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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
BURE

(Volume IV-IX)

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FEBRUARY 1996

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JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)
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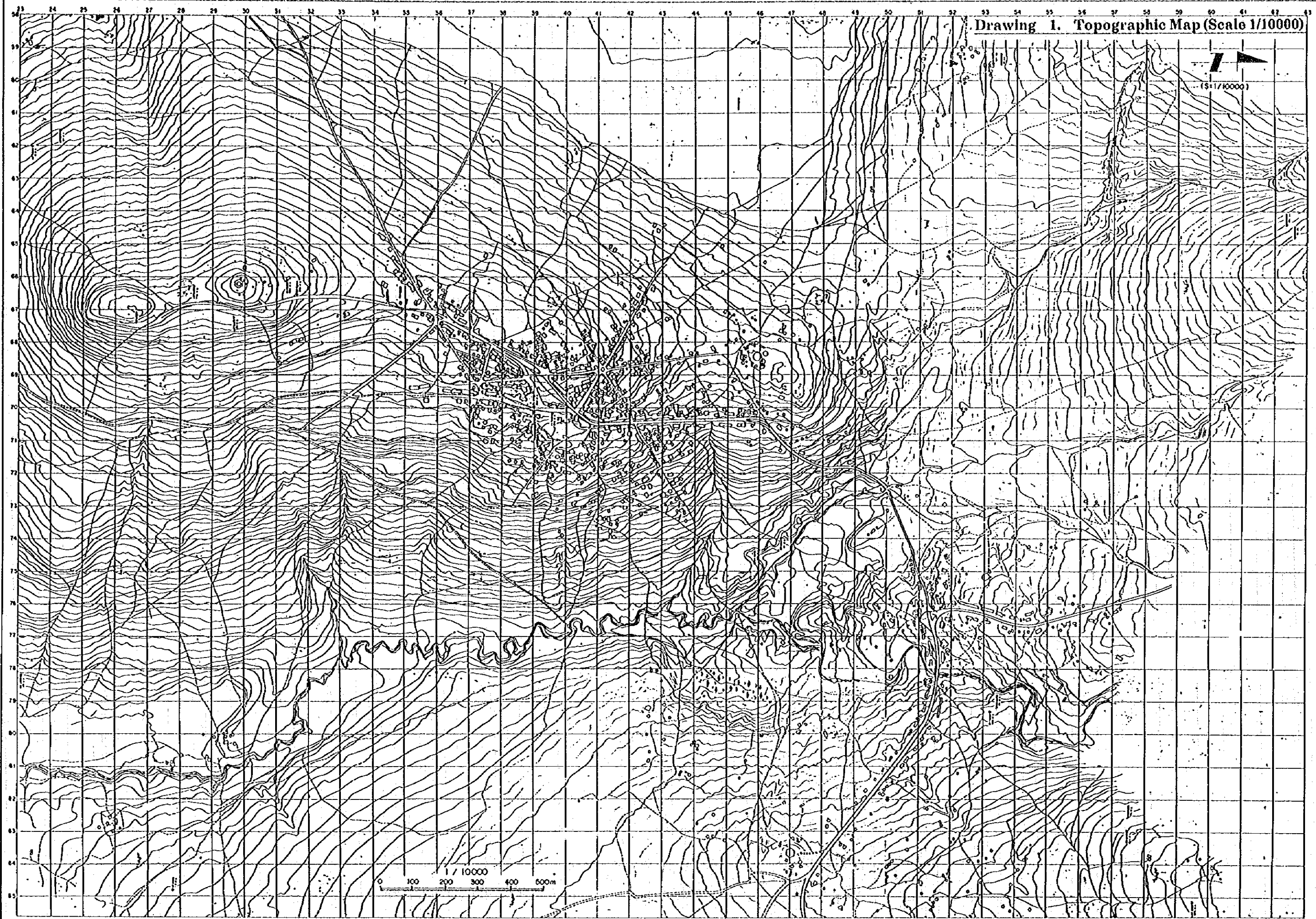


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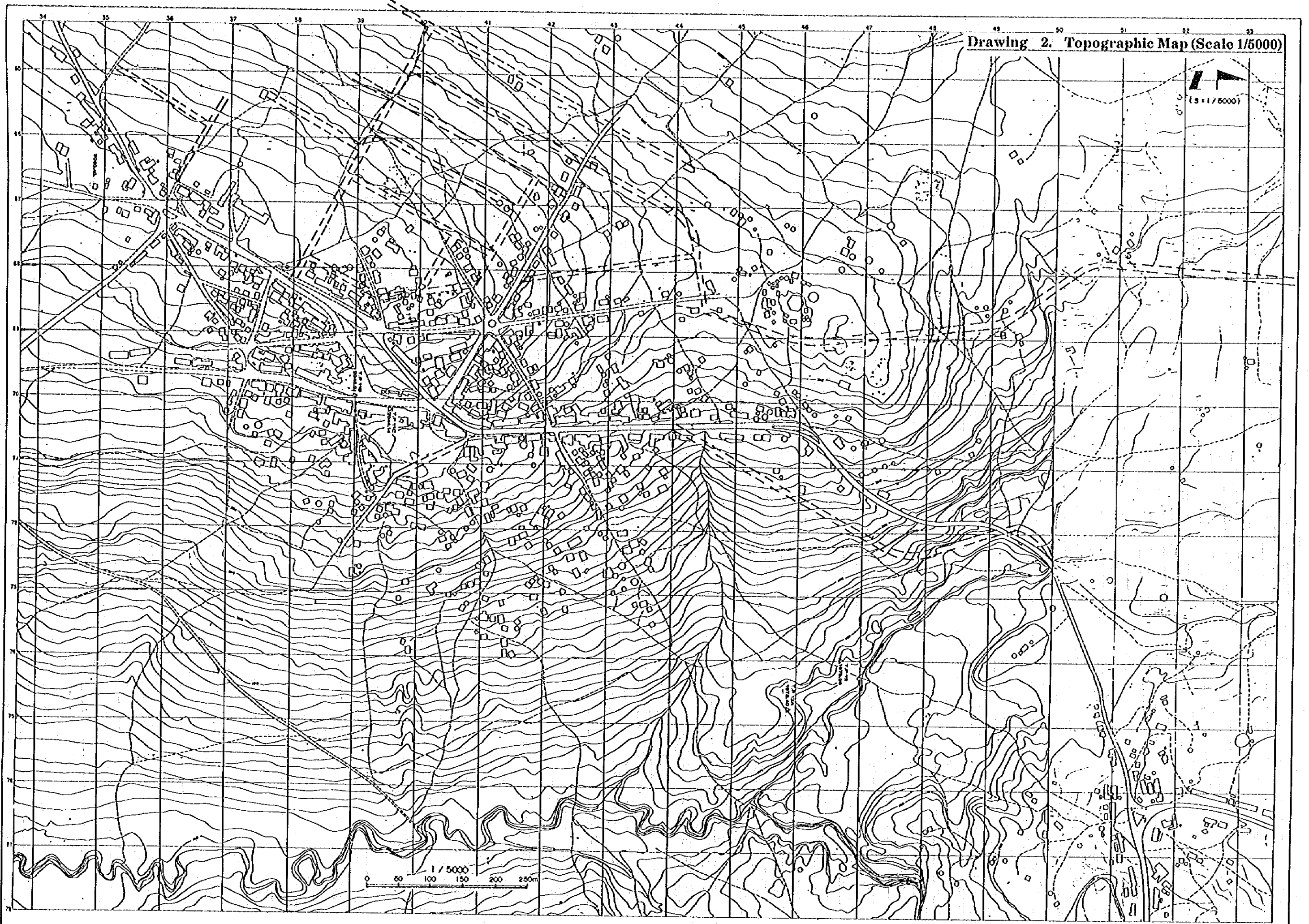
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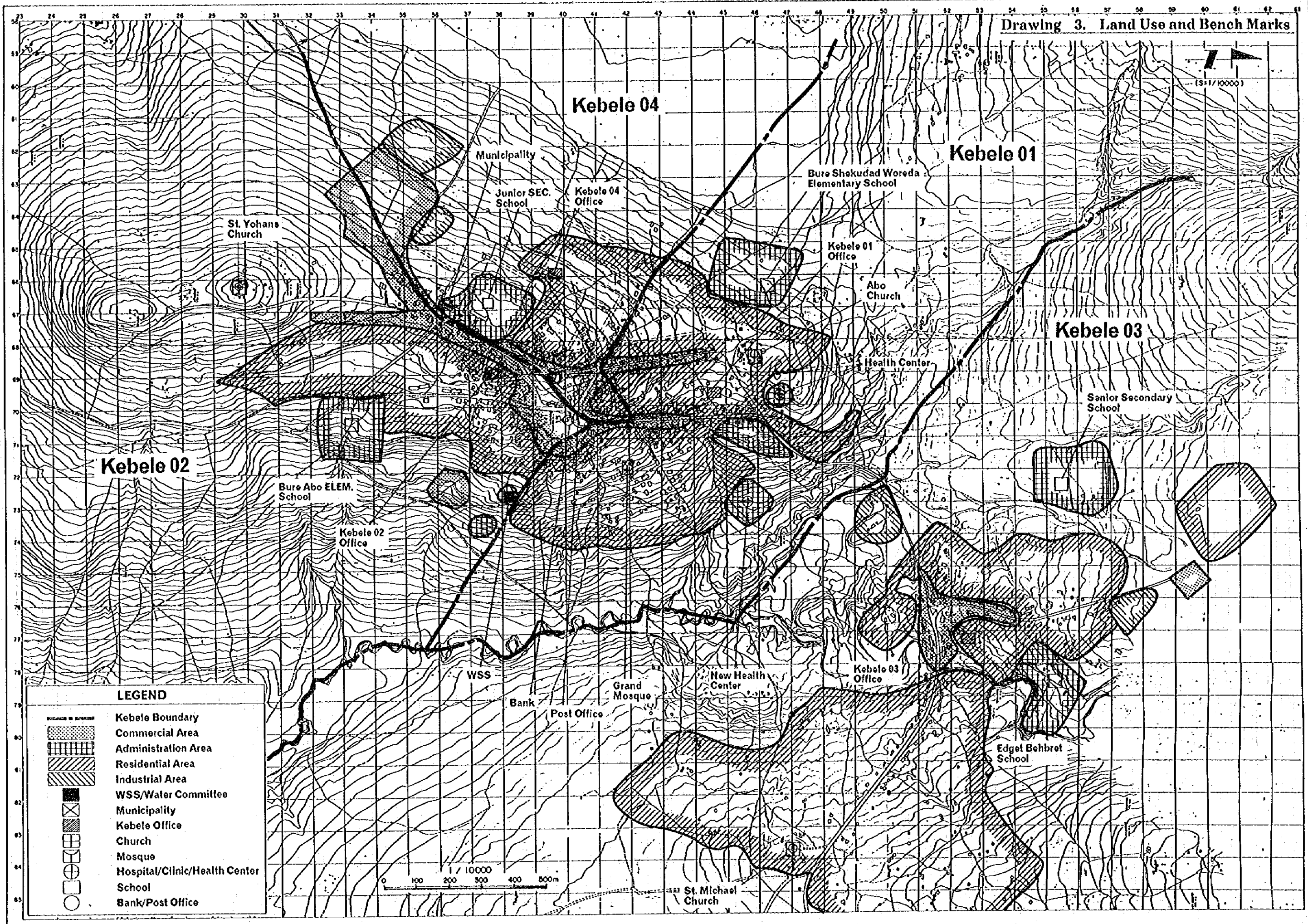
Drawing 1. Topographic Map (Scale 1/10000)



Drawing 2. Topographic Map (Scale 1/5000)

