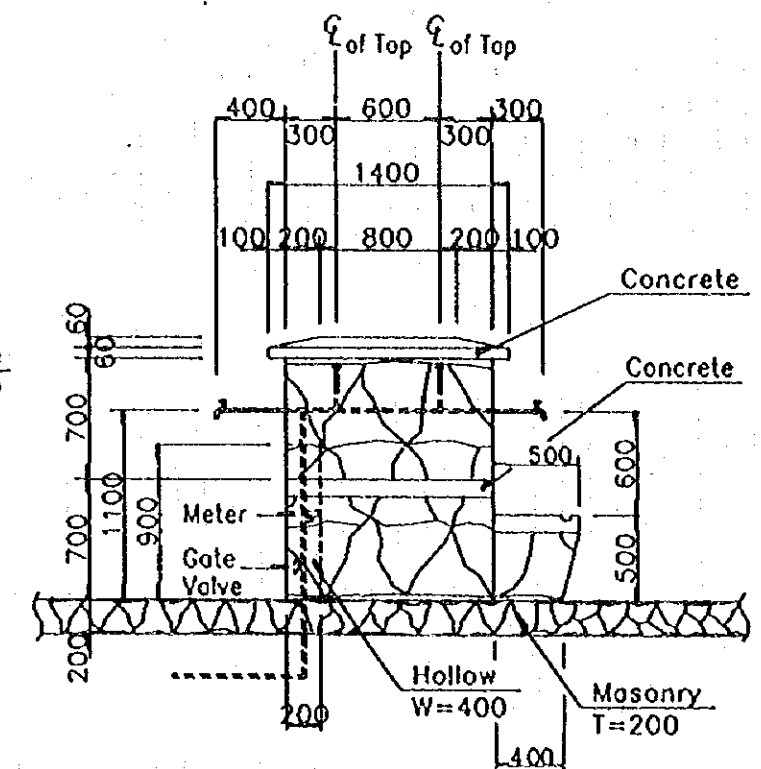
SOAKWAY



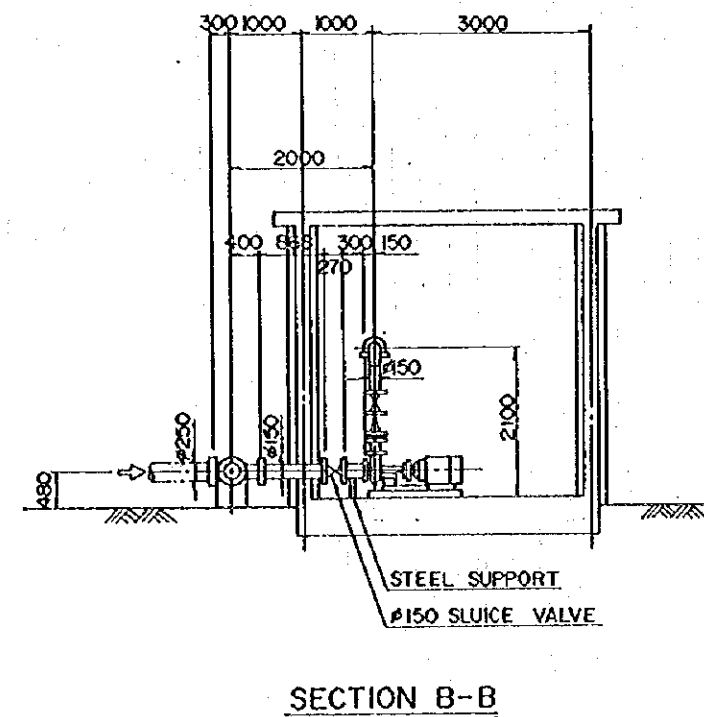
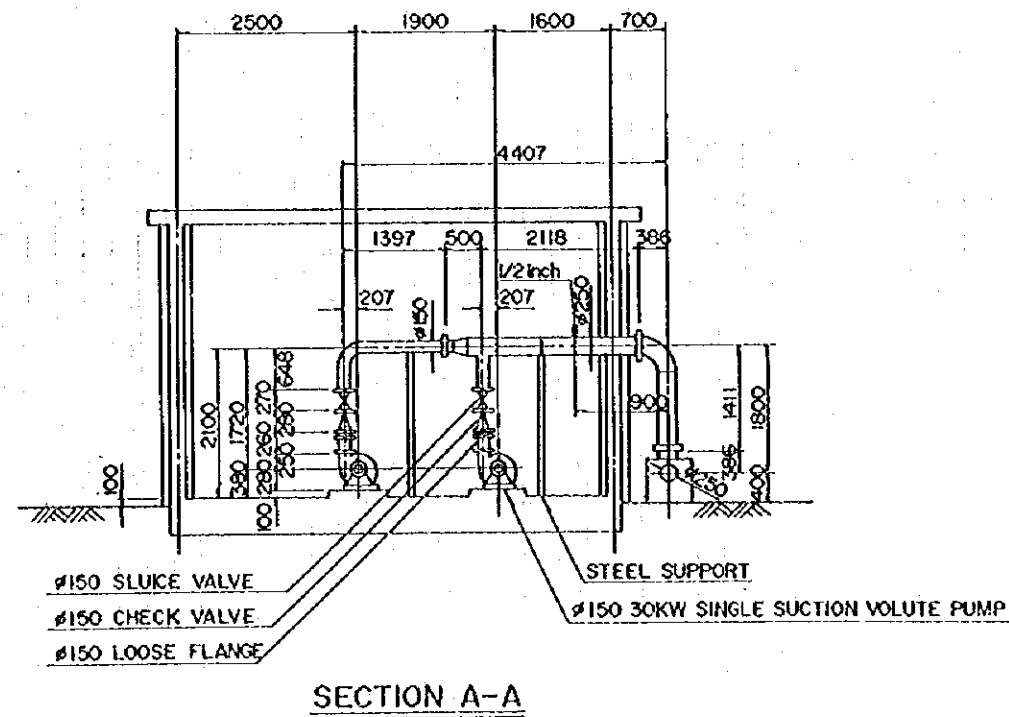
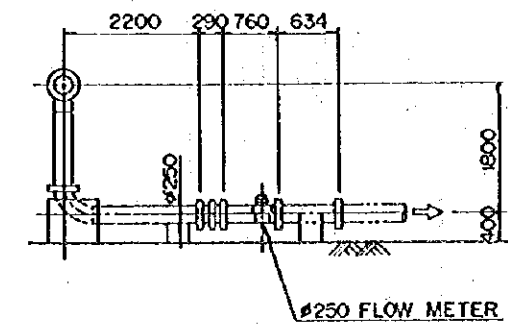
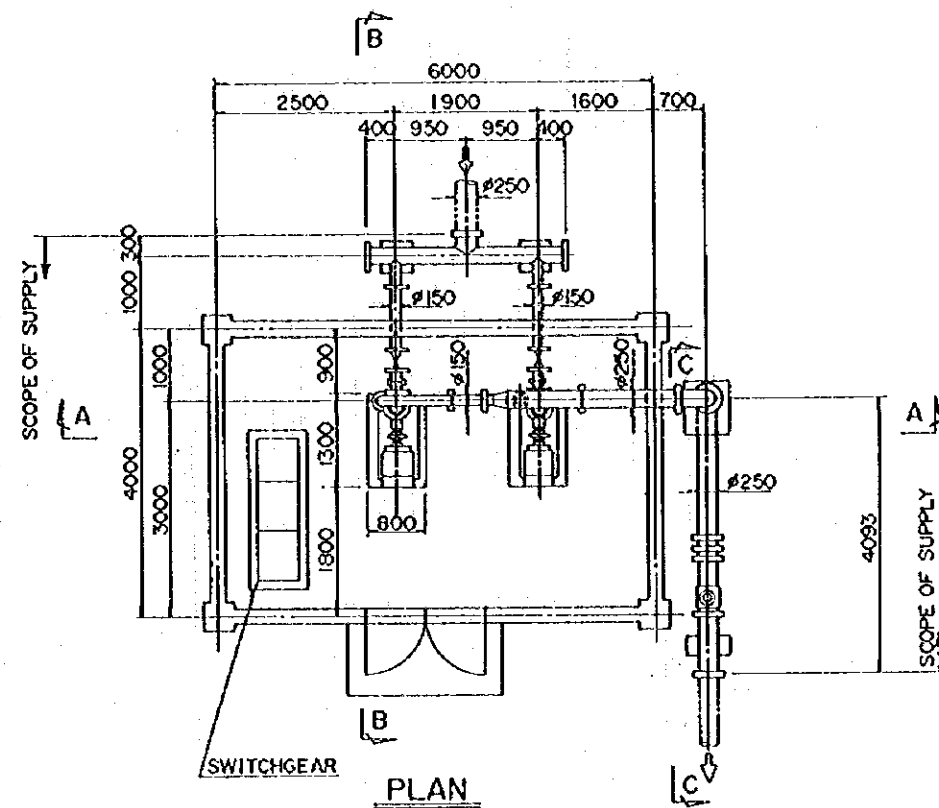
PLAN OF PUBLIC FOUNTAIN



