

**Attachment 9: Kigali City Reservoir Inventory
Survey Results**

THE REPUBLIC OF RWANDA

KIGALI CITY

REPORT OF THE RESERVOIR SURVEY IN KIGALI

**THE PROJECT FOR STRENGTHNING OF NON-REVENUE
WATER CONTROL KIGALI CITY WATER NETWORK**



KYOWA ENGINEERING CONSULTANTS Co., Ltd/ WASAC Ltd

Introduction

In order to strengthen the Non-Revenue Water Control in Kigali City Water Network, WASAC in partnership with Kyowa Engineering Consultants Ltd decided to conduct a survey in which the purpose is to gather the functionality information and the issues related to non-revenue water.

As per the scope of the current survey we focused on equipments, installed accessories and reservoirs physical features that are contributing to the non-revenue water increment and reporting them according to their priorities from higher to lower in order to allow decision either maintenance, repairing or replacement.

Purpose

To Make clear the following present issue of each reservoirs

- Functional situation as the main facility in distribution system (storage, buffer)
- Functional condition of the equipment (Float Valve, Gate Valve, Flow Meter, Water Level Gauge) in the reservoir
- Operational condition (assignment of operator, duty, regulation)
- Situation of overflow

Overview

Based on the list of reservoirs obtained from the GIS section, reservoirs were selected and surveyed.

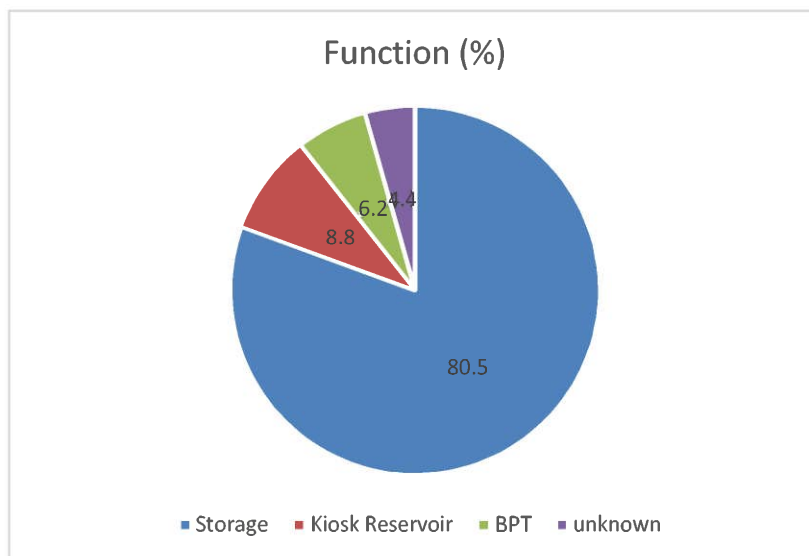
New reservoirs such as AfDB are not included

Survey Results

The results of a survey of 113 reservoirs from the 194 reservoirs listed in Kigali City that were obtained are summarized below.

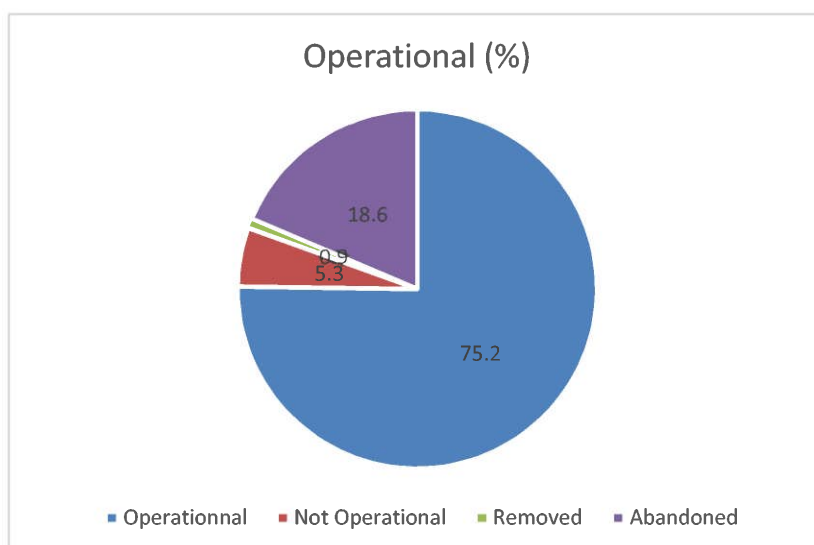
1.Function

About 80% of the reservoir in Kigali City is used for storage.



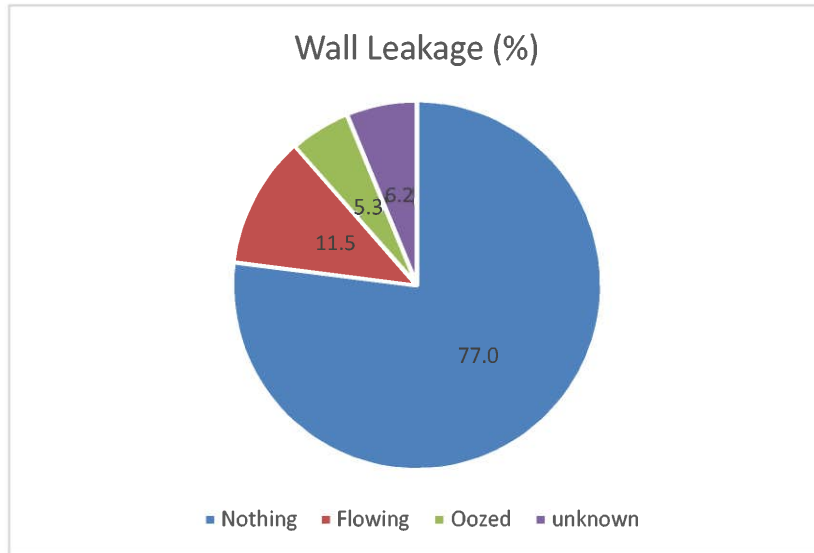
2.Operatioal

20% of the Kigali city's reservoir has been abandoned. The result is that 25% of the total reservoirs are unused.



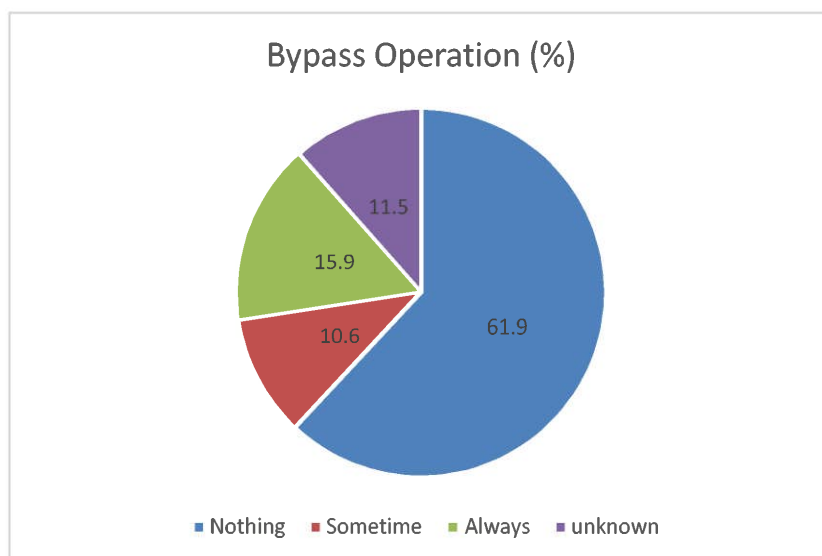
3. Wall Leakage

23% of reservoirs have structural problems. Immediate action is required as major water leaks and water quality problems can occur.



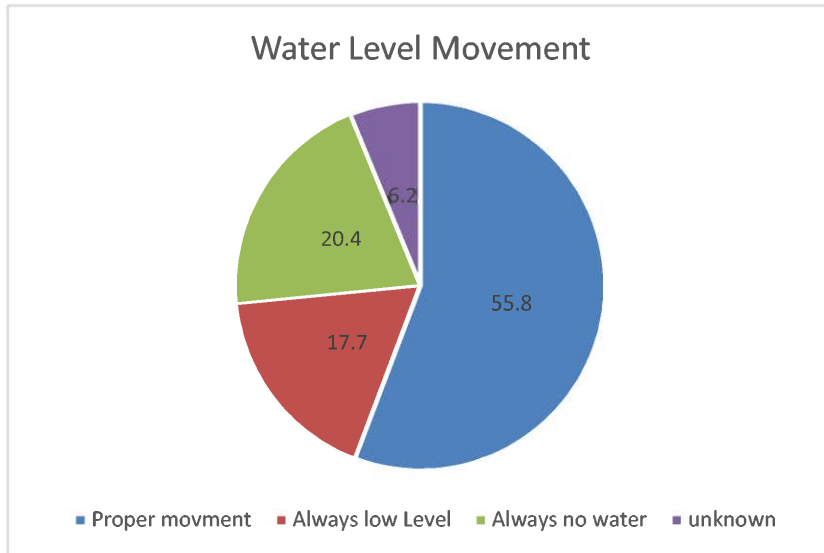
4. Bypass Operation

Bypass operation is carried out in about 25% of the reservoirs. Bypass operation is not recommended because it does not satisfy the original reservoir function.



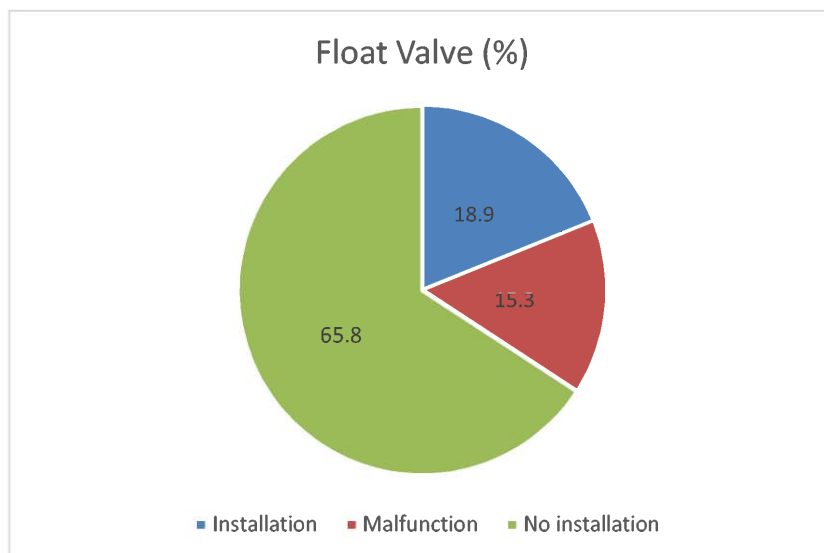
5. Water Level Movement

Approximately 45% of the reservoirs are in a state where water is not stored. The water storage function, which is the role of the reservoir, has not been fulfilled.



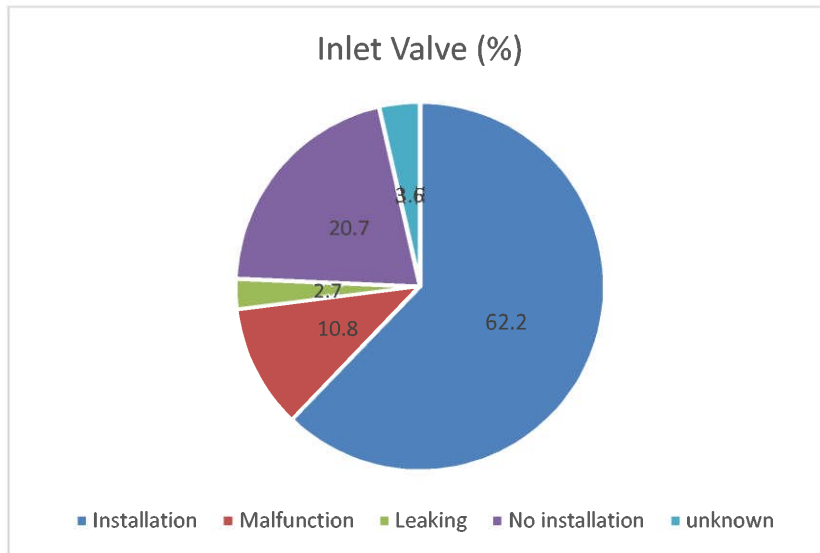
6. Float Valve

FVs are installed only in about 30% of reservoirs. About half of them are malfunction. Only about 20% of FVs are actually working.



7. Inlet Valve

Inlet valves are installed in about 75% of the reservoirs. However, about 13% of the inlet valves have some problems, and if you add that they are not installed, about 35% of the reservoirs will not have inlet valves.



Summary

Based on the results of this survey, the functional status of the reservoir in Kigali City can be confirmed and used as a material for creating a rehabilitation plan.

It turns out that about 25% of the distribution reservoirs are not used, and it is necessary to organize the distribution reservoir list. It leads to the lack of asset management and needs to be improved.

FVs are not installed in many reservoirs, and it is possible that the overflow of the reservoirs is affecting NRW.

There is a possibility that the water distribution situation will improve and some will be full of the reservoir.

It is recommend that you conduct a survey like this once every few years and update the information.

Reservoir List in Kigali City

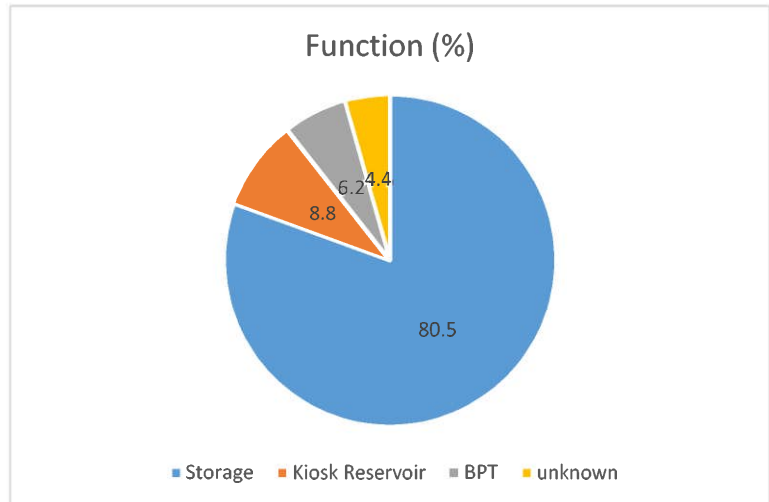
Summary of Reservoir Survey

Summary of Reservoir Survey

47	NIBX15RE3	Muyange A		Storage	30	Gravity	Abandoned	No operator	Oozed	Nothing	Always no water	Nothing	Installation 50	No installation	use it as support for Plastic tanks installed on top of reservoir	29/05/2020
47	NIBX15RE3	Muyange B		Storage	30	Gravity	Abandoned	No operator	Nothing	Nothing	Always no water	Nothing	No installation	Installation	use it as support for Plastic tanks installed on top of reservoir	29/05/2020
148	KACZ4E3RE01	UTEXRWA	Vision 2020	Storage	80	Pumping	Abandoned	No operator	Nothing	Nothing	Always no water	No data	No installation	No installation		29/10/2020
18	110503RE5	Akarambi		Storage	15	Pumping	Operational	No operator	Nothing	Nothing	Proper movment	Nothing	Malfuction 50	No installation	Reservoir Cover stolen.	30/09/2020
185		Mbandazi		Storage	250	Gravity	Operational	1 person	Nothing	Nothing	Always low Level	No data	Malfuction	No installation		
9	110503RE3	Burema	Tete	Storage	180	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	-	No installation	No installation	No functional issue, the reservoir look new and accessories are operational No Need float Valve	30/9/2020
93	110301RE5	Karama Primary	Karama PS	BPT	100	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	Nothing	Installation 150	Installation		29/9/2020
2	110506RE2	Kwamuganga	Nyarurenzi Kwa Muganga	Storage	12	Gravity	Not Operationnal	No operator	Nothing	-	Always no water	No data	No installation	Installation	Since its inauguration, it was never used	30/9/2020
		Mataba		Storage	50	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	Nothing	Malfuction 80	No installation	Johnson joint leaking, and non functioning Floater valve	30/9/2020
8	110503RE4	Mata		Storage	100		Operational	2 shift in a day	Flowing	Nothing	Proper movment	No data	No installation	Malfuction		
		Rebero Rujugiro		Storage	12	Gravity	Operational	No operator	Nothing	Nothing	Always low Level	No data	No installation	Installation	If a floater is installed, an intermediary valve is required, higher pressure when floater closes	28/9/2020
		Masaka Mbabe - Sangano			-	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	No data	No installation	Installation		
		Nyarurenzi Amahoro	Nyarurenzi Amahoro	Storage	18	Pumping	Operational	No operator	Nothing	Nothing	Proper movment	No data	No installation	Installation		30/9/2020
		Gatovu	Ntungamo	Storage	200	Pumping	Operational	1 person	Nothing	Nothing	Proper movment	Nothing	Installation 150	Installation		30/9/2020
		Camp Militaire Hill		Storage	25	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	Nothing	Malfuction 50	Malfuction		
		Akarambi		Storage	30	Pumping	Operational	No operator	Nothing	Nothing	Proper movment	Nothing	Malfuction	No installation		30/9/2020
		Nyarurenzi	Nyarurenzi Iterambere	Storage	90	Pumping	Operational	No operator	Oozed	Nothing	Always low Level	No data	No installation	No installation		30/9/2020
		Camp Militaire Mountain	Karembure	Storage	25	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	Nothing	Malfuction 50	No installation		30/9/2020
		Station Kajandi		Storage	-	Gravity	Operational	2 shift in a day	Flowing	Nothing	Proper movment	No data	No installation	-	No enough water from the connected source, more sources are available WASAC can use them	30/9/2020
		Rugendabari Model Village		Storage	100	Gravity	Operational	No operator	Nothing	Nothing	Proper movment	No data	No installation	Installation		
		Miduha		Storage	250	Pumping	Operational	1 person	Nothing	Nothing	Proper movment	No data	No installation	Installation	Under reserve force management	

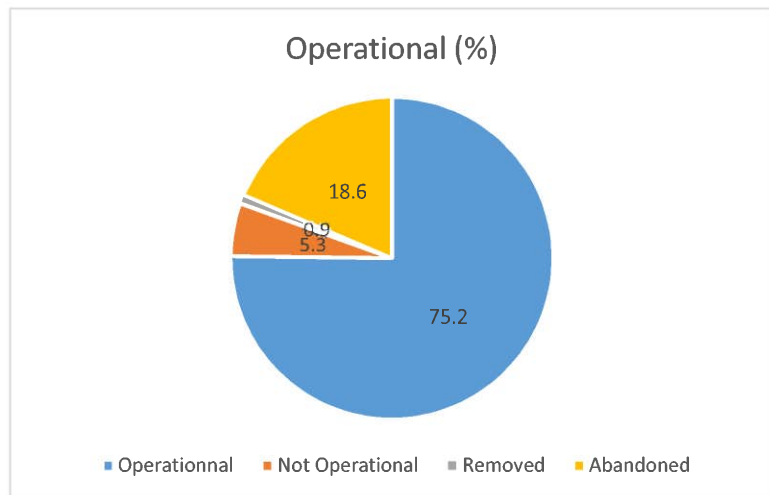
• Function of Reservoir

		(%)
Storage	91	80.5
Kiosk Reservoir	10	8.8
BPT	7	6.2
unknown	5	4.4
	113	



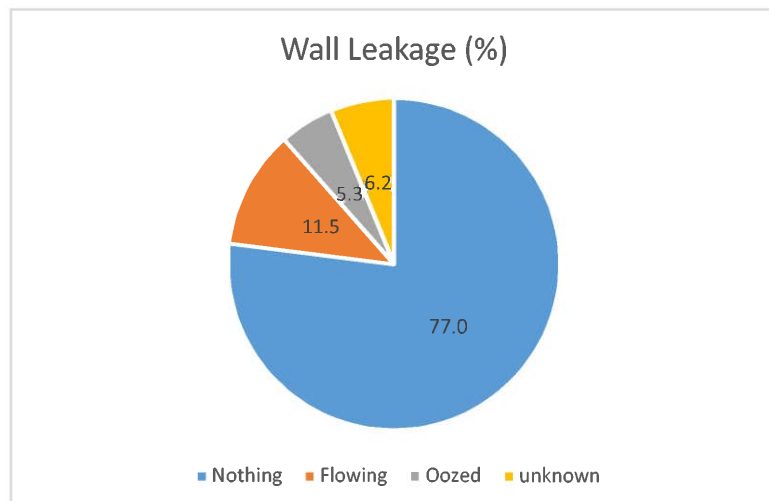
• Operational

		(%)
Operational	85	75.2
Not Operational	6	5.3
Removed	1	0.9
Abandoned	21	18.6
	113	



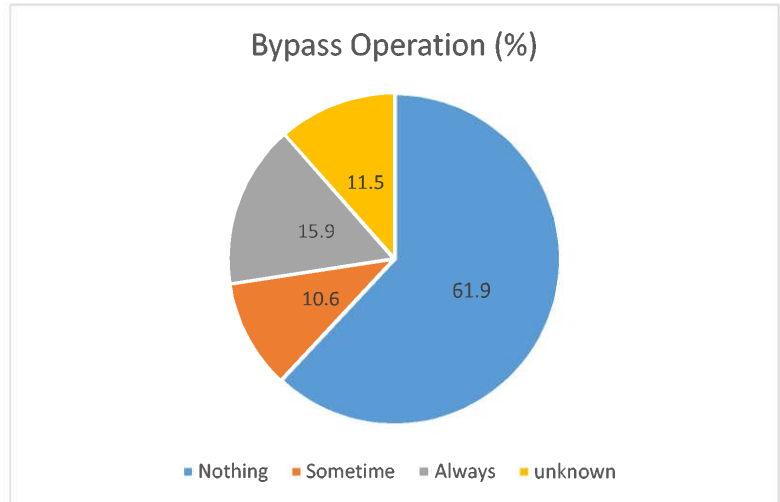
• Wall Leakage

		(%)
Nothing	87	77.0
Flowing	13	11.5
Oozed	6	5.3
unknown	7	6.2
	113	



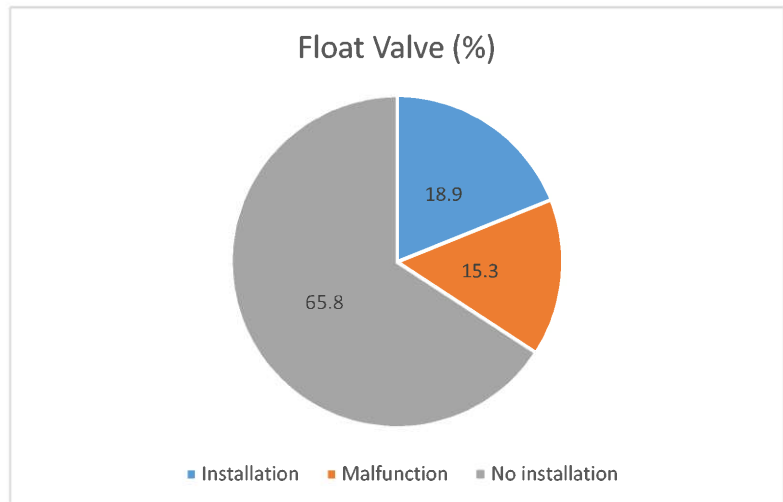
• Bypass Operation

		(%)
Nothing	70	61.9
Sometime	12	10.6
Always	18	15.9
unknown	13	11.5
113		



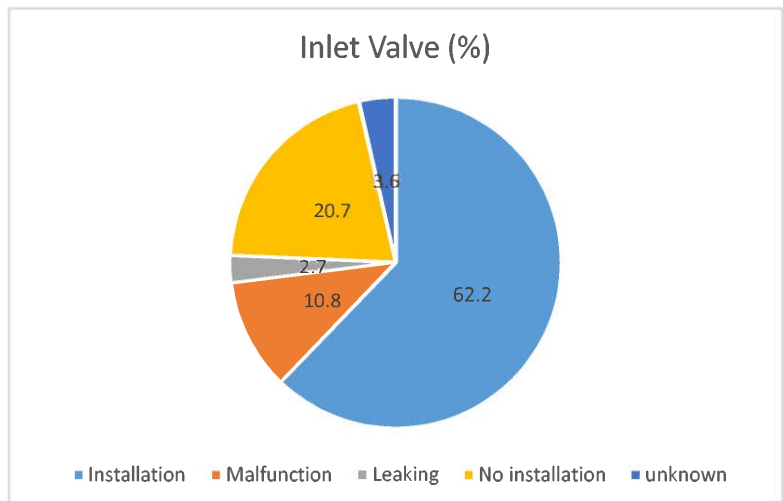
• Float Valve

		(%)
Installation	21	18.9
Malfunction	17	15.3
No installation	73	65.8
111		



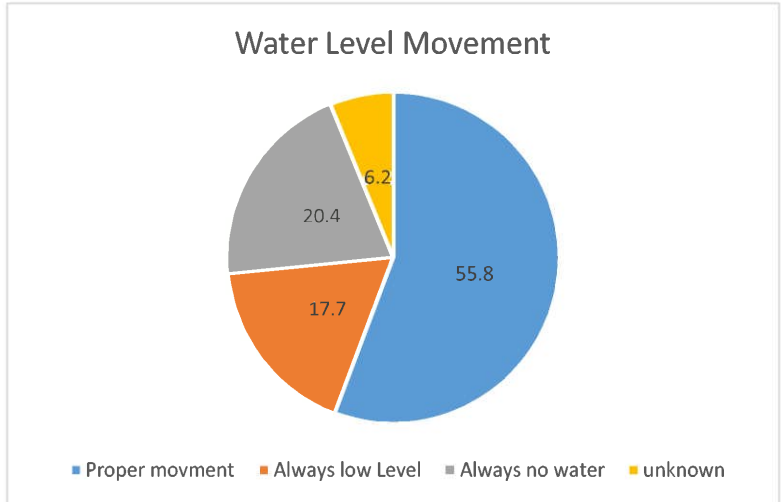
• Inlet Valve

		(%)
Installation	69	62.2
Malfunction	12	10.8
Leaking	3	2.7
No installation	23	20.7
unknown	4	3.6
111		



• Water level movement

		(%)
Proper movment	63	55.8
Always low Level	20	17.7
Always no water	23	20.4
unknown	7	6.2
113		



Survey Result Data

GIKONDO BRANCH

KACYIRU BRANCH

KANOMBE BRANCH

NYAMIRAMBO BRANCH

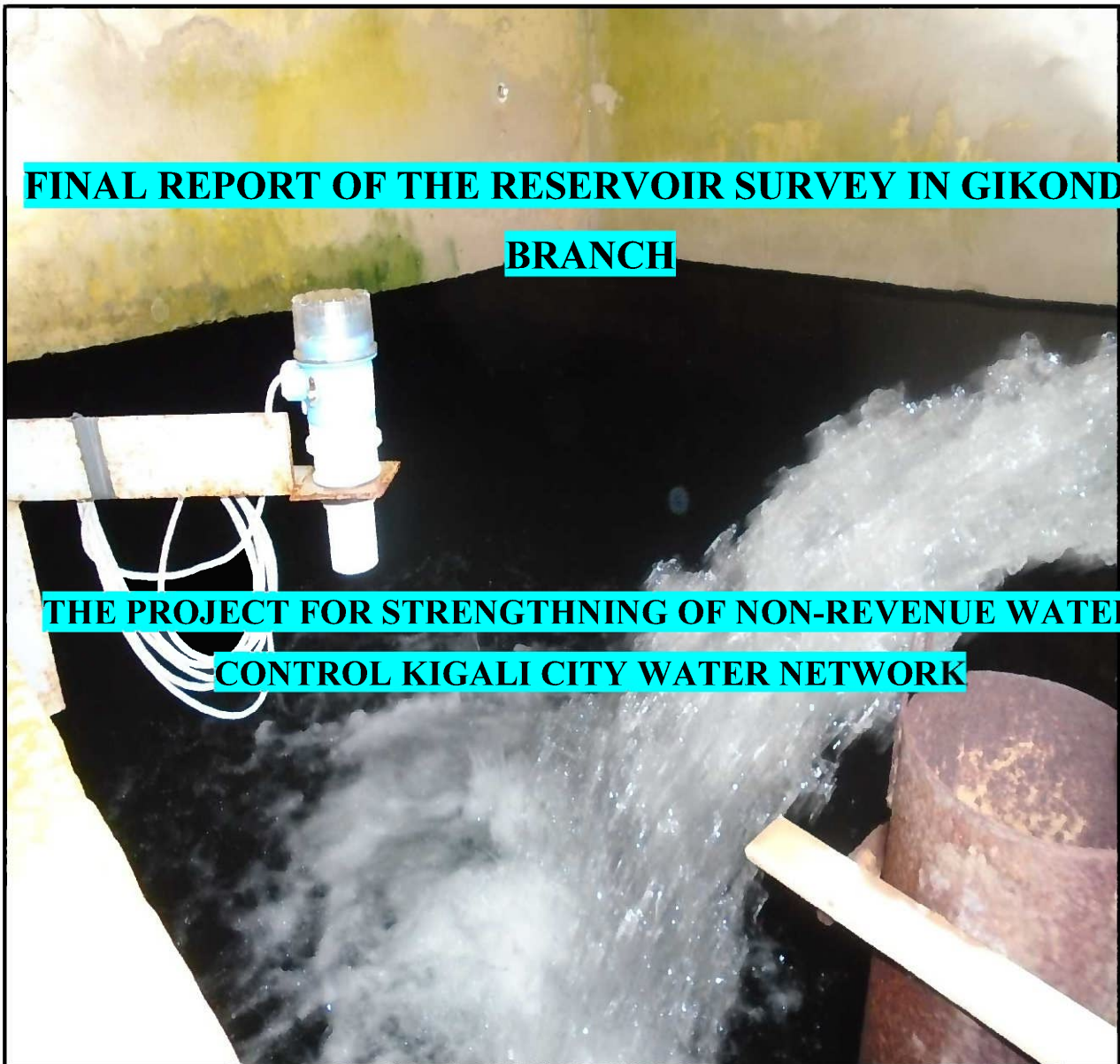
NYARUGENGE BRANCH

REMERA BRANCH

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

THE REPUBLIC OF RWANDA

KIGALI CITY



FINAL REPORT OF THE RESERVOIR SURVEY IN GIKONDO

BRANCH

THE PROJECT FOR STRENGTHNING OF NON-REVENUE WATER

CONTROL KIGALI CITY WATER NETWORK

Final report of the reservoir survey in GIKONDO Branch/KEC Co., Ltd/ WASAC Ltd/ JICA Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

1.RESERVOIR No. 47: MUYANGE A

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: Muyange

No.: 47 (a)

I. Status and Functionality issues description

The Reservoir was constructed by the District, handed over to locals for management, it receives water from Golf 7- Ku Munyinya, it was meant to serve nearby locals, after connecting it, they realized it was leaking heavily and decided to abandon it and use it as support for Plastic tanks installed on top of it.

In order to use it, an inlet manhole is needed and replacement of installed accessories is needed.

The installed floater valve will need replacement or some repairing works.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Construction of inlet manhole for in Valve or modification of inlet pipe direction.• Replacement of drainage valves• Re-plastering the tank to remove cracks and make it waterproof.• Repairing the Installed floater valve	<ul style="list-style-type: none">• 1 inlet Valve DN50• 1 Floater valve DN50• Fencing the area• Drainage canal• Construction works for inlet manhole

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

II. Description Photos



Floater Valve need Repairing or replacement



Outlet manhole need rehabilitation, cover and pipe reconnection



Inlet pipe needs a manhole and a valve.



The whole reservoir needs general rehabilitation.

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	47(a)		
Branch	Gikondo		
District	Kicukiro		
Sector	Kagarama		
Cell	Muyange		
Village	Rugunga		
Street	KK St		
GPS Coordinates Latitude	-1.9985576	y	
GPS Coordinates Longitude	30.1216441	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 29/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	47(a)
2	Name of Reservoir	Muyange (Umudugudu wa bwiza)
3	ID Code	NIBX15RE3
4	Ward	Sector: Kagarama, District: Kickiro, Cell: Muyange, Village: Rugunga
5	Branch Office	Gikondo
6	Location	Latitude: -1.9985576, Altitude: 30.1216441, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	30 m ³
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Flowing, Oozed, Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Golf 7- Gatenga ku Munyinya
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always no water
8	Issue on Functional Condition	Reservoir has been abandoned and was never used by WASAC.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	DI: 5.40m, H: 2.30m
5	Remarks/ Issue	There are cracks in and outside, after connection they realized that it was leaking up to 1m of height.

No.	Item	Details
D: Equipment		
1	Floater Valve	Function: Not in use, we can't confirm it's status, DN: 50
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 50, Top
5	Inlet valve No.1	DN: , Function: (Can't see it because it is underground)
	Inlet valve No.2	DN: , Function:
6	Outlet pipe No.1	SP, DN: 50
	Outlet pipe No.2	SP/ DIP/ PVC/ Others (), DN:
	Outlet pipe No.3	SP/ DIP/ PVC/ Others (), DN:
7	Outlet valve No.1	DN: 50, Function: YES
	Outlet valve No.2	DN: , Function:
	Outlet valve No.3	DN: , Function:
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	SP, DN: 50
10	Remarks/ Issue	<p>⊕The tank was built by the District but it was never used by WASAC due to its conditions. ⊕It is currentl being used by locals to support their tanks (plastics tanks) and it was disconnected.</p>
Other Information:		In order to use it, a manhole for inlet valve is needed.
		Repairing of outlet system is needed.

Photo Sheet

Reservoir Name: Muyange

No: 47 (a)



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve

NO METER

Meter

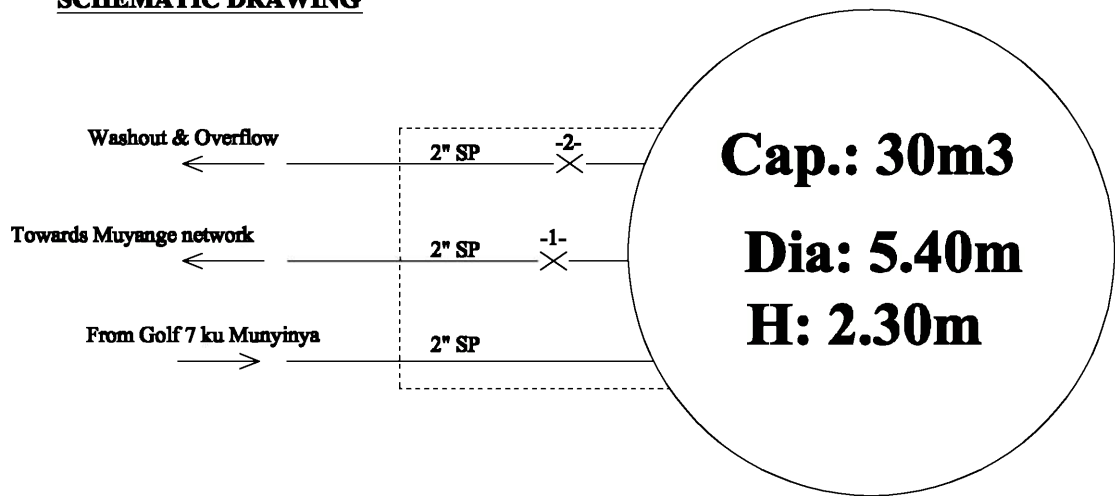
GIKONDO BRANCH

Reservoir No.: 153 (a)

Location: MUYANGE

Material: Stone masonry

SCHEMATIC DRAWING



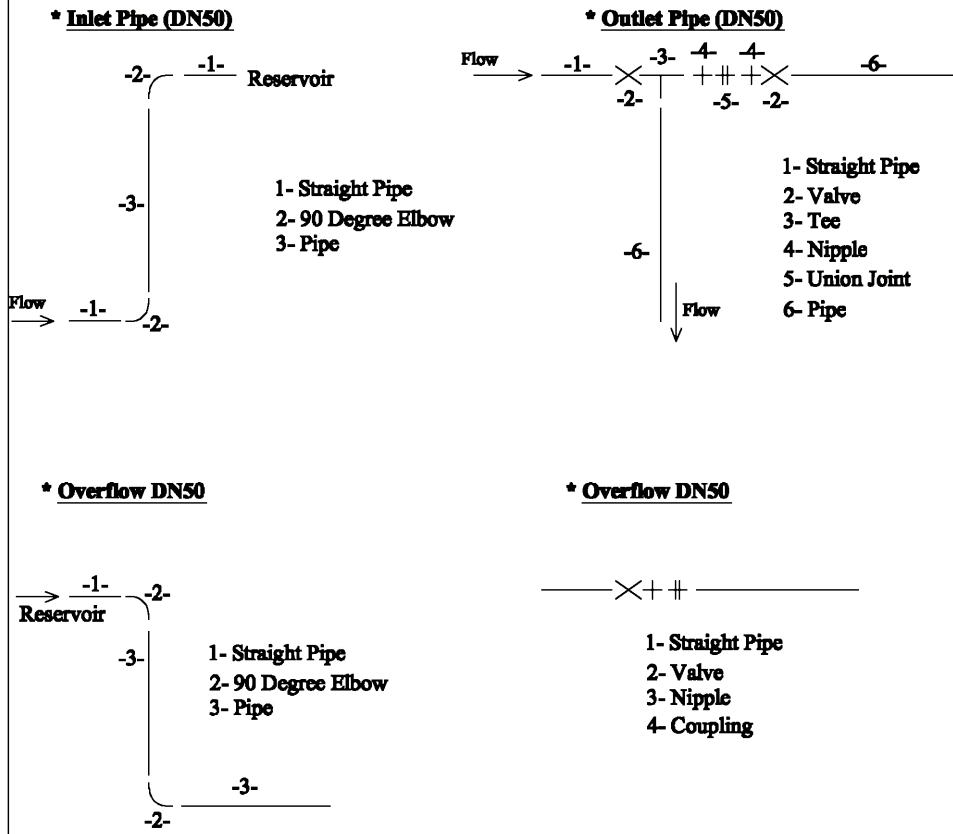
LEGEND

1, 2 - Valve DN 50

GIKONDO BRANCH

Reservoir No.: 153 (a)

Reservoir Name: MUYANGE



FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

2. RESERVOIR No. 47: MUYANGE B

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: Muyange

No.: 47 (b)

I. Status and Functionality issues description

The Reservoir was constructed by the District, handed over to locals for management, it receives water from Golf 7- Ku Munyinya, it was meant to serve nearby locals and Public Water Tap, after connecting it, they realized it was leaking heavily and decided to abandon it and use it as support for Plastic tanks installed on top of it.

In order to use it, a full re-plastering is needed.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Cover for inlet manhole.• Outlet reconnection• Replacement of drainage valves• Re-plastering the tank to remove cracks and make it waterproof.• Reinstallation of floater valve	<ul style="list-style-type: none">• 1 Floater valve DN50• Pipe DN50• Outlet valve DN50• Fencing the area• Drainage canal• Manhole cover

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

II. Description Photos



No Floater Valve



Cracks on the wall and need

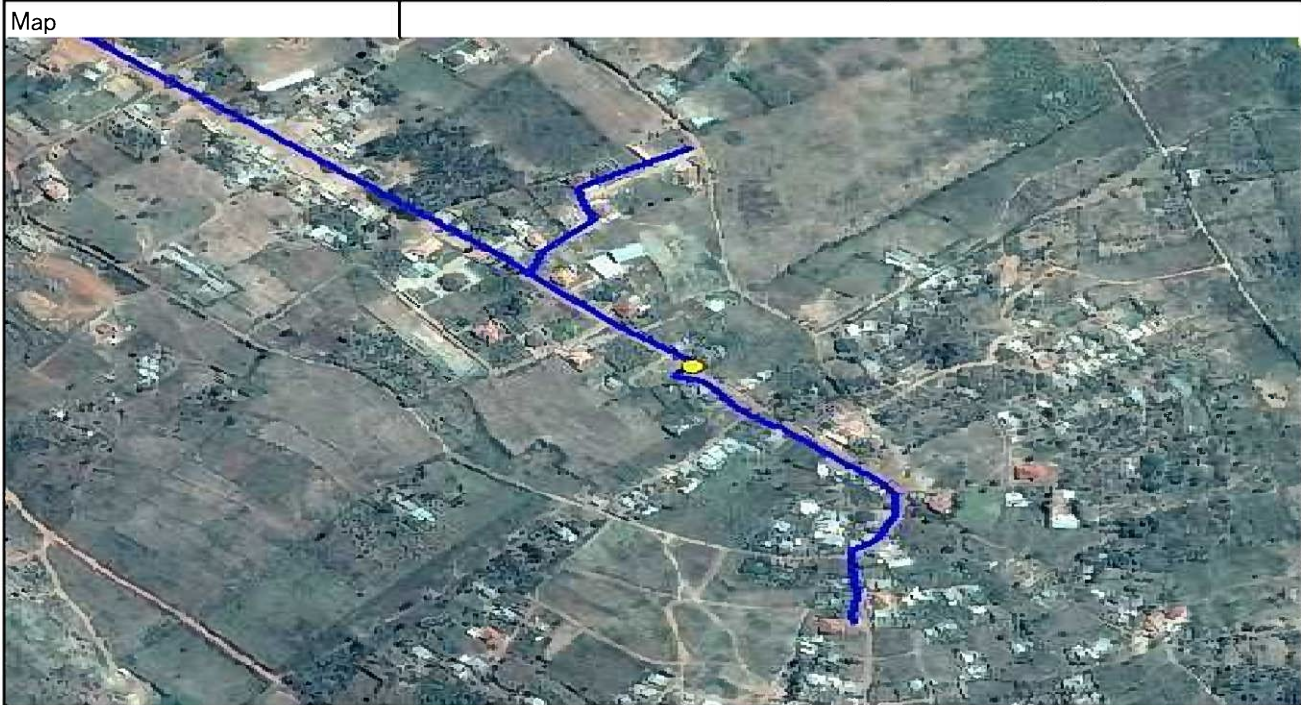


Overflow and Drain Pipe manhole need maintenance



Reconnection to the existing Public Water Tap

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	47(b)		
Branch	Gikondo		
District	Kicukiro		
Sector	Kagarama		
Cell	Muyange		
Village	Muyange		
Street	KK St		
GPS Coordinates Latitude	-2.0052269	y	
GPS Coordinates Longitude	30.1289513	x	



Attachement-3 Reservoir Survey Sheet

Date: 29/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	47(b)
2	Name of Reservoir	Muyange (Umudugudu wa bwiza)
3	ID Code	NIBX15RE3
4	Ward	Sector: Kagarama, District: Kicukiro , Cell: Muyange , Village: Muyange
5	Branch Office	Gikondo
6	Location	Latitude: -2.0052269, Altitude: 30.1289513 , Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	30 m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Flowing , Oozed, Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Golf 7- Gatenga ku Munyinya
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always low level,
8	Issue on Functional Condition	Tank was built by District and was never used by WASAC.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	DI: 5.40m, H: 2.30m
5	Remarks/ Issue	WASAC found it defective and never used it, it leaks a lot and can't store even 5% of it's capacity.

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN: 50 (Pipe)
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 50, Top
5	Inlet valve No.1	DN: 50, Function: N.A
6	Outlet pipe No.1	SP, DN: 50
	Outlet pipe No.2	SP, DN: 51
7	Outlet valve No.1	DN: 50, Function: N.A
	Outlet valve No.2	DN: 50, Function: N.A
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	SP, DN: 50
10	Remarks/ Issue	For the tank to be used a full replacement is needed because the rehabilitation cost may become expensive compared to constructing a new one.
Other Information:		It is being used by locals for the community plastic tank support, the community opted for the construction of a small BF.

Photo Sheet

Reservoir Name: Muyange

No: 47 (b)



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve

NO METER

Meter

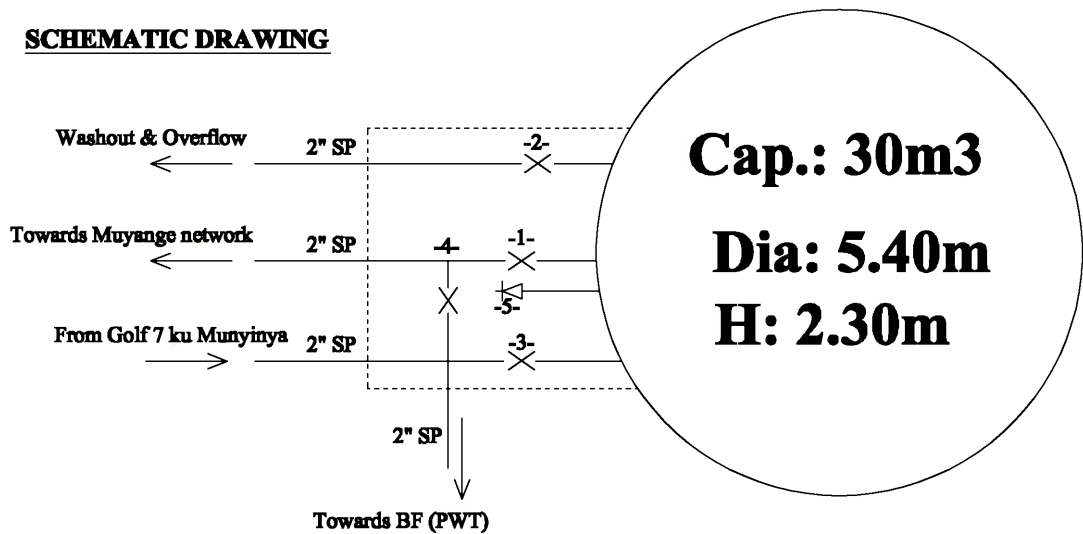
GIKONDO BRANCH

Reservoir No.: 153 (b)

Location: MUYANGE

Material: Stone masonry

SCHEMATIC DRAWING



LEGEND

1, 2, 3 - Valve DN 50

4 - Tee DN 50

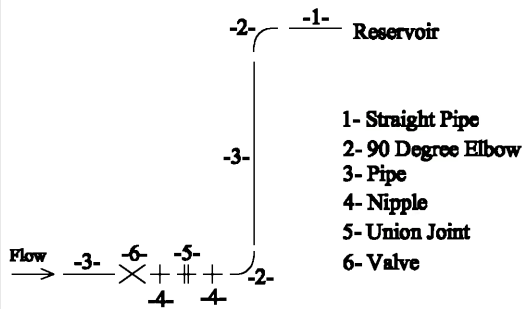
5 - End cap DN 50 for blocked outlet

GIKONDO BRANCH

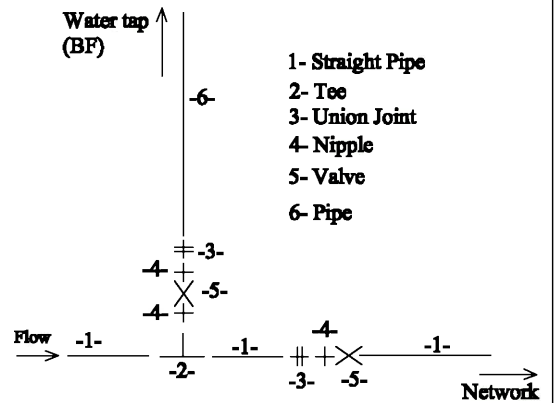
Reservoir No.: 153 (b)

Reservoir Name: MUYANGE

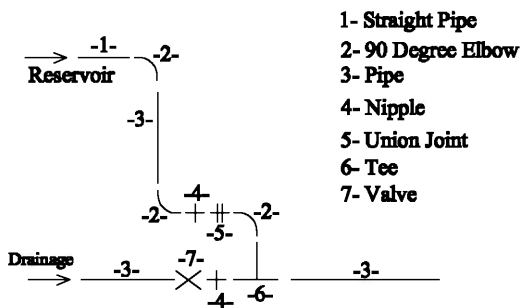
* Inlet Pipe (DN50)



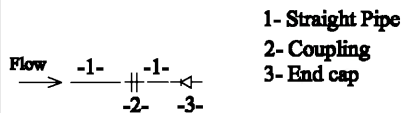
* Outlet (A) Pipe (DN50)



* Overflow & Drainage DN50



* Outlet (B) (Blocked) DN50



FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

3. RESERVOIR No. 66: GOLF 7 ku MUNYINYA

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: Golf 7 (Ku Munyinya)

No.: 66

I. Status and Functionality issues description

The Reservoir receives water from Rwandatel, to avoid overflow the Operator has to call Mont Kigali Pumping Station, when a small delay happens the loss in water is hug, but there is also a possibility of avoiding it by supplying to Kanombe.