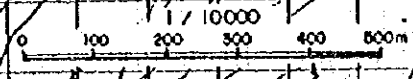


Drawing 3. Land Use and Bench Marks

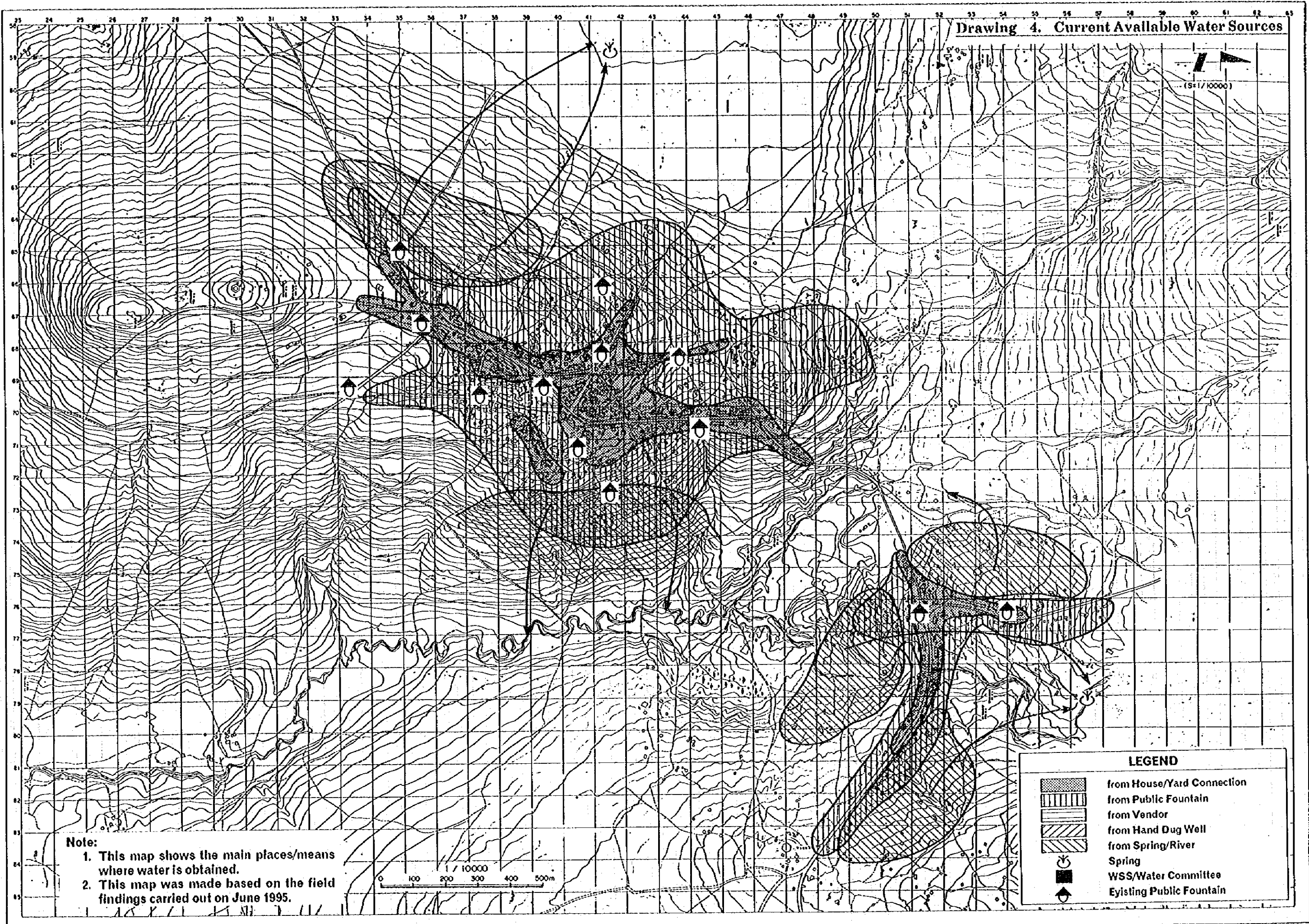


LEGEND



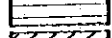
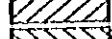
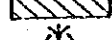



- | | |
|--|-------------------------------|
| | Kebele Boundary |
| | Commercial Area |
| | Administration Area |
| | Residential Area |
| | Industrial Area |
| | WSS/Water Committee |
| | Municipality |
| | Kebele Office |
| | Church |
| | Mosque |
| | Hospital/Clinic/Health Center |
| | School |
| | Bank/Post Office |



Drawing 4. Current Available Water Sources

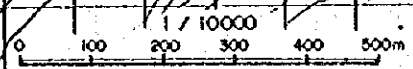


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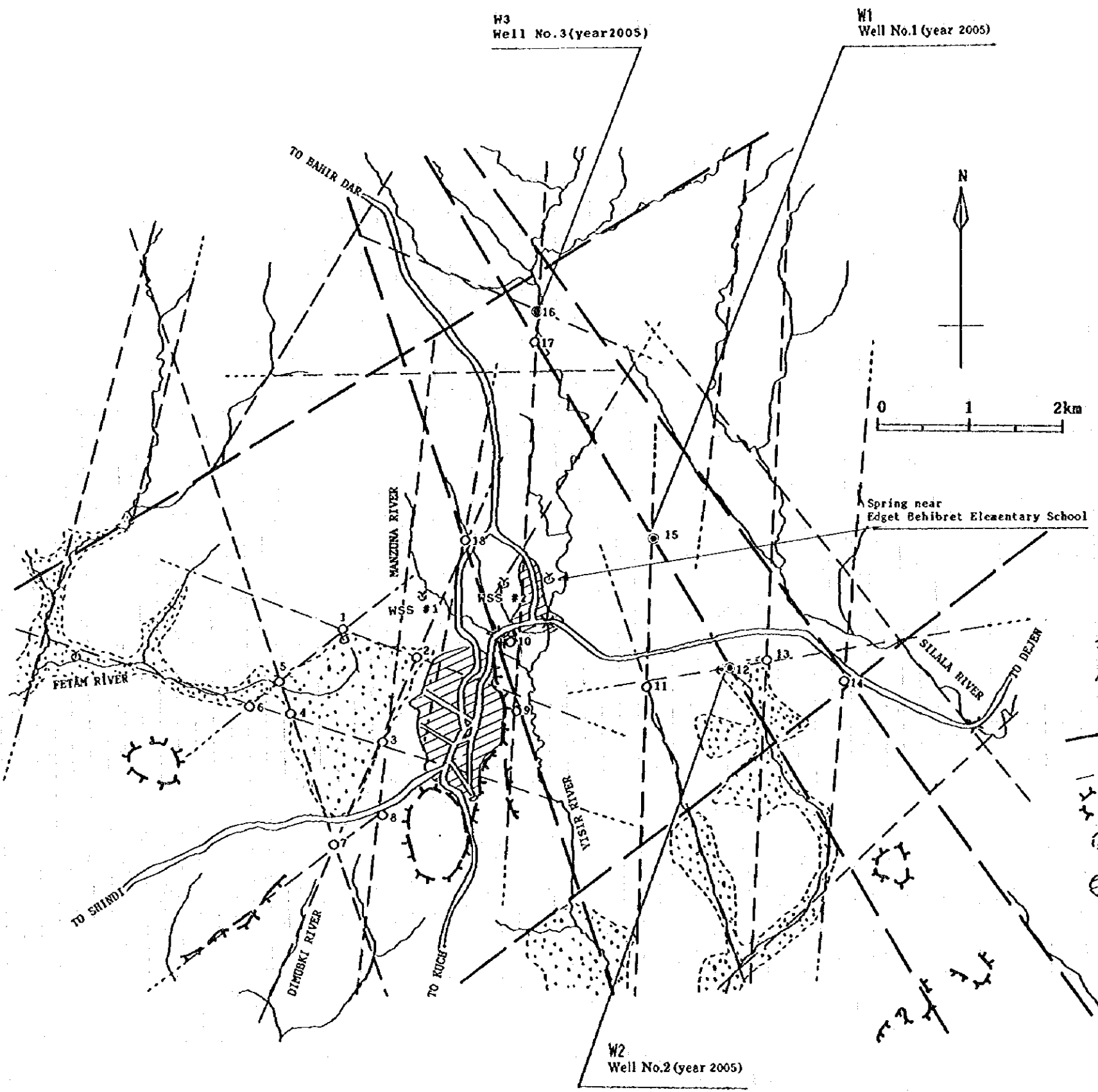
-  from House/Yard Connection
-  from Public Fountain
-  from Vendor
-  from Hand Dug Well
-  from Spring/River
-  Spring
-  WSS/Water Committee
-  Existing Public Fountain

Note:

1. This map shows the main places/means where water is obtained.
2. This map was made based on the field findings carried out on June 1995.



Drawing 5. Plan of Proposed Water Sources

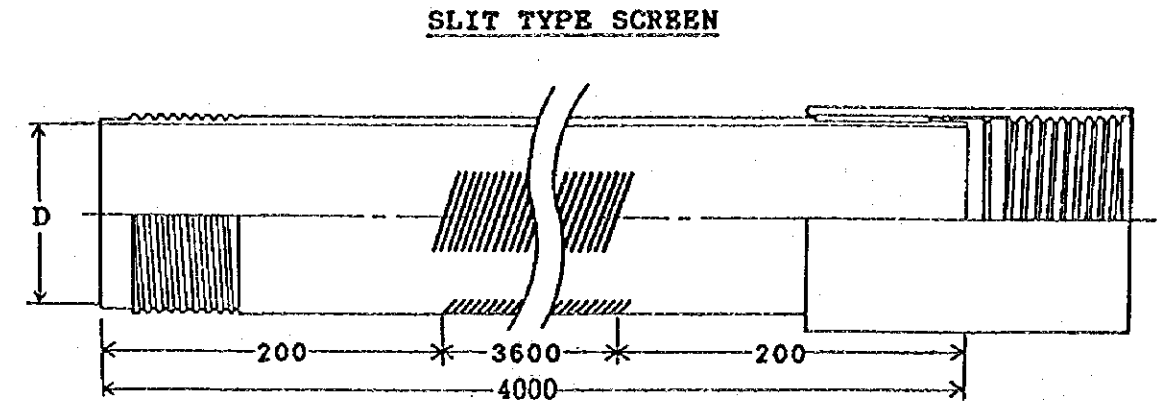
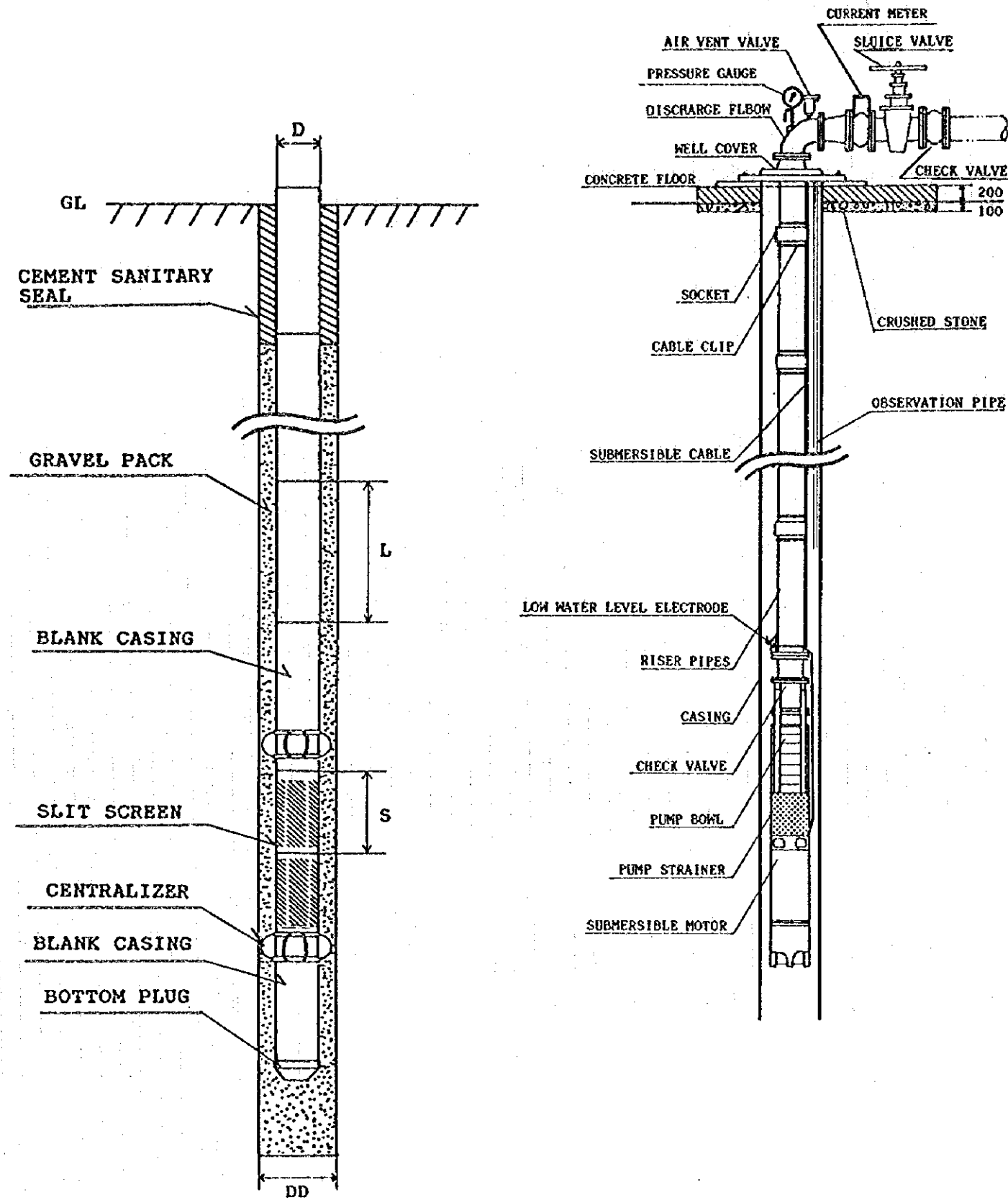


