



GEOHYDROLOGY

GEOTECHNICAL

ENVIRONMENTAL

SOCIAL DEVELOPMENT



Technical Report

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Ducats Private Cemetery Geohydrological Assessment, Buffalo City Metropolitan Municipality, Eastern Cape

July 2022

Prepared for: Capevest Investments



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Ducats Private Cemetery Geohydrological Assessment, Buffalo City Metropolitan Municipality, Eastern Cape

July 2022

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LIST OF ABBREVIATIONS

Abbreviation	Description
ADWF	Average Dry Weather Flow
BOD	Biochemical Oxygen Demand
CS	Candidate Site
DAFF	Department of Agriculture, Forestry and Fishery
DEDEA	Department of Economic Development and Environmental Affairs
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECBCP	Eastern Cape Biodiversity Conservation Plan
ECPHRA	Eastern Cape Heritage Resources Authority
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GA	General Authorization
HIA	Heritage Impact Assessment
I&APS	Interested and Affected Parties
ICMA	Integrated Coastal Management Act No. 24 of 2008
IEM	Integrated Environmental Management
ISD	Institutional Social Development
KI	Kilolitres
MI	Mega Litres
MPRDA	Minerals and Petroleum Resource Development Act No. 28 of 2002
NEMA	National Environmental Management Act No. 107 of 1998
NEMBA	National Environment Management: Biodiversity Act No.10 of 2004
NEMWA	National Environment Management: Waste Act, No. 59 of 2008
NFA	National Forest Act No. 84 of 1998
NHRA	National Heritage Resource Act No. 25 of 1998
NWA	National Water Act No. 36 of 1998
RDP	Reconstruction and Development Project
SAHRA	South African Heritage Resources Authority
WMA	Water Management Area
WTW	Water Treatment Works
WWTW	Wastewater Treatment Works

1 INTRODUCTION

1.1 Terms of reference

AGES Omega (Pty) Ltd was appointed by Capevest Investments, Mr. Moshe Sohaba, on the 11th of April 2022 to conduct a Geohydrological Assessment for the proposed Ducats Private Cemetery in East London. The investigation comprised a multi-disciplinary approach with inputs from geohydrologists and engineering geologists to determine the characteristics of the unsaturated zone and local groundwater aquifers.

1.2 Scope of work

The study comprised the following scope of work:

- Review and evaluate existing geological- and geohydrological data
- Determination of site-specific hydrogeological character and basal buffer zone
- Geophysical surveys to determine the location (if any) of prominent geological structures beneath the site and siting of monitoring borehole/s
- Conduct hydrocensus within 500 m radius of site, with documentation of ground- and surface water occurrences, abstraction and end-use, with the taking of up to 2 water samples for laboratory testing
- Analyses of ground- and/or surface water samples by SANAS accredited laboratory for macro-chemical, and micro-biological composition
- Excavation of approximately 8 test pits up to 2.20 mbgl or refusal. Profiling of the exposed soil layers at test pits according to industry standard; taking of undisturbed sample (where possible) and bulk soil samples – not conducted due to available geotechnical report from Messrs. Controlab.
- Conduct an in-situ soil permeability tests in prominent soil horizons to determine saturated flow conditions (3 tests of 90 min)
- Preliminary Conceptual geotechnical and hydrogeological model with groundwater flow path determination
- Interpretation of results obtained from field work and laboratory tests
- Hydrogeological status and pollution risk assessment
- Compile project maps showing geological, geotechnical, and geohydrological status (GIS)
- Compilation of technical report detailing all results, with recommendations n proposed development of the site.

1.3 Project area and location

The proposed Ducats private cemetery is located approximately 10.7 km to the north of East London CBD and approximately 4 km east of the N6 national road from the R102 intersection at Merrifield Preparatory School. The study area is in the Buffalo City Metropolitan Municipality, with the central point of the area generally defined by the following coordinates:

- Latitude 32.919558°S
- Longitude 27.908656°E

The regional locality of the study area is indicated in Figure 1 below.

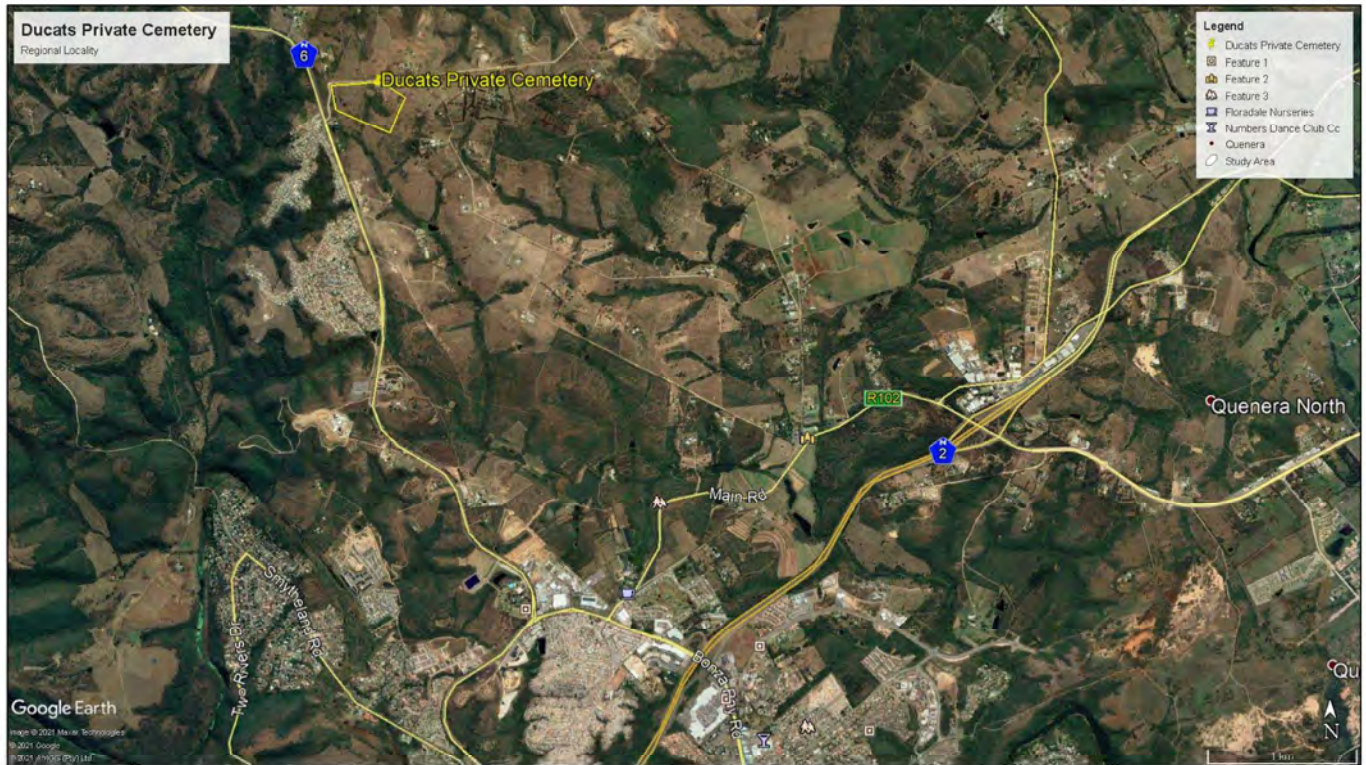


Figure 1: Project Locality Map

1.4 Available information

The following sources of information were used during the investigation:

- Hydrogeological information
 - 3126 QUEENSTOWN; Hydrogeological map series; scale 1: 500 000
- Geological information was obtained from
 - 3226 KING WILLIAMS TOWN; Geological map; scale 1: 250 000
- Topographical information was obtained from
 - 3227DD CAMBRIDGE, Fifth edition 1996; scale 1: 50 000
- Available reports
 - AGES Omega Technical Report 2021 / 03 / 09 / GENV; Ducats Private Cemetery Geohydrological Screening Assessment, Buffalo City Metropolitan Municipality, Eastern Cape; Version 1.0, Draft. March 2021.
 - Controlab South Africa Report 101040; Geotechnical Investigation for proposed cemetery on Farm 821, East London; October 2020.

2 SITE DESCRIPTION

2.1 Geological and Hydrogeological setting

Site Geology

The regional geological setting of the study area was determined by means of existing 1:250 000 scale geological map 3226 King Williams Town and study of Google Earth photographs. The local geological setting of the site is indicated in Figure 2 for reference.

The study area is underlain by sedimentary rocks of the Balfour Formation that is part of the Adelaide Subgroup of the Beaufort Group, all part of the Palaeozoic Upper Permian of the Karoo Supergroup. The lithology of the Balfour Formation generally comprises of grey mudstone, shale and sandstone.

Dolerite intruded into the sedimentary formations during the Jurassic in the form of sills (horizontal structures) and dykes (vertical structures). A prominent dolerite sill occurs along the north-eastern part of the study area and is expected to overlie the sedimentary formations in this part of the site. The extent and depth of the material will have to be determined by site investigation methods such as geological mapping in combination with test pit excavation and profiling.

The geological map does not indicate the presence of any prominent geological structures such as fault zones, folding or LANDSAT derived lineaments in the direct vicinity of the study area. A prominent fault zone with a basic east-northeast trend direction occurs approximately 1 km to the south of the study area.

The geological map does not indicate the presence of any water-soluble rock formations such as dolomite and limestone within or near the study area. The area therefore does not reflect any risk for the formation of sinkholes or subsidence caused by the presence of water-soluble rocks.



Figure 2: Project Geological Setting

Site Hydrogeology

According to the 1: 500 000 hydrogeological map 3126 QUEENSTOWN, the project area is underlain by predominantly argillaceous rocks (shale, carbonaceous shale, claystone, mudstone and siltstone). Groundwater occurrences are expected to be intergranular and in fractured zones with successful borehole yields of between 0.1 and 0.5 litres/second in general. The groundwater potential of the study area is considered to be Low to Moderate due to the topographical and geological setting.

3 RESULTS

3.1 General

A geohydrological screening assessment was conducted during the Ducats Private Cemetery site feasibility stage. The screening geohydrological assessment was based on desktop information with several recommendations. This specialist geohydrological assessment reports on the results of the detailed geohydrological assessment conducted by AGES with results of the investigation discussed in the paragraphs that follow.



Figure 3: General site topography and vegetation

3.2.1 In-Situ Soil Permeability

A total of 3 Double Ring Infiltrometer Tests were conducted during the site investigation conducted by AGES to measure the in-situ permeability of the prominent soil horizons. The results of the tests are summarised in the paragraph and figures below, with the following measured saturated flow permeability:

- Hillwash / Colluvium material tested in TP 3 at 0.1 mbgl = $1.9\text{E-}04$ cm/s (0.16 m/day)
- Residual Siltstone material tested in TP3 at 0.4 mbgl = $8.1\text{E-}04$ cm/s (0.70 m/day)
- Residual Dolerite material tested in TP8 at 0.6 mbgl = $1.1\text{E-}04$ cm/s (0.09 m/day)

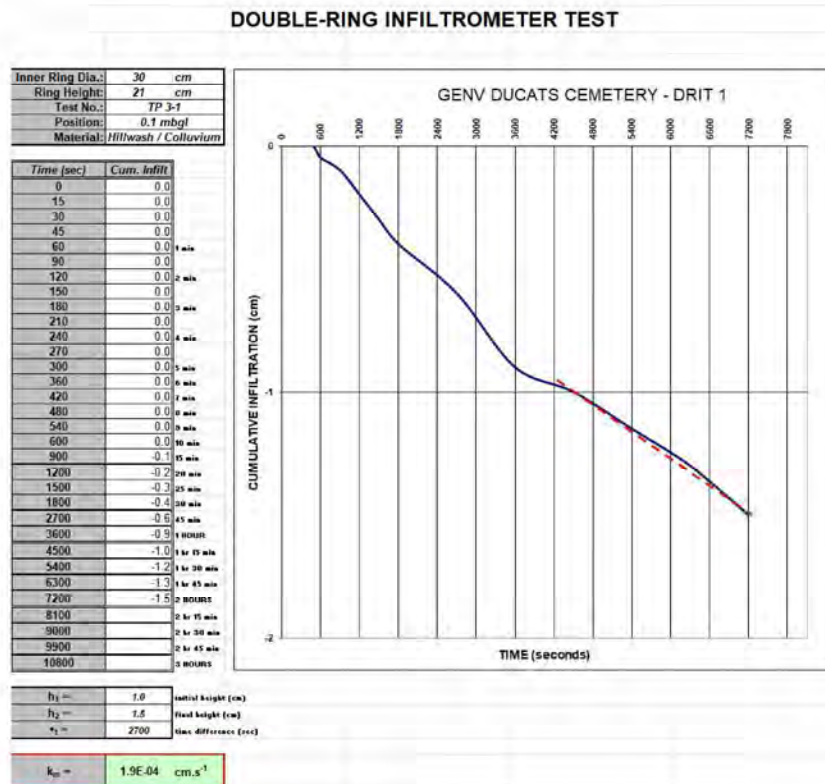


Figure 5: Permeability test results – Residual Basalt Material

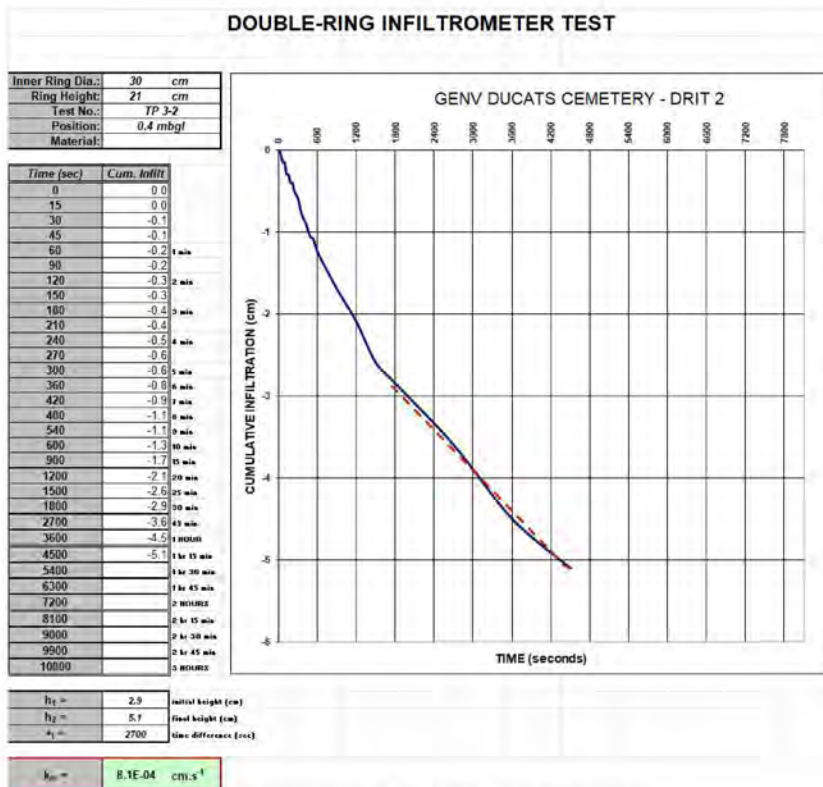


Figure 6: Permeability test results – Residual Basalt Material

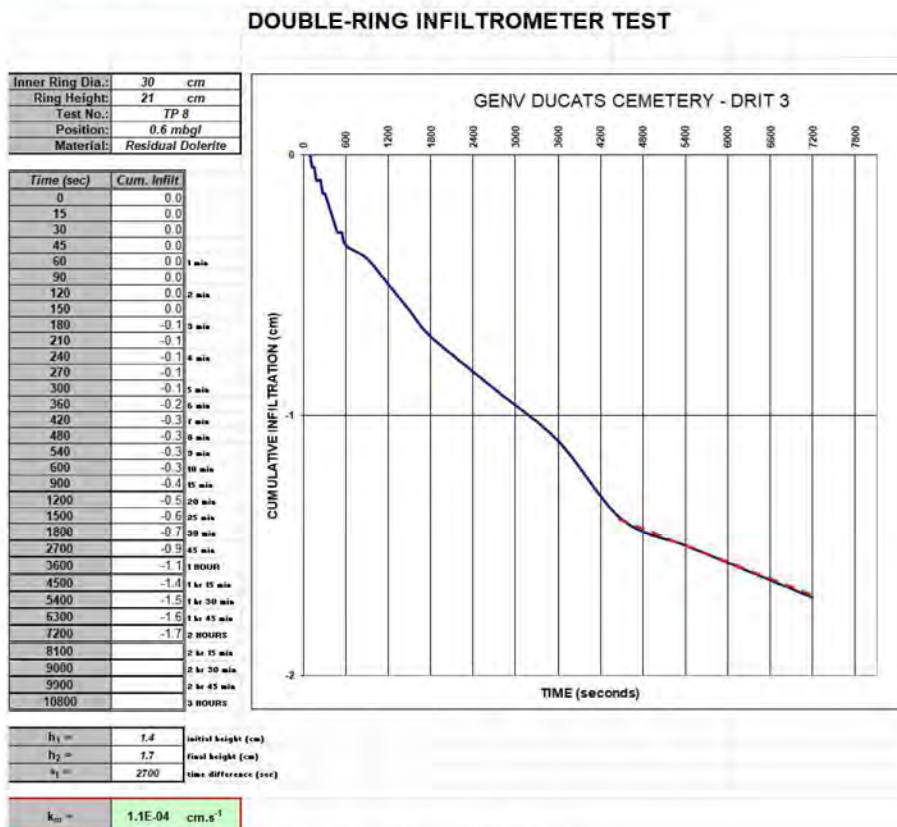


Figure 7: Permeability test results – Hillwash Material

3.3 Hydrocensus

A hydrocensus of the existing groundwater geosites and groundwater use within a 500m radius of the project area was conducted during the site investigation by AGES. The following land owners were identified surrounding the project area as summarised in the table below and indicated in the figure.

Table 1: Surrounding property owners information, water need and water supply

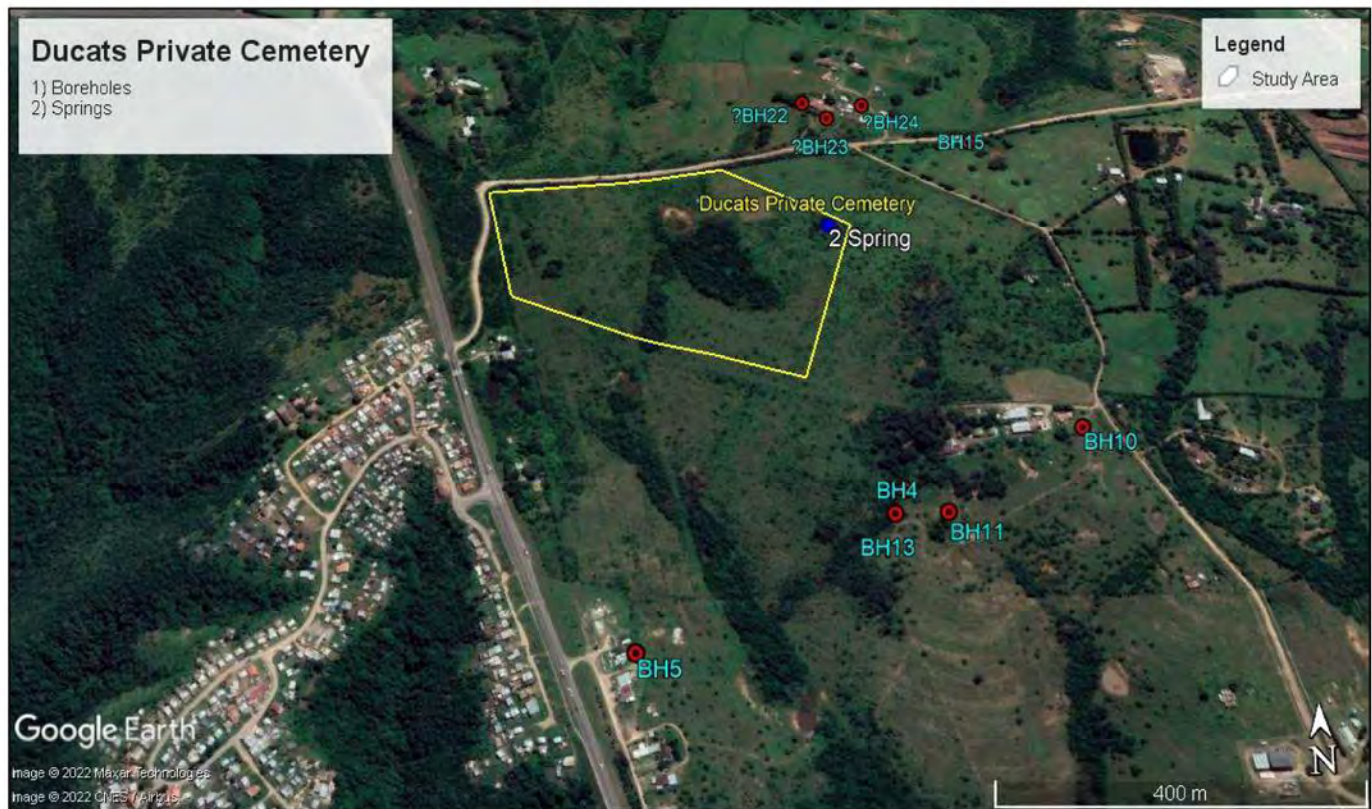
Farm Number	Contact Person	Contact No.:	Email	Farm Ref	Water Sources
W3	A.L. Schein	082 934 5023	aschein@icloud.com	Florette Farm - House, Garden and Cattle farming	Rain Harvesting, 3 boreholes (2 equipped and 1 open) and 6 soil dam.
W3	Mrs L. Robus	083 530 2847	eloyceundica@gmail.com	Child & Youth Care Centre - 80 - 90 Children and staff	Water supply from BCM (Pipe line from town) and and rain water harvesting
B41	Tracy Lee Holtzhausen	081 794 3637	tracybunlike@es.com	Small Houlding - House and small garden	Water supply from BCM, Soil dam and rain water harvesting
B42	Anthea Hughes	043 730 7110		Small Houlding - House and small garden	Water supply from BCM, Soil dam and rain water harvesting
	Smuts Klein	072 797 4532	smutsklein1@gmail.com	3 Shops, 10 houses and gardens	1 Borehole, Soil Dam and rain water harvesting
B43	Tom van der Vyver	083 946 1168	vdyvernt@gmail.com	2 Houses and workshop	2 Soil dams and rain water Harvesting
C11	Ashton Harris	071 882 7347	ashtonharris@gmail.com	9 Houses, 3-4 workshops and gardening	4 boreholes (2 equipped), 1 soil dam and rain water Harvesting
C12	Mthethunzima Dakiso	072 501 9697		House, Garden and small herd of cattle	1 Borehole (shared with 2 plots) and rain water Harvesting
W4	Michele Lennard	083 254 9619		Nullarbor Farm	Share borehole with M Dakiso



The land-owners were briefly consulted with in order to obtain permission and access to their boreholes and/or springs. A total of 9 boreholes, 1 prominent spring and 14 soil dams were identified during the hydrocensus, with the details on the sites including coordinates, static water levels and comments, summarised in the table below. The positions of these geosites are indicated in the figures that follow. Photographs with additional site comments are included in Appendix C for reference.

Table 2: Hydrocensus summary table

Water Source in and around the Ducats Private Cemetery site											
Geosite Points	Description	Coordinates		Elevation	Static Water	Distance	uS/cm	ph	temp	Source from	Comment
		Latitude	Longitude	(m)	(mbgl)						
5	BH5	-32.923871°	27.907993°	155	29.82	-	-	-	-	Borehole, Submersible pump	Pump broken
10	BH10	-32.921726°	27.914033°	167	27.44	-	1107	7.2	21.3	Open Borehole (90m)	Newly drilled
11	BH11	-32.922582°	27.912083°	158	29.05	-	824	7.21	20.7	Open Borehole (120m)	Pump stolen
12	BH4	-32.922280°	27.911580°	153	-	-	1001	7.24	21.3	Submersible pump, Concrete cover	Main borehole
13	BH13	-32.922538°	27.911412°	150	-	-	-	-	-	Borehole blocked at 12,6m	Old borehole
15	BH15	-32.917735°	27.913340°	172	-	-	-	-	-	Submersible pump, Concrete cover	
22	?BH22	-32.917082°	27.910889°	185	-	-	-	-	-	Open borehole (position nor sure off)	No access to borehole
23	?BH23	-32.917365°	27.911223°	188	-	-	-	-	-	Production hole (position nor sure off)	No access to borehole
24	?BH24	-32.917173°	27.911790°	187	-	-	-	-	-	Production hole (position nor sure off)	No access to borehole
3	BCM Point	-32.916635°	27.905745°	169	-	-	459	8.15	20.3	Rain harvesting and BCM	Municipality source
1	Soil Dam	-32.918760°	27.908860°	176	-	On site	118	7.4	18.4	Rain water, seepage from Dolerite	Soil wet 0.5 m above water
4	Soil Dam	-32.920852°	27.906196°	165	-	-	442	8.31	22.8	Runoff Water from tar road	Water polluted
6	Soil Dam	-32.924779°	27.909981°	129	-	-	639	7.48	16.3	Mix upstream, formation and rain water	
7	Soil Dam	-32.926574°	27.912810°	119	-	-	371	6.83	24.7	Mix upstream, formation and rain water	
8	Soil Dam	-32.926902°	27.910327°	147	-	-	272	7.66	22.1	Water from shale formation and rain	
9	Soil Dam	-32.920725°	27.908011°	153	-	On site	216	6.96	24	Water from shale and dolerite + rain	
14	Soil Dam	-32.921788°	27.911864°	160	-	-	599	7.37	20.9	Rain water	
16	Soil Dam	-32.919976°	27.912244°	181	-	-	-	-	-	Rain water (Small catchment area)	Dam is dry
17	Soil Dam	-32.917887°	27.913717°	175	-	-	-	-	-	Rain water (Small catchment area)	Dam is dry
18	Soil Dam	-32.915623°	27.908264°	154	-	-	-	-	-	Rain water and water from Spring 2	No access to dam
19	Soil Dam	-32.916932°	27.914125°	165	-	-	-	-	-	Rain water	No access to dam
20	Soil Dam	-32.910155°	27.910537°	118	-	-	-	-	-	Rain water	No access to dam
21	Soil Dam	-32.911599°	27.917138°	104	-	-	-	-	-	Rain water	No access to dam
2	Spring	-32.918980°	27.911010°	186	-	On site	150	8.57	17.3	Spring from dolerite	Strong source



Results from the hydrocensus indicated that groundwater is a prominent water source used by all owners surrounding the proposed cemetery site. The general static groundwater level was measured between 27.44 and 29.82 mbgl.

3.4 Site drainage and topography

The northern boundary of the project area is located on a small localised watershed with water generally draining in a predominantly southerly direction over the project area into tributaries of the Quenera River that drains in a basic south-easterly direction into the Indian Ocean. The project area is located in quaternary catchment R30F within the Mzimvubu to Keiskamma Catchment Management Area. The quaternary catchment receives a mean annual rainfall of approximately 793 mm.

The surface water drainages and general drainage directions are indicated in the figure below.

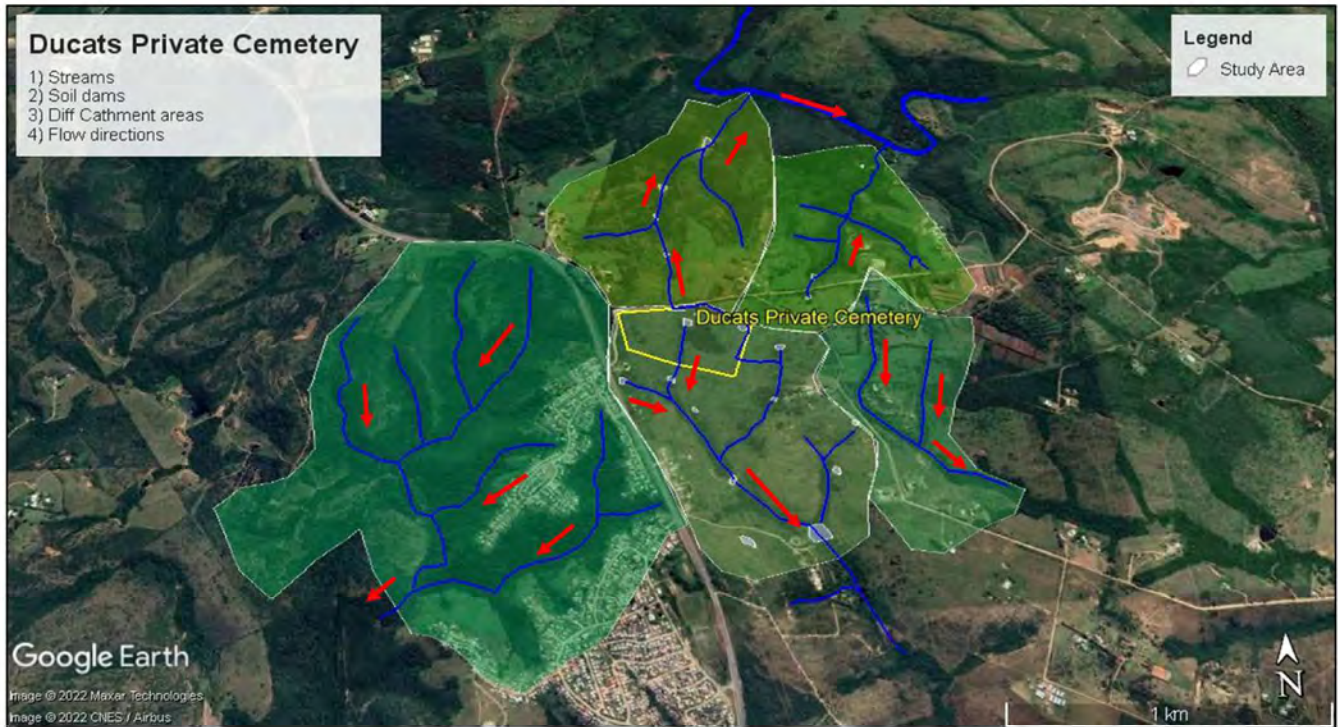


Figure 8: Project area streams and general run-off flow directions

3.5 Geophysical Survey

A total of 4 (four) geophysical profiles, numbered Line 1 to Line 4, was conducted during the investigation utilising a geotron G5-magnetometer along with a PQWT TC300 magneto-telluric instrument to define the underlying geology, weathering and occurrence of possible geological structures that can act as preferred pathways to pollutants.

The geophysical survey indicates the presence of a several anomalies that intersect the site, indicating higher groundwater potential zones that can be developed as groundwater monitoring positions if required. The profile positions are indicated in Figure 9 and general details summarised in the table below.

Table 3: Geophysical survey summary table

Geophysical survey summary - Ducats Private Cemetery														
Village Name	Traverse Number	AMT PROFILE	Coordinates WGS 84		Traverse Length (m)	Traverse Direction	Site selected		Geological Target	Method	Comments			
			Start	End			Sta. no.(m)	Position						
Ducats Ptv Cemetery	Line 1	108	-32.918150°	27.908220°	-32.920181°	27.908204°	230	N - S	1/125	-32.919260°	27.908226°	Shale S/stone Dolerite Contact	AMT/MAG	NEI Monitor Hole
									1/220	-32.920132°	27.908217°	Fractured zone in Shale/Sandstone	AMT/MAG	NEI Monitor Hole
Ducats Ptv Cemetery	Line 2	109	-32.918511°	27.906469°	-32.918256°	27.911961°	510	W - E	2/178	-32.918478°	27.908319°	Dolerite / Shale Sandstone contact	AMT/MAG	
									2/390	-32.918414°	27.910656°	Fractures in Dolerite	AMT/MAG	Spring
Ducats Ptv Cemetery	Line 3	110	-32.918725°	27.910540°	-32.920759°	27.909619°	260	N - S	3/40	-32.919157°	27.910740°	Fractures in Dolerite	AMT/MAG	NEI Spring
									3/115	-32.919710°	27.910371°	Dolerite sheet contact	AMT/MAG	
Ducats Ptv Cemetery	Line 4	111	-32.920980°	27.909260°	-32.919650°	27.907440°	215	E - W	4/95	-32.920578°	27.908429°	Fractures in Shale/Sandstone	AMT/MAG	
									4/135	-32.920382°	27.908387°	Fractures in Shale/Sandstone	AMT/MAG	

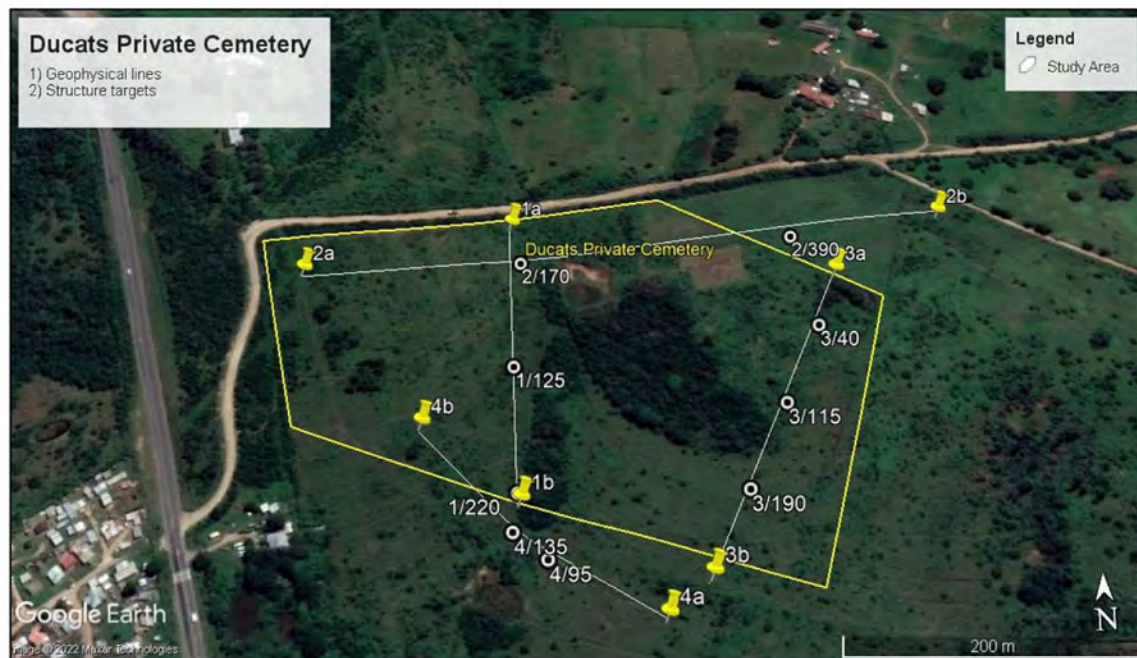
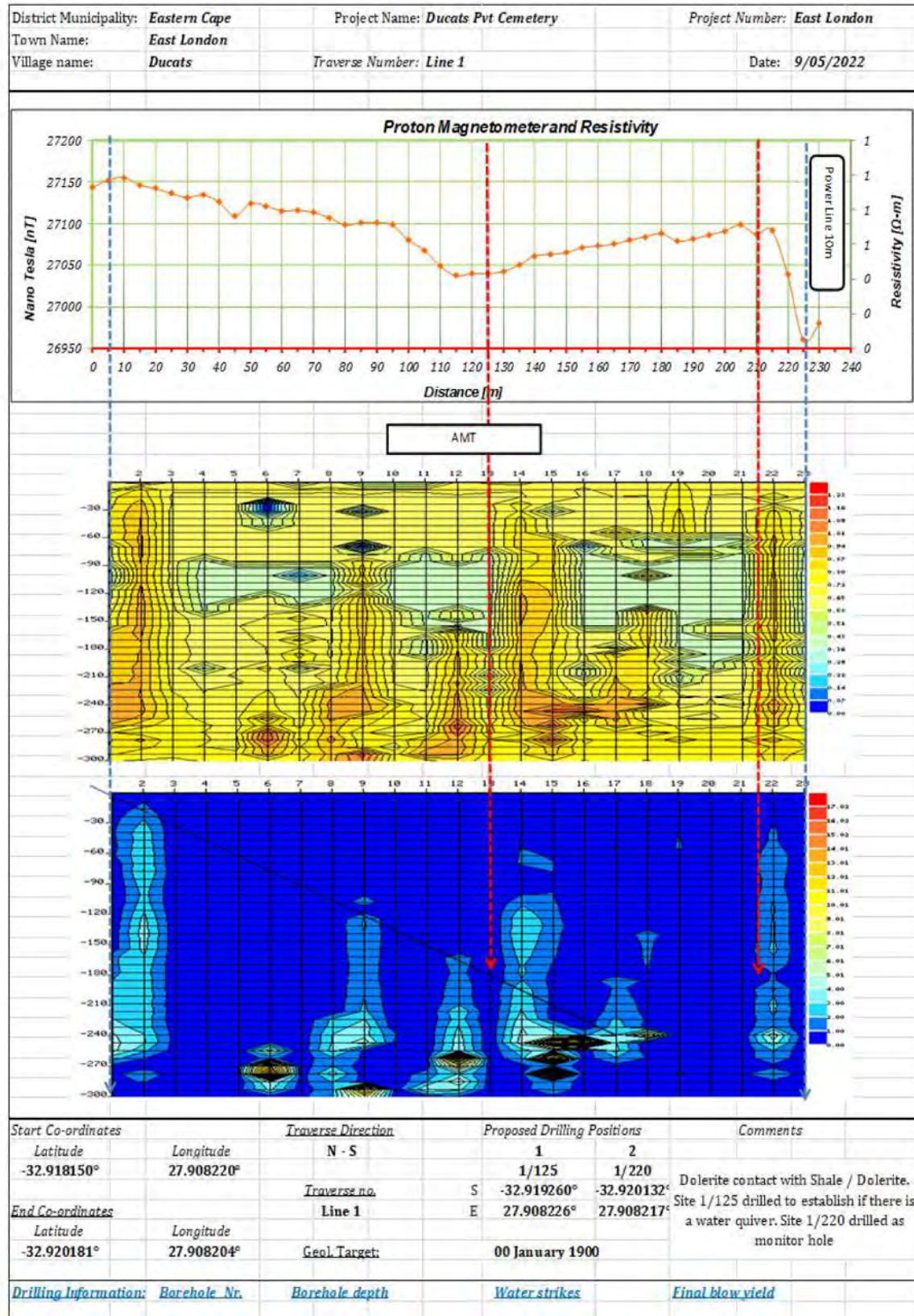
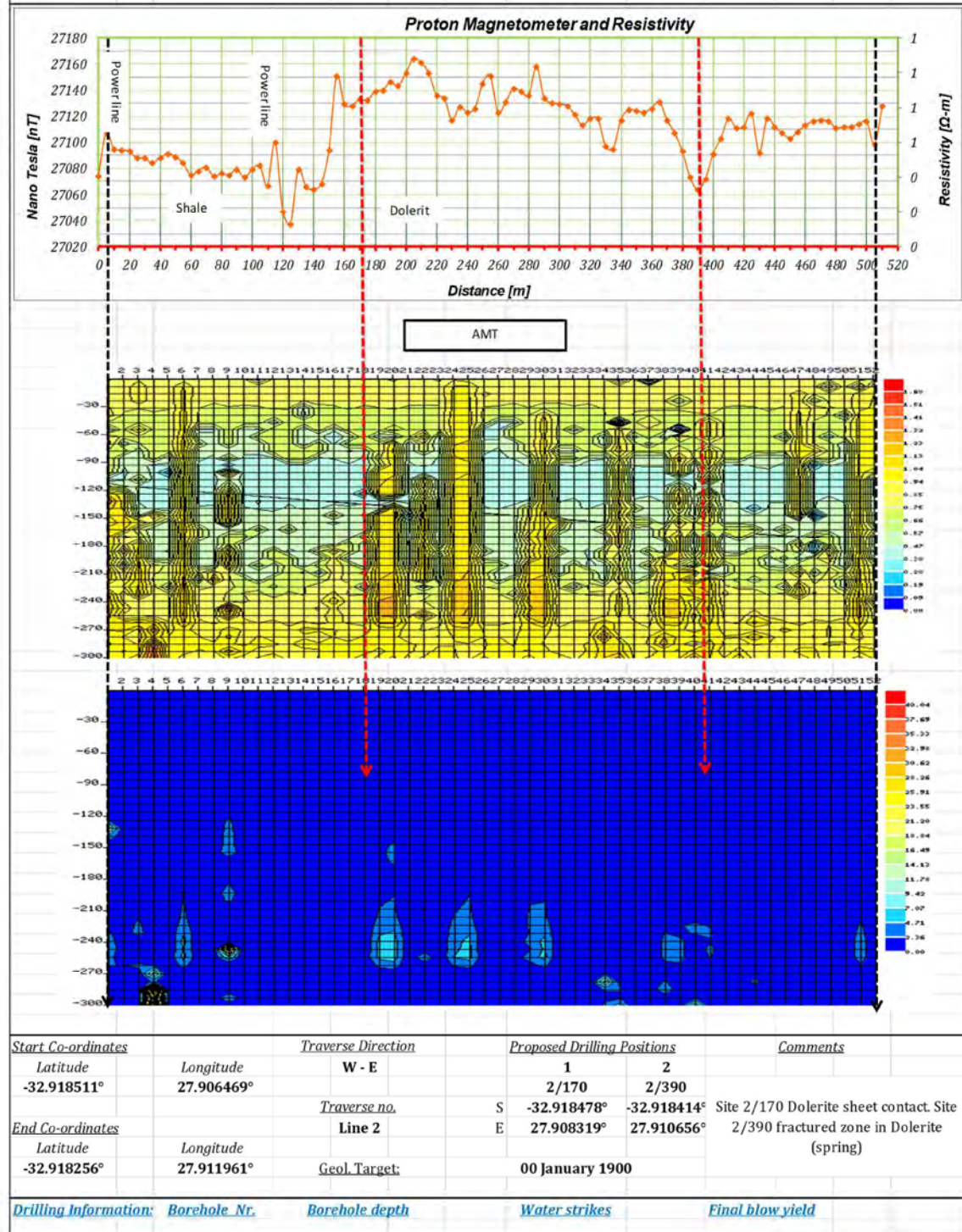
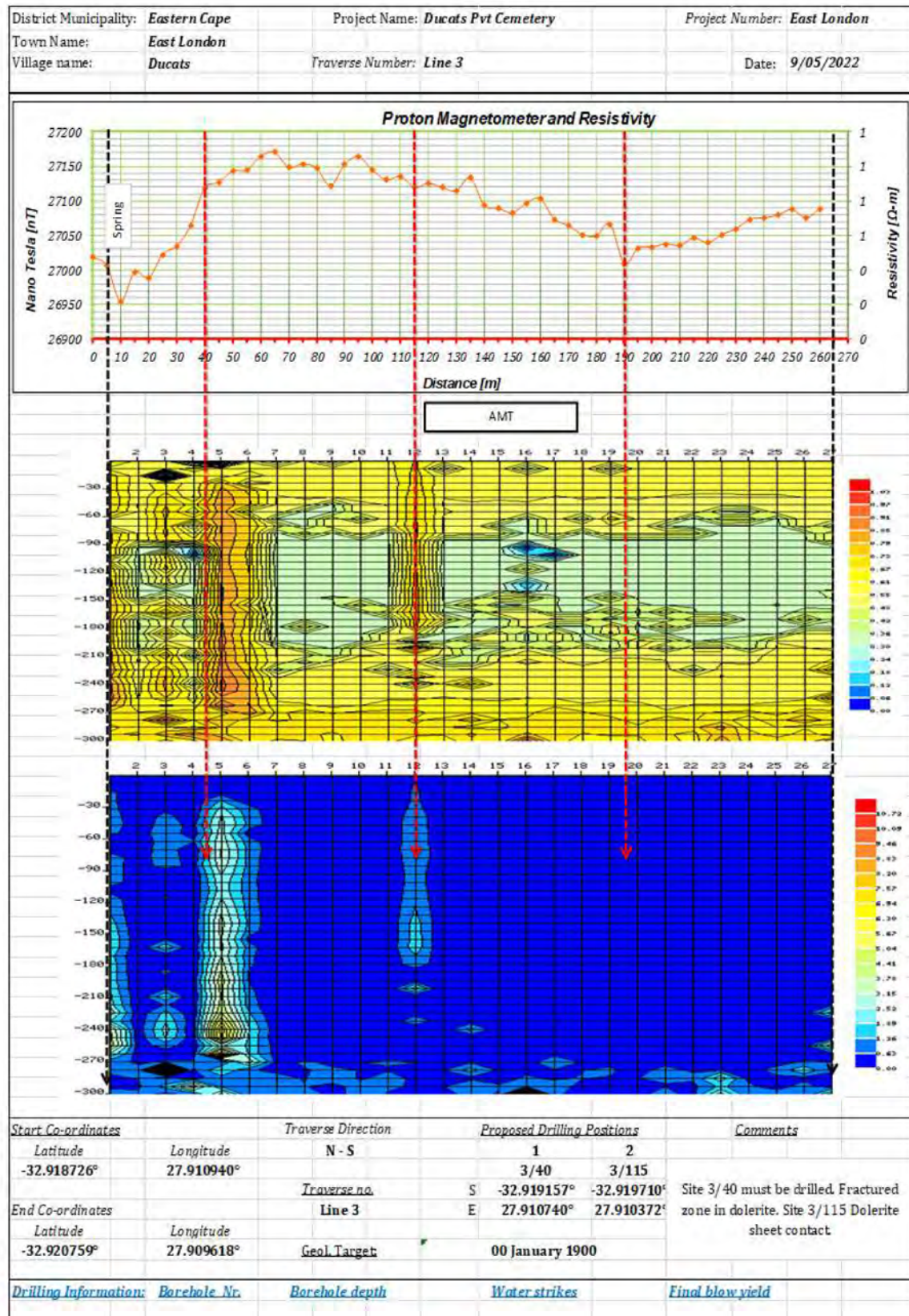


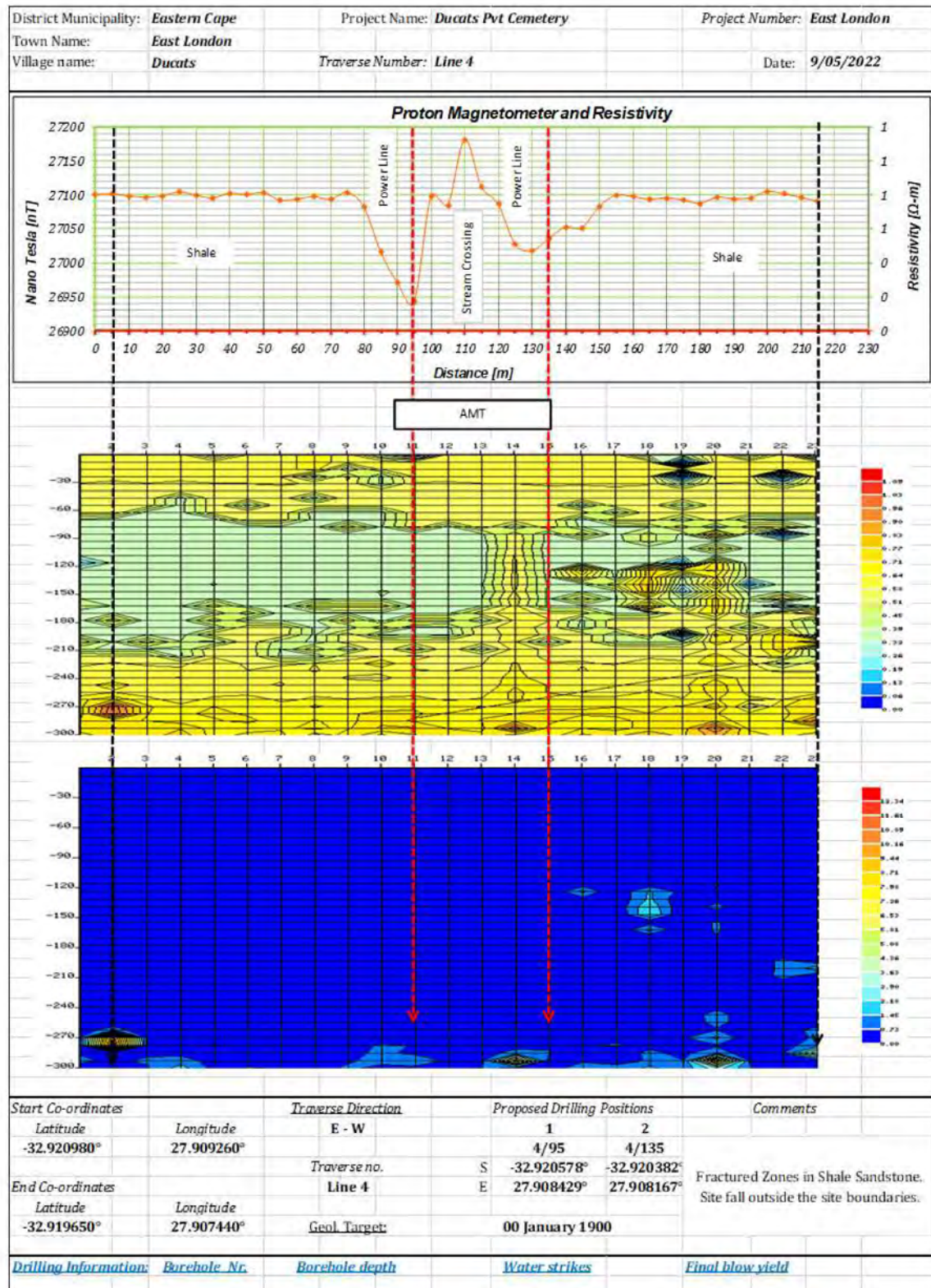
Figure 9: Geophysical Profile Positions



District Municipality:	Eastern Cape	Project Name:	Ducats Pvt Cemetery	Project Number:	East London
Town Name:	East London				
Village name:	Ducats	Traverse Number:	Line 2	Date:	9/05/2022







3.6 Groundwater Monitoring Borehole

No existing boreholes were identified on the project area. It is recommended that the existing prominent spring, (Geosite 2) be used for perched groundwater quality monitoring.

The drilling of upstream and downstream groundwater monitoring boreholes is advised for on-going groundwater quality monitoring.

3.7 Groundwater Chemistry

A total of 2 (two) water samples were taken, one at the spring (geosite 2) on the cemetery site and the other at the closest private borehole (geosite 12; BH4). The samples were submitted to Messrs. Monitor Laboratories for the bacteriological analyses and Messrs. Talbot & Talbot Laboratories for the macro analyses. The water quality of the samples was compared to the SANS 241-2015 standards with results summarized in the paragraphs below and laboratory certificates attached in Appendix C for reference:

3.7.1 Spring 2 / Geosite 2 on Cemetery Site:

The water is of an **Aesthetic Risk** due to Colour of 497 mg/l PT-Co which is above the limit of 15 mg/l PT-Co, Turbidity value of 66 NTU which is above the limit of 5 NTU and the Iron concentration of 8576 µg/l which is above the 300 µg/l limit.

The water is of an **Operational Risk** due to Standard Plate Count of 2001 Colonies per ml which is above the limit of 1000 Colonies per ml, Total Coliforms count of 2080 Colonies per 100ml which is above the limit of 10 Colonies per 100 ml, Turbidity value of 66 NTU which is above the limit of 1 NTU and an Aluminium Value of 15623 µg/l which is above the limit of 300 µg/l.

The water is of an **Acute Health Risk** due to E.coli value of 1220 Colonies per 100 ml which is above the limit of 0 Colonies per 100 ml.

The water is of a **Chronic Health Risk** due to the Iron concentration of 8576 µg/l which is above the 2000 µg/l limit, Total Organic Carbon value of 34 mg/l which is above the limit of 10 mg/l.

3.7.2 Geosite 12 / Private Borehole BH4

The water is of an **Aesthetic Risk** due to Phenols of 12 µg/l which is above the limit of 10 µg/l.

The water is of **Operational Risk** due to the Standard Plate Count of 2001 Colonies per ml which is above the limit of 1000 Colonies per ml, Total Coliforms count of 20 Colonies per 100ml which is above the limit of 10 Colonies per 100 ml.

All other tested determinands are below the SANS STD limits.

3.8 Basic Conceptual Geohydrological Model

A basic conceptual geohydrological model of the proposed cemetery site was created utilising the results of this investigation. The following conditions are expected:

- The project area is covered by transported material in the form of colluvium / hillwash. The material thickness is generally < 1.0 m with the result that bases of excavated graves will not be within this material. The measured saturated flow rate of this material as measured with the DRIT method is $1.9\text{E-}04$ cm/s that equates to approximately 0.16 m per day.
- Portions of the most northern and highest elevation sections of the site the transported materials is underlain by a highly to completely weathered remnant of a dolerite sill. The bases of some graves are expected to be excavated into this material. The thickness of the sill is limited, and the measured saturated flow rate was measured with the DRIT method as $1.1\text{E-}04$ cm/s, that equates to approximately 0.10 m per day.
- The majority of the site the transported materials is underlain by residual siltstone. This is also potentially the case with the residual dolerite being underlain by residual siltstone and/or siltstone bedrock. The residual siltstone extends to highly variable depths of between 1.40 m bgl and up to 2.80 m bgl. The bases of most graves are expected to be excavated into this material or into siltstone bedrock material. The residual siltstone material has a measured saturated flow rate, as measured with the DRIT method as $8.1\text{E-}04$ cm/s that equates to approximately 0.70 m per day.
- The entire project area is expected to be underlain by siltstone bedrock, that will be main basal buffer zone or vadose zone. Based on the document "A Protocol to manage the potential of groundwater contamination from on site sanitation; Edition 2, March 2003" the unsaturated zone conditions can be classified as bedded shales. The material is expected to have a slow rate of flow of 0.1 m per day. The basal buffer zone is expected to be in excess of 10 m.

Based on the above-mentioned, perched groundwater flow is expected to be limited, and lateral flow will occur in steeper slope areas where excess water cannot flow into the sedimentary bedrock material at a rate higher than lateral flow conditions. Vertical flow is generally expected in the flatter and higher-elevation areas with slow infiltration rates through the vadose zone up to the static water level that is expected at >10 to 15 m bgl.

It is recommended that groundwater monitoring boreholes be drilled on site to determine the site geology and confirm the basic conceptual geohydrological model conditions. Testing of the boreholes can be done to determine the transmissivity and storativity of the aquifer(s).