A floater valve is needed, and water level indicator repairing is priority.

The fencing wall has fallen on upper and lower side of the station, this resulted in intrusion by passerby and theft of valve handle and now they have only one piece, if stolen consequences will be bad, meaning that the fence repairing is also a priority.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Floater Valve installation• Water level indicators installation or repairing• Replacement of Flow Meter for Reservoir No.1 and Reservoir No. 2• Replacement of Inlet Valve Reservoir No. 1 which leaks• Replacement of Outlet Valve Reservoir No. 1	<ul style="list-style-type: none">• 2 Floater valves DN200• 2 water level indicators• 2 Flow Meter DN200• 2 Valve DN200• 1 Valve DN300

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

II. Description Photos



Leaking inlet Valve Res. 1



Water level indicator not working (Defective)



No Floater Valve installed



Overflow Pipe defective (if possible replacement is recommended)



Stairs need replacement



Inlet valve Res.2 need replacement

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH



Defective Leaking vertical valve



These fallen part of fence are being used by thieves and intruders

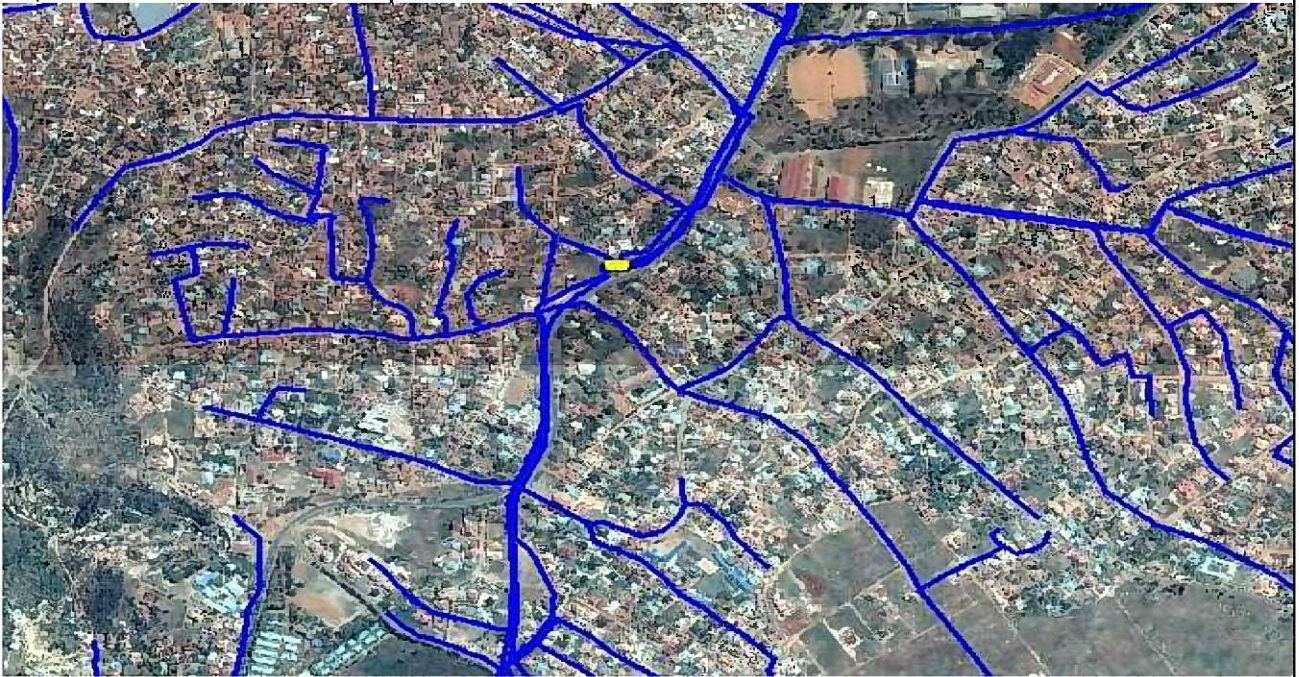


These fallen part of fence are being used by thieves and intruders

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	66		
Branch	Gikondo		
District	Kicukiro		
Sector	Gatenga		
Cell	Nyanza		
Village	Bwiza		
Street	KK 15 Rd		
GPS Coordinates Latitude	-1.9853279	y	
GPS Coordinates Longitude	30.1019499	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 29/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	66
2	Name of Reservoir	GOLF 7- Ku Munyinya
3	ID Code	KICW14RE2
4	Ward	District: Kicukiro, Sector: Gatenga , Cell: Nyanza, Village: Bwiza
5	Branch Office	Gikondo
6	Location	Latitude: -1.9853279, Altitude: 30.1019499, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	600m3
10	Service area of the Reservoir	Gatenga-Niboye-Kicukiro
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	2 shift in a day
	Action against to overflow	Calling Rwandatel and Mont Kigali Pumping Station
3	Wall Leakage	Nothing
4	Overflow observation	1 times/month, _____times/week
	Phenomenon	In case the source (Rwandatel) doesn't close the valve.
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Mont Kigali through Rwandatel area Tanks.
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C:Structure		
1	Form of Reservoir	Hexagon
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	a: 7.6m, H: 4.00m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation,
2	Water Level Gauge	Malfunction
3	Flow Meter	Mechanical at tank 1 only, DN: 200 , PN(bar): _____,
		Function: at tank 1 it is broken, at tank 1, No installation at tank 2
		Location: Inlet Pipe
4	Inlet pipe No.1	SP, DN: 200, Top
	Inlet pipe No.2	SP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: Installed but leaking
	Inlet valve No.2	DN: _____, Function:
6	Outlet pipe No.1	SP, DN: 300 reduced to 200
	Outlet pipe No.2	SP/ DIP/ PVC/ Others (_____), DN:
7	Outlet valve No.1	DN: 300, Function: YES
	Outlet valve No.2	DN: 200, Function: YES
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200 WITH A WORKING Valve
10	Remarks/ Issue	

Other Information:	Inlet tank 2- Not properly working meter
	Inlet tank 1- Meter but not working
	Inlet tank 1- 2 valves leaking on top
	Tank 1: Outlet Valve DN300 defective

Photo Sheet

Reservoir Name: Golf 7 Kumunyinya

No: 66



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



No Float Valve installed



Meter

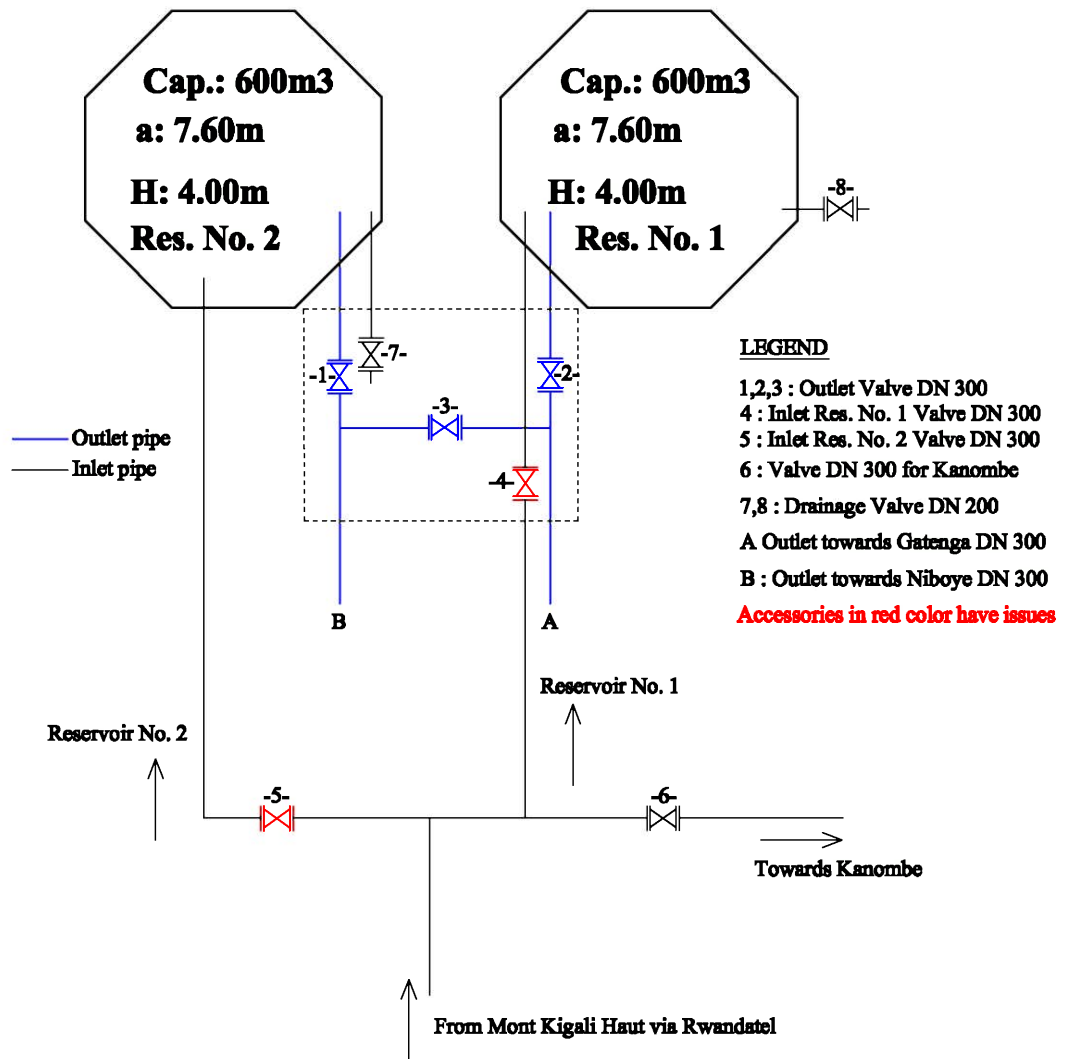
GIKONDO BRANCH

Reservoir No.: 87

Location: GOLF 7 (ku Munyinya)

Material: Concrete

SCHEMATIC DRAWING

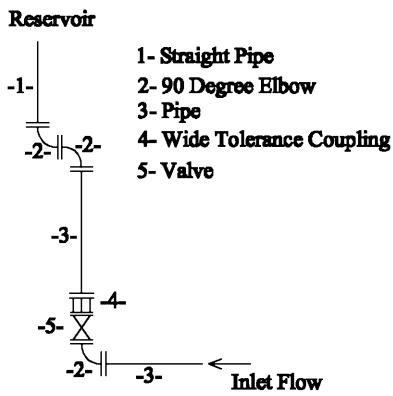


GIKONDO BRANCH

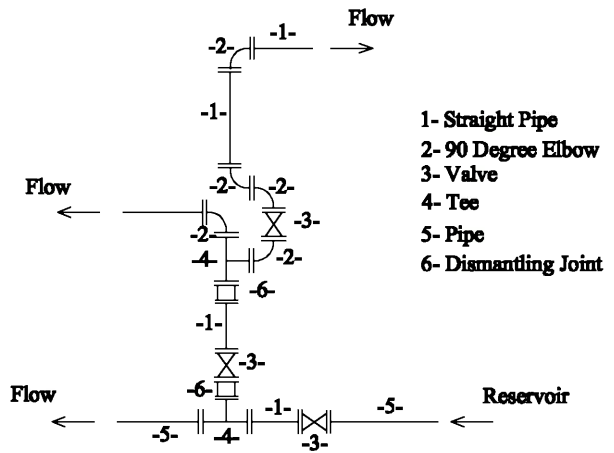
Reservoir No.: 87

Reservoir Name: Ku Munyinya

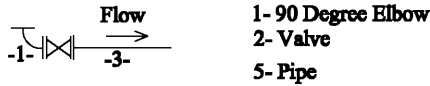
*** Inlet Pipe Res. No.1 (DN300)**



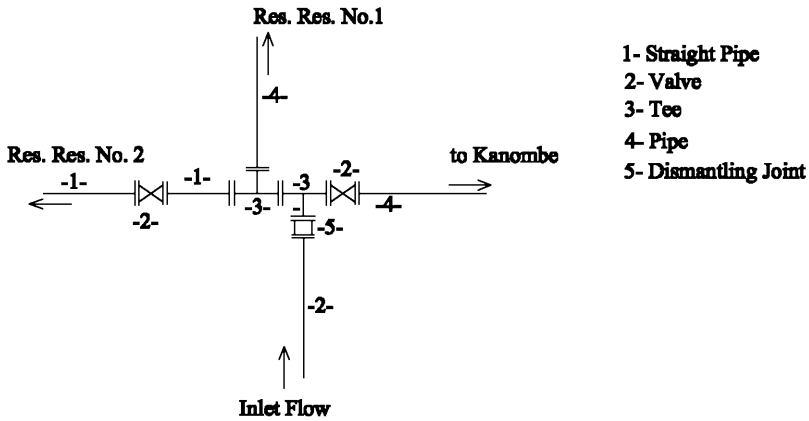
*** Outlet Pipe Res. No.1(DN300)**



*** Drainage Res. No.1 DN200**



*** Inlet Res. No.2 DN300**



FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

4. RESERVOIR No. 42: KIMISANGE

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: Kimisange

No.: 42

I. Status and Functionality issues description

The Reservoir and the newly constructed one all receive water from Nzove, but this old one also receives water from Rwampara Pumping Station.

No floater valves are installed either on the pipe from Nzove or the 2 pipes from Rwampara and are needed in other to avoid losses through overflowing.

The Manhole for Inlet Valve (Pipe from Nzove) needs a cover or protection for the operator who may need to close the DN300 valve.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of Inlet Valve from Nzove DN300• Floater Valves installation for inlet pipes from Rwampara.• Installation of Inlet Valve for inlet pipes from Rwampara• Replacement of Outlet Valve• Pressure gauge• Cover for Inlet manhole (pipe from Nzove)	<ul style="list-style-type: none">• 1 Valve DN300• 2 Floater valves DN100• 2 Valve DN100• 1 Valve DN80• 1 Pressure Gauge• Construction workk

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

II. Description Photos



Inlet from Nzove Valve DN300 (Not working)



Inlet from Nzove Pipe DN300 (No floater)



Inlet from Rwampara DN100 (no inlet valve or Floater valve)



Overflow Pipe

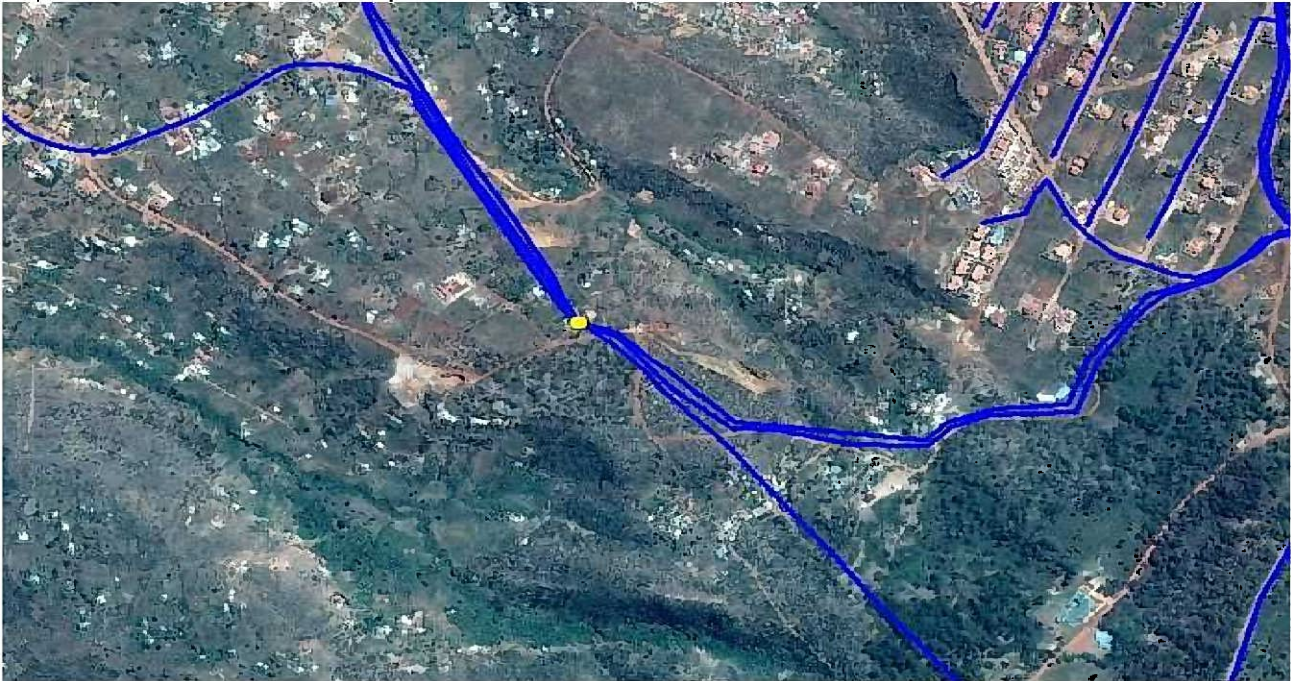


Pump with a Pressure Gauge which doesn't work

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	42		
Branch	Gikondo		
District	Kicukiro		
Sector	Kigarama		
Cell	Nyarurama		
Village	Rebero		
Street	KK 736 St		
GPS Coordinates Latitude	-2.0010641	y	
GPS Coordinates Longitude	30.0588766	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 29/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	42
2	Name of Reservoir	Kimisange
3	ID Code	KIGY11RE1
4	Ward	Sector: Kigarama, District: Kicukiro, Cell: Nyarurama, Village: Rebero
5	Branch Office	Gikondo
6	Location	Latitude: 2.0010641, Altitude: 30.0588766, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	m ³
10	Service area of the Reservoir	Rebero, RDF Defense, Mageragere
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	2 shift in a day
	Action against to overflow	Closing Valve from Nzove, Call Rwampara for Pump Switch off.
3	Wall Leakage	Nothing
4	Overflow observation	0
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Rwampara and Nzove
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Semi-ground
3	Structure Material	Stones
4	Inside Dimension	D: 5.9m / L: × B: , H: 2.00m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 80 & 150 in the pumping station, PN(bar): N/A,
		Function: YES
		Location: Outlet Pipe (INSIDE Pump house)
4	Inlet pipe No.1	SP, DN: 300, Roof (From Nzove WTP)
	Inlet pipe No.2	SP, DN: 100 , Top (From Rwampara WTP)
5	Inlet valve No.1	DN: 300, Function: Not closing (on pipe from Nzove)
6	Outlet pipe No.1	SP, DN: 80
	Outlet pipe No.2	SP, DN: 100
	Outlet pipe No.3	SP, DN: 80
7	Outlet valve No.1	DN: 80, Function: YES
	Outlet valve No.2	DN: 100, Function: YES
	Outlet valve No.3	DN: 80, Function: YES
8	Overflow Pipe	SP, DN: 80
9	Drain Pipe	SP, DN: 80
10	Remarks/ Issue	1 Outlet Valve DN80 is not FULLY operational, need replacement.

Other Information:

Photo Sheet

Reservoir Name: Kimisange

No: 42



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



No Float Valve installed



Meter DN80



Meter DN150

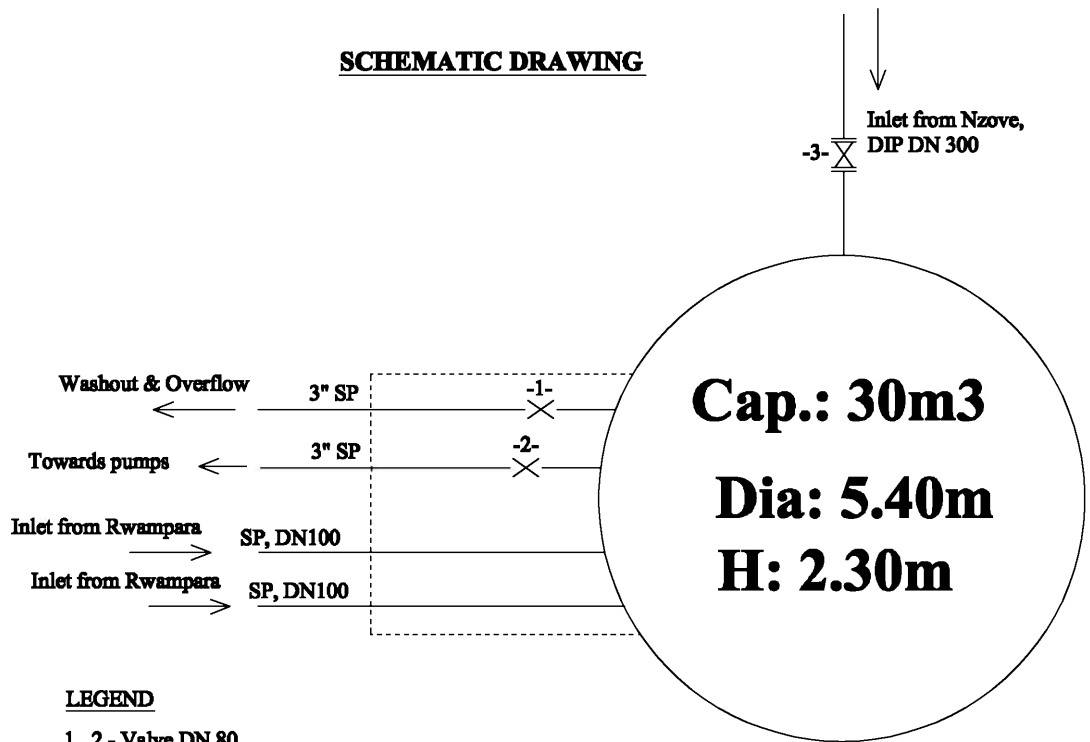
GIKONDO BRANCH

Reservoir No.: 86

Location: KIMISANGE

Material: Stone masonry

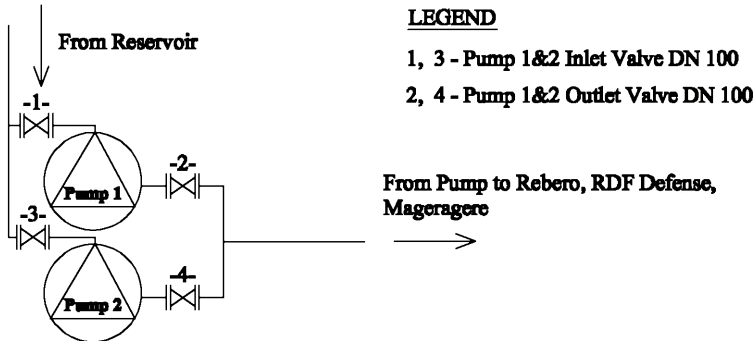
SCHEMATIC DRAWING



LEGEND

- 1, 2 - Valve DN 80
- 3 - Valve DN 300

INSIDE PUMP HOUSE



LEGEND

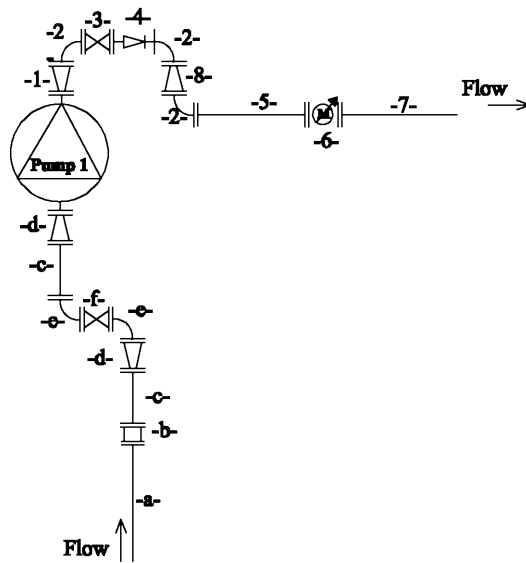
- 1, 3 - Pump 1&2 Inlet Valve DN 100
- 2, 4 - Pump 1&2 Outlet Valve DN 100

GIKONDO BRANCH

Reservoir No.: 86

Reservoir Name: Kimisange Pumping Station

*** Pump No. 1**



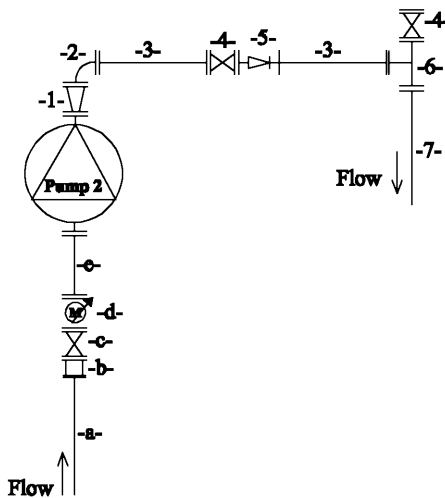
*** Discharge Pipe Res. No.1(DN200/100)**

- 1- Reduced Cone DN100/50
- 2- 90 Degree Elbow
- 3- Valve
- 4- Check Valve
- 5- Straight pipe
- 6- Water Meter DN200
- 7- Pipe
- 8- Reduced Cone DN200/100

*** Suction SP DN100/80**

- a- Pipe
- b- Dismantling Joint
- c- Straight pipe
- d- Reduced Cone DN100/80
- e- 90 Degree Elbow
- f- Valve

*** Pump No. 2**



*** Discharge Pipe Res. No.1(DN100)**

- 1- Reduced Cone DN100/50
- 2- 90 Degree Elbow
- 3- Straight pipe
- 4- Valve
- 5- Check valve
- 6- Tee
- 7- Pipe

*** Suction SP DN100**

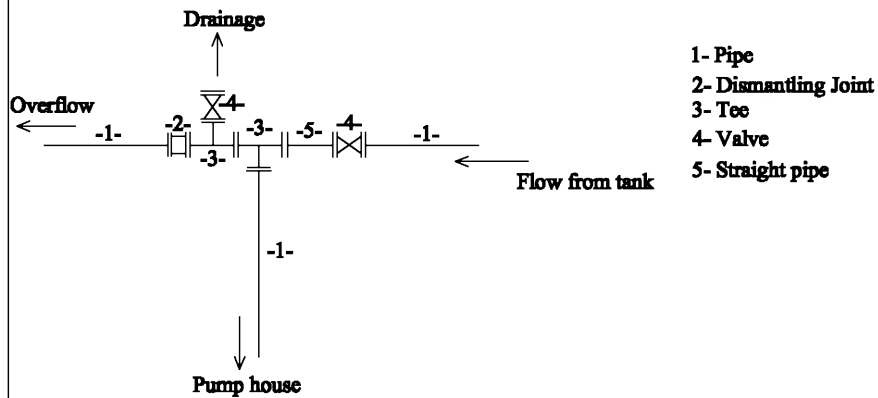
- a- Pipe
- b- Dismantling Joint
- c- Valve
- d- Water Meter DN100
- e- Straight pipe

GIKONDO BRANCH

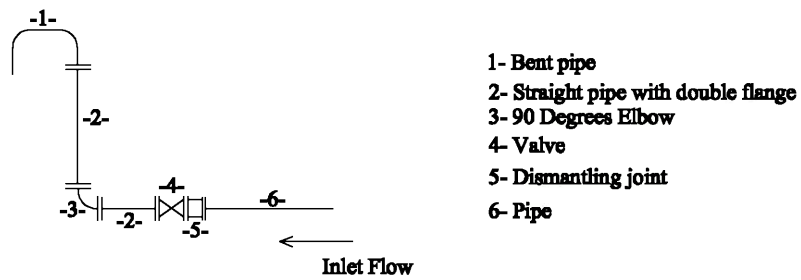
Reservoir No.: 86

Reservoir Name: Kimisange

* Pump Supply, Drainage and Overflow pipe (SP DN80)



* Inlet Pipe from Nzove Reservoir (DIP DN300)



FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

4. RESERVOIR No. 57: RWAMPARA

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: Rwampara

No.: 57

I. Status and Functionality issues description

The underground Reservoir receives water from Rwampara catchments, the input (inlet from catchment) is composed of 5 pipes in which only 3 of them pass through a collection chamber, 2 has no collection chamber, in all the 5 pipes only 2 has a drainage valve and they have to be installed in order to avoid draining the whole water in case one pipe has a high turbidity.

Passing the 2 other pipes through the collection chamber and providing drainage valves to all the inlet pipes will allow a more controlled water reception, it will also help in avoiding draining the whole reservoir.

The pump house has problems and it needs to be rehabilitated.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of Inlet Valves• Replacement of the existing Collection chamber outlet valve• Wrench Key (Cle à béquille : Key for inlet pipe drainage valve)• Providing drainage for 3 other inlet valves• Drainage system for existing manholes which become flooded during rain period.• Pump outlet valve replacement• Connecting the other 2 pipes to the collection chamber• Checking the 5th inlet pipe for functionality	<ul style="list-style-type: none">• 2 Valve DN80• 1 Valve DN80• 1 key Wrench• 6 Valve DN80• 1 Valve DN80• 1 Valve DN80• Construction work

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

II. Description Photos



Outlet Collection Chamber DN80



Collection Chamber drainage valve



Drainage is need for 3 of the 5 inlet pipes

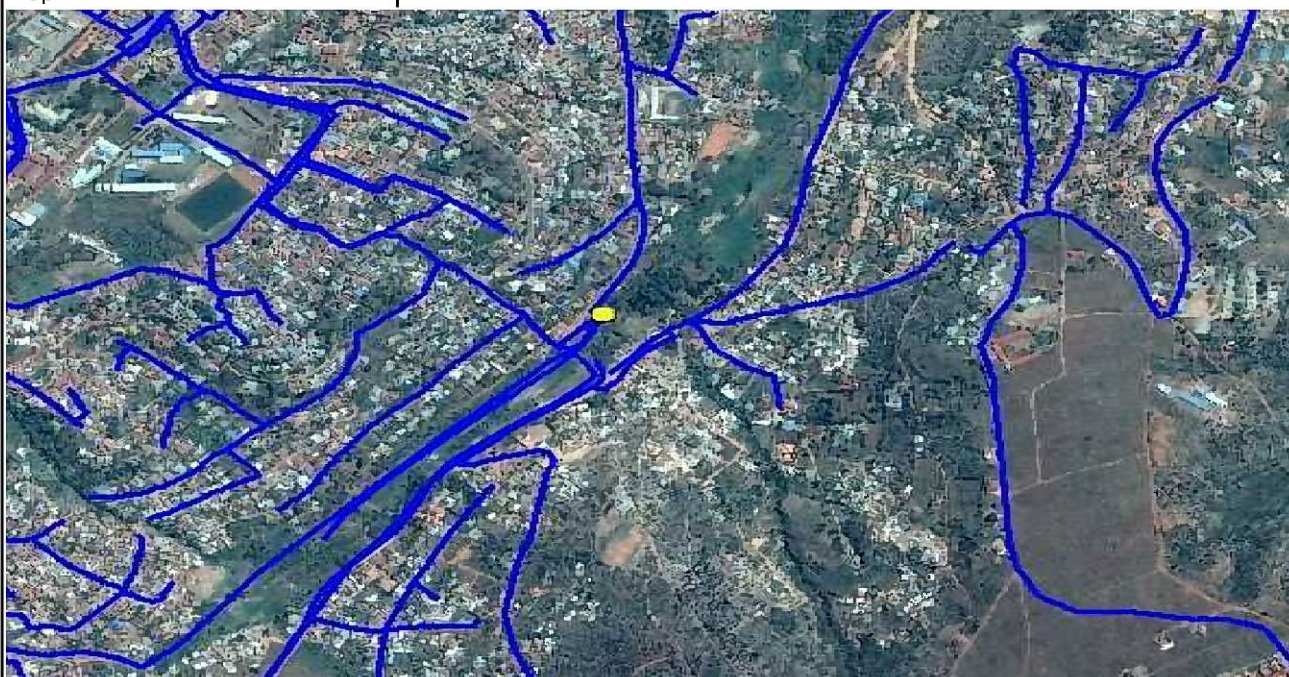


Pump House needs maintenance



Pump outlet valve need replacement DN80

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	57		
Branch	Gikondo		
District	Nyarugenge		
Sector	Nyamirambo		
Cell	Mumena		
Village	Rwampara		
Street	KN 129 St		
GPS Coordinates Latitude	-1.9817248	y	
GPS Coordinates Longitude	30.0588816	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 29/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	57
2	Name of Reservoir	Rwampara (known as Indatwa Village)
3	ID Code	KIGX12RE2
4	Ward	Sector: Nyamirambo, District: Nyarugenge, Cell: Mumena, Village: Rwampara
5	Branch Office	Gikondo
6	Location	Latitude: -1.9817248, Altitude: 30.0588816, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	150 m ³ (120m ³ according to technician)
10	Service area of the Reservoir	Kimisange Tank
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	2 shift in a day
	Action against to overflow	None
3	Wall Leakage	Flowing (at the bottom of the valve chamber)
4	Overflow observation	_____ times/month, <u>1</u> time /week
	Phenomenon	In case they are not pumping
	Reason of overflow	The reservoir become full and the only solution is to let it overflow
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Rwampara sources
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	L section
2	Foundation	Underground
3	Structure Material	Concrete
4	Inside Dimension	L: 15.00m × B: 5.00m, H: 2.00m
5	Remarks/ Issue	L-Sections, the tank is located in a marshaland and possibility of flooding are very high.

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN: 80 (Size of pipes)
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: _____, PN(bar): _____,
		Function: YES
		Location: Outlet Pipe
4	Inlet pipe No.1	PVC, DN: 80, Top
	Inlet pipe No.2	PVC, DN: 100, Top
	Inlet pipe No.3	PVC, DN: 80, Top
5	Inlet valve No.1	DN: 80, Function: No
	Inlet valve No.2	DN: 80, Function: No
6	Outlet pipe No.1	SP, DN: 80
	Outlet pipe No.2	SP, DN: 80
7	Outlet valve No.1	DN: 80, Function: YES
	Outlet valve No.2	DN: 80, Function: YES
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200
10	Remarks/ Issue	Inlet valves installed on pipe from the source not operational

Other Information:	1 Drainage valve need a manhole or a key (Clé à bequille)
	3 Pipes from the source need drainage system with a valve which may help in draining water during rain season in case of turbidity from one particular pipe
	An existing manhole needs a stair, cover and keys (Clés à bequille)
	The existing manhole needs a drainage system.

Photo Sheet

Reservoir Name: Rwampara

No: 57



Whole View



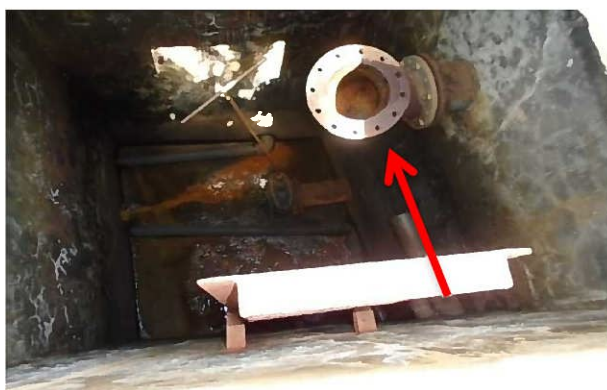
Meter



Inlet Pipe with Valve (Collection chamber outlet valve)



Outlet Pipe with Valve



Overflow pipe



Drainage Valve (Leaking but not to much)



Inside of Manhole



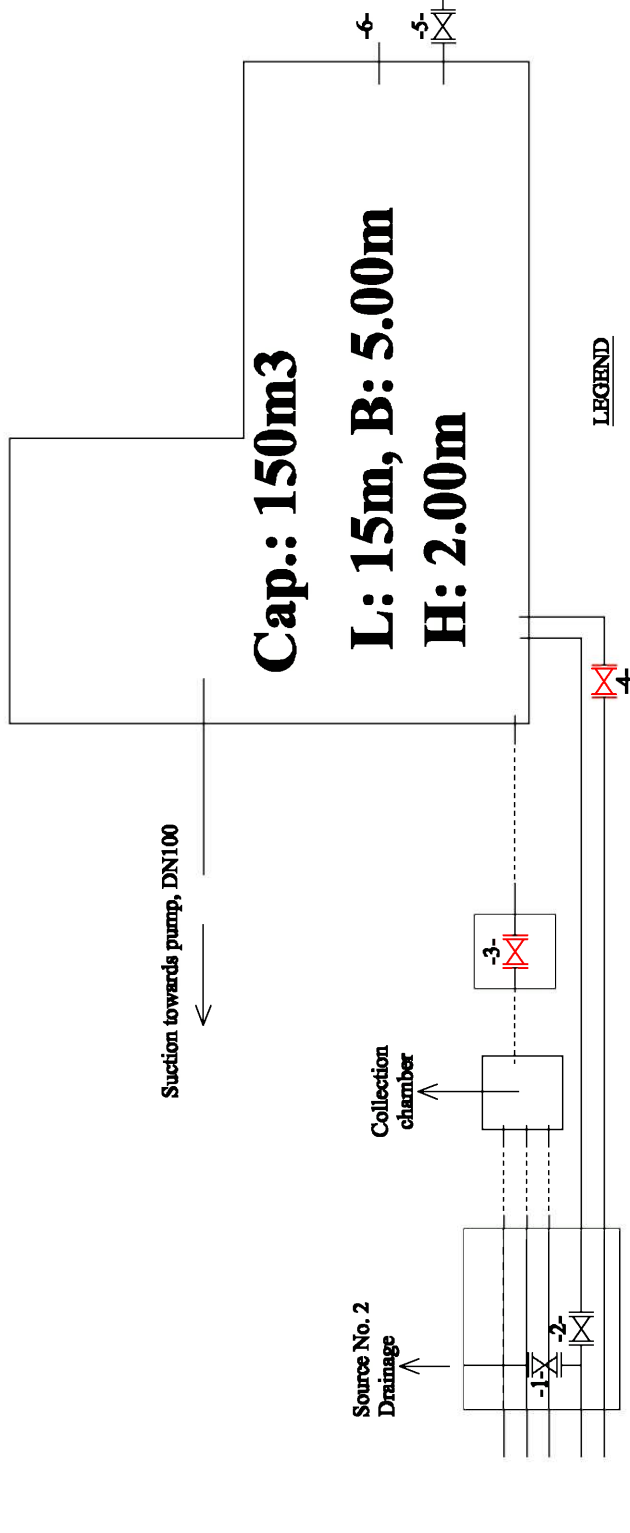
Inlet No. 4 with valve and needs to pass through a collection chamber

GIKONDO BRANCH

Reservoir No.: 42

Location: RWAMPARA

Material: Concrete



LEGEND

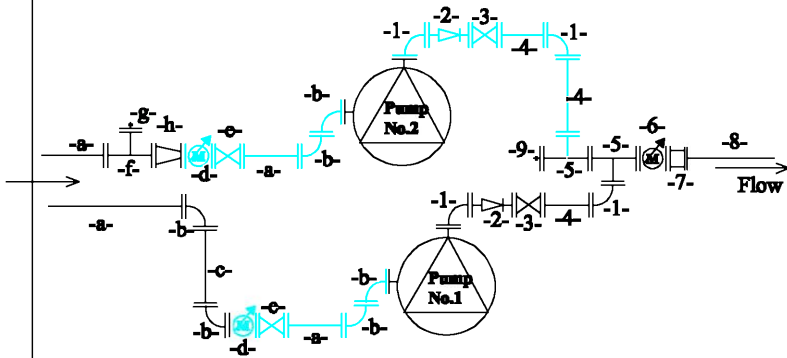
- 1- Source Drainage Valve DN 80
 - 2,3,4 - Valve DN 80
 - 5 - Reservoir Drainage Valve DN 200
 - 6 - Overflow pipe DN200
- Accessories in red color have issues

GIKONDO BRANCH

Reservoir No.: 42

Reservoir Name: Rwampara Pumping Staion

*** Pump Supply to Kimisange**



- 1- 90 Degrees Elbow
- 2- Check valve
- 3- Valve
- 4- Straight pipe with double flange
- 5- Tee
- 6- Meter
- 7- Dismantling joint
- 8- Pipe
- 9- End cap

*** Suction SP DN100**

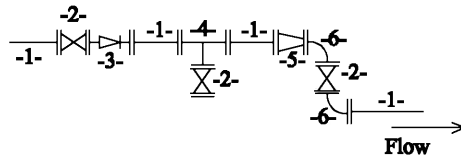
- a- Straight pipe with flange
- b- 90 Degrees Elbow
- c- Pipe
- d- Water Meter
- e- Valve
- f- Tee
- g- End Cap
- e- Reduced Cone

GIKONDO BRANCH

Reservoir No.: 42

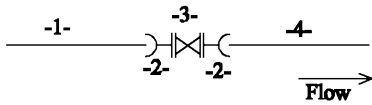
Reservoir Name: Rwampara Pumping Staion

*** Supply from pump (Outside pump house)**



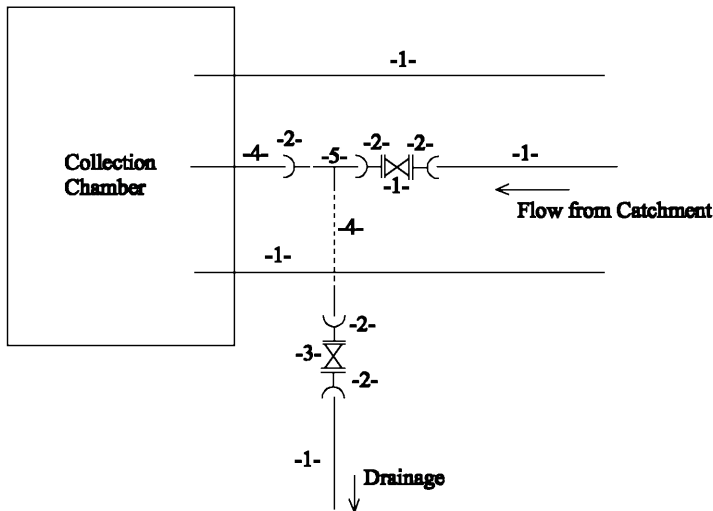
- 1- Straight pipe
- 2- Valve
- 3- Check valve
- 4- Tee
- 5- Reduced Cone
- 6- 90 Degree Elbow

*** Inlet Reservoir**



- 1- Straight pipe
- 2- Wide tolerance Adaptor
- 3- Valve
- 4- Pipe

*** Collection Chamber PVC DN110**



- 1- Pipe
- 2- Adaptor
- 3- Valve
- 4- Staright pipe
- 5- Tee

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

5.RESERVOIR No.24: REBERO RADARI

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: REBERO RADARI

No.: 24

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

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Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	24
2	Name of Reservoir	Rebero Radari
3	ID Code	GATZ12RE1
4	Ward	Sector: Kigarama, District: Kicukiro, Cell: Bwerankori , Village: Rebero
5	Branch Office	Gikondo
6	Location	Latitude: - 2.00681536, Longitude: 30.06568824, Altitude: 1802m
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No data
9	Storage Capacity	250m3
10	Service area of the Reservoir	Rebero RDF and Nyanza Uphill
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	
6	Inflow Condition	Source: Kimisange
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C:Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Ground
3	Structure Material	Steel
4	Inside Dimension	L: 9.60m × B: 7.20m, H: 3.60m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	Meter towards RDF, DN100, PN16
4	Inlet pipe No.1	SP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: YES
6	Outlet pipe No.1	SP, DN: 200
7	Outlet valve No.1	DN: 200, Function:
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200 (=Valve)
10	Remarks/ Issue	

Other Information:	Outlet towards RDF, Pipe: Meter DN100, Valve: DN200, Plus Reduction
--------------------	---

Photo Sheet

Reservoir Name: Rebero Radar

No:24



Whole View



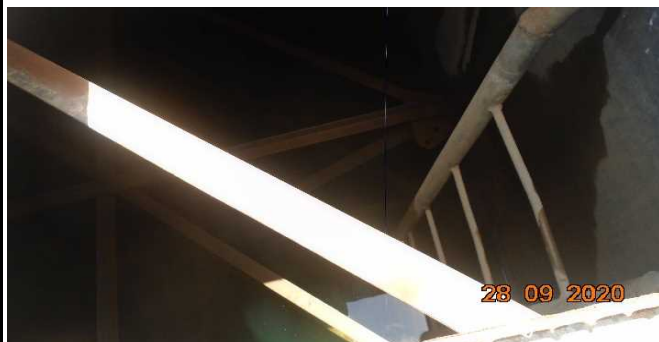
Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



No Float Valve



Meter



Meter Specification



Inlet Pipe With Valve



Inlet Pipe



Inlet Pipe With Valve

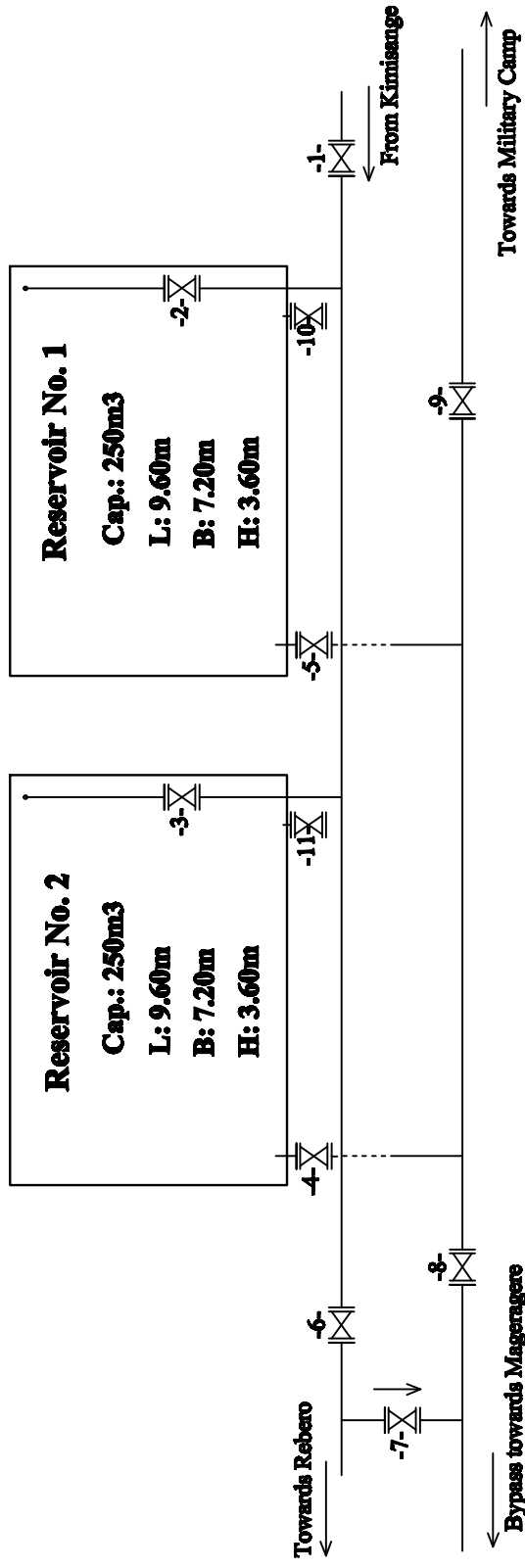
GIKONDO BRANCH

Reservoir Name: Rebero-Radar

Reservoir No.: 135

Location: Rebero

Material: Steel



LEGEND

1,2,3 - Inlet Valves DN200

4,5 - Outlet Valves DN200

6 - Network Valve towards Rebero DN200

7- Bypass Valve DN200

8- Outlet Valve Towards Mageragere DN200

9- Outlet Valve Towards Military Camp DN200

10, 11 - Drainage Valve DN200

N.B: Reservoir No. 1 leaks at its bottom and on one side between 2 bolts.

