Municipal Infrastructure Grant

Project Registration Form

MIG 1
(Rev 3c)

Municipality	Project Ref No:
Project Name	Last Modified Provincial Ref No:

ALL FIELDS TO BE COMPLETED IN FULL

Project Infrastructure Type		dd/mm/yyyy
Registration (FOR OFFICE USE ONLY)	Date Received	

CONTENTS (Tick box when completed)

Section:	Completed by applicant	Checked by PMU	Checked by PMMU	Checked by DPLG
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1. EXECUTIVE SUMMARY

1.1 Detailed Project Description:

Allanridge and Nyakallong are small mine towns with a population of 18'230, situated 32km North of Welkom. The area receives water directly from Sedibeng Water which is then distributed through the community by means of 78km pipe network that consists of old steel pipes, asbestos and recently installed uPVC.

Several leaks have been reported as a result of aging infrastructure especially the old steel pipes, causing the municipality to lose in excess of 200ML of water per annum. The municipality had initially decided to replace approximately 2.6km of old steel pipes for approximately **R6 682 316,78 (Incl Vat)** over a period of 5 to 7 months, creating 40 to 50 employment opportunities valued at R1'087'223.00 as direct cost. As a result of increase in prices and actual updated costs being received from the contractors and their suppliers, this project has now increased to **R7'690'399-65 (Incl. Vat, Incl. Contingencies).** This is an increase of 19.7%, which amounts to an additional amount of R1'008'082,95 (Incl. Vat, Incl. Contingencies) to the contract, from the approved budget of **R6'682'315-78 (Inclusive of VAT, Contingencies and Professional Fees)**

The area consists of 17'256 (94%) of previously disadvantaged community with approximately 26% (4'738) considered poor based on the income brackets as indicated in STATS SA. These are people who struggle in affording the basic services including water and electricity.
The need for a network refurbishment is therefore important as the municipality will be able to direct all potential savings from water losses towards service delivery especially for the poor. It is estimated that the municipality is losing in excess of **R4.65Mill** per annum due to water leaks. This is the money that can be saved through the implementation of this project.

Describe in detail the scope of the project including source, delivery area, communities and people to be served.

1.2 Special Municipal Infrastructure Fund (SMIF) Motivation: (Regional projects and Innovations only)

Provide sufficient motivation for SMIF funding as set out in the SMIF funding criteria/guidelines.

2. APPLICANT DETAILS

2.1 Name of Contact Person Responsible for the Project

Applicant: Matjhabeng Local Municipality

Contact person

Title:	Mr.	Surname:	Tsoaeli	Initials:	T	Position	Municipal Manager

2.2 Address

Physical Address		Postal Address (if different from Physical)	
Matjhabeng Local Municipality 319 Stateway Welkom		P O Box 708 Welkom	
Postal Code	9460	Postal Code	9460
Email Address	thabiso.tsoaeli@matjhabeng.co.za	Fax	057 357 4393
Cellular	082 558 3161	Tel (Office)	057 391 3359

3. PROJECT DETAILS

3.1 Estimated Duration :

	dd / mm / yyyy		dd / mm / yyyy		
*Start Date:	01/July/2017	End Date:	30/April/2019	Duration (weeks)	84

Note: *This period will be used to generate the cash flow period, and includes the retention period where the guarantee method is not used. *Start Date = Date on which design commenced.*

3.2 Project Category

Funding Infrastructure Category	New Infrastructure (Yes/No)	Rehabilitation (Yes/No)	SMIF project? (Yes/No)	Nodal Municipality		U=Urban/ R=Rural	Labour intensive	EPWP Project?	
				Yes/No	ISRDP/URP Project		Yes\No	(Yes/No)	EPWP Type
Basic Residential Infrastructure (B)	NO	YES	NO	YES	URP	U	YES	YES	
Public Municipal Service Infrastructure (P)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Social Institutions and Micro Enterprises (E)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: (a) Select one of the following categories: a) Low-volume roads; b)Sidewalks; c) Storm-water drainage; d) Trenching and e) Other

3.3.1 Project Funding Applied For Registration

Project Infrastructure Type	Total (Incl. VAT)	VAT	Direct Costs (Construction)	Indirect Costs (Professional fees)	Training	
					Accredited	Non-Accredited
Water Infrastructure	R7 690 399,86	R1 003 095,63	R6 703 864.19	R 986 535.67	R0.00	R 0.00
Total Project Cost (A=E)	R7 690 399,86	R1 003 095,63	R6 703 864.19	R 986 535.67	R0.00	R 0.00
Source of Funds	**Total (Incl. VAT)**	**VAT**	**Direct Costs (Construction)**	**Indirect Costs (Professional fees)**	**Training**	
					Accredited	Non-Accredited
MIG (B)	R7 690 399,86	R1 003 095,63	R6 703 864.19	R 986 535.67	R0.00	R 0.00
Public sector** (C=a+b+c+d)	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
a) Own Funds*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
b) Loans*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
c) Bonds*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
d) Other*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Private Sector (D)	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Total Registered (E=B+C+D)	**R7 690 399,86**	**R1 003 095,63**	**R6 703 864.19**	**R 986 535.67**	**R 0.00**	**R 0.00**

Cost per Household (Total):	**R 1 315.16**
Cost per Household (MIG):	**R 1 315.16**

Note: The 3.3.1 Cost per Household section is calculated from information received at 3.3 Project Funding and 3.6 Total Population of Suburb / Village directly benefiting from the Project Section of the Project Registration Form.

3.3.2 Percentage Labour Component to total project Cost

% Of Labour component to total project cost:	**12.7%**

Note: The 3.3.2 Percentage Labour section is calculated from information received at 3.3 Project Funding and 5.1 Employment Generation (Total value to local Community)

3.4.1 Project Funding Registered (National Office Use)

Project Infrastructure Type	Total (Incl. VAT)	VAT	Direct Costs (Construction)	Indirect Costs (Professional fees)	Training	
					Accredited	Non-Accredited
Water Infrastructure	R6 682'316.78	R820'635.27	R5'695'781.11	R 986 535.67	R0.00	R 0.00
Total Project Cost (A=E)	R6 682'316.78	R820'635.27	R5'695'781.11	R 986 535.67	R0.00	R 0.00
Source of Funds	**Total (Incl. VAT)**	**VAT**	**Direct Costs (Construction)**	**Indirect Costs (Professional fees)**	**Training**	
					Accredited	Non-Accredited
MIG (B)	R6 682'316.78	R820'635.27	R5'695'781.11	R 986 535.67	R0.00	R 0.00
Public sector** (C=a+b+c+d)	R 0.00	R 0.00	R 0.00	R 0.00	R0.00	R 0.00
a) Own Funds*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
b) Loans*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
c) Bonds*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
d) Other*	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Private Sector (D)	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00	R 0.00
Total Registered (E=B+C+D)	**R6 682'316.78**	**R820'635.27**	**R5'695'781.11**	**R 986 535.67**	**R0.00**	**R 0.00**

Cost per Household (Total):	**R 1 315.16**
Cost per Household (MIG):	**R 1 315.16**

Note: The 3.4.1 Cost per Household section is calculated from information received at 3.4 Project Funding Registered and 3.6 Total Population of Suburb / Village directly benefiting from the Project Section of the Project Registration Form.

3.4.2 Percentage Labour Component to total project Cost

% Of Labour component to total project cost:	**12.7%**

Note: The 3.3.2 Percentage Labour section is calculated from information received at 3.4 Project Funding Registered and 5.1 Employment Generation (Total value to local Community)

3.5 Project Location

Project Location		Co-ordinates of the Project			
Province	Free state		Degrees °	Minutes '	Seconds "
District Municipality	Lejweleputswa	Longitude (E)	26	38	15
Local Municipality	Matjhabeng	Latitude.....(S)	27	45	22
Nearest Business Centre	Welkom				
Distance to Business Centre(km)	Within the BC				

3.6 Total Population of Suburb / Village directly benefiting from the project.

Suburb/Village benefiting	Total benefiting Population	Total No. of Households benefiting
Nyakallong	16'162	4'368
Allanridge	2'068	713
Total	**18'230**	**5'081**

4. PROJECT FEASIBILITY

4.1Beneficiaries

(Poor Households – Those with household expenditure of below R1, 100.00 per month)

Number of Beneficiaries (Persons)

Formal Areas	4'738
Informal Areas	0
Total Residents	13'740

Number of Poor Households

			dd/mm/yyyy
Formal: No of New Stands	0	Date of Last Count	StatsSA 2011
Formal: No of Existing Stands (Rehabilitation)	5'081	No of Households	5'081
Informal: No of Backyard Dwellings	0		
Informal: No of Households	0		
Total	5'081		

Household Size

Average household size (No of persons) 3.7

4.2 Household Contributions

Income Analysis

Ability to Contribute	Yes	No	√
Average Monthly Expenditure	R1'100.00		
Number of households with the ability to contribute for service	1'380		

What is the Municipality's strategy on Household contributions for higher level of service?

Comment

Please advise

4.3 Free Basic Services

The Municipality undertakes to implement a policy for free basic services

Implementing free basic water? Yes [√] No [ ]

Describe

Please advise

4.4 Backlog of service applied for

Main Village/ Town	Settlement/ Village/ Suburb	Total number of Households in Municipal Area (1)	Total number of households with below basic level of service (2)	Total number of Households to benefit from project (3)	Backlog (remaining after completion of the project) = 2-3
Welkom	Nyakallong	4'368	0	4'368	4'368
	Allanridge	713	0	713	713
Total		**5'081**		**5'081**	**5'081**

4.5 Operation and Maintenance Cash Flow Projection.

Period/Term	Expected Operating Cost (1)	Expected Maintenance Cost (2)	Total O & M Cost (3=1+2)
Year1	R9'500.00	R279'000.00	R288'500.00
Year2	R10'300.00	R308'000.00	R318'300.00
Year3	R11'000.00	R338'000.00	R349'000.00
Year4	R12'100.00	R372'000,00	R384'100.00
Year5	R13'200.00	R410'000.00	R423'200.00
Total	**R56'100.00**	**R1'707'000.00**	**R1'763'100.00**

GENERIC INDICATORS:

5. SOCIO ECONOMIC IMPACT

5.1 Employment Generation

Number of Persons planned to be employed	Total Number of persons	Adult		Youth		Disabled	
		Female	Male	Female	Male	Female	Male
Number of persons planned to be employed (A)	70	12	10	22	25	1	
Average length of employment (days) (B)	100	100	100	100	100	100	
Number of planned person days C = A x B	7 000	1 200	1 000	2 200	2 500	100	

Please note: - The definition of youth is any person under the age of 35 years. (18-35 Years)
- Each person may only be counted once. If a person falls into more than one category, disabled persons take preference, then youth, then adults.
- Must include all occupational categories (Clerical, Labourer, Managerial, Semi skilled, Skilled and Supervisor).