4 DEVELOPMENT POTENTIAL EVALUATION

According to the document: General guidelines: Geological investigations for cemetery sites published by the Council of GeoScience:

“A cemetery is deemed to represent a special land use type with the ability to pollute the natural environment in which it has been placed. Thus, it is of great importance to assess the geohydrological and geotechnical properties of any site identified for the development of a cemetery site with regard to its potential for surface and/or groundwater pollution.”

Based on the scope of the investigation as mentioned in paragraph 1.3 of this report, guidelines and results for the evaluation parameters are briefly discussed in the paragraphs below:

4.1 Evaluation of Project area properties and characteristics

4.1.1 Soil Excavatability

Guideline – 1.8 m beneath natural soil surface by hand or light mechanical excavator with a depth of up to 3.0 m being desirable.

According to the available Controlab South Africa (Pty) Ltd report, a total of 10 test pits was excavated with a TLB-type excavator in the project area. Excavatability conditions can be summarised as follow:

Trial Pit 1	Refusal @ 1400mm on shale
Trial Pit 2	Refusal @ 1400mm on shale
Trial Pit 3	Refusal @ 1600mm on shale
Trial Pit 4	Refusal @ 1300mm on shale
Trial Pit 5	Refusal @ 1800mm on shale on shale
Trial Pit 6	Refusal @ 2000mm on shale
Trial Pit 7	Refusal @ 2800mm on shale
Trial Pit 8	Refusal @ 2400mm on decomposed dolerite
Trial Pit 9	Refusal @ 2100mm on decomposed
Trial Pit 10	Refusal @ 1900mm on dolerite boulders
Percolation TP	No Refusal @ 600mm

1. Sedimentary formations / Shale areas – between 1.40 and 2.80 mbgl
2. Dolerite area – between 1.90 and 2.40 mbgl

It is expected that hand excavation (i.e. pick & shovel) will be possible only in transported and residual materials, up to a depth of approximately 1.30 mbgl.

The soil excavatability conditions on site generally meets the requirements of 1.80 mbgl, with the exception of the most north-western portion of the site in the vicinity of test pits TP1, TP2, TP3 and TP4 where excavation refused on shale bedrock shallower than 1.80 mbgl.



Figure 10: Test pit positions (as per Controlab Report)

4.1.2 Soil Permeability

Guideline – The maximum soil permeability should not exceed 5×10^{-5} but a permeability of up to 1×10^{-4} is permissible if the groundwater table is located at sufficient depth and the distance to domestic water sources is greater than recommended. The soil should not be less permeable than 1×10^{-7} cm/sec.

In-situ permeability testing of the material was measured by double ring infiltrometer testing, measuring the saturated flow conditions. Measured soil permeabilities are summarized in the table below:

Table 4: Summarised measured soil permeability values

DRIT nr	Material	DRIT permeability (cm/s)	
DRIT1	Hillwash	1.9×10^{-4}	Slightly permeable
DRIT2	Residual siltstone	8.1×10^{-4}	Slightly permeable
DRIT3	Residual dolerite	1.1×10^{-4}	Slightly permeable

The permeability of the in-situ soil materials was found to be within the permissible permeability guideline range. It is however recommended that the static groundwater level in the project area be determined to ensure an adequate basal buffer zone thickness as water levels are expected generally more than 10 mbgl. Static water levels measured at surrounding private boreholes are all exceeding 25 mbgl.

4.1.3 Position in respect of domestic water supply

Guideline – should be placed at least 150 m from a domestic water source, depending on numerous geological conditions. The precise distance is to be determined during the geological study and may be as much as 500 m.

Groundwater is a prominent water source in the direct surroundings of the project area. The closest groundwater users are Mr. A.L. Scheun using boreholes approximately 170 m to the northeast of the project area and Mr. Ashton Harris with boreholes approximately 200 m to the southeast of the project area. Mr. Scheun did not allow access to his property.

The general groundwater flow is expected in a southerly to south-westerly direction on site, making Mr. Harris the closest affected downstream groundwater user. Based on the site geological factors the domestic use is deemed to be far enough from the project area, with static groundwater levels in excess of 25 mbgl.

Groundwater quality monitoring is recommended. With no boreholes occurring on site, a set of upstream and downstream shallow- and deep aquifer monitoring boreholes is recommended to be drilled.

4.1.4 Site drainage

Guideline – the proposed site should be well drained, with an efficient surface run-off control system implemented to prevent the ingress of water into graves.

The project area is drained by surface flow in a basic south-easterly and south-westerly direction with run-off water collecting in small local stream that drains to the south into the Qamata River. The project area is well drained, but it is recommended that an efficient surface water run-off control system be implemented to divert run-off water away from graves. This system should typically comprise of the construction of an upstream soil berm(s), stormwater channelling etc.

4.1.5 Site topography

Guideline – the proposed site should be fairly level, with a slope of between 2 and 6 °. A site with a slope of less than 2 ° may only be used if an efficient surface drainage system is implemented. Graves should be orientated with long axis parallel to the natural surface contours to prevent surface erosion.

A detailed slope analysis of the project area has not been conducted as part of this investigation. Based on Google Earth Professional elevation profiles the project area generally exhibits slope of up to 5.5 °, i.e. ideal conditions between 2 and 6 °. The most north-eastern quadrant of the site exhibits shallower slopes less than 2 °. This portion of the site will require the implementation of a formal surface drainage system.

It is however recommended that an efficient surface water drainage system be implemented over the entire site to divert surface water runoff during and following events of heavy precipitation towards the small dams and drainage. In portions of the site where excavated graves will be used the graves should be orientated as recommended in the guidelines with the long axis parallel to the natural contours in order to minimize soil erosion. Suitable stormwater drainage measures for internal roads have to be implemented.

4.1.6 Basal buffer zone

Guideline – A minimum buffer zone of 2.5 m between base of graves and groundwater level (static or perched) should provide adequate barrier conditions within the recommended permeability limits in order to prevent microbiological pollutants from reaching the water table.

No existing boreholes were identified on the site and the static groundwater level could not be measured. There is a shallow perched aquifer on localised portions of the site, as reported in the Controlab report, where slight groundwater seepage was encountered in test pit TP2. The shallow aquifer is expected to be limited to the upper portion of the site, associated with the drainage conditions from the road as well as the spring identified as Geosite 2.

The static groundwater level could be measured at 3 downstream boreholes. The static water level of boreholes BH5, BH10 and BH11 was measured at 29.82 mbgl, 27.44 mbgl and 29.05 mbgl respectively. The position of

these boreholes with the water levels are indicated in the figure below.

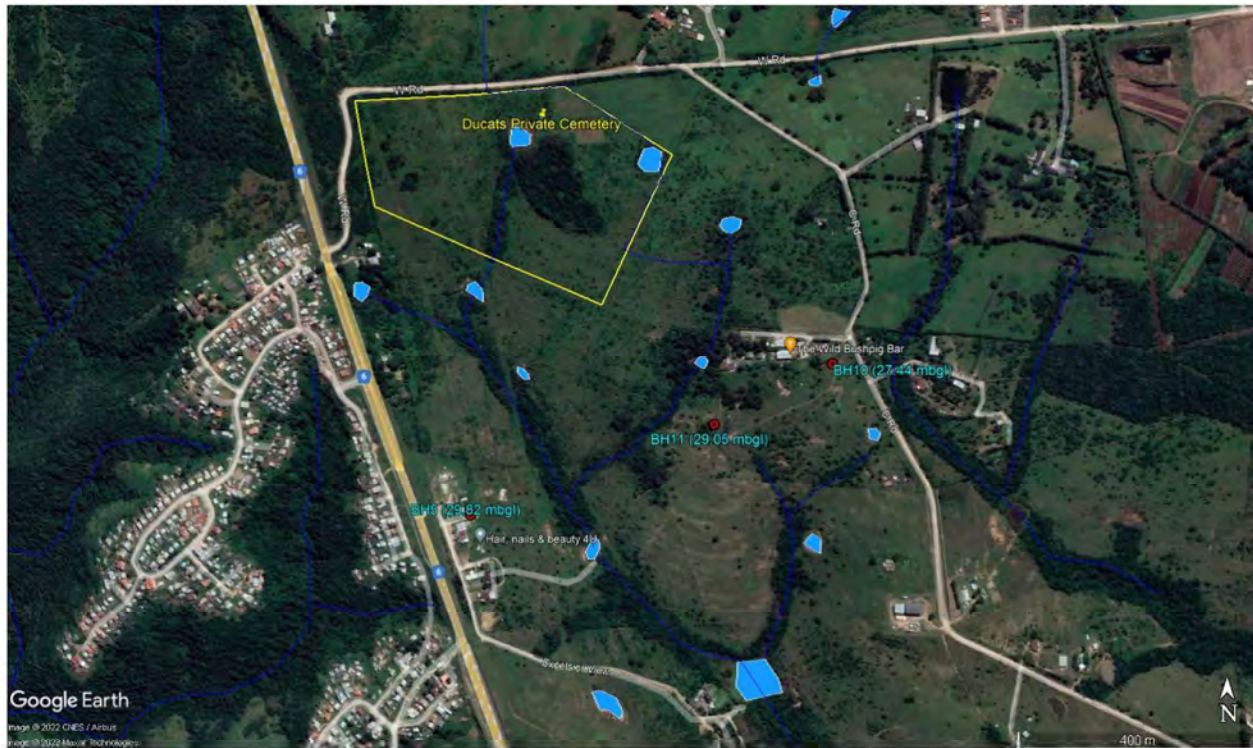


Figure 11: Static groundwater levels and surface water drainages

The expected basal buffer zone is expected to be a minimum of 10 m thick based on a static water level of 27 mbgl, with the possible occurrence of seasonal perched groundwater conditions. It is recommended that a groundwater monitoring borehole be drilled upstream and downstream of the project area to serve as groundwater level monitoring as well as groundwater quality monitoring boreholes through the lifespan of the site.

4.1.7 Grave stability

Guideline – The excavation sidewalls should remain stable with little or no overbreak occurring for a period of at least 2 days.

Based on the information obtained from the Controlab Geotechnical Report, the test pit sidewalls remained stable during profiling with little or no collapse of the sidewalls occurring. The material is also not of a very highly dispersive nature. It is however expected that excavation sidewalls will remain stable for a period of up to 2 days. Sidewalls should be shored to protect the lives of workers and the ingress of surface water into open pits should be prevented.

4.1.8 Soil workability

Guideline – The compaction characteristics of the soil material removed during excavation should be

documented with regards to backfilling of graves.

Based on the Controlab Geotechnical Report and test pits excavated by AGES for in-situ permeability testing, the backfilling of the trial pits was deemed to be successful with the material undergoing little to moderate densification. In general, the material that will be used for backfilling of graves are deemed to be suitable with a slight risk of dispersivity and consolidation settlement. Larger cobbles and boulders can be expected within the soil matrix in the areas underlain by dolerite. These will likely have to be removed from the backfill material prior to backfilling of the graves.

In the light of available results, the soil workability of the material is deemed to be suitable to marginally suitable.

4.1.9 Size and lifespan

Guideline – The minimum practical size of a cemetery for township purposes should not be less than 2 ha, while a cemetery for use by a farming community may be smaller.

It must be noted that the proposed cemetery will not be for a township but will act as a private cemetery site with various burial options. The size of the project study area is approximately 10 ha. From the results of this investigation, it is deemed that only approximately 8 ha of the project area is suitable to marginally suitable for the placement of a new cemetery due to drainage buffer zones that will have to be implemented. The variable soil, drainage and topographical nature of the site can be suitably incorporated in acceptable burial options, i.e. grave sites in deeper soil areas, memorials in low gradient areas, parking and offices at shallow bedrock areas etc.

5 RECOMMENDATIONS AND CONCLUSIONS

Based on the results of this investigation, the following recommendations and conclusions are made for implementation before the development of the proposed cemetery:

- The area is generally suitable to marginally suitable for the proposed cemetery except for the small drainage that intersects the central southern portion of the area as well as the spring zone (geosite 12). A buffer zone will have to be implemented around these areas where no graves will be allowed, typically 32 m buffer around the drainages and 50 m buffer from the spring. Memorials etc will be allowed within the spring buffer zone, just excavated graves should be avoided. The spring zone is recommended to be fenced within the property.
- The spring located on the site can be utilised as a water source for the proposed development. The spring is expected to be perennial, and based on water quality results, the water is not suitable for drinking water. It might be suitable for irrigation of gardens etc.
- The majority of the site is suitable for the placement of excavated graves. The graves should be orientated with the long-axis parallel with the site contours, and suitable surface water drainage features should be implemented.
- The upper north-western portion of the site exhibits the shallowest excavation conditions with shale bedrock generally encountered < 1.50 mbgl that is less than the required 1.80 mbgl for graves. It is recommended that this portion of the site be utilised as parking area, offices, chapel etc for the proposed cemetery as the ground conditions are most ideal for founding of structures. Graves placed in this area will require the use of a TLB-type excavator equipped with a rock-bucket and pneumatic rock-breaker, with potentially long excavation times expected.
- The groundwater potential of the area is deemed to be moderate to high. The strategic value of the aquifer in the project area and surroundings can be classified as important to very important as groundwater is a current domestic and agricultural water source to all surrounding properties. It is therefore important that this aquifer be protected.
- The overall risk of groundwater pollution from the proposed cemetery development is deemed to be low to moderate. Suitable mitigation and precautionary measures will have to be implemented to protect the current and future use of the aquifer.
- It is recommended that groundwater monitoring boreholes be installed upstream and downstream of the project area to monitor the local static water levels of the shallow perched aquifer and deep aquifers and

to allow for a groundwater quality monitoring programme to be implemented.

- It is recommended that a groundwater monitoring programme be implemented to monitor the quality of the local shallow perched and deep aquifer. Samples will have to be taken from monitoring borehole positions and potentially the spring (geosite 12) on a bi-annual basis. The samples should be submitted to a SANAS-accredited laboratory for analysis of selected determinands, only those applicable to cemetery sites (i.e. potential pollution determinands). AGES can assist with the compilation of the groundwater monitoring plan.
- It is recommended that adequate stormwater management be implemented over the entire site as deemed necessary to prevent surface water run-off from running into and over grave sites.
- It is recommended that graves are excavated to a minimum depth of 1.80 m. This will require intermediate to hard rock excavation equipment and machinery. It will not be possible to excavate this deep by hand (pick & shovel) over the majority of the site.
- A competent engineering geologist and geohydrologist should inspect any soil or groundwater conditions identified on site that varies from those described in this report.

6 REFERENCES

- DWAF, Guidelines on Protecting Groundwater from Contamination, Toolkit for Water Services: Number 3.4, March 2004
- Engineering Geology of Southern Africa, Vol. 3. Building Publications, Pretoria. BRINK, A B A, 1979.
- Soil Mechanics, Sixth Edition. Department of Civil Engineering, University of Dundee UK. CRAIG RF, 1997.

7 APPENDIX A – AGES GEOHYDROLOGICAL SCREENING REPORT



GEOHYDROLOGY

GEOTECHNICAL

ENVIRONMENTAL

SOCIAL DEVELOPMENT



Technical Report

2021/ 03 / 09 / GENV

Ducats Private Cemetery Geohydrological Screening Assessment, Buffalo City Metropolitan Municipality, Eastern Cape

March 2021

Prepared for: Capevest Investments

Document version 1.0 – Draft 1
Compiled by: AGES Omega (Pty) Ltd



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Prepared by





Ducats Private Cemetery Geohydrological Screening Assessment, Buffalo City Metropolitan Municipality, Eastern Cape

March 2021

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LIST OF ABBREVIATIONS

Abbreviation	Description
ADWF	Average Dry Weather Flow
BOD	Biochemical Oxygen Demand
CS	Candidate Site
DAFF	Department of Agriculture, Forestry and Fishery
DEDEA	Department of Economic Development and Environmental Affairs
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECBCP	Eastern Cape Biodiversity Conservation Plan
ECPHRA	Eastern Cape Heritage Resources Authority
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GA	General Authorization
HIA	Heritage Impact Assessment
I&APS	Interested and Affected Parties
ICMA	Integrated Coastal Management Act No. 24 of 2008
IEM	Integrated Environmental Management
ISD	Institutional Social Development
Kl	Kilolitres
MI	Mega Litres
MPRDA	Minerals and Petroleum Resource Development Act No. 28 of 2002
NEMA	National Environmental Management Act No. 107 of 1998
NEMBA	National Environment Management: Biodiversity Act No.10 of 2004
NEMWA	National Environment Management: Waste Act, No. 59 of 2008
NFA	National Forest Act No. 84 of 1998
NHRA	National Heritage Resource Act No. 25 of 1998
NWA	National Water Act No. 36 of 1998
RDP	Reconstruction and Development Project
SAHRA	South African Heritage Resources Authority
WMA	Water Management Area
WTW	Water Treatment Works
WWTW	Wastewater Treatment Works

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8 INTRODUCTION

8.1 Terms of reference

AGES Omega (Pty) Ltd was appointed by Capevest Investments, Mr. Moshe Sohaba, on the 24th of February 2021 as geohydrological practitioner for the proposed Ducats Private Cemetery project.

For phase 1 of the appointment, geohydrological screening and evaluation of available information of the study area will be undertaken. Depending on the outcome of all the relevant professional studies a detailed geohydrological assessment will be required on the selected cemetery site.

8.2 Objectives of the investigation

AGES was appointed to undertake the following services:

- Geohydrological screening,
- Evaluation of available geohydrological data and information.
- Ranking of the study area using Department of Water and Sanitation's Minimum Requirements.
- Reporting with results and recommendations.

8.3 SCOPE OF INVESTIGATION

The following procedure was followed to achieve the said objectives:

- Desktop study and evaluation of available information and data;
- Site walk-over survey;
- Data processing and evaluation of candidate site ranking;
- Liaison with client and professional team.
- Reporting with results and recommendations;
- Project management and administration; and
- Definition of next phase.

8.4 Location of study area

The proposed Ducats private cemetery is located approximately 10.7 km to the north of East London CBD and approximately 4 km east of the N6 national road from the R102 intersection at Merrifield Preparatory School. The study area is in the Buffalo City Metropolitan Municipality, with the central point of the area generally defined by the following coordinates:

- Latitude 32.919558°S
- Longitude 27.908656°E

The regional locality of the study area is indicated in Figure 1 below.

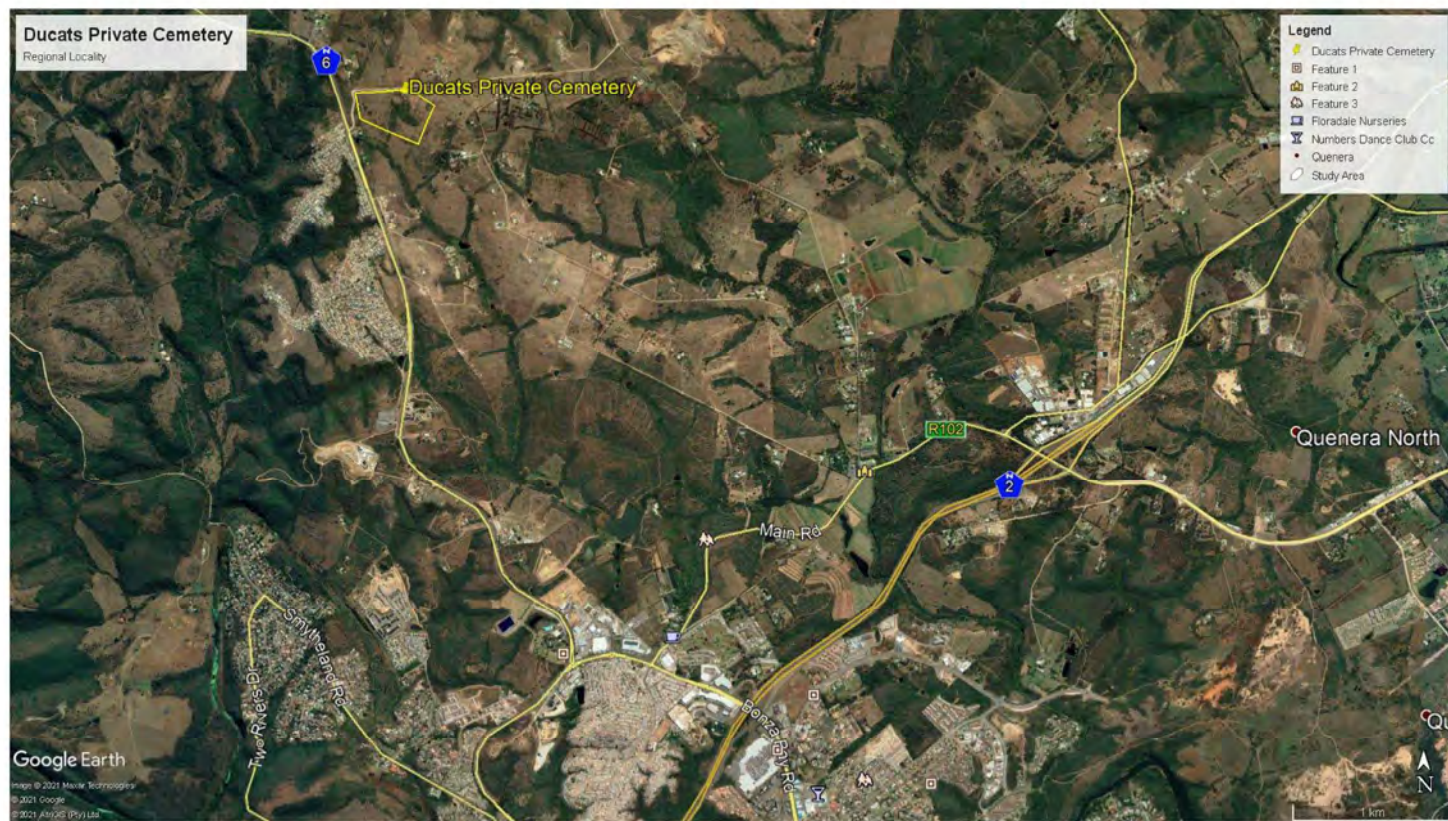


Figure 12 – Project Locality Map.

8.5 Information sources

The following sources of information were referenced during the investigation:

- Hydrogeological information
 - 3126 QUEENSTOWN; Hydrogeological map series; scale 1: 500 000
- Geological information was obtained from
 - 3226 KING WILLIAMS TOWN; Geological map; scale 1: 250 000
- Topographical information was obtained from
 - 3227DD CAMBRIDGE, Fifth edition 1996; scale 1: 50 000

9 SITE DESCRIPTION

9.1 TOPOGRAPHY

The general topography of the area can be characterised by development processes under semi-humid to arid conditions, with the following main landforms generally observed:

- Ridge crest;
- Upper side slopes;
- Gully

The area investigated for the proposed Cemetery is mostly comprised of ridge crest and upper side slope landforms, with a gully running in a north-south general direction across the centre of the study area.

The study area is located at an elevation between 160 and 200 mamsl with the highest portion occurring in the most north-eastern portion of the site and the lowest elevation in the central southern portion of the site in the direct vicinity of the gully.

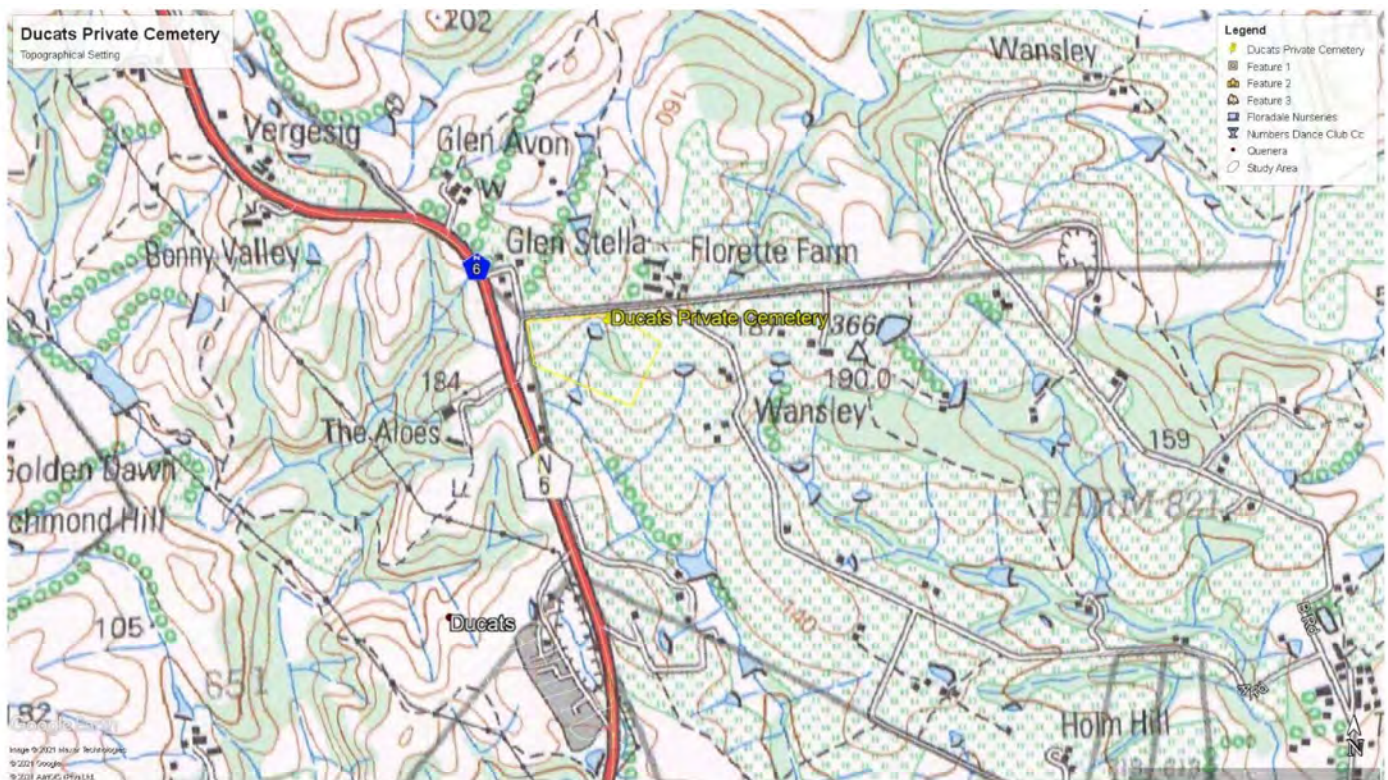


Figure 13 – Project topographical setting

9.2 DRAINAGE

The study area is generally drained in a basic south-easterly and south-westerly direction towards the central portion of the site where water is drained in a basic southerly direction by the tributaries of the regionally prominent Nahoon River.

A prominent drainage feature occurs in the central portion of the study area, comprising a small embankment dam (or flooded borrow pit) in the north along the small stream or gully that drains in a southerly direction. The position of the 1:100 year flood line was not available as part of this investigation. A general minimum 32 m river buffer zone will be required where generally no development should take place without Environmental Authorisation.

9.3 CLIMATE

The Weinert climatic N-value of the site is approximately 1.6, i.e. less than 5; indicating that the prominent mode of weathering in the project area will be chemical weathering of the constituent minerals rather than mechanical breakdown.

The study area is located in the Summer Rainfall Zone of the Republic of South Africa in quaternary catchment R30F of the Mzimvubu to Keiskamma Water Management Area. The catchment receives a mean annual precipitation of approximately 793 mm (WR2012:MAP data set).

9.4 REGIONAL GEOLOGICAL SETTING

The regional geological setting of the study area was determined by means of existing 1:250 000 scale geological map 3226 King Williams Town and study of Google Earth photographs. The local geological setting of the site is indicated in Figure 3 below for reference.

The study area is underlain by sedimentary rocks of the Balfour Formation that is part of the Adelaide Subgroup of the Beaufort Group, all part of the Palaeozoic Upper Permian of the Karoo Supergroup. The lithology of the Balfour Formation generally comprises of grey mudstone, shale and sandstone.

Dolerite intruded into the sedimentary formations during the Jurassic in the form of sills (horizontal structures) and dykes (vertical structures). A prominent dolerite sill occurs along the north-eastern part of the study area and is expected to overlie the sedimentary formations in this part of the site. The extent and depth of the material will have to be determined by site investigation methods such as geological mapping in combination with test pit excavation and profiling.

The geological map does not indicate the presence of any prominent geological structures such as fault zones, folding or LANDSAT derived lineaments in the direct vicinity of the study area. A prominent fault zone with a basic east-northeast trend direction occurs approximately 1 km to the south of the study area.

The geological map does not indicate the presence of any water-soluble rock formations such as dolomite and limestone within or near the study area. The area therefore does not reflect any risk for the formation of sinkholes or subsidence caused by the presence of water-soluble rocks.



Figure 14 – Project geological setting

9.5 HYDROGEOLOGICAL SETTING

According to the 1: 500 000 hydrogeological map 3126 QUEENSTOWN, the project area is underlain by predominantly argillaceous rocks (shale, carbonaceous shale, claystone, mudstone and siltstone). Groundwater occurrences are expected to be intergranular and in fractured zones with successful borehole yields of between 0.1 and 0.5 litres/second in general. The groundwater potential of the study area is considered to be Low to Moderate due to the topographical and geological setting.

Desktop study of available geosites information indicates the presence of 3 boreholes within a 500 m radius of the study area. The positions of the boreholes are indicated in Figure 4 below. Relevant information from these boreholes is summarised below but will require field confirmation on existing status of the geosites.

- BH3 - Static Water Level 19.53
- BH4 - Static Water Level 12.92 m
- BH5 - Static Water Level 21.85 m

Based on the desktop information, the groundwater table is expected to be in excess of 10mbgl, although perched groundwater conditions may occur in localised places on a seasonal basis. Groundwater quality is expected to be fair. A detailed hydrocensus is required during the next geohydrological assessment phase.



Figure 15 – Desktop Hydrocensus Geosites with Static Water Levels

9.6 SOILS

According to the received geotechnical investigation report conducted by Messrs. Controlab South Africa (Pty) Ltd; Reference 101040 as provided to AGES by the client, the following general soil profile was encountered as per their report.

"Due to the size of the area the material profiled varied, but general comments with regards to the soil profiles are as follows:

The transported material encountered within the trial pits consisted of sandy silt. The thickness of the horizon varied between 500mm and 1300mm. The moisture content of the transported horizons was slightly moist, the consistency soft and the structure intact. It must be noted that ferricrete nodules were profiled within some of the horizons. This is an indication of fluctuating water tables.

The residual material encountered varied between shale and decomposed dolerite. The moisture content of the horizons was slightly moist, the consistency dense to hard and the structure varying between intact (decomposed dolerite) and shattered (shale).

All excavations were by machine and refusals were recorded at most of the test positions within the residual shale or decomposed dolerite as per the table below. "

Trial Pit 1	Refusal @ 1400mm on shale
Trial Pit 2	Refusal @ 1400mm on shale
Trial Pit 3	Refusal @ 1600mm on shale
Trial Pit 4	Refusal @ 1300mm on shale
Trial Pit 5	Refusal @ 1800mm on shale on shale
Trial Pit 6	Refusal @ 2000mm on shale
Trial Pit 7	Refusal @ 2800mm on shale
Trial Pit 8	Refusal @ 2400mm on decomposed dolerite
Trial Pit 9	Refusal @ 2100mm on decomposed
Trial Pit 10	Refusal @ 1900mm on dolerite boulders
Percolation TP	No Refusal @ 600mm

The Controlab test pit positions are indicated in the figure below.

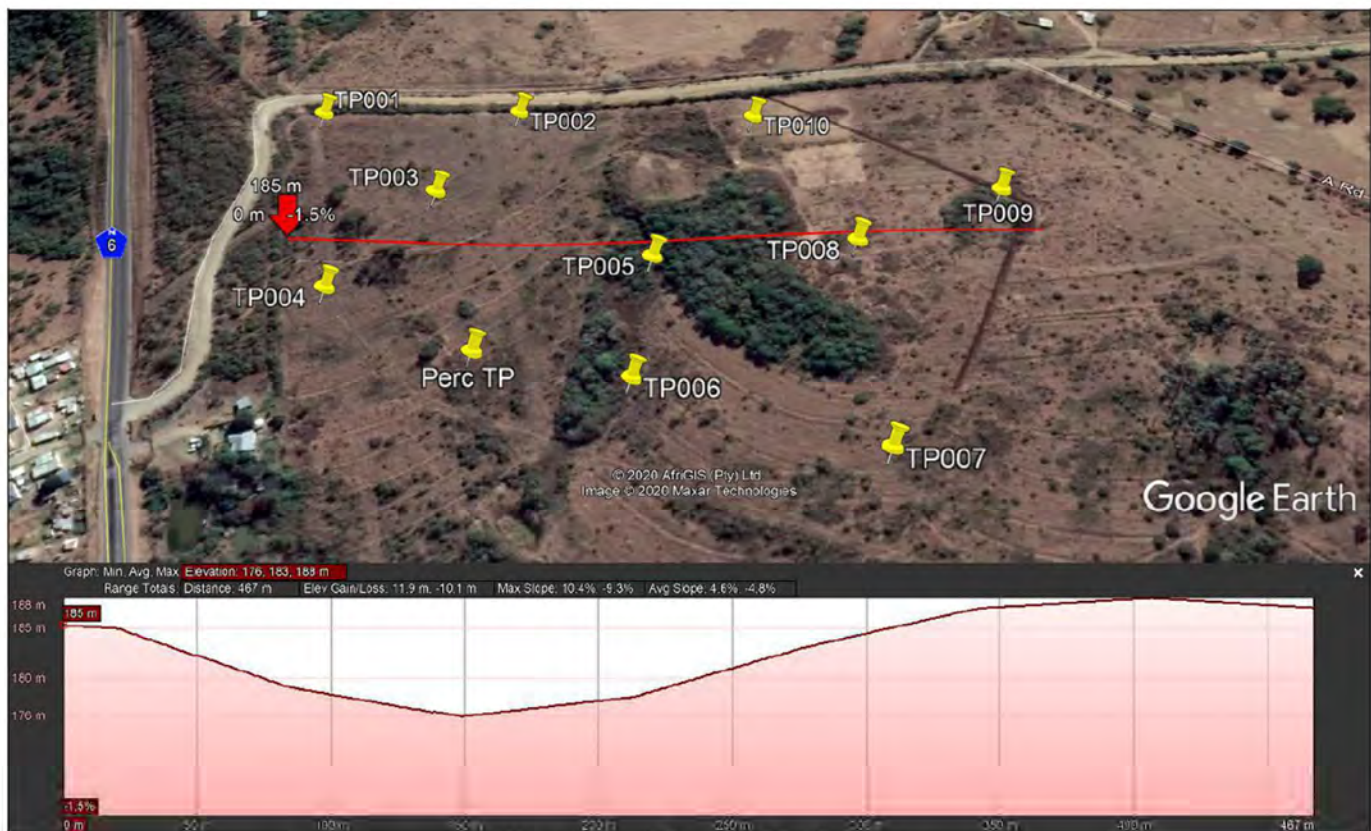


Figure 16 – Controlab South Africa Report – Test pit localities

9.7 LEGISLATION CONSIDERED

2.1 Constitution of South Africa (Act 108 Of 1996)

Section 24 of this Act recognises that, not only that everyone has a right to an environment that is not harmful to our health or well-being, but it also recognises the principle of sustainable development and its supporting principles.

Section 24 states, everyone has the right –

- (a) to an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –
 - (i) Prevent pollution and ecological degradation;
 - (ii) Promote conservation; and
 - (iii) Secure ecologically sustainable development and use natural resources while promoting justifiable economic and social development.

The Minimum Requirements for Disposal by Cemetery, 1998, from which the site selection process is based on, seek:

- To ensure that the site to be developed is environmentally acceptable and that it provides for simple, cost-effective design, which in turn provides for good operation;
- To ensure that, because it is environmentally acceptable, it is also socially acceptable.

2.2 National Water Act, (Act 36 of 1998)

Consultation with the Department of Water Affairs is mandatory regarding the requirements of the proposed Cemetery site.

2.3 National Health Act (Act 61 of 2003)

Section 61 of this Act relate to the management of human remains.

Chapter 5 : Burial in excavated land

- 15 (2) All burial sites must comply with the following environmental requirements-
- a) be located outside the 100 year floodplain;
 - b) **be located at least 350m from ground water source used for drinking purposes and at least 500m from the nearest habitable building;**
 - c) for a preferred burial site with a soil of sand-clay mix of low porosity and a small and fine-grain texture, the water table should be at least 2.5m deep in order to allow for traditional grave depth of six feet (1.8m).
 - d) for areas with higher water tables the local government may determine a reasonable depth with additional walling recommendations to protect underground water; and
 - e) the covering soil shall not be less than 1m, should two bodies be buried in the same grave, 300mm of soil shall be maintained between the coffins.

10 SITE SCREENING ASSESSMENT

10.1 General

A 32m buffer on watercourses, 350m around NGA boreholes and a 500m buffer on residential building areas was applied as part of a desktop/ baseline site selection process. The following observations are made as indicated in the supporting figures.

- There are several residential buildings within a 500 m radius of the site. Community awareness and approvals from neighbouring properties will be essential.
- The central portion of the site will not be suitable for development when imposing a minimum of 32 m buffer zone around the drainage / stream.
- The entire eastern half of the study area is within a 350 m distance from a historically identified groundwater sources. The status of these sources will have to be confirmed through a comprehensive groundwater hydrocensus.
- The western half of the study area exhibits shallow rock conditions according to the Controlab investigation report, potentially rendering this portion unsuitable for grave sites. Further investigation with larger excavation machinery is advised if possible.



Figure 17 – Residential Buffer 500 m – potentially not suitable



Figure 18 – Stream Buffer 32 m – not suitable



Figure 19 – Borehole Buffer 350 m – Potentially not suitable



Figure 20 – Shallow rock conditions below requirements – Potentially not suitable

10.2 Fatal flaw INITIAL ASSESSMENT

As a minimum requirement, no cemetery site should ideally be developed in an area with an inherent fatal flaw as it may prohibit the development of an environmentally or publicly acceptable burial site except at excessive cost. The potential fatal flaws and their relevance to the study area are detailed in the Table below.

Table 5 – Study area fatal flaw initial assessment

NR	FATAL FLAW DESCRIPTION	STUDY AREA
1	Areas within 500m of inhabited areas	Yes
2	Areas below the 1:100-year flood-line	No
3	Areas in close proximity of significant surface water bodies, e.g. watercourses or dams	YES – partially
4	Unstable areas, e.g. seismic zones or dolomitic land	No
5	Sensitive ecological and / or historical areas	Not assessed
6	Catchment areas for important water resources	Possible
7	Areas characterized by flat gradients, shallow or emergent groundwater	Yes – partially according to Controlab Report
8	Areas characterized by steep gradients,	Not assessed
9	Areas of groundwater recharges on account of topography and/or highly permeable soils	No
10	Areas overlying or adjacent to important or potentially important aquifers	No
11	Within 350m of a NGA borehole	Yes – to be confirmed
12	Areas characterized by shallow bedrock (less than 6 feet)	Yes – partially according to Controlab Report
13	Areas where applicable buffer zones are not possible	Possible
14	Areas which, because of the title deeds and other constraints, can never be zoned to permit a cemetery.	Not assessed
15	Areas over which servitudes are held that would prevent the establishment of a cemetery.	Not assessed
16	Areas in conflict with Local Development Objectives (LDO) process	Not assessed

According to the fatal flaw analysis the study area has 5 initial fatal flaws that affects the entire study area or portions of it. There are 2 potential fatal flaws and 5 fatal flaw descriptions that were not assessed as part of this investigation.

Further detailed investigation will be required to investigate the identified Fatal Flaws.

10.3 Environmental Criteria

The environmental criteria relate to the potential threat to the biotic and abiotic environment, particularly to water resources. The environmental criteria are summarized in the Table below:

Table 6 – Summary of environmental site selection criteria

NR	ENVIRONMENTAL CRITERIA	STUDY AREA
1.	The distance to ground or surface water. The greater the distance, the more suitable the site in terms of pollution.	Suitable basal buffer zone based on desktop study
2.	The importance of ground or surface water resources. Greater resource values increase the sensitivity of the area.	Low to medium importance
3.	The depth of soil on the site. Greater availability of soil increases cost effectivity of landfill.	Partial suitability – western half of the site potentially not-suitable
4.	The quality of on-site soil. Low permeability soils reduce pollutant migrant and are therefore favoured.	Not assessed
5.	The sensitivity of the receiving environment. Disturbed environment preferred over pristine environment.	Not assessed

Further assessment and investigation of the identified risk factors will be required. The excavability of the soil also depends on the equipment that the client intends to use for the excavation of the graves.

10.4 Public Acceptance Criteria

The public acceptance criteria relate to such issues as the possible adverse impact on public health, quality of life etc. The expected public acceptance criteria are summarized in the Table below.

Table 7 – Summary of public acceptance criteria

NR	PUBLIC ACCEPTANCE CRITERIA	STUDY AREA
1.	The displacement of local inhabitants	No
2.	The distance to ground or surface water. The greater the distance, the more suitable the site in terms of pollution.	There are several domestic boreholes within 350 m of the site that will have to be assessed
3.	Exposed sites with high visibility. Less desirable than secluded or naturally screened sites	Not assessed
4.	The sensitivity of the area through which access road passes.	Not assessed – expected low
5.	The distance to the nearest residential area or other incompatible land-use.	There are several habitable buildings within a 500 m radius of the site

Public participation and a detailed hydrocensus will be essential to determine the risk of these factors.

11 CONCLUSIONS & RECOMMENDATIONS

- AGES Omega (Pty) Ltd was appointed by Capevest Investments, Mr. Moshe Sohaba, on the 24th of February 2021 as geohydrological practitioner for the proposed Ducats Private Cemetery project.

For phase 1 of the appointment, geohydrological screening and evaluation of available information of the study area will be undertaken. Depending on the outcome of all the relevant professional studies a detailed geohydrological assessment will be required on the selected cemetery site.

- Results of the desktop study are detailed in Chapter 2 of the report. The information can be summarised as follow:
 - There is a small drainage that runs in a southern direction through the central portion of the site.
 - A total of 3 existing boreholes were identified within a 500 m radius of the site.
 - Relevant soil information was obtained from the geotechnical investigation report conducted by Controlab South Africa (Pty) Ltd as provided by the client.
- Site screening assessment was conducted and is detailed in Chapter 3 of the report. The following preliminary fatal flaws were identified that will require further detailed investigation of discussions with relevant authorities and public participation.
 - There are several residential buildings within a 500 m radius of the site. Community awareness and approvals from neighbouring properties will be essential.
 - The central portion of the site will not be suitable for development when imposing a minimum of 32 m buffer zone around the drainage / stream.
 - The entire eastern half of the study area is within a 350 m distance from a historically identified groundwater sources. The status of these sources will have to be confirmed through a comprehensive groundwater hydrocensus.
 - The western half of the study area exhibits shallow rock conditions according to the Controlab investigation report, potentially rendering this portion unsuitable for grave sites. Further investigation with larger excavation machinery is advised if possible.
- According to the fatal flaw analysis the study area has **5 initial fatal flaws** that affects the entire study area or portions of it. There are 2 potential fatal flaws and 5 fatal flaw descriptions that were not assessed as part of this investigation
- It is recommended that a detailed geohydrological assessment be conducted to investigate and characterise the initial fatal flaws and risks associated with the proposed cemetery site. This will be done in conjunction with the Environmental Authorisation process as a specialist study.
- It is recommended that the results of this screening report be discussed in order to determine the way forward and select the most suitable portion(s) of the site as well as identify the required specialist studies and processes that will be required.

12 APPENDIX B – CONTROLAB SOUTH AFRICA GEOTECHNICAL REPORT

**CLIENT: CAPEVEST INVESTMENTS
(PTY) LTD**

**PROJECT: PROPOSED CEMETERY
ON FARM 821**

DATE: OCTOBER 2020

REFERENCE: 101040

Compiled by: Controlab South Africa (Pty)Ltd
D LOUW Pr Tech Eng, MSc (Civil)

**AN ENGINEERING GEOLOGICAL INVESTIGATION FOR THE
PROPOSED CEMETERY ON FARM 821, KING WILLIAM'S TOWN
WITHIN THE BUFFALO CITY METROPOLITAN MUNICIPALITY, THE
EASTERN CAPE PROVINCE**

REPORT REFERENCE: 101040

OCTOBER 2020

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1. INTRODUCTION AND TERMS OF REFERENCE

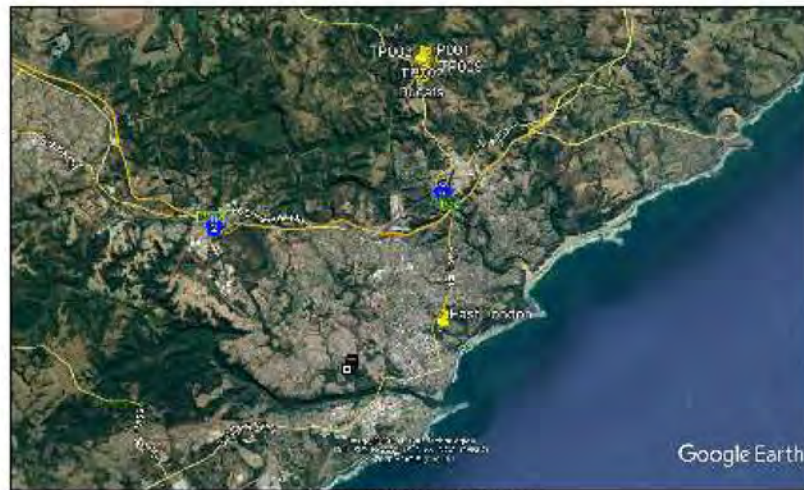
This report presents the results of an engineering geological investigation for the proposed cemetery outside of East London part of the Buffalo City Metropolitan Municipality. The aim of the investigation was to establish the surface and subsurface engineering geological properties of the sites, with the view to enlarge the current cemetery.

2. INFORMATION USED IN THE STUDY

- a) East London 3227D and map 3226, King William's Town (scale 1: 250 000) and explanation sheet
- b) Profile log
- c) Foundation Indicator test result
- d) Road Indicator test results
- e) Percolation test results
- f) Dynamic Cone Penetrometer readings.

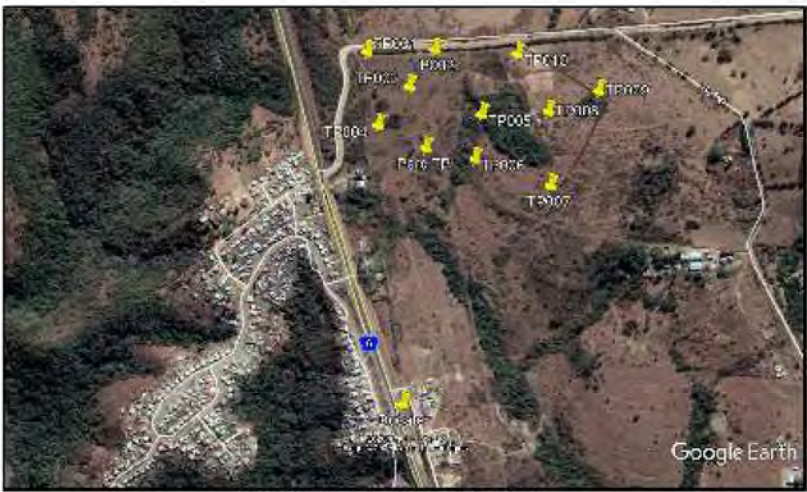
3. SITE DESCRIPTION

The proposed site for the cemetery was situated approximately 10km north from the central business district of East London. The site was north of the Ducats Township.



Site Position in relation to East London

Geotechnical Investigation Report



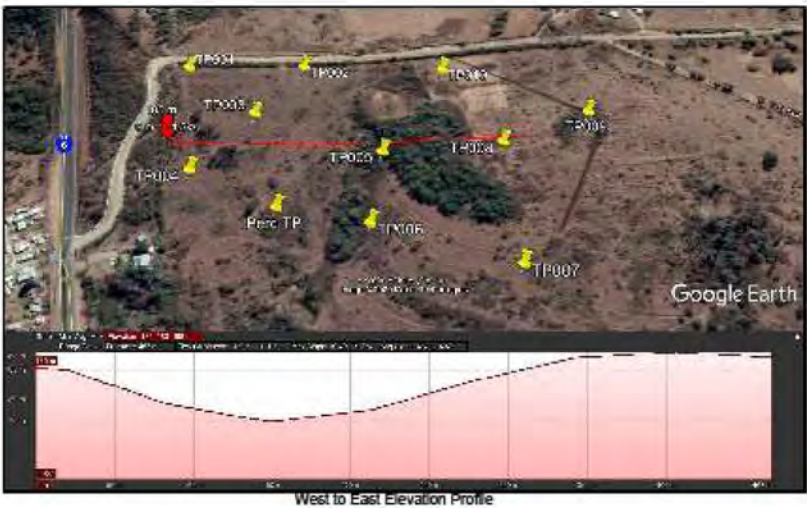
Site Position in Relation to the Ducalis Township

The maximum elevation of the study site was 190m above sea level and was found at the entrance at the northern part of the site. The slope towards the southern side varied with the maximum in the order of 18%. The west to east slopes varied with the maximum slope in a western direction of 13%. The low points in both directions were along the drainage channel between TP5 and TP6.



North to South Elevation Profile

Geotechnical Investigation Report



East London normally receives about 593mm of rain per year, with most rainfall occurring during summer. It receives the lowest rainfall (16mm) in July and the highest (79mm) in March. The monthly average midday temperatures for East London range from 20°C in July to 26°C in February. The region is the coldest during July when the mercury drops to 9.3°C on average during the night.

Wienerts climatic N number for the area is less than 2, which should indicate that the rocks would decompose implying that chemical weathering would dominate over mechanical weathering.



4. NATURE OF INVESTIGATION

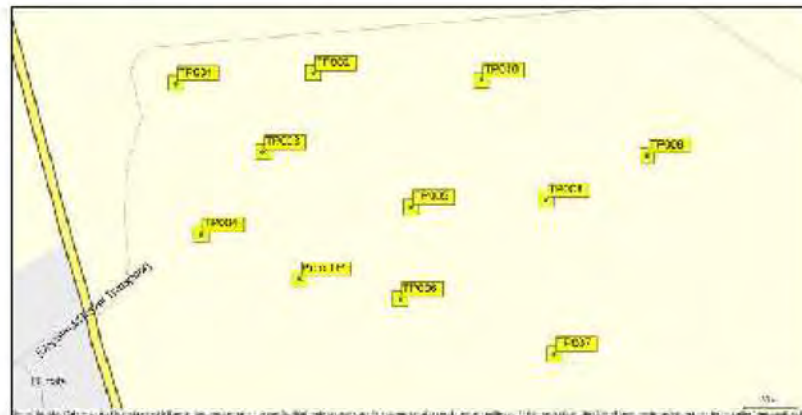
Field Investigation

The field investigation consisted of a total of ten (10) trial pits for geotechnical and one (1) trial pit for percolation testing spaced over the study areas.

The depth of the trial pits were all depth in the order of 2,0m or refusal depths and they were profiled by a qualified Engineering Technician utilising "The Revised Guide to Soil Profiling for Civil Engineering Purposes in Southern Africa" produced by Jennings Brink & Williams. All the trial pits were machine (TLB) excavated.

The co-ordinates for the trial pits were as follows:

➤ Trial Pit 1	S 32°55'06.2"	E 27°54'23.3"
➤ Trial Pit 2	S 32°55'05.9"	E 27°54'28.2"
➤ Trial Pit 3	S 32°55'08.2"	E 27°54'26.4"
➤ Trial Pit 4	S 32°55'10.6"	E 27°54'24.2"
➤ Trial Pit 5	S 32°55'09.8"	E 27°54'31.7"
➤ Trial Pit 6	S 32°55'12.5"	E 27°54'31.3"
➤ Trial Pit 7	S 32°55'14.1"	E 27°54'36.8"
➤ Trial Pit 8	S 32°55'09.6"	E 27°54'36.5"
➤ Trial Pit 9	S 32°55'08.3"	E 27°54'40.1"
➤ Trial Pit 10	S 32°55'06.1"	E 27°54'34.2"
➤ Percolation TP	S 32°55'11.9"	E 27°54'27.7"



Geotechnical Investigation Report

Laboratory Testing

Seven (7) disturbed soil samples were taken of typical horizons for Road Indicators, California Bearing Ratio (CBR) and Atterberg Limits tests.

POSITION	DEPTH	DESCRIPTION	G. M.	L L (%)	P I (%)	L S (%)	MDD (kg/m ³)	OMC (%)	C.B.R. @ 100%	C.B.R. @ 95 %	C.B.R. @ 90 %	SWELL (%)	TRH14 CLASS
TP 1	400 - 650	dk Br weath Sh + sdy st	2.08	26	9	4.0	1858	12.1	30	19	11	0.36	G7
TP 1	650 - 1400	lt Y Ol Sh	2.09	27	9	3.5	1857	9.6	48	20	9	0.29	G7
TP 6	500 - 800	dk Br Y Ss Pebbles + sdy st	2.04	30	11	5.5	1790	11.8	54	27	17	0.39	G7
TP 7	800 - 1300	dk R O Ferr + sdy st	1.01	39	18	9.0	1607	18	16	9	5	0.42	G10
TP 9	600 - 1000	lt Y Br weath dec Dol	1.60	41	18	8.5	1885	12.7	37	20	11	0.30	G8
TP 10	0 - 500	Black sdy st	0.20	37	16	8.0	1631	16.7	15	6	2	0.50	<G10
TP 10	1100 - 1900	dk Y dec Dol	1.82	38	15	7.0	2006	11.4	45	22	10	0.57	G7

The Road Indicator test results indicated that the material from the trial pits varied between weaker than a G10 and G7 material classifications.

Nine (9) disturbed soil samples were taken from typical horizons for Foundation Indicator tests. The Foundation Indicator tests results indicated a low potential of heave.