BURE

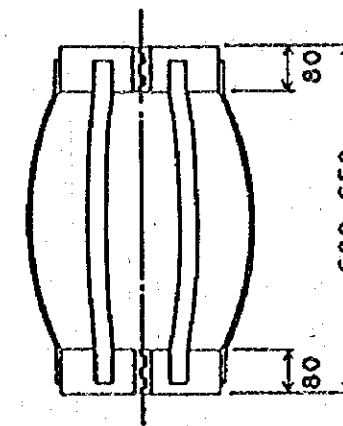
LEGEND

- VES Stations
- ⊗ Proposed Drilling site
- △ Existing Borehole (not productive yet)
- H Hand dug well
- ☼ Spring
- ══ Road
- ══ River
- Major Lineament
- - - Minor Lineament
- ⋈ Escarpment
- ⊙ Inundation area
- ▨ Town area

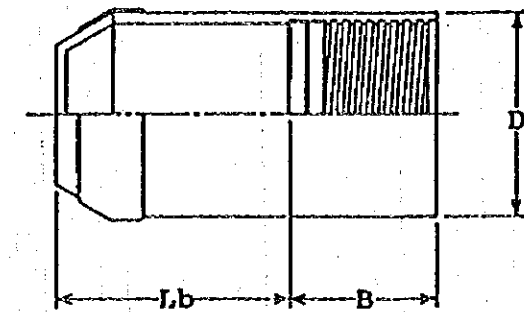
Drawing 6. Layout of Proposed Deep Well



CENTRALIZER



BOTTOM PLUG



Dimension

(Unit: mm)

Inner Diameter	Drilling Diameter	Blank Pipe	Diagonal Slit Screen		Bottom Plug	
			S	Approx 12%	Lb	B
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

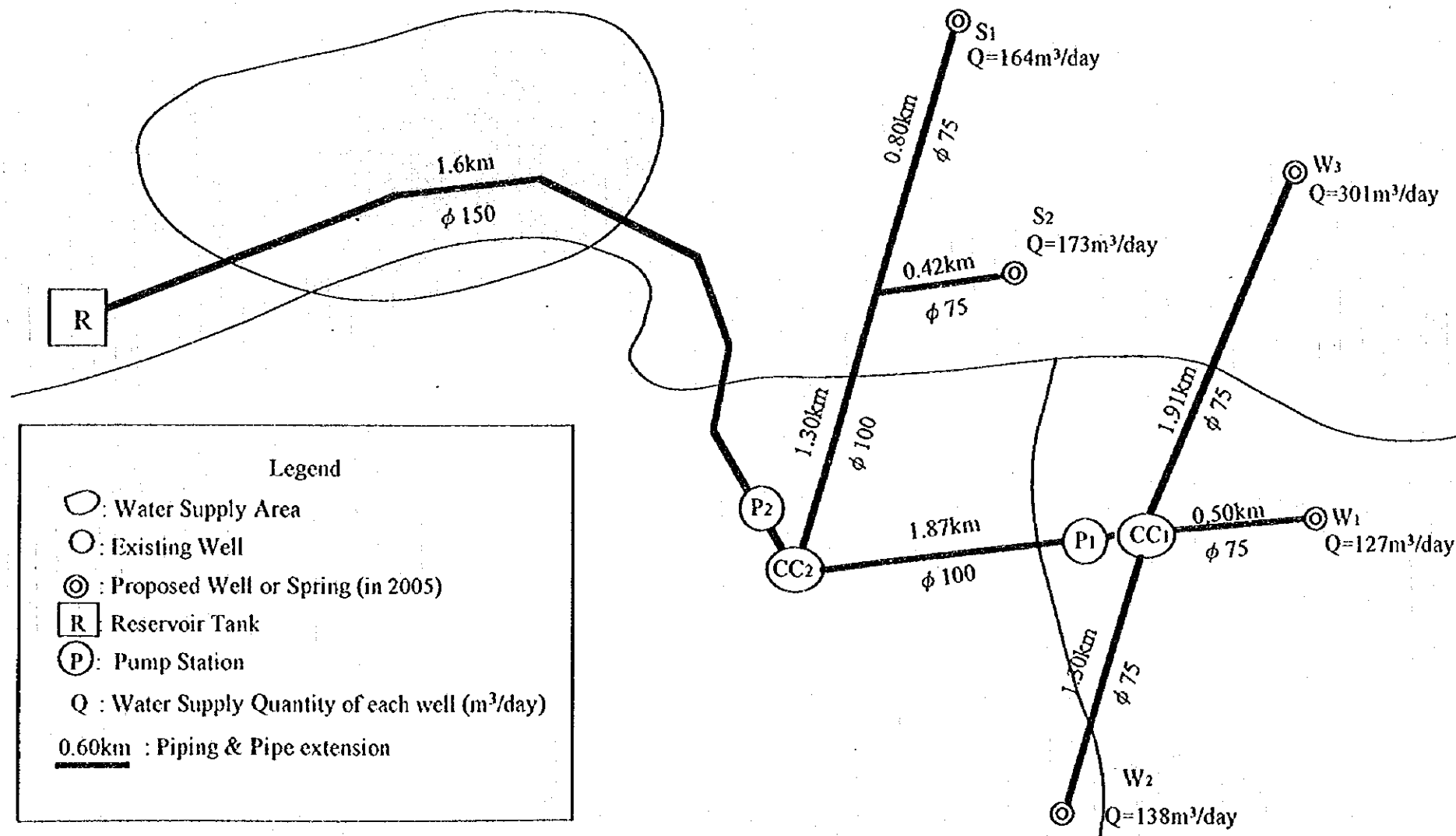
Total Water Demand in Target Years (m³/day)

	1995*	2000	2005	2010
Domestic	131	382	594	942
Non Domestic	27	70	94	124
Losses	42	50	94	188
Total	200	502	782	1,254

*Actual consumption

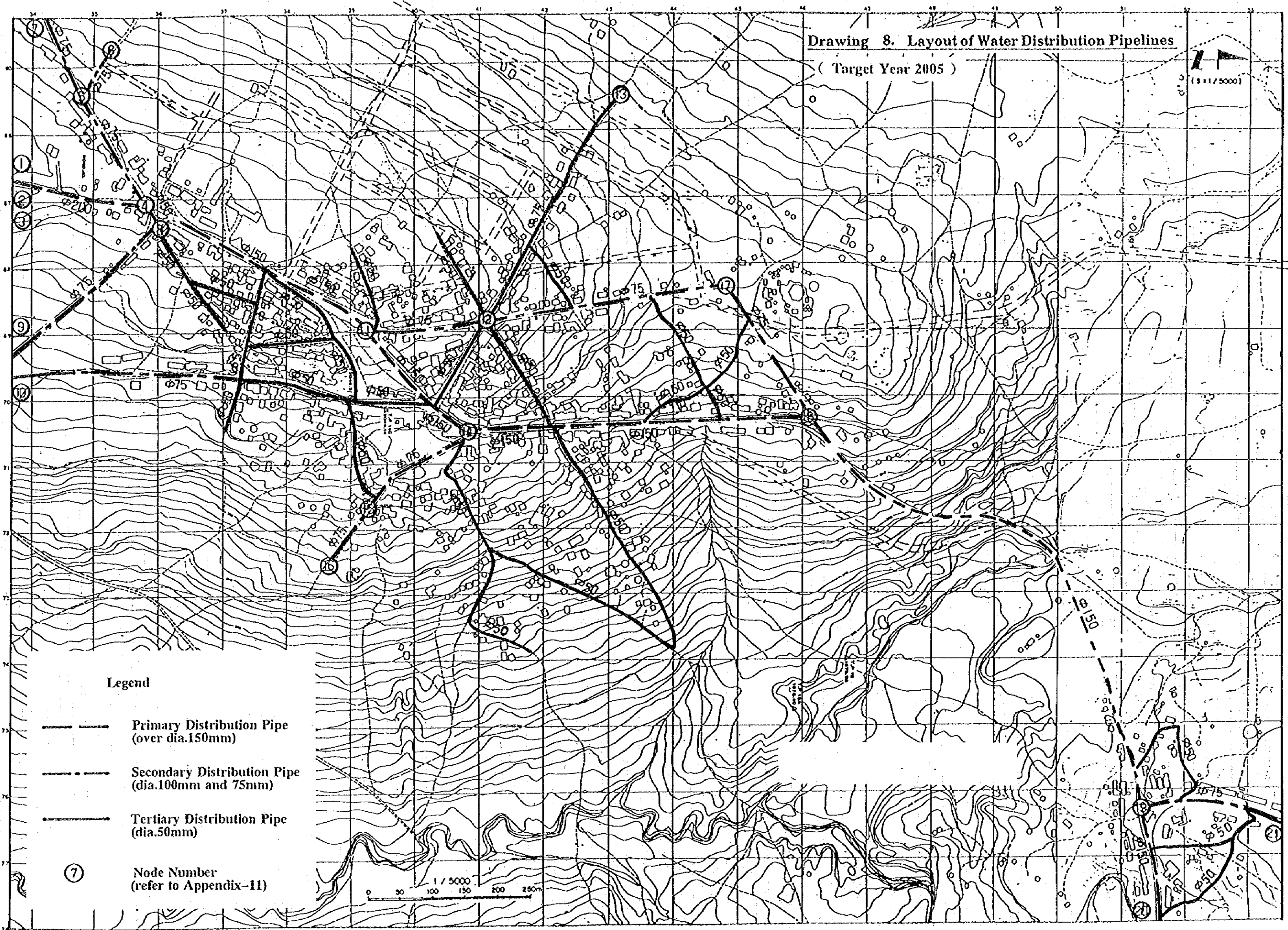
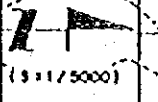
General View of Wells & Water Conveyance Facility Plan
(Bure)

Note:
The location of the additional water source for the target year of 2010 shall be selected after carrying out the further geological survey .







