

S-3-1-6 Observation of Leakage Conditions

Position of leakage

Category	Pipe	Connection	Valve	Others			Total
Transmission line	1						1
Distribution line	1	1	7				9
Service pipe	15	4	6				25

Condition of leakage

Category	Hole	Crack	Brake	Loose	Pack kin	Others	Total
Transmission line		1					1
Distribution line	1	1			7		9
Service pipe	5	9		2	6	3	25

Cause of leakage

Category	Corrosion	Water pressure	Deterioration	Wrong construction	traffic load	others	Total
Transmission line		1					1
Distribution line	1	1	7				9
Service pipe	5		6		4	10	25

Outline of Leakage Situations

1. On the water transmission pipelines, there found a leakage from cracks on the pipe caused by sudden large pressure changes in pump operation.
2. On the distribution pipelines which are mainly of PVC pipes, there found many leakages from the cracks on the pipe.
3. On the service pipe of polyethylene, there found many leakages from cracks on the pipe caused by large traffic load due to shallow earth covering.
On the service pipes of galvanized iron, there found many leakages from the holes caused by corrosion.
4. On the valves in the water distribution network, there found many leakages caused by loosening of bolts and degradation of packings.

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	1 Stop Cock	
System name:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Orion company NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	"or mm	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Service Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	1/2 "or 13 mm	Cause Corrosion, Water-pressure, Deterioration, Wrong Construction, Traffic load, Others
Depth	15 cm	Ground Asphalt, Concrete, Gravel, Grass, Others
Leakage Size	Large, Medium, Small	Leakage Quantity (Estimation) 0.5L/min or 0.03 m ³ /h

Location map



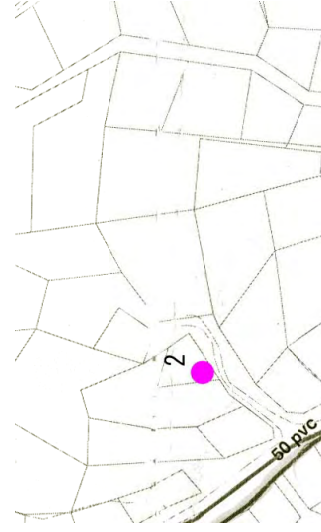
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	2 Stop Cock	
System name:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. David Quan H/No. 41 NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	"or mm	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Service Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	1/2 "or 13 mm	Cause Corrosion, Water-pressure, Deterioration, Wrong Construction, Traffic load, Others
Depth	10 cm	Ground Asphalt, Concrete, Gravel, Grass, Others
Leakage Size	Large, Medium, Small	Leakage Quantity (Measured) 5L/min or 0.3 m ³ /h

Location map

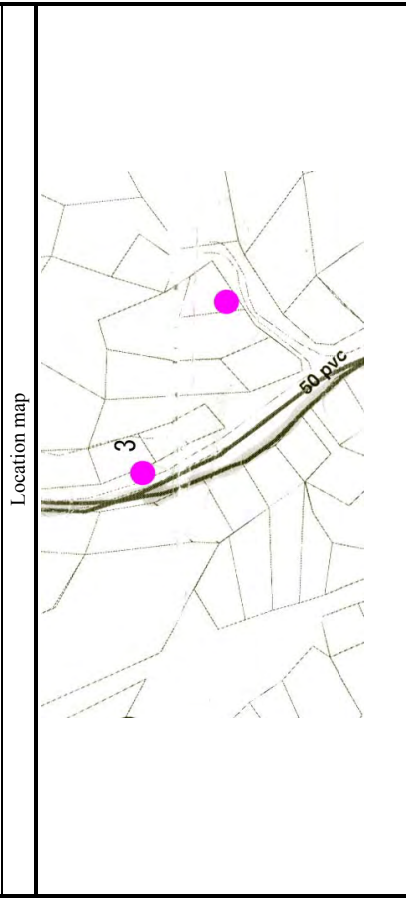


Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	3 Service Pipe	
System name:	W.R.P., W.R.P., Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Luke Eta H/No.25 NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Pipe, Connection, Valve, Others
Diameter	" or mm	Condition Hole, Crack, Brake, Pack kin, Loose, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 " or 13 mm	Position Pipe, Connection, Valve, Others
Depth	30 cm	Condition Hole, Crack, Brake, Pack kin, Loose, Others
Leakage Size	Large, Medium, Small	Cause Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
		Ground Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Measured)
		20L/min or 1.2 m ³ /h