POSITION	DEPTH	DESCRIPTION	0.002 mm	LINEAR SHRINKAGE	PI WHOLE SAMPLE	POTENTIAL EXPANSIVENESS
TP 2	500 - 850	dk Y weath Sh + Sh	8	6.0	3.0	LOW
TP 2	850 - 1400	dk Y Ol Sh	7	5.0	3.0	LOW
TP 4	300 - 800	dk R O sdy st + Ferr	17	7.0	6.0	LOW
TP 5	1100 - 1800	lt Ol Sh	9	8.5	5.0	LOW
TP 6	900 - 2000	dk Y Sh	9	10.0	4.0	LOW
TP 7	1900 - 2800	dk Y Sh	19	6.0	10.0	LOW
TP 8	720 - 1500	dk Y O weath dec Dol	15	8.0	9.0	LOW
TP 8	1500 - 2400	dk Y dec Dol	2	4.0	2.0	LOW
TP 9	1000 - 2100	dk Y dec Dol	3	6.0	2.0	LOW

5. SITE GEOLOGY AND GROUNDWATER CONDITIONS

5.1 General

Rocks of the Beaufort Group belonging to the greater Karoo Supergroup were the dominant geological components at the study site. The study site comprised alternating layers of mudstone and sandstone of the Balfour Formation. Although no mudstone was encountered at any surface outcrops, it theoretically should be present in the sub-surface. Igneous dolerite intrusions were present.



Sedimentary Rock

The Balfour Formation consists of alternating layers of mudrock varying in colour from blue-grey to red-grey and sandstones, consisting of fine to medium grained particles which is classified as lithofeldspathic sandstone. The sandstone is found to occur upon erosional surfaces of the mudstone which display a thin layer of mud pebble conglomerate above the erosional surface.

Overall the Balfour Formation is up to 2000m thick with the layers of mudstone ranging from 50m to 100m thick. The sandstone layers are notably thinner and have a maximum thickness of 60m and an average of 6m.

Igneous Rock

According to the 1:250 000 geological map of King Williams Town (3226), intrusive dolerite sheets were apparent to the north of the study site. These dolerite sheets are however more than 2km away from the site and thus will have no effect on the study site.

No dolerite was encountered during the geotechnical investigation.

Structural Features

Structural features, such as folding, faulting and unconformable contacts provide zones of weakness which are taken advantage of by water. This then speeds up transport time of water movement and can reduce residence time of water and associated contaminants in the aquifer.

Based on the 1:125 000 geological map of East London (3227D), there were no faults in the immediate vicinity of the study site.

No folding was evident on the 1:125 000 geological map of East London (3227D), thus the risk of increased groundwater flow via axial planar cleavage was minimal.

5.2 Soil Profile

Due to the size of the area the material profiled varied, but general comments with regards to the soil profiles are as follows:

The transported material encountered within the trial pits consisted of sandy silt. The thickness of the horizon varied between 500mm and 1300mm. The moisture content of the transported horizons was slightly moist, the consistency soft and the structure intact. It must be noted that ferricrete nodules were profiled within some of the horizons. This is an indication of fluctuating water tables.

The residual material encountered varied between shale and decomposed dolerite. The moisture content of the horizons was slightly moist, the consistency dense to hard and the structure varying between intact (decomposed dolerite) and shattered (shale).

The soil profiles for the eight areas are attached in Appendix A.

5.3 Water Table

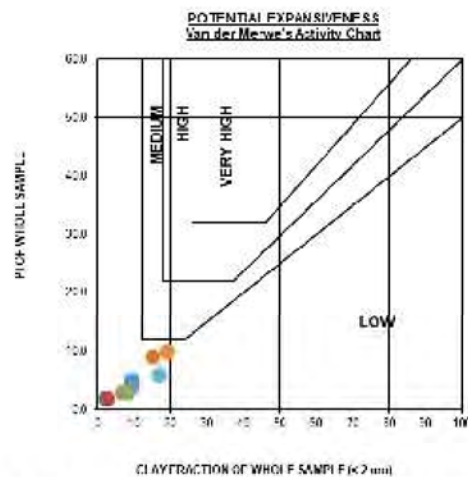
Water seepage was recorded within TP2. The ferricrete nodule horizons profiled were further indications of high water tables.

6. GEOTECHNICAL EVALUATION

6.1 Engineering and Materials Characteristics

Expansive Soil

From the Foundation Indicator tests carried out on the materials sampled from the various areas indicated generally a low potential expansiveness classification.



The area had PI of the whole sample that ranged from 2 to 10 and clay contents between 2% and 19%.

There was minimal risk with regards to heave.

Expansive Soil

The Road Indicator tests indicated that the residual shale and decomposed dolerite would be suitable for use in the construction of the infrastructure needed within the proposed cemetery.

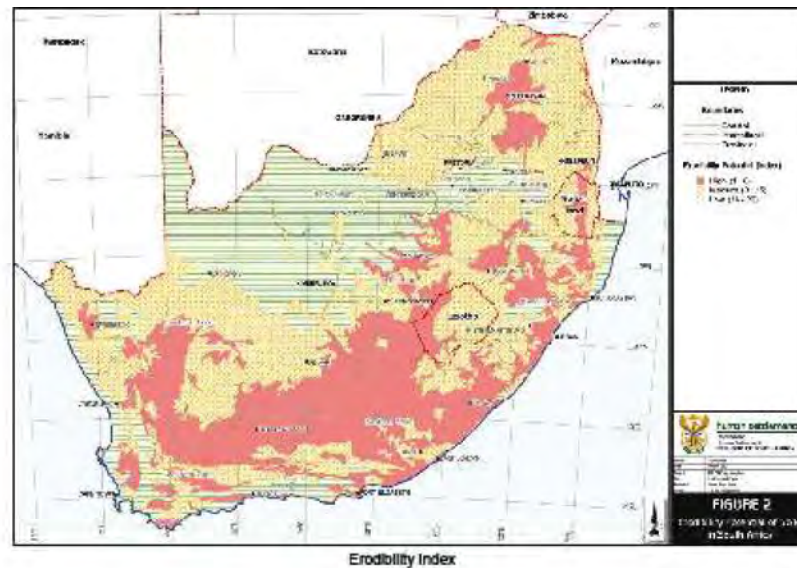
The transported sandy silt had a weak bearing pressure (CBR) and should not be used for any structural platforms or road/pavement layers.

Dispersive and Erodable Soil

The material on site generally carried between a GP and SC Unified Classification grade indicating that although the area falls within a medium risk with regards to erosion, there was a minimal to low risk that the material will be prone to erode.

POSITION	DEPTH	DESCRIPTION	UNIFIED CLASSIFICATION	TRB CLASSIFICATION
TP 2	500 - 850	dk Y weath Sh + Sh	GP	A - 2 - 6
	850 - 1400	dk Y Ol Sh	GP	A - 2 - 4
TP 4	300 - 800	dk R O sdy st + Ferr	SC	A - 6
TP 5	1100 - 1800	lt Ol Sh	GP	A - 2 - 6
TP 6	900 - 2000	dk Y Sh	GP	A - 2 - 7
TP 7	1900 - 2800	dk Y Sh	ML or OL	A - 6
TP 8	720 - 1500	dk Y O weath dec Dol	SC	A - 2 - 7
	1500 - 2400	dk Y dec Dol	SM	A - 2 - 4
TP 9	1000 - 2100	dk Y dec Dol	SW	A - 2 - 6

Geotechnical Investigation Report

**Potential Collapsible Soil**

No evidence of material with a high collapse potential was found during the field investigation and laboratory tests.

Differential Settlement

Differential settlement should not pose problems within the study area.

Sinkholes/Dolomite Areas

The materials occurring on this site should not be susceptible to solution and the likelihood of sinkholes forming is remote.

Undermined Ground

No indication of the presence of undermined ground was found during the desk study.

Percolation/Permeability

One (1) on-site percolation test was performed. The measured flow within the transported silt was in the order of 80mm/hr. It must be noted that the flow within the residual shale and decomposed dolerite will be lower.

6.2 Excavation Classification

All excavations were by machine and refusals were recorded at most of the test positions within the residual shale or decomposed dolerite. The trial pit profiles are attached to the document in the appendixes.

Trial Pit 1	Refusal @ 1400mm on shale
Trial Pit 2	Refusal @ 1400mm on shale
Trial Pit 3	Refusal @ 1600mm on shale
Trial Pit 4	Refusal @ 1300mm on shale
Trial Pit 5	Refusal @ 1800mm on shale on shale
Trial Pit 6	Refusal @ 2000mm on shale
Trial Pit 7	Refusal @ 2800mm on shale
Trial Pit 8	Refusal @ 2400mm on decomposed dolerite
Trial Pit 9	Refusal @ 2100mm on decomposed
Trial Pit 10	Refusal @ 1900mm on dolerite boulders
Percolation TP	No Refusal @ 600mm

6.3 Ground Water Protocol

The underlying geology of the proposed cemetery site has a shale aquifer flow rate of be 6.22×10^{-4} m/day. Hydraulic gradient was calculated based on the assumption that the water table was topographically controlled.

The Eastern Cape Groundwater Master Plan suggests that the study area falls within the category of fractured and intergranular aquifer type yielding 0.5 – 2.0 l/s.

Profile logging of trial pits indicated that a surficial covering consisting of sandy silt and residual shattered shale or decomposed dolerite. Logging of the trial pits also indicated refusal depth in excess of 1300mm.

Percolation testing on site yielded an average percolation rate of 80mm/hr. Percolation tests which were performed on sandy silt had values much higher than the of test performed on in situ sandstone or shale as well as clayey sand.

7. CEMETERY SELECTION PROCEDURES

The cemetery site selection criteria are not only designed to counter pollution problems but also take note of other constraints such as slope, shallow bedrock and soil stability. The ten criteria are mentioned below with a brief description of each.

- **Soil Excavability:** A minimum excavatable depth of 1,8 metres is preferred for cemetery purposes, although depths exceeding 2 metres would be more desirable.
- **Soil Permeability:** Soil permeabilities should preferably fall between the following limits: 1×10^{-7} cm per second and 1×10^{-4} cm per second. Too high permeabilities would allow rapid leachate spread and too low permeabilities would inhibit the decomposition process.
- **Position in Respect of Domestic Water Sources:** Minimum safe distances between a cemetery and domestic water source such as a borehole or storage dam would be between 100 and 450 metres depending on the prevailing soil permeabilities.
- **Position in Respect of Drainage Features:** Minimum safe distances between a cemetery and drainage feature, would be between 50 and 150 metres, once again depending on the prevailing soil permeabilities.
- **Site Drainage:** Good site drainage is required to firstly prevent soil erosion and secondly to prevent ponding, marshy conditions, unnecessary water ingress and cemetery degradation.
- **Site Topography:** A gradient of between 2° and 6° is considered ideal for cemetery purposes. This slope range will ensure adequate drainage, minimise erosion and promote human and mechanical mobility on site.
- **Basal Buffer Zone:** A basal buffer zone refers to the soil succession between the base of the deepest grave and the water table. The buffer zone is essentially a barrier between the source of pollution and the valuable water resource. A buffer zone of at least 2,5 metres is preferred.
- **Grave Stability:** Competence of the grave verge is important for a number of reasons, the most prominent being that a few days usually elapses between excavation and use, hence the need for a few days of "stand up" time.
- **Soil Workability:** This refers to the ease at which the soil can be manipulated in and out of the graves.
- **Cemetery Size:** A minimum sized cemetery to justify the costs of investigation and implementation is recommended.

8. EVALUATION OF PROPOSED SITE

The trial pit excavations varied between 1300mm and as deep as 2800mm. It must be noted that the excavations were done by machine (TLB) and that at places on the site deep excavations may be problematic. The excavation refusals were recorded within residual shale or decomposed dolerite.

The soil permeability of the solid shale falls outside the ideal permeability range and will be too low. The transported silt was too high and would also not be ideal, but the more critical parameter would be the residual material. However the fact that the structure of the residual material was shattered would indicate that the flow rate would be higher than the anticipated values and therefore should not be a fatal flaw.

The groundwater protocol report would deal with the risk of contamination of ground water. Are must be taken to prevent grave sites too close to the natural drainage channel along the central part of the proposed development.

There were no major drainage channels (rivers) that would be affected by the

The shale/decomposed dolerite aquifer had a slow intergranular flow rate while the sandy silt above the rock was considerably higher.

Further groundwater census investigations need to be performed in order to determine the position, status and usage of any groundwater abstraction points in the vicinity of the proposed development.

Although there was no major drainage structures identified adherence to the requirements of the Department of Water Affairs and Forestry must be taken into account in the planning of the proposed cemetery. The minor drainage structure should be taken into consideration to prevent leaching into the ground water.

Site drainage should not pose any problems as the slopes ranges in the order of 7 degrees. It is important to ensure that vegetation is re-established after the cemetery infrastructure was put in place. Although the area falls within a medium risk with regards to erodibility, the top horizons were also not deemed problematic with regards to erosion.

The site topography ties into the site drainage and the slopes on the site were in the order of 7 degrees, surface drainage should be addressed through engineering solutions during the proposed extension.

Although water seepage was recorded, the flow rate was low and ground water could possibly be problematic during the rainy season.

The grave stability should not pose any problems as the material encountered within the trial pits indicated that the material would not be prone to collapse. Deep excavations within the hard residual shale and sandstone may be

problematic, but could be overcome by the use of heavier excavation machinery.

9. CONCLUSIONS

There were no geotechnical fatal flaws identified that would prevent the establishment of a cemetery.

Although there were not major constraints identified during the geotechnical investigation the biggest issues to be addressed would be the low permeability of the shale encountered in the study area, excavatability of the residual material and the adherence to the Environmental and ground water constraints.

Note that the investigation was aimed at providing the proposed developer with an indication with regards to the suitability of the site to be developed as a cemetery. Other factors such as the local community's views on the proposed development and the acceptance of the local authorities were not taken into consideration but should be taken into account in the final decision.

Note that this report does not address the requirements for the Ground Water Protocol report.

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Climatic information for East London: www.saexplorer.co.za/south-africa/climate/east_london_climate.asp

APPENDIX A:

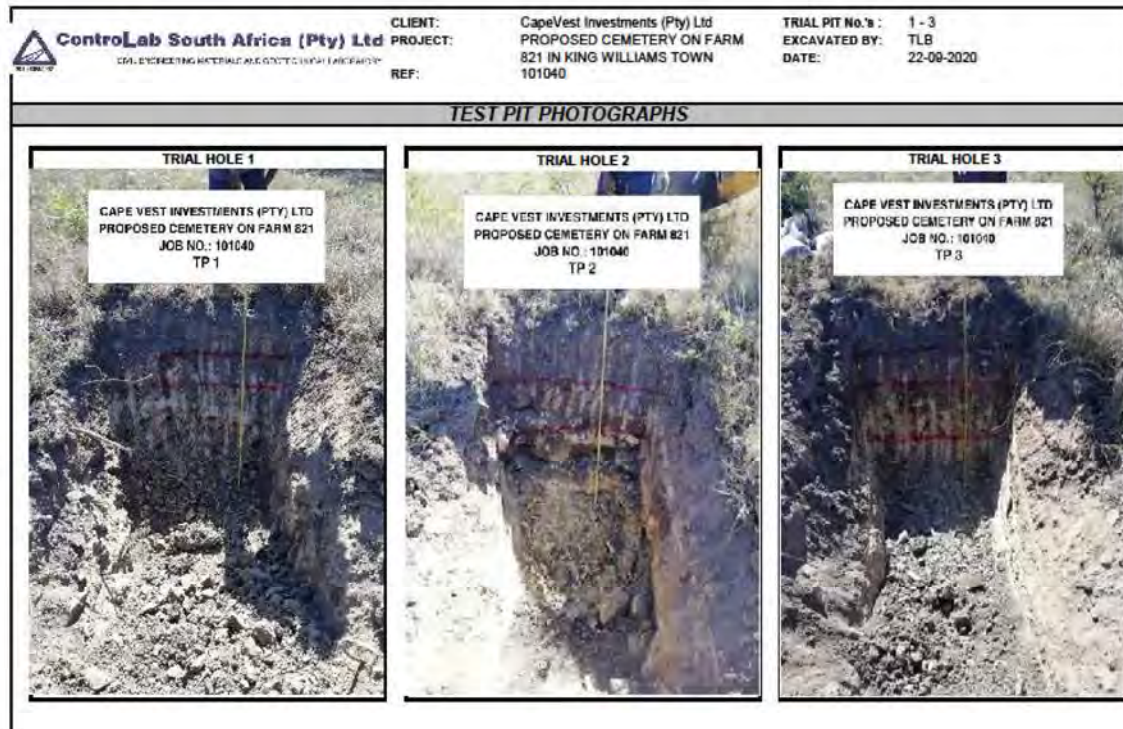
TEST PIT PROFILE LOGS

 ControlLab South Africa (Pty) Ltd EXPLORATION & INVESTIGATION SERVICES	CLIENT: CapeVest Investments (Pty) Ltd PROJECT: PROPOSED CEMETERY ON FARM 821 IN KING WILLIAMS TOWN REF: 101040	TRIAL PIT No.'s: 1, 2, 3 EXCAVATED BY: TLB DATE: 22-09-2020																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Position: Trial Pit 1 S 32°55'06.2" E 27°54'23.3" <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0.0</td><td>0.1</td><td>0.2</td><td>0.3</td><td>0.4</td><td>0.5</td><td>0.6</td><td>0.7</td><td>0.8</td><td>0.9</td><td>1.0</td><td>1.1</td><td>1.2</td><td>1.3</td><td>1.4</td><td>1.5</td><td>1.6</td><td>1.7</td><td>1.8</td><td>1.9</td><td>2.0</td><td>2.1</td><td>2.2</td><td>2.3</td><td>2.4</td><td>2.5</td></tr> <tr><td colspan="25">Slightly moist, dark Brown, soft, intact, sandy silt + Roots.</td></tr> <tr><td colspan="25">Transported:</td></tr> <tr><td colspan="25">Slightly moist, dark Brown, dense, intact, weathered Shale + sandy silt.</td></tr> <tr><td colspan="25">Residual:</td></tr> <tr><td colspan="25">Slightly moist, dark Yellow Olive, hard, shattered, Shale.</td></tr> <tr><td colspan="25">Residual:</td></tr> </table> SAMPLES TAKEN: 4525, 4526 No ground water. Refusal @ 1400mm on Shale	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	Slightly moist, dark Brown, soft, intact, sandy silt + Roots.																									Transported:																									Slightly moist, dark Brown, dense, intact, weathered Shale + sandy silt.																									Residual:																									Slightly moist, dark Yellow Olive, hard, shattered, Shale.																									Residual:																									Position: Trial Pit 2 S 32°55'05.3" E 27°54'28.2" <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0.0</td><td>0.1</td><td>0.2</td><td>0.3</td><td>0.4</td><td>0.5</td><td>0.6</td><td>0.7</td><td>0.8</td><td>0.9</td><td>1.0</td><td>1.1</td><td>1.2</td><td>1.3</td><td>1.4</td><td>1.5</td><td>1.6</td><td>1.7</td><td>1.8</td><td>1.9</td><td>2.0</td><td>2.1</td><td>2.2</td><td>2.3</td><td>2.4</td><td>2.5</td></tr> <tr><td colspan="25">Slightly moist, dark Brown, soft, intact, sandy silt + Roots.</td></tr> <tr><td colspan="25">Transported:</td></tr> <tr><td colspan="25">Slightly moist, dark Yellow, dense, intact, weathered Shale + Shale.</td></tr> <tr><td colspan="25">Residual:</td></tr> <tr><td colspan="25">Slightly moist, dark Yellow Orange, hard, shattered, Shale.</td></tr> <tr><td colspan="25">Residual:</td></tr> </table> SAMPLES TAKEN: 4527, 4528 Water seepage in Pit Refusal @ 1400mm on Shale	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	Slightly moist, dark Brown, soft, intact, sandy silt + Roots.																									Transported:																									Slightly moist, dark Yellow, dense, intact, weathered Shale + Shale.																									Residual:																									Slightly moist, dark Yellow Orange, hard, shattered, Shale.																									Residual:																									Position: Trial Pit 3 S 32°55'06.2" E 27°54'26.4" <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0.0</td><td>0.1</td><td>0.2</td><td>0.3</td><td>0.4</td><td>0.5</td><td>0.6</td><td>0.7</td><td>0.8</td><td>0.9</td><td>1.0</td><td>1.1</td><td>1.2</td><td>1.3</td><td>1.4</td><td>1.5</td><td>1.6</td><td>1.7</td><td>1.8</td><td>1.9</td><td>2.0</td><td>2.1</td><td>2.2</td><td>2.3</td><td>2.4</td><td>2.5</td></tr> <tr><td colspan="25">Slightly moist, dark Brown, soft, intact, sandy silt + Roots.</td></tr> <tr><td colspan="25">Transported:</td></tr> <tr><td colspan="25">Slightly moist, dark Red Orange, firm, intact, Ferricrete + sandy silt + Sandstone Pebbles. Transported:</td></tr> <tr><td colspan="25">Slightly moist, dark Yellow, dense, intact, weathered Shale.</td></tr> <tr><td colspan="25">Residual:</td></tr> <tr><td colspan="25">Slightly moist, light Olive, hard, shattered, Shale.</td></tr> <tr><td colspan="25">Residual:</td></tr> </table> NO SAMPLES TAKEN: No ground water. Refusal @ 1600mm on Shale	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	Slightly moist, dark Brown, soft, intact, sandy silt + Roots.																									Transported:																									Slightly moist, dark Red Orange, firm, intact, Ferricrete + sandy silt + Sandstone Pebbles. Transported:																									Slightly moist, dark Yellow, dense, intact, weathered Shale.																									Residual:																									Slightly moist, light Olive, hard, shattered, Shale.																									Residual:																								
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 ControlLab South Africa (Pty) Ltd ANALYSIS • TESTING • CONSULTING • PROJECT MANAGEMENT		CLIENT: CapeVest Investments (Pty) Ltd PROJECT: PROPOSED CEMETERY ON FARM 821 IN KING WILLIAMS TOWN REF: 101040	TRIAL PIT No.'s : 4, 5, 6 EXCAVATED BY: TLB DATE: 22-09-2020
TEST PIT LOGS			
Position: Trial Pit 4 S 32°55'10.6" E 27°54'24.2"	Position: Trial Pit 5 S 32°55'09.8" E 27°54'31.7"	Position: Trial Pit 6 S 32°55'12.5" E 27°54'31.3"	
0.0 0.1 0.2 0.3 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6	0.1 0.2 0.3 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6	0.1 0.2 0.3 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6	Slightly moist, dark Brown, soft, intact, sandy silt + Roots. Transported: Slightly moist, dark Red Orange, firm, intact, sandy silt + Femorele. Transported: Slightly moist, dark Yellow, dense, intact, weathered Shale. Residual: Slightly moist, light Olive, hard, shattered, Shale. Residual: SAMPLE TAKEN: 4529 No ground water Refusal @ 1300mm on Shale
	Slightly moist, dark Brown, soft, intact, sandy silt + Roots. Transported: Slightly moist, dark Brown Red, firm, intact, Femorele + sandy silt. Transported: Slightly moist, dark Yellow, dense, intact, weathered Shale. Residual: Slightly moist, light Olive, hard, shattered, Shale. Residual: SAMPLE TAKEN: 4530 No ground water Refusal @ 1000mm on Shale on Shale	Slightly moist, dark Brown, soft, intact, sandy silt + Roots. Transported: Slightly moist, dark Brown Yellow, medium dense, intact, Sandstone Pebbles + sandy silt. Transported: Slightly moist, dark Yellow, dense, shattered, Shale. Residual: SAMPLES TAKEN: 4531, 4532 No ground water Refusal @ 2000mm on Shale	

 ControlLab South Africa (Pty) Ltd GEOTECHNICAL ENGINEERING AND CONSULTANCY		CLIENT: CapeVest Investments (Pty) Ltd PROJECT: PROPOSED CEMETERY ON FARM 821 IN KING WILLIAMS TOWN REF: 101040	TRIAL PIT No.'s : 7, 8, 9 EXCAVATED BY: TLB DATE: 22-09-2020
TEST PIT LOGS			
Position: Trial Pit 7 S 32°55'14.1" E 27°54'36.8"		Position: Trial Pit 8 S 32°55'09.6" E 27°54'36.5"	Position: Trial Pit 9 S 32°55'08.3" E 27°54'40.1"
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6	Slightly moist, Black, soft, intact, sandy silt + Roots. Transported. Slightly moist, dark Red Orange, firm, intact, Ferrirete + sandy silt. Transported. Slightly moist, dark Yellow Orange, dense, intact, weathered Shale. Residual: Slightly moist, dark Yellow, dense, intact, Shale. Residual:	0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6	Slightly moist, Black, soft, intact, sandy silt + Roots. Transported. Slightly moist, dark Yellow Orange, medium dense, intact, weathered decomposed Dolerite. Residual: Slightly moist, dark Yellow, dense, intact, decomposed Dolerite. Residual: Slightly moist, dark Yellow, dense, intact, decomposed Dolerite. Residual:
SAMPLES TAKEN: 4533, 4534 No ground water Refusal @ 2500mm on Shale		SAMPLES TAKEN: 4535, 4536 No ground water Refusal @ 2400mm on decomposed Dolerite	SAMPLES TAKEN: 4537, 4538 No ground water Refusal @ 2100mm on decomposed Dolerite

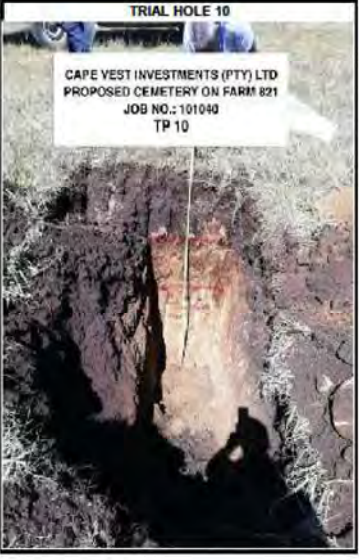
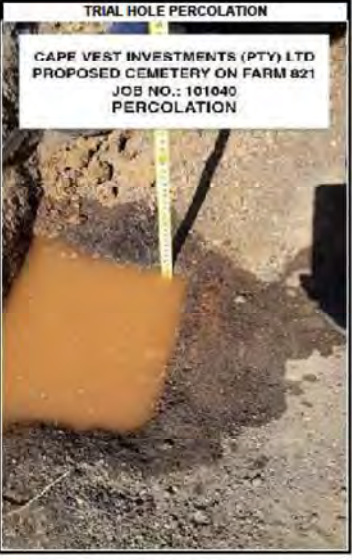
 ControlLab South Africa (Pty) Ltd THE ENGINEERING MATERIALS AND TESTING LABORATORY	CLIENT: CapeVest Investments (Pty) Ltd PROJECT: PROPOSED CEMETERY ON FAR 821 IN KING WILLIAMS TOWN REF: 101040	TRIAL PIT No.'s : 10 & Percolation EXCAVATED BY: TLB DATE: 22-09-2020																																																																																																																																																																																																																																																																			
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Position: Trial Pit 10 S 32°55'06.1" E 27°54'34.2" <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0.0</td><td></td><td></td><td></td><td></td></tr> <tr><td>0.1</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.2</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.3</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.4</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.5</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.6</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.7</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.8</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.9</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.0</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.1</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.2</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.3</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.4</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.5</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.6</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.7</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.8</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>1.9</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>2.0</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.2</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.3</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.4</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.5</td><td></td><td></td><td></td><td></td></tr> </table> Slightly moist, Black, soft, intact, sandy silt + Roots. Transported: Slightly moist, dark Yellow Orange, medium dense, intact, weathered decomposed Dolomite. Residual: Slightly moist, dark Yellow, dense, intact, decomposed Dolomite. Residual: SAMPLES TAKEN: 4539, 4540 No ground water Refusal @ 1900mm on Dolomite Boulders	0.0					0.1	+	+	+		0.2	+	+	+		0.3	+	+	+		0.4	+	+	+		0.5	+	+	+		0.6	+	+	+		0.7	+	+	+		0.8	+	+	+		0.9	+	+	+		1.0	+	+	+		1.1	+	+	+		1.2	+	+	+		1.3	+	+	+		1.4	+	+	+		1.5	+	+	+		1.6	+	+	+		1.7	+	+	+		1.8	+	+	+		1.9	+	+	+		2.0					2.1					2.2					2.3					2.4					2.5					Position: Percolation Trial Pit S 32°55'11.9" E 27°54'27.7" <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0.0</td><td></td><td></td><td></td><td></td></tr> <tr><td>0.1</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.2</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.3</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.4</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.5</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.6</td><td>+</td><td>+</td><td>+</td><td></td></tr> <tr><td>0.7</td><td></td><td></td><td></td><td></td></tr> <tr><td>0.8</td><td></td><td></td><td></td><td></td></tr> <tr><td>0.9</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.0</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.1</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.2</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.3</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.4</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.5</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.6</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.7</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.8</td><td></td><td></td><td></td><td></td></tr> <tr><td>1.9</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.0</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.2</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.3</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.4</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.5</td><td></td><td></td><td></td><td></td></tr> </table> Slightly moist, dark Brown, soft, intact, sandy silt + Roots. Transported: Slightly moist, dark Brown Red, firm, intact, Feinterete + sandy silt. Transported: NO SAMPLES TAKEN: No ground water No Refusal @ 600mm	0.0					0.1	+	+	+		0.2	+	+	+		0.3	+	+	+		0.4	+	+	+		0.5	+	+	+		0.6	+	+	+		0.7					0.8					0.9					1.0					1.1					1.2					1.3					1.4					1.5					1.6					1.7					1.8					1.9					2.0					2.1					2.2					2.3					2.4					2.5				
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 Controlab South Africa (Pty) Ltd SOIL ENGINEERING MATERIAL ANALYTICAL LABORATORY	CLIENT:	CapeVest Investments (Pty) Ltd	TRIAL PIT No.'s :	10 & PERCOLATION
	PROJECT:	PROPOSED CEMETERY ON FARM 821 821 IN KING WILLIAMS TOWN	EXCAVATED BY:	TLB
	REF:	101040	DATE:	22-09-2020

TEST PIT PHOTOGRAPHS	
TRIAL HOLE 10  CAPE VEST INVESTMENTS (PTY) LTD PROPOSED CEMETERY ON FARM 821 JOB NO.: 101040 TP 10	TRIAL HOLE PERCOLATION  CAPE VEST INVESTMENTS (PTY) LTD PROPOSED CEMETERY ON FARM 821 JOB NO.: 101040 PERCOLATION

APPENDIX B:

FOUNDATION AND ROAD INDICATOR TEST RESULTS



Controlab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

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17190 - NBS 2005/2006 SANS 1500

HEAD OFFICE: 1 Alfred Road, Heart 3247, Tel: 043 726 7100, Fax: 043 726 7420
CENTRAL LABORATORY: 10 St Pauls Road, Port London, 5231, Tel: 041 722 6420 / 722 8565, Fax: 041 745 0942, P O Box 246, Port London, 5200
OTHER BRANCH OFFICES: Cape Town, Richards, Johannesburg, Mchatha, Queenstown, Lusaka - Zambia

CLIENT: CapeVest Investments (Pty) Ltd
Suite 1 MD Square
Highway
MIDWINTSANE
5219
ATT: Mr M Sohaba

PROJECT: PROPOSED CEMETERY ON FARM 821
IN KING WILLIAMS TOWN

DATE RECEIVED: 2020-09-22

DATE TESTED: 2020-10-06

DATE REPORTED: 2020-10-09

TEST REPORT NO.: 101040

MATERIALS TEST REPORT

SAMP. NO.	4525	4528	4531	4533
POSITION / CHANGE	TP 1	TP 6	TP 7	
DEPTH (m)	400 - 600	850 - 1400	500 - 800	000 - 1800
DESCRIPTION	dk Br	dk Y OI	dk Br Y	dk R C
	WSPR: Sh +	Sh	Sh Pebbles	For +
	BCY St		+ ady st	ady st
Sieve Analysis (Mét Preparation) SANS 3001 - Part A01				
% PASSING 75 mm	92	94	52	
0.075 mm	80	91	89	
0.15 mm	90	91	89	
0.3 mm	89	90	87	
0.6 mm	80	88	84	
1.18 mm	85	81	78	100
2.0 mm	75	72	73	99
4.75 mm	54	54	60	91
7.5 mm	41	42	44	81
15 mm	30	30	29	54
30 mm	20.6	19.1	22.8	54.4
Soil Moisture Analysis - SANS 3001 - Part A01				
COURSE SAND (%)	27	28	34	21
FINE SAND (%)	23	26	74	12
SILT / CLAY (%)	50	45	52	67
GRAVING MODULUS	2.38	2.38	2.04	1.01
Atterberg Limits - SANS 3001 - GR10 & GR11				
LIQUID LIMIT (%)	36	27	30	39
PLASTICITY INDEX (%)	9	9	11	18
LINEAR SHRINKAGE (%)	4.0	3.5	8.5	9.0
Maximum Dry Density & Optimum Moisture Content - SANS 3001 - GR12 & GR13; California Bearing Ratio - SANS 1001 - GR10				
Maximum Dry Density (kg/m³)	1956	1857	1790	1807
Optimum Moisture Content (%)	12.1	9.6	11.8	15
C.B.R. @ 100% COMPACTION	30	48	54	16
C.B.R. @ 90% COMPACTION	25	34	27	13
C.B.R. @ 85% COMPACTION	19	20	27	9
C.B.R. @ 80% COMPACTION	15	15	22	7
C.B.R. @ 75% COMPACTION	11	9	17	5
SWELL @ 100% COMP. (%)	0.35	0.29	0.38	0.42
Classification	G7	G7	G6 / G7	<G3 / G10
These test results are valid for the purpose stated. They are not to be used for any other purpose without the written consent of the laboratory. Controlab South Africa (Pty) Ltd				
Remarks: Sample taken by: D. Mchatha Sampled by Controlab: YFR				
				Technical Signature Page 1 of 4

SIR001


ControlLab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

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SANS 150222-2 Accredited Laboratory

HEAD OFFICE: 11 Amstel Road, Vincent 6347, Tel: 043 722 7850, Fax: 043 722 7426
 CENTRAL LABORATORY: 12 St Pauls Road, East London, 5201, Tel: 043 722 5420 / 722 0586, Fax: 043 743 8942, P.O. Box 348, East London, 5200
 OFFICE & BRANCH OFFICES: Cape Town, Kokstad, Johannesburg, Milnerton, George Town, Lesotho - Zomba

CLIENT: CapeVest Investments (Pty) Ltd

Suite 1 MD Square

Highway

MDANTSANE

5218

ATT: Mr M Schaba

 PROJECT: PROPOSED CEMETERY ON FARM 521
 IN KING WILLIAMS TOWN

DATE RECEIVED: 2020-09-22

DATE TESTED: 2020-10-05

DATE REPORTED: 2020-10-09

TEST REPORT NO.: 101040

MATERIALS TEST REPORT					
SAMPLE NO:	4537	4538	4540		
POSITION / CHARGE:	TP 9		TP 10		
DEPTH (mm)	800 - 1000	0 - 500	1100 - 1900		
DESCRIPTION:	lt Y Br	Black	dk Y		
	weath	soy sl	dec Dol		
	org Dol				
Sieve Analysis (Wet Preparation) SANS 3001 - Part A51					
NO. PASSING 75 mm					
63 mm					
90 mm					
125 mm					
20 mm					
14 mm	100		100		
5 mm	97	100	94		
2.50 mm	79	99	70		
0.425 mm	33	98	3		
0.375 mm	22.0	83.3	16.6		
Ball Miller Analysis - SANS 3001 - PR5					
COURSE SAND (%)	50		55		
FINE SAND (%)	21	15	21		
SILT & CLAY (%)	29	84	24		
SHALLING MODULUS	1.60	0.20	1.82		
Atterberg Limits - SANS 3001 - GR10 & GR11					
LIQUID LIMIT (%)	41	37	38		
PLASTICITY INDEX (%)	15	18	15		
LINEAR SHRINKAGE (%)	8.5	8.0	7.0		
Maximum Dry Density & Optimum Moisture Content - SANS 3001 - GR10 / California Bearing Ratio - SANS 3001 - GR4					
Maximum Dry Density (kg/m³)	1905	1631	2008		
Optimum Moisture Content (%)	12.7	15.7	11.4		
C.B.R. @ 100% COMPACTION	37	15	45		
C.B.R. @ 98% COMPACTION	29	11	34		
C.B.R. @ 95% COMPACTION	20	6	22		
C.B.R. @ 93% COMPACTION	18	4	16		
C.B.R. @ 90% COMPACTION	11	2	10		
SWELL @ 100% COMP. (%)	0.30	0.50	0.57		
Colloidal Clay Classification	<G9 / G2	<G9 / <G10	G7		
The above test results are based on the samples tested only. Material which was submitted for testing to recognized standards. Control should be kept for a minimum of 7 days after the test. If necessary, it should be kept for a minimum of 14 days prior to disposal.					
Remarks:					
Sample Delivered by Customer					
Sampled by ControlLab: YES					

Page 2 of 4

STR001


Controlab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

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 HEAD OFFICE: 1 Alhambra, Vincent, 5247, Tel: 043 726 7059, Fax: 043 726 7428
 CENTRAL LABORATORY: 10 St Pauls Road, East London, 5201, Tel: 043 732 0485 / 732 8988 Fax: 043 742 2942, P.O. Box 346, East London, 5200
 OTHER BRANCH OFFICES: Cape Town, Kokstad, Johannesburg, Grahamstown, Durban, Port Elizabeth, Tzaneen

 CLIENT: CapeVest Investments (Pty) Ltd
 Suite 1, MD Square
 Highway
 MDANTSANE
 5210

 PROJECT: PROPOSED CEMETERY ON FARM
 82° IN KING WILLIAMS TOWN

DATE RECEIVED: 2020-09-22

DATE TESTED: 2020-10-05

DATE REPORTED: 2020-10-09

TEST REPORT NO.: 101040

ATT: Mr M. Sothaba

FOUNDATION INDICATOR REPORT

SAMPLE NO	4527	4528	4529	4530
POSITION	TP 2		TP 4	TP 5
DEPTH mm	500 - 850	850 - 1100	300 - 800	1100 - 1800
DESCRIPTION	dk Y	dk Y OI	dk R O	dk O
	weath Sh +	Sh	sdly st +	Sh
	Sh		Fert	
SIEVE ANALYSIS % PASSING SICES: Method: SANS 3001-AG1				
% PASSING 75 μ m				
65 μ m				
50 μ m	100	100		
37.5 μ m	77	64		100
25 μ m	68	53		88
20 μ m	59	54		79
15 μ m	63	49		69
10 μ m	48	46	100	62
7.5 μ m	44	43	98	54
5.00 μ m	42	41	93	49
2.00 μ m	35	36	65	34
1.00 μ m	30	32	52	28
0.840 μ m	28.9	30.3	49.8	26.7
0.425 μ m	25.7	29.4	46.6	24.6
0.300 μ m	24.8	28.8	48.2	24.4
0.150 μ m	23.8	27.3	45.9	23.7
0.075 μ m	21.6	25.1	41.4	22.2
GRADING MODULUS	2.2	2.1	1.5	2.2
HYDROMETER ANALYSIS: Method: SANS 3001-GR3				
0.060 μ m	19	20	38	21
0.020 μ m	11	11	24	13
0.006 μ m	9	8	19	10
0.002 μ m	8	7	17	9
ATTERBERG LIMITS: Method: SANS 3001-GR10				
LIQUID LIMIT	27	28	28	52
PLASTICITY INDEX	2	9	14	19
LINEAR SHRINKAGE	6.0	5.0	7.0	8.5
PREDICTION OF HEAVE (VAN DER MERWE METHOD)				
PI WHOLE SAMPLE	3.0	3.0	6.0	6.0
POTENTIAL EXPANSIVENESS	LOW	LOW	LOW	LOW
The above methods form part of the services provided and are not to be used for any other purpose. Where the test results are used for any other purpose, the user must ensure that the test results are appropriate for the intended purpose. This report may not be used for any other purpose without the written consent of Controlab. Prepared by: _____ Checked by: _____ Sample Delivered by Customer: ☒ Sampled by Controlab: ☒				

Tests and Signatures

STR3032A


ControlLab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEO-TECHNICAL LABORATORY

www.controllab.co.za



SANS 10400-1:2012

LEAD OFFICE: 1 Alfred Road, Vincent 2047, Tel: 043 226 7853, Fax: 043 750 7676
 CENTRAL LABORATORY: 10 St Pauls Road, East London, 5201, Tel: 043 721 5423 / 722 8626, Fax: 043 748 9942, P.O. Box 316, East London, 5201
 OTHER BRANCH OFFICES: Cape Town, Kokstad, Johannesburg, Vilhelois, Queenstown, Lesotho - Zambesi

CLIENT: CapeWest Investments (Pty) Ltd
 Suite 1 MD Square
 Highway
 MDANT'SAME
 5219
 ATT: Mr M Sonaga

PROJECT: PROPOSED CEMETERY ON FARM
 821 IN KING WILLIAMS TOWN

DATE RECEIVED: 2020-09-22

DATE TESTED: 2020-10-06

DATE REPORTED: 2020-10-09

TEST REPORT NO.: 131040

FOUNDATION INDICATOR REPORT

SAMPLE NO.	4532	4534	4535	4536	4538
POSITION	TP 6	TP 7	TP 8	TP 8	TP 9
DEPTH mm	900 - 2700	1900 - 2800	720 - 1500	1500 - 2400	1000 - 2700
DESCRIPTION	dk Y	dk Y	dk Y O	dk Y	dk Y
	Sh	Sh	Sh	Sh	Sh
			dec Dol	dec Dol	dec Dol

SIEVE ANALYSIS % PASSING SIEVES: Method: SANS 3001-A01					
% PASSING	75 mm	150 mm	300 mm	600 mm	1000 mm
75 mm					
150 mm					
300 mm	100				100
600 mm	90				90
1000 mm	82				87
1500 mm	73				93
2000 mm	80			100	78
2500 mm	50			90	72
3000 mm	42	100	100	94	66
3500 mm	31	97	87	62	38
4000 mm	28	95	86	34	20
4500 mm	24.4	93.5	57.2	25.9	17.4
5000 mm	23.1	52.9	53.0	23.0	14.8
5500 mm	22.6	51.2	49.7	20.2	12.8
6000 mm	20.8	35.1	44.3	15.1	9.4
6500 mm	18.9	78.8	32.5	10.3	7.0

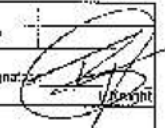
GRADING MODULUS					
2.3	0.3	0.5	2.0	2.4	

HYDROMETER ANALYSIS: Method: SANS 3001-0R3					
0.075 mm	18	69	94	5	7
0.075 mm	12	35	22	4	4
0.075 mm	10	23	17	3	3
0.075 mm	9	19	15	2	3

ATTERBERG LIMITS: Method: SANS 3001-GR10					
LIQUID LIMIT	41	36	40	33	36
PLASTICITY INDEX	18	11	16	8	12
LINEAR SHRINKAGE	0.0	0.0	0.0	4.0	6.0

PREDICTION OF HEAVE (VAN DER MERWE METHOD)					
P. WHOLE SAMPLE	4.0	10.3	9.0	2.0	2.0
POTENTIAL EXPANSIVENESS	LOW	LOW	LOW	LOW	LOW

The above test results are reported to the samples received and tested as per the test plan. The test results are reported to the client as per the test plan. The test results are reported to the client as per the test plan.

Signature: 

Date: 2020-10-09

Samples Delivered by Customer: ☐

Samples Delivered by Contractor: ☒

STR0032A


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OTHER BRANCH OFFICES: Cape Town, Richards Bay, Durban, Johannesburg, Midrand, Quthing, Grahamstown, Port Elizabeth, George

CLIENT: CapeVest Investments (Pty) Ltd

Suite 1 MD Square

Highway

MDANTSANE

6219

ATT: Ml M Sohaba

PROJECT: PROPOSED CEMETERY ON FARM

821 IN KING WILLIAMS TOWN

DATE RECEIVED: 2020-08-22

DATE TESTED: 2020-09-22

DATE REPORTED: 2020-10-09

TEST REPORT NO: 101040

PERCOLATION TEST RESULTS

POSITION	MATERIALS DESCRIPTION	DEPTH mm	PERCOLATION mm / Hr
Percolation TP	dk Br R Ferr + sdy st	300 - 500	80 mm/hr

SUITABILITY OF SITE

Values given should only be used as a guide for suitability of specific sanitation systems

> 300 mm/hr	Any sanitation system may be considered.
100 - 300 mm/hr	Any sanitation system may be considered.
25 - 100 mm/hr	These sites may not be suitable for septic tank systems, especially if sites are small.
15 - 25 mm/hr	Suitable for all sanitation systems except septic tanks.
3 - 25 mm/hr	Suitable for all dry or semi-dry sanitation systems.
< 3 mm/hr	Not suitable for soak-aways.

The above test results are pertinent to the samples received and tested only. While the tests are carried out, according to the recognised standards, Controlab shall not be liable for erroneous testing or reporting thereof. This report may not be reproduced without the written permission of Controlab.

Page 1 of 1

Laboratory Manager

TR01040



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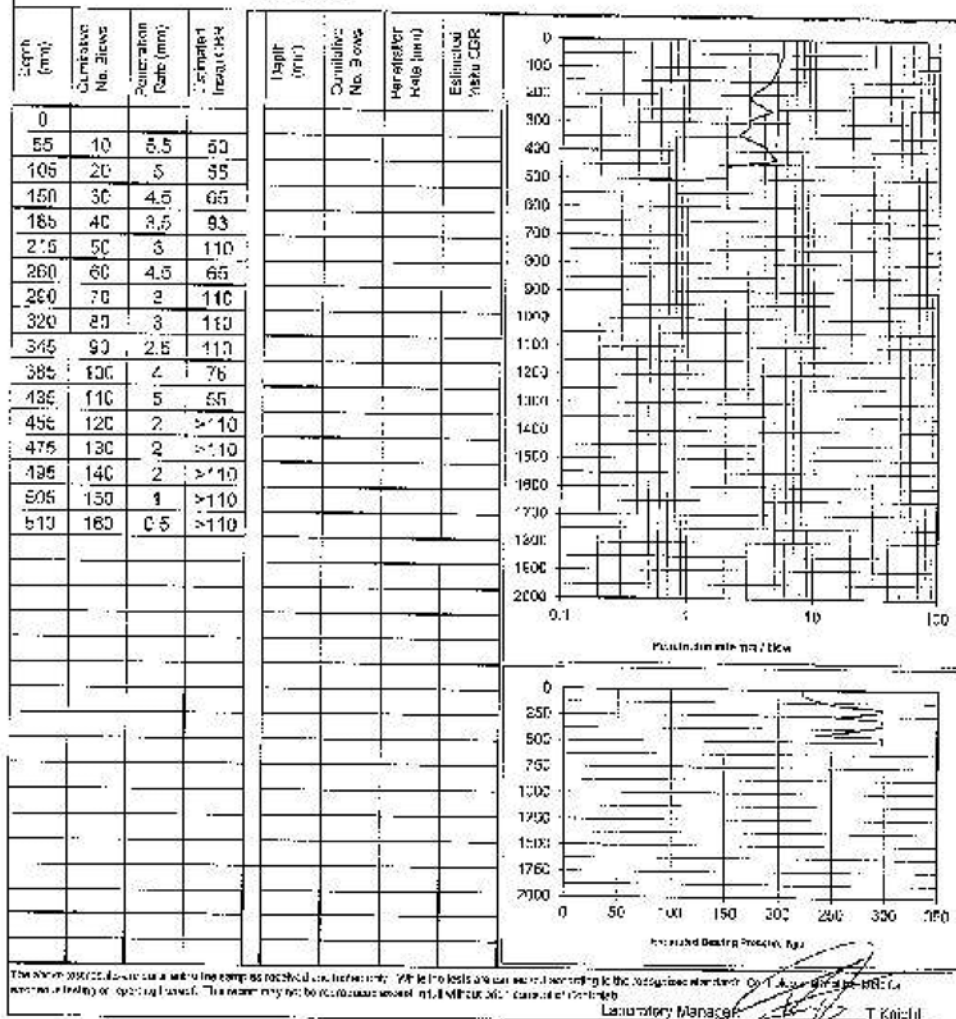
PROJECT: PROPOSED CEMETERY ON FARM
621 IN KING WILLIAMS TOWN

TEST REPORT NO: 101040
DATED: 2020-10-09

DYNAMIC CONE PENETROMETER DATA

POSITION: TP 1 @ Ground Level
S 32°55'08.2" E 27°54'23.3"

REMARKS: Refusa @ 510mm





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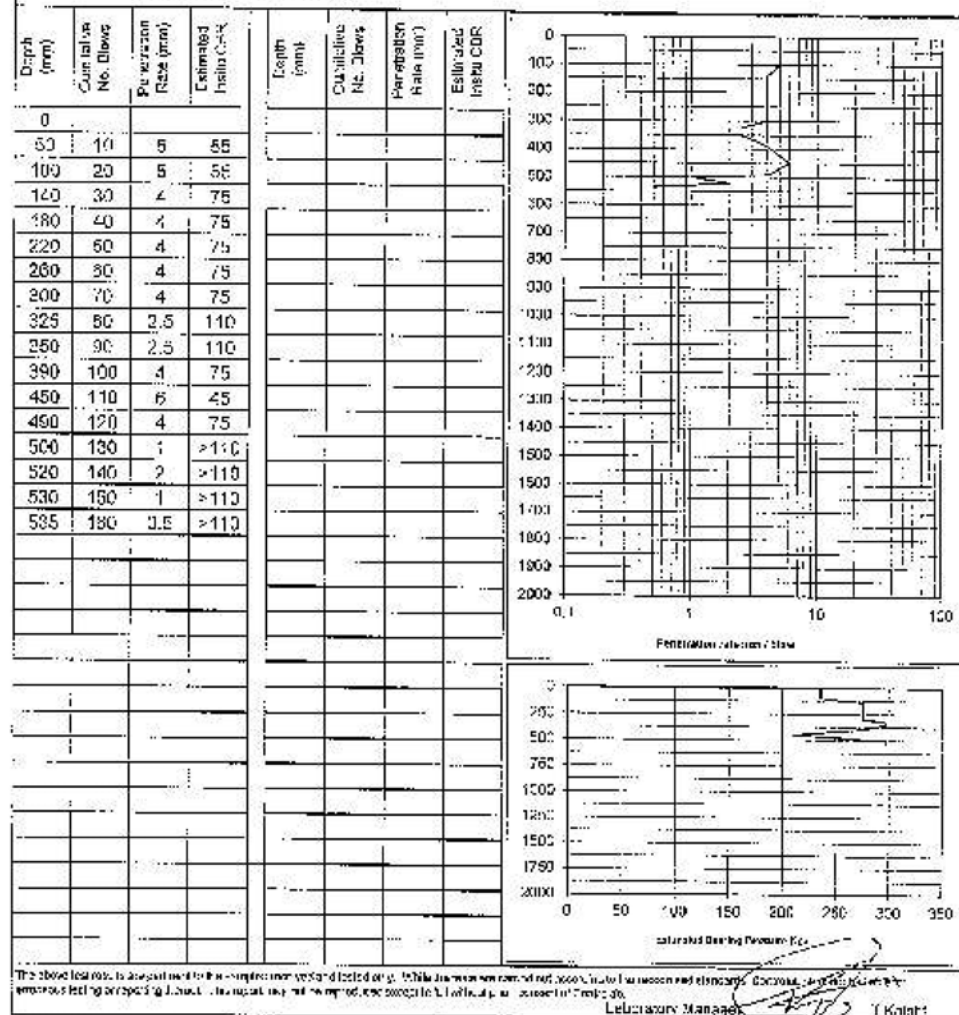
PROJECT: PROPOSED CEMETERY ON FARM
821 IN KING WILLIAMS TOWN

TEST REPORT NO: 101043
DATED: 2020-10-09

DYNAMIC CONE PENETROMETER DATA

POSITION: 2 @ Ground Level
S 32°55'00"E E 27°54'28" W

REMARKS: Refusal @ 535mm





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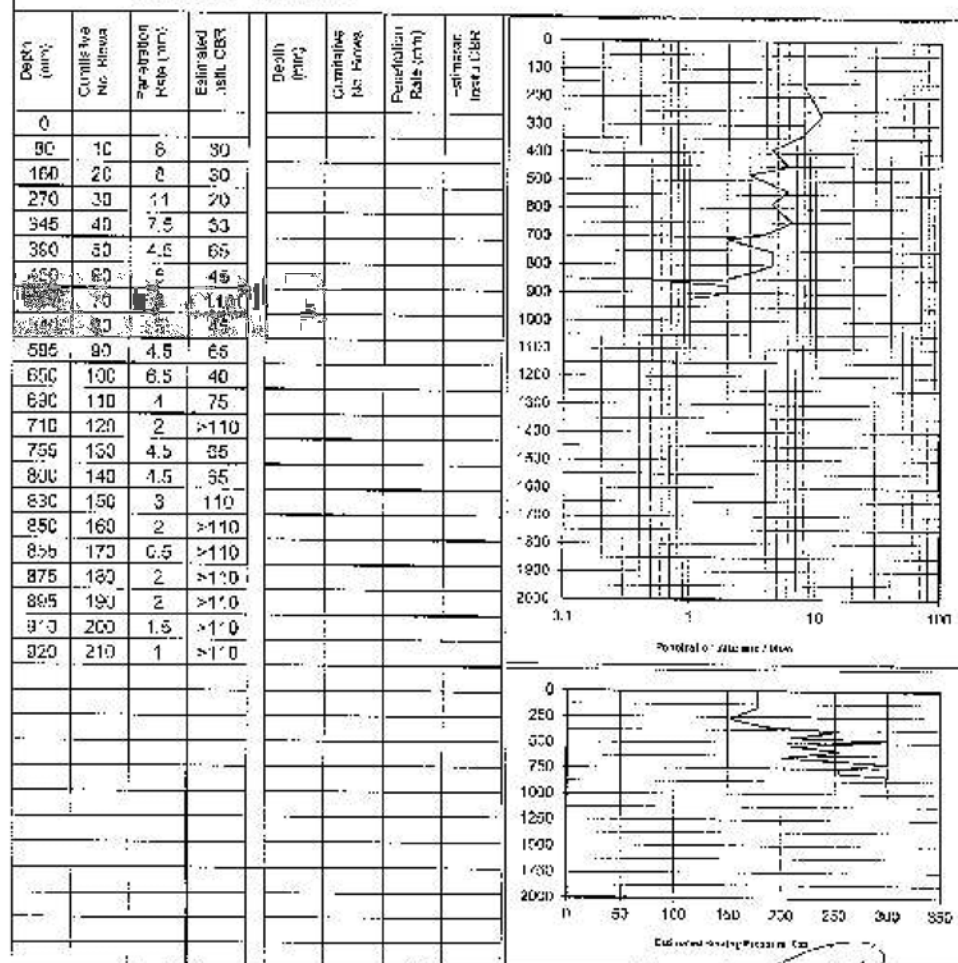
PROJECT: PROPOSED CEMETERY ON FARM
821 IN KING WILLIAMS TOWN