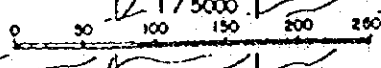
Drawing 8. Layout of Water Distribution Pipelines

(Target Year 2005)

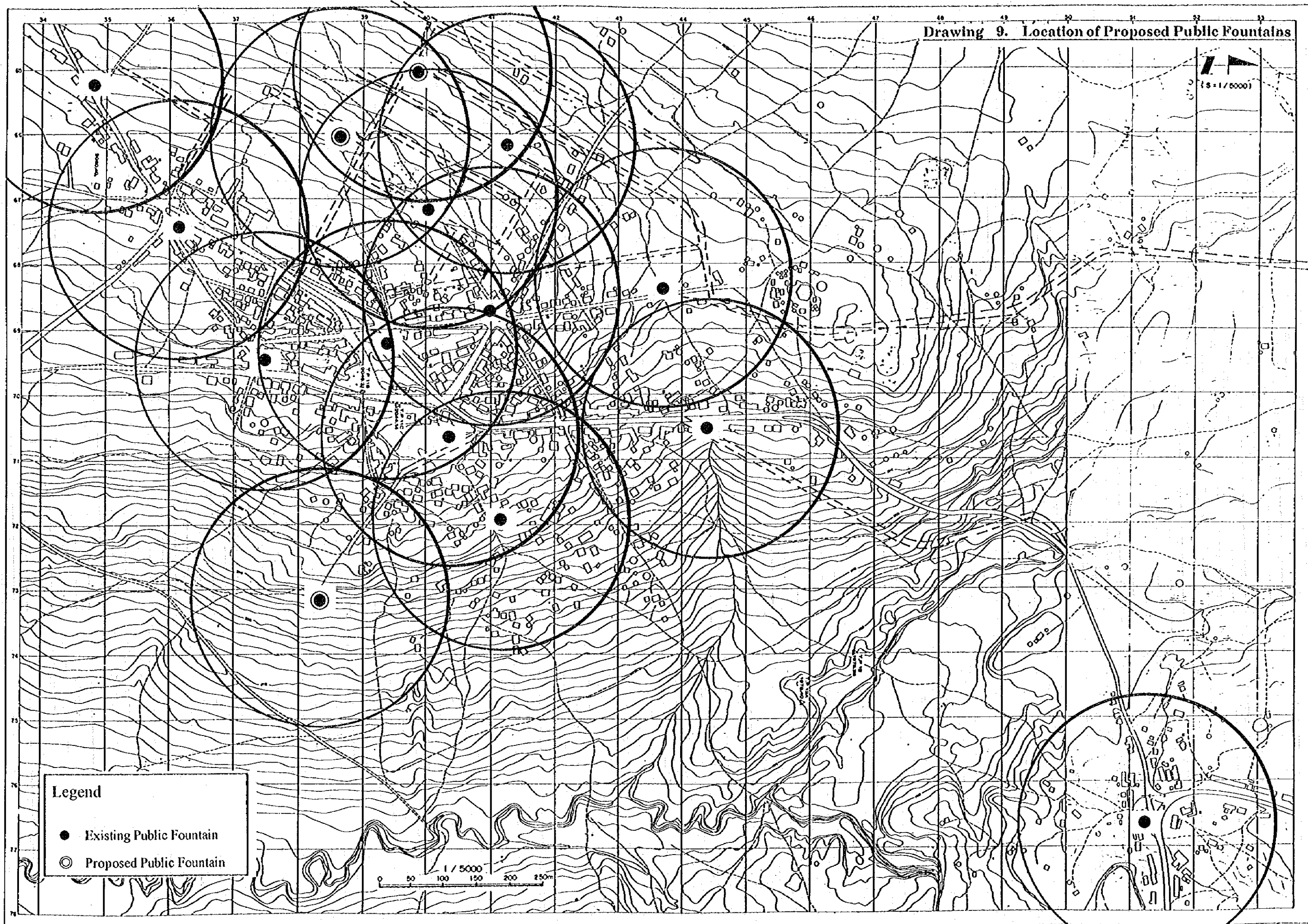


Legend

-  Primary Distribution Pipe (over dia.150mm)
-  Secondary Distribution Pipe (dia.100mm and 75mm)
-  Tertiary Distribution Pipe (dia.50mm)
-  Node Number (refer to Appendix-11)



Drawing 9. Location of Proposed Public Fountains

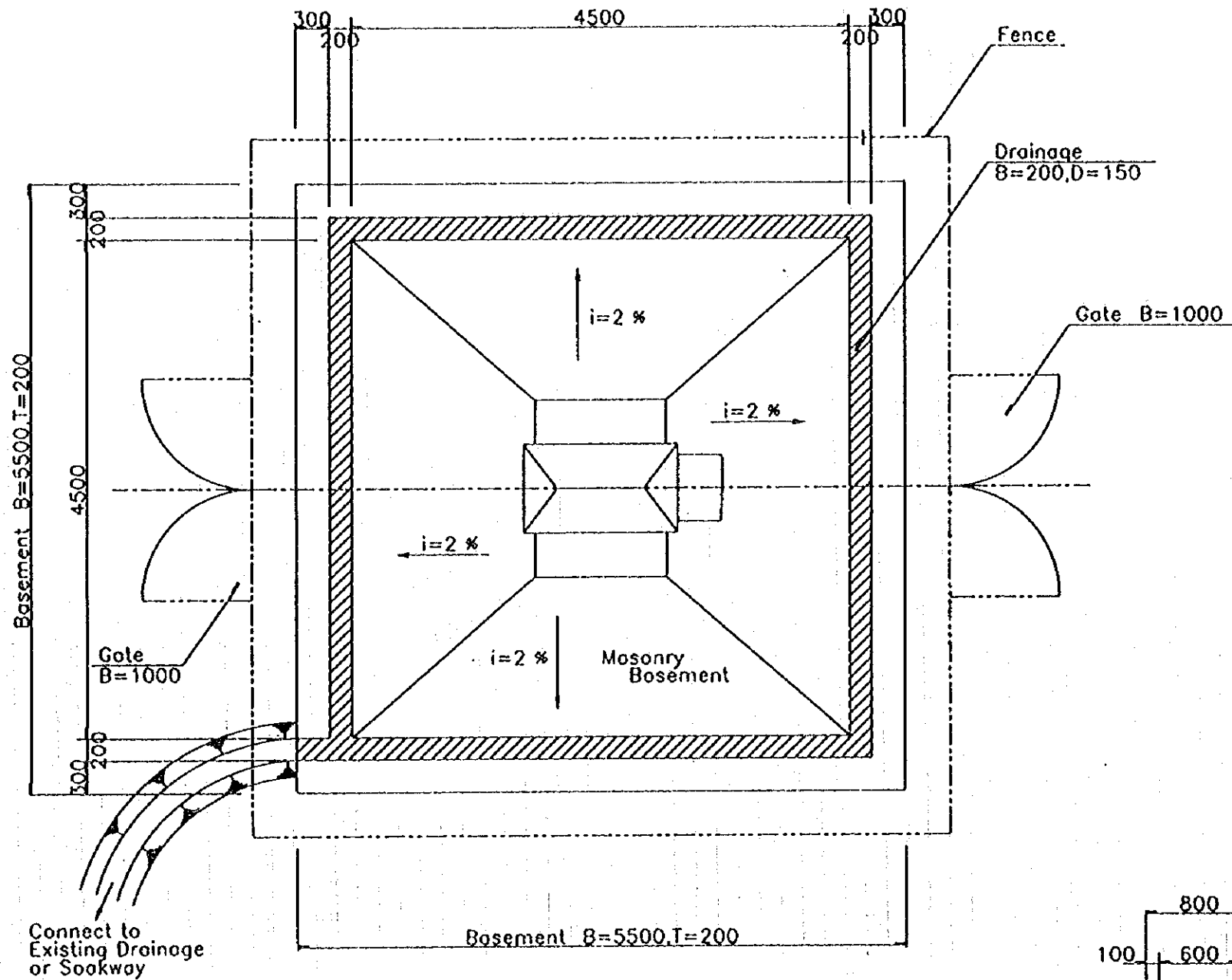


Legend

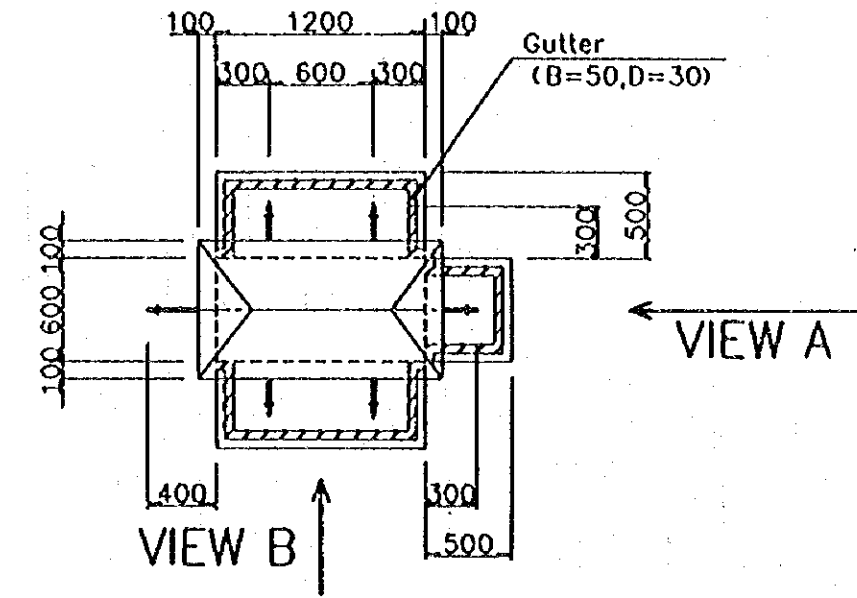
- Existing Public Fountain
- Proposed Public Fountain