Permanent Employment after Construction		
Total number of permanent employees to be appointed after the completion of the project		
Local Labourers		
Average wage rate (per day)	a	**R121.5**
Number of labourers planned to be employed (Person Days) (Total of C)	b	**7'000**
Total Value to local Community	c	**R850'500.00**

Note: Calculation / Formula c= a x b

5.2 Employment Policy

Use of labour-based construction methods Use Yes/No Yes [√] No [ ]

Details of policy and plans

Exposing of existing services, trench excavations of not more than 1,5m in depth will be labour based.
Bedding preparation, leveling and compactions will be labour based using small equipment's.
Pipe laying and fittings will be labour based using hand and power tools.

Employment policy

Describe

Unemployed youth and female headed house hold will be given preference, youth must constitute a minimum of 50% of the employment equity and people with disability, suitably assigned, must constitute a minimum of 2% of the employment equity.

Maximum use of local labour Maximum use of local labour? Yes [√] No [ ]

Reasons if not possible:

Use of ABE i.t.o the affirmable procurement policy

Use of HDI's i.t.o. policy? Yes [√] No [ ]

Number of contractors planned 3

Reasons if not possible:

Use of SMME i.t.o. the affirmable procurement policy

Use of HDI's i.t.o. policy? Yes [√] No [ ]

Number of contractors planned 3

Reasons if not possible:

Use of BWO i.t.o. the affirmable procurement policy

Use of HDI's i.t.o. policy? Yes [√] No [ ]

Number of contractors planned 1

Reasons if not possible:

Community involvement at project level

Community project involvement? Yes [√] No [ ]

Describe nature of Involvement

Through the office of the Project Steering Committee (PSC) we will compile records of all the local enterprises and services suppliers relevant to the proposed work. Contractors will be notified on the briefing session of arrangements to ensure that local enterprises and suppliers should be their first choice for procurement of goods and services.

5.3 Training needs Analysis and Framework

Has a training needs analysis been done?

Yes/No Yes [ ] No [√]

Describe, If no motivate

The project will be performed by EPWP learner contractors that have received training. No training budget necessary under this project.

Has a training framework been submitted?

Yes/No Yes [ ] No [√]

Description of training framework

The project will be performed by EPWP learner contractors that have received training. No training budget necessary under this project.

5.4 Planned Training Activities

5.4.1 Accredited Training

Training Type	Planned number of training days (a=b x c)	Average duration of training (days) (b)	Planned number of persons to be trained (c=d+e+f+g+h+i)	Adult		Youth		Disabled	
				Female (d)	Male (e)	Female (f)	Male (g)	Female (h)	Male (i)
Administration									
Technical									
Life skills/ ISD									
Literacy & Numeracy									
Vocational Skills									
Business Skills									
Total Training									

5.4.2 Non-Accredited Training

Training Type	Planned number of training days (a=b x c)	Average duration of training (days) (b)	Planned number of persons to be trained (c=d+e+f+g+h+i)	Adult		Youth		Disabled	
				Female (d)	Male (e)	Female (f)	Male (g)	Female (h)	Male (i)
Administration									
Technical									
Life skills/ ISD									
Literacy & Numeracy									
Vocational Skills									
Business Skills									
Total Training									

5.5 Sanitation, Health and Hygiene

Has the community participated in a health and hygiene programme in the past Yes/No Yes [ ] No [ ]

Describe

Please advise

Effectiveness of the health and hygiene programme in the past Not effective [1-5] effective

Describe

Please advise

5.6 Environmental Protection

Has an environmental scoping report been registered?	Yes/No	Yes ☐ No ☐
	Reg No	
Comments		
Impact of this project on the environment and measures to limit negative impact	No threat[1-5]Major impact	1
Describe		
This project is upgrading/replacement of existing infrastructure, therefore we don't envisage any negative impact on the environment.		
Water conservation and use		
Describe		
This project is initiated specifically to reduce/eradicate water losses due to aging infrastructure which give effect to leakages. The municipality will continue to advocate the efficient use of water to the community.		

SPECIFIC INDICATORS:

6. OUTPUTS AND OTHER TARGETS YOU WANT TO MONITOR (Only complete relevant sections – omit all other)

6.1 Basic Residential Infrastructure (B)

6.1.1 Water (NB: Technical Report to be submitted to DWAF)

Water: Bulk Services: Geohydrological Investigation

Total Component Cost		Construction Duration (months)	
Number of boreholes planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of all boreholes required (l/s)			

Comments

Water: Bulk Services: Boreholes

Total Component Cost		Construction Duration (months)	
Number of boreholes planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of borehole planned (l/s)			

Comments

Water: Bulk Services: Reservoirs

Total Component Cost		Number of ground level reservoirs planned	
Number of new reservoirs planned		Number of Towers planned	
Number of reservoirs to be rehabilitated Existing capacity for community		Construction Duration (months)	
Capacity of all reservoirs planned (m3)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Water: Bulk Services: Water treatment plants

Total Component Cost Existing capacity of WTW (m3 per Day)		Construction Duration (months)	
Number of new water treatment plants planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of water treatment plants to be rehabilitated			
Capacity of water treatment plants planned (m3 per day)			

Comments

Water: Bulk Services: Pump stations

Total Component Cost		Construction Duration (months)	
Number of new pump stations planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of pump stations to be rehabilitated			
Capacity of pump stations planned/ Existing (l/s)			

Comments

Water: Bulk Services: Raw water storage dam

Total Component Cost		Construction Duration (months)	
Number of new Raw water storage dams planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of Raw Water Storage planned (m3)			
Number of Raw water storage dams to be rehabilitated			
Existing capacity of Raw water storage			

Comments

Water: Connector Services: Supply lines

Total Component Cost		Construction Duration (months)	
Length of new main supply line planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Length of main supply line to be rehabilitated		Labour Intensive Construction: Yes/No	
Capacity of all supply lines planned/existing (l/s)			
Diameter of supply line planned/existing (mm)			

Comments

Water: Connector Services: Pump stations

Total Component Cost		Construction Duration (months)	
Number of new pump stations planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of pump stations to be rehabilitated			
Capacity of pump station planned (l/s)			

Comments

Water: Connector Services: Reservoirs

Total Component Cost		Construction Duration (months)	
Existing capacity of Reservoirs			
Number of reservoirs planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of reservoirs to be rehabilitated			
Capacity of all reservoirs planned (m3)			

Comments

Water: Reticulation: Stand pipes

Total Component Cost		Construction Duration (months)	
Number of stand pipes to be reticulated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Water: Reticulation: Metered stand pipes

Total Component Cost		Construction Duration (months)	
Number of metered stand pipes to be reticulated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Water: Reticulation: Water meters

Total Component Cost		Construction Duration (months)	
Number of water meters to be reticulated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Water: Reticulation: Pipe lines

Total Component Cost	R6 910 147,02	Construction Duration (months)	4
Length of pipe line to be reticulated	2,350	Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	2
Capacity of all pipe lines to be reticulated (l/s)	15	Labour Intensive Construction: Yes/No	Yes
Diameter of pipe line to be reticulated (mm)	160/200		

Comments

Water: Summary of Technical Details

Current water demand — Demand (l/capita/day) 543

State

The high demand is due to, leaking pipe networks, leaking and inaccurate meters, and human behavior related, where people are in disregard of water conservation initiatives and high water consumption by business and factories.

Future water demand — Projected(l/capita/day) 477

State

The reduction may only be experienced once all aging pipe infrastructure has been replaced and community and businesses are educated on conservative water use

Present water source (i.t.o. type, quantity and reliability) — Supply (l/capita/day) 623

State

Allanridge and Nyakallong area are currently receiving water from Sedibeng Water through a 200mm diameter pipe at a pressure of 3 bar, the pipeline links directly into the water network according to the Municipality's technical team. About 98% of the water supplied is through a local authority or local water scheme. It is therefore imperative that the water network infrastructure is in good condition as most people are relying on it. The reservoir has since been taken out of commission and is now been vandalized.

Future water source (i.t.o. type, quantity and reliability) — Projected supply (Ml/day) 3.25

State

Water will still be supplied from Sedibeng Water.

Present water infrastructure

Describe

Water network pipes in Allanridge ranges from 110mm diameter to 200mm diameter with a total length of approximately 77km. It is estimated that these pipes have been installed over 60 years ago except for the few that has recently been replaced with uPVC pipes.

Future water infrastructure

Describe

This project is a continued effort by the municipality to eradicate all ageing water infrastructure.