TEST REPORT NO: 101040
DATED: 2020-10-09

DYNAMIC CONE PENETROMETER DATA

POSITION: TF 3 @ Ground Level
S 32°55'03.2" E 27°54'28.4"

REMARKS: Refusal @ 920mm



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Secretary Manager: T. Knight

10/10/20



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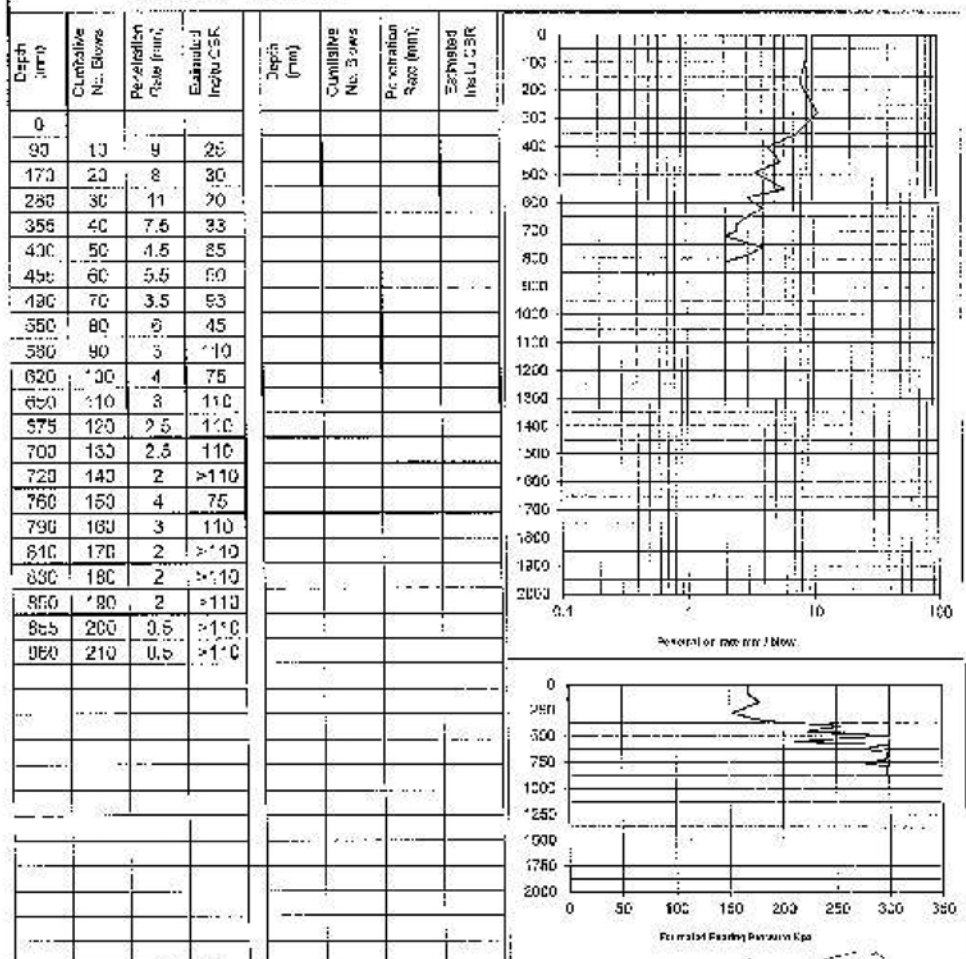
PROJECT: PROPOSED CEMETERY ON FARM
021 IN KING WILLIAMS TOWN

TEST REPORT NO: 1C1040
DATED: 2020-10-30

DYNAMIC CONE PENETROMETER DATA

POSITION: TP 4 @ Ground Level
S 32° 5' 10.5" E 27° 54' 24.2"

REMARKS: Refusa @ 850mm



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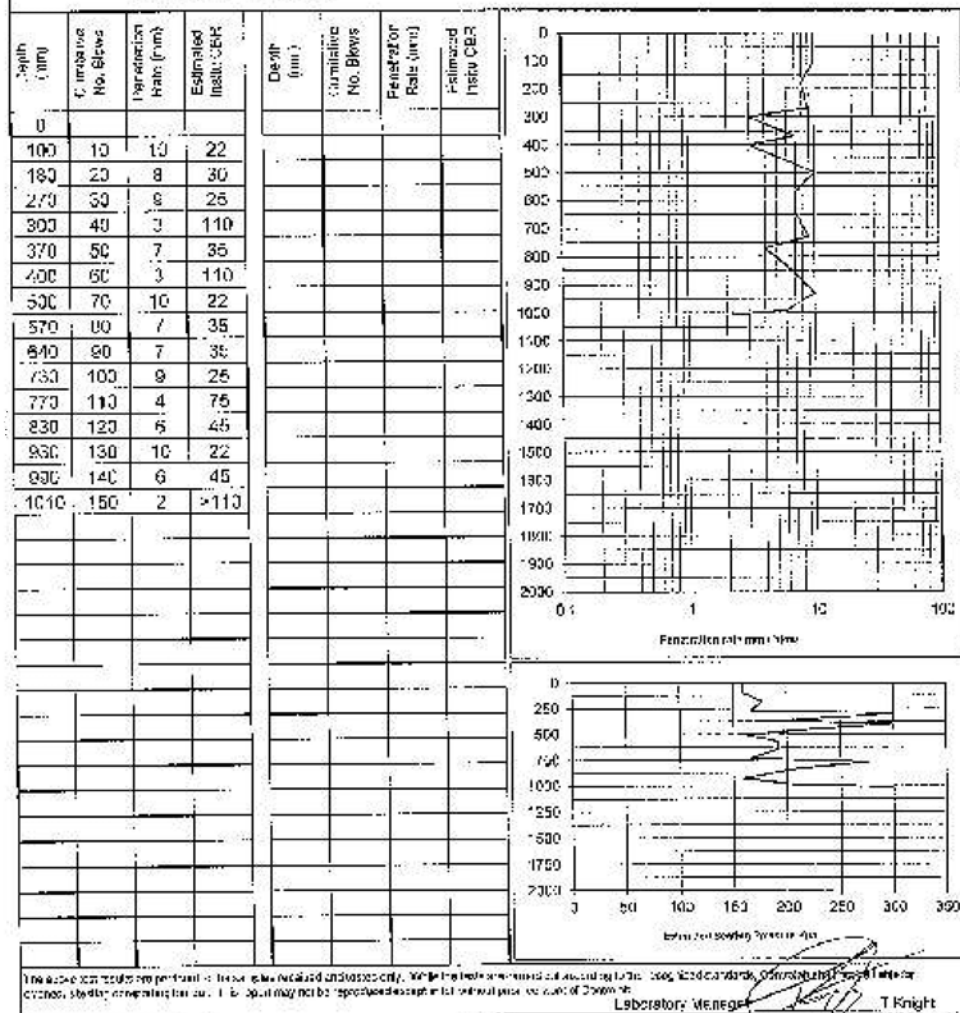
PROJECT: PROPOSED CEMETERY ON FAR M
821 IN KING WILLIAMS TOWN

TEST REPORT NO: 101040
DATED: 2020-10-09

DYNAMIC CONE PENETROMETER DATA

POSITION: TP 5 @ Ground Level
S 52°55'09.8" E 27°54'31.7"

REMARKS: Ref. set @ 1011mm





OTHER BRANCH OFFICES: Cape Town, Kottstad, Johannesburg, Mafikeng, Maseru, Port Elizabeth, Tloane, Zomba

TEST REPORT NO: 101040
DATED: 2020-0-09

REMARKS: Ref.sal @ 375mm

Титул

TR0020


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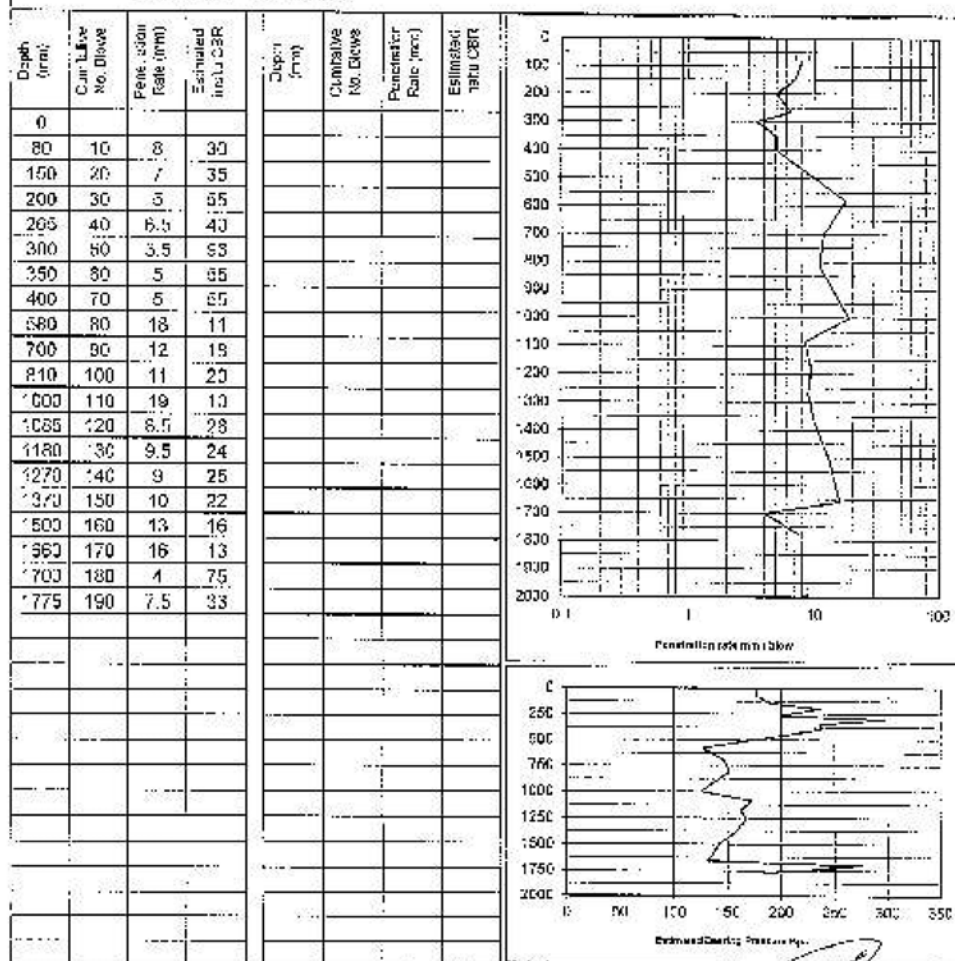
 PROJECT: PROPOSED CEMETERY ON FARM
 821 IN KING WILLIAMS TOWN

 TEST REPORT NO: 131040
 DATED: 2020-10-08

DYNAMIC CONE PENETROMETER DATA

 POSITION: TF 7 @ Ground Level
 S 32°55'14.1" E 27°54'38.8"

REMARKS: No Refusal



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Laboratory Manager

T. Knight

TR0026



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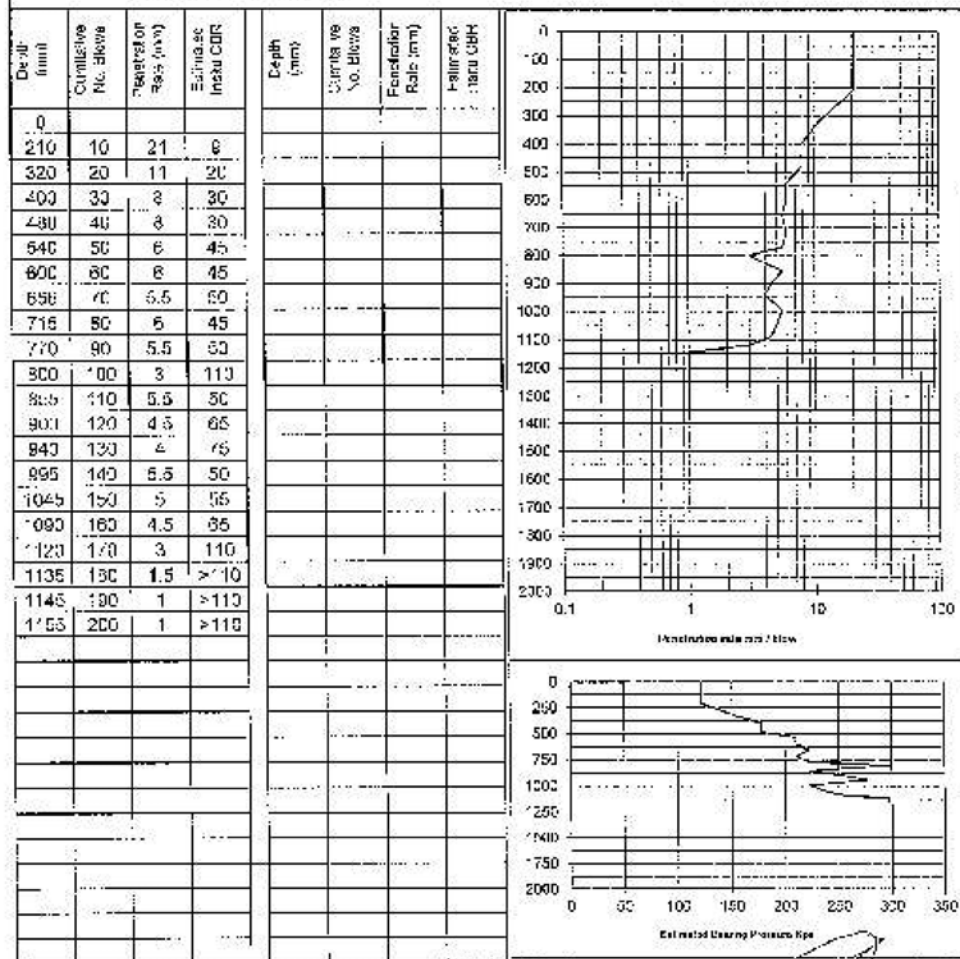
PROJECT: PROPOSED CEMETERY ON FARM
821 IN KING WILLIAMS TOWN

TEST REPORT NO: 10104C
DATED: 2020-10-08

DYNAMIC CONE PENETROMETER DATA

POSITION: TP 8 @ Ground Level
S 32° 55' 09.5" E 27° 54' 36.5"

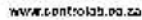
REMARKS: Refusal @ 1155 mm



The material was tested in accordance with SANS 10260 and tested only. The test results are based on the test results of the material tested in the laboratory. The test results are based on the test results of the material tested in the laboratory. The test results are based on the test results of the material tested in the laboratory.

Laboratory Manager: T Knight

11/03/2021



OTHER BRANCH OFFICES: Cape Town, Graham's, Johannesburg, Kimberley, Port Elizabeth, Tzaneen, Upington

TEST REPORT NO: 101040
DATED: 2023-10-09

REMARKS: Ke: 153; @ 290 nm

Figure 1 is a contour plot showing the distribution of the number of bearings in the bearing housing. The vertical axis represents the number of bearings (0 to 2000) and the horizontal axis represents the bearing housing diameter (0 to 360). The plot shows a concentration of bearings around 250-300 diameter and 750-1000 count.

Locality Manager: T Knight

183028



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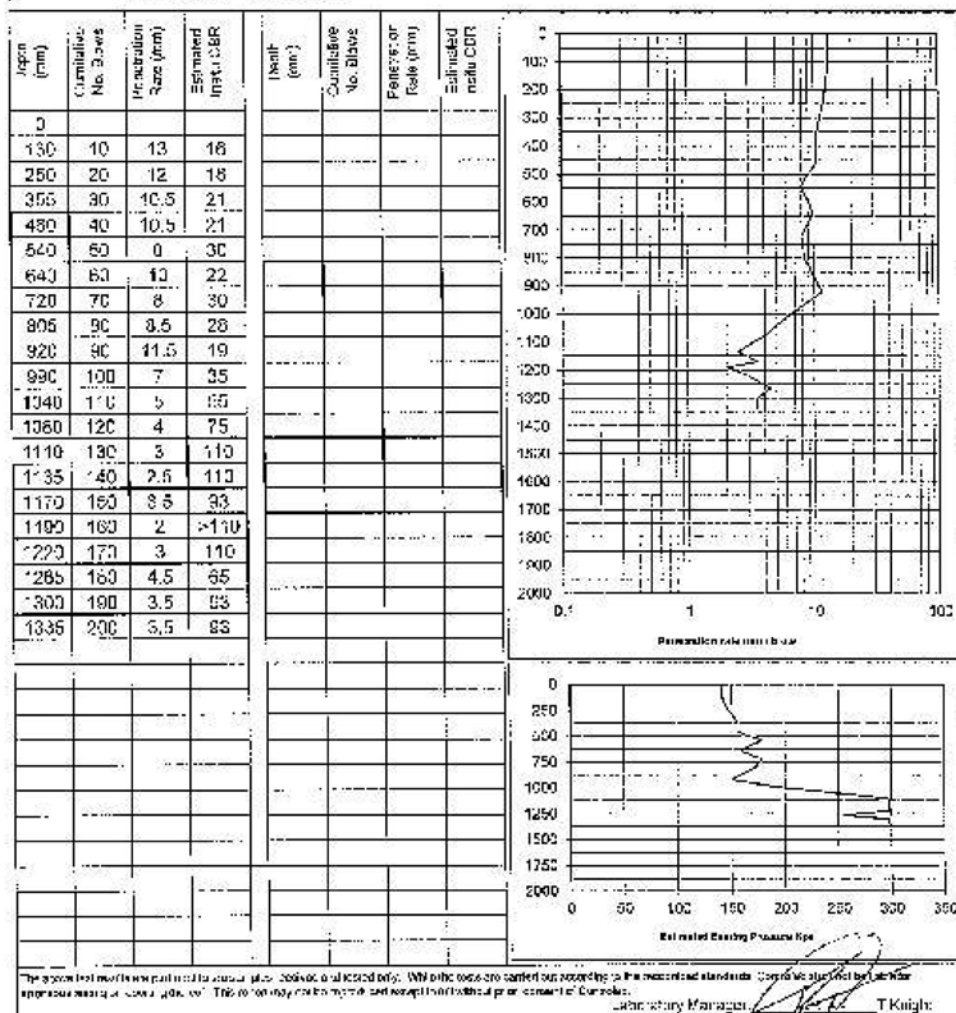
PROJECT: PROPOSED CEMETERY ON FARM
821 IN KING WILLIAMS TOWN

TEST REPORT NO: 101040
DATED: 2020-10-09

DYNAMIC CONE PENETROMETER DATA

POSITION: TF 10 @ Ground level
S 32°55'06.1" E 27°54'34.2"

REMARKS: No Refusal



APPENDIX C:

DYNAMIC CONE PENETRATION TEST RESULTS

13 APPENDIX C – HYDROCENSUS DATA AND PHOTOS

East London - Duzara Private cemetery field report

Site Visit: 10 - 12 May 2022

Contact Person: Frida De Jager
Agos - Project Manager (Engineering Geologist)
frida@agosa.co.za

Scope of Work:

Determination and mapping of site-specific geological & hydrogeological characteristics.
Conduct a hydrocensus within 0.5 km radius of site, with documentation of ground- and surface water occurrences, abstraction and end-use, with the taking of 2 water samples for laboratory testing, static water level measurements.
Review and evaluate existing geological, geo-hydrological and geotechnical data.
Geophysical surveying to characterise sub-surface geology and to identify groundwater monitoring sites.
Conceptual hydrogeological model with groundwater flow path determination.
Compile project maps showing geological and geohydrological issues (GIG).

Duzara Private cemetery



Property Owners

Table 2 - Portray Property Owners Info, Water Used and Water Supply					
Owner Number	Owner Name	Contact No.	Postal	Usage/Use	Water Source
001	A.J. Schan	082 934 8233	aj.schan@agosa.co.za	Residential: House, Garden and Cattle Farming	Rainwater, 1 borehole (2 equipped and 1 open) and 1 well (not used)
002	M.A. L. P. P.	082 934 8233	aj.schan@agosa.co.za	Child & Health Care Centre: 80 - 100 Children and staff	Water supply from BWS (Pipes from bore) and 1 well (not used)
003	Thabo L. P. P.	082 934 8233	aj.schan@agosa.co.za	Small Housing: House and small garden	Water supply from BWS, 1 well (not used) and 1 well (not used)
004	Andrea P. P.	082 934 8233	aj.schan@agosa.co.za	Small Housing: House and small garden	Water supply from BWS, 1 well (not used) and 1 well (not used)
005	Smile G. P.	082 934 8233	aj.schan@agosa.co.za	3 Shops, 2 houses and gardens	1 Borehole, 1 well (not used) and 1 well (not used)
006	Van der Merwe P. P.	082 934 8233	aj.schan@agosa.co.za	2 Houses and workshops	2 Boreholes and 1 well (not used)
007	Edwin P. P.	082 934 8233	aj.schan@agosa.co.za	2 Houses, 2 gardens and 1 garden	2 Boreholes (2 equipped), 1 well (not used) and 1 well (not used)
008	Edwin P. P.	082 934 8233	aj.schan@agosa.co.za	House, Garden and small farm of cattle	1 Borehole (equipped with 2 pumps) and 1 well (not used)
009	Edwin P. P.	082 934 8233	aj.schan@agosa.co.za	Industrial farm	2 Boreholes (equipped with 2 pumps) and 1 well (not used)

Geology and Soils

Geology
1) The proposed site underlying geology consists of Grey Mudstones, Shale and Sandstones
2) A prominent dolerite sill occur along the north-eastern part of the proposed site

Soil (from Dolerite)

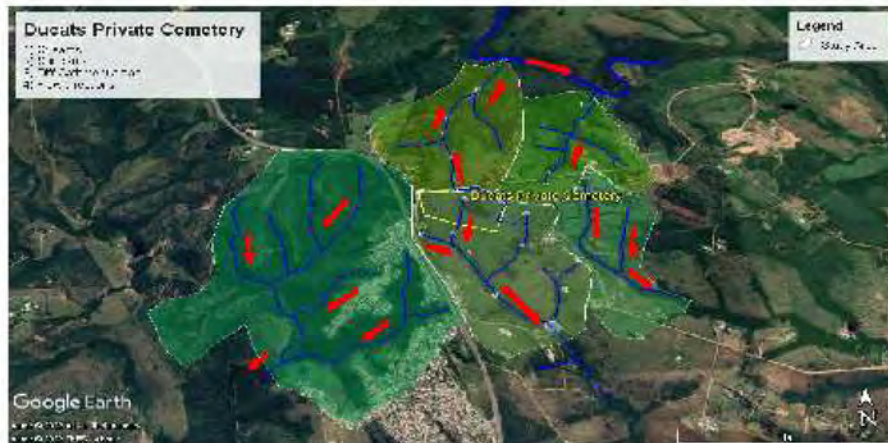
- 0.5 m (0.5 m) - 0.5 m (0.5 m)





Groundwater and Surface water

Surface Water



Groundwater resources



Water Sources in and around the Ducats Private Cemetery site											
Source Point	Description	Coordinates	Depth (m)	Static Water	Distance	Altitude	Flow	Rate	Remarks	Notes	Comments
1	W1	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
2	W2	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
3	W3	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
4	W4	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
5	W5	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
6	W6	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
7	W7	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
8	W8	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
9	W9	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
10	W10	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
11	W11	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
12	W12	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
13	W13	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
14	W14	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
15	W15	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
16	W16	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
17	W17	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
18	W18	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
19	W19	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
20	W20	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
21	W21	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
22	W22	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
23	W23	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
24	W24	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
25	W25	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
26	W26	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
27	W27	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
28	W28	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
29	W29	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug
30	W30	32.918719	27.918719	10	20.5	100	10	10	Hand-dug, shallow, private	Hand-dug	Hand-dug

Photos of water Sources Visit on site







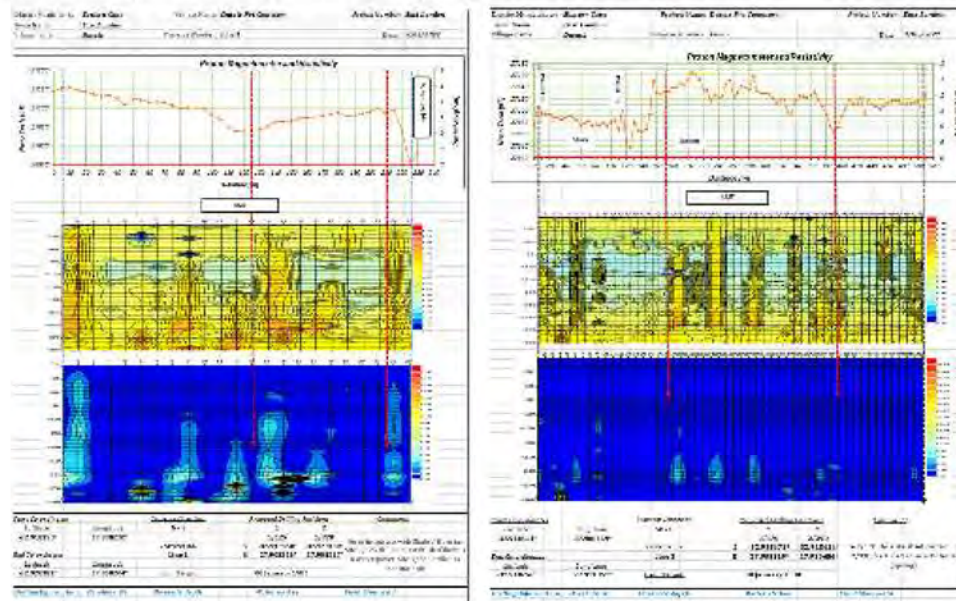


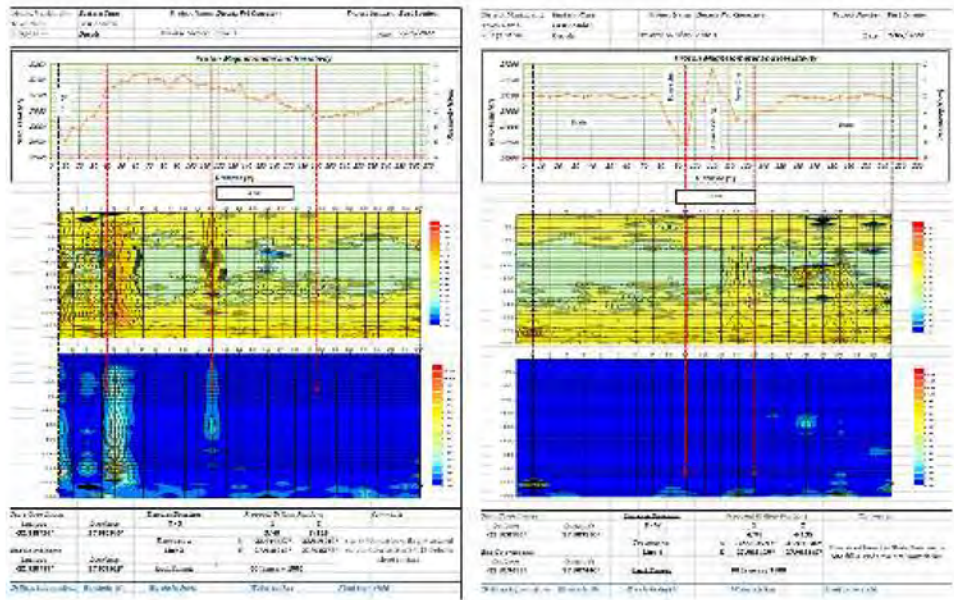


The following Points could not be visit due to Farmer not willing to help. Soil Data 18, 19, 20, 21 and Bonehole 88 22, 23, 24



Geographical sector summary - Indian Private Company												
Filing Date	The number of companies	4947 Filing Date	Confidential 2013-14		Previous period 14-15	Previous period 15-16	Not submitted		Outstanding Filings	Status	Comments	
			Open	Not			Filed	Pending				
Domestic File (Domestic)	1,166-1	1,000	43,848(15)	27,018(12)	27,068(14)	230	17-18	1,12,123	27,068(14)	27,068(14)	Shakti S. Sharma, G. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-2	1,000	43,848(14)	27,018(11)	27,068(13)	230	18-19	1,12,123	27,068(13)	27,068(13)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-3	1,000	43,848(13)	27,018(10)	27,068(12)	230	19-20	1,12,123	27,068(12)	27,068(12)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-4	1,000	43,848(12)	27,018(9)	27,068(11)	230	20-21	1,12,123	27,068(11)	27,068(11)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-5	1,000	43,848(11)	27,018(8)	27,068(10)	230	21-22	1,12,123	27,068(10)	27,068(10)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-6	1,000	43,848(10)	27,018(7)	27,068(9)	230	22-23	1,12,123	27,068(9)	27,068(9)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-7	1,000	43,848(9)	27,018(6)	27,068(8)	230	23-24	1,12,123	27,068(8)	27,068(8)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-8	1,000	43,848(8)	27,018(5)	27,068(7)	230	24-25	1,12,123	27,068(7)	27,068(7)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-9	1,000	43,848(7)	27,018(4)	27,068(6)	230	25-26	1,12,123	27,068(6)	27,068(6)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-10	1,000	43,848(6)	27,018(3)	27,068(5)	230	26-27	1,12,123	27,068(5)	27,068(5)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-11	1,000	43,848(5)	27,018(2)	27,068(4)	230	27-28	1,12,123	27,068(4)	27,068(4)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-12	1,000	43,848(4)	27,018(1)	27,068(3)	230	28-29	1,12,123	27,068(3)	27,068(3)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-13	1,000	43,848(3)	27,018(0)	27,068(2)	230	29-30	1,12,123	27,068(2)	27,068(2)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-14	1,000	43,848(2)	27,018(0)	27,068(1)	230	30-31	1,12,123	27,068(1)	27,068(1)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-15	1,000	43,848(1)	27,018(0)	27,068(0)	230	31-32	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-16	1,000	43,848(0)	27,018(0)	27,068(0)	230	32-33	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-17	1,000	43,848(0)	27,018(0)	27,068(0)	230	33-34	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-18	1,000	43,848(0)	27,018(0)	27,068(0)	230	34-35	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-19	1,000	43,848(0)	27,018(0)	27,068(0)	230	35-36	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-20	1,000	43,848(0)	27,018(0)	27,068(0)	230	36-37	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-21	1,000	43,848(0)	27,018(0)	27,068(0)	230	37-38	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-22	1,000	43,848(0)	27,018(0)	27,068(0)	230	38-39	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-23	1,000	43,848(0)	27,018(0)	27,068(0)	230	39-40	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-24	1,000	43,848(0)	27,018(0)	27,068(0)	230	40-41	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-25	1,000	43,848(0)	27,018(0)	27,068(0)	230	41-42	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-26	1,000	43,848(0)	27,018(0)	27,068(0)	230	42-43	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-27	1,000	43,848(0)	27,018(0)	27,068(0)	230	43-44	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-28	1,000	43,848(0)	27,018(0)	27,068(0)	230	44-45	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-29	1,000	43,848(0)	27,018(0)	27,068(0)	230	45-46	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-30	1,000	43,848(0)	27,018(0)	27,068(0)	230	46-47	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-31	1,000	43,848(0)	27,018(0)	27,068(0)	230	47-48	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-32	1,000	43,848(0)	27,018(0)	27,068(0)	230	48-49	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-33	1,000	43,848(0)	27,018(0)	27,068(0)	230	49-50	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-34	1,000	43,848(0)	27,018(0)	27,068(0)	230	50-51	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-35	1,000	43,848(0)	27,018(0)	27,068(0)	230	51-52	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-36	1,000	43,848(0)	27,018(0)	27,068(0)	230	52-53	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-37	1,000	43,848(0)	27,018(0)	27,068(0)	230	53-54	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-38	1,000	43,848(0)	27,018(0)	27,068(0)	230	54-55	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-39	1,000	43,848(0)	27,018(0)	27,068(0)	230	55-56	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-40	1,000	43,848(0)	27,018(0)	27,068(0)	230	56-57	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-41	1,000	43,848(0)	27,018(0)	27,068(0)	230	57-58	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-42	1,000	43,848(0)	27,018(0)	27,068(0)	230	58-59	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-43	1,000	43,848(0)	27,018(0)	27,068(0)	230	59-60	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-44	1,000	43,848(0)	27,018(0)	27,068(0)	230	60-61	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-45	1,000	43,848(0)	27,018(0)	27,068(0)	230	61-62	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-46	1,000	43,848(0)	27,018(0)	27,068(0)	230	62-63	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-47	1,000	43,848(0)	27,018(0)	27,068(0)	230	63-64	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-48	1,000	43,848(0)	27,018(0)	27,068(0)	230	64-65	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-49	1,000	43,848(0)	27,018(0)	27,068(0)	230	65-66	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-50	1,000	43,848(0)	27,018(0)	27,068(0)	230	66-67	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-51	1,000	43,848(0)	27,018(0)	27,068(0)	230	67-68	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-52	1,000	43,848(0)	27,018(0)	27,068(0)	230	68-69	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-53	1,000	43,848(0)	27,018(0)	27,068(0)	230	69-70	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-54	1,000	43,848(0)	27,018(0)	27,068(0)	230	70-71	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-55	1,000	43,848(0)	27,018(0)	27,068(0)	230	71-72	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-56	1,000	43,848(0)	27,018(0)	27,068(0)	230	72-73	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-57	1,000	43,848(0)	27,018(0)	27,068(0)	230	73-74	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-58	1,000	43,848(0)	27,018(0)	27,068(0)	230	74-75	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-59	1,000	43,848(0)	27,018(0)	27,068(0)	230	75-76	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-60	1,000	43,848(0)	27,018(0)	27,068(0)	230	76-77	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-61	1,000	43,848(0)	27,018(0)	27,068(0)	230	77-78	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-62	1,000	43,848(0)	27,018(0)	27,068(0)	230	78-79	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-63	1,000	43,848(0)	27,018(0)	27,068(0)	230	79-80	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-64	1,000	43,848(0)	27,018(0)	27,068(0)	230	80-81	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-65	1,000	43,848(0)	27,018(0)	27,068(0)	230	81-82	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-66	1,000	43,848(0)	27,018(0)	27,068(0)	230	82-83	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-67	1,000	43,848(0)	27,018(0)	27,068(0)	230	83-84	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-68	1,000	43,848(0)	27,018(0)	27,068(0)	230	84-85	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-69	1,000	43,848(0)	27,018(0)	27,068(0)	230	85-86	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-70	1,000	43,848(0)	27,018(0)	27,068(0)	230	86-87	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-71	1,000	43,848(0)	27,018(0)	27,068(0)	230	87-88	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-72	1,000	43,848(0)	27,018(0)	27,068(0)	230	88-89	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-73	1,000	43,848(0)	27,018(0)	27,068(0)	230	89-90	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-74	1,000	43,848(0)	27,018(0)	27,068(0)	230	90-91	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-75	1,000	43,848(0)	27,018(0)	27,068(0)	230	91-92	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-76	1,000	43,848(0)	27,018(0)	27,068(0)	230	92-93	1,12,123	27,068(0)	27,068(0)	Prakash Kumar S. Sankar Kumar	and 1000
Domestic File (Domestic)	1,166-77	1,000	43,848(0)	27,018(0)	27,068(0)	230	93-94	1,1				





Construction of the Monitor holes

- 3 m holes to monitor the flow through to 1) top soils, 2) contact between topsoils and weathered rock material
- 30 m holes to monitor the flow through the upper fractured rock
- 60 m hole to establish if there is aquifer, to quantify it and to monitor the site impact on it



Construction of the Monitor holes

Material spec.	Diam. Min	Comment
Borehole drill diam	143 mm / 150 mm	
Steel Casing	153/144.4 mm	OD/ID
Steel Casing Solid	124/106 mm	OD/ID (Rash- threaded)
Steel Casing 30.5m	134/106 mm	OD/ID (Rash- threaded)
Concrete	Patent	25 kg/m ³ (3 bag/m ³)
Silica Sealant	1 - 3 mm	20 kg/m ³ (3 bag/m ³)
Segment	0.3m x 2m x 3m	Concrete block
Steel covers		see options

14 APPENDIX D – CHEMICAL WATER ANALYSIS

LOCATION		On Cemetery Site			
SAMPLE ID		Spring 2			
DATE SAMPLED		23-May-22			
SAMPLE NUMBER		2022/590			
DETERMINAND	UNIT	RISK	SANS STD LIMITS	VALUE	
Micro-biological properties					
Standard Plate Count (Heterotrophic)	Colonies per ml	Operational	≤ 1000	2001.00	
E. coli	Colonies per 100 ml	Acute health	0	1120.00	
Total coliforms	Colonies per 100 ml	Operational	≤ 10	2080.00	
Physical & Aesthetic Determinands					
Colour	mg / l Pt-Co	Aesthetic	≤ 15	497.00	
Electrical Conductivity at 25 °C EC	mS / m	Aesthetic	≤ 170	17.10	
Total Dissolved Solids TDS	mg / l	Aesthetic	≤ 1 200	271.00	
Turbidity	NTU	Operational	≤ 1	66.00	
		Aesthetic	≤ 5		
pH at 25 °C	pH	pH Units	Operational	≤ 5 to ≤ 9.7	8.00
Macro Chemical Determinands					
Free Chlorine	Cl ₂	mg / l	Chronic Health	≤ 5	
Monochloramine		mg / l	Chronic Health	≤ 3	
Nitrate	N	mg / l	Acute health	≤ 11	BDL
Nitrite	N	mg / l	Acute health	≤ 0.9	BDL
Combined Nitrate plus Nitrite		mg / l	Acute health	≤ 1	BDL
Sulfate	SO ₄	mg / l	Acute health	≤ 500	4.13
			Aesthetic	≤ 250	
Fluoride	F	mg / l	Chronic Health	≤ 1.5	0.12
Ammonia	N	mg / l	Aesthetic	≤ 1.5	BDL
Chloride	Cl	mg / l	Aesthetic	≤ 300	16.60
Sodium	Na	mg / l	Aesthetic	≤ 200	12.00
Zinc	Zn	mg / l	Aesthetic	≤ 5	0.01
Micro Chemical Determinands					
Aluminium	Al	µg / l	Operational	≤ 300	15623.00
Antimony	Sb	µg / l	Chronic Health	≤ 20	BDL
Arsenic	As	µg / l	Chronic Health	≤ 10	BDL
Barium	Ba	µg / l	Chronic Health	≤ 700	28.00
Boron	B	µg / l	Chronic Health	≤ 2400	58.00
Cadmium	Cd	µg / l	Chronic Health	≤ 3	BDL
Total Chromium	Cr	µg / l	Chronic Health	≤ 50	41.00
Copper	Cu	µg / l	Chronic Health	≤ 2000	12.00
Cyanide (recoverable)	CN	µg / l	Acute health	≤ 200	BDL
Iron	Fe	µg / l	Chronic Health	≤ 2000	8576.00
			Aesthetic	≤ 300	
Lead	Pb	µg / l	Chronic Health	≤ 10	BDL
Manganese	Mn	µg / l	Chronic Health	≤ 400	28.00
			Aesthetic	≤ 100	
Mercury	Hg	µg / l	Chronic Health	≤ 6	BDL
Nickel	Ni	µg / l	Chronic Health	≤ 70	17.00
Selenium	Se	µg / l	Chronic Health	≤ 40	BDL
Uranium	U	µg / l	Chronic Health	≤ 30	BDL
Organic Chemical Determinands					
Total Organic Carbon	C	mg / l	Chronic Health	≤ 10	34.00
Trihalomethanes					
Chloroform		µg / l	Chronic Health	≤ 300	
Bromodichloromethane		µg / l	Chronic Health	≤ 100	
Bromoform		µg / l	Chronic Health	≤ 100	
Dibromochloromethane		µg / l	Chronic Health	≤ 60	
Combined Trihalomethane			Chronic Health	≤ 1.0	
Total Microcystin		µg / l	Chronic Health	≤ 1.0	
Phenols		µg / l	Aesthetic	≤ 10	BDL

LOCATION		Closest Pvt Borehole			
SAMPLE ID		Borehole 4			
DATE SAMPLED		23-May-22			
SAMPLE NUMBER		2022/591			
DETERMINAND	UNIT	RISK	SANS STD LIMITS	VALUE	
Micro-biological properties					
Standard Plate Count (Heterotrophic)	Colonies per ml	Operational	≤ 1000	2001.00	
E. coli	Colonies per 100 ml	Acute health	0	0.00	
Total coliforms	Colonies per 100 ml	Operational	≤ 10	20.00	
Physical & Aesthetic Determinands					
Colour	mg / l Pt-Co	Aesthetic	≤ 15	BDL	
Electrical Conductivity at 25 °C EC	mS / m	Aesthetic	≤ 170	122.00	
Total Dissolved Solids TDS	mg / l	Aesthetic	≤ 1200	606.00	
Turbidity	NTU	Operational	≤ 1	0.47	
		Aesthetic	≤ 5		
pH at 25 °C	pH	pH Units	≤ 5 to ≤ 9.7	8.00	
Macro Chemical Determinands					
Free Chlorine Cl ₂	mg / l	Chronic Health	≤ 5		
Monochloramine	mg / l	Chronic Health	≤ 3		
Nitrate N	mg / l	Acute health	≤ 11	0.58	
Nitrite N	mg / l	Acute health	≤ 0.9	BDL	
Combined Nitrate plus Nitrite	mg / l	Acute health	≤ 1	BDL	
Sulfate SO ₄	mg / l	Acute health	≤ 500	55.50	
		Aesthetic	≤ 250		
Fluoride F	mg / l	Chronic Health	≤ 1.5	0.33	
Ammonia N	mg / l	Aesthetic	≤ 1.5	BDL	
Chloride Cl	mg / l	Aesthetic	≤ 300	130.00	
Sodium Na	mg / l	Aesthetic	≤ 200	156.00	
Zinc Zn	mg / l	Aesthetic	≤ 5	0.02	
Micro Chemical Determinands					
Aluminium Al	µg / l	Operational	≤ 300	24.00	
Antimony Sb	µg / l	Chronic Health	≤ 20	BDL	
Arsenic As	µg / l	Chronic Health	≤ 10	BDL	
Barium Ba	µg / l	Chronic Health	≤ 700	9.90	
Boron B	µg / l	Chronic Health	≤ 2400	81.00	
Cadmium Cd	µg / l	Chronic Health	≤ 3	BDL	
Total Chromium Cr	µg / l	Chronic Health	≤ 50	6.50	
Copper Cu	µg / l	Chronic Health	≤ 2000	12.00	
Cyanide (recoverable) CN	µg / l	Acute health	≤ 200	BDL	
Iron Fe	µg / l	Chronic Health	≤ 2000	20.00	
		Aesthetic	≤ 300		
Lead Pb	µg / l	Chronic Health	≤ 10	BDL	
Manganese Mn	µg / l	Chronic Health	≤ 400	BDL	
		Aesthetic	≤ 100		
Mercury Hg	µg / l	Chronic Health	≤ 6	BDL	
Nickel Ni	µg / l	Chronic Health	≤ 70	BDL	
Selenium Se	µg / l	Chronic Health	≤ 40	20.00	
Uranium U	µg / l	Chronic Health	≤ 30	BDL	
Organic Chemical Determinands					
Total Organic Carbon C	mg / l	Chronic Health	≤ 10	2.70	
Trihalomethanes					
Chloroform	µg / l	Chronic Health	≤ 300		
Bromodichloromethane	µg / l	Chronic Health	≤ 100		
Bromoform	µg / l	Chronic Health	≤ 100		
Dibromochloromethane	µg / l	Chronic Health	≤ 60		
Combined Trihalomethane		Chronic Health	≤ 1.0		
Total Microcystin	µg / l	Chronic Health	≤ 1.0		
Phenols	µg / l	Aesthetic	≤ 10	12.00	



MONITOR LABORATORIES

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5205

Tel: 043 722 6393
Fax: 086 650 5352

MICROBIOLOGY REPORT

CLIENT : AGES

LAB REFERENCE	: 2022/590	REPORT DATE	: 25 May 2022
SAMPLE TYPE	: Water	DATE RECEIVED	: 23 May 2022
PROJECT	: GENV Ducats	EVALUATOR	: Heidi Schoeman

SAMPLE	TEST	METHODS	GENERAL STD LIMITS SANS 241 :2011	RESULTS	UNITS
Water (Spring 2)	Total Plate Count	SANS 4833:2007	≤1000	>>2000	CFU/1ml
	Coliform Count	9222-B	≤10	2080	CFU/100ml
	Faecal Coliforms	9222-D	0	1120	CFU/100ml

COMMENT

The microbiological test results do not comply with the requirements. Disinfection of the water before use is necessary.


P.P. WAYNE SELKIRK
TECHNICAL SIGNATORY

COMMENTS: cfu/g/ml: Colony forming unit per gram or ml of the sample tested
<10 cfu/g/ml: Not detected in 1ml of the 1 in 10 dilution of the sample
Confirming: Secondary testing required to confirm presumptive positive results
TNTC: Too numerous to count

THE ABOVE RESULTS REFLECTS THE ANALYSIS ONLY OF THE SAMPLE, IN ITS CONDITION RECEIVED, AND ANALYSED IN TERMS OF YOUR INSTRUCTIONS. IT FURNISHES OR IMPLIES NO GUARANTEE WHATSOEVER, IN RESPECT OF A SIMILAR ITEM THAT HAS NOT BEEN TESTED. THIS REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL AND WITHOUT WRITTEN PERMISSION OF MONITOR LABORATORIES.

Water Monitoring Laboratories CC Trading as Monitor Laboratories Member: W T Selkirk Registration No 2008/170738/23



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Fax: 086 650 5352

MICROBIOLOGY REPORT

CLIENT : AGES

LAB REFERENCE	: 2022/591	REPORT DATE	: 25 May 2022
SAMPLE TYPE	: Water	DATE RECEIVED	: 23 May 2022
PROJECT	: GENV Ducats	EVALUATOR	: Heidi Schoeman

SAMPLE	TEST	METHODS	GENERAL STD LIMITS SANS 241 :2011	RESULTS	UNITS
Water (BH 4)	Total Plate Count	SANS 4833:2007	≤1000	>2000	CFU/1ml
	Coliform Count	9222-B	≤10	20	CFU/100ml
	Faecal Coliforms	9222-D	0	0	CFU/100ml

COMMENT

The microbiological test results do not comply with the requirements (high total and coliform counts). Disinfection of the water before use is necessary.


WAYNE SELKIRK
TECHNICAL SIGNATORY

COMMENTS: cfu/g/ml: Colony forming unit per gram or ml of the sample tested.
<10 cfu/g/ml: Not detected in 1ml of the 1 in 10 dilution of the sample
Confirming: Secondary testing required to confirm presumptive positive results
TNTC: Too numerous to count

THE ABOVE RESULTS REFLECTS THE ANALYSIS ONLY OF THE SAMPLE, IN ITS CONDITION RECEIVED, AND ANALYSED IN TERMS OF YOUR INSTRUCTIONS. IT FURNISHES OR IMPLIES NO GUARANTEE WHATSOEVER, IN RESPECT OF A SIMILAR ITEM THAT HAS NOT BEEN TESTED. THIS REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL AND WITHOUT WRITTEN PERMISSION OF MONITOR LABORATORIES.

Water Monitoring Laboratories CC Trading as Monitor Laboratories Member : W T Selkirk Registration No 2008/170738/23

Analytical Results

Methods	Determinands	Units	013900/22	013901/22
			SPRING 2 11:18 23.05.2022	BOREHOLE 4 11:45 23.05.2022
Chemical				
84	Sodium	mg Na/l	12.0	156
94	Aluminium*	µg Al/l	15623	24
92	Arsenic*	µg As/l	<10	<10
94	Boron*	µg B/l	58	81
94	Barium*	µg Ba/l	28	9.9
94	Cadmium*	µg/l	<5	<5
94	Copper*	µg Cu/l	12	12
94	Iron*	µg Fe/l	8576	20
92	Mercury*	µg Hg/l	<10	<10
94	Manganese*	µg Mn/l	28	<5
94	Nickel*	µg Ni/l	17	<5
94	Lead*	µg Pb/l	<5	<5
92	Antimony*	µg Sb/l	<10	<10
92	Selenium*	µg Se/l	<10	20
94	Uranium*	µg U/l	<25	<25
94	Zinc*	µg Zn/l	14	17
94	Total Chromium*	µg Cr/l	41	6.5
16G	Chloride	mg Cl/l	16.6	130
135	Cyanide*	µg CN/l	<20	<20
40A	Colour (True)*	mg Pt-Co/l	497	<10
2A	Electrical Conductivity at 25°C	mS/m	17.1	122
18G	Fluoride	mg F/l	0.12	0.33
64G	Total Ammonia	mg N/l	<1.5	<1.5
65Gc	Nitrate	mg N/l	<0.25	0.58
65Gb	Nitrite	mg N/l	<0.05	<0.05
Calc.	Combined Nitrate + Nitrite (sum of Ratios)*	-	<0.12	<0.12
4	Turbidity	NTU	66	0.47
1	pH at 25°C	pH units	8.0	8.0
133	Total Phenols*	µg/l	<2	12
67G	Sulphate	mg SO ₄ /l	4.13	55.5
41	Total Dissolved Solids at 180°C	mg/l	271	606
Organica				
104	Total Organic Carbon*	mg C/l	34	2.7

Refer to the "Notes" section at the end of this report for further explanations.

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST IN TERMS OF REGULATIONS 12 AND 13 OF THE AMENDMENTS TO THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 AS AMENDED.

(For official use only)

File Reference Number:

NEAS Reference Number:

Date Received:

Application for environmental authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amendments to the Environmental Impact Assessment Regulations, 2014. This form is valid as of 6 January 2021.

PROJECT TITLE

PROPOSED MEMORIAL PARK AND PRIVATE CEMETERY ON PTN 50 FARM 821, BCM, EASTERN CAPE

SPECIALIST ¹

AGES Omega (Pty) Ltd

Contact person:

Mr. Frederick De Jager

Postal address:

Postnet 203, P/Bag X9063, EAST LONDON

Postal code:

5200

Cell:

N/A

Telephone:

(+27)437262070

Fax:

E-mail:

fdejager@ages-group.com

Professional affiliation(s) (if any)

SACNASP; SAIEG

Project Consultant:
Contact person:
Postal address:

Indwe Environmental Consulting cc		
Megan Hugo (Registered EAP- EAPASA Reg No. 2019/1530)		
2 Ayr Place, Bonnie Doon, East London		
	Cell:	082 259 3981
Postal code:		
Telephone:		
E-mail:	Fax:	086 513 9734
5241		
043 555 0656		
megan@indwecon.co.za		

4.2 The SPECIALIST

I, **Mr. Frederick De Jager**, declare that –

General declaration:

- I act as the independent Specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by



interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;

- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Amendments to Environmental Impact Assessment Regulations, 2014 as amended.
- I have a vested interest in the proposed activity proceeding, such vested interest being:



Signature of the specialist

AGES Omega (Pty) Ltd

Name of company:

16 May 2025

Date:

Signature of the Commissioner of Oaths:



Date: 16 May 2025

ENVIRONMENTAL SCIENTIST

Designation:

¹ Curriculum Vitae (CV) attached

Official stamp (below).

.....
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ENVIRONMENTAL SCIENTIST - AGES OMEGA (PTY) LTD
10 BARNUM RD, VINCENT, EAST LONDON, 5247
DATE: 16/05/2025
.....

Annexure 1

CV

ADMINISTRATIVE OFFICE:

EAST LONDON - Eastern Cape

10 Sansom Road, Vincent, East London | www.ages-omega.co.za
Tel: +27 43 726 2070 | Email: omega@ages-group.com

Reg: 2006/015164/07, Vat: 4630190603

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SATELLITE OFFICES:

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130 Adelaide Tambo Drive,

Durban North, 4051

Tel: +27 31 101 3043

AGES Group Offices: North West Eastern Cape Western Cape Limpopo Gauteng KwaZulu-Natal Northern Cape



CURRICULUM VITAE

FREDERICK NIKOLAAS DE JAGER

NAME OF STAFF MEMBER	: FREDERICK NIKOLAAS DE JAGER
IDENTITY NUMBER	: 7703225098088
PROFESSION	: PRINCIPAL ENGINEERING & ENVIRONMENTAL GEOLOGIST
POSITION IN FIRM	: DIRECTOR AGES OMEGA (PTY) LTD
DATE OF BIRTH	: 22 MARCH 1977
YEARS WITH FIRM	: 24 YEARS
YRS RELEVANT EXPERIENCE	: 25 YEARS
DRIVERS LICENCE	: CODE EB & CODE A
NATIONALITY	: SOUTH AFRICAN

MEMBERSHIP(S) IN PROFESSIONAL SOCIETIES

- South African Council for Natural Scientific Professions (SACNASP - 4001 77/06)
- South African Institute for Engineering Geologists (SAIEG - 09/240)
- National Home Builders Registration Council (NHBRC - 3000154338)
- Member of the Eastern Cape Groundwater Division of the Geological Society South-Africa

Frederick Nikolaas De Jager is a registered Professional Natural Scientist with the South African Council of Natural Scientific Professions, with 25 years' experience in geotechnical, geohydrological and geo-environmental investigations within South Africa. He specializes in Engineering Geology and Environmental Geology, comprising both geotechnical and geohydrological inputs. Mr. De Jager is one of the directors of the AGES Omega office.

Mr. De Jager has been based in the Eastern Cape Province for the last 24 years and has extensive experience on all geological conditions encountered within the province, obtained from geotechnical projects ranging from feasibility studies and preliminary investigations, reserve and desktop studies, geological and groundwater exploration and development, geotechnical investigations, groundwater water quality management, water and sanitation projects, roads, landfill and waste sites etc. He was and is also actively involved in RDP housing projects, detailed civil structures, shopping centres, dams, bridges and many more.