VIEW A

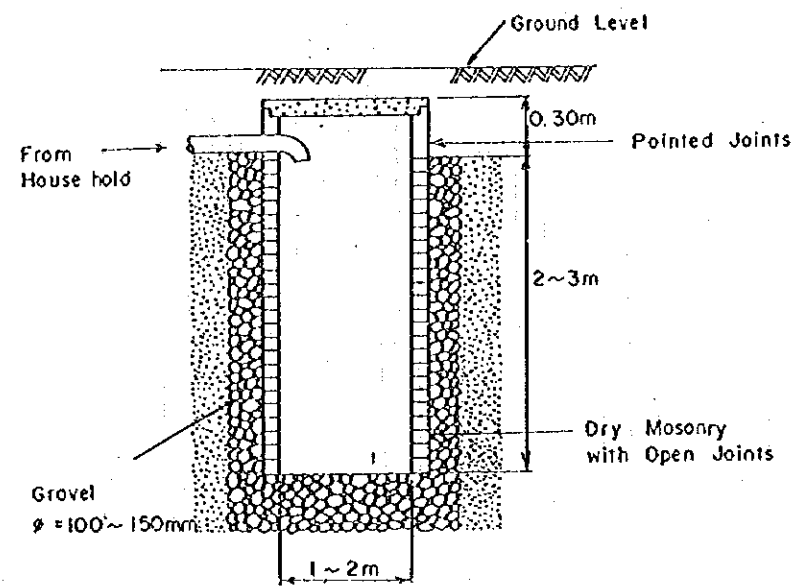


VIEW B

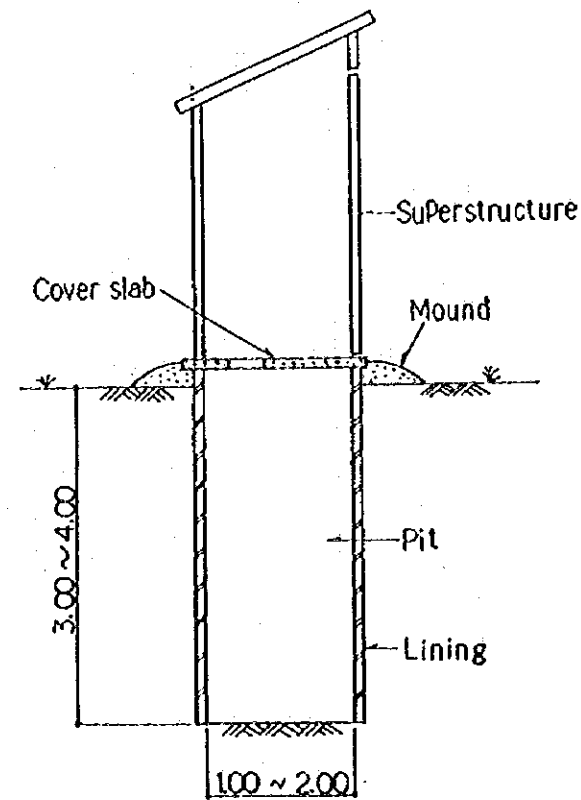


NOTE : unit is millimeter unless otherwise specified.

