

C 2.2. BILL OF QUANTITIES

APPOINTMENT OF A PROFESSIONAL SERVICE PROVIDER: WATER QUALITY MONITORING (THREE YEARS CONTRACT) FOR NKANGALA DISTRICT MUNICIPALITY

a) Chemical Analysis-Routine Samples for tap water, water works &Reservoirs

- Please indicate with a yes (Y) the elements that are accredited and with a no (N) the elements that **are not** accredited. (Accreditation of elements to be verified with the SANS Certificates)
- A minimum of 60% accreditation with SANAS in all the parameters will be acceptable $\times 100 = \%$
- Compulsory Accredited Elements (C)

Element	Compulsory Accredited Elements (C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Total Dissolved Solids							
Suspended Solids,							
Nitrate & Nitrite as N	C						
Chloride as Cl	C						
Total Alkalinity as CaCO_3	C						
Fluoride as F	C						
Sulphate as SO_4	C						
Total Hardness as CaCO_3							
Calcium Hardness as CaCO_3							
Magnesium Hardness as CaCO_3							
Calcium as Ca	C						
Magnesium as Mg							

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Sodium as Na	C						
Potassium as K	C						
Iron as Fe	C						
Manganese as Mn							
Conductivity in mS/m	C						
pH value at 25°C	C						
pHs value by 21°C	C						
Langelier Saturation Index							
Turbidity as N.T.U							
Colour							
Free Residual Chlorine							
Aluminium as Al							
SubTotal Cost				R			
Accreditation %							

b) Bacteriological Analysis: Routine Samples for tap water, water works &Reservoirs

Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Heterotrophic Plate count per 1.0 ml	C						
Total Coliform Bacteria per 100 ml	C						
Typical Faecal Coliform Bacteria per 100 ml	C						
Escherichia Coli per 100 ml	C						

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SUB TOTAL							
	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Vibrio cholera (as and when)							
S. typhi (as and when)							
Giardia lamblia (as and when)							
Cryptosporidium (as and when)							
Sub Total Cost				R			
Accreditation %							

c) Chemical Analysis-Full SANS 241

Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Physical requirements	C						
Colour as Pt							
Conductivity at 25°C	C						
Dissolved Salts							
Odour							
pH value at 25°C	C						
Taste							
Turbidity- NTU							

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

	Macro Determinants						
Ammonia as N							
Calcium as Ca	C						
Chloride as Cl	C						
Fluoride as F	C						
Magnesium as Mg							
Nitrate & Nitrite as N	C						
Potassium as K	C						
Sodium as Na	C						
Sulphate as SO ₄							
Zinc as Zn							
	Micro Determinants						
Aluminium as Al							
Antimony as Sb							
Arsenic as As							
Cadmium as Cd							
Chromium as Cr							
Cobalt as Co							
Copper as Cu							
Cyanide as CN							
Iron as Fe							
Lead as Pb							
Manganese as Mn							
Mercury as Hg							
Nickel as Ni							
Selenium as Se							
Vanadium as V							
Aluminium as Al							
Antimony as Sb							

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SubTotal Cost				R				
Accreditation %								
Organic Determinants								
Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total	
Total Organic Carbon (TOC)								
Total Trihalomethanes (THM)								
Phenolic Compounds								
SubTotal Cost				R				
Accreditation %								
Bacteriological Analysis Full SANS								
Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total	
Heterotrophic Plate count per 1 ml	C							
Total Coliform bacteria per 100 ml	C							
Faecal Coliform per 100 ml	C							
Escherichia Coli per 100 ml	C							
Vibrio cholerae								
S. typhi								
SubTotal Cost				R				
Accreditation %								

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

d) SEWAGE ANALYSIS

Raw Sewage-Chemical							
Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Total Dissolved Solids							
Suspended Solids							
Settleable Solids							
Conductivity in mS/m							
4-Hours Oxygen Absorbed							
Chemical Oxygen Demand							
Free & Saline Ammonia as N							
Nitrate NO ₃ as N	C						
Nitrite NO ₂ as N	C						
Ortho Phosphate PO ₄ as P	C						
Total Alkalinity as CaCO ₃							
pH Value	C						
Sodium as Na	C						
Potassium as K	C						
Sulphate as SO ₄							
Kjeldahl Nitrogen as N							
SubTotal Cost				R			
Accreditation %							

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Sewage Process Water (Ariation Basin, Biol-Filters, Bio-Disc) : Chemical							
Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Mixed Liquor Suspended Solids							
Settleable Solids							
SVI							
Free & Saline Ammonia as N							
Nitrate NO ₃ as N	C						
Nitrite NO ₂ as N	C						
Total Alkalinity	C						
pH – Value	C						
SubTotal Cost			R				
Accreditation %							

Sewage Final Effluent-Chemical							
Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
Total Dissolved Solids							
Suspended Solids							
Settleable Solids							

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Conductivity in mS/m							
4-Hours Oxygen Absorbed							
Chemical Oxygen Demand							
Free & Saline Ammonia as N							
Nitrate NO ₃ as N	C						
Nitrite NO ₂ as N	C						
Ortho Phosphate PO ₄ as P	C						
Total Alkalinity as CaCO ₃	C						
pH Value	C						
Sodium as Na	C						
Potassium as K	C						
Chloride as Cl	C						
Sulphate as SO ₄	C						
Residual Chlorine as Cl ₂	C						
SubTotal Cost			R				
Accreditation %							

Sewage Final Effluent-Bacteriological Analysis							
Element	Compulsory SANAS Accreditation(C)	SANAS Accredited	Not SANAS Accredited	Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Faecal Coliform per 100 ml	C						
Heterotrophic Plate count per 1 ml	C						
Total Coliform bacteria per 100 ml	C						
	SubTotal Cost		R				
	Accreditation %						
	TOTAL ACCREDITATION		%				
				Amount 2021/22	Amount 2022/2023	Amount 2023/2024	Total
	GRAND TOTAL (ADD ALL SUBTOTAL COSTS OF SAMPLES PRICES EXCLUDING VAT)		R				
	VAT INCL		R				
	GRAND TOTAL PER ANNUM (INCLUDING VAT)		R				

TOTAL AMOUNT (INCLUDING VAT) TO BE FORWARDED TO FORM C 1.1 (FORM OF OFFER)

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2