DETAILED TASKS ASSIGNED

- Project definition, management & co-ordination
 - Conduct geotechnical investigations
 - Conduct geo-environmental investigations
 - Conduct forensic geotechnical investigations
 - Conduct slope stability assessment & monitoring
 - Construction Supervision
 - Pre-construction consultation
 - On-site hazard & risk assessments with mitigation recommendations
 - Contractor training and supervision
 - Mentoring of young professionals in AGES Omega and on applicable projects
 - Data analyses, interpretation, and verification
 - Comprehensive and Concise Report writing
 - Manager of the Geotechnical Unit in AGES Omega
 - Financial Director at AGES Omega
-

KEY QUALIFICATIONS

- Engineering Geology
 - Environmental Geology
 - Hydrogeological Studies & Investigations
 - Geotechnical site investigations for low-cost housing in urban and rural environments – GFSH-2 & SANS 634:2012 Preliminary Investigations, Phase 1 Investigations and Phase 2 Investigations.
 - Geographic Information Systems (GIS) data management & map compilation
 - Geo-environmental investigations for potential of contamination to soils and groundwater
 - Groundwater feasibility studies & potential determination - Eastern Cape Aquifers
 - Geotechnical inputs for sanitation investigations – regional and site-specific approaches
 - Geo-Environmental assessments at proposed cemetery sites, Wastewater treatment works, landfill sites, etc.
 - Feasibility studies for developments on geotechnical, geohydrological and geo-environmental aspects.
 - Geotechnical site investigations for large structures and developments e.g. shopping malls, bridges, reservoirs, dams, hard rock quarries, roads, multi-storey structures, water reticulation and storage etc.
 - Project management & Administration
 - Hydrogeological & Geotechnical project planning and management
-

EDUCATION

B.Sc Hons (Engineering Geology)	University of Pretoria	2000
B.Sc (Environmental & Engineering Geology)	University of Pretoria	1999

LATEST COURSES ATTENDED

- : SAIEG – 2 Day Workshop on Engineering Geology in Practice 2023
- : SAIEG – 2 Day Workshop on Site Investigation, In-Situ Testing and Laboratory Assessments 2022
- : Multiple short courses for SACNASP Accreditation
- : Slope & Foundation Design Workshop, Global Prospectus

GEOLOGICAL SOFTWARE

: Dips 8; ArcView 3.2; PLANET GIS, SURFER, LOGPLOT,

MICROSOFT PACKAGE

: Microsoft Office 365

EMPLOYMENT RECORD

DATE	ORGANISATION	POSITION
2004 TO DATE	AGES OMEGA (PTY) LTD	PRINCIPAL ENGINEERING GEOLOGIST & DIRECTOR
2001 TO 2003	SA GeoConsultants (PTY) LTD	PROJECT ENGINEERING GEOLOGIST
2000	GEOTECH AFRICA – NAMIBIA	QUALIFIED ENGINEERING GEOLOGIST
1998 TO 2000	UNIVERSITY OF PRETORIA- DEPT OF GEOLOGY	PART-TIME GEOTECHNICAL FIELD ASSISTANT

LANGUAGE PROFICIENCY

	SPEAK	READ	WRITE
AFRIKAANS	EXCELLENT	EXCELLENT	EXCELLENT
ENGLISH	EXCELLENT	EXCELLENT	EXCELLENT

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this information provided correctly describes me, my qualifications, and my experience. I also certify that I have only given permission for my CV to be included in the tender submission.



Mr F N De Jager (Pr.Sci.Nat)



Universiteit van Pretoria

Die Raad en die Senaat verklaar hiermee dat die graad

Baccalaureus Scientiae Honores met spesialisering in Ingenieursgeologie

met al die regte en voorregte daaraan verbonde by geleentheid van
'n kongregasie van die Universiteit toegeken is aan

FREDERICK NIKOLAAS DE JAGER

kragtens die Wet en Statuut van die Universiteit

Namens die Raad en die Senaat

Visekanselier en Rektor

Namens die Fakulteit
Natuur- en Landbouwetenskappe

Dekaan



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ENVIRONMENTAL SCIENTIST - AGES OMEGA (PTY) LTD
10 SANSON RD, VINCENT, EAST LONDON, 5247
DATE: 12/05/2025

Registrateur

2001-03-28

SACNASP

South African Council for Natural Scientific Professions

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10 SANSOM RD, VINCENT, EAST LONDON, 5241
DATE: 12/05/2025

herewith certifies that
Frederick Nikolaas de Jager
Registration Number: 400177/06
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Geological Science (Professional Natural Scientist)

Effective 11 July 2006

Expires 31 March 2026

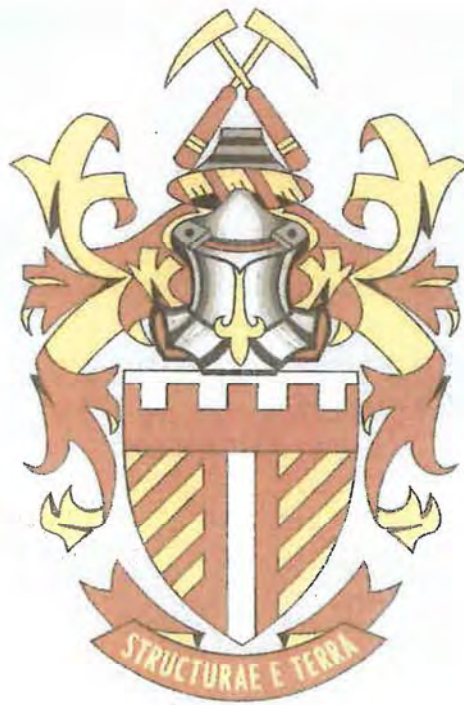


Chairperson

Chief Executive Officer



To verify this certificate scan this code



This is to certify that

Frederick Nikolaas de Jager

was admitted as

Member

of the

South African Institute for Engineering
and Environmental Geologists

In witness whereof the Seal of the
Institute is hereby affixed

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President

Vice-President

October 2010

Date

09/240

Membership Number

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Docex 96 Randburg



11 November 2024

Frederick Nikolaas De Jager
AGES Omega Pty Ltd

To Whom It May Concern,

COMPETENT PERSON CONFIRMATION LETTER– NHBRC

This letter confirms that **Frederick Nikolaas De Jager, with ID 7703225098088**, is currently recognised by the National Home Builders Registration Council (NHBRC) as a Competent Person as per the provisions of Section 1 of Act 95/1998 (as amended) of the Housing Consumer Protection Measures Act and the National Building Regulations.

You are thus able to complete and sign off on the NHBRC enrolment documentation. You are urged to carefully study the enrolment documentation that you will be completing concerning professional responsibilities and liabilities. Please take note that the NHBRC expects you to complete the required Appendices on the enrolment forms and carry out the duties of a Competent Person based on your area/s of competency.

Your barcode number confirming your recognition with the NHBRC is **3000154338**. According to our records on your Professional Indemnity Insurance, the period of cover is from **01/09/2024 to 31/08/2025** and is renewable annually (every 12 months). Please ensure that your PI Insurance details are updated before expiry to prevent enrolments from being declined due to the expiry of insurance.

Should you have any queries regarding competent persons, bar codes, etc please email competentperson@nhbrc.org.za.

Yours faithfully

Mr. Tshepo Letsoale

Acting National Technical and Inspectorate Manager

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COMMISSIONER OF OATHS
ENVIRONMENTAL SCIENTIST - AGES OMEGA (PTY) LTD
10 BANSOM RD, VINCENT EAST LONDON, 5247
DATE: 12/05/2025



Council: Ms Nomusa Mufamadi (Chairperson) / Dr Bongani Ngqulunga (Deputy Chairperson)
Mr Songezo Boo (Chief Executive Officer) / Mr Kganki Matabane / Ms Nontuthuko Chiluvane /
Ms Mandy Jayakody / Mr Refilwe Lediga / Ms Morwesi Ramonyai / Ms Siphindile Memela / Ms
Nomthandazo Lucia Ncalane-Ngcobo / Ms Kedibone Tsiloane / Mr Roy Mnisi / Ms Shelly Huntley
/ Ms Sasa Subban / Ms Zodwa Matiwane / Ms Neo Muhlwa (Acting Company Secretary)

00000000000000000000

APPENDIX E: COMMENTS AND RESPONSE REPORT

APPENDIX E- COMMENTS AND RESPONSE: PROPOSED CONSTRUCTION OF A MEMORIAL PARK AND PRIVATE CEMETERY ON PTN 50 OF FARM 821, BCMM, EASTERN CAPE.

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
PRE-APPLICATION PHASE					
1	15 August 2025	Briant Noncembu	DEDEAT: EIM	<u>Indwe Environmental Preapplication meeting with DEDEAT:</u> <u>15 August 2025</u> We have been appointed by CapeVest Investments (Pty) Ltd to undertake an Application for EA through a BAR process for a proposed memorial park and private cemetery on PTN 50 of Farm 821, BCMM, Eastern Cape. The site is located at co-ordinates 32°55'8.77"S; 27°54'31.55"E, opposite the Ducats area with existing access off the N6. See Locality plan. CapeVest Investments (Pty) Ltd has applied for "A permanent Land Use Departure" in order to retain the existing Agricultural Zoning of the site. The client has applied for town planning approval and is still waiting for approval to be received. In terms of services all are available with the exception of sewerage and sanitation where it is proposed by the developer that a septic tank system is preferred with a conservancy tank system serving as an alternative. It must be noted that although water supply is available from the adjacent Ducats area, the proposed development have opted for a borehole system. The relevant DWS procedure will be conducted by AGES and not Indwe Environmental Consulting. The applicant intends to develop 7.76 Ha out of the 10.2 Ha site and thus setting aside the natural greenbelt running through the center of	<u>15 September 2025</u> No objection or additions were noted to the minutes sent and thus they were finalised. Minutes within Appendix G4 for further information

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				the site (see attached development plan- preferred alternative) Some key features for your interest: 1. Located outside of the BCM urban edge and situated within ward 15. 2. Not within any Freshwater CBA or ESA as per ECBCP (2019) but does fall within a Terrestrial ESA 2 and marginally within a Terrestrial ESA 1 (see attached ECBCP map). 3. The surface water features consist of a non-perennial drainage line that forms the greenbelt that runs through the center of the property. This is intended as a set-aside area. It is noted however that there does exist what appears to be a borrow pit that has since developed into a dam on site and can be seen in the attached google earth image. 4. The vegetation unit mapped by NBA VegMap is South Eastern Coastal Thornveld which is listed as "Least Concerned". The site has undergone historical agricultural activities and it can be noted by the recent veld fire the scarification's on the farm from past activities (see google earth image). 5. In terms of protected areas, it falls over 6km from the Quenera and Nahoon Nature Reserve. The listed activities that apply to this application are: • LN 1 Activity 23- Development of a cemetery larger than 2500 m2 • LN 1 Activity 27- Clearance of more than 1 hectare to accommodate the development of the cemetery of about 7.76 Ha • LN 3 Activity 14- Development of 10 m2 or more within 32	

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				meters of the edge of a watercourse within a Terrestrial ESA 2 area. In terms of specialist requirements, we foresee a Wetland and Aquatic Assessment, a Terrestrial Biodiversity Assessment, and a Phase 1 Cultural and Heritage Impact Assessment, Paleontological assessment to be applicable to this application. Additionally, a Geo-Hydro Assessment is to be undertaken by AGES the results of which will be included into the BAR. In terms of the National Screening Tool report generated for the site, of note is the very high Terrestrial Biodiversity Sensitivity owed to being located within an Ecological Support Area 2 which is identified by our ECBCP 2019 data and a high Aquatic sensitivity due to being within the Amathole SWSA/ The rest of the themes I will justify through the site verification process as required by the protocols.	
COMMENTS RECEIVED DURING THE ADVERTISING AND NOTIFICATION PERIOD					
2	10 December 2021	Ashton Harris	Adjacent Landowner	<u>10 December 2021</u> Requested to have the site layout of the proposed graveyard to be forward to him. Mr Ashton Harris also clarified the ownership of PTN 19 of 821 whose landowner information was not available to Indwe Environmental Consulting, nor was there a homestead on the property to deliver a BID to. Mr Harris after Indwe sent an email out to the adjacent landowners requesting if any of the neighbours had any information	<u>10 December 2021</u> Indwe noted Mr Harris's request and proceeded to send him the layout plan as requested. Indwe thanked Mr Harris for the information provided.

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				relayed the following: "portion 19 belonged to the government and as I recall was at some stage sold as part of a "farm redistribution" program. It failed and they (being the new landowners) left.	
3	10 December 2021	Gesina De Sousa	SKG Properties	<u>10 December 2021</u> Request for I&AP registration for herself and two other Colleagues Rhett Shaw and Riana Botha. Request for BID in response to EIA notification placed within the Daily Dispatch on 10 December 2021.	<u>10 December 2021</u> Indwe proceeded to register all three SKG Properties representatives as an I&AP and forward the notification letter with the BID for their information.
4	16 December 2021	CLLR Mcwabeni	Municipal Councillor: Ward 15	<u>16 December 2021</u> I'm ward 15 CLLr Mcwabeni including the propose farm for private cemetery that u want to develop in my ward. Could pls organise meeting and visit with the ERF number u referred above. Pls don't hasitate to what's app 0672190636 /call 084 408 5455 me for the meeting in my office.	<u>06 January 2022</u> Indwe notified the applicant of the engagement the Ward 15 councillor requested in order to set up a meeting that was convenient for both parties. The following was a correspondence sent to CLLR Mcwabeni from the applicant: <i>"Our telephone conversation has reference. Let me take this time to thank you for taking interest in our development. As I have said, this is my farm and I am the rightful owner. Unfortunately, I can not make time for a sit down physical meeting; however, a teams or zoom will suffice.</i> <i>Let me know which is more convenient for you."</i> <u>10 February 2022</u> Indwe followed up with regard to the outcome of the meeting request and the applicant advised that the Councillor had not gotten back to the applicant regarding the meeting and thus it is of our opinion

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					the councillor has been adequately engaged. CLLR Mcwabeni however is a registered I&AP and will continue to be advised of the project progress and Public Review Period.
5	10 January 2022	Sharnae Hopewell	BCMM Resident	<u>10 January 2022</u> Request for the BID in order to determine if she would like to register as an I&AP. Apon receiving the BID, the resident noted the following : <i>"Thank you for the BID – this is an excellent proposal – much needed in the BCMM area!</i> <i>It will not be necessary to register me – thank you very much."</i>	<u>11 January 2022</u> Indwe thanked her for her correspondence, proceeded to provide the resident with the requested BID and asked them to indicate if they wanted to register as an I&AP.
6	18 March 2025	Sharnae Hopewell	BCMM resident	<u>18 March 2025</u> Thank you for the opportunity to be informed of the above project. Please find attached some minor queries I would like to raise. 1. I am interested in the water supply. Please could you clarify why the WULs in terms of Section 21 (c) and (i) will be required if the site is to make use of an existing spring? 2. Please could you clarify what exactly will be disposed of, that necessitates the Section 21 (g) WUL? 3. Please could you confirm which authority will be responsible for the decanting of the contents of the conservancy tank - would it fall under BCMM or ADM?	<u>20 March 2025</u> Thank you for your email, it was well received. Please see the responses to your queries below: I am interested in the water supply. Please could you clarify why the WULs in terms of Section 21 (c) and (i) will be required if the site is to make use of an existing spring? - Section 21 (c) and (i) is applicable to this development as it is associated to the works of the project falling within both the DWS 100m regulated area from a watercourse and DWS 500m regulated area from a

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				<u>20 March 2025</u> Thank you very much for the clarity – well-received and appreciated.	wetland. As such a Section 21(c) and (i) WUL will be applied for. Please could you clarify what exactly will be disposed of, that necessitates the Section 21 (g) WUL? - It is our experience that in some cases Section 21(g) trigger can be applied to cemeteries due to the occurrence of leachate during operational phases of cemetery developments, however it is not commonly the case, nevertheless it has been included into the WUL activities until such a time it is confirmed to be not applicable by the relevant competent authority i.e. the Department of Water and Sanitation during the Pre-application phase of the project. Please could you confirm which authority will be responsible for the decanting of the contents of the conservancy tank - would it fall under BCMM or ADM? - The conservancy tank is likely to be serviced either by BCMM or a private service provider.

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7	24 March 2025	Llezi Fourie	BCMM resident	<u>24 March 2025</u> What is the process to oppose these?	<u>25 March 2025</u> Please may you kindly fill out the last page of the attached Background Information Document, so I can register yourself as an Interested and Affected Party. On that page or on a separate document you can outline your concerns to us. These will be placed in the comments and response report as part of the EIA and submitted to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT). You will also get the opportunity to review the Draft Basic Assessment Report once completed and released for public review. Once the Final Basic Assessment has been submitted to DEDEAT they will make a decision on the application for Environmental Authorisation which will be distributed to those registered Interested and Affected Parties and thereafter there is an appeal process.
8	24 March 2025	Andrew Moss	PTN 1 of PTN 2 Farm 652	Community Objection 1: Negative Impact on Property Values:	<u>Response Objection 1:</u>
9	24 March 2025	Penelope Anne	B17 Holm Hill	Cemeteries are widely known to reduce nearby property values due to	The property proposed for the development of the

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		Stapleton		emotional discomfort, stigma, and buyer reluctance. Properties close to cemeteries take longer to sell and attract fewer potential buyers, who worry about the long-term impact on resale value, visual impact, and the area's atmosphere.	Memorial Park and Private Cemetery is located in the peri-urban area of BCMM. Peri-urbanization by definition is the transitional zone between urban landscape and rural landscape characteristics that often merge and are found on the outskirts of a prominent urban settlement i.e. East London. The proposed development is located adjacent to growing urbanization elements such as the Ducats settlement and businesses alongside the N6. It is unlikely the property value will be significantly impacted by the proposed development as the Settlement of Ducats comprised of unsightly shack areas is a strong element already in existence nearly directly adjacent to the development in addition to the N6. Regarding the development, there is a strong existing vegetation screen along W road and the site, with no current plan to remove such vegetation with the exception of at the entrance/ access point to the development. The development is privately owned and will be privately operated and managed, thus the development will likely be well landscaped and manicured to ensure the satisfaction of its clients. Thus it is unlikely to create a significant visual impact. The cemetery is not located in the centre of the area of Holm Hill but rather on the furthest western boundary of the area.
10	24 March 2025	Michael Stapleton			
11	25 March 2025	Milada Yvonne Burger	PTN 6 Farm 821	This is especially true in rural, lifestyle-driven communities like ours where peace, natural surroundings, and open space are central to the area's appeal. The presence of a large cemetery would fundamentally change the character of the surroundings, making it less desirable to prospective buyers seeking a farm or nature-based lifestyle.	
12	25 March 2025	Andre Burger (Drilling Africa & Anbri Trust)			
13	25 March 2025	Rebecca Burger		Additionally, with the rezoning of B2 to resort, and multiple churches and businesses looking at expanding to Holm Hill, the type of business needs to fit into the culture and ambience desired on the hill.	
14	02 April 2025	Jean Piere Greyling			
15	25 March 2025	Andre Burger (Anbri Trust)	PTN 1 Farm 818	Community Objection 2: Road Infrastructure and Traffic Concerns:	
16	26 March 2025	Paula Boniface	W9 Holm Hill	This development will introduce irregular yet significant traffic surges from funerals, memorial services, and visitor vehicles. Our rural roads are already in poor condition and not designed for this increased load.	
17	26 March 2025	Francois Boniface			
18	26 March 2025	Grame Chinn		Such added pressure will accelerate road deterioration, raise maintenance costs (likely falling on the community or municipality), and pose safety risks. This increased traffic will also disrupt daily farm operations and negatively impact the quiet, self-sufficient nature of the area.	
19	26 March	Roydon	A9a Holm Hill		Please refer to Appendix G4 for full response on

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	2025	Moorcroft			item
20	26 March 2025	Delia Moorcroft		Community Objection 3: Environmental Risks – Groundwater and Surface water Contamination: The site is close to rivers and water sources essential to surrounding self-sufficient farms. Cemeteries present well-documented risks of leachate contaminating groundwater and surface water over time. With many residents dependent on boreholes, rainwater, and rivers, this development could threaten essential water supplies, food production, and human health. Long-term contamination would have devastating consequences for the local environment and economy. Community Objection 4: Community well-being, morale and Rural character: Our community is rooted in peaceful, self-sufficient rural living. A large cemetery fundamentally changes that - both physically and emotionally. Cemeteries often create psychological discomfort, altering how residents experience the area they call home. For a community built around farming and nature, this development threatens the very	<u>Objection 2 response:</u> A Traffic Impact Assessment (TIA) was conducted dated April 2024 for the proposed development. Regarding capacity along access roads, the MN10118 (W road) was found to be described as a minor road which provides access between the proposed development and the N6 to the west. According to the TIA, on site observations found there is sufficient spare capacity that exists along the road network to cater for the medium to long term future anticipated traffic growth, including future trips in relation to the proposed development. In addition, it was noted that the speeds on the road were relatively low due to the existing condition of the gravel road. As a provincial road, the responsibility of road maintenance of MN10118 (W Road) falls under the Eastern Cape Department of Transport. Please refer to Appendix G4 for full response on item <u>Objection 3 response:</u> A Geohydrological Assessment was conducted for the site dated July 2022. The Assessment found that groundwater occurrences are expected to be
21	30 March 2025	Pamela Manthe			
22	26 March 2025	Vumile Mtshobane	A10 Holm Hill		
23	02 April 2025	Joshua Coetzee	Concerned resident		
24	02 April 2025	Jonga Nyengane	C8 Holm Hill		
25	02 April 2025	Amanda Gradwell			
26	02 April 2025	Dylan Gradwell	PTN 69 Farm 821		
27	02 April 2025	Barry Gradwell			
28	03 April 2025	JP Doubell	C11 Holm Hill		
29	03 April 2025	Pierre-Andre Mans	Concerned resident		
30	03 April 2025	Michele Coetzer			
31	03 April 2025	Jason Coetzer	W7 Wansley Farm Holm Hill		
32	03 April 2025	Karen Coetzer			
33	03 April 2025	Liesel Da Silva	C5 PTN 24 Farm 821		
34	05 April 2025	Mthethunzi ma Dakiso	PTN 84 Farm 821		

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				identity and spirit of the area.	intergranular and in fractured zones with borehole yields between 0.1 and 0.5 litres per second in general.
35	06 April 2025	Nokwanda Didiza Note: I&AP comment very similar to others received. For further information please refer to response letter in Appendix G4.	PTN 40 Farm 821	Community Objection 5: Grave Robbery (Joshua Coetzee) Theft related issues such as tombstone theft etc.	Only one test pit had slight seepage out of 10 test pits which was associated with a shallow aquifer originating from stormwater runoff from W road and possibly the spring in the uppermost area of the site designated majority for infrastructure. The remainder of the test pits extended past the depth of grave depth of 1.8m where the cemetery component is proposed. During a hydrosensus conducted, 9 boreholes, 1 spring (on site) and 14 soil dams were identified from the surrounding area within 500m radius of the site. The groundwater has been recognised as a prominent water source with static groundwater levels measured between 27.44 and 29.82 mbgl.
36	15 April 2025	Nicole Coetzer	PTN 25 Farm 821		Samples of groundwater taken from surrounding borehole resources and onsite spring noted the following (Note prior to development):
37	16 April 2025	Deon Coetzer			

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					Testi ng sourc e	Operational risk				Acu te hea lth risk	Chronic Health Risk	
						Stan dard Plate Coun t (limit 1000 per 1ml)	Total Colifo rms (limit 10 per 100m l)	Turbi dity (limit 1 NTU)	Alumi nium (300 ug/l)	E.co li (lim it 0 per 100 ml)	Iro n Co nc. (Li mit 20 00 ug/ l)	Tota l org anic carb on (lim it 10 mg/ l)
					Priva te bore hole	2001	20	Belo w	Below	Bel ow	Bel ow	Bel ow
					Onsit e Sprin gs	2001	2080	66	15623	122 0	86 76	34
					The cemetery portion of the development will be concentrated to the eastern side of the site, however the entire project area is expected to be underlain by siltstone bedrock, which will form the main basal buffer zone or vadose zone. According to the <i>Protocol to manage the potential of groundwater contamination from on site sanitation edition 2, dated March 2003, by the Department of Water Affairs and Forestry</i> (now Department of Water and Sanitation), the unsaturated zone can be classified as							

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					bedded shales and has an expected slow rate of flow of 0.1m per day. This low permeability would inhibit the decomposition process but is a great positive towards groundwater pollution. Furthermore, the basal buffer zone is expected to be in excess of 10m where the minimum standard for cemeteries is 2.5m. Vertical flow is expected in flatter or higher elevation areas with slow infiltration rates through the vadose zone up to a static water level that is expected to be > 10 to 15 mbgl. Please refer to Appendix G4 for full response on item. <u>Objection 4 response:</u> The proposed development is positioned opposite the existing informal settlement of Ducats which has significantly led to the transformation of the general area of the site. The proposed site is situated in the peri-urban area of BCMM and on a plot with existing access, opposite semi-serviced Ducats settlement and several small businesses located alongside the N6. While the proposed Memorial Park and Private Cemetery does change the land use from agriculture on PTN 50 Farm 821 (Town Planning application submitted), it is expected the proposed development will not have a significant impact on the sense of place as the development is not significantly urbanising (built up areas) the site and will likely

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					have a well landscaped and manicured grounds due to being privately owned and operated, it is thus their mandate to ensure customer satisfaction. The main reason for the nature of the development is to provide a much needed option for dignified burial and alternative internment options for the citizens of BCMM due to the unfortunate circumstance of existing Municipal operated cemeteries falling into disrepair based on lack of resources of which the privately owned and operated proposed memorial park and cemetery will not experience. Please refer to Appendix G4 or full response on item <u>Objection 5 response:</u> It is unlikely theft, and grave robbery will occur as the private cemetery will be fitted with 2.6m ClearVu perimeter fencing with an additional electric fence layer. The development will be gated and have 24 hour physical security services present and the installation of CCTV system. Thus, the presence on the development is high, in addition to access being controlled, it is therefore very unlikely theft will occur considering the considerable time needed to undertake the unlawful activity.

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38	06 April 2025	Valerie Wood	C10 Holm Hill	<u>06 April 2025</u> • It will as you know affect our property values, will there be compensation provided? • It will be highly disrespectful to the dead to transport them over our shocking roads, unless the road will be tarred. • The area is known as Holm Hill, as its name suggests an elevated area which even the most basic geographical knowledge will tell you resistant rock structure. I am not sure of the size and depth needed but you cannot dig much more than .5 of a meter down without hitting solid rock. The noise of TLB's digging graves will be excessive not to mention expensive. • The rocks in the area are either Dolerite, impermeable igneous or Shale equally impermeable so decomposition will take considerably longer due to them being entombed in solid rock, and much more accessible to grave robbers, which with a low income residential area nearby and scrap metals sought will be problematic. • Due to the poor drainage, it is going to affect the ground water and surface run off, I trust piped municipal water will be provided to all properties that have boreholes put in at their expense. The surface runoff could affect the rivers and holidaymakers, not that the officials care about that. • All in all the people proposing this development need to consider the geological and biological needs and select a site with good soil depth in excess of 3 meters however we are run by a municipality that is generally short on attention to detail and anticipating problems. Somewhere nearer to the coastal plain where there is unconsolidated soil.	<u>04 July 2025</u> • Please kindly refer to Community Objection 1 and our response above with regards to property value. With regards to compensation it must be noted this is not a legal requirement and the Farm 50/821 is privately owned by the proponent/applicant. Additionally, the activities will remain within the bounds of the property perimeter where the proposed project is also to be privately owned and operated. The development has submitted a Town Planning application to ensure land use compliance. • Please kindly refer to Community Objection 2 and the corresponding response with regards to traffic and roads. However please note due to the sites location next to the N6, there is only a stretch of 500m of road to travel until the access of the proposed development. It is unlikely that the traffic from the development will travel the remainder of the roads in Holm Hill. The roads are under the custodianship of the Eastern Cape Department of Transport, which has given approval to the development informed by the results from a Traffic Impact Assessment that was conducted for the development. • From the Geotechnical study conducted refusals at about 1.4m (the shallowest being

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					1.3m) depth were experienced on the western extent of the farm due to resistant rock. As a result the design on the Memorial Park and Private Cemetery was altered to designate the Memorial walls within this area where excavation was not required at depth. The cemetery component of the development will be concentrated on the eastern extent of the farm where deeper soil is experienced up to a depth of up to 2m before refusal. The standard for grave depth is 1.8m. Please see below extract from the report - As per Community Objection 3's response above, percolation is noted to be lower on site but still within the permissible range, this will inhibit or delay the decomposition process. This is however, outweighed by the positive towards groundwater health security. In terms of grave robbery, the proposed development being private in nature will have implemented 2.6m ClearVu fencing, fitted with an additional electric fencing layer, around the entirety of the perimeter of PTN 50 Farm 821. In addition, there will be active CCTV and 24hr physical security provision at the Memorial Park and Private Cemetery. - As per Community Objection 3's response above, a comprehensive stormwater

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					management plan has been actioned to ensure water is channelled away from graves. In addition, there is expected to be a basal buffer zone or Vadose zone (unsaturated zone between the base of the graves and the top of the water table responsible for the uptake of decomposition nutrients and similar) is of more than 10 meters, with the surrounding unsaturated zones of more than 25mbgl. The standard for this with regards to cemeteries is 2.5m. Thus, a sufficient Basal Buffer Zone exists on site to accommodate uptake of decomposition materials prior to water infiltrating the water table. In addition, due to percolation being low or within permissible standards, the low percolation will result in slower decomposition rates which will increase the uptake potential of the unsaturated soil of the Basal Buffer Zone • The development has ensured these considerations are being taken into account by the conducting of geohydrology and geotechnical studies, the results of which will be explained in full within the Draft Basic Assessment Report..
39	04 April	Jason	Wansley Siyajhula,	<u>04 April 2025</u>	<u>04 July 2026</u>

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	2025	Coetzer and Michelle Coetzer	Wansley Quarries and Cape Crushing	Wansley Objection 1. Lack of Proven Community Need There has been no publicly accessible needs assessment or statistical justification presented that supports the urgency or scale of this development. With over 7,000 gravesites planned, this is not a modest local facility—it suggests intentions far broader than serving surrounding communities. Wansley Objection 2: Environmental Sensitivity and Watercourse Risks: The proposed site lies near a drainage line and includes the construction of artificial reed-bed systems. Despite planned stormwater and runoff controls, there remains a risk of leachate contamination entering nearby water sources, especially during heavy rainfall or system failure. This could pose a threat to the ecological integrity of the area and affect borehole users nearby. Wansley Objection 3: Zoning Concerns and Future Intentions: The rezoning application from “Agricultural” to “Institutional Zone II” with special consent for a cemetery may open the door to future land use changes once the cemetery is approved. Without long-term land use guarantees, the development could serve as a strategic entry point to rezone and repurpose the area under the pretence of community service. Wansley objection 4: Impact on Nearby Property Owners: The presence of a cemetery—despite security and landscaping measures—can create emotional discomfort, reduce property desirability, and hinder surrounding economic activities, especially where tourism or agriculture is involved. There are also concerns about future traffic increases, noise, and the strain on rural infrastructure.	Response 1: According to the Town Planning Motivation Report, the mortality rate in Buffalo City has reached unprecedented levels and has put serious pressure on the Buffalo City existing cemetery facilities. Suitable land within 12km of residential areas is challenging and poses a risk for accessibility. Only 29 of the 279 cemeteries within the Buffalo City area are properly established and meet the legal standards. However, due to the large population growth these existing cemeteries are quickly running out of space which prompted the alteration of By-Laws to allow two burials per grave. Alternative burial options are of paramount importance and it is noted that existing cemeteries exist within the oldest part of Buffalo City with no representation towards the newer areas of Beacon Bay and Gonubie. The CSIR guideline for population size vs site size as extracted out of the Motivation report on page 14, is as follows: Please refer to Appendix G4 for further correspondence on response Response 2: The proposal of the construction of an artificial reed bed system is not included within the Proposed Memorial Park and Private Cemetery on PTN 50 of Farm 821, and perhaps refers to the proposal for PTN 14 of Farm 821 under a different applicant, Environmental Consulting company and Environmental Assessment Practitioner as well as a different development proposal. However with

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				Wansley Objection 5: Transparency and Public Confidence: It is unclear why an Investment agency (CapeVest Investments) is listed as the applicant in a project of this nature. This raises questions about the commercial strategy behind the development and whether this project is part of a broader, undeclared agenda. The public deserves full transparency on ownership, management plans, long-term land use intentions, and business objectives. Wansley Concluding comment: Given the scale of this development, the sensitive nature of the land, and the uncertainty around long-term intentions, I respectfully request that the competent authorities: Require a more detailed socio-economic and environmental impact assessment, Place a hold on approval until full transparency is provided on long-term land use intentions, And ensure a broader and more inclusive public participation process before any final decisions are made. Cape Crushing Objection 1: Lack of Clear Community Need or Justification: The application does not present adequate evidence of a defined community demand or statistical justification for the establishment of a large-scale private cemetery in this area. Without a formal needs assessment or demographic study, this appears to be a commercially driven development targeting broader regional or metropolitan usage — far beyond the scope of a community-based facility. Cape Crushing Objection 2: Environmental and Water Resource Vulnerabilities: Portion 50, like the previously proposed Portion 14, lies in close proximity to sensitive watercourses, drainage lines, and borehole-	regards to the risk towards the drainage line and groundwater on PTN 50 of Farm 821, please refer to Community Objection 3 and its respective response above. Response 3: The proposal of rezoning to “Institutional Zone II” with special consent is not part of this development plan and perhaps refers to a different development proposal. Response 4: Please kindly refer to Community Objection 1, 2 and 4 above for property value, traffic and road concerns and emotional discomfort and their respective responses. Response 5: CapeVest Investments Pty Ltd, the company, is the proponent intending on submitting an application for Environmental Authorisation and thus is an administrative requirement. With regards to the Environmental Impact Assessment Regulations 2014 as amended, it is noted that the proponent is “a person intending to submit an application for environmental authorisation and is referred to as an applicant once such application for environmental authorisation has been submitted.” Those who submit an application for Environmental Authorisation must be those who either responsible for the ownership and/ or operation of the development which in this case is not a natural

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				dependent farms. The risk of groundwater contamination from cemetery leachate over time remains a major concern — especially under conditions of extreme weather or system malfunction. The consequences of polluted water supplies would be long-lasting and potentially irreversible, affecting not only residents but the viability of surrounding agricultural enterprises. Cape Crushing Objection 3: Incompatibility with agricultural zoning and rural character: Rezoning of agricultural land to accommodate institutional or memorial use sets a dangerous precedent. The rural integrity of Holm Hill is based on low-impact farming, conservation, and natural living. Introducing a permanent cemetery facility on this land fundamentally shifts the character of the region and opens the door to future non-agricultural developments. This change directly undermines the Eastern Cape's efforts to promote sustainable rural development and preserve agricultural land for food production and environmental balance. Cape Crushing Objection 4: Increased pressure on Rural infrastructure and Road Safety: This development will bring increased vehicular traffic, including regular funerals, visitors, and maintenance activities — all of which will place a burden on fragile rural roads that were not designed for high volumes. Maintenance costs will rise, and the safety of both residents and road users will be compromised. This is particularly concerning in an area where children, farm workers, and livestock commonly use or cross these roads. Cape Crushing Objection 5: Potential for Cumulative Development Impact:	person but the company CapeVest Investments Pty Ltd. In terms of the business profile for CapeVest Investments the following has been received from the proponent: <i>"CapeVest Investments established in 2011, is a property development company based in East London, Eastern Cape. Our focus is providing tenants with suitable space anywhere in the Cape Province. Our portfolio consist is spread between townships and urban areas. This gives us a broad insight of customer expectation for different environments. We use this knowledge to inform our planning for future projects."</i> The business model for the Proposed Memorial Park and Private Cemetery is summarised as follows: <i>"CapeVest Investments is in a process to establish a private memorial park. The development will be rolled out in phases. Phase 1 will have 2,000 plots. These will be sold in advance; i.e people can purchase stands, individual or family units.</i> <i>The technology</i> 1. electric Fence 2. Gated access 3. Living Memory Bank a. <i>When purchasing an interment, you will have a free access to our Video memories banking application. This is simple as making a video recording of yourself and send it via WhatsApp to a cloud storage facility</i> b. <i>This is a collage of videos, pictures and voice notes that serves as a living memory. These will be accessible by entering the name and surname of the deceased. Can be viewed, listened from an</i>

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				The approval of a second cemetery within the same farming district, on Portion 50 in addition to the application for Portion 14, signals a potential trend of clustering incompatible land uses in a fragile ecosystem. This creates a cumulative risk to environmental, infrastructural, and socio-economic stability, which cannot be evaluated in isolation. These projects must be assessed together under a strategic, regional-level Environmental and Land Use Management Framework. Cape Crushing Objection 6: Commercial Motivations and Lack of transparency: There is limited publicly available information about CapeVest Investments (Pty) Ltd's long-term development goals or ownership structure. With a project of such sensitive nature, the public is entitled to full transparency regarding the intended commercial model, future expansion plans, and land use rights. The involvement of private investment companies in such developments raises valid concerns about profit-driven motives outweighing community and environmental interests. Cape Crushing Objection 7: Impact on Community Morale and Social Cohesion: Introducing a large-scale cemetery into a peaceful, close-knit, and primarily agricultural area will alter the psychological and emotional landscape of the community. The presence of such a facility, regardless of landscaping or aesthetics, carries a permanent emotional weight that could affect long-standing community dynamics, rural identity, and overall well-being. Cape Crushing's Conclusions: For the reasons outlined above, Cape Crushing and Construction (Pty) Ltd respectfully objects to the proposed Memorial Park and Private	<i>observatory or downloaded</i> 4. GPS grave tracker. Visitors should be able to track the graves by last name or ID number at the entrance hall. <i>Heroes Wall and 'The Walk'</i> 1. Public / Political plaque walls will be availed as a memorial wall. These will include historical figures. 2. Walk way tiles/brick for private memorial. Each person can buy a stone to commemorate their loved ones. <i>Layout</i> 1. park ambience 2. walk ways and open spaces 3. parking near entrance 4. centre / The Wall amphitheatre 5. Structural Artefacts to Commemorate historic events" With regards to long term intentions for the development, there is no intension to expand beyond the that of PTN 50 of Farm 821. Cape Crushing's questions and responses had some duplications of what has already been raised by other commenters and by Wansley Quarries. Please see Appendix G4 for full description and response letter to all registered and Interested Parties who have submitted comments.

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				Cemetery on Portion 50 of Farm 821. We urge the competent authority to: Require a full and independent cumulative environmental and socio-economic impact study that includes both Portion 14 and Portion 50 proposals, Suspend further consideration of the application until transparent details of the commercial intent and land use planning strategy are provided, and Facilitate broader public engagement with stakeholders in the Holm Hill and surrounding areas before any rezoning or approvals are granted.	
40	04 April 2025	Ayanda Mncwabe-Mama	ECPHRA	<u>04 April 2025</u> ECPHRA (Eastern Cape Provincial Heritage Authority) COMMENTS in terms of Section 38 of the National Heritage Resources Act (25 of 1999). <i>This case was tabled at the Archaeology, Palaeontology and Meteorites (APM) Committee meeting held on 18 March 2025.</i> ECPHRA Interim Heritage Comment: ECPHRA acknowledges the <i>Notification</i> and <i>BID</i> submitted. ECPHRA requests the filled NID form (ECPHRA <i>Notice of Intent to Develop</i>) and a Phase 1 Heritage Impact Assessment (HIA) with all aspects of development. The impact assessment should comprise of the ffg: - Phase 1 AIA (archaeological and cultural heritage impact assessment), including a desktop/pre-feasibility and field assessment. - Phase 1 PIA (paleontological impact assessment) including a desktop/pre-feasibility and field assessment. NOTE: Heritage reports must meet the SAHRA (2007) reporting standards. Reports must be compiled by specialists (AIA by an	<u>13 May 2025</u> Following ECPHRAs email and comment received on the 04 April 2025, please find below the completed NID form as requested and supporting documents attached for the abovementioned proposed development. Please kindly take note of the following attached: - NID application form - Conceptual layout plan/ SDP of the development - KML file for the site boundary and location - Background Information Document for extensive project description - Proof of Payment for NID and HIA/PIA report submission - Site photographs with captions - PTN 50 of Farm 821_HIA as requested_dated January 2022

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				archaeologist with a minimum of an Honours degree qualification & a PIA by a palaeontologist with a minimum of a Master's degree qualification). Please include Proof of Payment (R500 NID & R1 500 HIA), see application process below.	8. PTN 50 of Farm 821_PIA as requested_dated March 2022 9. Screenshots of online NID submission via SAHRIS, no case number provided. I trust the above is in order. Please do not hesitate to contact us if any further information is required.
41	25 May 2025	Ayanda Mncwabe-Mama	ECPHRA	<u>25 May 2025</u> ECPHRA Final Comment: ECPHRA acknowledges the AIA submitted which was compiled by C. Booth (Jan 2022) and PIA by R. Gess (March 2022). There are no objections to the proposed development hence it can proceed as planned, provided that the specialists' recommendations are adhered to, including ECPHRA requirements. General and Pre-Construction Phase: - The reports should have the correct / updated ECPHRA contact information, which is also available on www.ecphra.org.za. This should be edited before development begins. - The developer/representative must notify ECPHRA of the start dates and duration of the projects. - The developer/representative must submit a detailed Heritage Chance Finds Procedure (CFP) to ECPHRA for approval before the projects start. - Archaeological and paleontological monitoring during excavations and reports to be submitted thereafter, to ECPHRA. Post-Construction Phase:	<u>13 May 2025</u> All comments noted SAHRIS Number: 25142

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				Final heritage compliance report to be submitted to ECPHRA, upon completion of the project. AIA Report, page 31 recommendations 1. If concentrations of pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) (043 745 0888) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the findings will then be conducted to establish the contextual status of the sites and remove the archaeological deposit before development activities continue. 2. Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. PIA Report, page 10 recommendations 1. Baked sediments of the Balfour Group were encountered just outside the study area, suggesting that the palaeontological integrity of the rocks may be somewhat compromised by metamorphism in immediate proximity to the dolerite intrusion. 2. Most of the area where dolerite was encountered are likely not to be developed but to be conserved. Areas that will principally be disturbed by developments appear to have a thick covering of alluvium (soil) that has previously been ploughed for agriculture. It is likely due to the even and low gradient topography, particularly at the top where most disturbance will occur, that the soil is underlain by extremely degraded leached mudstones. There is therefore a very low likelihood	

COMMENT	DATE	PERSON	ORGANISATION/ FARM NO/PROPERTY NO	COMMENTS	RESPONSE
				that any significant palaeontological material will be disturbed during development of this site. 3. Should however any petrified (turned to stone) bones be encountered at any time ECPHRA or a professional palaeontologist should immediately be contacted. Please note that all paleontological reports should include CFP (Chance Finds Procedure).	
COMMENTS RECEIVED DURING THE DRAFT BAR PUBLIC REVIEW PERIOD					
n/a					

APPENDIX F: ENVIRONMENTAL MANAGEMENT PLAN



DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED CONSTRUCTION AND OPERATION OF MEMORIAL PARK AND PRIVATE CEMETERY ON PTN 50 OF FARM 821, WITHIN BUFFALO CITY METROPOLITAN MUNICIPALITY, EASTERN CAPE.

Prepared for: CAPEVEST INVESTMENTS Pty Ltd
DEDEAT reference number: EC/7/A/LN1, LN3/M/25-30

J2021_05_DEMP

February 2026



This report was prepared by



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**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME
PROPOSED CONSTRUCTION AND OPERATION OF MEMORIAL PARK AND
PRIVATE CEMETERY ON PTN 50 OF FARM 821, WITHIN BUFFALO CITY
METROPOLITAN MUNICIPALITY, EASTERN CAPE.**

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1 INTRODUCTION

1.1 Background Information

The site in question is approximately 10.2 Ha in extent, and has evidence of old farm contours indicative of historical agricultural activities. In addition, the site has been intersected by two powerline servitudes, has an informal soccer field on site and has evidence of prevalent dumping activities. Obvious environmental features within the site include a greenbelt within the site which indicates a watercourse and an old borrowpit-turned-dam. The greenbelt, depression wetland and old borrowpit/ dam will be excluded from the total area of which the remaining development footprint is expected to be roughly 7.76 Ha. Refer to figure 2 for the conceptual layout of the proposed cemetery.

In terms of services and town planning, the following applies:

Water

A borehole will be drilled to supply water. There is no need for potable treated water. Supply is available if needed from the adjacent Ducats Settlement. The water supply authority for the area is the Buffalo City Metropolitan Municipality (BCMM) and water infrastructure is in place to allow for the development to proceed.

Sewerage and sanitation

There is currently no sanitation infrastructure provided on the subject site. Proposed solutions would be either a septic tank system (least preferred alternative) or a conservancy tank as a preferred alternative.

Access

As the site currently stands there is a single access point on the property at the Northern Boundary from Road W (MN10118) which is an unpaved provincial road and is categorised as a Class 5 Provincial Minor road. This provincial minor road known as Road W connects to the N6 to the west of the site. The location of the sites access road will not be changed however it will be upgraded and formalized in line with the development proposal needs. No change to current access and road network is proposed in terms of routing.

Electricity

The demand for this development will be low and an application will be made via Eskom/BCMM when the phase 1 needs to commence. Per the current status quo there is electricity available on the property. An electrical load report will be completed before formal application is made to Eskom/ BCMM to indicate the electrical supply required. This electrical load report is still to be compiled.

Town Planning

The applicant has submitted a formal application in terms of the Spatial Planning and Land Use Management Act of 2013, together with the BCMM Zoning Scheme of 2007. The application consists of a Permanent Departure to allow for the establishment of a Private Cemetery and Memorial Park, with a building line relaxation of 6m on all sides.

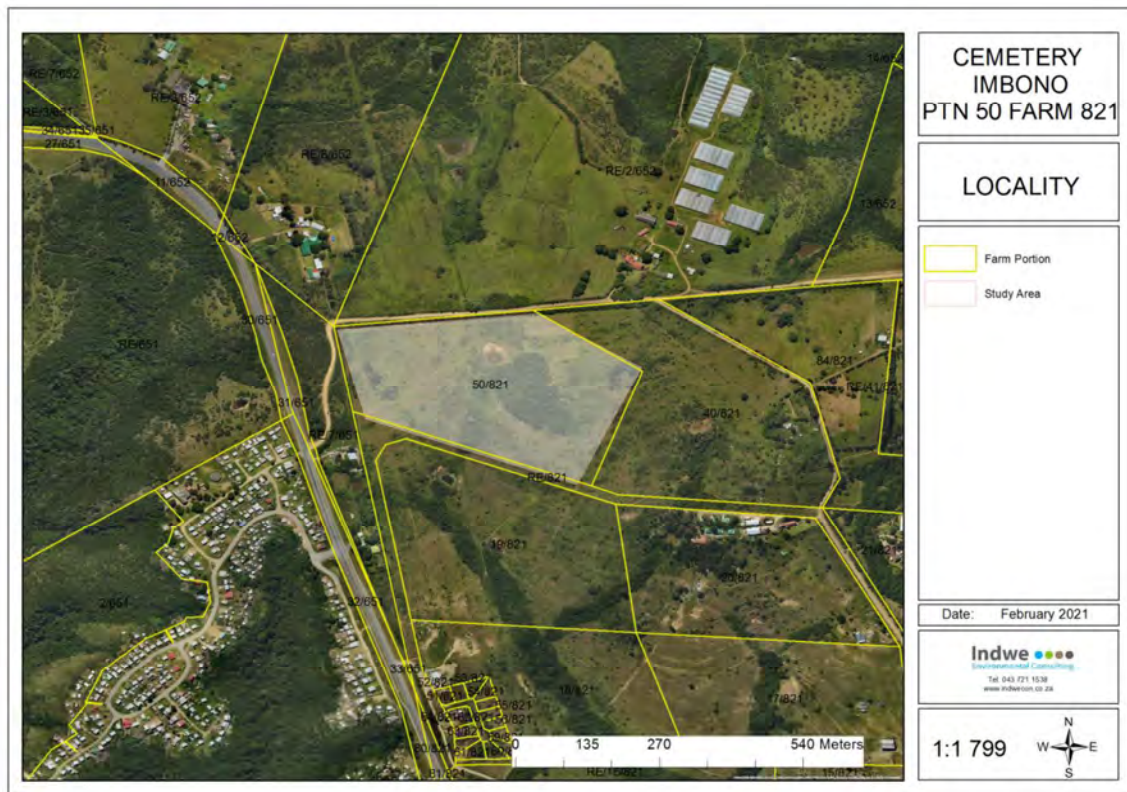


Figure 1: Aerial view illustrating locality of the study area.

1.2 Project Location

The proposed project includes the construction of a cemetery near the Ducats area of East London and is located approximately 10.7 km north of the East London CBD and is about 4 km from the Merrifield School turn off onto the N6 from East London, Beacon Bay. The study site is located at co-ordinates 32°55'8.77"S; 27°54'31.55"E and has access from Road W (MN10118) which is a Class 5 Provincial Minor Road. The predominant land use surrounding the site is that of agriculture.



Figure 2: Layout plan for the proposed private cemetery

Listing Notice No. and Activity No.	Listed Activity	Development Activity
Listing Notice 1 – GN 327: Activity 23	The development of cemeteries of 2500 square meters or more in size.	It is of the EAPs opinion that this listed activity will be triggered by the proposed project as the intended extent of the cemetery is roughly 10.2 Ha with development area of 7.72 Ha
Listing Notice 1 – GN 327: Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or	It is of the EAPs opinion that this listed activity will be triggered by the proposed project as the intended extent of the cemetery is roughly 10.2 Ha with development

	(ii) maintenance purposes undertaken in accordance with a maintenance management plan.	area of 7.72 Ha in order to retain the greenbelt on site.
Listing Notice 3 – GN 324: Activity 14	The development of ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs: a) within a watercourse c) if no development setback as been adopted, within 32 meters of a watercourse measured from the edge of a watercourse Within the Eastern Cape i) outside Urban Areas ff) critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	It is possible that some infrastructure of 10m² or greater may fall within 32 meters of the borrowpit turned dam. The site falls into a terrestrial ESA 2 area according to the ECBCP 2019 which is a systematic biodiversity plan for the Eastern Cape.

1.3 Draft EMPr

This report is the Draft EMPr and should be updated with the conditions of environmental authorisation prior to project implementation.

1.4 General Environmental Principles

The following principles should be considered at all times during the implementation of this project:

1. The Environment is considered to be composed of both biophysical and social components.
2. Minimisation of areas disturbed by construction (i.e. the footprint of construction activities) should minimise many of the related environmental impacts of the project and reduce rehabilitation requirements and costs.
3. As minimum requirements, all relevant standards relating to international, national, provincial and local legislation, as applicable, shall be adhered to. This includes the following legislation which can, inter alia, have an effect on construction activities or the environment.

This list is not necessarily complete and the onus shall remain on the Proponent and Contractor to ensure that all relevant legislation is conformed with.

- National Environmental Management Act (No. 107 of 1998).
 - National Water Act (No. 36 of 1998).
 - National Heritage Resources Act (No. 25 of 1999).
 - Conservation of Agricultural Resources Act (No. 43 of 1983).
 - National Environmental Management: Biodiversity Act (No. 10 of 2004).
 - Occupational Health & Safety Act (No.85 of 1993).
 - National Dust Control Regulations, 2013, in terms of section 53 (o), read with section 32 of the National Environmental Management: Air Quality Act, 2004 (Act no. 39 of 2004).
 - All relevant provincial legislation, Municipal by-laws and ordinances.
4. Every effort should be made to minimise, reclaim and/or recycle “waste” material.
5. The Environment is held in public trust for the benefit of people, due care must therefore be exercised to ensure that the rights of others with respect to its use are respected. This requires that a risk averse and cautious approach to the management of activities associated with the project be adopted at all times.

2 ROLES AND RESPONSIBILITIES

2.1 Project Proponent (CapeVest Investments Pty Ltd)

The Proponent will be responsible for:

1. Appointment of a Consulting Engineer (CE) to oversee the implementation of the works.
2. Appointment of an Environmental Control Officer (ECO).
3. Ensure that all permits, authorisations and associated conditions regarding site establishment and construction activities are in place.
4. Being familiar with the contents of the EMP.
5. Making sufficient budget available for implementation of the EMP including a provisional sum for additional environmental protection measures that may be necessary as construction and rehabilitation proceeds.
6. Supporting the Consulting Engineer in enforcing the Environmental Specifications.
7. Communicating with all role players in the interests of a co-ordinated effort to protect the environment.
8. Implement and take responsibility for those specifications relating to the operational phase of the project.
9. Where the project proponent physically undertakes construction work, then the roles and responsibilities of the Contractor apply.

2.2 Consulting Engineer

The Consulting Engineer (CE) is required to:

1. Ensure that Contractors are aware of and familiar with the contents of the EMP.
2. Be familiar with the contents of the EMP.
3. Assist with monitoring the Contractor's compliance to the specifications contained within this document and enforce compliance when deemed necessary.
4. Together with the ECO, review and approve method statements received from the Contractor.
5. Issue site instructions giving effect to the ECO requirements contained in audit reports.
6. Discuss with the ECO the application of any penalties and other possible enforcement measures when necessary.
7. Facilitate communication between all role-players in the interest of effective Environmental Management.

2.3 Contractor (Main Contractor)

The Contractor is required to:

1. Be familiar and comply with the contents of this EMP.
2. Sign a letter as commitment to implementing the EMP.
3. Compile an environmental site file and keep accurate and detailed records of all activities on site.
4. Regularly conduct environmental awareness training amongst all site personnel.
5. Prepare method statements and obtain approval from the CE and ECO for all work that will take place in environmentally sensitive areas.
6. Report all incidences of non-compliance with the content of the EMP to the ECO.
7. Timeously implement mitigation measures for non-compliances identified in previous audit reports.
8. Ensure all sub-contractors are aware of the EMP and environmental conditions.

2.4 Environmental Control Officer

The ECO is responsible for:

1. Conducting an induction session with the Consulting Engineer and main Contractor on the content and requirements of the EMP.
2. Confirming that all permits required in terms of the applicable legislation have been obtained by the contractor prior to construction commencing.
3. Undertaking regular site inspections to ensure that the provisions contained within this EMP and all other permit conditions are complied with throughout the construction period.
4. Undertaking periodic audits to measure the Contractors compliance with the provisions of the EMP and distribute these reports to the relevant parties.
5. Keeping a photographic record of progress on site from an environmental perspective.
6. Checking that the required actions are/were undertaken to mitigate the impacts resulting from non-compliance identified in previous site inspections and compliance audits.
7. Monitoring the Contractors environmental awareness training for all personnel on site.
8. Reviewing and approving construction method statements in conjunction with the Engineer prior to work commencing.
9. Undertaking a detailed close out post construction compliance audit and distribute these reports to the relevant parties.