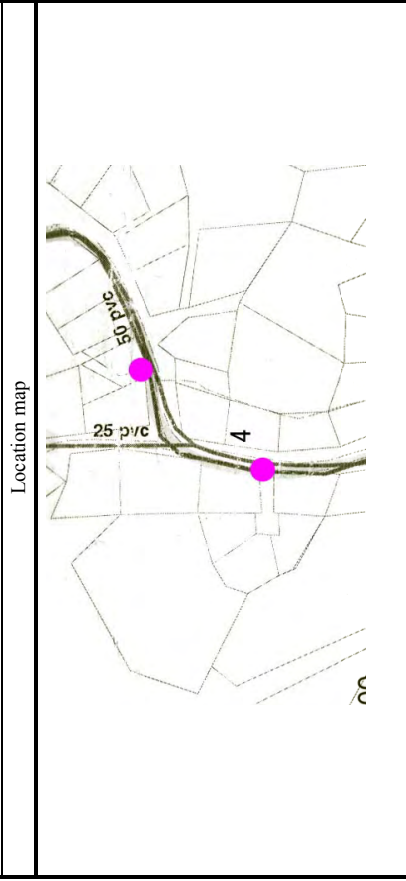
Photograph, Others



Connection

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	4 Service Pipe	
System name:	W.R.P., W.R.P., Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Opposite Welstar Shop NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Pipe, Connection, Valve, Others
Diameter	" or mm	Condition Hole, Crack, Brake, Pack kin, Loose, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 " or 13 mm	Position Pipe, Connection, Valve, Others
Depth	20 cm	Condition Hole, Crack, Brake, Pack kin, Loose, Others
Leakage Size	Large, Medium, Small	Cause Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
		Ground Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Measured)
		1L/min or 0.06 m ³ /h



Photograph, Others

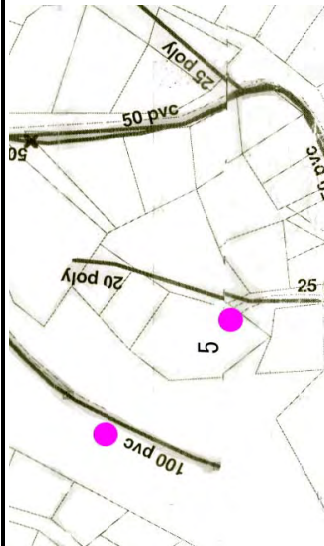


Crack by stone

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	5	
System name:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Antony Makabo NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	"or mm	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Service Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	1/2 "or 13 mm	Cause Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
Depth	20 cm	Ground Asphalt, Concrete, Gravel, Grass, Others
Leakage Size	Large, Middelium, Small	Leakage Ququinty (Estimation) 10L/min or 0.6 m ³ /h

Location map



Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	6	
System name:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Y. Sato NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	"or mm	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Service Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	1/2 "or 13 mm	Cause Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
Depth	30 cm	Ground Asphalt, Concrete, Gravel, Grass, Others
Leakage Size	Large, Middelium, Small	Leakage Ququinty (Estimation) 10L/min or 0.6 m ³ /h

Location map



Photograph, Others



Under the concrete

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	7	
System name:	Service Pipe	
Address:	W.R.P, W.R.P, Rove, Matamiko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Main Line	Position Condition	Pipe, Connection, Valve, Others
Diameter	Cause	Hole, Crack, Brake, Pack kin, Loose, Others
Service Line	Position Condition	Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	Cause	Pipes, Connection, Valve, Others
Depth	Position Condition	Hole, Crack, Brake, Pack kin, Loose, Others
Leakage Size	Cause	Corrosion, Water-pressure, Deterioration
	Ground	Wrong Construction, Traffic load, Others
	Leakage Quantity (Measured)	20L/min or 1.2 m ³ /h

Location map

Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	8	
System name:	Joint	
Address:	W.R.P, W.R.P, Rove, Matamiko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Main Line	Position Condition	Mr. Akula Alosio Bishop Epale School Teacher's House NGOSSI
Diameter	Cause	Pipe, Connection, Valve, Others
Service Line	Position Condition	Hole, Crack, Brake, Pack kin, Loose, Others
Diameter	Cause	Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Depth	Position Condition	Pipes, Connection, Valve, Others
Leakage Size	Cause	Hole, Crack, Brake, Pack kin, Loose, Others
	Ground	Corrosion, Water-pressure, Deterioration
	Leakage Quantity (Measured)	Wrong Construction, Traffic load, Others
		Asphalt, Concrete, Gravel, Grass, Others
		0.5L/min or 0.03 m ³ /h