1 / 5000
0 50 100 150 200 250m

S=1/5000

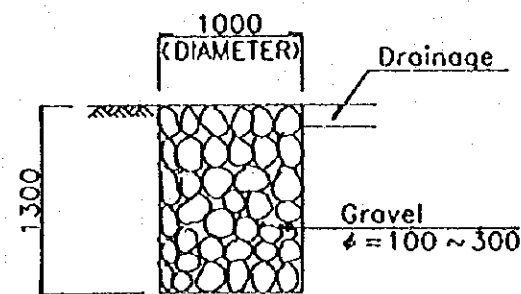


GENERAL PLAN

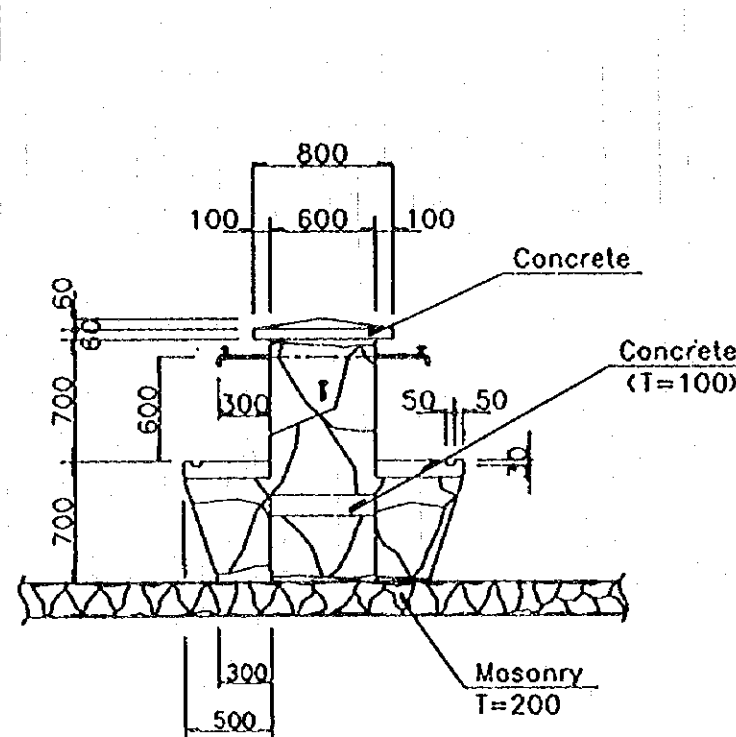


PLAN OF PUBLIC FOUNTAIN

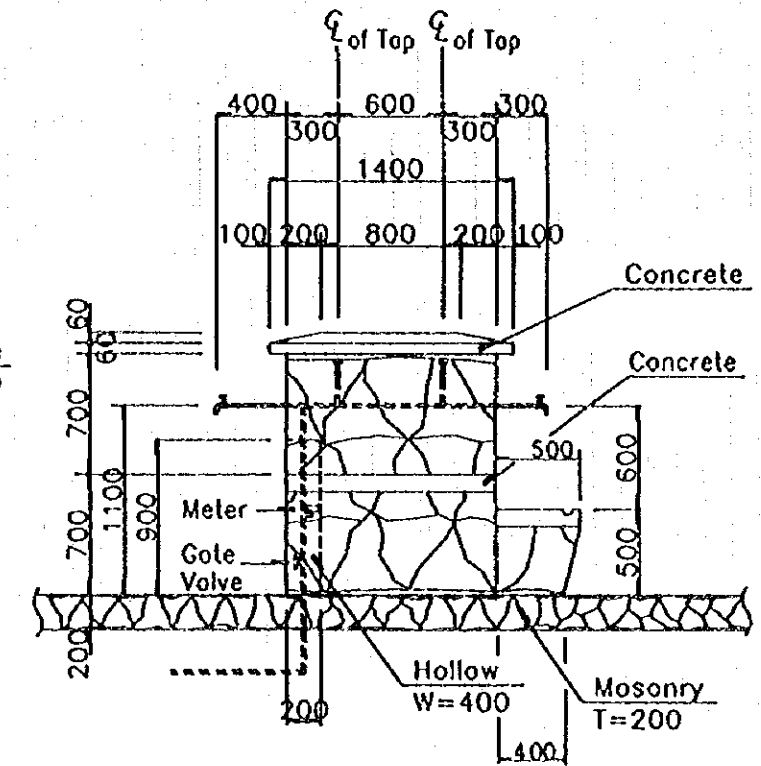
Connect to Existing Drainage or Soakway



SOAKWAY



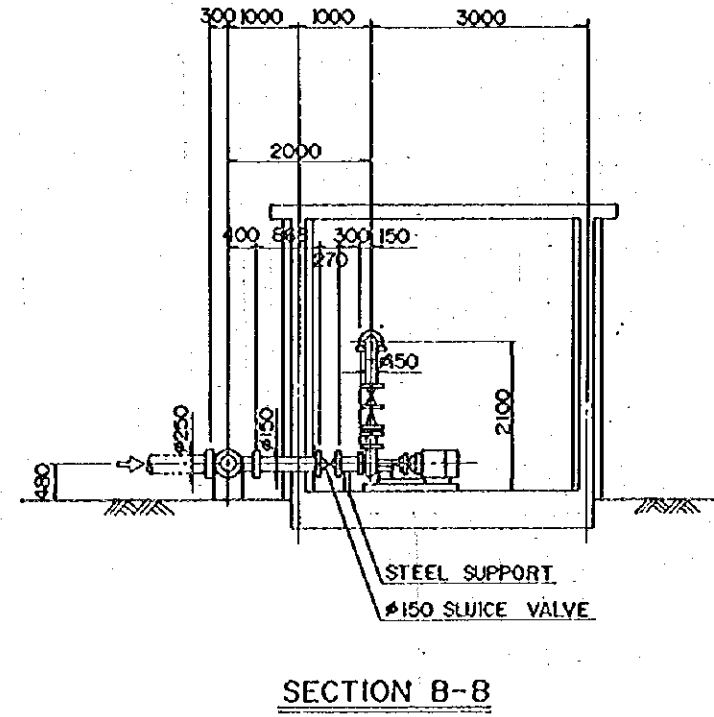
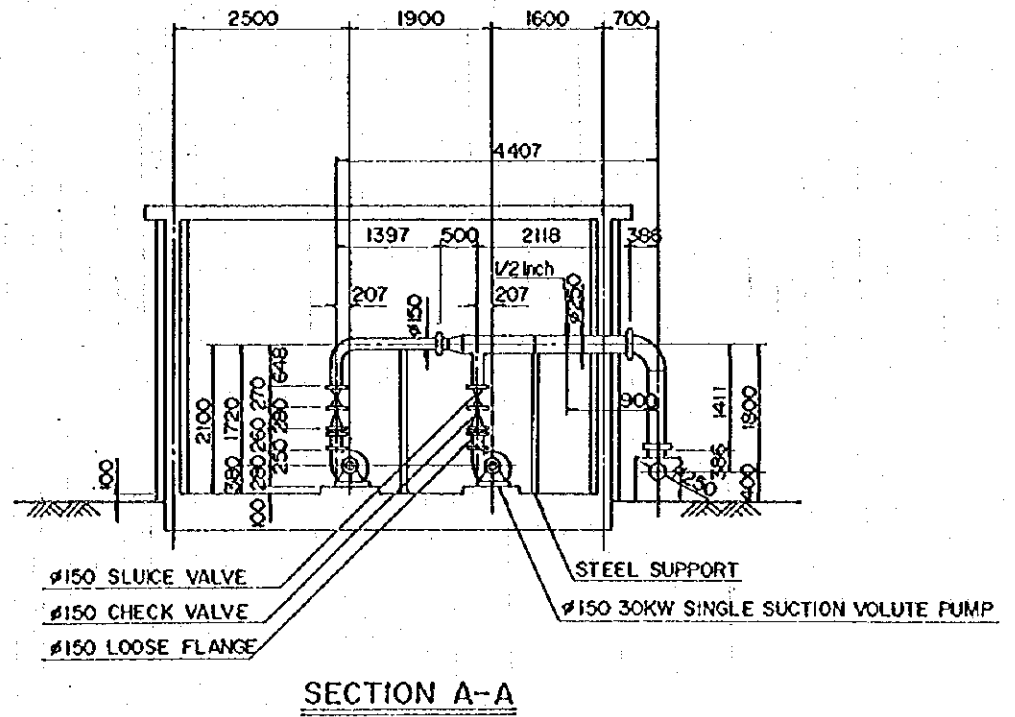
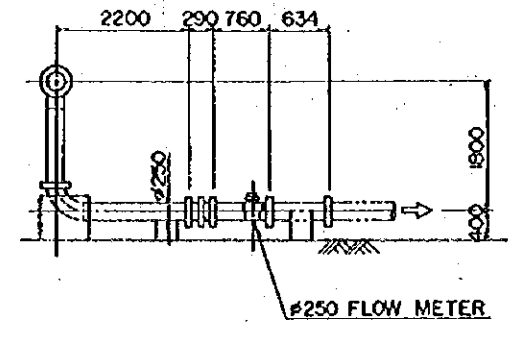
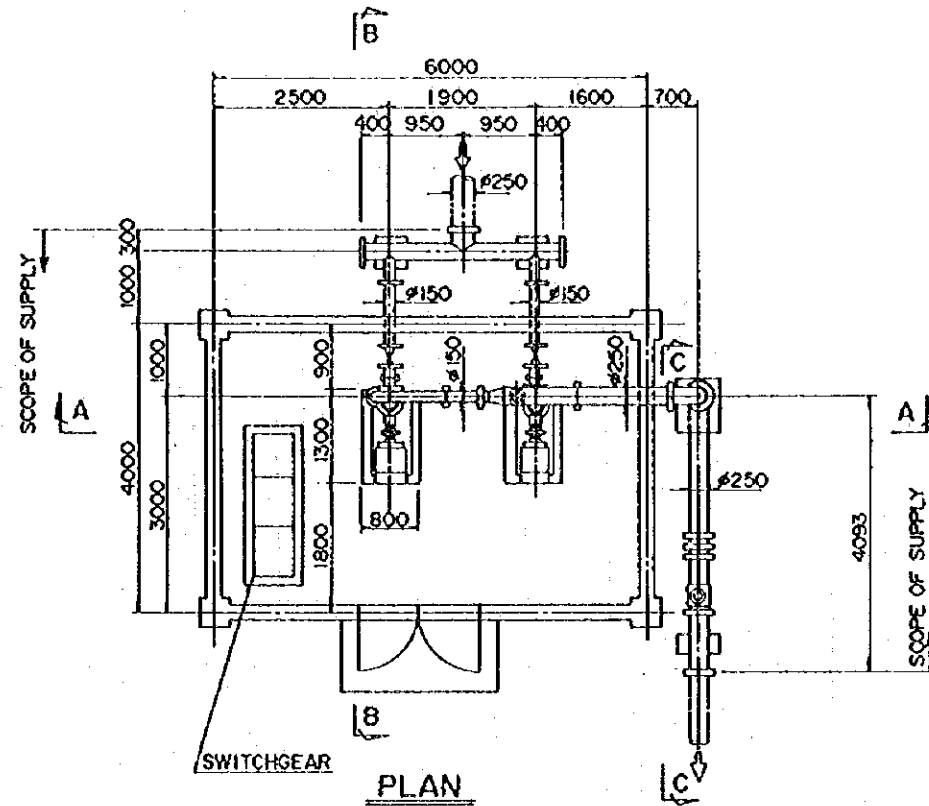
VIEW A



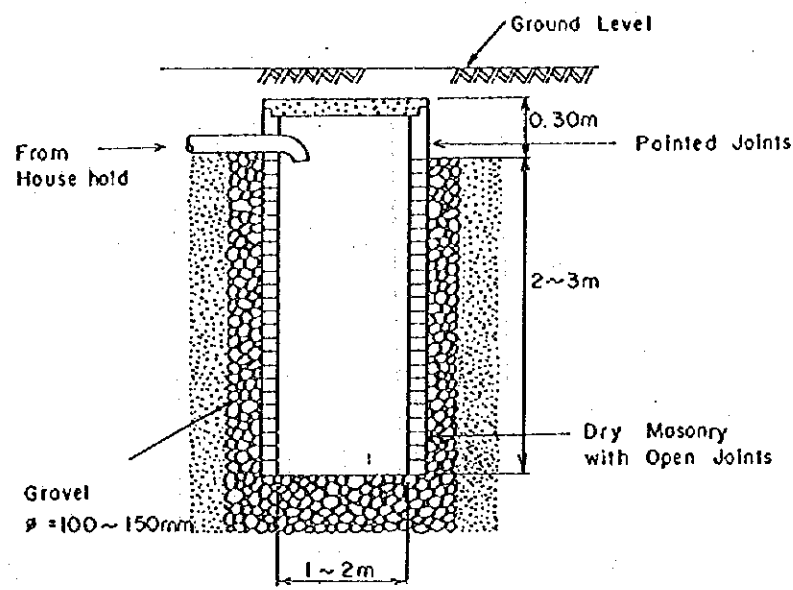
VIEW B

- Quantity:
- Concrete : 0.25 m³
 - Form-work : 0.66 m²
 - Masonry : 7.08 m³
 - Fence : 2 m X 20.4 m
 - Pipe : 6 m
 - Tap : 6 NOS
 - Meter : 1 NOS
 - Valve : 1 NOS
 - Excavation : 13 m³
 - Gravel : 1 m³

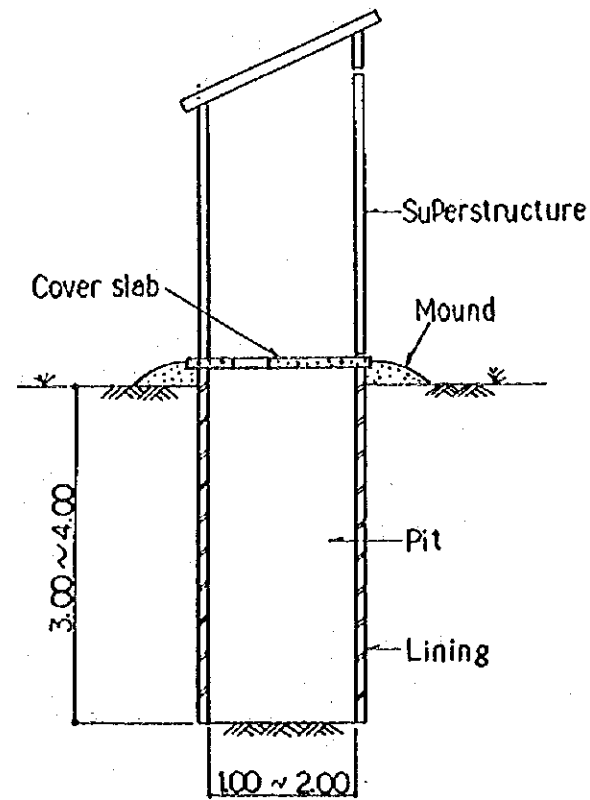
NOTE:
1. All dimensions are shown in millimeter.