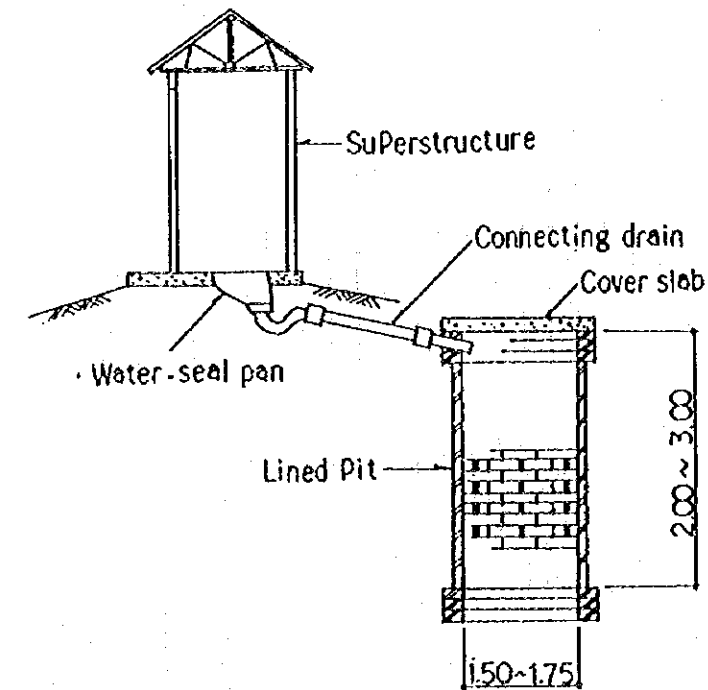
Drawing 11. Layout of Household Waste Water Disposal Pit & Toilet