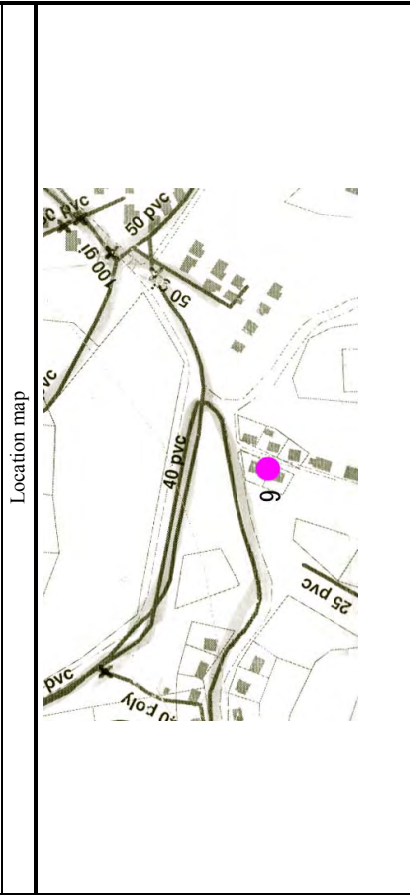
Location map

Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	22-Jun-05	Stop Cock
Survey No.:	9	
System name:	W.R.G, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Colin Pitakesa Police m/Qt's H/No, 15 NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Pipe, Connection, Valve, Others
Diameter	"or mm	Condition Hole, Crack, Brake, Paek kin, Loose, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 "or 13 mm	Position Pipe, Connection, Valve, Others
Depth	15 cm	Condition Hole, Crack, Brake, Paek kin, Loose, Others
Leakage Size	Large, Middium, Small	Cause Corrosion, Water-pressure, Deterioration, Wrong Construction, Traffic load, Others
		Ground Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Measured) 10L/min or 0.6 m ³ /h

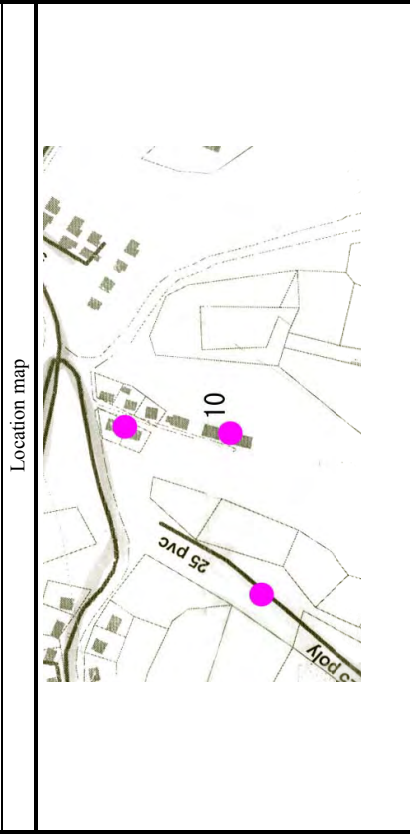


Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	22-Jun-05	Service Pipe
Survey No.:	10	
System name:	W.R.G, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Anderson Marafice M/Qt's H/No, 15 NGOSSI	
Main Line	CIP, GP, PVC, POL, Others()	Position Pipe, Connection, Valve, Others
Diameter	"or mm	Condition Hole, Crack, Brake, Paek kin, Loose, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2" or 13 mm	Position Pipe, Connection, Valve, Others
Depth	cm	Condition Hole, Crack, Brake, Paek kin, Loose, Others
Leakage Size	Large, Middium, Small	Cause Corrosion, Water-pressure, Deterioration, Wrong Construction, Traffic load, Others
		Ground Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Measured) 16L/min or 1.0 m ³ /h