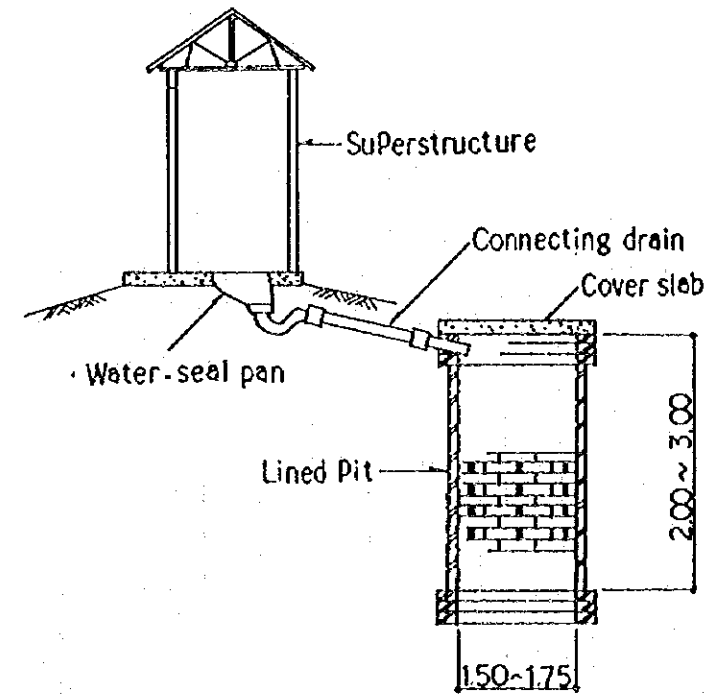
NOTE : unit is millimeter unless otherwise specified.



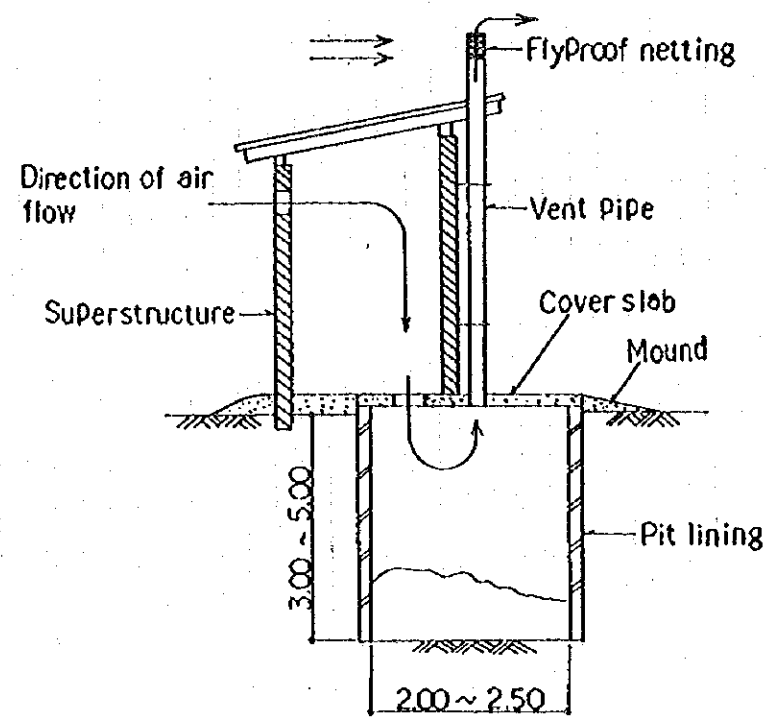
Waste Water Disposal Pit



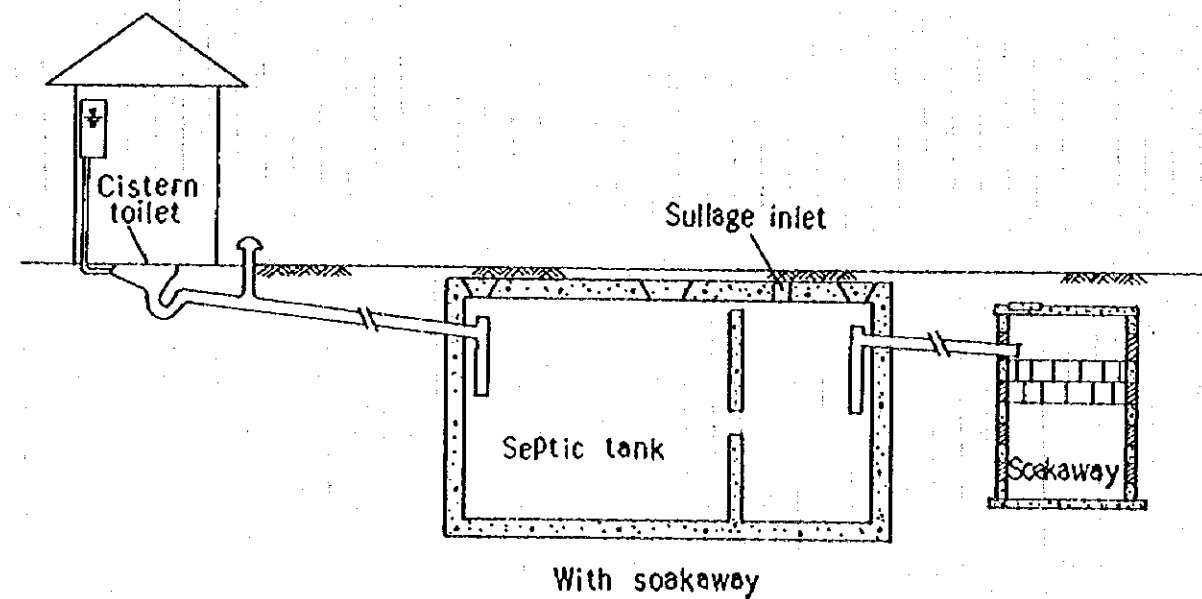
Improved Traditional Pit Latrine



Pour-flush latrine and Soakaway Pit

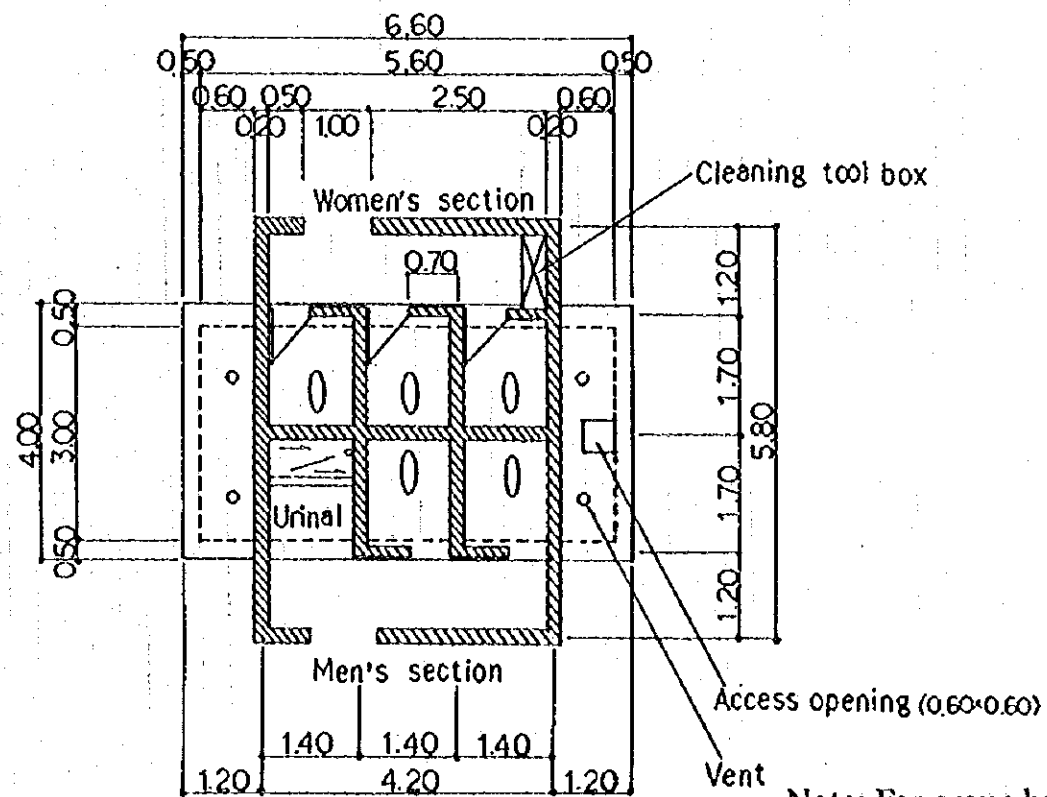
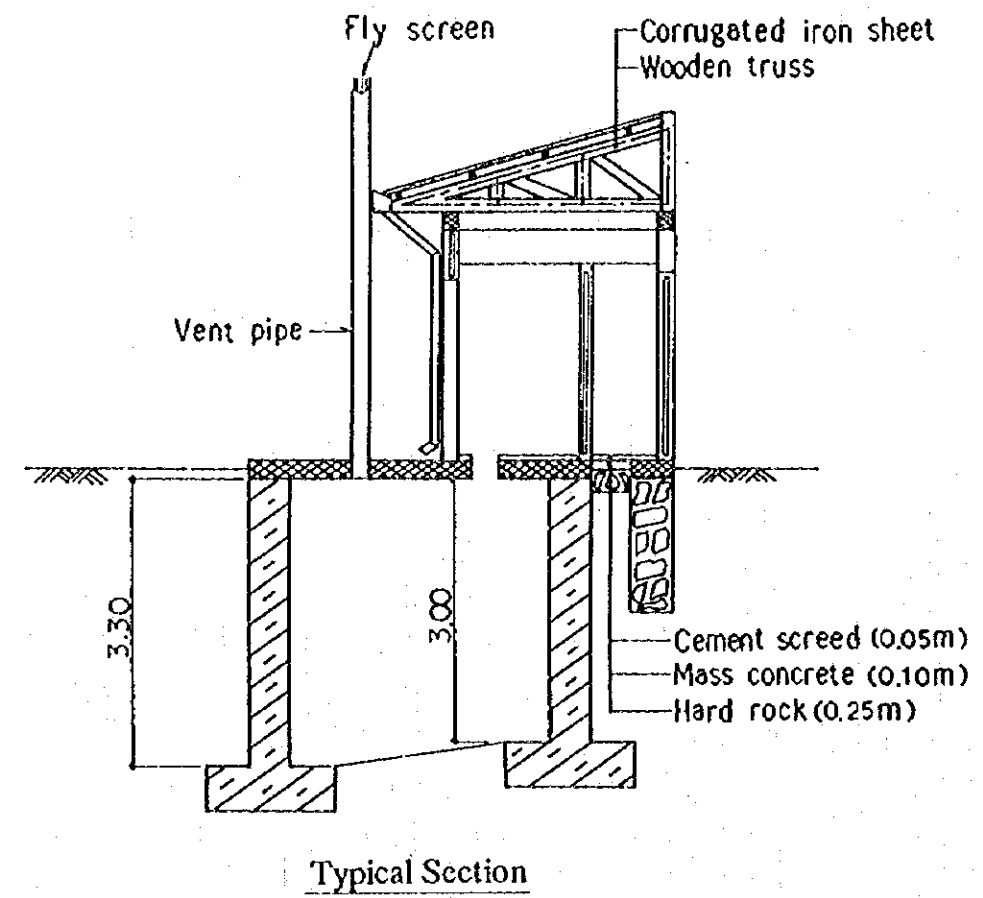
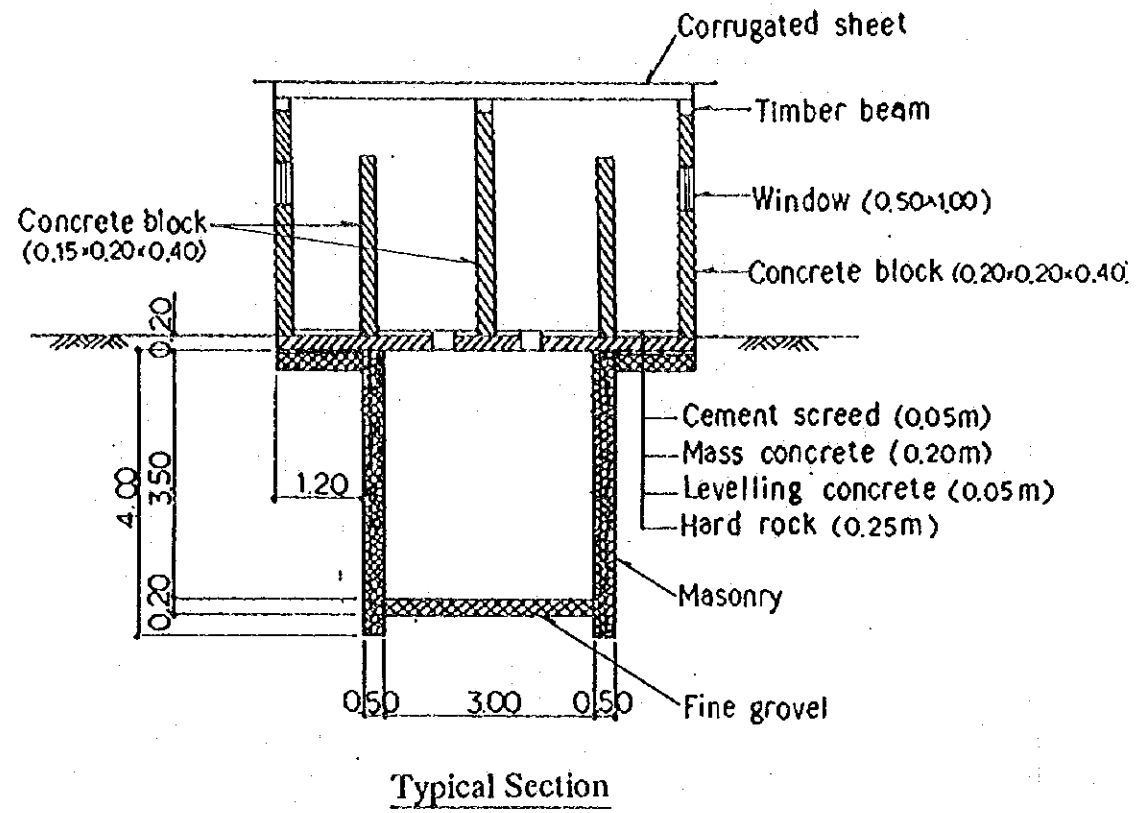