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

6.RESERVOIR No.: REBERO RUJUGIRO**

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: REBERO

No.: **

I. Status and Functionality issues description

Floater valve needed, Valve needed between the reservoir and the source.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of a floater valve DN50• Installation of valve DN50 (Vanne d'equilibre)	<ul style="list-style-type: none">• 1 Floater valve DN50• 1 Valve DN50

III. Description Photos



Floater needed.

Attachement-3 Reservoir Survey Sheet

Date: 28/10/2020

No.	Item	Details
A: General		
1	Number of Reservoir	53
2	Name of Reservoir	Kuri petit prince
3	ID Code	KIGX12RE1
4	Ward	Sector: Gikondo, District: Kicukiro, Cell: Kagunga , Village: Rebero
5	Branch Office	Gikondo
6	Location	Latitude: 1.987856, Longitude: 30.07194, Altitude:
7	Function of Reservoir	BPT
8	Age of Reservoir	No data
9	Storage Capacity	120 m3
10	Service area of the Reservoir	Rujugiro Village
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Rwampara via Rebero
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always low level
8	Issue on Functional Condition	If a floater is installed, an intermediary valve is required, higher pressure when floater closes (Vanne d'equilibre est requise)
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 6.30m, H: 4.20m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN: 50
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 50, Top
5	Inlet valve No.1	DN: 50, Function: YES
6	Outlet pipe No.1	SP, DN: 50
7	Outlet valve No.1	DN: 50, Function: YES
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	No data
10	Remarks/ Issue	

Other Information:

Photo Sheet

Reservoir Name: Rebero Rujugiro

No:



Whole View

Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



No Float Valve installed

No Meter

Meter

GIKONDO BRANCH

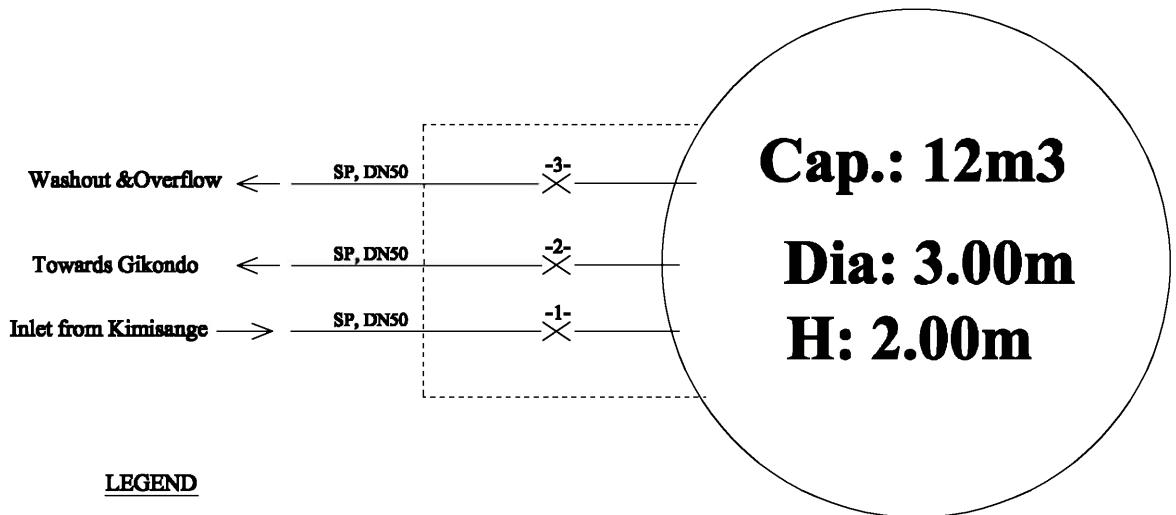
Reservoir Name: Rebero (Rujugiro)

Reservoir No.: **XXX**

Location: Rebero

Material: Concrete

SCHEMATIC DRAWING



LEGEND

- 1 - Inlet Valve DN50
- 2 - Outlet Valve DN50
- 3 - Drainage Valve DN50

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

7. RESERVOIR No. 28: Nyanza Uphill

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: Nyanza Uphill

No.: 28

I. Status and Functionality issues description

Floater needed,

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of a floater valve DN200• Installation of 90 Degree elbow DN400• installation of Reduced cone 400/200	<ul style="list-style-type: none">• 1 Floater valve DN200• 1 Elbow with 90Degree• 1 Reduced Cone 400/200

III. Description Photos



Floater on DN400 Pipe needed



Floater DN200 needed for inlet 1

Attachement-3 Reservoir Survey Sheet

Date: 28/10/2020

No.	Item	Details
A: General		
1	Number of Reservoir	28
2	Name of Reservoir	Nyanza
3	ID Code	GAHZ14RE1
4	Ward	Sector: Kagarama, District: Kicukiro , Cell: Rukatsa, Village: Nyanza
5	Branch Office	Gikondo
6	Location	Latitude: - 2.003365, Longitude: 30.09739, Altitude: Null
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No data
9	Storage Capacity	450 m3
10	Service area of the Reservoir	Nyanza, Rukatsa area, Gahanga and RDF Position
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Rwampara via Rebero
		Water pressure at inlet:
		Frequency and time: Everyday
7	Water level movement	always low level
8	Issue on Functional Condition	
C:Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	L: 11.80m, B: 11.80m, H: 3.20m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve - Inlet 1	Malfunction (Defective), DN: 200
	Floater Valve - Inlet 2	No installation, DN: 400
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 16" , PN(bar): <u>Not visible</u>
		Function
		Location: Outlet Pipe
4	Inlet pipe No.1	SP, DN: 200, Top
	Inlet pipe No.2	DIP, DN: 400, Roof
5	Inlet valve No.1	DN: 200, Function: YES
	Inlet valve No.2	DN: 400, Function: YES
6	Outlet pipe No.1	DIP, DN: 200
7	Outlet valve No.1	DN: 200, Function: YES
8	Overflow Pipe	DIP, DN: 200
9	Drain Pipe	DIP, DN: 200
10	Remarks/ Issue	No floater needed, Manhole needs cover.

Other Information:

Photo Sheet

Reservoir Name: Nyanza Uphill

No:28



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter



Defective Floater



Meter

GIKONDO BRANCH

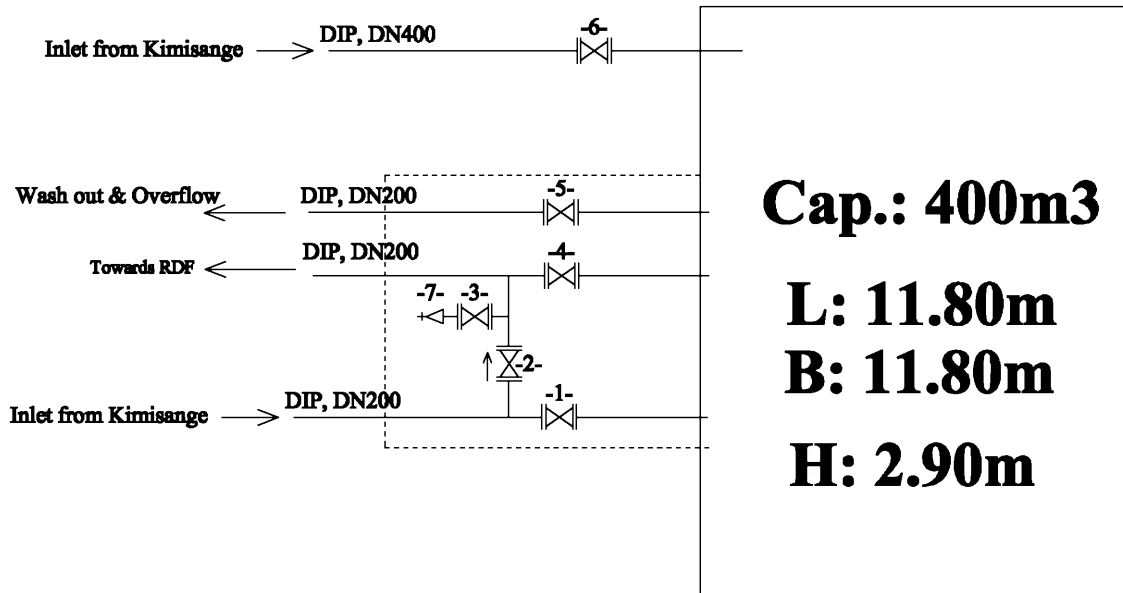
Reservoir Name: Nyanza

Reservoir No.: 116

Location: Nyanza (Kicukiro)

Material: Concrete

SCHEMATIC DRAWING



LEGEND

- 1 - Inlet Valve DN200
- 2 - Bypass Valve DN200
- 3 - Valve for Air Valve DN200
- 4 - Outlet Valve DN200
- 5 - Washout Valve DN200
- 6 - Inlet 2 Valve DN400
- 7 - Air Valve

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

8. RESERVOIR No. 52: BYIMANA

FINAL REPORT ON THE RESERVOIR SURVEY IN GIKONDO BRANCH

BRANCH: GIKONDO

Reservoir: BYIMANA

No.: 52

I. Status and Functionality issues description

Replacement of existing check valve, Outlet valves need replacement.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of a Check valve DN150• Installation of Outlet valve DN150	<ul style="list-style-type: none">• Check valve DN150• 2 Valves DN150

III. Description Photos



Replacement of non-functioning Check Valve

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	52
2	Name of Reservoir	Byimana
3	ID Code	NIBX16RE1
4	Ward	District: Kicukiro, Sector: Kagarama, Cell: Kanserege, Village: Muyange
5	Branch Office	Gikondo
6	Location	Latitude: 1.988536, Longitude: 30.118962, Altitude:
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No data
9	Storage Capacity	150 m3
10	Service area of the Reservoir	Muyange
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Byimana
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Concrete
4	Inside Dimension	D: 8.20m, H: 2.50m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 100 , PN(bar): _____,
		Function
		Location: Outlet Pipe
4	Inlet pipe No.1	PVC, DN: 110, Top
	Inlet pipe No.2	PVC, DN: 110, Top
5	Inlet valve No.1	No installation
	Inlet valve No.2	No installation
6	Outlet pipe No.1	DIP, DN: 100
	Outlet pipe No.2	DIP, DN: 100
7	Outlet valve No.1	DN: 150 , Function: Defective
	Outlet valve No.2	DN: 150 , Function: Defective
8	Overflow Pipe	PVC, DN110
9	Drain Pipe	No installation
10	Remarks/ Issue	Check valves not working

Other Information:

Photo Sheet

Reservoir Name: Byimana

No:52



Whole View



Reservoir



Inlet Pipe without Valve



Outlet Pipe with Valve

Not needed for water from source



No Float Valve

Meter

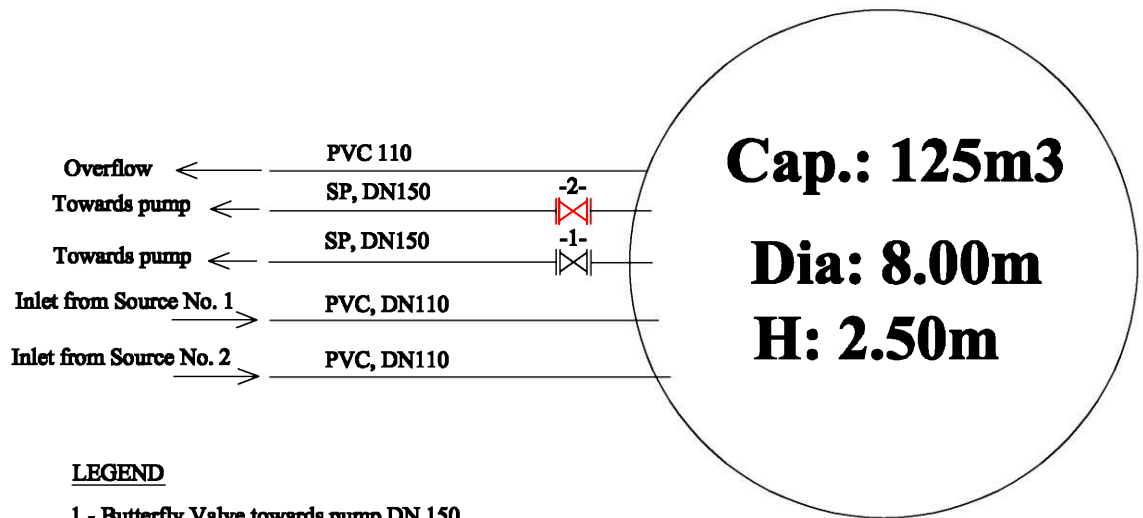
GIKONDO BRANCH

Reservoir No.: 11

Location: BYIMANA

Material: Concrete

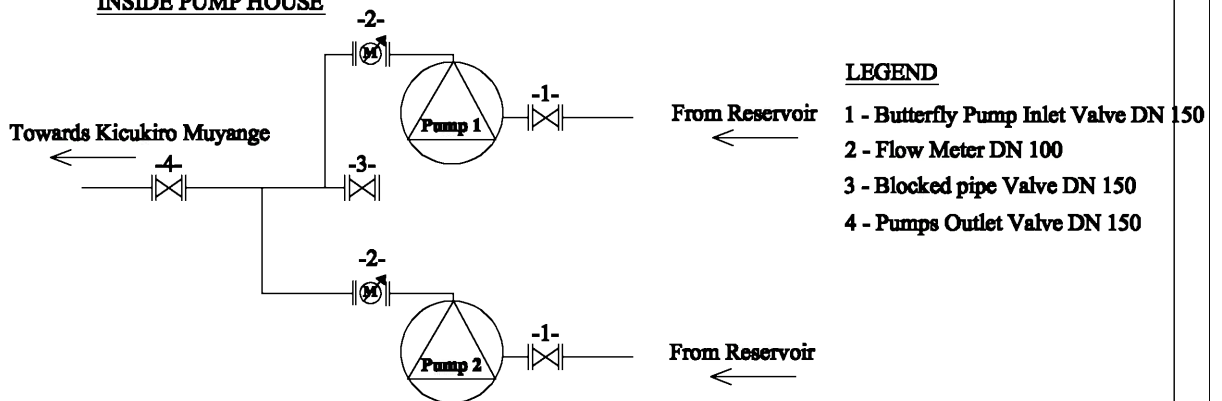
SCHEMATIC DRAWING



LEGEND

- 1 - Butterfly Valve towards pump DN 150
- 2 - Butterfly Valve towards pump DN 150 (Defective)

INSIDE PUMP HOUSE



LEGEND

- 1 - Butterfly Pump Inlet Valve DN 150
- 2 - Flow Meter DN 100
- 3 - Blocked pipe Valve DN 150
- 4 - Pumps Outlet Valve DN 150

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

THE REPUBLIC OF RWANDA

KIGALI CITY

**FINAL REPORT OF THE RESERVOIR SURVEY IN
KACYIRU BRANCH**

**THE PROJECT FOR STRENGTHNING OF NON-REVENUE
WATER CONTROL KIGALI CITY WATER NETWORK**



Final report of the reservoir survey in KACYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

1. RESERVOIR NO. : GOLF 2 AMAJYAMBERE VILLAGE

Final report of the reservoir survey in KACYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

BRANCH: KACYIRU

Reservoir: Golf 2 Amajyambere

No.:

I. Status and Functionality issues description

The reservoir receives water from Kimisagara and Ntora, the tank is semi ground, and it supplies water to Kimihurura, Kabeza, Kanombe and Camp GP areas

Reservoir aeration needs new meshes, manhole need covering, compound rainwater drainage needed.

The pump house Pump house need rehabilitation (urgent), gate not closing, no lighting, Operator house leaking.

I. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valves	<ul style="list-style-type: none">• Floater valves DN300• Floater valves DN200
<ul style="list-style-type: none">• Repairing or replacement of the existing Electronic valve	<ul style="list-style-type: none">• 1 Valve DN200
<ul style="list-style-type: none">• Pump and Operator houses need rehabilitation (urgent)• Electrical installation needed• Manhole covering• Rain water drainage (urgent)	<ul style="list-style-type: none">• Construction works

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

II. Description Photos



Defective Electrovalve



Rehabilitation needed for pump house



Rainwater drainage system needed.



Operator house leaking

Location of Reservoir

<i>Subject</i>	<i>Data</i>	<i>Remarks</i>
Reservoir number		
Branch	Kacyiru	
District	Gasabo	
Sector	Kimihurura	
Cell	Kimihurura	
Village	Amajyambere	
Street		
GPS Coordinates Latitude	-1.9568127 y	
GPS Coordinates Longitude	30.0841659 x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 03/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	
2	Name of Reservoir	Golf 2 - Amajyambere
3	ID Code	KACZ5H3RE01
4	Ward	District: Gasabo, Sector: Kimihurura, Cell: Kimihurura, Village: Amajyambere
5	Branch Office	Kacyiru
6	Location	Latitude: -1.9568127, Longitude: 30.0841659, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	_____ year
9	Storage Capacity	1000 m ³
10	Service area of the Reservoir	Kimihurura, Kabeza, Kanombe, Camp GP
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	2 shift in a day
	Action against to overflow	Closing valve
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Kimisagara and Nzove via Ntora
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Concrete
4	Inside Dimension	D: 23.00m, H: 2.50m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	Malfunction
3	Flow Meter	Mechanical, DN: _____, PN(bar): _____,
		Function
		Location: Outlet Pipe
4	Inlet pipe No.1	DIP, DN: 300, Top (From Nzove)
	Inlet pipe No.2	DIP, DN: 200, Top (From Kimisagara)
5	Inlet valve No.1	DN: 300, Function: YES
	Inlet valve No.2	DN: 200, Function: Not operating - Electrovanne
6	Outlet pipe No.1	DIP, DN: 300
7	Outlet valve No.1	DN: 200, Function: YES
8	Overflow Pipe	DIP, DN: 200
9	Drain Pipe	DIP, DN: 200
10	Remarks/ Issue	

Other Information:	. Pump house need rehabilitation (urgent)
	. Office leaking during rain period
	. Gate not closing
	. Electrical installation needed
	. Aeration openigs need new meshes for protection
	. Manhole not covered
	. Rain water drainage (urgent)

Photo Sheet

Reservoir Name: Golf 2 - Amajyambere

No:



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

No Floater Valve

No Float Valve



Meter

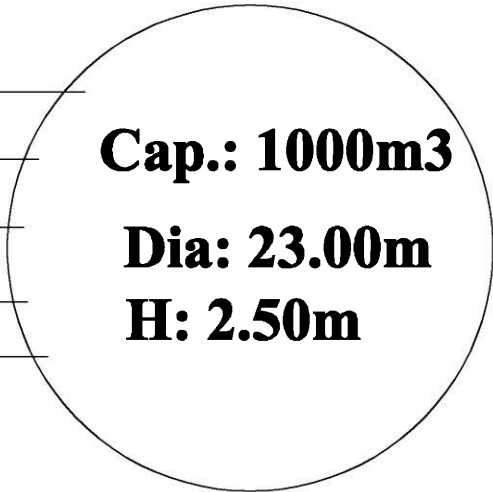
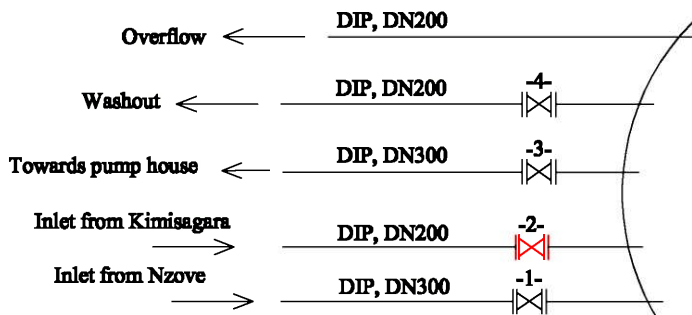
KACYIRU BRANCH

Reservoir No.: 2

Location: Amajyambere

Material: Concrete

SCHEMATIC DRAWING

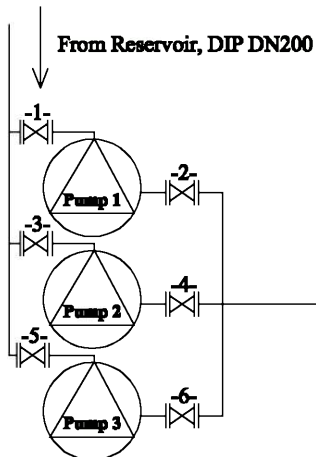


LEGEND

- 1- Inlet Valve DN300
- 2 - Inlet Electro-valve DN200
- 3 - Outlet Valve DN300
- 4 - Wash out Valve DN 200

Accessories in red color have issues

INSIDE PUMP HOUSE



LEGEND

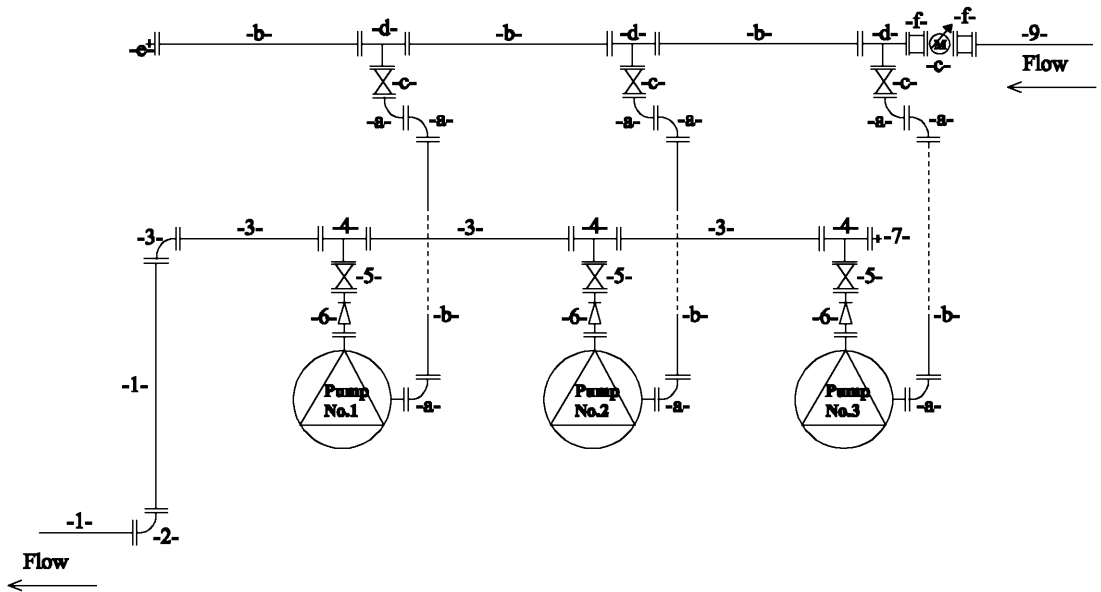
- 1, 3, 5 - Pump 1, 2 & 3 Inlet Valve DN 150
- 2, 4 & 6 - Pump 1, 2, 4 Outlet Valve DN 150

KACYIRU BRANCH

Reservoir No.: 2

Reservoir Name: Amajyambere (Golf 2)

*** Pumping Station(DIP DN200, 150)**



Supply from Pump (DIP 150)

- 1- Straight Pipe with flange
- 2- 90 Degree Elbow
- 3- Straight pipe with double flange
- 4- Tee with triple flange
- 5- Valves DN150
- 6- Check valve
- 7- End Cap

Suction pipe (DIP 200)

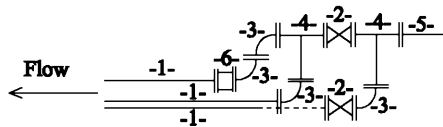
- a- 90 Degree Elbow
- b- Straight pipe with double flange
- c- Valve
- d- Tee with triple flange
- e- End cap
- f- Dismantling joint

KACYIRU BRANCH

Reservoir No.: 2

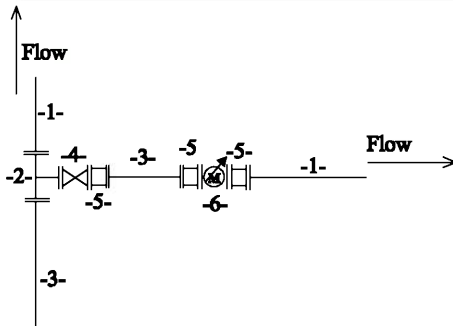
Reservoir Name: Amajyambere (Golf 2)

*** Outlet and bypass A for NTORA (DIP DN200)**



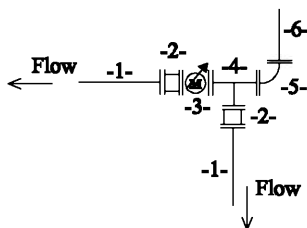
- 1- Straight Pipe with flange
- 2- Valve
- 3- 90 Degree Elbow
- 4- Tee with triple flange
- 5- Straight pipe with double flange
- 6- Dismantling Joint

*** Outlet and bypass C for Kimisagara (DIP DN200)**



- 1- PVC Pipe DN200
- 2- Tee with triple flange
- 3- Straight pipe with double flange
- 4- Valve
- 5- Dismantling Joint
- 6- Flow Meter

*** Outlet and bypass C for NTORA (DIP DN200)**



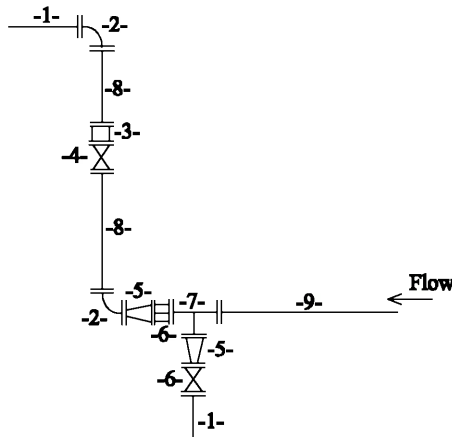
- 1- PVC Pipe
- 2- Dismantling Joint
- 3- Flow Meter
- 4- Tee with triple flange
- 5- 90 Degree Elbow
- 6- Straight pipe with double flange

KACYIRU BRANCH

Reservoir No.: 2

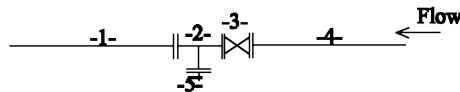
Reservoir Name: Amajyambere (Golf 2)

*** Inlet and bypass from Ntora(DIP DN 300, 200, 400)**



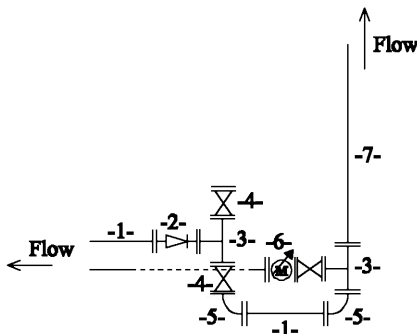
- 1- Straight Pipe with flange
- 2- 90 Degree Elbow
- 3- Dismantling Joint
- 4- Valve
- 5- Reduced Cone
- 6- Wide tolerance coupling
- 7- Tee with triple flange
- 8- Straight Pipe with double flange
- 9- Network pipe

*** Inlet Manhole for Kimisagara DIP DN200**



- 1- Straight Pipe with flange
- 2- Tee with triple flange
- 3- Valve
- 4- Straight pipe with double flange
- 5- End cap

*** Manhole for Outlet and bypass towards Pumps DIP DN300, 200**



- 1- Straight Pipe with flange
- 2- Check valve
- 3- Tee with triple flange
- 4- Valve
- 5- 90 Degree elbow
- 6- Flow Meter
- 7- Pipe

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

2. RESERVOIR NO. 163:FAWE GIRLS SCHOOL

Final report of the reservoir survey in KACYYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

BRANCH: KACYIRU

Reservoir: FAWE Girls School

No.: 163

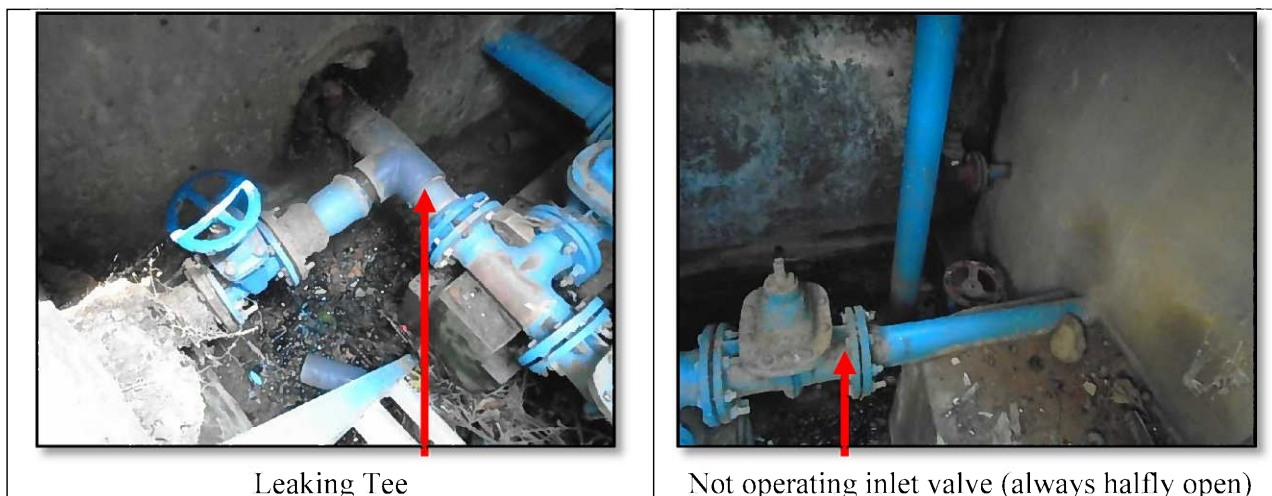
I. Status and Functionality issues description

The reservoir receives water from Nzove via Ntora, and it serves FAWE GS and the nearby areas. There is a leaking Tee and Valve.

I. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valve• Installation of Outlet Valve• Replacement of PVC Tee	<ul style="list-style-type: none">• Floater valves DN100• Valve DN100• Tee PVC DN100
<ul style="list-style-type: none">• Manhole cover needed and General Manhole cleaning works	<ul style="list-style-type: none">• Construction works

II. Description Photos



Leaking Tee

Not operating inlet valve (always halfly open)

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH



Manhole cover replacement

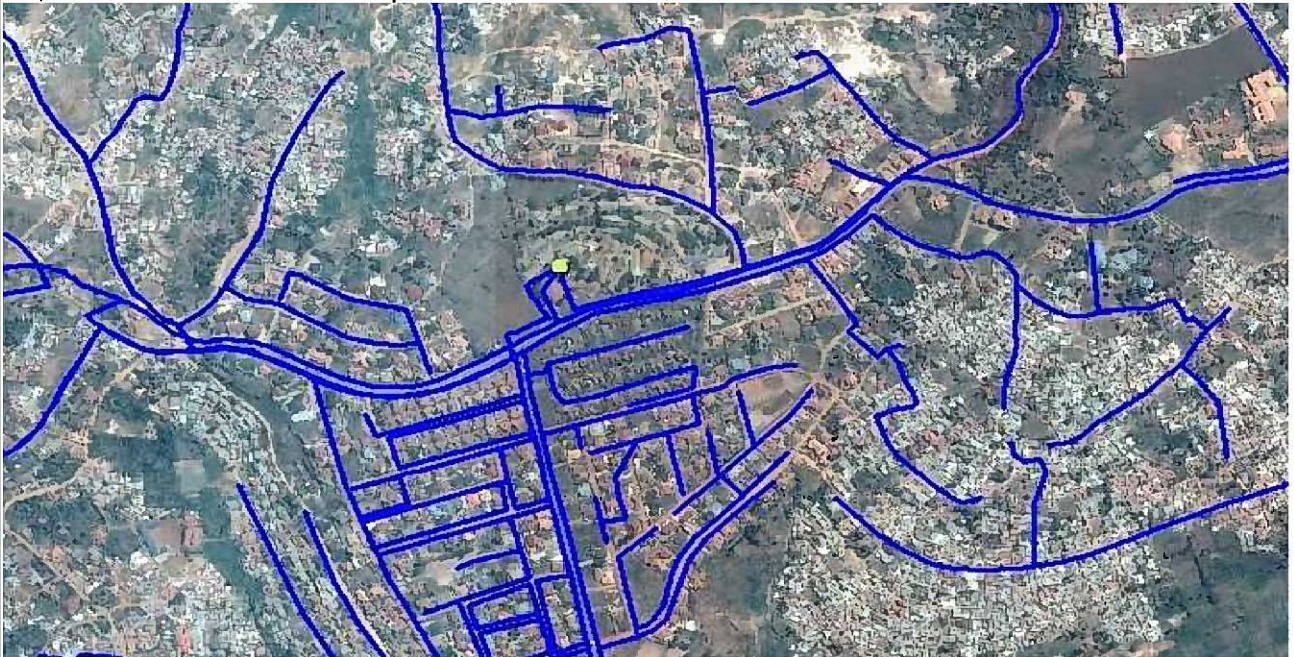


General cleaning works needed.

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	163		
Branch	Kacyiru		
District	Gasabo		
Sector	Gisozi		
Cell	Musezero		
Village	Byimana		
Street	KG 14 Av		
GPS Coordinates Latitude	-1.9138989	y	
GPS Coordinates Longitude	30.07213	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 03/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	163
2	Name of Reservoir	FAWE Girls School
3	ID Code	KACZ2F2RE01
4	Ward	District: Gasabo, Sector: Gisozi, Cell: Musezero, Village: Byimana
5	Branch Office	Kacyiru
6	Location	Latitude: -1.9138989, Longitude: 30.07213, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	250m3
10	Service area of the Reservoir	FAWE Girls School, Kadobogo
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	No information (Tank always closed)
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Timing: Sometimes
	Reason of bypass operation	Cleaning
6	Inflow Condition	Source: NZOVE via Ntora
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	Leaking valves and connected PVC Tee
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Concrete
4	Inside Dimension	D: 11.00m, H: 2.80m
5	Remarks/ Issue	Installed accessories very dirty and general cleaning is needed

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction, DN: 100
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	DIP, DN: 100, Top
5	Inlet valve No.1	DN: 100 , Function: YES (but very old)
6	Outlet pipe No.1	DIP, DN: 100
	Outlet pipe No.2	DIP, DN: 50
7	Outlet valve No.1	DN: 100 , Function: NO
	Outlet valve No.2	DN: 50, Function: YES (but Permanently closed)
8	Overflow Pipe	DIP, DN: 100
9	Drain Pipe	DIP, DN: 100
10	Remarks/ Issue	Tank was closed during our visit

Other Information:	. Manhole very dirty
	. Manhole has no cover
	. Leaking side connection in PVC 110
	. Existing bypass closed

Photo Sheet

Reservoir Name: FAWE Girls School

No: 163



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Reservoir closed (Floater is there but not fully functioning)

No Meter

No Meter

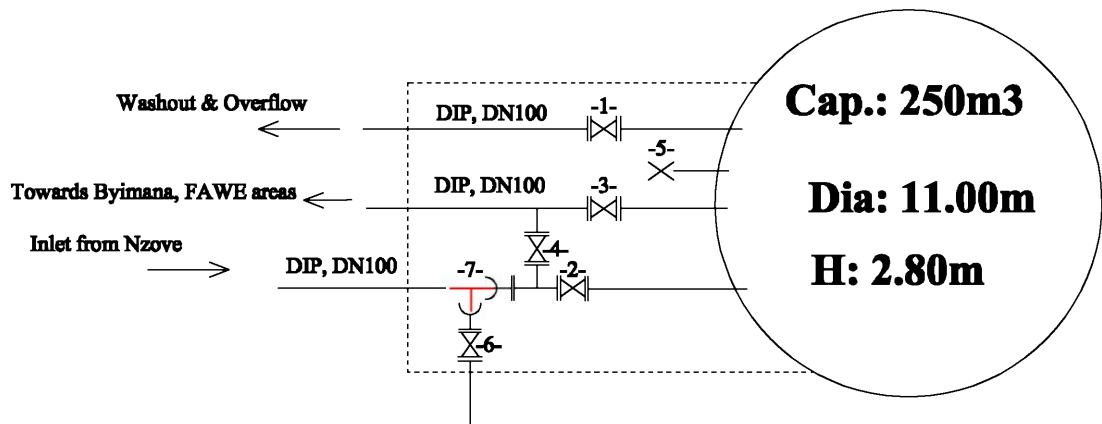
KACYIRU BRANCH

Reservoir No.: 21

Location: FAWE Girls School

Material: Concrete

SCHEMATIC DRAWING



LEGEND

- 1 - Washout Valve DN 100
- 2 - Inlet Valve DN 100
- 3 - Outlet Valve DN 100
- 4 - Bypass Valve DN 100
- 5 - Blocked 2nd Outlet Valve DN 50
- 6 - Valve for a connection Valve DN 100
- 7 - Leaking PVC Tee

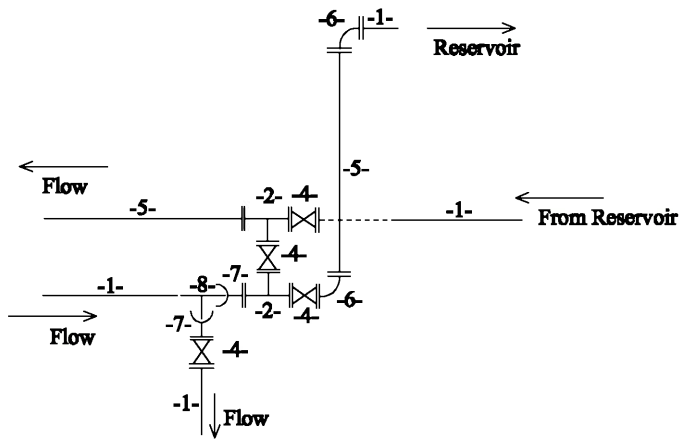
Accessories in red color have issues

KACYIRU BRANCH

Reservoir No.: 21

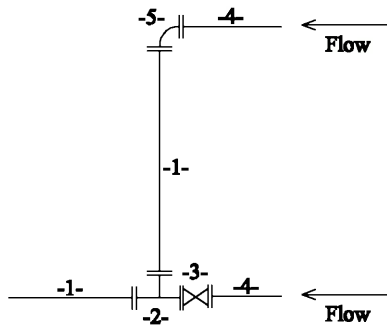
Reservoir Name: FAWE Girls School

*** Inlet, Outlet and bypass (DIP DN 200)**



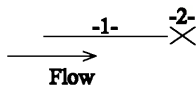
- 1- Straight Pipe with flange
- 2- Tee with triple flange
- 3- Dismantling Joint
- 4- Valve
- 5- Pipe
- 6- 90 Degree Elbow
- 7- Flange Adaptor
- 8- PVC Tee

*** Overflow and Drainage DIP DN100**



- 1- Pipe
- 2- Tee with triple flange
- 3- Valve
- 4- Straight pipe with flange
- 5- 90 Degree Elbow

*** Blocked outlet SP DN50**



- 1- Pipe
- 2- Galvanized Valve

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

3. RESERVOIR NO. 137: KACYIRU PUBLIC LIBRARY

Final report of the reservoir survey in KACYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

BRANCH: KACYIRU

Reservoir: Kacyiru Public Library

No.: 137

I. Status and Functionality issues description

The reservoir was receiving water from Nzove via Ntora, after its reception it was discovered that it leaks profusely on walls and bottom and the branch decided to abandon it, bypass it.

It has a storage capacity of 350m³ and needs full rehabilitation or replacement in order to be able to use the available space.

If the reservoir is repaired a drainage channel will be needed and connect it to the existing tarmac road side ditch.

The installed valves are of old types and will have to be replaced .

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valve• Installation of new valves	<ul style="list-style-type: none">• Floater valve DN100• 4 Valves DN100
<ul style="list-style-type: none">• Fully rehabilitate the tank from inside and outside• Rehabilitation of manhole• Access slabs• Fencing• Toilet for Operator house	<ul style="list-style-type: none">• Construction works

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

II. Description Photos



Defective floater valve



Rehabilitation needed to waterproof it as it was abandoned because it was leaking on walls and base



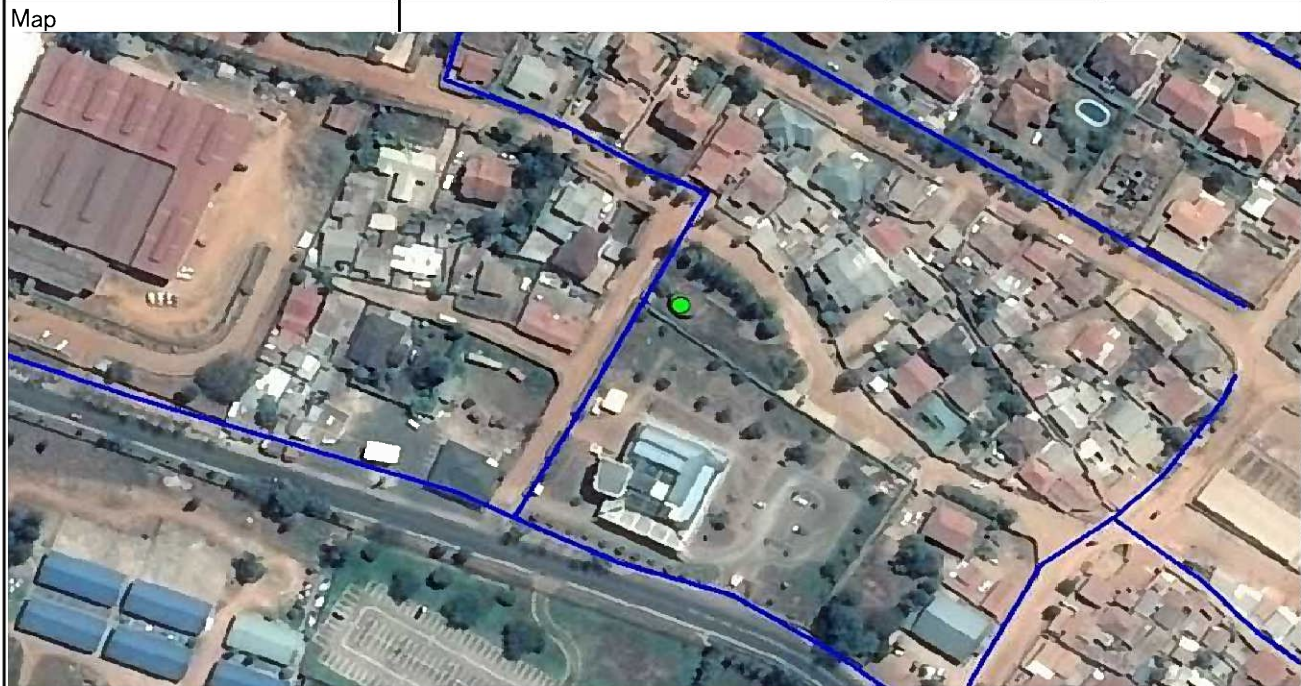
Replacement of all 4 valves



New covers needed for manhole and Reservoir

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	137		
Branch	Kacyiru		
District	Gasabo		
Sector	Kacyiru		
Cell	Kibaza		
Village	Virunga		
Street	KG 511 St		
GPS Coordinates Latitude	-1.9340429	y	
GPS Coordinates Longitude	30.0787843	x	



Attachement-3 Reservoir Survey Sheet

Date: 03/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	137
2	Name of Reservoir	Kacyiru Public Library
3	ID Code	120703RE1
4	Ward	District: Gasabo, Sector: Kacyiru, Cell: Kibaza, Village: Virunga
5	Branch Office	Kacyiru
6	Location	Latitude: -1.9340429, Longitude: 30.0787843, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	350m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Flowing (according to WDO Kacyiru Branch)
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	Abandoned reservoir
6	Inflow Condition	Source: NZOVE via Ntora
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always no water
8	Issue on Functional Condition	The reservoir was leaking (too much) and the branch decided to abandon it.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 11m , H: 3.70m
5	Remarks/ Issue	No stairs, General repair is needed, cracks inside and it was leaking before they decided to abandon it.

