b.n. kirk (natal)cc
Reg.No. CK 1994/015428/23
WATER , SEWAGE & INDUSTRIAL EFFLUENT TESTING LABORATORY
031 205 1245
www.bnkirk.co.za
45 Eaton Road
KwaKhangela
DURBAN
P.O. Box 30140
Mayville, 4058
tel: +27 031 205 1245
fax: +27 031 205 6904
VAT # 4760150013

ilac-MRA
sanas Testing Laboratory T0535

CERTIFICATE OF ANALYSIS - BN Kirk (Natal) cc

CLIENT:	Fairview Estate	JOB No: F8-1														
WORKS:	Fairview Estate															
ADDRESS:	X1 Esenembe Road, Ballito, Compensation															
ATTENTION:	***Griff Sambrook***	REPORT DATE:	2025-02-17	2025-03-18	2025-04-10											
eMail:	utilities@fairviewkzn.co.za; griff@hydrateirrigation.co.za	DATE ANALYSED:	2025-01-31	2025-02-28	2025-03-20											
		DATE RECEIVED:	2025-01-30	2025-02-27	2025-03-19											
In accordance with the visit schedule and procedure QP7.3		SAMPLE TIME:	10:30	11:20	10:00											
		SAMPLER:	Morne	Morne	Morne											

ANALYTICAL RESULTS

1		2	3	4												
Determinand	**Test Method No**	**SANS 241-1:2015 Physical, aesthetic, operational, chemical and Microbiological determinands**			**2025**											
		Risk	**Unit**	**Standard limits [a]**	**30-01**	**27-02**	**19-02**									
BOREHOLE 108 (Raw Inlet Tank)			**Batch No**		**202501ME**	**202502MT**	**202503KC**									
Physical and aesthetic determinands				Sample No:	**000648/25**	**001425/25**	**002094/25**									
pH at 25°C [b] (on site)	P09/042	*Operational*	*pH units*	*≥ 5 to ≤ 9.7*	7.1	7.1	6..6									
Turbidity **{A}**	P09/045	*Operational* [a]	*NTU*	*≤ 1*	2.3	1.5	9.9									
		Aesthetic	*NTU*	*≤ 5*	2.3	1.5	9.9									
Conductivity at 25°C	P09/044	*Aesthetic*	*mS/m*	*≤ 170*	93	87	60									
Chemical determinands - micro-determinands																
Total Chlorine (on site)	P09/025	*ns*	*ns*	*ns*		1.89	>5.00									
Free Chlorine [d] (on site)	P09/025	*Chronic health*	*mg/L*	*≤ 5*		1.53	>5.00									
Iron as Fe **{A}**	#	*Chronic health*	*mg/L*	*≤ 2.0*	0.080	<0.050	<0.050									
		Aesthetic	*mg/L*	*≤ 0.3*	0.080	<0.050	<0.050									
Manganese as Mn **{A}**	#	*Chronic health*	*mg/L*	*≤ 0.5*	0.160	<0.050	<0.050									
		Aesthetic	*mg/L*	*≤ 0.1*	0.160	<0.050	<0.050									