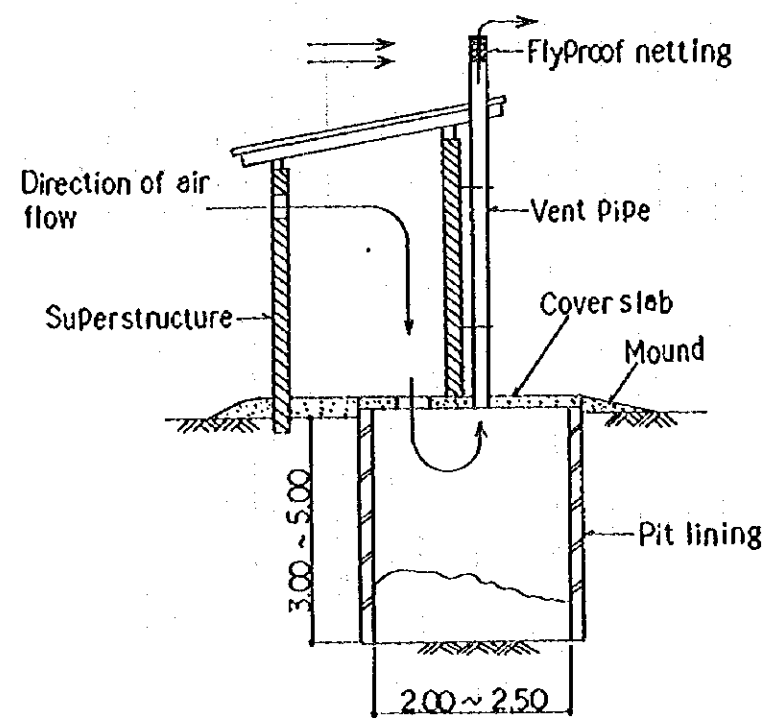
Waste Water Disposal Pit



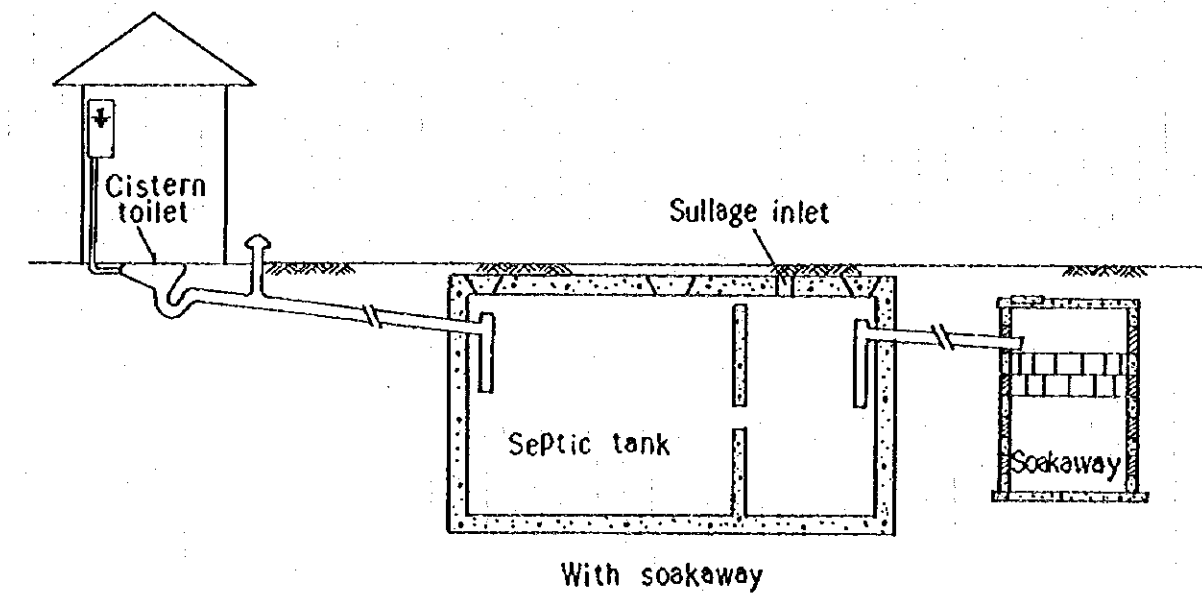
Improved Traditional Pit Latrine



Pour-flush latrine and Soakaway Pit

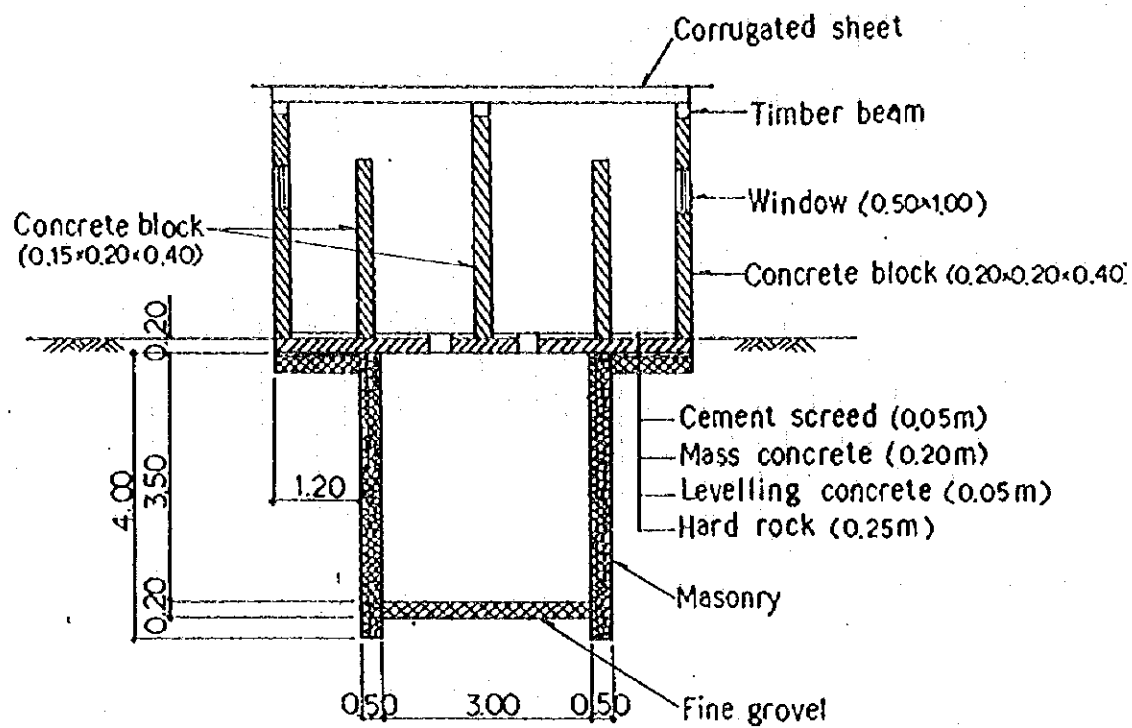


VIP Latrine

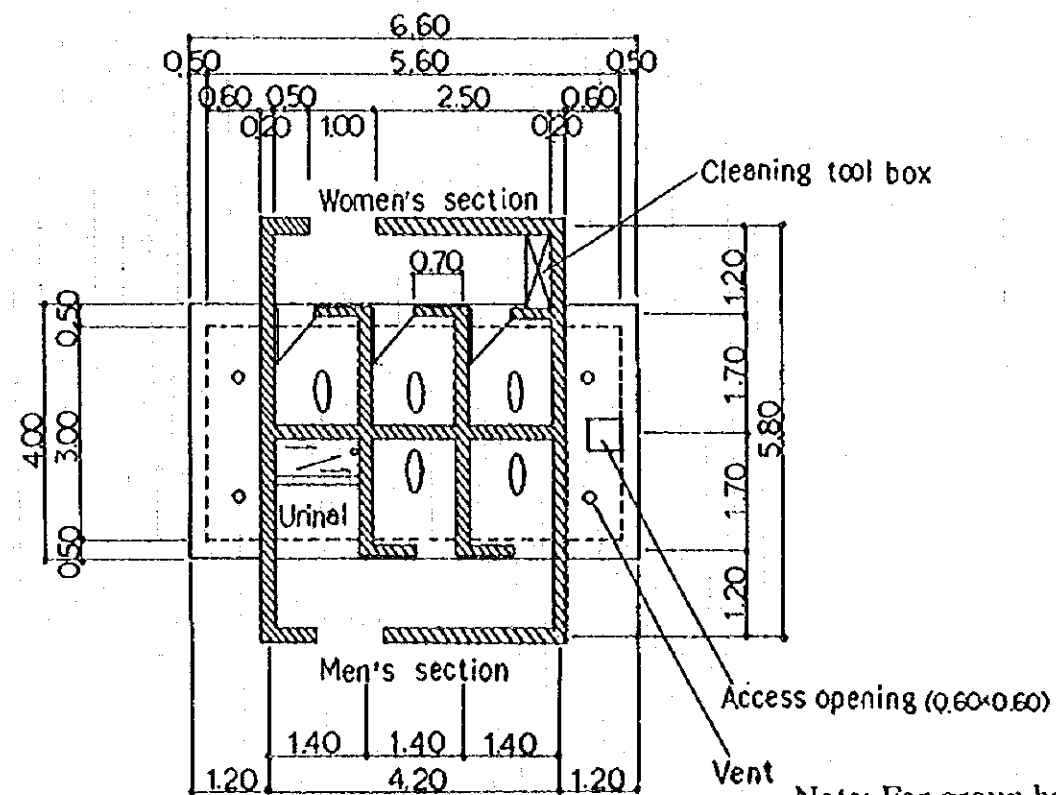