3 ENVIRONMENTAL SPECIFICATIONS – ADMINISTRATION

3.1 Environmental Site File

The Contractor is to maintain an environmental site file which must contain the following:

1. A copy of this EMP.
2. All relevant authorisations, permits and licences.
3. Records of attendance and proof of on-going environmental awareness training of all personnel.
4. An emergency incidence register.
5. Method Statements
6. A register of public complaints.
7. A copy of all previous site inspection and audit reports.
8. A copy of all relevant correspondence of an environmental nature.
9. Any other information of environmental importance.

The environmental file must be kept on site and made available to any authority that requests to review its contents.

3.2 Environmental Induction & Awareness and Training

1. Before construction commences the ECO must coordinate an induction session with the Contractor. The ECO must brief the contractor on the specifications contained within the environmental management programme as well as all conditions of authorisation.
2. The Contractor shall be responsible for conducting regular toolbox talks with all employees in order to ensure that they have the necessary knowledge to comply with the specifications contained in this EMP.
3. Environmental awareness training programmes shall contain the following information:
 - The names, positions and responsibilities of personnel that training will be provided.
 - The framework for appropriate training plans.
 - The summarised content of each training course.
 - A schedule for the presentation of the training courses.
4. Copies of all attendance registers as proof of training must be kept in the site environmental file.
5. The Applicant/ Proponent/ Holder of the EA shall ensure that environmental training takes place (**see Appendix A** for an example of an environmental education and awareness guideline to use). All employees shall be given an induction presentation on environmental awareness and the content of the EMP (to be done by the ECO). The presentation needs to be conducted in the language of the employees to ensure it is understood. The environmental training shall, as a minimum, include the following:

- The importance of compliance with all available environmental policies.
- The environmental impacts, actual or potential, associated with their work activities.
- The environmental benefits of improved personal performance and liability.
- Their roles and responsibilities in achieving compliance with the environmental policy and procedures and with the requirement of the entities environmental management systems, including emergency preparedness and response requirements.
- The consequences of non-compliance with the relevant systems.
- The mitigation measures required to be implemented when carrying out their work activities.
- Environmental legal requirements and obligations.
- Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered.

3.3 Method Statements

1. Work in environmentally sensitive areas (areas of indigenous bush, watercourses, etc.) will require method statements that reflect the manner in which the Contractor intends to protect the environment while conducting construction work within the area.
2. Any other aspect of environmental management may require a method statement (i.e. waste disposal, concrete batching, etc.). This especially applies where there is a deviation from the EMP specifications.
3. These method statements are required 7 days prior to any work commencing within sensitive areas, and then the work may only start once the method statements have been approved by the CE and ECO.
4. An example of a method statement can be found in Appendix B.

3.4 Project Phases

Environmental specifications have been split according to the project phases:

- Planning and Design Phase

The Planning and Design Phase includes all activities that are taking place up to appointment and establishment of a contractor on site. This phase does not include site clearance.

- Construction Phase

The Construction Phase includes all activities from site establishment, site clearance, by a contractor to practical completion of construction activities and typically ends when the final payment certificate has been processed by the site agent. This phase usually terminates on completion of civil services.

- Operation Phase

The Operation Phase commences once the site has been handed over by the principal contractor. Essentially the proponent will be responsible to ensure that the relevant specifications are implemented to safeguard the environment during the operational phase and takes effect once the facility is occupied and opens its doors and before the first Grave is excavated and/or memorial erected or similar. It should be noted that should there be further construction activities taking place, post the Construction Phase, then the specifications of the Construction Phase will still apply.

- Closure and Decommissioning Phase

This phase is applicable to any closure, decommissioning or rehabilitation aspects of the project. However decommissioning for this project is not foreseeable at the moment.

4 ENVIRONMENTAL SPECIFICATIONS – PLANNING & DESIGN PHASE

This phase of the project has been completed and is in place for implementation.

5 ENVIRONMENTAL SPECIFICATIONS – CONSTRUCTION PHASE

5.1 Site Camp Establishment and Management

In the event that a site camp is required for this project, the following guidelines must be adhered to for site camp establishment and operation:

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor shall ensure that the site camp is located in a manner that does not adversely affect the environment and which is easily accessible.	Contractor	Before Construction
2. Prior to site camp establishment, the Contractor must supply the ECO with a layout plan demarcating the location and physical extent of the site camp including access road, offices, workshops, laydown areas, topsoil stockpile areas, etc.	Contractor	Before Construction
3. This plan must be approved by the ECO prior to any clearing taking place.	ECO	Before Construction
4. The Contractor must erect a fence around the site camp and install lockable gates at the entrance.	Contractor	Before Construction
5. The Contractor is to provide sufficient information and emergency signage at the entrance as well as within the site camp.	Contractor	Before Construction
6. Topsoil must be removed and stockpiled from all areas within the site camp that will be used for storage purposes (i.e. sand & stone, pipeline sections, diesel bund, containers etc.).	Contractor	During Site Establishment
7. Topsoil must be stockpiled in such a manner and in such a place that it will not cause damming of water or lead to erosion.	Contractor	During Site Establishment
8. The site camp must be maintained in a clean orderly and presentable condition at all times.	Contractor	Throughout Construction period
9. No Site camp must be located on as level ground as possible and not be a steep upgradient from the drainage line. ECO to assist with this.	Contractor	Throughout Construction period
10. Site camp must be located outside of all No-Go areas and associated ecological buffers of the sensitive environmental features on site	Contractor	Throughout Construction period

5.2 Construction and Development Footprint

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Prior to work commencing, the contractor must supply the ECO with a layout plan demarcating the location and physical extent of construction works.	Contractor ECO	Before Construction
2. This plan must be approved by the ECO prior to any clearing taking place.	ECO	Before Construction
3. ECO is to assist the contractor in defining No-Go areas of the site and in this case the drainage line	ECO	Before Construction

and associated riparian area, wetland/ spring and dam and lastly the remaining thicket patch on the site which has a small 5m buffer.		
4. In order to avoid unnecessary disturbance all work areas must be clearly demarcated and work is to be limited to within these work areas.	Contractor	Before Construction
5. Construction vehicles may only be permitted and managed within the demarcated working areas or on existing roads. No-Go areas are to be strictly avoided. All additional and unnecessary access roads are to be avoided	Contractor	Before Construction

5.3 Demarcation of Grave Blocks

In order to ensure that optimal use of the proposed area is met with regards to the required grave sites, the demarcation of grave blocks is imperative to achieving proper cemetery footprint management. The following management measures are required to manage this:

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. A surveyor must be appointed to lay out grave blocks with pegs prior to construction commencing	Contractor ECO	Before Construction

5.4 Solid Waste Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor shall provide sufficient weather and scavenger proof waste bins within the site camp.	Contractor	Throughout Construction Period
2. During the removal of left over material from the existing buildings, the rubble must be stockpiled in formalised area, cornered off from the public, and removal to the landfill site is required.	Contractor	Early phases of Construction Period
3. Litter within the site camp must be picked up on a daily basis.	Contractor	Throughout Construction Period
4. Recycling and waste minimisation practices must be encouraged i.e. separate skips should be available for different recyclable waste.	Contractor	Throughout Construction Period
5. All waste bins shall be regularly emptied and the accumulated waste disposed of at an appropriately permitted waste disposal site. The contractor is to keep documented proof of waste disposal.	Contractor	Throughout Construction Period
6. The burning or burying of any waste within the site camp is strictly prohibited.	Contractor	Throughout Construction Period

5.5 Hazardous Materials, Fuel and Waste Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
---------------------	----------------	-------------

1. All hazardous material must be stored at a dedicated hazardous waste container/containment area.	Contractor	Throughout Construction Period
2. The hazardous waste container/containment area must be maintained in a clean orderly and presentable condition at all times.	Contractor	Throughout Construction Period
3. Diesel storage tanks shall be bunded with a 110% storage volume and the bund is to be fitted with a drainage control valve.	Contractor	Throughout Construction Period
4. The contractor will be required to conduct all routine servicing of machines and equipment within a designated area within the site camp, excluding emergencies.	Contractor	Throughout Construction Period
5. The Contractor shall ensure that there are adequate facilities for the handling and storage of used parts, oils, grease, cleaning fluids and fuels.	Contractor	Throughout Construction Period
6. Drip trays are to be placed under plant and vehicles that are parked overnight and must be available for use at the servicing area. The disposal of the contents of drip trays is to be in accordance with relevant hazardous materials disposal requirements.	Contractor	Throughout Construction Period
7. Hazardous material spill kits must be kept within the site camp and be accessible at all times.	Contractor	Throughout Construction Period
8. Hazardous material spills are to be avoided as far as is practically possible. Where spills occur compromised soil/vegetation should be removed and disposed of in a hazardous waste drum.	Contractor	Throughout Construction Period
9. The Contractor is to record all hazardous material spills in the emergency incident register.	Contractor	Throughout Construction Period
10. All collected and stored hazardous waste must be disposed of at a registered waste handling facility for toxic/hazardous materials/chemicals.	Contractor	Throughout Construction Period
11. Receipts from such sites must be kept in the environmental file.	Contractor	Throughout Construction Period

5.6 Sanitation/Ablutions

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Adequate toilet facilities for men and women are to be provided for at the site camp.	Contractor	Throughout Construction Period
2. These toilets are to be maintained and serviced by a reputable service provider.	Contractor	Throughout Construction Period
3. Receipts from the service provider must be kept in the environmental file.	Contractor	Throughout Construction Period

5.7 Fire

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The lighting of fires is strictly forbidden.	Contractor	Throughout Construction Period
2. Smoking may only take place in areas that have been cleared of their vegetation and not near any flammable substances.	Contractor	Throughout Construction Period
3. Care must be taken to ensure that completed cigarettes are correctly extinguished.	Contractor	Throughout Construction Period
4. There must be an emergency preparedness plan in place in order to fight accidental fires or veld fires as the area of the site is prone to burn. The adjacent landowners/users/ managers should also be informed or otherwise involved.	Contractor	Throughout Construction Period

5.8 Cultural and Heritage Areas

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1 If concentrations of pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction of the proposed development and / or future excavations for individual graves all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the Eastern Cape Provincial Heritage Resources agency (ECPRA on 043 745 0888). Systematic and professional investigation/ excavation will be undertaken to study the findings.	ECO Contractor	Throughout Construction Period
2 Upon discovery, the area must be secured; under no circumstances is the site to be covered over or efforts made to remove or relocate the remains or the artefacts.	Contractor	Throughout Construction Period
3 Work at the point of the discovery is to cease, and may not recommence until such time as guidance from the ECO has been received. The point of discovery is to be clearly demarcated and no unauthorised entry should be permitted.	ECO Contractor	Throughout Construction Period
4 The ECO is to contact the national/provincial heritage agency or a suitably qualified and recognised specialist for guidance on the way forward.	ECO	Throughout Construction Period
5 Construction managers/ foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they	ECO	Start of Construction period i.e. induction

may encounter and the procedures to follow when they find sites.		
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5.9 External Site Access and Traffic Control

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor shall be responsible for protecting the public from anything dangerous to persons or property and for the safe and easy passage of pedestrians and vehicular traffic in those areas affected by the works. This applies specifically to access off W road.	Contractor	Throughout Construction Period
2. Heavy vehicle signs within the specifications of the relevant traffic ordinance should be erected at all work areas/construction sites.	Contractor	Throughout Construction Period
3. All drivers of construction vehicles must maintain reasonable speeds at all times in order to avoid accidents, excessive noise and dust.	Contractor	Throughout Construction Period
4. In the event that the access roads are damaged through construction related activities the contractor will be responsible for repairing the damage.	Contractor	Throughout Construction Period
5. All roads in the surrounding area of the construction activities are to remain accessible to other users. Construction vehicles are not permitted to obstruct traffic on public road in a manner that is deemed unreasonable i.e. the parking of heavy construction vehicles in public roads.	Contractor	Throughout Construction Period
6. Construction personal will not be allowed to move on any other road or track, other than the established access roads.	Contractor	Throughout Construction Period
7. The contractor is to provide a method statement to the ECO which at a minimum must outline where the access roads will be located with specifications of the track and how it will be rehabilitated.	Contractor	Throughout Construction Period

5.10 Alien Vegetation Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. In terms of the Conservation of Agricultural Resources Act (CARA, Act No. 43 of 1984), all declared aliens must be effectively controlled. Landowners and operators are legally responsible for the control of invasive alien plants on their properties or the properties of which they manage. In terms of the this Act, 198 were listed as declared weeds and invaders and ascribed to one of the following categories:	Contractor	Throughout Construction Period

• Category 1: Prohibited and must be controlled. • Category 2 (commercially used plants): May be grown in demarcated areas provided that there is a permit and steps are taken to prevent their spread. • Category 3 (ornamentally used plants): May no longer be planted. Existing plants may be retained as long as all reasonable steps are taken to prevent the spreading thereof, except within the flood line of watercourses and wetlands.		
2. The National Environmental Management: Biodiversity Act (NEM:BA) regulates all invasive organisms in South Africa, including a wide range of fauns and flora. Regulations have been published in Government Notices R. 506, R. 507, R. 508 and R. 509 of 2013, under NEMBA. According to this Act, any species designated under Section 70 cannot be propagated, grown, bought, or sold without a permit. Below is an explanation of the three categories: • Category 1a (Prohibited): Listed Invasive Species: A person in control of a Category 1a Listed Invasive Species must comply with the provisions of section 73(2) of the Act; immediately take steps to combat or eradicate listed invasive species in compliance with sections 75(1), (2) and (3) of the Act; and allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of the listed invasive species. • Category 1b (Prohibited / Exempted if in Possession or Under control): Listed Invasive Species: A person in control of a Category 1 b Listed Invasive Species must control the listed invasive species in compliance with sections 75(1), (2) and (3) of the Act. A person contemplated in sub-regulation (2) must allow an authorised official from the Department to enter onto the land to monitor, assist with or implement the control of the listed invasive species, or compliance with the Invasive Species Management Programme contemplated in section 75(4) of the Act. • Category 2 (Permit Required): Listed Invasive Species: Category 2 Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the Act as species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be. A landowner on whose land a Category	Contractor	Throughout Construction Period

2 Listed Invasive Species occurs or person in possession of a permit, must ensure that the specimens of the species do not spread outside of the land or the area specified in the Notice or permit. Unless otherwise specified in the Notice, any species listed as a Category 2 Listed Invasive Species that occurs outside the specified area contemplated in sub-regulation (1), must, for purposes of these regulations, be considered to be a Category 1 b Listed Invasive Species and must be managed according to Regulation 3. Notwithstanding the specific exemptions relating to existing plantations in respect of Listed Invasive Plant Species published in Government Gazette No. 37886, Notice 599 of 1 August 2014 (as amended), any person or organ of state must ensure that the specimens of such Listed Invasive Plant Species do not spread outside of the land over which they have control. • Category 3 (Prohibited): Listed Invasive Species: Category 3 Listed Invasive Species are species that are listed by notice in terms of section 70(1)(a) of the Act, as species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of the Act, as specified in the Notice. Any plant species identified as a Category 3 Listed Invasive Species that occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3.		
3. A clearing plan for invasive plant species should take place to effectively deal with establishment, re-establishment and complete infestation of invasive alien plants. This includes the following: • The lighter infested areas should be cleared first to prevent the build of seed banks. • Pre-existing dense mature stands ideally should be left for last, as they probably won't increase in density or pose a greater threat than they are currently. • Collective management and planning with neighbours may be required in the case of large woody invaders as seeds of aliens are easily dispersed across boundaries by wind or water courses. All clearing actions should be monitored and documented to keep records of which areas are due for follow up clearing.	Contractor	Throughout Construction Period
4. Different species required different clearing	Contractor	Throughout

methods such as manual, chemical or biological methods or a combination of both. Care should however be taken that the clearing methods used do not encourage further invasion. As such, regardless of the methods used, disturbance to the soil should be kept to a minimum.		Construction Period
5. Fire shall not be used for alien control or vegetation management at the site.	Contractor	Throughout Construction Period
6. Mechanical control of invasive alien plants includes the following: • Techniques for mechanical control involve uprooting, felling, slashing, mowing, ringbarking or bark stripping. • This control option is only really feasible in sparse infestations or on small scale, and for controlling species that not coppice after cutting. • Species that tend to coppice, need to have the stumps cut, namely <i>Acacia clyclops</i>, <i>Acacia saligna</i>, and Eucalyptus sp. or coppice growth treated with herbicides following the mechanical treatment. • All stems must be cut as close to ground level as possible, using loppers or chainsaws (depending on size), and stumps must be immediately hand painted with a suitable Tricolpyr herbicide (e.g. Garlon, Timbrel, with colour dye) to prevent resprouting. • Mechanical control is labour intensive and could cause soil disturbance if not done correctly or unsupervised.		
7. Chemical control of invasive alien plants includes the following: • Reference to “Working for Water: Policy on the Use of Herbicides for the Control of Alien Vegetation” to be made for all proposed herbicide applications. • Reference to “Pesticide Management Policy for South Africa published in terms of the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947” to be made for all proposed herbicide applications. • Area contamination must be minimised by careful, accurate application with a minimum amount of herbicide to achieve good control. • All care must be taken to prevent contamination of any water bodies. This includes the care in storage application, cleaning equipment and disposal of containers, product and spray mixtures.	Contractor	Throughout Construction Period

• Equipment should be washed where there is no danger of contaminating water sources and washings carefully disposed of at a suitable site. • To avoid damage to indigenous or other desirable vegetation, products should be selected that will have the least effect on non-target vegetation. • Coarse droplet nozzles should be fitted to avoid drift onto neighbouring vegetation. • The appropriate health and safety procedures should also be followed regarding the storage, handling and disposal of herbicides. • No herbicide spraying should be undertaken anywhere within natural vegetation, due to the extensive collateral damage. • Any Contractor or subcontractor using herbicides must have a valid Pest Control Operators License. This is regulated by DAFF.		
8. Biological control of invasive alien plants includes the following: • This control method consists of the use of natural enemies to reduce the vigour or reproductive potential of an invasive alien plant. • Biological control agents include insects, mites, and micro-organisms such as fungi or bacterial. • Biological control agents attack specific parts of the plant, either the reproductive organs directly (flower buds, flowers, fruits) or the seeds after they have dropped. • The stress caused by the biological control agent may kill a plant outright or it might impact on the plants reproductive capacity. In many instances, the reproductive capacity is reduced to zero and the populations is effectively sterilised. • To obtain biocontrol agents, provincial representatives for the Working for Water Programme or the Directorate: Land Use and Soil Management (LUSM), DAFF may be contacted.	Contractor	Throughout Construction Period
9. An alien invasive plant management and control plan should be put in place for the duration of the project.	Contractor	Throughout Construction Period
10. The Contractor during the various construction phases, should ensure that immediate removal of alien invasive species (seedlings) is implemented as these species establish themselves rapidly within disturbed areas. Mechanical removal is preferred, and should follow the guidelines above.	Contractor	Throughout Construction Period

11. The effectiveness of vegetation control varies seasonally and this is also likely to impact alien species. Control early in the wet season will allow species to re-grow and follow up control is likely to be required. Therefore, vegetation control should be aimed at the middle of the wet season, with a follow up event towards at the end of the wet season. There are no exact dates that can be specified here as each season is unique and management must therefore respond according to the state and progression of the vegetation.	Contractor	Throughout Construction Period
12. Alien management is an iterative process and it may require repeated control efforts to significantly reduce the abundance of species. Repeated control usually results in rapid decline once seed banks become depleted.	Contractor	Throughout Construction Period
13. Soil stockpiles should not stand for extended periods as these will allow for alien species establishment i.e. pipelines should be trenched, laid and rehabilitated in stages.	Contractor	Throughout Construction Period

5.11 Vegetation Clearing

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. In order to avoid unnecessary disturbance, vegetation clearing must be strictly contained to work areas. No clearing activities are to take place outside of the designated construction footprint.	Contractor	Throughout Construction Period
2. No vegetation clearing is to take place within the No-Go areas of the site which constitute the greenbelt that runs centrally down the non-perennial drainage line within the site and the thicket patch. The stock dams/ artificial wetland at the head of the drainage line is also to fall within the ambient of a No-Go area and where a 15 meter buffer area is to implemented and retained around the dam and central drainage line.	Contractor	Throughout Construction Period
3. All vegetation is to remain within this buffer area.	Contractor	Throughout Construction Period
4. Search and rescue operations for species of possible conservation concern must take place prior to clearing activities and the respective permits are to be obtained.	ECO	Throughout Construction Period
5. Stripped vegetation should be conserved where possible to be utilized later to stabilize any slopes	Contractor	Throughout Construction Period
6. Trees cut down for vegetation clearing can only be used for timber and firewood for the local community or otherwise adhered to point 6 below.	Contractor	Throughout Construction Period
7. No burning of vegetation is allowed to take place on site.	Contractor	Throughout Construction Period

8. All PNCO permit related approvals are to be in place prior to PNCO protected vegetation is removed and relocated should they be required.	Contractor	Prior to Construction Period
9. Relocated plants to be monitored in such a way to ensure their successful continued growth.	Contractor & ECO	Throughout Construction Period
10. Stockpiled vegetation must be mulched or removed from site.	Contractor	Throughout Construction Period

5.12 Faunal biodiversity

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Search and rescue operations for species of conservation concern must be undertaken prior to clearing activities.	Contractor/ ECO	Throughout Construction Period
2. It is important that while clearing activities are taking place it should do so in a phased manner to allow animal species to move out into safer areas in addition to preventing wind and water erosion of cleared areas.	Contractor	Throughout Construction Period
3. NO animals are to be harmed or killed during the course of construction operations	Contractor	Throughout Construction Period
4. No domestic animals are permitted on the site	Contractor	Throughout Construction Period
5. Snake findings to be reported to ECO for removal and relocation.	Contractor	Throughout Construction Period
6. The killing or trapping of any fauna is strictly prohibited.	Contractor	Throughout Construction Period
7. Areas that are likely to be inhabited by fauna should be identified by the ECO so as to assist the Contractor should any fauna finds occur.	Contractor & ECO	Throughout Construction Period

5.13 Topsoil Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All removed topsoil must be stockpiled in such a manner and in such a place that it will not cause damming of water.	Contractor	Throughout Construction Period
2. All topsoil stockpiles must be protected against wind/soil erosion as well as weeds.	Contractor	Throughout Construction Period
3. Non-woody vegetation such as grasses and forbs should not be removed prior to stripping topsoil from work areas in order to assist in maintaining the viability of the soil during storage.	Contractor	Throughout Construction Period
4. Compaction of the topsoil by, inter alia, driving over it is not permitted.	Contractor	Throughout Construction Period
5. Topsoil stockpiles should not exceed 2 m in height.	Contractor	Throughout Construction Period
6. Topsoil stockpiles should not be located within any of the No-Go areas.	Contractor	Throughout Construction Period

7. Under no circumstances is stockpiled topsoil to be mixed with any other material (e.g. spoil and building rubble).	Contractor	Throughout Construction Period
8. All topsoil stockpiles should be dampened during dry conditions in order to prevent excessive dust.	Contractor	Throughout Construction Period
9. Once construction activities have been completed in areas in which topsoil was removed. The stockpiled soil should be immediately replaced and used for the rehabilitation of the site.	Contractor	Throughout Construction Period

5.14 Erosion Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor is responsible for monitoring all areas at which construction related activities for evidence of rill/sheet erosion.	Contractor	Throughout Construction Period
2. In the event that soil erosion does occur, each case should be managed in as practicable way as possible.	Contractor	Throughout Construction Period
3. All areas along streams and drainage lines that could be impacted upon through trenching and construction activities should be protected against soil erosion.	Contractor	Throughout Construction Period
4. Re-vegetation of disturbed surfaces should occur immediately after the construction activities are completed.	Contractor	Throughout Construction Period
5. In the event of failure to implement timeous erosion control measures the contractor shall be held financially responsible for the necessary rehabilitation.	Contractor	Throughout Construction Period

5.15 Wet Works/Concrete Mixing

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All gravel, sand and stone used during construction must be obtained from a bona fide source.	Contractor	Throughout Construction Period
2. Cement/concrete mixing must take place on an appropriately lined or impermeable surface within the construction footprint.	Contractor	Throughout Construction Period
3. Water contaminated with cement shall not be allowed to enter any natural watercourse or drainage line.	Contractor	Throughout Construction Period
4. Construction waste (i.e. cement bags, litter) must be cleaned up on a daily basis and appropriately disposed of.	Contractor	Throughout Construction Period
5. All remaining construction rubble (i.e. concrete spoil, bricks, gravel, sand and stone) must be neatly stockpiled, collected and appropriately disposed of at a spoil site or permitted waste disposal site.	Contractor	Throughout Construction Period

5.16 Storm water and sedimentation

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. A stormwater management plan must be developed for the site and should include: • Management of stormwater during construction • Instalation of stormwater and erosion control infrastructure • Management of infrastructure after completion of construction	Contractor	Throughout Construction Period
2. Temporary drainage works may be required to prevent stormwater to prevent silt laden surface water from draining into river systems in proximity to the site. Stormwater must be prevented from entering or running off site.	Contractor	Throughout Construction Period
3. Diversion channels should eb constructed ahead of open butts, and above emplacement areas and stockpiles to intercept clean runoff and divert it around disturbed areas into the natural drainage system downstream of the site	Contractor	Throughout Construction Period
4. Rehabilitation is necessary to control erosion and sedimentation of all eroded areas (where works will take place).	Contractor	Throughout Construction Period
5. Sediment-laden runoff from cleared areas must be prevented from entering rivers and streams.	Contractor	Throughout Construction Period
6. No river or surface water feature may be affected by silt emanating from the site.	Contractor	Throughout Construction Period

5.17 Public Protection

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor shall be responsible for protecting the public from anything dangerous to persons or property and for the safe and easy passage of pedestrians and vehicular traffic in those areas affected by the Works this is of particular importance as the site is situated within a residential area.	Contractor	Throughout Construction Period
2. Any excavation, material dumps, spoil dumps or other obstructions likely to cause injury to any persons or thing shall be suitably barricaded.	Contractor	Throughout Construction Period
3. The Contractor's staff shall in no way be a nuisance to residents in the vicinity of construction activities. Any work in public places shall be adequately barricaded and steps shall be taken to minimise the disruptive effects of construction.	Contractor	Throughout Construction Period
4. Any complaints received by the Engineer will be addressed and the relevant persons will face	Contractor	Throughout Construction Period

suspension from the project.		
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5.18 Existing Services

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor shall ensure that existing services, (i.e. road, pipelines, power lines and telephone services) are not damaged or disrupted unless required by the Contract and then they shall only take place with the permission of the Engineer.	Contractor	Throughout Construction Period
2. The Contractor will be responsible for the repair and reinstatement of any existing infrastructure that is damaged or services which are interrupted.	Contractor	Throughout Construction Period
3. Such repair or reinstatement will be to the Contractor's cost, and shall receive top priority over all other activities. A time limit may be stipulated by the Consulting Engineer.	Contractor	Throughout Construction Period

5.19 Dust Control

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. The Contractor is responsible for controlling nuisance dust that is created through construction and installation activities.	Contractor	Throughout Construction Period
2. Control of dust may involve spraying with water. The quantities of water used should not be large enough or applied with sufficient force to generate run off which could result in soil erosion.	Contractor	Throughout Construction Period
3. Reference must be made to the National Dust Control Regulations, 2013, in terms of section 53 (o), read with section 32 of the National Environmental Management: Air Quality Act, 2004 (Act no. 39 of 2004) with regards to acceptable dust fall standards, applicable monitoring requirements deliverables should this be required.	Contractor	Throughout Construction Period

5.20 Noise Control

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Noise levels are to be kept within reasonable norms as determined by the CE, taking into account the context of the site location.	Contractor	Throughout Construction Period
2. Silencers on all machinery and vehicles shall be well maintained.	Contractor	Throughout Construction Period
3. The Contractor shall inform adjacent residents and commercial entities of any excessive noise that is anticipated due to construction activities, for	Contractor	Throughout Construction Period

example blasting for excavation. This notice shall be given at least 3 days before the event generating higher noise levels.		
4. All work that needs to be undertaken in the vicinity of private residences or public places should be carried out at between 07:00 and 17:00.	Contractor	Throughout Construction Period

5.21 Hazardous Waste Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Drip trays are to be placed under plant and vehicles that are parked overnight. The disposal of the contents of drip trays is to be in accordance with relevant hazardous materials disposal requirements.	Contractor	Throughout Construction Period
2. Hazardous material spills are to be avoided as far as is practically possible. Where spills occur compromised soil/vegetation should be removed and disposed of in a hazardous waste drum.	Contractor	Throughout Construction Period
3. The Contractor is to record all hazardous material spills in the emergency incidence register.	Contractor	Throughout Construction Period
4. All collected and stored hazardous waste must be disposed of at a registered waste handling facility for toxic/hazardous materials/chemicals.	Contractor	Throughout Construction Period
5. Receipts from such sites must be kept in the environmental file.	Contractor	Throughout Construction Period

5.22 Watercourse integrity

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. NO construction activities in buffer zones which are additional to the delineated areas. Depressional wetland (DW): 20m, Artificial wetland (AW, dam): 15m, Non-Perennial Watercourse (NW): 20m. These buffer zones are to be clearly demarcated with a PVC bunting or robust material on site. These boundaries represent NO-GO zones for any construction activities, plant, and labour.	Contractor	Throughout Construction Period
2. Stockpile cleared plant, soil and other material > 20m from the outer edge of the demarcated buffer zones, in piles less than 1,5m in height	Contractor	Throughout Construction Period
3. The artificial wetland (dam) should not be used as a water source for construction purposes. If this is absolutely necessary, a single access road should be cleared on the site of the current dam access, with a clear turn-around area further than 15m from the water's edge. No vehicles or plant to be within 15m of the dam. The northern bank of the dam, which is currently exposed and eroded soil, should be clad with rock riprap to prevent further erosion. Ideally	Contractor	Throughout Construction Period

riprap will comprise a combination of irregular shaped rocks placed over gravel bedding and (at minimum) a sand filter or geotextile fabric layer.		
4. Alien Invasive plants to be cleared manually within buffer zones, and with a TLB outside of buffer zones. All cleared and disturbed construction areas must be rehabilitated as soon as possible to minimise the risk of erosion and sedimentation.	Contractor	Throughout Construction Period
5. All cement mixing to take place inside the construction camp or demarcated area, sited outside of the recommended buffer zones.	Contractor	Throughout Construction Period
6. All cement mixing to take place inside the construction camp or demarcated area, sited outside of the recommended buffer zones.	Contractor	Throughout Construction Period
7. No washing of equipment, concrete trucks or any part thereof, on site. All construction staff must be trained to observe this measure, and fines should be imposed for non-adherence.	Contractor	Throughout Construction Period

5.23 Rehabilitation & Landscaping

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All areas that were cleared or disturbed during construction activities must be rehabilitated to an appropriately vegetated state. Care must be taken to ensure that these rehabilitated areas merge with the immediate environment.	Contractor	Post Construction
2. Stripped overburden to be backfilled into the worked-out areas where needed. Stripped topsoil to be spread over the re-profiled areas to an adequate depth to encourage plant regrowth. The vegetative cover to be stripped with the thin topsoil layer to provide organic matter to the relayed material and to ensure that the seed store contained in the topsoil is not diminished. Reseeding may be required should the stockpiles stand for too long and be considered barren from a seed bank point of view. Stockpiles should ideally be stored for no longer than a year.	Contractor	Post Construction
3. The topsoil and overburden to be keyed into the reprofiled surfaces to ensure that they are not eroded or washed away. The topsoiled surface will be left fairly rough to enhance seedling establishment, reduce water runoff and increase infiltration.	Contractor	Post Construction
4. All prepared surfaces to be seeded with suitable grass species to provide an initial ground cover and stabilize the soil surface. The following grass seed that is commonly available and suitable.	Contractor	Post Construction

Botanical name	Common name	Approx seed mixture /Ha		
<i>Cynodon dactylon</i>	Kweek	12 kg/ Ha		
<i>Eragrostis curvula</i>	Weeping Love Grass	6 kg/ Ha		
<i>Eragrostis tef</i>	Teff	2 kg/ Ha		
<i>Digitaria eriantha</i>	Smuts Grass	4 kg/ Ha		
Other indigenous veld grasses can be added to the seed mix		± 4 kg/Ha		
5. Adequate management, maintenance and monitoring to be carried out annually by the applicant to ensure successful rehabilitation of the property until a closure certificate is obtained. To minimise adverse environmental impacts associated with operations it is intended to adopt a progressive rehabilitation programme, which will entail carrying out the proposed rehabilitation procedures concurrently with activity.			Proponent	Post Construction

5.24 Socio-Economic

Temporary employment opportunities will be created during the construction phase.

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Local individuals should be preferentially contracted for unskilled and semi-skilled employment, where possible, during the construction phase.	Contractor	Throughout Construction Period

5.25 Close Out of Site Camp

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All structures comprising the construction camp are to be removed from site.	Contractor	Post Construction
2. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc., and these shall be cleaned up and contaminants disposed of appropriately.	Contractor	Post Construction
3. All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be top soiled and re-grassed.	Contractor	Post Construction

6 ENVIRONMENTAL SPECIFICATIONS - OPERATION PHASE

6.1 Visual Impacts

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All litter should be removed on a continual basis.	Cemetery Manager	Continuous
2. Highly visible buildings or infrastructure are to be screened with indigenous vegetation using species which are found in the surrounding area of the same vegetation type, where practical.	Cemetery Manager	Continuous
3. Energy conservation measures (e.g. compact fluorescent lighting; LED Lights) are to be used wherever possible. Architects are to refer to the ESKOM Energy Efficiency Specification for supplies >100kV prescribed for the development.	Cemetery Manager	Continuous
4. Due to the site being visible from the N6, site tidiness is to be maintained at all times.	Cemetery Manager	Continuous

6.2 Erosion Impacts

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Erosion control measures must be implemented in vulnerable areas and maintained accordingly.	Cemetery Manager	Continuous
2. Where practical, all paths, parking areas and access roads must follow the natural contours of the land. Steep sections must have erosion protection measures.	Cemetery Manager	Continuous
3. There is to be no exposed soils or stockpiles present on the site. Stockpiles should not exceed 2m in height.	Cemetery Manager	Continuous
4. As an additional anti-sedimentation precaution, shallow trenches, grassed lateral drains or mitre drains (draining at 45°) should be considered in higher risk areas along access tracks and monitoring of such is essential.	Cemetery Manager	Continuous
5. An erosion management plan is to be formulated and implemented for monitoring and for undertaken rehabilitation following erosion events associated with the operational aspects of the cemetery.	Cemetery Manager	Continuous

6.3 Solid Waste Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. A waste management plan must be in place which promotes the reuse and recycling of waste and disposal as a last resort.	Applicant/ Cemetery Manager	Continuous

2. A waste management facility should be incorporated into the operational phase of the development whereby the design of the facility should include a general solid waste storage area. This is to ensure that waste is formally stored until collection. This area should be located as furthest away from the Surface water features as far as feasibly possible.	Applicant/ Cemetery Manager	Prior to operation
3. Lidded bins shall be provided on site which encourages waste separation into recyclables, green waste and other non-useable waste.	Applicant/ Cemetery Manager	Continuous
4. No waste must be disposed of by burying or burning on site.	Applicant/ Cemetery Manager	Continuous
5. All waste should be collected from bins and stored in the designated waste storage area. Wet waste in this area should not accumulate for a period longer than seven days.	Applicant/ Cemetery Manager	Continuous

6.4 Pollution of Ground and Surface Water

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Should any open graves show water intrusion, then these should not be utilised. Notification of such should be made to the appropriate responsible authority.	Cemetery Manager	Continuous
2. On-site stormwater control is vital to ensure that no ponding occurs and that stormwater remains diverted away from gravesites.	Cemetery Manager.	Continuous
3. Leachate management is critical in controlling the potential contamination associated with cemetery operation. Leachate management should be addressed and consideration should be given to control of surface water ingress using suitable surface drainage measures. The site needs to be responsibly managed and operated to ensure potential contamination is adequately controlled.	Cemetery Manager	Continuous
4. Maintenance of the prescribed buffers of the wetlands, drainage line and artificial wetland/dam is essential. These areas are not to be encroached upon under any circumstances. With exception of the artificial wetland/dam and thicket patch buffers having allowable	Cemetery Manager	Continuous
5. Regular maintenance and servicing of the conservancy tank on site needs to be undertaken to ensure no overflow occurs. Any spills that occur needs to be treated as hazardous material spills and be dealt with in accordance with Subsection 5.21 within the construction phase above.	Cemetery Manager	Continuous
6. During operation if any new surface water areas or evidence of daylighting occurs on site, this needs to		

be consulted with the responsible EAP or competent authority and a 10m buffer applied.		
7. The surface water and groundwater monitoring plan needs to be in place to monitor both upstream and downstream groundwater resources of the Private Cemetery as well as the surface water component.		
8. An Emergency Response and Action Plan is required, in order to trigger an immediate and adequate response in the event that the concentration of any contaminant tested is found to have a concentration outside of the acceptable range.		

6.5 Stormwater Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All stormwater and drains etc. must be kept free of silt and debris.	Cemetery manager	Continuous
2. Cemetery Manager to report all damages of stormwater structures to the applicant in writing to ensure these issues are addressed timeously.	Cemetery Manager/ applicant	Continuous
3. A comprehensive Stormwater Management Plan must be compiled and reviewed by the Aquatic Specialist to ensure the sites watercourse integrity is uphold.	Cemetery Manager/ applicant	Continuous
4. The plan should ensure that surface drainage is diverted away from graves, and where slopes allow, towards the artificial wetland (dam) and the non-perennial watercourse.	Cemetery Manager/ applicant	Continuous
5. Road surfaces should preferably be tarred or, if affordable, paved with permeable pavers which could be selectively planted. To reduce the risk of erosion due to runoff from road surfaces, grassed swales can be constructed alongside the interior roads. These are an effective means of capturing and managing runoff.	Cemetery Manager/ applicant	Continuous
6. Alternatively, miter drains may be installed at regular intervals along the roads to encourage lateral drainage. Miter drain areas must be grassed or clad with gravel or riprap to minimise the threat of erosion.	Cemetery Manager/ applicant	Continuous
7. Areas of low slope and potential seasonal inundation or perched groundwater must be subject to formal drainage, due to the increased risk of waterlogging of graves and/or contamination of both ground and surface waters in these areas.	Cemetery Manager/ applicant	Continuous

6.6 Landscaping

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
---------------------	----------------	-------------

1. A landscaper/horticulturalist should be appointed to compile and implement a landscaping plan.	Applicant	Continuous
2. No invasive or non-indigenous plants are to be used for landscaping purposes.	Cemetery Manager/ Applicant	Continuous
3. It is recommended that minimal irrigation for landscaping takes place. Optimal landscaping practices with minimal irrigation at low intensity will ensure that grass can grow without extensive mobilisation of possible contaminants.	Cemetery Manager/ applicant	Continuous
4. Regarding planting on the site, it is recommended that only waterwise indigenous grasses and plants be considered, and that landscaping is done by a qualified local landscaper with good experience of the use of Eastern Cape indigenous plants in landscaping or rehabilitation.	Cemetery Manager/ applicant	Continuous

6.7 Alien Vegetation Management

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Alien vegetation needs to be monitored for during the operational phase with particular concern for the landscaped areas.	Cemetery Manager	Continuous
2. All alien vegetation needs to be removed in order prevent proliferation into the surrounding natural areas.	Cemetery Manager	Continuous
3. All measures for removal of aliens must follow sub-section 5.10 within the construction phase.	Cemetery Manager	Continuous

6.8 Traffic

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Operations manager is to monitor the road usage during funeral activities and to undertake the necessary road improvements. This is of concern to W road and to any internal roads	Cemetery Manager/ applicant	Continuous
2. Traffic safety measures (signs, speed limits etc) are to be in place and maintained.	Cemetery Manager	Continuous
3. Vehicles must keep to the designated roads and parking facilities only.	Cemetery Manager	Continuous
4. Erosion prevention measures to be maintained and monitored along the access.	Cemetery Manager	Continuous
5. The access road should be continually maintained such that "off road" driving is not encouraged.	Cemetery Manager	Continuous

6.9 Vandalism

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Fence off the perimeter of the cemetery and limit access after hours.	Cemetery Manager	Continuous
2. Security guard to be on duty at night should illegal entries be an issue.	Cemetery Manager	Continuous

6.10 Dimensions of Graves and Apertures

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Those grave sites with the least environmental constraints are to be used first.	Cemetery Manager	Continuous
2. The average depth to meet hand digging suitability will be 1.8m.	Cemetery Manager	Continuous
3. Suitable graves must then be refilled with the original excavated material mixed with sand to facilitate ease of reopening.	Cemetery Manager	Continuous
4. The standard dimensions of a grave are as follows: a) Adult with monuments: i) Length: 2500 mm ii) Width: 1050 mm. b) Adult graves with headstones: iii) Length: 2300 mm iv) Width: 900 mm. c) Pauper graves: i) Length: 2200mm ii) Width: 750mm d) Children/Infant graves: i) Length: 1500mm ii) Width: 900mm	Cemetery Manager	Continuous
5. The grave space requirement per adult being 2.51m ² and 0.72m ² per child grave.	Cemetery Manager	Continuous

6.11 Excavation Techniques for Graves

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Only 20 graves are to be opened at a time	Cemetery Manager	Continuous
2. Graves should be orientated with long axes parallel to the natural surface contours to prevent erosion.		
3. Graves with any signs of water intrusion are not to be utilised, they are to be closed and flagged monitored	Cemetery Manager	Continuous

7 ENVIRONMENTAL SPECIFICATIONS – DECOMMISSIONING PHASE

There is no decommissioning phase planned for this project however should this change the following needs to be followed.

7.1 Rehabilitation

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Should at any time, any aspect of the activity be closed or decommissioned, all building rubble must be removed off-site and the disturbed site must be rehabilitated to a condition with suitable vegetation cover that is the same or better than the surrounding natural environment.	Applicant	Decommissioning of any facet of the development
2. All open gravesites need to be closed without delay	Applicant	Decommissioning of any facet of the development
3. All existing gravesites need to be checked that they are within secure condition.	Applicant	Decommissioning of any facet of the development

7.2 Alien Vegetation

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. All aliens on the site must be removed and put a plan in place to regularly remove seedlings until in the undeveloped open spaces until natural vegetation has been re-established.	Applicant	Decommissioning of any facet of the development
2. All measures for removal of aliens must follow sub-section 5.10 within the construction phase.	Applicant	Decommissioning of any facet of the development

7.3 Planting of Vegetation

MANAGEMENT MEASURES	RESPONSIBILITY	TIME FRAMES
1. Only plant species that are indigenous to the area and are sourced locally to maintain genetic similarity are to be used in rehabilitation/landscaping activities.	Applicant	Decommissioning of any facet of the development

8 COMPLIANCE

8.1 Work Stoppage

1. The ECO shall have the right to order work to be stopped in the event of significant infringements of the Project Environmental Specifications, until the situation is rectified in compliance with the specifications. In the event of this happening the Contractor shall not be entitled to claim for delays.

8.2 Monitoring and Auditing

1. A monitoring programme should be implemented for the duration of the construction and operation of the housing development and associated infrastructure.
2. The project proponent must appoint a suitably qualified (Environmental Qualification) individual to be assigned as the Environmental Control Officer.
3. The monitoring programme, undertaken by the Environmental Control Officer, will include the following:
 - The ECO must visit the construction site in order to monitor the project's performance in relation to the Environmental Specifications on at least a monthly basis during construction period.
 - After each inspection a report will be prepared for the Proponent/ Applicant and incorporated into the monthly site meeting minutes. The ECO must record any issues of non-compliance, and recommend corrective actions and action on these recommendations. These are to be submitted to the Project Proponent, Consulting Engineer and main Contractor.
 - The ECO is to make recommendations in order for the contractor to achieve compliance (corrective actions).
 - During site visits the ECO is to look out for any other incidental environmental issues not covered by this EMP.
 - On a quarterly basis throughout the construction phase, the Environmental Control Officer (ECO) will conduct audits of the project and compile an audit report which will be submitted to the Competent Authority.
 - The ECO must undertake a detailed post construction phase compliance audit after completion of the relevant phase. This audit report should be submitted to the Competent Authority.

8.3 Non-Compliance

1. Any non-compliance items issued to the Contractor shall be rectified immediately.
2. Any complaints received regarding activities on the construction site relating to the environment shall be recorded in a specific register and the response noted with the date and action taken.

3. The ECO is to monitor these complaints and follow up if a response/ action has not yet been provided.
4. The Contractor is deemed not to have complied with the EMPr if, inter alia:
 - There is evidence of contravention of the EMPr specifications within the boundaries of the construction site, site extensions and roads- i.e. construction footprint;
 - There is contravention of the EMPr specifications which relate to activities outside the boundaries of the construction site.
 - Environmental damage as a result of negligence;
 - Construction activities that take place outside of the demarcated development footprint;
 - The Contractor fails to comply with corrective or other instructions issued by the Engineer within a specific time period.

8.4 Penalties

1. Should failure to comply with any of the environmental specification contained and a result, environmental damage occurs, the project proponent and/or the Contractor shall be liable.
2. Examples of violations that warrant the need for penalties are the following:
 - Hazardous chemical/oil spill and/or dumping in non-approved sites.
 - Damage to sensitive environments.
 - Damage to cultural and historical sites.
 - Unauthorised removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.
 - Uncontrolled/unmanaged erosion.
 - Unauthorised blasting activities (if applicable).
 - Pollution of water sources.

The table below provides a guideline for penalties and fines for transgressions or resultant environmental damage

TRANSGRESSION OR ENVIRONMENTAL DAMAGE	<u>MIN</u> <u>FINE</u>	<u>MAX</u> <u>FINE</u>
Failure to comply with prescriptions regarding ECO appointment and monitoring of EMPr/ Environmental Specifications	R1 000	R2 000
Failure to comply with prescriptions regarding environmental awareness training	R2 000	R10 000
Failure to rectify ongoing non-compliances addressed by the ECO in prior audit reports	R 2 500	R 10 000
Failure to comply with prescriptions regarding method statements	R1 000	R2 000
Failure to report environmental damage or EMPr/ Environmental Specifications transgressions to the ECO or Project Manager/ Agent/ Resident Engineer	R1 000	R2 000
Failure to carry out instructions of the ECO regarding the environment of the EMPr/ Environmental Specifications	R1 000	R2 000

Failure to comply with prescriptions regarding a complaints register	R1 000	R2 000
Failure to comply with prescriptions regarding site demarcation and enforcement of “no go” areas	R2 000	R10 000
Failure to comply with prescriptions regarding site clearing	R2 000	R10 000
Failure to comply with prescribed administration, storage or handling of hazardous substances	R1 000	R2 000
Failure to comply with prescriptions regarding equipment maintenance and storage	R1 000	R2 000
Failure to comply with fuel storage, refuelling, or clean-up prescriptions	R1 000	R2 000
Failure to comply with prescriptions regarding procedures for emergencies (spillages and fires)	R2 000	R10 000
Failure to comply with prescriptions regarding construction camp	R2 000	R10 000
Failure to comply with prescriptions for the use of ablution facilities	R1 000	R2 000
Failure to comply with prescriptions regarding water provision	R1 000	R2 000
Failure to comply with prescriptions for the use of designated eating areas, heating source for cooking or presence of fire extinguishers	R1 000	R2 000
Failure to comply with prescriptions regarding fire control	R2 000	R10 000
Failure to comply with prescriptions for solid waste management	R2 000	R10 000
Failure to comply with prescriptions to prevent water pollution and sedimentation	R2 000	R10 000
Failure to comply with prescriptions to the protection of natural features, flora, fauna and archaeology	R2 000	R10 000
Failure to comply with prescriptions regarding speed limits	R1 000	R2 000
Failure to comply with prescriptions regarding noise levels of construction activity	R2 000	R10 000
Failure to comply with prescriptions regarding working hours	R2 000	R10 000
Failure to comply with prescriptions regarding aesthetics	R1 000	R2 000
Failure to comply with prescriptions regarding dust control	R1 000	R2 000
Failure to comply with prescriptions regarding security and access onto private property	R1 000	R2 000

8.5 Incident Reporting and Remedial

1. Should a major incident event, such as a major leakage or spillage of hazardous substances occurs on site, the local emergency services must be immediately notified of the incident.
2. The following information must be provided to the relevant emergency services and documented in an incident report for rectification and follow up:
 - the location;
 - the nature of the load;
 - the extent of the impact; and
 - the status at the site of the accident itself (i.e. whether further leakage is still taking place, whether the vehicle or the load is on fire)
 - Written records must be kept on the corrective and remedial measures decided upon and the progress achieved therewith over time.

- Such progress reporting is important for monitoring and auditing purposes. The written reports may be used for training purposes in an effort to prevent similar future occurrences.

9 DETAILS OF AUTHORS

In accordance with Appendix 4 of GN R 326 of the NEMA EIA Regulations, 2014, as amended in 2017, an EMP is required to contain the (a) *Details of –*

(i) The EAP who prepared the environmental management programme; and

(ii) The expertise of the EAP to prepare an environmental management programme, including a curriculum vitae;

9.1 Indwe Environmental Consulting

Indwe Environmental Consulting CC is a registered environmental consultancy that specialises in all facets of environmental management. Our focus is on project based environmental studies. Broadly, the services offered are Basic Assessments, full Scoping and Environmental Impact Assessments; Strategic Environmental studies (State of the Environment Reporting, Strategic Environmental Assessments, and Environmental Management Frameworks) and integrated waste management planning. Through strategic partnerships with other emerging consultancies we offer specialist environmental services throughout the Eastern Cape and abroad.

The Indwe Environmental team is headed up and overseen by Brendon Steytler and Megan Hugo. Together they have a vast amount of experience in the environmental consulting industry of South Africa. Brendon Steytler was the founding member of Indwe Environmental Consulting in 2010 and has been instrumental in growing the company into the trusted and quality driven organisation that it is today.

9.2 Expertise

Project Team

Megan Hugo – Megan joined Indwe Environmental Consulting in September 2017 and was made a main member of the company in April 2018. Megan holds an Honours degree in Environmental Science from Rhodes University and is a Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No 2019/1530). EAPASA is the single Registration Authority for EAPs in South Africa. Megan is also registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions (Cand. Sci. Nat 118810) and an active paid up member of the International Association of Impact Assessment (IAIA) South Africa. Megan has been working as an Environmental Consultant since February 2015 and is responsible for all company related operations and financial management as well as acquiring new projects at Indwe Environmental Consulting. Megan has experience in all aspects of Integrated Environmental Management (Environmental Impact Assessments, Basic Assessments, Mining Permitting, Auditing, Strategic Environmental Planning), Ecological Reporting and General Project Management. She has undertaken a range Environmental Impact Assessments for projects in both the private and public sectors as well as various non-compliance applications for commercial, agricultural and residential projects. **Megan held the position of Supervisor and Reviewer of this document.**

Nicola Monks - Nicola joined Indwe Environmental Consulting as a Junior Environmental Consultant in March 2019 following the completion of her Master of Science Degree in Geography (Environmental Wetland Management) from Nelson Mandela University. Nicola became a member of the Golden Key International Honour Society in 2015 and was awarded the Nelson Mandela University Honours and Masters Postgraduate Research Scholarship as well as the Masters National Research Foundation Scholarship. During Nicola's studies at Nelson Mandela University, Nicola worked part time for a well known construction company formulating and completing Environmental Management Plans, Waste Management Plans, environmental work instructions, Health, Safety and Environment Risk Assessments and the like. Nicola has completed various courses in water quality management and GIS mapping and analysis. Nicola is a Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No 2019/743). EAPASA is the single Registration Authority for EAPs in South Africa. Nicola is also registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions (Cand. Sci. Nat 121556) and an active paid up member of the International Association of Impact Assessment (IAIA) South Africa. Nicola has strong GIS skills and is responsible and/ or assists in GIS mapping and analysis, technical report writing, public participation and project management. **Nicola held main author for this document.**

QUALITY CONTROL		
COMPILED BY:	REVIEWED BY:	AUTHORISED BY:
Nicola Monks	Megan Hugo	Megan Hugo
ROLE:	ROLE:	ROLE:
Environmental consultant Registered EAP	Main Member and Registered EAP	Main Member and Registered EAP
DATE:	DATE:	DATE:
09 February 2026	09 February 2026	09 February 2026

SYMBOL	SITE ASPECT	SYMBOL	SITE ASPECT
	WORKING AREAS Workers and equipment must stay inside the site boundaries at all times Do not enter the 'no-go' areas Respect the privacy of all residents		PLANTS & ANIMALS Do not kill or injure animals Ask the site agent / foreman to remove nuisance animals Alert the site agent / foreman of DANGEROUS animals
	FIRE No fires without permission Do not burn rubbish Know procedures and locations of fire-fighting equipment		NOISE Do not make loud noises around site Know site working hours Report noisy equipment
	SMOKING Put cigarette butts in dustbin No smoking near paint, petrol or gas No smoking outside the site camp	 	TRANSPORT Always keep to the speed limit Use approved entry and exit points Report leaks, spills No overloading

	HAZARDOUS SUBSTANCES Work with petrol, diesel and oil in marked areas Use drip trays and protective clothing Report any spills	 Do not litter	RUBBISH Do not litter Use dustbins with sealable lids Report full bins
	PLANTS Do not damage trees, grass or plants Do not pick flowers		TOILETS Use toilets provided Report damage leaks
	EATING No cooking of food on site Only eat in demarcated areas Use dustbins with sealable lids close to eating area		FINES AND PENALTIES Spot fines will apply Removal from site Construction stopped
	EMERGENCY NUMBERS Know all emergency numbers Report all emergencies to site agent / foreman / ECO		DUST CONTROL Apply dust suppression measures Report complaints from public to site agent / foreman / ECO

	SAFETY No public access to site Wear PPE Ensure roadworthiness of all vehicles		HEALTH HIV/AIDs and STD awareness Sick staff must report to the site agent / foreman All staff in contact with stormwater runoff to regularly wash their hands and arms, especially before meals
	ACCIDENTS Inform the site and safety manager immediately Open excavation / dangerous areas must be demarcated with hazard tape		DISTURBED AREAS Must be restored to pre-activity state No burying of material
	CEMENT OPERATIONS Take place in designated area No batching directly on the soil All dirty water contained and reused Solid residue disposed as waste		STOCKPILE SITES AND SURPLUS MATERIAL Stockpiles must have stabilized sloped No burning of surplus plant material

12 APPENDIX B- METHOD STATEMENT EXAMPLE

METHOD STATEMENT

Organisation:

.....