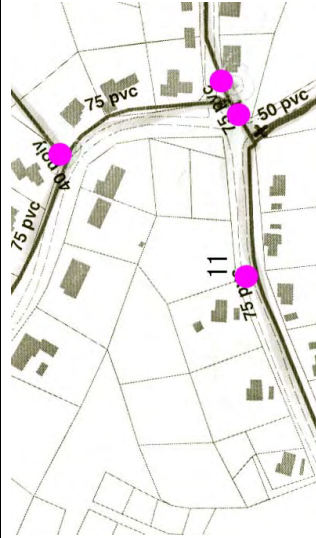
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	Service Pipe
Survey No.:	11	
System name:	W.R.D, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Joseph Puara H/No, PC15 TAVIO	
Main Line	CIP, GP, PVC, POL, Others()	Position Pipe, Connection, Valve, Others
Diameter	"or mm	Condition Hole, Crack, Brake, Pack kin, Looses, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 "or 13 mm	Position Pipe, Connection, Valve, Others
Depth	30 cm	Condition Hole, Crack, Brake, Pack kin, Looses, Others
Leakage Size	Large, <u>Middium</u> , Small	Cause Corrosion, Water-pressure, Deterioration, Wrong Construction, Traffic load, Others
	Leakage Quantity (Measured)	Ground Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Estimation) 16L/min or 1.0 m ³ /h

Location map



Photograph, Others

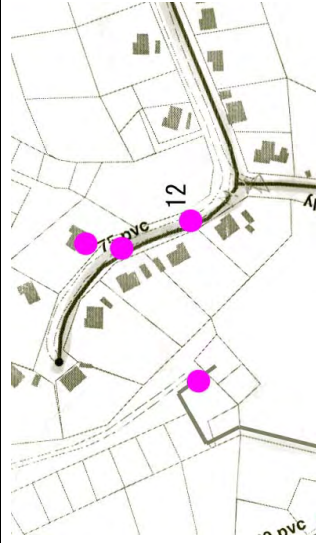


After excavation

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	Joint
Survey No.:	12	
System name:	W.R.D, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr. Robert Sisilo H/No, Q993 TINGE	
Main Line	CIP, GP, PVC, POL, Others()	Position Pipe, Connection, Valve, Others
Diameter	"or mm	Condition Hole, Crack, Brake, Pack kin, Looses, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 "or 13 mm	Position Pipe, Connection, Valve, Others
Depth	20 cm	Condition Hole, Crack, Brake, Pack kin, Looses, Others
Leakage Size	Large, <u>Middium</u> , Small	Cause Corrosion, Water-pressure, Deterioration, Wrong Construction, Traffic load, Others
	Leakage Quantity (Estimation)	Ground Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Estimation) 10L/min or 0.6 m ³ /h

Location map



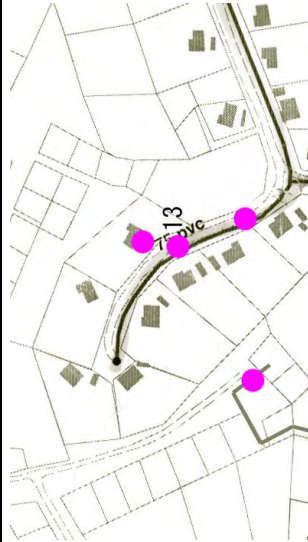
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	13	
System name:	Service Pipe	
Address:	W.R.P., W.R.P., Rove, Matamiko-P, JICA-B, Kombito, Kombito-G, Panatina, Others Mr. Allen Rahari Police Rove H/Qtr's TINGE	
Main Line	CIP, GP, PVC, POL, Others()	Pipe, Connection, Valve, Others
Diameter	"or mm	Hole, Crack, Brake, Pack kin, Looses, Others
Service Line	CIP, GP, PVC, POL, Others()	Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 "or 13 mm	Pipe, Connection, Valve, Others
Depth	30 cm	Hole, Crack, Brake, Pack kin, Looses, Others
Leakage Size	Large, Middles, Small	Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
	Leakage Quantity (Measured)	10L/min or 0.6m ³ /h

Location map



Photograph, Others

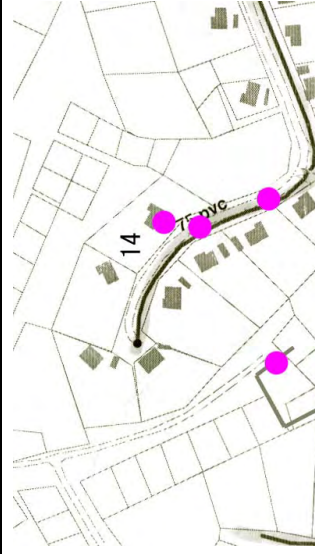


Crack by stone

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	14	
System name:	Stop Cock	
Address:	W.R.P., W.R.P., Rove, Matamiko-P, JICA-B, Kombito, Kombito-G, Panatina, Others Mr. Allen Rahari Police Rove H/Qtr's TINGE	
Main Line	CIP, GP, PVC, POL, Others()	Pipe, Connection, Valve, Others
Diameter	"or mm	Hole, Crack, Brake, Pack kin, Looses, Others
Service Line	CIP, GP, PVC, POL, Others()	Corrosion, Water-pressure, Wrong Construction, Traffic load, Others
Diameter	1/2 "or 13 mm	Pipe, Connection, Valve, Others
Depth	20 cm	Hole, Crack, Brake, Pack kin, Looses, Others
Leakage Size	Large, Middles, Small	Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
	Leakage Quantity (Measured)	25L/min or 1.5m ³ /h