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction , DN: 80 but defective
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, EMFM, UFM, DN: _____ , PN(bar): _____,
4	Inlet pipe No.1	SP, DN: 100 , Top
5	Inlet valve No.1	DN: 100 , Function: No information abandoned reservoir
	Inlet valve No.2 (bypass)	DN: 100 , Function: No information abandoned reservoir
6	Outlet pipe No.1	SP, DN: 100
7	Outlet valve No.1	DN: 100 , Function: No information abandoned reservoir
8	Overflow Pipe	SP, DN: 80
9	Drain Pipe	SP, DN: 100
	Drain Valve	SP, DN: 100
10	Remarks/ Issue	

Other Information:	. No toilet
	. No fence
	. Guard house need rehabilitation

As requested by the WDO, the whole reservoir need rehabilitation

Photo Sheet

Reservoir Name: Kacyiru Public Library

No: 137



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Bypass

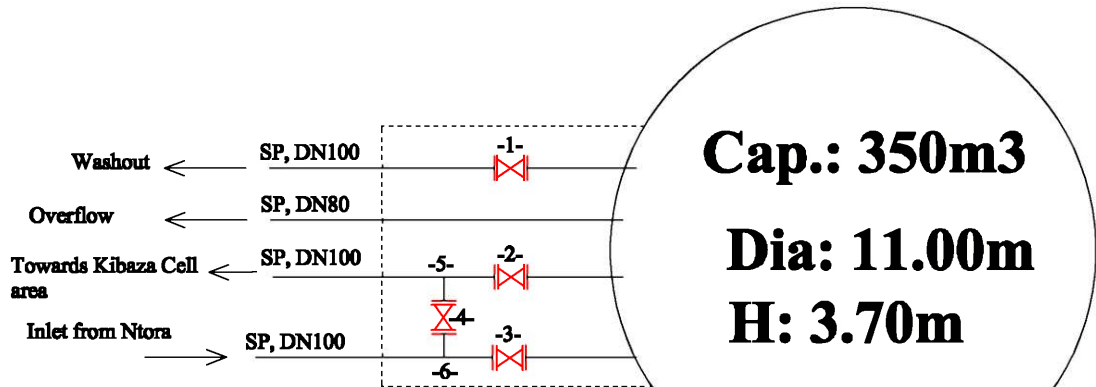
KACYIRU BRANCH

Reservoir No.: 55

Location: Kacyiru Public Library

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

1, 2, 3 - Valve DN 100

4 - Bypass Valve DN 100

5,6 - Tee for bypass Valve DN 100

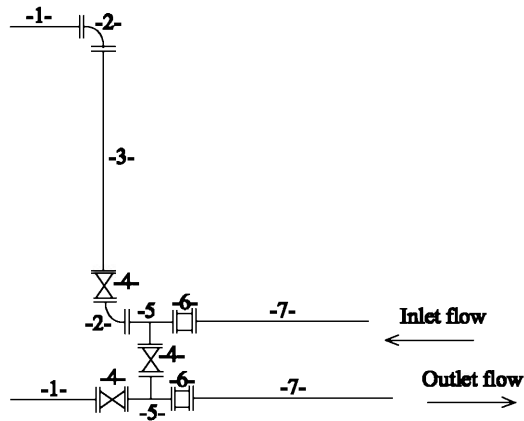
Accessories in red color have issues

KACYIRU BRANCH

Reservoir No.: 55

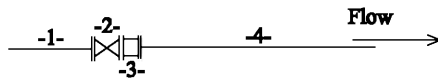
Reservoir Name: Kacyiru Public Library

* Inlet, Outlet and bypass (SP DN100)



- 1- Straight Pipe with flange
- 2- 90 Degree Elbow
- 3- Straight pipe with double flange
- 4- Valve
- 5- Tee with triple flange
- 6- Dismantling joint
- 7- Pipe

* Drainage SP DN100



- 1- Straight Pipe with flange
- 2- Valve
- 3- Dismantling Joint
- 4- PVC Pipe

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

4. RESERVOIR NO. 175: RWANKUBA

Final report of the reservoir survey in KACYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

BRANCH: KACYIRU

Reservoir: Rwankuba

No.: 175

I. Status and Functionality issues description

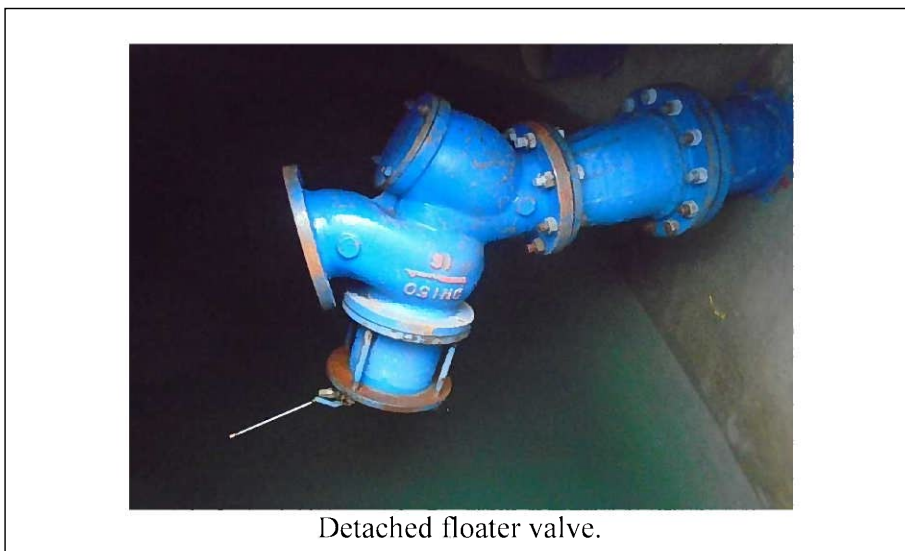
The reservoir receives water from Golf 8 Rwahama, it serves Birembo-Kami-Rwankuba areas. The reservoir always has low pressure and sometimes they bypass it to be able to serve Kami area.

The newly installed floater valve is not operation and it has fallen inside the tank, therefore it needs replacement of repairing.

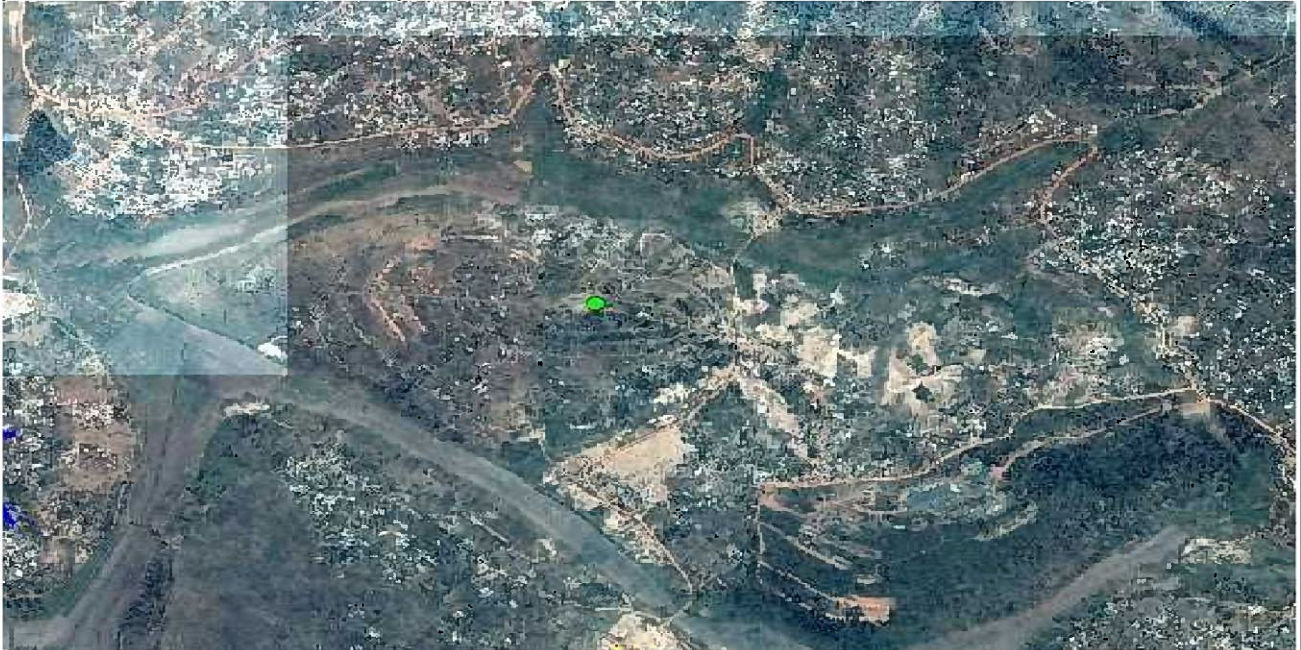
I. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valve	<ul style="list-style-type: none">• Floater valves DN150
<ul style="list-style-type: none">• Electrification needed for security purpose (also recommended by local government)• Water for the operator	<ul style="list-style-type: none">• Installation works

II. Description Photos



Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	175		
Branch	Kacyiru		
District	Gasabo		
Sector	Kinyinya		
Cell	Gasharu		
Village	Rwankuba		
Street	KG Av		
GPS Coordinates Latitude	-1.8926837	y	
GPS Coordinates Longitude	30.1034972	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 03/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	175
2	Name of Reservoir	Rwankuba
3	ID Code	
4	Ward	District: Gasabo, Sector: Kinyinya, Cell: Gasharu, Village: Rwankuba
5	Branch Office	Kacyiru
6	Location	Latitude: -1.8926837, Longitude: 30.1034972, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: 2019
9	Storage Capacity	250 m3
10	Service area of the Reservoir	Birembo-Kami-Rwankuba
B: Operational Condition		
1	Operational Condition	Operational,
2	Operator Assignment	1 person
	Action against to overflow	Closing valve
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Timing: Sometimes
	Reason of bypass operation	Rising the pressure in the network, to be able to serve all Kami area
6	Inflow Condition	Source: Golf 8 kwa Rwahama
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 10.00m , H: 3.30m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction (dettached from support), DN: 150
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 100 , PN(bar): _____,
		Mechanical, DN: 150 , PN(bar): _____,
		Function: YES (all)
		Location: Outlet Pipes
4	Inlet pipe No.1	DIP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: YES
6	Outlet pipe No.1	DIP, DN: 200
	Outlet pipe No.2	DIP, DN: 150
7	Outlet valve No.1	DN: 200, Function: YES
	Outlet valve No.2	DN: 150, Function: YES
8	Overflow Pipe	DIP, DN: 200
9	Drain Pipe	DIP, DN: 200
	Drain Valve	DN: 200, Function: YES
10	Remarks/ Issue	New Reservoir

Other Information:	. Electrification needed for security purpose (also recommended by local government)
	. The Floater was destroyed by the pressure and the missingpart lies at the bottom of the reservoir.
	. No water for Operators

Photo Sheet

Reservoir Name: Rwankuba

No: 175



Whole View



Reservoir



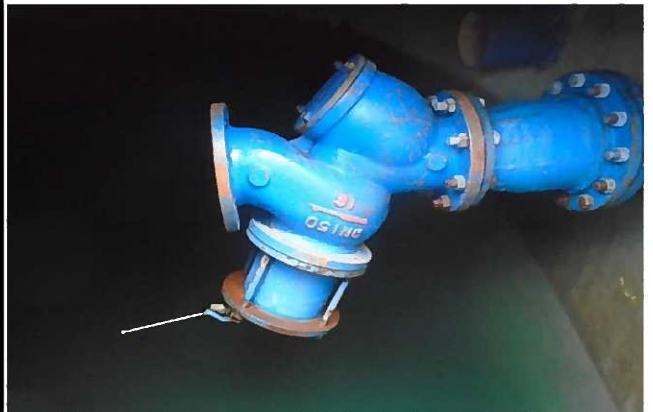
Inlet Pipe with Valve



Outlet Pipe with Valve



Meter



Floater

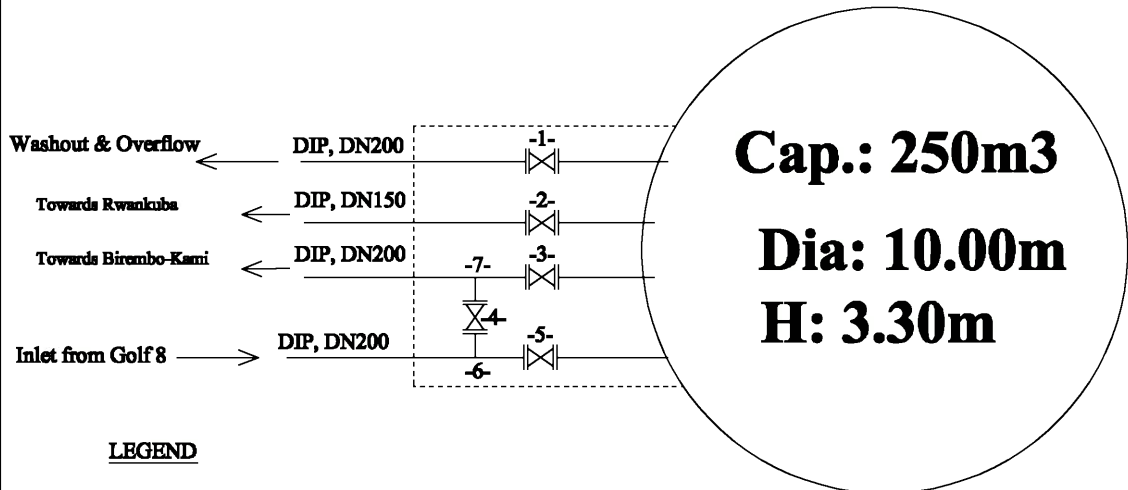
KACYIRU BRANCH

Reservoir No.: 145

Location: Rwankuba

Material: Concrete

SCHEMATIC DRAWING



LEGEND

LEGEND

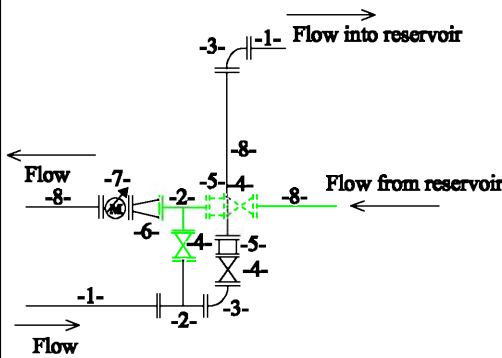
- 1- Washout Valve DN 100
- 2 - Outlet No.2 Valve DN 150
- 3 - Outlet No. 1 Valve DN 200
- 4 - Bypass Valve DN 200
- 5 - Inlet Valve DN 200
- 6, 7 - Tee with Triple flange DN 200

KACYIRU BRANCH

Reservoir No.: 145

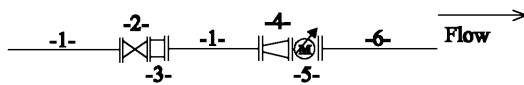
Reservoir Name: Rwankuba

* Inlet, Outlet and bypass (DIP DN 200)



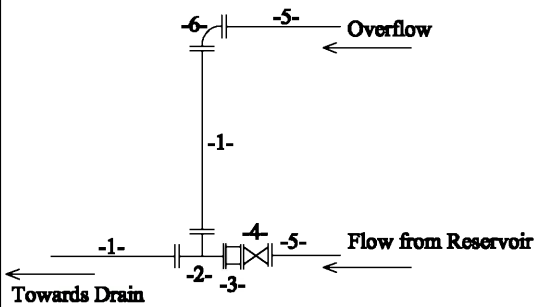
- 1- Straight Pipe with flange
- 2- Tee with triple flange
- 3- 90 Degree Elbow
- 4- Valve
- 5- Dismantling Joint
- 6- Reduced cone
- 7- Flow Meter
- 8- Pipe
- In Green Color: bypass connection

* 2nd Outlet DIP DN150, 100



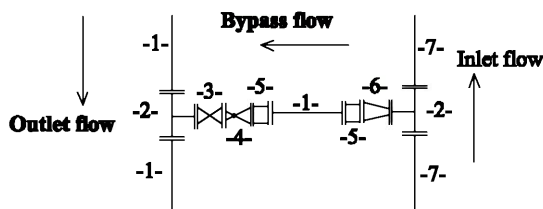
- 1- Straight Pipe with flange
- 2- Valve
- 3- Dismantling Joint
- 4- Reduced Cone
- 5- Flow Meter
- 5- Pipe

* Overflow and Drainage DIP DN200



- 1- Straight Pipe with Double Flange
- 2- Tee with triple flange
- 3- Dismantling Joint
- 4- Valve
- 5- Straight pipe with flange
- 6- 90 Degree Elbow

* Bypass



- 1- Straight Pipe with flange
- 2- Tee with triple flange
- 3- Valve
- 4- Pressure Reducing Valve
- 5- Dismantling Joint
- 6- Reduced cone
- 7- Pipe

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

5. RESERVOIR NO. 148: UTEXRWA

Final report of the reservoir survey in KACYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KACYIRU BRANCH

BRANCH: KACYIRU

Reservoir: UTEXRWA

No.: 148

I. Status and Functionality issues description

The visited spot is UTEXRWA and we found that the existing tank was abandoned completely and accessories removed.

II. Description Photos



Final report of the reservoir survey in KACYIRU Branch/KEC Co., Ltd/ WASAC Ltd/ JICA

Rwanda

Attachement-3 Reservoir Survey Sheet

Date: 29/10/2020

No.	Item	Details
A: General		
1	Number of Reservoir	148
2	Name of Reservoir	UTEXRWA (Vision 2020)
3	ID Code	KACZ4E3RE01
4	Ward	Sector: Kinyinya, District: Gasabo , Cell: Gacuriro, Village: Vision 2020
5	Branch Office	Kacyiru
6	Location	Latitude: - 1.928194, Longitude: 30.078609, Altitude:
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No Data
9	Storage Capacity	80 m3
10	Service area of the Reservoir	Abandoned
B: Operational Condition		
1	Operational Condition	Not Operational,Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	No data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Ntora & Kimisagara
		Water pressure at inlet:
		Frequency and time: Abandoned
7	Water level movement	always no water
8	Issue on Functional Condition	
C:Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Ground
3	Structure Material	Steel
4	Inside Dimension	L: 4.80m, w: 4.80m, H: 3.60m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 200, Top
5	Inlet valve No.1	No installation
6	Outlet pipe No.1	SP, DN: 150
7	Outlet valve No.1	No installation
8	Overflow Pipe	No installation
9	Drain Pipe	No installation
10	Remarks/ Issue	The tank was abandoned and bypassed to increase pressure in the network

Other Information:

Photo Sheet

Reservoir Name: UTEXRWA

No:148



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



No Floater Valve (Photo: Tank inside)



No Meter (Photo: Network modified and reservoir bypassed)

KACYIRU BRANCH

Reservoir No.: 154

Location: UTEXRWA

Material: STEEL

SCHEMATIC DRAWING

NO DATA AVAILABLE

ABANDONED

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

THE REPUBLIC OF RWANDA

KIGALI CITY



**FINAL REPORT OF THE RESERVOIR SURVEY IN
KANOMBE BRANCH**

**THE PROJECT FOR STRENGTHNING OF NON-REVENUE
WATER CONTROL KIGALI CITY WATER NETWORK**

Final report of the reservoir survey in KANOMBE Branch/KEC Co., Ltd/ WASAC Ltd/

JICA Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

1. RESERVOIR No. 67,68,69,70: KIGARAMA-RUSORORO

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: Kigarama-Rusororo

No.: 67, 68, 69 & 70

I. Status and Functionality issues description

General description

These 4 reservoirs receive water from Karengu. Each reservoir has a capacity of 250m³ and are suspended at a height of 17m. Currently only 1 of the No.69 is being used and others are not being used for different reasons.

Two (2) of them No. 70&67 have never been used since their construction (2013) even though they are storing water for rust protection, one (1) No. 68 was recently abandoned because it was leaking.

These reservoirs were to serve Rusororo area and the only functioning one is serving Kigarama area.

Particulars for Reservoir No. 69 and &68

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valves at Res No.74 and 75.• Repairing of leaks on reservoir 75 and 74 on their wall and bottom respectively.• Supply and installation of inlet valve at Reservoir No.75• Supply and installation of outlet valve at Reservoir No.73	<ul style="list-style-type: none">• 2 Floater valves DN200• 2 Valves DN200• Repairing leaks on Reservoir No.74&75
<ul style="list-style-type: none">• Construction of a toilet for operator• Installation of a water tap• Electricity is needed	<ul style="list-style-type: none">• Civil works

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

II. Description Photos



Defective inlet valve



Defective Outlet valve

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	67,68,69,70		
Branch	Kanombe		
District	Gasabo		
Sector	Rusororo		
Cell	Nyagahinga		
Village	Kigarama		
Street	KK 17 Av		
GPS Coordinates Latitude	-1.9774321	y	
GPS Coordinates Longitude	30.1992654	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 04/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	70&67
2	Name of Reservoir	Kigarama-Rusororo
3	ID Code	RUSM7RE5 & RUSM7RE3
4	Ward	District: Gasabo, Sector: Rusororo, Cell: Nyagahinga, Village: Kigarama
5	Branch Office	Kanombe
6	Location	Latitude: -1.9774321, Longitude: 30.1992654, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: 2013
9	Storage Capacity	250m3 (each)
10	Service area of the Reservoir	Not in use
B: Operational Condition		
1	Operational Condition	Not Operational
2	Operator Assignment	1 person
	Action against to overflow	Not in use
3	Wall Leakage	Nothing
4	Overflow observation	0
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	0
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always no movement
8	Issue on Functional Condition	Not used since their construction
C: Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Elevated
3	Structure Material	Steel
4	Inside Dimension	L: 9.76m × B: 7.32m , H: 3.66m
5	Remarks/ Issue	Not leaking, not used but storing water for its structural rust protection since 2013

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: _____, PN(bar): _____,
		Function: YES
		Location: Outlet Pipe
4	Inlet pipe No.1 (Res. 73)	DIP, DN: 200, Top
	Inlet pipe No.2 (Res. 76)	DIP, DN: 200, Top
5	Inlet valve No.1 (Res. 73)	DN: 200, Function: not sure because it is permanently closed.
	Inlet valve No.2 (Res. 76)	DN: 200, Function: not sure because it is permanently closed.
6	Outlet pipe No.1 (Res. 73)	DIP, DN: 200
	Outlet pipe No.2 (Res. 76)	DIP, DN: 200
7	Outlet valve No.1 (Res. 73)	DN: 200, Function: Not used
	Outlet valve No.2 (Res. 76)	DN: 200, Function: Not used
8	Overflow Pipe	DIP, DN: 200
9	Drain Pipe	DIP, DN: 200
10	Remarks/ Issue	Tank not used since 2013

Other Information:

Attachement-3 Reservoir Survey Sheet

Date: 04/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	68&69
2	Name of Reservoir	Kigarama-Rusororo
3	ID Code	RUSM7RE2 & RUSM7RE4
4	Ward	District: Gasabo, Sector: Rusororo, Cell: Nyagahinga, Village: Kigarama
5	Branch Office	Kanombe
6	Location	Latitude: -1.9774321, Longitude: 30.1992654, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: 2013
9	Storage Capacity	250m3 (each)
10	Service area of the Reservoir	Kigarama area of Rusororo
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	Closing valve
3	Wall Leakage	Tank 75 leaks on the wall and tank 74 leaks at its bottom
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	no floater valve
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Elevated
3	Structure Material	Steel
4	Inside Dimension	L: 9.76m × B: 7.32m , H: 3.66m
5	Remarks/ Issue	No 75 Leaking at its bottom

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: _____, PN(bar): _____,
		Function: YES
		Location: Outlet Pipe
4	Inlet pipe No.1 (Res. 75)	DIP, DN: 200, Top
	Inlet pipe No.2 (Res. 74)	DIP, DN: 200, Top
5	Inlet valve No.1 (Res. 75)	DN: 200, Function: YES but leaking on its top
	Inlet valve No.2 (Res. 74)	DN: 200, Function: YES
6	Outlet pipe No.1 (Res. 75)	DIP, DN: 200
	Outlet pipe No.2 (Res. 74)	DIP, DN: 200
7	Outlet valve No.1 (Res. 73)	DN: 200, Function: YES but leaking on its top
	Outlet valve No.2 (Res. 76)	DN: 200, Function: YES
8	Overflow Pipe	DIP, DN: 200
9	Drain Pipe	DIP, DN: 200
10	Remarks/ Issue	Tank No. 75&74 leaks on walls, 2 valves leaking

Other Information:	. At the time of the visit only tank number 75 was in use due to the fact that Tank Number 74 leaks on walls.
	. No toilet
	. No water
	. No electricity

Photo Sheet

Reservoir Name: Kigarama-Rusororo

No: 70&67



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve

Meter

Photo Sheet

Reservoir Name: Kigarama-Rusororo

No: 68&69



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve

Meter

KANOMBE BRANCH

Reservoir No.: 73-76

Location: KIGARAMA

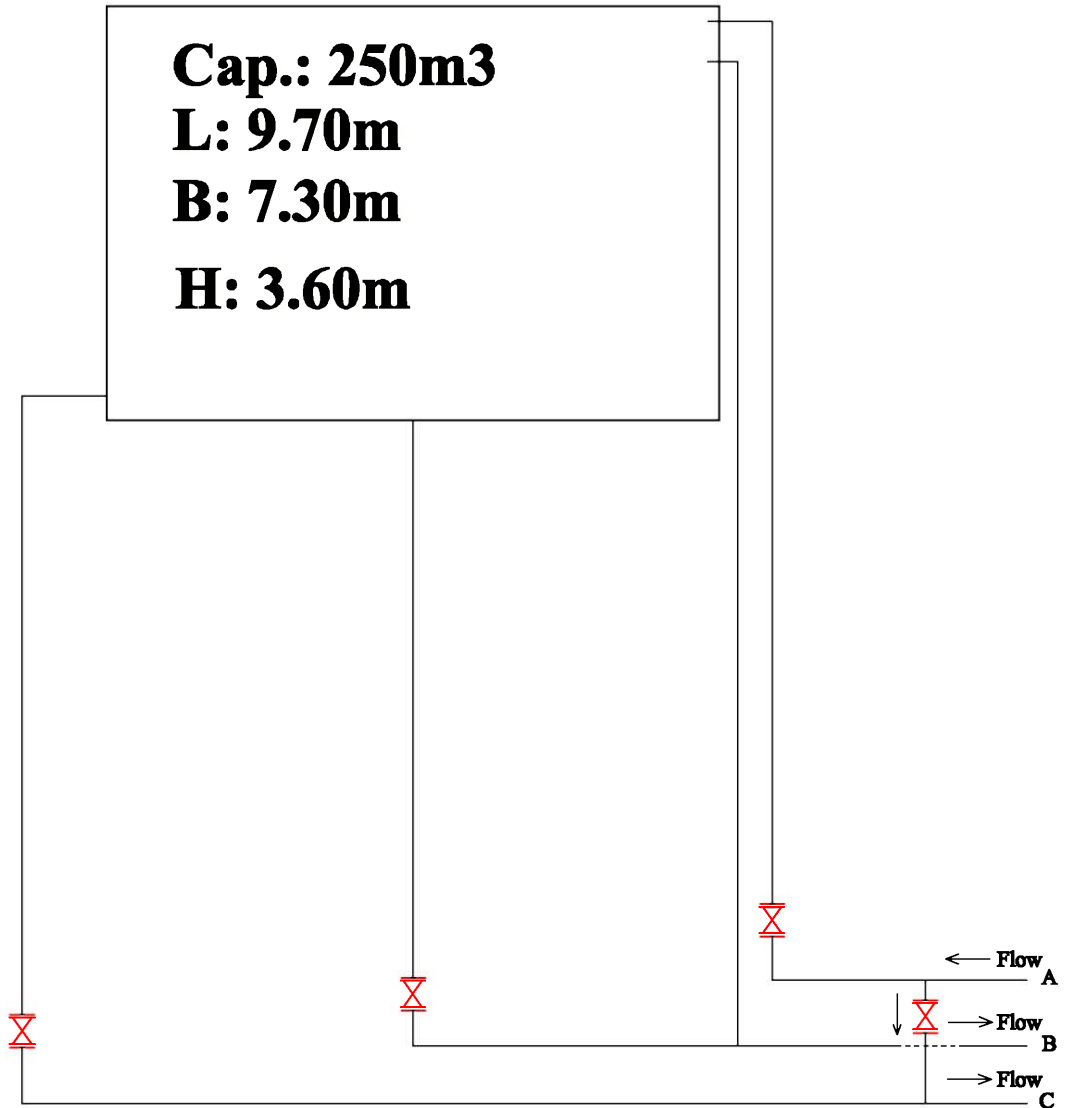
Material: Steel pannel

Cap.: 250m³

L: 9.70m

B: 7.30m

H: 3.60m



LEGEND

- 1 - Valve 1"
- 2 - Valve 2"
- 3 - Valve 4"

- A - Inlet from Karege
- B - Washout and Overflow pipe
- C - Outlet towards Kigarama areas

In red color: valves with issues

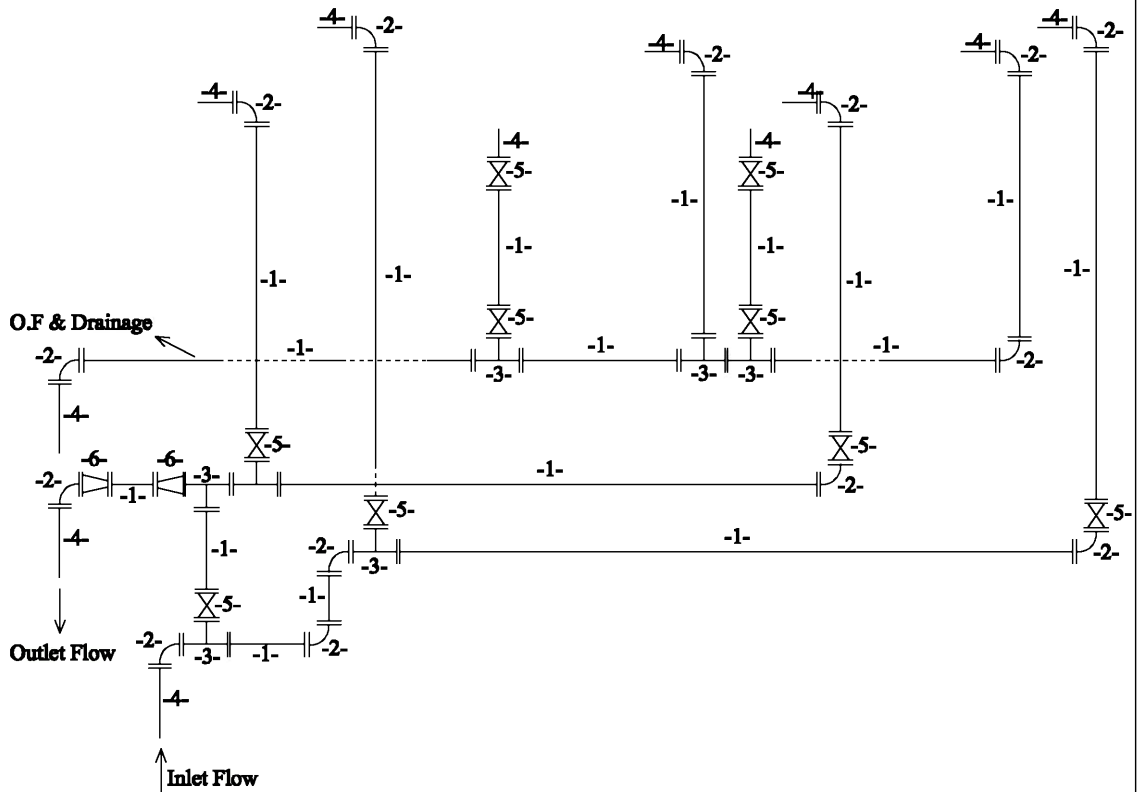
KYOWA ENGINEERING CONSULTANTS CO., LTD / WASAC LTD / JICA RWANDA

KANOMBE BRANCH

Reservoir No.: 73 & 74

Reservoir Name: Klgarama (Rusororo)

* Inlet, Outlet, Overflow, Drainage, and bypass (DIP DN200)



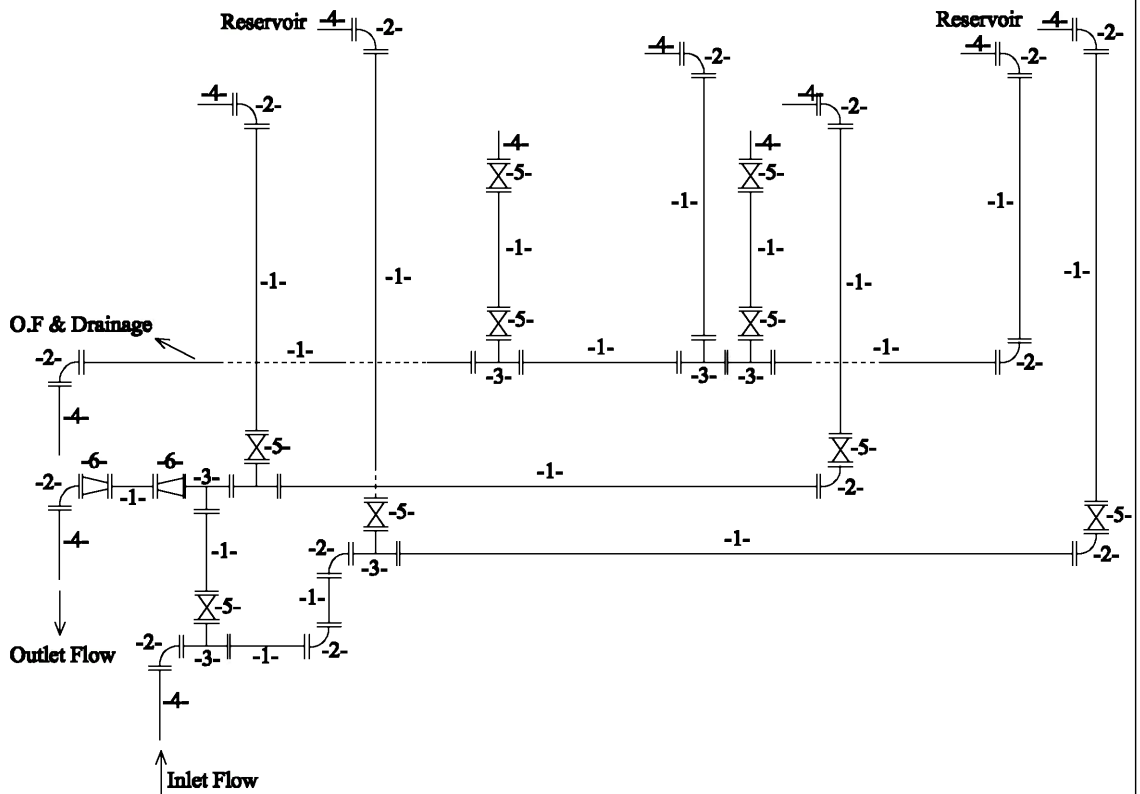
- 1- Straight Pipe with double flange
- 2- 90 Degree Elbow with double flange
- 3- Tee with triple flange
- 4- Straight pipe with double flange
- 5- Valves DN200
- 6- Reduced cone

KANOMBE BRANCH

Reservoir No.: 75 & 76

Reservoir Name: Klgarama (Rusororo)

* Inlet, Outlet, Overflow, Drainage, and bypass (DIP DN200)



- 1- Straight Pipe with double flange
- 2- 90 Degree Elbow with double flange
- 3- Tee with triple flange
- 4- Straight pipe with double flange
- 5- Valves DN200
- 6- Reduced cone

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

2. RESERVOIR No. 81: MAISON DE JEUNE KABUGA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: MAISON DE JEUNE KABUGA

No.: 81

I. Status and Functionality issues description

General description

Initially reservoir receives water from Karengwe but it was recently disconnected by Rusororo Police for Rain water harvesting, they requested it from WASAC Ltd and it was given to them.

Therefore as a conclusion, it was abandoned.

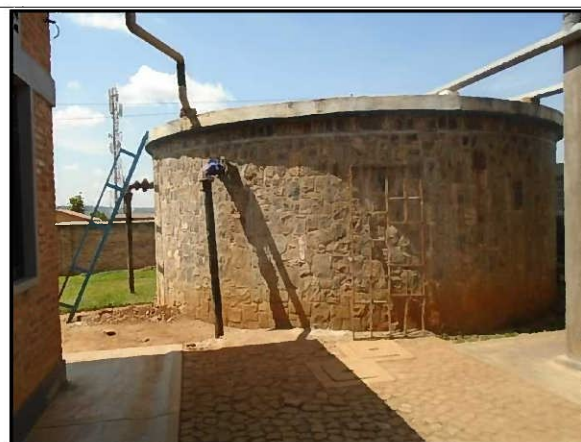
II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">Nothing	<ul style="list-style-type: none">

II. Description Photos



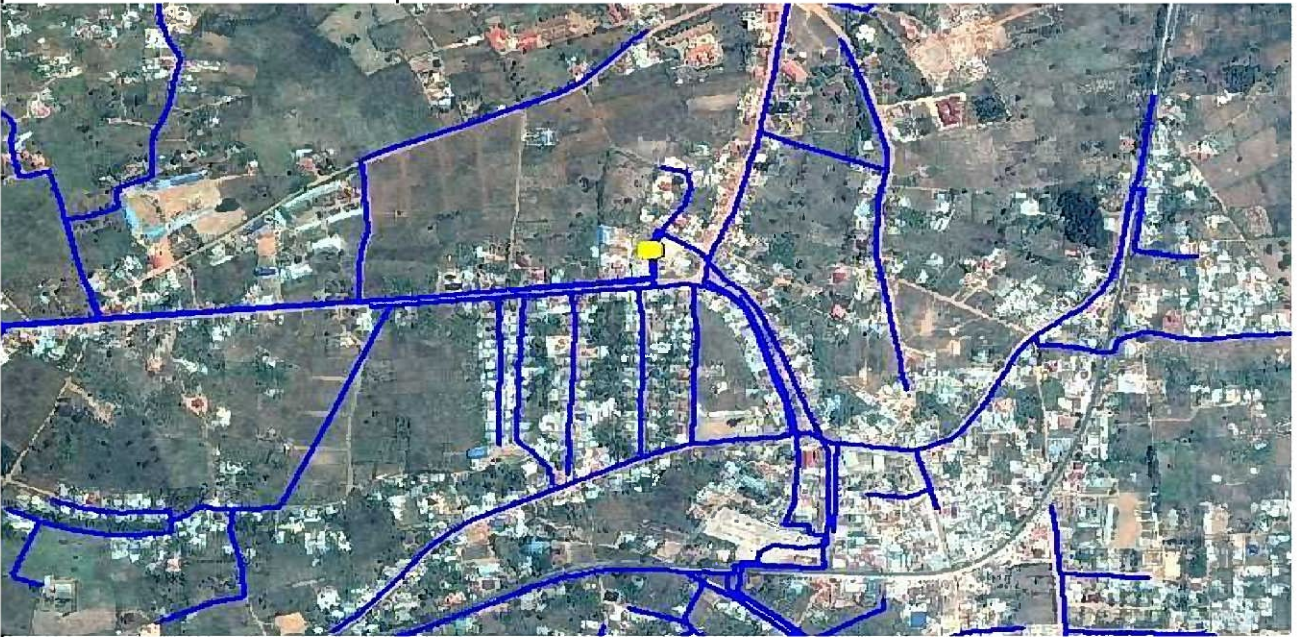
Being used for rain water harvesting



Inside Rusororo Police, no longer used by WASAC

Location of Reservoir

<i>Subject</i>	<i>Data</i>	<i>Remarks</i>
Reservoir number	81	
Branch	Kanombe	
District	Gasabo	
Sector	Rusororo	
Cell	Nyagahinga	
Village	Gisharara	
Street	KK 3 Rd	
GPS Coordinates Latitude	-1.9743055 y	
GPS Coordinates Longitude	30.2218146 x	
Map		



Attachement-3 Reservoir Survey Sheet

Date: 04/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	81
2	Name of Reservoir	Maison de Jeune Kabuga (New Kabuga Police HQs)
3	ID Code	RUSM9RE1
4	Ward	District: Gasabo, Sector: Rusororo, Cell: Nyagahinga, Village: Gisharara
5	Branch Office	Kanombe
6	Location	Latitude: -1.9743055, Longitude: 30.2218146, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year:
9	Storage Capacity	120m ³
10	Service area of the Reservoir	not used by WASAC Ltd
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Flowing , Oozed, Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	Tank being used by Police for Rain Water harvesting
6	Inflow Condition	Source:
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement, always low level, always no water
8	Issue on Functional Condition	Tank being used by Police for Rain Water harvesting
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 7.90m, H: 2.50m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction, DN: 100
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 100, Top
5	Inlet valve No.1	DN: , Function: Can not see it Manhole closed by Police
6	Outlet pipe No.1	Can not see it Manhole closed by Police
7	Outlet valve No.1	Can not see it Manhole closed by Police
8	Overflow Pipe	SP, DN: 100
9	Drain Pipe	SP, DN: 101
10	Remarks/ Issue	

Other Information:	. Reservoir being used by Police Rusororo . The request to use it was made to WASAC by DPC and it was given to them.
--------------------	---

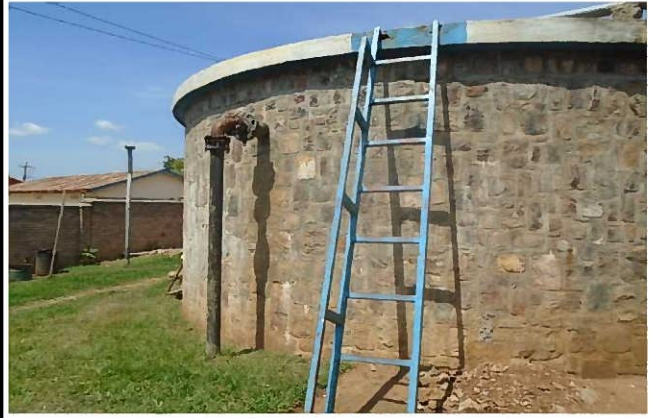
Photo Sheet

Reservoir Name: Maison de Jeune Kabuga

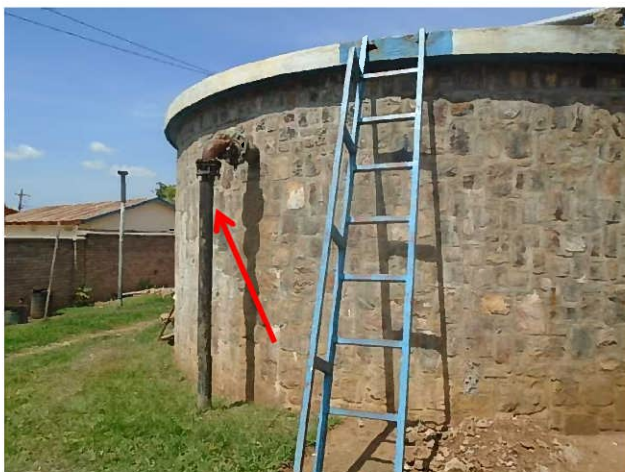
No: 81



Whole View



Reservoir



Inlet Pipe with Valve

Outlet Pipe with Valve



Float Valve

Meter

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

3. RESERVOIR No. 90: RYABAHESHA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: Ryabaheshwa

No.: 90

I. Status and Functionality issues description

Located in the Eastern Province, Rwamagana District, Muyumbu Sector, this reservoir receives water from Kareenge, it has a capacity of 420m³ and serves Muyumbu and Mbandazi areas.

It receives water 3 times a week and it is always o low level except during rai season. It is new and all accessories function well.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">Nothing	

III. Description Photos



All installed accessories are new and function well



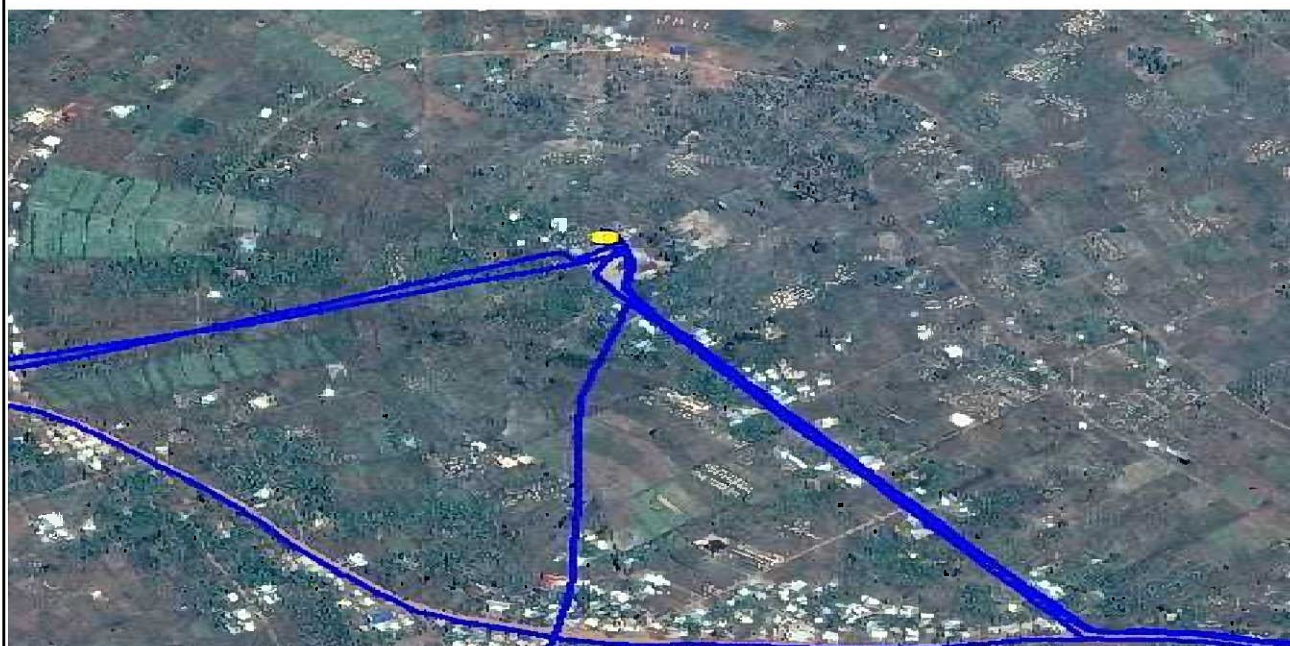
Bypass not connected

Final report of the reservoir survey in KANOMBE Branch/KEC Co., Ltd/ WASAC Ltd/

JICA Rwanda

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	90		
Branch	Kanombe		
District	Rwamagana		
Sector	Muyumbu		
Cell	Akinyambo		
Village	Ryabaheshwa		
Street	Rd		
GPS Coordinates Latitude	-1.9675587	y	
GPS Coordinates Longitude	30.2575674	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 04/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	90
2	Name of Reservoir	RYABAHESHA
3	ID Code	MUYL11RE1
4	Ward	District: Rwamagana, Sector: Muyumbu, Cell: Akinyambo, Village: Ryabaheshwa
5	Branch Office	Kanombe
6	Location	Latitude: -1.9675587, Longitude: 30.2575674, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year:
9	Storage Capacity	420m3
10	Service area of the Reservoir	Muyumbu-Mbandazi areas
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Timing: <u>sometimes</u>
	Reason of bypass operation	
6	Inflow Condition	Source: KARENJE
		Water pressure at inlet:
		Frequency and time: 3 Times a week
7	Water level movement	Always low level, Proper movement possible in Rain Period
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 13.60m, H: 3.00m
5	Remarks/ Issue	.Worn out stairs

No.	Item	Details
D: Equipment		
1	Floater Valve	Function, DN: 150
2	Water Level Gauge	No installation
3	Flow Meters	Mechanical, DN: 150&80 , PN(bar): _____,
		Function: YES
		Location: Outlet Pipe
4	Inlet pipe No.1	SP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: YES
6	Outlet pipe No.1	SP, DN: 200
	Outlet pipe No.2	SP, DN: 80
7	Outlet valve No.1	DN: 200, Function: YES
	Outlet valve No.2	DN: 80, Function: YES
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200
10	Remarks/ Issue	All pipes and valves are new.