Present water quality — Meets potable standard? Yes [√] No [ ]

Describe

Future water quality	No threat [1-5] Major impact	1
Describe Threats		

Are the legal aspects of water sources and abstraction in order?	Yes/No	Yes ☐	No ☐
Comment			
Please advise			

Population growth trends	Estimated growth %
Description of trend and data accuracy	
There is no growth expected within the project area	

6.1.2 Sanitation (NB: Technical Report to be submitted to DWAF)

Sanitation: Bulk Services: Treatment works

Total Component Cost Existing Capacity		Construction Duration (months)	
Number of treatment works to be rehabilitated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of treatment works planned (m3/day)			

Comments

Sanitation: Bulk Services: Oxidation ponds

Total Component Cost Existing Capacity		Construction Duration (months)	
Number of oxidation ponds to be rehabilitated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of oxidation pond planned (m3)			

Comments

Sanitation: Bulk Services: Pump stations

Total Component Cost		Construction Duration (months)	
Number of new pump stations		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of pump station planned (l/s)			

Comments

Sanitation: Connector Services: Main outflow lines

Total Component Cost		Construction Duration (months)	
Length of new main outflow lines		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of Main outflow lines planned (l/s)		Labour Intensive Construction: Yes/No	
Diameter of Main outflow lines planned (mm)			

Comments

Sanitation: Connector Services: Pump stations

Total Component Cost		Construction Duration (months)	
Number of new pump stations		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Capacity of pump station planned (l/s)			

Comments

Sanitation: Reticulation: Toilets

Total Component Cost		Number of bucket to be eradicated	
Number of new toilets planned to be built		Construction Duration (months)	
Number of toilets to be rehabilitated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Sanitation: Summary of Technical Details

Which toilet technologies will be proposed in the programme/project?

Toilet Technologies			
Single pit VIP toilets	Yes/No	Yes ☐	No ☐
Double pit VIP toilets	Yes/No	Yes ☐	No ☐
Urine diversion toilets	Yes/No	Yes ☐	No ☐
Other technologies	Yes/No	Yes ☐	No ☐
Specify			

What types of top-structures will be proposed in the Programme/project?

At least three different types of top-structures must be promoted in each project to offer participants a choice in line with their preferences and affordability levels.

Top Structures			
Masonry	Yes/No	Yes	No
Traditional materials	Yes/No	Yes	No
Archloo	Yes/No	Yes	No
Prefabricated structure	Yes/No	Yes	No
Upgrade using existing structures	Yes/No	Yes	No
Other	Yes/No	Yes	No
Specify			

6.1.3 Roads and Related Storm water

Roads and Storm water: Local Distributors: Gravel

Total Component Cost		Construction Duration (months)	
Kilometers of new gravel roads planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of gravel roads to be rehabilitated		Labour Intensive Project (Yes/No)	

Comments

Roads and Storm water: Local Distributors: Paved

Total Component Cost		Construction Duration (months)	
Kilometers of new paved roads planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of paved roads to be rehabilitated		Labour Intensive Project (Yes/No)	

Comments

Roads and Storm water: Local Distributors: Tarred

Total Component Cost		Construction Duration (months)	
Kilometers of new tarred roads planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of tarred roads to be rehabilitated		Labour Intensive Project (Yes/No)	

Comments

Roads and Storm water: Access Collectors: Gravel

Total Component Cost		Construction Duration (months)	
Kilometers of new gravel Access Collectors planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of gravel Access Collectors to be rehabilitated		Labour Intensive Project (Yes/No)	

Comments

Roads and Storm water: Access Collectors: Paved

Total Component Cost		Construction Duration (months)	
Kilometers of new paved Access Collectors planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of paved Access Collectors to be rehabilitated		Labour Intensive Project :(Yes/No)	

Comments

Roads and Storm water: Access Collectors: Tarred

Total Component Cost		Construction Duration (months)	
Kilometers of new tarred Access Collectors planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of tarred Access Collectors to be rehabilitated		Labour Intensive Project:(Yes/No)	

Comments

Roads and Storm water: Low-Water Bridges:

Total Component Cost		Construction Duration (months)	
Low-Water Bridges planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Low-Water Bridges to be rehabilitated		Labour Intensive Project:(Yes/No)	

Comments

6.1.4 Solid Waste

Solid Waste: Bulk Services: Skips \Bins

Total Component Cost		Duration (months)	
Number of Skips\Bins planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

6.1.5 Electrifications (NB: Technical Report to be submitted to DME)

Electrification: Bulk Services: Sub Transmission Line

Total Component Cost		Construction Duration (months)	
Line Length (km) planned		Line Voltage(kV)	
Line Capacity(kV)			

Comments

Electrification: Bulk Services: Transmission Sub Stations

Total Component Cost		Construction Duration (months)	
Number of Transformers planned		Transformer Voltage (kVA)	
Transformer Capacity (kVA)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Electrification: Bulk Services: Sub Transmission Feeder Lines

Total Component Cost		Construction Duration (months)	
Number of feeder lines Planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of Mini-Sub Transformers planned			
Length of feeder lines(km) planned			
Line Voltage(kV)			

Comments

Electrification: Households (Grid Connection)

Total Component Cost		Construction Duration (months)	
Planned number of Households		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
		Labour Intensive Construction: Yes/No	
		Bulk capacity available : Yes/No	
		Total substation capacity (KVA)	
Planned number of stands reticulated		Total Substation capacity used at Peak (KVA)	
		Total Substaton capacity Availible (KVA)	
		National average cost per connection	
		Cost per connection	
Planned number of connections			
Connection Supply Capacity (Amp)			
Structures(Brick, Clay or Other)			

Comments

Electrification: Households (Non- Grid Connection)

Total Component Cost		Construction Duration (months)	
Planned number of Households		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
		Labour Intensive Construction: Yes/No	
Planned number of stands reticulated		National average cost per connection	
		Cost per connection	
		Distance from existing grid distribution line	
		Planned year in which the households will be grid electrified	
Planned number of connections			
Connection Supply Capacity (Amp)			
Structures(Brick, Clay or Other)			

Comments

Electrification: Schools (Grid Connection)

Total Component Cost		Cost of the wiring	
Cost of point of supply		Cost for the school	
		Construction duration (months)	
Length of feeder line(km) planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
		Labour Intensive Construction: Yes/No	
		Project priorities by DOE: Yes/No	
Planned number of class rooms			
Building Structure(Brick, Clay or Other)			

Comments

Electrification: Schools (Non-Grid Connection)

Total Component Cost		Cost of the wiring	
Cost of point of supply		Cost for the school	
		Construction duration (months)	
Length of feeder line(km) planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
		Labour Intensive Construction: Yes/No	
		Project priorities by DOE: Yes/No	
		AV System to be Installed (TV, VCR or Satellite)	
Planned number of class rooms			
Building Structure(Brick, Clay or Other)			

Comments

Electrification: Clinics (Grid Connection)

Total Component Cost Cost of point of supply		Construction Duration (months) Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full) Labour Intensive Construction: Yes/No Building Structure(Brick, Clay or Other)	
Length of feeder line (km) planned Cost of wiring Number of rooms planned to be electrified			

Comments

Electrification: Clinics (Non - Grid Connection)

Total Component Cost Cost of point of supply		Construction Duration (months) Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full) Labour Intensive Construction: Yes/No Building Structure(Brick, Clay or Other) Equipment to be installed (Refrigerator or Two-way radios)	
Length of feeder line (km) planned Cost of wiring Number of rooms planned to be electrified			

Comments

Community Lighting: Lighting: High mast

Total Component Cost		Construction Duration (months)	
Number of new high masts planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of high masts to be rehabilitated			

Comments

Community Lighting: Lighting: Street lights

Total Component Cost		Construction Duration (months)	
Number of new street lights planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of street lights to be rehabilitated			

Comments

6.1.6 Storm water

Storm water: Channels

Total Component Cost Cross sectional area		Construction Duration (months)	
Kilometers of new channels planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of channels to be rehabilitated		Labour Intensive Construction: Yes/No	

Comments

Storm water: Pipelines

Total Component Cost Pipe Diameter		Construction Duration (months)	
Kilometers of new pipelines planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Kilometers of pipelines to be rehabilitated		Labour Intensive Construction: Yes/No	
Comments			

Storm water: Retention Ponds

Total Component Cost Existing Capacity		Construction Duration (months)	
Number of ponds planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of ponds to be rehabilitated		Labour Intensive Construction: Yes/No	
Total volume of ponds involved			
Comments			

6.2 Public Municipal Service Infrastructure (P)

6.2.1 Bus Shelters (Public)

Bus Stop Shelters

Total Component Cost		Number of lights to be installed	
Area to be paved (m2)		Number of toilet facilities	
Size of administration offices to be built (m2)		Drainage	
Facilities for informal traders (m2)		Construction Duration (months)	
Area under cover (m2)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of shelters to be accommodated			

Comments

6.2.2 Taxi Ranks (Public)

Taxi Ranks

Total Component Cost		Number of lights to be installed	
Area to be paved (m2)		Number of toilet facilities	
Size of administration offices to be built (m2)		Drainage	
Facilities for informal traders (m2)		Construction Duration (months)	
Area under cover (m2)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of taxis to be accommodated			

Comments

6.2.3 Sidewalks (Public)

Sidewalks: Gravel

Total Component Cost		Construction Duration (months)	
Kilometers of new gravel Sidewalks planned		Labour Intensive Project (Yes/No)	
Kilometers of gravel Sidewalks to be rehabilitated			

Comments

Sidewalks: Paved

Total Component Cost		Construction Duration (months)	
Kilometers of new paved Sidewalks planned		Labour Intensive Project (Yes/No)	
Kilometers of paved Sidewalks to be rehabilitated			

Comments

Sidewalks: Tarred

Total Component Cost		Construction Duration (months)	
Kilometers of new tarred Sidewalks planned		Labour Intensive Project (Yes/No)	
Kilometers of tarred Sidewalks to be rehabilitated			

Comments

Sidewalks: Pedestrian Bridges

Total Component Cost		Construction Duration (months)	
Number of new Pedestrian Bridges planned		Labour Intensive Project (Yes/No)	
Number of Pedestrian Bridges to be rehabilitated			

Comments

6.2.4 Fire Fighting Facilities (Emergency Services)

Total Component Cost		Construction Duration (months)	
Number of Facilities to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of facilities to be built			

Comments

6.2.5 Disaster Management Facilities (Emergency Services)

Total Component Cost		Construction Duration (months)	
Number of Facilities to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of facilities to be built			

Comments

6.2.6 Health Services – Clinics (Community Services)

Health Services - Clinics

Total Component Cost		Construction Duration (months)	
Number of clinics to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of beds catered for			
Floor area of clinics			