Bacteriological Determinands					30-01	27-02	19-03									
Heterotrophic plate count[f]	P09/103	*Operational*	*cfu per ml*	*< 1000*	0	0	0									
Total coliforms[e]	P09/102	*Operational*	*cfu per 100ml*	*< 10*	0	0	0									
Faecal coliforms [b] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0									
E.coli [a] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0									
Primary Inlet from 05-2024 (Holding Tank Primary Outlet - Jan to April 2024)			**Batch No**		**202501ME**	**202502MT**	**202503KC**									
Physical and aesthetic determinands				Sample No:	**000649/25**	**001426/25**	**002095/25**									
pH at 25°C [b] (on site)	P09/042	*Operational*	*pH units*	*≥ 5 to ≤ 9.7*	6.8	7.4	6.6									
Turbidity **{A}**	P09/045	*Operational* [a]	*NTU*	*≤ 1*	2.5	1.2	2.2									
		Aesthetic	*NTU*	*≤ 5*	2.5	1.2	2.2									
Conductivity at 25°C	P09/044	*Aesthetic*	*mS/m*	*≤ 170*	57	87	93									
Chemical determinands - micro-determinands																
Total Chlorine (on site)	P09/025	*ns*	*ns*	*ns*		3.4	4.8									
Free Chlorine [d] (on site)	P09/025	*Chronic health*	*mg/L*	*≤ 5*		3.1	4.5									
Iron as Fe **{A}**	#	*Chronic health*	*mg/L*	*≤ 2.0*	0.110	<0.050	0.070									
		Aesthetic	*mg/L*	*≤ 0.3*	0.110	<0.050	0.070									
Manganese as Mn **{A}**	#	*Chronic health*	*mg/L*	*≤ 0.5*	0.290	<0.050	<0.050									
		Aesthetic	*mg/L*	*≤ 0.1*	0.290	<0.050	<0.050									
Bacteriological Determinands					30-01	27-02	19-03									
Heterotrophic plate count[f]	P09/103	*Operational*	*cfu per ml*	*< 1000*	6	0	18									
Total coliforms[e]	P09/102	*Operational*	*cfu per 100ml*	*< 10*	0	0	0									
Faecal coliforms [b] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0									
E.coli [a] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0									
Holding Tank Primary Outlet - May - Dec 2024 (Concrete Reservoir - Jan to April 2024)																
Physical and aesthetic determinands				Sample No:	**000650/25**	**001427/25**	**002096/25**									
pH at 25°C [b] (on site)	P09/042	*Operational*	*pH units*	*≥ 5 to ≤ 9.7*	7.2	7.4	6.7									
Turbidity **{A}**	P09/045	*Operational* [a]	*NTU*	*≤ 1*	1.8	2.5	2.5									
		Aesthetic	*NTU*	*≤ 5*	1.8	2.5	2.5									
Conductivity at 25°C	P09/044	*Aesthetic*	*mS/m*	*≤ 170*	69	65	59									
Chemical determinands - macro determinands																
Total Chlorine (on site)	P09/025	*ns*	*ns*	*ns*	0.61	0.62	1.62									
Free Chlorine [d] (on site)	P09/025	*Chronic health*	*mg/L*	*≤ 5*	0.37	0.43	1.30									

a = Values in excess of those given in column 4 may negatively impact disinfection.

b= Low pH values can result structural problems in the distribution system.

c = This is equivalent to ,1mg Cl as Cl_2/L as measured by standard DPD colorimetric and ferrous titrimetric methods.

d = Disinfection shall be sustained at a level not less than a value defined by the water services institution or water services intermediary (or both) throught the distribution system such that the water services institution or water services intermediary (or both) ensures that all bacteriological limits listed in the "Microbiological Results" table are achieved on a continuous basis.

e = This is equivalent to nitrate at 50mg NO_3^-/L and nitrite at 3mg NO_2^-/L.

Bacteriological Determinands																	
Heterotrophic plate count[f]	P09/103	*Operational*	*cfu per ml*	*< 1000*	4	0	0										
Total coliforms[e]	P09/102	*Operational*	*cfu per 100ml*	*< 10*	0	0	0										
Faecal coliforms [b] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0										
E.coli [a] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0										
RETICULATION - PORTION 182																	
Physical and aesthetic determinands				Sample No:	**000651/25**	**001428/25**	**002097/25**										
pH at 25°C [b] (on site)	P09/042	*Operational*	*pH units*	*≥ 5 to ≤ 9.7*	7.1	7.2	7.2										
Turbidity **{A}**	P09/045	*Operational* [a]	*NTU*	*≤ 1*	2.80	0.76	2.60										
		Aesthetic	*NTU*	*≤ 5*	2.80	0.76	2.60										
Conductivity at 25°C	P09/044	*Aesthetic*	*mS/m*	*≤ 170*	75	62	61										
Chemical determinands - macro determinands																	
Total Chlorine (on site)	P09/025	*ns*	*ns*	*ns*	0.18	0.04	1.14										
Free Chlorine [d] (on site)	P09/025	*Chronic health*	*mg/L*	*≤ 5*	0.10	0.02	0.90										

a = Values in excess of those given in column 4 may negatively impact disinfection.