VIP Latrine

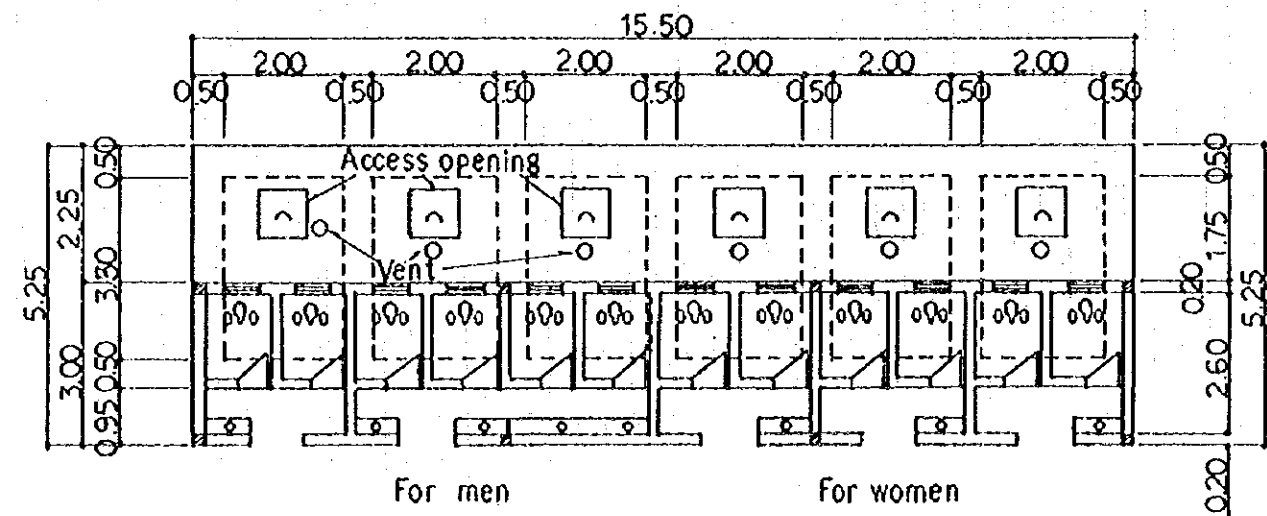


Cistern-flush Toilet and Septic Tank

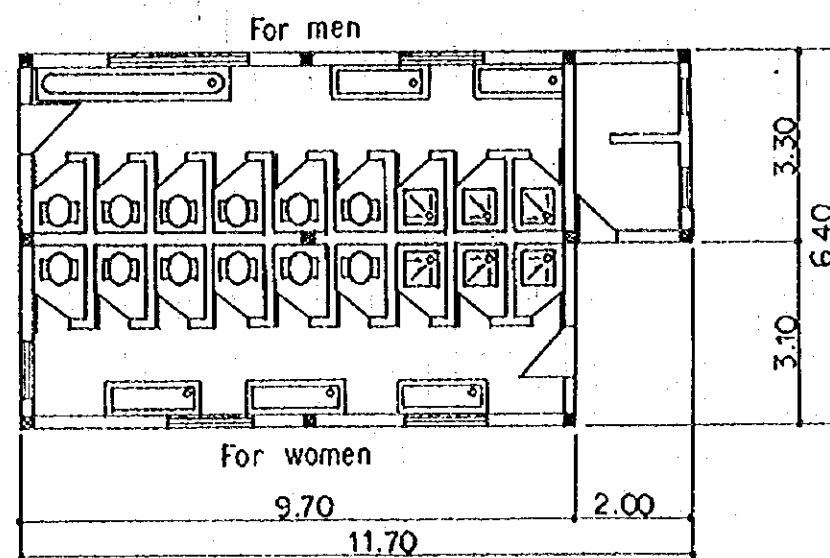
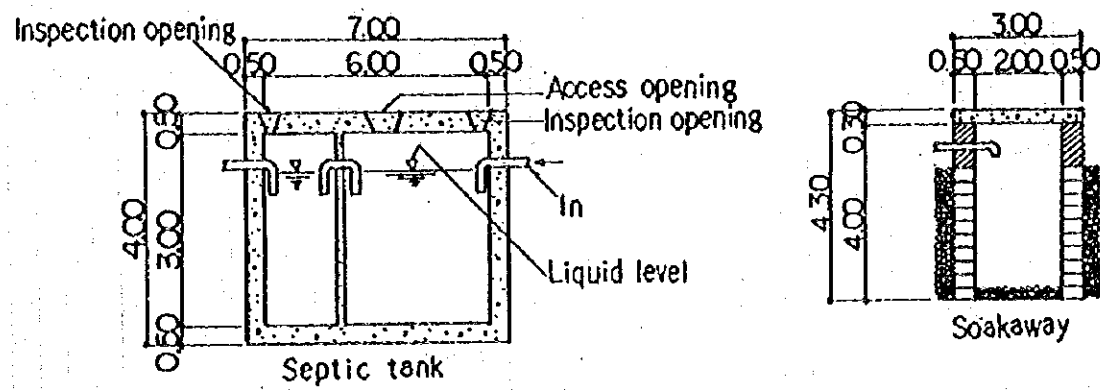
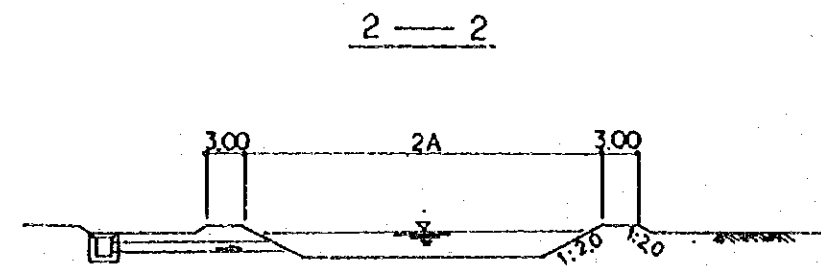
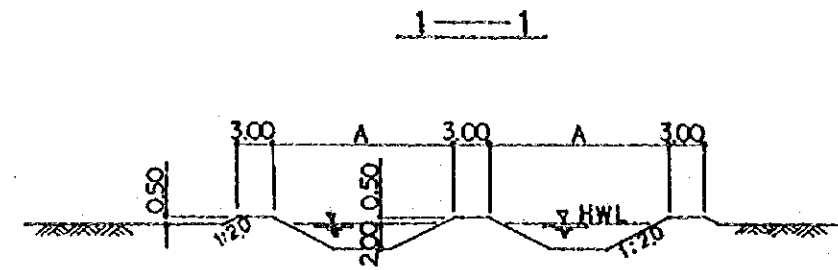
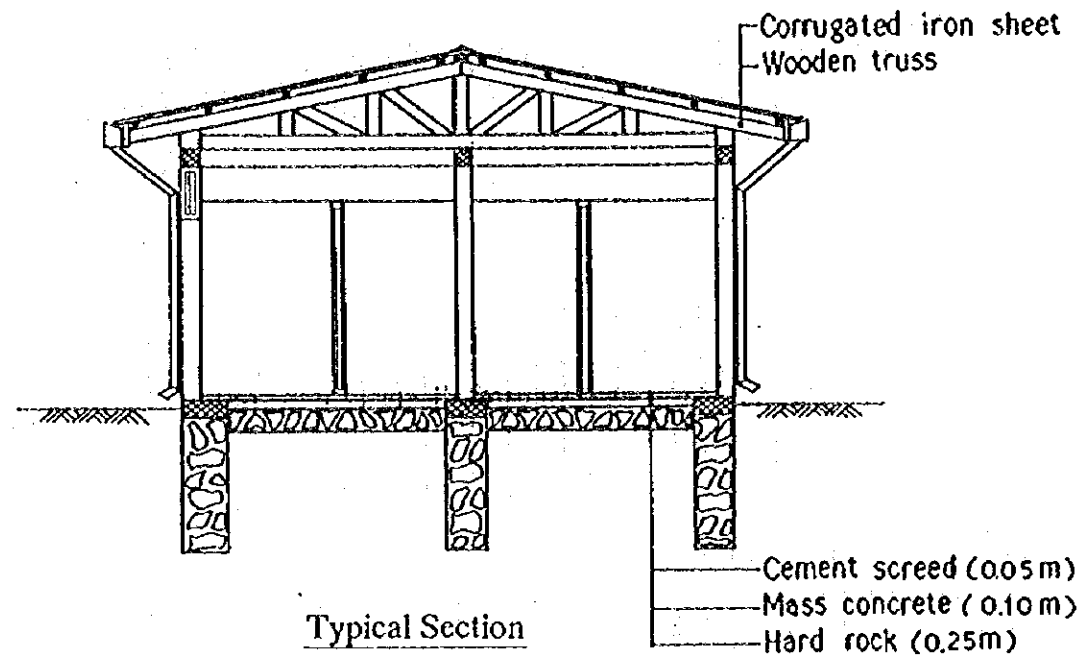
Drawing 13. Layout of Community Type Toilet and VIP Public Type Toilet