Comments

6.2.7 Multi Purpose Centre/ Facility - Community Facilities (Community Services)

Community Facilities: Community Halls

Total Component Cost		Construction Duration (months)	
Number of community halls to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of community halls to be built			

Comments

Community Facilities: Recreational Facilities\ Sport Facilities

Total Component Cost		Construction Duration (months)	
Number of multi-purpose fields to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of sports types to be accommodated			

Comments

Community Facilities: Admin. Facilities

Total Component Cost		Number of admin. offices to be built	
Surface area of building		Number of officials	
Size of admin. offices to be built		Number of councilors	
Value of admin. offices to be built		Construction Duration (months)	
Size of council chamber		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

Community Facilities: Multi Purpose Centre

Total Component Cost		Construction Duration (months)	
Number of Offices\ Rooms to be accommodated		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of MPC to be built			

Comments

6.2.8 Parks and Open Spaces (Community Services)

Parks and Open Spaces

Total Component Cost		Construction Duration (months)	
Number of Parks to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of Park types to be accommodated			

Comments

6.2.9 Child Care Facilities /Nurseries

Facilities/ Nurseries

Total Component Cost		Construction Duration (months)	
Surface area of building		Number of staff	
Size of facility to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Value of facility to be built			

Comments

6.2.10 Beaches and Amusement Facilities

Beaches and Amusement Facilities

Total Component Cost		Construction Duration (months)	
Number of Facilities to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Size of facility to be built			
Value of facility to be built			

Comments

Note: Describe the planned structure

6.2.11 Cemeteries

Community Facilities: Cemeteries

Total Component Cost		Number of offices	
Access Roads (km)		Number of store rooms	
Internal Roads (km)		Construction Duration (months)	
Fencing (km)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of graves			
Number of ablutions			

Comments

6.2.12 Crematoriums

Crematoriums

Total Component Cost		Number of offices	
Access Roads (km)		Number of store rooms	
Internal Roads (km)		Construction Duration (months)	
Fencing (km)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of crematoriums			
Number of ablutions			

Comments

6.2.13 Fencing

Fencing

Total Component Cost		Construction Duration (months)	
Access Roads (km)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Internal Roads (km)			
Fencing (km)			

6.2.14 Local Amenities

Local Amenities

Total Component Cost		Number of staff	
Surface area of building		Construction Duration (months)	
Size of local Amenity to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Value of local Amenity to be built			

Comments

6.2.15 Municipal Abattoirs

Municipal Abattoirs

Total Component Cost		Number of offices	
Access Roads (km)		Number of store rooms	
Internal Roads (km)		Construction Duration (months)	
Fencing (km)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of Municipal Abattoirs Number of ablutions			

Comments

6.2.16 Libraries

Community Facilities: Libraries

Total Component Cost		Construction Duration (months)	
Area (m2)		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of Libraries facilities Planned			
Furniture			

Comments

6.2.17 Solid Waste Disposal Site

Solid Waste: Bulk Services: Solid waste removal site

Total Component Cost		Construction Duration (months)	
Number of new solid waste removal sites planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of solid waste removal sites to be rehabilitated		Volume to Cater \excepted life time	

Comments

Solid Waste: Bulk Services: Refuse transfer stations

Total Component Cost		Construction Duration (months)	
Number of new refuse transfer stations planned		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Number of refuse transfer stations to be rehabilitated			

Comments

6.2.18 Facilities for Animals

Facilities for Animals

Total Component Cost		Construction Duration (months)	
Number of Animal facilities to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of Animal facility to be built			

Comments

6.3 Social Institutions and Micro-Enterprises Infrastructure (E)

6.3.1 Street Trading

Street Trading

Total Component Cost		Construction Duration (months)	
Number of Trading Units to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of street trading to be built			

Comments

6.3.2 Markets

Markets

Total Component Cost		Construction Duration (months)	
Number of markets to be built		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	
Floor area of market to be built			

Comments

6.3.3 Local Tourism

Local Tourism

Total Component Cost		Construction Duration (months)	
		Level of Service to be provided (1-Basic, 2-Intermediate, 3-Full)	

Comments

7. TARGET DATES

ITEMS

	Item to track	Target Date dd/mm/yyyy
1	Design Report Approved	31-Jul-2017
2	Tenders Awarded	23-Jan-2018
3	Contract Signed	30-Jan-2018
4	Contractor on Site	13-Feb-2018
5	Contractual Conditions met	28-Feb-2018
6	Construction Completion Date	28-Jun-2018
7	Final Payment (Retention Payment is Final)	28-Jun-2019

8. DECLARATION (To be completed by the Municipal Manager)

I declare that we will implement the Project based on:

Declaration

1. Maximum use of local labour

Maximum use of local labour? Yes [√] No [ ]

Reasons if not possible:

2. Use of BEE i.t.o. the affirmable procurement policy

Use of BEE's i.t.o. policy? Yes [√] No [ ]

BEE stands for Black Economic Empowerment

4. Community involvement at project level

Community project involvement? Yes [√] No [ ]

Describe nature of Involvement if no, give reasons.

Through the office of the Project Steering Committee (PSC) we will compile records of all the local enterprises and services suppliers relevant to the proposed work. Contractors will be notified on the briefing session of arrangements to ensure that local enterprises and suppliers should be their first choice for procurement of goods and services.

5. The Municipality undertakes to Submit Monthly, Quarterly and Close Out Reports on prescribed dates

Report in prescribed format? Yes [√] No [ ]

If No, Reasons:

6. Approval of Project and Operation and Maintenance Budget

Resolution forwarded? Yes [ ] No [ ]

Resolution Number

Date of Resolution

Comments

7. Will the municipality maintain the asset?

Maintain the asset? Yes [ ] No [ ]

Measures to be taken if No:

8. Does municipality set, bill & collect tariffs?

Operate the system? Yes [ ] No [ ]

Measures to be taken if No:

9. Project form part of an approved three-year Capital Plan? Yes ☐ No ☐

IDP No:

Comments

10. Will the project form part of a Municipal Service Partnership? Agreement Signed? Yes ☐ No ☐

Duration of Contract

Date Signed

Value of Contract

Comments

11. Approval by Dept. of Water Affairs and Forestry of the technical report. Approved? Yes ☐ No ☐

DWAF reference number:

Date approved

Comments

12. Approval by Dept. of Minerals and Energy of the technical report. Approved? Yes ☐ No ☐

DME/ EMIS reference number:

Date approved

Comments

13. Does the project require an Environmental Impact Assessment? Yes/No? Yes No ☐

Duration (months)

14. Submit audits on prescribed dates Report in prescribed format? Yes ☐ No ☐

15. Has Council approved the Registration Form for submission? Approved? Yes ☐ No ☐

If not, why?

16. Labour Intensive (EPWP) Project only.

a) Will the DPW/EPWP guidelines be utilized on the project? Yes [√] No [ ]

If No, Reason:

b) Will the Consultant and Contractor appointed on the project employ personnel that comply with specific requirements of the CETA NQF qualifications Framework?

Yes [√] No [ ]

If No, Reason:

17. Undertake to implement the project in accordance with their Occupation health and Safety specification. Approved? Yes [√] No [ ]

If not, why?

9. CERTIFICATION BY MUNICIPAL MANAGER

Who warrants that he is authorized to do so and confirms that:

1. All details contained in this application are correct
2. The Municipality will immediately advise the Provincial MIG Manager if the project above receives funding from another source, and, that should funds be granted on this programme then, they will withdraw their funding application to other government grant funding programme.
   It is not illegal to "apply" for funds from two sources, however, it is illegal to accept money from two Government funding mechanisms for the same project. This is known as double funding.
3. The project is reflected in the Municipality's three-year Capital Development Plan.
4. The project has been approved by Council

Council Approval

The project has been approved by council Council Resolution No.:

On: dd/mm/yyyy

Signed by Municipal Manager on behalf of: Matjhabeng Local Municipality Date signed

Contact person

Title: Mr. Surname: Tsoaeli Initials: T

Signature

Email Address	thabiso.tsoaeli@matjhabeng.co.za	Fax	057 357 4393
Cellular	082 558 3161	Tel (Office)	057 391 3359

10. CERTIFICATION BY PMM (Provincial MIG Manager)

dd/mm/yyyy

Signed by Provincial MIG Manager on behalf of: Date signed

Contact person

Title: Surname: Initials:

Signature

Email Address		Fax	
Cellular		Tel (Office)	

11. CERTIFICATION BY SMM (Senior Manager MIG)

dd/mm/yyyy

Signed by Senior Manager MIG on behalf of:

Date signed

Contact person

Title: Surname: Initials:

Signature

Email Address

Fax

Cellular

Tel (Office)

12. CERTIFICATION BY SMF (Senior Manager Finances)

dd/mm/yyyy

Signed by Senior Manager Finances on behalf of:

Date signed

Contact person

Title: Surname: Initials:

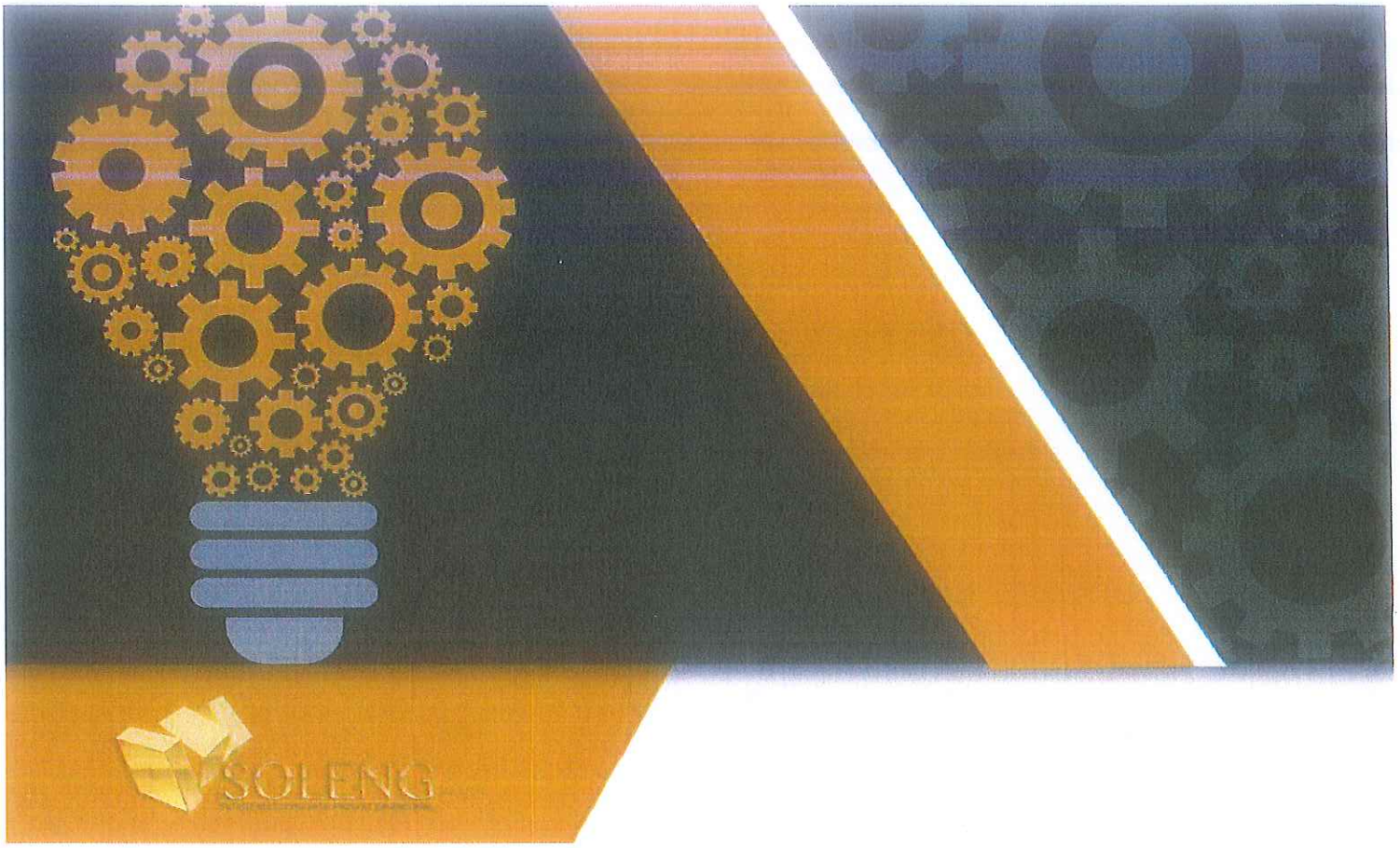
Signature

Email Address

Fax

Cellular

Tel (Office)



TECHNICAL REPORT

REPLACEMENT OF OLD GALVANISED PIPES WITH PVC PIPES AT ALLANRIDGE/ NYAKALLONG

REVISION 2

PREPARED FOR

MATJHABENG LOCAL MUNICIPALITY

Prepared By:	**SOLENG (PTY) LTD**
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REPORT NO.	REPORT DATE
2017002REP001-REV02	1 March 2019

TITLE

Technical Report for replacement of old galvanised pipes with PVC pipes at Allanridge/ Nyakallong.

CLIENT:	DISTRIBUTION LIST
Matjhabeng Local Municipality	**Tumelo Makofane (Care Taker)** Exec Director – Infrastructure Services **Nokwanda Xamesi** PMU Engineer – Infrastructure Services

Author(s)	Reviewed by
..... **Tebogo Losaba (Pr Techni Eng)** Principal Civil Engineer	..... **Mohau Matlawe (Pr Tech Eng Cand.)** Senior Project Engineer

Approval(s)	Approval(s)
..... **Mr. Tumelo Makofane** Acting Executive Director: Infrastructure Services **MATJHABENG LOCAL MUNICIPALITY**	..... **Mr. Thabiso Tsoaeli** Acting Municipal Manager **MATJHABENG LOCAL MUNICIPALITY**

Executive Summary

Allanridge and Nyakallong are small mine towns with a population of 18'230, situated 32km North of Welkom. The area receives water directly from Sedibeng Water which is then distributed through the community by means of 78km pipe network that consists of old steel pipes, asbestos and recently installed uPVC.

Several leaks have been reported as a result of aging infrastructure especially the old steel pipes, causing the municipality to lose in excess of 200ML of water per annum. The municipality had initially decided to replace approximately 2.6km of old steel pipes for approximately **R6 682 316,78 (Incl Vat)** over a period of 5 to 7 months, creating 40 to 50 employment opportunities valued at **R1'087'223.00** as direct cost. As a result of increase in prices and actual updated costs being received from the contractors and their suppliers, this project has now increased to **R7'690'399-65 (Incl. Vat, Incl. Contingencies).** This is an increase of 19.7%, which amounts to an additional amount of **R1'008'082,95 (Incl. Vat, Incl. Contingencies)** to the contract, from the approved budget of **R6'682'315-78 (Inclusive of VAT, Contingencies and Professional Fees).** It is further noted that the VAT amount also increased by 15% only after the project was approved and this has been taken into consideration.

The area consists of 17'256 (94%) of previously disadvantaged community with approximately **26%** (4'738) considered poor based on the income brackets as indicated in STATS SA. These are people who struggle in affording the basic services including water and electricity.

The need for a network refurbishment is therefore important as the municipality will be able to direct all potential savings from water losses towards service delivery especially for the poor. It is estimated that the municipality is losing in excess of **R4.65Mill** per annum due to water leaks. This is the money that can be saved through the implementation of this project.

Keywords

Valves, uPVC, Pipe, Hydraulics, Fire Hydrant, Pressure, Meter, Fittings.

Limitations

Designs and recommendations presented in this report are based on information and parameters received from the client and information gathered from the site investigations and are executed on that basis. Should the equipment be fabricated, installed or operated outside of these parameters, the design will be rendered invalid. SOLENG (Pty) Ltd shall not be liable for any loss or damage of any kind (including consequential loss) suffered by any third party, however such loss or damage may have been caused or sustained.

The client, by acting on this report, accepts these terms and conditions, indemnified and holds SOLENG (Pty) Ltd harmless against all such loss or damage.

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1. INTRODUCTION

The Matjhabeng Local Municipality has over the years experienced high water usage and maintenance costs due to the repairs of old galvanized steel pipes that breaks on continuous basis. The municipality has therefore embarked on a drive to save water and reduce maintenance costs by replacing old galvanized steel pipes with new uPVC pipes.

SOLENG (Pty) Ltd has therefore been appointed by Matjhabeng Local Municipality (**MLM**) as Consulting Engineers to provide engineering services in relation to the replacement of old galvanized pipes with uPVC pipes in Allanridge and Nyakallong. This is one of the initiatives by the municipality to eradicate old deteriorating infrastructure that has created excessive loss of water that cannot be accounted for.

2. REFERENCES

The following information and documents have been used as references for the compilation of this report.

- ✓ Various meetings and Interviews with municipality officials;
- ✓ Guidelines for Human Settlement Planning and Design
- ✓ Matjhabeng Integrated Development Plant (IDP) for Financial Year 2016/17
- ✓ Drawings of the Existing Services
- ✓ Interview with Engineer for Infrastructure Services
- ✓ Site Visit with Technical Services Supervisor.
- ✓ Statistics SA, Census 2011

3. GENERAL (BACKGROUND)

Allanridge (est. 1947) is a small Gold Mining Town situated 32km North of Welkom whereas Nyakallong is a township 3km south of Allanridge. Both towns were established to house miners working for a Lorraine Gold Mining Company.

The area is favorably located 1315m above sea level in the north-eastern Free State about 250 km south of Johannesburg and 160 km north of Bloemfontein. The nearest harbor is Durban, approximately 565 km from Matjhabeng (Welkom) by road and then linked to Allanridge and Nyakallong via R30.

Both Allanridge and Nyakallong are within the jurisdiction of the Matjhabeng Local Municipality **(see Figure 1 below)** with a population of approximately 2'068 and 16'162 respectively according to Statistics South Africa (StatsSA) Census 2011. The towns are considered rural with a population that is dominated by previously disadvantaged community.