Cistern-flush Toilet and Septic Tank

Drawing 12. Layout of Community Type Toilet and VIP Public Type Toilet

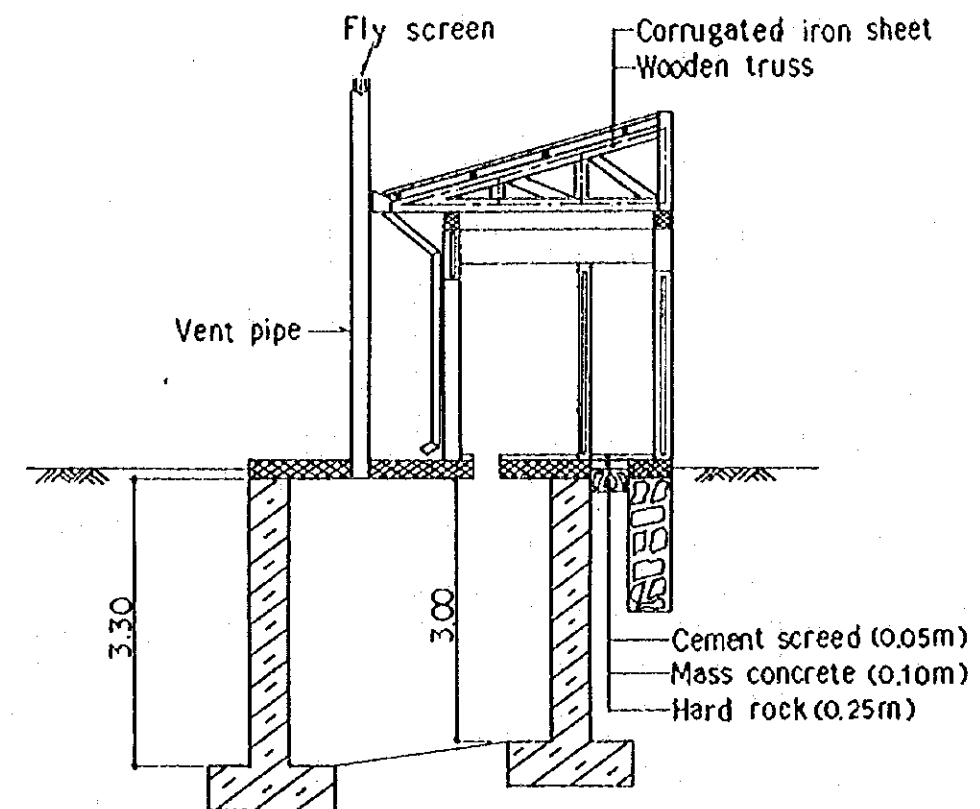


Typical Section

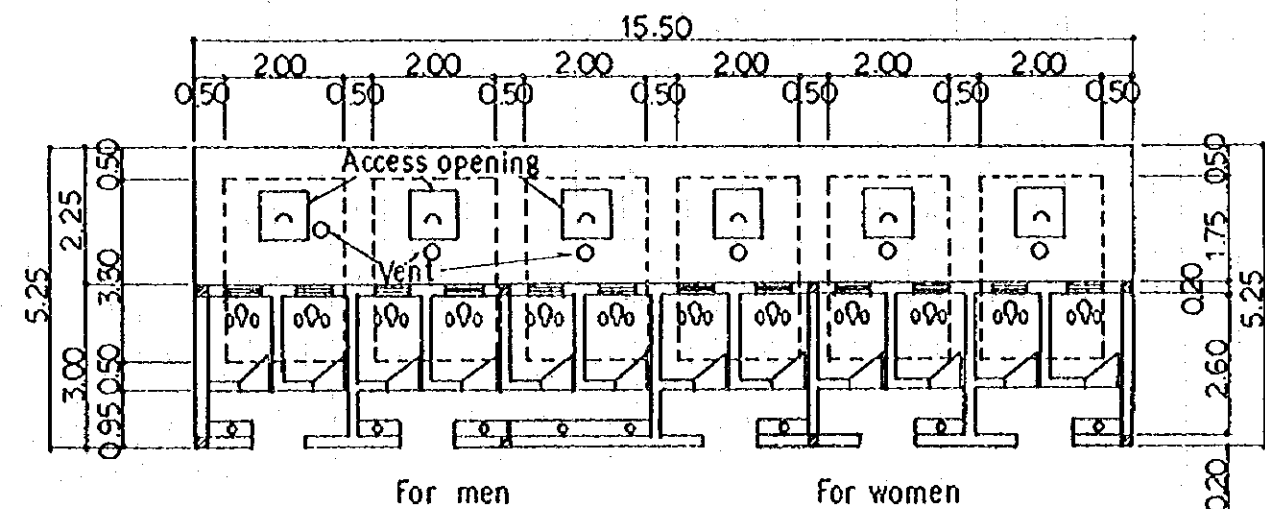


Note: For group household use,
urinal is changed to 6th cubicle.