Location map



Photograph, Others

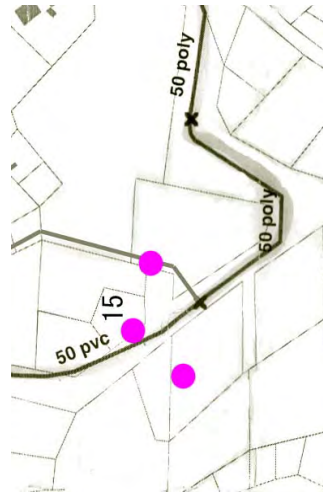


Crack

LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	15	
System name:	Stop Cock	
Address:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Main Line	CIP, GP, PVC, POL, Others()	Mr, Tony Misions police Rove TINGE
Diameter	" or mm	Pipe, Connection, Valve, Others
Service Line	CIP, GP, PVC, POL, Others()	Hole, Crack, Brake, Pack kin, Looes, Others
Diameter	1/2 " or 13 mm	Corrosion, Water-pressure, WrongConstruction, Traffic load, Others
Depth	20 cm	Pipe, Connection, Valve, Others
Leakage Size	Large, Medium, Small	Hole, Crack, Brake, Pack kin, Looes, Others
		Corrosion, Water-pressure, WrongConstruction, Traffic load, Others
		Pipe, Connection, Valve, Others
		Hole, Crack, Brake, Pack kin, Looes, Others
		Corrosion, Water-pressure, Deterioration
		WrongConstruction, Traffic load, Others
		Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Estimation)
		1.6L/min or 0.1 m ³ /h

Location map



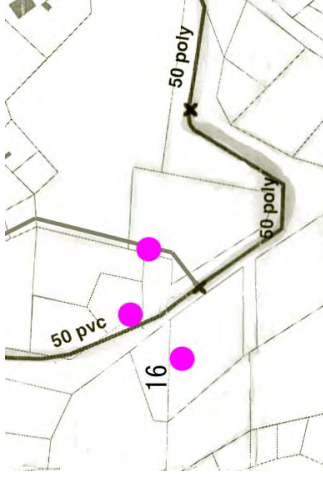
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	16	
System name:	Service Pipe	
Address:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Main Line	CIP, GP, PVC, POL, Others()	Mr, Johnson Siapy Police Rove TINGE
Diameter	" or mm	Pipe, Connection, Valve, Others
Service Line	CIP, GP, PVC, POL, Others()	Hole, Crack, Brake, Pack kin, Looes, Others
Diameter	1/2 " or 13 mm	Corrosion, Water-pressure, WrongConstruction, Traffic load, Others
Depth	cm	Pipe, Connection, Valve, Others
Leakage Size	Large, Medium, Small	Hole, Crack, Brake, Pack kin, Looes, Others
		Corrosion, Water-pressure, WrongConstruction, Traffic load, Others
		Pipe, Connection, Valve, Others
		Hole, Crack, Brake, Pack kin, Looes, Others
		Corrosion, Water-pressure, Deterioration
		WrongConstruction, Traffic load, Others
		Asphalt, Concrete, Gravel, Grass, Others
		Leakage Quantity (Measured)
		10L/min or 0.6 m ³ /h

Location map



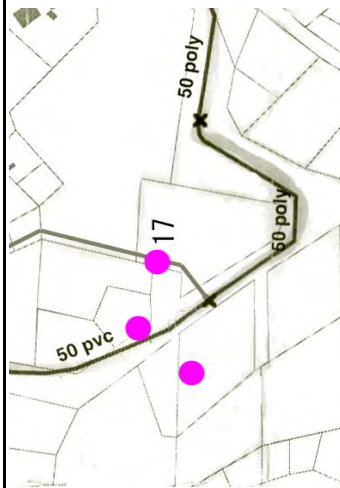
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	17	
System name:	W.R.C, W.R.P, Rove, Matamiko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr, Beneth Roau Police Rove, TINGE	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Looes, Others
Diameter	"or mm	Cause Corrosion, Water-pressure, Wrong Constructuon, Traffic load, Others
Service Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Looes, Others
Diameter	1" or 25 mm	Cause Corrosion, Water-pressure, Deterioration Wrong Constructuon, Traffic load, Others
Depth	cm	Ground Asphalt, Concrete, Gravel, Grass, Others
Leakage Size	Large, Medium, Small	Leakage QuANTITY (Measured) 3L/min or 0.2 m ³ /h