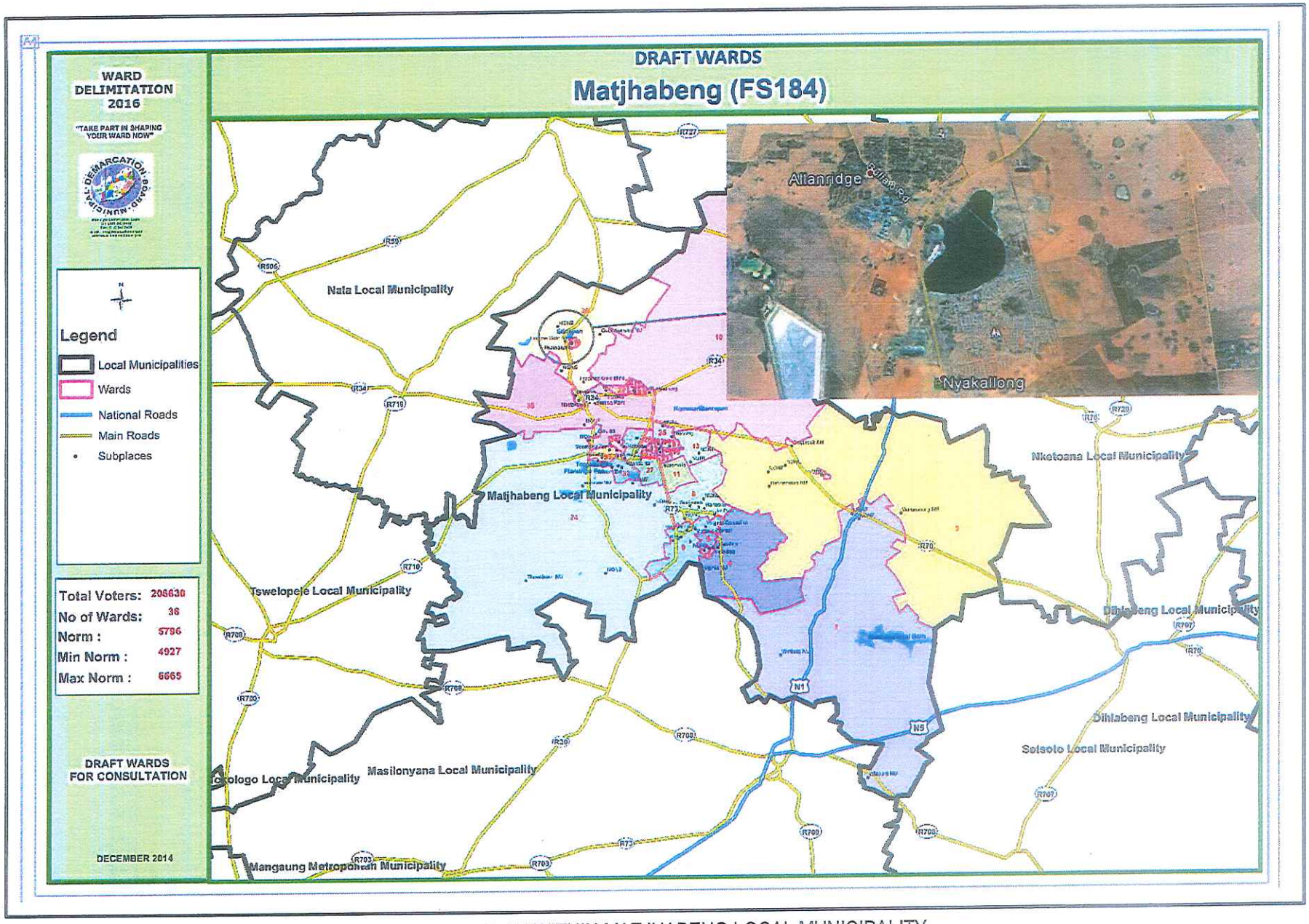

FIGURE 1: ARIAL MAP OF NYAKALLONG & ALLRANRIDGE WITHIN MATJHABENG LOCAL MUNICIPALITY

A summary of the Geographical Positioning and Temperatures at both Allanridge and Nyakallong is as follows:

	ALLANRIDGE	NYAKALLONG
Latitude	27° 45′ 10,83" S	27° 46′ 38,97" S
Longitude	26° 38′ 25,44" E	26° 38′ 57,86" E
Elevation (m)	1325	1312
Ave. Temperature, °C (Summer)	22	22
Ave. Temperature, °C (Winter)	9	9

The economies of Allanridge with Nyakallong, Welkom, Odendaalsrus and Virginia are dependent on farming and the gold mining industry. Although the gold mining industry has since declined, gold producers such as Harmony Gold, Lorraine Gold Mine, Target Mine, etc. are still active in the area and some are even expanding. Although mining still dominates the local economic scene by contributing 58% of the GDP of the area and 19% of the province, unemployment is still at approximately 15% while 5% is dependent on grants.

The Allanridge & Nyakallong fall in a semi-arid Region with a summer rainfall. The average daily temperature is 22° C in summer and 9° C in winter. Frost occurs normally for about 100 days of winter from middle May to the first week of September.

Allanridge and Nyakallong is supplied with treated potable water directly from Sedibeng Water. This water is treated at the Sedibeng's Bulkfontein Water Treatment Plant (WTP) situated outside Bothaville, See **Figure 2** below. The WTP plant has a capacity of 360ML/Day and it supplies to 24 towns as listed in **Table 1** below.

TABLE 1: List of places supplied by the WTP

	NAME OF TOWN / CONSUMER	MUNICIPAL JURISDICTION
1	Leeudoringstad	Maquassi Hills Local Municipality
2	Kgakala	
3	Witpoort	
4	Rulaganyang	
5	Wolmaransstad	
6	Tswellelang	
7	Makwassie	
8	Lebaleng	
9	Bothaville	Nala Local Municipality
10	Kgotsong	
11	Wesselsbron	
12	Monyakeng	

	NAME OF TOWN / CONSUMER	MUNICIPAL JURISDICTION
13	Allanridge	Matjhabeng Local Municipality
14	Nyakallong	
15	Odendaalsrus	
16	Kutlwanong	
17	Welkom	
18	Thabong	
19	Hennenman	
20	Phomolong	
21	Ventersburg	
22	Mmamahabane	
23	Virginia	
24	Meloding	

Out of the average 215Ml/Day of consumption catered by the WTP to all the above areas, only **3.25 Ml/d** is supplied to Allanridge and Nyakallong. No detailed information with regards to the consumption of other areas as this is outside the current scope of work.

Allanridge and Nyakallong are exposed to long sunny days together with high temperatures result in high atmospheric evaporative in the summer. The evaporative demand for the region average 2110 mm per year. The long-term yearly average rainfall is 550 mm of which 400 mm falls in summer. Due to the rainfall pattern, conditions for crop production are most favorable in summer. Most current crops produced in the region are also sensitive to frost.

With such climate conditions, water has become a scarce commodity in the area and should be well-preserved through radical water conservation initiatives. Although the municipality has indicated that not much growth is expected from the population in both Allanridge & Nyakallong, it still remains a priority to conserve water for the population currently in the areas.

4. PROJECT SCOPE OF WORK

Our scope of works for this project involves, Project Planning, Detailing, Supervision and Contract Management for the replacement of old galvanized pipes with uPVC pipes in both Allanridge & Nyakallong. It must be noted that only a portion of the total network will be replaced under this contract. No designs work is required for the replacement of the old pipes.

5. ALLANRIDGE TOWN

5.1. CONDITIONS OF EXISTING INFRASTRUCTURE

CHALLENGES

Allanridge **(See Drawing No. 201702/01/01)** receives water directly from Sedibeng 1ML/d Elevated Pressure Tank Reservoir (EPR) via a 250mm uPVC CL12 pipe. The EPR is situated on the Southern side of Allanridge on Buffalo Road. Please see **Figure 2** below for the location of the reservoirs and water treatment plant as well as **DWG 201702/00/00** which gives an overview of the supply bulk line from the reservoirs to Allanridge and Nyakallong.

The pipe delivers approximately 248ML/Annum (average of 21ML/Month or 0.7ML/day) at a pressure of 3,0 bar to the community of Allanridge. Due to the aging of the infrastructure, continuous pipe bursts have been experienced causing substantial water losses in the system as well as high maintenance costs.

Rusted steel pipes are not known to pose health hazards but only with exception to people with hemochromatosis. However, the steel pipes have aged, leaking profusely with urgent need for replacement.

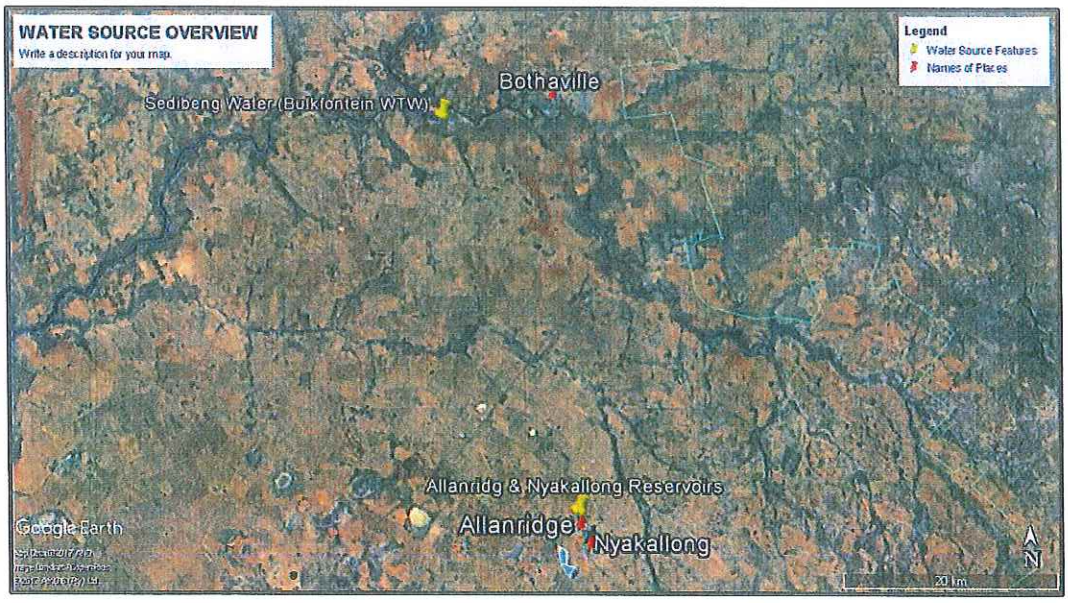

FIGURE 2: LOCATION OF ALLANRIDGE AND NYAKALLONG RESERVOIRS & THE BALKFONTEIN WATER TREATMENT PLANT

PIPE NETWORK & WATER SOURCE

As indicated above, water is delivered to Allanridge by Sedibeng Water's elevated reservoir via a 250mm uPVC CL12 pipe. The town is equipped with 33km of the total network with various diameter pipes ranging from 100mm diameter to 250mm diameter, see an overview of the pipe network in **Table 2** below.

TABLE 2: Overview of the Allanridge pipe network.

PIPE MATERIAL	APPROXIMATE PIPE LENGTHS	AGE	CONDITION	RECOMMENDATION
uPVC	820m	<40yrs	Pipes recently replaced	No action required.
Galvanized Steel	893m	>50yrs	Steel rusted, with excessive water leaks according to the technical team. Pipe are damaged beyond state of repair.	Pipes to be replaced as a matter of urgency under this contract.
Asbestos	31.3km	>50yrs	Pipes breaking regularly. The condition is not as urgent as the steel pipes but still requires attention.	Pipes to be replaced in the near future as deterioration is escalating.
TOTAL PIPE LENGTH	**33.00 km**			

It is imperative that the water network infrastructure is in good condition as most people are relying on it. 820m of the pipes have already been replaced by uPVC as indicated above, only 893m of the old galvanized pipes will be replaced under this contract, see Drawing No.201702/01/01. The rest of the AC pipes will still be replaced in phases by the municipality in accordance with their Infrastructure Development Plan.