VIP Latrine (Community Type)

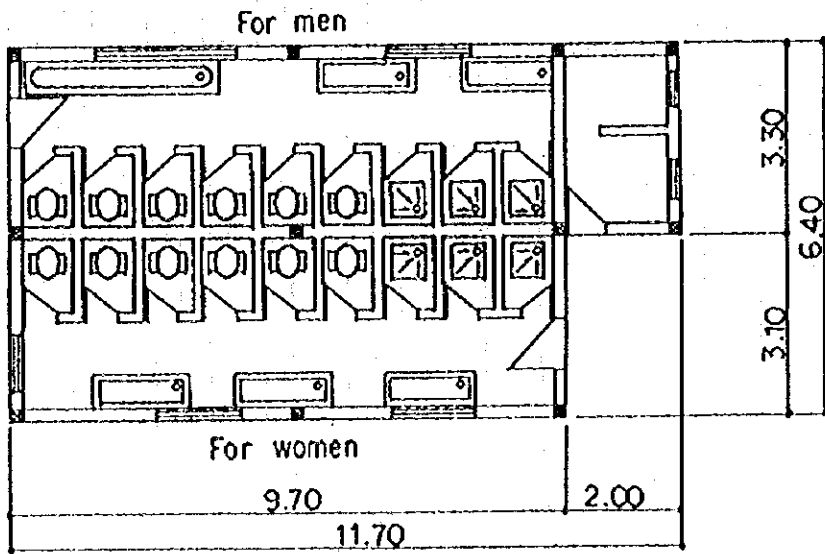
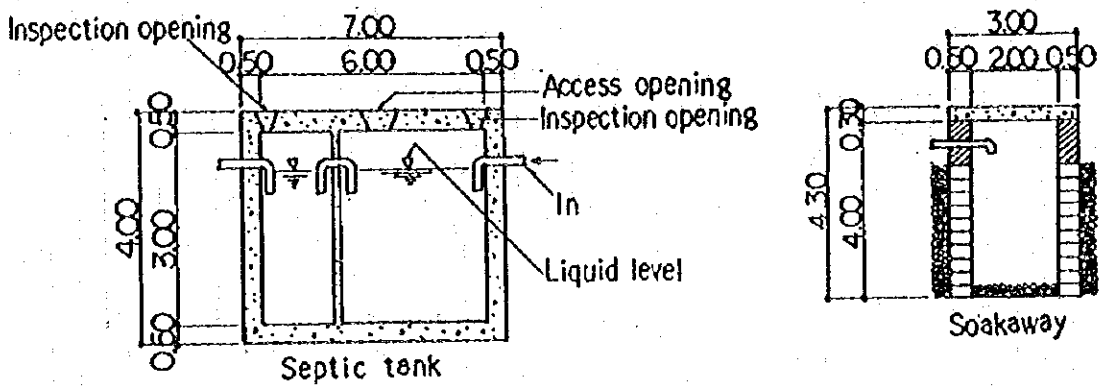
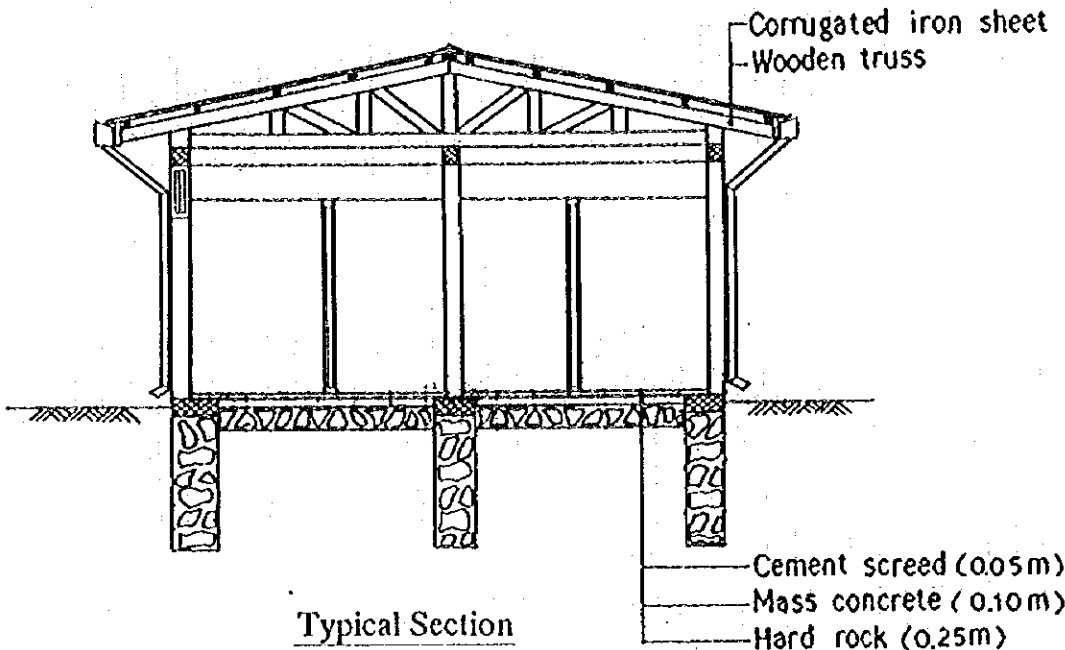