Other Information:	. No water at the station
	. No Electricity at the station

Photo Sheet

Reservoir Name: RYABAHESHA

No: 90



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

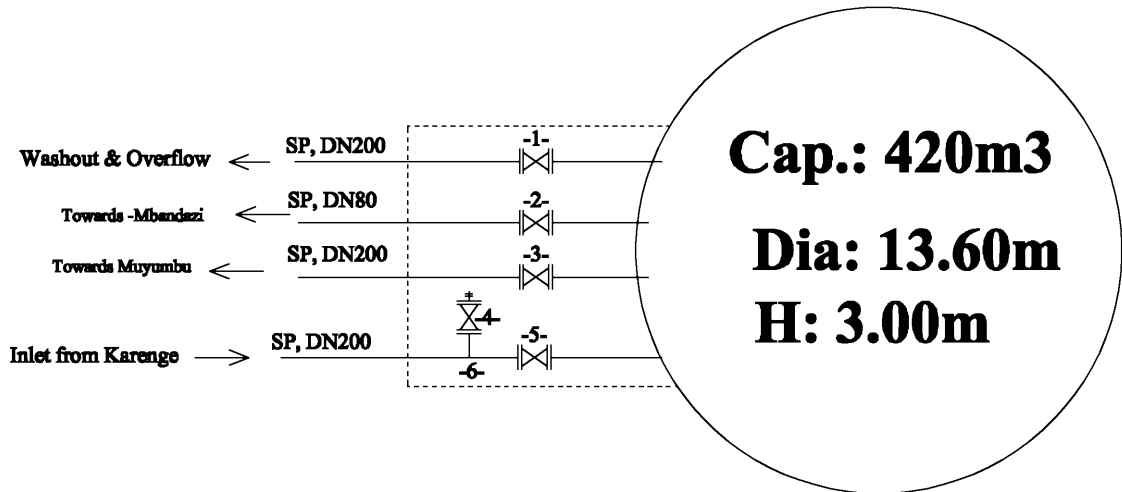
KANOMBE BRANCH

Reservoir No.: 150

Location: Ryabaheshwa

Material: Concrete

SCHEMATIC DRAWING



LEGEND

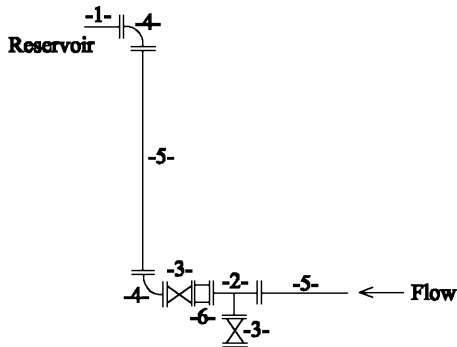
- 1- Overflow and Washout Valve DN 200
- 2 - Outlet No.1 Valve DN 80
- 3 - Outlet No. 2 Valve DN 200
- 4 - Blocked Bypass Valve DN 200
- 5 - Inlet Valve DN 200
- 6 - Tee with Triple flange DN 200

KANOMBE BRANCH

Reservoir No.: 150

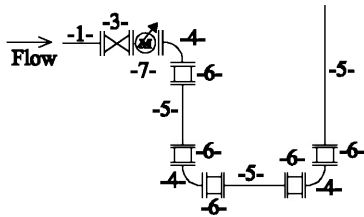
Reservoir Name: Ryabaheshwa

*** Inlet (SP DN200)**



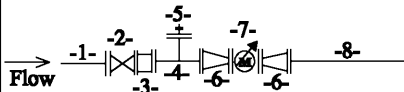
- 1- Straight Pipe with a flange
- 2- Tee with triple flange
- 3- Valve DN200
- 4- 90 Degree Elbow with double flange
- 5- Straight pipe with double flange
- 6- Dismantling joint

*** Outlet B (SP DN80)**



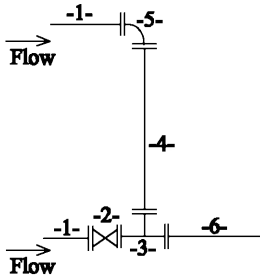
- 1- Straight Pipe with a flange
- 2- Tee with triple flange
- 3- Valve DN80
- 4- 90 Degree Elbow with double flange
- 5- Straight pipe with double flange
- 6- Dismantling joint
- 7- Flow Meter

*** Outlet A (SP DN200)**



- 1- Straight Pipe with a flange
- 2- Valve DN200
- 3- Dismantling joint
- 4- Tee with triple flange
- 5- End cap
- 6- Reduced cone
- 7- Flow Meter
- 8- Straight pipe with double flange

*** Overflow & Drainage (SP DN200)**



- 1- Straight Pipe with a flange
- 2- Valve DN200
- 3- Tee with triple flange
- 4- Straight pipe with double flange
- 5- 90 Degree Elbow with double flange
- 6- Pipe with a flange

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

4. RESERVOIR No. 33: CYIMO Masaka Down Hill

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: CYIMO Masaka Down Hill

No.: 33

I. Status and Functionality issues description

The reservoir was constructed with a storage capacity of 60m³. It was built with a purpose of serving Cyimo, Masaka, Rusheshe, Gitaraga areas of Masaka Sector.

It was abandoned by WASAC because it was leaking on walls and they needed to increase the pressure in the network.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Reconnection to the network• Inlet valve• Outlet valve• Drainage valve• Internal plastering and general rehabilitation works• Installation of a Floiater• Fencing	<ul style="list-style-type: none">• 1 Floater valves DN100• 3 Valves DN100• Repairing leaks on Reservoir

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

III. Description Photos



Defective floater valve



General rehabilitation is needed

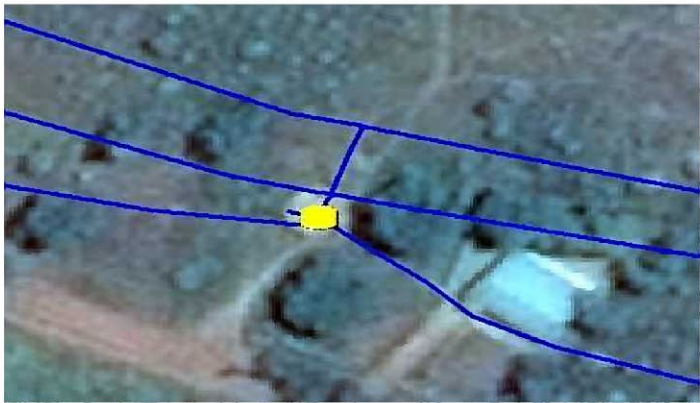
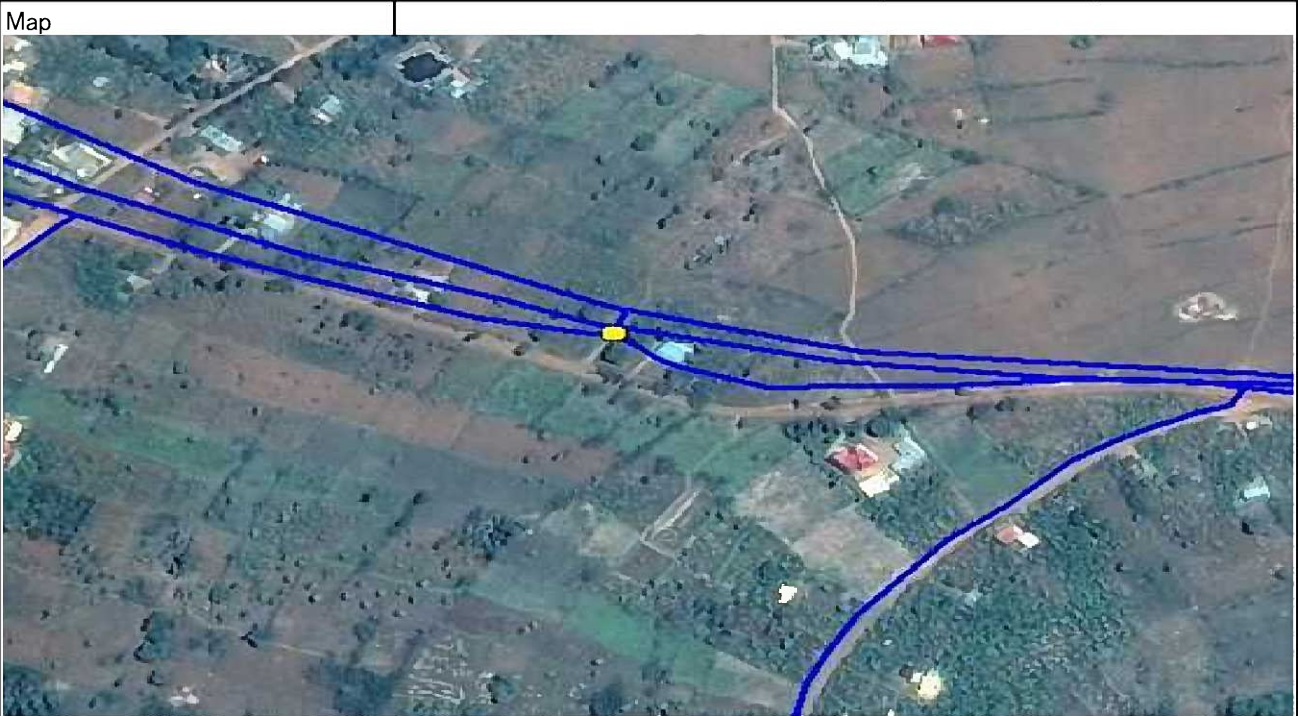


It was abandoned and bypassed



Reconnection will be needed

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	33		
Branch	Kanombe		
District	Kicukiro		
Sector	Masaka		
Cell	Cyimo		
Village	Urugwiro		
Street	Rd		
GPS Coordinates Latitude	-1.9999323	y	
GPS Coordinates Longitude	30.2000455	x	



Attachement-3 Reservoir Survey Sheet

Date: 04/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	33
2	Name of Reservoir	Cyimo
3	ID Code	MASO7RE1
4	Ward	District: Kicukiro, Sector: Masaka, Cell: Cyimo, Village: Urugwiro
5	Branch Office	Kanombe
6	Location	Latitude: -1.9999323, Longitude: 30.2000455, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year:
9	Storage Capacity	60 m3
10	Service area of the Reservoir	Cyimo, Masaka, Rusheshe, Gitaraga
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Reservoir not in use
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	The tank was abandoned by WASAC Ltd
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 5.80m, H: 2.40m
5	Remarks/ Issue	63.37776

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction, DN: 100
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 100, Top
5	Inlet valve No.1	DN: 100, Function: Yes but serving bypass
6	Outlet pipe No.1	SP, DN: 100
7	Outlet valve No.1	DN: 150, Function: NO
8	Overflow Pipe	SP, DN: 100
9	Drain Pipe	SP, DN: 100
10	Remarks/ Issue	The was abandoned and bypassed

Other Information:	. In order to make it operational, a general rehabilitation is recommended.
	. No fence and bush are everywhere
	. No reservoir cover
	. No manhole cover
	. Nearby and connected Public water tap (BF) is operational on every Tuesdays of the week.

Photo Sheet

Reservoir Name: **Cyimo**

No: **33**



Whole View



Reservoir



Inlet Pipe with Valve

Outlet Pipe with Valve



Float Valve

Meter

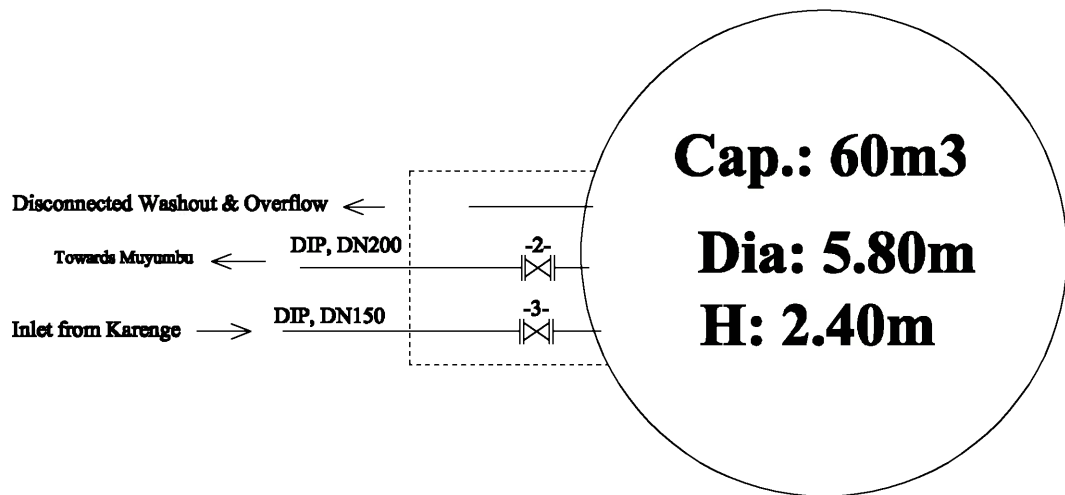
KANOMBE BRANCH

Reservoir No.: 19

Location: Cyimo

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

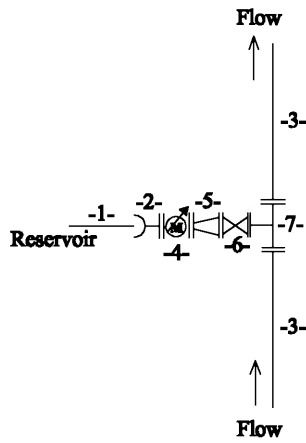
- 1 - Overflow and Washout Valve DN 200
- 2 - Outlet Valve DN 200
- 3 - Inlet Valve DN 150

KANOMBE BRANCH

Reservoir No.: 19

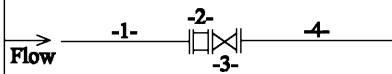
Reservoir Name: Cyimo

*** Inlet (DIP DN300, 150, 80)**



- 1- Straight Pipe with a flange
- 2- Flange Adaptor
- 3- Straight pipe
- 4- 90 Degree Elbow with double flange
- 5- Straight pipe with double flange
- 6- Valve DN300

*** Outlet (DIP DN200)**



- 1- Straight Pipe with a flange
- 2- Tee with triple flange
- 3- Valve DN200
- 4- 90 Degree Elbow with double flange
- 5- Straight pipe with double flange
- 6- Dismantling joint

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

5. RESERVOIR No. 116: CYARUZINGE

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: Cyaruzinge

No.: 116

I. Status and Functionality issues description

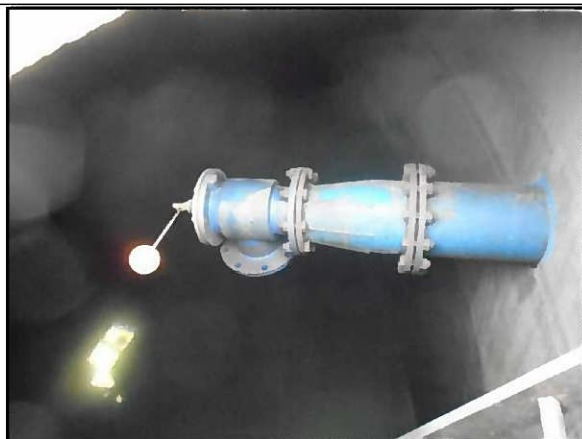
The reservoir receives water from Karengu. It has a capacity of 450m³ and serves Cyaruzinge and Rudashya areas.

Always low level during dry season.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of Bypass Valve• Repairing or replacement of Floater valve• Replacement of Outlet Valve	<ul style="list-style-type: none">• 1 Valve DN200• Repairing of floater valve• 1 Valve DN200
<ul style="list-style-type: none">• No water for operator	<ul style="list-style-type: none">•

III. Description Photos



Floater doesn't open for low pressure inlet water

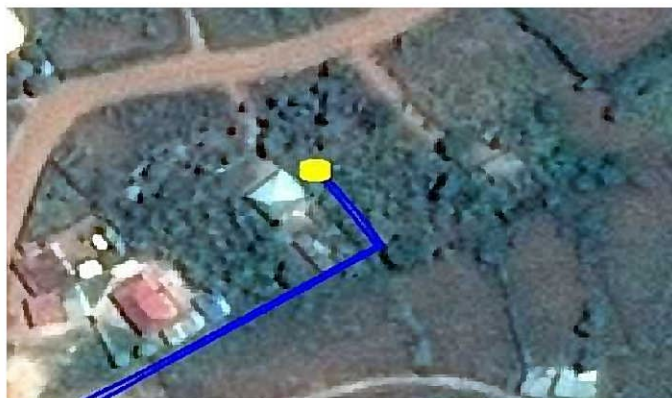


Bypass valve leaking

Final report of the reservoir survey in KANOMBE Branch/KEC Co., Ltd/ WASAC Ltd/

JICA Rwanda

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	116		
Branch	Kanombe		
District	Gasabo		
Sector	Ndera		
Cell	Rudashya		
Village	Ruhogo		
Street	KK 17 Av		
GPS Coordinates Latitude	-1.9511575	y	
GPS Coordinates Longitude	30.1966444	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 04/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	116
2	Name of Reservoir	CYARUZINGE
3	ID Code	NDERJ7RE1
4	Ward	District: Gasabo, Sector: Ndera, Cell: Rudashya, Village: Ruhogo
5	Branch Office	Kanombe
6	Location	Latitude: -1.9511575, Longitude: 30.1966444, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year:
9	Storage Capacity	450 m3
10	Service area of the Reservoir	Cyaruzinge and Rudashya areas
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	Closing valve
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Timing: Sometimes _____,
	Reason of bypass operation	Cleaning
6	Inflow Condition	Source: KARENGE
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always low level (during dry season)
8	Issue on Functional Condition	Bypass valve defective
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Semi-ground
3	Structure Material	Concrete
4	Inside Dimension	D: 13.60m, H: 3.20
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	Function: YES, DN: 150
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 150, PN(bar): _____,
		Function: YES
		Location: Outlet Pipe
4	Inlet pipe No.1	DIP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: YES
6	Outlet pipe No.1	DIP, DN: 200
7	Outlet valve No.1	DN: 200, Function: YES
8	Overflow Pipe	DIP, DN: 200
9	Drain Pipe	DIP, DN: 150
10	Remarks/ Issue	.Floater valve need checking for low pressure opening.

Other Information:	. Low water level in the Reservoir
	. No electricity (security issues)
	. Bypss valve defective
	. Outlet valve opening 1/2 (Urgent issue)

Photo Sheet

Reservoir Name: CYARUZINGE

No: 116



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

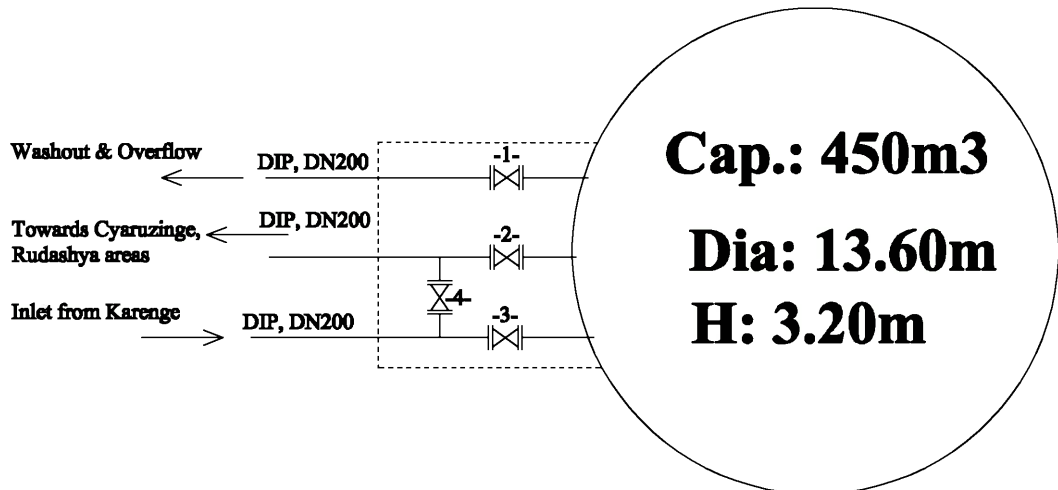
KANOMBE BRANCH

Reservoir No.: 16

Location: Cyaruzinge

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

- 1 - Overflow and Washout Valve DN 200
- 2 - Outlet Valve DN 200
- 3 - Inlet Valve DN 200
- 4 - Bypass Valve DN 200

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

6. RESERVOIR No. 29: CYIMO Masaka Up Hill

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: CYIMO Masaka Up Hill

No.: 29

I. Status and Functionality issues description

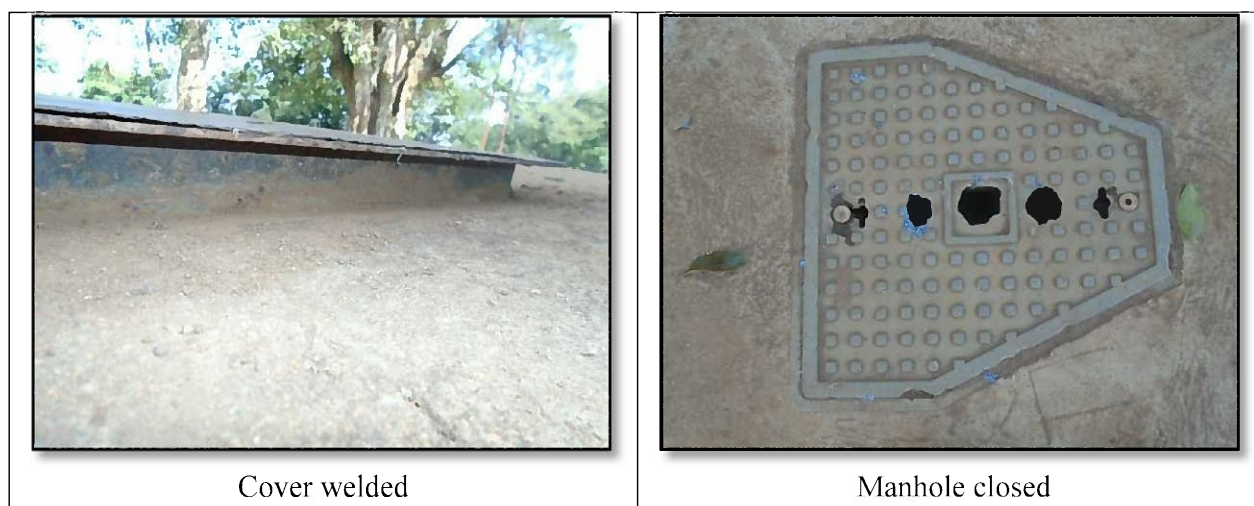
The reservoir receives water from Karenghe. It has a capacity of 15m³ and serves Masaka Uphill and nearby Catholic school.

The day we visited, the manhole was closed and WASAC Operator was not able to open it.

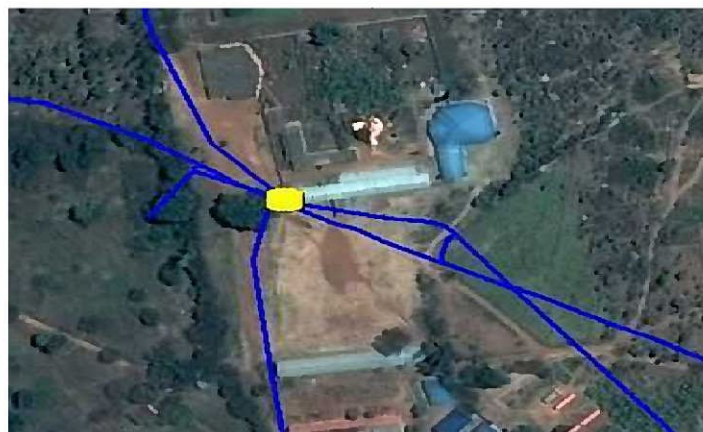
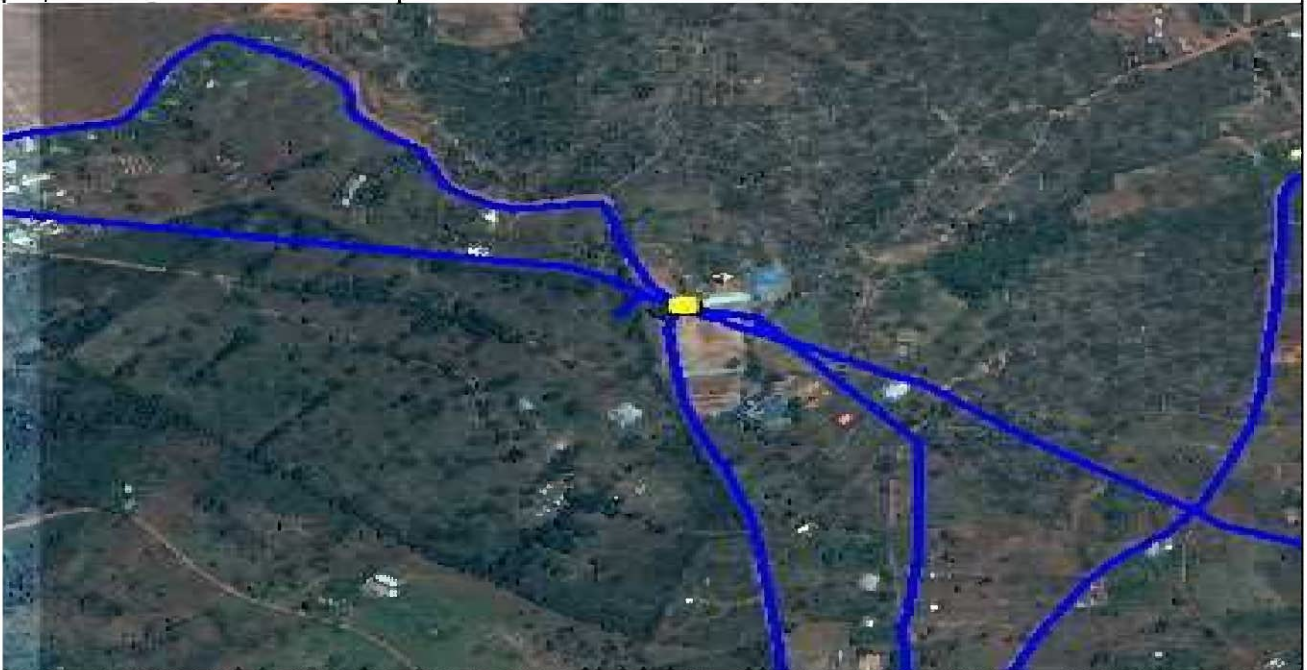
II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">To be decided by WASAC	

III. Description Photos



Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	29		
Branch	Kanombe		
District	Kicukiro		
Sector	Masaka		
Cell	Cyimo		
Village	Cyimo		
Street	KK 3 Rd		
GPS Coordinates Latitude	-2.0017991	y	
GPS Coordinates Longitude	30.2112507	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	29
2	Name of Reservoir	CYIMO (Masaka Uphill Church)
3	ID Code	MASP8RE2
4	Ward	District: Kicukiro, Sector: Masaka, Cell: Cyimo, Village: Cyimo
5	Branch Office	Kanombe
6	Location	Latitude: -2.0017991, Longitude: 30.2112507, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year
9	Storage Capacity	15 m3
10	Service area of the Reservoir	Masaka Uphill and Catholic parish
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 3.00m, H: ??
5	Remarks/ Issue	

No.	Item	Details	
D: Equipment			
1	Floater Valve	No installation	
2	Water Level Gauge	No installation	
3	Flow Meter	No installation	
4	Inlet pipe No.1	SP, DN: 100, Top	
5	Inlet valve No.1	Manhole closed at the visit day	
	Inlet valve No.2		
6	Outlet pipe No.1		
	Outlet pipe No.2		
	Outlet pipe No.3		
7	Outlet valve No.1		
	Outlet valve No.2		
	Outlet valve No.3		
8	Overflow Pipe		
9	Drain Pipe		
10	Remarks/ Issue		Accessories not visible because manhole was closed on our arrival

Other Information:

Manhole was closed and reservoir cover is welded to its frame.

Photo Sheet

Reservoir Name: CYIMO (Masaka Uphill Church)

No: 29



Whole View



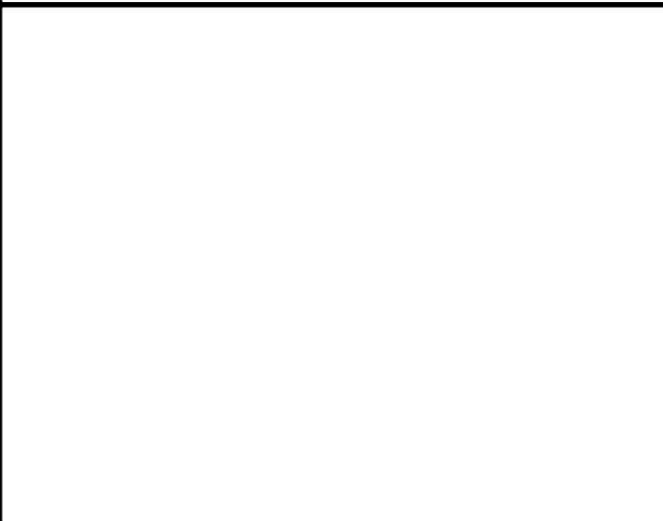
Reservoir



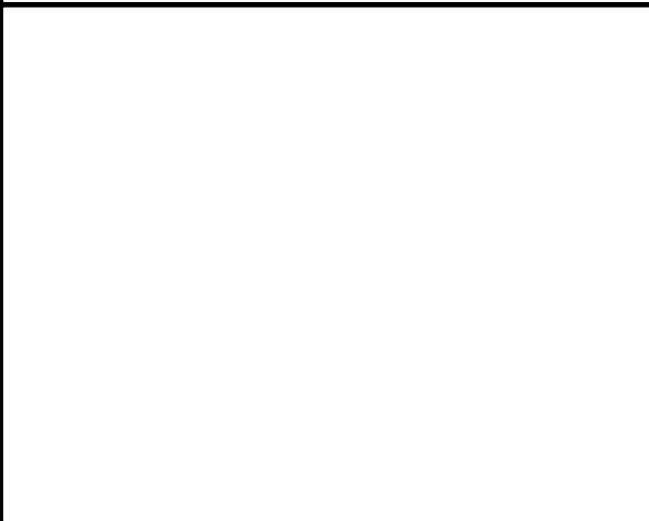
Inlet Pipe with Valve



Manhole closed



Float Valve



Meter

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

7. RESERVOIR No. 101: NEZERWA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: NEZERWA

No.: 101

I. Status and Functionality issues description

The reservoir receives water from Karengu. It is suspended and has a storage capacity of 250 and serves Ndera sector areas.

The inlet valve leaks profusely and it is buried, outlet valve was defective and they connected the overflow pipe to the outlet by welding,

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of inlet valve• Replacement of outlet valve• Installation of bypass valve• Replacement of drainage valve• Installing a Floater valve	<ul style="list-style-type: none">• 4 Valve DN200• 1 Floater valve DN200

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

III. Description Photos



Inlet valve leaking



Outlet valve not operational

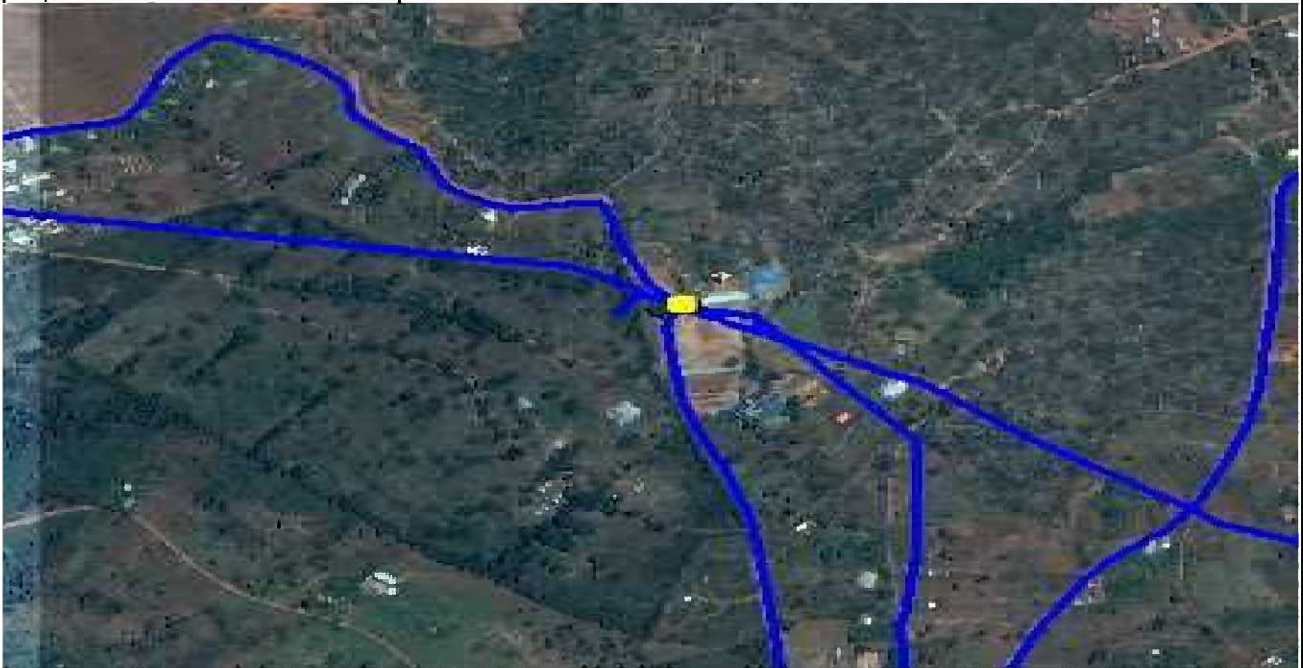


Drainage valve need replacement



Valve support of thrust blocks (all) need rehabilitation.

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	101		
Branch	Kanombe		
District	Kicukiro		
Sector	Masaka		
Cell	Cyimo		
Village	Cyimo		
Street	KK 3 Rd		
GPS Coordinates Latitude	-2.0017991	y	
GPS Coordinates Longitude	30.2112507	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	101
2	Name of Reservoir	NEZERWA
3	ID Code	NDERK5RE1
4	Ward	District: Kicukiro, Sector: Masaka, Cell: Cyimo, Village: Cyimo
5	Branch Office	Kanombe
6	Location	Latitude: -2.0017991, Longitude: 30.2112507, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year
9	Storage Capacity	250m3
10	Service area of the Reservoir	Ndera area
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	Overflow connected to the outlet pipe
3	Wall Leakage	Flowing
4	Overflow observation	Overflow connected to the outlet pipe and used for supply
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	The outlet valve broken, then they are using the overflow pipe to supply.
C: Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Elevated
3	Structure Material	Steel
4	Inside Dimension	L: 9.70m × B: 7.30, H: 3.60m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 100, PN(bar): _____,
		Malfunction
4	Inlet pipe No.1	SP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: No, defective and water flowing
6	Outlet pipe No.1	SP, DN: 200
7	Outlet valve No.1	DN: 200, Function: no, defective
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200 (Valve defective)
10	Remarks/ Issue	All 7 valves are defective and need replacement

Other Information:	No water for operator
	No electricity for operator
	Outlet manhole not covered
	Thrust block separated with elbows
	Tank leaking at the bottom
	Ground (bottom) needs concrete protection.

Photo Sheet

Reservoir Name: Nezerwa

No: 101



Whole View



Reservoir



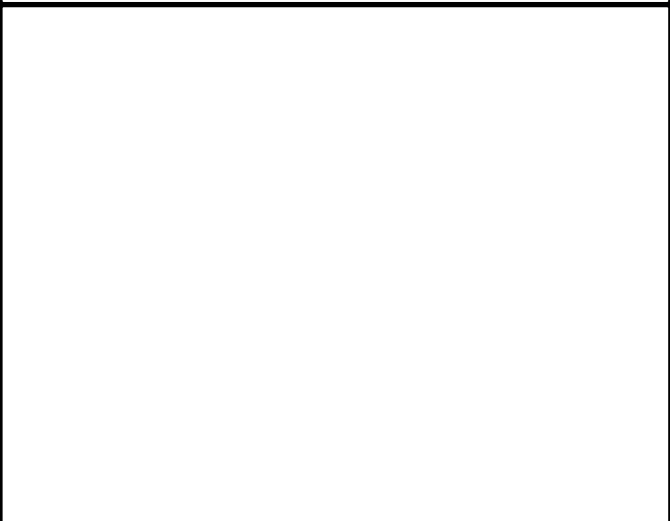
Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

KANOMBE BRANCH

Reservoir No.: 107

Location: NEZERWA

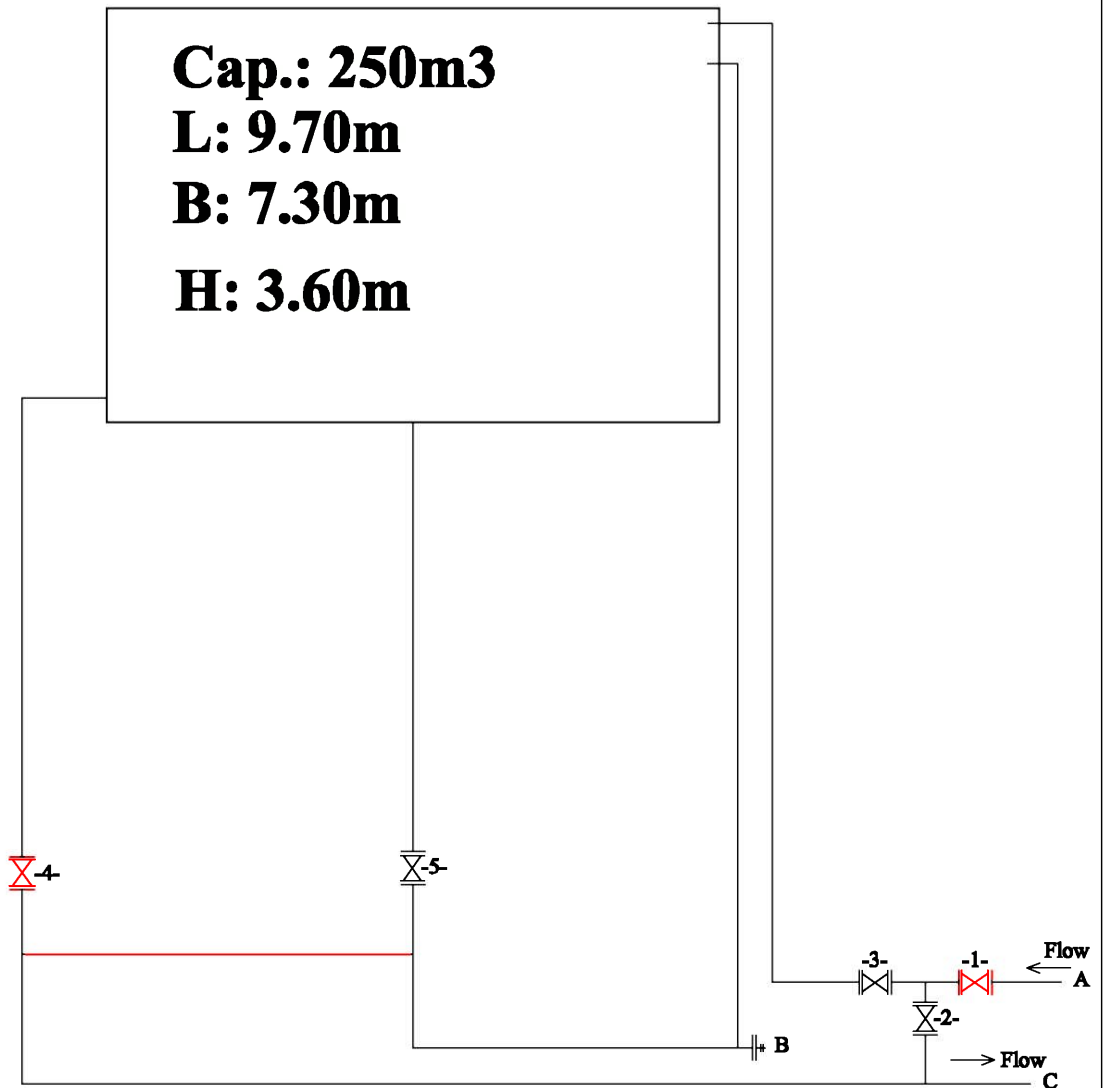
Material: Steel pannel

Cap.: 250m³

L: 9.70m

B: 7.30m

H: 3.60m



LEGEND

1,3 - Inlet Valve DN200

2 - Bypass Valve DN200

4 - Outlet Valve DN200

5 - Drainage Valve DN200

A - Inlet from Karengu, AG DN200

B -Blocked Washout and Overflow pipe

C - Outlet towards NDERA areas , AG DN200

In red color: parts with issues

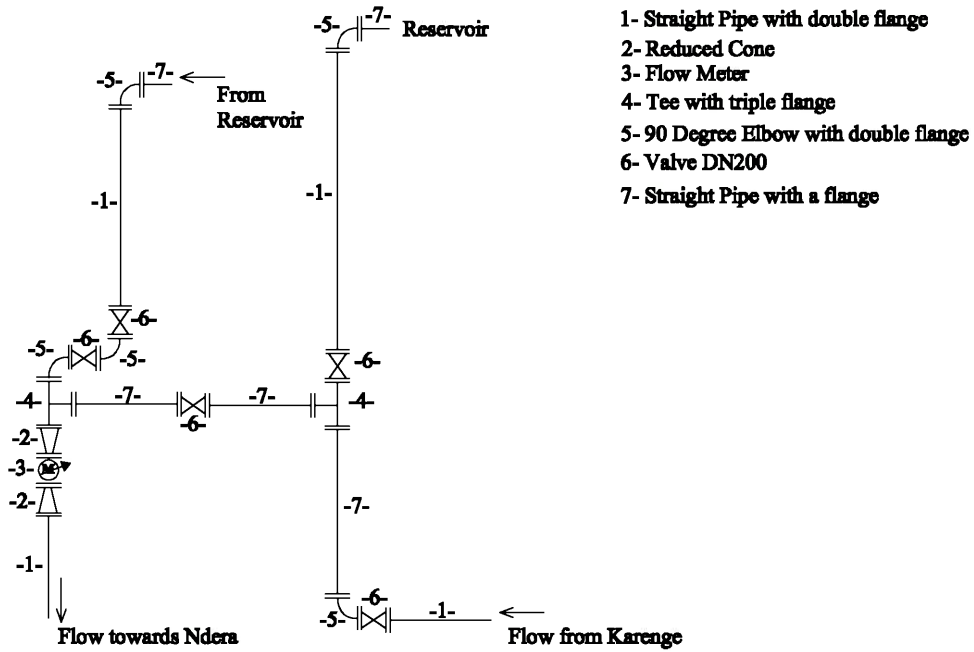
KYOWA ENGINEERING CONSULTANTS CO., LTD / WASAC LTD / JICA RWANDA

KANOMBE BRANCH

Reservoir No.: 107

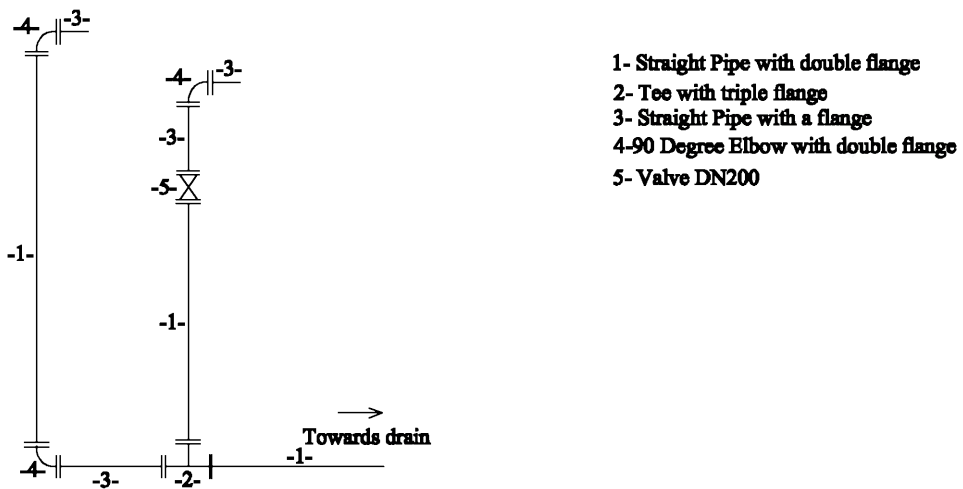
Reservoir Name: Nezerwa

*** Inlet, Outlet, and bypass (SP DN200)**



- 1- Straight Pipe with double flange
- 2- Reduced Cone
- 3- Flow Meter
- 4- Tee with triple flange
- 5- 90 Degree Elbow with double flange
- 6- Valve DN200
- 7- Straight Pipe with a flange

*** Overflow and Drainage (SP DN200)**



- 1- Straight Pipe with double flange
- 2- Tee with triple flange
- 3- Straight Pipe with a flange
- 4- 90 Degree Elbow with double flange
- 5- Valve DN200

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

8. RESERVOIR No. 59: ANTENNA Kanombe

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: ANTENNA Kanombe

No.: 59

I. Status and Functionality issues description

Before being abandoned the reservoir was using water from Karengye, now it is disconnected and not used, it was built by REGIE and handed to WASAC.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• General maintenance or replacement,• Replacement of inlet valve• Replacement of outlet valve• Replacement of drainage valve• Installing a Floater valve	<ul style="list-style-type: none">• 3 Valve DN50• 1 Floater valve DN50• Construction

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

II. Description Photos



General maintenance needed



Reconnection and inlet valve needed



Outlet and drainage valves needed.

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	59,60		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Karama		
Village	Gikundiro		
Street	KK 20 Av		
GPS Coordinates Latitude	-1.9836206	y	
GPS Coordinates Longitude	30.1486846	x	



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	59
2	Name of Reservoir	Antenne
3	ID Code	KANN3RE2
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Karama, Village: Gikundiro
5	Branch Office	Kanombe
6	Location	Latitude: -1.9836206, Longitude: 30.1486846, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year
9	Storage Capacity	50m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	always no water
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	always no water
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
	Reservoir	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 5.00m , H: 3.00m
5	Remarks/ Issue	General Maintenance needed

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 50, Top
5	Inlet valve No.1	DN: 50 , Function: No information
6	Outlet pipe No.1	SP, DN: 50
7	Outlet valve No.1	DN: 50 , Function: No information
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	SP, DN: 50 , no valve
10	Remarks/ Issue	Reservoir constructed by REGIE and need general maintenance before usage.