Date:.....

Contract:.....

Author:.....

Reviewer:.....

PROPOSED ACTIVITY

Provide the title of activity that and reference number from the EMP.

.....

WHAT WORKS ARE TO BE UNDERTAKEN

Provide a brief description of the works to be undertaken.

.....
.....
.....

WHERE IS THE ACTIVITY GOING TO BE UNDERTAKEN

Provide a full description of the extent of works, and if possible, an annotated plan.

.....
.....
.....

START DATE

END DATE

HOW ARE WORKS GOING TO BE UNDERTAKEN

Space available below for an annotated sketch of the process.

METHOD STATEMENT REVIEW AND APPROVALS

Environmental Control Officer (ECO)

The information provided in the method statement is deemed satisfactory, provided the methodology is followed effectively.

Signed:

ECO Name:

Date:

PERSON UNDERTAKING THE WORKS (I.E. FOREMAN, MAIN CONTRACTOR, SUB-CONTRACTOR)

The contents of the Method Statement is duly noted and the activity will be carried out according the specifications outlined above.

Signed:

Name:

Date:

APPENDIX G: OTHER

1. PRE-APPLICATION PUBLIC PARTICIPATION PROCESS

The Pre-Application Public Participation Process included the following actions:

1.1 Notice Board

A notice board was placed along the northern boundary of the site of Farm 50/821 intended for the proposed memorial park and cemetery along W Road. (Refer to Figure 1 and 2).



Figure 1: Signboard placed on the northern boundary of the site of Farm 50/821 for the proposed memorial park and cemetery along W Road.



Figure 2: Signboard placed on the northern of the site of Farm 50/821 for the proposed memorial park and cemetery along W Road.



**NOTICE OF
PUBLIC PARTICIPATION PROCESS**

**DEVELOPMENT & OPERATION OF A MEMORIAL
PARK AND PRIVATE CEMETERY ON PTN 50 OF
FARM 821, BCM, EASTERN CAPE**

Notice is given in terms of the National Environmental Management Act (Act 107 of 1998) Section 24(5), that an application for environmental authorisation together with a supporting Basic Assessment Report prepared in accordance with the EIA Regulations, 2014, as amended, will be submitted to the Department of Economic Development, Environmental Affairs and Tourism (Amathole Region).

CapeVest Investments (Pty) Ltd is proposing to construct a memorial park and private cemetery on Portion 50 of Farm 821 within BCM, Eastern Cape. The site has a development area of 7.76 Ha to facilitate 7274 gravesites, chapel, reception area, admin building, workshop and security building.

Listed activities triggered include:
GN. R327 Activity No. 23 & 27
GN. R324 Activity No. 14

In addition to the above, notice is hereby given in terms of the National Water Act (Act 36 of 1998) that an application for a Water Use Licence will be submitted to DWS for the following water uses: Section 21(a), (c), (i) and (g). The Water-use License Technical Report will be available for review via direct email link as well as a hard copy placed at Beacon Bay Library when ready. A notification will be issued prior to the review period. The report will be available for review for 60 days for all Interested and Affected Parties that have registered during the initial period (this notification).

Indwe Environmental Consulting has been appointed as an independent environmental consultancy to undertake the Basic Assessment for this project.

If you or your organisation would like to register as an Interested & Affected Party and take the opportunity to comment on the submission, then please ensure that you contact us with your details within 30 days of this advert. A Background Information Document is available on request.

Please contact:
Nicola Monks
Indwe Environmental Consulting
2 Ayr Place, Bonnie Doon
East London, 5241
Tel: 043 555 0656
Fax: 086 513 9734
Email: nicola@indwecon.co.za
www.indwecon.co.za
Date of Advert: 07 March 2025

Figure 3: A newspaper advertisement notifying interested and affected parties was placed in The Daily Dispatch on 07 March 2025.

1.3 Written Project Notice to IAP and Organs of State

At project inception written notice in the form of a covering letter attached to a Background Information Document as well as an invitation to comment was sent to the organs of state and interested and affected parties on the 07 March 2025, via email to the people listed in the table below. The I&APs were notified at a later date as a result of waiting for adjacent landowner details. A copy of the emails send is provided in **Appendix G2**.

I&AP REGISTER: CEMETERY ON PTN 50 OF FARM 821		
APPLICANT	CONTACT PERSON	TITLE/DEPT.
CapeVest Investments Pty Ltd	Moshe Hector Sohaba	Director
MUNICIPALITIES	CONTACT PERSON	TITLE/DEPT.
Buffalo City Metro Municipality	Princess Faku	Mayor
Buffalo City Metro Municipality	Mr Mxolisi Yawa	City Manager
Buffalo City Metro Municipality	Adrian Van Der Merwe	BCMM: Roads and Stormwater
Buffalo City Metro Municipality	Clara Yekiso-Morolong	Community Services: Environmental Services
Buffalo City Metro Municipality	Graham Cowley	Engineering Services
Buffalo City Metro Municipality	Jane Galo	Environmental Unit
Buffalo City Metro Municipality	Nomthandazo Hanise	Environmental Management
Buffalo City Metro Municipality	Sixelisiwe Ntsasela	Economic Development and Agencies Dept: Tourism, Arts, Culture and Heritage
Amathole District Municipality	Mrs. Noni Vuso	Senior Manager: Communications and Customer Care Communications and Customer Care Unit: Department of Strategic Planning & Management
PROVINCIAL GOVERNMENT DEPARTMENTS	CONTACT PERSON	TITLE/DEPT.
ECDOT	Ayanda Beken	District Roads Engineer

Eastern Cape Provincial Heritage Resources Authority	Ayanda Mncwabe-Mama	Archaeologist: DSRAC Museums & Heritage / EC PHRA
DEDEAT: Amathole region	Mziyanda Mkosana	Control Environmental Officer: Amathole Region
DEDEAT: Amathole region	Nonzukiso Nthutsha	Control Environmental Officer: Amathole Region
DEDEAT: Amathole region	Thina Thandani	Control Environmental Officer: Amathole Region
DEDEAT: Amathole region	Briant Noncembu	Regional Manager: Environmental Affairs
Civil Aviation Authority	Lizelle Stroh	Obstacles and Limitations Department
Civil Aviation Authority	Ms. Chinga Mazhetese	Environmental Protection Specialist- Aviation Environmental Compliance
Department of Defence	Michael kunene	Personal assistant of minister of defence
DWS	Esmeralda Van Rooyen	Mzimvubu-Tsitsikamma Proto-Catchment Management Agency
DWS	Lizna Fourie	WULA Manager
DWS	Rachel Rambani	Administration
DWS	Joyi Mfesane	Administration
DWS	Lucrecia Mdhuli	Section 21 c & i
DWS	Lwando Dayimani	Section 21 c & l
DWS	Karla Gutmann	Section 21 g
DWS	Dheegan Moodley	Section 21 g
	Malithi Asiphe	Section 21 a
COMMUNITY	CONTACT PERSON	TITLE
Ward 15	CLLR Nwabisa Mcwabeni	BCMM Ward Councillors
ADJACENT LANDOWNERS	CONTACT PERSON	TITLE
RE/8/652		Provincial Government of EC on behalf of East London Child and Youth Care Centre

Re/7/651	Harold Frank Hughes	Hughes Harold Frank
RE/821	Road servitude	
19/821	FTK Shiluvane Family Trust	unable to obtain contact
19/821	Mohamed Moosajee	Previous landowner
40/821	NONKWANDA DIDIZA	Ipoma Traders CC
RE/2/652	Eddie Scheun	All Craze 1050 CC
20/821	Ashton Brian Harris	Harris Ashton Brian
REGISTERED I&APS	CONTACT PERSON	TITLE
Resident	Sharnae Hopewell	BCMM resident
SKG Properties	Rhett Shaw	SKG Properties
SKG Properties	Riana Botha	SKG Properties
SKG Properties	Gesina de Sousa	SKG Properties
Resident	Liezl Fourie	Resident
PTN 1 of PTN 2 Farm 652	Andrew Moss	Surrounding Landowner
B17 Holm Hill	Penelope Anne Stapleton	Surrounding Landowner
	Michael Stapleton	Surrounding Landowner
PTN 6 Farm 821	Milada Yvonne Burger	Surrounding Landowner
	Andre Burger (Drilling Africa & Anbri Trust)	Surrounding Landowner
	Rebecca Burger	Surrounding Landowner
	Jean Piere Greyling	Surrounding Landowner
PTN 1 Farm 818	Andre Burger (Anbri Trust)	Surrounding Landowner
W9 Holm Hill	Paula Boniface	Surrounding Landowner
	Francois Boniface	Surrounding Landowner
	Grame Chinn	Surrounding Landowner
A9a Holm Hill	Roydon Moorcroft	Surrounding Landowner
	Delia Moorcroft	Surrounding Landowner
	Pamela Manthe	Surrounding Landowner
A10 Holm Hill	Vumile Mtyobele	Surrounding Landowner

Concerned resident	Joshua Coetzee	Surrounding Landowner
C8 Holm Hill	Jonga Nyengane	Surrounding Landowner
PTN 69 Farm 821	Amanda Gradwell	Surrounding Landowner
	Dylan Gradwell	Surrounding Landowner
	Barry Gradwell	Surrounding Landowner
C11 Holm Hill	JP Doubell	Surrounding Landowner
Concerned resident	Pierre-Andre Mans	Surrounding Landowner
W7 Wansley Farm Holm Hill	Michele Coetzer	Surrounding Landowner
	Jason Coetzer	Surrounding Landowner
	Dean Coetzer	Surrounding Landowner
	Karen Coetzer	Surrounding Landowner
C5 PTN 24 Farm 821	Liesel Da Silva	Surrounding Landowner
PTN 84 Farm 821	Mthethunzima Dakiso	Surrounding Landowner
C10 Holm Hill	Valerie Wood	Surrounding Landowner
PTN 40 Farm 821	Nokwanda Didiza	Surrounding Landowner
PTN 25 Farm 821	Nicole Coetzer	Surrounding Landowner
	Deon Coetzer	Surrounding Landowner
Wansley Quarry	Jason Coetzer	Director
Wansley Siyakhula	Jason Coetzer	Director
Cape Crushing and Construction	Michele Coetzer	Director

1.4 Written Project Notification to Surrounding Neighbours

A written project notification with attached Background Information Document was emailed to adjacent landowners as per the above table. Refer to **Appendix G2**.

2. BACKGROUND INFORMATION DOCUMENT

See **Appendix G3** for a copy of the Background Information Document.

3. INTERESTED AND AFFECTED PARTY REGISTER

A register of Interested and Affected Parties has been prepared and is continually updated as I&APs register on the project. See **Appendix G5**.

4. INTERESTED AND AFFECTED PARTY COMMENTS

There has been some official comments received from interested and affected parties to date. Refer to Comments and Response Report in **Appendix E** .

5. COMMENTS AND RESPONSE REPORT

The Comments and Response Report has been included in **Appendix E**.

6. PUBLIC MEETINGS

No public meeting was held.

7. REVIEW OF BASIC ASSESSMENT REPORT

This Draft Basic Assessment Report will be made available to all stakeholders in order for people to review it and make comments during a 30 day period. A physical copy of the document will be delivered to the Beacon Bay Library for public access to the document. An electronic copy will be available on the Indwe Environmental Consulting website (www.indwecon.co.za)

All registered Interested and Affected Parties will be notified of the availability of the Draft Basic Assessment Report for public review.

All comments received within the 30 day comment period will be included in the final BAR and responded to.

APPENDIX G2 – PROOF OF BID DISTRIBUTION VIA EMAIL

DUE TO THE PROTECTION OF PERSONAL INFORMATION ACT, WE ARE REQUIRED TO PROTECT PERSONAL INFORMATION, SUCH AS CONTACT INFORMATION, UNLESS CONSENT IS PROVIDED BY THE SUBJECT. GIVEN THE RELATIVELY NEW NATURE OF THIS ACT AS WELL AS THE REQUIREMENTS OF THE EIA REGULATIONS IN TERMS OF PUBLIC PARTICIPATION, WE ARE NAVIGATING THROUGH WHAT WE CAN PUBLISH AND WHAT WE CANNOT. UNTIL SUCH TIME THE COMPETANT AUTHORITY STIPULATES HOW WE CAN RELEASE PERSONAL INFORMATION AS PER THE EIA REGULATIONS, WE UNFORTUNATELY CANNOT RELEASE INFORMATION AS PART OF THIS EIA PROCESS THAT CONTAINS A SUBJECT'S PERSONAL INFORMATION (I.E. EMAIL CORRESPONDENCE, INTERESTED AND AFFECTED PARTY REGISTERS ETC.)

FOR MORE INFORMATION, KINDLY CONTACT US AND WE CAN LIAISE WITH THE COMPETANT AUTHORITY FOR GUIDANCE AS TO HOW WE CAN FACILITATE ANY REQUESTS TO VIEW CONTACT INFORMATION.

CONSTRUCTION OF MEMORIAL PARK AND PRIVATE CEMETERY ON PTN 50 OF FARM 821, BCMM, EASTERN CAPE

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

Background Information Document

INTRODUCTION

Indwe Environmental Consulting have been appointed by CapeVest Investments Pty Ltd as the independent environmental consultancy to undertake the required Application for Environmental Authorisation process in terms of the National Environmental Management Act (Act 107 of 1998) and Water Use Application process in terms of Section 21 of the National Water Act (Act 36 of 1998) for the proposed development of a private cemetery and memorial park on Ptn 50 of Farm 821, BCMM, Eastern Cape.

The triggering activities in terms of the EIA Regulations, 2014, as amended to be undertaken include:

- GN. R. 327 Activity 23
- GN. R. 327 Activity 27
- GN. R. 324 Activity 14
- GN. R. 19369 Section 21 (a)
- GN. R. 19369 Section 21 (c)
- GN. R. 19369 Section 21 (g)
- GN. R. 19369 Section 21 (i)

***Descriptions to the activities are provided further on in the document.*

This document is intended to provide background information to stakeholders, authorities and other interested and affected parties and forms a key component of the public participation process being undertaken as part of the Basic Assessment process as well as the Water Use Application process.

PROJECT LOCATION

The proposed project includes the construction and operation of a cemetery near the Ducats area of East London and is located approximately 10.7 km north of the East London CBD and is about 4 km from the Merrifield School turn off onto the N6 from East London, Beacon Bay. The study site is located at co-ordinates 32°55'8.77"S; 27°54'31.55"E and has access from an existing gravel road that branches off the N6. On the eastern side of the N6 where the site is located the predominant land use is that of agriculture and mining activities (Wansley Quarry).

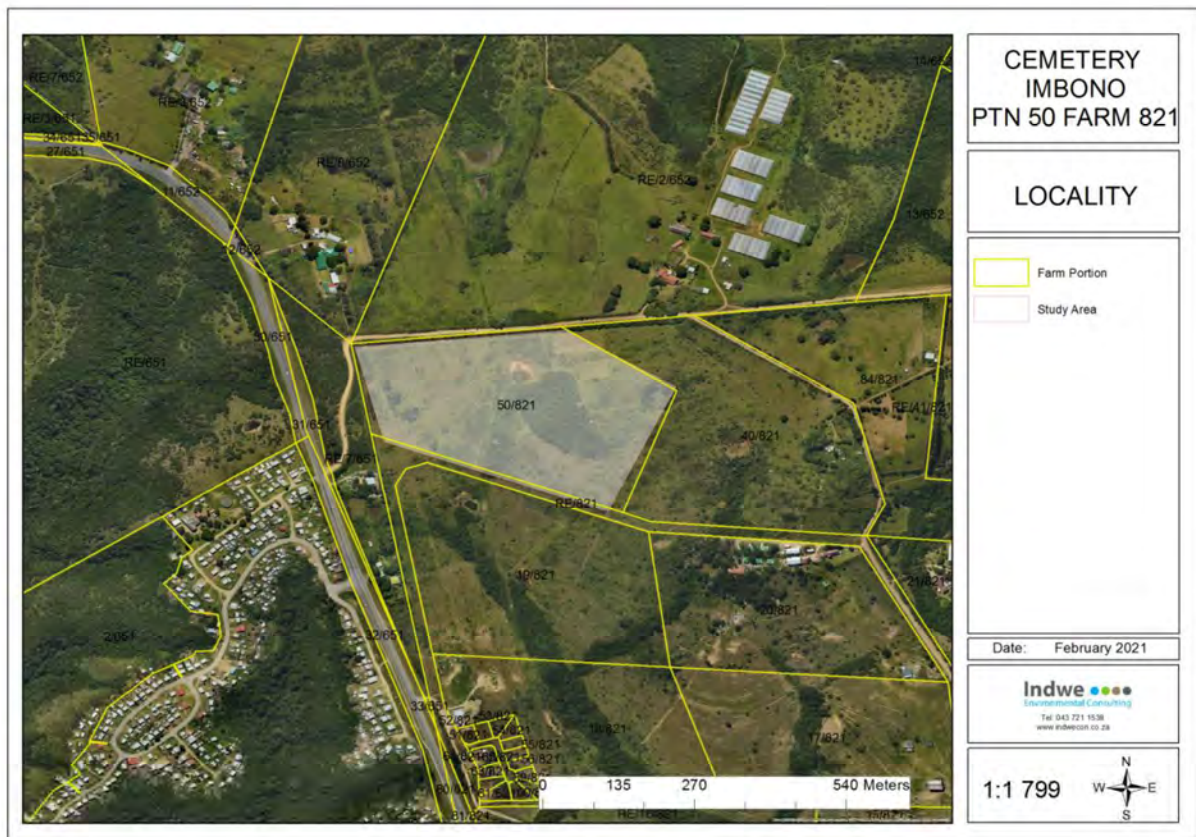


Figure 1: Aerial locality of PTN 50 of Farm 821.

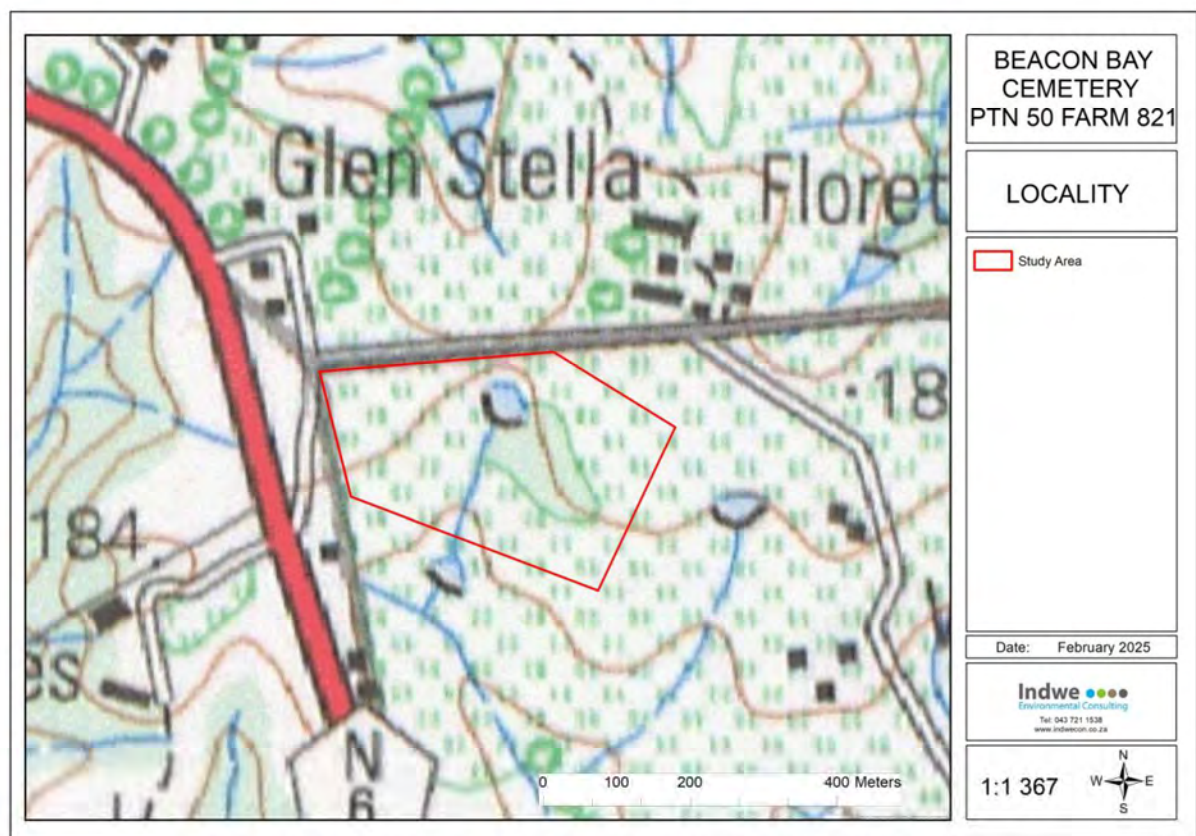


Figure 2: Topographical image of the site located on PTN 50 of Farm 821

PROJECT DESCRIPTION

The site in question is approximately 10.2 Ha in extent, and has evidence of old farm contours indicative of historical agricultural activities. In addition, the site has been intersected by two powerline servitudes, has an informal soccer field and has evidence of prevalent dumping activities. Obvious environmental features on the site include a greenbelt which indicates the presence of a watercourse, an old borrow pit-turned-dam and spring. The greenbelt, old borrow pit/ dam and spring will be excluded from the total area of which the remaining development footprint is expected to be roughly 7 Ha.

The proposed project has both a preferred and a least preferred alternative based on design. The preferred alternative, seen in figure 3 below, has its private cemetery/graveyard component (accommodating 7274 gravesites) focused towards the eastern extent of the site and the memorial park component focused towards the western extent of the site which will make provisions for memorial plaques. In total the development will have five buildings on the site consisting of a chapel, reception area, a admin office, workshop and a security house at the entrance. In terms of parking, the preferred alternative makes provision for 40 parking bays in total.

The least preferred alternative has a design layout where the cemetery components are situated both on the eastern and western side of the site. Due to the western side of the site being quite rocky in reality this layout, seen in figure 4, serves as the least preferred alternative. Further to this, the layout plan includes a mausoleum, gathering hall, admin building, a workshop and chapel. The crematorium noted on the least preferred alternative has since been removed from the design proposal and is no longer included as part of the least preferred proposed project development plan. In terms of parking, the least preferred alternative makes provision for 65 parking bays in total.

In terms of services, the following applies to both alternatives:

Water

It is previously proposed that the on site spring be utilized for supply which has been revised to rather facilitate a borehole be drilled for supply to the site, due to the springs' sensitivity. There is no need for potable treated water. Supply is available if needed from the adjacent Ducats Settlement. The water supply authority for the area is the Buffalo City Metropolitan Municipality (BCMM) and water infrastructure is in place to allow for the development to proceed.

Sewerage and sanitation

There is currently no sanitation infrastructure provided on the subject site however sewerage supply for a development of this nature is considered to be small scale as the only ablutions that would be required is for the admin building. This would be remedied by the construction of either a septic tank system (least-preferred) or a conservancy tank (preferred).

Access

As the site currently stands there is a single access point on the property at the Northern Boundary from Road W (MN10118) which is an unpaved provincial road and is categorized as a Class 5 Provincial Minor Road. This provincial minor road known as Road W connects to the N6 to the west of the site. The location of the sites access road will not be changed however it will be upgraded and formalized in line with the development proposal needs. No change to current access and road network is proposed in terms of routing.

Electricity

The demand for this development will be low and an application will be made via Eskom/BCMM when the phase 1 needs to commence. Per the current status quo there is electricity available on the property. An electrical load report will be completed before formal application is made to Eskom/ BCMM to indicate the electrical supply required. This electrical load report is still to be compiled.

Town Planning

The applicant has submitted a formal application in terms of the Spatial Planning and Land Use Management Act of 2013, together with the BCMM Zoning Scheme of 2007. The application consists of a Permanent Departure to allow for the establishment of a Private Cemetery and Memorial Park, with a building line relaxation of 6m on all sides.

Refer to Figure 3 and 4 for the layout plan of the proposed development alternatives.



Figure 3: Proposed Preferred Alternative for the Memorial Park and Private Cemetery development with graves focused on the eastern extent and memorial walls on the western extent of the site.

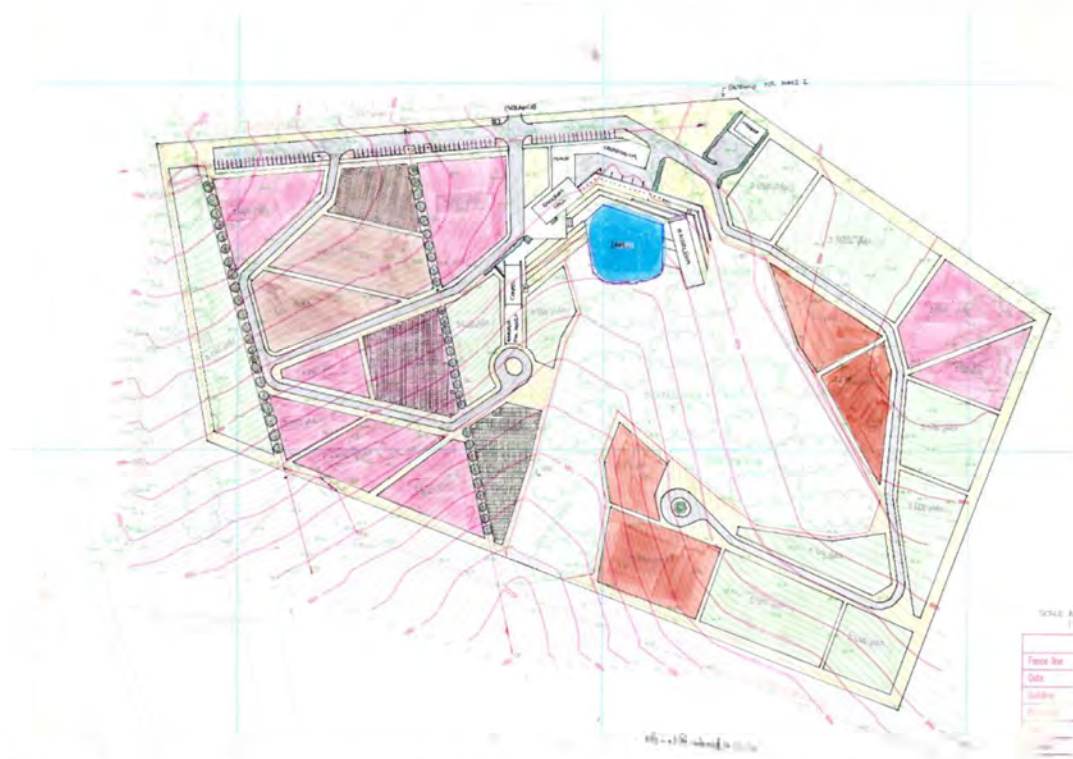


Figure 4: Least Preferred Alternative concept with grave sites on both eastern and western extents of the site

EIA REQUIREMENTS

The EIA Regulations promulgated in Gazette No 40772 of 7 April 2017- NEMA Section 24(5) stipulates that “listed activities” require environmental authorisation via a Basic Assessment process should the activities trigger Listing Notices 1 & 3. The following listed activities are assumed to be triggered in relation to this project:

Listing Notice No. and Activity No.	Listed Activity	Development Activity
Listing Notice 1 – GN 327: Activity 23	The development of cemeteries of 2500 square meters or more in size.	It is of the EAPs opinion that this listed activity will be triggered by the proposed project as the intended extent of the cemetery is roughly 10.2 Ha with development area of 7.72 Ha
Listing Notice 1 – GN 327: Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	It is of the EAPs opinion that this listed activity will be triggered by the proposed project as the intended extent of the cemetery is roughly 10.2 Ha with development area of 7.72 Ha in order to retain the greenbelt on site.
Listing Notice 3 – GN 324: Activity 14	The development of ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs: a) within a watercourse c) if no development setback as been adopted, within 32 meters of a watercourse measured from the edge of a watercourse Within the Eastern Cape i) outside Urban Areas ff) critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	It is possible that some infrastructure of 10m ² or greater may fall within 32 meters of the borrowpit turned dam. The site falls into a terrestrial ESA 2 area according to the ECBCP 2019 which is a systematic biodiversity plan for the Eastern Cape.

BASIC ASSESSMENT PROCESS

The Basic Assessment process will involve the following project phases:

- Pre-Application:** This phase includes consultation with Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), Amathole Region regarding the proposed development, potential triggers, outcome of the National Web Based Screening Tool Report for the site and the way forward in terms of the applicable EIA process.
- Application:** An application form for authorisation will be submitted to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), Amathole Region.
- Draft Basic Assessment Phase:** The Basic Assessment process is followed which includes the undertaking of a public participation process including consultation with key stakeholders, detailed site investigations, planning and reporting. Specialist input will be sought for this phase of the project. This phase will culminate in the production of a Draft Basic

Assessment Report and Environmental Management Plan (EMP) which will be submitted to DEDEAT and then circulated to all registered Interested and Affected Parties (I&APs) and key stakeholders for a 30 day comment period.

4. **Final Basic Assessment Phase:** Following the receipt of comments, the Basic Assessment Report will be finalised and submitted to DEDEAT for their assessment and issuing of an authorisation decision.
5. **Appeal Period:** After receipt of the Environmental Authorisation all registered I&APs and key stakeholders will be notified of its availability and provided with the opportunity and details for submitting an appeal to the decision if required.

PUBLIC PARTICIPATION PROCESS

The public participation process is defined under Regulation No 41 of the 2014 EIA Regulations, as amended.

- Advertising in the local newspaper.
- Fixing a notice board at the site.
- Giving written notice to: the occupiers of the site, the owner/ person in control of the site, adjacent landowners via BID drop, the municipal ward councillor and rate payers, the relevant municipality and any organ of state that has jurisdiction in respect of any aspect of the activity.
- Maintaining an Interested and Affected Party Register.
- Uploading pertinent documentation on the Indwe website.
- Collecting comment on the project, in particular the draft Basic Assessment Report.

Registered Interested and Affected Parties will be given the opportunity to review and comment on the Draft Basic Assessment Report over a 30 day period. All comments raised by I&APs will be included and responded to in the final reports which will be submitted to the competent authority (DEDEAT) to enable them to make an informed decision with regard to the development proposal.

Once an Environmental Authorisation is received, it will be distributed to registered I&APs who may appeal to the Minister or MEC of Environmental Affairs in opposition to the decision.

WATER USE APPLICATION PROCESS

In terms of the National Water Act (Act 36 of 1998) an application for a Water Use Licence will be submitted to DWS for the following water uses: Section 21(a), (c), (i), and (g) to develop and construct the proposed Memorial Park and Private Cemetery on Portion 50 of the Farm 821, BCMM, Eastern Cape.

The National Water Act (Act 36 of 1998) in terms of Section 21 includes:

- Section (a) – abstracting water from a water source
- Section 21(c) and (i) – Impeding or diverting the flow of water in a watercourse / and altering the bed, banks or characteristics of a watercourse.
- Section 21(g) – Disposing of waste in a manner which may detrimentally impact on a water resource.

Specialist Studies to be conducted:

- Aquatic and Wetland Assessment

This document and Public Participation Process aims to do the following:

- Present stakeholders and I&APs with an overview of the perceived biophysical and social impacts that have been identified up to date.
- To obtain issues and concerns from I&AP's regarding the Water-use License application process and proposed activity, which will be addressed for the planning, establishment and operational phase of the proposed operations.
- To give all potential interested and affected parties the opportunity to register and be placed on the register of I&APs in order for them to voice their opinions and concerns.

Potential interested and affected parties include:

- Occupants of the site, and where the occupants are not the owners, also to the owners of the site, or the owner of any alternative site where the activity is to be undertaken.

- Owners, persons in control of land or occupants of adjacent properties
- Municipal councillor and municipality
- Any organ of state having jurisdiction in respect of the activity
- Any other party as required by the competent authority

Comments

Kindly submit the attached Comment Sheet, to register as an Interested and Affected Party, with possible issues and concerns relating to the proposed development, as well as any additional I&APs that you would like to be involved in the process, to the contact details listed below. The Registration and Comment Sheet should reach us no later than 30 days after date of this notice. Draft documents will be made available for review to registered I&APs via direct mail link and a hard copy will be placed at Gonubie Library. The draft documents will be available for 60 day comment period to registered I&APs.

KEY ISSUES AND TYPICAL IMPACTS

Key issues and typical environmental impacts associated with the project identified to date include:

- Introduction of a private cemetery option within BCMM
- Loss of agricultural land
- Loss of terrestrial vegetation
- Possible danger of leachate into the drainage line to affect larger watercourse downstream if no buffer is applied
- Potential employment opportunities during the construction phase(civil works) and operation phase (landscaping and maintenance).
- Temporary dust emissions and spoil material during the construction phase

DETAILS OF THE EAP CONDUCTING THE BASIC ASSESSMENT

Indwe Environmental Consulting CC is a registered environmental consultancy that specialises in all facets of environmental management. Our focus is on project based environmental studies. Broadly the services offered are Basic Assessments, Full Environmental Impact Assessments, Rectification of Non-Compliance Activities and Applications, Strategic Environmental studies (State of the Environment Reporting, Strategic Environmental Assessments, Environmental Management Frameworks) and integrated waste management planning.

The Indwe Environmental Consulting team is headed up and overseen by Brendon Steytler and Megan Hugo. Together they have a vast amount of experience in the environmental consulting industry of South Africa. Brendon Steytler was the founding member of Indwe Environmental Consulting in 2010 and has been instrumental in growing the company into the trusted and quality driven organisation that it is today.

Megan joined Indwe Environmental Consulting in September 2017 and was made a main member of the company in April 2018. Megan is a Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No 2019/1530). EAPASA is the single Registration Authority for EAPs in South Africa. Megan is also registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions (Cand. Sci. Nat 118810) and an active paid up member of the International Association of Impact Assessment (IAIA) South Africa. Megan has been working as an Environmental Consultant since February 2015 and is responsible for all company related operations and financial management as well as acquiring new projects at Indwe Environmental Consulting. Megan has experience in all aspects of Integrated Environmental Management (Environmental Impact Assessments, Basic Assessments, Mining Permitting, Auditing, Strategic Environmental Planning), Ecological Reporting and General Project Management. She has undertaken a range Environmental Impact Assessments for projects in both the private and public sectors as well as various non-compliance applications for commercial, agricultural and residential project. **Megan will act as the Registered EAP responsible for providing oversight to Nicola Monks and act as the internal reviewer and supervisor for this project.**

Nicola joined Indwe Environmental Consulting as a Junior Environmental Consultant in March 2019 following the completion of her Master of Science Degree in Geography (Environmental Wetland Management) from Nelson Mandela University. Nicola became a member of the Golden Key International Honour Society in 2015 and was awarded the Nelson Mandela University Honours and Masters Postgraduate Research Scholarship as well as the Masters National Research Foundation Scholarship. During Nicola's studies at Nelson Mandela University, Nicola worked part time for a well known construction company formulating and completing Environmental Management Plans, Waste Management Plans, environmental work instructions,

Health, Safety and Environment Risk Assessments and the like. Nicola has completed various courses in water quality management and GIS mapping and analysis. Nicola is a Candidate Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No 2019/743). EAPASA is the single Registration Authority for EAPs in South Africa. Nicola is also registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions (Cand. Sci. Nat 121556) and an active paid up member of the International Association of Impact Assessment (IAIA) South Africa. Nicola has strong GIS skills and is responsible and/ or assists in GIS mapping and analysis, technical report writing, public participation and project management. **Nicola, Candidate EAP, will act as part of the project team.**

YOUR OPPORTUNITY TO GET INVOLVED

Should you wish to express your views regarding this proposed development, please feel free to register as an I&AP by sending us your written comments. Please submit your name, contact information and written comments to the contact person below. A written comments form is supplied at the back end of this notice for your convenience.

Contact

Nicola Monks
Indwe Environmental Consulting
2 Ayr Place
Bonnie Doon
East London
5241

Tel: 043 555 0656

Fax: 086 513 9734

E-mail: nicola@indwecon.co.za

COMMENTS SHEET: CONSTRUCTION OF A MEMORIAL PARK AND PRIVATE CEMETERY ON PTN 50 OF FARM 821, EAST LONDON, EASTERN CAPE

Please send to: Nicola Monks
Indwe Environmental Consulting CC
2 Ayr Place
Bonnie Doon
East London
5241

Tel: 043 555 0656 • Fax: 086 513 9734 • Email: nicola@indwecon.co.za •

YOUR details:

Name	
Organisation	
Telephone Number	
Physical Address	
Postal Address	
Fax Number	
Email Address	

Comments:

[illegible]

***** From 1 July 2021, the Protection of Personal Information Act (POPIA) came into full effect. The law is designed to protect how your data is used, stored and processed. Indwe Environmental Consulting is fully committed to ensuring that it meets all of the requirements of POPIA, which outlines the procedures to be followed in which organisations that hold and process the**

personal data of persons and organisations. Should you wish to register as an Interested and Affected, you consent that your personal data will be stored, used and processed. You consent that your details, where applicable, will be visible to the public through the EIA Regulations, 2014, as amended process as part of this project.

APPENDIX G4– I&AP CORRESPONDENCE

DUE TO THE PROTECTION OF PERSONAL INFORMATION ACT, WE ARE REQUIRED TO PROTECT PERSONAL INFORMATION, SUCH AS CONTACT INFORMATION, UNLESS CONSENT IS PROVIDED BY THE SUBJECT. GIVEN THE RELATIVELY NEW NATURE OF THIS ACT AS WELL AS THE REQUIREMENTS OF THE EIA REGULATIONS IN TERMS OF PUBLIC PARTICIPATION, WE ARE NAVIGATING THROUGH WHAT WE CAN PUBLISH AND WHAT WE CANNOT. UNTIL SUCH TIME THE COMPETANT AUTHORITY STIPULATES HOW WE CAN RELEASE PERSONAL INFORMATION AS PER THE EIA REGULATIONS, WE UNFORTUNATELY CANNOT RELEASE INFORMATION AS PART OF THIS EIA PROCESS THAT CONTAINS A SUBJECT'S PERSONAL INFORMATION (I.E. EMAIL CORRESPONDENCE, INTERESTED AND AFFECTED PARTY REGISTERS ETC.)

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APPENDIX G5- I&AP REGISTER

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ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

1) INTRODUCTION

The purpose of this document is to qualitatively determine the significance of potential environmental impacts that could occur as a result of a proposed project and its related aspects and activities.

*It is important to note that for this methodology the significance of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur.

2) METHODOLOGY

2.1) Ranking Impact Criteria

Each potential environmental impact was ranked according to specific criteria namely Extent, Intensity/Severity and Duration. Each criterion was assigned a qualitative rating and corresponding score Table: 1.

Table: 1 Qualitative ratings and scores for the Criteria used to determine the Consequence of an impact.

RATING	DEFINITION OF RATING FOR EACH CRITERIA	ALLOCATED SCORE
1) EXTENT - <i>The area over which the impact will be experienced</i>		
Local	Confined to project or study area or part thereof i.e. site.	1
Regional	The region, which may be defined in various ways i.e. cadastral, catchment, topographic.	2
(Inter) National	Nationally or beyond.	3
2) INTENSITY/SEVERITY - <i>The magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources.</i>		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered.	1
Medium	Site- specific and wider natural and/or social functions and processes continue albeit in a modified manner.	2
High	Site- specific and wider natural and/or social functions and processes are severely altered or permanently cease.	3
3) DURATION - <i>The timeframe over which the impact will be experienced.</i>		
Short- term	Up to 2 years	1
Medium- term	2 to 15 years	2
Long- term	More than 15 years	3

2.2) Determining Consequence

The combined scores from the Impact Criteria were added and allocated to a Consequence Rating as seen in Table: 2

Combined Score (A+B+C)	1 to 3	4	5 to 6	7	8 to 9
Consequence Rating	Very Low	Low	Medium	High	Very High

2.3) Deriving Probability

The probability of the potential impact occurring was subjectively derived from a probability classification table.
Table: 3

Table: 3 Probability Classifications

PROBABILITY- <i>The likelihood of the impact occurring</i>	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

2.4) Deriving Impact Significance

The Significance of each potential impact was determined by considering the Consequence and Probability of the impact and assigning a Significance rating from the table below. Table: 4

Table: 4 Possible Impact Combinations and their corresponding subjective significance rating

POSSIBLE IMPACT COMBINATIONS		
SIGNIFICANCE RATING	CONSEQUENCE	PROBABILITY
INSIGNIFICANT	Very Low	Possible
	Very Low	Improbable
VERY LOW	Very Low	Definite
	Very Low	Probable
	Low	Possible
	Low	Improbable
LOW	Low	Definite
	Low	Probable
	Medium	Possible
	Medium	Improbable
MEDIUM	Medium	Definite
	Medium	Probable
	High	Possible
	High	Improbable
HIGH	High	Definite
	High	Probable
	Very High	Possible
	Very High	Improbable
VERY HIGH	Very High	Definite
	Very High	Probable

2.5) Impact Status

The Status of each potential environmental impact was subjectively ranked using the following table. Table: 5

Table: 5 Status of Potential Impact rating

STATUS OF POTENTIAL IMPACT	
Positive (+ve)	Indicates whether impact is positive (a benefit)
Negative (-ve)	Indicates whether impact is negative (a cost)
Neutral (ne)	Indicates whether impact has no positive or negative impact

2.6) Degree of Confidence

The degree of confidence of the Environmental Assessment Practitioner in ranking and predicting potential impacts based on available information and experience was ranked according to the following table. Table: 6

Table: 6 Degree of confidence of EAP

CONFIDENCE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER	
Degree of confidence is based on available information and experience of EAP	Low
	Medium
	High

2.7) Other Considerations

Other aspects that were taken into consideration were:

- Impacts were described before and after proposed mitigation and management measures were implemented;
- All impacts were evaluated over their full life cycle for the proposed development including construction and operational phases and
- The impact evaluation took into account the cumulative effects of other activities which have occurred or are in the process of occurring within the study

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Palaeontological	The site contains outcrops of intrusive dolerite rock which has cooled from molten igneous rock and this contains no fossils, these are preserved within the Greenbelt area of the site. Additionally, in areas designated for development have a thick covering of alluvium soil that has been previously used for agriculture. It is likely that these soils are underlain by	Direct	Local	Short Term	Medium	Low	Possible	Negative (-ve)	Very Low (-ve)	If any Palaeontological features are uncovered during the excavation of the site for the construction of the development such as petrified (turned to stone) bones then all works are to stop immediately within that area and ECPHRA are to be contacted or a professional palaeontologist in order to access the find.	Insignificant

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	extremely degraded, leached mudstones. Very low likelihood exists for significant palaeontological material on site to be disturbed.										
SCORE			1	1	2	4					
Heritage Impact	The area is considered to have low archaeological and cultural heritage significance. Only a single isolated occurrence of a Middle Stone Age stone artefact was discovered on site which has	Direct	Local	Short Term	Low	Low	Definite	Negative (-ve)	Low (-ve)	If any concentration of pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction or	Very Low (-ve)

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	not been graded. Stone artifacts usually occur between the surface and 50 to 80 cm below the ground surface. Thus it is possible to uncover artifacts during the proposed development and future excavations for the individual graves, however it is unlikely due to past historical agricultural activities taken place on site. There also carries a possibility of human remains									the proposed development and / or future excavations for individual graves, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the ECPHRA (043 745 0888) so that systematic and professional investigation/ excavation can be undertaken. Phase 2 mitigation in the form of test-	

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	being discovered during excavation activities.									pitting/ sampling or systematic excavations and collections on the findings will then be conducted to establish the contextual status the sites and remove the archaeological deposit before development activities continue. ECPHRA noted the following: • This should be edited before development begins.	

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										• The developer/representative must notify ECPHRA of the start dates and duration of the projects. • The developer/representative must submit a detailed Heritage Chance Finds Procedure (CFP) to ECPHRA for approval before the projects start. • Archaeological and paleontological monitoring during excavations and reports to be submitted.	

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										thereafter, to ECPHRA. Post-Construction Phase: Final heritage compliance report to be submitted to ECPHRA, upon completion of the project.	
SCORE			1	1	1	3					
Alien Vegetation	Several exotic and invasive weed species were noted within the site, although present in low numbers. A few large Black wattle trees are present, as well as Lantana and other ruderal	Direct and Indirect	Local	Medium Term	Low	Medium	Definite	Negative (-ve)	Medium (-ve)	Alien vegetation must be removed from the site as per CARA/NEMBA requirements. A suitable weed management strategy to be implemented in construction	Low (-ve)

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	weed species. A species list can be found in Table 8 of the Biodiversity Assessment Report. It is likely these species may be exacerbated by the construction disturbance and it is also likely that some species currently not within the site will proliferate/ get introduced from adjacent areas. Disturbed areas of the site are of particular concern during construction activities as alien									and operation phases. After clearing and construction is completed, an appropriate cover may be required, should natural re-establishment of grasses not take place in a timely manner in open space areas and road sides. This will also minimise dust. Some further procedures are outlined within the EMP.	

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	vegetation are opportunistic in nature and will establish in any exposed soil. This is of particular concern as it can hinder natural vegetation from establishing.										
SCORE			1	2	1	4					
Permanent or temporary loss of indigenous vegetation cover	Site clearing pre-construction will result within the blanket clearing of vegetation within the affected footprint.	Direct and Indirect	Local	Short Term	High	Medium	Definite	Negative (-ve)	Medium (-ve)	Blanket clearing of vegetation must be limited to the site. No Clearing outside the footprint is to take place. Topsoil must be striped and stockpiled separately during site preparation and	Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										replace on completion where revegetation will take place. Any site camps and laydown areas requiring clearing must be located within already disturbed areas away from watercourses.	
SCORE			1	1	3	5					
Loss of Flora Species of concern	During site preparation otherwise known as pre-construction activities, there may be a risk for species of conservation	Direct	Local	Short Term	High	Medium	Probable	Negative (-ve)	Medium (-ve)	A flora search and rescue is unlikely to be required. A single PNCO protected species was recorded which will require a	Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	concern which are potentially present within the affected area which could be destroyed during site preparation.									permit for destruction.	
SCORE			1	1	3	5					
Loss of Faunal Species of Concern	Due to construction activities associated with bushclearing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.	Direct and Indirect	Local	Short Term	High	Medium	Probable	Negative (-ve)	Medium (-ve)	A faunal search and rescue is Unlikely to be required. No animals are to be harmed or killed during the course of operations. Workers are NOT allowed to snare any faunal species.	Low (-ve)
SCORE			1	1	3	5					

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Erosion and sedimentation	Some areas are susceptible to erosion because of construction related disturbances. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity. Loss of top soil due to erosive processes will be detrimental to the rehabilitation of the site particularly	Indirect and cumulative	Local	Medium Term	High	Medium	Probable	Negative (-ve)	Low (-ve)	Areas must be rehabilitated, and a suitable cover crop planted once construction is completed. Topsoil must be stripped and stockpiled separately and replaced on completion. If natural vegetation re-establishment does not occur, a suitable grass must be applied. surfaces using appropriate erosion control measures such as geofabrics, silt fences and	Very Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	during the operational aspect of the project. Runoff over cleared surfaces during rainfall events, resulting in erosion of exposed surfaces and sedimentation of water resources.									stop-boards. Stockpile the cleared plant, soil and other material > 20m from the outer edge of the demarcated buffer zones, in piles less than 1,5m in height. Stockpiled soil should be covered and the covers secured during windy or rainy periods and monitored for the appearance of erosion channels. Stormwater management should be put in place and monitored.	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										during the construction phase. Should any erosion channels become evident these must be backfilled, compacted and re-vegetated as soon as possible. The artificial wetland (dam) should not be used as a water source for construction purposes. If this is absolutely necessary, a single access road should be cleared on the site of the	

Pre and Post Impact Significance Assessment for all phases of the project for the A1: Preferred alternative.

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										current dam access, with a clear turn-around area further than 15m from the water's edge. No vehicles or plant to be within 15m of the dam. The northern bank of the dam, which is currently exposed and eroded soil, should be clad with rock riprap to prevent further erosion. Ideally riprap will comprise a combination of	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										irregular shaped rocks placed over gravel bedding and (at minimum) a sand filter or geotextile fabric layer. The riprap layer should be substantial, if it is sparse or if the filter or bedding material is inadequate, the sediment collected here will wash out easily, allowing the embankment material to erode. Note: The artificial wetland (dam)	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										may be incorporated into the Memorial Park as a recreational feature in the future. Thus while the NO GO buffer zone around this surface water applies to construction activities, it is recognised that low-level interventions (such as a boardwalk) may, in future, be constructed in the buffer zone.	
SCORE			1	2	1	4					

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Faunal habitat	Construction will result in the loss of the habitat and micro habitat for faunal species however there is ample habitat in the surrounding areas for species to move into.	Direct	Local	Medium Term	Medium	Medium	Probable	Negative (-ve)	Medium (-ve)	Blanket clearing of vegetation must be limited to the footprint. It is important that clearing activities are kept to the minimum and take place in a phased manner, where applicable. This allows animal species to move into safe areas and prevents wind and water erosion of the cleared areas.	Low (-ve)
SCORE			1	2	2	5					
Loss of Ecological Processes	Some disturbances to ecological	Direct and Indirect	Local	Medium Term	High	Medium	Definite	Negative (-ve)	Medium (-ve)	Blanket clearing of vegetation must be limited	Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	process including faunal processes.									to the development footprint, and the area to be cleared must be demarcated before clearing commences. Reptiles such as lizards are less mobile than mammals which are likely to move out of the area once construction commences. Therefore a faunal search and rescue can be conducted before construction commences.	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										although according to the specialist report some mortalities may still occur as they tend to sometimes move back onto site. A reptile handler should be on call for such circumstances. Should any amphibian migrations occur between artificial wetland sites during construction then appropriate	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										measures including temporarily suspending works in the affected area should be implemented.	
SCORE			1	2	3	6					
Loss of riparian and artificial wetland habitat	Removal and loss of indigenous vegetation, exposure of soil surfaces, potential for degradation of riparian zones and aquatic habitat of all surface waters.	Direct	Local	Medium term	Medium	Medium	Probable	Negative (-ve)	Medium (-ve)	Adopt the recommended buffer zones which are additional to the delineated areas. Depressional wetland (DW): 20m, Artificial wetland (AW, dam): 15m, Non-Perennial Watercourse (NW): 20m. These buffer zones are to be	Very Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										clearly demarcated with a PVC bunting or robust material on site. These boundaries represent NO GO zones for any construction activities, plant, and labour. An Alien Invasive Plant (AIP) clearing and management plan within the delineated areas and buffer zones is also required for the Construction and Operational Phases. All AIPs should be	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										removed and stems treated following nationally recommended AIP clearing guidelines. This must be done under the supervision of a qualified botanist with AIP management experience. AIPs to be cleared manually within buffer zones, and with a TLB outside of buffer zones. All cleared and disturbed construction areas must be rehabilitated as soon as possible	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										to minimise the risk of erosion and sedimentation.	
			1	2	2	5					
Watercourse water quality	Pollution of surface and groundwater as a direct or indirect result of cement-mixing or washoff of cement water	Direct, Indirect and cumulative	Local	Short Term	Medium to High	Medium	Probable	Negative (-ve)	Medium (-ve)	All hazardous substances and waste must be stored in impermeable structures placed in secondary impermeable bunded structure at 110% the volume of the primary structure. All hazardous substances and waste should be placed more than	Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										50m from riparian areas. An emergency response plan must be drawn up to deal with any hazardous spillages/accidental leakages. Spill kit and drip tray must be kept on-site at all times during the construction phase. All chemical toilets/ablution facilities must be properly secured so that they cannot be windblown, be serviced.	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										regularly and should be placed more than 50m from any nearby riparian area. Appropriate temporary stormwater management measures (berms) must be in place during construction phase to capture and direct possible sediment-laden or polluted stormwater away from the nearby riparian area. Large scale concrete mixing	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										activities should not take place within 50m of the riparian area. Implement the NO GO feature of all prescribed buffer zones during construction, All cement mixing to take place inside the construction camp or demarcated area, sited outside of the recommended buffer zones, Ready-mix concrete to be brought to site. No cement mixing or cement trucks	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										to be within 20m of the demarcated buffer zones, and no cement or concrete to be in the vicinity of the artificial wetland (dam). No washing of equipment, concrete trucks or any part thereof, on site. All construction staff must be trained to observe this measure, and fines should be imposed for non-adherence.	
SCORE			1	1	3	5					
Stormwater	Sediment laden runoff is of concern	Indirect	Local	Short Term	Medium	Low	Probable	Negative (-ve)	Low (-ve)	Stormwater management needs to be	Very Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	particularly draining into the river and aquatic systems in close proximity to the site. There exists a downstream dam of the site which is of risk to sedimentation if stormwater is not managed effectively.									incorporated into the design of the cemetery, Stormwater is managed via overland flow for this development. Permeable paving can be used in the parking areas to attenuate the runoff and allow it to infiltrate the soil beneath. In addition, areas for landscaping will naturally attenuate and allow for the infiltration of stormwater. It is	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										imperative that the buffer around the watercourses are kept intact and maintained as they will naturally attenuate the stormwater in the area. During construction if any storm water flow paths are noted they are to be immediately back filled and rehabilitated in order to ensure no sedimentation of the	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										watercourses occur.	
			1	1	2	4					
Solid Waste Generation	Solid waste generation during construction activities i.e. builders rubble, cement, etc. may proliferate into the environment and downstream watercourses.	Direct	Local	Short-term	Medium	Low	Probable	Negative (-ve)	Low (-ve)	During construction there must be a designated area for solid waste disposal. This area must be protected from wind and scavengers that may be within the area. Solid waste must be removed on a weekly basis. If spills of general waste occur, they are to be cleaned up immediately in	Very Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										order to prevent proliferation into the watercourses downstream and the retained greenbelt areas. Under no circumstances is any littering allowed.	
SCORE			1	1	2	4					
Dust Generation	Dust may be generated from vegetation clearing, exposure of soils and top soil stockpiles as a result of construction activities.	Direct	Local	Small Scale	Low	Very Low	Definite	Negative (-ve)	Very Low (-ve)	Reference must be made to the National Dust Control Regulations, 2013, in terms of section 53 (a), read with section 32 of the National Environmental Management:	Insignificant

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										Air Quality Act, 2004 (Act no. 39 of 2004) with regards to acceptable dust fall standards, applicable monitoring requirements deliverables should this be required. Implement the section of the site specific EMP that deals with all issues of Dust Control. Neighbours need to be notified of any high dust creating activities.	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										hours prior to the activities taking place.	
SCORE			1	1	1	3					
Noise generation	The site will generate noise while construction takes place which will disrupt neighbouring farms and business owners.	Direct	Local	Small Scale	Low	Very Low	Possible	Negative (-ve)	Very Low (-ve)	All noise creating activities need to be communicated within the neighbouring community, specifically the directly adjacent entities to the site 3 days before excessive noise creating activities commence. All noise need to be within Municipal ByLaw levels.	Very Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
SCORE			1	1	1	3					
Employment Opportunities	The proposed project will create temporary employment during the construction phase.	Direct	Local	Small Scale	Medium	Low	Probable	Positive (+ve)	Low (+ve)	Unskilled construction labourers should be sourced from the neighbouring community. When possible, skilled individuals or contractors should be sourced from the local community of East London.	Low (+ve)
SCORE			1	1	2	4					
Climate Change	The removal of vegetation as a result of site clearance removes the	Direct & indirect	International	Long Term	Low	High	Probable	Positive (+ve)	High (+ve)	The rehabilitation of natural grasses are imperative. Rehabilitative	High (+ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	ability of this vegetation to sequester carbon into their leaves, stems and root systems. However during the operation of the cemetery and memorial park the landscaping component over the graves sites will most likely be grasses. Grasses sequester carbon into the soil and thus are much more efficient carbon sinks.									action must conform to guidelines outlined in the EMPr.	