The reservoir for Allanridge has since been taken out of commission and is now been vandalized. Sedibeng supplies water directly into the network system at a pressure of 3,0 bar.

One of the other challenges is that there aren't sufficient valves to allow for isolation within the network during maintenance. When the technical team experienced breakages, they are forced to close and drain the entire network so that they may commence with repairs, this is a wasteful operational expenditure. Existing Isolation Valves and Fire Hydrants will also be checked for functionality and compliance as some of the valves were found leaking while others are tight and cannot be opened or closed. Allowance for repairs and replacement has been made in the contract for such work.

Allanridge is a mine town but with very low industrial activities that do not pose a lot of fire risk. Fire hydrants were noticed in Allanridge and are sufficient for the area. No additional fire hydrants will be required in Allanridge.

PRESSURE MANAGEMENT

As indicated above, Allanridge and Nyakallong area are currently receiving water directly from Sedibeng Water through a 250mm diameter pipe at a pressure of approximately 3,0 bar. This pressure is within the design limit and is correct for the establishment. However, it was indicated that HDPE pressure couplings

tends to leak and dislocate at joints' where the HDPE pipe from house connects to the main water pipe supply. This could be as a result of poor workmanship.

When water is not been utilized, pressure builds up in the entire system causing vulnerable areas where pipes are not properly installed to dislocate. This causes leaks in the system.

As part of intervention, allowance is been made for inspecting stands where leaks have been identified, for repairs under this contract.

HOUSE CONNECTIONS

All house connections in Allanridge are metered. No reports have been made on meter bypass, vandalism or theft. However, it is advised that all water meters in the area be inspected and replaced with new efficient meters. In the future. Total costs for this intervention is indicated under the financial section of this report.

The current meters are old and could be posing a high possibility of inaccurate readings.

5.2. CURRENT POPULATION

In accordance with the Municipality's Department for Water Demand and StatsSA Census 2011, Allanridge has a population of 2'068. Table 3 below gives a clear overview of the population in the area as well as the available access to basic services, which is water.

TABLE 3: Population Overview

TOWN	POPULATION	POPULATION ACCORDING TO RACE (PDI)	POOR & GRANT DEPENDANT HOUSEHOLDS		AVE. HOUSEHOLD SIZE	TOTAL NO. OF HOUSEHOLDS	WORKING POPULATION	
			NO INCOME	HAVE INCOME /GRANTS (threshold <R1'100.00			Threshold > R1'100.00	POOR (Threshold < R1'100.00 (Excl. Grants)
Allanridge	2'068	1'175	118	96	2.9	713	609	81

According to the Municipal Infrastructure Grant (MIG), a definition of poor people is those with a household expenditure of less than R1'100 per month per household.

While 1'175 of the population is from previously disadvantaged group, approximately **14.3%** (295) of the households in Allanridge are considered poor as their household expenditure is less than R1'100.00 per month and cannot afford to pay for services. This figure includes the elderly persons that are dependent on grants or pensions, but excluding children under the age of 15 years.

5.3. WATER DEMANDS AND LOSSES

By preserving water and implementing preventive maintenance, the municipality is able save costs that can be directed to providing other basic services to the community. For a population of 2'068, Water consumption is measured to an average of 21 ML per month according to the information provided by the municipality, see overview of the water demand in Table 4 below.

TABLE 4: Overview of Water Demand

TOWN	METERED HOUSEHOLD /DOMESTIC	METERED NON-DOMESTIC	SYSTEM INPUT Q(ML/Year)	BILLED DOMESTIC (ML/Year)	BILLED NON DOMESTIC (ML/Year)	WATER LOSSES (ML/Year)	LOSS %
Allanridge	281	19	247.86	122.65	19.46	105.76	43%

In view of the above, the municipality is currently losing approximately 105.76ML of water per year. At an estimated price of R17.12 per kL, this is approximately **R1.8Mill** of lost revenue per annum. This is money that could be channeled to preventive maintenance and assist with provision of basic services in other areas.

When considering the age of infrastructure, the above losses are expected and it is under this project that the municipality will be able to solve the problems by addressing the following:

- Leaking water pipes at households downstream of the flow meter, leaking pipe networks, leaking and replacing inaccurate meters.
- Human behavior related, where people are in disregard of water conservation initiatives. The municipality needs to invest in educational programs for saving water.
- High water consumption by business and factories by implementing a high usage fee.

5.4. PROPOSED REFURBISHMENTS / RECOMMENDATIONS

The municipality has experienced financial losses through water leaks as a result of old infrastructure. In a draught stricken world, saving water is one of the priorities that must be treated with urgency for the sake of sustaining life and the environment. Without water, it is also difficult to ensure service delivery to those that have no access.

As indicated above, Allanridge has a population of approximately 2'068 relying on municipality for water supply. With savings from water losses, the municipality will be able to ensure that 100% of the population in the Allanridge area has access to water, one of the basic services.

It is therefore recommended that:

- 893m of old galvanized steel pipes that are currently giving a problem be replaced with new uPVC water pipes under the current contract. This will leave outstanding a total of 31.1km of Asbestos to still be replaced under the next phase of the project;

- That all valves and hydrants be inspected for repairs or replacement and that additional 20 valves be installed to allow isolation during maintenance.
- That all leaking pipes at households be repaired;

5.5. COST ESTIMATES & BENEFITS

In view of the above, total estimated costs for the replacement and repairs to the existing pipe network is indicated below for the total scope. It further noted that the project costs have increased as per reasons stated in our attached letter in **Annexure 1**, please refer.

TABLE 5: Estimated Project Costs for Allanridge

ITEM	DESCRIPTION	TENDER AMOUNT	PROPOSED AMOUNT	DIFFERENCE
1	Site Clearance	R 65 482,50	R 86 812,50	R 21 330,00
2	Excavations	R 197 844,00	R 215 453,50	R 17 609,50
3	Excavations in rock.	R 12 381,88	R 24 645,00	R 12 263,12
4	Breaking of existing services.			R -
5	Supply & Lay 250mm Dia. uPVC Class 12 pipe.	R 960,00	R 2 521,53	R 1 561,53
6	Supply & Lay 110mm Dia. uPVC Class 12 pipe.	R 466 226,36	R 599 866,58	R 133 640,22
7	Bedding	R 93 040,00	R 94 370,00	R 1 330,00
8	Backfilling.	R 89 100,00	R 89 100,00	R -
9	Road Crossing	R 111 006,00	R 111 006,00	R -
10	Construction of Valve & Meter Boxes	R 63 898,50	R 78 628,90	R 14 730,40
11	Supply & Installation of Valves & Meters	R 114 753,63	R 125 225,93	R 10 472,30
12	Reinstate Existing Services (Paving)	R 17 592,50	R 18 462,50	R 870,00
13	Reinstate Existing Services (Concrete Slabs)	R 2 500,00	R 2 500,00	R -
14	Reinstate Existing Services (Grass)	R 250,00	R 250,00	R -
15	Repair of leaks at house connections were necessary			
16	Installation of New Flow Meters at houses including connections.			
	Sub-Total 1	**R 1 235 035,36**	**R1 448 842,44**	**R 213 807,08**
	Plus: Preliminaries & Generals	R 656 170,00	R 869 370,00	R 213 200,00
	Sub-Total 2	**R 1 891 205,36**	**R 2 318 212,44**	**R 427 007,08**
	Plus: Contingencies	R 189 120,54	R 231 821,24	R 42 700,71
	Sub-Total 3	**R 2 080 325,90**	**R 2 550 033,68**	**R 469 707,78**
	Plus: Allowance for Professional Fees	R 857 857,10	R 857 857,10	R -
	Sub-Total 4	**R 2 938 183,00**	**R 3 407 890,78**	**R 469 707,78**
	Plus: VAT	R 440 727,45	R 511 183,62	R 70 456,17
	TOTAL PROJECT COSTS	**R 3 378 910,45**	**R 3 919 074,40**	**R 540 163,95**

Total construction costs for Allanridge shall be **R3'919'074-40 (Incl. Vat, Contingencies and Professional Fees)**, an increase of R540'163-95 of approximately **16%.**

5.6. OPERATIONS & MAINTENANCE COST ESTIMATES

A reliable supply of clean and safe water at the required quantity is the first and most critical municipal service that people require. Therefore, adequate operation and maintenance of existing infrastructure is of utmost importance to ensure sustainable delivery of service to the community.

OPERATIONS

It is important that rated operating pressure of a pipe should never be exceeded even for short periods such as under water hammer conditions. This includes negative pressures that should be avoided under all operating conditions. It is therefore required that pressure gauges be installed at each fire hydrant and monitored at all times for possible surges or drop in system pressures. This has been accommodated as part of the refurbishment of the network.

MAINTENANCE

Maintenance requirements of pipes includes the following:

- Check for pipe leaks through appropriate active leak detection methods at regular intervals.
- Flush pipes to remove accumulated sediments, especially those pipes where low velocities are likely to occur such as dead-end pipes.

Models are available to determine when pipe should be replaced, i.e. when the cost of replacing it is lower than the cost of on-going maintenance. A rule of thumb of three failures in the life of a pipe section is sometimes used as an indication that this point has been reached and the pipe should be replaced.

Regular inspections of valves, air release valves, flow meters and fire hydrants is necessary and should be performed by a qualified artisan or plumber.

On every repairs, it is important that a pipe section be disinfected to ensure quality at all times.

Below is an estimate of operations & maintenance costs of pipe network over a period of 5 years.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	ITEM TOTAL
Pipes	R49 336,93	R54 270,62	R59 697,69	R65 667,46	R72 234,20	**R301 206,90**
Valves, Meters and Gauges	R65 782,58	R72 360,83	R79 596,92	R87 556,61	R96 312,27	**R401 609,20**
ANNUAL TOTAL	**R115 119,51**	**R126 631,46**	**R139 294,60**	**R153 224,06**	**R168 546,47**	**R702 816,10**

The above estimates are exclusive of staff remuneration and other disbursements. The above is for material and testing equipment costs at rental for the pipework that requires replacement. These costs may increase with larger network areas.