Typical Section

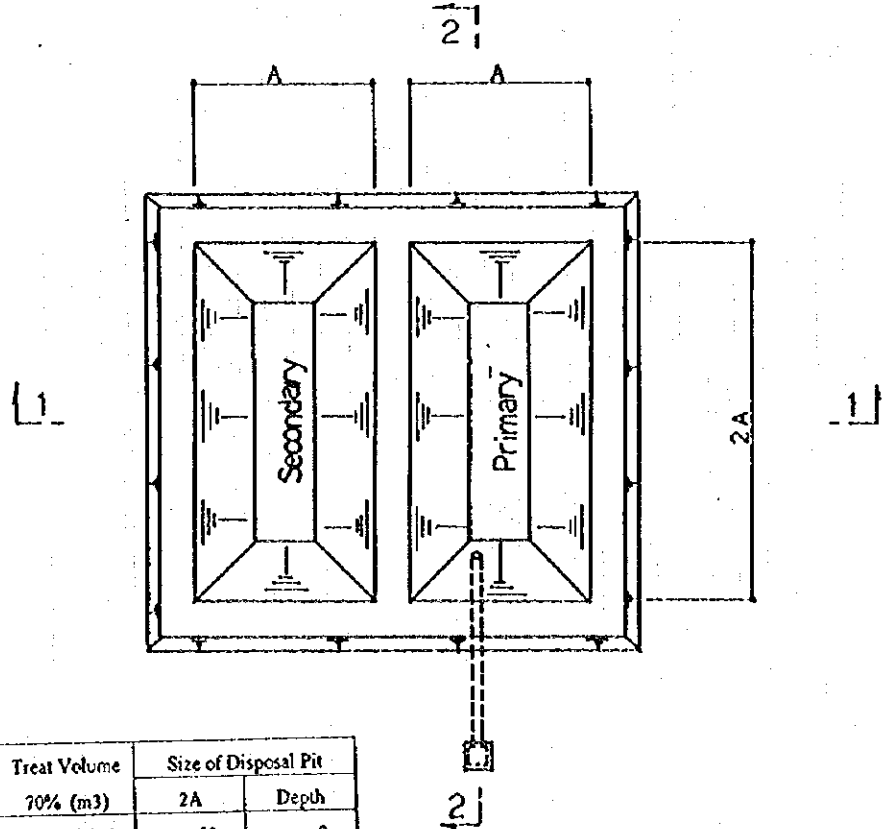
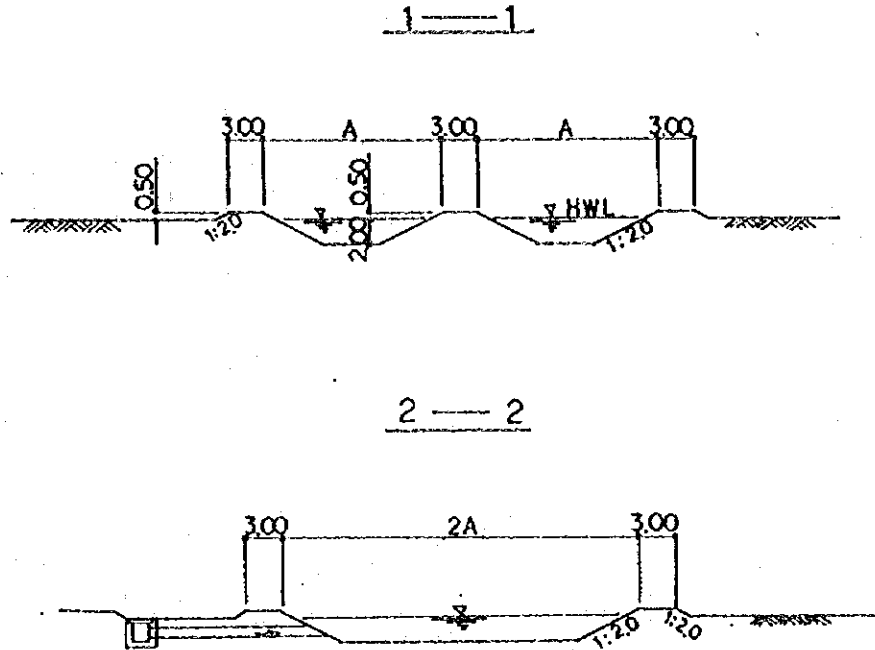


VIP Latrine (Public Type)