Other Information:	. Manhole not covered
	. Tank not connected
	. Accessories removed or stolen
	.Nearest network pipe is DN300 an in 5m from reseroir's manhole

Photo Sheet

Reservoir Name: Antenne

No: 59



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

Float Valve

Meter

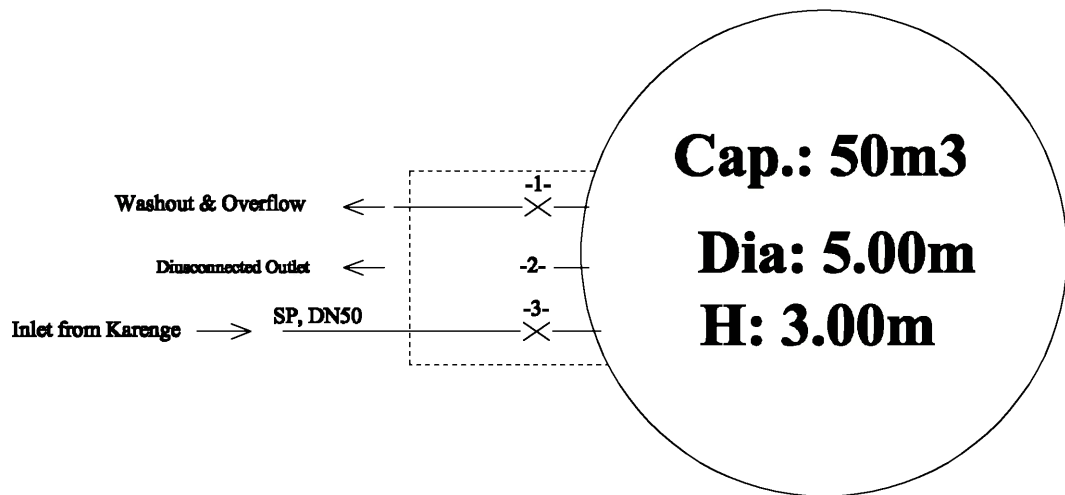
KANOMBE BRANCH

Reservoir No.: 4

Location: Antenne

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

1 - Overflow and Washout Valve DN50

2 - Disconnected Outlet DN50

3 - Inlet Valve DN50

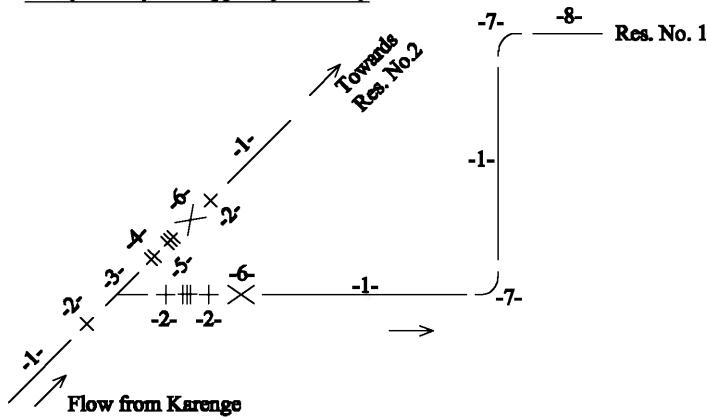
N.B: No outlet accessories installed

KANOMBE BRANCH

Reservoir No.: 4&5

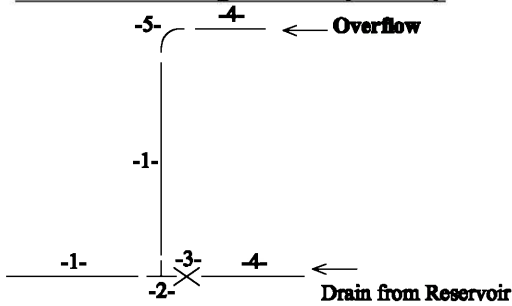
Reservoir Name: Antenna

*** Inlet, Outlet, and bypass (SP DN50)**



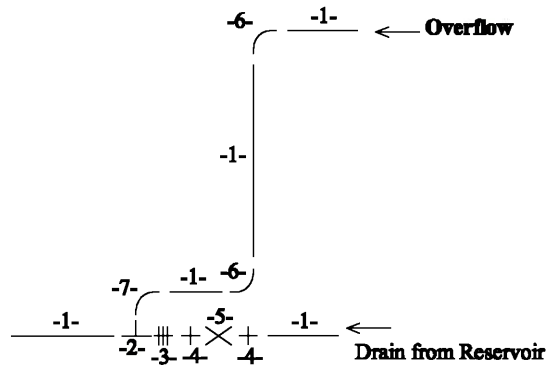
- 1- Straight Pipe
- 2- Nipple
- 3- Tee with 45 Degree
- 4- Adaptor
- 5- Union joint
- 6- Valve DN50
- 7- 90 Degree Elbow
- 8- Reservoir inlet Straight Pipe

*** Overflow and Drainage Res. No. 1 (SP DN50)**



- 1- Pipe
- 2- Tee
- 3- Valve DN50
- 4- Straight Pipe
- 5- 90 Degree Elbow

*** Overflow and Drainage Res. No. 2 (SP DN50)**



- 1- Straight Pipe
- 2- Tee
- 3- Union joint
- 4- Nipple
- 5- Valve DN50
- 6- 90 Degree Elbow

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

9. RESERVOIR No.60: ANTENNA Kanombe

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: ANTENNA Kanombe

No.: 60

I. Status and Functionality issues description

Before being abandoned the reservoir was using water from Karengye, now it is disconnected and not used, it was built by REGIE and handed to WASAC.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• General maintenance or replacement,• Replacement of inlet valve• Replacement of outlet valve• Replacement of drainage valve• Installing a Floater valve	<ul style="list-style-type: none">• 3 Valve DN50• 1 Floater valve DN50• Construction

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

II. Description Photos



Floater valve needed for inlet pipe



Recennection and outlet valve needed



General maintenance works needed

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	59,60		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Karama		
Village	Gikundiro		
Street	KK 20 Av		
GPS Coordinates Latitude	-1.9836206	y	
GPS Coordinates Longitude	30.1486846	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	60
2	Name of Reservoir	Antenne
3	ID Code	KANN3RE1
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Karama, Village: Gikundiro
5	Branch Office	Kanombe
6	Location	Latitude: -1.9836206, Longitude: 30.1486846, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year
9	Storage Capacity	50m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	always no water
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	always no water
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
	Reservoir	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 4.90m , H: 3.00m
5	Remarks/ Issue	General Maintenance needed

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 50, Top
5	Inlet valve No.1	DN: 50 , Function: No information
6	Outlet pipe No.1	SP, DN: 80
7	Outlet valve No.1	DN: 50 , Function: Not available
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	SP, DN: 50
10	Remarks/ Issue	Reservoir constructed by REGIE and need general maintenance before usage.

Other Information:	. Manhole not covered
	. Tank not connected
	. Accessories removed or stolen
	.Nearest network pipe is DN300 an in 5m from reseroir's manhole

Photo Sheet

Reservoir Name: Antenne

No: 60



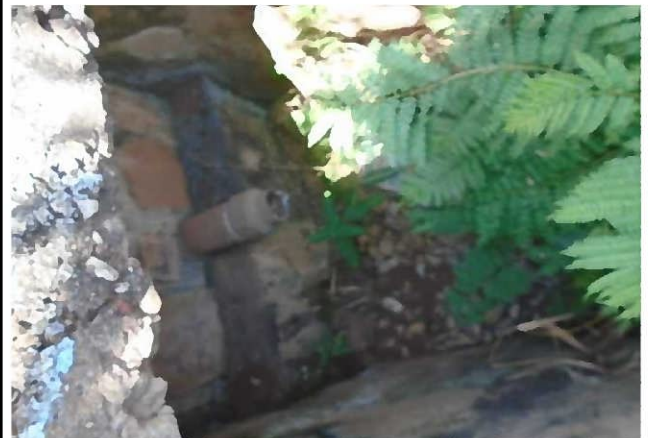
Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

Float Valve

Meter

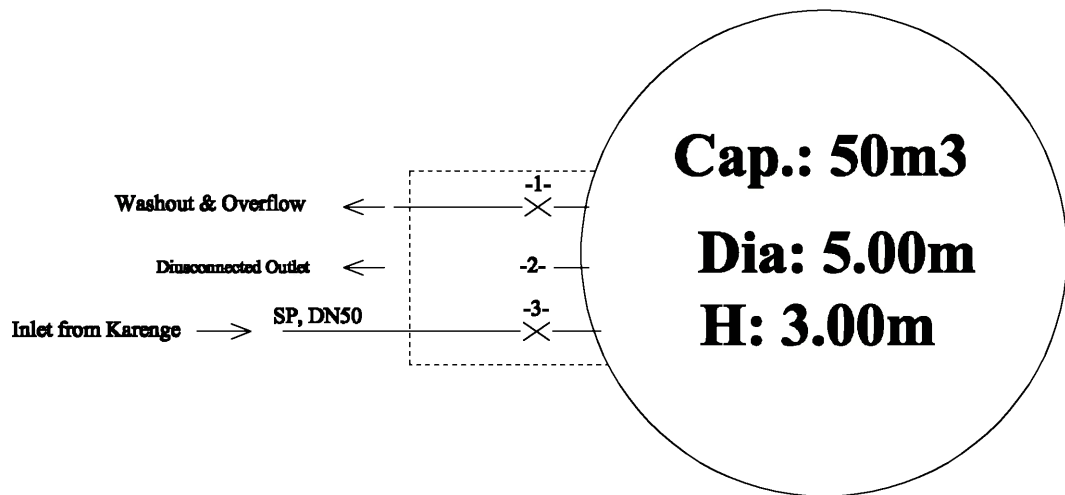
KANOMBE BRANCH

Reservoir No.: 5

Location: Antenne

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

1 - Overflow and Washout Valve DN50

2 - Disconnected Outlet DN50

3 - Inlet Valve DN50

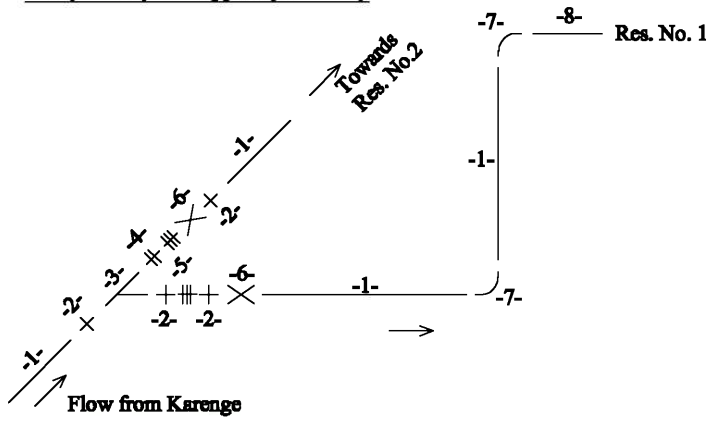
N.B: No outlet accessories installed

KANOMBE BRANCH

Reservoir No.: 4&5

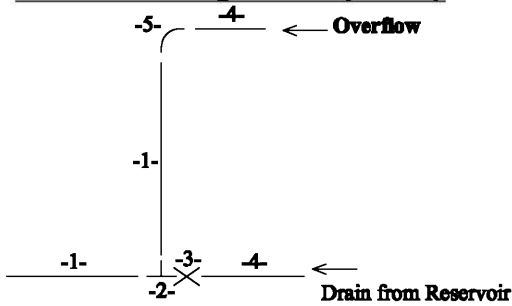
Reservoir Name: Antenna

*** Inlet, Outlet, and bypass (SP DN50)**



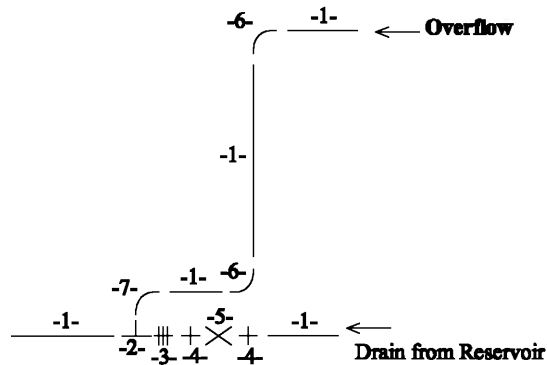
- 1- Straight Pipe
- 2- Nipple
- 3- Tee with 45 Degree
- 4- Adaptor
- 5- Union joint
- 6- Valve DN50
- 7- 90 Degree Elbow
- 8- Reservoir inlet Straight Pipe

*** Overflow and Drainage Res. No. 1 (SP DN50)**



- 1- Pipe
- 2- Tee
- 3- Valve DN50
- 4- Straight Pipe
- 5- 90 Degree Elbow

*** Overflow and Drainage Res. No. 2 (SP DN50)**



- 1- Straight Pipe
- 2- Tee
- 3- Union joint
- 4- Nipple
- 5- Valve DN50
- 6- 90 Degree Elbow

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

10. RESERVOIR No. 46: KARAMA (Rukundo Village)

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KARAMA (Rukundo Village)

No.: 46

I. Status and Functionality issues description

The reservoir is located in Uwurukundo Village, receiving water from Gikondo, it was abandoned after realizing that it is in the road dimensions and easily accessible to kids of the village that used to play with it in and outside, it used to serve their village and the nearby Public Water Tap.

At the time of the visit it was closed and we were not able to take inside picture but as per WASAC Technician outlet accessories were removed and taken by WASAC to another place.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of the cover• Installation of Floater valve• Protection (fencing)• Installation of Outlet valve• Rehabilitation of the nearby water tap	<ul style="list-style-type: none">• 1 Floater valve 1''• 1 Valve 1''• Construction works•

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

III. Description Photos



Defective cover



Kids play on top, in and outside of it



Rehabilitation of the nearby Water Tap will be necessary if reservoir is needed



Reservoir in road dimension.

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	46		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Karama		
Village	Urukundo		
Street	KK 20 Av		
GPS Coordinates Latitude	-1.9927091	y	
GPS Coordinates Longitude	30.1495906	x	



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	46
2	Name of Reservoir	Karama (Rukundo Village)
3	ID Code	KANN4RE1
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Karama, Village: Urukundo
5	Branch Office	Kanombe
6	Location	Latitude: -1.9927091, Longitude: 30.1495906, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year
9	Storage Capacity	20 m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Not Operational (Disconnected)
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	always no water
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	Not well covered, kids were playing inside
6	Inflow Condition	Source: Gikondo
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 4.00m, H: 1.80m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 1" , Top
5	Inlet valve No.1	DN: 1" , Function: YES
6	Outlet pipe No.1	SP, DN: 1"
7	Outlet valve No.1	Not available
8	Overflow Pipe	SP, DN: 1 1/4"
9	Drain Pipe	SP, DN: 1 1/2"
10	Remarks/ Issue	

Other Information:

- . Tank abandoned and bypassed after realizing that kids were playing inside.
- . No fence, no protection, in the road
- . Cover defective
- . Outlet accessories disconnected and removed
- . Tank used to serve the nearby Public tap (BF)

Photo Sheet

Reservoir Name: Karama (Rukundo Village)

No: 46



Whole View



Reservoir



Inlet Pipe with Valve

Outlet Pipe with Valve

Float Valve

Meter

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

11. RESERVOIR No. 34: BYIMANA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: BYIMANA

No.: 34

I. Status and Functionality issues description

The reservoir is located in Byimana area, it used to serve as storage and Kiosk reservoir because of a connected Water tap, it has a storage capacity of 25 m³, and it was abandoned by REGIE.

It was receiving water from Gikondo.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valve• Installation of Flow Meter• Supply and installation of inlet and outlet valves• Manhole need a cover• General cleaning, clearing and maintenance needed.• Accessories stolen.	<ul style="list-style-type: none">• 1Floater valve 1 1/4",• Meter• 2 Valve 1 1/4",• Construction works• General plumbing maintenance.

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

III. Description Photos



No floater valve installed



General maintenance needed



Water tap reconnection recommended



Inlet and outlet manholes need covers

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	34		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Karama		
Village	Gitarama		
Street	KK 20 Av		
GPS Coordinates Latitude	-1.9987608	y	
GPS Coordinates Longitude	30.145814	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	34
2	Name of Reservoir	BYIMANA
3	ID Code	KANO3RE1
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Karama, Village: Gitarama
5	Branch Office	Kanombe
6	Location	Latitude: -1.9987608, Longitude: 30.145814, Altitude
7	Function of Reservoir	Storage and Kiosk Reservoir
8	Age of Reservoir	Year
9	Storage Capacity	25 m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Gikondo
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 3.80m, H: 2.20m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 1 1/4", Top
5	Inlet valve No.1	DN: 1 1/4", Function: no information
6	Outlet pipe No.1	SP, DN: 1 1/4"
7	Outlet valve No.1	no installation
8	Overflow Pipe	SP, DN: 1"
9	Drain Pipe	SP, DN: 1 1/2"
10	Remarks/ Issue	Tank constructed by REGIE and was abandoned

Other Information:	. Manhole not covered
	. Accessories stolen
	. General cleaning, clearing and maintenance needed
	. Nearby PWT (BF) disconnected.

Photo Sheet

Reservoir Name: **BYIMANA**

No: **34**



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

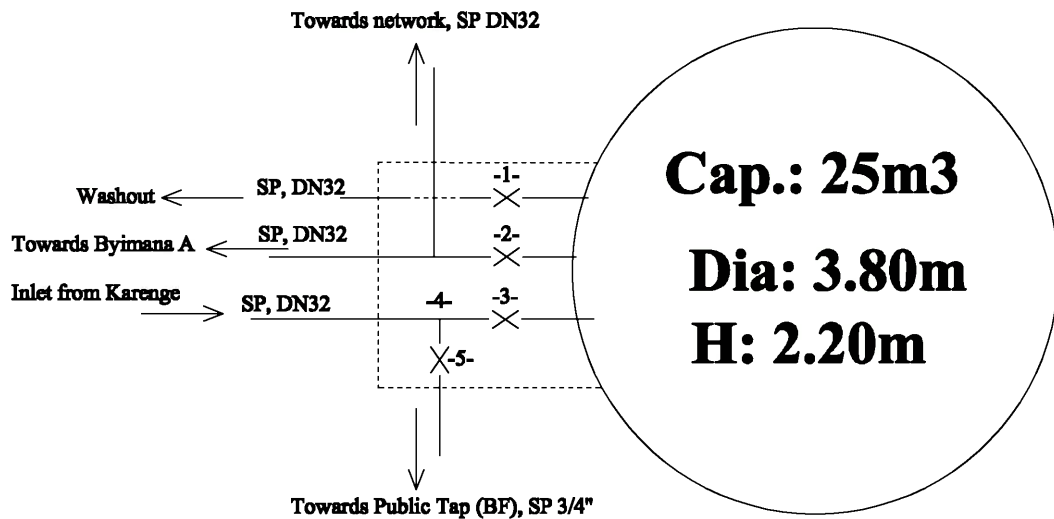
KANOMBE BRANCH

Reservoir No.: 10

Location: Byimana

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

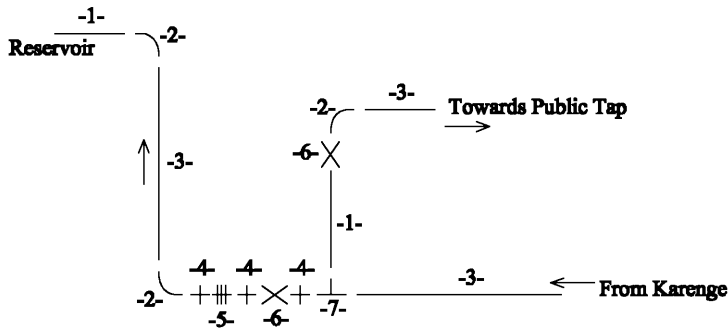
- 1- Washout valve DN32
- 2 - Outlet Valve DN 32
- 3 - Inlet Valve DN 32
- 4 - Bypass reduced Tee DN32 to DN3/4"
- 5 - Bypass Valve DN3/4"

KANOMBE BRANCH

Reservoir No.: 10

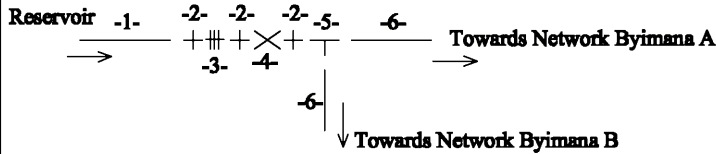
Reservoir Name: Byimana

*** Inlet (SP 1 1/4")**



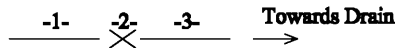
- 1- Straight Pipe
- 2- 90 Degree Elbow
- 3- Pipe
- 4- Nipple
- 5- Union joint
- 6- Valve DN32
- 7- Tee

*** Outlet, (SP 1 1/4")**



- 1- Straight Pipe
- 2- Nipple
- 3- Union joint
- 4- Valve
- 5- Tee
- 6- Pipe

*** Drainage (SP 1 1/2")**



- 1- Straight Pipe
- 2- Valve
- 3- Pipe

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

12. RESERVOIR No. 49 : BENINKA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: BENINKA

No.: 49

I. Status and Functionality issues description

The reservoir is located in Beninka Village in Rubilizi area and is being used by RAB-UR CAVM branch as WASAC Water store privately because before it was disconnected from WQASAC NETWORK but RAB decide to maintain it and use it as a private storage.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of Floater valve• Reconnection of inlet pipe• Supply and installation of Outlet valve• Drainage Valve• Manhole cover• Sealing the leaks on the walls• Manhole cover	<ul style="list-style-type: none">• 1Floater valve 2''• 1 Valve 2''• 1 Valve 2''• Manhole cover• Construction works• Cover

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

III. Description Photos



Inlet connection and valve



Inlet 2 reconnection



Floater valver needed



Outlet network need rehabilitation

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	49		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Rubirizi		
Village	Zirakamwa		
Street	KK 18 Av		
GPS Coordinates Latitude	-1.9891046	y	
GPS Coordinates Longitude	30.131951	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	49
2	Name of Reservoir	BENINKA Village
3	ID Code	KANN2RE1
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Rubirizi, Village: Zirakamwa
5	Branch Office	Kanombe
6	Location	Latitude: -1.9891046, Longitude: 30.131951, Altitude
7	Function of Reservoir	Storage (being used by CAVM former ISAE Rubilizi)
8	Age of Reservoir	Year
9	Storage Capacity	60 m ³
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: KIMISAGARA
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 6.60m, H: 1.90m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 50 , PN(bar): _____,
		Function: YES
		Location: Inlet Pipe
4	Inlet pipe No.1	SP, DN: 50
5	Inlet valve No.1	DN: 50 , Function: YES
6	Outlet pipe No.1	SP, DN: 50
7	Outlet valve No.1	DN: 50 , Function: Defective
8	Overflow Pipe	SP, DN: 50 (Disconnected)
9	Drain Pipe	Not visible
10	Remarks/ Issue	Disconnected from WASAC network but uses WASAC Water.

Other Information:	. New accessories DN50 needed connection to the inlet and outlet, valves needed for inlet and outlet.
	. Manhole (2) needed, new covers needed
	. When at it full capacity it leaks through walls and new internal plastering is needed
	. New cover needed.

Photo Sheet

Reservoir Name: BENINKA Village

No: 49



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



no Float Valve



Meter

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

13. RESERVOIR No. 76: KAMASHASHI (Sekimondo Village)

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KAMASHASHI (Sekimondo Village)

No.: 76

I. Status and Functionality issues description

The elevated metallic tank has a capacity of 250m³ and was being used to serve a village known as Sekimondo village in Kamashashi area. It is privately owned and was abandoned by WASAC as it was always causing losses due to the fact that it has no meter before reservoir, it has no floater valve and it was always overflowing, therefore causing losses to WASAC Ltd which resulted in abandoning it permanently.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of flow meter in the inlet manhole,• Installation of a floater valve,• Repainting the inside of the tank• Installation of an overflow pipe,• Installation and connection of a drain pipe	<ul style="list-style-type: none">• 1 Floater valves DN80• Flow Meter, DN80• Paint• Drain valve DN80• Pipes

III. Description Photos



Installation of a Meter needed



Overflow pipe and drain pipe needed

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	76		
Branch	Kanombe		
District	Kicukiro		
Sector	Nyarugunga		
Cell	Kamashashi		
Village	Mukoni		
Street	KN 5 RD		
GPS Coordinates Latitude	-1.9753319	y	
GPS Coordinates Longitude	30.1747834	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 05/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	76
2	Name of Reservoir	Kamashashi (Sekimondo)
3	ID Code	NYARUM5RE1
4	Ward	District: Kicukiro, Sector: Nyarugunga, Cell: Kamashashi, Village: Mukoni
5	Branch Office	Kanombe
6	Location	Latitude: -1.9753319, Longitude: 30.1747834, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year
9	Storage Capacity	250m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	Abandoned because it was overflowing everyday.
	Phenomenon	Defective floater valve
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	Defective floater valve caused loss of water
C: Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Elevated
3	Structure Material	Steel
4	Inside Dimension	L: 9.70m × B: 7.30m , H: 3.60
5	Remarks/ Issue	After realizing that there is rust and steel dust inside, WASAC decided to abandon the tank.

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction, DN: 80
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 80, Top
5	Inlet valve No.1	DN: 80 , Function: YES
6	Outlet pipe No.1	SP, DN: 80
7	Outlet valve No.1	DN: , Function:
8	Overflow Pipe	No overflow pipe
9	Drain Pipe	No Drainage pipe
10	Remarks/ Issue	The reservoir is no longer used, it was abandoned and bypassed.

Other Information:	Maintenance Proposals:
	. New floater valve
	. Drain pipe
	.Overflow pipe
	.Repainting inside for rust protection
	.Inlet valve needed
	. General cleaning, clearing and maintenance needed.

Photo Sheet

Reservoir Name: Kamashashi (Sekimondo)

No: 76



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

Float Valve

Meter

KANOMBE BRANCH

Reservoir No.: 57

Location: Kamashashi (Sekimondo)

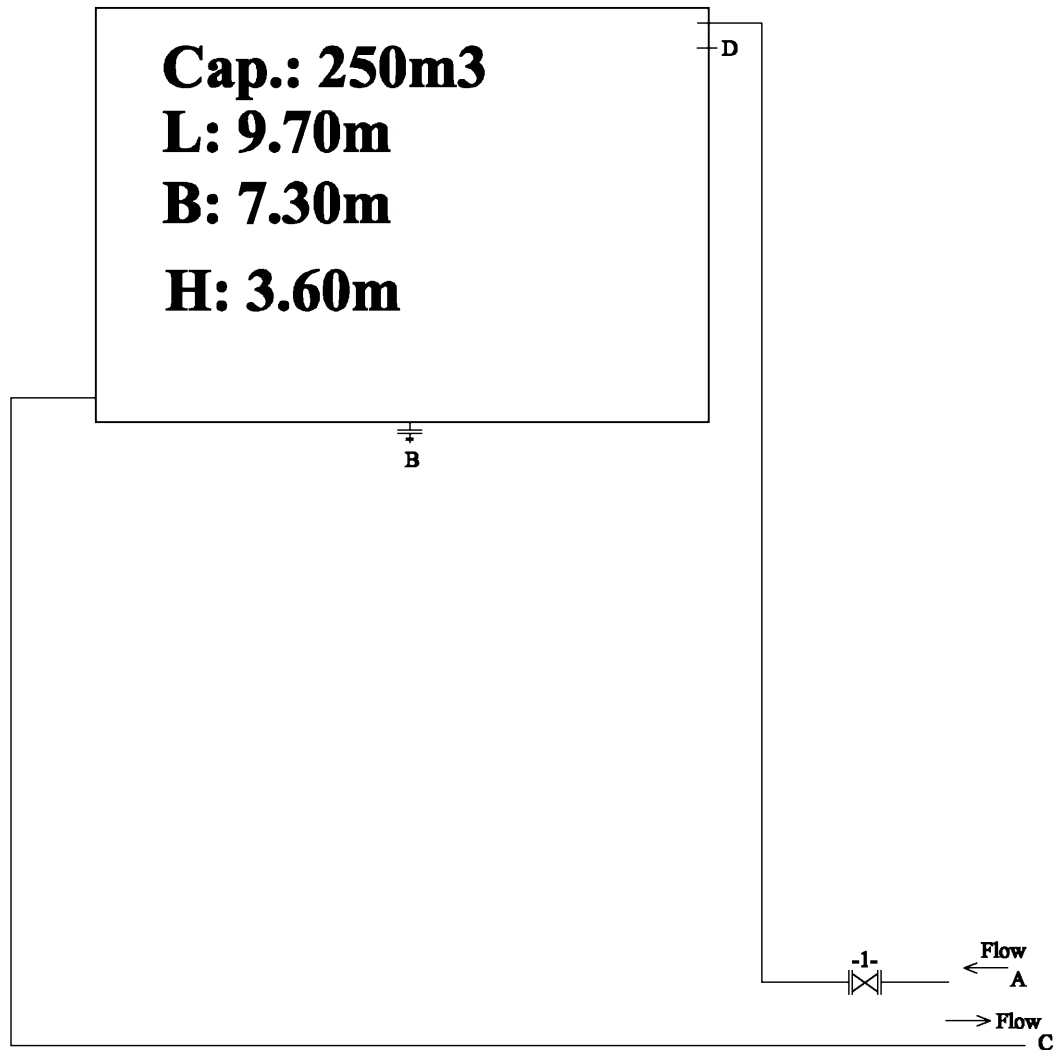
Material: Steel pannel

Cap.: 250m³

L: 9.70m

B: 7.30m

H: 3.60m



LEGEND

1- Inlet Valve DN80

A - Inlet from Karengye, AG DN80

B -Blocked Washout

C - Outlet towards Sekimondo Village, AG DN80

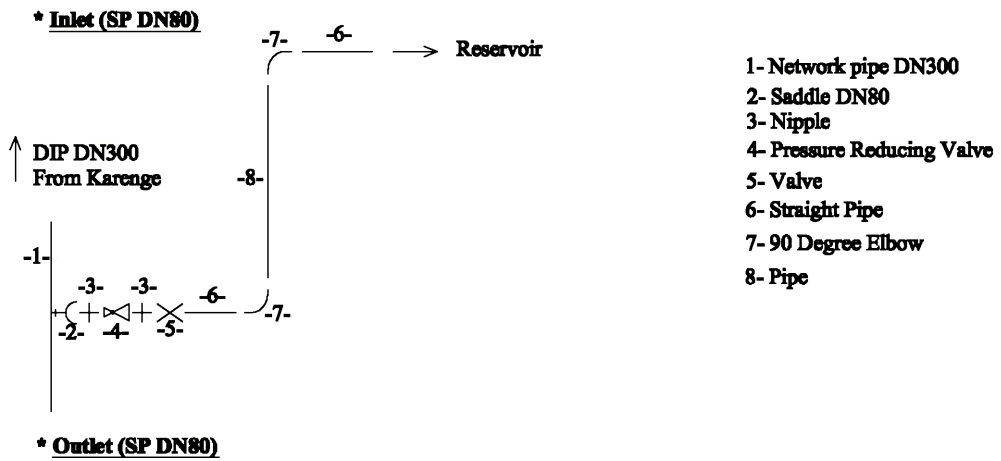
D - Disconnected Overflow Pipe.

KYOWA ENGINEERING CONSULTANTS CO., LTD / WASAC LTD / JICA RWANDA

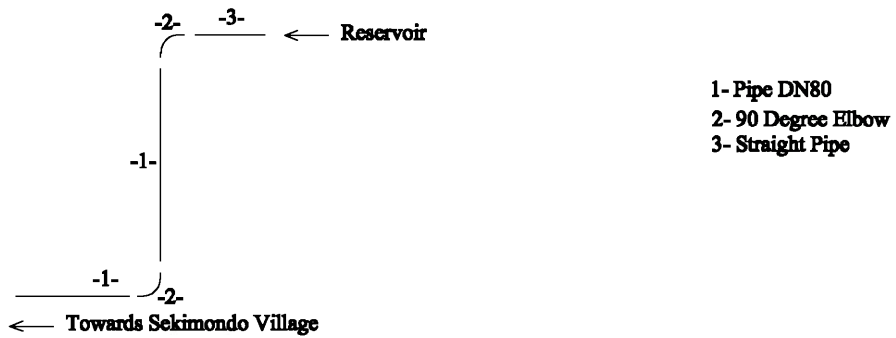
KANOMBE BRANCH

Reservoir No.: 57

Reservoir Name: Kamashashi



*** Outlet (SP DN80)**



FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

14. RESERVOIR No. 73: ABAREZI Samuduha

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: ABAREZI Samuduha

No.: 73

I. Status and Functionality issues description

The reservoir is has a capacity of 25m³ and is being used to serve a nearby Public Water Tap.

WE visited 3 times and the operator was not around.

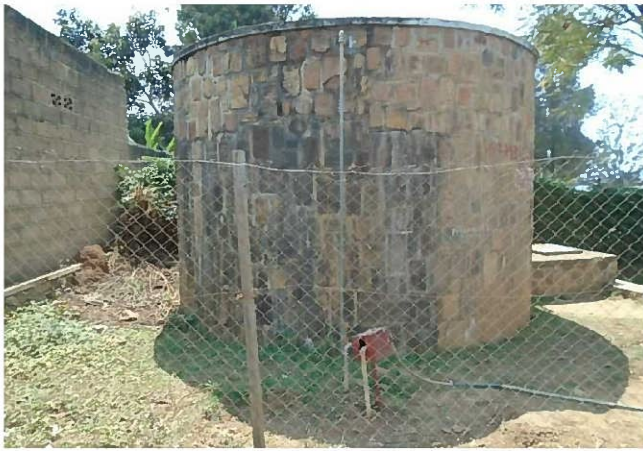
II. Required Action and Requirements

Action	Requirements
Nothing	

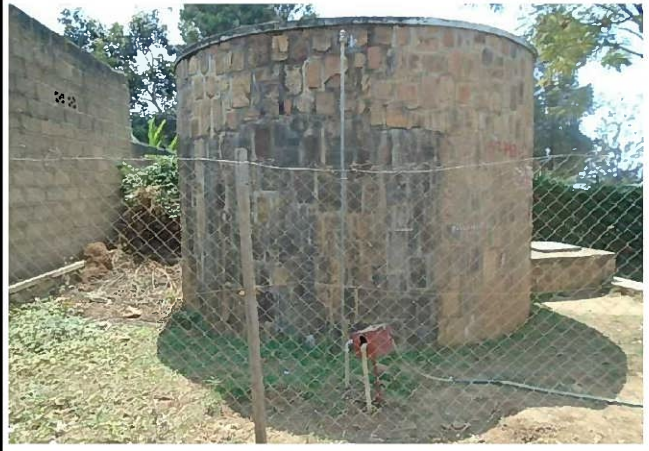
Photo Sheet

Reservoir Name: Abarezi SAMUDUHA

No: 73



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

Float Valve

Meter

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

15. RESERVOIR No. 77: INTWARI

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: INTWARI

No.: 77

I. Status and Functionality issues description

The reservoir is has a capacity of 70m³ and is being used to serve a nearby Public Water Tap.

It is under management of a local group of people selected by local authority and headed by: Mr. Joseph.

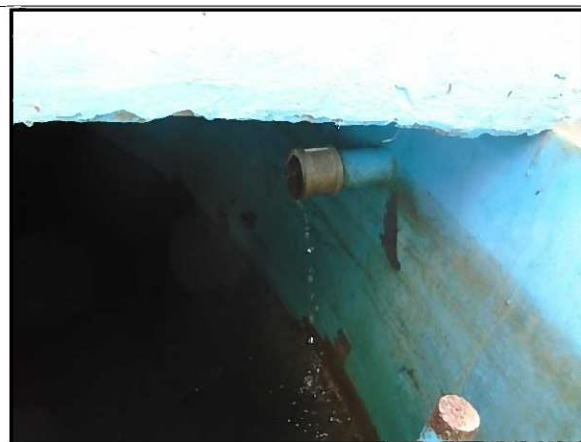
II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Sealing wall leaks to make it water proof as it leaks.• Installation of a floater valve	<ul style="list-style-type: none">• 1 Floater valves DN50• Construction works

III. Description Photos



Wall leaking



Floater valve needed

Final report of the reservoir survey in KANOMBE Branch/KEC Co., Ltd/ WASAC Ltd/

JICA Rwanda

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	77		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Rubirizi		
Village	Uwabarezi		
Street	KK 229 St		
GPS Coordinates Latitude	-1.9750959	y	
GPS Coordinates Longitude	30.136482	x	

Map



Attachement-3 Reservoir Survey Sheet

Date: 08/06/2020

No.	Item	Details
A: General		
1	Number of Reservoir	77
2	Name of Reservoir	Intwari Village
3	ID Code	KANM2RE1
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Rubirizi, Village: Uwabarezi
5	Branch Office	Kanombe
6	Location	Latitude: -1.9750959, Longitude: 30.136482, Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	Year: 2010
9	Storage Capacity	70 m ³
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	Closing Valve
3	Wall Leakage	Flowing
4	Overflow observation	0
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: KARENGE
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement, always low level, always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 5.60m , H: 3.00m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 3/4" , PN(bar): _____,
		Function: YES
		Location: Inlet Pipe
4	Inlet pipe No.1	SP, DN: 50, Top
5	Inlet valve No.1	DN: 3/4" , Function: YES
6	Outlet pipe No.1	SP, DN: 50
7	Outlet valve No.1	DN: 50 , Function: YES
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	SP, DN: 50
10	Remarks/ Issue	

Other Information:	Tank wall leaks (flow)
	During construction, reservoir was for demobilized soldiers area
	Public tap under management of Mr. Joseph, Tel: 0788820002

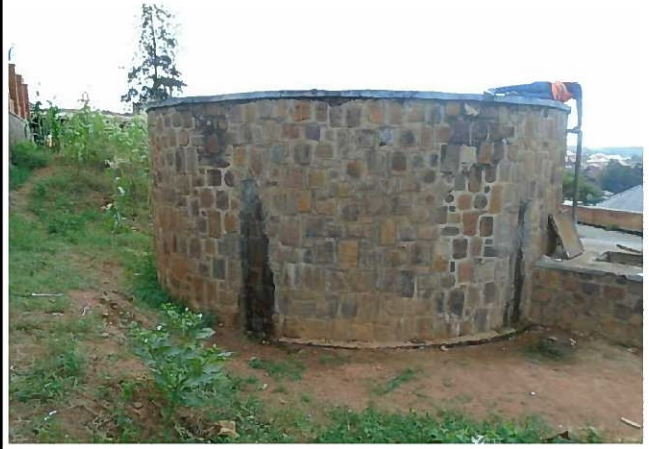
Photo Sheet

Reservoir Name: Intwari Village

No: 77



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

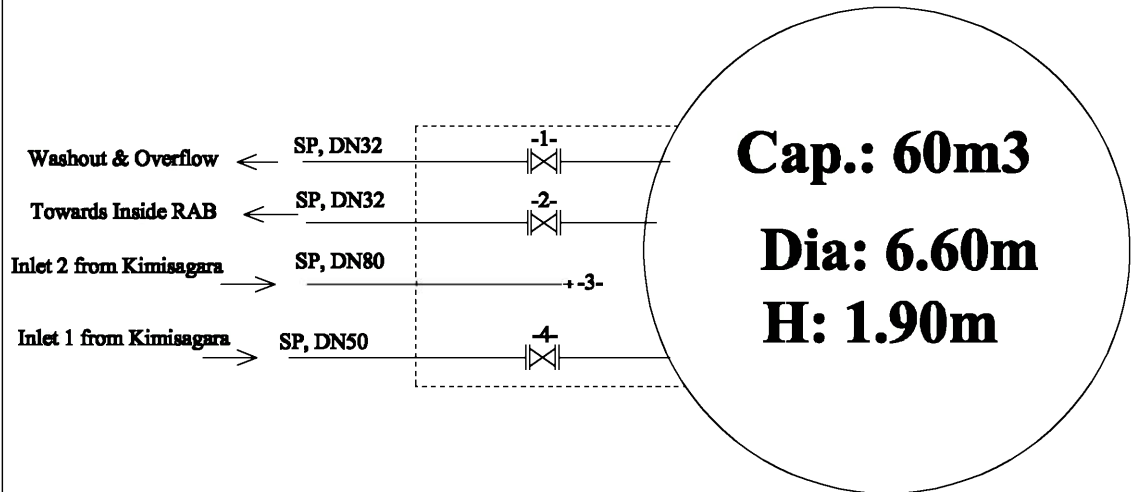
KANOMBE BRANCH

Reservoir No.: 43

Location: Intwari

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

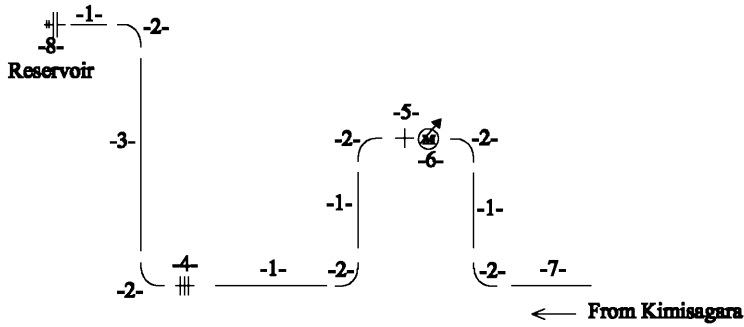
- 1- Overflow and Washout Valve DN 32
- 2 - Outlet Valve DN 32
- 3 - Blocked Inlet No.2, Pipe DN80
- 4- Inlet No.2 Valve DN50

KANOMBE BRANCH

Reservoir No.: 43

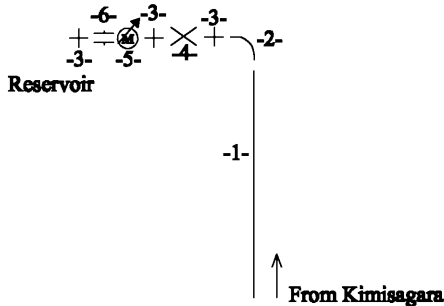
Reservoir Name: INTWARI

*** Inlet B (SP DN50)**



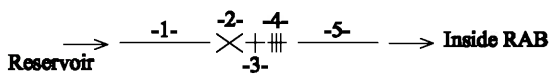
- 1- Network pipe
- 2- 90 Degree Elbow
- 3- Pipe
- 4- Union joint
- 5- Nipple
- 6- Flow Meter
- 7- Network pipe
- 8- End Cap

*** Inlet A (SP DN50)**



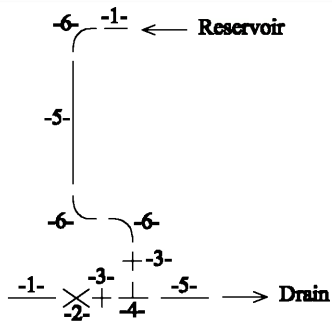
- 1- Network pipe
- 2- 90 Degree Elbow
- 3- Nipple
- 4- Valve
- 5- Flow Meter
- 6- Coupling

*** Outlet 1 1/4" (DN32)**



- 1- Straight pipe
- 2- Valve
- 3- Nipple
- 4- Union Joint
- 5- Flow Meter

*** Overflow and Drainage 1 1/4" (DN32)**



- 1- Straight pipe
- 2- Valve
- 3- Nipple
- 4- Tee
- 5- Pipe
- 6- 90 degree elbow

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

16. RESERVOIR No. 84: KABEZA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KABEZA

No.: 84

I. Status and Functionality issues description

The reservoir is has a capacity of 40m³ and is being used to serve a connected Public Water Tap.

It is under management of a local group of people selected by local authority and supervised by WASAC.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of the Outlet valve• Installation of a floater valve• Installation of a drain pipe• Repainting the reservoir cover and its refixing.	<ul style="list-style-type: none">• Valve 1''• 1 Floater valves ¾''• Wash out construction works.• Cover maintenance

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

III. Description Photos



No floater valve installed



Replacement of outlet valve



Cover protection maintenance needed

Location of Reservoir

<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	84		
Branch	Kanombe		
District	Kicukiro		
Sector	Kanombe		
Cell	Kabeza		
Village	Nyarurembo		
Street	KK 40 Av		
GPS Coordinates Latitude	-1.9699653	y	
GPS Coordinates Longitude	30.1188111	x	



Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	84
2	Name of Reservoir	KABEZA
3	ID Code	KANLIRE2
4	Ward	District: Kicukiro, Sector: Kanombe, Cell: Kabeza, Village: Nyarurembo
5	Branch Office	Kanombe
6	Location	Latitude: -1.9699653, Longitude: 30.1188111, Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	Year
9	Storage Capacity	40 m3
10	Service area of the Reservoir	BF
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	Closing valve
3	Wall Leakage	Nothing
4	Overflow observation	0
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Always low level
8	Issue on Functional Condition	sometimes 14 days without water
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 5.60m , H: 1.60m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN: needed 3/4
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 3/4" , PN(bar): _____,
		Function: YES
		Location: Inlet Pipe
4	Inlet pipe No.1	SP, DN: 3/4", Top
5	Inlet valve No.1	DN: 3/4" , Function: YES
6	Outlet pipe No.1	SP, DN: 50
7	Outlet valve No.1	DN: 3/4" , Function: MALFUNCTION-LEAKING
8	Overflow Pipe	SP, DN: 50
9	Drain Pipe	No drain pipe
10	Remarks/ Issue	Cover need repainting and protection with a concrete masonry

Other Information:	Kiosk has 2 taps and the management requested for a 3rd one
	Fencing needed
	There are cracks between wall and top slab. If possible sealing is needed

Photo Sheet

Reservoir Name: Intwari Village

No: 84



Whole View



Reservoir



Inlet Pipe with Valve

Outlet Pipe with Valve

Float Valve

Meter

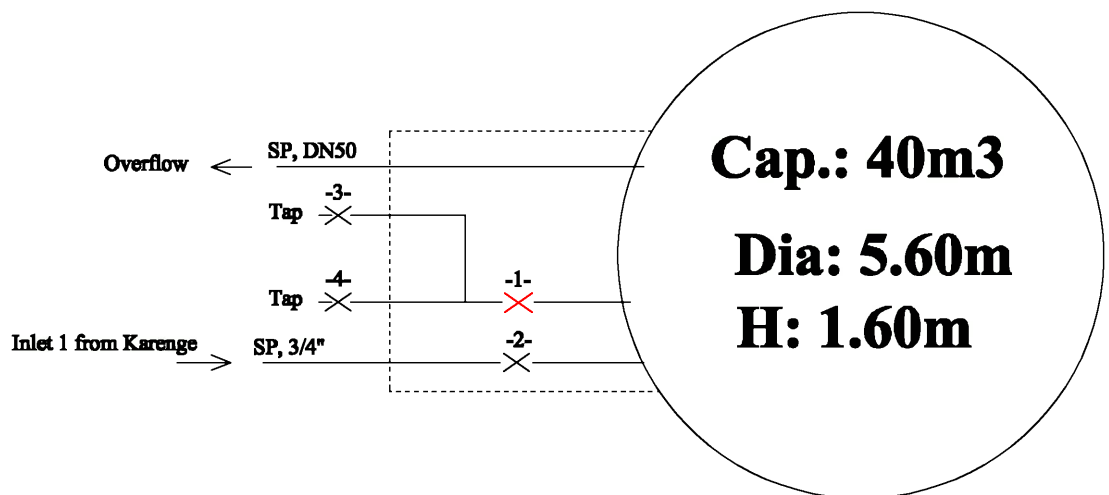
KANOMBE BRANCH

Reservoir No.: 53

Location: Kabeza

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

1- Inlet Valve 3/4"

2 - Outlet Valve 3/4"

3,4 - Tap valve 3/4"

3,4 - Tap valve 3/4"

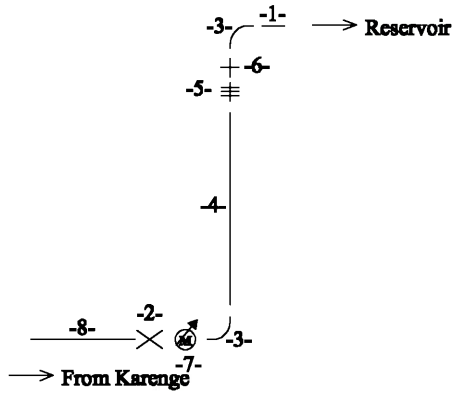
In red color: part with issues

KANOMBE BRANCH

Reservoir No.: 53

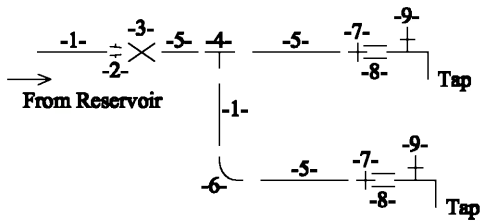
Reservoir Name: Kabeza

*** Inlet 3/4"**



- 1- Straight Pipe 3/4"
- 2- Valve
- 3- 90 Degree Elbow
- 4- Pipe
- 5- Union joint
- 6- Nipple
- 7- Flow Meter
- 8- Network pipe

*** Outlet 1" & 3/4"**



- 1- Straight Pipe 1"
- 2- Reduced coupling 1" to 3/4"
- 3- Valve
- 4- Tee
- 5- Straight pipe
- 6- 90 Degree Elbow
- 7- Nipple
- 8- Coupling 3/4"
- 9- Water tap

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

17.RESERVOIR No. 21: NGARAMA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: NGARAMA

No.: 21

I. Status and Functionality issues description

Floater valve needed.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">Installation of a floater valve	<ul style="list-style-type: none">1 Floater valves for SP 1 1/2"

III. Description Photos



Closed we can't see the inside (under locals management.)