6. NYAKALLONG TOWNSHIP

6.1. CONDITIONS OF EXISTING INFRASTRUCTURE

CHALLENGES

Nyakallong **(See Drawing No. 201702/02/01)** receives water directly from Sedibeng 29ML Resevoir via a 200mm uPVC CL12 pipe. The reservoir is located in Allanridge on Buffalo Road, refer to **Figure 2 above** as well as DWG 201702/00/00 which gives an overview of the supply bulk line. The pipe delivers approximately 909.1ML/Annum (average of 75.8ML/Month or 2.5Ml/Day) at a pressure of 3.0 bar to the community of Nyakallong. Due to the aging of the infrastructure, continuous pipe bursts have been experienced causing substantial water losses in the system as well as high maintenance costs. HDPE couplings are also dislocating at house connections even at an allowable pressure of 3 bar and above.

Rusted steel pipes are not known to pose health hazards but only with exception to people with hemochromatosis. However, the steel pipes have aged, leaking profusely with urgent need for replacement.

PIPE NETWORK & WATER SOURCE

As indicated above, water is delivered to Nyakallong by Sedibeng Water via a 200mm uPVC CL12 pipe. However, there is a total of 45km of the total network with various diameter pipes ranging from 100mm diameter to 160mm diameter, see an overview of the pipe network in **Table 6** below.

TABLE 6: Overview of the Nyakallong pipe network.

PIPE MATERIAL	APPROXIMATE PIPE LENGTHS	AGE	CONDITION	RECOMMENDATION
uPVC	42.3km	<50yrs	Pipes replaced with development with no challenges reported or need for replacement.	No action required.
Asbestos	1.0km	>50yrs	Pipes breaking regularly. The condition is not as urgent as the steel pipes but still requires attention.	Pipes to be replaced in the near future as deterioration is escalating.
Galvanized Steel	1.7km	>50yrs	Steel rusted, with excessive water leaks according to the technical team. Pipe are damaged beyond state of repair.	Pipes to be replaced as a matter of urgency under this contract.
TOTAL PIPE LENGTH	**45.00 km**			

About 98% of the water supplied is through a local authority or local water scheme while 2% is from boreholes. It is therefore imperative that the water network infrastructure is in good condition as most people are relying on it. While the rest of the pipe network is equipped with uPVC pipes as indicated above, only 1.7km of the old galvanized pipes will be replaced under this contract out of 45km, see Drawing No.201702/02/01.

The reservoir for Nyakallong is also out of commission. The reservoir has since been vandalized. Sedibeng supplies water directly into the network system at a pressure of 3.0 bar.

In addition to the above replacements. Isolation Valves and Fire Hydrants will also be checked for functionality and compliance as some of the valves were found leaking while others are tight and cannot be opened or closed. Some of the fire hydrants were removed as they were damaged by members of the community, allowance for repairs and replacement has been made in the contract for such work.

PRESSURE MANAGEMENT

As indicated above, Nyakallong is currently receiving water directly from Sedibeng Water through a 200mm diameter pipe at a pressure of approximately 3.0 bar. This pressure is within the design limit and is correct for the establishment. However, it was indicated that HDPE pressure couplings tends to leak and dislocate at joints' where the HDPE pipe from house connects to the main water pipe supply. This could be as a result of poor workmanship.

When water is not been utilized, pressure builds up in the entire system causing vulnerable areas where pipes are not properly installed to dislocate. This causes leaks in the system.

HOUSE CONNECTIONS

As indicated above, Nyakallong is currently receiving water directly from Sedibeng Water through a 200mm diameter pipe at a pressure of approximately 3,0 bar. This pressure is within the design limit and is correct for the establishment. However, it was indicated that HDPE pressure couplings tends to leak and dislocate at joints' where the HDPE pipe from house connects to the main water pipe supply. This could be as a result of poor workmanship and the situation worsened by pressures that build up at night when there are no tabs opened.

A total of 86 houses in Nyakallong have meters installed at the back of the yard. This has become an access challenge for the municipality staff as they are unable to enter the yards at some other houses to take meter readings. These meters are also old and leaking all the time. These meters will be moved to the front for easy access that will allow the municipality to account, this has been allowed for in the contract.

6.2. CURRENT POPULATION

In accordance with StatsSA Census 2011, population in Nyakallong is 16'162. **Table 7** below give a clear overview of the population in the areas as well as the available access to basic services, which is water.

TABLE 7: Population Overview for Nyakallong

TOWN	POPULATION	POPULATION ACCORDING TO RACE (PDI)	POOR & GRANT DEPENDANT HOUSEHOLDS		AVE. HOUSEHOLD SIZE	TOTAL NO. OF HOUSEHOLDS	WORKING POPULATION	
			NO INCOME	HAVE INCOME /GRANTS (threshold <R1'100.00			Threshold > R1'100.00	POOR (Threshold < R1'100.00 (Excl. Grants)
Nyakallong	16'162	16'081	853	394	3.7	4'368	3'288	944

According to the Municipal Infrastructure Grant (MIG), a definition of poor people is those with a household expenditure of less than R1'100 per month per household.

While 16'081 of the population is from previously disadvantaged group, approximately **13.6%** (2'191) of the households in Allanridge are considered poor as their household expenditure is less than R1'100.00 per month and cannot afford to pay for services. This figure includes the elderly persons that are dependent on grants or pensions, but excluding children under the age of 15 years.

6.3. Water Demand & Losses

By preserving water and implementing preventive maintenance, the municipality is able save costs that can be directed to providing other basic services to the community. For the population of 16'162, water consumption has been measured to an average of 76ML per month, according to the information provided by the municipality, see an overview of water demand in Table 8 below.

TABLE 8: Overview of Water Demand

TOWN	METERED HOUSEHOLDS / DOMESTIC	METERED NON-DOMESTIC	SYSTEM INPUT Q(ML/Annum)	BILLED DOMESTIC (ML/Annum)	BILLED NON DOMESTIC (ML/Annum)	WATER LOSSES (ML/Annum)	LOSS %
Nyakallong	3'831	27	909.08	653.25	89.50	166.34	18.3%

In view of the above, the municipality is currently losing 166.34ML of water per year. At an estimated price of R17.12 per kL, this is approximately **R2.85Mil** of lost revenue per annum. This is money that could be channeled to preventive maintenance and assist with provision of basic services in other areas.

When considering the age of infrastructure, the above losses are expected and through this project the municipality will be able to address the following:

- Leaking water pipes at households downstream of the flow meter, leaking pipe networks, leaking and inaccurate meters.
- Human behavior related, where people are in disregard of water conservation initiatives. It has been proven that Educational programs around water saving can reduce water losses by substantial difference.
- High water consumption by business and factories by implementing a high usage fee.

With efficient measuring, the municipality will be able to identify water lost due to theft and be able to act on it. It is therefore important that accountability through efficient measurement is maintained. It must however be noted that interventions from this project will not create a 100% lead proof water network. It is expected and normal that a loss of approximately 10% will be experienced.

6.4. PROPOSED REFURBISHMENTS / RECOMMENDATIONS

The municipality has experienced financial losses through water leaks as a result of old infrastructure. In a draught stricken world, saving water is one of the priorities that must be treated with urgency for the sake of sustaining life and the environment. Without water, it is also difficult to ensure service delivery to those that have no access.

As indicated above, Nyakallong has a population of approximately 16'162 relying on municipality for water supply. With savings from water losses, the municipality will be able to ensure that 100% of the population in the Allanridge area has access to water, one of the basic services.

It is therefore recommended that:

- 1.7km of old galvanized steel pipes be replaced with new uPVC water pipes;
- That all valves, flow meters and hydrants be inspected for repairs, refurbishment or replacement.
- That all leaking pipes at households be repaired;
- That all flow meters installed at the back of the yard be moved to the front to all access of municipal staff for meter reading. This also has advantages of municipality staff noticing a malfunctioning or leaking meter before a lot of water is lost.

6.5. COST ESTIMATES & BENEFITS

In view of the above, total estimated costs for the replacement and repairs to the existing pipe network is indicated below. It further noted that the project costs have increased as per reasons stated in our attached letter in **Annexure 1**, please refer.

TABLE 9: Estimated Project Costs for Nyakallong

ITEM	DESCRIPTION	TENDER AMOUNT	PROPOSED AMOUNT	DIFFERENCE
1	Site Clearance	R 124 611,25	R 149 671,25	R 25 060,00
2	Excavations	R 356 933,31	R 379 977,51	R 23 044,20
3	Excavations in rock.	R 26 698,00	R 64 870,00	R 38 172,00
4	Breaking of existing services.			R -
5	Supply & Lay 110mm Dia. uPVC Class 9 pipe.	R 553 744,02	R 657 814,29	R 104 070,28
6	Bedding			R -
7	Backfilling.	R 90 603,00	R 103 477,50	R 12 874,50
8	Road Crossing	R 120 400,00	R 120 400,00	R -
9	Construction of Valve & Meter Boxes	R 165 186,00	R 296 136,00	R 130 950,00
10	Supply & Installation of Valves & Meters	R 67 823,50	R 76 657,00	R 8 833,50
11	Reinstate Existing Services (Paving)	R 88 125,14	R 124 961,23	R 36 836,09
12	Reinstate Existing Services (Concrete Slabs)	R 12 852,50	R 16 850,00	R 3 997,50
13	Reinstate Existing Services (Grass)	R 2 850,00	R 4 610,00	R 1 760,00
14	Repair of leaks at house connections were necessary	R 1 140,00	R 1 320,00	R 180,00
15	Installation of New Flow Meters at houses including connections.			
Sub-Total 1		**R 1 610 966,72**	**R 1 996 744,78**	**R 385 778,07**
	Plus: Preliminaries & Generals	R 794 858,87	R 984 540,00	R 189 681,13