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
SCORE			3	3	1	7					
Climate change-Increased flooding	Increased Flooding events are the most hazardous risk for cemeteries as has been noted in cemeteries abroad. However the placement of the site is on a gentle slope at the top of the catchment of the drainage line and not at the bottom of a valley thus this area is unlikely to be exposed to flood water. In addition in terms of erosion and	Indirect	Local	Long Term	Medium	Medium	Possible	Negative (-ve)	Low (-ve)	The site must ensure adequate and appropriate stormwater management is implemented on site for the operation of the facility and during construction activities. Stormwater should be diverted away from the graves to ensure limited surface overflow occurs over graves.	Very Low (-ve)

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CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	coastal flooding, according to the DFFE Coastal Vulnerability Viewer, the site is not at any risk.										
SCORE			1	3	2	6					

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Water quality and pollution	Contamination of surface waters on site or downstream (largely farm dams) as a result of excavations and burials. According to Dippenaar et al (2018) the sources of potential contamination typically include (i) the actual decomposition of the corpse and the associated	Direct, Indirect and Cumulative	Regional	Long Term	High	Very High	Probable	Negative (-ve)	High (-ve)	Implement all buffer zones as exclusion zones for all operations, excepting for low-impact recreational use of the artificial wetland (dam), as per the Aquatic Specialist Report. Zone the whole site so that any surface water areas (which may not yet have been noted) are excluded from excavation activities. It is particularly important to ensure that the	Medium (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	microbial contamination, (ii) the metals and organic compounds mobilised from the ornamental coffins and embalming processes, and (iii) nutrients from the landscaping. Surface waters on site and downstream are threatened if groundwater contamination occurs, and in other instances (e.g. when the hydrology of the site is influenced									depressional wetland/spring area and other seep areas which represent high groundwater levels, are adequately protected by buffers. There may be new areas of surface water which have yet not been identified, after the unusually high rainfall of summer 2024/25. If any such areas are found during construction or operation, these should be excluded from the operations, and buffered with at least 10m buffers. Fencing of the	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	by the presence of multiple excavations, as discussed by Dipennar et al. 2018). With climate change predictions indicating higher rainfall, the effects should not be underestimated. NOTE: the potential for Groundwater contamination is dealt with in the Geohydrology Report (AGES 2022)									buffer area around the depressional wetland areas has been recommended (Ages, 2022). A monitoring plan for surface waters on, and in the vicinity of, the site is required. Monitoring boreholes are recommended by AGES (2022). Monitoring of potentially threatened surface waters should supplement this monitoring. This should commence pre-construction,	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										preferably during a wet season (to provide baseline data), during the construction process, and post-construction, quarterly/seasonally. Baseline monitoring should commence 3-6 months ahead of site clearing at the following points at a minimum: Depressional wetland, artificial wetland (dam), non-perennial watercourse, and downstream dams within 250m of the site boundary. The	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										monitoring protocol should be accompanied by an emergency response plan, should the concentration of particular indicator variables increase or exceed the limits. Specialist investigation would be required to establish the source of the contamination, and to address this. More detail is supplied in the Recommendations of the Aquatic Specialist Report.	
SCORE			2	3	3	8					

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Water Logging of graves	Waterlogging of graves, potential contamination of surface water. This may occur as a result of excavation of graves in areas where there may be seasonal inundation (or perched groundwater) that has not yet been identified by studies.	Direct, Indirect and Cumulative	Local	Long Term	Medium	Medium	Possible	Negative (-ve)	Low (-ve)	In the event that a grave is excavated and, within 24 hours becomes wet as a result of the inflow of groundwater, the gravesite should be closed, backfilled and flagged for observation, and another site excavated. The new site should be at least 10m further away from the first site, in a direction away from any other watercourse, or surface water. In this instance it is advised that a wetland specialist be appointed to map the area of inundation, which	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										should then be included in a NO GO buffer zone. It should be established whether this is a widespread surface inundation or restricted to a small area. In the case of the former, this area should be buffered, and set aside as a NO GO area (particularly for excavation) or a limited access area. Following the recommendations of AGES (2022), it is advised that minimal irrigation for landscaping takes place. AGES	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										(2022) state that 'Graves will likely cause zones of preferential infiltration if somewhat depressed, or will likely increase erosion or obstruct runoff if mounded. Optimal landscaping practices with minimal irrigation at low intensity will ensure that grass can grow without extensive mobilisation of possible contaminants.' Waterwise indigenous grasses and plants only should be included in the planting plan,	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										which should be prepared by a local landscaper with good experience of working with local indigenous plants.	
SCORE			1	3	2	6					
Alteration of hydrology	Alteration of surface hydrology due to increased hardened surfaces on the site and a related increase in stormwater runoff (rather than infiltration to groundwater, which would occur on the undeveloped site). Increased	Direct and Indirect	Local	Long Term	Medium	Medium	Possible	Negative (-ve)	Low (-ve)	A Stormwater Management Plan is required. This must ensure that surface runoff is diverted away from graves and roads, and that measures to encourage infiltration are adopted.	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	runoff of this nature will also lead to erosion of land surface and contamination and sedimentation of surface waters.										
SCORE			1	3	2	6					
Depletion of underground water resources	Overutilisation of the borehole for water resources for the operation of the cemetery may cause the depletion of the local underground aquifer that is depended on by surrounding	Direct and cumulative	Local	Long Term	Low	Medium	Possible	Negative (-ve)	Low (-ve)	No water is to be abstracted from the spring on site and the spring on site is to be treated as a no-go area. Water resources extracted for use on the site for the operation of the cemetery, including office	Very Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	farmers or users in the area. In addition, the recharge of springs and other watercourses in the vicinity may be affected and thus change their hydrological regime and affect aquatic system function.									and admin buildings, should be sourced from borehole resources. The underground water resource should be monitored not only for quality but also for quantity, however it is unlikely the development will impact underground water supply due to the low requirements and domestic intended uses. A water use licence will need to be sought for the use	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										of water on site during operations	
SCORE			1	3	1	5					
Permanent or temporary loss of indigenous vegetation cover	Site clearing pre-construction will result within the blanket clearing of vegetation within the affected footprint.	Direct and Indirect	Local	Short Term	High	Medium	Definite	Negative (-ve)	Medium (-ve)	Blanket clearing of vegetation must be limited to the site. No Clearing outside the footprint is to take place. Topsoil must be striped and stockpiled separately during site preparation and replace on completion where revegetation will take place. Any site camps and laydown areas requiring clearing must be located within	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										already disturbed areas away from watercourses.	
SCORE			1	1	3	5					
Loss of Flora Species of concern	During site preparation otherwise known as pre-construction activities, there may be a risk for species of conservation concern which are potentially present within the affected area which could be destroyed during site preparation.	Direct	Local	Short Term	High	Medium	Probable	Negative (-ve)	Medium (-ve)	A flora search and rescue is unlikely to be required. A single PNCO protected specie was recorded which will require a permit for destruction.	Low (-ve)
SCORE			1	1	3	5					

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Loss of Faunal Species of Concern	Due to construction activities associated with bushclearing, killing of perceived dangerous fauna, may lead to increased mortalities among faunal species.	Direct and Indirect	Local	Short Term	High	Medium	Probable	Negative (-ve)	Medium (-ve)	A faunal search and rescue is Unlikely to be required. No animals are to be harmed or killed during the course of operations. Workers are NOT allowed to snare any faunal species.	Low (-ve)
SCORE			1	1	3	3					
Faunal habitat	Construction will result in the loss of the habitat and micro habitat for faunal species however there is ample habitat in the surrounding	Direct	Local	Medium Term	Medium	Medium	Probable	Negative (-ve)	Medium (-ve)	Blanket clearing of vegetation must be limited to the footprint. It is important that clearing activities are kept to the minimum and take place in a phased manner.	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	areas for species to move into.									where applicable, This allows animal species to move into safe areas and prevents wind and water erosion of the cleared areas.	
SCORE			1	2	2	3					
Loss of Ecological Processes	Some disturbances to ecological process including faunal processes.	Direct and Indirect	Local	Medium Term	High	Medium	Definite	Negative (-ve)	Medium (-ve)	Blanket clearing of vegetation must be limited to the development footprint, and the area to be cleared must be demarcated before clearing commences. Reptiles such as lizards are less mobile than mammals which are likely to move	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										out of the area once construction commences. Therefore a faunal search and rescue can be conducted before construction commences, although according to the specialist report some mortalities may still occur as they tend to sometimes move back onto site. A reptile handler should be on call for such circumstances. Should any amphibian migrations occur	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										between artificial wetland sites during construction then appropriate measures including temporarily suspending works in the affected area should be implemented.	
SCORE			1	2	3	6					
Employment opportunities	The operation of the cemetery will provide jobs to the local community and city of East London but the impact will be low as the cemetery is small in scale.	Direct	Local	Long Term	Low	Medium	Probable	Positive (+ve)	Medium (+ve)	Positive impact no mitigation relevant	Medium (+ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
SCORE			1	3	1	5					
Alien Vegetation	Inappropriate maintenance activities during the operational phase would also promote the invasion or dominance of alien plant species at the site. An increase in alien vegetation will have negative biodiversity impacts displacing indigenous species and disrupting the ecology of the area. However due to the target		Local	Long Term	Medium	Medium	Possible	Negative (-ve)	Low (-ve)	Alien vegetation must be removed from the site as per CARA/NEMBA requirements. A suitable weed management strategy to be implemented in construction and operation phases. After a grave site is completed, an appropriate cover may be required, should natural re-establishment of grasses not take place in a timely manner. This will also minimise dust. Some further	Very low

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	market of private clients, it is likely the landscaping of the cemetery will be well maintained and proliferation of the site will be low.									procedures are outlined within the EMP.	
			1	3	2	6					
Solid Waste Generation	During the operation phase, general solid waste will be generated by the development. The Buffalo City Metropolitan Municipality is unlikely to service the cemetery and	Direct	Local	Long Term	Low	Medium	Definite	Negative (-ve)	Medium (-ve)	A waste management facility should be incorporated into the operational phase of the development. This is to ensure that waste is formally stored until collection. A formal waste storage area	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	thus the applicant will need to ensure disposal of solid waste, by transporting the waste to the nearest transfer station.									should be of a suitable capacity to contain the required waste generated from the units. e-waste associated with the office operations to be collected or disposed via an approved operator or similar. Paper, cardboard and similar to be recycled where possible.	
SCORE			1	3	1	5					
Storm water management	An appropriately	Indirect	Local	Medium Term Intermittent	Medium	Medium	Possible	Negative (-ve)	Low (-ve)	All stormwater and drains etc.	Very Low

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	functioning stormwater management system will need to be in place for the development. This system should be monitored closely for any failure or need for maintenance, it is of the utmost importance that stormwaters are channelled away from gravesites and into the dam at the head of the drainage non-perennial watercourse.									must be kept free of silt and debris. If any infrastructure fails all damages of stormwater structures should be reported as soon as possible to ensure these issues are addressed timeously.	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	Over and above this should the stormwater management system fail for any reason, erosion must be monitored and addressed timeously.										
SCORE			1	2	2	5					
Traffic	The proposed project will bring in an increased amount of traffic during operation, however this will be well within the load capability of the W Road and intermittent in extent.	Direct	Local	Small Scale and intermittent	Low	Very Low	Definite	Negative (-ve)	Very Low (-ve)	The facility must abide strictly to normal business hours for operation of the Private Cemetery and Memorial Park. In addition the park must appropriately manage the operations of the facility as to	Insignificant

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
										scatter burials during operation times so as to not overburden public roads.	
SCORE			1	1	1	3					
Landscaping and rehabilitation	It is recommended that minimal irrigation for landscaping takes place. AGES (2022) state that 'Graves will likely cause zones of preferential infiltration if somewhat depressed, or will likely increase erosion or obstruct	Direct	Local	Short term and intermittent	Medium	Low	Definite	Positive (+ve)	Low (+ve)	On completion of construction, the surface of any work areas, especially if compacted due to hauling and dumping operations that may occur during operational phases aswell, will need to be scarified to a depth of at least 200mm and graded to an even surface condition	Low (+ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	runoff if mounded. Optimal landscaping practices with minimal irrigation at low intensity will ensure that grass can grow without extensive mobilisation of possible contaminants. Regarding planting on the site, it is recommended that only waterwise indigenous grasses and plants be									and the previous stored topsoil to be returned to its original depth over the area. Disturbed areas can be seeded with suitable grasses and local indigenous seed mix, if deemed to be required, however, vegetation is likely to re-establish without input. Excavations may not be used for dumping of construction wastes. Waste (non-biodegradable	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	considered, and that landscaping is done by a qualified local landscaper with good experience of the use of Eastern Cape indigenous plants in landscaping or rehabilitation.									refuse) will not be permitted to be deposited in the excavations and must be disposed of appropriately.	
SCORE			1	1	2	4					
Climate Change	Due to the provision of adequate maintenance in terms of cemetery operation, it is likely the citizens of East London will opt into traditional	Direct	International	Long Term	High	Very High	Probable	Positive (+ve)	Very High (+ve)	Positive impact, not mitigation required	Very High (+ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	burial options, where concerns of unkempt municipal cemeteries have deterred citizens to consider cremation as the only other alternative for respectful interment. Cremation has a significantly higher Carbon Emission footprint to burial.										
SCORE			3	3	3	9					
Climate Change-Burial	The decomposition of organic matter releases	Indirect	International	Medium Term	Medium	High	Probable	Negative (-ve)	High (-ve)	Due to the fact that there are limited to no easily available/	Medium (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	methane among other gasses as part of the natural decomposition process. This gaseous release is only subject to once the decomposition phase is complete. This impact is however far reduced in comparison to cremation which releases 6 times that of traditional burial. It must be noted that although natural gaseous release									accessible carbon zero methods in terms of interment in South Africa. Mitigation for burial is difficult. However cemeteries managed in a responsible way can "offset" these impacts such as conserving or retaining intact vegetation on site which is the case with this application where it is recommended the thicket remnant vegetation is	

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	through the process of decomposition, the levels do not fall within the ambient of an Atmospheric Emission License.									retained. In addition the landscaping activities of the facility are likely to plant grass species as the dominant landscape feature of the development. Grasses form carbon sinks.	
SCORE			3	3	2	7					
Cumulative Impact of Leachate	Indwe Environmental Consulting has been made aware that a private cemetery development proposed for PTN 14 farm 821 has been	Indirect and Cumulative	Local	Long Term	High	7	Possible	Negative (-ve)	Medium (-ve)	All legislative requirements need to be obtained prior to construction and operation of the facility. Strict groundwater monitoring programme needs to be in	Low (-ve)

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	submitted by a different applicant which falls in the same general area of Holm hill as this application for PTN 50 Farm 821. There is thus a risk of cumulative impact particularly regarding leachate between the two cemeteries into the same tributary and possibly the same groundwater resources.									place with a comprehensive emergency action plan should any spills or contaminants are noted above the regulated thresholds.	

[illegible]

OPERATIONAL PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
	on the edge of the area of Holm hill and with short distance access from the NG. It is also uncertain if the proposal for PTN 14 of Farm 821 and PTN 50 Farm 821 will achieve all the necessary additional permits and authorisations to implement the cemeteries respectively.										
SCORE			1	3	3	1					

Pre and Post Impact Significance Assessment for all phases of the project for the Least Preferred alternative A2

CONSTRUCTION PHASE											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBABILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
All impacts noted in the above impact table for the preferred alternative are much the same and relevant towards the Least Preferred alternative.											
OPERATIONAL PHASE											
All Impacts noted in the above impact table for the preferred alternative are much the same and relevant towards the Least Preferred alternative.											

Pre and Post Impact Significance Assessment for all phases of the project for the No-go alternative

No-Go Alternative											
ASPECT	NATURE OF IMPACT	TYPE OF IMPACT	EXTENT	DURATION	INTENSITY OR SEVERITY	CONSEQUENCE	PROBAB ILITY	STATUS OF IMPACT	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	SIGNIFICANCE POST-MITIGATION
Employment opportunities	If the no-go alternative is opted for, the potential for employment opportunities although small, are not created.	Indirect	Local	Long Term	Low	Medium	Definite	Negative (-ve)	Medium (-ve)	No impact mitigation possible due to status quo.	Medium (-ve)
SCORE			1	3	1	5					
Economic Development	If the no-go alternative is opted for the economic development possible as a result of this unique development type, which is a first for the local area of East London, will be lost.	Indirect	Local	Long Term	Low	Medium	Possible	Negative (-ve)	Low (-ve)	No impact mitigation possible due to status quo.	Low (-ve)

SCORE			1	3	1	5					
Loss of potential interment provision	East London is in dire need for cemetery space and alternative options for interment. Land is scarce for cemetery provision and the number of illegal cemeteries are increasing as a result of this scarcity. In addition, there is a joint desire for well maintained cemeteries as the current cemeteries that exist in BCMM are in a serious state of disrepair due to lack of funding. The resulting disrespect experienced by	Direct and Indirect	Local	Long Term	Medium	Medium	Definite	Negative (-ve)	Medium (-ve)	No impact mitigation possible due to status quo	Medium (-ve)

	families of different cultures has an emotional impact on society.										
SCORE			1	3	2	6					
Increased overall security risk	At present, the site is open to vagrants to settle and use the area; this is a great risk to illegal settlement formation which will have an even greater risk on the surrounding area. The Ducats settlement being directly across the N6 makes this a serious risk.	Indirect	Local	Long Term	High	High	Possible	Negative (-ve)	Medium (-ve)	No impact mitigation possible due to status quo	Medium (-ve)
SCORE			1	3	3	7					
Increased dumping activities and	Due to the site being open and freely	Indirect	Local	Long Term	Medium	Medium	Possible	Negative (-ve)	Low (-ve)	No impact mitigation possible due	Low (-ve)

	larger agricultural are is a concern. Lastly, this area has been subjected to many veldfires, as there are no natural boundaries beside the road side boundary, the probability for these fires to jump onto neighbouring farms is high which increased with the worsening alien invasive infestation currently occurring on the farm.										
SCORE			1	3	2	6					
Disuse of desirable land	At current, this well-positioned site is vacant and freely accessible,	Direct and Indirect	Local	Long Term	Low	Medium	Probable	Negative (-ve)	Medium (-ve)	No impact mitigation possible due to status quo	Medium (-ve)

	resulting in undesirable uses of the land which do not contribute to society's betterment but do pose a risk to negatively impact the surrounding communities.										
SCORE			1	3	1	5					
Alien Invasive Species	IF the no-go alternative is utilized for the site, the current dense investment of alien plant species is likely to proliferate further, impacting the drainage line and other sensitive watercourses on site and will eventually proliferate into	(indirect and Cumulative)	Local	Long Term	Medium	Medium	Probable	Negative (-ve)	Medium (-ve)	No impact mitigation possible due to status quo	Medium (-ve)

	the adjacent farm, valuable farmland, which could be detrimental to land management practices as alien invasive eradication can be expensive. In addition, as previously mentioned, the fire risk is of concern as veld fire intensity is often factored by the present and extent of alien invasive plant species.										
SCORE			1	3	2	5					
Climate Change: Loss of Cemetery space provision to the northeastern	Current formal cemeteries are located in the old portions of East London which is quite a distance from areas of Beacon	Direct	International	Long Term	High	Very High	Possible	Negative (-ve)	High (-ve)	No mitigation feasible due to lack of alternative sites available to cater to the	High (-ve)

suburbs of east London	Bay and Gonubie located closest to the proposed development. Thus there is discouragement of the residents of Gonubie from utilizing these cemeteries and turning to alternative interment options such as cremation.									north eastern areas of East London.	
SCORE			3	3	3	9					

APPENDIX G8– SCREENING TOOL DELIVERABLES

PROPOSED CONSTRUCTION OF A MEMORIAL PARK AND PRIVATE CEMETERY ON PTN 50 OF FARM 821, BCM, EASTERN CAPE.

NATIONAL WEB BASED SCREENING TOOL REPORT FINDINGS AND RESPONSE

INTRODUCTION AND BACKGROUND

The National Web-based Environmental Screening Tool is a geographically based web-enabled application that allows a proponent intending to submit an application for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended, to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site-specific EIA process and review information, for example, the Screening Tool may identify if an industrial development zone, minimum information requirement, Environmental Management Framework or bio-regional plan applies to a specific area.

Some of these documents can then be accessed through the Screening Tool via links, for consideration during screening.

Further to this, the Screening Tool identifies related exclusions and/ or specific requirements, including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.

Finally, the Screening Tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended whereby a Screening Report is required to accompany any application for Environmental Authorisation and as such the tool has been developed in a manner that is user friendly and no specific software or specialised GIS skills are required to operate this system.

The proposed project includes the construction of a cemetery near the Ducats area of East London and is located approximately 10.7 km north of the East London CBD and is about 4 km from the Merrifield School turn off onto the N6 from East London Beacon Bay. The study site is located at co-ordinates 32°55'8.77"S; 27°54'31.55"E and has access off of the N6. On the eastern side of the N6 where the site is located the predominant land use surrounding the site is that of agriculture.

The site in question is approximately 10.2 Ha in extent, and has evidence of old farm contours indicative of historical agricultural activities. In addition, the site has been intersected by two powerline servitudes, has an informal soccer field on site and has evidence of prevalent dumping activities. Obvious environmental features within the site include a greenbelt within the site which indicates a watercourse and an old borrowpit-turned-dam. The greenbelt, and old borrowpit/ dam will be excluded from the total area of which the remaining development footprint is expected to be roughly 7.76 Ha. There exists two alternatives for this particular project based on the nature of design.

In terms of services, the following applies to both alternative:

Water

A borehole will be drilled to supply water. There is no need for potable treated water. Supply is available if needed from the adjacent Ducats Settlement. The water supply authority for the area is the Buffalo City Metropolitan Municipality (BCM) and water infrastructure is in place to allow for the development to proceed.

Sewerage and sanitation

There is currently no sanitation infrastructure provided on the subject site. This would be remedied by the construction of either a septic tank system (least-preferred) or a conservancy tank (preferred).

Access

As the site currently stands there is a single access point on the property at the Northern Boundary from Road W (MN10118) which is an unpaved provincial road and is categorized as a Class 5 Provincial Minor Road. This provincial minor road known as Road W connects to the N6 to the west of the site. The location of the sites access road will not be changed however it will be upgraded and formalized in line with the development proposal needs. No change to current access and road network is proposed in terms of routing.

Electricity

The demand for this development will be low and an application will be made via Eskom/BCMM when the phase 1 needs to commence. Per the current status quo there is electricity available on the property. An electrical load report will be completed before formal application is made to Eskom/ BCMM to indicate the electrical supply required. This electrical load report is still to be compiled.

Town Planning

The applicant has submitted a formal application in terms of the Spatial Planning and Land Use Management Act of 2013, together with the BCMM Zoning Scheme of 2007. The application consists of a Permanent Departure to allow for the establishment of a Private Cemetery and Memorial Park, with a building line relaxation of 6m on all sides.

The site was screened according to the National Web Based Screening Tool and the report was submitted, with the application from, to DEDEAT on 09 December 2025.

SCREENING TOOL THEME SENSITIVITIES AND ASSOCIATED SPECIALIST ASSESSMENTS IDENTIFIED

According to the Screening Tool Report generated for the site, the following summary of the development site environmental sensitivities is identified below:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments were identified for inclusion in the assessment report by the Screening Tool Report:

1. Landscape/ Visual assessment
2. Archaeological and Cultural Heritage Impact Assessment
3. Palaeontology Impact Assessment
4. Terrestrial Biodiversity Impact Assessment

5. Aquatic Biodiversity Impact Assessment
6. Socio-economic Impact Assessment
7. Plant Species Assessment
8. Animal Species Assessment

The Screening Tool Report notes that ***it is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.***

SPECIALIST ASSESSMENT UNDERTAKEN AS PART OF THE PROJECT

Taking into consideration the environmental sensitivities identified by the Screening Tool, the specialist assessments identified by the Screening Tool, physical site surveys and verifications as well as the current land use, intended land use (in terms of SPLUMA), the following is noted.

Specialist assessments undertaken as part of the Environmental Impact Assessment Process were as follows:

1. Cultural, Heritage and Archaeological Assessment that addresses the cultural heritage and archaeological theme. Can be found in **Appendix D1**.
2. Palaeontological Impact Assessment that addresses the palaeontological theme. **Refer to Appendix D2**
3. Aquatic Assessment that addresses the Aquatic Biodiversity theme. **Refer to Appendix D3**
4. Biodiversity Assessment Report that addressed the Terrestrial Biodiversity, the Plant and Animal Species Theme. **Refer to Appendix D4**
5. Geohydrology Assessment that addresses the hydrology and geotechnical aspects of the project. **Refer to Appendix D5**

In terms of the remaining specialist assessments that were identified by the Screening Tool, the motivations for not undertaking such are as follows:

1. Agricultural Impact Assessment

Given that no specific assessment protocol has been prescribed, it is accepted that a site sensitivity verification will suffice.

Although the site has a high sensitivity rating according to the National Web Based Screening tool and from historical imagery and onsite investigation the site was utilized for agriculture practices. However it is evident from imagery that sometime between 2004 and 2012 the site was abandoned for farming activities and left to become unmanageable. Re-occurring veld fires is the only observed management feature that has occurred on site. Dumping activities has been rife within the site upon site investigation and alien vegetation has been slowly proliferating through the site until a recent fire event. The western side of the site is extremely rock leading to believe that agricultural activities are likely difficult within this area. The remaining eastern side of the site could prove fruitful for agricultural activities and there is evidence to suggest such however the extent of such is of small scale and unremarkable leading to believe the loss of such land is low in sensitivity especially taking into cognisance the surrounding farming land which indicate large lands that have been well maintained and looked after.

It is of our opinion that given the above reasons, the significance of the anticipated agricultural impact of the development is low and therefore an agricultural assessment should not be required.

2. Landscape/ Visual assessment

Given that no specific assessment protocol has been prescribed, it is accepted that a site sensitivity verification will suffice.

Although the landscape is indicative of agricultural land, there is evidence of peri-urban development, i.e. the Ducats area directly opposite the N6 of the site. Additionally, there are businesses some distance down the road along the N6 of the site. Thus the visual impact is low and will be slow growing as the cemetery develops. In addition, the proposal has buffered all natural features of the site which will be retained and incorporated into the design of the Memorial Park and Private Cemetery.

It is of our opinion that given the above reasons, the significance of the anticipated visual impact of the development is low and therefore a visual landscape impact assessment should not be required.

3. Socio-economic Impact Assessment

Given that no specific assessment protocol has been prescribed, it is accepted that a site sensitivity verification will suffice.

As noted within the BAR report, there is a desire within the Buffalo City/ East London Area which has no provision of cemetery services and opportunities within the newer sections of Buffalo City/ East London i.e Beacon Bay and Gonubie areas. Apart from this there is a huge deficit of gravesites that are available to the population of the Buffalo City Metropolitan area, with particular reference to those that are formalised. Lastly it is likely that the development will offer both short term and long term employment through its construction and operational phases which may directly benefit the adjacent local populations. There is no anticipated negative impact on social-economic factors.

Based on the above, no socio-economic impact specialist assessment was undertaken.

4. Noise Impact Assessment

The gazetted protocol for this environmental theme is the PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR NOISE IMPACTS.

This protocol (GG 43110) provides the criteria for the specialist assessment and minimum report content requirements for impacts of noise for activities requiring environmental authorisation. This protocol replaces the requirements of Appendix 6 of the Environmental Impact Assessment Regulations.

The assessment and reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool).

Further to this, the protocol notes that “An applicant intending to undertake an activity identified in the scope of this protocol for which a specialist assessment has been identified on the screening tool:

1.1.1. on a site identified as being of “

1.1.1.1 “Very High” sensitivity for noise must submit a Noise Specialist Assessment; or

1.1.1.2 “Low” sensitivity for noise, must submit a Noise Compliance Statement

1.1.2 On a site where the information gathered from the site sensitivity verification differs from the designation of “Very High” sensitivity on the screening tool and it is found to be of a “low” sensitivity. A Noise Compliance Statement must be submitted.

1.1.3 On a site where the information gathered from the initial site sensitivity verification differs from the designation of “low” sensitivity on the screening tool and it is found to be of a “very High” sensitivity, a Noise Specialist Assessment must be submitted.

Given that the Screening report does not have a sensitivity map concerning noise impacts as of yet it is uncertain what the screening tool deems the proposed activity impact towards noise are. However, it is of our opinion that the development will carry a low short term impact significance towards noise. Given the construction required on site there is expected to be levels of noise that some adjacent landowners may perceive as undesirable however these noise levels are unlikely to exceed the bylaws and given that there is already light industrial activities adjacent the site, it is unlikely this noise level will be significant.

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE
ENVIRONMENTAL SENSITIVITY**

EIA Reference number: N/A

Project name: PROPOSED MEMORIAL PARK AND CEMETERY ON PTN 50 OF FARM 821, EAST LONDON, EASTERN CAPE

Project title: PROPOSED MEMORIAL PARK AND CEMETERY ON PTN 50 OF FARM 821, EAST LONDON, EASTERN CAPE

Date screening report generated: 13/02/2025 09:51:28

Applicant: CapeVest Pty Ltd

Compiler: Indwe Environmental Consulting

Compiler signature:

Application Category: Transformation of land | Indigenous vegetation



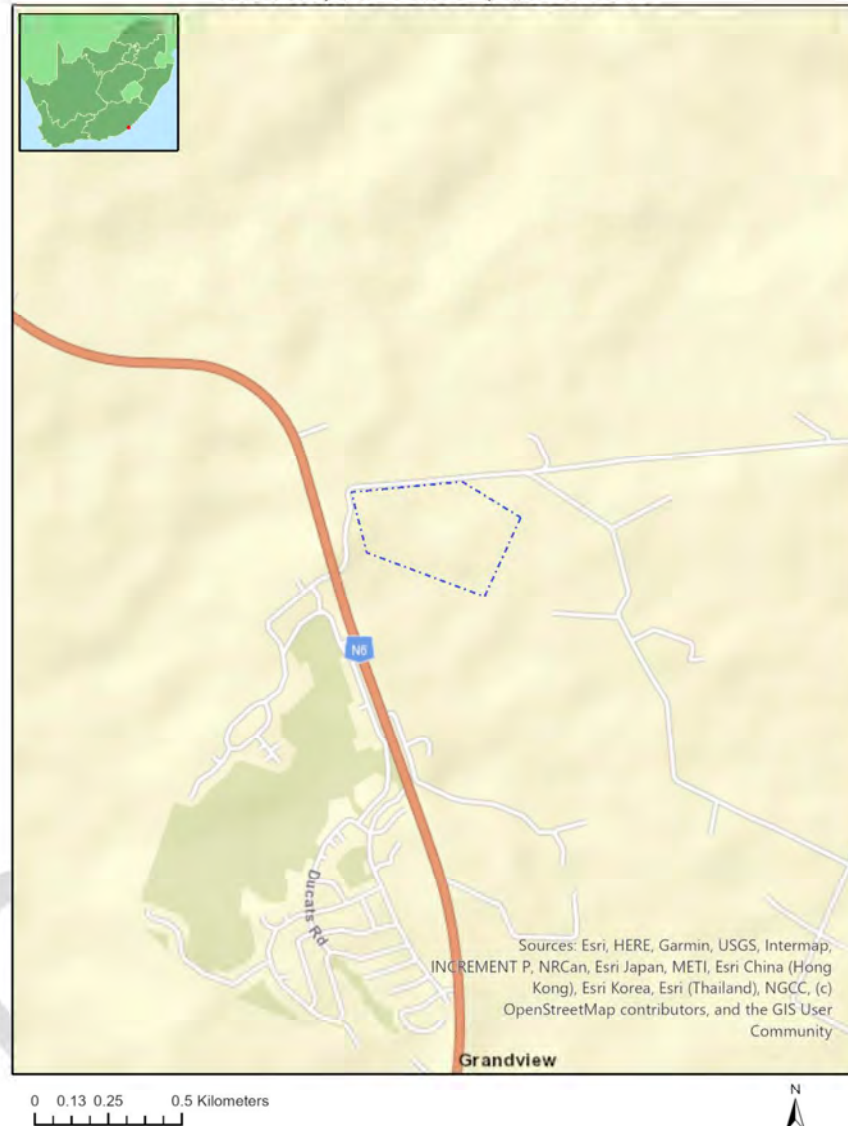
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Proposed Project Location

Orientation map 1: General location

General Orientation: PROPOSED MEMORIAL PARK AND CEMETERY ON PTN 50 OF FARM 821, EAST LONDON, EASTERN CAPE



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1		821	0	32°55'31.47S	27°55'41.32E	Farm
2		821	50	32°55'9.01S	27°54'31.64E	Farm Portion
3		821	0	32°55'32.8S	27°54'59.8E	Farm Portion
4		821	40	32°55'10.66S	27°54'44.56E	Farm Portion

Development footprint¹ vertices:

No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/2253/A1	Solar PV	Approved	15.3
2	12/12/20/2253	Solar PV	Approved	15.3
3	14/12/16/3/3/1/2363	Wind	Approved	13.6
4	12/12/20/2093	Wind	Approved	27.2

¹ "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

5	12/12/20/2140	Solar PV	Approved	22.1
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Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

Transformation of land | Indigenous vegetation.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

No intersection with any development zones found.

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Terrestrial Biodiversity Assessment Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Aquatic Biodiversity Assessment Protocols.pdf
6	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
7	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Plant Species Assessment Protocols.pdf
8	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Animal Species Assessment Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

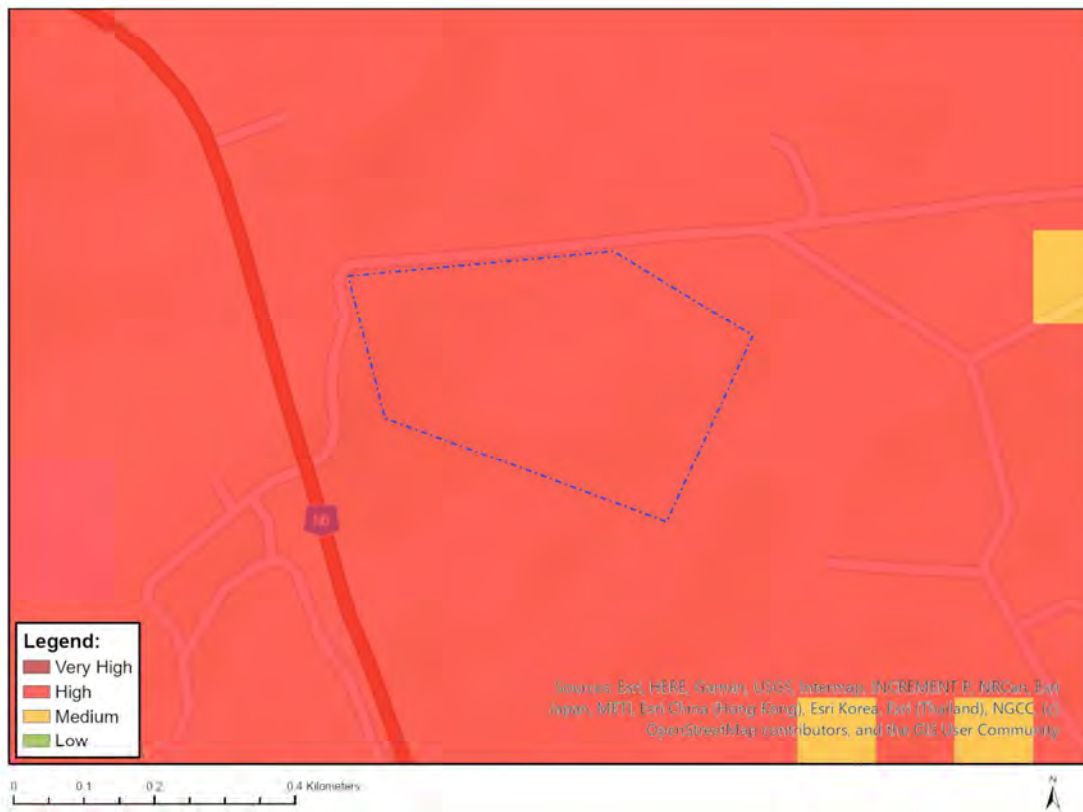


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at biadaterequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Stephanoaetus coronatus
Medium	Mammalia-Cercopithecus albogularis labiatus
Medium	Mammalia-Chrysospalax trevelyani
Medium	Sensitive species 8
Medium	Invertebrate-Prostalia granulata

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	SWSA (SW) Amathole

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
Medium	Between 15 and 35 km from a civil aviation radar
Medium	Between 15 and 35 km from a major civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

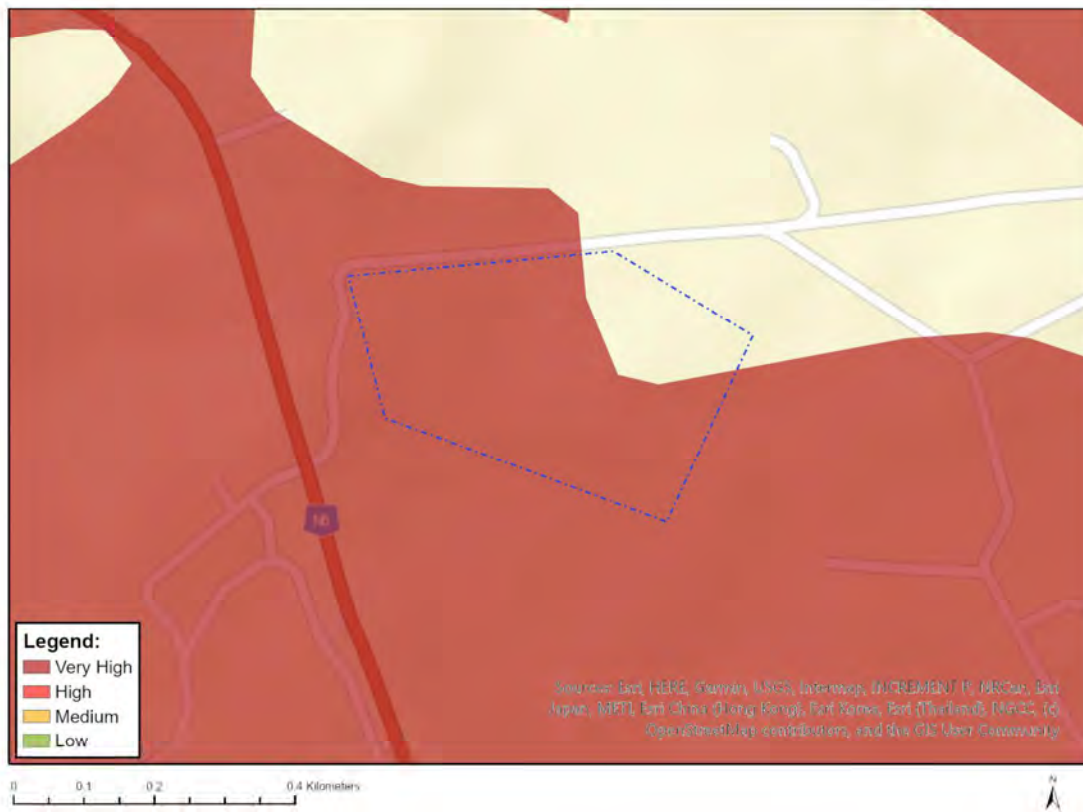


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	ESA 2
Very High	ESA 1
Very High	SWSA (SW) Amathole

APPENDIX G9– EAP CV AND QUALIFICATIONS

NICOLA LEAH MONKS

REGISTERED ENVIRONMENTAL ASSESSMENT PRACTITIONER

PROFILE

Nicola joined Indwe Environmental Consulting as a Junior Environmental Consultant in March 2019 following the completion of her Master of Science Degree in Geography (Environmental Wetland Management) from Nelson Mandela University. Nicola became a member of the Golden Key International Honorary Society in 2015 and was awarded the Nelson Mandela University Honours and Masters Postgraduate Research Scholarship as well as the Masters National Research Foundation Scholarship. During Nicola's studies at Nelson Mandela University, Nicola worked part time for a well-known construction company formulating and completing Environmental Management Plans, Waste Management Plans, environmental work instructions, Health, Safety and Environment Risk Assessments and the like.

Nicola has completed various courses in water quality management, Environmental Law and GIS mapping and analysis. Nicola is a Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No 2019/743) and is also registered with the South African Council for Natural Scientific Professions (Cand. Sci. Nat 121556) and an active paid up member of the International Association of Impact Assessment (IAIA) South Africa.

Nicola has strong GIS skills and a sound knowledge of ecological processes associated with aquatic and terrestrial habitats. Nicola has gained experience in bulk infrastructure projects, mixed use developments, residential developments and agricultural projects. Her sound knowledge in all spheres of environmental legislation and environmental management systems has contributed to her role in the company as the responsible consultant in implementing operational audits and legal register formulation and updates of Clients that operate in the industrial sector.



QUALIFICATIONS

M.Sc. Geography in Wetland Management (Nelson Mandela University, 2017-2018)

Honours (B.Sc.) Botany (Nelson Mandela University, 2016)

B.Sc. Environmental Science and Zoology (Nelson Mandela University, 2012-2015)

REGISTRATION

Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No 2019/743).

Candidate Natural Scientist of the South African Council for Natural Scientific Professions (Reg No.121556)

Member of the International Association of Impact Assessment (IAIA), South Africa (Membership No. 6401)

PERSONAL

Female
South African
Date of Birth: 12 October 1993
Place of Birth: East London
Maiden Surname: Domoney

CONTACT DETAILS

Tel: 043 555 0656
Cell: 067 106 3580
Email: nicola@indwecon.co.za

CAREER EXPERIENCE

INDWE ENVIRONMENTAL CONSULTING CC

REGISTERED ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

March 2019 – Present

Indwe Environmental Consulting is a registered environmental consultancy firm In South Africa that offers the full spectrum of environmental management services throughout South Africa. Nicola is responsible for environmental related activities, site inspections, ecological and aquatic surveys, formulating environmental reports and applications associated with NWA and NEMA and facilitating all public participation and specialist activities. Nicola is also responsible for project management admin and GIS mapping.

UMSO CONSTRUCTION PTY LTD

INTERN ENVIRONMENTALIST

June 2012 – December 2015

Nicola was responsible for all environmental related projects within the company these included developing management plans, work instructions and the like to ensure the company remains environmentally compliant

ADDITIONAL TRAINING

-ESRI Map Projections for GIS

-Introduction to Environmental Impact Assessment Procedures Short Course

-EIA Law

-Hydrology, Geomorphology, Vegetation, Water Quality Modules of WET-Health (Version 2.0)

-Tools for Wetland Assessment

-Snake Awareness, First Aid for Snakebite & Venomous Snake Handling

-Water Research Commission on water quality

KEY INDUSTRY EXPERIENCE

-Large infrastructure projects such as water, sewer, powerlines etc.

-Mixed development projects

-Social Housing and low income housing projects

- Reticulation projects

-Cemetery developments

-Fuel filling stations

-Agricultural projects

ENVIRONMENTAL IMPACT ASSESSMENTS, WATER USE APPLICATIONS & ENVIRONMENTAL AUDITS

Nicola has either been the Candidate Environmental Assessment Practitioner, the assistant Environmental Assessment Practitioner and Environmental Control Officer on the following noteworthy projects:

- 2019- S24G application and assessment for the rectification of unlawful activities accompanying the Marselle 500 Housing Project.
Role: Completed the impact assessment report and environmental management programme.
- 2019- S24G application and assessment for the rectification of unlawful activities accompanying the Gulu Resort (PTN2 of Farm 1015).
Role: Completed the S24G application form, impact assessment, public participation documents and environmental management programme.
- 2019- S24G application and assessment for the rectification of unlawful activities accompanying the Qmall development:
Role: Completed the impact assessment section of the report.
- 2019- S24G application and assessment for the rectification of unlawful activities accompanying Heron's Reach Walkway:
Role: Completed the impact assessment report, public participation documents and environmental management programme.
- 2019- S24G application and assessment for the rectification of unlawful activities accompanying Pine View Farm dam (PTN 2 Farm 1016).
Role: Completed the S24G application form, impact assessment, public participation documents and environmental management programme.
- 2019- Basic Assessment for the proposed upgrade to Marselle 500 housing development Bulk Sewer and Water infrastructure.
Role: Responsible for all environmental reports compilation and public participation activities.
- 2019- Rehabilitation plan for Kempston Dump site 34/640.
Role: Completed the rehabilitation plan and planting list.
- 2019- Environmental Status and Rehabilitation Report on PTN 1 of Farm 913, East London.
Role: Responsible for all environmental reports compilation and GIS mapping.
- 2020- S24G application and assessment for the rectification of unlawful activities accompanying a dam on PTN 1 & 29 Farm 640 (Teddy Farms).
Role: Completed the S24G application form, impact assessment, public participation documents and environmental management programme.
- 2020- Environmental Screening and Analysis for the Proposed Morgans Bay Bulk Sewer Emergency Replacement.
Role: Responsible for all environmental reports compilation and GIS mapping.
- 2020- Environmental Maintenance Management Programme for the Ntaba Guest Lodge Jetty Erection on the Banks of the Mzimvubu Estuary, Port St Johns, Eastern Cape.
Role: Responsible for all environmental reports compilation and GIS mapping.
- 2020- Environmental Compliance Audit of Wesley Ciskei Wind farm.
Role: Responsible for completing the EMPr compliance section of the report.
- 2020- Environmental Screening of Ptn 34 of Farm 817, East London.
Role: Role: Responsible for all environmental reports compilation and GIS mapping.
- 2021 Situation Assessment for Tyolomnqa Estuary in fulfillment of the Tyolomnqa Estuary Management Plan.

Role: Compiled the literature review information, conducted research and completed the Situation Assessment for fulfilment of the Tyolomnqa Estuary Management Plan.

- 2021- Environmental Screening and Analysis for the Proposed Internal Roads and Off Stream Storage Dams within Huntshoek Property, Eastern Cape.

Role: Responsible for all environmental reports compilation and GIS mapping.

- 2021- Environmental Screening of Farm B66, East London.

Role: Responsible for all environmental reports compilation and GIS mapping.

- 2021- Environmental Screening and Analysis for the Proposed Cemetery on Portion 50 of Farm 821, East London, Eastern Cape.

Role: Responsible for all environmental reports compilation and GIS mapping.

- 2021- Basic Assessment for the Proposed Ward 46 Link Road, BCMM.

Role: Responsible for completing environmental reports, conducted public participation, managed stakeholders etc as part of the project team for this project and as a Candidate EAP (Reg no. 2019/743) under the mentorship of Registered EAP Megan Hugo (Reg no. 2019/1530).

- 2021- Basic Assessment for the Proposed Dordrecht Sports Field Upgrade, Dordrecht:

Role: Responsible for completing environmental reports, conducted public participation, managed stakeholders etc as part of the project team for this project and as a Candidate EAP (Reg no. 2019/743) under the mentorship of Registered EAP Megan Hugo (Reg no. 2019/1530).

- 2021- Environmental Screening of Senqu Rural Water Supply- Work Package 2:

Role: Responsible for all environmental reports compilation and GIS mapping.

- 2021- Environmental Screening of PTN 47 of Farm 799 Gonubie, East London:

Role: Responsible for environmental screening report compilation and GIS mapping

- 2021- Removal and Rehabilitation Plan for the Illegal Extension of 17m of Waterloffel Retaining Wall over and above the Approved 27m on Erf 460, Kei Mouth, Great Kei Municipality, Eastern Cape.

Role: Responsible for compiling GIS mapping and species list.

- 2022- Rehabilitation plan for Farm RE/1/5 & RE/5 Maclaentown, East London.

Role: Responsible for rehabilitation plan compilation and GIS mapping.

- 2022- Environmental Screening report for Hogsback water supply phase 3.

Role: Responsible for all environmental reports compilation and GIS mapping.

- 2022- Basic Assessment for the Proposed Fuel Filling Station and Associated Retails Infrastructure on Erven 191 and RE 194, East London, Buffalo City Metropolitan Municipality.

Role: Responsible for completing environmental reports, conducted public participation, managed stakeholders etc as part of the project team for this project and as a Candidate EAP (Reg no. 2019/743) under the mentorship of Registered EAP Megan Hugo (Reg no. 2019/1530).

- 2022- Rehabilitation and invasive alien maintenance management plan for the illegal clearing activities on Farm 3/599 (B29), Thornpark, East London.

Role: Responsible for rehabilitation plan compilation and GIS mapping.

- 2023- S24G application and assessment for the rectification of unlawfull activities accompanying some clearing activities on PTN 3 Farm 599 (Farm B29).

Role: Responsible for completing all environmental reports, conducted all public participation, managed stakeholders etc.

- 2023- Environmental Screening of iThemba Childrens Home on PTN 21 of Farm 724, GKLM.

Role: Responsible for all environmental reports compilation and GIS mapping.

- 2023- Basic Assessment for the Proposed Memorial Park and Private Cemetery on PTN 14 of Farm 807, Gonubie, Buffalo City Metropolitan Municipality.
Role: Responsible for completing environmental reports, conducted public participation, managed stakeholders etc as part of the project team for this project and as a Candidate EAP (Reg no. 2019/743) under the mentorship of Registered EAP Megan Hugo (Reg no. 2019/1530).
- 2023- Environmental Legal Compliance Audit and Legal Register for Jendamark Automation Pty Ltd.
Role: Responsible for conducting interviews, performing site visits and conducting audit and compiling the compliance audit and legal register for Jendamark.
- 2024- Basic Assessment for Proposed Kurland Road Service Center on ERF 1083, Redhouse, Nelson Mandela Bay.
Role: Responsible for completing environmental reports, conducted public participation, managed stakeholders etc as part of the project team for this project and as a Candidate EAP (Reg no. 2019/743) under the mentorship of Registered EAP Megan Hugo (Reg no. 2019/1530).
- 2024- Independent review and Audit for Super 4 Development for the Proposed Malabar development, on Erf 1946, Port Elizabeth in the Eastern Cape.
Role: Responsible for the investigation, analysis and review of the Basic Assessment conducted and compiled the audit report based on the findings.
- 2024- Section 21 Water Uses pertaining to the Nelson Pearson properties near Colchester, Sundays River, Sarah Baartman District.
Role: Responsible for the interview, investigation of WULA specifications and compiled the WULA Due Diligence report for submission.
- 2024-Environmental Audits of Marselle 500 Development Civils Contract in compliance to the Section 24G Authorisation for the rectification of unlawful activities accompanying the Marselle 500 Housing Project.
Role: Responsible Environmental Control Officer for the year of 2024 up until September 2024
- 2025- DWS Compliance Audit, Environmental Management Plan and Rehabilitation Plan for Purple Rain Properties Pty Ltd, Peddie Motors Development on Erf 13070, Peddie, Eastern Cape.
Role: Responsible for conducting interviews, performing site visits and conducting audit and compiling the compliance audit report, EMP and Rehabilitation Plan for Purple Rain Properties No. 63.

**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2019/743

Herewith certifies that

NICOLA LEAH MONKS

is registered as an

Environmental Assessment Practitioner

**Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).**

Effective: 01 March 2025

Expires: 31 March 2026

Chairperson

Registrar





herewith certifies that
Nicola Leah Domoney
Registration Number: 121556
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)
Environmental Science (Candidate Natural Scientist)

Effective 13 November 2019

Expires 31 March 2026



Chairperson

Chief Executive Officer





**Nelson Mandela
Metropolitan
University**

*This is to certify that, all the requirements
having been met, the three-year degree*

Bachelor of Science

Majors: Botany and Zoology

with all the associated rights and privileges, was conferred upon

Nicola Leah Domoney

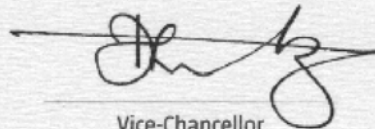
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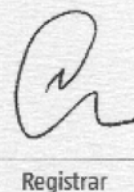
at a congregation of the Nelson Mandela Metropolitan University on

14 APRIL 2016

Certificate no.: 20161064




Vice-Chancellor


Registrar



**Nelson Mandela
Metropolitan
University**

*This is to certify that, all the requirements
having been met, the degree*

Bachelor of Science Honours
in Botany
Cum Laude

with all the associated rights and privileges, was conferred upon

Nicola Leah Domoney

ID no.: 9310120102086

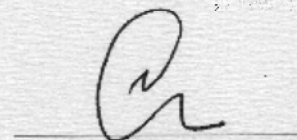
at a congregation of the Nelson Mandela Metropolitan University on

10 APRIL 2017

Certificate no.: 20171015



Vice-Chancellor



Registrar

Proclaimed as Nelson Mandela University, in terms of Government Gazette Number 40090 of 23 June 2016

Folding on this certificate indicates its authenticity

17/1372

NELSON MANDELA
UNIVERSITY

This is to certify that, all the requirements
having been met, the degree

Master of Science

Geography

with all the associated rights and privileges,
was conferred upon

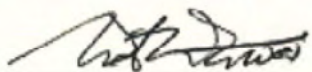
Nicola Leah Domoney

ID no.: 9310120102086

at a congregation of the Nelson Mandela University on

9 April 2019

Certificate no.: 20190744



Vice-Chancellor



Registrar



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