Closed

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	21
2	Name of Reservoir	Ngarama
3	ID Code	MASR5RE1
4	Ward	Sector: Masaka, District: Kicukiro, Cell: Mbabe, Village: Ngarama
5	Branch Office	Kanombe
6	Location	Latitude: 2.022517, Longitude: 30.180814 , Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	Year: No Data
9	Storage Capacity	40 m3
10	Service area of the Reservoir	Ngarama area of Mbabe Cell
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Oozed
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé via Ryabaheshwa
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	No floater valve installed, apart from that no other functional issue.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 4.90m, H: 2.35m
5	Remarks/ Issue	

No.	Item	Details	
D: Equipment			
1	Floater Valve	No installation	
2	Water Level Gauge	No installation	
3	Flow Meter	Mechanical, DN: 1 1/4"	
		Function	
		Location: Inlet Pipe	
4	Inlet pipe No.1	SP, DN: 1 1/4", Top	
5	Inlet valve No.1	. No visible accessories, the reservoir is under local people management. .Manhole closed.	
	Inlet valve No.2		
6	Outlet pipe No.1		
	Outlet pipe No.2		
	Outlet pipe No.3		
7	Outlet valve No.1		
	Outlet valve No.2		
	Outlet valve No.3		
8	Overflow Pipe		
9	Drain Pipe		
10	Remarks/ Issue		

Other Information:

Photo Sheet

Reservoir Name: Ngarama

No:21



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

NO DATA (CLOSED)



Float Valve

Meter

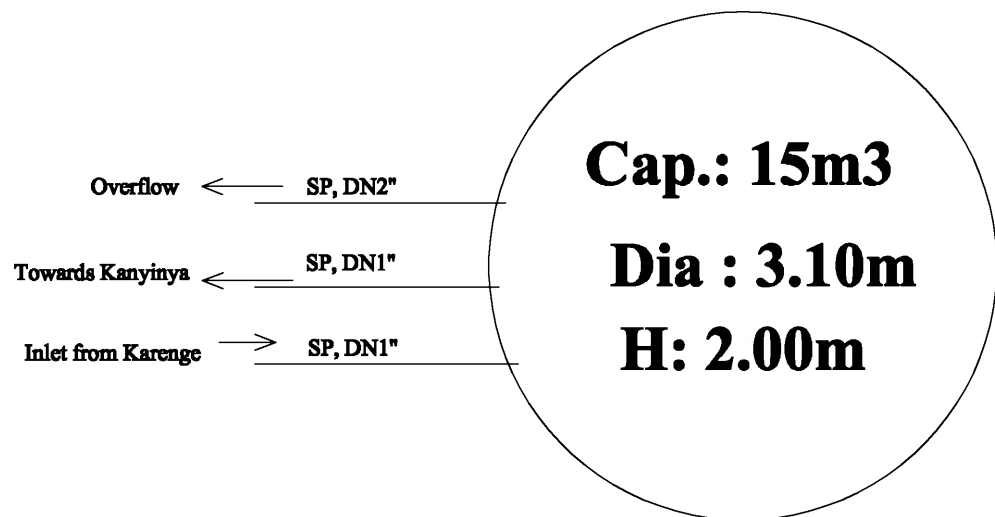
KANOMBE BRANCH

Reservoir No.: 61

Location: Kanyetabi

Material: Stone masonry

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

18. RESERVOIR: Mbandazi

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: Mbandazi

No.:

I. Status and Functionality issues description

Replacement of Floater need, because there is no nearby inlet Valve

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">Installation of a floater valve	<ul style="list-style-type: none">1 Floater valve DN100

III. Description Photos



Installed floater valve not functional

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	185
2	Name of Reservoir	Mbandazi
3	ID Code	
4	Ward	Sector: Rusororo, District: Gasabo, Cell: Mbandazi, Village: Samuduha
5	Branch Office	Kanombe
6	Location	Latitude: , Longitude: , Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: 2019
9	Storage Capacity	m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karenge
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always low level
8	Issue on Functional Condition	Cleaning needed.
C:Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 11.50m, H: 2.90m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical
		Function
		Location: Inlet Pipe
4	Inlet pipe No.1	DIP, DN: 150, Top
5	Inlet valve No.1	No installation
6	Outlet pipe No.1	DIP, DN: 80
	Outlet pipe No.2	DIP, DN: 80
7	Outlet valve No.1	DN: 80, Function: YES
	Outlet valve No.2	DN: 80, Function: YES
8	Overflow Pipe	DIP, DN: 150
9	Drain Pipe	DIP, DN: 150
10	Remarks/ Issue	No inlet valve nearby/ therefore a working floater is needed.

Other Information:

Photo Sheet

Reservoir Name: Mbandazi

No:185



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

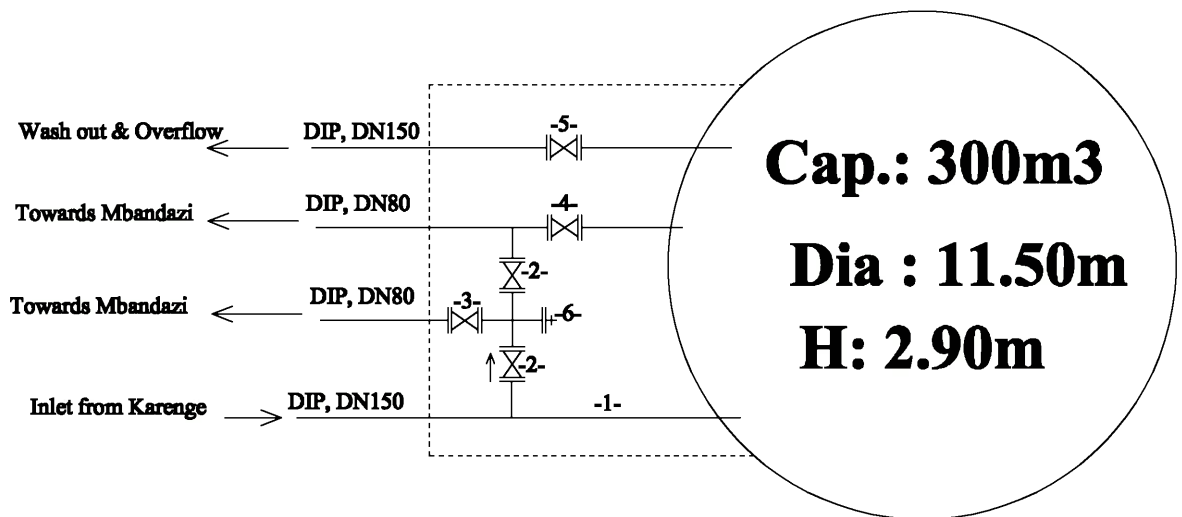
KANOMBE BRANCH

Reservoir No.: **XX**

Location: Mbandazi

Material: Concrete

SCHEMATIC DRAWING



LEGEND

- 1 - Inlet Pipe DN150
- 2 - Bypass Valve DN80
- 3 - Outlet Valve No. 1 DN80
- 4 - Outlet Valve No. 2 DN80
- 5 - Washout Valve DN150
- 6 - Blocked Valve DN150

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

19. RESERVOIR No. 99 : RWINYANGE

Final report of the reservoir survey in KANOMBE Branch/KEC Co., Ltd/ WASAC Ltd/
JICA Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: RWINYANGE (RWIMBOGO)

No.: 99

I. Status and Functionality issues description

Floater valve needed, Outlet for Water taps needed, Outlet and drainage valves needed.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Installation of a floater valves for SP 1 1/2"• installation of outlet valve for SP 3/4"• installation of Valves for SP 1 1/4"	<ul style="list-style-type: none">• 1 Floater Valve DN100• 6 water tap valves of 3/4"• 2 Valves 1 1/4"

III. Description Photos



Outlet and drainage valves needed.



Water tap Valves needed.



Floater needed

Final report of the reservoir survey in KANOMBE Branch/KEC Co., Ltd/ WASAC Ltd/

JICA Rwanda

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	99
2	Name of Reservoir	Rwinyange (Rwimbogo)
3	ID Code	NYARUK2RE2
4	Ward	Sector: Nyarugunga, District: Kicukiro, Cell: Rwimbogo, Village: Rwinyange
5	Branch Office	Kanombe
6	Location	Latitude: 1.959012, Longitude: 30.140309, Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	Year: No Data
9	Storage Capacity	30 m3
10	Service area of the Reservoir	Kiosk with 6 taps
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Oozed (but leaking when full)
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	Leaking on walls and some valves are not operational.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Semi-ground
3	Structure Material	Stones
4	Inside Dimension	D: 4.00m, H: 2.60m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 3/4", PN(bar): _____,
		Function
		Location: Inlet Pipe
4	Inlet pipe No.1	SP, DN: 1 1/4", Top
5	Inlet valve No.1	DN: 1 1/4", Function: YES
6	Outlet pipe No.1	SP, DN: 1 1/4"
7	Outlet valve No.1	DN: 1 1/4", Function: No
8	Overflow Pipe	SP, DN: 1 1/4"
9	Drain Pipe	SP, DN: 1 1/4" (valve)
10	Remarks/ Issue	Water tap need rehabilitation, needed are 6 taps (3/4").

Other Information:

Photo Sheet

Reservoir Name: Rwinyange

No:99



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve



Meter

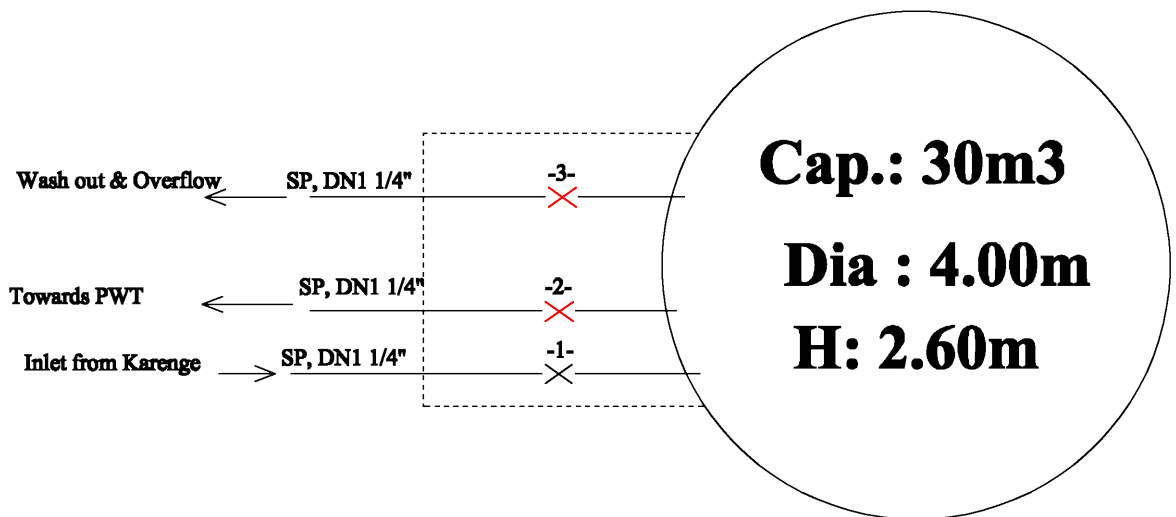
KANOMBE BRANCH

Reservoir No.: 149

Location: Rwimbogo-Rwinyange

Material: Stone Masonry

SCHEMATIC DRAWING



LEGEND

- 1 - Inlet Valve DN1 1/4"
- 2 - Outlet Valve DN1 1/4"
- 3 - Washout Valve DN1 1/4"

Comments:

- **General repairing works for an existing Public Water Tap needed.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

20. RESERVOIR No. 83: KANYINYA I

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KANYINYA I

No.: 83

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	83
2	Name of Reservoir	Kanyinya I
3	ID Code	MUYL12RE1
4	Ward	Sector: Muyumbu, District: Rwamagana, Cell: Ntebe, Village: Kanyinya
5	Branch Office	Kanombe
6	Location	Latitude: - 1.970887, Longitude: 30.27354 , Altitude
7	Function of Reservoir	BPT
8	Age of Reservoir	Year: No Data
9	Storage Capacity	6.00 m3
10	Service area of the Reservoir	Kanyinya I village area
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé via Ryabaheshwa
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	All accessories are buried underground
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Semi-ground
3	Structure Material	Stones
4	Inside Dimension	D: 2.00m, H: 2.10m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, needed DN: 60
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 60, Top
5	Inlet valve No.1	No installation
6	Outlet pipe No.1	SP, DN: 60
7	Outlet valve No.1	DN: 60, Function: YES
8	Overflow Pipe	SP, DN: 60
9	Drain Pipe	No drain
10	Remarks/ Issue	

Other Information:

Photo Sheet

Reservoir Name: Kanyinya I

No:83



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

No Float Valve

No Meter

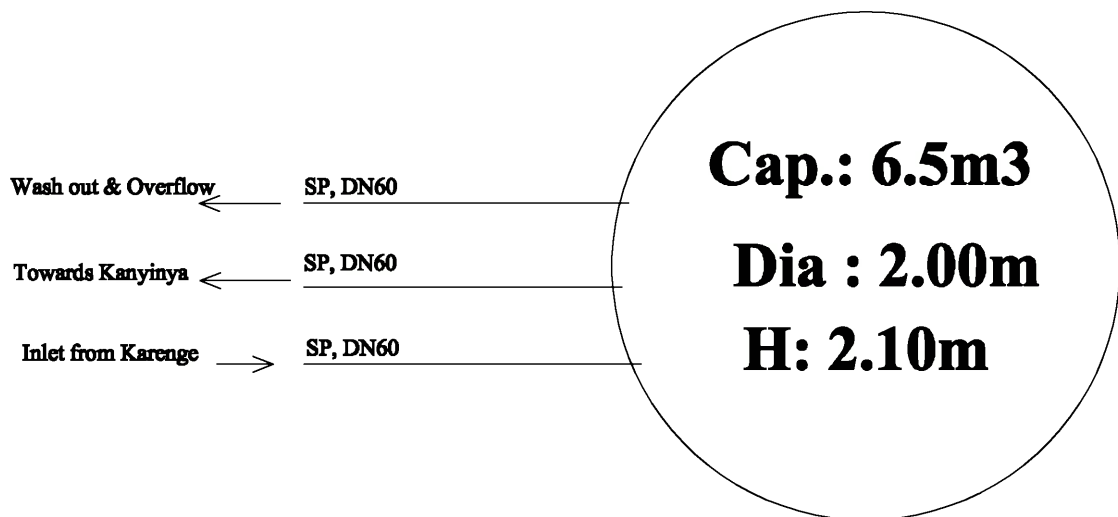
KANOMBE BRANCH

Reservoir No.: 62

Location: Kanyinya I

Material: Stone masonry

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

21. RESERVOIR No. 88: KANYINYA I I

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KANYINYA 11

No.: 88

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	88
2	Name of Reservoir	Kanyinya II
3	ID Code	MUYL12RE2
4	Ward	Sector: Muyumbu, District: Rwamagana, Cell: Ntebe, Village: Kanyinya
5	Branch Office	Kanombe
6	Location	Latitude: - 1.96847, Longitude: 30.274609, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No Data
9	Storage Capacity	6.00 m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengye via Ryabaheshwa
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always low level
8	Issue on Functional Condition	No cover / Dirty inside.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 2.00m, H: 2.10m
5	Remarks/ Issue	No cover / Dirty inside.

No.	Item	Details
D: Equipment		
1	Floater Valve	Malfunction, DN: 60
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 60, Top
5	Inlet valve No.1	DN: 60, Function: YES (Underground)
6	Outlet pipe No.1	SP, DN: 60
7	Outlet valve No.1	DN: 60, Function: YES
8	Overflow Pipe	SP, DN: 60
9	Drain Pipe	No drain
10	Remarks/ Issue	

Other Information:	The tank is not covered and not in use
--------------------	--

Photo Sheet

Reservoir Name: Kanyinya

No:88



Whole View



Reservoir



Inlet Pipe without Valve

No data

Outlet Pipe with Valve



Float Valve

No Meter

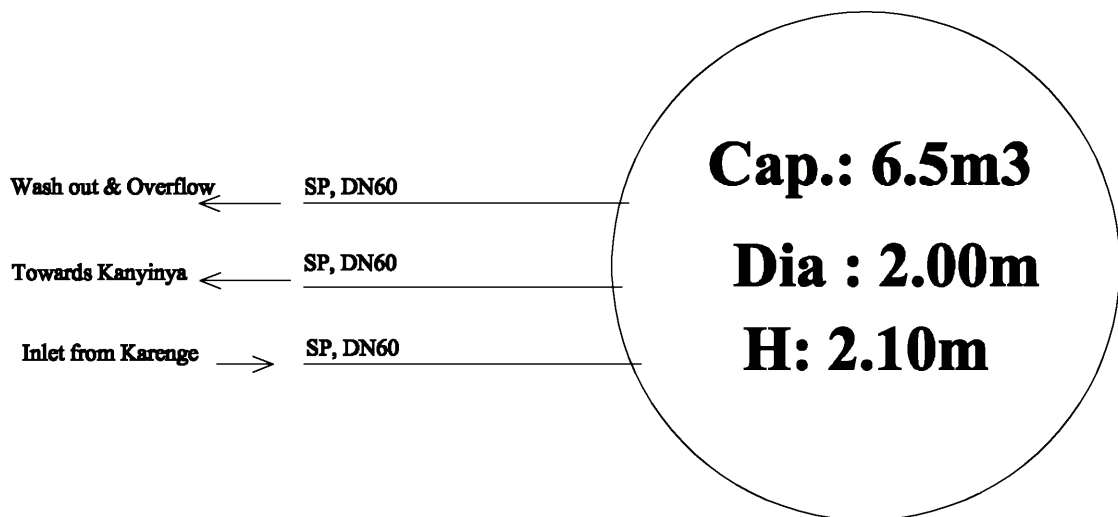
KANOMBE BRANCH

Reservoir No.: 64

Location: Kanyinya II

Material: Stone masonry

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

22. RESERVOIR No. 37: REBERO-GAKO

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: REBERO-GAKO

No.: 37

I. Status and Functionality issues description

This Reservoir is abandoned.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">•	<ul style="list-style-type: none">•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	37
2	Name of Reservoir	Rebero-Gako
3	ID Code	MASO8RE1
4	Ward	Sector: Masaka, District: Kicukiro, Cell: Gako, Village: Rebero
5	Branch Office	Kanombe
6	Location	Latitude: - 1.997947, Longitude: 30.216776, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: NO Data
9	Storage Capacity	No data
10	Service area of the Reservoir	Rebero area of Gako Cell
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	Bypassed to increase pressure in the network.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Semi-ground
3	Structure Material	Stones
4	Inside Dimension	D: / L: × B: , H:
5	Remarks/ Issue	Abandoned & bypassed to increase pressure in the network.

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 100, Top
5	Inlet valve No.1	No installation
6	Outlet pipe No.1	SP, DN: 100
7	Outlet valve No.1	No installation
8	Overflow Pipe	SP, DN: -
9	Drain Pipe	No drain
10	Remarks/ Issue	Abandoned

Other Information:

Photo Sheet

Reservoir Name: Rebero Gako

No:37



Whole View

Reservoir



No data

Inlet Pipe with Valve

Outlet Pipe with Valve

No data

No Meter

Float Valve

Meter

KANOMBE BRANCH

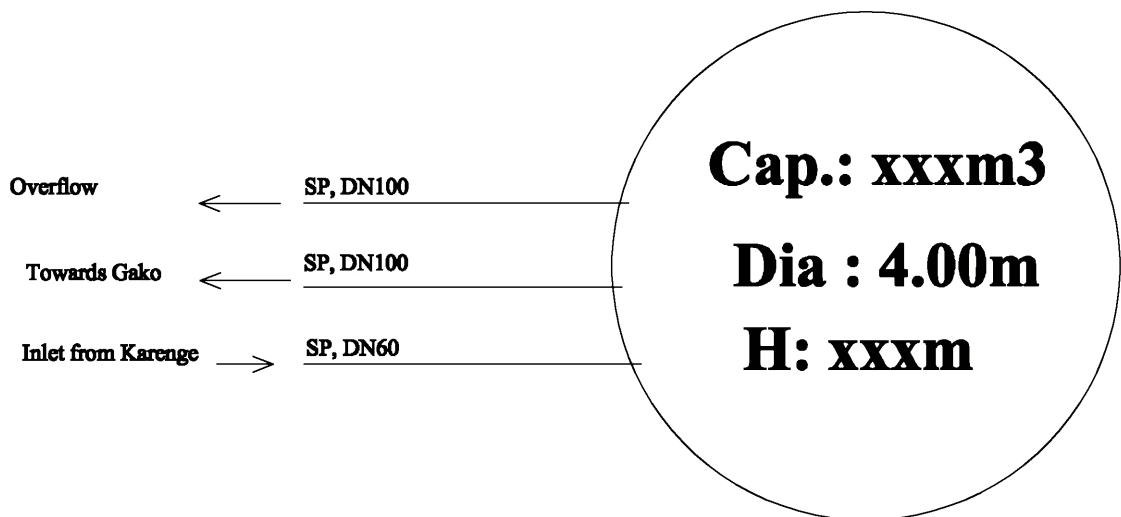
Reservoir No.: 132

Location: Rebero - Gako

Material: Stone masonry

ABANDONED

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

23. RESERVOIR No. 15: RUSHESHE

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: RUSHESHE

No.: 15

I. Status and Functionality issues description

This Reservoir is abandoned.

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	15
2	Name of Reservoir	Rusheshe
3	ID Code	MASS6RE1
4	Ward	Sector: Masaka, District: Kicukiro, Cell: Rusheshe, Village: Rusheshe
5	Branch Office	Kanombe
6	Location	Latitude: 2.032717, Longitude: 30.192884, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: 1985
9	Storage Capacity	m3
10	Service area of the Reservoir	Rusheshe centre
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	Accessories underground, not visible above the ground
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	Reservoir was Closed at the time of the visit, hence no internal data
5	Remarks/ Issue	Abandoned (Totally)

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, 1 1/4"
	Inlet pipe No.2	No visible connection.
5	Inlet valve No.1	
	Inlet valve No.2	
6	Outlet pipe No.1	
	Outlet pipe No.2	
	Outlet pipe No.3	
7	Outlet valve No.1	
	Outlet valve No.2	
	Outlet valve No.3	
8	Overflow Pipe	
9	Drain Pipe	
10	Remarks/ Issue	

Other Information:

Photo Sheet

Reservoir Name: Rusheshe

No:15



Whole View

Reservoir



No data

Inlet Pipe with Valve

Outlet Pipe with Valve



No data

no Float Valve

Meter

KANOMBE BRANCH

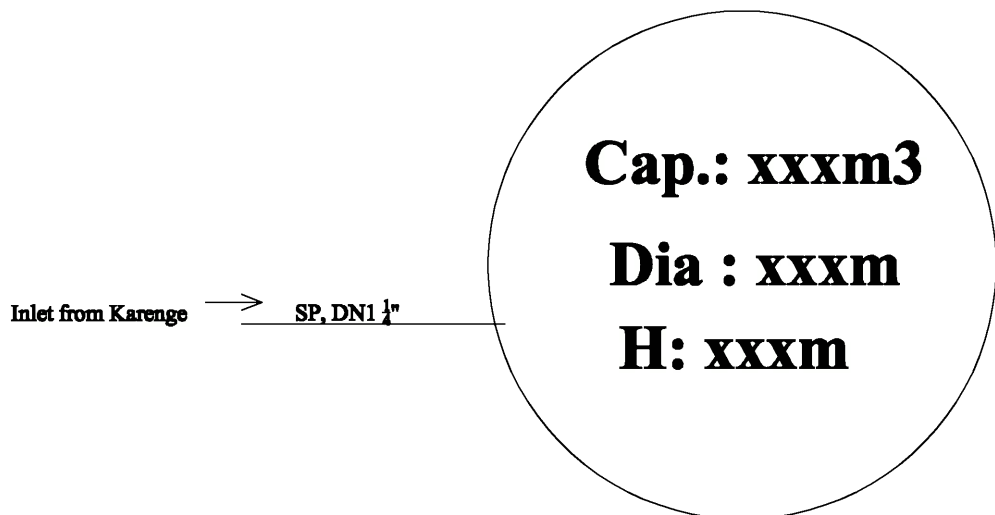
Reservoir No.: 141

Location: Rusheshe

Material: Stone masonry

ABANDONED

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

24. RESERVOIR No. 10: KAGESE

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KAGESE

No.: 10

I. Status and Functionality issues description

This Reservoir is abandoned.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">•	<ul style="list-style-type: none">•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	10
2	Name of Reservoir	Kagese (abandoned)
3	ID Code	MASS7RE1
4	Ward	Sector: Masaka, District: Kicukiro, Cell: Rusheshe, Village: Kagese
5	Branch Office	Kanombe
6	Location	Latitude: , Longitude: , Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	Year: 1985
9	Storage Capacity	12 m3
10	Service area of the Reservoir	Kagese areas
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Oozed
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé via Ryabaheshwa
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 3.00m, H: 1.70m
5	Remarks/ Issue	Not being used by WASAC Ltd

No.	Item	Details	
D: Equipment			
1	Floater Valve	No installation, DN:	
2	Water Level Gauge	No installation	
3	Flow Meter	No installation	
4	Inlet pipe No.1	No visible connection.	
	Inlet pipe No.2		
5	Inlet valve No.1		
	Inlet valve No.2		
6	Outlet pipe No.1		
	Outlet pipe No.2		
	Outlet pipe No.3		
7	Outlet valve No.1		
	Outlet valve No.2		
	Outlet valve No.3		
8	Overflow Pipe		
9	Drain Pipe		
10	Remarks/ Issue		Abandoned by WASAC Ltd (Totally)

Other Information:

The tank was abandoned by WASAC and it is no longer in use.

Photo Sheet

Reservoir Name: Kagese

No:10



Whole View



Reservoir



Inlet Pipe with Valve

No data

Outlet Pipe with Valve

No data

No data

Float Valve

Meter

KANOMBE BRANCH

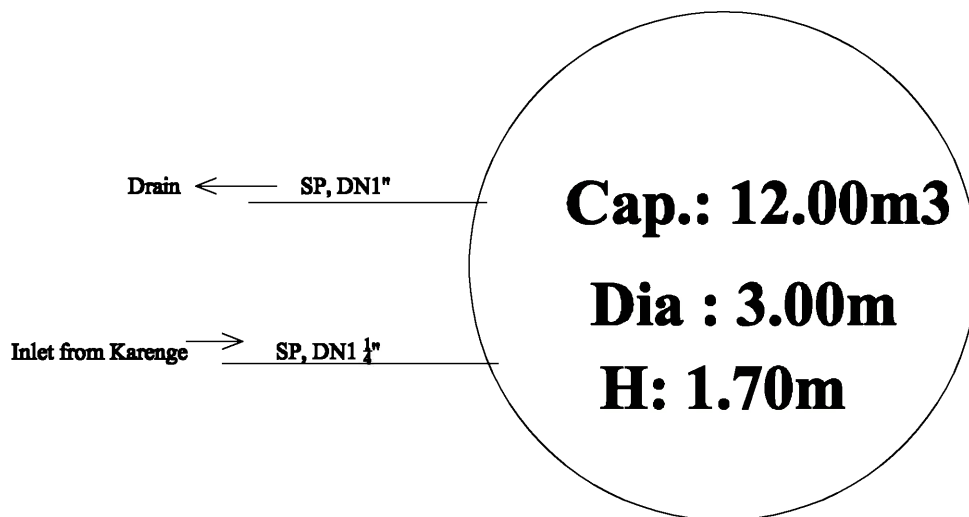
Reservoir No.: 56

Location: Kagese

Material: Stone masonry

ABANDONED

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

25. RESERVOIR No. 1: CYERU

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: CYERU

No.: 1

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	1
2	Name of Reservoir	Cyeru
3	ID Code	MASV7RE1
4	Ward	Sector: Masaka, District: Kicukiro, Cell: Rusheshe , Village: Cyeru
5	Branch Office	Kanombe
6	Location	Latitude: 2.05745, Longitude: 30.206806 , Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No data
9	Storage Capacity	6 m3
10	Service area of the Reservoir	Cyeru Village
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 2.00m, H: 2.00m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 60, Top
5	Inlet valve No.1	DN: 60, Function: YES
6	Outlet pipe No.1	SP, DN: 60
7	Outlet valve No.1	DN: 60, Function: YES
8	Overflow Pipe	SP, DN: 60
9	Drain Pipe	SP, DN: 60
10	Remarks/ Issue	The reservoir was constructed by SOGEA, the tank is underground and it serves as storage and BPT.

Other Information:

Photo Sheet

Reservoir Name:

No:1



Whole View

Reservoir



Inlet Pipe underground

Outlet Pipe underground

No data

No data

Float Valve

Meter

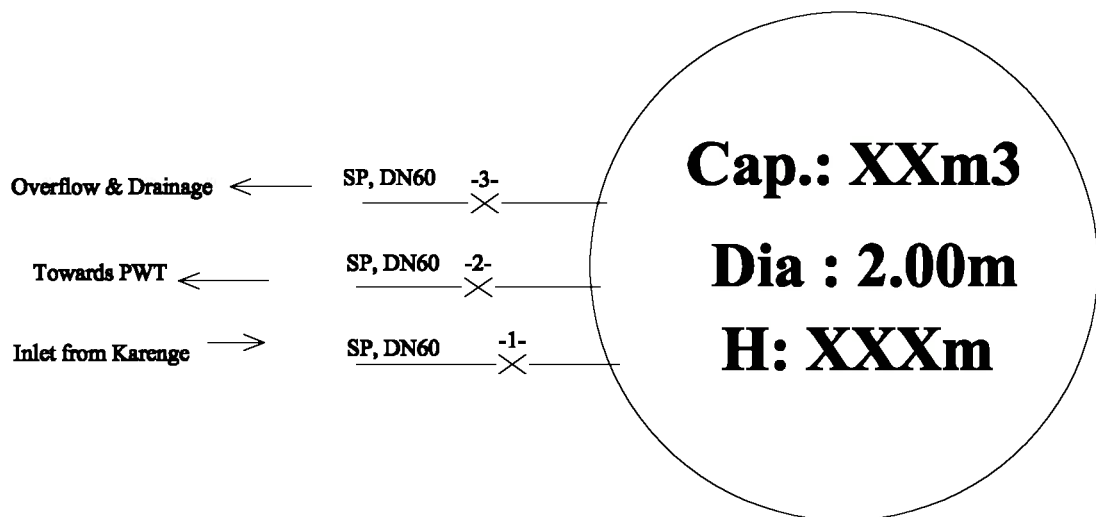
KANOMBE BRANCH

Reservoir No.: 17

Location: Cyeru

Material: Stone masonry

SCHEMATIC DRAWING



LEGEND

- 1 - Inlet Valve DN60
- 2 - Outlet Valve DN60
- 3 - Washout Valve DN60

Comments:

- **Accessories buried underground, valves size information received via the Operator.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

26. RESERVOIR No. : MASAKA MBABE SANGANO

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: MASAKA MBABE - SANGANO

No.:

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	
2	Name of Reservoir	Masaka Mbabe - Sangano
3	ID Code	
4	Ward	Sector: , District: , Cell: , Village:
5	Branch Office	Kanombe
6	Location	Latitude: , Longitude: , Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year:
9	Storage Capacity	m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 2.00m, H: ????????????
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 60, Top
5	Inlet valve No.1	DN: 60, Function: YES
6	Outlet pipe No.1	SP, DN: 60
7	Outlet valve No.1	DN: 60, Function: YES
8	Overflow Pipe	SP, DN: 60
9	Drain Pipe	SP, DN: 60
10	Remarks/ Issue	

Other Information:

Photo Sheet

Reservoir Name: Mbabe-Sangano

No:



Whole View

Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

Float Valve

Meter

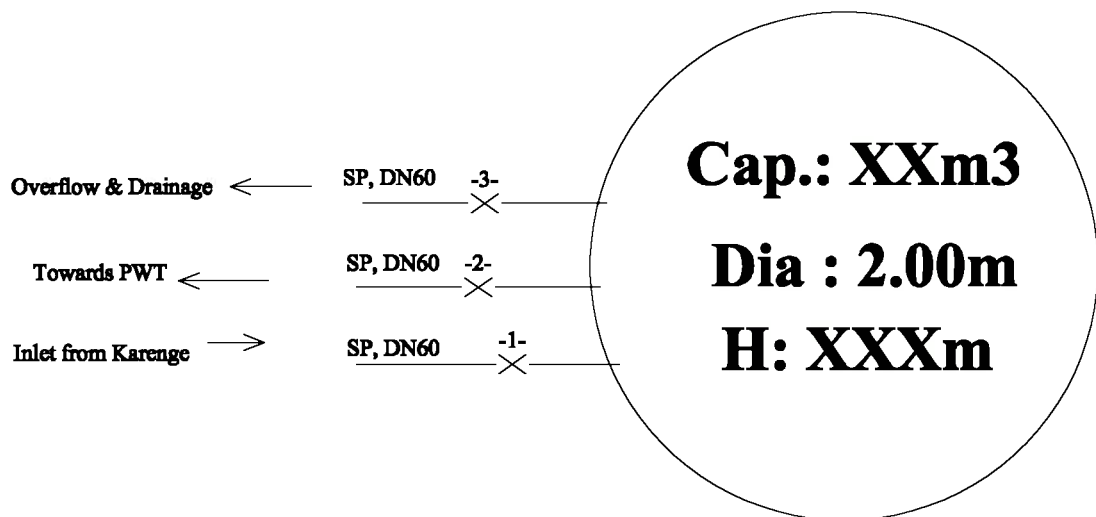
KANOMBE BRANCH

Reservoir No.: XX

Location: Mbabe Sangano

Material: Stone masonry

SCHEMATIC DRAWING



LEGEND

- 1 - Inlet Valve DN60
- 2 - Outlet Valve DN60
- 3 - Washout Valve DN60

Comments:

- **Accessories buried underground, valves size information received via the Operator.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

27. RESERVOIR No. 72: RUGARI

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: RUGARI

No.: 72

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	72
2	Name of Reservoir	Rugari
3	ID Code	KANM3RE1
4	Ward	Sector: Nyarugunga, District: Kicukiro, Cell: Nonko, Village: Rugari
5	Branch Office	Kanombe
6	Location	Latitude: 1.976475, Longitude: 30.151369, Altitude
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: No Data
9	Storage Capacity	6.00 m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	Nothing
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	Reservoir abandoned by WASAC
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 2.30m, H: 1.65m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical, DN: 3/4", PN(bar): _____,
		Function
		Location: Inlet Pipe
4	Inlet pipe No.1	SP, DN: 3/4", Top
5	Inlet valve No.1	DN: 3/4", Function: YES
6	Outlet pipe No.1	SP, DN: 3/4"
7	Outlet valve No.1	DN: 3/4", Function: YES
8	Overflow Pipe	SP, DN: 1 1/2"
9	Drain Pipe	SP, DN: 1 1/2"
10	Remarks/ Issue	

Other Information:

Photo Sheet

Reservoir Name: Rugari

No:72



Whole View

Reservoir



Inlet Pipe with Valve

Outlet Pipe with Valve

Not available



Float Valve

Meter

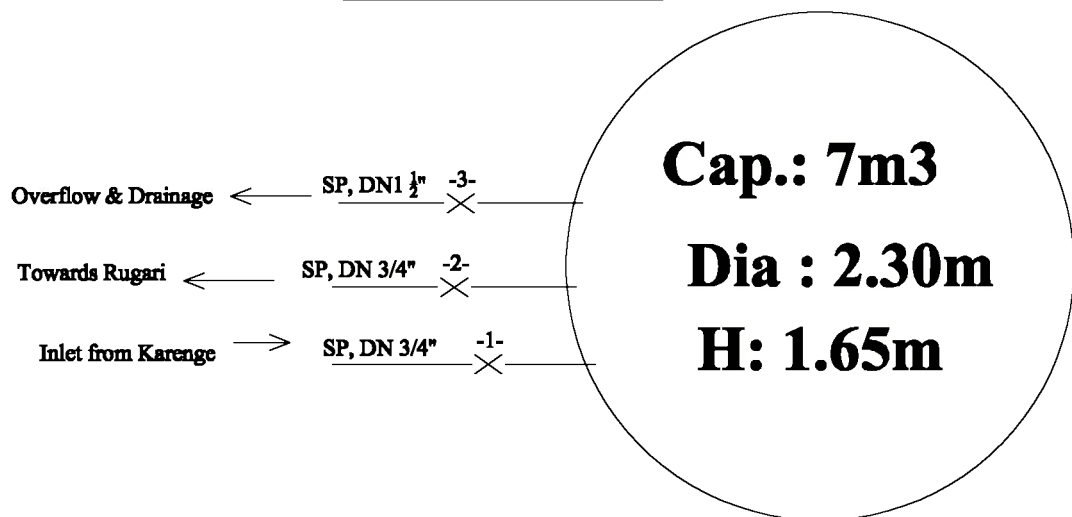
KANOMBE BRANCH

Reservoir No.: 139

Location: Rugari

Material: Stone masonry

SCHEMATIC DRAWING



LEGEND

- 1- Inlet Valve DN 3/4"
- 2 - Outlet Valve DN 3/4"
- 3 - Washout Valve DN 1 1/2"

Comments:

- **Currently the reservoir is not in use due to ongoing road construction works.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

28. RESERVOIR No. 87: MUYUMBU

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: MUYUMBU

No.: 87

I. Status and Functionality issues description

This Reservoir is abandoned.

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	87
2	Name of Reservoir	Amarembo (Muyumbu)
3	ID Code	MUYL10RE1
4	Ward	Sector: Muyumbu, District: Rwamagana, Cell: Nyarukombe, Village: Marembo
5	Branch Office	Kanombe
6	Location	Latitude: 1.969151, Longitude: 30.237658 , Altitude
7	Function of Reservoir	BPT
8	Age of Reservoir	Year: No Data
9	Storage Capacity	10 m3
10	Service area of the Reservoir	Amarembo village area.
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	Bypassed to increase the pressure in the network.
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: 2.40m, H: 2.30m
5	Remarks/ Issue	Cover stolen.

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 60, Top
5	Inlet valve No.1	DN: 60, Function: YES
6	Outlet pipe No.1	SP, DN: 40
7	Outlet valve No.1	DN: 40, Function: No information
8	Overflow Pipe	SP, DN: 60
9	Drain Pipe	SP, DN: 60
10	Remarks/ Issue	

Other Information:	The tank is no longer in use, it was bypassed in order to increase pressure in the network.
--------------------	---

Photo Sheet

Reservoir Name: Muyumbu Amarembo

No:87



Whole View



Reservoir



Inlet Pipe with Valve



Outlet not visible

Outlet Pipe with Valve



Float Valve

No meter

Meter

KANOMBE BRANCH

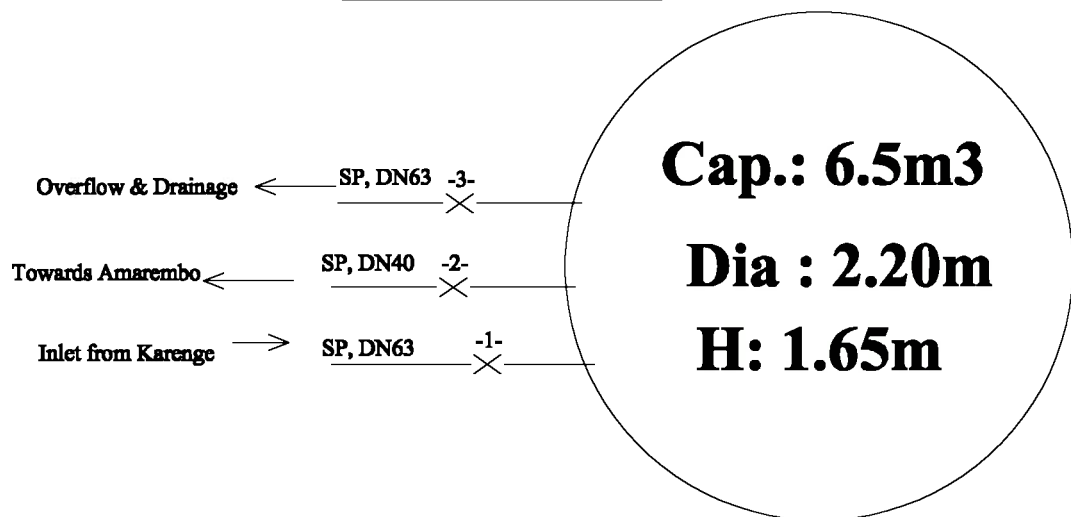
Reservoir No.: 92

Location: Kayumbu - Marembo

Material: Stone masonry

ABANDONED

SCHEMATIC DRAWING



LEGEND

- 1- Inlet Valve DN 63
- 2 - Outlet Valve DN 40
- 3 - Washout Valve DN63

Comments:

- **Currently the reservoir was bypassed to increase pressure in the network.**
- **Cover stolen.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

29. RESERVOIR No. 85: MUYUMBU - GATUZA

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: MUYUMBU - GATUZA

No.: 85

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	85
2	Name of Reservoir	Muyumbu - Gatuza
3	ID Code	MUYL11RE2
4	Ward	Sector: Muyumbu, District: Rwamagana, Cell: Nyarukombe, Village: Gatuza
5	Branch Office	Kanombe
6	Location	Latitude: - 1.969952 , Longitude: 30.251363, Altitude
7	Function of Reservoir	BPT
8	Age of Reservoir	Year:
9	Storage Capacity	m3
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Not Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always
	Reason of bypass operation	Increasing pressure in the network
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Underground
3	Structure Material	Stones
4	Inside Dimension	D: / L: × B: , H:
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN:
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 60, Top
5	Inlet valve No.1	DN: 60, Function: YES
6	Outlet pipe No.1	SP, DN: 40
7	Outlet valve No.1	DN: 40, Function: No information
8	Overflow Pipe	SP, DN: 60
9	Drain Pipe	SP, DN: 60
10	Remarks/ Issue	

Other Information:

Photo Sheet

Reservoir Name: Muyumbu Gatuza

No:85



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



Float Valve Defective



No Meter

KANOMBE BRANCH

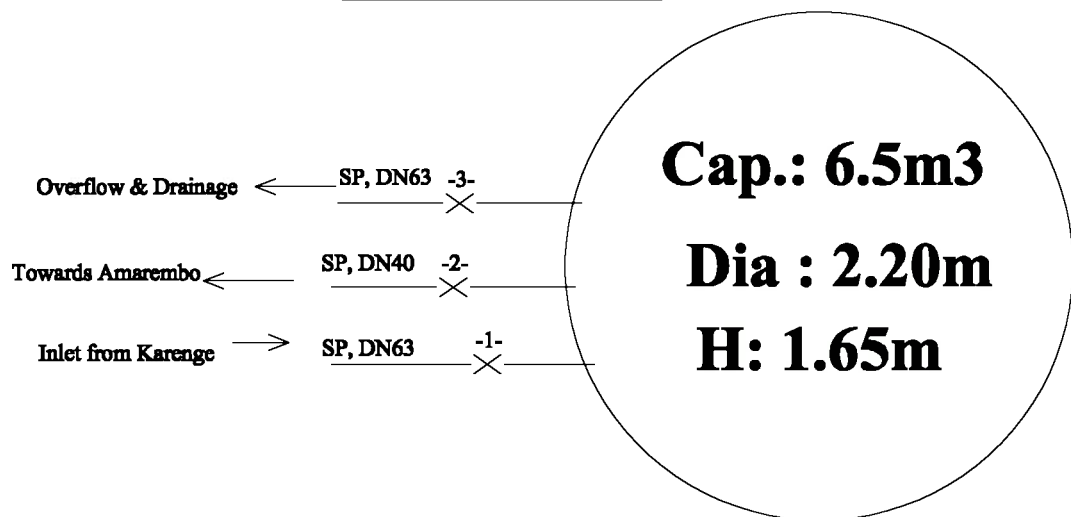
Reservoir No.: 27

Location: Gatsata-gatuza

Material: Stone masonry

ABANDONED

SCHEMATIC DRAWING



LEGEND

- 1- Inlet Valve DN 63
- 2 - Outlet Valve DN 40
- 3 - Washout Valve DN63

Comments:

- **Currently the reservoir was bypassed to increase pressure in the network.**
- **Cover stolen.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

30. RESERVOIR No. 66: REAL ESTATE

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: REAL ESTATE

No.: 66

I. Status and Functionality issues description

This Reservoir is abandoned.