Drawing 13. Layout of Pour-flush Public Type Toilet and Sullage Disposal Pit

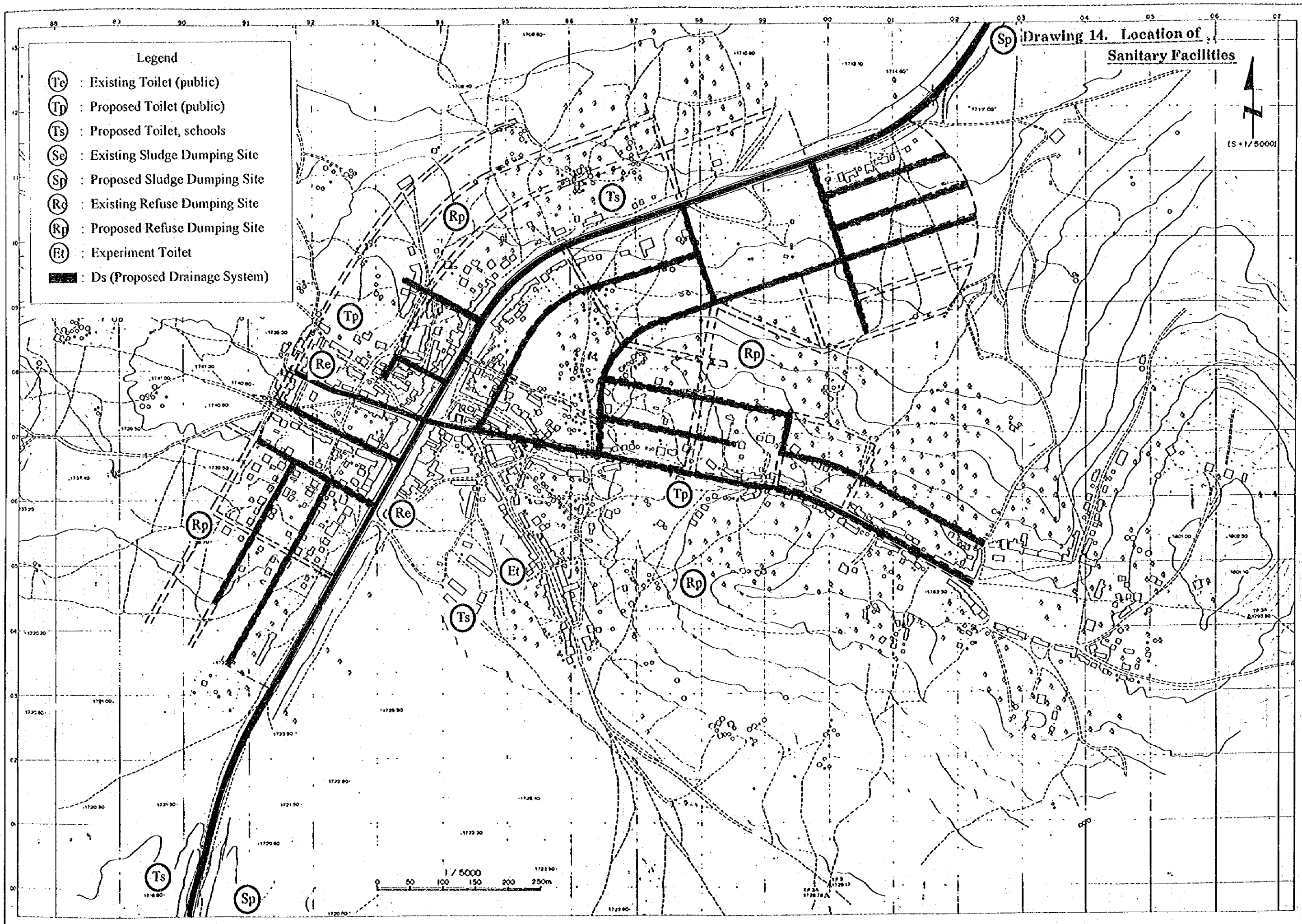


Pour-flush Latrine with Shower (Public Type)

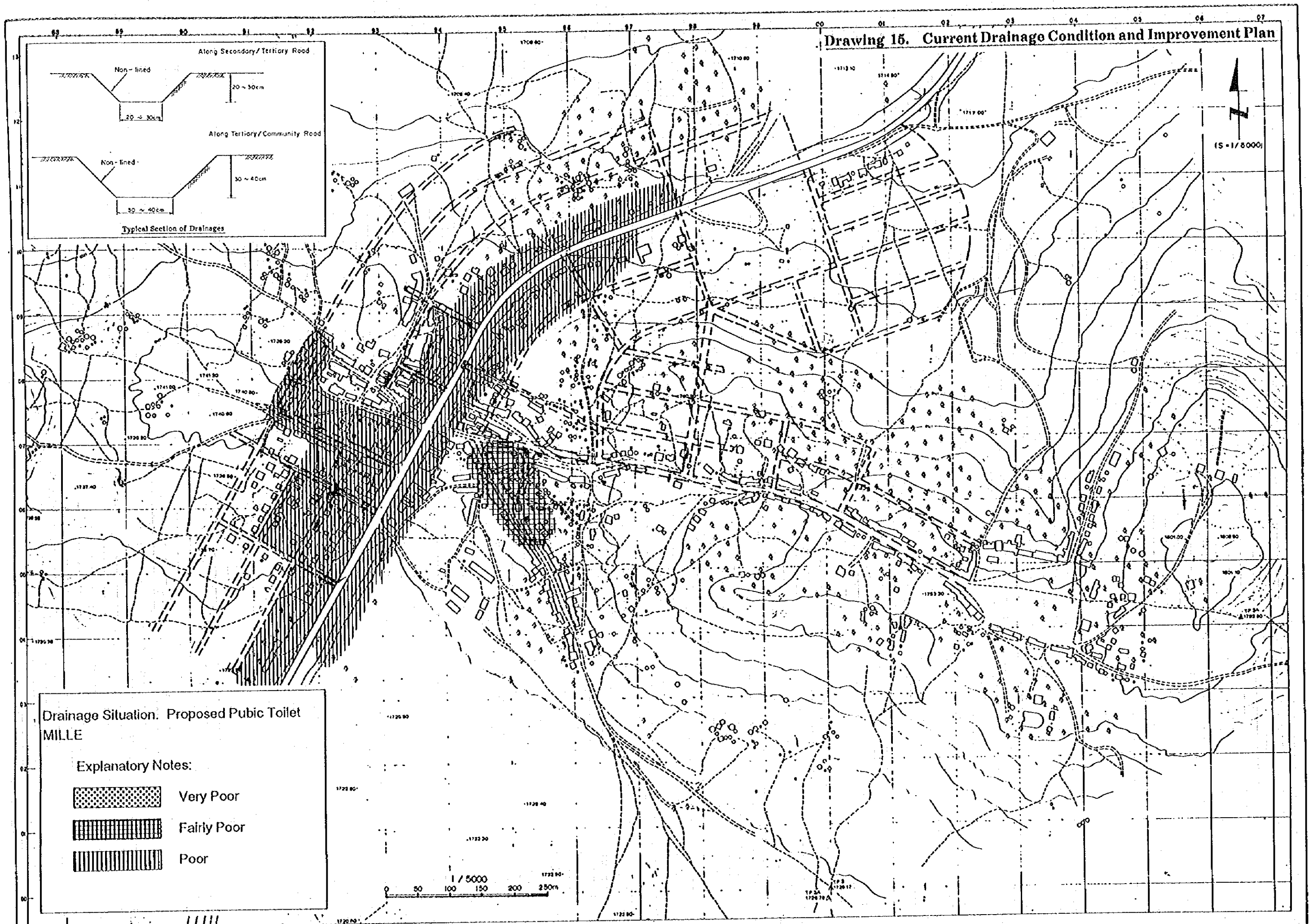


Urban Center	Population 2005	Sludge Volume 0.2m ³ /Man/Year	Treat Volume 70% (m ³)	Size of Disposal Pit	
				2A	Depth
Werota	38,200	7,640	5,348	52m	2m

Sullage Disposal Pit



Drawing 15. Current Drainage Condition and Improvement Plan



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