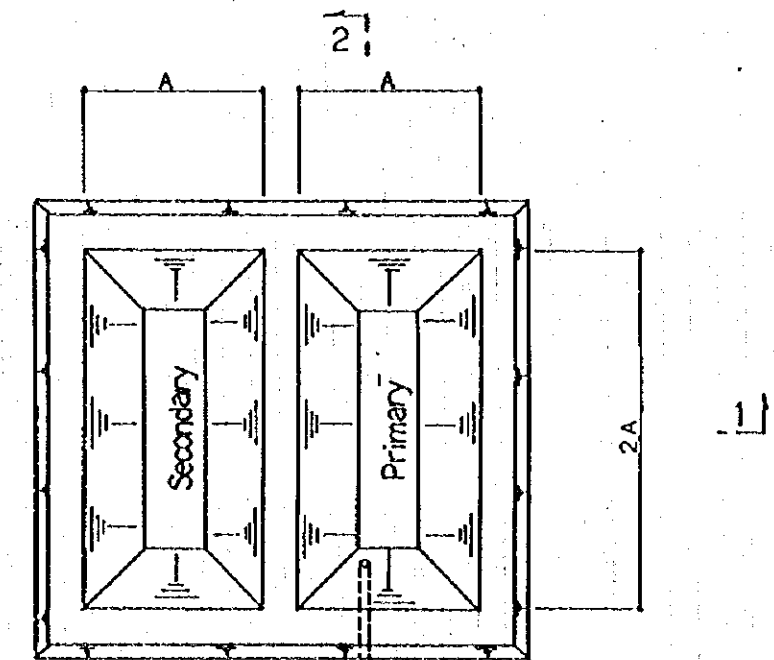
Note: For group household use, uninal is changed to 6th cubicle.



Drawing 14. Layout of Pour-flush Public Type Toilet and Sullage Disposal Pit



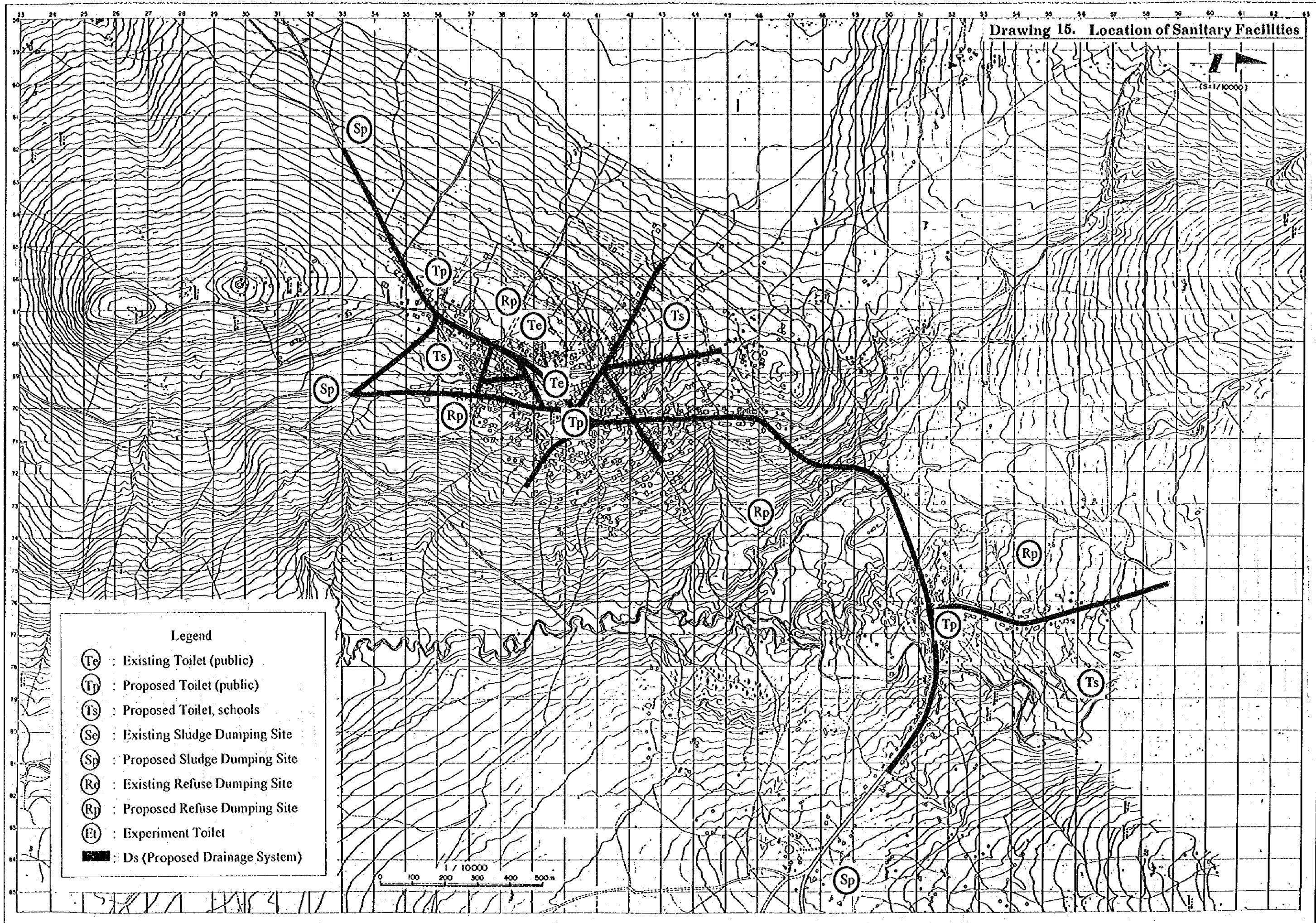
Pour-flush Latrine with Shower (Public Type)



Urban Center	Population 2005	Sludge Volume 0.2m ³ /Man/Year	Treat Volume 70% (m ³)	Size of Disposal Pit	
				2A	Depth
Chagni	21,700	4,340	3,038	39m	2m

Sullage Disposal Pit

Drawing 15. Location of Sanitary Facilities

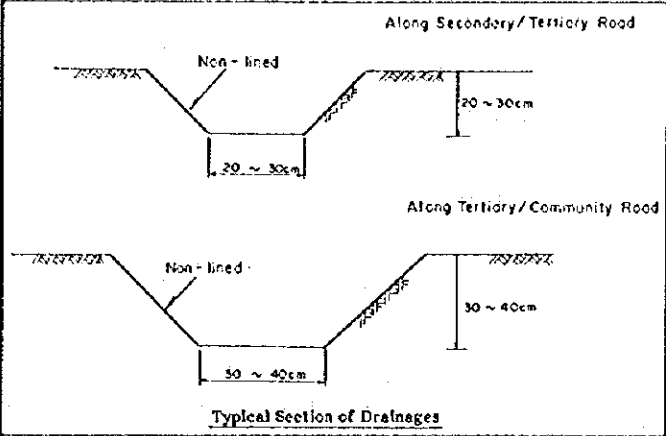
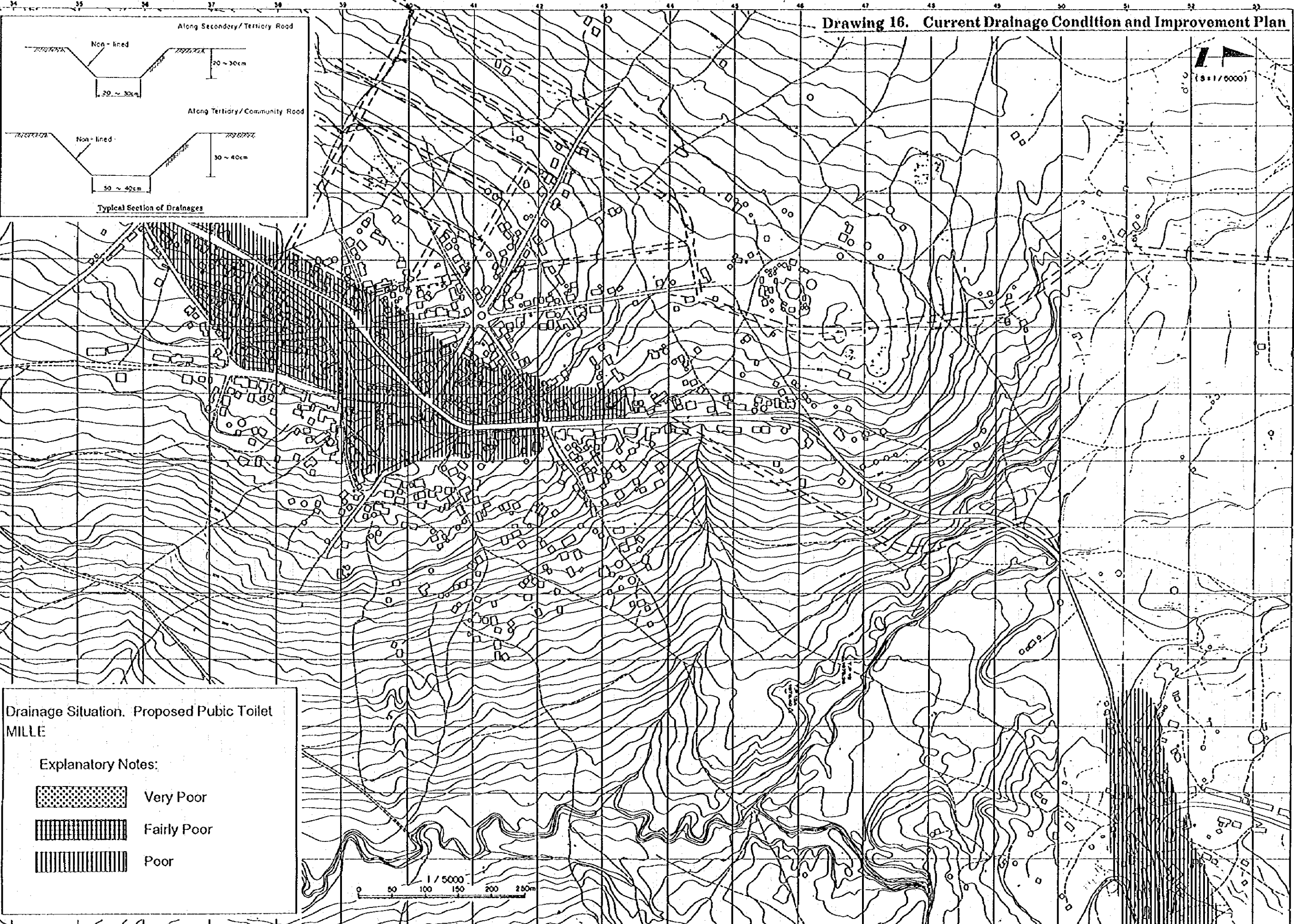


Legend

- ⊙ Te : Existing Toilet (public)
- ⊙ Tp : Proposed Toilet (public)
- ⊙ Ts : Proposed Toilet, schools
- ⊙ Se : Existing Sludge Dumping Site
- ⊙ Sp : Proposed Sludge Dumping Site
- ⊙ Re : Existing Refuse Dumping Site
- ⊙ Rp : Proposed Refuse Dumping Site
- ⊙ Et : Experiment Toilet
- Ds (Proposed Drainage System)

0 100 200 300 400 500m
1 / 10000

Drawing 16. Current Drainage Condition and Improvement Plan

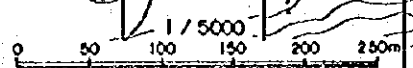


Drainage Situation. Proposed Pubic Toilet MILLE

Explanatory Notes:

- Very Poor
- Fairly Poor
- Poor

The legend shows three hatching patterns: a cross-hatch pattern for 'Very Poor', a vertical line pattern for 'Fairly Poor', and a horizontal line pattern for 'Poor'.



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