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	66
2	Name of Reservoir	Real Estate
3	ID Code	RUSM7RE1
4	Ward	Sector: Rusororo, District: Kicukiro, Cell: Nyagahinga, Village: Real Estate
5	Branch Office	Kanombe
6	Location	Latitude: - 1.980606 , Longitude: 30.200269, Altitude
7	Function of Reservoir	Storage, Kiosk Reservoir, BPT
8	Age of Reservoir	Year: No Data
9	Storage Capacity	250 m3 (Information from resident)
10	Service area of the Reservoir	
B: Operational Condition		
1	Operational Condition	Abandoned
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Nothing
4	Overflow observation	_____ times/month, _____ times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	always no water
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Elevated
3	Structure Material	Steel
4	Inside Dimension	Reservoir Removed
5	Remarks/ Issue	

No.	Item	Details	
D: Equipment			
1	Floater Valve	Reservoir Removed	
2	Water Level Gauge		
3	Flow Meter		
4	Inlet pipe No.1		
	Inlet pipe No.2		
5	Inlet valve No.1		
	Inlet valve No.2		
6	Outlet pipe No.1		
	Outlet pipe No.2		
	Outlet pipe No.3		
7	Outlet valve No.1		
	Outlet valve No.2		
	Outlet valve No.3		
8	Overflow Pipe		
9	Drain Pipe		
10	Remarks/ Issue		

Other Information:

Photo Sheet

Reservoir Name: Real Estate

No:



Whole View

Reservoir



Inlet Pipe with Valve

Outlet Pipe with Valve

Reservoir Removed

Reservoir Removed

Float Valve

Meter

KANOMBE BRANCH

Reservoir No.: 131

Location: Real Estate

Material: Stone masonry

REMOVED

Comments:

- **Reservoir removed after the construction of Hillside Estate.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

31. RESERVOIR No. 20: KANYETABI

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KANYETABI

No.: 20

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Attachement-3 Reservoir Survey Sheet

Date: **/**/2020

No.	Item	Details
A: General		
1	Number of Reservoir	20
2	Name of Reservoir	Kanyetabi
3	ID Code	MASR7RE1
4	Ward	Sector: Masaka, District: Kicukiro, Cell: Rusheshe, Village: Kanyetabi
5	Branch Office	Kanombe
6	Location	Latitude: - 2.024548 , Longitude: 30.195401, Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	Year: No Data
9	Storage Capacity	15 m3
10	Service area of the Reservoir	Surrounding part of the village
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	
3	Wall Leakage	Flowing
4	Overflow observation	no data
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Nothing
	Reason of bypass operation	
6	Inflow Condition	Source: Karengé
		Water pressure at inlet:
		Frequency and time:
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Circular
2	Foundation	Ground
3	Structure Material	Stones
4	Inside Dimension	D: 3.10m, H: 2.00m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation, DN: 1" (As per the Operator)
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 1", Top
5	Inlet valve No.1	No installation
6	Outlet pipe No.1	SP, DN: 1"
7	Outlet valve No.1	No installation
8	Overflow Pipe	SP, DN: 2"
9	Drain Pipe	No data
10	Remarks/ Issue	The reservoir was closed, on the day of our visit.

Other Information:	Reservoir closed with a welded bolt and we can't access, reason there are no internal pictures
--------------------	--

Photo Sheet

Reservoir Name: Kanyetabi

No:20



Whole View

Reservoir



Inlet Pipe without Valve

Outlet Pipe with Valve

No Data

No Data

Float Valve

Meter

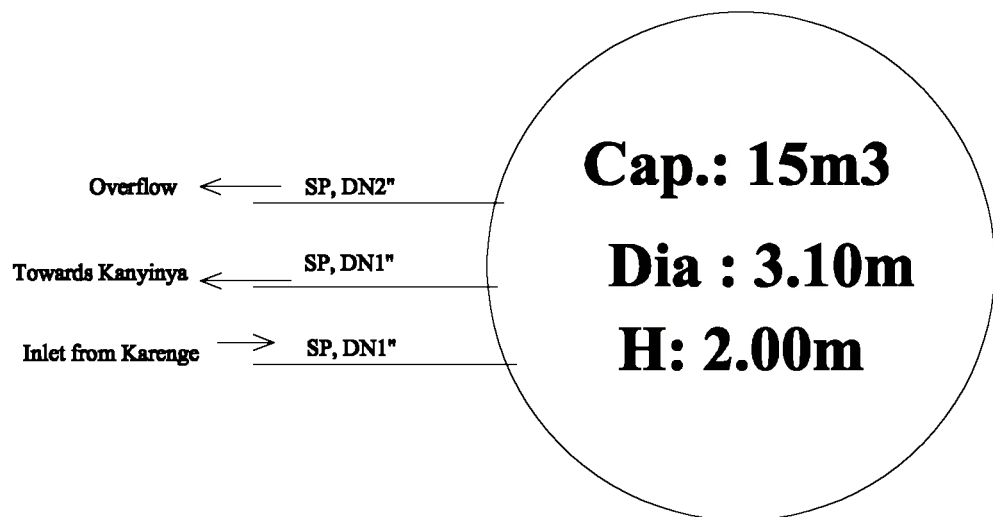
KANOMBE BRANCH

Reservoir No.: 61

Location: Kanyetabi

Material: Stone masonry

SCHEMATIC DRAWING



Comments:

- **All accessories are buried underground and we were not able to open for measurement.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

32. RESERVOIR No. 39: GIHUKE

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: GIHUKE

No.: 39

I. Status and Functionality issues description

II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Photo Sheet

Reservoir Name: Gihuke

No:39



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe Not available



No Float Valve

No meter

Meter

KANOMBE BRANCH

Reservoir No.: 31

Location: Gihuke

Material: Stone masonry

ABANDONED

SCHEMATIC DRAWING

Cap.: 18.00m³

Dia : 3.30m

H: 2.20m

Comments:

- **Abandoned (more than 20 years)**
- **Cover stolen.**

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

33. RESERVOIR No. : KANKUBA I

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KANKUBA I

No.:

I. Status and Functionality issues description

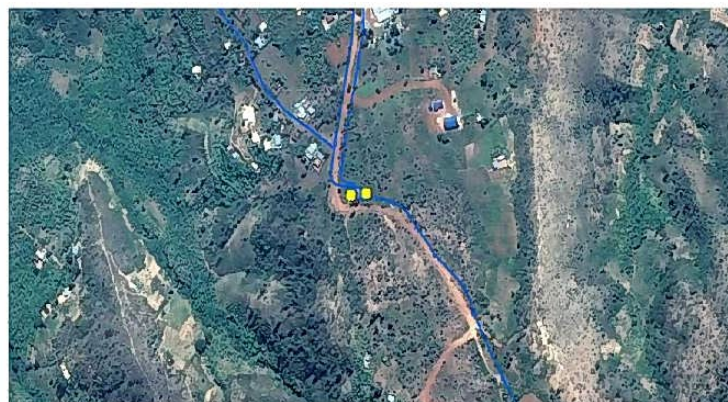
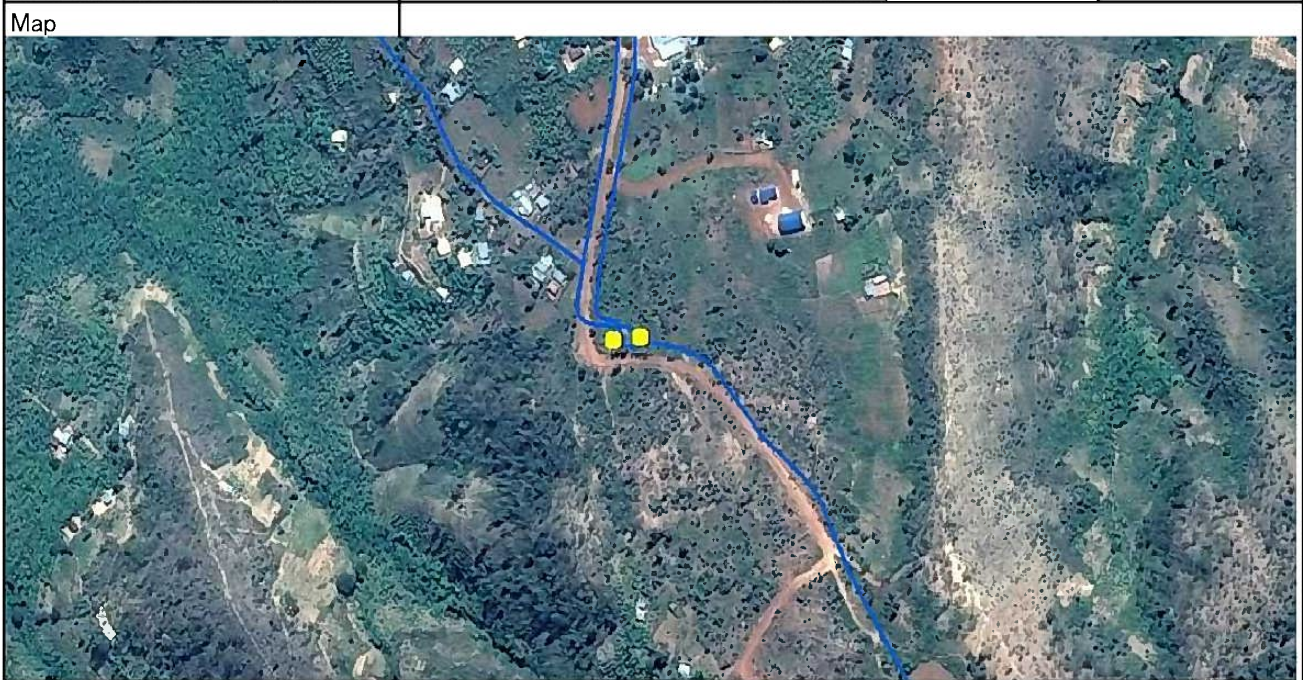
II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Location of Reservoir

<i>Subject</i>	<i>Data</i>	<i>Remarks</i>
Reservoir number		
Reservoir Name	Kankuba I	
Branch	Nyamirambo	
District	Nyarugenge	
Sector	Mageregere	
Cell	Kankuba	
Village	Nyarurama	
Street	RN	
GPS Coordinates Latitude	-2.03687 y	
GPS Coordinates Longitude	30.030035 x	



FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

34. RESERVOIR No. : KANKUBA II

FINAL REPORT ON THE RESERVOIR SURVEY IN KANOMBE BRANCH

BRANCH: KANOMBE

Reservoir: KANKUBA II

No.:

I. Status and Functionality issues description

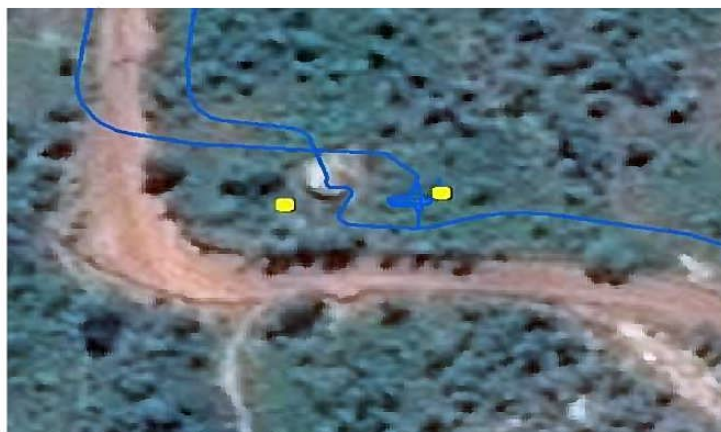
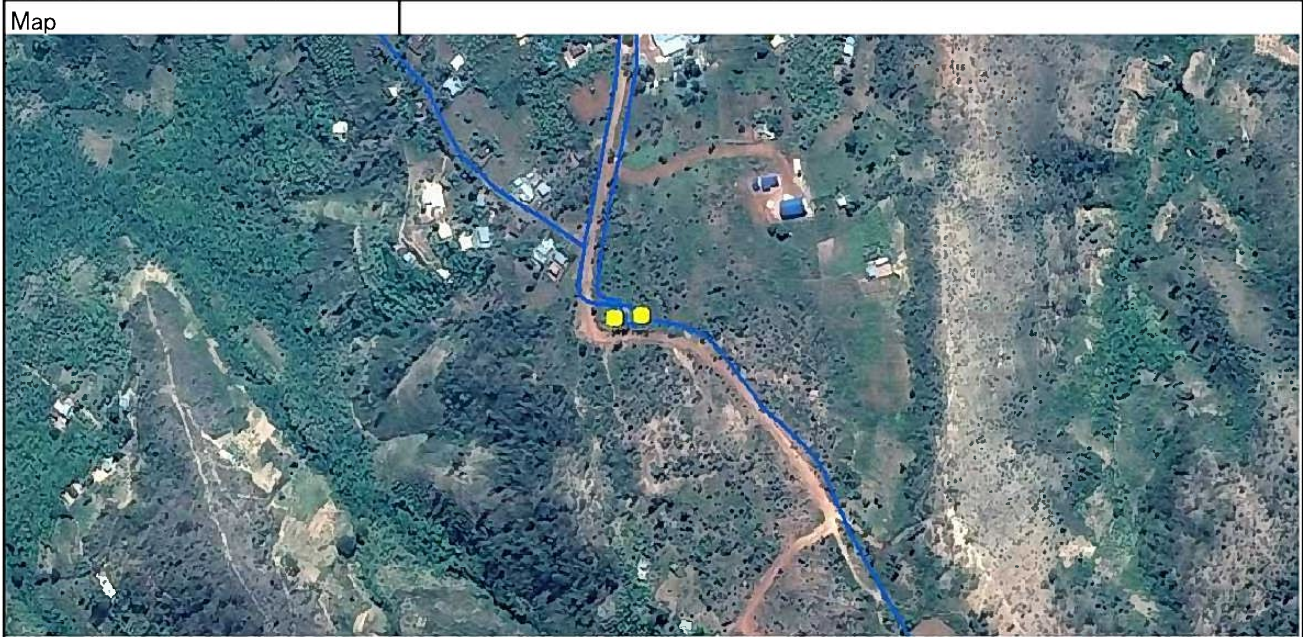
II. Required Action and Requirements

Action	Requirements
•	•

III. Description Photos

Location of Reservoir

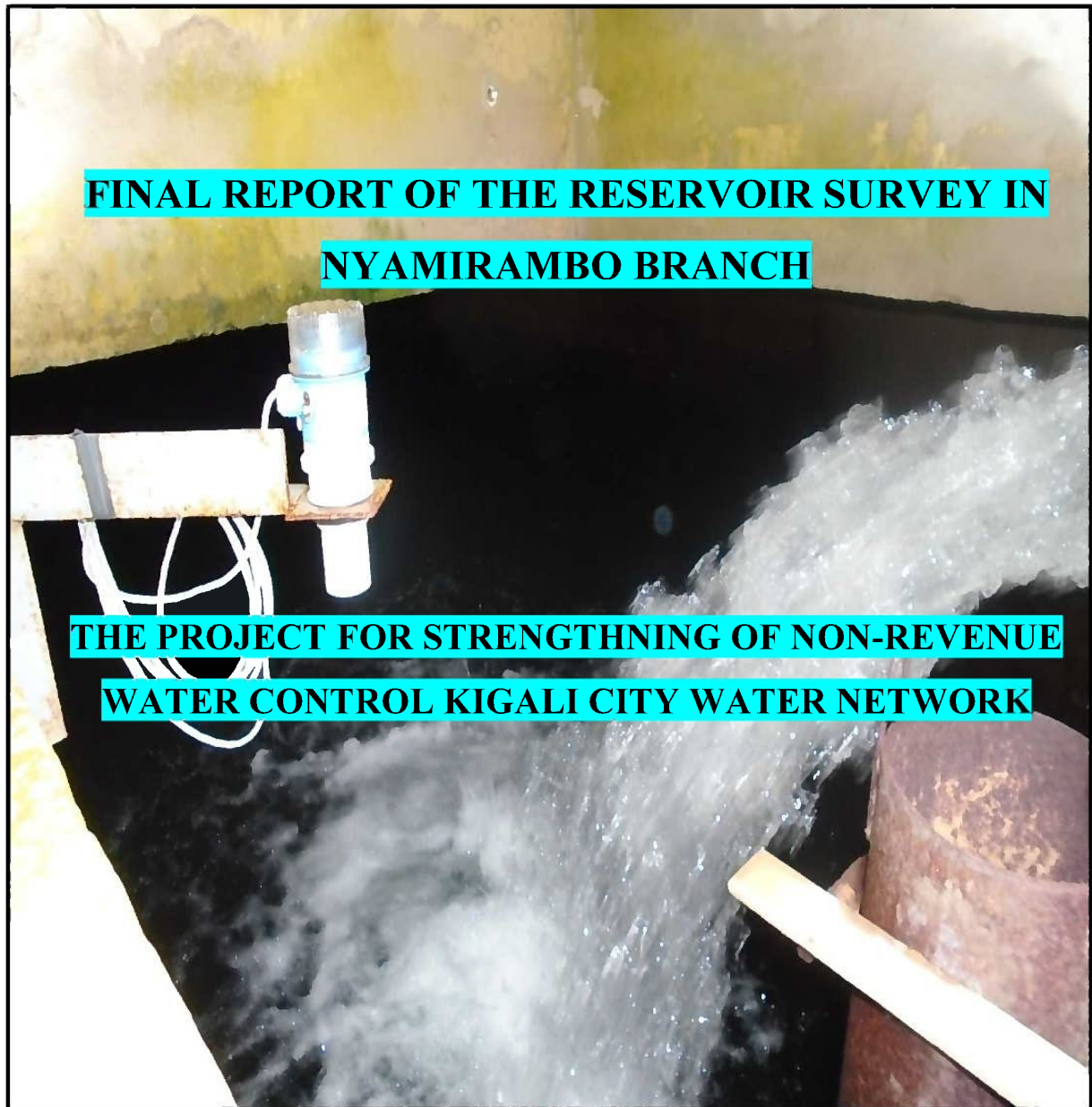
<i>Subject</i>	<i>Data</i>	<i>Remarks</i>
Reservoir number		
Reservoir Name	Kankuba II	
Branch	Nyamirambo	
District	Nyarugenge	
Sector	Mageregere	
Cell	Kankuba	
Village	Nyarurama	
Street	RN	
GPS Coordinates Latitude	-2.03689 y	
GPS Coordinates Longitude	30.029813 x	



FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

THE REPUBLIC OF RWANDA

KIGALI CITY



Final report of the reservoir survey in NYAMIRAMBO Branch/KEC Co., Ltd/ WASAC Ltd/

JICA Rwanda

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

1.RESERVOIR No. 44: RUBONA

**Final report of the reservoir survey in NYAMIRAMBO Branch/KEC Co., Ltd/ WASAC Ltd/
JICA Rwanda**

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

BRANCH: NYAMIRAMBO

Reservoir: RUBONA

No.: 44

I. Status and Functionality issues description

The tank receive water from Mont Kigali haut through Mont Kigali Bas, it receives water 7 days a week but because of low pressure at the outlet due to non functioning valve, water cannot reach the supplied areas, therefore the branch decided to keep it bypassed.

The issue is that even though not being used it is still receiving water and wasting it.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Revision of the existing installation• Replacement of valves• Installation of a floater valve• Sealing the leaking part of the reservoir• Manhole drainage pipes	<ul style="list-style-type: none">• 4 Valves DN80• 1 Floater valve DN80• Plastering the inside part• Drainage system

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

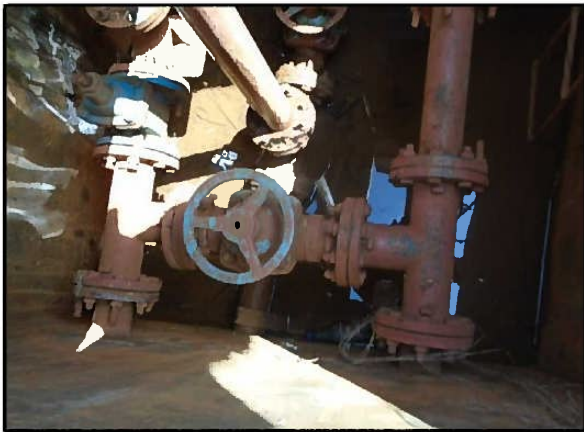
III. Description Photos



Inlet valve not operational



Wall leaks at the connection of the manhole

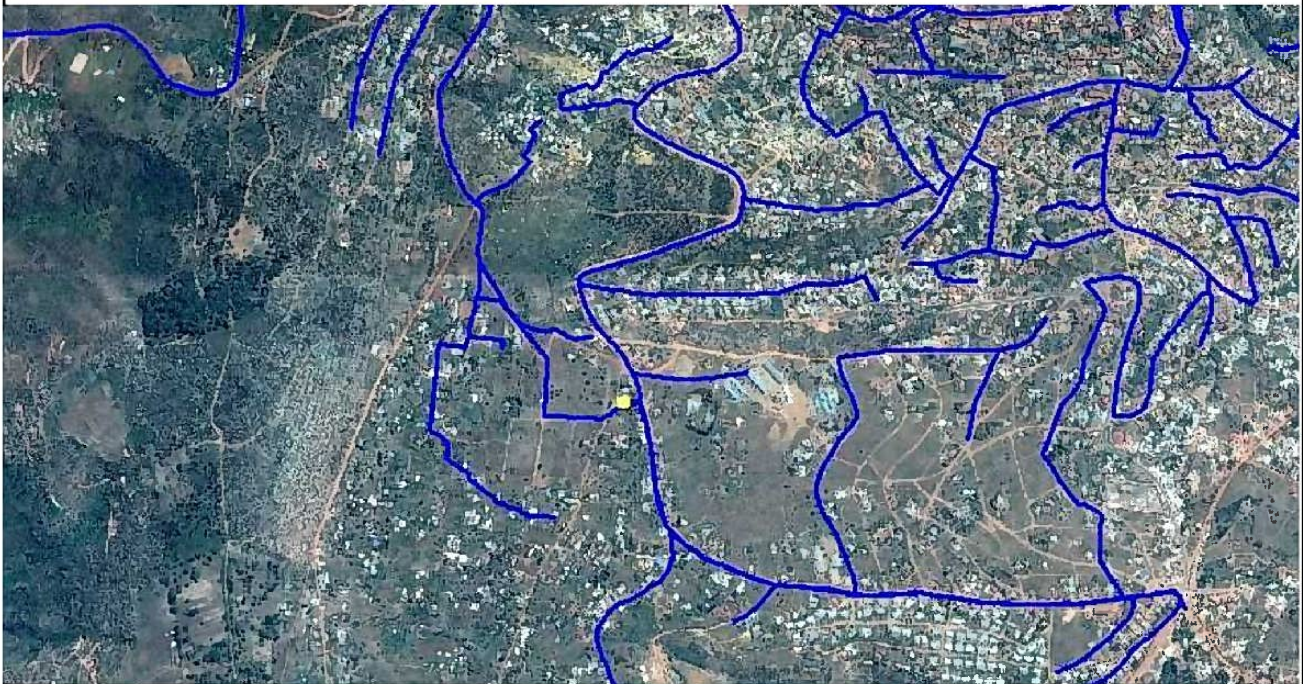


All the existing valves not functioning



Floater valve needed + general maintenance of the tank

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	44		
Branch	Nyamirambo		
District	Nyarugenge		
Sector	Nyamirambo		
Cell	Rugarama		
Village	Rubona		
Street	KN 260 St		
GPS Coordinates Latitude	-1.9921604	y	
GPS Coordinates Longitude	30.0392965	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date:28/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	44
2	Name of Reservoir	Rubona
3	ID Code	NYE4RE1
4	Ward	Sector: Nyamirambo , District: Nyarugenge , Cell: Rugarama, Village: Rubona
5	Branch Office	Nyamirambo
6	Location	Latitude: -1.9921604 , Longitude: 30.0392965 , Altitude:
7	Function of Reservoir	Storage
8	Age of Reservoir	Year: N.A
9	Storage Capacity	50 m3
10	Service area of the Reservoir	RUGARAMA-MIDUHA
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	1 person
	Action against to overflow	
3	Wall Leakage	Flowing
4	Overflow observation	7 times/week
	Phenomenon	Receiving water but not consumed
	Reason of overflow	Defective operation valves,
5	Bypass-flow operation	Nothing
	Reason of bypass operation	Low pressure if water passes through the tank
6	Inflow Condition	Source: Nzove via Mont Kigali Haut
		Water pressure at inlet: to be calculated in the final report
		Frequency and time: Permanent flow
7	Water level movement	Proper movement
8	Issue on Functional Condition	Tank receiving water through the outlet pipe, leaking walls, No floater valve, valves not operating, very old and weary valves.
C:Structure		
1	Form of Reservoir	Circular
2	Foundation	Semi-ground
3	Structure Material	Stones
4	Inside Dimension	D: 5.00m / L: × B: , H: 2.50m
5	Remarks/ Issue	

No.	Item	Details
D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	No installation
4	Inlet pipe No.1	SP, DN: 80, Top
5	Inlet valve No.1	DN: 80 , Function: YES even though not in use.
6	Outlet pipe No.1	SP, DN: 80
7	Outlet valve No.1	DN: 80 , Function: Not Operational
8	Overflow Pipe	SP, DN: 80
9	Drain Pipe	SP, DN: 80
10	Remarks/ Issue	The way the outlet system is installed, it needs replacement due to valves not working, the installation was made using threaded nipples and other accessories.

Other Information:

Proposal:

1. Revised (revisit) existing installation to rectify the inlet and outlet
2. Replacing all the 4 weary valves

Photo Sheet

Reservoir Name: Rubona

No: 44



Whole View



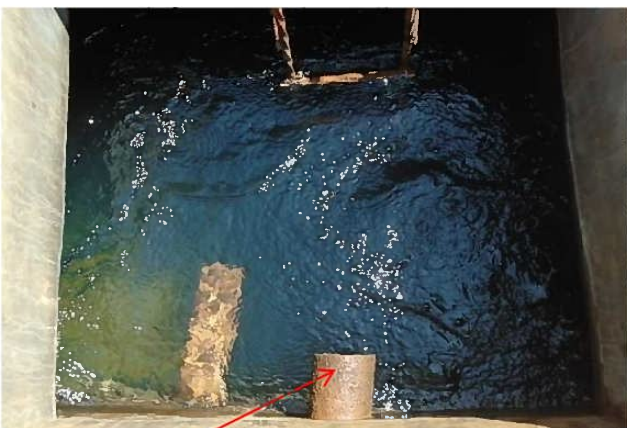
Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve



No float valve

Float Valve

No meter installed

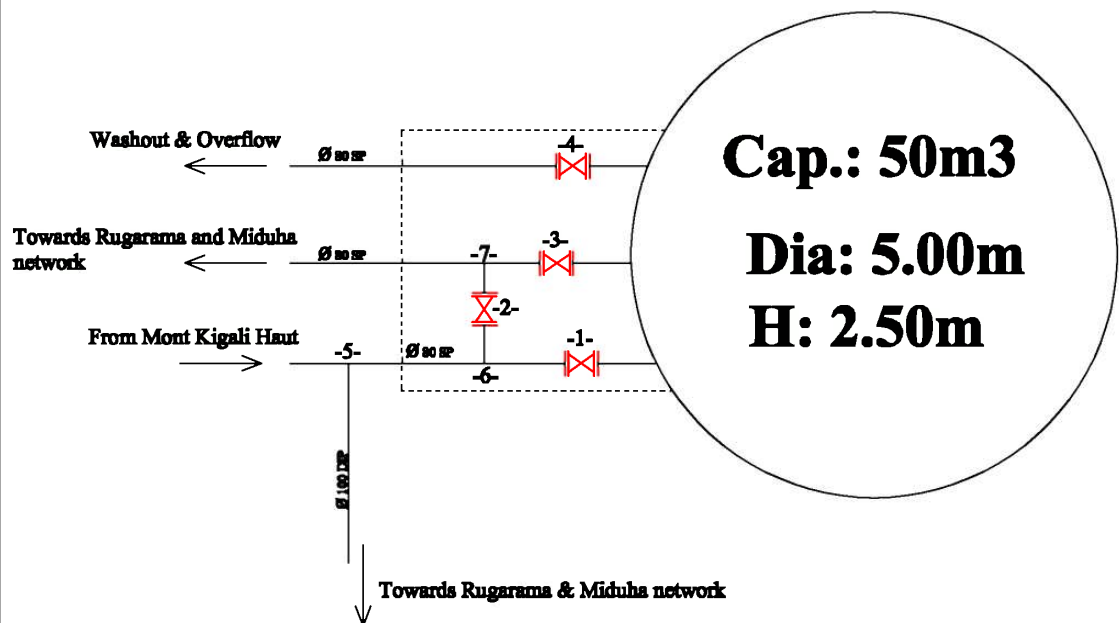
Meter

NYAMIRAMBO BRANCH

Reservoir No.: 138

Location: RUGARAMA

Material: Stone masonry



LEGEND

1, 2, 3, 4 - Valve DN 100

5, 6, 7 - Tee DN 100

In red color means with issues

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

2. RESERVOIR No. 63: KIVUGIZA

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

BRANCH: NYAMIRAMBO

Reservoir: KIVUGIZA

No.: 63

I. Status and Functionality issues description

The METALLIC tank receive water from Mont Kigali BAS, it serves a nearby Public Tap (BF), the inlet pipe (Ganga pipe) is disconnected and they use a flexible pipe for water to reach their reservoir.

It is under management of locals and no fence is there, while it is needed for safety and security purposes.

No floater valve installed, hence opening water while standing there the whole duration of filling.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Rehabilitation and reconnection of the tank• Replacement of drainage valves• Installation of a floater valve• Rehabilitation of water taps	<ul style="list-style-type: none">• 1 Valves DN100• 1 Floater valve DN80• Painting outside• Fencing the area• Drainage canal• Construction works for water tap

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

III. Description Photos



Outlet valve need to be replaced.



Inlet pipe need to be fixed and connected to the roof opening of the tank.

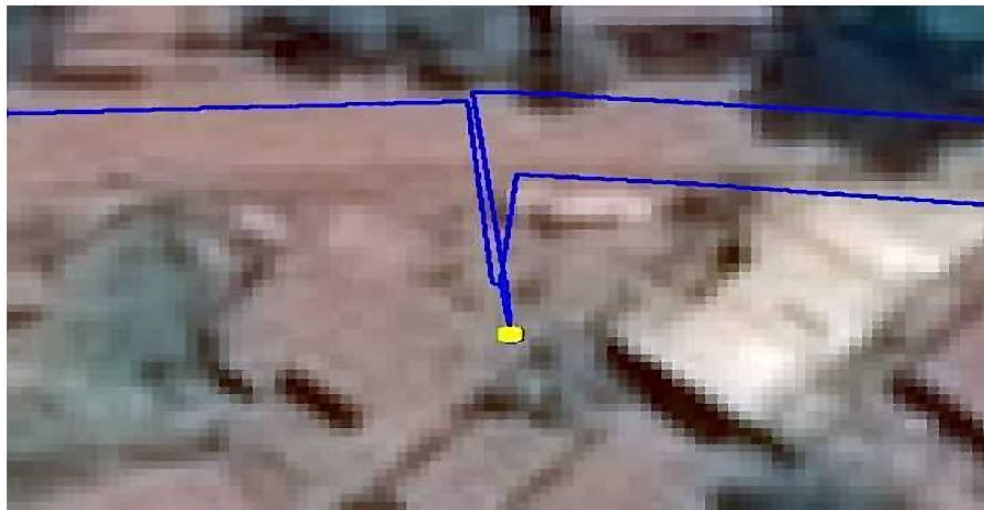


This water tap is dirty and it needs some construction works



Drain pipe need a valve and a manhole

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	63		
Branch	Nyamirambo		
District	Nyarugenge		
Sector	Nyamirambo		
Cell	Kivugiza		
Village	Mpano		
Street	KN 2 Av		
GPS Coordinates Latitude	-1.9804695	y	
GPS Coordinates Longitude	30.0400498	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 28/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	63
2	Name of Reservoir	Kivugiza
3	ID Code	NYD4RE1
4	Ward	District: Nyarugenge, Sector: Nyamirambo, Cell: Kivugiza, Village: Mpano
5	Branch Office	Nyamirambo
6	Location	Latitude: -1.9804965, Altitude: 30.0400948, Altitude
7	Function of Reservoir	Kiosk Reservoir
8	Age of Reservoir	year
9	Storage Capacity	25 m ³
10	Service area of the Reservoir	Reservoir BF Kivugiza
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	No operator
	Action against to overflow	Closing valve
3	Wall Leakage	Nothing
4	Overflow observation	0 times/month, 0 times/week
	Phenomenon	
	Reason of overflow	
5	Bypass-flow operation	Always/ Nothing, Timing: _____,
	Reason of bypass operation	
6	Inflow Condition	Source: Mont Kigali Bas
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	
C: Structure		
1	Form of Reservoir	Rectangular
2	Foundation	Ground
3	Structure Material	Steel
4	Inside Dimension	L: 4.9 × B: 2.4 , H: 2.4 :: All dimensions in meter (m)
5	Remarks/ Issue	

D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	No installation
3	Flow Meter	Mechanical
		Function: YES
		Location: Inlet Pipe
4	Inlet pipe No.1	PVC, DN: 32 , Roof
5	Inlet valve No.1	DN: 32 , Function: YES
6	Outlet pipe No.1	PVC, DN: 32
7	Outlet valve No.1	DN: 32 , Function: YES
8	Overflow Pipe	SP, DN: 100
9	Drain Pipe	SP, DN: 101
10	Remarks/ Issue	The tank was given t a local for management, there is no leakage even though they open on the roof in order to be able to get water in the tank.

Other Information:

Photo Sheet

Reservoir Name: Kivugiza

No: 63



Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipe with Valve

No float valve

Float Valve



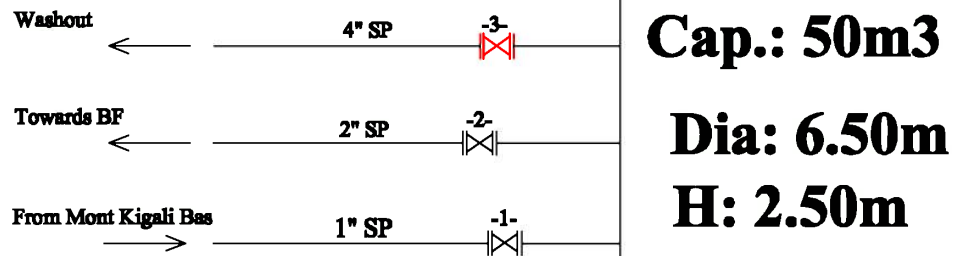
Meter

NYAMIRAMBO BRANCH

Reservoir No.: 84

Location: KIVUGIZA

Material: Steel pannel



LEGEND

1 - Valve 1"

2 - Valve 2"

3 - Valve 4"

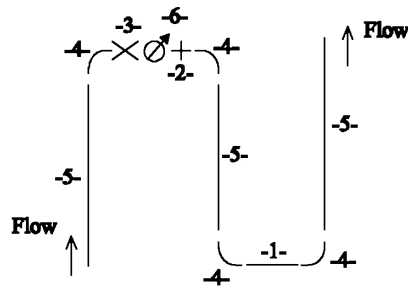
In red color means with issues

NYAMIRAMBO BRANCH

Reservoir No.: 84

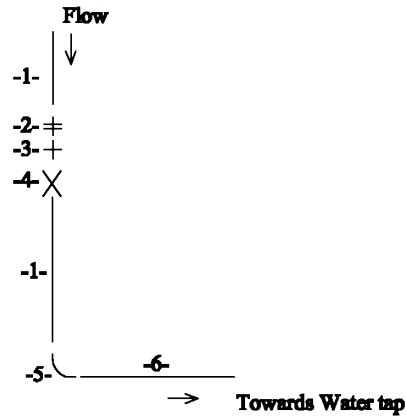
Location: KIVUGIZA

*** Inlet Pipe Ganga, All accessories are DN25**



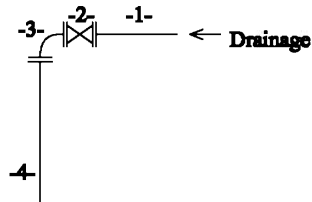
- 1- Straight Pipe
- 2- Nipple
- 3- Valve
- 4- 90 Degree Elbow
- 5- Pipe
- 6- Water Meter

*** Outlet Pipe SP, All accessories are DN50 (2")**



- 1- Straight Pipe
- 2- Coupling
- 3- Nipples
- 4- Valve
- 5- 90 Degree Elbow with Double Flange
- 6- Supply straight Pipe

*** Drainage (DIP, DN100)**



- 1- Straight Pipe with Flange
- 2- Valve with double flange
- 3- 90 Degree Elbow with Double Flange
- 4- Straight Pipe

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

3. RESERVOIR No. 74&75: RWEZAMENYO

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

BRANCH: NYAMIRAMBO

Reservoir: RWEZAMENYO

No.: 74&75

I. Status and Functionality issues description

The tank receive water from Mont Kigali haut through Mont Kigali Bas, they serve the areas of Nyakabanda, Kabusunzu and Kamuhoza. They have no floater and the Operator has to climb up to check for level for him to be able to close inlet valve without overflow and water wastage.

For Reservoir No. 74 the outlet valve leaks.

For Reservoir No. 75 Inlet valve leaks, Outlet valve DN 200 leaks, Outlet valve DN 80 leaks and all of them face backflow sometimes.

II. Required Action and Requirements

Action	Requirements
<ul style="list-style-type: none">• Replacement of Outlet valve at Res 146• Replacement of Outlet valves at Res 148• Replacement of Inlet valves at Res 148• Installation of a floater valves at Res 146&148• Checking why they face backflow at the Outlet pipes and behavior of the meter in that case??• Backfilling the excavated areas which exposes the pipes and may undermine the stability of thrust blocks.	<ul style="list-style-type: none">• 1 Valves DN200• 1 Valves DN200 and 1 Valves 80• 1 Valves DN200• 2 Floater valve DN200

FINAL REPORT ON THE RESERVOIR SURVEY IN NYAMIRAMBO BRANCH

III. Description Photos



Leaking Outlet Valves



General accessories cleaning needed as soon as possible



Non operational water level indicators



Floater valve need

Location of Reservoir			
<i>Subject</i>	<i>Data</i>		<i>Remarks</i>
Reservoir number	74 & 75		
Branch	Nyamirambo		
District	Nyarugenge		
Sector	Rwezamenyo		
Cell	Kabuguru II		
Village	Mutara		
Street	KN 188 St		
GPS Coordinates Latitude	-1.9756117	y	
GPS Coordinates Longitude	30.0486049	x	
Map			



Attachement-3 Reservoir Survey Sheet

Date: 28/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	74
2	Name of Reservoir	RWEZAMENYO I (Golf4-Nyakabanda P.S.)
3	ID Code	RWC5RE3
4	Ward	District: Nyarugenge, Sector: Rwezamenyo, Cell: Kabuguru II, Village: Mutara
5	Branch Office	Nyamirambo
6	Location	Latitude: -1.9756117, Altitude: 30.0486049, Altitude:
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	600 m3
10	Service area of the Reservoir	RWEZAMEYO-MUMENA
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	2 shift in a day
	Action against to overflow	Closing Valve
3	Wall Leakage	Nothing
4	Overflow observation	0 times/month, 0 times/week
	Phenomenon	Except in case the Operators are not arround.
	Reason of overflow	No Float Valve
5	Bypass-flow operation	Always
	Reason of bypass operation	Supplying Nyakabanda, Kabusunzu, Kamuhoza
6	Inflow Condition	Source: Mont Kigali Haut through Mont Kigali Bas
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	No floater valve
C:Structure		
1	Form of Reservoir	Hexagon
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 7.60M, H: 4.00M
5	Remarks/ Issue	

D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	Malfunction
3	Flow Meter	Mechanical
		Function
		Outlet Pipe
4	Inlet pipe No.1	SP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: YES
6	Outlet pipe No.1	SP, DN: 200
	Outlet pipe No.2	SP, DN: 100
7	Outlet valve No.1	DN: 200 , Function: YES with a leak
	Outlet valve No.2	DN: 80 , Function: YES
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200
10	Remarks/ Issue	

Other Information:

Attachement-3 Reservoir Survey Sheet

Date: 28/05/2020

No.	Item	Details
A: General		
1	Number of Reservoir	75
2	Name of Reservoir	RWEZAMENYO II (Golf4-Nyakabanda)
3	ID Code	RWC5RE2
4	Ward	District: Nyarugenge, Sector: Rwezamenyo, Cell: Kabuguru II, Village: Mutara
5	Branch Office	Nyamirambo
6	Location	Latitude: -1.9756117, Altitude: 30.0486049, Altitude:
7	Function of Reservoir	Storage
8	Age of Reservoir	year
9	Storage Capacity	600 m3
10	Service area of the Reservoir	RWEZAMEYO-MUMENA
B: Operational Condition		
1	Operational Condition	Operational
2	Operator Assignment	2 shift in a day
	Action against to overflow	Closing Valve
3	Wall Leakage	Nothing
4	Overflow observation	0 times/month, 0 times/week
	Phenomenon	Except in case the Operators are not arround.
	Reason of overflow	No Float Valve
5	Bypass-flow operation	Always
	Reason of bypass operation	Supplying Nyakabanda, Kabusunzu, Kamuhoza
6	Inflow Condition	Source: Mont Kigali Haut through Mont Kigali Bas
		Water pressure at inlet:
		Frequency and time: Permanent
7	Water level movement	Proper movement
8	Issue on Functional Condition	No floater valve
C:Structure		
1	Form of Reservoir	Hexagon
2	Foundation	Ground
3	Structure Material	Concrete
4	Inside Dimension	D: 7.60M, H: 4.00M
5	Remarks/ Issue	

D: Equipment		
1	Floater Valve	No installation
2	Water Level Gauge	Malfunction
3	Flow Meter	Mechanical
		Function
		Outlet Pipe
4	Inlet pipe No.1	SP, DN: 200, Top
5	Inlet valve No.1	DN: 200, Function: Not Applied but it has a leak
6	Outlet pipe No.1	SP, DN: 200
	Outlet pipe No.2	SP, DN: 80
7	Outlet valve No.1	DN: 200, Function: Not Applied but it has a leakage and it has backflow sometimes
	Outlet valve No.2	DN: 80, Function: YES but it has a leakage and it has backflow sometimes
8	Overflow Pipe	SP, DN: 200
9	Drain Pipe	SP, DN: 200
10	Remarks/ Issue	For Floater Valve Installation, We need to weld a flanged part.

Other Information:

Photo Sheet

Reservoir Name: Rwezamenyo I&II

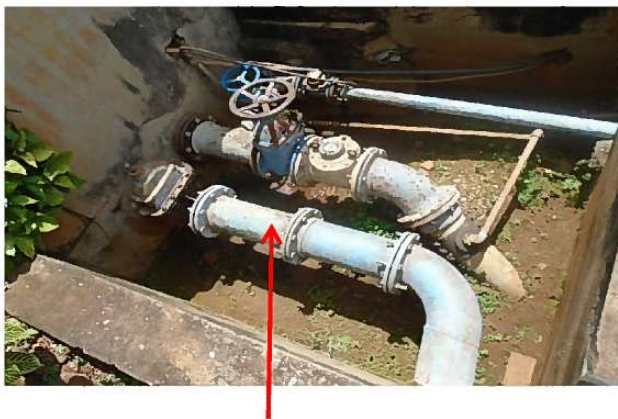
No: 74 & 75



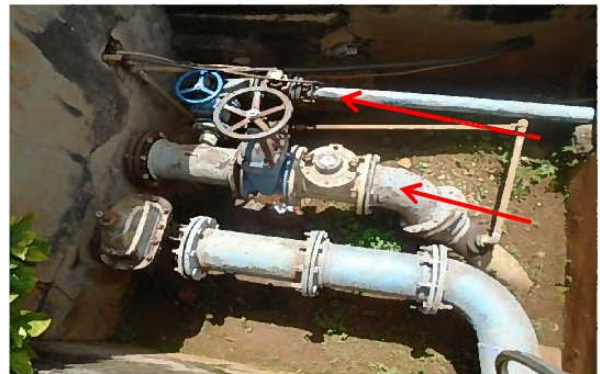
Whole View



Reservoir



Inlet Pipe with Valve



Outlet Pipes with Valves



No float valve installed

Float Valve



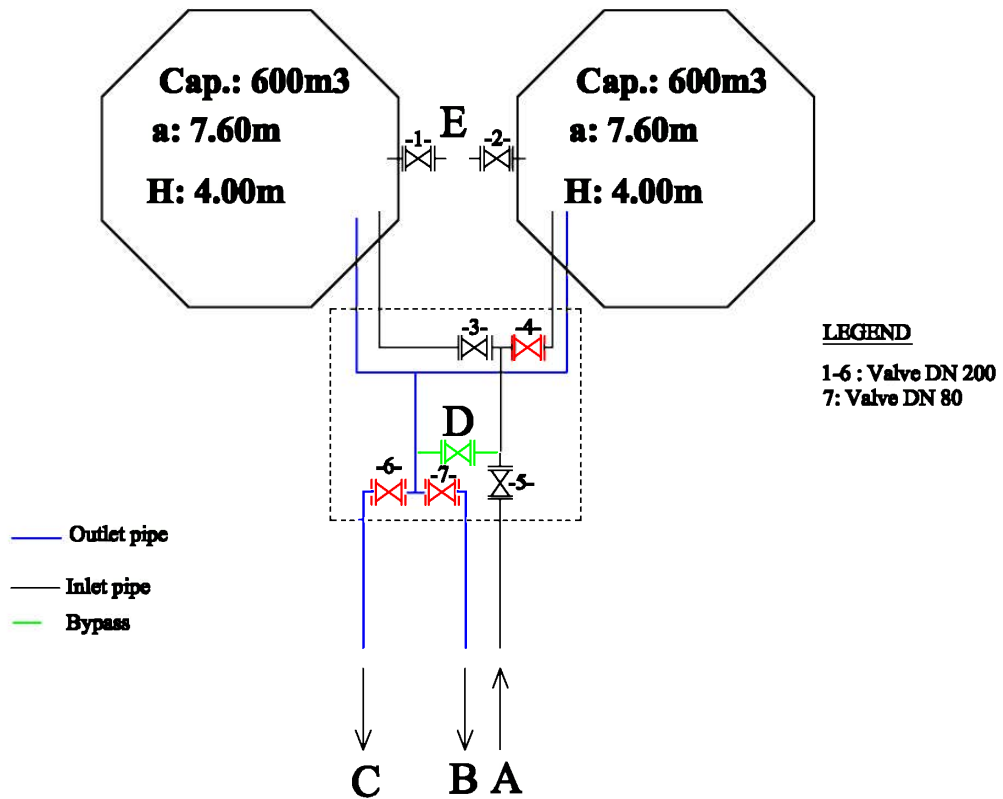
Meter

NYAMIRAMBO BRANCH

Reservoir No.: 146&148

Location: RWEZAMENYO

Material: Concrete



A - Inlet from Mont Kigali Haut via Mont Kigali Bas

B- Outlet towards Mumena, DN80

C- Outlet towards Rwezamenyo areas, DN200

D- Bypass system DN200

E- Drain pipe DN200

In red color means with issues