Location map



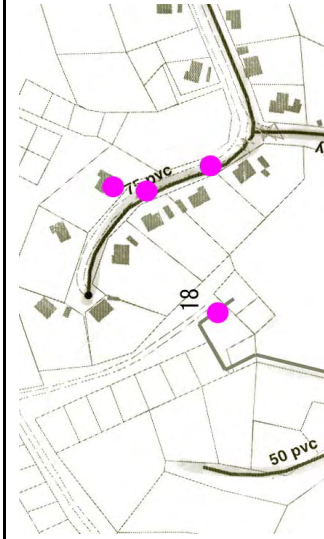
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	21-Jun-05	
Survey No.:	18	
System name:	W.R.C, W.R.P, Rove, Matamiko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Mr, Laiza Rodi G, province GC7 TINGE	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Looes, Others
Diameter	"or mm	Cause Corrosion, Water-pressure, Wrong Constructuon, Traffic load, Others
Service Line	CIP, GP, PVC, POL, Others()	Position Condition Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Looes, Others
Diameter	3/4" or 20 mm	Cause Corrosion, Water-pressure, Deterioration Wrong Constructuon, Traffic load, Others
Depth	30 cm	Ground Asphalt, Concrete, Gravel, Grass, Others
Leakage Size	Large, Medium, Small	Leakage QuANTITY (Measured) 33L/min or 2.0m ³ /h

Location map



Photograph, Others

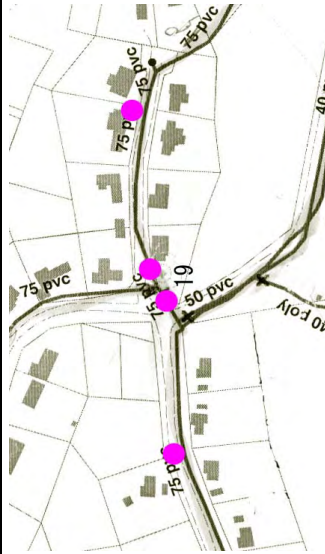


crack on the pipe

LEAKAGE RECORD SHEET

Date of Survey:	22-Jun-05	
Survey No.:	19 Valve	
System name:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Redio Technich Neer High Tank TAVIO	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition
Diameter	" or mm	Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Looses, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Position Condition
Diameter	1/2 " or 13 mm	Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
Depth	50 cm	Ground
Leakage Size	Large, Middium, Small	Leakage Quantity (Estimation) 10L/min or 0.6 m ³ /h

Location map



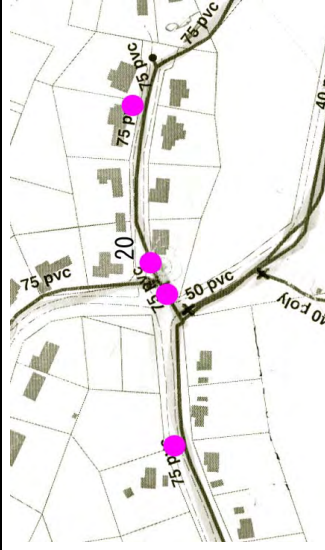
Photograph, Others



LEAKAGE RECORD SHEET

Date of Survey:	22-Jun-05	
Survey No.:	20 Valve	
System name:	W.R.P, W.R.P, Rove, Mataniko-P, JICA-B, Kombito, Kombito-G, Panatina, Others	
Address:	Redio Technich Neer High Tank TAVIO	
Main Line	CIP, GP, PVC, POL, Others()	Position Condition
Diameter	" or mm	Pipe, Connection, Valve, Others Hole, Crack, Brake, Pack kin, Looses, Others
Service Line	CIP, GP, PVC, POL, Others()	Cause Position Condition
Diameter	1/2 " or 13 mm	Corrosion, Water-pressure, Deterioration Wrong Construction, Traffic load, Others
Depth	50 cm	Ground
Leakage Size	Large, Middium, Small	Leakage Quantity (Measured) 16L/min or 1.0 m ³ /h

Location map



Photograph, Others