b= Low pH values can result structural problems in the distribution system.

c = This is equivalent to ,1mg Cl as Cl_2/L as measured by standard DPD colorimetric and ferrous titrimetric methods.

d = Disinfection shall be sustained at a level not less than a value defined by the water services institution or water services intermediary (or both) throught the distribution system such that the water services institution or water services intermediary (or both) ensures that all bacteriological limits listed in the "Microbiological Results" table are achieved on a continuous basis.

e = This is equivalent to nitrate at 50mg NO_3^-/L and nitrite at 3mg NO_2^-/L.

Bacteriological Determinands																	
Heterotrophic plate count[f]	P09/103	*Operational*	*cfu per ml*	*< 1000*	102	23	0										
Total coliforms[e]	P09/102	*Operational*	*cfu per 100ml*	*< 10*	0	0	0										
Faecal coliforms [b] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0										
E.coli [a] **{A}**	P09/046	*Acute health*	*cfu per 100ml*	*Not detected*	0	0	0										

a = Definitive, preferred indicator of faecal pollution.

b = Indicator of unacceptable microbial water quality, could be tested instead of E.coli , but is not the preferred indicator of faecal pollution.
Also provides information on treatment efficiency and aftergrowth in distribution networks.

c = Confirms a risk of human infection and faecal pollution and also provides information on treatment efficiency. The detection of selected viruses confirms faecal pollution of human origin.

d = Confirms a risk of infection and faecal pollution and also provides information on treatment efficiency. The detection of selected protozoan parasites confirms a human health risk.

e = Indicates potential faecal pollution and provides information on treatment efficiency and aftergrowth.

f = Process indicator that provides information on treatment efficiency, aftergrowth in distribution networks and adequacy of disinfectant residuals.

g = Process indicator that provides information on treatment efficiency.

Key: # = Sub-Contracted / ns = not specified / > = Maximum detection limit or ecoli reported as 2900 exceeds the maximum detection limit / (on site) measurements are for operational control purposes only and does not form part of the laboratory accreditation / cfu = colony forming units

for and on behalf of B N KIRK (Natal)cc

Antoinette Geyser	***Dawn Bester***
Laboratory Manager	***Managing Member***
Technical Signatory	***Technical Signatory***

Disclaimer:

1. While every reasonable precaution is taken in obtaining these results the Company does not accept responsibility for any matters arising from the further use of these results.
2. In the case of sample/s submitted by or on behalf of the client, the results expressed
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Accreditation Disclaimer:

1. Results marked **{A}** *are included in the SANAS Schedule of accreditation for this laboratory.*
2. Results marked "Subcontracted Test" as well as opinions and interpretations in this report, are outside the SANAS Schedule of accreditation for this laboratory.
3. The estimated uncertainty of measurements for the accredited test results is obtainable from the laboratory - QP7.8 Appendix A.
4. The results relate to the sample tested and the most recent methods available with a 95% confidence level.
5. If a statement of conformity is requested by the client, the application of the decision rule will apply to specifications listed on the test report, for results that are borderline.

QP7.8 Appendix A - Rev 4

Accredited Parameter {A}	Test method no:	Reference test method:	Uncertainty of Measurement calculated:
E.coli/Faecal Coliforms	P09/046	*	0.0720 log10 CFU
Turbidity	P09/045	and SANS 5197:200	0.35%

* Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017, APHA AWWA WEF.

End of Report